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GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

> "There are no ancient gentlemen but gardeners. . . They hold up Adam's profession."
> *Hamlet*, v. 1.

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On view morning of sale, and catalogues had.

Thursday next.

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Friday Next.

Odontoglossum crispum (Alexandræ) and Cattleya aurea.—By order of Mr. THOMAS ROCHFORD, of Turnford Hall Nurseries, Broxbourne.

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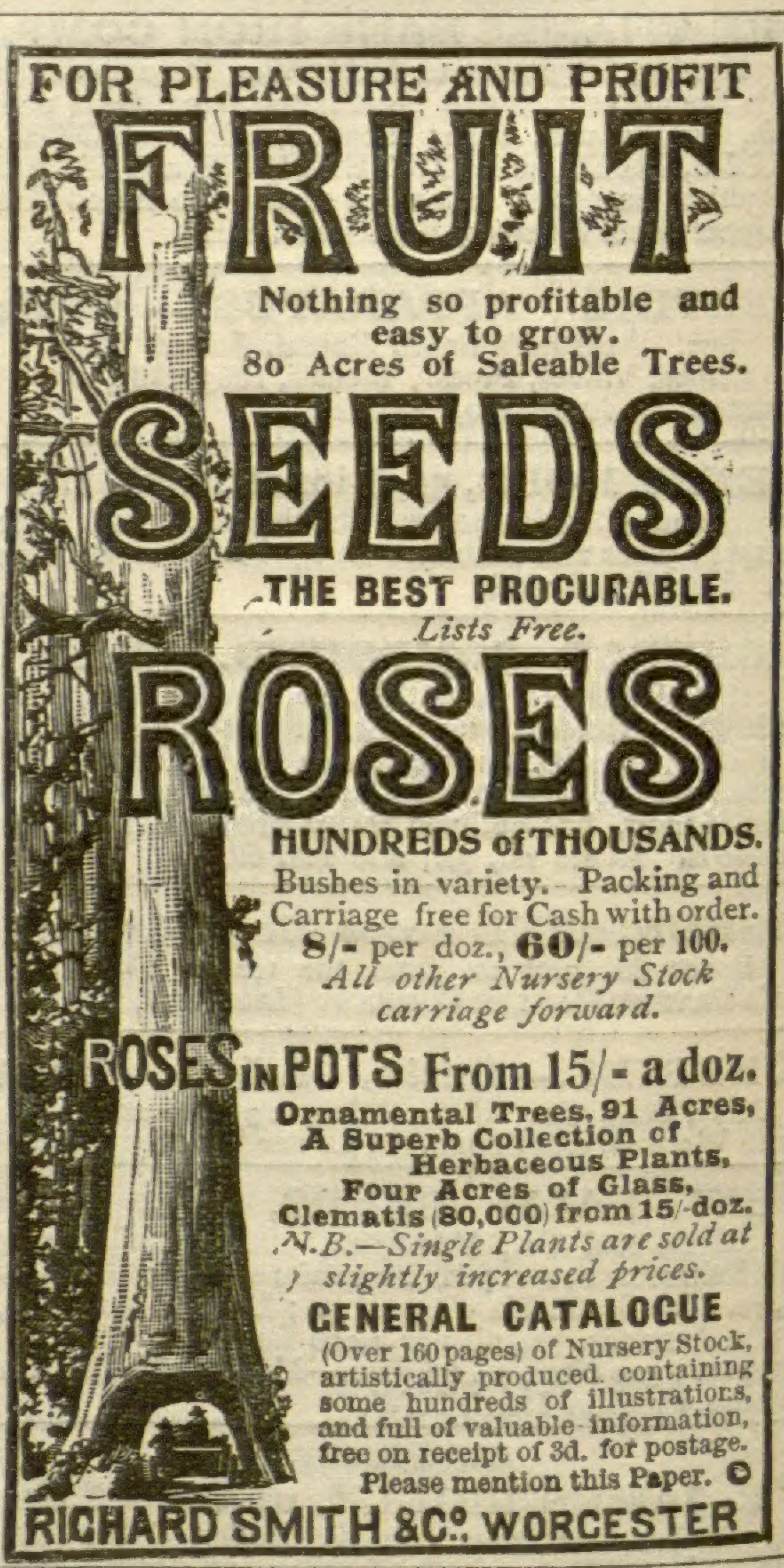

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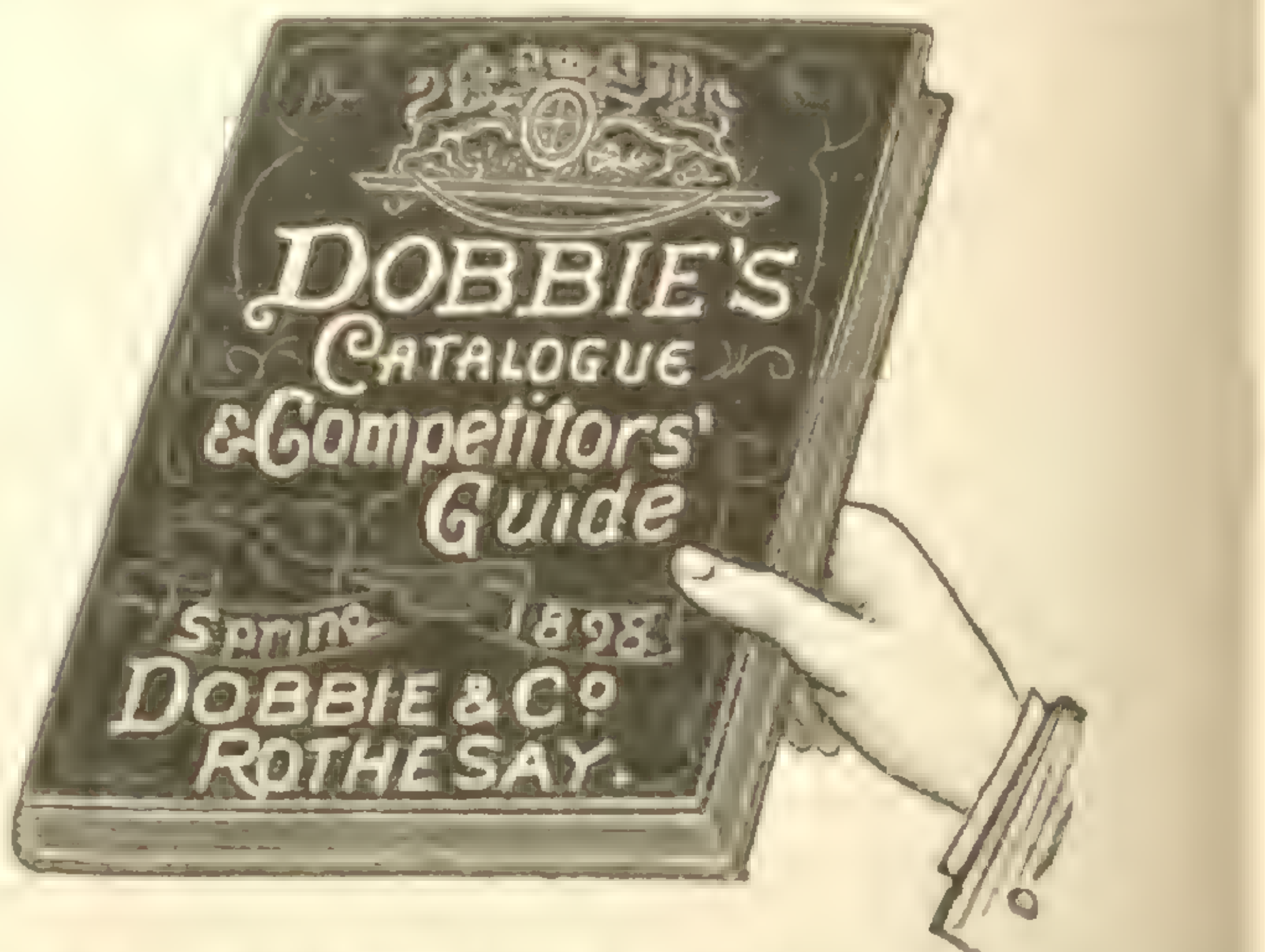

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THE GARDENERS' MAGAZINE.

SATURDAY, JANUARY 1, 1898.

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NOTES OF THE WEEK.

THE NEW YEAR.

The commencement of the new year affects us in various ways, and no one who takes an active interest in the garden, or, indeed, in anything that has a direct bearing upon the welfare of the community, can escape being influenced. In a strictly philosophical view of the matter, one day is as important as another; but the sentimental view of the season is of great practical value, as prompting wholesome reflections and affording a favourable opportunity for making new resolves, and preparing for the conflicts in the world of horticulture that are in prospect. Whether the year on which we have entered will be a good or bad one, as compared with previous years, it is impossible to say; but we enter it with a spirit of hopefulness, and strengthened by the knowledge that there is an expanded and expanding interest in the various aspects of the art of gardening. We have not in prospect any event of exceptional importance to horticulturists within the United Kingdom, but the Ghent Quinquennial, to be held during the coming spring, will afford some compensation, and give our countrymen another opportunity of becoming acquainted with the ornamental aspects of Belgian horticulture. If there are none but exhibitions of the customary character to be held during the year, they will be sufficiently numerous to provide plenty of work for those who take part in them, and of these the most important will be sufficiently comprehensive to ensure an adequate representation of British horticulture. The Royal Horticultural Society will hold the two exhibitions which for several years past have occupied an important position in its annual programme; the special societies, which have greatly increased in strength and activity of late years, will amply vindicate the flowers in which they are respectively interested; and we anticipate with much interest the horticultural gatherings in the great provincial centres. The reward the gardener will obtain for the care and unremitting attention bestowed upon the objects of his care can have no estimate placed upon it at the present time. The year 1898 should be remarkable for its crop of fruit, for last year the crops were in most cases so light as to in no way unduly tax the energies of the trees, and the magnificent weather experienced early in the autumn was so favourable to the ripening of the wood, that the embryo flower buds are so perfect, as to justify a spirit of hopefulness as to the ultimate results, provided the climatic conditions are favourable. So far they have not been such as we could wish; we have had no winter as yet, and if the winter does not come the spring will, and unless some early check is imposed upon awakening vegetation the morning frosts and east winds will not fail to do more or less damage. As this is a season for making new resolves, we would urge upon our readers the importance of being well in advance with all gardening operations, due consideration being in all cases paid to the district, soil, and weather, and to remember that this can only be done when the seeds are purchased early in the year. By ordering seeds now the cultivator places himself in a position to sow the several crops at the proper time, and, what is not less desirable, helps to reduce the strain which late purchases impose upon those engaged in the seed trade. With regard to ourselves there is no occasion to speak at length. The ever-increasing number of readers is the best possible proof that the vigorous policy characteristic of the journal is appreciated by all classes of horticulturists, and with such gratifying evidence of appreciation our readers may be well assured that we shall in no way relax our efforts to maintain the GARDENERS' MAGAZINE in the position it occupies as the foremost exponent of horticulture in the United Kingdom.

VITALITY OF SEEDS.

Notwithstanding the immense advance that has of late years been made in the several branches of biological science, a difference of opinion continues to exist amongst botanists with regard to the condition of the protoplasts of resting seeds, in which signs of life are indistinguishable for a considerable period. On the one hand it is assumed that the essential elements of the cell undergo during the period of inertness some slight, although imperceptible, alteration, with or without a gaseous exchange with the surrounding atmosphere. On the other side it is maintained that metabolism is completely arrested in protoplasm when the seeds are perfectly dormant, and that so long as they remain in that state it has no power of internal adjustment to external conditions. Much might be said on either side in support of the views held, but the results of carefully-conducted experiments appear to show that there is full justification for the opinion held by those who contend that there is during the resting period a cessation of protoplastic activity. The experiments of the late Professor Romanes a few years since have an important bearing upon this point. Professor Romanes submitted in glass tubes various seeds to high vacua for a period of fifteen months, and other seeds were subjected to high vacua for three months, and then transferred to other tubes charged with various gases, and it was found that neither a high vacuum nor exposure for a year to either of the gases employed had any appreciable effect upon their germinative power. The experiments of Romanes proved to demonstration there could have been no respiration, but they were hardly conclusive with regard to chemical interactions within the cells, and to clear up this point Messrs. H. T. Brown and F. Escombe subjected seeds of twelve plants of widely different character to a temperature below that at which chemical reactions take place. From a recent communication to the Royal Society we learn that the seeds of Avena sativa, Convolvulus tricolor, Cucurbita Pepo, Cyclanthera explodens, Funkia Sieboldi, Helianthus annuus, Heracleum villosum, Hordeum distichon, Lotus tetragonolobus, Pisum elatius, Impatiens balsamina, and Trigonella fœnum-græcum, were selected for the purpose of experiment. Through the kindness of Professor Dewar in putting his laboratory at the disposal of the experimentalists, they were able to ascertain how far the subsequent germinative power of the seeds is affected by prolonged exposure to the very low temperature of liquid air. The seeds, we are told, "were enclosed in thin glass tubes, were slowly cooled and immersed in a vacuum-jacketed flask containing about two litres of the liquid air, which was kept replenished so as to submit the seeds for one hundred and ten hours to a temperature of from 183 to 192 degrees Centigrade." After this treatment they were slowly thawed, a process which occupied about fifty hours, and it was subsequently found that after having been submitted to this low temperature, they germinated as freely as seeds from the same stocks that had not been treated. The great value of the low temperature experiments carried out by Messrs. Brown and Escombe, consists in the fact that processes of autoxidation are rendered impossible at the temperatures to which the seeds were subjected, and consequently the protoplasm in resting seeds is regarded as existing in an absolutely inert state, devoid of any trace of metabolic activity, and yet conserving the potentiality of life. These experiments are of importance as indicating the possibility of maintaining the perfect stability of protoplasm when once it has reached the resting state, provided the low temperature is maintained, or in other words, of keeping the seeds for an indefinite period, without their vitality being impaired.

WORMS.

Although worms are a great nuisance, and do a large amount of harm when they intrude into the horticulturist's pots and pans, upsetting and burying his choicest seedlings, and disturbing and weakening larger plants by burrowing among their roots and choking up the drainage, they, like many other nuisances, are highly beneficial agents in their proper place, which in this case is the open soil. At this season of the year especially it is wonderful to observe how speedily the fallen leafage disappears from the surface. The dead leaves may be lying an inch thick about the garden one week, and the next, without the aid of a broom or rake the bulk, if not all, will have been silently drawn down the myriad burrows of the ever-busy worms. It is very interesting to watch the process, though the would-be observer must go gently about on tiptoe unless he wishes to see a number of rapidly-vanishing heads instead of the worms busily engaged in the work in question. Adopting this precaution, or waiting quietly awhile to restore confidence, we shall see the pointed heads gradually emerge, or re-emerge, and after giving it a tentative swing round Master Worm will slowly lengthen out, bit by bit, his tapering snout so to speak feeling the way until presently a leaf is reached. Then begins a series of pulls and tugs, until literally hook or by crook, the dainty morsel is drawn to the hole. Now commences the serious business of getting perhaps a stiffish two-inch morsel into a cavity only a quarter of an inch across. Getting the edge close to the cavity, a succession of pulls gradually curls up the leaf in a sort of funnel, and this once done the rest is easy, and the leaf is buried, eaten, and digested at leisure. Clearly, were not some such provision as this to exist, the surface soil would become simply covered by the decaying leaves, choking its aerating cavities and breeding stagnation instead of the active life which is encouraged by this method of conveying the leaf material in an easily assimilated form once again to the roots. It is therefore, to be regretted that the cultivation has been advocated of worm-eating slugs (Testaculas), for the purpose of destroying these (in their proper place) beneficial creatures. Already the race, prolific as certainly is, has enemies galore; many carnivorous insects besides Testacella, as, for example, the centipede, prey upon the worm, and the whole host of birds combine in considering it a tit-bit, so that the industrious leaf-sexton has good need to exercise caution before stretching his full length from his burrow to find a meal which nothing else but a fungus would be able to thrive upon. Taking the worm altogether, it is certainly a most ill-used animal all round, his special and proper domain is ploughed, and harrowed, and dug, and hoed, in such a drastic fashion, that he is liable at any moment to be crushed, cut up, and otherwise demolished to such an extent that beneficent Nature has hindered his extinction by rendering his cleanly-cut sections capable of regenerating fresh heads and tails, and so starting anew as a family instead of becoming a defunct individual. Then, besides the energetic gardener and agriculturist, he has to pay tribute to the angler in an exceedingly unpleasant fashion; and although we may assume that his nerves are no quite so sensitive as our own, it is extremely doubtful if any sense of gratitude is felt when the truant schoolboy shirks his proper studies in order to "teach the worm to swim," with a bent pin or a barbed hook to aid it in its first atempt at natation.

PRUNING ORNAMENTAL TREES.

In a note, entitled "Beauty in a Tree," which appeared in our issue of November 20, it was pointed out that upon the amount of intelligence the pruner, now at work in the suburbs, puts into his work, will depend the beauty of the tree next summer. We are reminded of the dark ways of some tree pruners by what was once a magnificent line of elms on the border of an open space in a charming village in one of the home counties. The trees were all topped at varying heights; in some cases several feet of naked stem, denuded of branches, were left standing above the lower branches; and for years these trees were unattractive objects, and they have never recovered from the cruel and unnatural treatment to which they were subjected. We suppose that the pleasure some persons appear to find in the trimming of ornamental trees in this sad fashion is based upon a feeling that trees growing in a quite natural way must be capable of some improvement by art; and as pruning is usually acknowledged to be useful in developing certain points in a fruit tree, a like good purpose will be served by the free use of the knife and saw upon an ornamental tree. But the comparison does not hold good, since the objects aimed are essentially different. Pruning, at least all useful pruning, as applied to fruit trees, is for the purpose of adding to, diminishing, or otherwise regulating the fruitfulness of the tree; and this, in many cases, is effected to the acknowledged diminution of the growth, luxuriance, and beauty of the tree, so far as spread of branches and prodigality of foliage go. But even here, the pruner who prunes only for the sake of using the knife, not unfrequently goes too far, prevents the perfect maturity of the growth, and hastens the decline of the tree by depriving it of the fair proportions which Nature has established between the leaf and the roots. We imagine that the practice complained of is a want of perception of what is really beautiful in an ornamental tree. It seems to be indisputable that no one who has any perception of what is really beautiful in Nature could ever doubt for a moment that a fine elm or oak, which has never been touched by the knife, is the most perfect standard of sylvan grace, symmetry, dignity, and finely-balanced proportions that it is possible to conceive. A pollard willow should be the very type and model of beauty in the eye of the champion of the indiscriminate use of the pruning saw. What Nature has specially shaped for the delight of the eye, and as a fine suggestion to the spiritual sense, can be seen in a beautiful tree, and man should not lightly undertake to remodel, or clip away any of its fair proportions.

The Gardening Year Book for 1898 is now published, and may be obtained through the usual channels in any part of the United Kingdom or direct from the office, as may be desired. As this highly-popular publication has reached its fortieth year it is by far the oldest of the annuals relating to gardening, and a glance at its well-filled pages will be sufficient to show that there has, in the preparation of the edition for the current year, been a full appreciation of the requirements of both amateur and professional horticulturists, and also that no effort has been wanting to maintain the remarkable degree of popularity the publication has enjoyed for so long a period. As in previous issues the plants, flowers, fruits, and vegetables introduced during 1897 are concisely recorded, the year's work in the garden is fully discussed, and a new set of reminders for the daily work has been prepared for the almanack pages. In a series of brightly-written chapters the management of the conservatory, greenhouse, orchid houses, fruit houses, flower garden, orchard, kitchen garden, and indoor and outdoor ferneries is dealt with, and under separate headings the cultivation of all the more important plants, flowers, fruits, and vegetables is fully described and the most distinct and useful varieties enumerated. The directories of horticultural societies and public parks, which have formed such popular features since their introduction a few years since, have been thoroughly revised, and are remarkable for their completeness and accuracy. The work is freely illustrated, the illustrations including coloured plates of popular plants.

The Eastern Thorn.—Mr. E. Beckett, of Aldenham House Gardens, writes, in reference to this handsome thorn: I was much interested in reading your notice of Cratægus orientalis in your issue for December 25 last, especially as we have two very fine specimens here, which were planted between fifty and sixty years ago. It is unquestionably one of the most effective of the thorn family, but to ensure justice being done to it, the trees should be planted in an isolated position on the lawn as here. The flowers are beautifully scented, and during May, when the trees are in flower, and again in autumn, when covered with the fine showy fruit, they are most attractive, and always much admired by visitors. Another species, C. punctata, planted here at the same time, although much more robust in growth, and requires more room, is nevertheless worthy of being planted much more extensively than has yet been the case; it is more pendulous in habit of growth than the first named, and when covered with its large red fruit during autumn it forms an object of much interest.

Plant Transpiration.—For some time past Mr. Henry H. Dixon, of Trinity College, Dublin, has been endeavouring to decide whether the energy used in raising the water of the transpiration current is derived solely and directly from the inflow of heat at the evaporating surfaces of the leaf-cells, or whether stored energy (*i.e.*, vital force) is in any way responsible for work done. It has been observed that plants transpire into a space saturated with moisture. But Mr. Dixon states in *Nature* that he is not aware that it has been pointed out that this transpiration will continue when no light falls on the leaves. Without this precaution we cannot assume that the space is really saturated at the surface of the leaves; for they will convert some of the light into heat, and so lower the state of saturation at their surfaces. In his experiments small leafy branches were cut and set in a watery solution of eosin under a glass receiver. Beside the vessel containing the eosin, and under the receiver, a beaker filled with boiling water was placed. The receiver became immediately filled with water vapour, and, as the space was continually falling in temperature, owing to the cooling of the beaker, it remained always in a state of saturation. These arrangements were made in a feeble light, and then the receiver branch and all were set in total darkness. It is to be mentioned that a wet board cut off the direct radiation of the beaker from the branch. After an hour it was found that the eosin had risen into the leaves of the branch. In order to ensure that this rising was not due to reduced air pressure, previously obtaining in the water conduits of the branch, experiments were made in which any reduced pressure was equalised by setting the branch for one hour standing in water under the receiver, before setting it in eosin. The same result was obtained in these cases. The raising of the eosin in this experiment seems probably due to a pumping action in the cells of the leaf, depending upon vital processes taking place there. This surmise is confirmed by the fact that the elevation of the eosin does not take place in a saturated atmosphere if the leaves have been killed. This may be proved either by leaves killed by immersion in water at about 90 degrees C., or by exposure to chloroform vapour. If the pumping action be a "vital" process we would expect it to be dependent upon a supply of oxygen, like growth and grotropic curvatures, &c. Mr. Dixon, in fact, found this to be the case. Thus a branch wholly surrounded by water will draw up eosin from a vessel below, if exposed to light. The raising of the eosin will be but little if the light be cut off from the submerged branch. The action of light supplies the leaves with oxygen set free by assimilation; in the dark, however, the leaves can only obtain the small amount of oxygen dissolved in the water, and perhaps a little, too, derived by intramolecular respiration. With this limited supply the elevation of the eosin is inconspicuous. The oxidising processes taking place in the leaf-cells must bring about some minute rise in temperature. This will, of course, favour evaporation. But Mr. Dixon believes that this effect would be far too small to account for the whole phenomenon of transpiration into saturated spaces. That a very considerable amount of the pumping action is located in the leaves, may be shown by employing large leaves set upright in the eosin. It will be found that in a dark saturated space the veins of such large leaves severed from the stem will quickly become injected with the colouring fluid.

Diseased Hellebores.—Some badly diseased plants were received by the Scientific Committee of the Royal Horticultural Society from Mr. F. W. Burbidge, Trinity College Gardens. They were submitted to Kew for examination, and have been reported upon as follows: "Phoma effusa, Desm., is the name of the fungus attacking the hellebores. The diseased portions should be removed and burned, as at this season the fungus is producing myriads of spores, which live as saprophytes on humus in the soil for some time before they are capable of acting as parasites. The hellebore shoots of next year will be infected by these spores. The above alternation from a parasitic to a saprophytic mode of life enables the fungus possessing one form of fruit only, as in the present instance, to tide over the period during which its host plant is not actively growing. Spraying with a solution of potassium sulphide (one ounce to three gallons of water) when the leaves first appear next season would to some extent prevent the chances of inoculation from floating spores."

Forestry Essays.—The English Arboricultural Society offers medals for essays on the following subjects: (1) The planting, maintenance, and management of a plantation for the first twenty-five years, on (*a*) maiden land, (*b*) land previously planted; (2) The felling and barking of oak or larch timber, and the best modes of drying, housing and stacking, and preparing the bark for delivery to the tanneries; (3) The different methods adopted in the measurement of standing and felled timber, with diagrams, if possible; (4) Original observations on any diseases attacking forest trees not yet thoroughly investigated; (5) The destruction of the insects most injurious to forest trees not yet reported on, and coming under the notice of any individual member in England; (6) The results of any experiments having a practical bearing upon forestry; (7) The best method of reclaiming, draining, and replanting bog land, and the most suitable variety of trees to plant. The competition for the medals for the first two essays is limited to assistant foresters, but for the remaining essays the competition is open.

Select Cactus Dahlias.—Through the courtesy of Mr. J. F. Hudson, honorary secretary, we have received the select list of cactus dahlias for 1898 prepared by the National Dahlia Society. The varieties enumerated are Alfred Vasey, Annie Jones, Annie Turner, Arachne, Beatrice, Bertha Mawley, Britannia, Capstan, Chas. Woodbridge, Cinderella, Countess of Gosford, Cycle, Daffodil, Delicata, Earl of Pembroke, E. J. Deal, Fantasy, Fusitier, Gloriosa, Harmony, Harry Stredwick, Iona, Island Queen, J. E. Frewer, Juarezi, Keyne's White, Lady Penzance, Mary Hillier, Mary Service, Matchless, May Pictor, Miss A. Nightingale, Mrs. A. Beck, Mrs. A. Peart, Mrs. Barnes, Mrs. Gordon Sloane, Mrs. H. Cannell, Mrs. John Goddard, Mrs. Leopold Seymour, Mrs. Montefiore, Mrs. Wilson Noble, Night, Regulus, Robert Cannell, Starfish, Tillie, and Violet Morgan.

Useful Scale Insects.—The scale insects with which cultivators in the United Kingdom are familiar are so injurious to fruit trees and ornamental plants growing under artificial conditions that all the members of the group have come to be regarded as pests. This, however, is not the case, for, as pointed out by Dr. Howard, several possess considerable economical value. For many years the cochineal or cactus scale insect (*Coccus cacti*) was used as the basis of an important red dye, until superseded by the introduction of aniline dyes. In the same way the European Porphyrophora was used in the production of a purple dye. In addition to the dye insects, we have the Lac Insect (*Tachardia lacca*), which produces nearly all of the shell-lac, stick lac, and button lac of commerce. This species is Asiatic in its distribution; but in the south-west States of America, upon the very abundant creosote bush, a lac insect occurs in an enormous quantity, the commercial possibilities of which have not been developed. This is Tachardia larreæ, which has been known to science only since 1881, but was long prior to that time known to the Indians, who for many years have been in the habit of collecting the scale insects and forming them into more or less elastic balls, which their runners were in the habit of kicking before them as they journeyed from one point to another. Again, a pure white wax, secreted by the Chinese and Japanese *Ericerus pé-la* and by the Indian *Ceroplastus ceriferus* is of considerable commercial importance, and is much used in the Eastern countries, both in the making of wax candles and in medicine. The Chinese wax has high illuminating power, and resembles beeswax in its chemical composition. Dr. Howard also calls attention to the fact that in the far south-west of the United States there is a wax insect (*Cerococcus quercus*) which apparently needs careful investigation from the commercial point of view. Three species of oak are recorded as offering food for this insect, and Dr. Howard recently received specimens of the insect from California. They were not sent in position on the twigs, but had been compressed together into a more or less pliable lump, somewhat resembling a lump of india-rubber, but not possessing the same elasticity. The substance, it is remarked, makes an admirable chewing material, as it readily takes and long retains flavours.

Holly with Red and Yellow Berries.—Mr. C. Turner, Slough, sent some sprays of holly to R.H.S. Scientific Committee, on which he remarks, "They are cut from a large tree which retains its berries for two years. The berries are yellow in the first year, but change to red in the second year." As no seasonal break was distinguishable between the group of yellow and that of the red berries below it on the same stem, some doubt was expressed, and some further information desired. This Mr. Turner has kindly promised to furnish.

Public Gardens in Jamaica.—A history of the public gardens and plantations in Jamaica is contributed to the "Proceedings" of the Botanical Society of America by Mr. W. Fawcett, the director. From this we learn that the first botanic garden in Jamaica was formed about one hundred and fifty years ago by a private individual, Mr. Hinton East, on his property near the present village of Gordon Town, nine miles from Kingston. It was shortly afterwards taken over by the Government, and two gardens established. But it was only within about the last thirty years that a serious attempt was made, under Sir J. B. Grant, to make the gardens of economic value to the Colony, during which time much has been done to determine what foreign importations are most suitable to the climate. There are now six larger or smaller gardens, viz., The Parade, King's House, Hope, Hill, Castleton, and Bath Gardens, varying greatly in their climatal conditions. Mr. Fawcett estimates that the native flora of the island includes about four hundred and fifty ferns, and two thousand one hundred and eighty species of flowering plants.

From Mosses to Begonias.—It is interesting to note that Mr. John Laing, V.M.H., whose portrait was given in our recent plate of medallists, was the recipient of his first honour exactly fifty years ago. In 1845 the Royal Caledonian Society offered a silver medal, to be competed for in 1847, for the best collection of mosses indigenous to Scotland. Mr. Laing, then a promising young botanist, entered the lists, and from February to August, 1847, he carried on his investigations, confining his researches to within a ten-mile radius of Edinburgh, and gathered a remarkable collection, including many rare species. This complete collection Mr. J. Laing, sen., still preserves in its original form, bound in a thick demy octavo volume, and entitled "A Fasciculus of Mosses, collected in the vicinity of Edinburgh from February to August, 1847." The young botanist was awarded the coveted medal as a result of two years' painstaking and persistence. Mr. Laing recently confessed that although, acting under the influence of the repeated counsel of horticultural friends, he developed into a nurseryman, his "first love" was botany; notwithstanding which, however, his success in the wider field has fully justified the devotion of his maturer years.

Rats and Brussels Sprouts.—It is probable that the good folk of Langley Bucks, will petition for a local relaxation of the dog-muzzling order, so that their four-footed friends may assist in putting down the plague of rats. Green crops in many gardens have been eaten up entirely, and others partly. The station-master at Langley has lost a fine crop of Brussels sprouts, the buttons having been cleared by the rats as completely as if picked by hand.

Mistletoe and Holly have been sold in enormous quantities this season, together with other evergreens suitable for Christmas and New Year's decorations. The greater part of the mistletoe comes from Brittany, Cherbourg, and St. Malo; a considerable quantity coming from the Channel Islands, and a good supply of home-grown from Worcestershire and Gloucestershire. The holly that finds its way to Covent Garden comes chiefly from Sussex, Bedfordshire, and Surrey. Christmas trees, that cause so much enjoyment to the young, come from various centres; Belgium supplies enormous quantities, as does the Woking district of Surrey. In the North of England and Scotland the tops of pines large enough for timber are cut and distributed widely to supply the large demand for Christmas trees.

The Allotment Holders of Eynsford had a busy evening recently on the occasion of an exhibition of produce, the distribution of prizes, and the conclusion of a series of lectures on horticulture by Mr. W. P. Wright. Mr. Henry Cannell occupied the chair, and presided over an attendance of more than a hundred. Mr. Wright alluded to the admirable movement initiated by Sir Percival Hart-Dyke about seventy years ago in the terms of his first agreement with the allotment holders of Eynsford, viz., that the ground must be kept clean, regularly manured, and well tilled. The great interest of the evening was the presentation of a silver cup, given by Mr. H. M. Pollett, to Mr. William Howard, aged 81, who can probably show a longer tenure of an allotment than any other man in the kingdom. The cup records the jubilee period of sixty years, but Howard has held his allotment for sixty-six years, and has in it a fine Winter Quoining apple that he planted sixty years ago. Mr. H. Cannell, sen., in making the presentation, congratulated the recipient, and expressed a hope that so excellent an example would not be lost on those present. There was a first-rate exhibition of vegetables, fruit, including some of Howard's Winter Quoining apples, honey, and preserves from the hundred allotments Eynsford now possesses. Mr. Cannell distributed the prizes, and a pleasant gathering concluded with a vote of thanks to Mr. Wright, Mr. Pollett, Mr. Cannell, and to Mr. E. D. Till, the energetic local secretary of the technical education classes.

A New Spidery Chrysanthemum has been obtained by Messrs. H. Cannell and Sons, Swanley. It is a late-flowering and pure white sport from the elegant variety named Mrs. Filkins, and is an improvement upon the parent in size and substance. The tubular florets are much divided towards the apex, and thus the whole bloom is extremely graceful and unique, available alike for bouquets, wreaths, buttonholes, or table decoration during the Christmas season, for the flowers appeal not alone to lovers of the curious. The blooms sent us by Mr. H. Cannell reminded us of a particularly fine form of the pure white Sweet Sultan, and they certainly were as suitable in a cut state, with the advantage of being in season in December. We have every confidence that spidery chrysanthemums have a great future, and are sure that the white Mrs. Filkins will give the necessary impetus to their cultivation.

Flowers and Insects.—A short time since we directed attention to Professor Plateau's observations of the way in which flowers attract insects, from which he inferred that the presence or absence of brightly-coloured corollas possessed little or no influence on their insect visitors. These researches are now concluded, and he states that repeated experiments on seventeen species of plants, all anemophilous, prove that it is sufficient to place on the greenish or brownish inconspicuous flowers some artificial nectar, represented by honey, in order to attract numerous insects. Moreover, it appears from Professor Plateau's personal observations that insect visits, often frequent, have been observed on ninety-one forms of entomophilous plants having flowers devoid of conspicuous colour, viz., forty-one with green, thirty-eight with greenish, and twelve with brown or brownish flowers. The author has verified the coloration for seventy-two of these plants, and has himself observed the visits of insects to sixty-three, or more than two-thirds of them. Professor Plateau concludes that insects are little affected by the presence or absence of brilliantly-coloured floral organs; what they seek is the pollen or nectar, and in finding these their sense of vision is merely accessory; while, on the other hand, they are guided with certainty by some other sense, which can only be that of smell.

The Cultivation of the Strawberry was the subject of an instructive paper by Mr. H. Dunkin, read at the monthly meeting of the Birmingham Gardeners' Association. A brisk discussion followed the reading of the paper, and a hearty vote of thanks was accorded Mr. Dunkin and Mr. J. Hughes, who presided.

A Hybrid Blackberry is figured and described by an American contemporary under the name of the Mammoth Blackberry. It is said to be a hybrid between Rubus ursinus, the common wild Blackberry of California, and the Texas Early, a form of Rubus villosus, recently obtained by Judge J. H. Logan, of Santa Cruz, the originator of the Loganberry. The Mammoth, which is a cross between two plants, which produce medium-sized fruit, curiously bears berries of immense size, fruits two and three-eighths of an inch in length being common. The canes of the Mammoth are large and thickly covered with small short spines; starting early in March, they grow thick and stout until about five feet high, and then becoming pendulous or semiprostrate, grow from twenty-five to thirty feet more during the season; late in the autumn the tips of these shoots take root. Producing no adventitious root-buds, this variety cannot be propagated by root-cuttings, and the only way to multiply it is by means of stolons. The Mammoth begins to grow and flower early in the spring and ripens its fruit at Santa Cruz the last of May, or some weeks earlier than the Lawton. The flavour of the fruit is described as more acid than that of the Lawton, but when perfectly ripe is said to be sweet; when cooked or canned the flavour is identical with that of the fruit of the wild California Blackberry, which is excellent, although, owing to its poor bearing qualities, it is rarely cultivated.

A NEW YEAR'S GREETING.

WHEN my good friend the Editor, in his most insinuating tones, asked me if I would not write a message for the new year, I felt very much like the fly in the fable, who was wheedled by the flattering words of the spider to enter the pleasant house he had prepared for him, and I now feel like the same poor fly buzzing about not knowing what he is to do. I am, however, bound to say something, and I must be contented to bear all the scolding that may be heaped upon me and the Editor for taking up valuable space.

In looking back upon the past year, so memorable in the annals of our country, the first thought that strikes one is, How has horticulture fared in the Jubilee rejoicings? There were several attempts made to connect the two together, but somehow or other most of them fell flat; it would have been a grand notion to have carried out the idea of building a Jubilee Hall for Horticulture, as suggested in the pages of this journal; it was one environed with difficulties, and I think it must be admitted is a lasting disgrace to all those in the metropolis who are supposed to be deeply interested in horticulture that the opportunity offered a few years ago of securing a site for such a building was not seized upon, for this is the great difficulty which confronts all those who wish to see the idea carried out. There is, however, one exception to this failure, and that was the action of the Royal Horticultural Society in instituting, with the Queen's consent, the Royal Victorian Order of Merit for Horticulture. As it has been explained, the selection of the sixty recipients of the honour did not owe that position entirely to the action of the Council, horticulturists in all parts of the kingdom were invited to forward lists of those whom they considered most worthy, and it was relying on those lists and their own knowledge that the Council made the selection. Of course there are a number of virtuous people who are above all such petty distinctions, and who ridicule those who have gladly received the order; but, with all that, I believe as time rolls on the initials V.M.H. will be looked upon with more and more favour.

It is needless to enter into details upon the many subjects which the pursuit of horticulture brings before us, but there are a few which have particularly struck one during the past year; thus, for instance, there has been a marked increase in the taste for decorative gardening, and I think that there are dangers connected with it. The bedding-out system, which had so carried away people for many years, had grown more and more into disfavour, and deservedly so; it is still well adapted for public parks, but has been more and more abolished in private gardens, while at the same time on all hands it is said we want decorative flowers. Is it the narrow-mindedness of an old florist that makes me nervous when I see the extremes to which this is carried? Take for example two flowers in which I have ever been deeply interested, the carnation and the rose; with regard to the former the old florists' varieties are giving way in many a garden to what are called the border and fancy varieties, but it will be an evil day when the old bizarres and flakes, which used to rejoice us, have to give place to those of modern introduction. It is just possible that the over-dressing of the show flowers may have led somewhat to this; for it was often said, and I fear with some degree of truth, that no matter how well you might grow your flowers if either you or some one you employed could not dress them you stood but little chance of obtaining a prize. There was a good deal of truth in this, but I think the main reason for their supersession was the more showy character of the fancy varieties, which made them so much more conspicuous and effective in the garden than the older kinds. The same holds good with regard to the rose; there is a fashion for running down the old well-established favourites, calling them fat and over-fed, and I know not what, and we are exhorted to give more attention to the "dear old garden varieties." It may be all very well for those who have got tired of exhibiting, or have found themselves put into the background by successful competitors, to take up this cry; I am not dead to the beauty of many of these garden varieties, they are well adapted for large places where all varieties of the rose may be cultivated, but woe to the day when they supersede the exhibition kinds—when Charles Lefebvre and Marie Baumann, or Madame Gabriel Luizet are sneered at, and we are told we must grow instead Bardou Job, Gustave Regis, or Macrantha.

So again it is with the dahlia. It is the cactus varieties which now seem to find favour, which in former years would have been discarded as ill-formed, and the beautifully-modelled old flowers are now to be relegated to a back seat; we are a people fond of extremes. Some years ago we ran after single dahlias, but these have been pushed on one side, and now we are on a different track. Well, it is all good for trade, and so we must look for a change by and by. There is another point which the past year has brought prominently forward, and has occasioned, and justly so, strong animadversions, the excessive multiplication of awards for these flowers. When I see that between sixty and seventy honours are given to the chrysanthemum and between forty and fifty to the dahlia we must be sure there is something wrong. The former flower honours were given to those of a wishy-washy colour; and one may well ask, Can these be distinct, and can anyone hope to keep up with such an outrageous number? Of course chrysanthemum growers feel that there are too many new varieties honoured, but there seems to be a sort of moral fibre wanting to stem this torrent.

I do not think that there are any symptoms of an abatement in the love for flowers amongst us; quite the contrary, it seems to be increasing every day, and the difficulty now is to keep pace with the demand. Everywhere they are to be met with; they brighten up our wedding festivities and our dinner tables; we use them to signify our tokens of respect for those who are gone, although I cannot but feel that this is overdone, for when one reads that at the funeral which took place the other day, of the late Mr. Terris, whose tragic death attracted such general sympathy, six vehicles were required to carry the wreaths and other decorations which had been sent in, we may well ask, Is not this going too far?

It is somewhat curious to note how fashion changes with regard to flowers. Many years ago a well-known London nurseryman asked me, "What flowers shall we go in for now?" and then added, "I think I shall take up the tuberous-rooted begonia," and we know what marvellous results were attained; but now they have reached such a state of perfection that very few persons think of growing the named varieties, as nearly as good are to be obtained from mixed seed. The dwarf-flowered cannas have lately been much exhibited, and unquestionably these are very ornamental and useful. Good results have already been obtained by the hybridiser, and knowing what good things have resulted in other flowers we may hope to see still more brilliant results, not only are they useful for the garden in autumn, but they are eminently suitable for pot culture. The taste for herbaceous and Alpine plants shows no sign of diminution, and although no very remarkable new species have been introduced of late, yet more knowledge as to treating those we have has been acquired, and many who have had to deplore failure can now speak of success. Probably the most striking of herbaceous plants of late years have been the eremuri and ostroskia, and we are continually hearing of the successful cultivation of both of these, large numbers being annually raised from seed. Orchids still hold the palm amongst stove and greenhouse plants, and when one sees the number of lælias, cattleyas, and cypripediums which are yearly honoured with decorations the question comes home whether the complaint that there are too many of these awards is not correct, just as in the case of the more plebeian chrysanthemum and dahlia.

The closing days of the year bring with them many a sad and painful memory, and it is one of the sorrows of old age that we have to look back and see what vacancies time has made. During the past year several well-known horticulturists have passed away, many of them at a ripe old age, others prematurely cut off. Of the former two stand prominently out—Dr. Robert Hogg, for many years editor of the *Journal of Horticulture*, and author of the standard work on fruit, "The Fruit Manual." He was so constant an attendant at the meetings at the Drill Hall that he has been much missed, for his wide and extensive knowledge was ever available in the deliberations of the Fruit Committee; it is a pleasant thing to think that his memory will be kept alive in the quarter where he would have most wished; friends have had a die cast for a Robert Hogg memorial medal, which will be given to the Royal Horticultural Society, who will from time to time award the medal for successful exhibits in fruit. The other was Mr. James Bateman, at one time, in the early days of orchid growing, the most successful cultivator, and whose beautiful place at Biddulph Grange afforded one of the best examples of tasteful and successful horticulture in the kingdom. Colonel Trevor Clarke was another well-known character. He was fond of scientific horticulture, and was the author of many experiments, which he carried out with great skill. Mr. Head, the garden superintendent at the Crystal Palace, succumbed after a long and most painful illness, which had drawn out the sympathy of those who had been wont to admire his energetic management of the various horticultural exhibitions at the Crystal Palace. Two clergymen who did good work in their respective spheres, I mean as far as horticulture is concerned, were the Rev. Charles Fellowes, of Shottesham Rectory, near Norwich, to whom we owe many beautiful varieties of picotees and show dahlias; and the Rev. E. N. Pochin, of Barkby Vicarage, near Leicester, who was at one time one of our most successful rose exhibitors and one of the best judges I ever knew. We are sometimes inclined to question whether in this, as in other walks of human life, adequate successors can be found; we speak of our losses as irreparable, but they are not really so. A great statesman dies or passes out of public life and we are inclined to think the world cannot go on without him; but somehow or other it does, and after a while we become reconciled to the loss; and so in art and science we lose one and another honoured name, but we find their place supplied by those of whom we had thought but little.

Now, let me add one word of exhortation. We have no need of commendation of Francis Bacon, who dilates so well on the pleasures connected with the garden; we cannot have followed our favourite pursuit without ourselves being able to bear testimony to the happiness and pleasure which it has afforded us. Surely it is a pleasant thing to be able to look round continually upon the beauties with which God, our Father in heaven, has endowed our earth, to see in the lowliest flower as well as in the loftiest tree proofs of His handy work. We are sometimes pitied by the town dweller because he thinks our life must be so dull and monotonous; I do not think it can be so where there is a love of Nature in the heart, and when we look out, through the things which surround us, up to Him who is the Maker alike of us and them. And so, my friends, let the words of an old man encourage you to go on; cultivate your flowers with as much energy and intelligence as you can, but ever remember that they are evanescent, and strive to look up to Him who ever used the things around Him, the lily and the corn, to teach the solemn lessons of His holy religion, so that at the last, when your time comes, you may be amongst those who shall be gathered into the eternal kingdom, where, midst the never-withering flowers of the heavenly paradise, you may learn more and more of the power and goodness of Him who calls His people out of darkness into His marvellous light. H. H. D.

Greasebanding Apple Trees.—I am deeply concerned for Mr. H. Clarke's disappointment in not catching any winter moths on his greasebands, but am again solaced by the reflection that probably he has none infesting his trees to catch. It does not at all follow that because there are apple trees there are moths also. There may be or may not be. If there are, and the greasebands are properly secured to the stems of the trees early in the autumn, most of the female moths certainly will be caught. It the grease sets, paint it over occasionally with oil of practically any description, though linseed oil is as good as any. Of course the bands should be secured very tightly to the stems, and prior to doing so, it is well to scrape and scrub the stems so that the paper bands are fixed tight to the stems.—A. D.

THE NATIONAL HORTICULTURAL SCHOOL OF VERSAILLES.

THIS school was founded on December 16, 1873, and inaugurated December 1, 1874. It consists of the Palace Gardens, representing a total area of twenty-five acres, created by La Quintinie in 1683. The object of the school is to form competent and educated gardeners, possessing the necessary theoretical and practical knowledge bearing on the art of horticulture. While Le Nôtre laid out the park and grounds of the palace, the creation of the fruit, flower, and kitchen gardens is the work of La Quintinie. He had to make a Dismal Swamp blossom like a rose. That marsh was the receptacle for all the water that trickled down from the neighbouring hills. In winter it was mud, in summer baked brick. He commenced operations in 1678, completed them in 1683, at a cost of 1,800,000 francs. La Quintinie was a singular man. He was a barrister, but never pleaded; a theologian, but never preached; and a passionate horticulturist and agriculturist, full of original ideas. He travelled a good deal; he visited England twice, and James II., who had a great esteem for him, tried to retain his services, but La Quintinie preferred the offers of his own king Louis XIV. He assured the latter he would supply the royal table with new asparagus and sorrel in the month of December; radishes, lettuces, and mushrooms in January; cauliflowers in March; strawberries early in April; peas in May; and melons in June. And he more than kept his word.

Visitors to the Palace of Versailles have doubtless remarked the sheet of water familiarly known as La Pièce des Suisses—so called because the excavation, twelve feet deep, was effected by a regiment of Swiss soldiers. Parallel with this was the marsh site of the gardens. It was filled up with the excavated earth, or rather sand; over the latter was spread layers of loamy soil transported from the neighbourhood of the Sartory hills. Then an aqueduct was constructed underneath, into which the drains emptied. That became also the water supply for the gardens. The herculean task accomplished, La Quintinie, who had given the area a general slope, divided it into thirty gardens, enclosing the centre with dividing walls running in different directions to secure shelter and to accommodate fruit trees. The plan of the garden to-day is not radically different from the original; it is a series of parallelograms, with wall spaces, espaliers, hothouses, conservatories, beds, glasses, and "forceries" in general. There is a total glass surface of 6,700 square yards. All the forcing houses are heated with hot-water pipes, and the temperate conservatories, melon frames, &c., are concentrated on the left of the entrance of the grounds. This secures economy and methodic supervision. The entrance to the establishment is by the Rue du Potager. The mansion had Mansard for architect. The contiguous buildings are the offices and lecture-rooms—the latter once the orangery, so there is plenty of air and light; the museum, with its collection of eight hundred fruits, moulded and coloured after Nature, classified according to varieties, and into three qualities. Proceeding towards the centre of the garden, through parterres of flowers and rows of ornamental shrubs, the *bassin*, or pond, eighty-five yards in diameter, is reached, and wherein aquatic plants are arranged. At the head of one of the two flights of stone steps is the bronze statue of La Quintinie, holding a branch in his left hand, and surveying his work. His true monument is "Circumspice."

The culture of fruits, vegetables, flowers, shrubs, &c., is divided into two groups, that in the open air and the other under glass. The linked parallelogram gardens are devoted and divisioned each to a special culture and to corresponding best varieties of the trees and plants. There is a winter and a botanic garden, also a very important nursery, which plays an invaluable rôle in the curriculum of studies. There are 15,684 fruit trees of all kinds and varieties, 5,500 yards of espaliers, and 14,000 square yards of wall space for fruit growing. The importance of the culture generally must be judged from type samples. Thus, there are 5,171 pear trees, embracing 557 varieties; 8,566 apple trees, comprising 309 varieties; 383 peaches, and 94 varieties; 915 vines, representing 61 varieties; 190 cherry trees, of 16 varieties; and 107 plum trees comprising 25 varieties, &c. These do not include orange, olive, pomegranate, almond, walnut, &c., trees. The forms of the trees are those of ordinary or fantastic training, vertical, horizontal, oblique, in single or superposed rows, palmette, goblet, candelabra, pyramid cones, &c. In the forcing houses, the Frankenthal, Foster's White Seedling, Black Alicante, Gradiska, Bondalès, &c., are the leading grapes; in peaches, thirty varieties, figure the Mignonnes, Belle Beausse, Amsden, and Cumberland; among cherries, the English varieties are preferred, not omitting the Empress Eugénie; for plums, the Victoria and Washington. There are under glass the following trees: Two hundred and sixty-five cherry, 356 peach, 568 vines, 166 plums, 63 figs, as well as gooseberries, raspberries, &c. There are 500 melon frames and 1,000 more for raising vegetables. One variety of forced strawberry predominates, Docteur Morère; 10,000 pots are annually devoted to its culture. Four "houses" are devoted to pine apples of several varieties. Some of the fruits weigh nine pounds. It was in this garden that the first pineapples were raised, in 1733, in France.

The vegetables proper, some three hundred species and varieties, excluding the "forceries," are raised in measured sub-divisions of some of the thirty quarters, and separated by espalier borderings. The watering is effected by means of reservoirs situated in the corner of a square, and fed from the subterranean aqueduct; water cans and hose-sprayers do the rest. In the squares allocated to fruit trees, the soil displays no signs of exhaustion from the same species of tree succeeding during two hundred and fourteen years; the fruits are sound, and the yield heavy. When an old tree is condemned, the roots are thoroughly extirpated, and fertilisers added to the soil. The large cellars serve for mushroom raising, and the blanching of seakale, winter salads, &c.

Respecting floriculture, it is fully taught from culture in the open air, in the temperate conservatories, and the hot houses. Every important flower or ornamental shrub is represented; in roses there are five hundred varieties. *Ab uno disce omnes.* Special attention is given to orchids. The produce of the garden is sold to the public for cash, and Versailles, though it no longer possesses the light of other days, has a large and wealthy population, especially of rich foreigners, who, world-weary, or world-wounded, come there to rest, and to die.

The instruction given at the National Horticultural School of Versailles is gratuitous; the number of pupils is limited to one hundred and twenty, of whom forty retire annually, after completing their three years of study. Candidates must not be less than sixteen, and not more than twenty years of age on entering the garden, save in case of military service, when it is extended to twenty-three years. The pupils wholly work the establishment; they arrive at five o'clock in the morning in summer, and at six in winter, and remain till nine in the evening; they knock off work twice in the day for an hour and a half each for meals. They are not entitled to any vacation, but can expect a fortnight in town about August and September. Candidates must submit to an entrance examination if they have not school certificates of efficiency. Before entering a superior grade of studies the pupils are annually examined; those with a bad record of progress must leave. At the end of the third year the pass examination takes place; if satisfactory a diploma is given, signed by the Minister of Agriculture. There are six annual scholarships of 1,000 fr. each open to competition, independent of two prizes of 1,200 fr. to be awarded to the best pupils on completing their third year. The latter sum is to enable them to complete their studies in a foreign horticultural school or a leading horticultural establishment in France or elsewhere. Pupils must support themselves, but several horticultural societies, farming syndicates, learned associations, municipal councils, &c., pay the expenses for a young man of promise. The present Director-Professor of the school is M. Nanot, who succeeded the late and original director. M. Hardy, a gentleman, as his name indicates, of English extraction, and of unquestionable ability. There are also nine professors for the chief departments of horticulture, floriculture, ornamental gardening, and instruction is given in chemistry, geology, &c., as well as in book-keeping, levelling, drawing, and geometry. There are two chief gardeners and two assistants. The pupils under the head gardener visit the most important garden and horticultural establishments in the vicinity of Paris, and each pupil must make a report on his visit. The school is well provided with up-to-date educational apparatus; the walls are well hung with object lessons, and the museum is rich in specimens. In winter four, and in summer two and a-half hours daily are given to study, plus three hours to lectures and examinations, so that from five to eight hours represent the time devoted to out-door manual labour. Instruction is given in the workshops—how to repair the *matériel*, in carpentry, glazing, painting, printing labels, &c. The pupils follow fifteen distinct courses of lectures by the professional staff. For out-door instruction they are divided into five squads of twenty-four pupils each, and devote a fortnight in rotation to learning forcing, arboriculture, and fruit growing, floriculture in open-air, culture under glass, and the ordinary raising of vegetables. On quitting a section every pupil has to make a report upon the operations he witnessed and helped to execute. Since its opening in December, 1874, eight hundred pupils have graduated in the school. The establishment costs the State 90,000 francs a year, of which 30,000 francs are expended in providing the teaching staff, and the rest for working expenses. No account is published of the receipts for sale of produce; but that is not of vital importance, as institutions of an educational character can not be expected to be self-supporting. EDWARD CONNER.

VEGETABLES FOR EXHIBITION.

Knol-Kohl, or Kohl-Rabi.

KOHL RABI (*Brassica oleracea caulo-rapa*) is more generally grown on the farm than in the garden, as it makes an excellent food for cattle. At the same time, a small quantity should be grown in all large gardens, as in a young state it makes an agreeable change as a vegetable. It is quite hardy, and thus valuable in severe weather, and very little trouble is required to bring it to perfection. The seed should be sown at the same time as the principal batch of the brassica tribe, and transplanted as soon as large enough in rows two feet six inches apart, allowing two feet between the plants in trenched, heavily-manured ground. The hoe should be kept constantly employed about the plants to encourage quick growth, and in dry weather the crop should be kept well watered, and occasionally given good soakings of liquid farmyard manure. No other attention is required to mature the crop, which may stand and be drawn upon as desired. A small quantity of Early White Vienna for summer use and Early Purple for winter should be grown.

For horticultural exhibitions, Kohl Rabi is of little use, but at the cattle shows during the autumn it often forms quite a feature, and is most attractive to the general public. In an unlimited ornamental collection of vegetables both kinds should be included, more for increasing the number of kinds and adding to the effect than for their value. The roots should be thoroughly washed and left on, and most of the leaves round the bulb carefully trimmed off, leaving only the top fresh ones; nine to twelve examples should be the number staged.

Aldenham House, Elstree, Herts. E. BECKETT.

SOME GOOD WHITE ROSES.

IF I were asked to name what had proved the best dozen white roses in our rose gardens, they would be as follows: Boule de Neige, Merveille de Lyon Souvenir de S. A. Prince, The Bride, Niphetos, Madame Plantier, Coquette des Blanches, Madame François Pittet, Innocente Pirola, Edith Gifford, Madame Alfred de Rougemont, and Blanche Moreau (Moss). The first six have proved most useful and reliable. We also have several roses with a pale-blush tint of rather too pronounced a character to justify their being included among whites, but which may well be mentioned in connection with this article; such as Augustine Guinoisseau, Margaret Dickson, Souvenir de la Malmaison, Vicountess Folkestone, Mrs. Paul, and White Lady. Then we have a splendid acquisition in Bladud among pale flesh-coloured whites; also a grand pure white in Purity, both of which were introduced by Messrs. Cooling and Sons, of Bath.

Niphetos, sent out as long ago as 1844, is still the best pure white. Under glass we have no rose to compare with it. Every bud is long and of perfect form, while it opens into a really grand flower. There is no freer or more constant bloomer than this, and, with Perle des Jardins, it is probably the most generally grown rose for cut blooms. It is by no means so tender as many imagine, and we often obtain really grand blooms from the open. The northern show of the N.R.S. at Norwich, last July, contained one of the grandest flowers we have ever seen, and the silver medal was well deserved. In every way this was a typical bloom, as was amply proved by its beating the whole of the teas and noisettes among the nurserymen's classes. A warm season, a sheltered position, and, if not upon a wall, grown as a short standard, suits this grand old rose well.

Souvenir de S. A. Prince is comparatively new, having been sent out in 1889. This was a sport from another very old favourite, Souvenir d'un Ami, a rose that has held its own for more than half a century, being sent out in 1846, or two years after Niphetos. Souvenir de S. A. Prince is synonymous with The Queen, a sport originating from the same variety. It is a globular flower, opens well, is of the purest white when fully expanded, a good grower, hardy, and a very free bloomer. All of the grand characteristics of Souvenir d'un Ami are retained by this rose, the sole difference being in colour. It is the sweetest scented of all the pure whites.

Boule de Neige has been in general culture for thirty years. This is a hybrid noisette; and is a good grower, very hardy, a most perpetual bloomer, and one which lasts well both upon the plant and cut. When young there is a slight tinge of pale carmine rose upon the outside petals, but the whole is pure white when fully expanded. It can scarcely be put to the wrong use, and is sure to please.

The Bride, like Souvenir de S. A. Prince, is a sport from one of our most beautiful and valuable pink teas, viz., Catherine Mermet; a rose which has given us many grand sports, among which are Muriel Grahame, Waban, Bridesmaid, and the one now more particularly under notice. All rosarians know of the good qualities of Catherine Mermet and I need say no more than that The Bride is a counterpart of that old favourite (1867) except in being a pale lemon-white when young, and changing to pure white as it expands.

Merveille de Lyon is another grand grower. Its habit is a little more compact than Baroness Rothschild, while the foliage and bold way in which the flowers are carried are much like our old friend Baroness Rothschild, which has been our best pink for thirty years, notwithstanding its entire lack of perfume, a fault which must, unfortunately, be accorded to Merveille de Lyon as well. This is a large and massive flower, one of the best to open, and not spoilt by showery weather; indeed, like the Baroness, it seems to enjoy showers and dull weather.

Madame Plantier is a very old rose, and is one of the few varieties that were grown previous to the Queen's accession to the throne, and is still a favourite. It is of the purest white, a rather small-flowered hybrid noisette; a good grower, exceedingly free blooming, and a grand rose for standards, pillars, or massing.

Coquette des Blanches may be used in the same connection as the last named. It is hardier, and the flowers are rather larger, and of more globular form, but by no means so prettily shaped as Madame Plantier.

Madame François Pittet is a short and compact grower, very free, small, double, and with the exception of a carmine tinge in the younger stages during a hot summer, is pure white. This is a grand rose for bedding.

Innocente Pirola can hardly be called white. It is a creamy white, and, when young, has a faint tinge of pale salmon-yellow in the centre. As it ages, this is lost, and it approaches the whites nearer and nearer. It is a good grower and bloomer, rather tender, and every bloom, small or large, comes of perfect form with a high pointed centre. From a small bud this rose develops into a large and massive flower.

Hon. Edith Gifford, like the above, is a creamy white, and has a distinct flush of pale flesh in the centre when young. A very hardy rose this, one that may be depended upon in every way, but, unfortunately, rather more subject to mildew than others. Innocente Pirola also has this fault.

Madame Alfred de Rougemont is not much grown now, but it is one of our hardiest whites of medium size. A faint flush of pink is found upon the edges. Like many others in this selected dozen, it is an old favourite, being sent out in 1863.

Blanche Moreau is the very best white moss-rose we have. The flowers are large, beautifully mossed or crested, of the purest white, produced very freely in clusters, while the growth is vigorous. Our twelve would not be complete without this.

A few other whites are The Pet, Anne Marie de Montravel and Ma Paquerette from the miniature polyanthas; also the following three singles, Paul's Single White, Rosa multiflora or Polyantha simplex, and Polyantha grandiflora. Then we have the pure white Japanese, or Rugosa alba, and its semi-double form in Madame Georges Bruant; Aimée Vibert, a grand climber; Ducher, among the Chinas; also White Baroness, Mabel Morrison and Madame Lacharme. Turning to those with a flush of pale flesh, I would strongly recommend—

Viscountess Folkestone.—We have no sweeter-scented rose than this grand hybrid tea, nor a better grower and freer bloomer.

Augustine Guinoisseau is a compact and free grower, sweetly scented, and from early till late is never out of bloom.

Margaret Dickson gives us tremendous growth, which, if pegged down, will flower throughout its entire length, and produces grand flowers.

Mrs. Paul, a grand departure in Bourbons, from Cheshunt, is also a very strong grower that does best as a cutback when not too hardly pruned. This is one of our most distinct roses, large, of imbricated form, and much resembling a camellia in shape.

Souvenir de la Malmaison is too well known to need any comment.

Bladud is a new hybrid perpetual from Bath. This is a very large and well-formed flower, a much better grower than Madlle. Bonnaire, and with the same charming silvery white with a tinge of pale blush in the centre. This is a grand rose so far as we have seen it at present.

Purity is likely to be one of our very best pillar roses. The flowers are produced very freely throughout the whole length of the plant, and are of perfect globular form, with a prettily quilled centre, of rather more than medium size when fully expanded, and certain to become a most popular variety. When staged at the National Rose Society's Portsmouth exhibition in June 1897, by the introducers, Messrs. G. Cooling and Son, Bath, it attracted much attention, and is evidently destined to become a grand garden rose.

Those we have found to be the best half-dozen for pot culture from the above are, Niphetos, The Bride, Bladud, Edith Gifford, Souvenir de S. A. Prince, and Augustine Guinoisseau. As a white climber under glass, the climbing form of Niphetos is far ahead of all others.

A. PIPER.

CHRYSANTHEMUMS FOR 1898.

WITH the article from the pen of Mr. W. H. Lees, on page 808 of last year's volume, very few will disagree; still, in the list of varieties I think there is some room for improvement. Mr. Lees gives a list of fifty of the best Japanese selected from the older sorts, and from these, a further selection of the best twenty-four which are distinguished by an *; of course, the writer has placed the varieties in the position according to his own experience, which must be somewhat extensive. At the same time, to select the "best" twenty-four or fifty, is a task I, or few others, will attempt, for varieties good this year, may be almost failures next, a great deal depending on the season, and frequently the mode of stimulating.

Mr. Lees, in his selection of twenty-four, includes nine which may fairly be claimed as whites, and whilst admitting this class is the most extensive, many will agree with me that the percentage is too great. Pride of Madford, we are assured, has been consistently good, then why not include it, as I think it should be, in the first twenty-four, taking the place of one of the white varieties? Out of the fifty, no less than twenty-six may be termed whites or yellows; that these should preponderate to this extent many will question.

One variety which Mr. Lees notices—Madame Ad. Moulin—is certainly not required in the face of so many which are in every respect superior. It has been in cultivation several years but makes no headway. To include this among the best fifty and exclude Louise, Mons. Hoste, Mons. Andre, Pride of Exmouth, Mrs. C. Blick, Madame Gustave Henry, V. R. de Chezelles, Milano, Madame Ad. Chatin and some others, must be an oversight.

Many, if not all, of these last-mentioned varieties are superior, with most growers, to Mdlle. Thérèse Rey, Lady Saunders, and Sunflower. Mr. Lees does not place Sunstone and Mrs. F. A. Bevan among the first twenty-four. This, I think, is a mistake, as the first named has in many collections been very fine this season; a bloom in a non-competitive trade collection at the November exhibition of the N.C.S., was considered by some growers to be superior to the bloom of Mrs. Mease, to which the special prize as premier bloom was awarded. It is very distinct, both in colour and form, of great depth and substance. It requires an early start, stopping in April, and the early crown bud to be retained. Personally, I shall place it among the first six. Mrs. F. A. Bevan will also take a very high place when its culture is understood. It is also very distinct both in form and colour; on the early bud it is useless, but stopped early in April retaining the crown bud about August 20, is a method which seems to suit it. It requires good culture.

Mr. Lees places among the older varieties yellow Madame Carnot (whether this refers to G. J. Warren or Mrs. Mease it is not very plain), Western King, John Neville, Mrs. F. A. Bevan, Mrs. S. C. Probin, Mrs. G. W. Palmer, and Snowdon, all of which were sent out last spring, whilst others sent out at the same time come under the heading of "new ones," and in this latter class we find Madame Philip Rivoire, which was shown in the autumn of '95, whilst C. E. Jeffcock was catalogued in the spring of that season. Among the best of last season's novelties I would place Ella Curtis—a magnificent variety—Lady Hanham, Julia Scaramanga, Mrs. Maling Grant, Elthorne Beauty, Dr. Liebert, Geo. Seward, and Joseph Brookes; these, I have every reason to believe, will excel many of those mentioned on page 808. Master H. Tucker should also be placed among the best twelve of last season's introduction. Of the incurved varieties I say but little, except that I certainly should include Topaze Orientale among the best introductions of the season.

Exmouth. W. J. GODFREY.

PEACHES INDOORS AND OUT.

ONE of the first questions which will arise is this: Must the trees be grown indoors or out? Indoors by all means, if a suitable house is possessed, but outdoors if there is no structure available in which the conditions to be mentioned can be provided. To begin with, we want a house that is both light and well ventilated. A conservatory which has to be adapted to the wants of a mixed collection of plants is not suitable, nor is a span-roofed house with central and side stages for plants. The most suitable structure is a lean-to, not too sharply pitched, for in such a place the trees can be planted near the front, and their framework of shoots trained to a trellis under the glass, while tall "rider" trees can be grown against the back wall. Where there is no convenience at all for growing them under glass, they may be tried out of doors. Peach growing out of doors is not practised so extensively as it was, but good crops are still secured in some gardens. There should be a coping a foot wide fixed to the wall at the top, and this, with protection for the blossom in spring, will do much towards securing a crop.

Planting.

Planting may be performed from the time the leaves fall in the autumn until the following April. Those who are going to grow them out of doors should defer planting until February, so as to miss the severest part of the winter; by the following one they will be well established. A sound fertile loam, such as would grow good potatos, will be suitable, but peaches can do with a stronger soil than the noble tuber, if it is well drained and friable. They cannot be relied upon to give satisfaction, in a cold, heavy, adhesive clay. Where the soil is of this description drainage and the addition of large quantities of gritty matter will be needed before it will be in a suitable condition for the trees. Do not incorporate large quantities of rich manure, for it will only encourage gross, sappy, fruitless shoots. Mortar rubbish and wood ashes will make better additions than manure. In planting the trees take great care to have the soil firm. The firmer it is, short of being absolutely hard, the better, for loose soil encourages soft growth, and only firm, well-matured shoots will give heavy crops of fine peaches.

Training.

The best form of tree is the fan, so called from the shoots spreading out diagonally, and so forming an outline very much resembling that of a fan. There is no leader or upright growth, as in most other trained fruit trees. The amount of early training required will depend upon the age of the trees when bought. A two-year-old is the best cheap tree, because the framework has already been laid in the nursery, and a little observation will suffice to make the system which has been followed, and which should be continued, clear. It will be seen that the leader has been shortened, and that shoots radiate from the main stem below the point of pruning. All the back and front buds have been removed, and this should always be practised so as to have the side shoots on the top and bottom of the branches, never sticking out at right angles to the framework, for then they cannot be trained in to the wall. If the branches radiating from the main stem have not been shortened, cut them back to half their length, then the resulting growths will be strong, and a good foundation laid on which to build up a good fruiting structure.

How to Prune.

This follows naturally on the training, and is, indeed, a part of it. Peaches and nectarines bear their fruit chiefly on wood a year old, that is to say, shoots made one season bear the next. This being the case, the object is to have a regular succession year after year, a bearing shoot being always accompanied by a young one to take its place the following year. To begin at the beginning, having laid the framework of the tree in the manner just indicated, train in some young shoots, having them such a distance apart that the leaves will not be crowding and overlapping each other, but each with full exposure to the light. These will lose their leaves in winter, and in spring will break afresh. Blossoms will expand on them, and shoots will begin to push. Remove all these budding shoots gradually, except one near the base and another near the tip. The former is to be the bearing shoot of next year, and the latter is to draw the sap to the fruit. Let the young basal shoot develop healthily, and when the fruit has been gathered it will be ready to take the place of the bearing shoot, which may then be cut out. That is the system to follow season after season. Very strong, coarse successional shoots are not wanted. In fact, if they run to two feet long or more, and are very thick, lift the tree and replant it, so as to impart a check.

A Selection of Varieties.

The varieties, both of peaches and nectarines, are very numerous, and care must be taken in choosing them, so as to avoid sorts which all ripen together. The following peaches succeed each other, and are excellent varieties: Alexander, Hale's Early, Stirling Castle, Grosse Mignonne, Walburton Admirable, and Gladstone. Six very good nectarines, ripening in the order of their names, are Advance, Lord Napier, Elruge, Humboldt, Pine Apple, and Victoria.

The Black Fly.

This does terrible injury to many trees, establishing itself in the tips of the growing shoots, and crippling them so badly that they often do not recover all the season. Keep a sharp look-out for this pest in spring, and directly one is seen put some tobacco water in a bowl or basin, or make a solution by soaking a quarter of a pound of quassia chips overnight in a gallon of water, and adding four ounces of soft soap, then dip the infested shoots in the vessel.

A KENTISH GARDENER.

NEPHROLEPIS.

THE members of this genus are nearly all natives of tropical regions, though this does not make them any the less useful, for it is surprising the low temperature they will withstand, and even thrive in, under cultivation. They thus form some of the most useful of ferns for domestic decorations. All are of easy culture, and may be very readily propagated in several ways, either by spores—which is, of course, the most prolific method—or by the young plants which are very freely produced upon the thin wiry rhizomes that run so freely from all sides of old specimens. Another mode of propagation in some species is by the fleshy tuberous roots, that are also produced in quantity along the rhizomes of some species, and these, if detached and planted, soon form sturdy young plants. All the species enjoy a rich compost of a loamy nature, with the addition of plenty of leaf-soil and sand if the loam is inclined to be at all clay-like; and it is important to bear in mind to always give good drainage, as they all revel in an abundance of water at almost all seasons of the year.

For indoor decoration it is advisable to have a few young plants coming on to take the place of older specimens which are apt to become crowded, their crowns becoming raised above the soil, and thus preventing a vigorous growth. If this condition of the plants is allowed, they are more liable to become dry, and this is soon made evident by the casting of their pinnæ, and thus becoming entirely disfigured and useless. The number of species in cultivation is small, but they are all worthy of a place in collections of useful ferns. Several are extremely useful for planting out in rockeries, where they should be placed in an elevated position where the long drooping fronds are allowed room to develop to perfection. Among the best for this purpose is N. cordifolia v. tuberosa, the fronds growing several feet in length, and forming a beautiful covering to rocks. N. acuta is also useful in this way, as it is also for basket work, when, if planted in lasting material, it will last for several years without renewal. N. cordifolia has several varieties of great value for pot plants, N. compacta being one of the most generally seen plants of the genus, grown as it is in large quantities for market purposes. N. c. pectinata and N. c. phillipinensis are of a compact habit, and sturdy small specimens are always admired.

For exhibition or large specimens. the Japanese species N. davallioides and its variety furcans are both desirable, large and handsome plants being easily and quickly obtainable. This species was introduced into this country by the Messrs. Rollisson in 1852; the fronds are pendent and of a graceful nature, of a green glabrous nature, growing about three feet in length. The variety has the advantage of its pinnæ being crested and the apices being also deeply crested, thus forming a most striking object. Another large growing kind is N. rufescens var. tripinnatifida, which is distinctly a tropical fern, requiring a moist, hot condition of temperature. To grow this well it is best to start with young plants in spring, and to keep them growing by giving occasional shifts, and also preventing any attacks of thrips, which quickly disfigure this handsome species. It is erect in habit, with fronds, sometimes four feet long, of a pleasing light green colour. N. pluma, a Madagascar species, is of a very light elegant habit, especially suited for baskets, deciduous during winter. It possesses narrowish pale-green fronds, and requires to be rested in a good temperature, and never allowed to become thoroughly dry at the roots. A well-known form is N. exaltata, a plant common in the tropics everywhere, and introduced in 1793 to Kew. The fronds are slender, glabrous, and the pinnæ with serrated margins. N. exaltata v. hirsutata is less well known, and is known by its fronds being covered by ferruginous scales.

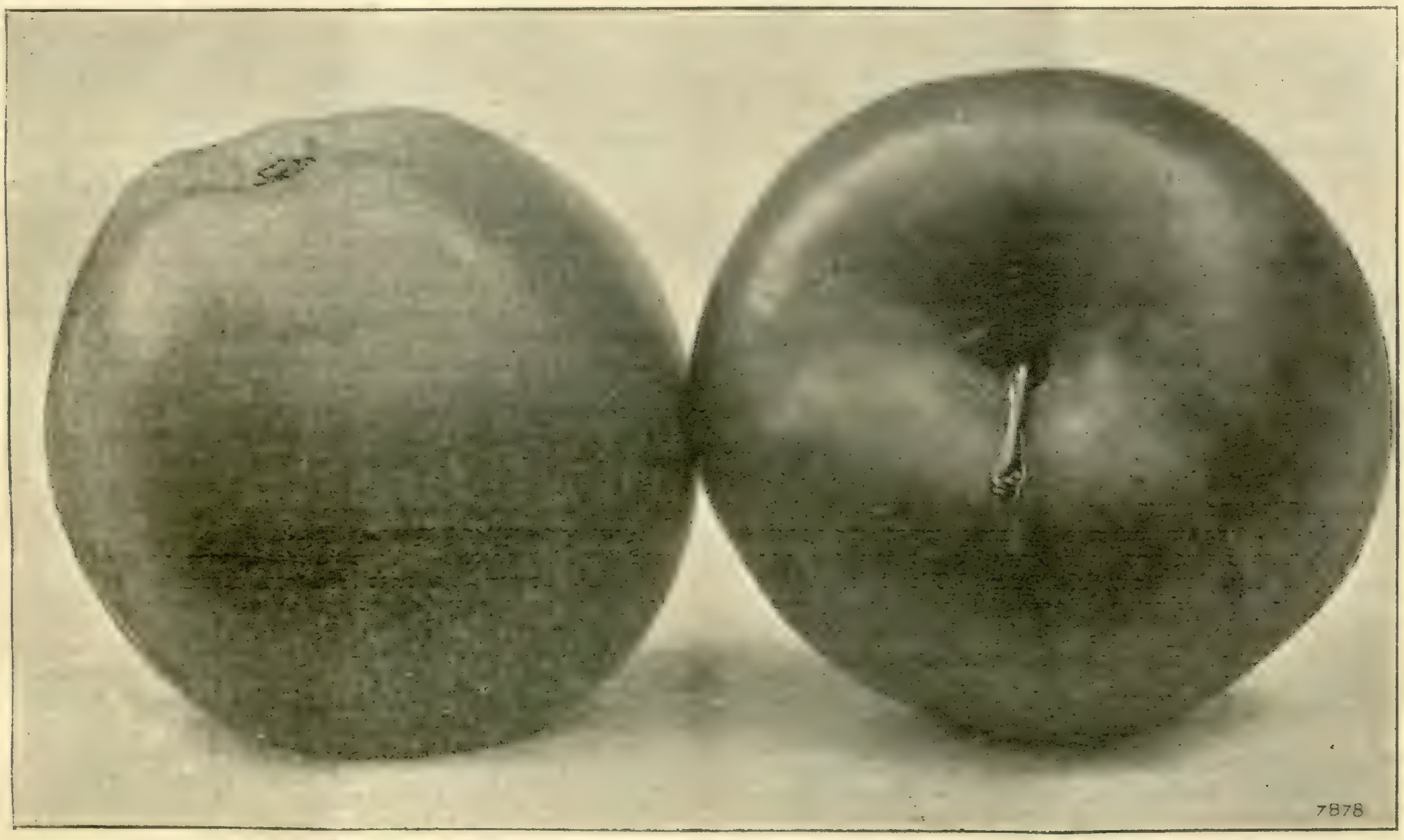
A very distinct species is N. Duffi, a native of Australia. In habit it is close and tufted, with thin rhizomes on which young plants are developed in quantity. The drooping character of the fronds, which are branched and slightly tasselled, giving it a peculiarity at once distinguishable. It grows about eighteen inches in height, and requires a stove treatment to succeed well. The fronds are said to never produce spores under cultivation, and must necessarily be propagated by divisions, and a somewhat lighter and more peaty compost is required for this species than the majority of this genus enjoy. Considering the usefulness and ease of culture of these plants, no collection of ferns can be complete without the more popular of their number; and for amateurs few can be more strongly recommended.

Edinburgh. R. L. HARROW.

The Ground Nut (*Apios tuberosa*) is a fairly common plant in this country, where its graceful twining growths bear numerous brownish purple and fragrant flowers during the summer. It is a leguminous plant, and requires support; it is perennial, and can be readily propagated by means of its pear-shaped tubers, which are numerous but not large. These are farinaceous and edible, but so far as we are aware they have not been used with any degree of success or popularity as a vegetable. A correspondent to *Garden and Forest* writes: "Having read of the edible character of the roots of Apios tuberosa I was curious to find out what they were like. This beautiful wild plant is familiar to all, but its curious tubers, strung along the underground shoots like beads on a string, are not so commonly known. I had used the plant to cover a bare wall near the house, and the other day I dug up a few of the tubers. They were about the size of small Seckel pears. I noticed that, even when slightly cut, or pricked, they exuded a gum-like juice, white and sweetish, something like India-rubber, in its elastic nature, and not easily dissolved in the mouth. Possibly this gum might prove to have some economic value. I baked the tubers in the oven for about fifteen minutes and found them delicious. When done they were mealy and creamy white in colour. Their flavour was strikingly delicate; something between that of a very fine potato and a sweet potato, with a suggestion of the chestnut, also. If farmers and market gardeners would take pains to cultivate Apios tuberosa they would undoubtedly make handsome profits, for the tubers would be in demand both as a novelty and as a welcome addition to our edible vegetables. It is not unlikely that, with cultivation, new varieties would be developed, perhaps approaching the sweet potato in size, and possibly even improving upon the present flavour."

DESSERT APPLE JAMES GRIEVE.

NOTWITHSTANDING the large number of dessert apples in cultivation, additions to the list that have the promise of usefulness invariably give rise to much interest, and when they prove, as in the case of the variety of which an illustration is given herewith, to be well adapted for general cultivation, they seldom fail to receive a warm welcome. We have a considerable degree of pleasure in directing the attention of our readers to this apple, for we have had it under observation, both in England and Scotland, for several years past, and as the result of our observations we have little doubt as to its proving of much value both for home use and market supplies, more especially in districts in which the famous Cox's Orange Pippin does not give complete satisfaction. James Grieve was raised in Messrs. Dickson and Co.'s Pilrig Nurseries, Edinburgh, and named after Mr. James Grieve, who was then manager of these nurseries, and is now engaged in business with his sons in the neighbourhood of the Scottish capital. It is described as having originated as a seedling from Cox's Orange Pippin, and both the growth and fruit partake of the character of that variety. The tree has a free branching habit, in the way of Cox's, but is decidedly more robust, and forms a vigorous and handsome natural pyramid. It is a heavy and sure cropper, trees on the paradise bearing freely when two years old, and in Messrs. G. Bunyard and Co.'s Nurseries, at Maidstone, the trees carried a fine crop in the summer of 1897, when the crop of the majority of the dessert apples was very light. The original tree in the last-named nurseries has not missed a crop during the five years that have elapsed since it was planted. The size and shape of the fruit is well shown in the accompanying illustration, which is a direct reproduction of a photograph that we had specially taken of two fruits, for which we have to thank Messrs. G. Bunyard and Co., who regard the variety with much favour. The skin is bright crimson on the side exposed to the sun, and rich yellow, marked with red, on the shaded side; the flesh is pale yellow, juicy, and although not quite so rich as that of Cox's, is very finely flavoured. The fruit commences to ripen in September, and the season extends to about the middle of November, the exact period during which the fruit may be had in perfection depending, as a matter of course, upon the locality in which it is produced. Messrs. Bunyard submitted the variety to the Fruit Committee of the Royal Horticultural Society on October 12, 1897, when an award of merit was made in its favour.



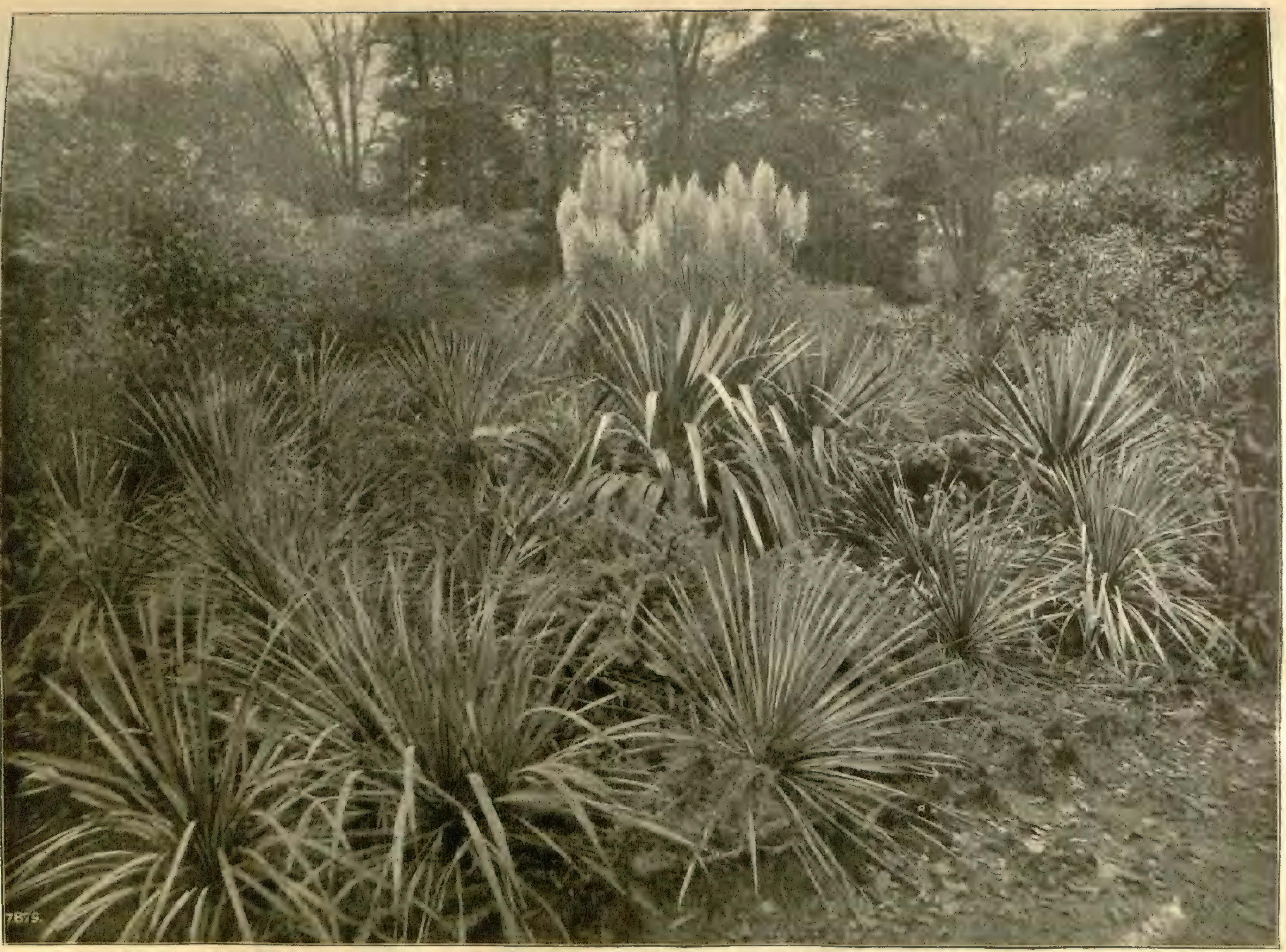
DESSERT APPLE JAMES GRIEVE.

Lady Gardeners.—At the annual council meeting of the women's branch of the Swanley College, held at Sir E. Sieveking's residence the other afternoon, Miss Goodrich Freer, the hon. secretary, presented a report of the work done during 1897. From this it appeared that forty-one women students had passed through the college during the year, and that no student had left the college properly certificated who had not been able at once to obtain remunerative employment. Four students have obtained places at Kew Gardens, three at the Royal Horticultural Gardens, Edinburgh, one is employed by Lady Henry Somerset at her home for inebriates at Duckshurst, and others are engaged by the Metropolitan Gardening Association and at convalescent homes and other public institutions. Sir Edward Sieveking heartily endorsed the medical opinion which he gave in the early days of the college six years ago that gardening was a most healthy and admirable employment for women. A conversation took place, and funds were asked for in order that a new road might be constructed close to the college, which, it was stated, would be an immense advantage to the students, and for the balance of the cost of a rose garden which is to be made under the direction of Dean Hole.

HARDY YUCCAS.

ALTHOUGH the species of yucca that possess a sufficiently robust constitution to admit of their being successfully cultivated without protection in the United Kingdom are comparatively few in number, they are all so distinct and handsome as to form a group of immense value for the embellishment of the flower garden. More especially are the hardy yuccas useful in enabling the planter to introduce widely divergent types of vegetation into garden scenery, and for giving a sub-tropical aspect to some part of the pleasure grounds. Their adaptability to positions of the most diverse character gives them still further claims for consideration, and with respect to this characteristic, it may be said that there is hardly a position in which a well-developed specimen would appear out of place. They are equally effective on the level, closely-shaven lawn and the irregularly arranged rockwork, and arranged in bold groups on sloping banks they present a highly attractive appearance, as so admirably portrayed in the accompanying illustration of a portion of one of the slopes surrounding the Bamboo Garden at Kew. The yuccas do not, it must be admitted, undergo the several changes which constitute so great a charm of deciduous trees and shrubs, and of the greater number of herbaceous plants; but they have attractions peculiar to themselves, and when grouped amid surroundings that bring their distinctive features into strong relief they seldom fail to attract attract attention or please the eye.

The most handsome and desirable of the hardy yuccas is unquestionably Yucca gloriosa, a species distinguished by a stately appearance both when in bloom and out of flower, and well deserving the high degree of popularity it enjoys, although it should not, as is so frequently the case, be grown to the exclusion of all the others. This yucca is too well known to require a detailed description, but it may be of interest to mention that it was the first species introduced to this country. The year of introduction is not known, but it was in cultivation in 1596, for Gerard includes it in the catalogue of plants grown in his garden which was issued in that year. In the first edition of his "Herball," published in 1597, he describes the species as "the root whereof the bread Casaua or Cazaua is made," and says with reference to it, "This plant groweth in all the tract of land from the Magellane Straights unto the Cape of Florida, and in most of the Ilands of the Canibals and others adjoining, from whence I had that plant brought mee that doth growe in my garden, by a servant of a learned and skilfull Apothacaire of Excester, Master Thomas Edwards." Johnson corrects Gerard in the amended edition of the "Herball," and says, "Our author . . . . committed these errours: First, in that hee saith it is the root whereof Cazaua bread was made when Lobel in his description said he thought it to be *Alia species a Yucca Indica ex qua pannis communis fit*. Secondly, in that he set downe the place out of the *Historia Lugd.* (who took it out of *Theuet*), endeavouring by that means to confound it with that there mentioned wheras he had his from Mr. Edwards his man. And thirdly (for which instead he was most blameworthy and wherein he most shewed his weaknesse) for that he doth confound it with the manihot or true yucca . . . within so few yeares after our author had set forth this worke it floured in his garden." Yucca gloriosa is a native of the eastern seaboard of the United States of America, and extends from Florida to North Carolina, growing freely in the drifting sands of the coast. Under cultivation in this country the plants attain to much larger dimensions than when growing in the native habitat of the species. After several years' growth plants occupying sunny positions usually bloom annually; sometimes, it must be confessed, too late in the autumn to admit of the perfect develop-



A BEAUTIFUL BANK OF HARDY YUCCAS IN THE ROYAL GARDENS, KEW.

ment of the flowers. When, however, they are produced, as is generally the case, early enough to escape the frosts and rains usually experienced during the latter part of the autumn well-developed specimens produce an exceedingly beautiful effect throughout the period they are in bloom. The branched panicles rise to a height ranging from three to five feet, bearing many hundreds of the large, goblet-shaped, creamy white flowers. Small groups, consisting of five or six plants of varying sizes are remarkably effective when arranged on knolls in prominent positions. The variety known as Y. gloriosa superba is dwarfer in growth than the type, flowers freely in a small state, and is so exceedingly beautiful as to merit attention. Yucca accuminata is similar in character to Y. gloriosa, and is decidedly handsome; the leaves range from eighteen inches to two feet in length, and are about two inches in breadth, and deep glaucous green. The flowers are greenish white, and produced in panicles rising to a height of four or five feet.

Hardly less valuable than the preceding species is Yucca recurvifolia, an elegant form known also in gardens as Y. japonica, Y. pendula, Y. recurva, and Y. reflexa. This desirable species has a rather short stem and leaves ranging from two to three feet long, deep green, glaucous green when young, less stout in texture than are those of Y. gloriosa, and elegantly recurving. This peculiarity renders the species highly attractive when grown as a single specimen upon the lawn, or in suitable positions in geometric flower gardens; and of special value for rustic and other vases. It is free in blooming, producing large, handsome panicles of flowers and is perfectly hardy. Y. recurvifolia has been in cultivation rather more than one hundred years, having been introduced to this country in 1794 from the coast of Georgia. Yucca glauca is a North American species, with leaves ranging from fifteen to eighteen inches long and one and a-half inches broad, and producing much-branched panicles of whitish flowers. It is not, perhaps, so hardy as the foregoing species, but it will thrive out of doors in the southern and western counties in well-drained soil.

Especially desirable also, in the smallest collection is the Silk Grass (*Yucca filamentosa*), which has long been in cultivation, having been introduced from North America in 1675. This species is almost stemless, and produces dense rosettes, consisting of from forty to fifty leaves, which have an average length of twenty inches and breadth of one and three-quarter inches, and are bright green, with thread-like filaments along the margins. The flowers are white, suffused with green on the outside, and borne in an elegant panicle on a slender stem rising to a height of five or six feet. There are several handsome varieties of this distinct species; the form variously known as grandiflora, major and maxima being remarkable for the large size of the flowers; and aureo-variegata is one of the most beautiful of hardy plants with variegated foliage, the leaves being marked with longitudinal bands of rich golden yellow. Although usually described in the books as a greenhouse plant, and frequently so grown, the last-named is quite hardy and may be successfully cultivated out of doors in well-drained soil. Y. filamentosa is quite hardy, but it is less able to resist the injurious effects of an excess of moisture about it than the other species mentioned, and it is therefore important to plant it and the several varieties in well-drained soil. Planted on mounds and the lower ledges of the rockery, it will grow freely and present a highly attractive appearance at all stages of growth.

The cultivation of the hardy yuccas is of the simplest, and can be described in very few words. They can all be multiplied by means of suckers, side growths, and root cuttings, and they all thrive in a deep sandy loam. The two essential points in their cultivation are to provide a liberal quantity of soil for the roots, whether on the level on mounds or on rockeries, and thoroughly efficient drainage. On naturally cold and wet soils they should be planted on beds raised well above the surface and when the soil is very light they should receive during the season of growth, two or three liberal supplies of water. G.

COX'S ORANGE PIPPIN APPLE.

THIS is one of the best, if not actually the best, dessert apple in cultivation. It is indispensable to a select collection of dessert varieties, and it does well and bears freely on young bush trees on the English paradise stock. During the summer of 1897, when apples were unusually scarce, good crops of Cox's Orange Pippin could be met with in some of the southern districts of England.

This is a much older apple in point of time than is generally supposed, for it was in 1830 the late Mr. Cox, of Colnbrook Lawn, Bucks, raised it from a pip of the Ribston Pippin, and from a pip of several which were sown at the time Cox's Pomona was obtained; and thus two standard apples of very opposite character resulted from the sowing of nine seeds. This was in remarkable contrast to the experience of Mr. T. A. Knight some years before, who planted thousands of seedlings, out of which the Downton Pippin was the only variety worthy of note.

Cox's Orange Pippin was first propagated by Mr. Small, when proprietor of the Colnbrook Nursery, but was not disseminated further than the locality where it was raised. It was not until something like twenty-four years after it had been raised that it attracted the attention of the late Mr. Charles Turner, Royal Nursery, Slough, by whom it was largely distributed. So high an opinion had Mr. Turner of the apple, that he grew it much for his own eating, and seemed to be never without some in his pocket while the supply lasted.

The fruit may be briefly described as very handsome in appearance, with a firm yellow flesh, very tender, juicy and saccharine, with a rich aromatic flavour, more so than the Ribston Pippin possesses, and the flesh is rarely so hard and tough as is sometimes the case with the latter. Its season for use is from October till January, but it will often keep in good condition until a later period. It is generally thought to be a small-sized fruit, but quite large ones have been met with. I remember some many years ago which averaged eleven inches in circumference.

R. DEAN.

LIME AND LIMING.

ACCORDING to early Roman writers, lime and gypsum were employed for agricultural purposes more than two thousand years ago. In England liming has long been resorted to with great profit upon certain soils. It is stated that the soils of more than one-fifth of the entire area of France are derived from granite, and when the phosphoric acid and lime, which they lack, are applied, a complete transformation results, the character of the vegetation being so changed, that good crops are obtainable where only meagre ones were grown before.

In the course of a series of experiments, more than one hundred varieties of plants have been tested to find out what effect lime has upon their growth, and while a few were injured by it, particularly if they are grown the same season that the lime is applied, most of the plants were either uninjured by liming, or else benefited in a greater or less degree.

The experiments showed that lime, to be of the greatest possible use, must be applied to the land in the form of air or water slaked lime, or of carbonate of lime (chalk).

Lime unites with acid substances in the soil, by which the soil is sweetened, or its natural sourness overcome or reduced.

In case certain injurious iron compounds are present in the soil, these are so transformed by lime as to be rendered harmless. It also acts upon potash compounds in the soil in such a way that the lime takes the place of the potash, setting the latter free for the use of plants.

If lime is present in a soil to which ordinary commercial fertilisers, such as superphosphates have been added, it is probable that some of the soluble phosphoric acid will further combine with lime, in which condition it would be expected to be more readily available to plants than would have been the case had lime been absent, and a more favourable opportunity been given for all of the phosphoric acid not quickly utilised by the plants, to combine with the other minerals present in the soil.

The presence of lime in soils further favours the decomposition of the organic matter which they contain, and in this process carbonic acid is produced, which in turn acts upon the ingredients of the soils in such a way as to render the natural plant food much more readily assimilable. It plays, likewise, an important part in facilitating the changes of ammonia into nitric acid, or, in other words, in placing at the disposal of plants the stored-up nitrogen of the soil, as well as that applied to or left in it, in the form of animal or vegetable refuse.

It should be stated as a caution, that it is probable excessive amounts of caustic lime might prove injurious to certain plants which are ordinarily helped by it, particularly if the soil were but slightly or not at all acid. It has been found that even moderate dressings of lime favour the growth of the potato scab fungus, a minute organism which, by its development upon the surface of potato tubers, causes them to become scabbed or covered with rough and more or less deep excrescences. On this account, liming in a garden rotation which includes potatos, should be indulged in but moderately, and the application should follow the potato crop immediately, and never applied direct for the potato crop.

Lime applied to stiff clays causes them to become more friable, more permeable to the air, easier of working, and better capable of supplying water to plants as needed. Sandy soils, on the other hand, are rendered by it more compact and more retentive of water and manurial substances. On very dry, sandy soils, smaller applications of lime must be made than upon moist soils, and the use of large quantities of lime upon such soils in single applications is not advisable.

If the lime is thoroughly worked into the soil it may be applied in the spring, for certain plants, with little or no risk, and usually with great advantage. This seems to hold true of beets and turnips of all kinds, lettuce, spinach, cauliflower, cabbage, onions, and many other plants. If the soil is very sour, as in some very old kitchen gardens, then the use of lime immediately before the crops are sown in spring, may prove of great service, for the reason that the lime facilitates the transformation of the nitrogen into a form immediately assimilable by the plant.

Harpenden. J. J. WILLIS.

Sugars in Beetroot.—Herr F. Strohmer gives some interesting particulars relating to the production of sugars in his recent paper on the subject. He observes: The views to which expression was given thirty years ago by H. Schacht, that the quality of beetroots depends on the number of developed leaves and the length of life of the plant, are now found to be free from objections. Sugar is produced in the leaves, either directly as reducing sugar, or from starch or other carbohydrate, and migrates through the leaf stems to the root. The production of sugar depends on the amount of light, and the form and position of the leaves are of importance. When the sunlight passed through white or yellow glass, leaf production was vigorous, but with blue or red glass feeble; and the weight of roots under the influence of yellow light was nearly twice as great as when blue and red light were employed. The percentage of sugar under the different conditions was 7·4—8·1 with yellow, 6·4—7·4 with red, and 8·0—8·4 with blue light. For producing total organic substance in beetroot, rays of medium wave-length are the most favourable, but for converting the products of assimilation into sugar, the so-called chemical rays seem to have a prominent rôle. The results of field experiments showed that sugar production begins at an early stage in the leaves, but is greatest from the beginning of August to the middle of September. Under favourable conditions, there may be a not inconsiderable accumulation of sugar even later. From the beginning of July, the sum of the percentages of water and sugar in the roots is constant. This, and the fact that the percentage of sugar in the roots increases until the leaves die, indicates that the sugar, once stored in the roots, remains there. It is only when the roots are taken out of the soil and the leaves cut off that the sugar begins to be used up in maintaining the life of the plant and in preparation for following year's growth.

Lily of the Valley Forcing.

The following is the text of the paper read by Mr. T. Jannock, of Dersingham, at a meeting of R.H.S., as given in the society's journal :—

Of the thousand and one plants which submit to be forced into flower out of their season it may be doubted if there is one of anything like the universal popularity which the lily of the valley enjoys. Its history as a "forcer" goes back to half a century ago, when clumps of lilies were grown in Berlin and Hamburg in a small way to get a few blooms for Christmas and New Year. By 1856 between twenty and thirty nurserymen in and around Berlin had taken up the cultivation, but in all cases only on a small scale. In 1859-60 the largest quantity of flowering crowns that any one nurseryman produced annually was sixty thousand ; but this gradually increased until in 1870 seventy-two acres were under cultivation in lilies outside the city of Berlin. At the present moment there are on the Continent and in England many thousands of acres devoted solely to the production of lily of the valley crowns.

In order to be successful in forcing lilies of the valley the culture of the crowns demands the first consideration. I have seen lilies grow in almost every kind of soil and situation, doing better in some than in others ; but experience has taught me that the best soil for growing crowns for forcing purposes is a light sandy loam, with a damp subsoil ; and the best situation is an open one to the south and west, sheltered, if possible, from the east and north. In cold and heavy clay land they will not do well ; they will grow, and sometimes produce very strong crowns, with but few fibrous roots ; but such crowns are not fit for early forcing, as, owing to the nature of the soil, they are kept growing too long, and do not ripen off early enough.

The ground must be deeply dug and well broken at the same time, working in plenty of old hotbed manure, linings, rotten leaves, &c., all well decomposed and crumbled to pieces. This work should be done in the autumn in dry weather, in order to be ready for planting as soon as crowns can be obtained. I greatly prefer autumn planting, considering that the sooner the crowns are in the ground the better. Nothing is more injurious to the roots of lilies than exposure to sun and wind. I have been compelled sometimes to plant in March in drying east winds with bright sunshine, when it has been impossible to get the roots covered quickly enough to prevent their getting dry, and the consequences have been disastrous.

The ground having been prepared, the best and quickest method of planting is in rows seven or eight inches apart, the plants being about one inch apart in the rows ; paths of fifteen to eighteen inches wide may be left between every eight rows for the convenience of weeding. In planting, which is done by throwing out trenches about five inches deep, take care that the crowns are not set too deep ; they should be only just deep enough for the tips of the crowns to be level with the surface of the ground. A good mulching of cow manure. or, if this cannot be had, well-rotted stable manure, completes the work, and nothing further is required but keeping the beds free from weeds and giving them plenty of water in dry weather during the summer.

If one-year-old crowns have been selected for the start, they will require three seasons of growth before being fit to be lifted for forcing. It must not be supposed that so-called one-year-old crowns are actually twelve months old ; they really represent only four to five months' growth, the rhizomes beginning to grow in June or July, forming the crown under ground during the summer. Thus when they are fit to lift as flowering crowns their actual age is three and a half years. It is true that by good cultivation many of these crowns will bloom in two years from the time of planting, and many growers have been tempted to lift them at that age ; but experience has taught me that the percentage of flowering crowns is smaller and the increase of planting crowns less than when they are left a year longer undisturbed. It is generally understood that lilies of the valley must be three years old before they flower, and that they will then flower every alternate year. This is the rule, but there are exceptions. By good cultivation—*i.e.* high feeding at the proper time with liquid manure—and if special care is taken to remove the flower as soon as ever it is open, by pulling its stalk right out of the crown, such crowns will bloom several years in succession ; and hence it is obvious that lily crowns can be made to bloom twice within twelve months, viz., once at their natural time in May, and again taken up in the following autumn and forced into bloom before January.

To force lilies of the valley successfully it is of the utmost importance to have well-ripened and well-matured crowns that have fully completed their growth and are perfectly at rest. Before they have undergone a period of rest, be it ever so short, you cannot force them, no matter what amount of heat you may give them. Much also depends on where and how the crowns have been grown. The best are undoubtedly those that have been grown in light sandy soil, heavily manured and well exposed to the sun, as they will complete their growth and go sooner to rest than those grown in heavy soil and shady places.

Forcing operations may commence about the end of October or beginning of November ; the methods adopted are various, but for early flowers, in November and December, a close propagating or forcing pit is absolutely necessary, in order to maintain a moist and even temperature. If pots are used plant about twelve crowns in a five-inch pot in the following manner : Place four crowns in the palm of your left hand, then a layer of soil on the roots, again four crowns and more soil, and then the remaining four crowns, keeping the crowns all level ; close your hand and drop the whole into a five-inch pot, working the soil well in between each crown, so as to have them equally divided and all crowns standing level just above the brim of the pot. Give them a good watering, and plunge the pots in a bed of either moss or cocoanut fibre ; cover lightly with two or three inches of clean moss, and close the bed with boards, to keep it perfectly dark. Bring the bottom heat up to 80 degrees Fahrenheit at once, and gradually increase to 95 degrees within a fortnight, maintaining a regular and even temperature the while. Never allow the thermometer to rise above 100 degrees or to fall below 80 degrees, or harm will be done. Examine the pots daily ; keep a moist atmosphere ; and water (when necessary) with water of exactly the same temperature as the bottom heat in which they are plunged. When the crowns start into growth, and are about two inches high, remove the top covering of moss and gradually inure them to the light, still, of course, maintaining a high temperature. As soon as the bottom bells begin to open remove to a cooler temperature, and discontinue syringing overhead, as moisture hanging on the blooms is apt to spot the bells.

Another method, more usually adopted, and which saves much labour and room, is by planting the crowns an inch apart in boxes of a convenient size and treating as above.

Still another plan, but one which is not often practised now, is to plant the crowns in forcing beds thickly together, and when they have grown two or three inches to transplant them into pots.

It may be here mentioned that actual flowering can be retarded, when so desired, by the boxes in which the crowns are forced being removed from the forcing-house into a cooler one of genial temperature. The heat, however, must be always even and not too low, or else the damp will speedily ruin the flowers.

The foregoing methods refer principally to the early period, before Christmas ; later in the season, and as the spring advances, forcing is an easier matter. The temperature need not be kept so regular, and all that is required is warmth and moisture, which will soon start the crowns into growth. More attention should at this later time be paid to the hardening off, shading from bright sunshine, and never allowing them to get dry at the roots ; they should also have more room by planting the crowns wider apart, as more leaves will now appear than before Christmas.

Finally, it should be pointed out that if temporary frames are placed over the beds of flowering crowns out of doors in March their blooming will be hastened by two or three weeks. For this purpose keeping them close and watering as required are the only necessary directions.

It is quite immaterial in what soil the crowns are planted for forcing, as absolutely no new roots are formed during this period ; anything, in fact, which retains moisture will do. You cannot improve the blooms by planting the crowns in the very best of soil, or by giving them manure water. All the nutriment required for the development of the flowers is gathered during the previous growing season, and is stored up in the roots.

It is not generally known that forced lilies will bear almost any rough treatment. They can be pulled out of their boxes or pots when in full bloom for making up into fancy stands, ornamental pots, and nicknacks of any description without flagging or spoiling. They can be sent by post or rail hundreds of miles, packed in a little damp moss, when they may be again planted, and will look as fresh as if they had never been disturbed. I once sent a quantity in an hermetically-sealed box to Pietermaritzburg, where they arrived after their long ocean and land journey as fresh as if they had only travelled a few miles.

As regards the varieties or "strains" best adapted for forcing, that known as the Berlin is unquestionably the best for early work. The Dutch and Hamburg ones are good for late forcing, but my experience is that they do not approach the Berlin strain for forcing before Christmas. These three varieties are said to be seedlings, or possibly "sports," from the common or wild lily of the valley, on which they are immense improvements. No amount of cultivation would ever transform the wild plant into a rival of either the Hamburg, the Berlin, or the Dutch forms. The Dutch variety is of more spindly growth than the Berlin, and has, moreover, a weak and drawn appearance.

In conclusion let me say one word on the subject of retarding. Dr Lardner once pooh-poohed the idea of a steamship ever crossing the Atlantic, and the idea of retarding lily of the valley crowns may appear just as absurd to the casual observer. That it is now done, however, both extensively and successfully, is too well known for me to emphasise.

The Weather Plant.

Abrus precatorius. (L.)

To judge by a recent notice in no less a journal than the *Times* this must be a very marvellous plant, since, according to the discoverer of its wonderful powers it is able by its movements to indicate the weather of the locality not only forty-eight hours in advance, but also the hourly variation during that period. Not content with this, to judge by the notice in question, and the circular issued by Mr. Nowack, it predicts, or rather enables him to predict, cyclones in America three days beforehand, actually naming the cities they will visit ; earthquakes in Japan, and volcanic eruptions in Sicily are also foretold several months in advance, and warnings of colliery explosions are given long before they occurred, with precise indication of the county which was to be the sufferer. In confirmation of these marvels we have a large number of names cited, whose owners in most cases appear to be extremely careful not to commit themselves ; and a variety of press cuttings, most of which are of that delightfully vague and unscientific character which results from a paragraph going the round of the press and being paraphrased by the various writers according to their fancy, in the absence of any actual personal knowledge of the matter in hand.

Abrus precatorius (L.), or the wild liquorice, derives its generic name from the softness and delicacy of its foliage (*abros*), and its specific name (*precatorius*) from the fact that its seeds are used for rosaries. Its illustrious sponsor, Linnæus, was, therefore obviously unaware of its astounding sagacity as a weather and earthquake prophet, or its implied sympathy with the sun in its spotted condition, and it is only in its affinity with the sensitive plant as one of the mimosæ that we get any suggestion of its extraordinary powers. Unfortunately for the curious in such matters, neither the *Times* notice nor Mr. Nowack's circular affords the least information as to "how it is done ;" and although the modest sum of £10,000 is called for to build an observatory for the proper exploitation of these wonders for the benefit of mankind, no idea is given why so much is required for so apparently simple an object as watching the gifted plant and interpreting its signals according to the code which, presumably, the discoverer has managed to decipher. Most epoch-making discoveries are in the air as it were some time before they are crystallised into utilisable facts ; scientists have been on the borderland long before, numerous papers very near the mark have been written, read, and published, and the world is therefore more or less prepared to accept them when eventually defined and clearly established. Here, however, although the said discoveries and experiments extend over a decade, not a quotation appears from a single truly scientific journal, and a certificate of accuracy to the extent of 96 per cent. of the predictions which was promised by the committee of the (Vienna) Jubilee Exhibition in 1888 does not appear to have been given, or presumably it would have been reproduced.

Mr. Nowack, who is an Austrian, and does not apparently claim connection with any scientific society, is now in London with a view to establishing the weather-plant observatory in question ; but we certainly think he will have to adopt some far more scientific and convincing fashion of bringing his discoveries forward before he will obtain any adequate support for the exploitation of his plant. C. T. D.

VARIETAL DEVELOPMENT IN BRITISH FERNS.

DR. F. W. STANSFIELD, President of the British Pteridological Society, devoted his presidential address at the annual meeting of the society to the development of varietal forms. He said: The history of British fern varieties is almost wholly comprised within the last fifty years. Before 1850 only some half dozen to half a score of varieties seem to have been recognised. Polypodium vulgare cambricum, described as a species by Linnæus, was first recognised as a variety by Willdenow. It is first referred to in print in the "British Herbal," published in 1743. P. v. semilacerum and Asplenium trichomanes incisum are about equally ancient. Lastrea paleacea cristata, Polystichum angulare proliferum (now acutilobum proliferum, Choule) were known at Kew in 1850, and probably Scolopendrium vulgare marginatum, though I have not been able to find any reference to this last. L. paleacea Pinderi, according to "Ferns of the Lake District," was found in 1841, but possibly this is a misprint. A crested form of Lady Fern is said to have been growing on Winchester Cathedral from time immemorial. The earliest variety of whose origin there is explicit record is Polypodium vulgare omnilacerum, found by a Mr. Bennett in 1848. When seen in its best character this is still one of the grandest of polypodies, but unfortunately it has a bad habit of subsiding from its handsome deeply lacerate character into a poor serrate form; it is consequently but seldom seen in collections, and still more rarely in its best form.

In 1850 my late friend, Mr. Edwin Fox, found a reflexed athyrium in S. Devon. This may now seem a very small achievement to us who have probably all found reflex forms of the Lady Fern, but it is important as indicating the beginning of systematic fern hunting. In 1851 appeared the still well-known favourite Scolopendrium vulgare laceratum, found by a Mr. Young in Somerset. Also Mr. Wollaston appeared on the warpath, and found his first Blechnum spicant trinervium. In 1852 the same hunter found his grand acutilobe angulare, which was first known as Polystichum angulare proliferum Wollastoni. This was memorable, not only as a good thing in itself, but still more as being the forerunner of the bewildering multitude of lovely forms of angulare with divided lobes, since classified into acutilobes, multilobes, divisilobes, &c., but for long lumped together as "proliferums." In the same year was found a crispy and sometimes multifid form of Bristle Fern by Colonel Lowe. In 1853 Mr. Wollaston found his first Blechnum spicant cristatum. In 1854 appeared quite a number of new and good varieties, of which, perhaps, the most noticeable was Polystichum angulare brachiato-cristatum, Grey—still, when true, the finest of its race, but unfortunately a little inconstant in its character. Probably at least a dozen other finds of brachiato-cristatum have since been made, many of them irregular and unworthy of cultivation, but in almost all there is the same association of characters, viz., the brachiate and crested and with them a peculiar toothing or cutting and shortening of the pinnules different from that of any other group of varieties. This is a singular and unexplained association, but the varieties are far too numerous for it to be considered mere coincidence. In the same year, 1854, Elworthy found his truncate cruciate angulare. Also two fine polypodies were discovered, viz., the old cristatum and the miffy little plant named multifido-cristatum by Moore but more correctly afterwards grandiceps Parker, by Wollaston. Every fern grower is familiar with the former, but the latter is still rare, and, indeed, has always been rare.

In 1855 was found Lastrea paleacea Scholfieldi, a dwarf ramose variety, from which ten years afterwards sported the beautiful little ramulosissima. In the same year, as recorded by Mr. Lowe, Asplenium lanceolatum microdon was first found by Miss Wilkinson. Several other plants of this curious form were afterwards found by C. Jackson and others, as also of the corresponding form of A. adiantum-nigrum. These forms are regarded by Mr. Wollaston and Mr. Lowe as "undoubted hybrids with A. marinum," though it is by no means clear upon what grounds this confident opinion is based. It is true that they are both apparently barren, but barrenness is by no means exclusively confined to hybrids, and even if it were, it is still possible that these forms may eventually turn out, like many other varieties once thought to be sterile, to be not barren after all. This is a problem which those of us (alas! too few) who have leisure and room to spare should try to settle—on the one hand by trying to raise hybrids between, say, lanceolatum and marinum, and on the other hand by endeavouring to raise offspring from spores or by apospory from microdon. I do not say the hybrid theory is wrong, but it is a case of "not proven."

In 1856 Elworty found his Polystichum angulare plumosum. According to Colonel Jones, C. Jackson was the first discoverer of a plumose angulare. Mr. Wollaston also found one, which is the best known and most widely diffused on account of its fertility. The next year, 1857, produced Lastrea filix-mas Bollandiæ, still, so far as I know, the only truly and purely plumose form of the species. Also the very distinct Athyrium filix-fœmina Frisellîæ, and the marvellous Scolopendrium vulgare Claphami, the earliest type of the fimbriate crispum. This was found not by Mr. Clapham but by that gentleman's coachman, Thomas Smith. This year, 1857, also saw the accidental discovery of a good standard fern, Osmunda regalis cristata. It was rooted up by a fern-collector named John Lloyd, and sold among others in a wholesale lot to Messrs. Osborn, of Fulham, both vendor and purchasers being at the time equally unconscious of the prize with which they were dealing.

The year 1858 produced Polystichum aculeatam acrocladon and Scolopendrium vulgare limbospermo-cristatum of Elworthy, the last a form which is now rarely seen and of which much is not generally thought, but which when seen at its best, as I remember to have seen it, is a lovely thing, with long narrow fronds and complex lace-like crests. In 1859 the famous Scolopendrium vulgare Stansfieldi appeared, a crispum-fimbriatum, which was inquired for in vain many years after it had ceased to exist as a distinct variety. In this year also Mr. Clapham found his Asplenium trichomanes incisum, a beautiful and distinct form afterwards known as incisum Claphami, and which so far as I remember resembled very closely my grandfather's incisum triangulare found nine years later.

The year 1860 was a veritable *annus mirabilis* in the fern world, being memorable for the discovery of Horsfall's plumose Lady fern as well as the Axminster plumosum; Monkman's Athyrium filix-fœmina acrocladon; A. f.-f. Fieldiæ (the first truly cruciate Athyrium); Polystichum angulare cristatum, Mrs. Thompson (better known as Thompsoniæ); Elworthy's P. a. rotundatum; Grey's brachiatum (not brachiato-cristatum); P. a. Wakeleyanum (cruciato-cristatum); Scolopendrium vulgare ramo-marginatum of Clapham; S. v. digitatum J. Crossfield, and Blechnum sp. cristatum of Huddert. The three Lady ferns first mentioned are still in the front rank of ferns, or, if surpassed, surpassed only by their own descendants. Polystichum angulare brachiatum, I suspect, was only occasionally brachiate—at all events, as I remember it, it was not brachiate at all, but was a fine symmetrical upstanding variety having the peculiarly toothed and almost cruciate pinnules of the best brachiato-cristatums. A. f.-f. acrocladon was, and is, remarkable not only for its extreme ramosissimum character, but still more for the glistening hair-like processes which spring from its ultimate divisions and which give an indescribable softness to its outline.

The year 1861 saw the discovery of Talbot's Polystichum angulare grandiceps (still perhaps the neatest grandiceps form of angulare); Polypodium vulgare pulcherrimum, Addison—a rival to omnilacerum and Cambricum; Scolopendrium vulgare crispum Drummondiæ, another fimbriate crispum, and interesting as having in after years served, in Mr. Druery's skilful hands, to demonstrate the analogy (first suggested by Colonel Jones) between the fimbriate crispums and the pulcherrimum varieties of Polystichum angulare by producing aposporous offspring. I am firmly convinced that any of the other truly fimbriate crispums would do the same thing under favourable conditions. Other ferns of this year were Athyrium filix-fœmina cruciatum, Pritchard; Lastrea filix-mas Barnesi; and last but not least, A. f.-f. Victoriæ.

In 1862 came Mapplebeck's Polystichum angulare acrocladon, a remarkable form long supposed to be barren, and which has never yet been proved to be otherwise. The analagous case of A. f.-f. acrocladon, however, indicates a hope that its sterility may one day be broken by care and skill, as in the case of its analogue in Athyrium f.-f. The same year saw Padley's Vale of Avoca Polystichum angulare polydactylum, the first of that race afterwards developed by Colonel Jones, and upon which some of us think he wasted so much skill and energy. Blechnum spicant lineare Barnes, and Lastrea filix-mas grandiceps (found on Warton Crag) were worthy northern finds. In this year Mr. Moly found his first angulare pulcherrimum, though the first had been found a few years before by C. Jackson. Mr. Moly has been by far the most successful finder of these wonderful forms, having found probably a greater number than all other hunters combined. Mr. Jackson Mr. Wills, Rev. C. Padley, and his sister, Mrs. Thompson, are the only others, so far as I know, who have succeeded in finding pulcherrimums, and they have each found one only. These beautiful and wonderful forms are most provoking things to grow—indeed, I have found their cultivation too exciting to be healthy. They are full of surprises, and the surprises are often disappointments. Most of them are intermittent in character. Colonel Jones grew a plant of Mrs. Thompson's pulcherrimum for ten years before he got a characteristic frond, and then he was rewarded by a frond of rare and wonderful beauty. I have a plant of the same, which is at present a perfectly normal angulare, but which may any year give two or three pinnæ of true character just to show that it has not forgotten. Wills found one which remained constant for years, and which is a great beauty; when in character, however, it is a bad grower, and if by any chance you get it to do well the probability is that it will cruelly jilt you by dropping its character like a mask and reverting to practically normal angulare. I have in my garden a plant which was perfectly true last year, and which still has the true fronds of last year green upon it. A strong and vigorous crown last autumn raised my hopes high. Judge then of my disappointment when the fronds came up this spring plain angulare! Once fallen from grace, as it were, this variety, in my experience, never returns to its duty—once a renegade it is always a renegade. The most generally satisfactory pulcherrimum I have seen is a green one of Moly's, which, though always producing some normal fronds, always produces with them a certain proportion of true pulcherrimum character, which is thus always more or less in evidence. Another of Mr. Moly's finds which I have is his variegated pulcherrimum. It is a marvellous thing when at its best as a young plant. It never produces any normal fronds, but is always pulcherrimum. The combination of rich green in its pinnæ with various shades of yellow from pale lemon to deep orange, is a study in colour not to be forgotten. As I said before, when a young plant, with fronds, say, a foot long, it is perfect and altogether lovely. But, alas! when it loses the innocence of youth it develops traits of wickedness, which suggests that there is a good deal of human nature in its composition. Even then, however. it seems to start each new year with good intentions: the first eight or nine pair of pinnæ on each frond will be symmetrical and beautiful, but, as the fronds continue to unfurl, we find that the upper pinnæ are more or less contracted, depauperate, irregular, and—it must be said—ragged. It is thus a combination of all that is best with all that is worst in fern nature. Who shall deliver it from this burden of sin?—eliminating the bad while preserving the good? That is the task which I have set myself, gentlemen, and I do not mean to give it up so long as I can keep the fern alive and so long as I keep life myself. Pardon this long digression on my special hobby of pulcherrimums; I will now resume my discourse.

In 1863 Mr. Barnes found his Athyrium filix-fœmina plumosum and his Scolopendrium vulgare semilacerum robustum; J. Hartley his acutilobe angulare; and Mr. Bolton his Scolopendrium vulgare ramo-digitatum—not a bad contingent from the north; my grandfather found his two forms of Asplenium trichomanes incisum in Co. Clare, and Mrs. Thompson found her Polystichum angulare pulcherrimum. The year 1864 produced P. a. tripinatum Gillett—a noble form only to be thoroughly appreciated when seen grown to its full size in the open air in the south-west. Wright's Lastrea paleacea ramosissima, Scol. v. spirale Barnes, and Lastrea filix-mas crispata Hodgson were other notable finds; while some good new forms were raised from spores, of which may be mentioned Athryrium filix-fœmina splendens by Barnes, and A. f.-f. glomeratum, of Ivery.

Another memorable year was 1865, it having seen the discovery of the two forms of Asplenium adiantum-nigrum grandiceps, A. marinum imbricatum, Scolopendrium vulgare grandiceps John Cousins, S. v. undulato-supralineatum Jones, Lastrea propinqua gracilis, of Forster; L. montana Barnesi, Polystichum aculeatum cristato-gracile Bolton, and many others. Of these the first place must be given to Mr. Barnes's montana, which can well be done without placing any slight upon the host of other good things. At that time Barnesi was an absolutely unique fern, and I well remember the delight and admiration with which I first looked upon it, a magnificent plant two feet high, in Mr. Barnes's garden. This was several years after it was found, I think about a quarter of a century ago. Whitwell and Westlake have since then found fine forms similar to Barnesi in outline, but I believe neither of them has, at all events to the same extent, that peculiar horizontal setting of the pinnæ which made Mr. Barnes compare his plant to "a perfect ladder of the fairies."

The great find of 1866 was Polystichum angulare plumosum Patey, better known as Pateyi, a noble and magnificent fern, which was long stigmatised as barren, but which has to my knowledge several times produced spores, and of which at least one seedling has been raised by Mr. Cropper. This grand fern has the one fault, if fault it be, of being rather particular about its atmosphere and conditions. It is only in the hands of skilful cultivators, who are also favoured with a moist and genial atmosphere (*e.g.*, such men as Bolton, Tyldsley, Cropper, and Moly), that it is really in its best form. Other good things of the year were Colonel Jones's Scolopendrium vulgare crispum robustum, Athyrium filix-fœmina Girdlestonei (another stiff problem to cultivators), Athyrium filix-fœmina proteum, of Clapham, Lastrea paleacea crispa gracilis, and crispa cristata of Lyell. The sensation of 1867 was Polypodium vulgare Cornubiense, found, as so many good things have been found, by a comparatively ignorant man, but brought out and introduced to the world by others who have received perhaps sometimes more than their share of credit. This wonderful fern, as you all know, is not without its bad habits.

Several partially successful attempts have been made to eliminate these irregularities, first by simple selection, in the case of Messrs. Backhouse's trichomanoides, and afterwards by raising and selecting seedlings as in Cornubiense Fowler, and Cornubiense foliosum, of Clapham. None of them can be said, however, to have been perfectly successful, and a true, constant, and perfect elegantissimum still remains a desideratum.

(To be continued.)

THE INFLUENCE OF HORTICULTURE.

MOST people will agree that every human being is more or less affected by society and surroundings independently of the individual atmosphere they create for themselves. And as with the individual so with the community generally. This principle may be termed influence. There are many such, always have been, and are now at work in the world. For instance, there are the different influences of town and country; the influences of music, poetry, and painting; the mighty influence of evil, and best of all, the still mightier influence of good.

Our present purpose is to try and state as shortly as possible the more important of the influences of horticulture, using the word in its usually accepted sense, viz., the cultivation of fruits, flowers, and vegetables. Horticulture, as it is the oldest, has always been described—and is—one of the purest, healthiest, and refining pursuits anyone can engage in. In a word it is the "gentle art." Perhaps I may be allowed to cite an instance or two of the influence of horticulture on the individual. The case of Dr. Carey, the celebrated missionary, is one of the most striking. His garden was one of the finest in India, containing some three thousand species of plants. Writing home to a friend who had sent him some bulbs and seeds, he says, "To make sure that nothing of your valuable present should be lost, I shook the bag over a patch of earth in a shady place, and to my inexpressible delight a plant of Bellis perennis of our English pastures sprang up. I do not know that I ever enjoyed a simple pleasure so exquisite as the sight of this English daisy afforded me, not having seen one for thirty years, and not expecting to see one again." Dr. Carey's youthful love for flowers and plants ripened into a "ruling passion strong in death." When in his last illness, he said to Dr. Marshman, "Ah! Brother Marshman, I have been thinking when I die you will let the cows into my garden." A striking instance, surely, of the influence of horticulture on the individual.

Emerson tells us "it is simply pitiful the things by which we call ourselves rich or poor. Why, I have returned from my morning's walk feeling richer in the possession of a handful of honeysuckle than if I had found a purse of sovereigns by the wayside." The late Mr. Wm. Thomson, of Clovenfords, I believe, publicly stated—amidst the cheers of his audience—that an Edinburgh city clergyman declared when visiting the densely-crowded parts of his parish he invariably received a kindly welcome from the inmates, wherever a few window plants were cultivated, reminding us of Ruskin's splendid sentence—"Flowers are the treasure of the cottager, and in the crowded towns mark, as with a fragment of rainbow, the windows of the workers in whose hearts rests the covenant of peace."

In order that horticulture may have a direct influence agencies must be at work, and in the very forefront I have no hesitation in placing the horticultural press. As the daily press helps to form and guide public opinion in the political world, so it is simply incalculable the influence of the horticultural press in the gardening world, whether as professionals, amateurs, or cottagers. A very eminent gardener once said, "I like to get at the bottom of things, and the horticultural press helps me greatly." Publications, mutual improvement societies, and lectures delivered in different parts of the country by competent persons, are most useful in educating the public mind in the science of horticulture.

Our public parks and botanical gardens, especially our National Garden at Kew which draws its thousands on bank-holidays, and other times, afford a striking example of the influence of horticulture on the community. What can be more healthful and reinvigorating to the toiling masses of London than enjoying the beautiful grounds at Kew, walking in the houses and looking upon tropical vegetation? The noble palms, many of them possessing an interest and value, from an economic point of view, little dreamt of. But perhaps it is through horticultural societies that the influence of horticulture is most clearly seen at the present time; and here I wish to do justice and give honour to whom honour is due, viz., to the Royal Horticultural Society. When constituted, and many years after, it gave an impetus to horticulture in this country totally unknown before. Horticultural societies and the masses act and react on each other in a striking manner. The former—springing up in all directions—could not long exist without the support of the middle and working classes. The societies, by their practice of giving prizes for the best garden produce, create a healthy rivalry among working men, consequently more time and industry is spent on the garden, yielding the happy return of more abundant produce of superior quality, not only for the exhibition table, but for the support of themselves and families. This is the very thing wanted, and we want more of it. Local horticultural societies create a most beneficial influence; the very school children are interested and influenced in a remarkable way. How they clamour for their entry cards on a show morning!

To fully understand the influence of horticulture on the working classes in an ideal way, one must go where they are provided with gardens sufficiently large to grow their own fruit, flowers and vegetables. I have heard it repeatedly said garden produce can always be bought cheaper than grown. Supposing the statement to be true, there is one thing cannot be bought, and that is true quality. Garden produce carted to a wholesale market, recarted to the greengrocer's shop and retailed, cannot compare for a moment with produce fresh from the garden. The vegetables one gets in the average London chop-house are tough and even bitter. The jams and preserves manufactured by the great firms cannot compare with those from the owner of a cottage garden, at least, that is the writer's experience. It is of the most vital importance then, that the masses of working people should have the chance to practise horticulture, whether in garden, or allotment, and there need be no fear but the influences will be all for good.

In Oxfordshire, where apricots do well, many working men pay their annual rent from the produce of a tree on the end of their house. The present Dean of Rochester has, I think, stated, that sooner than lose a crop, the allotment-holders about Nottingham have used the blankets off their beds to protect the blossoms of their fruit trees. An extreme case, no doubt, but it shows what enthusiasm will do when people come under the influence of horticulture.

If horticultural produce is a necessity to the rich, I hold it is much more, from every point of view, a necessity to the working poor. And what can be more satisfactory than the working classes enjoying their meals with plenty of tender, delicious vegetables, luscious fruis, and feasting their eyes on beautiful, if common, flowers, all of their own production, which gives considerably more enjoyment to the producers. As far as I know, this is one of the best results of the influence of horticulture.

S.

EXHIBITIONS AND MEETINGS.

CONVERSAZIONE OF THE SCOTTISH HORTICULTURAL ASSOCIATION.

A VERY pleasant meeting of this rapidly-growing society was held in the fine chess-room of the Royal Hotel, Edinburgh, when about a hundred and fifty ladies and gentlemen accepted the invitation of the president, Mr. Todd, for the purpose of allocating the profits—£250—resulting from the recent great chrysanthemum show in the Waverley Market. Among those present were the Lord Provost, Baillies Shenlock, Anderson, and Hay-Mackenzie, Councillor Cranston, Mr. D. P. Laird, Mrs. Laird, Mr. and Mrs. McIntyre, The Glen, Innerleithen; Mr. and Mrs. D. Mitchell, Mr. John Mitchell, Mr. R. W. D. Murray, Mr. G. G. Moncur, Mr. and Mrs. Loney, Mr. Dunn, Mr. and Mrs. D. T. Fish, Mr. and Mrs. Harrow, Mr. Laird (the secretary), and many others.

Mr. and Mrs. Todd received their guests with much cordiality. Briefly referring to the use and progress of the chrysanthemum show, Mr. Todd gave great credit to the Lord Provost and Town Council of Edinburgh for the use of the Waverley Market, which had been called the finest site for a flower show in Europe, for the liberal prizes, and for their constant patronage and support. It was, therefore, with special pleasure that he was about to ask their treasurer to hand to the Lord Provost a cheque for £100 for the Royal Pavilion scheme of the Royal Hospital. The Lord Provost, in gratefully and gracefully accepting the handsome gift to the city, told the association that in their recent show they had done three good things. They had stimulated an interest in the beautiful chrysanthemum, they had given a vast deal of pleasure to the citizens of Edinburgh, and by handing over these cheques they had placed the city under a debt of gratitude to the society. On behalf of the Royal Infirmary he thanked them most heartily for that handsome cheque, and he was sure that his colleagues would be very grateful when he reported it to them. Mr. Cook gratefully accepted the cheque for £50 on behalf of the Sick Children's Hospital, as it would prove a great encouragement to the committee amid a good many financial difficulties.

The next speaker, Mr. D. Mitchell, in proposing the health of "The Lord Provost," showed how good deeds repeat themselves, stating that the oldest horticultural society in Scotland, the Royal Caledonian, has also determined to give £50 to charitable purposes. While writing these lines, and taking part in these kindly charities, we hear that one or more venerable societies, Perth, to wit, is languishing for lack of funds. Could not such devote a portion of their next gains to charitable objects. For there are among men and institutions that giveth and yet increase, and there are that withholdeth more than is meet, and it tendeth to poverty. As stated last week, the Scottish Horticultural Association has given cheques of £50 each to the Gardeners' Benevolent Institution and the Gardeners' Orphan Fund. Who among our richer societies will do likewise?

A delightful evening was spent in speech, song, recitation, conversation, &c., and concluded with votes of thanks to Mr. and Mrs. Todd, "Auld Lang Syne," and God Save the Queen. D. T. F.

READING GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

The last fortnightly meeting for the season 1897 of the above association was held the other evening in the Abbey Hall (by kind permission of Messrs. Sutton and Sons), and was presided over by the president (Mr. C. B. Stevens.) A very large number of members attended to hear a paper entitled "A Chat about Chrysanthemums" by Mr. H. J. Jones, of Lewisham. The paper was given in a very interesting manner, and was full of practical hints and illustrations, and was greatly appreciated. The paper was divided under several headings, such as propagation, composts, potting, manuring, watering, insects, housing, exhibiting, &c., and without doubt many were benefited by the wrinkles given. A splendid exhibit of flowers by the members greatly added to the interest of the meeting. Messrs. Sutton and Sons sent some beautiful specimens of cyclamen, including Sutton's Salmon Queen, Vulcan, White Butterfly, &c.; Mr. Townsend, Sandhurst Lodge Gardens, staged some grand plants of Primula obconica; Mr. Bright sent dwarf plants of W. H. Lincoln chrysanthemum, showing the decorative value of plants grown in three-inch pots; Mr. Bradley, Tilehurst Nurseries, exhibited cut blooms of chrysanthemums and a basket of mushrooms; and Mr. Woolford, The Gardens, East Thorpe, exhibited a splendid specimen of begonia Gloire de Lorraine.

OBITUARY.

MR. JAMES BROWN, gardener for over forty years at Abercairny, Perthshire, the splendid domain of Captain Moray, died, we regret to learn, on December 22 last. Mr. Brown was for many years a keen and most successful competitor in the classes for vegetables and hardy fruits. At Perth, Dundee, Edinburgh, and Glasgow his skill as a cultivator was strikingly exemplified. Mr. Brown's services as a judge at the leading shows was much in request, and by reason of his knowledge and conscientious adjudication he commanded the respect and confidence of exhibitors. His work in the fine gardens under his charge, and devotion to his employer's interests, were duly appreciated by the gallant Captain, who, like generations of his forbears, is highly esteemed as employer and proprietor.

Christmas Grapes.—I was rather surprised to find when, a day or two before Christmas, visiting one of our market grape growing establishments, where there was hanging a fine lot of well-coloured Muscat of Alexandria, that only blacks, such as Alicante and Gros Colmar, were being cut for market. When I referred to this the grower handed me a telegram he had received from his salesman requesting that no more Muscats be sent until after Christmas, but wanting more blacks. "We have had a good week for blacks," said the grower, and so it seemed, when I learned of the large number of baskets that had been sent to London. The price now is not a great one, but it is a paying one, and that satisfies. As to the now hanging Muscats they will fetch a shilling per pound more in January than they have done at Christmas, and because of that the grower is content to let them hang. Grown in soil of moderate quality and texture but well fed from the surface, the berries are fine and plump, as also well coloured, so that they will hang well for a few weeks longer yet. Clearly we have no white grape, old or new, that can equal Muscat of Alexandria as a late one. It is presumed that the average Christmas purchaser of grapes is not of the wealthiest, or possessing the most refined taste. Muscats are a little above his price, and blacks look on the table so much more imposing. When the best class dinner parties are on, then the Muscats will be required. Evidently market grape culture is not yet in a bad way.—A. D.

WORK FOR THE WEEK.

WARM ORCHIDS.

AT this time of the year it is best to leave the potting alone, and devote the whole time to making everywhere sweet and clean. Wash the houses well with hot water and soft soap; then sponge every plant, and I am sure even from the point of appearance they will repay for the trouble. It is a great wonder orchid lovers do not grow phalænopsis more extensively, for they are among the most beautiful of flowers. They are now throwing up their spikes, and require to be watched closely. Slugs rather enjoy the taste of a nice young spike. Fog plays havoc with the buds and flowers, so keep up a few degrees more heat to drive it out. Cockroaches want keeping down, and I find Magic paste to be the best thing for them; in fact, no one nowadays should be troubled very much with anything, as we have so many good remedies to fight the battle with. Thrips and red spider trouble us a great deal, and for the destruction of these pests we have XL All vaporizer. Ventilation at this season of the year must be carefully studied. I advocate bottom air at all times, unless the frosty winds are exceptionally cold, and blowing directly on to the ventilators. Do not give too much moisture, as this without sufficient air creates spot; in fact, keep the plants just sufficiently moist enough to develop their flowers; balance the atmospheric conditions by throwing water underneath the pipes, but be careful about throwing any on the pipes, as steam will do harm. The temperature at this time of the year must be carefully considered. One day we are firing hard, and the next very little is required, but the less fire-heat we can do with the better, though I do not like our phalænopsis to have less than 65 degrees of heat at night; still, on some occasions a few degrees lower will do no harm. The warm varieties of cypripediums will do well with the same temperature; in fact, this class nowadays have been so worked on by the hybridiser that one can hardly tell whether they are to be grown warm or cool. Some grow certain varieties as cool orchids, while others treat them as warm ones, and you will find them doing well either way; and, again, others fail to grow them well which ever way they adopt. Selenspediums require a warmer temperature, and the watering of this section should be done very cautiously, or rotting off at the bottom of the growths will result. This also very often occurs when they are grown too cold and wet. A good plan when this failing is observed is to slit the leaf at the top in the middle and tear it clean away, rubbing a little flowers of sulphur over the decayed part. The C. caudatum hybrids and varieties occasionally fall a victim to this rotting, and a careful watch over them is necessary. Very often in large collections, when there is so much to examine, something becomes neglected for a short time and then mischief is done by thrips, consequently it is well to fumigate with X L All occasionally whether thrips are noticed or not. Hybrids of C. bellatulum are very apt to be troubled with thrips, especially such varieties as C. Charles Richman, C. Schofieldiana, C. Chapmani, and C. Chapmani magnificum and others of this class; these are all best grown at the warm end of the cypripedium house, where they require to be very carefully watered and afforded a free circulation of air when circumstances will allow.

Dendrobiums will require plenty of fresh air, top and bottom, with the latter ventilators open night and day; this is supposing the plants are in a resting state. There are many orchidists now who grow dendrobiums in warmth winter and summer in order to obtain a stock, and this may be quite correct for the end in view, but we cannot expect flowers without a period of rest. The flowers of many dendrobiums will be advancing now, so if an early display is required a few may be placed in a few degrees more of heat and brought on gradually, as this is far better than exciting them, and the flowers will be better. A nice display can be kept up at all times of the year with a little forethought, and if the orchids are intermixed with a few adiantums and foliage plants they make a fine show even in the coldest months. The temperatures now should be: Phalænopsis house, night 65 degrees and day 70 degrees, rising with the sun to 75 degrees; cattleya house, night 58 degrees and day up to 65 degrees, according to weather; Mexican house, a few degrees lower. Keep everything clean, keep a sharp look-out for pests, ventilate as much as possible, and water sparingly.—T. STAFFORD, *Tyntesfield Gardens.*

GREENHOUSE AND CONSERVATORY.

OWING to a mild, bright autumn, some difficulty has been experienced in keeping back the late batch of chrysanthemums and other things either for the production of cut blooms or for arranging in the conservatory. These must be brought on gradually, and in sufficient quantities according to the demand and the convenience available for doing so. Plants of chrysanthemums that have been arranged rather thickly, or which have been standing in dwelling-rooms for some time, are not in a suitable condition to furnish sturdy cuttings just at present. The long, puny shoots should be removed at the time the flower stalks are cut down, and the stools arranged near the glass in a cold frame or a fruit house that is at rest. For producing ordinary bush or decorative plants, the cuttings may be dibbled into shallow boxes filled with sandy soil, but it is best to place a single cutting in a thumb pot if it is intended to grow for exhibition. In most cases the first lot of cuttings will have been taken for this purpose, and daily attention will be necessary to see that they do not suffer for the want of moisture, and, on the other hand, that none of them damp off through keeping a close, muggy atmosphere in the frame. If it can be done without causing the cuttings to flag, a little air should be afforded at all times, which will allow steam to pass off, or the lights should be removed for a short time each morning, and the glass dried before they are replaced. If the cuttings are thoroughly watered when they are put in, and the pots partly plunged in fine ashes or cocoanut-fibre, little watering afterwards will be required until roots have formed, at which stage they can stand more ventilation, and there is little fear of them damping. Place newly-rooted plants in a light position as soon as possible, but not where they are likely to experience a draught, for the first fortnight at least.

Arum lilies, azaleas in variety, all kinds of bulbs, together with autumn-potted plants of lilacs and the like, will form the chief subjects to furnish the conservatory for the next two months. Arums may be had in quantities at this season without the aid of much forcing, if they are rightly managed during the summer. We find them flower early and freely when confined in small pots. In these, too, they prove more useful for decorating than when large ones are used. Copious and frequent waterings, however, is necessary, or they quickly suffer, and the roots will stand fairly strong doses of liquid manure. By keeping the plants fairly cool the foliage remains stout in texture, and they continue to throw up fresh spikes. To succeed these Lilium Harrisi is indispensable, but unless the bulbs are repotted up early in the autumn and the pots are now well filled with roots no attempt should be made to force them. Indeed, they should be brought on gradually until it is seen that the flowers are forming, when more heat can be applied with safety. Azalea mollis and lilacs recently potted up will need plenty of water at the roots when placed in the forcing-pit. Anything approaching dryness after the buds have once commenced to swell will cause many of them to go blind, or what flowers are obtained will be small and ill-formed. As the plants come into flower they should be gradually moved into a drier atmosphere, or the bloom will be pale in colour and soft in texture, and will not last long. For giving a bright display at this season few plants can equal pelargoniums. There are many grand varieties now suitable for winter-flowering, but to have these perfect at this season they must have been properly growing since the cuttings were struck last March. It is surprising what a little water these plants require; indeed, it is one of the secrets in securing abundance of bloom to keep the roots rather dry, and arrange the plants on a shelf in a warm dry house. Too much humidity creates sappy growth and little bloom, whilst moisture in the atmosphere during winter discolours the petals quickly, and they soon fall when cut. Weak liquid manure about twice a week will assist them to build up stout flower trusses.

Bulbs before being placed in the forcing pits should be made quite firm in the pots by pressing the soil around them. It is not unusual for these to be heaved up as the roots form, especially when they are put in thickly. By being made firm and well watered before they are plunged in the forcing bed there is less danger of them suffering for the want of moisture. Continue to ventilate freely late batches of primulas and cinerarias, and fumigate the latter frequently. Keep bedding pelargoniums rather dry, and admit plenty of air when the weather is mild.—R. PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

AT the present time there are few flowering subjects in the open borders, the most important at this season being varieties of Helleborus niger. Where the flowers of these are prized for cutting, they should be afforded the protection of a handglass, or some other improvised shelter. Oak branches, to which the leaves still firmly adhere, may be cut and stuck in the ground around the clumps; these form a very good screen if placed thickly, and this somewhat darkened protection causes the flower-stalks to elongate, and the blossoms to be a purer white than when fully exposed, Snowdrops may be similarly treated. In the pleasure-grounds strict cleanliness should be maintained. Where there are many deciduous trees, all leaves should be cleared up and carted away without delay, first raking up the leaves, and afterwards sweeping to leave a perfectly-finished path and lawn. Beech and oak leaves are valuable for mixing with horse droppings for the making of hotbeds, also for rotting down for potting use in the form of leaf-soil, and these should be kept separate from such coarse ones as are from the horse chestnut and similar kinds. While mild weather continues, walks and lawns may receive attention. Where the latter are mossy, which is often the case if the situation be damp and shaded, or the soil very poor, it should be scratched up with a fine-toothed iron rake, and, after sweeping all off cleanly, a top-dressing of fine loamy soil, wood ashes, and soot, should be applied, the two latter to the proportion of about one-fourth of the whole. After mixing thoroughly, spread the dressing thinly over the surface of the lawn, aud brush it well in with new brooms. If the lawn is excessively wet, the finer grasses will not succeed, and in this case the present time will be a suitable one for the work of draining to be carried out. The ordinary earthenware pipes generally in vogue for this purpose may be used, arranging for a proper outfall, and filling in over the pipes with a few inches of rough stones, clinkers, or anything of a like nature; or, failing the pipes, these may be used alone in larger quantities. The drains should be from two to three feet in depth, and run parallel at about thirty feet apart.

In the absence of frost, uneven lawns may be made level, cutting the turves to a convenient size for moving, and stacking them close to the portion to be dealt with. This done, dig over the surface with forks a few inches in depth, adding fresh soil if necessary. After raking quite level, tread down firmly, and carefully relay the turf, and the latter should be beaten down quite firm. Gravel paths may also be taken in hand now. Old paths having a sufficient depth of gravel may be made to look like new if carefully turned two or three inches in depth with flat-tined forks. Paths that require regravelling should first have the surface broken up before applying the new gravel. This kind of work is best done in dry weather. In the flower garden all vacant beds should be dug or trenched, and so prepared to suit the kind of plants with which they are to be filled during the coming season. For pelargoniums the soil should not be made over rich, otherwise a rank, coarse growth will ensue, and very few flowers. Calceolarias and other subjects quickly affected by drought should be placed in heavier and well-manured soil capable of retaining moisture as long as possible. Beds and borders intended to be filled with sub-tropical plants should also be freely manured and deeply dug, as a bold and strong growth is in this case desirable.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

In notes under this heading I shall in a great measure detail my own practice, and readers of the GARDENERS' MAGAZINE should take into consideration the locality and vary the work, so that in the north some of the advice given may be somewhat in advance of the season; but this will be a gain, as hardy fruit are not always given timely attention, not because there is any desire to delay the work, but from inability to do it owing to scarcity of labour and means. On the other hand, in this department there is much saving of labour by doing work now which, if left till spring, cannot be so well attended to. Hardy fruits deserve notice, for they form one of the best-paying departments in the garden, and one, I am glad to see, has had ample space in these columns of late years. In writing on the merits of fruits, I would also ask readers to note that these vary so greatly in diverse soils that in giving any kinds a trial the soil should be considered; localities also in a measure alter the character of hardy fruits, for in our case most kinds are ripe much earlier than the dates usually given, and our light, gravelly soil being largely answerable. The weather here has not been at all favourable for outside work of late, there having been much fog and frost combined; pruning has been nearly at a standstill, but there is no lack of work needing attention, and the frost promises to be of short duration, so work should not be delayed. This season our pruning is a slow business, as many of the wall trees have their branches close together, and with young trees crowding often happens, as there is at times too much wood left in. To remedy this we have taken down the trees from the walls, lowered the branches, giving more room, and by so doing we shall have finer fruits and cleaner trees. Crowded trees are so difficult to keep clean, and in the case of cherries, figs, peaches, and nectarines, the fruits come smaller and are consequently less valuable for the table. Now is a good time to thin out old spur growth. and in doing this work select those growths farthest from the wall, giving each a clean cut to within an inch or two of the base—the distance must be judged by the wood and position of the spur—and the cut portion will next season push out a new growth close to the wall, which, if stopped in due course, will make fruit spurs in a short time. On the other hand one cannot without injury to the trees remove many spurs at one time, so the work must be done piecemeal. I do not advocate the old plan of laying in all the young wood made by cherries of the Morello type, as crowding is not advantageous, and in our case we spur back the weaker shoots, laying in the stronger, and by so doing get fine fruit on the spurs.

Peaches and nectarines need so little attention from October to February that I need not refer to these trees at length, but I pay more attention to retarding the growths at this season than to giving much shelter when in bloom in a southern locality, for the hardier the trees are grown the better the crop. It is an easy matter at this season to take away from the wall the new growths or small shoots, and so harden the buds that they break much later. Do not, however, unloosen the main shoots or branches as the trees would become broken by winds. Not only does the unnailing harden the wood but it cleanses also, this being equally important. Any pruning of these trees may also be done, but it is the best policy in exposed places to defer pruning till a later period, but the peach and nectarine, with ample attention during the summer, should not need much pruning, especially if the old fruiting wood is removed as soon as the crop is cleared. I would strongly advise any planting of these fruits, also apricots, to be attended to. I prefer planting the fruits named early in the autumn, and though there is a danger of the bark shrivelling, the trees left too late suffer in hot dry seasons. Up to this date there has been no frost to damage newly planted trees, but it is well to cover the soil around them with strong litter. I do not advise decayed matter as if left late in the spring it prevents the sun warming the soil and retards root action. When fruit trees are being pruned it is a good plan in the case of cherries or plums to cleanse also, as though the trees may be clean the walls are not, and there are numerous insects lurking in crevices and these can be reached more readily when the trees are away from the wall. We use quassia extract with sulphur, and it saves us much labour in summer.—G. WYTHES, *Syon Gardens.*

ST. CLARE CASTLE, RYDE, ISLE OF WIGHT.

THIS is the marine residence of A. G. Vernon-Harcourt, Esq., which is beautifully situated in well-wooded grounds, and within a mile of the town of Ryde on the east side. The castle itself is a very ancient structure—which has received several additions from time to time—on a slight eminence with a commanding view of Spithead and the mainland, which is greatly enhanced from the castle tower. The interior of the castle is well fitted up to meet all modern requirements of a nobleman's residence. The gardens, which are under the capable management of Mr. Charles Meehan (who is a brother to Mr. Thomas Meehan, of Germanstown Nurseries, so well known in the botanical and horticultural world), contain many things worthy of note. A fine batch of cinerarias which are timed to be in perfection at Easter are very healthy, with large leathery leaves free from green-fly and the leaf-mining maggot. A large number of Calla æthiopica are just pushing up their spathes. The principal varieties of grapes grown are Gros Maroc, Trebbiano, and Black Hamburgh, which have made some good new wood, that is thoroughly ripened. In the stoves I noticed some fine plants of Pancratium fragrans, Hibiscus Cooperi, Pentas, Eulalia, Cyperus, and Angiopteris evecta. The peach trees under glass have made remarkably fine wood which is well ripened and thoroughly clean, and promise well for another year.

The walled-in garden, which is some two acres in extent, contains some well-trained apricots, pears, and plums, and also some fine healthy bush trees of apples. In the park there are avenues of thorns and rhododendrons (R. ponticum), and several fine trees of Cedrus deodora, Photinia serrulata, Paulownia imperialis, Magnolia grandiflora and American plants of Thuja "George Peabody," and a potentilla. The place is unquestionably worthy of a visit from all lovers of gardens, parks, and woods. Mr. Meehan is not only a keen observer, but an experimentalist, and has this year grown cannas as aquatics; but they have scarcely realised his expectations, and he thinks they will do better not totally submerged in water, but simply with the base just touching the water. My visit and interview was most instructive, for we discussed the questions of canker, gumming, &c.

S. HEATON.

PLUCKING LIVE GEESE.

IT will be a surprise to a great many people who gratified their appetites with the savoury Christmas goose to learn that the practice of plucking geese alive still obtains in some part of the country, especially in Lincolnshire. Divers opinions are entertained with regard to the process. Some persons hold it to be cruel, while others think otherwise. The task is invariably allotted to a man who is known as a goose puller. His mode of procedure is, to say the least, effective. Having caught his goose, he tucks the head of the captured bird under his left arm, and forthwith proceeds to the laying on of hands. The plucking is performed in an expeditious manner, and in a very short time the bird is set free, shorn of feathers on breast, sides, back and top of the wings. The effect is not pleasing to the eye, and detracts from the beauty and symmetry of the bird. Its advantage, however, is said to be that by the time it is ready for the poulterers it has increased 2lb in weight.

The contentions of those who hold the practice to be a reprehensible one are that the plucking causes a good deal of suffering, that considerable pressure has to be exerted to keep the bird in position while the operation is in progress, and the effects of the exposure to the weather after the plucking, to say nothing of the fright to the bird in being caught and subjected to this treatment constitute cruelty. On the other hand, those who have been plucking geese for years by the hundreds and thousands maintain that if the feathers were not plucked they would drop off. They go farther, and say it is an advantage to the bird rather than otherwise, that a goose that has been plucked thrives better than one that has not undergone the process. Again, it would not fetch so much money, the flesh would not be of the same quality, and, as a marketable commodity, it would not be so valuable. There was no cruelty, they argue. The whole process only took about five minutes. An experienced puller reckons that he merely draws his fingers along the body, and that when he does that the whole of the feathers on the breast and back come off.

This conflict of opinion has recently been put to the test. A case has been heard by the Marshland magistrates at Terrington, brought at the instance of the Norfolk and Norwich Society for the Prevention of Cruelty to Animals. The contention of the prosecution was that to pluck geese alive was "unquestionably a barbarous and cruel practice, and could only be sanctioned and carried out by cruel, granite-hearted individuals." The defence, of course, was that it was not cruel, that it was performed with reasonable care and skill, and that, in the result, the flesh of the bird was rendered more fit for human food. The magistrates took this view, and dismissed the case.—*Daily Mail.*

BACKING THE FAVOURITE does not always bring pleasure or profit to those concerned in it. Frequently the horse no one thinks much about wins, and those who gain anything are few and far between. This cannot be said with reference to Holloway's Pills and Ointment, for they never disappoint those who have faith in their merits. With reference to the Ointment medical men are so convinced of its merits that they recommend it to patients as the best remedy within their experience. The Pills, also, have a marvellous effect upon the system; and it can be truly said that whatever the cause of the trouble may be the combined medicines will restore the patient to health.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Address.—H. N., Deal: The address you need is W. Horne, Perry Hill, Cliffe, Rochester.

Roses under Glass.—J. M. S., Bognor: Three good varieties to suit your requirements would be La France, Beauty of Waltham, and Duke of Edinburgh.

A Garden Nuisance.—P., St. Ives: So far as we can judge from your letter, you have good cause for complaint and sufficient ground for bringing an action against your neighbour to obtain an injunction restraining him from continuing the nuisance. Whether you sue also for damages is a point you will be best able to decide. Sorry we could not answer you in the previous issue.

Hollow Celery.—W. E. W., Leeds: No doubt the failure was due to excessive liquid feeding following a period of drought or during such a period. You can scarcely make the ground too rich for celery, and moisture is absolutely necessary; liquid manure must, however be given with care, or pithy instead of crisp succulent stems will result. The vines may be lifted and potted at once, taking care that subsequently the roots are kept nicely moist; place the vines in a cool house.

Preserving Fungi.—C. G., Hayward's Heath: Fungi may easily be bottled in spirit and thus preserved for reference, but the colour will not be retained by this means. A good mixture for the preservation of colour as well as form consists of eight pints of water mixed with two pints of sulphuric acid; when well mixed, add a pint of creosote, then bottle the specimen in this, and cork as tightly as possible.

The Lindenia.—J. M. S., Bognor: The *Lindenia* is a work devoted almost exclusively to the illustration and description of orchids. The illustrations are coloured, and the text is in the French language. There are six parts to each volume; each part contains, usually, four plates, and one part per month is the rate of issue, though the publication is not very regular. The annual subscription is sixty francs (£2 10s.), and the work is published by M. Lucien Linden, 117, Rue Belliard, Brussels, Belgium.

Brassia Lawrenceana.—F. F., Canterbury: This is a handsome and elegant orchid producing long racemes of spidery flowers, large in size, bright in colour, and sweetly fragrant. It was introduced from Brazil in 1839, and flowered first in Mrs. Lawrence's collection at Ealing Park. The sepals are deep yellow blotched with brown and green; the lip is yellow, with a double keeled white crest dotted with yellow. The species is figured in the GARDENERS' MAGAZINE of May 5, 1894. The variety longissima is a magnificent one, having much longer segments than the type, the sepals in well-grown specimens measuring seven inches in length. The colour is orange-yellow blotched with reddish-purple. The *Botanical Magazine*, t. 5,748, contains a coloured plate of this remarkable form, and a reference to it will speedily dispel any doubts as to the beauty of brassias.

Carpet Bedding.—H. N., Bolton: There is no work in the English language entirely devoted to carpet bedding, but you will find many plans given and plants quoted for designs in McIntosh's "Book of the Garden," published in 1853 by W. Blackwood and Sons. This work you may gain access to in a good public library. A recent work, freely illustrated, and devoted entirely to the subject, has been published in German by Ludwig Möller, Erfurt, Germany. The work is by Karl Götze, and entitled "Album für Teppichgärtnerei und Gruppenbepflanzung." The names of plants are, of course, as usual, and there is, at the commencement of the book, the English rendering of descriptive German words and sentences, so that most of the text can be understood by those not acquainted with Deutsch. You should apply to the publisher for price. The book is quarto size, and contains 252 pages.

Pruning Filberts.—T. H. T., South Hants: The scarcity of filberts often occurs through an insufficiency of catkins, or male flowers; consequently the pruning necessary should be deferred until it is seen whether there will be sufficient male catkins to furnish pollen after using the knife. If there is any doubt as to quantity, do not prune until after the male catkins have faded. In the case of trees with unlimited head room, the only pruning necessary will be such as will ensure all parts of the tree an abundance of light and air. Where space is limited a severer method may be adopted. Excessive vigour in filberts must be checked, or the trees will be gross and unfruitful. This cannot be done by stem-pruning, for this but aggravates the evil; the remedy is to be found in lifting and root-pruning, large specimens being root-pruned on one side one season and the other the next.

Protecting Fruit Trees from Rabbits.—Rex, Ely: There are several methods by which attacks by rabbits and hares upon the bark of young fruit trees may be discounted. In our issue for December 18 last, Mr. J. C. Tallack, who has had considerable experience in this direction, points out that an excellent safeguard, and quite an inexpensive one, either from cost of material or its application, is to cut up old fish netting which has become too rotten for further use in protecting fruits, into strips, and wind these around the stems from the ground upwards to a height out of reach of the vermin. No other protection is needed, as they will not tackle the netting, however rotten it may be. Stockholm tar mixed with cow manure, the latter being of the same consistency as the tar, makes a suitable dressing for parts of tree stems that have been gnawed by these pests. Assafœtida, at the rate of a teaspoonful of the tincture to a pailful of clay worked to the consistency of paint, may be painted on to the tree stems two or three times during the winter; this mixture is so distasteful to hares and rabbits that the trees are preserved from harm.

Why not a National Orchid Society?—E. S., Regent's Park, asks: "How is it that there is not a National Orchid Society? We have our chrysanthemum, rose, dahlia, pansy and viola, carnation, cactus, and other special national horticultural societies, besides general horticultural associations and the Royal Horticultural Society, and it seems hard to be understood why no one has hitherto started a special national society for orchids. There is quite as much interest taken in orchids, and quite as many cultivate them both for pleasure or profit as in the case of other special subjects which now have a society to themselves. A National Orchid Society, if set going, would, I feel sure, meet with support from all quarters." The reason why there is no such body as a National Orchid Society is, we believe, largely due to the fact that since orchids became at all popular the Royal Horticultural Society has devoted special attention to them, so that they receive at least as much recognition as any national society could hope to give. The Orchid Committee of the R.H.S. consists of experts from all parts of the country, amateur, professional, and trade growers, and they make awards with great liberality. An orchid lover joining the R.H.S. obtains all the privileges he could expect from a national society and many additional ones; his exhibits will be judged if new or rare varieties, species, or hybrids, and groups be awarded medals according to their excellence; he has free admission to the fortnightly orchid displays at the Drill Hall, and to the finest orchid show in the world, viz., that at the Temple Gardens each May. In addition to the R.H.S. there is a special orchid society at Manchester instituted last year for the convenience of northerners.

Mildew and Rust on Carnations.—F. C., Appleby: Mr. G. Wythes writes: When advising sulphur liquid for plants infested with mildew and rust, I was thinking of Bentley's Mildew Specific; this is a convenient preparation ready for use, and a sure remedy for fungoid growths. For a small quantity of plants, and cases where the above is not at command, it will be well to adopt the older remedy of sulphur liquid dressings, which we prepare by mixing half a pound of flowers of sulphur with a gallon of tepid water, well mix the whole and dip the plants in the mixture, the latter allowed to remain on the leaves for a time. With the sulphur I have used a small quantity of soluble petroleum at the rate of a wine-glass to the gallon, and have found it a great check to rust if applied before the disease had spread far. I am aware that with plants badly affected the best preparations will fail, and it may be necessary to cut away diseased leaves and dress those partially infested. A dry dressing of sulphur and wood ashes is more used as a surface dressing to prevent the disease; we sprinkle it freely over the standing ground or on stages, the mixture consisting of dry sulphur and newly-burned wood ashes. It is also an excellent plan to dust the plants, when dry, on fine days; or what is better, frequently alter the positions of the pots, but not necessarily moving them from frame to frame. We also hold each plant upside down and cover the under sides of the leaves with the mixture advised. Most growers are aware that is the part of the plant most attacked, and dusting overhead is not greatly beneficial. Not only is arresting the disease essential, but preventing it if possible is far better. In our moist atmosphere we find it necessary to ventilate freely on all favourable occasions; and to allow a free current of air through the frames, we raise the sashes both top and bottom.

The Gypsy Moth.—J. H., Tunbridge Wells: The moth you have received from Germany and submitted to us is the Gypsy Moth (*Porthetria dispar*), a very troublesome pest in countries favourable to its multiplication. Fortunately the conditions that obtain in the United Kingdom are not favourable; but in some European countries it multiplies at a rapid rate, and the caterpillars do an immense amount of damage to both timber and fruit trees by stripping them of their leaves. It is abundant in some parts of the United States, and in Massachusetts it is so abundant as to have necessitated repressive measures on a large scale under the direction of the State authorities. According to a report published by the Board of Agriculture of the State giving particulars of the work that had been accomplished in checking the ravages of the pest the Gypsy Moth was not known in America until 1868, when it was introduced by a French naturalist, who imported it in the course of his experiments with silkworms, and upon some of the moths escaping he announced the fact publicly. This took place at Medford, Massachusetts, and within twelve years from the time of its introduction the moth had become a serious nuisance. Within twenty years it had spread into thirty townships, and gained a foothold in each without attracting public attention. In 1889 and 1890 the Gypsy Moth caterpillars were so plentiful in various districts as to eat off the leaves from all trees in gardens, orchards, shrubberies, and woods. The caterpillars were, indeed, so thick on the trees that it is averred they could be heard eating. They climbed over the fences until they made them quite black. They entered the houses, and were even, it is said, found in "beds when the blankets were turned down." It is considered that if the State had taken no action in this matter the caterpillars would have increased to such an extent that they would have bred a pestilence in the infested localities, as the stench arising from them was nauseating. "The foliage was completely stripped from all the trees, presenting an awful picture of devastation, and promising in a short time to kill every tree and shrub and all vegetation in any region visited by the creatures." In 1891 an Act was passed by the Massachusetts Legislature making provisions for waging war against the moth in a systematic manner, and it is estimated that in the course of the first six weeks of the year nearly 500,000,000 eggs were destroyed. As the moth hibernates in the egg form, the destruction of this enormous number must have greatly checked the pests. Grease banding and spraying with arsenate of lead were found to give good results, but winter dressings for the purpose of destroying the eggs were the most effectual. Insectivorous birds of many kinds eat the caterpillars, but in Massahusetts they do not appear to have been sufficiently numerous to hold the moth in check.

Names of Plants.—J. P., Walton: Cœlogyne fimbriata.

W. W., Watford: Petasites fragrans, also known as Tussilago fragrans. This plant has become naturalised in some parts of the country, but, though common, it is of great use for conservatory decoration during winter, especially by reason of its heliotrope odour.

K. B, Henley: 1, Cestrum elegans; 2, Callistemon speciosus; 3, not recognised, roses are out of character at this season; 4, Polypodium subauriculatum; 5, Pelargonium echinatum; send when in flower or fruit.

F. S., Bletchley: 1, Adiantum cuneatum deflexum; 2, Pilea muscosa; 3, Dichorisandra musaica; 4, Cissus discolor.

N. P. M., Sheffield: 1, Erica hyemalis; 2, Viburnum Tinus; Odontoglossum Rossi aspersum; 4, Masdevallia tovarensis; it is the exception for this species to produce but one flower or a scape, two or three is the rule.

Names of Fruits—M. G., Mitcham: 1, Adams' Pearmain; 2, Blenheim Orange; King of the Pippins.

S. M. T., Chester: 1, Winter Codlin; 2, Tower of Glamis; 3, Minchull Crab; 4, Betty Geeson.

D. H. B., Sunderland: 1, Norfolk Beefing; 2, Golden Harvey; 3, Ribston Pippin; 4, Lamb Abbey Pearmain.

S. N, Bath: 1, Hambledon Deux Ans; 2, Hanwell Souring; 3, Beurre d'Aremberg; 4, Winter Nelis; 5, Glou Morceau.

Communications Received.—G. W.—J. S.—T. S.—H. C. P.—J. C. T.—A. D.—R. P.—H. N.—R. N.—H. C.—W. W.—J. M. S.—J. P.—F. E.—R. E.—G. E.—F. F.—D. T. F.—C. G.—J. J.—H. N.—K. B.—F. K.—W. E. W.—J. P.—F. S.—N. P. M.—M. G.—S. M. T.—D. H. B.—S. N.—L. C.—H. H. T.—C. P.—J. V. and S.—H. and S.—A. W.—R. D.—F. and K.—J. C. S.—L. and B.—S. and M.—C. L.—S. D. and S.—F. S. and S.—D. and Co.—C. T. and Co.

MARKETS.

Covent Garden.

TRADE is rather quieter after the holidays, although supplies are fairly large and good. Fruits and nuts are most in request, and cut flowers are greatly in demand at moderate prices.

FRUIT.—English apples, 4s. to 9s. per bushel; American and Nova Scotian, 14s. to 35s. per barrel; French pears, 5s. to 8s. per crate; 4s. to 9s. per box; English grapes, 1s. 3d. to 2s. 6d. per lb.; Almeria, 10s. to 20s. per barrel; bananas, 5s. to 10s. per bunch; pineapples, 1s. 6d. to 4s. each; lemons, 8s. to 15s.; oranges, 8s. to 18s.; pomegranates, 7s. to 8s. 6d. per case; tangarines, 8d. to 1s. 6d. per box; Canary tomatos, 10d. to 1s. 6d. per tray; 4s. 6d. to 5s. 6d. per case; dates, 10s. to 12s. per cwt.; French chestnuts, 6s. to 9s.; Italian, 12s. to 14s. per bag.

FLOWERS.—Arums, 4s. to 6s.; carnations, 1s. to 3s.; chrysanthemums, 6d. to 2s. 6d.; gardenias, 3s. to 5s.; eucharis, 4s. to 6s.; Lillium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 10s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 4d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 3s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 5s. to 6s.; and violets, 1s. 6d. to 2s. 6d. per dozen bunches; azaleas, 9d. to 1s. 6d.; stephanotis, 4s. to 6s.; white narciss, 9d. to 2s.; Roman hyacinths, 6d. to 1s.; lily of the valley, 1s. to 2s.; and pelargoniums, 5d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—English onions, 5s. to 5s. 6d. per cwt.; Valencia, 5s. 6d. to 6s. per case; horseradish, 12s. to 16s.; sprue, 5s. to 7s.; celery, 9s. to 18s. per dozen rolls; sprouts, 1s. 6d. to 2s. per half-sieve; seakale, 12s. to 18s. per dozen punnets; French lettuce, 1s. 3d. to 1s. 6d.; endive, 1s. 6d. to 1s. 10d.; artichokes, 2s. to 2s. 6d.; cauliflowers, 1s. 6d. to 2s. per dozen; beetroots, 2s. to 3s.; cabbages, 4s. to 6s. per tally; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s.; parsley, 1s. 6d. to 2s. per dozen bunches; eschallots, 2s. to 2s. 6d. per 12 lb.; potatos, 55s. to 100s. per ton.

Borough Potato Market.

There is a moderate trade passing at prices recently quoted. Stocks good and supplies light.

Dunbars, 115s. to 125s.; Hebron, 85s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 75s. to 85s.; Reading Giants, 75s.; Saxons, 75s. to 80s. per ton; Belgians, 3s. 3d. to 3s. 9d.; Germans, 3s. 9d. to 4s. per bag.

THE WEATHER DURING THE WEEK ENDING DECEMBER 25, 1897.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	44·9	23·3	35·8	2·11	0·02	0·05
Croydon	46·0	19·5	34·9	1·61	0·02	0·05
Brighton	47·0	30·8	39·6	4·22	0·00	0·00
Bristol	45·0	24·0	34·6	1·44	0·00	0·00
Wolverhampton	46·0	24·0	34·6	1·44	0·00	0·00
Norwich	46·0	21·2	35·4	1·89	0·02	0·05
Nottingham	—	—	—	—	—	—
Liverpool	44·9	29·0	35·7	2·05	0·00	0·00
Huddersfield	45·0	19·5	34·8	1·56	0·00	0·00
Bradford	53·0	23·0	37·4	3·00	0·01	0·03
Hull	47·0	24·0	34·7	1·50	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 30·28 inches, and that of the Thermometer 35°·8, the latter being 2°·9 below the week's average in the 50 years 1841—90. The direction of the wind was easterly, the horizontal movement of the air being 35 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 12·9 hours. The measured rainfall amounted to 0·02 of an inch.

CATALOGUES RECEIVED.

C. PLATZ AND SON, ERFURT, GERMANY.—Trade Seed List.
B. S. WILLIAMS AND SON, UPPER HOLLOWAY, LONDON, N.—Seeds and Sundries.
J. PEED AND SONS, ROUPELL PARK NURSERIES, NORWOOD, S.E.—Seeds.
J. VEITCH AND SONS, KING'S ROAD, CHELSEA.—Seeds and Sundries.
H. CANNELL AND SONS, SWANLEY AND EYNSFORD.—Home-grown Seeds.
HARRISON AND SONS, LEICESTER.—Leicester Seeds.
ALFRED WOODROFFE, AUCKLAND, N.Z.—Fruit Trees and Novelties.
A. W. P. PIKE, WINDSOR PLACE, CARDIFF.—Carnations, &c.
R. OWEN, CASTLE HILL, MAIDENHEAD.—Chrysanthemums, Begonias, &c.
FOTHERINGHAM AND KING, DUMFRIES.—Ornamental Trees, &c.
J. C. SCHMIDT, ERFURT.—Novelties for 1898.
LITTLE AND BALLANTYNE, CARLISLE.—Garden Seeds.
STUART AND MEIN, KELSO, SCOTLAND.—Gardening Guide.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

WEDNESDAY, JANUARY 5.—Rose and Fruit Trees, Border Plants, Bulbs, &c., at J. C. Stevens's Rooms.

THURSDAY, JANUARY 6.—Great Sale of Border Plants, at J. C. Stevens's Rooms.

WEDNESDAY, THURSDAY, AND FRIDAY, JANUARY 5, 6, AND 7.—Azaleas, Lilies, Roses, Orchids, &c., at Protheroe and Morris's Room.

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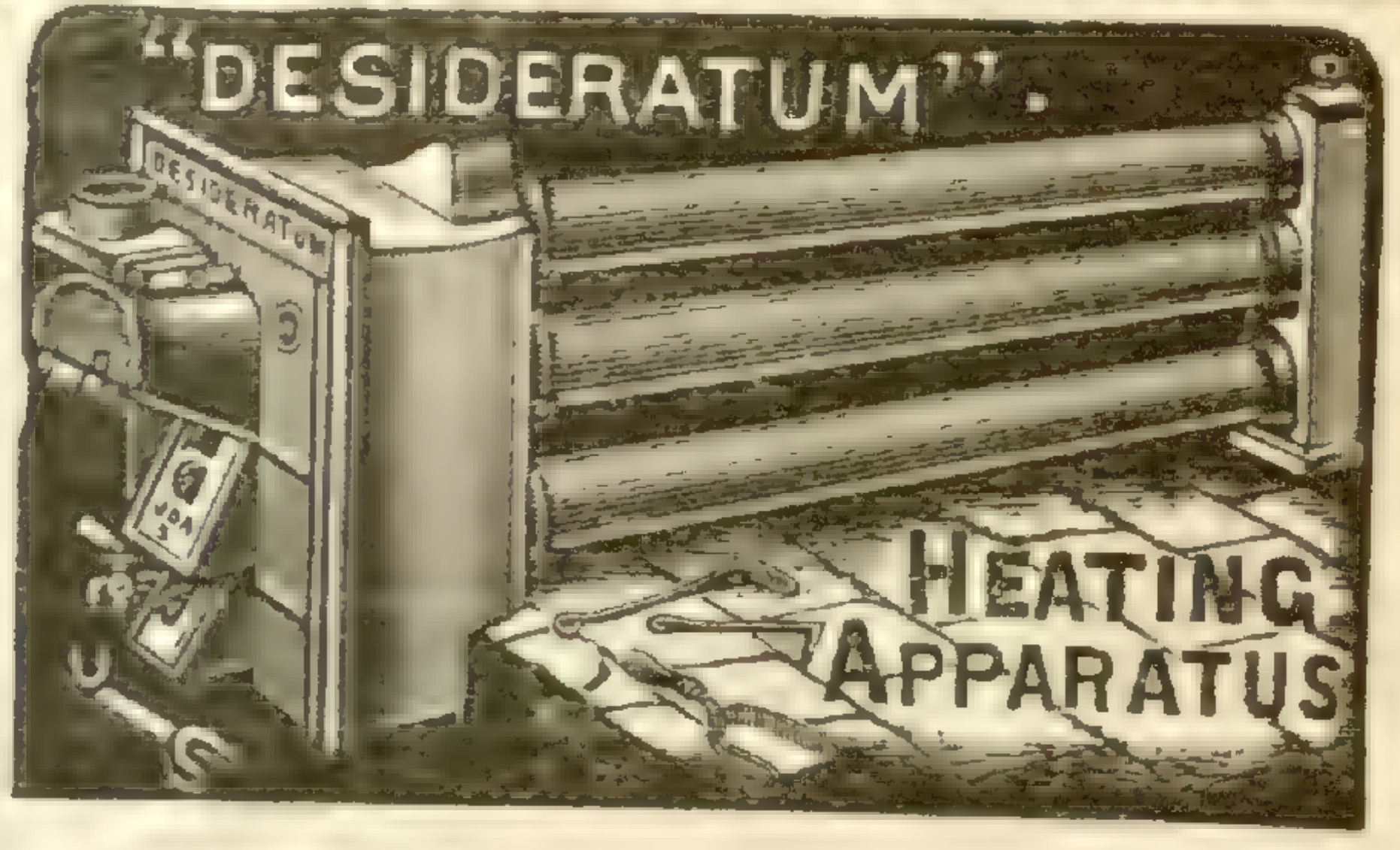

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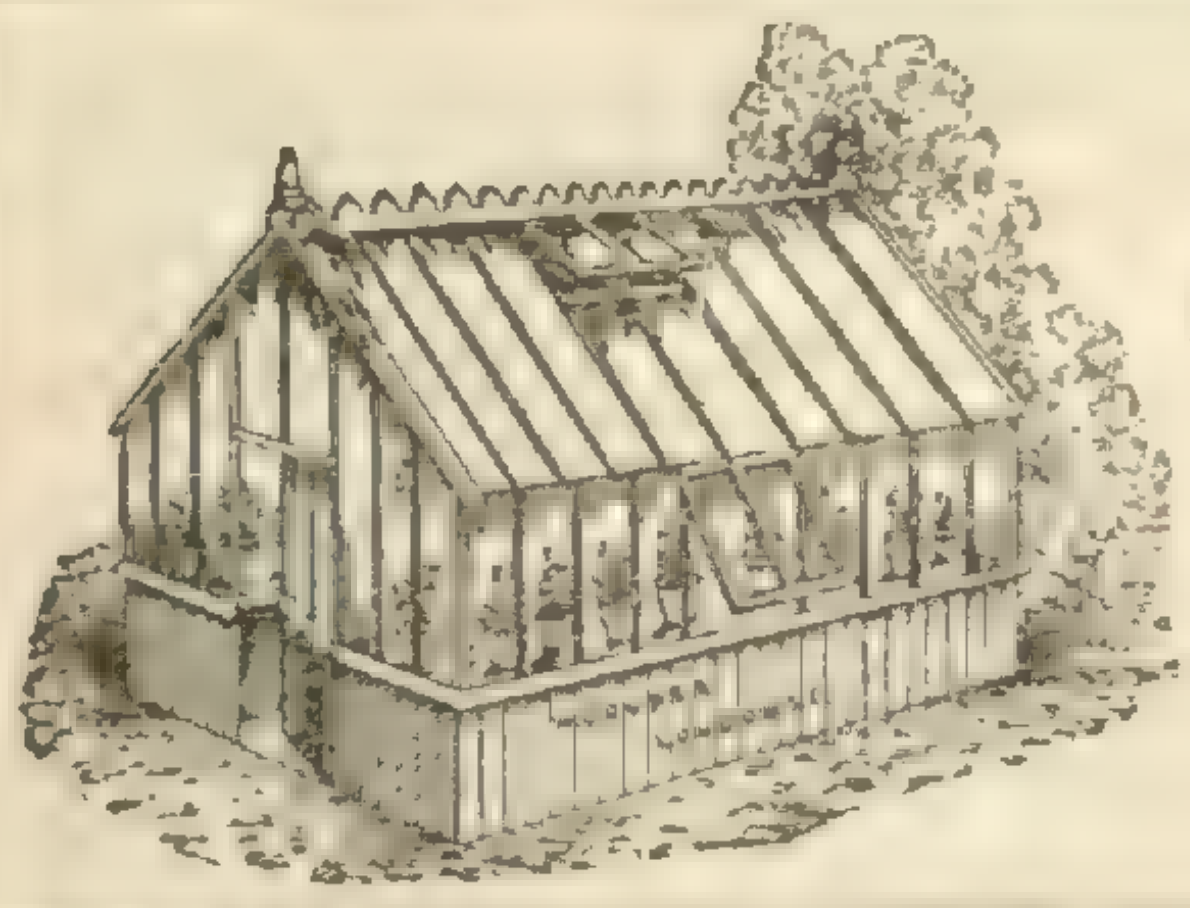

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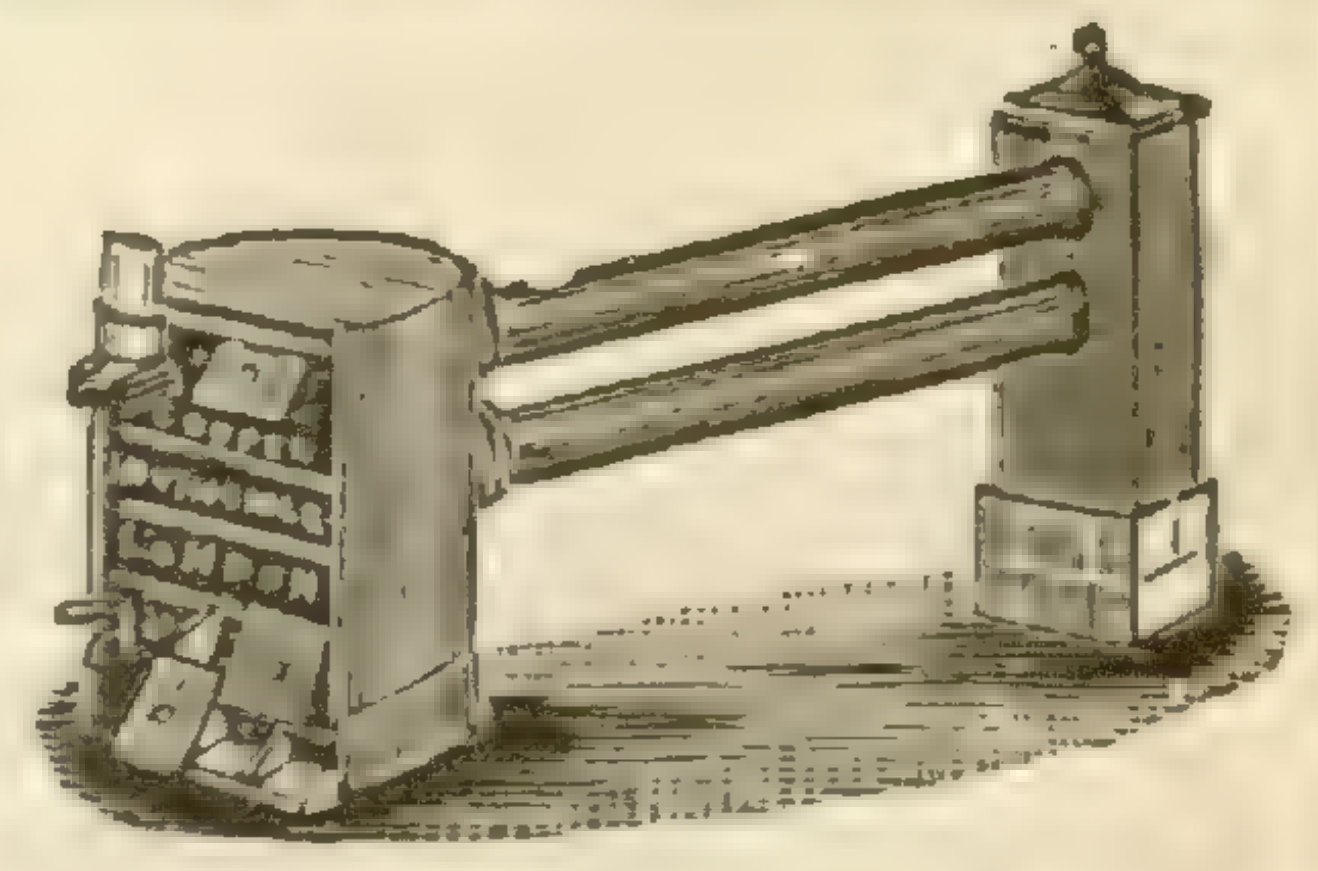

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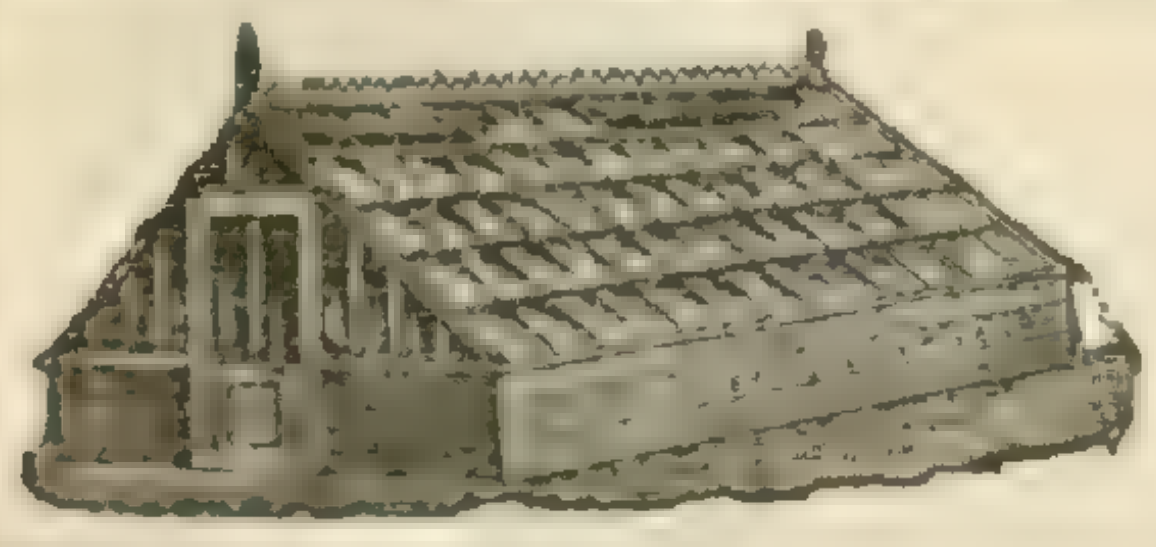

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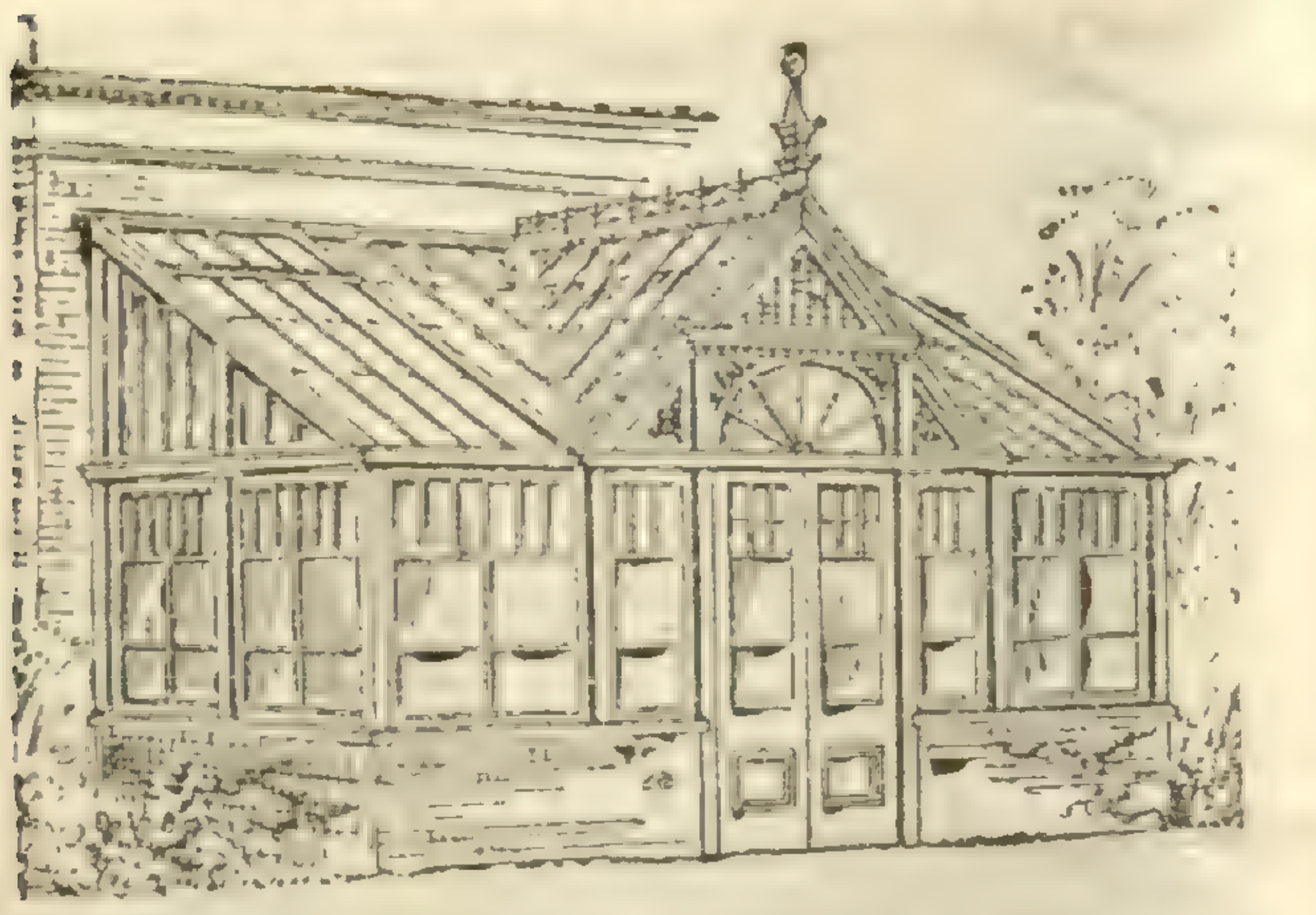

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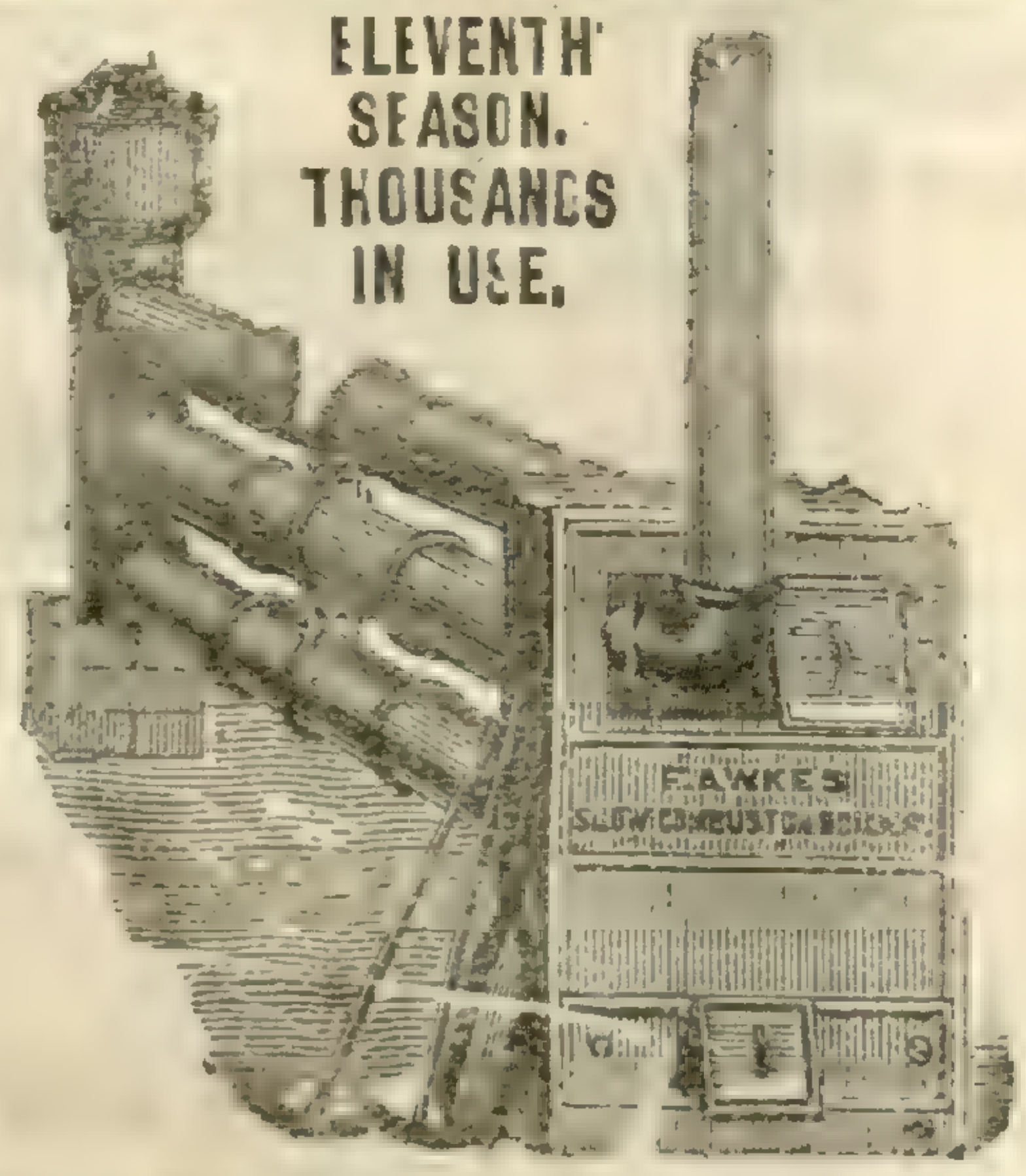
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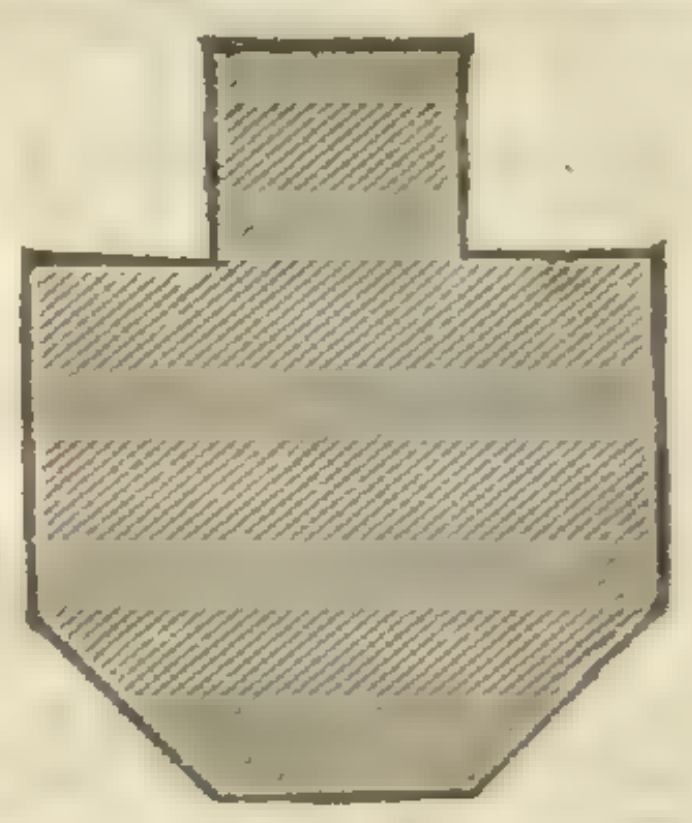

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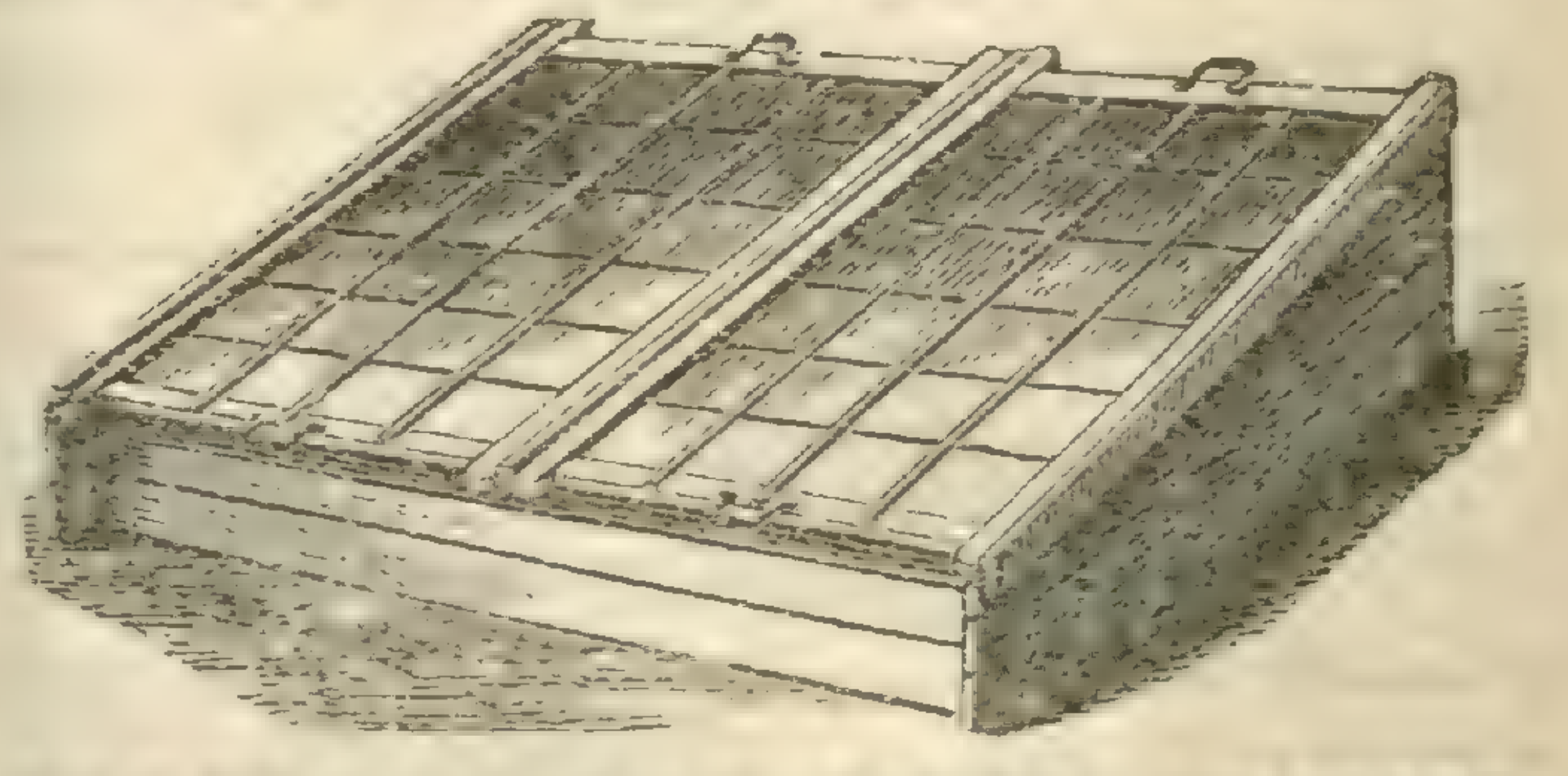

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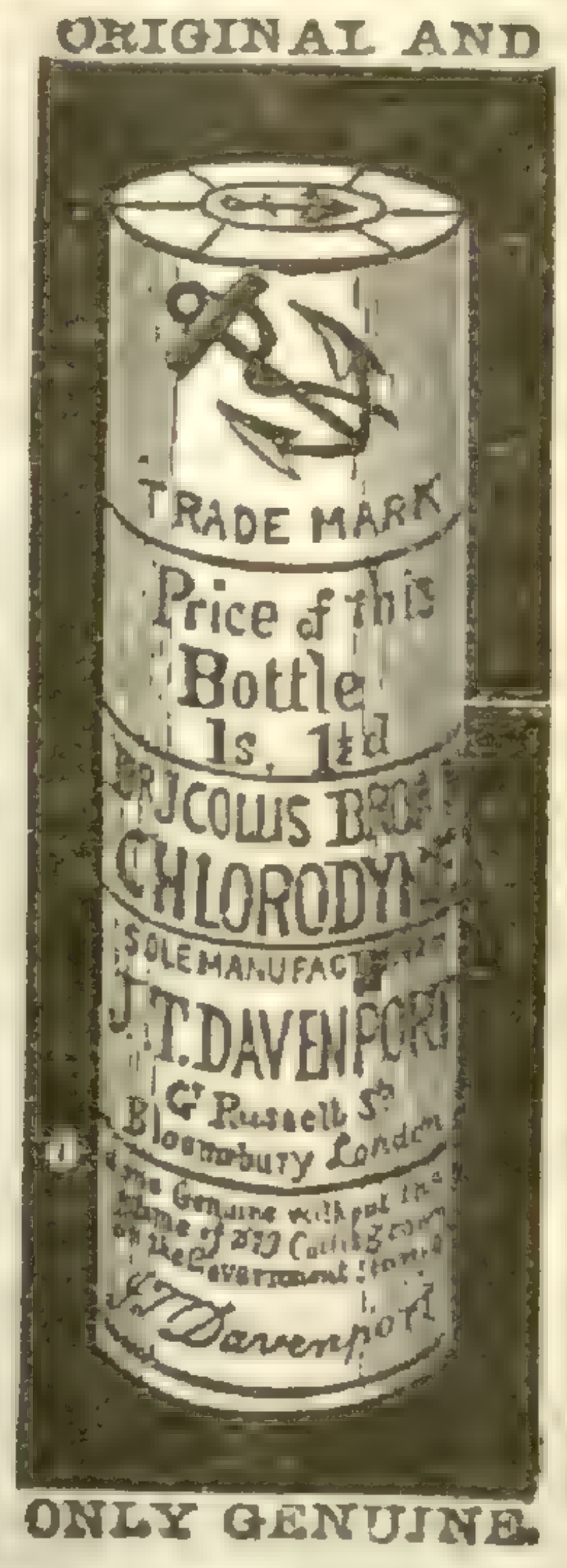
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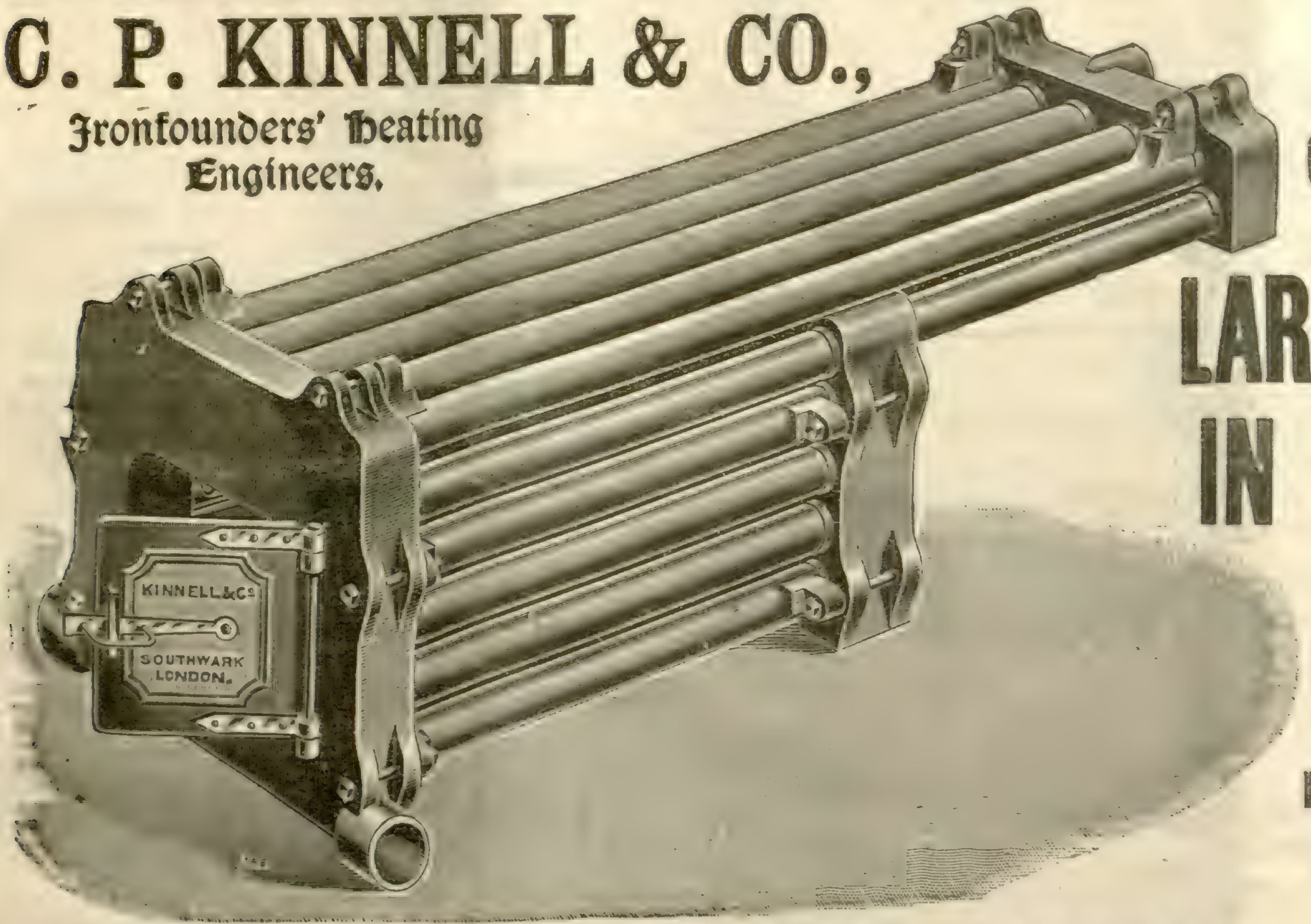

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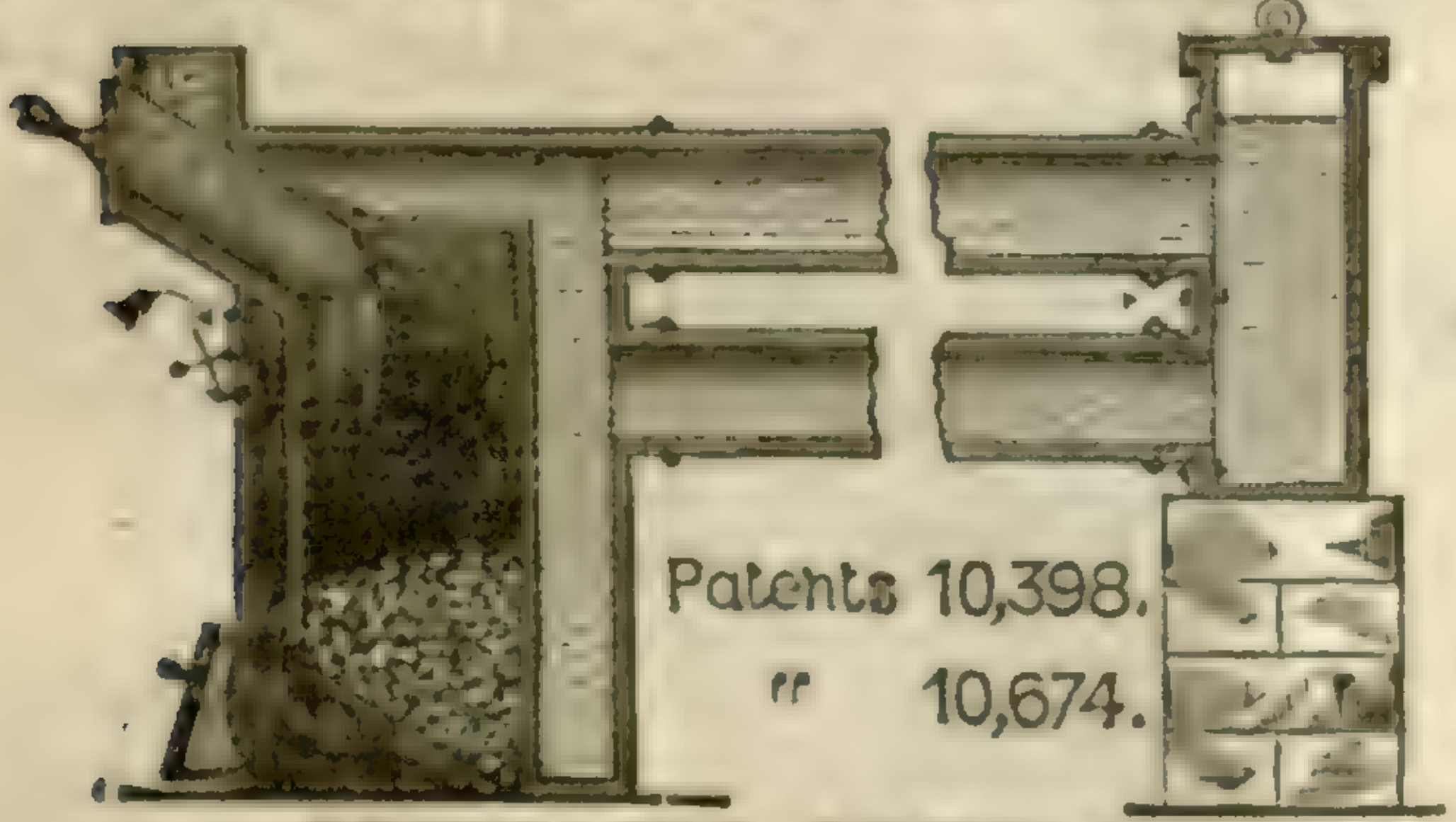

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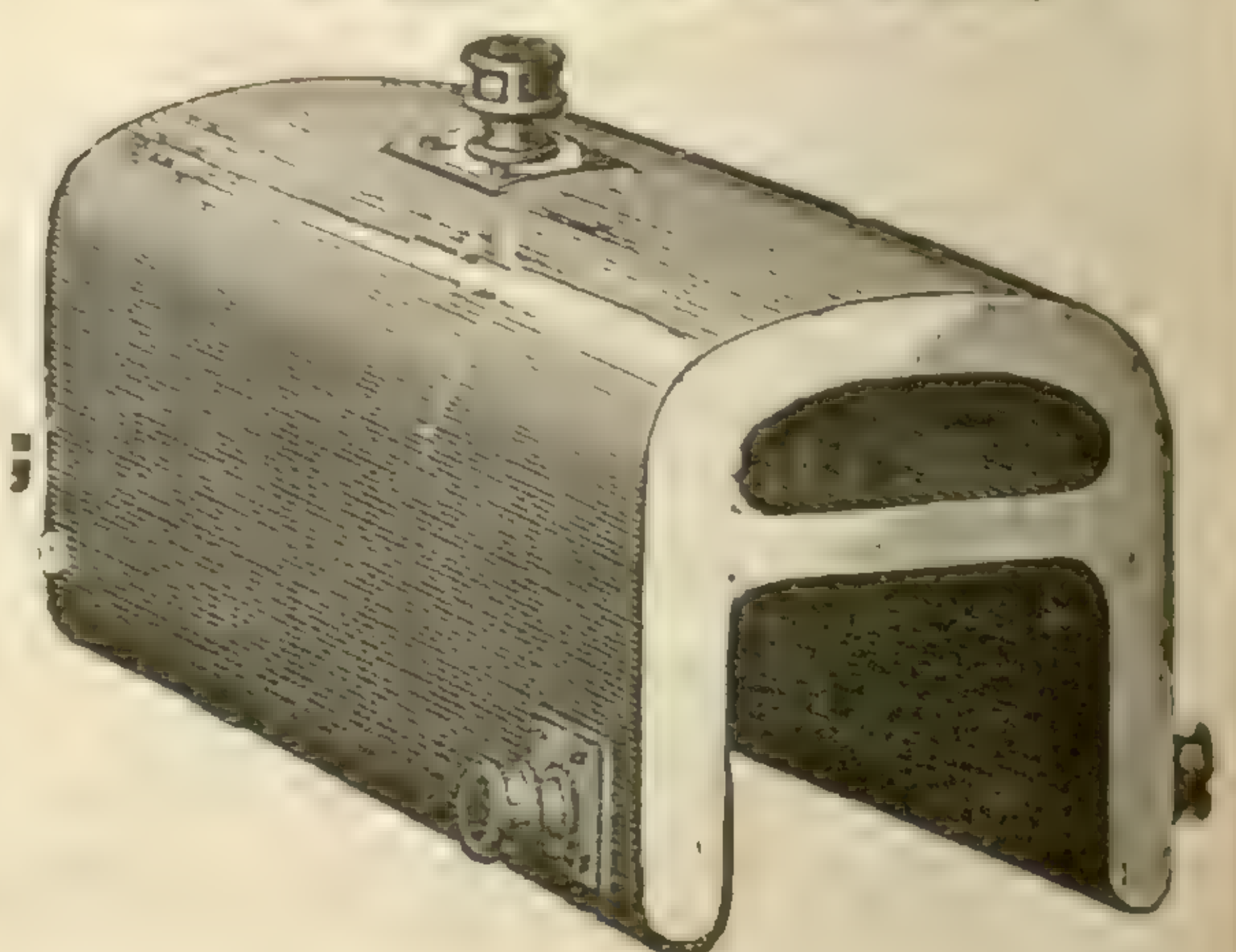

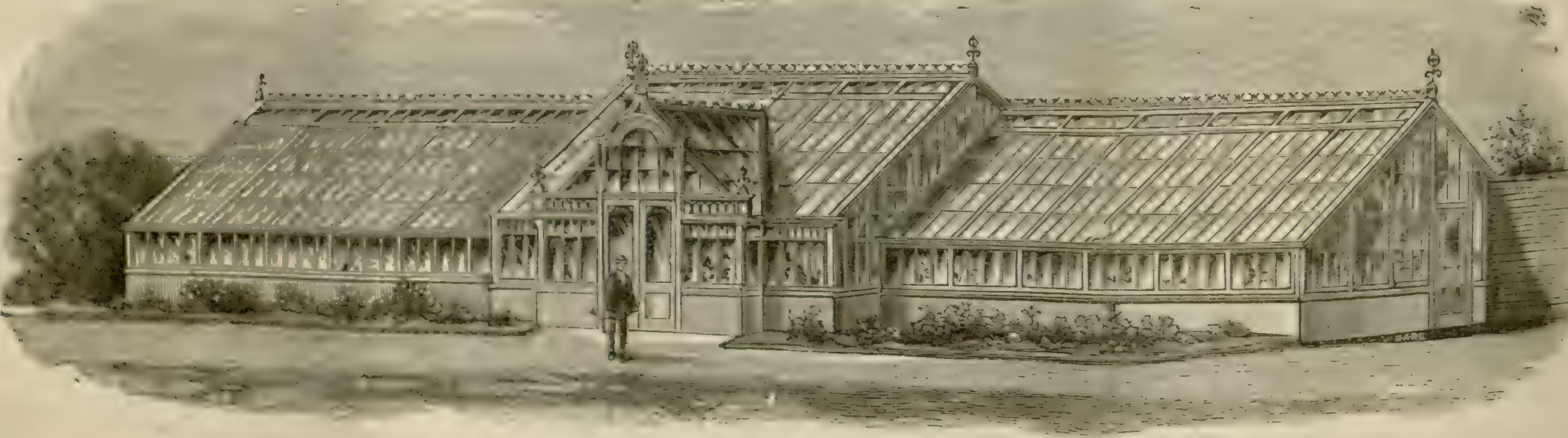

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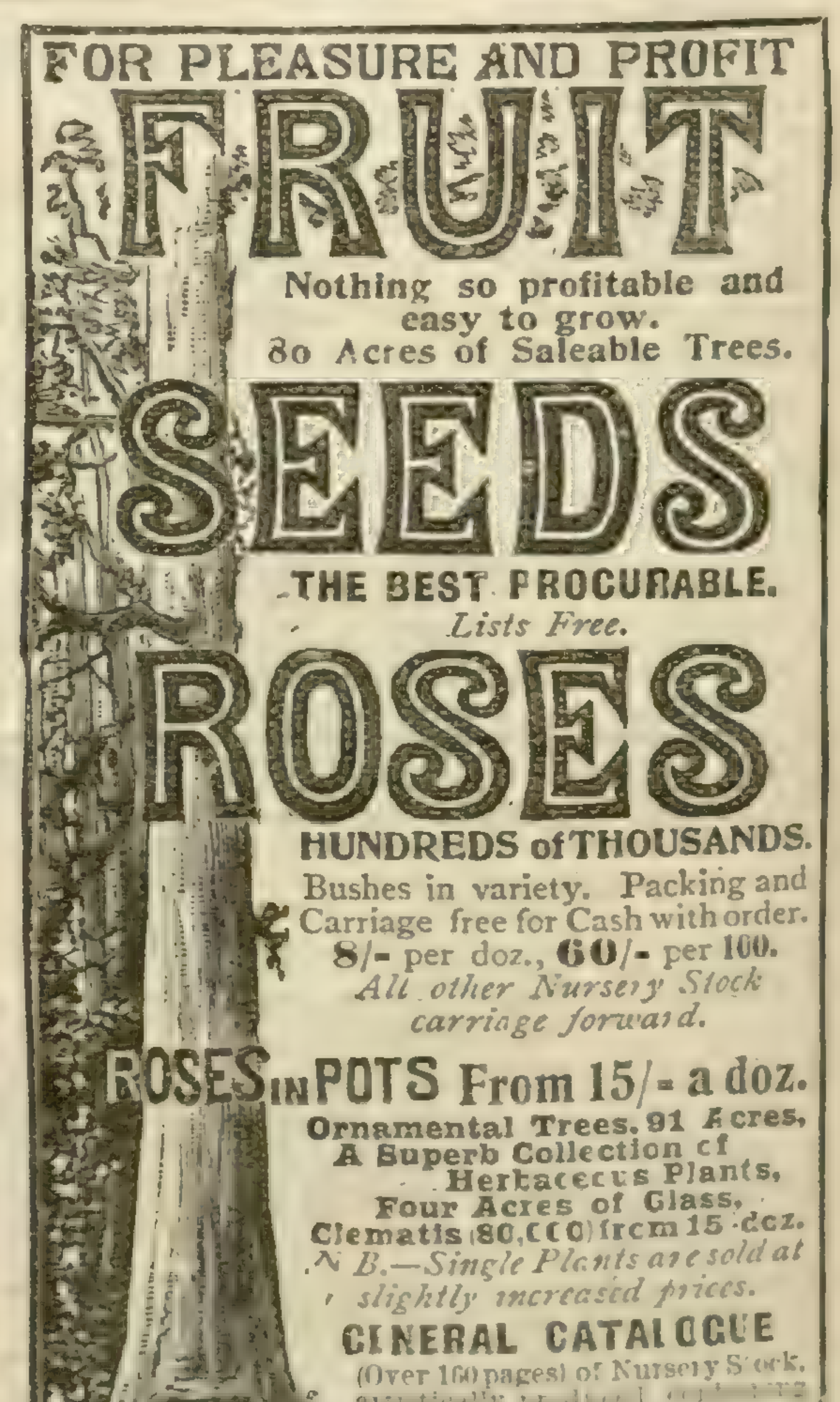

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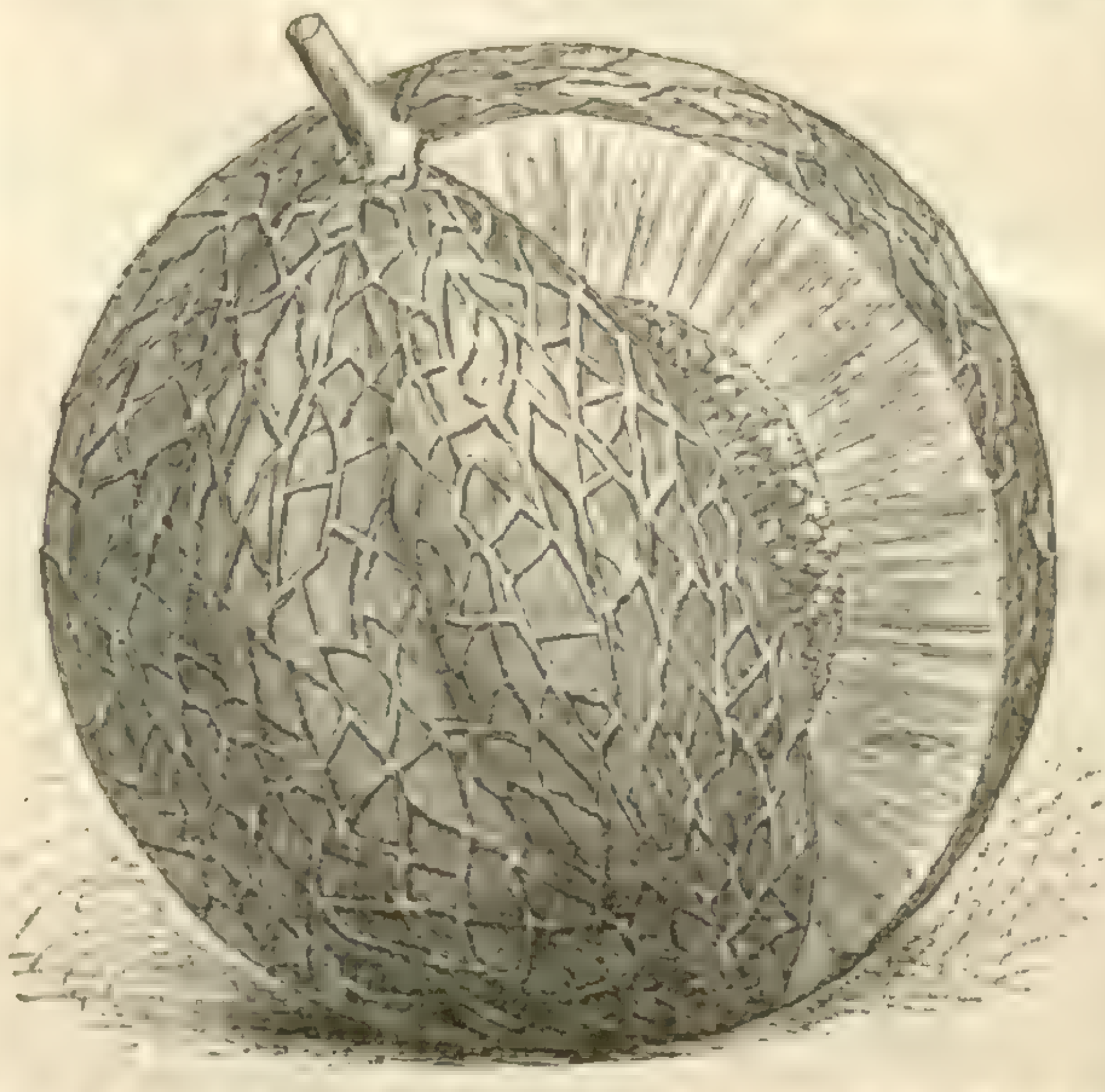

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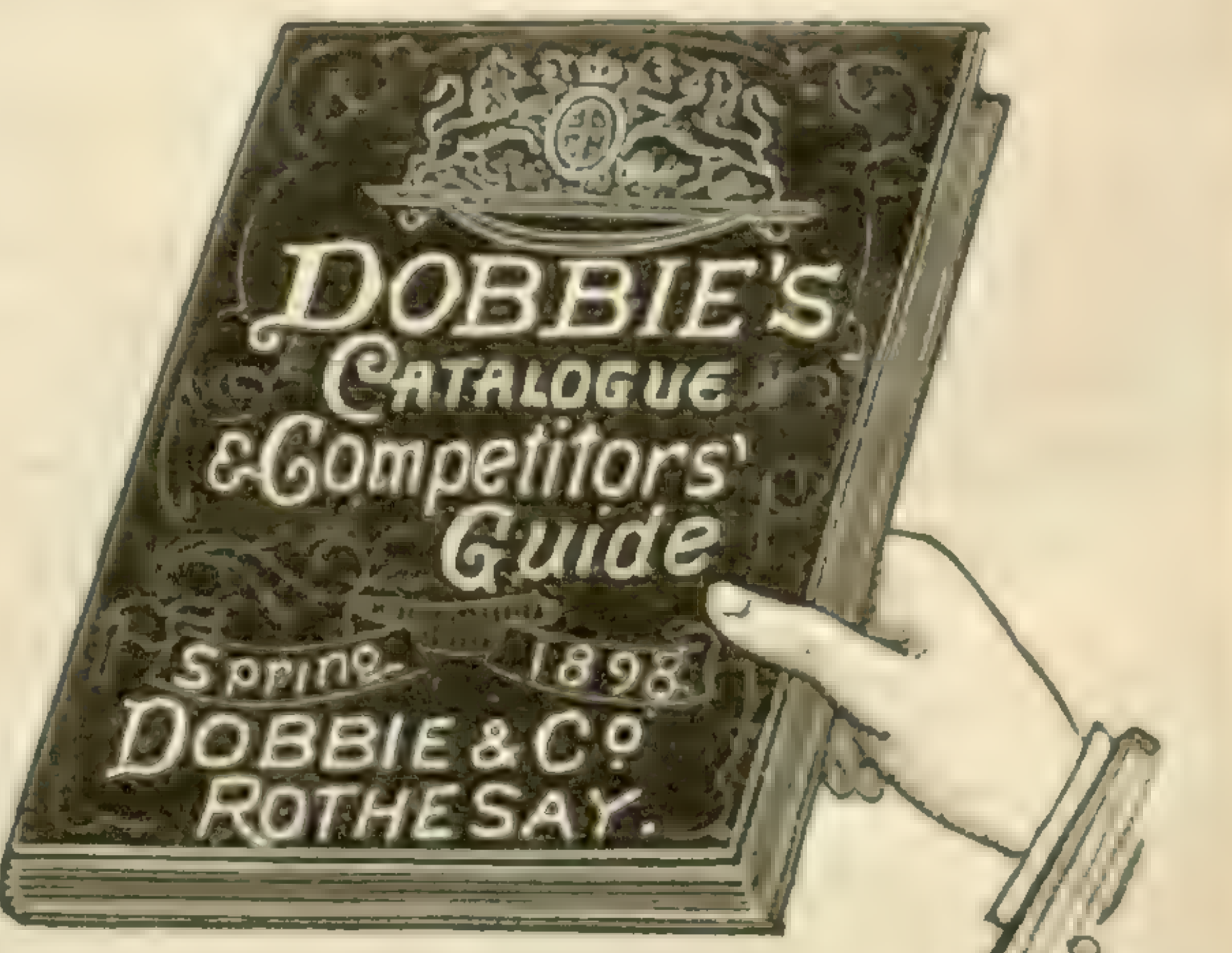

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THE GARDENERS' MAGAZINE.

SATURDAY, JANUARY 8, 1898.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that a SPECIAL GENERAL MEETING of the members of the Gardeners' Royal Benevolent Institution will be held at SIMPSON'S, 101, STRAND, in the County of Middlesex, on THURSDAY, the 20th day of JANUARY, 1898, at Ten Minutes to Three p.m., for the purpose of electing Two Trustees to fill the vacancies caused by the death of Robert Hogg, LL D., and the resignation of John Lee. And the FIFTY-NINTH ANNUAL GENERAL MEETING of the members of this Institution will be held, at the same place and on the same date, at Three p.m., to receive the Report of the Committee and the Accounts of the Institution (as audited) for the year 1897; to elect Officers for the year 1898, and other affairs; and also for the purpose of placing nineteen pensioners on the Funds, ten of whom will be recommended to be placed on the pension list without the trouble or expense of an election, in accordance with Rule III. 5, and the remaining nine from an approved list of forty-four candidates will be elected by votes.

The Chair will be taken by Harry J. Veitch, Esq., Treasurer and Chairman of Committee, at Three o'clock.

The Poll will open at Quarter-past Three o'clock and close at Half-past Four o'clock precisely, after which hour no voting papers can be received.

The voting papers have been issued, and any subscriber who has not received a copy is requested to communicate with the Secretary,

50, Parliament Street, S.W. GEORGE J. INGRAM.

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NOTES OF THE WEEK.

"ABOLITION OF THE TREBLES."

The classes for trebles have so long formed an important feature of the principal exhibitions of roses that we have no doubt many of our readers will regard with considerable apprehension any suggestion that may be made for their exclusion from the shows of the National Rose Society and other associations. For our own part we should stoutly oppose their removal without other classes that have the promise of rendering the exhibitions more interesting and attractive being substituted for them. For nearly thirty years the treble classes have alone helped to relieve the monotony of the rose show carried out on conventional lines, and it would be little short of a calamity to replace them with collections of single trusses. Happily Mr. George Paul, who proposes in the current issue of the *Rosarians' Year Book* the abolition of the classes in which each variety has to be represented by three blooms, is fully alive to the importance of making the rose show as varied as possible, and he proposes as substitutes for these classes others in which the blooms would be required to be shown with several inches of stem. This fact notwithstanding, we should prefer to see some diminution in the number of classes for single trusses to give room for long-stemmed flowers in bunches, to the abolition of the trebles; but Mr. Paul can not only claim to speak with experience, but with authority, and the question is one that is deserving of the most careful consideration. The treble class, as Mr. Paul points out, was originally projected to allow roses being shown in three stages; a bud, a half-expanded bloom, and a fully-developed flower, so as to furnish to the visitors to the rose shows an object lesson of the variety in its several phases of beauty. Nor has this idea been quite lost sight of by the National Rose Society, for in the authorised rules of judging it is stipulated that each treble shall be judged as a whole. In practice it has come to be regarded as necessary, both by exhibitors and judges, that the three blooms of each variety should be as nearly as possible in the same stage as possible. Consequently, the treble classes in Mr. Paul's opinion, no longer carry out the object for which they were introduced. It is admitted that staging three fine blooms of a variety is evidence that the rose is one that can be depended upon to produce with considerable freedom blooms of high quality; but the trebles are considered by Mr. Paul so trying to stage and so formal that, in his opinion, the time has come when they may be abolished as classes. He suggests that in the creation of new classes to take the place of the trebles that the number of varieties should be reduced and the blooms of each variety increased. With a view to assist in bringing about the change he so much desires, Mr. Paul provided the first prize in the amateurs' class for six varieties, seven blooms of each, to be shown in vases, at the National Rose Society's metropolitan exhibition in July last, and the contributions to this and the corresponding classes for trade constituted one of the most delightful features of that great gathering. Mr. Paul makes many valuable suggestions with regard to the formation of new classes, which should have the most careful attention, for there can be no doubt these "new classes would let the public see the habit, growth, and character of each rose, and judge of its adaptability for decoration. Their introduction would give more scope to the individual skill and taste of the exhibitor. To the younger men it would offer some higher object than to learn the dressing of the individual flowers, whilst entailing no greater expense or trouble upon exhibitors."

CURIOUS CLIMATES.

It is rare indeed that we find a record of very curious climatal conditions accompanied by such a lucid explanation as is afforded in the R. H. S. Journal just issued, in connection with the home of the nepenthes. Mr. F. W. Burbidge, when remarking upon Mr. Harry Veitch's paper on these extraordinary plants, described that region as a mountain ever enveloped in perpetual mist or rain, and in the printed report we find this description accompanied by a diagram showing that this is due to the proximity of a lofty mountain range (13,700 feet) to a tropical plain extending from its foot to the coast, some sixty miles distant. The temperatures of the plain and the mountain-top differ consequently from constant freezing point, or thereabouts, on the summit, to 80 degrees or 90 degrees in the shade on the plain below. The inevitable result of this condition of affairs is a hot and highly rarefied atmosphere, holding a large amount of aqueous vapour in invisible suspension on the plain, and a much heavier, because much colder body of air, above it on the mountain-top and sides. To rectify this unstable equilibrium, the colder air naturally descends and the hot air rises, the two mingling midway. The next result is, of course, a tremendous drop in the saturation or dew points of the warm vapour-laden air, the surplus immediately becoming visible either as fog or rain. In the day time, when the shade temperature of the plain is 80 degrees or 90 degrees, the hot air may hold its own to the extent of forming fog alone, though this is always of the Scotch mist kind at the best, but after sundown, when the uprising column is cooler, there is, to use Mr. Burbidge's words, "every night in the year a deluge of rain," and we can see that in an otherwise equable climate, no other result could be expected. Hence, on one spot on our earth, at any rate, the clouds never roll by, and it is on that precious spot that the splendid forms of pitcher plants exhibited by Mr. Veitch to illustrate his lecture, have been developed to fit their surroundings. Curiously enough we have one spot in England, viz.: Seathwaite, in Cumberland, where some of the lofty hills catch the warm moisture-laden breezes from the Gulf Stream in a somewhat similar fashion, and run up the rainfall to 165 inches per annum, instead of the general average of thirty or forty. The greatest rainfall in the world, however, occurs on the Khasia Hills, about one hundred miles from Calcutta, where Sir Joseph Hooker recorded over 500 inches during a seven months' stay; and here again we have a range of mountains in the proximity of a warm ocean and bringing about the same climatic conditions, though no nepenthes, we believe, have been found in this district as might be expected. Even this record, however, would probably be run very close, or may be eclipsed, by that of the nepenthes belt in Borneo, were the constant Scotch mists and nightly deluges fairly brought to book. Despite Mr. Burbidge's experience of chilly air and soakage to the skin for the whole time of his sojourn within this realm of supersaturation, the spectacle of the various nepenthes at home, to say nothing of the drapery of the trees, with the rare Trichomanes pluma and other filmy ferns, doubtless fully repaid him and his companion, Mr. Peter Veitch, for the risk and trouble.

PREVENTION OF CLUB ROOT.

The disease variously known as anbury, club root, and finger-and-toe annually inflicts such heavy losses upon many gardeners and farmers that the County Councils for Cumberland, Durham, and Northumberland are deserving of much praise for the public spirit they have shown in combining their forces with a view to devise the best means of preventing and checking its ravages. Under the auspices of the councils for the three counties mentioned, a series of experiments have been conducted by Professor Somerville in the garden of the Durham College of Science, and the results obtained are of considerable importance. Professor Somerville, as our pages so well testify, has for several years devoted considerable time and attention to the investigation of the disease, which, as our readers are aware, is caused by a slime fungus, scientifically known as Plasmodiophora brassicæ, and in his more recent experiments he set himself the task of determining with exactitude the means by which the disease is the most readily transmitted from one part of a garden or farm to another. To enable those of our readers who are not conversant with the life history of the fungus, we would state that the fungus attacks cabbages, broccolis, turnips, and other of the brassicas, penetrates the plant at the tips of the fibrils, spreads through the tissues, and produces the malformation and rottenness in the roots so familiar to cultivators. When the fungus has run its course, it breaks up into myriads of spores, which hibernate in the diseased roots or soil, and afford a ready means of distributing the disease over a wide area. Professor Somerville had by his previous experiments proved to demonstration that by spreading soil in which diseased roots had been grown over a perfectly healthy area, it at once became infected, and on repeating them he obtained precisely the same results, and ample confirmation of the correctness of the conclusions at which he had arrived. On this occa sion he set apart four plots for the purpose of dealing with the question of the transmission of the disease through the manure of cattle fed upon diseased turnips. The manure was mixed with ordinary soil in the proportion of one to three, and fifty pounds of the mixture was applied to one plot. The second plot received a similar dressing of manure of animals that had been fed upon sound turnips; the third plot was dressed with manure and soil as in the case of the second plot, with the addition that the refuse from the animals' trough, consisting of bits of diseased roots and soil, were added; and the fourth plot received a dressing similar to that of the first plot, with the addition of lime. The results obtained are of much interest. The percentage of diseased roots grown on the first two plots with manure made from diseased and sound turnips, were exactly the same, indicating that the vitality of the spores of the plasmodiophora is destroyed in their passage through the animal. The plot dressed with manure to which the trough refuse was added, produced seventy-five per cent. of diseased roots, proving that the spores of the fungus may be communicated to healthy land, by permitting the diseased stumps of cabbages, cauliflower, kales, and brassicas of similar character, and diseased roots of turnips to find their way direct to the manure. This is in complete accord with the advice we have so frequently given, when referring to the ravages of the plasmodiophora, and should be constantly kept in mind. The addition of lime to the fourth plot effectually checked the development of the disease, but materially reduced the crop of roots, owing probably by liberating nitrogen. In the other experiments slaked lime appeared to be more efficient than quicklime, and lime from the magnesian limestone was more efficient than from the carboniferous formation. It was also found that gas lime, one year old, was more effectual than the same product in a fresh state.

Paphiopedilum is not the name of some new sea-urchin, nor the title of some microscopic fungus recently discovered; it is the generic title by which, in future, our leading botanists wish us to recognise those orchids hitherto known as tropical cypripediums. The title is not a new one, for Dr. Pfitzer proposed it in 1886, and recently, in the reduced form of Paphiopedium, Mr. R. A. Rolfe, of Kew, has put it forward. Discussing the matter in the *Bot. Mag.* Sir Joseph Hooker states that the true cypripediums are inhabitants of cold and temperate regions, while paphiopedilums are all natives of tropical Asia and Australia. The American species, now fairly well known as selenipediums, are still to be known as such. "In Cypripedium proper," Sir J. Hooker remarks, "the leaves are cauline, thin, and plicate in vernation, the perianth marcescent, and sepals valvate in æstivation; in Paphiopedilum the leaves are radical, coriaceous, and conduplicate in vernation, the perianth deciduous, and sepals imbricate in æstivation, the dorsal enfolding the lateral." Dr. Pfitzer also suggested Ascherson's *cypripedilum* for the popular Linnean cypripedium, but this would make what Linnæus wished to be Venus'-foot orchids, into Venus' or Lady Slipper orchids, as they are popularly but erroneously known. Sir Joseph reminds us that Cypripedium of Linnæus should have been spelled cypripodium to be correct, and suggests that to simplify matters and gain uniformity, the generic terms Cypripodium, Selenipodium, and Paphiopodium might be used if the change referred to becomes desirable.

Shade Trees for African Coffee.—A request for the introduction of seeds of Indian and Singalese shade trees into British Central Africa for the purpose of providing shade for young coffee plantations was referred some time ago to the Foreign Office, and Mr. W. T. Thiselton-Dyer, Director of the Royal Gardens, Kew, was desired to report upon the subject. Subsequently H.M. Commissioner in British Central Africa determined to rigidly enforce the regulations for the prevention of coffee disease, which prohibit the importation of seeds from India and Ceylon, for, as Mr. Thiselton-Dyer reported, the coffee disease was introduced into Fiji through the instrumentality of tea seeds from Ceylon. Notwithstanding the splendid attempts made by Sir William MacGregor to stamp it out, it ultimately completely destroyed the coffee industry, which was the most promising planting enterprise in the Colony. The Germans, by some unknown means, have succeeded in introducing the disease into their African territories. In the face of these facts it would, in Mr. Thiselton Dyer's opinion, be the height of folly to run the smallest risk of introducing the disease into British Central Africa, where its presence would be an irreparable disaster. Knowing the mechanical way in which such work is carried out by native officials in India, he does not think that any stipulation as to locality is of the smallest value. Whatever was stated to the contrary, the first parcel of seed would, in all probability, come from a plantation reeking with disease. The present request is the more unnecessary as, according to a coffee planter in Nyassaland who is well acquainted with coffee cultivation in Ceylon, a local African tree, Albizza fastigiata, is admirably adapted for a shade tree for coffee. If this is not sufficient, the rain tree, or Pithecolobium Saman, might be tried. The seed can be obtained in abundance from Jamaica, and this would be perfectly safe.

Exports of Potatos.—British potatos were formerly exported in large quantities to the United States, but since the introduction of the McKinley tariff the trade in potatos has almost disappeared. As late as 1894 the transatlantic shipments from this country amounted to nearly 850,000 cwt. of the value of £167,000, but last year they had dropped to 1,000 cwt., valued at £143. In 1896 the exports of potatos in the aggregate amounted to 341,000 cwt., of which Spain and the Canaries took nearly 43,000 cwt., while the greater proportion of the remainder were sent to British possessions.

The Pelicans at Kew Gardens are always a source of interest to visitors, by reason of their picturesqueness, their wonderful capacity for food, and the cleverness they display in catching in their huge pouch anything thrown them. Two new specimens have now been added to the establishment, and may frequently be seen on the Palm House Pond.

Spanish Chestnuts.—The nuts of the so-called Spanish chestnut form a considerable proportion of the unenumerated fruits imported during the autumn months, and large supplies are sent us from France and Spain. The French chestnuts are ready for sale earlier than those from other countries, and consequently hold the market at the outset. The bulk of the French crop is exported, and being the first to arrive here the nuts realise a better price, and then the dealers supply themselves from Italy, from which country they import as much as fifty thousand hundredweights annually. The Italians, however, are making efforts to establish a direct trade with England. Their chief difficulty hitherto has been that the nuts are apt to germinate, and thus become unfit for the market. A method of checking this germination is said to have been discovered, and is stated to be carried out in the following way: The nut is soaked for seven or eight days in a tank and well stirred daily, after which it takes about a week to dry again. This seems to sterilise it completely, and in this condition it can be exported satisfactorily. It is a remarkable fact that if a second lot of chestnuts are put in the same water they will be sterilised in about half the time. This season a large quantity of the Italian nuts have been placed on the British market.

Tuberous Growths on Vines.—Mr. S. T. Wright sent to the Scientific Committee some gall-like structures taken from vines in the large vinery at Chiswick. He observes that "many of the old and young rods are similarly malformed at their base. It does not appear to affect the health and vigour of the rods. In all the malformations grubs or maggots are present; but neither moths nor weevils have been seen in the house." Mr. Michael pronounced the grubs to be coleopterous, but they were not likely to have been the cause. Prof. Church undertook to examine them chemically. There was no apparent structure in them beyond a mass of cellular tissue with a corky exterior surface.

Horticultural Club.—Special attention is being paid to the question of fruit culture by the members of the Horticultural Club, and there can hardly be any question that could well be more profitably discussed. At the conversazione following the monthly dinner on Tuesday next, January 11, the subject for discussion is "The Seasons of 1896-97: Their Lessons and Effects on the Fruit Crops and Trees," to be opened by Mr. George Bunyard, V.M.H.

Camoensia maxima, a handsome West African climber, that for so many years defied the efforts of cultivators to induce it to flower, is represented in the current issue of the *Bot. Mag.* by a double-page illustration. The flowers are milk-white, the segments being margined with gold. As our readers have previously been informed, this leguminous plant first flowered in Europe at Mythe Castle, Tewkesbury; in November, 1896, it flowered at Kew, and last autumn, a specimen flowered at the Edinburgh Botanic Gardens; during the recent Christmas week the Kew specimen once again flowered. Other interesting plants figured in the *Bot. Mag.* for January, 1898, are Paphiopedilum Victoria-Mariæ, known to orchid lovers as Cypripedium Victoria-Mariæ; the now popular, plentiful, and beautiful Strobilanthes Dyerianus, a stove plant that gained so much notoriety when shown at the Ghent exhibition of 1893; Lathyrus splendens, a species from South Carolina, with blood-red flowers; and Sievekingia Reichenbachiana, a wonderfully quaint orchid from Equador, discovered by Lehman in 1879; it has golden-yellow flowers, marked with blood-red, but the most peculiar part about them is the hair-like fringing of the petals and labellum.

Hungarian Hardy Fruits.—The cultivation of hardy fruits in Hungary has been so greatly developed of late years that an official inquiry has been instituted with a view to ascertain the number of trees and the number of varieties of the several kinds grown in the kingdom. But in consequence of a rumour having been circulated to the effect that the inquiry was being made for the purpose of taxing the trees, those engaged in the investigation experienced considerable difficulty in verifying the returns furnished them. The statistical details are therefore hardly so trustworthy as could be desired. Subject to this qualification, the number of fruit trees enumerated in Hungary was sixty-five million, of which thirty-two million were plum trees and fourteen million apple and pear trees. In Croatia and Slavonia eight million five hundred thousand plum trees and two million apple and pear trees were scheduled.

Fruit Industry of British Columbia.—According to the report of the Agricultural Department of British Columbia the production of fruit for profit is practicable in the greater part of the sections of the colony. Both large and small settlers are planting orchards, and a considerable proportion of those which have become established are bearing satisfactorily. The greatest difficulties with which cultivators have to contend are the prevalence of insect pests and diseases due to cultivation, and the importation of foreign products, both nursery-stock and fruit. The industry, except in individual cases, has, however, not been carried on with much system or knowledge of fruit growing. Trees have been purchased regardless as to whether they were the best and most suitable varieties, with the result that there is a great mixture of fruits, and not much of first quality. Little attention has been devoted to methods of planting, pruning, and general cultivation, so that existing orchards do not, it is stated, fully represent the capabilities of any district. Lack of railway communication, remoteness of settlers from each other, and the difficulties incident to the proper preparation, planting, and keeping of an orchard, have also prevented the success of the industry, but these difficulties are being gradually obviated or overcome. The efforts of the Fruit Growers' Association have resulted in the diffusion of a better knowledge of the development of the industry in the province, which is expected eventually to become a large producer of fruit.

Gardeners' Royal Benevolent Institution.—The annual friendly supper of the members of this society and their friends will take place at Simpsons, 101, Strand, on Thursday, January 20th, after the annual meeting, when Mr. Arthur W. Sutton, V.M.H., will preside. The Duke of Portland has promised to preside at the sixtieth annual dinner to be held in the course of the coming summer. It is hoped that the dinner will be held in June, but the date is not yet fixed.

An Old Oak.—An interesting discovery has been made at Stockport. During the excavations in the construction of sewage works for the town some workmen came across a massive oak tree, with two immense branches. Professor Boyd Dawkins is of opinion that the tree is one of the giants of prehistoric times, and he says that the tree is certainly 10,000 years old. The Corporation of Stockport are at a loss to know what to do with the gigantic tree, which is supposed to weigh about forty tons, and as it is necessary that it should be removed, a proposal has been made to blow it up with dynamite. This has aroused the indignation of a large section of the inhabitants of the town, and the following petition has been presented to the Corporation: "That there is a valuable tree of old oak at present lying upon and exposed in the gravel on and within their property. That the quality in colour, grain, and solidity is better than any that can be bought in the open market. That for artistic work alone it is greatly to be treasured, for nothing in this country is at present grown which can come up to its dimensions. That it contains within itself sufficient material to make the furniture for any public building or town hall which may be erected for the public benefit within our borough. That it only requires lifting from its bed, which in the opinion of competent geologists may be roughly estimated as 15,000 years of occupation. That private effort has failed to achieve its removal. That its destruction would be a public loss and an artistic calamity. That your representatives in council be and are hereby requested to conserve for the borough this grant of Nature to her sons and daughters, whose signatures are hereby affixed." The Corporation have reserved their decision, and in the meantime efforts are being made to bring pressure to bear upon the Council to preserve the tree for the benefit of the town and the country.

A New Alder under the name of Alnus tinctoria was sent several years ago to the Arnold Arboretum by Messrs. J. Veitch and Sons, who probably raised it from seeds collected in Japan. In referring to the tree, Professor Sargent states in *Garden and Forest* that he has seen the same tree in Yezo, and the plants raised from seeds which he brought from that island are identical with Veitch's Alnus tinctoria, a name which, although it has been more or less used in gardens, appears to be still unpublished. On the island of Yezo this alder is a shapely tree from fifty to sixty feet in height, with a trunk often two feet in diameter, growing there on low slopes in rich moist ground, usually at some distance from the banks of streams, which are generally occupied in southern Yezo by Alnus japonica. It has been considered by the Japanese botanists Spach's variety hirsuta of Alnus incana, of Manchuria and Siberia, and it is possible that this view is correct, although, for lack of proper material, representing the different species and varieties of Asiatic alders in American herbaria, it is impossible to form a correct idea on this subject. The leaves of this alder, which, until something more is known of the Manchurian species, had, in Professor Sargent's opinion, best be called Alnus tinctoria, are oblong, obtusely wedge-shaped at the base, coarsely doubly serrate, or often incisely lobed above the middle, and clothed below with soft, close, rufous pubescence, which also covers the upper side of the slender midribs and primary veins; they are thin and membranaceous, from four to six inches long and from three and a half to five inches broad, dark green above, pale below, and are borne on stout petioles an inch and a half in length. The buds of the staminate catkins are an inch and a half long and a third of an inch broad, and are borne on stout peduncles from one third to one half of an inch in length. The fruit is half an inch long and about a third of an inch thick, so that the leaves, the buds of the staminate catkins, and the fruits, are much larger than those of any of the European or North American forms of Alnus incana. The stout, somewhat flattened branchlets marked by only occasional pale lenticels and covered during the winter by a glaucous bloom, and the much larger bright purple-red winter buds, appear very distinct from those of Alnus incana. Several of the plants raised from seeds which Professor Sargent brought from Japan in 1892 are now twelve feet high, with perfectly straight stems from five to six inches in diameter at the base, and furnished with well-balanced, vigorous branches. Shapely and handsome now, they look as if they would grow to a large size and prove valuable ornamental trees.

Illuminated Bouquets.—A paragraph is going the "round" of the press to the effect that illuminated bouquets are the latest fad among fashionable people. Natural flowers are said to be almost dispensed with at many of the big dinners, electrically lighted roses, narcissi, carnations, and other flowers being used instead. The flowers used for illumination are said to be clever reproductions of the true blossoms, blown in thinnest coloured crystal, or made in shell porcelain, and mounted on stems of rubber, with green silk foliage. Down the yellow stem of every flower runs a wire that communicates with a minute bulb in the flowers' hearts, whence flashes forth the electric light. The penny-a-liner proceeds, "Many of these imitation flowers are so beautifully made and perfumed that, when not alight, they are easily mistaken for real flowers," but he fails to add who the persons are that are so ignorant of natural flowers as to mistake glass or porcelain manufactures for them.

Potato, Sutton's Satisfaction.—In the report of the Birmingham Potato Show our reporter stated that in the class for the most handsome dish of potatos the winning variety was Up-to-date, but we learn from Messrs. Sutton and Sons that the variety obtaining this distinction was Sutton's Satisfaction.

Seed Exports.—Garden and farm seeds are shipped in large quantities to the Continent and Australasia, the average annual outward consignments in 1894-96 amounted to over 12,000 tons, of the value of £275,000.

THE BLUE CHRYSANTHEMUM.

Could we but raise a blue chrysanthemum some of our chrysanthemum enthusiasts would give almost any sum to possess that treasure. But why has such a product so far baffled all our efforts in this direction?

First, let us see how a natural cross is effected in the chrysanthemum. The chrysanthemum belongs to the natural order Compositæ or the Daisy family, and to the uninitiated appears at first sight to be a single simple flower, but on closer examination, it is found to be a collection of flowers, crowded together into one head. Two kinds of flowers are usually found to compose these heads in most composites. An outer whorl, usually having a long strap-shaped corolla, and the inner flowers, with regular tubular corolla. In these latter the five petals are joined, and so forms a beautiful little tube. On the inner side of these petals is found another little tube formed of five anthers, cohering at their edges, each being connected with the outer tube by an almost microscopic filament. These anthers bears the pollen grains. Occupying the centre of the flower is the little round ovary with a perpendicular outgrowth, the style, which when opened out at the top in a forked manner forms a bifid stigma. Before a seed can be formed some pollen grains must be transferred from the anthers to the stigma, where, if the conditions are favourable they will germinate, sending out a pollen tube, which penetrates the conducting tissue of the style and reaches down to the ovule, contained in the ovary. The contents of the pollen grain then pass through the tube and fertilisation is effected, the result after further complicated and exceedingly interesting changes, being a structure we term the seed. Some flowers are dichogamous, that is, the pollen and stigma attain their functional activities at different times; this is so with the chrysanthemum, and like the rest of its family it is what is known as protandrous, which simply means that the pollen arrives at maturity and is shed before the stigma of the same flower is capable of receiving it. When the pollen grains of the chrysanthemum flowers arrive at maturity the style is very short, concealed as it were, below the little tube of anthers. A very remarkable and interesting process then takes place, the style and stigma actually dispersing the pollen; instead of using it itself the style commences to grow, and rapidly pushes itself through the little tube of anthers, and taking a number of the ripe pollen grains with it, and causing them to be scattered on the fully matured stigmas of older surrounding flowers.

The brilliant pigments of flowers usually reside in the specialised organs known as petals, though they may sometimes be found in other parts of the flower. These colours, which are of various hues and tints, are—purple and blue excepted—found in the ordinary foliage leaves of some plants, and the colours of petals are in many cases exactly the same as in those foliage leaves from which the green has disappeared. The different hues of flowers are, as it were, laid up in the tissues of the plant. But, as they develop, do the changes in the colour follow any definite or progressive order? Do they run from any one colour to another? We often see progression in the direction of a colour change in the life-history of some individual flowers. One of our wallflowers (*Cheiranthus chæmœlas*) has a yellow flower which changes into red and to violet. One of the forget-me-nots (*Myosotis versicolor*) is pale yellow when it first opens, but changes to faint red, and ends by being blue. The bracts of Hakea Victoria, a greenhouse evergreen shrub, are yellowish-white in the centre the first year, a rich golden-yellow the second year, rich orange the third year, and the fourth year the colour is blood-red. The Virginian stock of our gardens opens a pale yellowish-green, then becomes deeply red, and finally purple and blue. In all these and many others the direction of colour change is the same, from yellow through red and purple to blue, and that is as far in the scale as they have reached, thus proving the fact so clearly shown by Mr. Grant Allen and Sir J. Lubbock that blue flowers represent the most highly-developed lines of descent, which have, or whose ancestors have, passed successfully through all the intermediate stages. Then how has this blue colour become fixed in some flowers? The function of the flower is the production of the seed, and to attain that end we see that fertilisation must be effected. Various and numerous are the ways plants adopt to ensure fertilisation; some have adapted themselves to pollination by insects, and as a result have acquired special peculiarities of structure and colour of their petals, as may be readily seen; those flowers which have undergone the most modification have their colours most altered, as we usually find that the simplest flowers—those with regular symmetrical cups like buttercups—are yellow, and such as these can be visited by any simple insect. Those flowers which are modified still more, like the silenes and campions, which have closer cups and whose nectar can only be reached by higher insects, are usually pink or red; and those which are the most highly modified, like the peas, salvias, violets, monkshood, and larkspur, have assumed special shapes to accommodate bees and other honey-seekers, and are invariably purple or blue.

Anyone visiting a garden where a number of flowers are to be seen during the summer months will find that the highest insects repeatedly visit the purple and blue in preference to the more red or yellow flowers, and, as the insects prefer these colours, the flowers of succeeding generations become as a result more purple and blue, the plants catering as it were for the insects.

The structure of the chrysanthemum flower with its mechanical method of pollination, acts as a preventive against this kind of selection, but the equivalent cross is procured, a cross to all intents and purposes adapted to the structure, conditions, and requirements of the individual flowers. But, as we have seen, it is not a selective cross, as the insects select, and hence, in the chrysanthemum, we get little or no specialisation of petal, colour, and odour. In the natural order to which the chrysanthemum belongs, very few species have as yet risen to the stage of producing blue petals. Out of one hundred and fifty-two species enumerated in Britain ninety-three are yellow, and three only are blue, and these are specialised flowers. The chrysanthemum of Nature is, as its name implies, a yellow flower, and none have ever evolved to the stage of blue, and that, perhaps, is why we do not get a blue chrysanthemum in cultivation. It is easy to make chrysanthemums, or any other flowers, vary within their own natural limits and revert to any colour through which they have passed, but where it is difficult is to make them take a step which they have not taken naturally, and so we find that the most developed flowers are the most varying in colour, and we get yellow and red chrysanthemums with their varieties, but no true purple or blue ones. It may be possible to obtain a blue one by selecting and preserving the most purple from the red forms until a type is fixed, and then in the same way selecting the most blue from the purplish kinds; but this is a very slow and tedious process for man, whose life and patience is so short, and who has to substitute a camel hair brush for an insect's proboscis. He is also further handicapped as Nature is largely against him, and it is little wonder he becomes impatient and disgusted with himself, the chrysanthemums, and his results, and so finally gives up in despair. The man of science learns that from the comparative rarity of blue flowers in Nature, those shades which tend toward blue are less frequent than yellow and red shades, and so we find there are difficulties to be surmounted ere we reach the blue chrysanthemum.

East Park, Hull. HENRY KNIGHT.

VEGETABLES FOR EXHIBITION.

LETTUCE.

LETTUCE (*Lactuca sativa*) without doubt forms one of the most important crops of our kitchen garden. It is universally prized as a salad, especially during the hot summer months, and during that season very little skill and attention is required to bring it to perfection. But in many establishments lettuce of some kind is required every day throughout the year, and to keep up a regular supply much care and forethought are necessary, especially in cold, low, and wet situations. Lettuce may be grouped into two classes, the Cabbage and the Cos varieties, and opinions differ as to which is the best. The Cos lettuce, both Brown and White, is much more solid and crisp than the cabbage, and for that reason is more generally preferred. On the other hand, some people have a special liking for the soft, silky forms of the cabbage lettuce. When, however, constant supply is expected, both types should be grown.

Lettuce will thrive in almost any kind of soil, but to have it in perfection the ground should be deeply dug or trenched, and made rich with good farmyard manure. The first sowings should be made early in February in shallow boxes, of both Cos and Cabbage kinds, and raised under glass. Very little artificial heat is required to raise the plants, a cold frame, providing the frost is kept out, will be sufficient. But the most suitable place at this season is an early vinery or peach house just being started. As soon as the plants are big enough to handle they should be pricked out three inches apart into another box in a light sandy compost. They should be kept as near the glass as possible, and air must be admitted as the weather will permit, to keep the plants from becoming drawn and weakly. Gradually harden the seedlings off, and select a warm sheltered spot in which to plant out as soon as the weather is favourable. The Cos varieties should be allowed a distance of one foot apart each way, and the cabbage kind nine inches apart between the plants and ten inches from row to row. This distance should always be allowed, as nothing is gained by overcrowding the plants. Sowings should be made every ten days during spring and summer, and treated in the same way. By the end of March outside sowings should be commenced, and the earliest sowing should be made on a south border in shallow drills, and the beds thinned, when the plants are large enough, to the distance before advised. A few selections from each thinning should be replanted, as they will just follow the permanent plants, and ensure a constant supply. A capital place for growing good lettuce during summer is on the celery ridges. They will in no way interfere with the celery crop, and the lettuce being somewhat raised, plenty of light and air will reach them, and the best results will ensue.

Small sowings of suitable varieties should be made during September and October in skeleton frames, when protection of some kind can be readily afforded them in severe weather. These sowings will prove of great value during winter and spring, and the smallest plants will generally stand the severest weather if suitable kinds are selected. To meet the demands, when winter salads are required, it will be necessary to give protection to some of the later sowings by planting them in cold frames, or late, light, peach cases. They may be planted closer together than advised for outside planting to economise the space, but at the same time overcrowding must be avoided, or during severe weather, when the lights require to be kept closed, or damp will play sad havoc with them. Should the supply by any means be found to be running short during winter sow some of the forcing kinds in heat, and prick out the seedlings three inches apart, and grow in a gentle heat as near the glass as possible. These will prove invaluable, and should be cut off like mustard and cress; one or two kinds I have tried answer especially well to the treatment. The later sowing, wintered in cold frames or otherwise, should be planted out very early in spring in the most sheltered and warmest spot available, as soon as the weather is in the least degree favourable, and if this is done no break can occur.

Enemies to the lettuce are not very numerous, the most troublesome at all seasons of the year, especially in showery weather, are slugs, and when these are very numerous means must be taken to keep them from ravaging the crop. There is nothing more distasteful to slugs than finely sifted coal ashes, and during showery weather these are not washed away like soot and lime, which are often advised to be used for the purpose. Small birds are sometimes troublesome, but these are easily kept at bay by stretching netting over the beds.

Whenever classes are provided for single dishes of vegetables lettuce are generally included, and the prizes are nearly always well contested as regards numbers. But as a rule a large number of the specimens staged are very indifferent, and stand not the least chance of winning. Worthless kinds are frequently met with, and some examples are past their best or not sufficiently developed. To produce really first-class exhibition lettuce something more than ordinary attention is required. The best results will accrue if treated as follows: Narrow trenches should be taken out one foot wide and fifteen inches deep, and the bottom thoroughly broken up with a fork. The trench should be filled to within three inches of the top with half rotten farmyard manure, and the remaining three inches with some of the best of the soil taken out, which should be made as fine as it is possible to make it with the fork. This is best prepared a week or so before sowing the seed. Shallow drills should be made and the seed scattered thinly along it. Just sufficient soil should be drawn over the seed with the rake to bury it, on which should be sprinkled a dusting of coal ashes, and if the soil is dry at the time a good watering must be given with a fine rose watering pot. Small birds are often very troublesome, and when once they commence to take the seed they generally make a clean sweep of it. Pea guards will be found the best protection, being very neat in appearance, easily put on and removed, and most effectual. As soon as the plants show signs of making their second leaf thinning should be commenced, which should only be done partially the first time, leaving the plants about three inches apart. When advanced one size larger thin out to the proper distance, which should be for Cos varieties not less than thirteen inches, and for Cabbage kinds one foot. A few from this thinning should be carefully transplanted in other prepared trenches. As these will follow those in the original rows, and other sowings are made about every ten days, the exhibitor will be pretty certain of having good specimens at almost any date.

All Cos varieties, both brown and white, whether self-folding or not, require to be tied up and blanched. Tying should be done twice, and always when the plants are perfectly dry. The first band should be put on about a fortnight previous to the show date. Use broad pieces of bast, and tie the first loosely round the plant about half way up, so as to check the growth. The second tying should be made a week later nearer the top of the plant, drawing the whole of the leaves tightly together without bruising them. Should the weather be hot and dry, the plants should be mulched with half-decayed horse manure, and kept well supplied with both clear water and liquid manure. In competition, the white Cos varieties, if presented in good condition, will in nearly all cases receive the awards. A perfect lettuce should be full grown, of large size, heavy and solid when handled, and should stand the test of cutting, which is invariably done in close competition, when the hearts should be found quite near the bottom, and the inside leaves thoroughly blanched. Two classes are sometimes scheduled, one for Cos and one for Cabbage lettuce, and this should be more generally encouraged, as the latter kind stands no chance where the Cos kinds are well presented. Cabbage kinds should be large, perfectly solid, and bear cutting open. Lettuce in a collection of vegetables, unless an unusually large number is required, is in my opinion a weak dish, and counts but little; but for a mixed ornamental collection both kinds of lettuce should be staged, and in a collection of salad lettuce should form the first and most prominent item. The number generally required is three of each kind, and they are best lifted late in the evening with a fork. The roots should be thoroughly washed and left on, some damp clean moss being neatly bound round them to keep them fresh and crisp during the next day. When staged, a sprinkle over with water will also be of great assistance. Two should be placed at the bottom and one at the top, and all three should be as nearly alike as possible, with the head towards the front. If the exhibitor has a long way to travel, much care in packing is necessary. The lettuces should be wrapped in soft paper and placed on the top of the vegetable hamper, or the leaves will be much bruised and damaged in transit.

The best Cos kinds I know of for exhibition are: Carter's Giant White Cos, Sutton's Superb White Cos, Sutton's Mammoth White, and Veitch's Superb White Cos, while All the Year Round, Veitch's Perfect Gem, and Sutton's Favourite are good cabbage kinds. Other serviceable varieties for general use are: Improved Black-Seeded Brown Cos, very hardy; Hick's Hardy White Cos, an invaluable kind for autumn sowings, being very hardy and of excellent flavour; and the old Hardy Green Hammersmith, which still remains one of the best, if not the very best cabbage kind for winter use. If planted in a fairly dry sheltered position, it will come through the severest winter unharmed. Carter's Harbinger for forcing is a distinct and valuable kind for the purpose, and should be grown by all where winter salads are in great demand.

Aldenham House Gardens. E. BECKETT.

PROFITABLE CUCUMBER CULTURE.

IN answer to Mr. Turner's inquiries which appeared in the GARDENERS MAGAZINE (page 110), I think I can satisfy him with regard to the profitable growing of cucumbers. In giving full particulars of the starting of my plants, and the space occupied, the prices received for each month throughout the season, as I sell all at wholesale prices after supplying the Hall, which is a very large establishment. With regard to discarding cucumbers for tomatos, my opinion is that where there is a good market for cucumbers they well pay as well as tomatos. For instance, where early tomatos are wanted they are more liable to disease than the cucumber, and require much amount of care and attention. The camel-hair brush must be kept regularly at work or your fruit will not set freely, but cucumbers do not require this treatment. The chief point to be considered in relation to tomatos is that if you have a quantity of fruit on hand they can be kept for a week or more when sale is slack without being deteriorated; this cannot be done with cucumbers.

I planted my cucumbers on February 20, in a span-roof house forty-eight feet by twelve feet, with twenty plants of Sutton's Improved Telegraph, I gave them the treatment described in GARDENERS' MAGAZINE of October 30, page 617. Readers will now be able to judge whether my treatment or the treatment given in GARDENERS' MAGAZINE of November 13, page 710, is most profitable. In the first place, I do not consider horse droppings quick enough in its action, besides the extra amount of labour in collecting this off the roads; moreover, if I wanted to use horse-droppings from the roads I should be unable to do so, for they are not obtainable here. There is also an objection to their use as the odour would be most unpleasant in the houses when watering. The extra expense in the labour of collecting and daily mixing the liquid would also be considerable. Soot is beneficial to the plants if used occasionally. I find that five shiliings' worth of Clay's Fertiliser or Peruvian guano will carry this crop through without delay or unpleasant smell. Saving of labour I consider the beginning of profit.

I commenced cutting fruit on the 3rd of April: during the month of April I cut 91 fruit at 6s. per doz.; May, 520 at 4s. per doz.; June, 507 at 3s. 6d. per doz.; July, 507 at 3s. per doz.; August, 195 at 2s. 6d. per doz.; September, 442 at 2s. 6d. doz.; October, 78 at 2s. 6d. per doz.; November, 78 at 2s. 6d. per doz. During the season I supplied the Hall with 200 of the best of the fruit, which makes a total of 2,618. I think if Mr. Turner would try my treatment of cucumbers he would find it far more profitable, with a great saving of labour.

The Gardens, Castle Hall. T. DAVIES.

ORCHARD MANURES.

THE fruit grower having secured a proper selection of fruit trees suited to the climatic conditions of his district, will find it to his advantage to expend a few pounds per acre in manures, for the purpose of adding to the fertility of the soil, or to restore the elements of plant-food extracted from it by the growth of the fruit crops. To use manure when not needed is waste, and, in the same way, to use a manure that contains too much of one substance, but too little of another, is equally waste. Hence the importance of being able to compound manures of the essential elements of plant-food in proportions varying to suit each fruit tree requirements, so that the latter will have all that it wants and no more. The science of horticultural chemistry has during recent years thrown such light on the question of fertilisers, and the study of the requirements of cultivated plants, that we are able now with a reasonable amount of certainty, for every pound spent in suitable manures to expect a fair return for the outlay. All soils consist for the most part of substances which have no direct or immediate use in feeding plants, therefore few soils can do without manure of some sort in order to yield maximum crops. Attention has frequently been called to the very large amounts of reserve nitrogen that occur in cultivated soils. Analysis has shown from 3,500 lb. to 6,000 lb. per acre, taking the loam as one foot deep, indeed, some soils are doubtless so rich from the abundance of their nitrogenous reserve store, that they become too forcing for the purpose of successful fruit growing, inducing an excessive development of wood and leaves, to the detriment of the fruit; or in the case of grape cultivation, the soil may contain too large a proportion of nitrogen in relation to the supply of potash and phosphoric acid, that the fruit would be badly coloured, and would lack its proper sweetness and nutritious character.

In our study of manures for fruit trees, we must start with the maxim that no one manure is suitable for all kinds of trees; and it is only by considering in detail the constituents of plants, the functions of their individual organs, and the conditions for their growth and development, that we can hope to understand fully the application and effect of manures. Plants, including fruit trees, in order to thrive, require certain chemical elements, some of which are supplied by the air and some are derived from the soil. Those supplied from the air are combinations and compounds of carbons, hydrogen, and oxygen. These three elements constitute with the compounds of nitrogen and sulphur, which, in the case of fruit trees, are obtained from the soil, the organic part of the plant. On combustion, either by fire, fermentation, or decay, the organic portion of plants returns entirely, or in part, to the air in the form of gases; while the mineral or inorganic portion of the plant, which is represented by the ashes left behind after complete combustion, consist of potash, soda, lime, iron, magnesia, silica, phosphorus, sulphur, chlorine, and manganese. These non-volatile substances are all derived from the soil, as they are of rock origin. The first five of these inorganic constituents are called bases, and are generally found in Nature with some acid to form sulphates, nitrates, chlorides, phosphates, silicates, carbonates or humates of potash, soda, lime, iron, and magnesia.

Conditions on which the Fertility of Soils Depend.

1. A certain quantity of organic matter is beneficial, for it causes disintegration of the soil, and renders it more friable and better adapted to the development of the finer fibrous tree roots. The nearer the roots are to the surface of the soil the better coloured will the ripened fruit be. It must, however, be remembered that an excess of organic matter causes sourness of the soil, which induces badly developed wood and the formation of few fruit-buds.

2. There must be present in the soil all the mineral constituents required for the special fruit crop under cultivation, and in such form that the food can be readily absorbed by the growing tree. According to the "law of minimum," a soil destitute of any one of these essential ingredients may become more or less unfruitful, since it is the minimum of any one constituent, and not the maximum of others, which is usually the measure of productiveness.

3. A soil may contain an abundance of potash, lime, phosphoric acid, or iron, &c., and yet be very unfertile, because these substances exist as insoluble compounds—as in granite, sand, and the like. Before any mineral ingredient can be absorbed by a living plant, or roots of a tree, it must be dissolved by water, or water made slightly acid. Thus all root-sap is more or less acid.

4. A fertile soil must be of such a texture as to admit free access of air, though at the same time not too porous, but dense and firm enough to retain moisture, and to afford proper support to the growing tree against storms of wind.

How do Trees Feed?

It may next be asked, how do fruit trees feed? Water, of which plants on an average contain 70 per cent., is absorbed from the soil by the tree roots and their root-hairs. This water forms the vehicle of the mineral matters which pass directly into the cellular tissues of the roots, and are thence diffused through the stems, leaves, flowers, and fruit, and constitute after burning the ash of the plant. Nitrogenous food is taken up from the soil by the tree roots in the form of nitrates, which have been produced from ammonia. After absorption this is converted by the plant into albuminoids. Next in order to the roots, the leaves are the most important organs of a tree. These on a full-foliaged tree, possess millions of small mouths which drink in the carbonic acid gas from the atmosphere. From every forty-four parts by weight of carbonic acid absorbed, the tree obtains twelve parts of carbon to build up the organic portion of its structure. It seems incredible (says Professor Anderson) that trees should get almost the whole of their carbon from the four parts of carbonic acid that exist in 10,000 of air; but it can be understood when we calculate that there are 2,160 pounds of air overlying every square foot of land, and in that amount there are about 5¼ ounces of carbon, which is equal to no less than 7 tons per acre.

When we find that in a mangold root crop of 25 tons per acre there is hardly 30 cwts. of carbon, and in a wheat crop of 2¼ tons per acre not more than 22 cwts. of carbon, it can be readily seen that there is constantly floating over every part of the earth a quantity of carbon in the form of carbonic acid gas five times in excess of any crop's ultimate total requirements.

Immediately a fruit tree starts into active growth its roots absorb water and its leaves absorb carbon; five parts of the former with four parts of the latter form starch. This is further acted on by water and converted into glucose or sugar, which substances being dissolved in the sap or juices of the tree permeates its entire structure, giving rise to the various carbohydrates, namely, wood, grape-sugar, cellulose, &c. This process of assimilation and digestion is due in some wonderful way to the influence of the green colouring matter, called chlorophyll, contained in the leaves of trees. In some investigations of Sir John Lawes and Sir Henry Gilbert at Rothamsted it was found that the percentage of sugar was larger in root crops grown by farmyard manure alone than in those with nitrogenous manure in addition. It was higher still when mineral manures were used alone, but here again was reduced by the addition of nitrogenous manures. The fact being that the lower the nitrogenous manurial supply the riper the crop of roots became; and with this ripeness there was found a higher percentage of sugar in roots, a higher percentage of starch in potatos, and a higher percentage of cellulose in the straw of cereal crops; also conversely the larger the nitrogenous manuring the more luxuriant the growth, the less ripe the crop, and the lower the proportion of sugar, starch, or cellulose.

The same rule holds good in the case of wine-producing grapes, which yield a "must" more suitable for wine making when the fruit has been grown on a soil with an excess of potash and phosphoric acid rather than an over-abundance of nitrogen.

Plant Needs.

Here we may inquire as to the differences in the food requirements of different plants. With farm crops we are well informed by the results of hundreds of analyses. Thus we are taught that potatos, beans, and peas need a large amount of potash; wheat, barley, oats, and maize require a good supply of nitrogen and phosphates; while clover, turnips, lucerne, cherries, olives, and vines must have an abundance of lime. Professor Anderson informs us that good potato land will produce excellent peaches, nectarines, apricots, olives, plums, and cherries. Chemical analysis has also shown that the ashes of these plants contain a large amount of potash, which may, therefore, be called the dominant constituent. In like manner, oranges, lemons, almonds, and apples do well on maize and wheat producing soil, and phosphates may be considered their dominant need. The ashes of vines, olives, strawberries, figs, and cherries reveal a large percentage of lime and potash, so that bone dust, ground bones, superphosphate, basic slag, and potash may be expected to benefit these tree and assist in fruit production.

Harpenden. J. J. WILLIS.

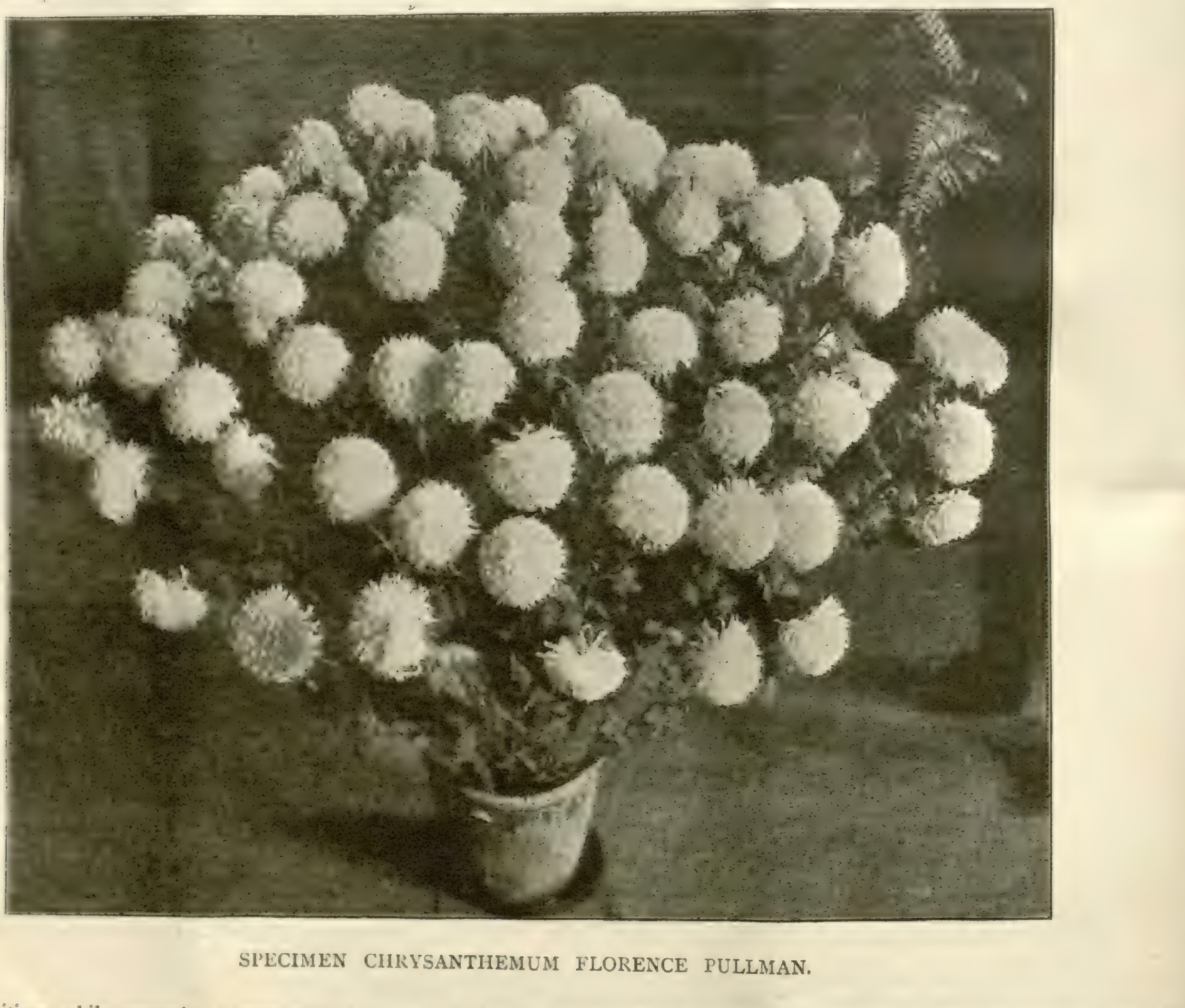
LARGE PRIZES.

YOUR correspondent "Lux" suggests that I might like to say something with respect to the growing increase, seen in so many directions, in prizes for competition at flower shows. Possibly he is, like myself, a non-competitor, and, if so, can afford to regard these matters with an unbiassed mind. I cannot say that I would desire to see exhibitions devoid of prizes altogether; for whilst occasionally, as at the Temple, for instance, it is possible to obtain a grand show without prizes or, indeed, without competititors, of any sort, yet what is so far done in this way for the Royal Horticultural Society would hardly be done for any other society in the kingdom. Again, everyone knows that competitions do furnish an element of such exceeding interest in shows that generally they owe much of their popularity to them. Myriads of good growers and gardeners also will show of their produce only when such stimulus is furnished. But the great increase in the value of prizes at shows, of late so much in evidence, does in my estimation present a serious danger to the permanency of flower-show competitions. We see on every hand now competition amongst show executives to provide the largest prizes, so that prizes are being offered far in excess of the real, or even assumed, value of the respective exhibits. Doubtless the exhibitors rejoice, but, as the frog in the fable said, "What is sport to you is death to me," so may these exaggerated prizes ultimately kill the societies offering them.

It is just as well that both committees and exhibitors should realise that probability, and in time stop what is likely to be so harmful. It is so much better to keep prize amounts to such reasonable sums as means will enable to be offered, and not to attempt doing the big thing and ending in bankruptcy. Then what benefit to horticulture is likely to result from these large prizes? Just take horse racing, in which there is such exceeding competition, although very much of it is fouled by greed and duplicity. During the past few years prizes of literally immense value have grown up in various directions, and the winners have rejoiced over their luck, of course; but can anyone at all familiar with horses affirm that in any way these big sums as prizes have done anything to improve them or breeding? Of course not. It will be the same in horticulture. The societies that offer these big tempting prizes may secure large competitions, but they will render horticulture as a skilled profession or occupation not only of no good, but will inevitably do harm. Nine tenths of the horticultural societies of the kingdom find it difficult enough as it is to hold their own, and if they, too, should be tempted to form a big class or two they will soon come to grief. When we see £20 offered as a first prize for a giant group of plants, which must not only be of first-class quality, but be arranged with the highest artistic skill, there is an impression that the amount offered is far from being excessive; but when this large sum is offered as a first prize for forty-eight or perhaps sixty chrysanthemum blooms, arranged in boxes with little artistic taste, carried with comparative ease, and worth in the market about sixpence each, the offer does seems beyond reason. A. DEAN.

A REMARKABLE SPECIMEN CHRYSANTHEMUM.

WE have on many occasions directed the attention of our readers to the great value of specimen chrysanthemums trained in the form of neat bushes for the embellishment of the conservatory, and as suitable opportunities have offered we have impressed upon societies specially interested in the chrysanthemum the desirability of giving them liberal encouragement. In numerous instances our advice has been acted upon, with the result that they are frequently met with in gardens and at exhibitions with, as we believe, advantage to both. We can fully appreciate the skill evinced in the production of the large and finely flowered convex-trained specimens that are occasionally represented at competitive gatherings, and are ever ready to bestow upon the exhibitors the praise they so well deserve; but we are fully alive to the fact that the production of these specimens imposes a severe tax upon both the time and the skill of the cultivator, also; that, however meritorious they may be, they do not so readily lend themselves to artistic treatment in the arrangement of the conservatory as do specimens that have been allowed a greater latitude in making their growth, and that they are consequently less useful where chrysanthemums are grown exclusively for home decoration. Bush-trained specimens, which usually form a magnificent feature at the Hull exhibitions, while presenting a more natural appearance than the convex specimens, are free from the defects characteristic of the plants grown with a single stem in accordance with the practice that obtains in the production of exhibition blooms, and can be readily arranged to produce effects at once rich and pleasing. Hence the desirability of both extending and improving their cultivation. With a view to assist in bringing about these desirable results we have figured some of the finest examples that have come under our notice at the English exhibitions, and we now present our readers with an illustration of a splendidly developed specimen of Florence Pullman, which formed a conspicuous feature of the exhibition of the Pennsylvania Horticultural Society's exhibition held at Philadelphia in November last. This specimen is specially remarkable for the fact that instead of having been grown in a substantial compost such as is usually advised for chrysanthemums cultivated in pots, was from a cutting grown exclusively in Jadoo fibre, and a stronger proof of the value of this material as a medium for the roots of plants that require a liberal supply of food in their development could not well be desired. We understand that the pot in which the specimen was grown was nine inches in diameter; and assuming this to have been the case it is not difficult to form a correct estimate of the dimensions of the plant, and of the size of the individual blooms, or of the adaptability of Jadoo fibre to the requirements of chrysanthemums.



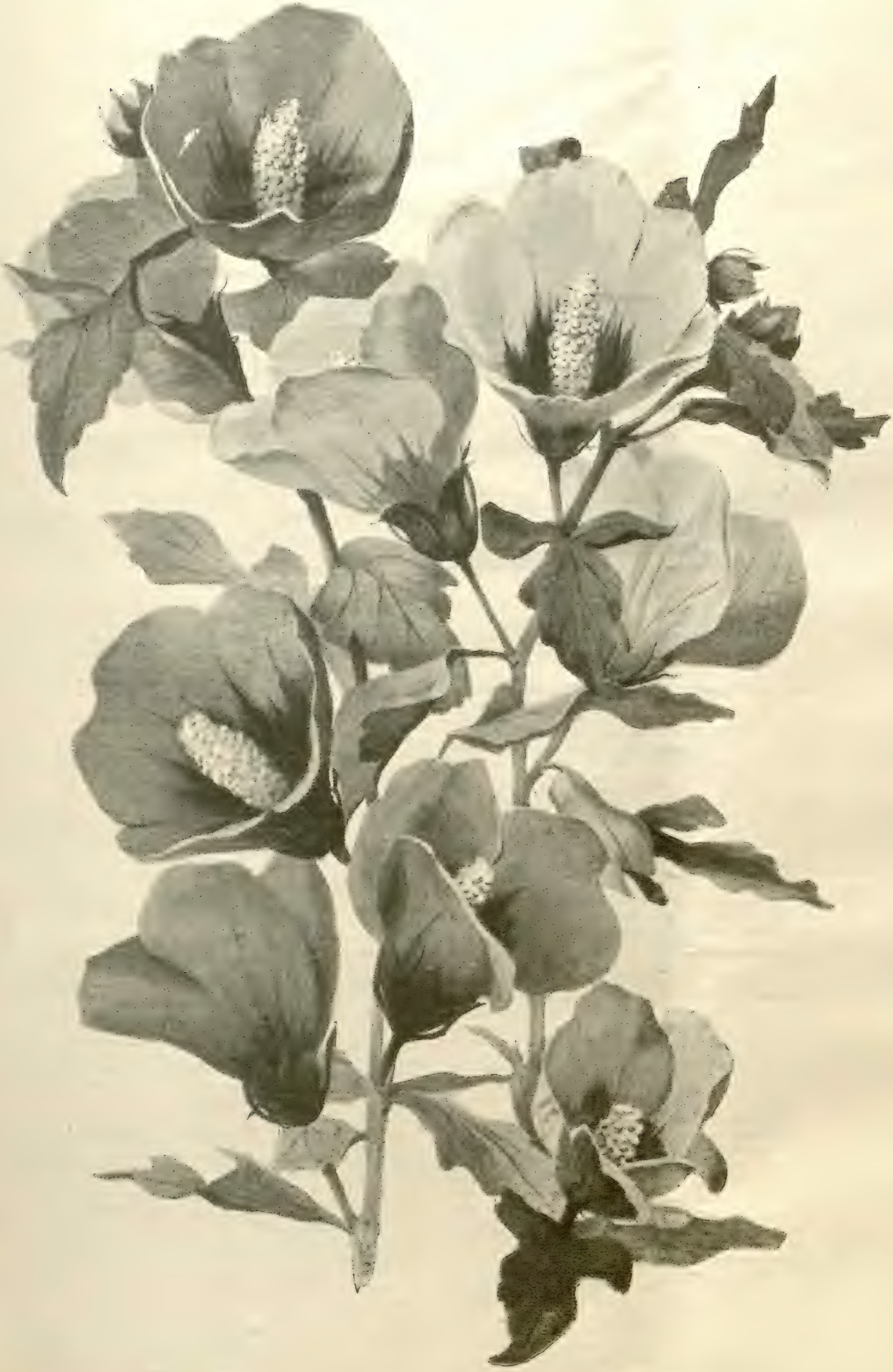
SPECIMEN CHRYSANTHEMUM FLORENCE PULLMAN.

HIBISCUS SYRIACUS.

THE Syrian hibiscus, known also as Althæa frutex, is the only species in a fairly large genus that is both ligneus and hardy in this country. In the neighbourhood of London and southward it is perfectly hardy, while in the Midlands and northward it will require some protection during winter, or has to be cultivated against a wall to be a success. All the numerous seedling varieties that have been perpetuated need similar treatment, and all delight in a light, porous, and rich soil and a warm position. In the drier soils of Surrey and Sussex the Syrian hibiscus grows freely and flowers during August and September with wonderful profusion, its succession of flowers fully making amends for the evanescence of the individuals. The leaves are comparatively small and variously lobed, wedge-shaped and toothed. The flowers are large and vary in colour from rose to deep red and purple; both single and double forms are in cultivation. In height both species and varieties are from six to eight feet when fully grown, and the habit is fastigiate rather than spreading. They are deciduous, and the erect branches are freely produced.

Hibiscus syriacus was introduced from Syria about 1596, and was certainly in cultivation in England previous to 1629, for Parkinson alludes to it at the latter date as being somewhat tender. As late as Miller's time there were no double-flowered varieties, but as the species became popular, and its seedlings exhibited great varietal tendency, double forms were soon selected, and these became very popular on the Continent; they are now quite common, but not so popular in this country as the single varieties. Such immense quantities of early spring flowering trees and shrubs have been planted of late years that there has been a tendency to ignore or forget those that are beautiful in late summer and early autumn, consequently a vast number of new gardens do not possess Hibiscus syriacus in any of its charming forms. The reaction has, however, set in, and among autumn-flowering shrubs the Syrian hibiscus will be greatly in demand. As already instanced, there are varieties to please all tastes, and two of the most handsome and effective are depicted in the present issue, the light one being H. s. Painted Lady, rose tinted with rich red blotches, and the other H. s. cœlestis, blue with purple bases to the segments. The sprays represented came from plants grown at the Coombe Wood Nurseries of Messrs. J. Veitch and Sons.

A few other of the most attractive forms of the Syrian hibiscus are H. s. Totus albus, white; H. s. rubrus plenus and H. s. roseus plenus, respectively red and rose coloured double varieties; H. s. amaranthus, purple; H. s. violaceus atropurpureus, dark violet; H. s. Violet Claire, a bluish, double form of great beauty; H. s. cæruleus plenus, double blue; H. s. albo plenus, double white; H. s. anemonæflorus, H. s. Leopoldi, H. s. Pompon Rouge, H. s. Ardens, and H. s. Duc de Brabant.



Painted Lady. Cœlestis.

HIBISCUS SYRIACUS VARS.

WORK FOR THE WEEK.

THE KITCHEN GARDEN.

IN a weekly calendar of kitchen garden work it should be remembered that the writer gives his experience as far as possible of the place where he resides, but as seasons and soils somewhat vary, and as he has to write his notes a week or so beforehand, it is not always possible to state exactly the way to proceed ; it may, however, be taken that such work may be done as near as possible to the dates given. One of the most important duties of the kitchen gardener at the present time is to see that all tender vegetables are well protected from frost. In many places potatos that are in clamps become frosted for want of litter being placed over the heaps in severe weather, therefore this should receive attention at once. Carrots that were sown in the autumn with a view of supplying fresh tender roots during winter and early spring, will be of little use if the soil is allowed to get frozen in such a manner that they cannot be drawn when required. A small quantity of dry bracken or leaves will ward off an ordinary frost, particularly in dry, sandy soils, but should there be any signs of severe weather, material should be made ready to afford further protection. Lettuce and endive must receive attention in like manner. Most gardeners who have to contend with heavy soils know the difficulty there is in keeping celery through the winter. If boards about a foot wide are nailed together at right angles, and these are placed on the tops of the ridges they will prevent the rain from running down into the hearts of the plants. The ridges should be covered with bracken or litter to ward off the frost, and if this be done in time the celery will remain quite good till the spring. In some establishments there is a great demand for forced rhubarb, seakale, asparagus, mint, tarragon, chicory, endive, and the like. Now all these require some special preparations. Mint and tarragon rooted in boxes in August last may be placed in heat as required, but where this was not done roots must be taken up from the open ground and placed in pots or boxes filled with light, rich soil, taking care not to bury them too deeply. Chicory, endive, rhubarb, and seakale are best forced in a dark cellar. It is impossible to take up the roots of these when the ground is frozen hard, therefore a sufficient stock should be lifted and covered that they may be introduced into a gentle warmth as required. It is essential that if subjects of this description are to be had in the finest possible condition that they are grown in absolute darkness, and no more fire heat applied than will promote a healthy growth ; indeed, if they can be produced without fire heat at all so much the better. No more should be introduced into the forcing house at one time than is necessary for the requirements of the establishment. The roots of asparagus lose much of their vitality if lifted for any length of time before being forced, and for this reason the beds intended for forcing should be covered with litter so as to exclude the frost, the stools can then be taken up as required. This vegetable is always the most tender when forced on a gentle hot-bed made of fermenting material, therefore a goodly quantity of this should always be kept in readiness.

A very important item at this time of the year is that of making up the seed order, and, as many seeds are wanted very early, no delay should now be made, or anything allowed to take place, that prevents the order being made out at once and sent in. When received, the seeds should be kept dry and in an even temperature till such time as they are required for sowing. It is only by close attention to the requirements of a place that a true guide can be had of the necessary quantities of each kind. When the ground is frozen hard, the wheeling on of manure should be proceeded with, as such work can always be done with more dispatch when the ground is dry. It is, however, best not to delay the work of manuring till late in the season, if this can be avoided, particularly if the material is only half decayed, as it has not time to rot before the crops are planted, which, in the case of many plants, is most injurious. Ground intended to be sown with parsnips, carrots, beet, salsafy, and scorzonera should on no account be manured so late in the season, unless the manure is placed at least two spits deep, or the roots will become forked and ill-shaped. That intended for cauliflower, peas, and such other vegetables as require rich ground, should be liberally manured and deeply dug as soon as possible, particularly if it be of a light sandy nature, that the soil may have time to settle down again before the crop is sown or planted. Care should be taken to have each plot of ground marked out where it is intended that each vegetable shall be grown, that there may be no mistake at the time of sowing. Ground intended for onions cannot well be too rich, neither can the soil have been moved too deeply, provided it is of good quality, and, as such work cannot be done later on, when other things become more pressing, this, if not already completed, should be taken in hand the first favourable opportunity.

The clipping of hedges, where there are any, surrounding the garden can also be proceeded with when the ground is hard, while, if we should have a fall of snow so as to put a stop to outside work, such work as making seakale sets, labels, and placing potato sets on their ends in shallow boxes could be done. The former, if made now and covered with decayed leaves or short litter, so as to keep them moist and protect them from frost, will frequently have callused and commenced to root by the time they can be planted, and will therefore be much more forward than those made and planted later on. The advantages of having potato sets started are manifold, but the growth made should always be stout and robust, and this can only be made in a comparatively low temperature, where light is freely admitted, and for this reason, those intended to be planted early should receive attention at once.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

THE first or second week of the new year is an excellent time for those who have only two or three vineries to commence forcing for the earliest crop. Earlier than this the crop is more or less out of season, and can with difficulty only be had of high quality ; but after the days begin to lengthen forcing is an easy matter, and with ordinary care the vines make good wood for the succeeding year and do not in any way suffer. Supposing that the vines have been subjected to the usual cleaning and are now suspended, so that the ends of the rods are lower than the other portions of the vine (which will make them break more regularly throughout), the house should be closed and kept for the time being with a minimum temperature of 50 degrees. The border should be well watered with tepid water, so that it is thoroughly moistened throughout. A gentle hot-bed of leaves and manure built inside the house will help to keep up the necessary temperature, and the slight escape of ammonia from the bed will in other ways help the vines. A slight syringing of the rods once a day before noon will be all that is requisite in a house with such a hot-bed, and care must be taken not to over-do the supply of atmospheric moisture. Some people do without the syringing altogether, and there is much to be said for the method, but personally I like to moisten the rods once a day until the buds are ready to burst into leaf. The outside border will require covering in cold districts, but I do not favour the hot-bed system for these, and only cover with sufficient leaves, litter, or bracken to keep the soil from being frozen, for unless this takes place the roots will work quite freely enough to keep the vines growing healthily without subjecting them to artificial heat, therefore a few inches only of covering material is necessary. Where vines are planted in outside borders, and led inside through holes in the front wall, the outside portions of stem should be thoroughly well protected with hay-bands or some other covering, and any portion of the holes not filled with the stems should be closed up also, to prevent cold currents of air. I have known a complete collapse of growing vines to take place from neglect of this protection during a sudden spell of sharp frost, and any freezing of the sap will give such a check as to cause flagging, if nothing worse.

Pot vines, being of no further use after fruiting, may be driven along briskly if required very early, always remembering, however, that the slower in reason their progress is the better will be the colour of the fruits. Keep the plunging material at a uniformly brisk heat, and afford ventilation as freely as may be, during the forenoon, without creating draughts ; be careful, though, that no front air is given ; all that is needed should be given at the apex of the roof or lights. All late vines from which the bunches have been cut should be pruned as soon as possible. Opinions vary as to the best method of pruning, and it is only needful to say here that close pruning results generally in the most compact and useful bunches while pruning to the "best, *i.e.*, the plumpest bud near the base of last year's lateral, will give bigger and looser bunches. Those who prefer the former may cut back quite to the last bud on each shoot without fear of lessening the chances of a good crop. Figs may now be started, and where the trees are planted out and grown with their heads close to the glass there is no reason for further delay, as the trees will have their first crop ripened in time to produce an excellent and continuous second crop, that will last well into the autumn. The first trees, say of Brown Turkey, started now, will begin to ripen their first fruits early in April, and continue almost throughout May, after which there will be a break, averaging from a month to six weeks, before the second crop ripens. To cover this break it will be well to start another house in six weeks or so from now. Pot trees with the fruits well advanced may now be given a higher temperature, say 60 to 65 degrees at night, and have liberal doses of liquid manure as required. Trees started now do well with a temperature as advised for starting the vines. Any trees which have not yet been cleaned should be treated at once, always remembering that the young wood of fig trees is very susceptible to injury from the use of strong insecticides, and I never allow anything of the sort to be used on the wood made during the past season.—J. C. TALLACK, *Livermere Park Gardens.*

THE PINK COLOUR IN CHRYSANTHEMUMS.

THE economic importance of chrysanthemum-growing (which in this state is estimated to involve more capital than peach cultivation) justifies the attention paid to this subject by the Cornell Experiment Station. Chrysanthemums are not yet quoted in market reports by names of varieties as roses sometimes are, but the prices are usually given for the three prominent colours—white, yellow, and pink. The various shades of pink seem to be exceedingly unstable. One of the popular commercial varieties is Fred Walz, which I have frequently seen in three or more easily distinguishable shades, although the plants seemed to be grown under very similar conditions. This variety being somewhat stiff and formal in outline, is easily ruined for artistic effect by unevenness of colour. The mere fact that the pure pink of Mr. F. Schuyler Mathews's colour-chart has not yet been attained in chrysanthemums is not so serious in itself, because that is only one particular shade. There seems to be an entire series of colours whose value is determined far more by the skill of the cultivator than by the variety. Amaranth, crimson, rosy pink, crimson pink, light pink and blush-white are some of the names of trade catalogues which represent a gradation from the deepest shade of the series down to pure white, and it seems probable that any of these shades may in some cases be obtained from a single variety. Not all varieties, of course, are so highly susceptible as this, but frequently the difference is enough to make the flowers unsaleable. The control of colour, therefore, becomes a problem of great interest.

The problem is doubtless a complicated one. There seem to be at least five factors concerned, any one of which may change a pink to a white. The choice of buds is said to be sufficient in some cases. J. H. Woodford, one of Mr. Spaulding's novelties, is advertised as shell-pink from terminal, and pure white from crown-buds. Over-propagation is generally thought to weaken colour. Temperature and ventilation (the two factors can hardly be separated in greenhouse practice) are advertised to produce three distinct and desirable shades in Mrs. Colonel Goodman. Mere position (in pots, beds or benches) should not in itself make a difference, but in practice it does. The effect of shade is variously stated. And most complicated of all, the food factor is known to influence colour, but just how is a mystery.

Thirty-one varieties advertised as having various shades of pink were grown here under the same conditions. Fourteen gave white flowers with only a trace of pink at most in a few cases. Three others had much less colour than their descriptions imply. I cannot explain such a condition. The general health of the plants was excellent. The four flowers on each plant averaged about six inches in diameter.

Last year I noticed in another place some white varieties which showed pink. Among them were such important sorts as Our Mutual Friend and Marie Valleau, the latter, however, being less frequently described as pure white. The food being much richer than our own, especially in nitrogenous matter, I suspected that an extra supply of nitrogen might have called out the pink colour which we had never observed in these white varieties. Mr. E. G. Hill warns his customers not to use nitrate of soda in the cultivation of certain light pink varieties, as it produces a deeper and unpleasant shade.

It was convenient to single out only two of the supposed factors this year, and the experiment has turned out contrary to my expectation. The extra amount of nitrogen did not deepen the colour, but the flowers proved very sensitive to shade. Shade is said by some to deepen the colour, but the reverse was true in this case. The difference was perceptible at a glance in the case of Mrs. Perrin, Madame Felix Perrin, Marie Valleau, Helen Bloodgood and Iora, and in a lesser degree with William Simpson and Maud Dean. This difference would not prevent the sale of Iora, which is usually uniform in colour, whatever the shade may be. The varieties Mrs. Perrin and Madame Felix Perrin, however, lost their characteristic, sparkling, rosy colour, and were not of a saleable character. Some of these varieties were shaded from the time the buds were the size of marbles until they came into full flower. Others had already burst their buds and were out an inch or more before the glass overhead was whitewashed. I know nothing about shading chrysanthemums during the purely vegetative phase of their life. It seems clear, however, that during the reproductive phase the forming flowers are weakened in colour by shading. There was only one contradictory plant among twenty-five. It is a common complaint among florists that the pink colour stays only a few days after the flower opens, and perhaps sunlight and shade cannot then arrest the fading. The results with the nitrogen factor were not conclusive. At any rate, we did not force pink into white varieties as Lenawee and Mutual Friend.

Ithaca, N.Y. WILLIAM MILLER, *in Garden and Forest.*

VARIETAL DEVELOPMENT IN BRITISH FERNS.

(Concluded from page 13.)

IN 1868 was found by R. Mould, of Ilfracombe, a small plant (Athyrium filix-fœmina Clarissima) which was destined afterwards to become one of the most famous of varieties. Mr. Moule does not appear to have thought very highly of his find, and to Captain, afterwards Colonel, Jones belongs the credit of perceiving and afterwards developing its capabilities as an ornamental variety; while to Mr. Druery belongs the honour of first propagating it, and of thereby bringing to light a botanical phenomenon absolutely new to science and of great importance from the evolutionary point of view. A phenomenon, too, which is now seen to be widely spread among ferns, and abundantly evident to those carefully looking for it. I strongly recommend you all to look for it, especially among those varieties which are supposed to be barren or imperfectly fertile. In the same year (1868) was found Adiantum capillus-veneris cornubiense, a beautiful form, which is not so well known as it deserves to be. Also Polypodium vulgare grandiceps Mrs. Fox, Mrs. Wilson's Athyrium filix-fœmina rectangulare, and many other notable things.

The year 1869 produced some fine things, one of the most notable being A. f.-f. plumosum Wills, perhaps the grandest of the wild-found plumosums. It is said to have been found not so much by Mr, Wills as by his pony, which insisted on making a detour round a piece of waste land and then suddenly stopped dead. On the doctor casting his eyes to the ground he found he was on a feathery bed (not a feather bed). Alighting he severed with his crooked stick a large clump, as much as he could lift to the saddle. Other good things of this year were Polystichum angulare perserratum Wollaston, P. a. divisilobum proliferum Bagg (better known as Henleyæ), P. a. grandiceps Moly., and Athyrium filix-fœmina multifidum tenue Wilson (a very neat thing).

In 1870 Mr. Howlett, of Oxford, raised A. f.-f. Kalothrix, the most refined of all Lady ferns, and, under proper conditions, one of the most delicately beautiful of ferns. The origin of Kalothrix is involved in some mystery; all that is known being that it was raised from a plumosum which was growing in the Oxford Botanical Gardens. This was supposed to have been traced to a Horsfall plumosum in the Chelsea Gardens. It is recorded, however, that there is in the Sherardian Herbarium, Oxford Botanical Gardens, a frond of Kalothrix, or something very like it, which was gathered in the Mourne mountains many years before Howlett raised his plants. This seems to suggest very strongly that the plumose parent of Kalothrix came from spores of this Mourne mountain plant, seeing that Kalothrix itself produces a percentage of plumose offspring. I intend to try to clear up this point, if possible, the first time I visit Oxford. In the same year was found Mrs. Hodgson's Athyrium filix-fœmina subplumosum, of which I have never seen more than a single dried frond, but which struck me as being in the way of Kalothrix and almost equally beautiful. It would be interesting to know whether this plant is still in existence. Among many other good things of 1870 may be mentioned Lastrea propinqua cristata Barnes, Polystichum angulare divisilobum cristatum, Ivery, and Lastrea dilitata cristata, gracilis Roberts. This last is very pretty in the young state, but as it attains maturity it is marred by a certain depauperation which destroys its symmetry. If this defect could be eradicated from its constitution, this plant would be a really good thing; but as it is, few people care to grow it. If there were anything in the idea of spores from a particular part of a fern being different in constitution from those of another part, and tending to reproduce the character of the part from which they arise, it ought to be no difficult matter to get rid of the depauperation; but, though many thousands of seedlings have been raised, the spores of which would presumably be selected from good fronds or parts of fronds, I have never heard of one being raised which was free from the radical defects of the parent. This difficulty in getting rid of defects is a strong testimony to the truth of Weissmann's theory, that the germ plasm is the same in all parts of the plant.

Another very striking find of 1870 was Mr. Stabler's Asplenium trichomanes confluens. This is another of the ferns which have been, by many eminent authorities, regarded as hybrids; and it is also another case in which this opinion appears to me to have been arrived at upon insufficient evidence. The chief points in favour of the "hybrid" theory are the large size of the fern (approximating remotely to that of A. marinum), and its sterility; perhaps the thick and rigid character of the stipes may be counted as another, but really this is part of the first point—that of size. On the other hand, there is nothing of the outline and but little of the texture of marinum in confluens. Further, Mr. Barnes examined very closely the wall in Levens Park where confluens was found, but not a trace could he discover of either A. marinum or A. adiantum-nigrum, the only other species at all likely to have contributed to the supposed hybridisation. Moreover, other confluent forms of trichomanes have been found by at least four other people. Two of these (found by Mr. Forster and Mr. Smithies) I have seen, and they seem to be equally barren with Mr. Stabler's form, and moreover, though small when found, they are capable, when grown under the same conditions, of approaching if not of equalling Mr. Stabler's fern in size. I have seen however A. trichomanes incisum, under the cultivation of Mr. Robinson, York, grow to a larger size size (sixteen inches long by an inch wide) than I ever saw or heard of confluens attaining to. There is then, it seems to me, quite as much evidence of the hybrid origin of incisum as of that of confluens. No one suggests, however, that incisum is a hybrid fern.

In 1871 Mr. Barnes found the crested Lastrea montana, from which he afterwards raised his coronans, ramo-coronans, and grandiceps. This was the first really crested montana, the much older so-called L. montana cristata found by Huddert being a polydactyla rather than a cristata. We have here an instance of the odd results which followed from the haphazard system, or rather want of system, upon which fern varieties were first named. The name cristata was given to a polydactylous form—then, when a really crested form was found, it was thought it could not be named cristata because that name was already in use; and so the fanciful name of coronans was given to it—a name which does not really express its character. It would have been all the same had the original cristata been really crested (which sometimes indeed it is, though less perfectly than the other). It had not then occurred to the sponsors to give ferns of similar character the same name, distinguishing them from each other by the name of the finder. What Mr. Barnes did in L. montana Mr. Glover did the same year in Pteris aquilina, being assisted in the raising by Mr. Mapplebeck, Mr. Forster, and others. In the same year was found John Wilson's exceedingly fine crested Lastrea paleacea, a most distinct and handsome form quite different in habit from the old cristata

In 1872 was found Athyrium filix-fœmina plumosum divaricatum, a form which was not thought very much of at the time. It was not until some years afterwards, when Mr. Tyldsley had grown it to its full size and developed its character, that it was recognised as belonging to the first rank of wild-found plumosums. Another good plant of the year was Isaac Hindson's Pteris aquilina congesta, as were also Blechnum spicant trinervium coronans Barnes; Polypodium angulare tripinnatum Padley; and Lastrea paleacea polydactyla Dadds. In 1873 was found Mr. Moly's Polystichum latifolium, a grand form, which is far too little known and far too little grown. Also P. aculeatum acutilobum Wills, and P. angulare perserratum Patey. In 1874 Mr. Barnes did for Lastrea dilitata what he had previously done for montana, finding a wild fern which was the parent of a series of grand crested varieties. Another prize was Moly's Polystichum angulare divisilobum robustum, a grand and noble form, to which justice can only be done in the S.W. A crested form of parsley fern was also found. In 1875 came Hadwin's plumose polypody, perhaps the best of the Cambricum section, and Polystichum angulare divisilobum laxum Wills.

The sensation of 1876 was P. aculeatum pulcherrimum or rather plumosum, as I believe Mr. Wollaston on second thoughts, and as I believe more correctly, named it. It was found by one John Bevis, a labouring man, who had, as I understand, little if any knowledge of ferns, but whose name will, in consequence of this happy accident, be handed down as the discoverer of one of the grandest ferns ever found. This is a fern absolutely free from faults of any kind, lovely, graceful, and distinct, it is absolutely constant, perfectly symmetrical, and a good grower. In its literal sense the name pulcherrimum is not only appropriate but likely to remain so, for it is doubtful whether a more beautiful aculeatum will ever be found or raised. Its analogies are, however, I think, rather with plumosum than with pulcherrimum in angulare. Other good things of the year were Lastrea montana plumosa John Titterington—a very fine form, though afterwards surpassed by Mr. Whitwell's find in 188—; Polypodium vulgare cristatum of Clewarth, better known as Forster's cristatum, because Mr. Forster first rescued it from oblivion, and afterwards refound it in its original habitat; and Blechnum spicant ramo-cristatum, of Maunder—a form not so remarkable in itself as in its offspring, since it produces from spores some forty per cent. of densely conglomerate offspring, thereby differing from other similar ramo-cristate forms.

The year 1877 is famous for the discovery of two very fine Polystichum angulare varieties by Mr. Phillips, viz., his rotundatum and his setosa-cuneatum, two of the best of the many good things Mr. Phillips has found. Another very remarkable find of this year was Mr. Whitwell's Blechnum spicant paradoxum—a form which, so far as I know, is absolutely unique among ferns, having a third row of pinnæ rising perpendicularly from the mid-rib of each frond. When I last saw this plant it was in a bad way, both morally and physically, but I trust that this year Mr. Whitwell can give a better account of its health and character.

The year 1878 produced Athyrium filix-fœmina setigerum Garnett, a lady fern which, though pretty and distinct in itself, is yet more remarkable on account of the offspring it produces. These, as you all know, tend to be percristate, and from them even densely crested forms can be raised. I imagine the possibilities of setigerum are even yet far from being exhausted. The botanical sensation of the year was Mr. Lowe's "hybrid" cruciate aculeatum, produced by crossing Polystichum angulare cruciatum with P. aculeatum densum; this was one of the earliest, if not the first, cross produced intentionally between two distinct species of ferns. Since that time, but especially within the last two or three years, Mr. Lowe has been successful in the raising of still more remarkable fern hybrids—having crossed not only distinct species but ferns belonging to different genera. Of these things, however, Mr. Druery can tell you more than I can. The same year (1878) saw the origin of the wonderfully beautiful plumose divisilobes in P. angulare, which were the result of the collaboration of Colonel Jones and Mr. E. F. Fox. I should like to say more about these ferns, but time is short, and I have endeavoured to make this paper a record chiefly of ferns found wild rather than of those raised under cultivation.

Passing on to the year 1881, we find Mr. Druery's Blechnum spicant concinnum cropping up; this was at the time, and I believe is still, the most beautiful thing of its kind. Another good thing of the year was Westlake's Lastrea montana angustata. In 1882 Mr. Lowe found his Asplenum trichomanes Trogyense, a very beautiful fertile incisum, which will, I trust, in the future be the parent of many good things. In 1884 Mr. Forster picked up his Blechnum crenato-congestum, which when found was one of the prettiest and neatest blechnums I have ever seen. Unfortunately, it afterwards lost the beautiful crenate, or rather dentate, character which distinguished it from all other congested forms; and, though still a good imbricate variety, it has fallen from its unique position among dwarf blechnums. In 1886 Mr. Smithies found his Las. montana grandiceps, the only true montana grandiceps which has, so far as I know, been found wild. The year 1888 produced Mr. Whitwell's Lastrea montana plumosa, which remains, I believe, so far the finest plumose form of the species.

The ferns of the subsequent years I must leave to be dealt with by Mr. Druery. I have scarcely attempted to deal with the many beautiful and interesting things which have been raised from spores by Mr. Lowe, Mr. Druery, Mr. Clapham, and others, and I have been perforce compelled to omit even the very mention of a great number of first-rate things which have been found wild. The chief thing that strikes me in looking over the history of varieties is, that while we may obtain modifications and developments and combinations of characters from raising seedlings under cultivation—the really epoch-making varieties—the plumosums, the pulcherrimums in angulare and aculeatum, the A. f.-f. Clarissimas, the best polypodies both crested and plumose, the choicest blechnums and aspleniums, have, with very few exceptions, come direct from the great womb of Nature as wild finds.

A Home for Horticulture.—A good deal of reference is just now being made to the proposal which enjoys so far-fetched an appellation. The term is a very ambitious one, and it seems to imply that poor horticulture is a sort of peripatetic Jew that has long been wandering in the desert for years, and now seeks wings and needs a final resting-place. Happily no such condition exists. Horticulture lives and moves all the world over, and especially does it so all over Great Britain. After all nothing more is meant by that much-too-pretentious appellation than a mere show or exhibition hall for London, which is certainly a big centre, although it may not be quite the "hub" of the universe. No one can find fault because the subject is from time to time mooted. It has been so before, when so powerful an aid as Baron Schröder did his best to create this "home" but failed. Let the matter be mooted every year if desired, but who can hope to succeed in raising the needful £50,000 to £60,000 where the Baron failed? There is the want undoubtedly, but to be of any real service the satisfying element must be very large and very costly. Only a building twice the area of the James Street Drill Hall, having also round it a very broad gallery easily accessible by flights of stairs, and well-lighted and warmed, would at all meet the requirements of the various societies it is proposed to accommodate; and if, in addition, the basement contained dry cellars, the ground floor were offices and shops, and the hall with lifts were above, does anyone think—seeing how terribly costly land is in London—that such a building could be erected under £100,000?—A. D.

EXHIBITIONS AND MEETINGS.

WORCESTER AUXILIARY GARDENER'S ROYAL BENEVOLENT INSTITUTION.

THE annual meeting was held at the Guildhall, Worcester, under the presidency of Mr. W. Crump; twenty other members were present. Mr. J. H. White (hon. secretary and treasurer) submitted the statement of accounts, from which it appeared that the receipts for the past year had been £71 9s. 6d. (including the twenty guineas received as admission to Madresfield Court Gardens on the occasion of their being open to the public early last summer. The expenses were £7 0s. 10d., the sum of £63 having been forwarded to the parent society in London. During the past season there had been a lack of spontaneous donations which would account for the small balance in hand. Thanks were accorded to Earl Beauchamp for so kindly aiding the cause by throwing open his beautiful grounds for the society's benefit. The committee were glad to report that Mr. Davies, the county candidate, whose nomination they supported at the last election of pensioners, was successful; two candidates from the county had been nominated this year, the particulars of which would soon reach the subscribers. Earl Beauchamp was re-elected president, and Messrs. W. Crump and J. H. White, life-governors. In acknowledging the vote of thanks for presiding, Mr. Crump observed that during the last two years the society had forwarded £227 15s. to the parent society. He also referred to the death of Lord Hindlip, a strong supporter of the cause; and a vote of condolence was passed and ordered to be forwarded to the family.

SHIRLEY GARDENERS' ASSOCIATION.

At the recent monthly meeting of this energetic association, Mr. J. Mayo, of Palmeston, New Zealand, gave a lecture, principally upon fruit growing in that colony, where he was formerly government pomologist. Mr. W. F. G. Spranger, president of the association, occupied the chair. Mr. Mayo, in speaking of fruit cultivation in New Zealand, showed how the colonists studied the taste of the English people in growing fruit for the English market. He also mentioned how the New Zealand Government not only fostered industry but actually enforced proper attention being paid to the fruit trees. He afterwards spoke of the vineyards to be found in the colony, and of the cultivation of lemons.

Dr. Angell sent a number of dried specimens of New Zealand ferns which were of special interest on this occasion; Mr. E. J. Wilcox, gardener to Colonel Sinkins, Aldermoor House, exhibited a number of insects injurious to apple and pear blossoms; Mr. B. Ladhams, F.R.H.S., had a fine display of zonal pelargoniums. Votes of thanks to the chairman, lecturer, and exhibitors concluded the proceedings.

New Chrysanthemums.—In my recent notes on "New Chrysanthemums," page 823, 1897, a clerical error occurred, where the name Mr. J. Gleeson was given instead of Mrs. J. Glessner. As the latter is a very promising variety, it is important to make this correction.—W. H. LEES.

A HOUSE BUILT UPON THE SAND cannot have a permanent foundation; and the same may be said of every undertaking in life. Success, to have a permanent effect, must be built upon something solid, or it will crumble into ashes when seemingly within our grasp. The foundation of anything of value must be carefully laid, or it will soon become useless. This remark is particularly applicable in reference to our health, for if it is not firmly established through the blood being pure and the stomach in regular order, we are liable at any time to be fatally attacked by disease. Holloway's Pills and Ointment lay a foundation of good health which will be permanent and strong as a rock.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Lime-wash on Walls.—G.W., Kenley: To ensure lime-wash sticking firmly to the walls you must mix the lime with a very large percentage of size, obtainable at any oil and colour merchant's, and use as little water as possible. If allowed to dry thoroughly this mixture will withstand the effects of syringing for a very long period.

Pruning Wistaria and Jasmine.—G. W., Kenley: Little pruning is necessary in the case of either Wistaria chinensis or Jasminum officinarum. In the case of the former, where growth is not necessary for filling wall space, it is a good plan to spur back the long and young growths, as this ensures abundance of flowers and prevents overcrowding. The work can be done either autumn or spring when the climbers are being attended to. Make room for strong young growths of the jasmine, and remove any that are old and worn out.

Streptocarpuses.—G. W., Kenley: The treatment of streptocarpuses after growth and flowering has past should consist in keeping them clean from green-fly, giving the temperature of a warm greenhouse, and keeping them somewhat drier than during their period of activity. As soon as the days lengthen considerably repot the plants, but do not give a large shift. Place near the glass in an intermediate temperature until growth is vigorous, admitting air on all favourable occasions, and finally growing and flowering the plants in a not too airy greenhouse.

Cypripedium spectabile.—A., Devon: This charming hardy orchid can be cultivated in pots, but it is usually much finer if grown in a moderately moist position in a sheltered and partially-shaded part of the garden. Plants can be obtained from any dealer in hardy plants, and good specimens should be procured for pot culture. A suitable compost will consist of one part each of loam, peat, and leaf-soil, with a good sprinkling of sand. Keep the specimens from frost, but do not force them or subject them to a high temperature. A cool greenhouse will suit them. Little, indeed scarcely any, water will be needed until growth commences.

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63, LONG ACRE, LONDON, W.C.

Gutter-Plate for Span-roofed House.—G. R., St. Neots: When fully [illegible] the gutter-plate for connecting the two spans should not be less than fifteen inches wide by two inches thick. If the houses are heavy and the rafters overhang the gutter a good deal, it will be better to have even a wider plate, so as to ensure a gutter of not less than nine inches wide.

R.H.S. Examinations.—A. P., Exeter: There were one hundred and eighty-one candidates for this examination in 1897, and of these eighty-seven were placed in the first class; fifty-four in the second class; twenty-eight in the third class; and twelve failed altogether. The medallist obtained the maximum marks—300—and the marks obtained by those in the first class ranged down to 200; indeed, 200 and over is the qualification for first class; 150 to 199 for second class; and 100 to 149 for third class.

Seedling Primula.—C. F. J., Cophampton: The seedling primula sent is an extremely handsome one, and should certainly be perpetuated now that you have succeeded in fixing it. The frilling is very pretty and full, while the orange area is remarkable for its size and depth of colour. The only fault we could find was that on two of the flowers the white border was tinged with yellow, and so the contrast seen in the pure white and deep orange flowers was largely lost. Possibly, however, the discoloration was the result of age and packing. Our opinion is, of course, given only upon the individual blooms; if the habit of the plant be poor and the trusses weak then the variety is of little worth, but these being up to the average you have a good primula.

Best Vine for Associating with Black Hamburgh.—P. M. C., Hereford: In a house that would be started about the first of February it is easy to give Black Hamburgh a good companion. If a white grape is wanted I would, writes Mr. S. Castle, advise Buckland Sweetwater, a very handsome sweet grape which generally does well. A second white would be Fosters' Seedling—of stronger constitution than the first-named, and a sure heavy cropper, but the berries are smaller, and it always lacks the noble appearance of Buckland Sweetwater. Should black grapes be wanted a most useful rich-flavoured variety for table is Madresfield Court. Its colour is always, however, a difficulty, and sometimes cracking of the berries follows. Where, however, this variety does well it is worth all the care and attention that can be given it. As a reserve black grape I would have Alicante—this started as stated would be ripe at the end of July or very early in August, and would be a nice companion to Black Hamburgh and a very agreeable change at the dessert table. Grown under the same conditions the Alicante crop will always be the heavier and with also a better keeping quality. A more extended list of varieties could be given and some are of a very high character, but high cultural skill is required to grow them in their best form. With regard to those grapes that succeed best with Black Hamburgh in a late vinery, I presume that by having Black Hamburghs in a late house, the real need is a supply from vines up to Christmas. Undoubtedly the best white would be Mrs. Pearson, a most useful grape which improves by hanging. I find the vines very robust and hardy; it is free setting and in fact a good amateurs' vine, given fire heat. Alicante, again, should also find a home here, as there is none to equal it for late keeping, and it will succeed where the higher quality varieties would fail. Could Gros Colmar be put in the warmest end and lightly cropped the first ten years it will, with careful management, hold its own against all the others.

Phœnicoma prolifera Barnesi.—R. M., Littleham: The specimen should be kept during the winter in a temperature falling not lower than 45 degrees by night; a minimum of 50 degrees would be better, with a rise of five or more degrees by day in bright weather, taking advantage of warm days to admit air. Keep the plant near the glass. Early in April, if it is necessary, pot your specimen, but do not give too large a shift; for compost use good fibrous peat and plenty of sand. Afford ample drainage, and over the crocks place a thin layer of sphagnum moss. Potting may be deferred until after flowering, if such is thought desirable. Plenty of moisture will be necessary during the flowering and growing seasons, but much less is needed during the winter months. Flowers of phœnomas should not be allowed to remain on a specimen for more than six weeks; being somewhat of an everlasting character they are frequently left on, and so they materially weaken the specimen and reduce its chances of flowering the next year. Plants potted early will need to be shaded somewhat during growth on very bright days, but after August shading should not be necessary. Moderately strong growths may be inserted as cuttings during April; place them in sand and keep close, when they will root during the autumn and may be potted on the following spring. Your former question as to vines arrived too late for insertion in the issue you wished it to appear; we shall be glad to answer any questions relating to the subject.

Names of Plants.—G. W., Kenley: Epidendrum planilabris.

J. M. S., Bognor: 1, Sequoia (Wellingtonia) gigantea; 2, Picea Pinsapo.

J. S., Horsham: We had some difficulty in determining the specimen sent, but the receipt of your second one was of much assistance. The plant is Ruellia Portellæ, a good winter-flowering subject, but very little known.

E. F., Reading: 1, Meniscium simplex; 2, Davallia pentaphylla; 3, Polypodium rupestris.

M. T. A., Derby: 1, Thuiopsis dolobrata; 2, Eleagnus pungens; 3, Chimonanthus fragrans.

P. H. T., Swansea: 1, Cypripedium Harrisianum; 2, Aralia Chabrieri; 3, Pavettia borbonica; 4, Russellia juncea.

Names of Fruits.—S. C., Birmingham: 1, Besi Mai; 2, Winter Nelis.

E. F., Stockport: 1, Worcester Pearmain; 2, not recognised, but probably a poor specimen of Golden Noble; 3, Keswick Codlin; 4, Waltham Abbey Seedling.

D. W. P., Norwich: Glou Morceau, a good specimen.

M. B. B., Ludlow: 1, Lane's Prince Albert; 2, Fearn's Pippin; 3, Betty Geeson; 4, Norfolk Beefing; 5, French Crab.

S. S., Walthamstow: 1, Beurre d'Aremberg; 2, Catillac; 3, Josephine de Malines; 4, Round Winter Nonsuch.

L. C., Plymouth: 1, Bergamotte d'Esperen; 2, Beurre Rance; 3, Nouvelle Fulvie.

H. H. T., Ripley: 1, London Pippin; 2, Royal Russet; 3, Dumelow's Seedling; 4, Beurre Sterckmans; 5, Nec Plus Meuris.

Communications Received.—W. H. L.—G. R.—J. J. W.—D. R. W.—H. C. P.—H. K.—J. T.—C. T. J.—J. M.—D. W. M.—E. J.—S. C.—S. and S.—J. H. V.—C. F. J.—R. M.—J. M. S.—E. F.—M. T. A.—P. H. T.—E. F.—D. W. P.—S. C.—M. B. B.—S. S.—W. S.—E. B.—R. D.—G. W. F.—A. D.—S. C.—W. J. G.—W. W.—C. T. D.

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FLOWERS.—Arums, 4s. to 6s.; carnations, 1s. to 3s.; chrysanthemums, 6d. to 2s. 6d.; gardenias, 2s. to 5s.; eucharis, 4s. to 6s.; Lillium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 10s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 3d. to 4d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 3s. to 6s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 5s. to 9s.; and violets, 1s. 6d. to 2s. 6d. per dozen bunches; azaleas, 9d. to 1s. 6d.; stephanotis, 4s. to 6s.; white narciss, 1s. to 2s.; Roman hyacinths, 6d. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Seakale, 12s. to 18s. per dozen punnets; celery, 9s. to 18s. per dozen rolls; horseradish, 12s. to 20s. per dozen bundles; English onions, 4s. to 5s. per cwt.; Valencia, 5s. to 6s. 6d. per case; Belgian, 3s. to 3s. 6d. per bag; eschallots, 2s. per 12 lb.; spinach, 2s. per bushel; turnips, 3s. to 4s.; carrots, 3s. to 3s. 6d.; parsley, 1s. 6d. to 2s. per dozen bunches; beetroots, 2s. to 3s.; cabbages and savoys, 3s. 6d. to 5s. 6d. per tally; cauliflowers, 1s. to 2s.; French endive, 1s. 6d. to 1s. 10d.; artichokes, 2s. to 3s.; lettuce, 10d. to 1s.; cucumbers, 3s. 6d. to 6s. 6d. per dozen; radishes, 10d. to 1s. per dozen bundles; mushrooms, 6s. to 9s. per 12 lb.; Brussels sprouts, 1s. to 1s. 3d. per half-sieve; potatos, 60s. to 100s. per ton.

Borough Potato Market.

Supplies continue to be light, but as the demand is small prices remain as previously.

Dunbars, 115s. to 125s.; Hebrons, 85s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 75s. to 85s.; Reading Giants, 75s. to 80s.; Saxons, 75s. to 80s. per ton; Belgians, 3s. 6d. to 3s 9d.; Germans, 3s. 9d. to 4s. per bag.

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NEW INVENTIONS.

Automatic Fire Alarm.—Pearson's automatic fire indicator is similar to Sixe's thermometer, such as is used to register the highest and lowest temperatures of the day. The usual mercury column is employed, but the thermometric fluid is pure creosote. This has the advantage of being a bad conductor of electricity and of preserving the mercury from oxidation—the trouble which usually occurs in thermostats of this design, and, of course, spoils the electrical contact. When, under the influence of heat, the mercury rises it covers two fine platinum wires fused into the glass about a quarter of an inch apart, and thus establishes electrical connexion between them. The instrument can be constructed to close the circuit at any desired temperature within certain limits, but for ordinary purposes it is generally set at about 110 degrees Fahr., such a position being selected in fixing it in a room as will be most quickly affected by increase of temperature. The platinum wires are connected to some signalling device, such as an electric bell, which may ring in the house or at the fire-station. The Pearson's Automatic Fire Indicator Company have also arranged to use the wires of the District Messenger Company, to whose nearest office an alarm would be transmitted. The fire insurance offices are said to look favourably on the apparatus, which is being used by several large firms, as well as at Woolwich Arsenal.

THE WEATHER DURING THE WEEK ENDING JANUARY 1, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	52·7	24·3	45·1	7·28	0·66	1·68
Croydon	52·0	21·0	43·4	6·33	1·29	3·28
Brighton	52·4	28·4	46·7	8·17	1·15	2·92
Bristol	53·0	29·0	44·8	7·11	1·48	3·76
Wolverhampton	52·0	28·6	41·2	5·11	0·52	1·32
Norwich	53·6	26·0	43·8	6·56	0·28	0·71
Nottingham	53·0	27·9	43·2	6·22	0·23	0·58
Liverpool	55·6	34·3	46·0	7·78	0·43	1·09
Huddersfield	53·0	29·0	43·8	6·56	0·55	1·40
Bradford	57·8	27·0	44·6	7·00	0·40	1·02
Hull	53·0	28·0	42·8	6·00	0·25	0·65

The mean reading of the Barometer during the week at Greenwich was 29·51 inches, and that of the Thermometer 45°·1, the latter being 6°·6 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 58 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 5·0 hours. The measured rainfall amounted to 0·66 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

MONDAY, WEDNESDAY, AND THURSDAY, JANUARY 10, 11, AND 12.—Border Plants, Roses, Fruit Trees, Shrubs, Lilies, &c., at J. C. Stevens's Rooms.

TUESDAY, WEDNESDAY, AND FRIDAY, JANUARY 11, 12, AND 14.—Azaleas, Lilies, Roses, Orchids, &c., at Protheroe and Morris's Rooms.

MR. H. BALDWIN, who for the last three years has been foreman at Galloway House, Garliestown, N.B., has been appointed gardener to Captain Gower, Castle Malgwin, Cardigan, Pembrokeshire.

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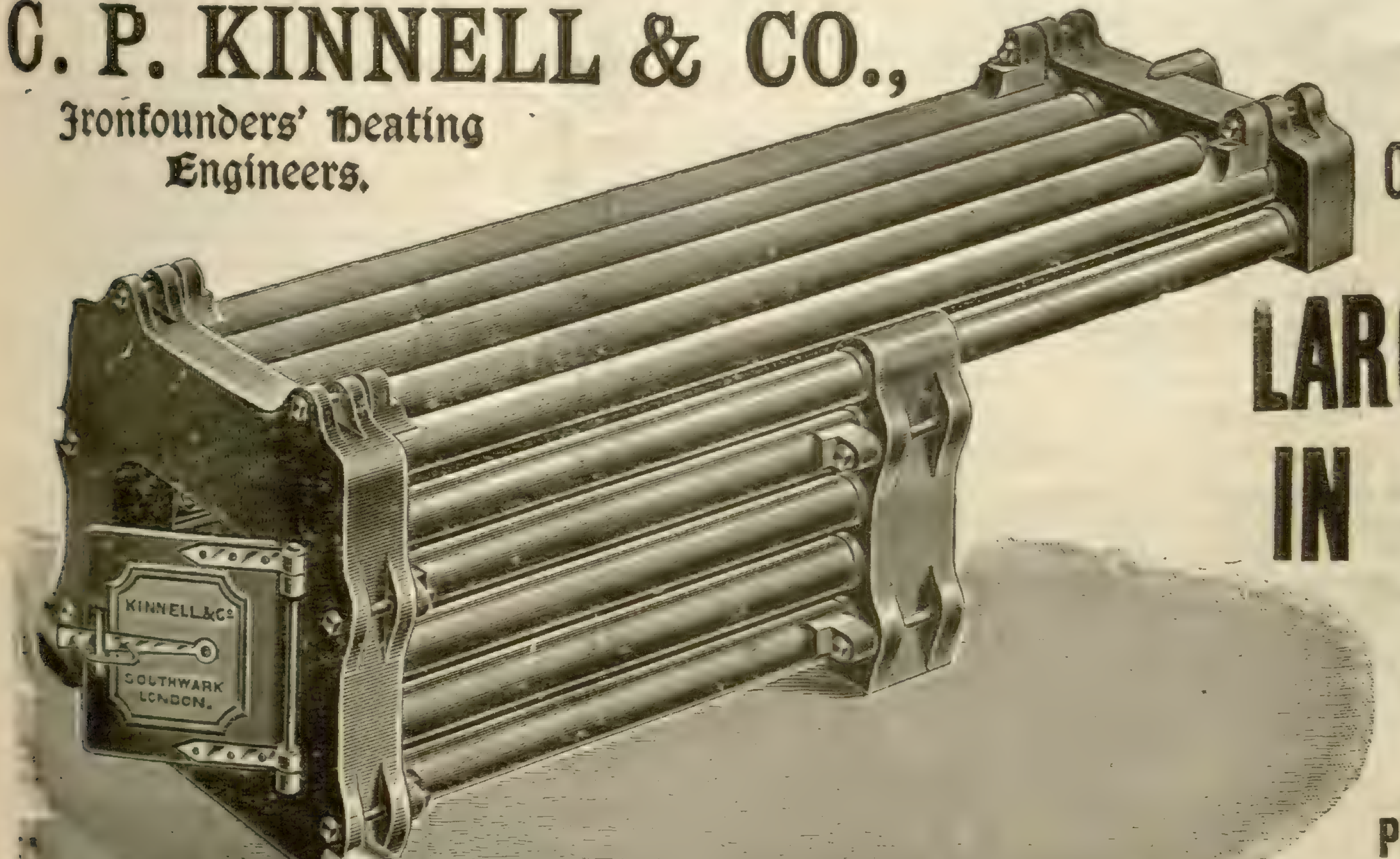

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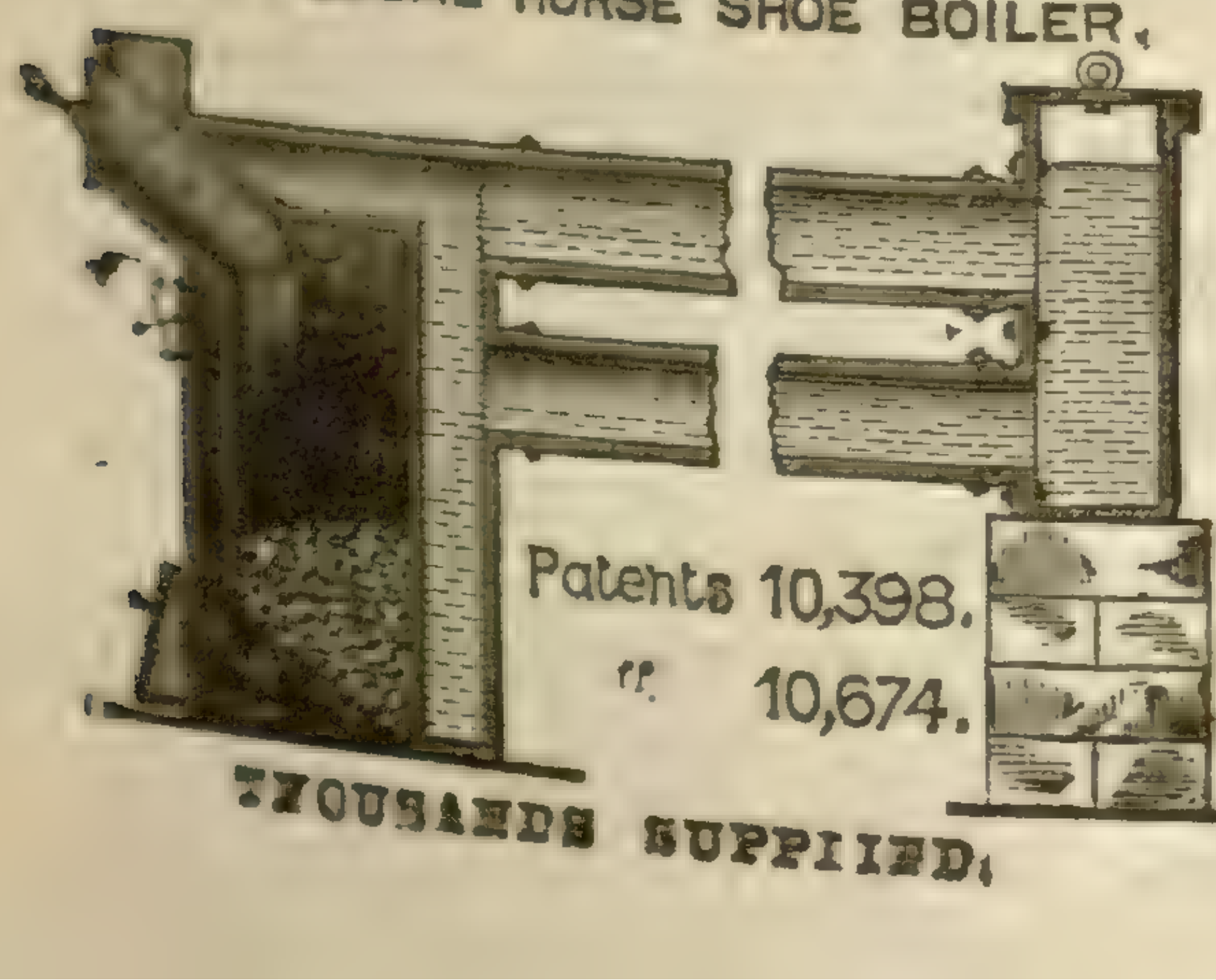

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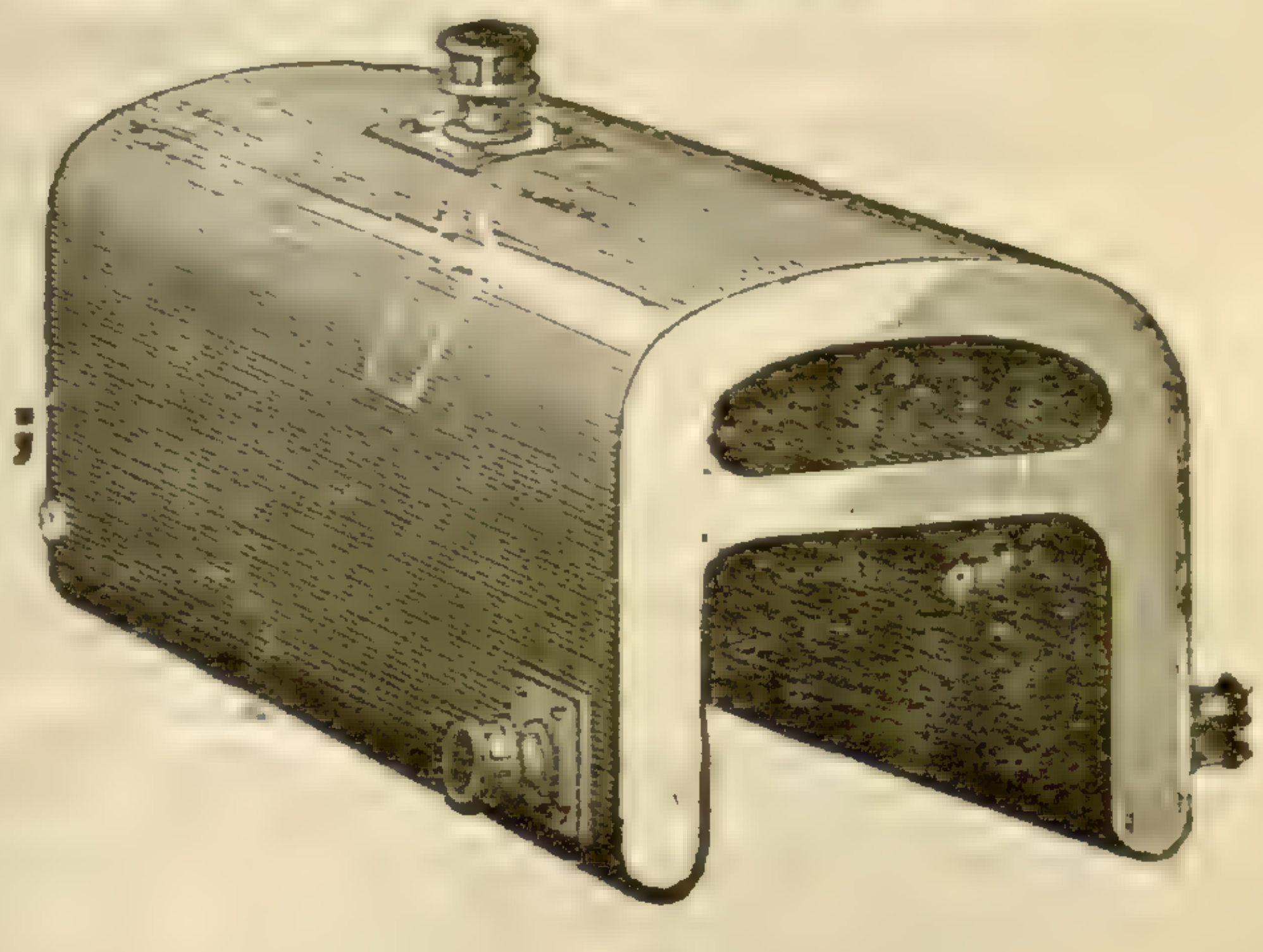

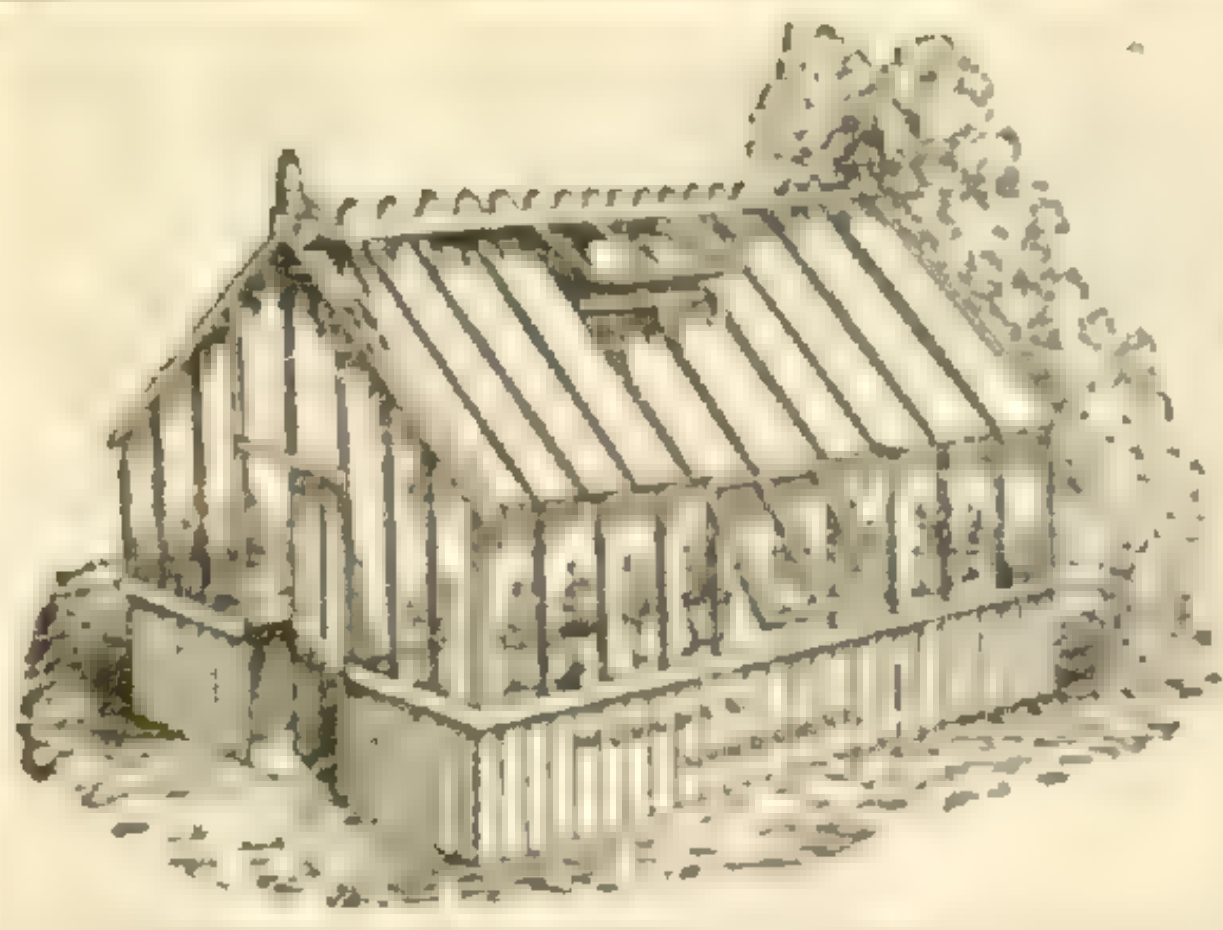

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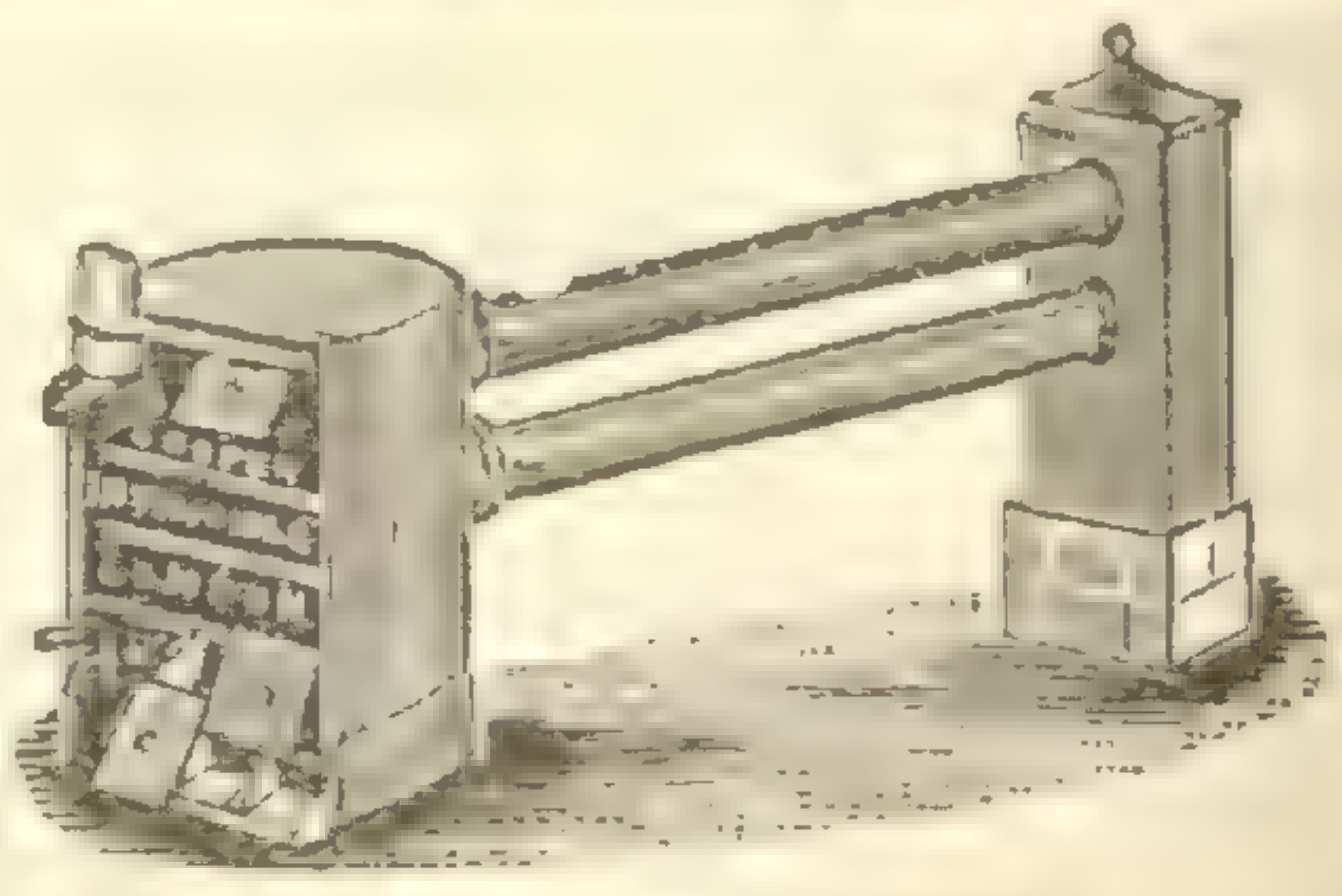

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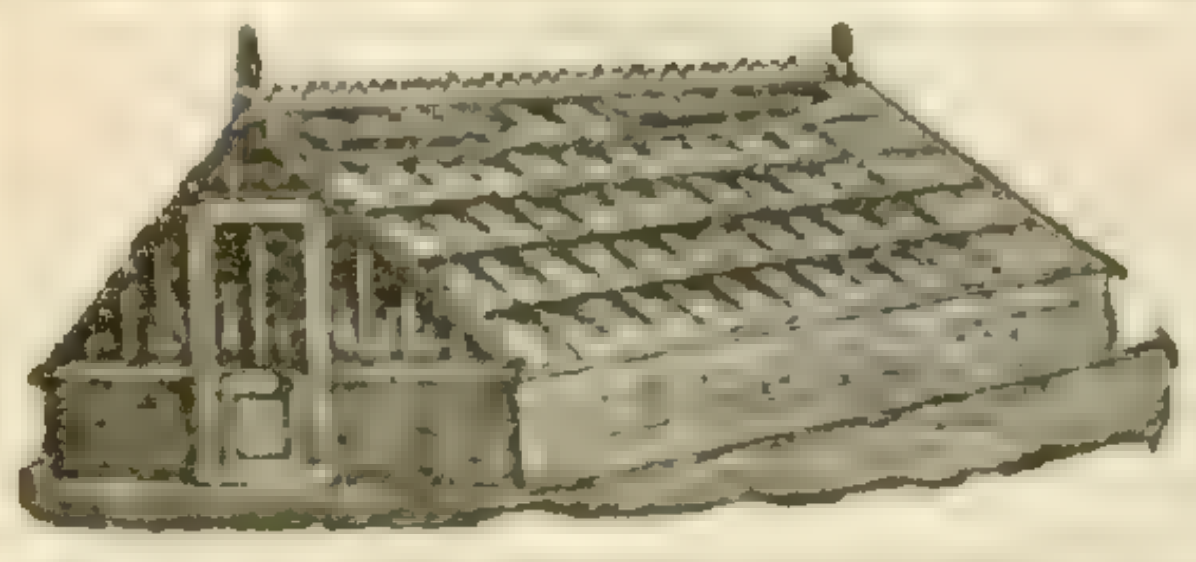

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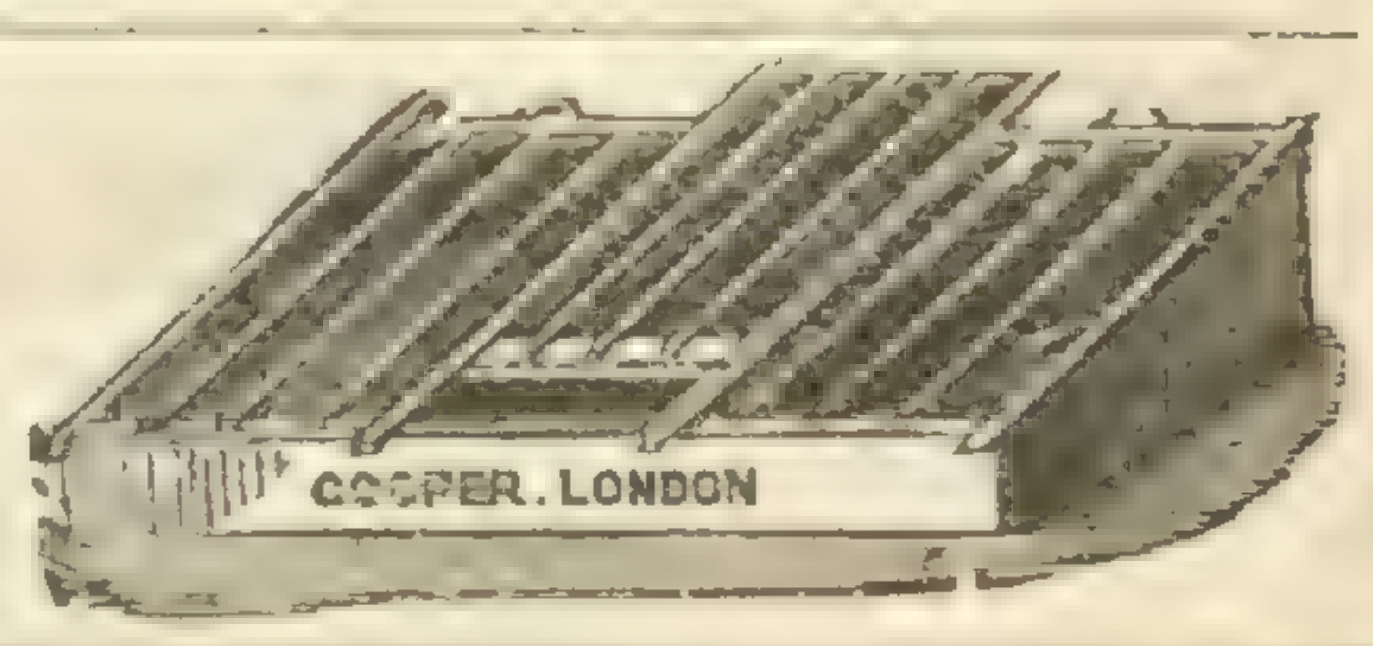

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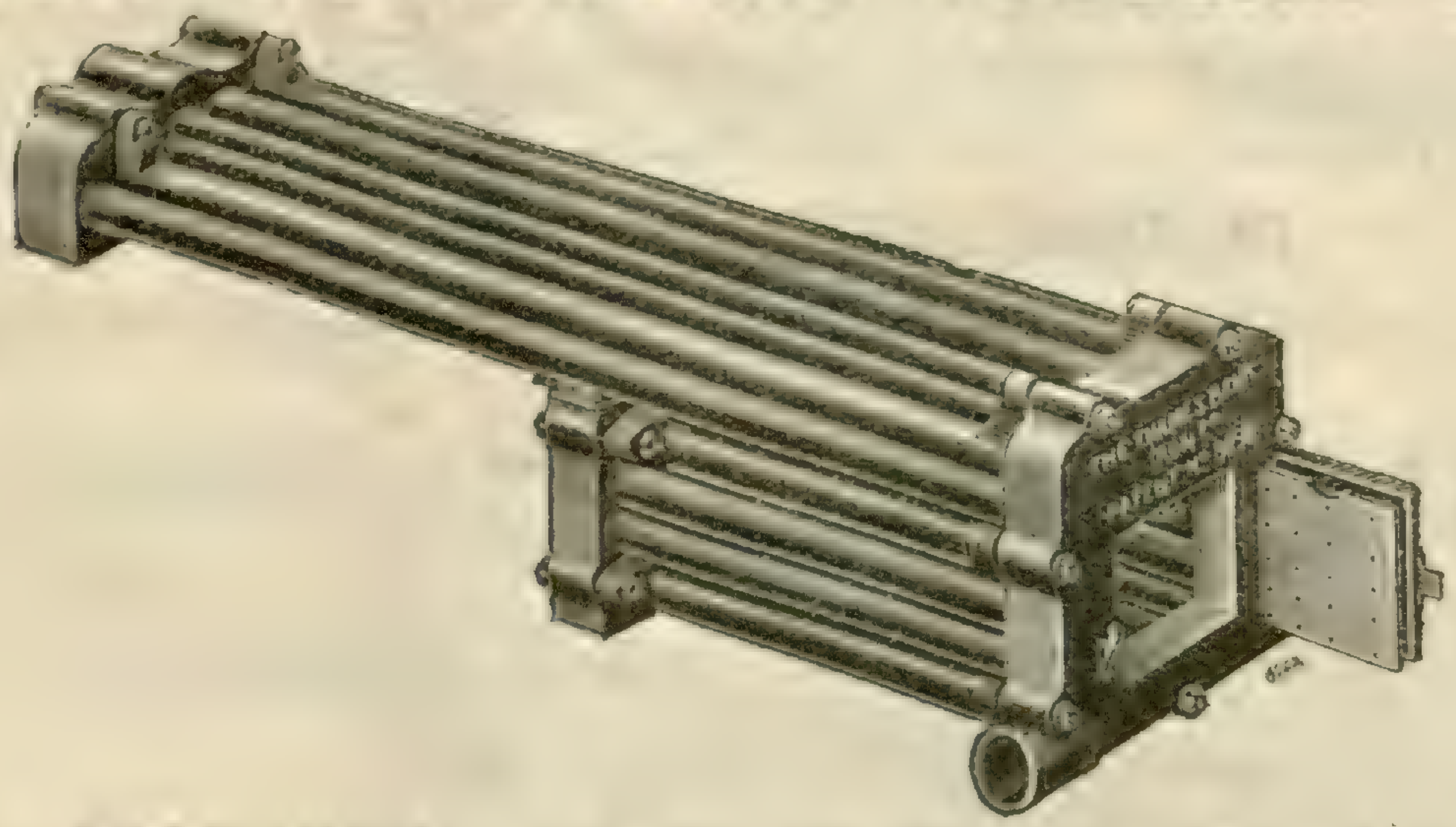

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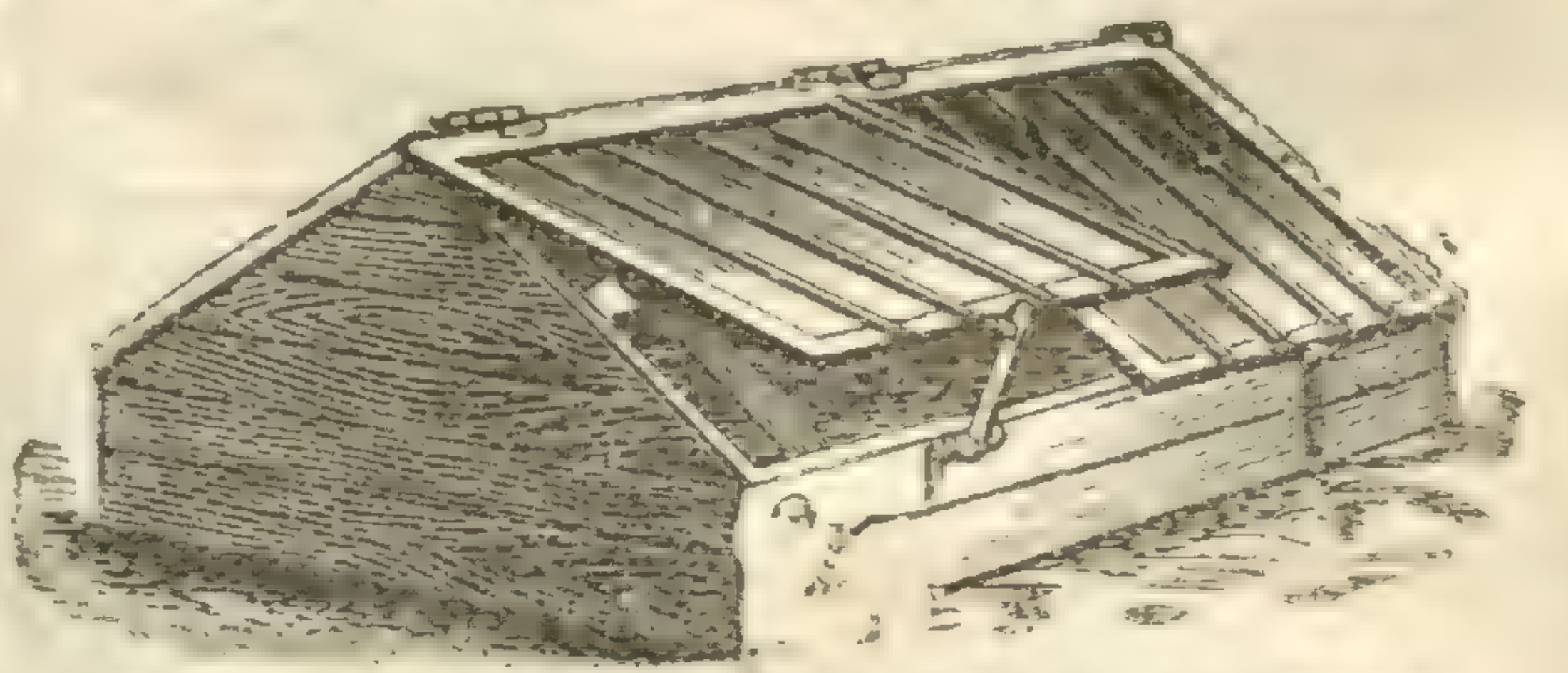

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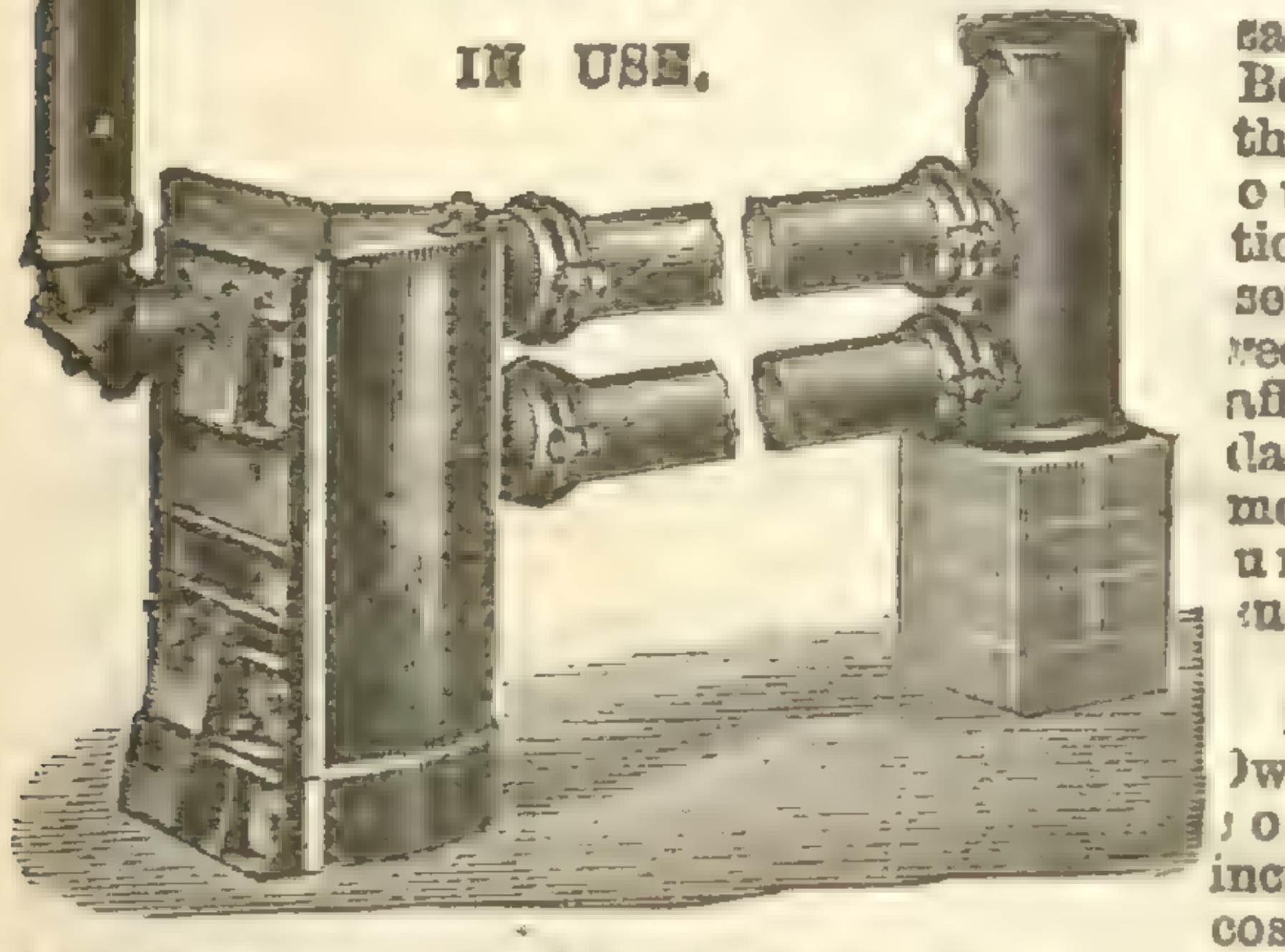

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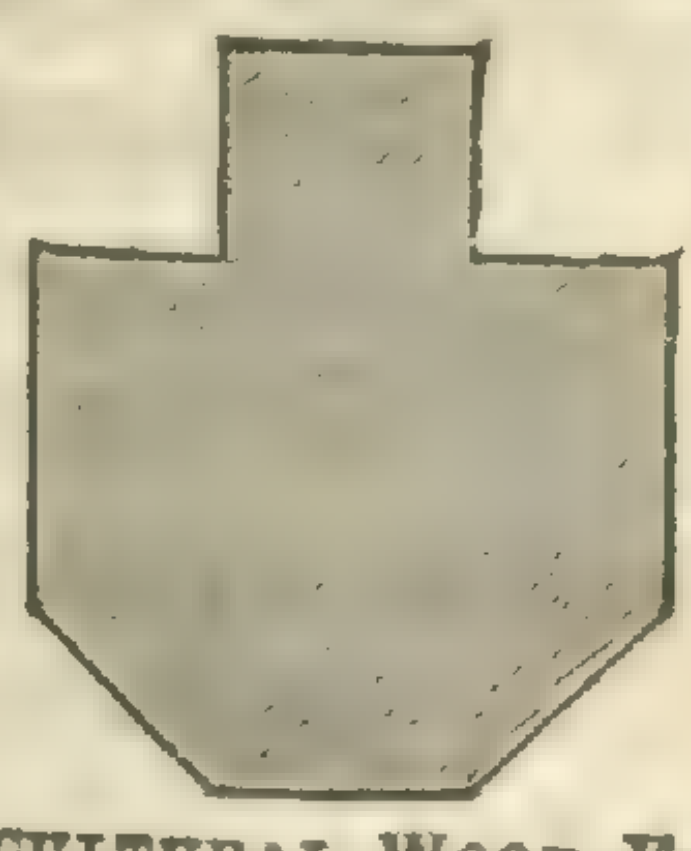

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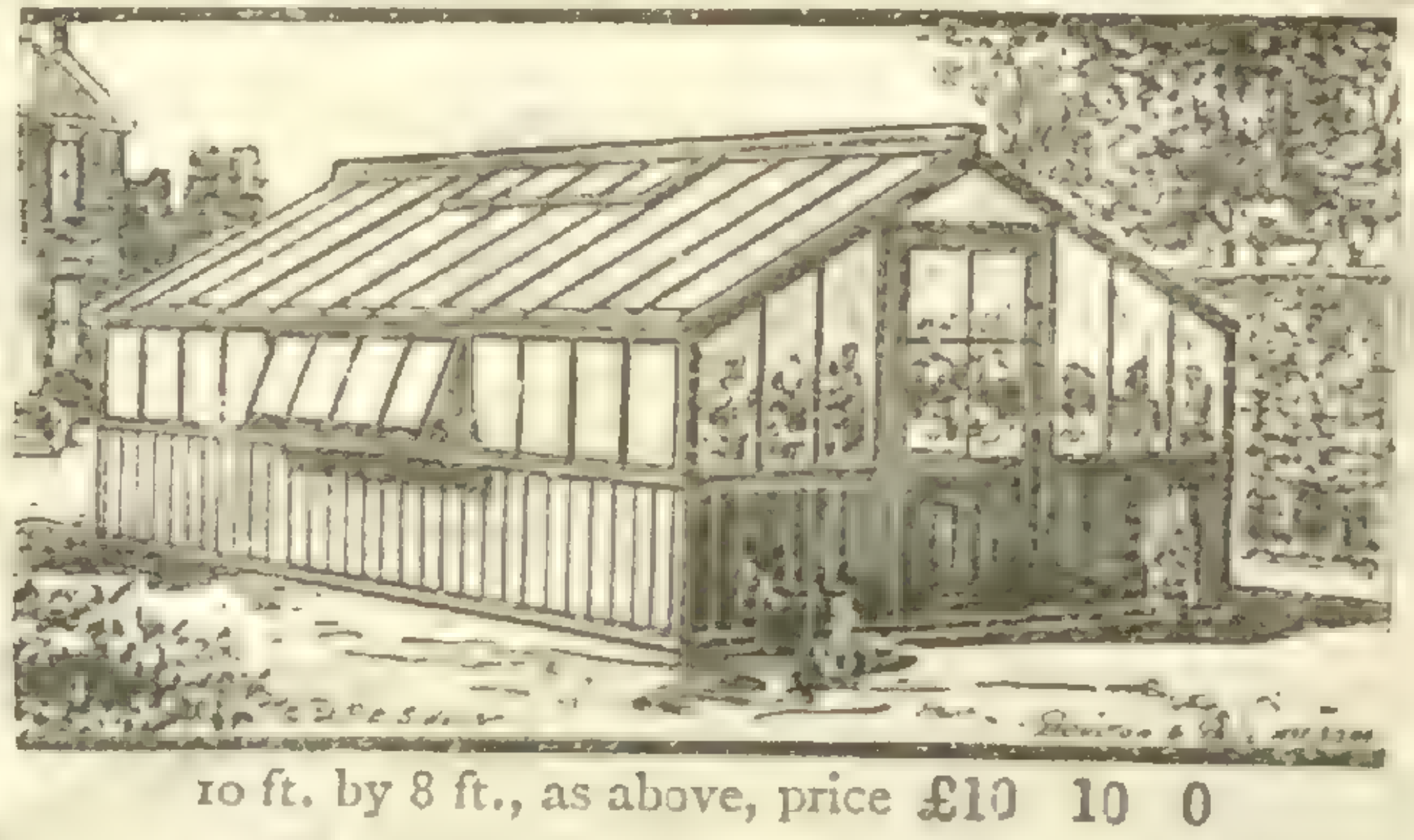

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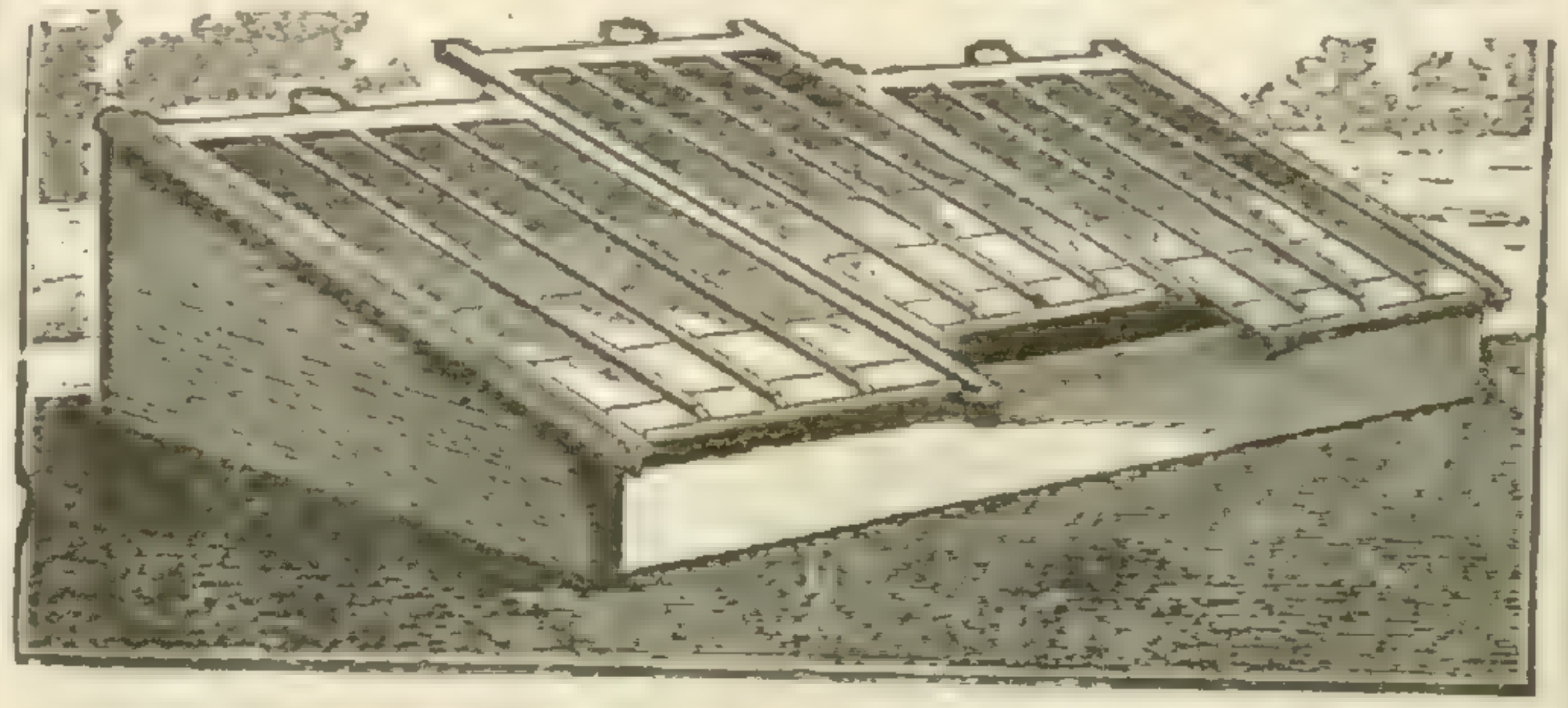

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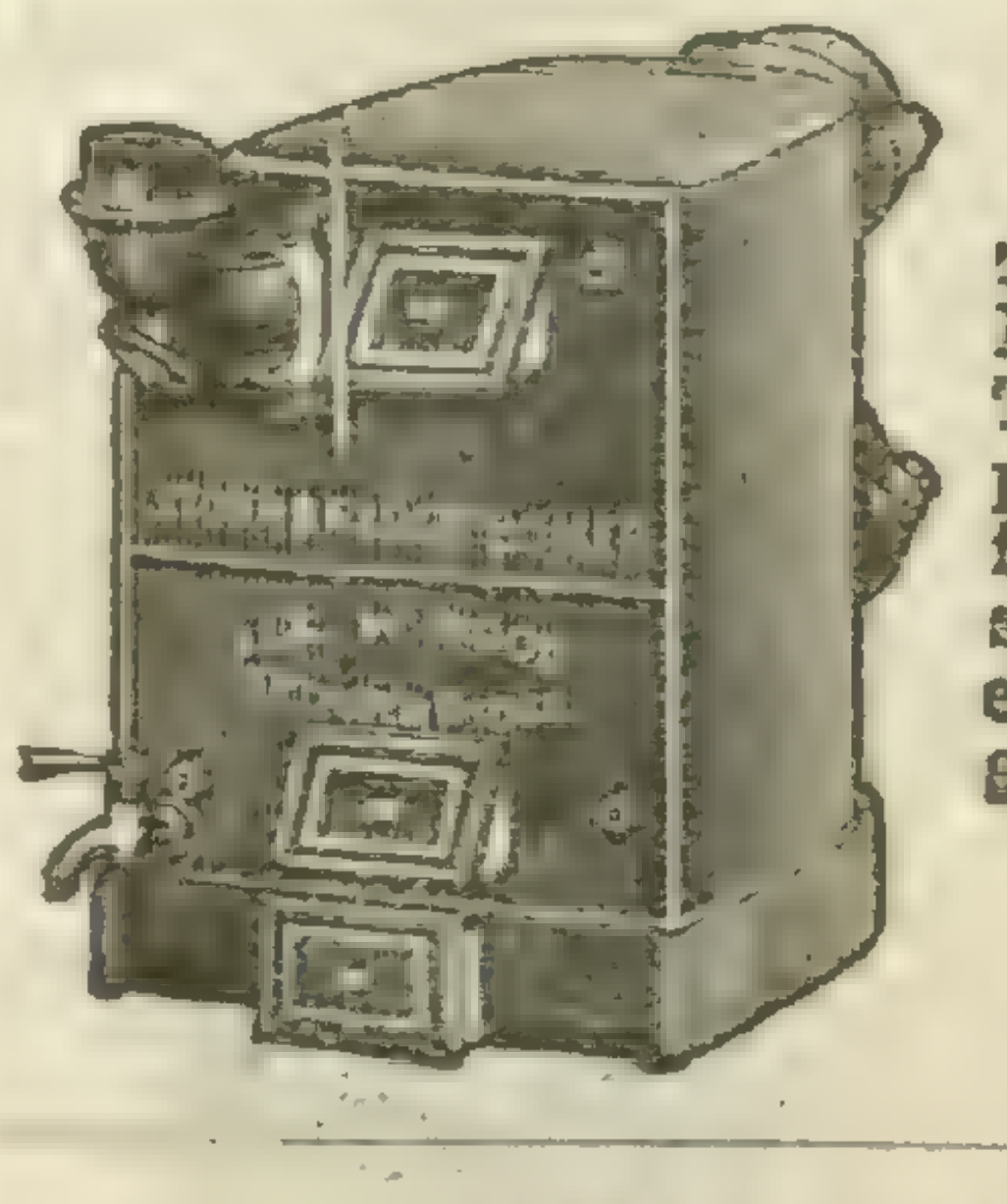

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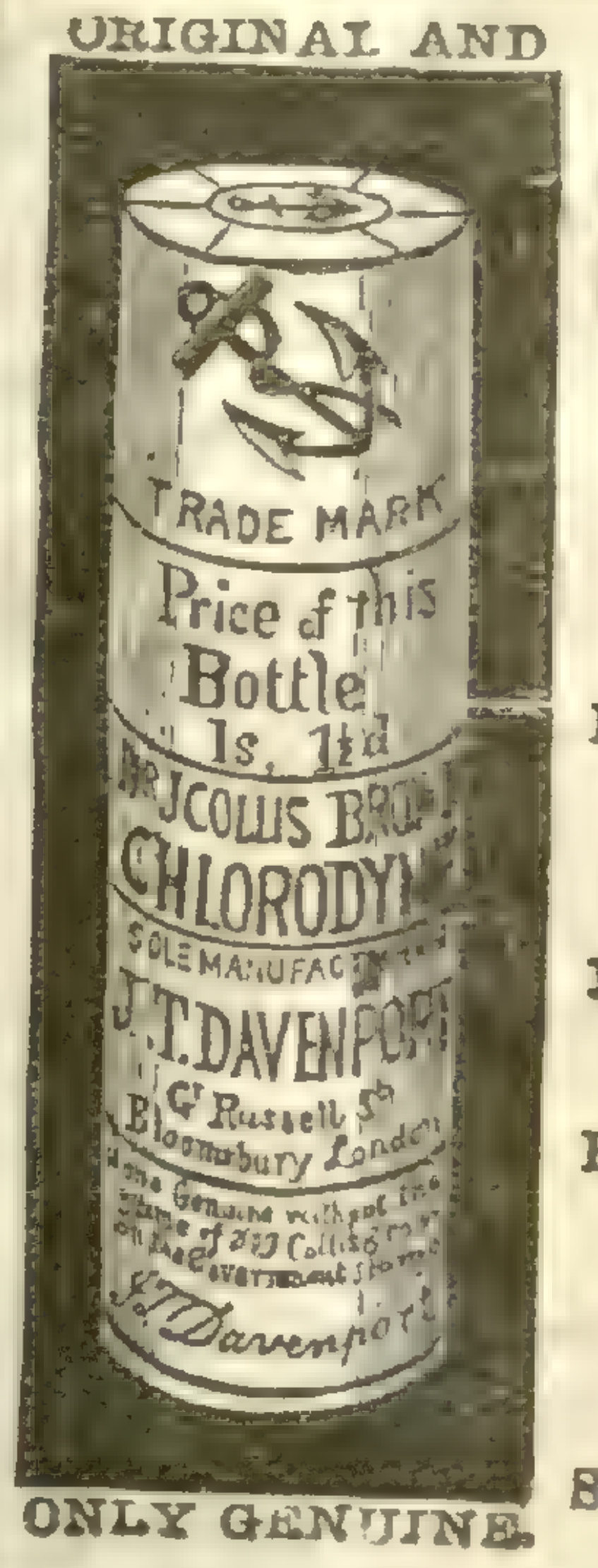
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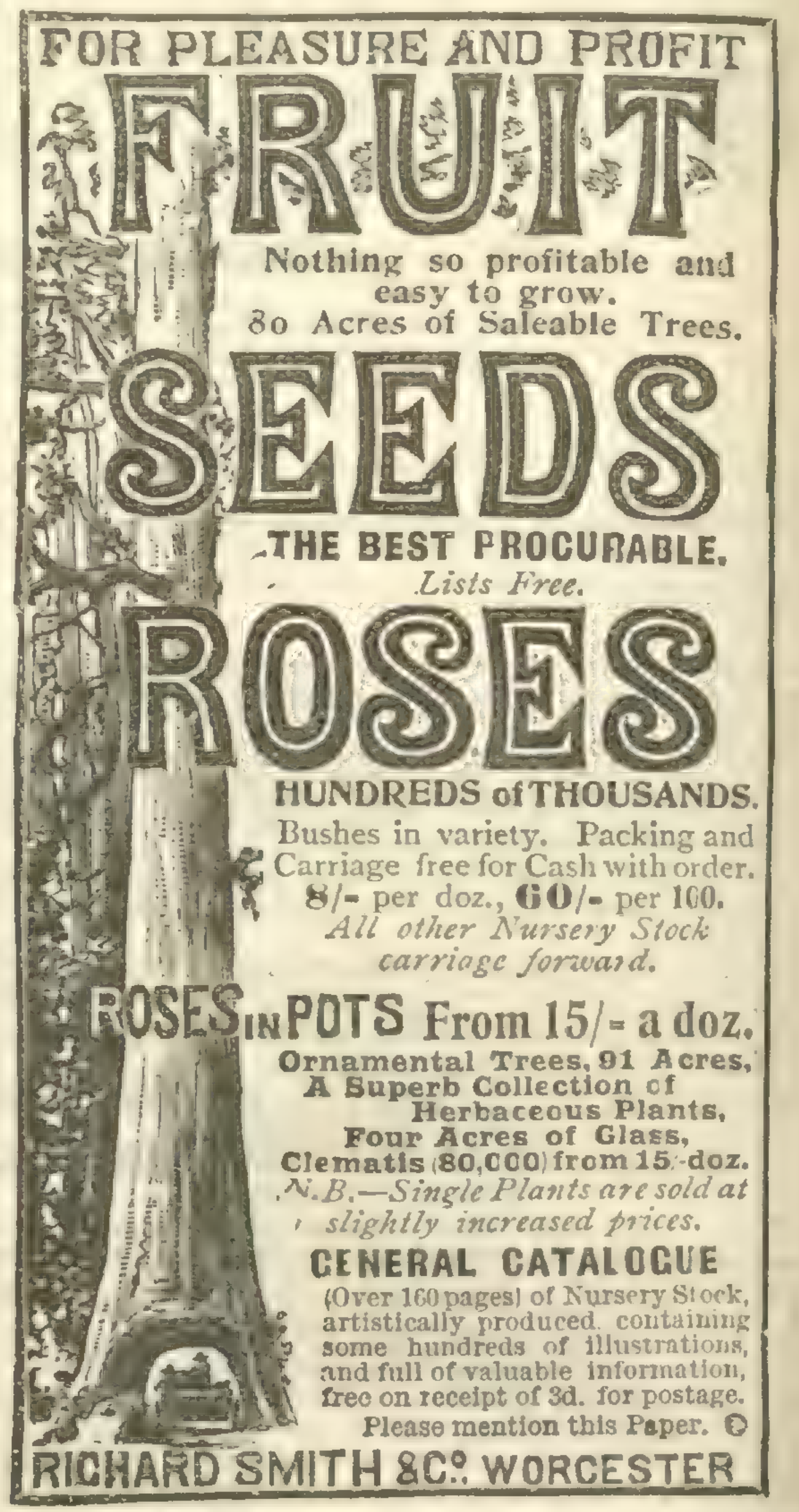

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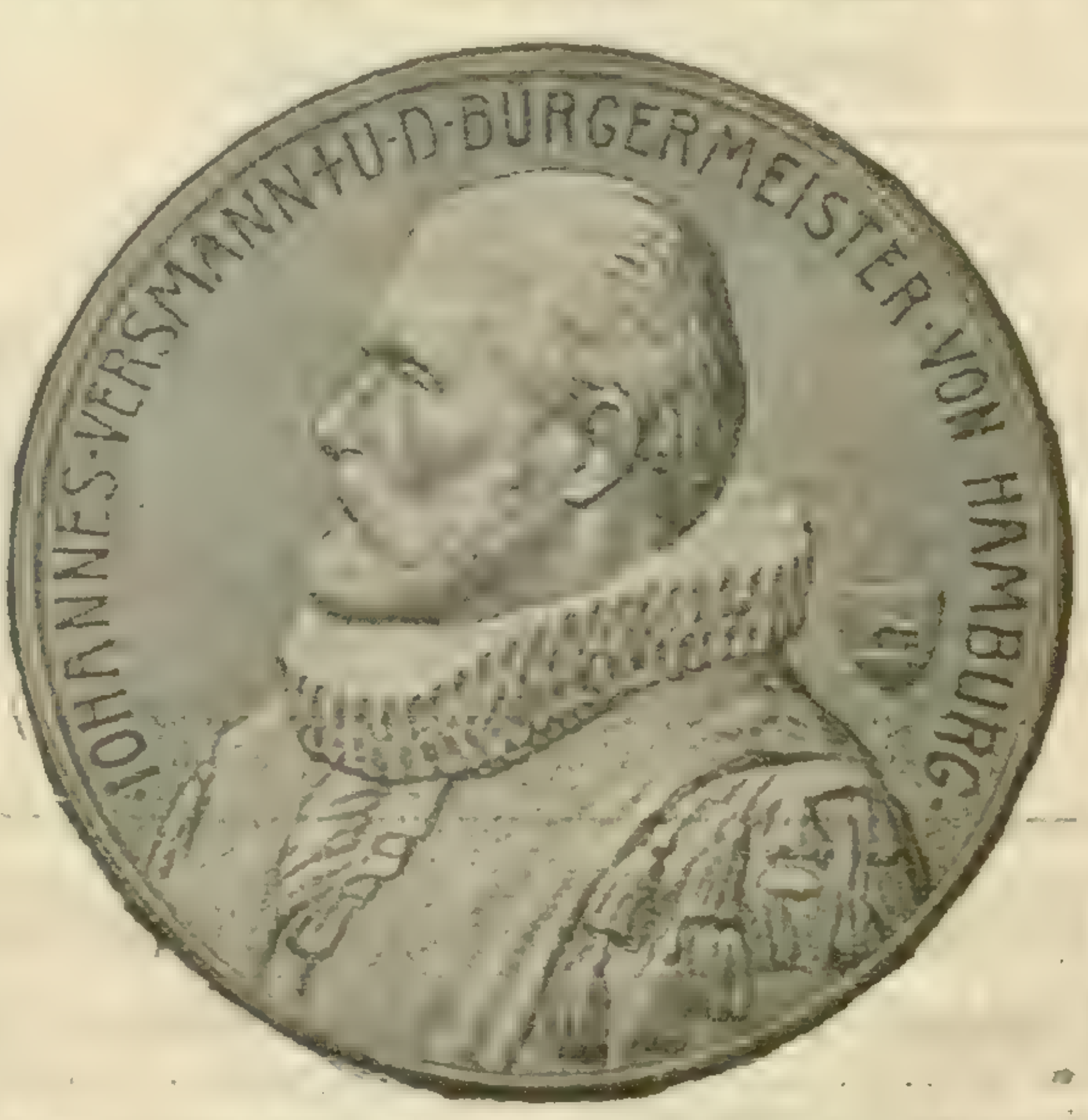
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THE GARDENERS' MAGAZINE.

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NOTES OF THE WEEK.

A DESTRUCTIVE ORCHID PEST.

In several collections of orchids that have come under our notice within a comparatively recent period considerable damage had been done by an insect pest which has hitherto not been regarded by the general body of orchidists as an enemy with which they have to reckon in following their fascinating pursuit. A considerable number of species had been injured by the attacks of the pest, but the greatest sufferer was the Moth Dendrobium (*D. phalænopsis*), owing probably to the more delicate texture of the cuticle of its leaves than that of other occupants of the orchid house. The presence of some enemy of the plants was first indicated by the leaves becoming marked by yellowish blotches, and it was observed that as the blotches increased in number the plants became unhealthy, made but little progress, and in the case of severe attacks succumbed to the injury they had received. In one or two instances it was assumed by those in charge of the collections that the blotches had been caused by a fungus, but further investigation revealed the fact that, as in other cases, the mischief had been wrought by some form of animate life. By subjecting the plants to careful examination at night with the aid of a lamp, a diminutive insect was discovered busily engaged in feeding upon the juices of the plant. To discover the resting place of the pest was the next step, and in searching the material in which the plants were potted near the base of the pseudo-bulbs, both the perfect and nymphal forms of the insect were found in comparatively large numbers. The last-named of the two forms was met with in various stages of development, these being chiefly represented by the difference in the size of the rudimentary wings. With a plentiful supply of material there has been no difficulty in identifying the pest as Phytocoris militaris of Westwood, which has long been known to science, although, happily, not familiar to orchidists until quite recently. The insect, when it has attained its full development, is nearly a quarter of an inch in length, deep sanguineous crimson, with black or dark markings. The rostrum, or sucking apparatus is, relative to the size of the insect, of great length, and consists of a tube working in a case, and within the tube are sharp suckers, which penetrate the outer covering of the leaves and extract their juices. In the nymphal stage, the insect is yellowish, with black lines on the thorax, and black wing pads. It may be assumed that the pest has been introduced to the orchid house by means of imported plants, and it is therefore essential that these should be subjected to a close examination before they are placed with the general collection. The eggs are deposited on the pseudo-bulbs, but in consequence of their small size are not readily detected without the aid of a powerful pocket-magnifier. During the day the insect in its various stages takes refuge in the material in which the plants are potted, and before this fact was discovered those orchid growers who have had their plants attacked were greatly perplexed in discovering the cause of the unhealthy appearance of their plants. With regard to remedies, very little can as yet be said, as those suggested have hardly passed through the experimental stage. So far dusting with tobacco powder has not realised expectations, but spraying with quassia and soft soap in solution, and of a moderate degree of strength, has given very good results. Although the phytocoris has been very destructive in several collections, we do not regard it as so formidable a foe as to justify widespread alarm, but it is likely to prove very troublesome, where it is successful in obtaining a foothold, if repressive measures are not adopted immediately its presence is discovered.

METHODS AT FLOWER SHOWS.

Fifty years ago the late Mr. C. J. Perry, of Birmingham, was advocating in the columns of the GARDENERS' MAGAZINE the abolition of the old-fashioned system of numbering stands, collections, &c., at flower shows—a method adopted by our forefathers in the interests of secrecy, the names of the exhibitors in any form being withheld until after the awards were made, and then placed only on the winning stands. It was, and still is, in places where the old method is yet adhered to, a reflection on the judges, suggesting they would be liable to favour certain individuals could the ownership be made known to them. We find the old method still employed in many parts of the country, and at some exhibitions of considerable note. But it has its disadvantages. It entails a great amount of work on the secretarial department on the day of the show; considerable delay occurs in compiling a complete list of the prize winners; the representatives of the local newspapers, who are naturally desirous of giving a list of awards in full, are sadly inconvenienced; and there is the further disadvantage, alluded to above, that only a small proportion of the exhibitors—those taking awards—have their names placed on their exhibits, such publicity being their due, and one much sought after in local circles. It is, however, quite certain that the system of withholding names does not answer the end sought by its adoption. If there is a desire on the part of a judge to favour a certain individual there need be no difficulty in arranging some method by which the identity of the exhibitor may be made known, for wrongdoers are as fertile in device and resource as they who will be just and straightforward. There was a time when, probably, favouritism was shown, and when judges were suspected, and the secret system did not prevent it. In these days judges are not only selected because of the possession of known abilities, but also because men of position and acknowledged rectitude; their names are sometimes openly published in many schedules of prizes, and they have reputations at stake. The choice of qualified censors is much larger than it was a quarter of a century ago, and a judge who is known cannot now afford to be other than honourable. He may make mistakes, but they are errors of judgment and not the results of a determination to do wrong. It has been stated—no doubt more as an outcome of genial sarcasm than as an actual occurrence—that the old florists of two generations ago, in their feasting and talk after one of their shows, would always drink to the toast "May we never be fun' out"—a sort of humorous confession that they did play little tricks on each other, and especially on the judges. If there was ever a semblance of truth in the statement the old order has now changed to a new and better one.

NITRAGIN.

The new material introduced two years since under the somewhat unfortunate appellation of nitragin, for the purpose of inoculating the soil with nitrifying bacteria specially suitable for the several leguminous plants cultivated in garden and field, has failed in this country to realise expectations. The material, prepared by one of the leading agricultural chemists in Germany, after lengthened investigation, was intended to promote the growth of leguminous plants by promoting the formation of nodules on their rootlets which are so closely associated with the assimilation of nitrogen from atmospheric sources. The preparation was subjected to a careful trial by several experimentalists in Scotland, including the authorities of the Royal Botanic Gardens, Edinburgh, but the results were of a negative character. In one or two instances the Royal Agricultural Society was rather sharply criticised because the Council did exactly what it should have done, sent the society's consulting chemist to Germany to make inquiries as to the method of preparing the material, and its effects upon the crops, and then afforded facilities to those who desired to experiment with it to obtain small supplies. As a matter of course, an extended series of experiments were carried out with nitragin on the society's experimental farm at Woburn, and chiefly in the hope that it might prove a solution of the clover-sickness difficulty. In his report upon these investigations Dr. Voelcker states that though here and there have appeared some indications of success attending the employment of the preparation, nothing of a definite nature has been ascertained as the result of carefully conducted experiments. In conducting the experiments with beans, it was found that when the seed was inoculated with nitragin specially prepared for beans, the plants were in bloom eight days before the plants in the other plots evinced signs of flowering. The next plants to come into flower were those in the plot the soil of which had been inoculated, and the latest to bloom were the plants growing in the untreated plot. The acceleration of the period of flowering, however, was no advantage to the crop, for the precocious plants became stunted later on, and produced a lighter yield. From the experiments made at Woburn and elsewhere, it appears reasonable to assume that our ordinary garden and agricultural leguminous plants have no difficulty in finding in the soils of this country the organisms which they require for nodule development and nitrogen assimilation, and that we must continue to regard good tillage as the prime factor in the plentiful production of root nodules by cultivated legumes.

FRUIT AND VEGETABLE IMPORTS.

The Board of Trade returns for December last are somewhat unsatisfactory, for both imports and exports are below the totals of the corresponding month of 1896. There was a decrease equal to 5·2 per cent. in the imports; of 4·9 per cent. in the exports of British and Irish produce; and of 17 per cent. in the exports of foreign and colonial produce. These decreases are in the majority of cases due to a decline in value rather than to a reduction in quantities. The imports of fruits and vegetables were less regular than for several months past, and increases and decreases were almost equally balanced. As might have been expected by those who have paid attention to the reports of the American crop, there was a material decrease in the imports of apples, the aggregate quantities received having been 410,954 bushels, of the value of £131,870, against 1,186,464 bushels, of the value of £280,703 in December, 1896, or a decrease in quantity of 775,510 bushels, and in value of £148,833. The imports of apples for the twelve months was 4,199,971 bushels, of the value of £1,187,363, against 6,176,956 bushels, of the value of £1,582,495, in 1896. Pears, on the other hand, show some increase, for we imported 11,822 bushels, of the value of £6,342. The increase on the year was relatively much larger, for the aggregate imports were 1,057,694 bushels, and our bill for them amounted to the substantial sum of £371,808. For the first time plums have a place in the returns for December, and it is interesting to observe that 604 bushels were imported, and that their value is returned as £184. For the year the imports of plums were about 20,000 bushels less than those of pears, but their values ruled higher, as these closely approached half a million sterling. Grapes show a drop of from 7,422 bushels to 1,634 bushels, with a corresponding decrease in values, but for the year there was an increase of upwards of 100,000 bushels, the actual quantities received having been 995,413 bushels, of the value of £495,642. Unenumerated fruits continue to increase, and our bill for them in 1897 amounted to £695 404. As in November, so in December, there was a material augmentation in the imports of potatos as compared with the corresponding month of the two previous years. The total was 472,867 cwt., of the value of £82,096, against about 32,000 cwt., returned as of the value of about £6,000, in December 1895 and 1896. There was an enormous increase in the German supplies, and also in those received from "other countries." The imports of potatos during the twelve months ending with December last very closely approached 4,000,000 cwt., and the bill for them considerably exceeded £1,000,000. Onions, on the other hand, evinced a decrease both for the month and the year, and it is interesting to observe that there was a material recovery in values as compared with those obtaining in the two previous years. These figures are of interest, as they indicate our dependence upon foreign cultivators for immense quantities of fruits and vegetables that could be profitably produced at home.

Position of the Royal Botanic Society.—At the meeting of the Fellows of this society on Saturday, Major Cotton, who presided, referred at some length to the present position of the society. In the course of his observations, he stated that the year 1897 had been a very eventful one in the history of the society, and he was pleased to be able to congratulate the Fellows upon the very excellent position in which the society now stood as compared with its position at the opening of last year. At that time the outlook was gloomy, for the lease of the gardens was about to expire, and an accumulated balance of some thousands of pounds stood on the wrong side of the accounts, and was not only in itself a source of much uneasiness, but also prevented the society from giving prizes at the various fêtes and shows as liberally as it desired. The position, however, had been resolutely faced, and he was pleased to say that, with the co-operation of the council and some of the leading Fellows, the society was now perfectly solvent, and the accumulated debt, which had so long been a source of trouble and anxiety, had been swept away. A new lease for the maximum term of thirty-one years had been promised by the Commissioners of Woods and Forests, and it now only remained for the Fellows to use their utmost endeavours and to induce friends to make the society the success it should be. Not only were the gardens open for study to the pupils of the various medical schools, but a school of practical gardening had been started with the concurrence and aid of the London County Council. The Middlesex and Herts County Councils had approached the society with a view to sending students to the new school, and it was believed that to ladies also such an opportunity of learning gardening would be most agreeable. The council of the British Astronomical Association, too, were taking steps to erect and equip an observatory in the gardens. Reference was made to the great increase in the number of Fellows elected in 1897, there having been more than eighty above the average numbers of the last ten years.

A New Garden for London.—We are pleased to learn that a movement is on foot for the purpose of securing one more open space for perhaps the most crowded part of South London. A number of employers of labour in the district and some of the principal ratepayers have approached the London County Council with a view to that body acquiring, laying out, and maintaining the garden of Nelson Square, Blackfriars Road, as an open space. The garden is a large one, and the square is bounded on the east by a number of narrow lanes and courts. The only open space in the neighbourhood in which children can play with safety is the small garden in Red Cross Street, Borough. It is also hoped that the churchyard of Christ Church may also be converted into a garden before the coming spring, the rector being desirous of meeting the views of the vestry if satisfactory arrangements can be made for preserving order.

Victoria Medal of Honour.—The Council of the Royal Horticultural Society having been consulted as to a proper mode of the use of the Victoria medal by members of the trade, have decided that the only permissible method is by the letters V.M.H. following the name of the holder of the medal. No other mention of the medal can be properly made in any application pertaining to horticultural trade or relating thereto.

New Apples.—Messrs. Dickson and Co., of 1, Waterloo Place, Edinburgh, write: "Referring to your article and illustration on page 8 of the GARDENERS' MAGAZINE, on the new seedling apple, James Grieve, raised and sent out by us, a few additional particulars may be of interest to your readers. It is a seedling from Pott's Seedling, and in the habit, wood, foliage, and buds it has very much the same character as the parent. It fruited first with us in 1887. At the same time as we raised it we had a number of other seedlings from different well-known varieties, and those which in their wood, foliage, and robustness showed exceptional promise were selected and grown on for trial. One of those which we named, Bailie Neilson, a seedling from Golden Drop, has also proved a very valuable acquisition, and was awarded a first-class certificate at the International Show, Edinburgh, in 1891; this is a kitchen apple, with large fruit, an abundant bearer, and its season is from October to January; it is being largely planted by market growers. Although raised from Pott's Seedling, James Grieve has proved a very fine dessert fruit; it is much hardier than Cox's Orange, which in Scotland requires to be grown on a wall, while James Grieve fruits freely on standards. In Scotland the season for this variety extends from September till March, and it retains its juciness till the last. Some of the other seedlings raised at the same time as James Grieve and Bailie Neilson, and are heavy and constant bearers and of first-rate quality, are W. Robinson, James Welsh, P. W. Fairgrieve, Dr. Robertson, Malcolm Dunn, and Edinburgh Castle, and they should come prominently to the front when better known."

Injurious Insects in 1897.—In her annual report on injurious insects Miss Eleanor Ormerod observes with reference to those which attack the occupants of garden and orchard: Attacks to orchards and bush fruits are steadily increasing both in severity and in difficulty of dealing with them, consequently on the increasingly large areas of land occupied permanently by one kind of crop. Applications regarding apple attacks were unusually numerous, including those of codlin moth and sawfly caterpillars to fruit; weevil and the little "apple sucker" (*Psylla mali*) to the flower buds or their stems, and thrips also, and the apple bark scale. An attack to fruit in one district, which I was informed had been considered to be that of the exceedingly injurious maggots of the U.S.A. Trypeta pomonella, caused some uneasiness, but as no larvæ or specimens of the fly had been secured, I venture to hope it may turn out to be only a somewhat uncommon form of one of our English attacks. Anyway, it can do no harm to mention that if imported apples are noticed to be much tunnelled inside by the legless maggots of a two-winged fly, it would be of importance to attend to the matter at once. In plum-tree infestation I am sorry to say that yet another shotborer beetle has appeared, named the Xyleborus Saxeseni. Pear and cherry leafage is still yearly much injured by the caterpillars, known as "slugworms," of the pear and cherry sawfly, which is quite unnecessary, as the remedy and prevention of recurrence are sure and simple. The ordinary attacks to bush fruits appear to have been much as usual, excepting in a remarkable prevalence of the gooseberry and currant magpie moth, and also of the somewhat large "ground beetle"—the Harpalus ruficornis, which did much damage to ripening strawberry fruit in various localities, and appeared in great numbers, though (in the absence of strawberry grounds) not as a fruit pest, in the neighbourhood of St. Albans. The black currant gall mite, which causes the buds to develop into mere useless roundish knobs instead of producing fruit and leaves, now causes serious and yearly increasing losses where this crop is grown on a large scale, and the yearly repeated and carefully conducted experiments of some of our chief currant growers, have as yet failed in being more than palliatives. As, however, there appears to be just a possibility that some varieties might be less subject to attacks than others, I have, through the courtesy of one of my colleagues, been favoured with a supply of cuttings from Buda-Pesth, which will be carefully experimented with, and the result (if satisfactory) duly mentioned. Amongst attacks to root crops, and to roots of grass and corn crops, damage was, as usual, done by the wireworms and daddy longlegs grubs, also by maggots of cockchafers and rosechafers, especially by the last, for the ravages of which at grass roots no reasonably practicable remedy has as yet been brought forward. Amongst turnip attacks, diamond-back moth appeared at several localities late in the season, and attacks of a small weevil and a gnat midge maggot in the seed were present, also an unusual amount of damage was done to roots not much advanced in growth by "surface caterpillars."

"Garden and Forest" has been so admirably conducted from the first that we greatly regret to learn that with the completion of the tenth volume its publication has ceased. In announcing the discontinuance of the journal, the editor observes: "For ten years the experiment has been tried of publishing a weekly journal devoted to horticulture and forestry, absolutely free from all trade influences, and as good as it has been possible for us to make it. This experiment, which has cost a large amount of time and money, has shown conclusively that there are not persons enough in the United States interested in the subjects which have been presented in the columns of *Garden and Forest* to make a journal of its class and character self-supporting."

Potato Culture in France for the production of supplies for purposes of human food has steadily increased during the past thirty-five years. From the official returns recently published it appears that in 1862 there were 3,049,9 acres under potatos; in 1872, 3,304,398 acres; and in 1882, 3,641,154 acres. There has also been a material increase in the area under carrots, cabbages, turnips, and similar green crops for consumption by the people during the same period, which appears to indicate a larger consumption of vegetables in France.

Additions to Kew Gardens.—The Queen has given directions for the Kew Palace, which is situate on the north-east side of the royal gardens, to be opened as a public museum under the same management as the botanical establishment which has made Kew famous throughout the civilised world. The Palace meadow, some four and a-half acres in extent, and situate on the eastern side of the building, was added to the royal gardens early in the spring of 1895, and full advantage has been taken of the facilities it offered for providing a more direct road to the arboretum. The Queen has also expressed her pleasure that the Queen's Cottage which nestles amid the trees at the south-west corner of the royal gardens shall also be added to them.

Exeter Gardeners' Association.—The second-half of the current session of this society was opened on Wednesday evening last, when a paper on Himalayan Rhododendrons," by Mr. R. Gill, was read. The papers arranged for the subsequent meetings are as follows: January 26, "Culture of Cattleyas," by Mr. G. Lee; February 9, "Experimental Culture of Vegetables with and without Chemical Manures," by Mr. F. W. E. Shrivell; February 23, "Potatos," by Mr. W. R. Baker; March 9, "Variety in the Flower Garden," by Mr. J. W. Moorman; March 23, "Summer Bedding," by Mr. J. Abrams.

An Old-Fashioned Garden.—We tried an old-fashined garden in Schenley Park this year, says Mr. W. Falconer in *Gardening* (America). We needed a handy dumping ground, and hit on the head of a deep ravine between two woods; into it we dumped hundreds upon hundreds of wagon loads of rock and clay, filling it near to the top, then surfaced it with good soil. Here we planted some shrubs, and broadcast among them set our scarlet poppies, eschscholtzias, dwarf nasturtiums, snapdragons, pansies, marigolds, and all manner of hardy herbaceous plants, having enough of each sort to make a mass of its kind and colour, and the effect was fine. In the middle was a plantation of hundreds of clumps of Japan and German irises interplanted, thence succeeded by thousands of gladioli, and banded with montbretias, from which we had flowers till frost. The steep face of this hill was graded a little, and a series of winding stone steps set into it, making the descent into the hollow quite easy; the stones were the rough uneven slabs secured in blasting the rocks when grading in other parts of the park, and both outer edges of the steps and along the sides of the upper walk a wide belt of moss pink was planted. And the banks all about were planted with shrubs, vines, wild roses, columbines, and other plants. More cameras and kodaks were levelled by visitors at this piece of gardening than at any other spot in the park, and still we had acres of showy summer beds. It is pleasing to find that in America, as at home and elsewhere, picturesque gardening is appreciated by the general public, and the majority prefer it to geometrically-designed beds filled in a fanciful manner with gaudy summer flowers.

Asparagus Disease.—In his annual report for 1897, Mr. W. Carruthers, consulting botanist to the Royal Agricultural Society, states that in the course of the past year he received specimens of asparagus attacked by mildew from a district in which this vegetable is largely cultivated. For several years past the asparagus crop in the district has been considerably injured by the attacks of Puccinia asparagi, which is locally known as "the blight," and as the disease is steadily spreading growers are naturally anxious as to the ultimate results. The fungus appears in August and September, and by consuming the food stored up for the use of the asparagus it weakens the plant when it begins to grow in the spring, and seriously reduces the crop. It shows itself in blackish brown lenticular patches bursting through the skin of the stem and branches. These patches consist of a large number of microscopic seeds or spores, called teleutospores. They are the rest spores which preserve the plant through the winter; they remain dormant until the conditions in springtime cause them to germinate, at a time when the plants on which they live have sufficiently grown as to be ready for their attack. The rest-spore then throws out a tube which bears one, two, or three minute spores, and these quickly become ripe, fall off, and, resting on the asparagus, begin to grow, pushing a fine, sharp-pointed tube through the skin into the asparagus. The root or mycelium rapidly spreads in the attacked plant, and in time produces longish patches on the stem and branches, which ultimately burst through the skin and exhibit a large number of round orange-yellow spores. This stage corresponds to that which occurs in the barberry in the case of Puccinia graminis, the mildew of the wheat. All the stages of the life of the mildew of asparagus are spent on the asparagus, while in the wheat mildew the Æcidium stage is passed on the barberry. The mycelium, having got possession of the asparagus, produces in succession the three fruiting stages of its life, the first developing the yellow round spores of the Æcidium stage; the second the brown round or oval spores of the Uredo or rust stage; and the third the dark-brown oblong spores of the Puccinia or mildew stage. Each stage produces its peculiar spore, and each of the spores is able to enter and develop its mycelium in a healthy plant. Mr. Carruthers recommended that the diseased plants should be cut down at the level of the ground; that they should not be put into bundles, for the plants rubbing against each other would scatter the spores, but they should be carefully carried to a fire and burnt. In this way would be destroyed myriads of spores which would have reproduced the malady next year. It was desirable to get this done throughout the district and at once, for one diseased field or plot left in the diseased state would supply sufficient spores to infect the whole district next spring. It was further suggested that, as the disease had been so prevalent for some years, next year's crop should be several times sprayed with sulphate of copper or with Bordeaux mixture. This application would prevent the spores produced by the rest-spore from germinating on the surface of the plant, as well as the spores produced in the first two stages of the life of the fungus.

Gardeners' Royal Benevolent Institution.—The Duke of Portland has fixed Wednesday, June 8, as the date for celebrating the fifty-ninth anniversary festival (sixtieth year) of the Gardeners' Royal Benevolent Institution at the Hotel Metropole.

Railway Station Gardens.—The North-Eastern Railway annually offers prizes to the value of £200 for the best-kept gardens at the stations on their system. Last year the money was divided into twenty first, twenty second, and fourteen third prizes. The scheme has had the desired effect of stimulating the pride of the officials in charge of the stations, many of which have in summer been beautiful in their wealth of floral decoration.

Botanical Survey of India.—The report of the director of the Indian Botanical Survey for 1896-97 includes reports from all the directors of departments with the exception of that of Southern India. The results of the botanical exploration, by Lieutenant Pottinger, of a portion of the valley of the Irrawaddy, a country hitherto absolutely unknown, will shortly be published. A synopsis is given of the flora of Western India as far as the Tiliaceæ.

Iris Purdi.—In the proceedings of the California Academy of Sciences Miss Alice Eastwood, curator of the herbarium of the academy, figures under the name of Iris Purdl, the beautiful iris common in the Redwood region of Mendocino County, which hitherto has been confounded with Iris Douglasiana. It resembles the last-named species in its narrow, red-based, lanceolate spreading leaves and cream-coloured flowers; but differs from it in its larger flowers, in its lighter green, less distinctly nerved, stiffer and often glaucous leaves, broader stamens, and shorter, broader, capsules. This iris has been successfully flowered by Max Leichtlin in his garden at Baden-Baden, and is named in honour of Mr. Carl Purdy, of Ukiah, who first noticed and called attention to its peculiar characteristics.

Presentation to Mr. G. P. Miles.—The opening meeting of the Chester Paxton Society's winter session was held in the Grosvenor Museum, Chester, on Saturday evening last, under the presidency of Mr. Barnes, when the opportunity was embraced of presenting Mr. G. P. Miles, the hon. secretary for the past eight years, with a gold watch and chain, as a grateful expression of thanks for the invaluable services he has so willingly given to the society during this time.

Scale Insects and Their Enemies.—Mr. Frogatt, who has made many investigations in connection with various insects, recently exhibited at a meeting of the New South Wales Linnean Society a twig of a eucalyptus, on which was a colony of Leathery scales (*Eriococcus coriaceus*); among these latter had been placed the eggs of Thalpochares coccophaga, a scale-eating moth. The scales were themselves infested with the larvæ of a small black ladybird (*Cryptolæmus Montrouzieri*). Both the moth and the ladybird are useful in the destruction of scales, the former attacking and eating the detestable olive scale. The species of ladybird referred to is now bred in New Zealand and America for the purpose of combating scale insects on fruit trees.

Flower Belts.—One of the latest Parisian fashions in relation to the use of flowers for personal adornment, is the wearing of belts of flowers. The majority of the French ladies prefer belts made of Parma or Neapolitan violets, small roses, or pansies. The belt is completely covered with the flowers, which are sewn thickly together on a plain band of silk elastic, great care being taken to use the finest silk of exactly the same shade as the flowers chosen.

Grape-Keeping in New York.—In explaining the long-keeping qualities of New York state grapes, an American contemporary says that grapes, apples, and other fruits grown in Western New York have superior keeping qualities, due to the soil and climatic conditions. Grapes grown on clay-land are firmer and ship better than those grown on gravel. In Ohio an association known as the Claygrowers' Association handle only grapes grown on clay-lands. The three sections in New York where grapes are grown to the greatest perfection all lie near large bodies of water, an influence favourable to keeping qualities. Of the long list of varieties cultivated in this state the best of the long-keeping kinds are Catawba, Diana, Isabella, and Vergennes. To insure keeping they must be carefully handled; it is also important that the temperature be gradually reduced from the vines to cold storage, and there must be no sudden changes. The grapes should be left out-of-doors in crates the night after they are packed; early in the morning they should be removed to a cool building or dry cellar; then to a still cooler room adjoining the storage-room, and here the temperature should gradually fall until the desired point is reached. New York grapes intended for exhibition at the World's Fair were placed in cold storage November 1, 1892, and held there until spring, when they were shipped to Chicago in time for the opening of the Fair, May 1. The main supply was then placed in the cold storage building on the exhibition grounds. This building was destroyed by fire on July 12, and the reserve stock of grapes was lost; otherwise New York grapes would have been on exhibition every day of the Fair. As it was, but fifteen days intervened between the last showing of cold storage stock and the arrival of new-crop grapes. Catawba grapes are offered at reasonable rates in the markets of New York as late as April.

Presentation to Mr. C. Martin.—At the monthly meeting of the East Cowes Horticultural Association, Mr. C. Martin, head-gardener at Clarence House, was presented with a gold albert chain and medal attached as a token of regard and esteem and appreciation of the valuable services he had rendered the society. The medal bore an appropriate inscription.

"**Weather Influences on Farm and Garden Crops,**" will form the subject of the presidential address to be given by Mr. E. Mawley at the annual meeting of the Royal Meteorological Society to be held on Wednesday next. The lecture will be illustrated by lantern slides. As usual, the meeting will be held at the Institution of Civil Engineers, George Street, Westminster; and the chair will be taken at 7.30 p.m.

Chrysanthemum Conference at Orleans.—The issue of *Le Chrysanthème* for November and December, which has just come to hand, is of special interest, inasmuch as it contains a full report of the conference held at Orleans in November last under the auspices of the Chrysanthemum Society of France. The whole of the details of the gathering are given; the viands served at the banquet being fully set out.

THE LATE MONS. JEAN LINDEN.

FULL of years and honour, Mons. Jean Linden passed peacefully away early on the morning of Wednesday, the 12th inst., at his residence in Brussels. It is given to few men to so completely attain their highest ambition as the famous Belgian explorer, botanist, and horticulturist, has done. The best years of his youth were passed amid solitudes and virgin forests, in Brazil, Mexico, Cuba, Venezuela, Columbia, Guatemala, and Jamaica ; to his untiring energy and persistence, we are indebted for the introduction of many of our finest orchids and fine foliage plants. Born in 1816, Jean Linden was educated at the Faculté des Sciences of the University of Brussels, where he was one of the earliest of students. Acquiring knowledge rapidly, and showing a remarkable taste for natural history in all its branches, but for botany in particular, he was, at the early age of nineteen, entrusted by the Belgian Government with a scientific mission to South America, having, as colleagues, MM. Funck and Gheisbright. They arrived in Brazil at the end of 1835, after a three months' journey, and succeeded in two years in obtaining wonderful collections of varied sciensific interest. After this, M. Linden visited Yucatan and North Guatemala, experiencing considerable difficulties, owing to revolutions then in progress. Fever kept him a long time at Guadaloupe, but in 1841 the traveller returned to Belgium.

The same year, however, the travellers returned to Columbia and discovered Odontoglossum crispum, now possibly the most popular and widely-grown of all orchids ; other species were also found by him, but they are too numerous to mention here, suffice it to say that Jean Linden led us to understand the beauties of odontoglossums and cattleyas. He discovered and made known the wonderful mountain floras of the Cordilleras, and, in the province of Merida, he crossed the Paramo de Macuchies at an altitude of 13,000 feet, no mean performance at that, or even a later time. He subsequently explored the New Granadan provinces of Santadar, Soto, Socorro, and Velez, reaching Bogota, a famous orchid centre, in October, 1842. The basin of the Rio Magdalena was examined, and to cross the river he had to swim the whole distance, about one hundred and ten yards. Tolima, the highest point of the Eastern Cordillaras in New Granada, M. Linden ascended early in 1843 ; many weeks were spent in high latitudes, and the virgin forests of Quindiu were explored by him. Later in the year he went to Caracas, and subsequently explored in a very thorough manner the Sierra Nevada of Santa Marta, reaching the summit, 14,766 feet, after surmounting immense difficulties. Not satisfied with all these achievements, the intrepid explorer penetrated into the interior of Goajira, then inhabited by cannibal Indians. After a short period at Jamaica, M. Linden passed on to Cuba, and there spent six months in scientific exploration. In 1844 he left Cuba for the United States, and reached Belgium in October, 1845, after practically ten years spent amid the forests and mountains of Southern and Central America.

After completing his travels M. J. Linden commenced business as a commercial horticulturist, at Brussels. Here his wide knowledge of plants obtained in their native habitats ensured him a large measure of success ; he was also able to direct the travels of young men of enterprise who were willing to visit America and bring home plants of various kinds. His position as Consul-General also kept him in touch with the land he had spent so long a period in exploring, for besides success in business, M. Linden obtained very high commendations and appreciation from the Belgian Government, which he so long and ably served at the risk of his life. On the Continent Mons. J. Linden did much to induce a rational system of cultivation for what we now call cool orchids. The earliest imported odontoglossums were throughout Europe killed by much kindness, but the new culture commenced, and in 1863 Weir, Blunt, and Schlim found themselves on the same steamer bound for New Grenada and after cool orchids, chiefly Odontoglossum crispum. These collectors represented respectively the R.H.S., Messrs. H. Low and Co., and Mons. J. Linden. In later years the subject of this notice has been best known in his connection with L'Horticulture Internationale, at Brussels, a huge business carried on, or chiefly, under the direction of himself and son,—M. Lucien Linden. Two or three years ago, however, M. Linden père retired somewhat from the government of the concern, but we believe he retained the control and direction of the large staff of collectors up to the last. When long past the allotted three score years and ten, M. Jean Linden was hale and vigorous in mind and body. A more genial gentleman it was impossible to find, and as he retained in a wonderful manner the vivid impressions obtained in his youth, it was a real treat to hear him discourse upon the vegetation and geographical conditions of South America.

As a nation, Belgium mourns M. Linden for his wide discoveries ; as a city, Brussels mourns a lost citizen who has ever given to her his best services. The wide world of horticulture and botanical science feels deeply the loss of one of its ablest and earliest pioneers, and joins in sympathy for those whom death has so recently bereaved. We, on behalf of the readers of the GARDENERS' MAGAZINE, tender to Mons. Lucien Linden and other members of the family, that sympathy which also they will receive from horticulturists throughout the world.

Herbaceous Phloxes from Seed.—I do not know whether any seedsman offers seeds of these hardy plants in packets, but certainly anyone procuring good seed of the fine new varieties will assuredly get a good return for the small outlay incurred, by securing some fine showy seedlings. Hardy phloxes do not seed freely, and they are very easily increased through the agency of cuttings taken from the spring shoots or from side shoots in the autumn. The former will make strong stems, and carry fine heads of bloom the first year ; the latter roots then throw one or more shoots to bloom the following year. But when seed can be obtained, it is well to sow it early in the spring, and because it is rather hard-shelled, should not be kept in a place that is very dry. If sown in a pot or pan of soil, and stood in a gentle warmth, being kept just moist, growth may ensue in some three weeks. Because of the comparatively hard nature of the wood-growth, damping gives little trouble.—D.

MARKETING ORCHARD FRUIT.

I WAS glad to see in your issue of December 18 last so much space devoted to Mr. Garcia's important paper read at the Horticultural Club, and also your leader on the subject, as it points to the time when the trade portion of the horticultural world will be recognised as forming a part of so important a whole. I was also glad that Mr. Garcia referred to the question of non-returnable empties for apples and pears, and that his views so closely agreed with my own, although taken from a different standpoint, for although we belong to the same market, I was as ignorant of the contents of his paper as any member present. This opinion being gained by his great experience in handling fruit from all parts of the world, and not as particularly interested in the sale of homegrown, is to my mind the more valuable. Considering the acreage of new orchards, the very first year we have anything like a full crop, the importance of what we both advocate will be manifest to all connected with the trade. There is an old saying, "The nearer to church, the farther from God," and I think this sentiment is applicable to the bulk of our orchard fruit growers (outside the Middlesex market gardeners, who sell their own), as they are close to good markets and do not take proper advantage of them, but allow others 7,000 miles away to step in before them and put on the market a more saleable article, even if the quality is not so good.

This week I have had a letter from an apple grower in North Carolina advising apples, and saying he was given to understand that our customers now liked them in 40 lb. cases, each fruit wrapped in paper, and that if that was so he should send all his in future in that way, although it was a little more trouble and expense in packing. Mr. Garcia remarked that if our orchard growers had taken the care that tomato and grape growers had done, the foreigners would not have had the chance they now have. I am sure the outlook for the home produce was dark enough some years ago, and it only pays now if done on business lines adopted by our market growers. They acknowledged the difficulties and the opposition of importations, especially in cucumbers and tomatos. But an Englishman is hard to beat when he once sets himself a task, and our home growers were determined to keep pace with the foreigners by growing the best quality and packing in the best possible way, with the result that they have not only held their own, but to some extent have turned the tables on their rivals, as I have daily orders from Hamburg, Berlin, Stockholm, and other continental centres, as well as weekly from America ; so that English grapes, tomatos, and cucumbers are now sold in nearly every large market in Europe, and grapes in the principal cities of North America ; while on the other hand it is only the best varieties well graded and packed that will now pay to send here from abroad—the common Dutch cucumbers and Lisbon tomatos being a thing of the past ; yet this has been done in articles which bring much less than they used to do, while Mr. Garcia proved that good orchard fruit makes more now than it did forty years ago.

I persuaded one large grower who attends the market and sells his own to try cases for his apples this year, and he had ten thousand cut up ready to put together, and is quite satisfied with the result—as he found at the market that customers gave them the preference, and he could sell more readily than his neighbours with similar fruit in baskets. The great strength of the system being that it suits the buyer best, every large buyer I have spoken to on the subject say they would gladly give more for the fruit if no further trouble with the empties was involved.

I was pleased to hear Mr. Veitch, on behalf of the Royal Horticultural Society, ask Mr. Garcia to give his paper at our autumn meeting of the Society ; but as that will be too late for this year, I thought it best to try and drive the nail a little further home by trespassing on your valuable space, for I feel strongly that if the matter is left till we have the fruit ripening on the trees in anything like a crop, there will be woful waste, simply from the fact that it will be impossible to find empties sufficient to convey them to market, unless we adopt the popular method of the cider country, viz., the "sack."

Covent Garden. GEORGE MUNRO.

Changes in the Colours of Flowers.—It frequently happens that the colours of flowers produced late in the season by plants growing in the open differ materially from those developed under normal conditions, and in reference to these changes Mr. E. Hughes Gibbs observes in a contribution to *Nature*: "I venture to send you the following observations on the tendency of flowers to revert in colour when blooming out of season. We have had little frost here, and many flowers which are ordinarily out of bloom at this season still persist. The changes, however, in their normal colours are in some cases very remarkable. The red cactus dahlias are blooming almost orange, the outer florets being often nearly yellow. These dahlias are also, in many cases, showing a tendency to revert to the single form. A species of tropæolum, normally vivid scarlet, is blooming in a cool greenhouse, where air is kept on, and has in some cases reverted almost to clear yellow ; a streak of red down the centre of the petal being the only remains of its normal colour. In both the above cases I note that the edges of the petals are the first to change. A species of myosotis, ordinarily of a deep and very vivid blue, is flowering now a clear rosy pink, without the least tinge of blue. The flowers are well opened and normal in size. Lastly, a pure white phlox of dwarf habit shows a tendency to revert in some of its blooms, though not in all, to a greenish yellow hue. Such cases are probably common ; but it is with the feeling that they may point to climatic conditions as influencing the coloration of flowers, and as having, possibly, borne a large part in the gradual evolution of their respective tints, that I venture to record them." In some instances, as observant cultivators are aware, a high temperature will also have the effect of materially changing the colour of the flowers more particularly in the case of some of the chrysanthemums and tropæolums. Chrysanthemum blooms that are suffused with red or bronze upon a yellow ground, will when developed in a comparatively high temperature, become bright yellow. Some years ago we propagated a tropæolum with flowers of a rich chestnut colour in the autumn, and the greater proportion of the flowers produced in the propagating pit were deep yellow. In the spring when the plants began to bloom the flowers were yellow suffused with deep red, but when planted in the flower garden they assumed their normal hue

The Reading Primulas and Cyclamen.

The value of first-rate strains of primulas and cyclamen to gardeners who have conservatories to keep gay early in the year, and to supply demands for large quantities of cut flowers during the same period, is so obvious that it needs no discussion. Good strains are a necessity, and when a gardener can visit the nursery of a firm of seedsmen and there see magnificent varieties of these, grown wonderfully well, true to name, and from which seed will subsequently be supplied, he feels he is making no mistake in growing such sorts himself. Certainly at no one period have the Messrs. Sutton and Sons, Reading, a finer display than in January; but to fully understand the beauty and usefulness of the Reading primulas more than one visit is necessary, as most of the giant forms are late in flowering, and do not display to the full their charms until March or April, and this is especially the case with the brilliant and effective form known as Giant Crimson; in its case the early flowers that nestle amid the foliage are of a purplish hue, and not to be compared with the dark-eyed glowing flowers produced in fine trusses at a later date.

Something like eight houses at the Portland Road Nurseries are filled with primulas in about thirty varieties, and these are arranged in batches of contrasting colours, so that the effect is very fine. A view obtained through the whole length of one house of three divisions, and containing about two thousand four hundred plants is one not soon forgotten; and yet this is but a part of the feast, for not less than six thousand plants will come under the notice of a visitor who makes a point of seeing all he can. The Star primulas are particularly elegant, and the pure white variety, with its two-storied spikes of dainty blossoms, very forcibly reminds one of falling snow. No sense of cold is, however, experienced, for the bright rose-coloured form occupying the opposite stage provides a corrective. There can be no question as to the general utility of the Star primulas; they are elegant, bright, easily grown as annuals or biennials, continue in flower for a long period, and do not drop their flowers so readily as some of the more highly-bred sorts. Very many trials have already been made, with a view to producing this form of primula in other colours than rose and white, and some amount of success has already attended the efforts of Messrs. Sutton and Sons. It is a difficult matter, however, for the influence of varieties of the Giant and other strains, having distinct hues, is mostly seen in an enlargement of the starry flowers, and a reduction of quantity; this, of course, is of no value, for it spoils the effect of the Star primula. However, by cross fertilisation and selection new colours are being produced, though those colours are often absorbed by the seed parent, and do not fully appear for two or more generations. Incidentally it may be mentioned that a two-year-old Star primula, in a twenty-four-sized pot carried twenty-one spikes of flowers; many of these spikes were four stories high; that is, they had four tiers, and such spikes carried from twenty-four to thirty-six blooms each. This will give a very good idea of the usefulness of Star primulas for conservatory decoration. As a market variety there is no doubt a great future for this plant.

Giant Primulas at Reading.

Turning to varieties that appeal more to the eye of the florist, one is confronted with a remarkable variation of colour in flowers and foliage, while the leafage varies and is either plain, fern-leaved, or moss-curled in form. A batch of Gipsy Queen comes early under notice; this is one of the most distinct forms and an old favourite. Even as a foliage plant it would command attention, but when to handsome and dark-coloured fern-like leafage is added trusses of large, beautifully-fringed and purest white flowers, then the combination causes it to be one of the most handsome of primulas. Reading Blue is a grand companion for any white variety, its shade of colour being so distinct; it forms a suitable successor to Fern-leaved Blue, a variety similar in colour and form but fully a fortnight earlier in flowering, and with fern-like foliage. Another fern-leaved variety of exceptional excellence is Rosy Queen, and one of which there is a stronger stock than usual; the original stock of this variety was showing signs of sterility, so, as it was still in demand, a new one had to be raised; this has been done, and the result is a beautiful primula with light leafage and fine trusses of rose-pink flowers. The new and stronger type is, however, a little later than the old form. Sutton's Pearl is so well known and its white flowers so much admired that nothing further need be said of it. Coming to varieties of more brilliant hue there is nothing to exceed the dazzling glow of Brilliant Ruby, especially when some hundreds of plants are in first-rate condition, as at Reading; the name of the variety is admirably descriptive of the colour, while in form it is a pattern primula. Reading Scarlet commences to expand its trusses of deep scarlet flowers about Christmas-time, and is a variety much appreciated for association with Roman hyacinth and similar winter flowers; it also continues to provide a display over a period of about six months. Brilliant Rose cannot be passed unnoticed, for it never fails to attract attention, its large blooms are exquisitely frilled and of a beautiful deep shade of rose that eventually deepens to carmine; scarcely any variety appeals in so subtle a manner to one's sense of colour as does this. Royal White, Snowdrift, and Purity are all handsome white-flowered primulas, yet each distinct; it is no easy task to say which is the better, but the contrast of dark foliage in the former leads us to admire it the most.

A few remarks must be devoted to the Giant primulas, a distinct race produced and perfected by Messrs. Sutton and Sons, so distinct in fact that if any of its forms are crossed with the other single types, the result is usually sterile progeny. It is extremely difficult to fix and raise a sufficient quantity of any new giant form to put it into commerce. Nature protests against such huge flowers, wonderful frills, and fine trusses, by reducing the fertility of the plant. A handsome Giant Rose form tinged with crimson, has long been in course of selection, but during the past six years it has only been possible to double the number of plants. No giant primula has yet been returned as the result of pollinising a giant with a smaller form. As a race the Giant primulas are three weeks later than others, and for this reason they are worth cultivating; they also make larger specimens. Giant White is the most popular of all, and in either the plain or fern-leaved form it produces flowers of the purest whiteness, measuring twice as much in diameter as half-a-crown; the trusses are of immense size, and boldly placed above the foliage. Giant Pink runs the former very close for popularity, and because of its most vigorous growth is a prime favourite with the gardener; it also is earlier than Giant White, and a batch is already making a good exhibition of carmine pink flowers. Giant Crimson, as already stated, is a late form, and in some gardens lateness is considered a defect; however, once the variety is grown it is not generally left out of the next seed order. There is some hope, however, of an early giant of rich colour, for a moderate stock has been produced of a variety as early as Giant Pink, and producing glorious blooms that are of an intense rose-red colour, flushed with crimson. Double primulas are excellent, and give an abundance of large blooms admirably suited for wreaths, bouquets, &c.; for general use they are invaluable pot plants, and being presented in such a variety of colours as scarlet, blue, pink, carnation-flaked, crimson, and last, but not least, a magnificent white, there are sufficient kinds to gratify all tastes.

The Reading cyclamen were never finer than now, and that is saying a good deal. One scarcely can say just where the improvement occurs, but on entering the houses the impression quickly comes that plants and flowers are an advance on previous years. There is a wonderful wealth of blossoms, and on their sturdy stems they are not unlike batches of butterflies hovering above the marbled foliage. A slight but pleasing fragrance fills the air, but this emanates from a small batch of Cyclamen latifolium (C. persicum) raised originally from seeds sent from Palestine; fifty or sixty years hence Messrs. Sutton and Sons may have a giant form to show the horticultural world as the result of careful selection from this specific form. From the ten varieties of cyclamen listed by the Reading firm it is necessary for many to make a smaller selection, and as an assistance to that end we may say that the five appealing most to us are Giant White, White Butterfly, Vulcan, Salmon Queen, and Giant Purple. Giant White has monster, but not monstrous, blooms of infinite purity, and produced with wonderful profusion. White Butterfly has elegant white blooms, less formal than in Giant White but equally useful and produced in immense quantities. Vulcan is the finest of crimson cyclamen and is of a very deep and dark shade of colour. Salmon Queen is one of the Reading firm's greatest successes, especially so far as the production of new colours goes; the plants are dwarf and compact, foliage very finely marbled, and flowers of good size and of a handsome and rich shade of salmon-pink. Giant Purple is very distinct, and its bright purple blooms, though large, are carried erect on extra long and stout stems. A variety known as Giant Crimson and White has white segments with crimson base; the colour contrast is so fine that not a few would place it in a selection of five varieties, to the exclusion of one of the whites; it certainly is very beautiful. Giant Pink, Giant Rose, Giant Crimson, and Cherry

Red give flowers whose colour is well described by the name of the variety, and where large supplies of cyclamen are a necessity, and diversity in colour is desirable, it would be found that the varieties are all charming. Tastes differ so much that any selection made by one person would not suit all, therefore we may add that the Portland Road Nurseries are open to all flower lovers, and, the plants not being for sale, no one is asked to buy. Besides the foregoing there are numbers of curiosities in cyclamen, such as crested forms, papilionaceous forms, fringed and plain; some like single cactus dahlias, and others with double the usual number of segments. These all add to the interest of a visit.

WINTER BROCCOLI.

OUR winters are so uncertain, that the broccoli crop is not safe after the present. It is, however, to the mid-winter supplies, available from November to March, that I wish to refer, for it often happens the earlier broccoli are so far matured, that by lifting them the crop may be saved. The heads may be small, but they are valuable, and a welcome addition to the mid-winter supplies. To have a quantity of broccoli it is necessary to sow at different dates, and this is a matter I must dwell upon briefly. To make one sowing, say in March, and leave the rest to chance, will end in certain failure. It is not wasteful to sow several times; indeed, the reverse, as by sowing thinly much better plants are obtained, and the seeds required for several sowings are not more numerous than for one large sowing. In the latter case plants are so much crowded, that it is impossible for them to produce the best results; they are left too long in the seed bed and become exhausted. Of late there have been some really fine additions to the early broccoli. For many years the Cape varieties were the kinds mostly grown, but they were none too hardy, and the advent of Snow's Winter White was hailed with delight by all who needed this vegetable in quantity; having a hardy constitution it became a general favourite, and was so for a long time, but for the last year or two I have been obliged to discard it, not, however, until I had tried every means to produce it as good as formerly. Snow's, in my case, instead of giving good winter broccoli, was extremely uncertain, for some of the plants gave heads in April with late varieties. Mine was not a solitary case, so I naturally came to the conclusion it had become mixed with other sorts, and needed re-selecting with care. It was a grand broccoli, and its pure white compact heads during December and January were much prized.

Latterly Veitch's Self-protecting has taken the place of Snow's Winter White, and it is a splendid broccoli, but needs care in sowing to obtain it late; by this I mean sowing specially for late use. We make two sowings or more according to the season; sown in May or even early June in sheltered spots the plants will furnish the January and February supply, but seed must be sown thinly to produce sturdy plants. There also must be no starving in the seed beds, but plant them out as soon as the seedlings are large enough, and protect them in winter. Many may object to any variety not hardy enough to hold its own unaided; the plants are hardy, however, but the flower or head suffers. Our plan is to lift all plants with heads the size of a cricket ball and smaller and store them in open sheds, or what is better, in frames, so they may be used as required. The plants keep for a month or six weeks if treated thus, and there is no difficulty in obtaining a supply in severe weather, for this variety forms heads from October well into the autumn; indeed, I have had it good well into February, and with us it never fails to turn in.

Our selection to follow the last named is less known, but a specially fine type of early broccoli, not unlike Snow's in build and quality, but a true stock, as it turns in at one season from late January to early March, or gives the February supply, and is therefore invaluable. The variety in question is Sutton's Superb Early White, not a large broccoli, but one of perfect shape, compact, pure white, well protected by foliage, and having a dwarf stem it is rarely injured by frost. Much importance attaches to the build of a winter broccoli, for a dwarf compact grower tides over our variable winters better than larger kinds, and if with ample folding foliage there is also protection from rains and frost. This variety sown, if in April, will give good heads in January and February; but to have heads extra late I find the end of April a suitable time to sow for June planting, as it is essential to have strong plants for winter use. This variety if lifted and stored remains good for weeks; indeed I have kept heads over a month firm and good. To follow this variety our most reliable stock so far has been Veitch's Spring White, and this with us is far more reliable than the Penzance Early White, and also earlier, for it comes into use at the end of February, and, though not large, is just the size needed in a private establishment. It is a great gain on many of the older kinds, which are erratic in their season and larger in growth. Spring White is well protected by foliage, and very hardy; we usually plant it on quarters cleared of Early Ashleaf potatos or other early vegetables, and it needs similar treatment to that previously advised. We sow it the end of April or early in May, but do not plant it in rich ground; indeed, our best heads have been grown on land cleared of early strawberry plants, neither dug nor manured in any way, but merely hoed over and drills drawn to ensure the plants the moisture needed in dry summers. So far I have not lost many plants of either Superb Early White or Spring White. These are distinct varieties, and must not be classed as one. Spring White is the latest. With reference to losses, I mean losses in other seasons, for this year and season the plants look most promising. There may be other broccolis well worth special notice for winter supplies, but, after a trial of several, I find those named first-rate on account of their hardiness and reliability for difficult seasons.

Syon Gardens. G. WYTHES.

The Rabbit Plague in Scotland.—In the western highlands, where an [illegible] area has for a long period been devoted to game preservation, the rabbits have multiplied so freely that they threaten to become a serious plague. Trapping or shooting has not been done on any extensive scale, but hawks, falcons, owls, and other birds of prey have been persistently destroyed, until the rabbits have scarcely any natural enemies.

NOTES ON ORCHIDS.

ODONTOGLOSSUM RETUSUM.

A SMALL-FLOWERED species with orange-coloured sepals and petals and a yellow lip. It is not of any special horticultural value, although the branching spikes and numerous bright flowers would be effective if a batch of plants were flowered at one period. The colour of the flowers is particularly striking and the species should recommend itself to all lovers of orchids who find room in their collections for other than the showiest members of the order. Odontoglossum retusum has been imported by such leading firms as Messrs. F. Sander and Co., St. Albans; Messrs. J. Veitch and Sons, Chelsea; and Messrs. Linden and Co., Brussels; but it is probable that but few plants are purchasable; Hartweg was the first to discover it, and the find was made in 1841, on the Saraguru Mountains, in Ecuador. In general outline the shape of the flowers differs from that seen in most odontoglots, for the two lower sepals do not spread laterally, but are rather inclined to extend in a parallel fashion under and beyond the lip. When spread out the flowers measure about an inch across. There are no markings on either petals, sepals, or lip. The panicles are about a foot in length, and the small branches carry four or five flowers apiece, so that the whole inflorescence carries some twenty to twenty-four blooms. An illustration of this pretty little orchid, given in the *Bot. Mag.*, t. 7,569, was made from a specimen flowered by Mr. E. H. Woodall, of Scarborough, in April, 1897.

HABENARIA RHODOCHEILA.

This habenaria from southern China is so closely allied to H. militaris, from Cambogia, and a species now so well represented in gardens, that a grower who possesses the latter need not worry much if the former be absent from his collection. Habenaria rhodocheila grows in a similar manner to H. militaris, but seems to vary considerably in the colour of its flowers, from rose-coloured to orange and madder yellow. The species was discovered by Dr. Sampson close to the monastery of Fi-loi-tze, near Canton, in 1864; the specimens were sent to Dr. Hance, F.L.S., then resident at Whampoa, who subsequently described and named it, describing the flowers as rose-coloured. Tubers sent to Kew by Mr. C. Ford, Superintendent of the Hong Kong Botanic Gardens, were received in January, 1895, and, after cultivation in a warm house, they flowered in June, 1897. The flowers produced were, however, of shades of orange and dark yellow or madder, a dozen or so occurring on each spike. The most prominent organ is the labellum, which measures about an inch in length and has a spur about two inches long; the former is three-lobed, the side lobes being larger than the oblong, deeply two-lobed, central segment; the sepals and petals are green. A figure is given of both plant and flowers in the *Bot. Mag.*, t. 7,571.

PAPHIOPEDILUM (CYPRIPEDIUM) VICTORIA-MARIÆ.

The question of referring all the tropical cypripediums to the genus Paphiopedilum proposed in 1886 by Dr. Pfitzer, or to a similar genus with the title of either Paphiopedium or Paphiopodium, has already been referred to in these columns, so that readers will not be frightened by the above headline. Paphiopedilum Victoria-Mariæ is a native of Sumatra, and bears a considerable resemblance to P. Chamberlainianum, though differing from it in colour and slightly in shape. The foliage is about a foot long, one to two inches broad, and leathery; the upper surface is bright green, with dark green mottlings; lower surface clear bluish green. Several flowers are produced on the tall scapes, but seldom more than two are expanded at one time; the dorsal sepal is orbicular, green, striped longitudinally with dull red, and margined with dull white; petals horizontal, two inches in length, narrow, twisted, bright green, with reddish purple margins. There are ciliate margins to all the foregoing segments. The lip is about two inches long, and has a slight waist-like contraction just below the centre of the broad mouth; dull purple, with a green band round the mouth. A robust orchid, introduced by Messrs. Sander and Co., St. Albans. *Bot. Mag.*, t. 7,573.

SIEVEKINGIA REICHENBACHIANA.

A curious and interesting orchid, and one not by any means devoid of beauty, judging from Mr. Macfarlane's drawing reproduced in the *Bot. Mag.*, t. 7,57[illegible]. The species has small, clustered, ovoid pseudo-bulbs, green, with red blotches on the old ones; each is sheathed in a membranous and red speckled coat that disappears with age; each is also surmounted by a single elliptic-lanceolate leaf, thick, stiff, plicate, and with five strong ribs that are most prominent on the dark green lower surface. These leaves are four to five inches long, by about two broad; surface dark green; the petiole is little more than an inch long. The flowers are produced, about six together, in a pendulous corymb, and measure, individually, about an inch and a quarter across the lateral sepals. The latter organs are straw-coloured, ovate, concave, and membraneous; the petals are as long as the sepals, linear, yellow, and margined with long, flexuose, golden hairs. The lip is a wonderful organ, three-lobed, with large rounded side lobes, and a linear and smaller central one; these are all fringed as in the petals; while, in addition, the disk has five short teeth at the base of the lip, and two long ones at the base of the central lobe. The yellow side lobes are spotted and mottled with deep red. The genus Sievekingia is a small one, containing but four species, viz., S. suavis and S. fimbriata from Costa Rica, S. Jenmani from British Guiana, and S. Reichenbachiana from Ecuador. The latter was discovered by Mr. F. C. Lehman, at an elevation of 2,000 to 3,500 feet on the Andes; this was in 1879, and only one specimen was found. In 1890 Mr. Lehman searched his estate in Cauca and found five more specimens, one of which came to Dorking, where, in the collection of Sir Trevor Lawrence, Bart., it recently flowered.

Tender Marigolds.—Although African and French marigolds are not so highly esteemed as florists' flowers that they can have a special society devoted to them, yet they have in all parts of the kingdom, and especially in the north, many thousands of admirers. The Scottish firm of Dobbie and Co. are entitled to great credit for the now superb form found in these flowers, and doubtless that fine form is very widely diffused. Yet one sees sometimes from German or French seed wretched things in gardens—tall, straggling, coarse-growing, and carrying flowers that have not the least merit, or form, or beauty. Such strains are only fit to be burnt. Our home-raised stocks are far superior to these, and if those who want them will pay a little more, they will then find all the difference between good things and rubbish. The finest strains of Africans give noble, [illegible] double flowers, range, yellow, lemon, and other shades of perfect form, and the French striped; are of moderate height, rather spreading than tall, and in [illegible] case of double flowers having these perfect in form and marking for exhibition.—A. D.

CHRYSANTHEMUMS.

Chrysanthemums for 1898.

It is perhaps due to readers of the Gardeners' Magazine that I should defend my selection of chrysanthemums for exhibition, which appeared in the issue of December 18. My critic, on page 6 in the first number for this year, assumes a modesty in his opening paragraph which is quite refreshing, but not at all characteristic of the man, if we may take his price lists, &c., as any criterion. I may say at once that I had not in mind, when penning my offending list, the especial satisfaction of trade growers. I gave those varieties which, from our own experience and my own personal observation over a lengthy round of shows and other collections, appealed to me as the most suitable, and the most likely to prove satisfactory in the hands of exhibitors. I do not presume to say that my list included only the "best," but "what we considered the best." It is well known that, as a member of the Floral Committee of the N.C.S., and from the fact of my securing the most promising novelties each season, or at any rate what we regard as such, in order to enter in the best competitions, the opportunities are good enough to enable me to speak with some weight on this matter of selection, and more especially as I am entirely unbiassed by trade interests. My selection of varieties is based on the grounds of having to supply a large quantity of exhibition-grown flowers for decorative purposes, as well as having to stand the tests of keen competition at the shows; hence, colour is of vital importance, as also good and consistent varieties. Pains are taken to select from the endless choice presented nowadays those only which give us the best and most effective colours in flowers of graceful form, and with some regard also to the habit of the plants; and I am quite satisfied to leave the results in the hands of readers to compare, as they will, with the varieties urged by your correspondent. My selection was offered as a solution of the bewildering difficulties some experience in deciding what not to grow, particularly in limited collections. Each year this becomes more difficult, owing to the large number of comparatively worthless varieties offered with such glowing descriptions. We annually discard some fifty or more Japanese varieties, and Mr. Mease, the well-known grower and prize winner, assured me it was the same with the collection at Leatherhead. This yearly weeding-out must obtain, to admit a fair share of novelties, some of which will turn out improvements, and others prove disappointing; but all the same, the fascination of new things impels us to try a goodly number each year.

I will briefly discuss these varieties set forward in opposition to my own choice. First, Pride of Madford: this, as I have before remarked, does not commend itself as one of the best twenty-four owing to its incurving character, which does not exhibit sufficiently the rich colour of the surface of the florets unless these are artificially turned back. Madame Ad. Moulin has always been consistently good here; the blooms are large and the florets long, of a graceful drooping habit, and white in colour; it will still be grown here. Of the others named in the paragraph Madame Gustave Henry, V. Roger de Chezelles, and Mons. Andre, we discarded two years ago after a season's trial, and, despite the fact that two have received the F.C.C. of the N.S.C., I still maintain they are not worth growing, even in a large collection. Madame Ad. Chatin cannot compare with Western King; Milano is dull in colour, and lacks refinement and grace in form. Mrs. Charles Blick has proved uncertain with us and elsewhere also, judging from the shows during the past two seasons, though it has been shown well occasionally. Pride of Exmouth and Mons. Hoste are of poor colour; washy and undecided mauve tints are not desirable for decorating nor on a show board. Louise is small unless really well grown, hence not in the first fifty varieties. Mdlle. Thérèse Rey we still regard as a first-rate flower, and as it was at the head of the list of Japanese in 1894 surely it is in the best fifty now. Lady Saunders has one of the most exquisitely delicate tints of sulphur yellow in the centre, and as we used it in the back row at the N.C.S. Jubilee Exhibition it does not lack size. Sunflower is a most lovely yellow, and a great favourite with many besides myself. I did not place Sunstone or Mrs. F. A. Bevan in the best twenty-four, because the former, though a meritorious variety, has not the charm in its closely intermingling petals which I look for in a best variety, and the colour, though unique amongst chrysanthemums, is not sufficiently effective. Mrs. Bevan is certainly a charming flower, but is very liable to damping, and hardly large enough for the company of Madame Carnot.

No one save my critic would try to mistake Yellow Madam Carnot as meaning Mrs. W. Mease; and as I recommended the former with Western King, John Neville, Mrs. Bevan, Mrs. Palmer, and Snowdon, amongst others, as novelties for 1897 (page 119 of that year) it would be careless on my part to call them novelties for 1898. It is a hard matter to say what is new nowadays when none are old, and I must crave the indulgence of my readers for mentioning as new, Madame P. Rivoire, which though put in commerce in 1896, is still not mentioned in the 1897 or 1898 catalogues of either Mr. H. J. Jones or Mr. Norman Davis, and has only come into prominence lately, through its being awarded a F.C.C. by the N.C.S. committee. I saw in the past season for the first time some excellent blooms of C. E. Jeffcock, so that it has some claim to be called new. Ella Curtis, though in some degree promising, will, I fear, always come thin and open in the centre of the flower. That was the character of our own flowers, and also of the blooms submitted to the Floral Committee last autumn; it reminded me of the old Boule d'Or somewhat. Mrs. Maling Grant has proved a failure with us, and Elthorne Beauty is not first-rate. Dr. Liebert I have not seen, it is one of Calvat's last year's introduction. George Seward came very poor with us, though the plants were strong and wellgrown, but there were some very good blooms shown by Mr. Jones at the December show, which points to its being a late variety, as also is Julia Scaramanga. Joseph Brooks greatly disappointed me: it has not since been shown up to the form displayed by the blooms which obtained the F.C.C. in November, 1896. Lady Hanham may well be famous for its curiously delicate shade of colour and the exquisite form inherited from its parent Viviand Morel, from which well-known variety it is a sport. Topaze Orientale was twice presented before the Floral Committee last November, but the florets are notched and rough, and the blooms did not find favour with members, nor did it appear likely to develop good incurved blooms, though, of course, it may be that the wrong bud was selected, and another year's growing will prove its worth.

I maintain also that my having selected a large proportion of white and yellow-coloured varieties in no way weakens my selection, for these colours predominate in chrysanthemums, and a stand of twenty-four varieties may contain six or even seven each of white and yellow flowers, providing crimson and other bright colours are used in like proportion. Certainly it is far better to show a good stand half of white and half of yellow forms, than to include such bad types and others as are often shown, like Mrs. Harman Payne, Ethel Addison, and Van den Heede for instance. At the same time, if really good blooms of rich and effective tones of colour can be obtained, they enhance the value of a mixed exhibit by giving as great a variety as possible.

Trent Park Gardens. W. H. Lees.

The Price of New Chrysanthemums.

The remarks of Mr. W. H. Lees on p. 823 of the Gardeners' Magazine of December 25, with respect to the price of G. J. Warren, seem to need some response from me. When I submitted the chrysanthemum in question to the meeting of the N.C.S. Floral Committee in November, 1896, I had but one plant of it, and had decided not to distribute the variety until 1898. However, after a conversation with Mr. W. H. Lees, and as a consequence of it, I decided to distribute G. J. Warren in 1897; Mr. Lees knew what the price would be, and also that I could not accept many orders. He also knew I could not guarantee plants until April. I was able, however, to dispatch the first fifty plants on March 15, 1897, and Mr. Lees having given me the first order he was considered first. I am firmly convinced that Madame Carnot is the best Japanese chrysanthemum, and that G. J. Warren will come next, while these, with the new Mrs. Mease, will make a grand trio. Mr. Lees states that he has not seen a good flower of G. J. Warren; if no good blooms have been shown how was it that the R.H.S. made it an award of merit, and the N.C.S. a first-class certificate? It was also awarded an F.C.C. by the Scottish Horticultural Association. Were none of these nine blooms worthy the honours gained? There was also one bloom of G. J. Warren in my thirty-six novelties at the November show of N.C.S., as good as any Madame Carnot Mr. Lees has staged this last season.

I should also like to ask Mr. Lees whether the plant he complains of was the first he had purchased at 21s., and whether he never previously had one of a new variety that failed to produce an exhibition bloom the first season? The flower of Madame Carnot shown by Mr. Lees at the Aquarium was not to be compared to those shown in 1897, and yet thirty francs, or 25s., had to be paid for each plant. Mr. Lees' remark is an unfortunate one, and tends to damage my reputation, otherwise I should have made no remark. I may add that there will be no cause to complain of having plants of Mrs. Barks, which have been over-propagated.

Earlswood. W. Wells.

EFFECTIVE CLIMBERS.

The wonder is that we do not plant more climbers around or against old trees, or even young ones. For instance, a fine ampelopsis in its beautiful tints of autumn climbing up an old Robinia, hiding the old bare branches, is wonderfully effective. Hardy climbers are, I consider, in their element climbing around and up trees or large bushes, for there they produce effects such as the artist or poet delight in; they do not harm the trees in any way, but produce a beautiful effect. The effect of an ampelopsis twining around an Acer negundo needs to be seen to be realised, and yet how simply these effects are produced. Another sweet and beautiful climber, and an old favourite, is the honeysuckle; both Early Dutch and Late Dutch varieties are very sweet, as are many others, and they are always admired. When planted at the base of trees or shrubs, to make archways in the pleasure grounds in odd out-of-the-way places, even in the shade it matters not, they will grow with perfect freedom everywhere, and when allowed to ramble at will, they are the very objects whose odour always announces their presence. Ivies of various kinds, when planted in suitable places, such as against old walls, up dry poles, or over arches in odd corners, are fine and useful for decoration during the winter; to my mind the ivy is not used nearly as much as it ought to be, and there are some very pretty varieties that will stand smoke and fog; in fact, nothing seems to harm the ivy to any extent.

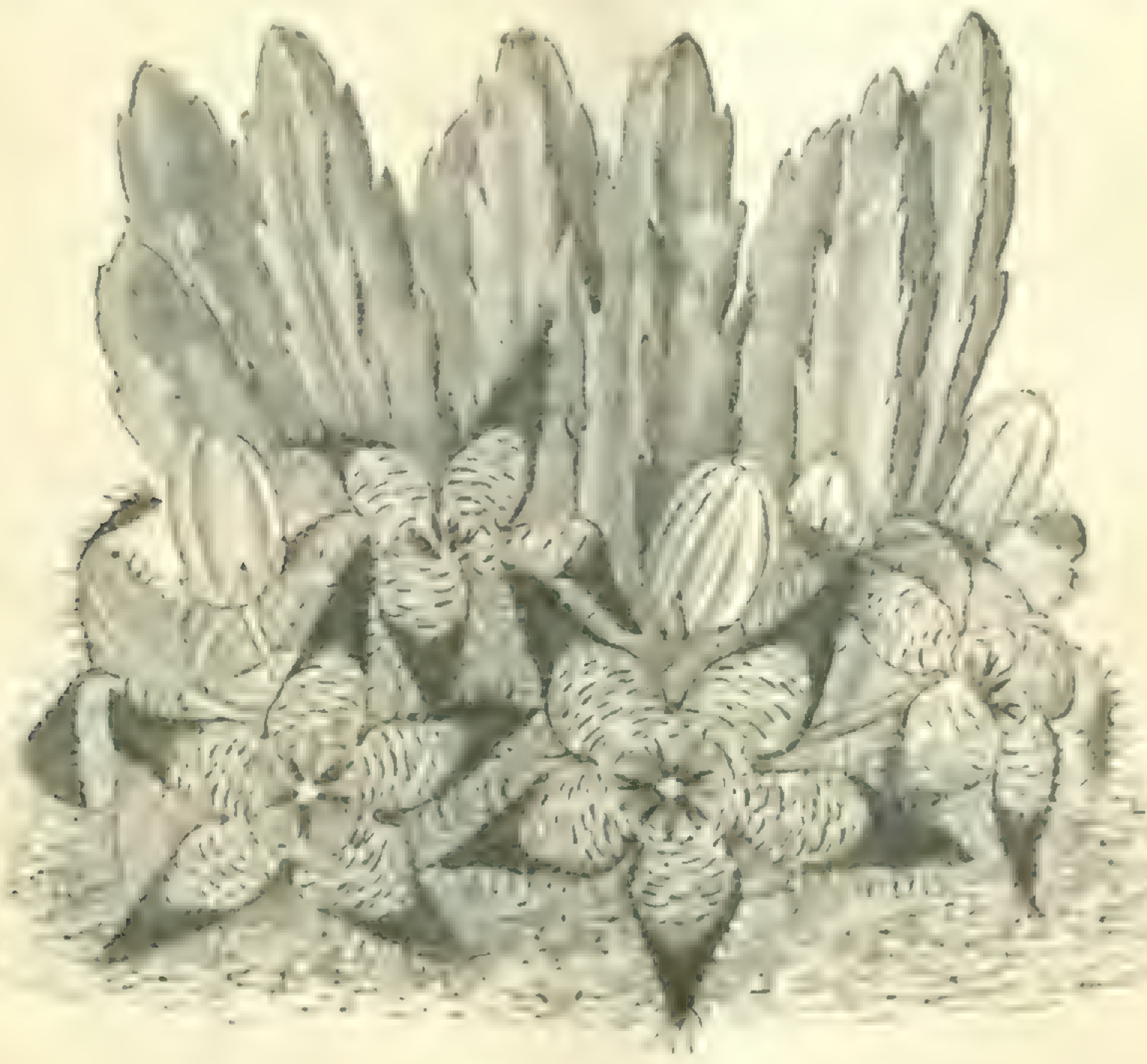
Clematis as climbers are hardly surpassed in their season, and they enliven old walls, trees, arches, and may be even trained up poles with good effect; the great variation of colour in these flowers is charming, and the size of the blooms attracts considerable attention. They are easily grown, and never need a great amount of time spent upon them. A few of these handsome climbers planted in unsightly places will quickly repay the small expense in purchasing and planting. C. Jackmani, C. montana, C. Henryi, C. lanuginosa, C. flammula, and many others of more recent introduction are useful for the purposes mentioned, and their flowering period extends over several months. Another climber most beautiful in its season is the Banksian rose, but this requires a wall, and when a good high wall can be given, it invariably produces good results. When in full bloom there are few more delightful pictures than the Banksian rose, its large clusters of yellow flowers set amongst the shining green foliage being both elegant and effective. This rose is useful for decorating, being without thorns, or, at least, there are very few, and there are many walls in a large establishment that could be much improved by planting some such beautiful climbers, that would be useful as well as ornamental.

Compton Basset. W. A. Cook.

Crown Woods and Forests.—The report for the year ended 31st March, 1897, of the Commissioner in charge of the Crown woods and forests has been issued. The property under the direction of the Commissioner comprises the New Forest, Dean Forest, and the whole Crown property in Wales, County Monmouth, in Scotland, in Ireland, and in the Isles of Man and Alderney. The income derived from the New Forest from sales of forest produce, amounted in the year 1896-7 to £7,355 4s. 11d., and certain service rents, amounting in the same year to £3,099 11s. 8d. The income derived from the Forest of Dean from the sources above mentioned amounted to £5,305 17s 7d., and £1,856 12s. 11d. respectively. During the year there were about 660 acres added to the area inclosed for planting purposes. With a view to introduce in the Forest of Dean and the Highmeadow Woods a more scientific and systematic system of forest cultivation than has hitherto been adopted, the Commission has arranged with an experienced Conservator of Forests in the Indian Forest Service to make a detailed examination of the woods, &c., and furnish a report on them. It is desired not only to improve the prospective yield of the forest, but also to establish such a system of management as may serve those who desire to study forestry in this country with a good practical object lesson, such as at the present time they have to go to France or Germany to find.

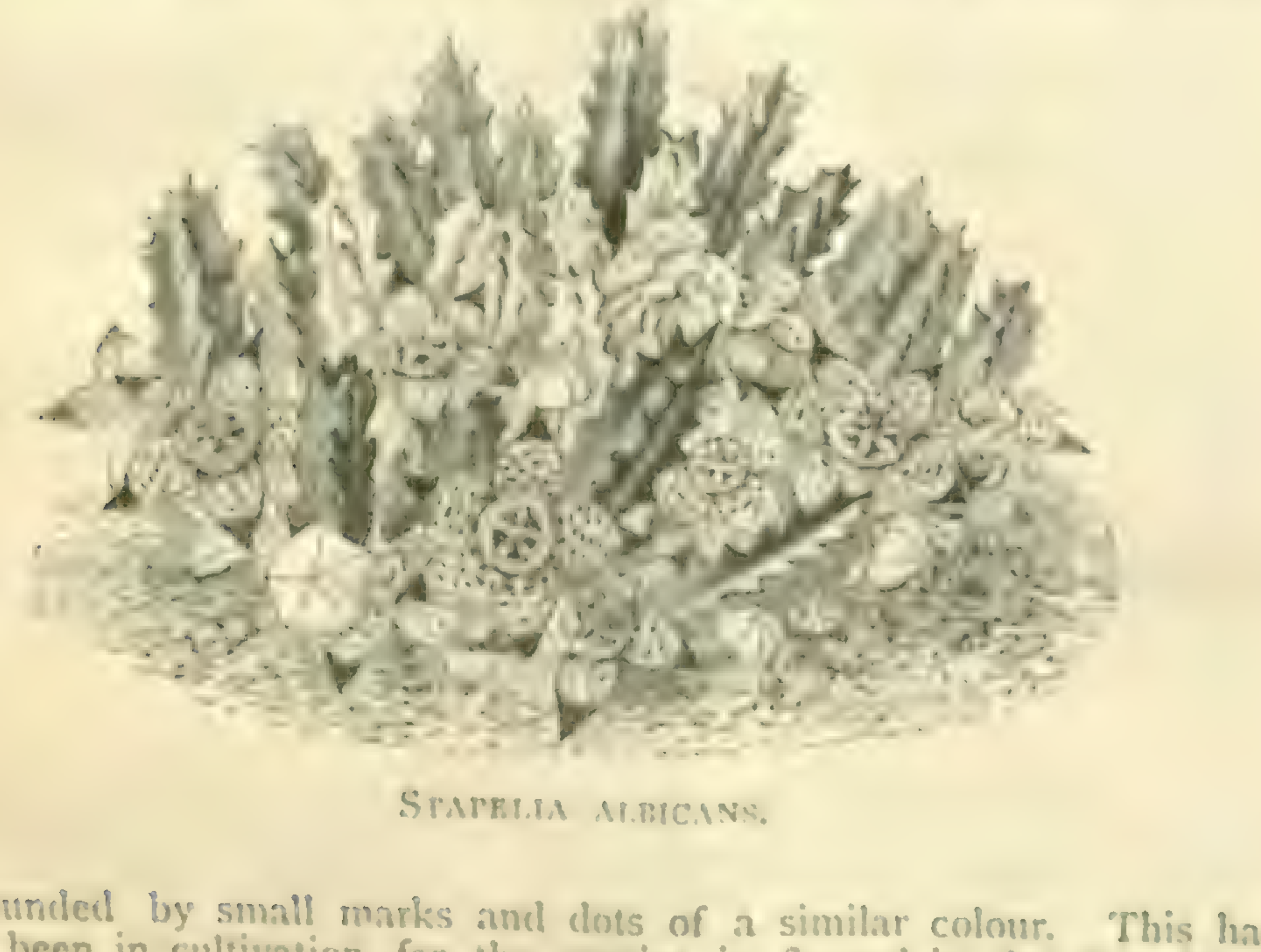
SOME CARRION FLOWERS.

LOVERS of the curious in plants—and who is not attracted by a curiosity?—have always had a strong regard for the succulent stemmed, leafless stapelias; South African plants, producing fairly large, showy flowers that give forth such a fœtid odour as to bring upon themselves the designation of Carrion Flowers. The genus is an extensive one, and includes, among its larger members the interesting Stapelia gigantea, S. Asterias, S. grandiflora, S. Bayfieldi, S. glabriflora, S. normalis, and S. unguipetala. As a rule, the carrion flowers grow best in a warm, dry house, in a light and sunny position. They should be potted in a compost of sandy loam, to which has been added a large proportion of brick or mortar rubbish broken up rather small. In addition to this, the pots must be well drained, or damping will be the result; water is needed in moderate supply during summer and when growth is most vigorous, but scarcely any is necessary during winter. S. gigantea succeeds under conditions of more moisture and heat than would agree with the majority. A shelf on the lightest and warmest side of an intermediate house, especially if the house is kept moderately dry, will be an excellent position on which to place a few specimens of these most interesting subjects. With respect to propagation, most people fail because they are too careful and insert a cutting as soon as it is taken. The result is, that the growth damps at the base, rot sets in, and no new plant is formed. When a cutting is taken from a plant put it on the shelf for a few days, where it will not be moistened in any way, but where the influence of sun and dry air will dry up and heal the cut. When this has happened, and not till then, is it advisable to insert the cutting in any compost.



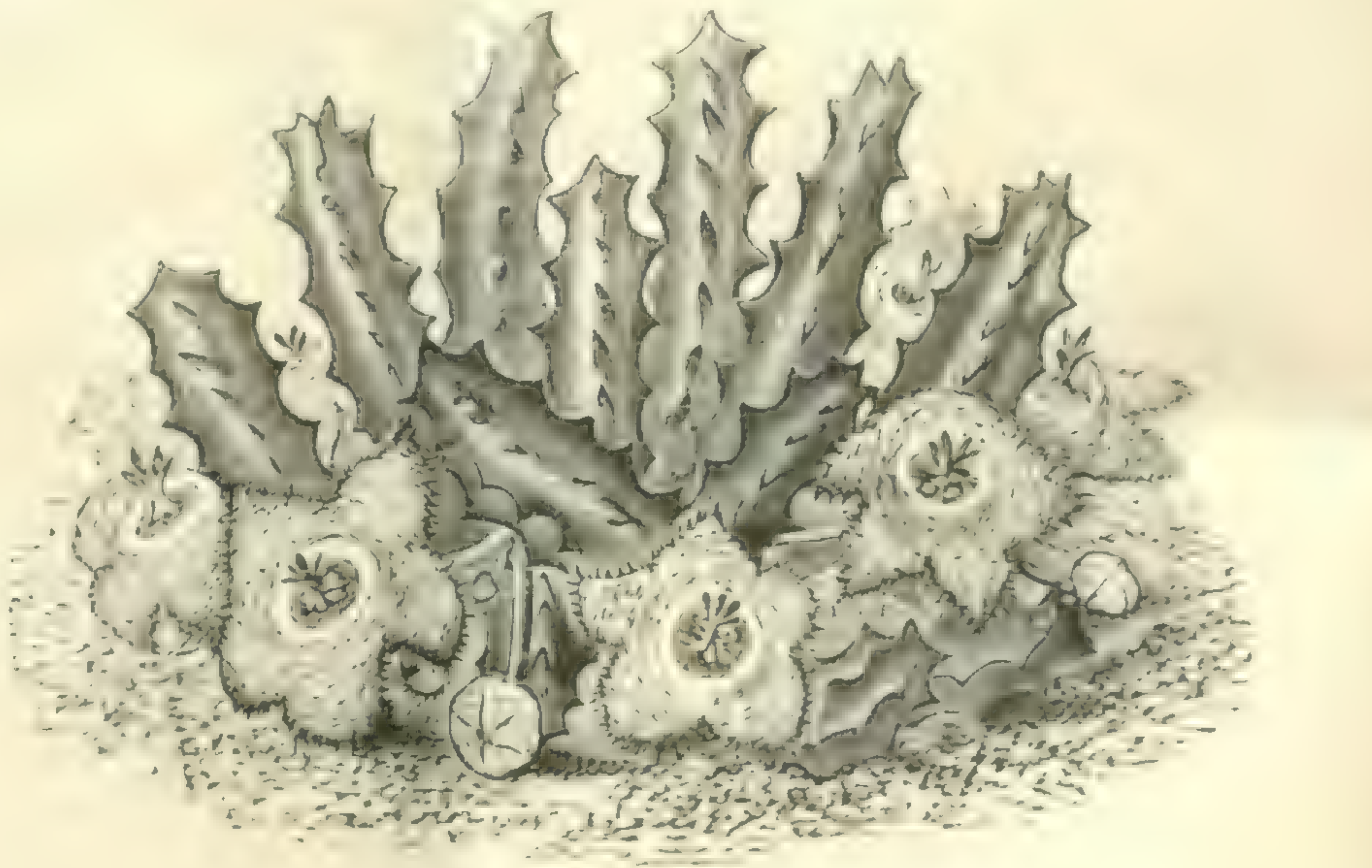
STAPELIA PATULA.

Small growing species are at present most in request by amateurs and others, and the following four combine with that quality a wonderful degree of quaintness in stem and flower, and while the colours of the latter are most attractive. Stapelia revoluta is remarkable for its turned-back segments and for the club-shaped glands that fringe their margins. The colour is deep-red-purple, with a dull yellowish, ten-lobed centre, surrounded by small marks and dots of a similar colour. This has long been in cultivation, for the species is figured in the *Bot. Mag.*, 724, published 1804, from a plant that flowered in a Vauxhall garden. S. albicans is not much known, but it is distinct by reason of the waxy whiteness of its stems and the brown colour of its very starry flowers; it is very free flowering, small and freely branched. S. verrucosa is of peculiar growth, the stems being more or less quadrangular and furnished with distant horizontal teeth of considerable size. Its flowers are of a deep yellow colour, freely spotted with very dark purple; the corona consists of five lower dark purple segments, with five upper and yellow ones. A very showy species with a bluish glaucous hue in the stems. S. patula has very erect growth and the numerous teeth along the four ribs of the stems, all point upwards. The segments of the flowers are slightly turned back at the tips; orange coloured, with a paler centre. marked with red. In this species, as in S. revoluta, the margins of the five radiating segments are fringed.



STAPELIA ALBICANS.

During a period of thirty-three years, that is from 1790 to 1823, no less than twenty species of these remarkable plants were figured in the *Bot. Mag.*, commencing with S. variegata in the first vol., and concluding with Stapelia or Huernia barbata in vol. 50. Many have been figured in later times, but this period seems to have been specially prolific in these and other Cape Plants, as doubtless there were better facilities for discovering such, and succulents and bulbs would travel better in those times of long journeys than would shrubby or soft-wooded plants. Then also the peculiar form of growth and flower revealed by stapelias would commend themselves to plant lovers of seventy-five or a hundred years ago, just as a new orchid does at the present day. The following cultural particulars given with the description of S. variegata give us an insight to the methods then obtaining: "If these plants be kept in a very moderate stove in winter, and in summer be placed in an airy glass case, where they may enjoy much fresh air, but screened from wet and cold, they will thrive and flower very well; for although they will live in the open air in summer, and may be kept through the winter in a good greenhouse; yet these plants will not flower so well as those managed the other way. They must have little water given them. Especially in winter. It is very seldom S. variegata produces seed vessels in this country. Miller observes, in upwards of forty years that he cultivated it, he never saw it produce its pods but three times, and then on such plants only as were plunged into the tan-bed in the stove."

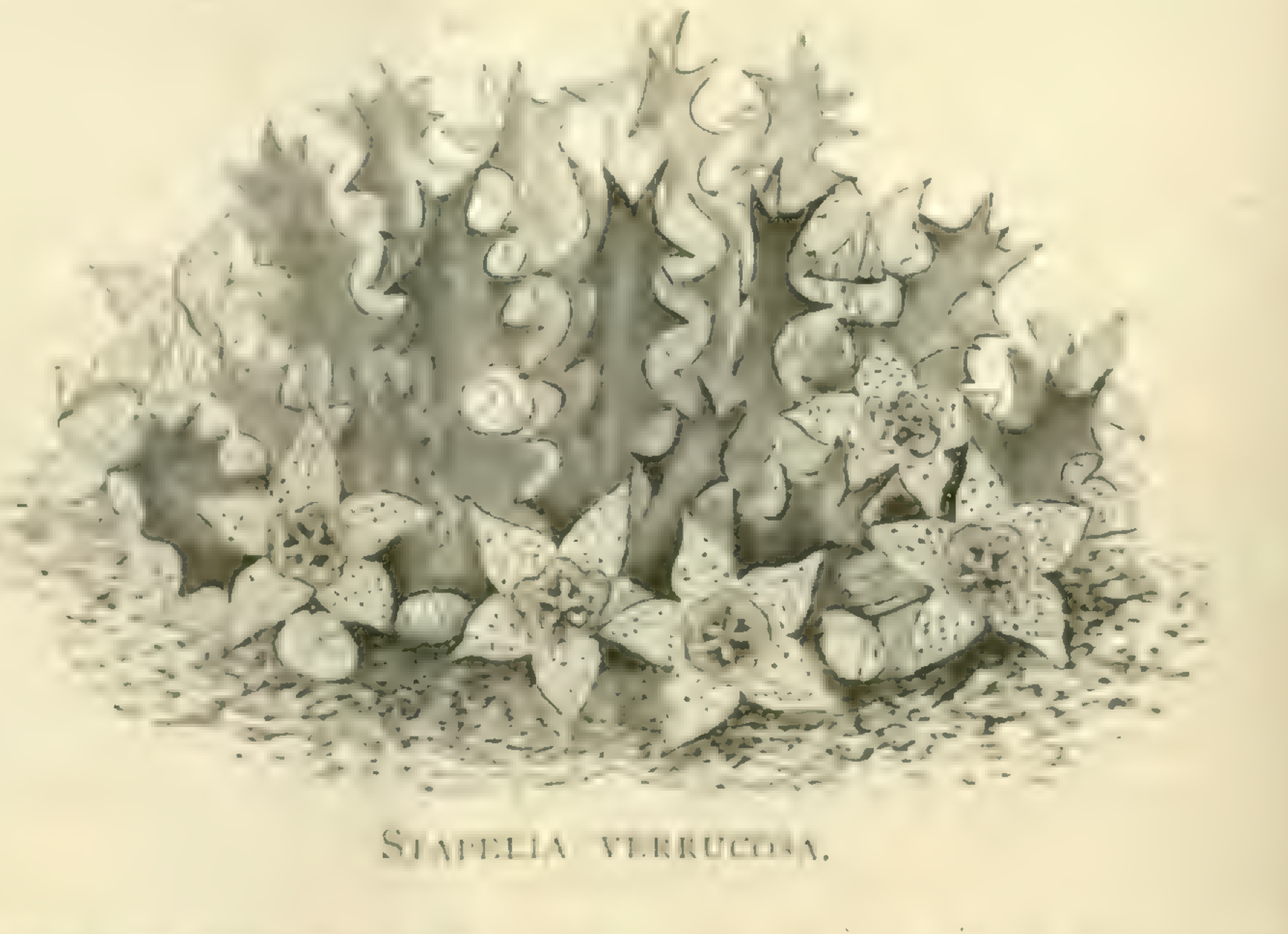


STAPELIA REVOLUTA.

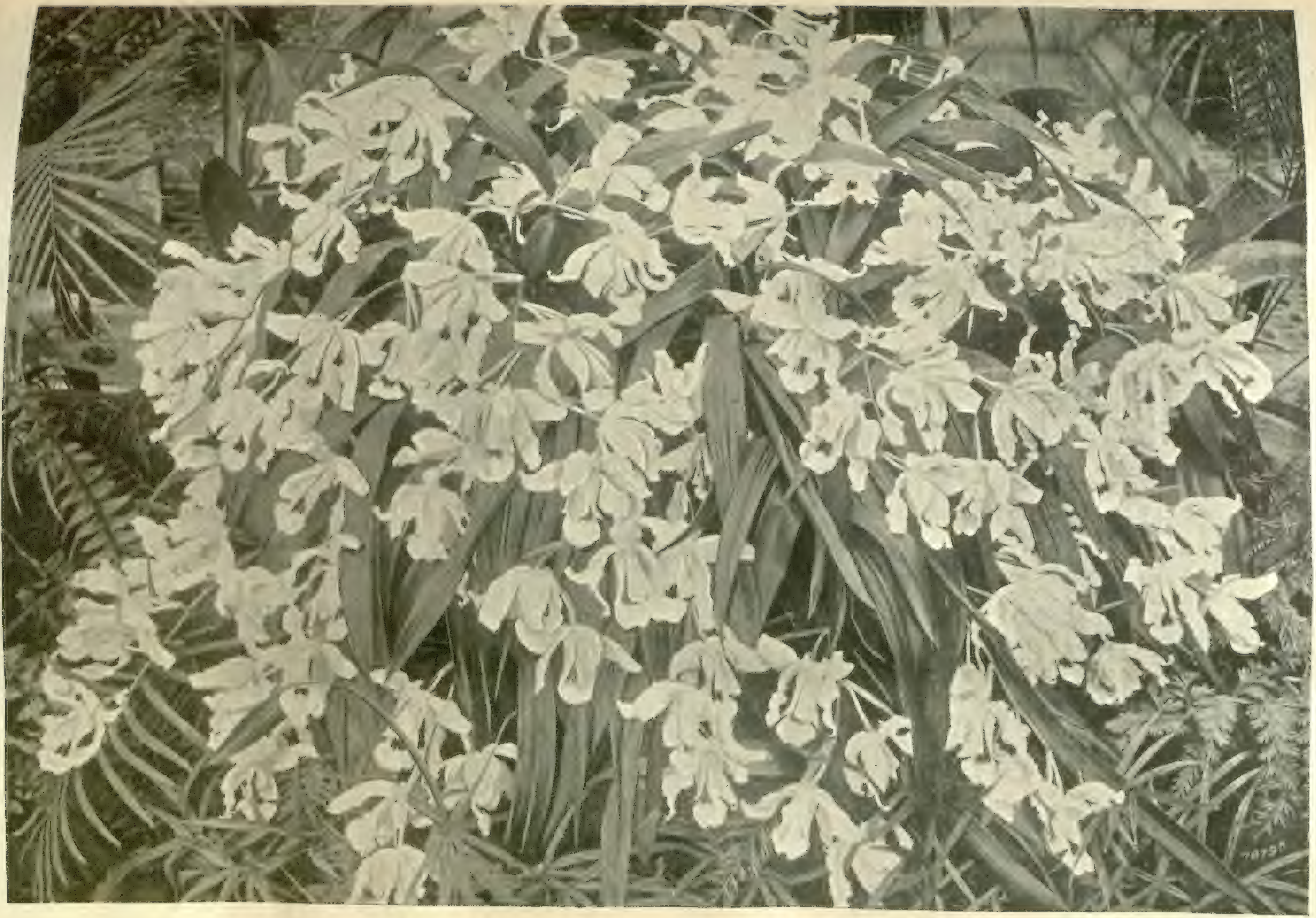
KARL PROSPER, JUN.

CŒLOGYNE CRISTATA AT DEVONHURST.

DEVONHURST, Chiswick, the residence of E. H. Watts, Esq., has a pretty garden attached to it, and one that backs on to the R.H.S. Gardens. Indeed, some part of the Devonhurst gardens were formerly part of the original R.H.S. establishment, as the many fine and somewhat rare trees testify. Successive gardeners at Devonhurst have faithfully upheld its traditions for good gardening, and Mr. James Gibson has even enhanced its reputation. He is very widely known as an excellent vegetable cultivator, and with his exhibits has beaten all comers after travelling as far north as Edinburgh. Orchard house fruits are always a success here, and plants are not forgotten. Among the latter a few species of the most useful orchids are cultivated, and these in due season give results such as any well-known orchid grower might be proud. A good batch of Cœlogyne cristata is cultivated, and most of their time is spent in an intermediate house where ferns, palms, and many subjects required for decorating have to be cultivated. Cooler quarters are given in hot weather. The cœlogynes invariably do well, and flower profusely in early summer, as a glance at the specimen figured in the present issue will show. This example, grown in a comparatively small pan, carried about thirty spikes of fine flowers, and



STAPELIA VERRUCOSA.



SPECIMEN OF CŒLOGYNE CRISTATA GROWN AT DEVONHURST, CHISWICK made an exceedingly pretty picture. Cœlogyne cristata is one of the most beautiful of orchids; it is fine for conservatory decoration, and its white, yellow-throated blossoms are always greatly in request for sprays, bouquets, wreaths, and table decoration. It is a wonderfully accommodating species, and thrives in greenhouse, intermediate house, or stove, provided ample moisture is given, and that it is kept clean. In most gardens it is treated as a cool orchid throughout the year, unless a few plants are put into a warmer house to induce them to flower earlier than the others.

As indicating the adaptability of the species, we may mention that a small piece, consisting of one old bulb and one healthy one with a pair of leaves, was placed in a small sixty pot, in sphagnum and peat, and stood in a hot, moist, and low-roofed stove, some thirteen years ago. It grew and flowered in the second year, and was subsequently put in a pan of moderate size. It increased rapidly, and the growths overhanging the edge of the pan were removed and potted up, until sufficient were obtained to make a good specimen. At present there are three fairly large examples still in the stove, and from which they have never been removed save when the structure has been painted. The variety is a good one, the flowers standing out well on the long racemes. We mention this to show that even in the smallest of gardens, where there is a greenhouse or other glass structure, Cœlogyne cristata may and can be grown.

VINE BORDERS.

WE have recently removed a very old vine border, where the major part of the soil has been for sixty-six years. The soil was from four feet nine inches to five feet nine inches deep, and with very little mixture, in the form of lime rubble and broken bricks, to make the borders porous so that water might pass through freely. When these borders were originally made the first principles of drainage could not have been understood by the makers, and certainly not practised. It is impossible to properly use large quantities of liquid manure on such borders, because in the attempt the water will not pass through, and, supposing there is a dry bottom, the upper surface becomes paste, and sour, whilst the bottom may still be dry, as I have found. No one would be so absurd now as to make such deep borders, therefore it is not necessary to argue about them. In taking out the old soil we came to the division where the border was attended to some ten years ago, and where the depth of soil is about two feet nine inches. The soil here was filled with healthy roots, and moist regularly to the bottom, for the drainage, which was of old bricks, absorbs moisture, and gives it off again to the roots when there is no watering. This was completely full of healthy roots. This is the case always where there is a moderate depth of soil, say under or near three feet in depth, and in all ordinary cases this should not be exceeded; two feet six inches would be much better in low positions, especially when we remember the difficulties there are of obtaining good soil in large quantities.

Shallow, well-drained borders will take a quantity of liquid manure, as it passes away freely, and warm air goes with it, sweetening the whole and raising the temperature; then, also, with ordinary care, there is not the least fear of over-watering. Where water is scarce, perhaps three feet of soil is advisable, as it will not become dry so quickly as a shallower border, a very important point in a dry position and dry summer. I have recently examined such a border we made fourteen years ago, and the drainage is full of roots and perfectly clean, the pieces of brick being covered with healthy vine roots. Lime rubbish is the best material that can be used to preserve the soil in a healthy condition, and it should be used freely near the surface where the use of cow and other liquid manure soon creates a paste, unless the surface is carefully removed annually. I never use organic manure in making a new border as it soon decays, and the borders become sour in a few years. Of lime rubbish about one load to five or six loads of loam should be used with one hundred and fifty to two hundred pounds of coarse bonemeal, a little wood ashes, soot, and some small pieces of crushed brick. If the loam is good yellow stuff such a border will last a long period; black soils do not last so long.

Alnwick Castle Gardens. GEORGE HARRIS.

Artificial Manures.—Seeing that all plants have the same constituents, only more or less combined, and therefore need practically the same food elements, which are chiefly phosphoric acid, potash, and nitrogen, with ample light and air, and atmospheric carbon, I have often wondered in what respect the numerous artificial manures so largely offered in trade can differ. If they are really combinations of plant food, how do they differ? I do not doubt but that properly applied they are all useful plant foods; but seeing that they must be combinations of the three chief artificials—superphosphate, potash, and nitrate—why not call them so, and be content? If any manufacturer asserts that he has in his compound other plant foods or constituents than are those named, I trust he will explain their nature and give their appellations, otherwise there seems to be no reason to think there is difference but in name.—A. D.

The National Chrysanthemum Society. I have heard reports of late in reference to certain proceedings which are said to have been taken by the National Chrysanthemum Society, that, if true, will have a tendency to deprive the society of its national character. The report, as I have heard it, is as follows: The executive of the National Chrysanthemum Society has promised a certain seedsman that if he would offer £30 in prizes for single dishes of vegetables to be competed for at the November show in 1898, they would not accept any prizes for single dishes from any other firm. Also that the society has promised another seedsman that if he will put up a stand of onions and other vegetables at their October show in 1898 they will not allow any other firm to put up a similar exhibit. Now having given the report as received from a most reliable authority, I will withhold anything I may have to say further until I see if the report is contradicted by the officials, and likewise what other members of the seed trade may have to say upon this course of procedure. I think the doors of a national society should be open to all members of any and every branch of horticulture that the officials and members may in their wisdom think well to recognise, all being treated alike.—A LOVER OF EQUALITY.

AQUILEGIAS.

FOR beauty of colour and perfection of form the aquilegia is unrivalled among alpine flowers. The great majority of those natives of the vast mountain ranges of Europe, of Asia, and North America are of inconsiderable size; the aquilegia, on the other hand, is, especially in the instances of A. cærulea and A. chrysantha, a commanding flower, often rising with its luminous blossoms to a height of three feet. Thus, even from a considerable distance, and particularly when assigned a prominent situation, it produces a highly impressive effect. Nothing can be finer, from an artistic point of view, than the varieties to which I have already alluded, when adequately grown. During the season intervening between the last of the auriculas (which usually disappear from our vision in the end of April) and the first appearance of the "regal" rose, there is no flower of the garden with which I am acquainted, not even the tulip, the narcissus, or anemone, which excels the aquilegia, unless, perhaps, in fragrance, an attribute which, however, is not entirely lacking in certain forms, such as A. chrysantha and its hybrids, of this exquisite alpine flower. Not only does the aquilegia make supremely attractive, by the aspect of its delicate and graceful beauty, the early season of summer; but several of its most fascinating forms, including A. canadensis (one of the grandest and most enduring of American species), blooms, with the golden columbine as its fairest contemporary, throughout the greater portion of the month of July; and is especially luxuriant in a cool and shady position where it is not greatly influenced by the somewhat exacting rays of the sun. Being, as I have indicated, entirely alpine in their character, their nature demands for their successful development, such a situation as this. In my own garden, where they appear to be in perfect harmony with their environment, and have manifestly found a congenial soil, I grow them beneath the overhanging boughs of a line of apple trees, and as the blossoms of these and the flowers of the earlier aquilegias come contemporaneously, a varied series of floral pictures is thereby produced, which, as Alexander Smith has sung of a widely different theme, though "fair to the eye," are "still fairer to the memory." Such scenes are especially remembered with pleasure in this season of winter gloom, which is not, however, without its steadfast hopes and abiding consolations, seeing that the snowdrop, the crocus, and the daffodil, with their promise of future and not far-distant loveliness, are already above the ground.

The aquilegia, like the orchid, to which it is frequently compared, not unfavourably, by those cultivators who know the full value of this flower, is found in various, and often widely severed mountain regions of the world; I have not yet heard of it growing in Africa, which is chiefly remarkable for the production of bulbous flowers, especially those of the liliaceous order; but in the other three continents, and prominently in America, its beauty abounds. A. cærulea, one of the hardiest and loveliest of aquilegias, comes to us from the Rocky Mountains. This has been greatly beautified by hybridisation with A. chrysantha, whereby in addition to its effective original colours of blue and white, it has assumed a yellow hue. A. californica, as its name implies, is a native of the Sierra Nevada ranges in California. This is somewhat arduous of culture, and seldom exists for many years, unless under exceptionally favourable conditions of climate and of soil, for which reason I cannot commend it for universal cultivation. It is, however, an aquilegia of great beauty, and should be cultivated for this reason, notwithstanding its unreliability, as it can be treated as an annual, and grown from seed. Its colour is brightest orange, with suggestions of yellow; it is of a peculiarly pendulous habit, and the spurs are very long. Aquilegia chrysantha, so called by reason of its luminous golden-yellow complexion, which easily distinguishes it from all other North American kinds, also belongs to Californian regions. Of all existing forms this is perhaps the most valuable; what Perle des Jardins is among roses adapted for garden cultivation this uniquely-coloured species is among aquilegias; but it is infinitely hardier in character, and opens with greater facility than the somewhat capricious rose to which I have referred. No aquilegia within the range of my acquaintance is so enduring as this; in this respect it is truly remarkable. I have vigorous plants in my garden, sending up in June and July great masses of flowers to a height of three feet, which have, with only one change of position, lasted for ten years. Next to it in value and, with the exception of its colouring, which is a combination of dark orange, scarlet, and yellow, partaking of several of its best characteristics, though it does not grow to an equal height—is Aquilegia canadensis, which, though it may have been originally a native of Canada, was certainly introduced into this country from Virginia.

Aquilegia glandulosa, which is a plant of peculiarly tufted habit, from the Altai Mountains in Siberia, requires for its adequate cultivation in the garden a deep, sandy, and well-drained soil. Even under the most favourable conditions it is not greatly to be relied upon; seldom has it lasted with me much longer than a year; but it is assuredly more easily grown than A. Stuarti, which, partaking of the same colours, viz., white and blue, and inheriting from this beautiful species, crossed with A. Witmaniana, its finest attributes, would be, if only perfectly reliable (which I am certain it is not), an invaluable acquisition. Its famous raiser, Dr. Stuart, can grow it in Berwickshire with considerable success, for in that region it seems to find a comparatively congenial soil; but even there it refuses to be treated as a biennial, as it is manifestly lacking in endurance and strength. There are many other aquilegias, such as A. Skinneri, of brilliant complexion, and Aquilegia alpina superba, which by reason of their highly decorative capabilities, are well worth cultivating wherever they can be induced to flower with facility. Aquilegia alba, which I like much better than its double form, A alba flore pleno, while distinctive in colour, is much more hardy in character than these. But greatly more attractive than any of the latter, and rivalling, if not absolutely surpassing in brilliancy the nobly-endowed North-western American forms, are the exquisite hybrids raised and introduced by Messrs. Veitch, which have, in addition to their lustrous beauty, a supreme qualification for most gardens—they are not liable to decay.

Kirkmaiden. DAVID R. WILLIAMSON.

Work for the Week.

WARM ORCHIDS.

We have now fairly entered upon another year, and it will be a good plan to have a general look round and see what progress we have made in the one that has just passed. Most likely, when 1897 came in, we made up our minds that everything we took in hand was to be a success. What are the results of our efforts? I am afraid in some cases it has been a failure. Fortunately, even a failure may teach us something. Without a doubt, people know more of orchids now than ever they did. When amateurs begin to grow them, the first thing they do is to look out for something cheap to experiment on; very often they go to a sale and purchase a lot of worn-out stuff, and think what a wonderful bargain they have made, and boast about getting them so cheap, whereas they find them very dear in the end. Far better throw them on the fire, and start with good healthy plants, than nurse old exhausted ones year after year, these producing perhaps a single puny little flower that causes vexation and very likely a giving up of orchid growing. We must make up our minds for failures more or less; we cannot expect everything to do well. If any plant thrives in a certain position let it remain there. A deal is said at times about feeding orchids; this is a very unsafe business unless we are well experienced; a little can be done in a proper manner, but the plants must be studied well and fed by degrees. Orchid collections at the present date consist of a comparatively few genera and species; of course there are exceptions, and yet a great many very pretty orchids are comparatively unknown and considered to be of no value, save to the orchid lover; it is a great pity that such have been so little cultivated, for they all have their good qualities. Be they large or small, they flower at different periods, and there is always something about them to interest you. Vandas once upon a time held a high position in collections, but now only a few species are grown. V. cærulea and V. Kimballiana have of late years come to the front, but this is chiefly owing to the quantity that has been imported. We see them grown in various ways; some are grown in the hottest house, others grow them intermediate, and many advise the odontoglossum house; the latter brings out the colour well, but in their growing season these plants naturally require to be removed to a warmer temperature.

The weather again is warmer, so fire heat can be reduced so long as the proper temperatures are kept up. A good damping in the morning is quite sufficient, damping well about the pipes; do not water the plants unless this is necessary. Odontoglossum vexillarium is now making growth, and must be well attended to, Cattleyas will require water about once a week. C. Trianæ, in variety, has now its spikes pretty well up in the sheaths, and must be kept at the warm end of the cattleya house; more water may also be given. Where spikes of C. Percivaliana have come through the sheath the specimens must be treated in the same way. A good plan is to place them along with Lælia purpurata, Cattleya labiata, C. autumnalis, and C. aurea all together at the warmest end, but do not give these water unless necessary, as they are liable to rot at the base of the leaf. If rot takes place, take a sharp knife and give the bulb a clean cut across and cover the cut with dried lime or flower of sulphur, and after this keep the plant dry at the root. You may even allow Cattleya aurea to shrivel somewhat without harm, for the pseudo-bulbs soon plump up when the time comes, that is, if shrivelling is not too severe; this species is best grown near the glass, about six inches from it, in baskets hanging just over the edge of the stage, for in this position they have the benefit of a little more heat as it rises from underneath. Perhaps an odd plant may be sending forth a cluster of young roots; if so, and rebasketing or placing in new pans is required, you may do this with safety, taking care not to injure the roots; careful watering is very important afterwards, so do not study about the sphagnum suffering, as it is an easy matter to add a little when the growing season commences The same treatment is required by Cattleya gigas. I have often seen this begin to grow a second time after flowering, and, in my opinion, they are better pushed on again to make up later in the year, for if well ripened up we may expect them to flower. Some are too anxious for them to rest, and so punish them to prevent growth.

If any dendrobiums of the Ainsworthi section are commencing to grow it is a good plan to remove them to slightly warmer quarters. I do not mean to place them in their growing quarters, but to bring them on by degrees, say in five degrees more heat; this will also give the flower spikes a good chance of developing, and will enable you to get a second growth after the first growth has made up, or you will get a good long stout bulb by the end of the season. Greenfly may be troubling orchids just now, so give each house a fumigating with X-L-all, or anything in this way; if neglected these spoil the flowers, besides being unsightly. Keep on with the sponging and cleaning, and let all the walls be well washed with lime. Attend to ventilation when necessary, for plants, like ourselves, enjoy the fresh air. Temperatures: Dendrobium house (resting), 55 degrees; cattleya house, about 58 degrees; cypripedium house, hot, 65 degrees; ditto, cooler, 55 degrees.—Thomas Stafford, *Tyntesfield Gardens.*

GREENHOUSE AND CONSERVATORY.

To maintain a bright appearance in the conservatory most of the plants used will be the result of forcing, with the exception of camellias, and it is surprising the quantity of water these plants require when in perfect health, especiarly when they are developing their bloom. Large plants growing in the borders of the conservatory, either as bushes or trained to the back wall, should have a thorough soaking at least once a fortnight, but syringing overhead must be dispensed with. To avoid the moisture in the atmosphere settling on the flowering plants a gentle warmth should be kept in the pipes at all times, and whenever possible ventilation should be given at the highest point of the house to allow humidity to escape. Useful and welcome as the chrysanthemum may be for decoration before Christmas, it is not held in much favour here, at least, after that date, and it is certainly a decided change to have the spring flowers to succeed them. Many of the poinsettias will have passed their best, but they require careful management before they are laid to rest. It is a mistake to dry them off quickly, as this causes them to shrivel, and the "eyes," instead of breaking strong when required, only make feeble growth, and puny cuttings result. They should be stored in a warm dry corner where they receive plenty of light, and water at the roots is gradually reduced so that the foliage changes and falls naturally. I stand them under the stage, where they receive the drip from other plants; or in a low temperature is a sure way of causing them to damp and perish. Where a difficulty is found in keeping up a good display of bloom just now, I would recommend the stages to be washed down, and ferns of different kinds arranged thinly to form a base. What flowering plants are available can then be dotted among these, where they will form a more pleasing feature than a number of plants which have lost their freshness. A few foliage plants from the stove which have lost their lower leaves through being used in dwelling rooms will also prove useful for a few weeks, their bright tops giving colour and brightness for the time being.

The greenhouse of the present day is very different to what it was formerly. In well-regulated gardens, good collections of plants were not only grown in them, but were seldom removed either for decorating the rooms or conservatory, but were treated as objects of interest to be only seen in the house allotted them. A house of this description is now generally used for the growing of various things most suited to the requirements of furnishing, and generally find their way to the rubbish heap when they have served their purpose. This keeps the grower always on the alert, and sowing or propagating is going on continually. In this department at the present time late batches of primulas, both single and double, will require a regular temperature of about 55 degrees, varying, of course, during the day with the sun's power. Late sown plants, still occupying four-inch pots, would make a valuable early batch for next season, if the buds were pinched out, and the plants potted on later. Failing this, a pinch of seed may be sown at any time now if large plants, full of bloom, are to be expected next November. Primula seed does not always germinate freely, and many weeks sometimes elapse before growth commences. When the seed is not sown until March, and the above happens, much time is lost which cannot be made up, as the plants resent heat or coddling during the summer months. A brisk heat with plenty of moisture, shaded from sun, with a sandy seed bed, are points which must be observed at sowing time, though the plants revel in a cold north frame; later on a shelf in the stove near the glass is the best position for them until they are large enough to handle. Cyclamen sown last August must not be allowed to starve in thumb pots, but be shifted on as growth increases. If young plants once receive a check either for want of root room or through dryness, the bulbs harden, and it is some time before they can be induced to swell away again. Checks such as these are generally followed by an attack of thrips, the worst enemy these plants are subject to, and it requires a deal of attention to be rid of them. Older plants throwing up bloom should have weak liquid manure occasionally, which will give size and substance to the flowers. Avoid moisture collecting in the crowns, especially in the form of drip from the roof, or the buds will drop off.—R. Parker, *Goodwood Gardens.*

THE FLOWER GARDEN.

With the lengthening of the days work in this department will soon become plentiful. The most trying part of the season for the preservation of summer bedding plants will now have passed, damp and foggy weather requiring more care to guard against loss than even spells of that which is clear and frosty. Acting on the ever-needful principle in gardening, of looking forward, it will now be advisable to examine the stock of bedding pelargoniums, where these are used in quantity especially, and make note of losses or deficiencies that may have occurred otherwise, with a view to working up the numbers necessary to carry out the proposed plans for the coming season. It may be that plants in store pots have, if kept in a warm greenhouse, made growths of a sufficient length that the points may be taken off and used as cuttings forthwith. These should be inserted either in pots or small boxes of light soil, and stood in any warm position in vineries or peach houses recently started, and if over or near the pipes or flues the quicker will root action take place, while the danger from damping off will be reduced to a minimum. Where the stock is requiring considerable addition the stove plants should be potted off singly into sixties and be placed in extra heat until re-established and growths are made that can be eventually used as cuttings. Fuchsias have very generally taken a more important place in the flower garden in the past few years, and their use for this purpose deserves encouragement, for they are free from that stiffness that characterises some other subjects, and for mixed bedding arrangements their culture should not be overlooked. Old plants that were potted up from the beds in the autumn may now be pruned into three or four eyes of last year's growth. If it is desirable to obtain cuttings from these they should be placed in a house with a minimum temperature of 50 to 55 degrees, rising five or ten degrees higher at midday, and the plants be syringed over occasionally. Should propagation not be necessary, these old plants had best remain in a cool house or where frost is just excluded, and be allowed to break naturally. In this way short, sturdy growths will be made later, but all in good time for bedding purposes. Where autumn propagation was carried out the rooted cuttings should ere this be in condition for potting off into single pots, either large or small sixties, according to the strength of the plants, using a light, sandy soil with a free admixture of leaf-mould or jadoo fibre. If strong plants are required by bedding out time they should now be kept growing on in an intermediate house, and placed in a light position as near the glass as possible.

Now that seed lists are to hand, an early opportunity should be taken to make a selection of those seeds required during the coming season and dispatch the orders as early as possible. In the flower garden much can be done with annuals if this be necessary, and, indeed, if other subjects are deficient, there are among annuals material for effectually filling beds with flowering plants that vie in effect with others that have entailed trouble and house room to preserve them through the winter. With the assistance of a few manure beds and frames, details of which will be given in due time, it is possible to make up a bright flower garden with these only, and as accessories to other arrangements and for use as cut flowers, some should be included in all flower garden arrangements. Among others verbenas, antirrhinums, double and single zinnias, gaillardias, phlox Drummondi, marigolds in variety, stocks and asters in great variety, pentstemons, scabious, salpiglossis, and Nemesia strumosa Suttoni may all be used for furnishing flower beds in summer, and most are also useful in a cut state. Small packets of the newer and much improved varieties of sweet peas may be bought, and with the great diversity of colours now attained, these form an indispensable subject where cut flowers are required. Lavateras, sweet sultans, poppies in variety, and many others are also desirable, while many important perennials may also be easily raised from seeds in spring. One of the latter now so much used, Gypsophila paniculata, the flowering sprays of which are so well adapted for mixing with other flowers, being so light and elegant, may be easily raised from seeds, and if sown early in spring make good flowering plants the second year.

Should inclement weather set in, take advantage of such to have all dirty pots washed up and stored in sizes in a dry place to be in readiness for the potting off of bedding stuff in a few weeks' time. Pegs may also be cut from old brooms for use in layering; crocks broken up and sifted into various size; while mowing machines needing repairs should be seen to without delay.—C. Herrin, *Dropmore Gardens.*

HARDY FRUITS.

The open weather enabled work in this department to be kept up to date, and there has been no delay in pruning. Currants, gooseberries, and other bush fruit may now receive attention. Gooseberries are usually left to the last if birds are numerous, as these are fond of the buds and do much mischief, but I think the best plan is to prune, and afterwards give the bushes a dressing of quassia extract with sufficient lime added to make it adhere to the branches; the quassia is very bitter and not relished by small birds, the lime also is useful in killing moss and cleansing the trees. After pruning it is a good plan to remove the old surface soil and give a dressing of new soil, manure and bone meal, as in many gardens these fruits often suffer for want of food. Failing new soil a good mulch of decayed manure now would do much good. In pruning the Lancashire varieties it is necessary to adopt a different course to that practised with the smaller kinds, as these trees make a weeping growth and lose wood; here, thinning may be done but a goodly portion of new wood must be retained, and in pruning it is best to cut away those growths near the soil and on which the fruit would be gritty. Where gooseberries are much in demand they are well worth special culture, and splendid results may be obtained by giving the trees support, and protecting with wire netting. North walls, often bare, may with advantage be planted up with gooseberries, but for that mode of growth I would advise the smaller berried varieties that are noted for their high flavour, such as the Green Gage, Crown Bob, and Champagne. These gooseberries, grown as double cordons and spurred hard back, bear splendid crops and are readily protected, when the fruit will hang a long time. Where currants have not done well it is advisable to make new quarters for them. Black currants sometimes have a peculiar disease the gall mite, which is difficult to get rid of, indeed, I have found it best to burn infested trees and plant new ones as far away from the old site as possible. Red currants have of late years received more attention, there are some fine berried kinds now and Fay's Prolific and Reine Victoria are improvements on the smaller kinds. It well repays cultivators who need good fruits, and in quantity, to plant a new quarter occasionally as the soil soon becomes impoverished, while the introduction of a new variety is advantageous.

Raspberry canes may now be shortened and made trim for the season. Raspberries are most profitable, given good culture. I am not impressed with the plan at times advised of growing the raspberry in the shade or under trees. The best fruits are those on canes given free exposure, and though shade may be advisable for late fruits, I would prefer a north border and an open position. Like the other bush fruits named, the raspberry is a surface rooter, and the more it is fed from the surface the better, so that a mulch of decayed manure given now is beneficial, and in places where liquid manure is running to waste, these trees may with advantage have a supply, as it cannot often be afforded them during growth. Raspberries attended to after fruiting will need but little pruning; avoid crowding and leave three strong canes to a stool. The supports should be renewed if necessary and the roots mulched; the latter may be done at a later period, but it is advisable to do any work now that will save time later. Worn-out raspberry stools may be rooted up and a new plantation made, for the advice given for the other fruits is just as applicable here. Among varieties I have found Superlative a profitable introduction; it produces a fine berry, somewhat later than others, but it never fails in seasons of drought, and is a grand fruit for poor, stony soils. Newly planted canes should be cut down to within nine inches of the soil before new growth commences. The autumn fruiting kinds are worth space, and these planted now will be in condition next year to crop; they are treated differently to the summer fruiters, being cut down in February, and they fruit in new wood. Strawberries in light soil may now receive a mulch of decayed manure; given at this season it will encourage early root action and strong blooms. Of course, this advice is not intended for small plants put out late, but those with ample growths. Small plants after severe frost often have their roots exposed, and so firming the plants would be beneficial, and I find a mulch of light material, such as old mushroom-bed manures assists them greatly. Strawberry quarters not manured should be Dutch hoed in dry weather, raking up the weeds and cutting away leafage in a decaying condition.—G. WYTHES, *Syon Gardens*.

Flowers and Insects.—I was much interested in Professor Plateau's observations in relation to flowers and insects, because they not only affirm my own opinion but also oppose the too common and somewhat empirical opinion that colour in flower petals specially attracts insects. If in our gardens we need evidence of the absurdity of the latter idea we find it easily enough in mignonette, there being no common garden flower which attracts insects, and especially honey bees, so largely as this unpretentious flower does. That attraction is due to its rich perfume and its honey deposits. But are not perfume and honey almost identical? Generally the sweeter the perfume the greater the honey store. White clover, heather, and lime, all inconspicuous-flowered plants or trees, are rich in honey secretions, and all are richly perfumed. Brilliantly-coloured flowers, such as roses, begonias, pelargoniums, and many others are rarely visited by honey bees or smaller insects, but some moths frequent them, just as they do single dahlia flowers, and soon become intoxicated with saccharine; or they care for giant sunflowers, attracted by sugar secretions, but not by the rich-coloured petals. One of our most beautiful blue garden flowers, Salvia patens, is largely visited by wild bees in search of sugar, but the insects do little to aid fertilisation in the process, because they bore holes in the flower tubes to extract the sugar rather than enter the flower mouth. Before it is further attempted to show that insects are attracted to flowers to aid fertilisation through rich-coloured petals, it must be shown that insects possess colour sight. So far it has been concluded that they have. Certainly they seem to possess remarkable power of smell, but to assert that they have equal capacity to be attracted by bright colours would be a larger order indeed.—A. D.

Cactus Dahlias.—In publishing the list of these flowers, now so wonderfully popular with all classes, which appears on page three, the secretary of the National Dahlia Society has rendered useful service to growers, because there are myriads of dahlia fanciers outside the ranks of the society who fail yet to understand the distinctions which exist between recognised cactus varieties and those commonly termed decorative. But I do not fully understand whether the list published is intended to be so far conclusive that none others can be, for the present year, admitted as cactus varieties at the society's exhibition. That is important to know; of course any varieties that show cactus form in an inferior degree to that found in those included in the list would but weaken a stand. None the less, some growers may chance their inclusion, and no doubt they would like to know beforehand whether such inclusion would disqualify. Then every year sees new introductions of varieties that evidence the ideal cactus form more fully than others. Is the society prepared to keep the scheduled list of recognised varieties to say fifty (the present list is forty-eight), the committee every year weeding out the most inferior and including the recognised best or improvements? Is not a recognised list of fifty, always including the best, enough and almost more than enough for all purposes? Again, if better forms are being constantly added, what good are inferior ones to either trader or exhibitor? To have an annual select list of that description, would be indeed a blessing to all interested in the cactus dahlia, as it would keep varieties within reasonable limits. But there should be a condition imposed on all exhibitors, trade or others, that neither old varieties expunged or seedling varieties not yet included should be eligible to compete in ordinary classes, and let there be a class for seedling varieties if desired, but certainly in other competitions trader and amateur should stand on the same footing.—A. D.

R.H.S. EXAMINATION IN HORTICULTURE.

As we are so frequently receiving letters asking for information concerning the annual Examination in Horticulture conducted by the Royal Horticultural Society, we now publish the rules and regulations for that function, as contained in the most recent issue of the society's *Journal*:—

1. The Council of the Royal Horticultural Society, sympathising with the efforts of various County Councils, technical institutes, schools, gardeners' mutual improvement societies, and other bodies to promote instruction in practical horticulture by means of lectures, demonstrations, &c.; and in the hope of rendering such teaching more definite and effective, have consented to hold an examination in horticulture on Tuesday, April 5, 1898.

2. The following is an outline syllabus, showing the nature of the subjects to which it is considered desirable that the attention of students should be drawn.

Elementary Principles.

On which Horticultural practice is based.

1. Soils, good and bad: Their nature and composition: Weeds and their eradication.
2. Requirements of growth—water, heat, air.
3. Seeds: Nature of, duration of vitality in, and modes of germination.
4. Roots: Nature and functions of; fibrils and root-hairs; what they do, and how they do it—what helps and what hinders them.
5. Stems and branches: Their nature, work, and uses; helps and hindrances to their work.
6. Leaves: what they are, what they do; helps and hindrances to their work.
7. Tubers and bulbs, leaf buds and flower buds.
8. Growth and development: increase in size and changes of composition and structure; formation and storage of food materials.
9. Flowers: their component parts; what they do; artificial fertilisation.
10. Fruit: Changes and development during ripening; forms and varieties, as, *e.g.*, apple, strawberry, plum, &c.
11. Seed: Formation of.
12. Variation and selection.
13. Names and orders of common garden plants, trees, &c.

Horticultural Operations and Practice.

1. Surveying and landscape gardening: Elements of.
2. Choice of site for garden.
3. Description and use of implements under each head.
4. Operations connected with the cultivation of the land, with explanations and illustrations of good and bad methods: digging and trenching; draining; hoeing, stirring the soil, and weeding; watering; preparation of seed beds; rolling and raking, sowing, transplanting and thinning; potting, planting; aspects, positions and shelter; staking; earthing and blanching, &c,
5. Propagation. Elementary principles: Cuttings, budding and grafting, stocks used, layering, division, branch pruning, root pruning; old and young trees and bushes. Training.
6. Fruit Culture: Open air and under glass; small fruits; apples and pears; stone fruits; gathering and storing; packing and marketing. General knowledge of fruits, and selection of varieties.
7. Vegetable culture: Tubers and roots; green vegetables: Fruits and seeds; rotation of crops, and selection of varieties.
8. Flower culture, outside and under glass.
9. Manures and their application.
10. Improvement of plants by cross-breeding, hybridisation, and selection.
11. Arboriculture: Trees and shrubs and their culture.
12. Insect and fungus pests: Prevention and treatment.

3. Students and young gardeners not having had the advantage of attending lectures, but wishing to present themselves at some one of the centres for examination, might with advantage consult some of the following works: "Primer of Botany" (Macmillan and Co.), by Sir J. D. Hooker, K.C.S.I.; "Botany for Beginners" and "Plant Life" (Bradbury, Agnew, and Co.), by M. T. Masters, M.D., F.R.S.; "Popular Gardening," four volumes (Cassell and Co.), edited by D. T. Fish; "Epitome of Gardening" (Adam Black and Co.), by T. Moore and M. T. Masters; "Agriculture," parts one and two (John Murray), by W. Fream, LL.D.; "Prize Essay on Fruit Culture," by J. Wright: "Physiology of Plants," by Professor Sorauer (Longmans, Green, and Co.): "Structural Botany," by Dr. D. H. Scott (Adam Black and Co.); "Natural History of Plants," by Kerner and Oliver (Blackie and Son).

4. The examination will be held simultaneously in as many different centres in Great Britain and Ireland as circumstances may demand.

The examination will for the most part be based on the above outline syllabus of "Elementary Principles of Horticultural Operations and Practice," but arrangements will be made, as far as possible, to frame the questions so as to cover the ground of any syllabus sent up for that purpose. It will, however, in all cases, be absolutely essential for students to exhibit a sufficient knowledge of the "Elementary Principles" named in the above syllabus.

6. Three hundred marks will be given as a maximum. Candidates gaining 200 marks and over will be placed in the first class. Those gaining 150 to 200 will be placed in the second class, and those gaining between 100 and 150 will be placed in the third class. Candidates failing to obtain 100 marks will not be classed.

7. The Royal Horticultural Society will award a Silver Gilt Medal to the candidate gaining the highest number of marks, and will also, if the County Council or other body promoting the lectures wish it, deliver to their candidates certificates of the class in which they shall have passed.

8. County Councils, lecturers, &c., must send in to the Society the actual number of candidates at each proposed centre at least ten days before the examination takes place.

9. Gardeners and students wishing to sit for the examination, but who have not attended any particular series of lectures, must send in their name and address, and also the name and address of some responsible person willing to conduct the examination (see par. 14), to the Secretary, R.H.S., 117, Victoria Street, Westminster, at least three weeks before the date of examination.

10. A small capitation fee of 3s. will be charged for every student, in order to partially defray the expenses of the examination.

11. County Councils, lecturers, and others desiring to have an examination held in their neighbourhood, must also send in the full name and address (with designation or occupation) of one responsible person for each proposed centre, who will undertake to supervise the examination in accordance with the society's rules.

12. The society is also willing to hold an examination wherever a magistrate

clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to supervise one on the society's behalf, and in accordance with the rules laid down for its conduct.

13. A stamped and directed envelope must be enclosed with all communications requiring a reply.

Scholarships.

Sir Trevor Lawrence, Bart., President of the Society and Past Master of the Worshipful Company of Gardeners, very kindly offered a scholarship of £25 a year for two years, to be awarded, after the examination of the Royal Horticultural Society in 1895, to the student who should pass highest, if he were willing to accept the conditions attaching thereto. The main outline of these conditions is that the holder must be between the ages of eighteen and twenty-two years, and that he will study gardening for one year at least at the Royal Horticultural Society's Gardens at Chiswick, conforming to the general rules laid down there for students. In the second year of the scholarship he may, if he likes, continue his studies at some other place at home or abroad which shall be approved by the Master of the Worshipful Company of Gardeners, and by the Council of the Royal Horticultural Society.

A similar scholarship was presented by Baron Schröder, V.M.H., after the 1896 examination.

Another was given after the 1897 examination by N. N. Sherwood, Esq., V.M.H., Master of the Worshipful Company of Gardeners.

Another similar scholarship has been kindly promised for 1898-9 by G. W. Burrows, Esq., a member of the Court of the same Worshipful Company of Gardeners.

And yet another is promised for 1899-1900 by the Right Hon. the Lord Amherst.

If the student who is at the head of the examination is for any reason unable or unwilling to accept the scholarship, it is then offered to the next highest on the list, and so on throughout the first class.

NEW PLANTS, FLOWERS, AND FRUITS.

Camoensia maxima.

A handsome leguminous plant, and a strong growing West African climber with woody stem. The trifoliate leaves have leaflets three to six inches long, elliptic, oblong, pointed and dark green. The flowers are of large size, sweet-scented, white, with golden margins to the segments. Some idea of their size will be obtained from the statement that the calyx tube is six or seven inches long; the sepals are green. The petals are the chief attraction, and the standard is three to four inches across, and concave. The wing and keel petals are considerably smaller, but still large and attractive. Racemes bearing sixteen to eighteen flowers have been produced in the Edinburgh Botanic Gardens. Seeds of Camoensia maxima were received at Kew in 1873, they germinated freely and plants were widely distributed; the first to flower was a specimen sent to Trinidad, it flowered in 1882; a second, flowered in Ceylon in 1894; a third, at Mythe Castle, Tewkesbury, in the same year; a fourth, at Kew in November, 1896; and a fifth, at Edinburgh in 1897. The Kew plant also flowered again at the close of last year. *Bot. Mag.* t. 7,572.

Strobilanthes Dyerianus.

This fine addition to our handsome foliaged stove plants is a native of Burmah, where it appears to have been found by Boxall, a well-known collector in the employ Messrs. Hugh Low and Co., Clapton. Mr. Boxall gave specimens to the Singapore Botanic Gardens, and from thence some were sent to Kew in 1892. Young plants were duly distributed, and one was exhibited at Ghent in 1893 by Messrs. Sander and Co., St. Albans, who gave it the name it now bears. Since that date S. Dyerianus has become immensely popular for grouping, for table decoration, and almost all uses to which plants are put by gardeners. It is an acanthad and closely allied to the ruellias. It has elliptic-lanceolate leaves measuring six to eight inches long; these are bright green with bands of rose between the nerves, the whole having a satiny lustre or silvery sheen; the lower surface is rosy purple. By the time they flower the plants are apt to become leggy, but the erect spikes of pale violet-blue flowers are very pretty. A figure showing foliage and flowers is given in the *Bot. Mag.* t. 7,574.

Chrysanthemums.

Phyllis Fowler; incurved, a fine large yellow variety with broad but pointed florets. A bold flower, and with a distinct shade of colour. F.C.C., N.C.S., December 7, 1897. Mr. T. Robinson, gardener to W. Laurence, Esq., J.P., Hollingbourne.

Red L. Canning is a deep chestnut-red variety of the old L. Canning; it is a very bright, free-flowering, and useful market variety. Commended as a market variety by the N.C.S. on December 7 last. Mr. M. A. Felgate, Henley-on-Thames.

Cattleya Trianæ Sanderæ.

A charming variety, with palest blush-tinted sepals and petals, and a fine violet purple lip. The petals are very large and prettily frilled along the margins. The throat of the lip is yellowish orange, and the purple apex has a wire-edge of rose running along the marginal frill. A.M., R.H.S., January 11. Messrs. F. Sander and Co , St. Albans.

Lælia anceps Amesiana Crawshay's var.

A very pretty form and remarkable for the crimson purple front lobe of the lip, and the crimson markings in the throat. The sepals are pale rose, tinged purple; petals broad, deep rose shading to deep purple at the tips. The outer side of the side lobes of the lip are greenish, but the tips and margin are deep purple. Disc large and bright yellow; front lobe intense crimson purple. A.M., R.H.S., January 11. Mr. S. Cooke, gardener to De B. Crawshay, Esq , Rosefield, Sevenoaks.

Cypripedium F. H. Roberts.

A particularly handsome hybrid, obtained by crossing C. niveum with some other species not recorded (probably C. Curtisi). It is an interesting form with a white and broad dorsal sepal, shaded with rose at the base, and veined with rose. Petals very broad, slightly turned back at the tips, and similarly coloured as the dorsal sepal with additional spottings or tiny dottings of dark purple. The lip has the rounded opening seen in C. niveum, but is longer, deep rose veined with darker rose, and with a whitish base. The flower is about three and a half inches across. A.M., R.H.S., January 11. Messrs. Hugh Low and Co. Clapton.

Pear President Barabe.

A productive mid-winter variety of continental origin, with rather small turbinate, deliciously flavoured fruits. The Fruit Committee on rising left one fruit intact, but this disappeared, and a core and stalk with a scrap of rind were the only materials from which visitors could form an opinion of the variety. F.C.C., R.H.S., January 11. Mr. W. Allan, Gunton Park.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, January 11.

A month ago we reported the last R.H.S. meeting of 1897, now we have to record the first for the year 1898. This, however, is the last meeting of the R.H.S. year, for the February gathering and annual meeting closes one year and commences another. The present display was a very fair one, not so large as some of the January exhibitions have been, but still of great interest. Orchids were not largely represented, and only three novelties were considered worthy of award. Cyclamen and primulas made up the bulk of the show, and were very well grown. Fruit was good for so late a date, and Mr. Bury's grapes were a great source of attraction and interest.

Floral Committee.

Primulas and cyclamen were both abundant and good; stove plants were staged in good condition, but novelties were very few, and none gained awards.

An effective exhibit of foliage and flowering plants, staged by Messrs. J. Laing and Sons, Forest Hill, merited a silver Flora medal. Palms, dracænas, crotons of high colour, foliage begonias, nepenthes, Leea amabilis, Miconia magnificum, Phyllotæium Lindeni, Rhyncospermum jasminoides variegatum, aralias, cyclamen, and Begonia Gloire de Lorraine were the most conspicuous plants in an interesting display. A fine display of primulas came from Messrs. H. Cannell and Sons, Swanley; nearly two hundred plants were staged, and the majority were single forms in about twenty-four varieties. Some of the specimens were scarcely at their best, but the exhibit was a fine one, serving admirably to show the carefulness with which the Swanley firm have selected and perpetuated their strains. Some particularly attractive sorts were White Perfection, Swanley Blue, Eynsford Red, very bright; Swanley Yellow, white, with a very large deep yellow central area; and Emperor Improved, a very bright and large rose form. The firm was awarded a silver Flora medal for these singles, and a few good specimens of Marchioness of Exeter, a handsome double white. Cyclamen from Messrs. H. Low and Co., Clapton, were a fine display, the coloured forms were bright and varied, while the white varieties were remarkable for their purity and profusion of flowers. A small batch of Winter Scarlet carnation, a brilliant tree variety, also came from Clapton; a medal was awarded.

Messrs. Sutton and Sons, Reading, staged a splendid lot of cyclamen, arranging the neat and freely-flowered specimens in batches of one colour. The whites were very fine, and afforded good contrasts with Vulcan, Salmon Queen, Giant Purple, Giant Rose, and Giant Crimson and White, which were all greatly admired; silver Flora medal. Mr. J. R. Box, Croydon, secured a silver Flora medal for a good exhibit of single primulas. The plants were in every instance large, well grown, and freely flowered, most of them carrying three to six handsome trusses. About a hundred specimens were staged in fifteen distinct varieties. A few of the most attractive were Princess Mary, pure white; Surprise, bright rose pink, much frilled; Firefly, very rich scarlet; Rosamond, deep purple; White Perfection, white, and much fringed and frilled; and Mrs. Periera, a porcelain-blue shade.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, showed four pans of the charming Narcissus monophylla and Fritillaria oranensis. Some finely-flowered sprays of the sweet Chimonanthus fragrans were sent by Mr. F. W. Moore, the Botanic Gardens, Glasnevin; Mr. Moore also sent Iris stylosa var. Empress Elizabeth, a very bright purple form. Dracæna Distinction, from Messrs. J. Laing and Sons, is a graceful narrow-leaved form. A curious dracæna from Mr. Empson did not meet with much approval owing to its pure green leaves. A tray of Javanico-jasminiflorum hybrid rhododendrons came from Messrs. J. Veitch and Sons, Chelsea; these were remarkably bright, and showed in a wonderful degree their usefulness for a variety of purposes at this dull season of the year. Especially attractive were Minerva, Monarch, multiflora Neptune, Thetis, Sybil, Ceres, and luteo-roseum. This firm also sent baskets of flowering sprays of Garrya elliptica, Hamamelis japonica Zuccariniana, and H. arborea.

Orchid Committee.

This body soon dispatched the business brought before it, for novelties were scarce and the groups were small. There were several interesting orchids, and Captain Holford sent a fine lot of cut blooms of cypripediums that deserved to be staged in a much more attractive manner than merely placing half-a-dozen in an earthenware vase.

From Messrs. F. Sander and Co., St. Albans, came a small collection of orchids arranged with the graceful Dracæna Godseffiana; Lælia anceps Dawsoniana, L. a Sanderiana, and L. a Hilli were each represented; Lycaste Skinneri in good variety, and several hybrid cypripediums were also shown. Messrs. H. Low and Co. showed Odontoglossum crispum Jackianum, a yellowish form, O. Halli in variety, O. Andersoni, Cypripedium Germinyanum, C. Spicerianum, C. Lathamianum, C. Bellona, C. F. S. Roberts, a new and pretty niveum cross with white segments marked with rose and purple. Mr. T. Stafford, orchid grower to F. Hardy, Esq., Tyntesfield, near Manchester, showed an example of the rare Cypripedium insigne Sanderæ, a good form with one large flower: also a spike of Odontoglossum Andersonianum, a moderate variety.

Mr. Chapman, gardener to Captain Holford, Westonbirt, Gloucestershire, was awarded a silver Banksian medal for a group of cut orchids; a remarkably good lot of cypripediums were staged, including C. Niobe superbum, C. Leeanum, Albertianum, C. Pitcherianum Williams' var., and C. insigne citrina; Lælia autumnalis in variety was also well shown. Mr. J. Carr, Twerton-on-Avon sent some flowers of Cypripedium Boxalli atratum crosses all showing the influence of this parent. Mr. F. A. Rehder, Gipsy Hill, showed Cypripedium Rehderianum a curious dark purple and white form, whose parentage was not recorded.

Fruit Committee.

Mr. J. Bury, Petersham Vineries, Byfleet, Woking, was awarded a silver Knightian medal for a handsome lot of grapes staged on boards, in a tray, and in baskets ready for carriage to market; the varieties were Muscat of Alexandria, Black Alicante, and Gros Colmar, and all were splendidly coloured. Mr. J. Miller, Ruxley Lodge, Esher, merited a cultural commendation for a fine lot of mushrooms. Messrs. T. Rivers and Son, Sawbridgeworth, showed a fruiting branch of a citron bearing four splendid fruits; this firm also sent Directeur Tisserand and Mrs. Pearson grapes; well kept. A silver Knightian medal was awarded Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill House, Bedford, for a collection of apples and pears. There were fine examples of Lord Derby, Ribston Pippin, Beauty of Kent, Cox's Orange Pippin, Mére de Mènage, Baumann's Red Winter Reinette, Tower of Glamis, and King of the Pippins.

Mr. C. Ross, Welford Park Gardens, Ross, gained the Veitch prize for the best flavoured pear with Josephine de Malines. Colonel Brymer, M.P., Dorchester, was placed second for apples with Claygate Pearmain. So far as we are able to discover no other prizes were awarded.

THE YORKSHIRE GALA.

On the 7th inst. the annual meeting of the guarantors and life members of the Grand Yorkshire Gala was held at Harker's Hotel, York. There was a large attendance, and Alderman Sir Joseph Terry presided. After reading letters from several influential members regretting their inability to be present, the Chairman, alluding to the gala held in June, 1897, said that circumstances had prevented the public witnessing the usual beautiful floral exhibition. He believed the flower show would have been of an exceptional character, and one which would have been immensely appreciated. A strong wind, however, on the morning of the fête wrecked the flower tents, and rendered all the perfected arrangements but work in vain. The damage done amounted to about £600, a catastrophe which had never been previously experienced. On every hand the circumstances had created regret. Expressions of sympathy had been received from several of the exhibitors, and one gentleman—Mr. Atkinson, of Sheffield—had sent a donation of five guineas to the society. He sincerely hoped that they might never again experience like conditions. The ensuing year, he trusted, might be one of an unexampled character, and make up for the loss they had sustained twelve months ago. As regarded the coming fête they had again made satisfactory arrangements with the Bootham Asylum authorities. Other pleasing circumstances were that the Lord Mayor (Mr. Edwin Gray) and the City Sheriff (Mr. Harold Copperthwaite) had been elected life members, and the Lord Mayor had consented to become president for the current year. He proposed that his lordship be so elected, and the proposition was carried.

Alderman Sir Christopher Milward proposed the re-election of Sir Joseph Terry as chairman of the council, who, he said, had devoted a great deal of time and service in the interests of the gala. He had been associated with the fête for many years, and had always taken great interest in its welfare. He was sure the meeting would also join with him in congratulating Sir Joseph on the fact that he had that day reached his seventieth birthday. He was sure it was a pleasure to the citizens to see him so hale and hearty, and able to discharge his many important duties. They also rejoiced that he was in improved health, and hoped that he might be spared for many years to come. The motion was heartily approved. Alderman Border proposed that Sir Christopher Milward be elected vice-chairman. Sir Christopher Milward, however, demurred to that course, and stated that, having been ordered complete rest, he could not undertake the duties. Eventually Mr. Border consented to stand again, and was unanimously re-appointed. Other officers appointed were: Treasurer, Mr. Joseph Wilkinson; secretary, Mr. C. W. Simmons; and auditors, Messrs. Pearson and Taylor. The usual committee were also elected.

The following grants were made for the ensuing gala: Floral arrangements, £650 (including £50 as a Victorian commemoration prize, offered last year but not awarded); music, £200; fireworks, £100; amusements, £150; balloons, £60. On the proposition of the Chairman, seconded by Mr. Alderman Border, votes of condolence were presented to the families of the late Sir Frank Lockwood, Q.C., M.P., Mr. T. P. Bulmer, J.P., and Mr. Geo. Dennis. Alderman Purnell proposed a vote of thanks to Sir Joseph Terry, and, Sir Joseph having suitably responded, the meeting ended.

READING GARDENERS' ASSOCIATION.

The annual general meeting of the Reading and District Gardeners' Mutual Improvement Association was held in the club-room, British Workman, on Monday last, when Mr. C. B. Stevens presided over a good attendance of members. The report and balance sheet read by the hon. secretary, Mr. James Pound, jun., were of a very satisfactory nature, both showing that the association was in a very flourishing condition. The membership was still on the increase, thirty-one new members had been elected during the year 1897, making over 180 "paid up" members on the books, whilst the balance in hand was double that at the end of 1896. The committee regretted the death of Mr. Alfred Sutton who had always taken a great interest in the work of the association, and had, since its formation in 1888, provided gratuitously the club-room for their meetings. They also record the death of Mr. George Palmer, who was an annual subscriber rom the commencement of the association. The meetings during the year had been well attended, on some occasions upwards of eighty members being present, and with the subjects so varied and interesting, such as Soils; Insects injurious to plant life; Table decorations; Summer Bedding; Zonal Pelargoniums; Bees as friends and enemies of the gardener; Kitchen Garden Work; Tomatos, and their diseases; The Balsam; Fruit Growing; Sweet Peas; Some Types of Insect Pests; A Chat about Chrysanthemums, &c., much benefit and help must have been attained by meeting together. The thanks of the committee were due to the president, Mr. C. B. Stevens, for the great interest shown not only in presiding at their meetings but taking an active part in all the other business connected with the association; to Messrs. Sutton and Sons for their kindness in providing a room at the Abbey Hall for the use of the members, and supplying it with horticultural and other literature; to the honorary members for their kind and general support; to those who have helped forward the work by reading papers and introducing subjects for discussion; to those who have added so much interest to the meetings by bringing exhibits of flowers, &c.; and last, but not least, to the horticultural and local press for publishing reports of the meetings. After the report and balance sheet had been adopted, the following were elected to fill the various offices during the coming year: President, Mr. C. B. Stevens; chairman, Mr. T. Turton; vice-chairman, Mr. G. Hinton; librarian, Mr. J. Martin; assistant librarian, Mr. E. Dore; treasurer, Mr. W. Phipps; hon. secretary, Mr. J. Pound, jun.; committee, Messrs. F. Bright, C. Burton, R. Butcher, R. Chamberlain, H. G. Cox, B. Dockerill, H. Farey, W. Goddard, F. Lever, T. Neve, J. Pound, G. Smith, W. Smith, W. Townsend, H. Wilson, and J. Woolford; auditors, Messrs. F. Tufnail and A. Smith; whilst Messrs. Cox and Woolford were elected to represent the association on the Reading Horticultural Society, and the Reading Chrysanthemum Society. A beautiful group of well-grown cyclamen was shown by Mr. W. Townsend, The Gardens, Sandhurst Lodge, noticeable being Sutton's Butterfly, Vulcan, Salmon Queen, and Giant White varieties.

LEE AND BLACKHEATH HORTICULTURAL SOCIETY.

The annual meeting of this society was held at the Lee Institute on Monday evening, Mr. M. N. Buttanshaw (the treasurer) in the chair. There was a larger attendance than for some years past. The following report was presented by the committee:—

The show, held on July 7 and 8 last, was a fully representative one, and the exhibits generally were highly satisfactory. The weather being fine, there was a larger attendance than there had been for some years past. Roses were shown in very large numbers and good form. Groups—not for competition—by leading nurserymen formed, as usual, a pleasing addition to the exhibition. The committee regret that, chiefly through the apathy shown by the residents of the neighbourhood, the subscriptions have again fallen off, and it has been deemed advisable to reduce the prize list for the present, in order to lessen the expenses, so that, if possible, in the coming years the debt may be materially reduced, and not increased, as has been the case in the present and preceding years. A new feature of the exhibition—a flower stall—suggested by one of the committee, was a decided success, and the lady and gentlemen gymnasts were a great attraction. Hearty thanks are due to Mrs. Penn (for the use of her grounds), to the president (Mr. J. Penn, M.P.), to Mr. M. N. Buttanshaw (the treasurer), and to all the special prize givers. The lectures, now in course of delivery at the monthly meetings of the winter session of 1897-8, are not being so well attended as they might be, and lecturers can hardly be expected to come again unless better encouraged. The dates fixed for the 1898 exhibition are Wednesday and Thursday, July 6 and 7.

After some discussion the report and balance-sheet were adopted.

SUNDERLAND AND DISTRICT GARDENERS' ASSOCIATION.

This flourishing society held its seventh annual dinner a few days since at the Palatine Hotel, when upwards of sixty sat down. The President Councillor Roche occupied the chair, and was supported by the Rev. Dr. Randall, vice-president. After the usual loyal toasts had been duly honoured, Mr. T. W. Bolam, F.R.H.S., chairman of the society, proposed the toast of the "President and Vice-Presidents." Councillor Roche, in responding, said he was much gratified by their having again chosen him to be their president. He believed the profession of a gardener was one of the oldest, and was pleased to be able to say that their society was a strong and influential one, and was advancing by leaps and bounds. The year was begun with a satisfactory balance, and ended with a more satisfactory one, which promised well for the future. He had pleasure in asking them to accept Professor Von Kerner's new work—the "Natural History of Plants," for their library. Dr. Randall also responded, and next proposed success to the society. He said it deserved a far more enthusiastic support and encouragement than it was possible for him to give it, but so far as he had the power he should do everything he could to ensure its prosperity, success, and development, for, if there was one useful movement in Sunderland unconnected with his own profession, it was that represented by the Gardeners' Society. The society had a record, its work would bear investigation; it was a record of which such a young society might well be proud. The annual report grew year by year, and an increasing membership availed themselves of the advantages it offered. He noted the fulfilment of the hope expressed last year, that there should be an interchange of visits and papers between their society and that of Newcastle, and he thought this might possibly be extended to other neighbouring towns. A society that could bring together such a meeting as the one before him was worthy of support and prosperity. One feature of the meeting was that it was composed both of veterans in the profession and smart, promising young men. An excellent feature of the society was that it brought together men of all ages and ranks in the profession, enabling the youngsters to lay hold of the gathered experience of the older ones, and helped the older ones to lay hold of the bright and brilliant ideas of the younger ones. Mr. W. Hall, F.R.H.S., thanked the president for his present of books, and spoke of the work accomplished during the year.

"The Honorary Members" was proposed by Mr. Brunton, and responded to by Mr. Bolam. He said if the society received the same support in the coming year as in the past from the honorary members, they would be able to reduce the membership fee, which would tend to increase the number of amateur members. Mr. J. T. Richardson proposed "The Press," which was responded to by the representatives. Dr. Randall, Mr. C. Donkin, Mr. R. D. Jeffrey, Mr. James Weymms, and Mr. W. Thompson contributed to the evening's harmony with songs, &c.

The present flourishing condition of the society is in a great measure due to the chairman (Mr. T. W. Bolam) and to the secretary (Mr. J. Watson); the former has taken a deep and active interest in its work since its formation, and, as showing the esteem in which he is held by the members, has been unanimously elected chairman six times out of the seven years of the existence of the society.

ISLE OF WIGHT HORTICULTURAL ASSOCIATION.

A highly satisfactory report was presented by Mr. S. Heaton at the annual meeting of the above association, as will be gathered from the following summary: The committee of the association have great pleasure in presenting to the members a report of a full and satisfactory year's work. The balance in hand is not so large as it was last year. This is mainly due to the extra expense incurred in providing certificates for meritorious exhibits at monthly meetings, at the cottage garden shows, and to the excursions which took place during 1897. The first excursion was to St. John's Vicarage Gardens, Ryde, on May 8, at the invitation of the Rev. H. Ewbank, M.A., F.R.H.S. Over fifty members avaited themselves of the opportunity of visiting this well-known garden, which contains rare plants in variety—many collected by Mr. Ewbank himself when travelling abroad. The second excursion took place on July 14 to Brooke House, the residence of Sir Charles Seely, Bart., who is president of the association. Between fifty and sixty members availed themselves of the opportunity of what proved a pleasant and profitable outing. Mr. Tribbick, F.R.H.S., received warm praise for a house of fine Muscat grapes, and for the general excellence of the gardens. Both Mr. Ewbank and Sir Charles Seeley entertained the members most hospitably, providing in each case an excellent repast. The third and last excursion of the season was to Swanmore Park, the residence of W. H. Myers, Esq., M.P. A thoroughly enjoyable outing was only marred by the want of more time to inspect the gardens so ably managed by Mr. E. Molyneux, V.M.H.

The Committee are fully conscious that certificates have been rather lavishly bestowed during the year, but the fact cannot be gainsaid that this little extravagance has stimulated the interests of horticulture, particularly in the villages, and made the association more popular and useful. During the year, twenty-nine certificates for cultural merit were awarded, fourteen certificates for new or rare exhibits, and four certificates of commendation, making a total of forty-seven. The Daffodil Exhibition held at the Medina Hall, Newport, on April 3, was greatly appreciated by the public, and upon the whole was very successful. At the October meeting the members staged over one hundred dishes of fruit, which was highly meritorious, and reflected great credit upon the growers.

The number of members is two hundred and eight, against one hundred and seven last year, which is a net gain of one hundred and one. Although everyone interested in horticulture is heartily welcomed at the meetings of the association, it is desirable, in the opinion of the committee, that its membership should be as large as possible. The subscription for vice-presidents is 10s. 6d. per annum, for honorary members 5s., and for ordinary members 1s. 6d.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Weight of Bunches of Black Hamburgh Grapes.—J. F., Pontefract: So far as we are aware, the heaviest bnnch of Black Hamburgh grapes known was exhibited at Belfast in 1874 by Mr. Hunter, of Lambton Castle. This enormous specimen weighed 21 lb. 12 oz. The following year Mr. Hunter showed a bunch at the Manchester exhibition which weighed 13 lb. 2 oz. Bunches weighing 8 lb. or 9 lb. each have been recorded, but none approach in any way the famous examples produced over twenty years ago.

Cultivation of Erica hyemalis.—G. G., Torquay: Erica hyemalis is a somewhat soft-wooded and free-growing species as compared with many others, and thus, in the earlier stages of growth, more pinching is necessary if the object in view is a large specimen. It does not differ materially from the majority of heaths grown in gardens in its likes and dislikes, but being very robust, its growth is made earlier than in most sorts, and specimens can be placed out of doors at an earlier period than is recommendable for others. Growth must be thoroughly finished or flowers will not be abundant. It is a bad plan to stand the plants where the influence of the sun is directly upon the pots, for heaths like to have their roots cool. The pots must be shaded or plunged in some cool medium, such as fine ashes, where drainage is at the same time ensured. After flowering it is best to cut back the growths of this species, and to do so freely, otherwise the plants will speedily become tall and leggy; this remark applies equally to all the winter-flowering heaths.

Propagation of Isolepis gracilis.—M. M., Maidstone: It is best to defer the propagation of this pretty grass until the spring, when growth commences, for if the plants are divided at present damping is very likely to set in. Any fairly open soil will suit the species. Part up the old specimens, and place a little tuft in a three-inch pot; give a watering, and place in a temperature of 55 to 65 degrees. When well-rooted remove to the greenhouse, and as the pots will be by this time almost full of roots, it will be necessary to pot on into forty-eight-sized pots as soon as the plants are acclimatised. This size will be found large enough for most purposes, while it is good practice to keep some in sixties for small groups, &c.. The leading nurserymen offer seed of Isolepis gracilis, so that if you need an extra large stock it will be advisable to obtain a few packets besides parting up all the old plants procurable. The species is widely distributed throughout extra-tropical regions. Isolepis gracilis is but a common garden name for Scirpus riparius.

Andromeda.—G. E., Shrewsbury: Your supposition is quite correct; the genus Andromeda was founded by Linnæus, and the name was given because the famous botanist saw so many points of comparison between the type plant, Andromeda polifolia, and the lady whom Neptune chained, naked, to a rock. The story has previously been told in these columns, but it will bear repetition; it is charmingly told by Linnæus in his "Lachesis Lapponica," and continued in the "Flora Lapponica." Linnæus first saw the plant growing in marshy ground in Lapland, and described it as being most beautiful on the twelfth of June. While admiring the delicate colouring of the flower and the grace and elegance of the racemes, the story of Andromeda came to his mind. Andromeda, to appease the wrath of Neptune, was chained naked to a rock, and exposed to be devoured by a sea-monster. She was, however, released by Perseus, who afterwards marriad her, and by whom she had many children. The flowers of A. polifolia, says Linnæus, are blood-red ere they expand, but when fully-grown are of a flesh colour, like the beauty of a handsome female complexion, and such as no artificial colouring could produce. The great naturalist says that as he meditated upon the poetical descriptions of the exquisite and unrivalled charms of Andromeda, he became convinced that no better name than hers could be given to the plant before him. As Andromeda was chained to a rock with the sea running around her feet, so this plant is always fixed on a small hillock in the swamps with fresh water washing its roots. As this beautiful girl was surrounded by horrid and venomous monsters, so toads and other reptiles frequented the position of her vegetable resembler. The distress of Andromeda under such dire affliction would destroy many of her charms, and with little hope of rescue, her drooping spirits would find expression in a head bent down to hide her blushing face. "So," says Linnæus, "Does this rosy-coloured flower hang its head, growing paler and paler till it withers away." Continuing the fanciful and wonderful analogy in the second work quoted, he says, "At length comes Perseus; the water is dried up, the monsters of all kinds are destroyed or driven away, and Andromeda is rescued to become the wife of her saviour; as a handsome mother she once more holds her head erect without a blush of shame. Perseus is the summer, with its warmth and drying influence, when toads and other reptiles would naturally disappear from the dried-up swamp to moist situations. Fertilisation takes place, and the flowers wither away; but in the autumn the seed capsule, apparently conscious of its own importance in the work of giving continuity to the species, turns from its half-hiding, drooping position, and holds itself erect." When we understand the reasons for its application we are compelled to own that Andromeda is an apt name for the plant in question, and the story of Andromeda possesses an added interest when, through the words of the great Swedish naturalist, we draw a close analogy between it and one of our prettiest flowering shrubs. We trust that your andromedas will prove as successful as you could wish. We may add that one species you mention—A. floribunda—is now recognised as Pieris floribunda.

Scale on Peach Trees.—E. J. T., Isle of Wight: The best plan for removing this pest is to carefully clean every branch and twig, using fir-tree oil, or any other good insecticide. Commence by moistening the tree with warm soapy water, and then with a small label gently scrape the scales away, afterwards sponging the growths with the insecticide. It is a good plan to place some canvas beneath the trees while the work is being performed, so as to catch any scales that may fall. Beside the blunt label, it will be found useful to use a short, stiff-haired brush to remove the pests from joints and round the buds. A good deal of patience is necessary ere this work is brought to a successful conclusion, but on trees under glass it is eminently desirable that the pest be removed ere heat is applied and growth becomes vigorous. After a thorough cleansing, it will be advisable to frequently examine the trees to see whether any individual has escaped.

Bark Beetles.—S. C., Bishop's Stortford: The elms have been subjected to an attack of Scolytus Geoffroyi, one of the most destructive of the numerous bark beetles. It almost invariably happens that trees attacked are unhealthy, for the little pests prefers dead or dying to live and healthy trees. This being so, it will be necessary to discover whether anything can be done to improve the condition of the young elms, either by drainage or a good top dressing. Remove all damaged parts, and wash the stems with a tobacco water solution, taking advantage of any abrasions in the bark to forcibly inject some of the solution. During the summer the bark of all the trees should be frequently saturated with a tobacco solution so as to render the trees distasteful to the beetles. Where the holes are very apparent in the bark pieces should be removed about the end of June, as, if this be done, the larvæ will die and be eaten by birds. Pieces of dead elm bark may also be used as traps during the summer, but they should be renewed at least once a month, and the old ones burned.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

A. S., Cheltenham: 1, Pentas carnea; 2, Erica hyemalis; 3, Pteris sagittifolia.

H. P. D., Woking: 1, Grevillea Thelymaniana; 2, Chimonanthus fragrans; 3, Dracæna rubra; 4, Lycaste Skinneri, a poor form.

W. B., Bristol: 1, Rhyncospermum jasminoides; 2, Libonia Penhrosensis; 3, Nephrodium denticulatum; 4, Rhododendron jasminiflorum.

S. F. J., Sale: 1, Jasminum nudiflorum; 2, Hamamelis arborea; 3, Maranta zebrina; 4, Mussænda frondosa; 5, Epiphyllum truncatum bicolor; 6, Coronilla glauca.

C. L., Retford: 1, Cestrum elegans; 2, Pellæa cordata; 3, Cheilanthes farinosa; 4, Pteris cretica nobilis; 5, P. scaberula.

A. S. G., Huddersfield: 1, Apparently a leaf of the Vanilla (*Vanill planifolia*); 2, Marcgravia paradoxa.

Communications Received.—K. and S.—F. and S.—K. W. and Co.—A. B.—D. and R.—C. S. and Co.—R. V. and S.—W. P. and S.—E. W. and S.—J. R. P. and S.—S. and S.—K. P.—G. H. H.—R. P.—G. R.—J. S.—T. W. B.—T. S.—J. L. and S.—W. W.—G. S.—C. H. P.—J. C. T.—J. J. W.—M. M.—G. G.—J. F.—E. J. F.—A. S.—S. C.—H. P. D.—W. B.—S. F. J.—C. L.—A. S. G.—A. B. C.—M. C. A.—P. R.—E. S.—F. M. N.—S. G R.—A. G. C.—S. F. C.—C. W. S.—H. G. C.—R. D.—N. F. B.—R. W. M.—C. T. D.—C. H.

Stoking.—The frost that commenced on Wednesday, December 22 last, was very severe, and will, I expect, have done much damage, following, as it did, a particularly mild time. We were thinking of having a very easy Christmas time, but the reverse was the case. Where the water could be drawn out of the pipes and boilers all was safe, however. Those houses for which we only planned a little fire required far more than we intended even to keep the frost out. The full value of good boilers and good fuel was recently tested, when fires were lighted up and the heat raised in less than two hours; after that the heat was reduced by the damper. Next morning no stirring up of the fire was done, but it was fed with riddlings from the ash heap; this says much for the lasting and heating qualities of anthracite. The difficulty in this early firing for mid-season houses is in keeping only just what is required to be safe. Thus for an hour or two, with sun, we could do without fire; but we dare not, as heat would subsequently be lost. I have also found the utility of piping round the north end of houses, this being the weak point in many vineries. Expansion joints I believe to be the safest during sudden frosts should they get froze, for india-rubber rings will burst before the pipes. A good stoker is a jewel; by good I not only mean a man to raise the heat with full regard to value of fuel, &c., but one, also, who is clean in his work, and who, above all, looks well after his ash-heap. All our ashes are riddled, and the proportion of fine ashes is very small. This extra firing has necessitated more water about the borders near the pipes. One day and night of firing costs me as much as it did in a whole week of late, but I had to set two extra boilers going on account of the prominent vine buds, being afraid of frost; but I did not intend doing this until the new year had set in. The importance of a good stock of coal has been forcibly brought home to me, for to get a supply now would be impossible. With anthracite our fires are safely made up at tea time for lasting until next morning, though, of course, a visit to the houses is made nightly to see that all is right. Oiling of valves, air taps, &c., is a part of the stoker's duties, and this is important, for perhaps all will work well for a week, and then from some cause or other the heat will work up more one side than the other; then by a turn of the valve the alteration necessary is made. As boilers and flues are allowed to rest, and while they are warm, all are thoroughly cleaned, and now those standing idle are equal in appearance to new work, even after three seasons' firing. Fortunately, having a full pressure and supply of water for filling the pipes and boilers, we can well afford to empty our heating apparatus once a year. At the time of writing it really looks as if we were to have a spell of old-fashioned winter. The inconveniences are many, I know, yet I fully believe it is better for the general health; and if we spend more in firing now less will be required later on, and, of course, if vines are ready, with tomatos all right, all will be considerably earlier.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*

"WHAT CANNOT BE CURED MUST BE ENDURED" need not be said to those who suffer from the effects of bad legs, scorbutic and scrofulous sores, as Holloway's Ointment and Pills are splendid specifics for these distressing afflictions. The earnest gratitude of thousands who have experienced the wonderful influence of these remedies, so that they have been raised from a position of prostrate helplessness to one ot independence and comfort, is being constantly expressed, both personally and by letter. Their value is known throughout the world for every form of disease. In cases of indigestion, ague, fevers and disorders of the stomach and bowels, the pills are an infallible remedy. For gout, rheumatism, neuralgia, &c., the Ointment is a blessing to thousands of poor sufferers.—[ADVT.]

OBITUARY.

SIR JOSEPH TERRY, for many years past chairman and influential member of the executive of the Grand Yorkshire Gala, died, we regret to inform our readers, at three o'clock on Wednesday morning, January 12. Sir Joseph will be greatly missed in the famous old city, where he was thrice elected Lord Mayor. A wider circle will also mourn his loss, for British horticulturists will deeply regret his decease. He was deeply interested in horticulture, and ever a prime mover in advancing its interest in and around York. Although 70 years of age on Thursday, the 7th inst., Sir Joseph was apparently hale and hearty, erect, business-like, and pleasant as usual on that date, for, as our columns testify, he that evening presided over the annual meeting of the Yorkshire Gala guarantors and members. As showing the high esteem in which he was held, we may add that a few years ago the exhibitors at the gala subscribed for a handsome testimonial which they presented to him as a token of their appreciation of his services in the cause of horticulture.

MARKETS.

Covent Garden.

THE demand for fruit is not large at present, but the shortened supply is equal to it. Vegetables of various kinds are plentiful, and there is a first-rate demand at prices with an upward tendency.

FRUIT.—English apples, 4s. to 15s. per bushel; American and Nova Scotian, 12s. to 35s. per barrel; English grapes, 1s. 3d. to 2s. 6d. per lb.; Almeria, 12s. to 20s. per barrel; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 6s. each; pomegranates, 7s. to 9s. per case; Valencia oranges, 8s. to 15s.; Murcia, 6s. to 8s. per case; Jaffa, 9s. to 10s. 6d.; mandarins, 10d. to 1s. 6d. per box; French chestnuts, 6s. to 9s.; Italian, 12s. to 15s. per bag; French pears, 4s. to 6s. 6d.; Californian, 8s. to 12s. per case.

FLOWERS.—Arums, 4s. to 6s.; carnations, 1s. to 3s.; chrysanthemums, 1s. to 3s.; gardenias, 3s. to 5s.; eucharis, 4s. to 6s.; Lillium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 10s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 3d. to 4d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 12s.; and violets, 1s. 6d. to 2s. per dozen bunches; azaleas, 9d. to 1s. 6d.; stephanotis, 4s. to 6s.; white narciss, 1s. to 2s.; Roman hyacinths, 6d. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Canary tomatos, 10d. to 1s. 6d. per tray; 4s. to 5s per case; asparagus, 4s. to 5s. per bundle; seakale, 12s. to 18s. per dozen punnets; horseradish, 12s. to 18s. per dozen bundles; French artichokes, 2s. to 3s.; lettuce, 9d to 1s.; endive, 1s. 6d. to 1s. 9d.; cucumbers, 4s. to 7s. 6d.; cauliflowers, 1s. to 2s. per dozen; beetroots, 2s. to 2s. 6d.; parsnips, 3s. to 3s. 6d.; cabbages and savoys, 3s. 6d. to 6s. per tally; English onions, 4s. 6d. to 5s. per cwt.; Belgian, 3s. to 3s. 6d. per bag; Valencia, 5s. to 6s. 6d. per case; forced rhubarb, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s.; turnips, 2s. 6d. to 3s. 6d.; parsley, 1s. 6d. to 2s.; greens, 2s. to 2s. 6d. per dozen bunches; mushrooms, 6s. to 8s.; eschallots, 2s. per 12 lb.; celery, 9s. to 15s. per dozen rolls; potatos, 65s. to 100s. per ton.

Borough Potato Market.

Business is very slow, but owing to the lightness of supplies, recent prices are obtained.

Dunbars, 115s. to 125s.; Hebrons, 90s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 80s. to 90s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. 9d. to 4s.; Germans, 4s. to 4s. 3d. per bag.

THE WEATHER DURING THE WEEK ENDING JANUARY 8, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	53·7	30·3	43·4	6·33	0·49	1·24
Croydon	55·0	29·5	43·6	6·44	0·47	1·19
Brighton	51·8	34·2	45·9	7·72	0·37	0·94
Bristol	53·0	31·0	42·7	5·94	0·53	1·35
Wolverhampton	52·0	30·2	40·6	4·75	0·83	2·11
Norwich	56·0	30·4	42·9	6·06	0·74	1·88
Nottingham	52·8	31·8	42·2	5·67	0·65	1·65
Liverpool	52·7	34·7	43·9	6·61	1·14	2·90
Huddersfield	51·0	34·5	43·0	6·11	0·85	2·16
Bradford	57·4	36·6	46·8	8·22	0·66	1·68
Hull	52·0	32·0	42·3	5·72	0·59	1·50

The mean reading of the Barometer during the week at Greenwich was 29·86 inches, and that of the Thermometer 43°·4, the latter being 5°·1 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 25 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 11·1 hours. The measured rainfall amounted to 0.49 of an inch.

CATALOGUES RECEIVED.

KELWAY AND SON, LANGPORT, SOMERSET.—Wholesale Seed Catalogue.

FIDLER AND SONS, READING.—Seeds and Seed Potatos.

KEYNES, WILLIAMS, AND CO., SALISBURY.—New Cactus Dahlias.

ENGAGEMENTS FOR THE ENSUING WEEK.

THURSDAY, JANUARY 20.—Gardeners' Royal Benevolent Institution; Annual Meeting and Election of Pensioners, Simpson's, Strand; Meeting of the Linnean Society.

SATURDAY, JANUARY 22.—Royal Botanic Society, General Meeting.

AUCTIONS.

MONDAY, WEDNESDAY, AND THURSDAY, JANUARY 17, 19, AND 20.—Border Plants, Roses, Fruit Trees, Shrubs, Lilies, &c., at J. C. Stevens's Rooms.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, JANUARY 18, 19, 20, AND 21.—Azalea indica, Cases of Lilies, Orchids, &c., at Protheroe and Morris's Rooms.

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Probably the most explicit practical instructions for cultivation ever published.
Many hints and recipes for cooking and serving the various vegetables.
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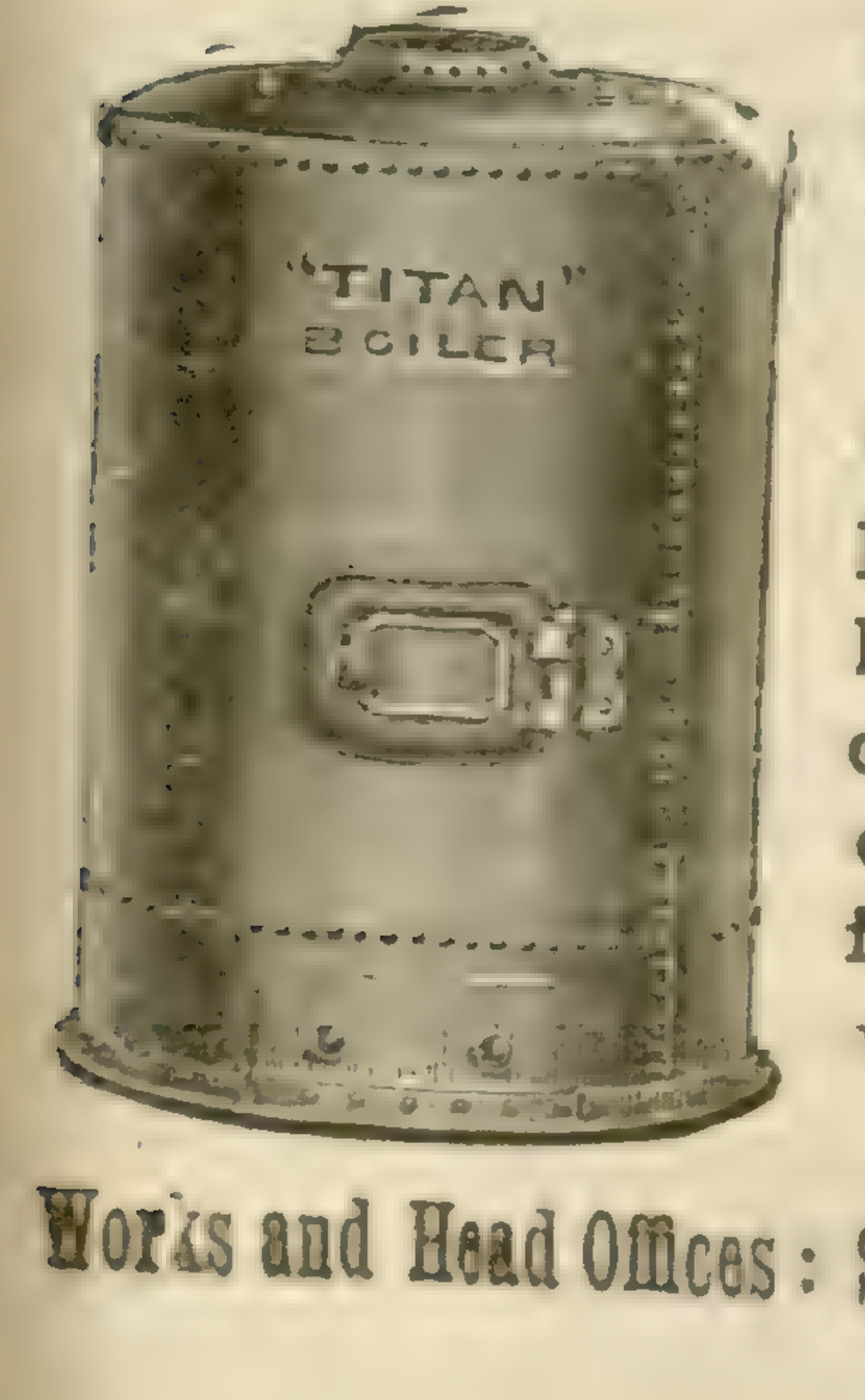

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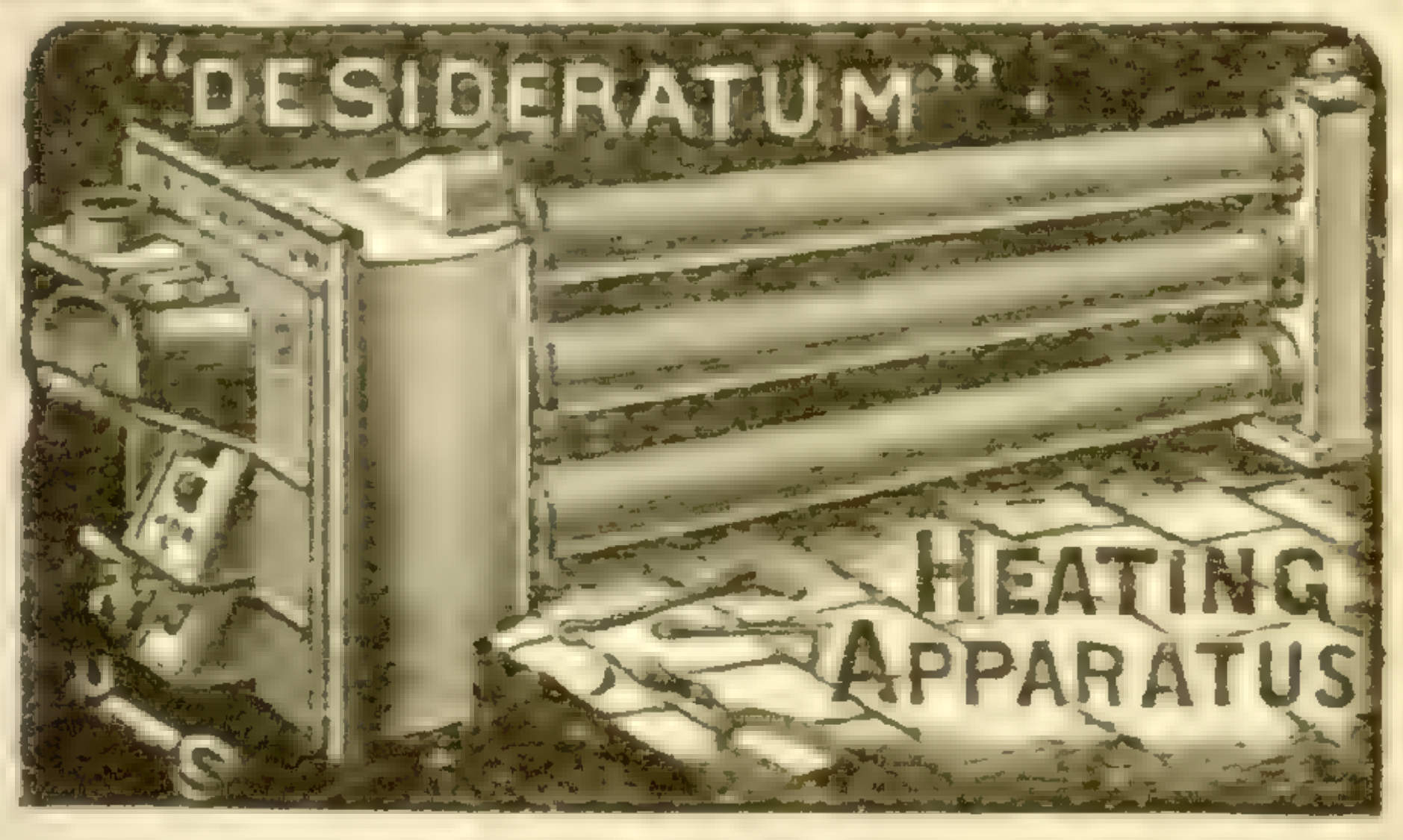

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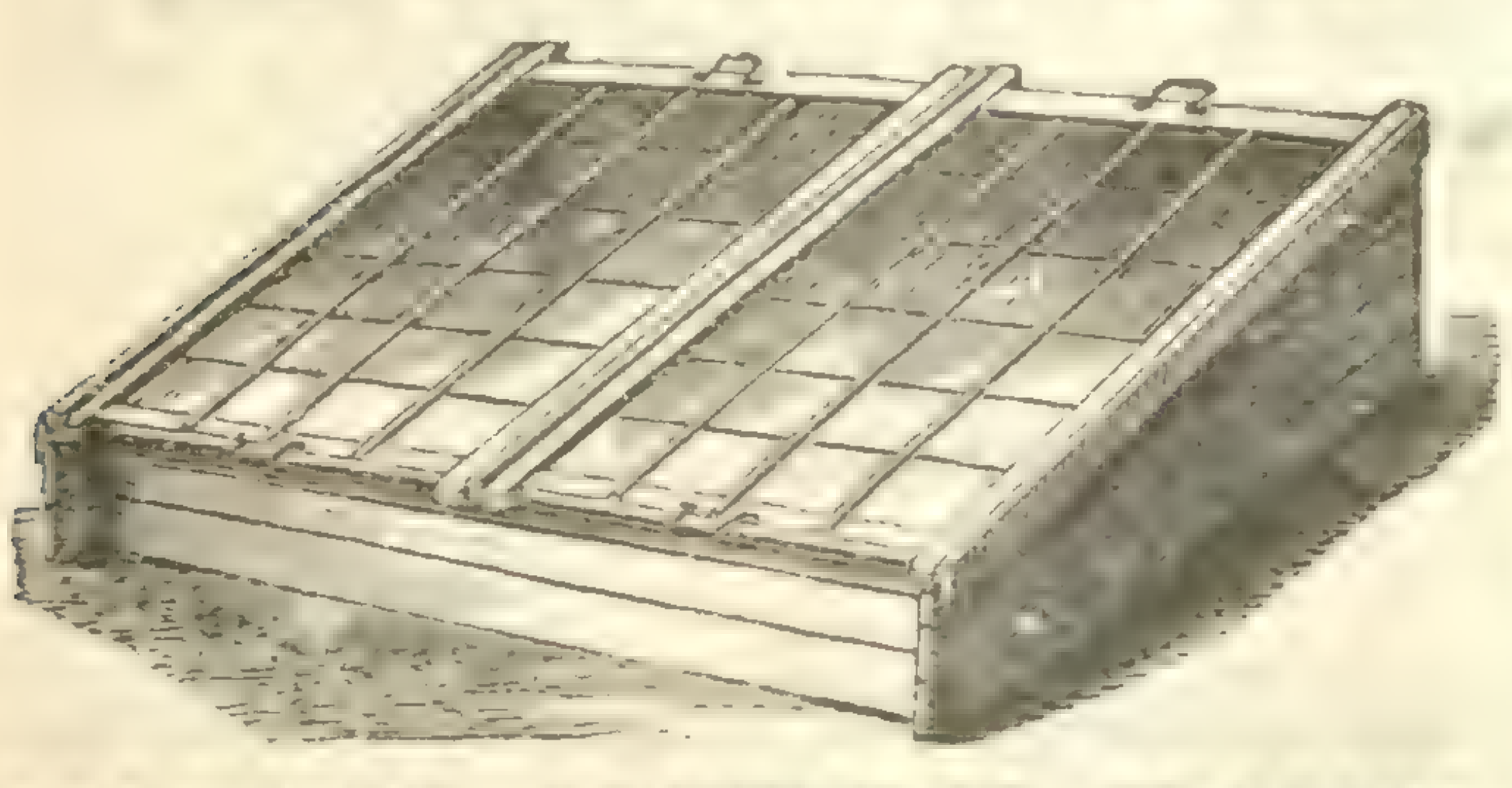

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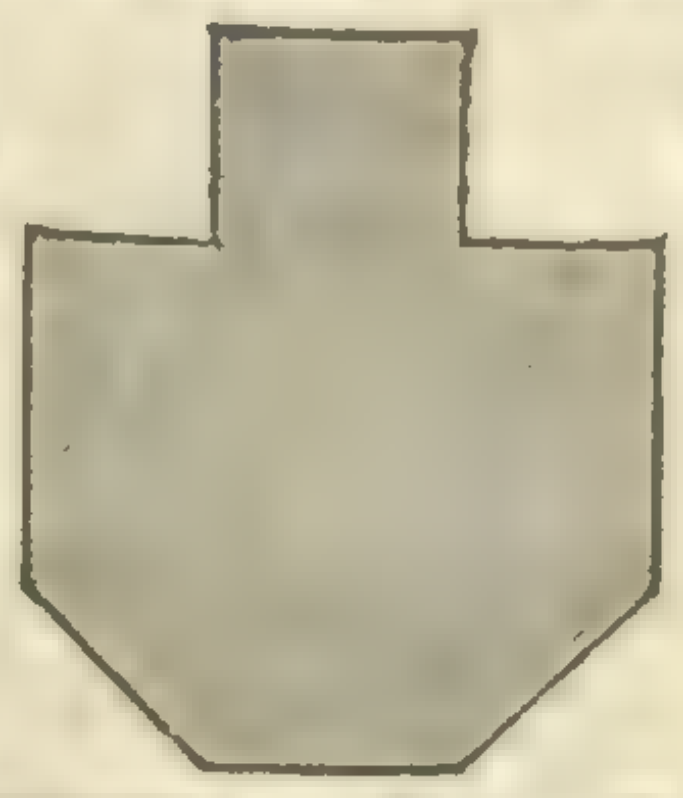

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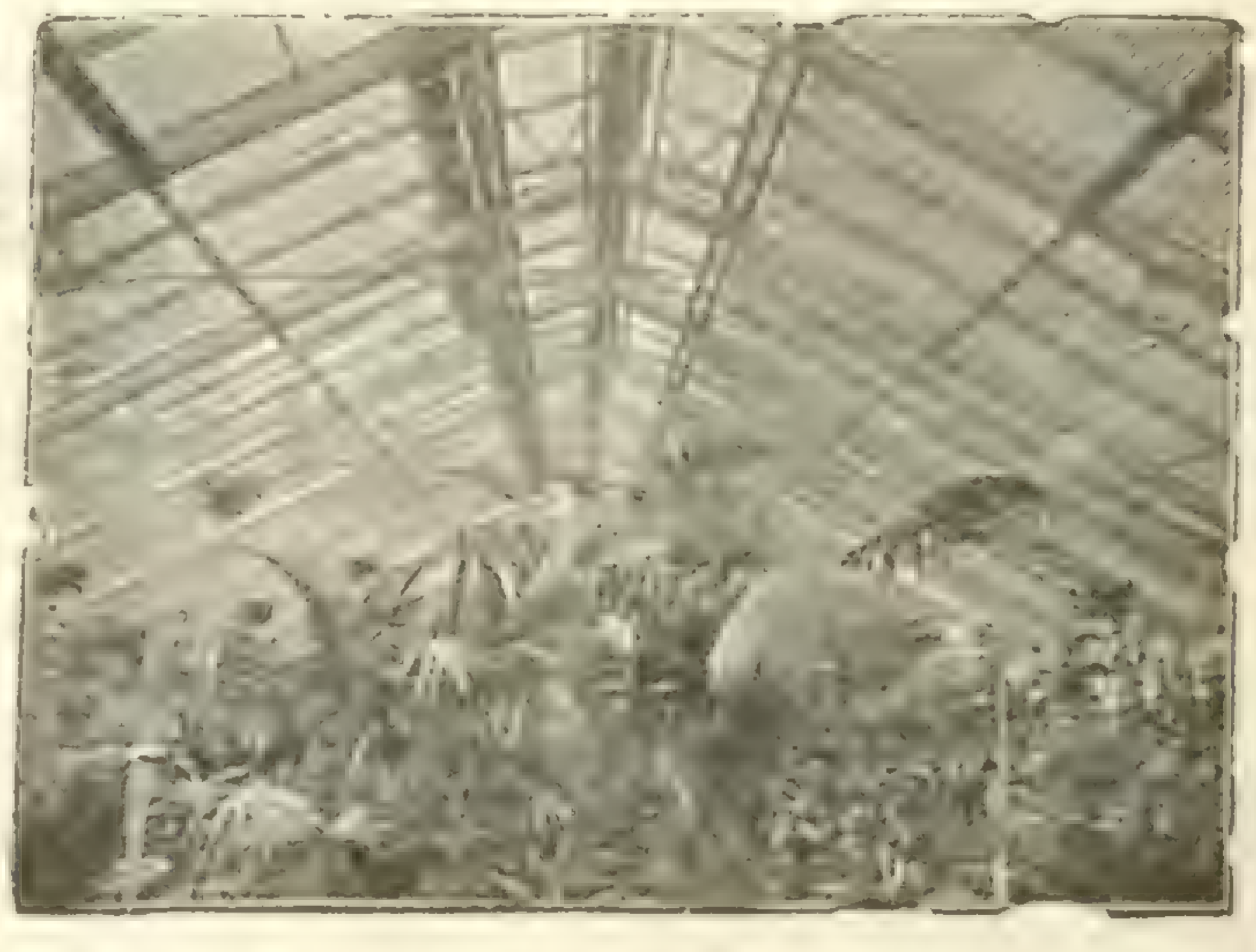

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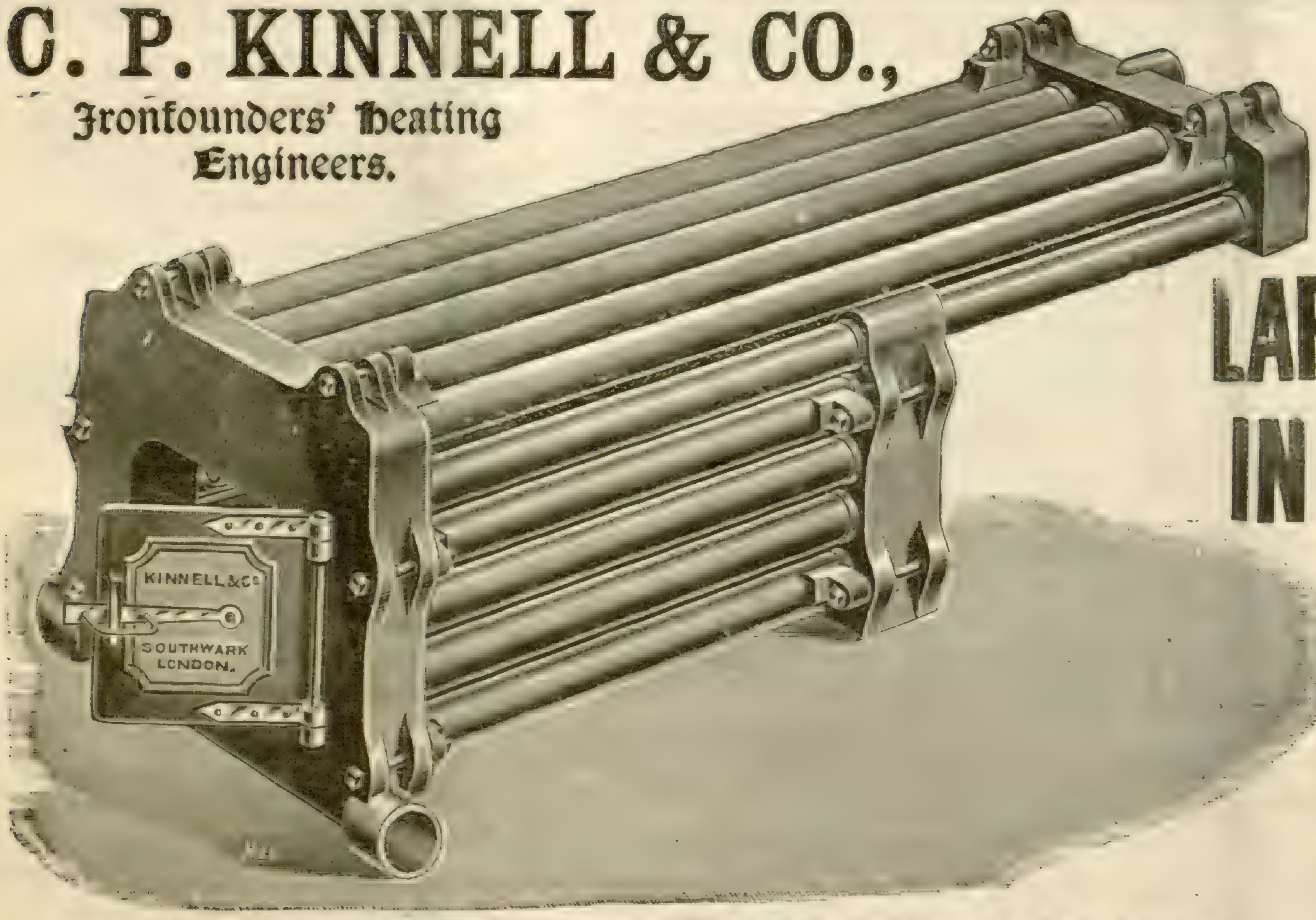

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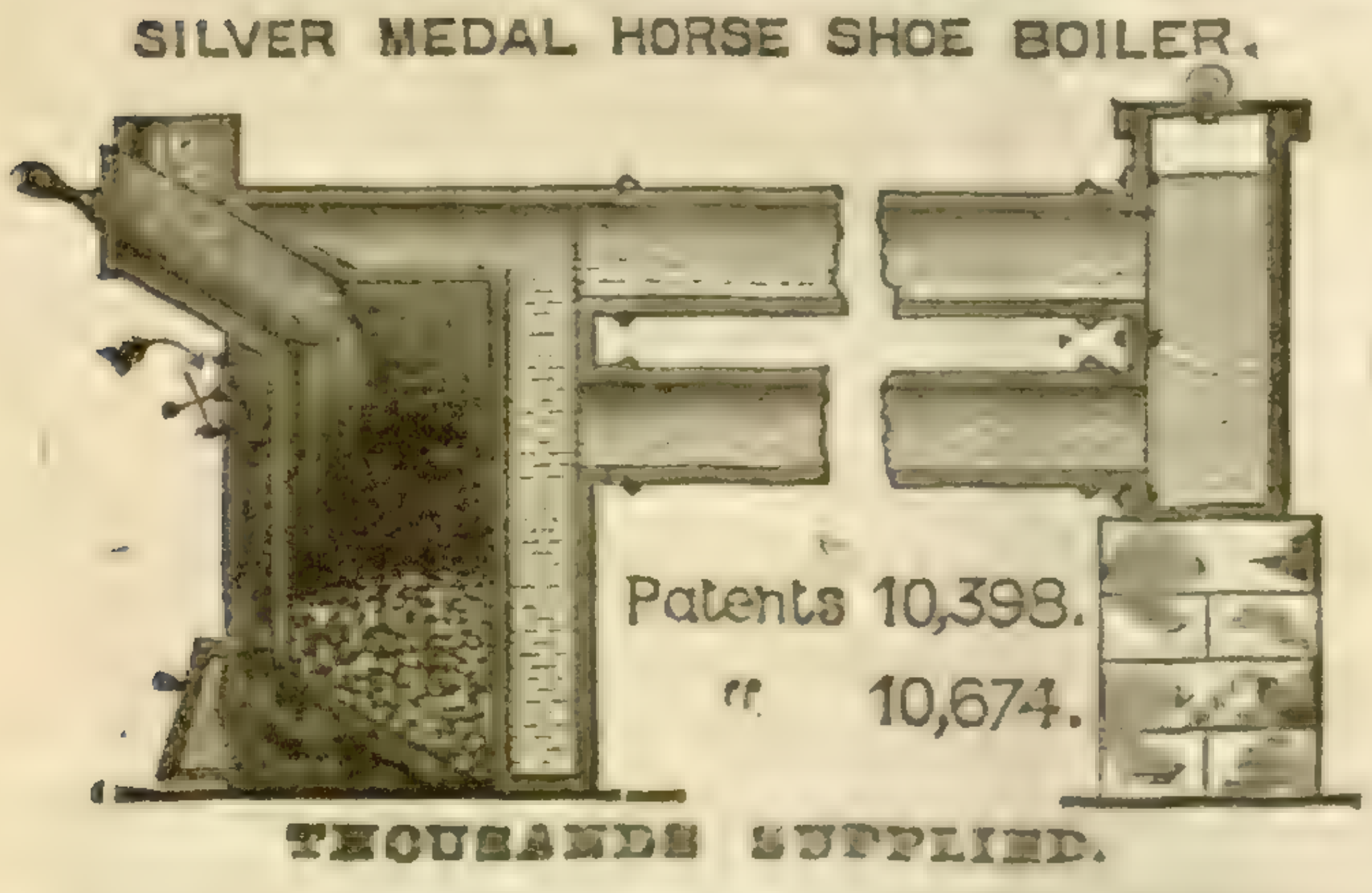

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THE

GARDENERS' MAGAZINE

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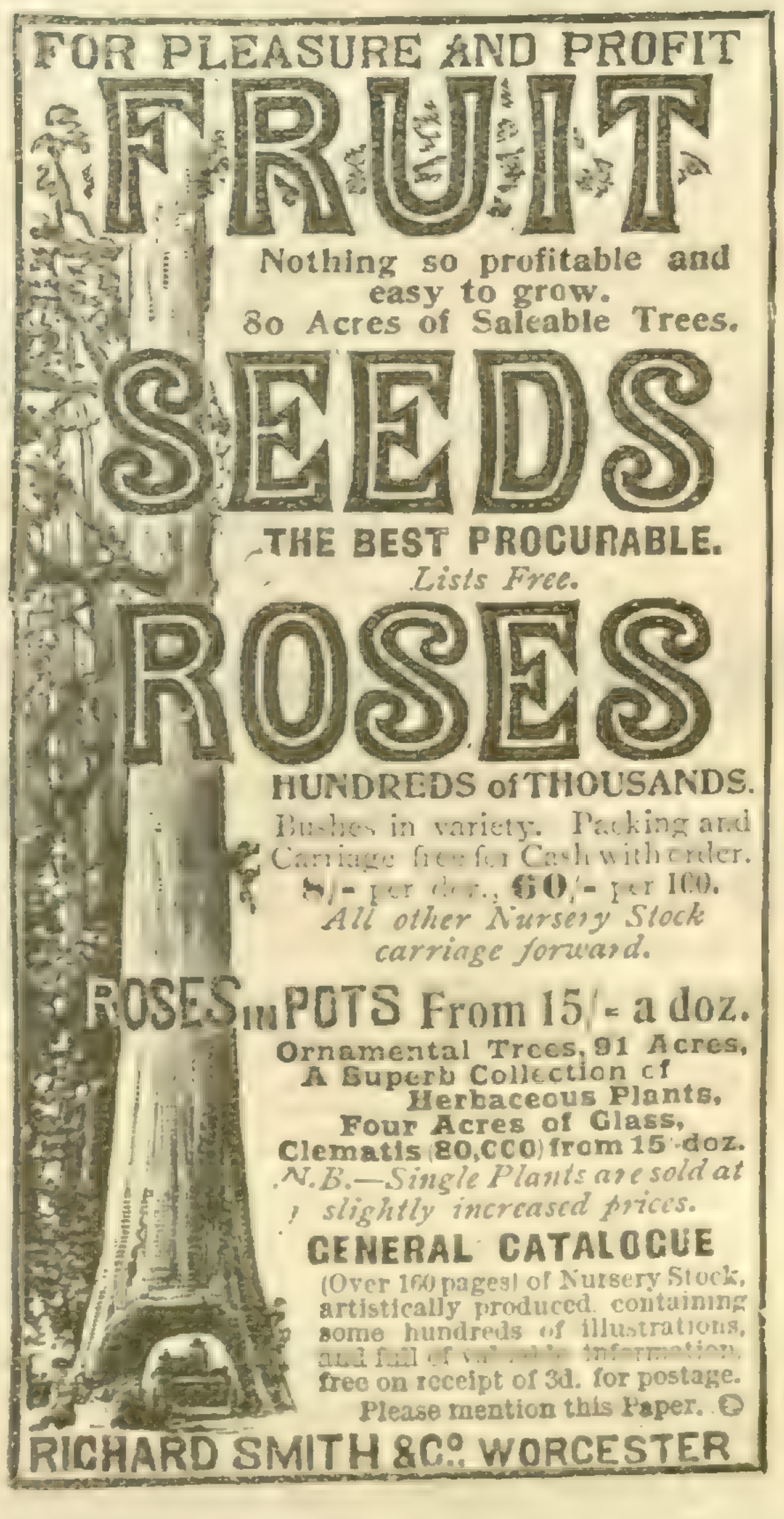

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THE GARDENERS' MAGAZINE.

SATURDAY, JANUARY 22, 1898.

CANTERBURY.—A GRAND FLORAL FETE
Will be Held on JULY, 14, 1898,
In aid of the
CANTERBURY HOSPITAL AND HORTICULTURAL AND AGRICULTURAL CHARITIES.
W. J. TAYLOR, Secretary.

SHEFFIELD CHRYSANTHEMUM SOCIETY'S
ANNUAL SHOW.
NOVEMBER 11 and 12, 1898.
W. HOUSLEY, Secretary, 177, Cemetery Road, Sheffield.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

DEATH.

BECKWITH.—On the 16th inst., at Tottenham, George Beckwith, of the Tottenham Nurseries, aged 77 years.

NOTES OF THE WEEK.

AWARDS TO NOVELTIES.

THE report to be presented by the Council of the Royal Horticultural Society to the annual meeting of the Fellows in February is, on the whole, so highly satisfactory, that it is impossible to peruse it without having a strong feeling of admiration for the ability displayed by the Council and officers in the management of the affairs, and experiencing considerable gratification that the society should have attained to so high a degree of prosperity. As will be gathered from the report, of which we give a summary on another page, the whole of the exhibitions and meetings were more or less successful, the work at Chiswick was carried on with the usual activity, there was a large accession of new Fellows, and, as the result of the year's operations, the Council was able to carry forward a substantial amount into this year's accounts. There is, however, one matter to which reference is made by the Council that detracts somewhat from the pleasure experienced in reading the report, and that is the necessity which has again arisen for the Council to urge upon the several committees the importance of checking the tendency to making awards to novelties in too lavish a manner. The committees were in no way wanting in liberality during the past year in the allocation of medals to those who contributed to the exhibitions, for these included fourteen gold medals, and proportionate numbers of medals of less value; but with these we are not specially concerned at the present moment, and speaking in a general way, the medals awarded to exhibitors in the course of the year were well deserved. The cause for the anxiety expressed by the Council, as also for apprehension on our part, is the immense number of awards made to novelties. The table of awards given in the report, shows that fifty-four first-class certificates, three hundred and forty-six awards of merit, and thirty-one botanical certificates were awarded; numbers that fully justify the Council in requesting "the several committees to consider seriously whether there is not a real danger of impairing the value of these distinctions." The question is hardly one for consideration, for the time has arrived when the committees should impose a severe check upon their generous impulses, for already the value of the distinctions conferred by them have been heavily discounted by the prodigality with which they have been distributed. It is, of course, in the highest degree essential that raisers and introducers of new plants, fruits, and vegetables should be encouraged to the fullest possible extent; but it is not less necessary that the interests of the general body of cultivators should be considered, and no award be made to a novelty unless it greatly differs from, or is a marked advance upon existing species or varieties in the same way. It is not sufficient that it should have a merely microscopic difference, or be as good as something else in the same way, and until this fact is recognised by the members generally of the committees, it will be useless to expect any material reduction in the aggregate number of awards made. It is unfortunate that while the Floral Committee has amended its method of procedure in the making of awards to plants that are widely known and generally cultivated, the Orchid Committee should confer first-class certificates upon plants that are in general cultivation. This practice should, in the case of each of the committees, have an effectual check placed upon it by the Council, for it cannot be beneficial to the society, and it certainly reduces the value of the distinctions conferred upon meritorious introductions.

VARIETY IN PLANT HOUSES.

Although it is a quite common occurrence to hear expressions of satisfaction that we have practically escaped from the thraldom of the bedding system, which thirty years ago had undisputed sway in our gardens, the general body of horticulturists are evidently oblivious to the fact that they are rapidly becoming slaves to a practice hardly less detrimental to the full enjoyment of the garden. The craze for scarlet pelargoniums, yellow calceolarias, blue lobelias, and the coloured leafage of coleus and alternantheras that reached its most acute condition during the sixties, had the effect of banishing for a considerable period a large number of our most beautiful hardy plants, and rendering British gardens as uninteresting and unattractive as can possibly be conceived. Happily, during the past fifteen years there has been a decided change for the better in the methods of embellishing the flower gardens. The great masses of gaudily coloured plants that were so painful to the eye and so objectionable to those endowed with artistic preceptions have disappeared, and the beds and borders devoted to plants that at once appeal to those who are able to appreciate beauty of form as well as attractive colouring and by reason of their flowering at different seasons contribute to the attractions of the flower garden from early in the spring until the autumn is well advanced. For this great and beneficial change in the fashion of flower gardening we have good cause for congratulation Had other fashions in horticulture been of late years equally satisfactory the garden prospect would afford unbounded pleasure; but, unhappily, whilst horticulturists have been busily engaged in rooting out one practice that has been so strongly condemned, they have been not less active in establishing another that is hardly less baleful in its influence upon horticulture. Concurrently with a decline in the popularity of summer bedding there has been an enormous increase in the use of plants and cut flowers in decorations, and the trend of public taste at the present time in matters relating to the garden is such as to justify considerable anxiety on the part of those who, and properly so, regard some diversity in the plants grown under glass as essential to the full enjoyment of the several plant houses. Nearly everything is being made subservient to the decorative aspects of plant culture, and the value of a new tender-flowering or ornamental-leaved plant is usually estimated not so much by its intrinsic beauty and interest as by its utility in the production of a bright display of colour for the decoration of indoor apartments. In consequence of this change in fashion, considerable numbers of beautiful orchids, ferns, and greenhouse and stove plants have no place in the majority of gardens, and the plant houses are shorn of their interest, which to our mind constitutes one of their great charms. It has become quite usual to find orchid houses wholly devoted to a few species and their varieties; indoor ferneries almost exclusively given up to free-growing adiantums and pteris, and the greenhouse and stove chiefly employed in the production of plants specially adapted for the production of supplies of cut flowers or the decoration of the dinner-table or drawing-room. We have consistently advocated the cultivation of plants adapted for the adornment of the home, but in all cases as supplementary to the general collection, and not, as is becoming so general, to the exclusion of all others. It is not desirable that an attempt should be made in private gardens to emulate Kew or Glasnevin, but the collections should be sufficiently comprehensive to adequately represent the vegetation of temperate and tropical regions, for only where this is done can the garden properly fulfil its mission, and give unbounded interest and pleasure to those who come within its influence.

PLANT SLEEP.

The ebb and flow of vitality in all living organisms is a very curious phenomenon. In the vast majority of cases it synchronises either with the appearance or disappearance of the sun, as with man and most animals, with whom the season of darkness is the season of sleep; with the lowering of temperature in the winter time, as with most plants, whose sleep is annual; or with periods of alternate drought and wet, as in the tropics, where dormancy is enforced by lack of moisture. Nature, however, with her usual disregard of hard and fast lines, has her exceptions in all these cases; hence we have beasts and birds and insects which seek their prey under cover of the night, and sleep in the daytime; flowers, like the evening primrose tribe (*Œnothera*), which open their petals to the setting sun to woo the nightingale's kisses, and plants of the most succulent character, the ice plant to wit, which, defiant of heat and drought, flourish despite them. Many plants, too, take nightly rest like man himself, and, like the woodsorrel (*Oxalis*), fold up their leaflets when the sun goes down and sleep till dawn. Then, too, our familiar garden plants belong to two categories, the one the children of the summer sun, both annuals and perennials, the other the firstlings of the spring or, like the Christmas roses, pale offsprings of King Winter himself; and if we take a stroll round our gardens now, and use our eyes we shall see a thousand evidences of life, though, to a casual glance, the sleep is general. All the spring bulbs—the tulips, hyacinths, scillas, crocuses—are on the move, and every here and there their sharply-pointed spikes can be seen pushing their way to the light. The Spanish iris is up in spiky profusion several inches, and the first wedges of the daffodils show here and there with promise of the golden blooms to come. Not only the bulbs, however, are busy preparing for the fray ; in the hearts of the pæony the red buds are swelling ; the primulas and auriculas are profiting by the mild season to show their sleep is half a makebelieve ; megaseas globular sheaths, in which the blossom lies, show fresh, clean surfaces as that blossom swells. The hepaticas in their hearts show nascent hairy buds, and nine perennials out of ten are plainly on the move. Even the ferns in some species are fattening up their crowns, and show new growth in their centres, though we may be certain that no blandishments of the weather will induce them to rise for two or three months to come. This brings us to the curious fact that few plants, under natural conditions, are premature in their full awakening. All this that we have noted is a slow preparation, but these visible spikes and nascent growths are either hard-frost proof or developed under protecting débris, so that, should a cold snap occur, no harm is done to the blossom hid deep within, which will remain snugly ensconced there until the proper period arrives for their full development. It is our highly-cultivated plants which lose their instincts as it were, or cling maybe too long to inherited habits developed in other climates. But, truth to tell, the English spring is a tricksy season, ruled seemingly by Puck himself, and it must be indeed a wise plant which never gets caught, not "napping" indeed, but wide awake when it should not be.

American Apple Grub.—There is some reason to fear that our already much-infested apple trees have acquired yet another pest from America. Many of the apples from a Devonshire orchard were observed to be perforated by some insect, and the injury was attributed to the familiar "codlin moth," Carpocapsa pomonella. Something unusual in the appearance of the injured fruit, however, induced a member of the Royal Agricultural Society to send a specimens to the Zoologist. Unfortunately this was not until October 26, when the fruit had been deserted by the insect, and there was no clue to the depredator beyond the appearance of the injury. Clearly this was not the work of the codlin moth, but of some smaller insect present in considerable numbers. Precisely similar injury is, however, wrought in the Northern States of America by the larva of a fly scientifically known as Trypeta pomonella, an insect somewhat closely allied to our "celery fly." The absence of any pest hitherto known in England capable of causing this particular injury, and the exact correspondence between the damaged apples from Devonshire and American apples attacked by the "apple-grub," leave very little room for doubt that this destructive pest has obtained a footing in our country. In the case of apples infested by the "apple grub" instead of the one or two large tunnels of the codlin caterpillar, the fruit is riddled with small borings, and, at a later stage, there are numerous surface holes at which the grubs have escaped to pupate in the ground. There are two possibilities which may be suggested. The pest may have been present among us for some years, but its injury attributed to the codlin moth. On the other hand this may be in reality its first appearance, but it by no means follows that our climate will allow it to survive the winter and continue its depredations next spring. Other pests have made a similarly sudden appearance and flourished for a season, but have been unable to maintain their ground. The best means of checking the pest is the gathering up of the injured apples as soon as they fall from the trees, and before the grubs have time to enter the ground to pupate ; and as this measure is equally effective against the codlin moth, it cannot be too strongly insisted upon.

Honours for Chrysanthemum Growers.—Among the French New Year's honours to horticulture, we are much pleased to find that our old friend, M. H. Fatzer, the well-known cultivator of large-flowering chrysanthemums, grapes, &c., has been appointed a chevalier of the Mérite Agricole by the French Government, another testimony to the impartiality with which distinguished service in horticulture is recognised by the French, for M. Fatzer is not a French subject but a native of Switzerland. M. de Reydellet, the seedling raiser, has also received the same distinction.

Annuals and Biennials for Decorative Purposes.—N. N. Sherwood, Esq., Master of the Worshipful Company of Gardeners, having signified his intention of giving R.H.S. a silver cup annually, of the value of £10 10s., and having left to the Council the decision as to what it shall be given for, it has been decided to award it this year to the exhibitor who shall obtain the highest total number of marks at the meetings in June, July, August, and September 6, for collections illustrating the suitability of annuals and biennials as cut flowers for decorative purposes. Exhibitors may exhibit at any one or more or at all of the meetings during the months named. Marks will be given at each meeting, and the total announced after September 6. The contents of each tube must consist of one variety only, but in addition to the flowers shown in tubes, an exhibitor may set up at each or any of the meetings not more than three plain glass vases containing an assortment of varieties and kinds arranged for effect—all stalks touching the water or sand. The vases must be provided by the exhibitor, and must not exceed six inches in diameter, and may be filled with water or with wet sand at exhibitor's pleasure, always remembering that the clearness of both water and glass is a distinct point of advantage in decorative vases.

The New Open Space at Islington, a part of the Cattle Market area, was purchased recently for the sum of £8,000. The vestry of the parish of Islington has now voted £10,500 for the purpose of laying out the space as a recreation ground and garden. A large covered space for the use of children on rainy days, and also a museum, are contemplated. Such a garden as this will be a great boon to the population of a very congested area.

Weather Influences on Farm and Garden Crops.—At the annual meeting of the Royal Meteorological Society, the President, Mr. Edward Mawley, gave an address on "Weather Influences on Farm and Garden Crops," in which he pointed out the intimate connection between meteorology, agriculture, and horticulture. He explained the special characteristics of the climate of the British Isles as regards temperature, rainfall, &c. Of all the influences brought to bear on vegetable life by the atmosphere, he considered temperature to be the most powerful and far-reaching, and only second to this came rainfall. The leading effects of snow, wind, and sunshine, as well as of prolonged droughts, severe frosts, and persistent rains, were also described. He then dealt with the influence of different important changes on such farm crops as wheat, roots, grass, &c., as well as on fruit trees, vegetables, and flowering plants in the garden. In his concluding remarks he called attention to the great want of experimental farms in conjunction with meteorological stations being estsblished in this and other countries in Europe. For it was only by the examination of meteorological observations, together with weekly records of the extent and growth made by our leading crops, that the close connexion existing between weather changes and their influences on such crops could be clearly traced.

Veitch Memorial Trust.—At a meeting of the trustees, held on January 19, Dr. Maxwell Masters in the chair, it was unanimously resolved that medals for objects to be hereafter determined should be allotted for the present year, at exhibitions to be held at Bristol, Leicester, and Cardiff respectively. A sum of £20 was voted to the trustees of the Lindley Library towards the preparation of the catalogue now in progress. Medals were also allotted to M. Marliac, in recognition of his success as a hybridiser ; to M. Ed. André, of Paris ; and to M. le Comte de Kerchove, of Ghent, President of the Royal Agricultural and Botanical Society of Ghent, for their respective services to horticulture.

The Hamburg International Horticultural Exhibition that was such a prominent feature in the horticultural world during 1897, was brought to a successful close last October. The accounts have been now closed, and it appears that there is a profit of 300,000 marks (about £15,000). A material portion of the income was derived from the rental of dining halls, restaurants, and sale of privileges ; season tickets realised 810,000 marks, and daily tickets 770,000 marks.

Watercress Culture.—The remarkable increase that has during the past two decades taken place in the consumption of the most wholesome of our salad plants should obtain a large share of attention for the paper which Mr. W. W. Glenny has contributed to the Royal Agricultural Society's Journal on the history and cultivation of watercress. Watercress is an indigenous cruciferous plant, growing freely in wet and especially in shallow places, and has probably been used as a salad plant in this country from time well-nigh immemorial, supplies being obtained from neighbouring brooks and streams. It has long been cultivated in some parts of the Continent, notably in the neighbourhood of Erfurt, but it was not until the beginning of the present century that the watercress was included amongst the cultivated plants of Great Britain. It appears that in 1808 William Bradbery first started the cultivation of watercress at Springhead, about one and a half miles from Northfleet, Kent, and close to the secluded village of Swanscombe ; and in a comparatively short period the cresses from these beds were highly esteemed, and the cultivation of watercress at Springhead has been continued until the present time. Mr. Sylvester carries on the business founded by Bradbery in 1808, and the cresses grow as vigorously as at first, owing in a large measure to the plentiful supply of water from the chalk. The cultivation of watercress is carried out on a large scale at Mapledurwell, Overton, and Echinswell in Hampshire, at Kintbury in Berkshire, at Abinger Hammer near Dorking, at Arundel in Sussex, at Rickmansworth and other parts of Hertfordshire. Ten or eleven years after commencing the cultivation of watercress at Springhead, Bradbery migrated to West Hyde, near Rickmansworth, and established watercress culture on scientific lines, and it has been continued ever since by himself and his descendants. On February 19, 1822, Bradbery was presented by the Royal Horticultural Society with their silver medal in recognition of the public services he had rendered in founding the industry ; and this medal is still in the possession of his son. While Bradbery greatly appreciated the honour conferred upon him, it is conjectured that it cost him at least £1,000, as the presentation directed general attention to the industry, and a considerable number of persons engaged in watercress culture, with the result that there was a reduction in the value of the produce. With regard to the area under watercress culture, Mr. Glenny states that "on the Colne, between North Mimms and Staines, there are about twenty-two acres ; on the river Gade, between Great Gaddesden and Rickmansworth, about forty-two acres ; on the river Bulbarne, from Dudswell to Hemel Hampstead, about forty-one acres ; on the Mibaume Stream, from Great Missenden to Denham, about seven acres ; on the river Chess, between Chesham and Rickmansworth, about sixteen acres ; on the Aldenbaume, between Fulmer and Ives, about four acres ; on the river Ver, from Marget to Watford, about five acres ; on the Tillingbourne, between Abinger Hammer and Chilworth, about fifty-one acres."

Edible Fungi on Beech Trees.—A box of fungi was sent by Lady Cave, Clere Hall, Downend, near Bristol, to the Scientific Committee of the R.H.S., but, as that body was unable to identify the specimens, they were forwarded to Kew. The report from Kew stated that the species was Pleurotus ostreatus *Jacq.*, one of the best and safest of edible fungi. The specimens were taken from a very old beech in the gardens of Clere Hall. They were growing on the wood about twelve feet from the ground.

The Reading Gardeners' Association held a tea and smoking concert in the Abbey Hall on the 17th inst., when about a hundred members came together and spent an enjoyable evening. Mr. C. B. Stevens, president of the society, occupied the chair, and the musical programme was carried out by members and a few friends.

Royal Gardeners' Orphan Fund.—We have much pleasure in announcing that C. E. Keyser, Esq., of Aldermaston Court, Reading, late of Stanmore, will preside at the festival dinner of the Royal Gardeners' Orphan Fund, which is to be held at the Hotel Metropole on April 20.

R.H.S. Lectures.—The lectures to be given at the afternoon meetings of the Royal Horticultural Society during the current year are as follows: The Rev. George Henslow, V.M.H., who has been appointed Professor of Botany to the society, on "Some of the Plants Exhibited," March 8, May 10, June 28, October 11, November 8, and December 13; Mr. J. J. Willis, "Soils," March 22; Mr. J. Enock, "Blight and Blessing," April 12; Mr. F. W. Burbidge, V.M.H., "Sweet-scented Leaves *versus* Fragrant Flowers," April 26; Mr. J. O'Brien, V.M.H., "Hybrid Orchids," June 14; Mr. N. N. Sherwood, V.M.H., "Edible Peas," July 12; Mr. A. B. Freeman-Mitford, C.B., "Economic Uses of Bamboos," July 28; Mons. Latour Marliac, "Water Lilies," August 9; Mons. Henri de Vilmorin, "Perpetual Strawberries," August 23; Mr. T. W. Birkenshaw, "The Disa," September 6; Mr. W. Roupell, "Fruit Growing in Suburban Gardens, September 20; Mr. George Gordon, V.M.H., "Experimental Horticulture," October 26; and Mr. A. D. Hall, Principal of the South-Eastern Agricultural College, Wye, "Artificial Manures in the Garden," November 22. The afternoon meetings will, as usual, commence at three o'clock.

The Gardeners' Royal Benevolent Institution is being steadily built up in a most substantial manner, for its invested funds are now bringing in an annual income of over £850. It will be of interest to many, especially in view of the annual meeting and election of pensioners, in progress as we go to press, to know how and what are the funds invested. They are as follows: Two and Three-quarters per Cent. Consolidated Stock, £5,000; India Three per Cent. Stock, £2,664 19s. 10d.; London and North-Western Railway Three per Cent. Debenture Stock (cost £5,363 8s. 6d.), £5,000; Midland Railway Three per Cent. Debenture Stock (cost £5,865 4s. 9d.), £5,414 2s.; Great Indian Peninsula Railway Five per Cent. Guaranteed Stock (cost £5,062 19s. 9d.), £3,000; Manchester Corporation Three per Cent. Stock (cost £4,133 6s.), £4,054 12s. 9d.; Midland Railway Three per Cent. Debenture Stock (cost £500), Mr. and Mrs. Harry J. Veitch's Special Fund, £479 10s. 4d.; Liverpool Corporation Three-and-a-Half per Cent. Stock (Wm. Thomson Memorial Fund), (cost £257 3s. 5d.), £195 14s.; Cardiff Corporation Three per Cent. Stock (cost £535 1s.), £500; and Liverpool Corporation Three-and-a-Half per Cent. Stock (cost £409 10s.), £312 19s. 9d. The new investments are: (J. M. Thomson legacy) India Three-and-a-Half per Cent. (cost £457 5s. 11d.), £389 10s. 9d.; and Victorian Era Fund, Great Western Guaranteed Five per Cent. (cost £4,075), £2,128.

Technical Education.—At the close of an interesting lecture on the subject of edible stemmed plants for food, delivered by Mr. A. Dean, one of the horticultural lecturers to the Surrey County Council, before the members of the Chiswick Gardeners' Mutual Improvement Society, on the 6th inst., there being a large attendance, one member referred to the energetic action of the Surrey County Council in providing able lecturers for that county, whilst the Middlesex County Council, so far at least as horticulture is concerned, did nothing. Mr. Dean, in replying, said it was a grave matter that the large sum paid to the Middlesex County Council by the State for essentially technical education purposes, should not be fully applied to that object. It was so in almost every other county in the kingdom, only a few councils failing to realise the importance of secondary education. It was particularly noticeable in Middlesex, because that county was probably more than any other, for its area, dependent for its prosperity on gardening, especially for market purposes. He suggested that the committee of that society should send to the county council a copy of their present season's lecture-list, which was an admirable one, and at the same time ask for a grant from the technical education subsidy in aid of their objects. It would be a good thing did every similar society in Middlesex make similar demands on the county council, as that would help to instruct the members as to their duty in relation to technical education. It would equally be well did gardeners' mutual improvement associations all over the kingdom make similar requests from their respective county councils. In the course of the discussion a member drew attention to the recent award of scholarships by the London County Council, to be utilised at the Regent's Park Botanic Gardens. This evoked some criticism, as these gardens, it was pointed out, could not instruct in complete practical gardening, but only in that of a decorative character. In returning thanks for a cordial vote given for the lecture, Mr. Dean strongly urged the young members present to sit as candidates at the forthcoming examination of the Royal Horticultural Society in April next.

Attraction of Flowers for Insects.—A summary of Professor Plateau's views, after numerous experiments, with respect to the conditions which induce insects to visit flowers, is given in *Nature*. The professor states that in seeking for pollen or nectar, insects are guided only to a subsidiary extent by the sense of sight. They continue to visit scented flowers after the coloured parts have been almost entirely removed. When flowers of the same species vary in colour, they exhibit neither preference nor antipathy for one colour over another. Inconspicuous flowers hidden among foliage attract large numbers of insects. Artificial flowers made of paper or calico, even when brightly coloured and closely resembling real flowers, are not visited by insects; but they are when made of green leaves which have a vegetable scent. If flowers which have little or no nectar, and which are therefore habitually neglected by insects, are smeared with honey, insects are attracted in large numbers. On the other hand, if the nectary is removed from flowers habitually visited, their visits cease at once. M. Plateau has paid especial attention to entomophilous flowers, and finds that their exemption from the visits of insects is due mainly to their not providing them with honey. From all these facts M. Plateau draws the conclusion that the guiding sense to insects in visiting flowers must be chiefly the sense of smell.

ROYAL HORTICULTURAL SOCIETY.

Summary of Annual Report.

THE Council of the Royal Horticultural Society state in their report to be presented to the annual general meeting of Fellows to be held at the society's offices, 117, Victoria Street, Westminster, on Tuesday February 8, that the year 1897 will long be remembered as the Diamond Jubilee year of Her Most Gracious Majesty, patron of the society, remembered too, for the innumerable projects set on foot in celebration of the event. In the report for 1896 the Council announced that they had no intention of adding to the number of projects by starting any ambitious horticultural celebrations, which would lay any strain upon the resources of individual Fellows. They stated that they proposed to establish a medal of honour in horticulture, and they had obtained the sanction of Her Majesty to call it the Victoria medal. This proposal has been duly carried out; the medal has been prepared, and conferred on sixty recipients distinguished in various ways in our art and science; and it it believed to be the only medal associated with Her Majesty's Diamond Jubilee, with the exception of the one founded by herself. It is moreover the only horticultural distinction in this country that is conferred for personal merit only, and is entirely unconnected with prize-winning. By their action in this matter the Council consider they have commemorated Her Gracious Majesty's Jubilee in a becoming and enduring manner: in a manner absolutely distinct from all celebrations; in a manner that lays no tax upon the Fellows of the society; in a manner distinctly to the advantage and encouragement of horticultural skill and effort; and lastly, in a manner which will carry down to all future generations of horticulturists, the memory of Queen Victoria's long and happy reign.

Under the head of ordinary expenditure at Chiswick £1,850 has been spent on the general work and maintenance of the gardens. Amongst other work. House No. 11 has been partially, and No. 10 entirely rebuilt, whilst No. 5, devoted to peaches, has been raised in height and a new roof put on. All this work has been done by the society's own staff of men. The receipts by sale of surplus produce amount to £357, making the net ordinary cost of the gardens £1,493.

At Westminster, twenty fruit and floral meetings have been held in the Drill Hall, James Street, Victoria Street, and fifteen committee meetings have been held at Chiswick, besides the larger shows in the Temple Gardens on May 26, 27, and 28; and at the Crystal Palace on September 30, October 1 and 2. Lectures have been delivered at seventeen of the meetings, exclusive of those given at the Crystal Palace. The number of awards granted by the Council, on the recommendation of the various committees, has been as follows: Gold Medal, 14; Silver-gilt Flora, 55; Silver-gilt Knightian, 18; Silver-gilt Banksian, 35; Silver Flora, 132; Silver Knightian, 50; Silver Banksian, 153; Bronze Flora, 16; Bronze Knightian, 4; Bronze Banksian, 54; First Class Certificate, 54; Award of Merit, 346; Botanical Certificate, 31; Cultural Commendation, 46; total 1,008.

The Council must again express their opinion that there still appears to be a tendency to multiply unduly the awards recommended, and they earnestly request the several committees to consider seriously whether there is not a real danger of impairing the value of these distinctions by such increase of their number; and whether it would not be possible, as well as politic, to be somewhat less generous in the recommendation of awards during the ensuing year. This is a question which the Council cannot but regard with solicitude, and they hope that every member of the committees will consider that he has a real individual responsibility for the welfare of the society in this matter.

On Wednesday, July 14, the Council invited all the members of the several committees to lunch with them at Chiswick, and to examine the Gardens. After the luncheon an address was delivered by Dr. Maxwell Masters, F.R.S., on the possibility of an extended usefulness of the Gardens.

The Council desire to draw the attention of all Fellows of the society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of, or injuries to plants, caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the best advice on all such subjects, either in respect to the prevention or cure of disease. The committee is also glad to receive specimens of any subjects of horticultural or botanical interest. The Council wish to express their thanks to the Director of the Royal Gardens, Kew, for allowing them to consult Mr. Massee, F.L.S., on the fungoid diseases, &c., brought before the Scientific Committee, and to that gentleman for his readiness in giving them the advantage of his knowledge and advice.

That Fellows, whether near or at a distance, may derive as much benefit as possible from their connection with the society, the Council have recently appointed Dr. J. Augustus Voelcker, M.A., consulting chemist to the society, and have entered into an arrangement with him whereby all Fellows who are amateurs or *bona fide* gardeners, may obtain at very small cost analyses of manures, soils, &c., or advice as to what description of chemical manure will be most suitable and profitable for application to any particular soil. The Council wish to draw particular attention to two points, viz.:—

(i.) That Fellows desiring an analysis must follow explicitly and exactly the directions laid down in the Book of Arrangements, 1898; and

(ii.) That Fellows who are in any way commercially interested in any artificial manure trade or horticultural business cannot claim Dr. Voelcker's assistance as Fellows, but if they wish to consult him must do so in the ordinary way of business.

The society's great show held (by the continued kindness of the Treasurer and Benchers) in the Inner Temple Gardens, was as successful as ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show. The exhibition of British-grown fruit held by the society at the Crystal Palace on September 30, October 1 and 2, was, considering the season, eminently satisfactory. A certain amount of dissatisfaction has arisen from the fact that whereas classes have been provided specially for amateurs and gentlemen's gardeners, and also for nurserymen, there have been no classes in which growers for market could properly exhibit. This will in future be avoided by the addition of a division for growers for market only.

As an object-lesson in British fruit cultivation this annual show stands unrivalled, and is of national importance. The Council invite Fellows and their friends to support it, for it cannot be too widely known that the continuance of the show is absolutely dependent on at least £100 being raised by subscription each year towards the Prize Fund. The show involves the society in a very large expenditure without the possibility of any return. The Council have therefore established the rule that they will not continue it unless sufficient interest in it is taken by Fellows and their friends to raise £100 towards the Prize Fund. Subscriptions for this purpose should be at once sent to the Secretary, 117, Victoria Street, Westminster, and if the list prove satisfactory the schedule will be issued in April, and the show will be held on September 29, 30 and October 1, 1898.

A deputation was sent by the Council, at the invitation of the local authorities, to attend the great horticultural gathering at Shrewsbury in August. The Council gladly embraces this opportunity of congratulating Shrewsbury on the magnificent display of horticultural skill and enterprise made at their show, and of recording the very great pleasure which this visit gave them, and their appreciation of the great courtesy and hospitality with which they were received. An invitation has been received and accepted for a similar deputation to visit a show, to be held at Newcastle-on-Tyne, on July 13, 14, and 15, 1898, by the Botanical and Horticultural Society of Northumberland, Durham, and Newcastle-on-Tyne.

The *Journal* of the society has been continued so as to enable Fellows at a distance to enter more fully into, and reap the benefits of the study and work of those actively engaged at head-quarters. Vol. xx., part 3, and parts 1 and 2 of Vol. xxi., were issued during the year, and vol. xxi., part 3, will be ready in March.

The Council have heard with much pleasure that Mr. G. W. Burrows, a member of the court of the Worshipful Company of Gardeners, has most kindly offered, in connection with the society's 1898 examination, a scholarship of £25 a year for two years; full particulars of which will be found in the society's arrangements for 1898, lately issued to all Fellows. Another similar scholarship has been promised for 1899 by the Right Hon. the Lord Amherst of Hackney, through the same worshipful company.

Acting in conjunction with the Lindley trustees, the Council have devoted considerable attention to the library, All serial publications have been kept up to date, a large number of valuable volumes have been bound, and the following new books, amongst others, added to the library, viz.: "The Flower Garden of Ornamental Bulbous Plants," Labouret's "Monographie de la famille des Cactées," Sweet's "Florist's Guide," "The Floral Cabinet and Magazine of Exotic Botany," "The Yew Trees of Great Britain and Ireland," &c., &c.

The hearty thanks of the society are due to all the members of the standing committees, viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments; to Mr. N. N. Sherwood and Mr. C. J. Grahame; to all those who, either at home or abroad, have so kindly presented books to the library, or plants or seeds to the gardens; and to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall. They are glad to find by the increased and increasing number of visitors that the society's fortnightly meetings are becoming better appreciated by the Fellows and public in general. In their judgment these shows, which take place at short intervals throughout the year, furnish horticultural displays and teach horticultural lessons which cannot be obtained elsewhere in the kingdom.

The Council are glad to be able to announce that they have appointed the Rev. George Henslow, M.A., V.M.H., F.L.S., &c., to be Professor of Botany to the society, and Professor Henslow has kindly undertaken to give addresses at a number of the 1898 meetings, drawing attention to interesting points connected with some of the plants, &c., exhibited. The Council are confident that these "demonstrations" will be greatly appreciated by the Fellows.

A scheme for the affiliation of local horticultural societies was put forward in 1890, and ninety-one local societies have availed themselves of it. The Council express the hope that Fellows will promote the affiliation of local horticultural and cottage garden societies in their own immediate neighbourhood.

The Council have the sad duty of recording the death of fifty-three Fellows during the year, and among them they regret to find the names of Dr. Robert Hogg, one of the most staunch and energetic supporters of the society, and the leading authority in fruit nomenclature, James Bateman, the pioneer of orchid culture in this country, and author of the "Orchidaceæ of Mexico and Guatemala," Colonel Trevor-Clarke, W. G. Head, Robert Owen, James Cocker, George Rennie, and Francis Fell. The following table will show the society's progress in regard to numerical strength during the past year:—Deaths in 1897, 53, resulting in a loss of income of £68 5s.; resignations, 50, resulting in a loss of income of £66 3s. The total loss of Fellows was 103, and of income £134 8s. Fellows elected and societies received into affiliation 1897, 428, representing an annual income of £551 15s. 6d.; deduct loss, £134 8s.; net increase in income, £417 7s. 6d.; new Fellows, &c., 428; deduct resignations and deaths, 103; numerical increase, 325.

From the annual revenue and expenditure account, we learn that the expenditure was as follows: To establishment expenses, £1,960 14s. 3d.; Victoria medal of honour, £174 14s. 3d.; shows and meetings, £968 17s. 8d.; prizes and medals, £525 14s.; Chiswick Gardens, £1,851 6s. 1d.; balance, £822 7s. 4d.; total, £6,303 13s. 7d.

The income was as follows: By annual subscriptions, £3,824 12s. 6d.; shows and meetings, £1,528 11s. 5d.; advertisements in journal, £323 0s. 4d.; sale of journal, £36 9s. 9d.; miscellaneous receipts, £40 8s. 6d.; dividends, £117 9s.; interest on deposit, £15 6s. 4d.; prizes and medals, £60 12s. 6d.; Chiswick Gardens, £357 3s. 3d.; total, £6,303 13s. 7d.

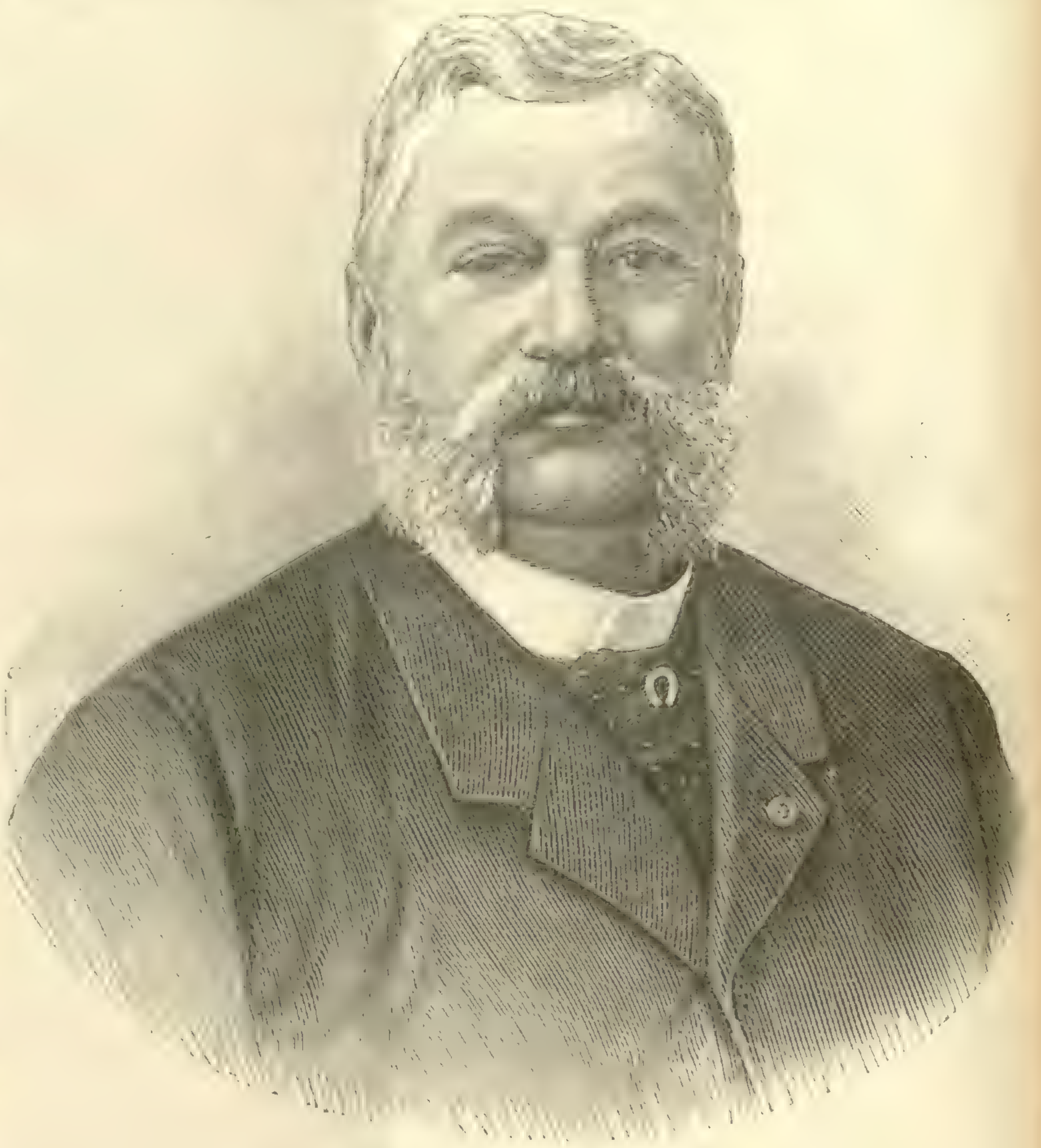
The balance-sheet shows that the society had at the end of the financial year the sum of £4,218 7s. 3d. invested, and of £963 7s. 9d. in cash, on current and deposit accounts and in hand.

The usual changes in the constitution of the members of council will be made. The three retiring members are: Mr. Norman C. Cookson, Mr. James Douglas, and Mr. T. Gabriel; and the Fellows recommended to fill the vacancies are: Sir F. Wigan, Bart., Mr. J. Gurney Fowler, and Mr. James Hudson.

Mushroom Culture on a Large Scale is carried on in Edinburgh in a disused railway tunnel that lies sixty feet below the streets. This tunnel is three thousand feet long, and here Messrs. Robert and John Paton have for the past ten years produced immense quantities of the common edible fungus until they now practically control the market. It is said that when in full operation about one thousand tons of manure and one thousand bushels of spawn are used per year. There are about eight hundred mushroom beds in all, and the great success in every case is largely due to the fact that in this tunnel the temperature varies only to the extent of ten degrees from summer to winter. In cases of prolonged severe frost a fire is lighted in the mouth of the tunnel. With the exception of a single set of rails along the centre of the tunnel all the floor space is covered with mushroom beds, chiefly twelve feet by three feet in size. Cleanliness is practised more than anyone might expect, for the walls and roofs are periodically whitewashed, and it is said that the cost on each occasion reaches £300. The output is, of course, enormous, the highest for one month being 5,000 lb., whereas ten years ago we mostly used French mushrooms; now the imported produce is but a small part of the total supply.

THE LATE M. JEAN LINDEN.

THE remains of this distinguished explorer and horticulturist were laid to rest within the precincts of the church of St. Josse-ten-Noode in the forenoon of Friday the 14th inst., in the presence of a large number of private friends and the representatives of botany, horticulture, literature, and the fine arts. The Grand Duke of Luxembourg was represented by Comte d'Ansembourg, and among those present, who are closely identified with botany and horticulture, were: M. Ferdinand Kegeljan, president of the Horticultural Society of Namur; Dr. E. Rodigas, director of the Ghent School of Horticulture; M. Lubbers, secretary of the Royal Floral Society; M. Louis Van Houtte and M. Romain de Smet, delegates of the Syndicate of Belgian Horticulturists; M. Gillekens, M. Jean Van Lagenhove, Ghent; M. de Lombaerd, M. Ernest Delaruye, delegate of the Cercle Van Houtte; M. Crepin, M. Jaoris, M. Madoú, Dr. Capart, Marquis de Wavrin, M. Peteers, M. de Langhe, M. Vervaen, M. Stepman, M. de Messemaeker, M. de Craen, and M. Longe. As a commander of the Order of Leopold, M. Linden was accorded military honours by detachments of grenadiers and carbineers.


THE LATE M. JEAN LINDEN.

The chapel presented an imposing appearance, for it was gracefully decorated by fine palms, emblems of immortality. Crowns, sheaves, and crosses of natural flowers were abundant, and the immense number of orchids sent showed that a wide circle regarded Mons. Jean Linden as the father of orchid introduction. The members of the family, L'Orchidéenne, L'Horticulture Internationale employés, M. M. Wincqz, du Trien de Terdonck, Marquis de Wargny, Joris and Stepman, were among the large number of those who contributed handsome crowns of flowers. Among those gathered to do honours to the great departed, three made brief reference to his ability and character. These were M. Kegeljan, who spoke in the name of L'Orchidéenne; M. Rodigas, in the name of the Ghent School of Horticulture; and a delegate from the Union of Old Students of the Brussels University. The universal esteem in which the late Mons. Linden was held was once again fully demonstrated at his funeral.

ANCIENT SOCIETY OF YORK FLORISTS.

THE annual meeting was held on the 12th inst. at the Agricultural Club Chambers, Mr. J. E. Wilkinson presiding over a large attendance. The report presented by Mr. J. Lazenby, the secretary, showed that the year's work had been very satisfactory. The five usual minor shows were held, and the April, July, and September shows were excellent. Hyacinths, auriculas, roses, dahlias, asters, &c., were largely shown, and were above average in quality. After describing the general excellence of the floral display, the fruit, &c., the report expressed obligation to donors of special prizes. Financially, it was satisfactory to note that at the close of the year there was a balance in hand of £180 11s. 11d., as against £177 17s. 1d. last year. There was a decrease in subscriptions from members. Loss by death and removals from the city had unusually affected the society, but recently there had been accessions which had more than balanced the loss. Thanks were expressed for the lecture delivered by the Rev. Gordon Salmon on "Hardy Fruit Culture," and to the Dean of York for presiding. The report was duly adopted.

Sir Joseph Terry was unanimously re-elected president, but, owing to his sudden decease on the following day, a new president will have to be elected. Mr. Lazenby was again elected secretary. For the minor shows of 1898 £70 was voted, and £170 to the chrysanthemum show. Votes of thanks to the officers of 1897 and to the chairman concluded the proceedings

A Useful Gardeners' Almanack has been published by the Isle of Wight Gardeners' Association. It gives the dates of the various Island shows, and of R.H.S. and N.C.S. meetings, and includes a calendar of garden operations, planters' tables, and list of books relating to horticulture. It is a very handy production.

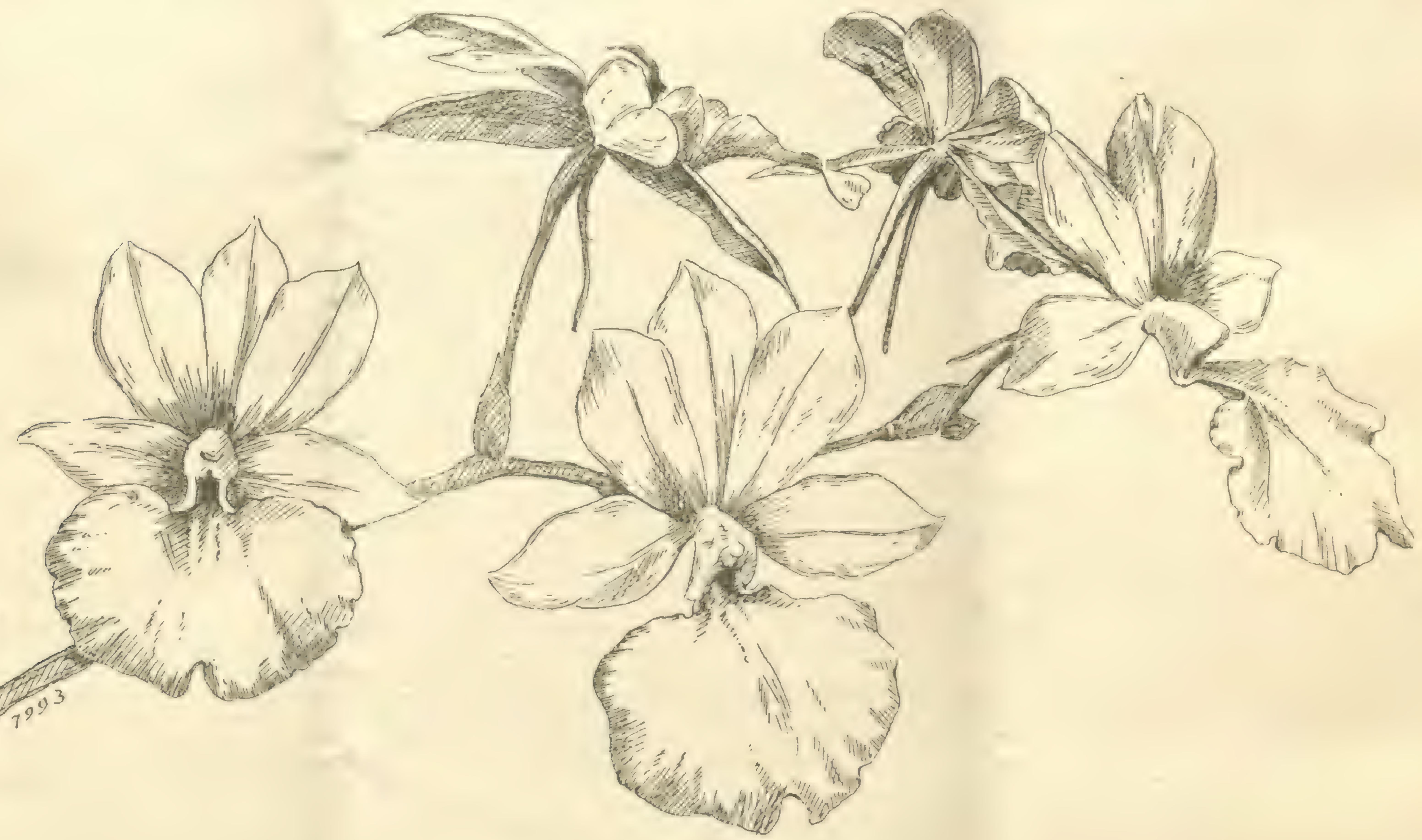
NOTES ON ORCHIDS.

Odontoglossum asperSum.

This orchid is considered by some to be a natural hybrid between O. maculatum and O. Rossi. It will now be in flower in most collections, taking a high position among the smaller growing odontoglossums. The flowers are decidedly attractive and distinct. The pseudo-bulbs are as a rule flatter than those of O. Rossi, but about the same size. It may be grown in pans suspended from the roof in a cool and moist temperature, and an ordinary description of compost suffices if placed over good drainage. This odontoglot is apt to be badly attacked with a soft whitish scale which increases very rapidly and soon disfigures the foliage, but if the plants are washed or sprayed with XL All liquid insecticide whenever any traces of the insects are seen, it will be found to destroy them without injury to the plants.—G. Shill, *New Hall Hey.*

Calanthe Harrisi.

One of the most beautiful and at the same time most rare of calanthes is C. Harrisi. It has pure white sepals and petals, and a rounded labellum that has a shortened base, thus rendering the flower more compact than in most species and hybrids. The lip is pure white, save for the very faintest touch of yellow along the disk; it is also very large, measuring an inch and a half or an inch and three-quarters in width. The history of this fine calanthe is somewhat obscured, though it appears to have been raised by crossing C. vestita Turneri with C. Veitchi. The late Dr. Harris was the raiser, and the specimens were, we believe, bought up, with other orchids, and in an accidental manner, by Messrs. J. Veitch and Sons, Chelsea. It flowered at Chelsea a few years ago, and subsequently a specimen passed into the hands of J. T. Bennett-Poë, Esq., Holmwood, Cheshunt, who is a remarkably successful cultivator, and soon persuaded Calanthe Harrisi to show its capabilities. This plant was exhibited on December 14 last, when it bore a spike of five flowers, as shown in the accompanying illustration. Calanthe Harrisi is the finest white calanthe yet raised, but it will not very soon be generally grown, as there are probably not more than three or four plants in cultivation.



Calanthe Harrisi. (Flowers pure white.)

Oncidium Batemannianum.

This is a species not frequently seen in gardens, but it is nevertheless very bright and attractive when in flower. It frequently blooms during the winter, and is then especially welcome. It has a very tall and stiff inflorescence, bearing a sparsely branched panicle of medium-sized flowers. The latter have yellow sepals and petals, but these are heavily blotched and barred with dull reddish brown. The lip is of a pleasing shade of bright yellow, and has a very complicated toothed crest. This oncidium is also known as O. ramosum and O. spilopterum; it is a Brazilian orchid, and its flowers show some amount of variability. In the case of this species, priority of name has not been considered, for O. ramosum was the title given by Lindley in 1837; but later, when revising the genus, he gave the species as O. Batemannianum, the name given by Knowles and Westcott in 1840. It is much to be desired that this oncidium should become more plentiful.—K. P.

Spiranthes colorans.

Under the names of Stenorhyncus speciosus and Neottia speciosa this curious West Indian orchid has long been known to cultivation. Unfortunately it went largely out of cultivation some years ago, but has recently been again brought under notice, especially by Messrs. F. Sander and Co., St. Albans. It is a terrestrial orchid, often with tuberous roots, from which it can be easily propagated. An intermediate or stove temperature will suit it, and for compost it does well in a mixture of fibrous loam, peat, sand, and a little chopped sphagnum. Good drainage is essential, as moisture has to be plentifully supplied during the period of free growth and of flowering. During the period of rest very little water is necessary, and a good plan is to plunge the pot in a larger one, filling up the space between with soil; water can then be given to the plunging material occasionally, and it will then be conveyed to the spiranthes in such a way as to prevent damping or excessive drought and shrivelling. The foliage of this species is deep green, broadly lanceolate, and fleshy; the spikes are several inches long, and borne on a stout peduncle from four to six inches in height. The flowers are small in breadth, but about three-quarters of an inch long, and scarlet in colour; the bracts are long and very showy, scarlet tipped, shading to pink. Though not so showy as some orchids, Spiranthes colorans never fails to attract attention when flowering, and as spikes may be produced during the early months of the year, it is an orchid worthy of cultivation. The species was introduced about 1790.—C.

ROOT-GRAFTING THE APPLE.

Mr. C. H. Andrews, of the Minnesota School of Agriculture, U.S.A., gives the following directions for root-grafting the apple:—

The object of root-grafting the apple is to propagate varieties true to name, and to get the union of the scion and the stock under the ground, where it will be somewhat protected. The stocks used for root-grafting are seedlings, either one or two years old, the age depending on the size required for the scions. The seedlings for this purpose are best grown on a rich, moist, sandy soil, so as to ensure a straight, vigorous growth. In autumn the seedlings are dug and packed in sawdust in a cold cellar, where they remain until wanted for grafting. The scions must be wood of the previous season's growth, and should be cut late in autumn when the temperature is above freezing, and, after being labelled, packed in sawdust in a cool place.

Grafting may be done any time during the winter. A scion five or six inches long is cut off at one end in an oblique direction, making the cut surface about an inch or so long, then a tongue is made by splitting down across the face of the cut about one-third of its length, beginning at a point about that far from the end of the scion. A piece of root four or five inches long is treated the same way as the scion was, and the two are then united, care being taken that the inner or cambium layer of the bark of the scion and the root coincides on at least one side of the union. The graft is now wrapped with waxed twine, or wax may be spread upon cloth or paper, which is then cut into strips and firmly wrapped around the union, also above and below it, so as to exclude all air. The latter method keeps the graft from drying out and does not cut into the bark after the plant grows. The grafts are packed in boxes in a mixture of sand and sawdust, and are kept until planting time in a cold cellar to callous over and grow together.

The land where they are to be set should be finely pulverised and rolled or planked to level the surface. As soon as there is no danger of a severe frost, the grafts may be planted. They are usually put six or eight inches apart in rows three or three and one-half feet apart, running the rows north and south. All shoots that may have started from the root should be rubbed off. In planting, the earth must be packed very firmly around the graft, which ought to be set deep enough so that only one or two buds will show after the ground has settled.

Cultivation should be frequent in order to kill the weeds and to keep a dust blanket on the soil, but it should not be continued later than the tenth or the middle of July, as it is likely to induce a late autumn growth that cannot be ripened up. The grafts require no pruning the first year. Early in the spring of the second season they are cut back to one or two buds, and a straight shoot is sent up, which is pruned later to make it head properly. The third season the pruning done is merely enough to keep the tree in proper shape. The growth the trees make depends a good deal on the soil, the season and the variety. Yearlings run from one foot or less to two feet in height; two-year-olds, from three to five feet; and three-year-old trees, from five to six feet. These trees after the first year develop some roots of their own, and they are thus better able than they otherwise would be to withstand a rigorous climate.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

THROUGH ORCHARDS AND BRICKFIELDS.

RATHER a strange combination perhaps you'll say, and so it may be, though interesting by contrast. Fruit growing and brick making are not occupations that one would naturally class together, but anyone travelling in that part of Kent extending from Chatham to Faversham could hardly take notice of one without being struck by the extent of the other, no matter whether seen out of the eyes of a gardener or a builder. Those whose occupation is connected with bricks and mortar know the district well, and are acquainted with the excellence of the clay for the manufacture of building material ; therefore it is the great kilns, the somewhat choking atmosphere that arises from them, the huge mountains of bricks of varying quality, and the all-important question of prices that claim the attention of the builder. The gardener and he who is interested in fruit culture sees matters from his own point of view. Bricks are nothing to him, and his interest lies in the orchards. To some extent they are inseparable, however, and one follows the other in quick rotation. First comes the brick-maker with his smoky kilns, his plant for clay grinding, and all the rest of it. He takes sole possession of a tract of land, and in course of time the top crust, of a thickness varying from six feet, disappears, goes through the process of grinding, moulding, and baking, and then plays its part in extending the arms of the great metropolis further and further into the country. Under ordinary circumstances a disused brickfield becomes a desolate region where rank grass only grows and pit-holes stand full of putrid water. The old kiln falls down a little at a time, and decay is plainly written on the whole surroundings. It is not so in East Kent, for no sooner has the brick-maker taken all that is of any good to him, when along comes the fruit farmer to reap his share—and often a golden one, for some of the most valuable orchards and plantations in the country occupy sites that once were brickfields.

This speaks volumes for the fertility of the soil in this part of Kent, and its adaptability for fruit growing. Go anywhere else you like, north, east, south, or west, and find land that will first make bricks and then grow fruit. I don't think you'll succeed ; and mind you, I don't mean fruit of the common order, small in size and of inferior quality, but first-class specimens—Pitmaston Duchess pears, averaging over a pound each ; Cox's Orange Pippin apples, that fetch the highest price in the market ; cherries that are the cream of British production, and find their way into every town of any size in the land ; not to say anything of the plums and small berried fruits, such as gooseberries, currants, and raspberries. Not all grown on disused brickfields, of course, as the land everywhere grows fruit, and grows it well ; but so close does the planter follow in the wake of the brickmaker, that almost before the latter has removed his stock-in-trade, the plough or steam cultivator is at work. And is this in our poor old worn-out England, you ask, when at the end of the nineteenth century, and the cry that land cultivation is played out is for ever booming in our ears, we still have land that will make bricks and then grow fruit? The answer is in the affirmative, but not without an effort on the part of the cultivator in preparing the land, growing the trees on the most approved principles, and above all, feeding them. "Manure! that's the secret," said a successful grower, "and plenty of it ; not always stable manure, though you need not be afraid of using that, but now and then a change in the way of a good stimulant of chemical manure." One is apt to get depressed in these days, and the story of "Wasted Orchards," so graphically depicted in these columns, told us of the ground we are losing, and the improvements that must be made to regain it. Fortunately there is a rosy as well as a seamy side ; and one begins to think that "things are not altogether what they seem," when a farmer who grows some two hundred acres of fruit comes forth and says the last was the best season he has ever had.

Such was the statement voluntarily made ; and I confess to looking in astonishment at a man—a farmer and cultivator of land for many years, in the midst of this never-ceasing cry of agricultural depression—sitting by my side, and calmly asserting that the season of 1897 was the best he had ever had.

"I've got some poor land, of course," he said, "that pays but very little ; but the other makes up for it, and some of my best plantations have been brick fields. Pears, apples, cherries, currants, gooseberries, and strawberries have all done well," he added ; "and as to prices, well, the worst apples I've got, which in former seasons I've been content to sell in the neighbourhood for what they would fetch, have all gone to London, and the prices I obtained paid well for sending them."

I know something of the grower and something of the farmer, as well as something of the business methods adopted to carry on the whole concern, and conclude that this must have a great deal to do with the success.

"I think farming is looking up," was his opinion, "and we are getting back to something like the old prices. Corn has gone up, potatos are selling well ; and as for fruit, well, I'm getting seventeen shillings a bushel for Cox's (Orange Pippin apple was meant), and I wish I'd got tons of 'em."

Seventeen shillings a bushel for apples is by no means a price to be despised, and even at a much lower rate, with an average crop, there is something to pay the rent. It is the best that commands the highest price, and whereas the king of dessert apples will always find a ready market at a remunerative price, there are numerous other sorts still grown and will hardly pay expenses. Still, some growers stick tenaciously to them, but why it is difficult to imagine. The fruit mentioned was sold in the open market, and that was the price handed to the producer. I almost dread to ask what the price would be when they reached the consumer, after the middlemen had taken their share.

"Did cherries do well last year?" I asked. "If you had any, yes," was the reply. "I was fortunate, and I daresay you won't think that a hundred pounds an acre is a bad return. But everybody wasn't so well off, as the hailstorms in the early part of the season played such havoc and ruined a good many of the crops. Prices for standing orchards ran very high, and just to give an idea of the value of the fruit an orchard of cherries—old trees some of them, really past their best—was sold freehold. It was five acres in extent, and fetched twelve hundred and fifty pounds. It will have to return something to pay an interest on that. Eh?"

Two hundred and fifty pounds an acre for land planted with cherries! And this, mind you, occurs when everybody is talking of bad times and when some go so far as to say that fruit growing is overdone. At this rate there still appears to be something in the shape of a Klondyke even in the old country. My informant went on to say that if the land in question was worth two hundred and fifty pounds an acre, he knew of other orchards worth double that amount, where the trees are younger and just at their best.

"And how does corn-growing compare with that?" I inquired.

"Not in it with good fruit. At any rate, that's my experience, and I've just planted another ten acres of cherries and the same with apples and small fruits. Black currants did splendidly last year, though in some places they were scarce. Fourteen shilling a half isn't bad ; at any rate, I'm satisfied. And as for gooseberries, I found Lads (Lancashire Lads) did the best with me. I'm planting a lot more of 'em." Here it was suggested that perhaps, if planting continued so rapidly, the thing might be overdone.

"Never," was the emphatic answer ; "there's always a demand for good fruit, because every year there is more consumed." In the remark there was a ring of confidence that told the man knew what he was talking about.

That the industry is developing is evident when one realizes that in this land of bricks and fruit, private growers have amalgamated and formed limited liability companies, with capital running into the thousands. Special trains carry their burdens of fruit in season, not only to the near metropolis, but right through its limits and on into the smoky manufacturing districts of Lancashire and Yorkshire ; and not even content with that, fruit that yesterday was ripening in Kentish fields and orchards, is to-day across the border and being dealt out to the dwellers of Glasgow and other Scottish towns. The growers speak of their gooseberries as "Lads" and "Bobs," their cherries also bearing familiar abbreviated names, and their apples are known as "Suffields," "Warners," "Kings," and "Cox's." The orchards and plantations are pretty sights, either in fruit or blossom ; but to the ordinary observer, the sulphury smell, or the dusty smoke from the brick-kilns detract largely from the beautiful, and it is hardly the place one would recommend for scenery. Close to the water, the tides in the creeks rise high and fall low, leaving murky-looking pools and ugly mud-banks, and up these channels comes the returns from the metropolis, in the shape of manure laden in barges. London manure has nothing of the wholesome stability about it that characterises that fresh from the farmyard ; but the soil is naturally good, and it does its work, especially when assisted by other stimulants, among the hops, the fruit, and potatos.

"Sold my potatos to-day," said one grower, in the midst of conversation ; "Up-to-Dates ; thirty-four pounds an acre. Not bad, that?"

No, not at all bad ; and what say those pessimists who assert that there is not a ray of hope left for English cultivators? It also speaks volumes for the heavy cropping propensities and general excellence of the variety which, as it becomes more widely known, is increasing in popularity. Up-to-Date it surely is, in more ways than one, as thirty-four pounds an acre is something new, and to the grower sounds something like old times in the golden days of farming ; and moreover, it seems to suggest that after all there are hopes that the time-honoured occupation is looking-up.

It is urged that farmers generally are slow to grasp new ideas and abandon old methods, but the same cannot be urged against the East Kent fruit grower. You find him a shrewd, clear-headed man of business, ever ready to pick up a wrinkle if it can be turned to profit. He has to be very much alive, too, in order to arrange his labour at fruiting time, and keep disposing of his supplies. Any delay when perishable fruit is about is disastrous ; and one man informed me that at Jubilee time, when everybody was holiday-making, his strawberries were spoiling for the want of gathering, and in order to get pickers he had to pay them as much as ten shillings per day. Another grower thought he saw something in large early culinary apples, and so planted Lord Suffield, Warner's King, and several others, on a large scale. Some people thought hops would be better, and others were in favour of the time-honoured corn ; but our friend said little, and in the meantime his sturdy bushes on the Paradise stock grew quickly into bearing, and, to use his own words, they are now doing him good. He also goes in for pears, and on the old brickfields grows fruit worth going a long way to see. The ordinary tourist who loves romantic scenery or historic associations can better satisfy his desires in other directions ; but anyone who is interested in fruit would find much that would engross as well as instruct just out of the sound of the hammering at Chatham dockyards, and within hearing of the gunnery at Sheerness, even though in the midst of the fruit he is being constantly reminded of the presence of bricks.

H.

KEIR GARDENS, PERTHSHIRE.

One of the most interesting and enjoyable days I have ever spent in a garden was during last autumn, and the place was Keir. Mr. Lunt, is well known in Scotland as one of the best of gardeners, and also as one of the most successful exhibitors of garden produce at Edinburgh, Glasgow, and Stirling shows. He is a most enthusiastic and broad-minded horticulturist, and is happy in serving a gentleman who is devoted to his garden.

The Keir mansion and surroundings command some of the most lovely scenery of Perthshire. From the terrace fine views are obtained of Stirling Castle, and the scene of the battle of Bannockburn; in the distance one has a glimpse of the Firth of Forth and the Wallace Monument. Beautiful moorland slopes clothed with heather, and varied in outline, lead down to the immediate foreground of the valley through which runs the river Teith, winding in a charming manner and joining the Forth near Stirling. These views all combine to form some of the most picturesque Scotch scenery. From another point, views of the mountains around Callander, the Trossachs, and Ben Lomond, are very fine; in fact, fresh peeps and charming landscapes are continually being presented in a walk round the extensive and well-kept grounds. Fine specimens of various coniferæ abound, and one of the finest to be found in the country is a European larch. The tree is supposed to be one of the first planted in Britain, early in the seventeenth century. Some fine Douglas firs were conspicuous, and very noticeable were many trees of Pinus Laricio, evidently one of the most profitable pines to plant for timber, as these were almost double the size of Scotch firs planted at the same time, and had clean upright boles. Abies grandis has been largely planted, and many fine specimens occur. Two extra large trees were Pinus insignis and Abies Smithiana.

In the grounds the only objectionable feature is the survival of a very large number of clipped trees and hedges, many of the latter apparently serving no useful purpose, except to show the extreme folly of a phase of garden work which was popular in a bygone age, and which we may hope will never be revived. In every possible nook and suitable place, bulbs of all kinds are planted year by year, in the grass and by the sides of a pretty streamlet which wanders through a portion of the grounds to join the river Teith. Hardy, strong-growing herbaceous plants, in association with flowering shrubs, are naturalised in bold groups on banks and in rough grassy places. These constitute in their seasons most interesting features, and the idea is being gradually developed and the planting extended. Herbaceous flowers are being cultivated with much zest, and a fine collection of species and varieties are grouped in a large border near the mansion. Early border chrysanthemums are much appreciated, and so are the numerous kinds of Michaelmas daisies.

The kitchen garden and glass department occupy a southern slope, and are of considerable extent. The past season had not been very favourable, owing to the cold and wet months of June and August. It may be interesting to show the comparison of the rainfall at Keir and New Barnet for the first nine months of 1897: At Keir—January, 1.68; February, 2.87; March, 4.92; April, 2.08; May, 2.60; June, 5.99; July, 1.75; August, 6.25; and September, 2.83 inches. New Barnet—January, 2.68; February, 2.61; March, 3.95; April, 1.74; May, 1.64; June, 3.19; July, 1.25; August, 3.11; and September, 3.15 inches. This will show how much better our season round London was for many things than that of the east of Scotland. Mr. Lunt is full of enthusiasm for chrysanthemums, and grows a large number. Though these are always a fine lot of plants the blooms are not so satisfactory as is desirable for the keen competition encountered in Edinburgh cup classes. This, however, will certainly be remedied in future seasons if skill and attention can avail against a somewhat ungenerous climate. The records of the past two years' exhibiting show good results, but Mr. Lunt is ambitious, and threatens to win still more and higher honours.

In the fruit houses, where in their season the chrysanthemums are arranged, first-rate examples of vine culture were to be seen. Young rods of Muscat of Alexandria, bearing splendid bunches of highly-finished fruit, and Black Alicante, Alnwick Seedling, Lady Downes, and Mrs. Pince were also in fine condition. The pride of the Scottish gardener is his grapes, and in this case there was ample justification for the pride. The temporary vines grown in boxes were really marvels of high cultivation, and were carrying about ten or twelve pounds of first-rate fruit. The boxes were only about two feet by one and a half by one foot, and had stood on open staging, so that no rooting outside was possible. It would be extremely interesting if Mr. Lunt would give us the details of his treatment of these vines in an early issue of the Gardeners' Magazine. In another house containing old vines some most interesting examples of the influence of the stock over the scion were pointed out. For instance, the flavour of Madresfield Court had been spoiled through its being inarched on Foster's Seedling. Lady Downes grafted on Black Alicante produced berries quite oval in shape, and of a distinctly Alicante flavour. Lady Downes on White Chasselas was much improved in flavour, and had a thinner skin than when grown on its own roots. On an old rod of Mrs. Pince there was hanging a bunch with very much larger berries than in the type, and which appeared to be a sport. Should such prove the case and the variety be propagated, it will be sure to take high rank amongst the late-keeping black grapes. The peaches were perfect examples of good training, and as evidence of the excellent crops they have borne, I may state that many fruits of Royal George have exceeded nine ounces in weight, and of Sea Eagle thirteen-ounce fruits were gathered.

In the plant houses numerous large specimens of various palms and fine foliage plants are grown. One house devoted to crotons contained grand plants, highly coloured and well furnished with foliage. Large examples of anthuriums, alocasias, marantas, and many good things were strong testimony of the care bestowed in their cultivation. Hard-wooded plants are much prized, and young specimens of all the best species occupy a cool house with large azaleas and Himalayan rhododendrons. Cyclamen are a feature, too, and grown to perfection at Keir.

The foregoing remarks are but a suggestion of the many instructive and well-managed departments of a good garden, the inspection of which will afford the utmost gratification to those who may have the opportunity of visiting it.

Trent Park Gardens. W. H. Lees.

BLUE IN FLOWERS.

When Mr. H. Knight, in his interesting paper, "The Blue Chrysanthemum," published on page 19, refers to the changeable colours of the Cheiranthus chæmælus, does he mean the species better known in gardens as C. mutabilis? He also refers to the changeableness of hue found in a forget-me-not (*Myosotis versicolor*), but similar changes, only in the reverse order, are often seen in M. dissitiflora, as I have found scores of times floral branches that had red flowers, so varied from blue. I have tried saving seed from such and perpetuating this rich colour; alas! in vain. Usually such changes, I think, have come from some slight bruising or injury to the stems. One of the most interesting changes produced solely by root drought is that seen in the pretty mossy Sedum lydium, which is normally bright green, but which in hot dry weather turns to a rich red. What an effectual hardy carpet plant would this be could it be so normally coloured. All variations in colour without doubt are due to changes in the body of colour, or reflective granules, found in the flower petals. We see this change produced in a remarkable way in the garden hydrangea, when plants normally carrying pink flowers get transferred to soil that contains iron or other minerals in considerable quantity, when the flowers come of a rich blue colour.

It is rather surprising that with a knowledge of this fact no one has, so far as I am aware, attempted to chemically convert pink chrysanthemums to blue ones. I do not say that such change is practicable, but has anyone experimented? That is an assertion open to much question, which Mr. Knight makes on the authority of eminent botanists and scientists, that blue flowers represent the most highly developed lines of descent which have, or whose ancestors have, passed successfully through all the intermediate stages, which are yellow, red, and purple to blue. If that be so it would seem as if we ought to find blue a colour development in a very marked degree in cultivated flowers, and especially in those much intercrossed and of long descent. Putting aside the chrysanthemum—which is in Europe a comparatively youthful plant, although very old in China and Japan—we find the blue rose, or blue dahlia, carnation, hollyhock, and some other popular flowers of long existence to be as far off as ever. All those have got into purple pretty well, but the dense blue tint seems to be as far off as ever. On the other hand, how very few cultivated plants are there that have, even over a long series of years, developed blue, except those which do so seem to inherit that colour from their original species.

The intense blue of the gentian, or Salvia patens, or of Scilla siberica, or of Vanda cærulea, or of the forget-me-not, are all derived from progenitive species, or are pure species remaining unchanged. The well-known Centaurea cyanus, one of the most marked of the wild flowers, is less robust and more imperfectly developed than are garden members of the centaurea family. How beautiful is the blue of Veronica chamædrys of our fields, or the much richer blue of Phacelia campanularia of another clime; indeed they are blues which no evolved plant seems to have produced. The question after all in relation to these popular florists' flowers, roses, dahlias, carnations, chrysanthemums, and others is, Can we ever hope to evolve blue colour from them by any intercrossings? Even the Japanese blue chrysanthemum, with that nation doubtless the effort of centuries, seems to have existed only in the imagination of an artist. Unless change to blue can be effected by the application to the soil of certain chemical compounds, then does other effort seem useless. A. D.

[The wallflower Mr. Knight referred to is, correctly speaking, Cheiranthus scoparius var. chamælo, a native of Teneriffe. C. mutabilis also is changeable, as its name implies.—Ed.]

Hardy Peach Culture.—On page seven of the Gardeners' Magazine for January 1 there is an excellent article upon peach growing, but being very much interested in this work, I should like to make a few remarks upon it. "Kentish Gardener" says: "for outside walls a coping is necessary to bring about good results." So far, so good. But I believe in no coping beyond the ordinary four-inch stone coping, which is just enough to keep the wall dry and the trees from drip. A glass coping is sometimes a little advantage in helping to ripen any late varieties during October, because at that period the nights are damp, and the trees do not require much assistance beyond that of gathering the fruit. I have seen most wretched specimens of peach trees that have been coddled up under glass copings, and when the latter are fixtures, they are worse than ever, for they help aphis, thrip, and red spider to multiply at an alarming rate. This may have been largely the fault of the grower in not attending to the syringing, watering, &c., required daily by such trees. Being fixed close to the wall, drip was kept away, and the foliage at the top on a hot summer's day is nearly baked. Many people think that a coping is necessary for outdoor peach growing, but I strongly advise anyone to try for themselves, and not let the expense of providing a glass coping stop them from peach growing on an open wall. We manage to obtain a good supply from July till October from outdoor trees *without* the aid of a glass coping, and our trees are always admired for their vigorous and healthy growths. "Kentish Gardener" lost sight of two of the most important varieties that we grow outside; Waterloo, the earliest of all; and that good all-round peach, Dymond, which I consider second to none, being handsome, prolific, and fine flavoured.—W. A. Cook, *Compton Basset.*

NEW WINTER-FLOWERING BEGONIAS.

THE production of the tuberous begonia as we now know it is certainly one of the greatest horticultural feats of the present century, but with all the vigour of growth and variety of colour and form the race possesses, none of the varieties are amenable to winter cultivation. They are essentially summer and autumn flowering plants, splendid for their season, but not assisting to dispel the gloom of our winters. Many a horticulturist, watching his tuberous begonias in the conservatory in June or July, has thought what a grand thing it would be could such a display be produced during either of the four months of October, November, December, and January. One, at least, did something more than think; he set to work, and his efforts have resulted in the production of an entirely new race that bids fair to become as essential at the end of the year as cyclamen and primulas are at the beginning.

The raiser of this new race is Mr. J. Heal, the capable and genial hybridiser at Messrs. J. Veitch and Sons, Chelsea, whose efforts in connection with Javanese rhododendrons, hippeastrums, streptocarpus, and phyllocacti are well known. How to make a decided start toward the end in view was a difficult matter to decide, for though by selection and retarding tuberous begonias could be made to flower fairly late in the year, yet they were not produced late enough; the declining light paled the bright hues so resplendent in summer, while autumn fogs spoiled the whole crop of flowers in an hour or two. The difficulty was practically solved by the discovery of Begonia socotrana by Professor Bailey Balfour in 1880. Some plants were sent to Chelsea from Edinburgh in 1881, and its winter-flowering propensities having been tested it was put into commerce by the Messrs. Veitch the following year. This species, then, offered a basis whereon to build a race of winter-flowering begonias that would stand a large amount of fog uninjured. But to find tuberous begonias with which to cross B. socotrana was no easy matter, and having found them, other difficulties arose, for the begonias are widely different in habit, this species having clusters of bulbils forming at the base of the annual stem, and the others having a tuberous stock. However, as in many other instances, Mr. Heal's perseverance overcame the difficulties, and his first new begonia having the above for parents was the now celebrated B. John Heal. Other varieties followed, and quite a new lead was made in 1895 when B. Mrs. J. Heal came before the public; subsequent varieties have been more robust and showy than the earlier ones, and they show the wisdom of reverse crossing.

The method of cultivating these winter-flowering begonias is practically the same throughout, though there are slight differences to be considered in propagating the several varieties. Thus B. John Heal and B. Winter Gem partake largely of the character of B. socotrana, especially in having bulbils; B. Adonis has no bulbils, but it can scarcely be called a tuberous variety, though the dormant root stock thickens somewhat. B. Mrs. Heal, B. Myra, B. Ensign, B. Julius, B. Success, and B. Winter Cheer, are all tuberous rooted, and can be propagated by cuttings of the young growth. An intermediate temperature suits this family all through the year, and they need abundance of light and a position as near the glass as possible. In the matter of soil they all succeed in a compost consisting of two-thirds fibrous loam and one-third peat or leaf-mould; to this should be added a liberal allowance of sand. Large pots are a mistake, and even for such a strong grower as B. Adonis a thirty-two size is ample for the final potting; for most sorts a large forty-eight is sufficient, and it is surprising what growth and profusion of bloom can be then sustained. As regards temperature, the thermometer may register 60 to 65 degrees in summer and 50 to 55 degrees in winter. The tubers remain dormant during spring and summer, starting into growth about the end of July and during August. Cuttings may be rooted in a close case in a warm house any time during the autumn, but for the purposes of increase it is a good plan to start a plant or two in June, as the early growth thus produced will give cuttings that root in July, and flower, if kept in small pots, during winter. Very little water is necessary during the dormant stage, but the tubers should not be allowed to dry as in the summer-flowering tuberous forms. A good plan is to plunge the pots into others a size or two larger, filling the space with soil; an occasional damping of the stage will then be sufficient, provided the atmosphere of the house is not excessively dry. Plenty of moisture is needed when growth is free, and to assist the development of spikes and flowers weak guano water in occasional doses will be found desirable. Green fly has to be kept down by the usual means, but very strong fumigations are not favourable to the plants. Now as to the varieties.

B. JOHN HEAL, the first of this race, worthily commemorates the raiser. It was awarded a first-class certificate by the R.H.S., on October 13, 1885, and put into commerce in 1888. It was the first successful hybrid between a tuberous begonia—the variety was Viscountess Doneraile—and B. socotrana. It has bulbils very much as in the seed parent. It is a dwarf variety, with medium green foliage, and bears light racemes of bright rosy carmine flowers, each an inch and a half across, and borne six to nine together. A remarkable point in this begonia is that a female flower is extremely rare, and this to some extent accounts for the persistence of the crop, as individual flowers last about three weeks in good condition, and then shrivel on the raceme instead of falling. For table decoration this is a splendid begonia, as beautiful little plants suitable for filling ornamental vases can be grown in large thumb pots.

B. ADONIS made its bow to the public on November 8, 1887, when it was awarded a first-class certificate by the R.H.S. It is a very robust variety, and the result of crossing a summer-flowering tuberous begonia with B. John Heal. The foliage is bold, but still shows signs of the B. socotrana influence, though the root stock is slightly tuberous, and no bulbils are formed. The flowers measure two to two and a half inches in diameter, and are borne in semi-pendulous racemes; in colour they are bright rosy carmine, with a tinge of scarlet; paler centre. B. Adonis was first distributed in 1888.

BEGONIA WINTER GEM, though not put into commerce until 1891, after having been certificated on January 13 of that year, was, I believe, the second of the hybrids produced. It is a beautiful little plant, obtained by crossing B. socotrana with a crimson-scarlet tuberous begonia. It closely resembles B. socotrana in its peltate foliage and bulbils, but it is dwarfer than the species, and has leaves half the size of the latter. Propagation in this case is effected by separating the bulbils, and by means of leaves pegged down and the ribs severed. The flowers of B. Winter Gem are of a rich scarlet-crimson hue, about two inches in diameter, and borne in corymbs on stout erect peduncles. The flowers of this variety are of the most persistent character, lasting in beauty from four to six weeks.

B. MRS. HEAL is a hybrid between a tuberous variety and B. socotrana, the former being the seed parent. This and the following varieties differ from the foregoing in being more robust growers, and producing larger and more showy flowers. It is the finest of the forms yet in commerce, and was quite the centre of attraction when exhibited by Messrs. J. Veitch and Sons, before the R.H.S., on October 15, 1895, when an award of merit was granted. It is distinctly a tuberous variety, but the influence of the pollen parent is seen in the persistence of the carmine-scarlet flowers, reduction of the foliage and lateness of flowering. The blooms are three inches across, substantial, and borne six or seven together on erect peduncles that rise above the light green foliage. The GARDENERS' MAGAZINE of November 23, 1895, contained a figure of this fine begonia. B. Mrs. Heal was put into commerce in 1897.

B. SUCCESS, though gaining an award of merit on October 2 1895, has not yet been distributed. It is, however, a handsome hybrid, having B. socotrana as the pollen parent, and a rose-pink tuberous variety as seed parent. It is a fine addition to the winter-flowering race, its semi-double flowers being of a rich carmine, scarlet-shaded hue, and measuring three inches in diameter.

B. ENSIGN is both beautiful and interesting; the former because its semi-double flowers are finely-shaped and of a bright reddish-pink colour. It is interesting because its mother was B socotrana, and its father a "single" tuberous form. B. Ensign gained an award of merit on November 24, 1896, and was first sent out in 1897. It is extremely compact in habit and already a favourite.

B. MYRA is a bold and free-flowering hybrid, with the same parentage as B. Ensign. It bears large racemes of rosy-carmine flowers, which are chiefly mule; these latter are nearly three inches across, and very persistent. The female flowers are somewhat smaller and scarcely so bright in colour. B. Myra was put into commerce in 1897.

B. JULIUS brings us to quite recent times, for it was exhibited on November 23 last, and on that occasion gained an award of merit from the R.H.S. It is a grand variety, robust in habit, with bold deep green foliage and handsome double flowers of a soft rose-pink shade; the half-opened flowers are extremely pretty. The racemes are freely borne and the flowers numerous, each about two and a half inches across, very persistent, and of wonderful substance. A rose-coloured tuberous variety was the seed parent, and B. socotrana the pollen parent of B. Julius. For this variety horticulturists will have to wait awhile.

B. WINTER CHEER is the latest addition to what may be called the Chelsea begonias. It bears a profusion of carmine flowers tinged with scarlet, and with a salmon centre. It is a semi-double variety, and as the flowers are three inches in diameter, it can well be imagined that it is the most showy of the semi-double forms. It is a tuberous-rooted variety, and, as in the previous form, had B. socotrana as seed parent. Growth is strong and the foliage bold, as in B. Adonis, so that it is probable distribution may commence at an early date. B. Winter Cheer is well named, for it is most effective during winter, and its branching racemes of bright blooms afford a cheerful display. In grace of habit B. Winter Cheer is not excelled by any of its race. A good illustration of its habit and mode of flowering is given in the present issue. C. H. C.

FARMYARD AND STABLE MANURE.

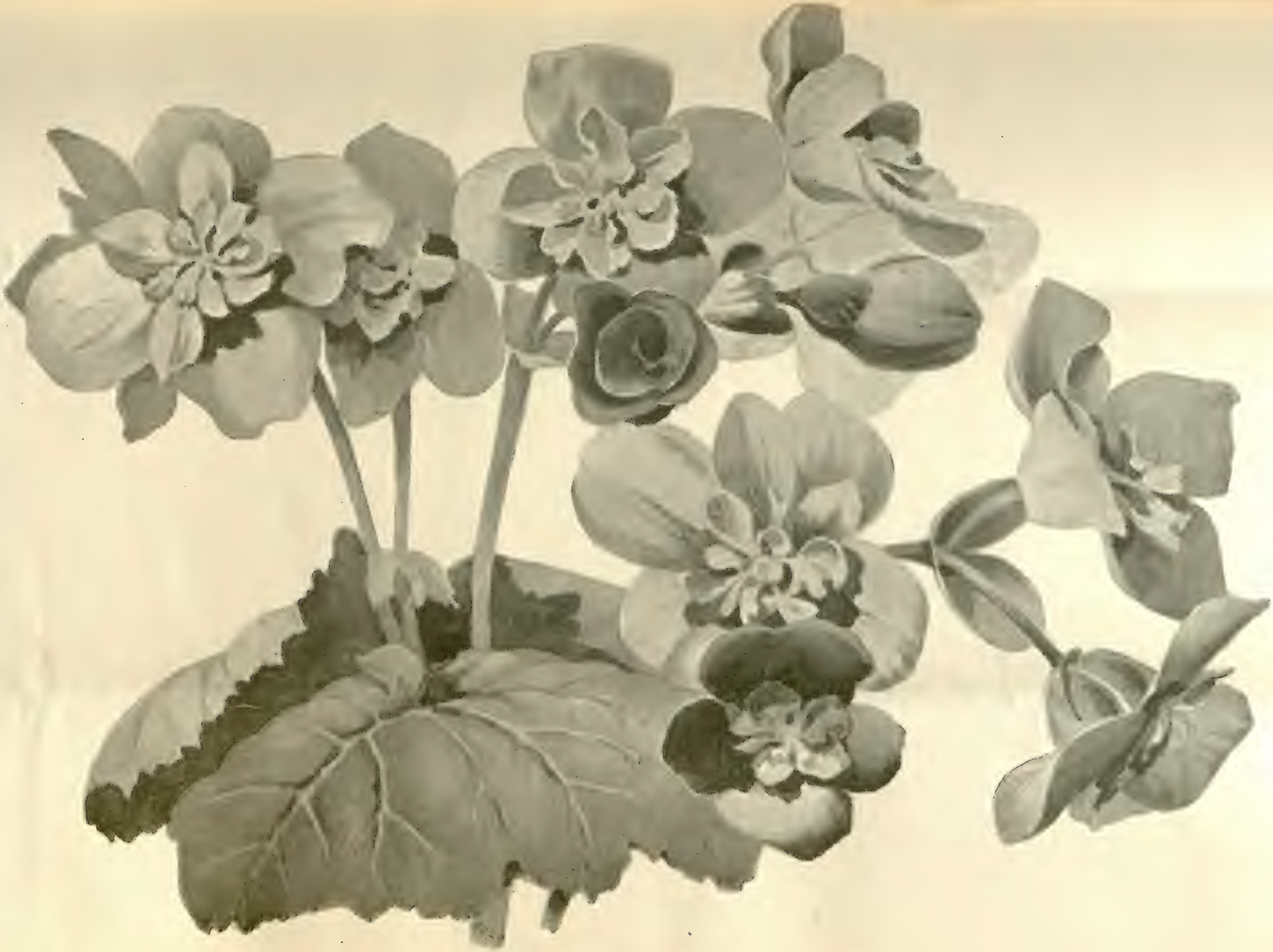
THE whole subject of the economic preparation and preservation of farmyard and stable manure is being actively investigated at the present time in Germany. The fact which has already come into great prominence is, that ordinary farmyard or stable manure are valueless as food for plants until they have been nitrified by some living organism or bacteria.

The immense difference between the manurial value of the solid and liquid excrements of animals is shown in a striking manner in some of the recent experiments, and the analyses of the stable and farmyard manures which the investigators employed, showed that the effects of these manurial substances was plainly connected with the proportion of soluble and active nitrogenous matter which they contained. The original voidings of animals have a far greater manurial value than the final product of the manure heap which the farmer or gardener carries to his land. In the whole progress from the stable to the land the loss of nitrogen is going on, this loss falling on the most valuable constituent of the manure, and resulting finally in a residue of comparatively inert matter.

Maercker illustrates the loss of nitrogen in the ordinary preparation of farmyard manure as equal to forty-five pounds per fatting beast in one year. The data shows that when the quantity of organic matter applied to the soil exceeds a certain proportion, the conditions prevailing in the ground may be entirely changed, and a nitrifying medium converted for a time into a denitrifying one, the oxygen demanded by the large bulk of decomposing organic matter being in this case obtained by the destruction of the nitrates in the soil. An organic manure which is effective when applied in small quantity may thus become injurious when made use of in excess. This has also been found to be the case with the more soluble artificial manures. It is better to use small doses, frequently repeated, than large doses applied at [illegible] a very few times.

Harpenden. J. J. WILLIS.

THE GARDENERS' MAGAZINE, JANUARY 22, 1898.



BEGONIA WINTER CHEER. (Flowers rich carmine.)

TREE PRESERVATION IN SUBURBAN DISTRICTS.

IN the course of an important paper contributed by Mr. John Wilson, Leazes Park, Newcastle, to the "Transactions" of the English Arboricultural Society on the planting and management of town and surburban trees the author makes the following pertinent remarks with reference to tree preservation :—

In laying out suburban land for ordinary street purposes, it becomes no easy matter sometimes to save existing trees ; still, I am satisfied that, with reasonable care and consideration, much might be done toward their better protection and preservation. The general tenor of public opinion at the present time is in favour of preserving old trees whenever it is reasonably possible. In this matter, however, the same public opinion, it must be confessed, is often weak against personal interest, and is often also purposely withheld, probably on the principle that "what is everybody's business is nobody's business." Therefore things are often allowed to go on without any kind of protest, and a good deal of unnecessary destruction consequently takes place. I hold it to be the province of such a society as the English Arboricultural Society, to use its influence in order to support public sentiment in regard to such matters. This it ought to be able to do with a competent knowledge, and without any particular danger of being carried away by the fascination of hobby. Hobbies, it must be remembered, if not wisely tempered with consideration for others, are ever apt to carry their riders beyond the bounds of a reasonable limit ; and I have known an intemperate zeal for preserving old trees pushed to such a ridiculous extent as to almost warrant the epithet of folly. As an individual, I advocate every reasonable care in the preservation of old trees (and I wish the society to advocate it as well), but not to push the matter to extremes. It is remarkably easy to persons who have no monetary interests at stake, to point out how things can be done ; but how far will it prevail with those whose chief concern is pounds, shillings, and pence? The most that can reasonably be expected from them is that no wanton destruction shall be permitted to take place. Perhaps I might go a step further and appeal to the good sense of responsible workmen. I have often noticed with regret that when trees have been left standing they have frequently been sadly disfigured through sheer carelessness. Bark stripped off, branches broken and mutilated, roots hacked and bruised, and the whole tree so hopelessly damaged that it were better to have taken it down altogether. Instances such as these are the more regrettable when it is evident that a little care and common sense in the method of working might have preserved an object of beauty, and, perhaps, of considerable usefulness too.

It not unfrequently happens that when excavations are being made for buildings, some of the roots of the trees are unavoidably laid bare, and have to be cut away. This often affords a favourable opportunity to add some fresh material to the trees in order to induce the growth of fresh young fibres, which are ever the health-sustaining portion of the roots. A little extra care when chances like these offer would doubtless often save considerable trouble and expense afterwards to those immediately concerned and with ultimate satisfaction.

I have principally in view middle-class streets, and it remains for me to say a few words about the more pretentious streets. These always offer a much better field to the arboriculturist : more money, more influence, more space—in short, infinitely better opportunities of displaying a decorative taste. Even the builder himself has here a better chance to be merciful, and to "spare the tree," when the garden space is larger. Suburban villas, too, as a rule, afford good scope for the growing of fancy trees. Indeed, I often think towns are characteristic in their suburban planting. I judge not altogether from the main bulk of the trees planted, but rather from that love shown for having the rarer and more beautiful species dotted about. In some places, poplar, willow, sycamore, elder, privet, and such like, satisfy the paucity of arboricultural taste.

One thing I ought to mention here in reference to the preservation of old trees on new villa sites, that is, the great difficulty of adapting young and newly-planted trees to the old ones left standing, and at the same time having due regard to the general effect. It becomes a nice question of taste, and a good deal might be said about it which would be interesting to landscape gardeners, as well as to those more intimately concerned in the preservation of trees.

It must be admitted that tree planting, in and about large towns, has received a considerable impetus during recent years. Much, however, yet remains to be done in order to improve the methods of planting, and particularly in regard to the way the trees are afterwards cared for. Trees of more suitable quality require to be provided and planted, and, in many cases, more of them, so that a selection of only the best and most vigorous can afterwards be made. It is a remarkable fact that while certain trees, in a particular situation, at once start away and continue to thrive, others, under the same apparent conditions, languish and die, although the plants at the first were of the same quality, and had the same care bestowed upon them.

Where trees are transplanted favourably—that is, into better conditions—they much sooner overcome the effects of removal from the nursery ground than when transplanted unfavourably. Trees intended to be planted in towns should never be grossly grown in the nursery, but should always be of a firm, robust, and healthy constitution, and with plenty of fibrous roots, so that a good start, if possible, may be ensured to them in their new home. Richly and closely-grown trees always suffer most from removal, on account of their more attenuated character, both of roots and branches. They, no doubt, make the best appearance when so grown, and for that reason are more attractive to the inexperienced purchaser. Price and height—the common tests usually employed—are of themselves very inadequate standards to judge the qualities of trees by, and are never adopted by one who thoroughly knows what he is about. One is reminded of the story of the man who, having a house to sell, brought a brick with him to town in his pocket as a sample of the property.

When once young trees have been planted and become established, it is a very important matter indeed to know how to take care of them. There is, I regret to say, oftentimes far greater lack of judgment displayed in their after-management than at the first planting. I have frequently noticed, too, that many of those persons who have been most enthusiastic about tree-planting in towns take comparatively little interest in the matter afterwards. Now, if the peculiarities of human character were the subject of my disquisitions, I might follow up this as rather an interesting trait ; but dealing as I do with the subjects of planting and managing trees, I must not be tempted into by-paths likely to bring me into difficulties barren of arboricultural interest.

It is a noticeable fact that the generality of people take more delight in trees that are full-grown, than they do in young ones. This, I dare say, is quite a natural disposition. Old trees are more imposing—more taking—they afford both shade and shelter, and are infinitely less trouble. It is only the enthusiast that is interested in them at all stages of their growth. He alone watches their progress from year to year, and enters into a kind of companionship with them, and regards them as friends. I once heard the late Dr. Bruce say, that his venerable friend Mr. Clayton, of The Chesters, told him he did not like to cut down certain old trees, which the storms had shattered, because he and they had grown old together. This is the natural conservative spirit in an old man, for long-loved and familiar objects. A bond of sympathy even for old trees that, like their master, had baffled time, and, as it were, fought for immortality ; for it is a universal principle that everything struggles to be—that is, to endure on its own individual account. This, it may be said, is but sentiment. Perhaps it is so, but how are our grand old trees, picturesque and historic trees, going to be preserved without sentiment? I heartily wish that there were more genuine sentiment in favour of such grand and noble productions of the earth.

A sort of protracted murder (I can call it by no other name) is frequently perpetrated upon town trees under the plausible term, pruning. Among all the varied operations connected with arboricultural work, this appears to me the least intelligibly understood. Foresters may wrangle and argue about the best methods of securing the greatest amount of marketable timber at the least possible cost. I shall not meddle with that ; it is a money-making job, and outside of my legitimate domain. With regard to ornamental trees, however, or trees planted for ornamental purposes, I do claim, according to charter, so to speak, the right to say a few words. There is plenty of room for dispute with regard to the consistency of many of the practices that come under the name of management. Management, as applied to ornamental trees, may be regarded as a kind of professional interference with the ways of Nature, in order to bring about a result in some way consistent with the adopted ideas of the "professor" himself. However, though we may admire Nature fervently, we do not choose that she should have unqualified liberty to disport herself in vagrant freedom about our dwellings. According to the peculiar dictates of his fancy, man seeks to subject the joyous liberty of Nature to his prosaic convenience. If he be a person endowed with a well-balanced judgment, and has withal a cultivated taste, he will never coerce his trees beyond what more important considerations require. The object chiefly in view when planting ornamental trees is that they may grow and display some characteristic beauty. Now, beauty in a tree is not confined to any special form, but each kind assumes a general shape peculiar to its tribe, which is always more or less pleasing as it approximates a perfect type. To be periodically hacking trees into shapes unnatural to them, common sense might induce people to see was absolutely wrong ; yet this is what is constantly taking place under a mistaken idea of pruning. Pruning, in its proper sense, is not, surely, to ruthlessly denude a tree of a lot of its healthy branches, but to train, thin, and regulate them with considerate care, with due regard always to the character and well-being of the tree itself. Why young trees intended for picturesque effect about a lawn should be trimmed into poles, with a tuft of branches at the top, I can never quite understand. Things of beauty are altogether out of the question. It never seems to enter the heads of those practitioners that, in addition to making a thing that is hideous, they are at the same time mincing away the vital energy of the plant itself, and helping every adverse element to bring about its ultimate destruction. I have often noticed, too, certain shrubs and bushes that have been persistently cut down, gradually, after few years, to give up the ghost, and "pass into nothingness." It seems to me that if trees were "protected" against this kind of unnatural treatment, a great and important point would be gained, and there would be vastly fewer sickly, hide-bound specimens disgracing our suburban gardens and public pleasure grounds. The same physiological principle holds goods in regard to roots. Where annual digging is practised, great quantities of young fibrous roots are constantly being destroyed, which still further debilitates the struggling tree.

When trees have outgrown reasonable bounds, however, and it has become necessary to curtail them, it should always be done carefully, and with well sharpened tools. Every competent arboriculturist knows that it is seldom required to cut off large branches from growing trees, but that they can be reduced by judicious "shortening back," as it is called, and with little or no disfigurement to the tree itself. In "shortening back," the cuts should always be made clean, as these heal up much more readily than when the operation is roughly performed. Besides, it betrays a peculiar kind of negligence and want of skill when long tongues of bark are left protruding from the sides of the cuts. Even where large branches are to be taken off by the saw, it is always advisable to smooth the surface of the saw-cut with some edge-tool. This prevents the damp from hanging upon the rough surface and causing decay. Indeed, as a further means of preservation, it is a commendable plan to paint any large cut carefully over ; and this is almost always done by skilful workmen.

It is always very important that newly-planted specimen trees should be staked or stayed in some way, in order to prevent them from being knocked about by the wind. More particularly ought this to be attended to in regard to trees planted on the sides of streets. The common practice is to tie them to one strong stake, which should be proportioned to the height of the tree. A watchful eye should be kept on the ties, so that they be kept secure, and no damage done by their cutting into the bark. A good plan of supporting trees, and consequently a means of protection, is, that instead of a single post-like stake, to have three, or even four, lighter ones placed round the stem, but not too close to the bottom. These will be brought together at the tops and secured, along with the stem of the tree, and a little wrapping of some kind should be put round, in order to protect the bark against friction. It is not advisable to have the supports too rigid ; they will be all the better in giving a little to the strong winds, so long as they have sufficient elasticity to recover themselves from the strain. No doubt this latter method will, in the first instance, be a little more trouble and expense, but it will be sufficiently compensated by the efficacy of the work when it is once done.

As to the general management of common trees, planted principally for ornament, there is really not much to be said. The leading points are tolerably well understood by all experienced men. Local circumstances, no doubt, often play an important part, which is inexplicable to science ; and which renders it not always wise to dogmatically denounce rule-of-thumb experience. Indeed, it would seem both prudent and profitable to keep in friendly touch with common every-day methods. They will certainly not square at all points with the technical formulas laid down in the school ; but where satisfactory results stand out in evident contradiction to authorised rule (which not unfrequently happens among cultivated trees), there is something for science to investigate *à posteriori*, as a schoolman might say, and to establish a definable connection between cause and effect.

"THE PLAY'S THE THING."—This has often been echoed by all sorts and conditions of men since the time when Shakespeare made it historical through the medium of Hamlet. The play holds the mirror up to nature, and shows us that men may be influenced by good to evil. It proves, in fact, the truth of the saying, "All the World's a Stage." Holloway's Pills and Ointment have for many years played a leading part in the drama of life. They have long been a source of relief and cure for most known complaints in all parts of the civilised world. Adults and children are alike benefited by these wonderful remedies, as they are suitable for the weakest as well as the strongest constitutions.—[ADVT.]

WORK FOR THE WEEK.

COOL ORCHIDS.

THE temperature of the odontoglossum house at this season of the year at dusk should be about 50 degrees, falling two or three degrees by the morning. During severe frost, or in very cold windy weather, the temperature may be with safety allowed to fall to 45 degrees at night. It is advisable, however, in such weather to cover the lower portion of the roof, where the plants are near the glass, with mats, these coverings being removed in the morning as soon as it is light and immediately the temperature commences to rise. The day temperature should be several degrees above the figures indicated. Damping should be done, if necessary, in the morning when the house has reached its maximum temperature; a little bottom air should also be afforded, passing between the hot-water pipes before coming into contact with the plants. In mild weather, such as we are having now, we keep a little bottom air on the odontoglossum house both day and night. Imported plants of Odontoglossum crispum should be potted in equal parts of peat and fresh sphagnum moss. I find it best to pot them in comparatively small pots, as they then become established quickly and are more readily managed. The pots should be three parts filled with clean crocks and charcoal, and the specimens should be made firm in the compost by the use of small wooden pegs, allowing a space between the leading pseudo-bulbs and the rim of the pot sufficient for the development of the following year's growth. Great care should be taken in watering these until they become established; they should be sprayed over on bright days to help plump up the bulbs.

Sophronitis grandiflora, a native of the Organ Mountains of Brazil, will be making a grand show in the cool house at the present time. It is a very handsome orchid, its large and beautiful flowers lasting six weeks or more in perfection. This species thrives best on blocks of wood or in shallow pans suspended from the roof in the warmest end of the house; it delights in shade, and should never be exposed to bright sunshine. If pans are used they should be three-parts filled with clean crocks and charcoal, the compost consisting of sound fibrous peat and fresh sphagnum moss in equal parts; this may have a slight rise to the centre of the pan, but great care should be taken to make the specimens firm, so that they will not be moved out of position when taken down for watering. While growing they should never be allowed to become dry, and if kept in a moist atmosphere and free from insects they will thrive. Masdevallia tovarensis is a very distinct and beautiful orchid, its pretty, sweet-scented, white flowers, generally produced in pairs, being invaluable for many decorative purposes; the plant moreover lasts a long time in flower. Care should be taken in watering the species at this time of the year, and a watchful eye should be kept for thrip, which if allowed to accumulate, will soon disfigure the foliage, and cause the plants to dwindle away. Wash the foliage with XL All liquid insecticide, when the first trace of thrip is seen, but even this must not be used too strong. Use the insecticide at the rate of one wine glassfull to a gallon of clean, soft water.—G. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

No time should be lost in obtaining and placing under cover a supply of good fibrous turf, leaf-soil, and burnt refuse, so that there may always be plenty of material in the right condition for potting and other purposes whenever necessary. Look to the stocks of peat, bones, patent manures, and other requisites for the successful cultivation of stove plants, and order in sufficient to replace any deficiencies, so that there may be nothing to hinder potting operations when the various subjects come under hand. A few bags of cocoa-nut fibre refuse will be found very useful for mixing in the soil for propagating purposes, also for starting such subjects as caladiums, achimenes, gloxinias, &c.

As their bracts become fully developed, poinsettias should be removed to a house where a temperature of 55 degrees is maintained, and where there is less humidity in the atmosphere than it is necessary to maintain in the stove. Do not starve them, but continue to afford water until their beauty has passed, after which they may be stored in a dry corner in a house where the temperature does not fall below 50 degrees. The same remarks apply to Euphorbia jacquiniæflora, with the exception that when flowering is over it must not be dried off to the same extent as the poinsettia. Thyrsacanthus rutilans is now throwing out its racemes, and the pots should be stood on others inverted, or be slung to the roof by means of wire, as in this way they show off their long pendulous racemes of scarlet flowers to perfection. Under good treatment these racemes will hang from six inches to a foot below the bottom of the pot. Begonias, such as B. manicata, B. hydrocotylifolia, B. heracleifolia nigricans, B. nitida, B. coralina, B. hybrida multiflora, B. Knowslyana, and others, are advancing rapidly towards flowering, and should all receive liberal support from stimulants. If these have to be afforded a place in the stove, then put them where they will not be syringed. A few tubers of gloxineas and achimenes should now be started to afford an early supply of flowers. A good plan in starting gloxinias is to shake them free of old soil, and pack them fairly close together in a cutting box, placing below them and between the tubers a mixture of one part loam to one each of cocoanut-fibre and leaf-soil, with a good addition of sand and powdered charcoal.

Keep the stove proper at a temperature of 60 to 65 degrees at night, allowing a rise of five degrees by day from fire heat. Should there be a difficulty in keeping up the requisite temperature, rather than get the pipes excessively hot in attempting to do so, be content with a few degrees less, and keep the atmosphere dryer. The intermediate house may range five to eight degrees cooler. Afford all foliage plants a thorough syringing at least once a day, preferably about noon; towards dusk damp well amongst the pots, and on the paths; and if the house is apt to dry quickly the man on duty should damp down thoroughly again when he goes round his fires the last thing at night.—J. TUNNINGTON, *Ripley Castle Gardens.*

KITCHEN GARDEN.

WHENEVER the weather is favourable, and the soil in a suitable condition for working, a sowing of peas may be made in the open quarters. We have long since discarded the old round-seeded varieties, as there are now so many of the marrow type of superior quality that are quite as early and as productive. These marrow kinds are, however, more subject to rot if sown so early on cold, wet soil, unless some protection be taken to ward off the heavy rains. It is, therefore, by far the best plan to defer the digging of such ground until the time of sowing, and then cover the rows to prevent the rains from beating the ground down again. Germination is slow at this time of the year, so that the young plants will not show themselves through the soil for at least three weeks, by which time there will be a prospect of the weather becoming a little warmer. Those who can afford room to make a sowing under glass should do so, as peas may be gathered from such a fortnight earlier than from those sown in the open at the same date. It is not actually necessary that soil be attached to the roots at the time of planting; though if it can be retained it will prevent the plants receiving any check should the weather be unfavourable. If sown in boxes, from six to seven inches deep, there should be no difficulty in transferring the plants to the open quarters without disturbing the roots to any serious extent, but there is more satisfaction in sowing them in pots, as these are more portable, and can be readily moved should occasion require. A sowing of broad beans should now be made, choosing some of the long pod varieties, as these are more productive than the Mazagan. There are now several green forms of these that are very good, and of fine flavour when cooked. They should have preference to the older forms. Where these are desired extra early sowings should be made in boxes for transplanting, as such will be found very serviceable. Broccoli have been turning in very rapidly of late, so much so that many of the early kinds will be over before their usual time. That fine variety, Snow's White, has been unusually good this season. As soon as any show signs of turning in, protection should be afforded them, as otherwise should a sharp frost visit us they will be spoiled. Green vegetables of all kinds have been very plentiful up to the present time, so that there has not been such a demand for roots. Pay special attention to the sowing of small seeds, such as mustard and cress, not putting in more at one time than will suffice for a supply; small and frequent sowings are the most serviceable. Often, too, small celery is required in the kitchen, so that frequent sowings of this should be made.

Where mushrooms are grown in large quantities the manure for making the beds must receive proper attention by being frequently turned over, until such time as a sufficient bulk has been brought together to make up the beds. There are but few places where sufficient accommodation is provided for the preparation of the various things necessary to maintain a constant supply of all kinds of vegetables, and ample shed room is one of the things lacking in most gardens. Where sufficient of these useful places are provided, there are many subjects that could be stored in them both in summer and winter to great advantage. It is not altogether the frost that destroys our vegetable crops, for often they suffer as much from damp as anything else. Open sheds are therefore very useful for storing endive, broccoli, lettuce, and others of like nature that suffer in this way. They are also of value in summer, particularly when facing north, for retarding, and for mushroom culture. Those possessing such accommodation would do well to utilise it for the protection of broccoli that are just turning in, for if these are taken up with a ball of earth attached and laid in, they will receive but little harm. This is by far a better mode of protection than hanging them up, as this causes the flavour to deteriorate sadly. Never cover the foliage unless there is actual danger of the hearts being spoiled by frost. Whenever the weather is unfavourable for outdoor operations, examine the roots in the store-house, and, where the supplies of any of them, such as artichokes and turnips, are likely to run short, sufficient should be put under cover for use, in case we should have frost to prevent those in the open ground from being lifted, but, as all such vegetables are sweeter when used fresh from the ground, no more should be housed than is necessary to keep up a supply. Onions in lofts and seed potatos should also be looked over, and any that are found decayed removed. It is by timely attention to these things that much annoyance is often averted. A good quantity of suitable labels should also be made, in order that, when the seeds are sown or planted, they may be properly named.—H C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

PEACHES already started may be kept well moistened overhead with the syringe daily; borders and paths, too, should be freely damped down to produce the partially-saturated atmosphere which is conducive to a good start. Trees already in flower should be kept rather dry as regards top growth, and a daily visit to the house just before noon should be paid to give the trees and trellis sundry smart taps with the hand to free the pollen, and this should be sufficient attention in the matter if the blossom is plentiful and vigorous. If, on the other hand, flowers are scarce and not robust, it would be wise to go over each one and brush the anthers and pistils with a camel-hair brush or a hare's foot. Keep a fair amount of heat in the pipes, especially during the early part of the day, and ventilate daily, little or much, in accordance with the weather. Late trees should be pruned and tied forthwith, and another thing that must not be neglected is to see that the border is in a satisfactory state as regards water. My opinion is that more bud-dropping is caused by letting the trees go through the winter months in too dry a state at the roots than from all other causes whatsoever. Some varieties are especially prone to bud-dropping, but it may be induced in all by drought; and my advice is that, if there is any doubt about the matter, the borders shall be thoroughly soaked forthwith. Mulching, too, should not be neglected, especially in those houses where the borders are trodden on throughout the growing season, but, before mulching, all cleansing operations should be finished. Insecticides and tree washes are so numerous and so good that one need not particularise, but, whatever is tried, it should be used in accordance with the vendor's directions, or, if any variation be permitted, it should be on the side of weakness, especially in case of mild weather and forward buds. Houses in work should have a minimum temperature of 50 degrees, and the usual rise with sun heat

With lengthening days strawberry forcing will become an easy matter provided proper care is taken to keep the plants well up to the light and to afford plenty of room for those in flower. The temperature for batches just moving should be the same as recommended for peaches, those which are in flower may be kept from five to ten degrees warmer; early flowers should be carefully fertilised with the camel-hair brush so that there shall be a sufficient set from the earliest and strongest flowers on each plant. Batches just brought under cover should be allowed to commence growth before they are fumigated or dipped, as the few days thus spent in a genial temperature will wake up any dormant insects and hatch eggs that would escape destruction if the work was done at the time the plants were brought in. Where working vineries are the only available places for strawberry forcing the plants should be thoroughly syringed daily, except when they are in flower, and again when the fruits are ripening, as it is only in this way that it is possible to prevent an attack of red spider that would eventually injure the vines. Strawberries should always be kept well watered from the time of starting until the fruits are ripening, and any neglect of this simple matter will be fatal to the prospects of a good crop.

Any grapes which may still be hanging should be cut at once and bottled, so that the vines may be pruned before there is any chance of their bleeding. Even the use of styptic will not avert bleeding if the sap has begun to rise, and there is absolutely no reason for deferring the cutting of grapes to so late a date. I have at the present time a considerable number of Muscat of Alexandria bunches in perfect condition that were cut and bottled before the end of September, and both berries and stems are as plump as on the day they were cut. After pruning the vines, clean and suspend them at once, then remove the top inch or two of the border and replace with new soil. Melon seeds may now be sown and the young plants will probably overtake those sown earlier, besides being stronger; sow two seeds in a three-inch pot of loamy soil, and remove the weakest if both germinate. The soil for sowing should be moist enough to induce germination without any watering further than a light spraying with the syringe now and then before the young plants appear. Plunge the pots in bottom heat as near the glass as may be in a house with a minimum temperature of 65 degrees; cover with a sheet of glass until the plants are well above the soil.—J. C. TALLACK, *Livermere Park Gardens.*

AN EXPERIMENT IN ELECTRICAL PLANT-CULTURE.

PROFESSOR L. H. BAILEY, of Cornell University has, Mr. Theodore Waters states in the *Westminster Gazette*, been asked to go to Finland to conduct a series of experiments in electrical plant-growing, in conjunction with Professor Lemstrom, of the University of Helsingfors. The experiments to be carried on have nothing to do with the electric light, or the running of electric wires through the soil for the purpose of forcing the growth of plants by direct current stimulation. They are to be based on some pertinent observations made by Lemstrom, of the effect of the aurora borealis on the plant growth of the north.

It is a well-known fact, as Mr. Waters observes, that the plants of the north arrive at maturity in a much shorter period of time than those plants which are grown further south. It is necessary that these plants should arrive at maturity very quickly, inasmuch as the summer season in the north is very brief, and it has always been looked upon as a wise provision of Providence that the plants were enabled to accomplish their business in life in so short a space of time. Professor Lemstrom, however, casting aside the providential idea, states that the rapid growth of plants in the far north is due directly to the light of the aurora borealis. Light is one of the necessary natural agents in promoting plant growth, and the efficacy of continuing the day-light by substituting in its place electric light for the purpose of increasing the number of "growing hours" of plants has already been proved. In addition to the fact that the light of the aurora might tend to increase the number of growing hours of plants of the north, Lemstrom contends that they are also stimulated by the presence of the large amount of atmospheric electricity, to which, as it is contended, the presence of the aurora is due.

Lemstrom, in furtherance of his ideas, has been carrying on a series of experiments in which plants have been subjected to atmospheric electricity. But these experiments, while in a measure thorough, have not been carried out on a sufficiently extended scale to warrant any large assumptions being made in the matter. It is Lemstrom's idea that in conjunction with Professor Bailey some very important work can be carried on, and it is for this purpose that Professor Bailey is making ready to proceed to Finland.

If the plans of the two experimenters are carried out in the manner which is now contemplated, the result will be an electric farm of a decidedly picturesque character. It is proposed to erect a line of posts around this farm or field in which the experiments are to be carried out. From post to post, through the air above the ground, wires will be stretched, and at convenient distances along these wires small knobs or points will project. A static current, such as produced by the Holtz machine, will be sent over the wires, and will be allowed to jump across the open space between the wires from one point or knob to another. A constant flow of elecricity through the air will thus be accomplished, and the surrounding atmosphere will be, in a measure, saturated with the current. At least, this is the idea of the experimenters; certainly at night the scene should be very picturesque. The tiny points of flame jumping from wire to wire, from knob to knob, in the background of darkness, ought to create a picture such as might be thought to exist only in the fabled farms of fairyland. Professor Bailey, in speaking of the scheme, says:—

"Our contemplated experiments point to the application of atmospheric electricity to the growing of plants. Lemstrom and myself have devised a scheme by which we are to work in unison, some work to be carried on in Finland, and some to be carried on in America. He has recently suggested that I should go to Finland in order to look over his experiments, and to be better able to undertake them here. Lemstrom was first led to consider this whole subject by observing the influence of the aurora on the atmosphere and plant-growing, and thought that the electrification of the atmosphere had a great deal to do with the growth in the Arctic regions. He went to Spitzbergen for the purpose of investigating the electrical phenomena and the meteorology of plant-growing.

"I have recently pointed out to the members of the Massachusetts Horticultural Society the great effect which atmospheric electricity has on the growth of plants. Atmospheric electricity exerts a very powerful influence upon vegetation. The experiments of Grandeau were designed to determine this point. Plants were grown in the free atmosphere which is always in a greater or less state of electrification, and also in a wire cage from which the atmospheric electricity was excluded. Maize in the free air was in every way better than the other, not only in the bulk of all its parts, but in the amount of ash, and of both nitrogenous and non-nitrogenous matters. Grandeau found that plants deprived of the influence of atmospheric electricity have in the same length of time given 50 to 70 per cent. less bulk and 50 to 60 per cent. less fruit and seeds than plants subjected to normal conditions, that is, those to which atmospheric electricity had free access. Celi shortly afterwards reached similar results. So did Leclerc. But by far the best investigations upon the electrification of the atmosphere in reference to plant-growing were those made in Finland and in France by Lemstrom, physicist in the University of Helsingfors.

"Lemstrom was first led to his inquiries by observations upon vegetation and meteorological phenomena in the high North, particularly in Finnish Lapland and Spitzbergen, when he came to the conclusion that much of the rapidity of vegetation in the short summers is due to climatic electricity. His first experiments were made in the laboratory, and the results were so promising that he at once turned his attention to the field. He made an experiment on a small field of barley in Finland. One portion of the field was covered with small parallel wires a metre apart, and secured to porcelain insulators which were secured to small posts on the margin of the field. At intervals of a half-metre each wire was furnished with a metal point, from which the current could discharge into the atmosphere. These wires were connected to the positive pole of a four-disc Holtz machine, which supplied the current. The current was supplied from the middle of June to September 1, from six to ten o'clock in the morning, and from five to nine in the evening. The barley was well up when the experiment began. The harvest showed that the electric plot was over thirty-five per cent. ahead of the remainder of the field, and the yield and the quality of the grain was improved.

"Having determined the good effects of atmospheric electricity in high latitudes, Lemstrom now carried his experiments into France. Here he treated cereals, garden vegetables, and a variety of fruits. The result was equally good in the warm country. But although these experiments of Lemstrom have shown that the application of electricity to the atmosphere generally influences plants profoundly, and is usually beneficial, we are yet uncertain as to how this effect is brought about. It is highly probable, however, as Lemstrom thinks, that the modification is not the direct result of the electrification of the plant itself, nor the atmosphere, but that they follow some chemical change in the atmosphere which is engendered by the current. This is one of the problems we will attack while working in unison. If it is solved we shall probably know better how far to go with this artificial plant-stimulating process. In some cases it is found that stimulation is advisable up to a certain point, but from that point onward it becomes injurious. If we can reduce the system to a practical basis, our forthcoming experiments and those of the past will not be or have been in vain."

NEW BOOKS.

The Rosarian's Year Book for 1898. Price 1s. Edited by the Rev. H. H. D'OMBRAIN. (Bemrose and Sons, Limited, 23, Old Bailey, London.)—This highly popular annual is, as usual, remarkable for the interest and usefulness of its contents, and will not be less heartily welcomed than have been the many previous issues. An excellent portrait of our esteemed coadjutor, the Rev. J. H. Pemberton, forms the frontispiece, and in the opening remarks to his appreciative sketch of the work of this distinguished rosarian, the editor observes: "There are few notabilities in the rose world who are better known than the indefatigable and energetic clergyman whose portrait is given in this issue of the 'Year Book,' and certainly no one whose judgment is more appreciated from his intimate knowledge of the flower he so successfully cultivates. He has been a loyal and constant supporter of the society ever since its foundation, having exhibited at all its shows, and always more or less successfully, and if anybody can be an amateur in the truest sense of the word it is Mr. Pemberton. Everything that is done in the rose garden, with the exception of digging and hoeing, is done by himself and his energetic sister, whose portrait, I think, ought to have been placed with his. He has doubtless some advantages on his side. He inherits the love of roses from his father, who taught him how to bud, &c., when quite a lad; moreover, he resides in the house where his father and grandfather lived, and, above all, he has the constant assistance of his excellent sister, whom nothing seems to daunt or tire. There can be no doubt that anyone who can do all the work necessary in the rose garden has a great advantage over those who are obliged to employ paid labour. He knows where to look for his roses on the evening before the exhibition, and, as he has been watching their development some time before, has not to waste any time looking for them. Mr. Pemberton commenced rose showing in 1874, when he took a first prize at a local show. He exhibited at the first show of the National at St. James' Hall in the class for twelve distinct varieties, obtaining the second prize out of forty exhibitors, and never since that has he been absent from an exhibition of the National, either metropolitan or provincial. In 1885 he felt sufficiently strong to exhibit in the Trophy Class, and gained the first place. In this class he has exhibited ever since with the exception of one year, 1888, when he had not sufficient flowers in bloom, and he has gained the Challenge Trophy three times, been placed second six times, and third three times, but never out of it altogether. He also staged for the Jubilee Trophy nine times, gaining it four times, being placed second three times, and third once." The more important papers in the issue are: "Yellow Roses," by the Rev. A. Foster-Melliar, who, in the course of his interesting communication, describes Maréchal Niel as "the finest yellow rose known by a long way"; "A Chat about Rose Sports," by Mr. A. Piper; "Roses in the South-west of Scotland," by the Rev. D. R. Williamson, who states that "though many of the roses of continental origin succeed admirably in Scotland, I have come to the conclusion that those which have hitherto been most successfully cultivated are of British origin"; and the "Abolition of the Trebles," by Mr. George Paul, to which we referred in our issue of the 8th inst. Miss Muriel Grahame contributes a chatty little paper on rose shows; the editor gives a sketch of the work of the National Rose Society in 1897; and Mr. E. Mawley discusses the weather of the rose year, the latter being described as "really good."

Gardening Year Book and Gardening Oracle for 1898. Price 1s. By the EDITOR of the GARDENERS' MAGAZINE. (E. W. Allen, 4, Ave Maria Lane, E.C.)—The Gardening Year Book is so well known and highly appreciated in horticultural circles as to render it unnecessary that we should do more than record the publication of the edition for the current year, and briefly indicate its contents. It is with satisfaction we do this, for the work has now reached its fortieth year, and enjoys a higher degree of popularity than at any other period in its long life. In this respect it occupies a perfectly unique position, and there can be no doubt that the estimation in which the work is held is largely due to the recognition by the editor of the importance of both freshness and utility, and the consequent provision of matter specially written for each issue, and adapted to the continuous changes in the fashion of horticulture. Diary pages are, as usual, provided for keeping of a brief record of garden work, and the almanack pages contain a series of short reminders, which both amateurs and professionals assure us are found extremely useful. Full directions are given for the management of every department of the garden, outside and under glass, throughout the year, and concise directions are given for the successful cultivation of all the plants, flowers, fruits, and vegetables generally grown, and accompanying the cultural directions are selections of the most useful varieties. The new plants, fruits, flowers, and vegetables introduced during the past year are briefly described, and illustrations given of some of the more important introductions. The most destructive of the insect pests are figured and described, and the best means of keeping them in check pointed out. The recipes likely to prove useful in the garden have been extended and improved, and the lists of horticultural societies, and public gardens have been thoroughly revised to ensure accuracy. In addition to these features a mass of statistical and other information relating to the garden is given, and there are two coloured plates and numerous illustrations in black and white.

Vinton's Agricultural Almanack for 1898. Price 6d. (Vinton and Co., Limited, 9, New Bridge Street, Ludgate Circus, E.C.)—This publication, so long popular with agriculturists, continues to preserve as its chief features very extensive and carefully prepared lists of statistics, official information, societies, breeders' tables, fairs, &c., which render it helpful for reference. The statistics include the prices at the London Christmas Market, and the Imperial Corn Averages for December 11. About seventy large pages are devoted to tabular and official information relating to agriculture and stockbreeding. This edition contains, as in the case of previous issues, numerous special articles, chief amomg them being: Mr. Clare Sewell Read on "Reminiscences of Farming"; Mr. M'Connell on "The Dairy Trade"; Professor Wrightson on "German F Experiments"; Mr. William E. Bear on "The Royal Commission on Agriculture"; Mr. R. E. Turnbull on "Wheat Farming in England"; Professor Malden on "Digging"; Mr. Gilbert Murray on "Cross-bred Sheep"; Mr. W. Parlour on "As Others See Us"; Mr. Wm. Earley on "Improved Onion Culture." The illustrations comprise portraits of some of the leading agriculturists, and of several of the higher types of live stock. The portraits of agriculturists include Earl Spencer, K.G., president of R.A.S.E., Mr. Clare Sewell Read, Sir Cuthbert Quilter, Bart., M.P., Professor McFadyean; and three generations of the Sutton family.

My Garden Diary for 1898. Price 1s. (Sutton and Sons, Reading.)—An elegantly printed brochure containing well-arranged diary pages, and reminders of work to be done in each month of the year.

Hardy Perennials and Old-fashioned Garden Flowers. By JOHN WO (L. Upcott Gill, 170, Strand, W.C.)—In the publication of this manual we have a further proof of the popularity of hardy border plants and of an increased for information on their cultivation. The author, who has long devoted special attention to the cultivation of hardy perennials, tells us in the admirably-written preface to his work that "its object is not to give scientific information, but to furnish the names and descriptions of really useful and reliable hardy perennial plants suitable for all kinds of flower gardens, together with cultural hints on each plant." This object the book has fully accomplished, for within its pages some three or four hundred of the more beautiful species are enumerated and described and their cultural peculiarities fully discussed. The course of procedure adopted by the author has much to recommend it, for the amateur, in a careful perusal of the work, can have but little difficulty in making a selection adapted to his garden and taste, and having selected the species it is intended to plant, he can readily find all the information that could possibly be desired with regard to cultivation. Every detail essential to success is fully described, and with remarkable clearness, the latter being a point of considerable importance to those who have had but little experience in hardy plant culture. The plants are arranged alphabetically in the body of the work, and to still further facilitate reference to them there are two indices, in one of which the plants are arranged in alphabetical order, and the other they are grouped according to their colours. A few plants are not mentioned which we expected to find, and it is interesting to observe that while reference is made to the Chinese and Japanese chrysanthemums the hardy and free-flowering Chrysanthemum maximum and C. pallens are wholly omitted. The selection of early-flowering chrysanthemums at page 61 consists chiefly of generally-grown varieties; but it might be materially improved. Michaelmas daisies are briefly dismissed, for very few are mentioned, and of these two only are described; the selection of these useful hardy flowers should be extended in the next edition, and fuller particulars given with regard to the habit of the plants and the colour of the flowers. In the matter of nomenclature Mr. Wood has ignored the authorities and employed capitals in the specific as well as in the generic names without reference to their derivation. The use of capitals in this way does not impair the practical utility of the work, but as correctness is desirable in this as in other matters, they should have been avoided. Apart from this, the book is so thoroughly sound that we can strongly recommend it to those of our readers who are desirous of obtaining the fullest information on the most beautiful of the hardy plants that have been introduced to British gardens.

LAW.

ORCHID SALE.

THE case of ASHWORTH V. WELLS, heard in the Court of Queen's Bench on the 18th inst., before Mr. Justice Day and Mr. Justice Lawrence. This was an appeal from the Manchester County Court. The facts were these: The plaintiff, an amateur orchid-grower, had bought an orchid at a sale of the defendant's collection of orchids by Messrs. Protheroe and Morris on June 26 and 27, 1895. The orchid was warranted by the defendant to be a Cattleya Acklandiæ alba, a great rarity, if not unique. It had never flowered while in possession of the defendant, and it turned out after two years' cultivation by the plaintiff to be not an alba or white variety of Cattleya Acklandiæ, but the ordinary purple form, which was only worth 7s. 6d. The plaintiff then brought an action for damages. The defendant admitted liability and paid into Court twenty guineas and two guineas for interest, which he said was sufficient. The County Court Judge thought that the sum paid in was enough, and gave judgment for the defendant. He also found that if the orchid had really been an alba it would have been worth more than £50 at the time of the sale.

Mr. C. A. Russell, Q.C., who appeared for the plaintiff, said that the County Court Judge was wrong in thinking that enough had been paid into Court. He practically had only given back to the plaintiff the amount he had paid. He should have considered the value at which the orchid would have arrived at by this time. The claim was reduced to £50 in order to give jurisdiction to the County Court to try the case.

Mr. Montague Lush, who appeared for the defendant, said that as the sale of the orchid had taken place at a largely-attended auction the price given was the real market price. It was wrong to assume that if the orchid had been a white one it would have flowered by this time. It might never have flowered at all. On the question of measure of damages he cited several cases, and contended that the claim by the plaintiff was speculative, as no one had ever seen a white orchid of this class.

The Court held that the matter must go back to the County Court Judge, and Mr. Justice Day said he had come to this conclusion with considerable reluctance. He thought that the plaintiff's real cause of complaint was that he had had to pay the costs of the County Court action. The defendant admitted that he was wrong in his warranty. The plaintiff had spent time and trouble and money in cultivating the cattleya. The Judge of the County Court had apparently considered nothing but the original price of twenty guineas. It was very likely that if the orchid had been a white orchid it might have been worth more than £50, but it was only speculation after all, because such a thing as a white orchid of this particular species was really unknown. The matter should go back to the County Court Judge. Mr. Justice Lawrance said he did not disagree with his learned brother in sending the case back, though he thought that the Court had sufficient material to decide the case themselves. The true measure of damages was not the difference between the contract price of the orchid and the price at which it would sell now; but, putting it generally, the measure was the difference in value of the thing sold with the defect warranted against and the value of the thing without the defect. Here the evidence was all one way. If the orchid had been what it was represented it would have been worth perhaps £100. If the County Court had jurisdiction to deal with that amount the plaintiff might recover the difference.

CATALOGUES RECEIVED.

KELWAY AND SON, LANGPORT, SOMERSET.—Seeds, Plants, and Bulbs.
BARR AND SONS, KING STREET, COVENT GARDEN, LONDON.—Seed Guide.
M. CUTHBERTSON, ROTHESAY, N.B.—Seeds and Plants.
HERD BROTHERS, PENRITH.—Garden Seeds.
THOS. S. WARE, HALE FARM, TOTTENHAM.—Seeds.
R. SYDENHAM, TENBY STREET, BIRMINGHAM.—Seeds.
WM. BULL, 536, KING'S ROAD, CHELSEA.—Seeds.
WM. CLIBRAN AND SON, MARKET STREET, MANCHESTER.—Garden Seeds.
ARMITAGE, BROTHERS (LIMITED), NOTTINGHAM.—Seed Manual.
DICKSON AND ROBINSON, MANCHESTER.—Seeds and Sundries.
CHARLES SHARPE AND CO. (LIMITED), SLEAFORD.—Standard Seeds.
ROBERT VEITCH AND SON, HIGH STREET, EXETER.—Seeds.
WM. PAUL AND SON, WALTHAM CROSS, HERTS.—Seeds, Bulbs, and Sundries.
E. WEBB AND SONS, WORDSLEY, STOURBRIDGE.—Spring Catalogue.
J. R. PEARSON AND SONS, CHILWELL, NOTTS.—Chrysanthemums, Seeds, Roots, &c.
SUTTON AND SONS, READING.—Garden Diary.
CHR. LORENZ, ERFURT, GERMANY.—Guide for Amateur Gardeners.

EXHIBITIONS AND MEETINGS.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual meeting of this useful and ably-managed charity was held on Thursday, January 20, at Simpson's, 101, Strand. There was a fair attendance, and Mr. Harry J. Veitch, presided. After the usual preliminaries, the secretary, Mr. G. J. Ingram, read the report for the year 1897.

COMMITTEE'S REPORT.

It affords the committee much satisfaction to submit their annual report for the year 1897, together with an audited statement of accounts, and in doing so they are thankful to be able to record the continued prosperity of the institution, and its increased benefit to those old and needy people in whose behalf it was founded. With great pleasure the committee have to report that the fifty-eighth anniversary festival dinner in aid of the funds, held in May last, was most successful, and they desire to express their gratitude to the Right Hon. Lord Rothschild for so kindly occupying the chair on that occasion. They would also gratefully acknowledge their indebtedness to those gentlemen who so kindly served as stewards, to those who sent flowers and fruit, and to other friends who in any way assisted in making the festival a complete success.

During the past year nineteen pensioners have died, seven of them leaving widows, of whom five whose cases on being carefully investigated and found to be in every way satisfactory, have been placed on the pension list at £16 a year in succession to their late husbands in accordance with Rule III., 13. The committee have now the pleasure to announce that they have decided to add nineteen additional pensioners to the number at present on the funds, ten of whom, having been accepted under Rule III., 5, they recommend the subscribers to place on the pension list without the trouble and expense of an election; the remaining nine to be elected by vote from the approved list of candidates in the usual way. This addition will make the total of pensioners one hundred and sixty seven, the largest number of beneficiaries receiving permament aid since the foundation of the institution. Yet there will be thirty-five unsuccessful candidates who will perforce have to wait for that assistance which they so much need. The committee sincerely wish it were possible for them to render aid to the larger number, but with the financial responsibility to those now on the funds, which it is impossible to accurately calculate, they do not feel in a position to recommend a greater increase in the annual expenditure, than that entailed by the addition of the number already stated. In the past year there have been held in aid of the charity an amateur operatic performance at St. George's Hall, kindly organised by Mr. H. Morgan Veitch; a flower and fruit stall at Richmond Horticultural Exhibition, kindly arranged by Mrs. Algernon Chancellor; garden fêtes at Reigate and other places; concerts at Altrincham, and various other functions in different parts of the country, to the promoters of which, one and all, the committee tender their very hearty and sincere thanks. They would also gratefully recognise the self-denying labours of the hon. secretaries of the several auxiliaries, which are still attended with marked success, and are the means of creating an ever-widening interest in the good work of the institution.

It will be remembered that the committee at the last general meeting suggested the sending to each unsuccessful candidate at the 1897 election, the sum of £5 on June 21, in honour of the Diamond Jubilee of her Majesty the Queen. This they are happy to say was done, and the grateful letters of acknowledgment received from the recipients showed how greatly appreciated were the welcome and, in many cases, timely gifts. The committee likewise announced that they had inaugurated a fund to commemorate the long and beneficent reign of our beloved Queen, the patroness of this charity. This fund, by her Majesty's gracious permission, is called the "Victorian Era Fund." They are now gratified beyond measure to state that the appeal issued in its behalf was most generously responded to, the sum of £4,075 being received, which amount has been invested in the names of the trustees in the Great Western Railway 5 per Cent. Guaranteed Consolidated Stock, and the interest derived therefrom will be annually divided pro râta among those unsuccessful candidates who formerly were subscribers to the institution, in order to render them some temporary assistance while waiting election; no candidate to receive more than £10 in any one year. The committee would like to mention the names of all who have so liberally and kindly contributed to this special object; but, whilst gratefully thanking all who did so, they hope it may not seem invidious if they particularise a few generous and munificent donors who greatly helped to secure the substantial amount raised: His Grace the Duke of Westminster, Lord Rothschild, Messrs. N. Rothschild and Sons, Baron Schröder, Mr. H. J. Veitch, Mr. N. N. Sherwood, Mr. C. Czarnikow, Mr. A. W. Sutton, and Mr. G. Monro.

The committee are happy to announce that the following legacies have been received: £457 5s. 11d. from the late Mr. J. M. Thomson, formerly a gardener to his Majesty King George III., the interest to be devoted to the special benefit of a widow or widows; and £100 from the late Colonel Thomas Page, formerly a life member of the institution. They also thankfully acknowledge the receipt, just before the close of the year, of special donations to the general fund of £50 from the Royal Scottish Horticultural Society, and £26 5s. from the Royal Caledonian Horticultural Society. In common with other charities, the committee have to deplore the removal by death of several friends and supporters, amongst whom may be mentioned the late Dr. Hogg, a vice-president and trustee, who for many years took a warm and practical interest in the institution, and the late Mr. Richard Chrimes, who for upwards of thirty years had been a liberal subscriber to its funds, the late Lord Hindlip, and J. Travers Smith, Esq., both of whom had been annual subscribers for many years. They have also to record that, in consequence of advancing age, Mr. John Lee has felt compelled to relinquish his position as a trustee of the institution. From its foundation Mr. Lee has been one of its warmest friends, and whilst accepting his resignation with the deepest regret, they know that, as long as he may be spared, he will ever continue to take a special interest in its welfare. It is a source of much gratification for the committee to notify that the Hon. Walter Rothschild and Bruno Schroder, Esq., have consented to fill the vacant trusteeships, and they desire to express their sincere thanks to these gentlemen for so kindly giving their services in this way to the institution.

In concluding their report, the committee have to make the welcome announcement that the fifty-ninth anniversary dinner in aid of the funds will be celebrated on June 8 next at the Hotel Metropole, when his Grace the Duke of Portland has kindly undertaken to preside, and from a long experience they are encouraged to hope that all those friends who have the well-being of the charity at heart will again do, in this sixtieth year of its history, all in their power to ensure the success of the anniversary. And, whilst rejoicing in the solid prosperity of the charity, they still earnestly invite the kind co-operation of its present supporters in procuring new subscribers, especially amongst gardeners and those who may, at some time, be compelled to seek its assistance, so that its work may be not only fully maintained but enlarged, and the ever-increasing number of applicants helped and benefited.

BALANCE-SHEET.—RECEIPTS.

To Balance ...	£929	13	3
,, Deposit account ...	2,015	0	0
,, Annual subscriptions ...	1,511	7	0
,, Annual dinner and collecting cards ...	1,485	7	9
,, Victorian Era Fund ...	4,075	11	0
,, Legacies ...	557	5	11
,, Return of income-tax ...	23	17	10
,, Advertisements in annual list ...	49	2	6
,, Dividends and interest on deposits ...	873	2	6
Total ...	£11,519	17	8

EXPENDITURE.

By Pensions and gratuities ...	£2,953	16	8
,, Expenses of election and annual meeting ...	16	11	3
,, Secretary's salary ...	250	0	0
,, Office assistance ...	26	0	0
,, Rent of office ...	62	10	0
,, Printing ...	110	15	3
,, Stationery ...	34	14	6
,, Cheque books ...	4	3	4
,, Annual dinner ...	108	5	3
,, Diamond Jubilee address...	7	17	6
,, Wreath for the late J. Webber ...	2	10	0
,, Office repairs ...	4	13	0
,, Advertisement ...	3	3	0
,, Postages ...	56	13	9
,, Travelling expenses ...	2	18	2
,, Incidental expenses ...	19	12	7
,, Bank charges ...	0	5	5
,, Investment of Thomson legacy ...	457	5	11
,, ,, Victoria Era Fund ...	4,075	0	11
On deposit ...	2,415	0	0
,, Balance with treasurer ...	905	11	2
,, ,, with secretary ...	2	10	0
Total ...	£11,519	17	8

We have audited the accounts and certify the same to be correct, and are pleased to state we have found the books well and accurately kept. We have also satisfied ourselves that the securities of the invested funds are in the hands of the bankers.

(Signed) THOMAS MANNING, THOMAS SWIFT, J. WILLARD, Auditors.

The adoption of the report was moved by the Chairman, who remarked that the last year was the most successful of the institution; he deplored the loss of two able trustees. He referred to the Thomson legacy, and stated that the interest from this would go as an annual pension to the widow, who just misses being elected as pensioner at the present election, provided the meeting considers the case suitable. After a few more remarks, with special reference to the success of the Victorian Era Fund, the motion was seconded by Mr. Gardener, and carried, together with a vote of thanks to the committee. Mr. Harry Veitch, on the proposition of Mr. A. Outram, was re-elected treasurer, and awarded a vote of thanks for past services. Mr. G. Wythes proposed Mr. G. J. Ingram be re-elected secretary; this motion, seconded by Mr. Osborne, was carried, and Mr. Ingram suitably responded. Mr. W. G. Morgan moved that Messrs. W. Denning, James Douglas, N. N. Sherwood, J. H. Veitch, and G. Wythes be re-elected members of the committee; and that Messrs. E. Ranger Johnson and Mr. Gleeson be re-elected members of the committee, in room of Messrs. R. Milligan Hogg and Thomas Glen, who retire. After being seconded by Mr. Manning, this was carried.

Mr. J. Hudson proposed the re-election of the auditors; after being seconded Messrs. Manning, Willard, and Swift were duly re-elected auditors. The arbitrators were also re-elected, and a vote of thanks accorded them. It was then proposed by Mr. W. Denning that Messrs. John Battersby, John Berry, Daniel Boreham, George Daniels, William Davidson, Thomas Ffoulkes, John Mitchinson, John Perkins, John Rolfe, and Silas Warr, whose cases have been investigated, and come within the terms of Rule III., 5, be placed on the pension list without election from January 1, 1898. No other business coming before the meeting, and all the formalities having been fulfilled, the chairman brought the meeting to a close, and proposed that Messrs. T. Manning, A. Outram, and E. J. Monro be elected scrutineers of the ballot. The meeting then broke up to await the result of the election.

RESULT OF BALLOT.

The poll was declared at 4.50, when the following were found to have been successful: Henry Ellis, Cheshire, 4,249 votes; Thomas Bundy, Bournemouth, 3,900; Robert Begbie, St. John's Wood, 3,878; James Baker, Devon, 3,868; William Wood, Finsbury Park, 3,790; David Cornell, Addlestone, 3,663; George Hewitt, Croydon, 3,651; Edwin Thomas, Shrewsbury, 3,550; and Lydia Rose, Derby, 3,534. In accordance with the terms of the Thomson Bequest, Elizabeth McCulloch, Charlbury, was also elected, having gained 3,031 votes.

There were 1,152 spoiled votes, including 1,035 unsigned and 117 unpaid lists. Total number of votes polled 97,951.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.

The annual general meeting of this society was held on Wednesday last at the Stag's Head Hotel, under the presidency of Councillor H. Law. The treasurer (Mr. A. Cockerill) presented a statement of accounts showing that the payments, £810 15s. 8d., exceeded the income by £25 8s. 10d. The secretary (Mr. W. B. Troup), in replying to a vote of thanks for his services during the past year said, that in 1890 they had a profit of £200; in 1891 they cleared £39; in 1892, £113; in 1893, £79; since then they had had deficits of £54, £21, £43, and this year, £25; but considering the numerous counter attractions on the August Bank Holiday, they had had a smaller loss than was at first anticipated. A. Drucker, Esq., M.P., was thanked for filling the office of president during the past twelve months, Earl Spencer being chosen for that post for 1898. It was decided to hold the next show at Althorp Park, on Monday and Tuesday, August 1 and 2.

THE FRENCH HORTICULTURAL SOCIETY OF LONDON.

Mr. Herbert Cutbush presided on Saturday evening last over the ninth annual dinner of the above-named society, and a very successful and enjoyable evening it was. As was the case last year the gathering took place at the Imperial Restaurant, Strand, and a numerous company assembled to do honour to the occasion. English horticulture was well represented in the persons of Messrs. Harry Laing, Harman Payne, H. J. Jones, W. Cutbush, J. Weathers, and others. After dinner was over the customary toasts and speeches were indulged in, and Mr. George Schneider, the genial president of the society, in introducing the chairman to the company, reminded them that Mr. Cutbush's position in the gardening world and the interest he took in the society were ample recommendations for their selection of him as chairman on this occasion, and very heartily proposed his health.

Mr. Cutbush replied, saying that ever since the society was started in 1888 it had been most successful, a fact that was very largely due to the ability of its officers and the enthusiasm of its members. Numerous additions to the roll of membership had been made during the past year, and it was interesting to record that besides being represented in every European state, the society had members also in America, Algeria, the Congo, and elsewhere. Financially there was good reason for congratulation, the society being at present in a much better positi than this time last year. Many valuable additions had been made to the library, which was one of the leading features of the society. The Bulletin had been improved, and the new one for 1898 will be still more so. He was pleased to raise his glass and invite them to drink to the continued success and prosperity the society, coupling with the toast the name of their worthy president, Mr. Schneider, who, in reply, briefly reviewed the work of the past year, and thanked the members for the spirit of comradeship that always animated them. He also attributed a large measure of the success to English friends who kindly fou room for many of the young men who desired places in this country. In conclusi he gave the toast of "The Visitors," to which Mr. Harman Payne replied.

At this point a little surprise was in store for Mr. Schneider, as Mr. Gachel arose to make him a presentation of a case of cutlery and an address on behalf of the new members. Mr. Schneider appropriately replied to this unexpected demonstration of good feeling towards him.

Vocal and instrumental music was excellently rendered, and as a close to the proceedings the company very heartily sang the English and French national anthems. Messrs. Cutbush and Sons, of Highgate, received a cordial vote of thanks for the floral decorations.

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.

January 13.

The above society held a meeting on the 13th inst. at the Coal Exchange, Market Place, Manchester, and even at this dull season of the year many interesting exhibits were brought together. Lycaste Skinneri alba, shown by Mr. Leeman, was notable, as such a fine specimen is difficult to find. Odontoglossum deltoglossum Stevensi was a fine form, much in the way of O. excelle Cypripedium bellatulum album was the finest yet seen, and Cypripedium insigne Sanderæ, of which two plants were shown and one cut flower, without doubt w the true type. The members present were: W. Thompson, Esq., in the chair, and Messrs. G. S. Ball, W. Gent, G. W. Law Schofield, A. Warburton, H. Greenwood, W. Bolton, P. Weathers, J. Cypher, W. Stephens, R. Johnson, and J. Leeman.

Mr. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, Sta gained awards of merit for Odontoglossum deltoglossum Stevensi and Cypripedi Calypso. Mr. J. Robson, Bowdon, showed a well-grown plant of Cypripedi Boxalli, for which the committee recommended a cultural certificate; C. P tianum reversum gained an award of merit. Mr. Hey, gardener to G. S. Ball, Esq., Ashford, Wilmslow, showed Cypripedium bellatulum album, which gained F.C.C., and C. Swinburnei magnificum, which gained an A.M. Mr. Edge, gardener to J. Leeman, Esq., West Bank House, Heaton Mersey, brought Lyc Skinneri alba, Odontoglossum crispum (A.M.), and several other fine orchi Mr. A. Warburton, Vine House, Haslingden, showed Cypripedium insigne Sa deræ and C. Mons. G. Trauffant (C. Morganæ crossed with C. Stonei). Mr. S. Gratrix, Old Trafford, Manchester, showed several good things, and Cypripedi F. S. Roberts (C. niveum crossed with C. Curtisi) was a gem, gaining a F.C.C. Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, had sev good orchids; Mr. Rogers, gardener to O. O. Wrigley, Esq., showed Cypripedi Lathamianum roseum giganteum, C. Argus Moensi, Selenipedium leuchorrod and C. Wallærtianum pallidum; Mr. D. Lord sent C. Lathamianum giganteum.

The next meeting is to be held on February 10.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

The annual meeting of this popular and useful society was held in the society rooms, St. Andrew's Square, on Tuesday, January 11. There was a crowd meeting, Mr. Todd, the retiring president, who was re-elected, in the chair. appeared from the secretary's report that the association was founded in 1 with some one hundred members, and that it has increased every year since, it now numbers some six hundred members; one hundred and fifty have added to the roll of members during the year just closed. The following bearers were chosen: Honorary President, the Duke of Buccleuch; Preside Mr. M. Todd; Vice-Presidents, Mr. P. Laird and Mr. James Grieve; Secret Mr. B. Laird; Assistant Secretary, Mr. B. Murray; Treasurer, Mr. Alex M'Kenzie. The society, as already announced, has given some £250 of its p to local and horticultural charities. The total income as appears from the treasurer's report from the great chrysanthemum show was £1,264 7s. 8d.; the expenditure £1,189 6s., leaving a balance of some £75, which with the ordinar income of the association reaches the sum of £164. Thus financially and culturally this association is in a most prosperous condition.

ISLE OF WIGHT CHRYSANTHEMUM SOCIETY.

This body held its annual meeting on Saturday, the 15th inst., when there a large muster of members. Dr. J. Groves, B.A., presided. The balance and report were unanimously adopted. The former showed that the so a balance in hand of about £18. The question of an Isle of Wight cham prize was fully discussed, and afterwards left to a sub-committee for deci Charles Seely, Bart., was re-elected president; Dr. Groves, chairman; Coombes, treasurer; and Mr. C. H. Cave, hon. secretary for the ensuing

Proposed Trials at Chiswick.—The trials to be conducted in R. Gardens during the current year comprise zonal pelargoniums for summer blooming and indoor blooming in summer, chrysanthemums for blooming in early autumn, violas, fuchsias for greenhouse decoration, pen for border plants, saxifrages for rockwork and borders, shrubby spir cannas, new early potatos, new peas, new tomatos, and radishes.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Mushroom Cultivation.—F. W. N., Southampton: A handy little book on the subject is "Mushrooms for the Million," published at 171, Fleet Street, E.C., price 1s. 2d., post free. An article on "Mushrooms for Exhibition" will shortly appear in these columns.

Russian Salsafy.—G. S., Aberdeen: We are not aware that any form of salsafy is called Russian salsafy. Salsafy is the popular name of Tragopogon porrifolium, a plant common in Northern Europe, and naturalised in Britain. You may take it that no better forms of this vegetable are to be found than those offered by the leading seedsmen in Britain.

Melons.—McA., N.B.: Deeply ribbed melons are not now much grown, and as a rule those without ribs are better flavoured and more handsome. Two good scarlet-fleshed varieties are Syon Perfection and Blenheim Orange, and two good green-fleshed sorts, free and rich, are High Cross Hybrid and Hero of Lockinge; the latter has a very pale flesh, but is a handsome and luscious fruit. About four to six fruits to a plant will be sufficient for your purpose.

Potash for Cherry Trees.—S. G. R., Kent: The best and cheapest potash manure for your purpose will be muriate of potash. This should be used at the rate of one or two hundredweight per acre, and no delay should be made in its application, as autumn dressings are better than spring ones. Muriate of potash is very suitable for light and peaty soils. Kainit is a good artificial manure for orchards; it contains about 32 per cent. of potash, and should be applied at the rate of six to eight hundredweight per acre. Doubtless you are aware that wood ashes form a splendid potash manure.

Gas-heated Boilers.—"Perplexed" asks: "Will any reader who has had experience with greenhouse boilers heated by gas, kindly give his opinion of same, as I have one under my charge which is not quite satisfactory? It is one of Fenlon's patent gas boilers, fitted with two burners, set in brickwork covered with cement, and with outlet for fumes outside the house. The flow and return pipes pass through the woodwork under the stage. The pipes have been tested several times, and there appears to be no escape of gas that could find its way into the house. There is plenty of heat if both burners are used, or they can be regulated; the water has the same appearance as water in a boiler heated by a fire, and yet there is a peculiar faint odour in the house which causes flowers to wither and foliage to turn a sickly colour as though over-watered. I have other houses warmed by fire-heated boilers, and the difference in the plants in them is at once apparent, and to the advantage of the plants." Answers on this subject will oblige.

Maggots in Cineraria Foliage.—A. B. C.: Your cinerarias have been attacked by a pest similar to if not actually the same as the Celery Fly (*Tephritis onopordinis*). The fly deposits its eggs upon the foliage during summer and autumn, and as the grubs hatch they penetrate the cuticle and feed upon the substance of the leaf. This causes the blistered appearance so frequently seen celery foliage, and in a lesser degree in celery leaves; in the latter one can trace the progress of the maggot by the white lines caused by the channel it has eaten. The pest will be found at one end of such channel or gallery, and should be killed by pressure between the thumb and fore-finger. If the plants are held so that the leaves come between the eyes and the light it is also possible to detect the grubs. The fly is most dangerous in hot, dry weather, consequently it is a necessity that young cinerarias be placed in a cool, moist position. An occasional spraying with weak tobacco liquid will render the foliage distasteful to the fly and prevent the deposition of eggs. At present nothing can be done beyond killing the maggots, removing the badly infested leaves, and gently stimulating the plants by the use of a little liquid manure.

Moving Large Palm and Tree Fern.—S. F. C., Crouch Hill: There should be no difficulty whatever in shifting the palm to the centre of the house. Take out the tree fern as carefully as possible, so that neither it nor the roots of the seaforthia are damaged; the fern will stand rougher usage than the palm. Wrap the roots of the tree fern in a Russian mat, and then place the specimen in a warm greenhouse, where the mat and roots can be kept moist; also moss the trunk along the upper half of its length at least, and keep moist until eventually the stem is cut and placed in a tub or pot. Remove most of the fern fronds. Having disposed of the fern, make a deep and large hole in the bed where it stood, carting away the old soil. Then, allowing as large a ball of soil as possible, work round the roots of the palm, and as the work proceeds plank up the sides so that the roots will presently be boxed up; then work underneath the mass and push planks under, subsequently fastening all the wood together securely. It will be an easy matter to excavate sufficiently to allow the passage of the palm to where the tree fern formerly stood. If the bottom of the bed is not solid, lay down a couple or more of stout planks, and then by means of poles as levers and three rollers made of short lengths of slender scaffold poles, it will be easy to effect the transfer. The rollers should be as wide as the ball of the palm. Have some good soil ready and warmed in the house, and as soon as the palm is in position remove the planks and pack the soil around the roots. Finish off with a watering with tepid water. We have seen far larger palms than yours moved with success.

Manuring for Potatos.—Rex, Ely: The dressing of kainit which you propose is too large; you would be wasting money to give it to such land. A far better dressing, especially as you intend following the potatos with strawberries, would consist of five hundredweight of kainit and three hundredweight of superphosphates per acre; this would also help the fruit trees. You would have to lift the potatos for early sale, as they would not be in a ripe condition and fit for storing at the time you intend to plant the strawberries. Beauty of Hebron is a good variety for the purpose. A comprehensive work upon potatos is "The Potato in Field and Garden," by W. J. Malden, price 3s. 6d., and obtainable from W. A. May, 150, Strand, W.C. The weight of seed potatos required per acre varies with the size of the sets. Twelve to fifteen hundredweight per acre will be sufficient if good sets are used, that is, those that pass through a sieve of two-inch mesh but will not pass through one with inch and a half mesh. A ton of larger sets would be needed.

Spot on Apples.—J. D., Devon: The black spots upon the apples are caused by a fungus known as Apple Scab (*Fusicladium pyrinum* or *Cladorsporium dentriticum*). Anything that can be done to assist the tree should be done at once, such as thinning out crowded growth, washing and liming the trunk and branches as far as possible, and also giving a good dressing of manure. If the surface soil for some distance round the tree can be removed and replaced by a good dressing of road scrapings, wood ashes, burnt refuse, and old potting soil well mixed together, then the tree will make new surface roots that will assist it in the struggle against the scab. In fact, whenever strong strong measures have to be taken for the removal of a pest that is sapping the health of any plant and spoiling the crop, then feeding at the roots should also be done. A spraying with a weak solution of carbonate of copper should be given while the trees are dormant, and with a weak solution of Bordeaux mixture when the young leaves are expanding and before the flowers open; for the latter spraying the proportions of the ingredients should be 6 lb. of lime and 12 lb. of sulphate of copper to 100 gallons of water. No spraying should be done while the trees are in flower. As the foliage becomes stronger, and when the fruits are well formed a slightly stronger solution can be used, but if the mixture above given is applied in the form of very fine spray about it it may be repeated at intervals of about three weeks until fear of the disease is past. We have frequently given in these columns the method of mixing the ingredients of Bouillie Bordelaise.

Names of Plants.—C. H., Axminster: Jasminum nudiflorum.

A. B. C.: The specimens were not in a recognisable condition; not being packed in a damp moss or other material they were badly shrivelled, and also, owing to the flimsy nature of the cardboard box, they came to grief during transit. Light tin boxes are the best for sending specimens in. Neither name or address were sent.

B. J., Romford: 1, Euphorbia splendens; 2, Hoya carnosa; 3, Eulalia zebrina; 4, Epiphyllum truncatum; 5, Ophiopogon Jaburan variegatum; 6, Scirpus riparius, commonly known in garden as Isolepis gracilis; 7, Centaurea ragusina.

B. S. L., Hartlepool: 1, Acacia lophantha; 2, A. verticillata; 3, Asparagus Sprengeri; 4, Panicum plicatum.

R. D. B., Westgate: 1, Ixora Williamsi; 2, Asplenium biforme; 3, Maranta zebrina; 4, Cyanophyllum magnificum; 5, Gymnogramma gloriosa schizophylla; 6, G. peruviana.

Names of Fruit.—Rev. J. D., Devon: The large apple is Roundway Magnum Bonum, and the small one Five-crown Pippin.

O. C., Brentwood: 1, Bramley's Seedling; 2, Round Winter Nonsuch.

J. B., Ealing: 1, Catillac; 2, Easter Beurre.

F. R. M., Nantwich: 1, Lord Derby; 2, Mére de Mènage; 3, Winter Nelis.

W. S., Wolverhampton: 1, French Crab; 2, Ribston Pippin.

R. G., Ross: The cardboard box did not well withstand the somewhat rough usage of the Post Office authorities. So far as we can make out the fruits are: 1, Beurre d'Aremberg; 2, Beurre Delfosse; 3, Downton Pippin.

Communications Received.—K. and S.—B. and S.—M. C.—H. B.—T. S. W.—R. S.—W. B.—W. C. and S.—S. C.—R. D.—E. B.—M. W.—W. A. C.—G. H.—K. P.—T. D.—R.—S. H.—J. D.—J. H. P.—W. H. L.—E. M.—B. J.—B. S. L.—R. D. B.—C. T. D.—C. H.—O. C.—J. B.—F. R. M.—W. S.—R. G.—A. F. B.—S. H.—W. W.—J. D. —T. S.—G. W.—J. T.—R. D.—J. G.—J. D.—G. H.—W. J. G.—F. V. T.

MARKETS.

Covent Garden.

AFTER a long spell of open weather and large supplies of vegetables, there is now a shortening in the supply of green stuffs. Good Brussels sprouts realise high prices, and there is a slight general upward tendency. Fruit in moderate supply, and chiefly from Canada, United States, and France.

FRUIT.—English apples, 4s. 6d. to 15s. per bushel; Nova Scotian and American, 12s. to 35s. per barrel; French pears, 4s. 6d. to 6s. 6d.; Californian, 8s. to 10s. 6d. per case; English grapes, 1s. 3d. to 2s. 6d. per lb.; Almeria, 10s. to 18s. per barrel; pineapples, 1s. 6d. to 5s. each; bananas, 5s. to 10s. per bunch; lemons, 6s. to 18s. per case; Canary tomatos, 10d. to 1s. 6d. per tray, 3s. to 4s. 6d. per case; French chestnuts, 6s. to 9s.; Italian, 12s. to 14s. per bag; Valencia oranges, 8s. to 16s. per case; Jaffa, 8s. to 12s. 6d.

FLOWERS.—Arums, 3s. to 5s.; carnations, 1s. to 3s.; chrysanthemums, 1s. to 3s.; gardenias, 3s. to 5s.; Lillium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 10s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s.; and tuberoses, 6d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 12s.; and violets, 1s. 6d. to 2s. per dozen bunches; azaleas, 9d. to 1s. 6d.; stephanotis, 4s. to 6s.; white narciss, 1s. to 2s.; Roman hyacinths, 6d. to 1s.; lily of the valley, 1s. to 2s.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Celery, 9s. to 15s. per dozen rolls; sprue, 5s. to 7s. per dozen bundles; turnips, 3s. to 3s. 6d.; carrots, 2s. 6d. to 3s.; parsley, 1s. 6d. to 2s. greens, 2s. to 2s. 6d. per dozen bunches; shallots, 2s. to 2s. 6d.; mushrooms, 6s. to 8s.; garlic, 3s. to 4s. per 12 lb.; French endive, 1s. 3d. to 1s. 6d.; lettuce, 10d. to 1s.; cucumbers, 4s. to 7s.; cauliflowers, 1s. to 2s. 6d. per dozen; Brussels sprouts, 1s. 3d. to 1s. 9d. per half sieve; beetroots, 2s. to 3s.; parsnips, 2s. 6d. to 3s. 6d.; cabbages and savoys, 3s. 6d. to 5s. 6d. per tally; asparagus, 4s. to 5s. per bundle.

Borough Potato Market.

A very quiet trade prevails, and there is a downward tendency in prices, although supplies are slightly smaller than usual.

Dunbars, 115s. to 125s.; Hebrons, 90s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 80s. to 90s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. 9d. to 4s.; Germans, 4s. 3d. per bag.

OBITUARY.

MR. MAX DEEGEN, a well-known dahlia grower and nurseryman, died recently at Köstritz, Thuringia, at the age of fifty-six years. As a raiser of new dahlias Mr. Deegen will be widely missed.

MR. MICHAEL LAURENCE, an able old gardener, who had long had charge of the flower gardens at the residence of Mrs. W. Gilbert Tuck, Tostock House, Suffork, died a few days ago. He had held his position since 1847, and, though eighty-two years of age, was active and capable to the last.

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THE WEATHER DURING THE WEEK ENDING JANUARY 15, 1898

STATIONS.	TEMPERATURE OF THE AIR. Highest. Fahrenheit.	Lowest. Fahrenheit.	Mean. Fahrenheit.	Mean. Centigrade.	RAINFALL. In Inches.	RAINFALL. In Centimetres.
London	49·2	32·[illegible]	41·6	5·44	0·00	0·00
Croydon	49·0	28·0	41·2	5·11	0·00	0·00
Brighton	49·0	31·0	42·7	5·94	0·00	0·00
Bristol	—	—	—	—	—	—
Wolverhampton	53·1	29·7	39·7	4·23	0·00	0·00
Norwich	51·2	29·0	40·5	4·72	0·05	0·13
Nottingham	55·0	30·0	40·4	4·67	0·03	0·08
Liverpool	51·4	34·3	42·6	5·89	0·06	0·15
Huddersfield	50·3	33·0	41·4	5·22	0·02	0·05
Bradford	58·4	34·8	46·3	7·94	0·25	0·63
Hull	52·0	29·0	40·4	4·67	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 30·25 inches, and that of the Thermometer 41°·8, the latter being 3°·8 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 55 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 3·5 hours. No rain was measured during the week.

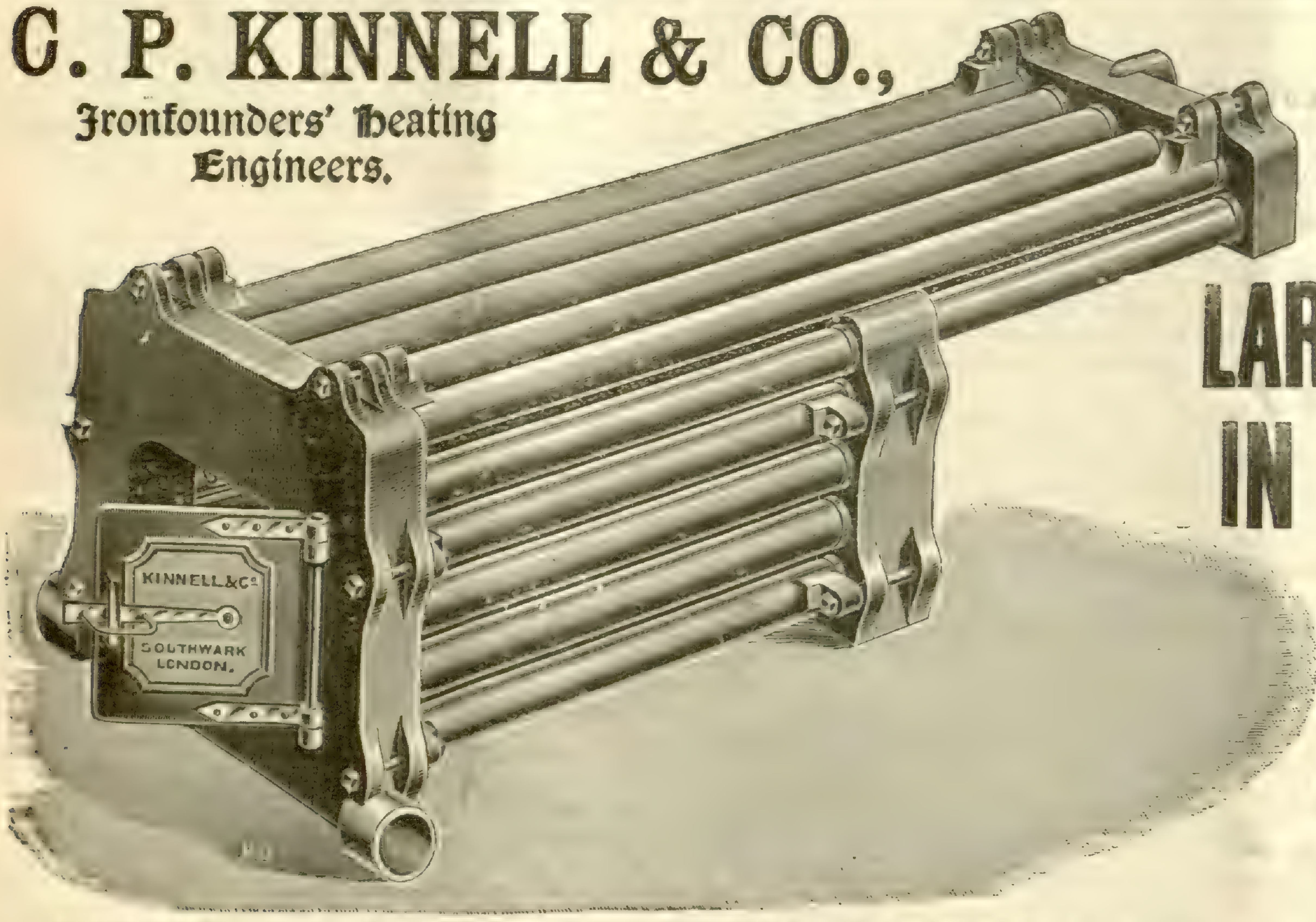
ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

MONDAY, WEDNESDAY, AND THURSDAY, JANUARY 24, 26, AND 27.—Border Plants, Rose and Fruit Trees, Shrubs, &c., at J. C. Stevens's Rooms.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, JANUARY 25, 26, 27, AND 21.—Lilies, Palms, Azaleas, Tuberoses, Orchids, &c., at Protheroe and Morris's Rooms.

C. P. KINNELL & CO.,
Ironfounders' Heating Engineers.



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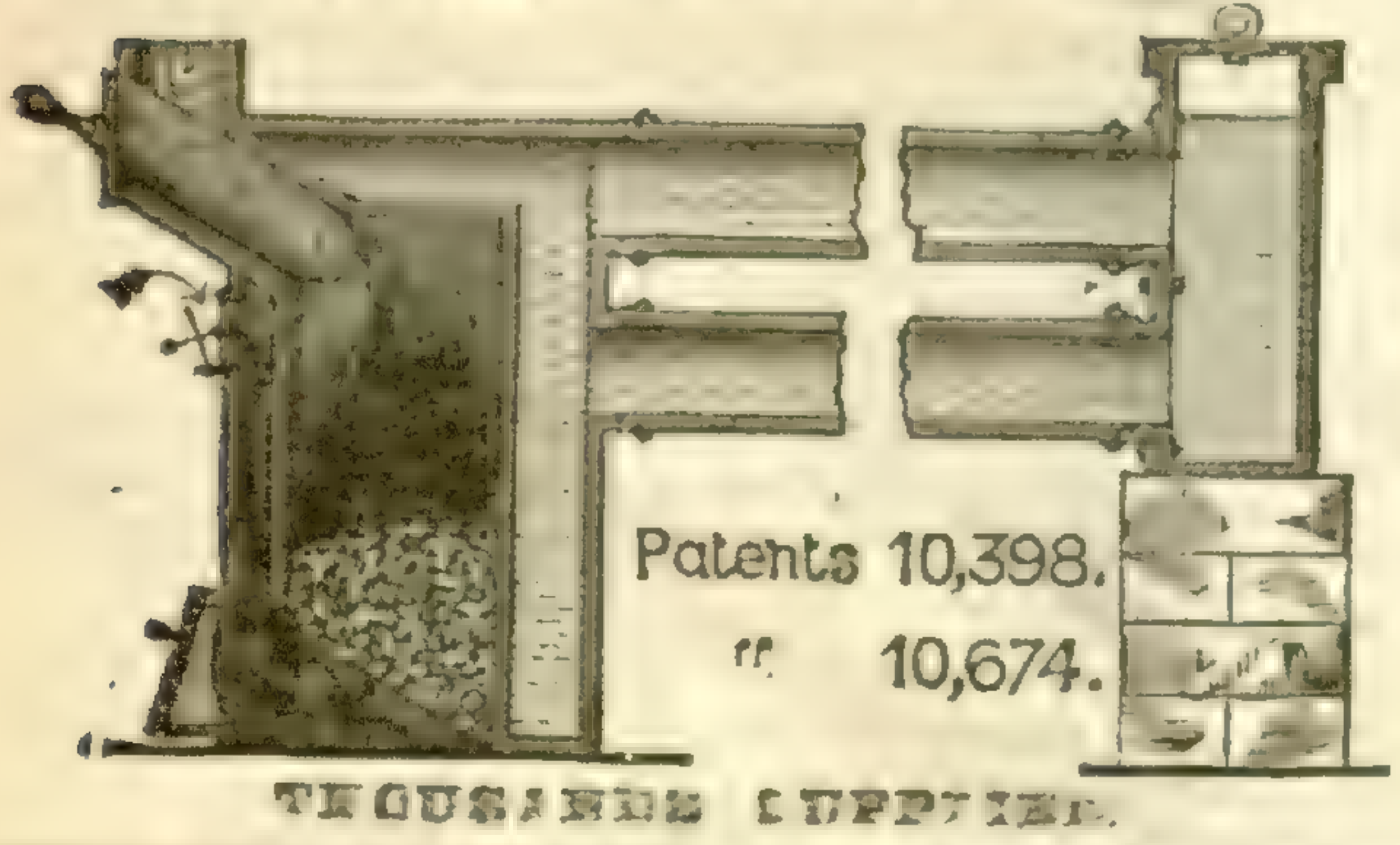

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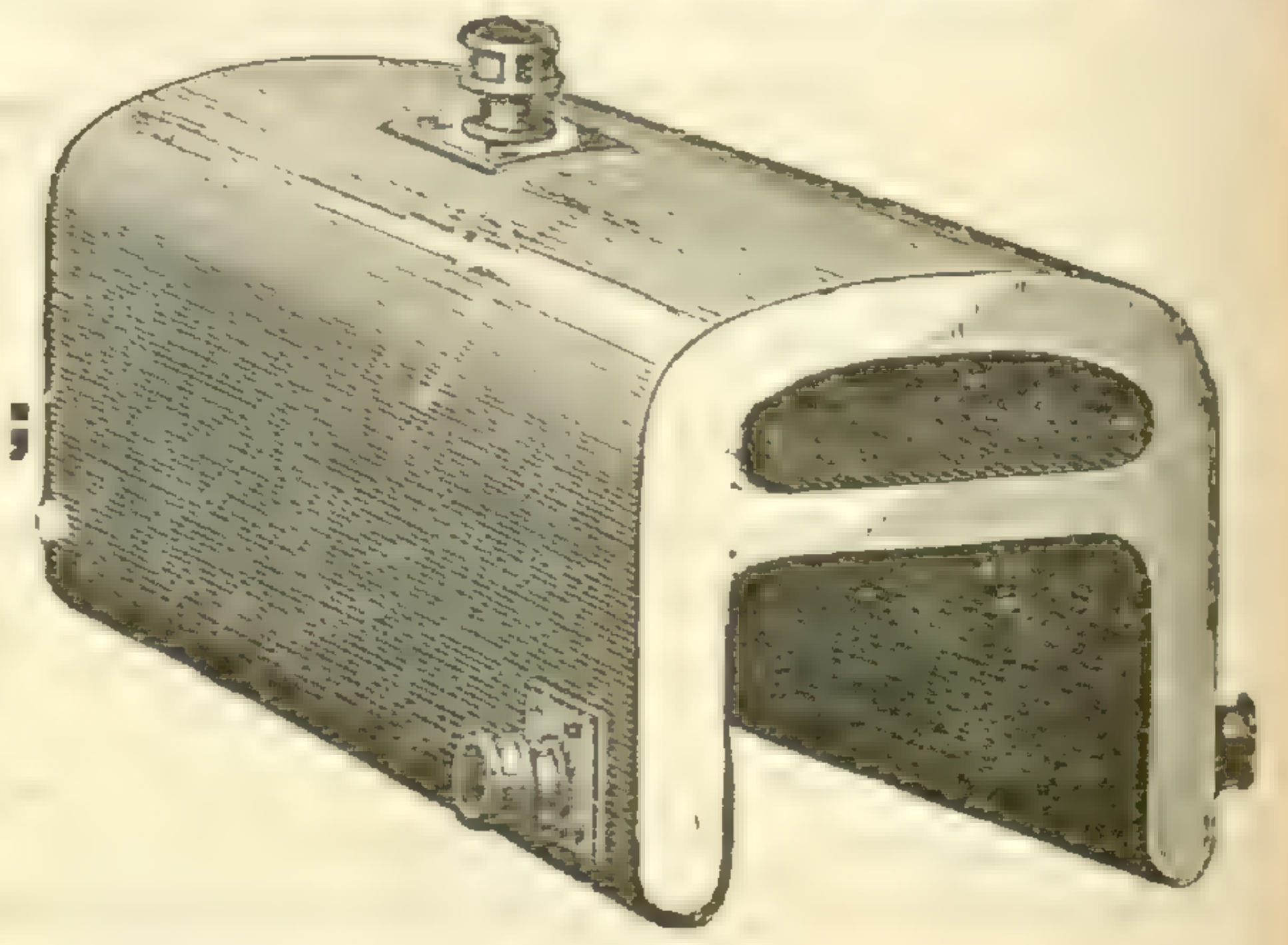

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PLANTING TREES AND SHRUBS THIS SEASON.

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THE PEAT DEPOT, RINGWOOD.

ROSES.
THE GRANDEST BUSHES.—Quality unsurpassed. Two Guineas for proof to the contrary.
[COPY].
"The Fields,
"Newport, Monmouth,
"November 26th, 1897.
"Please send me trees named on other side. I am extremely pleased with the pot and other Roses I have purchased from you from time to time, and find them surpass those of any other grower I know,
"Yours truly,
"F. P. ROBJENT."
[COPY].
"York House,
"Upper Teddington,
"7th December, 1897.
"Enclosed please find remittance. . . . The Rose Trees are certainly of very much finer growth than any we have [illegible] had, of other Nurseryman, and your prices are exc[illegible] moderate.
"Yours faithfully,
"PERCIVAL WILLIAM ELLIS."
WILL TAYLOR,
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W. HARDY and SONS, Holmes Chapel, Cheshire.

GREEN PEAS—JUNE TO NOVEMBER.

A correspondence was raised in the Daily Press last Autumn upon the shortness of the season when Green Peas are available, both in gardens and on the market. We now offer the following as representing the best collection selected from 1,024 rows we had under trial last season. It would be difficult for us to give precise dates for putting the seed into the ground, as so much depends upon soil and situation. Successional Sowings may be made any time between these dates, and the last sowing not later than the second week in June.

NAME.	DESCRIPTION.	HEIGHT. ft.	WHEN TO SOW.	EXPECT READY TO PICK.	CARRIAGE FREE. Per Pint.	CARRIAGE FREE. Per Qrt.
Carters' Lightning	First Early White Round	2½	In February	May to June	**2s.**	**3s. 6d.**
Carters' Early Morn	First Early Marrowfat	3	End of March	During June	**2s.**	**3s. 6d.**
Carters' Daisy	Second Early Marrowfat	1½	Middle of April	Early July	**2s.**	**3s. 6d.**
Carters' Danby Stratagem	Mid-season Marrowfat	3	End of April	July	**2s.**	**3s. 6d.**
Carters' Model Telephone	Main Crop Marrowfat	5	Middle of April	July	**2s.**	**3s. 6d.**
Carters' Model Telegraph	Main Crop Marrowfat	5	End of April	July and August	**2s.**	**3s. 6d.**
Carters' Michaelmas	Late Marrowfat	3	May to June	Sept. to Nov.	**2s.**	**3s. 6d.**

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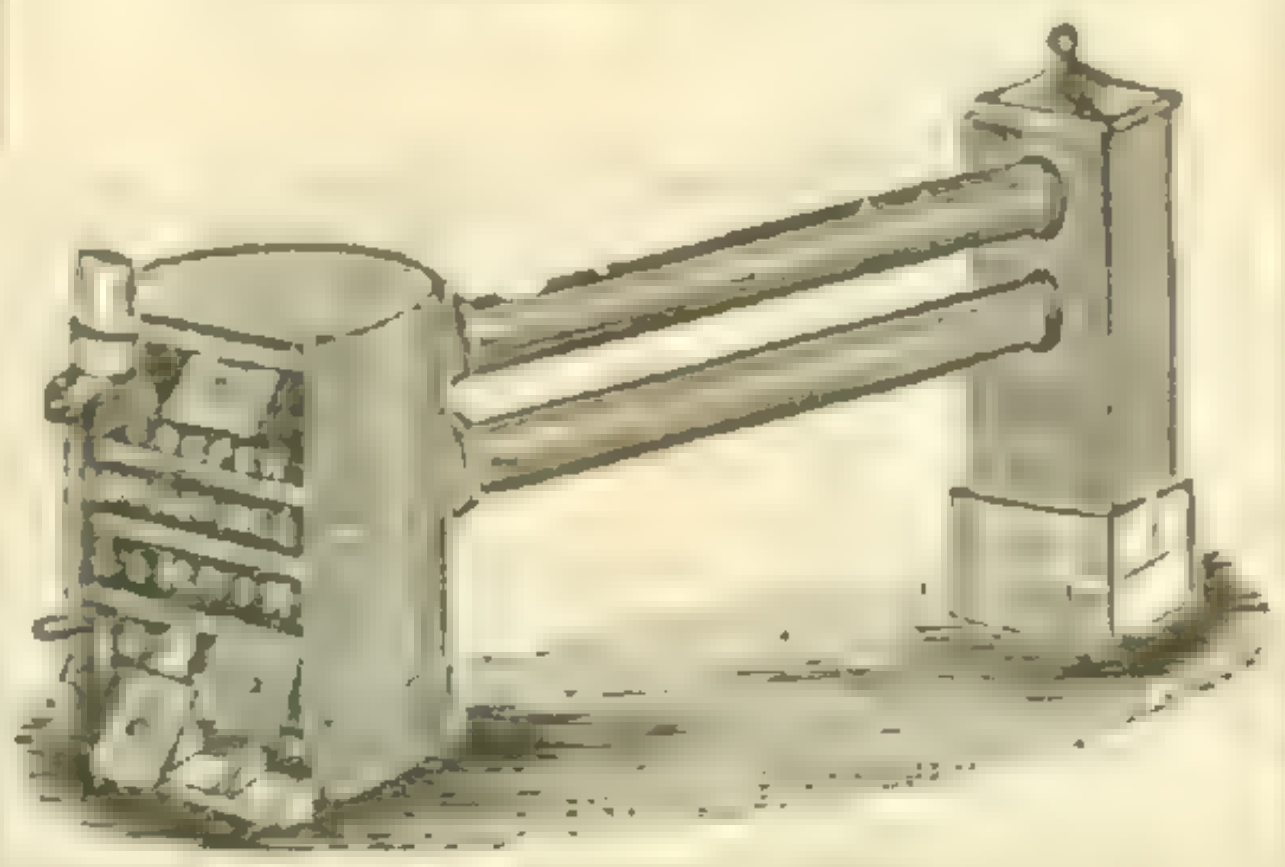

SPAN-ROOF POULTRY HOUSE.

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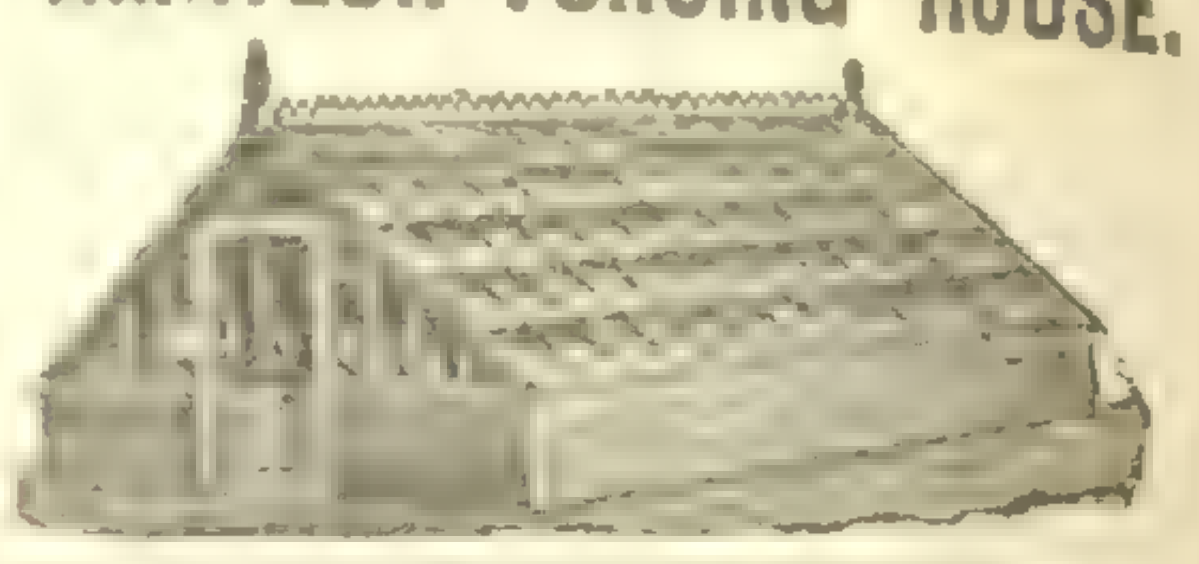

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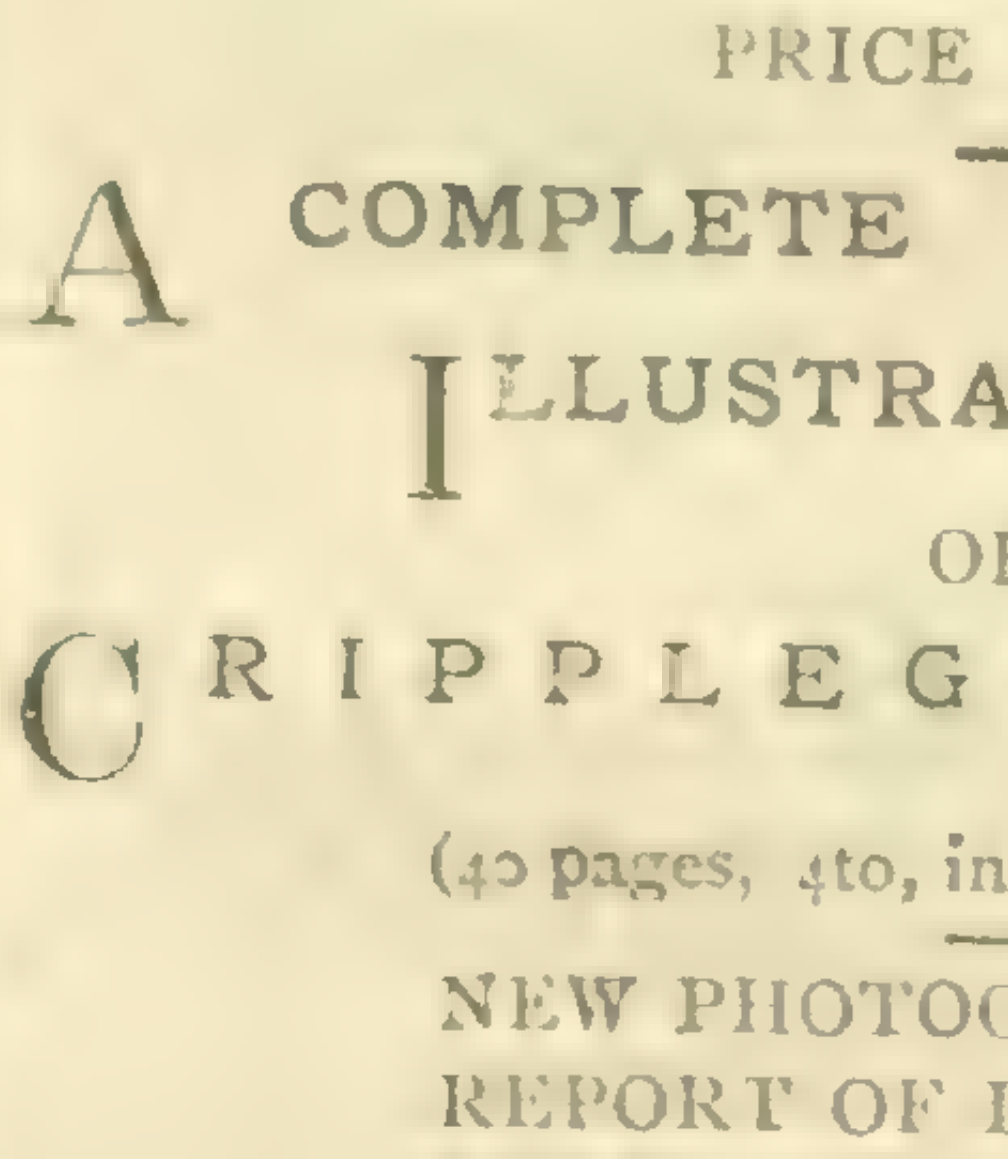

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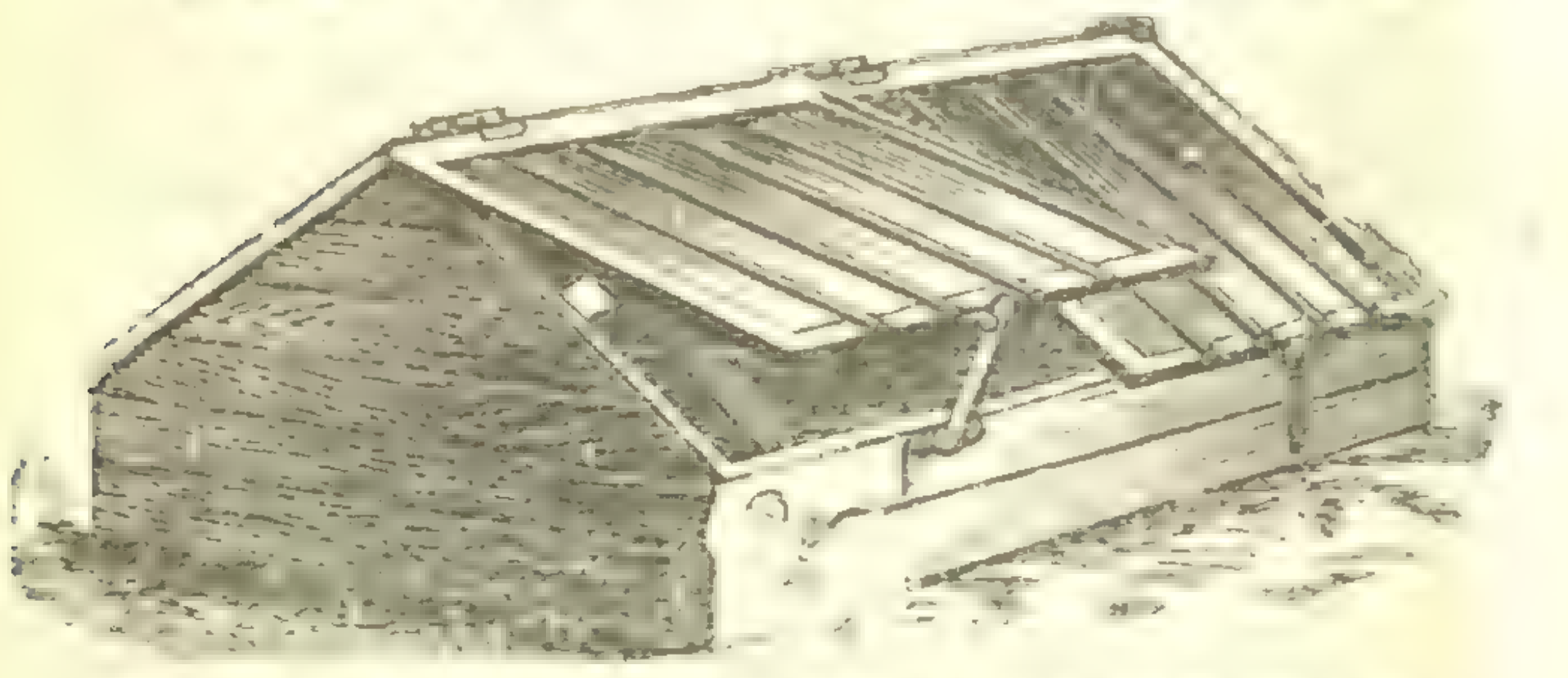

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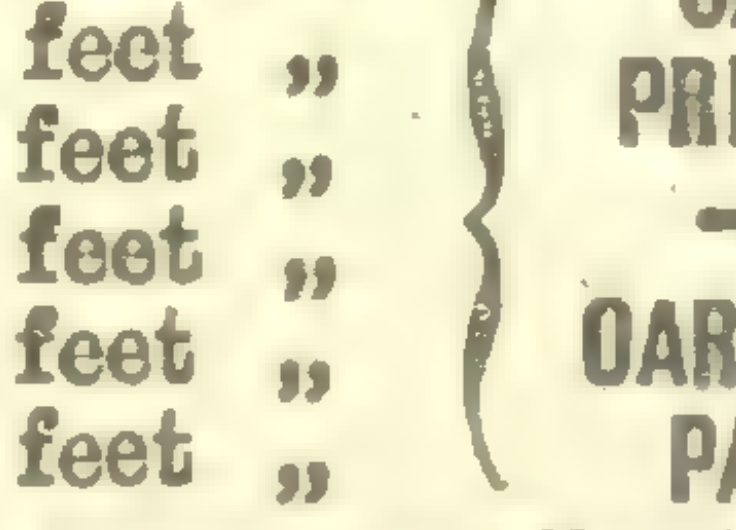

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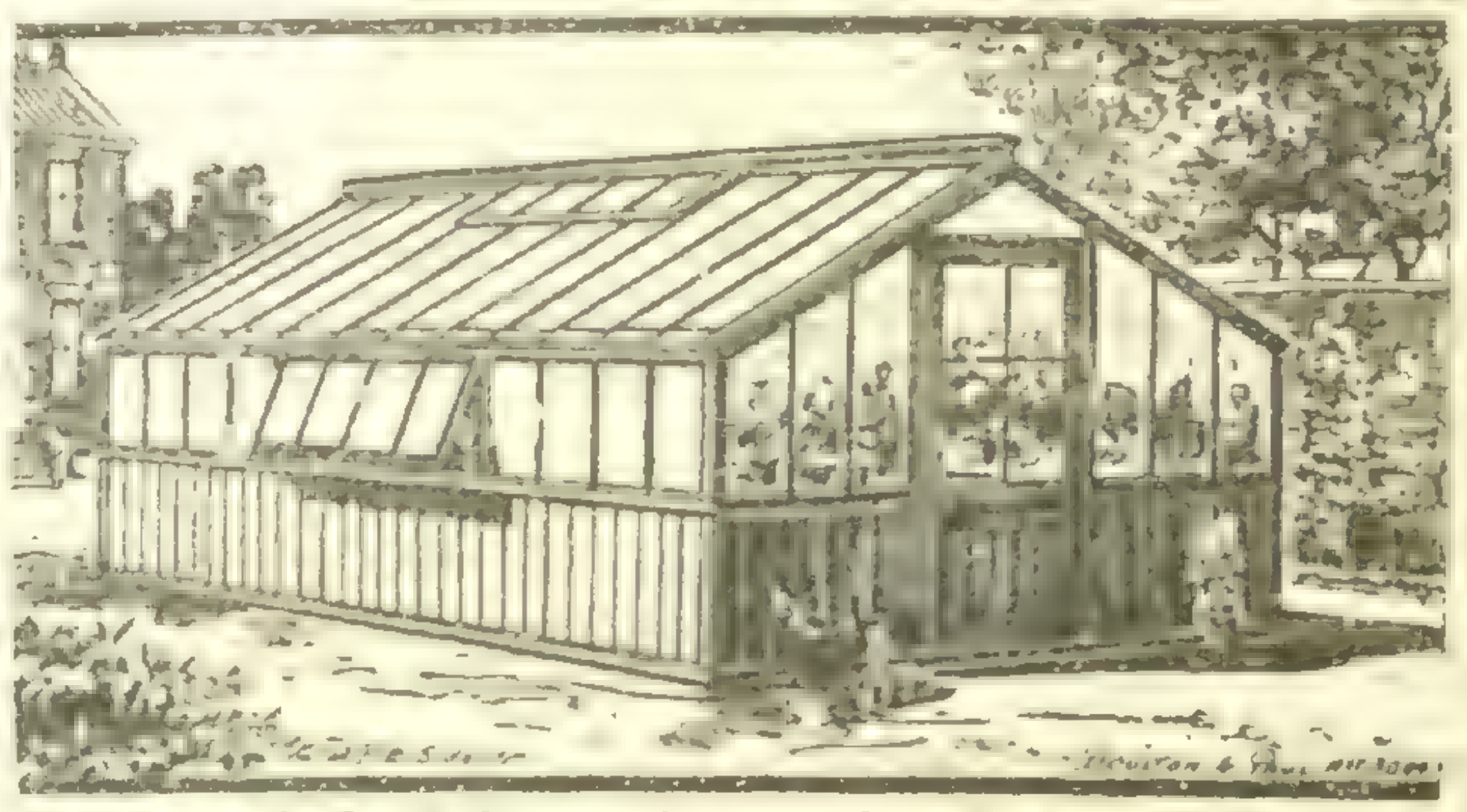

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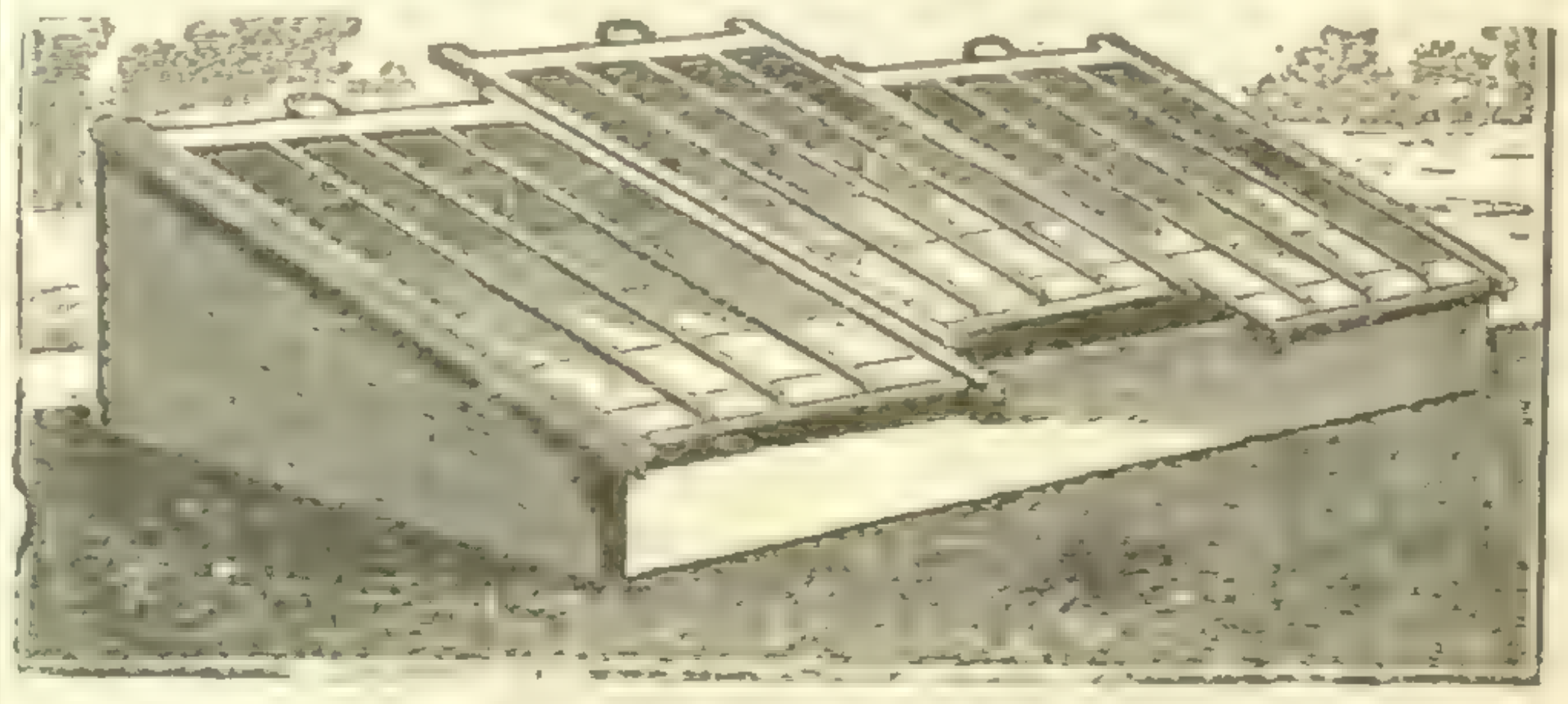

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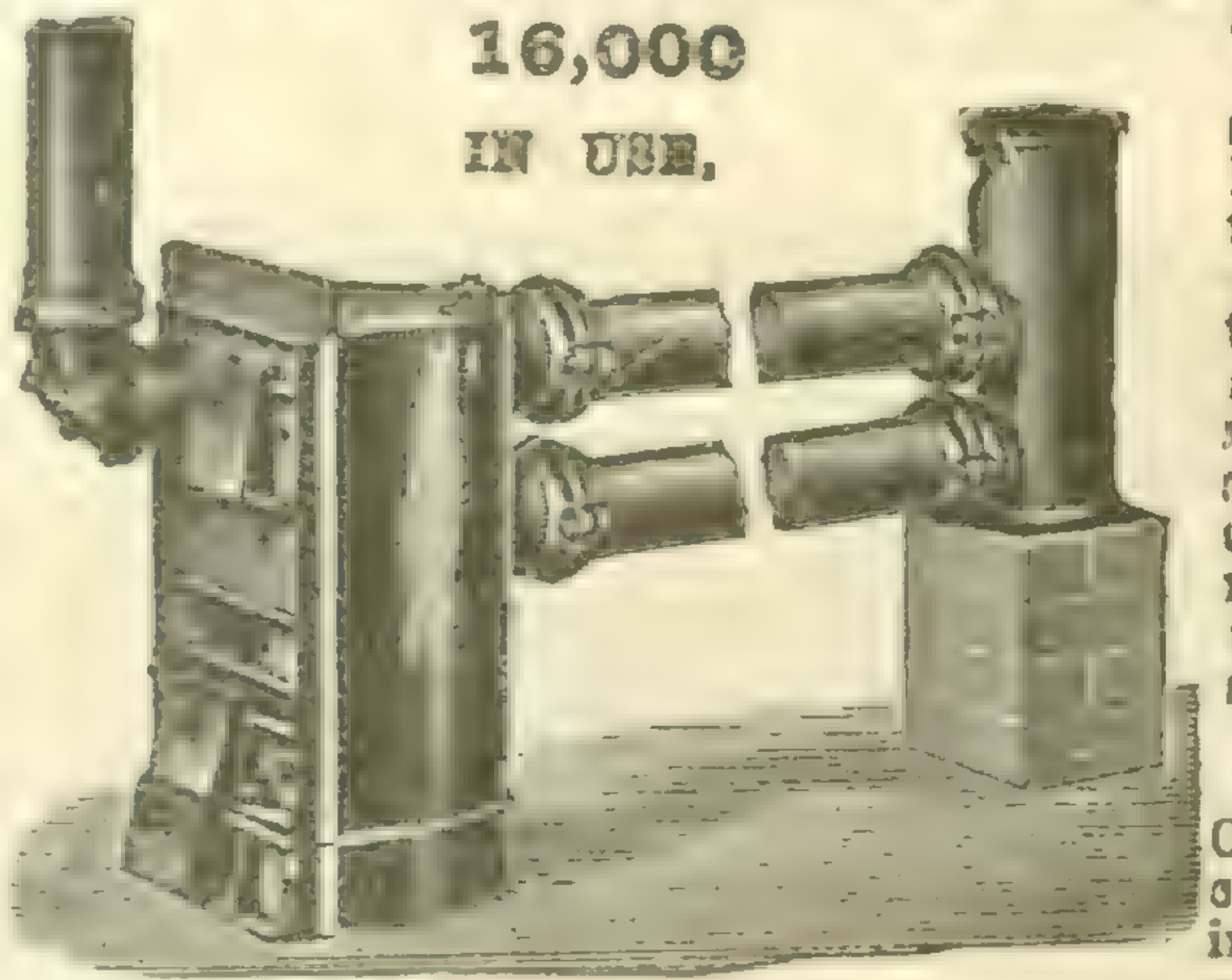

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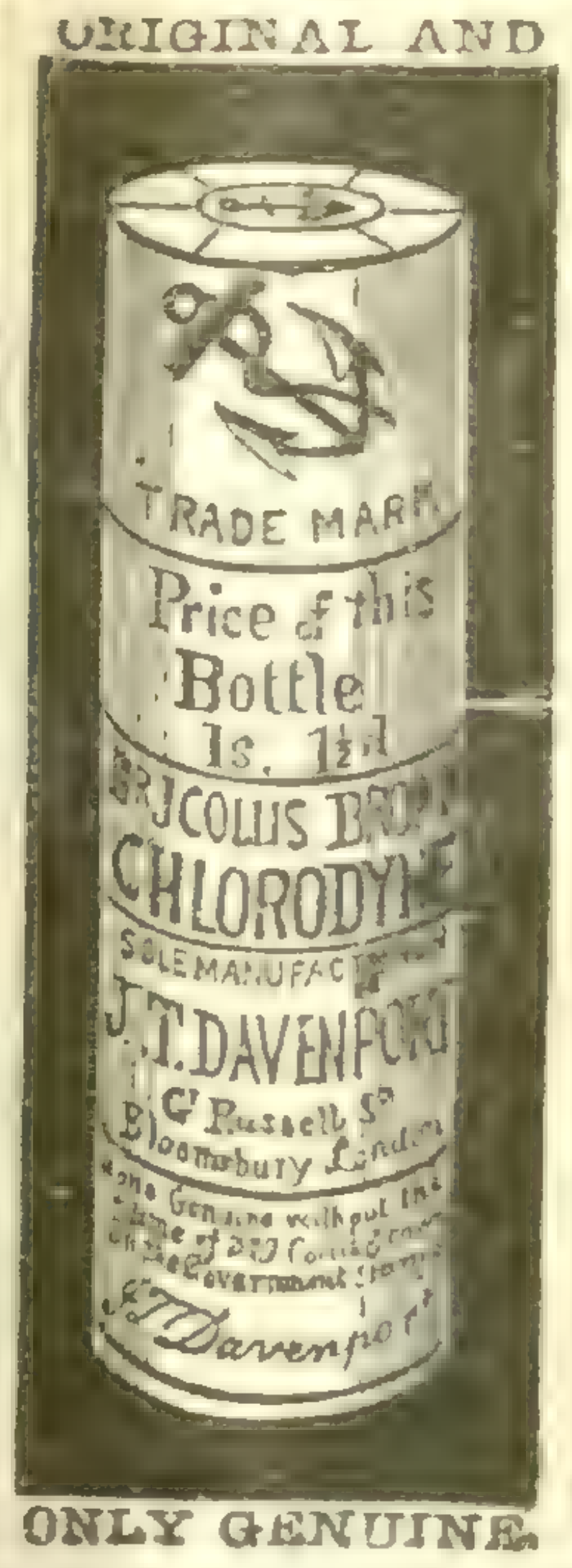

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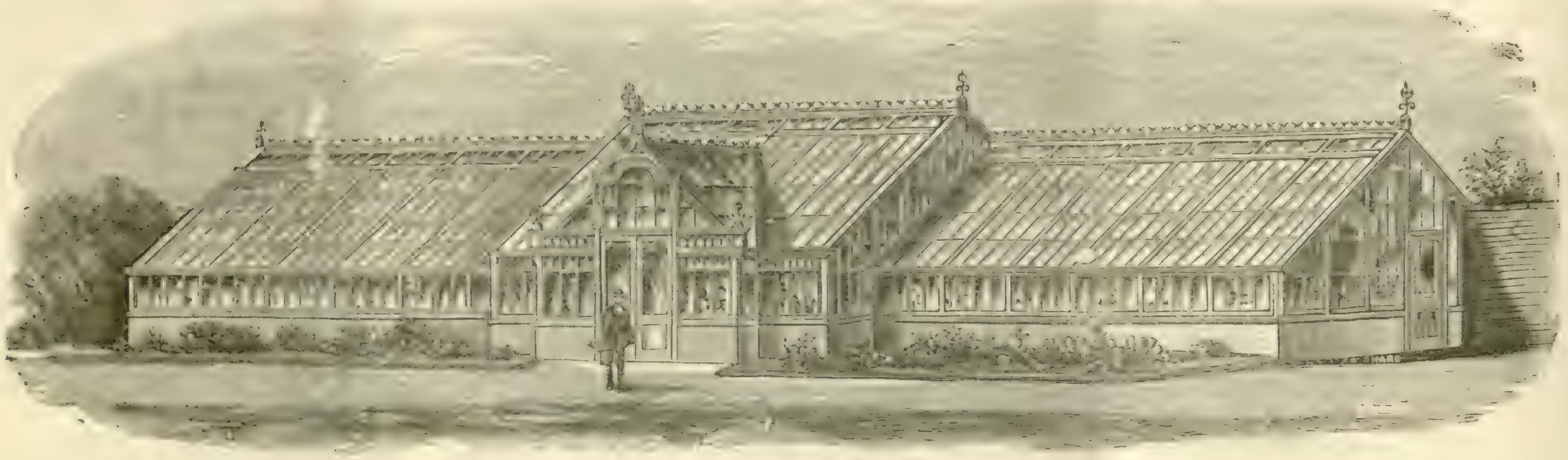

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THE

GARDENERS' MAGAZINE

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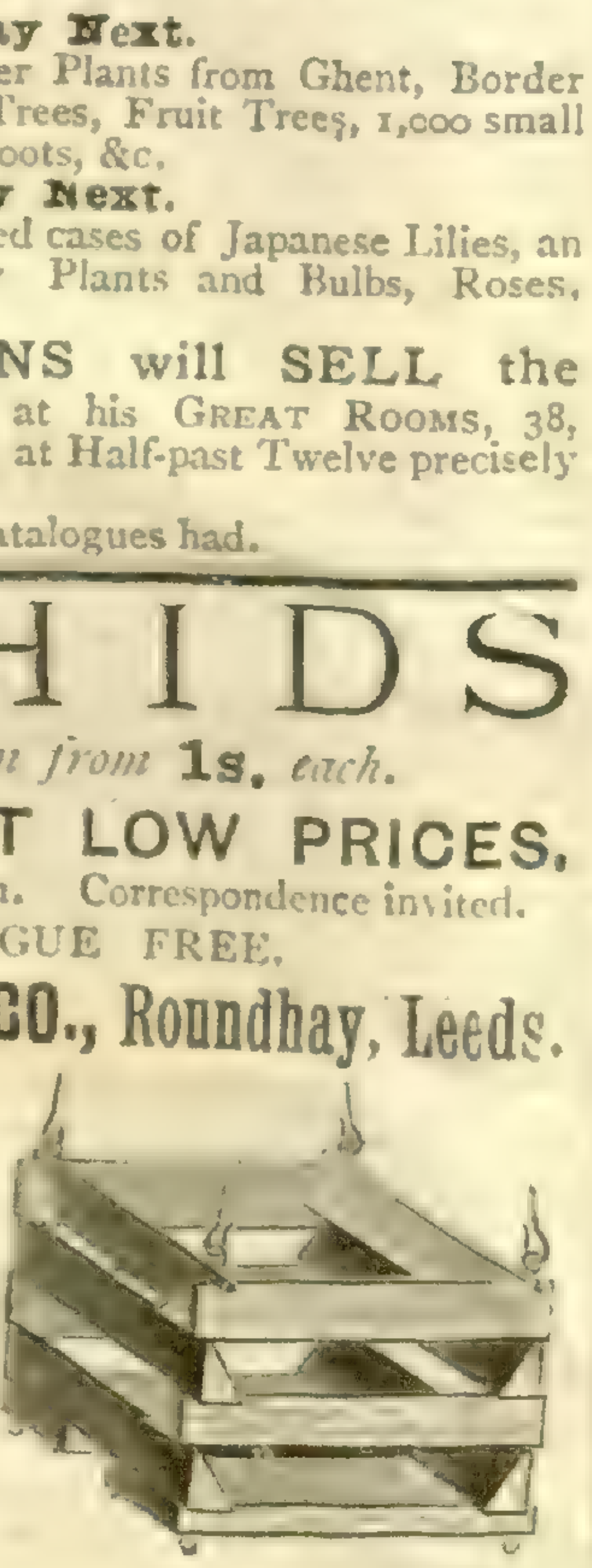

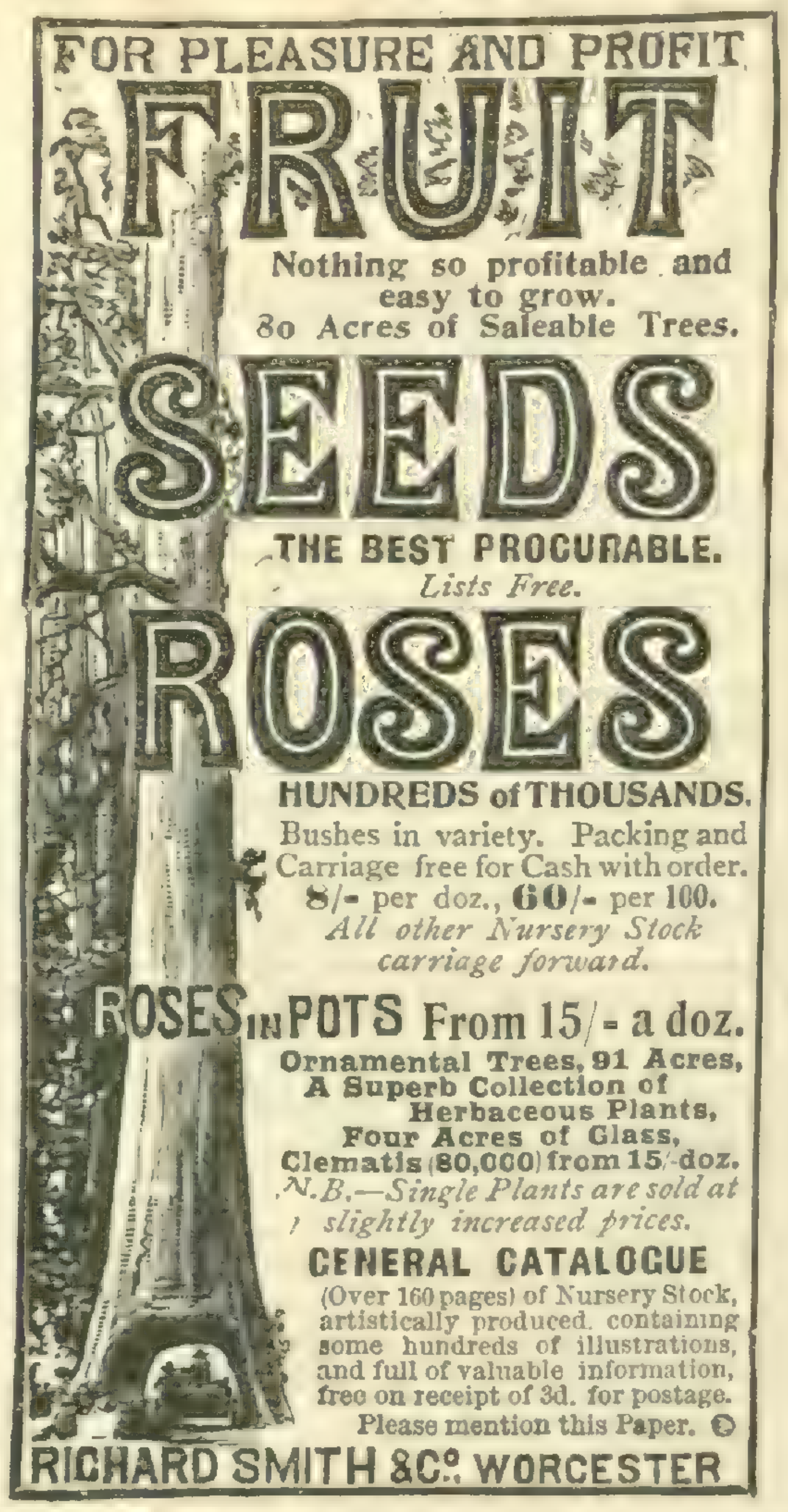

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THE GARDENERS' MAGAZINE.

SATURDAY, JANUARY 29, 1898.

CANTERBURY.—A GRAND FLORAL FETE
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NOTES OF THE WEEK.

ORCHID COMMITTEE AWARDS.

We are pleased to receive proofs that our remarks on this important subject, in our issue of the 22nd inst., have evoked much interest and are being widely discussed by members of the several committees of R.H.S., because the result of the discussion will, we have no doubt, be some reduction in the number of the awards. We have received a large number of private letters relating to the question, and while the majority of the writers are in full agreement with us, some of our friends appear to be rather hurt because we directed attention to the paragraph in the Council's report, in which the committees are urged to be less generous in their awards, Those who take that view of the case have not, we fear, read what we have written with the proper degree of care, for had they done so they would have seen that our object was to induce the members of the committees to recognise the importance of the advice of the Council and by acting upon it, enhance the value of the distinctions conferred upon really meritorious novelties. We would suggest that they again read the "note" in the first column of page 35, and if they do that we shall be greatly surprised if they do not write and say that we have dealt with the matter with some degree of mildness. Mr. de Barri Crawshay, of Rosefield, Sevenoaks, writes, under date of the 22nd inst., with reference to our remarks on the Orchid Committee as follows:—"Anent your article in to-day's issue *re* The Awards to Novelties, you are specially pointed in your remarks upon the action of the Orchid Committee. Let me at once state, my subjoined remarks are absolutely a personal reply, and not coming from the committee. A great deal is said against the Orchid Committee in many ways, and perhaps at times there are points that could be improved upon, but I think if you were upon it you would be in a different train of ideas towards it. I have looked over the 1897 F.C.C.'s and cannot see an instance of one being given to a 'plant in general cultivation.' Varieties are the great marks in orchids more than in other families, and the type may be grown all over the country, but a fine variety turns up and be well worth an F.C.C. Considering the large number of 'subjects' to adjudicate upon, it is surprising that more false steps are not made, when you consider that all members have their especial favourites; and after all, human nature leans to that which it likes best, and invariably thinks it better than something less esteemed If you had analysed the F.C.C.'s and A.M.'s given by all the committees, you would see the Orchid Committee gave but 25 out of 54; and 91 out of 346, respectively. Taking the total of the plants that are submitted, I do not think you will find it a very excessive proportion, when you consider the hundreds of thousands that are imported and bloomed for the first time annually. If a 'marked advance' was required each time the end would soon come. Orchids are not, like carnations or anemones, raised from seed and bloomed and forgotten in a couple of years unless they are very good. I hope you will publish this letter, though I hardly expect you will voluntarily do so to evoke an argument the reverse of your article."

AWARDS TO OLD INTRODUCTIONS.

Mr. de Barri Crawshay is altogether wrong in supposing that we should hesitate to publish his letter because his views upon the question at issue are not in accordance with those we have expressed. We gladly welcome discussion, and there can be no proper discussion unless those holding divergent views take part in it. We are well aware that the work of the Orchid Committee has been criticised in some quarters, but much of the criticism has been quite undeserved, and we are fully persuaded that the members perform their duties with quite as much ability and care as do those belonging to other committees. Their specially weak point is, in our opinion, conferring distinctions upon plants in general cultivation, and we alluded to the practice because we believe these awards discount the value of distinctions conferred upon novelties of a meritorious character. If the consideration of the question is limited to the past year, it is not exact to use the term first-class certificates, for there was but one awarded in 1897; but when writing we had in mind the practice that has obtained for several years past. Mr. de B. Crawshay tells us he has not been able to find an instance in which a first-class certificate was in 1897 conferred upon a plant in general cultivation. But surely Cymbidium eburneum, which received that highly appreciated distinction at the meeting held March 9, may be so described. Again, Acineta Barkeri, which had a botanical certificate conferred upon it on September 7, and Dendrobium albo sanguineum and Oncidium papilio, which received awards of merit on April 13 and September 21, respectively, may be described as generally cultivated. If the three last-named species are not now met with in so many collections relatively, as was the case some years ago, it is simply due to their having been pushed on one side by the more beautiful hybrids and varieties of other species, for they are cheap enough to be within the reach of all who can afford to indulge in the luxury of an orchid house. We fully agree with Mr. de B. Crawshay, that new, distinct, and beautiful orchids, whether species, hybrids, or varieties, should receive the highest distinction; but we repeat that awards made by either committee to subjects which are neither new nor rare are undesirable, and should be unhesitatingly vetoed by the Council.

IMPORTED INSECT PESTS.

A study of Miss Ormerod's invaluable annual report on injurious insects demonstrates that the importation of foreign fruits has its risks as well as advantages, since thereby we are apt to receive not only additions to our desserts, but additions to the already too plentiful host of fruit-destroying vermin. Fortunately, however, experience has shown that in most cases the niceties of environments are such that the importations die out, some natural impediment to their increase cropping up during their life cycle which breaks its continuity and delegates them to the "unfits." Clearly an insect developed and modified by one set of climatal and other conditions, such as a different class of vegetation, so that its eggs are adapted to hatch simultaneously with the opening of the buds destined to nourish its offspring, would be fatally handicapped by material variation, either in the starting of new growth or the nature of such growth when developed. The eggs, too, framed to stand a severe and protracted winter, followed by a warmer spring than ours, would probably be addled by our variable winters, with their spells of mildness, and especially by our inconstant springs. Antipodean insects, too, must be additionally handicapped by the reversal of the seasons altogether, and it is difficult to imagine that imported individuals could defer the laying of eggs for six months so as to ensure their hatching at a favourable period, while imported eggs would be little more likely to remain quiescent for a much longer period than the normal one, and if they did succeed in hatching the inherited tendencies of the brood would probably lead to a misfit in the following season. In many cases the adjustment of an insect to the plant it feeds upon is extremely fine; not only is it in itself provided with precisely the jaw suckers and other apparatus best fitted to deal with the tissues and juices of the plants, but its reproductive cycle fits it also to a nicety, and it is doubtless due to this that certain varieties of plants, that is mere varieties of species, are proof against the vermin which prey upon the other members of their tribe, some subtle difference of texture, flavour, odour, time of maturation, or other reason, baffling the insect, until that in turn varies to fit and the immunity is at an end. Doubtless, too, the imported vermin is handicapped by lack of instinctive knowledge of the new foes, bird and other, which its new environment involves; but in any case it is clear that in this direction, as in all others, knowledge is power, especially such carefully correlated knowledge as Miss Ormerod steadily accumulates year after year for the benefit of every agriculturist or horticulturist who studies the lessons of caution and prevention which are inculcated by the data she provides. A full acquaintance with the life history of any organism is bound to reveal its weak points, and so give man a chance of dealing with it, while to attempt to do so in ignorance means, as a rule, but costly experiments and general failure.

VARIETY IN DESSERT FRUIT.

The question of so arranging the several departments of the garden devoted to fruit production as to ensure abundant and varied supplies extending over the longest possible period is one of the most important that could well engage the attention of practical horticulturists occupying responsible positions. There may be no great difficulty in obtaining plentiful supplies of certain kinds where the available space, both in the open and under glass, is equal to requirements, or in selecting varieties that are diversified in character; but it is not sufficient to consider these two points as distinct from each other, as is frequently done. They must be regarded as inseparable, and with them ought also to be associated the question of quality, for this should unquestionably be high in the case of dessert fruit to be consumed at home. We are disposed to assign a rather high position to variety in making arrangements for the maintenance of a supply of dessert fruit, for, to state the case generally, the employer and his family fail to fully appreciate the dessert when the same varieties of apples, grapes, pears, or other fruits are sent to table every day during the period they are in season. In some instances it may be necessary to do this, as when employers are desirous of having some particular varieties throughout their season. If an employer desires the Pineapple nectarine, the Royal George peach, or the Black Hamburgh grape as long as it may be available, it is the gardener's duty to provide it; but we are not now concerned with these exceptional cases in which the cultivator is not allowed any appreciable latitude in making a selection. We have in no way changed our opinions with regard to the planting of large collections, which have done so much to hinder the development of fruit culture in this country; but we have no wish to see fruit culture for home supplies carried out on precisely the same lines as those which must be followed in the production of fruit for market. In the latter case the planting of a limited number of varieties of proved excellence for market is absolutely necessary to success; but in table fruit a diversity in appearance and flavour is not less essential. Happily, this difference may be obtained without planting a single variety that is shy in cropping, or that produces fruit indifferent in appearance or quality, and in the case of all our dessert fruits a comparatively small number of varieties will suffice to give sufficient variety to add materially to the interest and enjoyment of the dessert, and to this extent only should selections be increased. More especially should proper advantage be taken of the wide range for selection afforded by the peaches, nectarines, plums, and cherries, and to plant due proportions of both early and late varieties. The mid-season varieties of these fruits will give a supply extending over a considerable period, provided several trees are planted, and these mostly on different aspects, but it may be stated as a general rule that it is more advantageous to maintain the supply by varieties ripening at different periods, provided they are equally good in quality. Were the value of variety in dessert fruit properly recognised we should more frequently see upon the table many of the excellent grapes which, if not equal in utility to the Black Hamburg and Muscat of Alexandria, are so finely flavoured as to justify their being grown where several structures are devoted to grape culture. The proper appreciation of the attribute in question would also have the effect of enlarging the selection of strawberries; not in the direction of planting inferior varieties, but of increasing the culture of those remarkable for the high quality of their fruit; and in the case of these fruits some extension in the range of selection is desirable, for of late there has been a tendency to unduly restrict the number of varieties, and to attach greater importance to size than to quality. Large collections cannot be too strongly condemned in private gardens, but unduly restricted selections place the private garden on the same plane as the market establishment, and greatly detract from the interest and enjoyment to be derived from it.

Violet Perfume.—For a long period much of the perfume sold as the product of the violet has been derived from a quite different plant, namely, the Florentine iris, and now we have to record as one of the most recent achievements of scientific chemistry, the production of an artificial perfume practically identical with that of violets. This substance, known as ionone, or artificial essence of violets, belongs to the class of ketones, and is a valuable product commercially. The production of artificial musk has also been satisfactorily accomplished, and, as indicating the value of the discovery, it may be mentioned that it is worth about £500 per pound.

The Witch Hazels are now flowering freely, and in several parts of the Royal Gardens, Kew, their bright flowers show up conspicuously amid the general dulness of vegetation at this season. Near the entrance to the Cool Orchid House is a round bed of considerable size occupied by half-a-dozen good specimens of Hamamelis arborea, a Japanese species with bright yellow flowers and deep purplish calyces; this is very effective now that the young trees are ten feet high and freely branched. The bed is suitably carpeted with Gaultheria procumbens. Not far from this bed are some circular masses of Crocus Sieberi and C. Imperati, now finely in flower. Daphne Mezereum, both white and purple flowered forms, brighten up the gardens, and also emit a delightful fragrance.

The Southampton Horticultural Society.—This well-known southern society has doubtless wisely resolved to abandon its customary August Bank Holiday flower show and fête for various reasons, but specially that the town seems now unable to furnish for so large a show a suitable site. But the exhibition has been held for so many years in succession that, like all similar shows, it had become somewhat stereotyped, and when that is so then public interest is lessened. It seems, therefore, to be a peculiarly happy thought on the part of the executive to arrange a great midsummer rose show, to be held of all places, too, in the huge pavilion on the Royal Pier, that juts out so charmingly into the Southampton Water. If the N.R.S. and the Isle of Wight rosarians give very practical support, this show should be, for the coming season at least, the leading rose tournament in the South of England. The local Harbour Board seem to have offered excellent facilities for a two days' show. The maritime surroundings are delightful indeed.

Buds and Stipules.—The uses of these important organs were discussed by Sir John Lubbock in a discourse delivered at a meeting of the Royal Institution a few days since. At the commencement of his lecture he showed a number of diagrams to illustrate the various ways in which the buds of plants were protected from the cold, and then proceeded to describe how in some cases protection was afforded by the old leaves and in others by the leaf-stalk, and how sometimes the bud had to protect itself as it were by means of a covering of hairs or of scales. The latter represented different parts of the plant sometimes corresponding to leaves, sometimes to stalks, sometimes to stipules, &c. Hairs in alpine regions served to keep off excess of moisture, or in dry and desert countries to prevent too free transpiration of moisture; or they might protect the leaves from insects and keep them warm. The most frequent use of stipules was to protect the bud, though they sometimes fulfilled the function of leaves. They varied considera in form, some being very wide, others very narrow. When the leaflets were la and broad they were broad, thus being able to protect the whole bud, whereas narrow elongated leaf only required a narrow stipule. Discussing why the seed leaves of plants always differed from the other leaves, Sir J. Lubbock found the explanation in the fact that these leaves, being folded in the seed, ha to conform to its shape. Similarly the bud influenced the form of the mature leaf. For instance, the curious shape of the tulip-tree's leaf was due, he believed, to the configuration of the bud, which contained the stipules, the stalk, and the leaf folded upon itself, the latter just occupying the space left by the tw former. Referring to the question why one member of a species of plants should possess stipules while another did not, Sir John Lubbock thought the evide conclusive that where stipules were present the leaf stalks were narrow, wh they were broad where there were no stipules. In conclusion, the lecturer referr briefly to the processes attendant on the fall of the leaf in autumn.

Export of Plants to Italy.—A correspondent writes from one of the principal Italian cities: "I wish that attention could be called to an importa matter, namely, the prohibition of every bulb or green leaf from England. Gr Britain, having neither vines nor phylloxera, did not join the Berne Conven Consequently, while plants and bulbs from every other European country, n matter how infected by phylloxera, are allowed entry here (with a certificate o origin), everything of the kind coming from England is rigorously excluded. T is to say, the Italian Government prohibits plants and bulbs from the one c free from phylloxera—not that they are therefore kept out, as there is an orga system of agencies who pass them in—for a consideration. The Ministry Agriculture in Rome is able to give a 'permesso' for this, but practically th a dead letter, being always refused."

Canadian Apples have lately fallen in price, even to the extent of 4s. to per barrel, as a consequence of the general complaint made by purchasers of th uneven, not to say dishonest packing. Quantities of barrels have been foun contain a considerable number of inferior samples in the middle while the top an bottom layers were of good quality. Unfortunately the distrust has become s great that those who have packed their fruit honestly are suffering as wel those who have been so deceitful.

Wireworms.—Though these insects are so destructive, it is only that measures are adopted to combat them by cultivators, and full advantage seldom taken of the few weak points presented by the habits of the pe Severe wireworm attacks frequently occur on broken up grass land, and if i these cases some efficacious treatment, such as the digging in of gas-lime, we uniformly adopted before attempting to raise a new crop, a large proporti of our annual loss from this cause would be forestalled. In March a commu cation was received by the Royal Agricultural Society from Mr. G. Per Smith, of St. Albans, suggesting the use of "mustard dross," a waste prod in the manufacture of mustard, as a substance likely to be of use against wir worm, and the Zoologist was instructed to make a series of flower-pot exper ment to test its efficacy. Mr. Colman, of Norwich, furnished some of th "dross," which is in the form of a fine powder or dust. It must not be confound with mustard cake; for it is much more pungent, containing, as ascertained by Voelcker, eighteen and a half per cent. of oil. After a thorough trial on small scale, the following conclusions were arrived at: (1) The dross is noxious to the wireworm, and fatal to them if they remain in it; (2) sown w the seed it keeps off the worm in the earliest and most vulnerable stage of th plant's growth; (3) if used too plentifully it delays the germination of the but there would be no likelihood of this with the quantities which the cultiva would probably use; (4) experiments on the small scale do not indicate th would be of any use as a top-dressing when the crop is up, as it has a effect on the plants themselves; (5) it seems eminently likely to be useful, if with the seed, in cases where wireworm is to be anticipated, as after gr clover in land much subject to wireworm; (6) it is very light, and wou to be mixed with ashes; (7) quantities equivalent to two and a half h weight per acre have given distinctly beneficial results in the pot experimen is unnecessary to say that flower-pot experiments are not always safe guides what will happen on the large scale, but the results were sufficiently ma make further experiments desirable.

Japanese Plums in South Africa.—With regard to the trials of J plums made in South Africa, Mr. E. Tidmarsh, Grahamstown Botanic G has reported to Professor Bailey, of Cornell, that the varieties, although n equal in flavour to the best sorts grown in Europe, have valuable proper this climate. For one thing, these varieties, so far as tried, grow freely gr the peach. A number of the European sorts refuse to grow on the peach, this is a drawback in two ways. First, the peach stock is, on the whole, adapted to this climate, and secondly, it is a difficult matter to raise plum stocks in this country.

Brigade-Surgeon Lieut.-Colonel Dr. George King, who was recently promoted to be Knight Commander of the most eminent Order of the Indian Empire, is director of the Royal Botanic Gardens, Seebpore, Calcutta, and superintendent of the Cinchona Plantations, at Darjeeling. Sir George King is a renowned botanist, and has rendered great public service in connection with cinchona cultivation in India. In the course of the year Sir George completes his term of service at Calcutta, and will be succeeded by Dr. David Prain, who for many years has been curator of the Herbarium at Seebpore.

Japanese Plums in America.—Professor L. H. Bailey, of the Cornell University, has recently issued another report upon Japanese plums that are now being extensively tried at Cornell and elsewhere. He says: "I am still convinced that the Japanese plums have come to stay. By this I do not mean that they are destined to supplant the domestica and native plums, but that they are bound to supplement those types with varieties that are adapted to particular purposes and conditions. As a class they are vigorous, hardy, and productive in tree, and the fruit is handsome, long keeping, and covers a long season. Thus far the Japanese plums have been comparatively free from black-knot, and until this year our trees have not been seriously attacked by the shot-hole fungus or leaf-blight. During the past season, however, this leaf-blight has been much worse upon the Japanese varieties than upon the domesticas alongside them, and this, too, in spite of the fact that they were thoroughly sprayed. The leaves did not drop to any extent, however, even though they were badly riddled by the fungus. It is our habit to set the wood of new varieties (either as buds or grafts) in the tops of Lombard plums, and several of the varieties have been fruited only in this way." Professor Bailey concludes by saying, "I never recommend varieties of any fruit for anyone to plant. For myself, I should still adhere to my list of four varieties of two years ago—Red June, Abundance, Burbank, Chabot. I should place as second choice Douglas, Berckmans, Satsuma, Hale, and Wickson, and should expect that the last two would rise, upon further acquaintance, to a place in the first rank. If I wanted a yellow plum I should take Georgeson, with Orgon for early. If I wanted the earliest varieties, without respect to size or quality, I should choose Berger, Engre, Earliest of All, and Willard."

Early Flowers.—Although the general press does not now deign to notice the traditional big gooseberry, yet when opportunity offers, such as the present very mild winter presents, for instance, there is a tendency on its part to labour the early hardy flower pars, which readers here and there furnish so abundantly. To gardeners generally, and to most ordinary observers, there is nothing new or special in these evidences of floral precocity. When the winter time is so mild, as is the present season, what wonder if flowers among other things be very much out of time or tune. But we have some flowers that always bloom in their proper season, let the weather be what it may, and of all these none is more constant, few more beautiful in its season, than is the Naked Jasmine. *(Jasminum nudiflorum).* This midwinter-blooming shrub has, indeed, had a fine time of it of late. It has been flowering profusely for some two months, quite unharmed; whether grown against a wall; whether the pretty yellow flowers be seen twinkling from out of ivy or grown as an ordinary shrub, it has been a lovely thing.

The Floral Decorations at Cheltenham, on the occasion of the New Club Ball, held at the Assembly Rooms, were of an exquisitely beautiful character, and added to the already long list of successes Mr. J. Cypher has obtained. In the ball-room the various recesses of the large end windows were tastefully filled with palms, crotons, dracænas, camellias, ficus, ferns, acacias, tulips, cinerarias, cyclamen, primulas, &c. In the sitting-out rooms Mr. Cypher excelled himself in the beautiful arrangements of plants, flowers, and foliage placed about the fire-mantels. The supper-room was, however, the most gorgeous so far as floral decorations are concerned, and here the floral arches on the central diamond table formed the leading feature. Those who have seen some of Mr. Cypher's best efforts in the artistic grouping of plants and flowers at our leading provincial flower shows, can readily imagine the grace and beauty produced at Cheltenham on this occasion by a clever association of ferns, palms, crotons, tulips, orchids of various kinds and hues—especially odontoglossums, cattleyas, and cypripediums—lilies of the valley, &c. The orchids were chiefly arranged in artistic vases, one species or variety by itself.

The Botanic Gardens at Buitenzorg, Java, is probably the most complete and remarkable tropical botanical institution of its kind to be found. Our readers will remember the illustrated account of this splendid Dutch establishment given in the Gardeners' Magazine of August 22, 1896. We refer to these matters now, because Dr. Treub, the gifted director, has issued a Hand Guide to the gardens, in English, accompanied by a plan.

A Public Park for Ventnor.—The "Garden Isle" has recently received a magnificent gift of several hundred acres of land, situated on the Downs overlooking the town. Mrs. Evans, the donor, is carrying out the wishes of her late husband in making this presentation, and the only restrictions are that the park is to be free to all, that no residential buildings be erected on it, and that public houses are prohibited. The inhabitants of Ventnor have publicly thanked Mrs. Evans for her munificent gift.

Total Eclipse of the Sun.—The observation of the total eclipse of the sun on the 22nd has been highly successful in India. At Magapur, the weather, according to the Sir J. Norman Lockyer, was excellent, and the various instruments were satisfactorily employed. At Talni the sky was perfectly cloudless, as for several days previously, and a considerable number of remarkably good photographs were taken. Some forty excellent photographs were taken at Jewar. The observations were also satisfactory at Buxar and other stations. The totality extended over one and a half minutes, but the darkness did not reach that of the eclipses of 1866 or 1896.

Plant Variation.—At the meeting of the Royal Botanic Society on the 22nd inst. the Rev. G. Henslow gave a lecture on "Plant Variation," which was fully illustrated by means of a large number of photographs reflected upon a screen. He described the various monstrosities, or departures from the normal structure, of different plants, and traced in many cases the gradual transition from the original to the "sport," showing how the character of the latter had become fixed or hereditary, and was now looked upon as quite the normal form. Amongst the donations received since the previous meeting was a specimen of Euonymus japonicus presented by Mrs. Doxat, of Hole Head, Dawlish. Attention was called to the fact that the specimen had borne fruit, a very rare occurrence in this country.

Horticultural Exhibition in Cairo.—The annual horticultural exhibition at Cairo was opened on the 14th inst. In several of the sections a distinct advance was shown, and a new feature was a large collection of pottery, exhibited by the Egyptian Pottery and Faience Society, many of the pieces being tasteful and artistic in design and colouring. The exhibits of timber-woods showed the great capabilities of the Egyptian soil and climate for their production, and the Finance Ministry is now making experiments in forestry on a considerable scale, and planting out one hundred and ninety thousand young trees of one hundred varieties, all exotic, and chiefly from India. A novelty was seen in a substance called cerosie, of which a French local chemist claims to be the discoverer. It is extracted from the scum which rises to the surface of liquid sugar after the cane is crushed. The resulting substance is stated to possess the qualities of ordinary beeswax, which it resembles in appearance though darker in colour.

Watercress Culture near Paris.—It is interesting to observe that while the culture of watercress received attention in some parts of the Continent before the formation of the Springhead beds, it was not commenced in the vicinity of Paris until after London had begun to receive cresses produced under artificial conditions. According to M. Hericarte de Thury, watercress culture was commenced in the vicinity of Paris in 1811, and from what he tells us in reference to the matter it appears that in the winter of 1809-10, after the peace which followed the second campaign against Austria, M. Cardon, the chief cashier of the Hospitals of the Grand Army (in 1835 mayor of Saint-Leonard, near Senlis), was stationed in the vicinity of Erfurt, capital of High Thuringia. In walking around the suburbs of the city, the ground being covered with snow, he was astonished to observe a ditch of considerable length presenting the most brilliant verdure. He directed his steps towards the spot, curious to know the cause of this species of phenomena, which struck him as so strange at this season, and he recognised, with the greatest astonishment, that the ditches were an immense culture of watercress, resembling the most beautiful carpet, surrounded by ground then white with snow. M. Cardon learned that this crop had been established many years, refreshed by sparkling, bubbling springs of water, on land belonging to the city of Erfurt. This watercress, much esteemed for its purity and superior quality, was sent to the cities on the banks of the Rhine, and as far as Berlin, which is a considerable distance from Erfurt. From here it was that the first lesson on the approved culture of cress reached France. M. Cardon felt what a boon the introduction of such a branch of horticultural industry would be to Paris. He sought a piece of land within a reasonable distance of the capital, watered by a natural spring, and after a long search he found in 1811, at Saint-Leonard, in the valley of Nonette, between Senlis and Chantilly, a site which appeared to offer all the desired conditions. Having seen and studied the process of cultivation at Erfurt to some extent himself, he brought with him two foremen accustomed to cress work, to assist him in the development of the enterprise. In his own interest he had better not have imported strangers into the locality, as these men soon left him to establish rival cress-beds. The Royal Society of Horticulture in France awarded their large silver medal to M. Cardon, in recognition of these valuable services rendered to his country. Since the time of M. Cardon this industry has spread considerably, not only at Saint-Leonard and Saint-Gratien, but all around; notably at Gosse, much nearer to Paris, where large cress-beds were established, and have proved most productive.

Botanical Appointments of interest are:—Dr. Zacharias to be director of the Hamburg Botanic Garden; Dr. Julius Istvánffy to be Professor of Botany at Klausenberg; and Dr. A. Mágóscy-Dietz to be Assistant-Professor of Botany at Budapest.

Gardening Abroad is the subject-matter of an interesting little booklet issued by Messrs. J. Carter and Co., High Holborn, under the title of "Garden Notes for the Colonies and Abroad." The first edition of this work was acquired by one of the Colonial Governments for distribution, so that a certain hall-mark has already been placed upon it. The information compressed into the book will afford valuable hints to colonists and others who have little idea of what vegetables and flowers will grow under certain conditions of heat and moisture and in certain soils. It will also suggest the trial of many subjects to those already established in our Colonies and abroad, while its price—one shilling—places it within the reach of all.

Land Measurement and Surveying are ancient arts, indeed more so than is generally supposed. Professor Hammer has recently directed attention to a Babylonian plan now in the Constantinople Museum. The plan represents a royal estate, and was made 3,000 B.C. An authority on Egyptian archæology goes so far as to name the two surveyors who drew up the plan, but be that as it may, the two series of figures and measurements given show that land surveying was carried on with some amount of accuracy from three to four thousand years B.C.

The New York Botanical Garden is making considerable headway. On the last day of 1897 the ground for the museum was formally broken up, while plans for the ranges of glasshouses have been completed. About 2,900 species of plants, besides large quantities of material for herbarium, library, and museum have been collected during the past year.

SELECT NEW CHRYSANTHEMUMS.

NOW that new varieties of chrysanthemums are increased so rapidly by seed and otherwise in England, as well as upon the Continent and also in America, it is difficult to keep pace with the times without incurring much expense. The time is not far distant when new varieties will be raised in England quite freely and upon scientific rules as to cross fertilisation for a definite object in colour and formation. Hitherto the raising of new varieties has been pretty much a haphazard business. In making a selection of new varieties growers who live far from prominent chrysanthemum centres are much handicapped in not being able to make a personal inspection of the blooms when at their best, or indeed at any time; for such the GARDENERS' MAGAZINE has done good service in the past in disseminating information for the benefit of its readers. With the strict scrutiny practised now by members of floral committees, judges and those responsible for the awarding of certificates to new varieties, a new sort has to be an advance upon older kinds to gain the coveted award. Especially in the incurved secton is it necessary to closely scrutinise additions, as it is a difficult matter to determine to what section they really belong. Too often of late have varieties been first sent out as Japanese incurved when really they have been found, after extended cultivation, to belong to the true incurved, and *vice versa.* If it were possible to have trials of new varieties in the hands of some practical cultivator, so that the members of the Floral Committee of the N.C.S. could inspect them in various stages, better results might be obtained than at present in some instances. Having had opportunities to examine personally many of the new sorts during the past season under various circumstances, I have pleasure in giving a selection of deserving varieties. It cannot be said that the autumn of 1897 was productive of many high-class novelties, indeed, I think fewer really deserving sorts have seldom been put on the market. As usual, the Japanese section heads the list in point of numbers, and as they are the more popular I will name them first.

The section known as Japanese incurved appears to predominate amongst the newer varieties. Belonging to this type are several desirable kinds. Mary Molyneux heads the list, and is an English-raised seedling, perfect in form, and large enough to satisfy the highest aspirations. The colour, rosy peach, is suffused with silver—a pleasing combination. To this a really good companion is Lady Ridgway, which was raised in the Isle of Man several years since. Here we have some peculiarity in colour, for over the amber base of each floret runs a purple suffusion, each floret being tipped with gold when young; the inside of the florets are terra cotta. Yellow-flowering varieties are really well represented by Royal Sovereign, George Foster, and Lovely. In the former we find a rich orange shade in the loosely incurving florets; the last named is quite pale, yet very pleasing. The irregular florets of George Foster are a pure yellow colour. Robert Powell has quite broad florets, terra cotta, shaded bronze, lined and flushed purple. A really good rosy plum-coloured sort is Mdlle. Laurence Zede, which, from the many comments made upon it, is likely to become popular. Those on the look out for a pure lemon-coloured variety would do well to secure Georgina Pitcher. Moor Park is a seedling raised by Mr. Haggart, and shown so well by him at Edinburgh; the reverse is golden-bronze, the inside terra cotta. As is usually the case when a standard variety contributes a sport, it is a good one. This remark applies to the pale primrose offspring from Madame Carnot, and appropriately named Mrs. W. Mease. When I say it possesses all the characteristics of its parent except colour, enough has been said to stamp it as first-class. The introduction of Ella Curtis reminds one forcibly of the original Boule d'Or, sent out in 1886 by Messrs. Veitch as a Japanese introduction. In the present instance the colour is a rich golden-yellow shaded with chestnut and bronze. Another sport of prominence is the ivory-white one from Viviand Morel. Madame Phillippe Rivoire reminds one of Souvenir de Petite Amie, only that the new-comer is so much larger.

Amongst brightly-coloured sorts we have J. Chamberlain, which should be included in the collection of every exhibitor who wishes to be near the top of the list when exhibition time comes round again. Royal Standard, with its broad and flat florets of the deepest crimson, is a good companion to Master H. Tucker, which is a rich dark red with bronze reverse. Amaranth colour is represented by Werther, a promising flat-petalled variety. In the pink-flowered section Mrs. F. A. Bevan stands prominent with its medium-sized curly-tipped florets. Mrs. G. Carpenter, rosy-mauve, is even larger than fully developed blooms of Viviand Morel. Madame G. Bruant, with its irregularly-incurving florets, blush white, suffused with purple, should find many admirers. Mrs. Hunter Little reminds one very much of Criterion; the florets are, perhaps, a trifle narrower, but the rich yellow colouring is pleasing. Admiral Ito is a great favourite with many, and its erect, fluted, and twisted florets are pure yellow. As predicted last year, Lady Hanham has worked its way to the front amongst new varieties; the colour, golden rosy cerise, is pleasing, and when we consider that it is a sport from the ever-popular Viviand Morel that appears to be a sufficient recommendation. James Bidencope was conspicuously shown by Mr. Haggart and others at Edinburgh last season. The colour is telling rosy-amaranth, with silver reverse.

In the incurved section, seldom do we obtain more than half a dozen new varieties yearly. This number has not been exceeded for a long time. Undoubtedly Mdlle. Lucie Faure heads the list. This chrysanthemum was originally sent out as a Japanese incurved, but further trial proved it to be a true incurved. The colour of the pointed, somewhat narrow florets is pure white, while in size nothing is left that is desirable. Madame Ferlat is another of French origin, yet a true incurved; a faint yellow tip is visible on each white floret as it expands, but when fully developed this colour is sometimes replaced with a pink flush. Mrs. N. Molyneux is an English-raised variety from seed, and is full and massive in appearance, and ivory white. In Austin Cannell we have a well-built flower, rich purple, and silver lined. Ernest Cannell, blush pink, base suffused yellow, is a good addition; and so is Lady Isabel, sent out last year; the extra broad florets of this are silvery pink. Mrs. W. C. Egan is presumably a sport from the well-known R. Petfield, which it so much resembles in all respects except colour, which is lighter than in that variety.

Swanmore Park Gardens. E. MOLYNEUX.

FORESTRY IN AUSTRALIA.

THE increasing use of Australian timbers for wood-paving purposes has naturally directed attention to capabilities of the various colonies as permanent sources of supply, the general impression being that in this respect Western Australia takes the lead. This, however, is an erroneous assumption, for, according to Mr. Coghlan, the New South Wales Government Statistician, the Australian mother colony possesses a wealth of timber surpassed by only a few other countries. Its woods are as varied as they are valuable, ranging from the ironbarks, unsurpassed for work requiring hardness and durability, to the kinds suitable for the most delicate specimens of the cabinetmaker's art. Indiscriminate felling has, however, made several kinds comparatively scarce, a frequent experience in newly settled countries, where the leading object of the pioneer residents is almost invariably to get rid of the timber on the lands occupied by them. The necessity of preserving the timber resources of the colony, and preventing the ruthless destruction of the best species of brush and hardwood which was being carried on, principally in the Clarence River district and in the eucalyptus forests on the Murray, led the Government, in 1871, to establish a certain number of forest reserves throughout the colony, in which permission to cut timber, under certain conditions, should be granted upon payment of a fixed fee. Subsequently, in 1875, the office of Forest Ranger was created, and this led to the formation, in March, 1882, of a Forest Conservation Branch, which was attached to the Department of Mines. Seven years later the colony was sub-divided into a number of forest districts. These are frequently inspected by forest rangers, whose duty it is to report on the existing state of the proclaimed reserves, control the operations of licensed timber-getters, receive royalties on the various kinds of timber upon which such dues may be levied, and report upon applications to ringbark trees on Crown lands, whether comprised in forest reserves or otherwise.

In view of the importance of the timber resources of the Colony, the Hon. J. H. Carruthers, Minister for Lands, is preparing a bill, the main feature of which will be the establishment of permanent forestry reserves, where the timber can not only be used as it matures, but where steps can be taken to create a new supply to take the place of the trees which may be felled. This feature of the establishment of permanent reserves is, the Minister says, the chief matter to be considered, and it will apply mainly to the coastal forests, to the red-gum forests on the Murray, and to the ironbark forests all over the Colony. With regard to the pine forests, it is recognized that a different system will have to be adopted, because pine is a timber of rapid growth, and, indeed, in many instances it is nothing more nor less than a noxious weed. In the meantime much has been already effected in the direction indicated. During the last two years about 60,000 acres of red gum, 30,000 acres of pine, and 2,000 acres of coastal forests have been improved by thinning out and destroying the superabundant growths. This work has been carried out with the object of ensuring the maturity of a larger number of trees to the acre, and, by reason of the additional light and air afforded, of their reaching that stage in about two-thirds of the time that would be taken under natural conditions. The cost of the thinning-out operations averages 5s. 8d. per acre in the red gum areas, 4s. 6d. in the pine areas, and 7s. in the coastal areas; and it is estimated that this outlay will return during the next twenty years two or three hundred marketable trees to the acre where the present unimproved average is but four or five. The Forest Conservation branch is charged with the direction of a State forest nursery, which is situated at Gosford, in the beautiful district of Brisbane Water, about fifty miles from Sydney, where the acclimatisation of valuable foreign timber trees, and the conservation of such of the best indigenous species as might otherwise be likely to disappear, are attended to. The area set apart for the nursery is sixty-five acres, of which twenty-five acres are cleared and cultivated. Among the indigenous trees which are raised there may be mentioned tallow-wood, blackbutt, beefwood, silky oak, yellow pine, the best varieties of ironbark, and red cedar, the red cedar seedlings on hand at the close of 1895 numbering about 32,000. Of late, special attention has been paid to the cultivation of the white mulberry, in expectation of a demand for this tree in consequence of the increased interest taken in the cultivation of silk in the colony. It is estimated that there are 28,000 mulberry trees of different varieties, in various stages of growth in the nursery, besides nearly 100,000 exotic trees of economic value.

In addition to reforesting the Crown reserves with the best classes of timber, the State forest nursery distributes specimens among settlers in the sparsely-timbered areas in the western districts of the colony, and supplies them to municipalities, to the trustees of public reserves, and for the improvement of church and school lands and other purposes. Altogether, from 1890 to the end of 1896, over half a million plants were sent out of the nursery, the number for 1896 being 24,769, of which 11,1 were supplied to public bodies and private persons, and 13,649 were placed in reserves and other plantation areas. The number of merchantable plants remaining in the establishment on January 1, 1897, was estimated at 104,040, viz., 21,200 in pots, 17,100 seedlings in boxes, and 65,740 plants open-rooted. The consumption of wattle-bark is very great in this colony, where it is in large demand for tanning purposes. During 1895 80,770 cwt. of wattle-bark were imported, valued at £19,634, nearly 68,000 cwt. of this supply being obtained from Tasmania. It will thus be readily seen that there is room for a large development of the trade in New South Wales. The department has taken steps to prevent the indiscriminate stripping of the bark, and the destruction of the trees, and thus stimulate the trade.

Sydney, N.S.W. JOHN PLUMMER.

EARLY SPRING FLOWERS.

ONE clear indication of the mildness of the season is that hardy plants, in ordinary seasons flowering out of doors at the end of February or March, were in full bloom on January 19, and this in spite of the many dark, foggy days of the previous weeks. There is no doubt the dry, warm summer and following wet autumn had also something to do with the precocity of these plants, the dry weather ripening bulbous plants early, and the early autumn rains starting them sooner than usual into growth.

Among those in flower at Tottenham were Colchicum Bertoloni (C. Stevensi), the Asia Minor form, which is much more robust, hardy, and floriferous than the Algerian form. The bulb is long and rather small, the leaves appearing with the flowers; the latter are globular, bright pink to pure white and carmine-purple. A very pretty plant, the Algerian form differs in the more narrow segments and longer, poorer flowers, flowering as early as November or December, and being less hardy. Cyclamen coum, to which also belong the many forms of Cyclamen Atkinsi, all so easily grown, even in our unfavourable London climate. The difference between the two is the more or less marbled foliage of C. Atkinsi, while in C. coum the leaves are almost of a uniform dark green. They are very free flowering, with purple, rosy, or white flowers, and, like all hardy cyclamen, do best planted shallow in a loamy soil, peat, or leaf-mould, in a partially shaded position; the rockwork border, or, as I saw them growing in gardens near Penryn, Cornwall, planted on slopes on the lawn, suits them well. Crocus Imperati, with its large, bright purple flowers, externally buff-coloured anthers and orange stigma, forms one of the most beautiful of crocus. There is also a pure white form. C. suaveolens differs from C. Imperati in the paler colouring, exterior being striped, and short, stiff foliage. In some seasons this flowers a week earlier than C. Imperati, but this year both flowered at the same time. Crocus Sieberi (C. nivalis), with its bright lilac flowers, is a very strong species, and one that is flowering a month earlier than in former years. C. chrysanthus superbus produces small, bright golden or orange-yellow flowers, with orange stigma and anthers. C. alatavicus, white, exterior striped silvery grey, is a very pretty and distinct species that flowers usually at this time of the year.

Of snowdrops (Galanthus) there are a great many kinds in flower, the most distinct being the following: G. Elwesi robustus, flowers large, white, with distinct, dark, curvate markings on the inner segments, leaves glaucous green, broad, and stiff. G. Elwesi unguiculata has much longer flowers. G. nivalis var. cilicicus is a new early-flowering form, collected on the mountains of Cilicia and sent to this country erroneously as G. Fosteri. It has long, glaucous leaves and white flowers, inner segments marked green. I could not, however, recommend it as a really good plant, especially when comparing it with G. Elwesi, G. Ikariæ, or even G. byzantinus, all of which are superior. G. Perryi is undoubtedly a gem, the flowers are rather small, creamy-white, the ovary being sometimes tinted sulphur. It differs from the closely-allied species G. caucasicus in the broad, pale-green leaves, the leaves of the latter being glaucous green, and very short and stiff peduncle, also exceedingly free habit. G. Perryi was introduced to cultivation by Mr. Ware, of Tottenham, a few years ago. It is of easy culture, but the bulbs should never be allowed to remain out of the ground over a week. G. Ikariæ has large, very broad, bright green leaves, occasionally being pale green, flowers large, white, with green markings on the interior segments. G. Fosteri is somewhat allied to this species, but the leaves are more narrow, flowers smaller and less pure; it is easily grown and flowered, which is not always the case with G. Fosteri. A distinct feature in G. byzantinus is the stiff, plicate foliage; flowers of medium size, white, with green markings on the interior segments; very free and easily grown. G. plicatus has flowers of medium size, but G. latifolius, which is usually as early as the preceding, does not even show flowers yet.

Fritillaria oranensis grows about six to nine inches in height; the leaves are lanceolate-lineata, sessile, flowers one or more, campanulate greenish-yellow striped purple exterior, and tesselated interior. It is a most interesting species, fairly hardy, and the first of fritillarias in bloom. T. Korolkovi is, however, almost as early. Iris stylosa lilacina has bright lilac perianth, rather large, with yellow marking on the lamina of falls and sweetly scented. Iris stylosa alba flowers usually earlier than this plant, while the two darker blue forms, I. stylosa speciosa and I. stylosa Elisabethæ, flower here much later, which may perhaps be owing to the coldness of the Tottenham soil; as the form I. Elisabethæ has already been shown in flower. All forms of Iris stylosa are most desirable on account of their free habit, and they can be grown in any soil provided it is not too damp, which would only encourage growth without producing flowers. To protect the flowers, however, during the winter should sharp frost set in, it is best to have the plants against a wall facing south, or put a frame over them during the winter. They are first-class town plants, as smoke seems to have no influence on leaves or flowers. Iris histrioides, closely resembling Iris reticulata, is giving large bright or dark blue flowers, falls veined white and lilac; these are violet scented. Iris reticulata purpurea (I. Krelagei) has flowers reddish-purple, falls lined yellow; inodorous. The Lenten Roses (Helleborus), in many different shades of purple, greenish-white, white, deep and rosy-purple; flowering during a mild winter as the present, from Christmas till the end of March, are adapted for the margin of the shrubbery, furnishing of cold greenhouses and conservatories, the herbaceous border, and the rockery. Many of the common, more robust growing kinds, are also good town plants. To do them justice they should be planted in partially shaded and sheltered positions, and if once doing well should be left alone.

Of the early spring-flowering Primula denticulata alba, there are now several plants in bloom; this is, of course, remarkably early even for this species, and a severe frost would destroy many of them. Through many years' selection, the once inferior plant has been improved, and has developed a most superior one. The flowers are large, pure white, forming a head, while in the old typical white P. denticulata the flowers were small, very poor, and of a dirty white. It flowers always much earlier than the purple P. denticulata. Primula acaulis cœrulea (Baden-Baden form) is not only much earlier than our common primrose, but it flowers so very freely and is much more robust; in fact, while we find the common primrose loses its leaves during the winter and often dies out entirely owing to fog and smoke, this one keeps its leaves, and its flowers, though paler, seem otherwise not to be any the worse for it. I cannot enough recommend this charming primula to all lovers of hardy flowers. The Snowflakes or leucojums are very early and pretty. L. carpaticum (L. Wagneri) produces peduncles about a foot long, usually two-flowered; flowers campanulate white, perianth segments tipped green; sweet scented. Although in small weak bulbs the difference in size and shape of flower between this and Leucojum vernum is so very slight that none would consider them quite different, yet, when well established and grown, L. carpaticum is at once much stronger, taller, flowers much larger, and nearly every peduncle bears two flowers. L. vernum, when well grown, is sometimes two-flowered, but the whole plant is smaller, weaker, and altogether poorer. Besides, Leucojum carpaticum flowers earlier, and this year the difference in the time of flowering is so great that to-day (January 19), while L. vernum is still under the ground, and only here and there a plant pushing through the soil, L. carpaticum makes a good show close by, in the same heavy damp soil and under the same sunless sky. Leucojum vernum is a very common species in damp and shady places of Germany, Switzerland, and the Austrian Alps. Leucojum carpaticum, or L. Wagneri as some are wanting to call it, is a local Carpathian plant, though sometimes the lower Austrian form is erroneously sold for it. It is the best of the genus Leucojum. Orchis Robertiana—closely allied to that rare British orchid, Orchis fusca—is now producing large greenish purple to dull purple flowers; these are large and sweetly scented. When well developed the plant attains a height of two feet. It is a native of Algeria, and should, on account of its early growth, be planted in a sheltered position. G. REUTHE.

CHRYSANTHEMUM NIVEUS.

THIS favourite show variety has been largely grown here during the past season for producing quantities of flowers in sprays suitable for arranging in vases, and for working into devices and other decorations at Christmas and the new year; and although most of the sorts that have from time to time in the past been recommended as useful for this purpose have been grown here, I have not found one among them that produced such a wealth of pure white flowers, or that opened its blooms in a cool house so easily as this. For flowering late the cuttings should not be inserted until the end of February, and as soon as rooted they must be kept as cool as possible to promote a sturdy growth. Late in May the tops should be taken out of the plants to cause them to throw the necessary number of shoots, which should not be less than six or eight on each plant, according to the size of pot it is intended to grow them in. If likely to be required for vases, pots seven inches in diameter may be used, and in this size some very useful plants may be grown; but to save such close attention to watering, those an inch or two larger are preferable.

When finally potted a neat stake placed to each shoot will keep them secure from breakage, and the pots may be plunged to the rim in coal ashes or other suitable material, which will effect a great saving of labour by way of watering in hot weather. Grown in this way no more stopping of the shoots is required, and the plants will not greatly exceed thirty inches in height, if care is taken that they are not placed under other plants when they are removed to the houses in October. If required in the form of long sprays of bloom, no disbudding will be required, as each shoot, even when grown in a small pot, will bring to perfection several flowers, and as these are produced at intervals of a few inches along the stem, rather than in clusters, and generally open pretty much at one time, this variety has much to recommend it. To obtain large blooms more pot room must be given, and the buds thinned to one on each shoot, and in this way twelve or more good-sized blooms may be grown upon each plant, which will open freely, and of a pure white, even in the dullest weather.

These remarks apply to experience of the variety in the north, where many of the frequently recommended late-flowering sorts do not succeed well, and their flowers when produced are often so weakly in substance as to give but a poor return for the time and labour bestowed upon them. One of the least satisfactory of these is L. Canning, which has been tried both as a yearling and on the second-year system, but in neither case has it proved worth growing here.

Galloway House Gardens, N.B. JAMES DAY.

Drainage of Vine Border.—Failing a natural drain of the right character it is folly to expect good results from vines unless the borders are drained artificially. Considering that the drained border is several degrees warmer than the undrained one, a great point is gained for the welfare of the vine roots. Of course, if the borders are borders inside, so much the better. A raised border with fair drainage and accompanying warmth will be a great inducement for vines to maintain a healthy vigorous condition for a long period. Most growers know how their borders are made, and also, should be aware of the formation of the subsoil or drainage underneath. A clean sand on the top of gravel is good, and gravel over sand is not to be complained of, only such takes more water and also more feeding. Clay under either of these two subsoils will do no harm, at least I have found it answer for at least a dozen years, though possibly in course of time the vines might require root-lifting, *i.e.*, out of the clay. A clay soil for vines will never do, as water does not pass through such quickly. A good test in doubtful borders is to gently dig up the surface and see how much water will pass through in a given time, then dig down for actual proof of the passing of the moisture through the subsoil.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*

Some Roses of 1894.

With a view of assisting those who may wish to add recent varieties to their collection, I propose to jot down a few brief notes on some roses of recent introduction, commencing with the year 1894. It would be wearisome to deal with all the new roses that are annually offered, nor would the remarks be of much value, seeing they would only be based upon the highly-toned descriptions which appear in the trade catalogues, especially of continental origin. Therefore, these remarks will chiefly concern those roses which have been grown by us, adding a few varieties that have been seen at the rose exhibitions, or that are well spoken of by some of the trade growers.

Clio, H. P. (William Paul and Son).—Although this rose was not sent out with a great fanfare of trumpets, nor has it been awarded the gold medal of the National Rose Society, yet I think it is one of the best roses of the year. Clio is a robust, strong grower, and free blooming rose. In a cool summer it will probably be found in the front rank, but it is with us hardly full enough to stand a very hot season. In form it is pointed globular and its good shape, size, and depth of petal, make it a handsome flower. It is quite distinct from any other exhibition variety. The colour is white tinted with pink deepening towards the centre. It is useful for exhibition purposes, and the non-exhibitor will find it an acquisition to the garden.

Mrs. Sharman Crawford, H.P. (A. Dickson and Sons).—Colour a beautiful clear rosy pink, quite distinct in shade from any other H.P. It is remarkable for its freedom in flowering and for giving a succession of blooms right through the season. The flowers are of good size but a trifle thin. If grown for exhibition the plant should be well thinned, and the shoots that are left disbudded early, the young growth being carefully kept down, for it is very active, constantly throwing up fresh flowering shoots. It is a somewhat difficult rose to stage by reason of the blooms developing so quickly, especially if the weather is at all hot. It is shown best in cool weather. It was awarded the gold medal of the National Rose Society, probably because of its distinctness of colour. Mr. R. B. Cant in his catalogue describes it as "one of the best roses of recent years," but at present I am not quite prepared, from an exhibition point of view, to wholly endorse this statement. It may be true of it as a decorative rose. In our climate it is inclined to mildew, especially on the second flowering shoots.

Marchioness of Downshire, H.P. (A. Dickson and Sons).—Colour soft pink, shaded rose, cupped, but with too low a centre to be a really good shape, and, like Baroness Rothschild, which it resembles in habit and form, somewhat hollow. In 1896 we had some good flowers of it, and we thought it promising; but the season of 1897 was against it, the early blooms being crippled by the May frosts, which did us much mischief, and the later flowers were damaged by thrip. We only staged one bloom of it during the whole of the exhibition season. From personal experience, which is guided by situation and climate, I do not think it can be termed a first-rate rose, although it won the gold medal of the N.R.S. In some gardens, climates, and soils it may do well, but not with us, and I cannot recommend it.

Clara Watson, H.T. (G. Prince and Sons).—This is one of those roses which are so close to the border line which separates H.T. from teas, that it is not at all clear why it is not classed as a tea. It is decidedly tea-scented, the colour a pearly white with a pale salmon centre, is suggestive of a tea; moreover, it is also in constant flower and has tea wood and foliage. I wonder why it is classed as a hybrid tea! Although the blooms are hardly of sufficient size or substance for exhibition purposes in the general classes against hybrid perpetuals; yet if special classes for hybrid teas were generally introduced in the exhibition schedules, or if it had been sent out as a tea, Clara Watson would be more frequently shown. As a decorative rose it will be found most useful. It is, on the whole, a charming variety. Mr. David R. Williamson states in the "Rosarians' Year Book for 1898" that Clara Watson "is my supreme favourite among the many fine creations of the late Mr. Bennett." Surely this rose was sent out by the late Mr. George Prince, and named after a lady, who with her great skill in setting up the roses so ably assisted him in staging at the rose exhibitions. The rose Clara Watson always brings back to my mind the pleasant memory of the bright and cheerful Miss Watson.

Marquise de Litta, H.T. (Pernet et Ducher).—Carmine rose, large, full cupped, and of perfect form. A useful addition to the exhibition roses by reason of its early flowering. The chief characteristic of the rose is its wonderful blooming capacity. It seems as if when left alone to grow as it pleases it would bloom itself to death, having eight or nine flowers on a stem, following one another in quick succession, and often giving two blooms simultaneously well up to the exhibition standard. The size of the flowers is much improved by disbudding. From an exhibition point of view it is a treacherous rose, quickly expanding in the exhibition tent in hot weather. In the hybrid tea class it holds a good position. For exhibition purposes it is best on maidens. As a decorative or "garden" rose it cannot be too highly recommended.

Duke of York, China (William Paul and Son).—I hope the day is not far distant when all kinds of new roses, whether so called "garden" or "exhibition" roses, shall find their way into the stands for new roses. At present none but exhibition roses practically are staged. This rose is but little known at present by rose exhibitors, not because it is worthless, but because it is essentially a decorative variety. When "garden" roses are exhibited in the same stand with other new roses, such varieties like the Duke of York will find a place. Not growing the rose, I cannot speak of it from experience, but from what I have seen of it, Duke of York is, as indeed all Chinas are, a most useful rose for the garden and house decoration. It has not the form of the exhibition type, but we are not very exacting in this respect with flowers for decoration.

Joseph H. Pemberton.

Late Apples.

Now that the glut is over, one has no difficulty in noticing which are the most useful apples to cultivate, for culinary purposes or dessert, for use from Christmas onward. Of late years it has been rather too much the custom to plant large early show varieties rather than those for general or late use. But where are these fine specimens now? On looking over the fruit-room shelves we find their places vacant, not even one good fruit of the much-lauded Peasgood's Nonsuch is to be found, which, with many, is considered indispensable. A few trees of these fine showy varieties should be planted in every collection where there is room, but planters should be careful not to plant too many of them. A tree or two of each will be quite sufficient, unless they are grown specially for market. As a rule, mid-season apples are almost worthless, while very early and late kinds usually command a good price. During September and October there are so many windfalls that good fruit has to be sacrificed unless sent to the great centres of consumption; for this reason it is not wise to plant many trees of varieties that mature their fruit during the latter month. There is a great difference in the keeping qualities of fruit grown on different soils and situations; and on ground that is cultivated and fed, as against that grown in an orchard with grass beneath. The specimens from the rich cultivated ground may be larger, but they have not the same solidity as those from trees whose roots are growing in the ordinary soil, hence they mature so much earlier. Most people know that large specimen onions contain far more water in proportion to their size than the small bulbs do, their flesh is coarser, and therefore holds more moisture; the same remark applies to apples that have been over-fed.

From this we shall gather that both very early and mid-season varieties should be grown on rich, fertile ground, and liberally supplied with nourishment to induce them to grow as large as possible, and mature early; while the late and long-keeping ones ought not to be fed to any considerable extent, that their flesh may be firmer, and therefore in a better condition to resist the peculiar conditions of the fruit room. That large fruit surcharged with moisture will keep sound longer in a low, dry atmosphere than in a damp one, there can be no doubt, as the moisture given off by the fruit is absorbed before it has time to do any damage, while in the case of hard dry specimens there is but very little to evaporate. Dumelow's Seedling (Wellington) is one of the best cooking apples we have, and though this may be grown to a good size on young trees that are highly fed, such fruit will not keep good for any length of time; in fact, that from trees so treated is not often in a usable condition after Christmas, while that grown on standards in an orchard will keep sound till the end of April if stored in a cool place where the temperature is even. There is not enough attention paid to the storing of these late-keeping kinds, neither is there that care taken in gathering that there ought to be. Instead of throwing them about as one frequently sees, they should be handled as carefully as though they were eggs, and placed at once in the position they are to occupy till required for use.

The old Yorkshire Greening is by no means to be despised, and may be had in good condition till March. The tree is usually an abundant bearer, the fruits both large and of good quality, but they keep far better if grown on orchard trees than from those on cultivated ground. This variety has never once failed here during the last twenty years, though some seasons there are far more than others. Northern Greening, though an old variety, should find a place in every private garden; the fruit is not large, neither has it an attractive appearance, but there are but few long-keeping kinds that cook so well or have a more agreeable flavour. Norfolk Beaufin has for a long time been considered one of the leading late culinary varieties, and there are none of the newer ones that I am acquainted with that will surpass it in this respect. It should, however, be liberally treated where the ground is poor, but by no means be over-fed with a view to obtaining large fruit if it is desired to be kept until late in the season. Royal Russet is another that ought to be grown in every orchard; though not a large apple, its cooking qualities are first-rate, and it will keep in prime condition till April. Schoolmaster should also find a space, as its all-round qualities are good, being a constant cropper, of pleasant flavour, and keeping well.

Turning to dessert sorts, Adam's Pearmain must on no account be overlooked; the fruit is of medium size, handsome, and well flavoured, and though not one of the latest, it will keep good till February. Brownlees Russet is a fine variety, but, like all others of this class should be allowed to hang on the trees as long as possible; the fruits must, however, be protected from tom-tits, as they are very fond of picking holes in them. Claygate Pearmain is also a fine variety; the tree is a constant cropper, fruit of medium size and richly flavoured much in the way of Ribston Pippin. Court Pendu Plat usually has a crop of fruit, and the same may be said of Court of Wick, both of which are very good; the latter, however, cankers very badly on our cold heavy soil. Golden Harvey, Golden Pippin, and Golden Russet are all good, though the former cankers badly here. Lord Burghley is a handsome fine-flavoured variety of first-class quality, and on that account should be planted everywhere that room can be found, as it is a good grower; the same may be said of Mannington Pearmain. The old Nonpareil, when well grown, is a fine variety and a most prolific bearer. Reinette du Canada, when well grown, is also fine; the tree, however, requires but little pruning, as it makes an abundance of fruit buds along the young shoots. Sturmer Pippin is one of the best late-keeping dessert kinds we have; with me it seldom fails to produce a crop of fruit, and though only small it is of excellent quality. Scarlet Nonpareil is also very good, seldom failing to produce a crop of fruit. It must, however, be understood that to have this in the finest condition late in the season the fruit should hang on the trees as long as possible; in fact till the leaves begin to fall, at which time they will part readily from the stalk, and as the weather will be getting cool they will not ripen so rapidly.

Buxted Park Gardens. H. C. Prin

CHRYSANTHEMUMS FOR 1898.

SURELY there is no need for the feeling displayed by Mr. W. H. Lees in his reply to my criticism on his article on new chrysanthemums. I, and other writers, have a perfect right to criticise such and offer our opinion on the same, and if anyone will trouble to refer to my comments on p. 6 they will not find anything that is objectionable, unless it be a presumption on my part to differ in opinion with a member of the Floral Committee of the N.C.S. who has been awarded several big prizes. As to the personal remarks of Mr. Lees I can only say we are not discussing catalogues or manners, and whether I am a more or less modest individual than Mr. Lees cannot be of much interest to anyone. In reply to Mr. Lees' statement that the list was not penned by him for the especial satisfaction of trade growers, I ask him to mention which of the varieties that I have so strongly recommended I have any special interest it. None of them were raised or sent out by my firm, and in the list of novelties I abstained from mentioning any of mine that are to be sent out this season, although certificated by the N.C.S. Mr. Lees says he "only gave those varieties which from my own personal experience and my own personal observation over a lengthy round of shows and other collections appeal to me as the most suitable." Just so, and I did likewise. Mr. Lees wishes us to believe that it is from his position as a member of the Floral Committee that he gathers some of his experience. Strange to note, there are many in his selection of new varieties which have not been noticed by this committee, whilst others that have been certificated this season by the N.C.S. and the R.H.S. are not quoted. This does not say much for the value of certificates. Is Mr. Lees quite sure that he did not consider some trade grower's interest when in his selection of twenty new ones, he placed ten from one grower? Ten from one grower, not including two—Dr. Liebert and Surpasse Amiral—which are likely to prove, next season, superior to many of those quoted, seems to savour a bit of bias.

Now let us discuss the varieties. Pride of Madford, we are assured on p. 808 (1897), has, with snch grand kinds as M. Chenon de Leché, Mrs. J. Lewis, Mutual Friend, Edith Tabor, and others, "been consistently good," and the same writer now informs us he cannot recommend it among the best twenty-four instead of one of the nine whites, because it is too incurved. What are we to understand by "consistently good"? Madame Ad. Chatin I did not compare with Western King; and I, for the sake of argument, may say the latter is not to be compared with Madame Carnot. I still contend, and I know many are of the same opinion, that Madame Ad. Chatin, and many others missing from Mr. Lees' list, are vastly superior to Madame Ad. Moulin. Mons. Hoste and Pride of Exmouth "are of poor colour, and washy and undecided mauve tints are not desirable" we are now told. I maintain that both of these varieties are superior in colour and form to Mrs. W. H. Lees and others in the list of fifty. Lady Saunders, I admit, occasionally comes good, and this is proved by the fact that Mr. Lees had it as a back-row flower in 1896, but where was it in 1897? Ella Curtis, as grown here, was the admiration of all who saw it, and was a truly handsome flower. Mrs. Maling Grant to have proved a failure must have had very poor treatment. It is one of the easiest varieties to grow I know. Mr. Lees maintains that a stand of twenty-four may contain six or seven each of white and yellow. Quite so! But in the selection given there are nine whites, not counting Mrs. W. H. Lees, which is generally shown in this form, dirty white though it be, and but five yellows. I never recommended Mrs. Harman Payne and Ethel Addison; I admit they are of bad type, although Mr. Lees places the sport from the former, Mrs. W. G. Palmer, among the best fifty. Mr. Lees points to the fact that Lady Saunders was in his stand of sixty at the N.C.S. in 1896, and he is thereby justified in including it among the best fifty. I would like to point out that upon looking up the reports of the principal shows I find it mentioned just once, but those varieties which Mr. Lees decries were in nearly all the champion prize stands at all the principal shows. To wit, the £50 and gold medal at Edinburgh, won by Mr. Haggart. Special mention is made among others of Madame Ad. Chatin. £25, forty-eight Japanese, same show and exhibition, Mrs. F. A. Bevan, Mrs. Maling Grant, and Madame Ad. Chatin. We are told these blooms were magnificent. In N.C.S. champion class for forty-eight Japanese, the first prize was won by Mr. Mease, whose variety included Joseph Brooks, Pride of Exmouth, and Lady Hamilton in back row; also showing Julia Scaramanga, Madame G. Henry, Mrs. Blick, and Mons. Hoste. The first prize stand of twelve Japanese at the N.C.S. exhibition with twenty-two competitors, included Madame Gustave Henry and M. Ed. André. At the same show, the first prize for twenty-four Japanese with twenty-four competitors, Mons. Ed. André in back row, and for the only time I here find Madame Ad. Moulin, but in the middle row. Dundee: In the first thirty-six Japanese, Madame Gustave Henry; same show, eighteen Japanese, Mrs. F. A. Bevan, Madame Gustave Henry; and in most of the largest shows were these disparaged varieties, frequently shown together with the other varieties that I have mentioned and omitted by Mr. Lees.

Returning once more to the new varieties, and here Mr. Lees' ruling seems a most peculiar and ambiguous one. Because a variety has been once mentioned by Mr. Lees, is it to be classed among the older varieties? Or are all "new" until this gentleman quotes them? This seems to be the case. Because C. E. Jeffock, which was catalogued in 1896, has not been seen by Mr. Lees until now, is it to be classified as a new variety? Again, because Madame Phillippe Rivoire has not been catalogued by two trade-growers, must it still be considered "new," although several others catalogued it, and hundreds of plants were last season sent to all parts of the kingdom? This variety was catalogued last season by Mr. Davis, although Mr. Lees informs us it is not this. Whether Topaze Orientale will find a place among the incurved, or whether I am justified in criticising Mr. Lees' selection, time will tell.

Exmouth. W. J. GODFREY.

I AM afraid that Mr. Wells's estimate of his own plants and blooms is not always in agreement with that of other people, and it is a pity he has chosen to make a personal matter of my remarks in reference to the Yellow Madame Carnot called G. J. Warren. Personalities are of no interest to readers of the GARDENERS' MAGAZINE, and my notes were not intended in the least degree as a reflection on Mr. Wells's reputation, and it requires a lively stretch of imagination to believe that they were. What I stated was but fair comment on a matter of general interest. This particular variety was exhibited three times before the Floral Committee ere a first-class certificate was awarded, and there is no doubt that the prestige of the parent had as much influence with the committee in the granting of that award as the merits of the blooms shown, which were not so good as many other varieties certificated last season, and, in my opinion would not, on their individual merits, have gained the award.

My points were that over propagation (itself practically a necessity) may have so reduced the vitality of the plants distributed as to account for the very moderate quality of the blooms. It is a well-known fact that this cause is sometimes responsible for failures, and it is more likely to occur in the case of sports than of seedling plants. In the second place there is just the possibility of the sport not inheriting equally the form and vigour of its parent, though I am much inclined to believe that the first named is the real cause in this instance. First sports are most likely to retain all the characteristics of the parent variety except, of course, colour, and deterioration is much more likely to occur in the case of secondary or further removed sports. The question which I am invited to answer in the last paragraph is of no interest to readers in general, but could be answered by the little file of bills which I keep as historical records of new chrysanthemums. I have never yet purchased any at 25s., and in future mean to be extremely careful in obtaining high-priced novelties.

Trent Park Gardens. W. H. LEES.

A FRENCH CHRYSANTHEMUM AUDIT.

SOME of my friends who are members of the N.C.S. will remember being asked to take part in an election of the best fifty chrysanthemums that was organised by the editor of the *Moniteur d'Horticulture* during the past season. Unfortunately many of the lists I distributed were not returned at all, but a considerable number, however, were despatched by me to Paris in time for the election.

The results have recently been published, and it is interesting to find that chrysanthemum growers to the number of 1,057 sent in returns. These growers were resident in England, France, America, Belgium, Switzerland, Italy, Portugal, Austria, Germany, Spain, Turkey, Roumania, Greece, Tunis, and Monaco, a fairly representative body one would think. Out of this abundant testimony to the excellence of Madame Carnot is found in that variety obtaining 1,011 votes, so that, whatever may be the individual opinion of the reader as to the positions occupied by other varieties, there will be little doubt entertained that this celebrated white Japanese is in her proper place.

The proportion of French seedlings is overwhelming, as might be expected, and of these Calvat's occupy a preponderance that leaves all other growers in the shade. It is not my intention to attempt to justify the results, but I have thought those English friends who kindly took part in the election would like to be made acquainted with the result.

	Votes.
Madame Carnot (Calvat)	1,011
Le Colosse Grenoblois (Calvat)	997
Mrs. C. Harman Payne (Calvat)	994
Madame Ed. Roger (Calvat)	976
Viviand Morel (Lacroix)	971
Calvat's Australian Gold (Calvat)	895
Enfant des deux Mondes (Crozy)	887
W. H. Lincoln (Japan)	876
Hairy Wonder (Jones)	809
Wm. Tricker (Japan)	808
Madame Calvat (Calvat)	767
Etoile de Lyon (Boucharlat)	762
Souvenir de petite ami (Calvat)	721
Colonel W. B. Smith (Spaulding)	706
Madame Lucie Faure (Calvat)	701
Reine d'Angleterre (Calvat)	689
Waban (Japan)	682
M. Chenon de Leché (Calvat)	661
Louis Boehmer (Japan)	660
Amiral Avellan (Calvat)	643
Edwin Molyneux (Cannell)	639
L. Isère (Calvat)	631
Mrs. Hy. Robinson (America)	623
N. C. S. Jubilee (Calvat)	614
Phœbus (Lacroix)	605
Florence Davis (N. Davis)	603
Madame Marius Ricoud (Calvat)	593
Niveus (N. Smith)	584
Wm. Falconer (Spaulding)	578
E. Forgeot (Forgeot)	561
Chas. Davis (N. Davis)	558
Philadelphia (Graham)	557
Deuil de Jules Ferry (Calvat)	549
Lilian B. Bird (Japan)	539
Duchess of York (Carruthers)	532
Louise (Calvat)	524
Captain Lucien Chauré (Calvat)	503
Le Moucherotte (Calvat)	487
Yellow Dragon (Japan)	484
Julian Hillpert (Jones)	481
Madame Ph. Rivoire (Rivoire)	463
Ma Perfection (Calvat)	442
Henry Jacotot fils (Calvat)	431
Madame Lucien Chauré (de Reydellet)	428
Belle des Gardes (Calvat)	426
Eda Prass (Dorner)	421
Robt. Owen (Owen)	419
Madame Chapuis Parent (Rozain)	427
The Queen (America)	411
M. Panckoucke (Calvat)	408

C. HARMAN PAYNE.

Lemon Pippin Apple.—Not with much prospect of success this old apple was the other day entered at the Drill Hall in the flavour competition; it is a good keeper, but having rather hard flesh, with a peculiar quince flavour. Such an apple could hardly win in such a competition where so many other better varieties were staged. But the term "lemon" seems to be a comparatively modern one, as more than sixty years ago it was mentioned as having been one hundred years in commerce, and always grown as Quince Apple, though latterly called Lemon Pippin in Kent. The true Lemon Pippin of that day was a fruit ripening in October and November, bright yellow in colour, round in shape, and rather flattened at the ends, flesh crisp and juicy. That description differs materially from what is applicable to the variety now grown as Lemon Pippin. However, we have plenty of better apples than are either of these named. Of a list of one hundred and thirty varieties in 1834, not more than twenty-five are now commonly grown.—A. D.

LÆLIA BRESEIS.

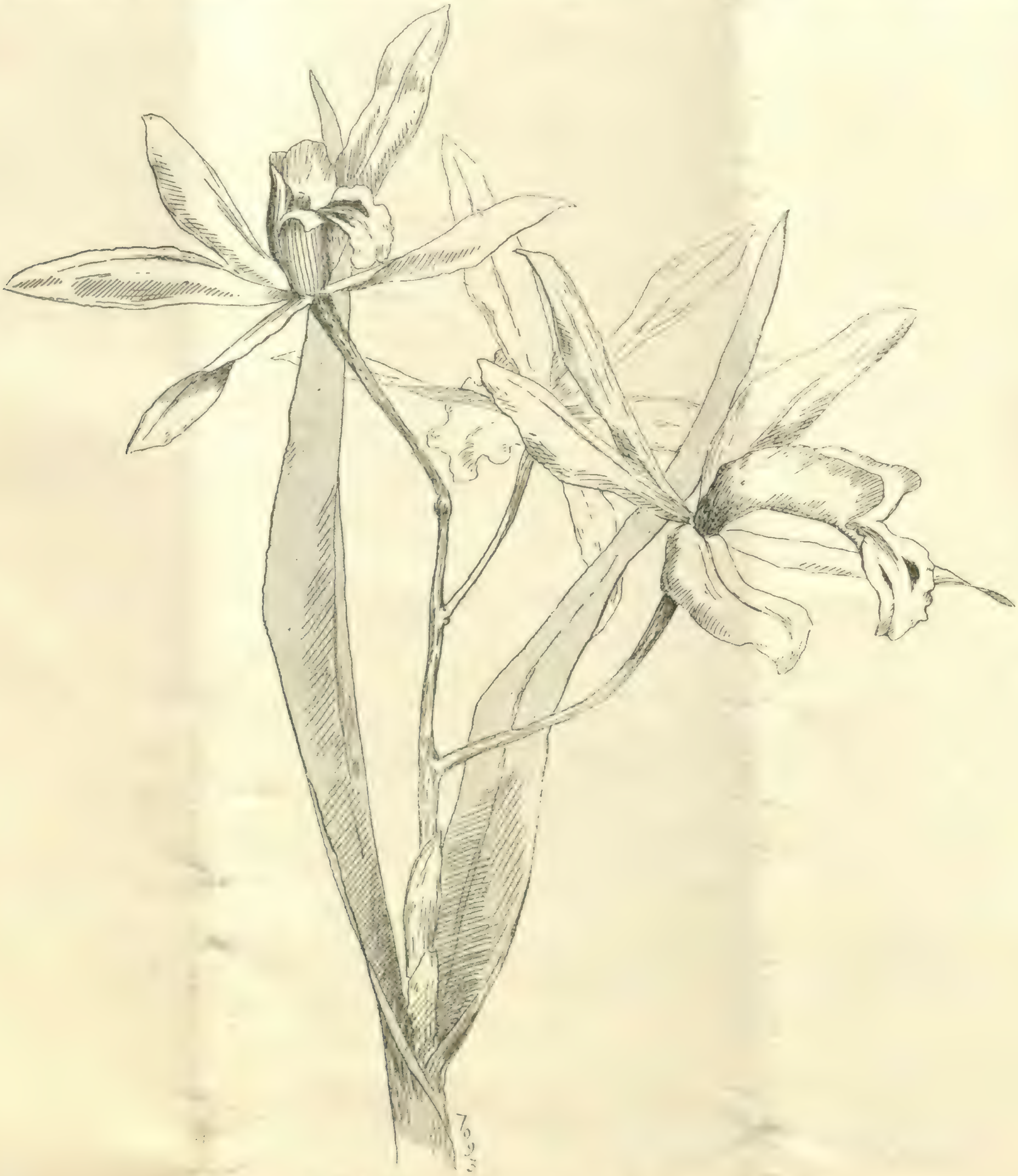
A most distinct and attractive orchid is the new hybrid Lælia Breseis, raised by Mr. James Douglas, Edenside, Bookham, and exhibited by him at a meeting of the Royal Horticultural Society, held December 14, 1897. The Orchid Committee considered it worthy an award of merit. It is a novel hybrid, obtained by crossing the orange-red Lælia harpophylla with the handsome white and purple flowered L. purpurata. The former, or seed parent, has created the most influence, the habit of the plant, shape and colour of the flowers, reminding one mostly of L. harpophylla. The sepals and petals are pale orange, lip whitish, narrow, the side lobes clasping over the column; apical lobe white with two purple blotches. The edges of the front lobe are considerably crimped and waved. The accompanying illustration gives a fair idea of the size and shape of the flowers.

With respect to Lælia Breseis, Mr. J. Douglas writes: "This garden hybrid was produced by crossing Lælia harpophylla with the pollen of L. purpurata, but the pollen parent does not seem to have exerted much influence upon the colour or form of the flowers, or even upon the character of the plant. It is, however, evident that the cross has been effected, for both plant and flower differ from the seed parent. If possible, I always make orchid crosses both ways, but one cannot always be sure of obtaining plants in each case; in this instance, the reverse cross, to L. Breseis that is, seed from L. purpurata, failed to vegetate. Blooms of Cattleya labiata have been fertilised with the pollen of L. Breseis, but unfortunately the lifetime of one man is not long enough for carrying to a conclusion many experiments of this kind. The flowers fertilised will probably ripen their seed pods towards the end of the present year; the seed may vegetate in from six to twelve months more, and, if by a fortunate chance any of them live to flower, such an occurrence will happen about 1910 or 1912, or may be a few years later than that. Sometimes a period of nineteen years elapses between the time of sowing the seed of a cattleya and the period of flower production."

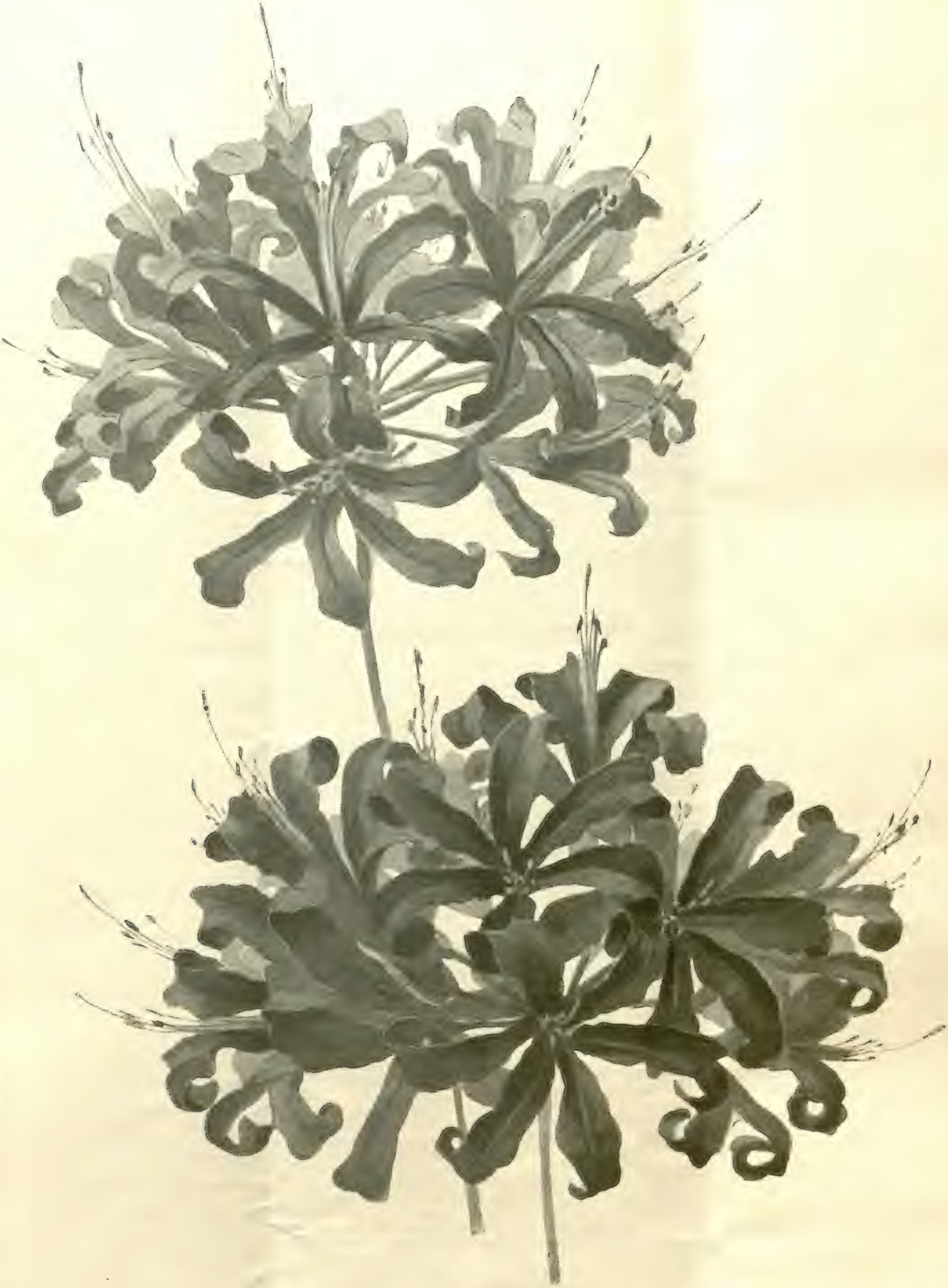
NEW NERINES.

It has been said time after time by those well qualified to speak that there is no more pleasing hobby for a gardener, either professional or amateur, than the improvement, so far as time and circumstances permit, of one plant or class of plants. It might also be added that scarcely anything can more advance horticulture than this. Almost every garden plant of general usefulness has been improved and brought to its present state of perfection by the careful hybridising, cross fertilisation, or selection carried on with great patience and perseverance by one or more individuals or firms. The greatest difficulty is usually to know what to commence upon, but a little careful consideration will soon show that there is abundant room for improvement in very many subjects.

It is highly probable that when Mr. H. J. Elwes, of Colesbourne, Andoversford, Gloucester, commenced his work of improving nerines he had little hope that such a large measure of success would attend his efforts as he has already realised. Although there are several species of nerines in cultivation, scarcely any others than N. sarniensis and N. curvifolia Fothergilli are known to the majority of gardeners. The colours found in the various members of the genus are scarlet in several shades, crimson, red, pink, rose, and white. In some cases, however, the flowers are small and flimsy, segments narrow, the umbels are small and loose, and the habit of the plant weak. So in the production of new and thoroughly useful garden forms, not a few difficulties would present themselves, even after the initial one of obtaining plants of the various species and hybrids had been surmounted. About fifteen distinct hybrids have been raised and recorded, but little is known of the majority of them beyond their parentage. Probably the first hybrid nerine raised was N. Mitchamiæ, a hybrid between N. undulata pollenised with N. curvifolia, and raised by Dean Herbert at Spofforth in 1815. Other crosses were made by Herbert, and, as showing the patience necessary with this genus, he states that "Seedlings of undulata flower when about three years old; the strongest of the mules blew at four years; but



LÆLIA BRESEIS. (Flowers orange and white.)



NEW NERINES.

LADY LLEWELLYN. (Flowers deep carmine.) LADY LUCY HICKS BEACH. (Flowers intense and glowing crimson.)

seedlings of curvifolia seem not to flower till they are eight or nine years old."

From the robust habit, stout peduncles, and full umbels of large flowers that Mr. Elwes' seedlings show, one judges that Nerine curvifolia or its garden form, N. Fothergilli major, has been extensively used as a parent. The colours, too, lead to this conclusion, for though there is a wide difference between the colour limits of the plants yet exhibited there is a preponderance of crimson and scarlet shades. At the R.H.S. meeting of October 26 last, Mr. Elwes staged a charming exhibit of nerines in flower, showing some beautiful new seedling varieties as well as some hybrids. Among the latter were N. amabilis, a cross between N. pudica and N. humilis; N. excellens, a cross between N. flexuosa and N. humilis major; and N. roseo-crispa, a hybrid between N. undulata and N. flexuosa. Species were represented by N. flexuosa, N. undulata, and N. Fothergilli. The stamp of first-rate cultivation was seen on all alike, species, hybrids and varieties, and the plants reflected much credit upon Mr. Lane, Mr. Elwes' gardener.

Eight of the new seedling varieties raised by Mr. Elwes were placed before the Floral Committee, and it argues well for their beauty and distinctness that seven were granted awards of merit. These were: N. Lady Lawrence, salmon-red, fine truss; N. Lady Bromley, carmine, with a rosy-purple stripe down the centre of each segment; N. Lady Mary Shelley, a lovely pale pink variety, very distinct and with broad reflexing segments; Lady Lucy Hicks Beach, a superb form, having a large, full truss of bold flowers, that are of an intense and glowing crimson hue; Lady Llewellyn, very deep carmine, a lovely shade, flowers large, and segments very broad. The two latter varieties are figured in the present issue, and though in black and white it is possible to indicate the proportions and shape of the flowers and trusses, it is not possible to give an adequate idea of the living glowing colours; an oil painting would scarcely give them full value. The other varieties gaining awards were Lady Dorrington, with broad, white segments, having a pink line along the centre of each; and Countess Bathurst, white, blush tinted, and with a deep pink stripe at the base of each segment. We believe that Mr. Elwes has still other seedlings with which to surprise us on some future occasion, but whether this be so or not he has given nerine culture the fillip it needed, and vastly improved the genus from a horticultural point of view.

PREPARATION OF THE LAND FOR EXHIBITION VEGETABLES.

ANYONE wishing to excel in the cultivation of vegetables, either for exhibition or for table, must lose no time at the commencement of the new year in making suitable preparations. It is a good idea to make a rough plan of the kitchen garden, and indicate on it the plots intended for the production of certain vegetables. Each plot should be measured, marked out, and labelled, taking care to change the ground for most crops as much as possible. The land that has been occupied with celery should be trenched over, but not manured, and this site will be an ideal spot for the production of most kinds of roots, such as: Beetroot, carrots, parsnips, salsafy, scozonera, turnips, chicory, potatos, &c. Ground intended for peas, beans of all kinds, cauliflowers, onions, and such like, should be heavily manured and trenched. At this season one has to be guided, to a great extent, by the condition of the weather and the nature of the land. Thus, on light, well-drained soils, trenching should be pushed forward with the least psssible delay. On the other hand, anyone who has to deal with stiff, wet soil, should postpone digging and trenching as long as possible, and the end of February, or early March, will be quite early enough to make a commencement. Take advantage of all dry frosty weather for wheeling out manures and other fertilisers, and indeed all kinds of work that can be done to relieve the strain that will have to be encountered later on; such as pruning of bush and other fruit trees, preparing pea and bean stakes, making labels of different lengths, which should be tied up in bundles ready for use.

The soil and manure yards should not escape attention at this season, I have heard it remarked by an old man who had been a most successful horticulturist, "Show me the compost yard of the gardener, and I will tell you if he is a good man or not," and I believe there is a lot in this. A good yard full of various soils, manures, &c., neatly stacked, clean, and well arranged, is to my mind one of the most important departments in the garden. Every particle of garden refuse should be kept burnt up, as the ashes are of the utmost value in the kitchen garden. Boxes should be examined and repaired, and new ones made if wanted. Old hot-beds that have done service during the past year should be turned over into a tidy heap, which will prove valuable for many purposes. Fermenting material should be prepared for new ones in the way of long stable litter and good sound leaves, such as oak, Spanish chestnut, and beech. One part of stable litter to three of leaves is generally a safe quantity to use, and these should be turned two or three times before building them together. Many early crops of potatos, asparagus, carrots, &c., are spoilt by overheating. All brick pits intended for the production of vegetables should be cleared out and thoroughly cleaned.

Making out the seed order is a most important part in the programme. The observant and painstaking gardener will have carefully made notes during the past year of novelties that have come under his notice. But great care should be exercised in making way for new kinds to replace reliable standard varieties. At the same time it is well to give a fair trial to some of the new kinds offered each year by the seedsmen, using small quantities of seed and giving precisely the same conditions as the tried kinds receive, for only in this way can their respective merits be fairly determined.

Aldenham House Gardens. EDWIN BECKETT.

R.H.S. COMMITTEES, 1898.

SCIENTIFIC.

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NARCISSUS.

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The Narcissus Committee will meet in the Drill Hall, James Street, Victoria Street, Westminster, on the following dates, at 12 o'clock, noon, viz., March 22, April 12, and April 26, 1898.

SCHIYOSTYLIS COCCINEA.

IT is seldom that a season passes without the good qualities of this plant being referred to, and, as an easily grown and free-flowering subject for the winter months, too much can scarcely be said in its favour. As a pot plant it is very suitable when in bloom, either for placing in a vase for room decoration, or for arranging with other plants in the conservatory, where the tall scarlet spikes rising above the deep green foliage give a touch of colour that is very pleasing. For this purpose the plants are best grown in the open through the summer, and if turned out of the pots in April, and divided, selecting only the strongest bulbs, and placing them about fifteen inches apart in moderately rich soil, fully exposed to the sun, strong clumps will be formed by the autumn, when they may be lifted and potted before severe frost sets in; subsequently they only require the protection of a cool house or frame until the flower spikes appear.

But it is when treated as a hardy plant that I would like to direct the attention of those who have not grown it, to Schiyostylis coccinea, and where a wall or building exists some of these plants planted at its base, even under the trained branches of fruit trees, will often prove more profitable than any other plant, and in mild winters like the present quantities of bloom may be gathered, while the effect produced by the ever-expanding flowers, when all else is bare, is ample reward for the little trouble required for their successful cultivation. Several clumps were planted near the base of a west wall here last spring, and for some weeks past these have given us a nice lot of flowers, and plenty more ready to open. To be successful with these it is necessary to divide the clumps every year, otherwise so many young shoots start that the flower-producing properties of the plants are weakened thereby. Few plants are more easily cultivated, as after planting or replanting but little attention is needed, beyond keeping them clear of weeds, and an occasional watering in very dry weather. In the open border the plant will sometimes bloom very freely, but as very much depends upon the weather at the time, the flowers cannot be depended upon to attain their full development.

Galloway House Gardens, N.B. JAMES DAY.

EFFECTS OF THE TROPICAL SUMMERS OF 1896-97 ON THE FRUIT CROPS.

THE following is the text of the paper read by Mr. George Bunyard, V.M.H., at the monthly conversazione of the Horticultural Club, on the influence of the weather of the past two summers on the fruit crops :—

In reviewing the many-sided effects of the tropical summers of 1896-97, the facts range themselves as favourable and unfavourable. The tropical heat, combined with drying winds, and that general absence of rain during the spring months of the period under notice, dried the soil to an unusual extent ; and although in 1896 abundant autumnal rains fell, in 1897 the months of September and October were the driest known for years. The effect of the heavy rains of the autumn of 1896 was felt in the activity of the sap and the adhesion of foliage on fruit trees rather later than usual, and consequently the trees did not have that rest which is as necessary for the vegetable world as for the animal creation ; and we agree with Mr. R. D. Blackmore that the general failure of fruit crops in the spring of 1897 was largely due to that cause.

The want of power in the trees themselves to lay up that necessary nutriment, and ability to perfect embryo fruit-buds, was arrested at a critical period, and, as reported in the gardening papers, many cases of imperfect blossoms were noted in fruits, and doubtless many more facts would have been discovered had they been suspected and looked for. To outward appearance the blossoms were perfect, the corollas being bold, as usual ; but in many individuals either stamens or pistils were wanting, and no doubt also the upper or fruit-nourishing roots suffered from the want of surface moisture, and thus were prevented from doing their work ; while lower anchor-roots struck deeper and deeper to gain moisture and sustenance for the development of the tree, making the subject less fertile, and adding gross wood to all garden trees, and thus trees were found to require root-pruning more than usual to restore that relative balance of fruit and wood producing power which a well-managed fruit tree should exhibit.

In orchards (especially among young trees) the want of fruit was a distinct benefit, as they are then enabled to form vigorous trees before starting to crop, and a foundation is thus laid for full development and after-success ; as if a young orchard tree commences to crop in its earlier stages, its after-growth is checked for years, and in the future such checked trees produce pecks where bushels of fruit should be garnered.

In the dry autumn of 1897 matters were different, and the glorious and varied colours of the foliage on cherries, peaches, and nectarines, and the fine russet-brown of the apple foliage, and the golden plum leaves, leads us to infer that Nature's work has been well and truly done, and with a fair spring a good all-round crop may be anticipated in 1898. Although from a nurseryman's point of view the shorter and stouter growth fruit trees made in 1896-97 meant some loss and extra expense in staking for standard trees, &c., still the growers cannot fail to be great gainers in having the wood of fruit trees well ripened, hardened, and consolidated for future benefit, as heavy frosts tell much less severely on such perfected trees. If this is felt in the south, how much more must it benefit planters who live in the midland and northern counties ! The handsome fruit shown by Mr. Day, from Galloway House Gardens, and the grand pears from Mr. Divers, Belvoir Castle Gardens, sent to the Royal Horticultural Society, bear out this fully.

The fruit crop of the Jubilee year, 1897, will be remembered for its remarkably high colour and development more than for great size. Many examples submitted to us have been beautiful beyond all former years ; for example, crimson Blenheim Pippin, Warner's King, and other green apples with scarlet flushes on the sunny side ; and Doyenne du Comice and other pears with lovely red cheeks ; while many Russets lost their character and came out with golden skins, only broken here and there with russet. Many of the less hardy apples as Lord Suffield, Ribston, King of Pippins ; and Glout Morçeau, Bergamot d'Esperen, Gansel's Bergamot, and other pears have been so handsome and good that planters have called for them freeely, forgetting that they are not to be relied upon (as a rule) for freedom from canker, or quality. Their extra good appearance, flavour, &c., point a moral, and doubtless we ought to place these and similar good but variable apples on walls or in warmer places. Apples of the type of American Mother, Melon, Scarlet Nonpareil, Allen's Everlasting, Duke of Devonshire, Sturmer Pippin, with those that do not always ripen well, as Calville Blanc, Boston Russet, Calville Rouge, Chatley's Kernel, Reinette du Canada, Dutch Mignonne apples, with Beurré Diel, Bergamot d'Esperen, Olivier des Serres, Beurré Rance, Beurré Baltet, President Osmonville, Easter Beurré, Zéphirin Grégoire, &c., pears, would not be out of place on many walls which are well situated, and now devoted to a doubtful crop of peaches or nectarines, especially those old walls, unpointed and full of nail-holes, one often sees in ancestral gardens, where choice pears and apples would flourish and give good results. The extended use of large and handsome apples for decoration should lead growers to place Peasgoods Nonsuch, Buckingham, Belle de Pontoise, the Queen, King of Tomkins County, Twenty Ounce, Gascoigne's Seedling, &c., on walls for this purpose.

One special feature of the 1897 fruit crops was the general success of the British-raised varieties, such as Nonpareil, Northern Greening, Wyken Pippin, Blenheim Pippin, Devonshire Quarrenden, Yellow Ingestre, Stirling Castle, Wellington, Ecklinville, Kerry Pippin, Keswick Collin, Winter Queening, Nanny, Hormead's, Lane's Prince Albert, among apples ; and Hessel, Althorp Crassane, Hacon's Incomparable, Bishop's Thumb, Pitmaston Duchess, Crawford's, Aston Town, Eyewood, and Knight's Monarch, among pears, causing a demand to arise for trees of many old and superseded kinds, which for market purposes are yet valuable. The general crops on the Codlins and early apples and pears need only to be noted to state the fact that such kinds have time to recover themselves after the fruit is gathered, and to prove regularly fertile.

Exceptional prices have been made of some fruits. In our district, Devonshire Quarrenden, Ingestre, and Ribston apples (one grower selling one hundred bushels of the latter as gathered at 14s. 6d. per bushel), while Cox's Orange Pippins made up to 25s. per bushel retail ; and Wellingtons, with a peach-like colour, made 10s. 6d. wholesale. As might be expected, the heat and drought has caused all late pears to ripen months before their usual season, and by the time this is in print many fruit-rooms will scarcely have a pear in them ; at present Olivier des Serres and Beurré de Joughe with a few Easter Beurré from open trees are all we possess. But we are inclined to think thorough ripening will allow us to keep apples as late as usual, while they will certainly not be so large examples—in short, beauty will compensate for mere size.

Perhaps no outside fruit felt the grand weather of 1896-97 more than peaches and nectarines on walls. The trees made that reddish wood so dear to the cultivator's eye, and the crop set well ; and the fruit where the trees were copiously watered, grew out to a fine size, and coloured to perfection, raising the almost lost hopes of many old gardeners to encourage them to persevere in their open-wall cultivation ; those who had late peaches made long prices, as the fruit under glass was forwarded by the heat, and thus made a market for the outdoor crop. Peaches and nectarines are yearly more in demand. We attribute the failure of the plum crop to the causes already named, which by their surface-rooting nature, would naturally be affected more than deeper-rooting fruits.

We cannot refrain from again cautioning gardeners from relying on a few varieties for an annual crop ; and the best kinds for quality should be planted in various positions to ensure a return, and also to lengthen the season of each kind. Market-growers naturally go in for the sorts favoured by the public, but we are inclined to think many less-known but reliable croppers should be introduced. Strawberries, raspberries, and bush-fruits generally cropped where good deep cultivation was practised.

In conclusion, it is evident that cultivators should do in all in their power to utilise all the sunshine possible, and the protection they possess added to careful thinning of boughs and fruit, and by giving liberal encouragement to the trees that crop, and not over-stimulating those that are barren.

THE R.H.S. COMMITTEES' AWARDS.

AS you have so pointedly referred to this subject, which has been again, and in precisely similar language, raised in the report of the council of the Royal Horticultural Society this year, I offer no excuse for also referring to it. I observe that the total number of awards of medals and certificates made in 1896 was 948, and last year 1,008 ; the Floral Committee's were in the former year 463, and last year 502, an increase of 39 ; the Fruit Committee gave in the previous year 102, and last year 119, an increase of 17 ; and the Orchid Committee 303 the first year and 251 last year, showing a drop of 52. The most remarkable figures are those of the Narcissus Committee, which gave four only in 1896 and no less than 20 last year. Now there has been over the present year an increase of eight gold medals, but these are, it is well known, purely honorary awards, and may well be omitted. They have always been bestowed on objects of special excellence, and that being so, it is a question for consideration whether the exhibits do not materially enhance the value and interest of the meetings. Of course, if such awards are not made the exhibits will in future be absent. There has been, however, great increase in the awards of the silver-gilt Flora medal, granted solely by the Floral Committee, an increase of 31 ; whilst the silver-gilt Knightian medal, the Fruit Committee's corresponding medal, has been awarded 16 times only. Then the silver Flora is given by the Floral Committee 79 times, and the silver Banksian 81, or a total of 160 ; whilst the Fruit Committee awarded the corresponding medals 38 times only. Whilst there is a reduction of first-class certificates of merit from 84 in 1896 to 54 in 1897, there has been a trifling increase in awards of merit by the Fruit Committee from 23 to 35, and that is practically all. If the Council had adopted my proposal made and carried at the Fruit Committee, that no award of merit or F.C.C. be granted except by a majority of two-thirds of the members present, there would all round be found a material reduction in these awards. But the Council blow hot and cold. They deprecate granting medals and other awards, the primary causes of such good shows at the Drill Hall, yet in a later paragraph laud the shows and exhibitions in warm terms. Surely that is inconsistent ? That there has been a great increase in interest and attractiveness in the meetings there can be no doubt, due largely to the awards made and increased confidence in the honour, and integrity of the committees. But after all, no award can be made by the committees. They are purely recommendations to the Council ; and if the committees are wrong in their acts of recommendation, the Council are *particeps criminis* in sanctioning the awards thus recommended. Why does not the Council exercise its own powers, or does it fear to offend the committees ? The least the Council can do is not to make complaints of the nature here criticised, but to formulate some regulations as to the committees' awards which shall result in a material reduction of them. Suppose it were to begin as thus : " No member of the Council or any firm of which a member may be a partner, shall receive awards for exhibits." That would be beginning at home ; but is it likely for one moment so drastic a proposal would be adopted ? Not a bit. Then who is to give the committee in this matter light and leading. Now I turn again to the analysis of awards presented in last year's report, and the present one. In the former the provincial show deputations made a total of 75 awards, but last season they visited one show only, and made 36, or just about the same proportion. Well, the council cannot claim much credit there. Then again, the total of 1,008 awards is now swollen by the introduction of a new column. Last year's table shows the award by the Scientific Committee. That body disappears from the new table, and its place is taken by " Medal awards, other than bronze," of 80, to affiliated societies, with which the committees have nothing to do ; so that if 80 be deducted from the total of 1,008, it leaves 928, or a reduction on the previous total of 20 ; therefore, it is evident that on the whole there has been material reduction, and that the committees are little open to animadversion. I hope this matter will be fully dealt with by the president at the annual meeting.

A D.

A USEFUL ORCHID STAND.

MOST orchid growers who have to deal with plants placed over a close wooden stage upon which has been scattered a layer of shingle, cinders, coke broken small or similar material, know what it is to have to deal with a troublesome fungus which forms in the decaying wood and runs up into the orchid pot. I invert flower pots, and on each one a pot containing an orchid is placed. The other day I turned up some of these, and was horrified to find the fungus had entirely covered the insides of the inverted pots with a cobwebby substance, and had sent snow white threads through the base and into the pot in which the orchid was growing, and in several instances had passed up amongst the orchid roots. While considering what had better be done to stop the progress of the fungus amongst the orchid roots and prevent it in future from attacking the plants at all, there came from Mr. William Murray, of Oakwood Gardens, Wylam-on-Tyne, a series of stands made of stout wire in the form of a flower-pot ; they answer the same purpose as the inverted pot, no fungus can lay hold of the stands, and they have a much better appearance than the flower pots. I could but remark that here was the very thing needed to prevent the fungus reaahing the orchid roots, giving us at the same time a much neater stand for the plants. The old saying is exemplified " Necessity is the mother of invention." If Mr. Murray had not had any fungus to deal with, he probably would never have thought of this useful little stand.

J. DOUGLAS.

WORK FOR THE WEEK.

WARM ORCHIDS.

AMONG recent introductions Dendrobium phalænopsis Schroderianum claims to be of the greatest value, especially where floral decorations are largely carried out; for table decoration there are few flowers to equal it, and for a lady's spray it suits admirably. In its principal season of flowering, and where a good stock is grown it makes a fine display in the orchid houses. The general opinion is, that this particular species deteriorates; whether this is so or not, we can point to plants of ten years' standing which are still healthy and promise well for a long life. Dendrobium bigibbum, which is entirely of the same nature, has often been a source of anxiety to orchid growers; for the first few years it flourishes, but in course of time gradually decreases in strength and ultimately finds its way to the fire. These dendrobes should have a long season of rest and should be kept at a temperature of 60 degrees and allowed sufficient moisture to keep the bulbs plump; water only when necessary, and give special attention to ventilation. The bottom ventilators must be left open night and day when the weather is favourable, in order to keep the atmosphere as sweet as possible; guard against draughts and fluctuations of temperature. D. formosum giganteum is another grand and favourite dendrobe, but like the former is not a good grower; this may be treated in the same way. D. Deari delights in a warm shady corner, such as the phalænopsis house affords, and enjoys being syringed once a day, weather and temperature permitting; keep the plants moist at the roots, and free from scale; if this pest makes its appearance give a washing with a solution, taking care not to injure the leaves. D. Ainsworthi and varieties that were removed to a warmer house in order to bring them on gradually may now be given still warmer quarters, and be sprayed slightly over each morning and not allowed to become dry at the roots, otherwise the spikes will go yellow and finally die. Those that are resting must be kept at 55 degrees at night, allowing the temperature to rise a few degrees in the day time; these may be slightly syringed about once a week on suitable occasions. Still allow the plants to rest, but simply to refresh them thus while in a state of dormancy; a few more of the most forward may be put into a warmer house as before, in order to keep up the display.

Cattleya Trianæ and its varieties are now coming into flower, and may be removed. together with Lælia anceps, cypripediums, &c., to the flowering house, and kept in a temperature of about 55 degrees. Fumigate slightly if fly appears. The phalænopsis will now be coming into flower, so prepare neat sticks to support the spikes, and intermix P. amabilis with P. Schilleriana to produce a fine effect. Put down Magic Paste for beetles, otherwise you will have perforated flowers and leaves, and the roots, which are so valuable, will be eaten off. Sobralias and cymbidiums are now commencing to grow, so care must be taken in watering; do not allow them to get dry. Lælia anceps that have failed to flower will now be throwing out new roots, and these may be rebasketed; indeed, the sooner the better, so as to enable the new roots to have full benefit of the fresh material. Square baskets are required for this purpose, and the best orchid peat obtainable, taking care not to injure the roots, and also to place the growing points as near the middle of the basket as possible, not using more compost than is absolutely necessary, otherwise it will become sour before the season is finished. Cypripedium bellatulum, C. Godefroyæ, C. niveum, and all this section must not be watered oftener than once a week under any circumstances if they are to be grown successfully.

The weather is still unsettled, so great precaution must be taken as to firing and giving air; still attend to sponging and keep pests well down, and thus obtain a clean start for the year. A damping among the plants each morning, and on the floors in the afternoon, but discretion must be used in all these small but important requirements. Temperatures: Phalænopsis house, 65 degrees by night and 70 degrees by day; cattleya house, 58 degrees by night and 63 degrees by day; Lælia anceps, 55 degrees by night and 60 degrees by day; allowing all these to rise or fall slightly, according to the weather.—THOMAS STAFFORD, *Tyntesfield Gardens.*

GREENHOUSE AND CONSERVATORY.

EACH week brings us nearer to the busy season when the striking o. cuttings and sowing seed of different plants will require almost daily attention. To meet the strain of work during March and April, attention should be paid at once to soils of different kinds, placing them under cover, and mixing them ready for use. For sowing small seeds, a mixture of loam, leaf-mould, and silver sand may be made ready now, and stored where it can be kept uniformly moist, but not wet. By mixing these together, and then passing them through a half-inch sieve, the bulk will be available for use at any time. The rough portion should be saved for placing over the drainage. The same compost is also suitable for striking most cuttings in if more sand is added. Suitable sized pots and pans may be washed and crocked ready for use. It is a great gain to devote a small well-heated pit or forcing house to propagation for a month or so at this season, but where there is not this convenience or a melon or cucumber house, hot beds must be resorted to, and the fermenting material should be collected at once, so that it can be turned over several times before it is finally made up. Leaves, especially those from oak or beech trees, are most suitable for the purpose, as they are not so fiery as manure alone and retain an even temperature over a long period. One load of stable manure to two or three of leaves makes a good mixture, and, of course, the greater the bulk the longer will it continue to afford warmth. By making up such beds now, it allows time for the rankest of the heat and steam to pass off. In the meantime, stove plants which have to furnish the cuttings should be examined and thoroughly cleansed before new growth is formed, so that a good start with clean cuttings is made, without which it will be difficult to raise a healthy batch of plants. Fuchsias which have been stored away since autumn will have shed their foliage, and the wood should be quite firm and hard. These make fine objects either in the greenhouse or flower garden when well grown, and if the stock has to be increased an early start should be made to induce the old plants to break. The unripened tips should be cut back to firm wood, and the loose surface soil removed. Lay the plants on their sides and syringe them thoroughly to dislodge any insect pest that may be lurking about them, and then arrange the plants near the glass, where they can have a temperature of about 60 degrees. No water will be required at the roots for a week or so, the buds being induced to burst by spraying the plants over occasionally with tepid water. Other plants which have been at rest may be started in the same way if the stock has to be increased by means of cuttings. Soft-wooded plants, such as iresine, coleus, and the like, should be encouraged to grow before the tops are taken off, as the new growth will strike freely.

The store of tuberous-rooted begonias should also be examined, and if any bulbs are found that have commenced to grow it would be better to put them into small pots filled with sandy soil, and stand them on a shelf in gentle warmth. The bulk of the roots, however, should be kept dormant for another month or so. A good batch of these are very ornamental in the conservatory, especially some of the drooping varieties when grown in hanging baskets. Additional plants may be raised from seed annually, and if grown in a warm border outside the first season the best colours may be selected. Seeds should be sown at once to enable the plants to flower towards autumn. Fill a shallow pan with sandy soil, and make a level surface for the seed, which is very fine. Cover the pan with a piece of glass, and stand in a moist place where the sun cannot act upon it. Keep the soil moist at all times, as the least drought proves fatal after the seeds begin to germinate. Cannas, too, have become very popular of late, and rightly so, as few plants are more beautiful or easily managed. The seed being very hard it is a good plan to steep it for twenty-four hours before sowing. Give plenty of water, and plunge the pots containing the seed into bottom heat of 80 degrees. Do not allow last year's roots to commence growth in a dark cellar or shed, where they have been stored through the winter, but pot them up and remove into a light warm house when it is seen growth has commenced. Unless large plants are required the roots may be divided and potted into small pots, giving them larger ones later on.—R. PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

THE remarkably open weather throughout the winter up to the time of writing, excepting a few days towards the end of December, has been eminently favourable for all out-door operations, and where much planting of trees, shrubs, and roses had to be accomplished, there has been little in the way of frost or wet to hinder the work going forward rapidly. It is advisable to finish off the planting of all deciduous subjects within the next few weeks, while those of an evergreen nature, as rhododendrons, hollies, and others of this class may, if the planting be effected in a proper manner, be carried on successfully up to and including the month of April. In the planting of new or improving old shrubbery borders the early flowering species of shrubs should not be overlooked, as these often provide useful material for indoor decoration, and are a decided attraction in the borders in the early spring months. Among the earliest of the shrubs to flower are the Japanese witch-hazels, Hamamelis japonica and H. arborea, which were in bloom outside early in the present month. The leaf-colouring in autumn of these shrubs is also effective. In sheltered situations the shrubby magnolias may be planted, the white-flowered M. conspicua being one of the best and earliest. Others are M. purpurea, M. p. Lennei, M. Soulangeana, all of moderately strong growth, while M. stellata is a smaller white-flowered species of lesser growth. A more often planted early-flowering subject is the almond in its several kinds, while forms of Amygdalus persica flore-pleno, or double-flowering peach, in crimson, rose, and lighter colours are highly ornamental as standards in the shrubbery. Among the prunus P. Pissardi is a desirable form to plant, as, in addition to its early flowers, the foliage which follows is of a rich dark purple red colour throughout the season, and forms a striking contrast to other shrubs. The syringas, better known as lilacs, flowering later, are general favourites, and during recent years these have received attention, and several novelties, chiefly of continental origin, have been added, some of which are worth planting where only the older varieties obtain a place. The double-flowered forms are also distinct; good ones are Madame Lemoine and Virginal, double white; and Leon Simon, double pink. In single flowered, a dark purple acquisition is Souvenir de L. Spath, and Marie Legraye is a very pure white.

Many other flowering subjects may be mentioned as desirable for general planting, the shrubby spiræas for example should not be omitted. S. ariæfolia, flowering in June, is one of the handsomest of the species, the long sprays of white pendulous blossoms being very effective when associated with other shrubs, or equally so when used to form a specimen bush on the lawn. S. Douglasi, producing in July and August flowers of a bright rose pink colour, is also worth planting, as also is the newer S. Anthony Waterer. The Philadelphus, commonly known as syringas, are valuable and highly scented flowering shrubs. P. grandiflorus, with large, pure white flowers, is a handsome variety, although not so strongly scented as is the older P. coronarius or Mock Orange. Standard hawthorns (Cratægus), also in many rich colours of both single and double flowers are now obtainable, and the common single white in large standards is very effective. Among others may be mentioned Pyrus malus, and the John Downie crab; Brooms in variety, Calycanthus floridus, Cercis siliquastrum (the Judas tree), Catalpa bignonioides, Cerasus padus (bird cherry), Halesia tetraptera, laburnums, Viburnum opulus or guelder rose, Ribes sanguineum, and the late summer flowering hibiscus with single or double vari-coloured flowers. One essential necessary to the successful planting of trees and shrubs at this season, is that a good mulching of half-rotten manure or leaf soil be applied after planting, which prevents the evaporation of moisture from the soil, and also keeps the roots in an equable temperature in the event of frosts occurring.

Tuberous begonia seeds should be sown forthwith, if it is desired to raise plants to use in bedding arrangements this season. Pans or small boxes are best for the purpose, and after placing in the bottom a sufficient quantity of drainage, covered with a little rough leaf mould or moss, fill up with a finely sifted mixture of loam, leaf soil, and sand, in equal quantities. To destroy small worms, which are often troublesome, subject the soil previously to fire-heat, or water the pans, after already prepared, with boiling water, and allow it to stand five or six hours before sowing the seeds. These latter should be scattered evenly over the surface; cover the pan with a piece of slate or papered glass, and stand in a forcing house where there is plenty of heat and moisture.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

PLANTING will still occupy the cultivator's time, especially where new soil has to be prepared or alterations of any kind may have delayed the work; but in some soils planting at this season, and up to the end of February, has its advantages, as the land may be in better condition, if wet or clayey, and the weather remains open. We see how well nursery stock does when planted in March, but it must be borne in mind the trees are small, the roots are not exposed to drying winds, and they receive ample attention during growth, In light soils similar to our own, I prefer to do the planting as early in autumn as possible; indeed, we lift our peach and nectarine trees while the leaves still remain, and they suffer less from drought the next season. Many trees would be benefited by being lifted at this season, in preference to being left barren year after year. I am aware September and October are the best months for root-pruning. Circumstances may have prevented this, so my advice is to lift now the weather is favourable, and with young trees, notably plums, apples, and pears, lifting is a necessity, and will in time save the excessive pruning so often practised. Many of the best kinds of apples and pears have pendulous growth, and if such are hard pruned the crop is poor; yet one often sees these same varieties growing in orchards and bearing freely. Of course, in lifting young trees at this season the work must be done carefully, preserving the fibrous roots. I have recently lifted some plums planted years ago, which should have received attention ere this; but it is better to do the work now than lose a year and a crop also. In planting new trees or re-planting older ones, by all means avoid giving animal manure, or in a short the roots will lay hold of this food and gross, barren wood will result, which in the case of plums and cherries gums badly, and in the end cankers. For heavy soils, such aids as old mortar and road-scrapings from limestone-dressings will be better than manures, while on light land there may be heavier materials to mix with the soil.

At this season it is an easy matter to replace wall trees where they are unsightly examples; and one may often plant a small tree, where space permits, that will in a year or two take the place of older trees of little value. For some years I have followed out a system of purchasing a few trees as reserves, and by so doing one can give newer varieties a trial. In common with most growers, I bewail the lack of good keeping pears; there are few after this date, as in the south I find pears keep badly, and the seasons are much shorter than usually stated; but our friends in the north may be better off in this respect. On many walls between other trees one may with advantage fill in with cordons, for instance, on a south and west aspect. Pears of cordon growth do grandly, and give a few fine fruits; indeed, it may be well to give cordon trees a trial, where large fruits are needed; but let me add, to be profitable these trees must have favourable positions, and be worked on a suitable stock—some do much better on one stock than another. On east and north walls cherries do well, and the cherry grown in a better position well repays for space occupied. For years we had a difficulty in keeping our dessert cherries clear of black fly, but now by winter dressings we have better results. Wall trees, when free of leafage, can be so well attended to that it is best to cleanse them annually after pruning, and previous to renailing. For a winter dressing I find soluble petroleum one of the best insecticides, and in mild cases quassia extract is very good, and this used freely at this date will not injure the buds. All arrears of pruning should be pressed forward, as the trees are earlier than usual owing to the mild weather. Those left to the last, such as the peaches and nectarines, may now be pruned, but defer renailing or tying to the latest possible moment. I am aware many prune and nail-in at the same time, but where summer pruning is carried out there is but little pruning in winter. Peach trees having scale on the older wood should be cleansed as advised above; many paint the older branches also, but with thorough cleansing there will be less need. Trees of the Royal George type which had mildew last year, would be benefited by a dressing of a sulphur solution, adding a wineglass of soluble petroleum to a gallon of mixture.—G. WYTHES.

HIMALAYAN RHODODENDRONS.

AT the opening meeting of the spring session of the Devon and Exeter Gardeners' Association held at the Guildhall, Exeter, a paper by Mr. R. Gill, of Penryn, Cornwall, on Himalayan Rhododendrons was read.

Mr. Gill stated at the commencement of his paper that the culture of rhododendrons in Great Britain had birth concurrently with the publication of Sir J. L. Hooker's journals. Dealing with his travels in Sikkim, the writer mentioned that prior to that rhododendrons were the exception, rather than the rule, in our conservatories, and few persons seemed to have thought that these beautiful plants were adapted to outdoor culture. The introduction of many of the tenderer forms of rhododendrons instituted a new era in outdoor cultivation, and after a few seasons not only were most parks and gardens stocked with these plants, but the manner in which they showed the mildness of our winters led the owners to carry the experiment to still more astonishing issues. By the side of the forests of rhododendrons might be seen sub-tropical plants, which the gardeners of fifty years ago regarded as the aristocracy of the stove house. It was, therefore, only in the southern counties of England and Wales that sub-tropical plants could be grown in a satisfactory manner. The meteorological observations went to prove that the two westernmost counties of England had a climate in many respects superior to that enjoyed by the Riviera, and plants which had been known to be killed off in severe winters in the South of France passed through our own almost unscathed. Whether regarded from the standpoint of landscape gardening, valued for the length of their blooming season, or considered for the beauty of form or variety of colour, they more than repaid the time and money given them. It was true that some of the earlier blooms were liable to be destroyed by the sharp frosts which were prevalent during the early spring, but the display which followed later was a sufficient recompense for the labour. In the West of England and South Wales, in addition to the mildness of the climate, the humidity of the atmosphere greatly favoured the rhododendron.

Rhododendrons were, Mr. Gill observed, great lovers of peat in some form or other. Granite sand, in the proportion of one-third, might be added with good results. The plants did not like a lime or chalky soil, or a stiff water logged clay. Being surface-rooting plants, they would not stand prolonged droughts, but care must be taken to prevent the accumulation of stagnant water round the roots. The lowest branches of the rhododendron should be carefully preserved and encouraged, as they kept the soil around the roots comparatively moist in the driest season. As to propagation, he preferred raising plants from the seed, although it required patience. The paper next dealt with the mode of planting out, and then came some notes of the more important of the forty-three species of Himalayan rhododendrons described by Sir J. D. Hooker. Mr. J. Abrams, gardener to Mr. T. Kekewich, J.P., Peamore, occupied the chair. A most profitable discussion followed the reading of the paper upon the subject of grafting rhododendrons, and it was contended that, to grow rhododendons successfully in Devon, a prepared soil, in which a considerable proportion of peat exists, is absolutely necessary.

OBITUARY.

MR. FREDERICK ENOS WILLEY, who has been curator of the Botanic Station at Sierra Leone, West Africa, for some time past, died, we regret to hear, last week. The news was received at Kew on the 22nd inst., so that full particulars are not yet to hand. The untimely decease of such a promising young man adds one more to the already long list of those who have gone from Kew to develop the vegetable resources of our West African colonies—or to teach and help others to do so—and have died in the fulfilment of their duty. Mr. Willey entered service at Kew in 1892, and a year later he volunteered, with others, for the West African service, and was selected to take charge of the Botanic Station at Aburi during the temporary absence of the late Mr. W. Crowther. He left for Aburi in April, 1893, and returned to Kew after Mr. Crowther had completed his year's leave of absence. In October, 1895, Mr. Willey was appointed to the charge of the newly-founded station at Sierra Leone, and, during the two years of his service, acquitted himself to the complete satisfaction of the governors and all concerned. A wide circle of Old Kewites will deplore the loss of an old comrade, but his memory will long be kept green.

PROFESSOR ERNST L. TASCHENBERG, a celebrated Prussian entomologist, died a few days ago. He was born in 1818. He will probably be best known for his popular treatises upon insects injurious to plants and farm stock.

EXHIBITIONS AND MEETINGS.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE proceedings in connection with the annual meeting and election of pensioners on to the funds of this charity were brought to a conclusion on January 20 by a dinner at Simpson's, 101, Strand, when a few less than a hundred friends and subscribers sat down under the presidency of Mr. Arthur W. Sutton, who was supported by Messrs. Harry J. Veitch, N. N. Sherwood, Weeks, H. B. May, J. H. Veitch, L. Sutton, P. Kay, P. Crowley, H. Williams, de Graaff, A. Barron, Owen Thomas, G. Bunyard, G. Wythes, A. Outram, Glendenning, and others. The loyal toasts were given at the conclusion of the dinner, and duly honoured.

The toast of the evening, "Continued Success to the Gardeners' Royal Benevolent Institution," was proposed by the Chairman amid loud applause; he stated that it was only for about a year that he had a deep interest in the affairs of the institution, for previously he had been but a subscriber, whereas now he had a seat on the committee, and was able to say that all the affairs were conducted in a most efficient manner. To him it appeared that the keystone of the great success of the charity was the treasurer and chairman of committee—Mr. Harry J. Veitch—who, in addition to his official duties, was never tired of working on behalf of the institution. There was great enthusiasm at the committee meetings, yet everything was most carefully discussed and examined. From its foundation in 1851 the Chairman briefly reviewed the history of the charity, referring especially to the patronage of the Queen, the late Prince Consort, and the Prince of Wales, and to the fact that both the Duke of Connaught and the Duke of Teck had presided at the annual festivals of the institution. At the first election of pensioners the highest number of votes polled was 480, whereas that day one candidate obtained 4,249. In those early days there were thirty-five pensioners, costing the charity £512, while the annual subscriptions were £748; this he contrasted with the 1897 record of one hundred and sixty-eight pensioners, costing over £3,000, and the handsome receipt total of £8,575, including the Victorian Era Fund. Mr. Sutton's brief review roused the enthusiasm of the gathering, for such a contrast as these figures afforded proved in an admirable manner the wonderful progress made by the charity, and the growing interest being taken in it. The Chairman referred to the Victorian Era Fund, and the handsome manner in which the Veitch family had helped to make it a success; the interest from this fund would be annually distributed among the unsuccessful candidates. The ability and tact of the secretary, Mr. G. J. Ingram, were eulogised, and it was taken as a matter for great congratulation that the Duke of Portland had promised to preside at the festival. The loss by death of Dr. Hogg was mourned, and Mr. Lees' resignation owing to advancing years was regretted, and the hope expressed that he might be spared for many years yet. In conclusion, Mr. Sutton showed that while they had cause to be thankful for so much success, especially financially, their liabilities were great, and he urged all who interested themselves in the institution to take even fuller advantage of opportunities that might offer for the advancement of the charity than they had previously done. The toast, coupled with the name of Mr. Harry J. Veitch, was enthusiastically received.

Mr. Harry J. Veitch, in response, thanked the chairman for his presence and the assistance he had rendered the charity. He agreed that 1897 was the best year they had had, in spite of the fact that many charities had suffered as a result of the Jubilee festivities. In making a few remarks, he referred to the invested funds, which now amounted to nearly £25,000. This many considered a very large amount, but Mr. Veitch showed that, should subscriptions decline—he did not expect them to do so—the pension could only be continued for ten years. In 1897 twenty candidates had been elected, and the same number that day; forty in two years was a larger number than had been put on the fund in any previous three years, so, if their invested funds were slowly accumulating, so also were their liabilities. He spoke highly of the auxiliary branches, and made special reference to the untiring efforts of Mr. White, of the Worcester branch. The castle he had built in the air some years ago had become tangible; the fund he had hoped to raise for the relief of non-successful candidates had been raised, and, by permission of her Majesty, had been called the Victorian Era Fund, a title suggested by Mr. Ingram. The Diamond Jubilee year had offered an opportunity for making this effort, especially as her Majesty had signified her approval of commemorative funds that had for their object "works of mercy among the sick and the suffering." With reference to the election during the afternoon, Mr. Veitch deplored the loss of 1,035 votes, these being unsigned, and he also expressed a hope that practical gardeners would in future materially assist the charity. He supplemented the remarks made by the chairman anent the relief of unsuccessful candidates by stating that only those who had previously been subscribers, or were widows of subscribers, would be entitled to relief from the Victorian Era Fund, and these would receive sums calculated *pro rata* for the years during which subscriptions had been paid by the candidate or her husband. There was about £130 to divide, and one candidate would receive £10, another £8, another £6 8s., and so on. Mr. Veitch concluded by hoping to see the Victorian Era Fund soon completed, and then, if they still flourished, he had another idea for the furtherance of the cause they were all interested in, and for drawing more money from their pockets.

Mr. G. Bunyard proposed "The Committee" in a few able remarks, alluding especially to the trying work of sorting out the cases of candidates so that none but the most deserving should come up for election. Mr. Owen Thomas responded, and said that though the members worked harmoniously, they were all independent, and carefully scrutinised all bills, cases, &c., that came before them. Eight committee meetings had been held, and there had been an average attendance of sixteen. He spoke highly of the commercial horticulturists who so ably contributed to the funds, and thought that practical gardeners might do much more to help their helpless brethren. In the absence of the Rev. W. Wilks, Mr. H. B. May proposed "Our Country Friends and Supporters," which was duly and ably responded to by Mr. J. H. White, of Worcester. "The Health of the Chairman," proposed by Mr. N. N. Sherwood, was received with cheers and great enthusiasm.

Throughout the evening vocal and instrumental music was ably rendered by the Red Band, kindly provided by the Chairman, Mr. E. J. Monro, Mr. J. N. White, Mr. F. Bevan, and Mr. Mel. B. Spurr of the Egyptian Hall.

SHIRLEY GARDENERS' ASSOCIATION.

A meeting of the above society was held recently at the Parish Room, Shirley, Southampton, the President, W. F. G. Spranger, Esq., conducting the business of the evening. Mr. E. T. Mellor, B.Sc. (London), Lecturer in Biology at the Hartley College, gave a lecture, illustrated by lantern slides, on "Fungi, their Mode of Life and Reproduction." The Lecturer at the outset stated that, like the beggars and thieves of humanity, fungi lived on the labours of others, at least the majority did. A large number of slides showed how they grew, their method of reproduction, and the immense number they were capable of producing under favourable conditions. Even when climatic conditions were most unfavourable resting spores were produced, which could carry on the work when the conditions were become favourable. There will be another lecture on the subject, "Injurious and Beneficial Fungi," on February 21. A hearty vote of thanks to Mr. Mellor brought a very instructive evening to a close.

READING GARDENERS' ASSOCIATION.

At the meeting of this association on Monday last, "Strawberries from Seed, or the Cultivation of the Alpine Strawberry," was the subject of a paper read by Mr. James Hudson, of Gunnersbury, in the British Workman club-room, when Mr. C. B. Stephens presided over a good attendance of members. The subject was certainly a new one, and, perhaps, the first time that a paper on this particular fruit has been given before a gardeners' association. In the discussion which followed, all the members taking part had to plead ignorance of the cultivation of the Alpine strawberry, but after what the lecturer said in its favour, and the fact that a dish of strawberries during September and October would be a great addition to the dessert, as well as being greatly appreciated by employers, many of the gardeners present will no doubt be giving this variety a trial.

Mr. Hudson, in introducing his subject, said: The Alpine strawberry is at the present day a comparative stranger in many gardens, both large and small, but he was fully persuaded that when it is given a fair trial a great majority of gardenerr will be disposed to extend its cultivation. The culture is of the simplest, and given weight for weight upon the same space of ground, the "Alpine" will not be one whit behind that of the average crop of other strawberries. The real success of the culture of the Alpine strawberry is in the raising of one's own seedlings, or in the purchasing of seedlings. The French adopt the plan of growing their stock from seed; but it is only within the last few years that English firms have catalogued the seed, although the plants from runners are, as a rule, offered in most of our strawberry lists in a similar way to the large-fruited varieties. This plan of offering the runners instead of the seed did nothing for, but rather acted against, any extended culture. After dealing fully with the system of cultivation carried out at Gunnersbury, the speaker gave much valuable advice as to soils, and their adaptability for growing Alpine strawberries, also the position most suitable. As to varieties, the Alpine strawberry as it was known only a few years back, must not be taken as the present-day standard of this fruit. The two varieties best for general cultivation are Royal Ameliore and Sutton's Large Red Alpine; the former producing fruits two inches long, whilst the latter, although not quite so large, is equal to it in every other respect, and with some it would be preferred because of its more handsome shape. Other varieties worth growing are Belle de Meaux, colour of the deepest red, and flavour first-rate; Berger Improved, a variety very highly thought of by French growers; and Large White Alpine, which, on account of its colour, makes a pleasing change for the dessert. A hearty vote of thanks was accorded to Mr. Hudson for his interesting paper. A box containing from one hundred and twenty to one hundred and forty spikes of well-grown lily of the valley, many of the spikes having fourteen and fifteen bells each, was shown by Messrs. Rigg and Fixter, The Nurseries, Caversham, and attracted great attention. Eight new members were elected.

LIVERPOOL HORTICULTURAL ASSOCIATION.

The members of this society held their eleventh annual dinner and social evening at the Adelphi Hotel, Lime Street, on Saturday, when one hundred and twenty members sat down to an excellent repast. W. Fletcher Rogers, Esq., presided, and after dinner a full programme of music and song was thoroughly enjoyed, the following artistes giving capital renderings: Messrs. J. W. McDonald, A. L. Howard, G. Smith, A. D. McCormick, and A. G. Davies. The accompanists were Mr. Ernest Hawkins and Mr. Woodward. At the close, votes of thanks were accorded to the chairman and artistes.—J. V. T.

NATIONAL CHRYSANTHEMUM SOCIETY.

A meeting was held on Monday evening last, at Anderton's Hotel, of the General Committee of this society, when Mr. T. W. Sanders occupied the chair. The minutes and correspondence having been disposed of, a list of special prizes offered to the society was read. It was resolved that the Classification Committee shall hold a meeting on Monday next to discuss certain matters relating to the work placed in its charge. The new rules were then submitted and finally approved of for presentation to the members at the annual meeting on February 28. The most important alteration being the appointment of a Finance Committee. A rough financial statement was submitted, and an estimate of the prizes, amounting, with medals, &c., to £757, that will be offered for competition at the society's shows during 1898. New members were elected, and the meeting closed after a somewhat lengthy and formal agenda paper, rather later than usual.

NEW INVENTIONS.

Lawton's Patent Pot-suspender.—A considerable number of contrivances have been introduced for the purpose of facilitating the suspension of pots containing growing plants; but we know of none that are superior to the invention which has been introduced by Mr. J. George, 14, Redgrove Street, Putney, under the above designation. The invention, as will be seen from a glance at fig. 1, consists of a double strand of wire so bent as to form an exceedingly strong spring—so strong, in fact, as to grip an ordinary glass tumbler sufficiently firm to admit of its suspension when filled with water and flowers. In using the suspender the straight portion is thrust down on the inner side of the pot, and the two bent portions are brought over the rim on the outer side as so well seen in fig. 2., and when so placed the pot is very firmly gripped. Two, three, or four suspenders may be fixed to each pot or pan, according to its size, but for a receptacle of moderate dimensions two will be sufficient to hold it securely. The invention will be specially useful in the orchid house; but wherever pots or pans containing plants, or receptacles for cut flowers, have to be suspended, it will be found of much value. We are favourably impressed with the suspender, for it is inexpensive as well as being remarkable for its simplicity and efficiency.

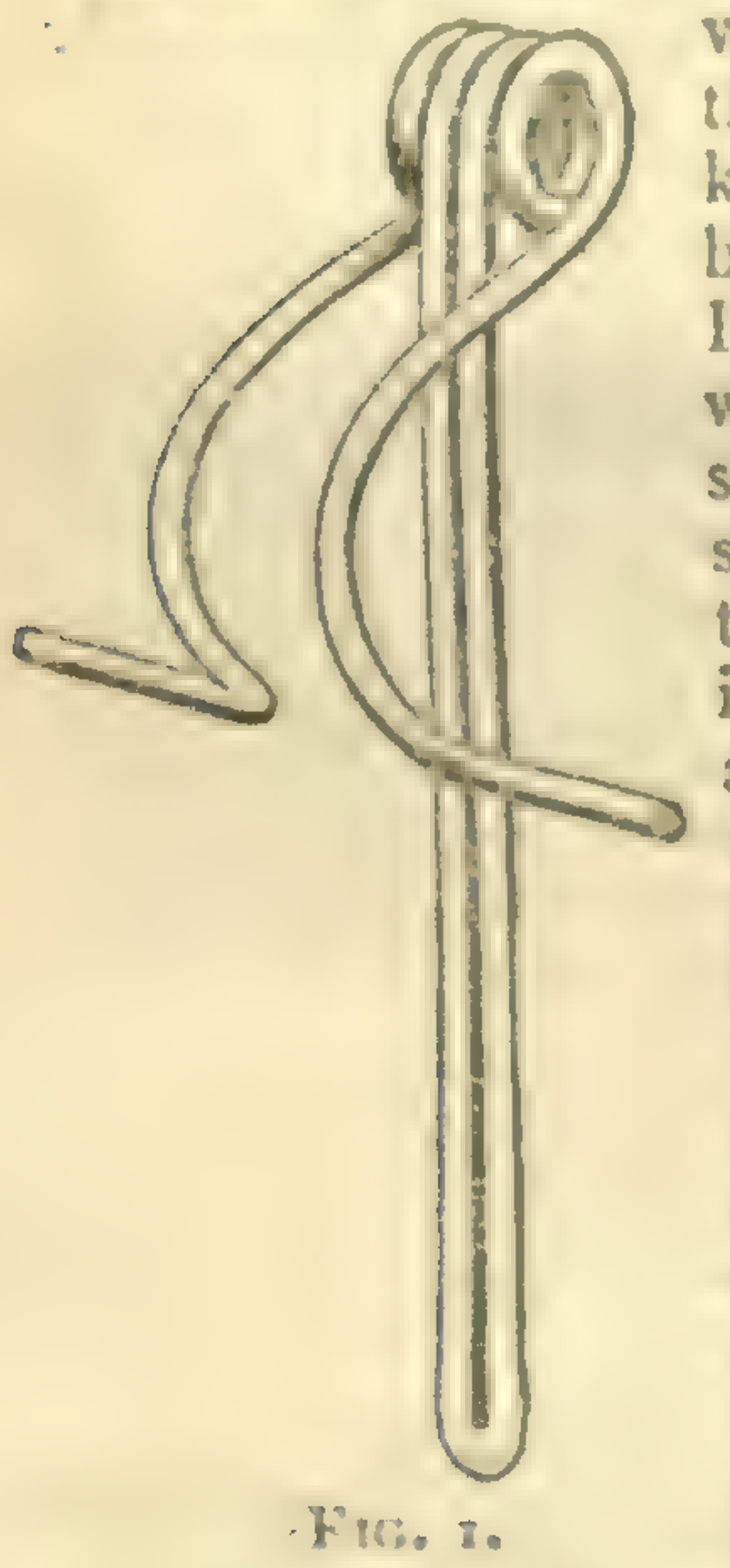

FIG. 1.

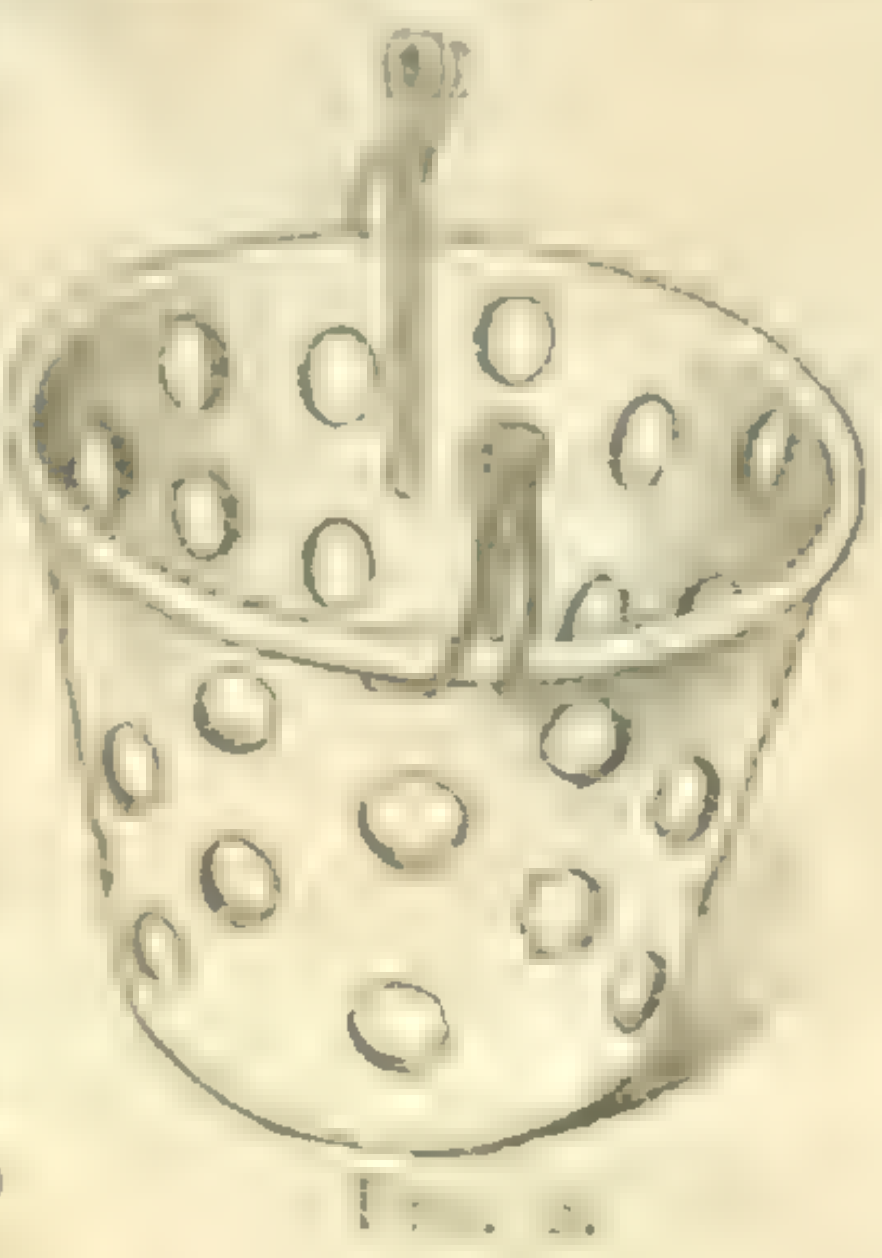

FIG. 2.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Botany Examination.—C. E. S., York: The work referred "Botany for Beginners," is published at 3s. 6d. by Bradbury, Agnew, and C 9, Bouverie Street, London.

Chrysanthemum Red L. Canning.—G. D., Cardiff: We have heard that anyone has procured the stock of this new market variety, but if you apply to Mr. M. A. Felgate, nurseryman, Henley-on-Thames, who exhibited it November last, you will learn whether he has disposed of the stock or is willing to sell.

Flowers and Insect Attraction.—E. P., Norwich: A series of papers upon the interesting subject of colour in flowers and its attraction for insects has been given by Professor Plateau in the *Bulletin* of l'Academie des Sciences de Belgique. A letter to the secretary of this academy at Brussels will procure the information you need as to dates and prices.

Roses for Archways.—G. R., Hants: Nine good varieties for the purpose you mention are Félicité Perpétue, Dundee Rambler, Alice Gray, Ayrshire Queen, Crimson Rambler, Gloire de Dijon, Madame Bérard, Blairi No. 2, and Waltham Climber No. 1. Some of the Sweet Briar hybrids would also make good roses for archways of considerable extent.

Carbonate of Copper.—J. D., Devon: The following is a good method of producing the ammoniacal carbonate of copper suitable for spraying trees wh in a dormant state. Obtain one ounce of carbonate of copper and dissolve it by means of one volume of 26 per cent. Beaumé ammonia mixed in seven eight volumes of water. This complete mixture may be stored in a co bottle, and when wanted for use should be diluted with nine gallons of wa

Chrysanthemum Bloom.—N. C., Upper Norwood: Your letter containing the small chrysanthemum bloom reached us safely, but it is impossible to name a variety from a flower mutilated by compression between notepaper and envel especially a white flower. We cannot undertake to name florists' flowers, for t so correctly would necessitate the cultivation of complete collections—a matter practical impossibility.

Carnation Gloire de Nancy.—W. D., Southsea: There is no ques as to the hardiness of this variety, sometimes known as the White Clove. In s gardens, of course, the Old Crimson Clove will not succeed first-rate, in such Gloire de Nancy cannot be expected to do itself justice; where one does well there also will the other. The chief objections these carna have is to very light soil over a sandy or gravel subsoil, for here they suffer fr drought in summer and make little growth.

Orchid Cultivation.—H. T., Plymouth: There are several works de to the description and cultivation of orchids, and they vary in price accord their size and comprehensiveness. Either of the following are good works: " Manual of Orchidaceous Plants," by Messrs. J. Veitch and Sons, Chelsea— vols., £5 5s.; "The Orchid Growers' Manual," 25s., Messrs. B. S. William Son, Upper Holloway; and "The Amateur Orchid Cultivators' Guide Book," Blake and Mackenzie, Liverpool.

Malformed Fuchsia Flower.—W. F. S., New Brighton: The sent is one in which there is an attempt at doubling in two ways. There flower within a flower, much after the manner of the Hose in Hose polyan and similar examples, although the inner tube is not much extended; in flowers the tendency to doubling has also proceeded on the usual lines, th the development, or reversion, of the stamens to a petaloid form. In cul plants the tendency to double, in flowers, is often encouraged by superab energy, the result of strong growth and high feeding.

To Destroy a Tree.—G. D., Cardiff: There are plenty of whereby a tree can be destroyed, but they differ considerably in the length necessary to accomplish the end in view. If you do not wish to cut d tree, one of the easiest methods of killing it will be to ring bark it. This may done at once by taking off a strip of bark about a foot wide right round the and near the base; the bark must be removed right up to the wood. Th prevent sap circulation, and you will have the questionable pleasure of tree succumb quickly.

Gas-Lime on Meadows.—A. P., Oxford: Gas-lime will give kill tation and insects with which it comes into contact, for about six weeks af drawn from the gas works, so that to spread it upon meadow land would save for the purpose of killing the grass. Give the meadow a dressing with farmyard manure as soon as possible, or give a dressing with superph using this at the rate of from two to three hundredweight per acre. The phosphates applied now will become available when the grass roots are th vigorous and active; as a manure it encourages the growth of the finer gr clovers. A light dressing of nitrate of soda given at a later period, wh growth has commenced in earnest, will prove beneficial, and if the soil is inclined to soon become dry, then a fairly free dressing of nitrate wi serviceable, and secure a heavy crop of hay. Nitrate of soda, however, encourage the coarser grasses at the expense of the finer ones and th Provided the meadow has been manured, as previously suggested, then the application of nitrate of soda should be at the rate of one to one and a q hundredweight per acre.

Cyclamen Failing.—R. W. D., Croydon: We could find no insects on the cyclamen corm sent, but there has evidently been something at work eating the roots. The grub of some curculio may have been the cause, and might have been imported with the leaf-soil. As the plants are small it would be a good plan to carefully wash the soil from them, cleaning the corms as well as possible, and then repotting in new soil of a light character and using small pots. If the leaf-soil is used, first place it in an oven and subject it to heat sufficient to kill all insect life. Maintain a genial warmth in the house or pit, keep up a fairly moist atmosphere, but give little water to the plants otherwise until they have rooted freely and are making satisfactory growth.

Twin-flowered Cypripediums.—A. B., Epsom: We are obliged to you for your reference and the blooms sent. The form of Cypripedium insigne you have is a first-rate example of the old type; this is, it does not belong to the so-called "montanum" group. Twin-flowered scapes are no doubt due to exceptional vigour in the plants, so that it is very evident your specimens are growing under conditions they fully appreciate. It is seldom, if ever, the case, that a growth giving a twin-flowered scape one year repeats itself the next; the vigour seems to find vent in producing two blooms, and in a succeeding year the plant flowers in the usual way. We have not seen C. Spicerianum produce a twin-flowered scape; your mode of cultivation evidently suits the species. We recently saw three twin-flowered scapes on a specimen of C. Harrisianum.

Maréchal Niel Rose.—R., Surrey: Cut the roses back pretty hard at planting time, so that some strong shoots will be produced from the base and enable you to soon furnish the wall. If there is need of a rod of some length, as in the case of training a rose to the roof, then only prune it back to the point from whence it is desirable to obtain several growths. When the plants are turned out of the pots remove the crocks with the aid of a pointed stick, and also remove any loose surface soil there may be; any roots that can readily be laid or spread out should so be treated, but the work must be accomplished most carefully or much damage will be done. If the roots are not entwined or twisted round and round just inside the pot, then they may be spread out, but otherwise an attempt to spread them will end in breakage and disaster. If the plants are what is known as pot-bound, then loosen the roots slightly, removing crocks and loose soil, then at planting see that the new soil is pressed firmly against the ball so that new roots will be encouraged to penetrate it.

Violets and Pansies.—E. P., Norwich: Thanks for letter. You should keep the violets as cool as possible, for under ordinary circumstances they should flower at the period you wish them to appear. Those in the open ground should be protected during severe weather, such as frost, snow, and driving east winds, by means of a handlight or similar appliance. Give plenty of air on all favourable occasions to those in frames, and do not put them into the greenhouse until about three weeks before you want them. Practically, the same remarks applies to violas, though these will need rather more care to have them nicely in flower for the occasion. Those in pots in frames should have the flower buds picked out, should they appear, until the end of February; give them the warmest and lightest position possible, water carefully, remove all decayed foliage as soon as detected, and take advantage of bright, warm days to give plenty of air. The warmth of a greenhouse should only be afforded two or three weeks before the date given, provided a little stimulation is at that date desirable. We have not the address you need, but will endeavour to obtain it for you.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

L. B., Liverpool: 1, Selaginella cæsia; 2, S. Kraussiana; 3, S. Mertensi.

B. F. G., Merton: 1, Cupressus Lawsonianus; 2, Eleagnus longipes; 3, Osmanthus illicifolius; 4, Hamamelis arborea; 5, Jasminum nudiflorum.

G. W. Patricroft: Not recognised; send when in flower.

M. M., Chester: Crocus Sieberi; 2, Iris stylosa.

W. T. W., Hull: 1, Euphorbia jacquinæflora; 2, Callicarpa purpurea; 3, Eranthis hyemalis—the winter aconite.

S. L. F., Salisbury: 1, Odontoglossum crispum, a moderate form; 2, Dendrobium primulinum; 3, Lælia albida; 4, Oncidium tigrinum; 5, Cattleya Percivaliana.

B. G. S., Worcester; 1, Eupatorium riparium; 2, Nephrodium molle corymbiferum; 3, Nephrolepis cordata; 4, Asplenium Belangeri.

H. F., Eastbourne: 1, Stachys lanata; 2, Chimonanthus fragrans.

Communications Received.—J. M.—S. C.—C. W. D.—J. W. M.—E. C.—F. M.—R. P.—E. le B.—A. D.—J. J. W.—L. L.—A. S.—C. E. S.—W. D.—E. P.—A. P.—P. and B.—R. W.—W. F. and S.—W. and I.—C. T. and Co.—J. S. and Son—W. C. and S.—R. S.—M. R. and Co.—F. G.—B. S.—R. W. D.—N. C.—W. F. S.—G. W.—M. M.—W. G. W.—S. L. F.—B. G. S.—H. F.

THE WEATHER DURING THE WEEK ENDING JANUARY 22, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	53·8	30·0	45·1	7·28	0·12	0·30
Croydon	54·5	29·5	45·0	7·22	0·09	0·23
Brighton	54·0	33·8	45·2	7·33	0·04	0·10
Bristol	55·0	34·0	46·3	7·94	0·02	0·05
Wolverhampton	55·3	32·2	43·6	6·44	0·00	0·00
Norwich	56·0	31·0	44·5	6·94	0·01	0·03
Nottingham	55·6	32·3	44·0	6·67	0·08	0·20
Liverpool	54·7	31·6	45·9	7·72	0·06	0·15
Huddersfield	53·3	27·2	45·3	7·39	0·37	0·94
Bradford	[illegible]	[illegible]	47·1	[illegible]	0·28	0·71
Hull	55·0	33·0	44·4	6·89	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 30·26 inches, and that of the Thermometer 45°·1, the latter being 6°·7 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 13 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 3·4 hours. The measured rainfall amounted to 0·12 of an inch.

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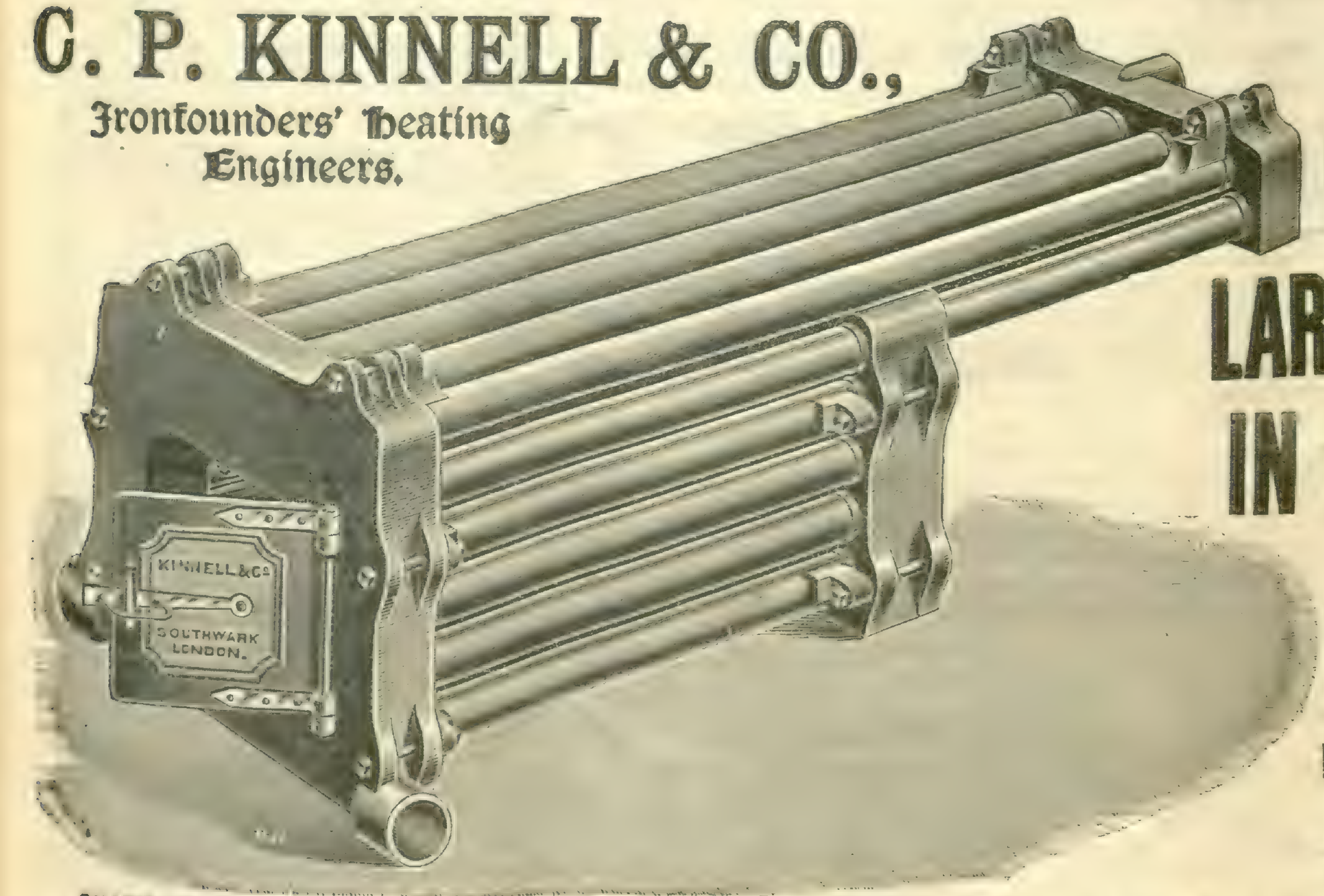

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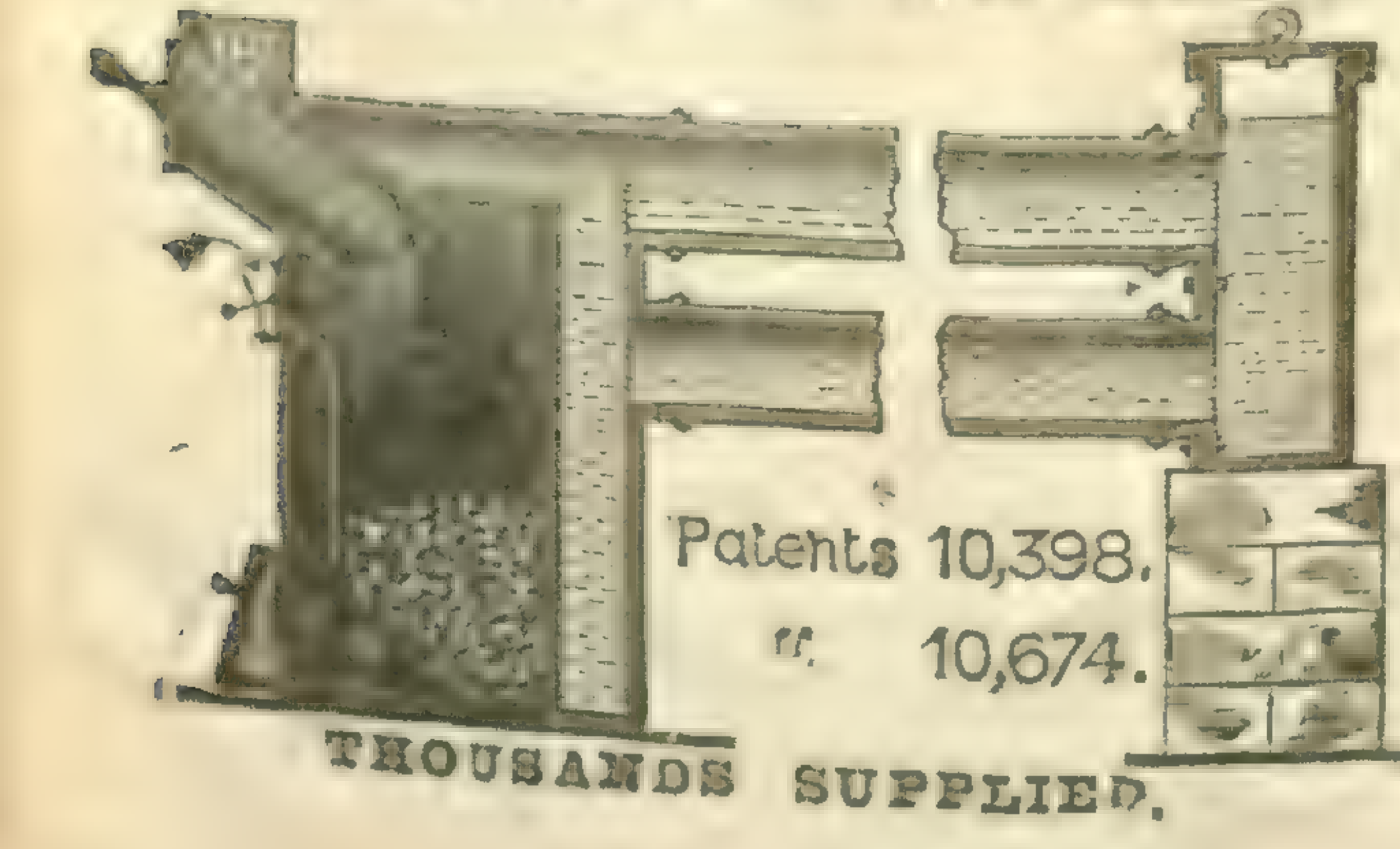

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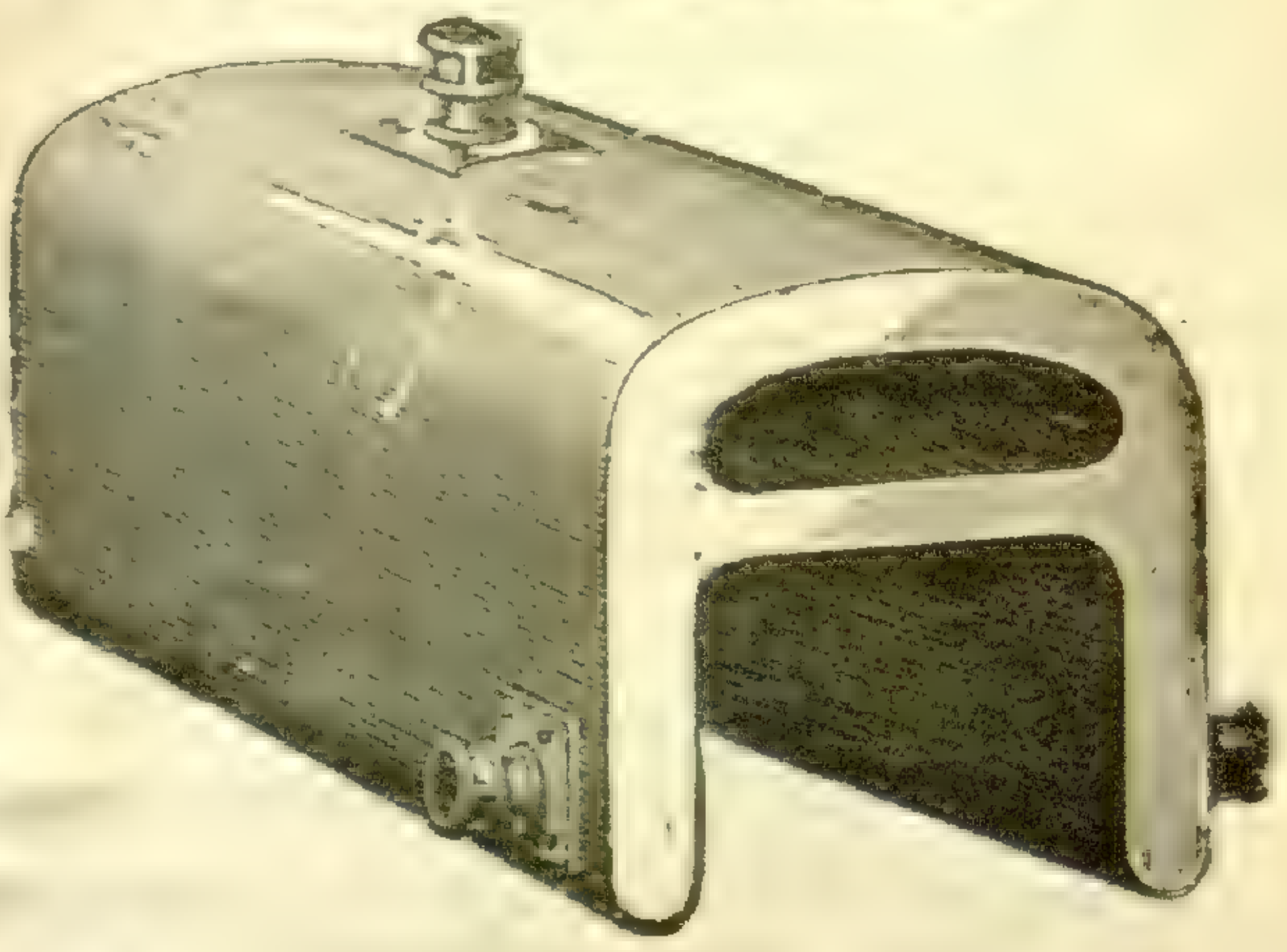

MARKETS.

Covent Garden.

HIGH prices are being maintained for fruit of the best quality, whether home grown or imported. Bananas and oranges find a ready sale; green vegetables are fairly plentiful, and consequently there is not a big business in roots. Cut flowers are plentiful for the time of year, and prices are moderate.

FRUIT.—English apples, 5s. to 9s. per bushel; American and Nova Scotian, 12s. to 35s. per barrel; English grapes, 1s. 6d. to 2s. 6d. per lb.; Almeria, 12s. to 20s. per barrel; French pears, 4s. to 8s. per crate; bananas, 5s. to 10s. per bunch; lemons, 6s. to 7s. 6d. per box, 8s. to 18s. per case; Canary tomatos, 10d. to 1s. 6d. per tray, 3s. to 4s. 6d. per case; Valencia oranges, 8s. to 15s.; Jaffa, 8s. 6d. to 11s. per box.

FLOWERS.—Arums, 3s. to 5s.; carnations, 1s. to 3s.; chrysanthemums, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 3s. to 5s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 10s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s. 3d.; and tuberoses, 6d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 12s.; and violets, 1s. 6d. to 2s. per dozen bunches; azaleas, 9d. to 1s. 6d.; stephanotis, 4s. to 6s.; white narciss, 1s. to 2s.; Roman hyacinths, 6d. to 9d.; lily of the valley, 1s. to 2s.: and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Celery, 6s. to 15s. per dozen rolls; French endive, 1s. 4d. to 1s. 9d.; lettuce, 9d. to 1s.; cucumbers, 4s. to 7s. 6d.; cauliflowers, 1s. to 2s. 6d. per dozen; cabbages and savoys, 3s. 6d. to 5s.; parsley, 1s. 9d. to 2s. 3d.; carrots, 2s. 6d. to 3s.; turnips, 2s. 6d. to 3s. 6d. per dozen bunches; forced rhubarb, 1s. 6d. to 2s.; mushrooms, 6s. to 8s.; eschallots, 2s. per 12 lb.; seakale, 10s. to 15s. per dozen punnets; spinach, 2s. per bushel; Brussels sprouts, 1s. to 1s. 6d. per half sieve.

Borough Potato Market.

Without any quotable change in prices, the potato trade remains quiet. Supplies are still moderate, and nothing but a spell of frost or snow will brighten up the business.

Dunbars, 115s. to 125s.; Hebrons, 90s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 85s. to 90s.; Reading Giants and Saxons, 35s. per ton; Belgians, 3s. 9d. to 4s. 3d.; Germans, 4s. to 4s. 6d. per bag.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, FEBRUARY 1.—Scottish Horticultural Association.
THURSDAY, FEBRUARY 3.—Meeting of the Linnean Society.

AUCTIONS.

WEDNESDAY AND THURSDAY, FEBRUARY 2 AND 3.—Rose and Fruit Trees, Shrubs, Plants, Palms, Bulbs, Japanese Liliums, Border Plants, &c., at J. C. Stevens's Rooms.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, FEBUARY 1, 2, 3, AND 4.—Lilies, Azaleas, Tuberoses, Orchids, &c., at Protheroe and Morris's Rooms.

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LOVE, COURTSHIP, AND MARRIAGE are naturally subjects of interest for every young girl. The chief ambition is to have a rich husband and an extensive establishment, but her ideas become greatly modified as her experience of the world grows more matured. At last she settles down to the conviction that riches do not mean happiness, and she determines to be content with true worth, even if allied to comparative poverty. When she comes to this frame of mind she makes herself worthy to be a true helpmate to the man of her choice. Her first duty is to obtain the blessing of sound health; Holloway's Pills will give all that is required in this direction if they are taken with regularity.—[ADVT.]

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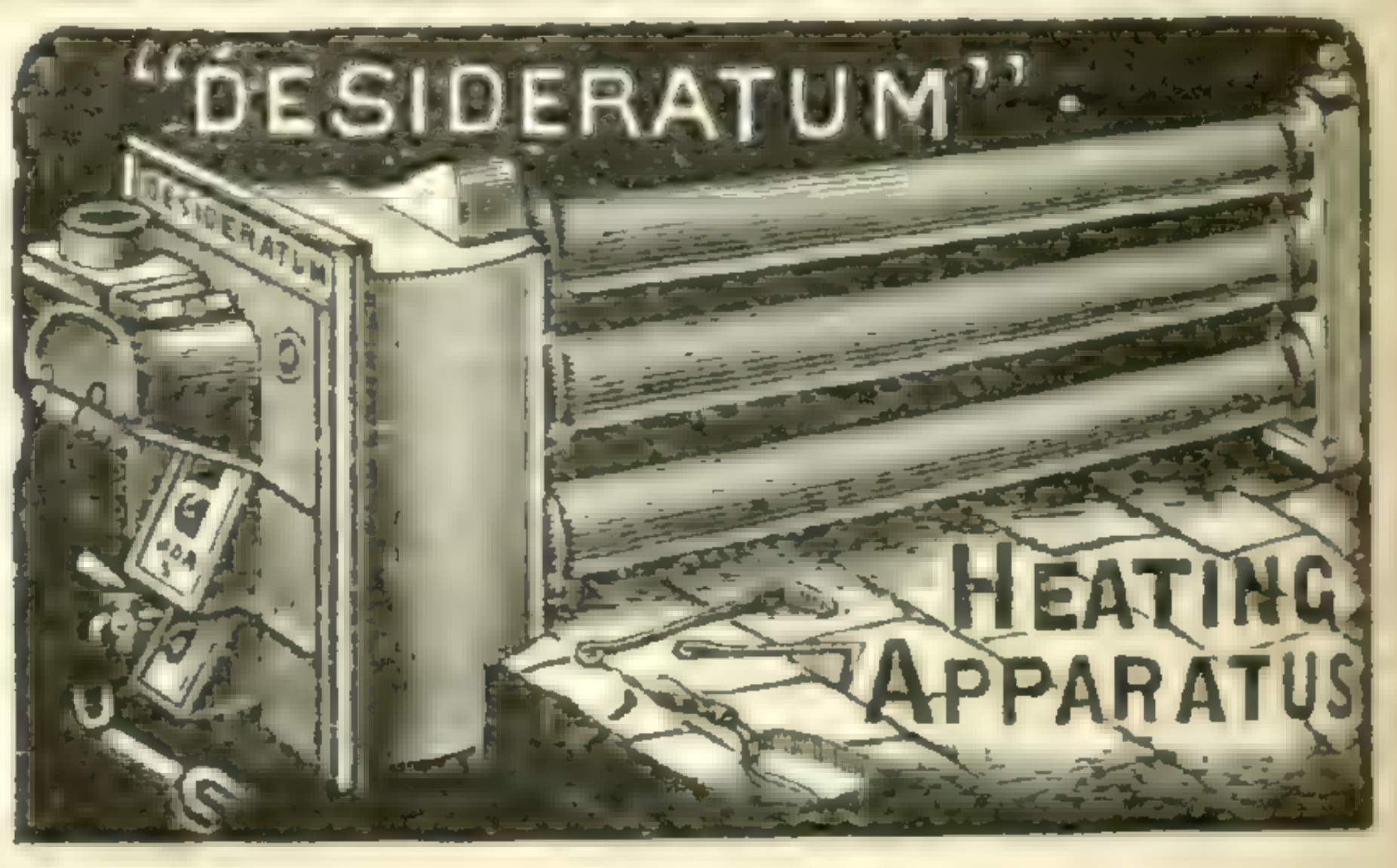

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A correspondence was raised in the Daily Press last Autumn upon the shortness of the season when Green Peas are available, both in gardens and on the market. We now offer the following as representing the best collection selected from 1,024 rows we had under trial last season. It would be difficult for us to give precise dates for putting the seed into the ground, as so much depends upon soil and situation. Successional Sowings may be made any time between these dates, and the last sowing not later than the second week in June.

NAME.	DESCRIPTION.	HEIGHT. ft.	WHEN TO SOW.	EXPECT READY TO PICK.	CARRIAGE FREE. Per Pint.	Per Qrt.
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Carters' Daisy	Second Early Marrowfat	1½	Middle of April	Early July	**2s.**	**3s. 6d.**
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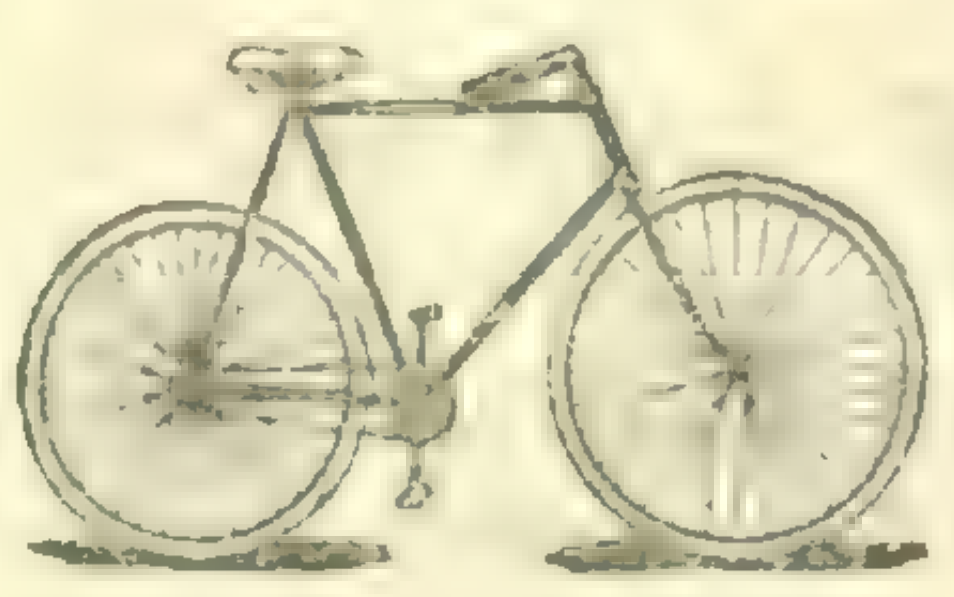

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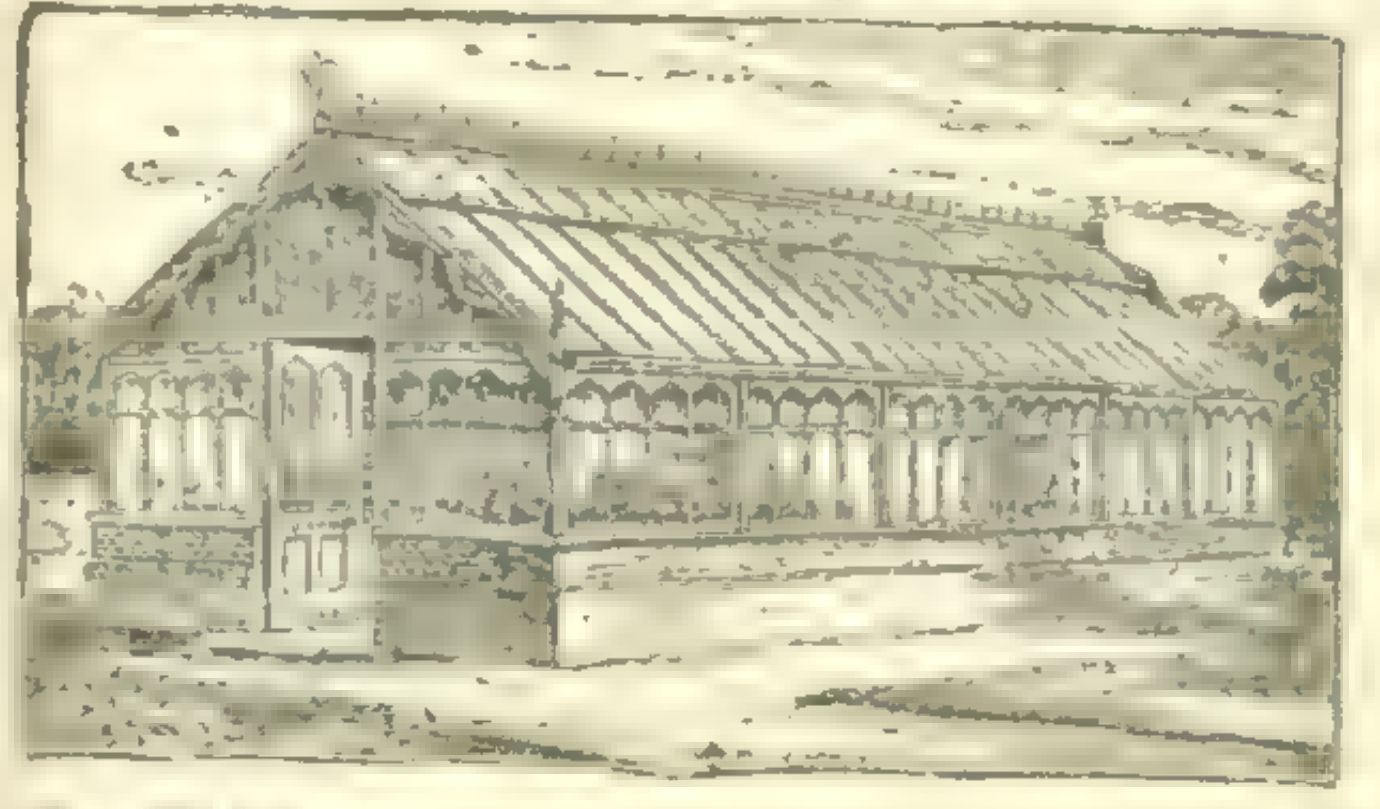

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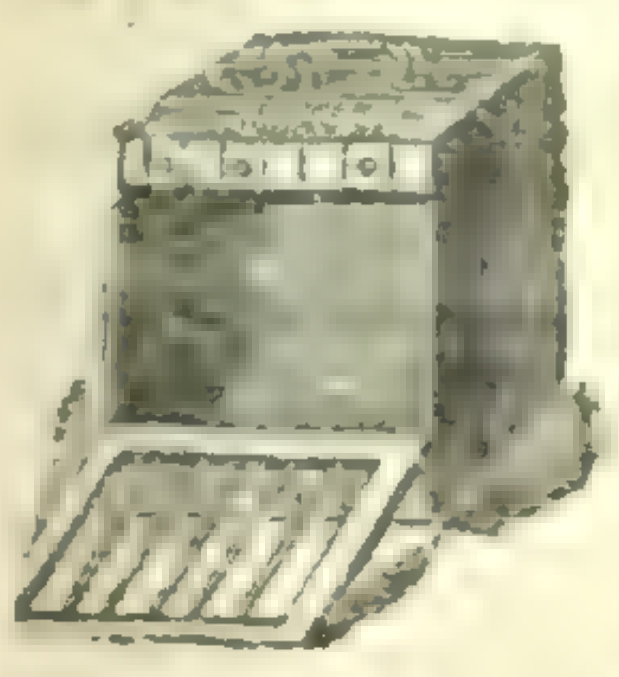

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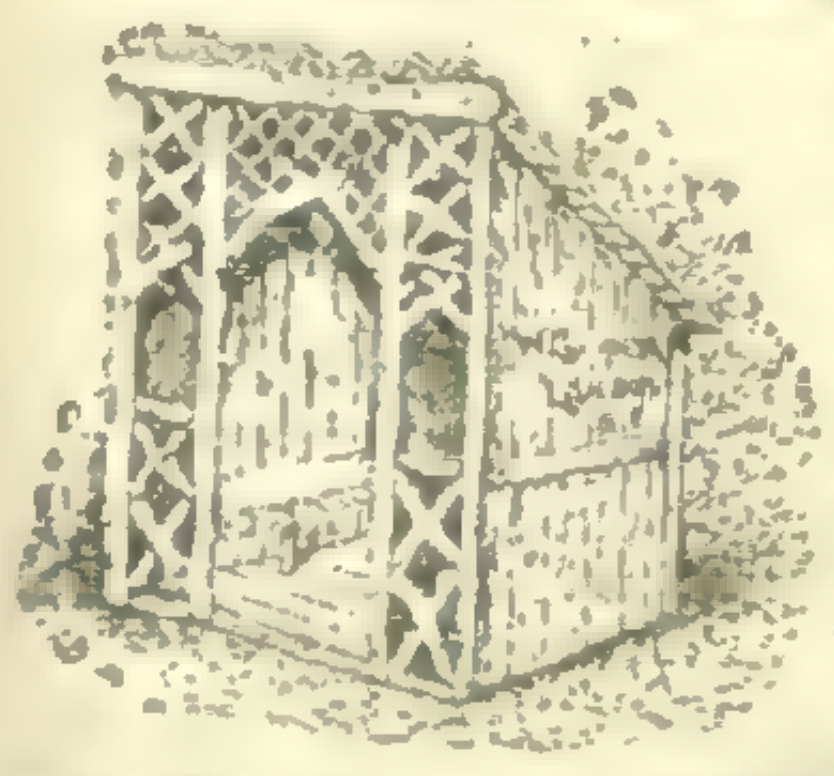

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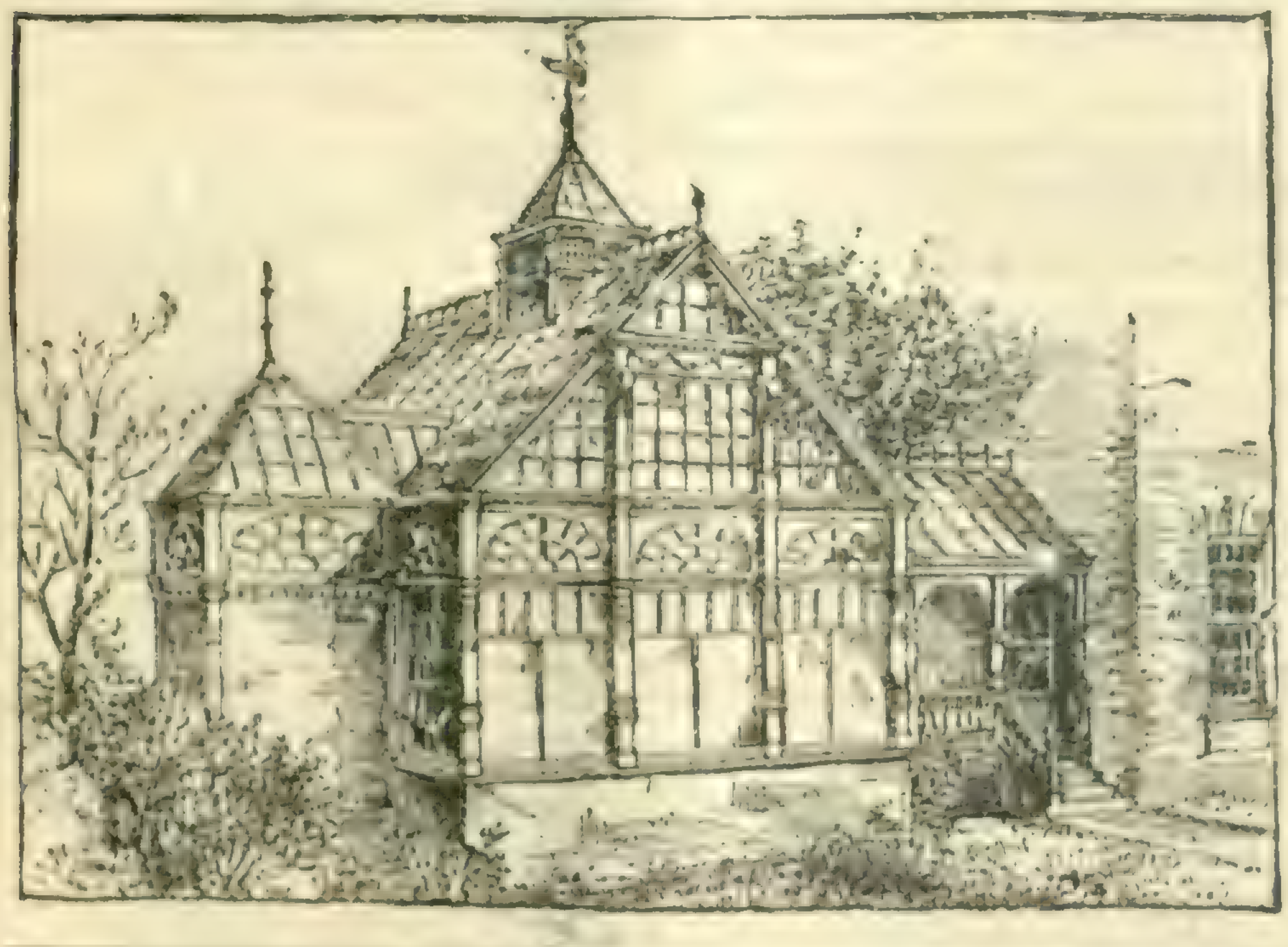

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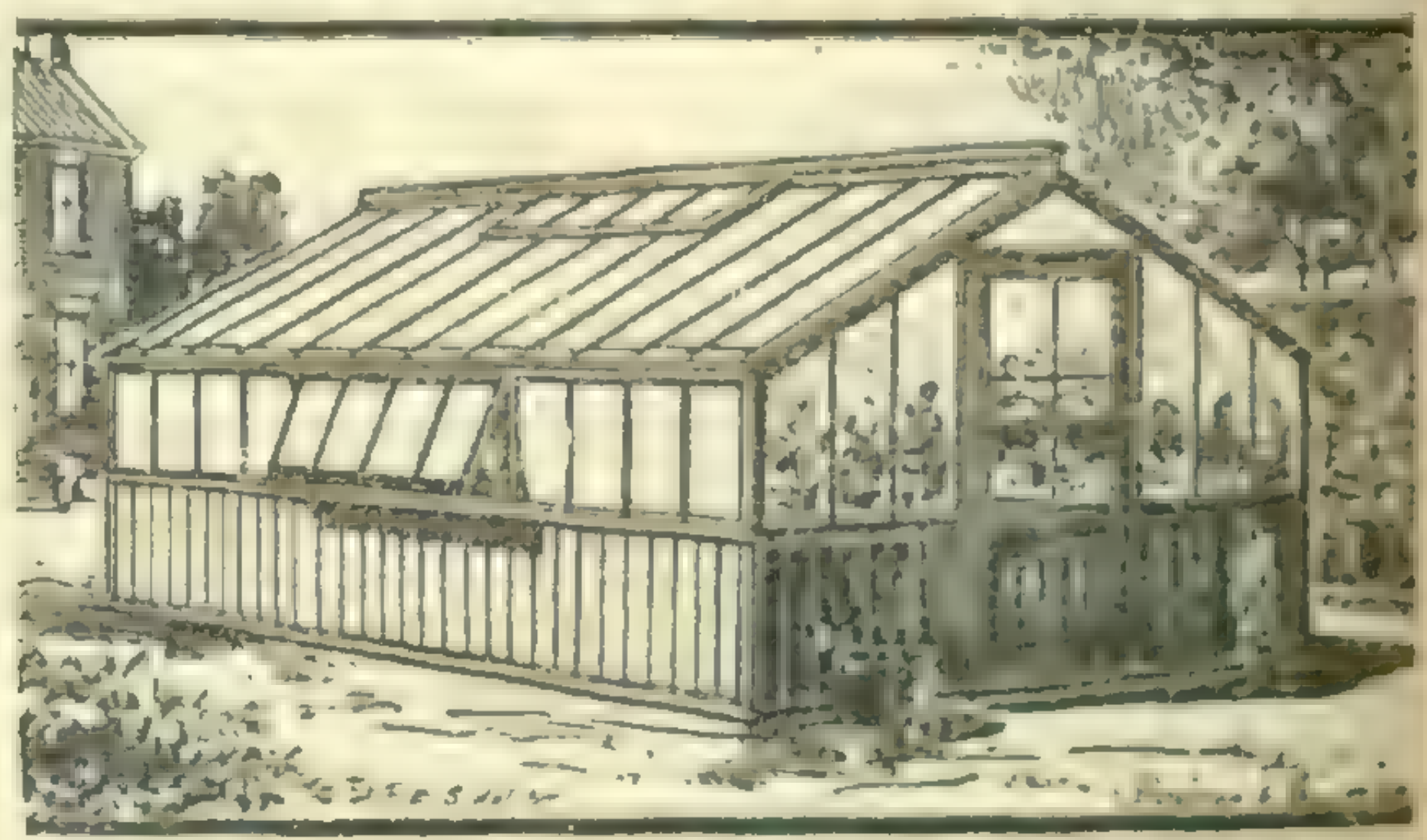

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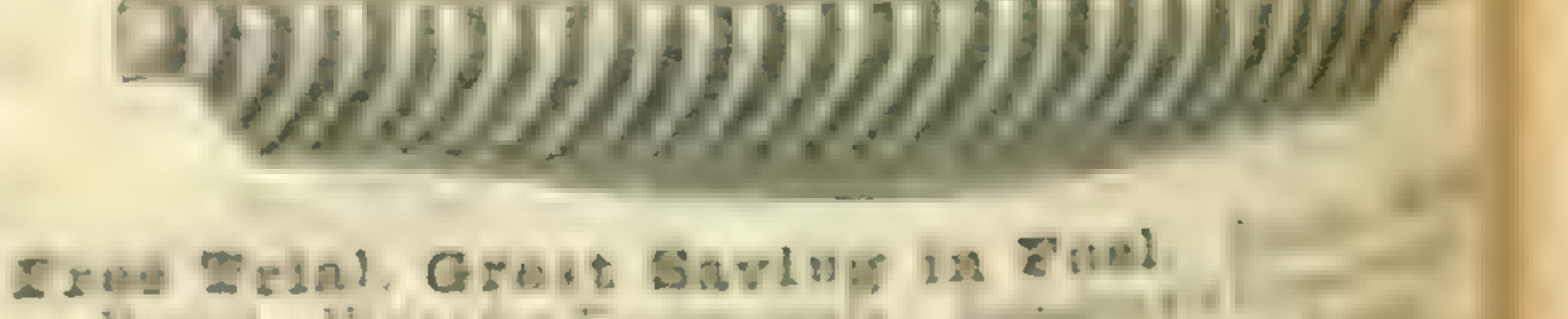

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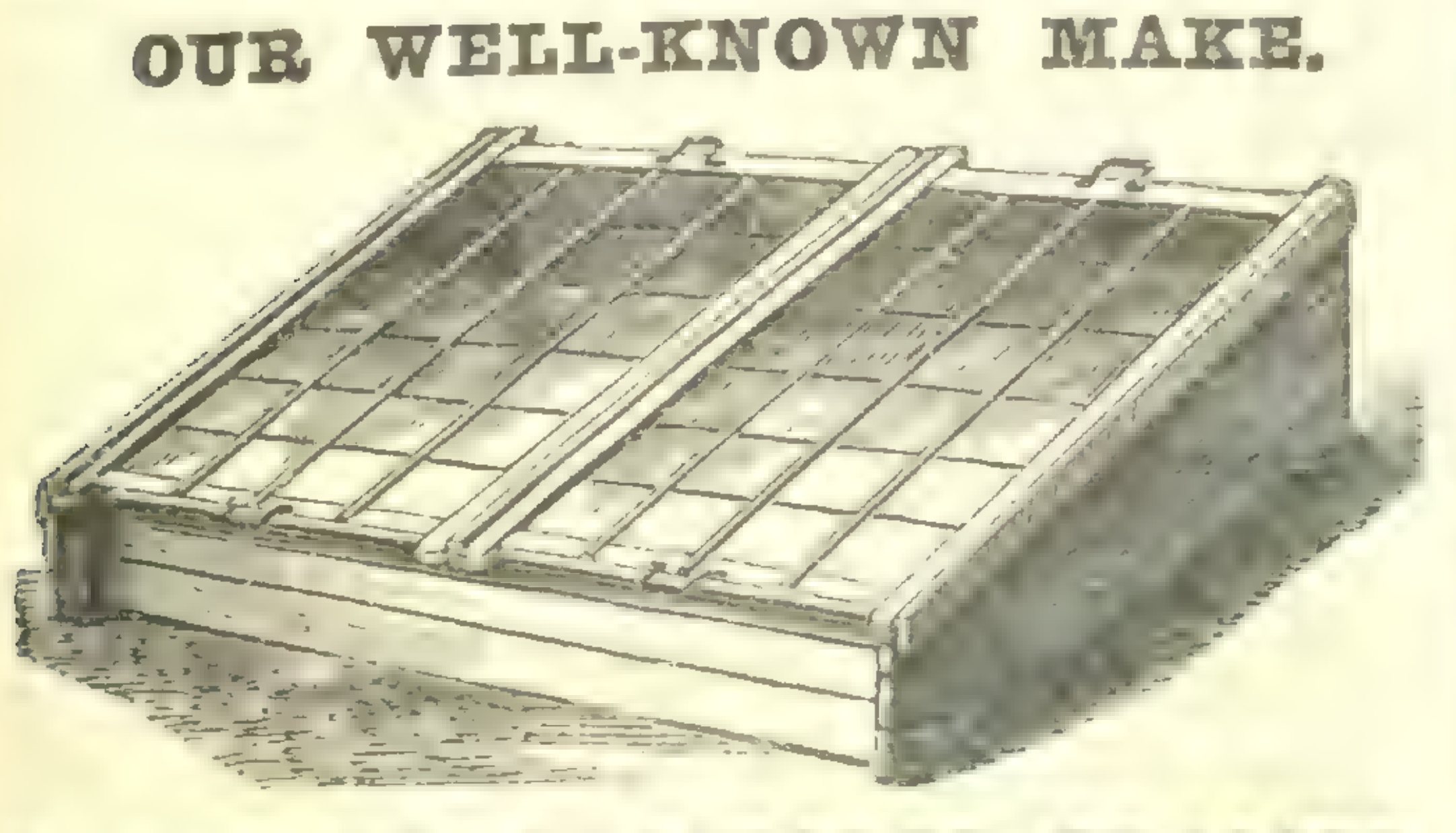

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4-light, 16 ft. by 6 ft. ...		5	5	0
5-light, 20 ft. by 6 ft. ...		6	7	6
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9X14		4ths 21-oz.		14X20
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10X14	200 ft.		at 16/-	15X20
12X12	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at 11/-	16X18
12X13	200 ft.		at 21/-	16X20
12X14		3rds 21-oz.		16X24
12X16	100 ft.	stock sizes as stated in margin, 8X12 to 12X12	at 9/3	18X20
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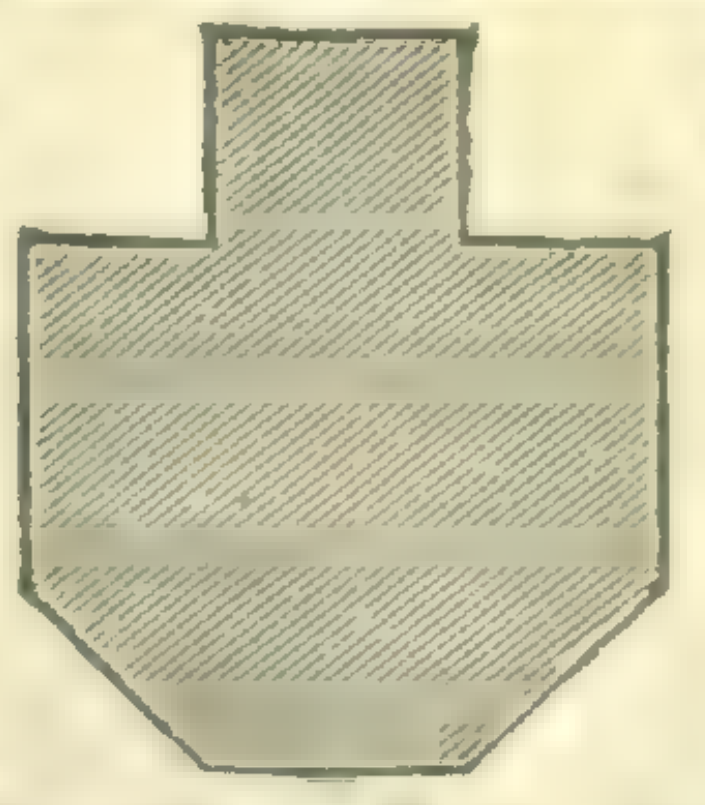

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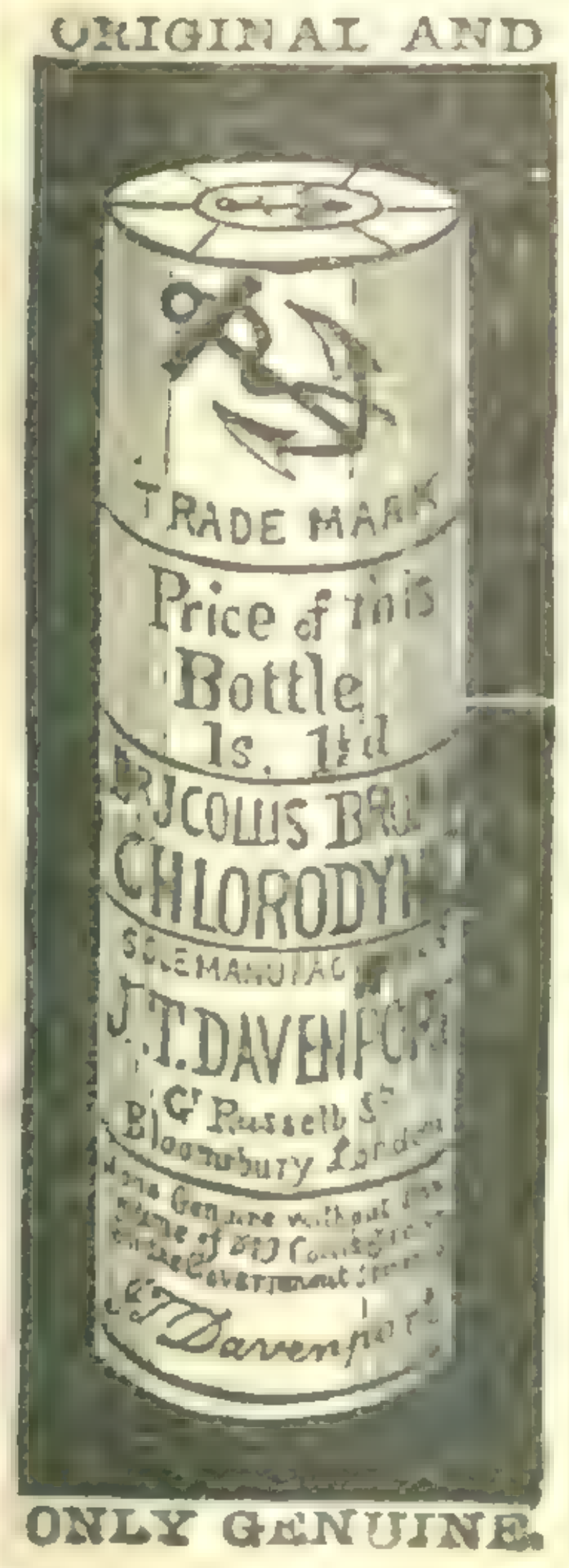

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FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

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WILLESDEN DISTRICT COUNCIL.

The above Council are prepared to RECEIVE TENDERS for the SUPPLY and PLANTING of certain TREES upon the various Highways of their District.

Copies of conditions and forms of tender may be obtained on and after Monday, the 31st inst., upon application to Mr. O. CLAUDE ROBSON, Engineer to the Council, Public Offices, Dyne Road, Kilburn, N.W.

The Tenders, endorsed "Tender for Trees," to be delivered at the offices of the Council not later than Four p.m. on Tuesday, February 8th, 1898.

A £10 note to be enclosed with each Tender, which will be returned to all unsuccessful Contractors immediately Tenders are accepted, and to all successful Contractors after execution of contract and bond.

The Council do not bind themselves to accept the lowest or any Tender.

By order,
STANLEY W. BALL,
Clerk to the Council.

Public Offices,
Dyne Road, Kilburn, N.W.,
January 26th, 1898.

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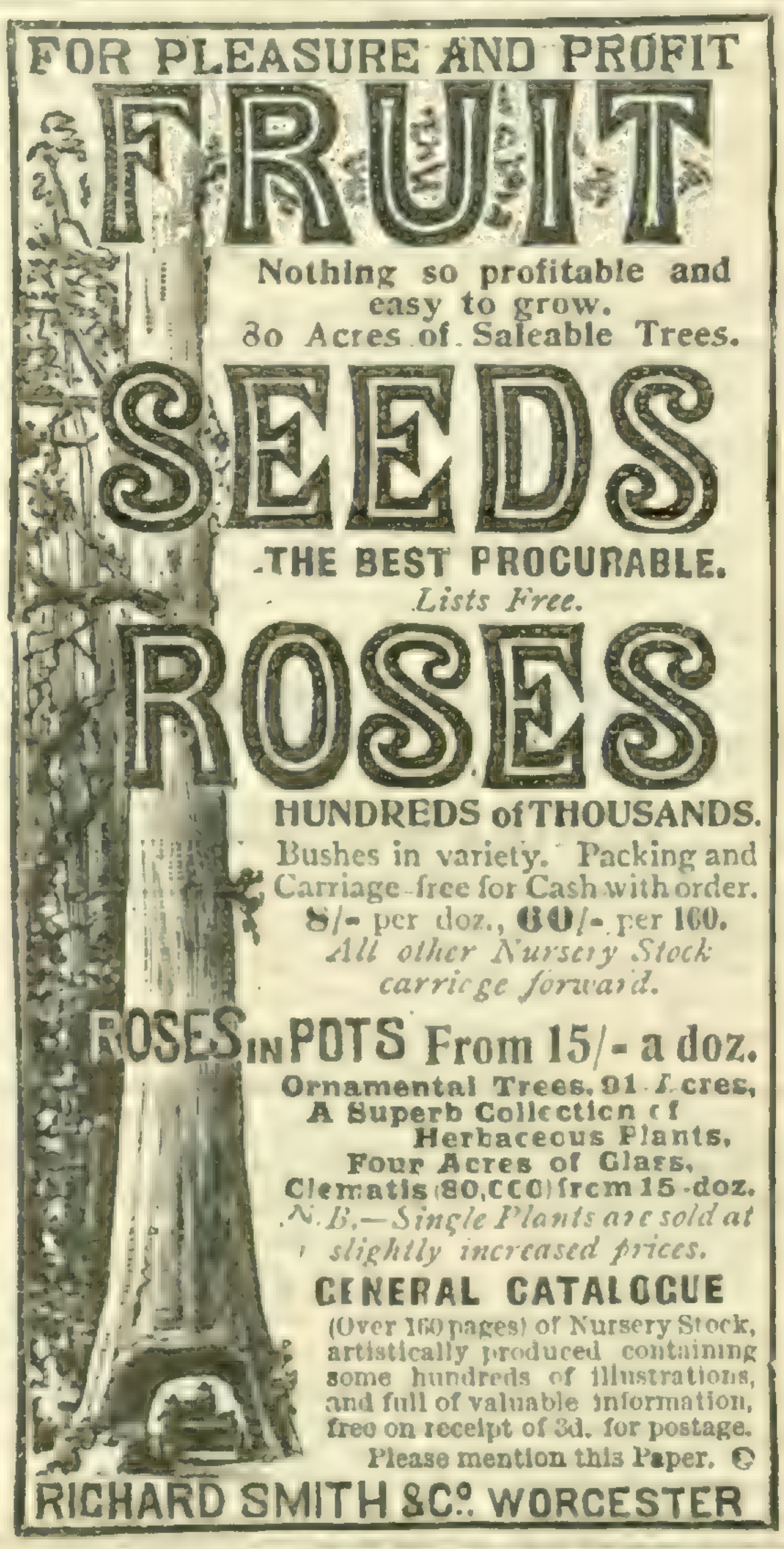

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THE GARDENERS' MAGAZINE.

SATURDAY, FEBRUARY 5, 1898.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTES OF THE WEEK.

MINOR PARKS OF LONDON.

The open spaces within the boundaries of the county of London not exceeding ten acres in extent, number two hundred and eight, and, in the aggregate, occupy an area of three hundred and sixty-six, and their maintenance has become a matter of considerable importance to the public bodies interested. The question as to the manner in which these small spaces should be maintained, and upon what public authorities the responsibilities of their proper keeping should be placed, has for some time engaged the attention of the London County Council. As the result of their deliberation, the Council passed a resolution, a short time since, directing the committee responsible for the parks and other open spaces, to prepare a scheme for the consideration of the Council whereby the whole of the open spaces and churchyards in the county now maintained at the expense of the local authorities shall in future be kept in order and maintained at the cost of the Council, either by its own staff or by making suitable financial arrangements with the local authorities. The reference has been carefully drawn, and we anticipate with considerable interest the report of the committee upon this important question. For reasons that will be obvious to those of our readers who have devoted any considerable share of their attention to the gardens under the charge of the smaller local bodies, we hope that the committee will report in favour of placing the whole of these open spaces under the direct control of the Council. There can be no question as to the benefit that would be derived by the metropolis, as a whole, from all the open spaces being maintained by a central body deriving its funds from the whole of the county. The question as to the advisability of their being maintained and kept up by the Council's staff is equally free from doubt. Notwithstanding this fact, the Metropolitan Public Gardens Association states through their chairman, the Earl of Meath, that they "would be sorry to see the local authorities deprived of control over and interest in them, as would be the case if the London County Council took them over and did the work of maintenance by its own staff." But the Earl of Meath has failed to advance any good reason why the association should regret the smaller open spaces being placed under the charge of men fully qualified to maintain them in a condition that will ensure visitors deriving the fullest enjoyment from them. There may be in the metropolis, as elsewhere, some public bodies that fully appreciate the value of open spaces in relation to the health of the community, and recognise the necessity of employing men with sufficient skill to properly manage them; but speaking in a general way, from long and wide observation, we have not a high opinion of district boards and vestries as garden managers. Were these local authorities differently constituted, and included among their members some who possessed a sufficient knowledge of gardening to enable them to make proper arrangements for keeping the open spaces in order, there would be many cases in which the open spaces could not be satisfactorily managed by them, as the area would not be sufficient to justify the employment of a skilled staff. The London County Council have a strong committee for the control of the parks and open spaces, and they have a staff of superintendents of whom they have good cause to be proud, and it follows, therefore, that they are in a position to keep up these minor parks more efficiently than would the local authorities. In some instances it would be possible to place the smaller areas under the charge of the superintendent of the park in the district; in others they could be grouped, and kept in order by a small staff under the charge of a foreman responsible to the superintendent of one of the parks or the chief officer, as may be considered advisable. When we consider "that in certain cases" local authorities have "refused to take over for maintenance some of the grounds laid out" by the Metropolitan Public Gardens Association, and that in others it has been necessary to place in their hands the spaces "in good order and free of expense," the importance of their management being entrusted to the central body at once becomes apparent.

GARDEN ROSES.

In consequence of the extreme mildness of the weather experienced throughout the winter vegetation is remarkably active in the rosery as in other departments of the garden, and those who purpose making additions or alterations will be well advised in taking the necessary steps to complete them somewhat in advance of the usual date. Notwithstanding the fact that they are in the majority of cases growing freely, roses may still be transplanted with safety provided arrangements are made for replanting them within as short a time as possible of their being lifted, and protecting their roots from atmospheric influences. Planting operations carried out under these conditions will in many instances be beneficial to the plants, inasmuch as the lifting and replanting will so far check the growth as to materially reduce the risk of the tender shoots being injured by the frosts which may be experienced later on. There is yet time for pushing on with the work of planting, and also for considering the classes of roses to plant. To the selection of varieties for the production of exhibition blooms we shall not now refer, as our object is to direct attention to the importance of greater care in selecting roses that are required simply for enhancing the charms of the garden, and yielding an abundance of flowers for use in a cut state. But a few years since roses that produced great masses of indifferently formed flowers, and it may be, with a short season of flowering, were generally regarded as garden roses, and there are still many who consider varieties of this class the most suitable for the garden. This is a misapprehension which cannot be too quickly corrected, for as the result of the activity of raisers of late years, many of the old favourites have been surpassed. There is, indeed, no longer any good reason why the cultivator of roses for garden decoration should have to be content with varieties producing blooms of poor quality, or limiting his enjoyment of their flowers to a short period. The creation of the race of hybrid teas, the improvement in the constitution of the teas, and the multiplication of the chinas, have greatly extended the range for selection, and rendered it possible to fill the beds and borders with varieties that will give a continuous succession of flowers from early in the summer until the autumn is well advanced. Some of the hybrid perpetuals are sufficiently free and continuous in blooming to justify their having a high position amongst garden roses; but there can be no question that the most useful are the hybrid teas, which have accomplished so much in enhancing the interest in rose culture; the hardiest of the teas, which can be depended upon to pass through a severe winter without injury; and the chinas. We therefore strongly recommend the planting more largely of varieties belonging to these three classes than has yet been the case, for with a liberal selection of these three groups there will be an abundant supply of beautiful roses throughout the summer and the greater part of the autumn. To ensure continuity in flowering there must be a vigorous growth, and to obtain this good cultivation is necessary. This for our present purpose may be described as consisting of liberal manuring and deep digging previous to planting, and the generous application of rich top dressings subsequently.

TASTE.

The senses of taste and of smell are so closely allied that it is quite impossible to draw a line between them, the nerves of nose and palate are practically continuous; and though on the one hand many substances of decided flavour are odourless, such as sugar, and on the other, there are subtle scents which only the nose can detect, this is mainly due, in the first place, to the solvent action of the saliva being necessary to disengage the flavour, and in the second to the undeniably greater susceptibility of the olfactory nerves. The human senses, however, are doubtless of limited range in comparison with those of other living beings; and just as we need the telescope and the microscope to extend our range of vision to that of the eagle or the insects, immeasurably excelling the scope of the former, but probably falling far short of that of the latter, so too, there are tastes and odours utterly beyond our ken, as we may know, so far as odours are concerned, by the sudden advent of the rarer moths from great distances to meet their captive mates. In the vegetable world, the variety of flavours is practically infinite, since not merely has the foliage and fruit of every plant its characteristic flavour, sweet or bitter, nice or nasty, subtle or pungent, but this varies not only in the different individuals, but also at different ages of the same; so that the selfsame fruit may be by turns bitter and sour, pleasantly acid, sweet, very sweet, and luscious, and then passing the gamut of human predilections, it runs through all the sickening flavours of taints and ultimate rottenness, though with the medlar, curiously enough, it is only this stage that is really palatable. All this, of course, we know very well, our own particular tastes being in question, but what we are very much in the dark about are the particular tastes and distastes of the lower creation, and especially of that section of it whose tastes run apparently so nearly on the lines of our own that they trespass upon our preserves, and are therefore ranked as foes. Every horticulturist is aware that some plants of precisely the same species are much more liable to be eaten by caterpillar, grub, weevil, or what not, than their fellows; and it is abundantly clear that such plants must emit a pleasant odour, and probably possess an attractive flavour, since repeated clearings simply make room for fresh immigrants to renew the depredations. Other plants, apparently identical, remain unscathed, though actually intermingled with the sufferers. Other factors, of course, may be present in such cases, and doubtless, just as our appetites are whetted or blunted by the apparition of a tender or tough steak, and our teeth are more or less set at defiance by the latter quality, so many of our tiny marauders are tempted or baffled in like fashion by tendernesses or toughnesses beyond our coarser appreciation; which fact lies doubtless at the root of another, viz., that if we have a particular pet plant, of which we take extreme protective care, we are bound, sooner or later, to find a "worm i' the bud," fattening itself up cosily in the precious leafage our coddling has rendered an extra toothsome morsel. Did we know more of these likes and dislikes, tastes and distastes, we might be the better able to protect our plants by masking attractive flavour and odour with repugnant ones; but when we find the omnivorous slug making a hearty meal off the tobacco leaves placed as a deterrent, and flocking in shoals to them and the plant they were intended to protect, with disastrous results, we feel that full knowledge lies still in the womb of the future, and that the old proverb, "there's no accounting for taste," is still as true as ever it was.

FLOWER SHOW ARRANGEMENTS.

A good method for a secretary of a horticultural society to adopt in making arrangements for the annual or other exhibition is to have an index book lettered from A to Z, in which the exhibitor's name, and full address are entered, and the number of classes in which he enters be put in a perpendicular column, in their sequence; next, a class book, in which the classes are set forth in their regular order, a page or half-a-page being allotted to each according to the number of entries expected. As each person enters in a class his name is entered in due order, then a card should be previously printed leaving room for the class to be set forth in writing, and should be written with the name and address of the exhibitor on it in full, one for every entry, the class number being put on the back of each card, and these cards are given to the exhibitors on the morning of the show, and he is expected to place them in their proper order, with the backs of the cards upwards. The judges having made their awards, mark the backs of the cards; an attendant reverses them, places on the front the award in the form of a gummed slip, the award is entered on a card by the judges or by an attendant in the class book, and the work is done. This method necessitates more work on the day or two preceding the show, but when it can be done with greater comfort, and reduces it to a minimum on the show day. All the cards of exhibits to which no prizes have been awarded are also turned upwards by the attendant, and thus every exhibitor has his name and address set forth on his stand, though he may not win a prize. It is difficult to improve upon this simple method. Further, the awards made are set forth in the index book, together with the amount of prize-money won in each class, which also becomes a ledger. As soon as the judging is completed an accurate list of prizes can be compiled from the class book, which proves a great boon to reporters. Under the old system of judging by number, we have known hours consumed in obtaining a reliable list of awards, and not without considerable difficulty, some of the winning exhibitors' cards not being placed on their exhibits until the afternoon was considerably advanced.

Magnolia Campbelli, a splendid Himalayan species, and one that is only hardy in the most favoured parts of the British Isles, such as Devon, Cornwall, and the south of Ireland, has recently flowered in the open air at Messrs. R. Veitch and Son's nursery, Exeter. The specimen has occupied its present position for twelve years, and though it has previously produced buds it has now perfected its large purple flowers for the first time. In the south of Ireland M. Campbelli has flowered out of doors on several occasions. A fine specimen at Kew occupies a position in the Temperate House. A large, freely-flowered specimen would be a fine sight, for the flowers measure from six to ten inches across, and are of a rosy or purple colour outside, shaded with crimson, and white or pale rose on the inner side of the segments. In addition to their fine appearance, the flowers are slightly fragrant. Sir Joseph Hooker, who is so well acquainted with Himalayan plants, says of M. Campbelli that it "forms an immense, but very ugly, black-barked, sparingly branched tree, leafless in winter, and also during the flowering season, when it puts forth from the end of its branches great rose-purple, cup-shaped flowers, whose petals strew the ground." Though ugly when leafless and flowerless, especially in its native forests, Sir Joseph is compelled to state that "Magnolia Campbelli is the most superb species known."

From the Calcutta Botanic Gardens there is being issued a small periodical something after the style of the Kew Bulletin. Botanical, horticultural and agricultural matters will be dealt with, especially in so far as they are connected with the work of the Gardens. The first three issues are devoted to the consideration of a canker that attacks the cacao tree, and this is particularly interesting owing to the correspondence upon the subject which has taken place with the Kew authorities. The cause of the canker and probable remedies are discussed.

Experimental Potato Culture has received a large share of attention the Dalmeny estates, and a considerable success has been achieved. Many the varieties of recent introduction have been grown with a view to determ their usefulness for market, and a series of experiments have been made for purpose of ascertaining the fertilisers best adapted to the requirements of potat The comparative merits of sulphate of ammonia and nitrate of soda were p the test, and the results obtained were decidedly in favour of the amm salts. As in 1896, it was demonstrated that where the land received a liberal dressing of farmyard manure and is consequently in good condition. potash salts, as supplied for example in kainit, are not required. T is as might have been expected, for the soils in the Dalmeny dist are naturally rich in potash; but it in no way affects the advice that usually given for the application of potassic manures to light soils when being prepared for potatos. Some experiments were also made with regard to the of whole and cut sets, and the conclusions derived from them were to the effect that good-sized whole tubers were better than those which had been cut, and that sets of early varieties should on no occasion be cut.

Patriarchial Maple.—Mr. G. H. Beighton writes: "It will probably of interest to your readers to know that there is in Richmond Park a tree of Acer campestre of quite extraordinary dimensions, as it is much larger than any of discovered by the researches of Loudon. The tree is fifteen feet in circumference two feet from the ground, about five feet in diameter, but only some twenty fee of its stature now remain. At its prime, perhaps two hundred years ago, it m have been a magnificent specimen. Each recurring spring it still spreads forth mass of delicate and lovely foliage. It would be of great interest to ascerta any of your readers have cognisance or records of any maple of similar magni Further, it might be of benefit to generations to come if, in the very admirab forestry operations here, a few maples were included in the new plantations. Th tree referred to is the only one of its kind that I have noticed in Richmond P proper, though there are one or two well-grown ones in the neighbourhood.

Teaching Practical Botany.—As we have already informed our read a committee of the London County Council has been considering the practical of laying out plots of ground in certain of the London parks in such a manner will afford assistance to scholars at elementary and secondary schools in the s of practical botany. The committee has reported on the question, and the f ing suggestions have been made: (1) That a very valuable experiment co conducted on a scale sufficiently wide if, in each of three parks, about twenty ro of ground were devoted to the cultivation for school purposes of hardy typic plants belonging to twenty natural orders. (2) The beds should be arranged ne the paths, one bed being devoted to each order. They should differ in size, largest being a little under five hundred feet square, and the smallest about o hundred feet square in area, so that the average of the twenty beds woul approximately one rod. (3) The specimens selected should be such as are in growth, and each should be labelled with its common name and its L systematic name. (4) Labels giving the names and natural orders sh attached to the more important trees, shrubs, and plants throughout the p selected. (5) A botanical guide to the parks selected should be published the superintendence of the Technical Education Board and the Parks Comm (6) Teachers holding printed orders from the Technical Education Board, sh able to obtain from the superintendent in each park such specimens as mig required for botanical study in the schools, so far as they could be supplied w detriment to the specimens. The Parks and Open Spaces Committee, in p these suggestions in the form of recommendations, point out that some f suggestions were considered, but they thought it would be better in the instance to deal with the subject quite in the sense of an experiment; and if, on, it should prove to be resulting advantageously to the schools, possibl arrangements might be extended to the cultivation of important types of the orders of plants, such as fungi, mosses, ferns, &c., and facilities might be a for the study of aquatic plants. The chief officer of the Parks Department re the proposed arrangements as quite practicable at any of the larger parks, but some expenditure would be necessary. Upon that point the chief officer had instructed to submit a report. It is proposed that the experimental beds s formed at Battersea Park, Ravenscourt Park, and Finsbury Park.

The Royal Horticultural Society holds its annual general mee the Lindley Library, 117, Victoria Street, S.W., on Tuesday, February 8, at o'clock. The various committees will meet as usual at twelve o'clock in the Hall to inspect novelties and groups.

Commercial Camphor is chiefly obtained from the oil produced distillation of the leaves, growths, and wood of Cinnamomum camphora, a Jap tree. It is most largely manufactured in the island of Formosa, from wh is sent to Canton for exportation. In addition to this source there are n other plants that yield camphor; indeed, many members of the order L secrete it. For instance, the Bornean Camphor Oil is obtained from Dry aromatica. Quite recently some experiments have been made in New S by Mr. R. T. Baker in connection with Cinnamomum Oliveri, and th were given before the Linnean Society of that colony. The yield was a half per cent., and the product resembled ordinary commercial camphor, a slightly lower melting point.

Magnetism in Fern Life.—In the course of a most interesting upon the Conditions of Life of the Simplest Living Things, Professor Ray L stated that it formerly appeared that the antherozoid cells in fern re moved toward the egg cells (archegonia), which they fertilise, without any reason. But recently a German professor found that the antherozoid c on a glass slide were attracted, as if by a magnet, by malic acid, and investigation showed that the egg cells were coated with a slight this acid.

Early Butterflies.—A correspondent "B. T. I." sends us from Woking three specimens of the Brimstone butterfly (*Goneptyrex rhamni*), accompanied by the following note : "As proof, if any can be needed, of the mildness of the season, I send herewith three full-grown butterflies which I captured this morning on a sunny bank where they were disporting themselves as actively as if the summer had come.

The Royal Society has recently admitted to its fellowship Sir Nathaniel Lindley, Master of the Rolls. Sir N. Lindley is a son of the famous botanist, Dr. J. Lindley, who, in addition to his work in nomenclature, and scientific research, did splendid service for horticulture. Dr. Lindley's "Theory and Practice of Horticulture" is a work that will not soon be forgotten.

Filmy Ferns are ever a source of wonder and delight to those who love ferns as a class, while to the uninitiated they appear as one of the most elegant, delicate, and beautiful of the many families of cryptogams. Those who make a special study of ferns, especially the filmy species, will be glad to hear that Mr. G. S. Jenman has commenced to monograph the Ferns of the British West Indies and Guiana. This is to be published under the superintendence of Mr. J. H. Hart, of the Royal Botanic Gardens, Trinidad, in the Bulletin periodically issued from that establishment. The recent issue, part 5 of vol. iv., deals with the two genera, Hymenophyllum and Trichomanes, twenty-nine species of the former and forty-two of the latter being fully described. Forthcoming issues will be waited for with considerable interest.

Horticultural Club.—The twenty-third anniversary dinner of the Horticultural Club will take place on Tuesday next, when Sir J. D. T. Llewelyn, Bart., M.P., chairman of the club, will preside. Mr. George Bunyard has undertaken to arrange for a selection of vocal and instrumental music. The chair will, as usual, be taken at six o'clock.

Manures for Grasses.—Experiments with manures for grasses were carried out at Dalmeny last year by Mr. Drysdale, agent for the estate. Seventeen plots of one-third acre each were devoted to the experiments. The land was in good condition, having received thirty tons per acre of well-rotted farmyard manure in 1894 and grown a wheat crop in 1895, followed by a barley crop in 1896. The grass seeds were sown in the barley, and the crop was harvested as hay in 1897. The plots were variously dressed with artificials, but certain plots intended to serve as control or check plots received none. The crop on each plot was weighed as hay, and the best result was obtained after a dressing of one hundredweight of superphosphate of lime and two hundredweight of sulphate of ammonia per acre. The profit, after allowing for cost of fertilisers, was £1 15s. per acre over the unmanured plots. The first cutting yielded three tons and the second one and a-quarter tons per acre. A similar experiment, in which nitrate of soda was substituted for sulphate of ammonia as the source of nitrogen, gave a somewhat less favourable financial result. In addition, moreover, the quality of the hay from the sulphate plots was throughout superior to that from the nitrate plots. Hence, it is concluded that for land such as this, in good condition, and situated in the valley of the Forth, sulphate of ammonia and superphosphate form an effective mixture of artificials for promoting the growth of hay.

The Wolverhampton Floral Fete of 1897 resulted in a profit of £421 10s., the gross takings, £2,390 2s. 4d., showing an increase of £87 16s. 9d. on the previous year. At the annual meeting Mr. S. Dickenson referred to the success of the fête during the past nine years, stating that the total profit in that period had been £3,956 18s. 6d., out of which the committee had built shelters, greenhouses, and paid for music in the public parks, and created a reserve fund of no less than £786 12s. Wolverhampton is to be congratulated upon the enterprise and public spirit of its horticulturists and other business men who assist in making the fête so great a success.

Horticultural Conferences at Antwerp, organised by the Royal Horticultural Society of that famous city, are being held at the Palais des Fêtes of the Royal Zoological Society of Antwerp. The first was held on January 30, when Mr. Charles de Bosschere delivered an address upon Exotic Orchids. This is to be followed by a further lecture on the subject on February 6. On February 13 M. J. de Beucker will discuss the merits of various plants suitable for house decoration and general furnishing, and on February 27 will deal with the Management of Villa Gardens. The concluding conference of the present series will deal with Floral Decorations, M. de Bosschere opening the discussion. Exhibits are invited, we are pleased to see, as only by ocular demonstration can such conferences be made of the highest possible value and interest.

Omphalodes verna, a pretty little hardy perennial that is admirably suited for wild gardening, is this year flowering very early. Although a South European plant, it has so long been cultivated in this country that in not a few localities it has escaped from gardens and become naturalised, so that many consider it a native plant. When established it spreads freely, and then, usually from March to May, it produces its pretty deep blue flowers that are so much like those of forget-me-nots, but borne on smaller cymes. Mr. A. W. Kime, of Westhill Gardens, Yarmouth, Isle of Wight, has sent us a few specimens of omphalodes nicely in flower, and picked by him in the woods at Yarmouth on the morning of January 28. Mr. Kime states that the species does not usually flower till April and May in the spot where it is blooming so early this year.

The Burmese Cotton Trade, according to the Customs authorities, is increasing rapidly. The trade is in raw cotton, and during 1896-7 amounted to 57,928 cwt., valued at twelve lakhs of rupees. The recent and continued large demand the raw product in China, coupled with the fine crops of cotton both in Upper and Lower Burma, has been the cause of prosperity. The staple is so good that the Chinese markets will take practically all the first-rate cotton Burma can produce ; poorer qualities find a sale in India. No Burmese cotton came to the United Kingdom last year, but it must be remembered that China took 46,893 cwt. during that period.

Our Coal Supply.—Lord Kelvin, when speaking of the earth's fuel and air supply, once stated that all the known fuel on the earth is the residue of ancient vegetation. One ton of average fuel takes three tons of oxygen to burn it, and therefore its vegetable origin decomposing carbonic acid and water by the power of sunlight, gave three tons of oxygen to our atmosphere. Every square metre of the earth's surface bears ten tons of air, of which two tons are oxygen. The whole surface is one hundred and twenty-four thousand millions of acres, or five hundred and ten million millions of square metres. Hence there is not more than three hundred and forty million millions tons of fuel in the earth, and this is probably the exact amount, because it is probable that all the oxygen of our atmosphere came from primeval vegetation.

Presentations to the Hull Parks.—A short time ago a small collection of orchids was presented to the Pearson Park, Hull, through the good offices of Dr. Hewetson, who, when visiting Brazil, obtained about thirty species, brought home securely packed and cared for, and delivered them at Hull free of charge. Mr. Toyne presented the various parks with about one thousand five hundred tulip and narcissi bulbs.

The National Horticultural Society of France has been honouring several of the leading horticulturists of its country by the presentation of medals of gold, silver-gilt, and silver. Gold medals have been awarded to M. Octave Opoix, head gardener at the Luxembourg ; and to M. Balu, head gardener at the Château of Vaux le Vicomte. Silver-gilt medals were presented to M. Coudray, of the Luxembourg ; and to M. Branchard, head gardener at the Château de Bagatelle, Bois de Boulogne. Silver medals were awarded to M. Pelet, of the Luxembourg ; M. Proust, gardener to M. Berthmont ; M. Huré, gardener to the Princesse de Sagan ; M. Mabillat, gardener to M. Bardac ; M. Bosset, gardener to M. Dessondaix ; M. Quinton, gardener to Madame Carmault ; and to M. Germain Sévres, gardener to M. Guion.

The Field Museum, Chicago, has just acquired by purchase the herbarium of the late Professor Michael S. Bebb, of Rochford, Ill. Professor Bebb was an authority upon the troublesome genus Salix, and his herbarium is probably second only to that at Kew in respect to willows. The entire collection has been purchased for five thousand dollars. It contains over 50,000 specimens, representing 30,000 species, including the valuable material gathered on the Mexican boundary and Canadian Pacific surveys, and the Peary and Greely polar expeditions.

Economic Plants for the United States.—The Secretary of Agriculture for the United States has placed in his estimates for the coming year an item of twenty thousand dollars to be set aside from the fund for the free distribution of seeds, for the purpose of introducing valuable economic plants into the States. If Congress sanctions this item Mr. D. G. Fairchild will be entrusted with the work of introduction.

The late Baron von Mueller.—An influential committee has been formed in Melbourne in connexion with the fund for establishing a permanent memorial of the late Baron von Mueller. It is hoped that the fund will be large enough for the provision of a bust of the late Baron, and also for the endowment of a prize to be associated with his name and awarded as a recognition of botanical, horticultural, or pharmaceutical research in the Australian colonies.

Koda or Kodo Millet in India.—Mr. A. E. Grant, of the Hygiene Laboratory, Medical College, Madras, states, in a letter to *Nature*, that there have been several well ascertained examples of poisoning from diseased or improperly-prepared Koda millet (*Paspalum scrobiculatum*) during the past year in India. Owing to the prevailing scarcity of the usual food-grains, it is probable that Koda millet has been extensively sold and eaten in localities where its use is ordinarily unknown. I hoped, he says, to undertake an investigation myself into this matter, which is one of great importance both from the hygienic and economic points of view. After consultation, however, with Surgeon-Major van Geyzel, chemical examiner to the Government of Madras, I have decided that any investigation worthy of the name would occupy far more time than I have to give to it. I therefore write with a view to eliciting the help of some worker in Britain or elsewhere who has the necessary leisure and facilities for work of this sort. I have samples of the grain, husked and unhusked, from different localities, and can supply the necessary references to the literature of the subject. The investigation, I take it, would have to be of a chemico-biological nature, and would be most appropriate, say, for a thesis, or in connection with some fellowship. I hope that someone who can carry the work right through, and will ascertain the exact source and constitution of the poison (? a volatile alkaloid), will write to me at the address given. In another ten years, perhaps, there will be some attempt to provide the men and the facilities for such work, even in India, when the Victoria Institute is an accomplished fact. We may add that the Kodo millet is an erect grass growing from one to two feet high. In some parts of India it is much grown for food, the grains being used as rice or ground into meal ; they are, however, likely to act as a narcotic poison.

The Prize Cup offered by Mr. H. Deverill, Banbury, to the amateur or cottager gaining the most prizes for vegetables grown from his seeds at the shows in the United Kingdom in 1897, has been awarded to Mr. Alfred Radcliffe, mill warehouseman, 30, Savill-road, Elland, Yorks.

"The Florilegium Haarlemense" for January, 1898, contains fine coloured plates of the following bulbous plants : Hyacinth Hadyn, a single violet variety that has been in cultivation since 1860. Tulips Duchesse de Parma, Thomas Moore, and Ophir d'Or are effectively grouped in one plate ; the former somewhat resembles the well-known Keizerskroon, but has a browner tint of red, while the yellow is less conspicuous ; it has been in commerce since 1837. The third plate consists of representations of three double forms of narcissus, viz., Van Sion, Orange Phœnix, and Sulphur Phœnix ; the former a variety of N. Telamonius, and the two latter both incomparabilis forms.

HARDY WINTER FLOWERS.

THE mild winter—which before these notes are read will probably have been interrupted disagreeably—has produced a record amongst hardy flowers in this garden, which has never in its life been so gay in January. Bees are always abundant at Edge, and are busy as soon as any flowers are open; this year they have been at work all January in every gleam of sunshine, and on some warm days when there was no sun.

To begin with Anemone blanda, some have been in flower ever since Christmas, but at the end of January—the date of these notes—the flowers are in profusion. They are earliest and thickest under a south wall; but as seed is gathered and scattered along the edge of the flower-beds every year, it is gay in many parts of the garden. The colours vary from dark violet to pure white, some being three coloured, shades of light and dark showing in transverse bands. The last are the largest flowers, the variety having been introduced by Mr. Whittall from Asia Minor; but they all grow promiscuously, and it is hard to know whether the seedlings, which flower when two years old, come true. Mixed with these, in choice sunny spots, grow bunches of Hyacinthus ciliatus, better known as H. azureus. These, too, have been in flower all January, and as the seeds are left to come up round the parents, the abundant tiny cones of azure blue make a very effective show. It would not be easy to have too many of them. The winter aconites, which swarm in the shrubberies wherever they are allowed, but do not grow in the grass here, as it is too luxuriant for them, generally begin to show through the soil about New Year's Day. This year they were visible by the middle of December, and were, as usual, the first flowers to attract the bees. Crocus Imperati was not long behind the aconites, several being in flower about Christmas Day. They kept on coming fast till the middle of January, the fine flowering time bringing them all out at once, and making a splendid show. They seem as easily contented as any other crocus, and are planted and sown about in great profusion, but the grass is too coarse here for these too. They are now nearly over, the latest being a variety without any stripes outside the flowers, and very dark purple inside. I have a good many of the white variety, raised from seed collected for me in Italy. These, too, are later than the type, and are less fine and less white than some of the best forms of C. vernus. Crocus Sieberi, also in various shades from white to purple, came in with the New Year, and a fortnight later C. banaticus, a prolific and hardy kind, with rather small and slender flowers of uniform pale purple. The common yellow crocus and several other spring-flowering kinds are out earlier than ever before.

The little Cyclamen coum, with flowers of crimson or pink or white, is now ornamenting a dozen or more choice corners. In some the leaves are plain glossy green, like those of C. Europæum. Others are more or less marbled, and all these varied flowers and leaves seem to come from seedlings of the same plant. I have tried in vain to distinguish between C. coum, C. ibericum, and C. Atkinsi as grown in nurseries, so I make one name do for all. These are not abnormally early this year. It is their habit to begin at Christmas, and neither frost nor snow seem to injure the flowers. To come to snowdrops, their name is now legion, but for plain gardeners like me half-a-dozen names will cover them all. I have no ambition to have snowdrops out in October. By far the best snowdrop I have, which flowers with the old-fashioned type, is Galanthus Imperati; like it, but twice as large. Its constitution is so robust that it is never destroyed by the fatal blight which in this garden attacks such kinds as G. Elwesi and G. Fosteri. We read of several varieties of Imperati. Some have long stalks and some short, but all have large and long flowers. Without speaking disparagingly of any snowdrops, I only say that half the pleasure of them is gone if they are to be overshadowed by labels large enough to contain the long varietal names which we see in catalogues; and I have now learnt the luxury of growing such things without names, so labels are becoming scarce in my garden. The earliest squill is Scilla sibirica, which has come up everywhere capriciously and by ones, to be followed in a month by dense masses in the same places. Are these ones the deepest planted, or individuals of a precocious nature? The earliest daffodil here is always N. minimus. It began this year on January 20, and is now fully out.

Lent roses—Helleborus orientalis and allied species, but here most of them spontaneous hybrids—deserve more than a passing notice. There are hundreds of fine plants which have never been moved since they were first planted as seedlings. The colours of some are charming; delicate pink, almost like apple blossom, or white, spotted inside with purple. Experience has taught where to plant them so as to suffer least from bad weather. Cold winds and snow are their worst enemies; the flowers stand a good deal of still frost without damage. They do best close to the north side of a wall with overhanging trees, or close to a holly or a privet hedge, or under fir trees; they seem to like dark shade; where they see much sun the leaves are generally browned before the beginning of winter, but the leaves of the last year ought to last perfect and green till the flowering is over and the new leaves come. A good dressing of rotten manure in autumn helps the buds to make fine flowers. This year they are exceptionally good and early, all but the very dark purple called H. colchicus being now fully out. Thanks to the sunny May and June of last year the single scarlet Anemone hortensis is now very good both in display of flowers and in colour, and Iris unguicularis, which seldom does anything here but make leaves, has given a succession of flowers all the month.

It should be recorded that many alpine plants are not as early as usual. Hepaticas have hardly shown a bud. The winter saxifrages, S. Burseriana and its hybrids, and S. sancta, S. apiculata, and their allies, which generally are out soon after Christmas, are hardly yet beginning. The delightful little winter varieties of Iberis saxatilis are only just bringing into flower their crowded masses of tiny umbels. As for Morisia hypogæa, which is now flowering out of doors in perfect health, if it proves in the long run as hardy as it has seemed to be in the last two winters, it will make one of the best recent additions to the alpine garden.

Edge Hall.

C. WOLLEY DOD.

EARLY BORDER CHRYSANTHEMUMS.

THE extreme usefulness of this section of chrysanthemums is not nearly so widely appreciated as it should be, and maybe the wonderful enthusiasm created by the large flowering varieties in November has been so absorbing that, to a great majority, the only ones which appear to have any merit are those which are capable of being grown to a large size. There is another reason, and perhaps the most reasonable one, why these early flowering sorts are not much grown, and this is that very few people have any idea of the great variety which has during the last few years been introduced into this section, both from foreign raisers and by our own specialists. A few years ago very few sorts existed which were worth planting outdoors, and most of these needed the protection of a wall to ensure the blossoms opening before severe frosts crippled the plants, but now there are at least one hundred really good varieties which open their flowers in an ordinary border before the end of October.

We set apart a border for these early chrysanthemums during the past year, besides using them in bedding arrangements; for cutting from they were invaluable. The general remark of gardener friends who saw the plants in bloom was one of surprise that such "good things" existed. I had the opportunity also of seeing the extensive collection grown in the open by Mr. Davis, at Framfield, last October, and amongst these I noted several excellent new varieties; two or three of a lovely shade of salmon-pink were particularly attractive, and one called André Falliére, a most charming flower, in form reminding one of the well-known Roseum superbum, but of a beautiful amber colour. It is also evident how valuable such plants will be in gardens with only one or two greenhouses, when in ordinary seasons abundance of flowers may be cut from the open up till the end of October; and if frost is likely to injure the blooms, a covering of some kind may be placed over the plants, or they may be lifted and potted, or placed in a pit, or on the floor of a greenhouse, and have a covering of light soil over the roots, where they will continue to develop their blossoms. It is much best, if possible, to devote a border exclusively to these varieties, where they may be arranged in large groups of each sort and according to the height of the plants; the effect thus obtained is much better than by mixing them in ordinary flower borders, and they are much more interesting together than if dotted about amongst other things. At the same time they may be very effectively employed in association with herbaceous plants, and will add materially to the display during autumn, when most plants are losing their beauty. Clumps of three plants of one variety are most satisfactory when planted in mixed borders. The height of the various sorts ranges from one to four feet, so that very little staking is required by any of them. Though the varieties are quite hardy, it is much best to replant with young stock every spring. This does not involve much labour, and is amply repaid in the superior quality of the growth and flowers. In the autumn after flowering lift one or two stools of each variety and store them in a cold frame to provide cuttings in early spring; these may readily be rooted in pots in the ordinary way, or be planted in a frame like viola cuttings, whence they may be transplanted to the open early in May. It is a bad practice to take cuttings from the open, in winter, before they have made any growth, as these cuttings usually grow spindly and are also very liable to go "blind," but cuttings taken from the frame after some two or three inches of growth has been made, are no trouble to grow.

I have made a selection of varieties from those which have come under my observation, and though there may be very excellent sorts omitted from the following lists, they include none but really good and reliable varieties. The lists are for September, and also for October, but several of the earlier ones commence to bloom in August, and of those for October, some may bloom towards the end of September, so that an unbroken succession of flowers is provided over almost three months. In conjunction with my lists, readers should examine those given in the GARDENERS' MAGAZINE of September 18 and October 16 1897, where the Chiswick trials were reviewed and the heights of varieties given.

September—Alice Butcher, chestnut red, very free; California, yellow, excellent habit in way of Flora; Canari, pale yellow, capital dwarf habit; Deuil du Pére, very dwarf, an improved Little Bob; Early Blush, pale blush, dwarf and early; Feu de Bengale, orange red, first-rate; Frederick Pele, crimson with gold tips; Flora, yellow, very free and good habit; Harvest Home, crimson bronze, very fine; Ivy Stark, golden bronze, lovely flower and habit; Little Bob, crimson brown, very dwarf and free; La Viérge, purest white, sturdy habit; Lily Stevens, white with quilled petals, dwarf and pretty; Madame E. Vaucher, orange bronze, very good; Mdlle. Marie Masse, lilac mauve, large flowers excellent, free and continuous bloomer; Mr. Selly, pale blush pink, charming, very dwarf; M. Gustave Grunerwalde, pale lilac, very free; Nanum, pale flesh pink, early; Piercy's Seedling, orange bronze, a most useful variety; Sam Barlow, salmon pink, tinted gold, pretty; St. Mary, white, very early and continuous; Vice-president Hardy, orange red, most free and effective; White St. Crouts, small flowers very free.

October—Alexander Dufour, bright rosy purple, dwarf; Alice Chausson, warm bronzy amber, fine; André Falliére, beautiful amber colour, first-rate; Charles Gerard, reddish crimson, good; Charles [illegible] deep rose pink, very free; Chev. Auge Baudiere, silky mauve, very free, tall; Comtesse F. de Cariel, most lovely orange bronze, sturdy; [illegible] Queen, very uncommon colour, good; Edith Syart, a capital variety; Harvest Queen, white, excellent habit; Lemon Queen, a deeper shade than name implies; Louis Bettzich, pale rose shaded salmon, very beautiful and distinct, sturdy habit; Madame B. Yung, crimson shaded chestnut, rather tall; Marquis de Montmort, pale mauve, very pretty; Mrs. A. J. Parker, light salmon pink, very charming; Madame Z[illegible] Lionette, yellow suffused with bronze, pretty; Mons. G. Dubor, reddish crimson, capital habit; October Queen, salmon pink, good; O. J. Quintus, rose pink, free and good habit; Prefet Leon Cohn, bright orange shaded chestnut, first-rate; Roi des Precoces, crimson, free and effective.

Trent Park Gardens.

W. H. LEES.

SOME ROSES OF 1895.

CHARLOTTE GILLEMOT, H.T. (Guillot).—We have a few plants of this rose, but looking over the list I see we did not stage a flower of it at any of last year's exhibitions, nor do I remember seeing a bloom on the plants. These, however, are maidens, which throw up long shoots bearing no flowers. It may do better as a cutback. The following is the raiser's description: "Growth vigorous; very floriferous; flowers large, of perfest imbricated form; colour ivory white. This variety is remarkable for its perfectly formed flowers, which are of great beauty. One of the most beautiful roses of this class." I wonder whether we have been cultivating another rose under the name of Charlotte Gillemot, especially as one English grower, after quoting the raiser's description, states, "This has been very free here under glass"; and another rosarian calls it, "Quite first-rate."

HELEN KELLER, H.P. (A. Dickson and Sons).—In striking contrast to the foregoing, this new rose has been most useful to us during the past season, being staged in ten out of fourteen principal classes. The colour is lilac-pink, not a good shade, perhaps, as regards brilliancy, but nevertheless quite distinct. I do not know its pedigree, but it is suggestive of a combination of Mrs. John Laing and François Michelon, producing large handsome flowers, perfect in form, globular, with good depth of petal. Vigorous in growth, very free flowering, the blooms standing erect on remarkably long foot-stalks, a characteristic of the variety. With us it is one of the best, if not the very best, hybrid perpetual that Messrs. A. Dickson and Sons have distributed, and has well deserved the gold medal of the National Rose Society awarded to it at the Crystal Palace in 1895. In habit and wood it closely resembles Mrs. John Laing, and I think will prove nearly as useful. It stood the cold nights of last spring well, scarcely any blooms being deformed or rough, although on all sides of it other varieties were greatly injured.

MARJORIE, H.T. (A. Dickson and Sons).—A pretty little white rose for the garden, of good shape, but too small to be classed as an "exhibition" rose. The texture of its petals is so thin that it damps off at the least wet. Is this one of the reasons why the raiser recommends it "for pot culture," and states that "for forcing purposes this is most valuable"? It is included in Mr. Benjamin R. Cant's list of hybrid teas, and his description of it runs thus: "White, suffused with salmon-pink, flowers full, of medium size, and very pretty, especially good under glass."

MRS. W. J. GRANT, H.T. (A. Dickson and Sons).—This charming rose has had such a very remarkable career, and, in consequence, so much has been written about it that little more need be said. It is well known that Messrs. Dickson, after exhibiting it, and obtaining the gold medal of the N.R.S. for it under the name of Mrs. W. J. Grant, out of compliment to the well-known rosarian of that name, disposed of the entire stock to an American firm, who, having adopted it as their own child, distributed it under the new name of Belle Siebriecht. When, however, it returned to this country, it was quickly recognised and called by the name under which it was first presented to the public. Colour rosy-pink, very free flowering, always in bloom, from first to last, producing clusters of long pointed deep-petalled flowers, which, if required for exhibition, must be well disbudded, although for garden and house decoration the buds may be left. It cannot, with us, as yet be called vigorous or quite hardy, and, in budding, it either does not take very readily, or else the buds are injured by the winter frosts. It appears to have a considerable strain of the tea rose in its constitution, which it more nearly resembles than the hybrid perpetual. No one, I think, has exhibited it so well as the raiser himself, who last year, as in previous years, staged magnificent flowers brought all the way from Ireland; flowers that really seem to thrive upon a sea trip. For my part, probably because we do not manage it well, the flowers have a tendency to develop too quickly after cutting, and therefore have to be discarded upon arriving at the place of exhibition. Nevertheless, as exhibited by the raiser, it is one of the best hybrid teas.

MADAME JOSEPH COMBET, H.T. (Bonnaire).—This is a distinct variety, both in flower and foliage. Each plant sends up four or five long short-jointed thornless shoots, with leathery dark green shiny leaves, and bearing on the top of each shoot a cluster of buds. The bloom is creamy white, of good size, well up to the exhibition standard, but not sufficiently pointed to develop well. It is a late-flowering rose, coming into bloom with us, about the last week in July, or the first week in August. As the hard round buds when opening have a tendency to coarseness, the plant should not be too severely disbudded. The flowers require a hot dry season to open well, and cannot stand the least dampness, for they soon discolour and decay in rain. For this reason I do not think it will ever take a foremost place, and cannot recommend it for a general collection, but only for the sake of variety.

MRS. PIERPOINT MORGAN, T. (H. N. May).—I have included this rose in the list from having seen it so well staged at some of the exhibitions, but we do not grow it. It is a sport from Madame Cusin, and so closely resembles that variety both in form and size that I think it is best described as a bright cerise Madame Cusin.

SYLPH, T. (William Paul and Son).—Not having grown this rose I cannot speak of it from experience. From the excellent blooms of this variety staged last year at various shows it appears to be a useful one, and we have budded a few of it for the coming season, when I hope to be better able to express an opinion. Judging from what I have seen of it in other people's gardens it is a very free bloomer and well adapted for the garden. I cannot do better than give the raiser's description of it when sent out in 1895: "Flowers ivory white, tinted with peach colour; centre creamy pink, a very beautiful blending of colours; large, high centred, and with stiff deep petals; habit erect, a magnificent exhibition rose; the growth is vigorous and the flowers are produced in great abundance, rendering it also one of the most desirable varieties for garden decoration and for cutting purposes.

JOSEPH H. PEMBERTON.

SCARCITY OF LATE WINTER PEARS.

IT often happens that, even in the best seasons, or when there are full crops of fruit, we have a scarcity of good late winter pears. In this part of the country there are very few pears fit for table in March—at least, such is my experience, for I have never been able to keep them good at Syon even as late as that month. Soil and locality will in a measure account for this. I fear, however, that many more growers are in a similar position, as at the last meeting of the Royal Horticultural Society there was but one good dish of pears—Josephine de Malines; yet there was no lack of apples, thus showing a scarcity of good late pears, for on other occasions exhibitors have sent pears with their apples to compete for the flavour prizes. I have come to the conclusion that we are lacking in varieties of really good keeping pears. Certainly the catalogues of leading fruit growers contain a fair list of pears in season from December to April, but so far I have never been able to keep pears so long as stated, and it has not been for want of attention to those small details that assist in preserving fruits. We have left Josephine de Malines, Oliver de Serres, and others hanging on the trees till November, after the leaves had fallen, to endeavour to keep them into the spring; this was an experiment, and it failed.

We have a wealth of good pears which give us supplies from late September to November, but I wish we could have this plentiful supply after Christmas. There are, however, new varieties coming to the front, and we may in time have something akin to Doyenne du Comice among them, which matures in February or later. I had hoped great things from the new Le Lectier, and as regards quality, shape, and size, am not disappointed, for it is a nice fruit; it is a variety raised in France between the popular Williams' Bon Chretien and the French Bergamotte Fortunée, and its season is stated as from January to March. We have it as cordon trees on a south wall; these are young certainly, but gave good fruit, but we could not keep them after December, though it is only fair to add our soil, the warm position and hot summer may have affected its keeping. Still, I fear it is not as late as one could wish, though it will make a good Christmas pear. President Barrabe, a new pear, given an award of merit in December last and a first-class certificate in January, by the Royal Horticultural Society, promises well, and Mr. Allan, of Gunton, is to be congratulated on the way he grew this variety; we have it in cordon form and expect great things, but fear it will ripen earlier than January; it will, however, be a valuable December fruit, and we have room for it, as the quality is excellent. So far, our most useful December pear has been Nouvelle Fulvie, not a handsome fruit by any means, but a splendid quality for dessert at the season named; it does well in our light soil, where it is grown mostly in pyramid form, but it is well deserving of a wall. Josephine de Malines we grow as pyramid trees, but the fruit is none too large, and those who like this variety, will find it worth wall space; when in a distant county I grew this variety on a west wall, where it was really grand. In the north it is worth a warm wall. At Syon we have never been able to keep good fruit of this variety after January. The fruits shown at the meeting alluded to were grown in Berkshire. A revision of dates as to the keeping qualities of pears is needed, as I fear very few dishes of Josephine de Malines could be kept good till April, or even May, as stated in some catalogues.

The best keeping pear we have is Oliver de Serres, but unless this is grown well it is so small that it is not much cared for; it is not a showy fruit, but of fair quality. It shrivels so badly if gathered early that it is then soon unpresentable. If grown on a bush or pyramid it should be well thinned. The useful Beurre Rance, which is so good at the season pears are scarce, does not do well with us. In Gloucestershire we had five dwarf standards of this variety, but could not keep the fruit after January, though in fruit catalogues it is often described as a much later pear. The well-known Easter Beurre is rarely seen at Easter, at least, in a good condition. We cannot keep it after this date, and it is not very productive here I regret to say, though I am aware in many gardens it is a splendid variety. Ne Plus Meuris, a variety often catalogued as a March or later variety, does not keep nearly so late with us, and our large pyramidal trees fruit so freely that unless well thinned it is useless for dessert. Doubtless the stock in our case is at fault, for this pear needs double grafting, while in exposed places it is worth a wall. There are others I could note, but as several of them are earlier to mature than those mentioned there is no need to extend the list. A variety less known—Duchesse de Bordeaux—I saw staged in very fine condition in the middle of February, gaining a first-class certificate. I have not yet fruited it, but it should be valuable for its lateness. It is above medium size, of good shape, russety, and with firm flesh. I hope to get fruits of it this next season, that they will eke out our scanty supply of late pears.

Syon Gardens. G. WYTHES.

Chrysanthemums for December and January.—The following notes may be interesting to those who have to supply cut flowers for indoor decoration, and at the same time keep up a gay display in the conservatory at this dull season. We have now, the middle of January, groups of chrysanthemums all fresh and bright, edged with smaller plants such as primulas, cinerarias, celsias, cyclamen, ferns, &c., the whole presenting a very gay appearance. I will give the names of the varieties as arranged. Phœbus, best yellow to last; Ada Spaulding, delicate blush; H. J. Jones, Cecil Wray, Etoile de Lyon, Boule d'Or, Golden Gem, A. T. Symonds, W. H. Lincoln, Wilfred Marshall, Elmer D. Smith, Lily Gore, refined white; G. C. Schwabe, and L. Canning, the latter is our best late white, either for cutting or for conservatory. We split up the old plants of this latter in April, planting them out on a south border, carefully lifting and potting them up again in September. We grow a big batch of this, as it carries us through February. By growing the above varieties in the ordinary bush fashion (not disbudding), housing late, keeping them in the coolest house available, we secure a grand supply of these ever welcome and useful flowers. I would add that we find the following are superb for cutting from: Ada Spaulding, Wilfred Marshall, Golden Gem, L. Canning, Elmer D. Smith, and Phœbus.—J. MASTERTON, *Weston House Gardens, Shipston-on-Stour.*

HARDY PEACH CULTURE.

I QUITE agree with Mr. Cook (page 51) that an erroneous idea exists regarding the necessity of glass or other copings on walls to obtain successful results in outdoor peach culture. Many failures might be traced to errors in culture. It is but a few years ago since I was asked to look at some peach trees belonging to a gentleman in this neighbourhood which were not satisfactory, although they had been growing there many years. Readers generally will not be surprised when I tell them that the trees were regularly covered and protected every autumn with sheep hurdles and bracken to ward off frost, as though they were tender plants. It is not a difficult matter to sum up half-a-dozen reasons of failure, and, for the benefit of those who may have committed some of them, and have not earned success, I will briefly allude to them.

Perhaps the greatest mistake made is that of neglecting the spread of insect pests early in spring. The one which checks the growth of the tree, and renders it permanent injury, is black fly ; indeed, the whole of the aphis family are troublesome, and often the cause of failure. Black fly is, perhaps, more difficult to eradicate than the ordinary green form ; if allowed to go on unmolested for even a few days after becoming established the leaves curl up, rendering the application of remedies the more difficult. No shoot on a peach or nectarine tree can make progress when hampered with this pest. Syringing the trees with an insecticide of some kind the moment the first fly is seen should be an imperative order. In extreme cases dipping the affected parts in a strong solution of tobacco water is a sure remedy. The same remarks as to cure apply with equal force to the ordinary green aphis. Red spider is an insidious pest, and calculated to weaken the trees if allowed to make progress. It is not in the early days of growth, though, that this insect is troublesome, but generally in August, September, or October, when the weather is warm and the rainfall scanty, for the trees are too often neglected after the crop is gathered. It is then that red spider makes its presence felt all too keenly. If steps are not taken to arrest the spread of this pest the energy of the tree is reduced, and the wood and buds cannot be so perfect as otherwise. All practical cultivators of fruit trees will agree with me that maturation is essential to fruitfulness.

Another source of failure is pruning at the wrong period. Too many trees are not pruned until spring, many just before the buds burst into bloom, and some even after that period. Directly the fruit is gathered is the correct time to prune the trees, according to my notion of the cultural requirements of peaches. Judiciously remove surplus growth at the period named, for when the leaves are upon the trees a better idea is gained of the space to be occupied by future growth than when pruning is deferred until the trees are leafless. Overcrowding the branches is another source of failure to secure the finest specimens. While overcrowding is not absolutely detrimental to a heavy crop of fruit as far as numbers are concerned, it certainly is when high quality is required. What I mean by quality in peaches is large size, rich colour, and what is even of more importance, fine flavour. This latter attribute cannot be obtained when the fruit is deprived of sunlight and air. If this doctrine is accepted as being correct, the merest tyro in fruit culture will readily grasp the advantage gained by judicious early pruning.

Too much manure dug in about the roots is another source of failure. Some argue that a strong, vigorous growth is the best, and to obtain this they stimulate the trees into violent action by the application of rich manure. The result of such injudicious treatment is gross unripened shoots, that are liable to gum, do not set their bloom buds ; indeed, many shoots of this description do not show a profusion of buds, they are much more addicted to the production of lateral growths. Instead of digging-in manure about the roots, it is better to assist the trees when necessary when carrying a heavy crop of fruit by liquid manure and surface dressings of half-decayed manure, and the addition of artificial manure discriminately chosen and properly applied. Too many ignore the value of mulching fruit trees, but there cannot be two opinions as to its value in encouraging surface root action. Mistakes, also, are made in this detail, and the greatest is that of applying the mulching in the autumn and allowing it to remain until it decays, irrespective of the weather. Under such conditions the roots are robbed of the warming influence of the sun during the spring and early summer. Too often the roots of the trees are much too deep to receive any benefit from solar heat, in consequence of deep planting and continued digging afterwards. A firm soil, with the roots as near to the surface as possible, are the conditions that favour success. In my case the soil within a yard of the wall against which the trees are growing has not been disturbed for ten years, and I have no cause to complain of results. It is a very good plan to trench the soil within three or four feet of the wall once in two or three years. This is often the means of checking a too exuberant growth, and at the same time encourages the production of fibrous roots by the severing of those of a fibreless nature.

Swanmore Park Gardens.

E. MOLYNEUX.

The Miniature Trees of China and Japan have ever been a source of wonder and interest to horticulturists, and it has generally been considered that these curious specimens are the result of generations of patient stopping, training, and general dwarfing. A contemporary, however, is assured that the following is the *modus operandi*. Take an orange, cut a hole in the peel the size of a shilling, remove the pulp with a spoon. Fill the skin with a mixture of cocoanut-fibre, moss, and charcoal, chopped fine and stiffened with a little loam. Put in your acorn, or seed, or kernel of any tree you wish to dwarf, then place the orange-peel in a vase or tumbler, after the manner of an egg in a cup, and stand it in a window. Water it occasionally through the hole. In due time the tree will push up its stem and the roots will come through the peel. They must then be cut off flush with the peel, repeating the process at intervals for about two years and a-half, when your tree will assume a stunted, gnarled appearance, like an old tree. When the roots are cut for the last time, the orange-peel, which, strange to say, does not rot, must be painted black or varnished. This shows that the production of dwarf plants is due to a systematic checking of their root growth.

MULBERRIES AND SILK-WORMS IN AUSTRALIA.

FOR many years past the advantages possessed by New South Wales for the successful practice of sericulture have been fully recognised, but so far the industry does not appear to have progressed much beyond its experimental stages. When the notice of the colonists was first directed to the possibilities of sericulture, mistakes were made in obtaining eggs prior to making provision for the subsistence of the worms, and consequent failures dashed the hopes of the inexperienced enthusiasts who so unpreparedly essayed the culture of silk. In some of the other colonies sericulture has been attempted with varying success, and hopes are entertained that cocoons may yet become articles of export, the idea of manufacturing silk locally being impossible, by reason of the absence of the necessary experienced skilled labour and complex appliances of modern weaving machinery. It has been pointed out to Australian farmers that the first practical step towards acclimatising the production of silk is the placing under cultivation to the white mulberry, sufficient land to grow the only food for the worms which makes systematic sericulture possible. The caterpillars, called "silk-worms," will live on the leaves of various kinds of trees, but it is only when they are nourished on the leaf of the white mulberry tree that they will form cocoons of a marketable value, capable of furnishing silk suitable for the looms of the manufacturer. There are several varieties of white mulberry adapted to the demands of the cultivator anxious for immediate results, the young trees of which supply an abundant crop of leaves of good quality, useful during the early life of the silk-worm, though not the best for the completion of the process of silk culture.

If colonial farmers would, in addition to their other crops, cultivate about two acres of white mulberry trees, they could in the third year of growth from seed, begin experimenting in earnest upon the rearing of worms. With a unit of force, comprising a half-grown family of about eighty silk-worms, the appropriate unit of cultivation would represent a plantation of about two acres of white mulberries, bearing some 5,000 trees. After removal and thinning out, the silk farmer should have, in their third year of growth, 2,500 trees, which, if they have thriven, should yield from a pound to two pounds of leaves each, or, altogether, from a ton to two tons. The cultivator is then in possession of enough raw material, in the form of mulberry leaves, to produce from one cwt. to two cwt. of cocoons, which, if of good quality, would be worth £4 or more per cwt. Arrangements for housing silk-worms need not be very elaborate. Walls of wattle-and-dab, smoothed and whitewashed inside, with a roof of thatch, constitute an ideal silk-worm house. Should the producer desire to limit the area under mulberries to two acres, he will find that his annual yield will be a fairly steady crop of from five to seven cwt. of cocoons. According to authorities, the yield of leaf per acre in France and Italy, from well-grown trees on fair land, is estimated at from 7,000 to 8,000 lb.

The first step in sericulture, viz., the formation of white mulberry-tree plantations, is one the results of which have to be waited for ; and this is why so promising an industry has not obtained a better foothold in Australia. Of course, people have endeavoured, and continue in their endeavours, to rear silk-worms without first growing proper food for them ; but every such attempt at silk production has failed, and is, in fact, foredoomed to failure. Recently the attention of the colonists has been more strongly directed to the possibilities of sericulture by the labours of the New South Wales Agricultural Department, some thousands of trees and cuttings having been planted during 1894. At Booral, in the Newcastle district, the Colonial Government has rented a white mulberry plantation, extending over seven acres, with a view of testing the practicability of developing a profitable sericultural industry. On the expiration of the lease at Booral it is intended to continue the experiment at the farm attached to the Hawkesbury Agricultural College, in which locality a large number of white mulberry trees have been planted for future use.

During the year 1894 the New South Wales Parliament voted a special grant of £200 in aid of the Women's Co-operative Silk-growing and Industrial Association ; but it is in the extension of the plantations of white mulberry trees that the colonists must look for the real growth of the sericultural industry. A convincing effort in this direction has been made by the settlers of New Italy, near the Richmond River. These people comprise a number of Italian families, who came out in 1881 [illegible] the Marquis de Ray to settle on the island of New Ireland, in Polynesia, and who, on the failure of their leader's scheme of colonization, [illegible] their way to New South Wales. These immigrants have planted successfully a considerable area with white mulberry trees, and have in[illegible] the industry of silk production in the region of the northern rivers, [illegible] fair prospects of its future profitable development. The silk is sp[illegible] the caterpillars of the genus Phalæna, of which the Phal[illegible] produces the greatest quantity ; but the Phalæna bombyx is [illegible] commonly employed for this purpose in Europe. The best silk-worms are obtained from Japan and Italy, the former being preferred [illegible] procurable. There can be no question that practical sericulturists, possessing the requisite amount of capital, would find in New South Wales an extensive and remunerative field for the exercise of energy [illegible] enterprise.

Sydney.

JOHN PL[illegible]

Birds and Fruit Trees.—At a late meeting of a fruit growers' association near Brisbane there were loud complaints concerning the destruction of [illegible] birds, and that the laws protecting them have been long a dead letter. The chairman said that fruit growers were in danger of being deprived of their best friends, the insectivorous birds—finches especially. The meeting decided that the divisional boards and the Agricultural Department should be written [illegible] urged to do all they could to prevent the trapping and shooting of birds. [illegible] were also expressed that other societies would take up the grievance. [illegible] birds are protected by a law, it is all but unknown, and certainly not in [illegible]

LEAVES FROM A RAMBLER'S NOTEBOOK.

MEN AND METHODS.

THE turn of the year, with spring and its attending work in prospect, brings gardeners face to face with numerous duties, and a decision must be arrived at as to the best ways and means of accomplishing them. In this there seems to be no hard-and-fast rule, for though in every case principles must to some extent be the same, the methods of applying them vary considerably. Nowhere is a gardener so much at home as in his own garden, and interviewed there one has no difficulty in seeing his methods, and also, if successful, of observing the implicit faith he puts in them. In his own sphere the gardener is not loth to argue in favour of his mode of procedure, and sometimes is apt to ridicule any other, no matter how successful, simply because he has learnt to pin his faith on one. To anyone quite uninitiated in the gentle art this conflict of opinions is puzzling, and frequently amateurs in difficulty are at a loss to know how to proceed, because Mr. A says this is the best method and Mr. B recommends another quite different. Both men speak from experience and their words are to be relied upon. How, then, shall the novice proceed? He frequently loses confidence and is slow to accept the advice of either; whereas if he took the trouble to get to the root of the matter he would find that the principle of the thing was the same in both cases, and the two gardeners went different ways to reach the same end.

Garden visiting is always a pleasant occupation to anyone interested in horticulture, and there is no better opportunity of studying men and methods. When two gardeners meet they invariably talk shop, and if the meeting takes place at a show or outside the precincts of the garden, then the conversation is general; but when friend meets friend in the garden which either controls, they come at once to detail, and exchange views over the cultivation of this crop or that. Tenacity of idea is generally a strong point with gardeners, and many men having proved from experience the success of any particular method, are ready to swear by it, and look upon any other as being quite beneath their consideration. Others, again, are borne here and there by every breeze of opinion that blows, never forming one of their own, nor sticking to anyone else's long enough to give it a fair trial. Rarely are such amongst the most successful, and, as is generally the case when making comparisons of this kind, the best plan is to strike a medium between the two; always being on the alert when viewing the operations of others, to take advantage of anything that looks like improvement, but at the same time having confidence enough in our own opinions to avoid following the lead of every would-be reformer who comes along.

Young gardeners during their years of probation, frequently have opportunities of seeing this conflict of opinion that exists among heads, and in some cases it has anything but an inspiring effect. Imagine, for instance, a young man of studious, thoughtful turn of mind who is anxious to make himself competent, serving for a period under a gardener of set and somewhat biassed opinions. He has faith in his chief, who maybe is not slow to impress upon him that his methods, founded on experience, are correct, and any other ways of treating certain crops, or doing specified work, are therefore wrong. The young gardener gets to look at matters in the same way, and frequently finds himself in a quandary of doubt when he leaves the establishment to pursue his fortune in some other under a head gardener who holds different opinions to those of his former chief. This kind of thing has damped the ardour of more than one young man, and been the means of lowering his interest; while making due allowance for differences of opinion, and admitting the right of any man to be justified in working on any methods which he has proved to be successful, he should not go so far as to assert that his way is the only right one, and ridicule every other. Every young gardener may learn a lesson from this by taking observations of varied methods, then when he is in a position to please himself act on the one that appears to him the most practical. Recently I heard of a young man who, when starting at a fresh establishment, was instructed to do a job in a certain way. He protested that Mr. So-and-So, under whom he had previously served, followed a different course. "When you were with Mr. So-and-So," replied the chief, "you worked his way. Now you are with me, you will work my way, and when you are a head gardener yourself you can work your own way." Surely this taught a better lesson than abusing the work of a brother gardener, while it was clear, and to the point.

I did not intend to particularise at all, but current work in hand reminds me forcibly of one of the points "where doctors disagree." I refer to pruning, all arrears of which, as the calendars put it, should be now completed. Here we have a case in point, and the other day an amateur was in a state of perplexity about some young apple trees he had just planted. "Don't prune them at all the first season," said one expert, going on to give his reasons for not doing so, and proving, at any rate to his own satisfaction, the correctness of his theory. Another expert comes along, this time a firm believer in first-year pruning. He, of course, ridicules the advice of the former as being against his principles, and attempts to illustrate the advisability of pruning after planting by showing subsequent weakly growths breaking from the tips of unpruned shoots, with all the lower buds blind. He tells the puzzled amateur that non-pruning the first season is conducive to waste of wood, and opposed to the principles by which sturdy, well-shaped trees are obtained. Between the two the novice is puzzled to know how to proceed, and the moral obtained from it seems to be that in gardening there is a danger of one being overdone with advice. Another grower I know has determined to prove for himself, having planted trees, and pruned some, leaving others unpruned. The result will doubtless satisfy him, and in due time the horticultural world will have another advocate of either one system or the other.

Just one more instance, and this time vegetables—onions. We note the advice of two successful growers and exhibitors. One, whom we will call Mr. A, gives his methods of cultivation, and says the correct thing, after raising the onions in heat, is to carefully transplant them in their permanent quarters with a trowel, disturbing the roots as little as possible, and removing the plants with good balls of earth attached. He goes on to detail the ill effects if this advice is not followed, and it all sounds so feasible and practical that we are disposed to accept it as the correct thing. Then Mr. B steps in, he also being an expert in the art of onion culture. He tells you Mr. A's theory is all nonsense about the planting with good balls of earth. His advice is, when transplanting, to wash away every particle of soil from the roots, and thus give them a clear start in the fresh compost. He argues that the onions make less root-growth, and the force of the plant goes to the feeding and maturing of the bulb. He clinches his argument by the production of first-prize cards for onions, and knowing both men to be successful growers, how can we refute the statements of either? As Sam Weller would put it, "it ain't to be done," and is only one instance in the many of the different ways leading to the same goal. The study of "men and methods" is an interesting one, and, in spite of the complications existing, the summing up seems to be contained in the old adage—Take the advice of both sides and then act for yourself.

H.

CHISWICK AS A SCHOOL GARDEN.

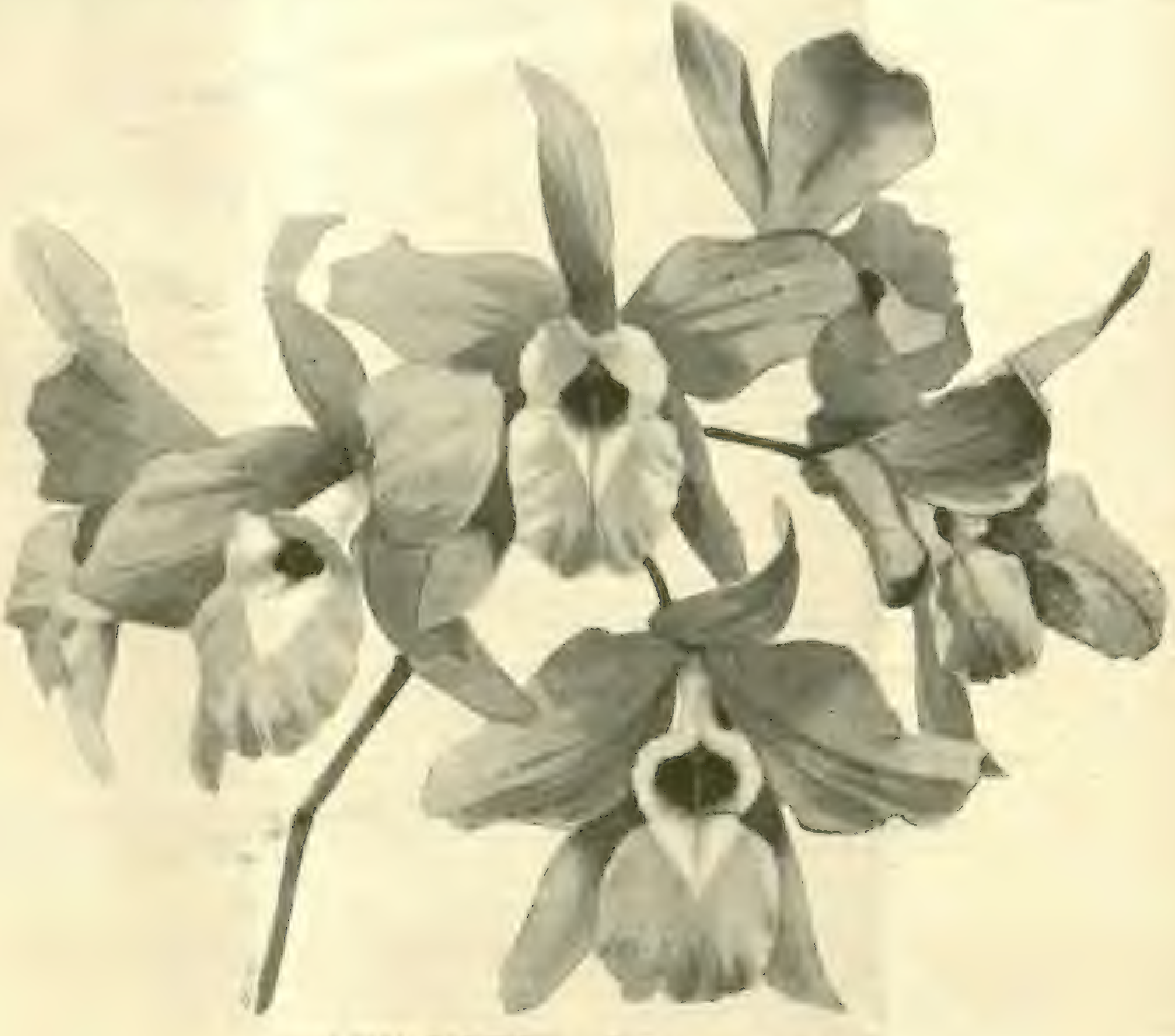
THE mention in a recent issue of the scholarships available at Chiswick in connection with the forthcoming R.H.S. examination again serves to attract attention to the old garden and its uses. Whatever may be the criticisms bestowed from time to time on Chiswick and its management, there remains the undoubted fact that it is practically the only advanced horticultural school garden in the kingdom in which general horticulture can be taught. Of course I do not overlook first-class private nursery and market gardens, all of which enable gardening in a very wide sense to be learned, but none of these occupy the same public, and I may almost say academical, position that Chiswick does. I may be told of a garden in the Regent's Park as being also a public school garden, but whatever its pretensions, it is evident it cannot properly be placed in comparison, or in the same category as a school of practical horticulture, with Chiswick. The former may be able to evidence what is termed decorative gardening; the latter illustrates in admirable fashion fruit culture, inside and out, vegetable trials, and both plant and flower culture, within and out also. Chiswick has one other great advantage as a school. It is presided over by a first-class practical gardener, and to the future gardener such supervision is worth a score of pure scientists or theorists. Of all things the future gardener, whilst yet a learner, needs to be grounded in hard practice, and then, if a persistent learner, theory and science can follow with all the greater ease. Then again, in garden practice, whatsoever may be the temporary and changing value set upon mere decorative gardening, the importance attached to productive gardening as found in fruits and vegetables never varies; indeed it becomes the greater as the years roll on. Hence a professed advanced school garden should give practical instruction in these great cultural elements as well as in decorative gardening

There is attached to Chiswick also, though not essentially under the R.H.S., an exceedingly useful society in the Gardeners' Mutual Improvement Association, this is a society well worth tangible support by the R.H.S. council, as its meetings are held in the old council room. Such a society presents most attractive as well as instructive features, to young men. They are features that hundreds of young gardeners in isolated country places would be only too delighted to be able to utilise, but cannot. It is difficult to overestimate the usefulness of such gatherings as this association furnishes, not only for acquiring knowledge from each other amongst the members, in learning to organise thoughts, and to express them in terse language, but also in bringing gardeners together for social intercourse and interchange of opinions. Altogether, Chiswick seems to enjoy very many advantages, and youths there possess privileges and have opportunities that many other young gardeners do not share in.

There is one matter in relation to these proferred scholarships at Chiswick, that needs full elucidation. As well known the examinations in each year are open to any and all candidates, male and female. Nothing is stated in the scholarship papers, so far as published, that in any way indicates the donor's intentions with regard to sex. It is well known that women do enter the field of labour now as gardeners. Are these eligible for the Chiswick scholarships, or not? It is true the term "he" is used in the conditions, but it is not emphasised, and may be read, as it stands, to include "he" or "she"—at present it is a comprehensive or inclusive term. One point needs to be made very clear. When women are included in the ordinary garden staff at Kew, it is difficult to see how they could consistently be excluded from Chiswick. The matter is not at all to be determined by sex bias and prejudice, but by good sense. When the R.H.S. throws the doors of its examination rooms open to male and female alike, without distinction, and on a footing of absolute equality, can distinctions as to well-won scholarships be consistently created? I fail to see how they can. I hope to learn later that very many more young gardeners have entered for the examination than last year. It is for their benefit chiefly it is instituted. As an examination of cottagers, and similar very elementary amateur gardeners, it is absolutely unfit, indeed absurd; but it is not possible to suppose the promoters ever contemplated the examination would be for these classes. A. DEAN.

LÆLIA RUBESCENS.

MOST orchids that have been in cultivation for any lengthy period have several synonyms, and Lælia rubescens is not an exception. It was first made known by Dr. Lindley, who, in 1840, was shown a specimen that had been purchased from Mr. J. Knight, a member of the firm of Knight and Perry, which preceded Messrs. J. Veitch and Sons, at the Chelsea Nurseries. L. peduncularis, L. acuminata, and Bletia rubescens are names under which the species has been known, for while some consider that different species are referred to under the two former names, yet it is now generally conceded that L. rubescens includes them all, thus proving it to be a variable species. Two or three years after Dr. Lindley named this orchid, it was rediscovered by Hartweg, who was collecting for the Royal Horticultural Society, in Guatemala. Well-grown specimens will produce slender scapes, bearing a loose raceme of six or eight flowers. The latter are two to three inches across, and vary from pure white to the ordinary rosy-lilac hue; the spreading lip is lighter in colour along the side lobes, and also immediately in front of the large marone-purple blotch that occurs at the base. The pseudo-bulbs are ovate, somwhat small and wrinkled, each bearing a single, leathery leaf, oblong-lanceolate in shape. This Mexican orchid is usually best managed in an intermediate house, grown on pieces of tree stem or in hanging baskets. It is not a difficult orchid to manage, but unfortunately it is somewhat scarce, and the large importations of cattleyas and other showy orchids have of late somewhat overwhelmed L. rubescens and other orchids that are not less beautiful. Our illustration represents an inflorescence shown by Mr. W. H. White, the clever orchid grower to Sir Trevor Lawrence, Bart., Dorking, on December 14 last, at the Drill Hall. The flowers were especially fine, and their colour, quite a magenta shade, was more rich than we have ever seen before in this species. On the same occasion Mr. Cragg, gardener to W. Walker, Esq., Winchmore Hill, N., showed a flowering specimen, and in both instances the Orchid Committee granted awards of merit.



LÆLIA RUBESCENS. (Flowers deep rosy-lilac.)

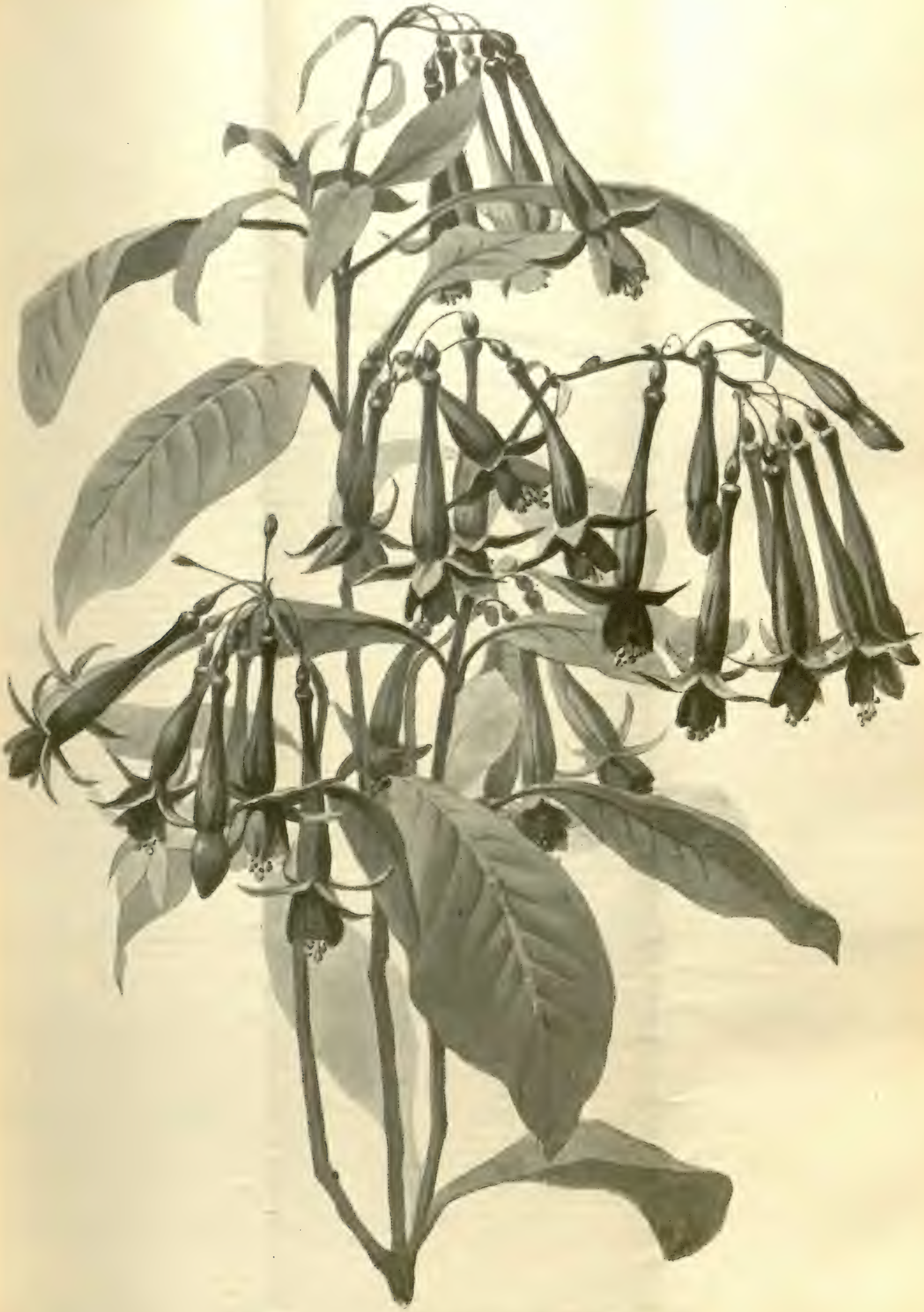
Adiantum Bessonianum.—This fine new maidenhair fern may be aptly described as a glorified form of A. Pacotti. It is a strong grower, sometimes attaining a height of eighteen inches. The fronds are not so dense, in proportion to their size, as those of A. Pacotti. but they have the same general character of numerous and overlapping pinnæ. Mr. James O'Brien introduced the fern from the West Indies, and exhibited it at the R.H.S. meeting of July 14, 1896, when a first-class certificate was awarded it. As regards origin, it appears to be a hybrid between A. trapeziforme and A. tenerum. It is a very handsome fern, and comes true from spores, judging from the small batch of young plants seen recently in Messrs. J. Veitch and Sons' nursery at Chelsea. A full description of this adiantum was given in the GARDENERS' MAGAZINE of July 18, 1896.—A. C. H.

FUCHSIA TRIPHYLLA SUPERBA.

AMONG the many species of fuchsia scarcely one is more distinct than the West Indian F. triphylla. It is a charming plant when well grown, but it needs more warmth than the majority of cultivated varieties. It has slender, graceful branches that terminate in nodding racemes of brilliant cinnabar-red flowers, each bloom being an inch and a half long, and with a much elongated tube. The triphyllate character is not very constant in cultivated plants, but once seen there is never any difficulty in determining the species. The leaves vary from an inch and a half to three inches in length, deep green above, purplish beneath, and remarkable for the manner in which the veins curve from the midrib towards the margin. It is only during the past ten or fifteen years that the species has been cultivated in gardens, and even now it is not by any means a common garden plant, though a batch of specimens flowering in an intermediate house is ever a great attraction. Those who have not hitherto grown the species should make a start with it, for it has received the hall mark of merit—a first-class certificate of the Royal Horticultural Society, and that as long ago as August, 1886.

A strong rival to F. triphylla is its variety superba introduced by Messrs. R. Veitch and Sons, of Exeter. It is a stronger growing plant than the type, having taller growths and larger racemes of blooms, as a reference to the accompanying illustration will pr There is, however, abundant room in gardens for both species variety, for the latter, while being the largest in growth, foliage, race and flowers, is distinct in having crimson-scarlet instead of cinnabar flowers. As in the case of garden varieties of fuchsias, so with variety under consideration, the racemes are so dense that they c the branches to assume a slightly pendent position, and thus a sha specimen is a most graceful object. Certainly those who find so m pleasure in the cultivation of fuchsias should not omit F. triphylla or variety superba.

Pickled Mushrooms.—Take small, freshly gathered button mushroo off the stalks, and rub away the outer skin with flannel and salt. Wash quickly in cold, salted water, drain, and dry them in a soft cloth until no hangs about them. Supposing there should be a quart of mushrooms—mea them after they are prepared—put a pint and a half of the best vinegar saucepan with an ounce of ground ginger, three blades of mace, half an ounce whole pepper, and a pinch of cayenne. When the pickle boils put in the rooms, and let them boil gently for ten minutes, when they will be rather Fill glass jars or wide-mouthed bottles with the mushrooms, and distribute spices and vinegar equally amongst them. When cold tie down in the usual One other most important point to be attended to in pickling is to see that vinegar entirely covers every other ingredient, else the portions which are posed will speedily become mouldy.—HOUSEWIFE.



FUCHSIA TRIPHYLLA SUPERBA. (Flowers crimson-scarlet.)

WORK FOR THE WEEK.

COOL ORCHIDS.

ODONTOGLOSSUM CRISPUM will now be showing flower spikes, and a careful watch should be kept for slugs and snails. Lettuce leaves, sliced potatos, and carrots can be used as traps, and a little fresh bran in small saucers has a great attraction for them ; they should also be diligently searched for at night, using a lamp for their detection. It is a good plan to place the more valuable plants on inverted pots stood in pans filled with water—even then a constant watch is necessary, as the small slugs and snails hide themselves in the potting material. These matters will take up a great deal of the grower's time, but the results fully compensate him for his trouble. Purchasers of imported plants of O. crispum last season will be anxious to see flowers, and to ascertain if any of the spotted forms are amongst them. Flower spikes should not be allowed to remain on the plants for a long period of time, and in the case of well-established specimens it is advisable to cut the spikes after they have been flowering a reasonable length of time. Weakly plants should not be allowed to carry flowers to the detriment of the growths ; most of the buds should be removed, leaving one or two to develop so as to ascertain the variety, but as soon as the flowers are fully open they should be cut off and stood in water in the cool house, where they will retain their beauty for a considerable time. Oncidium macranthum, O. superbiens, and O. undulatum are now showing flower spikes, which often attain a length of from six to eight feet ; these should be trained round neat stakes and be kept close to the glass. These species will also be making new roots, and any that are not showing flower spikes should be repotted if necessary, using a compost of lumpy fibrous peat and clean sphagnum moss, with a good number of thick pieces of charcoal, as the roots of these plants dislike a compressed material ; if the compost is in a sour state around plants that are showing spikes, it may be carefully picked out and the roots resurfaced with new material. Odontoglossum Edwardi and O. ramosissimum come under the same treatment as these oncidiums, and should be grown at the coolest end of the odontoglossum house. The sweet-scented Odontoglossum odoratum is now in flower ; O. pulchellum will also be brightening up the cool house just now, and the latter easily-grown and free-flowering orchid deserves a place in all collections. After passing out of flower they should be repotted or top-dressed if necessary, using plenty of drainage ; and the same compost will suit these plants as advised for oncidiums, with a cool, moist atmosphere all the year round, a shady position, and plenty of water at the roots while growing.

Zygopetalum Mackayi when it has passed out of flower should be repotted or topdressed in a compost of peat, fibrous loam, broken crocks, charcoal, and a little coarse sand ; Z. maxillare and Z. Clayi do best grown on pieces of tree fern stood upright in a flower pot and made secure with crocks and charcoal ; the warmest end of the odontoglossum house will be a suitable place for them, and they should have a plentiful supply of water at all seasons. Cypripedium insigne and its varieties are general favourites because of their easy culture and their value for cutting, the flowers remaining fresh for some weeks. These should now be repotted in a compost of fibrous peat and loam in equal parts and a little fresh sphagnum moss and broken crocks and charcoal intermixed. C. insigne Sanderæ is sometimes grown cool with good results, but I find it does best in a warm house. Lycaste Skinneri and its beautiful white variety should now be attended to, and if repotting is necessary the pots should be half filled with drainage, using the same kind of compost as advised for Cypripedium insigne. At the present time very little fire heat is needed. Give bottom ventilation in accordance with the outside conditions ; if damp and mild the top ventilators may be opened a little on the leeward side and a little fire heat used to promote a circulation of air. Should cold weather prevail close all the ventilators and have the hot-water pipes sufficiently warm to keep the thermometer at the proper degree, also affording a little more moisture both to the roots and in the atmosphere than is required in dull, damp weather.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

THE season for repotting will soon be at hand, and in readiness for this operation all the plants should be thoroughly cleansed from all insect pests, so that after repotting they may not need to be disturbed for some time ; any of the advertised insecticides will be efficacious if used according to the instructions issued with them. Have all empty pots washed thoroughly clean, crocks also if at all dirty, and see they are thoroughly dry before using them. Provide plenty of potting sticks or rammers of various thicknesses, also a strong sharpened stick for carefully working out the crocks from among the roots at the base of the old ball, and if it is not possible to remove all the crocks without injuring the roots severely let them remain. It is a good plan to have the various soils mixed at least a few days before using them, and, if convenient, stood in the house where the plants are growing, so that they may become thoroughly warmed through before using, turning it daily the better to attain this end. Many growers commence at a stated time and work through the whole of their stove plants, repotting all before them. This is not a good plan, as the subjects do not all commence growth at the same time. The best time is when each plant is commencing active growth, then the roots take quickly to the new soil, which is soon occupied by active feeders ; if repotted some time before growth is active the soil becomes soured ere young roots are formed. Shabby plants of crotons (codiæums) may have any cuttings they carry removed, and be cut freely back ; stand them in a warm corner, keep rather dry at the roots, and syringe freely overhead. In a short time they will begin to show buds freely, when they may be shaken out, the roots shortened, and repotted into smaller pots, to be afterwards shifted on as pots become full of roots. Old dracænas which may have become bare at the base may have their tops removed and inserted in pots of sand plunged in the propagating case and kept constantly moist ; or they may be rooted by stripping off a few leaves just below where it is desired to root them ; cut a notch halfway through the stem and bind moss around the notch, and if the moss be kept constantly moist roots are formed, the stem may be severed, and the head potted without disturbing much of the moss. The stock of dracænas may be largely increased by cutting up the old stems into short lengths, split down the centre, and inserted in pans of leafsoil and sand ; place a piece of glass over the pan, and stand over the evaporating troughs. The pots for dracænas must be well drained, and the compost most suitable consists of equal parts loam and peat, with a free admixture of sharp sand and charcoal broken small. When the pots are full of roots feeding can be resorted to by means of patent manures sprinkled on the surface and watered in. Crotons delight in a compost consisting of three parts good fibrous loam, one part peat, and one of leafsoil, with sand and broken charcoal added. To each barrowload of this add an eight-inch pot of bone meal and a six-inch pot of some good artificial manure. The loam should be pulled to pieces by hand, and all worms removed at the same time.

Dipladenias that are required to flower in June may now be started. Pot them in equal parts of peat and loam, with plenty of sand and charcoal added. Afford efficient drainage, and give water with care. A moist atmosphere is essential, and, if convenient, afford a bottom heat of 75 to 80 degrees, and a temperature of 65 to 70 degrees. Allamandas and stephanotis may now be encouraged to push into growth by frequent syringings. Should they be in pots or tubs as large as it is desirable to afford them, remove two or three inches of the surface [illegible], and topdress with a mixture of loam, well-decayed manure and sand, giving the old ball a thorough soaking before applying the topdressing. Young plants of gardenias wintered in four-inch pots may now be given a shift into six-inch pots, using a mixture of two parts loam and one part peat, with the addition of [illegible] sand and some well-decayed manure ; pot firmly. Old plants which have [illegible] resting in a cooler house may now be introduced to the stove, and encouraged [illegible] open their flowers ; afford stimulants freely, but not too strong, and keep [illegible] bug in check by a free and forcible use of the syringe. Keep the roof glass of [illegible] houses as clean as possible to allow the ingress of the maximum amount of [illegible]. Damp the paths, walls, and amongst the pots freely, also afford all [illegible] except those in flower a good syringing once a day, preferably about noon. Do not syringe early in the morning, when the temperature is at its lowest point. Very little ventilation is required, it being far better to regulate temperature by checking the fires.—J. TUNNINGTON, *Ripley Castle Gardens.*

KITCHEN GARDEN.

YOUNG lettuces raised from seed sown in boxes early in the last month, will now require pricking off. Where a slight hotbed can be afforded them they will make far more rapid progress than if pricked off into boxes and placed in the houses. Lettuce grown on manure heaps are far more tender than those sown in the autumn and grown under glass through the winter, and if the early varieties are cultivated good hearts may be produced in a short time. They require but little room to grow, as very few outside leaves are made, and if planted four inches apart each way ample space will be allowed. Where a supply has to be maintained, another sowing should now be made, either in a box or on a hotbed, whichever is the most convenient. Cauliflower plants that are being wintered in [illegible] frames must on no account be neglected, as the mild weather has brought them very forward. Where there are signs of these becoming overgrown, it would be advisable to take up the plants and pot them in large sixties or forty-eights. This would not only give them a check, and so prevent them from growing [illegible] large by the time it is safe to plant them out, but would enable them to be planted with a ball of earth attached, which would be a great benefit should the weather be unfavourable when they are transferred to their permanent quarters. Air must be freely admitted on all favourable occasions, in fact, unless there are signs of frost, the lights had better be left off altogether. Young plants raised from seed sown early last month should be pricked off as soon as large enough to handle. Where a quantity are required there would be far less trouble in making up a slight hotbed for them, and in this they could be pricked out at a sufficient distance apart to allow them to remain till they were properly hardened off. If they sh[illegible] become overcrowded before it is safe to transfer them to the open ground, a portion might be drawn and transplanted in a pot, or under handlights, to give an early supply. There is often a difficulty in obtaining young and sweet roots of turnips during the spring and early part of the summer, and but little advan[illegible] is gained by sowing in the open at present, as the soil is too cold to cause a [illegible] growth, and at the first spell of hot weather most of them would bolt. Those that were sown in the open ground in the autumn will soon become tough, therefore some preparations should be made for procuring nice sweet roots as early [illegible] possible. Turnips will not stand much forcing, but a slight hotbed might be made that will generate sufficient heat to cause the seed to germinate freely, and [illegible] tain a little warmth in the soil should cold weather set in. Where a few [illegible] lights can be afforded there will be no difficulty in warding off the rains. Air, however, must be freely admitted on all favourable occasions, as turnips resent a close atmosphere.

Potatos in frames will now be making good progress, and where any of [illegible] haulm is likely to come into contact with the glass, a covering should be afforded whenever there are signs of frost ; but if this can be dispensed with the plants will grow more robust, as there will be a better circulation of air amongst [illegible] leaves. All early sets should by this be placed on their ends that a stout, healthy growth may be produced. If light and air can be admitted so much the better, as these will cause the growths made to be more sturdy. Frost, however, must be excluded, or the consequences will be serious. Where sets have to be procured from a distance, on their arrival they should be spread out thinly. Many people advise planting on a south border or at the foot of a warm wall during this month, but there is nothing gained by so doing. Where the sets can be properly started and planted towards the end of March, young tubers will be ready to lift quite [illegible] early as if planting were done in February. Where, however, there is no convenience for properly doing this, it is far better to plant before growth is too forward, as overgrown sets seldom produce anything like a good crop. If the haulm should appear through the ground before all danger of frost is over [illegible] covering must be afforded to protect them.—H. C. PRINSEP, *Buxted [illegible] Gardens.*

FRUITS UNDER GLASS.

WEATHER conditions should govern to some extent the treatment of [illegible] this time of the year, as, with sunshine by day and fairly mild nights, the temperature may well be raised a few degrees, provided the plants are plunged in [illegible] near enough to the glass to allow just the necessary head-room and no more ; [illegible] if these conditions are not possible, and the weather is wintry and dull, it is best to keep the plants as nearly as possible at a standstill until the sun gains more power, when they can make progress under satisfactory conditions as to [illegible] See that the bottom-heat corresponds with the top-heat ; any rise in the [illegible] should be accompanied by a corresponding rise in the former, and as heat is increased so, too, must the supply of atmospheric moisture be allowed to increase. [illegible] safe temperature for pines in all conditions will be a bottom-heat of from 80 to [illegible] degrees, and top-heat of about 70 degrees, rather less than more. Watering is [illegible] important matter, for though the plants will brook no neglect in this matter, neither must they at any time be over-watered, and a bi-weekly examination of the [illegible] a necessary item in their management. Any that are coming into flower [illegible] be grouped by themselves, as such require to be kept dry overhead, for syringing or subjecting them to drip will certainly result in malformation of the fruits [illegible] possibly, in decay outright. Young stock may be potted on, as occasion [illegible] the compost should consist mainly of fibrous loam which has been stacked [illegible] few months, broken into fair-sized lumps and freed from loose particles, [illegible] should be added burnt soil, a little charcoal, and some crushed bones ; the [illegible] however, had better be left out, and a little mortar rubbish used in their [illegible] unless there is an absolute certainty of their sweetness, for bones that turn [illegible] after application do much injury. The soil should be made thoroughly [illegible] before use, and the plants must be in that intermediate condition, as [illegible] moisture at the roots, known as neither wet nor dry, for if potted in [illegible] condition the results are not satisfactory. Firm potting is a necessity in [illegible] good and quick results with pines, and water should be withheld for several days after potting takes place. Large pots are not needed for growing good pines, and I prefer using those under, rather than over twelve inches diameter, and drain them well. It is too early as yet to begin propagating, and nothing is gained by commencing till March.

The cherry is a very excitable tree, and needs great care in forwarding the crop. The lowest possible temperatures which will keep the trees advancing is the best, and it is well not to exceed 45 degrees at night and a rise to 55 degrees by day, unless the weather is very mild indeed. Afford free ventilation whenever possible, and syringe the trees on bright mornings only; sufficient moisture will be easily supplied by an occasional damping of wall and floor surfaces. Where mixed orchard-house trees are grown in pots it will be necessary now to bring these under cover; each pot should be examined to make sure that the drainage holes are not blocked; and if there is any suspicion of worms in the soil, a good soaking of clear lime water will generally effect a clearance. Where plunging the pots is practised, it is well to thoroughly dust round and under the pots a good application of soot, with a view of preventing the ingress of worms from the soil or other material in which the pots are plunged. Those trees which were not potted in the autumn should have a good top-dressing of some rich material, which should be so placed as to allow of ample supplies of water. As a manurial agent for this work of top-dressing fruit trees in pots, I find nothing so serviceable or so easily applied as malt dust, which may be procured very cheaply in almost any district, and it will be found a very efficacious manure.—J. C. TALLACK, *Livermere Park Gardens.*

HINTS FOR AMATEURS.

AN amateur friend of mine recently took an old house with a neglected garden, and when he came to closely inspect the latter found it full of overgrown gooseberry and currant bushes, bush apple and pear trees, which had run riot, and flower borders which showed they had not been favoured with any attention from the gardener of late. This is by no means an isolated case; the tendency nowadays is for tenants to leave old houses for new ones, because the sanitary arrangements are more perfect and the convenience greater; an old house, generally with a good garden, will remain unoccupied: it becomes a wilderness, then a tenant comes along, rents it, and having a little taste for gardening, is at an utter loss what to do with such a place and state of things.

The first impulse is to dig up everything, destroy what is old and replant. This was what passed through the mind of my friend until he was able to compute something of the cost, and he found it would entail a heavy expense. My advice was to have in a gardener, clear away all weeds and rubbish, the removal of which was necessary; to have the currant and gooseberry trees pruned properly, and thinned out, to cut away some of the branches of the few standard trees; and judiciously thin the bush ones, leaving it to the summer's experience to show what was likely to be of service in the future and what useless. Old-fashioned gardens often contain floral treasures, and it is always wisest to see what is produced before the border is disturbed. There is always time to put in something to make a summer display should it be discovered the border contains little of value. Such fruit trees as are of inferior merit can then be rooted up and destroyed next winter, and others of more value planted. Care should be taken to ascertain what sorts of apples, pears, and plums, do well in the district. Varieties of fruit are sometimes affected by local circumstances of climate; apples and pears that do well in one district will not succeed so well in another, and especially so is this the case with strawberries; and this is how it occasionally happens that fruit trees doing well in one locality and ordered from a distance disappoint one.

That was good advice an old gardener once gave—not to beg or purchase a plant unless there was room for it in the garden. It is a common fault with some amateurs, and gardeners also, who, seeing a plant they like, forthwith purchase it. And unless it should be in satisfaction of a desire to possess some rare species, all purchases—and especially so in the case of a garden of limited extent—should be directed to obtain something in advance of what is already possessed. There was much truth in the remark of an old Lancashire florist: That a plant well worthy of being cultivated takes up no more room than an indifferent one. Never overcrowd; overcrowding is the bane of many gardens cultivated by amateurs. How many attend a bulb or a plant sale, and fascinated by low prices, make purchases they do not actually require. A garden should possess the best of everything it is possible to place in it. It is much better in the long run for an amateur to buy only what he really wants, than to purchase that he does not require, and in all his purchases to consider the requirements of the plant, and especially the position in which it is likely to do best; and then strive to the utmost to so develop it so that it shall become a source of gratification.

R. DEAN.

Apple Lemon Pippin.—"A. D." (p. 67) is quite right in saying that this apple was entered in the Drill Hall flavour competitions recently with not much prospect of success, and it was with no such prospect in view that it was sent, as will be readily imagined by those who know that the same exhibitor sent the first prize dish of Margil to the same meeting. Still, the improbability of an apple or a pear gaining a prize should be no inducement to an exhibitor to keep it back; and my aim, when sending, has been to include as many so-called dessert apples then in season, and of which I have had representative specimens, as the regulations will allow, so that they may be given their proper status, if any, in the promised forthcoming report. The conditions set down for exhibitors have tended to narrow the number of exhibits, and this is unfortunate, as it will leave us in doubt as to the true value of many that have not been shown at all, but those which have been given their chance and failed will figure in the record as not being equal to others then in season. As regards the variety sent being the true Lemon Pippin I can only say that the name is not a modern one, as applied to the apple in question, in this district; for the scions which produced these fruits were taken from a very old, and, locally, well-known tree certainly not less than sixty years old; this has always been known to the oldest inhabitants under the name given—certainly a most appropriate one, the fruits being of true lemon shape and colour.—J. C. TALLACK, *Livermere Park Gardens.*

THE AMERICAN BLIGHT OR WOOLLY APHIS.

PROFESSOR F. V. THEOBALD, of the South-Eastern Agricultural College, Wye, has prepared the following interesting and useful report on the American Blight (*Schizoneura lanigera*), and a related subterranean species (*S. fodiens*), and having regard to the destructive character of these pests, the report deserves the most careful attention.

In most of the old orchards in England this well-known pest may be seen annually, sometimes in great plenty. In the recent plantations, where the trees have been planted under more rational conditions, and kept in a clean and healthy state, very little harm is caused by the woolly aphis, as compared with older orchards, and as seen in many western counties. There are still, however, many apple orchards which, like those of the west country, are extremely picturesque, but which, nevertheless, are a standing danger to apple cultivation, for they are simply nurseries for this and numerous other insect pests which yearly make their appearance in our fruit plantations. The damage caused by Schizoneura lanigera is chiefly to the young wood; the growth is checked by the loss of sap taken by the insects and allowed to escape from the wounds they produce in the tenderer parts of the tree. The results of this attack are large, swollen, cankered patches upon the trunks and branches of the trees, rugosities that are often put down to true "Canker," but which a casual examination would show to be the work of one of the aphides. When first attacked the young bark gradually splits, and open wounds are produced, which in time heal up but leave large depressions, the sides of which form a harbour and safe retreat for the insects during cold and inclement weather. These rugose knots, which often arise as spongy swellings, are caused by the flow of sap to the wounds made by the insects, resulting in an abnormal division and increase of the surrounding cells.

There is little excuse for not coping with this apple enemy, for it is one that is readily seen and speedily destroyed. Wherever the so-called American blight is upon the trees there is nearly always to be seen a quantity of white flocculent wool. This wool is a product of lanigera, a waxy excretion that is passed out of the back of the insect, especially in certain phases of its existence. In the cider-making counties this wool may often be seen hanging down from the boughs in great festoons, and being blown about from tree to tree and orchard to orchard, as we shall see later, carrying with it a cargo of young aphides. So great has been the havoc wrought by this enemy at times that the entire cider crop in certain districts has been lost. This occurred amongst other places in Gloucestershire, where not a gallon of cider was brewed in 1810, owing to the crop failing from woolly aphis attack. Its evil effects can best be seen when it attacks young wood, for then only stunted leaves and blossom, which often shrivel up, are produced.

In Kent the pest seems to be decreasing to some considerable extent, owing, doubtless, to the better state in which the orchards are kept and the repeated "washings" that are employed. It, however, still occasions some considerable annoyance in various parts of the county, notices and inquiries regarding it having been received from most districts. Several fruit growers in the Maidstone area tell me they often are bothered even in young trees by this blight. The eastern part of the county seems to be most free from its attack, yet I have seen it twice there in superabundance, once at Ramsgate and again at Staple. From Mid-Kent and many other parts notices have been sent me, especially in 1894, regarding the supposed attack of lanigera on the roots of apple. Repeated examinations of the root-lice sent as subterranean lanigera have invariably shown that although they were woolly aphides they were quite distinct from the American Blight, S. lanigera, and in all cases the insects could be easily identified as S. fodiens, and a few as Pemphigus lactucæ, as I have pointed out in a previous report.[1] A large consignment was sent me from Paddock Wood in 1894; many of the lice were in little woolly chambers in the soil, whilst others had formed rough lumps on the smaller apple roots, very similar to those figured by Saunders in his admirable work on "Fruit Pests."[2] Numbers of these came above ground and became winged females, clearly distinct from lanigera, and undoubtedly the S. fodiens figured by Buckton in his "Monograph of British Aphides." So far I have been unable to detect any subterranean form of the true American Blight in any part of England. It is not unusual for trees to die under the repeated attacks of this insect. I have seen several such cases; such are usually the result of gross neglect. All apples are attacked by woolly aphis in this country, but perhaps the Ribston Pippin suffers most of all; the Blenheim Pippin, Cox's Orange Pippin, and Lord Suffield also suffer severely. It is especially those apples with a soft rind that are most affected by the attack. I have seen woolly aphis on the Russets, but they are generally exempt from this pest. Certain experiments in Victoria and at the Cape tend to show that apples grafted on the Majetin and Northern Spy stocks are immune from American blight. This apple disease is generally distributed over Europe, America, South Africa, Australia, and New Zealand. It is undoubtedly an European insect, and has been spread from nurseries to the American continent and Australasia, where they have found congenial homes, and there spread from orchard to orchard and state to state with alarming rapidity.

Life History.

The woolly aphis belongs to the section Schizoneurinæ of the Aphididæ, a group which can at once be distinguished by the veination of the wings; the third vein being once forked, whereas in the Aphidinæ it is twice forked, and in the Chermesinæ it is absent. It takes its name lanigera from its covering of wool. Again, lanigera may be told from most other aphides by the entire absence of those curious appendages which are generally present in this group, namely, the "cornicles," or honey-tubes, they being represented by two spots. The apterous female is oval, dark brown, and is covered with a small quantity of wool; eyes very small, antennæ and legs very short and dark reddish-brown to black. These apterous females, which are often surrounded with a number of little pellucid globules, live during the winter in the crevices of the bark, and are not affected by frost. In the spring they produce small pale reddish lice, which excrete a quantity of wool from their backs, the threads forming long spiral filaments. Occasionally winged females are produced, but they are unusual; they are chocolate-brown in colour, and have the veination peculiar to the Schizoneuræ, and yet distinct from other species of the group. Their antennæ are short, the wings are ample and rounded at their apices. The broad cubitus ends in a large brown stigma; costal vein once forked, veins black. The winged viviparous female appears from July to September, and is not uncommon, Mr. Smith, of Loddington, informs me, in Kent orchards. I have not been fortunate enough to observe it as yet. The winged female is preceded by the pupal stage, which is dull brown with yellow legs, antennæ and wing cases, and rounded in form.

These winged females produce oviparous females, which are destitute of a mouth or rostrum, and thus are unable to take any nutriment. The oviparous female is reddish-yellow and very small, seldom larger than ·003 of an inch. There are males also produced in the autumn (also arostrate), these fertilise the oviparous females, which deposit a single ovum each in crevices of the bark of the apple trees, so as to ensure the continuity of the species. The existence of a winged viviparous female was doubted by Hausmans and Knapp, whilst Lichtenstein observed them swarming in the orchards of Southern France. Buckler received some from the latter authority in September, 1878, from Montpellier, and since then numerous notices of them have appeared in Kent and elsewhere in England, and also in America.

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[1] Insect Pests in 1894, page 4.—F. V. T.

[2] Insects Injurious to Fruits, page 14.—Saunders.

The Probable Origin and Present Distribution.

The name "American Blight" is given to it on account of its supposed origin in that continent. This is strongly protested against by Dr. Asa Fitch. It was known in Europe in 1787, and was said by Serville and Amyot to have been imported from England to the Continent. Its origin in England, according to Sir Joseph Banks, was near London, in a nursery which was partly stocked from America. The first serious loss from this pest was in the vicinity of the metropolis. Gradually it spread into the western counties, where by 1810 it was sufficiently abundant to ruin the cider crop in Gloucestershire. Every year it spread further and further over England, until it is now found in nearly every apple district. I have been unable to detect it except very occasionally in Wales. In 1818 it was doing damage around Paris, and by 1822 it was very common in the departments of the Somme, Aisne, and Seine. In Germany there are records of it in 1801, and in Belgium in 1812. In Italy it is still scarce. American orchards now teem with it, especially in those districts with a cool climate, notably the New England States. New Zealand, the Cape, and Australia are also infested to a serious extent in places, especially the former colony. There is little doubt but that they were derived in the latter places from England in imported stock.

Does *S.* lanigera have a *S*ubterranean Generation?

This is a question about which much diversity of opinion exists. We know that lanigera, as pointed out by Buckton, often attacks the stem of the tree low down and close to the ground. These are exactly similar forms to those we find on the branches and twigs, and cannot be considered a subterranean race. It is, however, stated on such good authority as Goureau, Saunders, Riley, and Thomas, that there is a subterranean form of lanigera upon apple roots, just in the same way as we see in the vine phylloxera. Buckton had not observed this in England, but says, "There seems no good reason to doubt that it does exist occasionally." I have made repeated inquiries and searches for this ground form, and have never been able to detect it. Yet very often white, woolly patches and galled swellings may be found on apple roots. In all cases the culprits I examined have proved to be S. fodiens, now and again, Pemphigus lactucae. The former I have found abundantly on several occasions forming swellings and white nidi on and around apple roots and rootlets. Lactucae makes similar white nidi in the ground, especially in winter and spring, at the roots of lettuce and various plants. I have never seen this aphis forming galls, but have taken it on apple rootlets. Several samples of fodiens have reached me, with notes regarding the supposed American blight attack on the roots. In breeding the same the winged generations soon dispelled this notion. I can only add that all the cases notified to me in England of this root attack have been caused by one or other of the two aphides named. I at first thought the apterous lice sent me might be a ground form of lanigera, and was not convinced to the contrary until the winged generations came above ground.

S. fodiens (Buckton) may be identified by the following features: The apterous female is globular and shiny, yellowish and mealy, head dark brown; antennæ bluish-brown, finely ringed and cupped as in lanigera; eyes absent—no cornicles, legs bluish brown. The pupa has eyes and is reddish-brown, with short dark rostrum. The winged female has a slaty-grey abdomen; head, thorax, and legs shining black; wings fuscous, coarsely punctured; stigma yellow; cubital vein once forked and not united with cubitus; two oblique veins to hind wings. Numbers of this species live together in nests in the ground, lining them with white fluffy cotton. The young larvæ that arise from the winged females are vermiform. Buckton thinks these are the sexual forms; they appear in the autumn. Buckton states that he has taken this species plentifully in November on black currant roots at Haslemere from four to six inches underground. That this species and probably P. lactucae occasion severe loss in apple trees cannot be doubted. Many cases of apples failing have been traced to woolly lice on the roots, and in all cases examined by myself, whether in the earth surrounding the roots or in "galled" roots themselves, only the two species here mentioned have so far occurred. Possibly subterranean American blight forms do similar damages, for we cannot doubt their existence abroad when such competent observers state they know the attack well, but I think in England we want further evidence of its existence. This is a point of some economic importance, for if there is a migration, as sometimes stated, from trunk to root and vice versa, we might check to some extent their ravages.

Natural Enemies.

Although aphides have generally many natural enemies amongst members of their own class, little good is done by them in regard to lanigera. Possibly the woolly excretions and globules with which the American blight is surrounded may keep these useful parasites and carnivorous foes off. I have seen, nevertheless, the larvæ of the Coccinellidæ, or lady birds, devouring them and their wool ravenously, and have known some badly infested trees cleared by them. During the present year I had a tree cleared by placing forty "niggers," as the larval lady birds are called, upon it, in less than a week, cleared far more thoroughly than by any insecticide. Larvæ of several species of Syrphidæ, or hover flies, also sometimes feed upon them, but not to the extent that they do upon other aphides. Only once have I seen them in any number amongst the woolly aphis. The lace-wing flies (Hemerobidæ) may also devour them, whilst the Ichneumonidæ now and again parasitise them to a small extent. I have also found a small dipterous larva of the genus Pipiza feeding on the root species. Riley also records Pipiza radicum feeding on the ground American Blight in America. I have also seen various spiders and Phalangidæ devouring them, and a species of Nemacoris, one of the hemiptera-heteroptera.

Amongst birds the Blue Tit (*Parus cæruleus*) is far the most beneficial in orchards attacked by this pest. One can see these beautiful little creatures hunting around the boughs and trunks in the winter and clearing off this noxious insect wholesale. Without these "feathered friends" we should suffer much more severely than we do at present, and they should be strenuously protected in all fruit orchards, where the inestimable good they do far outweighs the slight loss they may occasion by destroying a few buds, many of which are already infested with some insect or mite. Frost has no effect upon this insect. The aphides have been found active on the trees during some of the sharpest frosts we have experienced in these islands.

Prevention and Remedies.

This blight is especially to be seen in badly kept orchards, where the trees are set close together, the trunks and boughs covered with moss and lichens and kept in general unhealthy surroundings. Needless to say these should be remedied as quickly and as far as possible. The lichens and moss should be scraped off or burnt off during the winter with the following wash: Ten pounds of caustic soda, ten pounds of caustic potash, to one hundred gallons of water. Not only will this destroy the lichens and moss, but also the lice and insects, and also most of the ova laid in and upon the vegetable growth on the trees and their bark. A tree washed during the winter in such a way will soon appear quite noticeable amongst the rest, it becoming quite black, and the rind and bark perfectly clean and healthy and in nowise damaged by the burning action of the wash. In many cases scraping the bark has to be resorted to, so as to get off all the rough and loose bark, beneath which the insects go in cold weather. It is also essential to clean off this superfluous bark to obtain a smooth surface, so that the whitewash for the trunks will take evenly. With regards to painting the trees, any thick wash with a base of soft soap will be serviceable. Perhaps the following is as good as any: One pound of soft soap, one gallon of lime, a small quantity of size, mixed with sufficient warm water to form a thick whitewash. Simple soft soap and warm water is sufficient, however, rubbed over the trunks with a scrubbing brush. We must remember that it is the soft soap that destroys the aphides in the various washes employed by blocking up the spiracles; the other ingredients may improve the wash, but they are quite unessential as far as all plant lice may go.

In whitewashing the trees great care should be taken to go right down to the ground, as it is not at all unusual to find the blight congregated as low down as the surface. In destroying them during the summer and when they are on the young wood, washing to be effectual should be commenced directly the first traces of the white wool appear. Prior to using the soft-soap wash, the trees attacked should be well drenched with plain cold water sent with some force amongst the blight by a garden engine. This will be found to loosen and destroy much of the wool and thus expose the aphides to the deleterious effects of the soft soap afterwards, otherwise the soft soap holds to the wool and does not touch the insects. The effect of thunder showers and heavy rains is most marked upon this blight, clearing it off far more successfully than any artificial washings. As much as sixteen pounds of soap to the hundred gallons of water should be used as long as one finds the machine does not "block."

With regard to the attack of S. fodiens and possibly S. lanigera on the roots, more difficulty in dealing with the pests will be found. One point should claim every fruit grower's attention, and that is to examine the roots of all young stock that comes from the nurseries. Any traces of the galled patches or white wool upon the roots would soon be seen by a casual observation. The examination should nevertheless be very complete, as one female may soon establish a colony. Should any be found, steps should be taken to destroy it before the trees are planted, and thus save much further annoyance. This can be easily done by dipping the roots into warm water and strong soft-soap for a minute or two, and moving them about so as the whole comes in contact with the wash, and so destroying the subterranean pests. A certain amount of good may be done by exposing the roots in trees that are not flourishing, and if any sign of this blight is upon them a good drenching of soapsuds, so as to soak all the soil and the crevices of the roots, as recommended by Dr. Asa Fitch, would be advisable. Miss Ormerod, in her valuable work on injurious insects, states that the draining of stables has been recommended and "is said to cure the evil."

The introduction of "Blight-proof" stocks, such as the Majetin and Northern Spy, mentioned by Mr. French in his "Report on the Injurious Insects of Victoria," and by Mr. Lounsbury in this year's Cape of Good Hope report, would doubtless be beneficial as far as the ground attack goes. Of course the grafts would be just as liable to attack. Of course if there is a migration of S. lanigera between the trunk and roots, which is probable, when we find statements to that effect by Miss Ormerod, Mr. Whitehead, and numerous American authorities, bands of tarred hay or cloth around the trees, placed close to the ground, would stop the migration. But it is well first to find out if those root forms are S. lanigera, or the species recorded here and elsewhere. Various other substances have been mentioned as destroying this blight, such as tobacco leaves boiled in water—one pound of tobacco to six gallons of water; kerosene and paraffin emulsions, and various patent insecticides, but none are successful unless soft soap is included in the wash, and that alone is sufficient, hence none of these various insecticides have been mentioned. If desired the regular proportion of quassia may be added to lend its cleansing effects to the leafage, &c. The protection of the natural enemies mentioned should also be paid attention to, and every encouragement given for their increase.

Cell Growth.—In a recent lecture Professor Ray Lankester considered the evidences of the activity called life in the protoplasm of the cell. This, he said, is difficult to observe directly, but it could be inferred in various ways. Cells were noticed in different stages of development, or they were seen to grow in size or to divide into parts. The enormous number of cells that built up animals and plants had originated from other cells by division, and could be traced back to a nucleated corpuscle termed a fertilised germ cell. Another evidence of this vital activity could be found in the movements which were visible in some living cells. Among these he mentioned the amœboid movements exhibited by many cells floating in animal fluids, the granule-streaming to be seen in the cells of the hairs of the spiderwort, the cyclosis of green corpuscles often visible in plant cells, the contraction and expansion of vacuoles, and the ciliary movements exhibited in [illegible] animals by threads of protoplasm extending beyond the cell. All these movements of protoplasm were probably to be regarded as due to chemical changes. The lecturer proceeded to make some further remarks about the structure of a typical cell. After describing the Linin and Chromatin threads and referring [illegible] nuceolus, he discussed the function of the nucleus. This was at first thought [illegible] of great importance, then it was discredited, but of late years it had again come [illegible] be recognised as a very important part of the cell. That such was the case [illegible] been proved by cutting into pieces some of the larger unicellular animalcules which could be manipulated under the microscope. If one of these was cut [illegible] pieces in such a way that one portion contained a nucleus, while the other did [illegible] it was found that, whereas the latter, though it lived for many days, showed [illegible] growth and eventually died, the former recovered itself and grew to the [illegible] shape of the original animalcule. The experiment thus afforded evidence [illegible] the nucleus controlled the growth and nutrition of a cell. Were there [illegible] the simpler forms of life that did not possess a nucleus? That was a [illegible] matter. In some cases observation failed to discover a proper nucleus. The conclusion probably was that no cells were devoid of nuclear substance, which [illegible] some low forms was diffused through the protoplasm in a pulverulent condition.

EXHIBITIONS AND MEETINGS.

OXFORDSHIRE CHRYSANTHEMUM AND FRUIT SOCIETY.

THE thirty-fifth annual general meeting was held at the Roebuck Hotel, Oxford, on Tuesday evening, January 25. Mr. Alderman Cooper presided, there being forty-one other subscribers present. The report, which had been printed and circulated, stated that the society had had a most successful season, the best for the past five years, the show held on November 11 last being remarkable for the large number of specimen blooms and nearly three hundred dishes of high-coloured apples, &c. The vegetable classes, introduced for the first time, contained choice collections, but the competition was not as keen as was hoped for. The accounts showed that the receipts for the period had been £92 2s. 3d., and exceeded the payments by £6 16s 4d., thus enabling the committee to clear off £6 15s. debt from 1896, and start afresh with a small cash balance of £1 12s. Before passing the accounts a lively discussion arose (a) as to the definition of the term "Amateur"; (b) what powers do committees possess in using the funds for luncheons; and (c) the power to offer prizes for vegetables without a special authority in the rules; the result of the arguments was that [the new committee are to define an "amateur" in the schedule for the current year, and either to amend the rules giving them power to offer prizes for vegetables, or obtain the funds as special donations. G. H. Morell, Esq., M.P., was elected president; Montague Wootten, Esq., treasurer; the Rev. R. H. Charsley, hon. secretary; Mr. W. Greenaway, acting secretary (thirty-first year); W. S. Carver, Esq., auditor; and Messrs. G. Salter (thirty-sixth year), J. Fortescue, M. Jefferies, T. W. Jacobs, G. Neal, H. Smart, J. Skuse, and L. McGreal as committee. The next show was fixed to be held on the second Thursday in November.

THAME HORTICULTURAL SOCIETY.

The forty-eighth annual meeting was convened on the evening of January 25 in the Council Room, Town Hall. P. J. D. Wykeham, Esq., presided over a goodly attendance of members. The secretary (Mr. C. J. Plim) submitted the report, which stated that the show held on September 2 last was not a success, although held in conjunction with a fire brigade competition. The weather, the day and night previous, was stormy, blowing down the tents, but by a special effort the exhibition was opened at the usual hour; still the attendance was much less than the average, causing a loss on the year of about £34. The entries for the show manifested a considerable falling off, owing to a number of exhibitors having ceased to compete. The chrysanthemum show held on November 11 was well patronized, the chief attraction being the music, as the exhibits were but few, and the question of continuing the winter event would have to be seriously considered. The president was re-elected, as were also ten vice-presidents; Mr. J. E. D. Ostrehan, treasurer; Mr. Plim, secretary, and a committee of fourteen. Mr. S. Walker resigned the office of collector, which he had held for a quarter of a century, the duties being relegated to the secretary. It was decided to discontinue the chrysanthemum show, and substitute a live-stock exhibition to be held in conjunction with the September flower show.

HEADINGTON HORTICULTURAL SOCIETY.

The seventeenth annual meeting was held at the British Workman Institute, under the presidency of R. H. Dockray, Esq., Stoke House. The report, submitted by the secretary (Mr. W. Greenaway) congratulated the members on a fair record of success during the past year; the income had been £110 9s. 2d., which sum exceeded the payments by £2 18s. 3d. Referring to the show held on August 2 last, it pointed out that the competitive display was very largely helped by a number of exhibits not for competition, foremost of these being the wonderful arrangement of lilies, tea, garden, and perpetual roses set up in vases, wreaths, chaplets, and single and triple trusses of blooms; a grand bank of tuberous begonias sent by Thomas Arnall, Esq.; and a collection of picotees and carnations from Mr. G. Chaundy, jun. The main features of the competition were the groups of plants for effect, roses, table decorations, bouquets of perennials and annuals, hardy fruits, and, and for a somewhat dry season, the grand collections of allotment produce. The attendance proved the largest yet experienced. Colonel Hoole was elected president; R. H. Dockray, Esq., treasurer; Mr. W. Greenaway, secretary: the committee to include Messrs. A. Griffin, J. Stringer, C. Bodimeade, H. Parker, G. Tolley, W. T. Mattock, J. R. Mattock, C. Ricketts and J. Skey. The next show was fixed for Monday, August 1. A vote of thanks to the chairman concluded the business.

BANBURY CHRYSANTHEMUM SOCIETY.

The annual meeting was held at the White Lion Hotel. The Mayor (A. Fairfax, Esq.) presided. From the report submitted it appeared that the show and musical addenda on November 17 and 18, proved an unqualified success, resulting in a financial gain of £12 1s. 11d., and giving the society a cash balance in hand of £27 3s. 3d. Lord North was re-elected president; Mr. S. J. Mawle, treasurer (in the place of Mr. H. A. Strange, resigned); Mr. W. H. Walkely, secretary; and Mr. F. E. Bushy, assistant secretary; a committee of fifteen members was elected by ballot. The chairman and several others volunteered special prizes, and it was decided to hold the show on November 16 and 17 next.

LIVERPOOL HORTICULTURAL ASSOCIATION.

The nineteenth annual general meeting of the above association was held in the Free Library, William Brown Street, on Saturday evening last, Mr. T. Foster, vice-chairman, presiding, in the absence of Mr. T. White through indisposition. The financial position of the society showed a slight falling off as compared with its state twelve months ago, the holding of the summer show contributing principally to this. Several new members were elected on the committee. Mr. William Dickson, 7, Victoria Street, was re-elected secretary, and Mr. G. Blackmore, sub-treasurer. The number of exhibitions for the present year will be two, the spring show to be held about the end of March, and the autumn one in November. A vote of thanks to the chairman concluded the proceedings.

J. V. T.

WINDSOR CHRYSANTHEMUM SOCIETY.

The annual general meeting of this society was held at the Castle Hotel, under the presidency of C. Sainty, Esq. There was not a large attendance. The report stated that the result of the year's work had given a cash balance of £5 3s.

NEW BOOKS.

The English Tulip. Price 1s. 6d. (Messrs. Barr and Sons, 12 and 13, King Street, Covent Garden, W.C.)—Under the title of the "English Tulip and its History," Messrs. Barr and Sons have published the papers read at the Conference held by the National Tulip Society in the Royal Botanic Society's Gardens, May 12, 1897, and thereby placed the lovers of the English Tulip under a great obligation to them. The papers read at the Conference were: "The History and the Properties of the Florist's Tulip," by Mr. J. W. Bentley; "Seed and Seedlings of the Florist's Tulip," by the Rev. F. D. Horner; and "The Cultivation of the Florist's Tulip," by Mr. C. W. Needham; and the three are given in full in the brochure before us.

Comprehensive Guide to Printing and Publishing. (W. H. and L. Collingridge, *City Press*, 148 and 149, Aldersgate Street, E.C.)—This excellent guide was issued some years since by Messrs. W. H. and L. Collingridge, who, from long experience, were persuaded that a manual containing detailed information on subjects connected with printing and publishing would be useful both to authors and persons engaged in commercial and professional pursuits, and its value is indicated by the fact that it has passed through ten editions. The eleventh edition, which is now before us, has been thoroughly revised and greatly improved, and can hardly fail to greatly enhance the popularity of the work. Everything relating to preparing, printing, and publishing books, and other publications, is fully described, and the advice throughout is so clearly stated that even those with but little experience of literary work will have but little difficulty in acting upon it. The manual contains much that should be useful to those who contribute to periodical literature, and we would direct special attention to the following extract: "There are writers who, though fully aware of the objectionable characteristics of their handwriting, can no more do away with them entirely than they can rid themselves of their idiosyncrasies. Hence the importance of their attention to our suggestions respecting the careful preparation of 'copy.' The neglect of the simple precaution of dotting i's and crossing t's, and plainly writing u's and n's—and, we must add, of placing the dots directly (vertically) over the i's—occasions numerous errata, which sometimes escape notice until it is too late to correct them. Many gentlemen who write for the Press fall into an error that appears inconsistent even with common reasoning, viz., that the worse the manuscript is written, the more likely the work is to be correctly printed; for, say they, the more difficulty the printer meets with in reading it, the more pains he is obliged to take to understand the subject; and, of course, he will print it more accurately than if he could pass it over in a cursory manner. In refutation of this prevalent error, we would ask those gentlemen if they have never received letters from their friends, so hastily and carelessly written, that their utmost efforts to decipher every word have been baffled, although they might arrive at the general meaning of the whole? (We have ourselves seen letters which set at defiance all attempts to read them.) We would ask those gentlemen whether, in examining ancient MSS., they have not often been perplexed in making out the subject, and, after all their endeavours, have at last risen from the task in many instances rather guessing at the meaning than being certain of it. Even so, and worse, is the case of the printer with ill-written manuscript, who frequently is ignorant of the subject on which he is engaged. How, then, is it probable that he should produce a proof as correct as if the manuscript were written in a fair legible hand? It is neither probable nor possible." In the case of periodical literature the copy is overhauled by the editor, who, although endowed with more than the usual amount of patience, consigns considerable quantities of MSS., dealing with subjects of interest, to the waste-paper basket, simply because they are so badly written that no compositor could decipher them without extreme difficulty.

Knowledge. Price 6d., monthly. (Knowledge Office, 326, High Holborn, London W.C.)—The issue of this excellent magazine for the current month is so thoroughly good throughout as to suggest that the volume for the current year will surpass in interest and utility even that of 1897. Science, literature and art receive full attention in the pages of "Knowledge," but science somewhat predominates, and as it is dealt with in an interesting manner, those who are desirous of keeping themselves well informed upon scientific questions without engaging in the serious study of the several branches of science could have no more useful periodical than this. Natural history is well represented, and the British Ornithological notes are invariably of much interest, those for the current month being of special interest. In the January issue Mr. A. B. MacDowall, M.A., asks, "Is weather affected by the moon?" and in his reply he contends that a certain definite relation to the moon's phases appears from time to time and persists perhaps half a year or more, and states that the half-year ending with November last is a good example.

Pastures and Pasture Plants. By WILLIAM TOOGOOD. (Macmillan and Co. (Limited), St. Martin's Street, London, W.C.)—Having regard to the immense importance of pastures in the economy of the farm at the present time the publication of this work is most opportune, and we have much gratification in stating that the work is one which those responsible for the management of grass lands may consult with advantage. The opening chapter is devoted to the preparation of the land and the application of manures previous to its being laid down to grass, and the details are so arranged that information upon any particular point can be found with the least possible difficulty. In the second and third chapters the grasses and leguminous plants most useful in the formation of pastures are described and their peculiarities pointed out. In the remaining sections of the work, details relating to the sowing of seeds, the care of new and established pastures, and hay making, are fully described, and the advice is clear and concise throughout. The work is illustrated, and the numerous figures materially assist in the elucidation of the text.

The Culture of Vegetables and Flowers. By SUTTON and SONS. Price 5s. (Simpkin, Marshall, Hamilton, Kent, and Co., 32, Paternoster Row, London.)—On the appearance of the first edition of this important work, we felt it our duty to speak of it in appreciative terms, and to counsel our readers to purchase it, and make themselves familiar with the contents of the well-stored pages. We are therefore gratified to receive a copy of the seventh edition, for no better evidence could be desired that our advice has been acted upon, and our opinion with regard to its utility fully endorsed by those engaged in gardening pursuits. The work has been revised with a view to place it abreast with the present state of our knowledge of the cultivation of vegetables and flowers from seeds and roots, and can be strongly recommended to both amateur and practical gardeners. The chapters on the chemistry of garden crops, and on insect pests and plant diseases, should receive careful attention, as, with an acquaintance with the information embodied in them, the cultivator will experience much less difficulty in maintaining the fertility of the soil of his garden and keeping his crops free from insect and fungoid attacks than will those whose knowledge is limited to an acquaintance with practical details.

HORTICULTURAL EXHIBITIONS AND MEETINGS IN 1898.

MOST of our readers will at this season desire to make up, as far as possible, a list of the various horticultural exhibitions and meetings for the present year, and to enable them to do so we append as complete a list of fixtures as possible. We wish to express our obligations to those secretaries who have so kindly furnished us with dates, and we hope that others will forward, as soon as decided, similar particulars of the society to which they belong. In this matter the large general body of our readers may also help us and each other considerably by forwarding dates of exhibitions that come under their notice.

FEBRUARY.

Tuesday, 8.—Royal Horticultural Society: Committees meet and Annual General Meeting.

Saturday, 12.—Royal Botanic Society: General Meeting.

Monday, 14.—Smoking Concert in connection with the N.C.S. at Anderton's Hotel, E.C.

Thursday, 17.—Linnean Society.

Friday, 18.—Royal Gardeners' Orphan Fund: Annual Meeting and Election.

Thursday, 24.—Kew Guild: Annual Meeting at eight p.m.

Monday, 28.—National Chrysanthemum Society: Annual Meeting.

MARCH.

Tuesday, 1.—Scottish Horticultural Association.

Thursday, 3.—Linnean Society.

Tuesday, 8.—Royal Horticultural Society: Committees meet.

Saturday, 12.—Royal Botanic Society: General Meeting.

Monday, 14.—United Horticultural Benefit and Provident Society: Annual Meeting at Caledonian Hotel, eight p.m.

Tuesday, 15.—London Fruit and Potato Trades Benevolent Society: Annual Dinner.

Thursday, 17.—Linnean Society.

Tuesday, 22.—Royal Horticultural Society: Committees meet.

Wednesday, 23.—Torquay Gardeners' Association: Spring Show.

Saturday, 26.—Royal Botanic Society: General Meeting.

Tuesday, 29.—Shropshire Horticultural Society: Spring Show. Southampton Horticultural Society (two days).

Wednesday, 30.—Royal Botanic Society's Spring Show.

APRIL.

Tuesday, 5.—Scottish Horticultural Association.

Wednesday, 6.—Royal Caledonian Horticultural Society's Spring Show (two days).

Thursday, 7.—Linnean Society. Royal Horticultural Society of Ireland: Spring Show.

Saturday, 9.—Royal Botanic Society: General Meeting.

Tuesday, 12.—Royal Horticultural Society: Committees meet.

Saturday, 16.—Ghent Quinquennial Exhibition (open till April 24).

Wednesday, 20.—York Spring Flower Show. Royal Gardeners' Orphan Fund: Annual Dinner.

Thursday, 21.—Linnean Society. Newcastle Spring Show (two days).

Saturday, 23.—Royal Botanic Society: General Meeting.

Tuesday, 26.—Royal Horticultural Society: Committees meet.

MAY.

Tuesday, 3.—Scottish Horticultural Association.

Thursday, 5.—Linnean Society.

Saturday, 7.—Royal Botanic Society: General Meeting.

Tuesday, 10.—Royal Horticultural Society: Committees meet.

Friday, 13.—Royal Botanic Society: Lecture.

Wednesday, 18.—York Florists' Exhibition.

Friday, 20.—Royal Botanic Society: Lecture.

Saturday, 21.—Royal Botanic Society: General Meeting.

Tuesday, 24.—Linnean Society's Anniversary Meeting.

Wednesday, 25.—Temple Show (three days). Bath and West of England Society's Exhibition at Cardiff (five days).

JUNE.

Thursday, 2.—Linnean Society.

Friday, 3.—Royal Botanic Society Lecture.

Tuesday, 7.—Scottish Horticultural Association.

Wednesday, 8.—Royal Botanic Society's Summer Show. Gardeners' Royal Benevolent Institution: Annual Dinner.

Friday, 10.—Royal Botanic Society Lecture.

Saturday, 11.—Royal Botanic Society: General Meeting.

Tuesday, 14.—Royal Horticultural Society: Committees meet.

Wednesday 15.—Grand Yorkshire Fête and Gala (three days).

Thursday, 16.—Linnean Society.

Friday, 17.—Royal Botanic Society: Lecture.

Monday, 20.—Royal Agricultural Society's Show at Birmingham (four days). Royal Oxfordshire Horticultural Society.

Wednesday, 22.—Jersey Horticultural Society's Rose Show.

Thursday, 23.—National Rose Society's Show: Conference at Bath.

Friday, 24.—Royal Botanic Society: Lecture.

Saturday, 25.—Royal Botanic Society: General Meeting. Windsor and Eton Rose Show.

Tuesday, 28.—Royal Horticultural Society: Committees meet. Southampton Horticultural Society (two days).

Wednesday, 29.—Croydon Horticultural Society. Richmond Horticultural Society.

Thursday, 30.—Royal Horticultural Society of Ireland.

JULY.

Saturday, 2.—National Rose Society at Crystal Palace.

Tuesday, 5.—Scottish Horticultural Association.

Wednesday, 6.—Borough of Hanley Floral Fête (two days).

Thursday, 7.—Norfolk and Norwich Rose Show.

Saturday, 9.—Royal Botanic Society: General meeting.

Tuesday, 12.—Royal Horticultural Society: Committees meet. Wolverhampton Floral Fête (three days).

Wednesday, 13.—Newcastle Summer Show.

Thursday, 14.—National Rose Society at Halifax. Salterhebble and District Flower Show. Jersey Gardeners' Floral Fête. Canterbury Floral Fête.

Saturday, 23.—Royal Botanic Society: General Meeting.

Tuesday, 26.—Royal Horticultural Society: Committees meet.

Wednesday, 27.—Brighstone (Isle of Wight) Flower Show.

AUGUST.

Monday, 1.—Northampton Floral Fête (two days). Headington Horticultural Society.

Tuesday, 2.—Scottish Horticultural Association.

Wednesday, 3.—Ancient Society of York Florists: Carnation Show.

Tuesday, 9.—Royal Horticultural Society: Committees meet.

Wednesday, 10.—Bishop's Stortford Horticultural Society. Hastings and St. Leonard's Summer Show.

Saturday, 13.—Royal Botanic Society General Meeting.

Wednesday, 17.—Shrewsbury Floral Féte (two days). Shanklin (I. of W.) Summer Show.

Thursday, 18.—Jersey Horticultural Society. Niton (I. of W.) Horticultural Society. Abingdon Horticultural Society.

Friday, 19.—Devon and Exeter Horticultural Society.

Tuesday, 23.—Royal Horticultural Society: Committees meet. Royal Oxfordshire Horticultural Society.

Wednesday, 24.—Harpenden Horticultural Society.

Thursday, 25.—Ellesmere Horticultural Society. Grandpont and South Oxford Summer Show.

Friday, 26.—Royal Horticultural Society of Ireland.

Saturday, 27.—Worsley Flower Show.

SEPTEMBER.

Friday, 2.—National Dahlia Society at Crystal Palace (two days).

Tuesday, 6.—Royal Horticultural Society: Committees meet. Chrysanthemum and Dahlia Show, Royal Aquarium (three days). Scottish Horticultural Association. Durham Floral Society.

Wednesday, 7.—Ancient Society of York Florists: Dahlias.

Monday, 12.—United Horticultural Benefit and Provident Society: Committee Meeting.

Wednesday, 14.—Royal Caledonian Horticultural Society (three days).

Tuesday, 20.—Royal Horticultural Society: Committees meet.

Monday, 26.—National Chrysanthemum Society: General Committee.

Thursday, 29.—R.R S. Fruit Show at Crystal Palace (three days).

OCTOBER.

Tuesday, 4.—Scottish Horticultural Association.

Tuesday, 11.—Royal Horticultural Society: Committees meet. National Chrysanthemum Society (three days.)

Monday, 24.—National Chrysanthemum Society: Floral and General Committee Meetings.

Tuesday, 25.—Royal Horticultural Society: Committees meet.

Monday, 31.—National Chrysanthemum Society: Floral Committee.

NOVEMBER.

Tuesday, 1.—Scottish Horticultural Association. Croydon Chrysanthemum Show (two days). Torquay Chrysanthemum Show (two days). Southampton Chrysanthemum Show (two days).

Wednesday, 2.—Isle of Thanet Chrysanthemum Show (two days). Kent County Chrysanthemum Show (two days). Dorchester Chrysanthemum Show (two days). Jersey Chrysanthemum Show (two days). Wolverhampton Chrysanthemum Show (two days.)

Thursday, 3.—Exeter Chrysanthemum Show (two days). North Peckham Chrysanthemum Show (four days).

Saturday, 5.—North of Scotland Root, Vegetable, and Fruit Show.

Tuesday, 8.—Royal Horticultural Society: Committees meet. National Chrysanthemum Society (three days). Highgate Chrysanthemum Society (three days). Birmingham Chrysanthemum Society (three days). Yeovil Chrysanthemum Society (two days). Oxford Chrysanthemum Society.

Wednesday, 9.—Bournemouth Chrysanthemum Society (two days). Jersey Chrysanthemum Society (two days). Wisbech Chrysanthemum Society (two days). Royal Horticultural Society of Ireland Chrysanthemum Society.

Thursday, 10.—Harrogate Chrysanthemum Society (two days).

Friday, 11.—Nottingham Chrysanthemum Show. Leicester Chrysanthemum Show (two days).

Monday, 14.—National Chrysanthemum Society: Floral Committee.

Tuesday, 15.—Leeds Chrysanthemum Society (two days). Folkestone Chrysanthemum Society (two days). Winchester Chrysanthemum Society (two days).

Wednesday, 16.—York Chrysanthemum Society (three days). Hull Chrysanthemum Society (two days). Bristol Chrysanthemum Society (two days). Buxton Chrysanthemum Society (two days). Banbury Chrysanthemum Show (two days).

Thursday, 17.—Edinburgh Chrysanthemum Society (three days).

Friday, 18.—Stockport Chrysanthemum Society (two days).

Monday, 21.—National Chrysanthemum Society: Floral Committee.

Tuesday, 22.—Royal Horticultural Society: Committees meet.

Thursday, 24.—Dundee Chrysanthemum Society (three days).

Monday, 28.—National Chrysanthemum Society: General Committee.

DECEMBER.

Tuesday, 6.—Scottish Horticultural Association. National Chrysanthemum Society (three days).

Tuesday, 13.—Royal Horticultural Society: Committees meet.

Monday, 19.—National Chrysanthemum Society: General Committee.

OBITUARY.

MR. CHARLES GUNTHORPE, of the Old Fleece Inn, Buckingham, died, we regret to learn, at Westminster Hospital, succumbing to an operation for removal of a growth in the throat. He was seventy years of age, and, during the past half century, has been well known as a most successful cultivator of flowers and vegetables. His chief favourites were asters, verbenas, and French marigolds, the latter being generally wonderful developments. He was a large prize-winner in the amateur classes at Buckingham, Brackley, and Banbury shows, and formerly at Oxford.

A WONDERFUL INVENTION is one which, whilst being useful to the world, has never before been dreamt of by scientific men. Many astonishing proposals have frequently been made with reference to a revolution in our already rapid means of locomotion, but nothing practical has yet been effected. No doubt the time will come when a trip between London and New York will seem like a pleasant excursion of a few hours' duration. The ingenuity of man can accomplish wonders, and there is no telling when its limit will be reached. It will be difficult, however, to produce anything more wonderful than Holloway's Pills and Ointment. As sterling remedies for all complaints nothing can equal them.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Violas.—H. B., Timperley: There are about a hundred species of viola.

Potatos for Heavy Land.—A. F., Oxon: Six varieties suitable for heavy soils are Beauty of Hebron, Sirius, Up-to-date, Satisfaction, Early Puritan, and Windsor Castle.

Chrysanthemum Cultivation.—A. G., Manchester: We thank you for the suggestion, and will see what can be done in the matter. High quality blooms are as necessary for exhibition grouping as for staging, when cut, upon the boards; the general system of cultivation is the same in either case, except that those varieties which require such high cultivation to produce good blooms that they can only perfect one or two on a plant are not generally grown expressly for grouping. Extremely tall and leggy varieties are also omitted, except such as are amenable to the cut-back system. It is always advisable to grow a number of cut-back plants as well as a number of naturally dwarf varieties where plants for exhibition groups are required. We recommend a perusal of the series of articles on "Chrysanthemums for Exhibition" that appeared in the Gardeners' Magazine for 1896 and 1897.

The Spanish Silver Fir.—P. C., Blackheath: The Spanish Silver Fir, Abies Pinsapo or Picea Pinsapo, was introduced into England in 1839. It is a native of the middle and south of Spain, being plentiful on the Sierra Nevada at elevations of four to five thousand feet. It is characterised by its stout pointed leaves produced on whorled branchlets. It is a fine abies for lawn specimens, and is a suitable subject for cultivation on shallow soils over chalk. As it assumes a large size it should be placed so that eventually it may have a clear radius of twenty feet for itself. Abies Pinsapo variegata has yellow tips to leaves and branchlets, and these are most effective during the growing season. Another variety that does not come under general notice is A. Pinsapo Hammondi, a curious form with shortened stems and excessively developed prostrate branches that are clothed with branchlets and leaves, both smaller than in the type.

Mildew on Vines.—T. F. J., Norwich: As a stagnant atmosphere is the primary cause of mildew on vines or elsewhere it is obvious that the principal remedy will be a buoyant atmosphere, which can be very largely ensured by due care in heating and airing the varieties. Where mildew has been prevalent, as in your case, it is advisable to adopt other safeguards against renewed attacks. Perhaps the best plan is to paint the hot-water pipes with flowers of sulphur mixed with milk. Another is to place a few lumps of newly-slaked lime about the house, standing them in pans, and then strewing sulphur upon them; both these plans result in the giving off of slight sulphurous fumes that prove fatal to the mildew fungus. Sulphur must on no account be burned in the vinery, or both vines and mildew will be killed. Flowers of sulphur should always be kept in a dry place ready for use at any time; you should also obtain a distributor, so that should mildew show itself, the vines, leaves, and bunches may be dusted over at once. After such a dusting, say about four days after, it will be necessary to remove the sulphur by syringing with clean rain water.

To Kill Crickets.—W. S., Chelmsford: Although crickets are a great nuisance in some plant houses, and occasionally do considerable damage to some plants, we think you have rather overstated the case so far as their lease and tenacity of life is concerned. Obtain one pint of oatmeal, two ounces of arsenic, a little ground caraway seed, and some powdered aniseed; mix all together carefully, and lay small pieces on bits of broken glass, jam pots, or other glazed ware, and place about the house at night. As this is a deadly poison it must be carefully used, and any not eaten by the crickets should be taken up in the morning and locked somewhere out of the reach of children or domestic animals. Another mixture that may be used as an alternative, is to make a paste with arsenic and honey. If these poisonous preparations are placed on glazed ware they will be available, if not all eaten, for about three nights; after that they are too dry for the crickets to eat. A persistent use of these arsenical compounds for about a fortnight should effect a considerable diminution of, if not the entire clearance of, the plague. Subsequently it will be advisable to put down some poison every third or fourth week. We must again remind you of the need of caution, and for keeping children and domestic animals from the house when using the poison.

Ferns on Walls.—J. B., Dundee: One of the easiest methods of making what is generally known as a fern wall in a greenhouse or other structure is to obtain lengths of fairly stout wire trellis, but in comparatively small widths, and fix them from three to six inches from the wall. Between the trellis and the wall pack in a mixture of thoroughly good turfy peat and loam, facing this with moss next the trellis. Commencing at the bottom of the wall, and using strips of trellis about fifteen or eighteen inches wide, and as long as the extreme width of the wall to be covered, it will be easy to fill in the soil and moss and plant the ferns as the work proceeds. With wider strips of trellis it is difficult to fill in the soil firmly; the latter, however, is one of the chief points to observe, as there is bound to become shrinkage when water is supplied, but the less the better. Inch and a-half mesh will not be too small for the wirework. It will be necessary to use stout iron staples at intervals to keep the wire from bulging, and to distribute the weight of the whole mass. If a few light iron uprights can be placed at intervals, and the trellis wired to these, they will keep the work in position. Tiles can, of course, be used instead of wirework, and if these are preferred they can be obtained from any of the dealers in garden pottery who advertise in our columns. It will be necessary to specify your want and the area to be covered; you should also state whether you wish to hang or nail the tiles to the wall or cement them on to it.

Tree Fern.—W. S., Chelmsford: If the soil is at all sour it will be necessary to remove it and repot the specimen, using a lighter compost, and giving ample drainage. Syringe the trunk two or three times each day, making the spray as fine as possible, so that no great quantity of water runs down to the roots. The stems may be mossed, using fresh sphagnum, and then eventually its length may be reduced.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

K. B., Henley: 1, the Winter Aconite (*Eranthis hyemalis*); 2, Pelargonium quercifolium minor; 3, not recognised, but probably a form of P. quercifolium; 4, P. denticulata majus; 5, P. radula major; 6, P. radula.

H. A., Rugby: The plant is unquestionably Camellia reticulata.

A. W. K., Yarmouth: Omphalodes verna.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

W. A. S., Swanley: 1, Chatelay's Kernel; 2, Withington Fillbasket; 3, not recognised, probably a seedling from Cox's Pomona.

J. T., Putney: 1, Bedfordshire Foundling; 2, Frogmore Prolific; 3, Lamb Abbey Pearmain; 4, Roundway Magnum Bonum.

R. M., Colchester: King of the Pippins.

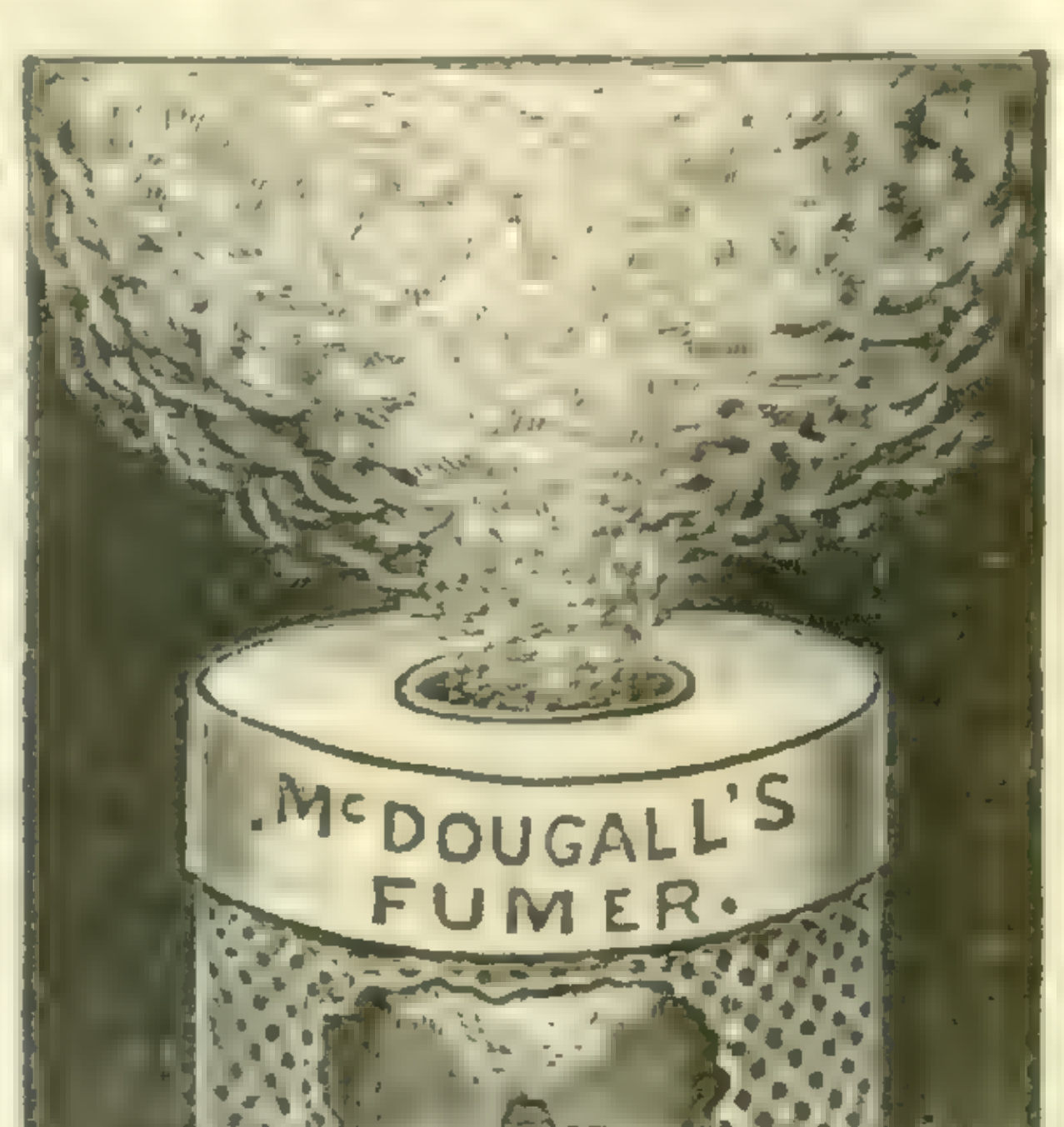
L. F. F., Carnarvon: 1, Round Winter Nonsuch; 2, French Crab; 3, Dutch Mignonne.

B. F., Leicester: 1, Catillac; 2, Easter Beurre; 3, Jean de Witte; 4, Winter Nelis.

Communications Received.—W. B. W.—A. B.—G. D.—H. T.—W. N.—G. R.—T. F. J. S.—W. S.—A. G.—J. B.—W. A. S.—J. T.—R M—L. F. F.—B. F.—K. B.—H. A.—C. H.—D. R. W.—C. W. D.—R. L. H.—G. B.—F. J. C.—T. S.—H. K.—J. T.—G. W.—W. H. L.—A. W.—H. T.—A. W. K.—H. F.—R. S. and Co.—G. P.—W. M.—H. M.—W. P. L. and S.—A. C. and S.—J. T.—J. R.

NEW INVENTIONS.

McDougall's Insecticide Fumer.—Much attention has of late years been devoted to the methods of fumigating plant and fruit houses with a view to their improvement, and as the result of the energy displayed, both in investigation and experiment, a considerable advance has been made both in simplicity and efficiency. The most recent of the inventions for the prevention and annihilation of plant pests is McDougall's Insecticide Fumer, introduced by Messrs. McDougall Brothers, 10, Mark Lane, and having the promise of proving of immense value. In their invention Messrs. McDougall have made a quite new departure in methods of plant fumigation, and devised a means whereby the pests that usually attack plants grown under glass can be destroyed in a remarkably simple and inexpensive manner. As shown in the accompanying illustration, the Fumer consists of a cylinder of perforated tin enclosing a small lamp, and surmounted by a reservoir containing the fumigating material. In using the invention the first point is to estimate the cubic contents of the house, and then distribute the requisite number of Fumers over the floor of the structure and place each one upon an inverted flower pot or a piece of brick. The next step is to prise off the little cap that covers the opening of the reservoir, then lift off the reservoir, light the wick of the lamp, and replace the reservoir in position. In a very short time the material will give off fumes sufficiently powerful to destroy the insect pests within their influence, but in no way injurious to the most tender vegetation. When the Fumers have been used they are gathered up and thrown on the rubbish heap, consequently there is no trouble in refilling or rewicking the lamps. We have subjected the Fumers to a careful trial, and have been much impressed with their simplicity of construction and efficiency in operation, and have formed a high opinion of their utility, more particularly in the gardens of amateurs, who have but little time to devote to the management of their plants.



CATALOGUES RECEIVED.

Pape and Bergmann, Quedlinburg, Germany.—Seeds.

R. Dean, Ranelagh Road, Ealing, W.—Hardy Plants and Seeds.

W. Fromow and Sons, Chiswick, W.—Seeds.

Wood and Ingram, Huntingdon.—Vegetable and Flower Seeds.

Cooper, Taber, and Co., Southwark Street, London.—Seed Catalogue for France and Germany.

John Sharpe and Son, Bardney, Lincoln.—Gardening Guide.

Wm. Cutbush and Son, Highgate, N., and Barnet, Herts.—Seeds and Chrysanthemums.

R. Sydenham, Tenby Street, Birmingham.—Seeds.

Michael Rains and Co., Mansell Street, Aldgate.—Seeds.

F. Gee, Biggleswade, Bedfordshire.—Seeds and Plants.

Benjamin Soddy, 243, Walworth Road, S.E.—Seeds.

Samuel Dobie and Son, Heathfield Gardens, Chester.—Seeds.

Fisher, Son, and Sibray (Ltd.), Handsworth, Sheffield.—Seeds and Sundries.

Dobbie and Co., Rothesay, N.B—Seed Catalogue and Competitors' Guide.

Cooper, Taber, and Co. (Ltd.), Southwark Street, S.E.—Wholesale Seeds.

John Green, Norfolk Nurseries, Dereham.—Seeds and Plants.

J. Cocker and Sons, Aberdeen.—Seeds and Plants.

J. Turner, Wetherby, Yorks.—Seeds, Chrysanthemums, and Dahlias.

Vilmorin, Andrieux, and Co., Quai de la Megisserie, Paris.—Seeds.

John Fraser, South Woodford, Essex.—Roses, Fruit Trees.

MARKETS.

Covent Garden.

THERE is a moderate supply of fruit on offer, but English apples and pears are conspicuous by their absence. Home-grown grapes. American and Canadian apples, and French pears meet a ready sale at fair prices. Vegetables in moderate supply; potato trade dull.

FRUIT.—American and Nova Scotian apples, 14s. to 35s. per barrel; English grapes, 1s. 6d. to 3s. per lb.; Almeria, 10s. to 22s. per barrel; bananas, 4s. to 10s. per bunch; pineapples, 2s. to 5s. each; French pears, 4s. to 6s. per case; Messina lemons, 6s. to 18s. per case; Valencia oranges, 12s. to 20s. per case; Jaffa, 8s. to 11s. per box.

FLOWERS.—Arums, 2s. 6d. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 6s. to 9s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s. 3d.; and tuberoses, 6d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 9s. to 18s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 8s.; white narciss, 2s. 6d. to 5s.; and violets, 9d. to 2s. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; Roman hyacinths, 6d. to 9d.; lily of the valley, 6d. to 2s.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Canary tomato, 1s. to 1s. 6d. per tray; English onions, 4s. 6d. to 5s. 6d. per cwt.; Valencia, 6s. to 7s. per case; Brussels sprouts, 1s. 3d. to 1s. 6d. per half-sieve; French endive, 1s. 4d. to 1s. 8d.; lettuce, 1s. 3d. to 1s. 9d.; cauliflowers, 1s. to 2s. 6d.; cucumbers, 4s. to 7s. 6d. per dozen; celery, 6s. to 15s. per dozen rolls; seakale, 10s. to 15s. per dozen punnets; spinach, 2s. 6d. per bushel; forced rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; savoys and cabbages, 3s. to 5s.; parsnips, 2s. 6d. to 3s. 6d.; beetroots, 2s. to 3s. per tally; turnips, 3s. to 3s. 6d.; carrots, 2s. 6d. to 3s.; parsley, 2s. per dozen bunches; mushrooms, 6s. to 9s.; eschallots, 1s. 9d. to 2s. per 12 lb.

Borough Potato Market.

With fairly large supplies and a quiet trade prices are practically unaltered.

Dunbars, 115s. to 125s.; Hebrons, 90s. to 105s.; Snowdrops, 85s. to 95s.; Bruce, Maincrops, and Sutton's Regents, 85s. to 90s.; Reading Giants and Saxons, 85s. per ton; Belgians, 3s. 6d. to 4s.; Germans, 4s. to 4s. 6d. per bag.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, FEBRUARY 8.—Royal Horticultural Society—Committees meet at Noon. Annual Meeting, Three p.m.

Horticultural Club, Annual Dinner, Six p.m.

AUCTIONS.

TUESDAY, WEDNESDAY, AND FRIDAY, FEBRUARY 8, 9, AND 11.—Lilies, Azaleas, Palms, Orchids, &c., at Protheroe and Morris's Room.

WEDNESDAY AND THURSDAY, FEBRUARY 9 AND 10.—Rose and Fruit Trees, Shrubs, Bulbs, Lilies, Border Plants, &c., at J. C. Stevens's Rooms.

THE WEATHER DURING THE WEEK ENDING JANUARY 29, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	46·8	32·7	42·4	5·78	0·00	0·00
Croydon	47·0	30·5	41·8	5·44	0·00	0·00
Brighton	50·0	35·0	44·6	7·00	0·00	0·00
Bristol	—	—	—	—	—	—
Wolverhampton	51·8	32·2	41·4	5·22	0·00	0·00
Norwich	51·0	34·0	42·2	5·67	0·00	0·00
Nottingham	52·6	29·0	41·8	5·44	0·00	0·00
Liverpool	54·0	33·3	45·3	7·39	0·13	0·33
Huddersfield	49·5	34·2	43·6	6·44	0·21	0·53
Bradford	54·2	39·9	46·7	8·17	0·00	0·00
Hull	51·0	30·0	42·3	5·72	0·03	0·08

The mean reading of the Barometer during the week at Greenwich was 30·37 inches, and that of the Thermometer 42°·4, the latter being 3°·4 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 37 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 2·2 hours. No rain was measured during the week.

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WARE'S SEEDS. Collection of Choice Flower Seeds, 10s. 6d. Containing 6 varieties Victoria Aster, 6 German 10-week Stock, 12 Hardy Annuals, 12 Hardy Perennials and Biennials, 4 varieties Florists' Flowers, 1 oz. Sweet Peas, 1 oz. Mignonette, 1 oz. Dwarf Nasturtiums, 3 pkts. Everlasting Flowers, 3 pkts. Ornamental Grass. Larger and more complete Collections, 21s., 30s., 40s. Collections of Select Veg. Seeds, for Full Season's Supply, 10s. 6d., 15s., 21s., 42s., 63s.

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NAME.	DESCRIPTION.	HEIGHT. ft.	WHEN TO SOW.	EXPECT READY TO PICK.	CARRIAGE FREE. Per Pint.	Per Qrt.
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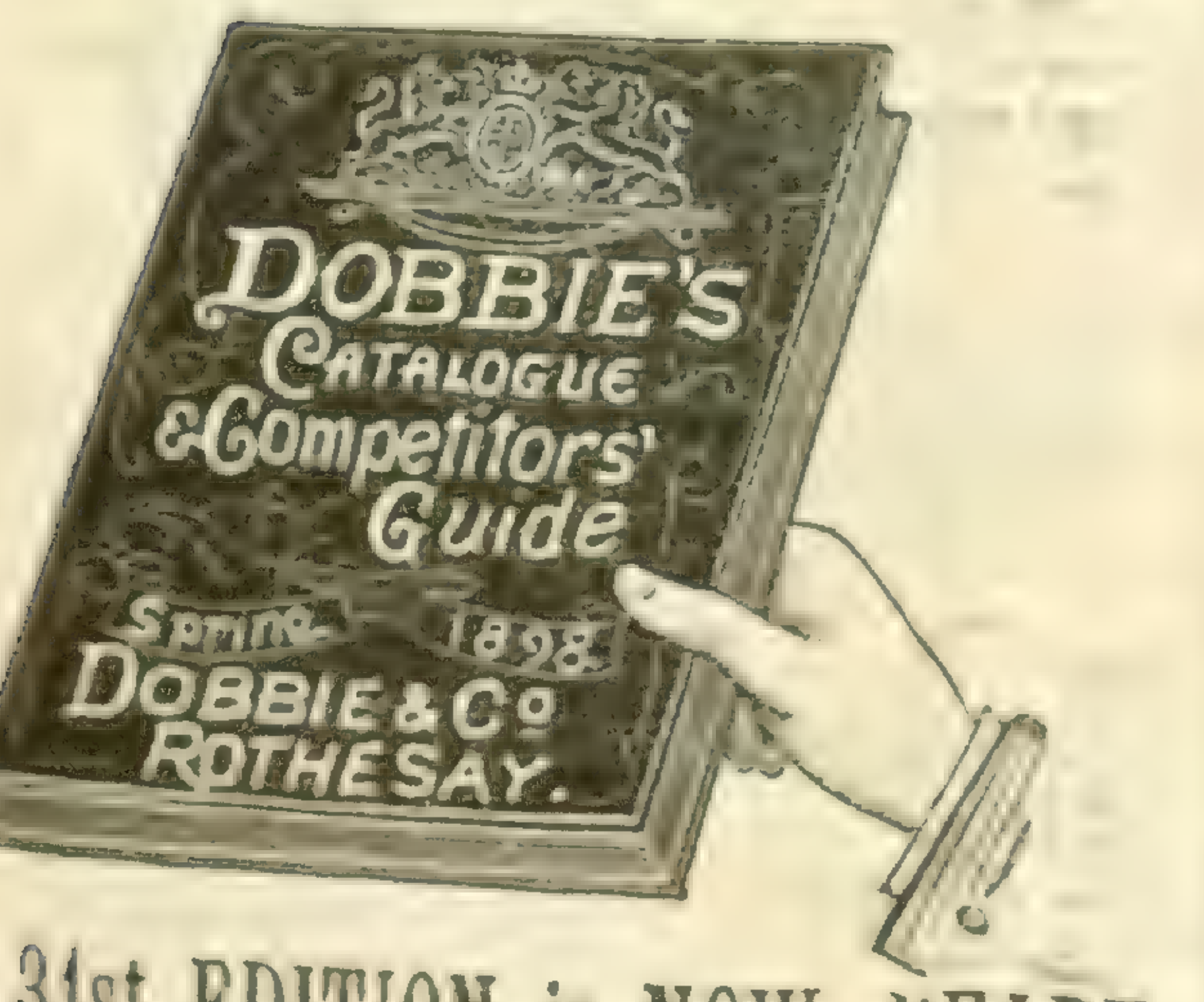

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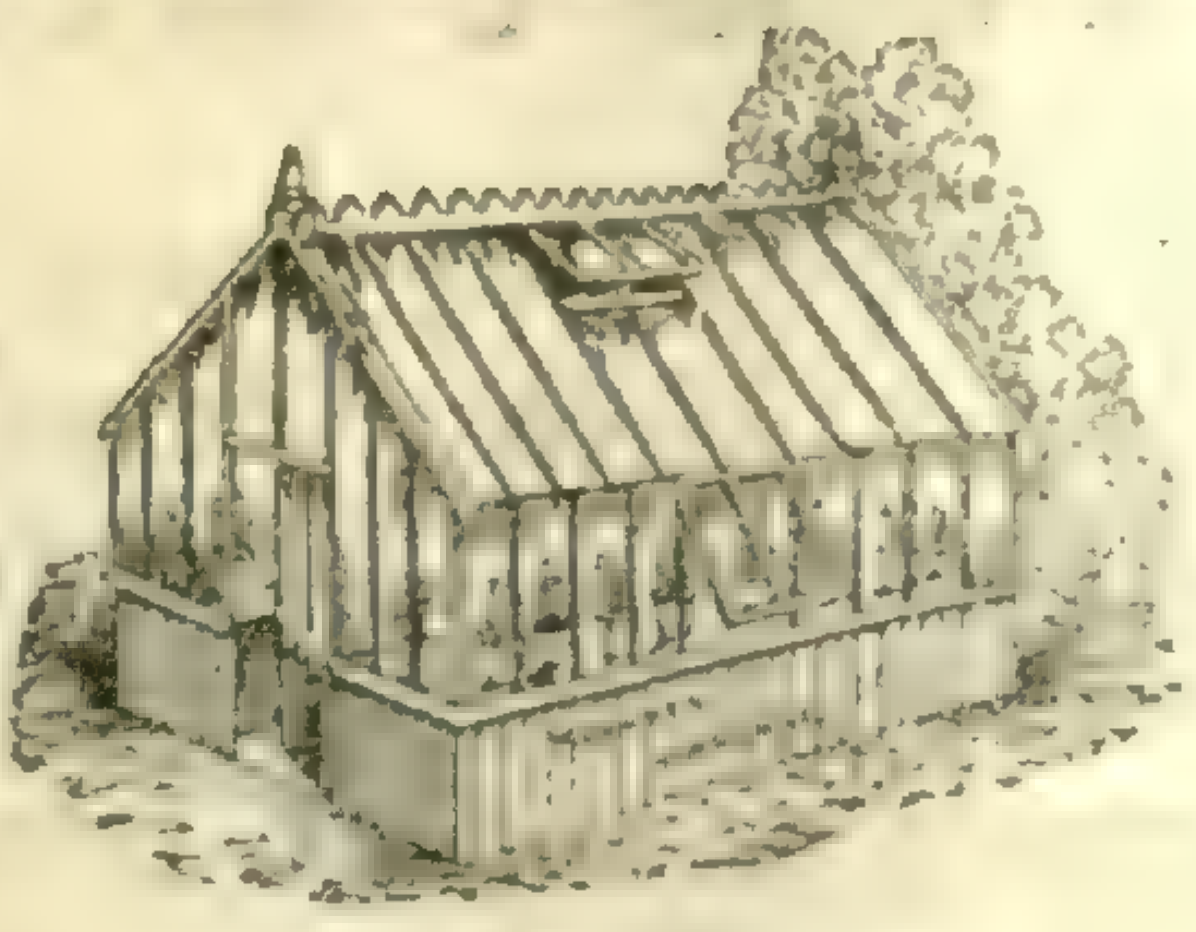

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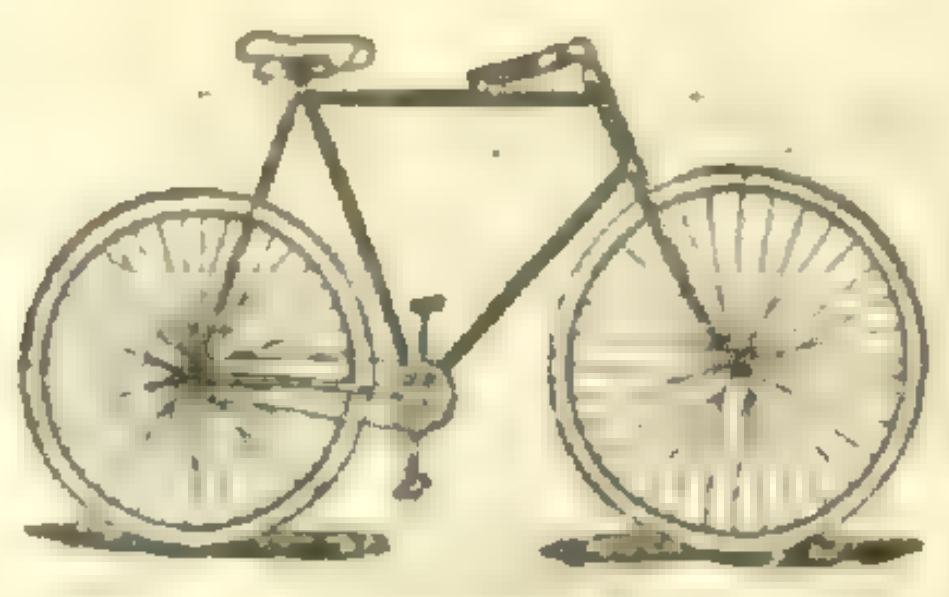

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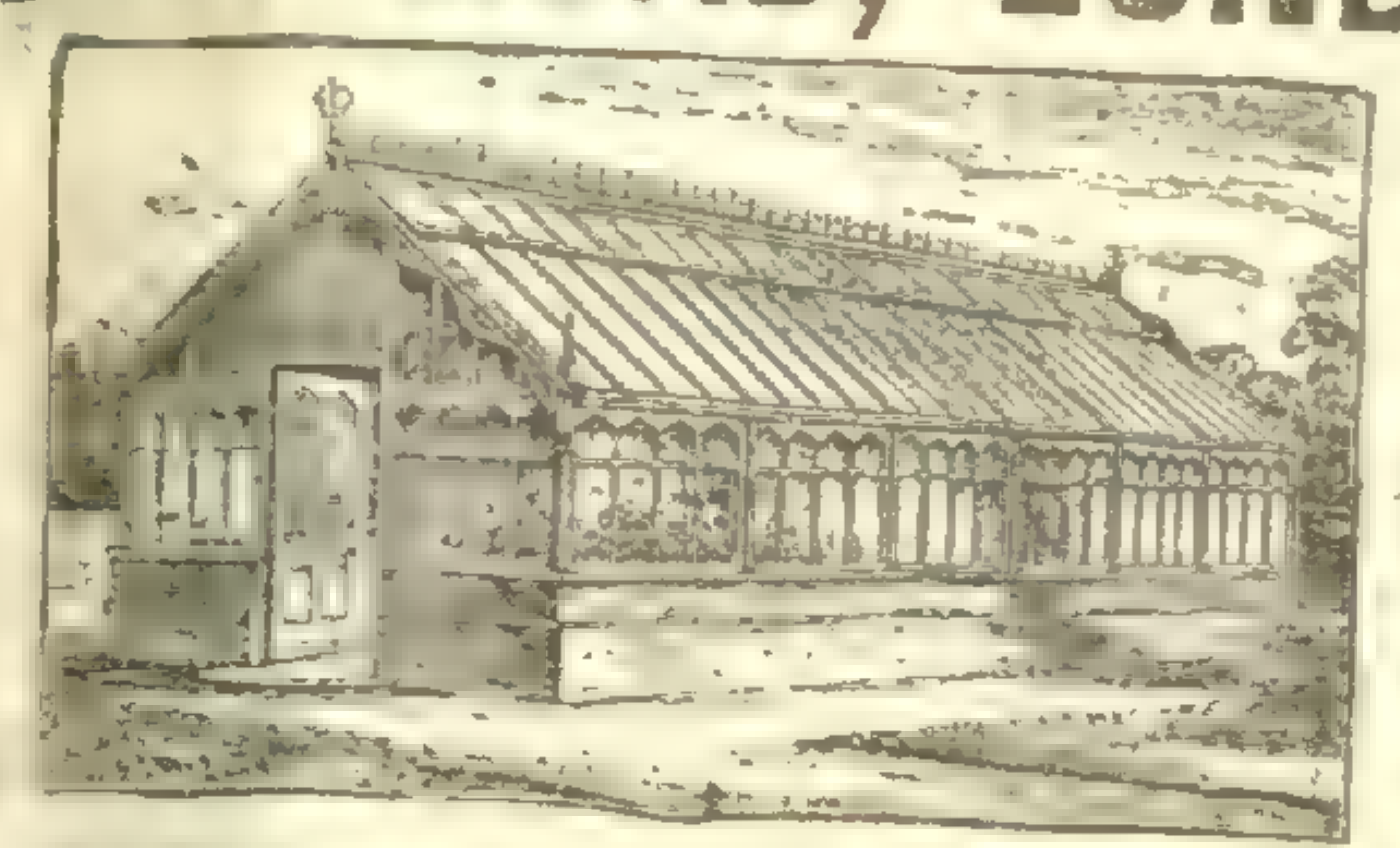

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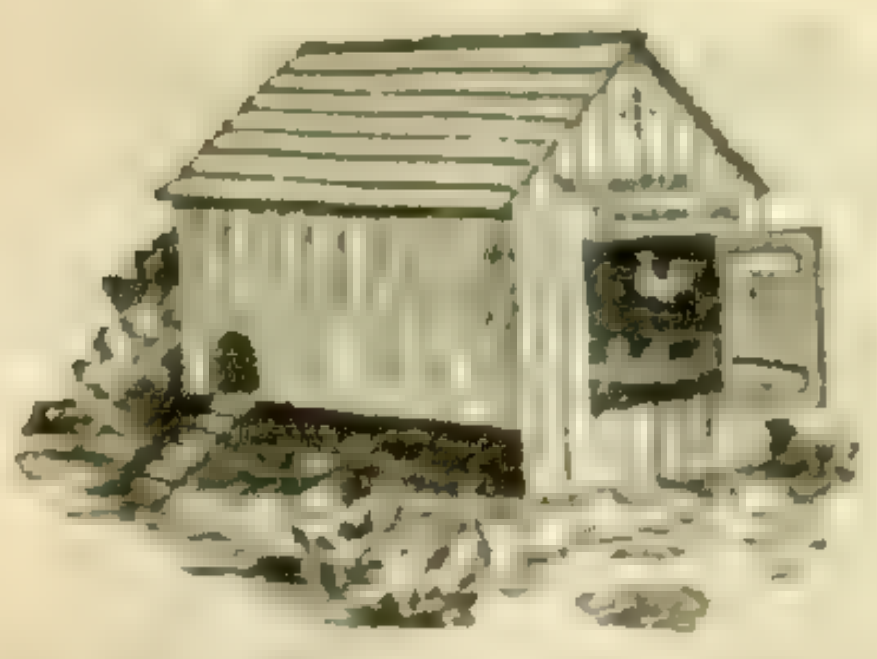

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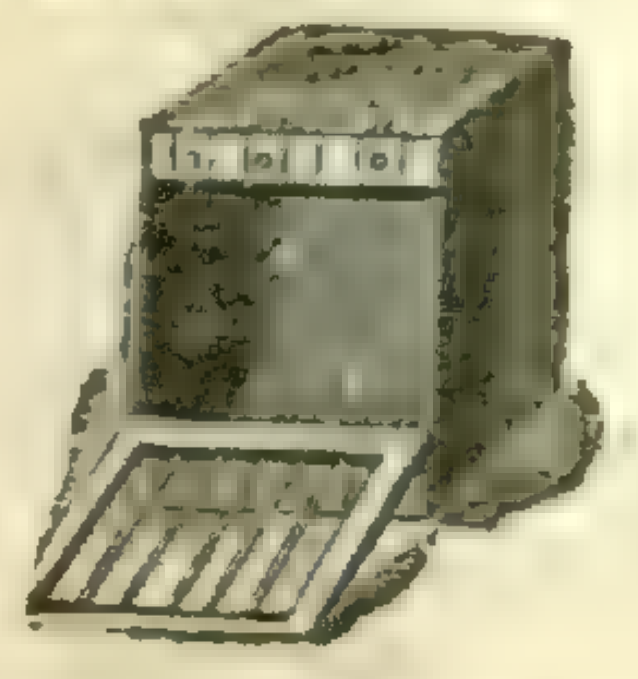

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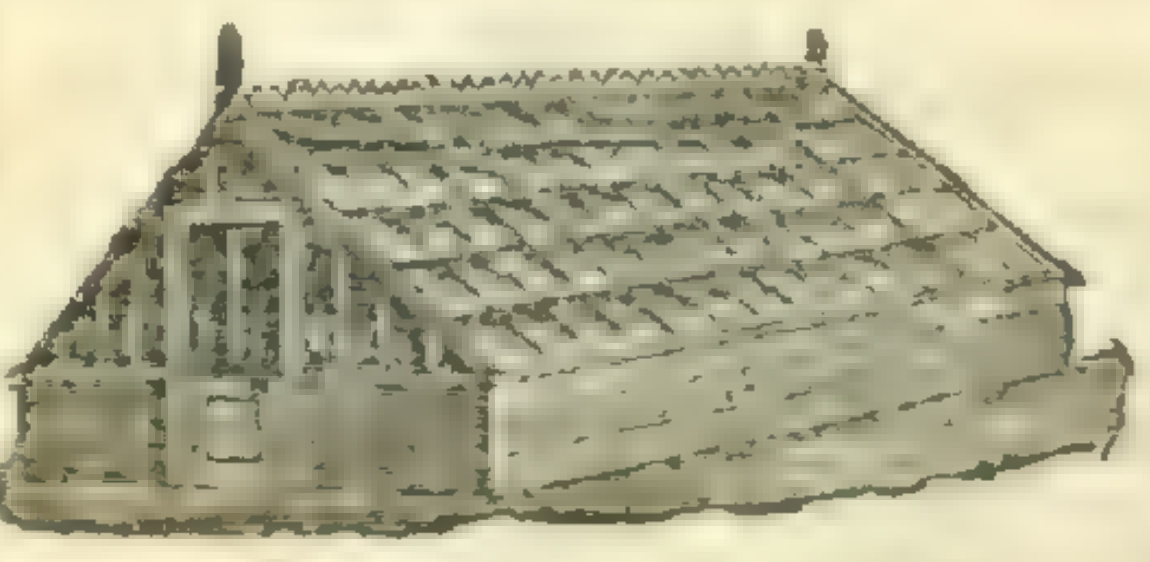

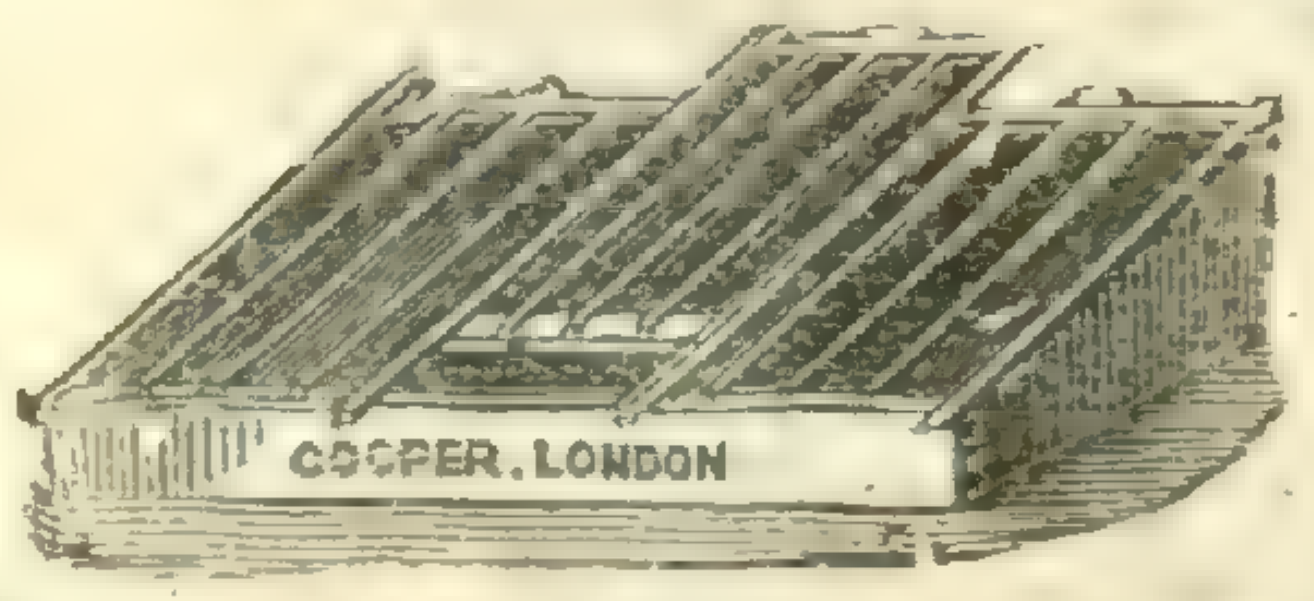

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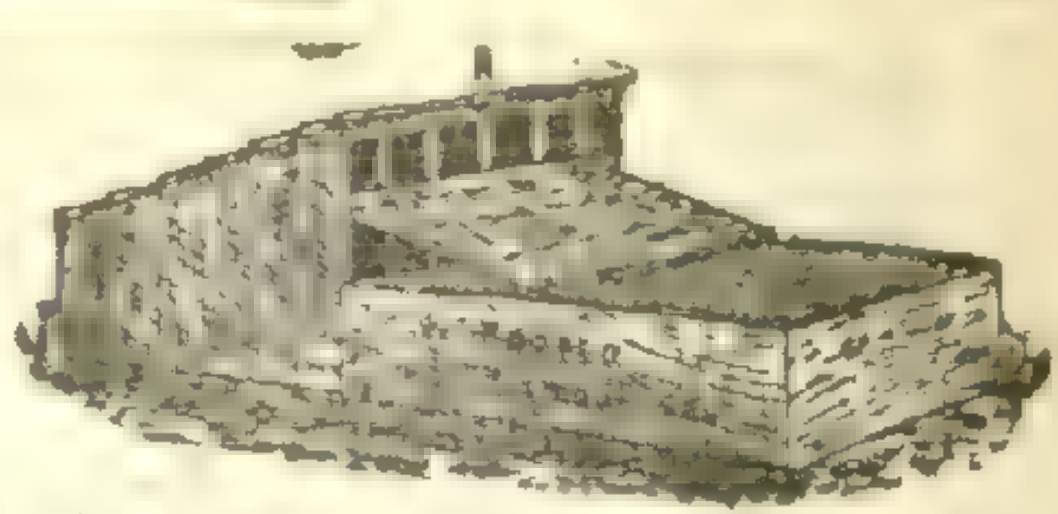

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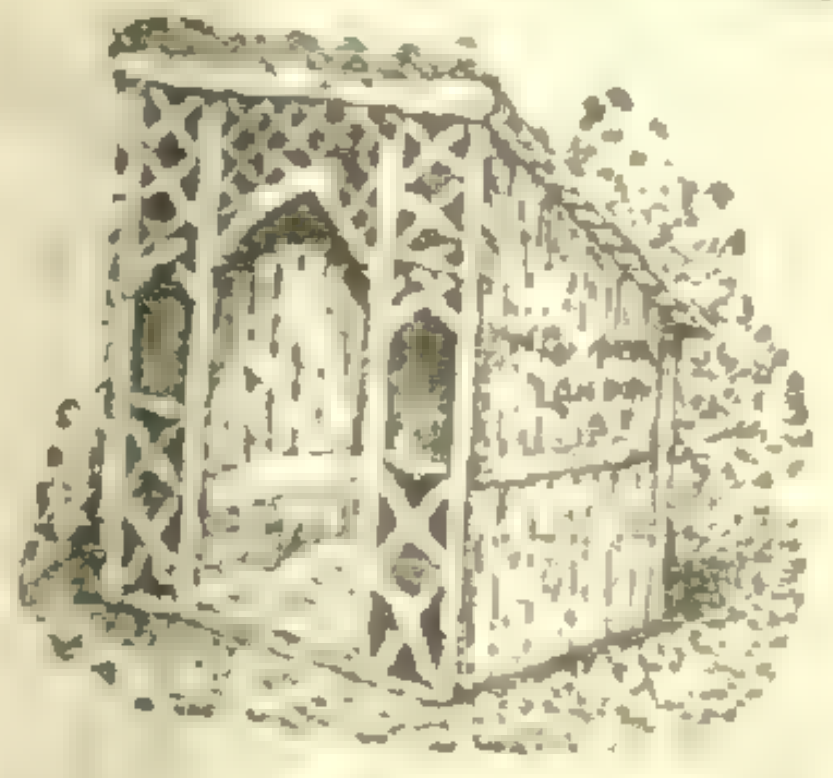

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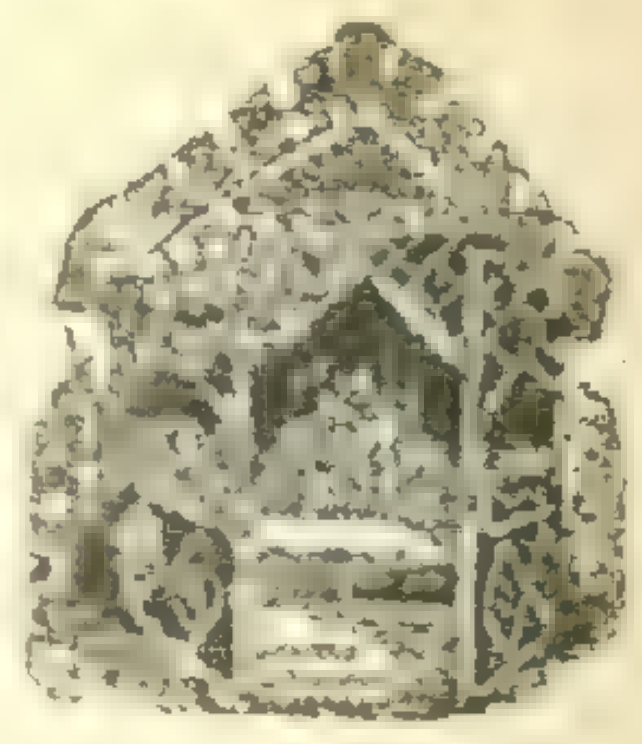

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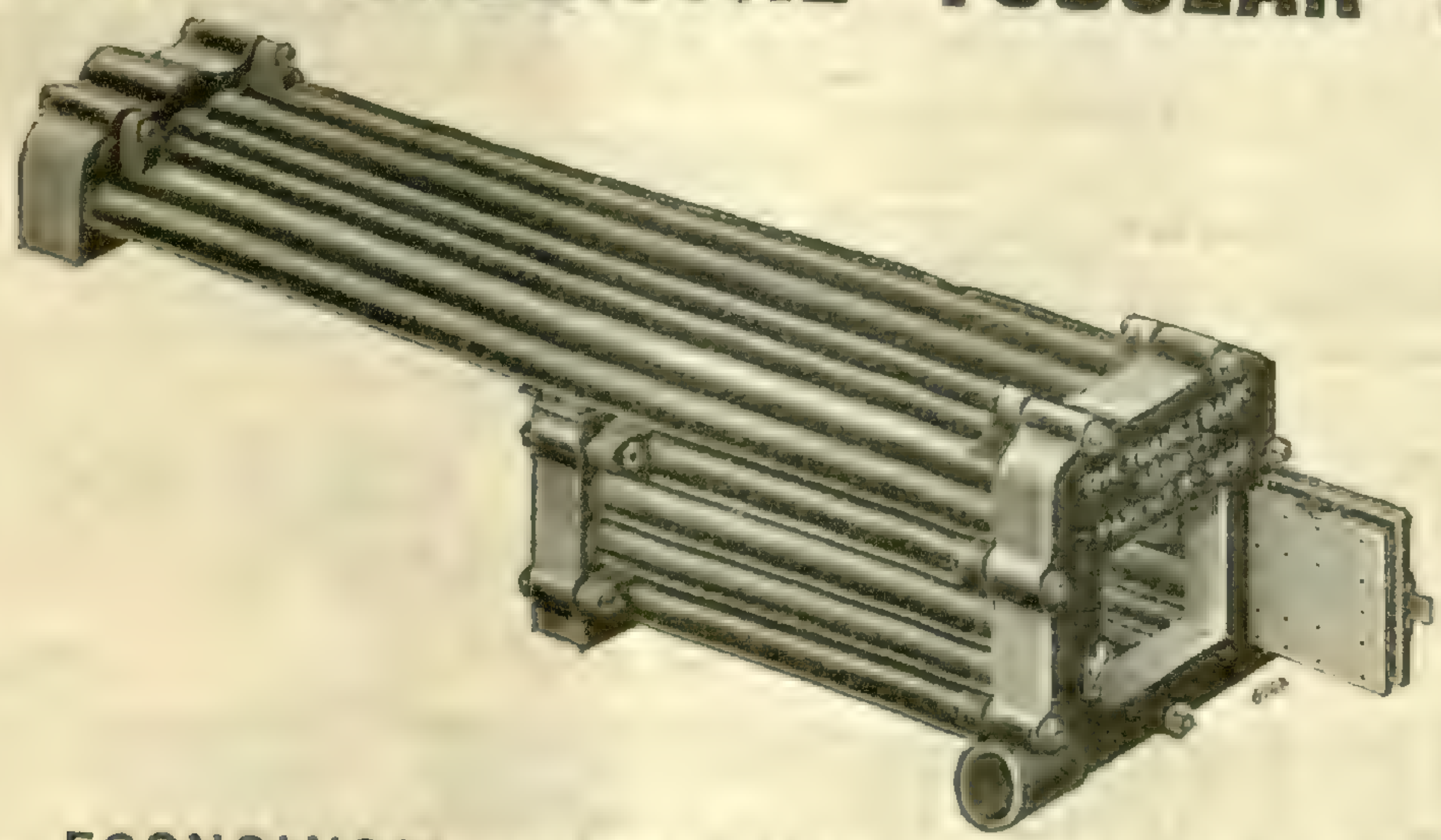

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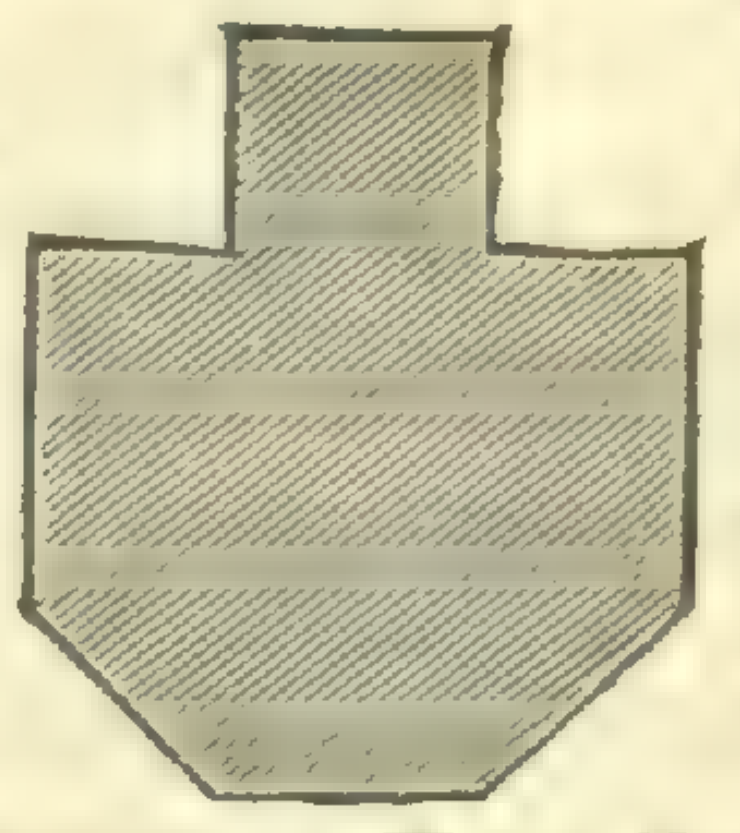

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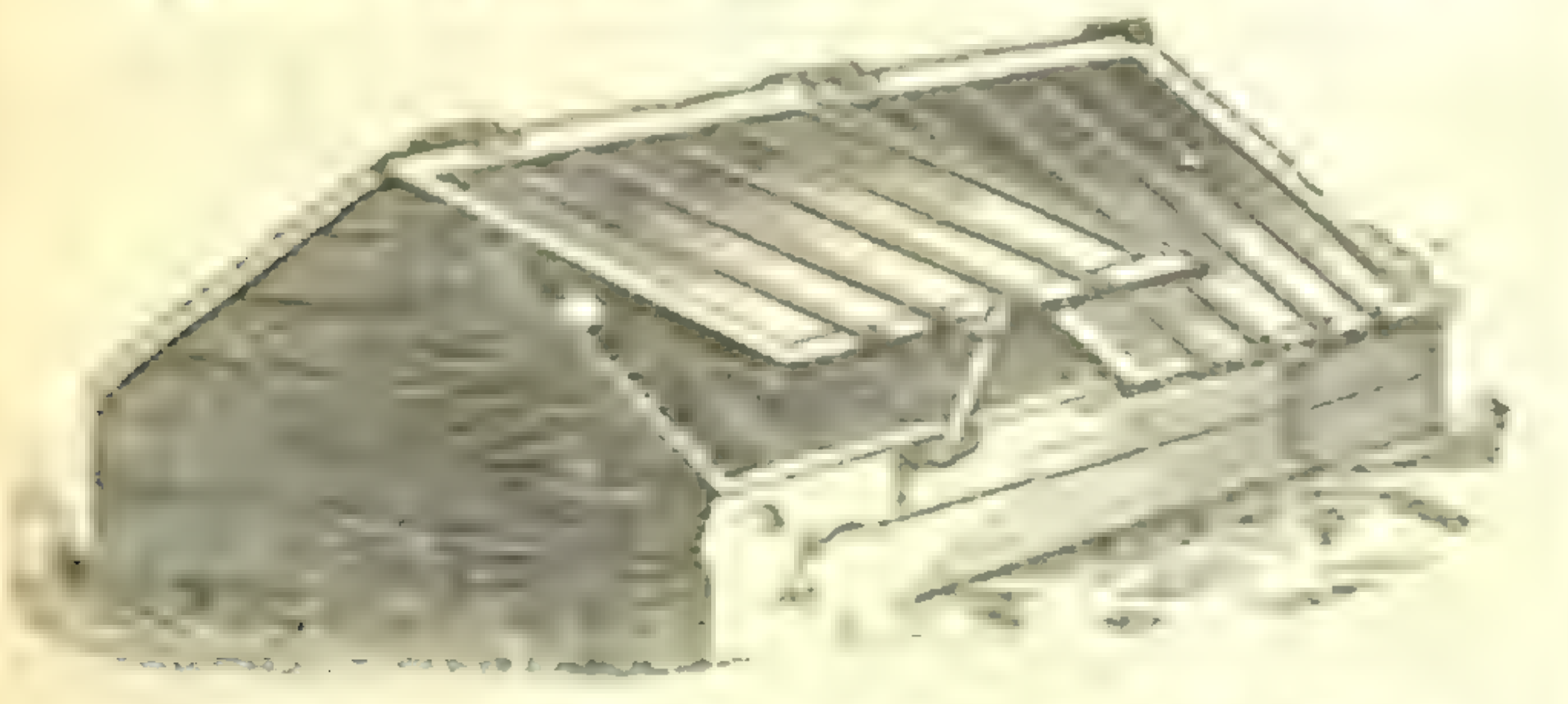

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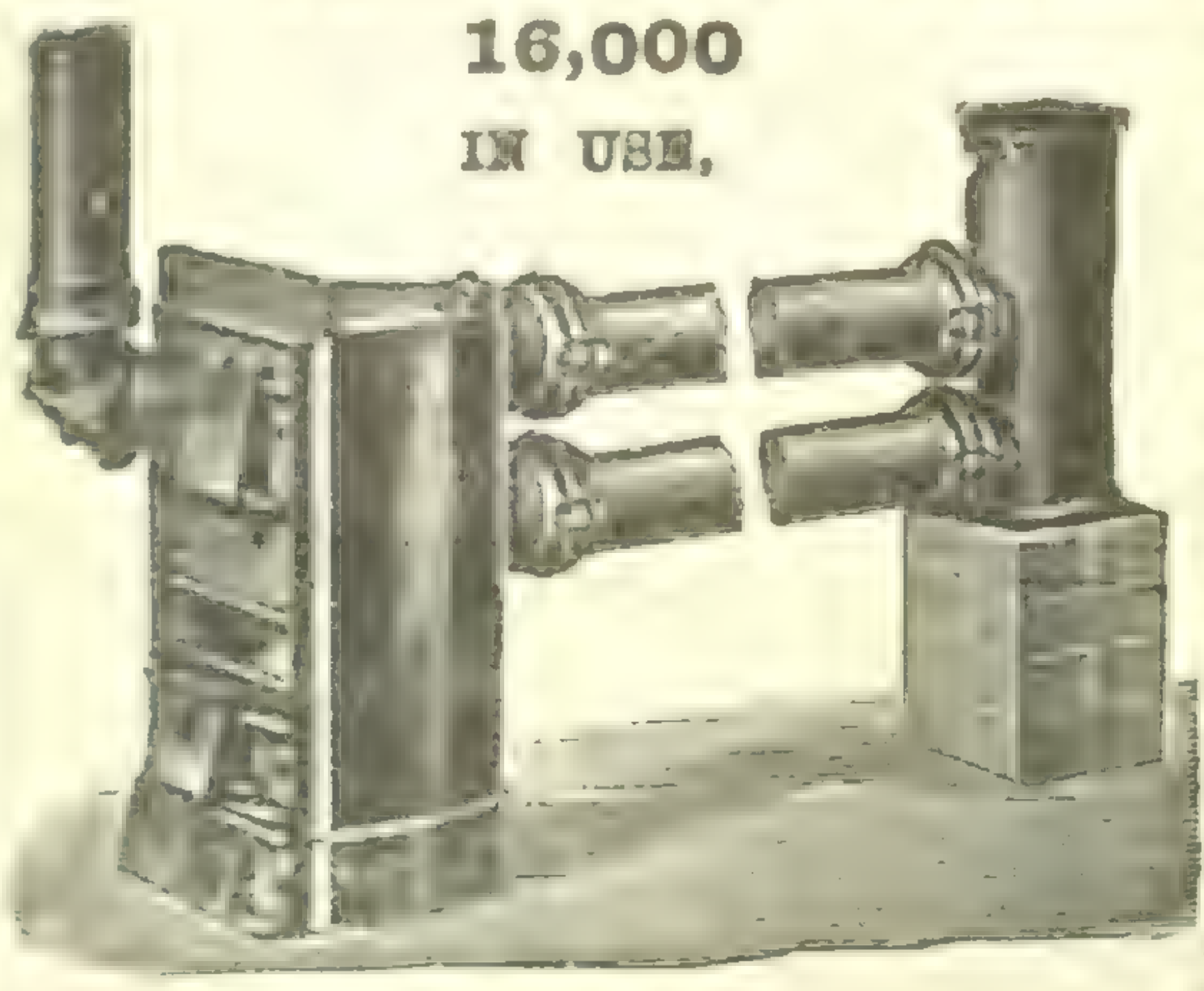

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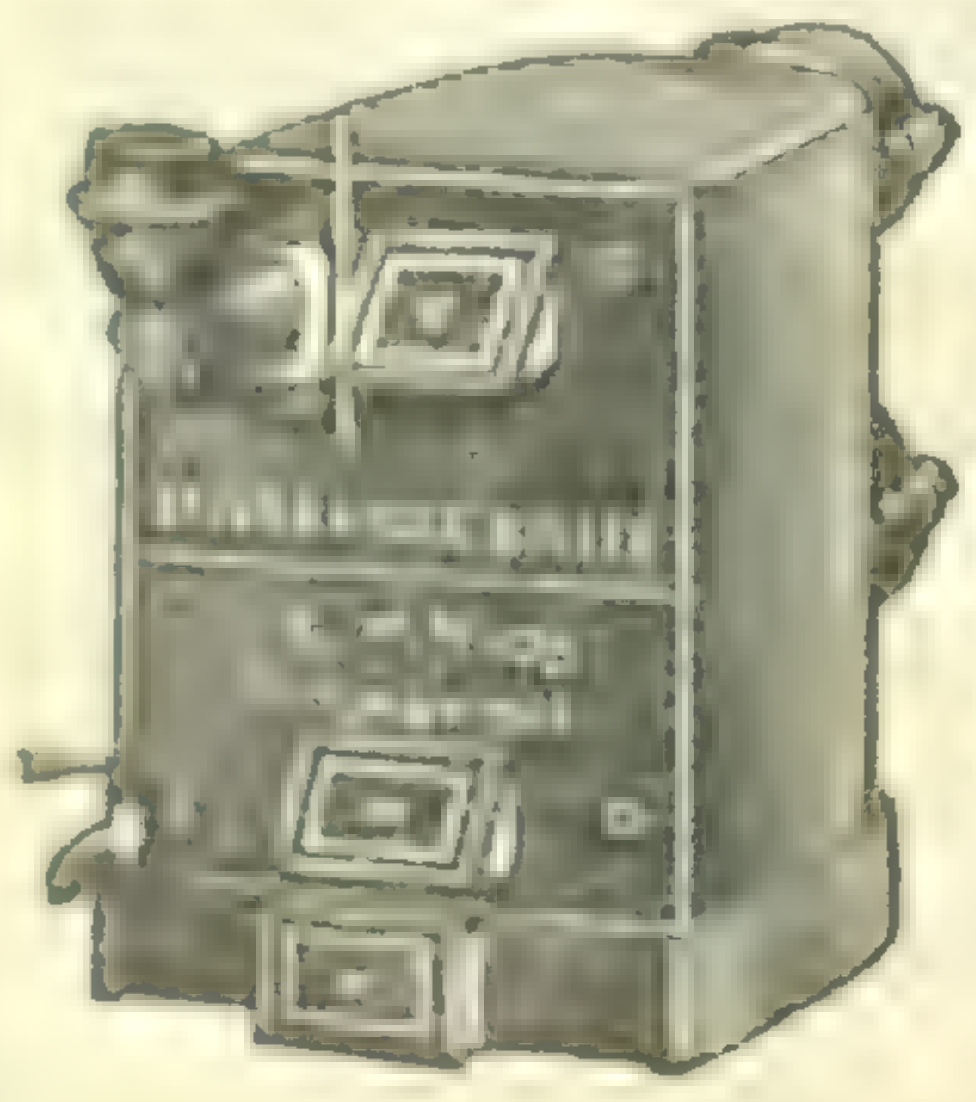

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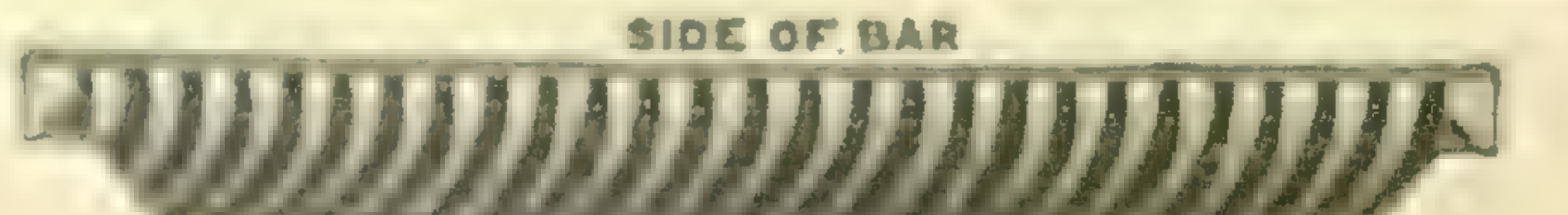

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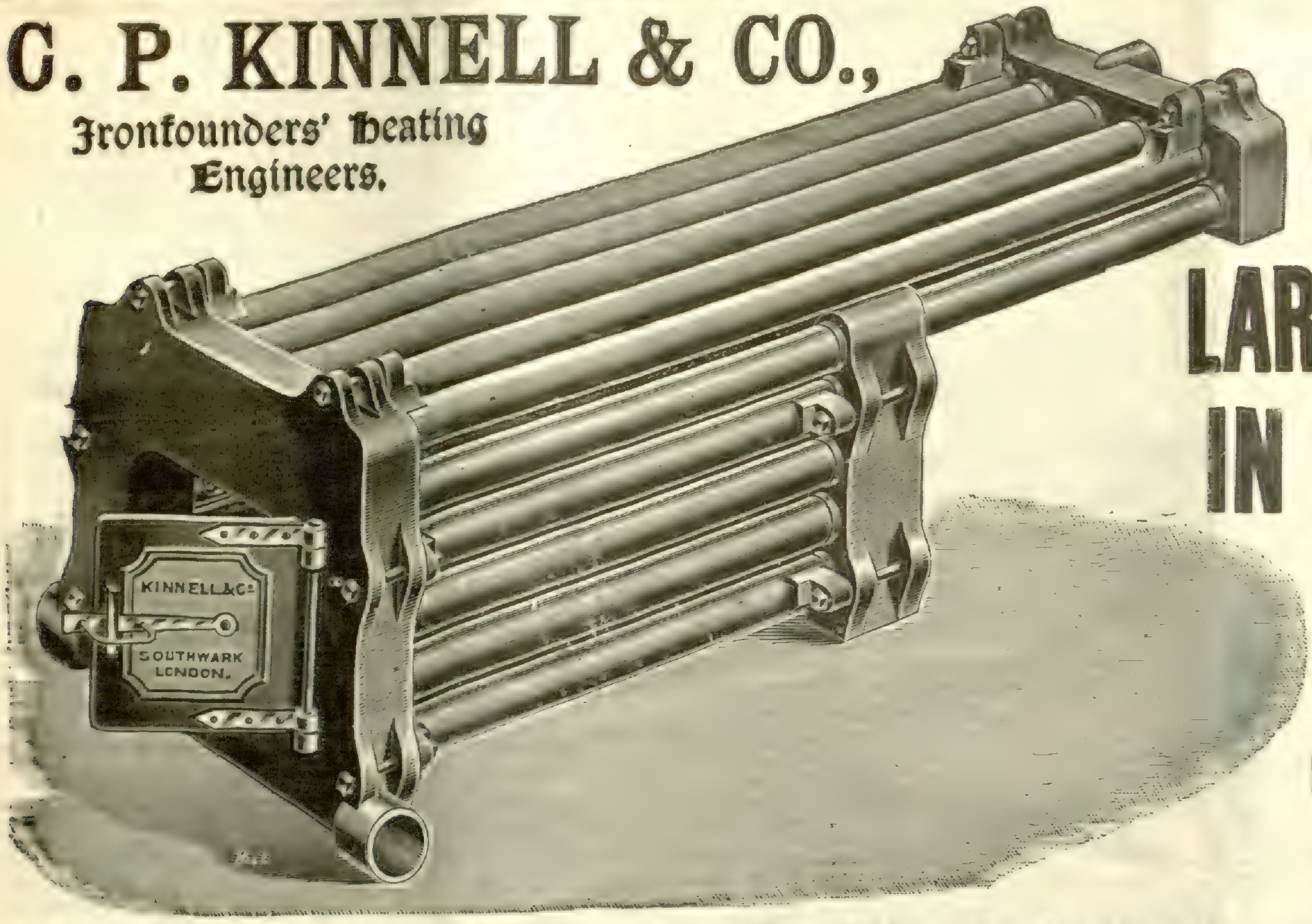

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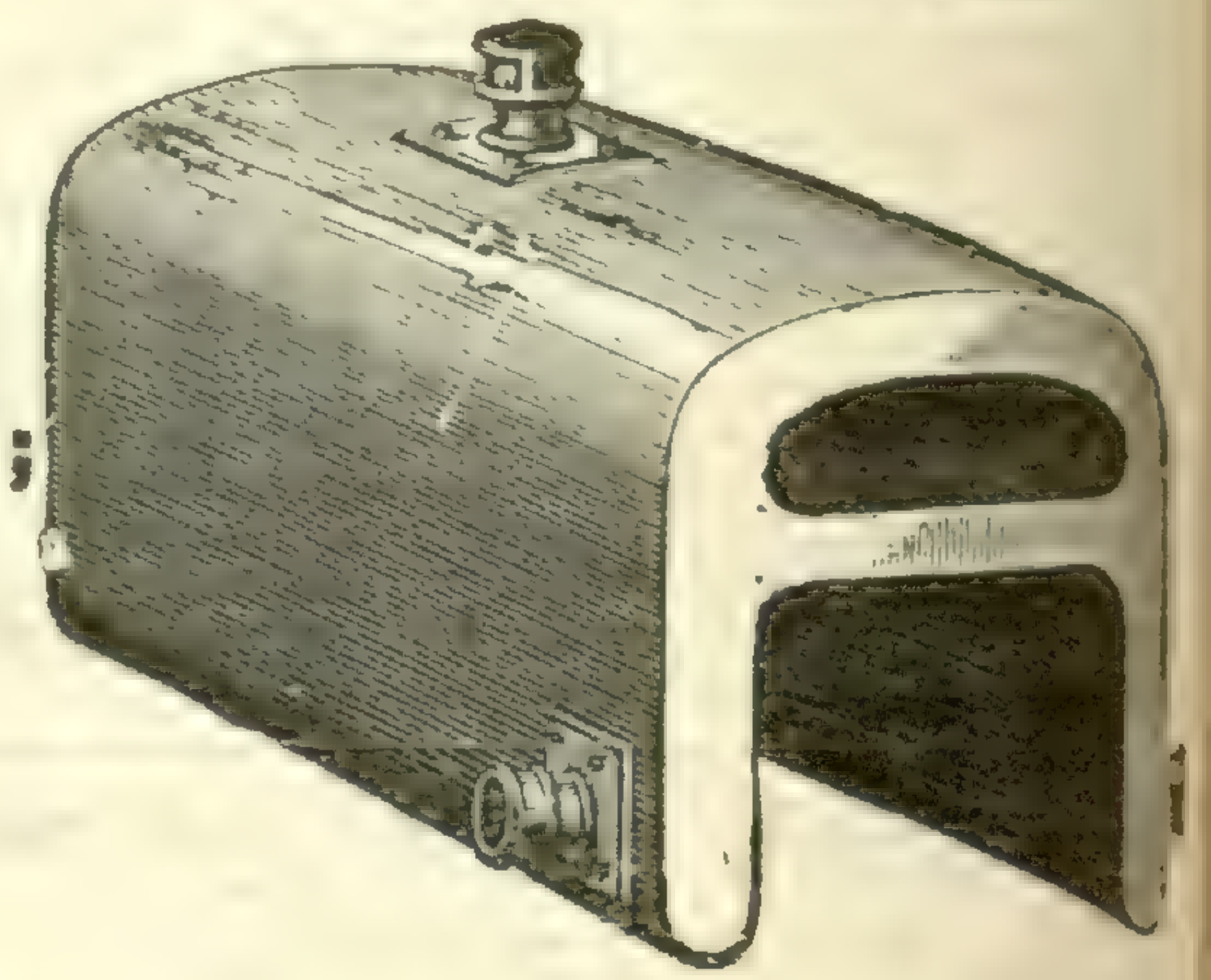

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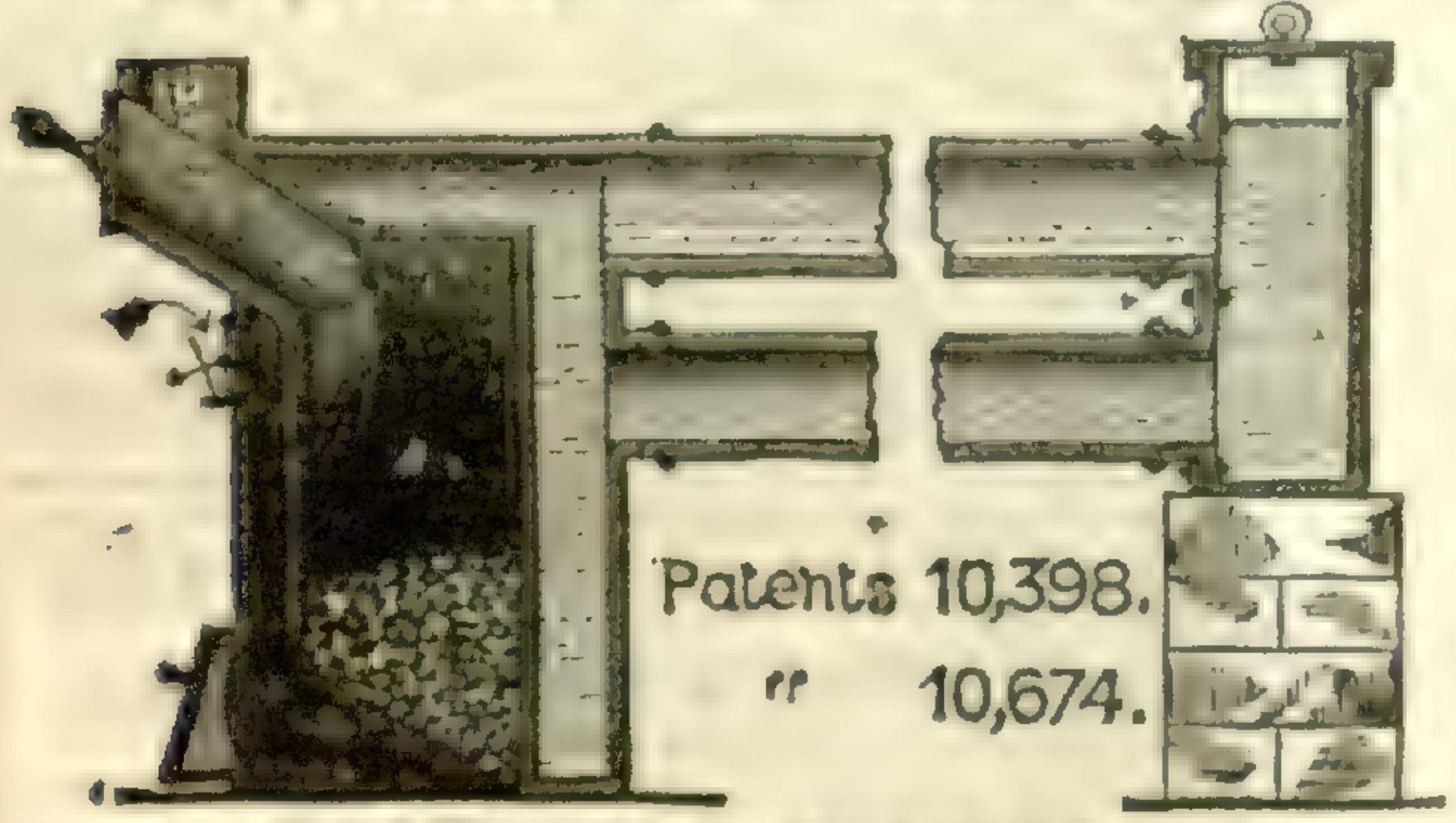

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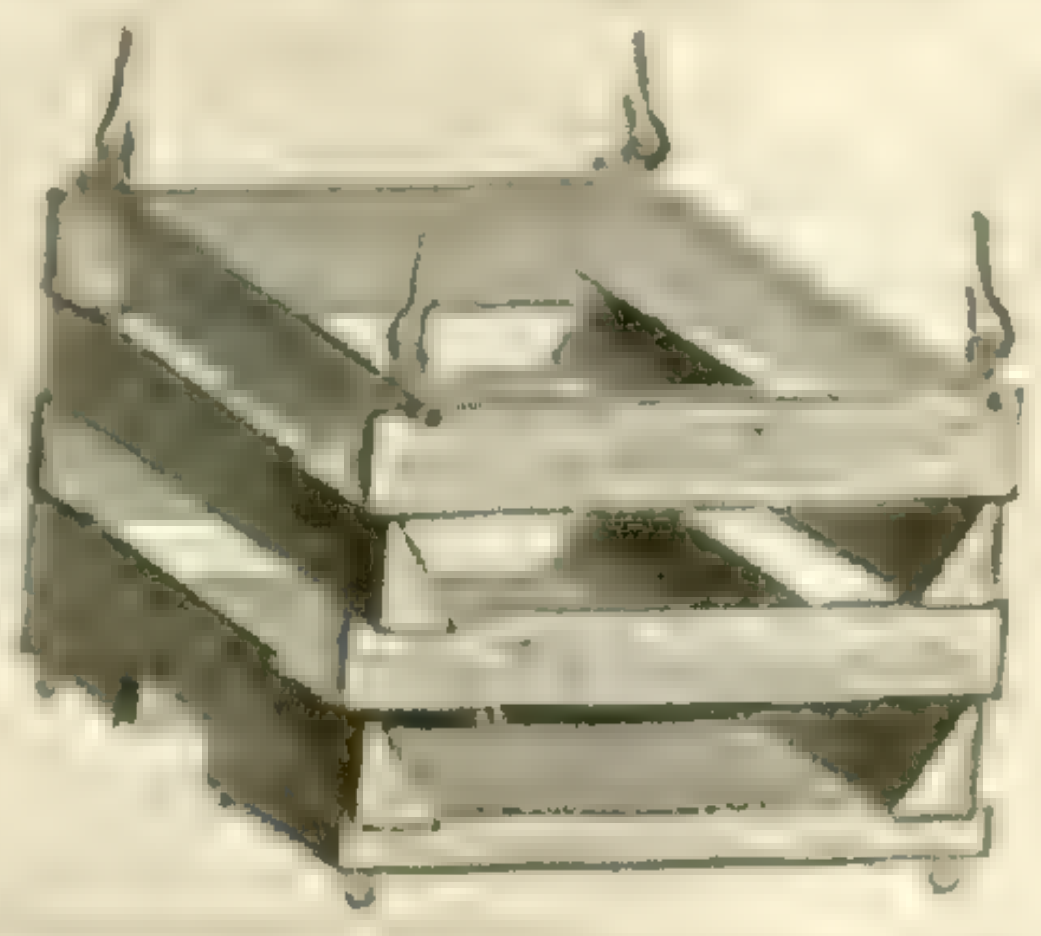

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THE GARDENERS' MAGAZINE.

SATURDAY, FEBRUARY 12, 1898.

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NOTES OF THE WEEK.

THE NATIONAL CHRYSANTHEMUM SOCIETY.

On the day with which the current month will be brought to a close the National Chrysanthemum Society will hold its annual meeting, and in view of recent events it appears to us desirable that those who are interested in the society should in the interval carefully consider its present position and any method which occurs to them as likely to improve it, for the purpose of submitting their views to the members. There are several rumours in the air with regard to propositions that will be brought forward on the occasion in question, and it is, therefore, desirable that the members who are able to do so should make a point of attending, and take such course with regard to the matters that arise as may appear likely to prove beneficial to the society. It would be well were the members from beyond the metropolitan boundary to assemble in larger numbers than is usually the case, for the purpose of taking part in the election of the members of the executive, and there can be no doubt that it would be an immense advantage were the members of committee to be drawn from a wider area. There is a great difficulty in selecting for election on the committee members who reside a considerable distance from London, for few so placed can afford the time and expense involved by a regular attendance at the meetings, and it has been found that when members resident in distant parts of the country have been elected they have attended so seldom as to have rendered but little service. We should be glad also to see on the committee a larger number of amateurs who combine with a love for the chrysanthemum business experience which is so essential in the management of floricultural societies as of other bodies, and this point should be borne in mind at the annual meetings and on other occasions when vacancies have to be filled. The election of the executive should be a sufficient reason for the attendance of members, and if any further inducement is required, it will this year be found in the fact that at the forthcoming meeting a new code of rules will be submitted to the members. As the preparation of the code has occupied a specially-appointed committee for several months, and has been adopted by the general committee, it may be assumed that the new rules will, if passed, greatly improve the methods of procedure. The burning question at the present time is the place of holding the exhibitions, and it would be greatly to their interest if the members would take advantage of the annual meeting for expressing their opinions upon the question, so that the views of the society as a whole may be ascertained. It would certainly be an advantage to the society were members of the executive who desire reforms to submit them to the committee, and, failing to gain their point, appeal to the members assembled in general meeting, and, as a matter of course, present some scheme on which a business-like discussion could be based. This is the practice adopted in other societies, and should be insisted upon by the members of the National Chrysanthemum Society, for in no other way will it be possible to have the assistance of horticulturists of position in the administration of affairs. The society has accomplished much useful work and has great possibilities ; but while we have no doubt that the committee will be able to show that much useful work has been accomplished during the past year, and that they have prepared a liberal programme for the coming season, we are strongly impressed with the necessity for care on the part of those responsible for the management of the society, more particularly in the direction of maintaining its prestige.

MAGNETISM IN FERN LIFE.

In the course of Professor Ray Lankester's second lecture on "The Condition of Life of the Simplest Living Things," a reference, as stated in our last issue, was made to a recent discovery by a German professor that the antherozoids or fertilising bodies in ferns, which form the homologues of the pollen grains in flowering plants, are attracted to the archegonium or egg-cell by the presence therein of malic acid, which had previously been found to attract them when applied to the prothallus independently of the situation of the ovary. It is, however, extremely doubtful whether there is anything akin to magnetic attraction in this phenomenon, and the phrase used "as if by a magnet" presumably only implies a resemblance in the effects rather than identity of cause. These antherozoids on emerging from the antheridia or sperm-cells swim about actively and freely in the moisture necessarily present on the under side of the prothallus ; and this they do by means of cilia or slender, hair-like processes, which serve the purpose of oars, and with the aid of these they make their way to the archegonium and fertilise the egg-cell situated at its base Clearly, given an organism gifted with means of locomotion, which implies a certain amount of volition, it is not going very far to consider it endowed with some perception of odour or flavour sufficient to determine its movements towards the source, precisely as we know that certain insects are attracted to their mates from long distances over which magnetism would be very unlikely to act. Besides, considering the extremely limited area of the prothallus, if magnetic force were the determining cause locomotory cilia would hardly be necessary, especially since both the antheridia and archegonia are immersed in water and an extremely weak attractive force would therefore determine the eventual connection. It has long been recognised by botanists as a biological fact that the pollen grain has been evolved from the antherozoid, and some Japanese botanists have recently found the missing link, as it were, in the fertilising bodies of the Gingko, or Maidenhair Tree (*Salisburia adiantifolia*) whose foliage of adiantum-like leaves shows the close affinity it has otherwise retained to its ancient progenitors. This being so, it would be interesting to know whether the bursting of the coat of the pollen grain and the subsequent direction of the tube it emits, could also be affected by malic acid independently of the stigmatic surface ; that is to say, whether—leaving the idea of magnetism out of the question—the pollen grain has inherited the instinct of its ciliated ancestors, and directs the course of its tube towards the far-distant ovary for similar reasons. If this were so, it is not beyond the bounds of possibility that malic acid might come in as an aid to fertilisation where crossing or hybridising were found to be hindered by the lack of a needed stimulus. Clearly, in such cases as these, we come closely into touch with those extremely subtle influences which lie altogether outside our human range of sense-perception ; but there is no doubt that a careful study of the effects will often enable us to infer the cause, and that being done to utilise our knowledge in fresh and profitable directions.

PLANTING FRUIT TREES.

So far, the autumn and winter has been pre-eminently favourable to planting, and there have been but few breaks in the continuity of the process. Nurserymen admit that the season is one of the most favourable they have experienced for years. It is not too late to plant, but it should be done quickly. In the case of some pears the flowering buds are already showing the colour of the calyces ; and the sheath which formed their protection during winter has parted obedient to the impulses of the spring time. Early autumn is undoubtedly the best time to plant, but there are times when circumstances delay the work, but if possible February should see it accomplished, weather permitting. When an old Lancashire gooseberry grower remarked that it was a good day's work to plant five gooseberry trees, he had in his mind the perfect and complete performance of the task. Despite all the teaching given in respect of this particular work, there is much fruit-tree planting done in a very perfunctory manner. A short time since we were invited to inspect some standard apples planted two years ago, and found to our dismay that a hole had been dug, the roots thrust into it, and filled in with soil of a decidedly unsuitable character. But little growth had taken place since the trees were planted, and the fruit one or two of them had produced was small and cracked. These trees had been sent from a respectable nursery, and were planted by an individual sent with them, who was supposed to be properly qualified for the task. And not only is bad planting done, but where trees are intelligently placed in the ground, they are yet placed too deep in the soil. The roots are too far away from the influence of the sun, and there is never such a healthy root action as when they are nearer the surface. In the case of heavy land imperfectly drained, it would be better to plant on the surface, after it has been broken up, pulverised and properly prepared. Such trees, and especially so if they are standards, should be staked at once, because there is a lack of proper anchorage until the roots have penetrated the soil and secured for the tree a firm foothold. Fruit trees planted at this late period of the winter should be well mulched, for though February is regarded as a wet month, March is frequently a dry one, and then surface mulching is highly advantageous. The mulching also serves the purpose of keeping frost from the roots ; and who knows what wintry weather may be in store for us ere Lady Day is past, and in this relation it may be well to suggest that there are many fruit trees, especially in old gardens, that do not bear fruit, or if they do, only unsatisfactory produce, because the roots are starved. Gardeners who highly manure their vegetable ground, do not appear in some cases to realise the fact that their fruit crops fail for lack of root sustenance. A little bone meal applied on the surface, after it has been carefully broken up, would work wonders ; especially if followed by a good mulch of manure. What may appropriately be termed surface culture, the encouragement of surface rooting, does not appear to be so much considered as it should. Even on a deep gravel subsoil, with a shallow layer of loam on the surface, very vigorous trees and fine crops of fruit may be secured by good mulchings and plentiful waterings, when necessary. A good gardener once said that he believed that at the present time there are plenty of trees in this country to produce fruit for all our requirements if properly cared for, and there is a great deal of truth in the remark.

IMPORTS OF FRUIT AND VEGETABLES.

Although not so satisfactory as those of the opening month of 1897, the Board of Trade returns for January last do not contain anything to justify more than the ordinary degree of anxiety with regard to the commerce of the United Kingdom. The imports show an increase in value of £140,823, equal to 0·3 per cent. ; but there was a decrease in the value of the exports of British and Irish produce of £554,832, equivalent to 2·8 per cent. Happily, there was an increase in the exports of foreign and colonial produce nearly equal to the decrease in home products. The imports in which we are specially interested show a considerable degree of irregularity, and also that we continue to be largely dependent upon the produce of foreign and colonial gardens and orchards for much that could be profitably grown at home. The imports of apples were again considerably in excess of those of the corresponding month of last year ; but there can be no doubt that the supplies were considerably short of the quantities we should have received had the American crop not been considerably below the average. The total quantities received during the month were 295,551 bushels, of the value of £98,972 ; or an increase in quantity of 14,560 bushels, and in value of £33,366. There was a drop of 380 bushels in the imports of grapes, and the values of these fruits was lower by £516 as compared with the imports in January, 1897, the quantities received being 1,001 bushels, of the value of £1,476. We had but three bushels of plums sent us last month against none in the corresponding month of last year, and 210 bushels in January, 1896 ; and it is interesting to observe that while the plums imported in the last-named month were returned as of the value of £820, or equal to nearly £4 per bushel, the value of the three bushels received last month is given as £1, or 6s. 8d. per bushel. The imports of pears were 3,060 bushels, of the value of £1,544, or an increase of upwards of 400 bushels. Nuts used as food that were received from abroad are returned as of the value of £24,383, and with regard to these it must be said that they consist chiefly of nuts that cannot be profitably grown in this country. Of unenumerated fruits the imports amounted to 56,441 bushels, of the value of £29,934 ; and for the greater proportion of these also we must continue to depend upon supplies from beyond the boundaries of the United Kingdom. The imports of potatos show an enormous increase as compared with January, 1897 and 1896. In the opening month of these two years our imports amounted to 23,465 cwt. and 41,672 cwt. respectively ; but last month the supplies jumped up to 739,955 cwt., of which 147,141 cwt. came from Germany, 122,023 cwt. from France, 1,061 cwt. from the Channel Islands, and 469,730 cwt. from countries not specified. Our bill for potatos received from abroad was necessarily a large one, and the total was £140,050. In the imports of onions there was a material drop, the quantities received being 443,749 bushels, or about 50,000 bushels less than in the corresponding month of last year, and upwards of 150,000 bushels in January, 1896. Unenumerated vegetables, on the other hand, have been sent us in largely increased quantities, and our bill for them is somewhat heavy.

Primula obconica Hybrids.—During the early spring months of 1897, Mr. C. E. Shea devoted a considerable share of his attention to the hybridisation of Primula obconica with P. sinensis, and it is with much satisfaction that we record the fact of his having been successful in obtaining crosses between these two distinct species. A small proportion only of the plants obtained from the crosses have yet flowered, and of these two have come under our notice which afford unquestionable evidence of hybrid origin. In one case the yellow belt surrounding the tube of the corolla of the Chinese primula has been transferred to the flowers of the hybrid, and in the other the flowers have the overlapping convolute lobes, characteristic of the flowers of the higher types of P. sinensis. In the second of the two hybrids there is evidence also of the influence of the last-named species in the calyx of the flowers. The seed-bearing parent was P. obconica, and so far there does not appear to have been any material change in the foliage or in the colour of the flowers, but now that a break has been obtained, changes in the form of leafage and the colour of the flowers will follow as a matter of course. Since writing the above, we have learnt that the Scientific Committee of the Royal Horticultural Society arrived after a close examination of the plants at the same conclusion as ourselves, and consider that a cross has been effected between the two species in question.

Mr. James H. Veitch has consented to preside at the smoking concert to be held at Anderton's Hotel, Fleet Street, on Monday, February 14. The concert is in aid of the funds of the National Chrysanthemum Society.

Botany and Allied Subjects are by no means overlooked by the Paris Academy of Sciences, as a reference to the recently-published list of prizes offered during 1898 and the succeeding three years will show. Those subjects and prizes of most interest to our readers are in botany : The Barbier prize of 2,000 francs for discoveries bearing upon the art of healing ; the Desmazières prize of 1,600 francs for the best study of cryptogams ; the Montagne prizes of 1,000 francs and 500 francs for memoirs bearing on the anatomy, physiology, and development of the lower cryptogams ; the De la Fons-Melicocq of 900 francs for botanical work on the North of France ; and the Thore prize of 200 francs to the author of the best work on the cellular cryptogams of Europe. In the department of physical geography there is the Gay prize of 2,500 francs for a comparison of the marine floras of the Bay of Biscay and the Mediterranean. In geology, the Vaillant prize of 4,000 francs is offered for a work relating to the microscopical study of sedimentary rocks, chiefly in connection with their origin and the modifications undergone since deposition.

Awards of R.H.S. Committees.—At the meeting of the Royal Horticultural Society on Tuesday the Council adopted a new mode of awarding the medals at the fortnightly meetings. Hitherto each committee has made awards to the collections coming within its province, but under the new arrangement a sub-committee of nine, consisting of three members of each committee, was appointed to determine the relative merits of groups. It is not surprising the change in the method of procedure should have given rise to much discussion, and we were pleased to have the assurance of Sir Trevor Lawrence at the annual meeting that he would recommend the Council to revert to the practice which has for some years past obtained in the case of the Floral Committee.

Club-root in Turnips.—The disease caused by the slime fungus known as Plasmodiophora brassicæ is not less destructive in Scotland than in England, and consequently the experiments that have been made on Lord Rosebery's estate, near Edinburgh, are of much interest to cultivators. In experimenting upon finger-and-toe in turnips, resort was made to the bold expedient, for the purpose of testing a certain course of treatment, of sowing turnips again upon land where the crop had been nearly destroyed by the disease in the preceding year. The dressing adopted was one ton of freshly-ground lime per acre immediately before ploughing in the autumn, one ton of ground lime in the spring, and eight cwt. of kainit per acre sown in the drills. So efficacious did this dressing prove that the crop grown under its influence was practically free from the disease. It was found, however, that the use of superphosphate, or of any other manure in the production of which sulphuric acid is employed, had a detrimental effect, and favoured rather than discouraged the development of finger-and-toe. Some experiments were also made with manures for turnips, and these proved very satisfactory. The land had received 35 tons of dung per acre, and grown a potato crop in 1895, followed by barley in 1896. The condition of the soil is shown by the circumstance that the plots unmanured in 1897 yielded 24 tons 8 cwt. of turnips per acre. The best result—31 tons 8 cwt. of dressed roots and three tons of shaws per acre—was obtained from a dressing of 4 cwt. of superphosphate, 6 cwt. of lime compost, and 1 cwt. of sulphate of ammonia, at a cost of 22s. per acre. The lime compost would contain about one-third of its weight of lime. The profit in using this mixture, as compared with the unmanured land, was £2 8s. per acre. Where sulphate of ammonia was replaced by its equivalent in nitrate of soda the yield of roots was less, whilst chemical analysis showed them to be somewhat inferior in quality.

Truffle Cultivation.—At a recent meeting of the French Academy of Sciences, Mons. Chatin referred at length to the researches made by many leading French scientists for the purpose of discovering the mode of propagation and some system of cultivation of truffles. He then submitted that Duc de Leparre had, he believed, discovered the secrets that had so long been hidden. The Duc considered that truffle spores were conveyed to the leaves of certain trees by insects, and here they germinated, and with the falling leaf came to the ground to fully develop their mycelium and complete the cycle, by fruiting or producing the edible truffle.

The Commons Preservation Society, meeting under the presidency of the Right. Hon. G. Shaw Lefevre, recently considered a report presented by its hon. solicitor, Mr. P. Birkett, upon the provisions of private Bills affecting commons, open spaces, rights of way, and roadside waste. It appeared that notice had been given of the proposed introduction of fifty-four private Bills under which powers are sought to acquire, in the aggregate, nearly 1,700 acres of common and other open land, and to extinguish a large number of rights of way in different parts of the country. It was determined to make further inquiries concerning a number of the Bills, and should the promoters be unwilling to agree to grant favourable terms to the public the society determined to oppose the Bills in Parliament. It was resolved to support in the High Courts an appeal with regard the ownership of a large tract of turf fuel allotments in Cornwall. It was decided to appeal to the public for further support.

Dean Hole stated at a recent meeting of the Worshipful Company of Fruiterers, that we are the most ignorant of any civilised nation in regard to the culture and treatment of vegetables. We certainly do not agree with the former part of the statement, but, as the Dean remarked, we are behind our neighbours the French in the matter of cooking the vegetables we have cultivated. Dean Hole concluded his remark with the story of a farmer who dined at a lord's table, and, on being asked to partake of some Jerusalem artichokes, exclaimed, "If I couldn't grow better 'taters than them I'd know reason why."

Fossil Fungi.—Mycologists and others interested in fungi will be glad hear that Dr. L. Meshcinelli, of Vicenza, proposes to issue during the next or two an Iconograph of All the Fossil Fungi known. The work will take form of a quarto volume, will contain an atlas of over thirty plates, and will be published at thirty francs (25s.)

Manure for Cabbage Crops.—Dr. Bernard Dyer has been and is stil conducting a series of experiments in Kent in connection with the Manuring of Market Garden Crops, and in some details given in the *Agricultural Gazette* one of the points raised is as to whether the common plan of manuring land to be planted with cabbages in the autumn is advantageous. The point can hardly be regarded as settled by the experience of the last two seasons; but, so far as that goes, it indicates that the result of feeding the plants early is to force them undesirably forward, only to be injured and to some extent killed during the winter. This experience is opposed to the common impression that farm or stable manure "keeps the plants warm" during severe weather, and helps to preserve them. Of course, any stimulating chemical manure would force the plants even more than farm or stable manure in the autumn; but phosphates can be applied before planting with advantage. The case of spring-planted cabbages is different, as the effect of any manure put on for them takes place during a period of growth not interrupted, as that of autumn-planted cabbages is, by a long spell of frost, when the winter is severe. But such extremely mild autumns as those of 1896 and 1897 are exceptional, and it is still a question whether, in an ordinary season, dunged cabbage crops are in any danger of becoming too forward before winter sets in regularly.

"The Botanical Magazine" for the current month contains a double-page illustration of Richardia Elliottiana, the finest of the richardias; this has a golden yellow spathe, and is a native of South Africa. A curious error has crept into the letterpress accompanying the illustration, for it is stated that the plant was raised from seed in 1896 and exhibited in London in 1892. Cypripedium Chamberlainianum is figured under the generic title of Paphiopelum; it is now a well-known orchid; Daphne Blagayana, a sweet-scented, white-flowered species known since 1837, but not long in cultivation; Dasystachys Drimiopsis, an African plant from the Zambesi valley, and with spikes of white flowers akin to the asphodel; and Anemone vernalis, with white and violet-purple flowers, a species closely allied to the British A. Pulsatilla, are all figured in the same issue.

The Röntgen Rays and Vegetable Life.—The results of the action of Röntgen rays upon vegetable life have hitherto been negative, but now, according to *Nature*, Signor G. Tolomei has been led to the conclusion that their action is identical with that of light. On exposing to the action of Röntgen rays branches of Elodea canadensis immersed in water charged with carbonic anhydride, evolution of bubbles took place as in the presence of sunshine or electric or magnesium light. The same similarity was observed in the effects on the lower vegetable forms, both Röntgen rays and light causing retardation in the absorption of oxygen by Mycoderma aceti, and in the evolution of carbonic anhydride by Saccharomyces. Again, in their action on Bacillus anthracis the Röntgen rays behave in the same way as sunshine, but in a minor degree; when a gelatine film was exposed for twenty-four hours to the radiations from a Crookes' tube, with the interposition of a zinc screen having an X-shaped aperture, the letter appeared transparent on an opaque background. That the action was due to destruction of the germs, and not to the generation of any toxic quality in the agar, was proved thus: When a sterilised film was partially exposed to the rays, and subsequently brought into contact with a stratum of dried spores the spores began to germinate all over the film; but when the stratum of spores was exposed to the rays, the screen with the letter X being interposed, and the film subsequently brought into contact with them, only those spores which had been protected from the Röntgen rays developed, and the letter X was distinctly seen. Signor Tolomei attributes the previous failure to obtain such effects to the short duration of the exposures.

The Gardeners' Company held a most pleasing function at the Royal Institute of Painters in Water Colours, Piccadilly, on the evening of Friday last. The Master, Mr. N. N. Sherwood, on this occasion gave a reception and entertainment to a large and fashionable company. Ladies were invited, and the proceedings were consequently among the most successful ever held in connection with the company. Mr. and Miss Sherwood received the guests, the latter carrying a splendid bouquet presented by the Livery, and wearing the handsome diamond brooch recently presented to her by the Court. Following the inspection of the collection of pictures now in the galleries, the company gathered in the East Gallery, where a varied programme of music, juggling, animated photographs, &c., was provided. Subsequently dancing took place in the Central Gallery, the music being discoursed by Ashton's band. Supper was served in the West Gallery from eleven to twelve o'clock, and altogether the company enjoyed themselves hugely.

The Board of Agriculture distributed the Parliamentary grant made in 1896-7 in aid of Agricultural Education in Great Britain as follows: Durham College of Science, Newcastle-on-Tyne, £1,000; University College of North Wales, Bangor, £800; Yorkshire College, Leeds, £800; University College of Wales, Aberystwith, £800; Reading University Extension College, £800; Nottingham University College, £600; Cambridge and Counties Agricultural Education Committee, £500; South-Eastern Agricultural College, Wye, £400; Eastern Counties Dairy Institute, Ipswich, £300; British Dairy Institute, Reading, £300; Bath and West and Southern Counties Society, £300; Royal Botanic Garden, Edinburgh, £150; Highland and Agricultural Society, £100; Agricultural Research Association, Aberdeen, £100. Fourteen institutions have thus shared the total amount of £6,950, and the Board has, in addition, undertaken to inspect the agricultural work done under the instruction of these bodies, and also that of seven county councils.

Dr. D. Morris, C.M.G., will deliver at an early date two Canton Lectures before the Society of Arts upon the interesting subject of india-rubber.

Water under Regent's Park.—The Zoological Society have, at their Regent's Park Gardens, long wished for an independent water supply, and, after some experiments, this has now been secured by the boring of an artesian well. Pure water is now secured from the chalk, and the boring of four hundred and fifty feet now yields 240,000 gallons per day.

NEW PLANTS, FLOWERS, AND FRUITS.

ANTHURIUM DR. LAWRENCE.

A BOLD and handsome anthurium, with large foliage and salmon-pink spathes. The latter measure eight inches by seven and a half inches, so that they are most effective, especially when staged in tall vases with a few of their deep green sagittate leaves. A large specimen plant of this variety would always prove attractive in a stove, whether in flower or not. The spadix is large, pale pink, with a yellowish apex. F.C.C. Mr. Bain, gardener to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking.

CALANTHE SPLENDENS.

An exceptionally fine calanthe, with rich rosy-red flowers shaded with crimson. The parentage was not recorded. The sepals and petals are whole, of a rich rosy-red colour, while the lip has the addition of a distinct crimson or cherry red shade down the centre. Five flowers were on the small plant staged. A.M., R.H.S., February 8. Mr. Norman Cookson, Oakwood, Wylam-on-Tyne.

PHAIO-CALANTHE GRANDE.

A very pretty and interesting hybrid, with creamy sepals and petals of moderate size, streaked with rose-red, lip large and broad, sides lightly turned up, deep red with a crimson throat, and a few mottlings of creamy white. This is a hybrid, produced between Calanthe Bryan and Phaius grandifolius; the foliage of the latter has been much reduced. A.M., R.H.S., February 8. Mr. Norman Cookson, Wylam-on-Tyne.

APPLE LORD HINDLIP.

This is a fine late dessert apple of conical shape. The colour is dark yellow with scarlet shading and crimson markings. Eye small and closed, set in rather a shallow and plaited basin. The thick short stalk is deeply inserted. Two years ago this variety gained an award of merit, and on that occasion we considered it a valuable apple and figured it in the GARDENERS' MAGAZINE of February 29, 1896. We reproduce the illustration so as to call our readers' attention once again to first-rate a fruit that has now gained the highest award. F.C.C., R.H.S., February 8. Mr. J. Watkins, Pomona Farm, Hereford.

APPLE LORD HINDLIP.

LÆLIA ANCEPS WADDONIENSIS.

A splendid form of L. anceps, and very distinct. It has very large and substantial flowers, with white sepals and petals, and a large white labellum that has a broad and thick golden crest and a few lines of pale purple on the side lobes. The fully-developed flowers measure four and a quarter inches across, and four inches from the tip of the dorsal sepal to the apex of the lip. Two spikes, each carrying two flowers, were shown on the plant staged. F.C.C., R.H.S., February 8. Mr. Harris, gardener to Philip Crowley, Esq., Waddon House, Croydon.

CUCUMBER EVERY DAY.

This is a medium-sized variety producing even fruits that have scarcely any tail. They are deep green and indeed very handsome and useful. The specimens shown were cut from plants that have been fruiting since August, 1897. A.M., R.H.S., February 8. Mr. Owen Thomas, gardener to Her Majesty the Queen, Windsor.

PEAR PASSE CRASSANNE.

A splendid late pear. Obovate in shape; brownish russet over a deep yellow ground colour. Size rather large, segments stiff and erect, set in a deep depression surrounded by several ridges, stalk three-quarters of an inch long. Flesh melting, though slightly gritty towards the centre, very pleasant and rich. F.C.C., R.H.S., February 8. Mr. S. Woodward, Barham Court Gardens, Maidstone.

LATHYRUS SPLENDENS.

A handsome species with long growths and racemes of seven to ten intense crimson flowers. This is a native of Southern California, and was discovered in the San Bernardino Valley by Mr. Pringle in 1872. Seeds sent to Kew in 1894 germinated, and a specimen planted in a house devoted to Cape bulbs flowered for the first time in 1897. It is not hardy at Kew, succumbing to the winter cold, though growing freely out of doors during summer. *Bot. Mag.* 7,575.

ENGLISH AND ITALIAN GARDENS.

Of the many interesting and attractive exhibitions held in the galleries of the Fine Art Society, New Bond Street, none appeal more directly to those who find one of their chief pleasures in horticultural pursuits than do the exhibitions of water-colour drawings from the pencil of Mr. George E. Elgood, R.I., and it would be difficult to conceive anything more successful than they invariably are. A few years since Mr. Elgood covered the walls of these galleries exclusively with drawings of English gardens, in which he depicted with exceptional success the varied aspects of the flower garden of the present day, and gave us many glimpses of old gardens in which are still remaining examples of the yew-clipped hedges and statue-furnished alcoves so dear to the hearts of our forefathers, when formality was regarded as one of the more important attributes of the English flower garden. That exhibition afforded abundant pleasure and entertainment to those who were fortunate enough to have an opportunity of leisurely inspecting and enjoying the pictures, and it must have been of great educational value by reason of the many suggestions it afforded for enhancing the attractions of the flower garden. It would appear to have exercised a considerable influence upon public taste, so far as it relates to the ornamental aspects of the art of gardening, for in several gardens that have come under our notice during the past few years we have had evidence of a desire on the part of the owners to repeat some of the formal features which Mr. Elgood so admirably pourtrayed, and Addison, Pope, and other of the advocates of the natural system so strongly condemned. Mr. Elgood, it must be stated, does not appear as an advocate of formal gardening; and if he has depicted some of the more important of the examples of the formal style, it has been because of their strong appeal to his artistic perception, as in the case of the many examples he has given us of the more natural style which at the present time is held in the highest estimation. Strong as is our affection for the English or natural style of garden, we are not prepared to so freely condemn the advocates of some formality and of closely clipped hedges, for there can be no question that the latter when judiciously placed are of immense value for the shelter they afford to plants coming from warmer climes than our own, and also for the protection they give to those who appreciate the manifold attractions of the garden, but from advanced age or some other cause suffer more or less from exposure to the cold winds usually experienced during the spring months. In this exhibition, now rapidly drawing to a close, we have scenes in countries other than our own, and of the eighty drawings the majority have as their subjects gardens on the shores of the Mediterranean, within range of the smoke-capped peaks of Etna and Vesuvius and other parts of Italy.

In justification of the course he has taken in selecting as subjects for his pencil gardens under the Italian sky, Mr. Elgood directs attention to the fact that it is in Italy rather than in France that we must seek for the origin of the earliest use of statuary in the flower garden, and for much of the formality that characterised the English garden from two to three centuries ago. That this is so we have ample evidence. We know that at the beginning of the sixteenth century there was a great revival in the art of gardening in Italy, and that the most famous gardens at that period were those of Lorenzo de Medici and the wealthy Bernard Rucelli. Both these gardens were geometrical and architectural, and, while reflecting the gardening taste that prevailed in the time of Pliny, they served as models for other great Italian gardens for some two hundred and fifty years—in fact, until there was a reaction from severe formality and a more natural style introduced. A great impetus was given to a revival of the use of statuary in gardens quite early in the sixteenth century by Cardinal d'Else, who, in forming the garden of his villa erected on that of the Emperor Adrian near Rome, found a number of antique sculptures and distributed them over the grounds. This mode of garden ornamentation was subsequently imitated by Francis I. of France, and was afterwards adopted in other European countries. As a further proof of the formality which characterised the Italian gardens three centuries ago, it may be mentioned that at the beginning of the seventeenth a poem was published at Milan under the title of "L'Adamo," and that the illustrations, which are intended to represent Paradise, are full of closely-clipped hedges, square flower gardens, straight walks, uniformly-topped trees, regular knots, and marble fountains. The gardens attached to the villas in and near Rome were also more or less formal, with architectural groves and devices cut in box and other plants, and it is reasonable to assume that Le Notre, who exercised so great an influence upon garden design in France during the seventeenth century, obtained some of his ideas from the gardens of Italy. Mr. Elgood, in the course of his rambles in the last-named country, found many charming scenes as subjects for his pencil, but some of those depicted convey the impression that the gardens are remnants of the past; and, notwithstanding the charm of a considerable number, we search in vain for the wondrous beauty found in the more important of the examples of English gardens.

Remarkably pleasing is the drawing of "Lilies: Amalfi" (No. 1), the broad belt of the Madonna lily which skirts the pergola of the old monastery, now the lounge of an hotel, presenting a charming effect in contrast with the blue water within the range of vision. Not far removed is the garden of "A Villa at Palmero" (No. 7), in which a marble fountain is the most prominent, and contiguous to it is a rockery, formed with stones evidently obtained from some ruins near at hand. The "Villa Cadenabbio, Lake of Como" (No. 16) is more remarkable for the superb view obtained of the famous lake than for its gardenesque features, but the arch over which one of the robust-growing tea roses is running riot and producing a profusion of flowers, is singularly effective, with the grey mountain as a background. "Villa Pallombo" (No. 19) and "Villa Rosazzo" (No. 23) convey an excellent idea of the old-time gardens, the first containing broad, straight walks with clipped yews, and the second is distinguished by its bold stonework and geometric beds of flowers. By the "Olive and Vine at Florence" (No. 39) we obtain a pleasing glimpse of some of the characteristic scenery of Italy, and are reminded of Mrs. Browning's lines, which we should imagine were written with some such scene as is here depicted fresh in her mind:—

> "From the outer wall
> Of the garden, drops the mystic floating grey
> Of olive trees (with interruptions, green
> From maize and vine) until 'tis caught and torn
> Upon the abrupt line of cypresses
> Which signs the way to Florence."

"Under the Pepper Trees at Palmero" (No. 20) represents a charming garden with beds of roses, and in "Villa Giulia at Palmero" (No. 63) we obtain through an archway a delightful peep of an old-time garden. Clipped hedges with flowers peeping over them are prominent in the drawing of "Villa Armentani: Le Cava" (No. 30); in the "Boboli Gardens, Florence" (No. 31) we have an admirable object lesson in the use of annuals, and in the "Pergola San Lazzaro" (No. 32) day lilies are well represented. "The Padua Botanic Gardens" (No. 45) is interesting for its grey fountain and the numerous busts with which it is surrounded, and "The Monastery Gardens, Momeale" (No. 47) is remarkable for its clipped hedges and masses of poppies; whilst "Poppies Villa, Palmero" (No. 49) reminds us of some of our more attractive English gardens; and "Lac Bourget, Aix-les-Bains" (No. 64) affords an excellent example of the tasteful grouping of flowering plants in conjunction with standard roses.

Attractive as are the greater proportion of the Italian gardens depicted in Mr. Elgood's drawings, it is with a considerable degree of pleasure that we turn from them to the representation of English gardens, for it is in these we find the charms that so greatly help to justify the belief that in no part of the world can we find gardens to surpass those of the United Kingdom. We might linger long over this section of the exhibition did time and space permit, but the pressure upon both are too great to admit of more than a brief reference to the more important. The gardens of the old timbered Manor House of Tangley afford a wide range for selection of subjects for the brush and pencil of the artist, and it is not surprising that Mr. Elgood should have taken advantage of some of the many opportunities they afford for the display of his artistic skill. "Tangley Manor House" is the subject of No. 29, and its open timber work, mullioned windows, and grey thatch lend themselves readily to artistic treatment; and embosomed in trees just commencing to assume their autumnal tints, with closely-cropped hedges, and a slow-flowing canal, it presents a highly picturesque appearance. Tangley Manor may be described as

> "A brave old house! a garden full of bees,
> Large dropping poppies, and Queen hollyhocks
> With butterflies for crowns."

"Michaelmas Daisies: Tangley (No. 3)" admirably demonstrates the value of the perennial asters for giving colour to the flower garden in the autumn. The plants are grouped together at one end of a broad sloping border, and the great masses of blue, white, and purple, present against the background of shrubs a delightful effect, and indicate the manner in which these elegant autumnal flowers can be employed to advantage. "Forecourt at Great Tangley" (No. 21), represents a charming scene, the walls nearly covered with the slender growth of the grape vine taking on its autumn tints and the beds filled with bold masses of heleniums, Japanese anemones, and roses. "The Pergola at Tangley" (No. 25), is remarkable for the bold masses of Michaelmas daisies, Japanese anemones, rudbeckias and Pyrethrum uliginosum, and these present a striking and pleasant contrast to the pillars of yew. In "Friendship's Garden" (No. 13), Mr. Elgood has given us an excellent example of the garden which Lady Warwick has recently described, and the scene, if one that does not from a decorative aspect specially commend itself, is of much interest. We have a red-brick house surrounded by a lawn, on which are comparatively small beds occupied by Michaelmas daisies, helianthus, and Japanese anemones, and lavender, the last-named consisting of large bushes of goodly age. "The Garden of the Sundial" (No. 40), represents another aspect of the gardens at Easton, where a clipped yew gnomon and dwarf box numerals form a greensward dial, with the appropriate motto, "Les heures heureuses ne comptent pas," and of this we may say with Marvell:

> "How well the skilful gardener shew,
> Of herbs and flowers this dial new!
> Where from above the milder sun,
> Does through the fragrant zodiac run."

Some of the glories of Hardwick are depicted in "The Yew Walk" (No. 12), a long walk with yew hedges, in which at intervals are statue-furnished alcoves, and "The Forecourt" (No. 59), in which flowers and the time-stained masonry [illegible] in happy combination.

The gardens of Newland Manor have afforded some delightful studies of roses. In "The Rose Garden: Newlands" (No. 50), and "June Roses: Newlands" (59), we have two of the most beautiful pictures in the exhibition. In the first-named the arches covered with roses and clematis are exceptionally good, and the beds of bush and standard roses somewhat irregularly arranged on a fine breadth of turf at once arrest attention by reason of their vigour of growth and profusion of flowering. In the second of the two drawings we have a broad walk flanked on either side with bush and standard roses, and spanned at intervals with arches of roses, the popular W. A. Richardson being conspicuous. Very fine also in the borders are the finely-developed specimens of white campanulas and lilies, and other hardy plants in which the gardens of Newlands Manor are particularly rich. The two drawings of most interest to rosarians are perhaps, "A Corner of the Deanery Garden: Rochester" (No. 17) and "The Dean's Garden: Rochester" (No. 65), which may be described as two of Mr. Elgood's most successful efforts. They show that if the president of the National Rose Society no longer aspires to the honours of the exhibition, that his love for the rose is in no way diminished. In the first of the two pictures we have a border of bush and standard roses, and in the second huge flower-laden bushes vie with splendidly-developed specimens of the more beautiful herbaceous plants in converting into a wilderness of flowers the broad borders that skirt the principal walk leading to the deanery, of which a delightful peep is obtained. There are many other drawings to which we should like to refer, but sufficient has been said to indicate the interest of the exhibition and the artistic merit displayed in the drawings of Italian and English gardens.

Market Grapes.—A few days since I looked in at the grape-growing establishment Mr. Bennett has at Cobham, Surrey. It is a place that gives much pleasure even at this time of the year, when nearly all the vines are resting and but one or two houses have been started; because in every direction the vines looked so well, were kept so close spurred, and so neat. Every [illegible] gets a coating of a solution of caustic soda and commercial potash, [illegible] warm with the aid of a paint brush, and that painting serves to keep [illegible] thoroughly clean. Glass, paint, and floors, too, are thoroughly clean. The [illegible] in some houses had recently been lightly forked over and received a dressing [illegible] manure. Mr. Smith, who is Mr. Bennet's able cultivator, prefers to [illegible] chemical manures in a raw state and do his own mixing. After the dressing [illegible] applied a thorough soaking of water is given to the soil, and then the [illegible] well prepared for the work so soon to be required of them. In one house [illegible] being prepared for planting, old soil had been excavated and partially re[illegible] and was being replaced by such fresh soil, chiefly roadside trimmings, as [illegible] obtained. That was mixed with some of the old soil, and crushed bone and [illegible] dust was being intermixed. The coarse manure of bygone days did not enter [illegible] market vine culture. But I was most impressed with the sight of six new [illegible] hundred and fifty feet, spans twenty-five feet wide, erected side by side with [illegible] party walls. Each house was planted with one hundred Gros Colmar vines, [illegible] total of six hundred of this one famous market variety. This is, it is true, [illegible] small accession to the great number of vineries being constantly erected in [illegible] directions; but all the same, however, it helps to illustrate the exceeding growth [illegible] the grape-producing industry, in spite of the fact that in their season grapes [illegible] very cheap. That it is possible to get a capital return from cheap grapes when crop and quality are commensurate, is one of the certainties of to-day.—A. D.

SOME HARDY TERRESTRIAL ORCHIDS.

HAVING made many attempts to cultivate in the open border the finer species of terrestrial orchids, including such kinds as the North American Habenaria fimbriata and H. psychodes, I have reluctantly come to the conclusion that the climate and surroundings of my garden at Edge can satisfy very few of them. Amongst those few, however, some are so ornamental as quite to make up for any attention they require, and where successful they become a special feature in the garden. First may be mentioned cypripediums, of which C. calceolus claims our sympathy as a persecuted member of indigenous natives of Britain, where it has been collected to extermination; but imported plants are easily obtained in nurseries. It requires stiff clay mixed with lime in some soluble form; lumps of limestone are of very little use for supplying this, as it takes years for them to dissolve sufficiently to impregnate the soil. It is a common fallacy to think that the requirements of lime-loving plants may be satisfied by planting them on a rocky compost of limestone, and, conversely, to think that because a plant thrives on a rockery of limestone, it cannot be a hater of lime. However, C. calceolus likes both lime and stone, and must have perfect drainage and an eastern aspect, not exposed too much to the sun. A deep projecting pouch surrounded with stone on the upper shelf of a rockery suits its taste. A top-dressing in winter of loam and rotten manure, with a little lime, pleases it, and when once established it may go on flourishing and increasing for a dozen years. Still, it is a capricious plant, sometimes disappearing unaccountably, and requiring to be renewed.

The North American cypripediums are different in their requirements, liking a deep peaty soil, but still exposed to the east, and mixed with abundance of good sweet leaf-mould. The finest is C. spectabile. I have not found this do well if planted, as imported, in large sods containing half-a-dozen or more crowns; it is better to separate the crowns and to shorten the roots of each to about two inches long. Then they should be planted three or four inches deep in a place where they will never get dry. If not planted too far apart they will soon grow into a compact mass, and by giving a rich dressing every year of rotten manure and leaf-mould, they will be encouraged to grow two feet or more high, bearing in June two flowers on each stalk. The same treatment suits C. pubescens and C. parviflorum; though if they had the perfect rest of a colder winter, and the stimulus and ripening of a hotter summer, I believe they would thrive better than they do in the climate of Cheshire. The only other North American cypripedium I have grown in any quantity is C. candidum, which has a small white flower, scented like a violet. Some twelve years ago I received from my son, then living in Minnesota, a hamper containing a dozen fine clumps of this species, besides a good many of the three other kinds described. All had been found growing together in a glen running north and south, and whilst common on the side facing the east, not one was on the side facing the west. Under the treatment described for C. spectabile, C. candidum seemed to do well, and flowered healthily for two or three seasons, but the plants gradually deteriorated, and not one of them remained alive seven years after they were planted.

Next to cypripedium the genus orchis produces the handsomest hardy species which can be grown with success in my garden. The largest flowers are borne by O. foliosa, known as the Madeira Orchis, and though a native of that mild climate, it is quite hardy in English gardens—that is, I have never known it killed by frost in winter; but hard frosts and east winds cripple and stunt the growth in spring, and in situations where it is exposed to these unfavourable conditions late in the season, it dwindles away. But in a sheltered border, sloping towards the east, in rich loam, mixed with well-rotted manure, it thrives and increases fast. The clumps may be separated and replanted at once, whilst the leaves are still green, about August, and they take no notice of their move. Planted in pots, not less than nine inches in diameter, and wintered in a cold frame, it will flower in the greenhouse at the end of May, and be secure against the dangers of an English spring out of doors. A native orchis, nearly related to the last, is O. latifolia, so extremely variable both in colour and robustness of habit that some botanists divide it into three or more species, but in some parts of North Wales, especially in the Anglesea bogs, they all grow together, and every gradation between them may be found. The richest in colour, as rich as new port wine, I found, I believe, in Conway marsh; these do not make a large spike, but retain their colour in cultivation. O. maculata, the commonest of our native orchises, likes stiffer soil than the others; I have found it do well in any flower border of strong soil; and, indeed, all the soil here is so full of the seed of this species that they come up in most unexpected places; no spot seems to be liked better than between the surface-growing rhizomes of the German iris. Giant forms of this species retain their size when transferred to the garden, and as they increase fast, clumps often produce a good effect.

There is no doubt that O. latifolia and O. maculata, where they grow wild together, readily cross, and the crosses, as a rule, are more robust than either parent. A very fine form, which has been known in cultivation for thirty years or more, and bears the name of O. maculata superba, or the Kilmarnock Orchis, is probably one of these hybrids. With the same treatment as that advised for O. foliosa, it is even handsomer than that species, and increases as fast, but I have never found it to succeed as a pot plant. But whatever the origin of the Kilmarnock Orchis, I have many orchises growing in my garden which I feel no doubt are spontaneous hybrids between O. maculata and O. foliosa. Having never grown orchises from seed, I cannot say how many years it takes for one of these terrestrial tubers to reach flowering size. Like lilies, they often show themselves, or at least are first noticed by me, when already ripe for flowering. It is more than ten years since I observed amongst a neglected clump of Orchis foliosa one or two with well-marked black spots on the leaves; these produced longer spikes but smaller flowers than O. foliosa—in fact, intermediate between the suggested parents. Since that time many more have appeared in different parts of the garden, some with spotted, others with plain leaves. The increase of these is even faster than that of the parents, and they make very good border ornaments. I think it was at the June show of 1896 of the Royal Horticultural exhibition, in the Drill Hall, that Mr. Pritchard, of Christchurch, had a fine bunch of these hybrids of O. foliosa of a better colour than any of mine. He had not recognised them as hybrids, nor had he sold any, but considered them a superior strain of O. foliosa. I believe that if any patient gardener would undertake the artificial crossing of these orchises, very good results might be obtained, especially by using a fine variety of O. maculata as one of the parents.

Edge Hall, Malpas. C. WOLLEY DOD.

P.S.—One important point in cultivation has been omitted. All the orchises described above are improved by having chopped sphagnum, mixed with the soil in which they grow, which is thus kept constantly and uniformly moist. I have proved by experiment that in the case of O. latifolia and of O. foliosa especially the greater vigour of plants so treated is very marked.

PROTECTING APRICOTS.

THE apricot, being naturally precocious, is one of the first of our hardy cultivated fruits to unfold its blossoms, and is therefore liable to extensive injury from frost unless adequate protection is afforded. The period at which flowering takes place depends in a certain measure upon locality, and to a great extent upon the character of the weather experienced in the early part of the year. The apricot being a native of warmer climes than ours the trees are quickly excited into growth. Therefore, should a spell of mild weather occur after the turn of the year the flower buds at once begin to swell, and they become quite prominent by the end of January. When this happens, the trees are then as a rule, in full bloom either by the middle, or not later than the end of February, generally speaking, the first-mentioned period. On the other hand, should January prove a cold month, and frost prevail to a greater or lesser extent, the flowering period is then delayed until March. In some seasons this occurs the second or third week in the month, and I have known it to be quite the end, and on a few occasions the beginning of April before all the blossoms have expanded.

According to present appearances the trees are likely to flower about the end of the month this season, although the buds are not so prominent as I have known them sometimes at the end of January. The last few days they have swelled up rapidly under the influence of bright sunshine, but a change has now set in, the wind having shifted from south-west to north-west, and cold showers of rain with some sleet with it keep passing over. This will give the trees a check should such weather continue, and the blossoming will be retarded to a later period than that mentioned. However, I am having preparations made for affording the trees protection in case the change to colder weather should prove but fleeting. When the buds arrive at the stage they are now in, my experience is that they will not withstand the effects of very severe frost, and I have known them killed outright from this cause. To prevent this occurring it is always a wise precaution to have something in readiness, so that protection can be afforded at short notice should a severe and protracted frost appear imminent. What this should consist of will depend on circumstances, or the means at command for acquiring the necessary materials. Blinds made of frigi domo, Hessian tiffany, and other materials offered by horticultural sundriesmen are all excellent, and by their means the trees are readily and effectively protected from inclement weather. These are, however, within the reach of but few gardeners, especially where rigid economy is practised, which unfortunately is too often the case at the present time. The majority have, therefore, to adopt more rough and ready modes. The next, which is perhaps the most extensively adopted, method of giving protection, is by means of fish-nets suspended in front of the trees. These may be doubled, trebled, or folded four times, according to their strength and the width of the mesh. Boughs of evergreens tied on hurdles also answer the same purpose, and these possess the advantage of being portable, and can be removed during the day. These evergreens may also be tied on stakes fixed some eight or nine inches from the face of the wall if hurdles are not procurable. The evergreens in this case should not be too freely used, otherwise the buds would be rendered very tender; all that is wanted being something to ward off frost and to break the cold winds. Laurels, yew, and spruce boughs are all serviceable for this purpose.

Another means of protecting the trees, which is also a great aid towards securing a good set, are copings. These not only shed the water clear of the trees during wet weather, but they are also convenient for screwing pulleys to, in connection with the raising and lowering of the blinds, as well as for fixing poles to, for keeping the latter and fish-netting from blowing against and damaging the buds and blossoms. These copings may consist of deal boards eleven inches wide by one inch thick. They are quite as effective as the more expensive glazed copings, and with ordinary care will last a number of years. These copings must be securely fixed under the wall copings, which latter seldom project more than two or three inches, so that they will remain immovable during the prevalence of rough winds during March. Irons somewhat like those used for supporting shelves in greenhouses, with chisel points for driving into the wall, are excellent for this purpose. The irons should be bent in a sloping direction, so that water will readily run off the boards, and a hole should be drilled near the outer end for the purpose of securing the boards with a screw. Stakes are, of course, easily procured in woodland districts, but where they cannot be had laths or battens, such as are used by slaters and tilers for roofing purposes, form good substitutes, and are moreover very cheap.

The foregoing are a few ways and means which may be adopted for affording the necessary amount of protection; but whatever is done, it is well to be prepared, so that when occasion requires the trees may be promptly shielded from harm. A. WARD.

POTATOS IN IRELAND.

THE current season has too fully borne ample proof to our shortsightedness in placing absolute reliance on the "noble tuber" for the staple food of this country. In many instances the supply is already exhausted, and in the cases of people out of employment it will be impossible for them to purchase potatos, as those are being sold wholesale in our local market at sevenpence to eightpence per stone of fourteen pounds which in other seasons would not realise twopence per stone. In the majority of cases where the crop was an average one the tubers are of such a bad quality as to almost render them unfit for human food. On boggy or moory land, also on strong, tenacious soils, the crop is exceptionally bad every way. The best result has been obtained on sandy or gravelly soils, and in such cases the crop is in many instances a very good one, while the cooking qualities are in every way excellent. Our own soil is sandy, and we had a very good crop; in fact, the best we have ever had. The ground is comparatively new, having been cultivated only four years, previous to which it was grazed for upwards of forty years. With the view to ascertaining if any more trustworthy variety could be grown than the Champion for the general crop, I, as intimated last spring, grew some thirty varieties, and propose now to give you the result of these trials.

First on the list is the old Cottager's Red, a variety seldom grown, as far as my observations go. This is every year a first-rate cooker, and of good cropping quality. Early Puritan came next, with an enormous crop of tubers, which, when cooked, were like balls of flour; I should pronounce this variety the very best that cottagers could grow for the earliest supply. An unusual occurrence last season with Myatt's Ashleaf and Old Ashleaf was, that the tubers, though plentiful, were miserably small, and of wretched quality when cooked. Both of these varieties can generally be relied on in gardens, but my experience of them as a field crop has not been particularly encouraging. Sutton's Ringleader, under similar culture, produced a very fine crop of tubers, but unfortunately the produce was of indifferent quality. Imperator produced a very fine crop everwhere, though those grown in the field were somewhat inferior, but those that were grown in the garden were all that could be desired. I hear some complaints of this variety as being too sweet in flavour. That popular variety in this locality with cottagers, viz., Flounder, I grew this year for the first time, and cannot too strongly condemn it; it was the first diseased, and that badly; it is a very poor cropper, and of wretched cooking qualities. Dreadnought, a variety sent me a few years ago by Messrs. Daniels Bros., had a very fine crop; but what was to me a new experience is that they are bad in quality when cooked. Another variety sent out by the Norwich firm is Remarkable, which produced the heaviest crop of enormous potatos I have yet seen; they must also take first rank for cooking quality. The Daniels, from the same source, as its name denotes, has always proved a decided success in the gardens, and in the field this year it produced a very fine crop, but of poor quality when cooked. Universal and Table King, two more kinds sent me by the Messrs. Daniels, prove two sterling varieties in every way, and I can strongly recommend them both.

Sharpe's Victor produced an excellent crop of potatos of first rate quality. Beauty of Bute is an excellent cropping variety of second-rate cooking quality. Main Crop I saw last year in county Kildare, producing an enormous crop of the finest potatos I ever tasted, they were grown on clay soil over lime stone; on the strength of their fine condition there I grew it this year with but very poor success, the tubers being small and of inferior quality when cooked. I regret to have to chronicle a similar report of King of the Russets. When I purchased seed of this variety last spring its rough skin excited my admiration and expectation to the highest pitch, but, alas, I was doomed to disappointment. Dunbar Regent produced an enormous crop of potatos of second-rate cooking qualities. The Bruce has generally proved a reliable variety in the past; last year, however, the tubers were small but plentiful, while their quality when cooked was far below the average. Sutton's Triumph, usually an excellent table potato, produced an excellent crop, but indifferent in quality. Holborn Abundance produced an enormous crop, but they were badly diseased; generally this variety is of poor quality here, a reputation I felt sure it would maintain in '97, but to my surprise the good tubers have proved as dry and as floury as possible. Village Blacksmith produced a very fine crop, but every year this is the worst variety of all to take the disease in its worst form. As a table potato though its quality is unequalled. Reading Ruby is another excellent potato, a very heavy cropper, but so susceptible to disease as to render it almost useless here in bad seasons. Carter's Goldfinder I grew this year for the first time; also Snowball from the same firm; both of these have produced a good crop of average-sized tubers, the quality in each case when cooked being very satisfactory. A round red seedling which I have been nursing for some years has quite disheartened me, and if it does not improve in quality next year, as it is an enormous cropper, I must only recommend its culture for pig feeding. Grampian, a round red potato that I received from Scotland, is in every way a splendid variety, and worthy of extensive culture here. The Sutton Flourball is another novelty with me; it is a round red variety, and was of all the sorts I grew the heaviest cropper; its quality when cooked was above the average. I shall, however, give all the varieties mentioned another trial during the coming season, as I do not consider the past wet season any reliable criterion.

About an acre and a half of the good old Champion were grown, and these produced an excellent crop of tubers of excellent quality. Some of the seed was from Kilkee, co. Clare, and the tubers from these were the smallest, and of the three lots of Champions grown were the worst in cooking quality. The produce of the Champions that we have been growing for the past eight years was very good in every way; but unquestionably the best results were obtained from Champions imported direct from Forfarshire last spring. The produce from these left nothing to be desired, and I believe it would pay anyone to import at least a portion of the required stock of potatos for planting direct fr England or Scotland every year—a system I, at any rate, intend to a The extra cost is very slight, and is amply returned the first year by the heavier crop. Very good results may be obtained by procuring potatos locally for planting that have been grown on a bog, if the ground to be planted is either sandy or limestone, or *vice versâ*, but not to be compared to imported seed. As will be noticed, I am compelled still to make the Champion our sheet anchor, failing another variety equally reliable.

Glenstal Farm, Limerick. R. WELLER.

BUSH-GROWN CHRYSANTHEMUMS.

PLANTS which are grown in bush form, that is, with a dozen or more shoots, to produce a quantity of small or moderately-sized flowers, are extremely useful for conservatory decoration; and, also, in giving a large supply of flowers for the many purposes for which cut flowers are required where the large blooms as grown for exhibition are not so serviceable. Highly-developed blooms give a striking and beautiful effect when rightly employed, not only on the plants or in exhibitions, but also as cut blooms in large vases, therefore I do not wish to suggest by any means that they are not of decorative value. The best rule to observe when arranging such flowers, as, in fact, in all floral work, is, that each bloom must stand clear of the others, so that any semblance of crowding is clearly avoided. With a judicious mixture of autumn-tinted leaves or other suitable foliage, and the blooms standing out boldly from the vase, large blooms of chrysanthemums are most pleasing.

The smaller flowers, however, lend themselves to many uses where large ones would be out of place, and it is incumbent upon all who have to provide quantities of winter flowers to grow these bush plants of chrysanthemums. The time when they are, perhaps, most useful is during December and January, and there are several very good varieties which bloom well to the end of the year, and a few which continue in good condition even into February. Those who grow a collection of border varieties will thus have good chrysanthemums from early September onwards for five months, and they are always useful. The single-flowered sorts are particularly desirable grown in this way, and well repay considerable attention. They also are well adapted for growing in six-inch pots from late spring cuttings. Besides these and the Japanese varieties there are one or two very pretty sorts with deeply-cut or tasselled florets, of which Mrs. Filkins is one of the best; and also the pompon varieties which deserve to be more extensively grown. A nicely-arranged basket of the charming little white pompon, Snowdrop, was awarded a first prize at the Royal Aquarium last November.

Especial qualities in the varieties grown for small flowers are g colours, particularly in white, crimson, yellow, and bronze shades; dwarf habit of growth and stout stems, which support the flowers well and with good foliage; then also freedom in flowering and in growth. A selection for growing in pots, that will carry on a succession of flowers, in the order of the names given, from the middle of October, are, of Japanese: Lady Fitzwygram, Wm. Holmes, Lady Selborne, Wm. Robinson, H. Shoesmith, Source d'Or, Mrs. Filkins, Tokio, Niveus, Golden Dart, W. H. Lincoln, Golden Gem, L. Canning, Princess Blanche; and of singles Kate Williams, Gold Star, Mayblossom, Purity, Framfield Beauty, Mary Anderson, Fanny Agate, and Mrs. D. B. Crane are well worth growing. Those named are all good, and though many more might be mentioned for November and December flowering, I think a limited selection is likely to be most useful. Of the late ones Golden Gem, Princess Blanche, and L. Canning are all in good condition with us now (January 31). It is impossible to speak too highly of Golden Gem, as it comes in so well at Christmas, and is a good keeper. It seems most necessary to make an effort to grow those which bloom at this late period in larger quantities, because of the limited choice in variety of flowers for cutting, and their extreme usefulness at this time, especially where flowers have to be sent a distance. Chrysanthemums pack so well and do not suffer from cold in transit, as many flowers do at this time of the year.

It is no advantage to strike cuttings later than January of these naturally late varieties. They require a full season's growth, and should not be pinched later than the second week in June. It is most important, too, that the growths should be well matured; and though liberal feeding is required through the summer months, this should be reduced during September somewhat to avoid a grossness in the shoots which are not likely to ripen. When the buds are well formed the feeding may be resumed. Mildew is a frequent cause of failure, more or less. The plants are often placed too closely together, and owing to the number of growths each plant carries, air and sunshine are not able to do their part in perfecting the growth, and hence the mildew soon works mischief by destroying the leaves, during September especially. Otherwise the cultivation of chrysanthemums as bush plants is extremely simple, though they fully deserve every care.

Trent Park Gardens. W. H. LE

Pear Jean de Witte.—This excellent pear is in season from J March, and is really one of the very best late-keeping dessert varieties; in I do not know its superior at this season. Though the fruits are not larg amples may be grown to a good size. The bright clear skin, covered with s of russet, changes to pale yellow ere the fruits are ripe, and thus makes it quite a attractive dessert fruit. The tree succeeds well on the quince stock, and is a abundant bearer. Like all late pears it develops its best quality when grown o a warm wall, and the crop should be allowed to hang on the trees as late i autumn as possible. I have no experience of this variety grown as standard o bush trained trees, but Dr. Hogg, in his "Fruit Manual," says, "The tree is vigorous and healthy, and an excellent bearer as a standard" Perhaps some of your can give us their experience of trees grown in the open. The variety was mended to me some years ago by Mr. Turton, of Maiden Erleigh, and a samples was convincing proof of its superiority and usefulness as a late W. H. LEES, *Trent Park Gardens.*

VEGETABLES FOR EXHIBITION.

Maize or Indian Corn.

MAIZE (*Zea Mays*) is generally cultivated in this country as an ornamental plant, and a splendid show it makes during summer and early autumn, when suitably used as a sub-tropical bedding plant. But it is none the less valuable when cultivated in the kitchen garden as a vegetable. It makes an agreeable change, and it is not nearly so extensively grown in this way as it deserves to be. A sheltered sunny spot should be chosen, which should be thoroughly manured and trenched during winter, leaving the surface as rough as possible till the spring. The seed should be sown about April 15, thinly, in boxes, in heat, and be made quite secure against mice, or they will quickly disappear. The young plants are very tender, so that care must be taken to properly harden them off in cold frames before planting out; planting should be done towards the end of May. The ground should be pricked over and made fine, after which plant in rows three feet apart, and eighteen inches from plant to plant. Abundance of water must be given at the roots during dry weather, and frequent hoeing to promote quick growth. A sowing may also be made the last week in April. The seed should be planted with a dibber and buried three inches. It is advisable to plant just about as thick again as it is intended to grow them, thinning out when large enough to the proper distance. Some of this sowing may also be transplanted if required, but the practice of sowing under glass is much to be preferred. The cobs of corn should be gathered when fresh and green, and when well grown it is surprising what a large quantity a small piece of ground will produce.

For exhibition in a decorative collection of vegetables maize forms one of the most striking features, and is most interesting to the visitors, while little preparation is required. The cobs of corn should be fully grown but not ripened. The outside skin should be opened down with a knife, and should be turned round to fully expose the corn, the beard, of course, being left on. About three dozen cobs will make a good dish, and they are best arranged on a layer of bright green moss and finished off with parsley. There are now many excellent varieties of maize in cultivation. The variegated kinds are most ornamental, but the variety I prefer for productiveness is Sutton's Early Dwarf Sugar Corn. The Japanese Striped is very ornamental, and where room can be afforded a small quantity should be grown; the variety Z. M. gracillimum variegatum is also good, perhaps the most graceful and ornamental of all, but very tender though less productive.

Mustard.

The culture of mustard (*Sinapas alba*) is of the most simple character, for, as a rule, mustard, with cress, forms one of the principal crops in our children's gardens. Being so quick to germinate, it is an ideal seed for children to sow, as they can almost see it grow after the first twenty-four hours, and in a few days the crop is ready for the table. One can well remember cultivating mustard as a child, and the joy experienced in cutting it for the tea-table. Mustard is much in request all through the year, and it is surprising what quantities are cultivated for our large markets, and the ready sale it obtains. Through the spring, summer, and early autumn it is easily grown in the open when hand-lights can be had, for here the growth will be quicker, and the quality consequently better. In spring and autumn the seed should be sown in warm sheltered positions once a week, but during the hot days of summer a cool shady spot is best. The ground should be broken up finely, levelled down, and the seed scattered moderately thick, but it should never be covered with soil, as it then comes free from grit, but be pressed down firmly with a piece of board. It should receive a good watering, and be netted or protected in some way from the ravages of birds. During the winter months it should be grown under glass in shallow boxes. In the early stages it will stand a very strong heat, and it can even be started on the hot-water pipes, but it must be finished in a cooler temperature, or it will often damp off and be worthless. There are two kinds in cultivation, the brown and white, but the latter is by far the best.

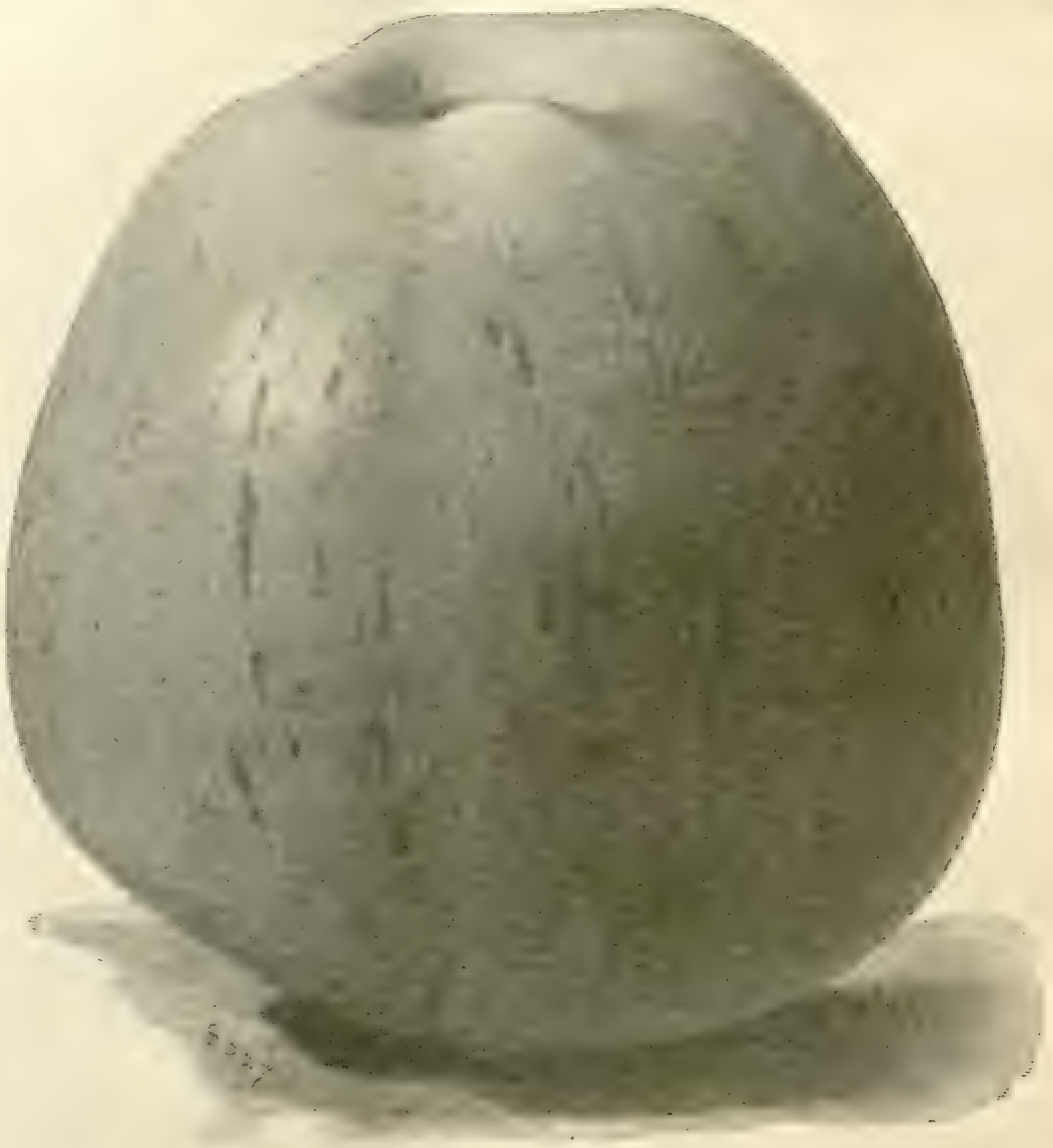
For exhibition, in a collection of salad or a miscellaneous collection of vegetables, mustard should always be included. For this purpose it should be grown and staged in punnets, either round or square. It should be fresh, of a good colour, and in length about one and a half inches, and show no signs of the second leaf. Well soak the punnets before staging, so as to prevent flagging.

Aldenham House Gardens. E. BECKETT.

Animal Manures.—As Mr. Willis refers at page 52 to these manures, though very briefly, I would like to ask of him some pronouncement of the relative values of ordinary stable or straw manure, and moss litter manure. This question is frequently asked, as also was the other day one as to the reason why moss-litter manure was esteemed useless for making of hot beds. Now the reasons I have given so far in reference to the two respective manures that an equal quantity of moss-litter manure is most fertile, as first: that the litter is itself of an active vegetable nature which soon decomposes, and then can be early utilised as plant food; and second: that because as a rule it lies longer under the horses, before removal, that it contains a greater proportion of droppings, and certainly a much larger proportion of urine than the straw litter does. Of course, straw, unless it be particularly decomposed by semi-fermentation, such as is furnished when manure is prepared for hot or mushroom beds, is much longer in being converted into plant food than is so soft a material as moss litter. My own impression is that to have ordinary straw stable manure is the very best form for soil dressing, it should be prepared just as it is the rule to prepare it for hot beds, keeping it from rains, allowing it to partially heat, but hardly to ferment. Keeping it frequently turned, and permitting no waste of ammonia. When so prepared, the long straw being removed and the droppings being furnished in greater proportion, it is as well preserved as can be and comes then much nearer to moss litter than it has before, except that it does not contain so much of urine, which is after all the most valuable manurial element.—A. D.

APPLE GOODWOOD PIPPIN.

HANDSOME apples of high quality that can be had in perfection during the first three months of the year are so extremely useful both for home and market supplies that it is desirable varieties in which these qualities are combined should be widely known; hence, in the interest of our readers, we give a characteristic illustration of the fine late apple to be henceforth known Goodwood Pippin. Fruits of the variety were first exhibited before the Fruit Committee of the Royal Horticultural Society on March 10, 1896, under the name of Lincolnshire Reinette. The specimens attracted much attention on that occasion, and were so highly appreciated by the committee that an award of merit for general good qualities and as a late-keeping variety was unanimously made in its favour. No trace having been found of an apple bearing the name of Lincolnshire Reinette, and as it was quite distinct from other known varieties, and the tree, now of great age, found at Goodwood, the exhibitor, Mr. Richard Parker, decided to name it Goodwood Pippin. The fruit is above medium size, roundish, inclining to conical, even and handsome in outline; the skin golden-yellow, brilliant crimson on the side next the sun, marked with patches of deep crimson; the flesh yellowish, rich, juicy, and firm. The variety is equally suitable for cooking and dessert, the fruits, when tastefully arranged, presenting an attractive appearance on the table. The tree is evidently a heavy and sure bearer, for it has borne an excellent crop in each of the four years Mr. Parker has been in charge of the Goodwood gardens.



APPLE GOODWOOD PIPPIN.

Cyclamen Pests.—Thrips are one of the most troublesome of pests with which the grower has to deal. Ordinary fumigating will not affect them, and whilst even the patent X L Fumigator will destroy aphis rapidly—indeed for that purpose nothing can be better—thrips are untouched. That is the testimony of that able market grower of cyclamen, Mr. May, of Twickenham. His practice, so soon as thrips are in evidence, is to make up a dipping solution of half a pint of fir-tree oil dissolved in two gallons of water, and then to gently immerse the plants, pot, and leaves into the solution. Not only are the insect pests then destroyed, but the plants seem to like the dip, as they brighten up and become stronger for the bath. There are many gardeners, perhaps, who may like to read of this method of getting rid of thrips.—A. D.

Poplars Destroyed by the Hornet Clearwing Moth.—In May 1897 the advice of the zoologist of the Royal Agricultural Society was asked with regard to young poplars, two of which had fallen, snapped off abruptly a few inches above the ground-level. Inspection of the fallen trunks showed the wood to be perfectly sound except in the region of the fracture, where some boring insect had evidently been at work. The standing trees were then examined, and every one was found to have the main roots and the bottom of the trunk extensively bored and excavated. From the borings a large number of pupæ and some dead larvæ were extracted, and identified as those of the Hornet Clearwing, (*Sesia apiformis*) of the poplar. Most of the specimens were dead, and the attack seemed practically at an end, but the trunks were so perforated at the base, and so rotted by the admission of rain to the burrows, that they were quite unfitted to withstand a moderate gale of wind, and the whole row would doubtless have succumbed in a very short time. As many as possible of the insects were removed, and an insecticide was injected into the borings by means of a syringe with an indiarubber tube attached. A small mound of stiff clay was then formed round the base of each tree to keep out the weather. The trees most severely injured were supported by stays. None have since fallen, and it is hoped that in time they will recover strength. The interest of the attack lies in the fact that Sesia apiformis is a comparatively rare insect, and that the injury wrought by it is generally trifling. There is no known record of its having caused the destruction of poplar trees.

DIPLADENIA BREARLEYANA.

THE dipladenias are among the most showy and interesting of stove climbers, and yet they are now rarely met with, and I think the reason is that modern cultivators do not succeed with them as well as with many other subjects. There are a number of kinds in cultivation, but I think the best of them all is D. Brearleyana, a garden hybrid, and one that flowers most freely when well grown.

The present month is a good time to start with a plant, which can be obtained from any nursery where stove plants are grown for a small sum. Not only does this dipladenia look well festooned under the roof, but grown in a pot for exhibition it has very few rivals. We have a specimen here that does exceedingly well; it is planted out in a square brick tank, eighteen inches long by the same in width. The soil it is planted in is composed of two parts fibrous peat, one of loam, and one of leaf soil, with some one-inch pieces of charcoal, plenty of sharp sand, and some dry half-inch bones. It is very important to have the latter very dry, otherwise they will ferment when in the soil and cause injury. After planting give it a thorough watering with tepid water, but little will be required until the plant has become well established, and then it must be given in very limited quantities, for dipladenias in general are very impatient of water, while D. Brearleyana is especially so. I find it does much better kept drier than most plants, and this is the secret of success in its cultivation.

When the young growths commence to start they will require something to climb up, until they reach the permanent wires on the roof; they like plenty of syringing, both in the mornings and afternoons on bright sunny days. Shut up the house while there is plenty of sun heat, and if the thermometer registers to 90 degrees, no harm will be done provided there is plenty of moisture in the house, D. Brearleyana revels in the sunshine, and especially when making new growth. When in bloom, however, it is desirable to give a little shade in the hottest part of the day, as the blooms then last much longer. Flowering commences about July and continues until October. After the latter month water should be entirely withheld for a couple of months at least, to enable the plants to receive a thorough rest, but the temperature should not fall below 55 degrees at night, remembering that dipladenias are natives of the Brazils, Trinidad, &c.

D. boliviensis requires a little more heat in winter than D. Brearleyana, and 60 to 65 degrees at night will not be too much for this lovely white species; it makes a good companion to the pink and purple forms, such as the new reintroduction, D. atro-purpurea. I had the pleasure of flowering the latter for the first time last year; it is evergreen, and a valuable addition to the stove climbers.

Totley Hall Gardens, Sheffield. T. W. BIRKINSHAW.

CANADIAN APPLES.

THE uneven packing, and general poor quality of imported apples, to which you drew attention in the issue of January 29, should give the necessary opportunity to British fruit growers to put good samples on the market, and so to regain some of the prestige for home-grown fruit which has been to a great extent lost. Now is the time, if ever, to restore confidence between buyer and seller, and every effort should be made to that end by selling only good samples which will compare favourably with the imported rubbish which has flooded the markets this year. It is much easier to lose prestige than to regain it, and there is no concealing the fact that imported fruits have met in the past with great favour among the middlemen, more from a matter of convenience than from anything in the way of superior quality. I have been enabled during this winter to inspect a great number of barrels and cases sent to local shopkeepers, &c., and have been astonished at the large quantities of poor fruits, and the bruised state they were in on arrival, especially as we hear so much about the admirable way in which they are packed, and how well they travel. These apples were supplied, wholesale, at prices which home growers rarely see for better fruits, viz., from 33s. to 22s. per nine stone cask; New York Pippins, in cases holding nine dozen fruits, are quoted at 11s. 6d. per case; Easter Beurre Pears, in cases holding forty fruits, at 18s. 6d. per case, and so on. When the cost of carriage and the shopkeeper's profit is added, the fruits only reach the consumer at a big price. In the same town first-rate samples of King of Pippins, and even of Ribston Pippins, have been selling at from 4s. to 6s. per bushel, these representing top prices; but I quite believe that it would not be so if confidence could be restored, and the shopkeepers could be brought to see that they can obtain supplies equal to the samples submitted for their approval; this they are at present very slow to believe, on the principle of "once bit twice shy."

Turning for a moment to the recent recommendation of "non-returnable" cases for packing. Would their use lead to better prices being obtained by the growers? It may be very well for growers on a large scale to adopt the system, but I do not see how it will benefit the small growers. At present empty boxes, &c., are sent very cheaply over rail from the central market, and being purchased wholesale they cost very little; but the small growers in the country could not obtain them at the same rate, and would still have the carriage to pay for, unless they could get them made at home, which would probably be more expensive still, through having to employ men not experienced in the work of light box making.

J. C. TALLACK.

A New Poinsettia.—M. Fatzer, director of the Forceries de l'Aisne, recently exhibited a new poinsettia in Paris. This, says *La Semaine Horticole*, is the result of a cross between P. pulcherrima and P. rosea. It has very brilliant bracts, which are produced fifteen days in advance of those of P. pulcherrima.

LATHYRUS SPLENDENS.

THE genus Lathyrus contains about a hundred and fifty species, almost all of which are both handsome and interesting plants. Their distribution is very wide, and only about ten species come from Western America. These latter, however, contain the gem of the genus, L. splendens, a species figured in the present issue. Mr. Pringle discovered L. splendens in 1882, in the San Bernardino Valley, Southern California. It is not, however, confined to this valley, but is fairly plentiful in the highlands of the southern part of the state, where it is known as the Pride of California. The first plants raised in Europe were obtained at Kew from seeds sent by Professor Green, of Washington, in 1894. One of these was planted out in a low span-roofed house in the private part of the gardens known as the Melon Yard. Here it produced a large number of stems, some being ten feet long; the growth is angular and sparingly branched. The foliage varies somewhat, but as a rule the leaves are two to four inches long, shortly petioled, composed of eight or ten opposite, alternate leaflets that may vary from elliptic to linear. A divided tendril terminates each leaf. The racemes are long, and carry from six to ten flowers, and usually with a pair of flowers at the base. Each fully developed bloom measures about two inches across; the suborbicular standard as well as the petals are of a rich blood-red hue, but the keel—an inch or more long—is rose-coloured. It will be seen that both in the shape of the flowers and in the style of inflorescence Lathyrus splendens differs very largely from the garden varieties of sweet peas. Then also it is perennial, while the latter are annual, and this puts difficulties in the way of crossing the two. Unfortunately L. splendens has not as yet proved hardy at Kew, for though growing freely out of doors during summer, it does not survive our damp winter. In California the species flowers during the winter season, and at Kew it flowered in March, 1897; so that even if it eventually proved hardy, or half hardy here, the flowers would be injured and probably spoilt altogether if not protected. As a greenhouse, conservatory, or winter garden climber, Lathyrus splendens may, however, as it becomes more plentiful, be found serviceable. The flowers are remarkably brilliant and effective, more so than those of any other known species. We may add that seeds ripened on the Kew plant last year.

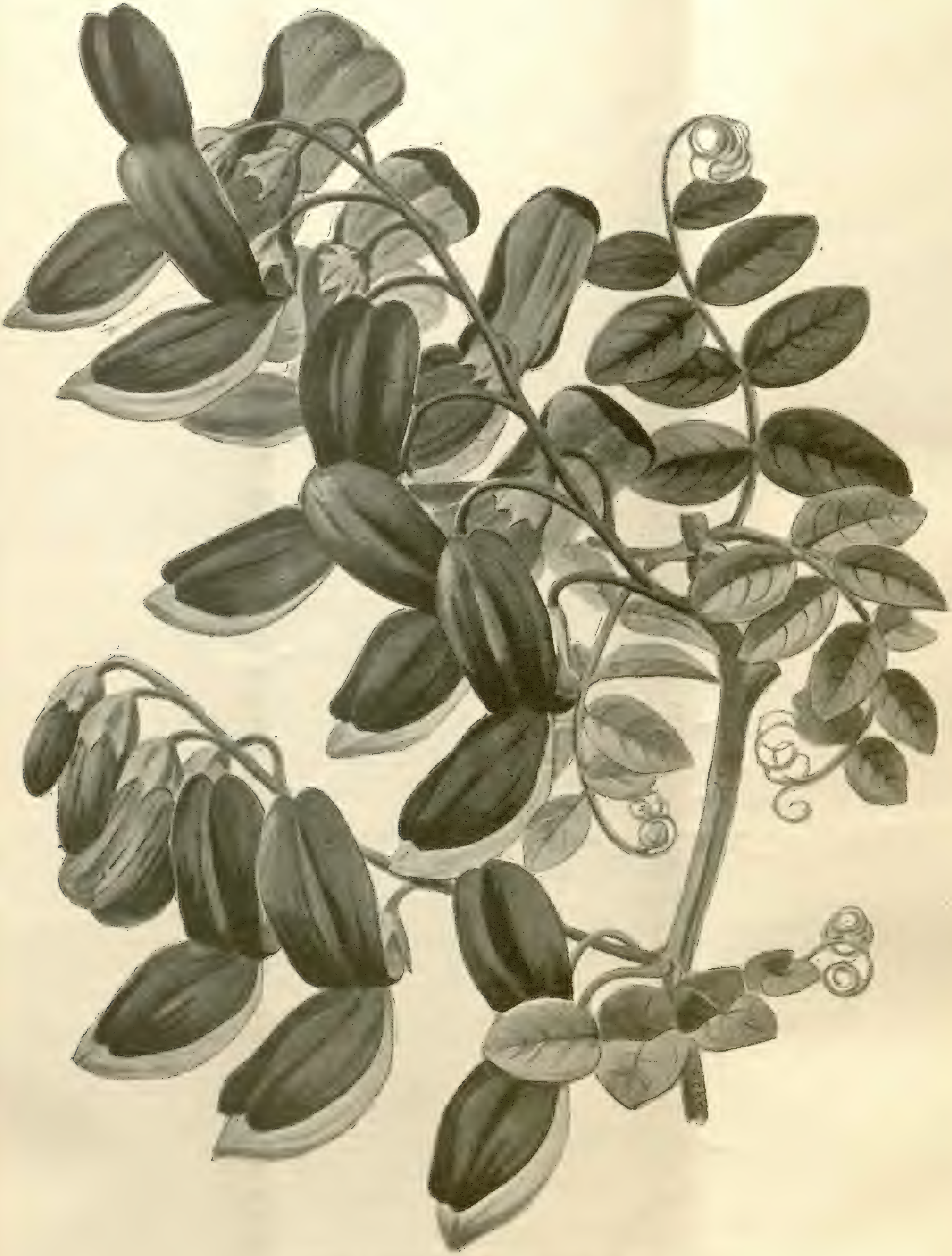
PRICES OF GRAPES.

THE following extract from a letter sent me by a Dorsetshire grower about the middle of January will, I am sure, be of interest to your readers. I have taken the liberty of adding a few comments:—

"Grapes have been very plentiful, but price I have thought very low. I planted one house of Gros Colmar alternately with Muscat of Alexandria and Canon Hall Muscat. The Muscats are not so strong as the others by a good deal, but the grapes set very fairly and were ready to cut first. The Canon Hall I was obliged to cut early because the berries burst; these sold at 1s. 9d. to 2s. 6d. per lb. Muscat of Alexandria came next—at the end of September, long before the Colmars under the same treatment were ready, so that for marketing I would not plant the same varieties together again. The Gros Colmars I was afraid were going to beat me at one time. Two vines, however, at the warmest end finished fruit finely, but altogether they cost me a lot for heat; the market price obtained was 1s. 3d. and 1s. 4d. per lb. Gros Maroc is easy to manage, and, with berries as black as one could wish them, sold at 1s. 6d. to 2s. per lb. Lady Downes made good vines, but it is not a good market variety, for though it finishes well the bunches and berries were small. They realise good prices, however, where flavour is of the most importance. We have a few pounds hanging yet (January 15). I had to syringe Gros Colmar in one house as it was over-cropped and had red spider badly, so that the grapes did not look very handsome, although they were very good to eat. I sold none of these at Christmas for less than 1s. 6d., while a few realised 1s. 9d. per lb. Black Alicante I like as it makes grand rods here from the top to the bottom of the house—sixteen to eighteen feet. These I cropped the full length, and the grapes finished well, sixteen to eighteen bunches to the rod; that is I fruited every other lateral. The berries were thinned severely, otherwise many of the bunches would have weighed two pounds. I have sold all my Alicantes at 1s. 9d to 2s. per lb."

With regard to this letter from a small grower I do not think the prices were low for the season of sale; on the contrary, I have no reason to think other growers have done better, and my experience is that at these prices grape-growing will pay alright. To realise over two shillings per pound grapes must be kept until the new year is fairly in, and then they must be good. The feeding of the Canon Hall Muscats was evidently too heavy just when the berries were colouring. The remarks anent Gros Maroc are of value as showing that the public will have a large-berried grape irrespective of a really first-rate flavour. Lady Downes is a fine, saleable market grape when it is well finished and kept; otherwise, what becomes of the tons grown over the Border? With regard to the Black Alicantes I suppose they did not swell at stoning time. This is very vexing, especially when thinned for keeping, and then not filling up. The weight was light, but probably the strong wood growth made the previous season was too great a tax. Better grapes will be had this season. The particulars with respect to Gros Colmar show that the grower was not well acquainted with them; they need much heat to finish well, especially if over-cropped, and our worst enemy—red spider—steps in. There is not the slightest doubt but that Gros Colmar requires its own special house and treatment to succeed. Except just in a very hot corner, for the sake of having late grapes, I never advise mixed planting. If growers realise an average of 1s. 6d. per pound for the last three months of the year they will not be doing badly.

Bottesford Vineries, Notts. STEPHEN CASTLE, F.R.H.S.



LATHYRUS SPLENDENS. (Flowers blood-red and rose.)

NOTES ON ORCHIDS.

CATTLEYA HARDYANA FANYAUIANA.

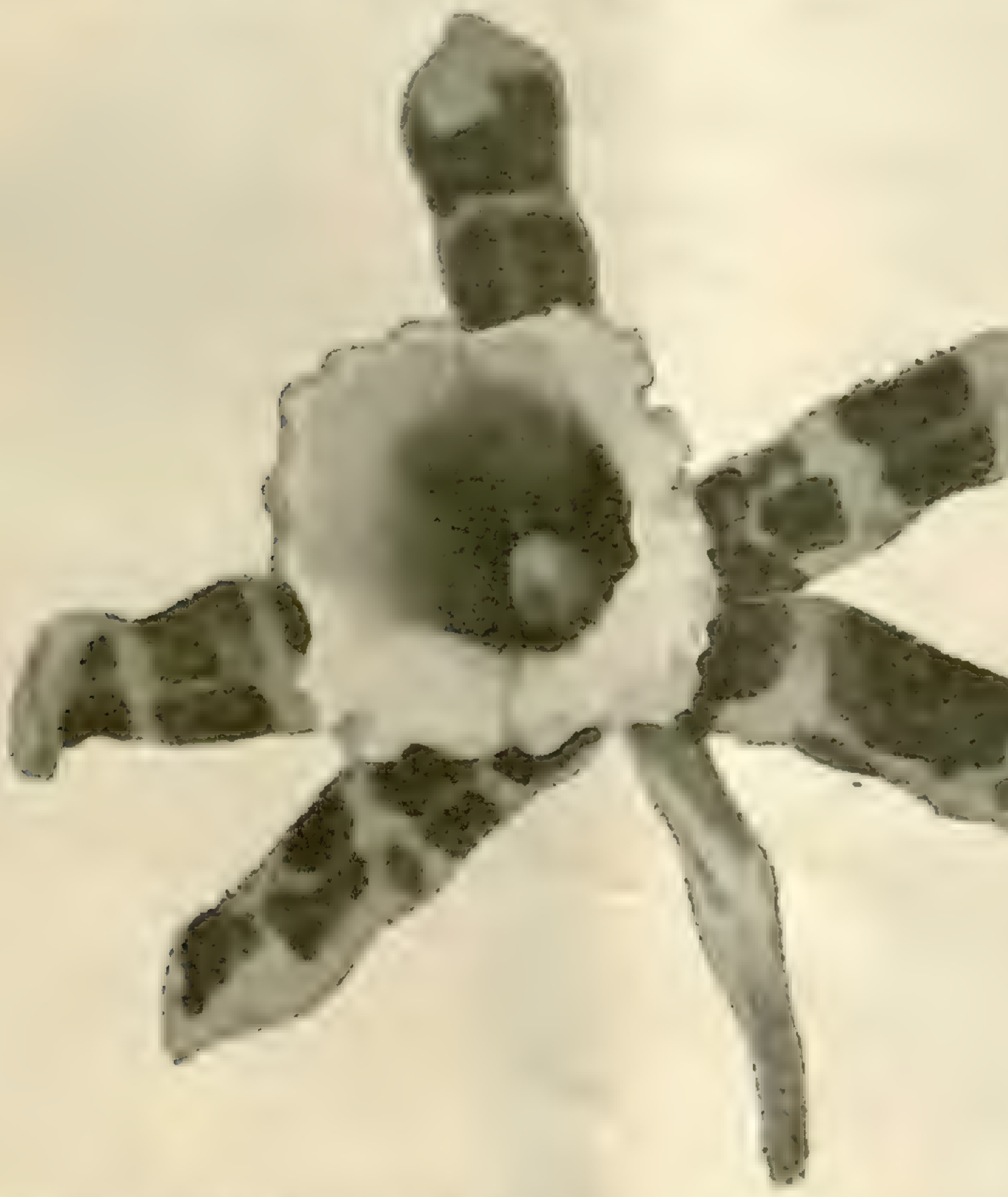
THIS is an extremely handsome form of the well-known natural hybrid; it first flowered with the Messrs. Linden, at Moortebeek. The broad and frilled petals are of bright rose colour, heavily vieded with reddish-rose; the petals are deep rose towards the margin, but paler along the centre. The lip is very fine, and has a rich red-purple apex and border; the side lobes are deep yellow, and the throat is purple veined with yellow, the latter colour radiating into the large frilled apex. This handsome orchid is dedicated to M. Oscar Fanyau, a French amateur orchidist. *Lindenia*, t. 593.

ODONTOGLOSSUM BICTONENSE.

This charming orchid is not met with in collections nearly so often as formerly, but it is, nevertheless, a fine plant when well grown, producing bold and erect spikes of pretty flowers. The latter have green sepals and petals elegantly marked with brown; the cordate lip is the chief attraction, it is large and of a clear and bright rosy lilac shade. We refer to this species now chiefly to draw attention to the coloured illustration of it and its white-lipped variety alba given in the current issue of the *Lindenia*, t. 594.

TRICHOPILIA BREVIS.

The genus trichopilia contains several species that are among the most interesting and handsome of orchids for basket cultivation. T. suavis and T. crispa are perhaps the best known and most generally cultivated, but those who admire these should not omit to include T. brevis in their collections. It is a most distinct species, having the broad campanulate base of the lip much shortened. The sepals and petals are greenish yellow, heavily blotched with deep chocolate. The large lip is pure white save for a light stain of pale yellow on the front lobe. The flowers are from three to four inches across, and most effective when several are produced together. T. brevis was introduced by Messrs. Linden and Co., Brussels, and first flowered with them in August, 1891. The Mexican house is a suitable structure in which to grow the species, and, as in the case of other members of the genus, it should be planted in a basket or pot, well drained, and raised so that there is little chance of the growths damping, and also so that the deflexed flower scapes may extend without hindrance. Not many orchids resent over-watering more than trichopilias. The present illustration represents a flower from a specimen exhibited by our able coadjutor, Mr. W. H. Young, orchid grower to Sir F. Wigan, Bart., Clare Lawn, East Sheen, at a recent R.H.S. meeting. An award of merit was granted.



TRICHOPILIA BREVIS. (Flowers greenish-yellow, chocolate and white.)

CYPRIPEDIUM INSIGNE JANUS.

The variations in the popular Cypripedium insigne seem to be endless and on one or more occasions we have objected to the excessive multiplication of varietal names that has taken place during the past few years. In the present instance, judging from an illustration in the *Lindenia* t. 595, there is little to complain of in this respect for the variety Janus is very distinct both in the heavy vein-like stripes of reddish brown along the greenish yellow sepals, and in the somewhat abnormal development of the ventral sepal. The latter is white with a wedge-shaped stain of greenish yellow extending from base to apex down the centre. The dorsal sepal has a pure white apex and border and a pale greenish-yellow base with brownish spots and dots. The lip is of the usual shade, with brown shading and shows up well against the ventral sepal.

CATASETUM SPLENDENS GRIGNANI.

A handsome orchid apparently intermediate between Catasetum Bungerothi and C. macrocarpum. It is a new variety that appeared last autumn in the establishment of Messrs. Linden and Co., Brussels. The tips of the creamy sepals are coloured reddish brown; the petals are broad, pale rose, spotted with red, and tipped with red Lip large and bold, white, with a fine deep orange centre: the bluntly spurred base of the lip is also tinged with orange on the outside. *Lindenia* t. 596.

LÆLIO-CATTLEYA RIDOLFIANA ARMAINVILLIERENSIS.

A handsome hybrid with large rosy flowers veined and stained with purple, and with a finely frilled and broad lip with a yellow throat and crimson purple radiating blotch on the purple ground. The original hybrid was raised in Italy between Cattleya Mossiæ and Lælia purpurata aurea. The present variety was raised by M. Jacob, the clever gardener to Baron Edmond de Rothschild, at Armainvilliers. It was obtained by crossing a very fine form of C. Mossiæ with L. purpurata, the latter being the seed parent.

BLACK CURRANT GALL MITE.

IN his annual report the zoologist of the Royal Agricultural Society states, and properly so, that the Black Currant Gall Mite (*Phytoptus ribis*) is undoubtedly at present the most serious pest which attacks black currant, and that many acres are annually rendered fruitless by its ravages, or robbed of a large proportion of their crop. The nature of the injury is almost too familiar to need description. The microscopic acarines infest the leaf buds, often causing them to become swoollen or gouty, through many of the mites may be present without causing much distortion. This pest seems to be very generally present, even in places where the infestation has not been severe enough to attract attention. For the purposes of experiment, black currant shoots entirely free from all suspicion of attack were required, and these were sought in gardens, both at Cambridge and at Southport, where no gall-mite infestation was suspected, but on every plant were to be found some of the characteristic galls. Much attention has been given to this pest during 1897, and though the results of the observations are largely negative, it is perhaps advisable to report them. Examination of infested buds at frequent intervals from January to November has invariably shown the presence of eggs and larvæ together with the mites. These were very numerous in the spring, and abundant for some time later; but in November they were few, though mites were still to be seen with unlaid eggs within them.

It seems likely that reproduction practically ceases during December—for one month out of twelve. If infested buds are simply cut open and shaken over a slide, some of the mites come out, but the eggs are mostly overlooked. The plan adopted was to slice the buds, cucumber fashion, and shake the sections up in a tube containing methylated spirits. The mites and their eggs were washed out, and formed a sediment at the bottom of the tube which could be examined under the microscope.

Many of the spring buds are so severely attacked that their growth is entirely arrested, while others, more slightly affected, succeed in putting forth their leaves. In both cases they are soon deserted by the mites, not one being visible where but a few days previously there were swarms. It seemed likely that, on the opening of slightly infested buds, numbers would be precipitated to the ground, perhaps to spread infestation by crawling up other stems. Experiments to ascertain this met with but little success. Dishes containing water were fixed beneath developing buds containing mites, and watched from day to day. A few mites were found in the water, but only a few. Eggs were not found, perhaps on account of their small size, for it is difficult to imagine how they could have done otherwise than fall.

Infested shoots, teeming with mites, were planted in flower-pots, the stems being passed through a sheet of black paper, upon which the mites could readily be observed. In the course of a few days mites in considerable numbers were certainly found on the paper, but they were all near the shoot, and did not seem to have fallen, but to have crawled down the stem, upon which others were found wandering. It is clear, then, that mites leave the buds as they begin to grow uninhabitable, and crawl elsewhere. This must happen extensively as the leaves are developing, and it is at that time, therefore, that spraying is likely to have the greatest effect. The statement of some entomologists, that the mites wander only in July, is therefore incorrect.

What becomes of the eggs I have failed to discover. The tremendous fertility of the mite is *à priori* evidence that a large portion of the brood is destroyed, and it is quite possible that, though I did not find them, multitudes of the eggs, turned out of their shelter, were blown away and failed to develop.

I was anxious to see if a healthy plant, placed in earth taken from beneath infested bushes, contracted the disease, but could not, at the time, find one completely free from infestation.

In conclusion, I have seen reason to doubt whether very severe pruning is altogether advisable as a means of combating this pest. The mites are certainly reduced in number, but so also are the available buds, and the enemy may survive in sufficient numbers to occupy all the buds available. It is probable that the old-fashioned and tedious plan of picking off the buds is the most effective. In November the plants are leafless, and the buds easily seen. It is not only the swollen buds which contain the mites, for many may be found in those which are apparently sound. In cases of severe attack I believe it would pay to send boys round in November to pick off into bags all the buds they find on the bushes.

Marguerite Carnations.—The varieties of this class of carnations are valuable for cutting, and may well be treated as annuals. If sown now good plants may be produced that will come into bloom after other established plants have done blooming in August. The seeds should be sown in small boxes or pans, filled with sandy loam and leaf soil, just covering the seeds, and stand afterwards on a mild hot bed until germination has taken place. As soon as the seedlings appear remove to cooler quarters and prick off into other boxes when large enough to handle. Plant outside in a prepared border eventually, and all the after culture required is a stirring of the surface soil occasionally and a removal of weeds. The flowers should be staked and tied as soon as necessary. If grown on in pots these Marguerite carnations are also very useful for autumn decoration. The pure white variety may now be obtained from seed sold in separate packets, and can be relied on to come fairly true. The white fringed blooms are very sweetly scented.—C. H.

Blue Chrysanthemums.—For the information of A. D. I may say that some years since I endeavoured by chemical application to change pink chrysanthemums into blue. In our soil, which is short of iron but contains abundance of lime, hydrangeas flower freely, but of the natural rosy pink hue. In pots, by the aid of sulphate of iron in the soil and frequent applications of alum water to the roots, I produced really blue heads of flower. I had several tints of blue, some exceedingly pale, really lavender, others deeper according to treatment. It is surprising what strong doses this plant will withstand of both iron and alum. So much so that some of the pots on the outside were covered with an exudence of the latter. As is well known, sulphate of iron is by far the best ingredient to apply to plants or trees for the restoration of lost chlorophyll or green colouring in the leaves. If, however, like some poisons, it is applied too freely it overreaches itself. The leaves on some plants we experimented with completely lost the whole of the green matter, and were quite of a bleached character. Regarding the changing of the colour of chrysanthemums by the same means I experimented with several varieties, commencing with Empress Eugenie, Hero of Stoke Newington, Alfred Salter, Beauty, Baron de Prailley, Comtesse de Beauregard, the Daimio, Bouquet Fait, and Hiver Flemie, but all to no purpose. Those who are conversant with all the varieties named will see that a variety of shades of pink were tested. In not one single instance did the plants yield to any variation of colour. After repeated experiments I came to the conclusion that blue chrysanthemums exist only in the imagination of enthusiastic artists.—E. MOLYNEUX, *Swanmore Park Gardens.*

Work for the Week.

WARM ORCHIDS.

In the early days of orchid cultivation, Cœlogyne cristata was much valued, and no doubt growers considered it a difficult plant to grow Experience has proved, however, that it is easily managed, and with the several improved varieties, we may now, by careful management, have a display from the cold month of December to the following June. At the present time scarcely any garden containing a greenhouse but has a few plants of this species. We do not prize it sufficiently, for it well deserves growing, and there is little to equal it in its season. The Chatsworth variety produces longer spikes and larger individual flowers than the type, although if grown in quite a cool house the blooms will not last so long as those of the species, owing to the labellum being of a more fleshy nature and sensitive to damp. The variety C. c. Lemoniana is the prettiest in the set. Then there is the Trentham variety, which, if retarded, will flower as late as June; we see them sometimes at our exhibitions. Then also we have the pure white form, which is one of the whitest of white orchid flowers. At the present time these must be watered sparingly, only sufficient to enable the bulbs to keep plump and support the flower-spikes. Remove plants in flower to the flowering house.

If any cattleyas have been imported attention must be given them in good time. Amateurs, as a rule, have an idea that plants must be potted in their rough and unsightly state just as they arrive. Such an idea should be abandoned. Cut up the specimens sufficiently to allow four or five bulbs to each lead, then give them a thorough washing with weak but warm soft-soapy water, cleaning the rhizomatous stems thoroughly in order to eradicate any insects or larvæ; examine each bulb carefully to see if there is any sign of cattleya fly, and if any be found cut the bulb clean away and burn it, as this is about the worst enemy cattleyas have. Next obtain crocks well washed in hot water, then prepare some good stout sticks long enough to reach from the bottom of the pot to the top of the longest bulb. Take a clean pot sufficiently large to allow each lead to come just inside the rim, the smaller the pot the better; place the ends of your sticks, say three or four, according to the size of pot required, in the pot, and place one large crock over the hole, and allow it to form a wedge for the sticks; half fill the pot with crocks, still using some as wedges, and make them so firm so that you can pick the whole affair up by one of the sticks; then take each piece of cattleya separately and tie firmly to the sticks, taking care to arrange each lead towards the edge of the pot and raised about an inch above the rim. After filling the pots to the top with smaller crocks give a good watering and place in a house where plenty of shade can be given, gradually bringing them to the light, and syringe overhead occasionally in order to plump up the bulbs. After-treatment will be given later.

The rebasketing of Lælia anceps, as before advised, may now be finished if flowering is over. Any cypripediums that have completed their flowering may be repotted, and large plants, where a stock is required, may be split up to the desired size. A good mixture for these is three parts of fibrous peat to one of good fibrous loam, with a little coarse silver sand, a little chopped sphagnum, a little charcoal, and a little old mortar, if at hand, all well mixed together. Attend well to the fumigating of all houses, give special attention to the ventilation, and keep temperatures as before advised.—T. Stafford, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

The present is the best season of the year to attend to climbers and wall plants in the conservatory, as for the most part they will be in a dormant condition, and what pruning and cleaning is required can be done before new growth commences. Where properly cared for climbers in variety form a very pleasing feature in this structure; but it not unfrequently happens that for the want of a little timely thinning and regulating of the shoots, the growth becomes a crowded mass which obstructs light from the occupants below, encourages insect pests, and fail to meet the object they were intended for, viz., a graceful clothing of the rafters and roof supports. Cobæa scandens, both the green and variegated forms, is useful for large buildings, as it spreads rapidly; but care is necessary to regulate the shoots, or it is apt to become bare in places. Some of the more choice clematis are also useful for the same purpose, but the growths must be properly thinned out to allow of the flowers being seen to advantage. These quickly get into a tangled state, and where this was allowed to take place last season, pruning must be resorted to at once, or much damage will be done later when growth has commenced. Rather severe pruning of such things now may make the roof look bare for a few weeks, but it really becomes necessary at times to take such measures, not only for regulating future growths, but also for thoroughly cleansing them of mealy bug, which they are so subject to through the introduction of so many different plants into the house. After pruning out as much of the old wood as possible, syringe them thoroughly with water at not less than 80 degrees, and add a wine glass of petroleum to each gallon; opportunity being taken at the same time to scrub the roof down. This will give the plants a clean start again, and by a tie here and there and the removal of a few shoots where they are likely to become crowded, say once a month afterwards, they give a fine effect in the house. The rooting medium should also receive attention, taking out an inch or so of the surface soil and replacing it with good turfy loam, old mortar rubble, or charcoal. The latter is very necessary as it prevents the soil from becoming sour. For wall plants in the conservatory few things can equal and give a better display through most of the summer months than Bougainvillea glabra, especially when some of the longest branches can be trained to the rafters to allow the flowering shoots to depend in a natural way. The plants will have shed their foliage some time ago, and having been kept somewhat dry at the roots since, the needed rest has been afforded. All the thin wood should now be spurred back and sufficient leading shoots retained to cover the space allotted evenly. A good soaking of water will be necessary to thoroughly moisten the soil, and growth will commence at once.

Camellias, either growing in borders, tubs, or pots, will be all the better for careful pruning before they commence another season's growth. With some plants all that is necessary is to shorten a few of the shoots back somewhat to secure a well-balanced specimen. It is not necessary to loosen the surface soil if the plants are in a healthy condition, as this is not done without some injury to the numerous fibres. A sprinkling of fresh loam, with a few crushed bones added, after the border has been properly watered and beaten down firmly with the back of the spade, will encourage more surface roots as well as promote short-jointed growth, which is very desirable with these plants. Azaleas as they go out of bloom should be kept by themselves, where they can have proper treatment in the way of watering and syringing to encourage early growth. These, too, will be all the better for being slightly pruned into shape, as new shoots will form at once from the old wood, and more compact plants are obtained. It would be wise also to fumigate them once or twice, so as to kill any thrip that may be about them, and which quickly spreads and ruins the young tender foliage. These plants require a close warm house and plenty of syringing while they are making their growth. Such plants as Azalea mollis, and lilacs which have been forced, should also be cut back somewhat and encouraged to make new shoots in a warm pit, and afterwards gradually hardened before being put outside. Bulbs of different kinds will come on quite fast enough now in a close pit, and the less fire heat used the better, as the blooms will have more substance and last longer, especially in a cut condition. Roots of Solomon's seal if dug up now will provide very useful material both for decorating and for cutting, and by starting them now they will be ready by Easter without actual forcing. A good batch of spiræa, both S. astilboides and S. japonica, should also be started, as their white flowers are very acceptable at the season mentioned.—R. Parker, *Goodwood Gardens.*

THE FLOWER GARDEN.

With the exceedingly mild weather prevailing roses and other subjects are making an early start into growth. Nevertheless it will not be advisable to commence the pruning of either standard or dwarf roses for a few weeks, as the chances are that we may, as a set-off to the present mildness, have our winter in the spring months; and if roses are pruned thus early the lower buds start into growth, which, if pruning is deferred, remain dormant, and probably escape should severe weather occur later. It has been proved repeatedly that the little extra growth made and eventually pruned away has little, if any, injurious effect on the plant. Where growing against walls or fences roses and other climbers may be taken in hand now and receive the pruning and nailing necessary. With roses of strong growth as Rêve d'Or, Gloire de Dijon, Maréchal Niel, and others, the weak growths should be trimmed out, and the strong shoots nailed, or tied in, almost in their entirety, simply cutting away just the weak point of the shoot. It is surprising what a profusion of blossoms may be obtained from them when treated in this way, even of the first-mentioned variety which, when grown on the cut-back system, is a very indifferent bloomer. In the pruning of climbers generally note should be taken that the flowering wood is not removed, especially of clematis, as those of the Montana type flower from the ripened wood of the previous year's growth; the pruning of these should be deferred until flowering is over, when, if cut back without delay, flowering wood will be made for the next season. Somewhat similar treatment should be given to Jasminum nudiflorum and Chimonanthus fragrans that are now fully in bloom. Clematis of the Jackmanni type may be pruned hard back to a few eyes where employed for covering arches or for trailing over beds, and when so treated usually make strong growths as long as desired for this purpose, which flower freely.

Climbing plants in variety may still be planted, but unless plants can be turned out of pots this work should be finished at the earliest opportunity. For the south aspect the following are suitable: Ceanothus azureus and its varieties; Passiflora cœrulea and P. Constance Elliott; these should be given the warmest situation, and the ceanothus sheltered with a few branches or temporary covering in severe weather. Others are Bignonia grandiflora, the early-blooming Garrya elliptica, Choisya ternata, an evergreen plant of shrubby growth with sweetly-scented white flowers. The evergreen magnolias are suitable for planting against a high wall or building, being of strong growth, and if given a sheltered situation they are seldom injured by severe frosts in the southern counties. Their large sweetly-scented white flowers are much prized in late summer and autumn. The sweet Jasminum officinale and J. o. grandiflorum are also desirable subjects. In pruning these two should be cut within a couple of eyes of the old wood, the flowers being produced on the young growths. The later yellow-flowered J. revolutum, of stronger growth than the preceding, should be planted in a warm situation, and not be pruned too closely, and some of the strong young growths of the past season may be tied in to nearly their full length. For the rich coloration of autumn foliage Ampelopsis Veitchi and A. hederacea should be given a south or west aspect. Loniceras in variety, Escallonia macrantha, Forsythia suspensa and F. viridissima, Kerria japonica, and Wistaria sinensis are other desirable subjects. For covering a wall or fence with a north aspect Cratægus pyrancantha and C. Lelandi are excellent plants of free growth, and in this position both flower and set their berries in profusion, and the latter are effective through the dull winter months unless devoured by birds.

Where sub-tropical bedding is carried out some of the slower growing kinds used should be sown now. Canna seeds take some time to germinate, and before sowing they should be soaked for twenty-four hours in warm water. Grevillea robusta and eucalyptus seeds may now be sown, while ricinus and similar quick-growing subjects may wait a month yet, and then be quite large enough for bedding-out time. Stock roots of dahlias should be introduced to heat for the production of young growths for propagation. The latter should be taken off as soon as large enough to handle, and inserted in pots of sandy soil, and plunged in a moderate bottom heat.—C. Herrin, *Dropmore Gardens.*

HARDY FRUITS.

Old trees intended for grafting should now be headed down, as it is a good time to prepare for this work. Owing to the mild weather it will not be safe to leave scions for grafting any longer on the trees as the season is more forward than usual; the grafts taken should be a well-ripened shoot of moderate strength, and the name of each variety should be firmly attached to each bundle; these must be inserted half their length in a cool north border to retard growth, and should the soil be at all dry give moisture occasionally to prevent the bark shrivelling. It often happens that old fruit trees, indeed, younger ones also, in standard form are allowed to grow for years without pruning, with the result that fruits are small; now is a suitable time to thin out very thick growths and cross branches, but I am not advising wholesale mutilation, for this would make matters worse after the years of freedom; rather do a portion of the thinning yearly. In the case of plums much may be done to encourage fruiting by the removal of useless spray, encouraging fruit buds to form freely, and admit light and air. Newly-planted trees should be staked now the soil has settled, and I am greatly in favour of naming all fruits, as the labels from growers soon become unreadable or lost, causing much trouble later on. In all gardens correctly-named trees are interesting and educational. After a trial of many kinds of labels I find that metal ones with raised letters are very good; we use those made by the Stratford Label Company. For many years we used leaden strips with the letters punched in the lead, and these last well, but are not so neat as the others. For attaching labels to fruit trees it is best to use wire, as this is soft and pliable, but it is well to allow plenty of space; if copper wire is used place it so that it cannot impede growth. The labels in the case of wall trees may be nailed to the wall, and in the open may be placed on a small stake in front of the trees.

Apricots will soon be coming into flower, and if not yet nailed or pruned the work should be proceeded with. We find there is little to prune at this season, if the summer growth was regulated; but it may be necessary to reduce the spur growths, as these, if at all crowded, produce too many inferior fruits; those that are farthest from the wall should be removed first, as the apricot in its earlier stages needs protection. My remarks concerning the removal of spur growths are applicable to other fruits, notably apples, pears, and plums, as these often have far too many spur growths producing an abundance of small fruit which do not pay for storage. Apricots will now need protection, and if there is a good coping I am adverse to a thick covering of any kind, as such covering weakens the flowers. We rarely miss a crop with trees on a south-west wall, and, strange to relate, our best crop was after the coldest February and March I ever remember; but the trees were dry, and if the blossom is dry I do not think cold does so much injury as supposed. We usually protect with a double-inch mesh fish-net, and it is much better than a thicker cover, which excludes air. The growth of strawberries this year is earlier than usual, and any work in the quarters should now be attended to, and though I do not advise digging between the rows, it is necessary to fork up the surface to destroy weeds; it is a good plan with old beds to well mulch in the winter with decayed manure, and in February to cover the manure with soil, that is, lightly forking the surface and covering the manure. There is a great gain from winter dressings, as the new roots made early in the year are enabled to absorb the food given. I am not in favour of keeping old strawberries, believing the best results are secured from young plants; but all cannot follow this practice, so now is the time to give manure to enable plants to furnish heavy crops. Birds are this year a source of trouble with newly-pruned gooseberry and currant trees, and unless their depredations are prevented they will ruin the crop. Probably the best preventive is a strong dose of quassia with a liberal mixture of soot and fresh lime. This adheres to the trees, and will for a long time give the trees a rest, but it may be necessary to repeat the dose later, after rains or frost. I have seen black thread used with success in the case of a few trees. This, lightly entwined round the branches, will prevent their attacks; and, of course. netting over will be even superior to any other protection but it often happens one cannot spare the nets. All pruning and cleansing of fruit trees should be brought to a close as soon as possible, and wherever possible trees needing food may be given a mulch of decayed manure.—G. Wythes, *Syon Gardens*.

NEW BOOKS.

Lyonesse: A Handbook to the Isles of Scilly. By J. C. Tonkin and R. P. Row. Price 6d. (Beechings, Limited, 174, Strand, London.)—An admirable guide to the Scilly Isles, which, by reason of the enterprise of the inhabitants in developing their great natural advantages, have of late years acquired considerable importance. This handbook, although of a size that admits of its being carried without discomfort in the breast pocket, contains sufficient information on the natural features and historical aspects of the islands to enable the visitor to become well acquainted with their characteristics and the chief points in their history. It contains an excellent map and numerous illustrations. An introductory chapter is contributed by Sir Walter Besant, and in speaking of the charms of the islands he asks: "What time of year is best for visiting Scilly?" and in reply he says: "I have been there in spring and in autumn. I think that perhaps the early spring, when as yet there is no more than a thickening of the buds in the east and north of England, is the best time for a visit. For then the flower farms, though not at their best, can still show some of the flowers for which the islands are famous, and the air is softer than the cold winds of a London March, and it is fine enough and warm enough to spend the whole day long on the water cruising about in the roadstead or venturing outside to the west of Samson, Bryher, and Tresco. At this season, too, the walk round St. Mary's is stimulating and bracing; one can trudge along the highland ridge of St. Martin's in the cool wind, and across the downs of Tresco. One can point the prow outside to the shores of the uninhabited islets of Mincarlo and Minalto; to the rocks of the 'Western Isles'—Rosevear, Retarrier, Gorrigan—where the puffins collect on the rocks, and fly and swim, and dive, not yet gone off to their unknown summer homes; where the seals may be seen disporting in the waves; where the shags stand on wing, peak, and gable of the rocks. Nowhere around Great Britain is there such sailing among fairy islands of romance. At first the islands disappoint, the scenery is small, the roadstead is broad; no point is higher than one hundred and sixty feet; most of the cliffs and rocks are, indeed, very much less, but, day by day, as one is borne along from one islet to another, through narrow channels where the dark water races and roars, across broad stretches of ocean, along white sands, under black cliffs, with a breeze which never fails, over shallows of sapphire hue, the islands take such a hold of the imagination and the affections that they can never be forgotten or lost. Two things are necessary, that one should not come by one boat and go home by the next, but should make a stay long enough to know the place; and next, that the visitor must take the archipelago on its own merits, that is, he must not compare it for grandeur of scenery with one place, or for the luxuriance of vegetation with another. He must just walk about, sail about, look about, and be contented with what the islands have to offer." Sir Walter Besant further observes, "That if the softest, sweetest air in the world, air which takes from the Atlantic gales all their refinement and none of their blustering roughness, cannot please, what can? If lovely water, lovely rocks, lovely beaches of white sand strewn with purple shells, lovely gardens in which tree fern, bamboo, aloe, and prickly pear flourish as if the latitude were within Capricorn, with the mystery of cairns and prehistoric tombs, and the feeling, rather than the tradition, of ancient princes and royal burial grounds in Lyonesse; if these things, I say, cannot please thee, then, dear reader, come not to Scilly."

Modern Chrysanthemum Culture. By George Garner. Price 6d. (Blake and Mackenzie, Liverpool.)—A concisely written treatise on the cultivation of the chrysanthemum for exhibition and house decoration, containing much useful information.

Sweet Peas.—For the production of early blossoms a selection of varieties may be made and sown in pots for planting out; to make the most of small packets of new or choice varieties, sowing in pots is also to be recommended, as they can in this way be better protected from rats and mice than when sown direct in the open ground. Large sixty-sized pots should be used for this purpose, sowing six or eight seeds in each, standing them in a greenhouse temperature until the seedlings appear, and then transfer to a cold frame to harden off for a week or two, or until the ground is in a condition for planting them out. If space can be spared the kitchen garden is the place to grow sweet peas in specially for cutting purposes, and generally speaking the soil here is more liberally treated, and a succession of blossoms therefore the better ensured. The coloration of some of the newer varieties is very rich and effective. The following are all good: Blanche Burpee and Emily Henderson, two of the best whites; Mars and Meteor, crimson and crimson orange; Countess of Radnor, delicate mauve; Lady Penzance, bright rose; Princess Beatrice, pink; Countess of Powis, orange and purple; Monarch, crimson, wings blue; Lady Nina Balfour, delicate mauve: Captain of the Blues, purplish blue; and Coquette, deep primrose.—C. Herrin, *Dropmore Garden*.

WATERCRESS CULTURE FOR PROFIT.

In his exhaustive contribution to the current issue of the *Journal* of the Royal Agricultural Society on "The History and Cultivation of Watercress," Mr. Glenny gives the following particulars of the culture of the plant for market:—

Gravelly loam with a clay base is suggested as desirable, as it retains the water, makes a firm bottom, and furnishes nutriment for the plants. But, he points out, this will be of no avail without an ample supply of suitable water. The source of the water may arise in natural springs, clear, bright, and bubbling of its own accord out of the chalk, refreshing both to the eye and the palate, like crystal sparkling in the light; in some levels it may, of course, be needful to bore in order to obtain an adequate and efficient flow. The prosperity of the cress-bed depends mainly on the continuity, force, and regularity of the current. An abundant and perpetual stream is an absolute necessity, as the health of the plant depends on this condition. Without it the cress cannot be well nourished, the leaves will be stunted, and there will not be a bountiful growth throughout the season. The water affords protection from the heat of the summer and the cold of the winter, both of which extremes must be guarded against; the former burns the foliage and makes it sticky (hard); the latter freezes the stems and damages the crop irretrievably. A strong stream, maintaining a fair volume of water during heat and cold, is invaluable. The temperature of the water follows the temperature of the earth whence it originates, and should not fall below 51 degrees Fahrenheit. It does not answer to carry the cress-beds too far from the source, as the water naturally cools down as it travels away from the orifice. This factor limits the length of the cress-beds, for when the temperature of the air is lower than that of the water, the latter soon loses heat. Exposed to the cold atmosphere it falls below the required temperature, and the cress suffers in consequence. Were it not for this hindrance cress-beds would only be limited by the strength of the stream.

The depth of the beds must depend on the level of the spring; some are not above a foot deep, whilst others have been constructed at great expense, and are perhaps three or four feet below the level of the surrounding ground. There must needs be a slight inclination downwards from the spring, so that the water may flow gently through the cress. The fall of the bed should be extremely gradual, for if the declivity be sharp, the celerity of the current increases and washes away the soil, disturbing the plants. A gentle movement of the runlet from end to end of the cress-bed is what is required. The beds are made of no particular size, but mostly follow the configuration of the land; they may be six feet or thirty feet in breadth, but in the latter case longitudinal gangways will be required at suitable widths to carry off the crop when picked. These gangways are generally only banks of earth, but in some cases they are cemented on the surface, which makes the labour of gathering more easy in a rainy season.

Little bridges of rude planks are constructed across the beds, whilst dams are erected in suitable places to hold back the water at ordinary times, and to give opportunity to flatten down and submerge the plants in severe weather. Different practice prevails in this respect, as the severity of the cold is most felt in exposed situations. In certain months of the year, when the demand for cress is slack, the beds are cleaned out, and brook water may be utilised for irrigation, but facilities must be at hand to divert all subsidiary supplies at the approach of cold weather. Careful precautions should also be taken to keep out storm-water, and special channels must be provided where cress-beds from their level and situation are liable to flood. It may be advisable to construct a tunnel or culvert of a considerable length when there is backwater that may inundate the cress-bed. The best authorities recommend the annual cleansing and replanting of beds. This operation, which involves considerable expense, should be executed during the slack months of August and September.

The tops of the cress are first gathered and stowed away in a convenient place, sheltered from the sun and wind, until required for replanting. The dykes are then thoroughly bottomed out and the muddy soil removed, with all the old roots, weeds, and living creatures it contains. This process is followed by a careful levelling of the bottom, and a stream is allowed to flow for a sufficient time to thoroughly scour out all impurities. Everything is now ready for replanting, which is carried out in the following manner. The cut cress is carefully laid down in rows or spread broadcast on the ground, being sometimes secured by large stones where it is in danger of being shifted from its position. It is advisable to turn on the water sparingly in the first instance, for fear the plants should be disturbed; but in the course of four or five days the young rootlets will begin to strike and to take hold of the ground.

All this work needs skilled labourers who have had experience in the business, and they must be specially equipped for their task. The most important part of their outfit is the boots, which are provided by the employer at a cost of from 44s. to 60s. per pair, and are similar to those used for marsh-work. In addition to the expense of cleansing, the laying down a cress-bed would cost 6s. or 8s. per perch, if the plants were purchased. In order to procure fresh shoots for this autumn plantation, it is an approved plan to lay down some beds in March, and set them apart for this purpose. The clean plants from these rearing beds will be vigorous and free from weeds and other impurities. Small brooks and ditches inconveniently situated for market-work are utilised for the purpose of obtaining fresh plants.

Readers will naturally ask what it would cost to construct a cress-bed. We have already seen that the purchase of plants is a large item. The preparation of the ground is a more serious matter still. Much depends on the situation of the land, the irregularities of the surface to be overcome, and the level of the field or meadow in relation to the springs which it is desired to utilise. If the task is merely to shape out, to straighten, to take off the angles, and level the bottom of a ditch, so that the stream may have a gentle, steady swing, then 4s. or 5s. a perch might suffice.

The formation of large cress-beds to any extent is a heavier undertaking. There is the excavation of and the moving away of the surplus earth, making a true and correct incline to regulate automatically the flow of the stream, and this may soon involve considerable expense. I was shown a cress-bed of extensive proportions, constructed in 1887. and named the Jubilee bed, which cost as much or more than the value of the freehold. This illustration did not convey precise information, but gave a conception of a big outlay. The cress-bed was in some parts four feet below the level of the surrounding garden, and was rather an exceptional example.

To take a medium figure, perhaps it would cost £90 to £100 per acre in the formation of the beds, and with the plants at £1 per cwt., or £20 per ton, of which nearly two tons would be required to thoroughly plant an acre, the further cost would be £40. Thus £130 or £140 would be the rough estimate arrived at. The best pulled plants, if purchased, are difficult to acquire, though not costing so much when supplied on the farm. When the work is done by the occupier himself these alterations are carried through in an economical way, and for much less cost than any contractor would attempt them. Yet, after due consideration, I feel that, without a thorough knowledge of the surroundings of each case, such estimates must be rather conjectural and hypothetical.

The judicious marketing of the cress is an important problem, and needs much attention and forethought. London claims the first consideration, as the largest consumer, but the big towns in the provinces must be remembered. The probable demand must be gauged as far as possible, or the markets would certainly be glutted. The gathering and packing of the crop are mainly done by men, whilst women take a part in tying up the bunches. In cutting the cress, the men in big boots wade through the beds, having long boards to stand on when the depth of the water is abnormal or the bottom of the bed is treacherous. The use of boards has also the advantage of pressing the roots of the plants into the soil, and flattening down the stems and foliage under the water. Careful workmen are most particular in selecting the forward stems, which should be gathered singly, or, at most, two or three sprigs at a time; the more cautiously this is done, the sooner the bed is ready to be culled again. The picked cress should be carried in baskets or half-load baskets to the shed, where it is washed free from duck-weed or any trivial impurity. Women take up this department, and tie the cress up in small bunches at about ¼d. per dozen, and skilled hands often earn 2s. 6d. per day. Raffia, the epidermis of the leaves of Raphia Ruffia, which reaches us from Madagascar, via Mauritius, and also of Raphia tædigera, which comes from Brazil, is now largely imported for tying purposes. The cost of the raffia ranges from £40 to £50 per ton. The cress, after tying, has to be packed in baskets called flats, which contain about eighteen dozen bunches. The weight of a flat varies according to the size of the bunches, which again depends on the season; some growers make them up about half a hundredweight in the flat, but there is no uniform weight for all districts.

ANSWERS TO CORRESPONDENTS

The Wettest Village in England.—S. C., Sefton: We believe that the questionable honour of being the wettest village in England belongs to Seathwaite, at the head of Borrowdale, in Cumberland, Writing from memory, we believe that the rainfall there comes nearly up to one hundred and fifty inches in some years.

Caustic Soda and Potash.—L. T., Cookham: It is too late to dress the fruit trees with the mixture except on the trunk and bases of the stout branches, as the buds are now too prominent. Unless put on carefully the mixture would injure the grass below, though it is not likely to actually kill it unless large quantities of the solution are used.

Zonal Pelargoniums.—F. B., South Croydon: You should be able to grow zonal pelargoniums to flower in the autumn and winter in the structure you refer to provided you have pits or frames for their cultivation during summer and early autumn. If fogs are very heavy during the winter in the locality in which you reside it will be almost useless to grow these plants for winter flowering, as the results will in a large measure be spoiled.

Chrysanthemums.—A. B., Ashford: Not many really first-rate chrysanthemums are included in the list you send, but you might very well try the following: Mrs. John Shrimpton, Mrs. Briscoe-Ironside, Baron A. de Rothschild, Mons. G. Biron, Arona, Olive Oclee, and Hairy Wonder. These are the best of the set, and should only be included after you have made sure of the leading exhibition varieties, and the best of the new ones described in our columns during the past season.

Tobacco Water.—W. H., Leeds: There are several ways of making tobacco water for killing aphides and other plant pests. As tobacco and tobacco paper differ in strength it is always best to try the mixture with some moderately tender plant of little consequence unless the quality of the tobacco is known. If this be not done there may be a loss of valuable plants. A good mixture is made by steeping four ounces of coarse tobacco in a gallon of soft water for several days, stirring it occasionally; then strain the liquor and add to it half a gallon of hot water in which two or three ounces of soft soap has been dissolved. This is a good mixture for dipping.

Ardisia mamillata.—C. P. C., Wexford: This ardisia is a Chinese plant, and one that on the whole requires warmer treatment than A. crenulata needs. It is dwarf and has very distinct foliage which attracts as much attention as do the berries. The latter are freely produced but do not show themselves to the same advantage as in the case of the better known Mexican A. crenulata. A. mamillata is easily grown in a stove, but should be kept near the glass in its earlier stages. The genus ardisia is by no means so small as you suppose. There are a considerable number of species natives of China, Japan, Guiana, the Canaries, several parts of India, Costa Rica, Antilles, Sumatra, &c.

Names of Plants.—H. F. C., St. Albans: 1, Daphne Mezereum; 2, Hamamelis virginica; 3, Lonicera Standishi.

R. H., Croydon: 1, Primula floribunda; 2, P. obconica.

E. H. R., Reading: 1, Adiantum concinnum latum; 2, A. cuneatum Le Grandi; 3, Pellea cordata; 4, Davallia pentaphylla; 5, D. pallida, known in gardens as D. Mooreana.

T. Y., Scarborough: 1, Saxifraga sarmentosa; 2, Cyperus alternifolius.

R. C., Truro: Polygala Dalmaisiana is the current garden name of the specimen sent, but if you wish to be up-to-date you should label it Polygala myrtifolia grandiflora.

Communications Received.—R. H.—E. N. R.—H. F. C.—T. Y.—R. C.—W. H.—A. I. F.—C. P. C.—C. B.—A. B.—S. C.—W. W.—W. H. L.—C. S.—"Lux"—J. C. T.—H. C. P.—J. L.—A. J.—W. W.—I. B.—L. T.—M. H. W.—T. W. T.

STARTLING NEWS is daily coming to hand of sad accidents, murders, and minor criminal offences, but it is astonishing that thousands of people die in our midst every week, and no notice is taken of the fact. Yet such a terrible calamity could be prevented if more frequent attention was paid to the laws of health. If people would only deal seriously with slight ailments they would not develop into fatal diseases. There are thousands of persons killed yearly simply through neglect. Holloway's Pills and Ointment can prevent as well as cure disease, and if they were used according to directions, there would soon be a decrease in the death-rate. They can be obtained from all chemists and medicine vendors.—[ADVT.]

ROYAL HORTICULTURAL SOCIETY, FEB. 8.

THE fine display that met the gaze of the numerous visitors to the Drill Hall on the above date must have been most welcome. The last few days had been very cold, but here were spring flowers in all their beauty; roses, too, reminded us of coming summer, orchids of varied hues delighted the senses of sight and smell, while fruits made many long to exercise their sense of taste. It was a first-rate display throughout, and also a large one. Novelties were not over plentiful, but not many of these successfully passed the examination of the committees.

FLORAL COMMITTEE.

The bulk of the work devolved upon his committee, as there was a considerable number of exhibits brought forward, though none save Anthurium Dr. Laurence merited a certificate Primulas, ferns, early spring flowers, camellias, and euonymuses were the leading features.

A charming exhibit was the large group of freesias that came from Mr. Mowbray, gardener to Major the Hon. H. C. Legge, Slough; the specimens were beautifully flowered, and the fragrant blooms were of the purest whiteness. Mr. George Mount, Canterbury, staged two dozen particularly handsome and fragrant flowers of Catherine Mermet rose; for the season these blooms were remarkably large and substantial. Messrs. R. and G. Cuthbert, Southgate, had an attractive display of bulbous plants; the straw-coloured Roman hyacinths showed up well amid a collection of crocuses in all shades of blue, purple, cream, and white, but no yellow ones; Scilla siberica and its white variety were freely flowered. A handsome bank of primulas came from Messrs. J. Veitch and Sons, Chelsea; these were all finely developed specimens, and the varieties were very distinct; Chelsea Rose, Fringed Red, Veitch's Salmon, Gigantic Rose, and Chelsea Crimson all attracted attention by reason of the size of the flowers and trusses and the beauty of the colouring; the Star primula, and numerous double forms, including the handsome and rich Double Crimson and Double Salmon, were staged amid other varieties; baskets of blue primroses flanked the other primulas. Mr. J. Russell, Richmond, sent large baskets of the beautiful and early flowering mezereons, staging Daphne Mezereum flore-alba, and D. M. atro-rubra, the latter very fine indeed.

If anything could induce horticulturists to again take up the culture of camellias on a large scale it should be the grand exhibits that Messrs. W. Paul and Son, Waltham Cross, frequently stage at the Drill Hall early in the year. On this occasion, the clean handsome foliage on the shapely specimens, and the fine bold flowers in all shades of red and rose and white could not fail to draw attention. It is needless to particularise the varieties, but perhaps Marchioness of Exeter was as attractive as any. Mr. John Russell, Richmond Nurseries, Richmond, put up a splendid lot of euonymuses, a class of plants that needs bringing more before the public; there were numbers of neat examples of E. microphyllus, E. radicans Silver Gem, E. latifolius albo-marginatus,and standards of E. japonicus ovata-aurea, and E. j. ovata-alba; the bright shining foliage and clear colours were most attractive. Messrs. J. Peed and Sons, Norwood, put up a collection of forced plants, staging lily of the valley, lilacs, genistas, daffodils, &c., with cyclamens, begonias, Saintpaulia ionantha, and a few cypripediums and cinerarias.

Messrs. J. Hill and Son, Lower Edmonton, made up a pretty and interesting exhibit of ferns, showing large specimens of Davallia hirta cristata, Asplenium Nidus-avis, Adiantum Farleyense, Nephrolepis davallioides furcans, Davallia Tyermanni, &c.; in front of these were staged baskets of smaller plants of such interesting subjects as Pteris longifolia Mariesi, Gymnogramma peruviana argyrophylla, Adiantum rhodophyllum, A. concinnum, Cheilanthes elegans and C. hirta Ellisiana, Pteris serulata gracile, &c.; Lygodium scandens was not the least interesting plant in this group of ferns. An extensive exhibit of primulas from Messrs. H. Cannell and Sons, Swanley, attracted a deal of attention and was greatly admired. The Star primula occupied a prominent position, as did Lady Whitehead, a new cross from it. All the plants were splendidly flowered, and the several trusses made up fine pyramids of bloom; Lady Marsham, white; Mrs. R. Cannell, white and orange; Swanley Giant, deep purplish red; Cannell's Pink, and Cannell's Red, and Victory, a fine purple, were among the best.

Some glorious branches of Bougainvillea spectabilis shown by Mr. W. B. Camm, gardener to the Duchess of Cleveland, Battle Abbey, were admired as much as anything in the show, the flowers being crowded on the growth, and of the richest colour; Bignonia venusta, from the same source, was also finely represented. Two baskets of flowering sprays of Amygdalus Davidiana alba came from Messrs. J. Veitch and Sons, Chelsea. Spring flowers from Mr. T. S. Ware, Tottenham, were greatly appreciated; daffodils in pots, especially Henry Irving and Golden Spur, were very fine; irises were represented by I. reticulata in pots and pans, I. stylosa, and I. histriodes; crocuses, scillas, hellebores, saxifragas, Primula denticulata, a tiny plant of Adonis amurensis, Leucojum carpaticum, Anemone pulsatilla, and some blue primroses combined to make up a beautiful and very interesting collection. Messrs. Paul and Son, Cheshunt, sent branches of Alnus glutinosa aurea, bearing an abundance of male catkins, Helleborus colchicus in variety, H. orientalis, H. lutescens, Cyclamen coum, Pulmonaria azurea, and Saxifraga lutea purpurea, were all well represented; the hellebores were specially attractive. A big bunch of anthurium spathes, the variety, Dr. Lawrence, with spathes seven inches by eight inches and of a salmon-pink shade; the tip of the spadix yellow; leaves very large, was shown by Mr. Bain, gardener to Sir Trevor Lawrence, Bart.

Messrs. R. Veitch and Sons, Exeter, sent two flowers of Magnolia Campbelli that opened in the open air at Exeter. Messrs. R. Wallace and Co., Colchester, sent some pots of Iris reticulata, I. r. Krelagi, I. histroides, and the charming I. histrio. A very fine soft scarlet single pelargonium was submitted by Mr. R. Parker, Goodwood Gardens, Chichester, but failed to gain an award though both pips and trusses were large and shapely. Crinum zemensis with two spikes of white flowers came from the Rev. W. Shirley, Fareham.

ORCHID COMMITTEE.

Dendrobiums and cypripediums formed the bulk of the orchid display on this occasion. Both trade growers and amateurs were fairly well represented for thus early in the season.

From Messrs. J. Veitch and Sons, Chelsea, came a pretty group of orchids, dendrobiums making up the bulk of the exhibits; D. Cordelia flavescens, D. euosmum, D. Endocharis, D. Schneiderianum, D. Domini, D. aureum, and D. crassinode, made a charming display, and among them also contributed a delightful fragrance; cypripediums well shown were C. Godseffianum, C. Adrastus—the fine hybrid between C. Leeanum and C. villosum Boxalli—C. Creon, and C. Lathamianum, the latter carrying ten very fine flowers. Epidendrum O'Brienianum, Cirrhopetalum picturatum, and Platyclinis glumacea valida, were other interesting orchids shown by the Chelsea firm. Messrs. H. Low and Co.'s contribution included several good forms of Odontoglossum crispum, Laelia cinnabarina, L. anceps alba, Cypripedium Preweti, a new hybrid having C. villosum as one parent; Cattleya Trianæ plumosa, a very pretty form with rich, violet purple tips to the petals; Dendrobium nobile Ballianum, a white variety;

D. Luno, and D. Venus, were staged amid various odontoglots, dendrobes, platyclinis, and cypripediums, &c. Cœlogyne cristata in variety, made a good show in a group staged by Messrs. B. S. Williams and Co., Upper Holloway; the curious Cypripedium Carnosianum, C. Ashburtonianum superbum, C. Pitcherianum, Williams' variety, C. euryandrum, and C. Sallieri, and a deeply-coloured form of C. Spicerianum, were especially noticeable; Sophronitis grandiflora was very attractive in this exhibit. Mr. Miller, gardener to Lord Foley, Esher, staged a group of the typical Cypripedium insigne; a freely-flowered lot of plants.

Lælia anceps Waddoniensis was shown by Mr. Harris, gardener to Philip Crowley, Esq., Waddon House, Croydon; this is a very handsome white sepalled and petalled variety, with golden crest and pale veins in the throat. Mr. W. Murray, gardener to Norman Cookson, Esq., Wylam-on-Tyne, sent a few of his wire orchid stands, showing the manner in which they are used. Mr. Rolfe, gardener to P. B. Tubbs, Esq., sent a fine Cattleya Trianæ, with a wonderfully fine lip. Odontoglossum Rossi rubescens Rosefield var. is a beautiful odontoglot, with handsome deep chocolate markings on the rosy segments; this came from De Barri Crawshay, Esq. Messrs. J. Veitch and Sons showed Lælio-cattleya Myra, a fine golden form obtained by crossing L. flava and C. Trianæ; Calanthe Ariadne, Cypripedium Enid (C. bellatulum crossed C. Spicerianum) and C. Lathamianum superbum, a magnificent orchid. Mr. Empson, gardener to Mrs. Wingfield, Ampthill, sent a very good form of Dendrobium nobile. Mr. Norman Cookson showed a new calanthe, a gloriously rich red form, with crimson shading; Mr. Cookson also submitted Cypripedium Ceris, C. Sandero-superbiens, Lælio-cattleya Doris, and spikes of Cypripedium Morganiæ and C. Youngianum superbum, both carrying very fine flowers. Messrs. Sander and Co., St. Albans, sent Lycaste Skinneri alba, an ever welcome orchid; Cattleya Triana, with violet purple apices to the petals; Oncidium splendidum and Calanthe rubens alba, a pretty small-flowered form, but with long and freely flowered spikes. Mr. Chard, of Clapham Common, sent a richly coloured form of Cypripedium Chapmanni, and Mr. T. Patterson, gardener to S. G. Lutwyche, Esq., Eden Park, Beckenham, showed a bold form of Cypripedium villosum. Mr. Stevens, gardener to W. Thomson, Esq., Walton Grange, Stone, Staffs, sent a pair of handsome odontoglossums—O. excellens spectabile, with yellow flowers spotted with chocolate-red, and O. hystrix grandis, a superb form with fringed segments.

Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., staged some very interesting orchids, and good specimens in every case of Odontoglossum crispum, O. Andersonianum, a grand variety, and with splendid branched spikes; Cattleya Percivaliana, a lovely form; Dendrobium nobile Burford var., D. chrysodiscum Hebe, D. endocharis; D. Juno, D. Burfordiensis; Brasso-cattleya Lindleyana, Angræcum pertusum, a quaint orchid, with stiff spikes of small white flowers; this specimen has been at Burford Lodge since 1878. Masdevallia polysticta purpurea, Angræcum eburneum, and Sophronitis grandiflora also graced the collection. Mr. W. H. Young, orchid grower to Sir F. Wigan, Bart., East Sheen, showed Lælia pumila præstans, and the curious brown-spotted Odontoglossum Schillerianum.

FRUIT COMMITTEE.

A small number of exhibits of fruit and vegetables were forthcoming on this occasion.

Apples in fine condition came from Mr. George Mount, Canterbury; these were splendidly kept examples of Cox's Orange Pippin, King of the Pippins, Court Pendu Plat, Bess Pool, Bismarck, Mère de Ménage, Gloria Mundi, Wellington, Lord Derby, and Northern Greening; these and Blenheim Orange were all firm and of fine colour and quality. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, sent two boxes of good mushrooms grown outside under straw; Mr. Miller also sent a few dishes of late apples and pears. Mr. J. Clarke, gardener to S. Keene, Esq., Barnes, gained a cultural commendation for a basket of very good mushrooms. Mr. Thomas, Royal Gardens, Windsor, gained an A.M. for his cucumber, named Every Day, a cross between Rochford's Market and Dickson's All the Year Round. Messrs. Sutton and Sons staged two baskets of fine firm heads of their Superb Early White broccoli, a famous winter variety; they also showed a basket of Bountiful peas, grown without heat under glass from seed sown October, 1897.

For the Veitch flavour prizes, Mr. Divers, Belvoir Castle Gardens, was first for apples, with Cox's Orange Pippin; Mr. Woodward, second, with Calville Blanche. For pears these gentlemen reversed positions, Mr. Woodward, Barham Court Gardens, Sevenoaks, winning with Passe Crassane; and Mr. Divers coming second with Olivier des Serres.

MEDALS AWARDED.

On this occasion, a sub committee, consisting of three members of each of the three committees, were deputed to make awards to the groups. Their finding was as follows:—Silver-gilt Flora medal to Messrs. W. Paul and Son, Waltham Cross; silver-gilt Banksian medal to Mr. J. Hill, Lower Edmonton; ditto to Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart.; silver Flora medals to Messrs. J. Veitch and Sons, Chelsea, and Messrs. Cannell and Sons, Swanley; silver Banksian medals to Mr. Mowbray, gardener to Major the Hon. F. C. Legge, and Mr. G. Mount, Canterbury; Bronze Banksian medals to Messrs. J. Peed and Sons, Norwood; Mr. Miller, gardener to Lord Foley, Esher; and to Messrs. Hugh Low and Co., Clapton.

ANNUAL MEETING.

The annual general meeting of the society was held, as usual, in the Lindley Library. The President—Sir Trevor Lawrence, Bart.—occupied the chair, and was supported by the Council. There was a very large attendance. The usual formalities having been disposed of, Messrs. Harry Turner and George Bunyard were appointed scrutineers of the ballot. A vote of thanks to the retiring councillors was proposed by Mr. H. J. Pearson, Beeston, and seconded by Mr. George Gordon, each speaker referring to the able services rendered by Mr. James Douglas for so many years past.

Sir Trevor Lawrence then moved the adoption of the report—already published in our columns—and passed in review its salient features. The great success of the Drill Hall, Temple, and Crystal Palace shows, and the large increase in the number of Fellows during the past year were matters dealt with at length. Sir Trevor remarked that he hoped some day the society would be able to settle the question of a Home for Horticulture; they had a nice surplus, and if only the members would subscribe two guineas per year instead of one, he thought it would not be many years before their treasurer would tell them they might have a hall such as they all desired. Referring to Chiswick, he eulogised the services of Mr. S. T. Wright, the superintendent, and stated that during the present year the Council hoped to have all glass structures there put into proper repair. A gathering of the committees would again take place at the Chiswick Gardens this year. He considered no society gave its members such a good guinea's worth as did the R.H.S., the *Journal* was worth the money, and in its production they were greatly indebted to their secretary, the Rev. W. Wilks. In addition to this there was free admission to the shows and to Chiswick, and the Fellows could now have the services of Dr. Voelcker, the celebrated chemist, at half the usual charges. Sir Trevor stated that the catalogue of the Lindley Library would soon be completed. In conclusion, he tendered the thanks of the Council to those who had provided scholarships, to Messrs. Grahame and Sherwood for special prizes, and to the lecturers of the past season.

Mr. A. Dean complained of the action of the Council in interfering with the privileges of the members of the several committees. On that day there had been several members selected from each body to form a composite committee for making awards to the groups at the Drill Hall. He considered each committee should perform its own work, as it was better qualified to do that than to interfere in the work of the others. He thought there would be no objection were the Council to express a wish that each committee should depute a sub-committee of its own members to adjudicate upon groups of produce coming under its cognizance, so as to expedite the work. It was evident from the tone of the meeting that Mr. Dean's remarks were opportune. Sir Trevor Lawrence said that the matter was coming before the Council, and he had already seen it necessary to suggest that each committee select its own sub-committee to examine the groups. Mr. Richard Dean said that the Floral Committee deeply felt the action of the Council in this matter, for that body had invariably done what the president had now suggested as advisable whenever there was a large amount of work to be done. Dr. J. Ince alluded to the report as a most favourable one, and eulogised the work done by the secretary. He considered that as a society they did not get a profitable return from the Chiswick Gardens either in income or educational results. He thought the medals had been too freely awarded at the Drill Hall meetings; but the meeting objecting to this, Dr. Ince proceeded to say of course it was but right that those who helped to produce the displays should have some recognition. Dr. Masters seconded the adoption of the report, and said that he still held to a formerly-expressed opinion that Chiswick did not yield such valuable results as it should in respect to horticultural education and advancement. He thought that Dr. Voelcker's services would prove of great value. The report was then adopted.

The scrutineers then handed in their report, which showed that Sir Frederick Wigan, Bart., Mr. J. Gurney Fowler, and Mr. James Hudson had been elected to fill the vacancies arising in the Council by the retirement of Messrs. N. C. Cookson, J. Douglas, and T. Gabriel. The official business having concluded, Mr. B. G. Berry, Boughton, Fareham, brought forward the question of the Black Currant Mite, which, he said, was crippling the small-fruit industry of Kent, and if not speedily checked would result in the growers having to entirely give up the cultivation of black currants. He thought the combined wisdom of the Scientific Committee might with advantage be brought to bear upon this subject. Sir Trevor stated that the question would be brought before the committee, and asked Mr. Berry to remain and give evidence. A vote of thanks to the President for presiding, proposed by Dr. Ince and seconded by Mr. G. Wythes, concluded the proceedings.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY, FEBRUARY 15, 16, 17, AND 18.—Lilies, Azaleas, Orchids, Roses, Plants, Shrubs, &c., at Protheroe and Morris's Room.

MONDAY, FEBRUARY 14.—Border Plants, Shrubs, Roses, Fruit Trees, &c., at J. C. Stevens's Rooms.

WEDNESDAY, FEBRUARY 16.—Great Rose Sale, also Plants, Fruit Trees, Shrubs, &c., at J. C. Stevens's Rooms.

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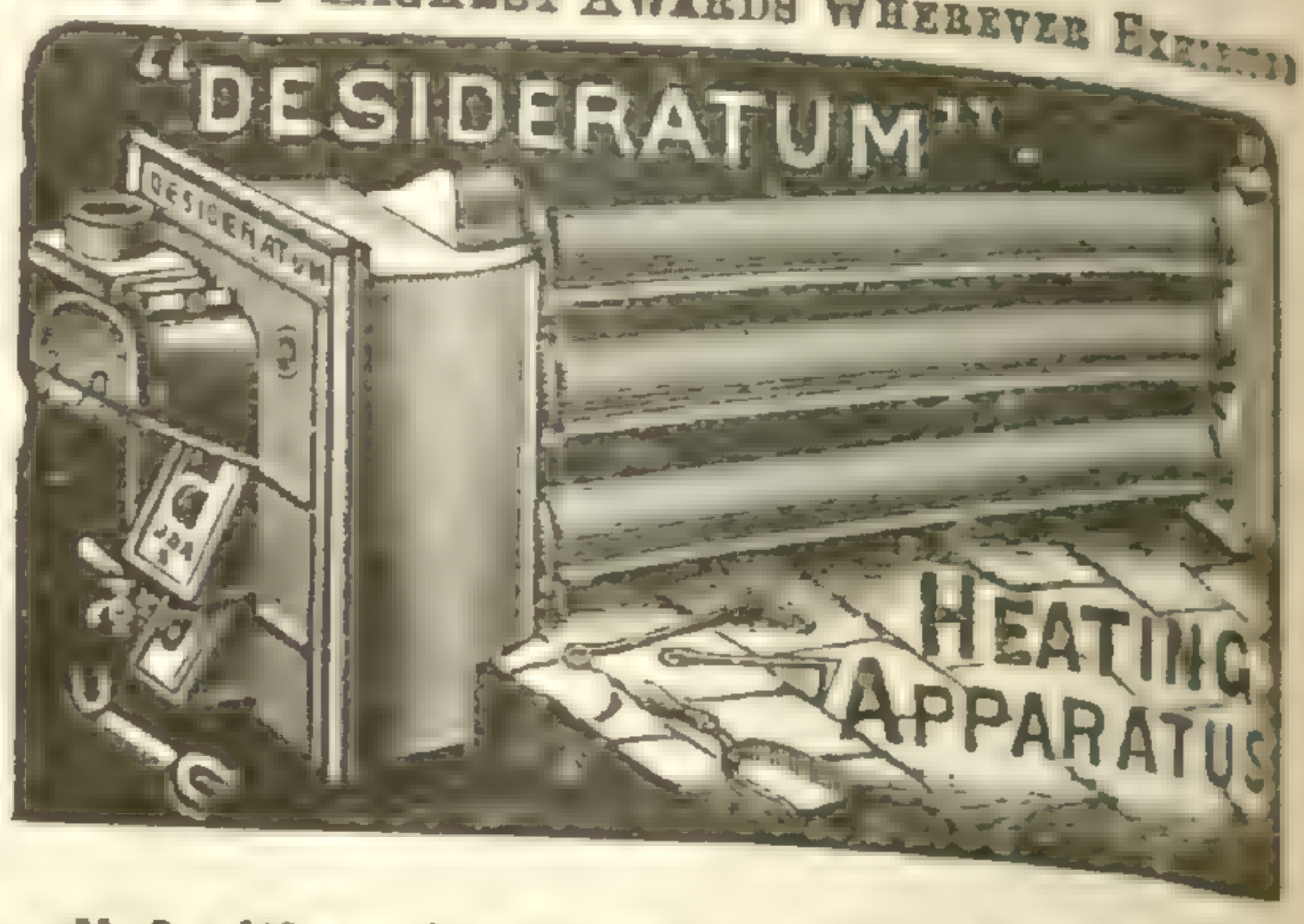

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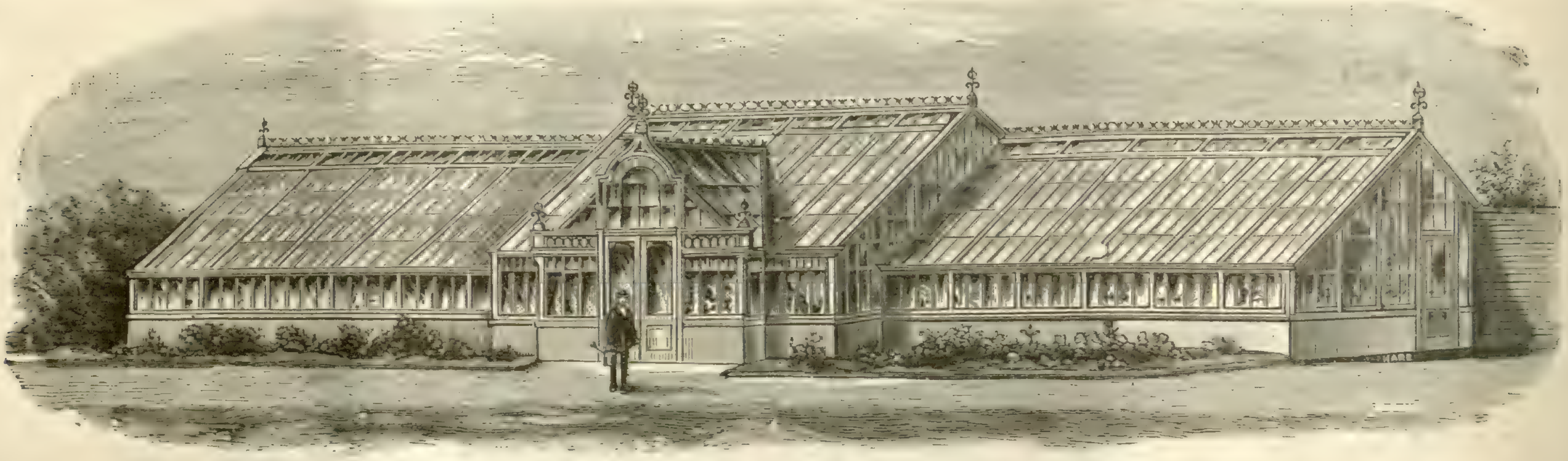

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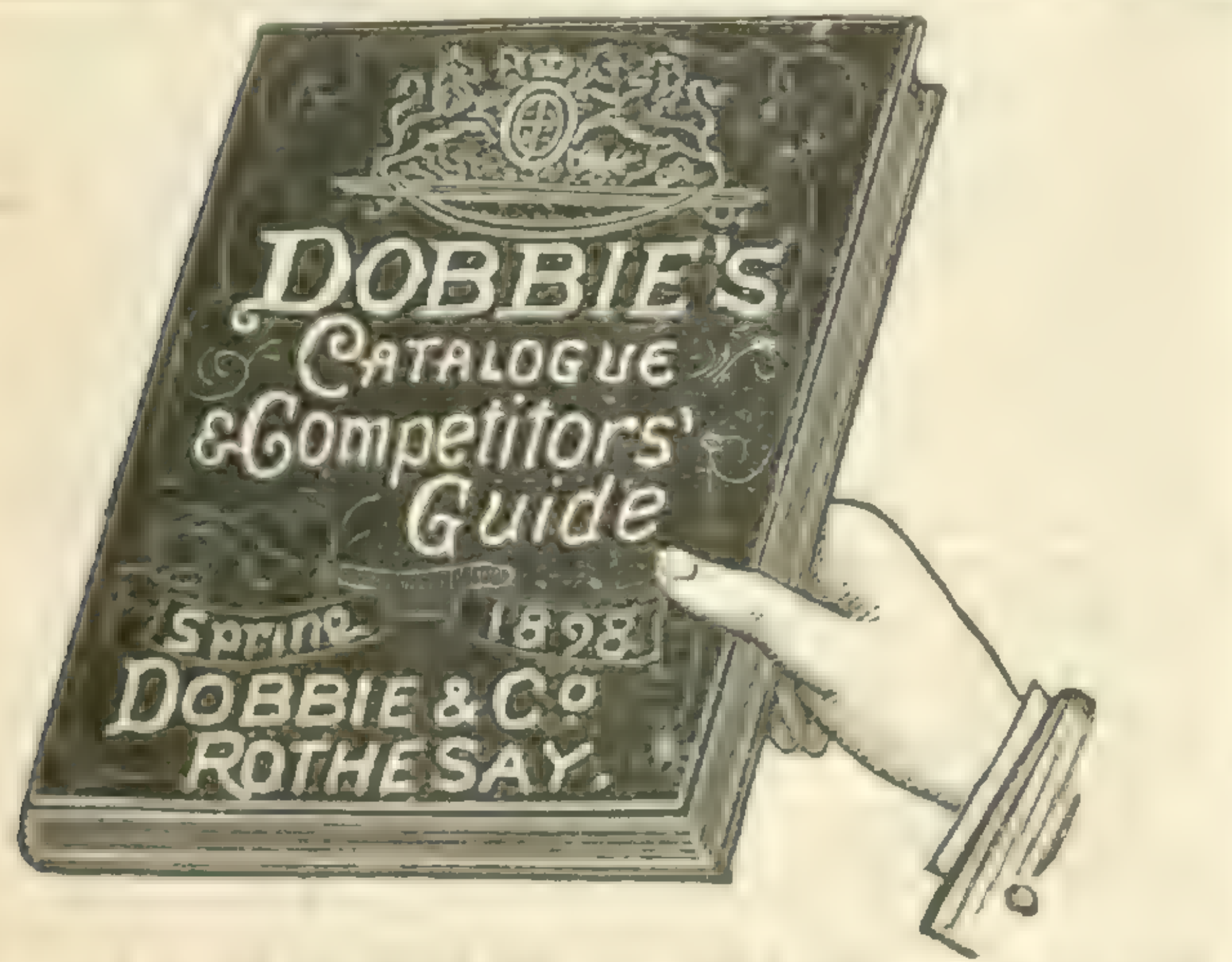

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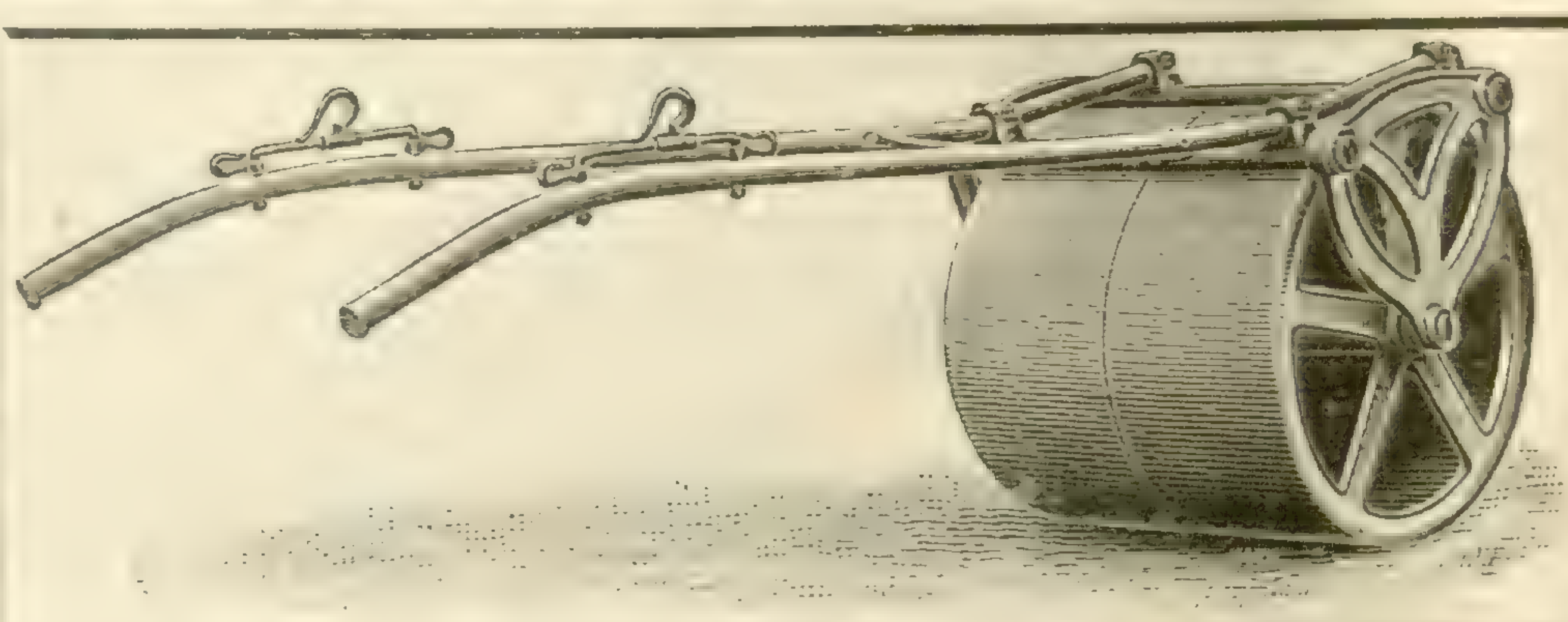

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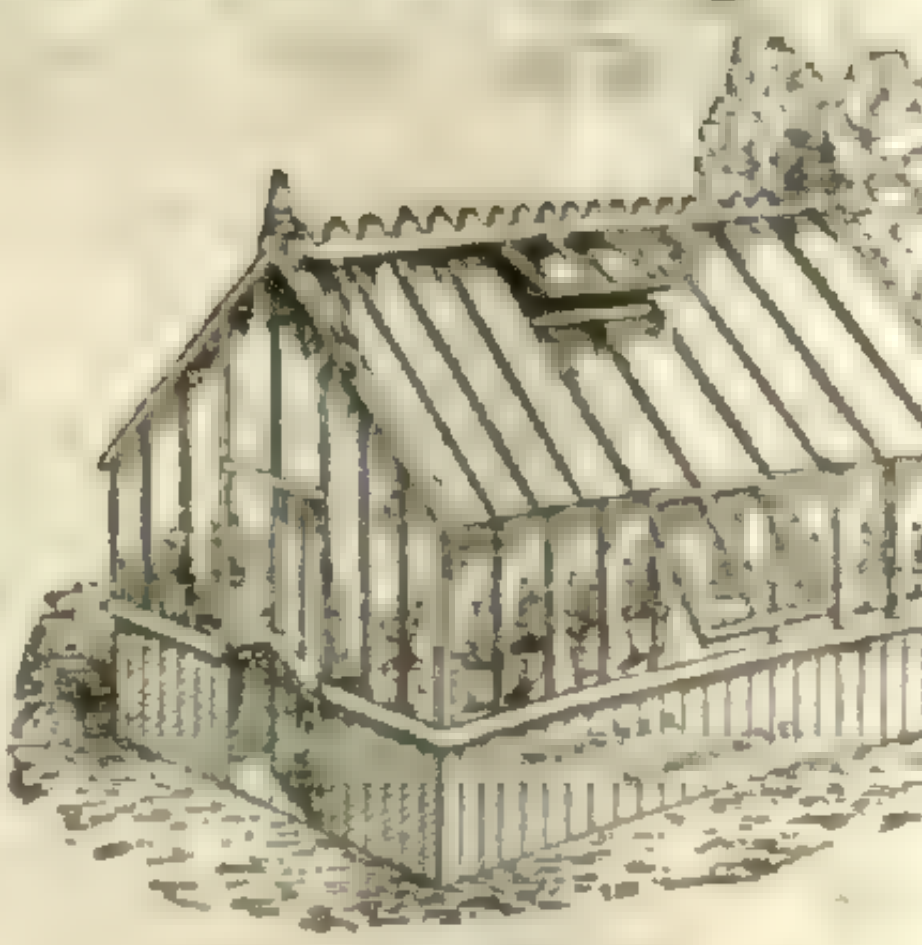

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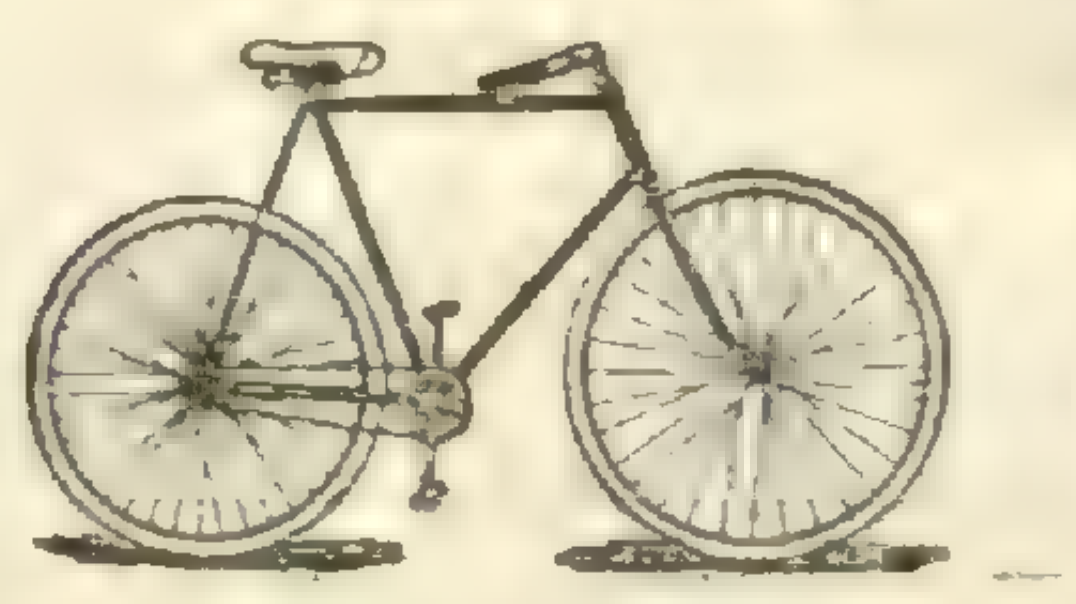

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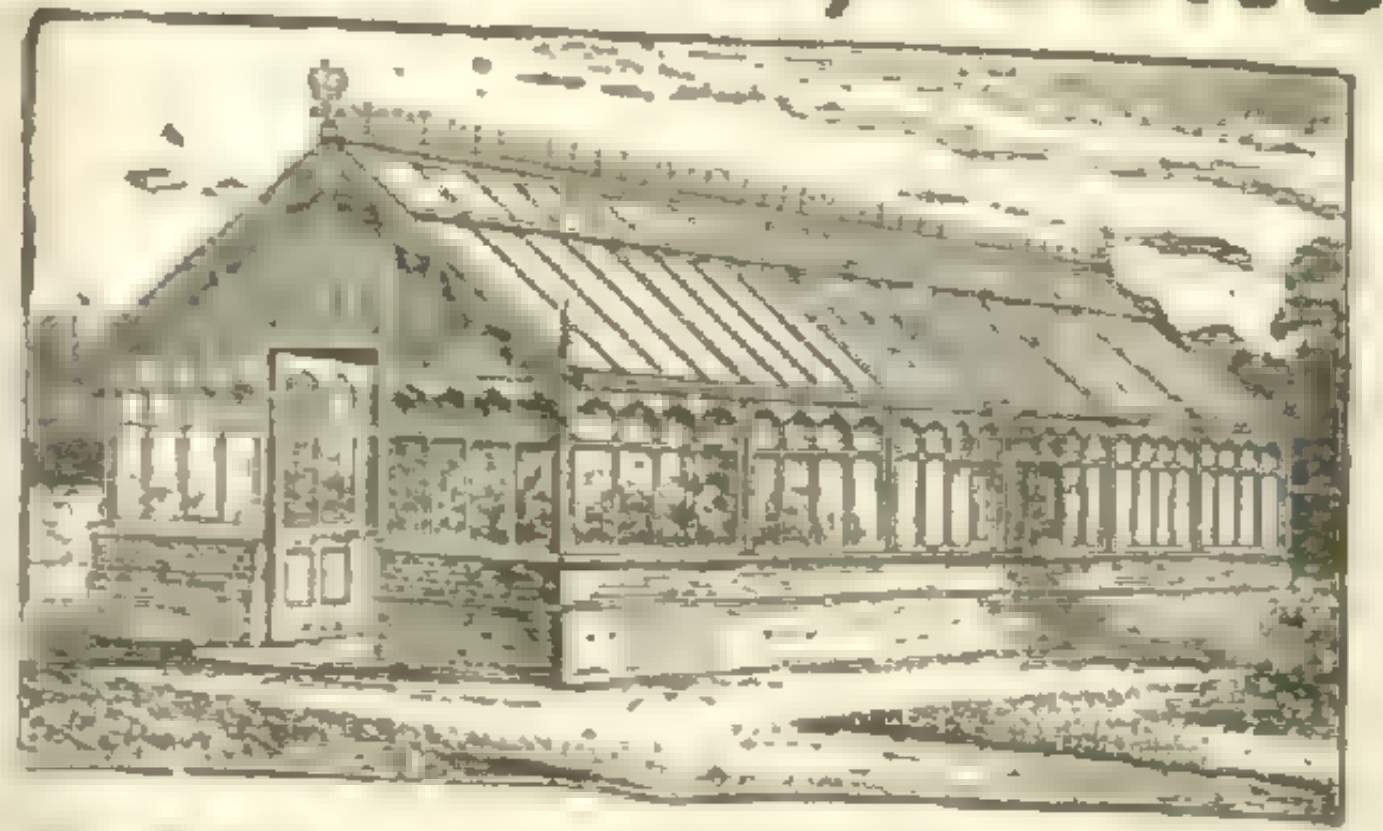

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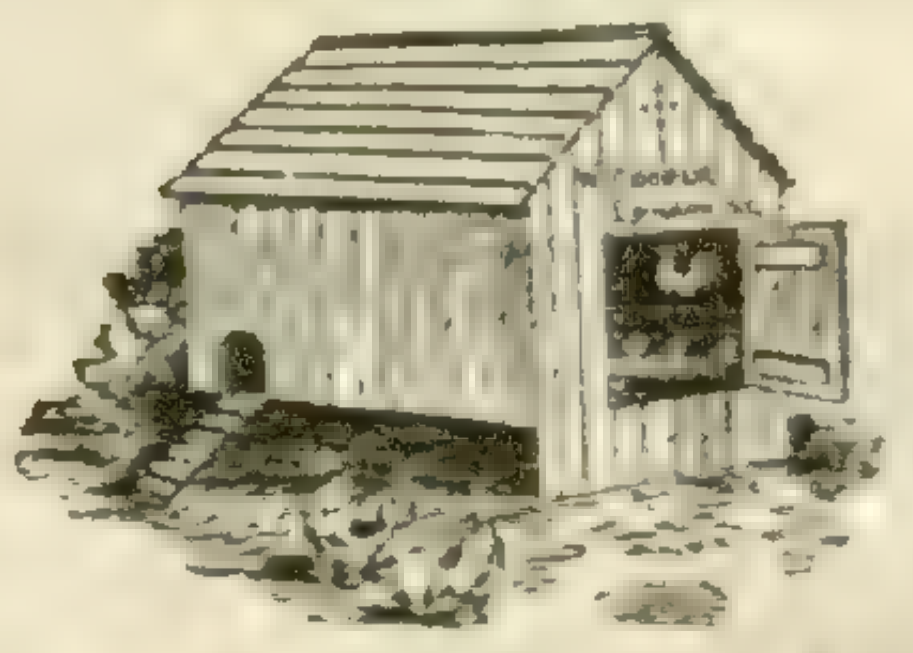

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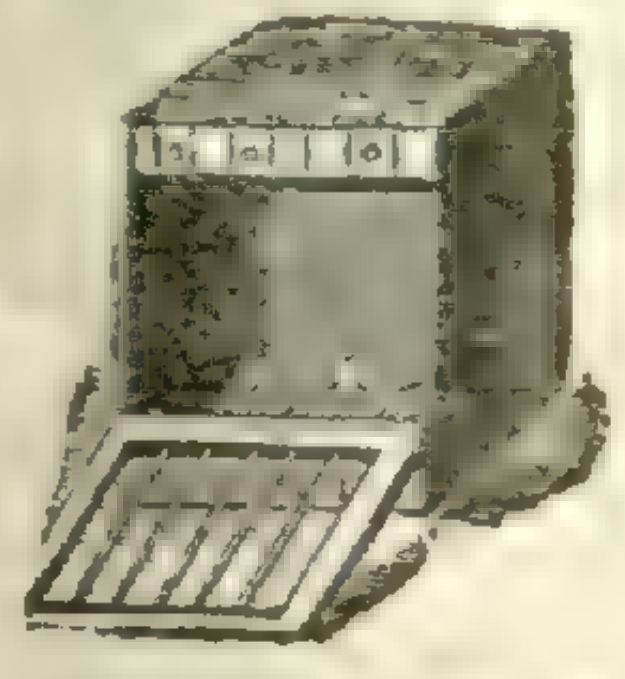

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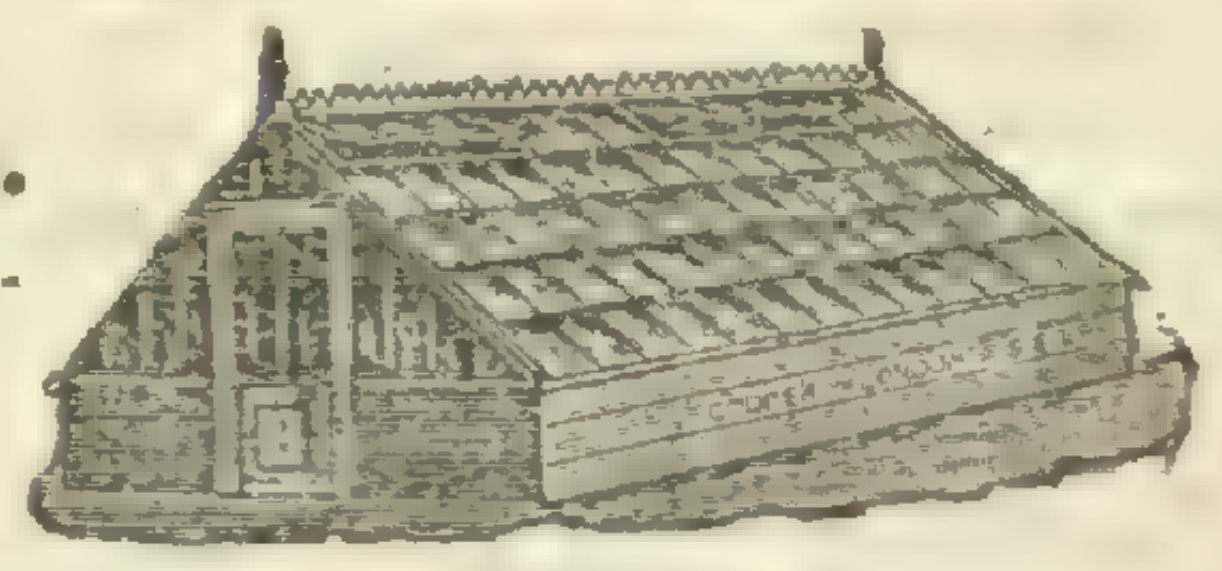

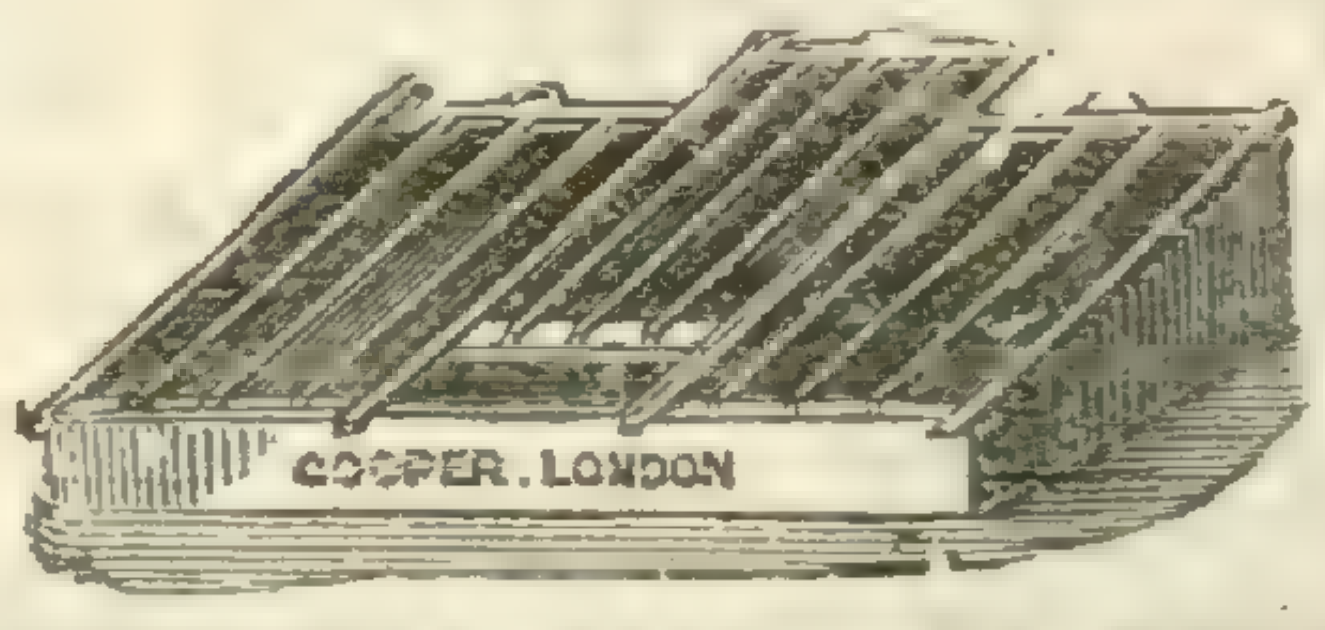

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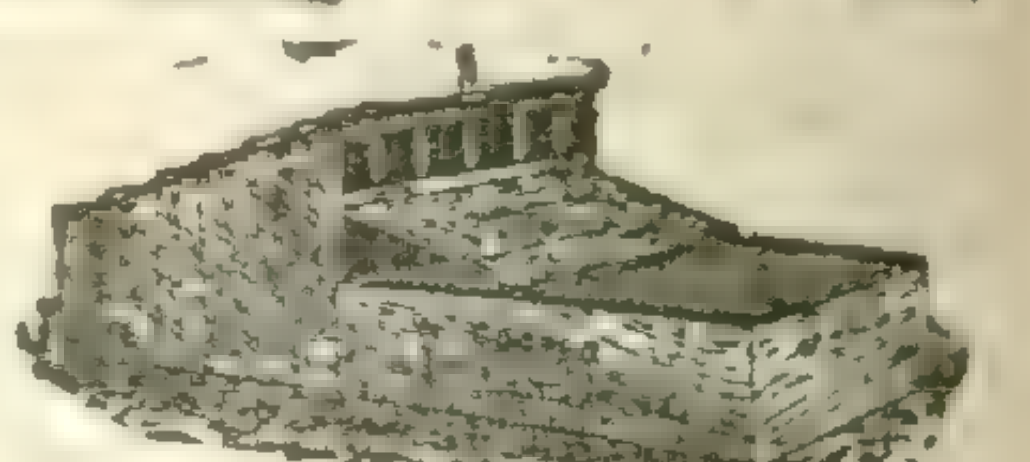

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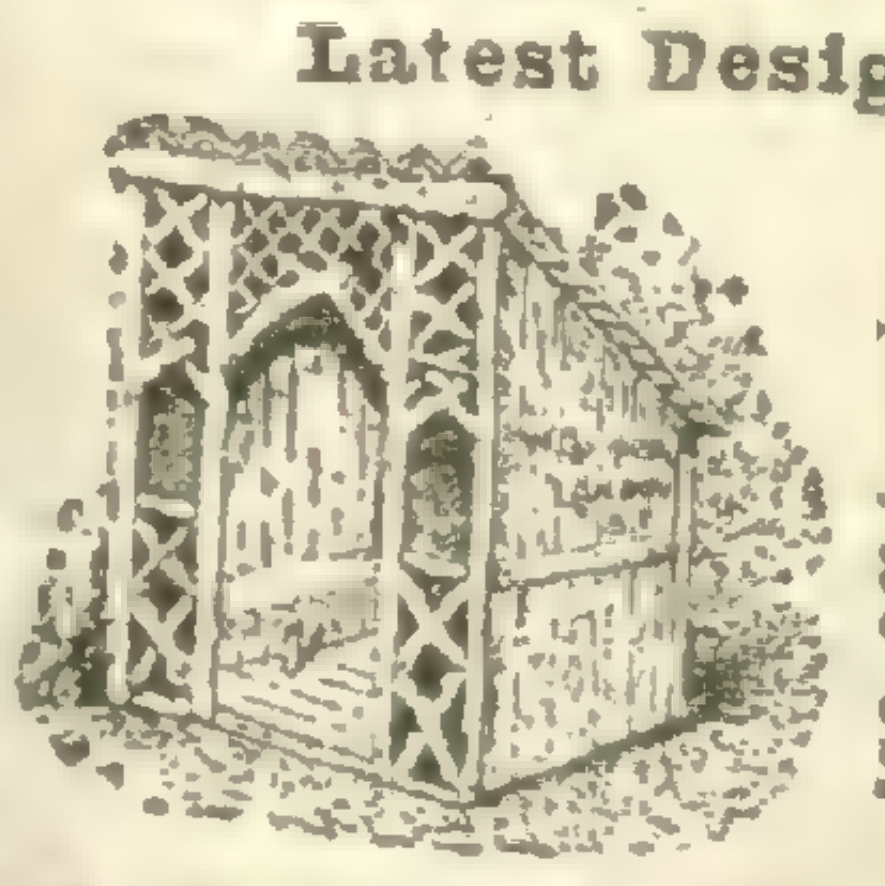

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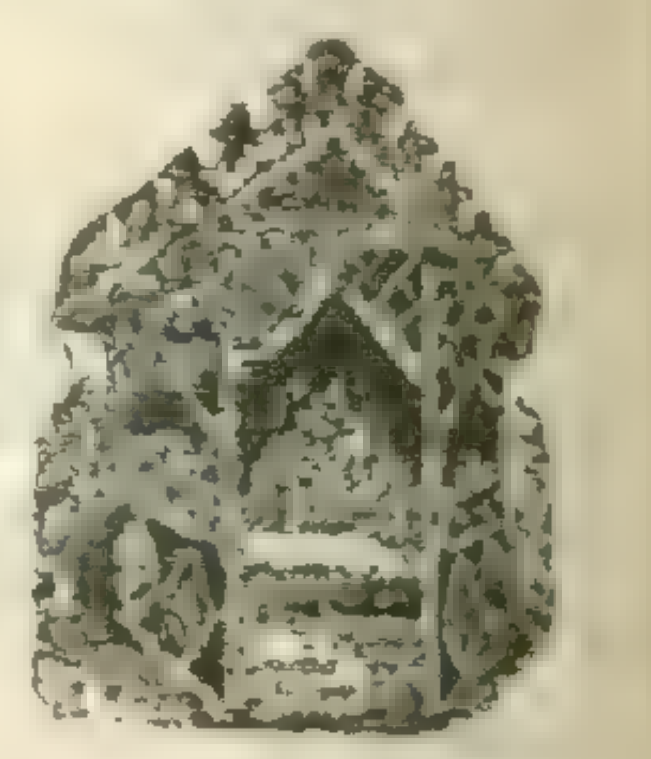

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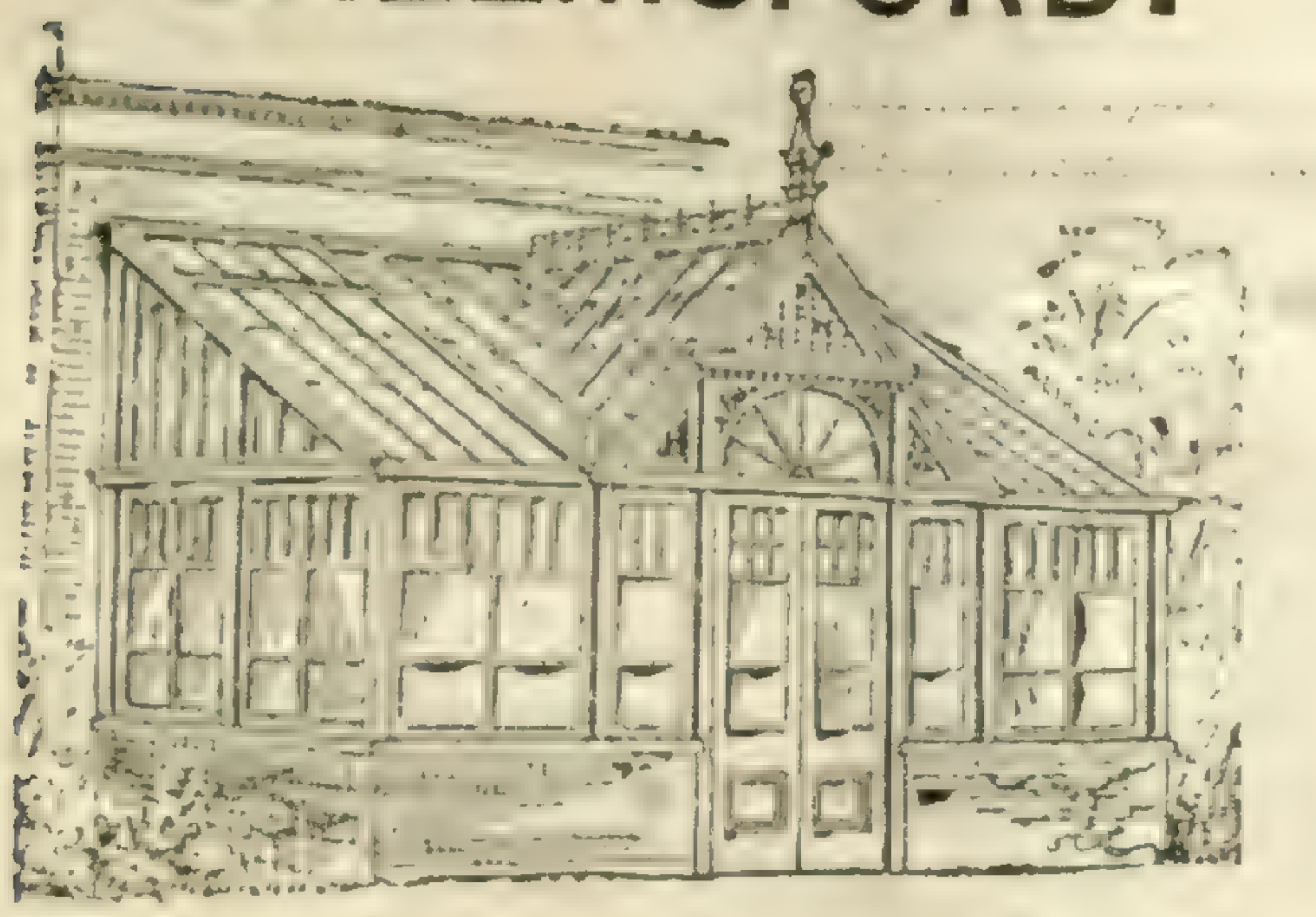

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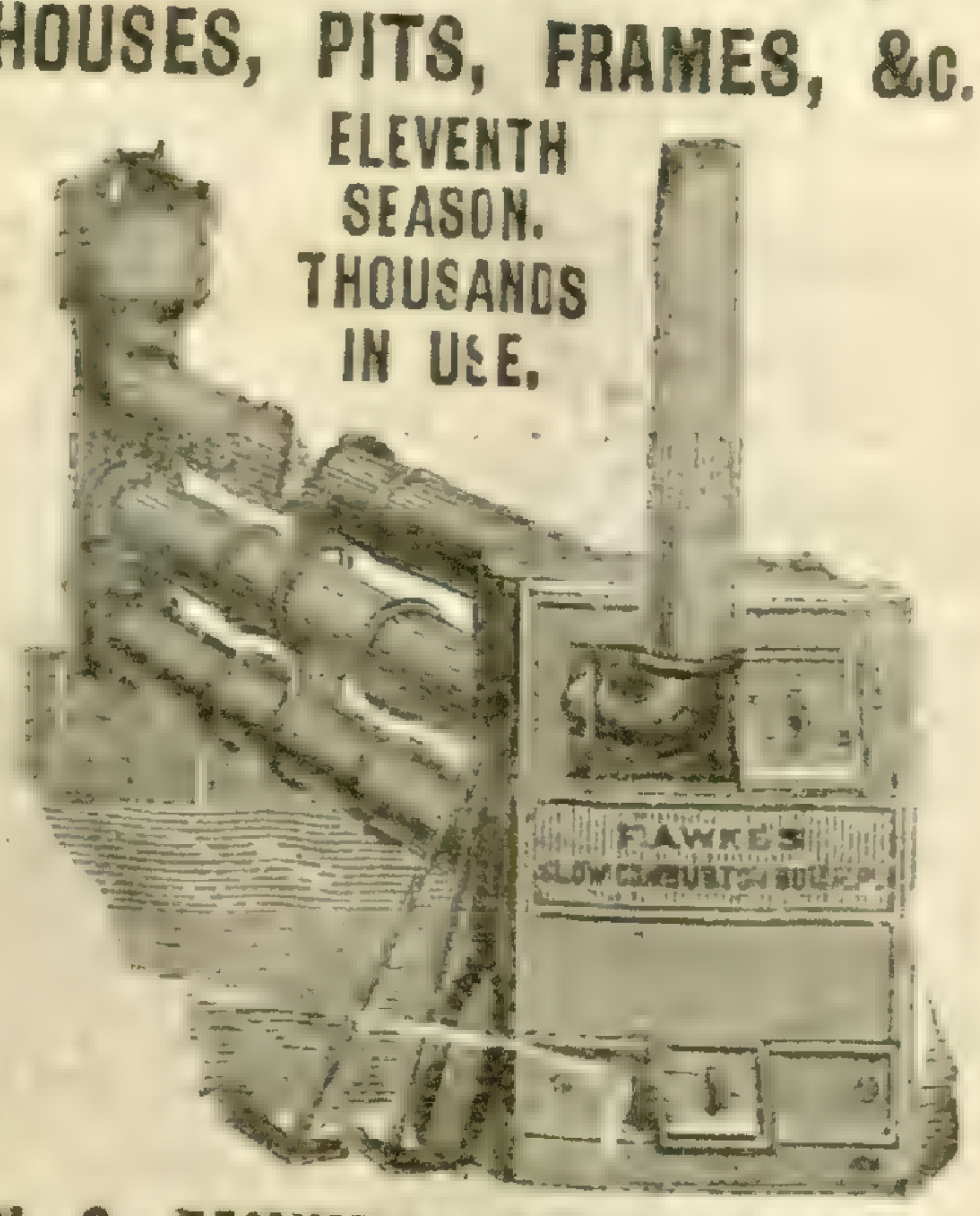

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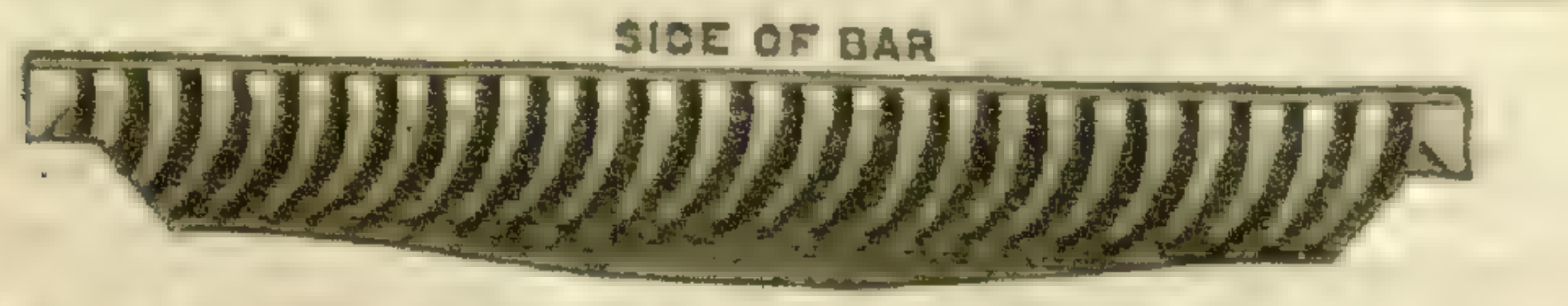

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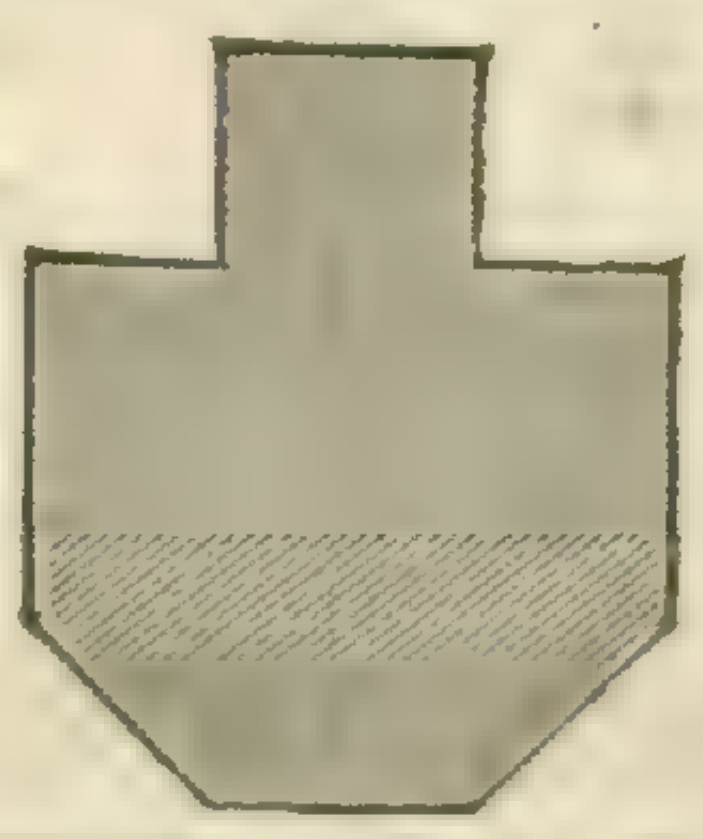

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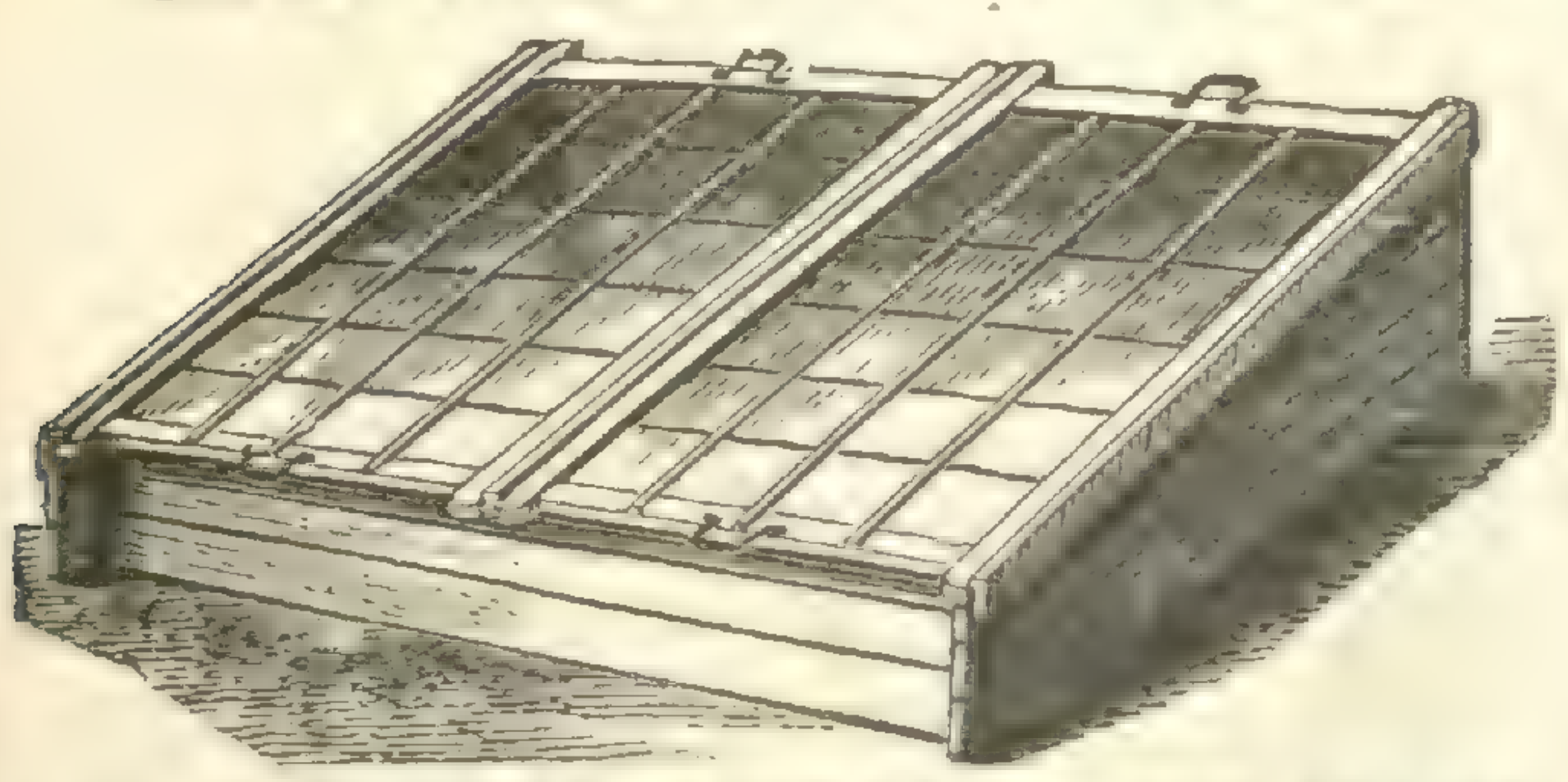

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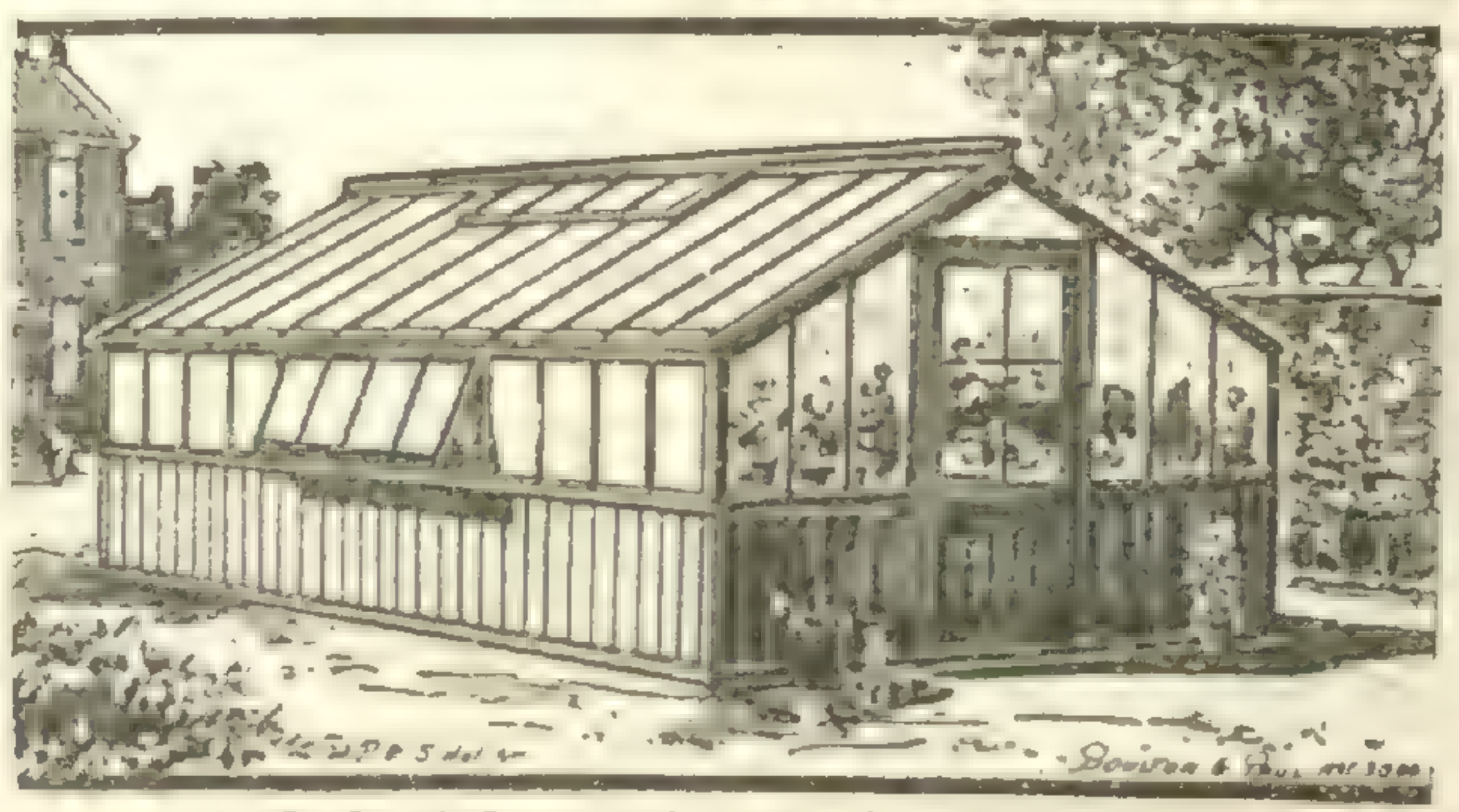

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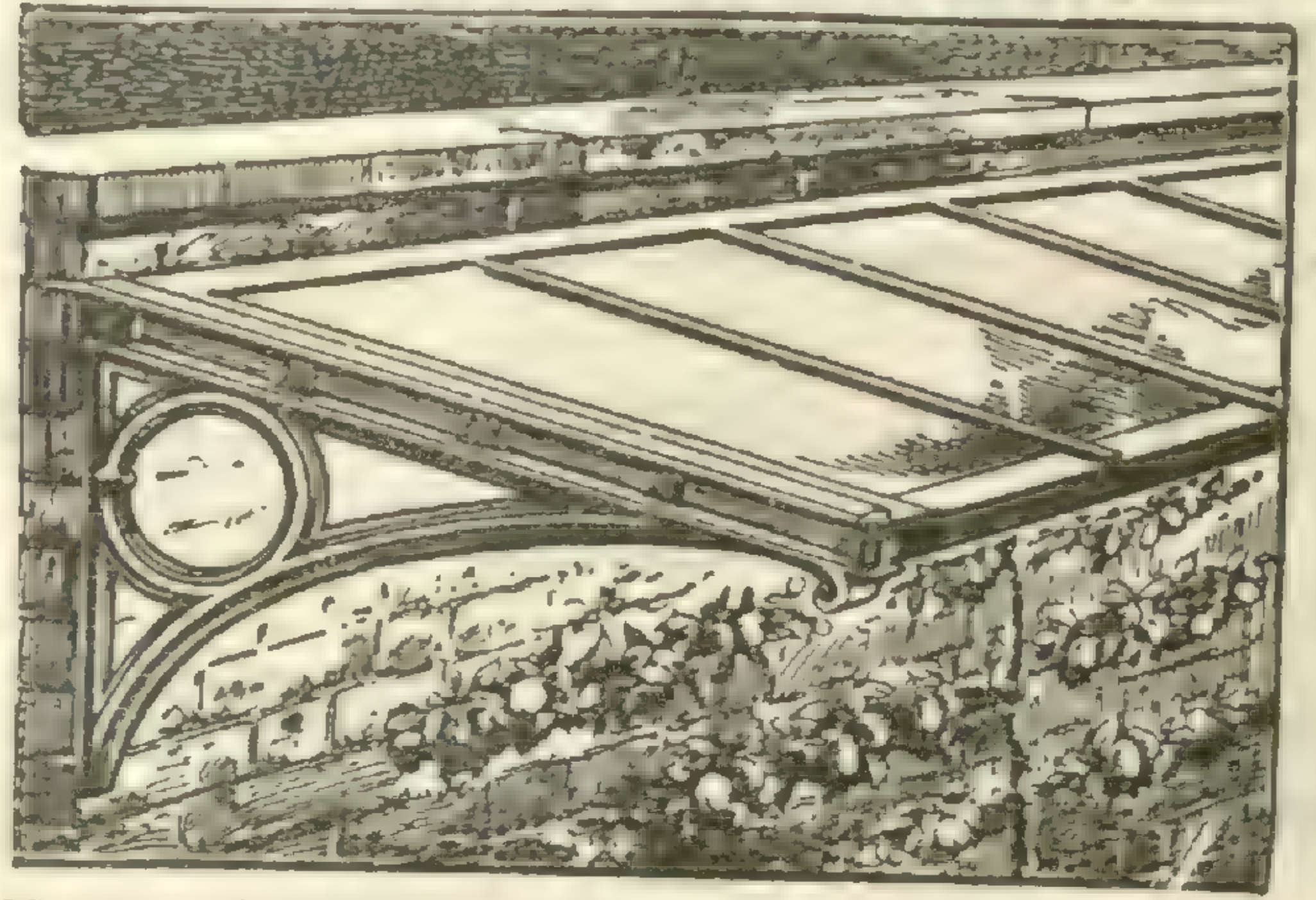

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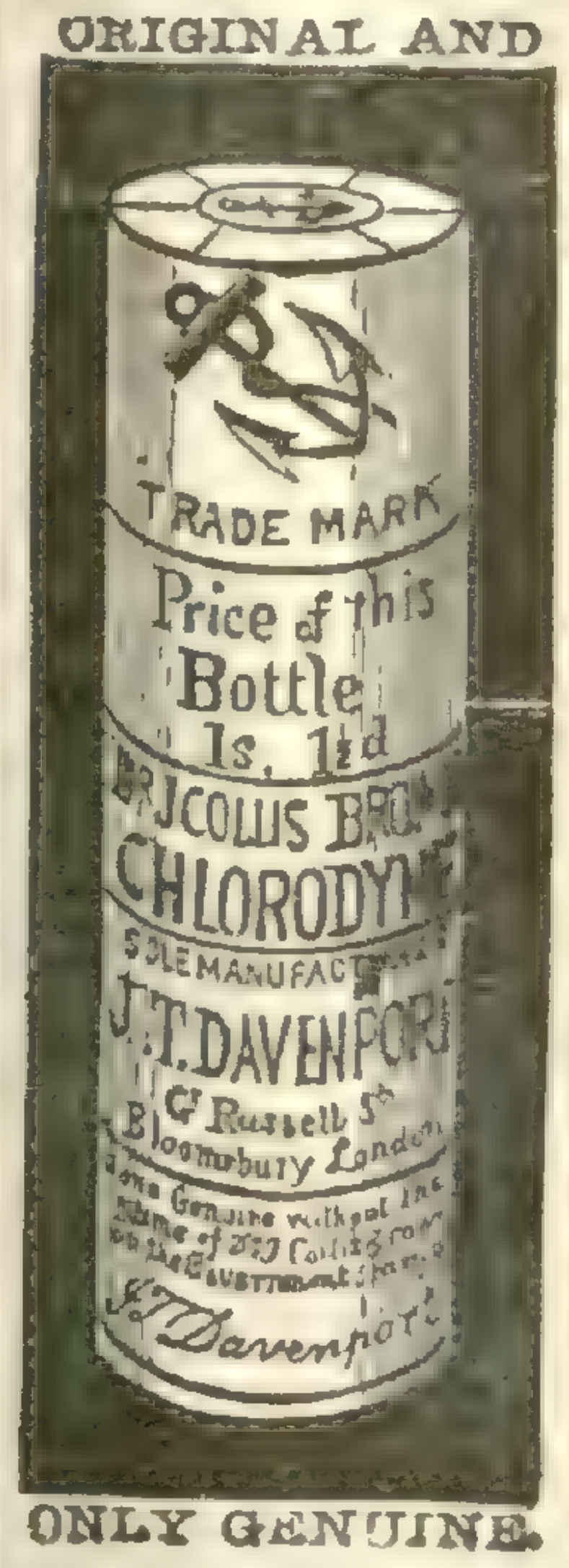
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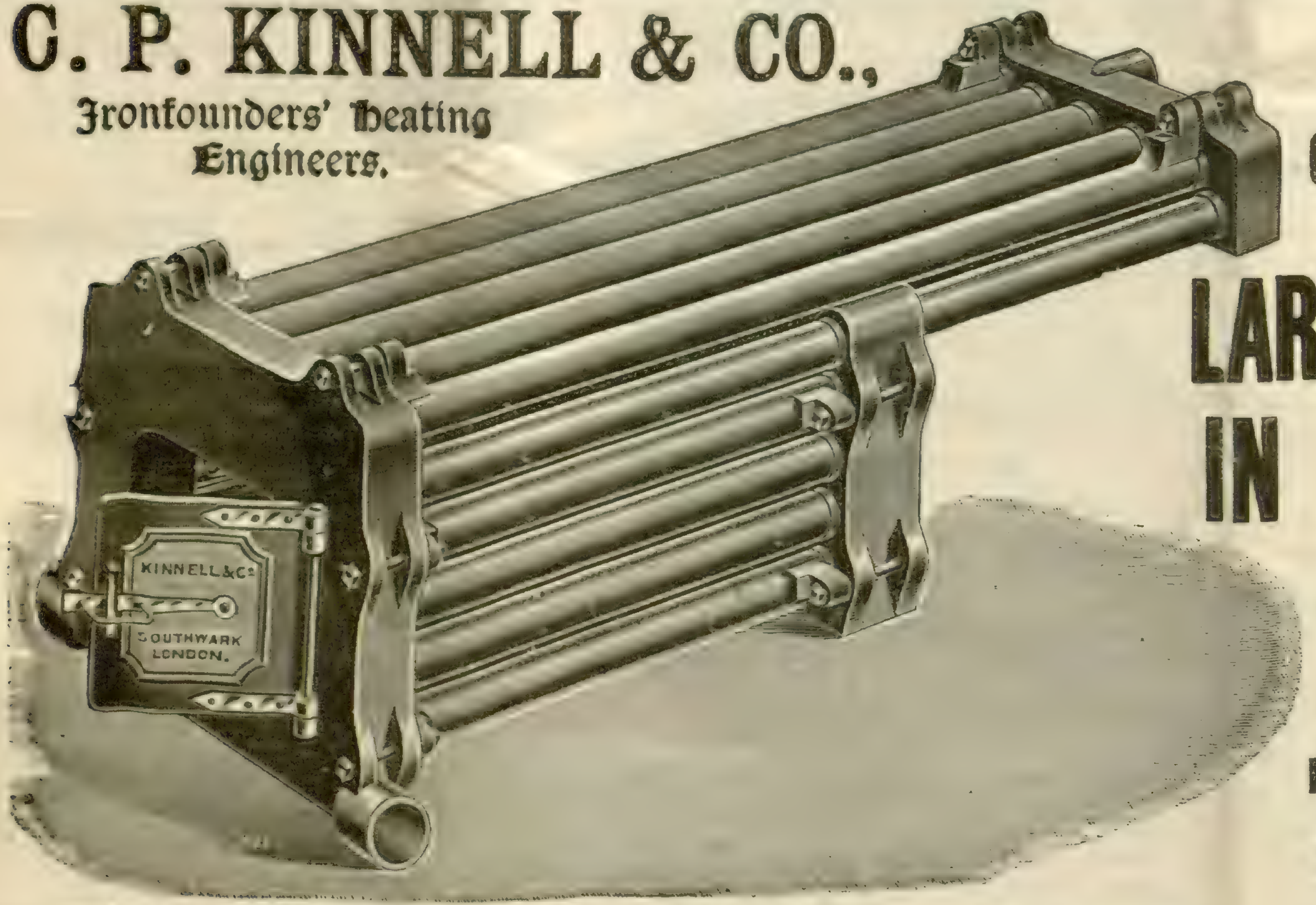

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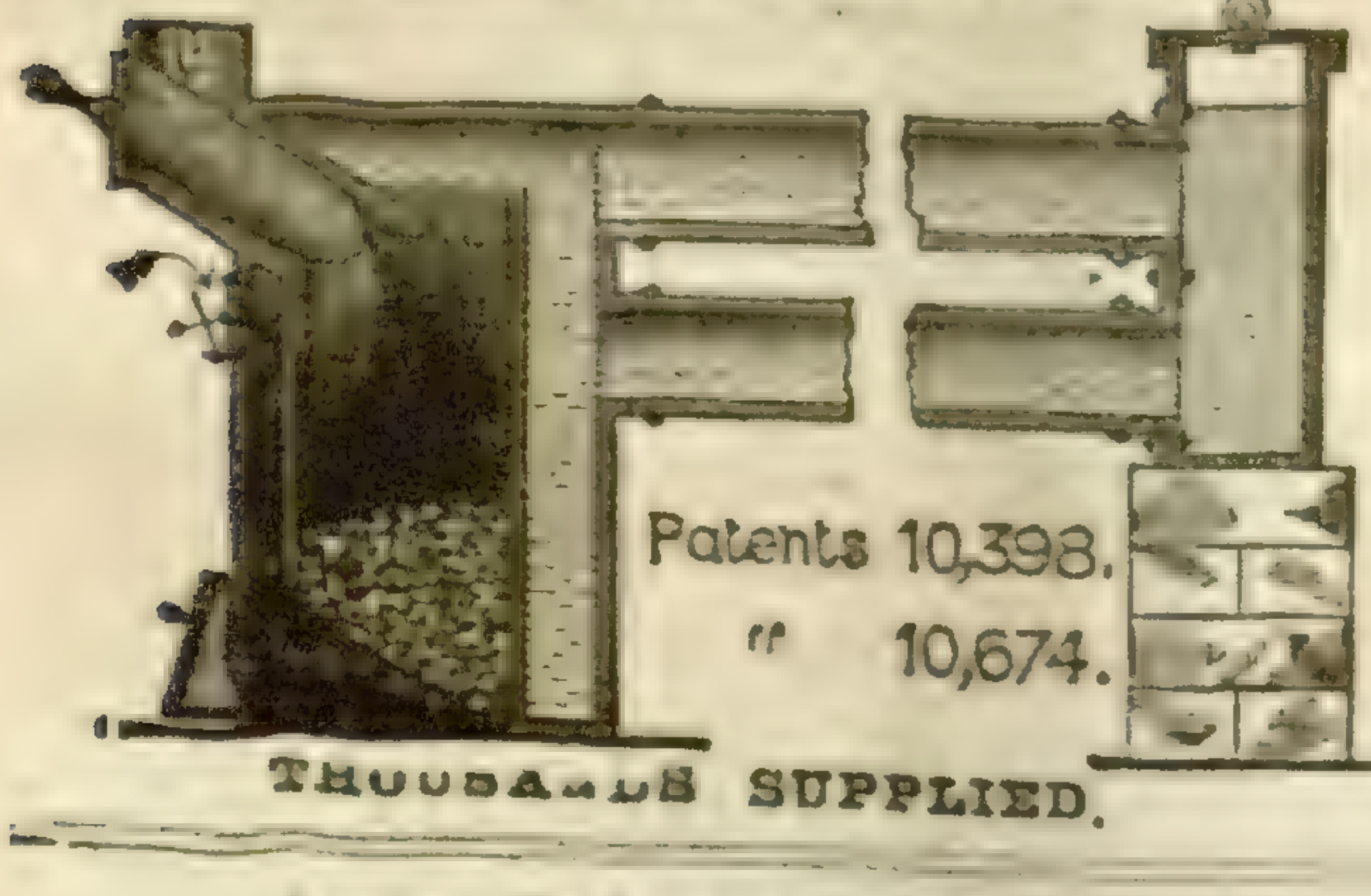

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GARDENER (Head Working), or Gardener and Orchid Grower.—Mr. Hill, gardener to Lord Rothschild, Tring Park, can confidently RECOMMEND his FOREMAN to any lady or gentleman requiring the services of a thoroughly experienced man, 14 years in present place; age 36; married.—J. Philcox, Tring Park.

GARDENER (Head Working, where three or four are kept). J. Reynolds, gardener to V. J. Watney, Esq., can thoroughly RECOMMEND his GENERAL FOREMAN to anyone requiring a good, trustworthy man; four years' character; age 30; married when suited; abstainer.—H. Prestney, Littlecote, Hungerford, Berks.

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GARDENER (Head Working, or Good Single-Handed); life experience in all branches; decorations, stove and greenhouse plants; also practical kitchen gardener; age 32; single.—H. M., 7, Dudley Terrace, Southall, Middlesex.

GARDENER (Single-handed, or where help is given); pony not objected to; eight years' practical experience Inside and Out; age 23; single; Essex preferred. State wages to F. Moss, 13, Windsor Place, Harrow Road, London, W.

GARDENER (Single-handed or good Kitchen Gardener); thoroughly experienced; married; one child, age 12 years; good character from present employer. —D. Lawrence, Aston, Remenham, Henley-on-Thames.

GARDENER (Single-handed or otherwise); age 27; single; good reference.—Address C. S., 21, Bailey Street, Deri, near Bargoed, Glam, S.W.

GARDENER (Single-handed); age 24; single; eight years' experience in all branches; good testimonials.—E. Dexter, The Gardens, Norwood Hall, Sheffield.

GARDENER (Single-handed); age 25; married when suited; seven years' experience in good gardens, Inside and Out; excellent references from past and present employers.—G. Mann, Gardens, High Firs, Harpenden, Herts.

GARDENER (Single-handed or otherwise); good practical all-round; married, no family; London suburbs preferred.—T. R., 27, Palmerston Road, Wandsworth, S.W.

GARDENER (Single-handed or Under); 7 years' experience; 4½ years' good character; single; abstainer.—White, 56, Branksome Road, Acre Lane, Brixton.

GARDENER.—SITUATION WANTED; experienced in fruits, flowers, and vegetables; good character; age 29; married.—E. Sitch, 49, Woodstock Road, Bedford Park, Chiswick.

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GARDENER.—Young Man SEEKS SITUATION as Under Gardener; good character; single; age 25.—Apply to J. Trowbridge, Highwood Cottages, near Romsey, Hants.

GARDENER (Under).—Young Man, age 20, WANTS SITUATION in the Houses; good character and knowledge of work.—H. Penn, Lyminster, Arundel, Sussex.

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JOURNEYMAN (First in Good Establishment, or Gardener, Second); age 24; first class testimonials; disengaged; abstainer.—E. Rogers, 158, Surrey Hill Road, Streatham, S.W.

JOURNEYMAN (First Inside); age 25; good references; two years in present situation; seven years' experience —A. Young, The Gardens, West Park, Damerham, Salisbury.

JOURNEYMAN (Inside); age 19; six years' experience Inside and Out; can be well recommended; with bothy.—Apply to Alfred Gurr, Sutton Valence, Maidstone, Kent.

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RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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WANTED, SITUATION as Kitchen Garden Man; age 32; can be highly recommended; married, one child.—Address H. Brown, West Lodge, Selsdon Park, Croydon.

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WANTED, a Strong, Active, Young MAN, about 17 years of age, as Improver in a large garden where six are kept; his duties would be to help with the horse mowing machine, and to work generally Inside and Out; must have had some previous garden experience.—Address A. W. T., Beaurepaire Park, Basingstoke.

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COS LETTUCE.

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Garden Pay,
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THE GARDENERS' MAGAZINE.

SATURDAY, FEBRUARY 19, 1898.

NOTES OF THE WEEK.

A NEW ENEMY TO FRUIT CULTURE.

The action of the German authorities in prohibiting the landing at Hamburgh of American apples infested with the San José scale, has caused a flutter amongst the fruit growers on the other side of the Atlantic, and created additional interest in this terrible scourge of orchards and nurseries. It is now four years since we directed the attention of fruit growers in this country to the pest, and described its life history and its destructive effects on fruit trees upon which it effects a lodgment, and sounded a note of warning as to the risk of it being introduced to the United Kingdom. Since that time we have kept our readers fully informed with regard to the extension of its ravages in the United States. The insect derives its popular name from San José, California, to which district it was introduced from Chili, and there can be no doubt that it had been distributed over a large area before it was known to exist in the district. Since its discovery at San José, it has spread with remarkable rapidity on all sides, with the result that its ravages now extend from the Pacific seaboard to the Atlantic coast, and that an immense amount of damage has been done to orchards and nursery stock. The rapidity with which the pest has spread, and the injury that has been done, have given rise to much anxiety on the part of those engaged in the fruit industry, and considerable discussion in horticultural circles. Opinions differ in America as to whether the San José scale has been disseminated by means of the fruit or of nursery stock; but there appears to be a general agreement among those who are in a position to speak with authority, that both fruit and nursery stock have assisted in its distribution, and this view of the case has been accepted by those responsible for federal legislation for the purpose of preventing and repressing attacks. The gravity of the situation is fully appreciated in America, and no wonder, when we are informed by one of the leading authorities that the San José scale "infests all kinds of vegetation; but the chief danger is to our fruit trees and bushes, roses, and ornamental trees. It is so small as to escape observation, except by the most careful search; it is so prolific that it soon spreads over a large area, adhering to anything with which it comes in contact, and it is so difficult to exterminate that no effectual method has been found, except to burn the infested wood." We are also told that "neither heat nor cold, sunshine nor storm, has any effect upon it," and that "it infests all parts of the trunk and branches, from the crown of the root to the highest twig." This, briefly stated, is the pest with which the fruit-growing industry of this country is threatened, and yet nothing has been done by Government, by agricultural or horticultural societies, or by fruit growers or nurserymen, to obtain protection from what is admittedly a terrible scourge. American apples and pears are allowed to be imported into this country in immense quantities without regard as to whether they are infested with the scale or not. Tens of thousands of pounds are annually devoted to the maintenance of horticultural and agricultural societies in the United Kingdom, and yet not one has, so far as we are aware, lifted a finger, figuratively speaking, to protect those engaged in the production of fruit and fruit trees from so formidable a foe. It is evident those responsible for the management of these societies consider this question as of but little concern to their members, but we are strongly of the opinion that this is a case in which they should take action, and that the leading societies ought long ere this to have fully investigated the matter, and brought to the notice of the proper authorities the great risk of infestation by means of the apples and pears imported from America. We have no desire to limit the supplies of fruit, nor do we express any opinion on the question of protection as ordinarily understood, but we submit that our orchards and fruit gardens should as far as possible be protected from insect pests, and that it will be wiser to prohibit the importations of American fruit than to incur the risk of ruining what is now becoming a great and profitable industry.

ATOMS.

Although the atomic theory is accepted as a fact by our foremost scientists, it involves such a wonderful complexity of construction of matter as we know it as to be difficult of grasp by those who are unable to appreciate the higher mathematics which have led to its establishment. Nevertheless, since a little consideration of it in connection, say, with a flower, can only enhance our admiration of the creative scheme, we may do worse than devote a little time thereto. The marvels of cell construction we have repeatedly alluded to, and when we see a tiny bud gradually swelling and developing, and remember that all this is due to little bags of protoplasm which split themselves up into all the building materials requisite for the future leaves or blossoms, and carry out a most intricate plan to the utmost perfection until the leafy branch or brilliant flower is matured, we are lost in wonder at the process. The evolution of an entire plant from a tiny seed or spore, and the subsequent production of other seeds and spores, each carrying within it all the potencies of the race embedded in a microscopic germ, is still more astounding because the scope of such development is greater. As we know, in the midst of that minute germ-cell an imperceptible dot of matter has been created by the fusion of two previous ones, each containing, it may be, the potentialities of two distinct plants, and in the result this is evidenced by the characteristics of either, cropping up not merely in the immediate progeny, but possibly in the subsequent generations that it gives rise to. All this defies, to a great extent, our full comprehension, yet when we go farther still we are practically told that these minute beginnings are universes in little, composed entirely of atoms which are ever travelling about among each other, rebounding, oscillating, and moving in all directions with the utmost velocity. These atoms, moreover, diverse as matter is in character, must belong to very few elementary substances, and the possibility is by no means excluded that our present list of elements will dwindle down into one, the difference being differences of association and not of material. That extreme differences may exist in substances of exactly the same chemical composition is seen in the diamond, an intensely hard and brilliantly transparent stone, and its perfect contrast with an ordinary piece of charcoal. In these the science of atoms teaches us that the ultimate molecules are simply differently arranged, and the chemist will tell us that he can rearrange both of them differently again by burning, when the molecules, by flying farther asunder still, form an invisible gas, a third form of one and the same thing. Everything material of which we are conscious through our senses is formed of these rapidly moving atoms; in the diamond it is merely a question of shorter journeys performed by the travelling atoms, whose attraction among themselves determines the limits of the stone in the charcoal they have more liberty, and in the gas they are free to scatter themselves afar, and as the law of diffusion of gases demonstrates do so most effectually. Now with these facts in mind let us gaze upon a rose and reflect that those apparently still petals are not merely redundant with life, cell life, possibly still actively engaged in swelling the petals yet more, while others may be already building up the seed in the ovary below them; but beyond all this the flower represents a milky way, a galaxy of swiftly-moving bodies, whose numbers excel our powers of comprehension, as do those of the stars themselves in the astronomic heaven.

THE MANCHESTER ORCHID SOCIETY.

Manchester has long had the reputation of being the centre of a large and influential orchid cult, and this being so, it was natural an orchid society should be one of the results. When, therefore, the Manchester and North of England Orchid Society was instituted we considered a very proper step had been taken, and that it supplied a want, and was necessary for the progress of horticulture. We indeed felt it in the highest degree desirable, inasmuch as its committee could make awards to meritorious new and rare species, varieties, and hybrids whose owners did not feel justified in incurring the risk and inconvenience necessary to their exhibition before the Royal Horticultural Society at Westminster. We had hoped, indeed we still hope, that the Manchester Society would rise to a position beyond the anticipations of the most sanguine of its founders, by making such improvements upon the practice of the London body as time and experience might suggest. We fear, however, that our hopes will not be realised unless some of those independent and far-seeing men, for which the city is remarkable, take steps to check the tendency which has become apparent to unduly multiply awards. Knowing something of the hardheaded business capacities of the Manchester horticulturists, it was with surprise and regret that we perused the report of the recent meeting, which appears in this issue. An extensive and bright exhibition may have induced the committee to be more than usually liberal, but when certificates and awards are bestowed as freely as on this occasion, or with anything approaching the prodigality displayed, it requires no prophetic spirit to foretell that in a short time they will be regarded as of little value. It may be considered an excellent proof of the activity of the committee to broadcast seventeen first-class certificates and twenty-five awards of merit at one sitting, and it may induce some cultivators to bring forms of no particular merit to the meeting; but such action must prove injurious. We are fullly persuaded, however, that as an auxiliary or supplement to the Royal Horticultural Society there is a great future before the Manchester Orchid Society, owing to the influence it can assert over the north country, and it is this persuasion that induces us to draw attention to the recent proceedings. No useful purpose is served in granting awards to largely grown and already popular orchids, for if the work has not already been done the time for it has passed. By all means let new and rare orchids of merit be recognized, and receive distinctions that will indicate to the world at large their relative value, whether they are grown in London or in Manchester, as it is of some importance that meritorious new and little known forms should have prominent attention directed to them. Speaking broadly, when trifling variations to be found in an order of plants that is notorious for the variableness of its species are recognized, the artificial multiplication of varieties will be encouraged and the awards will lose much of the value which it is eminently desirable they should possess.

POTATO FERTILISERS FOR HEAVY SOILS.

In accordance with the policy initiated some years since, the Wilts County Council carried out during 1897 a series of experiments at Calne in the culture of potatos and some other important crops. The demonstration stations are situate at Quemerford and Lickhill, and the soil at the first-named station is very heavy, while at the latter it is somewhat light, and from the large percentage of lime it contains evidently rests on the chalk. The objects of the experiments on the heavy land at Quemerford were, so far as they related to the use of fertilisers, to show that if artificials alone be used for the potato crop, it is generally desirable that nitrogen, phosphate, and potash should all be present, to further test the value of stable manure and sulphate of ammonia used together; and to compare the effects of varying quantities of complete chemical manure, this consisting of equal weights of nitrate of soda, mineral superphosphate, and kainit. The trial ground was divided into eleven plots of four perches, and these were divided into two equal portions, one being devoted to Reading Giant and the other to Wonder. The soil of the first four plots was superior to that of the remaining plots, and it is therefore necessary to compare them with each other. The second plot, which received no manure, gave a crop at the rate of nine tons nine hundredweight per acre, and the soil therefore must have been well stored with food adapted to the requirements of the potato crop. With the application of nine pounds per perch of complete chemical manure, the yield was raised on plot four to a rate of nine tons thirteen hundredweight sixty-seven pounds, or an increase of four hundredweight sixty-seven pounds only, or not nearly enough to cover the cost of manure. Lot one received a dressing of two hundredweight per perch of stable manure, and yielded one ton nine hundredweight forty-five pounds in excess of the crop produced on the unmanured plot, the value of which excess is eleven shillings less than the cost of the manure. The heaviest crop of all was obtained on plot three by the application of one hundredweight of stable manure and three pounds of sulphate of ammonia per perch. The yield was at the rate of twelve tons seven hundredweight forty-five pounds per acre, or nearly three tons more than the crop on the unmanured plot, and taking the value of the excess at £6 15s. 3d., and the cost of manure at £4, we have a net gain of £2 15s. 3d. These results are exactly what we should have expected after a careful examination of the analysis of the soil, and they amply confirm our views with reference to the importance of so regulating the application of fertilisers as to supply the food constituents of which the soil is deficient.

Experiments with Nitragin were conducted at Calne last year under the auspices of the Wilts County Council, and more satisfactory results appear to have been obtained than at other experimental stations in England and Scotland. Nitragin consists of bacteria obtained in the first place from the nodules of leguminous plants, and subsequently increased in numbers by a process of cultivation prescribed by Professors Nobbe and Hiltner. The bacteria referred to are present in all fertile soils, and attach themselves to the roots of the growing plants, and thus lead to the formation of the nodules. When thus associated with the roots of leguminous plants, they assimilate free nitrogen from the air, and form nitrogenous compounds, which are used by their hosts for the purposes of growth. This accounts for the fact that leguminous crops are usually regarded as independent of artificial supplies of nitrogenous manures; and some idea of the amount of useful work carried on by these bacteria may be formed from the consideration that although a large quantity of nitrogen (ninety-eight pounds in an average crop of beans) is removed with the crop, the soil is left richer in nitrogen than it was before the growth of the crop. It is assumed that some soils are more or less deficient in these bacteria, and may therefore be made to bear heavy leguminous crops by applications of nitragin; and in the experiments carried out by Nobbe and Hiltner, the best results were obtained by supplying the various leguminous plants with bacteria derived from the nodules of their own particular species. At the Quemerford station nitragin was applied to the soil for winter beans, and to the seed for spring beans. The crop so treated showed no gain in the former case, but one of 4 per cent. in the latter. At Lickhill the crop experimented with was one of peas, and the nitragin was applied to the seed. There was a gain of 14 per cent. In the case of spring beans growing on a loamy soil between Lickhill and Quemerford there was a gain of 12 per cent. on the part sown with similarly treated seed.

Hop Hornbeam.—The death and consequent removal of probably the finest specimen of *Ostrya carpinifolia* in Britain, although a grafted one, has unfortunately to be recorded. It stood near the Hardy Fernery on lawn L (1) of the Kew Key-plan. For several years it had not been in good health, and on being taken down, its roots were found to have been killed by fungus mycelium. The species, which is a native of South Europe, Asia Minor, &c., was introduced to this country prior to 1724, as it is mentioned in Furber's Nursery Catalogue, published in that year. The actual measurements of the Kew tree, as given in the *Kew Bulletin*, were as follows: Height, fifty-nine feet; spread of branches, sixty-eight feet; girth of trunk, three feet from the ground, nine feet four inches. Fruit was abundantly produced, but no perfect seeds were ever developed.

Cypripediums with Fungus.—Mr. Douglas exhibited at the meeting of the Scientific Committee specimens with the roots badly infested by a mycelium. Mr. Veitch at once recognised it as the result of a too damp atmosphere, recording the fact that having on one occasion made a double roof, it caused so much damp that he lost many orchids from the same cause, but on improving the atmosphere this completely prevented any recurrence of the fungus.

Lonicera fragrantissima, the beautiful sweet-scented Chinese Honeysuckle, is now at its best in many gardens. Wherever it is grown well it cannot fail to give pleasure during February, when it produces its broad white flowers. Mr. W. Marshall, Auchinraith, Bexley, and chairman of the R.H.S. Floral Committee, has sent us a flowering branch, and his comment upon the species is that "it is one of the finest winter-flowering shrubs we have." We endorse Mr. Marshall's opinion, and state that so many fail with the plant in question because they prune it as they would most other loniceras. It should be pruned directly after flowering, because flowers are produced on wood made the previous year, and autumn or winter pruning means the loss of a crop of fragrant blossoms. Lonicera Standishi is probably but a form of L. fragrantissima, differing chiefly in the shape of the leaves.

Recent Botanical Appointments of interest are: Mr. J. G. Luchman to succeed the late Baron Ferdinand von Müller as Government botanist to Victoria; Professor O. Mattirolo, as professor of botany and director of the Botanic Gardens and Museum at Florence; and Professor F. Morini to succeed Professor Mattirolo at Bologna. We may add that a hall for the herbaria, preparations, and sections of the celebrated botanist Aldrovandi has been erected and opened at Bologna, and the cost has been met by the city and province.

Black Currant Mite.—At the recent meeting of R.H.S. Scientific Committee, Mr. Berry gave some particulars of the progress of this destructive pest in Kent. It was first observed some ten years ago, but has now reached alarming dimensions. Miss Ormerod recommended picking off and destroying the buds infested with the mite (*Phytoptus ribis*), the cause of the injury. This was done, but last year a sudden development occurred, when picking became useless. The Baldwin, a very heavy cropper, was the variety most seriously attacked. The Red Budded Naples were only slightly affected, but this variety is not a heavy cropper, and the fruit being more readily shed, it is not so useful as the Baldwin for market purposes. He suggested that experiments might be carried out at Chiswick to discover which was the most blight-resisting variety, as was done with other plants in Victoria in the Horticultural Gardens, so as to aid the fruit industry in Australia. Mr. McLachlan gave some account of the general habits of the Phytopti, remarking that this species was first noticed by Westwood some thirty years ago. It is nearly legless, and lives inside the bud, consequently it is very difficult to reach by means of insecticides. He could only recommend hand picking, unless a mite-proof variety could be found, as they had raised more or less phylloxera-proof vines. Mr. Michael also contributed further details, observing that all the species of Phytoptus were parasites, and that while many species might attack the same plant, a single species might also live on many kinds. They were excessively minute, possessing only two pairs of legs instead of eight, and always protect themselves, so that it becomes a very difficult matter to reach them, as, *e.g.*, in the curled-up edges of leaves, and within buds. It had been found that kerosene emulsion continuously applied by spraying had been more or less effective against P. pyri, but acari are far less sensitive to chemicals than insects. The eggs especially have a dense cuticle, so as to render it quite impervious to chemical action of insecticides. The only chance was to repeat the process of spraying and catch the successive broods. They only thing absolutely fatal to acarus life was boiling water; eggs and all were destroyed at once. Mr. Berry, in replying, observed that the remedy hitherto suggested of cutting down the shoots of the currant bushes attacked was quite useless. Mr. Veitch suggested that analysis of the branches of the varieties affected or otherwise might reveal some differences, but Mr. Wilks expressed himself as very doubtful of any appreciable differences being attainable even if they exist.

The United Horticultural Benefit and Provident Society has now 714 members, no less than twenty-seven having been duly proposed and elected at the recent committee meeting. Mr. George Wythes, V.M.H., Syon Gardens, has consented to take the chair at the annual meeting which will take place at the Caledonian Hotel, Adelphi, on March 14.

Diseased Pines.—Specimens of Scotch fir and of Abies Nordmanniana have been received by R.H.S. from Mrs. Marshall, Ambleside, the former attacked by the Pine beetle, the latter by Kermes abietis. This insect has always proved to be very fatal to this species of abies, and the only suggestion that could be made was to cut down the tree and burn all parts attacked. It was suggested with regard to the Pine beetle that to encourage the multiplication of insectivorous birds as far as possible might be advantageous.

Messrs. J. Carter and Co. inform us that during the recent great fire in Holborn only the outer fireproof walls of their premises were scorched, and this particular warehouse contained only a few score bales of breakfast oats; consequently orders will be executed and despatched with the usual promptitude.

The Metropolitan Public Gardens Association shows, in its fifteenth annual report, a good record of work done during the year 1897. An accompanying map indicates very clearly the work completed by the association in the metropolis, and also shows that since its institution it has carried out or successfully assisted in three hundred and sixty-eight undertakings in connection with gardens and open spaces. The successful work performed in 1897 includes the laying out of three new gardens, the provision of gymnastic apparatus for the playground, drinking fountains placed on three sites, seats placed in twelve localities, trees planted in three gardens, and assistance given in the preservation acquisition, or improvement of thirteen open spaces. The association is not above chronicling its failures, and the report states that in six instances the efforts of the body failed to secure various sites for the public use. The association is at present laying out three open spaces, and has agreed to improve four others; it will lay out, or assist in laying out, open spaces at Blackfriars, Dalston, Stratford, Hoxton, Hoxton Square, New Kent Road, Poplar, Fulham, Camberwell, and Deptford, provided their maintenance is secured. In addition to this it is seeking or assisting to secure twenty open spaces in thickly populated centres, and to secure the planting of trees in five existing gardens. The report is a perfect mine of information with respect to metropolitan open spaces. There is a list of one hundred and twenty churchyards and disused burial grounds which are already or soon will be laid out; then there is a record of two hundred and three spaces other than disused burial grounds, laid out as gardens or recreation grounds up to December, 1897; in each case the area is given, in whose possession the land is, the cost of purchase and laying out, who paid the expenses, who opened the space, and the date of opening. Other interesting remarks follow, and certainly the compilation of these lists by the association's secretary is not the least of the many good works to be placed to its credit. Some of the principal Acts of Parliament relating to Open Spaces, Preservation of Commons, &c., are added to the report as an appendix.

Cut versus Whole Potato Sets.—At Lickhill, Calne, some experiments were conducted last year by the Wilts County Council with a view to determine the relative values of cut and whole potato sets. One plot was planted with whole seed of Reading Russet, and another plot of the same size with cut sets of the same variety, the weight of seed per perch and the application of fertilisers being the same in each case. The yield from the cut seed was at the rate of seven tons five hundredweight twenty-two pounds per acre, and from the whole seed the crop was at the rate of seven tons eleven hundredweight per acre, a difference of five hundredweight ninety pounds. A similar experiment was made with Early Puritan, and resulted in a gain of one ton seven hundredweight ninety pounds from the use of whole tubers.

Shropshire Horticultural Society.—The results of the year's workings were laid before the members of this society at Shrewsbury last week, Gen. the Hon. W. H. Herbert in the chair. The financial results are eminently satisfactory, the receipts amounting to £4,517 4s. The subscriptions amount to £437 15s.; the takings at the gates on the first day £752 0s. 3d., and second day £1,825 0s. 10d. Cheap tickets to the amount of £550 were sold previous to the show. The expenditure amounted to £3,384 10s. 3d., out of which prizes, &c., were paid amounting to over £980. The profits (which, like the receipts, were the largest the society has received) amount to over £1,130. The Fruiterers' Company of London and the Veitch Memorial Trustees received hearty votes of thanks for their special prizes. T. F. Kynnersley, Esq., of Leighton Hall, was elected president for the ensuing year.

A Memoire of the Late Mons. J. Linden occupies the whole of the current issue of *La Semaine Horticole*. The issue is much larger than usual, and contains an appreciative account of the life and introductions of this able traveller, botanist, and horticulteur. Several of the principal plants introduced by the late M. J. Linden are figured, and there are three portraits of the deceased, including a reproduction from the portrait painted by M. Gaston Linden. The issue referred to is of exceptional interest, as it gives the life history of a great man, and in a large measure records the progress of horticulture during the greater part of the present century.

At the International Exhibition to be held in Paris in 1900, British industries, agriculture, horticulture, and the fine arts will be represented. To advise as to the best means of procuring and forwarding British exhibits a large and influential Royal Commission has been appointed. The commissioners are: The Prince of Wales, Duke of York, Sir F. A. Abel, Sir George Birdwood, Major-General Sir Owen Tudor Burne, Sir G. H. Chubb, Major-General Sir John Donnelly, Lord Kelvin, Sir James Kitson, Sir Trevor Lawrence, Lord Lister, Sir John Lubbock, Sir Clements Markham, Mr. W. H. Preece, Mr. E. Windsor Richards, Earl Spencer, Mr. W. T. Thiselton-Dyer, Sir E. Maunde Thompson, and Sir W. H. White.

Kew Bulletin for November last has just been published, and is devoted to the report of the Royal Commission appointed to inquire into the condition and prospects of the sugar-growing and other industries in the West Indies. From the summary of the conclusions at which the Commissioners arrived, we learn that the sugar industry in the West Indies is in danger of great reduction, which in some colonies may be equivalent, or almost equivalent, to extinction. The measures of relief suggested are the settlement of the labouring population on small areas of land as peasant proprietors, the establishment of minor agricultural industries, the encouragement of a trade in fruit with New York and London, and the grant of a loan from the Imperial Exchequer for the establishment of central factories in Barbadoes. The cost of the special remedies is estimated at £27,000 a year for ten years, the cost to be borne by the mother country; and the loan for the erection of factories is estimated at £120,000. For other purposes, an immediate grant of £90,000, and annual grants of £20,000 for five years, are recommended.

Seasons and Vegetation.—At the monthly meeting of the Royal Meteorological Society on Wednesday evening, Mr. E. Mawley, F.R.H.S., presented a report on the Phenological Observations for 1897, from which it appeared that there had been a marked absence of very exceptional weather during the past phenological year, the most noteworthy features affecting vegetation being the persistent rains in March, and the three dry periods of May, July, and October. Until about the middle of May wild plants appeared in blossom in advance of their usual time, but throughout the rest of the flowering season they were all somewhat behind their average dates in coming into bloom. The heavy rainfall in the early spring favoured the hay, which proved the only really abundant farm crop of the year. It was owing more to the dry spring and summer, and the sunless autumn of the previous year, than to the moderate frosts and cold winds of the spring of 1897, that the fruit crop was such a very light one. Apples, pears, and plums, and especially the latter, yielded badly; while the small fruits were in most districts only an average crops.

Early Spring Flowers.—Our coadjutor "H. H. D.," writes: It seems almost difficult to write about the opening spring when we have had no winter, for without any frost worth speaking of and without hardly a flake of snow, with high barometric readings and sunshiny days, it is very hard to imagine that we have passed through the cold months of December and January without feeling the usual inconvenience resulting from dark and dreary and cold days and bitter nights, and so now on St. Valentine's Day we are rejoicing in the continual putting forth of the blooms of our old favourites. For instance, I am greatly delighting in a piece of colouring in my front rockery; this is alongside of the drive leading up to the house, thoroughly exposed to the south, and sheltered from the north by the shrubbery and trees. It was here that some years ago I placed a few bulbs of the hardy cyclamen, either Coum or Atkinsi. I failed with them in other parts of my garden, and having read somewhere that they rejoiced in such a situation, I placed them here. The results exceeded all my expectations; not only have the bulbs greatly increased in size, but they have seeded all over this part of the rockery, which now for several square yards is full of them, their beautiful marbled leaves and pretty flowers of various hues of colour affording a rich treat to the eye. Associated with them is a quantity of aconite, with its bright yellow flowers, snowdrops, and a few crocus, the whole forming a very pretty picture. I believe the success of the cyclamen is due to the very sheltered and sunny position which it enjoys. The corms are thoroughly baked in the summer, and I believe that this is the one great element of success for many bulbs; I am sure it is with freesias when grown in pots, and I do not think that daffodils ever do so well when there is heavy rain at the time of their ripening off; and I am quite sure that if any one has had difficulties (as I know many have) with the hardy cyclamens, they may ensure success if they can find a spot in their gardens something similar to that I have now mentioned.

Mr. Charles Mason, surveyor to the vestry of St. Martin's-in-the-Fields, has become a partner in the old-established business of Messrs. Foster and Pearson, horticultural builders and heating engineers, of Beeston, Notts. Mr. Mason's resignation was accepted with much regret at the recent meeting of the vestry.

Sanctuaries for Birds.—In an interesting communication on the increasing scarcity of rare birds, in the current issue of *Nature Notes*, Mrs. Brightwen states that she cannot see how their destruction is to be prevented unless landowners can be induced to make their estates, in some measure at least, sanctuaries for such of the feathered tribe as are scarce and interesting. For the last twenty-five years on her place there has been no shooting, save to keep down rabbits, and this is the result: Although it is of small extent, only comprising a hundred and seventy acres, and situated within eleven miles of London, the fields and woods are fully tenanted by several kinds of owls and hawks, the green and greater spotted woodpeckers, nightjars, lapwings, and a great variety of the smaller species of birds. Nuthatches abound; we have five species of titmice, gold crests, blackcaps, tree-creepers, and nightingales. The woodcock is sometimes seen in the spinney, and snipe, both in the running water of the park and along the edge of the wheat-fields. There is no lack of warblers and finches to make the woods vocal in spring and summer. This Mrs. Brightwen very justly claims to be a highly satisfactory result of protective care. In reply to the petition of the Guildford Natural History Society, praying for the preservation of Wolmer Forest as a sanctuary for wild birds, thus constituting a national memorial of Gilbert White, of Selborne, the Marquess of Lansdowne states that, while he is fully in sympathy with the aims of the memorialists, he considers the continuance of the system now in force would, so far as it is in the power of the War Department, best promote the objects of the society. Enclosed with the reply was a copy of a report made by Captain A. H. Cowie, R.E., who has had the Government ground in question under his management since 1895. In this report it is stated that since that year all birds had been strictly protected. No birds, except game birds, had been allowed to be shot. All hawks, owls, and other birds had been carefully preserved, as far as possible. The heronry had gradually increased from one nest a few years ago, to about twenty nests now, and nearly fifty young herons flew from the nests in 1897.

Cannes Battle of Flowers, the other day, was held under eminently favourable climatic conditions. The weather was perfect, the carriages were for the most part decorated with much taste, and the beautiful sea drive was lined with upwards of twenty-five thousand persons. It is computed that about ten tons of flowers were used in the battle, these consisting chiefly of acacia, anemones, pinks, violets, and wallflowers.

The Kew Guild annual general meeting is to be held on the 24th inst. in the Lecture-Room at the Royal Gardens. Eight o'clock is the time of meeting, and the entrance will be by the Melon Yard Gate.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

THINGS are a little quiet just now. The fact itself is not particularly surprising, but the reason for it is, namely, that owing to the openness of the season work has got so far forward as to permit of a lull. Still, there is something in the air. I do not know what it is, but it is there. I got into the midst of an uncompromising gardening circle the other day, and felt it without a word being said. Remarking on the electrical undercurrent to one of the party, he responded with a portentous "Ah!" and an air of profound sagacity, which said as plainly as words could that he held a secret of terrific importance locked within his breast, and could spring it on a startled world if he liked.

Now, the deduction which I drew was that if I were to exert myself a little I could get behind the scenes and find out all about it. But it so happens that "getting behind the scenes" is one of those things which I have an inveterate objection to. Please do not imagine from this that I am elevating a superior nose, and proclaiming a supercilious immunity from such human frailties as curiosity. I am simply stating a fact which is based on sound business principles. Nine times out of ten, when some individual puts his finger on his lip and leads you round a back entry it is only to tell you some trivial, tinpot thing, for the knowledge of which you are not a whit the wealthier or the wiser. It is nice in a way to feed the flattering delusion that you are one of the elect, that you are "in the know," and so on; but when you perceive that other people who are not of the elect, and who are transparently out of the know, get on quite as well as you do, if not rather better, you begin to perceive that time spent behind the scenes is of doubtful value, and to wonder how much better off you are for all these tremendous secrets. For my part, anyway, I have come to the conclusion that it doesn't pay, and even that tempting word "plot" fails to draw me. My experience is that the commonest feature of a plot is that it never comes to anything.

The only sort of plot I ever mean to have anything to do with is that in which I am sole instigator and perpetrator; then I can comfortably regulate the running away. There is always pleasure in a fight when you know you can bolt without anyone being the wiser. For the moment, however, I do not wish to contemplate any such pusillanimous proceeding; on the contrary, I feel impelled to liven up the prevailing dulness by respectfully offering to accept battle from anybody on any subject I am prepared, be it understood, to sacrifice myself simply for the entertainment of readers. In pursuance of this praiseworthy resolve, I turn my eyes round in search of the old fighters. Will Mr. J. Riddell step out and tweak my beard? He thumps as hard as anyone when in the humour. Perhaps, too, "A. D.," that sound old warrior, will, in Shakespearean parlance, bite his thumb at me, and move me to wrath. Could the latter, I wonder, have had one eye on me when he penned that note about Chiswick as a school garden? The whole trend of it is in favour of practical teaching, which, of course, can only be properly tested by practical examinations, but "A. D." still holds coyly aloof from the latter. I am not going to dwell on this topic, because experience has mournfully convinced me that, however numerous the supporters of the present examining system may be, they do not screw their courage up to fighting point.

I am keeping a watchful and jealous eye on the chrysanthemum specialists. I know the objects they have in view well enough. They mean to lengthen the season if they can, apparently oblivious that the chrysanthemum owes its enormous popularity to the fact that it is the flower of one particular season. Past indulgence from Mr. Lees prevents my attacking him for worrying us about early border chrysanthemums in February, and naming dozens of varieties for September and October flowering; but, all the same, our good understanding is severely strained. I do not believe the public want chrysanthemums before October at the earliest, and what the public don't want will not get on very fast. The best of the very early sorts are but poor things compared with Michaelmas daisies for autumn effect in the garden, and a great deal of the praise which the specialists heap upon them is hackneyed, forced, and overstrained. The man who teaches flower-lovers the best sorts of perennial asters, and the way to make the most of them, will have more of my sympathy than he who bothers us with early chrysanthemums. They as tiresome as the Crummles phenomenon.

Our peach critics are at it again. First it was Mr. Cook, and now it is Mr. Molyneux. What these excellent gentlemen say is right in its way, but no amount of quibbling about coping, pruning, or fly killing will do away with the fact that the peach is indubitably a more tender tree than the apple, pear, plum, &c. Look over large nursery quarters after a severe frost, and the true lesson of the general non-success of peaches out of doors will be learned at a glance. Of course, it is open to anyone to argue about more or less important details, and there can be nothing but praise for the spread of some cultural information, but broad principles must be recognised. One of the most amusing things in connexion with outdoor peach growing is the calm assumption of its superiority in days gone by. This is invariably accepted as an incontrovertible fact, but singularly enough, such proof of it as has been forthcoming hitherto has consisted principally of significant head-nodding on the part of those who have caught the habit off somebody else. As one who can dip back further into the past than many of my readers, I should like to express my conviction that the vastly superior level of outdoor peach culture in days gone by is very much of a myth.

A remark as to early potatos in Mr. H. C. Prinsep s calendarial notes makes a man rub his eyes. The sets, he tells us, should by this be placed on their ends. There is a quaint and delicious Rip van Winkleism about the advice which seems to suggest that the worthy writer has not been on end himself of late, but has been enjoying a quiet nap. If the phrase "by this" means, as it may be fairly assumed to do, "now," then I beg to say that the Luxian potatos have been on end for many a week, and are, as they will remain till wanted, in prime condition for planting. Happily, Peter is a calendar unto himself. That great authority on practical horticulture does not believe in leaving his early potatos till winter is half over before up-ending them, and I verily believe that if anyone ventured to suggest it to him he would lay the unhappy adviser low. Another subject on which he has strong opinions is the size of the sets. Peter clings tenaciously to the old partiality for small seed. Two ounce seed is the most he will allow himself, and he only takes that under protest. I am now preparing a bitter pill for him. Well aware that he will accept nothing experimental, I am procuring the experience of successful potato exhibitors. So far the result is against him, but perhaps others will take his side. Now, Mr. Beckett?

LUX.

METHODS AT FLOWER SHOWS.

THE editorial note on page 29 will find many supporters I am quite sure, for the methods alluded to are still adopted at some shows, and appear likely there to last. My experience of exhibitions, and especially those held in the autumn in different parts of the United Kingdom, leads me to say that officials are less suspicious than formerly of collusion between judges and exhibitors. If those who are so suspicious knew what it was to have a reputation to sustain they would perhaps cease their suspicious methods. Judges, as a body, much prefer not to know whose exhibits they are examining, but; in spite of all secrecy regarding the numbering of classes and so forth, judges sometimes do know the exhibits they are examining. I very often feel quite sure who the chrysanthemums belong to that I am called to adjudicate upon; especially is this the case when dealing with incurved blooms. The "style" and "finish" of the blooms is distinctly that of Mr. So-and-So. Surely, then, to an honest mind, this cannot make the slightest difference. Judges, as a rule, prize a second or a continued annual invite more than an invitation from a fresh society. The fact of their being again asked to judge is a sufficient proof of what that particular society thinks of them as judges. As an old exhibitor, I appreciate the method of publishing the judges' names in the schedule; such a plan is more likely to encourage competition than lessen it. As an exhibitor, also, I prefer some judges to others, thinking that some are more painstaking than the rest. Some judges are in too great a hurry at times to well weigh all the details in close competition; but perhaps such men are no more liable to make mistakes than those who spend double the time over one particular class. Still, in my opinion, sufficient time should be given to the work to examine all details thoroughly. To a judge, the method of having numbers simply on small cards, or numbers on the reverse side of prize-cards, as a guide to the classes, is of no consequence; but to the secretary and his assistants it is of vital consequence, and to the public also it is at times most important.

The method of affixing the value of the prize by adhesive slips on previously written cards may be a trifle more expensive, but it certainly is the most efficient method to all concerned, and I am pleased to see the rate of progress the plan is making. Under this system, directly the awards are made, the press and the public, if then admitted to the building, are cognisant of the prizetakers. I am positive that I have never seen an officiating colleague turn over a card for the purpose of knowing who the exhibitor was until after the award had been made. Some societies use in the place of adhesive slips rubber stamps for denoting the quality of the prize. This is a capital plan, not only quick, but effective. The "Field" judging-books, containing a counterfoil leaf, are very often employed, and they no doubt facilitate the work of the clerks in booking up the awards for catalogue printing, or for an early publication of the prize list, which so many like to have, but as far as I can see it does not facilitate the setting up of the prize cards for the benefit of reporters and the public. The secretary is wise who requires the judges to write on the back of the card the value of the prize as a reference, in case of an error or dispute afterwards. It sometimes happens that the prize cards are moved, and a reference then to the back of each very often puts things right again, in the case of a mistake occurring.

The greatest mistake that secretaries make is that of allowing [illegible] much latitude to exhibitors on the morning of the show. Many secretaries are far too lax in this, and exhibitors are not slow to take advantage of their relaxation. Too often the judges have not sufficient time allowed them to give that consideration they would personally prefer to [illegible] close in order of merit, simply because a good hour of their allotted [illegible] has been frittered away through non-compliance with the rules by exhibitors, encouraged by lax officials. It is difficult and invidious to [illegible] selection of those who err in this and those who do not, but I [illegible] refrain from mentioning the executive officers at the autumn show [illegible] Hull. Mr. Dixon can yearly be found in front of the clock two minutes to ten on the opening morning of the show, with the bell in hand, ready to sound the clearing out note. I never yet heard a grumble there [illegible] a single exhibitor about the hardships of the rule. Exhibitors know [illegible] to do, and they do it, and so they would everywhere if it were made [illegible] pulsory. Perhaps these few well-intentioned remarks on this detail [illegible] be carefully read and digested by those who are admittedly somewhat [illegible] easy about clearing the show room at the appointed hour.

Swanmore Park Gardens. EDWIN MOLYNEUX.

Annual Rose.—Carter's Annual rose is not only a gem as a pot plant, but it makes a lovely bed if planted over a groundwork of blue lobelia and edged with yellow pyrethrum. It is easily raised in a cold frame, and will [illegible] flower when only a few inches high. The flowers are both double and [illegible] all shades from rose to pure white.—JOHN APLIN.

THE PARENTAGE OF ROSES.

THE subject of this article must always be a peculiarly fascinating one to rose cultivators, many of whom, doubtless, find it very interesting to grow such varieties as Souvenir d'un Ami and Souvenir de S. A. Prince, Catherine Mermet and The Bride, the parent and the offspring, side by side. In this way they may have many valuable opportunities of observing the influence of the law of variation. In most instances it will be found that the difference consists almost solely in the colour, the other important attributes of growth, habit and formation remaining the same. The Bride, for example, with the exception I have indicated, has the self-same characteristics as the notable variety from which it was derived; it has even below the petals the same exquisite suggestion of delicate green, reminding one instinctively of the aspect of a celebrated lily, L. speciosum Krætzeri, whose beauty is of a similarly distinctive description. The variation from Souvenir d'un Ami, discovered at Oxford by that great rosarian the late Mr. George Prince, has the charming fragrance and floriferousness of its parent, but the pale pink of the one has become in the other a precious pure white hue. This, in my opinion, is by far the most valuable of all tea roses of its special colour, at least for garden cultivation. It has more vigour, finer foliage, and opens with greater facility than The Bride; but I consider the latter the more perfect variety when adequately grown. Souvenir de S. A. Prince is, however, a much more accommodating and reliable rose; if inferior in form, its perfume is more attractive, and of a widely different kind; if, therefore, The Bride has any superiority, it is found in the beauty of the individual flowers. Niphetos is an old favourite, of whose origin I know nothing, but though it may be admitted that the climbing form is much less capricious than the original variety, I do not find it so worthy of praise as either of its rivals in the essential matter of artistic formation. Even when grown on a sheltered south wall, it often has a ragged and imperfect ppearance.

Many of the older roses, whose names are historical, but whose aspect and attributes are, to the present generation of cultivators, almost unknown, now exist for the most part only in their descendants, some of which, therefore, it may be presumed, are more generously endowed. La Reine, for example, of which in his day the late M. Laffay was especially proud, lives on in François Michelon, Paul Neyron, and that more refined derivation from the latter entitled Ulrich Brunner, of German origin [?]; whose value, I greatly fear, has been somewhat overestimated, probably because Teutonic roses of eminence are so rare; while another of the floral children of La Reine, Auguste Mie, on the principle that "the weakest '—perhaps not in vigour—" goes to the wall" (though generally the strongest roses go there!), has been relegated by British rosarians to oblivion. Most of those varieties which drew their individuality from the brilliantly-hued "Giant of Battles" (Nerard, 1846), have disappeared from our most conservative and comprehensive collections, an outstanding exception being Cranston's Crimson Bedder, which, by reason of its bright colour, its rich fragrance, and productiveness, should be much more extensively cultivated than it is. Some of the grandest crimson roses, such as Duke of Edinburgh, Duke of Albany, and Charles Lefebvre, are deficient in the quality and strength of their perfume, nor are they too effusive of their lustrous flowers; it is, on the other hand, in those special and by no means unimportant directions that the less perfectly finished Crimson Bedder is supreme. There is at least one grand old hybrid perpetual that is still discoverable, not only in our catalogues, but also growing and flowering very effectively in our gardens. I mean the veteran-like General Jacqueminot, a rose that survives by reason of its beauty, its free-flowering qualifications, and strong constitution. It has many highly distinguished descendants; among which some of the most impressive are Charles Lefebvre, Duke of Edinburgh, Senateur Vaisse, Alfred Colomb, and Prince Camille de Rohan. Perhaps the finest existing derivation from Jules Margottin is Beauty of Waltham, still highly popular with amateurs, and even with exhibitors; a native of Waltham Cross. It is a rose of great sweetness, and, like Tennyson's Warrior in "The Princess," "worthy to be loved." Roses in this respect much resemble human beings; some of them are more admirable than lovable, because, though commanding in their dimensions, they are not sweet, such, for example, are Baroness Rothschild and Merveille de Lyon. It is a kind of soulless beauty, if I may so express it, that exists in these. None of the varieties which have been derived from Charles Lefebvre, with the exception, perhaps, of Horace Vernet (which seems to be utterly lacking in vigour and vitality), sustain the reputation of the parent rose. Mrs. Harry Turner, which owns, presumably, the same origin, but not an equal perfection of form, though somewhat deficient in central petals, is a radiantly-beautiful garden rose.

The special varieties which have drawn their attributes from Baroness Rothschild, most of which possess an unsatisfactory pale, pinky-white [illegible], are White Baroness, Mabel Morrison, and Merveille de Lyon. Of these the last mentioned is often described as "our finest existing white hybrid perpetual," probably because it has no serious rivals in renown. Nevertheless, it has considerable limitations; and its trans[illegible] aspect is by no means edifying, after its petals have experienced a heavy shower of rain. A much more beautiful and valuable rose is Gloire Lyonnaise; but the finer qualities of its nature have been inherited from the teas. Duke of Edinburgh, like the Baroness Rothschild, has been prolific; but none of its variations, not even the luminous Duke of Teck, is equal to itself. I have seen Sultan of Zanzibar occasionally impressive; also on several occasions in my garden the dark, marone-shaded Reynolds Hole; but the Dean of Rochester, whose name it bears, has described it as being very uncertain, and experience has told me that his description is correct. Among roses of considerably more recent origin, Duke and Duchess of Fife have drawn their best features from Etienne Levet and Countess of Rosebery, having originated at Aberdeen with the Messrs. Cocker, who are eminent as rosarians and cultivators of herbaceous flowers. They have also given us a very handsome rose for the garden in Duchess of York, whose colour is identical with that of Maiden's Blush. Mrs. Harkness is derived from Heinrich Schultheis; Margaret Dickson, a nobly endowed variety, from Lady Mary Fitzwilliam and Merveille de Lyon; while the former hybrid tea, in conjunction with La France, has given us Mrs. W. J. Grant, which is very beautiful in bud, but not equal to its parents at any subsequent stage.

Some of the older noisettes (whose name is *not* legion) are still in cultivation; among these is Aimée Vibert, and Lamarque (Maréchal, 1830), the parent of Cloth of Gold, and great grandparent of Maréchal Niel. Its hue is very pale yellow, approximating to white, which makes it somewhat hard to understand why the heirs of its attributes (including considerable tenderness and consequent unreliability) should have been so much deeper and more effective in colour. Gloire de Dijon, which always reminds me of a very short and stout lady, with a most amiable expression, has some daughters of a more refined formation, of which perhaps the finest are Boule d'Or and Belle Lyonnaise. One of the most graceful of recent introductions is Fiametta Nabonnand. I have been much interested to learn that this rose is the result of a cross between Niphetos and Papa Gontier, and partaking to some appreciable extent of the characteristics of both. It would be even more interesting to ascertain the origin of that uniquely coloured variety Empress Alexandra of Russia, which is likely to prove a formidable rival of Comtesse de Nadaillac and Madame Lambard. It is much more easily cultivated than the former, and surpasses the latter in artistic fascination.

Kirkmaiden. DAVID R. WILLIAMSON.

GRASSES.

NOTWITHSTANDING the vast areas of the earth's surface which are densely clothed with forest growth, wherein the grasses are in the minority, in one or other of their forms, minute or gigantic, they probably cover by far the greatest portion. Except in the most arid deserts, some species or other always manages to find a foothold, and although in the dry seasons of the tropics the traveller, regarding the parched-up prospect, and even curiously examining the rocks and soil around him, might be inclined to deny the existence of any vegetation whatever, a few days after the rains have set in every chink and cranny reveals the contrary, and the blades of the all but ubiquitous grass speedily transform the seemingly barren scene into a verdant and fruitful one. It is probable, too, that, having regard, as it were, to the versatility of the grass family, as well as to the abundance of its members, no other tribe can rival it in its general utility to man.

We can roughly split it into three classes: first, those numerous species which, in all parts of the world, do their best to monopolise the soil wherever there is a suspicion of moisture, and the nutritious nature of which constitutes them the first of forage plants, so that indirectly we owe our cattle, sheep, and horses, and their myriad bye-products, so to speak—meat, wool, leather, and so on—to this branch of the grasses; secondly, we have those which, by man's selection, and under his careful cultivation, yield our daily bread in all its forms from their highly-developed seeds—maize, wheat, oats, barley, &c.—again all due to grasses, so that the old adage, "All flesh is grass," is extremely near the mark, though other fruits of the earth yield a fair contribution in these later days of varied foods. Then, if we go to warmer climes, we find some members of the selfsame tribe know how to profit by the solar heat and terresrial moisture; and lo! the bamboos—like grass under the microscope—soaring up for scores of feet, and yielding, from jointed stalk and leafy blade, endless utilities to the deft hands of the natives, their lithe, cylindrical shafts, hard as steel almost, varnished by Nature, and only needing cutting and joining, splitting and splicing, in the most primitive fashion to provide house furniture, and tackle of all sorts—again all made of grass. Another tribe of the giant persuasion adds sugar to our list, each knot a lollipop, the annual crop the outcome of a mighty industry.

It is indeed curious that in so extremely varied and widespread a family one and all appear to be at once innocuous and useful. In other tribes evolution, in some mystic fashion, has often linked deadly poisons closely together with nutritious foods, even, it may be, in one and the same plant or fruit—examples, the peach and almond, bearing the deadly prussic acid in their kernels, while the deadly nightshade and the delicious tomato or mealiest potato are very close relatives, as their flowers betray, though woe to the cook who made a general salad of the lot, as the cow does in the pasture with its various grasses. Our stately oak has its poisonous cousin in the States, and in the manifold forms of the other great division of dicotyledons boon and bane go hand in hand in very many instances. In the grasses, however, wherever grass grows, no matter the species, cattle may feed with impunity, and in the various grains we find, and naturally expect, the like, as they are all the result of selection. Considering the great likeness which runs throughout the tribe, so that in their very young state, except as regards size, seedlings are almost indistinguishable the one from the other, it is a great blessing that hay fever appears to be the only ailment to which humanity seems subject through its acquaintance with the grasses. C. T. DRUERY, F.L.S.

Transplanting Onions.—As the writer of "Men and Methods" at page 83 refers to diverse methods of transplanting winter-raised onion plants. I may mention that transplanting from the boxes into which they are pricked from the seed boxes with balls of soil, so that the roots are quite undisturbed, is the regular practice of Mr. Bowerman, gardener at Hackwood Park, Basingstoke, who has for two or three years been the champion grower, having always had the finest bulbs. Now, the grower who washes the soil from the roots of his plants before he plants outdoors may be able to show prize cards, &c.; but in what sort of competition? Another gardener, who is a first-class vegetable exhibitor and invariably has fine onions, is yet with these bulbs always beaten by Mr. Bowerman, but the other washes all soil from his plants before transplanting. Seeing what splendid results come from the balls of soil, is it not the best way?—A. D.

IN THE ORCHARD.

THE winter so far has proved one of the most favourable on record for carrying on all kinds of work in connexion with fruit growing, particularly in orchards. Since the fall of the leaf there has been nothing to interfere with lifting, root-pruning, and planting, and all such work should be in a forward state generally. At any rate, where it is not so, the plea of adverse climatic conditions cannot well be advanced as the reason for arrears. Root-pruning is always best done before the turn of the year, and the same remark applies to root-lifting, as the trees do not then sustain so severe a check from the performance of the operation. Any trees which may be needing a check should therefore be attended to at once, and the work brought to a conclusion as early as possible. Turning next to planting. This has been carried out from early autumn up to the present time with most favourable results as regards the working of the soil. The latter has invariably broken down well, and there has been no difficulty in obtaining a sufficiency of the finer particles for working amongst and covering the roots. Trees planted under such circumstances should, and will, no doubt, succeed, and growers may look forward to the result with equanimity.

There yet remain another few weeks in which planting may be done, and although no advocate for late planting of fruit trees, especially for orchards, I should not hesitate in the matter if time is an object, and there are many gaps to make good, or a fresh area to plant up. The great thing to observe in this case is to keep the roots of the trees out of the ground as short a time as possible, and to well moisten them in "puddle" composed of clay and water before planting. Ordinary soil will do in case clay is not procurable, and a little cow manure added will render the "puddle" more adhesive. This clings to the roots and keeps them uniformly moist until new roots are emitted and push out into the soil surrounding them. Staking is a matter which has a great deal to do with their future success or otherwise, as, if not kept firm and rigid, trees never do any good. When improperly staked they are at the mercy of the wind, which, in swaying them backwards and forwards, causes a funnel-shaped hole to be worked out round the stem, extending from the surface of the soil down to the roots. Every time rain falls the water pours down this opening, the roots become water-logged, they soon begin to decay, and in course of time—unless the matter is remedied—the tree dies.

Matters calling for attention at the present time where all the foregoing details have been carried out, are the pruning and cleansing of the trees, and manuring or top-dressing all such as need it. These, it may be mentioned, are operations which are too often observed in the breach, which is to be greatly deplored, as it is owing to such neglect that many orchards are in their present miserable condition. When the trees in an orchard have arrived at a bad state for want of pruning and the keeping down of insect pests, it takes a long time to bring them back to a healthy condition again. As regards pruning, this has to be done by degrees, as the adoption of too severe measures at the outset practically ruins the trees. Very often the cutting out of the dead wood alone in such cases suffices for the first year, as this alone exposes the remainder of the wood on the tree to more sunlight and air than it has experienced perhaps for years. The following season a general thinning of the heads may be done by cutting away branches that cross each other, and by a judicious reduction of the spray at the ends of the branches retained, so that sunlight and air may penetrate freely to all parts of the tree. The removal of large branches should be carefully avoided in such cases of neglect, as this invariably gives the trees a shock from which they seldom recover. Well-managed trees require but a general examination every year, which will keep them in good order and in a healthy, bearing condition.

With regard to parasites, such as moss, lichen, and mistletoe, these should be got rid of at all costs. The first two may be killed by whitewashing the stems and branches, and by syringing the self-same wash after straining it through a fine sieve among the smaller branches and sprays. Another good plan is to cast freshly slaked lime freely all over the trees directly after rain or during a fog when the wood is moist. This adheres wherever it touches, and quickly does its work, and may be repeated if the first application should be washed off. Those possessing appliances in the shape of hopwashers of the manual or horse-power type could not put them to a better use at this time of the year than to wash their orchards with them, either with the simple mixture mentioned above, or the more sure and effective remedy, made of caustic soda and potash. For a hopwashing machine, the limewash should be first strained through an old bag, and then thoroughly wet every part of the trees with the mixture. A manual machine would be the best to apply the soda and potash solution with, and the end of the branch pipe should be fitted with a sprayer. For tall trees, two or three lengths of galvanised tubing, made to screw into each other, are needed, so that the topmost part of the tree shall be effectually reached with the spray. These lengths can be fitted together as required by the person applying the wash, and the branch with the sprayer at the end should be made to fit any of these. This solution is made by boiling one pound of caustic soda and one pound of crude potash together in ten gallons of water. This will serve as a basis of calculation when large quantities are required. This kills all insect life, chrysalids, and eggs, as well as parasites, but must not be applied afrer the buds become prominent.

As regards manuring and top-dressing, a good dressing of farmyard manure spread over the surface of the ground under the trees acts as a good stimulant when they merely require something to keep them up to their work. If lacking energy, something more than this is needed, and if the orchard is a grass one, the sward beneath each tree should first be removed. Then apply the manure, after lightly pricking up the soil lying over the roots, or, if the manure cannot be spared, apply bone-meal, or bone-meal and kainit mixed with wood ashes sufficient to colour the surface of the soil. Dried blood and bone-meal, mixed in equal quantities make a good stimulant, as does fish manure, and superphosphate of lime and muriate of potash. The two latter chemicals must be mixed together in equal quantities and applied but sparingly, as they [illegible] powerful stimulant. Two ounces to a square yard is a sufficient dose [illegible] this at any one time. After spreading or sowing the manure, return the turf, not necessarily in the turves as dug up, but chop them up, and [illegible] the pieces grass side downwards as far as possible, and tread all firm again. Liquid manure is also valuable, and this may be carted and applied to the surface any time during the winter months. The more moisture [illegible] soil contains the more valuable will the liquid prove, as its fertilising properties will be arrested and stored up for future use, instead of passing on down to the subsoil and be lost, as it would do if the soil be dry. This is also an excellent way of disposing of the contents of cesspools and sewage tanks. The liquid can be used in the way described, and the solids, when mixed with coal ashes or fine soil, can, when quite dry, be used as a top-dressing. All the above-mentioned manures, whether liquid or solid, can be applied with equally as good results to trees growing on arable land as on grass land. Whatever stimulant is given fruit trees on arable land should either be lightly dug in beneath the trees or buried; first remove about three inches in depth of the surface soil, then, after spreading or sowing the manure, return it, and make all firm again by trampling it a few times.

Stoke Edith Gardens. A. WARD.

LÆLIA ANCEPS WADDONIENSIS.

IN all its varied forms Lælia anceps is a most beautiful and acceptable winter-flowering orchid, not very difficult to manage and amply repaying during its period of inflorescence for all the trouble expended upon it during the rest of the year. The brightly-coloured forms are by far the most common, and some of these, such as L. anceps Barkeriana, L. a. Crawshayana, L. a. Scottiana, L. a. Chamberlainiana, L. a. Ballantini, &c., are wonderfully rich, large, and beautiful. Then there is a section with paler colouring, sometimes a quite delicate shading over a white ground; these are extremely elegant, and include such gems as L. a. Amesiana, L. a. blanda, L. a. delicata, L. a. Keinastiana, L. a. leucosticta, L. a. Percivaliana, L. a. rosea, and L. a. Veitchiana, &c. Then we have the white varieties, and possibly the greatest interest centres in these, while on the score of beauty and elegance they certainly cannot be beaten. First among these with regard to purity comes L. a. alba, which has a pale yellow disk, but no markings on the inner surface of the side lobes. In point of extreme beauty combined with size and fine formation L. a. Schröderiana stands first, though in breadth of petals it is probably beaten by L. a. Dawsoni. Following these come the lovely varieties of L. a. Sanderiana, L. a. Ashworthiana, L. a. Hilli, L. a. Stella, L. a. vestalis, L. a. Williamsiana, and the new L. a. Waddoniensis.

The latter variety first made its appearance at the Royal Horticultural Society on the 8th inst. It came from the gardens of Philip Crowley, Esq., F.L.S., Waddon House, Croydon, and was staged by his gardener, Mr. Harris. It is a remarkably fine form, and will no doubt improve, for the two spikes shown each bore but two flowers. The two largest flowers measured a little more than four and a quarter inches across, while from the apex of the lip to the tip of the dorsal sepal measured fully four inches. The broad petals and narrower petals are of great substance, pure white throughout, save for a faint tinge of green at the tips of the sepals in a newly-opened bloom. The lip is notable by reason of its broad, bold front lobe, which is pure white; the disk is very thick, and of a rich golden yellow colour. The side lobes of the lip are white, but along the inside are veined with pale purple, the veins shading to crimson-purple as they recede. L. anceps Waddoniensis has somewhat small pseudo-bulbs. Altogether it is a very fine orchid, and if it scarcely comes up to the high standard of L. a. Schröderiana, it is nevertheless well worthy to represent the white varieties of the species in the collection of the genial Treasurer of the Royal Horticultural Society. C. K.

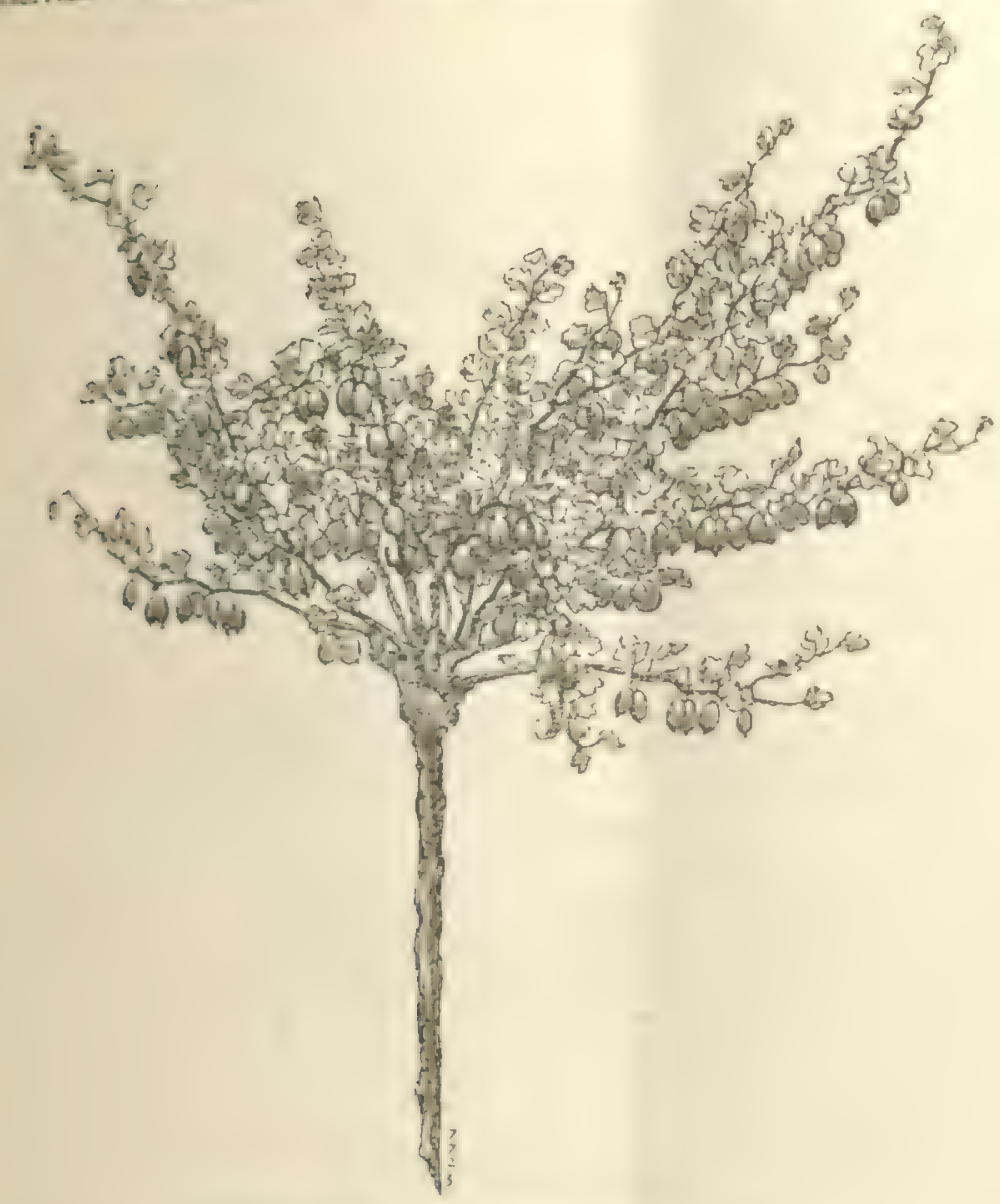
SPRING PLANTING OF CUCUMBERS.

THERE never could have been a better January for the raising [illegible] cucumber plants than was last month. Now, however, will come [illegible] time when firing is needed if the weather continues to be of the [illegible] character as during the last week. With me there has been no difficulty in raising plants, all being so wonderfully easy. Strong [illegible] planted will grow away without hesitation if they have the full [illegible] good bottom heat. Ours have entire new soil, and having previously thoroughly washed the house out the cucumbers have a fine start. At present our difficulty is in keeping down the small slugs imported with the turf and brought into life by the warmth. A little soot or wood ashes dusted round the hillock will render travelling rather difficult for them. Then, also, the whole house is baited with cabbage leaves, &c., and [illegible] we have to watch at night; for after all, as we know by experience, the young cucumber growth is more to their fancy than any bait.

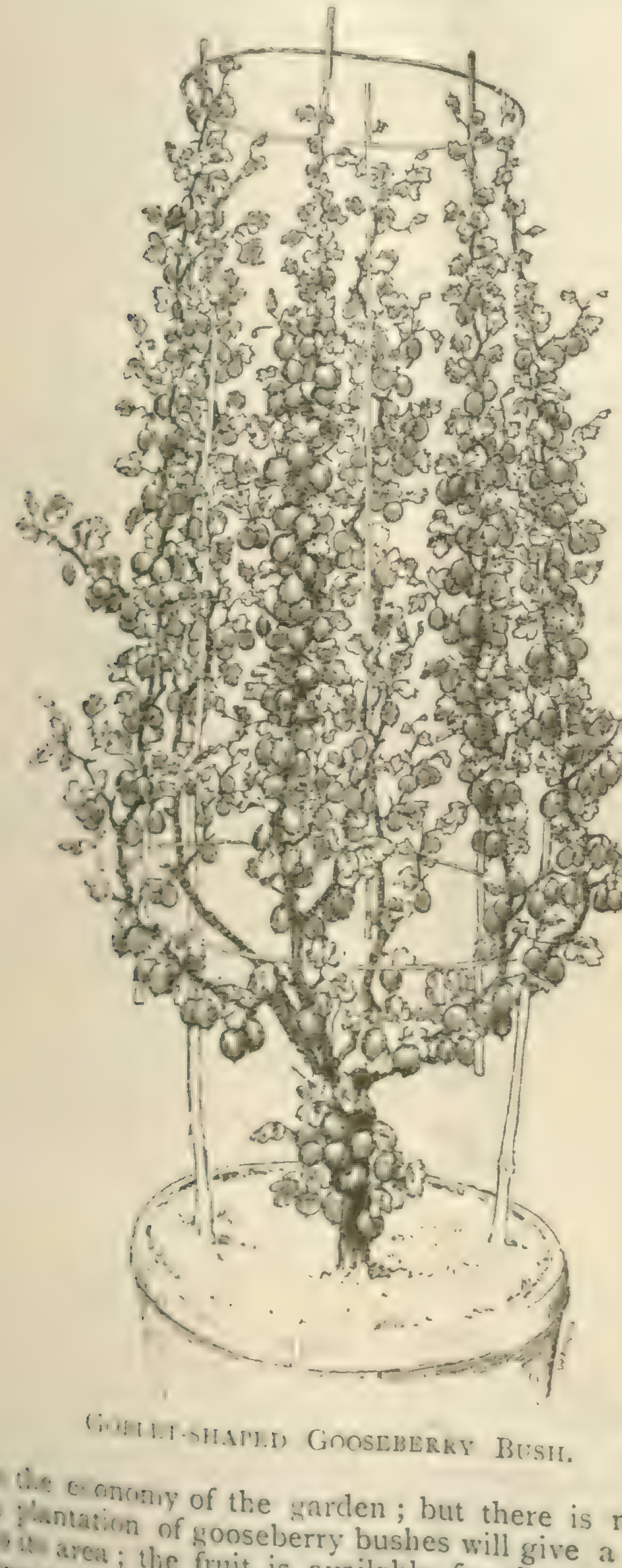
What little water the planted cucumbers will need must be given warm; indeed this is a necessity. That used for damping [illegible] border should also be tepid to prevent giving a chill to the [illegible] its best the cucumber plant is very tender, and especially when [illegible] in its new quarters. The growth, however, of such now [illegible] marvellous, and with days lengthening and sunshine more [illegible] indeed a pleasure to be among them, Our last house will be [illegible] March, and these I find from past experience are the heaviest croppers. Wind must be carefully guarded against, laying a rolled sack against the bottom of door to prevent draught. The glazing should also be [illegible] Though I do not syringe the cucumbers, yet when watering, the [illegible] well moistened; but when growth reaches the wire, except in very [illegible] cases, this is dispensed with. Plants should, under fair [illegible] no cleaning, for with all the aids to cultivation afforded as they [illegible] into fruit they should naturally be strong enough to keep them[illegible] clean. It is the weakly plants that are always attacked by insects.

Bottesford Vineries, Notts, STEPHEN CASTLE, F.R.H.

GOOSEBERRIES IN THE GARDEN.



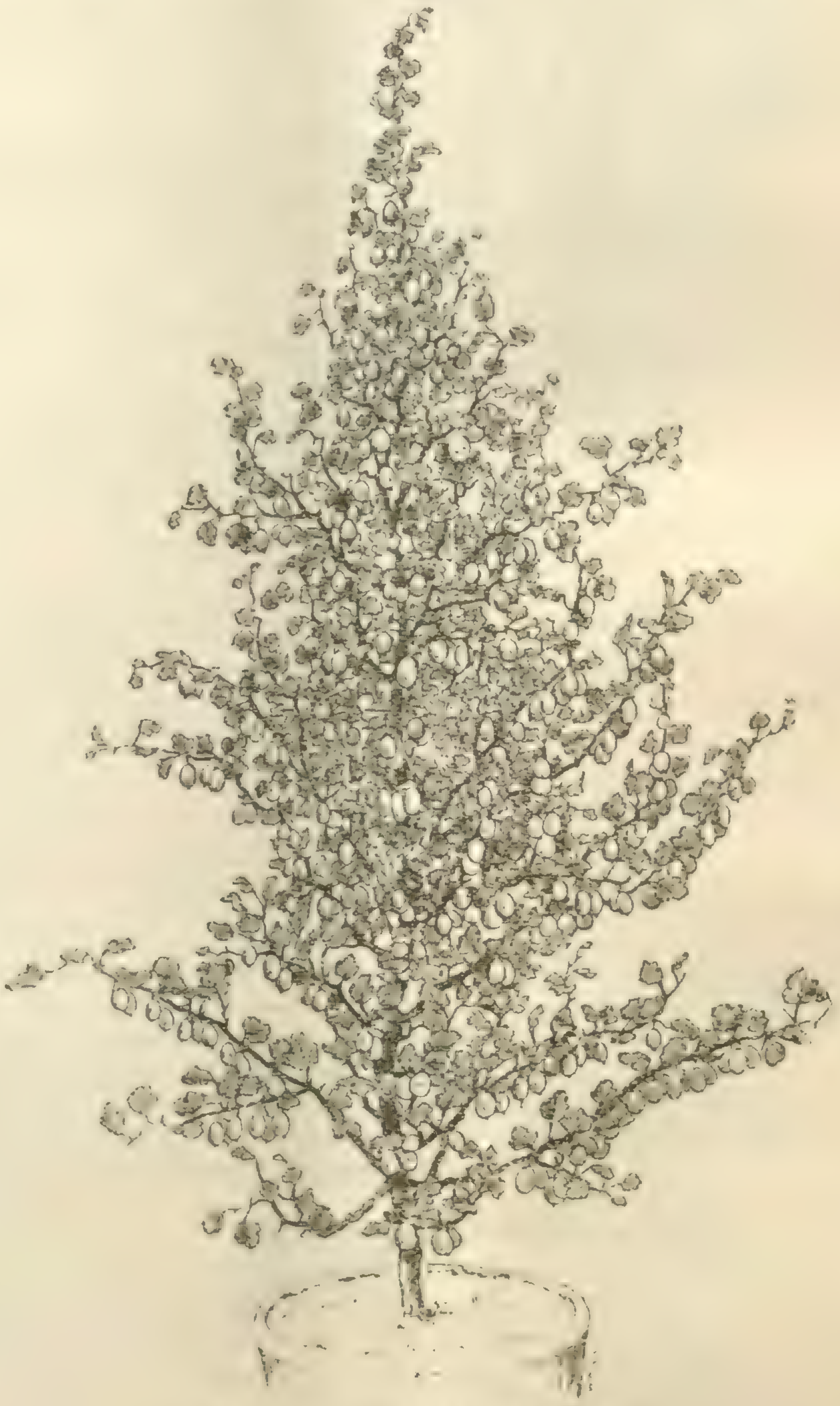
Standard Gooseberry Tree.



Goblet-shaped Gooseberry Bush.

That the cultivation of hardy fruits has undergone a remarkable degree of development during the past ten years is a matter of common knowledge; and it is also well known that in the production of both home and market supplies hard and soft fruits have equally shared in the advance. Gooseberries would appear to have received special attention, for they have been planted in enormous numbers; the increase being so great that nurserymen closely identified with fruit culture now sell a dozen bushes to every single bush they disposed of a few years since. This fact may perhaps perplex those who have not had opportunities for correctly estimating the value of bush fruits in general and the gooseberry in particular, in the economy of the garden; but there is no occasion for surprise. A plantation of gooseberry bushes will give a heavy yield in proportion to its area; the fruit is available for the table over a comparatively long period, as, unlike the produce of other bush fruits, it can be utilised with equally satisfactory results both in a green state and when it has attained its full maturity. The town dweller can have but an imperfect idea of the flavour of the fruit of the gooseberry in a ripe state. He has sufficient opportunities for formulating an opinion of green gooseberries as they usually reach the market in good condition; but the so-called ripe fruit has to be marketed before it has attained maturity, and in consequence of the practice which obtains of sending gooseberries to market in sieves, a considerable proportion of the fruit is smashed before it reaches the consumer. When it can remain on the trees until fully ripe, the fruit of the more highly flavoured varieties is at once delicious and refreshing. It is also remarkably wholesome, an attribute that is being more fully recognised, as indicated by the fact that in many gardens the plantations have been extended for the purpose of providing the children with liberal supplies when home for their summer holidays. Provisions are also being made in large numbers of gardens that have come under our notice for maintaining a supply well into August, and in the northern counties until September, as they are much appreciated at a time when the country house is usually full of guests.

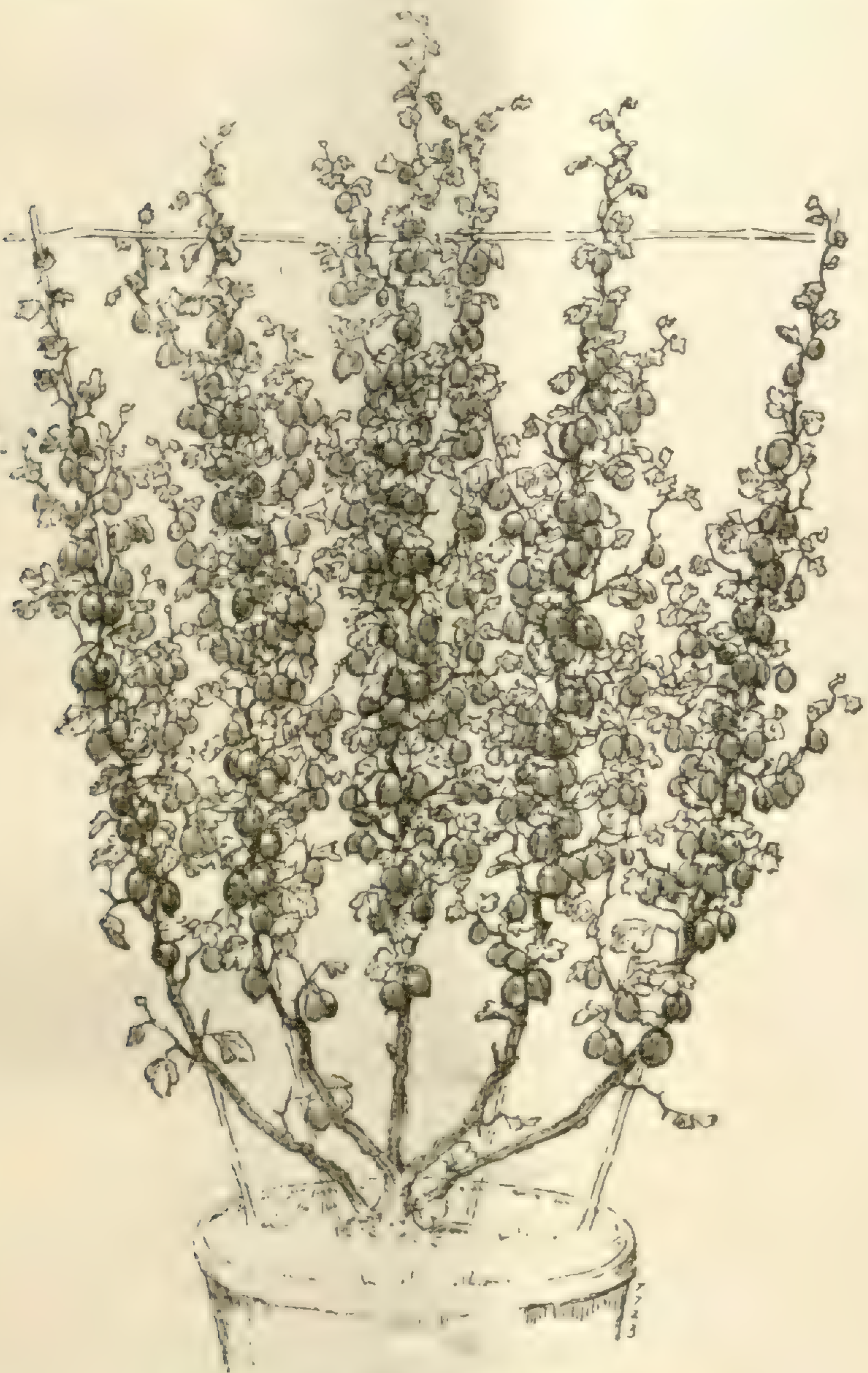
The gooseberry is perhaps less particular as to soil and climate than other of our hardy fruits, hence we see it thriving under the most diverse conditions throughout the United Kindgdom. As in the case of other bush fruits, an open sunny position is the most suitable for the plantations from which the principal supplies are drawn, as light and air are important factors in the development of the flavour of the berries. For late supplies a border on the north side of a wall ranging from eight to twelve feet high is the best place for the bushes, and when the wall space can be spared it is an excellent plan to cover the wall with cordon or fan-shaped trees, as these are usually very productive, and give an immense quantity of fruit in proportion to the wall space occupied. Then by filling the border with dwarf bushes the fruit required for use late in the season can, with a few light poles or strips of deal, and old fish nets, be protected from birds. At Castle Howard some such arrangement as this has been carried out by Mr. J. Riddell with the success that characterised the whole of his work in these important gardens, and abundant supplies were annually obtained until quite the end of the summer. Dessert gooseberries produced by bushes growing in the open should also be protected from the birds, as it is only when they are allowed to hang until they attain maturity that their characteristic flavour is fully developed. Old fish-nets carefully placed over the bushes will protect the fruit from the birds; but it is preferable to support the nets on a light framework of wood fixed five or six feet above the surface.



Pyramidal Gooseberry Tree.

The gooseberry is remarkably accommodating in the matter of soil; but like other fruits the best results are obtained when the roots have the advantage of a moderately deep loam in which to run. The private grower has but little choice in selecting soils for the several fruit crops, and has in consequence to make the best of those at his command. A deep loam is the best, because, while the bushes growing in it are able to make a vigorous growth and produce fruit of comparatively large size, the conditions are favourable to the ripening of the wood and the development of the flavour. On heavy soils the fruit frequently lacks richness, more especially if the drainage is not efficient, and where the soil is light and gravelly there is a great risk of the foliage becoming a prey to red spider and the fruit prematurely ripening. In the one case the soil may be improved by drainage and the addition of road drift or other gritty matter, and in the other by liberal dressings of decayed vegetable refuse and by mulching during the summer with half-rotted manure, grass mowings, or other light material that may be available. There is nothing better for applying to quarters occupied by gooseberries of which the staple is light than farmyard or stable manure, for while enriching the soil it materially assists in conserving the moisture.

The form of the tree must of necessity be determined by the position to be occupied, and the accompanying illustrations will be of considerable service in enabling the cultivator who has had but little experience except with the ordinary bush in making a selection adapted to his requirements.



MULTIPLE CORDON GOOSEBERRY.

These illustrations are reproductions of sketches made of some of the trees exhibited by Messrs. J. Veitch and Sons, at a meeting of the Royal Horticultural Society in the summer of 1897, and consequently show what has actually been accomplished. As the trees are represented as growing in pots it may be well to mention that they were lifted and put in them simply for the purpose of exhibition. The fan-shaped or multiple cordon is of special value for training to walls, fences, or trellises of wire and wood can be strongly recommended, for they are immensely productive. Cordons may have one, two, three, four, or five stems, but from three to four are preferable. The stems in all cases should be six inches apart, and the distance at which the trees are planted must be regulated by the number of stems. The pyramidal tree is well suited for the open quarters, as also is the goblet shaped, which has much to recommend it because of the full exposure to light and air the fruit obtains. In the majority of cases gooseberry bushes are allowed to become overcrowded, with the result that fruit is produced on the outside of the bush only, and the yield is less than it would be under more favourable conditions. It is a good rule to have the leading branches far enough apart to allow of the hand being passed between them without scratching, and in the course of the summer the young growths should be pinched or cut back to within a few leaves of the base, except shoots are required to take the place of old branches. Summer pinching involves but little time, and the superiority of the results will afford an ample return.

G.

On the Neutralising Action of Lime.—From three years' observations and experiments at Rhode Island Experimental Station, with various plants upon limed and unlimed soils, it was found that when the plants were treated alike in other respects there was an ill effect from the continuous use of sulphate of ammonia, which was not the case when an equivalent amount of nitrogen in the form of nitrate of soda was employed. Experience, however, showed that the ill-effect of sulphate of ammonia can be prevented altogether by the employment in connection with it of sufficient carbonate of potash, or by the use of wood ashes, or by air-slacked lime. Sulphate of lime (gypsum) failed to exert the same beneficial effect upon the growth of potatos as chalk, wood ashes, or air-slacked lime. These observations have been confirmed upon some light sandy soils naturally deficient in lime in this country, and lead to the conclusion that aside from a beneficial manurial or physical influence which air-slacked lime, wood ashes, or chalk, may have; they are probably useful in a high degree on account of a natural deficiency of mineral bases in the soil, and their ability to correct acidity (sourness) naturally existing or induced therein by artificial methods of cropping and manuring.—J. J. WILLIS, *Harpenden.*

CALIFORNIAN IRISES.

ALL Californian iris, so far as at present known, belong to the large group Apogon, or beardless iris, several of them being gems of the genus. Unfortunately, as is often the case with our treasures, these are difficult to manage, though there is one simple and most successful method of treatment which seldom fails. I have sometimes seen these iris advertised by American dealers at a time when planting them would mean certain failure, and the invariable remark from lovers of these charmingly beautiful plants has been, when recommending them, "If I knew how to grow the plant I would at once pay any price for it, but I have had it so many times, and it has never succeeded with me." Nearly twenty years ago we used to have importations of such kinds as Iris Hartwegi, Iris tenax, I. macrosiphon, and others, arriving, as a rule, in splendid condition in the autumn, but with the most careful treatment, rarely any of the plants ever made roots, or survived the spring. When sometimes the plants arrived during the spring the results were better, but still not more than 20 to 30 per cent. survived. The dealers had of course collected them during the autumn or summer, and they were kept laid in and then sent during the early part of the spring.

A few years later, through the kindness of a friend, I had a few plants, collected in the spring and sent, well packed, by mail; these consisted of Iris tenax, Iris Hartwegi, and a few plants of Iris Douglasi, all of which grew and flowered (I think in 1881) at the Hale Farm Nurseries. Accidentally Iris Hartwegi was lifted during the autumn, and though it kept alive over a year it never flourished again, and ultimately died. Iris Douglasi has slowly increased, and has flowered every year since. Of Iris tenax a whole bed, about ten feet long was raised, and there are still a few good pieces in existence, and these of a particular fine colour. Not having been able to secure another spring-collected lot of the Iris Hartwegi, and feeling sure that, after so many attempts, if tried again with autumn-collected plants there would be another failure, I have given up growing this species until I feel sure ,of success. These iris are not so particular about soil or climate, because as I have grown Iris tenax well in the open on soil consisting of heavy London clay, and again in sandy soil and ordinary loam, I feel sure that soil or climate is immaterial. Of greatest importance is, however, that they are not often moved, and then only during the spring when they begin to grow, always planting them again at once and rather shallow, giving an occasional watering during the first week. After that time they have made new roots and are safe. I speak, of course, only of the small growing kinds, which are at the same time the prettiest and most difficult; such species as Iris longipetala and I. missouriensis are easily managed.

IRIS DOUGLASIANA has very low and slender stems; creeping rootstock; leaves linear, evergreen and persistent, two to three feet long, dark green and often purple at the base. Flowers large, creamy white, lined and veined with crimson; falls rather long, with narrow standards; crests large. Flowering during the early part of the summer, this proves a very handsome species, being quite unique in habit and colour of flower. There is also a variety with lilac flowers and dark lilac veins, but whether this is the true I. Douglasiana I am unable to say.

IRIS MACROSIPHON has also low and slender stems and creeping rootstock; leaves light or glaucous green, linear, six to ten inches long, rather stiff and narrow; flowers small, rather graceful, lilac purple, tube somewhat filiform. The type flowers in May or June. Iris macrosiphon var. flava, is a form differing from the type in its shorter and broader leaves and bright yellow flowers. This form may, however, prove to be quite a distinct species; but as we had it under the name of I. macrosiphon var. flava, and also under I. m. flava var. nana, it is not for us to alter the name. It has the advantage of being much more easily cultivated.

IRIS TENAX has slender rhizomes; leaves tufted, linear, about four to six inches long and a quarter to half an inch broad, deep green, usually not evergreen; stems slender and short. Flowers comparatively large, bright lilac to rosy purple. This species is very free flowering and one of the most beautiful irises in cultivation. Flowers appear in May.

IRIS HARTWEGI has a slender creeping rootstock; leaves linear, six to nine inches long, deep green. Flowers bright or pale yellow, sometimes sulphur or white. Flowers are produced in May. This is the most difficuit of these Californian irises to manage.

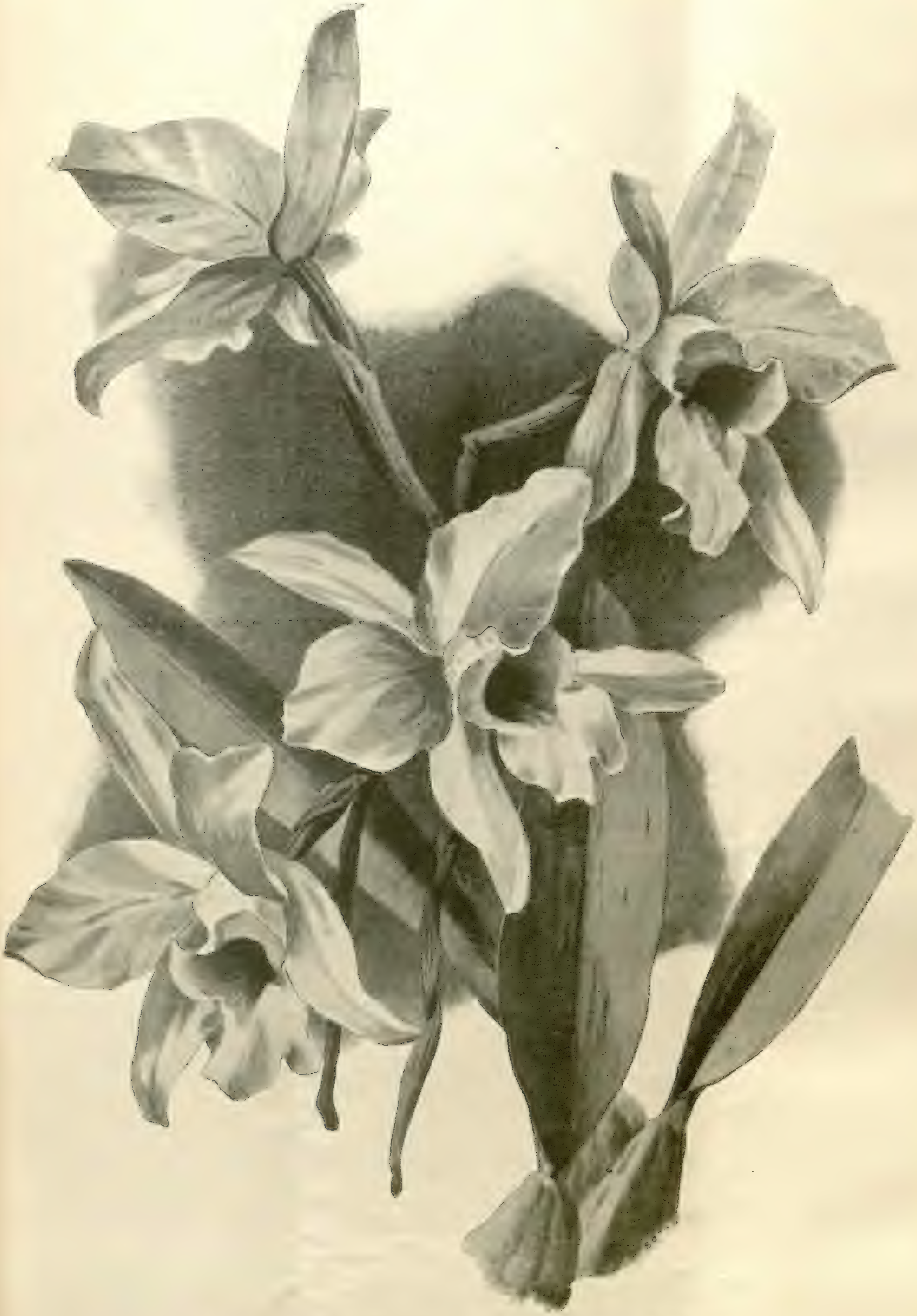
I. BRACTEATA produces tufted, linear, rigid leaves, nearly evergreen, one to one and a half feet long and half an inch broad. Flowers pale yellow and of a uniform colour. The plant is of very slow growth and flowers in May and June.

I. TENUIS has tufts of very thin and slender leaves about a foot long and one-third to half an inch broad. Flowers small, white or sulphur, veined yellow and pale lilac. At present this is a very rare species and seldom seen in cultivation. It flowers in April or May.

IRIS MISSOURIENSIS, besides being a very handsome species, is also one of the easiest to grow; its tufted, linear leaves, about one to one and a half feet long and half an inch broad, are glaucous green; stems one and a half to two feet in height, two or more flowered. Flowers large, pale blue, veined white. Flowers opening in March and April; one of the first of these iris to bloom. Being so very free this should be used for beds, especially when required permanently. It is very easily grown.

IRIS LONGIPETALA is of much coarser growth than the preceding; flowers larger but not so numerous, and produced later, in May. I. longipetala is also very variable, and crosses easily with allied forms, although intercrossing does not seem to improve them much. What is known in gardens as I. Tolmiana seems to be a cross between I. missouriensis and I. longipetala, and has paler flowers and broader and longer leaves than I. missouriensis. Iris longipetala compacta is a cross between I. longipetala and probably I. spuria; of compact growth, with broad, uniform leaves, and pale blue, white-veined flowers that are larger than in the two preceding. I. californica or I. longipetala minor is allied to Iris missouriensis, but has not free habit, and flowers later.

G. REUTHE.



LÆLIA ANCEPS WADDONIENSIS. (Flowers white and yellow.) *See age* 112.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE present time will be found the most suitable for dividing and potting overgrown specimens of masdevallias such as M. ignea, M. Harryana, M. Veitchi, M. Lindeni, M. polysticta, and M. tovarensis. The pots or pans used for masdevallias should be three parts filled with clean potsherds, covering this with a thin layer of sphagnum. The compost should consist of peat of good quality with the dust shaken out and living sphagnum, using this in equal parts with a little coarse sand added. A little fibrous loam may be added with advantage for the stronger growing kinds such as M. Harryana, M. Veitchi, and M. Lindeni, as these require something more to root in than most others. Plants that are in good health should be turned out of the old pots, removing a little of the loose material, but taking great care not to injure the living roots, placing them in pots a size larger, pressing the compost moderately firm. In the case of sickly plants or any that have become exhausted in their old receptacles, should have all the old material removed and the decayed roots cut away; small pots should only be used. In potting such plants should not be raised much above the rim, or it will be found very difficult to make them secure, and if left in an unstable condition they cannot become re-established; small neat stakes should be used to keep the plants firm. A few fresh heads of sphagnum moss pricked in over the surface of the compost will soon grow, and greatly improve the appearance. Specimens that only require top-dressing should have the old material picked out and replaced with new. Great care should be taken in watering after repotting, until the new roots have a good hold of the compost; the surface may be kept most with the aid of a fine rose-can to induce the sphagnum to grow. Should cold weather prevail it will be prudent to remove M. tovarensis to the coolest part of the intermediary house.

Masdevallias of the Chimæra section should also be attended; these are best grown in teak-wood baskets, and suspended close up to the roof. The potting material should consist of peat and sphagnum moss in equal parts with some finely broken crocks and charcoal intermixed, as no crocks should be used for drainage owing to the spikes growing downwards through the bottom and sides of the baskets; after rebasketing place in the most shady part of the house, and on bright days spray over them, by means of a syringe, using tepid soft water to keep the compost sufficiently moist, and prevent the attack of red spider. These masdevallias are best grown in the coolest part of the intermediate house during the winter months. Lælia harpophylla, a beautiful species with its bright vermilion-coloured flowers, will be making a nice show just now, and cannot fail to give satisfaction to those who grow it successfully; after they have passed out of flower the young growths start from the base of the stem-like bulbs, and only a moderate supply of water must be given until root action becomes brisk, and the young growths are well advanced, then a full supply of water may be allowed. This species are sometimes grown in the intermediate house, but it may be grown with equally good results at the warmest end of the odontoglossum house.

With increased sun heat the day temperature may rise a few degrees, but afford the same care in ventilating, damping, and watering. Cool houses that are in an open position should have the roof shading fixed ready for use, as the plants having passed through the dull wintry months are unable to bear the sudden bursts of sunshine that sometimes now occur in the middle of the day.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

THE middle to the end of February is the most suitable time for sowing seeds of gloxinia, Saintpaulia ionantha, Isolepis gracilis, Cyperus alternifolius, asparagus in variety, &c. There is very little gained by sowing them in January—the short, dull days and the extra reliance that has to be placed upon artificial heat is against the free germination of the seeds. Sowing at the time stated above will generally give the best results, as the lengthening days and the increased light, will all be in favour of the young seedlings growing away without any check. Pans and six-inch pots are the most suitable for seed vessels, and should be filled at least one-third of their depth with crocks, the larger at the bottom, and finer on the surface, over these a covering of moss, and then the compost in which the seeds are to be sown. This should consist of equal parts loam, leaf soil, and cocoanut-fibre refuse, with a free admixture of sand. Pass through a quarter-inch sieve, and place an inch and a half to two inches of this into each pot or pan over the moss; then sift the remainder through a finer sieve, and place half an inch of this finer soil in each pot or pan, press level, and give each a watering with warm water, and stand in the house where the seeds are to remain while germinating. When the water has drained away, the seeds may be sown evenly over the surface, and in the case of very small seeds, no covering of soil is necessary—merely press the seeds into the soil: larger seeds may have a covering of soil equal to their own diameter. When sown and duly labelled, cover each with a sheet of glass, and then the glass with moss or paper. When it is necessary to afford water to pans or pots containing very small seeds, do not water overhead, but stand the pot containing the seeds in a vessel of water, and the upper layer of soil will become moistened as a result of capillary attraction.

Propagation of all classes of stove plants may now be proceeded with apace. Where a large amount of decorating has to be done, especially table decorations, the propagating case will be in constant use. We propagate large quantities of crotons, dracænas, acalyphas, pandanus, fittonia, pilea, and other things for this purpose; the cuttings are placed singly into thumb pots, and when rooted they are hardened off and kept in the thumb pots for use on the dinner table. It is surprising how long they can be kept in a presentable condition in these small pots by judicious feeding. When taking suckers of Pandanus Veitchi, avoid those strong ones which throw out from the axils of the leaves, taking in preference those very small ones which are to be found at the base of the plants, as these will make for the best plants, and if grown in poor soil will show a great deal of the white variegation, the leaves also arching more gracefully. Keep the suckers somewhat dry and free from drip until roots are formed. Crotons may be rooted at this season without the loss of a leaf. Make the soil firm around the base of the cutting, tie the leaves up carefully to a thin stake (not too tightly); when plunged in the propagating case allow each one to stand clear of its neighbours, syringe them overhead four or five times daily, and keep the soil moist at all times, but not too wet. Aralias are useful subjects for many purposes—in fact, they are so graceful that one could hardly place them wrong. With the exception of A. reticulata and A. Guilfoylei they are not readily raised from cuttings, and grafting is resorted to for the purpose of increasing the stock of such varieties as A. Veitchi, A. elegantissima, and A. leptophylla, using as stocks the two first-mentioned species; after grafting place in the propagating case. Old plants of acalyphas that have lost their lower leaves may now be cut freely in, the points may be inserted to increase the stock, and the old stools kept dry until they break freely into growth.

Bougainvilleas may now be pruned. These are glorious climbers, but B. glabra and its forms are not seen to the best advantage in the stove, an intermediate house suits them better; in such a house they bloom more freely, and the flowers are of a much better colour than is generally the case in the strong heat and moisture-laden atmosphere of the stove. In pruning spur closely in, and afterwards afford the stems a washing, and give a rich top-dressing. Plants of Clerodendron Thompsoni should now receive attention; thoroughly soak the old ball with tepid water, and any that require repotting should be attended to, using as a compost good fibrous loam, leafmould, a little well-decayed manure and silver sand; after repotting give water cautiously until the roots are working freely in the new soil. Those plants which are to be retained in the same pots should have the drainage examined and receive a rich top-dressing. Syringe the plants overhead two or three times a day to induce them to break freely. More tubers of gloxinia, achimenes, and caladium should be started.—J. TUNNINGTON, [illegible] *Castle Gardens.*

KITCHEN GARDEN.

THERE is much work that can be done in this department at the present time that will greatly facilitate matters later on; therefore, anything that can be taken in hand now should on no account be neglected. Pea stakes should be procured and sharpened, and put together in sizes for peas of different heights; bean sticks may be treated in the same way. Any box edging that needs replanting should also be attended to while the weather is suitable, and after all wheeling is done the garden paths should receive attention. If any require regravelling this should be done while the ground is moist, as the gravel will bind best when in such condition. The days are now lengthening, so that work in every department will be more pressing, and as that in this is often neglected it is well to bear in mind that those who would avoid any complaints must be well prepared with abundant supplies. The cabbage plot should receive attention by having the spaces between the rows sprinkled with nitrate of soda. If any weeds are showing themselves the ground should be pointed over when sufficiently dry on the surface to prevent its being picked up by the boots. Shallots may now be planted, and those who desire them for exhibition purposes should select sets that are not likely to split up too much, and these should be planted a sufficient depth to prevent the roots from lifting the bulbs out of the soil. The ground in which these are grown cannot well be too rich if large well-shaped bulbs are wanted. When the soil is in a workable condition a small sowing of carrots may be made on a warm border. It is always far better to defer digging such ground till the time of sowing, as it works much more freely than when dug in the autumn, the particles of soil being closer together do not retain so much moisture. If dug and sown as the work proceeds far better results will be obtained than from ground that has become sodden or made pasty by frost. A small sowing, too, of lettuce and radishes may also be put in. Care must be taken to protect the latter from birds, which are very troublesome at this time of the year.

Forced vegetables will now be in great demand, therefore ample provision must be made for their growth. Roots of both tarragon and mint must be introduced as the older lots become exhausted. It is a good plan to have a stock of cuttings of both these put in boxes in August; they will root freely at that time of the year, and the boxes may be introduced into heat as required. Small sowings of such things as chervil, celery, basil and savory should also be made in pans or boxes, as the young foliage of these is much esteemed by most cooks for flavouring. The young leaves of sorrel are often in request, so that a few boxes of it should be placed on a slight hotbed to induce a free growth. Salads of all kinds must not be neglected, for where there is a constant demand for these small but frequent sowings should be made of mustard and cress, while endive, chicory, dandelion, &c., should be introduced into heat in small quantities to keep up the supply. A small sowing of tomato seed should also be made, but it is well not to put in the main lot until the weather is a little warmer, for the more freely the plants grow with an abundance of light and air, the shorter-jointed and more robust will they be.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

THE varieties of grapes chosen for early forcing are, or should be, always free setting, and should be thinned as soon as the berries become large enough to be easily singled out, as there is no need to wait for fear of some berries being stoneless. Early grapes should not be thinned so freely as mid-season and late varieties, as they rarely swell so much, and as they are generally cleared off soon after they ripen there is no fear of damping. Laterals should be stopped at one or two joints beyond the bunch, allowing the latter number of joints where there is plenty of room between the rods, it being better to allow one or two extra main leaves than to force a very early crop of sub-laterals. Keep the house fairly moist in bright weather but avoid too much moisture, the presence of which is soon made known by the appearance of air-roots on the stems and warty excrescences on the under sides of the leaves, both of which are bad signs, which, if encouraged, will most certainly lead to shanking. I do not pretend to say that they are the cause of shanking, but I have rarely, if ever, met with shanked grapes on vines that have not carried also a crop of aerial roots. Vines in flower should have the atmosphere kept rather dry until they have passed this stage, and the bunches should be tapped or have the hand drawn carefully down them on bright days at mid-day. The present is a good time to start a mid-season house, it being better to give the vines plenty of time than to hurry them later. Muscat and other late houses should be made ready for starting; the borders should have the necessary attention in top-dressing, and those which are at all dry should receive a thorough soaking of tepid water. I find that the last week in February or the first week in March is the best time for starting late vines, for the grapes are then ripened under the influence of full sunshine, instead of having to be helped by artificial heat in the autumn. The ventilation of vineries at work must be on careful lines, avoiding anything in the shape of front air or draughts from any cause, as these are certain causes of mildew; the necessary air should be given at the apex, and shut off again soon after mid-day.

Early melons must be potted on or planted out before they become pot-bound. Whichever method is chosen, the soil should be thoroughly warmed first, and should consist of heavy loam with a good sprinkling of broken mortar rubble. Where the only available loam is of a light nature, one of the best correctives with which I am acquainted is brick earth, and this may be used in a proportion of from one-third to one-half the bulk. An excellent system under which good crops of melons can be grown, and which counteracts in a great measure the tendency the plants have to canker at the collar, is a combination of the pot and planting-out systems. When the young plants have filled their pots, which may be anything from four inches to six inches in diameter, with roots, the bottoms of the pots should be gently broken away until a hole large enough to allow of the escape of new roots has been made, then the pots should be plunged into hillocks of soil made up in the usual way, and into which the roots run freely; the pot rims should stand an inch or two out of the soil, then the collars may be kept dry or nearly so. A bottom heat of 75 degrees must be kept up, and a minimum temperature of [illegible] degrees is suitable for top growth, keeping the plants always as near as possible to the roof glass, and preventing in this way the tendency they have to become drawn during the early months of the year. More seed should now be sown for successional crops; it is better to sow frequently and to utilise only the thrifty plants than to depend on less frequent sowings, and starve them by confinement to small pots too long. An eye should be kept on the occupants of all fruit-forcing houses, with the object of detecting the first signs of insect attacks, as it will not do to give these any grace. Cherry and peach trees are especially liable to attacks from aphides; but gardeners of the present day have much to be thankful for in the excellent insecticides which may be always at hand for the destruction of these pests without doing any injury to their hosts. Fumigation, which is now such a pleasant function that there is no excuse for putting it off after an attack of insects is noticed, used to be a horror and a danger rolled into one. I find, too, that fumigation, or rather vaporisation, under the new methods can be safely and successfully carried out in houses that could not be made to hold tobacco smoke long enough to kill one-third the insects they contained.—J. C. TALLACK, *Livermere Park Gardens.*

R.H.S. AWARDS.

IN my search through the 1897 awards I overlooked the F.C.C. to Cymbidium eburneum. I was not present at that meeting, but the plant received the award after our custom of granting it to old plants when they are worthy of it. Our records do not contain any evidence of the granting of the award to C. eburneum previously. In like manner the others you mention (January 25, 1898) received their awards. Were Cymbidium eburneum to appear now as a new orchid it would at once receive an F.C.C. Therefore, why not place it in the list, though an old plant, in its proper place, for the benefit of those to come who consult the R.H.S. records for comparative merit? As a matter of fact the whole question of certificates wants remodelling and widening, for orchids have enlarged their domain to such an extent that they have almost outgrown their relation to the pair of certificates we have to grant. The work of the committee is no sinecure, and as it is voluntary and heterogeneous, some error is sure to creep in. I should like to ask if the council *does* review the awards we recommend.

Rosefield, Sevenoaks. DE B. CRAWSHAY.

[As we understand the matter, the object of the Royal Horticultural Society in instituting awards for meritorious plants, flowers, fruits, and vegetables was to confer such distinction on meritorious introductions as would indicate to their Fellows and others interested that they were by reason of their distinctness and high quality deserving of general cultivation. Assuming this to be the object, we fail to see that any useful purpose is served by granting certificates or awards of merit to subjects with which the general body of cultivators are fully acquainted. As no cultivator requires a certificate to be conferred upon the Black Hamburgh or Muscat of Alexandria grape for the purpose of showing him that the variety is sufficiently meritorious to be planted, so we may assume no orchidist requires a certificate to be granted for Anguloa Clowesi or Cymbidium eburneum to assist him in determining whether or not he will add the species to his collection. We readily admit that either of these orchids would be certificated were they to be introduced at the present time, and the distinction would be well deserved. But as they would in that case be unknown to the general body of cultivators, the award would stamp it as possessing merit of a high order, and thus serve as a guide to intending purchasers. To those who fail to appreciate the principle involved in the question at issue, it may appear an anomaly that meritorious subjects which have long been under cultivation should not have distinction, while recent introductions, that in their way are not more valuable, have awards made in their favour; but when the object of the award is properly understood it at once becomes apparent that the certificating of plants that have long been in cultivation, and are generally known, is unnecessary and undesirable. The Floral Committee at one time gave certificates to generally known plants, in some instances to hardy perennials obtained for a few pence, but some years since they abandoned the practice, and in the interest of the Orchid Committee, we trust that body will limit the granting of certificates and awards of merit to plants that are new or not generally known.—ED.]

The Fruit Committee of the Royal Horticultural Society have awarded already this year three first-class certificates to fruits. But such awards would hardly have been so numerously made had the varieties been of indifferent merit, and ripening in November rather than into the new year. Every variety, whether of apple or pear, that shows fine keeping qualities and excellent quality in January, February, or later, is highly prized, because at such periods of the year really good ones are scarce. The new pear, President Barabe, was in fine condition in January, and the old Passe Crasanne, shown on February 8 in such splendid condition, by Mr. Woodward, hitherto never certificated, was even finer and more luscious. Even if it be a somewhat indifferent cropper, at least it is, when well grown, a splendid pear. The new apple, Lord Hindlip, at least new in name, though old at Hindlip Hall, is also an undoubted excellent desert variety, and should soon be widely cultivated.—A. D.

THE SHERWOOD SILVER CUP FOR ANNUALS AND BIENNIALS.

THE details of the competition for the Sherwood Cup that are given on page 48 of the R.H.S. "Arrangements, 1898," do not appear to some people sufficient, and various applicants have asked the following questions, which, with their answers, the President and Council would be greatly obliged by your kindness in publishing for the information of others:—

Q. The contents of each tube must consist of one variety only; am I to understand that Coreopsis grandiflora and C. Drummondi, or Nasturtium Cloth of Gold and N. Crimson King, and so on, may *not* be exhibited in the same tube? *A.* They may not

Q. Are the tubes "not to exceed three inches diameter at the top side"? *A.* They must not exceed.

Q. "The vases must be provided by exhibitors, and must not exceed six inches in diameter inside"; does this apply to the "plain glass vases" only? *A.* Yes; the tubes must not exceed three inches, nor the vases six inches.

Q. Who provides the tubes? *A.* The exhibitor, unless he is content with the stoneware jars the society provides at all times.

Q. Will Regulation XI. be enforced: All specimens must be the *bonâ fide* property of and grown by exhibitor? *A.* Yes.

Q. Must exhibitor stage—*i.e.*, arrange his own exhibit, or may he call in professional help? *A.* A special person may *not* be procured for this special purpose; exhibitor or his gardener, or some member of the family of either, must arrange the exhibit.

Q. Can the exhibit be repeated? *A.* Yes.

Q. Will other foliage be allowed? *A.* Only the foliage of the variety itself.

Q. May grasses be mingled with flowers? *A.* No.

W. WILKS, Secretary R.H.S.

THE BUSH HILL PARK NURSERIES.

SOMEWHERE about the year 1840 Mr. Hugh Low commenced business as a nurseryman, and under the title of Messrs. Hugh Low and Co. the business created by him has for a very long period been among the foremost of its kind in the United Kingdom. The nursery was established at Clapton, and grew so rapidly that Mr. Hugh Low found it too much for one person to properly control, consequently he endeavoured to persuade his son, now Sir Hugh Low, to take part; but a taste of life in the East was not so easily broken with, and the son stayed to make a great name for himself in connection with Borneo and the Straits Settlements. Another son, however, was persuaded to leave the East India merchant service, in which he was then engaged, and come home to assist in a gentler art than that of roving in the East. This son, Mr. Stuart Low, eventually became head of the Clapton firm, and he in turn has been succeeded by his three sons, Mr. Hugh, Mr. Stuart H., and Mr. Edward V., and of these only the two latter remain, but having been brought up in the trade they conduct the affairs of this very large concern in a most efficient manner. As London grew and spread its grimy self, octopus-like, in all directions, it gradually enclosed the once open suburb of Clapton, and it became evident that to successfully compete with other firms the establishment of Messrs. Low and Co. must be carried farther afield. After a careful consideration of sites an outlying part of Enfield was selected, and the admirable manner in which everything has thriven there proves conclusively that the selection was a first-rate one. Another reason for opening a branch nursery was that there appeared little chance of renewing the lease at Clapton, as such a slice of land would at the conclusion of the lease be a most valuable building estate. So year by year, without any undue haste, various departments have been drafted from Clapton to Bush Hill Park, until, a fortnight hence, the head-quarters of the firm will also have been removed thither.

The lease at Clapton does not run out for a few years yet, and the nursery there will be utilised for holding the immense stocks of palms, aspidistras, aralias, and other subjects, known technically as "furnishing stuff," which this firm raises and cultivates so successfully. But for choice stove plants, climbers, cyclamen, New Holland plants, soft-wooded plants, heaths, roses, fruit trees, and last but not least, the orchids, we shall in future turn our faces to the north-east; forgetting that Low and Clapton were formerly inseparable names to horticulturists, but remembering that half an hour's run from Liverpool Street will bring us to Bush Hill Park Station, and three or four minutes' walk will then bring us to the nurseries and headquarters of Messrs. Hugh Low and Co. Here one will find a town of glasshouses covering an area of over four acres; not a house is less than one hundred and twenty feet long, and some must be fully thirty feet wide, and thirty feet longer. All are built in modern style with large panes of glass, so that the largest possible amount of light is received by the occupants. There are about ninety houses; it is not well to give a definite number, for "about" will allow of expansion, and the eighty-seven houses the writer counted may have increased to ninety-three or ninety-five a few weeks hence, and some critical reader and visitor may question the correctness of the figures. The houses at Bush Hill Park grow by sixes or eights, and there is no dawdling when a block is commenced.

When commenting upon such an extensive establishment it is not easy to know where to begin, but let us commence with the cyclamen, for who has not heard of Bush Hill Pioneer, the new crested form that created so much surprise a couple of years ago? Here is a large batch of fine plants and all picked varieties for seeding; they show the cresting along the centre of the segments in a remarkably distinct manner, and prove that in the creation of stock the firm has not been led away by inferior forms for the sake of meeting the demand. Naturally, a large number of crosses have been made between the very best of the Pioneers and cyclamen of other colours, and so far the results are most promising. Bush Hill Pioneer was the result of at least six years' careful selection. The Messrs. Low do not as a rule name their cyclamen, but they have handsome strains of white, one, known as Majestic, being especially good by reason of its purity and the exceptionally broad segments to its large flowers. Then there are batches of deep crimson, very distinct and vivid scarlet, bright rose, deep and rich plum colour, salmon, and other varieties, not forgetting a marked progress in the direction of large and sweetly-scented flowers. Passing on one peeps into long low houses of seedling cyclamen and hears a matter-of-fact statement from the guide that this contains eleven thousand, that thirteen thousand, and so on. When you have heard thousands and tens of thousands tossed merrily about by the various departmental foremen you conclude that figures are a bit of a nuisance, and that the sense of sight gives you a better idea of quantity than do statistics. Carnations of the various winter-flowering types are next passed in review, there are battalions of J. P. Rugus, Daybreak, E. G. Hill, Franco, Miss Joliffe, and a whole regiment of the glowing Winter Scarlet, a variety that is practically perpetual, for new shoots take the lead as others finish flowering. The hydrangeas are very effective though only the buds are as yet to be seen nestling amid the ample and rich green foliage; there is a good batch of the form with variegated foliage and also of the black-stemmed variety known as H. cyanoclada. Marguerites are a grand stock, and one can quite understand that they will soon be disposed of. Decorative pelargoniums occupy several houses, they are grown very cool and on an ash floor, and not fed until the buds set, so that fine stocky specimens are produced; Digby Grand, W. H. Smith, Mrs. Gladstone, Masterpiece, Mabel, and Miss Wetherell are among the favourites, judging by the stocks of them.

Ferns are present in sufficient quantity to stock a moderate-sized nursery, and in addition to large batches of popular kinds such as Pteris cretica majus, P. serrulata cristata, P. tremula in variety, P. Torrancei, P. internata, P. Wimsetti, Asplenium laxum-pumilum, A. nidus-avis, Adiantum cuneatum, A. c. grandiceps, A. Bausei A. Williamsi, A. formosum, &c., there is a large and growing collection of lesser known kinds. Gymnogrammas, nephrolepis and davallias are specially well represented, and among the latter D. Mariesi grown in round masses and like balls of delicate frondage were very attractive suspended from the roof. The popular Aralia Sieboldi and Aspidistra lurida, both of them in green and variegated forms, are models of good culture. The best dracænas are grown by the thousand, and there are whole forests of Ficus elastica that will be turned to better account than even that of the production of india rubber. Many a gardener would be the envy of his neighbours did his houses contain such examples of the handsomely variegated Dracæna Doncetti as here are seen. In tropical heat you wander through groves of Pandanus Veitchi in all sizes, there are bushes of crotons resplendent in green and gold or smaller plants suitable for table decoration or the foundation of exhibition specimens, and the air is fragrant with the scent of Jasminum gracillimum. Bougainvilleas, allamandes, dipladenis, stephanotis, and others are represented by first-rate specimens that would cover a lot of space or make handsome balloon specimens. Gardenias, large and small, jacarandas, Ficus Parcelli, Heliconia illustre, Aralia filicifolia, A. Veitchi, A. gracillima, A. leptophylla, marantas, caladiums, asparagus in variety, nepenthes and a whole host of stove subjects comprising one of the most varied collections seen of late are here represented by thrifty plants such as a gardener loveth.

Turning to another department, you are soon amid heaths of all sizes, species, and varieties, growing or flowering finely, and in such a healthy state that there is no fear of the Messrs. Low and Co. losing their long-sustained reputation for the management of ericas. It is most interesting to view the houses containing the New Holland plants, and also educational, for as they have shown at many an exhibition, the firm not only keep but they can grow these subjects well, and that in a small and attractive state. Cytisus (genistas) are at present very attractive, the golden flowers giving off a pleasing fragrance ; C. fragrans is most in evidence, but C. elegans is also largely grown as well as the beautiful C. Scoparius Andreanus. Many young gardeners would feel as if transported to a new country, here among correas, diosmas, brachysema, polygalas, metrosideros, chorezemas, aphelexis, Tremandra verticillata, witsenias, eriostemons, genetyllis, Aotus gracillima, &c., &c., all neat plants, and many of them now in flower. Acacias are a great feature, and deservedly so, for they are most elegant when in flower ; A. ovata, A. platyptera, A. cordata, A. Drummondi, and A. dealbata are most extensively grown, but there are other interesting species that are good garden plants. Greenhouse rhododendrons with deep green foliage and swelling buds promise a rich harvest. Daphnes, the beautiful and fragrant daphnes, abound, and delight one with their sweetness ; the difficulty at Bush Hill Park is to grow these to any size, not that the firm is incapable of so doing, but because the plants are bought up so quickly. Huge houses fullof azaleas in various stages of progress towards flowering are to be seen, but space limits present mention of more than three of the prime favourites—Deutche Perle, Van den Croyzen, and Fielderi. A beautiful batch of Araucaria excelsa arrests attention as much by its size as thee legance and symmetry of the specimens. Then there are phormiums, ophiopogons, Choisya ternata, boronias of many kinds, but especially B. heterophylla and B. megastigma, coprosmas, cannas, houses of young vines, figs, &c., &c., but we pass now to the orchid department.

Orchids have ever been a great feature at the Messrs. Hugh Low and Co.'s Nurseries, and they take a most important place at Bush Hill Park. There is one very large range of houses connected by corridors, and this contains the cool orchids, and ere now, the phalænopsis as well. Here, too, the firm has made a new departure in the shape of a show house or orchid rockery, where, amid foliage begonias, ferns, and other handsome foliage plants, some of the flowering orchids are placed, and a charming effect is produced. The cool orchids, close by, odontoglossums and oncidiums chiefly, are in the pink of condition, rooting freely into the compost, and what is more to the purpose, bristling with spikes. Here are unflowered thousands of Odontoglossum crispum, O. triumphans, O. luteo purpureum, &c., and buyers may secure another O. c. Queen Victoria, such as the firm showed at the last Temple Show, or some other fine form, and if they do not they will have, at any rate, some good flowers, for there are at present a large percentage of good spotted forms. Like some few other orchid cultivators, Mr. Low believes in early potting for odontoglossums, instead of autumn, and the condition of the plants favours the former *régime*. A goodly number of specimens of Oncidium macranthum attract attention by reason of their immense spikes, some of which have prominent flower buds on them ; these will be a grand sight later on. Odontoglossum Edwardi and O. cirrhosum are well spiked, and there is a large batch of business-looking O. Pescatorei. Here is a batch from which O. excellens is expected, and there a set that should contain O. Wilckeanum or O. Ruckerianum, and, as if to coax them, a few fine plants of these desirable and beautiful orchids are stood among the unflowered ones. One expects to see Cymbidium Lowianum in good condition in the hands of its introducers, nor is one disappointed, for not only are the specimens healthy and of good size, but the varieties are in almost every case first rate, that is to say, they have deep colouring at the apex of the lip. Near by are examples of C. Traceyanum, C. Lowio-eburneum, C. eburneum, and C. Devonianum, all save the latter, in flower, and that only just over. In the rockery the cymbidiums have a fine effect, their long depending spikes suiting that kind of staging. Oncidium splendidum is here quite gay, and a grand orchid it is for late winter ; Lælia cinnabarina also gives a bright touch of colour, and not being a very largely grown orchid it at once arrests attention by reason of its long pseudo-bulbs and deep vermilion flowers. A specimen of Lælia anceps Stella, one of the best of the white forms, lifts its stately blooms aloft on long spikes, and one cannot fail to stop and admire it.

We are next introduced to a block of four houses, all filled with cattleyas—one contains C. Trianæ, one C. Mossiæ, another C. Mendelli, and the last C. labiata. In the first one we noted a plant of C. Trianæ plumosa just coming into flower, and the lovely C. T. Enfieldenæ, white with yellow throat. The specimens of C. Mossiæ vary in size, but as a rule they carry from six to ten sheaths, and promise well ; dotted among them are some specially good forms of Lælia purpurata, while hanging from the roof in two long lines is Cattleya citrina. Cattleya Mendeli, so scarce in some quarters, is here in great plenty, and a house full of semi-established unflowered plants offers plenty of room for hope and speculation ; there are many variations of size and shape in the pseudo bulbs, so that the wiseacres can back their fancy. At one end of the house of C. labiata is a mighty specimen of C. Bowringiana that would startle those who do not grow orchids in larger pots than forty-eight size. One house of C. Percivaliana has not many flowers remaining, but there were sufficient to prove that there are some fine types here. As great a surprise as any was Lælia purpurata, a whole house full of really large specimens full of health and vigour and flower sheaths. Mr. Low now pulls out a special key and we enter other orchid houses, from whence supplies are drawn to fill those already alluded to, and others wherein are choice seedling or varieties varying in size from just perceptible seedlings to good saleable plants. Among the *crème de la crème* we saw examples of Lælia cattleya Pallas, L.c. Nysa, Cattleya Skinneri alba, C. labiata lilacina (the blue labiata) ; Lælia pumila Low's var., a blue form ; L. p. Vine House var., one of the finest ; Cattleya Wagneri, C. Harrisoniæ alba, C. El Dorado, C. intermedia, C. Dowiana, &c. C. Shilleriana is establishing itself nicely, and close by are numerous grand specimens of C. Schroderæ. C. gigas in pans, suspended from the roof, are just the sort of plants for a beginner to start with, as they would give a sure and certain hope of good results. Such trifles as a house full of Odontoglossum grande, not little tiny bits, but sensible plants ; Oncidium tigrinum and O. Marshallianum in bulk ; Sophronitis grandiflora, literally ablaze with colour ; Cypripedium Lawrenceanum, that has given a Hyeanum form ; C. Curtisi, &c., &c., must be passed over and many other orchids left unmentioned, because a mere string of names would serve no purpose. Orchids of all kinds are, however, well managed, and we have very seldom seen such robust batches of cattleyas.

There is much else of interest at Bush Hill Park, for there are nearly fifty acres of fruit trees, and several acres of roses, besides conifers, &c. These, however, we had not time to fully examine, though we saw enough to prove that these departments are as admirably managed as the others. In conclusion, we may emphasise what we have already alluded to, viz., that horticulturists must now think of Messrs. Hugh Low and Co., Bush Hill Park, and go thither in future instead of to Clapton. Bush Hill Park station is on the Enfield branch of the G E.R., and there is a half-hourly train service to and from Liverpool Street.

EXHIBITIONS AND MEETINGS.

THE ROYAL SCOTTISH ARBORICULTURAL SOCIETY.

THIS useful society held its annual meeting in its rooms, No. 5, St. Andrew's Square, Edinburgh, the other day. This was its forty-fifth anniversary, and [illegible] new members were proposed, and there are now on the roll seven hundred and eighty-eight members. It was stated that the income of the society has increased from £285 5s. 8d. to £454 6s. 9d. On the motion of Professor Somerville, seconded by Colonel Bayley, Mr. Dunn, of Dalkeith, was elected an honorary member

The Chairman (Mr. Munro Fergusson, M.P.), in resigning office, spoke of the last few years as the most eventful that had lately taken place in relation to Scottish forestry. The growth of new ideas largely sprang up from their visit to Germany, and hoped that the society would rise to the great opportunities that lay before it. Scotsmen liked to see things done in a proper way. British agriculture was the first in the world, but he would be a bold man that would say the same for our forestry. Most of their great Highland area was fit for forestry and for nothing else, and it was to forestry they must look for the solution of their land and labour troubles. They would never have any large population on the land by creating large or small holdings, or by any agricultural occupation of the greater part of the Highlands. But there was hardly any limit to the population they could bring upon the Highland area if they had a properly developed system of forestry and a well conceived system of manufacturing along with it. He had the privilege of naming his successor, and it was with special pleasure he nominated Colonel Bayley, a gentleman admirably fitted to fill the office. Their work would probably lie in the direction of planting forest experimental areas, which might, by degrees, grow into a forest school. They could begin with the area, and go on to the forest school, for without training their men thoroughly they would not be in a position to go to any government to ask for any great national scheme of forestry being undertaken. Doing full justice to the tact and ability of Scottish foresters, Mr. Ferguson went on to state that they wanted some place where new ideas could be tested, and advanced forestry turned to the best account. This could hardly be done on a private estate. They must have an area where the experiments would be continuous and successive.

Colonel Bayley, on accepting office, thanked all the members for the honour done him, and promised to do all in his power to promote the interests of the society, and added that if in this matter of forest areas, in which they were all so deeply interested, he could render any special service he should be proud if that should mark the period of his presidency. The council had authorised him to state that a draft report had been prepared by Professor Somerville and himself which embodied a scheme. They had hoped that it might have been ready for presentation that day ; but in order that no time might be lost he asked them to give the council power to deal with the report at the next meeting.

Mr. Monro Fergusson, M.P., was cordially thanked for his past services as president, and asked to accept the office of hon. secretary, so that his influence among proprietors, Government officials, and members of Parliament might be preserved to the society. The late president accepted. The election of office bearers, council, and honorary scientific authorities, botanical, chemical, forestry, entomology, geology, meteorology, was then completed.

It was also resolved that the excursion next year should be either to the Forest of Dean or the north of Scotland, and in 1900 to the French Exhibition and some of the French forests.

The following papers were read, and more or less, mostly less, discussed: Grouping versus Mixed Planting (Cullen House), in which grouping was strongly advocated ; the Deterioration of Wire Fences, by Dr. James Kay, forester, Bute ; and a plea for a special organ devoted to Forestry, by Mr. A. McRae, forester, Castleconner, Kilkenny. About fifty members dined at the Royal British Hotel, under the new president, Colonel Bayley.

After dinner capital speeches were delivered in favour of the objects of the society by Mr. John Methven, Councillor Gisliand, Mr. McMillan, Colonel Bayley, Mr. Mather, Mr. James Macdonald, Mr. Erskine-Lonie, and others, and seldom has a more profitable day or pleasant evening been spent by this useful society.

D. T. F.

SCOTTISH HORTICULTURAL ASSOCIATION.

In consequence of the popularity of chrysanthemums in Edinburgh we had a crowded audience at the February meeting in St. Andrews when Mr. J. H. Jones, read a paper on chrysanthemums and their culture. There was not much general business, nor many exhibits, so that it was possible to pass the minutes of the last meeting and elect some dozen new members without loss of time. The president, Mr. Todd, showed a choice collection of daffodils fringed with the golden or yellow Acacia dealbata a rich and graceful blend. And another member some specially fine sprays of the elegant Virgin's Bower, Clematis indivisa, an invaluable decorative climber at this early season of the year for the warm or cool conservatory. We rather expected that some attempt would have been made to show a few blooms of late chrysanthemums, but none were forthcoming, either from the lecturer nor other growers. Hence we found the president, Mr. M. Todd, of Maitland Street, in his usual genial and felicitous terms, soon after half-past seven introducing Mr. Jones. Mr. Jones, after a momentary reference to his modesty, plunged at once into his subject, and proceeded to the first shift, inasmuch as with a few trifling exceptions the great matter of propagation was already over for the season. He, however, remarked in passing that he preferred propagating in boxes or open pits or frames to the usual pots. With a caution against being in too great a hurry to pot, and against potting all [illegible] plants at one time, or potting too many, Mr. Jones said fifty plants often yielded better results than two hundred ; and that we should pot the strongest first, also that we should allow the plants, or rather their roots, to press themselves upon [illegible] before potting them, and this chiefly because unoccupied soil was apt to get in a bad and sour condition. Protesting strongly against overcrowding and coddling, dwelling on the superlative importance of exposing the leaves and buds and flowers to light in all stages, avoiding two of the greatest evils, draught on the one hand and a stuffy atmosphere on the other. As to soil about three-parts of turfy [illegible] one of leaf mould, and one of charred or the ash of chrysanthemum stems [illegible] leaves were the most important. These with the addition of a small proportion of bone meal, crushed bones or soot with some rough silver sand, completed the compost. The latter must be perfect in physical condition as well as composition, though the old plan of squeezing a handful in the hand and allowing it to crumble to pieces again, was given as one of the simplest and surest tests of soil. Firm potting was also insisted on, [illegible] in the case of weakly growth it was best to place the plants in a [illegible] so that the stronger plant might help its weaker brother by using up [illegible] excess of food or water, and so keeping the soil sweet. Condemning [illegible] throughout, Mr. Jones proceeded to describe the various shifts from four-inch pots through six and ten inch and twelve, which, however, need seldom be used. Throughout overpotting must be avoided, as it is found that chrysanthemums flower most freely and most perfectly in rather small pots, the latter being crowded with roots. It was easy to add sufficient food or water at any time, but difficult, if not impossible, to remove any excess of soil from the roots.

Chrysanthemums must never be allowed to suffer or flag for lack of water nor be over-watered. These plants suffer most from dryness at the roots in wet weather. Each fine leaf becomes an umbrella to shade the water off the roots. In examining pots to test their water state it is needful to tap them lower down. For the last shift add a fourth portion of sweet horse manure, such as is used for forming mushroom beds, to the compost. Mr. Jones gave much practical advice as to the time and mode of taking the buds, helping weakly leaves, timing buds for exhibition, showing successfully, &c. As to the latter perfect self-possession, hard work, perseverance, experience, were needful. Mr. Jones was listened to with close attention throughout, and received a hearty vote of thanks at its close.

D. T. F.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY.

The annual general meeting of this society was held on the 2nd inst., the President, Mr. H. W. Birks, presiding. The Treasurer, Mr. J. W. McKerchar, read the financial statement, which showed receipts for the past year amounting to £165 6s. 6½d., of which the principal items were: Subscriptions, £63 7s. 6d.; special prizes, £72 14s. The expenditure for the year amounted to £161 2s. 7½d., of which £87 2s. had been awarded in prizes, leaving a balance in hand of £4 3s. 11d. The Secretary, Mr. W. E. Boyce, read the annual report for 1897, which, after relating the success of the last exhibition over any previously held, went on to say that the committee had decided to hold the exhibition for 1898 at the Holloway Hall, and they had every reason to believe that it would be the best exhibition ever held in the north of London. The President, in moving the adoption of the balance-sheet and report, said he thought that they might congratulate themselves that, as a society judged by every test, they had fulfilled their mission. They had not contributed, perhaps, to the "gaiety of nations," but they certainly had contributed to the gaiety of Highgate in providing residents with a two days' exhibition, which, coming as it did in the month of November, proved very acceptable. It was acknowledged on all hands, even by the judges, whom he knew as critical men, that the exhibition was entitled to all the praise bestowed upon it. There was also another test to which many societies would not submit—that of finance—and they had to congratulate themselves that, judged by that test, they came out well; and instead of the statement terminating with the ominous remark that so-and-so was owing to the treasurer, their's showed that there was a small balance in hand. Votes of thanks were passed to the retiring president and officers, also to the vice-presidents and special prize donors. Mr. Birks then introduced Mr. C. F. Cory-Wright, D.L., J.P., M.C.C., as the president for the ensuing year. Mr. Cory-Wright said he did not wish to begin his presidency by finding fault, but he thought they had made a mistake in letting their late president go. Mr. Birks had made it very difficult for anyone to follow him, but, at the same time, he would endeavour to promote the interests of the society as far as possible, and hoped at the end of the year they would be in no worse position. They would even try to be a little better off. The election of officers then took place, Mr. McKerchar and Mr. W. E. Boyce being re-elected treasurer and secretary respectively. Mr. Boyce stated that the schedule was well in hand, and, in fact, ready for the committee to finally settle. The schedule would be larger than last year's, and there was every prospect of a very successful year. The new president gives special prizes to the amount of nearly £12, Mrs. Cory-Wright £2 2s., and in addition he (the secretary) had obtained new special prizes to the amount of £15, including prizes from the leading traders. The meeting closed with a cordial vote of thanks to Mr. Birks for presiding.

READING GARDENERS' ASSOCIATION.

Although ferns are among the most popular of plants with gardeners, both professional and amateur, yet an evening had not been devoted to the subject by the members of the above association previous to Monday last, when Mr. Powell, foreman at Park Place Gardens, Henley-on-Thames, read a paper before a crowded attendance of members, presided over the President, Mr. C. B. Stevens, in the Club-room, British Workman. Mr. Powell, in introducing his subject, referred to the great popularity of ferns, and to their being grown by every gardener, for no matter how small the garden they were required for, their uses were numerous. They were plants that could be grown under various circumstances, for it was not only in the greenhouse and stove that you saw excellent specimens, but in the cottage gardens in town and country. You very often met with splendid examples of the hardy varieties. After dealing with the kinds most suitable for the outdoor rockery, the greenhouse and stove, and the soils best adapted for their successful culture, he impressed upon the younger members in particular the great advantage and pleasure derived from making a study of the various classes of ferns, especially in the drying and mounting of specimens in books, which would, in after years, be a source of profit and assistance. By the request of the lecturer, Mr. Stanton made some very interesting remarks respecting the various varieties, the growth of the spores, and the fertilisation of ferns, illustrating his remarks by dried specimens of crested ferns; ferns with distinct fertile and barren fronds; ferns showing the various kinds of spore arrangements whereby botanists were able to determine the genera; specimens of peculiar interest, such as the gold, silver, variegated, and filmy varieties, some of which the speaker had collected thirty-seven years ago. A discussion took place bearing chiefly on the culture of Adiantum Farleyensis, in which Messrs. Martin, Turton, Woolford, Neve, Phipps, Bright, Tunbridge, &c., took part. Mr. Woolford exhibited some seedling crested ferns of various forms raised at East Thorpe; whilst Mr. Stanton brought a beautiful specimen of Adiantum capillus veneris (the British Maidenhair), growing on the outside of an Egyptian earthenware pitcher. Six new members were elected.

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.

The second exhibition of this society for the present year was held at the Coal Exchange, Manchester, on the 10th inst. The committeemen present were Messrs. Thompson, Cypher, Stevens, Schofield, Leeman, Boulton, Gratrix, Johnson, Weathers, Gent, Backhouse, and Greenwood. The display was a good one, albinos were plentiful, and dendrobiums especially well represented. A large number of awards were made.

Mr. Shill, gardener to G. W. Law Schofield, Esq., New Hall, Hey, showed Cypripedium G. W. Law Schofield, and Dendrobium anthocentrum, each gaining a F.C.C.; Cypripedium Lathamianum giganteum and Dendrobium Juno gained awards of merit. Cypripedium villosum giganteum and Denbrobium nobile Amesiæ shorwn by Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, gained each an F.C.C., while the lower award was made to D. splendidissimum grandiflorum. Mr. Eastwood, gardener to H. H. Bolton, Esq., Height Side, Newchurch, secured a F.C.C. for Dendrobium Rainbow, and also showed D. melanodiscus and D. Burfordiense. Some good odontoglossums were shown by Mr. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, and of these O. candidissima, O. excellens spectabile and O. nebulosum candidulum merited each a F.C.C., while Cattleya amethystoglossa gained a similar award. Mr. J. Cypher, Cheltenham, had a large display showing Odontoglossum Rossi rubescens, Cypripedium Exul, Zygopetalum crinitum superbum, Cattleya Trianæ Gratrixæ, C. T. superba, Dendrobium Ainsworthi Cypher's var., and D. A. hybrid between D. phillipinense and D. nobile, the latter five gaining awards of merit. An award of merit for Cymbidium eburneum, one of the most popular of orchids, was made to Mr. Robson, Bowdon, who also staged several choice forms of Cattleya Trianæ; Mr. Rendall, gardener to F. W. Swinburne, Esq., Winchcombe, sent several cypripediums, a form named C. Mons. de Curte gaining an A.M. Mr. Edge, gardener to F. Leeman, Esq., West Bank House, Heaton Mersey, had a good show of choice orchids; his Cypripedium Haynaldianum merited a cultural certificate, while an F.C.C. was awarded for Dendrobium nobile Sanderianum. Awards of merit were made to Cattleya Trianæ, C. T. alba, Lælia anceps Williamsi, Denbrobium nobile Ballianum, and Odontoglossum Andersonianum. Mr. Rogers, gardener to O. O. Wrigley, Esq., Bury, contributed cypripediums, C. aureum giganteum gaining an A.M. Messrs. F. Sander and Co., St. Albans, were large exhibitors, and their example of Cypripedium Calyso gained a F.C.C; this firm also secured an A.M. for the following: Cypripedium Fascinator nobile, C. Harrisianum albens, Cattleya Trianæ nobilior, and Lycaste Mooreana. First-class certificates fell to Mr. Hey, gardener to G. S. Ball, Esq., Wilmslow, for Cattleya Trianæ alba and Dendrobium Wardianum ochroleuchum; a white form of the latter gained an A.M. Mr. McLeod gardener to G. Gratrix, Esq., Old Trafford, sent several choice orchids, an A.M. being granted for Cypripedium signatum. Messrs. Peeters, of Brussels, sent specimens of Zygopetalum Perrenondi and Odontoglossum Wilckeanum, both gaining a F.C.C. Mr. Bolton, Wilderspool, Warrington, gained awards of merit for Dendrobium Robinsonianum and Cattleya labiata Boltoni; while the higher award was made to both Dendrobium Wardianum candidum and Cattleya Trianæ.

Mr. Stafford, gardener to Fred Hardy, Esq., Tyntesfield, staged an excellent collection of miscellaneous orchids; these were a great attraction, though none were entered for awards. Mr. H. Greenwood, Haslingden, put up Dendrobium Schneiderianum; as also did Mr. D. B. Rappard, Liscard, Cheshire. Cattleya Trianæ, in variety, came from Mr. G. Allen, Sale.

READING HORTICULTURAL SOCIETY.

The forty-first annual meeting was recently held at the Abbey Hall. The deputy mayor (F. J. Ferguson, Esq.) presided, about a dozen other members being present. The secretary (Mr. W. L. Walker) read the report which stated that the past year proved the most disastrous the society had experienced, entirely owing to the stormy weather prevailing on the occasion of the autumn show. The receipts of admission to the two shows only reached £128 10s. (an amount far below the average of the summer show alone); the smallness of this item will, in order to meet the year's liabilities, necessitate the appropriation of the whole of the reserve fund, the loss on the year being about £141. The wreck of the tent by the gale of September 1, is a still greater misfortune, as it can only be replaced at a cost of £250. The society had to regret the loss by death of several of its most prominent benefactors, including Richard Benyon, Esq., Geo. Palmer, Esq., A. Sutton, Esq., and Mrs. Marsland. Thanks were offered to the Deputy-Mayor for the gratuitous use of the Town Hall on the occasion of the autumn show, whereby many of the visitors were enabled to enjoy the music of the two military bands which had been engaged. The accounts, as compared with 1896, showed a decrease in the working expenses of about £80. One of the judges has generously returned his fees.

Herbert Benyon, Esq., Englefield Park, was elected president; Messrs. R. Hewett, and J. O. Taylor, vice-presidents; the following to constitute the executive for 1898, viz.: Revs. Alan Cheales, and F. L. Weale; Messrs. H. G. Cox, H. Dunlop, F. J. Ferguson, R. C. Mount, A. Palmer, J. T. Strange, L. G. Sutton, T. E. Hewett, R. Webb, G. W. Webb, and J. Woolford; a sub-committee to arrange schedule of prizes, date of shows, &c., to be drafted from the general committee. To save their New Zealand £100 bond, it was decided to make an appeal for donations to enable the society to keep on its legs; Mr. R. Hewett starting the list with £10.; Messrs. Sutton and Sons contributing £21.

EXETER AND DEVON GARDENERS' ASSOCIATION.

There was a large attendance at the February meeting of this society, when Mr. F. W. G. Shrivell, F.L.S., gave an address on the experimental culture of vegetables with and without artificial manure. The chair was occupied by Mr. W. Swan.

In his opening remarks, Mr. Shrivell said chemicals in horticulture were an unknown quantity at present, and all he could do was to give them some particulars of what had been done in Kent in the cultivation of vegetables and sometimes fruit. Up to four or five years ago very little was known of the effect of chemical manures upon vegetables. The matter was taken up by Dr. Bernard Dyer, who with himself had conducted a series of experiments and obtained some most interesting results. With regard to this subject they were far ahead of the Germans or the French, and the French Government had voted a large sum of money for their cultivators to obtain instruction in the Kentish experiments. He was not there to tell them that dung was no good, but he would prove to them that dung in itself was a most expensive manure, and that by the use of chemicals in conjunction with dung they would raise the greatest possible crops at the least possible expenditure. The experiments in the first place had been commenced with a light dressing of dung. The constituents of dung included ammonia, phosphoric acid, potash, and lime, which were the basis of plant foods. They wanted to get these substances from chemicals, and he assured them that chemical manures did not run the ground out if properly applied. The cheapest form of chemicals were nitrate of soda for ammonia, super-phosphate of lime or basic slag for phosphoric acid, and kainit for potash. Mr. Shrivell then proceeded to give the result of experiments made with dung and with chemicals. In the case of rhubarb considerably more was grown with £3 worth of chemicals than with £10 worth of manure. With regard to strawberries, the results showed that beyond a certain limit manure was not only thrown away, but it produced leaf instead of fruit. In an experiment with fifty loads of dung, less weight of fruit was obtained than with twenty-five loads, but there was an increase when chemicals were used in conjunction with the twenty-five loads. Beyond that there was a loss. With cauliflowers the use of chemicals had given them a larger crop, earlier produced, and of better quality. Dung was of great assistance in places where they had a low rainfall, it was an assurance against drought, but it was not of such great consideration in a place like Devonshire. In reply to the chairman, Mr. Shrivell said up to the present the dressing had been applied each year, but as they went on they would try to see how long the effect of the chemicals would last. With root crops they obtained from 33 to 50 per cent. more with the assistance of chemicals than by dung alone. The use of chemicals made the manure much more valuable than it was by itself. The lecture was followed by a brisk discussion, and at the close a hearty vote of thanks was accorded the lecturer.

SHEFFIELD CHRYSANTHEMUM SOCIETY.

This body held its annual general meeting at the Museum Hotel on February 2, Mr. J. G. Newsham presiding. The balance-sheet showed an increase to the balance in hand of nearly £16, making a total of over £100. It was decided to put £50 of this amount aside as a reserve fund, experience having shown that unless a provision of this kind is made the society may lose the whole of the balance in the event of inclement weather at the annual show. The Gardeners' Provident Fund in connection with the society, is in a sound financial condition, and has a balance of £58 12s. The following gentlemen were elected officers for the year: President, Mr. C. E. Jeffcock; hon. treasurer, Mr. Henry Broomhead, F.R.H.S.; trustees, Mr. J. G. Newsham and Mr. H. Slaney; auditors, Mr. J. Haigh and Mr. W. Redmill; librarian, Mr. R. Gascoigne; collector, Mr. W. Carlton; secretary, Mr. W. Housley, 177, Cemetery Road; curator, Mr. T. Brewer. The chrysanthemum show is to be held on November 11 and 12, and schedules can be had from the Secretary, Cemetery Road, Sheffield.

The monthly meeting of this society was held at the Museum Hotel, Orchard Street, last Wednesday, Mr. John Haigh presiding. The exhibits were tulips for professional gardeners, and other flowering plants for amateurs. Some very good specimens of tulips were shown by Messrs. Artindale and Son, not for competition. The varieties were Proserpine, Artus, and Keizer Kroon, a certificate of merit was awarded for culture. Mr. W. H. Winter gave an admirable essay on Plant Life, dealing with the different organs, fertilisation, propagation, and also the methods of feeding. An interesting discussion followed, and the meeting concluded with a hearty vote of thanks to the essayist.

BECKENHAM HORTICULTURAL SOCIETY.

This society has arranged an interesting course of lectures to supplement the ordinary weekly meetings, at which various papers are read and discussions follow. The first lecture took place on Friday evening, when Mr. James Martin, of Messrs. Sutton and Sons, Reading, gave a most interesting and instructive discourse on the gloxinia. The meeting was held in the Public Hall, and the room was well filled by gardeners employed in the neighbourhood. The lecturer reviewed the history of the gloxinia from its earliest known date—1739—and described its evolution to the present state of perfection to which this beautiful plant has been brought. The chair was taken by Mr. H. J. Jones, of Lewisham. There was a charming group of cyclamen, brought by Mr. T. Croswell, which drew from both chairman and lecturer the highest compliment. Votes of thanks were passed to the lecturer and to Mr. W. H. Bullivant, of Homewood, for lending the plants above referred to.

HORTICULTURAL CLUB.

The twenty-third annual dinner of the club was held on Tuesday 8th, when there was a larger gathering than on any previous occasion, the chair was occupied by Sir J. D. T. Llewelyn, Bart., M.P., chairman of the club, there were also present: Mr. Harry J. Veitch, vice-chairman; the Rev. W. Wilks, the Rev. Joseph H. Pemberton, Messrs. J. Gurney Fowler, and J. Hudson (newly elected members of the Council of the R.H.S.), James Walker, G. Bunyard, G. Monro, C. J. Wise, Peter Kay, Harry Turner, J. Assbee, J. K. Featherby, A. Goodinch Williams, G. Paul, H. J. Pearson, Charles Pearson, Philip Crowley, A. Watkins, J. Sweet, R. Gofton Salmond, H. T. Armitage, R. Pinches, &c., and the secretary. Mr. G. Bunyard arranged for an excellent selection of instrumental and vocal music to be given during the evening, an admirable dessert was provided by the kindness of Messrs. G. Monro, Assbee, and Peter Kay, while the tables were beautifully decorated with flowers and plants from Messrs. J. Veitch and Sons. The usual toasts were given, and altogether a most successful meeting took place, the condition of the club was stated to be very satisfactory, and several new members were added.

MARKETS.

Covent Garden.

SUPPLIES of fruit are moderate, but the demand is keen and prices high. There are large consignments of oranges and lemons, and these meet a steady demand. Flowers are fairly plentiful. Vegetables are becoming dearer.

FRUIT.—American and Nova Scotian apples, 12s. to 30s. per barrel; French pears, 6s. to 9s. per case; pineapples, 2s. 6d. to 7s. 6d. each; English grapes, 1s. 9d. to 3s. per lb.; Almeria, 15s. to 25s. per barrel; lemons, 8s. to 18s. per case; Canary tomatos, 1s. to 1s. 6d. per tray, 3s. 6d. to 4s. 6d. per case; Valencia oranges, 9s. to 18s. per case; Jaffas, 8s. to 11s. 6d. per box.

FLOWERS.—Arums, 2s. to 3s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 6s. to 9s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s.; and tuberoses, 6d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 9s. to 18s.; marguerites, 2s. to 4s.; white narciss, 2s. 6d. to 5s.; Roman hyacinth, 4s. to 9s.; daffodils, 5s. to 8s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 8s.; and violets, 9d. to 4s. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 2s.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Seakale, 10s. to 15s. per dozen punnets; celery, 8s. to 15s. per dozen rolls; asparagus, 4s. to 10s. per bundle; mushrooms, 6s. to 8s.; eschallots, 2s. to 2s. 6d. per 12 lb.; parsley, 2s. to 2s. 6d.; carrots, 2s. to 3s. per dozen bunches; cabbages and savoys, 3s. 6d. to 5s. 6d. per tally; English onions, 6s. to 7s. per cwt.; Valencia, 7s. to 9s. 6d. per case; endive, 1s. to 1s. 6d.; lettuce, 1s. to 1s. 6d.; cucumber, 4s. to 8s. per dozen; Brussels sprouts, 2s. to 3s. per bushel; Italian cauliflowers, 3s. to 4s. per basket; forced rhubarb, 2s. to 2s. 6d. per dozen bunches; Malta new potatoes, 18s. to 20s. per cwt.

Borough Potato Market.

A comparatively quiet trade continues at recent prices.

Dunbars, 110s. to 120s.; Hebrons, 85s. to 100s.; Snowdrops, 80s. to 90s.; Bruce Maincrop and Sutton's Regents, 80s. to 85s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. to 3s. 9d.; Germans, 3s. 6d. to 4s. per bag.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year-Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

LAW.

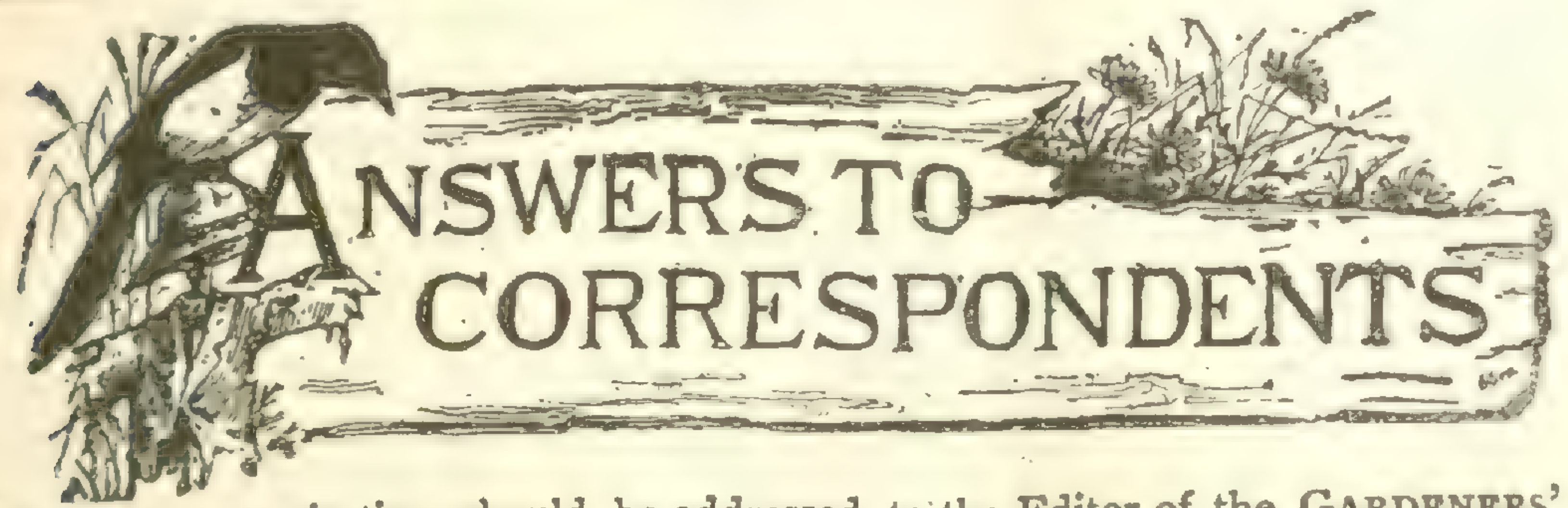
SALE OF A CATTLEYA.

ON Monday last, the 14th inst., an appeal in the case of Ashworth *v.* Wells was heard in the Court of Appeal, before Lord Justice A. L. Smith, Lord Justice Chitty, and Lord Justice Collins. This was an appeal from an order of a Divisional Court (Mr. Justice Day and Mr. Justice Lawrance) on an appeal from the Manchester County Court. The plaintiff, an amateur orchid grower, bought an orchid at a sale of the defendant's collection of orchids in June, 1895. It was entered in the catalogue as a "Cattleya Aclandiæ alba, seven bulbs and three leaves, the only known plant," and it was knocked down to the plaintiff for twenty guineas. It had never flowered while in the possession of the defendant, and it turned out after two years' cultivation by the plaintiff to be not an alba or white variety of Cattleya Aclandiæ, but the ordinary purple form, which was worth only 7s. 6d. The plaintiff having brought this action for damages, the defendant admitted liability, and paid into Court £23 2s. The County Court Judge held that if the plant had been an alba it would have been worth more than £50 at the time of the sale, but that until it showed its real nature there was no probability that any orchid-grower would give more than twenty guineas for it. He thought that the sum paid in was enough, and gave judgment for the defendant. The Divisional Court thought that the case ought to be tried again, and sent it back to the County Court Judge. The defendant appealed.

Lord Justice A. L. Smith said that, in his opinion, judgment ought to be entered for the plaintiff for £50. There had been a public sale by auction of a collection of orchids belonging to the defendant. It was admitted by the defendant that one of the entries in the catalogue constituted a warranty with regard to a certain orchid. It was as follows:—"Cattleya Aclandiæ alba, seven bulbs and three leaves, only known plant." The purple cattleya was a common plant; the white cattleya was exceedingly rare, or rather, if the catalogue was correct, unknown. The plaintiff attended the sale and bought this orchid on the faith of the warranty for twenty guineas. If it was purple it was only worth 7s. 6d. Now what was the nature of the warranty? In his judgment, according to the true reading of the clause in the catalogue, it was a warranty by the defendant that this orchid, when it flowered, would flower white. There was no warranty that it would flower, or even that it would live. The plaintiff therefore had to wait the ordinary course of events for the plant to flower, and in two years' time it did flower, not, however, according to the warranty, but it flowered purple. The plaintiff complained that there had been a breach of the warranty, and brought this action in the County Court for £50. The defendant paid into Court the sum of twenty guineas, the price which the plaintiff had paid for the orchid, and a sum of two guineas for interest, and a further small sum to cover the costs of the plaint. The real question in the case was whether the plaintiff was in law entitled to any damages beyond the twenty guineas which he had paid for the plaint on the faith of the warranty. The County Court Judge thought that the plaintiff was not entitled to any further damages, and he gave judgment for the defendant on the ground that the sum which he had paid into Court was sufficient to satisfy the plaintiff's claim. The Divisional Court had made an order that the case should be sent back for a new trial. In his opinion it should not go back for a new trial, but judgment should be entered for the plaintiff for £50. At the trial there had been abundant evidence, which was uncontradicted, that the orchid, if it was white, was worth one hundred guineas. But no one could possibly tell at the time of the sale whether it was white or not. The plaintiff had to wait to find that out, and after waiting he found that the warranty was broken. Under those circumstances, What were the damages to which the plaintiff was entitled? It was said that he was only entitled to such damages as he could show that he had suffered at the time when the article was delivered. In the great majority of cases that was the proper rule, the market value being the chief factor to be considered. But the plaintiff in this case was, in his opinion, entitled to prove that he had suffered special damages, and he might wait a reasonable time to see what those damages were. This orchid could not properly be said to have any market value at all. The County Court Judge found as a fact that, if it was an alba, it was at the time of the sale worth more than £50. The evidence showed that it would have been worth more than £100, but with regard to the jurisdiction of the County Court it was sufficient to say it was worth more than £50. That finding seemed to him to dispose of the case, and he thought that the County Court Judge ought thereupon to have given judgment for the plaintiff for £50. But he went on, and proceeded to find further that until the plant showed its real nature there was no probability that any orchid grower would give more than twenty guineas for it. He thought the County Court Judge, in coming to this further finding, had misdirected himself. The warranty was that, when the plant flowered, it would flower white. The plaintiff was entitled to wait until it did flower, which did not happen for two years, and it was a mistake to say, when it did flower and the warranty proved to be broken, that the measure of damages was to be regulated by what the plaintiff had given for the plant two years before. The price which he gave was no criterion of the loss which he sustained. In his opinion, therefore, the appeal failed, and judgment must be entered as he had stated.

Lord Justice Chitty said it had been argued that the only damages which had been sustained were represented by the difference between the value of the plant at the time of the sale and what would have been its value if it had answered to the warranty at the time of the sale. He thought that this was not a case in which that general principle could be applied. This was a special kind of warranty, and, in his opinion, the plaintiff had shown special damage. He thought the first part of the finding of the County Court Judge settled the question, and that what followed gave rise to the difficulty which had been felt in the case. The plaintiff could not bring his action until he had ascertained that the orchid bore a purple flower. He therefore agreed with the judgment which had been delivered by Lord Justice A. L. Smith.

Lord Justice Collins said he agreed in the main with his learned brethren, but he felt some difficulty in coming to the conclusion that the County Court Judge, in whose hands the question of damages rested, and who had found £20 to be the sum to which the plaintiff was entitled, had misdirected himself. The general principle seemed clear enough—that in cases of breach of warranty the measure of damages was the difference between the contract price of the thing sold with the warranty and the market price or real value if it could be ascertained, and any special damages following from the buyer acting on the warranty might be added. Here the distinction seemed to be between the value of the plant with the contingency that it might flower and the value of the plant when it had flowered. If the County Court Judge meant that, and came to the conclusion that the true value of the plant with that uncertainty was no more than the money paid into Court, he felt a difficulty in saying that he was wrong. But he was satisfied that they were not giving the plaintiff too much, and he would not differ from the judgment which had been delivered.



ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Moles and Mice.—R. B. O., Carnarvon: To get rid of these pests you will have to resort to traps in both instances, especially as you are not allowed to keep a garden cat to kill the mice. We suggest that you obtain a pair or two of owls—young ones—and feed them, so that they will not go far away; they will assist you in a most marked manner to reduce the pests.

Failure with Tulips in Pots.—A. S. B., Essex: It is probable that the tulips were frozen when in the cold frame; they were then considerably advanced, and the moisture collecting in the cup formed by the leaves was turned to ice, or at least, the surface of it was, with the result that the peduncle was damaged. When placed in heat there was not a proper sympathy between the roots and the flowers, owing to the damage below the bud, and so a collapse followed. The Parrot tulips are not the best for forcing.

Potatos in Pots.—A. I. F., Bath: Where there are vineries or peach-houses it is not a difficult matter to grow a few potatos in pots so as to secure a few early dishes of new tubers. Select a naturally early and short-topped variety and place the seed tubers on end in a shallow box, with some leaf-soil or cocoa-fibre refuse under, over, and between them; stand the box in a light position in a temperature of about 50 degrees for about three weeks before planting, and then they will be nicely sprouted and rooted also. Prepare sufficient ten or twelve inch pots by crocking carefully, use a good loamy compost, and only fill the pots three parts full at planting time. The remaining space should be filled when the haulm is a few inches high. Use a light and fairly rich compost for the top-dressing. Guano is a fine manure for potatos grown in pots or boxes. Do not attempt to force growth in a close damp house, or the result will be a lack of tubers. Light and air, with a moderate amount of moisture at the roots are essential for potatos in pots. Two sets in each pot will be sufficient.

Green Primula Flowers.—P. T. B., Sydenham: The specimen sent was a most interesting one, for we have never seen such a fine development of green foliaceous flowers in the primula before. Such flowers, of course, but go to prove that floral organs are but differentiated leaves, though in this case the reversion is very wonderful. Such a plant would have no commercial value, but it is worth perpetuating as a curiosity. If you can save seeds do so and experiment with them; most of the flowers sent had aborted stamens and stigma, so that there is a probability of your not being able to obtain seeds.

Double Cineraria.—A. B., Aston: The cineraria you have seems to be rather a semi-double than a double form, so there should be no difficulty in obtaining seeds from it. Place the specimen in a light house where the atmosphere is kept drier than in a cold frame; see that it does not want for moisture at the roots, however, and allow it all the sunshine that appears, and then there should be no difficulty in saving seed. You could also perpetuate the variety by means of the sucker-like growths that arise from the base; a little top-dressing of rich light soil as these appear will induce them to push freely, and then they can be removed, inserted in small pots in sandy soil, and struck in a close pit. After once rooted they must not be coddled, however.

Failure with Celery.—R. B. O., Carnarvon: It is probable that the ground in which the celery was planted had not been properly worked and manured previously. Then, after planting, an abundance of water was given which washed away most of the goodness in the soil, and caused the celery to grow tall, but with little substance in the stems to allow them to winter well. The ground must be very rich and substantial, and water must be given the celery, if the weather is at all dry; and when a few waterings have been given, then liquid manure of moderate strength must be provided until earthing-up commences. It is a mistake to earth-up celery loosely, for this will allow the early winter rains to penetrate and cause irreparable damage. Earth-up firmly, and finish off the ridge so that the rain is shed from the plants.

Wood-lice in Tomato House.—Subscriber: As wood-lice are natural scavengers, it is a great advantage to growers to keep the houses clean, so that none of the pests are harboured by dead leaves, decaying wood, &c. Toads and tomtits will assist in a most able manner to reduce the lice, and consequently should be encouraged. Take a number of dirty pots, some dirty crocks, and dirty, but dry, moss, mix the two latter and place inside the pot, adding a slice or two of cold boiled potato. Place this as a trap in the haunts of the wood-lice and cover lightly with dry moss. Kill the pests by emptying the contents of the dirty pots into a bucket of boiling water; the traps should be emptied at dusk or dawn. The moss and crocks will be available again as soon as dry. Potatos cut in halves, and the inner side partly scooped out, also form good traps, that need examination night and morning. By persisting with these means for a week or two a clearance should be effected.

Violets in Frames—C. B., Wetherby: It is a mistake to take either cuttings or rooted runners of violets for winter flowering too early. May will be found soon enough. Very early propagation results in abundance of foliage and small flowers. In April, when new growth commences, take some leaf mould mixed with a little sand, and place this between the plants. The new runners will root freely, and provide medium-sized crowns for subsequent planting in a border that is cool and moist. Absolute shade all the day is neither necessary nor good for the young plants, but it should be borne in mind that fairly strong loam and a locality where the air is naturally cool and moist for a greater part of the

SELECT NOVELTIES IN SEEDS FOR 1898.
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Packets of 24 seeds, each 1/-; Packets of 12 seeds, each 8d.

EVERLASTING PEA, PINK BEAUTY (Larhyrus latifolius var.)
An entirely new variety, the colour of which is a delicately shaded pink on the standard, the lacing of the edge being paler than the centre, the wings are deeper pink, of a very rich shade, giving it a very striking appearance. **Per Packet, 1/-.**

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The colour of this beautiful new variety is a charming and delicate shade of rose-pink. The flowers are large and well fringed, whilst the eye is a bright yellow, showing a striking contrast to the ground colour of the petals. **Per Packet, 3/6.**

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Names of Plants.—A. H., Slough: Helleborus viridis.

A. G., Brentwood: 1, Crassula coccinea; 2, not recognised; 3, an Isoloma; 4, a Caladium; 5, a Klenia; 6, Irisine Lindeni; 7, a Campanula. Those not fully named we shall be glad to deal with when you send them in flower, as only under such conditions can they be identified. The caladium is not yet sufficiently developed to be recognised.

C. W. R., Croydon: Apparently a form of Odontoglossum Lindleyanum.

H. H. H., Wadhurst: 1, Cestrum elegans; 2, Senecio Kæmpferi aureo-maculata, formerly known as Farfugium grande; 3 and 4, please send portions of fertile fronds; 5, Nephrolepis exaltata.

Names of Fruits.—R. C., Truro: 1, Blenheim Pippin; 2, Dumelow's Seedling (Wellington).

Communications Received.—A. H.—C. W. R.—A. S. B.—E. C. L.—P. T. B.—E. B.—R. C.—A. G.—H. H. H.—H. C. P.—H. J. C.—W. G.—S. and S.—E. J. W. and Sons.—W. W.—A. D.—J. A.—G. W.—R. B. O.—C. S. F.—E. L.—M. S.—S. C.—J. T.—A. B.—T. S.

CATALOGUES RECEIVED.

F. Dicks and Co., 66, Deansgate, Manchester.—Seeds.
Fotheringham and King, Corn Exchange, Dumfries.—Garden Seeds.
Dobie and Mason, 22, Oak Street, Manchester.—Seeds.
John Forbes, Hawick, N.B.—Seeds.
H. Cannell and Sons, Swanley, Kent.—Chrysanthemums.
Alexander Cross and Sons (Ltd.), Glasgow.—Seeds, Manures.
James Yates, Little Underbank, Stockport.—Seeds.
John Russell, Richmond Nursery, Richmond, Surrey.—Roses.
H. Merryweather, Southwell, Notts.—Seeds, Roses, and Hardy Plants.
Richard Smith and Co., Worcester.—Seeds.
G. Phippen, Reading, Berks.—Seeds.
Wilhelm Muhle, Temesvar.—Seeds and Plants.
W. P. Laird and Sinclair, Dundee and Cupar-Fife.—Seeds and Sundries.
F. G. Foster, Brockhampton Nurseries, Havant.—Sweet Peas.
J. R. Pearson and Sons, Chilwell, Notts.—New Zonal Pelargoniums, Dahlias, &c.
Vilmorin, Andrieux, and Co., Paris.—Dahlias, Cannas, and Chrysanthemums.
E. Webb and Sons, Stourbridge.—Farm Seeds and Manures.
Sutton and Sons, Reading.—Farmers' Year Book and Graziers' Manual.
Ant. Roozen and Son, Overveen, near Haarlem, Holland.—Gladioli, Dahlias, &c.
Peter Henderson and Co., Cortlandt Street, New York.—Manual of Everything for the Garden.

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THE WEATHER DURING THE WEEK ENDING FEBRUARY 12, 1898

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	52·1	32·1	43·0	6·11	0·20	0·51
Croydon	53·0	28·5	41·5	5·28	0·26	0·66
Brighton	52·0	34·4	44·1	6·72	0·10	0·25
Bristol	54·0	32·0	43·4	6·33	0·16	0·41
Wolverhampton	49·8	30·1	38·9	3·83	0·25	0·63
Norwich	—	—	—	—	—	—
Nottingham	51·8	31·5	40·3	4·61	0·22	0·56
Liverpool	51·8	34·4	43·0	6·11	0·42	1·07
Huddersfield	48·8	33·8	41·2	5·11	0·25	0·63
Bradford	54·6	34·6	42·7	5·94	0·24	0·61
Hull	54·0	30·0	40·7	4·83	0·12	0·30

The mean reading of the Barometer during the week at Greenwich was 29·95 inches, and that of the Thermometer 43°·0, the latter being 4°·1 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 4 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 7·0 hours. The measured rainfall amounted to 0·20 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

Thursday, February 24.—Annual Meeting of the Kew Guild in the Lecture Room at the Royal Gardens, at Eight p.m.

AUCTIONS.

Tuesday, Wednesday, Thursday, and Friday, February 22, 23, 24, and 25.—Odontoglossum triumphans, Shrubs and Plants, Lilium auratum, Azalea Mollis, Imported and Established Orchids, at Protheroe and Morris's Rooms.

Monday, Wednesday, and Thursday, February 21, 23, and 24.—Roses, Fruit Trees, Plants, Bulbs, Shrubs, Liliums, &c., at J. C. Stevens's Rooms.

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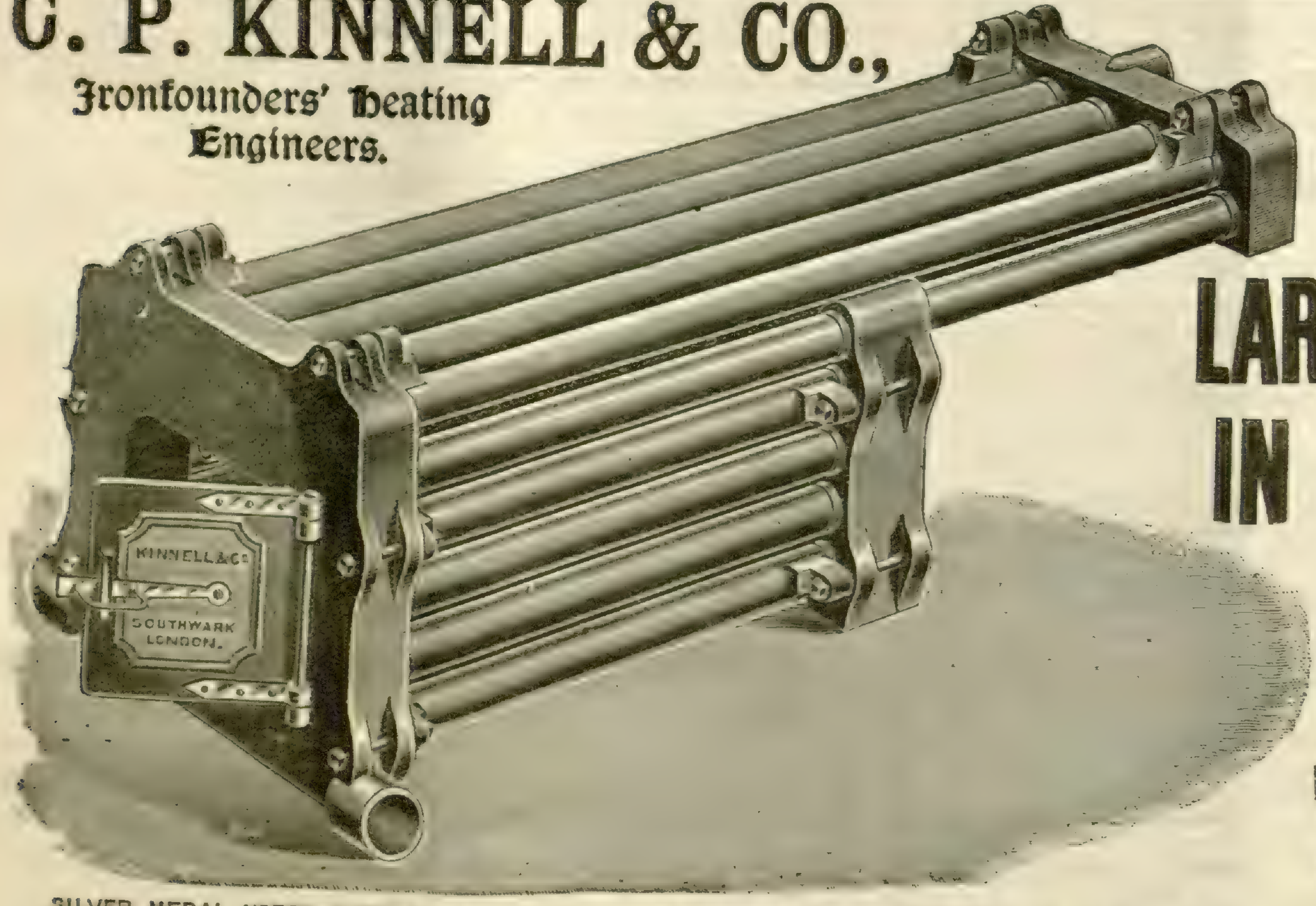
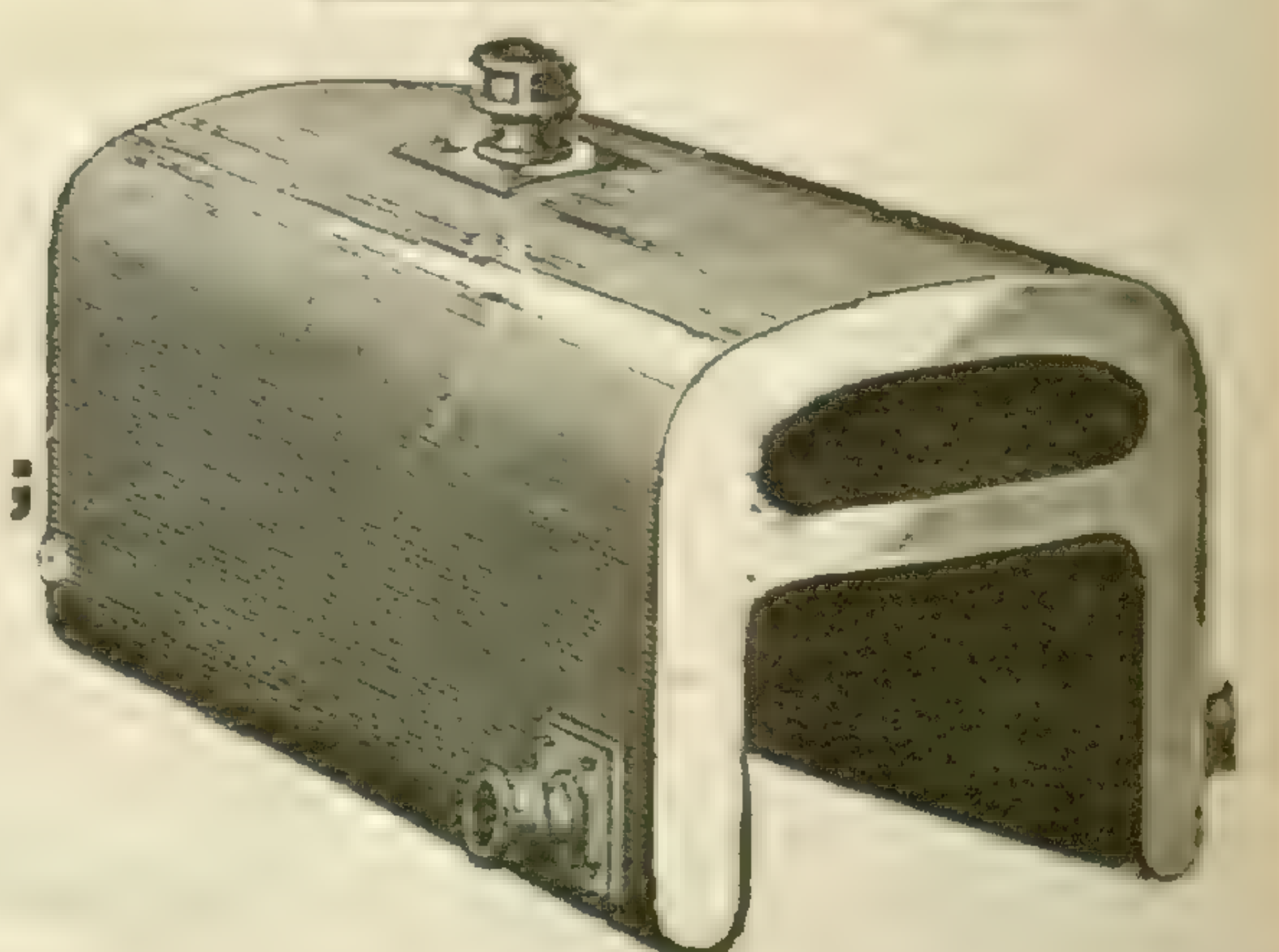
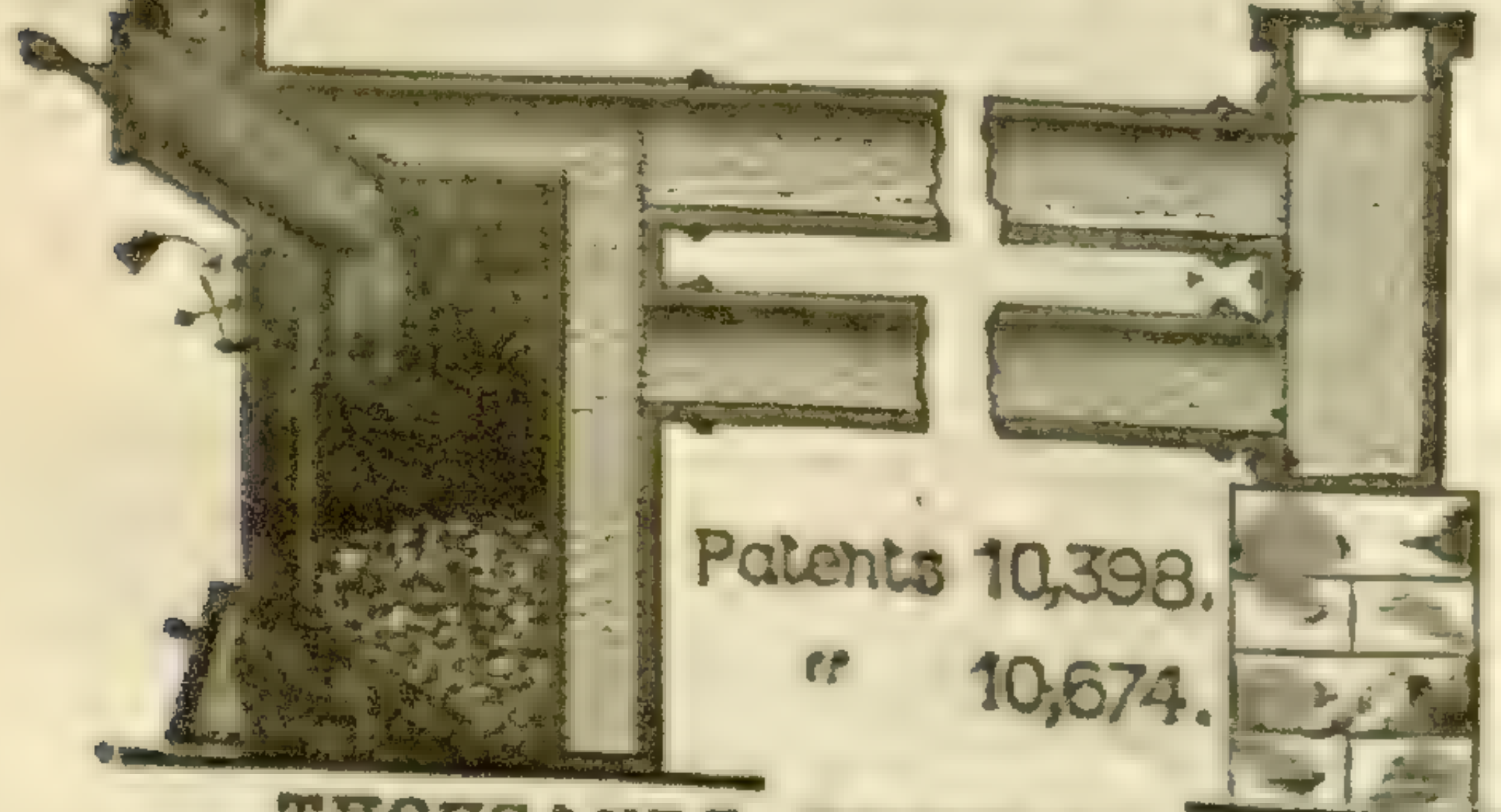


Wrought Welded Terminal End and Chambered Saddle Boiler.



SILVER MEDAL HORSE SHOE BOILER.



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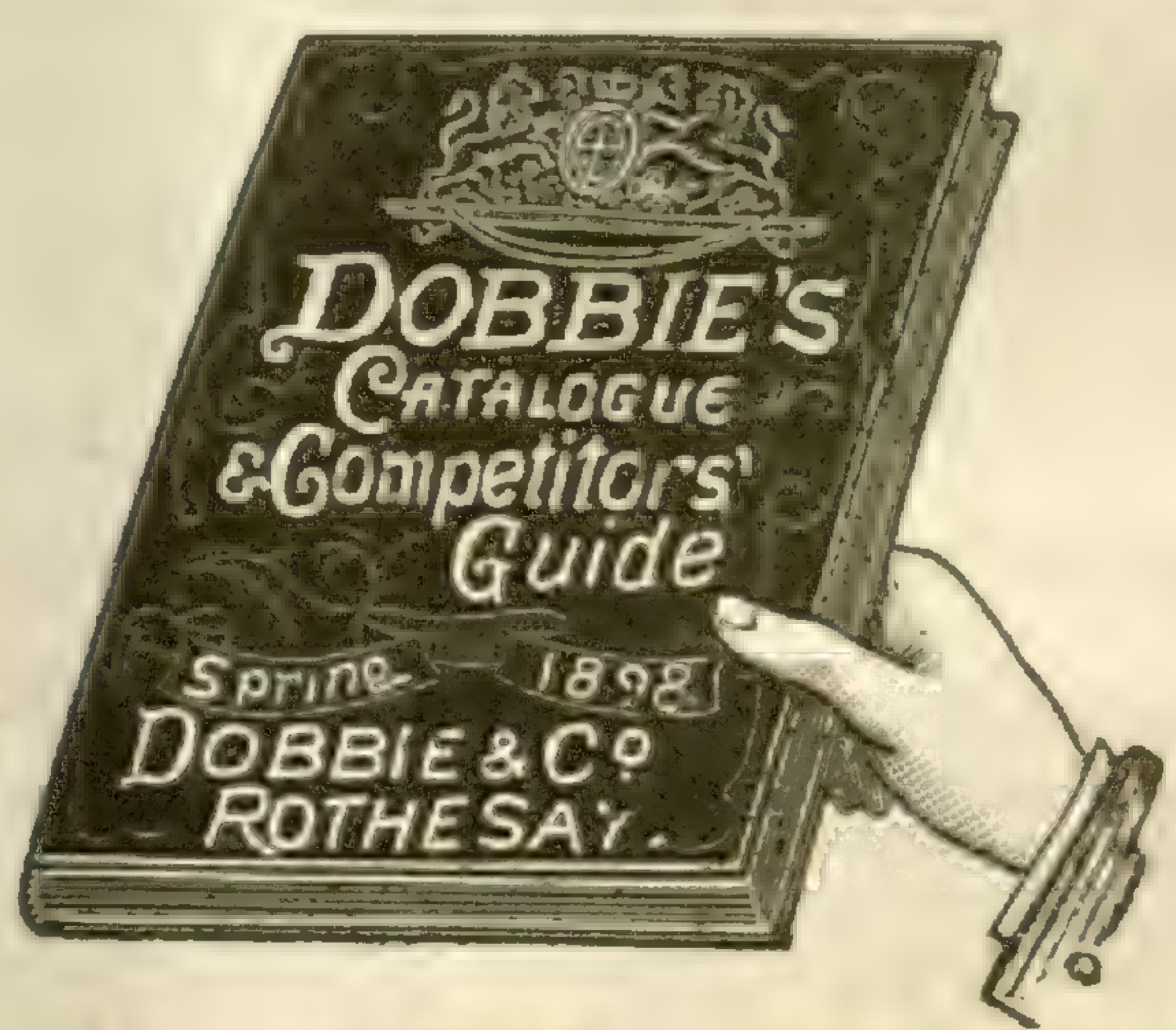

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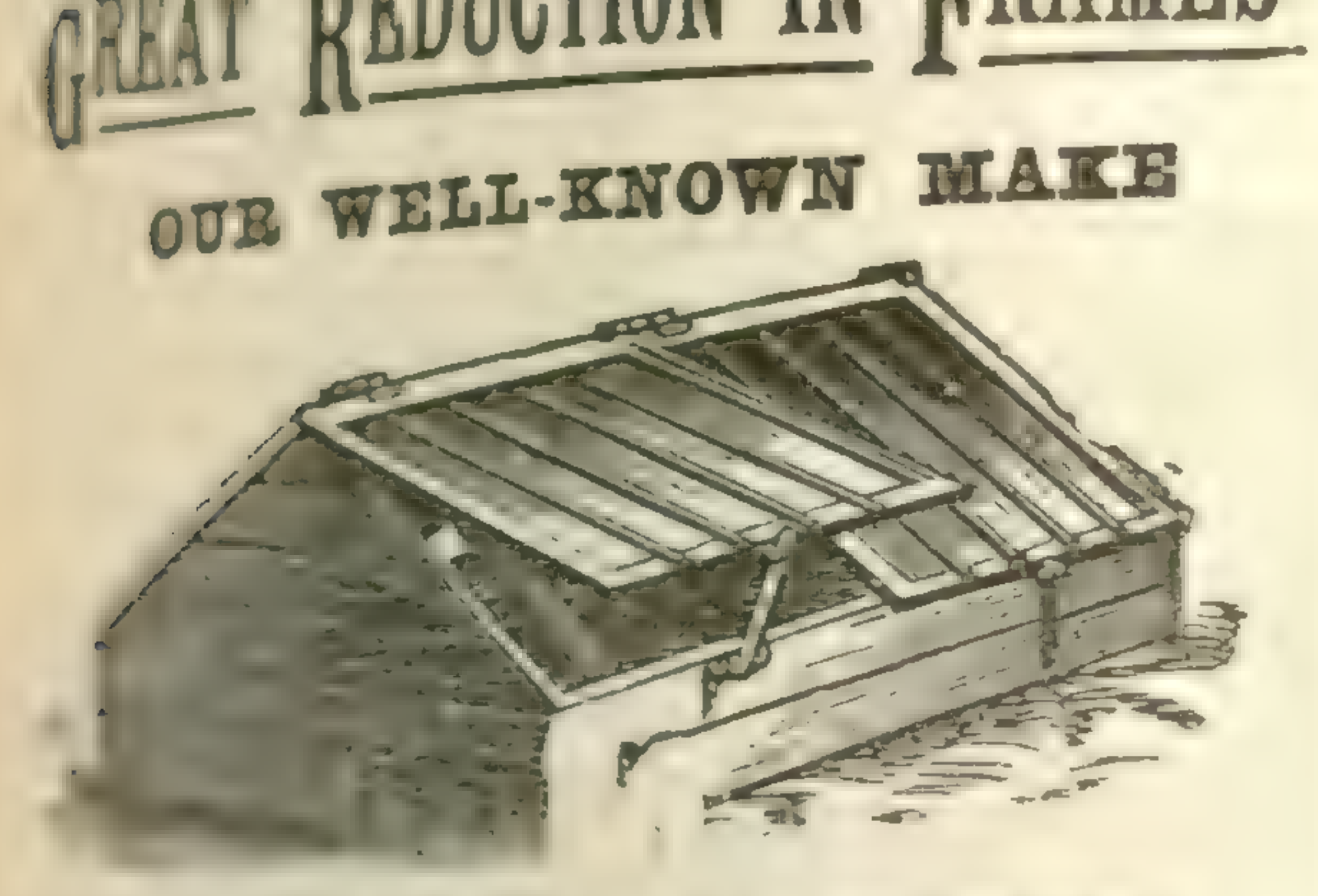

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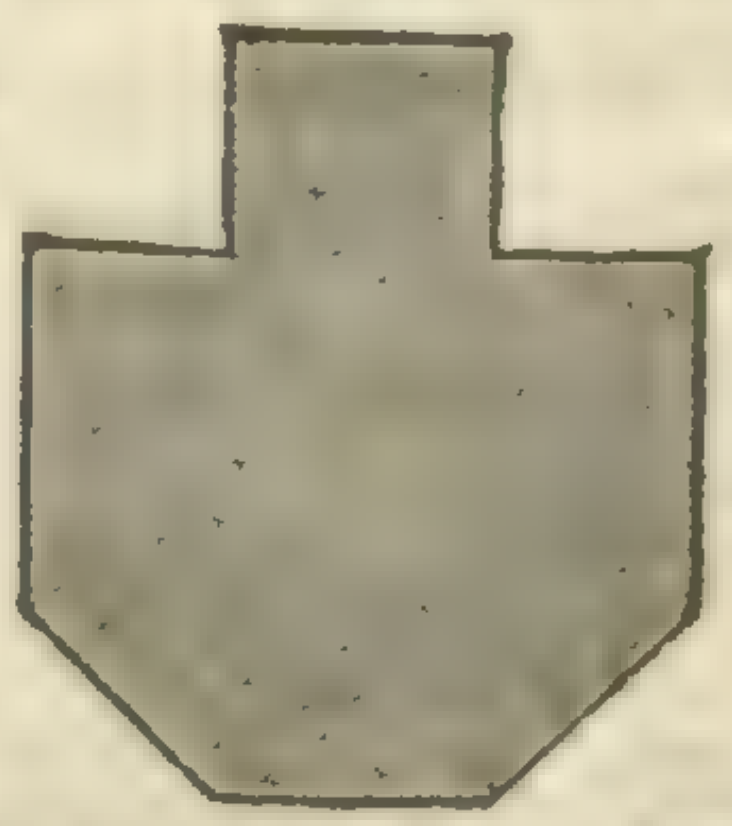

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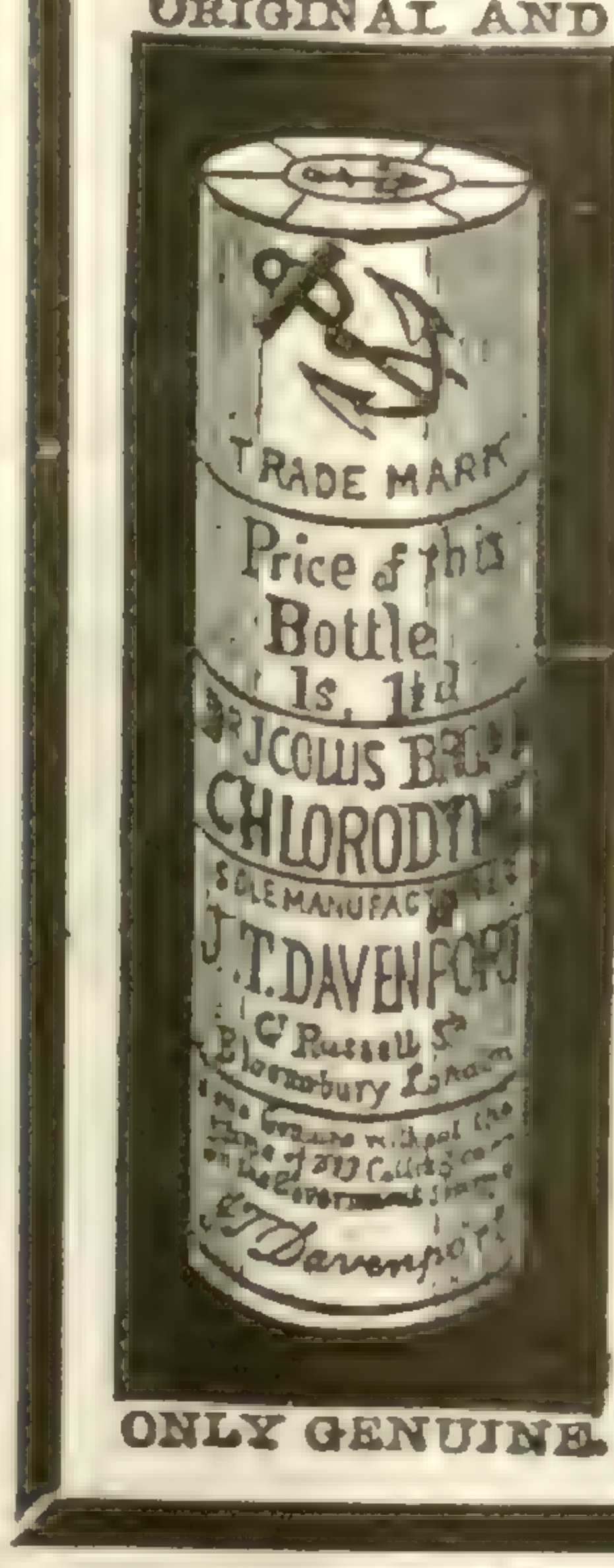

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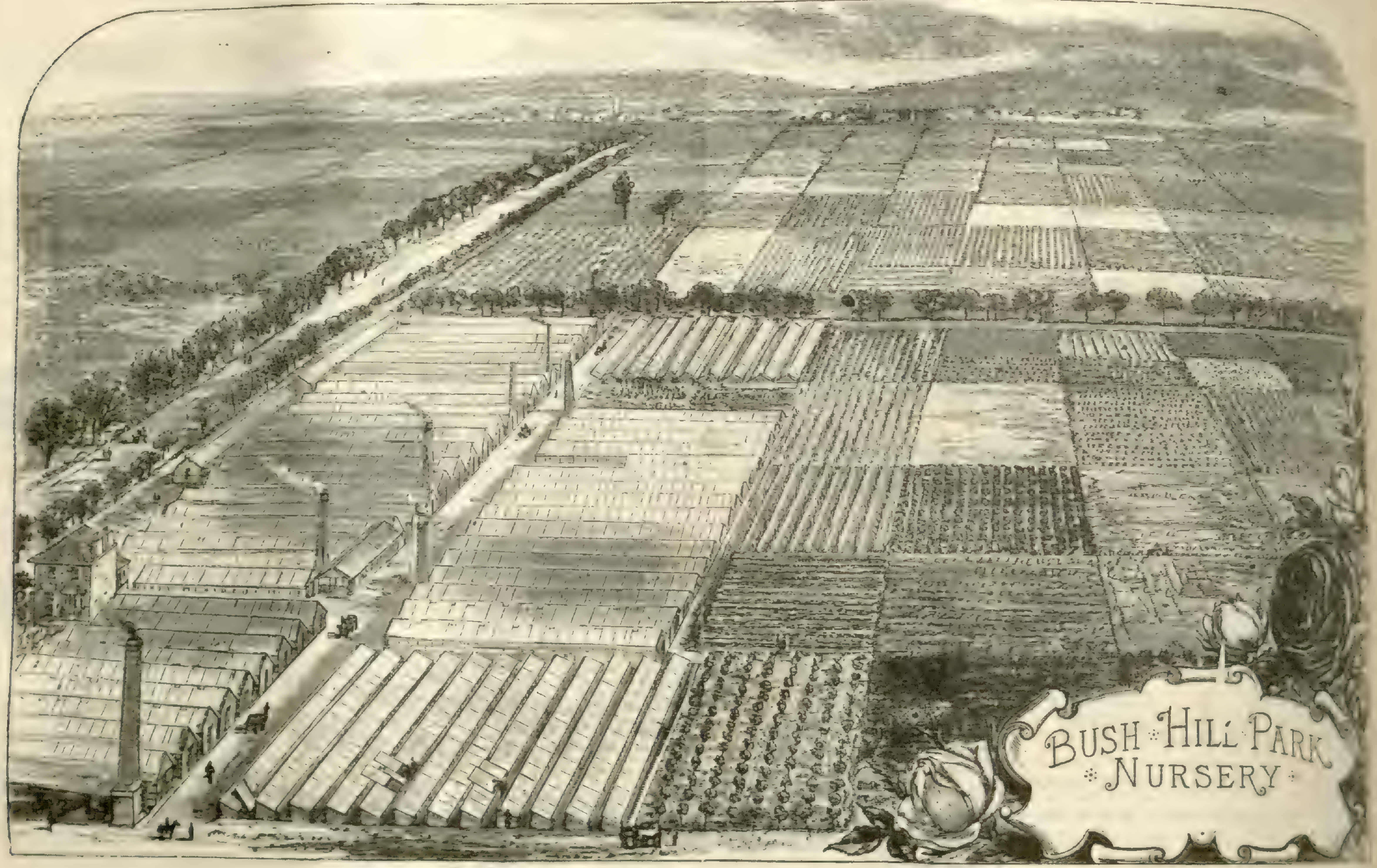

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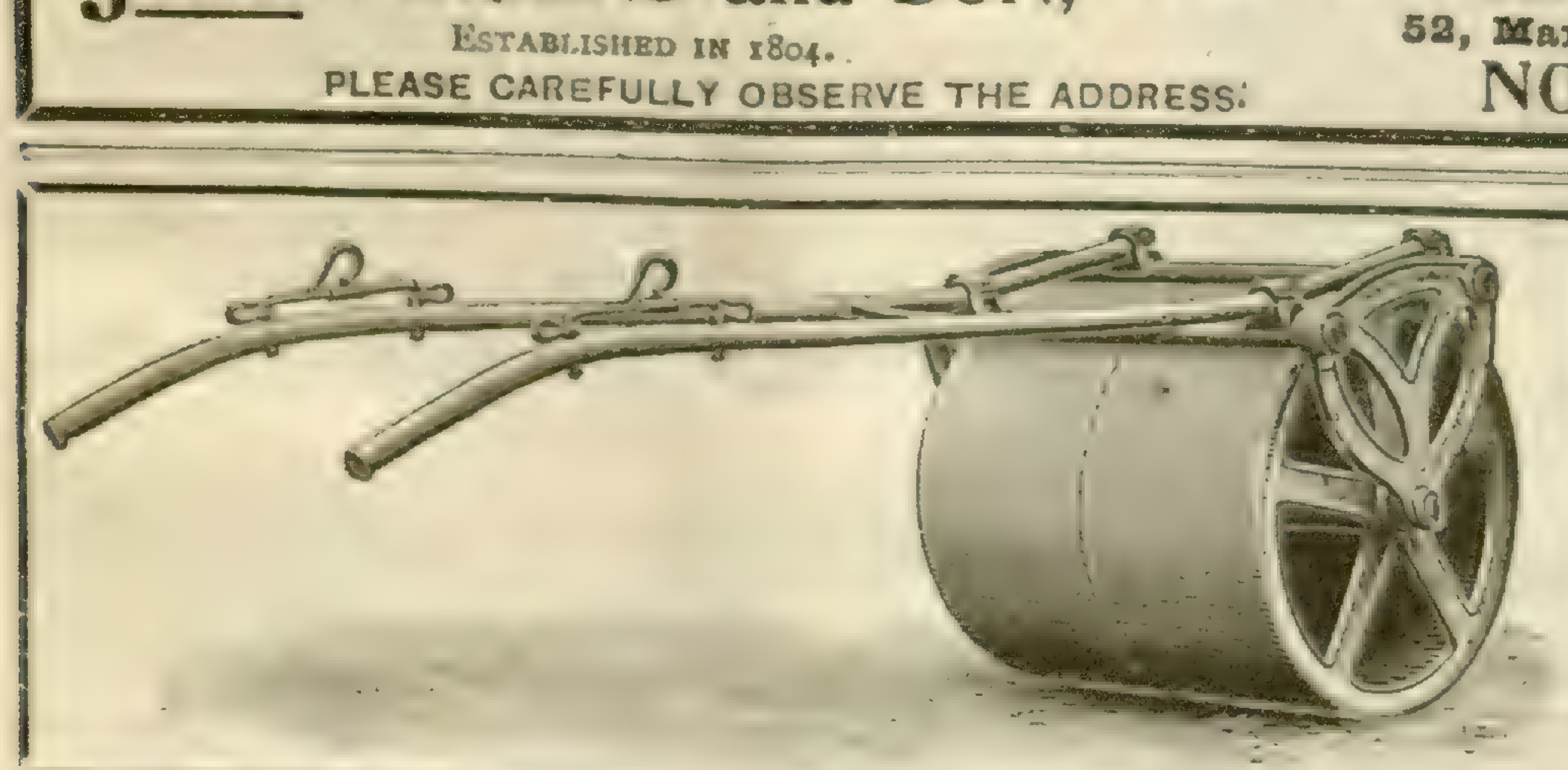

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MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 AND 68, CHEAPSIDE, LONDON, E.C., as follows:—

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500 Dwarf and Climbing ROSES, CARNATIONS, IRIS. BEGONIAS, MONTBRETIAS, GREENHOUSE FERNS, PLANTS, &c

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Friday Next. March 4 at 12.30 o'clock.

IMPORTED BRAZILIAN and MEXICAN ORCHIDS, from Messrs. W. L. LEWIS and Co.; ODONTOGLOSSUM CRISPUM, just received, by order of Mr. BOSHELL; and other ORCHIDS.

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SEDGWICK, SON, and WEALL, upon the PREMISES, on WEDNESDAY and THURSDAY, MARCH 9 and 10, 1898, at Eleven o'clock precisely on each day, by direction of the Owner, 67 GLASS-HOUSES, comprising Span, Three-quarter, and Lean-to Vineries, Peach Houses, Propagating Pits, Greenhouses, &c., containing upwards of 200,000 square feet of glass, nearly all 21 oz., mostly fitted with iron gearing to lights or sliding lights, and several with standards and wiring, 8,000 yards of 4-inch iron hot-water piping, a quantity of 3-inch and 2-inch ditto, and galvanized iron cold water piping.

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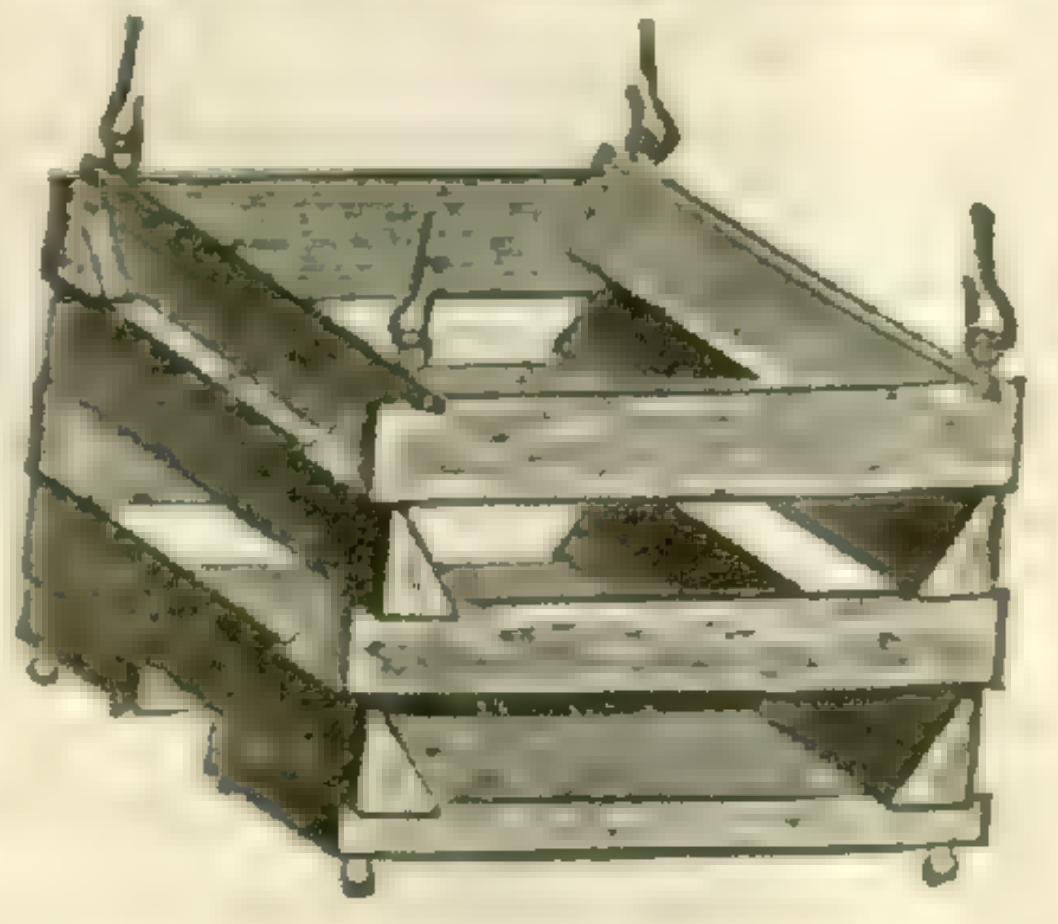

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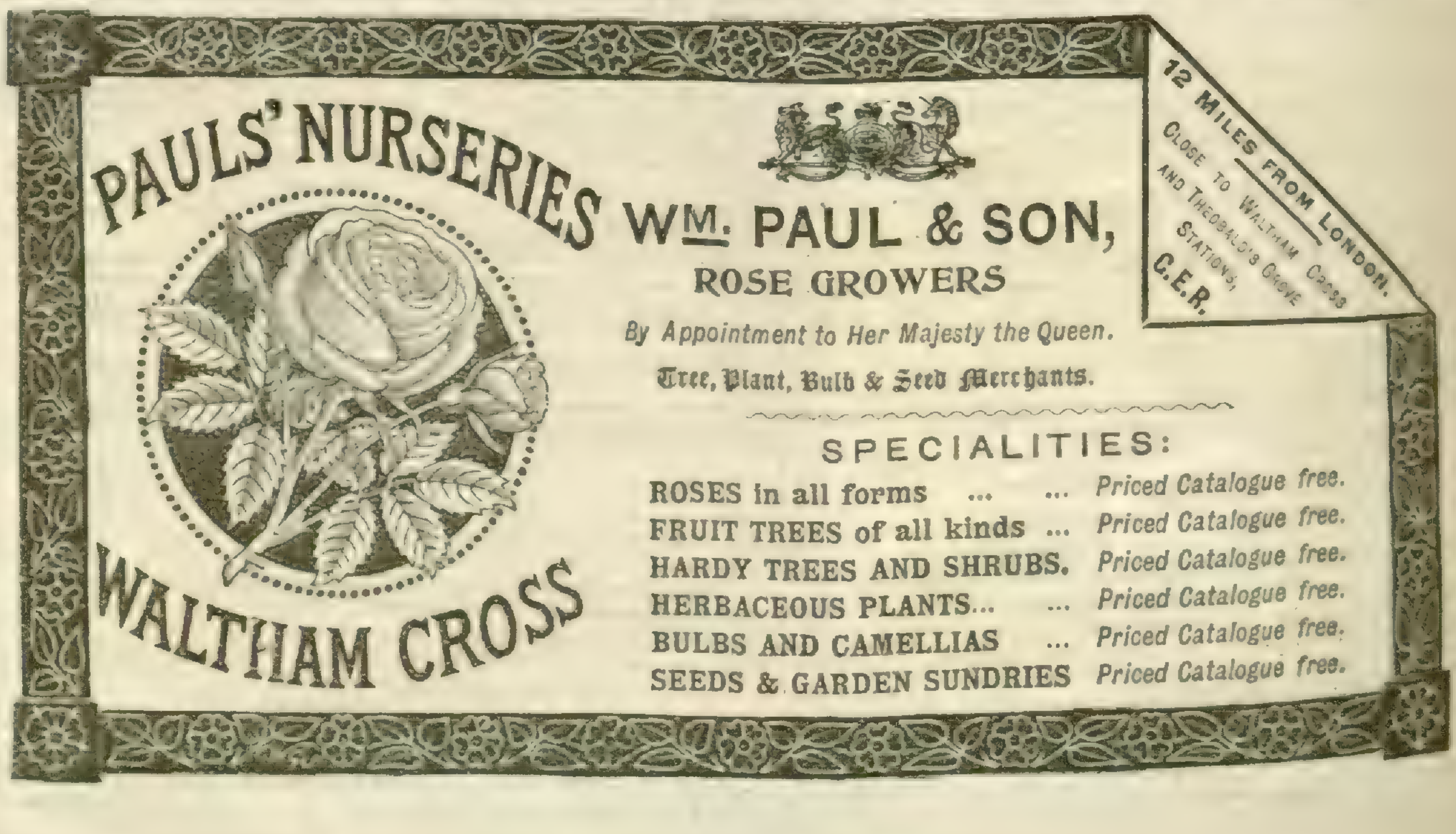

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AS an IMPROVER (Inside and Outside); age 19; four and a-half years' experience; good character. —S. J. SHOEBRIDGE, The Gardens, The Limes, Carshalton, Surrey.

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GARDENER (Single-handed); age 25; eleven years' experience Inside and Outside; three years in last place.—WHITE, 2, Eugenie Cottage, Crown Lane, Chislehurst, Kent.

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THE GARDENERS' MAGAZINE.

SATURDAY, FEBRUARY 26, 1898.

NOTES OF THE WEEK.

WALL COPINGS.

THERE is usually some amount of discussion at this season of the year on the question of the utility of movable wall copings in the cultivation of the peach, the nectarine, and some other of the hardy fruits that receive the shelter of walls and are especially liable to injury from spring frosts. In the course of these discussions the most diverse views are expressed, some cultivators regarding them as quite unnecessary, while others consider them as essential to the production of abundant crops, and those who have had but little experience must have some difficulty in reconciling the different opinions. Those who are well versed in the practical work of the garden and are in a position to take a broad view of the question at issue experience no such difficulty, as they know perfectly well that the differences in opinion arise chiefly from the diverse character of the conditions that obtain in the various districts; and they know also that the value of the discussions is materially reduced by the failure of those who take part in them to explain the climatic and other conditions that obtain in the district in which they have obtained their experience. In districts specially favourable to the peach and nectarine there can be no manner of doubt that excellent crops may be obtained in most years from trees that receive no other protection than is afforded by two thicknesses of old fish nets suspended in front of them. When on the other hand there is a difficulty in obtaining wellr-ipened wood, or where the trees are exposed to the full effects of the easterly winds, or to a humid atmosphere during the spring months, portable copings will be of immense assistance to the trees. There is no garden in the United Kingdom where a coping projecting from one to two feet from the wall would not be of assistance, but with so much work to be accomplished in proportion to the labour available, the gardener has to forego everything from which a well-marked advantage cannot be derived, therefore copings are seldom employed excepting in cases where they are known to be absolutely necessary, and not always in these. The utility of the coping consists chiefly in its keeping the flowers, leaves, and young fruits dry, and thereby lessening the risk of their being injured by frost, as when dry both foliage and fruits are able to resist the effects of frosts that would seriously injure them when saturated with moisture. Copings of either wood, or wood and glass, will serve the purpose of keeping the trees dry, but the latter are decidedly the best, and with nets or canvas suspended from a wire fixed near the lower edge form as perfect a protection as we can hope to have. The glass copings possess the advantage that while affording the most ample protection they do not deprive the growth at the upper part of the wall of any appreciable amount of light. The length of time the copings should remain in position can only be satisfactorily determined by local conditions. Speaking generally, they should be removed immediately the trees can be fully exposed without risk of injury from frost; but there are gardens in which they may with advantage be allowed to remain throughout the year. Whenever the rainfall is considerably above the average or where the atmosphere is highly charged with humidity the wall copings may be allowed to remain, and in several Irish gardens where peach culture was considered impossible heavy crops are now annually obtained by adopting the simple expedient of leaving the copings over the trees throughout the year, the change having been brought about by the valuable aid rendered by the copings during the autumn when the ripening of the wood is in progress. Equally satisfactory results would undoubtedly follow from the adoption of this practice in many gardens on the western coast of England.

RIPENING OF BULBS.

"H. H. D'.'s" remarks in our last issue with reference to the necessity of bright sunshine for the proper ripening of bulbs are very much to the point, and it is doubtless, as he assumes, "the one great element of success" for many species. We have, indeed, only to glance at the climatal conditions of the native habitats of most of our favourite bulbs to see at once that they are the evolutionary outcome of long, hot, dry seasons, characterised by next to no rainfall at all, and an average daily temperature high enough to parch into nothingness the great bulk of floral vegetation. During those dry seasons the surface of the soil is literally baking hot day after day, and at the depth of a few inches lie the bulbs, probably in rubbly, stony soil, and certainly subjected to a temperature little below that of the surface itself. In this country we cannot provide such conditions, especially as many bulbs flower and complete the rest of their annual cycle of operations long before our hottest season sets in; and obviously when, during the period subsequent to blooming, the leaves have to perform their allotted task of reconstructing a bulb, they do this under serious disadvantages if rain and cloud deprive them even of the already scanty share of sunlight available. They very probably, however, adapt themselves to circumstances to a certain extent by prolonging the period of maturation, which is undoubtedly effected far more quickly on the native hillside, where the burning sun and soil together hasten the work immensely. Nature, indeed, is very prompt in her work in such climates as bulbs affect; and just as rapidly as the ripening is effected and the foliage burnt up by the sunbeams, so, when the rainy period sets in, the reawakening takes place with startling suddenness and a wealth of gorgeous bloom is speedily outspread where but a week or so previously was a dry and arid desert. It is, indeed, curious to contrast in some cases the natural with the artificial conditions of growth. Take our tulips. We prepare the soil most carefully, and in well-made beds hardly a stone will be found—the aim being to give the delicate roots every chance to penetrate the soil. The surface is carefully tilled and levelled, and all is as tidy and trim as possible. If drought prevail water is supplied, &c., &c. Take now another picture. An exposed stony hillside in Asia Minor, the soil, such as it is, a loose, rubbly mass of fragments of rock and general dèbris, here and there a few sparse bushes of some stunted prickly vegetation, and the only trace of man a barely visible foot-track here and there, while the whole is bathed in sunshine and roofed in with azure of the mediterranean purity. But what is that mass of scarlet yonder on the hill flank? A dense bed of tulips in perfection. Crowded together over many square yards of space are hundreds of brilliant blooms. Try to dig some up, and the soil is so hard that the wonder grows upon one how bulbs can possibly be formed under such conditions; and yet the blooms are splendid, and the whole mass transferred to one of our parks would lose nothing, as far as massing and glowing colour are concerned, by comparison with its pampered kinsmen of our most up-to-date catalogues. All this, of course, shows us the wonderful adaptability of plants, but, none the less, is it advisable to study their natural requirements to the utmost, especially as some are not so amenable as others, and some altogether refuse to be revolutionised, and will either have their full share of sunshine, like "H. H. D'.'s" cyclamen, or perish in default.

GARDENERS' ORPHANS.

THE progress made by the Royal Gardeners' Orphan Fund during the ten years that have elapsed since its foundation has been sufficiently substantial to justify the feeling of "pride and satisfaction" to which the executive gave expression in the report presented to the annual meeting held on the 18th inst. The charity, as briefly stated, has become firmly established among the gardening institutions; it has assisted a large number of orphan children, and it has invested a reserve fund, which if not particularly large is sufficient to show that both officers and members of committee have fully appreciated their responsibilities and also the necessity of economy in the administration of the funds. These are matters on which the members have good cause for congratulating themselves, and it is satisfactory to observe that the guardians of the children are grateful for the assistance rendered them, and that several of the horticultural societies have shown how substantial is the aid these associations are able to give to the charity. On the other hand we regret to learn both from the report and balance-sheet that the receipts have not been so satisfactory as could be desired, and more especially is it disappointing that of the income the sum of £349 11s. only was received in the form of subscriptions, this being less than one-half the amount required for the payment of the pensions to the children. The card collection was even less satisfactory, for notwithstanding the large number of cards sent out, the aggregate amount derived from them was £33 plus a few shillings. The amount derived from these sources is wholly inadequate, and indicates that the gardeners of the United Kingdom do not sufficiently appreciate the value of the charity or their responsibilities in the matter. The fund was established in the interest of gardeners, and is carried on solely for their benefit, and with Mr. Sherwood we wish that a feeling of responsibility for the success of the fund would extend more widely amongst gardeners of the United Kingdom. We fear that the majority of gardeners do not appreciate the fact that it is within their power to materially assist in the good work without unduly taxing their resources, with a moderate degree of effort on their part. Very few, we venture to suggest, are so placed that they cannot collect a few shillings, and many might help to augment the list of members; and, as indicating how much may be accomplished in this direction, we would direct attention to the fact that last year fifty-five new subscribers were obtained in the neighbourhood of Southampton by one gardener. This should be sufficient to prove that there is an abundance of fertile soil untilled that, with judicious cultivation, might be made to bear abundantly. Not only is there necessity for increased individual effort; but it is especially desirable that the various societies associated with gardening should assist as far as possible, in the good work, by means of collecting boxes, by flower stalls at their annual exhibitions, or by arranging entertainments. With but little effort on the part of the general body of gardeners and departmental foremen in commercial establishments, the income could be so increased as to admit each year of the whole of the eligible candidates being placed on the pension list and thereby prevent the disappointment that must of necessity have been felt this year by a large proportion of the candidates.

Affairs of N.C.S.—As a complement to the discussion on the question of holding the exhibitions of the National Chrysanthemum Society at the Royal Aquarium, Mr. J. W. Moorman has issued an eight-page pamphlet in which he quotes a number of anonymous writers in support of the views to which he has given expression, in consequence of "the feeling expressed privately by committeemen and others." Committeemen have, of course, a right to express their opinions privately, as have other individuals; but we are fully persuaded that the world at large will not attach much value to the opinions of gentlemen responsible for the government of a great society who indulge in grumbling among their friends instead of submitting to the committee their views on any reforms they may consider desirable, that an opportunity might be afforded for discussing them at the committee table. On the last page of the pamphlet Mr. Moorman asks, What is to be done? and then says that the following suggestions "appear to require ventilating at the annual meeting": (1) Whether the time has not arrived for the society to have a paid secretary and no vote? (2) That it be an instruction to the committee to inquire and report on what other places (if any) can be obtained for our exhibitions, either by a subsidy, as now, or otherwise? (3) To consider if the time has not arrived when in reliance on our own resources we can proceed on independent lines, like most provincial societies which are in a sound financial condition? (4) As there appears to be much disquietude arising from the fact that the secretary is the delegated referee at all our exhibitions, whether the advisability of a change should not be considered in the form of a small Reference Committee or otherwise? (5) That as the custom of selling the floor space of the Aquarium to trade exhibitors (some of whom are not *boná fide* growers of chrysanthemums), and that inasmuch as such sales have driven competitive exhibits of chrysanthemums into semi-dark galleries upstairs, whether such custom of selling space for a different purpose than that for which the National Chrysanthemum Society was established shall be seriously considered with a view to its discontinuance? (6) That an Exhibition Committee be appointed to closely examine the question of minor shows with the object of ascertaining their advantages or otherwise to the society, and report the results of their investigations to the General Committee. Mr. Moorman does not state whether he intends submitting the questions embodied in the suggestions before the members at the annual meeting in the form of resolutions, that they may be properly discussed by the members. They contain much that is deserving of the most careful consideration, and we are in full agreement with him as to the desirability of effecting several of the reforms indicated, and regret they should have been brought forward in a manner that will render it difficult, if not impossible, for them to obtain proper attention.

The Stratford Market, instituted by the Great Eastern Railway Company, has become the immense distributing area of vegetable foods it now is largely owing to the failure of the company to establish a vegetable market at Bishopsgate within the area of the Spitalfields monopoly. Stratford commenced as a hay, straw, and cattle feeding stuffs market, but since 1882 it has enlarged its borders and increased its business in a remarkable manner. In 1881 the traffic to Stratford Market was 9,665 tons, but, owing to the close of Bishopsgate Market the following year, the tonnage rose to 12,549 tons in 1882, this amount including 15,509 tons of potatos, 5,536 of vegetables, 4,797 of cattle feeding stuffs, 1,907 of carrots, and 473 of fruit. Ten years later the tonnage had risen to 38,738 tons, consisting of: Potatos, 24,853 tons; vegetables, 5,990 tons; cattle feeding stuffs, 4,740 tons; carrots, 2,631 tons; and fruit, 524 tons. The market traffic at Stratford in 1897 shows very plainly that fruit culture has increased, and that the demand has also increased for it and other vegetable products even more than the increase ot population would lead one to expect. The figures for 1897 are 30,074 tons of potatos, 12,544 tons of vegetables, 5,691 tons of cattle feeding stuffs, 2,553 tons of carrots, and 1,162 tons of fruit. At first sight these figures are startling, but, if we remember that Stratford is, after all, only one of the distributing centres of vegetables and fruits, and supplies but a small portion of the metropolitan population, we have some idea of the amount of food London needs.

The Ferns of Nicaragua have been investigated by Mr. B. Shimek, and his report is of much interest. The number of species enumerated, including Ophioglossaceæ and Maratticeæ, is one hundred and ninety-eight, belonging to thirty-nine genera, justifying the author's description of Tropical America as the "fern paradise of the earth." The larger number of these were collected by the author in a botanical expedition undertaken for the University of Iowa. The high mountains in close proximity to the sea afford a climate remarkably well adapted for the growth of ferns, which are stated to form the most conspicuous feature of the vegetation excepting palms. A large number are epiphytic, and they vary in size from tiny species of Trichomanes, with fronds only a fraction of an inch in height, to clinging "vines" like Blechnum volubile, single fronds of which often exceed thirty feet in length, or to splendid tree ferns. The paper is illustrated by twenty excellent plates.

Succulent Plants of all kinds are remarkably interesting, and not a few of them, especially the cacti, produce blooms of wondrous beauty; this being so, it is not to be wondered at that a very large number of amateurs make them their special hobby, and cultivate them with considerable skill. So large, however, is the range of species, that many are yet imperfectly understood, both as regards identity and cultural requirements. The outcome of this is the establishment of the *Cactus Journal*, a monthly periodical, published by Mr. Allen, 4, Ave Maria Lane, E.C., and, so far as we are aware, this is the first effort made in this kingdom to establish a journal for cactus specialists, though Germany has long had its *Cactunkunde*. The first number of the *Cactus Journal* contains admirable articles by Mr. W. Watson, Professor Luis Murillo, Dr. Dixon, Mr. F. A. Haage, jun., and others well qualified to contribute to our knowledge of cacti. The illustrations are mostly old friends, but doubtless original ones will be used in future issues. The double-page illustration of two bowls of curious cacti, one containing opuntias and the other mammilarias, is, however, beautifully executed, printed on stout paper, and valuable for purposes of identity. The issue concludes with Exchange columns and offers for sale of duplicate specimens by amateurs. In size it is small quarto, and contains sixteen pages, exclusive of covers. The use of capital initial letters to the specific names is in very many instances erroneous, but this matter can be remedied in the next issue; for, as an authority on succulents generally, and cacti in particular, there should be a useful and profitable future for the *Cactus Journal*.

Palm House for Stanley Park, Liverpool.—On the 23rd inst., Mr. Henry Yates Thompson, of Thingwall Hall, near Liverpool, and of Bryanston Square, London, made arrangements to provide Stanley Park, Liverpool, with a handsome conservatory or palm-house somewhat similar to the handsome structure presented by him to the corporation, and erected in Sefton Park in 1896. It will, however, be a smaller house, as befits the park, and whereas the one at Sefton, together with the plants, cost £12,000, the one at Stanley Park will cost £6,000. Messrs. Mackenzie and Moncur, of Edinburgh, are the designers and builders, and their plans met with the approval of the corporation. It is almost unnecessary to add that the Lord Mayor and Aldermen of Liverpool heartily thanked Mr. Yates-Thompson for his princely gift.

Classification of Chrysanthemums.—At the meeting of the General Committee of the National Chrysanthemum Society on Monday evening, the Classification Committee presented a report of a meeting held a short time since. The committee reported that it had been decided to place the following varieties in the incurved class: Austin Cannell, Ernest Cannell, Lady Isabel, Lyne Junior, M. L. Faure, Madame Ferlat, M. Desblanc, Owen's Crimson, W. Carpenter, Enfant Desblanc, Mrs. N. Molyneux, Harold Wells, and Sir Trevor Lawrence. The Classification Committee also recommended that, with a view to prevent, in the case of varieties possessing a considerable degree of similarity, the staging of duplicates, a regulation should be inserted in the society's schedule to the effect that the blooms staged in classes for distinct varieties must be shown in a condition to admit of their being readily distinguished by the judges, or the stands will be disqualified. The recommendations of the Classification Committee were accepted, and that body was instructed to prepare a list of too-much-alike varieties. As certain varieties at certain stages bear such a close resemblance to each other, it will be necessary for exhibitors, in making up their stands, to select blooms that are sufficiently distinct to prevent any doubt arising as to the question of duplicates. This is a very wholesome rule, and it is much to be desired that chrysanthemum societies generally should adopt it, more particularly those in affiliation with the National Chrysanthemum Society.

Lilium auratum at Oakwood.—In a communication of the 19th inst., directed from Heatherbank, Weybridge Heath, G. F. Wilson, Esq., writes: We have lately dug up at Oakwood some large beds of Lilium auratum, which had not been disturbed for ten years. Many of the lily stems had been browned by a hard frost, late in last May, which lasted all night. We found many fine bulbs, and more small ones made from large bulbs which had broken up. We found also a good many cockchafer grubs, and a greater number of long, white, narrow grubs, which an eminent entomologist tells me "are the grubs of the small Swift Moth (*Hipialus lupulinus*), a destructive beast to anything under ground." After this experience I would advise examining parts of large lily beds every winter, so as to be sure that grubs are not present in quantity.

Mr. Arthur W. Sutton, F.L.S., gave his interesting and instructive lecture upon "Potatos, their Past, Present, and Future," before the Bournemouth Gardeners' Association a few days ago. As usual, Mr. Sutton illustrated his remarks bp excellent lime-light views, and the large meeting did not fail to accord the lecturer its heartiest thanks for his attendance.

Churchyard Bottom Wood.—At the meeting of the London County Council, on Tuesday, the Parks and Open Spaces Committee brought up a favourable report recommending the contribution by the Council of £5,000 towards the fund for the acquisition and laying out of Churchyard Bottom Wood, Highgate, the balance of £30,000 being found by public subscription and the local authorities. Colonel Rotton moved as an amendment that the amount of the proposed contribution should be £2,500. His only objection to the grant was that the Churchyard Bottom Wood was outside the County of London. The amendment having been seconded, Mr. Shaw Lefevre gave his positive assurance that if the larger sum of £5,000 were not granted, and the amendment was agreed to, the whole scheme would fail. The promoters of the scheme had exhausted all possibilities of raising money elsewhere. Mr. Idris said that the people of London would suffer an irrevocable loss if the opportunity of acquiring this large open space was allowed to slip by. The price asked for it was most reasonable, being less than £500 an acre. There were a number of precedents for the proposal of the committee. On a show of hands only five voted for the amendment, and the recommendation to contribute £5,000 was agreed to, with the result that this fine open space would be secured for public use.

The National Poultry Test is, we are pleased to learn, likely to prove successful. Writing from Burbage Hall, Leicestershire, on the 14th inst., Mr. K. B. Bagehot de la Bere says: Many of your readers may be interested to know that some one hundred and fifty landowners, tenant farmers, and others have signified their intention to take part in the national poultry test to which you called attention a short time since; and as these are widely distributed over Great Britain, we may reasonably hope, twelve months hence, to be able conclusively to determine as to whether egg production can or cannot be made a profitable branch of our agricultural industry. Apart from the above test scheme, I shall be pleased to receive a balance-sheet from any poultry-keeper who will keep strict accounts for twelve months commencing March 1 next. These returns should prove interesting as well as instructive, although they cannot be considered of the same value as those which conform to the six test rules. I may mention that considerably over one million copies of the "Poultry Test Circular" have been distributed through the post and Press columns.

Essential Oils of Value are produced by a considerable number of plants indigenous to New South Wales. The oil obtained from the Native Sassafras resembles, in odour, ordinary sassafras oil, with an admixture of oil of caraways, and is used for medicinal purposes. Eucalyptus oil possesses many valuable qualities, and is said to possess the power of destroying bacteria. Its antiseptic powers have been fully recognised by the medical profession, and by many it is preferred to carbolic acid in the treatment of wounds. The leaves of the various kinds of eucalyptus are found useful in preventing or removing scale in boilers. The oil of the Mountain Ash, a common species of eucalyptus, dissolves gutta percha readily, and can be used, like kerosene, for lamps, having a greater illuminating power, a pleasant odour, and absence of liability to explosion. Three ounces of the oil have been found sufficient to scent eight pounds of soap at a cost of one farthing per pound. The oil obtained from the Stringy Bark is found to be more efficacious, in many complaints, than the ordinary English peppermint, being less pungent and more aromatic. The oil of the White Gum has been suggested as a soap perfume. The Woolly Butt oil possesses the remarkable property of imparting an indelible stain to paper, but at present it has not been utilised for commercial or industrial purposes. The oil of the Grey Gum possesses a delicious citronelle odour, and makes an excellent soap perfume. Several varieties of the Tea Tree furnish an oil possessing most, if not all, of the properties of cajuput, so largely used in India as a remedy for rheumatism. Practically, the number of native shrubs and trees in New South Wales capable of being utilised in the manufacture of perfumes and essential oils is without limit, and when the large quantities of either product, obtainable from comparatively small proportions of bark or leaves, is taken into consideration, it will be seen that in this direction New South Wales possesses exceptional advantages for those possessing the requisite capital and experience to establish large and remunerative productive industries. The essential oil of the Red Gum has been found a good remedy for chronic dysentery, and that of the Moreton Bay Ash makes an excellent furniture polish. It may also be mentioned that the olive, castor oil plant, and linseed, grow luxuriantly in the colony, and are easily cultivated.

The Temple Gardens.—Under the Inner Temple Buildings (King's Walk) Bill, which is being introduced to the House of Commons, the Honourable Society of the Inner Temple seeks power to build upon a portion of these gardens. Mr. Basil Holmes, secretary of the Metropolitan Public Gardens Association, in calling attention to the Bill, writes: By the Thames Embankment Act, 1862, the Metropolitan Board of Works was authorised to execute various works, including the Embankment from Westminster Bridge to the eastern boundary of the Inner Temple, and it was provided that all the land reclaimed from the Thames, and lying in front of the then southern boundary of the Temple, should belong to the societies of the Inner and Middle Temples respectively. But the Act also provided that no building should be erected on this reclaimed land other than certain keepers or gardeners' lodges, of one storey only, of which the First Commissioner of Works might approve. The present Bill seeks to give power to the Inner Temple to appropriate for building purposes so much of the reclaimed land as lies between the former southern boundary of the Temple and the District Railway tunnel, with a width of about eighty feet measured westwards from the eastern boundary of the Inner Temple. To this extent the Thames Embankment Act, 1862, would be set aside, if the Bill passes, nor is any provision made for compensation to the public. The frontage land was not created by the Metropolitan Board of Works with money provided by the Inner Temple, and, if the land had been sold for building purposes by the Board it would have realised a large sum, which would have been some set-off against the cost of the Embankment. One would have thought that the land should have been retained by the Board of Works as a public garden in extension of the existing Embankment Gardens. But the very least Parliament could do, in giving the land into the hands of those who can exclude the public therefrom, was to impose a condition that it should always remain as an open space. If Parliament in its wisdom now thinks fit to allow this open space to be built on, then clearly the Inner Temple should be made to buy it at its market price as a building site, and the money so obtained should be devoted to open-space purposes. But I trust that Parliament will definitely decline to allow our noble Embankment to be seriously injured by the formation of a building frontage so close to the public thoroughfare. If this attempt of the Inner Temple to obtain building land on the cheap is successful, it will only be a question of time before they and the Middle Temple secure the remainder of the open space as a most profitable building site without payment, when, of course, the Temple Gardens, which add so much to the beauty of the Embankment, will be much curtailed, and will be shut out from public view.

The Botanical Society of France has elected Mons. Franchet as its president for the ensuing year, and MM. Zeiller, Boudier, Rose, and Clos, as vice-presidents.

Women Gardeners at Swanley.—The annual report of the Women's Branch of the Horticultural College, Swanley, shows that during the year 1896 many of the students have received professional appointments, and altogether there are twenty-eight women, who, after a Swanley training, now hold positions as nead gardeners, horticultural lecturers, &c. Of course, many go to Swanley simply with a view to managing their own establishments subsequently, and not in the hope of gaining professional appointments. Among the college successes it is pointed out that Miss Gulvin, one of the students first employed at Kew, has now undertaken a responsible post with several gardeners under her, among whom is Miss Groome, also from Swanley. Miss Hutchings remains at Kew, and is now a regular gardener on the staff. Two others are also now in training. Two students are at the Royal Botanic Gardens, Edinburgh. Miss Smith is still at Lady Henry Somerset's industrial farm colony ar Duxhurst, where she organises and directs all the horticultural work. Miss Prior is directing and instructing in gardening the patients of the convalescent home at Hale. Miss Agar is employed by Miss Dove at the Wycombe Abbey School as head gardener and teacher of practical gardening. Miss Clark has been teaching botany at the Princess Helena College, Ealing Miss Morison has been employed by Miss Wilkinson in the laying out of gardens in London under the Metropolitan Public Gardens Association. Miss Atkey has been employed by Mrs. Garrett-Anderson, M.D., in planting and laying out an orchard in Suffolk. Miss Windermer and Miss Cope have been appointed to lecture on beekeeping and on London trees respectively.

National Chrysanthemum Society.—A meeting of the General Committee was held on Monday evening, and, in consequence of the length of the agenda paper, the members were busily engaged for upwards of three hours. Among the numerous items on the agenda were the annual report and the balance-sheet, which are, as usual, of a satisfactory character.

THE PRUNING OF ROSES.

LOOKING through many beds and borders of roses at the close of last week it was impossible to note their vigorous growths, ranging from two to six inches, without an uneasy feeling of fear for the safety of our fast-growing and dangerously early budding roses.

Some growers advocate early and close pruning as their antidote to early growth. A long lifetime of watchful experience among the roses lends no support to the theory or practice of early pruning as a mode of modifying or preventing the evils and dangers of early growth; so long as we can retain plentiful reserves of dormant buds our rose harvest is tolerably safe.

With all the abnormal warmth of a hitherto winterless winter summoning our roses into vigorous growth, they will—they must grow—prune then when or how we may.

It must be admitted that the buds on the extremities of the shoots burst or break into growth first. The old rosarians used to say that was because they were nearer to the sun, and therefore the first to see and feel his quickening power Be that as it may, the upper buds still break first, and, in breaking, these growing buds blow off as well vital force or steam from the lower ones, and in doing so hold the late roses back for the enrichment of our gardens—or the furnishing of our rose shows. So that rosarians gain infinitely more by allowing the top ends to run to waste than by pruning them back to the dormant buds in winter or early spring. I do not say that winter pruning may not lessen the volume, or modify or put back the time, of the dangerous flood-time of spring sap in our roses. No, close winter or spring pruning does both in degree and to a certain extent. But it is abundantly proved that it creates new dangers of more far-reaching import to rosarians. We all admit that the abnormal and premature growth of our roses, in January and February especially, is attended with many serious risks and dangers. We can also, in a certain measure, afford to be almost indifferent to the loss of many top buds on our rose shoots. But ultimate results often prove to rosarians that these do not suffer alone. It is as true of roses as of our own bodies, if one member suffers other members suffer with it. It is not needful to carry the analogy too far, nor to run it too closely to feel or see its truth among our roses. Those who can vividly recall their losses among the roses will all too readily remember how unexpected or inscrutable many of the worst of them seemed. Were a zero frost to hit our roses now, we should all be prepared to find our growing branches as black as our hats. But the unexpected often happens among roses. It is when the severities of winter, and the sudden and erratic changes of our volatile springs are over and gone, that our roses begin to droop and die. There may be many causes for this, but I believe one of the most powerful is winter and early spring pruning. This calls up the reserve buds at the base of our roses into premature action or growth, which exposes the very citadel of their life to the killing grip of the frost. The growth of the top buds may not greatly affect the reserve buds at their base; but if too long continued even the base buds may be reached by a process of exhaustion, and the whole plant be rendered abnormally tender through unseasonable excitement. We have but one mode of preventing the consequences of such unnatural conditions—that is by preserving a masterly inactivity with the knife among the roses until the chief dangers from spring frosts are over, and the time for safe growth has come. Then in many cases it may be found little or no pruning will be needed. We will only have to cut back to the best dormant bud, or cut out any weakly wood. Neither have these early shoots been wasted. Already they have served three useful purposes—they have reserved a stock of semi-dormant buds at the base of the shoots, afforded considerable shade or protection to the same, and quickened the roots into abnormal vigour and activity for the supply of all the wants of the coming rose season.

D. T. FISH.

PRIMULAS AT PERRY HILL.

AMONG the several firms of seedsmen and nurserymen that have taken especial pains to improve the garden forms of Primula sinensis, and to create new ones, Messrs. J. Carter and Co., High Holborn, take a foremost place. Grouped under the title of Holborn Primulas, the various improvements instituted and carried out by this firm have been most popular during the past quarter of a century, for not only have fine habit and floriferousness been obtained in a marked degree, but the distinctness and diversity of the colouring now to be found is even more remarkable. To see the Holborn Primulas in quantity and in prime condition, it is neither necessary nor advisable to go to the headquarters of the firm at Holborn, but to the nursery at Perry Hill, about a mile from Forest Hill Station, where away from the dust and smoke of the great city, good light and pure air combine with skilful cultivation to produce a sight, or series of sights, worth going a long way to see. Disregarding for the moment the big lithographed invitation to use Carter's Breakfast Oats, the visitor passes into the nursery and comes quickly upon a number of long span-roofed houses with sunk paths, low-pitched roofs, and broad panes of glass. Even at the present season there is a grand display, although the flowers are being carefully pollenised to ensure a good crop of seed to meet the large demand. In one house there are about a couple of dozen plants of each variety of primula sent out by the Messrs. Carter and Co., so that an ample opportunity is afforded of comparing them with each other, and noting the harmonies or contrasts produced by the several forms. As a rule, however, the primulas are in big batches, seven thousand plants in all, and naturally are most effective seen thus.

The first variety we are invited to inspect is Elaine, a handsome and exceptionally neat primula with bold trusses of neat white flowers, prettily fringed, and carried well above the dark-stemmed foliage; in habit it is everything one could wish, and forms a fine companion for the celebrated Holborn Blue. The latter produces full central trusses surrounded by lesser ones, and forming together a pyramid of flowers; the blooms, charmingly frilled and fringed, are of large size, and of a bright shade of heliotrope blue with vivid blue margins to the bases of the segments. A lovely primula is Princess May, its clear and delicate blush-tinted flowers measuring as much as two and a quarter inches across; it is one of the most handsome of the many varieties here, and is robust in habit. A most attractive primula is Holborn Queen, for its elegant fern-like foliage surrounding the sturdy trusses of white blooms make it a perfect picture; the palest possible pinky blush suffuses the flowers after they have been expanded a few days, but this only adds to the beauty of the variety. The large batches of Holborn Queen seen at Perry Hill arrest the attention of all visitors, and remind us that much seed is required, as the variety is a very popular one. Magenta is a colour that does not find favour in many circles nowadays, but if the dyers were to copy the tint seen in Carter's Magenta primula, it would not fail to become popular; the shade is rather that formerly understood as royal purple, and one which shows up grandly under artificial light; the dark orange eye in this primula is immediately surrounded by a ring of pale rose, and altogether the variety is one of great beauty and usefulness. Holborn Carmine next demands attention by reason of its strength and robust habit; the giant blooms are wonderfully frilled, and of a most intense and telling shade of carmine.

In another structure is a batch of Rose Queen, a variety that for want of a better description may be described as a miniature form of Princess May. Two of the most striking primulas here seen are Holborn Scarlet and Holborn Vermilion; the former, seen in quantity and flowered most freely, reminds one of a regiment of grenadiers in their scarlet tunics, for the colour is as vivid. For grouping this is a famous primula, and the colour is one that we have none too much of among winter flowers. Holborn Vermilion has rather more crimson in it than one would expect from the title, and perhaps the shade would be more aptly described as vermilion-crimson. Ruby is a primula everyone should grow, because it combines in itself all the attributes of a first-rate variety; it is strong in habit, has elegant fern-like foliage, large full trusses, and big frilled blooms; the colour also is very fine and well described as ruby, while the eye is rich orange. Somewhat later than the majority is Holborn Rose, and a splendid batch, consisting of many hundreds of neat plants in forty-eights, is now in the best possible condition; a score or two of such specimens would be just the material for association with the forced bulbs, &c., in a conservatory at the present date. It is a variety with long ferny leafage surrounding large pyramidal bouquets of exquisitely frilled and rich rose-coloured flowers. Holborn Salmon is charming in bulk, profuse in flowering, and most distinct. Like Elaine, Venus is represented by both plain and fern-leaved forms; it is a curious variety having white flowers, flaked with carmine, rose, and purple; owing to its free habit it is highly recommendable to those who like bizarre flowers.

Quite as much in the double and semi-double varieties as in the single forms is continued improvement evidenced in Messrs. J. Carter and Co.'s strains of primulas. The value of double and semi-double primulas cannot well be overestimated, for the flowers are suitable for cutting, and, as they last a good while in a fresh condition, they are available during winter for a variety of uses, and at a period when the demand is great and the supply somewhat restricted. Formerly we had to rely on the double white primula, and propagate it by cuttings or division; now, however, we may obtain useful plants easily from seed, and in at least half-a-dozen different colours. At Perry Hill you may see carmine, salmon, rose, lilac, white, white flaked with rose, scarlet, and blue, in double form, though not all these are yet in commerce. Carmine Empress gives a new shade among double primulas, and is a variety useful alike for the provision of flowers for cutting or for conservatory decoration. It has plain, neat foliage and dark stems. Double Blue is being improved, and will doubtless ere long be more double than at present; the colour is pale blue, and the blooms are prettily fimbriated. Prince of Wales produces flowers with the greatest freedom. It is dwarf and has dark stems; the flowers are rich rose in colour, shaded with carmine, a combination that cannot fail to please. Having a prince, it was also natural for the firm to provide also a princess, so one variety has been named Princess of Wales; it has white flowers prettily flaked with carmine. The pure white double form is properly named Snowflake, for the flowers are pure white, and of large size. Very distinct is Lilac Queen, and the variety is as free as it is distinct. Vivid, a new and brilliant scarlet-shaded carmine variety, will soon have a recognised and high position among the double varieties. Aurora appeals to those who like delicate shades, for it has large flesh-tinted flowers of great beauty and substance. Double Scarlet is remarkable for its compact habit, combined with freedom of flowering and deep scarlet blooms. As a market plant this should prove a great success. Such an advance in double primulas, as these remarks indicate, has not been made in one or two seasons, nor is the firm resting on its laurels now. There are evidences at Perry Hill that careful improvement and selection towards certain ends are still the order of the day, and that more surprises are yet in store.

To give some idea of what may be expected in due course from Messrs. J. Carter and Co., we will briefly refer to two or three successes achieved but not yet distributed owing to the small amount of stock. A variety named Bouquet takes leading place, and is so named because the large central truss has a leafy involucre that serves to set off the white flowers like the fringe of fern in a bouquet. It is a giant form, the immense flowers being heavily frilled; the side trusses are suppressed as such, and in their place a huge flower is produced encircled with a foliaceous calyx. A number of these large flowers surround the central truss, and the individuals composing the latter are also provided with a leafy calyx. It is a handsome and interesting variety, and even when not flowering the frilled lobes of the leaves give the plants an effective appearance. Up to the present Bouquet is very shy of seeding, so that stock is not soon increased. Ere long we may expect a new single crimson variety with very fine flowers of a rich blood-red hue; when it appears it will be likely to supersede the popular Holborn Vermilion, whose child it is. The name of Hercules has been given to a very rich, rose-coloured variety that is exceptionally robust, and produces blooms of astonishing size. These three make up a good new set, and show a marked advance in primula production. We may add that a magnificent lot of cinerarias occupy several houses at Perry Hill; the specimens are especially robust and clean, and a few have expanded their earliest blooms, giving a foretaste of the display that will occur about five weeks hence.

THE BLACK CURRANT MITE.

I FEAR Mr. Berry, the Kentish fruit grower who made such an earnest appeal for scientific aid to help stamp out the black currant mite at the recent annual meeting of the Royal Horticultural Society, and afterwards, as reported at page 10[illegible], brought the matter before the Scientific Committee with, it seems, such indifferent results, must have returned home greatly disappointed. Great as may be the knowledge entomological of members of the scientific body, yet even their capacity to indicate *bonâ fide* remedies is not infrequently limited. Also, it has often happened that the unscientific cultivator is more successful, because of constant and keen observation in suggesting or finding remedies, than are actual scientists. The latter, it is true, do materially help to furnish information with respect to the life history of the various insects or fungoid pests, but, as in the case of the currant mite, be quite unable to suggest any practical remedy. When the only suggestion is entire destruction by burning of all infested bushes, we have to realise that that is not a sensible remedy at the best. It may check the ravages of the mite by absolutely destroying the currant bushes on which they feed, but that would furnish poor relief to the distressed cultivator; and yet we see this pest increasing so rapidly everywhere, that there is grave danger, if the bushes be not destroyed by fire and the mites with them, the insects will practically destroy them by rendering them useless. Of course, it may be said that when a breadth of bushes is attacked by the insect, why not destroy it absolutely, and obtain young bushes from a clean stock, and plant in fresh ground. But what guarantee has anyone that an absolutely clean stock anywhere exists, or that even if found it would remain clean for any period? Because the insect is of such minute form, and growers are not microscopists, there is on the whole very little discernment of the presence of the mite or of its evil effect until great mischief has been accomplished. Probably it would be very difficult to find black currant bushes anywhere a few years old that are not more or less infested with the insect. It does not seem as if the hard and well-armoured buds of the red currant were permeable by the insect. But then, at what stage of growth are the eggs deposited? One fruit authority tells us that they are so deposited in February and in August, but how or by what description of insect little information is afforded.

The same writer also intimates that besides picking off infested buds or cutting away infested shoots, and burning them, remedies found now to be quite ineffective, "no mite can withstand sulphur, particularly bisulphide of calcium, or soft soap, sulphur, and soda wash. Syringe the bushes thoroughly after the fruit is gathered with bisulphide of calcium, clear away the leaves as soon as fallen, and in dry weather again syringe the bushes with the mixture, repeating in February. The soft soap mixture may be used as a spray in November and February. Now the question to be asked is, Have these remedies been tried, and if so have they been successful? Syringing several acres of bushes thoroughly would be a very long and expensive process, especially if done three times. Yet it is difficult to see how any syringings or dressings applied after the buds have hardened and the mites are well enclosed within the bud scales can reach them or be effective. Spider and aphis are invariably amenable to external applications, but the mite is as though protected by an armoured barbette, and is invulnerable to external dressings. As to what effect would be produced on currant leafage by an application of bisulphide of calcium nothing seems to be known. Is it possible for the hybridist to render the black currant grower any assistance by intercrossing the black and the red currant, or with the flowering Ribes sanguinea, bushes of which sometimes fruit freely? At present growers are in a very helpless case, and they need assistance of a very practical kind. The Agricultural Department can muzzle dogs, but the currant mite defies even Miss Ormerod's prescience, and will not be muzzled; and if scientists, departments, and colleges fail to furnish aid in the matter, where is the poor grower to look for it?

A. D.

ISLE OF WIGHT.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. Mr. J. H. Perkin, [illegible] Sandown, presided over a large attendance of members, in the absence of the chairman, Dr. J. Groves, B.A., J.P., who, however, arrived later in the evening. Mr. J. Hygate, The Briary Gardens, Cowes, gave a thoroughly practical address on "The Cultivation of Grapes in a Cool House," dealing with every phase of vine culture. The subsequent discussion proved interesting and instructive, and was entered into by Dr. Groves, and Messrs. T. W. Butler, A. W. Kime, [illegible] Martin, T. Brown, W. Matthews, J. H. Perkin, and S. Heaton. [illegible] mildew—its cause and cure, received considerable attention, as did also [illegible] growing in the Garden Isle for wine-making purposes. It is believed by [illegible] that there are places in the island where the undertaking would prove a [illegible] financially. The exhibits staged consisted of a collection of cyclamen [illegible] primulas from Mr. H. Drover, Ventnor; a specimen cyclamen, over [illegible] through and with eighty blooms on it, from Mr. A. J. Cole, [illegible] Gardens, Sandown; and a specimen Dendrobium Hilli, with six spikes, [illegible] Mr. Honeybourne, gardener to Lady Daly, Ryde. The exhibits in each [illegible] well merited the association certificate for cultural merit, which they [illegible] on the recommendation of the judges—Messrs. Kime, Butler, Martin, [illegible] and Witty. At the close fourteen new members were elected. At the [illegible] meeting Mr. J. Perkin will read a paper on "Asparagus Culture."

LEAVES FROM A RAMBLER'S NOTEBOOK.

TRUE GARDENERS.

GARDENERS spring up like mushrooms and you meet with them everywhere. In the sense of which I speak of gardeners I do not necessarily refer alone to men who follow the gentle art as a means of obtaining a livelihood, though they are numerous enough, but rather would I include all who have a natural bent for horticulture. Here we have a wide field before us, for true gardeners are to be found among all sorts and conditions of men. Commence high, if you like, among dukes, lords, and baronets, and familiar names rise spontaneously to the lips—names so well known that there is no need to mention them here, and the owners of them are gardeners in the truest sense, because they are endowed with an ardent love for Nature and her capricious workings. Then turn to the professions—the Church, the law, and medicine, and you will find gardeners. Some of them famous in the annals of horticulture, and others following their bent in obscurity so far as the world is concerned, yet obtaining that enjoyment out of the occupation that only a true gardener can. Come lower still, among the working ranks of our great population, and here you find gardeners on every hand. Some are clerks, others artizans, others again labourers, and, in fact, comprising all walks of life that demand the exercise of brain or the energy of muscle; yet they are all gardeners, because Nature made them such, and endowed them with the happy faculty for obtaining pleasure and recreation in studying the gentle art that refreshes wearied brains and makes a pleasant change for those whose main occupation is monotonous and uninteresting.

Perhaps we are to blame for putting such a narrow limit to this world of horticulture, as in the sense that the word is generally understood gardeners are only men to whom gardening is a means of living. All others are classed under the pet name "Amateurs," though they comprise many to whom the appellation, as it is understood, does not apply. In cricket a professional is a man who receives payment for playing, and an amateur is a man who does not. In horticulture the amateur is frequently understood to be only a novice who dabbles a little in gardening for a hobby, and plays at it, so to speak, but surely this is a wrong construction to put upon a community. There are many, of course, to whom the word in this sense justly applies; but on the other hand, there are many more who are amateurs correctly speaking, because they receive no financial remuneration from horticulture, but apart from that they are gardeners, true gardeners, thoroughly understanding the branch they follow, and often able to teach something to men of the professional class. Even among the working population such men are to be found, and in almost every village you will find a section of thorough gardeners. These are the shining lights of the little horticultural world in which they live and are looked upon as authorities. Their allotments and gardens are always a credit to them, and in healthy competition at the village show they vie with each other for the coveted awards. Gardening is their pet theme, and in the spring and summer seasons, after a hard day's work, you may meet with them—a kind of mutual improvement society, studying each other's work, and criticising or approving, as the case may be. You can call such men amateurs if you like; but if so, let it be in the broad sense of the word that also includes them as gardeners who know how work should be done and take a pride in doing it.

Everyone is not acquainted with the difficulties under which some of these men pursue their hobbies, and, as an instance of this, it was my lot last summer to meet with a blind gardener. It was a sad case—a strong, able-bodied man, afflicted in the prime of life through a lamentable accident which robbed him of the light of his eyes. Life was dark to him after that in more ways than one, and, without the faculty of sight, there seemed nothing to live for. He was only a labourer, with labourer's means, and his store of knowledge was therefore small. To use his own words, life seemed a burden, and a sightless existence unbearable. Then something came to the rescue, and that something was his garden—a twenty-rod plot in an allotment field. He found that when sight failed his sense of touch improved, and though his blind orbs were useless, his power of imagination was such that he could see his garden plot in his mind's eye before him. These powers of touch and imagination gradually increased, and wedded him still closer to his garden, which became not only his occupation, but his friend, his companion, and chief solace. The plot would have been a credit to any man, but to one without sight it was much more. It was a picture of order and neatness, every line being perfectly straight and parallel with the next. Interesting, yet painful, was it to watch the patience of the man in measuring the distances, and laying his line for the rows. The times he went over the ground were enough to tire anyone, yet with him it appeared to be a labour of love. Not a weed was to be seen, yet the blind gardener's only means of finding the obnoxious vegetation was by his sense of touch; still, he never by any chance pulled up a plant of the legitimate crop by mistake. He ran the hoe between his rows of growing vegetables with remarkable accuracy that would have been a lesson to many who have a knack of cutting off the plants in this operation. Standing at one end of the allotment, he told me the exact position of every crop, and whether it was doing well or otherwise. He knew when cabbages should be cut, peas gathered, potatos dug, and all the rest of it as well as any professional. He detailed the labour he had with watering, and, turning his face towards the breeze, prophesied rain. He could in imagination see his garden before him, and there lay the light of his darkened life. As I took his hand in sympathy at parting, he turned towards his plot and said, "It's my greatest pleasure in this world; but I shall *see* in the next."

Another individual, whom I shall class as a true gardener, resides—or did eighteen months ago—in anything but an aristocratic part of the thriving Welsh seaport of Cardiff. Hodge's Yard, Bute Docks, does not strike one as being a very salubrious spot, and the name is by no means contradictory to the locality, for it is the last place in which one would naturally look with the idea of finding a gardener. Hodge's Yard is a cluster of little old-fashioned tenements, that probably existed before many of the fine buildings of which Cardiff boasts were thought of. The houses, in fact, by their appearance and situation, might have been washed up there by the tide, and, having found natural moorings, allowed to remain. The murky waters of the docks come nearly up to the doors, and great baulks of timber and barges of coal, iron, and other merchandise appear tc be the only craft that find their way up to the coal sidings, timber yards, and warehouses. On a summer day the aroma from the half stagnant water is not the most pleasant, and the whole surroundings give you the idea of prosperity in one respect, and hard, ceaseless toil, with meagre house accommodation in another. Yet here, under circumstances that many a professional gardener would consider impossible, a man rode his favourite hobby with a success that would have attracted much notice had the conditions been of the most favourable character.

I made the acquaintance of the man, whose name slips my memory, in one of the tents at the Cardiff summer show. From his appearance he might have been anything from a ship's stoker upwards, though I learnt afterwards that he followed the calling of a shoemaker. It was evident the man was in trouble, as he looked in a half-interested manner at a group of specimen fuchsias, and the cause of his discomfiture was that he was a fuchsia grower in a small way, and a prize-winner at previous shows, but on this occasion schedule regulations prohibited him from showing on account of his plants being in too large pots. Expressions of sympathy led to an invitation to pay a visit to Hodge's Yard, and it was not without difficulty that the establishment of my newly-made acquaintance was found. The policemen did not seem to know the exact spot, as Bute Docks covers a wide area, and in Cardiff Hodge's Yard is not so well known as Piccadilly is in London. The fuchsia grower, however, was not without a reputation in his own locality, for on meeting a passer-by, and mentioning the name of the man whom I was looking for, he said, "Do you mean the man who grows fuchsias?" On receiving a reply in the affirmative, he kindly volunteered to act as guide, and short cuts through labyrinths of narrow streets and by dangerous-looking dock cuttings led us to the yard. The appearance of a stranger seemed to excite interest, for groups of grimy-looking youngsters stopped their play and stared as we passed, and then by mutual consent followed in a body, evidently thinking that something exciting was going to take place. Women, too, seemed no less interested, as heads and shoulders appeared at the low doorways, and then retreated or moved a yard or two lower down for an exchange of opinion with the next door neighbour as to the curious phenomenon of a stranger by his presence disturbing the peace of Hodge's Yard.

In the little square of garden which lay in front of the shoemaker's establishment was the greenhouse. It was a curious piece of architecture of various elevations, and appeared to be an ingenious mixture of window frames, and garden lights transformed into a greenhouse. There was no doubt about it being home-made, and apparently the irregularity in outline was due to the addition of wings to the first structure. A couple of downward steps led to the doorway, which was made to be entered in a stooping posture, but once inside there could be nothing but admiration for the contents. There, in that primitive greenhouse and amid the most ungenial surroundings, were specimen fuchsias worth going a long way to see—plants seven and eight feet high, pyramidal in form and clothed from base to apex with healthy foliage and a wealth of handsome flowers. They would have elicited expressions of admiration at a Temple show—yet grown by a mender of boots and shoes. On shelves near to the glass were zonal pelargoniums in pots staked out as specimens, and trained in the most orthodox manner. To examine these closely it was necessary to climb up a step-ladder and look at them from the outside. There was a family interest in the greenhouse, as the shoemaker's wife, in the absence of her better half, told how they had raised, grown and tended the plants, while two or three of the juvenile members were busy on their hands and knees watering the fuchsias. They had won honours, too, and it was with pride that the good woman displayed the medal awarded by the Cardiff Horticultural Society. It would serve no purpose to detail the methods of cultivation as given by the shoemaker's wife, but the splendid appearance of the plants was evidence that it was correct. "He spends most of his spare time with 'em," she said, "and I help him."

I did not attempt to gather the amount of pleasure this shoemaker obtained from his hobby, as, judging from the interest showed by his wife, the conclusion was foregone. At any rate, such a man is a true gardener and worthy of encouragement.

These are but two solitary instances where horticulture brings pleasure to those whose lot is not cast in the easiest walks of life. There is no need to go out to the highways and hedges to find many more. They are here in the midst of us, and daily we are brought into contact with men of all classes who are real gardeners because Nature has made them such; and one asks, Why do so many miss their vocations? for would not such men ornament the calling better than many who are really in the ranks? H.

New Potato, Carter's Snowball.—Carter's Snowball is one of the best new potatos that has come under my notice for some years past; it is a good cropper, and has first-class cooking properties; it does not produce of much haulm as some varieties, but the tubers are quite large enough, nearly round, and very handsome.—JOHN APLIN, *Hasfield Court.*

VEGETABLES FOR EXHIBITION.

MUSHROOMS.

THE cultivation of the mushroom (*Agaricus campestris*) is not nearly so extensively carried on in this country as it deserves to be, and the very large quantities that are annually imported from France and other sources, and the ready sale they always find, will bear this out. If farmers and others who can easily obtain fresh horse-droppings would turn their attention to the culture of mushrooms very large profits, I am certain, could be made. When once their culture is understood the care, trouble, and expense necessary for producing good crops is small compared with the handsome returns that might be made. It should also be borne in mind that the manure is not exhausted on this crop, for old mushroom beds are simply invaluable for kitchen garden crops and many other purposes. Neither is it at all necessary to build expensive mushroom houses. Indeed, oftentimes the best results are obtained in old, disused buildings, or even when the beds are made up (if properly done) entirely in the open. But in my opinion the ideal place for cultivating the mushroom is in caves or cellars underground. Here the temperature is generally suitable, and pretty uniform all through the year.

Outdoor Culture.

We will first deal with mushroom culture in the open. In the first place, it is absolutely necessary to obtain a good supply of fresh stable-manure, which should be collected, as far as possible, at one and the same time, so that the whole may be prepared together. The longest of the litter only should be removed, as short manure is most beneficial in making up outdoor beds and should invariably be employed with the droppings as they remain in a bearing condition for a much longer period when it is used. The next important step is to select a suitable place for drying and preparing the material for bedding, and this should be an open shed. Of course the size of the beds must be determined by the quantity of material at command, but it is far better to make up the bed at different stages than to wait for a large accumulation, as much of the value of the manure will be lost. London horse manure, when it can be depended on, will do well; but the purpose for which it is required should be distinctly stated, and it should be sent clear of other refuse and as fresh and dry as possible. As a rule nothing will be required to be taken from this, as little straw is wasted in London. If sent by trucks on rail no time should be lost in carting it away and placing it in the drying shed. It should be put in a long bed from two to three feet in depth, and turned with forks every other morning for the first ten days, working the outsides towards the middle each time. After this the manure will have lost its rankness, when it may be turned less frequently and put together in a smaller compass. Every third or fourth day will be sufficient for turning. As soon as the heat is well on the decline, and the whole has been sweetened, the manure may be wheeled out and permanent beds formed. The site will, of course, have been fixed upon, and it may be mentioned that almost any place and aspect will be suitable, providing the ground is in such a position that the water does not stand about the beds. This can easily be prevented by raising the ground where the bed is to be made above the natural level. When beds are required to produce mushrooms during the hottest part of the summer choose, if possible, a shady position under a north wall. The beds should be formed ridge-shaped, the base being from four to five feet wide, sloping off neatly to a ridge. It is of the utmost importance that the manure be put together as firmly as it is possible to make it, first by treading and then by beating with wooden rammers as the building-up proceeds. This applies to all mushroom beds, whether under cover or in the open. The beds must not be spawned until in a fit state. To ascertain this, sticks should be thrust into them in several places, and examined every day to see that the heat is declining before the bed is spawned; a safe temperature is about 80 degrees, and by using a plunge-bed thermometer accuracy in this respect may be ensured.

Care should be taken in selecting a supply of good fresh spawn from a reliable source, or otherwise it will be useless to expect a crop of mushrooms. Experience will soon enable the grower to judge of the quality by inspection of the cakes. This should be broken up carefully with the hand to the size of chickens' eggs, and during hot dry weather it is a good practice to dip the spawn in warm water before insertion. All being ready, holes should be made with the hand regularly all over the beds at a distance of nine inches apart and three inches deep. Insert the spawn, and cover in with the manure taken from the holes, which should be pressed back firmly. Many people practise soiling the beds at this period, but it is best deferred for a week, as the temperature of the manure may be increased thereby, in which case another spawning must be made. A thin covering of long stable litter should be placed over the bed for a week. The spawn should be examined in one or two places; if the white thread-like mycelium is spreading, then all is well, and one may look forward with confidence to good results. If, on the other hand, these are stationary and grown black, something is wrong. The question of soil will next arise, and though almost any kind will do, yet by far the best is turfy loam that has been stacked from an old pasture six to twelve months. This should be broken up and passed through a half-inch sieve, rubbing as much fibre through as possible. A thickness of about two inches should be placed all over the bed, and then be sprinkled with warm water through a fine-rosed watering-pot, firmly patting it over with the back of a bright spade. Again cover with a good thickness of stable litter, the thickness being determined by the state of the weather—frost and cold winds must always be excluded. It will depend much on the season as to the length of time it will take to produce a crop; for instance, if the beds are spawned in November, very seldom will the mushrooms be produced before March or April, but beds have been made and spawned at that time of year, which have continued to bear continually through the summer months. The old litter should be removed about every three weeks and fresh added. When gathering the crop always carefully twist the mushrooms, taking them clean out, never cutting them with a knife, as is sometimes done. The beds should be sprinkled daily in dry weather with tepid water, and occasionally given a good soaking with liquid manure from the farmyard.

Indoor Culture.

As before mentioned, caves, cellars, or any such suitable places underground form the best possible mushroom houses, and one can hardly fail if the manure is properly prepared and good spawn secured. The bed here should be made flat, to a thickness of about two feet six inches, spawned and soiled as before advised, when no other attention will be needed, except to damp them over when necessary, and to supply liquid manure now and then when the beds are in full bearing. Mushroom houses are often constructed, and good results in many cases follow. On the other hand, I have seen expensive structures give very poor returns which may be easily accounted for in several ways, such as too much fire heat, unsuitable aspect, and escape of sulphur from the stokehole, each fatal to the growth of mushrooms. The aim should always be to imitate Nature as much as possible, and to produce similar conditions to those which obtain in the autumn, when mushrooms can be picked in large quantities in the open fields. A mushroom-house should always be erected on the north of a wall; the path should be made down the centre and sunk two feet below the ground level, which must be effectually drained. Two beds on either side should be made, the first being arranged on the ground, and built up to a depth of two feet six inches, with bricks set in cement. Three feet should be allowed between this and the top one. Piers must be run up at suitable distances, and arches turned to carry the upper bed, or, better still, use angle iron built in back and front, with stone slabs placed across, running up four-and-a-half inch brickwork to the same height as the lower bed. The roof must be either ceiled or thatched, the former being preferable if the roof is slate or tiles, but a well-thatched roof will answer the purpose. Very little fire heat is necessary at any season of the year, and much more harm is often done by the use of too much than of too little. It is a good plan to run a four-inch flow and return pipe along the path for providing heat in extremely cold weather. The maximum temperature of a mushroom house should be 65 degrees, but that most suitable for the growth of mushrooms is 55 to 60 degrees. The beds may be made at any time of the year, and the warm, moist atmosphere produced by them will prove of great assistance to quick growth. When beds are firmly and well made they should continue to bear freely for two months, but as soon as they show signs of being spent, and the mushrooms are poor in quality, remove them and replenish. The walls, paths, and beds must be damped down once a day, early morning being the best time, but twice in hot dry weather will be beneficial. Once a week damp down the paths with liquid farmyard manure.

For Exhibition.

Valuable prizes are frequently offered by some of our leading nurserymen, and sometimes by the various societies, for dishes of mushrooms, and, generally speaking, the classes are well filled, and form by no means the least interesting part of the exhibition. In a collection of vegetables of not less than twelve kinds in the month of November they will form a weighty dish with the judges, while in an ornamental collection of vegetables they are indispensable. The chief points to be considered are evenness and freshness throughout, and, if possible, they should not be cut till the morning of the exhibition. Place in shallow boxes in single layers for carriage, and finally arrange on dishes on a thin layer of bright green moss. The stems should have a piece cut off when staging, so as to give a fresh appearance, leaving about an inch of stem placed upwards. Good mushrooms should be of medium size, not quite fully developed, and the under gills ought to be flesh-pink, the stem solid and free from maggots, and the whole mushroom of good substance. Good spawn can be procured from very many sources; personally, I have chiefly depended on Cutbush's Miltrack for the past thirteen years. This is a very popular spawn, and has not once failed me.

Aldenham House Gardens. E. BECKETT.

"Lest We Forget."—This now celebrated phrase has other wide application than political. It is well to ask all who garden—amateur, cottager, or professional—not to forget that so far as the present most delightful winter is concerned, all is not as it may be, and the warmth of January or February does not constitute a genuine spring. The gardener who is tempted to hastily sow or plant now of things that in ordinary seasons would not be sown or planted for a month or so, will do well to remember that these very tempting mild winters are almost invariably followed by late cold springs; and when April and May are marked by numerous white frosts or visited by intensely cold cutting winds, then the condition of the unduly early sown or planted compare[illegible] with that of the crops got in at the ordinary time of the year. The [illegible] always is to act upon common practice and experience: to treat the winter, [illegible] mild or hard, as winter, and the spring as the sowing and planting season, and the result of your labours assuredly will be far more satisfactory.—A. D.

Plain Points about Peaches.—In the peach (with which may be [illegible] the nectarine) we have a fruit so delicious that it is small wonder that many [illegible] endeavour to grow it. Some succeed, some fail. Faults of pruning bring [illegible] to grief. They allow the trees to become smothered with old wood, and the [illegible] growths have no chance. When it is stated that it is on the latter that the fruit is borne, the magnitude of the error will be appreciated. Not long ago I observed a number of trees which were a mass of growths, the shoots crossing and [illegible] lacing, and many sticking straight out from the wall. These never matured [illegible] fruit, and, if the same system is pursued, they never will. There are many [illegible] in connection with peaches which have to be observed by those who are successful, but they are not very abstruse. Even the pruning, over which, as hinted above, so many stumble, is not complicated, and when once the main principle is grasped, only patience and judgment are wanted to achieve success. There are [illegible] matters of importance, the suppression of insects being one of them, but [illegible] all others only call for observation and perseverance.—W.

Water in the Rock Garden.

(*See Page Illustration.*)

Few things are more desirable in a garden than water, and fortunate indeed are they who have grounds traversed by a natural streamlet, however modest its extent may be. Whether in the shape of a fountain, a waterfall, spring, pond, lake or streamlet, water—unless it be a stagnant pool—adds light, life, and beauty to every garden, provided it is used to the best advantage and with due regard to effect. Unfortunately, the natural presence of running water in a garden is comparatively rare, and in most cases water, if desired, has to be introduced by artificial means, either through water-pipes, by land drains, or sometimes by open rills or gutters connected with a distant supply. But no matter by what means the supply may be obtained, the water visible in our gardens can give the best effects only when it appears to be perfectly natural. I am, of course, not speaking of fountains or fountain basins, but all irregular forms of water can be pleasing to the eye only when they appear to be entirely the work of Nature, and when any artificial means employed in their construction are entirely hidden from view.

Nowhere, perhaps, is the masking of what is artificial of greater importance than in the case of water in a rock garden. Rocks, even when arranged with the utmost care so as to represent Nature's work, would at once lose their natural effect if the water seen among them reveals its artificial origin by visible traces of cement work. A case in point is given in the accompanying full-page illustration, produced from a photograph in a rock garden constructed by myself on behalf of Messrs. Veitch and Son, Exeter, for one of their clients in the county of Devon. The picture shows only a small corner of the pond among the rocks, but this is sufficient to illustrate the principle of masking artificial groundwork. Although the whole of the pond had to be formed of cement-concrete, not a particle of that work can be seen anywhere, and in the picture the water margin on the right-hand side appears as grass sward dipping naturally below the surface of the water, while on the left it consists of rocks, also continued below the water level. My method of producing this effect consists in having the unavoidable cement work so arranged as to form a sort of step or shoulder about eight inches wide all around the pond, and not less than six or eight inches below the intended water level. This furnishes an excellent rest for the stones, the turf, or what ever other material may be used to form the margin. Another great advantage of this method is that a portion of the soil covered by turf or enclosed by rocks must obviously be water-soaked without holding stagnant water, and among the ornamental plants of all sizes which love the waterside there may be found an endless number which delight in just such a position. The large plant seen growing so luxuriantly on the left side is a specimen (over six feet high) of Spiræa gigantea (Spiræa Kamschatica), and its luxuriance, like that of many other plants around the margin of this pond, is undoubtedly due to the fact that the roots of the plants have free access to the water. In the pond itself numerous choice water lilies are flourishing, of which one, a specimen of Nymphæa marliacea albida, is well shown in the illustration.

The background of the picture shows a cave which answers the purpose of a cool and shady summerhouse, and the fissures of the rocks are filled with choice mountain plants from various parts of the globe. Shady recesses are given up to Ramondia pyrenaica, Linnæa borealis, primulas in variety, &c. Above the cave are seen Lotus peliorhynchus, Arctostaphylus Uva-ursæ, Tropæolum tuberosum, and many more, while special positions have been allotted to the smaller mountain gems, which here are enabled to grow as they please without the danger of being overrun by plants of coarser growth. As it is, however, not to the rock garden generally, but to the water garden, that I wish to devote this article, I will briefly state the result of my experience with water gardens, first on a small scale and in connection with rocks, and then with ponds and lakes on a larger scale, and the plants most suitable for their adornment.

Fountains, Springs, and Brooks.

No form of water in a rock garden can possibly be worse than a fountain. Among the geometrical surroundings of a formal flower garden or in front of a regular terrace a fountain may be made an attractive feature, but in connection with rocks it is altogether out of place, because there it is not in harmony with its surroundings. A well-arranged rock garden should resemble Nature's work, and a water-squirt of any kind among what should be wild and picturesque scenery would be absurd.

A spring among the rocks is perhaps the simplest form of water, and its very simplicity appeals to us. If the spring be a natural one it will probably need very little to be made most attractive; the ground around it would be saturated with moisture, and would furnish an unrivalled home for all kinds of beautiful plants. But if the spring should be an artificial one its origin must be concealed. A capital way of effecting this is to place the rock stones in such a position as to form a deep cleft or small cave, so arranged that its end cannot be seen, for the uninitiated will not fail to imagine a great depth of fissure where they cannot see the end. If the water, before emerging from this miniature cave, is allowed to fall into a small pool not less than one or two feet deep we get that delightful murmering sound so pleasing to the ear and so soothing to the mind. If in addition to this the plants chosen to embellish the immediate surroundings are such as would impart to the scene a character of natural grace and beauty, our spring among the rocks will furnish a charming picture, full of life, and one that cannot fail to please even the most fastidious.

The brook or streamlet is another form of water most suitable for the rock garden. A brook, whether rapidly leaping from rock to rock or slowly meandering among boulders and recesses, is at all times most refreshing, both to the plants that mark its course and to the eye that beholds them. Natural streamlets in our rock gardens are things often desired but seldom met with. In most cases, therefore, art has to supply the deficiency. The size of such a stream in the rock garden must of course depend on the volume of water at command, but no matter what may be the extent of the supply, we must shape our artificial brook in such a way that no one would suspect its artificial origin. Only by observing Nature can we acquire the ability to impart a natural appearance to our own handiwork, and according to the laws of Nature we must therefore proceed. One of the most apparent of those laws is the approximate parallelism of shore lines in streamlets. When flowing water meets with a rock, or any other obstruction which might divert its course, the immediate result is that opposite such an obstacle the shore or bank is encroached upon, and if it be of a soft or yielding nature, a comparatively large hollow in the bank will be washed out. In other words a shore line which is convex on one side will be concave on the other. When streamlets are formed artificially and on a small scale, this law has to be well observed. In nine cases out of ten cement concrete will be the only practicable means for forming the sides and bottom, as such work is practically everlasting, and can easily be made to appear natural work. Even when good impervious clay might be used to prevent waste of water, it is nevertheless easily washed away by a moderately strong current, and moreover, the water would not be clear, while the banks would be subject to the attacks of water rats, and would soon crumble away. On the other hand, cement work can easily be covered, at the bottom by round stones and river gravel thrown in while the cement is wet, and at the sides by rocks and turf arranged in a similar manner to that already described. This method will allow irises, Astilba rivularis, and other moisture-loving plants, to send their roots into the water as is their wont in the case of a natural streamlet.

Waterfalls.

Waterfalls are, perhaps, of all forms of water, the most effective, and the nearest approach to that wild character which is at once so charming and yet so imposing among natural rocks. But in the sense of a water-garden, such falls do not afford the same facilities for floral embellishment as the sides of ponds or streamlets. I will, therefore, abstain from giving elaborate details regarding the construction of waterfalls. Suffice it to call attention to the general rule that waterfalls in unbroken sheets are more or less monotonous, and that it is chiefly in a broken fall that picturesque effects attain their greatest perfection. When water can be had in abundance and waste does not matter, boulders of rock irregularly distributed are the best means of producing that effect. But when water is scarce and supplied artificially by a small waterpipe every drop of water becomes of value, and it behoves us to use it to the best possible advantage and with due regard to economy. One of the best means of showing the water at its best in this case is to let it descend in front of a cave when, in consequence of the dark background, every drop of water will reflect the light and form such a contrast against the dark background as to be clearly visible even if only a modest dripping fall is attempted. It goes without saying that in every waterfall the actual source of the water should be carefully concealed.

Ponds in the Rock Garden.

Ponds will, as a rule, be of limited extent, and unless a naturally copious supply of water can be had it will nearly always be best to use cement concrete, and mask the same in the manner already described. With regard to the shape of a pond, it has to be borne in mind that a pond in most cases is a form of widened streamlet, and Nature's hints with regard to the banks of the latter must, therefore, in a broader sense apply also to the pond. A depth of two to two and a half feet is enough to grow some of the choicest aquatics, and will, as a rule, be sufficient for most ponds in connexion with a rock garden. When planning a pond, care should be taken to introduce it into the naturally lowest part of the ground. For the concrete a thickness of six inches, consisting of five parts of broken stones to one part of Portland cement, should be sufficient if the surface is afterwards smoothed with a thin layer of cement and sand in equal proportions. A pond receding into a cave is very picturesque, especially where in shady recesses ferns and other plants abound; but in every case the cement work must be finished before the work of arranging the rocks is begun.

Bogs.

Boggy beds can often be formed by the overflow from a pond. Where it is not advisable to let such overflow filter away gradually in well-drained peaty soil I often construct an underground watertight basin, which can be filled with water or emptied at will by the simple turning of a tap. Layers of broken stone, peat, leafmould, sand, &c., are filled up to the required height, and can thus be kept saturated with water or drained dry according to the requirements of the plants employed.

Exeter. F. W. Meyer.

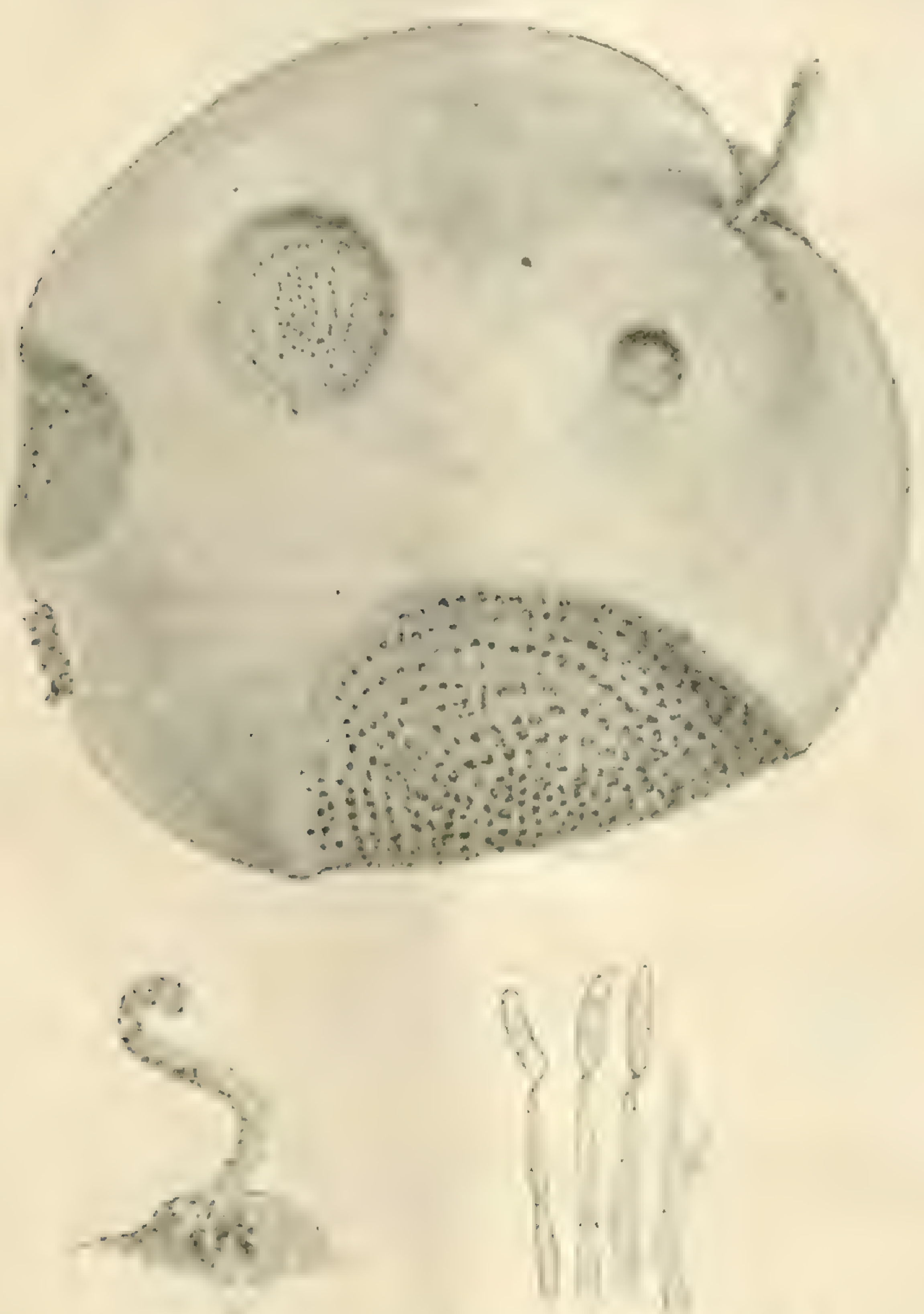
Marguerites.—These beautiful plants seem to grow rather than diminish in popularity. The quantities now grown for market are enormous, and this in spite of the fact that home cultivators have taken up the plant widely. Their free flowering, graceful character, and easy culture are largely responsible for their great popularity. Healthy bushes well furnished with flowers are delightful objects, and they look equally well in conservatories, windows, boxes, and on balconies. Like geraniums, they may be propagated at almost any season of the year, sturdy young side shoots three or four inches long, severed just below a joint and inserted very firmly, being suitable. If it is particularly wanted to bring them along quickly they may be placed in a propagating case or otherwise be afforded the benefit of bottom-heat, but this is not at all necessary for insuring rooting. They will do that in a greenhouse, if possible with a hand-light or bell-glass over to keep them close, or in a frame. If stopped so as to cause them to branch freely and potted firmly in a fresh, fertile, porous mixture they will soon develop into handsome flowering plants.—W.

BITTER-ROT IN APPLES.

THIS general and very destructive disease is caused by a minute fungus called Glœosporium fructigenum, Berk. Although the disease is most conspicuous on the ripe fruit, nevertheless the apples are usually first attacked by the fungus when about half grown. The earliest external indication of the disease consists in the presence of one or more discoloured spots; these gradually increase in size, still retaining a more or less circular outline. Not unfrequently two or more of these spots increase in size until they run into each other, and thus form large, irregular disease patches, which continue in most instances to extend until the entire surface of the apple is covered. As the disease progresses the patches become dark brown in colour and sink a little below the level of the healthy portion of the surface. This sinking of the surface is caused by the mycelium or vegetative portion of the fungus breaking up the tissue of the apple, which serves as food for the fungus. The brown, disease portion of the apple has a very bitter, disagreeable taste, hence the popular name of the disease.

Development of the Fungus.

After the brown spots have been present for some time, their surface will be seen to be covered with minute black points, which are often arranged in irregular concentric circles. These points, when examined under the microscope, are seen to consist of numerous upright branches of mycelium, compacted into a bundle, and further examination shows that each upright branch bears a minute reproductive body or conidium at its tip. The conidia are produced in immense numbers, and ooze to the surface of the disease spots under the form of very fine hairs or tendrils, being stuck together by a viscid substance. On reaching the surface of the apple, the strings of conidia are dissolved by dew or rain, each conidium being capable of inoculating a young, healthy apple, and thus starting a new centre of disease. Bearing in mind the rapid and continuous production of such immense numbers of conidia or reproductive bodies of the fungus, it can be readily understood by what means the disease spreads so rapidly when it has once gained a foothold in an orchard, the conidia being washed from diseased on to healthy fruit by rain, or carried by insects, birds, wind, &c., and if the surface of the fruit is damp, the conidia germinate, and enter the tissue of the apple within a few hours, and, under favourable conditions, within a week a disease patch bearing mature conidia is the result. Damp, dull weather favours the spread of the disease, whereas its extension is checked by the opposite conditions of dryness and light; hence, crowding of the trees should be avoided, and, furthermore, pruning should secure a good circulation of air, and prevent the retention of too much moisture in the individual trees.



APPLE INFECTED WITH GLŒOSPORIUM FRUCTIGENUM.

Having indicated the method by which the fungus spreads during the summer season, it remains to be demonstrated by what means it survives throughout the winter, and puts in an appearance again just in time to infect the young fruit. It is certain the fruit is the only part attacked, and that there is no perennial mycelium present in any part of the apple tree to furnish the conidia that inoculate the young fruit; hence the germs must be furnished from some other source than that of the tree itself. Diseased apples, especially when of considerable size before they are attacked, soon fall to the ground, and if allowed to remain the fungus continues to furnish successive crops of conidia, many of which find their way to the surface of healthy fruit, which in turn becomes diseased. But more than this, the mycelium of the fungus permeates every part of the fallen apple, and the latter does not rot and disappear, but becomes converted into a dry, leathery, shrivelled ball, and in this condition the mycellium passes the winter in a resting condition, becoming active again the following spring. If one of these fallen mummified apples is examined in May or June its surface will be seen to be covered with little black points; these correspond to the mature conidia of the glœosporium, which are produced by the mycelium of the fungus after a winter's rest in the dried-up tissues of the decayed apple, and produced just at the season when the young apples are ready for inoculation, when the activity of the fungus commences in earnest. When the fruit is attacked quite young it usually remains firmly attached to the tree in the mummified state, and produces conidia the following year, as already explained in the case of the fallen apples. In storing fruit great care should be taken to pick out all apples showing the least indication of the disease, otherwise healthy fruit will become diseased, especially if allowed to remain for any length of time in a heaped-up condition. An American observer has stated that the disease also attacks pears, peaches, grapes, &c., in the United States.

Methods for Preventing the Disease.

From what has already been stated respecting the mode of life of the fungus, it is seen that the appearance of the disease depends on the presence of decayed fruit which has remained over the year, either lying on the ground or hanging on the trees. All diseased fruit should be gathered and burned; do not throw it on the manure heap nor into the pig-sty; nothing in reality is gained by so doing, and a great risk is run, and do not, above all, out of "pure cussedness," try some other method not recommended, hoping it may answer as well, or better, than the method of prevention specially asked for, and then ignored. Where the disease has previously existed it is imperative that the trees should be thoroughly sprayed with a solution of potassium sulphide—half an ounce to a gallon of water—the first spraying just after the fruit is set, and again after an interval of three weeks. The spraying should be again repeated if the disease appears, as by this means it is held in check. As the fungus is very abundant and widely diffused, a spraying after the fruit is set would always be a wise precaution against the possibility of infection from your neighbour's orchard, who does not believe that "prevention is better than cure," and consequently never sprays, but accepts what he considers as the inevitable.

Store-rooms that have contained diseased fruit should be sterilised before they are used again. Spray the floor with a hot solution of potassium sulphide, one ounce to a gallon of water; the walls, and, in fact, every part of the interior of the building, should be treated in a similar manner, not forgetting the furniture, especially the trays and shelves, where spores are most likely to lie nascent until their opportunity arrives. If these precautions were persistently carried out the amount of bitter-rot and other ripe fruit diseases would be reduced to a minimum, instead of which one enters an elaborate storehouse with feelings of awe, arising from the preliminary talk about equal temperature, perfect ventilation, &c., and is surprised to find a hamper of rotten fruit under a shelf, and a mummified apple reposing in a corner, as if placed there by its owner as a warning to apples not yet mummified, and emerges from the spore-laden atmosphere feeling, but not daring to say, that, whether through gross ignorance or gross neglect, all concerned are equally culpable.

DESCRIPTION OF THE FIGURES.—1, Apple, showing bitter-rot disease, natural size; 2, a string or tendril of conidia oozing out of a diseased spot, mag. 80 times; 3, Branches of mycelium, each bearing a conidium at its tip, mag. 400 times.

G. MASSEE.

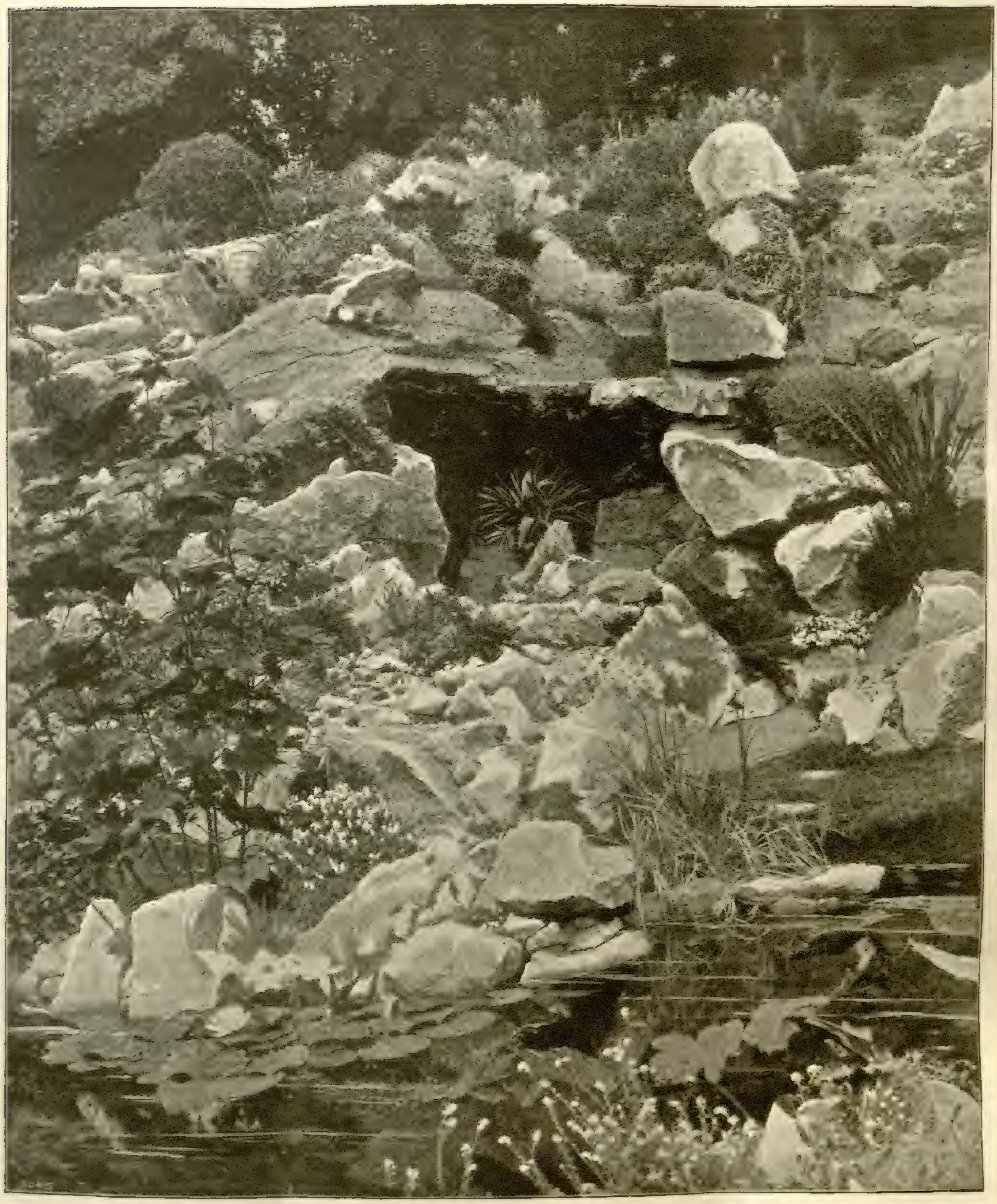
RIPENING OF LATE PEARS.

FREQUENT reference has of late been made in the pages of the GARDENERS' MAGAZINE to the premature ripening of late pears this season, and so far as I have noticed, it is the southern growers that have drawn attention to it; and by them, the dry, warm summer and mild autumn of last year appears to be held as the main cause of the evil. Here, in Scotland, the ripening of late fruit has been of much the same nature as described by others, and our most reliable varieties that are usually sound and of good quality until the end of February, were ripe at Christmas, and had to be used shortly after. Of these Beurre Sterckman's and Ne Plus Meuris, two varieties that seldom vary much in their season of ripening, were as bad as others; while Easter Beurre and Beurre Rance, which should be the latest of any, scarcely reached maturity before decay set in.

In our case neither much heat nor drought was sufficiently in evidence here last summer to have any great effect upon the keeping of the fruit; in fact, I had thought that the want of more sun and less moisture was the reason of the fruit keeping so badly, as with the exception of October and November, in which the rainfall was below the average, all the other months were considerably above. The total for the year being 45 inches, which was the highest registered since 1883. I may state that the pear crop of last season was very unsatisfactory throughout the south of Scotland, as, coupled with a light crop, the fruit was small, even when grown against walls with the most favourable aspects for full development; and the mid-season varieties came to maturity in a more irregular manner than I ever before remember, and mostly in advance of their usual time of ripening. The only fruits at present that are keeping well and fit for dessert are those of Bergamotte D'Esperen, which were grown on cordon trees. These are of excellent quailty, but very small in size, a point that is not of so much importance now as it would be earlier in the season.

Galloway House, Wigtownshire, N.B.

JAMES DAY.



WATER IN A DEVONSHIRE ROCK GARDEN. (*See page* 129)

NOTES ON ORCHIDS.

Paphiopedilum Chamberlainianum.

This Sumatran orchid that has been well known for the last five or six years is figured in the current issue of the *Bot. Mag.*, t 7,578. It is especially noticeable by reason of its perennial raceme, which slowly elongates and produces flowers, a pair often being open at the same period. The rounded dorsal sepal is bright green, with a red-purple base and nerves; it has waved and ciliate margins. The petals are bright green, narrow, linear, margined with purple, and with purple streaks on the green ground; they are twisted at about half their length, the twist commencing from above in one and from below in the other. The prominent lip is rich rose-coloured, and specked with red. Messrs. Sander and Co., of St. Albans, introduced the species, and it was named by Mr. James O'Brien in honour of the Right Hon. J. Chamberlain, Secretary for the Colonies. The species requires a stove temperature.

Angræcum sesquipedale.

This popular orchid is not always managed with conspicuous success, but Mr. G. Emery, gardener to T. H. Nash, Esq., Garland Hill, St. Paul's Cray, Kent, seems to understand it perfectly. A photograph sent, though not suitable for reproduction, represents a fine specimen carrying two spikes, one bearing four and the other five of the large creamy-white long tailed flowers that invariably attract attention. The winter-flowering form of this most celebrated of the orchids from Madagascar is not very popular in town collections, as the flower buds are so often damaged by fog. Outside the smoke radius, however, it develops its flowers to perfection.

Epidendrum Medusæ.

The accompanying illustration represents a fine specimen of the above orchid — more generally known under the generic name of nanodes—grown at Oswald House, Edinburgh, the proprietor of which, J. Buchanan, Esq., is an ardent lover of this order of plants. Although the specimen figured is well shown as regards compactness and density of foliage, yet it does not do justice to the size. There are three baskets, and the two largest are two feet square, and if a measurement of the foliage was taken they must be quite two feet six inches or more across; indeed, they are said to be hardly equalled in the kingdom. Mr Wood, the energetic and capable gardener here, has propagated this singular plant by division, and the second basket made up bids fair to rival or outstrip the original in point of size. Regarding the culture bestowed on these plants, the position they occupy is one near a side ventilator in a small span-roofed greenhouse, where flowering plants, such as primulas, hyacinths, cinerarias, &c., are grown and flowered at this season; and they are at all times given good supplies of water overhead, while the ventilator is almost constantly open, except during frosty weather. Here the specimens have always been found upon my frequent visits during the past few years, and when in flower they are always objects of interest and good cultivation. This native of Ecuador was introduced by Mr. Backhouse, of York.—R. L. Harrow, *Edinburgh.*

Specimen of Epidendrum Medusæ, grown at Oswald House, Edinburgh.

Cattleya aurea.

This species is not so variable as C. Trianæ, C. Mossiæ, or C. labiata, but there are a few notable and distinct forms fairly well known. Messrs. Linden and Co. seem however, to have obtained an importation showing considerable variation, judging from the double-page illustration in the *Lindenia* t. 598, 599. Five forms are figured and described, all of them having flowered at the Moortebeek establishment. *Cattleya aurea splendens* has a very fine lip with a handsomely waved margin; it has a rich crimson purple apex and stripes of the same colour over a groundwork of deepest yellow at the base; the margin is edged with rose; petals are paler yellow than the sepals. *C. a. magnifica* has an attractive labellum, the apex being crimson purple tapering into a broad central belt of red purple stripes that passes down the centre between two very broad golden areas to meet the red veinings on the throat; the golden portions are edged with crimson purple; petals very broad. *C. a. Chotekiana* is very distinct, its broad sepals and petals being coloured deep yellow; the lip is very dark, the whole centre and apex being violet-purple shaded with crimson, this colour radiating vein-like into the surrounding dark yellow. *C. a. musaica* seems well named, for the lip is peculiarly marked; it is margined laterally with rose dotted with purple; the apical margin is pale yellow, and sets off the rosy purple apex; the larger portion of the lip is yellow spotted freely with orange and red. *C. a. aurantiaca* derives its name from the large deep orange-coloured areas that flank the central purple and red band of the lip; the apex is crimson purple, and the margin of the same colour.

THE PROCESS OF DENITRIFICATION.

The subject of denitrification has, Professor R. Warrington, F.R.S., states in the current issue of the *Journal* of the Royal Agricultural Society, been [illegible] investigated by many scientists during the past thirty years, with the [illegible] that a great deal of the work done has been already forgotten, and is [illegible] in the ignorance of a fresh generation of workers. This scarcely [illegible] occurrence happens most frequently when, as in the present case, the [illegible] worker belongs to a different nationality from that which produced [illegible] investigators. An historical treatment of the subject would perhaps be unsuitable. Prefacing, therefore, his remarks by saying that Dr. Angus Smith, of Manchester, in 1867, was apparently the first to observe the destruction of nitrates with the evolution of gas in decomposing organic solutions, he proceeds to take a general view of the facts connected with denitrification.

The reduction of nitrates which occurs in solutions, or soil, containing readily oxidisable organic matter is of several distinct kinds. The reduction [illegible] simply from nitrate to nitrite; or it may be from nitrate to nitric oxide gas; or to nitrous oxide gas; or, finally, to nitrogen gas. The first form of reduction does not necessarily involve any loss of nitrogen; all the others do involve a [illegible] nitrogen, as the product escapes in the form of gas.

The reduction of nitrates is occasioned by various species of bacteria. [illegible] action in question only occurs in the presence of these living organisms [illegible] established by Meusel (1875) in the case of natural waters, and afterwards [illegible] by Dehérain and Maquenne (1882) to hold true in the case of soils. If all living organisms are destroyed in sewage or soil—if, to use modern language, these mediums are sterilised—neither nitrification nor denitrification will occur.

Bacteria reduce nitrates by bringing about the combustion of organic [illegible] the oxygen of the nitrate, the temperature distinctly rising during the [illegible] When circumstances are favourable to the process of reduction, the [illegible] nitrate reduced is determined by the quantity of combustible organic [illegible] present. The combustion of the organic matter, and reduction of the nitrate, [illegible] take place in the absence of air, in the same way as gunpowder—composed of nitrate, charcoal, and sulphur—is capable of burning under water. In the presence of air, the oxygen which it contains takes the place, more or less, of the oxygen of the nitrate, and the reduction of nitrate is either diminished, or the oxidation of the organic matter much increased. The whole action is quite [illegible] to the familiar combustion of food in the animal body; or to the combustion of organic matter which occurs in plants, and notably in those which, as is the [illegible] with fungi, are destitute of chlorophyll.

Different species of bacteria behave very differently in a mixture of a [illegible] and organic matter. Many species of bacteria are incapable of reducing a [illegible] though quite capable of effecting the combustion of organic matter [illegible] oxygen. The reduction of a nitrate to a nitrite, but not to the state of [illegible] however, a very common property of bacteria. Gayon and Dupetit (1866) were the first to isolate the species of bacteria reducing nitrates to gas; two organisms having this property were separated by them from sewage. Quite recently [illegible] and Stutzer (1895) have isolated denitrifying bacteria from horse dung, and [illegible] straw. These organisms differ in several ways. The one obtained from [illegible] capable of reducing nitrates to gas in the absence of oxygen, and in the [illegible] much oxygen its action is hindered, and finally ceases. The bacterium [illegible] dung develops exclusively in the presence of oxygen, but it can reduce [illegible] only when associated with another organism of anaerobic character; that is, [illegible] developing in the absence of oxygen. When the two organisms are [illegible] reduction takes place in the complete absence of oxygen, but the action [illegible] active as soon as a little oxygen is present, and, when plenty of organic [illegible] present, the process is apparently not hindered by a full supply of that gas. [illegible] is no evidence that either straw or horse dung contains only, or always, [illegible] denitrifying organisms just described.

Soil contains an abundance of reducing organisms, including those [illegible] nitrogen gas. When broth containing one per cent. of nitre is infected [illegible] particle of surface soil, and kept in a warm place, a quantity of gas [illegible] taining nitrogen is produced, and the nitrate will entirely disappear. Soil [illegible] with a one per cent. solution of sugar, containing nitre, rapidly [illegible] latter; the gas produced contains nitrous oxide and nitrogen. Any [illegible] organic matter readily oxidised by bacteria may be used to bring [illegible] reduction of nitrates. In the trials made by various experimenters, [illegible] asparagine, starch, sugar, humus, fats, tartrates, citrates, acetates, and [illegible] have all proved effective for this purpose. The presence of some [illegible] plant food, and of phosphates, potash, and the other ash constituents of [illegible] of course necessary for the growth and activity of the reducing bacteria.

It is clear from what has gone before that denitrification may be [illegible] occur whenever a suitable mixture of nitrate and organic matter is infected [illegible] dust under the conditions favourable to the action. The early [illegible] Angus Smith in England, and of Th. Schloesing in France (1868), [illegible] organic solutions, as sewage, diluted blood, tobacco juice, and sugar [illegible] when undergoing fermentation or putrefaction, actively reduced nitrates, nitrous oxide and nitrogen being evolved. Whence did these mixtures obtain the bacteria necessary for this action to take place? Nothing had been [illegible] duce the organism; indeed, at the date of these observations it was [illegible] that the action was brought about by bacteria. The answer is plain: [illegible] solutions obtained the organism which reduced nitrates by ordinary [illegible] atmospheric air.

Having grasped the facts now before us, we are disposed to smile [illegible] gravely informed that straw bears on its surface the organism reducing [illegible] nitrogen gas, and that it is in consequence of this fact dangerous to use it as a manure for soils. It is doubtless quite true, as we are informed by Wagner and others, that rye-straw, placed in water containing saltpetre, slowly reduces the nitrate present. But this result is not due to any peculiar property of straw; the action which occurred would equally have been observed if other [illegible] matter contaminated with atmospheric dust had been made use of. [illegible] experimenting in this way, has obtained similar results when using [illegible] the straw of wheat, maize, or haricot bean; lucerne silage ([illegible] or maize cake. That atmospheric contamination was the source of [illegible] reducing nitrates which were present in these experiments is strikingly [illegible] the case of the maize cake.

It is assumed by the German experimenters that the solid [illegible] herbivorous animals, and especially that of the horse, is peculiarly [illegible] organisms reducing the nitrogen of a nitrate to gas; the only [illegible] supposition is, apparently, the marked power of reducing nitrates [illegible] these excrements. Wagner tells us that if a hundred grams of [illegible] added to a thousand grams of water containing five grams of saltpetre, [illegible] whole allowed to stand in a warm place, the nitrate will disappear in a few days, the escape of gas being shown by a brisk effervescence of the liquid. [illegible] hasty conclusions have been arrived at during the discussion of the [illegible] before us that we must just point out that in the case of an action like denitrification, requiring the concurrence of several conditions, each of them equally essential, the activity of this action in any particular case cannot be taken as proof of a special preponderance of one of these conditions, but rather as showing that all are fully present.

There is, however, one reason which would lead us to expect that animal excrement would contain a relative abundance of the dentrifying organism. If we may assume, as we probably may, that the denitrifying bacteria present in the food pass uninjured through the intestines, it is evident that they will occur in larger proportion in the solid excrement than in the original food. If, for instance, a horse is fed on hay, and digests one-half of the food consumed, the dung will then contain twice the proportion of the denitrifying bacteria originally present in the food. The proportion of the organisms supplied by different kinds of food must vary greatly. If the bacteria are, as we assume, deposited from the atmosphere, and lie in all cases on the surface of the food, their proportion must depend largely on the extent and character of the surface, and on the length of exposure to the atmosphere. A hundred pounds of hay should contain a far greater proportion of bacteria than a hundred pounds of green mangel or turnips. From this point of view there is thus some ground for assuming that horse excrement will be richer in denitrifying organisms than cattle excrement.

Before further discussing the question before us we must, observes Professor Warrington, turn once more to the results of former investigations, and see what are the precise conditions necessary to induce denitrification.

Schloesing (1873), in his investigation on the rate of nitrification in soil, kept various portions of the same moist, humous soil, in atmospheres in which different proportions of oxygen were constantly maintained throughout the experiment. He found that the quantity of nitrate produced in the soil steadily diminished as the proportion of oxygen in the air decreased; when, however, no oxygen was present, denitrification took place, and the nitrates originally contained in the soil entirely disappeared. He repeated the experiment, this time adding a known amount of saltpetre to the soil. He found that such a soil, placed in a vessel containing very little air, first absorbed all the oxygen present, and then evolved a considerable quantity of gas; this gas contained nitrogen equivalent to the whole of that contained in the saltpetre added. The consumption of the oxygen of the air had thus determined denitrification.

The supply of atmospheric oxygen to a soil is effectually prevented if the soil is kept saturated with water; this condition alone is sufficient to set up an energetic denitrification. In an experiment made by Professor Warrington in the Rothamsted laboratory in 1880, and published in the R.A.S. journal in 1881 (p. 332), seven pounds of dry, finely-powdered loam were placed in a percolator, and thoroughly saturated with water; the column was about eight inches deep. The nitrates naturally present having been entirely removed by the passage of water through the soil, a known quantity of nitrate of sodium was placed on the surface. After a week had elapsed a small quantity of water was placed each day on the surface of the soil, and the drainage water removed and analysed. When nitrates no longer appeared in the drainage water it was found that only twenty-one per cent. of the nitrate applied to the soil had been recovered; seventy-nine per cent. had been lost. The mode in which this loss had occurred was evident to the eye; the column of soil, though always kept in a saturated condition, was cut across about the middle with large transverse fissures, the result of the formation of gas within the soil. In another experiment, made with the same soil under identical conditions, in which an equivalent quantity of chloride of sodium was employed, the whole of the salt applied was recovered in the drainage water, and no fissures appeared in the column of soil.

A recently-published experiment by Bréal furnishes a further excellent example of the active denitrification which takes place in a soil kept saturated with water. He placed some garden soil in a percolator and consolidated it by pressure; the column was about fifteen inches high. Water, more than sufficient for saturation, was then poured upon the soil. When the water had run through it was poured back again over the soil, and this treatment was continued for some time. The soil at the commencement of the experiment was in an active state of nitrification, and the drainage water was at first rich in nitrates, but at the end of three weeks the nitrate had entirely disappeared from the drainage water, though no water had been removed from the soil.

We have now the conditions which bring about a loss of nitrogen by denitrification plainly before us. There are needed: 1. The specific organism. 2. The presence of a nitrate and suitable organic matter. 3. Such a condition as to aëration that the supply of atmospheric oxygen shall not be in excess relatively to the supply of organic matter. 4. The usual essential conditions of bacterial growth, as plant food, and a suitable temperature.

Of these conditions, the supply of organic matter is by far the most important in determining the extent to which denitrification will take place. An abundance of the special organism is of comparatively little importance; for, if the conditions are made favourable for its growth and development, it will increase with such rapidity that the number of organisms originally present will soon become a matter of indifference. Nothing, however, will compensate for a deficiency of organic matter; if this is small in quantity, the action will be strictly limited in extent, however large may be the supply of the specific organism. This fundamental principle of the reaction has been strangely overlooked by the German investigators when interpreting the results of their experiments. They have sought to explain the denitrification in their experiments as due to the supply of additional organisms to the soil in the form of manure, when the results were really due to the supply of an excess of organic matter.

In Gayon and Dupetit's investigations the preponderating influence of the quantity of the organic matter present is fully recognised. The same organism placed in sewage and in chicken broth, reduced in the first instance 0·1 to 0·2. gram of nitre per litre, and in the second instance fifty grams per litre. Some experiments of my own are equally clear on the point. Two equal volumes of diluted urine were taken; one received nitre at the rate of one gram per litre; the other received both nitre and sugar, each at the rate of five grams per litre. Both solutions received 0·5 gram of soil to supply the denitrifying organism. The solutions were then covered with a layer of paraffin oil to exclude air, and thus intensify the action of the organic matter, and were kept at a temperature of 70 degrees Fahr. In the solution containing no sugar a slight evolution of gas occurred, and nitrites appeared in the liquid; some reduction of nitrate thus took place. The action then stopped, and much of the nitrate remained permanently in the solution. In the second case, in which five times the quantity of nitre was present, accompanied by its own weight of sugar, the whole of the nitrate disappeared in eleven days. The presence or absence of sugar thus entirely determined the extent to which denitrification would take place.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book,' containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. 'Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

WORK FOR THE WEEK.

WARM ORCHIDS.

THE days are now lengthening, and the occasional sunshine reminds us of the vast amount of important work to be done. In almost every house there are some plants needing especial and immediate attention. Some require repotting, others top-dressing, &c., and if the summit of success is to be reached then the necessary assistance must be rendered. If a good stock of the best orchid peat has not been obtained, it is quite essential to purchase such forthwith, and also a good stock of teak baskets in different sizes and shapes in order to suit requirements. The pot-shaped baskets are used a great deal, and, generally speaking, are the best. Dendrobiums and cattleyas thrive well in them, as their long roots have something to cling to for a longer period than in the square ones. Phalænopsis will require a slight shading for a short time in the day when the sunshine is rather strong; otherwise they are bound to flag, and the temperature will rise too quickly and fall in a similar way when the sun goes down; it is therefore very important that this point be considered, for spot appears largely as the result of fluctuations of temperature. A slight damping in the afternoon will be required as well as in the morning, balanced with a free circulation of air night and day, wind and weather permitting, the bottom ventilators being left open on the reverse side to the wind, and both sides when fit. Dendrobiums that were removed to a warmer house to flower will now be starting into growth; repotting or rebasketing must be done at once, and after this place the specimens in about 62 degrees of heat for a start, and the watering must be done very cautiously; a slight occasional syringing is very beneficial. Let the stock still resting be examined, and all that are showing signs of growth or that have buds (unless some are being retarded) should be removed to a warmer house—five degrees warmer—in order to start them quietly and bring on the flowers gradually. Young seedlings must be repotted also at this season.

Cattleya labiata autumnalis must now be repotted or top-dressed as required; those that require repotting must be shaken from the old material, and, so as not to injure the roots that cling round the outside of the pot, the pot must be broken; arrange the roots close to the fresh pot, to enable them to have full benefit of the humid atmosphere, at the same time arranging the lead of the plant as near the middle as possible. Crock the pots three parts full and use good fibrous peat, after shaking out all the dust, mixing it with clean green sphagnum, trimming all off nicely with a pair of scissors. Cattleya Trianæ, having passed out of flower, must be served likewise. Cattleya Bowringiana that was not potted earlier must receive immediate attention, taking care that the plants are kept well up in the pot, as they make their growths low down. Angræcum that have finished flowering must also be attended to. Cymbidium Lowianum and its hybrids will now be growing fast and also producing strong spikes, so plenty of water will be needed, and a dose of weak liquid cow-manure will help the flowers, giving them vigour and bringing out the colour; Cymbidium eburneum will require the same care. Lælia anceps are now rooting freely, and a slight syringing among the baskets will encourage these. Fumigating must be done on quiet days, and a keen eye must be kept for scale, using brush or sponge to eradicate it before it becomes established. The phalænopsis house should register 65 degrees by night and 70 degrees by day; cattleya house, 60 degrees by night and 65 degrees by day; intermediate house, 58 degrees by night and 62 degrees by day.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

IN our stoves the majority of plants will have commenced growth, and if not already done, the necessary repotting should be attended to at once before the sun gains too much power, else flagging and loss of many leaves will be the result. After repotting, watering requires to be done with great care; the fewer applications of water possible, consistent with the welfare of the plant, until the roots are working freely in the new soil, the better. One hears many complaints about the nature of the soil used in many gardens not being suitable for the growth of plants in pots—in many such cases the fault can easily be traced to injudicious use of the watering pot directly after potting—thus souring the soil before it is occupied by active-feeding roots. Large shifts are to be avoided, unless the one in charge can be relied upon to use the water-pot with discretion, else disaster is sure to ensue. Beware of dribblets, which only moisten the surface soil and never penetrate to the lower stratum. In all cases of newly-potted plants defer watering as long as possible, and when it is applied, give sufficient to moisten every particle of soil in the pot. Syringe freely amongst the pots, damp floors and walls, and afford as little air as possible, as by such treatment plants will soon recover themselves, and suffer very little check from the process of repotting. Gloxinias which were started in January should be now well established in five or six inch pots, and showing their flowers; keep them in a light position, and standing on a moist base if possible, they like plenty of moisture in the air, but are better if not syringed overhead; give them an occasional sprinkling of patent manure, they are also partial to an occasional application of soot water, not too strong. Start batches fortnightly, potting them on as required; we use a compost of two parts loam, one part leaf-soil, half a part of cocoanut-fibre refuse and sand, in the case of older tubers a little decayed manure is incorporated. Prick off seedlings of gloxinias as soon as large enough to handle, mixing plenty of leaf-soil and sand in the medium into which they are pricked out. Seedlings of Isolepis gracilis, Cyperus alternifolius, eulalias, &c., are better potted two or three together into thumb pots. If seed is sown now of Panicum plicatum, useful plants for furnishing will be produced by the early autumn; this is a very useful subject for many purposes, not the least being the utility of its foliage for mixing with flowers in large vases in the rooms; it is often mistaken for a slender-growing palm.

Alocasia Lowi, A. Veitchi, and A. metallica are plants of noble foliage, and are striking objects either as permanent occupants of the stove, or for exhibition and furnishing purposes. In potting these avoid soils of an adhesive nature, use a compost of peat, chopped sphagnum, sand, and charcoal; the drainage must be thorough, as when growing they require an abundance of water. Alocasia macrorhiza variegata may be potted in a compost consisting of two parts loam, one part leaf-soil, a little decayed manure, and a good admixture of sand. Justicia carnea, and J. c. rosea are very old occupants of our stoves, and perhaps it is on that account they are so very seldom seen now; at any rate, wherever they are grown they are appreciated. They can be had in flower over the greater part of the year by inserting cuttings at different times. They will root freely in a temperature of 65 degrees, with or without bottom heat; insert the cuttings singly in two-and-a-half-inch pots, shade from bright sun, and give a sprinkle overhead now and again during the day; when rooted shift into six-inch pots, in which they will flower, using for a compost three parts loam, one part leaf-soil, and one half part old mushroom-bed manure with sand added; they are partial to a free use of the syringe. Anthurium Scherzerianum, A. Andreanum, and other kinds, with their quaint flowers, and more or less brilliant colours, are worthy of space in even the smallest stove. During the growing season they delight in copious supplies of water, both overhead and at the roots, therefore, in the first place it is necessary to afford good and abundant drainage, and in the second the compost must be porous to allow the water to pass freely away; good fibrous peat, sphagnum, crocks, charcoal, and coarse silver sand are what they delight in, and if surfaced over with growing sphagnum so much the better. Tubers of Gloriosa superba may be started now, and before starting put them into the pots in which they are to flower, as they are impatient of beirg disturbed during their growing season; use as a potting medium equal parts of peat and loam, with leaf-soil and plenty of sand added; handle the tubers carefully as they are very brittle. Starc fresh batches of caladiums, achimenes, gesneras, &c., and pot on those earlier started as they require it. Allow a rise in the temperature of the stove of 5 degrees, both by day and night, from fire heat, and with the lengthening days the syringe may be used more freely. Keep a sharp look-out for insect pests, and attend to them directly they are seen—not waiting for them to become numerous and cause injury to the plants. Those whose business it is to water the plants should make a point of crushing any mealy bug seen while watering; also, when syringing, bear in mind that the undersides of the leaves are the general hiding places of red spider and thrips, and thus make it a special endeavour to dislodge any lurking there.—J. TUNNINGTON, *Ripley Castle Gardens.*

CONSERVATORY AND GREENHOUSE.

As the sun is gaining power daily no time should be lost in fixing blinds o other means of shading to the different houses where flowering plants are arranged. It is too early in the season to give a permanent shading to the roof, but most of our spring-flowering plants, particularly azaleas, cinerarias, primulas, tulips, and the like retain their true shades of colour, and last much longer in perfection when not exposed to the full force of the sun's rays. Now is a good time to work up a fresh batch of coleus, and as the tops of last year's plants will now be ready for removal, it will be well to obtain the desired number of cuttings at once, and destroy the old stools, as these become unsightly and may encourage the spread of insect pests. The same remarks apply to all plants which have been kept for stock purposes through the winter, as for the next few weeks space will be valuable in all departments.

The present opportunity of dividing and repotting ferns that require it should not be lost. It is almost impossible to have too many plants of Adiantum cuneatum in small pots where there is much decorating, while many of the pterises are equally valuable. To have neat plants, with erect fronds, it is very necessary that the whole of the old frondage be removed before the young ones push through, or the latter will be drawn up weakly. A well-established plant growing in a six-inch pot could be divided into four, and the pieces potted into three-and-a-half or four-inch pots; these make capital material for margins of groups, conservatory stages, or for filling baskets. I never use peat for these plants now, as I find the fronds possess more substance when grown in loam alone. Having potted up a sufficient number, stand the pots close together on a moist stage or bed, give them one good watering, shade them from mid-day sun, and dew them overhead with tepid water morning and evening. Fronds of a pale green colour are generally preferred for use with cut bloom in floral designs, &c., and are obtained by keeping the plants near the glass, and not shading. Of course the atmosphere of the house is kept very moist, and the plants when well established receive abundance of water. Hanging baskets when well furnished make pleasing objects in the conservatory, and for this purpose nothing is better than ferns in variety. We have a couple of baskets of A. cuneatum four feet through. The baskets are made of stout wire, perfectly plain, and form a true half globe. Those with broad, flat bases, or a lot of fancy wirework, should be rejected, as it is difficult to cover them evenly with fronds. Line the inside of the basket with moss—push the pieces of fern through this, about two inches apart, and fill up gradually with chopped turf and broken charcoal. Hang the baskets in a warm close house, and keep them syringed until the fronds meet each other, when this should be discontinued and copious watering afforded.

Clivias have proved most useful throughout the winter in furnishing abundance of flowers, which last quite a fortnight after being cut. These plants deserve more attention than they generally receive. They are naturally late spring-flowering plants, but we find them more useful for mid-winter and onwards, when other things are scarce; we are now dividing and increasing the stock as much as we can. A stiff soil suits the coarse-feeding roots best, such as rather heavy loam, with a little spent mushroom-bed manure and charcoal. The newly-potted plants should be kept together by themselves, and not stood about in cold dry houses, or under the stages as they are sometimes found. Sow seed of mignonette in small pots to provide useful material for filling window boxes and the like later on.—RICHARD PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

THE potting-off of all bedding pelargoniums wintered in boxes or store pots should be finished within the next few weeks. Pots of the size usually known as large sixties are the most suitable, and the soil for potting should not be too light, especially for the stronger growing varieties, but for the variegated and more delicate ones that of a lighter nature may be used. No crocks should be placed in the pots, as these are a nuisance when turning out at bedding time; a small portion of half-rotten leaves placed in the bottom of each pot will afford ample drainage. A little extra heat should be given, and an occasional syringing over on bright days, until partially re-established. Where desired to increase any variety, the tops should be inserted in boxes or pots and stood in a warm house. Old plants may also be placed in heat for the production of cuttings, and this will apply also to store plants of coleus, alternantheras, and ageratums for the furnishing of quantities of cuttings in a few weeks' time. Old roots of cannas used in the flower garden should now be examined, and if desired to increase the number the rhizomes may be cut up into pieces with one or more eyes to each, and be potted up into forty-eights or thirty-two sized pots. The older portions should be rejected. After potting stand in a warm house until they have started well into growth. Where seedling verbenas are used for bedding the seeds should be sown forthwith. These seedlings form excellent material, and beds filled with them in mixed colours are effective, and, providing the seeds are from a good strain, the flower trusses are larger and the growth more free than from plants increased from cuttings. Verbena seeds should be sown in shallow pans or boxes filled with any moderately light soil pressed down firmly, scattering the seeds thinly over the surface and just covering with a little finely-sifted soil. If placed in a house or pit with a temperature of 60 degrees, germination will follow in about fourteen days, when the seedlings should be sifted into a cooler house. As soon as large enough to handle they should be pricked off into other boxes two or three inches apart, and when established, gradually hardened off in a cold frame. Antirrhinums and pentstemons may be raised and treated in a similar manner, but these, especially if required in quantity, may be pricked off direct into a cold frame, and from thence transferred to the beds or borders. The former may now be obtained in distinct colours of white, yellow, crimson, and other shades and in strains, the height of which may be from eight to eighteen inches when in bloom. Antirrhinums are excellent dry-weather bedding plants, and may be used for massing in beds or filling up spare spaces in the herbaceous borders.

Hollyhocks, which, owing to the disease that has been prevalent for some years past, have somewhat fallen out of cultivation, but are easily raised from seed, and healthy plants for the year, at least, may generally be ensured if raised in this way. This fine old showy perennial is a grand subject for the back part of herbaceous beds or borders, and a cheap way of raising a stock is from seed. They should be treated much as detailed above for verbenas, as regards sowing but pot up the seedlings into small pots as soon as large enough, and after growing on in an intermediate house until established, transfer to a cold frame, which should be kept close for a few days. Pot on into five-inch pots, and by the middle or end of May strong specimens should be ready for turning out into the borders, and with good cultural attention after will produce fairly strong spikes of bloom this season. Herbaceous borders should now be lightly forked over, turning in any manure placed over the surface early in the winter or added now. Although deep digging about these established borders should never be done, pointing over carefully with flat-tined forks for the sake of tidiness is advisable annually in early spring. The young growths starting from choice delphiniums in these borders should be protected from slugs by having ashes or a little soot scattered about them. Where desired to increase any choice varieties of the latter, this may easily be done now by taking off the shoots, starting from the base of the old stools. These, if detached without roots and potted up singly into small pots, using sandy loam and leaf-soil, and stood in a cold frame, will soon form roots and make good plants for placing in the borders in a couple of months' time. When propagated in this way the most may be made of any new varieties, and if treated liberally, the young plants will produce fairly good spikes of bloom this season. In the pleasure grounds, lawns should be kept well swept and rolled as, owing to the mild weather, mowing will be necessary early this year.—C. HERRIN, *Dropmore Gardens.*

HEDGES: THEIR FORMATION AND MANAGEMENT.

UNLESS in the case of the various railway companies and the owners of a few large properties, the management of live fences in this country is sadly neglected, a fact that is forcibly brought home to the observant traveller in almost every part of the kingdom. Agricultural depression and the consequent low state of the farmers' funds have, no doubt, much to answer for in this particular, while not a little is attributable to the want of a thorough knowledge not only of the formation but after-management of these as well. Practically speaking, hedges may be divided into two classes—useful and ornamental—or, in other words, such as are employed for purely protective purposes, and such as find a place on the lawn, the pleasure ground, and in the garden, and where ornament more than any specially useful object is of first consideration. For farm or woodland purposes the quick or hawthorn, the beech, hornbeam, and holly are the only plants that have been found sufficiently thick, strong, and impenetrable to live stock; while where ornamental qualities are desired almost any shrub can be utilised that fancy dictates, special mention being made of the yew, box, privet, several kind of berberis, and some of the low and compact-growing thuyas aud cypresses.

The preparation of the ground is a most important operation in connection with the formation of live fences, and one that should never be passed over, either on the pretext of time or expense. Thoroughly trench the ground to a depth of not less than two feet and about four feet in width, turning the soil loosely up to the ameliorating effects of the weather, and if this work can be performed a couple of months before the plants are to be inserted so much the better. Where the soil is poor and light a heavy dressing of thoroughly decomposed farmyard manure will have the effect of causing the hedge plants to grow away freely and strong, but such should be thoroughly incorporated with the soil and applied at time of trenching. As it is advisable, particularly if the situation is at all damp or the soil of a heavy retentive nature, to plant rather above than below the general ground level, a low mound should be formed along the intended line of fence when trenching the soil, such assisting materially in keeping the plants from excessive moisture and likewise aiding in the clearing and after-management of the fence. Sometimes it is found necessary on low-lying ground to cut a ditch along the side of the contemplated line of hedge, the soil so removed being utilised in forming a dry bank or ridge on which the plants are placed.

Planting should be performed in autumn or immediately after the fall of the leaf, and should on no account be left to a later date than the end of February, the quick being one of our earliest shrubs to start into growth. The plants should be stout, stocky, and of four years' growth. The size of the thorns is of more importance, however, than the age, and those rather thicker than a pipe-stem, though short in proportion, are infinitely preferable to others of taller and lankier growth. When planting stretch a garden line along the prepared ground, and take out a trench of sufficient depth and width to allow of the roots of the quicks being spread out to their full extent. The plants should be placed upright, six inches apart if in single line, and nine inches apart if in double line, and not deeper in the ground than they stood whilst in the nursery, the conspicuous mark on the bark of the stem clearly pointing out the depth to which they should be inserted in the soil. Fill in the finest soil next the roots and tread firmly, keeping the plants as equidistant and upright as possible. It is not unusual to plant the quicks in double line, but with strong plants on well-prepared land a single line is to be recommended, many of our finest fences having been so formed. Cutting or hedging back the newly-planted thorns, so as to induce stout and thick bottom growth, is often successfully adopted, and especially when the plants are tall and weak of growth. The beech wants the rigidity of the thorn, but is better as a shelter plant, retaining, as it does, a great proportion of its leaves during winter. It also succeeds on chalky soil and on exposed ground at considerable elevations. The hornbeam is another useful hedge plant that succeeds well in fairly rich soils and when not too exposed.

The pruning and after-management of a hedge are of much importance, but unfortunately, too often lost sight of. A yearly clearing away of all bottom growth of rough-growing weeds should never be neglected, while equally, if not more important, is an annual cutting back of the young shoots, and which above everything else maintains that rigidity and closeness of growth which are all important for either farm or plantation hedges. Ivy and elder are highly injurious to every kind of live fence, and should be at once removed; while nettles and strong-growing grasses also act in a pernicious manner by depriving the hedge plants of their sustenance. In pruning a fence, be it of whatever kind, the switching knife is to be alone recommended, shears making jagged cuts and loosening the bark below the points of amputation, thus retarding fresh growths to a great extent. The switching or pruning knife should be of the most approved make and kept well sharpened, such an instrument in the hands of a skilled hedger turning out very commendable work. Pruning may be engaged in at any time after the fall of the leaf, but it is advisable not to prosecute such work during severe frost.

A. D. WEBSTER.

EXHIBITIONS AND MEETINGS.

SHIRLEY GARDENERS' ASSOCIATION.

THE monthly meeting was held at the Parish Room, Shirley, Southampton, on the 21st inst., when the president, Mr. W. F. G. Spranger, presided over a fair attendance of the members. Mr. E. T. Mellor, B.Sc., London, lecturer in Biology to the Hartley College, Southampton, gave his second and concluding lecture on "Fungi." He said the injurious parasitic fungi were stated by a recent authority to number 1,600 species. Taking Perenospora infestans as a typical example of this class, he by means of lantern slides traced the life history of this troublesome pest, showing also how resting spores, to enable the plant to get through the unfavourable winter, were produced, and urging on his hearers the necessity of destroying by fire all garden refuse for this reason. Rust on cabbages and rust on wheat were also glanced at, the lecturer stating that Australia lost in one year £2,500,000 through the latter. The beneficial fungi were not so numerous, and there was only time left to consider that which exists on the roots of all leguminous plants, looking like tubercles. These were able to take up nitrogen from the air passing it along to the plants, which were thus enabled to live on very poor soil.

A brief discussion ensued, and at the close a hearty vote of thanks was accorded to the lecturer, and also to the president for conducting the business of the evening.

ROYAL GARDENERS' ORPHAN FUND.

AT the annual general meeting of this admirable charity held at Anderton's Hotel, Mr. W. Marshall presided over a moderate attendance. Among those present we noticed Dr. Masters, Messrs. Bates, Gordon, Lyne, Poupart, Barron, Cummins, Wynne, Roupell, Walker, Jones, Assbee, Osman, Outram, R. Dean, McLeod, Reynolds, J. Fraser, May, Cuthbert, H. J. Veitch, and Melady.

The proceedings were of a purely formal character, as no questions were asked or raised. After the reading of minutes, &c., by Mr. Wynne, the report, taken as read, was as follows:—

Annual Report.

The Executive Committee, at the close of the tenth year of the existence of the fund—it having been established in 1887—can look back with pride and satisfaction upon the substantial progress made during that decade. The Royal Gardeners' Orphan Fund is now firmly established among gardening institutions, and during the period of its operations, while it has succoured a large number of orphan children, all of them in necessitous circumstances, it has also been able to invest a small reserve fund. Your committee feel they can heartily congratulate all those constant and earnest supporters of the fund, who, since 1887, have rendered such valuable and acceptable aid.

In submitting their annual report and financial statement, your committee have to record with some feelings of regret, that the receipts for the past year have not been so satisfactory as could be desired, and would therefore urge upon the friends of the charity the necessity of increased efforts during the ensuing year. One very gratifying feature has to be recorded. The receipt of letters of deep thankfulness from the mothers and guardians of children who have ceased to be chargeable to the fund, owing to the operation of the age limit. One mother, after expressing her sense of most timely help, observes: "I sincerely hope that my children may help the fund as they have been helped by it." Besides the ordinary payments of the sum of five shillings per week to orphan children, your committee have made special grants in necessitous cases to children on leaving school, or being apprenticed to some trade, thus giving them a start in life. The sum of £22 10s. has been expended in this helpful way during the year.

During the past ten years, ninety-eight children have derived benefit from the fund; of this number, sixty-two are now receiving a weekly allowance. This number will be increased by those fortunate enough to secure election to-day. The total amount paid to children since the fund was instituted is £5,807 5s. Another most gratifying circumstance is the amounts received from collecting boxes, the proceeds of concerts, sales of flowers, &c., at provincial flower shows. Among the most important donations are those of £50 from the Scottish Horticultural Association, part of the proceeds of the magnificent exhibition of chrysanthemums held in Edinburgh, in November last, and £26 5s. from the Royal Caledonian Horticultural Society. The Chislehurst Gardeners' Society have contributed £23 12s. 6d., and the Altrincham Gardeners' Society £18 8s., proceeds of concerts. Smaller sums from other societies have been received and proved equally acceptable; such receipts have now become an important source of income, and your committee tender their most grateful thanks to all who have so materially helped to swell the resources of the fund. The sum of £457 5s. 11d. has been received as a bequest made by the late Mr. J. W. Thomson, of Hayward's Heath, formerly a well-known nurseryman, and invested in accordance with the terms of the will. This legacy will henceforth be known as the "J. W. Thomson Trust."

The annual dinner held at the Hotel Cecil in April last, was presided over by Sir J. Whittaker Ellis, Bart., and resulted in a handsome subscription list of £635. Your committee owe a great debt of gratitude to Sir J. W. Ellis for his very able advocacy of the objects of the fund, and tender him their most hearty thanks. The best thanks of the committee are also due to the treasurer, N. Sherwood, Esq., for the warm interest he takes in the fund, and his faithful discharge of the duties of the office he holds; also to their auditors, Mr. M. Rowan and Mr. P. R. Barr, for their labours in auditing the accounts. The retiring auditor is Mr. M. Rowan, who is nominated for re-election. The committee have to deplore the loss by death of Dr. Robert Hogg, one of the vice-presidents from the commencement of the charity; and also of an able colleague, Mr. W. G. Head, an active supporter of the fund, and so long associated with the Crystal Palace at Sydenham. Mr. G. Cuthbert, of Southgate, has been elected in his stead. The members of the Executive Committee, who retire by rotation, are Messrs. Assbee, Ballantine, Cannell, Cummins, Gordon, McLeod, Roupell, and Wynne, all of whom offer themselves for re-election, with the exception of Messrs. Ballantine and Cannell, who retire, Mr. A. Outram and Mr. G. H. Richards being nominated to succeed them. Mr. A. F. Barron is again nominated as secretary, at the same remuneration.

The Chairman, in moving the adoption of the report, remarked that he had no observations to make concerning it. As a private member, he remarked that he should like to see the committee in future consider the question of allowing or not allowing two orphans from one family to appear as candidates or to be both elected to the benefits of the fund. The motion was carried unanimously. Mr. Poupart then proposed a vote of thanks to their treasurer, Mr. N. N. Sherwood, remarking that the fund was fortunate in having the services of such a gentleman; seconded by Mr. Osman and carried. Mr. R. Dean moved that the meeting's thanks to Messrs. Rowan and P. R. Barr be given for their services as auditors. This was carried without dissent. The Chairman proposed the re-election of Messrs. Assbee, Cummins, Gordon, McLeod, Roupell, and Wynne as members of the committee. This was carried, as also was the proposition that Messrs. Outram and Richards be elected on the committee in the places of Messrs. Ballantine and Cannell, who retire. Mr. Marshall then moved the re-election of Mr. A. F. Barron as secretary of the fund, and spoke highly of the services rendered by him. This motion was ably seconded by Mr. J. Walker and unanimously carried. The scrutineers of the ballot, proposed by Mr. H. J. Jones and approved, were Messrs. H. B. May, R. Dean, J. McLeod, and J. Walker. The annual meeting occupied about half an hour, and then the members parted to await the result of the ballot.

Statement of Accounts for 1897.

Receipts.

	£	s.	d.	£	s.	d.
To Balance from last account				£599	11	10
,, Subscriptions, general	£280	9	0			
,, Subscriptions collected by local secretaries	69	2	0			
				349	11	0
,, Donations (including proceeds of sales of flowers, boxes, entertainments, &c.)	211	5	9			
,, Donations collected by local secretaries	51	11	8			
				262	17	5
,, The J. W. Thomson Trust				457	5	11
,, The Emma Sherwood Memorial				13	0	0
,, Annual dinner				635	6	0
,, Card collection				33	8	2
,, Advertisements in list of subscribers				26	19	0
,, Dividends on stock and interest on deposit				247	1	9
				£2,625	1	1

NOTE:—INVESTMENTS

	£	s.	d.
2¾ per cent. Consols	£7,070	6	10
3 per cent. Canada Stock	2,422	7	4
	£9,492	14	2

Expenditure.

	£	s.	d.	£	s.	d.
By Allowances to orphans	£853	15	0			
,, Emma Sherwood Memorial	13	0	0			
,, Grants in aid	22	10	0			
				889	5	0
,, Annual dinner				126	9	2
,, Secretary's salary				105	0	0
,, Printing and posting subscribers' lists				31	4	6
,, Collecting cards				11	13	4
,, Printing and stationery	25	14	3			
,, Annual, general, and committee meetings	9	16	2			
,, Postages	13	10	1			
,, Bank charges	2	7	1			
,, Sundry expenses (petty cash)	16	18	4			
				68	5	11
,, Purchase of £422 7s. 4d. 3 per cent. Canada Stock				457	5	11
,, Balance—						
Cash at bank	835	14	3			
Cash in hand	0	3	0			
Cash on deposit	100	0	0			
				935	17	3
				£2,625	1	1

Having inspected the securities and examined the books and vouchers supplied to us, we hereby certify the above account to be correct.

(Signed) P. RUDOLPH BARR } Auditors.
M. ROWAN

Dated January 22nd, 1898.

The result of the election was announced at a quarter to five, when the following ten children were placed on the funds of the charity: Agnes Macintosh, Edinburgh, 349 votes; Robert John Smith, Salop, 332; Jamesina Baird, Stobo, N.B., 278; Lydia Annie Milne, Westmoreland, 275; Hermine Kosbab, Twickenham, 272; William Ewart Holmes, 269; Ruth Amy Worth, Liverpool, 241; Margaret Annie Richardson, Cheshire, 232; Constance Mary James, Southampton, 209; and Annie Kathleen French, Lingfield, 166. The latter was placed on the funds as the recipient of the Thomson Memorial Bequest. The total number of votes polled was 3,157. Votes of thanks to the scrutineers and chairman concluded the business of the annual meeting.

Friendly Dinner.

An informal friendly dinner took place at half-past six at Anderton's Hotel, Fleet Street, at which those members and friends of the orphan fund, already mentioned, were present, and also Messrs. J. H. Veitch, Sherwood, Miles, J. H. Laing, J. G. Ingram, D. B. Crane, and Mason, &c. Owing to illness, Mr. P. C. M. Veitch was unable to be present, consequently the chair was taken by Mr. N. N. Sherwood.

After dinner and the usual loyal toasts, the Chairman proposed "Continued Success to the Royal Gardeners' Orphan Fund." He regretted the absence of Mr. P. C. Veitch, and especially the cause of his absence. He referred to the fine speech made at a similar gathering a year previous by Mr. Owen Thomas, in which the latter hoped for a record year to the fund as a memento of the Diamond Jubilee of Her Majesty. He was sorry to say that hope had not been realised, for though they had done fairly well, 1897 was not a first-rate year for the charity in which they were all interested. They were all proud of the ten years' progress of the fund, of the fact that sixty-two children were being helped by it, and that since 1887, £5,807 had been spent for the direct benefit of gardeners' orphans. They had close on £9,500 invested, but he, as treasurer, would not be satisfied until that sum had been increased to £20,000. The Chairman spoke highly of the energy displayed by some local secretaries and societies in helping the fund, making special reference to the Scottish Horticultural Association, Caledonian Horticultural Society, and the Chislehurst and Altrincham Gardeners' Associations. He also referred to Mr. H. J. Jones, whose collecting card contained an enormous number of names, and to Mr. Miles, who in the Southampton district had enlisted fifty-five new subscribers. All associated with the fund felt a great responsibility, and they wished such a feeling would extend more widely among the gardeners of the kingdom, for if such were the case it would follow as a matter of course that employers and traders would also do their best to assist the cause. The toast was duly honoured, and responded to by Mr. W. Marshall, the latter observing that he considered that the most deserving candidates had been elected.

Mr. Poupart directed the musical programme for the evening, the contributors being himself, Messrs. Mason, D. B. Crane, H. J. Jones, and A. H. Weeks. Votes of thanks to Mr. Poupart, to Mr. Barron, and to the chairman, brought a pleasant evening to a conclusion.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Chrysanthemum Red L. Canning.—G. D., Cardiff: The address, given in a recent issue, of the holder of the stock of this chrysanthemum should have read Walton-on-Thames, instead of Henley-on-Thames; Mr. Felgate's establishment is Bushill Road Nursery in that town.

Heating Small Greenhouse.—E. A., Birmingham: There are now very many first-rate oil stoves on the market which would prove suitable for heating your small greenhouse. They are provided with a radiator, so that all the heat created is made the most of. Then also the newer stoves, especially those supplied by firms who make a speciality of heating apparatus and advertise in our columns, are so constructed that if properly managed no offensive odour is given off. An application to any of the makers would put you in possession of price lists.

Infested Apple Trees.—C. M., Romsey: The pieces of apple wood sent contained no beetles, but the borings were such as might have been produced by the Apple Bark Beetle (*Xyleborus dispar*). We scarcely think this is the beetle that has done the damage, however, for it does not confine its operations to dead wood, but rather attacks young trees, frequently killing them. If you can catch a few beetles on the trees send them along in a close-fitting tin box. Meanwhile, as only the dead wood is attacked there is not much to complain of, and the best thing to be done is to remove every scrap of dead wood from the trees before the buds on the live growth are further forward. Remove all dead and loose bark, and then limewash the trunk and main stems so as to kill moss and lichen. If liquid manure is to be obtained from farmyard or stable cesspools give the trees a good dose now, and repeat the operation on several occasions during the season of full growth, more especially after the fruits have begun to swell.

Caladiums and Fuchsias.—W. M. P., Elcombe: A dozen good caladiums are Baron Adolphe de Rothschild, Charlemagne, Chelsea Gem, [illegible], Nain Rouge, Lord Rosebery, John Peed, Mrs. Harry Veitch, Mons. [illegible], Reine de Danmark, Mons. Chater, and John Laing. Two small growing sorts that are fine for grouping, &c., are Argyrites, and Minus erubescens. Twelve good fuchsias will include Abundance, Lye's Rival, General Roberts, and Lord Falmouth as dark varieties; Beauty of Lavington, Eynsford Gem, Lye's Perfection, and Princess May as light forms; Duchess of Edinburgh and Miss Lucy Finnis as white double forms; and Alphonse Daudet and Phenomenal as dark [illegible] varieties.

Cucumbers.—W. W., Norwich: If you will state the particular points upon which you wish special information we shall be pleased to help you. You probably cropped your cucumbers too severely and failed to apply occasional top dressings of rich soil or give frequent supplies of liquid manure. Plenty of heat and moisture are necessary for cucumbers; they require very little shading even in the brightest weather, but they need fresh air as often as it can be admitted without risk. Cut out old growth as soon as it can be dispensed with and encourage young shoots to fill the space and produce fruits. Cut cucumbers as soon as fit, so as not to strain the plants more than can be helped; stand the cut ends in a shallow dish of water and the fruits will keep fresh some time. Let the water for syringing or watering stand in a tub or tank in the house long enough before use to become warmed.

Liquid Manure from Stables.—H. H., Faringdon: The liquid, composed of the urine of horses and the water used in washing out the stables, &c., will prove valuable for applying to fruit trees, roses, and all gross-feeding plants, including numerous kitchen garden crops. If you can obtain such liquid in quantity you are in a better position to withstand drought in the garden than many growers. It is probable that no addition of clear water will be necessary, but this you will be best able to judge from a knowledge of the number of horses stabled and the amount of water used for swilling. If at all in doubt as to the strength of the liquid apply some first by way of experiment to some plant or plants, remembering that established fruit trees, roses, vines, &c., may be given fairly strong liquid manure owing to the amount of soil through which the roots penetrate.

Manure for Oats.—H. F., Annesley: It is apparent that the land is very poor, and there is a great need for adding organic matter to it, so that it will the better hold moisture, and give the oats or other crops something substantial to work upon. So far as we are able to judge from your letter the land will be of little value for producing good crops until a good dressing of stable and farmyard manure, separate or mixed, is applied to it. The best artificial manure to use with oats is superphosphate of lime at the rate of two to three hundred weight per acre. When growth has made some advance it is desirable to give a top-dressing of nitrate of soda at the rate of three-quarters to one-hundred weight per acre. Potash in some form would prove a suitable manure for such land, but potash manures, such as muriate of potash, is best applied in the autumn, so as to be available for the plants' use in spring and summer.

Employment at Kew.—R. O., Drumrauck: Judging from the number of queries we have received during the past twelve months, there is a growing desire among young gardeners throughout the country to graduate at the Royal Gardens, Kew. This is not surprising considering the large number of good positions held by old Kewites throughout the world. To gain employment at Kew, the candidate must be of average height and physically sound. The authorities evidently consider the fact of application as evidence of soundness of mind. The

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Packets of 24 seeds, each 1/-; Packets of 12 seeds, each 8d.

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An entirely new variety, the colour of which is a delicately shaded pink on the standard, the lacing of the edge being paler than the centre, the wings are deeper pink, of a very rich shade, giving it a very striking appearance. **Per Packet, 1/-.**

PRIMULA FIMBRIATA ROSEA DELICATA.

The colour of this beautiful new variety is a charming and delicate shade of rose-pink. The flowers are large and well fringed, whilst the eye is a bright yellow, showing a striking contrast to the ground colour of the petals. **Per Packet, 3/6.**

NEW CULINARY PEA, HURST'S RELIANCE.

The finest of all second early kinds. **Per Quart, 2/-.**

NEW CULINARY PEA, CAPTAIN CUTTLE.

This superb Pea, growing about 3½ ft. high, is the result of a cross between "G. F. Wilson" and "Evolution." It is a most robust growing sort, and on that account should be sown thinly. The pods are large and handsome, terminating in an abrupt hook, and contain from seven to [illegible] very large deep green peas of excellent quality. It is undoubtedly one of the heaviest croppers in existence. Awarded full marks of merit by the Royal Horticultural Society. In **sealed Half-pint Packets, 2/6 each.**

NEW CULINARY PEA, THE GLADSTONE.

In Half-pint Packets, 2/- each.

MELON, DIAMOND JUBILEE.

First Class Certificate, Scottish Horticultural Society, August 3rd, 1897.

This variety is the result of a cross between "Best of All" and "Countess," and is a decided improvement on both these well-known kinds. The fruits are oblong in shape, beautifully netted, and assume a pretty golden-yellow when ripe; weight from 3 to 5 lb., flesh greenish-white, flavour excellent, a distinct acquisition for early crops, and will prove a boon to market growers. **Per Packet, 1/6.**

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Names of Plants.—I. C., Bath: Lælia Lindleyana, a curious species.

M. F. E., Egham: 1, Selaginella Mertensi; 2, S. flagellifera; 3, Davallia bullata; 4, Nephrolepis exaltata; 5, Begonia ascotiensis; 6, send when in flower.

W. M. P., Elcombe: 1, Phlebodium aureum; 2, Nephrodium molle corymbiferum; 3, a polypody, send fertile frond; 4, Adiantum formosum.

K. B., Henley: If you will send another set we will do our best to identify your plants, as on former occasions. The last lot became shrivelled before we were able to institute comparisons.

Names of Fruits.—H. G., Isle of Wight: We do not recognise the apple sent, and feel sure it is not Goodwood Pippin. However, if you send a fruit to Mr. R. Parker, Goodwood Gardens, Chichester, Sussex, he will decide. This will save time, and in the meanwhile we will submit the fruit we have to some expert pomologists, and endeavour to find whether the variety is known. An apple that will keep sound and fresh as late as you mention, in the extreme south, is of value, and we should be obliged for further particulars.

Communications Received.—I. C.—M. F. E.—W. M. P.—E. A.—H. H.—H. F.—H. G.—F. W. M.—H. C. P.—G. W.—W. M.—G. H.—J. R.—G. B.—J. P.—R. D.—A. F. B.—J. G.—W. B.—K. B.

"THERE IS NOTHING NEW UNDER THE SUN" is a saying credited to a variety of illustrious authors, from the time of Solomon to the present day. It is a fact that many inventions looked upon as modern are of ancient origin. The telephone, which recently caused such a furore of excitement, was in ancient days a means by which the high priests worked upon the credulity of their disciples. The Pyramids of Egypt and other wonders prove that this generation has a great deal to learn. Holloway's Pills and Ointment, however, were not anticipated by our forefathers, and to-day they stand alone as the best cure the world possesses for all the ills that humanity is heir to.—[ADVT.]

MARKETS.

Covent Garden.

SUPPLIES of fruits are very short, consequently prices have an upward tendency, as the demand is good. Green vegetables are moderately plentiful, but prices are firm. Potato trade quiet, though there is a brisk demand for new. Cut flower trade moderate.

FRUIT.—English grapes, 1s. 9d. to 3s. per lb.; Almeria, 10s. to 20s. per barrel; American and Nova Scotian apples, 12s. to 30s. per barrel; French pears, 5s. to 7s. 6d. per crate; pineapples, 2s. to 6s. 6d. each; bananas, 4s. to 9s. per bunch; English tomatos, 6d. to 10d. per lb.; Canary 1s. to 1s. 6d. per tray, 3s. 6d. to 4s. 6d. per case; lemons, 8s. to 16s. per case; Valencia oranges, 9s. to 18s.; Jaffas, 8s. to 11s. 6d. per box.

FLOWERS.—Arums, 2s. to 3s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 6s. to 9s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s. 3d.; and tuberoses, 6d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 9s. to 18s.; marguerites, 2s. to 4s.; white narciss, 2s. 6d. to 5s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinth, 4s. to 9s.; daffodils, 5s. to 8s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 8s.; and violets, 9d. to 4s. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—English onions, 6s. to 7s. per cwt.; Valencia, 7s. to 9s. per case; cabbages and savoys, 4s. 6d. to 6s. per tally; Italian cauliflowers, 2s. 9d. to 4s. per basket; seakale, 10s. to 15s. per dozen punnets; Brussels sprouts, 2s. to 3s. per bushel; French asparagus, 4s. to 7s. 6d. per bundle; mushrooms, 6s. to 8s.; eschallots, 2s. to 2s. 6d. per 12 lb.; French lettuce, 1s. to 1s. 3d.; endive, 1s. 4d. to 1s. 8d.; spinach, 2s. to 2s. 6d. per bushel; parsley, 1s. 6d. to 2s.; carrots, 2s. to 3s. per dozen bunches; celery, 6s. to 12s. per dozen rolls; forced rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; Malta new potatos, 18s. to 20s.; Algiers, 20s. to 25s.; Canary 15s. to 18s. per cwt.

Borough Potato Market.

Supplies are so large, and the demand so moderate, that there is a prospect of a drop in prices.

Dunbars, 110s. to 120s.; Hebrons, 85s. to 100s.; Snowdrops, 80s. to 90s.; Bruce Maincrop and Sutton's Regents, 80s. to 85s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. to 3s. 6d.; Germans, 3s. 6d. per bag.

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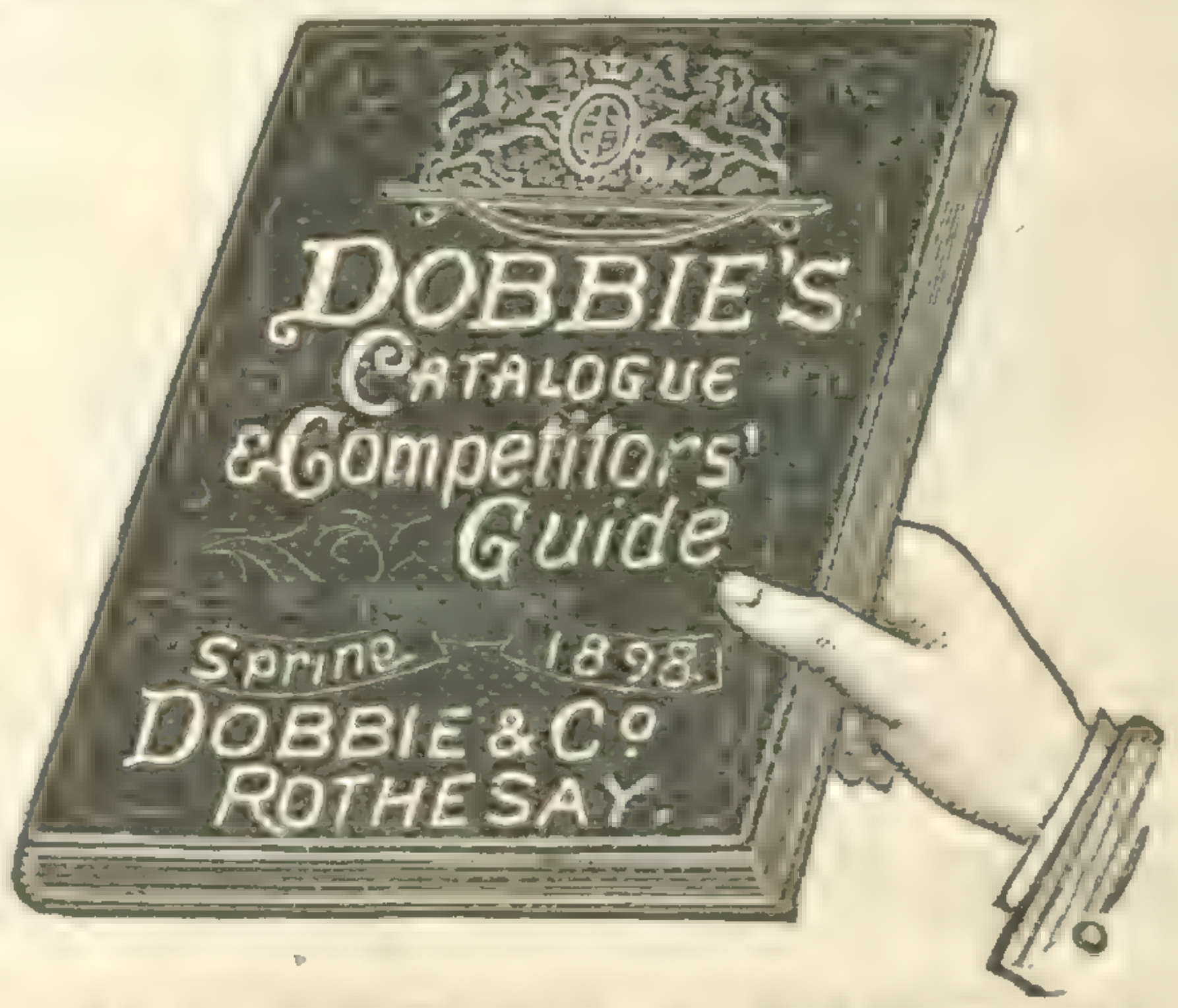

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COMING EVENTS.

CARDIFF HORTICULTURAL SOCIETY, July 20 and 21.
CHIPPENHAM AND CALNE HORTICULTURAL SOCIETY.—August 10.
FOREST GATE CHRYSANTHEMUM SHOW, November 3.
HIGHCLERE HORTICULTURAL SOCIETY.—July 27.
KENILWORTH HORTICULTURAL SOCIETY.—Thursday, July 14.

THE WEATHER DURING THE WEEK ENDING FEBRUARY 19, 1898

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	53·6	30·2	42·7	5·94	0·35	0·89
Croydon	54·0	27·5	43·5	6·35	0·40	1·02
Brighton	54·6	30·0	44·9	7·17	0·43	1·09
Bristol	51·0	26·0	42·9	6·06	0·59	1·50
Wolverhampton	50·7	24·2	40·4	4·67	0·38	0·97
Norwich	53·0	32·2	41·9	5·50	0·19	0·48
Nottingham	[illegible]	28·3	41·8	5·44	0·18	0·46
Liverpool	[illegible]	32·4	42·4	5·78	0·37	0·94
Huddersfield	52·8	29·3	40·1	4·50	0·59	1·50
Bradford	55·2	31·8	42·8	6·00	0·39	0·99
Hull	55·0	32·0	42·2	5·67	0·36	0·91

The mean reading of the Barometer during the week at Greenwich was 29·90 inches, and that of the Thermometer 42°·7, the latter being 3°·2 above the week's average in the 50 years 1841–90. The direction of the wind was variable, the horizontal movement of the air being [illegible] per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 9·4 hours. The measured rainfall amounted to 0·35 of an inch.

CATALOGUES RECEIVED.

E. H. KRELAGE AND SON, HAARLEM, HOLLAND.—Novelties and Hardy Plants.
LITTLE AND BALLANTYNE, CARLISLE.—Farm Seeds.
BALTET FRERES, TROY, FRANCE.—Fruits and Avenue Trees.
DOBBIE AND CO., ROTHESAY, N.B.—Agricultural Seeds.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 1.—Meeting of Scottish Horticultural Association.
THURSDAY, MARCH 3.—Meeting of the Linnean Society.

AUCTIONS.

TUESDAY, WEDNESDAY, AND FRIDAY, MARCH 1, 2, AND 4.—Roses, Lilies, [illegible], Brazilian and Mexican Orchids, at Protheroe and Morris's Rooms.

WEDNESDAY, MARCH 2.—English and Foreign Roses, Shrubs, Plants, Fruit Trees, &c., at J. C. Stevens's Rooms.

THURSDAY, MARCH 3.—Border Plants, Lilies, Bulbs, Roses, &c., at J. C. Stevens's Rooms.

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Water in a Devonshire Rock Garden
Specimen of Epidendrum [illegible]

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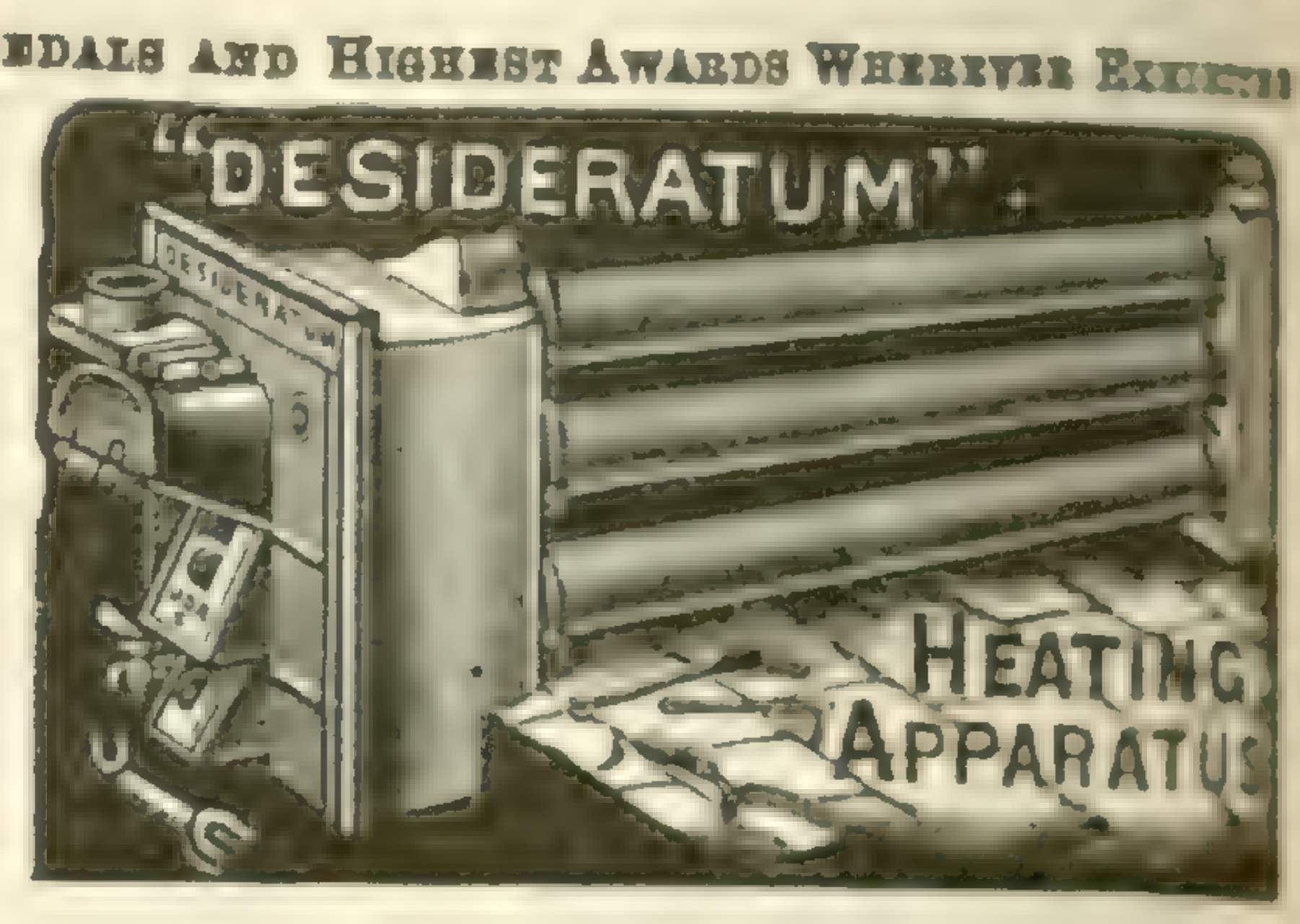

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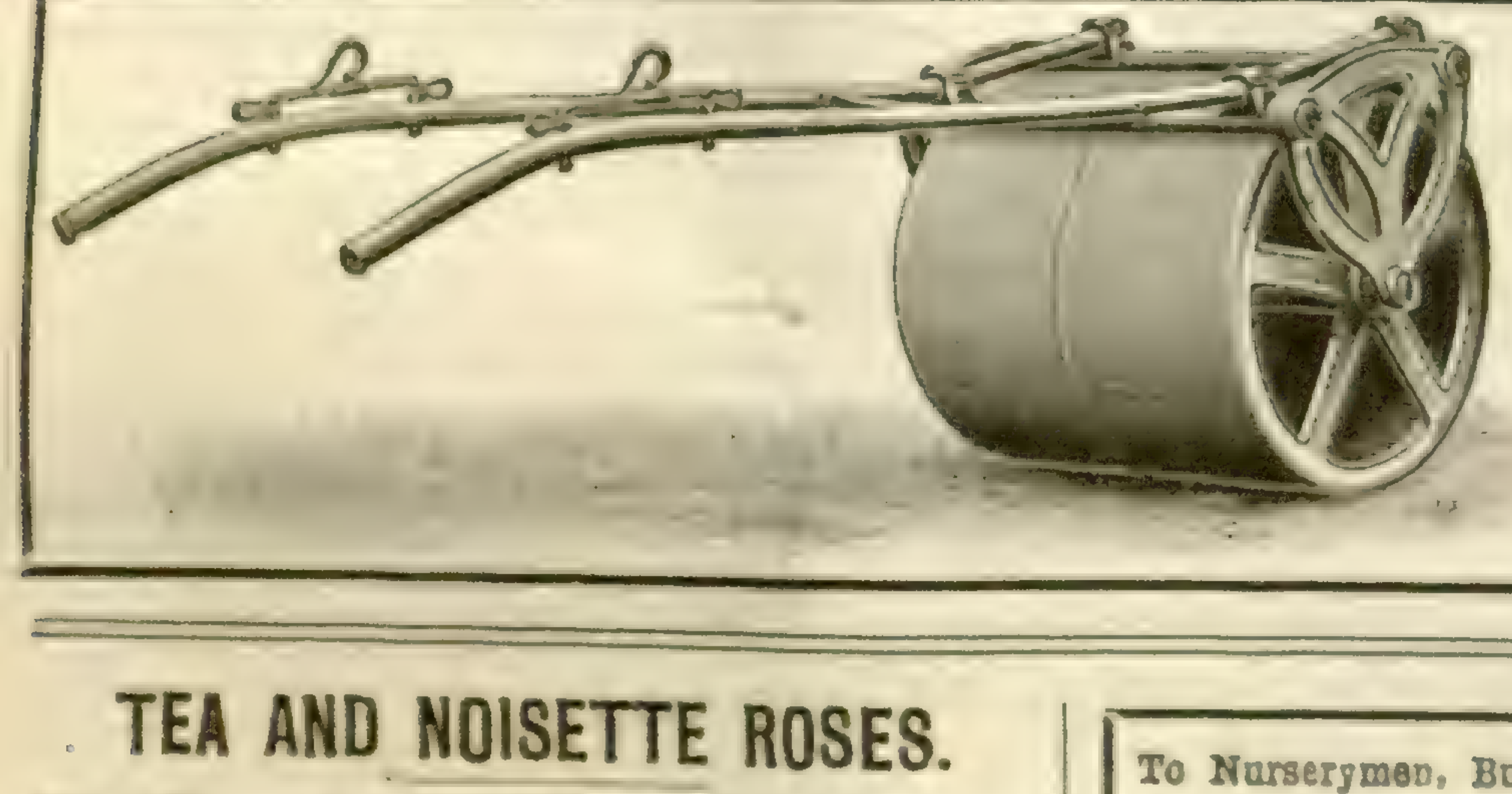

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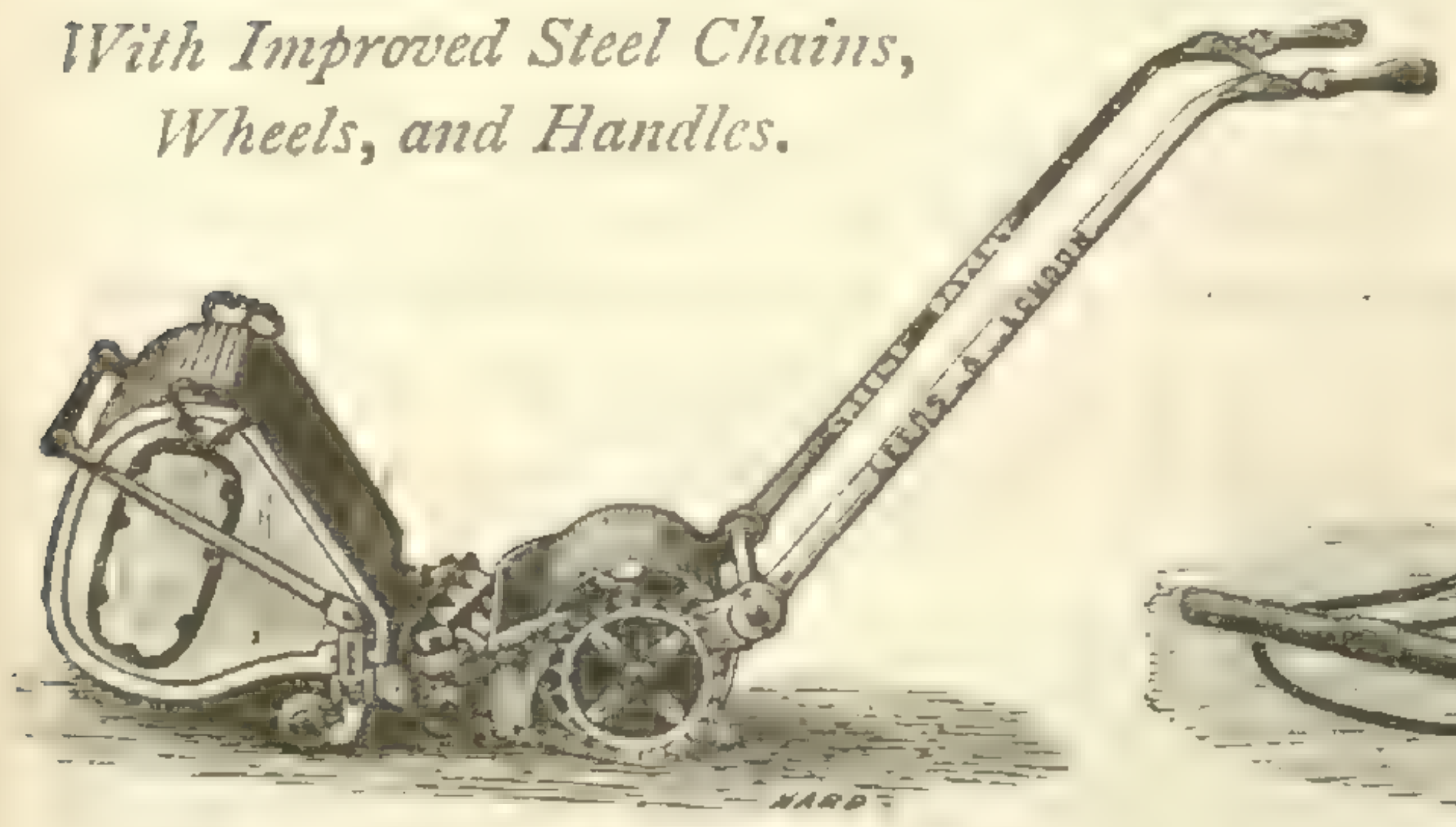

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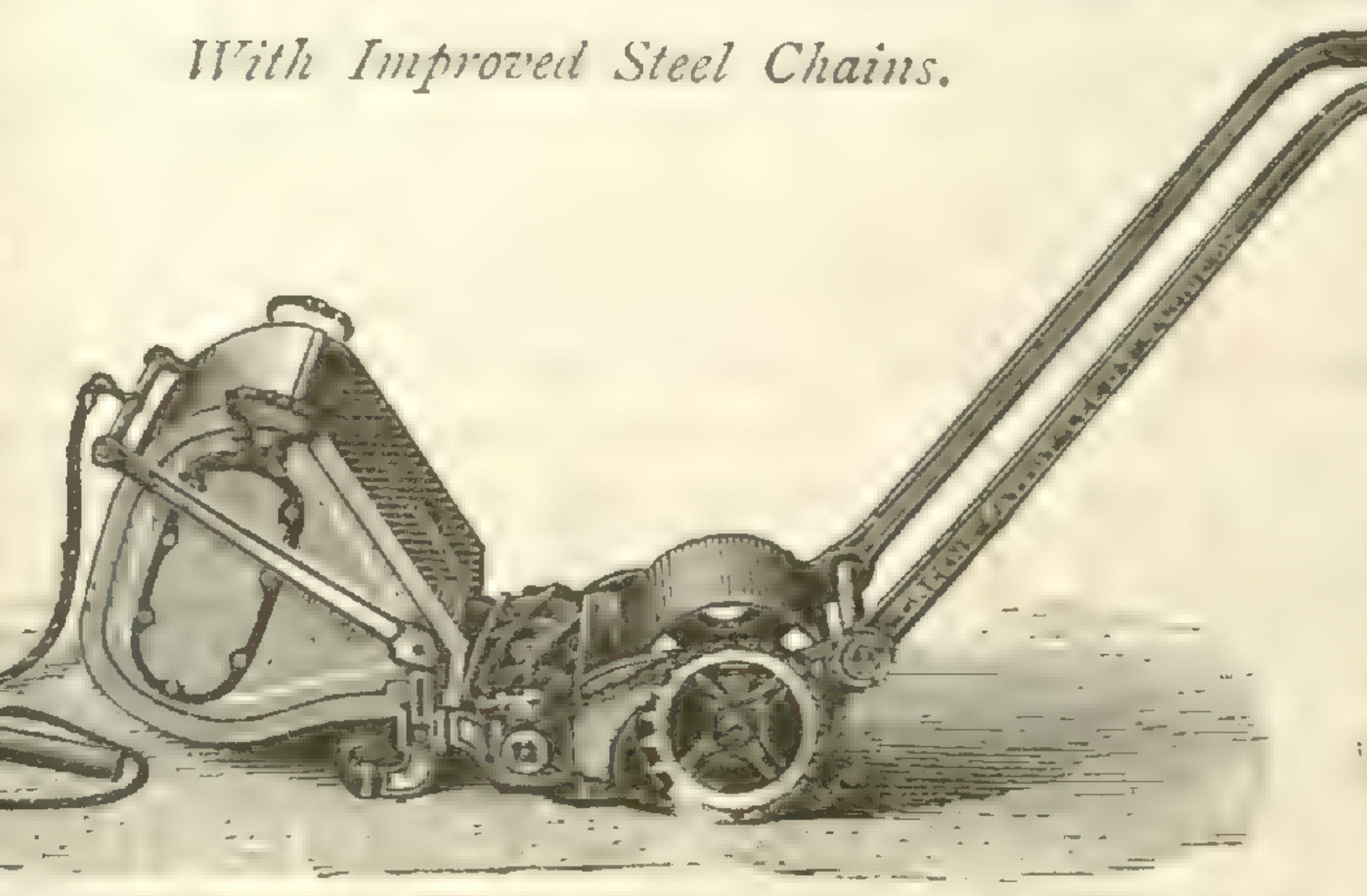

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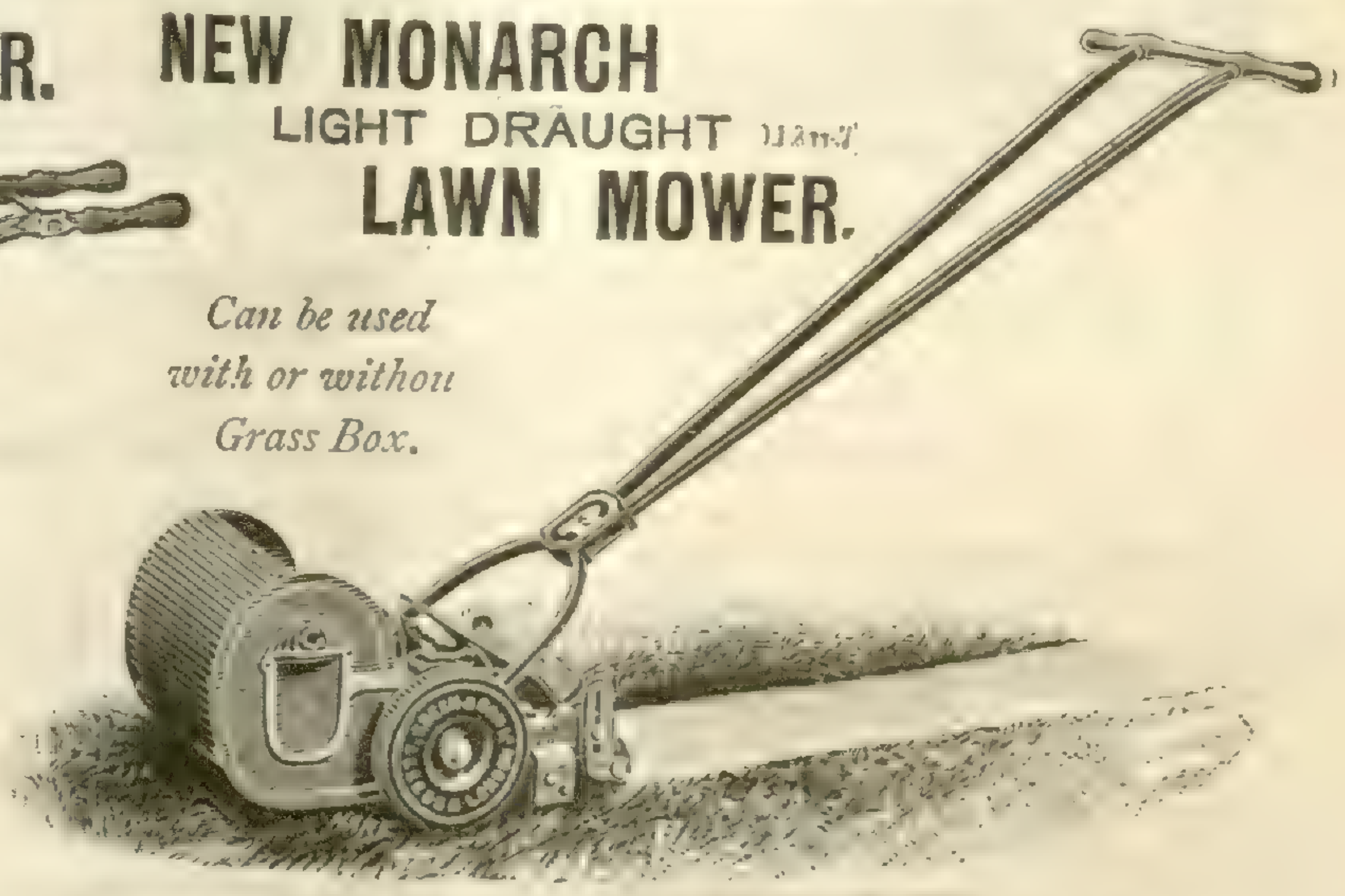

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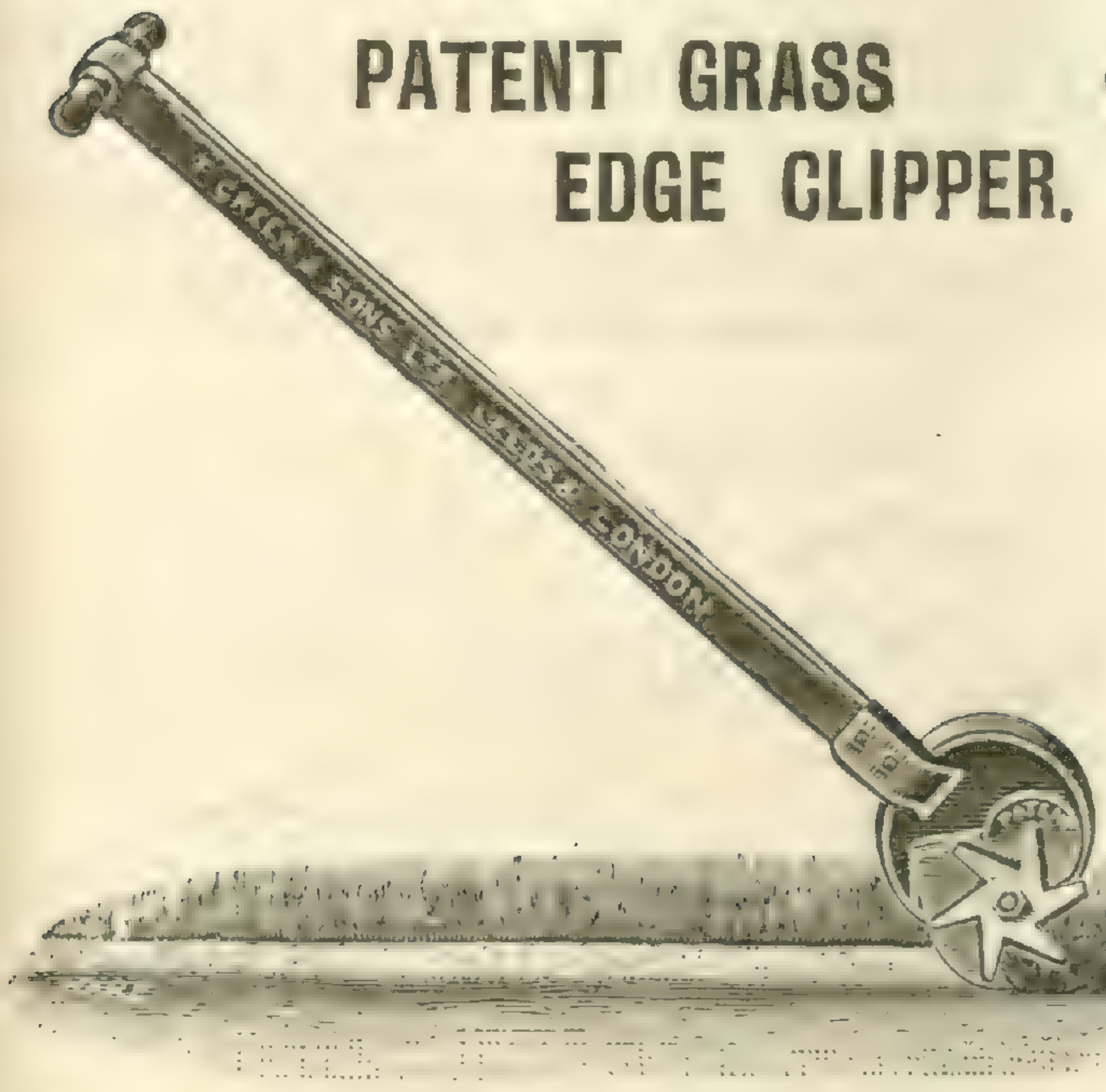

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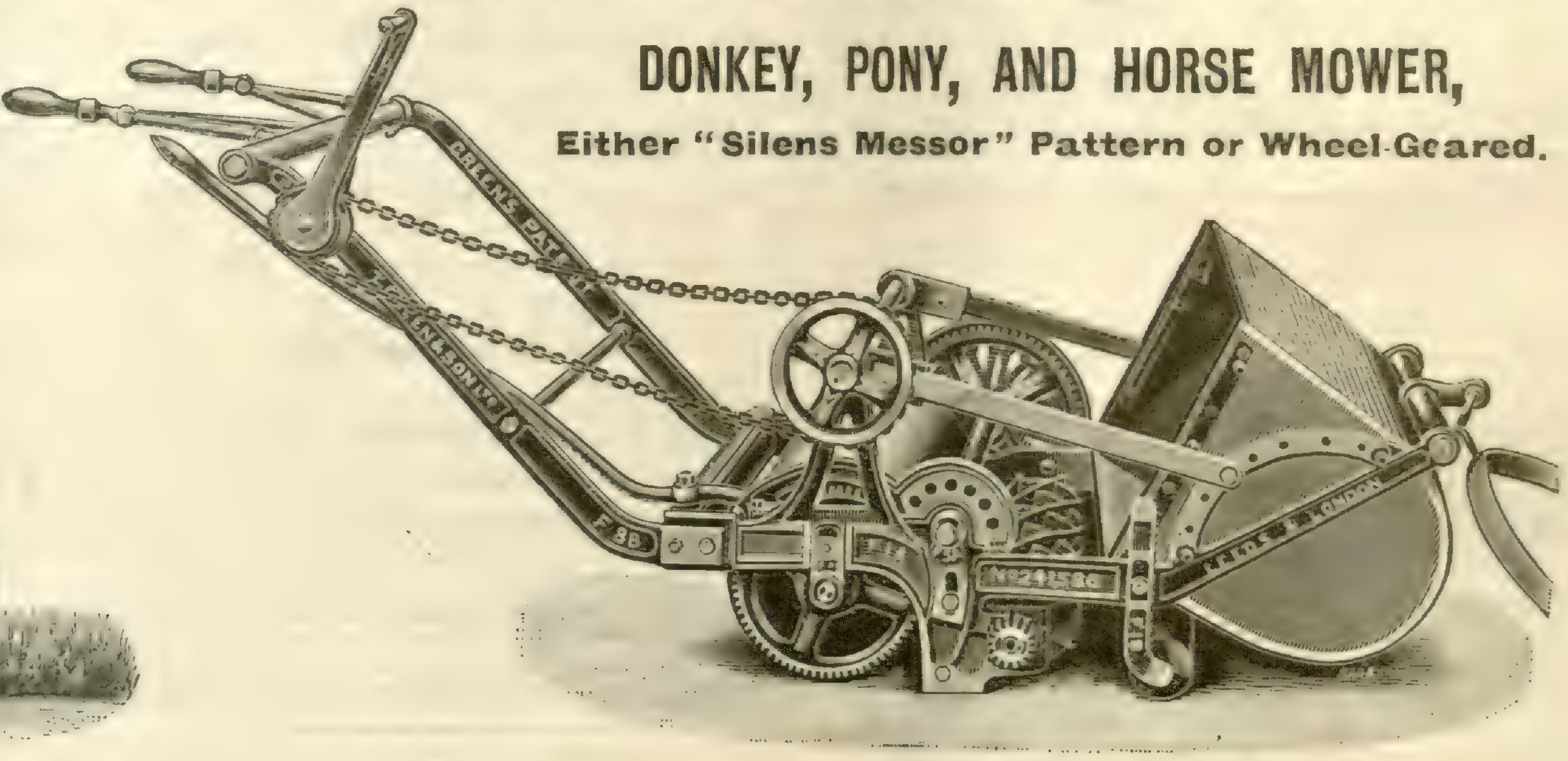

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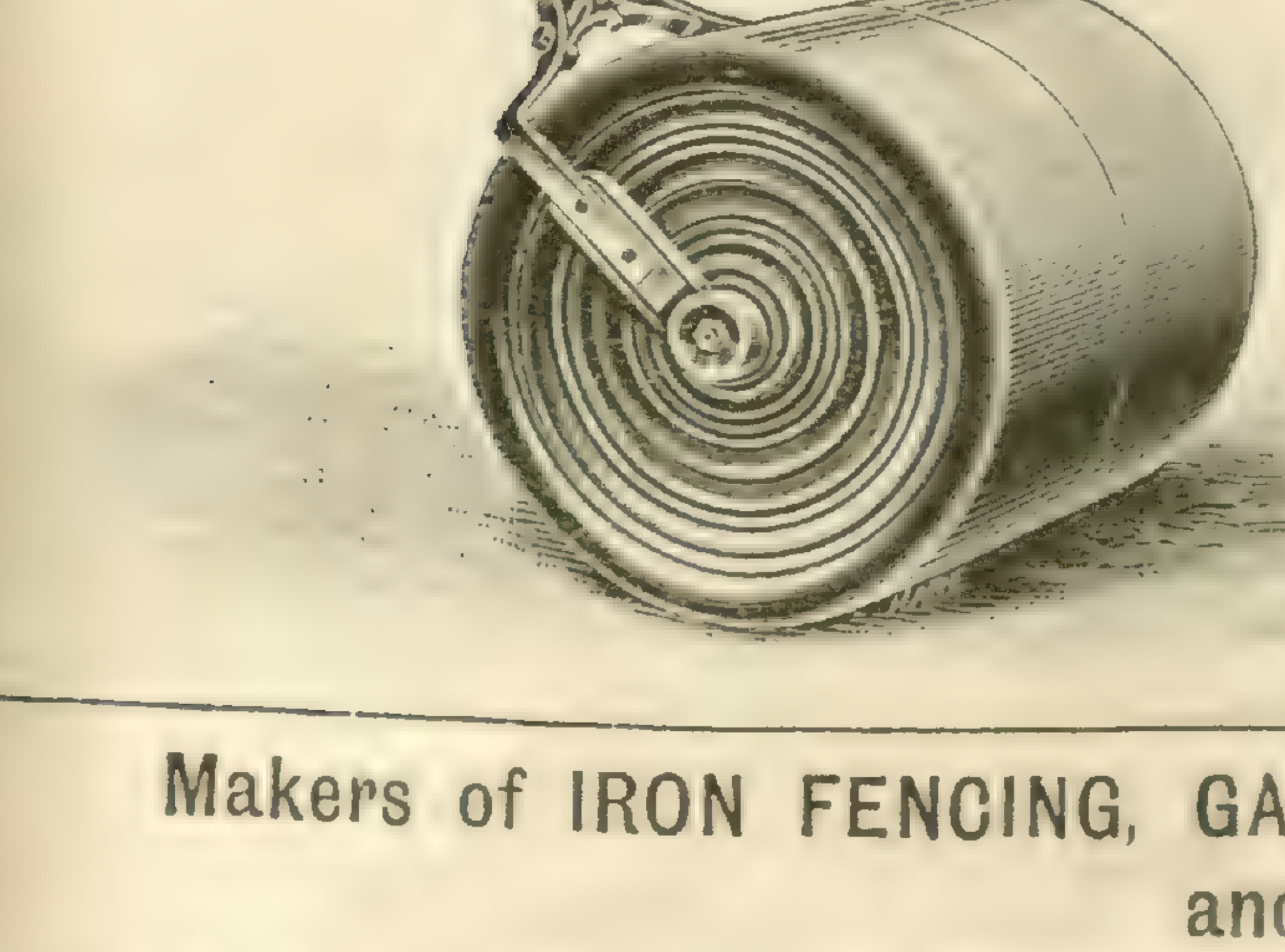

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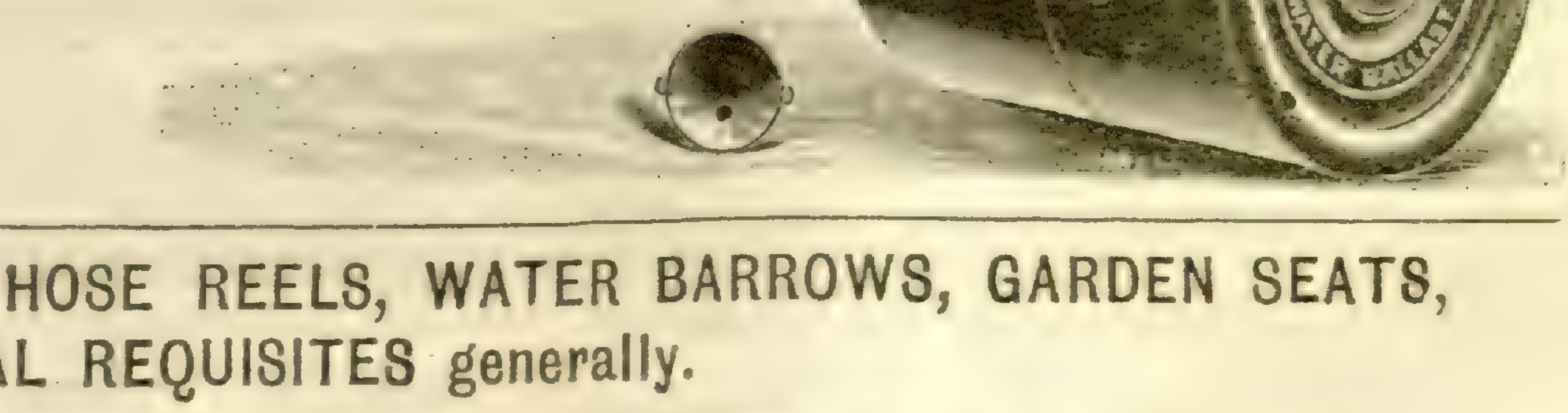

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THOMAS GREEN and SON, Ltd.,

Smithfield Ironworks, Leeds; & Surrey Works, Blackfriars Rd., London, S.E.

They can also be had of any respectable Seedsman or Ironmonger in the United Kingdom.

COMING EVENTS.

CARDIFF HORTICULTURAL SOCIETY, July 20 and 21.
CHIPPENHAM AND CALNE HORTICULTURAL SOCIETY.—August 10.
FOREST GATE CHRYSANTHEMUM SHOW, November 3.
HIGHCLERE HORTICULTURAL SOCIETY.—July 27.
KENILWORTH HORTICULTURAL SOCIETY.—Thursday, July 14.

THE WEATHER DURING THE WEEK ENDING FEBRUARY 19, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	53·6	30·2	42·7	5·94	0·35	0·89
Croydon	54·0	27·5	43·5	6·35	0·40	1·02
Brighton	54·6	30·0	44·9	7·17	0·43	1·09
Bristol	51·0	26·0	42·9	6·06	0·59	1·50
Wolverhampton	50·7	24·2	40·4	4·67	0·38	0·97
Norwich	53·0	32·2	41·9	5·50	0·19	0·48
Nottingham	54·8	28·3	41·8	5·44	0·18	0·46
Liverpool	55·8	32·4	42·4	5·78	0·37	0·94
Huddersfield	52·8	29·0	40·1	4·50	0·59	1·50
Bradford	55·2	31·8	42·8	6·00	0·39	0·99
Hull	55·0	32·0	42·2	5·67	0·36	0·91

The mean reading of the Barometer during the week at Greenwich was 29·90 inches, and that of the Thermometer 42°·7, the latter being 3°·2 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 26 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 9·4 hours. The measured rainfall amounted to 0·35 of an inch.

CATALOGUES RECEIVED.

E. H. KRELAGE AND SON, HAARLEM, HOLLAND.—Novelties and Hardy Plants.
LITTLE AND BALLANTYNE, CARLISLE.—Farm Seeds.
BALTET FRERES, TROY, FRANCE.—Fruits and Avenue Trees.
DOBBIE AND CO., ROTHESAY, N.B.—Agricultural Seeds.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 1.—Meeting of Scottish Horticultural Association.
THURSDAY, MARCH 3.—Meeting of the Linnean Society.

AUCTIONS.

TUESDAY, WEDNESDAY, AND FRIDAY, MARCH 1, 2, AND 4.—Roses, Lilium auratum, Imported Brazilian and Mexican Orchids, at Protheroe and Morris's Rooms.
WEDNESDAY, MARCH 2.—English and Foreign Roses, Shrubs, Plants, Fruit Trees, &c., at J. C. Stevens's Rooms.
THURSDAY, MARCH 3.—Border Plants, Lilies, Bulbs, Roses, &c., at J. C. Stevens's R

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Work for the Week ... ...

ILLUSTRATIONS.
Apple Infected with Glœosporium fru-tigenum ... ...
Water in a Devonshire Rock Garden
Specimen of Epidendrum Medusæ ...

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HEATING APPARATUS.

Our "TITAN" Boiler for large ranges of pipes is unequalled. Estimates for complete apparatus.

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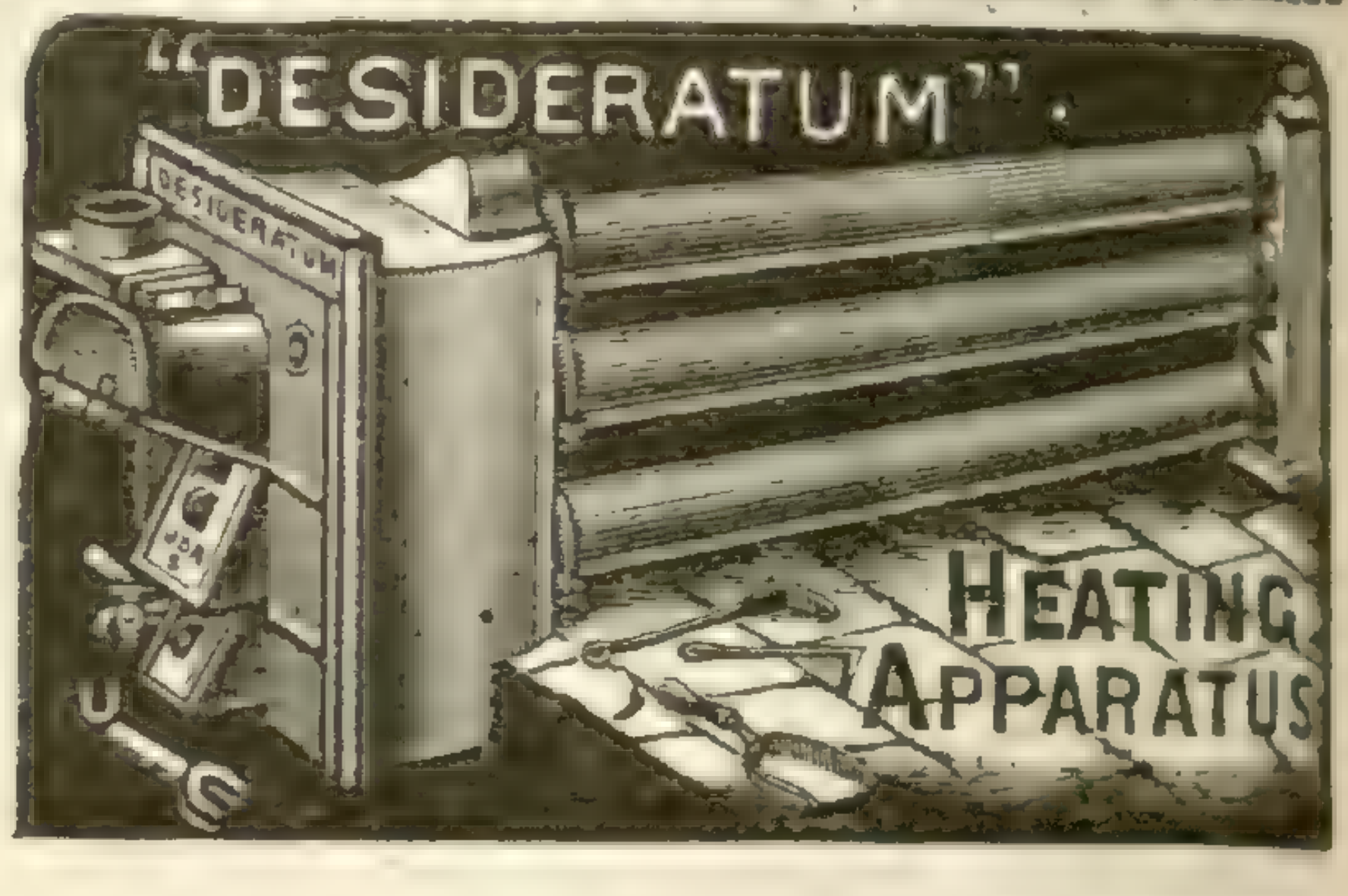

Supplied with various arrangements. Special Price List prepared for complete apparatus for Greenhouses 8 feet to 40 feet long. Estimates for larger Houses.

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SELECT VEGETABLES to suit all.
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HARDY FLOWERS of easy cultivation.
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For Parks, Lawns, Garden Paths, Golf Courses, &c.
For Hand, Horse, or Pony Use.
A. SHANKS & SON, LTD.
Arbroath, N.B.; and
Bush Lane House,
Cannon St., London, E.C.

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DWARFS, strong hardy stuff, grown in exposed situation, in 50 leading sorts, 9s. per doz., 65s. per 100.
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HALF-STANDARD ROSES, leading H.P.'s 12s. dozen.
Descriptive LIST of sorts on applicanion to
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PLANTING TREES AND SHRUBS THIS SEASON.

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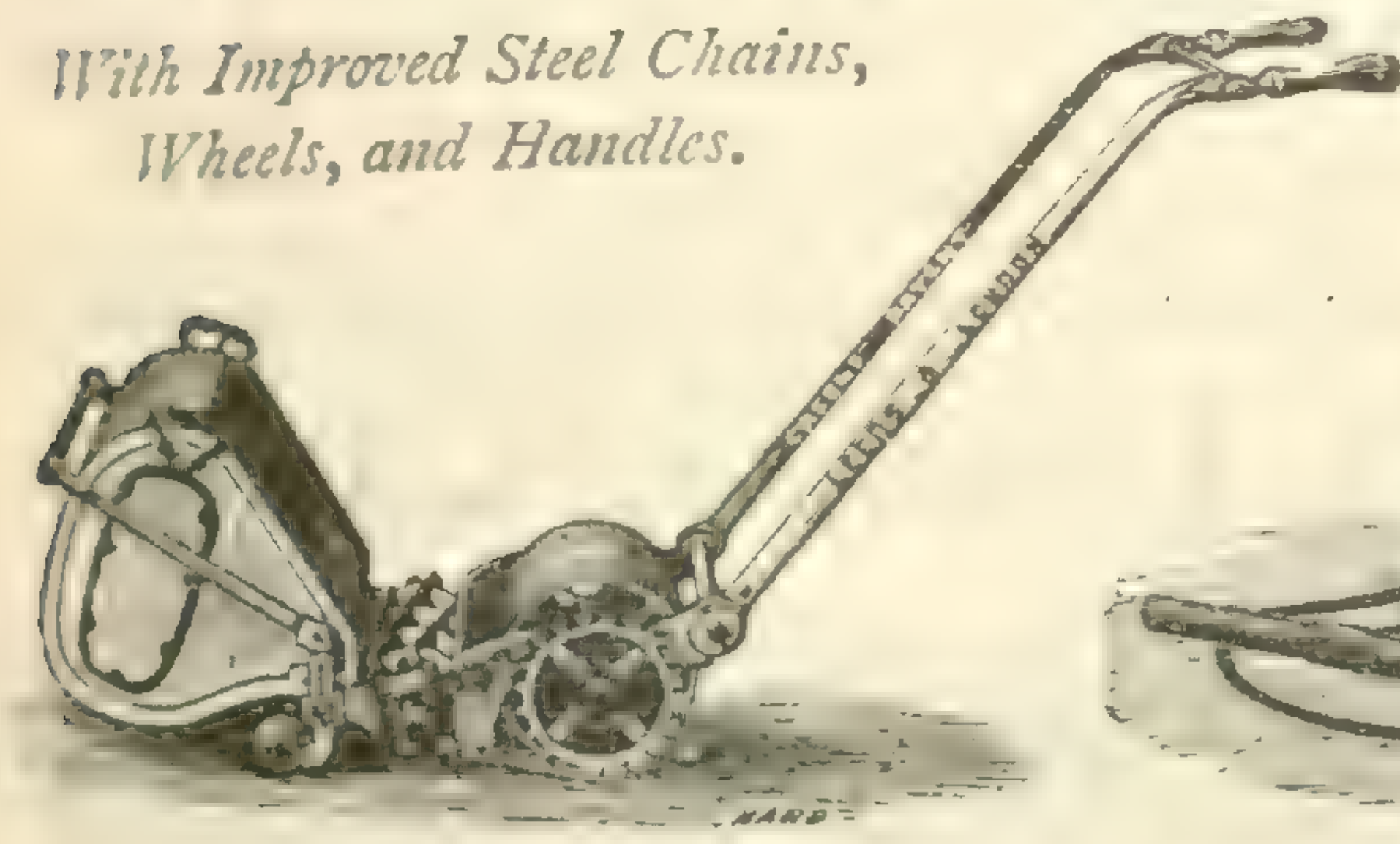
With Improved Steel Chains, Wheels, and Handles.



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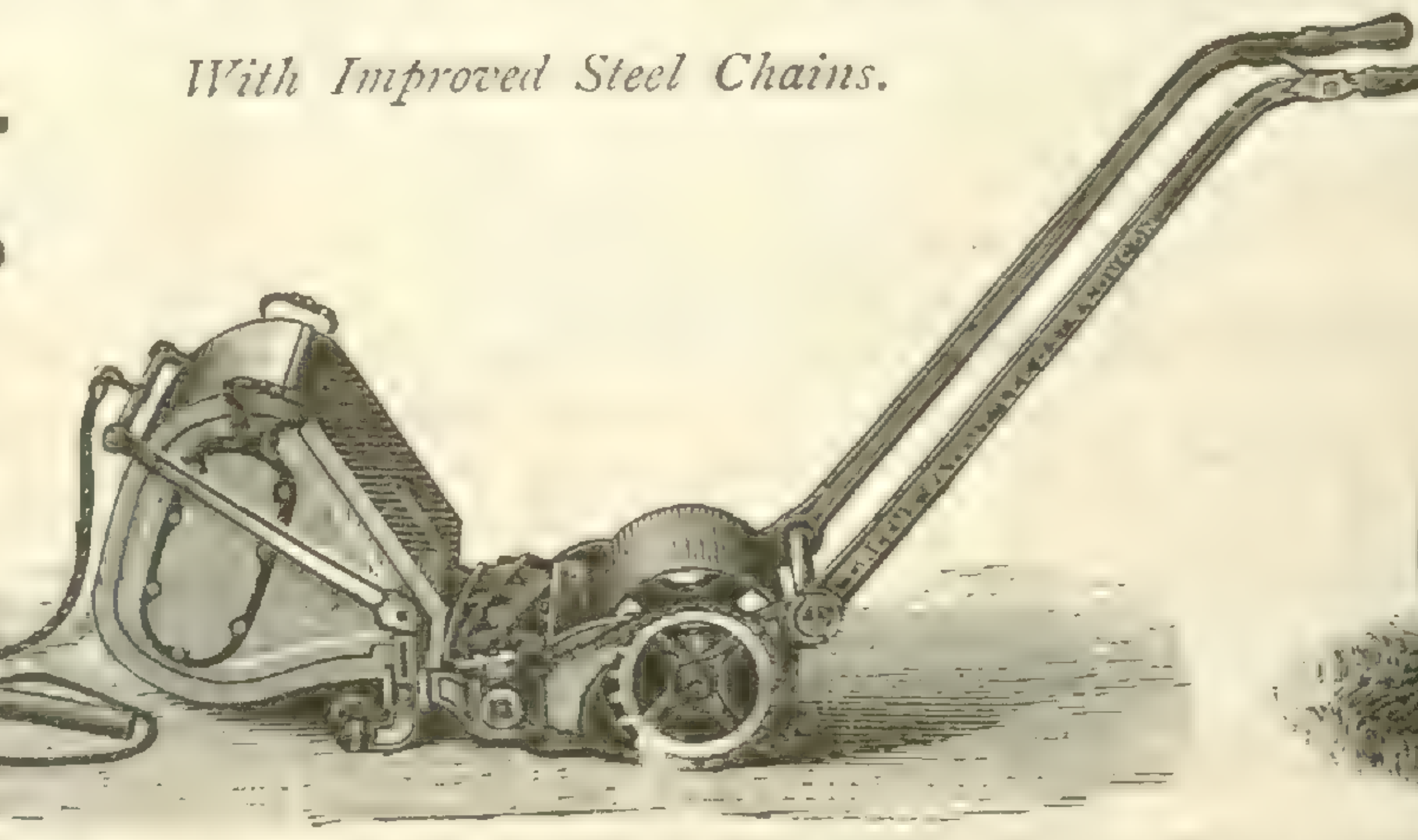

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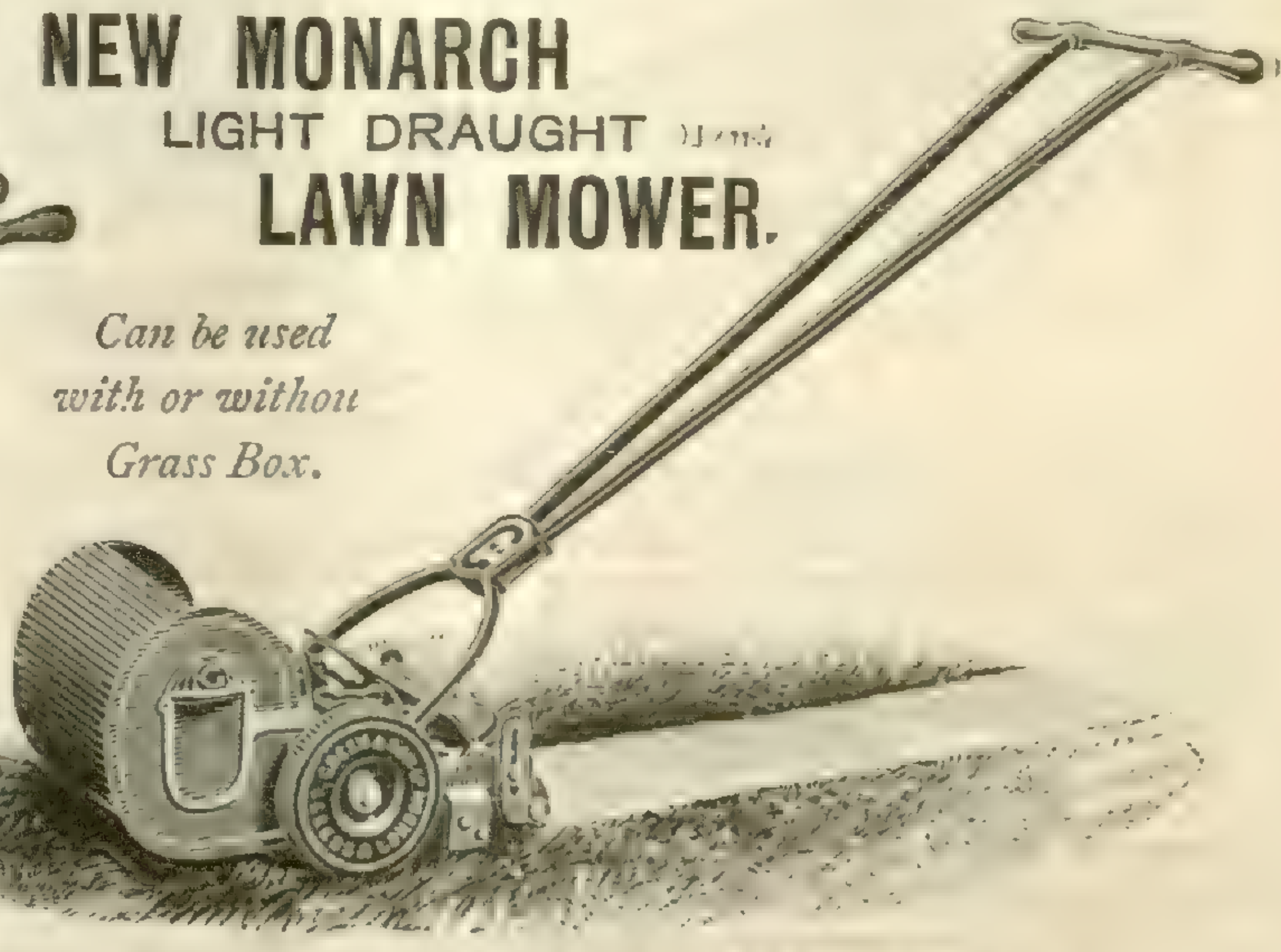

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All makes of Mowers Repaired, at both our Establishments, with Promptness and Despatch.

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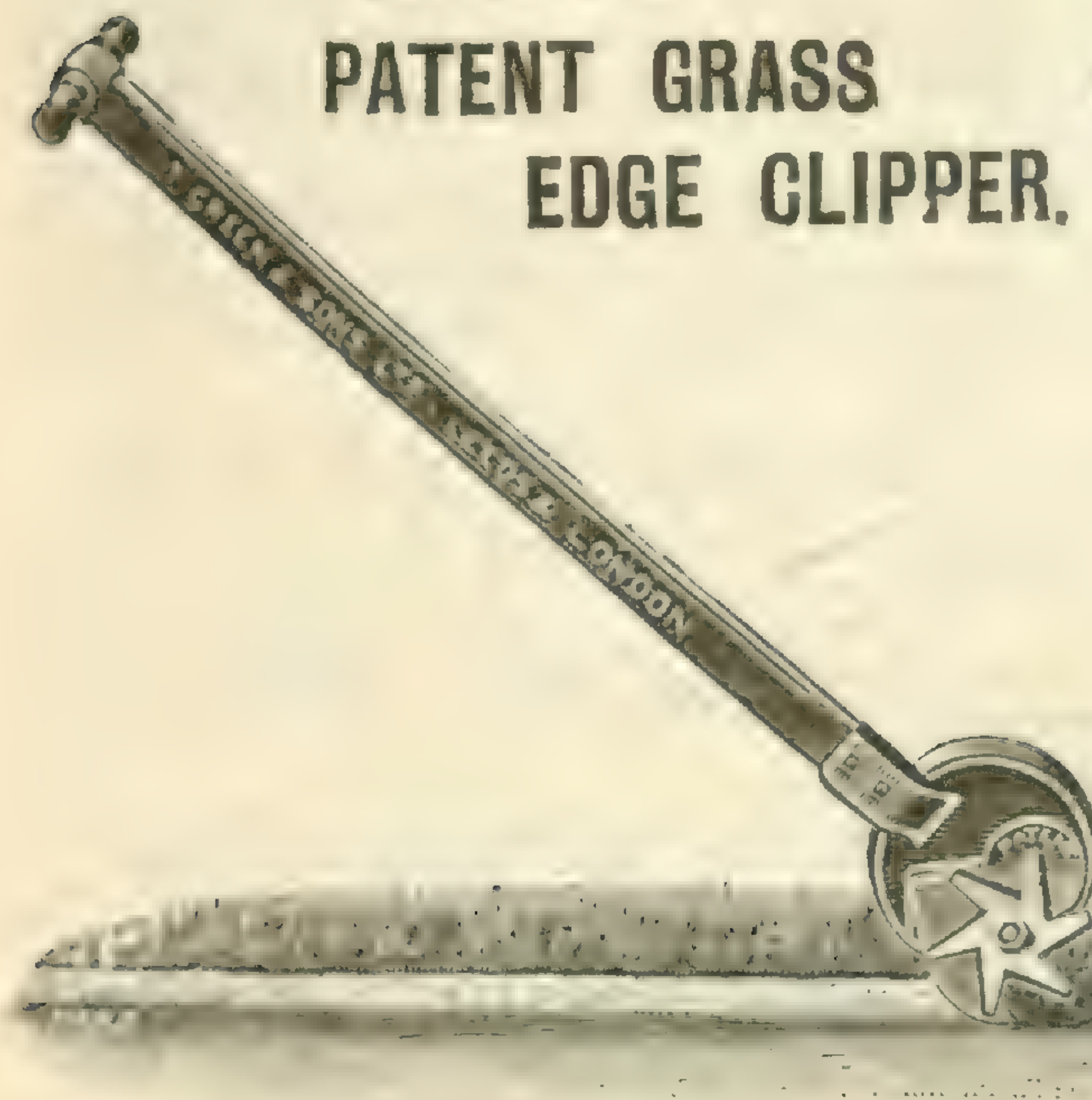

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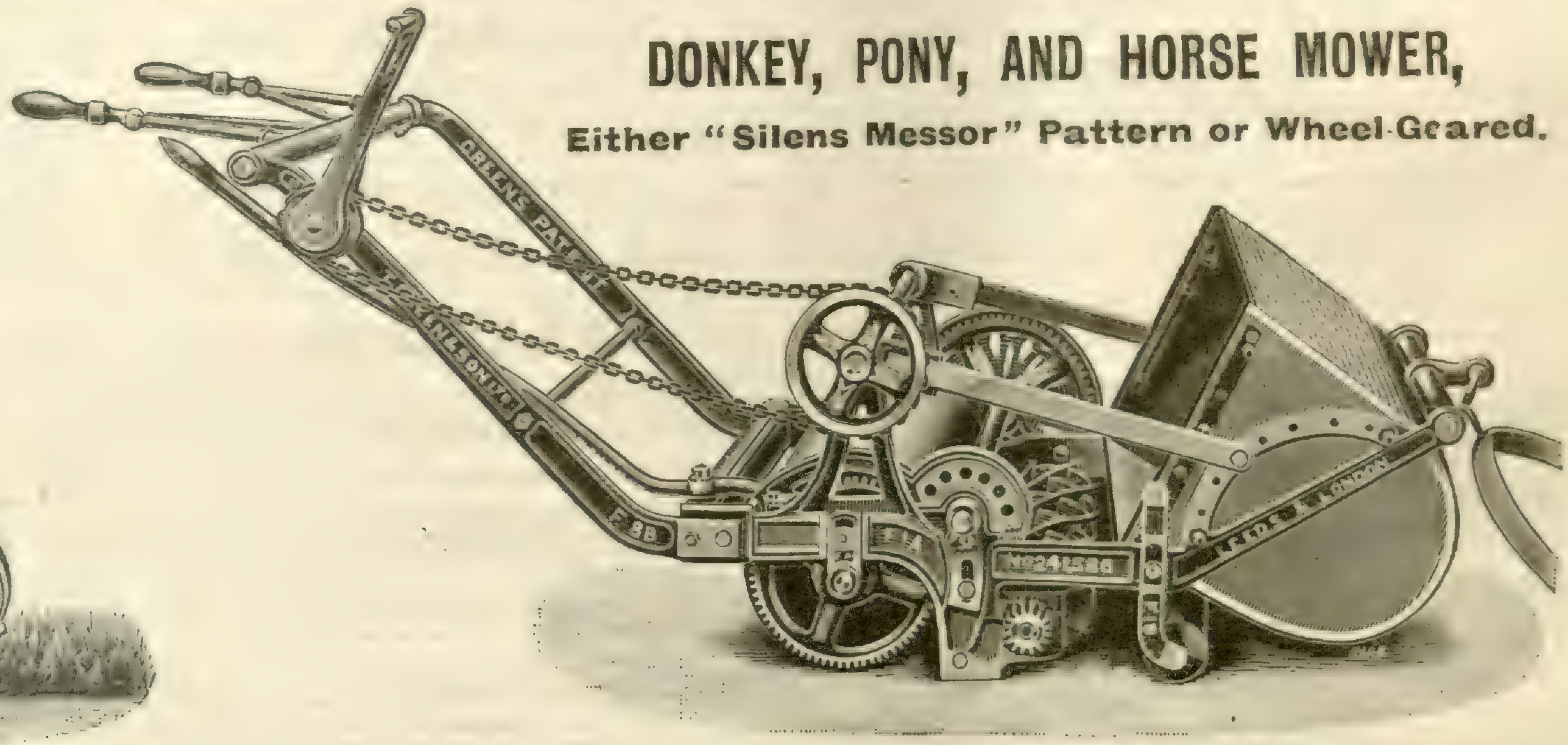

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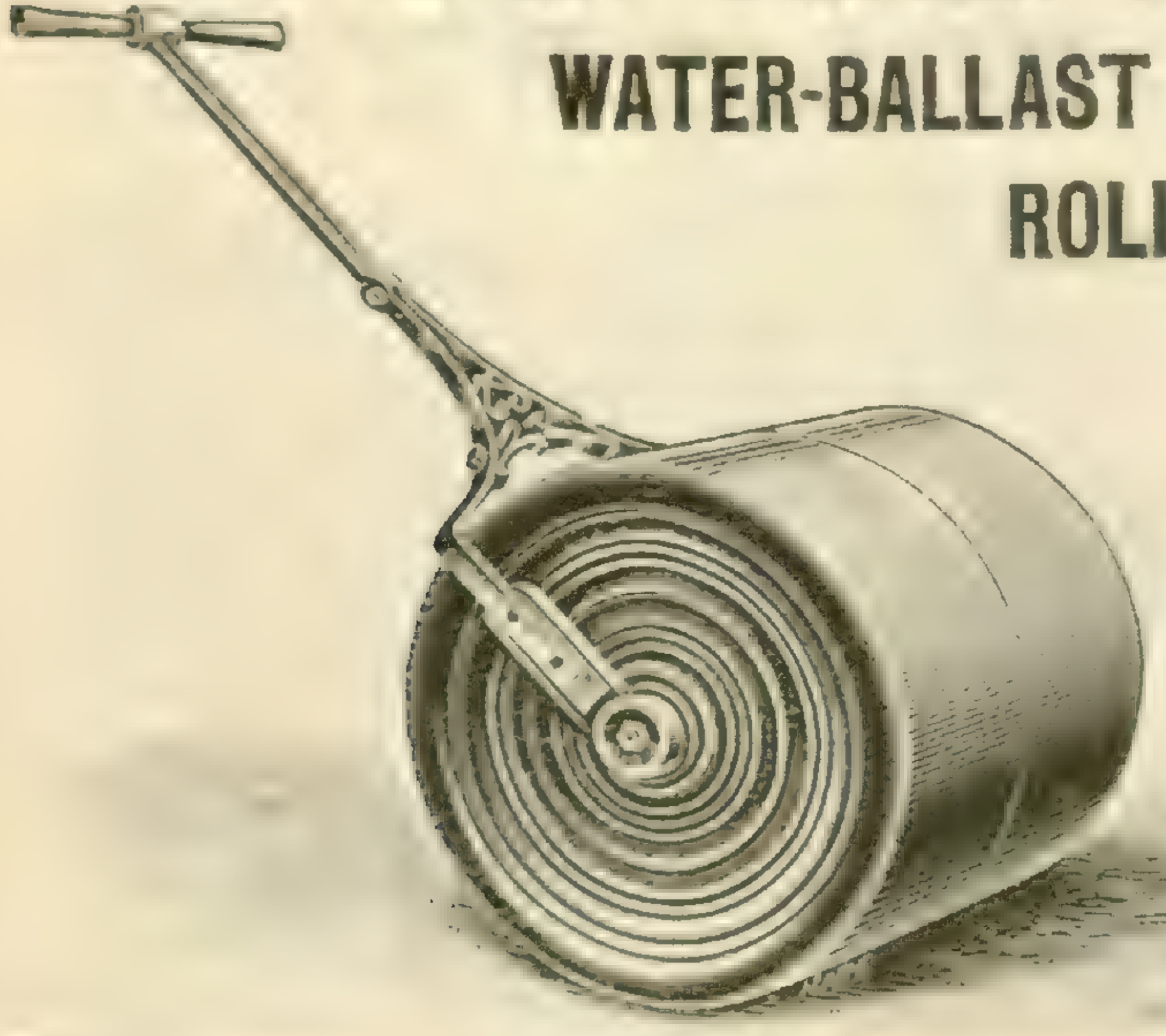

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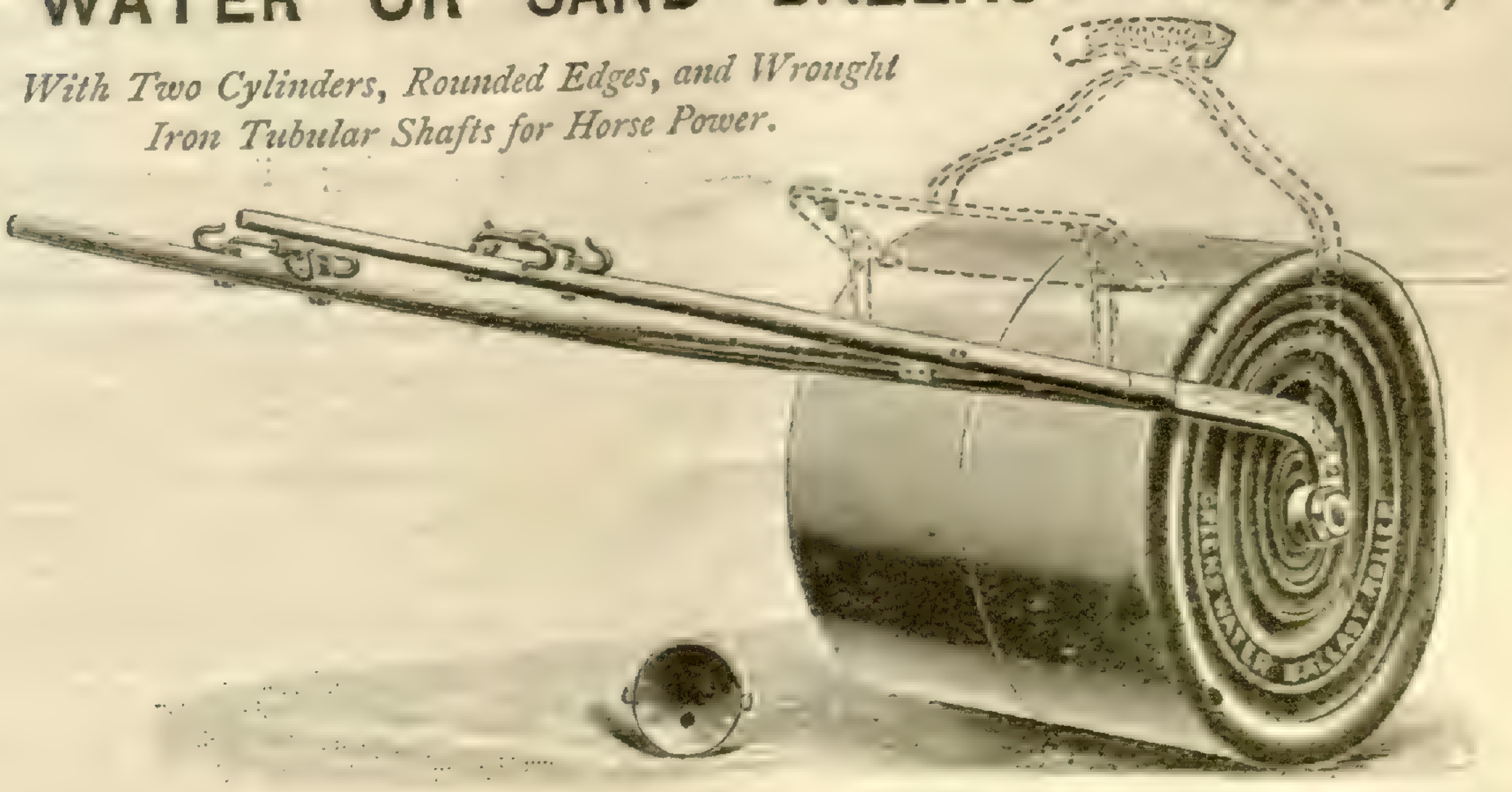

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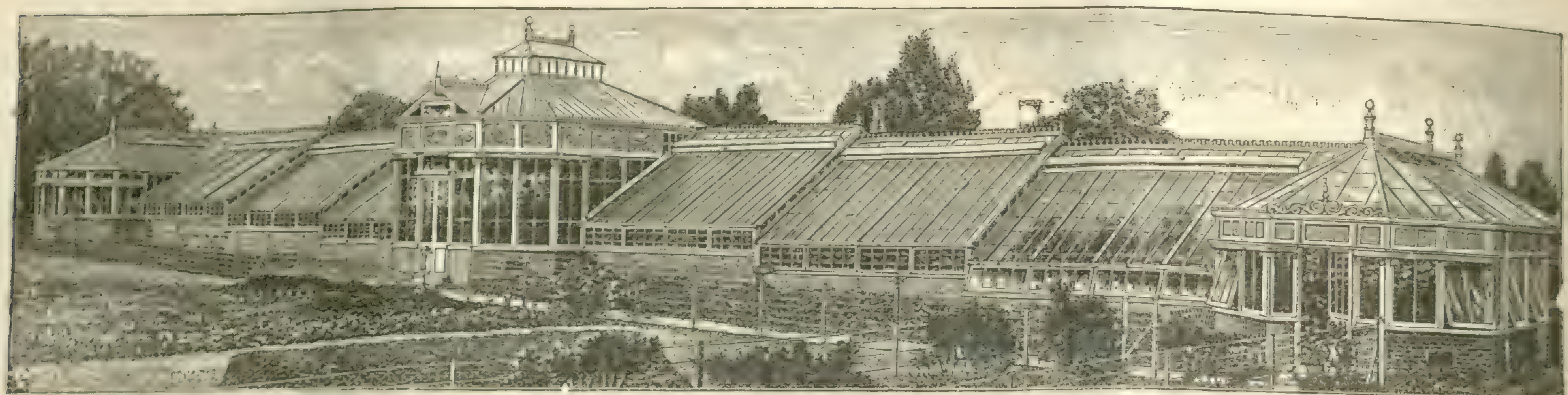

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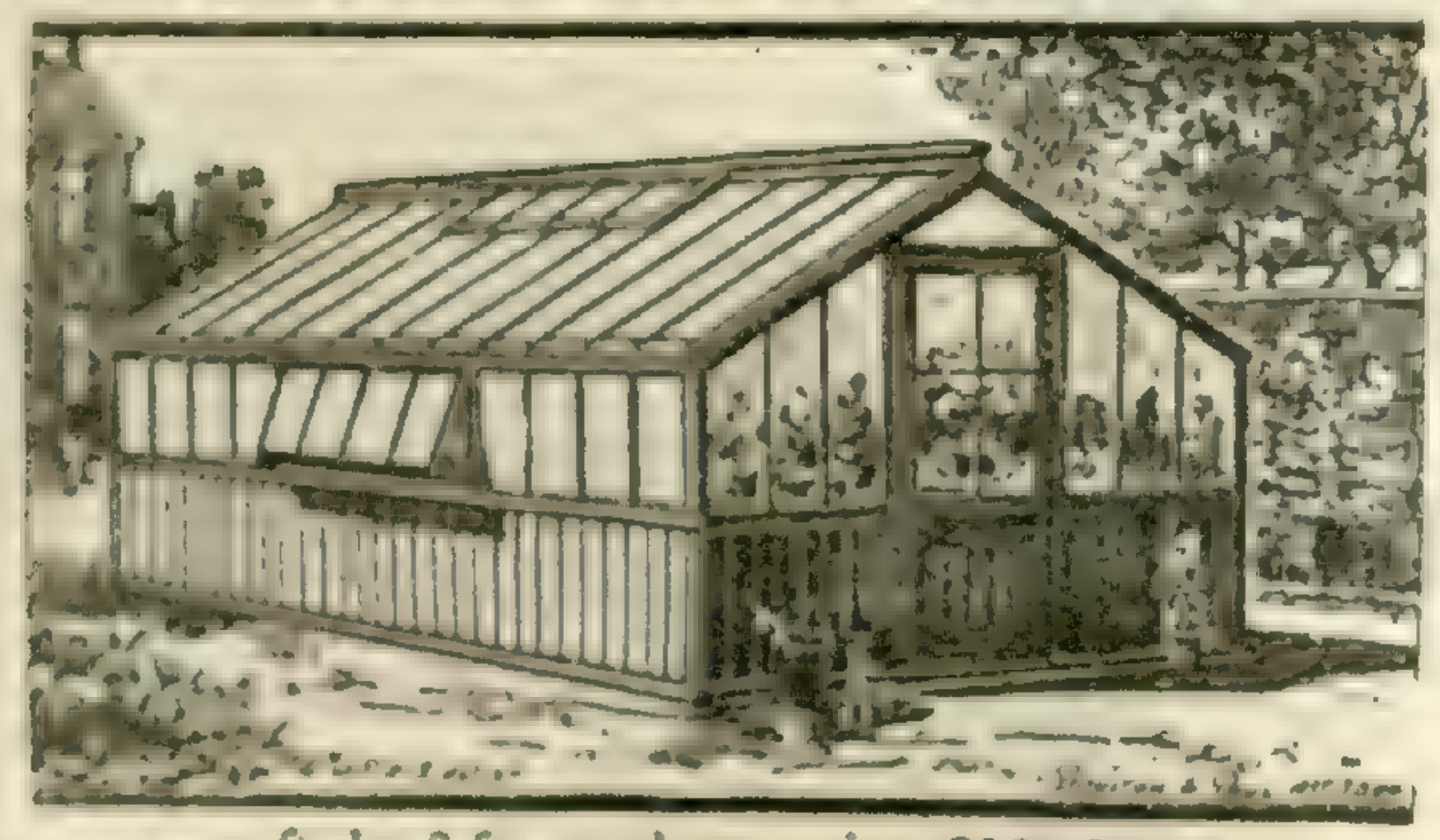

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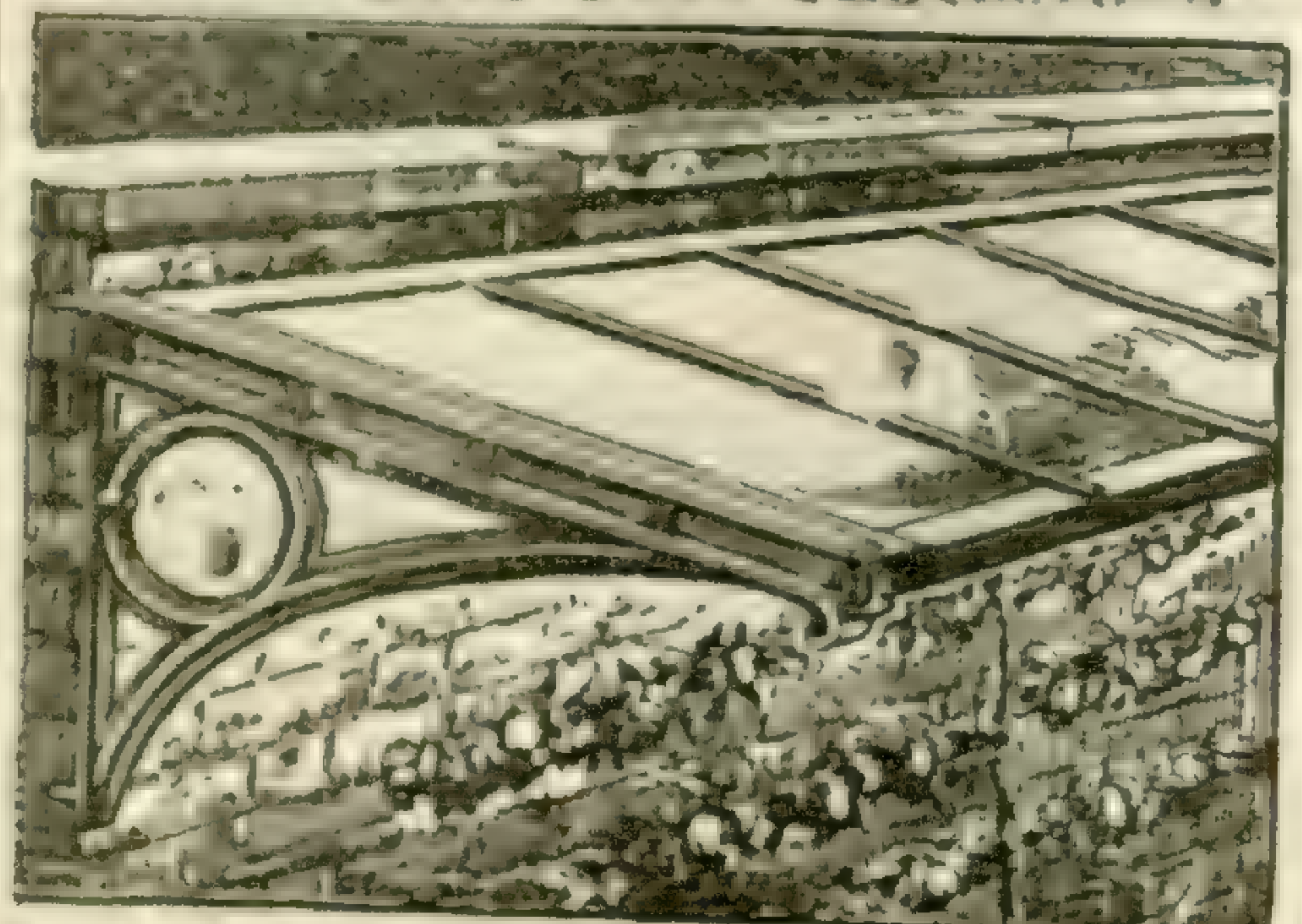

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THE SPRING NUMBER

OF THE

GARDENERS' MAGAZINE

WILL BE PUBLISHED NEXT WEEK.

The following will comprise the principal subjects in this issue:—

HYBRID DENDROBIUMS, *By W. H. White,*
With Finely Executed Coloured Plate of a Beautiful New Hybrid.

FLOWERS FOR EASTER	*N. F. Barnes.*
SUNDEWS	*R. L. Harrow.*
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USES OF NITRATES	*J. J. Willis.*
MODERN RASPBERRY CULTURE	*G. Wythes, V.M.H.*
AMONG THE CHRYSANTHEMUMS	*W. H. Lees.*
A HOBBY FOR LADIES	*C. T. Druery, V.M.H.*
POTATOS FOR EXHIBITION	*E. Beckett.*
APPLES IN HAMPSHIRE	*E. Molyneux, V.M.H.*
THE POSITION OF SCOTTISH HORTICULTURE	*John [illegible]*
A FAMOUS VINE	*J. Jeffery.*
SOME CHOICE DAFFODILS	*T. [illegible]*
ALLOTMENT GARDENING IN NORTHUMBERLAND	*George [illegible]*
CLIMBING ROSES FOR SOUTHERN GARDENS	*R. [illegible]*

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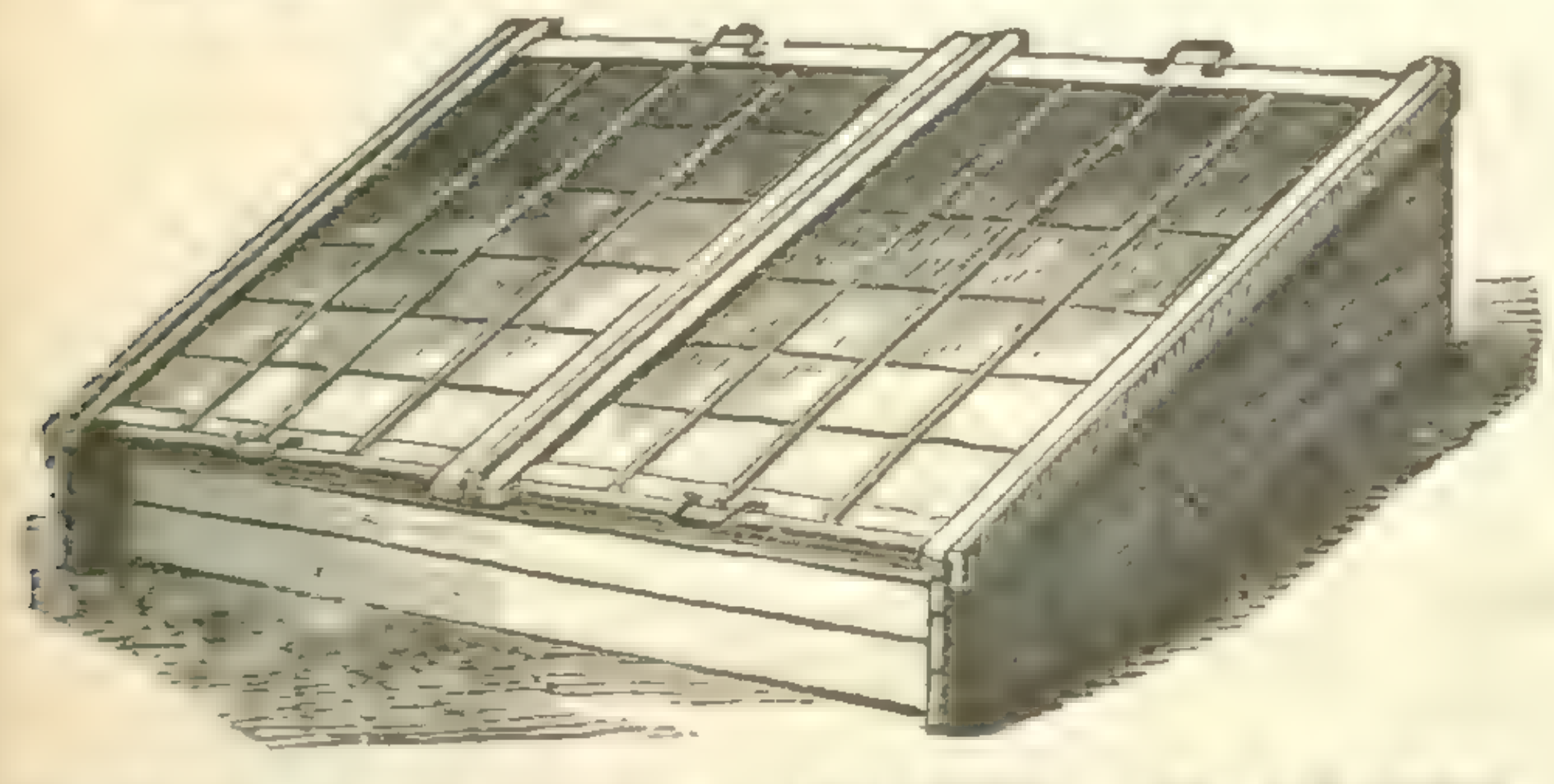

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CLAY'S LONDON FERTILIZER
ECONOMICAL
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Should accompany that for Seeds, Plants, &c.

Sold Everywhere in **6d.** and **1s. Packets,** and **Sealed Bags,** 7 lbs., **2s. 6d.**; 14 lbs., **4s. 6d.**; 28 lbs., **7s. 6d.**; 56 lbs., **12s. 6d.**; 112 lbs., **20s.** Or direct from the Works, Carriage Paid in the United Kingdom for Cash with Order (except 6d. Packets).

Every Packet, Bag and Seal bears the Trade Mark, as shown in centre of the above cross, which is the only Guarantee of Genuineness.

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8X10	50 ft.	stock sizes as stated in margin, 8X10 to 12X13	at	4/-	13X17
8X12					13X20
9X12	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at	8/-	14X16
9X13	200 ft.		at	15/-	14X18
9X14		**4ths 21-oz.**			14X20
10X12	100 ft.	stock sizes as stated in margin, 8X12 to 12X12	at	8/6	14X24
10X14	200 ft.		at	16/-	15X20
12X12	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at	11/-	16X18
12X13	200 ft.		at	21/-	16X20
12X14		**3rds 21-oz.**			16X24
12X16	100 ft.	stock sizes as stated in margin, 8X12 to 12X12	at	9/3	18X20
12X18	200 ft.		at	17/6	18X24
12X20	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at	12/6	
12X24	200 ft.		at	23/-	

NOTE.—No Box can be divided, and one size only is contained in each Box.

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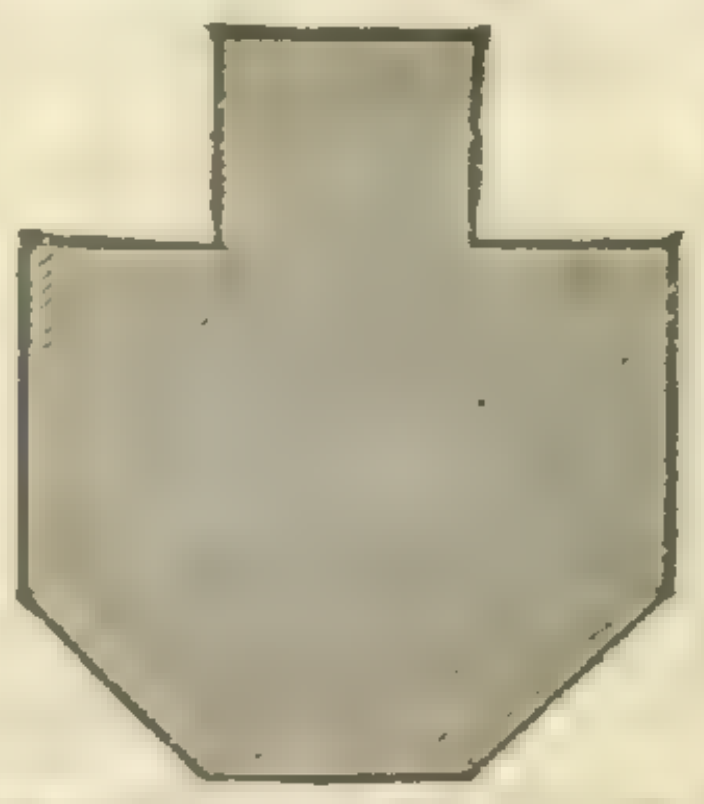

SASH BAR. 1½ by 3, at 6/6 per 100 ft.

SASH BAR. 1½ by 3, at 6/6 per 100 ft.

OTHER HORTICULTURAL WOOD EQUALLY CHEAP.
Catalogues post free on application.

THE CHEAP WOOD COMPANY,
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A SPECIALLY good stock now on hand of ORCHID PEAT in good condition; also for Stove, Greenhouse, and Hardwood Plants, Rhododendrons, &c., in large or small quantities, Rich Fibrous Loam, Silver Sand, Excellent Leafmould, C. N. Fibre, Sphagnum Moss, Charcoal, &c., &c. Special cheap through rates to all parts.

EPPS AND CO.,
THE PEAT DEPOT, RINGWOOD.

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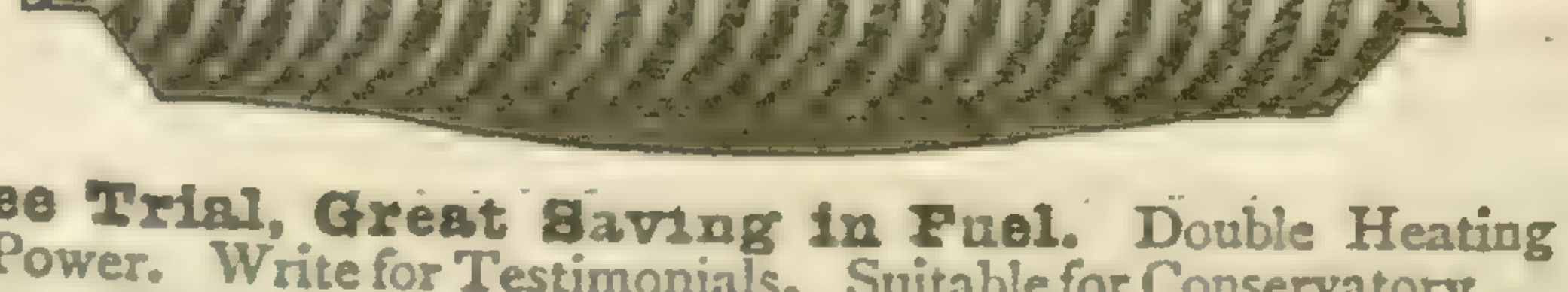

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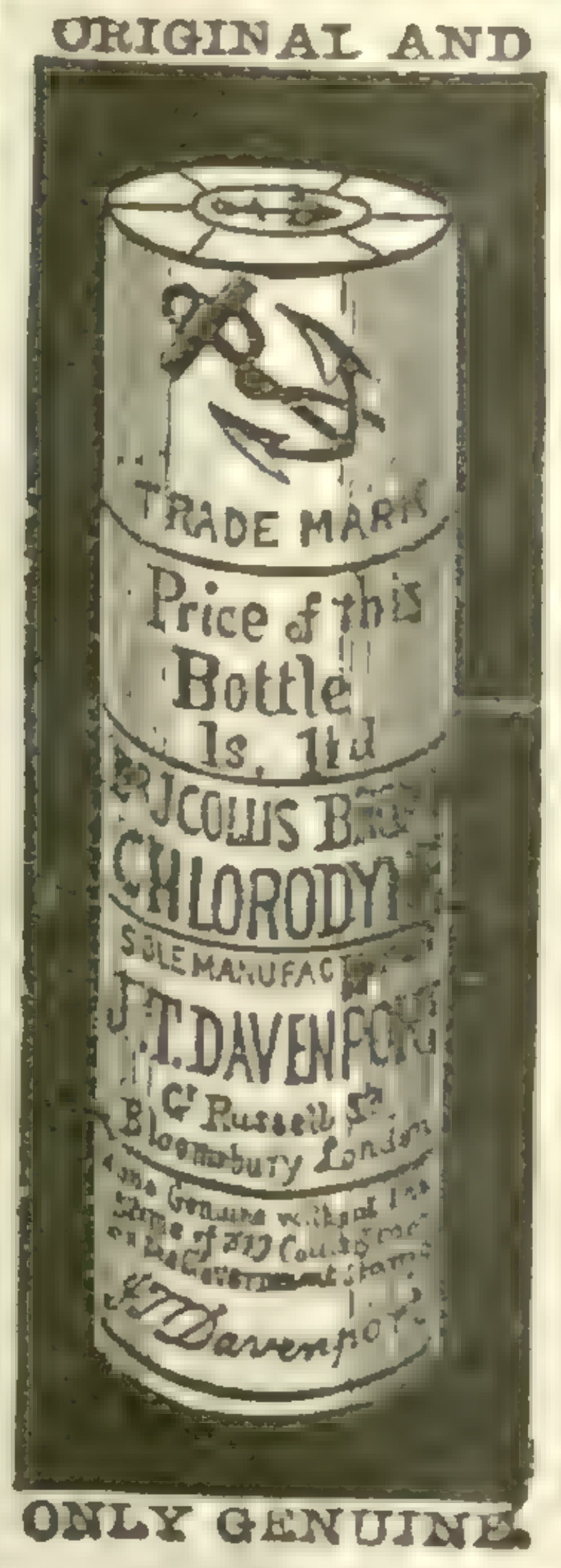

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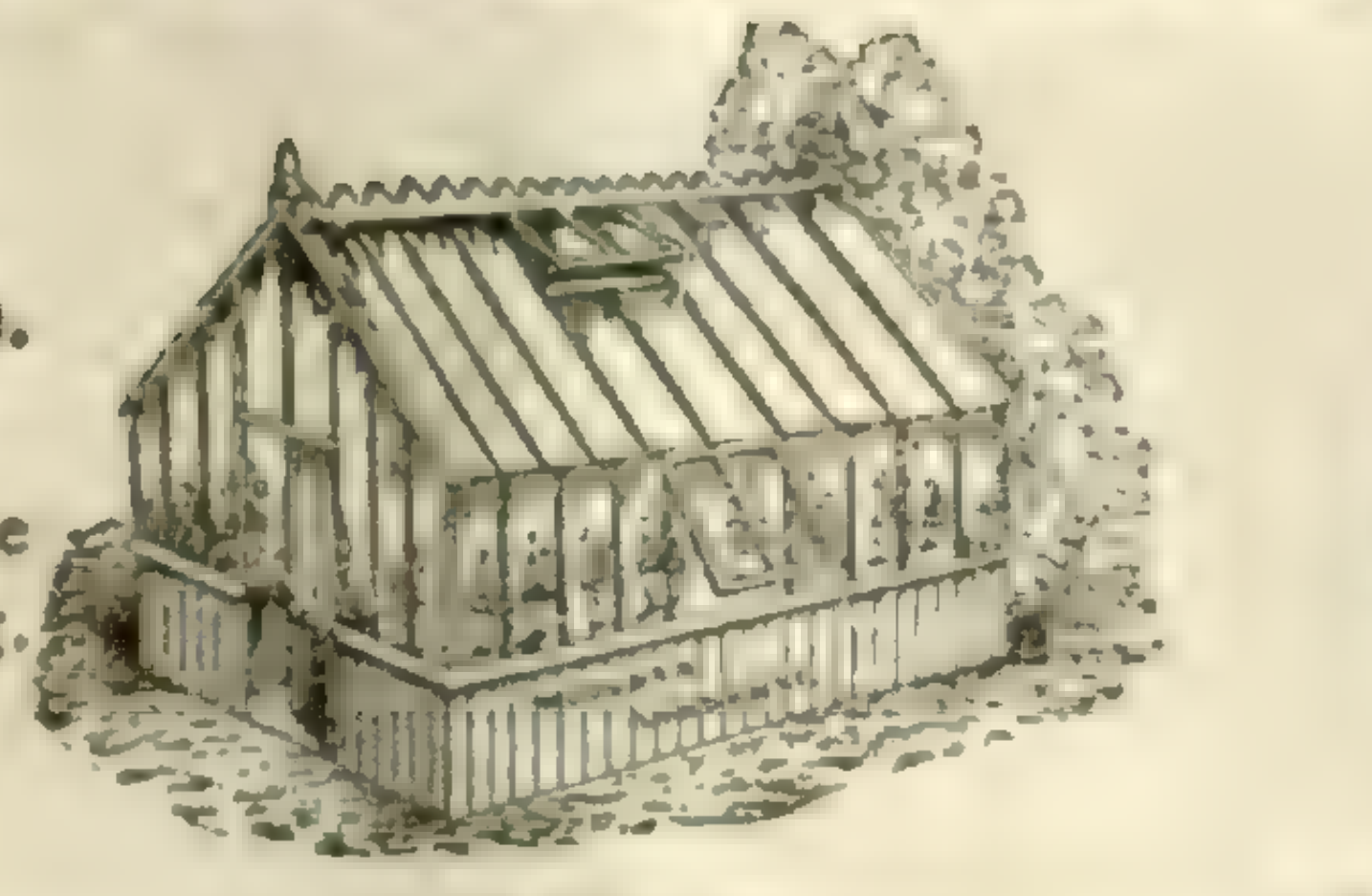

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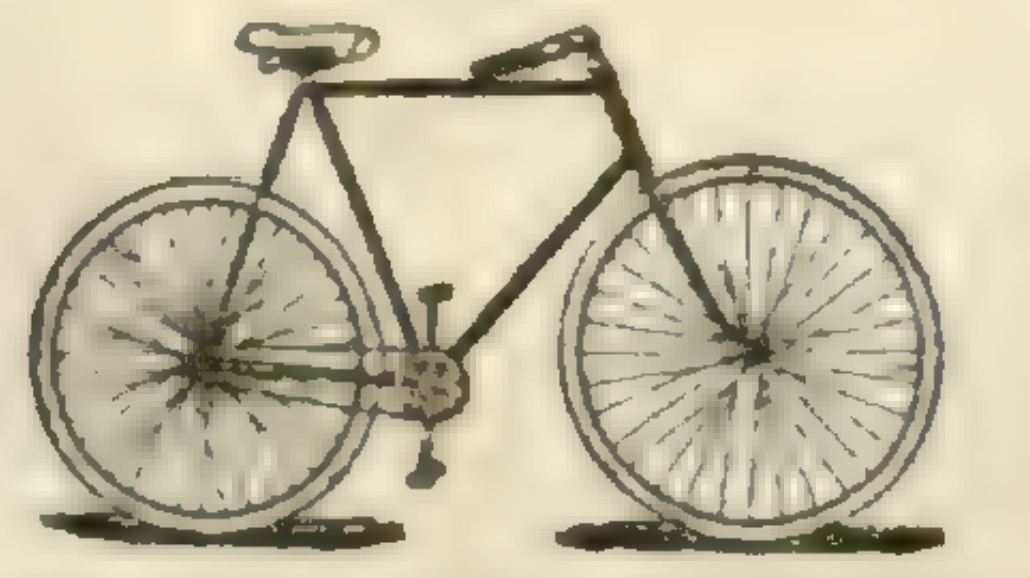

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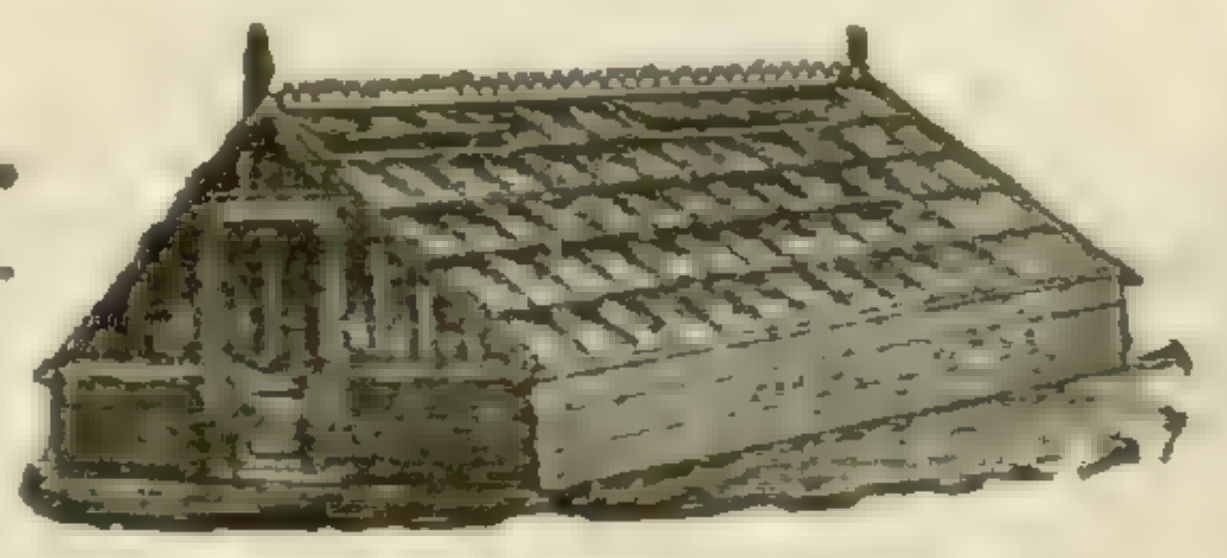

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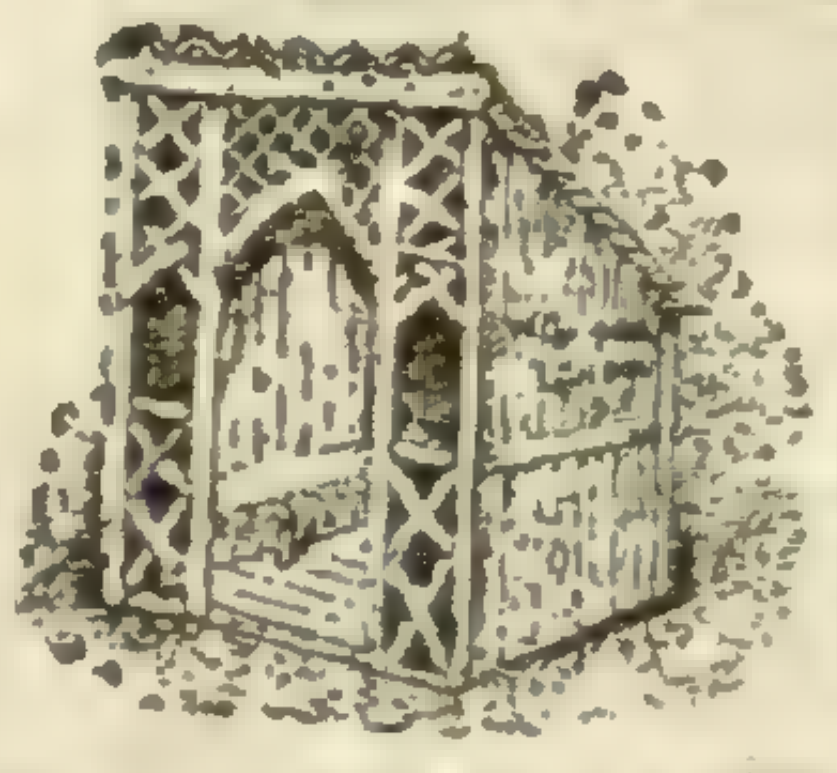

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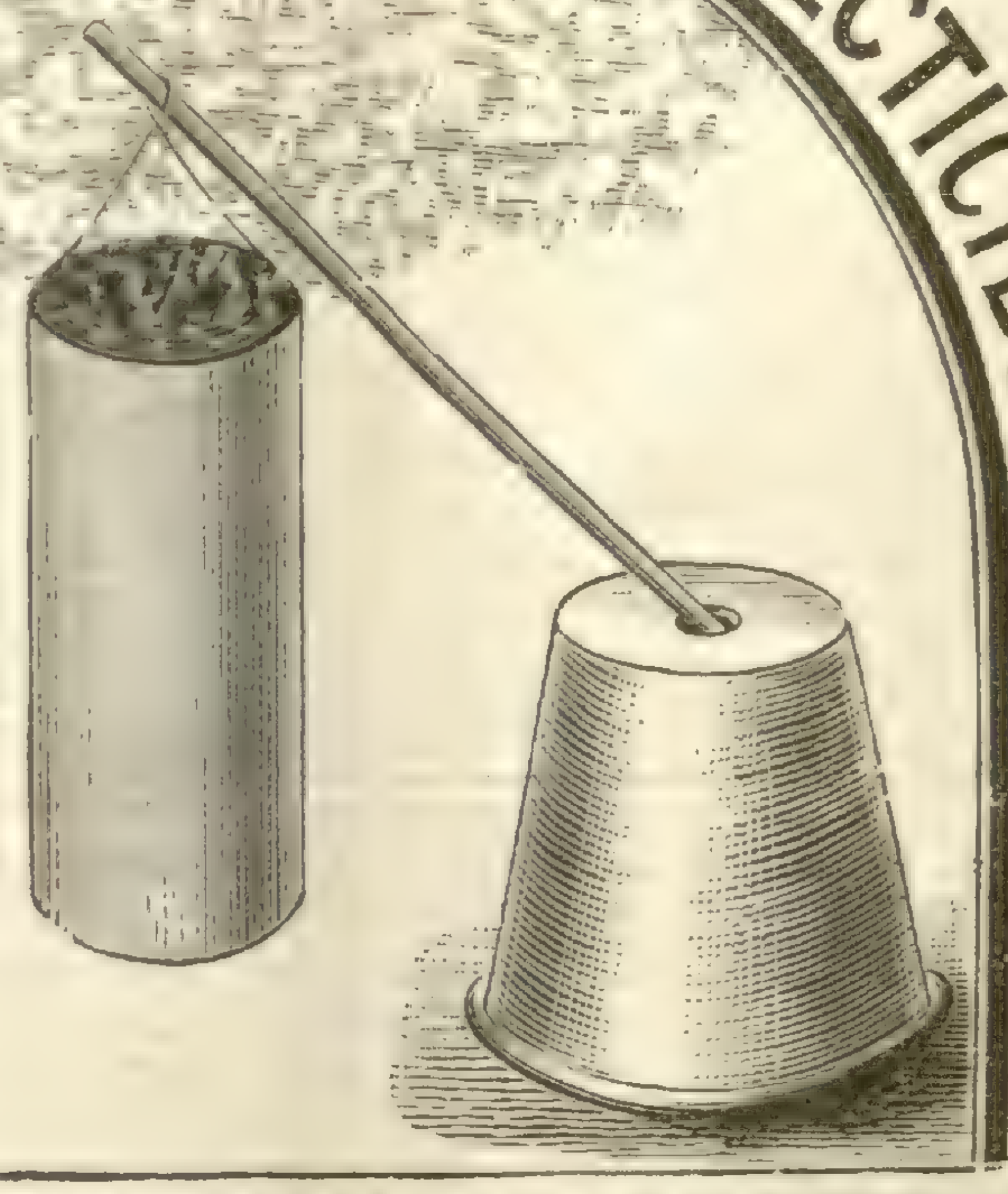

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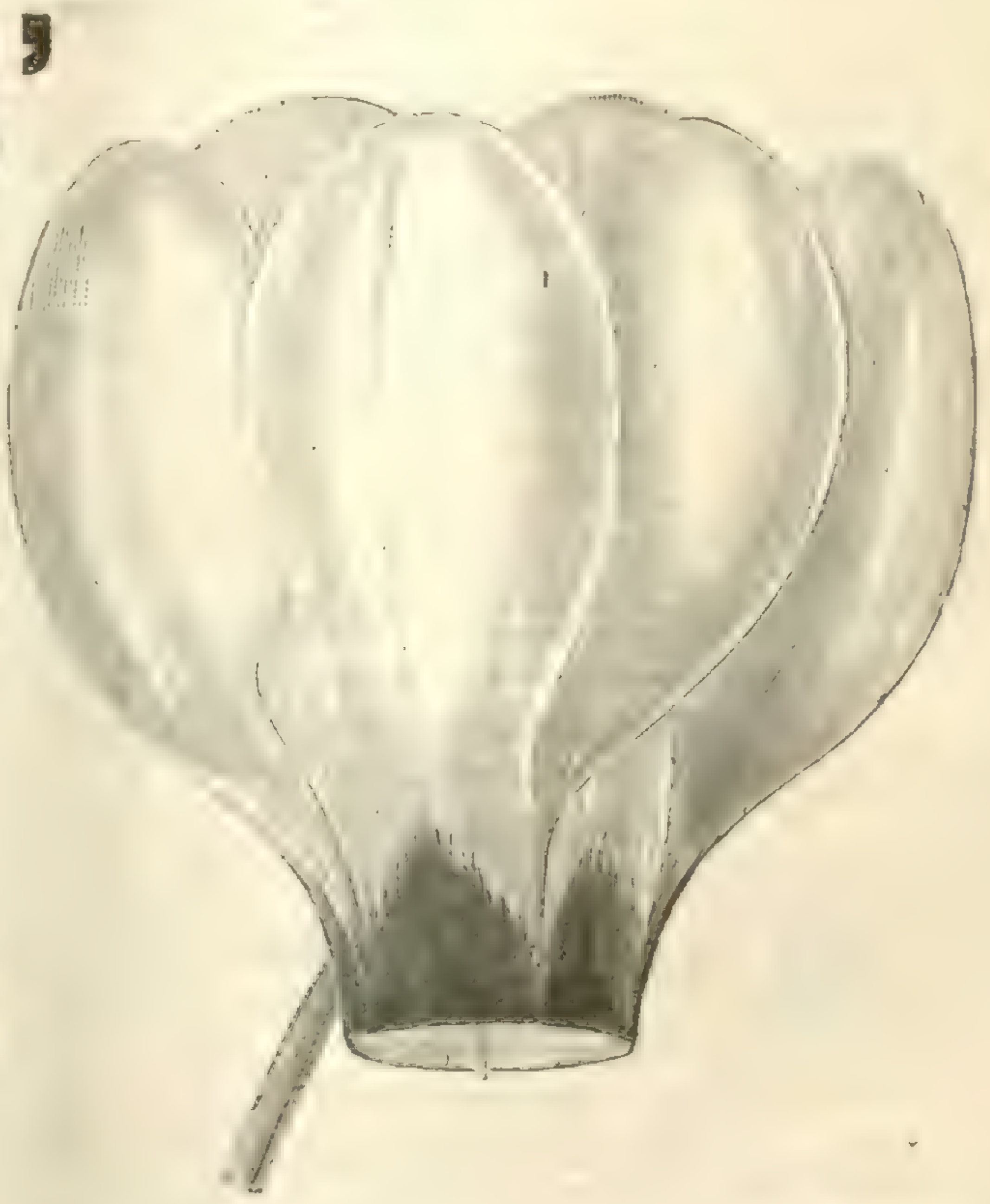

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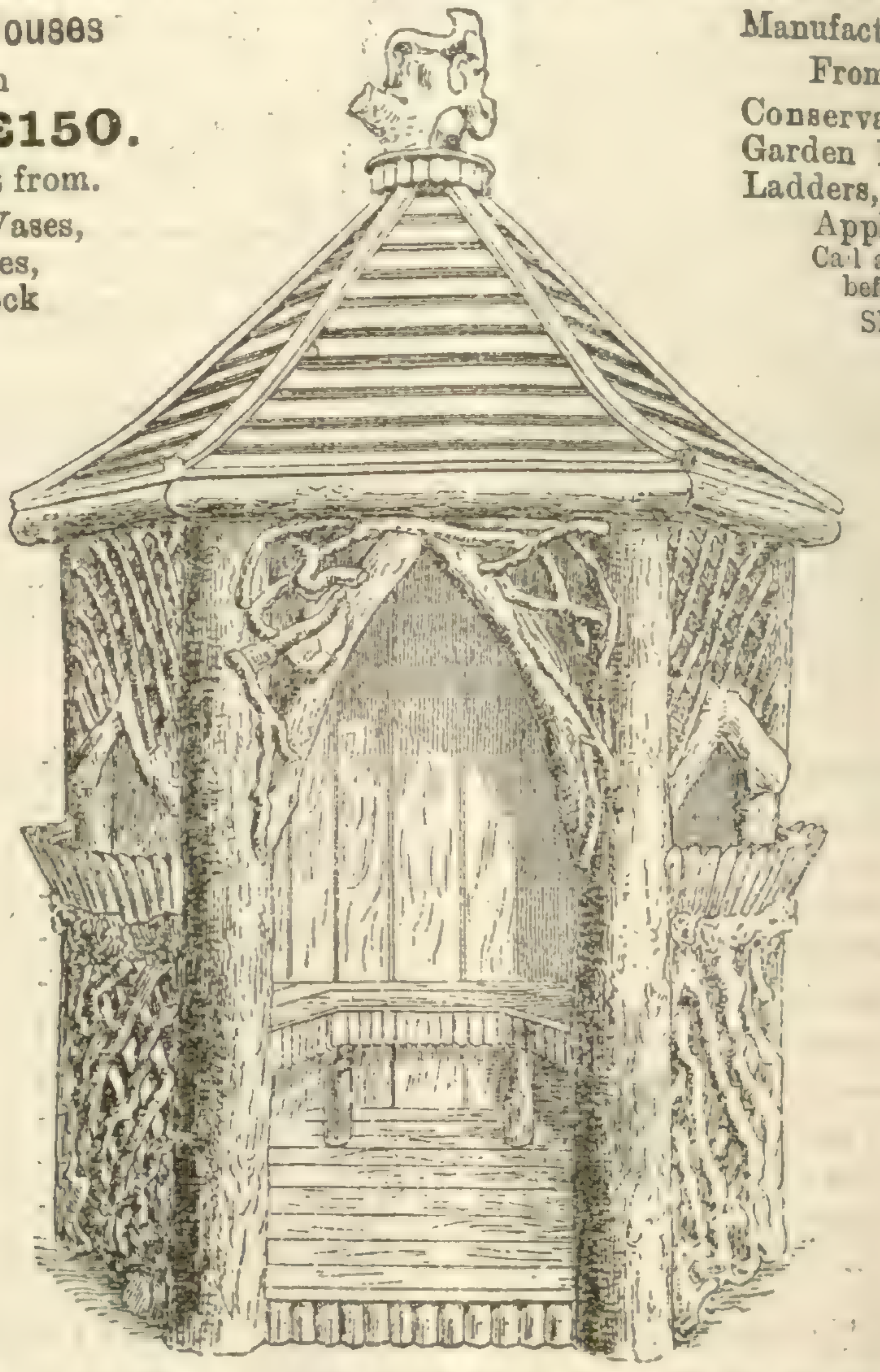

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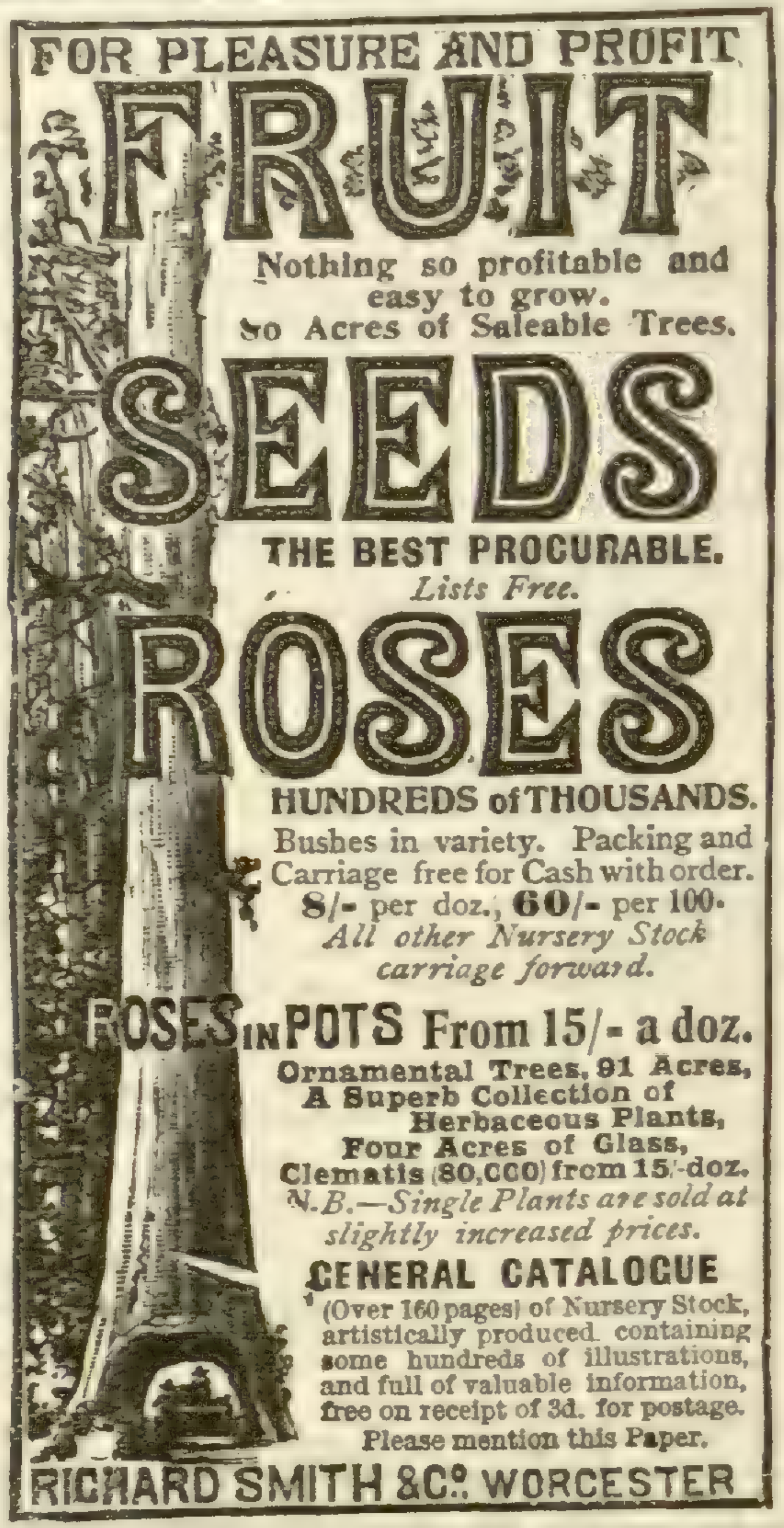

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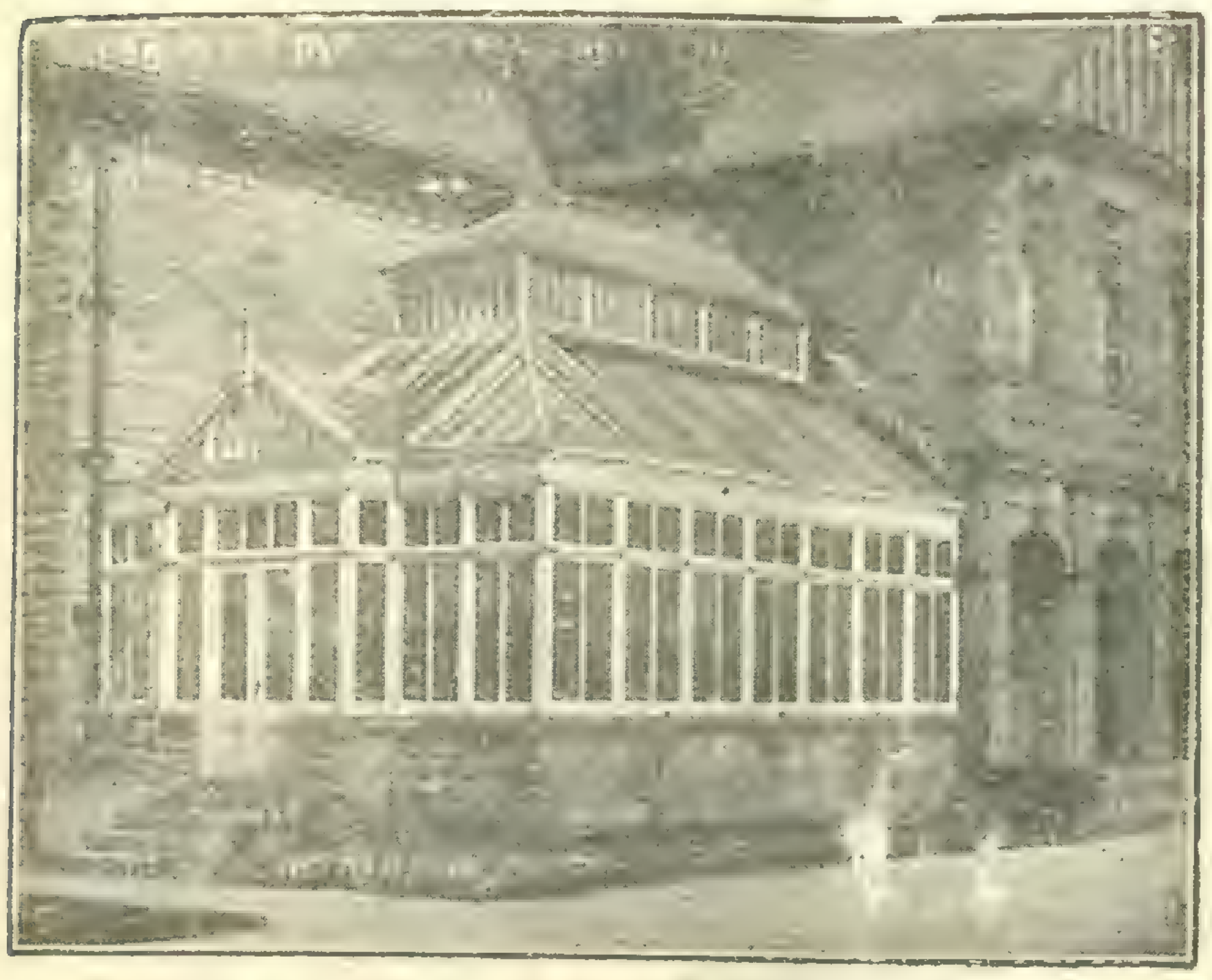

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THE GARDENERS' MAGAZINE.

SATURDAY, MARCH 5, 1898.

ASCOT, SUNNINGHILL, SUNNINGDALE, AND DISTRICT HORTICULTURAL SOCIETY.

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Open Prizes—

Class 1. Best 24 Japanese Blooms, distinct varieties, 1st, £6; 2nd, £4; 3rd, £2; 4th, £1.

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L. HOBKINSON, Secretary.

SHREWSBURY GREAT FLORAL FETE,

AUGUST 17 and 18, 1898.

The Prizes in the Schedule amount to £950, with Gold and Silver Medals, &c.

Schedules post free on application to the Hon. Secs.,

Messrs ADNITT. and NAUNTON, The Square, Shrewsbury.

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NOTES OF THE WEEK.

LIGHT.

NOW that the lengthening days have reached the point of equality with the shortening nights, and all vegetation is responding to the increasing bounty of the sun by bursting of buds into leaf, and even into blossom, we may not unprofitably devote a little consideration to the wonderful nature of this light, which practically does all the work. If we take a sunbeam and dissect it, as we may do by simply passing it through a triangular piece of cut glass, we find it to consist of a graduated series of coloured rays visible to the eye and others which are invisible, and constitute the heat rays. In the rainbow we see this dissection effected by the raindrops, and by both these examples we learn that the apparently simple beam of light is really of a very complex nature indeed, while the scientist who deals with it spectroscopically will tell us that besides this mixed and varied nature the little rainbow he artificially produces is crossed with innumerable dark lines, each of which is characteristic of some elemental substance present in the source of the light, forming, in fact, a clearly written catalogue of the solar materials. So much for the constitution of the light, which is hardly more wonderful than its effects upon our floral and other vegetation. Under its genial stimulus the little green cells, by means of the sympathetic action of the chlorophyll granules they contain, are all busy in a myriad various ways splitting up and fashioning themselves into solid woody tissues, with all their varieties of bark, pith, and sap circulatory apparatus; roots, massive or delicate, burrowing away underground to find the needful water and earthy materials for the work going on above; the buds of leaf or bloom are swelling beneath the influence of the supply from below; the warmth from above and the busy multiplication of the cells within. Lo! suddenly the brown or black bud splits open, and out come the delicate green embryos of the future foliage to greet the vivifying sunbeam and profit still more by its genial influence. Everywhere in the garden and in the grove this wondrous work is going on above and below the ground, and with ever greater activity as the daily reign of the sunbeam increases. But this is not all. Every blossom has its own special liking for this or that coloured part of the dissected ray, and absorbing that and rejecting the others, greets one's eyes with the tints it rejects. Yon flaunting group of golden crocus has sucked into itself, all the hues but the reflected ones; the scarlet tulip chooses differently but precisely here in this tulip tribe, comes in the curious fact that a seedling may for year after year be true to its first love, as it were, and then a "break" occurs and ever afterwards its annual chalice will flame on other lines altogether. The stately lily, white as the driven snow, rejects and reflects all the intrusive beams save where the crimson pollen and the delicate greenish stigma make contrasting choice to increase the lady's charms. It is of course a moot point as regards the stimulating effect of the sunbeam, how much is actually due to the visible or coloured rays, and how much to those invisible ones into which the dark violet beams merge, and which carry with them that potent factor of warmth. These may be gathered up by a lens or burning glass precisely as the light rays can be, and yet though no bright spot is visible at the focus, the heat is none the less intense. Doubtless, these do a large part of the work, but the combination of both is essential to proper vegetative action.

POTATOS ON LIGHT SOILS.

DURING 1897 two series of experiments in potato culture were carried out at Calne under the auspices of the Wilts County Council, with a view to determine the most profitable varieties and the most suitable manures for heavy and light soils. At the Quemerford station the soil was somewhat heavy, and, as shown in the summary of the trials, in our issue of the 19th ult., the best results were in the large group of plots obtained by the use of complete chemical manure which consisted of equal parts (by weight) of superphosphate, kainit, and nitrate of soda. The other station is known as Lickhill, and the results obtained are of considerable value as illustrating the importance of taking into consideration the peculiarities of the soil and climate in determining the course of procedure to be adopted. At Lickhill, where the soil is light, and contains a large percentage of lime, three of the plots devoted to potatos were not manured, and in these the average yield was five tons fifteen hundredweight and twenty-two pounds per acre. Stable manure was applied to three plots, at the rate of sixteen tons per acre, and these plots gave an average crop at the rate of nine tons seventeen hundredweight per acre. The increase from the use of stable manure, therefore, amounted to four tons one hundredweight per acre, or a gain in value of £5 10s., after deducting £4 for cost of manure. The remaining plots were treated with complete chemical manure, the mineral superphosphate and kainit being applied at the time of planting. To minimise the loss by drainage, the nitrate of soda was applied in dressings at the rate of one pound per perch, three dressings being given to the heavily-manured plots, and two to those receiving the medium quantity of manure. Two plots received dressings of nine pounds, three six pounds, and one three pounds per perch, and in the first case the increased yield represented a gain of £3 7s., in the second of £3 8s., and the third £2 1s. per acre, and these figures show that the medium dressing gave the most satisfactory results, and that the most profitable crop was obtained with stable manure. The growth of the plants on the plots to which the stable manure was applied suffered less from the drought experienced early in the summer, whilst, on the other hand, the growth was most rapid after rain on the plots to which chemical manure had been applied. It is apparent from these facts that the best course is to use stable manure, supplemented by artificials, in accordance with the advice so consistently given in these pages. Six varieties were grown at the Lickhill station, two of which—Reading Giant and Stourbridge Glory—are largely cultivated in the Calne district. The other varieties included in the experiments were Daniel's Dreadnought and Imperator, two late varieties, and Early Puritan and Reading Russet, which belongs to the mid-season. The early varieties differed but little in productiveness, but Puritan was of the finest quality when cooked. The average yield per acre of the late varieties was: Imperator, ten tons eleven hundredweight, twenty-two pounds; Reading Giant, eight tons thirteen hundredweight twenty-two pounds; Daniel's Dreadnought, eight tons two hundredweight sixty-seven pounds; Stourbridge Glory, seven tons eleven hundredweight twenty-two pounds. The four varieties proved equally susceptible to the influence of fertilisers, and yielded about the same weight per acre of diseased tubers, the slight difference shown being in favour of Reading Giant and Stourbridge Glory. They all gave a heavier crop as the result of spraying, this increase being well marked in the case of Daniel's Dreadnought and Imperator.

THE PLEASANT SPRINGTIME.

THE snowdrop and crocus, chionodoxa and early scillas are already passing out of bloom in our London parks, and especially in those cosy nooks and corners where they are planted in the turf, and send up their blossoms above the verdant grass. In the Regent's Park especially, but also in other London parks, the planting of spring bulbs in the turf is somewhat extensively carried out, and charming effects are produced, to the great delight of those who frequent the parks. Some years ago the planting of spring-flowering bulbs in grass lawns was much followed, but the application of the scythe or mowing machine when their foliage was in full vigour of development soon caused the death of the bulbs. At one time the green banks which form the base of the historic round tower of Windsor Castle, was gay at this season of the year with pretty designs in snowdrops, but they all have disappeared, sacrificed, doubtless, to the scythe. In our London parks all these patches are carefully guarded, and until the foliage has faded, and their work accomplished, these precious spots are held to be sacred, and any necessary roughness of appearance for a time is amply compensated for by the floral service rendered earlier in the year. It may not be known to many that in the leading parks there are reserve gardens or nurseries, in which the bulbs that are to be effective in spring are propagated in an extensive manner. In the Regent's Park, for instance, there is a large enclosed garden in which thousands of bulbs are annually grown for the necessary supply. Hyacinths, tulips, narcissi, and others are carefully lifted when the time to replant the beds with summer-flowering subjects comes round; they are carefully taken to a room fitted up in the way of an ordinary fruit-room, but with movable trays forming the shelves, and in these trays the bulbs are carefully placed and covered with a layer of finely-sifted cinder ashes; here they remain until the end of the summer with but little loss of vigour, being kept in semi-darkness and cool. During the late summer months advantage is taken of leisure moments to go over the bulbs; select and sort them. Those which are strong enough to flower are replanted in the parks, the offsets are planted in beds in the reserve garden and grown on into size. This garden supplies practical illustration of the management of bulbs of an extremely interesting character, and as far as hyacinths and tulips are concerned three years generally, but two in some cases, suffice them to reach a blooming size and when it is considered that four thousand bulbs of tulips are required to fill one of the largest raised circular beds, some idea of the number required may be thus arrived at. The care with which the reserve garden is managed is seen in the fact that it is rarely a flower of another variety is found in a bed comprising one sort only, and generally it is due to the sportiveness or the breaking into some other form peculiar to the tulip. Unlike those of hyacinth and the daffodil, the bulb of the tulip dies every year, but produces others that perpetuate faithfully the parent variety. At taking-up time, the old bulb is found as merely a few loose skins wrapped round the new, and of the new progeny there may be two strong enough to flower with a few small offsets, which require time to grow to a flowering size, and in the reserve garden they are led on until large enough to produce an inflorescence.

San Jose Scale.—While in this country the possible introduction of this destructive pest into the orchards and gardens of the United Kingdom is regarded with supreme indifference, a considerable amount of activity is being evinced elsewhere with a view to prevent infestation. The German Minister of Agriculture is taking active measures with regard to the possible infestation of fruit trees in Germany by the San José scale. A small committee of entomologists and horticulturists has been appointed to investigate the matter, and steps are being taken to render fruit-growers and other cultivators familiar with the appearance and the life-history of the pest. In Ontario also fruit-growers are endeavouring to prevent the importation of fresh fruits and nursery stock from the United States, on account of the risk of introducing the destructive scale into the fertile Canadian fruit region between the lakes. Within the past few days the New Jersey experiment station has issued a bulletin, in which it is stated that all hope of exterminating the insect in that Atlantic State must now be abandoned. It is already well established there in gardens and orchards—hedges, small fruits, and tree fruits all being infested. From badly-infested orchards the pest is spreading through the agency of birds. Peaches are especially sensitive to attack, and perish in three or four years from the first appearance of the scale if the latter is allowed to pursue its course unchecked. Thin-leafed varieties of plums appear to come next, then pears, and finally apples. On the other hand, some varieties of cherries seem to be almost exempt. The boundless reproductive powers of the insect and its inconspicuous nature render it especially dangerous, and the opinion is expressed that the San José or pernicious scale is the worst and most destructive insect pest that has ever appeared in New Jersey. Unchecked, it will in time ruin any tree it attacks, and will render the fruit unmarketable long before the tree itself dies. In Ohio it has been found that, besides apples, plums, peaches, gooseberries, currants, raspberries, and roses, the San José scale attacks the grape vine, the lime tree, the elm, the walnut, the Lombardy poplar, the sweet chestnut, and the guelder rose. The several species of the cotoneaster are also specially liable to attack from this scale. In the State of Virginia, where the scale first appeared in 1893, it has not, through lack of systematic treatment, been thoroughly subjugated, and further trouble is anticipated. In Kentucky there is a demand for legislation against the spread of the scale. A fact, about which more is becoming known and should receive considerable attention in the future development of economic entomology, is that insecticides appear to have different effects in different regions. Thus, it is asserted that insects which succumb readily to kerosine in the Atlantic States defy it absolutely in Colorado. Again, washes that easily destroy the San José scale in California are ineffective in the Atlantic States, where this insect appears to be materially altering its habits and peculiarities.

A History of the London Parks has been written by Lieut.-Colonel J. J. Sexby, chief officer of the London County Council Parks Department, and will be published, we are informed, by Mr. Elliot Stock in May. Colonel Sexby has devoted a great deal of attention to the preparation of this work, in which he will describe not only the leading features of the County Council's parks, but will also recount their history and associations. He has been engaged on this important work for several years, and has collected all local and other information which can possibly be obtained on the subject. No one is better qualified to write a history of London parks, as during the period that Colonel Sexby has been the head of the Parks Department of the County Council the area of the parks has been increased by over 1,000 acres, and the special facilities for increasing recreation and public enjoyment introduced, which have made the London parks known throughout the world.

Cool Treatment of Cœlogyne cristata.—Mr. W. H. Atki[illegible], the [illegible] trar of the Batley Cemetery, sends us a photograph of a group of [illegible] examples of the Chatsworth variety of Cœlogyne cristata, to show h[illegible] this beautiful form succeeds under cool treatment. With the photograph Mr. Atkinson sends us the following particulars: In your issue of February [illegible] "Work for the Week," Mr. Stafford gave some notes on Cœlogyne cristata [illegible] "warm orchids." I have always held that this is best grown as a cool [illegible] and herewith I send a print from a photograph taken by myself on W[illegible] from my plants of the Chatsworth variety of C. cristata. I bought the original [illegible] years ago, and at once placed it in a house among a few odontoglossums I [illegible] and in which I also grow bedding plants and a general assortment of other things. In this structure the winter temperature averages about 53 degrees by day, and [illegible] degrees by night (sometimes lower). The plant has never failed to bloom, and has filled a ten-inch pan, and has also given me the plants occupying a five-inch [illegible] and a five-and-a-half inch pot, which stand in front of it. I sometimes [illegible] or two in cold, foggy weather, but not often. The appearance of the plant [illegible] demonstrates that cool treatment agrees with this beautiful orchid.

Advice to Young Gardeners.—Mr. M. Todd, the genial president of the Scottish Horticultural Association, has been giving some good advice to young gardeners. Mr. Todd pointed out that the young gardeners have the future before them and it is they who must specially be looked to, to carry on the work of the garden. At the present day every facility is offered to young men to enable them to reach a height of attainment quite impossible to the generation now getting old. "See to it, then, young men," he said, "that you let not your opportunities pass by unheeded. 'There is a tide in the affairs of men which, taken at the flood leads on to fortune.' That tide may pass when you are idling by. Lose no chance of thoroughly equipping yourselves in every department of your profession. Above all things, make yourselves cultured men as well as competent gardeners, men of high character as well as of high attainments; men of wide ge[illegible] knowledge and intelligence; masters, if you can, of some one branch of gardening, but with a wide knowledge of all departments. To know everything about something is a very excellent thing, but to know a good deal about everything is still better. Specialists are eminently valuable, but even more so are all-round [illegible] Be thoroughly qualified for the best situations and the chances are they will come your way. Remember, too, that your membership of this association brings a responsibility. Its final success will be judged by what manner of men you p[illegible] yourselves to be. By your works ye shall be judged, and the association [illegible] have laboured in vain if the coming generation of gardeners be no improvement on the past. Your country as well as this association calls you to a high ideal of your duty. Scotland has long been famed for the excellence and intelligence of its gardeners. In every country where civilization has spread, there have Scotsmen been to the front as cultivators of the soil; and traitors to your country of the worst description will ye be, if in your hands its fair fame be tarnished."

The Economic Resources of the West Indies form at present [illegible] a large item of general interest that nothing could be more appropriate than the publication of a general survey drawn up by Dr. Morris, C.M.G., Assistant D[illegible] of the Royal Gardens, Kew, for the use of the Royal Commission of Inquiry, [illegible] which he was attached as expert adviser in botanical and agricultural [illegible] The publication is issued as the first of an additional series of the *Kew* [illegible] its price is 1s. 6d.; it is bound in stiff boards, contains a good map of our [illegible] Indian Colonies and one hundred and sixty-five pages of matter that is of [illegible] to all, and of great value to colonists. We thoroughly endorse the opinion [illegible] pressed in the preface that Dr. Morris's residence in the West Indies, his re[illegible] visits to them, and his intimate knowledge of their conditions have enabled him to produce an account as accurate as it is impartial of their natural and economic resources, which is certainly more complete than anything hitherto available. Why the West Indian Colonies have failed to reach success, and in what direction the path to it lies in the future, can be readily understood by anyone who will take the trouble to read the handy little volume.

Scottish Horticultural Association.—The Transactions of this [illegible] cessful society for the past year has been recently issued, and, as usual, [illegible] publication contains much to interest those engaged in the several branches [illegible] horticulture. Abstracts of the several papers that were read at the monthly meetings during the year are given, with the full text of the presidential address delivered by Mr. M. Todd at the annual meeting in February last. The Transactions include, as a matter of course, the report and balance-sheet for the [illegible] year, and these, as stated in our report of the annual meeting, are eminen[illegible] factory. The arrangements for the monthly meetings are as follows: [illegible] The Supply of Vegetables to the Edinburgh and Glasgow Markets, Mr. [illegible] Scarlett; May 3, Bulb-growing in Lincolnshire, Mr. J. Alexander; June 7, The Cultivation of the Fuchsia for Exhibition, Mr. A. Johnstone; July 5, Cr[illegible] Mr. J. M'Intyre; August 2, The Cultivation of the Most Useful Orchids for C[illegible] Flowers, Mr. Wm. Boyd; September 6, The History and Development of the [illegible] Rose, with Hints on its Cultivation, Mr. T. Dale; October 4, The [illegible] of the Press on Horticulture, Mr. A. S. Galt; November [illegible] Chrysanthemum for Cut Bloom and Conservatory Decoration, [illegible] M'Donald; December 6, The Arrangement of Hardy Plants in the Garden, [illegible] A. Wright; and January 10, 1899, Annual General Meeting. A supper [illegible] occasion of the association attaining its majority will take place at the [illegible] Hotel, Edinburgh, on Wednesday, March 9, at seven o'clock.

The History of the Zonal Pelargonium formed the subject [illegible] interesting lecture given by Mr. H. Cannell, on Friday last, at Bickley. [illegible] lecturer dealt chiefly with the progress made in zonal pelargoniums [illegible] past fifty years, and illustrated his remarks with flowers of leading varieties [illegible] measuring nearly three inches across.

Two Famous Trees.—The precocious horse-chestnut tree in the Champs Elysees, Paris, will not bloom on March 20 this year, however often it may have flowered on that date previously, or it is now dead, much to the regret of Parisians. We understand that the huge rose tree at Hildesheim is in a bad way, for the decay that comes with old age is apparent, and is, in this case, assisted by a fungoid attack. Herr Waldheim, of the Hanover Botanic Gardens, has been devising means to save the life of this patriarchal rose, but it is questionable whether success will attend his efforts.

Royal Gardeners' Orphan Fund.—The first meeting of the committee of this charity for the current financial year, was held on February 25, when Mr. William Marshall was unanimously re-elected chairman of the committee. The guardians of the children elected at the annual general meeting were severally appointed, these being in most cases the mothers of the children. Authority was given to draw cheques in payment of their pensions from the date of election. Several special donations were reported by the secretary, among them being the following: Mr. M. Todd, Edinburgh, sale of flowers, £30 10s.; Mr. H. J. Jones, Lewisham, collecting box during the chrysanthemum season, £14 3s. 1d.; Mr. J. Gammie, £5 5s.; Mr. H. Eckford, Wem, sale of flowers, £2; and Mr. A. G. Weeks and Mr. Marks, 10s. each from boxes.

Old Herbals and Gardening Works are ever of more than passing interest even though many of them are not remarkable for their present day utility. Such books are now eagerly sought after, indeed the collecting of them has assumed the proportions of a miniature mania, and the leading dealers in old books are doing their best to meet the demand. On March 23 Messrs. Sotheby, Wilkinson, and Hodge will offer an extraordinary collection of herbals, chiefly printed before the years 1500. The first lot of all is an important and interesting French MS. of the fifteenth century, with the title "Le Livres des Simples Médecines," &c., with many hundred coloured drawings of plants, &c. There are one hundred and forty-nine lots of books relating to gardening, flowers, &c., and many are very rare. There is a fine copy of the beautiful volume dedicated to Marguerite de Valois, "Des Fleurs où sont contenuz plusieurs secretes de Médecine," 1581, and also a fine copy of Mollet's "Le Jardin de Plaisir," Stockholm, 1651, one of the rarest works on the subject.

The Kew Guild held its annual general meeting on February 24 under the presidency of Mr. G. Nicholson, A.L.S. Old Kewites were fairly well represented, and the lady gardeners were present. The report and balance-sheet were read and adopted, the latter showing the guild to have a substantial balance in hand in addition to the Thomson legacy now invested. In the report the committee recommended an alteration of Rule 2, allowing membership to all holding responsible positions in the establishment. This met with some opposition, as it was pointed out that stokers, carpenters, blacksmiths, gangers, &c., all held responsible positions, but the guild was not instituted to include them A hurriedly-drawn up amendment to the report, put with a view of altering the wording rather than the spirit of the committee's recommendation, was rejected because it failed to exclude the constables. Several interesting letters from old Kewites was read, and the committee and officers were re elected. Annual meetings generally consist largely of votes of thanks, but the Kew Guild has advanced ideas on this point, so only one vote was passed—and that unanimously to the chairman.

Epping Forest.—The committee responsible for the management of Epping Forest have presented their report for the past year to the Corporation of the City of London, and this shows that every part of this magnificent open space has received attention from the committee and Mr. McKenzie, the able superintendent. It is stated that a large area of the forest has been judiciously thinned in order to encourage the growth of young and promising trees—namely, oaks, beeches, and hollies—and with a view, also, of making the beauties of the domain more accessible. The portions thus dealt with include Theydon Coppice, St. Thomas's Quarters, Honey Lane Quarters, Loughton Forest, Whitehouse Plain, Lord's Bushes, and Walthamstow Forest. The committee also report that they have made an inspection of other portions of the forest where thinning is required, and instructions have been issued for the carrying out of the work during the present winter. In order to hide from view brick walls and other enclosures which do not improve the appearance of the forest in places, the planting of small clumps of trees has been carried on. Planting of a similar nature has been done on a portion of Wanstead Flats. At the desire of the inhabitants of the locality a portion of Bell Common has been planted with an avenue of trees in commemoration of her Majesty's Jubilee. The digging out of a large piece of swampy land known as Holloer Pond has been accomplished at a cost of £1,228, to which the Leyton District Council contributed £300 and the Corporation £650. The result is a fine sheet of water, some eight acres in extent. A suggestion by the Essex Field Club that the local museum in the forest should be enlarged has received due consideration from the committee, who report that the cost of the work is estimated at £250. The proposal will be further considered. The sale of thinnings during the year amounted to £643 13s. 9d. The keepers' wages were £1,150, and the labourers' wages £1,085. The committee recommend that £4,000 should be placed to the credit of the committee to meet the expenses of the coming year.

Royal Botanic Society.—At the meeting of this society on the 27th ult., Mr. Sowerby read the second part of his paper on "Fibres and the Plants Producing Them," dealing particularly with flax, hemp, and cotton. Several interesting exhibits were handed round, including a piece of mummy cloth made of flax, and supposed to be about three thousand years old. The following donations were reported: A fine specimen of the Rhododendron argenteum, presented by Mrs. Newall, of Gateshead-on-Tyne; and tubers of Nelumbium speciosum, &c., sent by Mr. W. G. Baker, curator of Oxford Botanic Gardens. At the meeting to be held on Saturday next there will be a microscopic exhibition of pollen grains.

MODERN RASPBERRY CULTURE.

FEW fruits in their season are more appreciated than raspberries, and given good culture few are more profitable. The plants, however, are too often starved by being allowed to occupy the same place for many years with little or no assistance in the shape of manure. But it is not always manure they need, but rather new soil, new site, and the removal of old worn-out stools. I have seen raspberry canes in gardens bearing as poor fruit as those produced in a wild state. Fortunately, of late years there has been a much greater interest taken in fruit culture, largely due to the spirited policy of the GARDENERS' MAGAZINE, and though raspberries have been referred to, there is still room for improved culture, and no need for great outlay. With more attention there will be better results, for a poor plant will take up as much room as a good one, and there is no question as to which pays the best. Few plants exhaust the soil sooner than the raspberry, owing to the rapid spread of its roots and the suckers it produces all round. Too often these strong canes are cut away, leaving the poor weak canes to bear the fruit. Overcrowding of canes is another source of weakness. Last summer I visited a garden where the owner told me his raspberries were a failure, and certainly they appeared as bad as could be, but here the plants had occupied the same position for at least a quarter of a century, and, of course, they and the soil were thoroughly worn out; the canes produced were like straws; the growth of healthy canes should be as thick as one's thumb.

With respect to raspberry culture, I have no new system to detail beyond remarking that raspberries should be grown for a much shorter time in the same place or soil than is generally the case. Our fruit trees occupy the land a long time, but we must deal differently with strawberries and raspberries, and a new plantation for the latter say every half-dozen years will give splendid results. The old system of planting under trees is objectionable, for though the plants will give a fair return if not too shaded we can now produce better late fruit by planting later varieties, and giving them a north border, and if possible, a moist soil for the latest crops. Many growers advise trenching before planting; indeed, I have seen this done to a depth of two to three feet, but so much depends upon the soil, and in our poor thin soil we only dig in a liberal quantity of manure, and then plant. If we trenched deeply we should place the good soil out of the reach of the roots, and add to the cost of labour. On the other hand, some soils would benefit by deep trenching, and the incorporation of any material that would enrich it. Position counts for a good deal, as a dry sloping bank is bad, and a wet place in some out-of-the-way corner is equally so. To do the plants justice, an open position, such as will grow other fruit well, is the best, and I fail to see why deep trenching is so often advised, for the raspberry is essentially surface-rooting. The soil most suitable is a holding loam, as it will produce the finest fruits, but not so early as a lighter soil on which by manuring I have grown good crops.

Planting is best done early in October, as then there is new root action before winter. If the room can be afforded avoid crowding in any way Many large market growers adopt an excellent plan, and allow a wide space between the rows of plants by putting rows of strawberries, &c., between. I advise at least six feet between the rows, two feet between the plants, and not more than three canes to a stool; grown thus there are better canes and finer fruit. There are other methods, such as planting against fences or as espaliers, but although this latter is advantageous in many respects, it does not produce the same weight of fruit as others. In the open, the three canes per stool should be strong enough to bear their own weight, and need but slight support when in a fruiting condition. Planting may be done as late as March with success, but the earlier date is best. The growth must be prepared in advance, so that it does not sink, and usually in October it is in a workable condition. Firm planting is essential, and the canes should be secured from vigorous stools, and not worn-out plantations; and to obtain them from as different a soil as possible. In soils that are poor, plant a vigorous grower like Superlative, and there will be better results. The medium growers do well in better soil, but even then avoid crowding, as this is fatal to success. The usual method after planting is to cut down the canes about half way, some cut less, but it should be borne in mind the first season's growth must be given to the plant to make roots and produce fruiting canes for another year, and there must be no fruit allowed the first season. We cut down to within six inches of the soil early in March, and only allow one or two at most of the suckers to furnish canes for next season. When the stools are at their best, never allow more than three canes, and these will give ample fruit. Crowding is often allowed in summer instead of thinning the canes early; fruiting canes, after the fruit is cleared, should be cut away at once, as this allows the new growth space and light to mature growth. Little winter pruning is necessary under these conditions, merely shortening the growth in March, or just before new growth commences; March is best, as if cut too early, and severe weather follows, the canes die down beyond their cut portion. As regards the height of canes left at pruning, much depends upon their strength, strong ones I have left from five to six feet. Feeding is an important item, for though the land may have been in the best condition at planting, food should be given freely after the first season, and if liquid manure from stables can be obtained so much the better, as it may be applied liberally. There is a great drain on the roots in light soils during dry seasons, and a mulch of cow manure is excellent early in the spring, followed by another as soon as the old canes are cut away.

The raspberry season can be extended up to the late autumn by growing such kinds as Belle de Fontenay and October Yellow, the two best autumn fruiters; these, like the other varieties, repay good culture, but they must be cut down to the ground in the spring, as the fruit is produced on the new growths, though not so freely as the summer varieties For summer fruiting Superlative is one of the best; Hornet is good, as also is Baumforth's Seedling, while a good white variety is Magnum Bonum.

G. WYTHES.

Syon Gardens.

CLIMBING ROSES FOR SOUTHERN GARDENS.

As climbing roses can be grown in southern gardens under so many pleasing forms of training, there is not a garden, even the smallest, but what some means might be employed to see them in full beauty, and, moreover, for one important reason, they should be selected in preference to the more massive hybrid perpetuals, as, by selecting suitable varieties, a longer season of bloom can be obtained from these than is possible to secure from plants whose growth is more restricted. Those who are anxious to plant a few climbing roses round their residence, or to cover pillars and archways, do not always make a wise selection, and are more often tempted to plant what will cover the given space quickly than to select probably less rampant growers, and more continuous in flowering.

Hence it is that we so frequently find the old favourites, Gloire de Dijon and Aimée Vibert, running almost wild over different positions which would make the finest possible sites whereon to establish some of the choicest varieties in the tender tea section, which are never seen in full beauty owing to the unnecessary and harmful pruning they are subjected to. The two varieties named above are not to be discarded—far from it; but it should be remembered that, beautiful as they both are when in full flower, their season is a very short one, and it is a mistake to allow them to occupy so much valuable space, and to exclude others which, in ordinary seasons, will give a wealth of buds for five months in the year; these, in my opinion, being more pleasing in shape, shade of colours, more fragrant, and in every way more useful for cutting.

Although not recommended for planting in all positions and localities, and at the same time admitting that it is not a perpetual bloomer, Maréchal Niel is still far away the finest yellow climbing rose in cultivation, and certainly deserves more attention than it receives. The pale small buds and puny foliage so frequently seen is the result of mismanagement rather than of constitutional weakness. It must also be admitted that fine vigorous trees sometimes collapse suddenly, causing much disappointment, and an unsightly blank space for some time; but we know fine trees in different parts of the country which are in the best possible condition. This we attribute to their being budded on the Gloire de Dijon stock, the young shoots being kept free from greenfly and mildew by early and frequent syringing, and not being overcrowded with small weakly growth, which in a great measure prevents the sun maturing the strongest wood early in the season. They also have the advantage of the roots being in a well drained border, which is kept in a sweet condition by an annual surface dressing of fresh loam, crushed bones, and wood ashes, and the exclusion of heavy dressings of rank manure in the autumn. The hardier hybrid perpetuals may revel in such dressings, but for the varieties under notice they either produce rank sappy growth, which does not become well ripened in the autumn, or render the soil unfit for many of the more delicate, but none the less beautiful, varieties. Next to Maréchal Niel, Cloth of Gold must be mentioned as an exquisite rose, but seldom grown because of its shy flowering habit. I would strongly advise any one to insert a few buds of this on an established but not over gross Gloire de Dijon. The growth made would be less vigorous than that produced on its own roots, especially if these had the run of a rich border. If it is found that flowering wood can be produced in this way, which we have proved can be, the shoots should be gradually increased, and those from the stock reduced. Among other varieties that may be selected for the purpose named are Madame Caroline Kuster, Rêve d'Or, Narcisse, Lamarque, Celine Forestier, Belle Lyonnaise, and Solfaterre. With the exception of Belle Lyonnaise these belong to the noisette section, and are of different shades of yellow, and as this colour generally denotes a certain amount of tenderness in roses, a south aspect or warm wall should be given them if possible. As yellow roses, when well grown, always command favour, we have formed a group of them, though those named do not exhaust the list by any means, and there are others that might be added.

Many of the varieties belonging to the tea section are most suitable for covering verandahs, arbours, and the like, as being allowed to grow at will, they not only cover these quickly, but as each new shoot produces a cluster of delicate buds, they might rightly be termed the true perpetuals. As an instance of this I may mention that we have growing against south walls several very large trees of Safrano, and there has hardly been a day throughout the winter but what we have been able to gather nice bunches of perfect buds. Of course, allowance has to be made for the locality and the unusually mild winter we have experienced, but I mention this to show what a natural free-flowering habit this variety possesses, and can therefore recommend it for a south wall or warm corner. Mention must also be made of Madame Lambard. In connection with this variety it is interesting to note what effect soil and position has upon the shade of the flowers; thus they vary considerably from creamy-pink to bright-rose sometimes on the same plant when the branches are trained round different angles of a building. It is certainly most desirable, and its glossy foliage is not so subject to greenfly as many others. Then there is that exquisite soft flesh-tinted variety, Catherine Mermet, which is most profuse in producing buds of the finest form, which, together with its pleasing colour and scent, makes it a favourite with all. We have had fine plants of this covering a south wall, and the blooms obtained late in October were quite equal to those gathered in June. It may be suggested that this is not a climbing rose. I admit it is not; but any choice variety which can be induced to throw the greatest amount of bloom by being allowed to occupy different positions generally given up to climbers of less merit, the object of the planter is gained, viz., a given wall space, pillar, or archway covered with healthy greenery, and abundance of fragrant blossoms. It is hardly necessary to recommend such well-known and general favourites as Homer, Climbing Devoniensis, Isabella Sprunt, Madame Berard, William Allen Richardson, and the like; but many more tender and beautiful kinds may occur to those who have failed with them in the open.

Goodwood Gardens. RICHARD PARKER.

VEGETABLES FOR EXHIBITION.

EARLY POTATOS.

UNDOUBTEDLY the potato (*Solanum tuberosum*) is the most popular and important vegetable cultivated in the kitchen garden, and indeed, in many farms where the soil is suitable, it now forms one of the [illegible] profitable crops. Nevertheless, much care and forethought is necessary to produce tubers of the highest quality even on the best land; there [illegible] be selection, preparation of the ground, proper planting, attention to the growing crop, lifting and storing, &c. Though popular and common as the potato is, I feel sure after long practical experience that both for general crops and exhibition my notes will prove interesting and useful to the cultivator.

We will commence with forcing for early supplies. New potatos are generally much appreciated in all establishments, and where means are available they should be brought forward as early as possible in the new year, and a continuous supply kept up till the outside crop is ready for lifting. For some years I have practised growing the earliest supplies in ten-inch pots, a very easy and simple plan; the pots can be moved from one place to another with little trouble, which is a consideration in the early months of the year. About the middle of December medium-sized sets should be selected of a suitable variety, and there are none better than Sharpe's Victor for this purpose. They should be placed in shallow boxes in a warm pit or greenhouse, fully exposed to the light on a shelf quite close to the glass but safe against frost. After the eyes have started, and the shaws grown to about one inch in length, they will be ready for potting. A light compost of two parts leaf soil and one each of old mushroom bed manure and light fibrous loam, all passed through a sieve with half-inch mesh, should be prepared and made nicely warm before using. The pots should be moderately drained and filled half full with the soil, on which should be placed two sets, carefully removing all the growths but two. Fill the pots three parts full, which will just cover the sets nicely, and leave room for earthing up after the growth has reached just above the top of the pot. They may be started into growth in any warm structure and in any part, but as soon as the growth is above the soil they must be placed in a position where the shaws can enjoy the benefit of the light, and an intermediate temperature only must be given them. A strong, sturdy growth should be aimed at, and in top-dressing them I have found nothing better than finely sifted old spent mushroom bed manure. Excessively liberal supplies of water must not be given at any time, but just sufficient only to keep them growing steadily. To finish them off they may be stood along the paths of a greenhouse, orchard house, or late vinery, and fine crops will be the result.

For a succession to the above grow a second batch in heated pits, or frames placed on hot beds of leaves and half spent horse manure thoroughly mixed together and turned several times. Before forming the bed allow all the rank steam to escape, after this the frames may be placed in position upon the fermenting materials, but the soil in no case should be added until it is quite certain that the bed is in a sweet condition, and that the heat is on the decline, otherwise the compost will become baked and worthless. I much prefer deep brick pits with a flow and return of two-inch hot-water pipes running all round near the glass. The bottom part should be filled with leaves, oak or birch if possible, and when the heat from these is on the decline a good light compost should be spread over the surface to the depth of about a foot, allowing plenty of room for the tops to attain full development without coming in contact with the glass, as in very severe weather, even with the aid of hot water pipes, the foliage may become damaged. The sets should be prepared exactly as advised for pot culture, and many varieties are suitable for this planting. My favourites, however, are Sharpe's Victor, a good type of Ashleaf, and Snowdrop, the latter a very excellent kind for pit and frame culture. A little more room [illegible] required between the rows for the last named than for the others, eighteen inches being necessary, and fourteen inches from set to set; [illegible] Ashleaf and Sharpe's Victor may be planted fifteen inches from row to row and twelve inches apart in the rows. They should be covered to the depth of about three inches, and in large establishments successional plantings should be made in this way about every ten days. It is a good plan to have a crop of radishes in each plantation. If sown between the rows no harm will be done to the potatos, and very excellent radishes are obtained in this way as they will be drawn in time to allow the potatos to be earthed up, which should be done with the same kind of compost as is used for planting. Little other attention will be required except careful ventilation and judicious watering. Too much fire heat [illegible] be employed or the growth will be weak and drawn. In the case [illegible] beds much more attention is required and additional fermenting [illegible] needed around the frames as may be necessary to maintain a [illegible] heat. Efficient covering of the glass in severe weather is necessary, as nothing is more tender than the potato, especially when forced. [illegible] excellent tubers for exhibition are generally obtained from these plantings for early shows, and, each day, when lifting all the most [illegible] tubers should be carefully placed on one side, and as quickly as [illegible] put in boxes and covered with some of the soil in which they [illegible] been growing and kept till wanted. The less they are exposed [illegible] the air the fresher and better will be their appearance on the [illegible] table.

Unless an unlimited amount of glass is at command some other [illegible] must be resorted to for keeping up the supply till the outside crop [illegible] ready for lifting. Turf pits on a south border, rough wooden pits [illegible] eight feet in width, which any handy labourer can make, or [illegible] the foot of a south wall, will be found convenient. In either case, [illegible] protecting material can be easily placed over them during frost or [illegible] cutting winds, and if the soil is properly prepared, splendid potatos, both for home use and for exhibition can be obtained in this way.

For the earliest crops in the open the ground should be thoroughly trenched during the autumn, but not manured. The soil should be left in quite a rough, lumpy state on the surface, and a warm, sheltered part of the garden, such as a south border, should be chosen. Early in March the sets, which should have been previously selected and prepared, may be planted. Numberless varieties are now in existence suitable for early crops, and very many are well adapted for early supplies; most people have their favourites, though Sharpe's Victor and Ashleaf, both of very excellent quality and quick to mature, will be hard to beat. It is advisable to plant at a depth of at least six inches. A good trench should be taken out, and a layer of spent horse manure and leaf soil be placed in the bottom. The sets should be planted on this at a distance of fourteen inches apart, placing a good portion of the same mixture over them. Over this again should be drawn the soil taken from the trench, a line being stretched along the centre and a mark made down the row. This will be of service in hoeing over the ground to clear it of weeds, if necessary, before the shaws are through the ground. An enthusiastic gardener will be constantly on the watch for the young growth as everyone knows how very tender the potato is, and on the least sign of frost they should be carefully examined during the day, and a little soil drawn over them. Frequent hoeings should be made, as this keeps the soil light and open, as well as freeing it from weeds. When the growth is too high for covering with soil and the weather is at all uncertain some material must be used for protecting growth, such as spruce branches, long litter, old tiffany, bracken, or, if nothing better can be obtained, rhubarb leaves will keep the haulm safe during a rather severe frost. No time should be lost in thoroughly earthing them up, as the comparatively loose soil will afford them much protection. This is best done with a draw hoe when the tops are about three inches above the ground. The ridges should be left neat and straight, and nothing more will be required till lifting time comes round. The same care should be taken with the most promising tubers as previously advised if required for exhibition. They should be handled most carefully, must not be rubbed or bruised in the slightest. Splendid specimens are often found in these plantations. A successional planting should also be made about the middle of the month.

E. Beckett.

Aldenham House Gardens, Elstree, Herts.

STABLE VERSUS MOSS-LITTER MANURE.

A question is asked by A. D. on page 99 regarding the relative values of ordinary stable or straw manure and moss-litter manure. Farmyard manure differs from moss-litter manure in several important particulars. The quantity of straw employed as litter must necessarily affect the general composition of fresh dung, and more especially the amount of moisture which it contains. The greater the amount of liquid manure it can be made to absorb the larger will be the heat developed. In fresh dung the proportion of organic and mineral substances is small; this circumstance fully explains the slow action of stable manure when compared with the effect which well-made moss-litter manure—containing, as it does, more both of the solid and liquid excrements of the animals—is capable of producing.

The proportion of insoluble matters, more especially of insoluble organic matters, in fresh dung, on the other hand, is very large, and considerably exceeds those of moss-litter manure. The total amount of nitrogen contained in the soluble portion of fresh dung likewise is inconsiderable. Most of the nitrogen, which is gradually liberated as the fermentation of the dung progresses, is contained in the portion of the manure which is insoluble in water. In other words, comparatively speaking, little nitrogen exists in fresh dung in a state in which it can be assimilated by growing plants; while in moss-litter manure, owing to the large amount of carbonate of lime present (an ingredient of the peat moss), the nitrogen of the excrements becomes rapidly converted into nitrate of lime, and is assimilated by plants at once. For this reason the staying powers of moss-litter manure is less than straw-litter manure, weight for weight. Also the nitrogen which is not at once taken up by the growing plants is wasted by drainage. Therefore it is that although moss-litter manure may originally contain more nitrogen than the straw-litter manure it does not last so long, nor produce the crop effects which one would be led to expect.

Again, moss-litter manure is very poor in alkaline salts, especially of potash, since these substances have been in great part washed out by the water covering the peat deposits. The principal constituent of the soluble ash of fresh dung, on the other hand, so far as quantity is concerned, is potash. One hundred parts of soluble ash contain no less than thirty-seven parts of real potash, or a quantity which is equal to fifty-four parts of pure carbonate of potash. Straw-litter manure also contains a large amount of soluble silica, both in the soluble and in the insoluble ash. This is practically lacking in moss-litter manure. In the soluble ash this silica is united principally with potash. Fresh farmyard or stable manure made with straw as litter contains much soluble silicate of potash, which is especially valuable in the growth of plants.

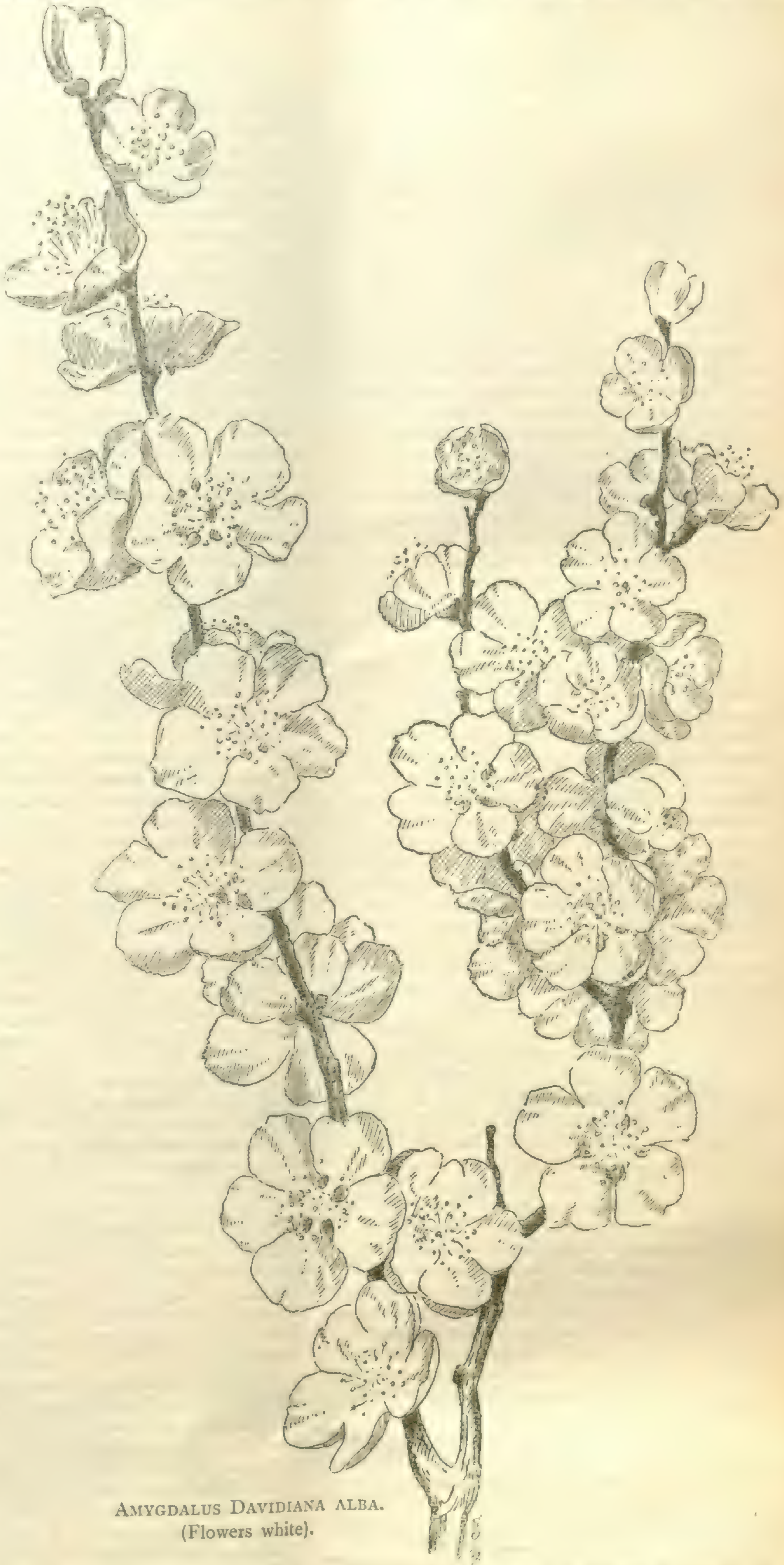
J. J. Willis.

Harpenden.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book,' containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[Advt.]

AMYGDALUS DAVIDIANA ALBA.

The almonds are noted for their extreme beauty and their precocity, for they are among the earliest of flowering trees to brighten up our gardens. The common almond is one of the most elegant of trees when smothered in pinky white blossoms, and already in the more favoured London suburbs its blossoms have expanded under the genial influence of the recent bright sunshine. Far in advance of the common or sweet almond, in time of flowering, is Amygdalus Davidiana, a Chinese species, that commemorates that intrepid collector, the famous Abbé David. This is still a comparatively scarce tree in all but the gardens of the most advanced horticulturists, but considering that it commences to unfold its blossoms ere January has passed, and is soon clothed in white rose-tinted flowers it deserves to be more popular. The species was first brought before the horticultural community by Messrs. J. Veitch and Sons, who exhibited on March 8, 1892, and gained a first-class certificate for it. A pure white variety is now available, and forms a beautiful companion to the type; this we figure in the present issue, and the illustration serves to show how freely both variety and species produce their charming flowers. Having regard to the early date at which this almond blooms intending planters should provide a sheltered position for their specimens so that the crop of blossoms may not be injured by cold frosty winds following rain or snow.



Amygdalus Davidiana alba.
(Flowers white).

AMONGST THE CHRYSANTHEMUMS.

THE somewhat monotonous and tedious process of propagating a large collection is perhaps the least troublesome, though it is decidedly the least interesting period of the year's work amongst chrysanthemums. Growers will welcome the advent of brighter weather and longer days equally as much as the plants themselves, and these latter will now rapidly gain vigour and develop a sturdy, healthy growth.

In the routine of watchful attention which these plants constantly require nothing is more important at this season of the year than a full exposure to light, a position near the roof glass, and abundance of ventilation whenever possible without admitting cold, cutting winds directly on to the plants. Any treatment which deserves the name of "coddling" usually ends more or less in failure; a close, moist atmosphere with a high temperature is altogether wrong treatment, and quickly induces a thin, long, and weakly growth. A temperature ranging between 40 and 55 degrees will suit the plants admirably. The higher figures should only be approached by the aid of sun heat, plenty of ventilation being given when the thermometer records 50 degrees. Watering is very easily managed, though extremes must be avoided; too much is as injurious as too little; an occasional sprinkle overhead on mild bright days during the forenoon may be given with advantage, but no liquid manure is needed by the roots at this period, as feeding will promote a soft, fleshy growth which will not bear the exposure to open air treatment later on. Firm and robust health with dwarf short-jointed growth is the ideal condition, and may be easily maintained if a good loam is used in potting. Freedom from insect pests must be secured, and these are very easily kept in check whilst the plants are inside by using the now well-known nicotine vaporising compound, which has made the work of fumigation such a simple matter. Green and black fly and thrips are troublesome at this season. A light dusting of soot amongst the plants is a great help in keeping away insects.

Potting must be done as soon as the roots require more room, and this is easily determined by carefully turning a plant out of its pot; no better rule can be given, and it is most unwise to defer this operation when once the roots have thoroughly occupied the soil in which they are growing. The question of soils always appears interesting, and many beginners suppose that herein lies the whole secret of successful cultivation. I grant this is an important point, but not more so than many other details of apparently less consequence. A good loam is the chief essential in mixing a suitable compost, and that is the top three or four inches of old pasture land which is medium in character, between clay and sandy soil, and which necessarily contains abundant grass-root fibres. This is best when dug and stacked some few months before it is required for use. Two-thirds of such loam, and the remainder equal parts leaf-soil and well-decayed stable manure, adding a good sprinkling of sand and wood ashes sufficient to keep the soil sweet and open, make a suitable compost. Be sure the roots are not dry when potting takes place, and the new soil should also be in a nice medium condition as to moisture; pot firmly to ensure a steady growth, for if the roots penetrate too quickly into the new soil the top growth will be also rapid and thin. Firm potting conduces to the dwarf, sturdy growth we so much desire. Though it is generally correct to root the cuttings in December and January in order to give the plants a long, steady growing period, some of those varieties which bloom early, such as Australian Gold, Mutual Friend, and Pride of Madford, will give excellent blooms if good cuttings are taken late in February and grown on in the usual way, taking only two blooms from each plant. By propagating thus late the flowering period is retarded, which, in the south of England, is an advantage to exhibitors, as it is difficult to preserve blooms of some varieties in good condition for November shows unless such methods are adopted.

We are experimenting this season with several varieties with respect to retarding, as I am much inclined to believe that early propagation is unfavourable to some, and the variety which has led me to this opinion most of all is Reine d'Angleterre. In 1895 we had one small cutting of this in March, and the resulting plant gave us three excellent blooms, whilst in the two succeeding years, though we have had apparently better, because stronger, plants from cuttings taken in December the flowers were quite moderate. The blooms from the early rooted plants were from second crown buds, whilst those from the March cutting were from the crown buds. In the former case the crown buds appeared too early (about July 25), to be taken, and the same bud on the late struck plant was taken on August 12, thus proving the influence of late rooting over the time of formation of the flower buds. This suggests another point in the successful treatment of some varieties, but with the numerous introductions each season, it is only reasonable to suppose that those varieties which give us good blooms at the proper time are the ones most likely to become popular. It occasionally happens that a really splendid flower of a comparatively little grown, though by no means new variety, is exhibited in a collection, and, usually, this is observed at provincial shows. Such blooms are, undoubtedly, the result of a certain peculiarity of treatment which the plant has received, it may have been in the time of propagation, in pinching, or in the accidental breaking of a shoot which has been the means of bringing the flower bud at just the right time or occasionally in the exceptionally early formation of the bud which controls what is known as the natural break. As a consequence of this one fine bloom a great many people are induced to try the variety again with usually failure as a result of their pains. It would be a great benefit to growers if those who are successful with particular varieties would record their treatment, instead of leaving others to find out as best they can. The narrow-minded age of secrets and mysteries, at least in gardening matters, has surely gone past, and each of us to be really successful in our calling must give and take of our experience freely.

Young plants from nurseries need careful handling when first received, and it is best to keep them moderately close for a day or two in case they have been grown in warmth as a sudden change to quite cool treatment would injure, or, at least, check the growth. I am afraid the disease which was observed amongst chrysanthemums last season for the first time in this country will prove troublesome. It very much resembles the fungus which attacks carnations and is, perhaps, identical with it. I am making inquiries about it amongst friends, and will shortly send our editor the result.

Trent Park Gardens. W. H. LEES.

SUNDEWS.

THE plants that may be included under this heading comprise the genera of drosera—the true sundews—roridula, drosophyllum. By far the largest genus is drosera, the members of which are natives of Australia, Cape of Good Hope, and North America, and three British species. Roridula contains but two species, one of which, R. gorgonius, is now probably the only representative in cultivation, while the genus drosophyllum, a native of Portugal and Morocco, is monotypic. Of the droseras, two of the strongest as well as most handsome are D. dichotoma and D. binata, the former being by far the strongest grower, with the leaves twice branched, and with less highly-coloured tentacles than in D. binata, forming a plant of twice the height of the species last named, of which it is considered a variety. The North American species, D. filiformis, is extremely attractive when grown in mass, but has a habit of dying out under cultivation after a few years. D. capensis (figured in the GARDENERS' MAGAZINE, April 15, 1893), is one producing a stem of three or more inches high, bearing persistent foliage, its specific name indicating its habitat. D. spathulata and D. Burkei closely resemble each other, forming close tufts or rosettes of foliage, with exceptionally bright red tentacles. A very slender plant is D. auriculata, from Australia and New Zealand, with a stem nine inches high and small ear-shaped blades; upon short petioles. Our native species are not the least interesting of these plants, and I have seen quite nice specimens of D. rotundifolia grown in saucers in dwelling rooms. D. anglica and D. intermedia possess spatulate foliage, and are both British. A few years ago D. cistiflora was attracting considerable attention at Kew on account of its rosy red flowers, but is, I believe not now in cultivation.

The long linear leaves and tentacles possessing no power of movement, though the secretion is extremely profuse, at once distinguish the genus drosophyllum from the foregoing. This grows a foot or more high, and has primrose-yellow coloured flowers. Seeds germinate freely of this plant, and it is best grown in a compost of fibrous loam, broken rocks, and sand. Roridulas are most energetic in their fly-catching habit. At the Cape they are of bush-like habit, of several feet in height, and are said to be hung up in the dwellings as we hang fly papers, being taken down and rinsed after a good catch. This we find succeeds fairly well in a greenhouse temperature in a sandy peat soil. The above are most of those in cultivation, and when well grown they cannot fail to be of interest, not only on account of their insectivorous habits, but as ornaments to our greenhouses. They are now commencing growth, and preparation should at once be made for their being attended to in the way of potting or renewal of soil, if necessary, in whatever manner they are grown. They are in no way difficult to cultivate, and all will grow in a cool greenhouse temperature in a compost of fibry peat, chopped sphagnum, moss, and coarse sand; or if the beds are of any dimensions some broken charcoal may be added.

The droseras are lovers of a boggy soil, in which large quantities of water are present, and, indeed, this is the case with both roridula and drosophyllum, both requiring copious supplies in their growing season, though during the winter a less supply is necessary for these two latter genera.

If grown in pots it is a good plan to cover the stages with sphagnum, upon this the plants may be stood upon inverted pots. In this way, if they are examined, fine healthy roots will be found to have grown into the damp hollow chamber formed by the hollow pots—to the length of several inches, all exceedingly healthy, and covered with fine root hairs. Taking this into consideration, they are now grown here in a house specially prepared for them, by having tanks of shallow depths—about a foot—a space of a few inches being left at the bottom by planting them upon a teak staging or raft. In this manner the roots will during the growing period find an unlimited supply of moisture when necessary—as the bed can be saturated at will, or be kept dry if needed, as the tanks may be filled or emptied at any time. All are lovers of sunshine, and by full exposure a fine red tint is obtained upon the tentacles, which adds distinctly to their appearance. Although enjoying a superabundance of moisture, on no account must they be syringed, as this causes the glands to run, as well as knocks one leaf against another, sticking them together, and giving them a very draggled look.

Edinburgh. R. L. HARROW.

Late Chrysanthemums.—The chrysanthemum L. Canning seems to come in for an equal share of praise and abuse. After considerable experience I find it the latest and also the shortest lived of all the varieties when cut, and for the latter reason I cannot recommend it. The plants seems to be very subject to mildew, and are scarcely presentable when used in pots as single specimens for filling vases. I can thoroughly recommend Princess Victoria, which has creamy-white flowers; the foliage is grand, and the blooms last, when cut for large vases, for two or three weeks, according to the position and temperature of the room. When grown as a bush and kept in very cool quarters when housed, it certainly runs Canning very close for lateness. I cut the last blooms of it on Saturday, February 5, for use in a church, where they are still good at nearly the end of the month. Both the varieties are fine when grown in five-inch pots, and I think L. Canning beats the Princess when grown in this manner. The method I have tried answers admirably. Take a number of the tops from the stock grown for bushes during the last week in May, and strike them in heat; pinch out points of same when rooted, so as to induce three or four shoots; pot on to five-inch pots, disbud and leave one bloom on each shoot. The result will be some useful decorative material.—A. JEFFERIES, *King's Walden Bury.*

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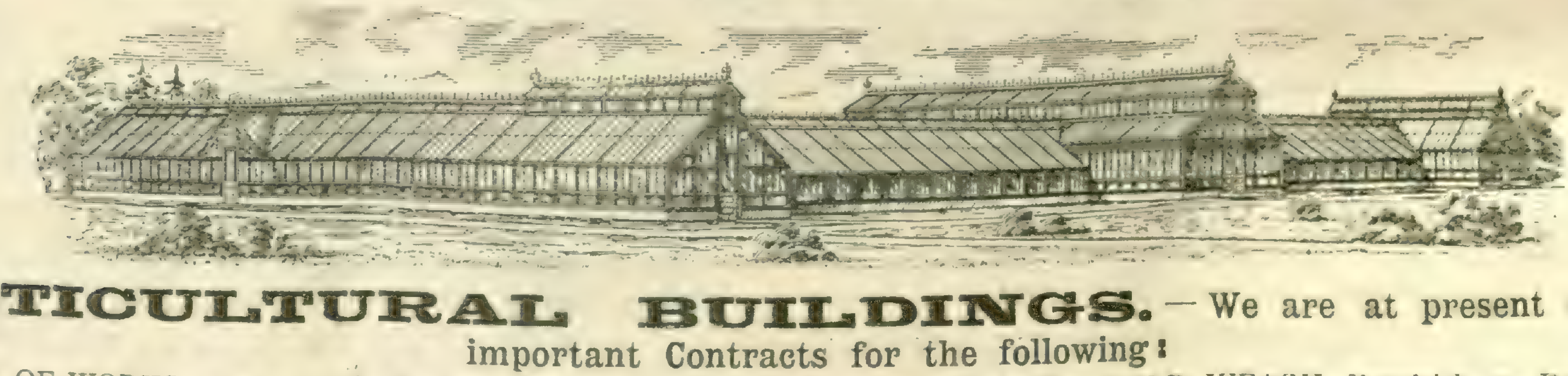

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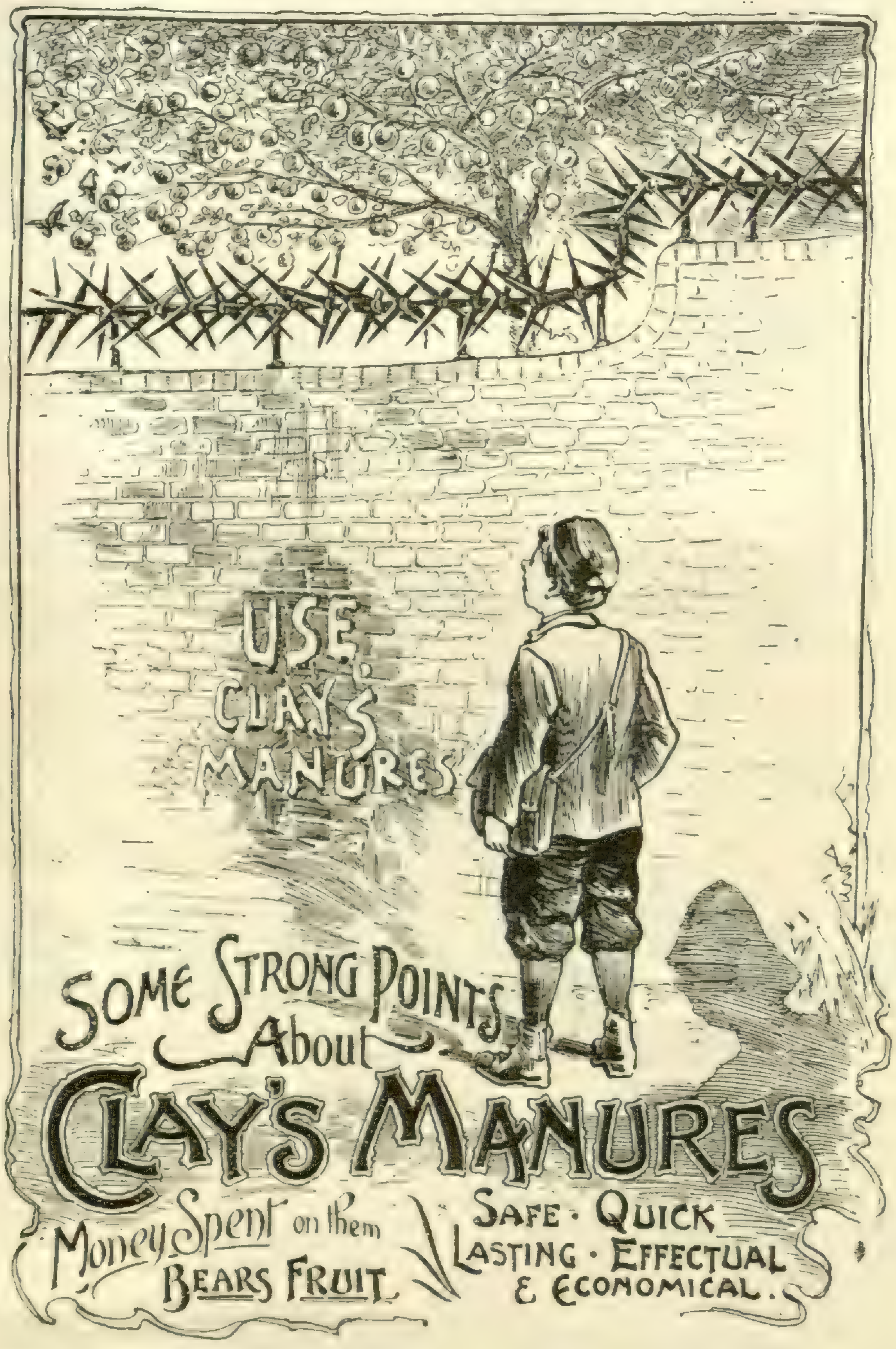
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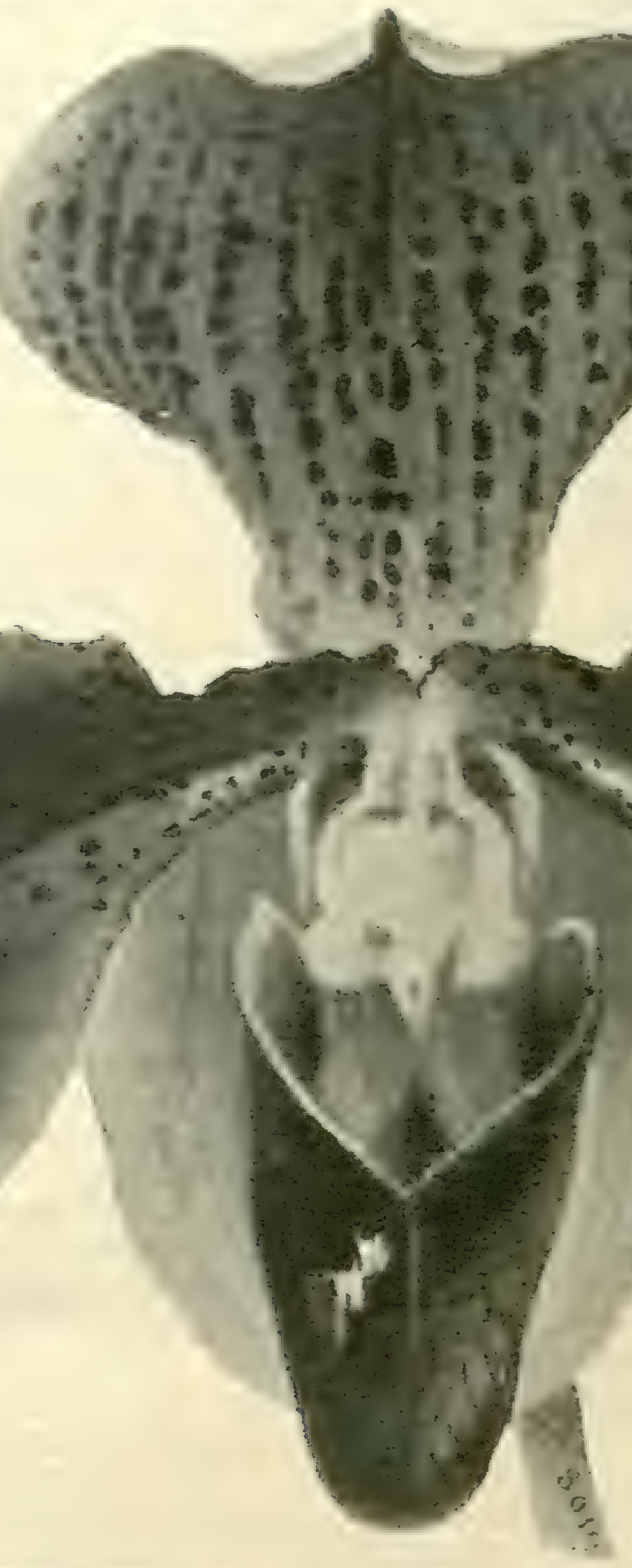
HYBRIDS OF CYPRIPEDIUM BELLATULUM.

AT the present time this section of the cypripediums is the most fashionable of any of the Lady Slipper orchids. Since writing my notes—published in the GARDENERS' MAGAZINE, vol. xxxix., p. 794—there have been several remarkable additions to the group, and one of the most interesting to botanists has been the raising of Cypripedium Godefroyæ by artificial hybridisation. A seedling flowered in the collection of G. W. Law-Schofield, Esq., New Hall-Hey, Rawtenstall, which had originated in Sir C. Strickland's collection; the parents were C. bellatulum and C. niveum. The seedling proved identical with C. Godefroyæ, and this was a most gratifying result. Some five years ago one of the most prominent of our orchid authorities paid a visit to the collection of which I have charge, and I drew his attention to the possibility of the form known as C. Godefroyæ leucochilum being a natural hybrid. The intermediate characteristics, both in growth and flowers, clearly indicating the possibility of a natural hybrid between the two species named above. Then another form imported with the white-lipped variety gave every indication that C. concolor was instrumental in its production. The growth, however, is broader and more clearly tesselated, while the lower sides of the leaf are considerably less purple than in hybrids where there are indications of C. niveum. The flowers, instead of having a white ground, are in some cases a rich golden-yellow, in others considerably paler, but having decidedly C. concolor characteristics. The specialist protested, and pointed out the apparent impossibility of such a result, owing to geographical distribution, notwithstanding the fact—as I pointed out at the time—that we had flowered from the same case of plants C. niveum, C. bellatulum, C. concolor, and the two forms referred to above. He was, no doubt, considerably impressed, and, judging from a statement made at the Drill Hall in respect to the flowering of C. Godefroyæ from seed in our own gardens, he is now satisfied that the geographical distribution of this section was not so wide as was imagined. There can be no doubt in future that C. Godefroyæ must be classed as another addition to this growing family of natural hybrids. The variety C. Godefroyæ leucochilum was introduced through Messrs. Walter Kemsley and Co. about six years ago, the first importation being procured by and divided between the two brothers Messrs. R. I. and R. H. Measures. From the collection of the former several remarkable forms have been exhibited, one of which gained the F.C.C. of the Royal Horticultural Society.



CYPRIPEDIUM BEECKMANI. (Flowers green, white and bright purple brown.)

One of the most prominent of the C. bellatulum hybrids that have been introduced during the past eighteen months is C. Rolfeanum, said to be the result of crossing C. bellatulum and C. Rothschildianum, but no indication of the latter parent was observable when the plant was exhibited at the Drill Hall, and there is, no doubt, some mistake in the records; the spotting and general characteristics of the flower indicating that C. Leeanum, or some other variety in that way, had been a parent. It is, however, a most distinct and desirable hybrid, and is worthy of cultivation. C. Enid (C. bellatulum crossed C. Spicerianum) was raised in the nurseries of Messrs. J. Veitch and Sons; the flowers are most distinctly marked, but they are considerably smaller than in many of the beautiful hybrids of this section. It is, nevertheless, a distinct and desirable form, which will, no doubt, improve as the plants gain strength. Another fine form that flowered with the same firm is C. Measuresæ Veitch's var., and it is one of the very best of the C. bellatulum and C. Veitchi hybrids. It was exhibited last year at one of the Manchester and North of England Orchid Society's meetings, when it was adjudged worthy an award of merit by the committee; it was exhibited from the collection of G. W. Law-Schofield, Esq., by the gardener, Mr. Shill. There is no doubt the finest hybrid cypripedium of last year, and equal, if not superior to, the best of its predecessors, was C. Chapmani magnificum, which gained a F.C.C. at the Temple Show of 1897. The dorsal sepal is upwards of two and a half inches in breadth, over two inches long, creamy white, heavily suffused with rose-purple and thickly spotted in lines with deeper purple, these spots increasing in density toward the base; there are some traces of yellow in the centre near the apex. The petals are upwards of two and a half inches in length and one and a half inches broad, creamy-white, heavily suffused with bright rose, and thickly covered with large, deep purple spots. The lip is rich purple shading to greenish-white at the base. This variety was raised in the collection of R. I. Measures, Esq., at Ladymead, East Harting, Sussex, by Mr. Wotton, and is the result of crossing C. bellatulum with the pollen of C. Curtisi, and is, therefore, the reverse cross of the original C. Chapmani.

The subject of the accompanying illustration, C. Beeckmani, is a continental hybrid said to be the result of a cross between C. Boxalli superbum and C. bellatulum. If this parentage is correct the plant is certainly a remarkable freak, for there is not the slightest indication of tesselation in the foliage as seen in all other C. bellatulum hybrids, and the foliage also, instead of being dwarfed by the influence of the latter species, is certainly longer and much more robust than in C. villosum Boxalli. The flower also has not the slightest trace of C. bellatulum, although it was the opinion of some who saw it that the spottings on the lower sepal and the purple at the back of the upper sepal were derived from that species. These spottings were, no doubt, derived from C. Boxalli, as they are prominent characteristics of all the very best forms of that species. When exhibited by Messrs. Linden and Co., of Brussels, at the R.H.S. meeting on November 22 last it was adjudged worthy of an award of merit by the Orchid Committee, who considered the recorded parentage so doubtful that they were unable to accept it. C. Beeckmani is, nevertheless, a remarkably fine cypripedium, and worthy of being included amongst the very best. The dorsal sepal is green thickly spotted with brown at the base, and having a broad margin of white at the apex. The broad, finely-shaped petals, green in the lower halves, and suffused with brown, have the upper halves pale green spotted with dark brown at the base, and becoming wholly suffused with dark brown at the apex. The lip is highly polished brown shading to greenish white. The gigantic proportions and fine substance of the flower should be sufficient to recommend this to all lovers of cypripediums. It is after the style of C. Lucianum, which was also exhibited as a C. bellatulum cross, but it is altogether superior to that hybrid. It evidently belongs to the class requiring the cool-intermediate house treatment, such as I find suits C. villosum and C. Boxalli crosses better than that afforded by warmer houses.

Cambridge Lodge Gardens. H. J. CHAPMAN.

NITRATES, AND THEIR USES IN THE GARDEN.

It is rather an interesting fact that the importance of nitrates for plants has long been recognised ; also that the growth of plants is considerably promoted when this element of food is present in the soil. Nitrous food may exist as nitrate of potash, nitrate of lime, nitrate of soda, and nitrate of ammonia. Recent investigations have established the fact that for most green-leaved plants the nitrates are capable of supplying all the nitrogen which is needed for their growth. Nitric acid, therefore, may be regarded for all practical purposes as the final form of nitrogen for most horticultural plants, and that all other forms must first be converted into it ere they become available as plant food. Even ammonia must be converted into nitrates before plants can use it.

When nitrate of soda, or any of the other nitrate compounds, is used as manure, its nitrogen does not enter into fixed combinations within the soil, but nitrate is dissolved in the soil water, and unless taken up by vegetation, much of it passes into the drains or into the subsoil beyond the reach of the roots of the plants. When salts of ammonia are used as manure, part of the ammonia is temporarily taken up by the soil, but it is more or less rapidly (according to the character of the soil, and of the season) converted into nitrates, and is then subject to loss by drainage, as when nitrate of soda or any other nitrate is used.

A ton of farmyard or stable manure will rarely contain more than from ten to fourteen pounds of nitrogen, and that in an organic form. Now plants are unable to feed upon nitrogen in an organic form—that is to say, in the condition in which it exists in the decaying matters of soils and of farmyard manure. Such organic nitrogen only becomes useful for plant food after it has been converted into nitric-nitrogen or nitrates by a process more or less slow and interrupted, which is termed "nitrification," and which will only take place in the upper layers of the soil when there is a plentiful supply of atmospheric oxygen ; a certain amount of warmth and moisture are also necessary, as well as the presence of organic matter, lime, and certain other mineral ingredients. That in proportion as those conditions are fulfilled, so will be the rapidity of its development. The absence or presence in excessive quantity of water or organic matter will prove fatal to nitrification.

If a soil contains a very large percentage of putrefying organic matter nitrification will not take place, for the reason that so long as there is such a demand for oxygen, the air present in the soil will be all used up in oxidising the organic matter. This is why nitrates will never be found except in the merest traces in fresh farmyard or stable dung, or in old kitchen garden soils very rich in organic matter. In general, it may be said that an abundant supply of phosphoric acid, potash, and lime tends, in plants, to increase fruitfulness, hardness, and firmness of stems and leaves, while an abundance of nitrogen has a tendency to produce luxuriance of wood and foliage. But while plants cannot be at their best without a suitable supply of nitrates, it is an important fact to remember that those plants which are grown chiefly for their flowers and fruits may be easily injured by an amount only slightly exceeding a sufficiency.

Thus, when certain crops, such as those of the cabbage tribe, lettuce, asparagus, potatos, onions, parsnips, celery, beet, rhubarb, ferns and foliage plants, &c., which are valued mainly for their stems and leaves, are considered, there may be no danger from an abundant supply of available nitrogen, always provided the mineral constituents are not deficient in the soil. On the other hand, plants that are raised for their flowers and fruits exclusively should be liberally fed with mineral ingredients, especially potash and phosphates, and with but a minimum quantity of nitrogenous food.

In one sense farmyard or stable dung is the best of all manures for the garden, because it is a safe and a complete manure, bringing to the soil, together with the mineral substances indispensable to the nourishment of the plants, the organic matter which, when changed into humus, is of such value in mellowing the surface soil. It also allows an excess of moisture to pass easily away, while in dry seasons the humus assists in holding a supply of moisture till the rain comes.

It has been explained that the nitrogen of manure must be changed into nitrates before it is available as plant food. For the growth of early vegetables it is found necessary to use enormous quantities of manure, far in excess of the amount of plant food removed in the crop. Gardeners who make a speciality of growing large areas of early cabbages, potatos, turnips, lettuce, rhubarb, &c., find it almost impossible to make the land rich enough the first year. They find the second or third crops grown and manured every year on the same land, are better and earlier than the first crop ; this is owing to the slowness of the formation of nitrates that takes place in the manure.

For early potatos as much as forty tons of stable manure and ten cwts. of artificial manures per acre, the latter consisting of guano, dissolved bones, superphosphate, and kainit salt, are frequently used, and only about four or five tons of produce is obtained. While for a late crop of potatos, the manure may range from fifteen to thirty tons, with from eight cwts. per acre of artificial fertilisers, and the crop obtained may average six to eight tons of tubers per acre.

There is no difference between the manurial requirements of an early and a late crop. Both require the same food, and the late crop being the larger, wants the most food. Yet in actual practice it is found absolutely necessary to use far more manure for the early than for the late crop. The explanation is this—all our common horticultural plants take up their nitrogen in the form of nitric acid or nitrates. No matter how much nitrogen the soil or the manure may contain it becomes available for plant food only after it has been converted by nitrification into nitrates.

Farmyard manure, with its slow nitrifying properties, will furnish nitrates for the later crops, but for early crops some easily soluble nitrogenous manure, such as guano, nitrate of soda, or ammonia salts will be found of great advantage. These substances must not be regarded as substitutes for other manures but only as valuable additions. Nitrates produce the whole of their useful effects only when the soil to which they are applied contains a sufficient proportion, and in a properly assimilable condition, of the mineral constituents required by the plant. If, therefore, the object of the gardener is to grow maximum crops he must in some way furnish his plants with nitrates. If he uses guano, dried blood, fish, bones, stable manure, night soil, or manures of any other kind, the nitrogen contained in these substances must first be converted into nitrates before the plants can assimilate it.

One of the best and cheapest forms in which nitrates can be supplied to the soil is in nitrate of soda. When this manure is used in the garden it is sometimes desirable to apply it in solution. The quantity of nitrate that can safely be used in a gallon of water depends very much on the amount of moisture in the soil. If the soil is saturated with water it does not matter how strong the solution is, provided the proper quantity of nitrate, which may range from one to three hundredweight per acre of ground, is used. The drier the soil the weaker should be the solution. A teaspoonful of nitrate, or one half ounce to two gallons of water, may safely be employed in the garden or greenhouse. The dark colour of the leaves will indicate when the plants have had enough.

The advantages to the horticulturist of the uses of nitrates may thus be summarised : (1) Nitrate of soda serves directly as food for plants ; not having to undergo any change in the soil, it acts more rapidly than any nitrogenous manure of organic origin, such as farmyard or stable dung, guano, blood, fish, rape cake, &c., as the action of these is dependent on their undergoing nitrification. (2) The rapidity with which the nitrate is absorbed by plants, quickly puts them into a state which by the vigour of their development they can the better resist disease, insect attack, and parasitic growths. (3) In seasons following a severe winter, or for early productions of vegetables, nitrate supplied in the spring repairs the lateness caused by climatic disadvantages. (4) Young plants take up nitrates so rapidly, and send their roots into the soil so quickly, that the nitrates cannot escape them, even if washed down by heavy rains.

Harpenden. J. J. WILLIS.

A FAMOUS VINE.

It matters not in which way you look, there is at Harewood more than sufficient to please the eye and interest the mind of those who are concerned with gardening and appreciate beautiful scenery. The stately mansion is one of the finest examples of Corinthian architecture in this country, and the landscape in which it forms so conspicuous an object is of surpassing beauty. The history of Harewood was so admirably told, and the more important features so fully described by Mr. Gordon in the special supplement issued with the GARDENERS' MAGAZINE of April 25, 1896, that I need not refer to the domain generally in giving a few particulars of the famous Muscat of Alexandria vine.

The old Muscat vine at Harewood was planted in the year 1783, and the house enlarged in 1839, according to the inscription on a stone which is built into the back wall of the vinery. The structure is sixty feet long, twenty feet wide, and seventeen feet high at the back. It is what one might term a rather large old-fashioned lean-to house. It is heated with four five-inch pipes, and two four-inch mains which run through to heat some houses beyond. The roots of this vine occupy a border twenty-seven feet wide and the same length as the house. The stem of the plant, which is twenty-seven inches in circumference, enters the vinery near the middle, then branches right and left, and from these leaders (which extend the whole length) canes are trained up to the apex. Formerly the vine was trained on three wires under and parallel with the rafters. This meant great bundles of wood and foliage in one place instead of being interspersed all over the roof. These wires have been supplemented by others running from end to end of the vinery in the ordinary way, consequently both wood and fruit ripen better in the autumn. When the change was made the roots claimed attention as well as the branches, it being evident that something was at fault that was not due to the close training on the roof. The young canes that were run up on temporary wires placed under the sashes ripened indifferently in 1893, which, as we all know, was a grand season. I then decided on having the border and drainage renewed. A good drain was placed along the extreme south side of the border, with junctions by which drains could be connected as the border was being renewed, which has been done in portions in early autumn. Lifting the roots intact out of the old soil was a tedious affair. Those found among the old drainage were quite dead, and were removed, but the live ones were carefully laid aside and covered with damp mats until placed in the fresh compost, which consisted of good fresh loam with plenty of old lime rubble, broken bricks, at the rate of one cartload to three of soil. Plenty of active fibrous roots are now to be found not very far from the surface of the border, and they absorb great quantities of water during the summer months. When the border is moist, liquid manure is applied.

For the last two seasons the vine has borne excellent fruit, many of the bunches turning the scales at one and a half pounds, beautifully finished, and no shanking to be seen. It is a grand keeper, and the fruit, whether on the vine or bottled, keeps plump and fresh till February. The wood of the vine annually increases in strength, and promises well to carry a good crop of fruit next season. In 1897 it carried a heavy and otherwise excellent crop, and over six hundred and fifty were cut out before thinning took place, which goes to prove that it is a free bearer. For the purpose of indicating the high quality of the fruit which the vine produces since its renovation, and not for self-glorification, I would mention that with three bunches cut from it I was successful in obtaining the premier award at the Leeds Chrysanthemum Show in 1896. As this patriarchal and productive grape vine is so great a favourite here, and affords so much interest to visitors, we hope it may long continue to supply the table of its noble owner with richly flavoured fruit.

Harewood Gardens, Leeds. J. JEFFERY.

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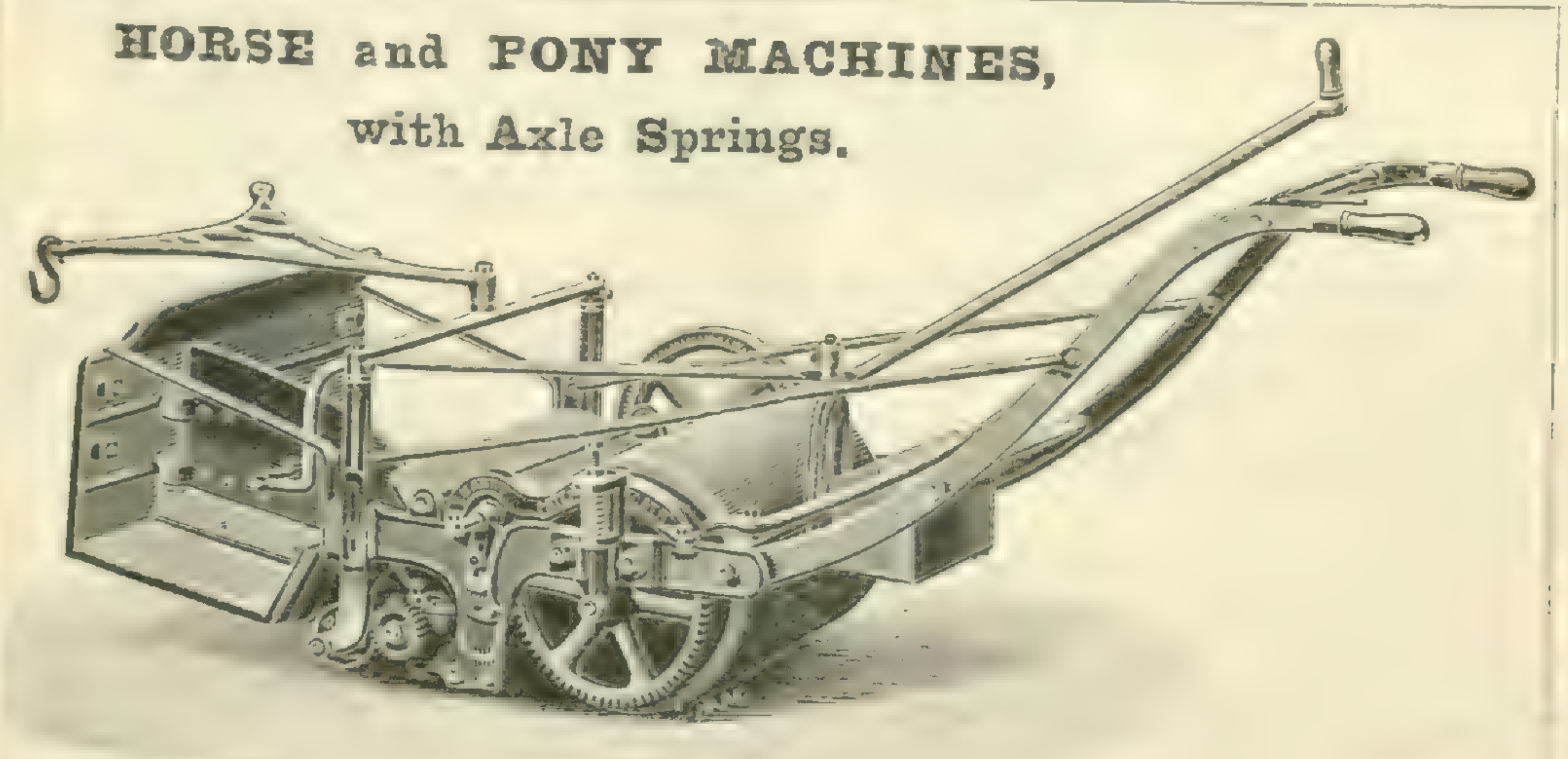

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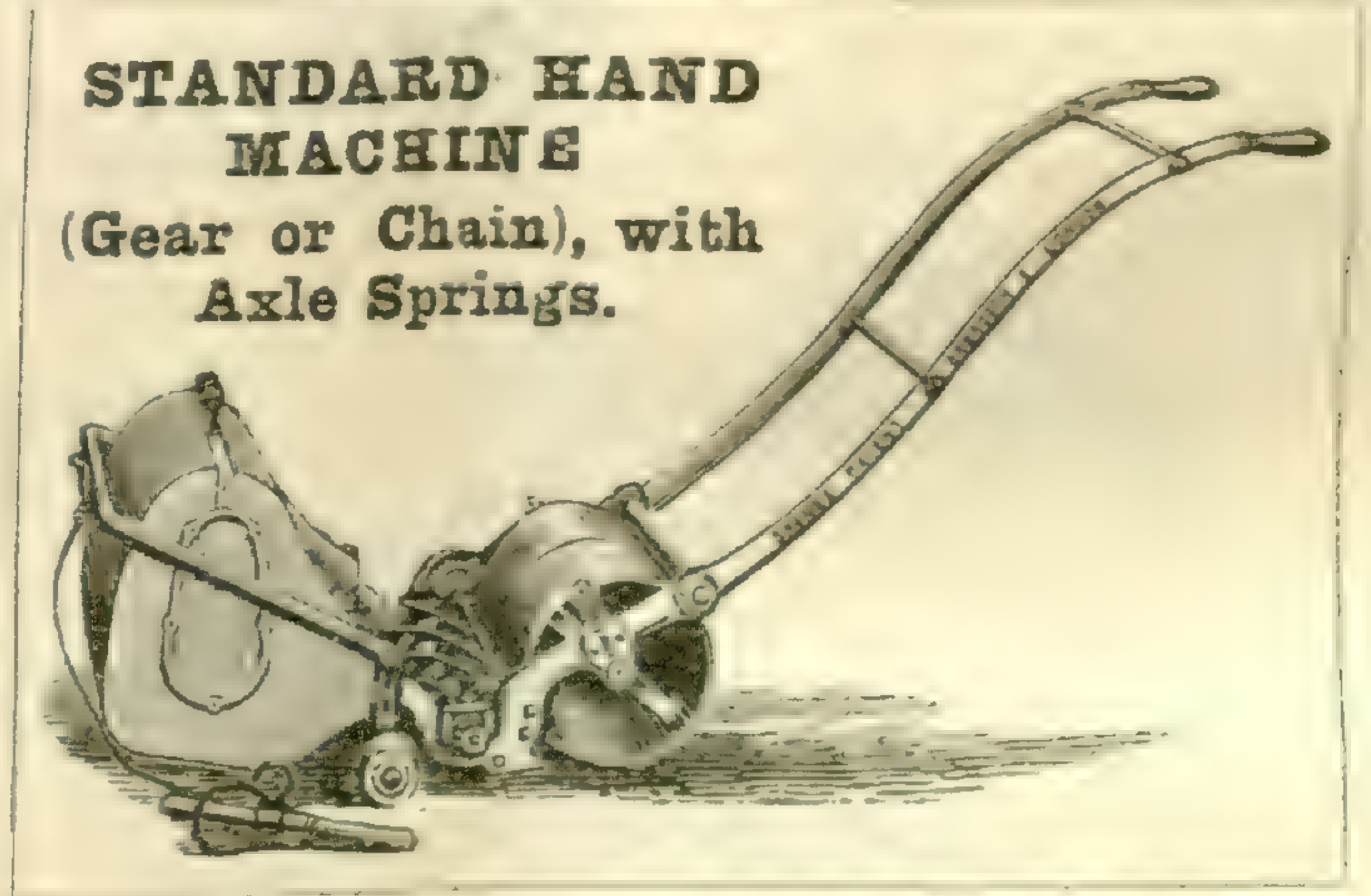

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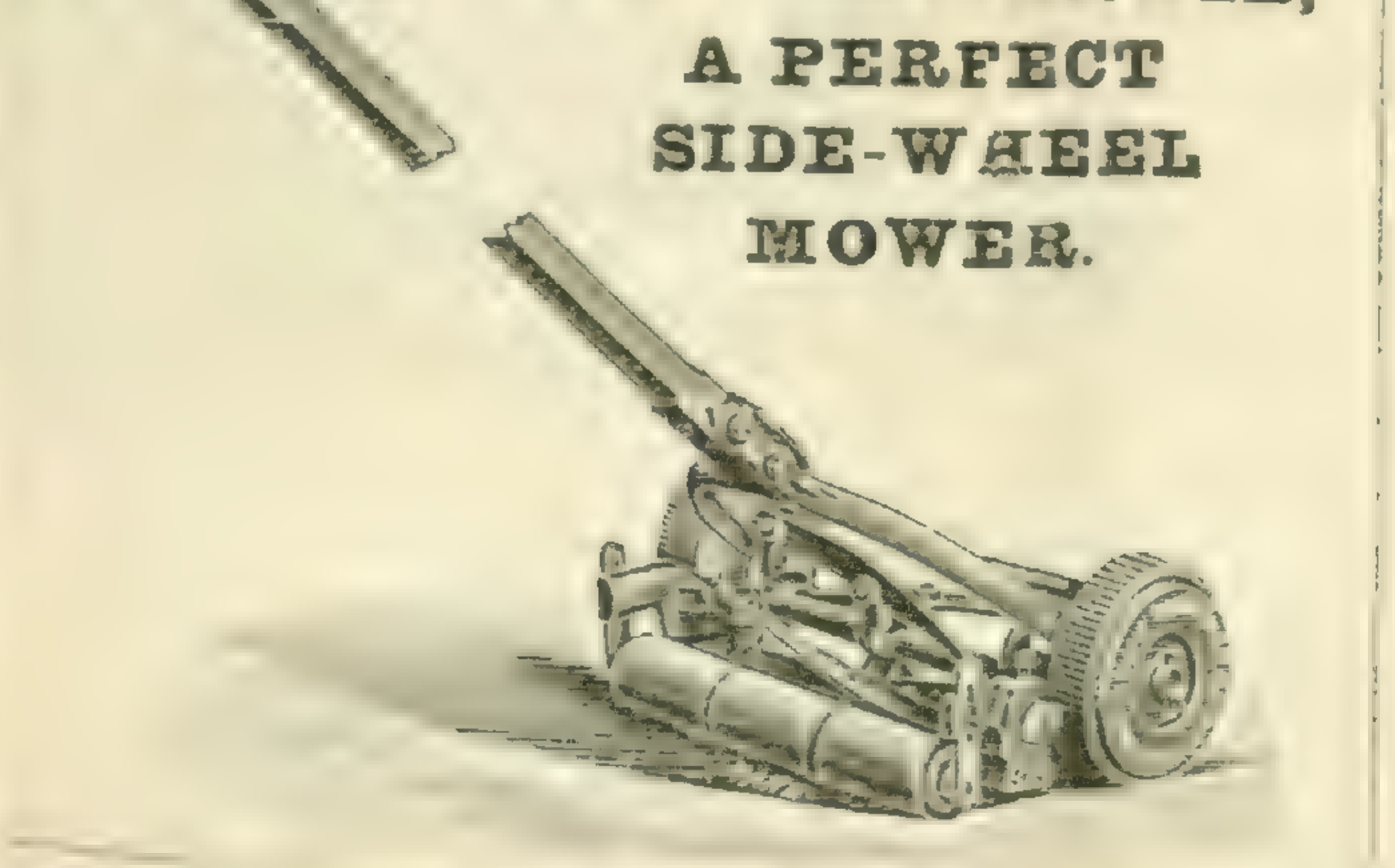

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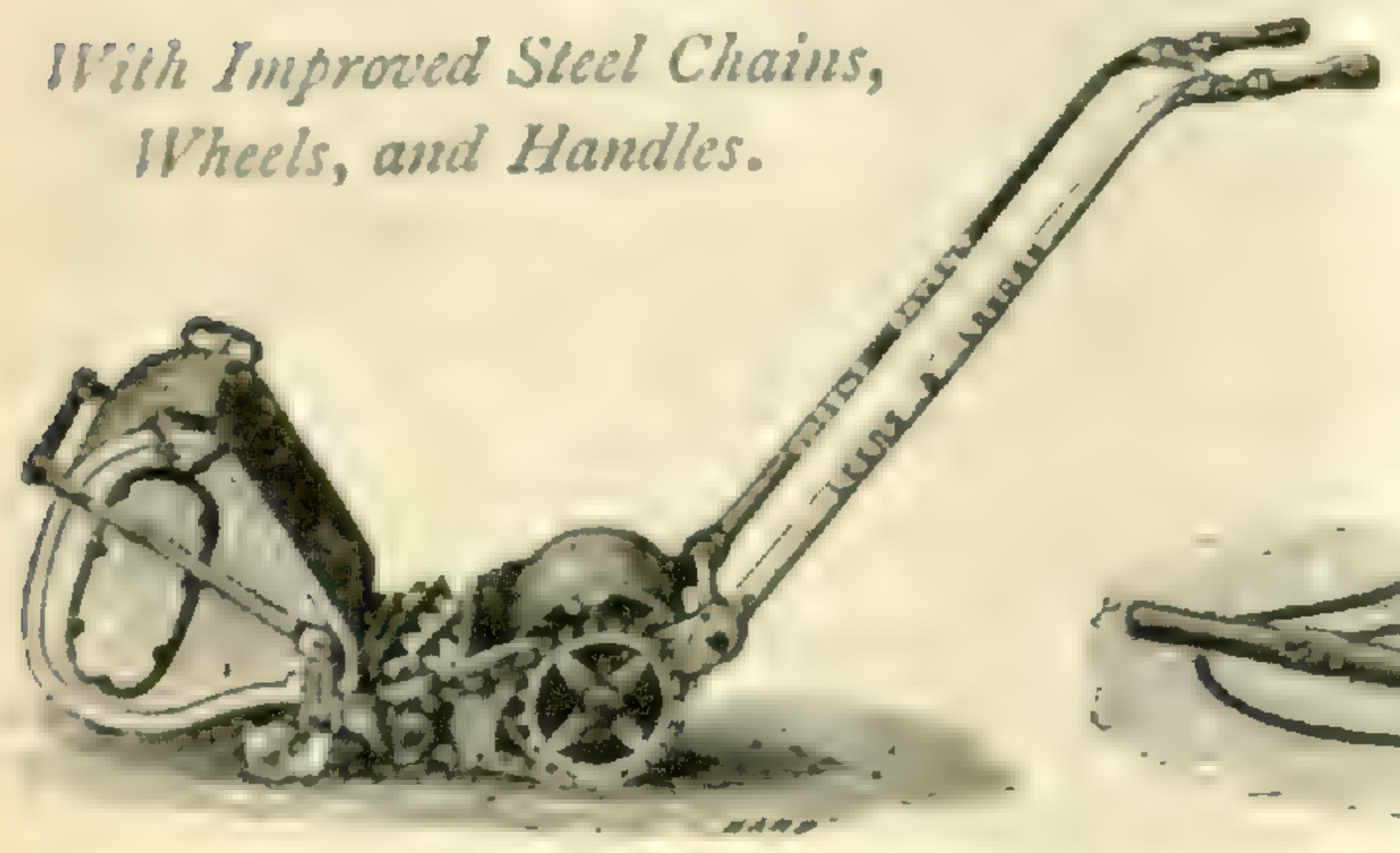

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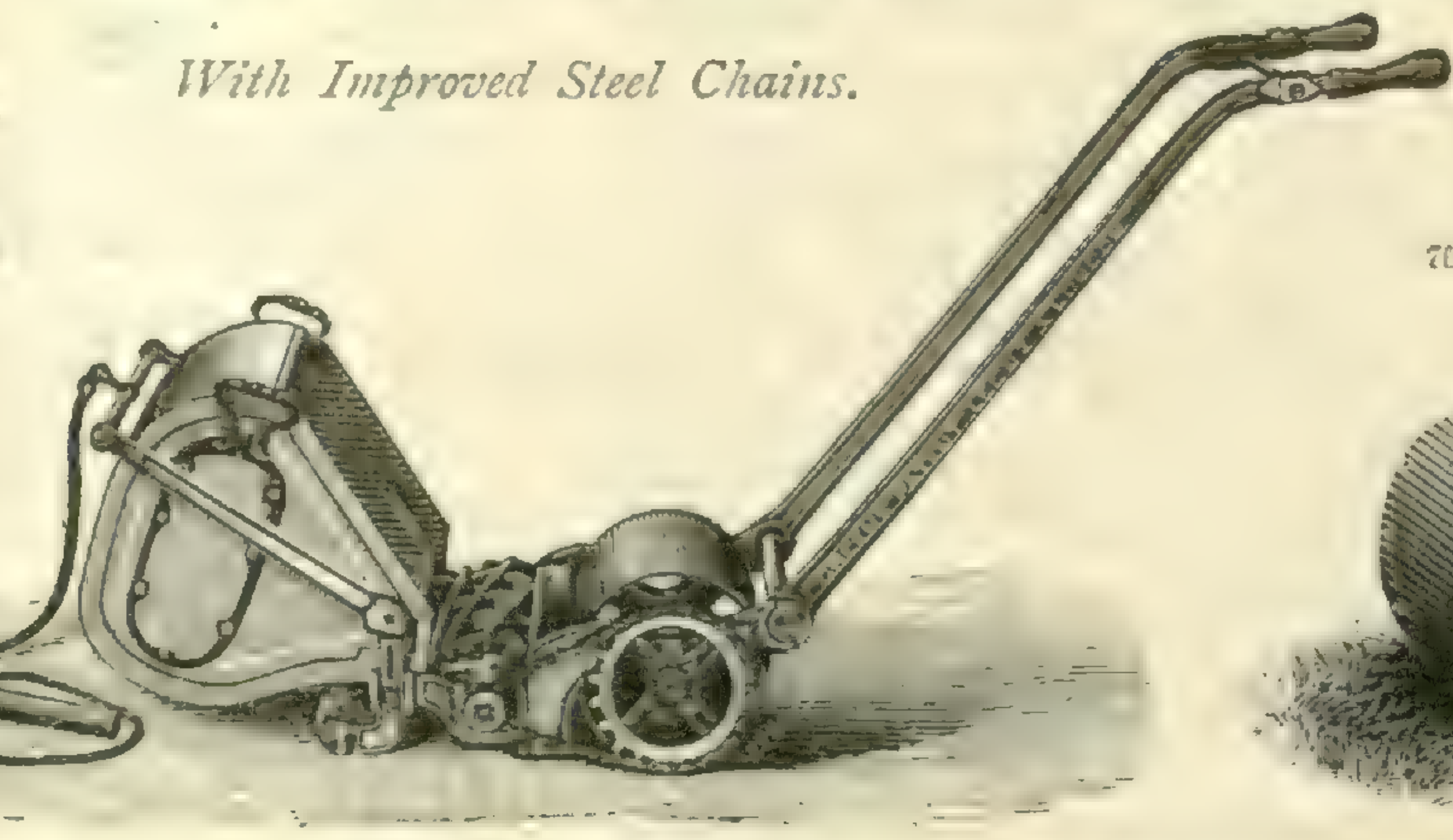

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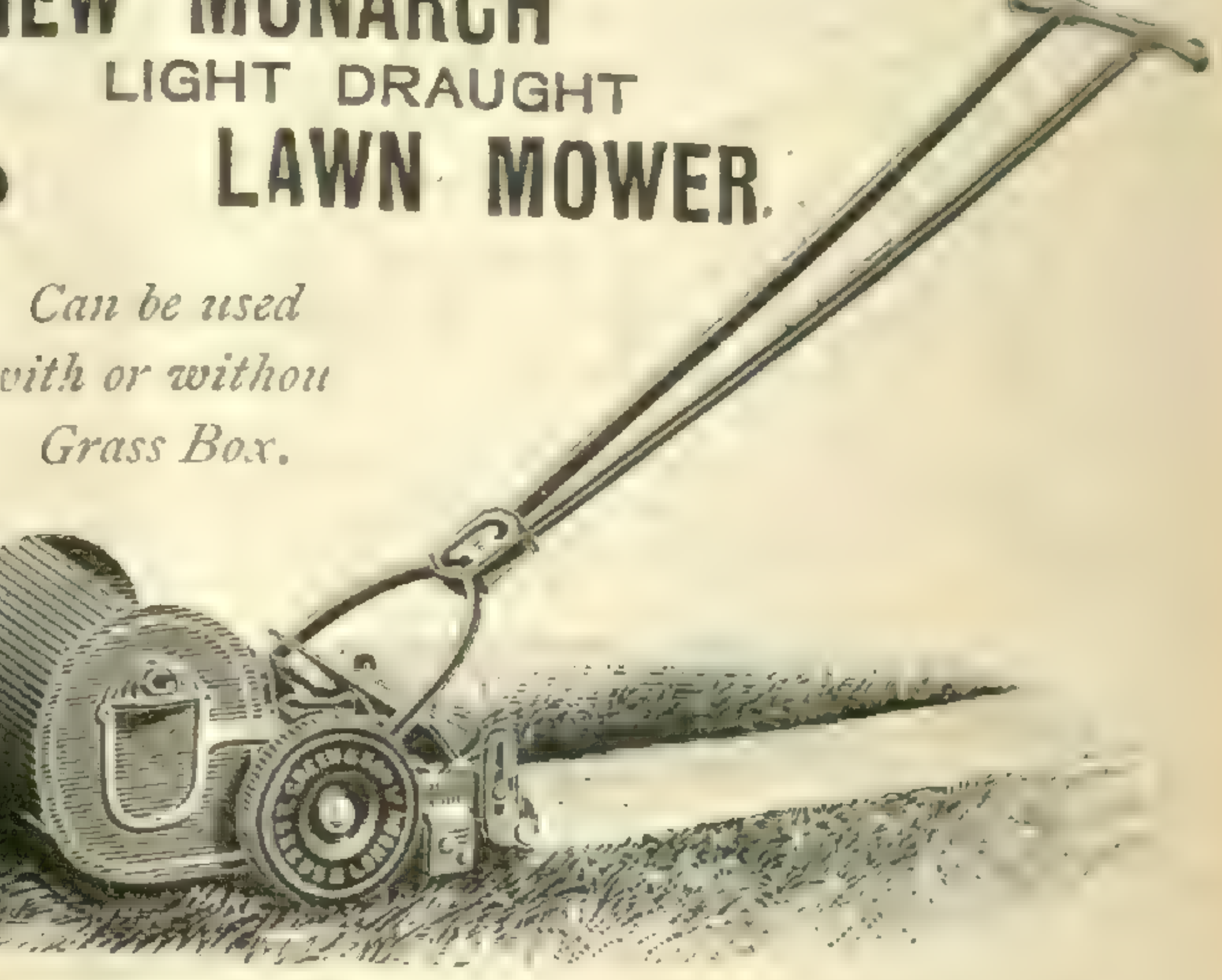

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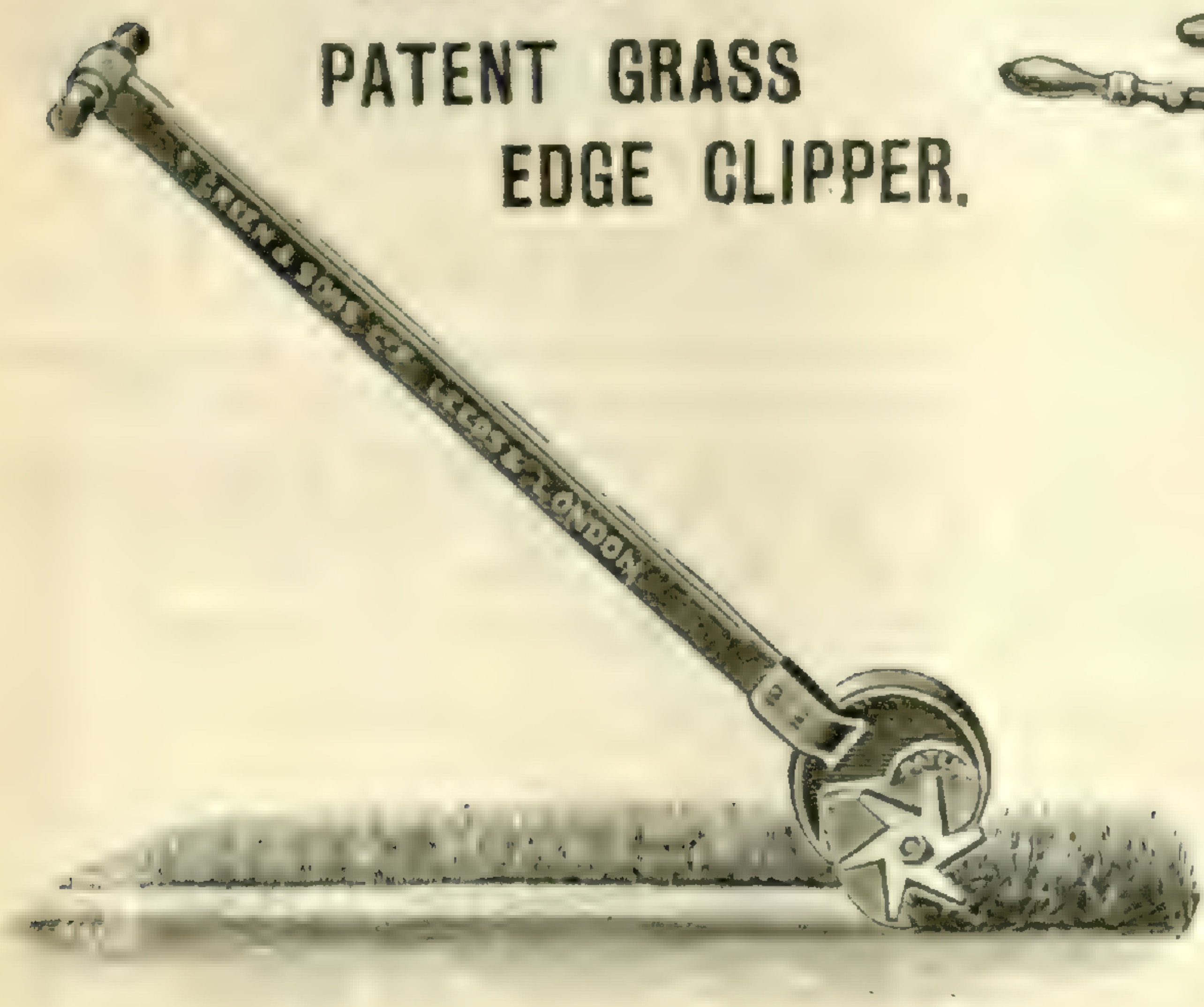

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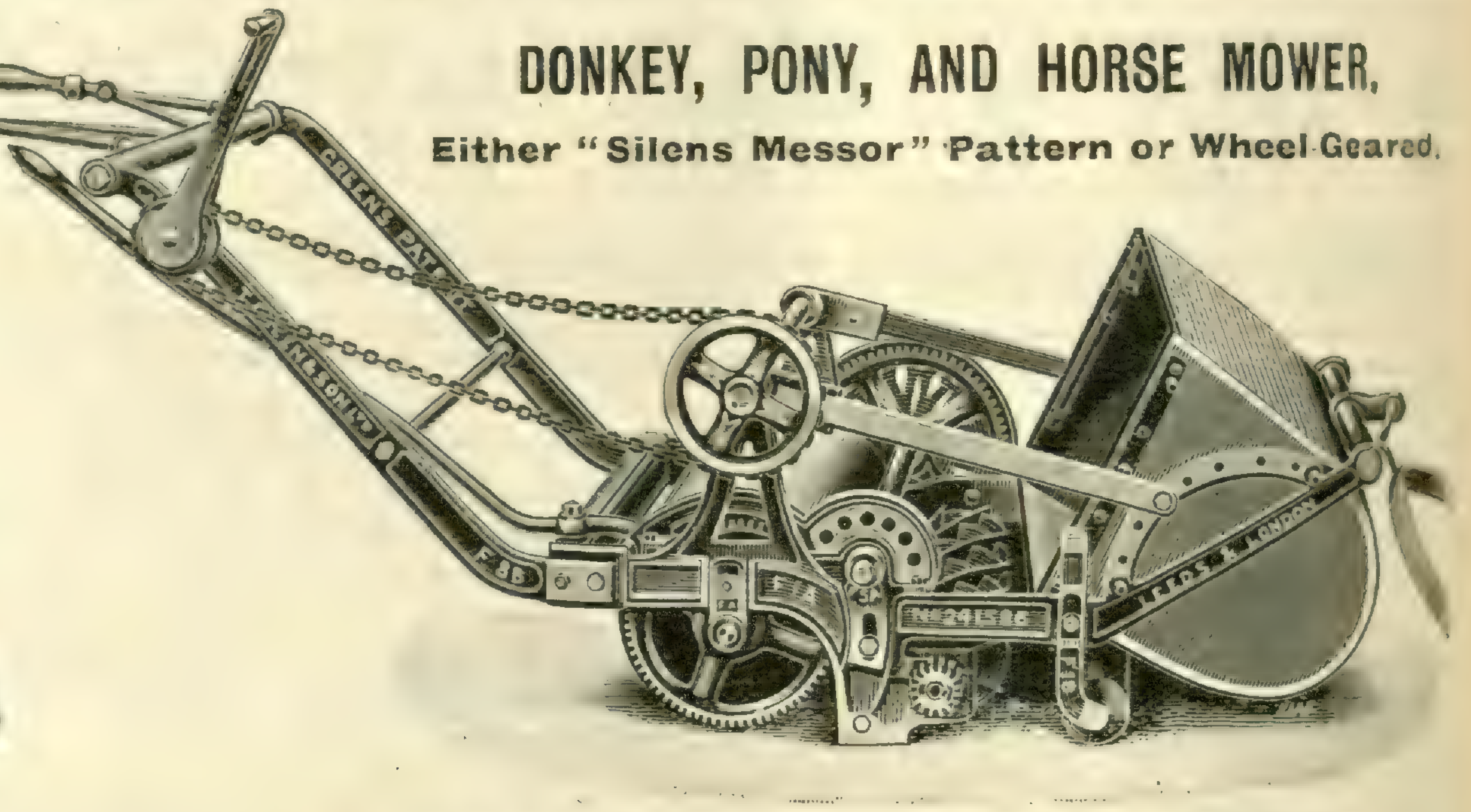

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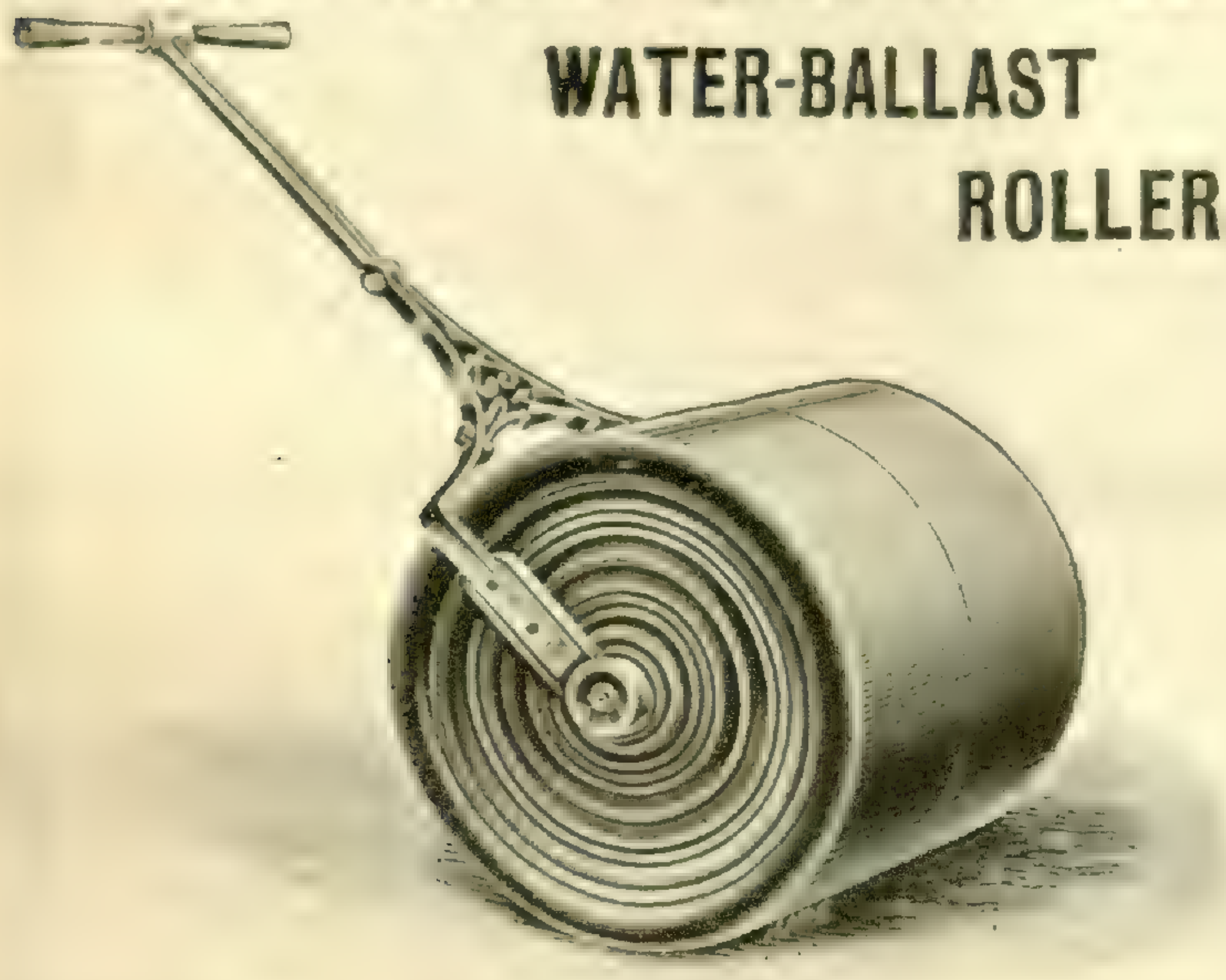

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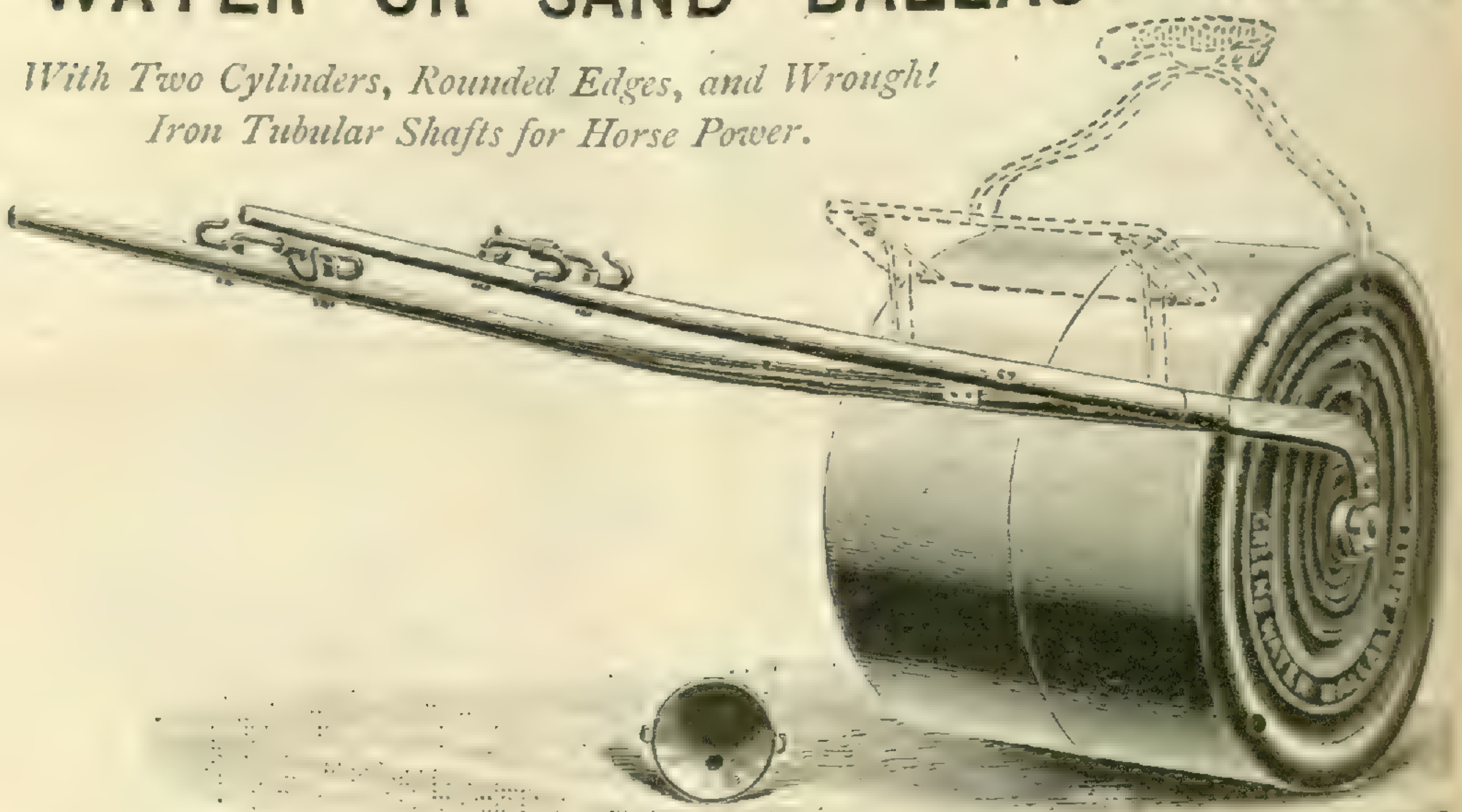

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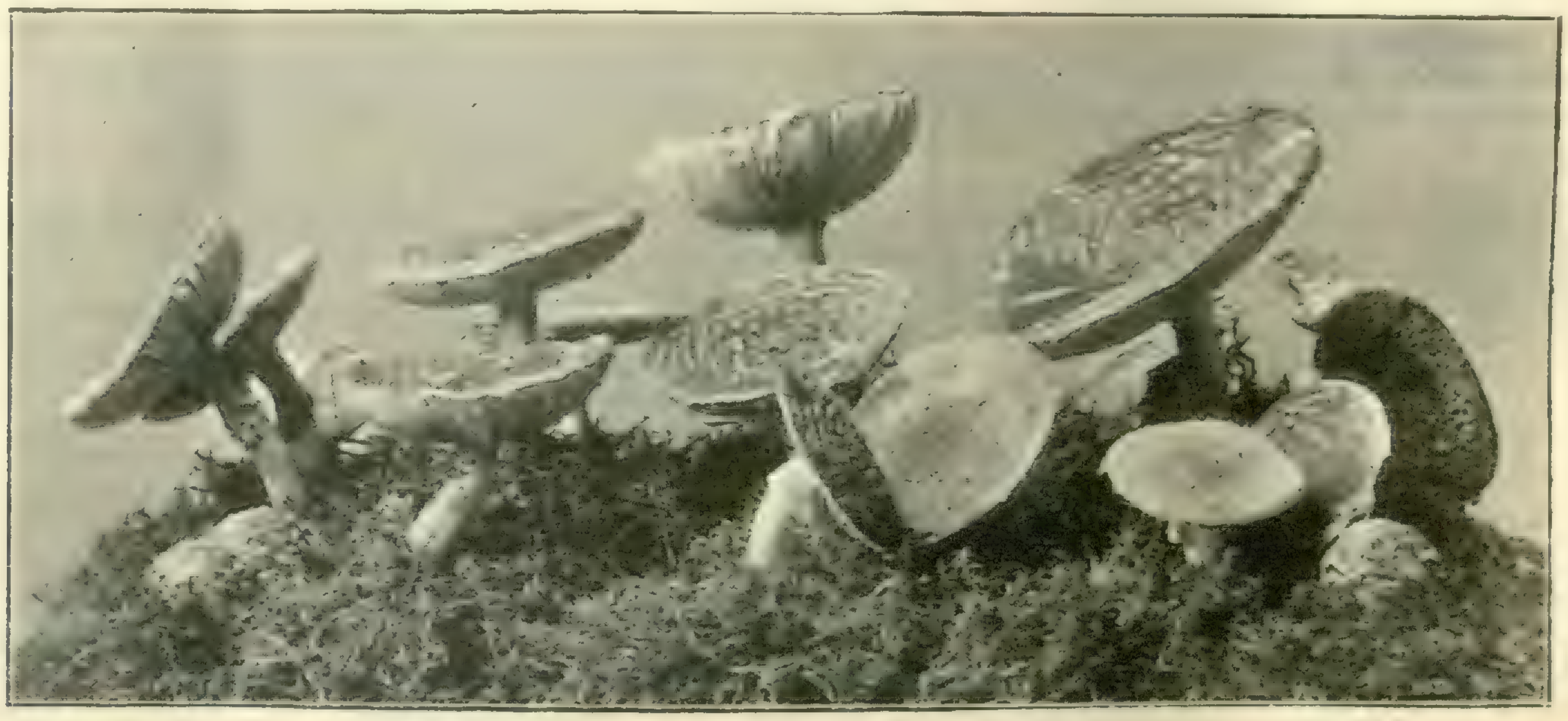
The Fly Agaric.

One of the most beautiful of our native fungi is undoubtedly the Fly Agaric, known as Amanita muscarius and Agaricus mascarius, amanita being a sub-genus of agaricus. This species is fairly common throughout the country, and very frequently may be found in beech woods, where its bright crimson pileus is most attractive in the autumn sunlight that passes through the beech foliage. While it is one of the most handsome of agarics, it is also one of the most poisonous, and not a few deaths have occurred through persons eating it. Yet, curiously enough, this fungus is eaten in many parts of Russia without serious results. Of course cooking has a great deal to do with this, but no doubt also, fungi being more largely consumed there than here, the people become in some measure proof against ill-effects or death as a result of eating them, whereas others would succumb. Methods of cooking are, however, the chief cause of preventing ill-effects, and it is the practice to use salt and vinegar in considerable quantities with the water in which this fungus is soaked previous to half an hour's boiling. When there is any question as to the poisonous properties of fungi, it should be remembered that those with a crimson or red pileus, and those that quickly turn blue when broken or bruised, should be always avoided. In no case should the Fly Agaric be eaten.

The Fly Agaric dried and powdered was formerly much used as a fly poison, and this led to the popular name and specific title. The accompanying illustration is from a photograph sent us by Miss M. E. Barron, High Street, Wimbledon, who writes: "The splendid Fly Mushroom grows abundantly under the fir trees and between the bracken on Wimbledon Common, Surrey. The large cap is sometimes six inches across, and of a brilliant pink or crimson colour, beset with angular whitish warts. The head is set on a tall, well-proportioned stalk, and when at its best the species is very conspicuous even at a distance, and it is impossible not to admire it."



THE FLY AGARIC. (*Amanita muscarius.*) *From a Photograph by Russell and Sons.*

A Hobby for Ladies.

In the autumn or late summer, when the various termini of the metropolis are crowded with the returning tourist, male and female, who have been revelling in the rural delights of our coast or inland resorts, the observant eye cannot fail to be struck by the enormous number of ferns which, in baskets and bundles, figure among the impedimenta, and mainly of those of the ladies. On inquiry, we shall find that the bulk of these are the self-acquired spoils of so-called fern-hunting expeditions, while the rest will be simple purchases from hawkers who have saved them the trouble. To such an extent, indeed, does this admiration extend that every popular resort is surrounded by a large area of greater or less barrenness induced by constant up-rooting of the ferns so soon as they declare themselves, so that it is only where, as in the western counties of Devon, Dorset, Somerset, &c., the air is simply laden with the spores, and plants grow so freely and plentifully as to induce a sort of surfeit, that they manage to hold their own at all near the "haunts of men" and women. Now, the pity of it is that in ninety-nine cases out of a hundred this admiration simply means destruction, and thousands of lovely plants which, in their native habitat, were things of beauty and joys for ever—for the longevity of a fern is an undetermined quantity—are rooted up by their admirers only to stand a long course of misusage during the remainder of the holiday, under which they become ragged remnants of exhausted vitality, and lose every vestige of their native charm. Then, if they have survived and reach town, they are probably stuck into the soil in some utterly unsuitable position, and finally find their grave in the rubbish heap the next time a "tidying up" takes place, and the vegetable kingdom is by so much the poorer. Let us now see what would happen if a proper fern hobby were in question, *i.e.*, one in which an admiration for the plants was accompanied by an intelligent appreciation of their needs and peculiarities, and a knowledge of how to bring out the best that is in them. In such a case, if a specimen plant be found worthy of transfer to the home collection, a good double handful of thoroughly damp moss would first be sought for, never a long quest where ferns are plentiful; the fern would then be carefully dug out with as many roots as possible, and these wrapped up well in the moss so as to form a ball, a stout sheet of stiff paper, or double newspaper, is then laid on the ground, and the ball and carefully adjusted fronds rolled up tightly in it, the whole being tied with string. In this way, with a little water occasionally poured in to keep the moss wet, a specimen will stand for two or three weeks without loss of vigour; and when eventually installed, either in a pot in a cool greenhouse or in good compost in a shady sheltered nook in the garden, will speedily establish itself, and well repay the extra care with additional beauty. Curiously enough, though it is by no means rare to see plants of the common Hartstongue in windows, we have never seen but one in which the full capacity was developed. That was a revelation. The plant stood in a north window, and must have been many years old. The pot was twelve or fourteen inches in diameter, and from this radiated all around some thirty or forty fronds, each about two feet long, the whole forming an immense rosette, which quite filled the window. The pot was pitched at an angle so as to give the plant all the light possible, and the fronds were beautifully clean. Evidently it was regularly watered and looked after, and, as a result, one of the weeds of our ferny districts held its own as a splendid foliage plant, instead of being represented, as it usually is, by three or four misshapen fronds without any beauty whatever.

In our capacity of fern specialist, or "maniac," we have frequently burdened our visitors with spare seedlings as souvenirs; but, alas! they seldom serve that purpose long, yet we have ever a vivid recollection of a splendidly tasselled Hartstongue given thus and long forgotten, which confronted us once in a Kentish cottage, with a perfectly dense mass of really marvellous cristation, a foot across and more, as the outcome of our gift and careful culture, and it is precisely here where the lady's hobby comes in which forms our text.

Ferns lend themselves so peculiarly well to outdoor culture, and when tended with loving and appreciative care so well repay it, that a proper study of their capabilities for room decoration cannot fail to handsomely reward any lady who cares to undertake it. How many, for instance, know the extraordinary fact that there are actually in existence several thousand distinct and beautiful varieties of British ferns; more varieties, indeed, than exist of all exotic ferns put together. Add to this that they are all (with two exceptions) perfectly hardy, so that they will survive the hardest winter frost, and, given a few simple rules, are of easiest possible culture, and the wonder ever grows on those who know that not one room in ten thousand boasts even a specimen. Years ago we rigged up two or three shelves in a bay window facing north, and installed thereon a score or so of good varieties; the passers-by were constantly stopping to admire, and a neighbouring nurseryman became quite an enthusiast, while to me they were a perennial source of pleasure. As we have said, the observance of a few simple rules is all that is needed to ensure success. One rule is, "Plenty of daylight, but little or no sun;" another, "Plenty of water, but no stagnation;" a third, "Keep the pots turned one way, *i.e.*, so that the plant faces the window."

Windows facing north or north-east are consequently best, and, given these aspects, nothing but glass should come between the plants and the light. The watering should be attended to regularly, and although in rooms saucers are requisite to catch the surplusage, these should be emptied unless a smaller inverted saucer be placed within them which supports the pots well above the water surface. If the pots be extra well-drained with crocks, &c., this is a very good way and the capillary attraction lessens risk of drought. The position of the pots is important. Many ladies who grow plants in living rooms are constantly turning them round to show their best faces to the room, but in this they are fighting against Nature. As a plant grows, every leaf adjusts itself precisely at the best angle to catch the light; fern fronds do the same. If, therefore, the pots be fixed, the plant grows as it would in Nature, arranging itself symmetrically towards the light. Give it a half turn during this process and the immature growing portions twist themselves round to remedy matters, hardening as they progress. Hence, after a few such twists and turns, the whole plant is more or less askew, and incurably so, since as the fronds mature they lose their power of adaptation. Of course, in the evening no harm is done by a *volte face*, but the risk of their being forgotten is great. The best plan is to mark the front or back of the pots, to aid in its proper replacement when moved. A good open soil is needed, a compost of loam, leaf-mould, and silver sand being suitable for most ferns, in the proportions of two, two, and one, but for ladies it is generally best to obtain what is needed from a nursery.

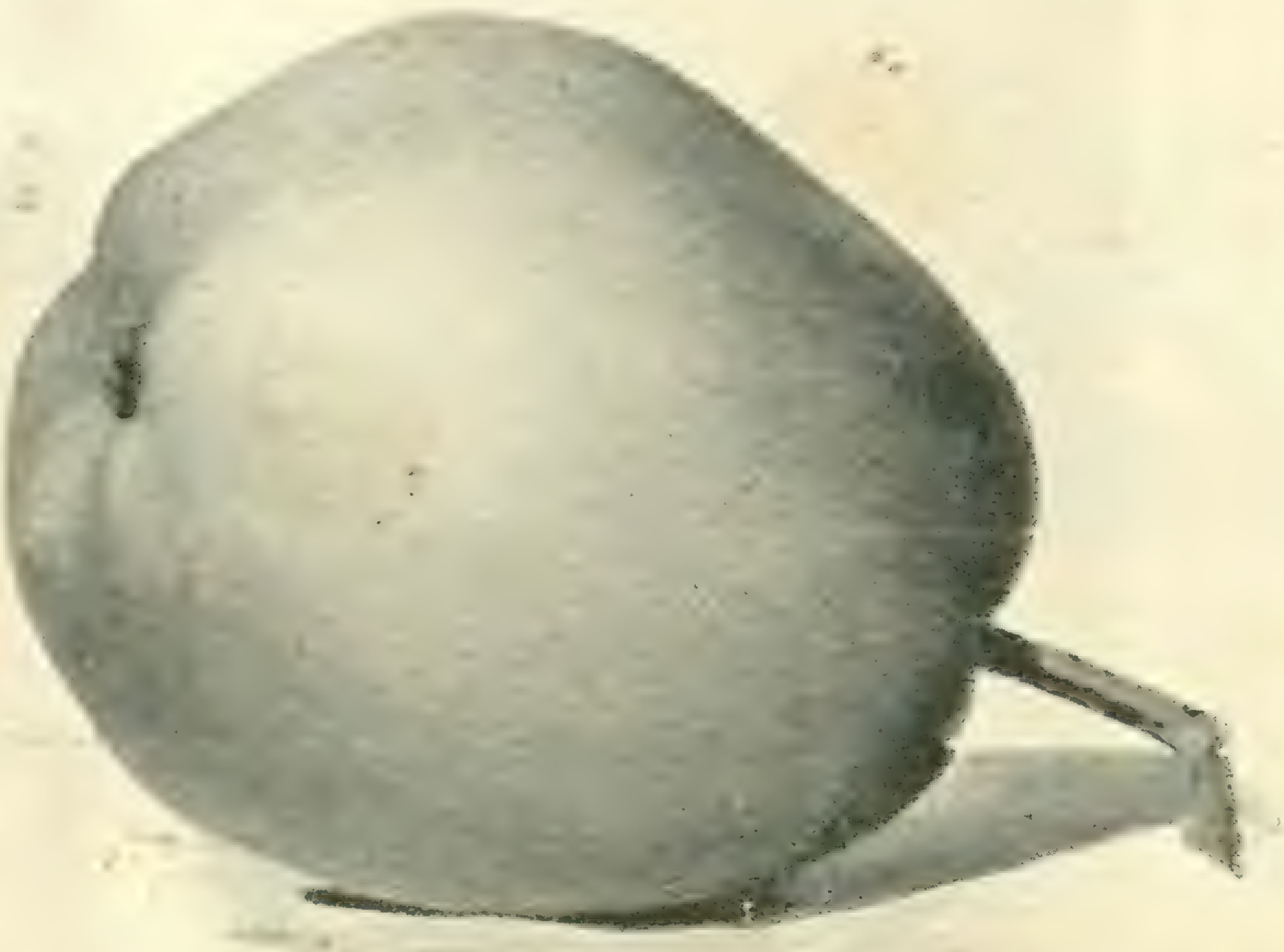
C. T. Druery, F.L.S.

PEAR JEAN DE WITTE.

VARIETIES of pears that are in season at the present, or even a later date, are of immense value, as has been proved not only by market prices, but by the discussion anent late pears that has recently taken place in our columns. One pear has been generally appreciated and recommended for its lateness combined with fine flavour and fairly good appearance. This is Jean de Witte. Mr. Prinsep considers this fine old pear is not thought so much of nowadays, since all the rage has been for huge fruits, but if flavour is to count for anything it should have a place in every garden. Mr. Turton, of Maiden Erleigh Gardens, never fails to recommend Jean de Witte as a good late pear, while Mr. W. H. Lees, of Trent Park Gardens, becomes quite enthusiastic when discoursing upon its merits. A few days ago Mr. Lees sent us a few examples of this delicious pear, one of which we now have the pleasure of illustrating. These were grown on the quince stock, and were of medium size, with handsome, yellowish, russet-speckled skins, clear and bright; they were both attractive and highly flavoured. Mr. Lees grows this pear against a warm wall and allows the fruit to hang as long as possible before being gathered, and by this treatment it is in season from January well into March. Mr. Prinsep asserts that if grown on the pear stock, the fruits of Jean de Witte keep longer in prime condition than if produced on the quince stock. If trees on each of these stocks were grown, it is probable that good fruit would be available in many gardens, even later than the month of March. It has, however, been conclusively proved that this once popular pear has been somewhat neglected of late years, but it is still one of the very best late varieties, and as such should be more often found in gardens.

HYBRID DENDROBIUMS.

FEW subjects, at this season of the year, possess greater interest to orchid enthusiasts than hybrid dendrobiums. Ten or twelve years ago the work of hybridisation was, comparatively speaking, then in its infancy, as only about fourteen or fifteen artificially raised hybrids had flowered or had been described. But the large field then offered by the genus Dendrobium for the operations of the hybridists, has been by them taken up with so much skill and perseverance, that at the present time their labours are frequently and abundantly demonstrated at many of our horticultural exhibitions, and in almost every orchid collection of importance.



PEAR JEAN DE WITTE.

There are now a large number of dendrobiums that have been brought into existence by the hand of the hybridist, and with regard to the plants so raised it becomes a matter of some surprise when we contemplate the great number of distinct species there are in the genus, that there is so little variability in the formation of the flowers, the principal characteristics being in the mixed colouring in the blooms, first brought on by crossing the species together, afterwards by crossing the hybrids with the species, and *vice versa*. Up to the present time nearly one hundred distinct hybrids have thus been obtained. In the production of these the well-known D. nobile and its varieties have been used either as a pollen or seed bearing parent no less than forty times. D. aureum has served, either directly or indirectly, in the raising of at least thirty-five hybrids, and without doubt both species have participated in the parentage of most of the finest hybrids yet raised. It is interesting to note that so long ago as 1866 or 1867 these two species were selected for hybridisation by Mr. Mitchell, then gardener to Dr. Ainsworth, of Manchester, who, after carefully attending to the requirements of the young seedlings for seven or eight years, was amply repaid for his labours when the first seedling flowered. It was named, in compliment to his employer, D. Ainsworthii, the new hybrid partaking of the character of both its parents, and in point of floriferousness superior to either. Subsequently the beautiful and distinct D. splendidissimum grandiflorum was raised by Mr. Seden from the same cross, but he probably having used finer varieties obtained a hybrid with larger and better-coloured flowers. There are other intermediate forms, raised from the same parentage by different operators, so varying in size, and having more or less colour in the blooms that it is difficult to distinguish them sufficiently to know where to draw the line to divide one from the other.

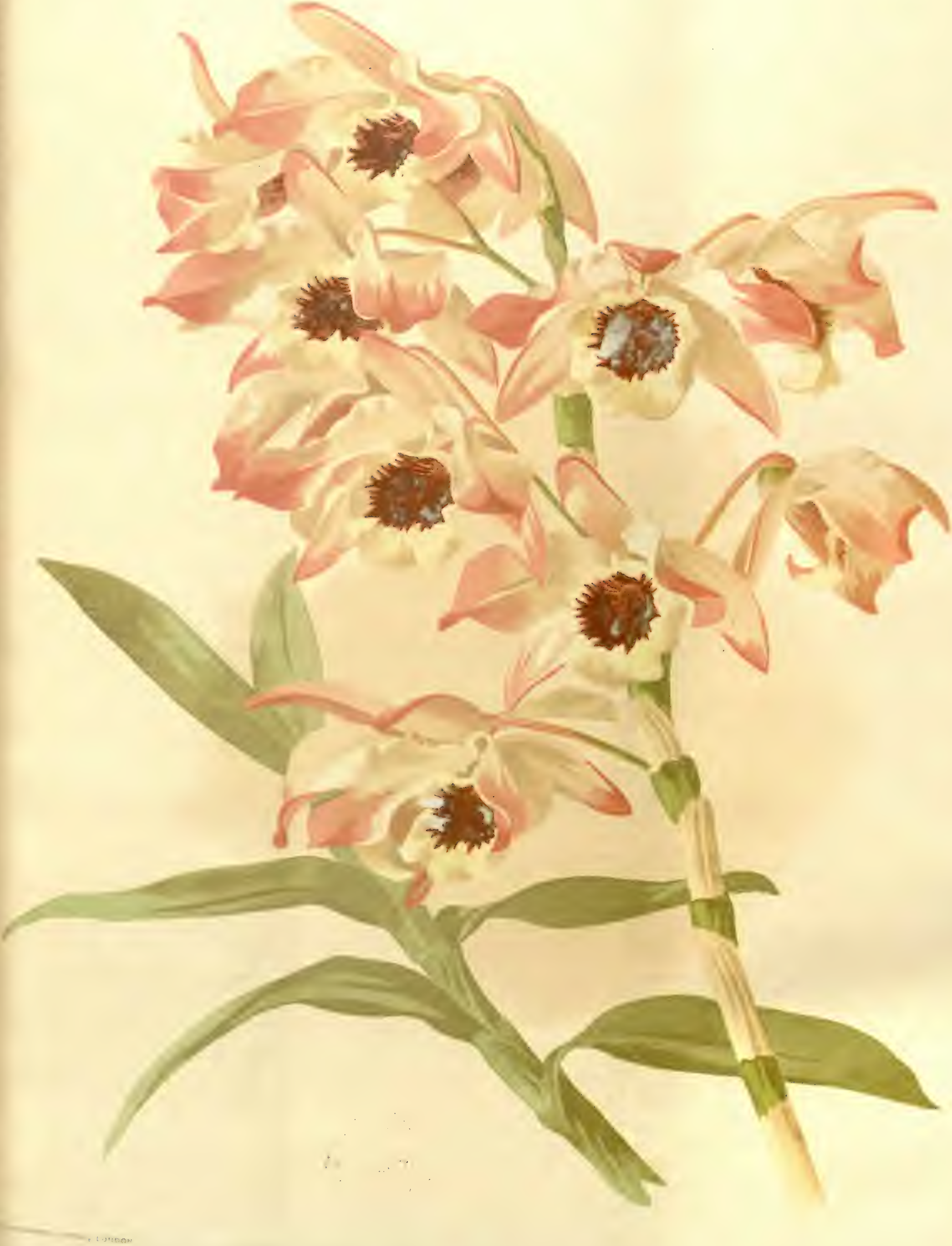
Since 1874, when D. Ainsworthi first flowered, as previously mentioned, numerous other hybrids have appeared, and generally it has been found that almost all the crosses are extremely variable, and from this fact it is no easy matter to discriminate between some of the resulting forms; therefore, intending purchasers would do well to buy hybrid dendrobes in flower only, as probably through no fault of the vendors, they might purchase the same plant under different names over and over again. Dendrobium Dominianum is a very pretty hybrid, also raised from D. nobile, the other parent being D. Linawianum (moniliforme). This was undoubtedly the first hybrid in the genus, having been raised by the gentleman whose name it bears several years before D. Ainsworthi appeared. D. Ainsworthi and its congeneric hybrids have not only proved valuable acquisitions to the dendrobium family, but hybridists have found them extremely useful for crossing purposes. This may be inferred from the fact that out of the numerous hybrids raised, in which hybrids themselves have participated in one way or the other D. Ainsworthi has shared in the production of quite five-eighths of these. Amongst these may be mentioned the beautiful D. Apollo grandiflorum and D. Rubens grandiflorum, both raised by Mr. Cypher, also D. chrysodiscus, D. melanodiscus, D. Clio, D. Dellense, D. Doris, D. euryalus, D. Andromeda, &c., &c., which were obtained by various other operators. Of the remaining hybrids which have participated in raising new seedlings D. Cassiope, D. euosmum leucopterum, and D. endocharis form the principal. D. Findleyanum has proved itself useful for hybridising purposes, having either, as a seed or pollen parent, produced over a dozen new varieties. The small white-flowered D. japonicum has been the means of giving us such lovely hybrids as D. Virginia, D. Doris, D. Æneas, D. Vannerianum, D. striatum, D. Wardiano-japonicum, and D. endocharis. The two last-named varieties are well worth adding to any collection, principally on account of the delicious fragrance of their flowers.

It is singular to note that the popular Dendrobium Wardianum as a seed-bearing parent has hitherto produced but few progeny, the beautiful D. micans being one of the best raised from it, and which, doubtless, it will be difficult to surpass. On the other hand, D. Wardianum as a pollen parent has been more successful, producing such hybrids as D. Alcippe, D. Bryan, D. Aspasia, D. euterpe, D. Findleyano-Wardianum, D. Clio, and D. Wardiano-aureum. Although the well-known D. crassinode has been in cultivation since 1868, only one hybrid has been recorded, Mr. Cookson having been successful in obtaining a cross between that species and D. luteolum. The progeny is named D. Astræa. It may be well to mention here that D. crassinode, while in its native habitat, shared with D. Wardianum in the production of the rare D. crassinode-Wardianum. Several fine hybrids have been derived from D. Falconeri, the best of them being the splendid D. Venus = Falconeri × nobile. The following well-known species have shared in the production of a single new hybrid each—D. MacCarthæ, D. Pierardi, D. Parishi, D. bigibbum, D. signatum, D. crystallinum, D. albo-sanguineum, D. sanguinolentum, and D. primulinum. Of the tall-growing section of dendrobes D. Dalhouseianum is, up to the present time the only species from which hybrids have been obtained. Thus, the pretty D. porphyrogastrum was raised between D. Huttoni × D. Dalhouseianum. D. striatum was derived from D. japonicum × Dalhouseianum, D. illustre, between D. chrysotoxum × Dalhouseianum and D. strætius from D. Linawianum × D. Dalhouseianum Each of these hybrids are extremely interesting, because of the widely different characteristics of the parents used. Perhaps the most remarkable feature connected with these hybrids is the advent of D. chrysotoxum as a parent, and of its being the first of the evergreen section which has participated in the production of hybrid dendrobes. These four D. Dalhouseianum hybrids were raised in the establishment of Messrs. James Veitch and Sons of Chelsea, by their foreman, Mr. Seden, to whose skill we are indebted for a great many other beautiful dendrobium hybrids. Up to the present time only one hybrid has been derived from the Australian species, and that between D. Kingianum × D. speciosum, which was raised by the late Mr Spyers in Sir Trevor Lawrence's collection at Burford. So far as we know at present no success has been obtained in raising hybrids from the nigro-hirsute section of dendrobiums. Including these and the strong, tall-growing species, and those of the evergreen section, there still remains a large and interesting field open for workers in this particular branch of horticulture, and what the future may produce it would be difficult to predict; but, without doubt, many difficulties and disappointments will have to be overcome before the muling of the whole dendrobium family is successfully accomplished. The beautiful hybrid which forms the subject of the accompanying coloured plate is in Baron Schröder's collection of Mr. Ballantine's most recent successes.

Burford Lodge Gardens. W. H. WHITE.

The Paris International Exhibition, to be held in 1900, was referred to in our issue of February 19. We have to add to our former remarks that the Royal Commission for the Exhibition has appointed the following [illegible] as a sectional sub-committee for "agriculture, food, horticulture, forestry, fisheries, and wild crops": Earl Spencer (chairman), Earl of Crewe, Duke of Fife, Earl of Dudley, Earl of Jersey, General Sir Redvers Buller, V.C., Sir Horace Plunkett, M.P., Sir Edward Grey, M.P., Sir Trevor Lawrence, Bart., [illegible] George Russell, Sir Jacob Wilson, Mr. W. T. Thistleton Dyer, Mr. [illegible] Grattan, and Mr. Paul J. Madden.

Supplement to
THE GARDENERS' MAGAZINE.
March 5, 1898.



LONDON

DENDROBIUM SCHRÖDERIANUM.

RHODODENDRON PRÆCOX.

HARDY shrubs flowering during the month of February are so few in number that they should be widely known and taken full advantage of in any alterations that may be made with a view to enhance the attractions of the garden early in the year. More especially does it appear desirable that the beautiful Rhododendron præcox should be more fully utilised in garden decoration than has yet been the case, for in seasons that are at all favourable to outdoor vegetation it commences to bloom early in February, and produces a bright glow of colour extending over several weeks. This precocious rhododendron is of hybrid origin, and was raised some years since at Ormskirk from a cross effected between R. ciliatum, a Himalayan species with rosy white flowers, and R. dahuricum, a Siberian species producing flowers of a rich rose-purple hue. The growth is neat, and the bright rose-lilac flowers are produced with remarkable freedom, and although not possessing the warmth of colour for which some of the later-flowered forms are remarkable, they are decidedly attractive. R. præcox is plentiful in nurseries to which special attention is given to hardy trees and shrubs, and the other day we saw a fine mass in the Waltham Cross Nurseries. Our illustration represents a superb bank near King William's Temple in the Royal Gardens, Kew, which presented a highly attractive appearance throughout the past month, and proved to demonstration the value of the precocious rhododendron in the production of winter effects.

BANK OF RHODODENDRON PRÆCOX IN THE ROYAL GARDENS, KEW.

CHOICE DAFFODILS.

IN the Sheffield district the usual time for daffodils to flower is about the third week in April. This season, however, the varieties have advanced swiftly, and to indicate the mildness of the season, I may state that the lovely miniature daffodil Narcissus minimus expanded its first flower on January 16. We have it planted in a pocket, on the southern slopes of a rockery, and certainly this neat little gem is well worthy a sunny nook, in the most select collection. Other early and small flowering kinds are N. cyclamineus, N. major, N. nanus, and N. juncifolius, the latter a rush-leafed species and producing one of the smallest flowers of any. N. triandrus albus, perhaps better known as Angels' Tears, has been often used in cross-fertilisation owing to its great beauty. It likes to be planted on a sunny slope with plenty of sand round about its bulbs. These fine daffodils can be purchased at very little cost, and when in flower they are most attractive and sweet.

The following is a selection of the best daffodils in cultivation at the present day, beginning with the trumpet varieties first, such as Captain Nelson and Countess of Desmond, the latter with soft primrose perianth and yellow trumpet. Then we have that gorgeous variety Glory of Leyden, with its larger expanded trumpet and broad yellow perianth; this, however, is a mid-season variety. Golden Spur, Henry Irving, Her Majesty, and Hudibras are other choice forms, together with that most distinct form J. G. Baker, which has a rich primrose trumpet and is rather dwarf. John Nelson has a larger uniform bloom of a somewhat drooping habit. Johnstoni Queen of Spain is most elegant, and for vases it is invaluable, as it is of a soft delicate yellow with reflexing perianth, while at the mouth of the trumpet some blooms are spreading and others straight.. N. maximus is a finer yellow, and very telling in a collection of cut-blooms, arranged in glasses; this is fond of good rich soil, but dislikes crude manure. Continuing, we have Mrs. H. J. Elwes, Shirley Hibberd, and P. R. Barr, the last two are very distinct. Sir William Harcourt and Obvallaris (Tenby daffodil) must not be omitted, nor the two imperial forms, Emperor and Empress, both raised by the late Mr. Backhouse, of Darlington. Horsfieldi is another fine thing, very closely resembling the latter, but has the advantage of coming into bloom a little earlier. Bicolor grande is not to be despised, for it has a cool constitution, and coming in late, it is useful. J. B. M. Camm forms a very good companion to the last, and it is one of the most distinct varieties, the colour being a pleasing shade of pale chrome yellow in the trumpet, and white perianth. Madame Plemp has a larger flower, and one of finer substance. T. A. Dorrien-Smith is a very good variety, with the perianth a little shorter than the trumpet, the colour is pale sulphur. Colleen Bawn, Matson Vincent, and Mrs. Thompson are early, and followed by Mrs. J. B. M. Camm, a most elegant form, with white periath and sulphur trumpet; the flowers are pendulous. Mrs. Vincent is of rare beauty and perfect form. All these white and pale sulphur varieties thrive much better in virgin loam than elsewhere, provided plenty of sand is mixed with it. Avoid manure for them, as their constitution is weak, and they soon die if not treated as they like. Madame de Graaff is a most lovely form, and one of the best whites in cultivation; it has a large and well-formed flower, without any trace of coarseness. The last of the Ajax varieties to be mentioned is that gigantic form Weardale Perfection. This is one of the largest, combined with splendid habit and flowers of great substance, the segments being very large and of a creamy white shade; the immense trumpet is primrose-yellow. Weardale is rather late in flowering, and is altogether a very choice daffodil.

In the medium and short cupped section there are some very pleasing daffodils, with colours ranging from yellow to deep orange-scarlet. The flowers are most valuable when cut and arranged with a little of their own foliage in glasses, as they are light and elegant. N. Barri conspicuus and N. Barri Sensation are two very good varieties, followed by Gloria Mundi, a fine bold deep red flower, and a form having a good constitution. Queen Sophia and the giant Welsh daffodil, Sir Watkin—the largest of the Incomparabilis group—make, with the more recent introduction, Lulworth, with its pure white perianth and bright orange-red cup, a famous trio. Siddington was introduced about the same time as the last mentioned, and it is a free-flowering variety, usually producing twin-flowered scapes. Duchess of Westminster, belonging to the Leedsi group, is like a six-pointed star; Katherine Spurrell has a broad and overlapping perianth, and should have a select place in the smallest collection; Gem is another acquisition to this beautiful group, being white and of splendid form.

The Nelsoni group of daffodils is very interesting. N. major and N aurantius, with Mrs. C. J. Backhouse and William Backhouse, make a fine quartette. The first two are heavily stained with orange-scarlet round the expanded cup. As these all flower so late they seem to be even more attractive than some of their earlier relations. In conclusion, I hope this interesting family will be more cultivated in future, especially among those who have time and inclination to hybridise and cross-fertilise them, so that the forms may still continue to increase, and our gardens enriched.

Totley Hall Gardens. T. W. BIRKINSHAW.

APPLES IN HAMPSHIRE.

It cannot be said that this part of the county is famous for its good apple orchards; in fact, this particular neighbourhood is, I fear, somewhat noted for the reverse. In the Havant district, and from there on to the borders of Sussex, apple growing is a great feature. Orchards there assume large dimensions. Fifty acres are under culture by one grower, and successfully cultivated too. The varieties are numerous, of the best kind, and thoroughly suited to the soil, and the market requirements also. Much of the fruit finds its way into the Portsmouth market, where it has a ready sale at fairly good prices. In this neighbourhood the great fault planters have made in the past has been the selection of unsuitable varieties. In but few orchards are to be found really deserving varieties; too much faith has been placed in local varieties, such sorts as Hambledon Deux Ans being a great favourite. In this immediate locality apple culture might be successfully carried out, both soil and climate being quite suitable. For years past I have endeavoured to impress upon planters the advantage of growing good varieties only, and procuring a good class of trees. Too much thought is given to the purchase of cheap trees, simply because they are cheap. This is an error.

In this garden we have under cultivation one hundred and forty varieties. The object in planting so many was to test their suitability for the locality. To a person intending to plant an orchard for profit I strongly advise a limited selection. The point is to find out what is required, and plant accordingly. It is useless in this part to grow late-keeping varieties. English-grown apples cannot compete with American or Tasmanian produce. Even varieties like Cox's Orange Pippin, really good in quality, have to give way to the imported fruit in the Southampton market. In spite of what so many persons write, from supposition, English cultivators have to face these facts. So few of the general public, too, know the quality of such apples as Cox's Orange Pippin. To me it is astonishing, too, that small cultivators should be content with local varieties, worth only two shillings per bushel, when their neighbours are obtaining double the amount for superior sorts.

In the face of American and other competition I strongly urge intending planters to so arrange their varieties that all their fruit is cleared six weeks before Christmas. This advice may appear strange to many persons who write advising the planting of late varieties. Storing the fruit does not pay in a general way; you may secure one or two single customers who appreciate the good quality of superior English apples, but in a general way late apples are a failure as far as their market value is concerned. I am too well acquainted with the best fruiterers in the southern ports to advise any other plan. Plant varieties like Worcester Pearmain in quantity, and fear not, for there is always a sale for this apple, it being handsome in appearance and in season at a suitable time. In September and in the early part of October there is a dearth of really good dessert apples. The varieties in existence at the present day do not admit of a succession. After the Quarrendens, Lady Sudeley, Irish Peach, Worcester Pearmain, and Nanny or Sussex apples as they are termed, there are none of any moment, until King of Pippins, Cox's Orange, Blenheim Pippin, and Ribston Pippins are ready. The cry is for more dessert kinds; pudding apples, as the kitchen sorts are termed, are plentiful. An apple which in time will do much to fill the void is Benoni when it becomes better known. In general appearance it much resembles King of Pippins, but ripens fully a month earlier, and is perhaps of better quality. It is certainly a pleasing apple in every way. The habit of growth, too, is desirable, being upright in character, vigorous and and yet a free bearer. I am much impressed with this apple after an extended trial. As yet, though, it seems to be little known outside of the nursery or large garden. So much are the fruiterers driven into a corner to procure dessert apples in October and the latter part of September that they readily buy up Cox's Orange Pippin and the King of Pippins. I am aware there are other varieties than those named ripening at the period quoted, but they are much too small for the best class of trade. Duchess of Gloucester, Golden Pippin, and a few others ripen then, but all are useless for the above reason.

In the autumn of 1890 my employer decided to plant five acres of grass land as a test of the value of apple culture, and with the object of finding employment for labour The site was sheltered from the east, south, and south-west winds by fir trees, not too near to interfere with the growth of the apple trees. In a situation like this, at an altitude of three hundred and ninety-five feet above sea level, where strong south-westerly winds prevail at the end of August and the first fortnight in September, as well as cold biting easterly winds in April and May, shelter is absolutely essential to success. The average rainfall is thirty inches; last year this quantity was exceeded by one and a half inches, whereas the previous two years we were several inches short of the average quantity. Abundant sunlight, coupled with the necessary soil constituents, enables the fruit to colour perfectly. In fact, with few exceptions, apples do not colour better anywhere.

As the trees here under my charge have succeeded, and equalled expectations in growth and productiveness, a few remarks as to the method of culture pursued, and selection of varieties, may be useful to others. The selection of varieties and the kind of tree is important. With the object of obtaining early fruit of both kitchen and dessert kinds, the selection was made accordingly. With the large number of two thousand trees it must not be inferred that no mistakes in selection were made. The chronicling of failures often leads to success afterwards in gardening matters. I will depart from the usual rule, and commence with the failures. In making the selection I was persuaded to plant Ecklinville Seedling largely, it being one of the best market apples. Knowing it to grow freely and crop well, I planted two hundred and fifty trees. Experience now compels me to say in this part it is the worst market apple possible. The skin being soft, as well as the flesh under it, it is easily bruised, and therefore valueless. Dealing first with kitchen v I planted freely of Lord Grosvenor, which, as is generally is a close imitation of Lord Suffield although not quite so It, however, has the merit of resisting canker in this soil, which case with Lord Suffield. Lord Grosvenor grows freely and bears heavy crops of fruit, the first of which are ready by the middle of A Warner's King is really a grand apple where space can be given it allow of a free extension of its branches, thus bringing it earlier bearing than though it had to be somewhat severely pruned to restric its limit of growth. Good specimens of this apple always command highest price. Lane's Prince Albert was largely planted also, inde was a happy choice, as the habit of growth is desirable in a limited sp As a cropper it is too well known to require praise from me. Pomona I planted but a dozen trees; the number ought to have b times that number, as it possesses ail the characteristics of a g market apple. Of the Queen I planted a dozen, which was really twelve too many; as a market apple it is too flat and dull in appearance to be appreciated. Mère de Ménage here succeeds admirably, colouring almost too deeply to be sought after. As a rule it is not a heavy cropper here it is quite so. Bramley's Seedling succeeds really well in the but being a late variety it is useless for the market, but is valuable home consumption.

Other desirable varieties, but planted sparingly, and those for purposes, are Alfriston, with which I am well pleased, for at the end January the fruit was in splendid condition. Waltham Abbey Seedling I cannot recommend, as, in spite of severe root pruning, it grows much too freely and produces fruit much too sparingly. Tower of Glamis is good, and so is D. T. Fish, which for ordinary purposes may very well be called Warner's King. Dumelow's Seedling, strange to say, is not a success; although the trees are healthy and bear freely the fruits are of poor quality. Yorkshire Greening annually bears a heavy crop of full-sized fruit, which, however, are not of a taking appearance. Golden Spire is a desirable variety to plant, but Keswick Codlin is not. Stirling Castle requires too much attention in the way of manuring to obtain a sufficiently vigorous growth to command success. For this reason I do not recommend it, although many persons like it.

Amongst dessert apples, Devonshire Quarrenden is the first inquired after; it crops freely, but does not make vigorous growth in this soil. Irish Peach I do not advise; the fruit is too small, soft, and generally unsuited. Red Astrachan would probably meet with more success. Worcester Pearmain, as previously stated, is a complete success. If I had planted no other sort I should now have no cause for regret. King Pippins is good, and always meets with a ready sale. Cox's Orange Pipp and Blenheim Pippin are too well known to need comment, except to too many trees cannot be planted. Growers must be content to wait least ten years before the latter does itself justice; after that, if it succeeds, it is perhaps the most regular cropping apple we have Henniker, if we could induce it to bear rather more freely, would deserving of more space, as it finds a ready sale. The crop is, howe too sparse to warrant its inclusion to a large degree. Royal Russet can recommend. Pineapple Russet is far too soft in its flesh to be of much service. Sturmer Pippin is too late and too dull in appearance be desirable. Benoni I previously alluded to in favourable terms.

The kind of trees to plant is important. I am not so deeply impressed with the value of the Paradise stock as some persons are. The point they claim is that of coming early into fruiting condition. In our soil I prefer trees grafted on the free stock or seedling apple, as they are more likely to grow vigorously. As to their not cropping so early, experience leads me to say such an assertion is unfounded, as with the trees would bear the season after planting if it were necessary or advisable to allow them to do so. There is a freedom of growth about seedling stocks not obtainable in the Paradise.

The time to plant apple trees is an important point in their welfare. I prefer the early autumn, directly the leaves change and while the soil has still some warmth left in it. If planting cann done before the end of November I prefer to wait until the first wee March, and would rather plant then than not at all, or even wait the following autumn. From March to November newly-planted if kept moist about the roots with the aid of a thick mulch of half manure, must produce much fibre, and surely they are in a better the following spring than newly-planted trees.

Swanmore Park Gardens. E. MOLYNE

Chiswick Gardens.—Although Dr. Ince regards the gardens at Ch as a white elephant to the R.H.S., his opinions on such a matter are of no c quence whatever. To one Fellow holding such an opinion, there are a hundr least of horticultural capacity who think differently. We would all like to see money spent on the gardens, not only to erect needful and proper trial houses, also furnishing more of labour. But there can be no doubt whatever but that trials at Chiswick have the greatest interest and value to the community. It may be said that the trade utilises them not, nor respects the results. That may be but these trials are conducted in the interests of horticulture generally, and for benefit of the Fellows. Whatever of scientific teaching may be engrafted on gardens, practical horticulture must dominate.—A. D.

The Parentage of Roses.—In my contribution to the GAR MAGAZINE on this subject, La Boule d'Or has, by a clerical error on my been unfortunately substituted for Bouquet d'Or as one of the finest derivations from Gloire de Dijon. I take the earliest opportunity of making correction. I also may say that Ulrich Brunner, though of German name, be accurately described as having been of Teutonic extraction, having derived, I understand, from that enormously large, but not very refined, entitled Paul Neyron. I generally find that varieties which are especially able by reason of their dimensions are somewhat lacking in beauty of form. roses which approximate most closely to perfection are very rarely of im size. There are, nevertheless, a few exhibition varieties which may be re conspicuous exceptions to this general rule.—DAVID R. WILLIAMSON.

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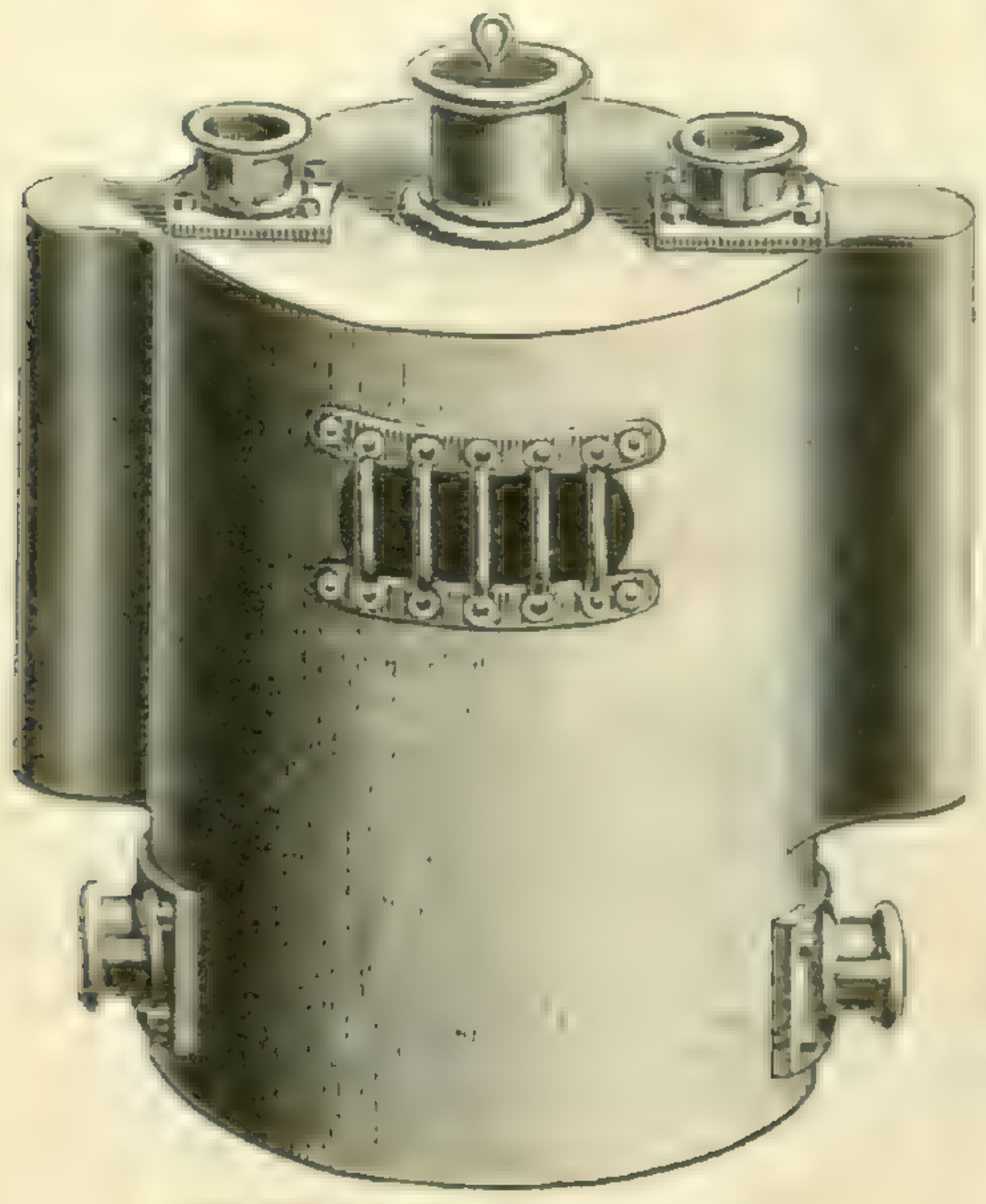
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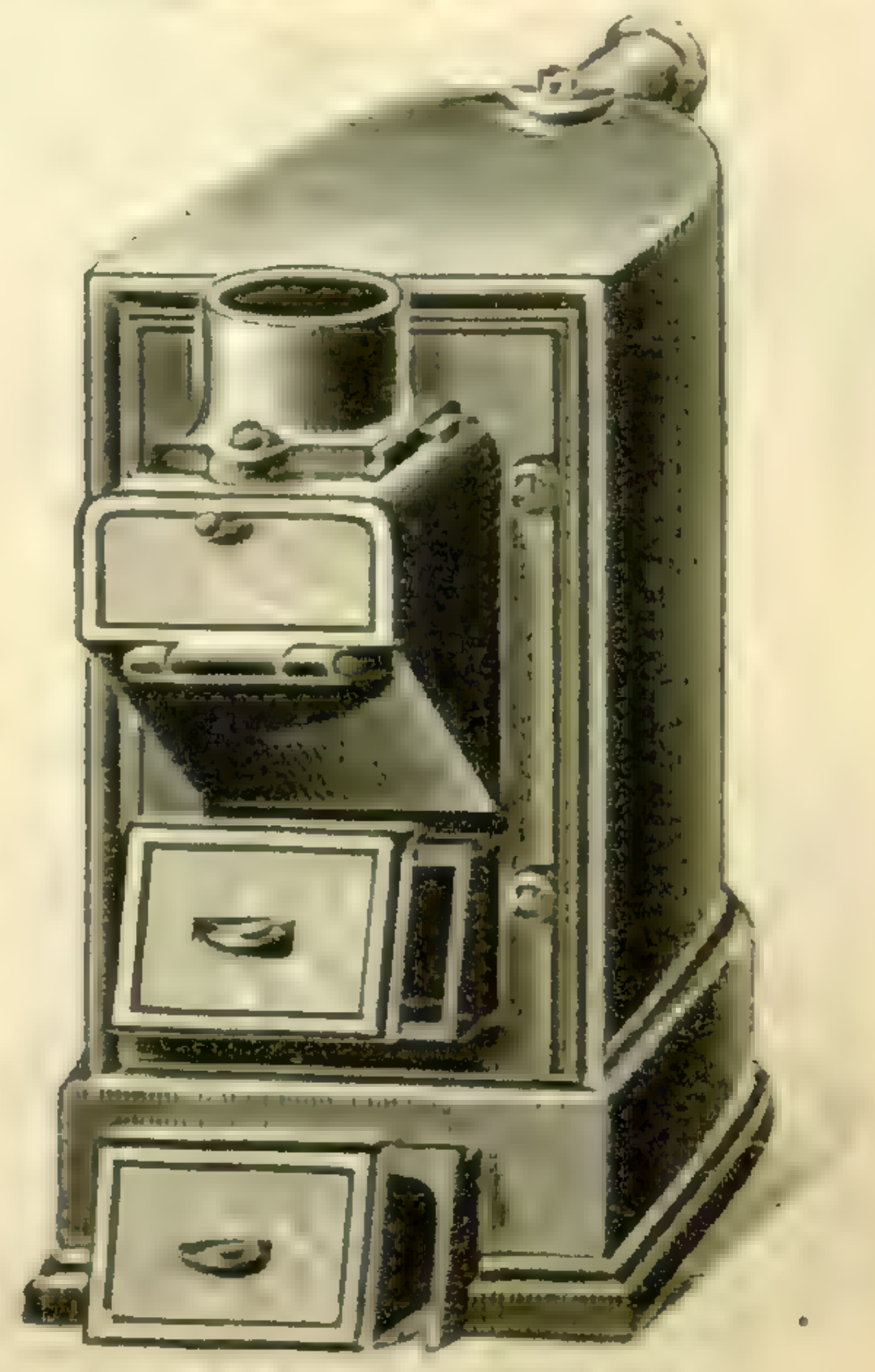
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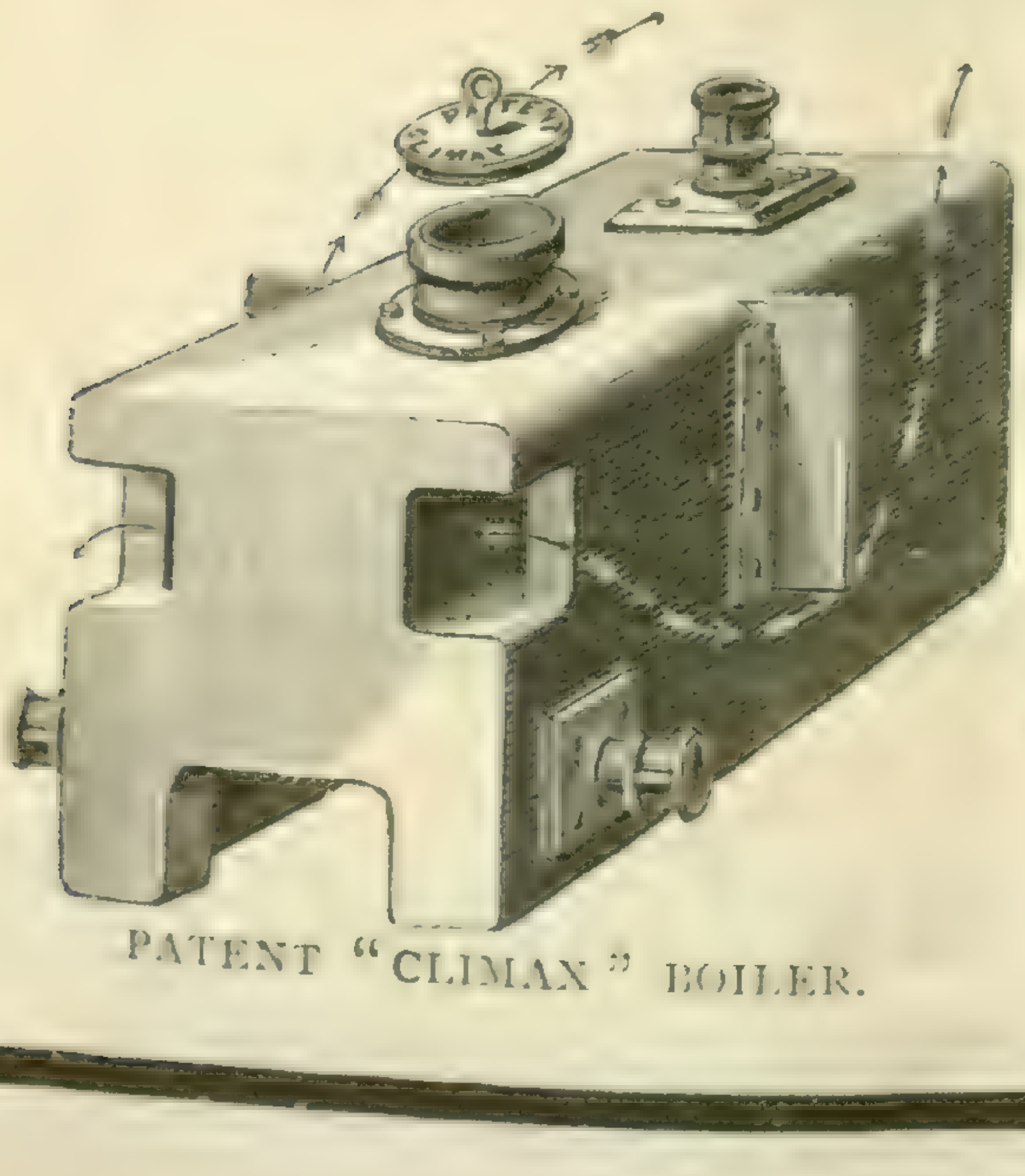
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THE POSITION OF SCOTTISH HORTICULTURE.

In reviewing the position and progress of horticulture in Scotland during the past twenty years, one is almost amazed at the changes that have taken place in connection with some of the most famous gardens of former times, and at the large number of once well-known gardeners that have passed away; men who, in their time, so worthily filled their respective situations and did so much towards raising the art and science of horticulture to the high position it has now attained.

In regard to the changes in the fortunes of many estates, the depreciation in the value of land has been one of the most important factors, and circumstances over which neither owner nor employé could control have necessitated severe reductions to be made in the staff of workmen and a strict curtailment of expenses in connection with the garden wherever possible. From this cause many of the most historic places of a quarter of a century ago are now but a shadow of their former greatness. The ownership has in many cases been changed, or the mansion and surroundings have passed into the possession of others for the time being, and where this arrangement is made for a series of years the results are generally satisfactory, and the introduction of wealth from this source has prevented many estates from being reduced to the lowest extremities.

These changes, however, have not always proved to the advantage of the gardener, who probably has spent the greater and best part of his life in one situation, and has made the special tastes and requirements of one family his own interest and study, and who realizes late in life that he must start afresh, in accordance with new ways and ideas, a proceeding often found to be easier in theory than in practice; for the preference so frequently manifested in modern times for a younger man, may lead to the enforced retirement from the sphere of duties to which he has devoted life-long labours, at a much earlier period than he anticipated, or probably was prepared for. Against this somewhat dark side of present-time horticulture may be placed the fact, that a great number of gardens have in late years been established throughout the country by the wealthy merchant classes, especially in the neighbourhood of the large centres of population and industry. These places have, to a great extent, provided useful and lucrative employment, for much of the surplus labour and talent set free in rural districts; and although many years must pass before they can favourably compare for sylvan beauty and historic association with older places, yet it is to these modern gardens that one must turn to find in quantity the rare and costly orchids, and other plants, that have of late been introduced, and being housed in structures built upon the most improved principles, combined with the best and most skilful cultivation that experience and wealth can devise, renders them the subjects of the glowing accounts so frequently brought to the notice of the readers of horticultural readers.

The events already referred to have also been instrumental in changing the methods of furnishing and decorating, both under glass and in the open. Of the former, the large specimen plants once so popular have given way to those of quicker growth that are suitable for the decoration of rooms, or that supply cut flowers in quantity for that purpose; while the immense numbers of tender plants that were formerly used for the embellishment of the flower beds in summer are now replaced where possible by those of a hardier and more useful and lasting character, among which carnations, roses, chrysanthemums, and the hardy herbaceous plants are the most popular. These do not produce such a display of colour for a brief period as did the ordinary bedding plants, but the balance is in their favour of requiring but a comparatively slight amount of attention to grow them well, and the flowering season of one or other of the species extends over the greater part of the year, while as cut flowers for vase decoration they are most useful either for home use or for sending to a distance.

The last sentence brings forward a point that has influenced the position of the northern gardener considerably, viz., the parcels post, and cheaper railway rates for horticultural produce. A few years ago the period known as the London season was looked upon as the most leisured time, so far as requirements from the garden were concerned, and any important alterations or improvements were then carried out, with the full assurance that nothing would occur to interrupt the speedy accomplishment of the work, as the occasional hamper of produce on special entertainments was the only requirement for some three or four months. At present, however, it is seldom that a day passes without a request for some favourite flowers, grasses, or evergreens to be sent by post, while lower rates and more rapid transit enables fruit and vegetable gathered late in the afternoon, and travelling several hundreds of miles through the night, to be delivered in London the following morning in time for placing upon the breakfast table, and in condition almost as fresh as though grown in the home connties.

While these events have occurred in connection with the professional gardener, they have also exercised considerable influence upon the large and ever-increasing company of amateur cultivators, to whom is due the honour of having made the greater progress of any in recent years. In this the weekly circulation of horticultural literature, and seed catalogues containing full descriptions of many flowers and vegetables, and much cultural information, that are now so freely distributed among all classes, have done much to awaken and sustain the interest in all matters relating to horticulture that is so apparent at present. A few years ago the amateur was tolerated at exhibitions, mainly owing to his subscription, and his exhibits were often relegated to the most obscure part of the exhibition tent, as though unworthy of a more prominent position. Time, skill, and application have changed this, and it is not unusual at present to encounter a little group of professionals eagerly discussing the merits of the produce staged by their less fortunate, though seldom less modest neighbours; and in certain classes as vegetables, hardy and half-hardy plants and flowers the comparison is frequently not unfavourable to the amateur.

The extended culture of hardy fruit for market is making fair progress in country districts, especially with strawberries and bush fruit, which meet with a ready sale, both for private use and the requirements of the preserve manufacturer. The same cannot as yet be stated in respect to apples, pears, and plums, though in districts very favourable to the growth of these, extensive plantations have been made; but, generally, the planting is confined to gardens and small orchards.

The excellent articles that have appeared in the pages of the Gardeners' Magazine under the title of "Wasted Orchards" have certainly been the means of stimulating an inquiring spirit among the proper class to benefit thereby, and this may in course of time develop a better knowledge and system of fruit culture being carried out than exists at the present time.

Brief reference may be made to some of the annual exhibitions held in Scotland, and of these the autumn meeting of the Royal Caledonian Horticultural Society, which is held in the Waverley Market, Edinburgh, is the most representative and popular, and it forms the yearly concentrating point for gardeners from all parts of the kingdom. It is needless to enlarge upon the convenience and suitability of the Waverley Market for holding a great show, or to the efficient management that has for many years endeavoured so successfully to keep the exhibitions well abreast of the times by adding new features by way of substantial prizes for various classes of produce whenever necessary.

The Scottish Horticultural Association, which was instituted twenty years ago, has done good service for the advancement of horticulture in many directions, and it was under the auspices of this association that the now famous chrysanthemum exhibition is carried on. Started about twelve years ago in a very modest way, it soon showed signs of outgrowing the accommodation provided for it, and it was soon afterwards transferred to the Waverley Market, a proceeding that gave rise to considerable doubt as to whether it would be possible to furnish the huge structure in an effective manner in the month of November.

At that time it was mainly a chrysanthemum show, but, to fill space and add variety to the concern, several gardeners, among whom was myself, were invited in 1887 to forward collections of hardy fruits for this purpose. The appeal was well responded to, and a very representative display was the result. The following year the society offered prizes, and some specials by nurserymen were also offered for collections of apples and pears, and vegetable classes were instituted. These have been augmented from time to time, until now the society has one of the finest winter fruit shows in the kingdom, and those who saw the fine display of grapes and other hothouse fruit which were staged last November, as well as the quantities of hardy fruit and vegetables which are always well shown at Edinburgh, must have been amply rewarded, apart from the grand blooms of chrysanthemums that were staged in such perfection and quantity, which, together with the many special exhibits, filled the spacious market to overflowing.

Galloway House, Wigtownshire. JAMES DAY.

The Mole.—Whether the mole is injurious or not from a cultivator's point of view is a question upon which, probably, there will be always some difference of opinion. Many maintain that mole-hills are not only very unsightly, but that they prevent the mowing grass from being properly cut. They overlook the fact that if the hillocks were knocked about in the spring, and the fine soil of which they are composed were spread over the surface, they would have an excellent and inexpensive top-dressing for their fields. Another recommendation lies in the system of surface drainage which is effected by the mole's "runs"; while a third, and perhaps the most important, consideration is the fact that the mole preys not only upon earthworms and field slugs, but also upon the larvæ of many coleopterous and dipterous insects which are very destructive to the roots of grasses and other field crops. The late Mr. Henry Reeks of Thruxton, near Andover, who was a practical farmer as well as a good naturalist, was strongly in favour of sparing the moles upon agricultural land. If the natural enemies of the mole were not destroyed, there would be much less need for trapping their velvet-coated prey. Weasels kill moles—as long ago remarked by Gilbert White in his fortieth letter to Thomas Pennant—so do owls when they can catch them above ground on summer nights; so do buzzards The common buzzard is a capital mole-catcher, and in the vicinity of mole-hills will take up a position on some low bough of a tree, from which it will glide and seize a mole the moment the earth moves on its approach to the surface. In this way (*i.e.*, by watching and jumping down) buzzards destroy not only moles, but numbers of rats and mice. But the weasel, the owl, and the buzzard are thoughtlessly trapped, poisoned, or shot, on the score of their interference with game, the result being that the farms are overrun with rats, mice and moles, and the farmers in self-defence have to pay for their destruction instead of leaving them to the supervision of "nature's police." It becomes, then, a matter for consideration how best to get rid of moles on land where, for the reasons above stated, they have unduly increased. Macgillivray states that every mole appropriates to itself a particular tract of ground, in which it forms a kind of fortress under a hillock, but this we are not able to confirm. On the contrary, it is certain that many use the same "runs" in common, just as rats and mice do. This is made evident from the fact that a mole-catcher will trap mole after mole in the same "run" to the number of a dozen or more, resetting his trap time after time nearly in the same spot. To discover which are the most frequented "runs," the plan is to mark every fresh mole-hill by a light pressure of the foot, and to examine it next morning to see if a mole has passed by and partly obliterated the depression by fresh upheaval. In two or three days it will be seen what part of the ground is most used, and there the traps may be set. Although iron traps may give less trouble to set, the kind of mole-trap most in vogue is the old-fashioned wooden one—a semicylinder of wood, with grooved rings at each end in which are fixed horsehair nooses kept in position by a peg in the centre and strained by a cord attached above ground to a pliant stick bent downwards. As the mole passes through one of the nooses and moves the peg aside. the pliant wand springs up, and the mole is held tightly in the noose.—F. E. Harting, in *Board of Agriculture Journal.*

FLOWERS FOR EASTER.

EVERY season has its special favourites in particular flowers, but perhaps at no other season of the year do they enter more generally into our national life and religious rites than at Easter, and certainly at no other time do they bring with them a greater pleasure of hope and joy.

The last few years have witnessed a great addition to the demand for cut flowers and plants for this festival in town and country alike ; for now scarcely a city cathedral or parish church is found without its plants and flowers on Easter Day, and, consequently, the demand on the gardener's resources is at this time somewhat severe, and coming as it does at a time when other work of all kinds is most pressing, the tax is all the more felt ; but thanks to the gradual introduction of coloured flowers for this festival, the demand is not so difficult to meet as it otherwise would be. One cannot help being struck with the variety as well as the quantity of flowers now used, as compared with former years, for this festival, for whereas white and red were the only colours thought desirable to use at one time, we now see various colours introduced in combination, and with striking effect. And this same change, by the way, is gradually taking place in regard to wreaths and floral tributes of all kinds for funerals, for here, too, up to a short time ago, white only was thought admissible, and but very seldom was anything else seen ; but now it is no exaggeration to say all colours and shades are used, with pleasing results to the eye, and certainly with an enhanced general effect. Still, the demand for white flowers continues to be great for all festive occasions, and with but little prospect of their becoming less so for Easter as time goes on.

Foremost and favourite of all Easter flowers comes Lilium longifolium Harrisi, and the undisputed sway this has held for the past twelve or fourteen years seems likely to continue, for the ease with which it can be brought into flower for Easter by procuring early imported bulbs, and the readiness with which it lends itself for all manner of decoration, has caused it to become a general favourite.

The practice here has been to procure bulbs immediately they are imported and pot at once, then placing them in cold frames with a slight covering of leafmould or ashes, and as soon as the growths begin to show about an inch in length we remove the covering, and gradually bring on in a greenhouse temperature. Their greatest enemy is greenfly, and if this is allowed to secure a lodgment on the young growths but for a short time only irreparable damage is done, and deformed flowers, with yellow, sickly growth, will be the result. To prevent this slight fumigations of an approved insecticide should be given about every ten days, and for all decorative purposes the pollen should be carefully removed as soon as the blooms are sufficiently expanded to permit this ; and if the blooms are too early for any purpose they are required for, they may be considerably retarded by cutting the spike on the first bloom expanding, and placing in a dark, dry cellar or room ; and pot plants may be similarly treated, and will thus keep much longer than if left in the heat and sunshine to expand, and still retain their waxen freshness.

Next to Lilium Harrissi for Easter decorations comes the old favourite Richardia æthiopica, and for general usefulness will hold its place for some time to come ; notwithstanding the more recent introduction of the two beautiful yellows, Elliottiana and Pentlandi, used in a cut state, as we sometimes see, the spathes have an air of stiffness, but when used with a little of their own green bold foliage, the leaves form a perfect set off to these striking spathes. The Madonna lily, or Lilium candidum, is not so extensively grown for Easter as at one time. Still, it deserves a place where room can be spared, and its sweet delicate fragrance will always make it acceptable ; but it will not, however, stand the amount of forcing that L. Harrissi will, and those requiring it for Easter will need to procure very early bulbs and bring them on from the first very steadily—doubtless this drawback accounts for its not being grown in such large quantities as it used to be.

Among azaleas there are many that may be named, but Deutsch Perle is the most useful of all the whites, and one that will the most readily respond to gentle forcing, and where a quantity of white flowers are in demand this must be regarded as being indispensable. And among the Amœna type there are several varieties well worthy of growing for their usefulness for all decorative puroses, and for the pleasing bits of colour they afford when arranged with other subjects, and when allowed to grow without any attempt at keeping them to a particular shape they have an easy grace about them we miss in the other varieties. A useful addition to this class is one named obtusa, the flowers are of a darker crimson than any of the others known to me of this class. Spiræas japonica and astilboides do not meet with the same amount of favour in private places they at one time did, especially is this so with the former species. The strong disagreeable smell the flowers have very largely detracts from their value, but where there is a large demand for groups they will always be found useful for forming a groundwork for other subjects. Spiræa confusa, on the other hand, is much sought after ; and either for forcing or general decorative work, or for the front of the shrubbery borders, its graceful clusters of pure white flowers have made it a valuable addition to our spring flowering plants.

Prunus sinensis flore pleno is an excellent plant for decorations, and being of a nice bushy habit of growth, with great freedom of flowering, should secure a place for early forcing. Prunus triloba is another useful subject for pot culture ; it is a much stronger grower than the above, and perhaps not quite so free in flowering or early, but its soft rosy-pink flowers, either by themselves or in association, have a very pleasing effect. Cerasus Watereri forms a valuable addition to this class of plant, and when better known will be more generally grown both for forcing and for shrubberies. The adaptability of this handsome cherry for flowering under glass early in the year is admirably shown in the excellent illustration of the Winter Garden at Frogmore given in the Christmas number of the GARDENERS' MAGAZINE, published in December last.

Among lilacs Charles the Tenth and Virginalis are the two best singles in their respective colours for forcing, and with the [illegible] ported plants, specially prepared, there is no difficulty in having a [illegible] supply of this much-appreciated flower. It is a good practice to [illegible] quarter specially devoted to these plants, where they can be plant[illegible] after forcing, and allowed to remain for a year or so; and if a little [illegible] is taken in pruning them over very nice bushes can be obtain[illegible] second and third year from forcing, which will give a plentiful [illegible] flower about Easter time, and amply repay for the attention given. [illegible] are several promising things among the newer double varieties [illegible] class, which a trial may verify.

Closely resembling these, and very useful about this time, is [illegible] plicatum ; not so useful, however, for cut flowers as for corridor or [illegible] house furnishing, but withal very acceptable. Staphylea colch[illegible] also be named as a useful shrub for forcing about this time, and its [illegible] cate white flowers can be utilised in a variety of ways. Camell[illegible] gradually being crowded out of cultivation by other more useful [illegible] profitable plants for furnishing ; in some places they have alr[illegible] disappeared. One must at times express a lingering regard for [illegible] bygone favourites, and hope room will still be kept for a few of the varieties, among which may be named Chandleri elegans, Donckelaari, Lady Hume's Blush, Alba plena, and Reticulata, the last-named an excellent subject for the back wall of a cool house, and a few of its handsome blooms would act as a pleasant reminder of the changes which come over men and things.

Acacias are another class of plants gradually losing ground as pot plants, but which for this time of the year are most useful. A. Drummondi and A. armata may be named as useful for pot culture, while A. dealbata and A. Riceana are two excellent species for planting out the latter makes one of the most graceful plants it is possible to conceive when allowed to spread under and depend from a lofty roof.

The foregoing are but a few of the most useful things for Easter decorations. Space does not permit to mention in detail the roses and lilies of the valley, the hyacinths, and tulips, and daffodils that will be fortcoming in great profusion and endless variety.

Eaton Hall Gardens. F. N. BARNES.

CONIFEROUS TREES AT HOLKHAM.

IN the recently-published transactions of the English Arboricultural Society, the following particulars are given of the fine collection of coniferous trees in [illegible] Fulmodestone Wood on the Holkham estate, the property of the Earl of Leicester. The visit was made by the members of the society on a wet day, [illegible] the writer says, with reference to the inspection of the wood in question : [illegible] we saw what is probably the most magnificent collection of coniferæ in England. Rain was then falling heavily, and the long grass was completely saturated, but the sight of such a succession of noble trees, perfect in shape and form, and some of them throwing out boughs of such length as to make an approach to the [illegible] a somewhat difficult operation, led us to forget any temporary discomfort resulting from the disagreeable weather. The planting of these trees was undertaken merely from love of arboriculture, and not with any idea of reaping profit. The wood is two hundred and eleven acres in extent, and is well drained, and [illegible] coniferæ are protected by a pre-existing crop of larch and other timber [illegible] which have been felled from time to time to promote their growth with[illegible] reducing their protection. Planting has been going on gradually ever since 1[illegible] when the earliest of the coniferæ were placed here. Some that were pla[illegible] not more than twenty-two years ago have reached a good height already, and [illegible] almost every instance the growth has been very rapid. A blown silver fir, [illegible] we saw on entering the wood, was measured, and was computed to contain [illegible] hundred and sixty-two cubic feet of timber. But that is only by way of parenthesis. Pursuing our way through the wood, we came up to two specimens of [illegible] Webbiana, planted in 1851, and one of which has a quarter girth of 18 inches ; [illegible] nobilis, 21 inches, over 70 feet high ; Wellingtonea gigantea, planted in 185[illegible] 26½ inches, over 100 feet high ; Thuja Lobbi, 9 inches, 50 feet high ; do., 15[illegible] inches ; do., 15 inches, 70 feet high ; Picea amabilis, 22½ inches, top broken by wind ; Abies canadensis (Hemlock Spruce), 9 inches ; A. Douglasi (Ame[illegible] Red Fir), 16½ inches, about 80 feet high ; do., 20 inches ; do., 20¼ inches [illegible] planted in 1852) ; A. Albertiana (Californian Hemlock Spruce), 14 in., [illegible] high ; do., 14¼ inches, 90 feet high (both planted in the early "fifties," and [illegible] fine specimens). There is a group of these majestic trees which we named [illegible] "Albert group." A fine avenue of Picea nobilis claims brief attention, and [illegible] an avenue of Abies Douglasi (Rocky Mountain type), planted twenty-two years [illegible] but all the larger trees of this species were planted in 1852, as already sugg[illegible] A close belt of coniferæ on an exposed side of the wood has created some [illegible] culty for Mr. Munro. Formerly it was a sort of copse, which had to be cut [illegible] periodically, and when that was done it left the main part of the wood open [illegible] injury. So the hazel was cleared out, and Picea nobilis, Abies Douglasi, Cupressus Lawsoniana, and others were planted in pretty closely with the [illegible] of giving permanent shelter. Now, however, they have grown so well [illegible] Munro does not wish to part with any of them, and does not know wh[illegible] sacrifice. Some of the Picea nobilis were bought in pots at £5 apiece, [illegible] planted in 1851 or 1852. One of these has at present a quarter girth [illegible] inches, and is 95 feet high. As regards the Abies Douglasi, one of them is [illegible] to have grown up 6 feet 2 inches in two years. The only specimen of [illegible] Lambertiana, the tallest of pines, has a quarter girth of 16¾ inches. [illegible] planted in 1851. This species does not thrive here. Two very beautif[illegible] standing together, and both planted in 1861, engrossed attention for some [illegible] The one is Picea lasiocarpa or Lowi, and the other P. grandis. The [illegible] 17½ inches quarter girth, and 90 feet high ; and the former 18½ inches [illegible] girth, and 80 feet high. Probably the largest nobilis—at least, the largest [illegible] on our tour through the wood—is 26 inches quarter girth, and is about [illegible] high. This was one of the plants bought in pots at £5 each. A Picea p[illegible] measured 11 inches quarter girth, and has a height of 42 feet. Only one [illegible] men of Libocedrus decurrens (sometimes called Thuja gigantea) was obs[illegible] its quarter girth is 14 inches. Amongst the other specimens noted [illegible] Sequoia or Taxodium sempervirens, 14 inches, 65 feet high ; Cupressus [illegible] iana, 15 inches, 75 feet high ; a group of Thuja Lobbi, nearly 90 feet high, [illegible] girth of from 15½ inches to 16 inches ; Cedrus deodara, 11½ inches, [illegible] high ; Thujopsis borealis, a very fine specimen, very graceful and sym[illegible] and Cryptomeria japonica, also very fine. All the underwood hereab[illegible] felled about ten years ago, and the younger coniferæ were planted w[illegible] suitable spot was found.

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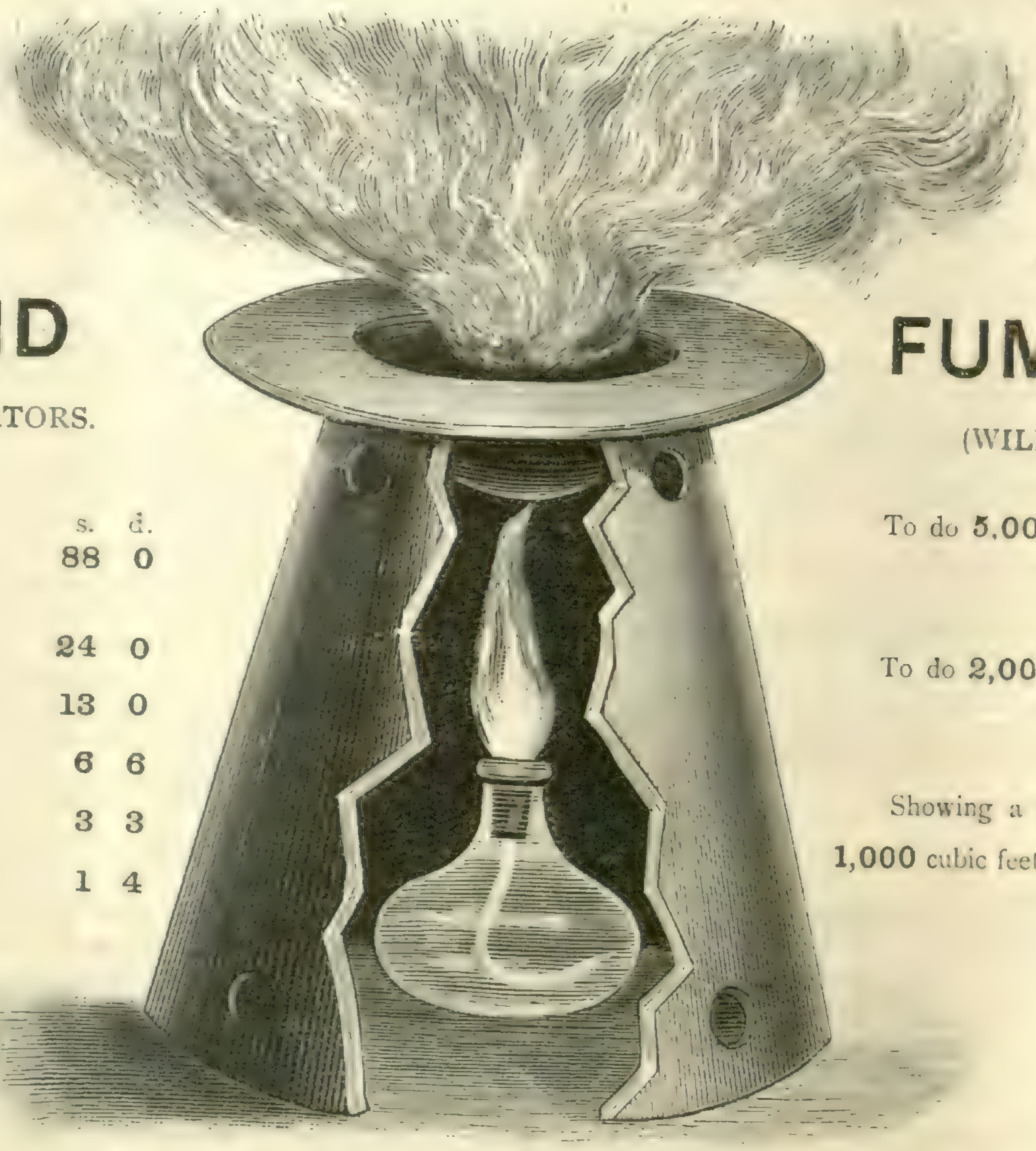

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ALLOTMENTS IN NORTHUMBERLAND.

THE last half-century has seen a remarkable exodus from country districts into towns, where physical, and too often moral, deterioration occurs. Thinkers all over the country lament this state of things, and through the agencies of county councils, &c., are endeavouring to place land within the reach of all who desire it in the neighbourhood of towns and in the country. The Northern Allotment Society at Newcastle-on-Tyne has acquired several estates during the last seven years, altogether over six hundred acres, mostly freehold or copyhold. This society is a public institution of which any person may become a member upon payment of the sum of one shilling per annum; no liability attaches to membership, and the amount merely entitles one to information. Members become advised of any action the society may contemplate, and have the opportunity of joining in it or objecting. The various estates were all brought before the members of the society and applications invited for them. When a quorum of members was formed this little syndicate took up the business with the vendors, and made their own bargain. Having purchased an estate, each one of these quorums or syndicates determined for itself the whole conditions, regulating the division, allotment, and holders of the land. The group in each case laid down new roads necessary for opening out each estate, the fencing, water supply, and other work of a similar character. The cost of improvement is added to the purchase money, and the total amount apportioned over the estate at so much per lot by a competent and independent valuer. If possible, the estate is allotted amongst the purchasers by mutual agreement, each taking a given lot at the par price stated by the valuer, but if any overlapping occurs, and more than one purchaser desires one particular lot, the estate is then allotted by private competition amongst the intending purchasers. No purchaser is then at liberty to bid below par, each lot is knocked down to the highest bidder, and any premiums obtained are put into the common fund, and at the winding up of the estate, if any surplus remains it is returned as a bonus to the respective owners. If, on the other hand, there is anything short, a levy is made upon them on the same basis.

While the pioneers of the society were to a large extent horticulturists, amateur or professional, and their primitive idea was intensive culture, the society has since grown rapidly in numbers and broadened in character, so that while the gardener, or fruit and vegetable grower, is still as welcome as the flowers in spring, he finds himself associated with all ranks and conditions of men. Upon each estate a small colony is gradually rising up, houses are being built and occupied, and the farmer and country tradesman who looked at first with some suspicion upon their new neighbours, begin to realise that the enterprise means the expenditure of a large amount of capital, in some cases as far as £10,000 in two years, and that the locality cannot fail to be benefited by it. The members of this society are ever on the look out for land that can be occupied without sacrificing existing occupation. This enables them to purchase with confidence, and being assured that what capital and labour is spent on it is their own, it is safe. Single handed the members found themselves in difficulties to obtain land in small quantities, and in desirable places and conditions, so they have voluntarily combined to purchase and divide at cost price.

The Stocksfield estate comprises two hundred and six acres, and the number of purchasers is sixty-six; the areas bought being from one to twenty acres. In some cases no limit has been placed upon the value of the dwelling houses to be erected upon the estate, but plans are submitted to all the owners before erection, a plans committee being appointed to advise. The proprietors have thus guarded against the disfigurement of the estates. Undesirable industries have been debarred and public-houses have been placed amongst the forbidden, although not all the purchasers are abstainers. For purposes of allotment this estate was divided into one hundred and seventy-four parts in area from three-quarter to three and a half acres, and after an exciting competition, the whole were disposed of, and a total sum of over £1,200 realised in premiums. This amount goes to the general fund, for road making, draining, &c. On some of the estates large numbers of half-acre plots are sold, to suit members who desire them. The purchase and division of the estates during the last seven years has met a long-felt want, and the sound business manner in which the undertaking has been promoted has inspired confidence in the members, many of whom are inclined to procure a slice of land on which they may carry on their own industry.

Gardening in the lower parts of the Tyne Valley is conducted under many difficulties. There is a combination of injurious conditions—frosts; extraordinary wind from the west; smoke, with ash and soot wafted long distances; and, worst of all, deleterious gases. There are some districts where a gooseberry bush cannot be grown to be of any use. On the higher ground, however, the air is purer, and bush fruit and vegetables can be grown with success. Through the south and east side of the county there are large numbers of pitmen who have gardens, and many of them are expert in the cultivation of certain vegetables, notably the leek and onion, and some are enthusiasts in special flowers. The competition fostered by local horticultural societies has been useful in promoting the proper keeping of allotments, and will, no doubt, continue to extend its usefulness. One society for many years gave prizes for the best kept allotments, and a few of these have been under very high cultivation, and should have been object lessons in orderly arrangement and cleanliness. Such prizes are now withdrawn, as it was found only a small number entered for competition. Pitmen do not grow much fruit, as their vocation is very uncertain. The apple is very rarely planted in allotments in this county, as the gardens are too public, and fruit cannot be protected. In our district allotments have been freely granted during the last fifty years, and there are several fields divided into allotments, mostly one-tenth of an acre each. There are between four hundred and five hundred allotments in the vicinity of Alnwick, exclusive of the large number on the freemen's land on Alnwick Moor. These slices of land are much sought after by working men, both for pleasure and profit. Alnwick is a cold district, but the allottees who aim at high cultivation provide shelter. In some cases wood fences are raised on three sides, and berry bushes on the fourth; inside this shelter the higher art of allotment culture is performed. Some holders have a small greenhouse, and grow cucumbers and tomatos.

Celery, leeks, and onions receive special care and protection in the open, and the earliest celery has to be sown in the middle of February, and kept in a little heat to be suitable for planting in the open at the end of May. To avoid checks from drought, pipes are frequently placed at intervals in the trenches, the bottom end about the depth of the roots, and all liquids are poured down these pipes, care being taken that the soil does not become stagnant. Blanching is usually done with brown paper covered with soil. The leek is largely grown, as it is hardy, and a desirable vegetable, but it is not everyone who can grow first-rate samples. Here they are treated much the same as celery, some growers using wire netting round the plants, packing inside this with moss to blanch and shelter the leeks. If seed is sown in a frame or in a sheltered south aspect in February, good leeks can be grown in Northumberland. Of onions, the autumn-sown are managed best in this district, and from the 9th to the 12th of August is the best time to sow. With the exhibitors Cranston's Excelsior is the most highly esteemed variety, but it will not keep in the autumn. Sowing in the open commences any time after February 15, and as soon as the land is dry enough. The growers trench in part of the manure when the land is dug in December, then at sowing time they dig in good decayed manure near the surface. They believe that the onion is a gross feeding plant, and so sow the seed practically in the manure, and the previous manure being incorporated through the soil at good depth there is plenty to feed a good crop.

Potatos are the main crop in all allotments, and as the land is perpetually cropped with potatos it is advisable to apply lime at intervals of four or five years. There is great competition among allotment holders with potatos, and I have noticed through many years that a large number of the collections for competition at the Alnwick show have been large and coarse. The potato is for use at the table, and therefore very large tubers are out of place, and their quality is not so good as medium-sized tubers. This may be partly the fault of the judges giving prizes to large tubers. There is another word of criticism I would offer, and that is upon the state of the major part of allotments after the crops are taken away. The potato haulm is often left littered over the ground, with weeds and other refuse, all the winter. How much better it would be for the land, and one's character for neatness, if, when the crops were taken off, everything was cleared up and the land dug. It is always better trenched two spits deep where the land is deep enough, mixing in the manure. The manure is then being prepared for the food of plants by the time the crop is planted in the spring. Many protest against winter digging of heavy land, finding it better to dig in the spring.

There are some allottees who grow strawberries, and these form a valuable crop where grown well. When lecturing for the County Council five years since I stated that one hundred pounds sterling could be made out of a carefully cultivated acre of strawberries, and that amount had frequently been far exceeded. This was too much for some of the hearers, but among them was one anxious to improve his several acres of land. He invited me to see his holding, and I gave him all the information I could. Last autumn he called specially to see me, and stated that, having put my assertions to a severe test, he was thoroughly satisfied, because he had exceeded the result of £100 per acre. Yet he knew nothing about the cultivation of strawberries previously, and the circumstances were not so favourable as with very many, for he was situated five miles from a station and twenty miles from the principal market where the fruit was sold. I also pressed the holders to plant apples on the Paradise stock, and they have done so in the district and are satisfied. I gave them grafts of such free cropping apples as Lord Suffield, Stirling Castle, and Lane's Prince Albert, the latter perhaps the greatest general cropper we have, and my visitor declared that the grafted trees were then hanging with fruit, and the desire was for more apples.

Alnwick Castle Gardens. GEORGE HARRIS.

Echeveria farinosa.—Those who in their garden decoration still find pleasure in carpet or succulent bedding will find in this echeveria a charming plant for their purpose. It is not a coarse plant, indeed is dwarf habited. Its thick fleshy leaves are long and pointed, and give it very much the appearance of a thick white-leaved seedling carnation. The primrose character, however, is very marked. It propagates readily, and should be much more in favour than is the pretty white E. Peacocki, which is all the same so chary of increase. We saw this pleasing variety in quantity at Swanley recently, where it figures prominently in the remarkable collection of succulents which Messrs. Cannell and Sons have gathered together. It is interesting to learn that not only does the membership of the Cactus Society now reach one hundred and fifty, but also that a publication specially devoted to succulents and cacti is about to issue from the midlands. Probably the softer-leaved section, especially those dwarf and easily increased, which have been utilised for bedding purposes, are the most popular with gardeners generally.—A. D.

Carnation Yule Tide.—This promises to become, when better known, one of the most popular winter-flowering varieties that has been introduced for some years. The flowers are bright scarlet in colour, large, and of good form, and are produced upon stout footstalks, which are of sufficient length and strength to support them erect upon the plant, and to enable them to be effectively arranged when required to be used as cut flowers for vase decoration. A fine stand of blooms was staged at the Carlisle Chrysanthemum Exhibition in November last by the raiser, Mr. John Forbes, Hawick. These, it was stated, were cut from plants that had been flowering continuously for twelve months; this fully establishes its perpetual-flowering character, and although there are already some good scarlet varieties in this class, of which "Winter Cheer" is probably the best, yet, the free sturdy habit of Yule Tide should recommend it for cultivation and producing flowers in quantity during the dull winter months. The exhibit referred to was a centre of attraction to visitors to the exhibition, and was unanimously awarded a first-class certificate by the judges.—JAMES DAY, *Galloway House, N.B.*

WORK FOR THE WEEK.

COOL ORCHIDS.

WE have now entered the month of March, and, as the days are lengthening and the sunlight becoming stronger, ventilation must be allowed freely on all suitable occasions, both day and night; beware, however, of piercing east winds which are so prevalent during this month, and oftentimes accompanied by bright sunshine. At such times it is bad practice to give air simply to reduce the temperature, and to avoid this the roller blinds should be let down, the heat in the hot-water pipes reduced, and bottom ventilation given on the leeward side. Cool orchids may now be watered more freely without much fear of bad results following. Ada aurantiaca requires an abundant supply of water at this season, as it is rooting freely and will soon be showing its flower spikes. Cœlogyne (Pleione) lagenaria, C. Wallichiana, and C. Reichenbachiana are now growing freely. These plants are best grown on a shelf near the glass, at the warm end of the cool house, and should have all the light obtainable; water should be given without stint, and occasionally some weak liquid cow manure. In fine weather it will be beneficial to syringe these plants once or twice daily. C. humilis, and C. Hookeriana, having passed out of bloom, should be repotted at once, using a compost consisting of fibrous peat, loam, and chopped sphagnum in equal proportions, with a little coarse sand intermixed; water should be sparingly afforded until the plants have become well rooted. Disas are now growing freely, and should receive copious supplies of rainwater at the roots, frequently syringing them in order to keep red spider and thrips in check. The coolest end of the odontoglossum house will be found the most suitable place, as these plants delight in plenty of air and moisture. Bletia hyacinthina, B. h. albo-striata, are now showing signs of growth, and if repotting be necessary, should be at once attended to, using a compost of fibrous loam, finely chopped sphagnum, small crocks, charcoal, and clean coarse silver sand, the whole being well mixed together; place about two inches of drainage in the bottom of the pots, covering with a layer of rough peat or moss. A light position in the cool house is the best place for them, giving water freely until flowering is past, when it must be gradually withheld, and the plants stood in a sunny position to mature.

Oncidium ornithorhynchum is a free growing and floriferous species, producing branching spikes bearing a number of small sweet-scented flowers; these should now have fresh material afforded as the thread-like roots push out when the new growths are only a few inches high; the warm end of the cool house suits this orchid admirably. Oncidium leucochilum that has finished flowering should be kept dry until growth recommences, when it should be repotted. O. incurvum now making new growths should be potted if necessary, giving abundance of water during active growth, and reducing the supply when the bulbs are made up. Odontoglossum Rossi, O. Cervantesi, and O. Humeanum are three very pretty little orchids in flower at the present time, and care should be taken not to over-water the plants, always allowing the compost to become moderately dry before giving more water. O. Halli, O. maculatum, O. luteo-purpureum, O. triumphans, and O. gloriosum are also in flower. Some of the latter are very sweet-scented, while others have but very little fragrance; these all require the same treatment as O. crispum. Anguloa Clowesi, known as the Cradle Orchid, is very interesting the beautiful yellow cup-shaped flowers being highly perfumed. Any plants that require repotting should be attended to as soon as the flower spikes appear, for if left until they have passed out of flower the new roots will be too far advanced, and repotting be both difficult and dangerous; well drained pots should be used, and the compost should consist of two parts of fibrous peat and loam to one of sphagnum moss. These plants should occupy a position near the glass in the cool house; they require a good supply of water during growth, but very little during winter. After the new pseudo-bulbs have finished their growth a good period of rest is necessary. Vanda Kimballiana and V. Amesiana having now commenced to grow should be given more root space if necessary, using teakwood baskets, clean sphagnum, and a few pieces of charcoal, good drainage being, of course, essential. These species may be grown successfully at the warm end of the cool house, choosing a light airy position, and giving abundance of water during the growing season.—E. SHILL, *New Hall-Hey Gardens.*

KITCHEN GARDEN.

AS soon as the ground can be worked, it should be prepared to receive the onion seed. Some may say that this piece of advice is too late, as in warm districts the seed may already have been sown. Those, however, who dug the ground as previously advised after the crop of celery had been consumed, and allowed it to remain rough until the present time, will not be behind with the weight of their crop at the time of lifting. Choose a fine day, and sow the piece intended for onions with soot at the rate of one bushel to three perches of ground; this should then be forked in, reducing the soil to a fine powder in the operation. When sufficiently dry on the surface tread the whole plot firm, afterwards raking it smooth and level. There is no necessity for forming beds, as quite as good bulbs can be grown on the flat, and where the ground is light and dry this is far better, as the moisture is retained longer in the soil when not raised. Drills should be drawn about fifteen inches apart, and about half an inch deep. When the seed is covered deeper, there are usually too many thick-necked specimens. Sowing should be done carefully, for often far too much seed is used, and the plants crowd each other and become spindly. Covering should be done by raking the ground the same way as the drills are drawn, finishing off by trimming up the ends of the plot. A pinch of parsnip seed may also be put in now, but for a general crop sowing had better be deferred until the end of the month, particularly where the ground is rich, as the roots will be quite large enough by the autumn. Carrots, such as Model, Gem, and Early Horn, may also be sown in the open quarters where the soil is light and dry, but where heavy the sowings should for the present be confined to the warm borders. Peas sown in pots about the middle of January have, owing the mildness of the weather, made good progress, but it is scarcely safe to plant them out unless in warm, sheltered places where protection can be afforded. On warm borders, or at the foot of a south wall, they will not take any harm if planted now, but in cold localities it is well not to be in a hurry. When planting take out a trench across the plot or border rather deeper than the ball of earth in the pots, and, having turned the plants out, press the soil firmly round them. We usually treat about a thousand pots in this way, which give about seven hundred feet length of rows. The varieties to be turned out here are Gradus, Early Morn, Exonian, Early Marrow, Sutton's Seedling, Early Giant, Dwarf Defiance, Daisy, Excelsior, and Productive. A goodly number, no doubt, but then they do not all come into bearing at once. The dwarf early varieties sown in the open ground are all looking well, and these consist of Chelsea Gem, Sutton's Forcing, Carter's Forcing, and a few others. A sowing may now be made in the open quarters of such varieties as Telephone, Telegraph, Duke of Albany, Duke of York, The Don, or any of the above-named, whichever is considered best. Another sowing of broad beans may also be [illegible] choosing such varieties as Masterpiece, Green Giant, or Longpod.

Vegetables in pits or frames will now need more attention. Those that are forward should have all the air possible to strengthen their [illegible] and put colour into the foliage; those showing bloom must be [illegible] watched for mildew, and should on no account be allowed to [illegible] want of moisture at the roots. This is not one of the [illegible] to force, but this season has been an exceptional one, so that plants have [illegible] remarkably well. French beans will now make rapid progress, therefore sowings should be made at intervals to suit the requirements of the place. Continue to introduce seakale into a place where sweet crisp growth can be made. Here in the south that which was covered up on a north border will be ready for use in about a fortnight should the weather continue mild. Outside vegetables of all kinds are plentiful and good, therefore there has not been such a demand for forced ones as is sometimes the case. Turnips, carrots, radishes, lettuce, onions, and such things on hotbeds must be well supplied with air whenever the weather is favourable. In the southern districts it will not be necessary to lift any more asparagus roots for forcing as the growths will soon be showing themselves through the soil, and where glass lights have been placed over the beds the sun will have brought the plants forward. Those in frames that are becoming exhausted will be greatly benefited by having a dressing of fish guano to be washed in by warm water. Continue to make small sowings of mustard and cress, and keep up a supply of blanched salads by introducing more into the blanching place as the others become exhausted. A pinch of celery seed may be sown to give a supply of early plants. If placed in a brisk heat the seed will soon germinate. It is not advisable to sow too thickly as the plants soon become drawn and are of but little use afterwards.— H. C. PRINSEP, *Buxted Park Gardens.*

HARDY FRUITS.

WITH so mild a season, the trees on warm walls are much too forward for the time of year, consequently, protecting material must be held in readiness against severe weather. In previous notes I have advised covers which do not exclude air, and those which do not cause the trees to be darkened, as this weakens the bloom of apricots, &c., and causes it to drop; indeed, it would be best not to protect at all than to cover too much. Newly-planted fruit trees will now need attention. Leading shoots and others may now be shortened, but, as a rule, newly-planted trees are checked by their removal, and do not make much growth the first season, and even should any grow at all freely, one can easily cut back green shoots, or, what is better, pinch them back in a young state. There should be no delay in mulching newly-planted trees; indeed, in some soils, it may be necessary to give water, as, under walls with a projecting coping, I [illegible] found the soil very dry, and in our district the rainfall this winter has been [illegible] slight. When mulching, it is well to use manure in a strawy condition, as heavy manure keeps the roots cold, and rich food is not needed. The mulch is to conserve the moisture. In all cases should the mulch be given before the spring is far advanced, so as to prevent the bark shrivelling. Peach trees, nectarines also are more forward than I have seen them for years, and in these cases pruning and nailing cannot be longer delayed. I always un-nail all young wood early in November to harden it, and also retard the flowering as long as possible, but [illegible] cannot be kept from the wall after the flower buds are showing colour, and even then nailing needs to be done with care to prevent injury. Many growers who crop heavily do not give the trees any too much room, but crowded trees are the first to become infested with greenfly, and suffer from mildew. American varieties of peaches need rather more care in pruning than our own, and I find it advisable to leave more spray or light wood, and not to rely too much on [illegible] on the strong shoots, as, though the fruits set freely, they drop badly in [illegible] weather or the least check in the way of drought.

Now is a good time to give exhausted fruit borders assistance in the way of top dressings with fresh soil, to which has been added such aids as will encourage new surface roots. Many fruit trees would be more valuable if the surface roots were given greater assistance. In some cases they are left many years without attention, and in the end form strong roots down in the poor soil which is not conducive to fruit formation. Cherries delight in these annual dressings, and even when new soil cannot be given, bone-meal spread liberally on the surface and raked in will do much good. In heavy clay soils, I have found wood ashes with bone-meal a splendid fertiliser, and if other manures are given later on it is of course advantageous, but I place much importance upon food given now just before leaf growth is active. Apricots fail in many soils, and in such it is well to encourage surface roots; they often suffer from lack of lime, and I have succeeded after repeated failures by using old mortar rubble or chalk in the soil, and [illegible] muriate of potash occasionally during growth. These remarks only apply to [illegible] where the soil is exhausted; to give the food now will, with general [illegible] encourage new root growth. Fig trees on walls have not needed the heavy covering usually given them, and though full early to uncover entirely, it is not wise to coddle them, and there need be no fear of injury if the wood was kept well thinned and hardened. It may be well to cut out old bare wood not needed, if at all thick, but I am not in favour of much pruning at this time of year, as like peaches and nectarines, the fig bears on the wood made last season, and with due attention to stopping, thinning, and removal of old fruiting wood as soon as the crop is cleared, there needs little to do at this season. Any trees that fail to fruit freely, may with advantage be root-pruned just before the trees commence to grow.—G. WYTHES, *Syon Gardens.*

FRUITS UNDER GLASS.

THE banana is to a great extent a neglected fruit, though good home-[illegible] bunches provide a much-appreciated change in the dessert, and the plant is [illegible] easily cultivated, provided it can be given sufficient heat and light. One [illegible] to it is that there is no absolute certainty as to its providing fruit at a [illegible] unless room can be found to grow a number of plants, but when the dwarf [illegible] Cavendishi only is grown, it is possible to arrange that most of the plants [illegible] ripen fruit at a time when other fruits are scarce. This banana is the best [illegible] grow, as it fruits quicker and takes up less room than any of the others [illegible] details of culture are simple. Most fruiting plants will, by the time the [illegible] begin to change colour, have produced at least one strong sucker [illegible] unless an increase in stock is desired only one should be permitted to grow [illegible] so that all the energies of the old stool shall be devoted to the [illegible] this sucker, and to the perfecting of its fruit. Nothing is gained by letting the plant stand after ripening begins, as the individual fruits will ripen in [illegible] on the bunch when this has been cut and hung up in a warm, dry [illegible] the grower is then free to deal with the sucker which should be carefully [illegible] from the old plant, and either potted up or planted out at once in the [illegible] is to occupy. Most growers advise potting up, and giving the sucker two [illegible] shifts, but I have obtained at least equal results with less labour by planting [illegible] at once in a rough and ready way. The plants were grown in boxes [illegible] feet square, sunk into the central bed of a span-roofed hot-house, and directly the old plant was cleared out the soil was removed, fresh soil put in, and the sucker planted firmly. The soil used was lumpy fibrous loam, decayed horse droppings, and a sprinkling of half-inch bones. Treated in this way care was necessary not to over-water at the start, but the plants soon became established, after which water could be freely given, and there was no further check to growth; the bunches of fruit so grown were bigger than those produced by plants grown by the shifting-on system. In my case no bottom heat was given, the spaces round the boxes being filled up with blocks of granite, broken up as if for road making, and I think this avoidance of bottom heat helped to keep the plants dwarfer than they are usually seen. A temperature of 65 to 70 degrees as a minimum, with the usual rise from sun heat, suits the plants, and the house should be frequently damped down, as a moist atmosphere is conducive to quick and healthy growth.

Early figs will be swelling fast, and where the crop is a heavy one, copious supplies of water will be necessary, liquid manure being given freely, but not too strong; this is a necessary caution when stable drainings form the supply, for this is highly charged with ammonia, the fumes of which are dangerous to the tender leafage. Trees planted out and grown on the extension system will require no stopping, except of such shoots as are over-grown, but may be disbudded freely, doing the work by degrees until only sufficient shoots are left to furnish the trees with bearing wood for next year. Pot trees require different management, as it is not possible to grow these on extension lines, therefore the young growths should be stopped when about eight or nine inches long. Such trees should be highly fed almost throughout their growth, but I like to reduce the supply of liquid manure to the roots during the period when flowering takes place, and the fruits are at a standstill as regards swelling. On the same principle I reduce at the same period the heavy drenchings given to planted-out trees, and content myself with keeping the borders just sufficiently moist, as experience has taught me that very heavy waterings at this period will cause a portion of the fruit to turn yellow and drop. Syringe the trees freely on all favourable occasions, choosing the mornings of days that promise to be bright, so that the leaves and fruit will become dry before night. Syringing is a very necessary attention to keep down red spider.

Strawberries, having set their fruits, should be thinned as soon as it can be seen not only which are the best-placed fruits, but also whether these are well set and likely to be shapely; it is better to retain small fruits than deformed ones. I do not advocate very severe thinning of such sorts as Vicomtesse Hericart de Thury and Keen's Seedling, but each grower must be guided by his requirements as to the number left on the plants. Those mentioned will easily carry ten to twelve fruits in a six inch pot, but if large fruits are necessary, and room plentiful enough to admit of big patches being forced, a less number must be left. When the fruits commence to swell liquid manure should be given frequently, and I find that it is best to vary the manure, giving alternate waterings of liquid sheep manure and guano, the latter in a weak and clear state. Fresh batches should be introduced to the forcing house as frequently as room can be found for them, so that there shall be no break in the supply. Each batch should be cleaned by dipping in some insecticide before being placed in the house.—J. C. TALLACK, *Livermere Park Gardens.*

THE ACCOUNTS OF THE NATIONAL CHRYSANTHEMUM SOCIETY.

To the Editor of the GARDENERS' MAGAZINE.

MR. GEORGE GORDON when criticising some of the items of expenditure in the financial statement placed before the annual general meeting on Monday, drew a contrast between the amount of show expenses charged in the financial statement for 1891, namely £12 16s. 3d., as against that of £32 7s. 5d. in last year's statement. I think Mr. Gordon was a little wanting in consideration for the secretary in not giving him notice that it was his intention to call attention to this item, for though it was not necessary he should do so, common courtesy suggests this would have been the proper course. In 1891 three exhibitions were held at the Royal Aquarium. In the financial statement for 1891, three items comprised the show expenses, viz., hire of plants, £18 15s. 9d.; cartage, £11 0s. 6d.; show expenses, £12 16s. 3d.; total, £42 12s. 6d. I now take the three same items for 1897, when four shows were held, all of considerable dimensions, the November one especially: Hire of plants, £6 15s.; cartage, £4; show expenses, £32 7s. 5d.; total, £43 2s. 5d.; only 9s. 11d. more than in 1891, with all the difference in the number and size of the shows. The fact is that when I took office at the end of 1890, I found myself the inheritor of a system which went to reduce the show expenses proper by taking from that amount, in order to make it appear small, and heaping it on to cartage and hire of plants. In 1892 I again followed the lead of my predecessors when making out the statement, and then the account appears: Hire of plants, £19 7s. 6d.; cartage, £14 1s.; show expenses, £16s. 13s. 4d.; total, £50 1s. 10d.; that year an October show, and a much more extensive one, was substituted for the December one. In the statement for 1894 (four shows being held that year) I determined to put the show expenses in their actual proportions, and they read: Cartage, £6 19s. 10d.; hire of plants, £4; show expenses, £36 13s. 10d.; total, £47 3s. 8d. One more contrasting year, that of 1889, before I became the secretary. Three shows were held this year, viz., September, November, and a small mid-winter exhibition in January. The self-same figures appear thus: Hire of plants, £17 6s.; cartage and labour, £17 10s. 2d.; show expenses, £18 5s. 8d.; total, £55 1s. 10d. In 1895 these three items came to £52 18s. 3d. In 1897, notwithstanding the expansion of the shows, the same items amount only to £43 2s. 5d. I have honestly endeavoured in the face of mounting up of the value in the schedules of prizes to keep these expenses as low as possible; and as a substantial proof of this, I simply ask for a comparison of the figures 1895 with 1897. In conclusion, allow me to remark that a great deal has been heard of late about the Edinburgh show, which is held up as a model for London to shape a show by. I have the expenditure of this show before me, and it is a revelation. In addition to music, rent, printing, and advertising—these four items amounting to £426 9s. 9d. for one show—there is in addition fitting up markets, £103 18s. 4d.: general show expenses, £120 12s.; secretary's expenses, £17 12s. 3d.; treasurer's expenses, £11 2s. 8d. Contrast these three items of show expenses for *one* exhibition with the very moderate sum of £43 2s. 5d charged for *four* exhibitions to the National Chrysanthemum Society.

RICHARD DEAN, Secretary.

MR. GEORGE PAUL, head of the firm of Messrs. Paul and Son, rose growers and nurserymen, Cheshunt, has been made a justice of the peace for the county of Hertford.

EXHIBITIONS AND MEETINGS.

READING GARDENERS' ASSOCIATION.

THE fortnightly meeting of the above association was held in the Club Room, British Workman, on Monday last, the president, Mr. C. B. Stevens, presiding over a good attendance of members. The subject for the evening was "A Chat about Melons," introduced by Mr. B. Dockerill, The Gardens, Elmhurst, Reading, a well-known grower and successful exhibitor of this fruit. The paper was of the most practical nature, and dealt with the cultivation of the melon in all its branches. Mr. Dockerill said he was obliged to condense a large subject into a small paper, but trusted that it would be sufficient to open up a good discussion on the principal points worth considering, for the melon was a fruit so widely known that it was reasonable to assume that there was hardly a gardener who had not made its acquaintance in one way or another, and it would be difficult to find a garden of any dimensions where these excellent fruits were not grown. The requirements for their successful cultivation were not large, for they may be summed up in the following words: Heat, moisture, fresh air, sunshine, and good soil. Span-roof houses were preferred, standing in an open situation running from north to south, and frames made on the same principle were certainly preferable to the lean-to. After dealing with the inside arrangements of the house, particulars were given as to the making of the borders, the best soil to be used, raising of the seed, the system of planting, stopping, topdressing, temperature, ventilation, watering, &c. As to the varieties, after briefly referring to the sorts of bygone days, such as William Tillery, Reid's Scarlet Flesh, Victory of Bath, &c., the qualities of many of those grown at the present time were touched upon, the foremost position as the best for all purposes, whether for growing in houses, frames, for exhibition, or for flavour, was given to that grand variety, Hero of Lockinge. In conclusion, the diseases to which the plants were subject were referred to, and also the growing of melons for exhibition, a practice in which the speaker had been exceedingly successful for at the Reading Horticultural Show, in 1892, in a competition for a brace of melons (fourteen entries), and for a single specimen (twelve entries), Mr. Dockerill was awarded the highest honours in both classes, and as late as 1896 he again took first prizes in both classes, the fruit in each case being grown in frames.

An interesting and profitable discussion ensued, in which Messrs. M. H. F. Sutton, Turton, Martin, Woolford, Bound, Hobbs, Neve, and the President took part. A hearty vote of thanks was given to the lecturer for his very practical paper. Exhibits were small in number, but interesting. Mr. Thompson, gardener to F. Wheeler, Esq., Tylehurst, exhibited a two-spathed arum; and Mr. Dockerill some excellent blooms, equal in quality to those seen in November, of Mrs. E. W. Clarke and J. H. Taylor chrysanthemums.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual meeting of this society was convened for Thursday, February 28, at Anderton's Hotel, Fleet Street, at seven o'clock. There was one of the largest gatherings we have seen on such an occasion, and the proceedings were of a more animated character than usual. The chair was taken by Mr. T. W. Sanders. The usual formalities, such as the reading of notices, minutes, &c., were soon transacted, and then the chairman called upon the secretary, Mr. R. Dean, to read the report and financial statement of the committee for the past year.

REPORT OF THE COMMITTEE, 1897.

At the termination of another year's operations, your committee can congratulate the members upon the steady and satisfactory progress still being made by the society; its work during the past twelve months was carried on with energy and success; its resources are as great as ever; its supporters more numerous; it is financially sound; and its prestige knows no diminution. During the year four exhibitions were held. and, as is usual, they were of a high order of merit. The meetings of the Floral Committee maintain their interest and usefulness, and the societies in affiliation show a substantial increase. In common with some kindred societies, your committee took steps to commemorate the Diamond Jubilee of her Majesty the Queen, by instituting some special classes, which were competed for at the November show, and proved interesting features. A Commemoration Fund was opened, and a fair proportion of the amount offered as special prizes obtained.

The Jubilee edition of the catalogue, 1896, is still in constant demand; it has been found most useful by affiliated societies, and it will be gratifying to the compilers to know how greatly it is appreciated. Inquiries are being made as to the probable issue of a supplement; a desire is also occasionally expressed that the publication of a year book be continued if possible. The Classification Committee have held a sitting, and dealt with certain varieties of incurved flowers, defining their proper pssition. This committee has sought and obtained from the General Committee larger powers, which will enable them to make from time to time such recommendations affecting the exhibition of plants and blooms which it may appear desirable to adopt in practice. A sub-committee has been entrusted with the revision of the rules, and after full and patient consideration have recommended material alterations, which they believe will, if adopted, improve the procedure of the society in several particulars, and bring the rules generally into closer agreement with its practice.

During the year ending December 31st, thirteen Fellows and one hundred and fourteen ordinary members have been elected to the society, and the number of societies in affiliation have increased by eleven. An agreement has been entered into by your committee with the Royal Aquarium Society to hold four exhibitions in the present year, viz.: in September, October, November, and December; and the directors commemorate the fact that the National Chrysanthemum Society has held their exhibitions at the Aquariam for the past twenty-one years by offering special commemorative prizes at the November exhibition. The schedule of prizes for the four exhibitions have undergone revision, and a substantial increase in money value has been made in several leading classes. A special class for twelve vases of specimen blooms of Japanese chrysanthemums has been introduced at the November show; the president, Sir Edwin Saunders, generously giving the first prize of £20.

Your committee most heartily thank the President, as well as all donors of special prizes at the various exhibitions, as they are frequently the means of bringing out some novel features, adding to the attractiveness of the various shows: and highly appreciate the warm interest Sir Edwin Saunders takes in the work and success of the society. Your treasurer, Mr. J. R. Starling, who has been connected with the society by membership since 1878, who was appointed treasurer in 1879, and has held that office ever since, is compelled by ill-health to insist upon the resignation of that office, he, for the same reason, placed in the hands of the members a year ago. Your committee also regret the death of Lord De L'Isle and Dudley, one of the patrons of the society.

FINANCIAL STATEMENT.

Expenditure.	£	s.	d.
Prizes at four shows, including medals	532	16	0
Prizes outstanding	1	0	0
Affiliated societies, &c.	90	19	0
Cartage	4	0	0
Judges' fees	18	18	0
Judges, floral, and staff luncheons	24	2	6
Bill-posting	12	9	8
Advertisements in horticultural press	13	2	0
Hire of bottles	2	1	2
Hire of plants	6	15	0
Hire of rooms	8	18	0
Expenses of annual dinner	18	5	3
Printing	64	18	9
Printing Jubilee catalogue	60	3	6
Stationery	19	10	1
Petty cash, stamps, telegrams, &c.	50	15	10
Royal Aquarium Company, tickets	17	10	0
Clerical assistance	77	2	0
Show expenses	37	2	5
Commission on advertisements in Schedule	2	17	0
Foreign Corresponding Secretary's account	1	17	0
Floral Committee expenses	3	18	9
Insurance premium	0	7	6
Donations to Royal Aquarium Company	2	2	0
Testimonial to J. W. Wilkinson	5	5	0
Illuminated addresses to secretaries	6	18	0
Sundry expenses	4	7	0
Paid to reserve fund	0	12	4
Bank charges	0	14	11
Balance in hand	38	16	2
Total	£1,123	9	10

Receipts.	£	s.	d.
Balance in hand	10	10	8
Members' annual subscriptions	298	11	0
Foreign members' subscriptions	6	2	0
Donations and special prizes	73	7	6
Royal Aquarium Company, for three shows	300	0	0
Bill-posting, as per contra	12	9	8
Entry fees and rent of space	115	14	0
Affiliation fees	75	1	0
Medals and certificates, from affiliated societies	121	4	6
Sale of catalogues	9	12	8
Sale of tickets	19	2	6
Advertisements in schedule	36	2	0
Advertisements in catalogue	45	0	0
Reserve Fund	0	12	4
Total	£1,123	9	10

A further statement was then read by the Secretary, showing the society's outstanding liabilities, chiefly printing and medal accounts, to amount to just over £85. The assets, including a valuation of trophies, cups, tickets, stationery, catalogues, arrears of subscriptions, and the balance shown by the financial statement, amounted to over £124, leaving a balance in favour of the society of £38 12s. 6d.

The Chairman then rose to move the adoption of the report, which he did formally, remarking that in his position as chairman of the committee he thought it advisable neither to find favour or fault with the report or accounts. The motion was seconded by Mr. H. J. Jones.

The Treasurer (Mr. Starling) observed that he had now occupied the post of treasurer to the society for the past twenty years, and during that period he had seen the once small body increase and assume gigantic proportions. He felt that the duties were now more than his failing health and spare time allowed him to perform to his own satisfaction, and consequently he was resigning his office. In doing so he did not fully agree with the accounts as set forth, because, though a balance to the good was shown, it still remained a fact that they were nearly £100 in debt, and they had not the money to meet the outstanding liabilities unless the reserve fund was sacrificed. He suggested that paid auditors should be obtained—he placed no imputation upon those who had in the past fulfilled such duties, but thought independent men should do duty. With reference to the reserve fund, Mr. Starling showed that at the end of 1896 it consisted really of £45 for the addition of £55, making up the present £100, was made from a balance in hand shown on the accounts, but which was not really a balance in hand, as all the debts of that year had not been paid.

Mr. Dean replied that it was difficult to bring up all the accounts to date, as some of the expenses were incurred at a late period. There were some arrears to come in, and this, with the cash in hand, should meet most of the liabilities; then there was the reserve fund to fall back on. He felt justified in endorsing the committee's statement that the society was financially sound, and added that never before had it been so sound as at present,

Mr. G. Gordon, the next speaker, stated that Mr. Starling had cleared the way for what he wished to say with regard to the financial condition of the society. By carefully considering and comparing items in recent balance-sheets he had found that certain expenses had increased in a measure that did not seem to be justified; there were the show expenses, luncheons, and the expenses of the annual dinner: and with reference to the latter he considered it the duty of those who attended to pay a sufficient sum above the cost of the food to clear off some other expenses, such as music, hire of plants, &c., and not throw them upon the members who had not participated. The speaker showed that the balance in hand shown in the 1896 accounts was not the profit upon the year's working, because outstanding liabilities had not been met; but in view of such a balance medals and illuminated addresses had been given to the society's leading officers, when, in fact, they could not pay their way. This laid the society open to censure from outsiders at a time when they should gather their clothes about them rather than spread coat tails for others to tread upon. Notwithstanding all this and the present unsatisfactory position of the finances, Mr. Gordon stated that the committee had suggested a large addition of prizes and classes to the schedule for the current year; in fact they intended offering only £124 less in prizes than the amount offered at the Jubilee exhibition, when there was a special list of donations ([illegible]) to meet the accounts. The committee proposed giving in money and medals the sum of £580, exclusive of special prizes at the four forthcoming shows, and while he hoped the income from membership would increase, he failed to see where the money was forthcoming to pay the prizes and the necessary expenses of conducting the society's business. Now that the reserve fund would be practically wiped out in putting matters straight he could see nothing but disaster at the end of 1898 if the estimates were allowed. In view of such an end, and with the hope of checking such an increased expenditure, Mr. Gordon moved as an amendment that the report and financial statement be referred back to the General Committee, with instructions to prepare a more detailed account showing liabilities and assets, to prepare an estimate of the income and expenditure for the current year, and to consider the reduction of the number of shows, or the expenses connected therewith, in the present year.

Mr. J. W. Moorman seconded the amendment. He stated that the society owed £85 11s. 6d., and had only £38 16s. 2d. to meet the debt unless the reserve fund was sacrificed. Even this, he thought necessary, for the proposed treasurer had rightly made it a condition of his acceptance of the post, that all liabilities must be fully met. The speaker considered it absurd to value the envelopes, trophies, &c., and place them as assets, as had been done, for their market value was very small. He also referred to the recent smoking concert held on behalf of the funds of the society, instituted by its officers, and yet never brought before the General Committee to sanction or otherwise. He trusted the meeting would refer the accounts and report back to the committee in accordance with the terms of Mr. Gordon's amendment. Mr. Bevan supported the amendment, stating that Mr. Starling had again and again made similar observations to those made that evening, and it was now quite time they were heeded, for the proposed treasurer would not accept office until all liabilities were cleared off. Mr. Newell also supported the amendment, observing that he hoped the item for dinner to the Floral Committee would never again appear in the balance-sheet. He objected to much of the expenditure for luncheons and dinners, and thought that the annual dinner should be no expense to the society. Mr. Cholmondeley suggested that it would be but business-like to print and circulate the report and balance-sheet among the members previous to the annual meeting, so as to enable them to duly consider facts and figures. He regretted that at the meeting itself no such printed slips were in the hands of the members.

The Secretary explained that the increased expenditure proposed was due to the action of the Schedule Sub-Committee in increasing classes and prizes, an action he had objected to, because he foresaw that the society could not remain solvent if such expense was incurred. Mr. Willis asked for the auditors' certificate, which the Secretary read, remarking that there had not been sufficient time to print and hand round the financial statement since it was audited. The auditors commenced at half-past two, and finished at eight o'clock, after examining every voucher. These remarks brought Mr. Lees to his feet, and he briefly stated that, while a good deal of the blame had been placed upon the Schedule Sub-Committee, yet Mr. Dean had himself suggested the addition of several classes, and that he should have known and informed that committee of the present and probable future condition of affairs. Mr. Waterer also supported the amendment, remarking that the society did not participate in the profits its efforts realised to the extent it should. In reply to Mr. Moorman, the Secretary stated that the audit was held at the Aquarium Tavern instead of at Anderton's owing to an oversight with regard to the engagement of a room. A slight alteration having been made in the original amendment, it was now put by the Chairman as follows: It has been proposed by Mr. Gordon, and seconded by Mr. Moorman, "That the report and financial statement be referred back to the General Committee with instructions to prepare a proper balance-sheet, to prepare an estimate of the income and expenditure for 1898, and to report on the advisability of a reduction in the number of the exhibitions, or the prize money, during the current year, and to submit the same to an adjourned annual meeting." Messrs. Addison and Harman Payne having been appointed tellers, it was found that eighty-three voted for and six against it. The amendment then became the substantive motion, and was put and carried unanimously.

Mr. Cholmondeley, having formulated a proposition in accordance with his previous suggestion, moved that the accounts and report be printed and circulated among the members seven days before the annual meeting, so that they might come prepared to discuss matters. He did not think the society exactly on the eve of bankruptcy, but he felt there was a strong need of a detailed account of receipts, expenditure, and liabilities, and that this should be in the members' hands before the annual meeting, so that no one would be committed to what he had almost no opportunity of objecting to. This motion was seconded by Mr. Wooderson, and carried. Mr. W. Wells proposed that members be allowed to vote at the annual meetings by proxy, but he was ruled out of order, the chairman drawing attention to the rule demanding due notice of alteration of rules.

Mr. Spicer then moved that the meeting be adjourned for a month. Mr. [illegible] seconded the motion. Mr. Starling and Mr. Cholmondeley supported it, and Mr. Waterer suggested that the adjourned meeting be commenced at six p.m. instead of seven. The Chairman suggested that the adjournment be for three weeks, as a fortnight was not time enough, and a month would be putting it off rather long. The meeting finally decided to adjourn the annual general meeting until March 21 at six o'clock. It having been ascertained that the dining hall at Anderton's Hotel was available for that date, the proceedings closed with a vote of thanks to the chairman.

CARDIFF AND COUNTY HORTICULTURAL SOCIETY.

THE annual meeting for the appointment of officers, &c., was held on Monday, when a good number of members attended. A strong executive committee was formed, with Mr. A. E. Dixon as chairman, and Mr. A. W. P. Pike as vice-chairman. Mr. H. Gillett was re-elected secretary. The committee, after due consideration, decided to hold the annual show on July 20 and 21, which is [illegible] three weeks earlier than usual.

Classifying Onions for Exhibitions.—I am often asked how onions for shows raised from seed sown under glass in the winter are to be classified. The common classes are for autumn sown, and spring sown, these being the ordinary designations for onion classes prior to the introduction of the winter sowing practice. My suggestion is that, not to sit upon a practice which, if moderately productive of such good results, show committees should now include three classes as thus: "Outdoor autumn-sown," "Outdoor spring sown," and "Winter sown under glass." Thus those so raised, as it were artificially, would not compete on the show table with the bulbs produced under ordinary culture. As to the autumn-sown onions I should like to see them raise fewer of the worthless [illegible] Tripolis, and more of the brown or Spanish type so raised, as these will keep and be long useful.—A. D.

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AURATUM—Magnificent ditto, 10 inches to 12 inches ditto	12/6 *per Case of* 25 *Bulbs*
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MACRANTHUM—Magnificent Bulbs; ditto, 9 inches to 11 inches ditto...	20/- *per Case of* 20 *Bulbs*
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RUBRO-VITTATUM—Good certain flowering Bulbs. Observe these prices: 3 for 4/-; 6 for 7/-; or 12/- per dozen.

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COLLECTION No. 1 Comprises 3 Bulbs each of Rubro-Vittatum, Macranthum (12 inches), Auratum (12 inches), Melpomene (11 inches), Krætzeri (11 inches), Brownii, and Batemanniæ. Here is a splendid parcel indeed, cheap at £2, but my price is:—
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COLLECTION No. 2 Comprises 3 Bulbs each, Macranthum (10 inches), Auratum (11 inches), Melpomene (10 inches), Rubrum (10 inches), Krætzeri (10 inches, Belladonna, extra large, and Brownii. This is another undoubtedly cheap parcel, my price being:—
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Every season the demand for my Seeds increases, and rightly so, for no seedsman gives better value, nor is it possible to offer finer or purer strains than mine; space, however, will not admit of my giving here detailed descriptions of my stocks in this department of my business; therefore, it must suffice when I state that full particulars are given in my SPRING CATALOGUE for 1898, copies of which will be sent gratis and post free to all applicants. Early application is, however, necessary, the surplus now being very limited.

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ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Employment at Chiswick.—A. B. C., Batheaston: You had better apply to Mr. S. T. Wright, superintendent of the R.H.S. Gardens, Chiswick, Middlesex, who will give you full information. At Richmond, not far from Chiswick, science and art classes are held, while you could reach town for Birkbeck or Polytechnic classes easily, and by two different railway routes.

Chrysanthemum Madame Carnot.—C., Herts: In order to obtain first-class blooms of Madame Carnot, writes Mr. Lees, the plants must be grown well from the early stages onwards, and treated liberally with manures after the large pots are filled with roots. The plants should also be housed not later than September 20, and given a good light position, with the buds near the roof glass; this is to ensure perfect ripening of the growth, without which condition good blooms cannot be obtained. The bud must be taken about August 20, and is what is known as the second crown. It will be best for you to pinch a few plants on April 20, and allow others to make a natural break, which will take place about the end of April. The resulting second buds will present themselves about the desired time in ordinary seasons. It is important to bear in mind that early crown buds are useless, while very late buds give small blossoms, wanting in depth.

Clivea or Imantophyllum.—H. H., Richmond: The best time to divide and repot clivias is in the spring before growth commences. As your specimen is now flowering you must wait until the blooms have faded or have been cut. The plants make very strong roots and thus need a stiff compost; well drain new pots and use a sound substantial loam mixed with a little sand. Pot firmly and place in an intermediate temperature; little water will be needed at first but as the roots increase and growth becomes vigorous more will be needed. As soon as it is seen that no more leaves are forthcoming it will be time to afford more air and less water until a position in a cool pit or greenhouse will suffice during the winter. When well rooted clivias are easily forced, but it is a mistake to force them hard. Keep the foliage clean by frequent spongings, and use a soft brush to remove any insects that may lurk at the overlapping bases of the leaves. A piece of soft dry sponge is best for cleaning the foliage, provided the latter has not become too filthy to be thus dealt with

Highest Price of an Orchid.—A. H. L., Newport: Some of the highest prices recorded as being paid for orchids include Aerides Lawrenciæ, £246 15s.; Cœlogyne cristata hololeuca, £200; Cymbidium Parishi, £105; Renanthera Lowi, £105; Phalænopsis intermedia Portei, £100; Cypripedium Beeckmani, £160; Cypripedium Stonei platytænium, £147. We believe Odontoglossum crispum augustum sold for £300.

Starting Climbers into Growth.—E. C. L., Lichfield: Both Clerodendrom Thomsonæ (Balfouri) and Bouganvillea glabra may be started into growth at once, and unless the flowers are needed very late there is no need to retard the plants after this date. Bring them into growth gradually, giving more heat and moisture as growth advances. Both these plants will succeed in a lower temperature than is generally given them; in an intermediate house the colour of the bracts is very fine. Combretum purpureum should be placed in a temperature of from 60 to 70 degrees; very little water is needed at first. As the roots work freely it will be necessary to consider whether potting is needed, if not give a good top-dressing after removing the loose top-soil. Raise the temperature gradually, for when in full growth this species luxuriates in plenty of heat and atmospheric moisture, with shade from very bright sunshine. No patent manure will produce colour in crotons; the beautiful coloration is obtained by exposure to sunlight, for crotons only want a light shading during the hottest part of our hottest days. To secure the best results it is found advisable to use either Clay's or Thomson's manure for an occasional top-dressing, as these enable one to grow a perfect plant in a small pot and thus render it more adapted for house decoration.

Chrysanthemums in Scotland.—N. S., Inverness-shire: It is difficult to advise you exactly when to "stop" chrysanthemums with a view to securing the blooms in their best condition at the end of November, because practical experience in your northern climate is the only true teacher of the dates that are most suitable for these operations. If you will adopt the accompanying suggestions this year and carefully note results, whether the blooms are too early or too late, then another season, with these dates as a base, you can vary the timing of your blooms according to experience, and so in working on carefully defined lines you will soon arrive at the correct method. Probably buds "taken" later than August 20 in your locality will not develop good blooms, and it may be advisable for you to house your plants early in September to obtain the best results. Your list includes many sorts scarcely worth growing, and in place of those marked out you should substitute Phœbus, Eva Knowles, Mons. Chenon de Leché, Elsie Teichman, Lady Ridgeway, Lady Byron, Mrs. Palmer, Pride of Madford, Oceana, Thos. Wilkins, Lady Hanham, Mdlle. de Galbert, Mrs. Lewis, Mons. C. Molin, Yellow Madame Carnot, Mrs. Weeks, and Dorothy Seward. You will most likely get the buds of these in good time without stopping, only, the two last-named should be grown straight away from the cuttings and the first bud "taken," which means that you can only have one bloom on each plant, though three plants may be grown in one pot. The Yellow Madame Carnot should be treated like the white variety. Doubtless you have retained a duplicate list and will know which varieties have been rejected. For the benefit of yourself and others in the north we give the following. Natural bud: Viviand Morel, Chas. Davis, Mdlle. Thérèse Rey, Louise, G. C. Schwabe, Mons. Panckoucke, Graphic, Commandant Blusset, Australian Gold, Edith Tabor, Mutual Friend, Wm. Seward, Simplicity, Van den Heed, Richard Dean, Ava-

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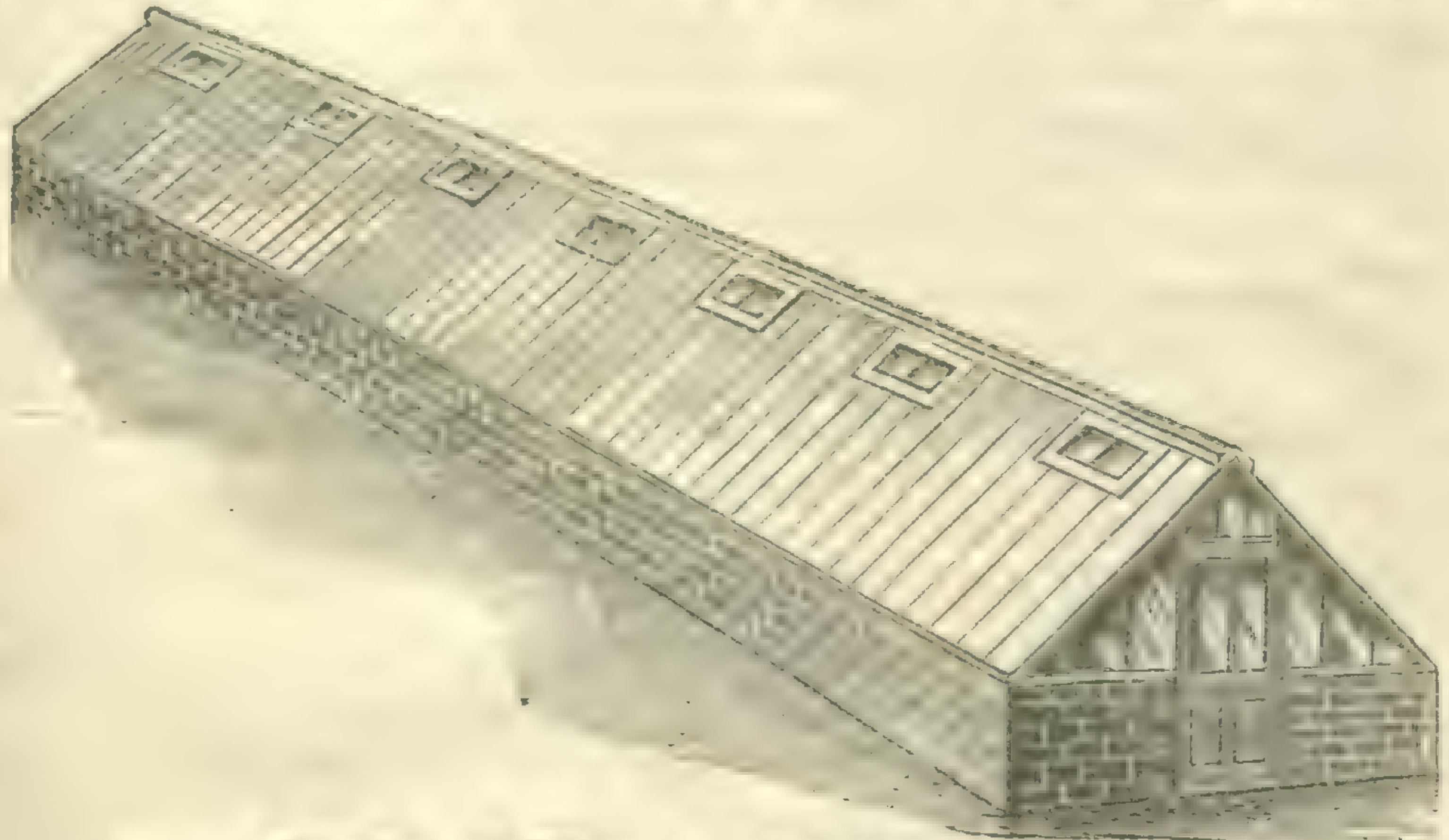

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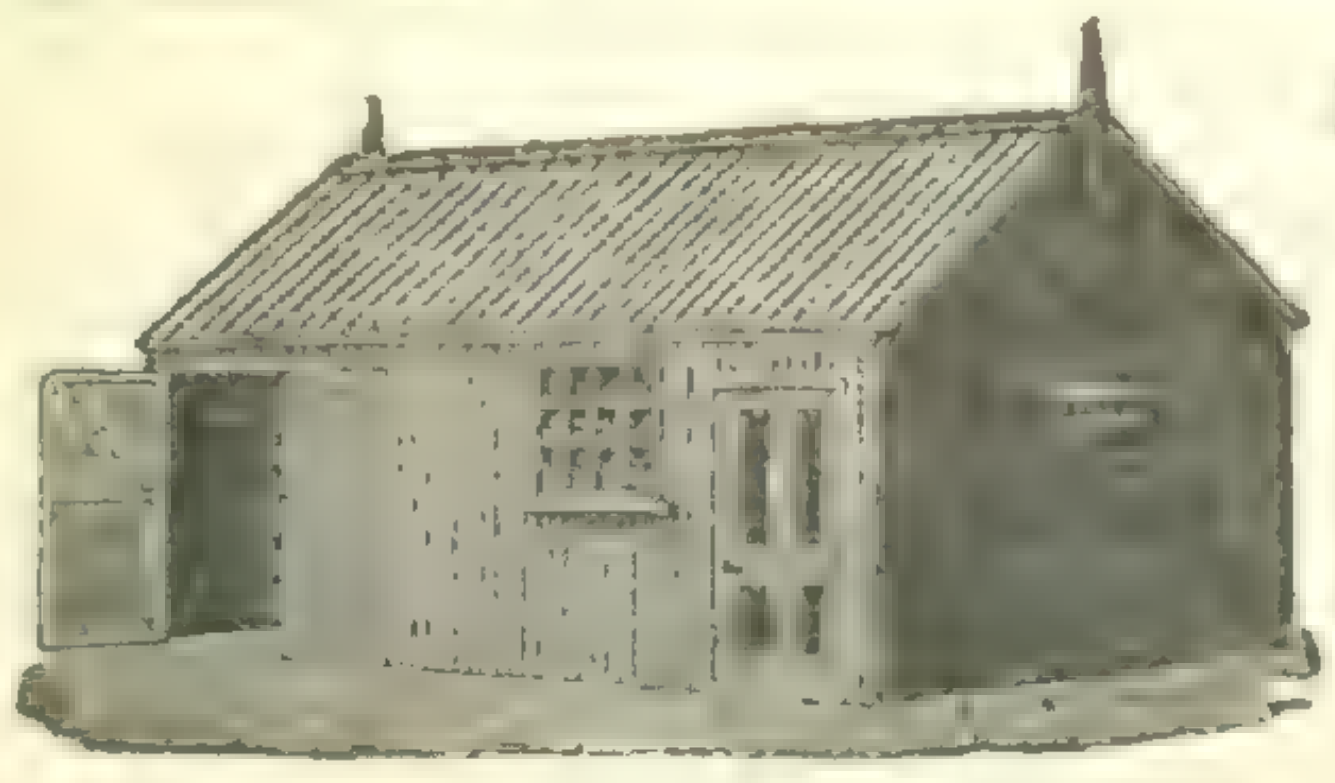

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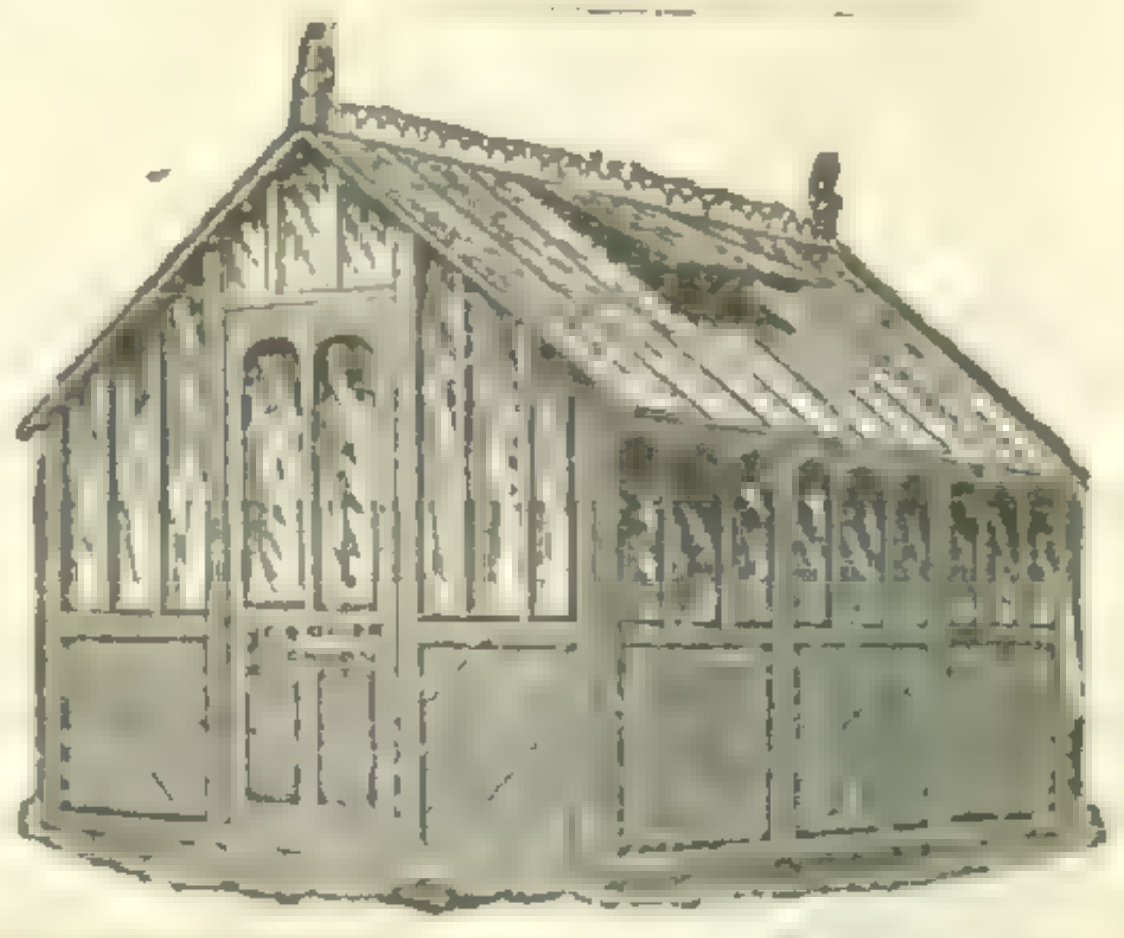

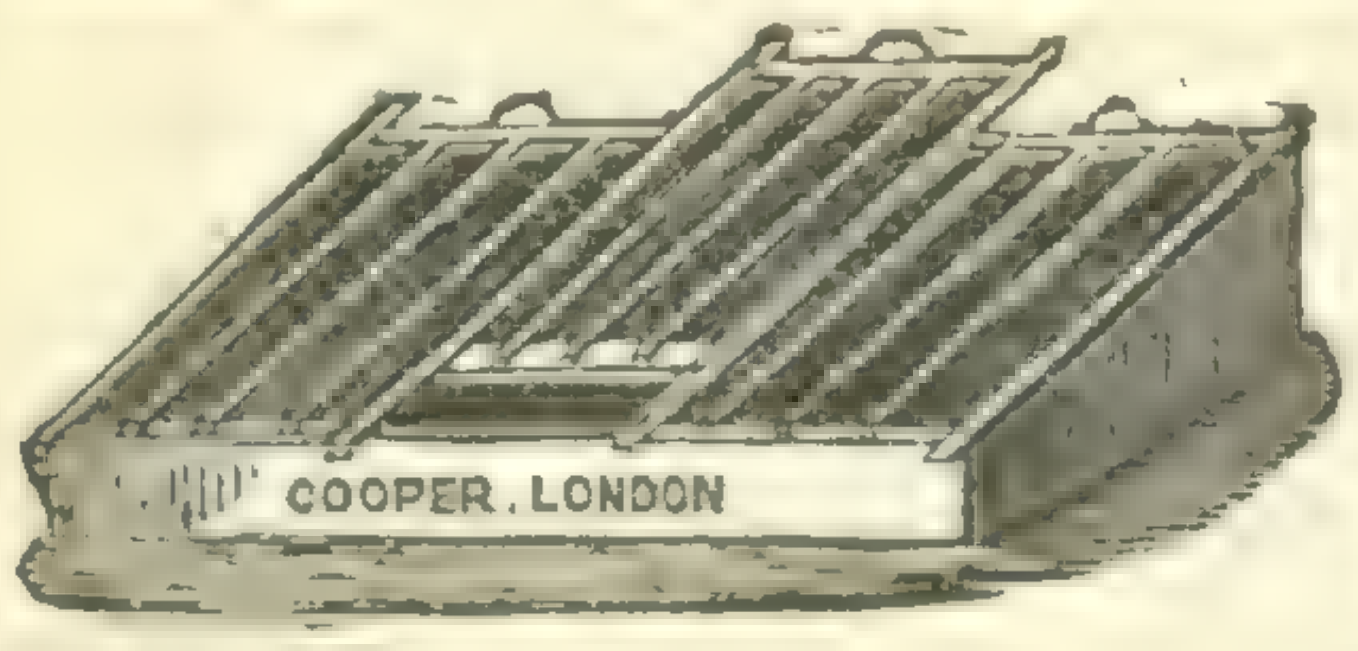

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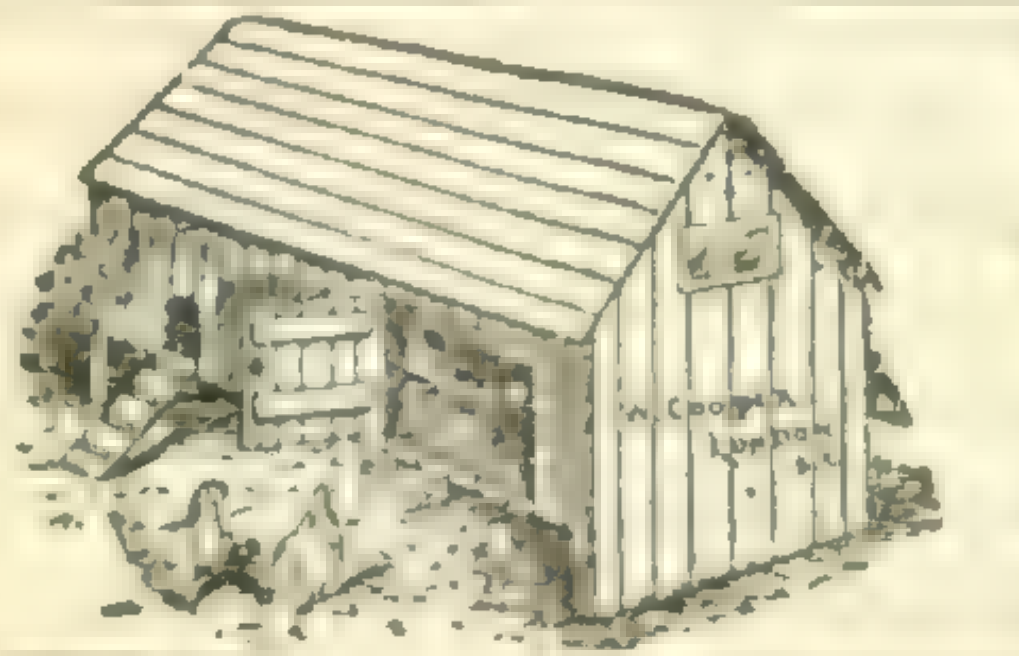

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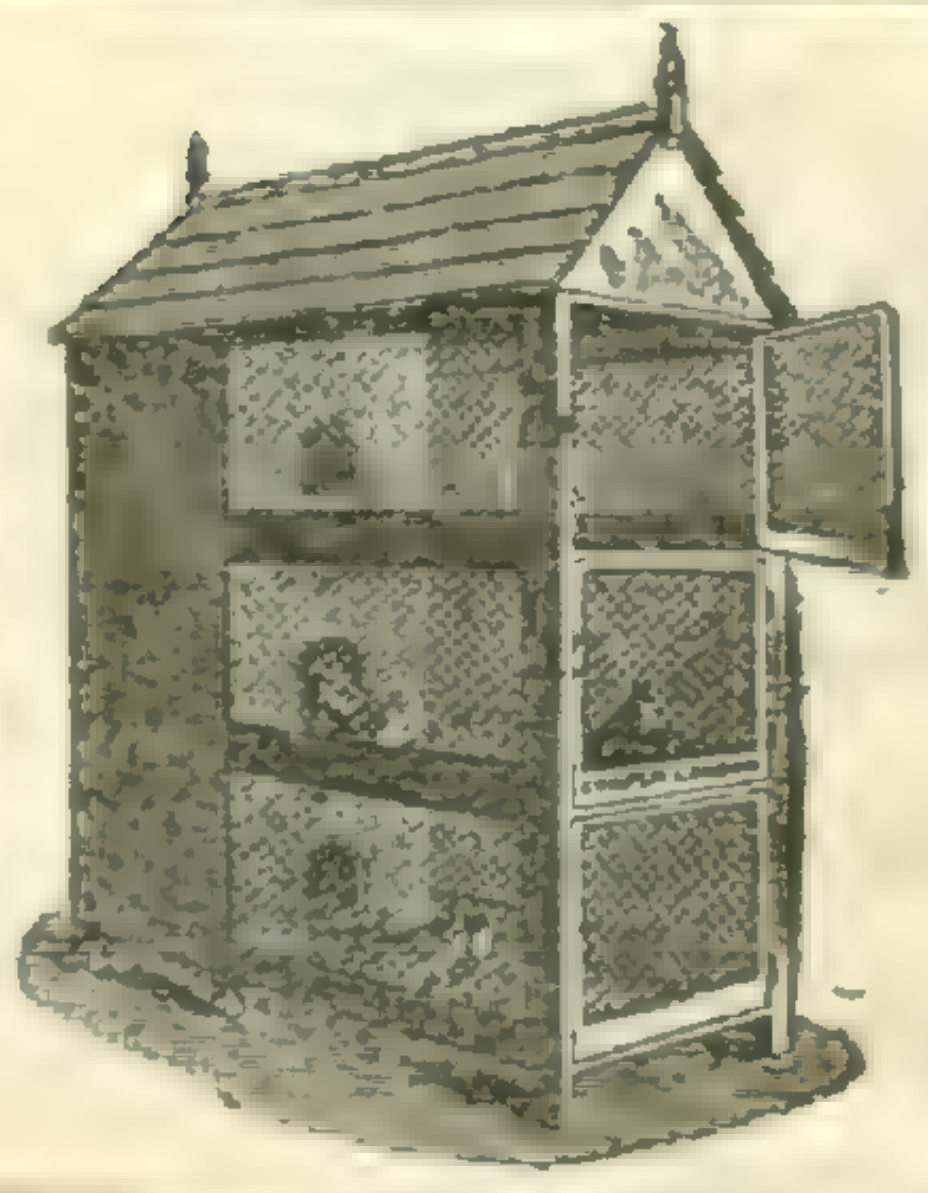

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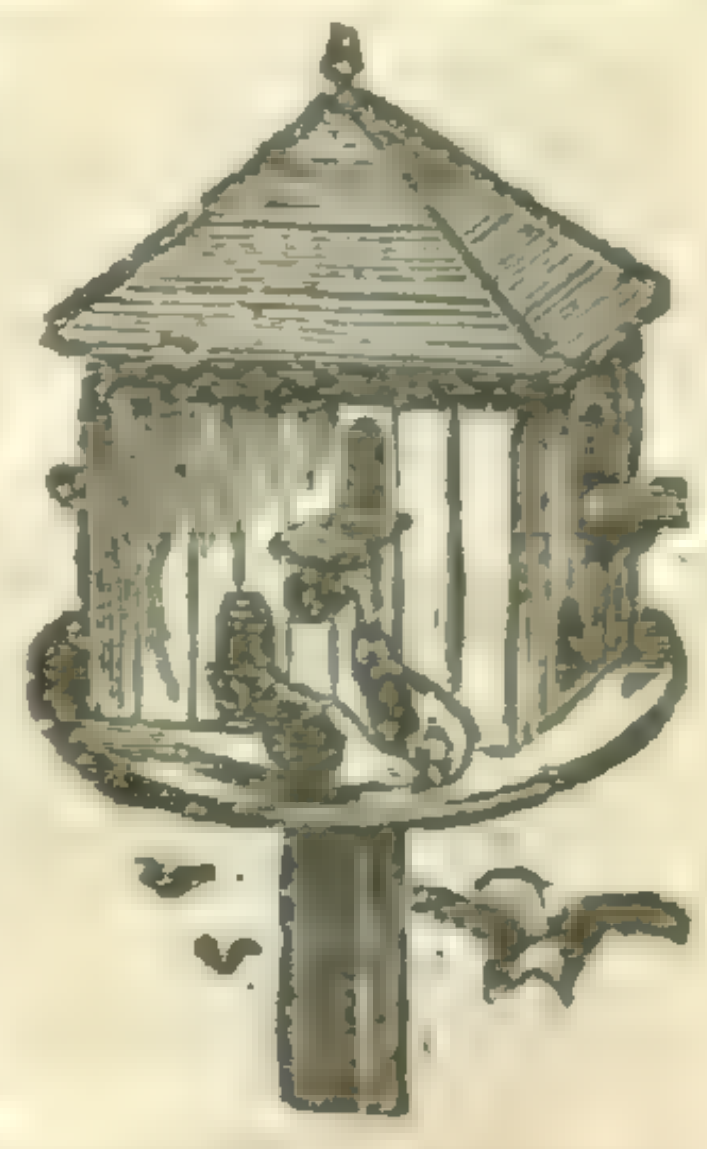

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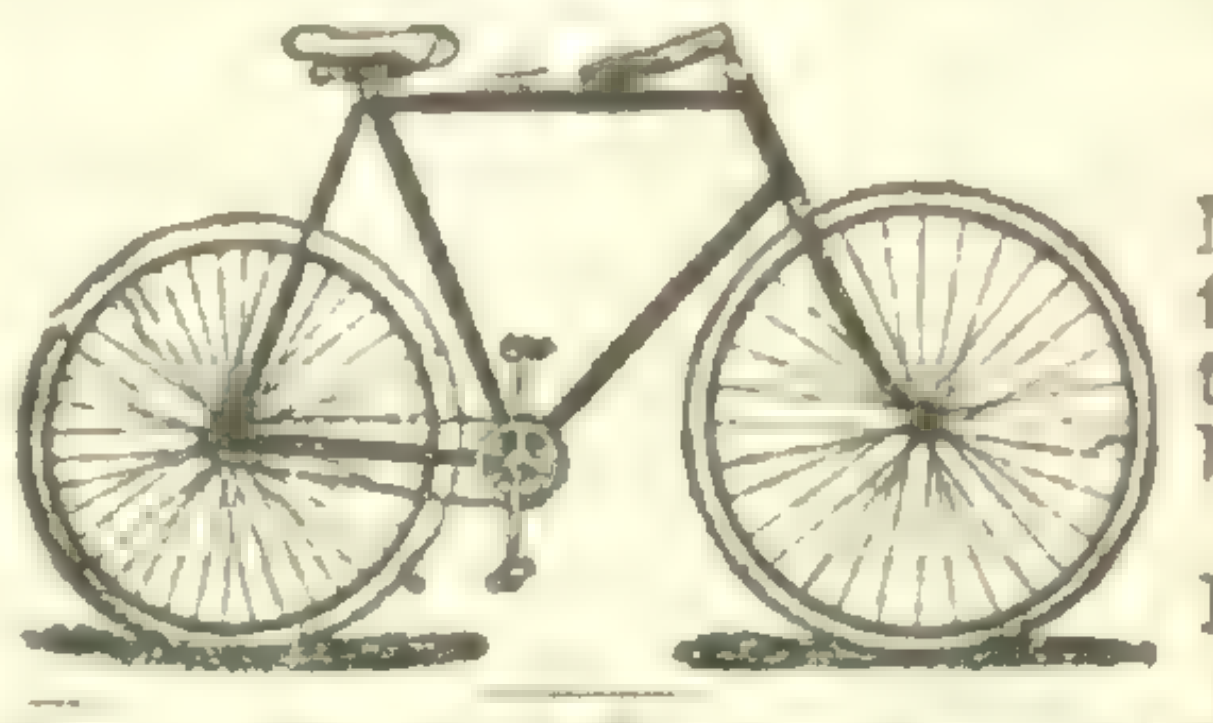

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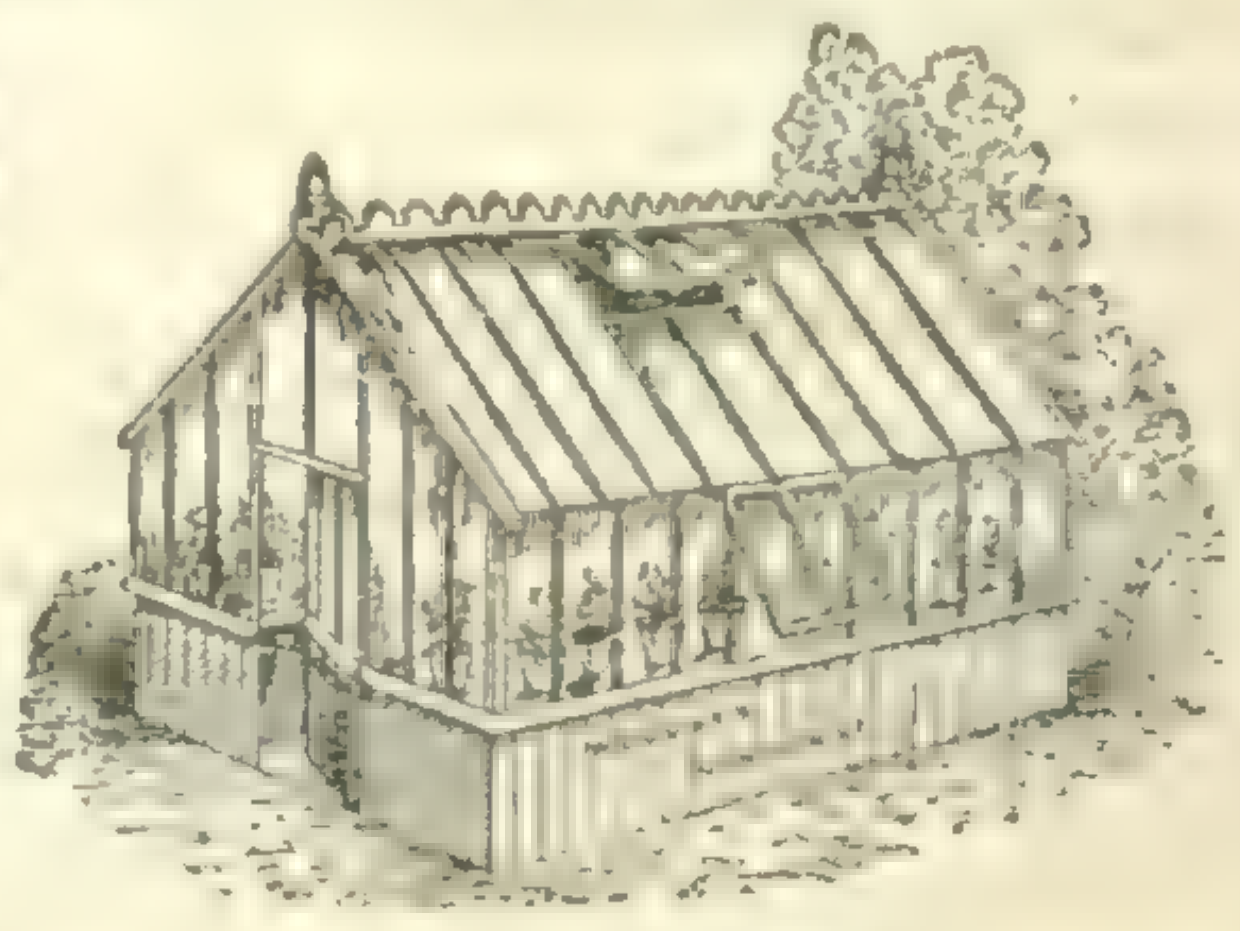

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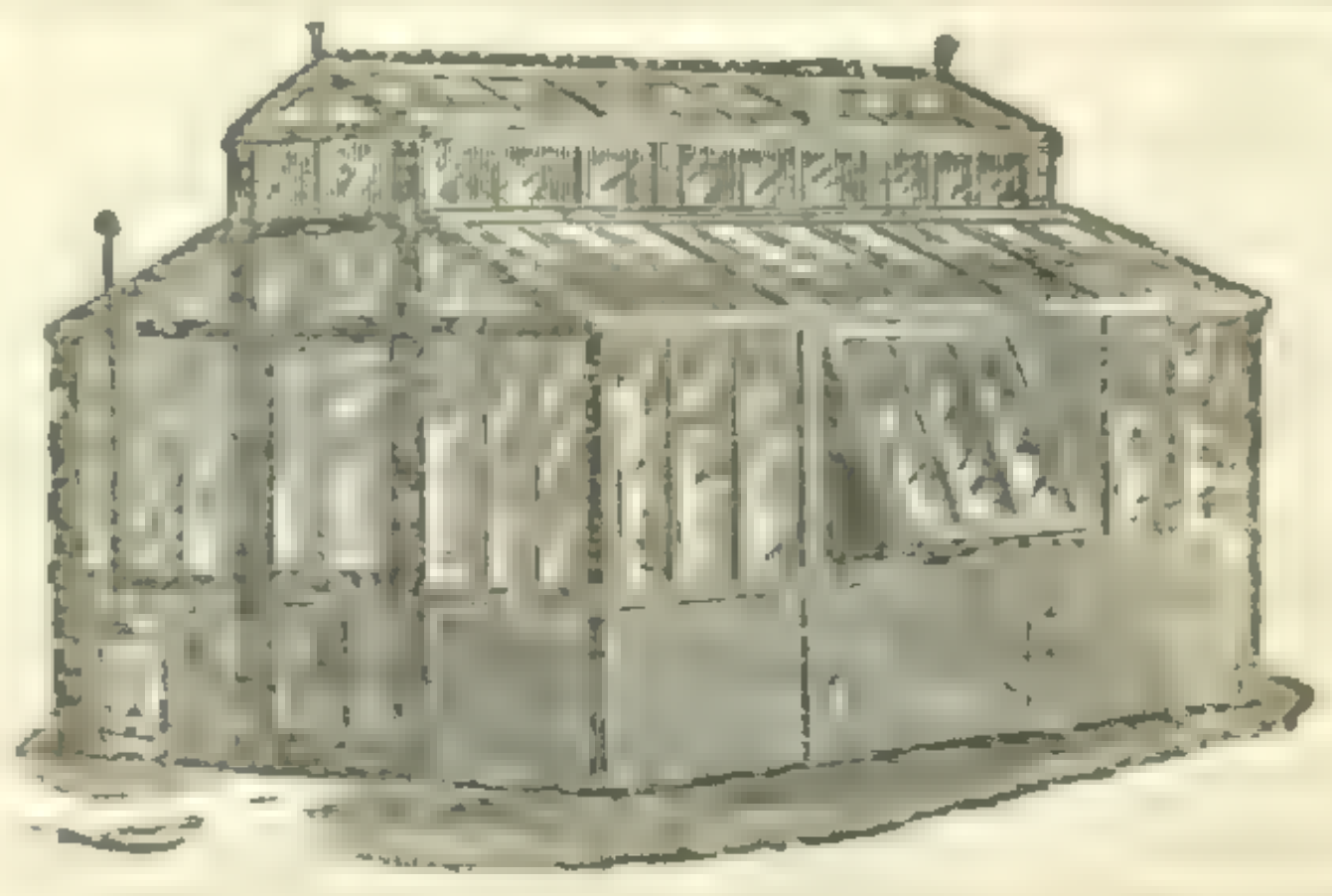

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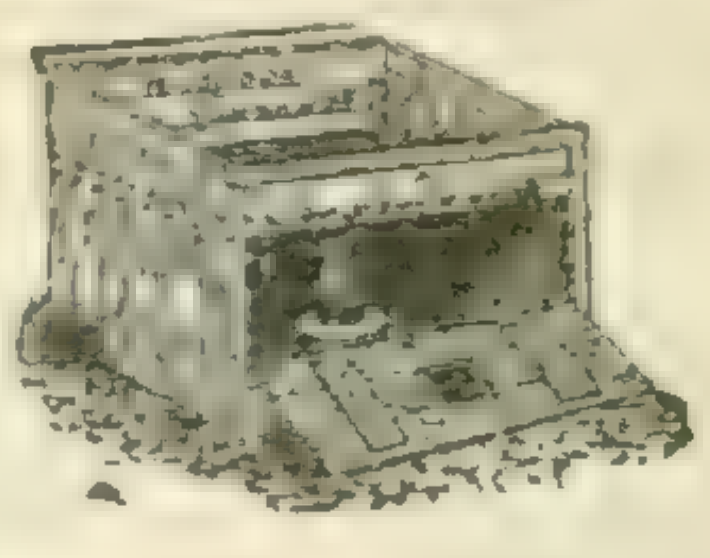

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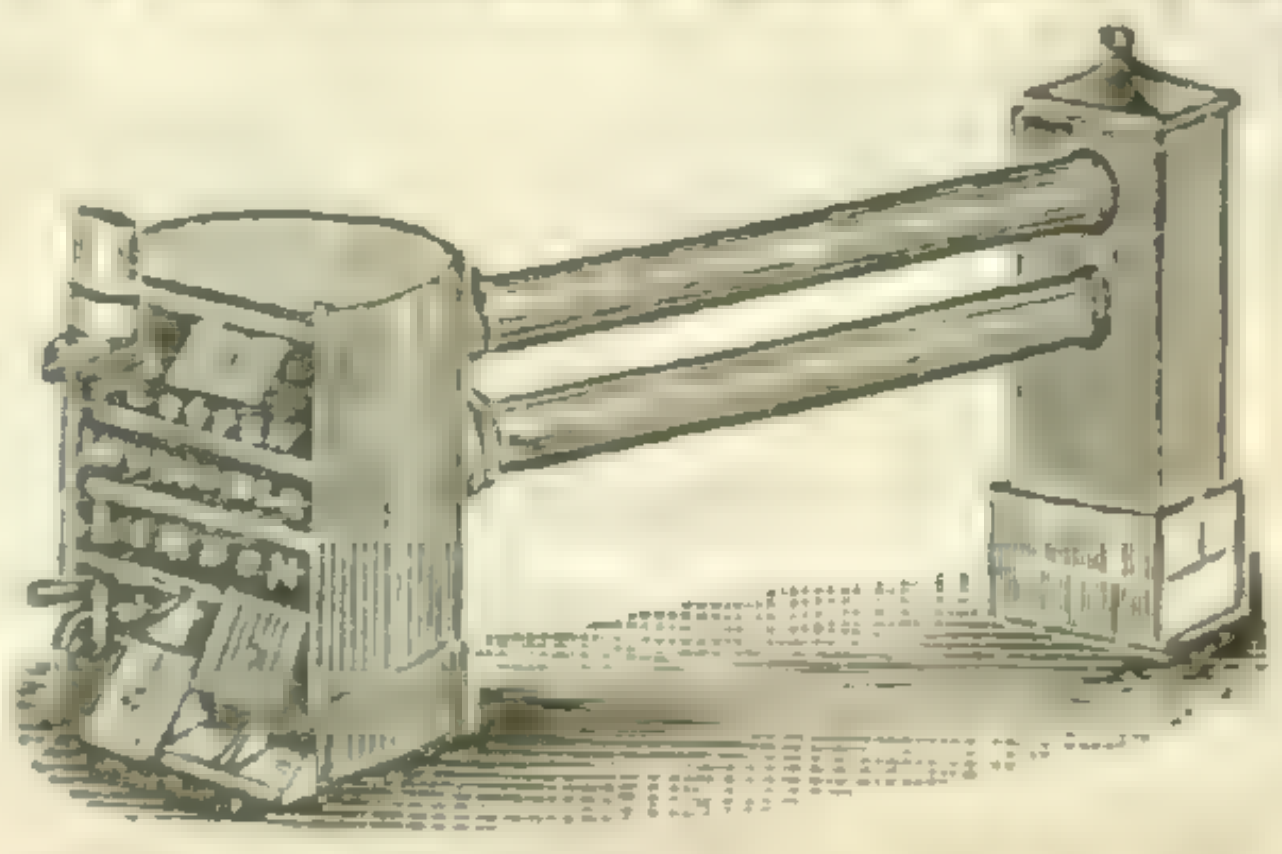

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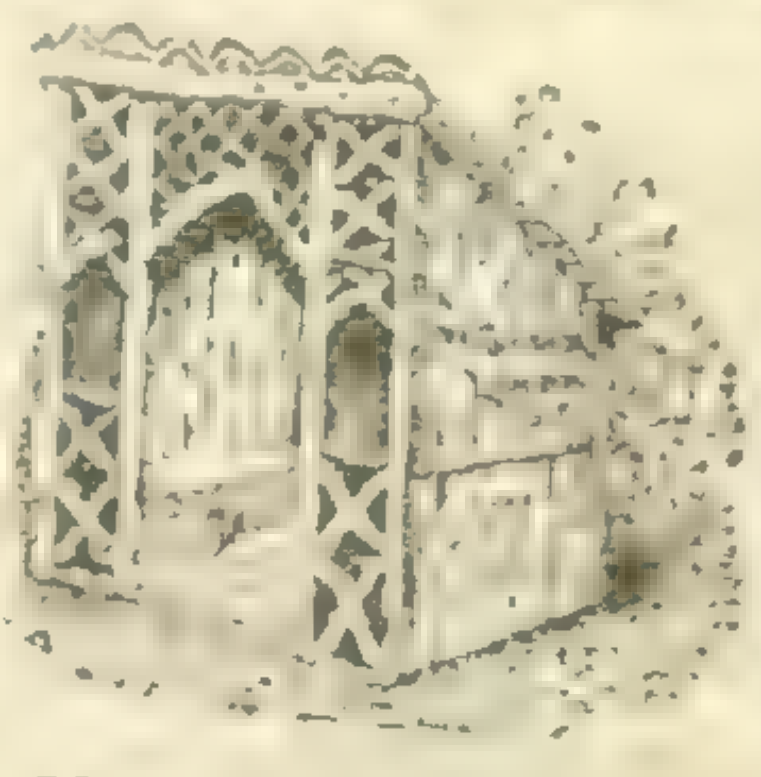

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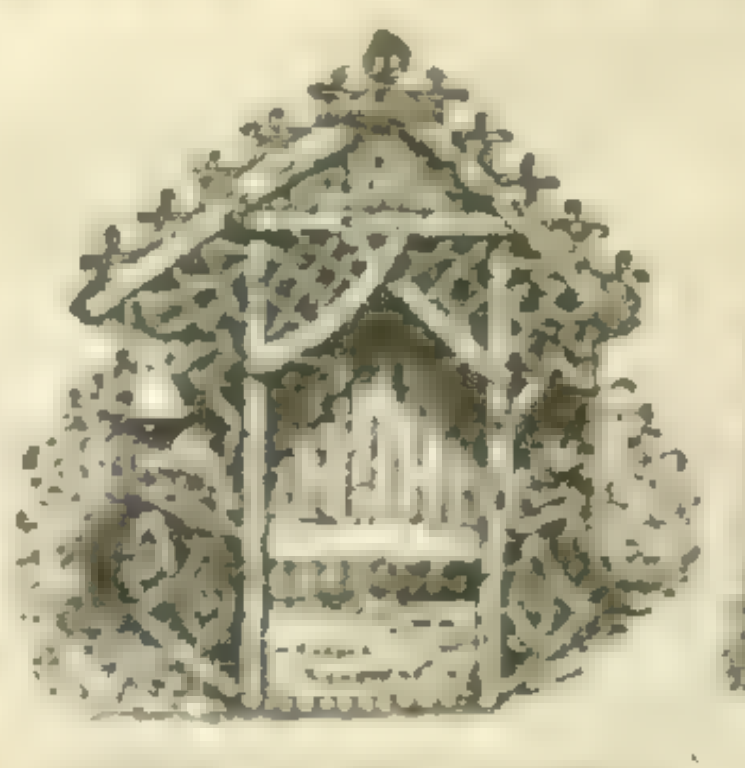

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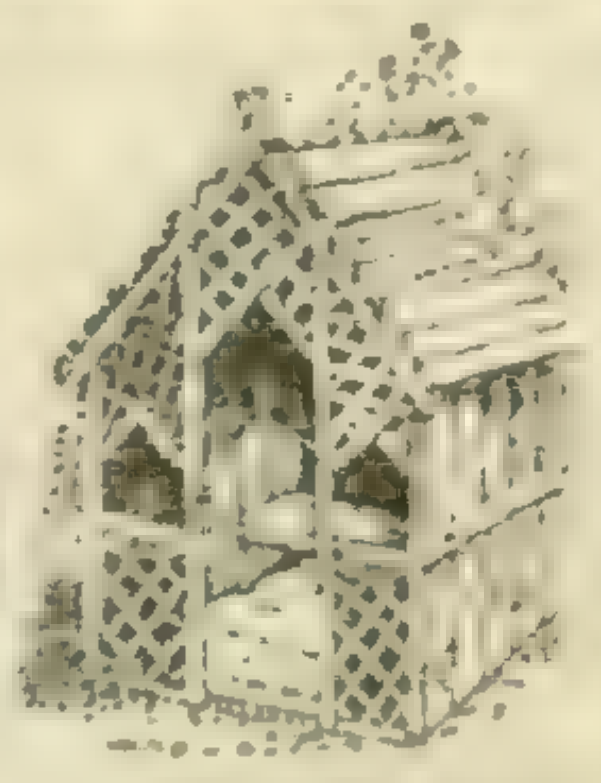

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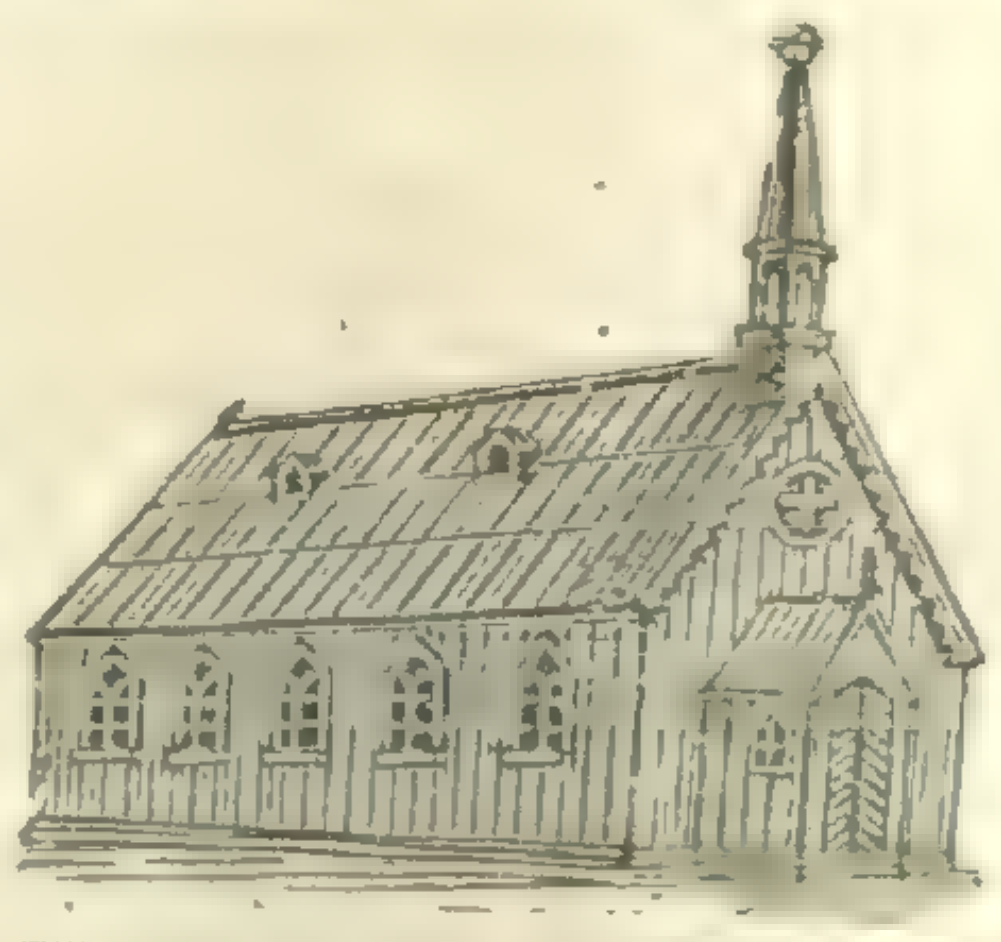

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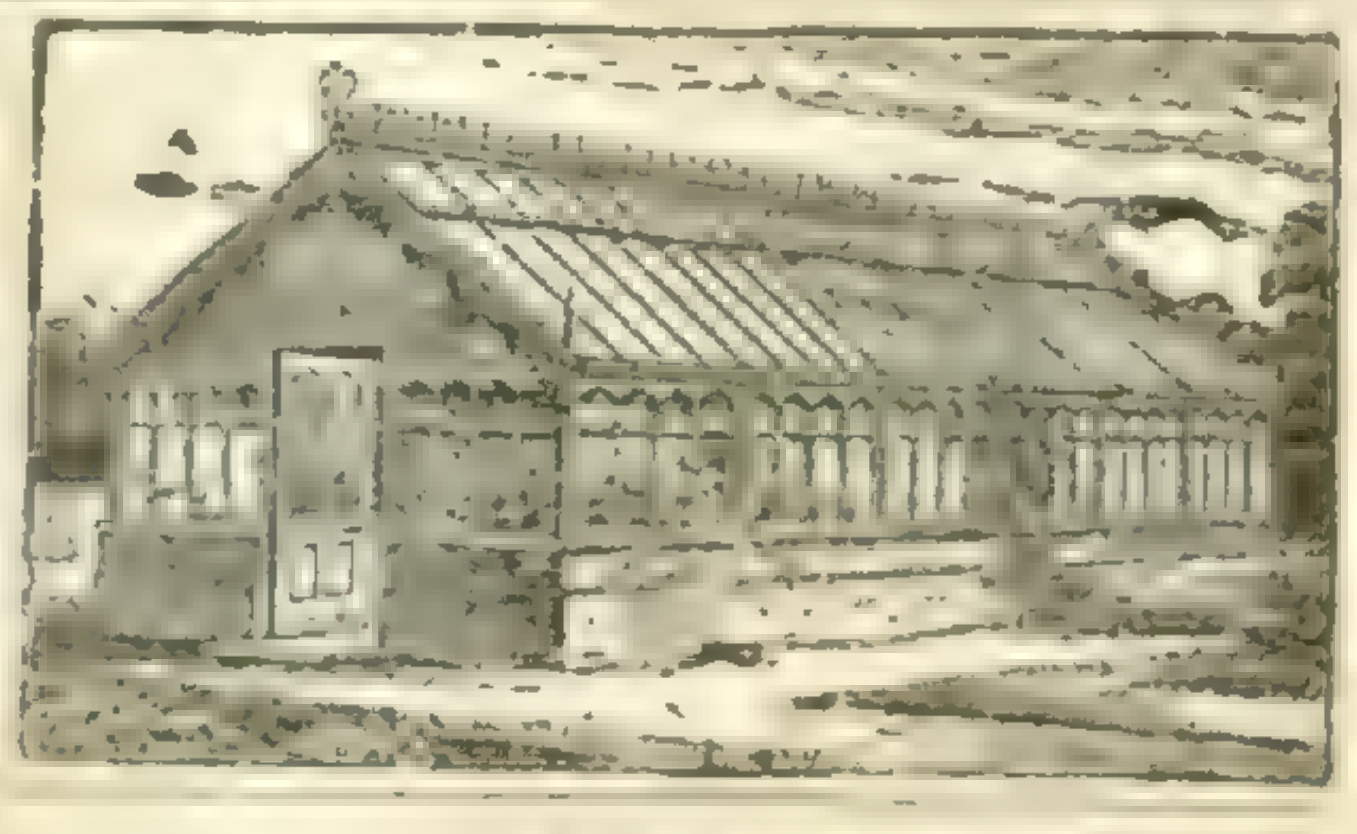

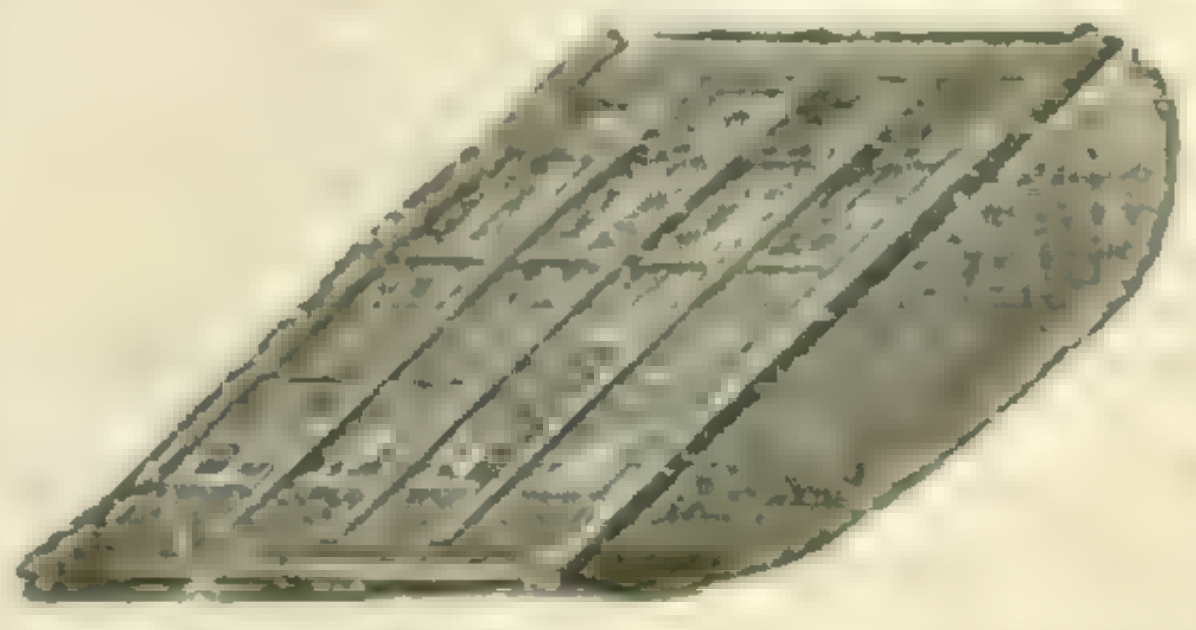

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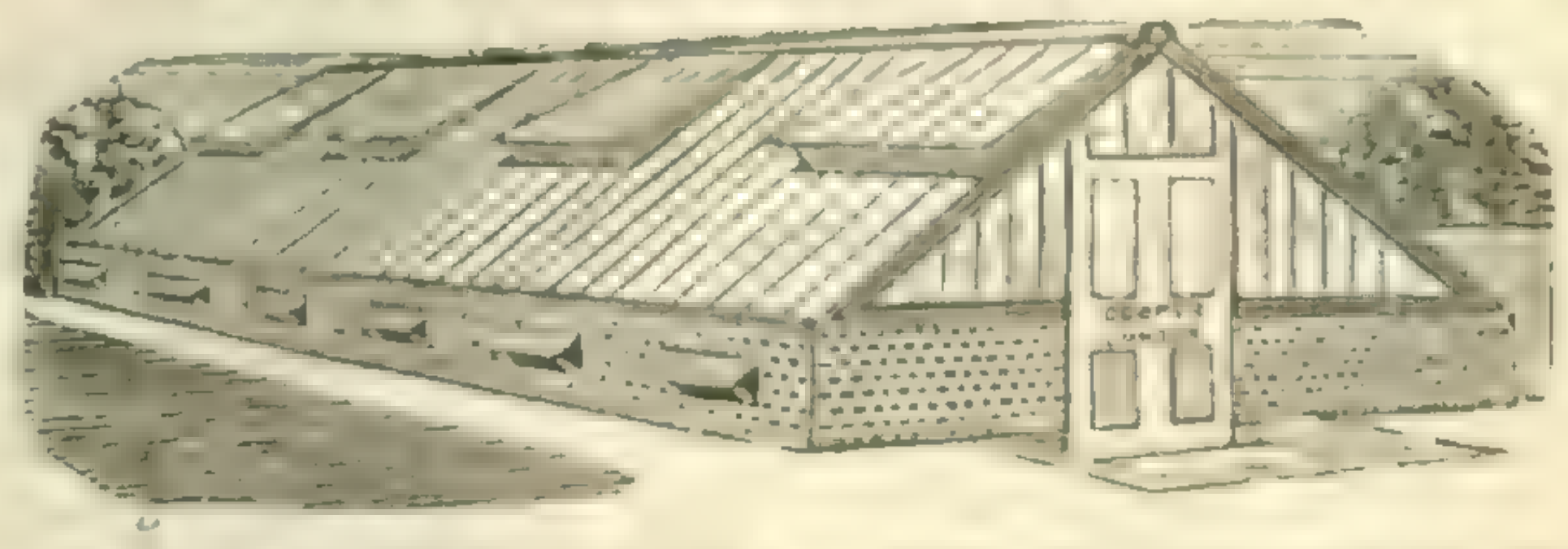

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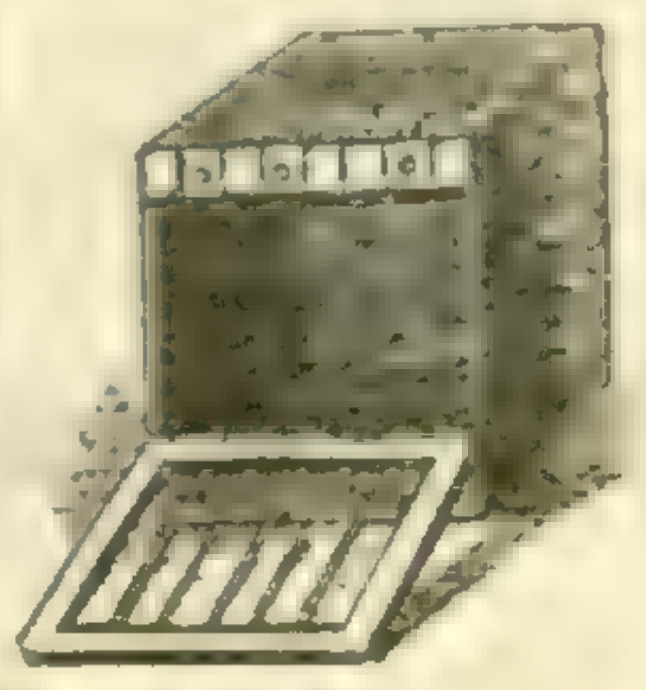

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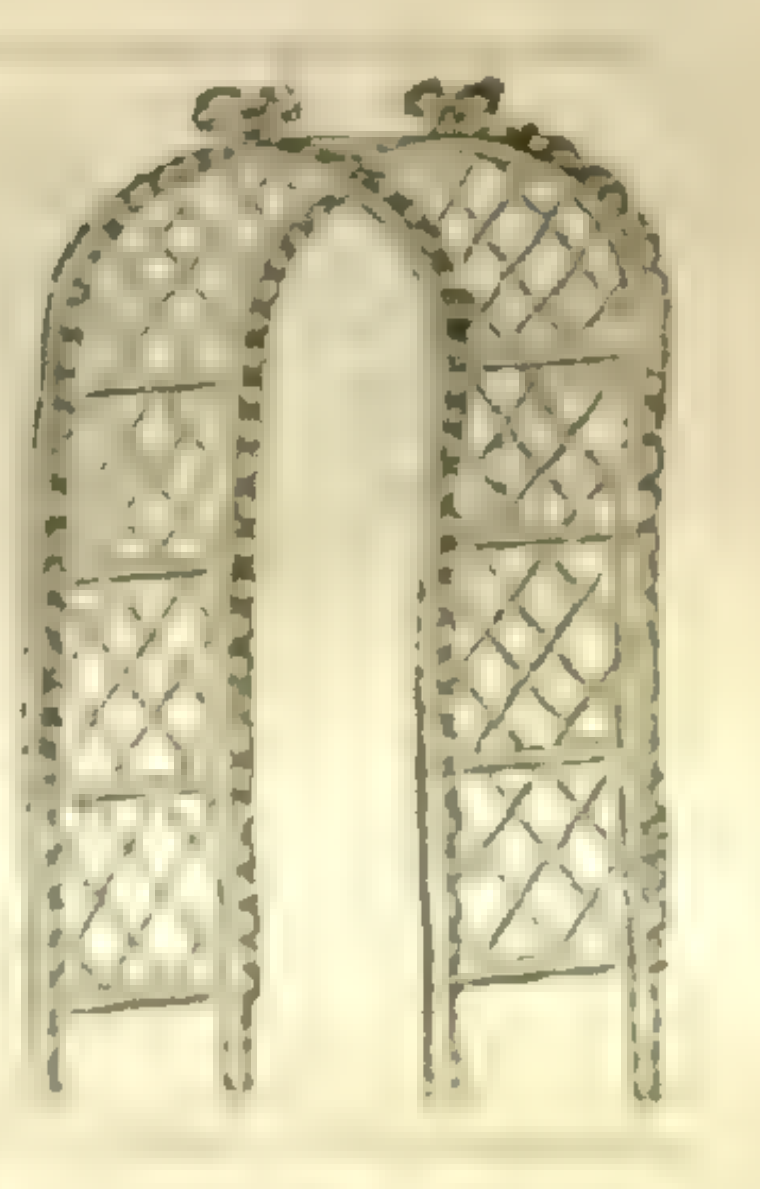

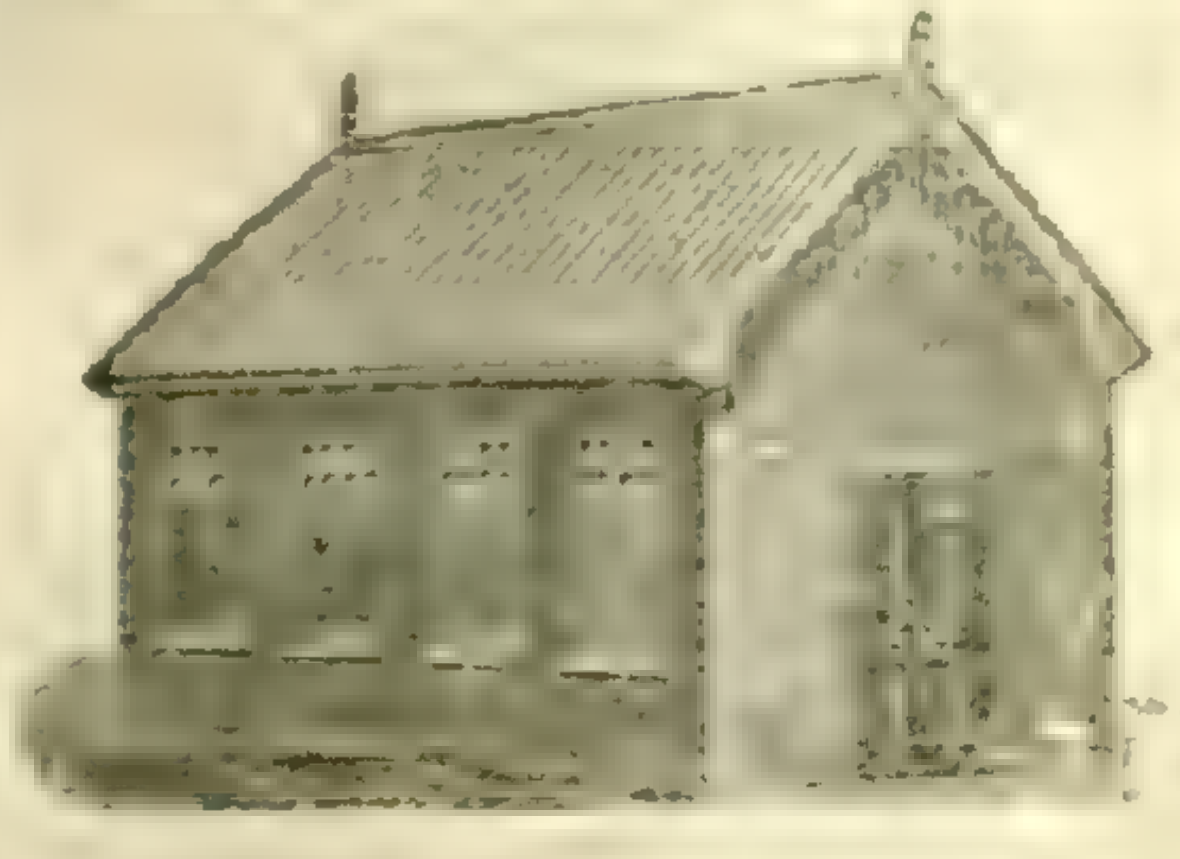

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lanche, and Edwin Molyneux. First bud: Deuil de Jules Ferry, stop April 25; Eda Prass, stop May 20; Mrs. John Shrimpton, take first bud from cutting; and Mrs. W. H. Lees, stop April 10. Second bud: Madame Carnot, stop April 1; Miss Dorothea Shea, stop April 1; Bonnie Dundee, stop March 20; Rose Wynne, stop April 1; Niveus, stop April 1; Etoile de Lyon, stop March 20; and President Borel, stop April 20.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

H. H. H., Wadhurst: The fronds sent were not fertile, but the large specimens enabled us to identify the species with some degree of certainty. 1, Dicksonia antarctica; 2, Cibotium Sheedei; 3, Lomaria gibba; 4, Asplenium bulbiferum, a very strong form.

M. E., Widcombe: 1, Hibbertia dentata; 2, Sparmannia africana; 3, Eriostemon buxifolium; 4, Oncidium incurvum; 5, Cypripedium villosum; 6, Linum trigynum.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

J. V., Wotton: We hope to reply in our next issue.

Communications Received.—R. D.—J. W. M.—W. M.—W. H. L.—G. S.—A. M.—J. C. T.—W. E. B.—R. W.—H. C.—J. L.—G. W.—M. S.—S. K.—W. W.—C. T. D.—W. A. H.—H. H.—S. H. L.—H. H. H.—J. G. C.—G. V.

Eureka Weed Killer.—The untidy appearance of garden paths upon which weeds have been permitted to grow unchecked is an eyesore to every gardener, and it is claimed for the "Eureka" Weed Killer that such a condition of things need exist no longer. This preparation, which enjoys an extensive sale, and has been freely used by the R.H.S. at Chiswick, has been certified by the secretary as to its utility and effectiveness. Its occasional use would undoubtedly result in an appreciable saving of precious time and tiring operations. The proprietors are Messrs. Tomlinson and Hayward, of Lincoln.

A GREAT INJUSTICE is very often done because some self-assertive people imagine it is next to impossible to make an error. Shakespeare must have made an analytical study of the human heart before he uttered those warning words, "Man know thyself, then others learn to know." This is a lesson we should all try and perfect ourselves in, and when this has been done we have to face the significant fact that unless we cultivate good health, prosperity, and happiness cannot abide with us. Holloway's Pills will aid us to do this. The most eminent medical men agree that for the preservation of good health and cure of disease there is nothing to equal them.—[ADVT.]

NEW INVENTIONS.

New X L All Fumigator.—We understand that the success [illegible] the X L All Fumigator and Insecticide has led the patentee, Mr. G. H. [illegible] of 124, Southwark Street, S.E., to introduce a smaller apparatus, adapted for [illegible] in houses of very limited area, and this is eminently suitable for the [illegible] amateurs. The apparatus includes wax burner and a quantity of the [illegible] which has secured so much encomium. This useful appliance, which [illegible] thorough fumigation up to five hundred feet super at a cost of one shilling, is [illegible] within the means of everyone who desires to keep their plants free from insect [illegible]

New Plant Label.—A really capital plant label has just been invented [illegible] Mr. C. E. West, of the Leeds Orchid Company, Roundhay, Leeds. It [illegible] of a white disc, made of an imperishable material in which celluloid is [illegible] but with a slightly rough surface, so that writing upon it, even with an [illegible] pencil, is quite distinct. This is suspended from a shank of copper wire, [illegible] enough for its stem to be pressed into any character of soil or compost, rendering it useful for orchids and indeed for any class of pot plants. Moreover the flexibility of the wire admits of its being bent if required, so that it can be used for affixing to plant stems with equal facility. The label is reversible, and it has the additional advantage of being thoroughly waterproof. It will probably prove a gardener's desideratum.

The Handy Grass-edge Cutter is the name given to an improved form of edge-cutting implement that is being manufactured by Messrs. Thomas Green and Sons, of Leeds. The trimmer used is of star-like shape, which affords practically a continuous cut, clean and evenly regulated. A further improvement has been effected by a resetting of the angle at which the handle is placed, as the result of much experimental trial. Thus the direction of thrust is now dead upon the cutting point, rendering the work of trimming verges and lawn edges a simple and easy operation, and affording a considerable saving in time as compared with the older device of cutting by shears. Messrs. Green and Sons' lawn mowers are very well known, but it may be added that the result of frequent improvements in these garden necessities is seen in the introduction of springs whereby the larger sizes have been rendered still more efficient and workable, while the light running mowers of the "Monarch" class have made considerable advance in construction and favour.

Peach Trees Shedding Flower Buds.—This defect appears to have been unusually common this season, and is so widely spread that any excuse of a merely local kind furnishes no satisfactory explanation. Generally the failing is found most common on certain early varieties, but this season home as well as American varieties have suffered. Fogs are not to be charged with the evil, but they doubtless have been contributory to intensifying the evil. Even the common reason given, dryness of roots and borders, does not satisfy in every case, because the borders are not dry, yet this again is no doubt largely a contributory cause. The chief one seems to be found in the variation of temperature recently felt, when a few very warm days forced bud nutriment, and a few later cold dull days checked action, and this disturbing influence, when warmth again ensued, led to the falling of the buds. It is, indeed, difficult to find reasons that explain a general defect, yet found under such diverse conditions under glass.—A. D.

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THE PRUNING OF ROSES.

THE article in your last week's number by Mr. Fish on pruning roses is very interesting, and should be widely read by amateurs. In mentioning amateurs, I do not allude to our exhibiting amateurs, who, of course, are thoroughly *au courant* as to pruning, but more especially to those who have small rose gardens, and may by this extraordinary season be induced to cut back their plants now. In walking round the suburbs of Oxford, I found that many plants are to be seen already carefully cut back, the latent eyes consequently starting into growth, just as if it was April instead of being February, and essentially a winter month.

There is plenty of time yet to have wintry weather and skating. Only about five years back, we had some splendid skating on the Cherwell at Oxford, 20 degrees of frost, and a bright sun, too, in the daytime, just to finish off entirely what the frost had passed over. This happened in March. Memories of such frosts are quite sufficient to make rose-growers careful, and to the many letters lately received on the subject our advice has been, "Bide a' wee."

There is nothing so likely to give satisfaction as the eye which starts late and then grows quickly. Early pruning does not mean early blooming, by a long way. It is very curious to note how the plants have fared along the south walls. Varieties such as Comtesse de Nadaillac, The Bride, Madame de Watteville, Innocente Pirola, Golden Gate, and others nearly always make a lot of late growth. These we generally cover up lightly with the haulm of cabbage seed. This is a very nice material; in fact, the best for protection. It is not put on too thickly, but just lightly tied round the heads (the ends or tips of the plants are not covered), and in many cases the rose wood may be seen through the covering lower down. We have not taken any of this off yet (March 3), but looking into the heads of some this week find that the thick, hard wood is perfectly dormant, hardly a started eye anywhere, all the growth having gone to the tips, where they are exposed to the light and sun. So that, far from starting pruning, the winter covering is still on, and beneficially. This is as it should be, for tea-roses are sure to come early enough, the plants being pruned when the winter is quite over. But our other hardy varieties which do not require covering! These are a sight to see. Etoile de Lyon, Souvenir de S. A. Prince, Marie Van Houtte, F. Kruger, Alba Rosea, &c., have shoots two, three, and four inches long, some plants shooting out from the collar; they have not even lost their last summer's foliage, and will be bearing flowers in a week or two.

It would be very interesting now if rose-growers would write from different centres and compare notes as to protection, the state of the trees at present, &c. Have some already cut blooms in the south? I should not be at all surprised to hear of this.

But what is, perhaps, a more serious question for exhibitors, "Will our plants throw such fine blooms this year?" having had practically no rest whatever! We had blooms of Madame Lambard in December; this variety especially has been "a-growing," and one might almost say "a-blowing," now for nearly ten months straight off the reel. Roses this autumn have certainly done their best to outvie the mums. At several chrysanthemum shows we have been able to show groups of cut roses which have been very favourably noticed by visitors and the press. I fear I am wandering from my subject, but my last words shall be, "Do not be in any hurry to prune."

Oxford.

ALFRED E. PRINCE

PREPARING EARLY POTATO SETS.

YOUR correspondent "Lux" takes exception to my remarks on the preparation o seed potatos for planting, and suggests that possibly I have been napping, for he says that the "Luxian" sets have been on their ends for weeks. Luxian, indeed! what variety is this? I grow about sixty sorts annually, but have never heard of this before, and should be thankful if my friend would send me a few for trial. He then goes on to say they will remain there until wanted for planting. As I usually plant about the first week in April, I hope he will favour me with a few of this superb sample. I guess, however, they are like those of the Lancashire farmer, who could not cut one of his for a peck if any one would give him the world! Doubtless, however, "Lux" is a master in the art of potato culture, as he appears to be in everything else appertaining to horticulture. All, however, I fear, have not the same convenience for storing potatos as he appears to have; neither, I am afraid, are some of us possessed with his superior knowledge of their requirements. For the information of "Lux," I may state that the whole of our early sets have been placed on their ends ever since last August, and have been exposed to the light the whole time. Seeing that I advocated the preparing the sets of early varieties in this manner for a very long period it is possible for me to have some slight knowledge of the subject, and therefore I may tell him that medium-sized sets are by far the best. What would be considered medium-sized tubers in one variety would be small in another. For instance, a set of Ashleaf two ounces in weight would be considered large. The true test would be to settle the dispute about the size of sets, for anyone who cares to take the trouble to plant rows, say, ten yards in length, with tubers varying in weight from half-an ounce to those of a pound each, he will then see the result for himself. This I have done, and proved beyond doubt that medium-sized sets are the best, having grown the heaviest crop ever produced in England. The quantity, however, produced from a certain weight of seed is no test of the cropping capabilities of any variety, but the amount per acre. It is quite possible to grow a couple of hundredweights, or even more, from a pound of seed, but to grow between thirty and forty tons per acre is another thing entirely. In the one case the sets could be started early, and cuttings taken from them to an almost unlimited extent, while in the other more would depend on the quality of the sets and their after-management than the number obtained.

Had "Lux" been a practical man, he would have known that but few gardeners are possessed with accommodation for placing the sets on their ends until the winter is half over; neither is it actually necessary to do so, unless the tubers have commenced to grow. If those intended for planting are exposed when dug to the influence of the sun, and afterwards stored in a cool, airy place, very few of them will commence to shoot until the winter is well advanced. I wonder how many are so exposed by those who plant acres? It was formerly the practice to plant early in February, but from experience it has been found that nothing is gained by so doing where there is room to properly prepare the sets, for when planting is deferred until the first week in April, there is not much risk of them being cut down by late spring frosts. I know "Lux" will pardon me for answering him at such length; he is not one of those thin-skinned writers who set their backs up at trifles, but I must ask him to be a little more careful in his reading. I said the sets should by "this" be placed on their ends, not that they should not have been done so sooner; but knowing full well the difficulties gardeners have to contend with in this respect, I reminded them that it was not safe to further defer the operation.

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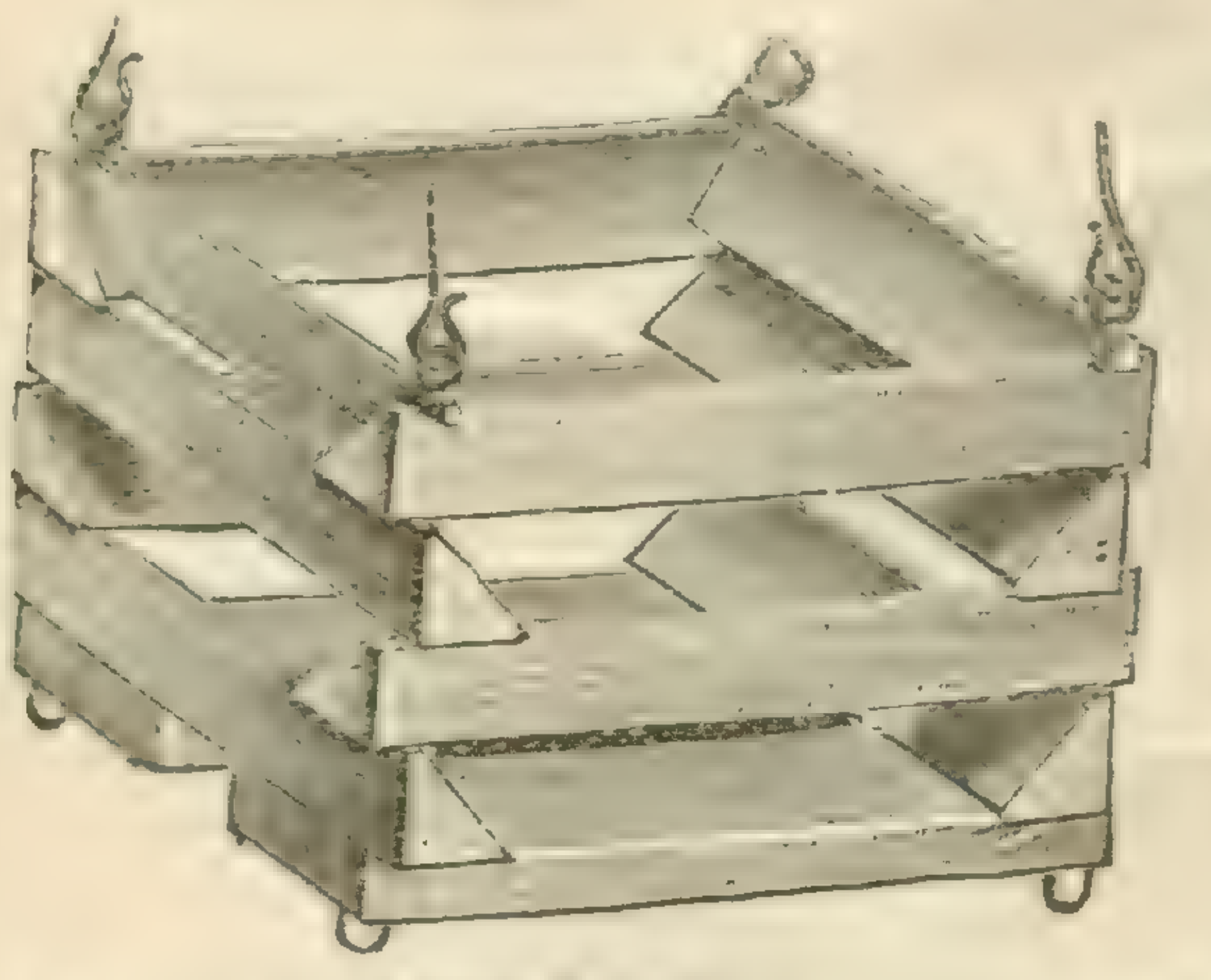

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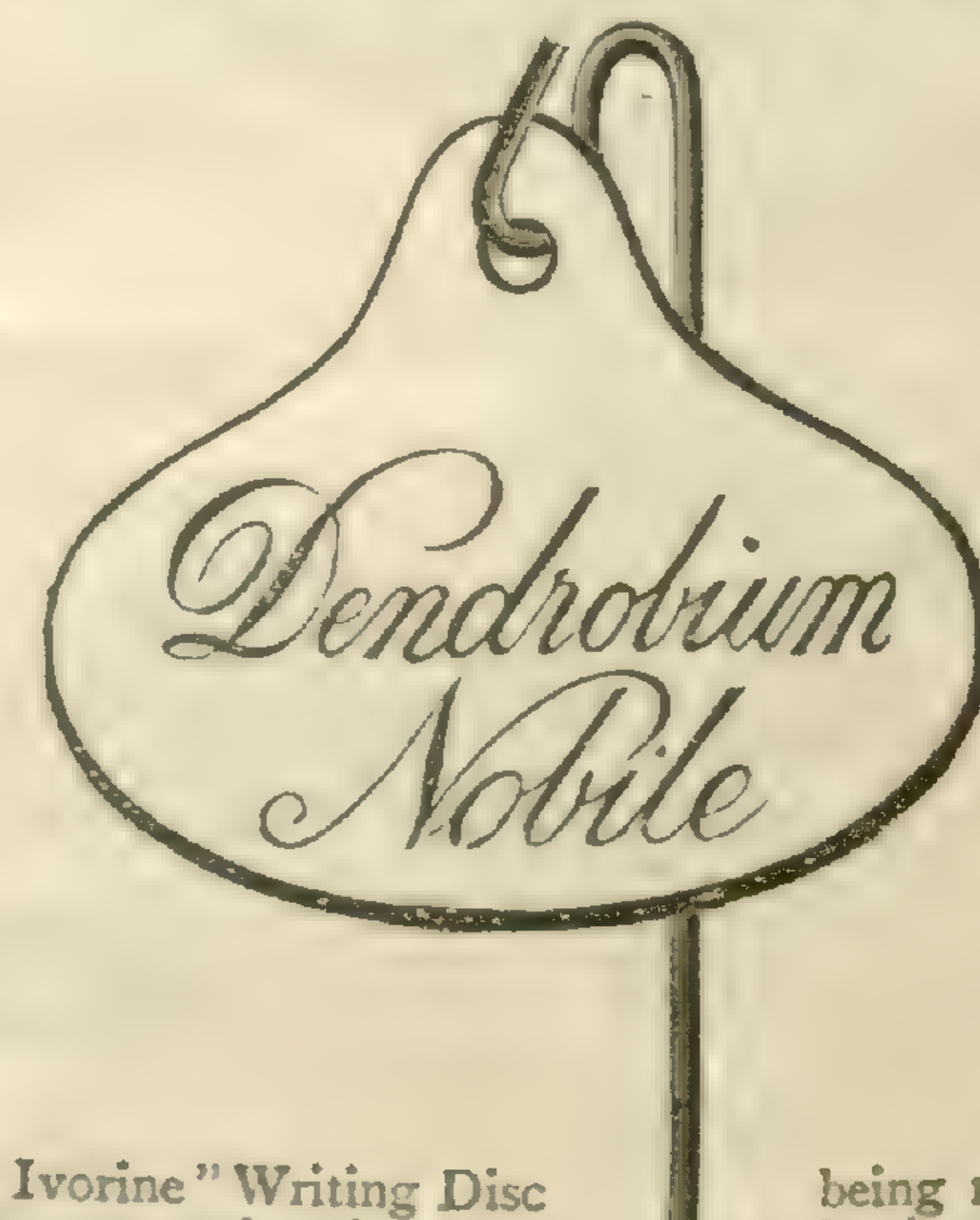

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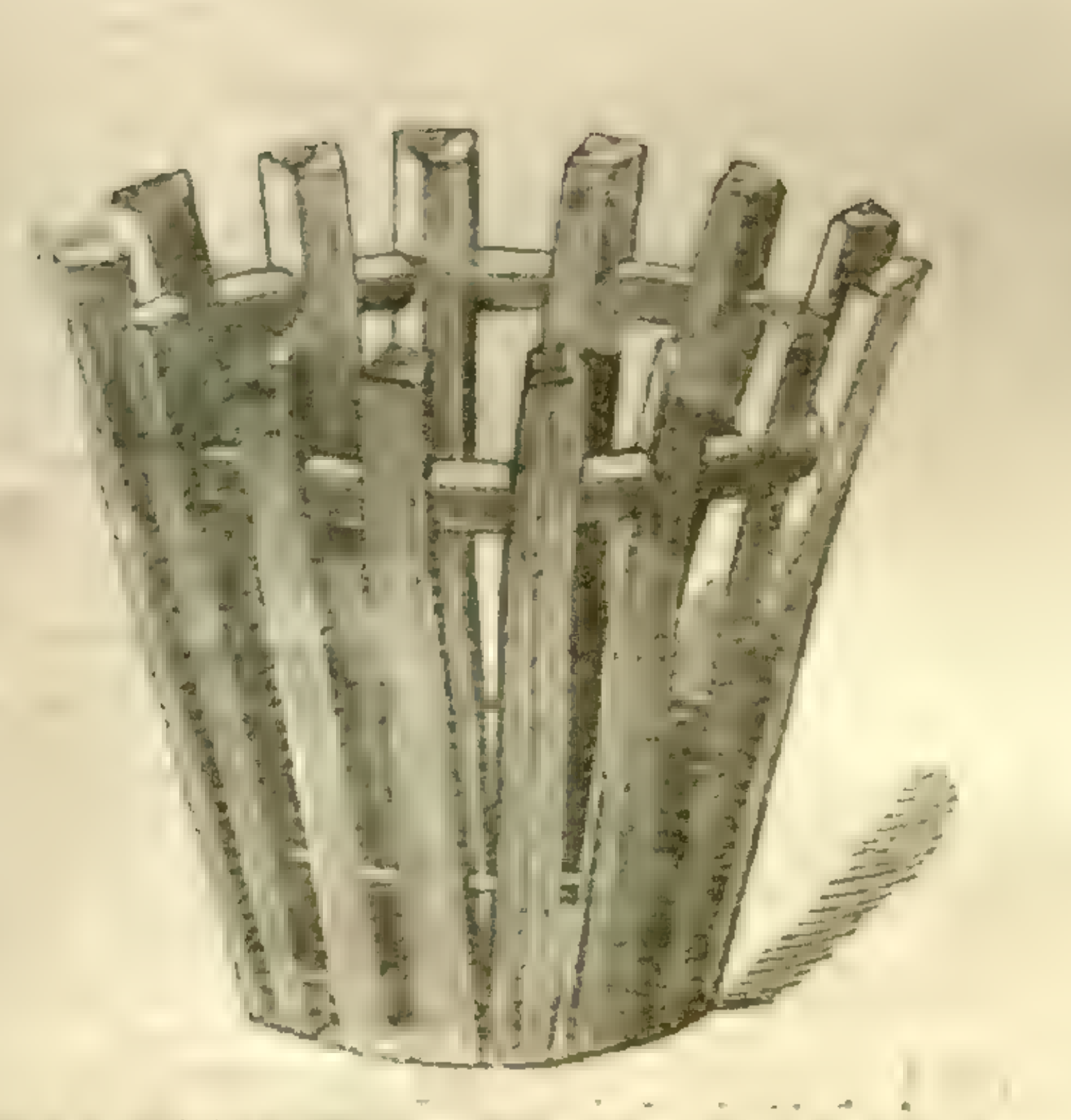

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Borough Potato Market.

Supplies are rather large, but trade is quiet. Prices have slight upward tendency.

Dunbars, 110s. to 120s.; Hebrons, 85s. to 100s.; Snowdrops, 80s. to 90s.; Bruce Maincrop and Sutton's Regents, 80s. to 85s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. to 3s. 6d.; Germans, 3s. 6d. per bag.

Effects of Earthquakes on Plants.—The published proceedings of the Agri-Horticultural Society of India for the September quarter of 1897 contains the following interesting correspondence. Mr. W. Help wrote on August 14 to the society's secretary: A most remarkable thing has happened to all my Papaya trees since the earthquake. I am sending you some of the fruit to see the condition they are in, and you know what fine ones I had. The fruit I am sending you were the same size as when the earthquake took place on June 12, so that growth in the fruit has been stopped entirely in some remarkable way since then, but not in the plant, which is still growing and flowering in the usual way. It is not one plant only affected, but every one I have. Can it be the earthquake, I wonder, for all plants are very healthy looking? Fruits that have formed outside the influence of the earthquake, a foot or more above where the specimens have been taken from, are growing, and are from three to four times the size of what I send you. The Secretary of the Society adds: "The specimens received were the size of an ordinary duck's egg. In the society's gardens it has been noticed that little or no progress has been made in the growth of Papaya fruit since the earthquake."

THE WEATHER DURING THE WEEK ENDING FEBRUARY 26, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Cen- [illegible]
London	48·2	26·1	37·6	3·11	0·21	[illegible]
Croydon	49·0	19·8	36·8	2·67	0·09	0·23
Brighton	51·0	27·2	38·5	3·61	0·24	[illegible]
Bristol	47·0	26·0	34·5	1·39	0·34	[illegible]
Wolverhampton	43·1	21·1	33·1	0·61	0·11	[illegible]
Norwich	48·0	22·4	37·5	3·06	0·16	[illegible]
Nottingham	47·0	23·7	35·5	1·94	0·19	[illegible]
Liverpool	46·2	26·2	36·3	2·39	0·30	[illegible]
Huddersfield	45·2	23·0	35·0	1·67	0·56	[illegible]
Bradford	48·0	28·4	37·4	3·00	0·19	[illegible]
Hull	48·0	24·0	35·5	1·94	0·21	0·53

The mean reading of the Barometer during the week at Greenwich was 29·55 inches, and [illegible] of the Thermometer 37°·6, the latter being 2°·1 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air [illegible] 3 per cent. above the week's average in the 16 years 1860—75. The duration of registered [illegible] sunshine in the week was 25·8 hours. The measured rainfall amounted to 0·21 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 8.—Royal Horticultural Society Committees meet at Twelve o'clock. [illegible] p.m. the Rev. Professor Henslow, M.A. will discuss some of the more interesting [illegible] exhibited.

SATURDAY, MARCH 12.—General Meeting of the Royal Botanic Society.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, AND FRIDAY, MARCH 7, 8, 9, AND 11.—Roses, Li[illegible] auratum, Imported Orchids, at Protheroe and Morris's Rooms.

WEDNESDAY, MARCH 9.—English and Foreign Roses, Fruit Trees, Shrubs, Plants, &c., at J. C. Stevens's Rooms.

THURSDAY, MARCH 10.—Border Plants, Shrubs, Liliums, &c., at J. C. Stevens's R[illegible]

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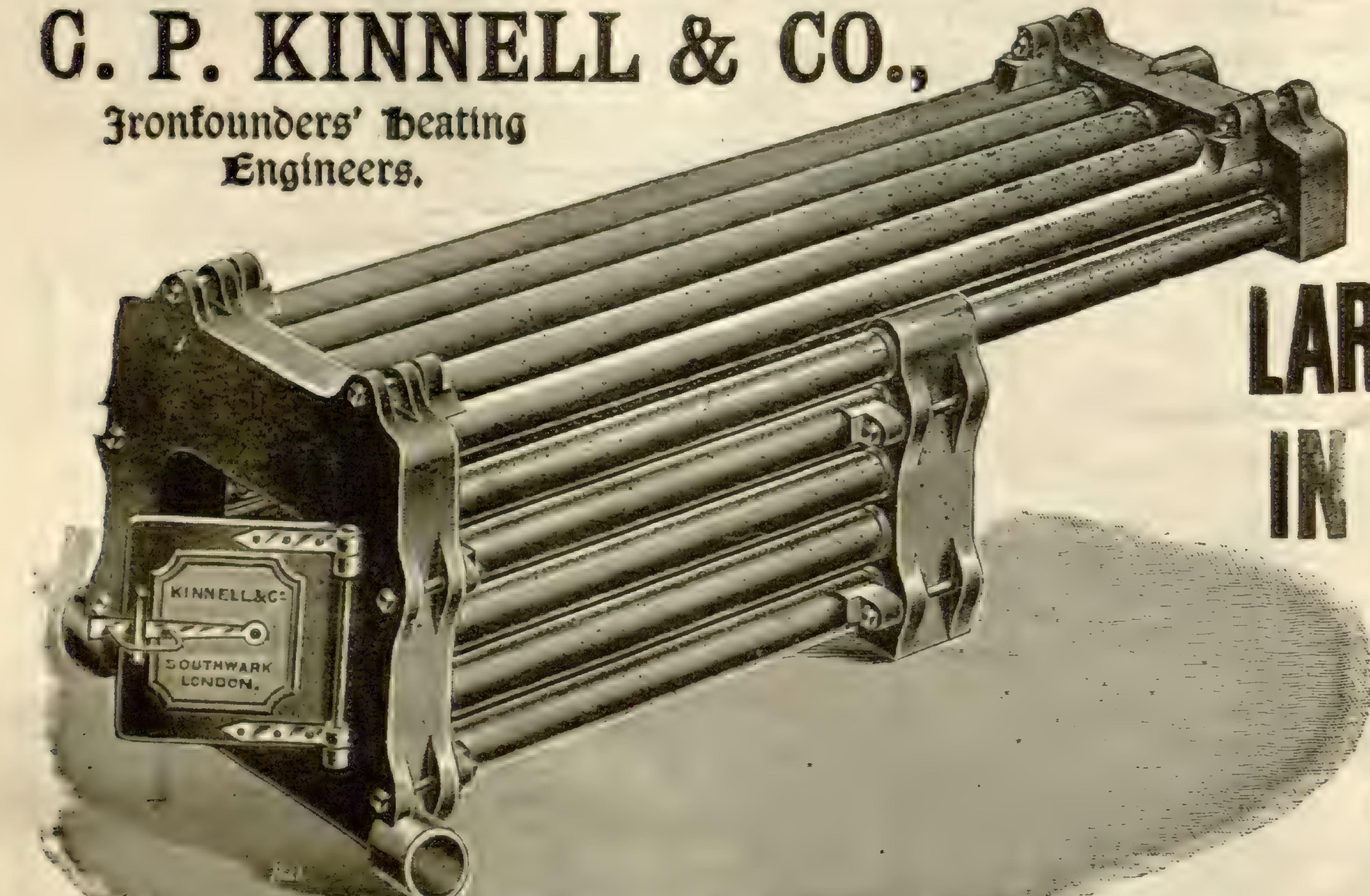

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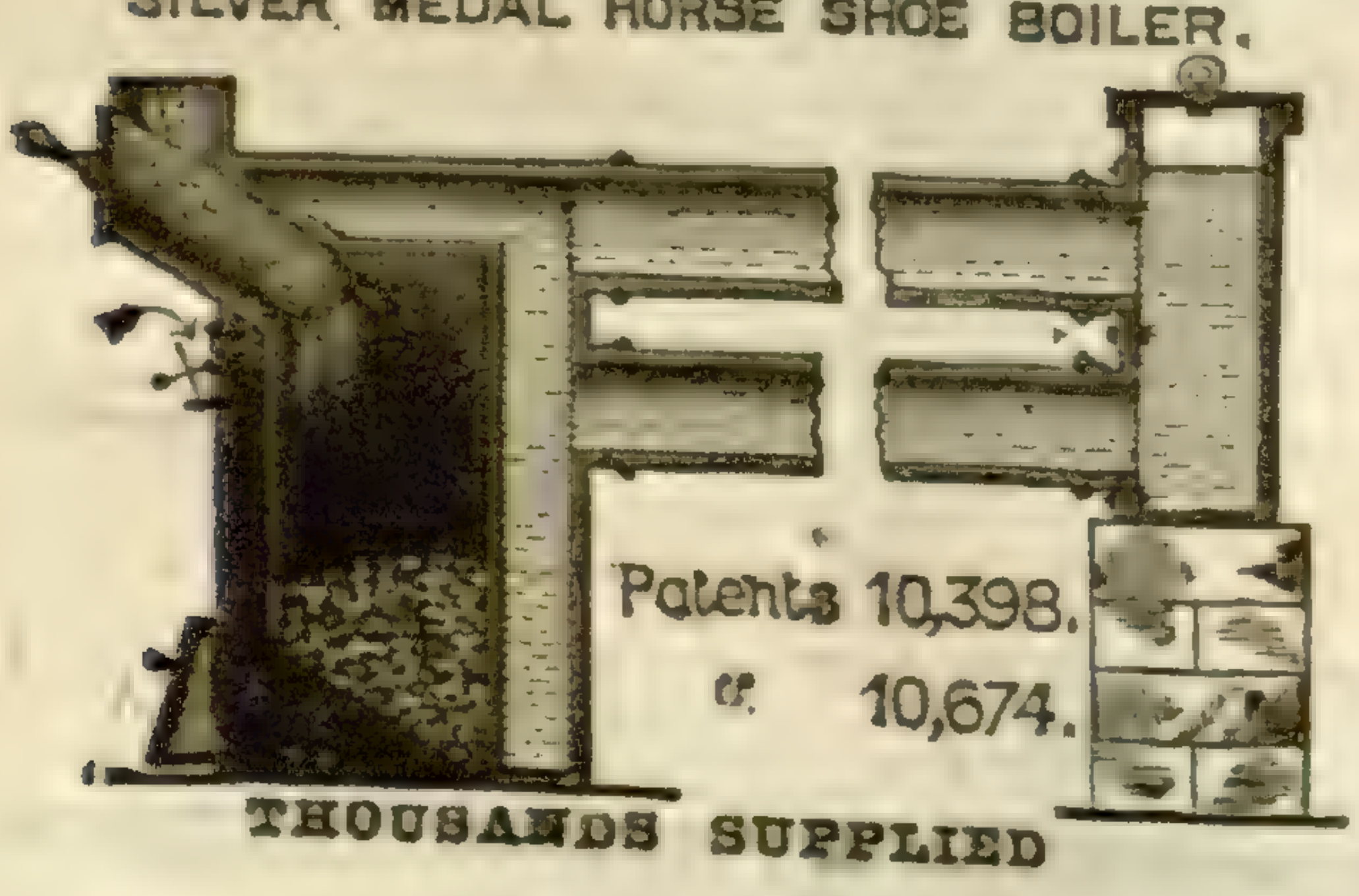

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Duke of Teck
E. of Dufferin
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Rosetta Jacob
Abel Carrier
Turner's Crimson Rambler
Bell Lyonnaise
M. De Tartas
Dupuy Jamain
C. Forestier
Duke of Albany
Merveille de Lyon
A. K. Williams
Lord Bacon
Dr. Andry
M. G. Luizet
D. of Edinburgh
Crested Moss
White Moss
White Bath
Mousseline
Mrs. Baker
Louise Dore
C. Darwin
Lady Stewart
B. De Watsemer
Mrs. Geo. Dixon
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Mrs. Paul
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Lord F. Cavendish
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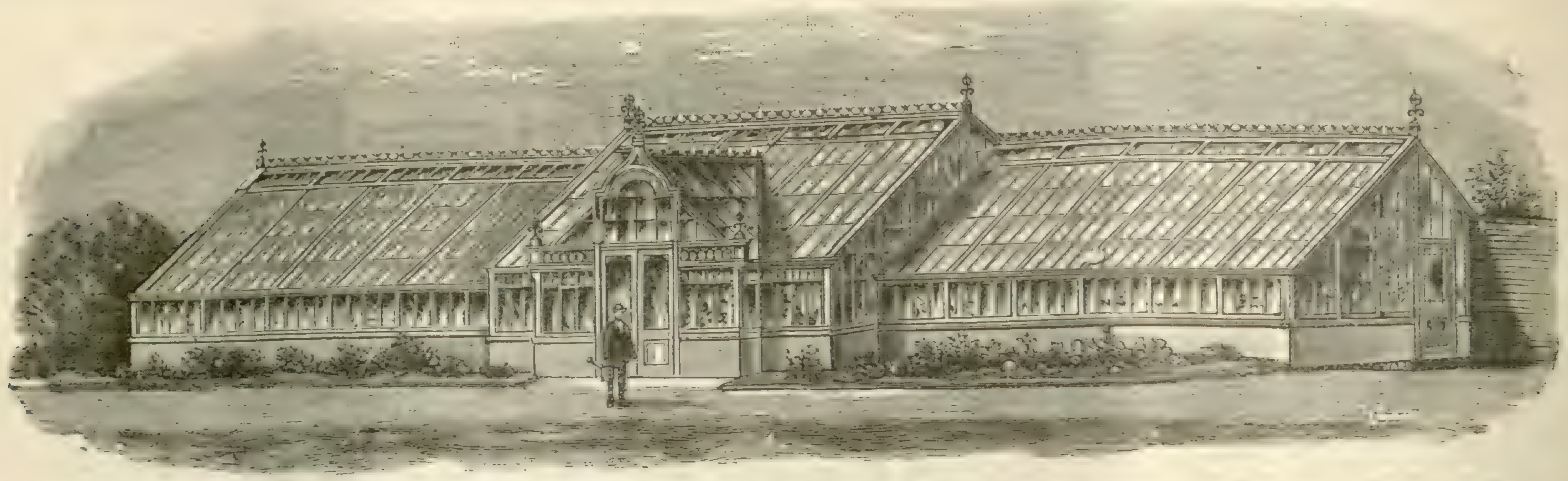

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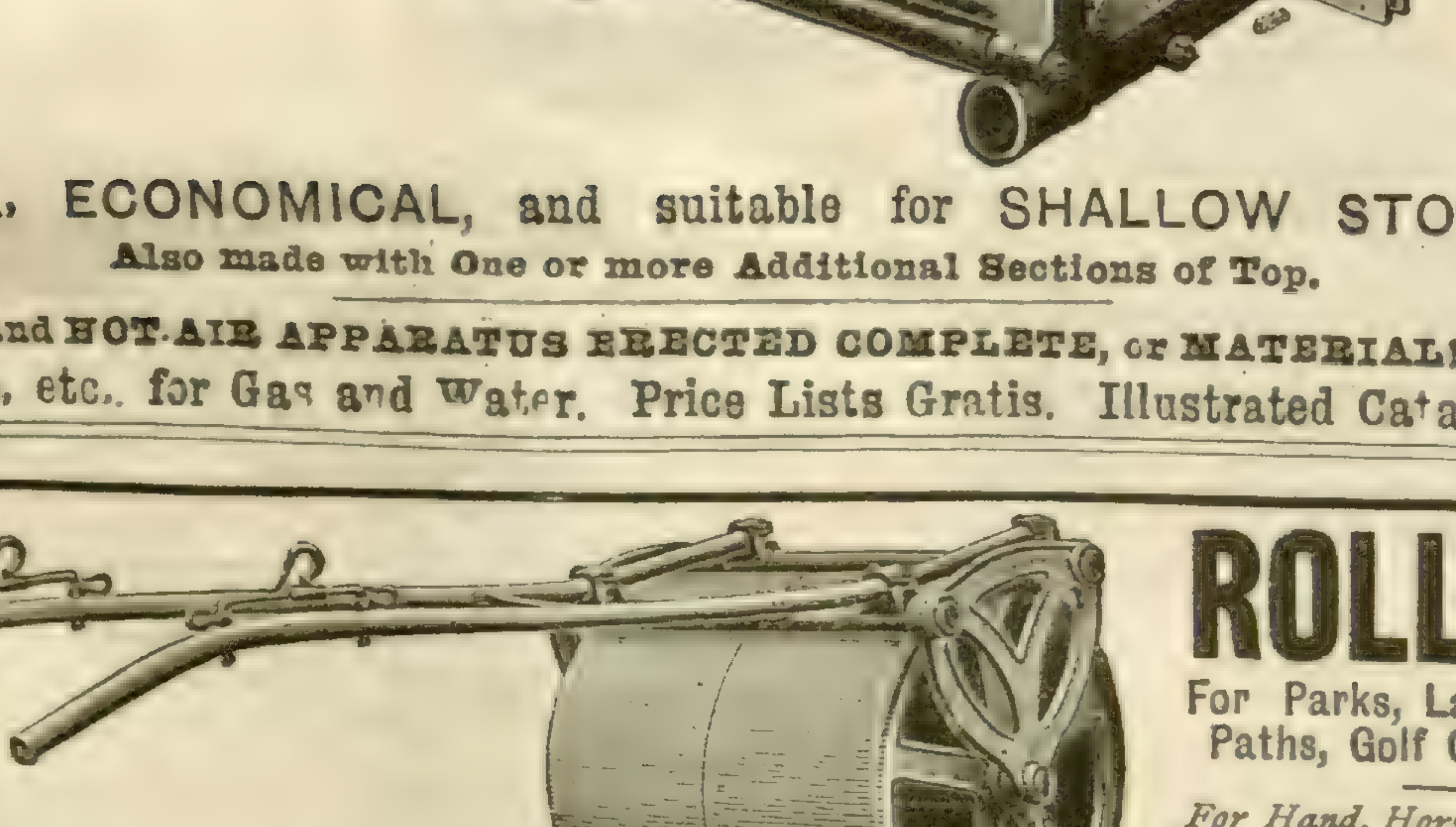

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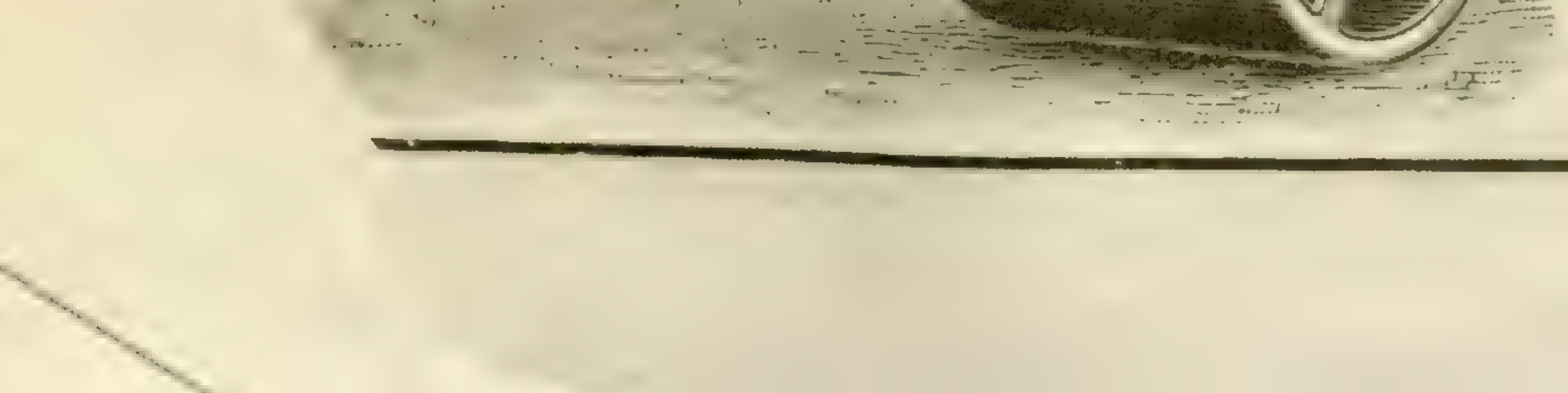

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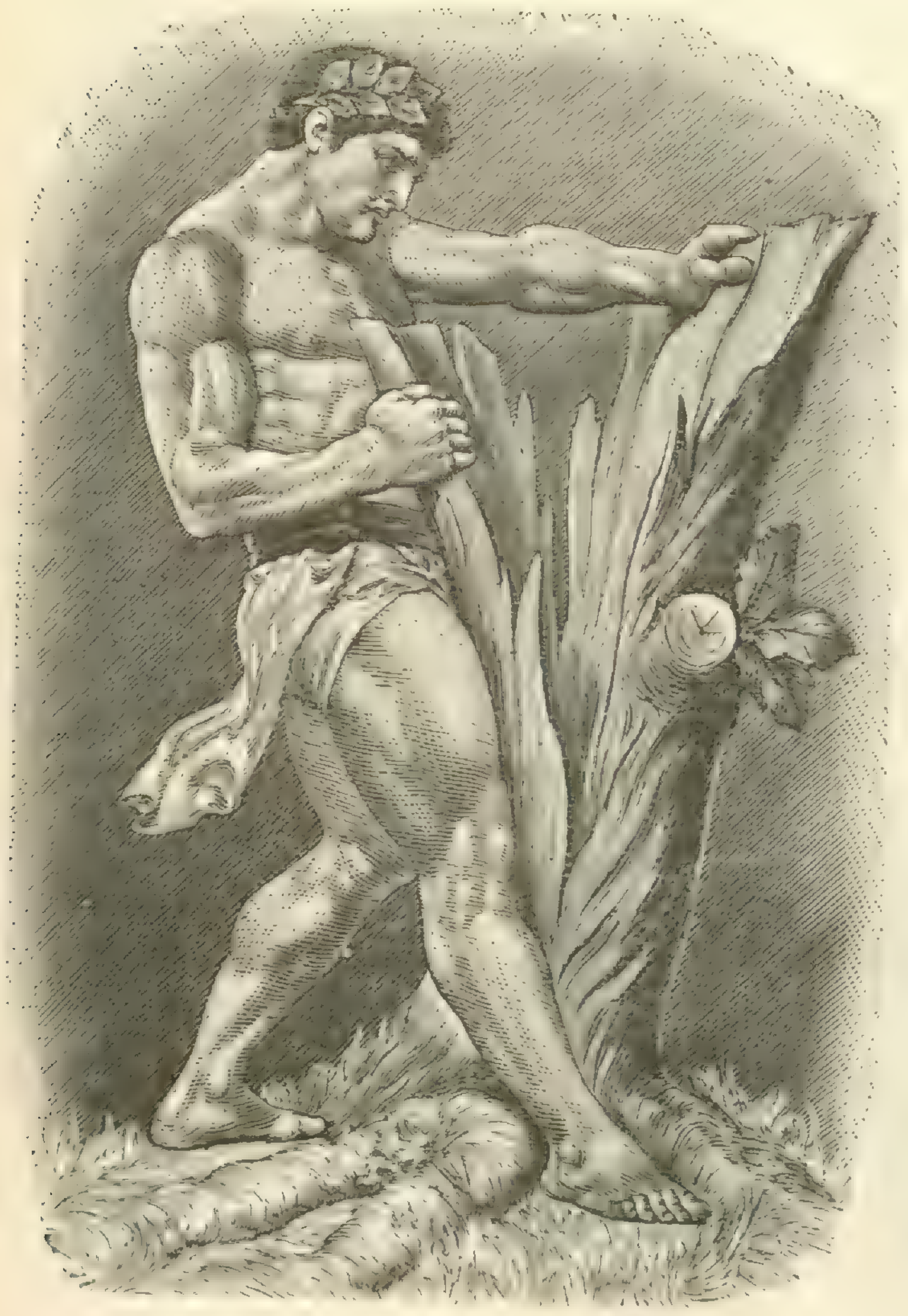

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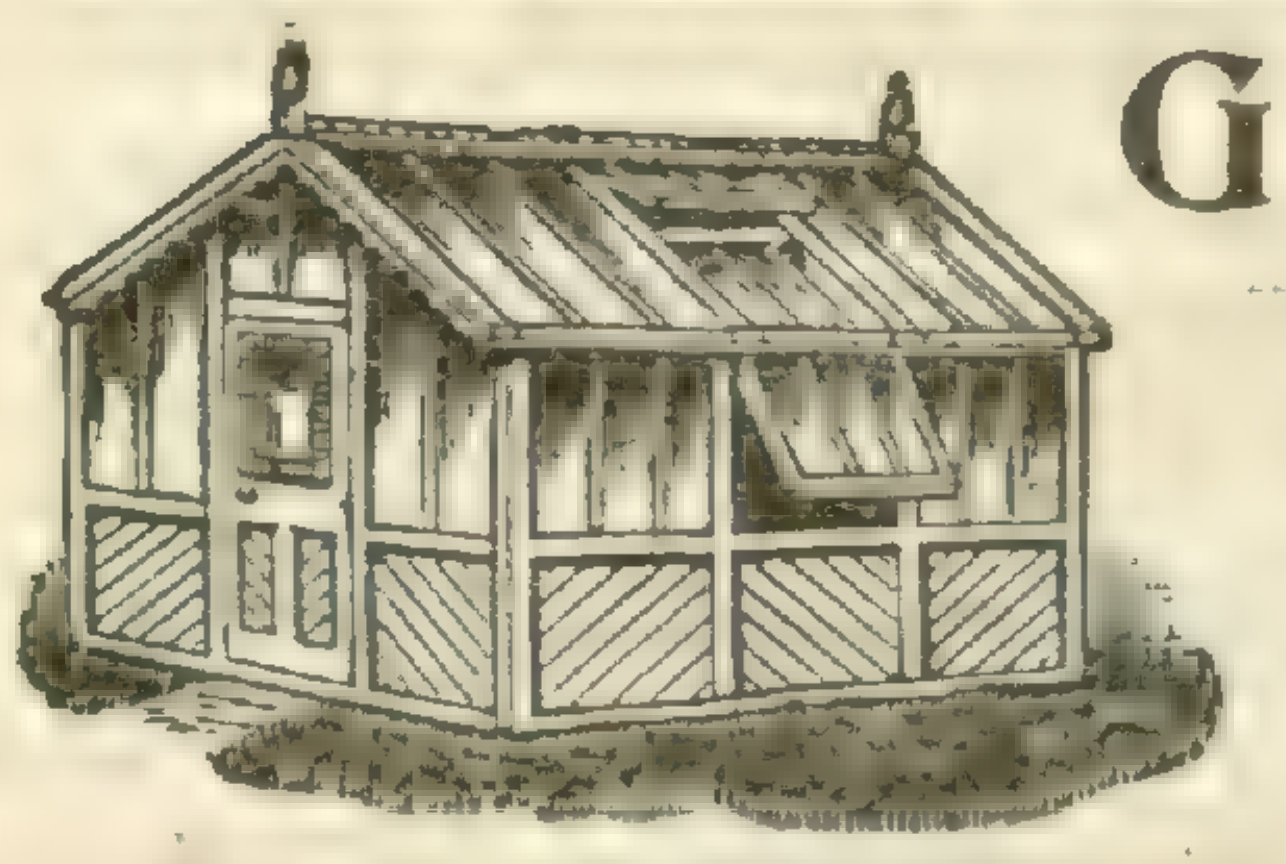

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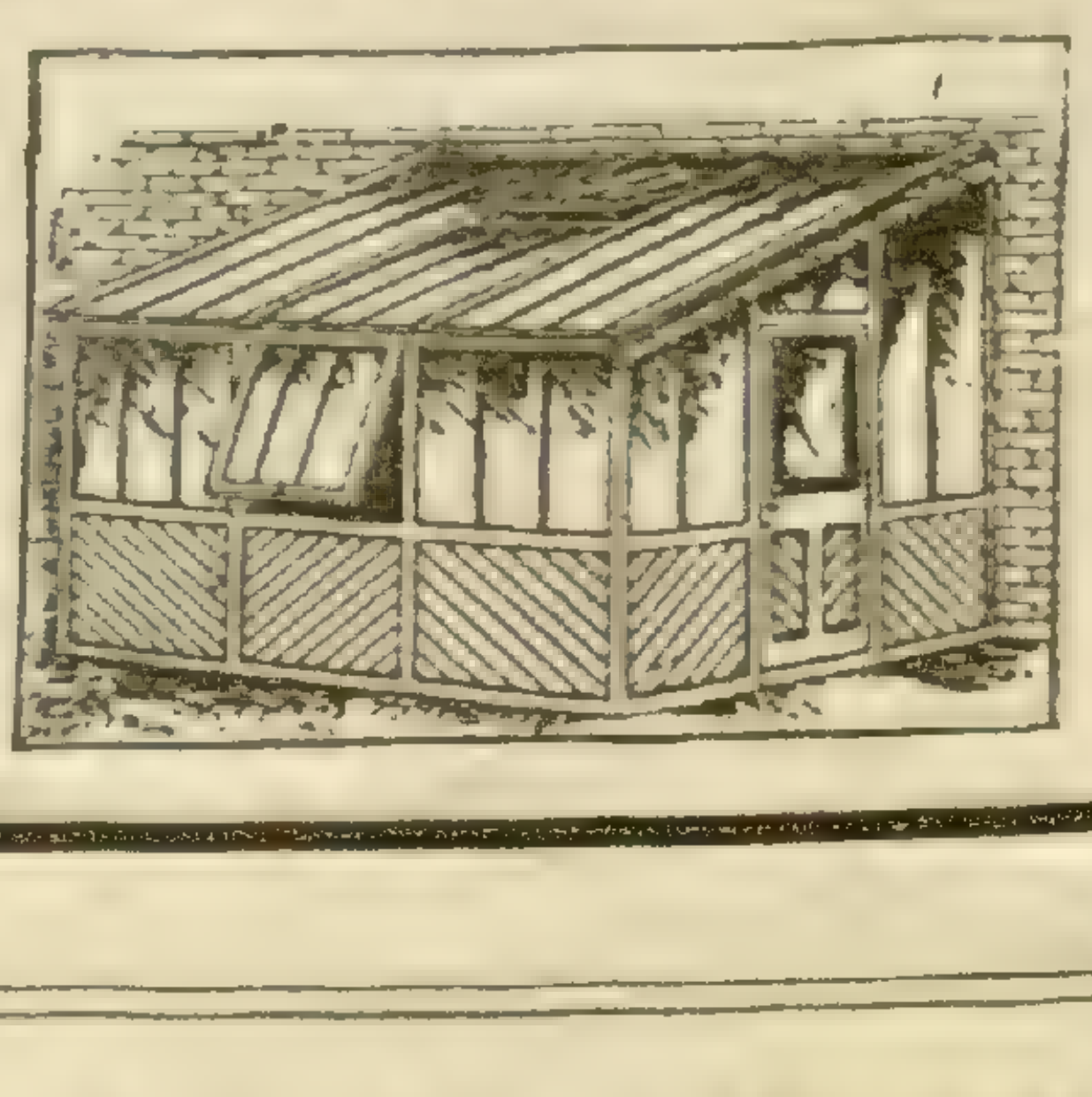

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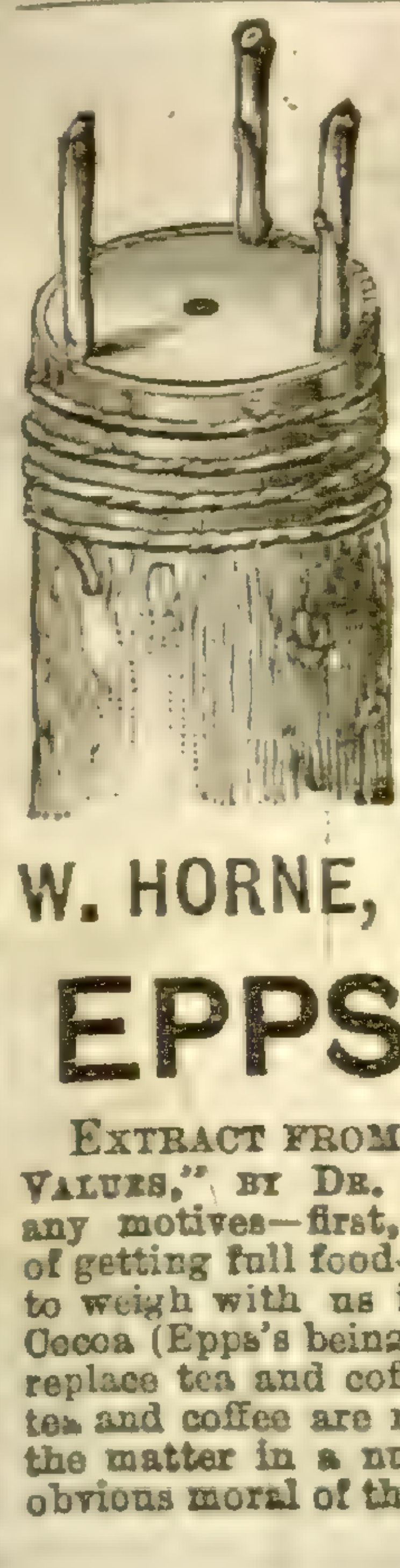

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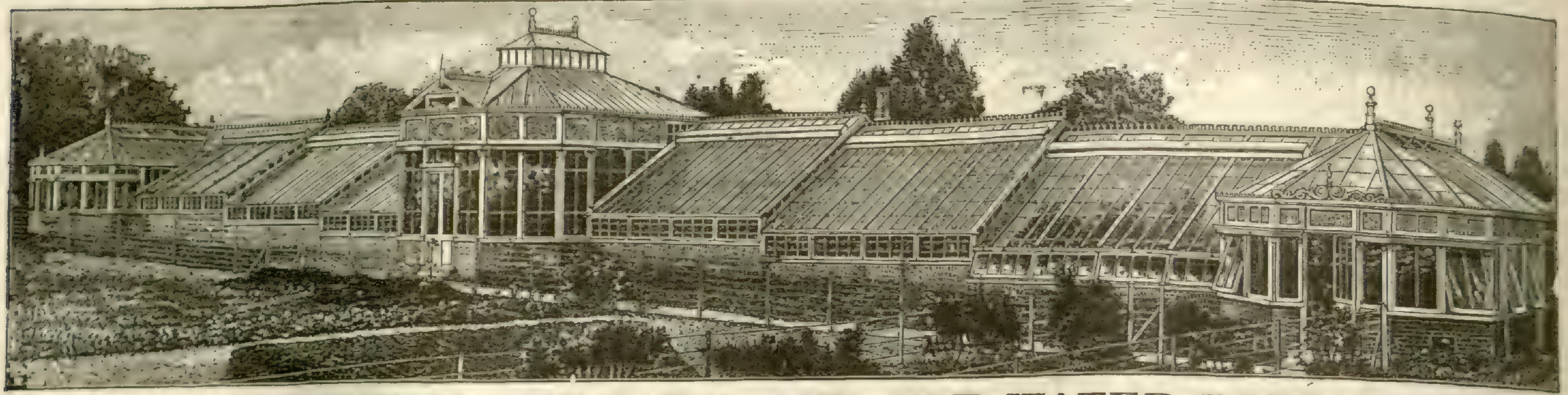

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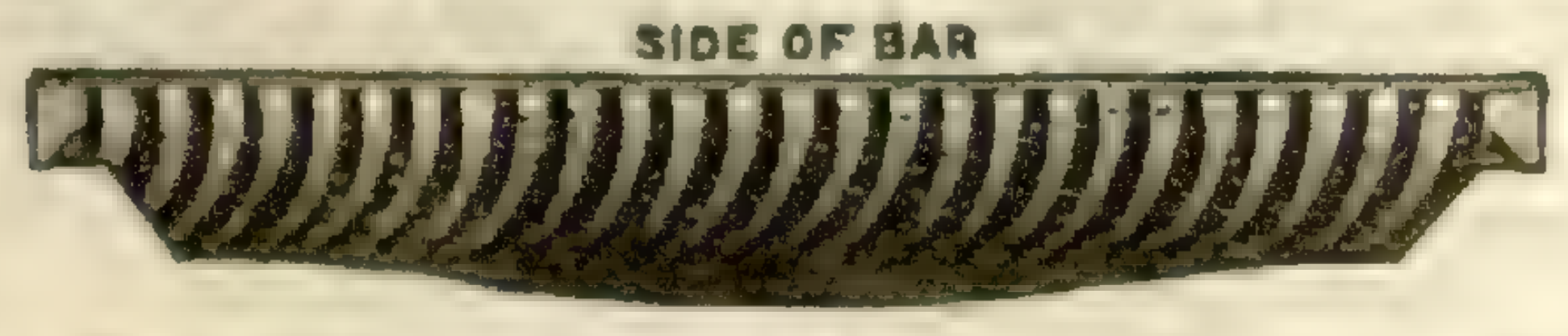

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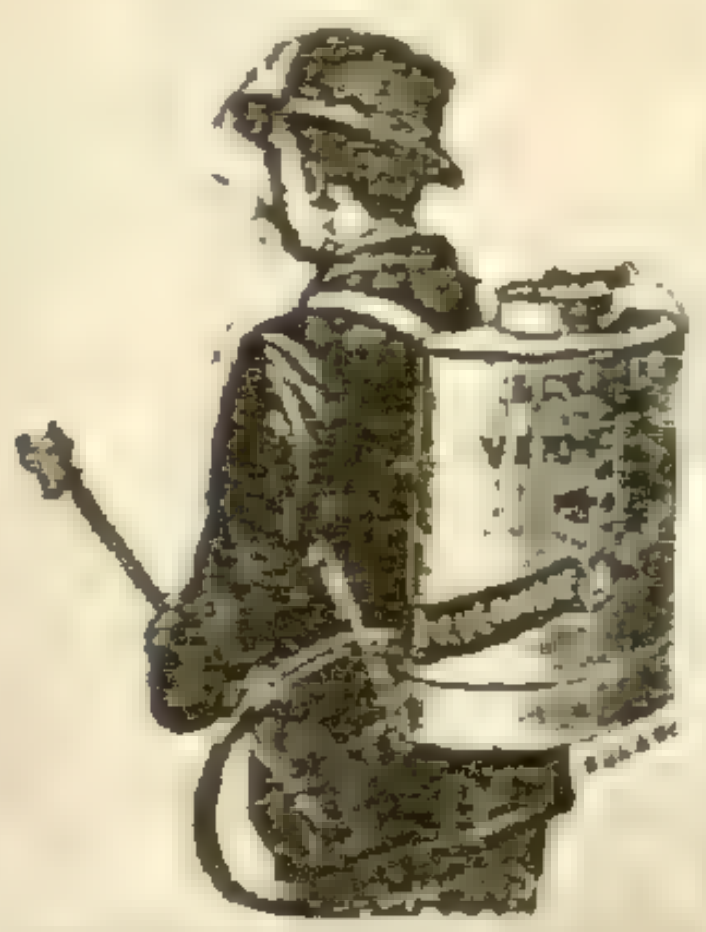

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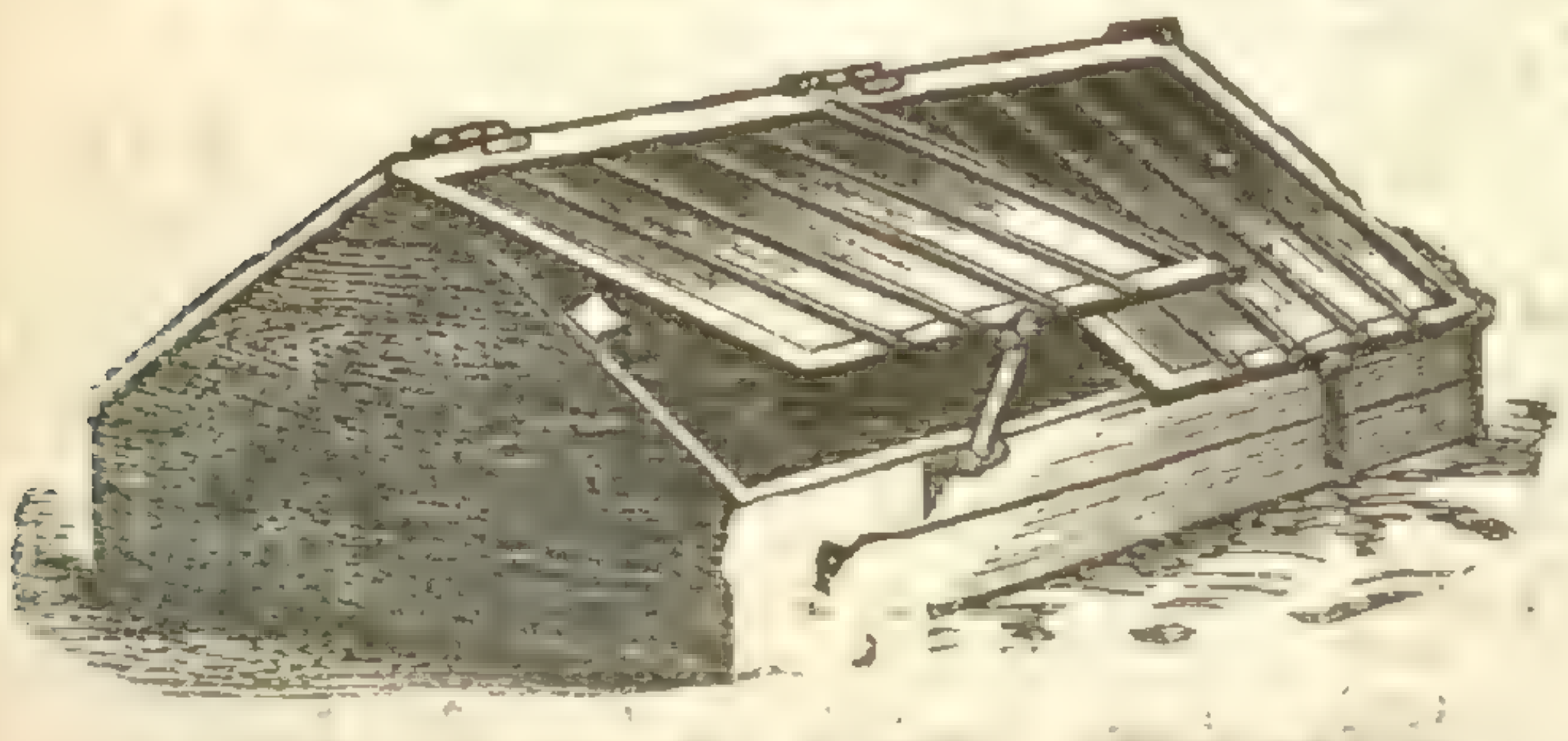

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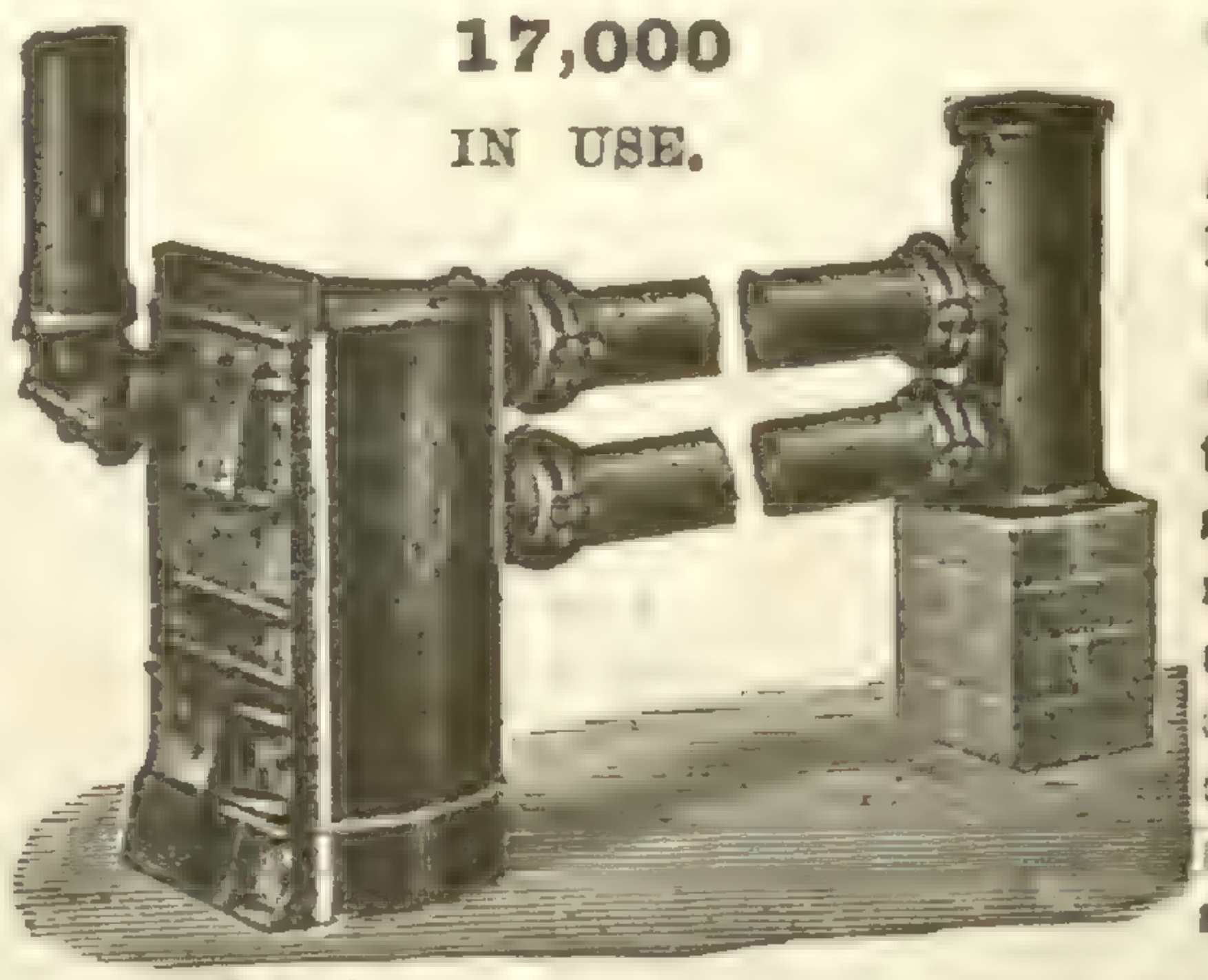

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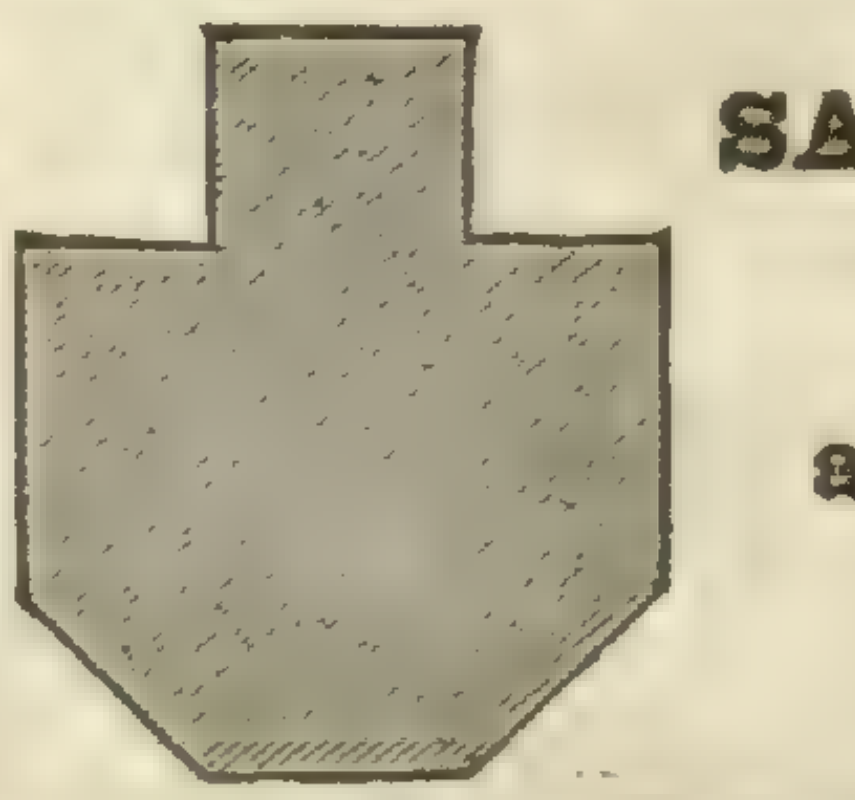

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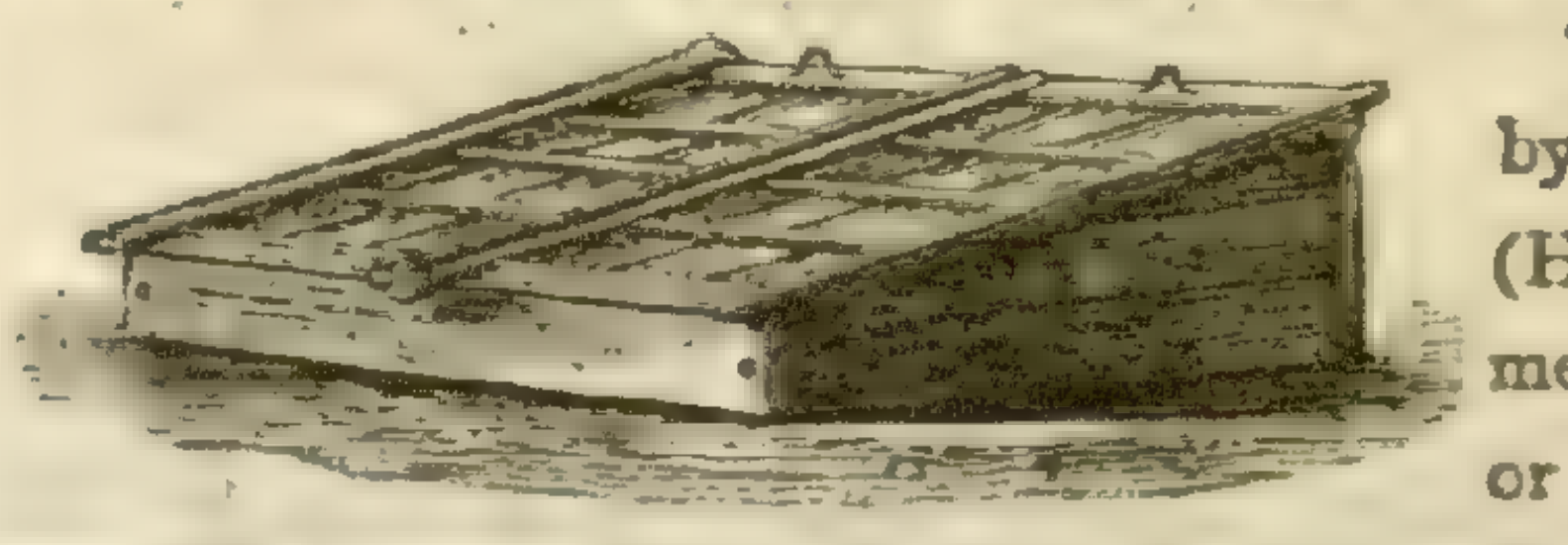

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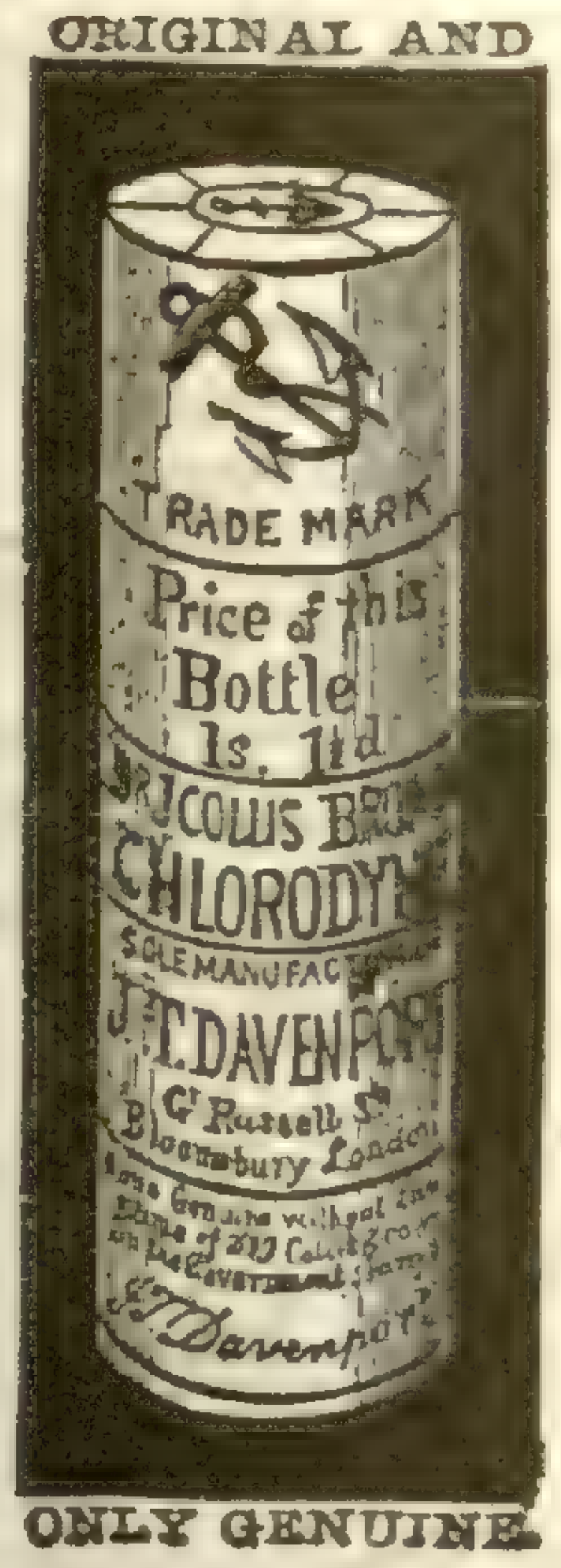

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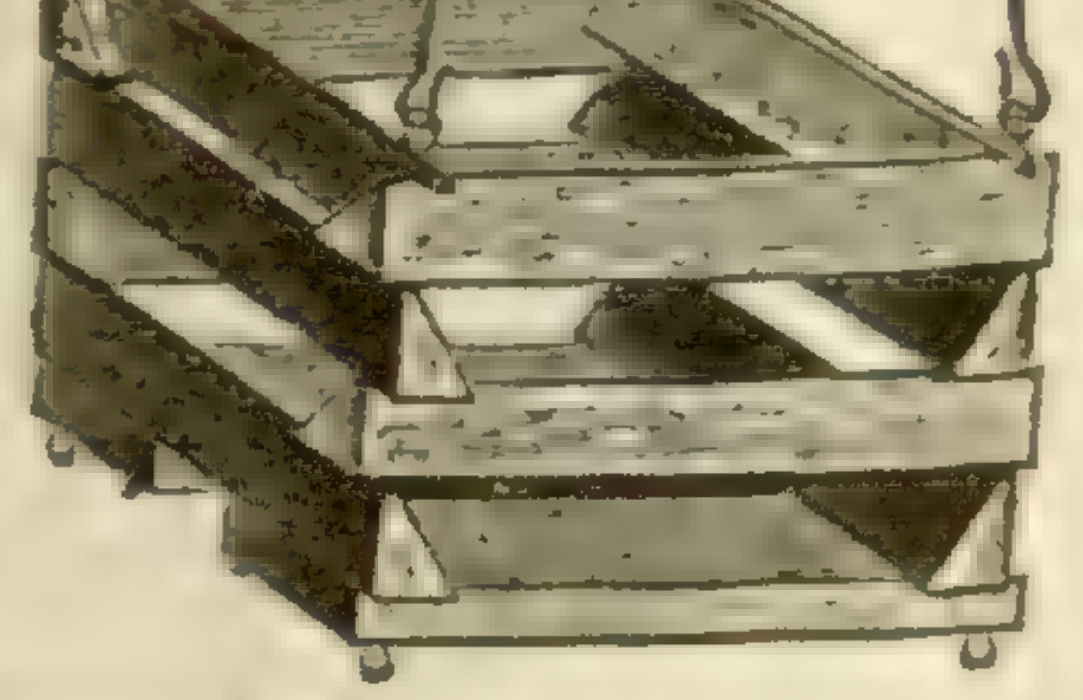

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SUMMARY OF THE REPORT PRESENTED AT THE FORTY-NINTH ANNUAL MEETING, HELD ON 3RD MARCH, 1898.

ORDINARY BRANCH.

The number of Policies issued during the year was **65,893,** assuring the sum of **£6,698,755,** and producing a New Annual Premium Income of **£365,996.**

The Premiums received during the year were **£2,774,264,** being an increase of **£231,002** over the year 1896.

The Claims of the year amounted to **£707,643.** The number of deaths was **5,038,** and **656** Endowment Assurances matured.

The number of Policies in force at the end of the year was **497,327.**

INDUSTRIAL BRANCH.

The Premiums received during the year were **£4,793,591,** being an increase of **£214,798.**

The Claims of the year amounted to **£1,823,338.** The number of deaths was **192,359,** and **1,876** Endowed Assurances matured.

The number of Free Policies granted during the year to those Policyholders of five years' standing who desired to discontinue their payments was **60,848,** the number in force being **549,889.** number of Free Policies which became Claims during the year was **10,716.**

The total number of Policies in force at the end of the year was **12,546,132**: their average duration exceeds eight and a quarter years.

The Assets of the Company, in both branches, as shown in the Balance-Sheet, are **£30,438,337,** being an increase of **£3,379,226** over those of 1896. A supplement showing in detail the various investments is published with this report.

Having regard to the growth of the Company, and also with a view to afford relief to the and Secretary, the Directors have made certain rearrangements and alterations in the Chief Office Staff. Messrs. DEWEY, HUGHES, and FISHER will in future be Joint General Managers, and certain duties of administration have been entrusted to a number of senior officials, whose long and intimate acquai with the management has qualified them for promotion. The Directors believe that the traditions of management which have produced such successful results in the past will thus be continued in the future.

Messrs. Deloitte, Dever, Griffiths, and Co. have examined the Securities, and their certificate is appended to the Balance-Sheets.

THOS. C. DEWEY,
WILLIAM HUGHES,
FREDERICK FISHER, } *Joint General Managers.*
W. J. LANCASTER, *Secretary.*

The full Report and Balance-Sheet can be obtained upon application to the Secretary

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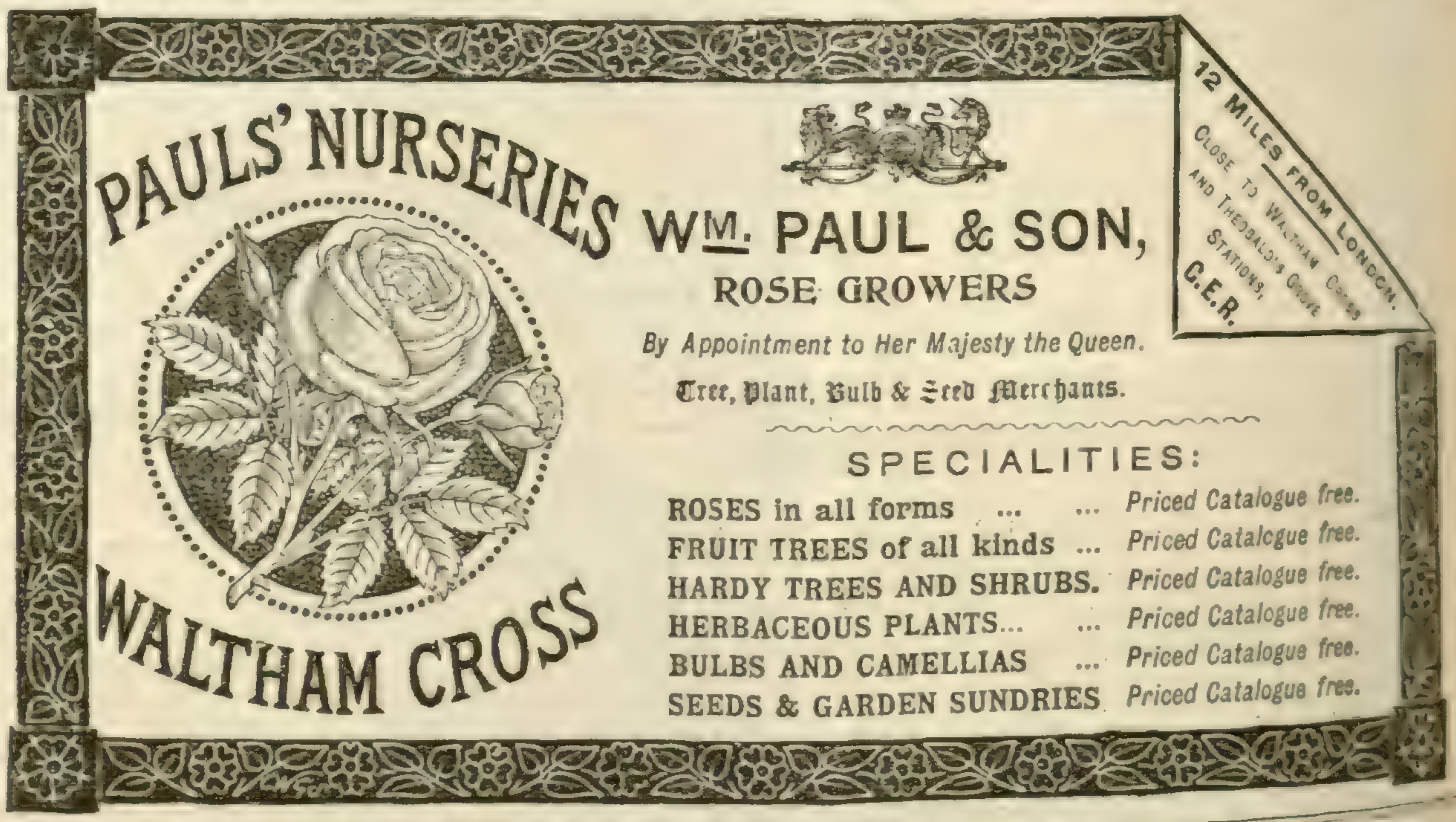

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CLERGYMAN can RECOMMEND his GARDENER, who wishes to better himself, as single-handed, or with boy; used to kitchen and flower garden, also fruit growing and glass; married; abstainer; age 27.—F. C., 22, Victoria Road, Great Berkhampstead, Herts.

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FOREMAN; age 28; 13 years' experience in good establishments; thoroughly experienced in fruit and plants, table decorations, &c.; excellent references.—H. JONES, 27, North Road, Highgate, N.

GARDENER (Head); age 23; single; good experience Inside and Out; vines, peaches, tomatos, mushrooms, cucumbers, flowers, and vegetables; good references; Manchester district or Midlands.—Apply, with full particulars, to M. CLARK, Clayton House, Farington, Preston.

GARDENER (Head Working, where several are kept); age 30; life experience in first-rate establishments in all branches; excellent references; married when suited.—G. COOPER, High Street, Ware, Herts.

GARDENER (Head Working); where three or more are kept; age 27; married, no family; practical experience in all branches; well recommended by present and previous employers.—C. JAYCOCK, Woodside, Maidenhead, Berks.

GARDENER (Head); age 33; single, otherwise when suited; 18 years' thorough practical experienee in growing grapes, peaches, vines, figs, melons, tomatos, cucumbers, orchids, stove and greenhouse plants, chrysanthemums, kitchen and flower garden, house and table decorations, and all the requirements of a good establishment; excellent testimonials.—Apply J. NESLING, Wyastone Leys, Monmouth.

GARDENER (Head), for over 19 years as Head at Lea Castle, SEEKS RE-ENGAGEMENT; thoroughly practical in the cultivation of fruits, flowers, and vegetables; left through death and reduction; married, two children, 17 and 11 years of age.—Address WILLIAM FARRANT, Fairfield, Wolverley, Kidderminster.

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GARDENER (Head Working); life experience in all branches; married, no family; excellent references; leaving through breaking up of establishment.—MASON Gardener, Nailsea, Somerset.

GARDENER (Head Working); age 35; married; no family; life experience in all branches of the profession; wife, caretaker during absence of family if required; excellent references.—ASHWELL, Bedford Road, Morhanger, Sandy, Beds.

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GARDENER (Head Working), where not less than five are kept; thorough practical experience Inside and Out; highly recommended; excellent testimonials; seven years in last place; married, no family.—A. CLANFIELD, 61, Garlands Road, Redhill.

GARDENER, or Good Single-handed; life experience in all branches of gardening; good character and references; wife good laundress if required.—Address J. B., Bridge Cottages, Earley, near Reading, Berks.

GARDENER (Good Single handed); single; age 25; life experience in vines, stove and greenhouse plants, &c., flower and kitchen garden; abstainer; highly recommended for character and ability.—F., care of Mr. Steven, 664, High Road, Leytonstone, E.

GARDENER (Single-handed or Under); age 24; nine years' experience Inside and Out; excellent testimonials from previous head gardeners; can be well recommended from present head gardener; suburbs of London preferred.—J. WHEELER, 2, Wickham Cottages, Totteridge, Herts.

GARDENER (Single-handed or Under) in private establishment; Inside and Out; one and a half years present situation; nine years' previous good character; single; age 24.—W. BAILEY, Woottons, Langdon Hills, Essex.

GARDENER (Single-Handed, or with Help); understands vines, greenhouse, flower and kitchen garden, and the general routine of the business; excellent character; disengaged; age 43; married, no family; total abstainer.—W. SHILVOCK, near The Reform, Bridge Road, Maidenhead, Berks.

GARDENER (Single-handed or otherwise); age 24; nearly five years' experience in present situation; Inside and Out; good reference; disengaged.—Apply A. WANT, 91, The Grove, St. Margaret's, Twickenham.

GARDENER (Single-handed, or where help is given) SEEKS SITUATION as above; 4½ years' excellent character in present situation; abstainer; married; age 25.—E. WOOD, 12, Lansdowne Terrace, Archway Road, Highgate, N.

GARDENER (Single-handed or otherwise); age 45; married, no family; 17 years' good references from present and previous places.—W. ARCH, Clare Road, Barton Road, Cambridge.

GARDENER (Single-handed or otherwise); age 24; eight years' experience in all branches; house decorations; good references.—E. DEXTER, The Gardens, Norwood Hall, Sheffield.

GARDENER (Second, Inside, or Inside and Out); age 26; married; 11 years' good experience; well up in glass; excellent references.—HAMBROOK, Chase Side House Gardens, Enfield. No circulars.

GARDENER (Second, where three or four are kept); age 27; 10½ years' experience in flower and kitchen garden; 4 years' good character; near London preferred.—W. WARE, Tichborne Cottages, Lindfield, Haywards Heath, Sussex.

GARDENER (Second where six or more are kept); Mr. HOLDEN, Ockley Court Gardens, Dorking, Surrey, highly RECOMMENDS T. BRADFORD, as above, age 24; 9 years' experience.

GARDENER (Second); age 23; good experience with vines, fruit, orchids, stove and greenhouse plants, &c.; confidently recommended from present and previous situations.—W. GILBERT, Coddington Hall Gardens, Newark.

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SITUATION WANTED by Young Man, age 22 years; as garden labourer.—Address S. SMITH, jun., School House Farm, Newick, Lewes, Sussex.

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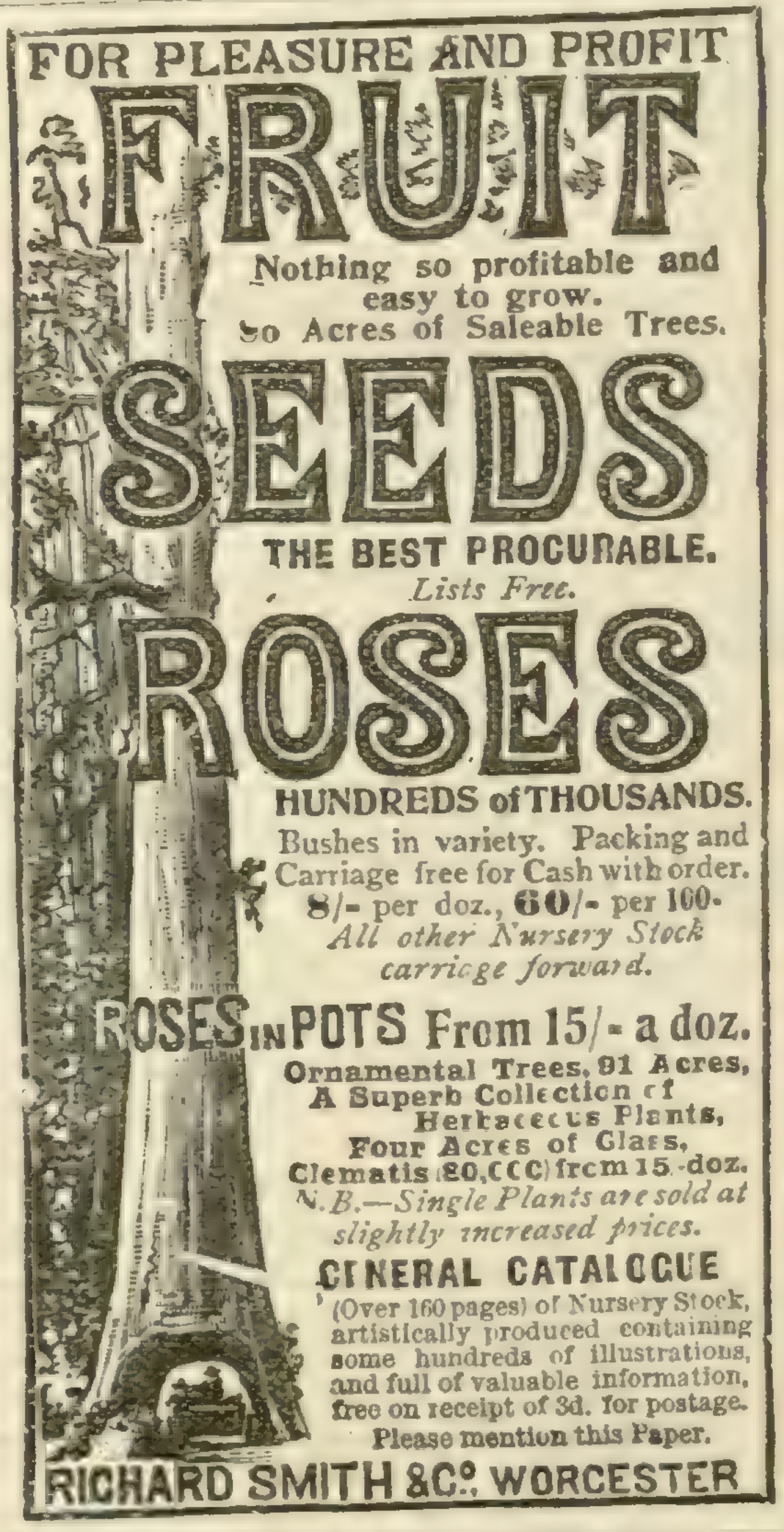

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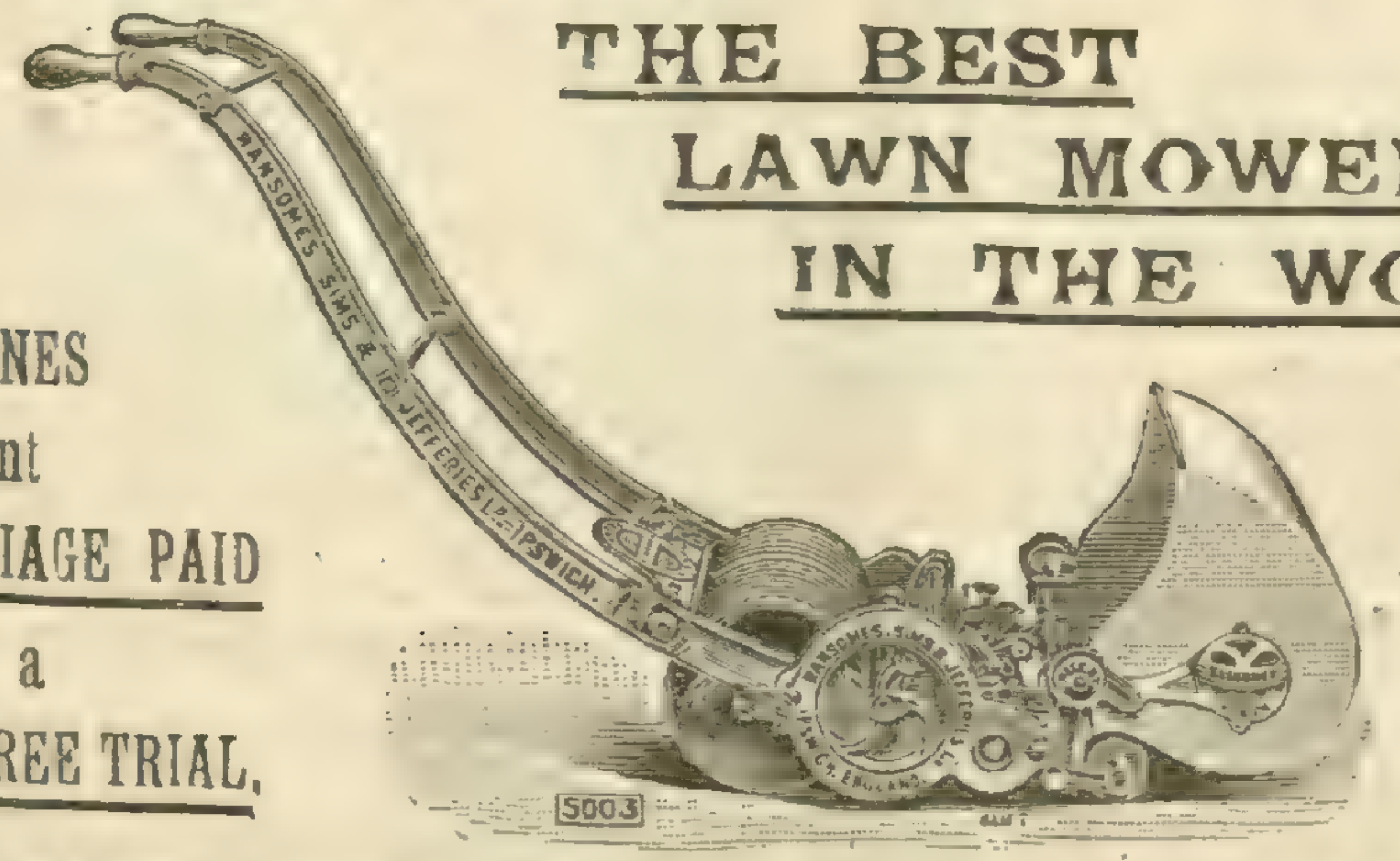

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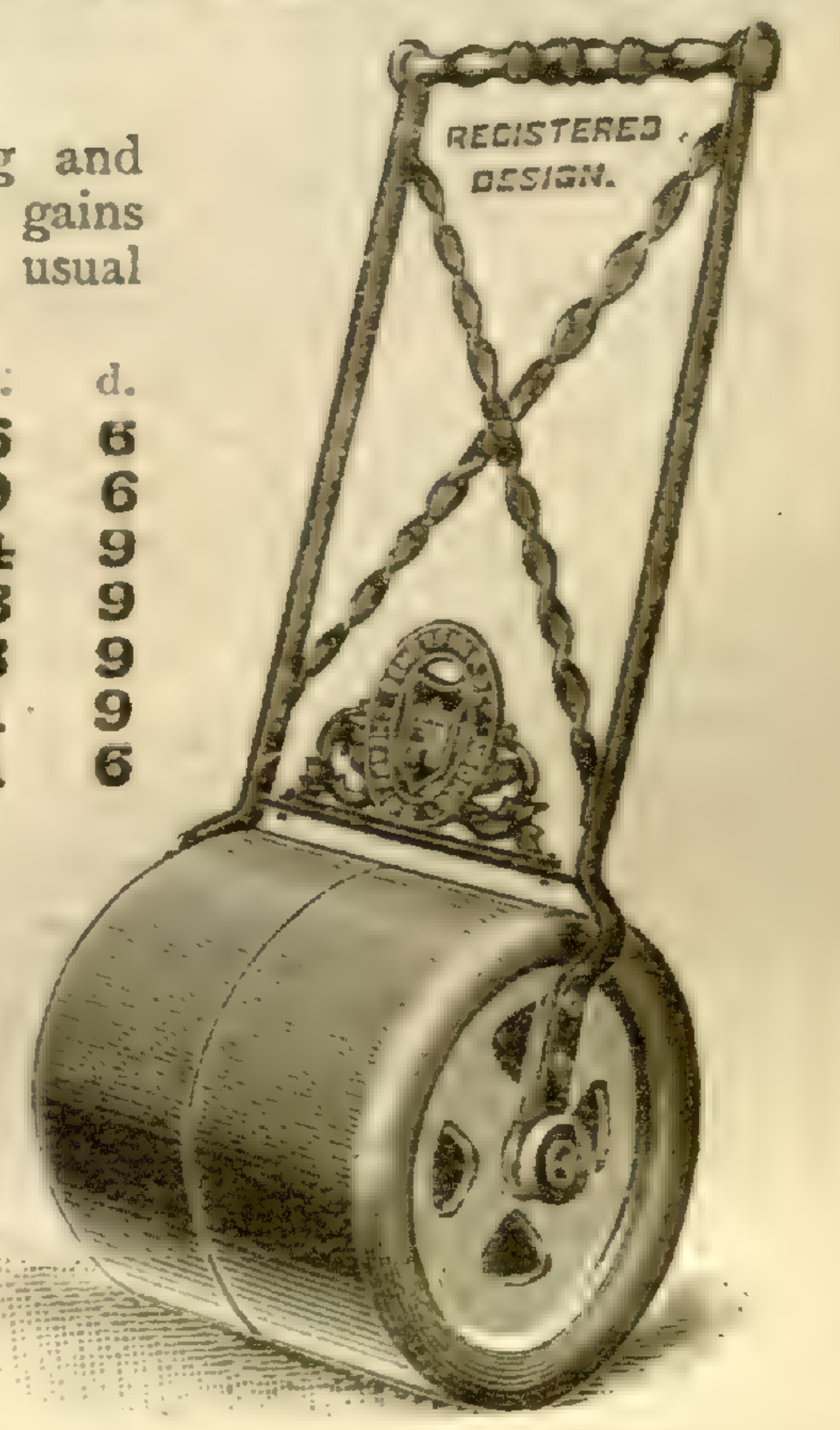
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SATURDAY, MARCH 12, 1898.

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NOTES OF THE WEEK.

THE NATIONAL CHRYSANTHEMUM SOCIETY.

RECENT events have created fresh interest in the affairs of the National Chrysanthemum Society and brought us many inquiries having reference to that body. It is not surprising a considerable number of members, who have written to us on the subject, should evince some signs of apprehension as to the future and of a desire for guidance at the present juncture. The position of the society is not, we confess, such as to afford satisfaction to those who are deeply interested in its welfare and in the cause of the flower in whose interest it exists; but from the spirit displayed by the members at the annual meeting, which stands adjourned until the 21st, it is possible to regard the prospects of the society with a spirit of hopefulness. It is not satisfactory that the affairs of the society should have been so managed that at a time when it was enjoying a high degree of popularity it should have to face a deficit, or that the executive should have prepared a programme for the current year that could not have been carried out without having a balance on the wrong side. This is all the more regrettable from the fact that the society is in a position to estimate its annual income and expenditure with a greater degree of exactitude than can those societies who have to depend for a considerable proportion of their income upon money paid for admission by the general public, as this, to some extent, is an unknown quantity. The responsibility for the state of affairs rests upon the executive, but the situation proves to demonstration that the members have not in the past been sufficiently careful in the formation of that body and fully recognised the importance of placing upon the committee members who have had the advantage of business training. It is in the highest sense desirable the several classes of cultivators should be properly represented, but it is not less necessary that members possessing business capacity should have a seat at the committee table; for without due regard to business principles the financial results must be more or less unsatisfactory, and of the truth of this proposition no better proof could be desired than has been afforded by recent events. Had the business side of the committee not been weak there would have been no occasion for the appeal to the members assembled at the annual meeting to place the finances on a satisfactory basis. We would, therefore, strongly advise members to keep this fact in view at the adjourned annual meeting; for with a strengthening of the committee in this direction, and the appointment of a Finance Committee, there should be no great difficulty in maintaining a proper balance between receipts and expenditure, and building up a substantial reserve fund. The question of finance is, to our mind, of paramount importance, and not until that has been disposed of will the members be in a position to profitably discuss the other matters that should have consideration. It will, probably, be found that it will not be possible to reduce the number of exhibitions this year, as contracts have already been entered into; but the members should, with regard to future years, express a decisive opinion on the question of reduction, for a multiplicity of shows necessarily imposes a heavy tax upon the society's funds without bringing credit to the society. There can, indeed, be no doubt that the concentration of the efforts of the society upon a smaller number of exhibitions would be in every way more satisfactory. The question of the place of holding the exhibitions will, it may be assumed, come up for discussion, and having regard to its importance we would suggest that, while we should rejoice to see the exhibitions held in a building wholly devoted to them, no decisive step should be taken in the matter until the several aspects of the question have been fully discussed and a well-devised scheme formulated.

SUCCULENTS.

IT is a very remarkable thing that the great majority of succulent plants—that is, plants with thick fleshy leaves, containing an abundance of moisture within their tissues—are inhabitants of the very driest parts of the earth's surface, where one would imagine the existence of succulents in any form an absolute impossibility. The next curious thing is that if, under the impression that moister treatment would help them, we subject them to it, the greater number would inevitably resent such mistaken kindness by dying offhand. In the splendid collection existing at Kew we find hundreds of species—cacti, euphorbias, agaves, sempervivums, and others—thriving under conditions of drought which give the visitor the idea that the watering cans, so freely used in the adjoining houses, have been absolutely forgotten, while the soil in the pots looks as kindly as so much dry lime rubbish, which indeed it is in many cases. Yet cacti almost as juicy-looking as cucumbers; euphorbias trying their best to look like the cacti, spines and all; agaves with huge leaves of great thickness, and so vigorous in growth that the swelling foliage is squeezed together so as to leave deep imprints of its shape on the adjoining leaves—these and all the rest of the tribe find an adequate supply in some inscrutable fashion, and apparently grow fat on nothing. Here in our humid climate we may conceive that the aerial supply is sufficient; but if we could go to their native habitats we should find them still thriving, though the sun would be much hotter, and for many months in the year the rainfall would be practically nil, while in many cases huge plants may be found rooted in mere rock crevices baked, one would imagine to utter desiccation. Even at home we may see our humble houseleek (*Sempervivum tectorum*) perched on a roof or a stone dyke, and spreading its plump rosettes year after year, despite whole weeks of burning sunshine and lack of water supply. The connection, however, between droughty habitats and thick leaves is so clear, that we must consider the latter as the results of evolution; and if we regard this thickening as the result of ever-recurrent checks upon transpiration, tending to reduce surface area to a minimum, we can see at once the reason, since, weight for weight, the surface or transpiring area of a Cereus giganteus or Agave mexicana is hundreds of times less than that of many thin-leaved plants, such as caladiums, which form the other extreme of foliation in conjunction with the finely dissected fronds of many ferns. In these the leafy tissues, *i.e.*, the transpiring surfaces, are expanded to the utmost, with the result that unless constant and very liberal supplies of water are present, either in the soil or the air, the plants cannot exist. Viewed in this light, we can understand how a euphorbia, one of the self-same family as our common milkweed (or spurge), a soft-tissued plant which exudes a quantity of milky sap when cut, can be evolved in a dry country into huge, spiky leafless green-jointed stems, as cactus-like as possible; and, on the other hand, how a species of cactus, such as the pereskia, can, given more humid conditions, produce leaves proper, and assume the guise of a shrub. Certainly, one of the most interesting features in the leafless cacti and similar plants, is the entire transformation of the stalk into a leaf substitute capable of carrying on the vit functions of foliage; and another is the transformation of the leaves into mere rudimentary spots bearing the prickles, little and big, so characteristic of the tribe.

FLOWER SHOW RULES.

THE laws that govern the proceedings of horticultural societies and the competition for the prizes offered at their annual exhibitions are of a very varied character, and the study of a representative collection of sets of rules as given in the schedule would be interesting, if not particularly profitable. Many are so well prepared that they can be readily understood by members who have not had their minds so trained as to be able to appreciate nice distinctions; some are remarkable for the ingenuity displayed in concealing what those who compiled them desired to convey to exhibitors, while others are so difficult to understand that there is some excuse for a failure to appreciate the object for which they have been drafted. One of the most peculiar rules that has come under our notice for a considerable period is that passed at the recent annual meeting of the Barton-under-Needwood Horticultural Society. The correspondent who sends us the report of the annual meeting states that he regards the rule as "unprecedented," and, although some other term might have been employed, it does very well, for no such rule has yet come under our notice. This rule was "carried almost unanimously," and is "to the effect that if prizes to the value of more than £2 be awarded to any exhibitor, two-thirds of the sum in excess of the £2 shall be withheld by the society." The object of the rule is not strikingly apparent, and therefore it may be useful to state that in introducing the rule it was explained that it had been formulated for the purpose of giving "greater encouragement to the majority of exhibitors," by preventing those who have special advantages "taking the lion's share of the prizes." How the rule will give "greater encouragement" to exhibitors we fail to see, for we should imagine there can be little encouragement in the prospect of having a large proportion of the prize money above a trifling sum withheld. We can fully appreciate the importance of preventing two or three exhibitors taking any considerable number of the prizes, but surely that can be accomplished without depriving those who do not possess exceptional advantages prizes to which, under proper conditions, they would obtain. By limiting the number of classes in which any one exhibitor can compete, the chances of taking first prizes will be more equally distributed; but under the rule to which our attention has been called, the exhibitors having exceptional advantages may take all the first prizes, although not able to receive the whole of the prize money, whilst the less favoured exhibitors have to be content with second prizes, and suffer to the extent represented by the difference between the first and second awards. It is evident it has not occurred to those by whom the rule was framed and passed, that it will affect all classes of exhibitors, and for this reason we have directed prominent attention to the rule as one to be avoided, and suggest that when it is desired to impose a check upon those in a position to take too large a proportion of the prizes, the number of classes in which any one exhibitor may enter should be limited.

IMPORTS OF FRUIT AND VEGETABLES.

THE Board of Trade returns for the past month are far from satisfactory, inasmuch as both the imports and the British and Irish exports are materially reduced in value. The decrease in the value of the imports is £1,474,290, equal to 3·9 per cent., and in the exports of British and Irish products there is a decrease of £222,833, a sum equal to 1·2 per cent. This decline in value is in a large measure due to the lower prices prevailing for many of the commodities as compared with those of the corresponding month of last year. In the case of the imports with which we are more immediately concerned the increases and decreases are about equally balanced, and this section of the returns do not require other than a brief reference to them. Apples again occupy a prominent position among the imports of fruit, but they show a material decline both in qualities and value. The aggregate was 176,736 bushels, of the value of £57,684, or a decrease in quantity of 446,529 bushels, and in value of £112,582. Pears also show, comparatively speaking, a material decrease, the quantities received being 2,782 bushels, of the value of £1,435. Plums, on the other hand, were imported in larger quantities than in February, 1897, and the quantities received amounted to 775 bushels, of the value of £1,750. Of grapes 795 bushels, of the value of £1,518, were imported, and it is interesting to observe that, although there is a decrease of 610 bushels, there is only a difference of £432 in value. Unenumerated fruits continue to increase, and while their value was only £16,867 and £19,237 in the corresponding month of 1896 and 1897 respectively, it was £26,312 last month. Turning to vegetables, we find that there is again an enormous increase in the imports of potatos, these amounting to 532,843 cwt., against 40,796 cwt. in the corresponding month of last year. Germany sent us 216,151 cwt. and France 135,024 cwt., both being large increases. Onions dropped from 552,119 bushels to 362,263 bushels, and the respective values are entered as £51,379 and £69,989. Unenumerated vegetables are returned as of the value of £71,571, which is somewhat higher than in the corresponding month of last year, but less than in 1896.

An Interesting Hybrid, obtained by crossing an azalea with a rhododendron, was exhibited at the recent R.H.S. meeting by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking. We believe that the cross was effected by Mr. Pynaert van Geert. The generic title given is Azaleadendron, and of the two forms shown that named Dr. Masters is the best. This has somewhat campanulate flowers of a pale rosy carmine shade, the upper segment being spotted with brown; the foliage reminds one of that seen on the pontic azaleas. Judging from the appearance of the flowers we think that Prince Camille de Rohan must have been the rhododendron used as one parent. The Floral Committee was equally divided as to the advisability of certifying this hybrid, and if the award had been made it would have been given to mark a distinct break away from ordinary things rather than for any great horticultural merit the plant possessed. A Botanical Certificate might have met the case.

Mr. Charles Baltet, president of the horticultural society of Troyes, has been made a Chevalier of the order of St. Anne of Russia.

Australian Plants Yielding Perfume.—Although the [illegible] colonies are rich in plants yielding delicious perfumes and valuable [illegible] little or nothing has, we are informed by Mr. Plummer, been done, so far, to practically utilise the advantages thus afforded. Systematic flower farming is still in its experimental stages, and there exists an almost untouched field of [illegible] extent at the command of those possessing the necessary capital and [illegible] the manufacture of perfumery and essential oils, coupled with the [illegible] abundance of mutton fat, so largely used in the perfumery trade, at [illegible] prices. In New South Wales all the garden flowers of Europe and Asia, [illegible] those emitting the richest fragrance, are found growing in unsurpassed [illegible], many being obtainable nearly all the year round, their profusion and cheapness proving how easily they are reared. Several of the essential oils obtained from the leaves of native plants are really perfumes, and their chief use is in scenting soaps and other preparations. The quantities used are small, and the plants used are wild. Among the native perfume-yielding plants which remain unutilised are several varieties of acacia, including a few which furnish a scented wood. Acacia Farnesiana, which is largely cultivated in Italy and the south of France, the well-known pomade, called "Cassia," being produced by placing the sweet-scented flowers in melted mutton fat or olive oil, until the latter become impregnated with their odour, grows plentifully in many parts of New South Wales; and another species of acacia, familiarly known as the Golden Wattle, is equally useful as a perfume plant; as is also the Native Laurel, or Mock Orange. Among the plants which yield perfumes are the Native Sassafras, Peppermint, Bloodwood, Blue Gum, Mountain Ash, White Gum, Iron Bark, Woolley Butt, Spotted Gum, Tallowwood, Messmate, Red Gum, Poplar Box, and other species of eucalyptus; Ridge Myrtle, Tea-tree, Native Peppermint, Dog-wood, and Turmeric.

M. H. A. Burberry, who until recently had charge of the orchid collection at Highbury, the residence of the Right Hon. J. Chamberlain, M.P., gave a lecture on "Orchids" before the Beckenham Horticultural Society a few [illegible] ago. Mr. Burberry proved a great attraction, and his lecture was followed by a brisk discussion. Mr. Potter, gardener to H. O. Potter, Esq., staged numerous well-flowered orchids that helped to illustrate the lecturer's remarks.

The United Horticultural Benefit and Provident Society holds its annual meeting at the Caledonian Hotel, Adelphi, on Monday, March 14, at eight p.m. The chair will be taken by Mr. George Wythes, who controls the horticultural department at Syon House, Brentford, the residence of Earl Percy. It is hoped that there will be a large attendance, as, after the usual business, there are several proposed alterations of rules to be considered.

Cinchona in India was the subject for discussion after the usual monthly dinner of the Horticultural Club, held at the Hotel Windsor, on March 8. The discussion was opened by Mr. J. F. Gammie, formerly deputy superintendent of the Government of Bengal Cinchona Plantations.

A Gigantic Rose Show at Frankfurt.—It is proposed to hold a monster rose show at Frankfurt-on-the-Main during the coming season, and so sanguine are the promoters that they anticipate the finest rose exhibition that has ever been held on the Continent. This Rosen-Ausstellung will open early in June, and remain open until the end of September, and, if the weather prove favourable, it may be continued into October. Further particulars can be obtained from the director of the Great Rose Exhibition, Frankfurt-on-Main.

West Indian Sugar.—One of the conclusions arrived at by the Royal West India Commission and published in its report is that if the production of sugar is discontinued or very largely reduced, there is no industry or industries that could completely replace it in such islands as Barbados, Antigua, and St. Kitts, and be profitably carried on, and supply employment for the labouring population. In Jamaica, in Trinidad, in British Guiana, in St. Lucia, in St. Vincent, and, to some extent, in Montserrat and Nevis, the sugar industry may in time be replaced by other industries, but only after the lapse of a considerable period and at the cost of much displacement of labour and consequent suffering. In Dominica the sugar industry is not at the present day of great importance. The Commission thinks it right to add that in all colonies where sugar can be completely, or very largely, replaced by other industries, the colonies in question will be in a much sounder position, both politically and economically, when they have ceased to depend wholly, or to a very great extent, upon the continued prosperity of a single industry. The total or partial extinction of the sugar industry would, in most places, very seriously affect the condition of the labouring classes for the worse, and would largely reduce the revenues of the colonies. Some of the colonies could not provide the necessary cost of administration, including the relief of distressed and necessitous persons, or of the support and repatriation (when necessary) of the East Indian immigrants, without subventions from the mother country.

Brighton Horticultural Society.—The committee of this important society keep the educational aspect of its work constantly in view, and they have as usual, prepared an excellent programme for the current year. The session was opened on February 17 with "A Chat about Chrysanthemums," by Mr. H. J. Jones. The subjects to be discussed at the remaining meetings are as follows: "Garden Roses," by Mr. George Gordon, March 17; "Experiments in the Cultivation of Vegetables," by Mr. F. W. E. Shrivell, April 21; "How [illegible] and Feed," by Mr. T. W. Sanders, May 19; "Notes on the Newer Water [illegible]" by Mr. J. Hudson, June 16; "The Nature and Development of Buds," [illegible] H. Elliott, July 21; "Dahlias," by Mr. R. Dean, August 18; "[illegible] Winter Flowering," by Mr. F. Capp, September 15; "Vegetables for [illegible] *versus* Vegetables for the Table," by Mr. H. C. Prinsep, October 20; "[illegible] Preservation of Fruit," by Mr. A. Kemp, November 17; "Exhibiting Chrysanthemums," by Mr. George Gordon, February 16, 1899. The dates of the [illegible] tions are March 29 and 30, August 23 and 24, November 15 and 16, [illegible] date of the annual meeting, January 19, 1899.

The Beginnings of Plants.—In one of his recent interesting lectures, Professor Ray Lankester showed that the primal difference between plants and animals was based upon what each was able to eat. The organisms which can only eat substances of no lower chemical elaborateness than starches, sugars, and albumens are said to be holozoic; and all the animals belong to this class. Those which can eat oxygen and carbon and nitrogen, and have the power (with the help of chlorophyll and sunlight) of separating oxygen, are called holophytic. But between these two comes the anomalous class—the organisms which have a mouth and eat animal's food, and yet have chlorophyll corpuscles to enable them to get sustenance as the plants get it. These, we say, are saprophytic, and it is among such organisms that we have to search for the point where the animal world and the vegetable kingdom start. There is green plant called the Englena which has a mouth, and yet has the chlorophyll corpuscles which would class it as a plant; and there are among the tiny organisms of the "flagellata," or whip swimmers, several we should class as animals, and yet which have the green corpuscles in their minute structures. This is, therefore, one reason for believing that it was among the "flagellata" that the vegetable kingdom first found its origin. Broadly speaking, said the professor, one might say that if in the beginning a group of "flagellata" joined themselves end to end so as to form a thread, they turned into a plant; whereas if they followed more complex courses and joined together in more elaborate structures and households, they became animals.

At the R.H.S. Gardens, Chiswick, the work of renewal and improvement moves steadily on. The long peach house has been rebuilt, and is now a useful structure, with a higher roof than formerly, thus giving the standard peaches such additional head room as they needed. The wire-tension house, presented some time ago by Messrs. Skinner, Board, and Co., has also been turned into a peach house, a purpose for which it appears eminently adapted. Some borders of sound material have been made up under Mr. Wright's superintendence, so that the half-dozen thrifty peach trees presented by Messrs. H. Lane and Son, Berkhamstead, herein planted should soon make good headway. An interesting orchid, and one that does not flower very freely as a rule, has produced a couple of good spikes in a warm house; this is Dendrobium speciosum, and Mr. Wright considers that the large amount of sunshine it was subjected to last season has caused the specimen to flower this year.

Mr. Peter Barr, the originator of the firm of Barr and Sons, seedsmen and nurserymen, of Covent Garden and Thames Ditton, has, as our readers are aware, resigned the conduct of the business to his sons. This course allows Mr. P. Barr leisure to indulge his desire to travel. Recently he renewed his acquaintance with the highlands of Spain, where formerly he found many new and beautiful daffodils. Now Mr. Barr proposes visiting the United States, Canada, Japan, some parts of China, Australia, New Zealand, and the Cape of Good Hope. We wish Mr. Barr *bon voyage*.

Keeping Apples.—Mr. R. H. Taunton, of Brook Vale, Witton, reports that he has for the second year kept his apples in excellent condition during the winter in clamps. The apples were clamped in the same way as potatos in the autumn when they were gathered, and when the clamp was opened the other day were as fresh and sound as when picked. The varieties were Wyken Pippin, Improved Northern Greening, and Royal Russet.

A Bacterial Fertiliser.—Under the name of "alinit" a new manure has been recently introduced. The discoverer of this material is Herr Caron, of Ellenbach; and alinit in its present form is the outcome of four years' experimental investigations on the bacterial flora of different soils, resulting in the isolation of a particular bacillus, upon the presence of which would appear to depend to an important extent the fertility of certain soils. Caron has, according to *Nature*, already obtained striking results on an experimental scale with crops from soil treated with pure cultures of this bacillus—*Ellenbachensis alpha*, as he has called it. Alinit is sent out as a creamy-yellow powder, of which the nitrogenous constituents have been ascertained to be 2·5 per cent. Its closer investigation has been made the subject of memoirs by Stoklasa, of Prague, and also Messrs. Stutzer and Hartleb. The bacillus is contained in this powder in the form of spores, and on cultivation is found to belong to the well-known aërobic group of bacteria known as the hay bacilli, resembling very closely the Bacillus mycoides so frequently found in soil, and the Bacillus megatherium. It appears to grow easily upon all the usual culture media. Before its precise place amongst bacterial fertilisers can be determined, many more elaborate and carefully conducted experiments must be carried out.

Shirley Poppies appear to be finding much favour in America and a correspondent of [American] *Gardening* writes as follows with reference to the effect they produced in a border along the front of a shrubbery. There were hundreds of blossoms, a labyrinth of bloom and colour. Glowing flowers of dark scarlet satin, thick, smooth and without a wrinkle to mar the shining surface of the rich petals, and in the centre a black maltese cross surmounted by a crown of black stamens; others orange, scarlet, flame, pure red, rosy red, rose, rose pink, shrimp pink, apricot, salmon, salmon pink, blush, flesh coloured, mauve, pearl, and snowy white. Some in plain solid colours, others bordered with white from the merest silver thread to a half-inch band, and white ones tinged on the edges as by a lightly loaded paint brush dragged softly outward on each petal. Some with, others without a black or a white maltese cross in the centre, yet others with the black or white blotch on but two of the four petals. But all wearing a splendid crown of closely massed, dull black or golden stamens in which big bumble bees, all black and gold themselves, seem always to be tumbling. There was nearly as much variety of texture as of colour. Satin of heavy and light quality, several sorts of silk, crepe and tissue paper in various conditions, as smooth, fluted, crinkled, crimped, and creped. The border presented some new feature every day Each morning it was a study and revealed variations from all previous aspects.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

We have a little bit of fight in us, we of the GARDENERS' MAGAZINE. When there is anything lively coming on we make no preliminary fuss; we bide our time quietly; but we are there or thereabouts when the scrimmage begins. Our position for the present is "referred back." What will happen subsequently we do not attempt to say, but we are in a position to claim a preliminary victory, and an ultimate one is as safe as —well, from want of a better simile, let us say safe as Lombard Street. That decorous thoroughfare is not what it used to be, if we can believe the foreign gentry who are good enough to supply us with apples and plums, potatos and "unenumerated," but it is not quite on its last legs yet, and is very likely a good deal stronger and a good deal healthier than the foreign gentry thoughtfully suggest.

An individual who has been privileged to read the foregoing, unkindly remarks that it is of a typical "Luxian" nature, because (1) it appropriates credit for what some one else has done (meaning the fighting, I suppose), and (2) nobody can possibly understand what it means. I protest against both charges. Wherever there is a score to boast about it is an accepted thing that every respectable journal shall become like the Revolution Republic—one and indivisible. If there is blame accruing, why then the staff separates itself out, and merely exchanges the coldest of nods in passing on the stairs, which is according to human nature, I believe. As to the matter of ambiguity, there is only one topic of the moment, and that is neither the Zola trial nor the County Council election. Each of these events pales before the fierce blaze of interest aroused by the fight for control of the National Chrysanthemum Society. What, after all, are the puny bubbles of the outside world? Are they not all empty scares? One day it is the Near East and the next the Far East which is troublesome. Then South and West Africa ring the changes. But it all comes to the same thing in the end. The country keeps going and will do so. Sensible men never worry about it, knowing that which ever party is in power it is in safe hands. They pay their taxes and wash the bad taste out of their mouths with the sweet waters of gardening.

I am not, as I have said, going to play the part of prophet; I am only going to comment on current events. The moral of them is plain enough. The mandate to the N. C. S. is—Put your house in order. I am not in the war councils of the opposition, and therefore I do not know what the next stage in the campaign will be. But the writing is on the wall, plain for any man to see. The members of the N.C.S. do not mean to be blinded any longer by brilliant but ephemeral successes. They demand something more substantial. They want the finances of the society to be put on a sounder basis and they mean to have it. The present current of discontent will die down when the members see a prospect of a good reserve fund being built up, and not before. They do not question the energy which has been displayed in the management of the society's affairs. They do not dispute the claim of a vast increase of popular interest in the flower, but they want to see something solid as a result.

It is cheerful to be able to record a triumph over the transatlantic fruit shippers, considering how many they have been able to claim against us. All the autumn and winter the prices for apples have been abnormally high, yet American fruit was chiefly conspicuous by its absence. "Why do they not send?" was the question heard everywhere, and the wiseacre contemptuously responded, "Because they haven't got it." Now, however, nearly at the fag end of the season, there is quite a little rush of fruit across the streak. What have the agents on this side been about to keep it back so long? Did they argue that the tempting prices would go still higher when the best of the home fruit was gone? Probably that is the explanation, but it is a great mistake ever to let the markets get slack, because, after a disappointment or two, consumers give up asking for the article on the assumption that the season is over, and turn to preserved or tinned fruit. It is for this reason, I believe, that prices have broken, notwithstanding that there is no glut.

Mr. Radcliffe Cooke, M.P., has been writing to the *Field* about the fruit question in the West of England, and in this he makes a Lament, an Eulogium, and a Suggestion. The first is at the absence of skilled hands at pruning, grafting, and other cultural operations. The second is a doubtless well-deserved testimonial to the technical instructor in horticulture employed in Herefordshire. The third calls for an extension of the practical side of technical education. I do not myself wonder at the lack of skilled hands on the farms. So long as farmers think the wages of a common unskilled labourer suffice for providing all the requirements of fruit trees, so long will the skilled man confine himself to nurseries and private gardens, where better wages are paid. Those few farmers who are sensible enough to see that it is worth while to pay a little more than hedger's wages for a good pruner and grafter can usually get one.

Nevertheless, Mr. Radcliffe Cooke touches a weak point when he refers to the paucity of trained men on the farms. I have often noticed the same thing. If the Herefordshire instructor pursues his useful career things will perhaps improve, for Mr. Cooke speaks of his climbing into trees and showing good methods by demonstration. This is the right sort of man. Plenty of instructors are "up a tree" in another sense. They graft not, neither can they prune. But they can teach others. Strange, isn't it? When the GARDENERS' MAGAZINE gets the practical examinations for which it has long been fighting, it would not be a bad idea to specially invite all the technical instructors in the kingdom to offer themselves for a test. I mentioned this idea of mine to Peter, who, eyeing me with great favour, remarked with desperate meaning, "Yes, sir, and just you a-argue for me to be one o' the judges. I'd test 'em!"

LUX.

ROYAL HORTICULTURAL SOCIETY, MARCH 8.

"A BONNIE show, a bonnie show," was the expression used by one of the visitors to describe the exhibition held at the Drill Hall on the above date. It was indeed a splendid display for thus early in the year, and for such a bitterly cold day as was March 8. There were large groups of cyclamen, forced cherries, Azalea mollis, spiræas, deutzias, camellias, early spring flowers, clivias, amaryllis, ferns, and orchids, with a few vegetables and well-preserved fruits. There was also a large company to see the numerous exhibits, so much so that note-taking and locomotion were not easy, especially from two to four o'clock. We congratulate the society upon such a successful exhibition, and its superintendent, Mr. S. T. Wright, for the arrangement of the same.

FLORAL COMMITTEE.

Although there were few real novelties brought up for the consideration of this body, there were a very large number of groups, varied in size and contents, for the committee to adjudicate upon. The distribution of medals was less liberal than usual; but this does not, however, signify that the exhibits were less meritorious, but that there is a growing desire to set the R.H.S. awards at a higher value than of late.

Some comparatively new exhibitors set up a group of ferns; these were Messrs. J. Hill and Son, Edmonton. There were a number of fine large specimens of various maidenhair ferns, aspleniums, pteris, platyceriums, &c. In the foreground were baskets of small plants, all neat specimens of the more popular kinds of aspleniums, pteris, &c., and over the whole a large Dicksonia was suspended. A lovely display of Prunus pseudo-cerasus (P. Watereri) came from Messrs. J. Veitch and Sons, Chelsea, the beautiful pinky double flowers depending in fine clusters from the sturdy branching growths, and set off by young and delicate foliage. A batch like this would produce a grand effect in a conservatory or corridor. Staphylea colchica and Spiræa confusa were also staged in quantity by the Chelsea firm. A brilliant and imposing display of Azalea mollis varieties was arranged by Messrs. R. and G. Cuthbert, Southgate; all shades from palest buff to deep reddish-orange were on view, and in addition to these there were a number of Ghent azaleas in various colours. The bushes in every case were superb examples, and crowded with large substantial blooms. The St. George's Nursery Company, Hanwell, once again demonstrated their ability to produce good strains of cyclamen and to grow good plants; the collection staged included crimson, purple, rose, white and purple, and pure white varieties of great excellence, dwarf in habit and in a first-rate decorative condition. The Church Road Nursery Company, Hanwell, also showed a large collection of cyclamen in a great variety of colours, every plant being a perfect mass of bloom fringed by neat, clean and marbled foliage.

The yellow Richardia R. Elliottiana was a feature in the large and showy group of flowering and foliage plants staged by Messrs. W. Cutbush and Son, Highgate, N.; these were surrounded by neat-flowering specimens of Acacia cordata, A. Drummondi, Otaheite oranges, eriostemons, epacris, heaths, azaleas, &c.; Epacris Mont Blanc, a pure white-flowered variety, was a great feature in this group, and deserves to be better known and more widely cultivated. A charming set of the fragrant and elegant Boronia megastigma was sent by Messrs. Balchin and Sons, Hassocks Nurseries, Sussex; every plant was a perfect specimen, and crowded with its purple and orange flowers. A dozen and a half examples of Tetratheca pilosa, clothed with bright rosy flowers, also came from Hassocks, where all such subjects are remarkably well grown. Amaryllis from Messrs. J. Veitch and Sons, Chelsea, constituted a very bright display; the flowers were of fine shape and good size, and remarkable for their handsome colouring. In the group was a flowering specimen of the curious and rare Hippeastrum pardinum, but in point of effect the species does not compare favourably with the florists' form. Messrs. J. Laing and Sons contributed a collection of flowering and foliage plants; clivias were especially bright, and remarkable for their huge trusses. Richardia Elliottiana, amaryllis, streptocarpus, odontoglossums, and cœlogynes made up the bulk of the exhibit, and were associated with caladiums, crotons, dieffenbachias, palms, &c. A clivia with yellow striped foliage attracted no small amount of attention.

An exceedingly pretty group came from Mr. H. B. May, Edmonton, and consisted of small clematis arranged over ferns; five varieties were staged, viz., Lady Londesborough, Fair Rosamond, Sir Garnet Wolseley, Miss Bateman, and Mrs. Quilter; these were disposed in six groups each of about eight plants, and each plant carrying from four to a dozen fair-sized flowers. For conservatory decoration at this season such clematis would prove most acceptable, and Mr. May has done well to draw attention to them. Mr. Mount, Canterbury, again brought up some lovely roses; Catherine Mermet was represented by about three dozen blooms, and other good varieties were Mr. J. Laing, Captain Hayward, Niphetos, Mrs. W. Grant, The Bride, and Anna Olivier. Some of the flowers Mr. Mount staged with very long stems as cut, showing conclusively how high a standard of cultivation he has attained to. Cyclamen in good condition came from Mr. C. Turner, Slough, and maintained the reputation this nurseryman has long enjoyed for these useful winter flowers. Mr. P. Purnell, Woodlands, Streatham, made a pretty exhibit of daffodils in great variety, and also a number of early-flowering primulas, saxifragas, hardy cyclamen, irises, polyanthuses, &c.

A small collection of interesting spring flowers was staged by Messrs. Barr and Son, Covent Garden and Thames Ditton. Narcissus cyclamineus, N. J. S. Baker, N. minimus, Chionodoxa Luciliæ, C. gigantea, C. sardensis, Bulbocodium vernum, Anemone fulgens, several hellebores, crocuses, and forms of Erica carnea made up a pretty set of charming plants and flowers. Mr. John May, Gordon Nurseries, St. Margaret's, Twickenham, showed a remarkably fine lot of cyclamen; every flower was of full size, and set well above the foliage; with regard to number of flowers per plant, these were not so free as others in the hall, but they were far ahead in the quality of the individual blooms. Daffodils were well represented by Mr. T. S. Ware, Tottenham; N. Princess, Golden Spur, N. nanus, Henry Irving, and N. bicolor Victoria were the leading varieties, and shown in first-rate condition. Megaseas, Adonis amurensis, Scilla bifolia alba, Anemone pulsatilla, Primula denticulata alba, Tulipa violacea, Erythronium dens-canis, and some grape hyacinths made up an interesting frontage to the daffodils. A splendid group of camellias from Messrs. W. Paul and Son, Waltham Cross, came in for a share of admiration; the specimens were of fair size, clean in foliage, and carrying many handsome blooms; Double White; Monteroni, Ninfa Egeria, Beauty of Waltham, Mathotiana, Camilla Aureliana, Single Red, and Marchioness of Exeter were the varieties that seemed most attractive and imposing. Messrs. J. Peed and Son, Norwood, S.E., were represented by a big blaze of clivias and Azalea mollis, both grown in fine condition, and arranged with acacias, primulas, daffodils, lilac, and a few foliage plants; a most effective exhibit.

Some charming irises were shown by Messrs. R. Wallace and Co., Colchester; these were I. sindjarensis, I. orchioides, I. reticulata, I. persica, and I. alata, all beautiful little plants, and making up a very pretty little exhibit. Mr. T. P. de Langhe, Brussels, showed quite a large batch of his butterfly cyclamen; forms with spreading and fringed segments, and which have previously been described and figured in our columns. Mr. Newhall, Gateshead-on-Tyne, sent a truss of the fine Rhododendron argenteum. Messrs. J. Laing and Sons and Messrs. R. and G. Cuthbert staged azaleas. Mr. G. Cragg, gardener to W. Walker, Esq., Percy Lodge, Winchmore Hill, gained a cultural commendation for a grand specimen of amaryllis, carrying eleven brilliant crimson-scarlet flowers. The pretty Deutzea Crippsi was shown by Messrs. T. Cripps and Sons, Tunbridge Wells, in splendid condition, smothered in small clusters of pure white flowers. Some superb hippeastrums or amaryllis were staged by Mr. A. Chapman, gardener to Captain Holford, Westonbirt, Tetbury; these were so fine in form, colour, and substance that they attracted general attention.

ORCHID COMMITTEE.

Although not a very large display, the orchids were of more than usual interest, for there were numerous good, new, or rare subjects on view. This committee was in a liberal mood as regards awards and certificates, but to balance matters it was very chary of awarding medals to groups.

A handsome group of orchids came from Messrs. J. Veitch and Sons, Chelsea, and consisted chiefly of Dendrobium Wardianum, D. Euryalis, D. splendidissimum, D. Cybele, D. crassinode, D. Edithæ, and D. Wiganæ; the brilliant Sophronitis Veitchi came up again with a nice batch of Epidendrum elegantulum. Cymbidium eburneo-Lowianum with two spikes, was also very conspicuous. Under a bell glass a beautiful orchid was placed; this was a specimen of Phalænopsis John Seden, carrying two flowers; this is a cross between P. Luddemannianum and P. amabilis; numerous odontoglossums, masdevallias, cypripediums, &c., flanked the central bank of dendrobiums. Messrs Charlesworth and Co., Heaton, Bradford, put up a good exhibit, in which were some grand examples of Phaius Norman in three varieties, a beautiful hybrid between P. Sanderianus and P. tuberculosus, described elsewhere; odontoglossums were well represented, especially O. cirrhosum, O. Wilckeanum, O. crispum, &c.; this was a fine and interesting group to bring all the way from Bradford.

Messrs. Hugh Low and Co., Clapton, brought Dendrobium Brymerianum, Cymbidium Devonianum, O. crispum (a rosy form), O. nebulosum splendens, Cymbidium eburneo-Lowianum, and several handsome forms of Cattleya Trianæ. A famous lot of dendrobes, all examples of D. splendidissimum grandiflorum, came from Mr. Bond, gardener to C. L. N. Ingram, Esq., Godalming. The plants were all well grown, and the varieties and blooms all of the best; a cultural commendation was given. A pretty form of Cattleya Trianæ, with very delicate sepals and petals, was shown by Mr. Walters, gardener to Colonel Shipbury, Grove Park, Chiswick. Mr. Harris, gardener to P. Crowley, Esq., Croydon, showed a fine plant of the good old Cypripedium villosum, with about two dozen flowers. Cypripedium Mrs. H. Druce, shown by H. Druce, Esq., St. John's Wood, is a hybrid between C. niveus and C. bellatulum; this name is wrong for the hybrid is nothing else but C. Godefroyæ. Acineta Humboldti came from W. C. Walker, Esq., Percy Lodge, Winchmore Hill. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Camberwell, sent the curious Pleurothallis punctulata. Messrs. J. Veitch and Sons sent Cattleya Miranda, a C. guttata cross, and Dendrobium Hildebrandi albescens.

Dendrobium Ainsworthi Woodhatch variety is a lovely form, shown grandly by Mr. Salter, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate; Lælio-cattleya Hippolyta, Haywood's variety, was also shown and greatly admired. Odontoglossum Wilckeanum Pittæ, shown by H. T. Pitt, Esq., Stamford Hill, proved a great attraction, the spike carrying eighteen handsome yellow flowers blotched with reddish chocolate; it is certainly one of the very finest of the Wilckeanum varieties. N. C. Cookson, Esq., Wylam-on-Tyne, sent Dendrobium Cybele and D. Astræ. A very beautiful plant of Dendrobium Wardianum album was shown by Messrs. Fisher, Son, and Sibray, Handsworth, Sheffield. Mr. J. Rutherford, Blackburn, staged a flowering specimen of the interesting Spiranthes colorans maculata. The lovely and brilliant Lælio-cattleya Warnhamiensis was brought by Mr. Duncan, gardener to C. J. Lucas, Esq., Warnham Court, Horsham. Mr. W. S. Barrill, gardener to W. S. Ellis, Esq., Dorking, showed Dendrobium Euterpe, D. Clio, and D. Cybele Ellis's variety, all beautiful orchids. A spike of the rare Epidendrum Stamfordianum was shown by Mr. Downes, gardener to J. T. Bennett-Poë, Esq., Cheshunt. Mr. Ballantyne, gardener to Baron Schröder, The Dell, Egham, sent three splendid spikes of the lovely Calanthe Baron Schröder, one very light and two dark coloured forms. Also from The Dell collection came a small plant of Odontoglossum crispum Baroness Schröder, a superb variety with rosy flowers almost covered with brilliant crimson blotches; other beautiful subjects were spikes of the pure yellow odontoglossum, O. coronarium, O. Pescatorei melanocentrum, O. microspilum, &c. It is a great pity that some better arrangements cannot be made by the Orchid Committee for displaying these grand orchids from The Dell; on this occasion the spikes were sheafed together in earthen bottles and pushed behind other orchids.

FRUIT AND VEGETABLE COMMITTEE.

Mr. R. Bullock, gardener to C. P. Serocold, Esq., Taplow Hill, was awarded a bronze Banksian medal for a small collection of apples, all in first-rate condition; Cox's Orange Pippin and Egremont Russett were splendidly kept. Mr. O. Thomas, gardener to H.M. the Queen, Windsor, sent his new cucumber named Every Day; this is a fair-sized form, with bright green skin and scarcely any tail; it gained an award of merit on February 8 last, and on this occasion gained a first-class certificate. Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, showed some fine bundles of asparagus produced in the open by the use of a covering of leaves; Mr. Wythes also sent some new and interesting artichokes, viz., Suttons' White, Vilmorin's White, and Syon Long White, the two latter being elongated forms. Messrs. H. Lane and Son, Berkhampstead, sent a basket of the famous Lane's Prince Albert apple, every fruit appearing to be as fresh as when gathered. An interesting exhibit of variegated and garnishing kale came from Messrs. J. Veitch and Sons, Chelsea. Mr. Empson, gardener to Mr. Wingfield, Ampthill, Beds, secured a silver Banksian medal for a collection of apples and pears, the majority being well kept. Mr. Bullock, gardener to C. P. Serocold, Esq., Taplow Hill, gained first prize for apples—flavour class—with Cox's Orange Pippin; Mr. Salter second, with Bess Pool. No first prize was awarded for pears, but a second was awarded to Mr. R. Maker, Yattenden Court, Newbury, for Bergamot Esperen.

MEDALS AWARDED.

Silver Gilt Flora Medals to Messrs. J. Hill and Co., for ferns; and to Messrs. W. Paul and Son, for camellias. *Silver Banksian Medals* to Messrs. J. Veitch and Sons, for orchids; ditto, for Prunus pseudo-cerasus; Mr. Mount, for roses; Mr. J. May, for cyclamen; Mr. Purnell, for daffodils, &c.; Mr. H. B. May, for clematis; and to Messrs. R. and G. Cuthbert, for Ghent and mollis azaleas. *Bronze Flora Medals* to the Church Road Nursery Company, Hanwell, for cyclamen; and to the St. George's Nursery Company, Hanwell, for cyclamen; and *Bronze Banksian Medals* to Messrs. Charlesworth and Co., for orchids; and Messrs. J. Laing and Sons, for clivias, &c.

WATER IN THE GARDEN.

Large Streams, Ponds, and Lakes.

HAVING already described the various forms of water on a comparatively small scale, and chiefly in connection with rocks, I will now deal with water of greater extent and generally without rocks. Stagnant ponds of large size are even more repulsive than small ones, but ponds fed by a streamlet or brook ensuring a constant supply of fresh water are most desirable in the park or pleasure-grounds, and the water itself, as well as its banks, should be full of life and beauty, and display that picturesque charm which is the true character of a water garden. It goes without saying that the shore-line of such a pond, in order to be picturesque, must be as varied as possible, and the water itself should contain plants naturally grouped without being entirely covered with them. The reflecting surface of water gives light to the landscape, and a sheet of water entirely covered is monotonous. I recently saw a pond nearly an acre in extent in which the water is entirely obscured by the Cape pond weed (*Aponogeton distachyon*). Beautiful as this plant may be with its delightfully fragrant flowers, when kept within proper limits, the effect is simply dismal when the plant is allowed to spread over the whole of the surface to the exclusion of every other plant. Variety is charming, and when we have an enormous number of suitable plants of all shapes and sizes to choose from, there is really no excuse for monotony.

A beautiful example of a picturesque pond is the one at Enys, Cornwall, a portion of which is here illustrated. Enys, the property and residence of Mr. F. G. Enys, is one of those delightful sheltered spots within a few miles from Falmouth, where sub-tropical plants, but seldom met with out of doors, grow luxuriantly; but one of the greatest attractions of this place, where Mr. P. Hogbin has charge, is its pond. The engraving shows, of course, only a very small portion of this pond, but this water garden is even more irregular and more picturesque than can be conveyed by the illustration. The size of the figure in the boat will give an idea of the dimensions of the fine specimen of Gunnera manicata in the background; this ranks among the finest in Cornwall, having leafstems seven feet long and leaves over nine feet in width. Handsome ferns, hydrangeas, rhododendrons, and fine conifers supply an excellent background on the other side of the pond. In the pond itself are masses of the bold American Nuphar advenna, Nymphæa alba, and several of the newer kinds of Marliac's lovely hybrid water lilies. A sight altogether unique is met with on the shore opposite to that seen in the picture. Here, beneath the shade of lime trees, thousands of Primula japonica, in luxuriant growth, rear their whorls of brilliant crimson-purple flowers, forming (close by the waterside) an imposing bank some one hundred and fifty yards in length. Quite recently specimens of the bright yellow Primula sikkimensis have been added to this bank, and promise to be a great success. There are many other water gardens in Cornwall, and perhaps the most extensive is one at Carhayes Castle, near St. Austell, which, although of comparatively recent construction, is furnished with all the latest introductions in the way of aquatics, and will in a few years' time be most picturesque. Probably the finest water garden in Great Britain is the one owned by Mr. W Robinson, at Gravetye Manor, Sussex. Here Marliac's magnificent water lilies in all shades of colour were planted and flourished to perfection almost before they were in commerce. Before they were so generally known as they are now, I saw the pond at Gravetye literally aglow with masses of these brilliant waterlilies, some of them already covering a space many yards in diameter.

Construction of Ponds and Lakes.

Too often, unfortunately, we may still see ponds of circular or oval shape with banks secured by stone walls or pebbles set in cement concrete that show above the waterline. This may do for the horsepond of a farmyard but it will not do for a water garden. If it is worth our while to make a pond at all it should be also worth our while to pay attention to Nature's most simple laws with regard to beauty, and when an artificial pond shows in its shore line curves that could not possibly have been formed by Nature the effect is repulsive. When writing of water in the rock garden I mentioned that a pond in most cases should be treated as an expanded streamlet, and the curves of large ponds or lakes give no exception to that rule. A natural pond with a bold projection or promontory on one side will almost invariably show a still bolder recess on the opposite shore, and *vice versa*. If such projections are covered by vegetation that hides a portion of the water, so that from no point the whole of the surface can be seen, the effect will be all the more picturesque. A good example of this may be seen in the lakes at Birkenhead Park, which, in consequence of this partial obscuring of the water from certain points, appears much larger than it really is.

In the case of a broad stream or river flowing through some meadows within sight of the house, the simplest way to produce a pond or lake would, of course, be to widen the stream or river to the size that would seem most desirable. But, if the pond and its banks are intended for a water garden this course would not be the most practical if the flow of water is at all rapid, because, after heavy rains, when the river swells and floods its surroundings, there would not only be a danger of the water plants being carried away, but silt, gravel and river mud would quickly fill up all recesses and thus practically destroy the beauty of the pond and choke the plants. The best plan in such a case is to "tap" the river, conduct the water intended for the supply of the pond some distance away from the original stream, and finally let the overflow rejoin the river at a lower level If the water is first conveyed in pipes and made to flow in an opposite direction to that of the river, the danger of chokage by mud or silt will be entirely avoided. When laying out some grounds at Great Marlow a few years ago, I made a most successful pond in the way just described, by tapping the river Thames. In most cases it may also be advisable to cover the mouth of the pipe by wire netting to keep out water rats and other vermin. There is no reason why water drawn in this way from a river should not, at some little distance from the "tapping place," reappear in the shape of a natural streamlet before filling the pond, and here and there its water-soaked banks might become the home of all kinds of most suitable as well as beautiful plants. In a like manner the water emerging as overflow from the pond might form a picturesque brook of any desirable length with or without waterfalls before rejoining the river.

In a case like the preceding where the water supply would be practically unlimited, the comparatively small waste of water through absorption by the banks and perhaps also by the bottom of the pond would hardly need comment. But where the supply is scarce and the bottom and sides of the pond are of a porous nature the latter would have to be either "puddled" or covered with concrete to prevent waste. Concreting on a large scale is always expensive work, and clay puddle, especially on the sides or banks, is very apt to be injured by water rats, to crumble away after severe frost, or be washed away by the ripples of water moved by wind. Sometimes it so happens that the subsoil consists at a certain depth of a tough clay, which no water could pene-

VIEW IN THE WATER GARDEN AT ENYS, CORNWALL.

trate, but that the soil at the required water level is of so porous a nature that it would not hold water. Naturally, the first impulse in such a case would be to excavate the pond to the depth of the natural layer of clay, and then form banks of clay puddle at the sides. But there is a much cheaper and more simple plan. Instead of excavating to the clay, excavate only to a depth sufficient for growing aquatics (say two or three feet), and instead of piling up clay against the sides leave the sides untouched as much as possible, preferring the natural slope of the ground to dip below the waterline. To prevent waste percolation, surround the whole pond by a trench about eighteen inches wide excavated beyond the depth of the natural clay subsoil. The whole of this trench should then be filled with clay-puddle to a height extending slightly above the water level, filling up the remainder with ordinary soil, so that the whole is completely hidden. The trench should not be close to the shoreline, neither need it follow the curves of the shore, but, as it would be invisible when finished, it might even be perfectly straight in some places if this would be a saving in distance. The advantages of this system are obvious. The water-tight puddle would be situated where it would neither wash nor crumble away. But the greatest advantage is that the ground intervening between the trench and the actual outline of the pond would be continuously soaked, and a natural bog for plants that love the waterside is thus formed without much trouble.

Very frequently a pond most suitable for a water garden can be formed by throwing a dam across a valley traversed by some streamlet. Generally, this is effected by a straight or slightly curved wall, which is afterwards covered with soil, turf, and plants, with an opening from which the overflow water may emerge as a waterfall. As a rule such an opening is left near the middle of the dam and looks most unnatural, because the overflow emerges from what would be the broadest side of the pond. In Nature, this could scarcely ever occur. If we observe the natural formation of ponds, we find almost invariably that a streamlet becomes gradually wider and wider till a lake-like expanse is formed; it then almost just as gradually contracts, and finally emerges again as a narrow streamlet. If the dam has to be made it would, therefore, be much more natural to have two walls gradually contracting till the desired outlet or overflow is provided. Any formal edging of stones or any other material around a pond would at once deprive the latter of all natural appearance, however carefully it might have been constructed. The best way of securing the shoreline against crumbling and washing, is to round off all edges till they form a gentle slope, and then lay down long pieces of good tough turf, which should be continued quite a foot below the watermark, and should be further secured by long sticks driven firmly through them and into the bank.

Islands in ponds should be arranged with due regard to such formations in Nature. In natural lakes we find them not often in the middle, but generally just beyond a promontory, where they would justify the idea of having been severed from the mainland by the breaking through of the water, or if they are of a rocky nature, by upheavals from the bottom. A circular mound of soil in the middle of the pond generally looks as ugly as can be, and most unnatural.

Exeter. F. W. MEYER.

SPRING-PLANTING TOMATOS.

ALL tomato growers will be more or less busy making a start at planting. I, among others, would be glad if we could wait a week or two longer, even into April, as we should have far less trouble and much more satisfaction in the results. With vines to be started we plant out tomatos according—and though potato-baiting the whole ground before planting, sometimes we find it extremely difficult to master that busy underground pest the wireworm. Strong plants are put in, and then, even with all the heat necessary for the vine growth and with good sunshine, only a slow growth is made. The roots take hold of the soil, but top growth always seems backward at this season. Our space is against growing more than a thousand plants in a batch; and as fast as we plant out the pots are washed and again filled, the second batch always carrying far the heaviest weight of fruit. The ground cannot be too well worked before planting tomatos; in my own case digging where practicable is practised, followed by forking more than once to thoroughly pulverise the soil. This, though it may encourage the wireworm, gives us the opportunity of reducing the pest each time we are at work, and we know well that roots in such soil quickly start business. We plant out from forty-eight-sized pots so as to have a good start, and are always careful to only just cover the surface of the ball, as it is found that deep planting encourages the wireworm to enter just at the base of the stem. The tomatos, being well watered before planting, require but little for some time after, and so long as the soil is fairly moist the less water given the better for the plant, as watering lowers the temperature of the soil. We have also proved that roots at this time of the year take to the new soil quicker when the borders are not too wet. A quick root-start will, of course, mean better results above ground. Varieties of tomatos are numerous, and each grower has his own selection, but all ours for the later planting will be of the Chemin Rouge type, as after June fruits of the Old Red class are difficult to market profitably.

Bottesford Vineries, Notts. STEPHEN CASTLE, F.R.H.S.

Horticultural School.—M. Durand-Gasselin who, under the will of M. Dobrée, has inherited a fortune of nearly thirty million francs, has presented to the Department of Loire Inférieure the sum of three hundred thousand francs for establishing a horticultural school, and one million francs for the erection of plant houses for the cultivation of exotic and colonial plants for the improvement and decoration of parks, gardens, and buildings. The horticultural school will be formed in the park Grand Blattereau, a short distance from Nantes, in the commune of Doulon.

THE BEARDED DISAS.

USUALLY it is not surprising to find considerable diversity among species of a large genus. But I am afraid a first acquaintance with many of the hundred species of disas would produce incredulity, even in the botanist, as to their connection in one genus. The varied habit and as varied development of different parts of the flower have afforded means to divide them into ten well-defined groups, and that with few of their species so similar as to be easily mistaken for each other. Indeed, so marked are the characters of some that they were formerly known under the titles of their respective groups as distinct genera. As constituted at present, the group Endisa contains the species with most diverse habit and external appearance; and in the five species under Herschelia is found the greatest uniformity. These two and the Vexillata section furnish the largest and most beautiful flowers of the genus, with colours ranging from various shades of blue, through green and yellow, to vivid scarlet.

In the Herschelia group, to which I shall confine these notes, the lip is usually bearded, and the odd sepal developed into a perfect hood with a short blunt spur, while the side sepals spread out well between them and complete a distinct form of flower. The tubers of all are extremely large, and the foliage is long and narrow. Disa graminifolia and D. purpurascens are the exceptions as regards bearded lips; the others are D. barbata D. lugens, and D. venusta; these have flowers of a [illegible] blue with a white or purple lip, which is, however, very variable in tone and intensity. Dotted about in broad, open spaces the brightly coloured flowers of these disas are very pleasing, and at a distance appear as strings of quaintly-shaped butterflies fluttering above the waving grass. These three latter species are found in very porous soil, most nearly resembling a sandy peat, and are directly dependent on the rains for a supply of moisture. D. venusta and D. purpurascens flower towards the end of November, usually after the rains have ceased for the summer. This season heavy showers extended to the end of that month, but at lengthened intervals, and the abundance of flowers shows the season to have been more favourable for them than when an early drought sets in, as in last year. It is a well recognised fact here that disa blooms are much more plentiful some seasons than in others; and apparently it is the extension of the rains that governs the supply of those found in the open. That all, excepting D. graminifolia, have a decided rest is certain. But the glossy character of the restios, the dry grasses, and the sandy soil of the valleys or slopes in or on which they are found combine to counteract the parching effects of the sun during that period.

It is also certain that sufficient moisture to keep the tubers fresh and plump will rise by capillarity, as the underground supply is not so rapidly exhausted or lowered as in stiff soils, which crack deeply and allow the moisture to be licked up by the winds. That really it is only the surface which becomes very dry I had convincing proof when lifting a few corms of Antholyza lucida on a slope which received the pitiless rays of a February sun. About a foot down, among pieces of rock imbedded in a hard soil, they provided me with more laborious and exhausting work than I should have previously imagined could be put into half an hour. Putting my hand in the holes the hot moisture felt just as one feels it when entering a recently-closed plant stove. And this is what I want to enforce—that even those bulbous plants found in the driest positions are not subjected to so absolutely dry a rest as is generally imagined, for by the character of the vegetation or the nature of the ground the parching effect of the sun is minimised, and evaporation considerably restrained. That many bulbs are capable of withstanding severe and prolonged drought is undeniable, some even for years; but they are not then seen at their best, although having been subjected to such conditions may assist towards their better development in the season of heavy rains. As witness the "blaze of colour" one hears of in the arid regions after heavy rains. How readily they must respond to the more favourable conditions to produce such an effect in a few weeks one can but imagine. The same may be said of the bulbous plants in this district, but in a less degree; for the rains, varying much in quantity and prolongation in different years, are more constant in their seasons. However, I am digressing somewhat, but the subject is so interesting that one is apt to wander.

To return then: Disa barbata bears in October from two to four faintly-pencilled white flowers on slender scapes from fifteen to twenty inches in length. Occasionally flowers are seen with a lilac lip, adding much to their quaint appearance. A decided preference is evinced for a blackish sandy soil, where discoloured water is standing in furrows during the time of growth and flowering. It is partially sheltered from wind and sun, and flowering earlier than its congeners, neither has the sun so much power as when they are in bloom, nor will it become as dry when at rest, although it does occur as stragglers in drier places than the spot described. D. venusta, D. lugens, and the above are confined to the districts which are in no place many feet above sea-level. The valleys D. purpurascens favours are several hundred feet in elevation, and the slopes D. graminifolia beautifies are over a thousand feet above the sea. The conditions of D. graminifolia were described in the issue of May 8th, 1897, and, as there noted, it does not commence growth until the wet season is well advanced, or rather it apparently does not. For a considerable time I was unable to understand this peculiarity. So inquisitiveness led me to do a very un-gardener like action, *i.e.*, to lift some transplanted tubers to see what they were doing. They were collected in February, when in flower, and planted immediately. During May I first examined them and found no sign of roots or leaves; but at the shoulder of the tuber was a peculiar wart-like excrescence, which in July had sufficiently developed to indicate that it was a new tuber. At that time the old tuber was decidedly shrivelled, thus showing the source of nourishment. Unfortunately the inevitable effect of such treatment showed itself in the rotten tuber when next examined. So I am unable to decisively [illegible] the peculiarities of this lovely disa, but sufficient was seen to [illegible] the imperative need of moisture at a time when no visible activity is taking place, and this will supply a key to the inability to cultivate it if the usual method of withholding a free supply of water until signs of growth are apparent, is adopted. An excellent figure of this species in Bolus's "Orchids of the Cape Peninsula," shows only the neck of the tuber. But in that of D. ferruginea, which has the same peculiarity apparently, a shrivelled tuber is shown behind the plump one bearing the scape and leaves. My previous statement that the tubers were perennial is therefore erroneous. But the interest is none the less, for the one peculiarity is as equally unusual as the other.

To sum up then: After a warm, even hot, but moist rest an abundance of water must be given during leaf growth, gradually lessening the supply as the flowers develop, until, when they are over, only sufficient is given to keep the tubers plump. A maximum amount of light or sun with a buoyant atmosphere always are doubtless equally essential as an open porous soil. The greatest deterrents would seem to be a stuffy atmosphere, and stagnation at the roots, except perhaps with D. barbata, which is only a foot or two above standing water for a greater part of the year.

Cape Town. J. W. MATHEWS.

NOTES ON ROSES.

I WAS much interested in the article upon the parentage of roses (page 111). Like Mr. Williamson, I would be pleased to know the parentage of many of our most popular roses; but this is somewhat difficult to discover, for until quite recently few raisers took the trouble to carefully and systematically cross the varieties. I am rather surprised at two statements in the article. Ulrich Brunner is not of German origin, but was sent out by M. A. Levet in 1881. Doubtless the German name led to confusion. Then the remark that Charles Lefebvre lacks "quality and strength of perfume" is rather startling. To my fancy it is one of the very sweetest scented roses we have; and that this was the general opinion of the Catalogue Committee of the National Rose Society is fully proved, for they added the remark, "one of the best roses grown; very fragrant." We find a certain perfume in several of our dark hybrid perpetuals that rivals the best of the old damask roses; Alfred Dumesnil, Duc de Montpensier, General Jacqueminot, Mons. E. Y. Teas, Lord Macaulay, Harrison Weir, Earl of Dufferin, Maurice Bernardin, Pierre Notting, A. K. Williams, Captain Hayward, and Red Dragon are a dozen which occur to me as I write.

But to return to the parentage of roses. How varied and surprising are some of the offspring from crossing two varieties to what might at first have been expected. But when we look back to the grand and great grand parents we find such distinct cases of atavism that we can have no doubt careful hybridisation may result in some startling developments and changes yet. M. Guillot stated that Gloire Lyonnaise was the result of successive crossings of Madame Falcot and Baroness Rothschild. It is generally accepted that Mabel Morrison and Canari were the parents of Her Majesty; that Madame Falcot and Perle des Jardins were the parents of Hon. Edith Gifford—two yellows producing a white or creamy blush; at first sight these appear almost impossible departures, but if we look back there is little doubt the matter might be explained. In the present day we are, happily, giving more attention to fertilisation, instead of collecting seed in the haphazard manner of the past. A list of new roses for the present spring contains no less than thirty-eight that have their parentage attached. When a grower has mastered some of the secrets of successful hybridisation, he is naturally chary about letting the general public have the benefit of his knowledge and methods. Last summer, in one of my short contributions to the GARDENERS' MAGAZINE, I mentioned that Maman Cochet was a seedling from Catherine Mermet. A leading amateur wrote me asking if I had any authority for this, or whether it was assumed from the habit of growth, &c. Since then I have had a card from M. Scipion Cochet, stating definitely that the variety was obtained from seed gathered from Catherine Mermet; but there is no mention, nor, so far as I can discover, any knowledge of the other parent. We are now promised a white sport from Maman Cochet, under the name of White Maman Cochet, with all the good qualities of that grand variety, and if the description is correct it will be a great and welcome acquisition.

The time for pruning has come round again, and we need bear in mind the objects for which we are pruning. No hard-and-fast rule can be laid down; but if we prune our weak growers rather hard, and scarcely use the knife among those of extra vigour, except to boldly thin out overcrowded growths and old wood, there will not be much amiss. The wood has come through the winter months exceptionally sound and well ripened, so that unless late frosts cripple young growths, we should have a grand display upon our walls and among the more tender of our vigorous-growing garden roses. My own roses will not be pruned until the second week in March, experience having proved that a later break from the lower eyes will generally grow on so fast and free from checks as to catch up much of that growth which was well advanced while they were almost dormant. Excellent articles upon pruning have appeared in these pages from time to time, and some of them illustrated in such a plain manner that there should be no need to go fully into this subject again.

Our roses under glass seldom looked better than at present, and are now well in flower. The main points are to keep such free from insect pests, the temperature fairly regular without much ventilation, and to help all established plants with liberal doses of weak liquid manure.

A. PIPER.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book, containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

NATURAL FERTILITY OF SOILS.

THE gardener's and farmer's aim is to bring the soil under cultivation up to its maximum of productiveness. This state of fertility is not attained by heavy manuring and digging, but rather by a knowledge of the composition of the soil, the requirements of the plants to be grown upon it, and the influence certain manures will have upon both. With such soils as resemble that formed from the red sandstone rocks met with in the vicinity of Kelsall, in Cheshire, the cultivation of garden and farm crops is made easy, as it is naturally rich in the necessary constituents of plant food. Of course the constant drain of phosphates and nitrogen from the soil by crops necessitates frequent applications of manures containing these ingredients, but not so much phosphorus and nitrogen will be required to maintain the balance of healthy growths on such a medium, as on some of a less naturally fertile character. Besides being a loam of the best quality chemically, it is also physically one adapted to the utilisation of the cheaper forms of manures, and easily tilled. Instead of bone meal, superphosphate, fish guano, and other forms of costly phosphatic manures, basic slag serves the purpose of supplying phosphorus and lime to meet the needs of growing crops. Sulphate of ammonia, mixed with one quarter of its weight of nitrate of soda, or rape dust, put on and ploughed or dug in in early autumn, will keep up a supply of the indispensable nitrogen. Both cereals, grasses, and roots are abundantly yielded by all the land for miles around Kelsall, and gardening is made a simple process.

Among ornamental trees and shrubs, the holly, hemlock, spruce, and in fact, all conifers, grow luxuriantly. The laurustinus, which is usually met with in a dwarf twiggy state, develops here into a robust shrub of something like six feet in height, with a mass of strong shoots, large healthy leaves, and heads of flowers three inches across. The conspicuous feature, however, looked at from a horticultural point of view, is the suitability of the soil for fruit culture. Apples, pears, and plums, do exceptionally well, and damsons grow like weeds. Vines, too, are quite at home, and without any coaxing, grow vigorously, and yield heavily. With such a soil examples of produce will be obtained, which lead the cultivator to entertain the belief, that by his skill (?) prodigious results have been brought about. When we look at a soil like the one referred to, and one of an inert nature, and compare the amount of brain and physical exertion required to secure satisfactory crops from both, it is an easy matter to grasp the situation and see how some are handicapped in the production of garden produce. A soil not only serves the purpose of holding plants in their natural position, and supplying the larger portion of the food they require, but it also serves as the kitchen in which the food, abstracted by the plants from the soil, is cooked. The value of a soil for the cultivation of any useful crop depends as much upon its power to manufacture food materials for the supplying of plants, as upon its own power to yield them. Basic slag would be lost on sandy soils, unless they contained a high percentage of organic matter, and a heavy one usually contains too much iron, and is impervious to air, and consequently warmth, that manures lie a considerable time in it before becoming active. For this kind of land lime is, perhaps, the best thing to apply, but without some idea as to the part it plays in the soil harm, as well as good, may be done.

There is an old saying, and a true one, which every gardener and farmer should know, viz., "Lime enriches the father and beggars the son." Lime dissolves the organic parts of soils, and renders their constituents available to plants. If too much lime be applied, the rains will carry away into the drains the food that ought to have remained in the soil for succeeding crops, and the soil will become so poor in vegetable matter that only inferior crops can be secured from it. Lime is an indispensable constituent of all fertile soils, as it is one of the ingredients necessary to plant growth. Knowing this, we also know that lime must be incorporated with the soil periodically, except when dealing with calcareous formations. As most of the phosphatic manures—in truth, all of them—contain from a half to three fourths of their bulk of lime, every time any of them are supplied to the soil we know that a certain amount of lime has been supplied at the same time. By an indiscriminate use of lime on the red sandstone loam of Kelsall its natural fertility would be crippled for years; whereas the heavy clays would suffer less, although they, too, in a few years after the dressings would manifest declining productiveness.

CESTRIAN.

Prize Awards and Point Value.—The granting of prizes at flower shows on the purely point value basis is not at all common practice. The chief application of the method so far has been found at Carshalton, on the August Bank Holiday, when a sum given by Mr. Smee of £5 is regularly apportioned in several prizes for collections of nine dishes of vegetables. The issue of the schedule for the Shrewsbury Show in August next, however, recalls the fact that Carshalton has found a very important and influential imitator. At the Great Shrewsbury Show two large classes will be judged entirely on their point value, and five prizes will be in each case awarded of equal money value to the point value. The first is the Great Decorative Fruit Table Class, for which is set apart the large sum of £45. Ordinarily this would be divided into prizes arbitrarily fixed, as last year, when, only four prizes being offered, they were £17 12s., £12 12s., £8 8s., and £5 5s. Here was evident great disparity, whilst the point values of the collection showed comparatively trifling difference. This year rather more money is added, and one additional prize. It will, therefore, be no matter of surprise should the awards show cash prizes of trifling diversity also. Then in the Garden Produce Class—left out of the schedule last year to make room for a Victorian Class—to which a sum of £25 is allotted, the same principle of point value will be applied. The average of the sum is £5, but it is probable that the awards may, if the competition be keen, range from £5 10s. to £4 10s. So that if the first-prize winner gets less than before, the other prize winners at least get more in accordance with the merits of their exhibits. Now that Shrewsbury has shown a lead in this just method of apportioning prizes, it is hoped that other societies will follow suit, and eventually make the principle universal.—A. D.

PATRIARCHIAL GARDENERS.

The occupation of gardening is reputedly one of exceeding healthiness, and as a result, it is naturally looked for that those who work at it should live to great old age. It does not seem as if facts bear out this supposition, whilst most of us who are actively engaged in horticulture know that very old practitioners are not numerous. Very striking in reference to this matter was the list of candidates, all gardeners, who recently applied to be elected as pensioners on the Gardeners' Benevolent Institution, and, exclusive of widows, there were thirty-four of such applicants, and of these there were twenty in the seventies, and no less than fourteen in the sixties. The oldest was seventy-nine, and four others were seventy-eight years old—oddly enough not one of these aged persons was elected. The youngest was sixty years of age only, and some others were but a year or two older. It does not say much for the assumed healthiness of the gardening profession that so many persons should, at so comparatively an early age, thus be forced to appeal for charitable help.

Mr. W. Smythe.

Reading over this list with appended ages, so sad in its associations, my thoughts reverted to a brighter aspect in remembering some very aged men, yet playing their parts in gardening, and doing it well too, with wonderful vigour and energy. I know some well in the seventies putting to shame many others not one half their age who greatly lack force and vigour. There is one whose portrait is so admirably presented here, a gardener who has been hard at work for more than sixty years, and is to-day astonishingly vigorous and active. This is Mr. W. Smythe, still gardener at Basing Park, Hants, the seat of W. Nicholson, Esq. This septuagenarian tells that he began work at twelve years of age in the garden of Captain Booth, Ufford Place, near Woodbridge, Suffolk, where he remained five years. The natural conclusion, therefore, is that he was an industrious lad and did well. Next, whilst very young, he undertakes charge of a garden at St. John's Wood for four years; then he was three years with Hendersons, of Pineapple Nursery, in that day almost the leading plant nursery of London; and from there he was sent as foreman to that once famous garden, Cooper's Hill, Egham, then in the occupation of Mr. John Cathcart, who was a liberal horticultural patron. His next situation was that of gardener to the once famous racing baronet, Sir Joseph Hawley, being recommended for the position by Mr. Thomas, then a well-known landscape gardener. Here he set out the new gardens, erected conservatory, and various plant houses and vineries, and in doing much good work gained experience also. Later he entered the service of the Rev. John Matthew, in Dorsetshire, and here again laid out the grounds, erected houses, and thoroughly made the place. Through death, however, his engagement here terminated in eighteen months; and from there he came to Chelsea, and was for a short time with the firm of Messrs. J. Veitch and Sons, who later sent him to Almham Hall, in Norfolk, the seat of Lord Sondes, where he remained nineteen years, leaving there again after a death in the family. Finally he engaged as gardener with his present employer, Mr. Nicholson, with whom he has lived honoured and esteemed, some twenty-two and a half years. His is a very varied and long term of work, one of which any man may well be proud. It is the working life of a man who is now seventy-five years of age, and looks as hearty and is so active, that he may even yet put in many years more of labour at Basing Park.

Mr. Smythe has always been interested in crossing and hybridising, and has produced many excellent things, and his latest efforts in that direction seem to have been with kidney beans, for the strain known as "Smythe's Hybrids" are of his production. He crossed dwarfs and scarlet runners originally with much success; then he again crossed the scarlet runner with Canadian Wonder, and also with one of his best dwarf hybrids. From these crosses came the two very fine dwarf beans shown to the Fruit Committee at the Drill Hall on August 10 last year. The product of the latter cross, named Goliath, was undoubtedly one of the finest and most prolific dwarf beans ever seen; and if it keeps true when put into commerce, as it probably will be next year, it will doubtless be very popular. One of the most important of the ornamental plants raised by Mr. Smythe is Tacsonia Smythiana, obtained from a cross effected between T. mollissima and another species. Basing Park, Mr. Smythe's present location, is a beautiful place, famous in history as the site of Basing House of Cromwell's time; and lies almost midway between Alton and Petersfield. When the new light railway being constructed to run from Basingstoke, viâ Alton, down the valley to Fareham is completed, Basing Park will be very accessible.

A. Dean.

Pickled Gherkins.—These are small young cucumbers, used almost exclusively for pickling. The best ones for the purpose are those about three inches and a half long and one inch in diameter, when less than this they have very little flavour. Rub off the rough, prickly skin with a clean cloth and some dry salt, then throw them into boiling vinegar, simmer for five minutes. then drain, and place in suitable jars and bottles. Distribute the various spices as evenly as possible, pour the vinegar over, and when cold finish off in the usual manner. Allow for every quart of vinegar half an ounce each of salt and whole pepper, a few sprigs of tarragon, a large blade of mace, and half a dozen cloves. —Housewife.

CYPRIREDIUM SANDERO-SUPERBIENS.

Direct or first hybrids of cypripediums are almost always of great interest, as combining the salient features of both parents, or they are of considerable beauty and usefulness. Very few of the first hybrids are failures. When two such distinct species as C. Sanderianum and C. superbiens are used as parents it is easy to foretell that the progeny will also be distinct. C. Sanderianum was discovered by Forstermann when collecting in the Malay Archipelago for Messrs. F. Sander and Co., St. Albans, and sent home about 1885. According to the newer nomenclature this should be a paphiopedium, and it is of more than passing interest inasmuch as it almost provides the missing link between what we have hitherto known as cypripediums and selenipediums. C. superbiens is now a well-known orchid, though not over abundant in collections; it was introduced in the first instance by the Messrs. Rollison in 1855, and two years later by the Messrs. Veitch, each [illegible] obtaining one plant only, and from these the present cultivated stock has been propagated. The nearest ally of C. superbiens is C. Curtisi, the latter being more robust and with bolder flowers.

C. Sandero-superbiens is due to the efforts of two successful orchidists and hybridisers, Captain Vipan and Mr. N. Cookson. The former crossed the two species and carefully watched over the seed-parent until the seed was ripe. Part of the seed was given to Mr. N. Cookson, Oakwood, Wylam-on-Tyne, who was the first to bring a seedling to the flowering stage On August 29, 1893, this specimen was exhibited at a meeting of the Royal Horticultural Society, when an award of merit was granted. The accompanying illustration represents a specimen staged by Mr. Cookson at the Drill Hall, Westminster, on February 8 last, and one that was greatly admired for its robust habit and fine bold flowers. The foliage reminds one forcibly of Cypripedium Curtisi both in size and mottling. The flowers are borne two together on a tall blackish scape. The dorsal sepal is greenish white, striped and lined with very dark purplish brown; the apex of this organ is very acutely pointed. The petals, long and depending, show in a marked degree the influence of C. Sanderianum; the ground colour is a peculiar shade of greenish yellow, and on this are numerous and somewhat heavy, irregular dots of purplish brown. The labellum is very prominent, large, and pouched, as in C. superbiens or C. Curtisi, and of a dark brown colour, though slightly paler at the mouth; the infolded side lobes are dotted with purple brown. Altogether C. Sandero-superbiens is one of our stateliest cypripedes, and in a general way can only be compared with the lovely C. Morganiæ. Messrs. J. Veitch and Sons were true prophets when they described the then new C. Sanderianum as being one of the handsomest of cypripedes, and supplying the hybridist with a most distinct agency for the production of new and interesting forms.

SPRING CABBAGE.

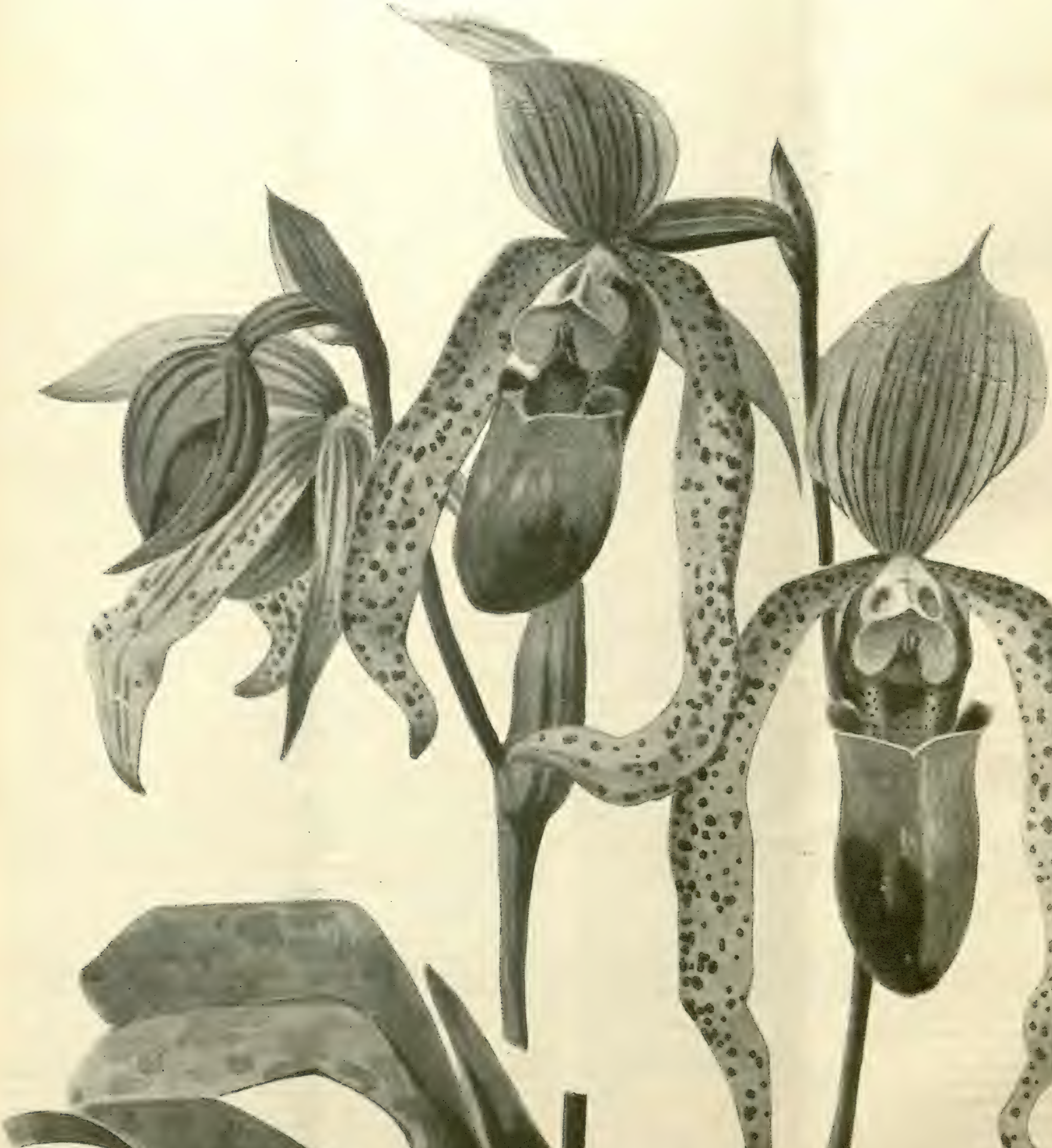
With such a mild winter as we have had, spring cabbages promise to be earlier than usual, and I fear in some gardens there will be many losses from "bolting," as recently I saw several quarters that had already suffered in this respect. For many years I, in common with many others, lost a good portion of our spring crop by premature flowering, but there are few losses now, owing to our different mode of culture. Many growers are far too kind to the plants, for it is a common practice to place large quantities of rich manure under the roots of small plants, and the result is a soft growth that bolts after the least check. Some of our older varieties are much addicted to "bolting," and it is not well to rely upon these for the earliest supplies; many are large, and suffer more from cold than smaller kinds, So far I have not met with any variety equal to Ellam's for earliness and stability. Many market growers have excellent varieties of their own selection, but they grow larger kinds than Ellam's. The latter is too small for their purposes, but on the other hand, the market stock for spring supplies is grown in suitable soil in the open field, and less subject to disease than on old garden land, so that there is less "bolting" than in soil much manured.

My plan to prevent running will not commend itself to all, but it has this merit, that we have few failures and little anxiety as to our crop. We do not manure the land at all when planting, yet many think quarters for spring cabbage cannot be too rich; we did manure formerly, with the result that we lost a goodly portion of our crop, and this made us adopt other measures. Seeing what good results followed the planting of broccoli on land which had produced a crop, and not dug or otherwise prepared, we followed the same plan for early cabbage, and now rarely lose one per cent. from any cause. Our cabbages follow the spring [illegible] onions, and having a light soil we tread and roll the land for the [illegible] crop, and this frequent working upon the land makes it as hard as possible; the surface is lightly hoed over after the crop, and the cabbages put out the latter part of September, or earlier, according to the season. Drills are drawn to prevent the moisture given when needed running away. The roots are firmly trodden in when planted, and the result is that there is a short sturdy growth and no bolting.

Mein's No. 1 is equally satisfactory as regards growth as Ellam's but the latter is a little earlier, and this is a gain; as in such a season as this spring cabbage will be most valuable, for all green stuffs will run to flower so quickly that green vegetables in April will be none too plentiful. In hard winters soil is drawn close up to the plants in [illegible]ber, but previous to doing this each plant is made firm, our aim being a sturdy hard growth. One can easily feed later, and we are now feeding our cabbages with a fertiliser in showery weather; the result is [illegible] marked in a few days after giving the food. I believe in feeding when the growth is active, not when the plants are too small to benefit by it. To show how early the season is, we shall cut freely after the first week in March, as the cabbages are growing as freely as in April.

G. Wythes.

Syon Gardens.



CYPRIPEDIUM SANDERO-SUPERBIENS. (Flowers white, greenish yellow, and brown.)

VEGETABLES FOR EXHIBITION.

MAINCROP POTATOS.

MANY kinds of soil will produce first-rate potatos, but without a doubt a good light mellow loam is the most suitable. For quality and flavour, a chalky kind of land is well adapted and perhaps the very worst for their culture is a stiff heavy clay. In wet, sunless seasons, the tubers produced in strong clay soils are almost worthless for eating, as well as being very liable to disease. Good potatos can now be purchased at very reasonable prices, so that it is much better to buy seed and use the ground, when unsuitable, for other crops. Change of seed and the selection of suitable varieties must always occupy the mind of the grower. There are now so many good varieties in the market, and it is worth remarking that they differ materially in their adaptation to various districts. Thus the cultivator must endeavour to ascertain which are best for the locality in which he resides. The land should be deeply broken up during the winter and potatos ought not to be grown on the same piece of ground two seasons in succession, a most important point in potato culture. In preparing the ground one must take into consideration the nature of the soil, which should never be made too rich. If there is a good depth of soil and it has been manured the previous season for other crops, no manure is necessary. The same applies to fresh broken-up rich pasture land, but on poor shallow soil, whether it be chalk, gravel, or sand, a thorough good dressing of fresh stable manure should be given when preparing the ground.

We are so much at the mercy of the weather during spring that no hard and fast rule can be laid down, and the nature of the ground one has to contend with must always be taken into consideration. Plant, however, when possible, from the middle of March to the middle of April, but in any case endeavour to plant when the land can be left in a light and workable condition. The sets for planting should be of medium size, leaving only from two to three sprouts on each, but when from any cause large ones have to be used, they may be cut leaving two sprouts on each. When cutting tubers for planting it is a good plan to dip the cut parts in slaked lime, allowing them to dry before planting. The sets should be laid out thinly in a light place just secure against frost during winter, thus conserving as much strength as possible. When laid thickly in heaps the shoots become so long and spindley that they have to be rubbed off, and much of the food reserve is wasted. The distance which the rows and tubers should be apart must be determined by the sorts one is about to plant, as the haulm of some varieties requires double the space than that of the others, and much of the failure in potato culture is due to overcrowding. From two to three feet is a fair average distance to allow between the rows and from eighteen to twenty inches is desirable between the sets.

Between the time the young tops peep above the surface and the time for moulding up the soil should be flat-hoed twice, and as soon as high enough no time should be lost in earthing them up. Except to pull out any weeds that may make their appearance the crop may be left till ready for lifting, which should be done without delay in fine weather as soon as the skins are set. Many potatos, I am certain, become spoilt by being left in the ground longer than is necessary.

Choose fine weather for this operation, and first cut off the tops with a hedging hook, and burn them. Carefully lift the crop with the potato forks and search the ground thoroughly so that but few, if any, tubers are left, as tubers that are left cause a good deal of trouble in the following year. The tubers should all be laid out to dry on the surface of the ground, putting three rows together, and the roots and rubbish should also be put together in rows, so that they may be easily removed and burned as soon as the crop is cleared off. Only lift each day as many roots as can be stored under cover. When one has to depend on samples for exhibition from the main plantation (and in some soils good, clear, well-shaped tubers can be grown) the very best should be selected as they are turned out, and immediately placed in baskets or boxes, which should be kept covered with an old sack, or even paper, to exclude the light and air, and the same day they should be placed in boxes one layer deep only, and covered up with some finely-sifted, moderately dry soil, and placed away in the dark in a safe place till wanted.

In storing the crop, commence by taking up all the largest and best tubers suitable for cooking, and place them under straw covering in good heaps, where they may be left for about three weeks. Subsequently they should be carefully examined for any diseased tubers (a very suitable work for wet days), and then finally stored away till wanted. In my opinion, there is no better way of keeping potatos than pitting them in clumps in the open, taking out a sack or so at a time according to requirements, and keeping them in some easily accessible place. Select a dry, well-drained spot, slightly raise the ground on which the clamp has to be made, so that no water may reach it, and over this place a layer of dry straw. On this layer put the potatos, building them up ridge shaped. A good coating of straw should then be packed over them, and this in its turn must be covered with about six inches of soil. It is also desirable to have about every four yards a tuft of the straw rising through and above the soil at the apex. This will prevent over-heating and keep the crop sweet. In very severe weather some litter should be thrown over the ridge, the quantity being determined by the severity of the weather. A little cover keeps out much frost.

The sets, or "seed" for planting should next be attended to. They should be taken in and laid out thinly, and if allowed to become green they are all the better for this purpose. A cool building, just proof against frost, is the most suitable place for wintering them, and when room can be had I advise keeping them on lattice shelves in single layers, using the utmost care to keep the different kinds separate. Examine them at intervals during the winter, removing any [illegible] and rub off the chits if by any chance they have commenced [illegible] too soon, and they will be safe till the time of planting. Attention [illegible] be given to the tubers that are considered worthless for seed. These should be picked up and used, for they make excellent food for [illegible] poultry. The ground should then be cleared of all rubbish [illegible] tubers, which should be burned, and the ground left in a neat [illegible] state.

Only a favoured few who are fortunate enough to have an ideal [illegible] soil can hope to obtain such splendid specimens as are often seen on the show tables, unless some special means are taken to produce them. Here on a stiff, wet, London clay it is absolutely impossible to have well shaped, clear potatos by ordinary cultivation. Hence some special treatment must be given to them. I have made numerous experiments, and was much puzzled for many years before I could ensure satisfactory results. I tried the best varieties, different times and modes of planting, and many kinds of mixtures in the way of compost, but the result generally was disappointing. Notwithstanding, I was determined, if possible, to continue until I satisfied myself, and I can now say I have done so. I consider the principal points are an open sunny position, a well-drained piece of ground, early planting, allowing plenty of room between the rows, and tubers, and the mixture for planting [illegible] The ground should be thoroughly trenched during winter, and at the bottom of each trench a coating of about four inches of long stable [illegible] should be given, leaving the surface rough and uneven, thus allowing the frosts and winds to thoroughly pulverise the soil. Early in March the planting should be done. Prepare a mixture of half-decayed horse manure, that from an old mushroom bed is preferable to any other, and half good leaf-mould. This should all be passed through a sieve with half-inch mesh, and thoroughly mixed. A good trench should be taken out with the spade at least a foot in depth, and in this should be [illegible] about six inches of the mixture. Assuming the sets have been properly prepared as previously advised, these should be carefully laid on the soil at a distance of two feet apart. Fill up the trench with the same kind of mixture, and over this draw a little of the finest of the soil taken from the trench. Neatly rake over and make a mark down the centre. The distance between the rows should be three feet six inches; it will be found far better to thoroughly cultivate a few rows than only half prepare a large number, as it will be found that a very large percentage will turn out fit for the exhibition stage. If horse manure cannot be readily obtained pure leaf soil will answer almost as well. Hoe the crops frequently and thoroughly, protecting them if necessary, and earth up as soon as ready. When the haulm has grown a moderate height and is likely to fall down it should be kept in an upright position by driving in a few stakes each side of the row and stretching two or three stout lines of string along. This is a very neat and efficient way of keeping them in position, and I consider it of the utmost importance. As soon as the growth is completed and it is safe to lift the crop, cut off the tops and lift without delay, carefully storing as before advised.

In my opinion potatos are generally exhibited much too large, [illegible] long as exhibitors have to cater for judges who favour large tubers, so long will large specimens continue to be staged. I consider a potato should be of medium size, shallow eyed, free from scab or cracks, and the skin quite clear but not necessarily smooth, as a roughness in the skin generally denotes good cooking qualities. They should be washed thoroughly clean on the afternoon before the show in soap and water with a piece of soft sponge, and as soon as dry wrapped in clean soft white or brown paper. Care should be taken not to expose them to the air more than is necessary or much of the fresh appearance will be lost. Six or nine is the number generally shown, and they should be presented as even in size as possible. There are now so many first-rate kinds in existence that I shall not attempt to give a lengthened list of varieties as soils and localities have so much influence on particular kinds. What proves to be everything that can be desired in some parts of the country is absolutely worthless in others. However, I will mention a few [illegible] types as a guidance. For a collection of vegetables I always favour [illegible] white skinned variety, and I like the pebble shape. For early shows I advise Sharpe's Victor or some good strain of Ashleaf, and for summer and later exhibitions such kinds as Snowdrop or Windsor Castle. The latter is a great favourite with me, and though not one of the largest it is [illegible] handsome, and of the highest quality when cooked. This, I think, should be taken into consideration by the judges equally as much as in judging fruit. Probably the most handsome potato ever raised is International, and it looks extremely well when shown, but for table use on nearly [illegible] soils it is worthless. Satisfaction is a splendid exhibition potato, and perhaps exhibited more than any other variety. It is of very fine quality from many soils, but it is often staged too large. Goldfinder and Triumph are also well worth growing. Of white rounds Schoolmaster is fine in every way, but unfortunately very subject to disease. [illegible] the coloured kinds, both round and kidney shaped, are very handsome and pleasing to look at, and must be cultivated when it is the intention of the exhibitor to enter for potato competition, but as a rule the highest quality will be found in the white-skinned kinds.

Aldenham House Gardens, Elstree, Herts. E. BECKETT.

The Distribution of British Mosses is a matter which Mr. [illegible] Horrell, Brompton Square, S.W., wishes to see cleared up, and he [illegible] invites the co-operation of bryologists to work it out. Watson divided [illegible] Britain into one hundred and twelve vice-counties for the purpose of [illegible] better understanding of the distribution of flowering plants. Mr. Horrell, [illegible] on the same principle, has fairly good lists from about fifty vice-counties; [illegible] remainder there are offers of assistance from only thirty-four districts. [illegible] H. N. Dixon and E. M. Holmes have promised to examine doubtful or [illegible] species, so that with a little more help the work Mr. Horrell has taken up [illegible] go forward.

WORK FOR THE WEEK.

WARM ORCHIDS.

PHALÆNOPSIS Schilleriana, P. amabilis, P. Sanderiana, P. leucorrhoda, P. grandiflora, P. Stuartiana, and others that have finished flowering will now require attention; all the old material must be very carefully picked out of the baskets, cylinders, pots, or blocks, and well washed out in a pail large enough for the purpose, or with the watering can. Make sure all the small beetles and snails are entirely eradicated. After this take fresh sphagnum, well picked and washed through clean water several times, together with some nice pieces of charcoal about the size of a walnut, except at the bottom, where larger pieces will be required; a hard blunt, pointed stick will be found very useful to place the charcoal and sphagnum in with. Every care must be taken of the roots that are firmly attached, and also of the points of those that are just pushing out. A few clean crocks will also be found very beneficial. Placing them here and there with the charcoal and sphagnum, a good plan is to put a piece of red sandstone underneath the new roots, as they soon adhere to it. Any that require new baskets or cylinders —the latter, in my opinion, being far the best—must be carefully handled, and a sharp knife used, cutting away the wood along with the roots. After this work has been done, the shading will require particular attention, otherwise the foliage will lose vigour and appear limp. A slight syringe occasionally must be given, and a nice humid atmosphere be carefully maintained. Of late we have witnessed some very treacherous weather, such as registering 11 degrees of frost, cold winds, hail, snow, and cold rain, which is very trying for growing orchids. Moreover, we have had hot sun in the middle of the day at times. At such times a little shading must be used, if not the leaves turn yellow; a very coarse blind is the best now, and the thicker ones as the season advances. Firing and ventilation must be carefully studied.

Vandas of the suavis and tricolor section must be top-dressed or repotted as required; clean crocks, charcoal, and fresh sphagnum being the right material to use with the pots well crocked. Leggy plants must be cut down and lowered to the base of the leafy stem, in order to have bushy plants; a slight syringe occasionally, taking care not to syringe overhead, will help to keep the foliage fresh. Saccolabium Blumei giganteum and others may have the old material picked out of the baskets and replaced with new, care being taken of the roots. Dendrochilum glumaceum, as soon as the flowers are over, must receive immediate attention if necessary; baskets are the best for it, using fibrous peat and sphagnum as material. Cattleya aurea requiring more room must also receive attention; baskets are far the best for it. Imported cattleyas that are beginning to root must have the crocks removed about them, and fibrous peat substituted. Unflowered cattleya and Lælio-cattleya seedlings must be repanned or rebasketed, and suspended from the roof in a house by themselves. Old specimens of Cattleya Mossiæ and Mendeli that are nearly worn out must be pulled to pieces, the smaller the better, and well washed with weak soft-soap water. If too far gone, and the variety is choice, it would be the better plan to place these divisions in crocks, and treat them exactly as imported plants. Selenipediums, such as S. calurium, S. Ainsworthi, S. cardinalis, S. Sedeni, &c., may be split up, and if a stock is required, they can be pulled to pieces to the desired size. A good compost consists of equal parts of good peat and loam, with a little charcoal, old mortar, and sand. The earliest plants of Dendrobium phalænopsis must be potted if necessary.

Damping down must be done twice a day, according to the atmospheric conditions outside. The general stock must be well examined for thrips and all pests. If the blinds are not in readiness, they must be put in order at once.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

IN many gardens where palms are used frequently for indoor decoration this often interferes with repotting them at the proper season. As these will not be required for some weeks for the prupose mentioned above, we are taking the opportunity of examining the stock, and either giving larger pots or tubs to those requiring it, or surface-dressing others. These plants are less liable to injury when used in dwelling rooms if they are somewhat pot-bound, providing the roots are regularly supplied with water, than is the case when they are over-potted, as the soil is apt to become sour and the roots decay. Still it becomes necessary at times to afford slightly larger pots, though with the view of using these as small as possible many of the lower and coarse roots may be reduced, providing the plants are in a healthy condition. A few kentias, from five to six feet high, growing in 7-inch pots, have proved most useful; but it was decided to give them larger ones this spring. We found, as we expected, very little soil left in the pots, which were filled with white, fleshy roots, proving what a length of time palms may be sustained on almost moisture alone. Rich, turfy loam, sharp sand, with a free addition of fine charcoal forms a good compost for palms, dracænas, and other greenhouse foliage plants, the charcoal mixed with the soil being necessary to ensure drainage and keep the material sweet. A close, humid atmosphere, a shady position, and frequent syringing is very necessary to newly potted plants of this description. The green-leaved dracænas, such as D. indivisa, are most useful and ornamental, even when they have lost their lower leaves, as after they have become tall they form good centres for groups, and they also give a sub-tropical effect to the pleasure grounds during the summer when the pots are plunged in the turf. After a time, however, these become too tall for the conservatory, and the present is a good time to arrange for striking the tops; in doing this, the thicker the stems the deeper must be the incision. A good wad of ground moss bound round the cut kept constantly moist will soon induce a mass of roots to appear; but care must be used not to sever the tops from the stem until sufficient roots are secured to sustain the foliage. After the tops of these plants are rooted in this way, a close atmosphere with plenty of moisture is necessary to encourage free growth. Ficus elastica is both useful and ornamental when the stems are clothed with healthy leaves, but any which have lost their foliage should have the tops taken off, placed singly in small pots, filled with sandy soil, and plunged in a brisk bottom heat. Now is a good time to divide and repot Isolepis gracilis which forms a pleasing margin on stages or to groups. Where five or more cuttings of crassula were placed in small pots in the autumn these will have become well rooted and should be shifted into larger pots. Larger plants which are to flower this season should be kept cool and near the glass, or they will grow tall, which is a disadvantage; the pots being filled with roots, liquid manure water may be used directly the flower trusses become visible. Abutilons are useful, especially those with variegated foliage, either for the conservatory or flower beds, and a batch of cuttings put in now will furnish neat plants in a few weeks. Graceful table plants may be obtained by inarching A. vexillarium on to A. Thompsoni with stems two feet or more high. Aspidistras should also receive attention in the way of dividing and repotting where necessary, before new leaves push up; these are most valuable for standing in shady corners, or under taller plants, also for use in dwelling rooms; small pots and sandy soil favour neat variegated foliage.

Cytisus racemosus will soon give a display of brilliant yellow and fragrant flowers; but these lose much of their beauty when the foliage is not of a dark healthy green. Copious waterings are necessary, or the leaves are apt to fall wholesale, while liquid manure once or twice a week will prove of much assistance. Epacris in variety as they go out of bloom should have their shoots shortened back, and be stood together where they can be sprayed overhead; and water sparingly until new growth commences, and then those requiring it may be repotted. Peat, coarse silver sand, and firm potting is necessary. Hydrangeas will produce large heads of bloom in very small pots if the roots are kept well supplied with nourishment. Cuttings struck in sixties last September may be be potted into forty-eights. Give them a rich compost, and place near the glass in a warm frame or greenhouse. Lilium Harrisi will be of great service for Easter decorations, therefore directly the plants show flower, fumigate them, and if placed in a temperature of about 60 degrees, they will come on quickly. It is a mistake to force these plants before the flower-buds form, as they become tall and weak. A surface dressing of rich compost, together with the use of liquid manure will assist to develop fine flowers if afforded early after buds appear. Introduce batches of spiræas, azaleas, lily of the valley, and other things into heat by degrees to maintain brightness in the conservatory, and provide suitable flowers for cutting. Keep vessels containing seedlings well up to the glass, and lose no time in pricking these off directly they are large enough to handle. Push forward the work of propagating all plants that are likely to be required, both for decorating and bedding purposes, and make provision for sowing many of the half-hardy annuals in pans, boxes, or on gentle hot-beds, which must receive attention between now and the end of the month.—RICHARD PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

THE planting of new herbaceous borders may be carried out at the present time, or as soon as the soil is in a condition to work upon. Lists of suitable plants have often been given in these columns, therefore it is unnecessary to repeat names here. In planting avoid straight lines of plants; the tallest growing must of necessity be planted at the back of the border and the shortest in front, but this should not be carried out too strictly; for instance, if plants of medium height be associated with those of taller growth, an undulating outline is obtained, and a breaking up of the flatness or formality otherwise apparent. Many subjects may be propagated now for these borders. Varieties of Michaelmas daisies may be easily increased for planting out a little later on. I find the most convenient method is to take off the side growths or suckers, which are by this time mostly emitting roots, and pot them up into five-inch pots, placing four or five in each, afterwards standing them in a cold frame for a few weeks, by which time they will have become strong clumps for turning out into the borders. These extremely useful autumn-flowering plants are deservedly becoming popular, and whether for border decoration or use as cut flowers, a dozen at least of the best varieties should be grown. For massing, too, some of the dwarf and tall varieties are admirably adapted, and when so used are most effective, such, for instance, as A. amellus bessarabicus growing about two feet in height, and producing an abundance of deep-violet coloured flowers, or A. Nova Belgi Robert Parker, which grows to the height of four to five feet, giving an abundance of sprays of lavender-blue flowers with a yellow centre. Other desirable sorts are A. acris, lilac purple, two feet, early; A. lævigatus, two to three feet, flowers rose-coloured, of compact habit; A. Harpur Crewe and A. Purity, both white flowered, tall, five feet; A. Nancy, pale blue, four feet, good; A. cordifolius Diana, four feet, produces graceful sprays with masses of soft lavender flowers; A. ericoides and A. diffusus horizontalis, handsome small-flowered varieties, three feet; A. Maia, fine large rosy lilac flowers, four feet; A. Tradescanti, a late-flowering species, producing numerous small white flowers on graceful sprays. The deep-green, finely-cut foliage of the last mentioned is handsome, and shoots of this alone are useful for mixing with other cut flowers, and I may here remark that plants of this, grown in pots, form very useful decorative material for the conservatory in October and November. The Michaelmas daisies are so numerous that a small selection is somewhat difficult, but the dozen mentioned give a long succession of flowers, and during the past two years A. Tradescanti has been very good in the open in November. Border chrysanthemums should be increased by cuttings, either for planting out in the herbaceous borders or the reserve garden.

Carnations, growing on outside borders, should have the surface soil stirred about them when in a sufficiently dry state to work easily and the plants be pressed into the ground firmly. Spring bedding plants of all kinds should be similarly treated. Carnation plants wintered in cold pits and frames should be kept well exposed, with a view to planting out as early as possible. The ground should be in good condition, and if convenient, a change in site should be given annually. Calceolarias struck in autumn and wintered in cold frames should have full exposure, unless frosty, pinching out the points of the shoots to induce bushiness. These will shortly need transplanting into cold pits or in a position where they may be protected from sharp frost should such occur. Where flower beds are empty, those intended to be filled with calceolarias may shortly be planted and provided with a temporary shelter of fir branches or other material until partially established, or in the event of frost occurring; when thoroughly hardened a few degrees will do them no harm. Stores of gladioli should be examined, and any decaying corms removed. Some of the commoner and early-flowering varieties as Brenchleyensis may be planted forthwith; the varieties, Colvillei and C. alba are also useful for furnishing cut flowers, and require planting early. Mild hot beds are necessary for the raising of annuals in quantity, and these should now be made up Two parts of leaves, to one of strawy stable manure, will make a suitable bed if built from three to four feet in height, to be trampled firmly while building. After placing on the frame and partially filling with leaves, finish off with three or four inches of sifted light soil, that when finished it shall be four inches from the glass; put the lights on and allow to remain for a week or two to become warmed through. The pruning of roses may be taken in hand with safety now. For garden roses, strong growths may be pegged down, while H.P.'s for exhibition blooms should be pruned-in to two or three eyes. Teas should have all weak growths cut back close, allowing the stronger to remain at considerable length.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

SINCE penning my last notes we have had a sharp spell of winter weather which has checked the all too forward growth in this department. I advised coverings for apricots, and peaches will now need similar treatment, though I place much faith upon a good coping, as this throws off rain, and the mischief is usually caused by frost when the blossom is wet. Pruning and nailing of peaches should proceed, as there is no gain in keeping the trees from the walls when the colour of the bloom can be seen, and as soon as this work is done it will be advisable to give protection. The grower's attention will be needed in the gooseberry and currant quarters, as small birds are most troublesome. I have advised the use of quassia extract and fresh lime, as this is not at all relished by the birds. Many growers leave their bushes very thick with wood in case birds are troublesome, but it is not a good plan. Gooseberries on walls are most useful for late supplies ; such trees should have a good portion of old spur growth removed as they attain age or size, as if all are left small fruits will follow. Gooseberries grown as cordons are most profitable, and they are readily managed and protected. Doubtless this is the best way to grow the large Lancashire varieties, as in the open their quality is superior, and the fruits keep much longer than on bush trees. There are various shapes, from the single to the four-stemmed cordon, and for the latter posts and wire will make an efficient trellis. Now is a good time to give these trees good surface dressing, and I find a liberal top-dressing of guano or fish manure now, whilst the trees are bare, is soon washed to the surface roots, and does much good. There is a saving of space when bush fruits of any kind can be grown as described, and in some gardens such trees may with advantage form the division between the fruit and kitchen gardens, or be made use of as a screen. Vines are often grown against buildings, and with a favourable position fruit may be had of fair quality. Now is a good time to thin out old growths and lay in new wood ; to obtain fruit, there must be ample space. For the last few seasons we have had good fruit on an east aspect. It is a good plan to cut out a fair portion of old spurs and bare wood at this pruning, and, if possible, give the roots a dose of liquid manure.

Raspberry canes may now be cut to the required length and made trim for bearing, and the same remarks are applicable to blackberries. In the case of the former avoid crowding, for, as a rule, far too many canes per stool are left. We always give our bearing canes a good mulch of decayed manure at this season, having a light soil to deal with. Newly-planted canes may now be cut to within six inches of the soil, and it will be a mistake to let them bear fruit or flowers. Canes for autumn fruiting, of such kinds as Belle de Fontenay and October Yellow, should also be cut down to the soil, and depend on the new growth for late fruit. We find Superlative will give very late fruit if grown on a north border, and the canes cut much shorter than is the usual practice. Strawberry quarters will now need cleansing, as they are often left from last September, or even earlier, and weed growth will be troublesome. The plants started into growth very early this season, and some of our summer-planted set, had prominent spikes, but fortunately frost has checked growth before it was too far advanced. Give food to the old plantations, and prepare others for cropping. I am not in favour of digging between the stools ; if it is necessary to renew the surface, this is best done by using a fork, and just burying weed growth. With young plants in light soils, it may be well to tread round each previous to the cleansing process, as loose plants will be the first to suffer from drought. Now is a good time to give a mulch, as then the plants make new surface roots freely. Royal Sovereign grown as an annual will not need food if the ground was prepared well, and here a mulch of short litter will suffice, as this will be bleached and cleansed by exposure, and in condition for the fruits to rest upon, and also be useful to protect from frost and drought. Many growers being obliged to resort to spring planting, and having secured late runners for the purpose, there should be no delay in carefully planting them out. Should the weather be dry, a little litter up each side of the rows will assist growth and arrest drought. Now is a good time to raise alpine strawberries from seed sown in a warm frame ; keeping close to the glass, and pricking out the seedlings in a few weeks' time in good soil in a sheltered border. Many plant runners from last season's plants, and by so doing obtain fruit in advance of those from seed.—G. WYTHES, *Syon Gardens*.

Seaweed in the Garden.—Seaweed has many uses in the garden, and those who are near enough to the coast to secure it should not despise it because it is common there. To begin with, it comes in very useful for throwing over celery in winter in order to protect the tops from frost. Then it affords an admirable top-dressing for asparagus beds, affording a little protection to the crowns, and likewise furnishing them with a little salt owing to the rain washing through the weed, and salt is very good for asparagus. A covering of this in winter and a dressing of wood ashes early in spring will be found to do more good than the rank manure often used, which has a tendency to cause the heads to come crooked. Near the seaside a great deal of seaweed is carted on to the land. A very good plan of dealing with it is to stack it in heaps like turf, but with a layer of old manure, garden refuse, or road scrapings between each six-inch layer of the seaweed. This makes a very useful fertilising heap, which may be drawn upon with advantage for most crops. The seaweed should not be kept too long, as when quite black and decayed its odour is very offensive.—W.

Economic Botany in the West Indies.—The West India Royal Commission appointed to investigate the sugar industry and propose means for the improvement of the West Indian colonies, assert in their report that one of the means to the end in view would be the establishment of a department of economic botany in the West Indies. The Royal Commission states that the botanical establishments in the larger colonies, such as Jamaica, Trinidad, and British Guiana, have already rendered considerable assistance in improving agricultural industries, and they are capable of being made increasingly useful in this respect. In the Windward and Leeward Islands and Barbadoes, small establishments called botanic stations were established a few years ago on the advice of the Director of Kew Gardens, and the results, though not yet extensive, have been of a distinctly promising character. It is evident that to grapple with the present circumstances, there is required for the smaller islands a special public department capable of dealing with all questions connected with economic plants suitable for growth in tropical countries, and we recommend the establishment of such a department, under which should be placed the various botanic stations already in existence. These stations should be enlarged in their scope and character, and be organised on the lines found so successful in Jamaica. In the latter colony it is admitted that intelligent and progressive action in the direction of encouraging a diversity of industries has produced most satisfactory results. To achieve this result has, however, taken more than twenty years of persistent effort, and the Government has spent more than £100,000 during that period on its botanical establishments. The department has distributed seeds and plants at nominal prices by means of the post office, Government railways, and coastal steam service ; it has supplied information orally, or by means of bulletins, regarding the cultivation of economic plants, and has encouraged the careful preparation of the produce by sending agricultural instructors on tour through the island to give lectures, demonstrations, and advice. The special department recommended for carrying on similar work in the Windward and Leeward Islands should be under the charge of a competent Imperial officer, whose duty it would be to advise the Governors in regard to all matters affecting the agricultural development of the islands. He would take part in consultations with the object of improving agricultural teaching in colleges and schools, and of training students in agricultural pursuits, and would attend to the preparation of suitable literature on agricultural subjects. The existing botanic stations should be placed under his supervision, and the charge of maintaining them transferred to Imperial funds.

LITERATURE OF PLANT NAMES.

from [illegible]

IN the course of an interesting contribution to *The Guardian* on the gardener's library, the writer says with reference to those in which plant names receive prominent attention :—

It is pleasant to note that among these many books those written by English authors hold a very prominent place. From the time of Elizabeth to our own day there have been authors who have taken plant-names for their subject, and have written on them with much learning, and very pleasantly. The lead is taken by William Turner, who, in 1548, published "The Names of Herbes in Greke, Latin, English, Duche, and Frenche, with the commune names that Hebaries and Apotecaries use." This is a scarce little book, but was reprinted in 1881 by the Early English Text Spciety, well edited by Mr. Britten. Turner led an eventful and troubled life, and died Dean of Wells ; he wrote many books and travelled much, and in all his travels and troubles his love for natural history was constant, and he was held in high esteem by the great botanists of the sixteenth century, and was much consulted on other parts of natural history, chiefly on birds and fishes. But his books on plants are probably the only ones now read, and with one specimen of his treatment I will leave him. The volume of "The Names of Herbes" begins with Abies :—

"Abies is called in Greke Elate, in English a firre tree, in Duch Emdannen, in French Sapin ; it groweth in the Alpes naturally, and in certeyne gardines plāted and set by mannes hands boeth in Englande and in Germaine."

Gerard must be considered the second English author who did anything for plant-names, though the main object of his great volume was the description and cultivation of plants. With all his many faults and inaccuracies, we owe much to him (though still more to Johnson, the editor of the second edition in 1636) for his diligent search for plants of all sorts, which he cultivated with great skill. In his description of each plant there is a special section for the names, which are given in Greek, Latin, French, Italian, Dutch, &c. At the end of the book is "A Table of such English Names as are attributed to the Herbes," followed by "A Supplement or Appendix unto the General Table, and to the Table of English Names, gathered out of antient written and printed copies, and from the mouthes of plaine and simple country people," and by "A Catalogue of the British Names of Plants, sent me by Master Robert Dauyes, of Guissaney, in Flintshire." By British names he means Welsh names, and the three lists together are the best lists of English names of plants that we have up to the end of the sixteenth century. In 1629 Parkinson published his "Paradisi in sole Paradisus Terrestris," and paid special attention to the English names. About the same time John Ray, one of the most distinguished of English naturalists, who almost anticipated Linnæus in his scientific arrangement of plants (but the time was not ripe for it), published his list of plants growing in Great Britain with a particular account of the names. In 1650 we have the "Etymologicon Botanicum" of S. Skinner, forming an appendix to his "Etymologicon Linguae Anglicanae." It is a full and interesting account of plant-names derived from twelve languages ; but his derivations are fanciful and not trustworthy, as when he says that stock-gilliflowers are so called because both root and stock are as firm and hard as wood, which certainly they are not. A much better book, though not by an English author, is Mentzel's "Index Nominum Plantarum Multilinguis," published at Berlin in 1682, which gives good information about the plants in a small compass and a copious list of names ; *e.g.*, he gives the names of crocus in Latin, Greek, Italian, Spanish, French, English, German, Belgian, Danish, Bohemian, Polish, Lithuanian, Arabic, Indian.

From the end of the seventeenth century till almost the middle of the present century, there is no English book specially dealing with plant-names. Now there are many books on this interesting subject, among which a high place of honour must be given to Dr. Prior's "Popular Names of British Plants." The first edition was published more than thirty years ago, and was soon followed by new editions ; and the book is indispensable to any one who wishes for a scientific account of the names, being far in advance of anything previously published on the subject. The introduction is especially worthy of study, for it contains a masterly account of the many different sources from which our plant-names have been derived. But it was confined chiefly to book names, and took little or no notice of local names, and very little of any common names except those of British plants ; and so something more was required, which was supplied by Messrs. Holland and Britten's "English Plant Names," published in 1886 by the Early English Text Society. Too much can scarcely be said in praise of the care and labour spent on this book ; all local names have been collected and all English names that have at any time appeared in books, except those which are only translations of Latin names and do not pretend to be more. Authorities are given for every statement, and occasional notices on the history of the names, never lengthy and always to the point. In this respect it compares very favourably with another book, Miller's "Dictionary of English Names of Plants," published in [illegible]. This is a long list of names, and that is all ; any and every name has been admitted that could be found anywhere ; no authorities are given, and many of the names are in no sense accepted names, but are either bare translations of the Latin or new inventions of the author and his friends. As a list of names it has some little value, but none beyond that. Professor Earle's little book, "English Plant Names," published in 1880, stands on a very different level. It is confined to the names which occur in the old glossaries to the end of the fifteenth century ; but of those it gives a very complete account and explanation, and the lists are introduced by a scholarly preface, which traces the history of English plant names from the earliest times ; and throughout the little book Professor Earle's great philological knowledge is brought to bear on our English names in a way that makes us feel we can thoroughly trust him, and makes us wish that he had given us more. A still later book, Alcock's "Botanical Names for English Readers," is a popular book, but it is not easy to say why it should be so. It is confined to the scientific names of British plants, of which it professes to give an explanation ; but there is really nothing in it that has not been already given in every good British Flora, especially in Hooker's "Student's Flora," and Syme's edition of Sowerby's "English Botany." The author, however, is far bolder than Hooker or Syme, for, where those authors are content to say of a name that its etymology is doubtful or uncertain, Mr. Alcock has no doubt or uncertainty, and some of his derivations are marvels of boldness. When, for instance, an author attempts to explain the Greek and Latin names of plants and tells us that *aira* (a Greek name used by Aristophanes for some grass or weed) is from "Gk. *airo*—to take because of its injurious effects ;" that *hippuris* is from "Gk. *hipp*—a horse, and *oura*—a tail ;" and that *hellebore* is from "Gk. *hele* (*helein*)—to take away or remove, and *bora*—food," we can only pity those who take him for a guide.

There are many other books more or less connected with English plant names. Comber's "Etymology of Plant Names" (1876-7) is a satisfactory account of the names of "fruits and edible berries, kitchen vegetables, and salad plants," but is confined to these. Cameron's "Gaelic Names of Plants, Scottish and Irish" (1883) is an interesting account of the native names given to the plants of Scotland

land and Ireland, which in no case seem to have any connection with our English names; and he speaks with approval of Gerard's list of Welsh names, already noticed. And not only in England, but in almost every civilised country books have been published on plant names. Some are complete dictionaries, or profess to be so, as J. and W. Grimm's "Deutsches Wörterbuch," Nemmich's "Nomenclator Multilinguis," Ulrich's "Internationales Wörterbuch," in which the names are given in Latin, English, German, and French; and the "Catalogo polyglotto delle Plante," by the Contessa Aima de San Giorgio; but in none of these are the notices of English names quite satisfactory, though the last-named authoress was an Englishwoman, "*nata* Harley d'Oxford." With these we may join Seeman's "Popular Nomenclature of the American Flora," because, though confined to the American flora, it was intended as an introduction to the popular names of plants of the whole world—a large design which, unfortunately, was not carried further.

A strong effort has been lately made to popularise plants, especially exotic plants, by abolishing the Latin names and inventing new English names. On this vexed question I wish to say very little, except that I entirely dislike it, and am glad to see that the effort has been successful only to a very small extent. But there is nothing new in the effort. All the old writers, Gerard, Turner, Parkinson, Coles, Miller, and others, always gave English names with the Latin names, but for the most part the names given were only translations, and did not pretend to be more. It was the same with the great botanical works of the present century, as the *Botonical Magazine*, the *Botanical Register*, and the works of Sweet, Andrews, Lindley, and others, but in 1871 the *Botanical Magazine* gave up the practice. In the "Handbook to the British Flora" Mr. Bentham went a step further, and, largely dropping the old common names, he made an attempt to keep the Latin names in an English dress, but it did not become popular; and that is not surprising when we find among the suggestions such names as Common lapsame (*Lapsana communis*), six-stamened elatine (*Elatine hexandra*), procumbent helioscad (*Helioscadium nodiflorum*), maiden-hair adiant (*Adiantum capillus veneris*), sea peucedane (*Peucedanum palustre*), &c. We need only turn to Miller's "Dictionary of English Names of Plants," noticed above, a book written specially to advocate the giving English names to all plants, and we see at once that names are not made more simple by that means; but that it ends in confusion worse confounded. Two instances will suffice. For the English names of calochortus we have "butterfly tulip, butterfly weed, mariposa lily, wild tulip of California"; and as the English names of Eucalyptus resinifera we have "Botany Bay kino tree, gray or red gum, hickory of New South Wales, leather jacket, red mahogany of New South Wales." I prefer the simple and well-known names calochortus and eucalyptus.

However, I leave this vexed question, because I know there are many who go much further, and who despise not only scientific names for plants, but all names, whether scientific or trivial; and I have known some who have travelled far and wide with a real love for all that is beautiful in Nature, but with no wish to know anything of the history of the countries in which they travel, and still less of their geology, flora, or fauna. Such people have an utter contempt for all names of plants; they often have a keen eye to the beauties of Nature and to all natural scenery, and they delight in the forms and colours of flowers, birds, and insects, but they go no further; all that they see are simply pretty, or it may be grand, pictures, but no more; and to them the primrose by the river's brim is not even a primrose—it is but a spot of bright yellow in a green setting. Such travellers are in no sense naturalists; and if, as they often do, they publish their travels, the book is of no practical use; whereas a little trouble in finding out even the common names, and still better the scientific names of the flowers, birds, and insects, would have enabled many readers to see something of the scenes, and to share in the pleasure which the author found in his walks. But they will not, or do not, take this trouble, and content themselves with prefacing the account of their travels with the excuse for the barrenness of their descriptions—"I make no pretence to any scientific knowledge of any part of natural history."

But for those who wish to take a really intelligent interest in their gardening this studies, I would say this—plant names, family names, river names, field names, bird, beast, and fish names have all been the study of many learned men; and in our day, when everything that connects us with the past is sought out and commented on, the study of names of all sorts holds a high place in the estimation of scholars. And it is well worth noting how the unlettered savage and the great scholars meet on common ground in their respect for names. Ths savage gives life to every great object he sees—mountains, rivers, and hills; and he shows that they are to him living objects by giving them names, and when once so named they become to him sacred, and in many cases objects of worship, but not before. Travellers have noticed this in many parts of the world. Dr. Nansen, in his "Eskimo Life," tells us that in Greenland a man's name is not an adjunct, but an absolute part of the man: The name is as large as the man, and remains with him after death, and during life the name has a great influence on the man." He traces the same among the Norwegians, Lapps, Indians, and others; and that this respect for names, simply as names, is not confined to half-civilised nations we may see if we only go to our Bibles, where the value and almost sacredness of names of every sort is very remarkable. The old herbalists, when writing about plant-names, were delighted to think that they were treading in the steps of King Solomon, who "spake of trees, from the cedar tree that is in Lebanon unto the hyssop that springeth out of the wall," and so must have known their names.

But, putting that aside, I say without any hesitation that those who take delight in plants and flowers will find a fresh and lasting delight if they will study the names of the plants and flowers which they love. The two things are closely bound up together, but they never so clash that the pleasure taken in the one pursuit will interfere with the pleasure of the other. And if any are inclined so to add to the pleasures of their garden, the object of my paper is to show them that they may easily find many helps in the study, some of little value, perhaps, but most of them useful and trustworthy.

A New Raspberry-Blackberry Hybrid, has been raised by Mr Burbank, says the *Rural New Yorker*, and has been named Phenomenal. It is described as of a crimson raspberry colour, as productive as could be desired, and the most delicious of berries for canning and drying. The fruit grows in clusters of from five to ten or more, the individual berries measuring three inches around one way and four the other, weighing one quarter of an ounce each. It is claimed that this remarkable plant is hardy.

A MOST WONDERFUL BUILDING up of the constitution takes place after Holloway's famous medicines have been used for a reasonable time. They are pre-eminent above all other remedies, more particularly for the cure of liver complaints and disorders of the stomach; [illegible], bricklayers, &c. would find the Ointment invaluable for curing wounds, cuts, sores, [illegible]. Men in all conditions of life find it of incalculable benefit, as it penetrates internally, and thus strikes at the root of the ailment. The Pills act like magic in curing low spirits, and they repel all attacks on the nerves through excitement, excessive heat, brain worry consequent on business troubles, &c. They purify the blood, and give a new lease of strength to the constitution.—[ADVT.]

NEW PLANTS, FLOWERS, AND VEGETABLES.

PHAIUS NORMAN.

THIS is a most beautiful and distinct phaius, a hybrid between P. Sanderianus and S. tuberculosus. The growth is vigorous and erect, and the spikes are tall, and carry big attractive flowers. The blooms are about five inches across, with spreading sepals and petals of a rosy metallic hue, veined with carmine. The large spreading lip has old-gold coloured side lobes and base, a bright reddish-brown area veined with yellow and red, a front lobe of deep rose speckled with deep red, and a long golden disk spotted with red. F.C.C., R.H.S., March 8th. Messrs. Charlesworth and Co., Heaton, Bradford.

PHAIUS NORMAN ROSEA.

This is scarcely so robust as the type, and differs in having clear rosy sepals and petals, more yellow in the throat of the lip, and a more reddish front lobe to the latter organ. F.C.C., R.H.S., March 8. Messrs. Charlesworth and Co., Bradford.

PHAIUS NORMAN AUREA.

This form is as robust as the type, but has yellowish sepals and petals, and a yellowish base to the lip. The latter organ is also somewhat lighter than in other forms, but none the less beautiful and effective. All these three phaius are the result of seed produced in the same pod. A.M., R.H.S., March 8. Messrs. Charlesworth and Co.

LÆLIO-CATTLEYA WARNHAMENSIS.

A most brilliant hybrid with flowers four to five inches across; the sepals are somewhat narrow and of a curious shade of colour, yellowish with an orange-scarlet suffusion. The petals are broader and of a curious carmine hue, overlaying an orange ground; lip long and frilled, rich carmine at the apex with a bright orange yellow throat. A.M., R.H.S., March 8. Mr. Duncan, gardener to C. J. Lucas, Esq., Warnham Court.

DENDROBIUM ASTRÆA SUPERBA.

A handsome dendrobe with creamy sepals, and petals all tipped with deep rosy-purple. The lip is broad and long, creamy white with large orange base and dark brown stripes; the front lobe is tipped with deep rosy-purple. A.M., R.H.S., March 8. Mr. N. C. Cookson, Oakwood, Wylam-on-Tyne.

ODONTOGLOSSUM WILCKEANUM PITTÆ.

A remarkably beautiful odontoglot, and as robust as beautiful. The spike carried seventeen large flowers, and these have a rich yellow ground colour, on which are large and small blotches of rich chocolate-red. The edges of the segments are all slightly toothed and waved. Lip large, yellow, blotched with chocolate red, and with a gold disk striped with red. F.C.C., R.H.S., March 8. Mr. H. T. Pitt, Stamford Hill.

DENDROBIUM AINSWORTHII WOODHATCH VAR.

This is a superb form of a well-known hybrid, and surpassing it in size and effectiveness. The large segments are of a creamy-white hue, and the central purple area of the lip is of a deeper shade than usual. A beautiful orchid that is bound to become popular. A.M., R.H.S., March 8. Mr. Salter, gardener to J. B. Haywood, Esq., Woodhatch Lodge, Reigate.

CATTLEYA MIRANDA.

This is a bold cattleya obtained by crossing C. guttata Prinzi and C. Trianæ. The growths are stout and elongated, each bearing at the apex a pair of large leathery leaves. The sepals and petals are of a bright-rose colour, splashed and dotted with bright violet purple; the latter are two and a half inches long by an inch and a half broad. The lip has pale-rose side-lobes that clasp the column the whole of their length, thus forming a tube; the apex consists of a rich purple lobe frilled with deep violet purple. A.M., R.H.S., March 8. Messrs. J. Veitch and Sons, Chelsea.

HIPPEASTRUMS.

Navala is a splendid round form and a large flower; colour, bright-orange with white featherings at the bases of the segments. A.M., R.H.S., March 8. Messrs. J. Veitch and Sons, Chelsea.

Princess Osra is a most beautiful hippeastrum, with deep and intense orange scarlet flowers having a white centre and a clear and pure white band down the centre of each segment; a fine round flower of great size and substance. A.M., R.H.S., March 8. Mr. A. Chapman, gardener to Captain Holford, Tetbury.

AZALEA GRANDIFLORA ALBA.

A first-rate large-flowered and single azalea, with bold white flowers that measure almost five inches across. There is a yellowish tinge at the base of the segments, but not sufficient to detract from the general beauty of the variety. A.M., R.H.S, March 8. The St. George's Nursery Company, Hanwell.

CUCUMBER EVERY DAY.

We described this useful cucumber in our issue of February 12, and refer to it now because, after further consideration, the Fruit and Vegetable Committee consider it worth a first-class certificate. The fruits are handsome, bright green, and glossy, and with little waste. F.C.C., R.H.S., March 8. Mr. Owen Thomas, gardener to H.M. the Queen, at Frogmore, Windsor.

AGAVE SHOTTI.

A distinct species from Arizona. The linear leaves proceed from an ovate base, are a foot long, and form a dense rosette; the edges break away into slender fibres. The inflorescence rises to a height of four to five feet, bearing towards the apex a large number of bright yellow flowers. A specimen that flowered at Kew last year, and is figured in the *Bot. Mag.* t. 7,567, was purchased at the sale of Mr. J. T. Peacock's collection in 1889.

QUILLAJA SAPONARIA.

This is a Chilian tree with oblong leaves about an inch and a half in length and greenish yellow flowers about two thirds of an inch across. The tree is remarkable for the hardness of its wood, but more so for the saponaceous character of its bark; the bark is largely imported for the preparation of detergent hair washes, and it has been used for the purpose of revivifying stale beer. A specimen flowered last year in the celebrated garden of Mr. T. Hanbury, La Mortola, Ventimiglia, and a spray is figured in the *Bot. Mag.* t. 7,568.

Asparagus Sprengeri, a species from Natal that has gained much favour in this country on account of its long graceful growth and ferny foliage, has become wonderfully popular in the United States, where the market growers cultivate it on a very large scale. As a plant for home decoration it has been found to accommodate itself to the dry atmosphere of the living-room in a manner that has far exceeded the most sanguine expectations.

SCOTTISH HORTICULTURAL ASSOCIATION, March 1.

THIS robust and thriving society, which attains its majority this month, and seems to be advancing in numbers and in usefulness by leaps and bounds, held a very successful meeting on the above date. The meeting was held in Dowell's Rooms, Edinburgh, under the presidency of Matthew Todd, Esq., the genial president. After the usual minutes were passed and new members admitted, Mr. Todd called on Mr. Ireland, of Broughty Ferry, to give his lecture on "Orchids." The lecture was profusely illustrated by some fifty lantern slides photographed by the grower and lecturer—Mr. Ireland, so that we had the grower, the artist, the naturalist, and botanist all in one, and consequently one of the most pleasant and profitable evenings arranged by this useful society for its rapidly increasing members. It was only in the present century, Mr. Ireland pointed out, that orchids had excited absorbing interest or commanded much attention. They were, until a comparatively few years since, grown merely by the wealthy few, but of late years the number of collectors in all parts of the world had greatly increased, and we hear of 10,000 or 20,000 orchids in different centres of wealth and population. Mr. Ireland proceeded to ask and answer the question of what was an orchid in a lucid and interesting manner, as well as the equally difficult one of the cross-breeding of orchids, which had had such valuable practical results, as carried out by nurserymen and amateurs on the principles of Darwin. He then proceeded with most interesting historical and cultural notes on some of the more popular and beautiful genera, species, and varieties, such as lady's slippers, cattleyas, cœlogynes, lælias, lycastes, odontoglossums, oncidiums, dendrobiums, and vandas. On the motion of Mr. Dunn, supported by the President, a hearty vote of thanks was awarded to Mr. Ireland for his most interesting and instructive lecture.—D. T. F.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

ONE of the largest atttendances of members during the present season assembled on Monday evening last in the Club Room, under the presidency of Mr. C. B. Stevens, to hear a paper on "The Cultivation of a Few Useful Flowering Plants for Stove and Warm Greenhouse," by Mr. Townsend, gardener to Sir William Farrer, Sandhurst. The large attendance fully testified to the esteem in which Mr. Townsend is held, and appreciation of the services rendered by him in adding to the interest of the society's meetings by continued exhibits of interesting flowering plants, &c. The lecturer, in introducing his subject, said that in taking up the subject for the evening, he would treat with those plants which, with proper treatment, are easily managed, and are for the most part inexpensive to buy, and are prettier than houses of chrysanthemums which are grown in far too large a quantity in most private gardens, to the detriment of many beautiful flowering plants. The following subjects were touched upon, and short but ample cultural instructions were given of each:—Achimenes, Begonia manicata, B. Ingrami, B. fuchsioides, B. insignis, B. corallina, Justicia speciosa, J. flavacoma, Heterocentrum roseum, Centradenia rosea, Centropogon Lucianus, Clerodendron splendens, C. Balfouri, Scutellaria mocciniana, S. pulcherra, Eranthemum pulchellum, Thrysacanthus rutilans, Dendrobium nobile, Anthurium Scherzerianum, Phaius grandifolius, Zygopetalum Mackeyi, Libonia floribunda, Habrothamnus Newelli, Streptosolon Jamesoni, Salvia Pitcheri, Diplacus hybridus splendens, Torenia Fournieri, Exacum affinis. A lengthy discussion took place, which drifted chiefly to the advantage or disadvantage of pruning Dendrobium nobile. A hearty vote of thanks was accorded Mr. Townsend for his unique and practical paper.

An interesting collection of cut blooms was exhibited by the lecturer, the most noticeable being Centradenia rosea, Clerodendron Balfouri, Phaius grandifolius, Zygopetalum Mackeyi, Habrothamnus Newelli, Streptosolon Jamesoni, and the various begonias named above. Mr. Bound, Bill Hill Gardens, showed some blooms of a good type of Dendrobium Finleyanum, and Odontoglossum Rossi major.

MARKETS.

Covent Garden.

OWING to the short supply and keen demand for good fruit, prices are high. Oranges are moderately cheap. Vegetables fairly plentiful, but prices are rising. Potato trade slightly better than of late. Cut flower trade good.

FRUIT.— English grapes, 2s. to 3s. per lb.; Almeria, 12s. to 20s. per barrel; American and Nova Scotian apples, 12s. to 28s. per barrel; bananas, 5s. to 10s. per bunch; pineapples, 2s. 6d. to 6s. 6d. each; lemons, 8s. to 15s. per case; French pears, 6s. to 8s. 6d. per crate; Valencia oranges, 8s. to 16s. per case; Jaffa, 8s. to 12s. per box.

FLOWERS.—Arums, 2s. to 3s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 6s. to 9s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s. 3d.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinth, 4s. to 6s.; daffodils 4s. to 6s; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 4d. to 6d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Canary tomatos, 10d. to 1s. 6d. per tray, 3s. 6d. to 4s. 6d. per case; celery, 6s. to 12s. per dozen bunches; seakale, 12s. to 18s. per dozen punnets; eschallots, 2s. to 2s. 6d.; mushrooms, 6s. to 8s. per 12 lb.; English onions, 5s. 6d. to 7s. per cwt.; Valencia, 6s. 6d. to 9s. per case; Brussels sprouts, 2s. to 3s.; spinach, 2s. to 2s. 6d. per bushel; savoys and cabbages, 3s. 6d. to 5s, 6d. beetroot, 2s. to 3s. per tally; Italian cauliflowers, 2s. 9d. to 4s. per basket; Cornish broccoli, 6s. to 8s. per crate; cucumbers, 4s. 6d. to 7s. 6d.; French lettuce, 9d. to 1s. 3d.; endive, 1s. 3d. to 1s. 9d. per dozen; rhubarb, 1s. to 1s. 6d. per dozen bundles; carrots, 2s. 6d to 3s. 6d.; green mint, 4s. to 5s. per dozen bunches; asparagus, 2s. to 8s. per bundle; new Canary potatos, 10s. to 15s.; Malta, 16s. to 18s. per cwt.

Borough Potato Market.

No quotable change in price is reported; supplies are large, and the demand is steady.

Dunbars, 110s. to 120s.; Hebrons, 85s. to 100s.; Snowdrops, 80s. to 90s.; Bruce Maincrop and Sutton's Regents, 80s. to 85s.; Reading Giants and Saxons, 80s. per ton; Belgians, 3s. to 3s. 6d.; Germans, 3s. 6d. per bag.

Examples Worthy of Imitation.—One of the most pleasing features of the great chrysanthemum show of the Scottish Horticultural Association is the annual sale of flowers, &c., for the Royal Gardeners' Orphan Fund, this realised £30 10s. The sale was, we believe, under the management of the president, Mr. Todd, with the Misses Todd. Mr. H. J. Jones, of Lewisham, also adopts the excellent plan of keeping a special collecting box for the orphans through the chrysanthemum season, which gathered last year £14 3s. 1d.—the two making a total of £44 13s. 1d.—in addition to the £50 of its profits given to the same fund by the Scottish association. It is to be hoped that many more societies will go and do likewise.—D. T. F.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Four-Stemmed Hyacinth Spike.—S. C., Crouch Hill: The specimen sent was a curious example of fasciation, the four spikes being so tightly pressed together at the base as to become joined. If all the force of the bulb had been concentrated in the first instance on one good spike the result would have been better. It would appear that as soon as the four spikes proved too much for the bulb it endeavoured to bind them; too late, however.

Fringed Primula.—R. T., Tunbridge Wells: The primula sent is a very pretty one, but the flowers are scarcely large enough for modern growers. The flowers, however, are beautifully frilled and fringed, while the colouring is most attractive. The foliage is also distinct. If the habit is good and flowers are freely produced in large trusses it would be worth while to increase the stock now that the variety is fixed. You might submit a specimen to some nurseryman or seedsman who makes a speciality of primulas, just to test its value.

Currant Bud Gall Mite on Filberts.—E. H., Hailsham: We have never seen filberts infested with the bud gall mite previously, although the birch is sometimes badly attacked. Whether the same species (*Phytoptus ribis*) attacks all three, or whether there are several species, has not yet been ascertained. Too often the commencement of bud gall mite attack passes unnoticed, and so the bushes are infested before one is aware of the fact. Now that black currants are being so badly attacked it becomes the duty of every grower to carefully watch his bushes and remove swelled buds directly they are noticed.

Properties of a Good Primrose and Polyanthus.—A good primrose should have large flowers borne on stout stalks, so as to bring it [illegible] the foliage. The bloom must be regular in outline, clear in colour, flattish, [illegible] with the tube well filled with anthers. The properties of a good primrose [illegible] not so exacting as with the case of auriculas and polyanthuses. In the latter there must be a stout peduncle not too tall, carrying a large and full truss of flowers [illegible] "pips." Each flower must be regular, flat, and of a bright colour; the [illegible] tube should be well filled with anthers. In the case of gold-laced [illegible] the lobes must be evenly edged with yellow, and the edging must cut through the brown, red, or black of the lobe, and meet the central golden area. The [illegible] should be full and rounded, instead of loose and flat; disbudding is [illegible] necessary to ensure a good truss of finely-developed flowers.

Fungus on Chrysanthemums.—T. W. B, Sheffield: Your young plants are suffering from an attack of the Chrysanthemum Leaf Rust (*Trichobasis* [*Uredo*] *Chrysanthemi*), a fungus not unlike the Carnation Rust in many respects, and one that has done a large amount of damage in recent years. Your best [illegible] will be to cut away and burn all affected foliage, and dip the plants in a solution of sulphide of potassium, using half an ounce of this to one gallon of water. [illegible] the attack is very light it may not be necessary to remove the foliage, but [illegible] gently rub the fungus spots while dipping the plants. Where the stock is [illegible] to be affected it is a good plan to dip the plants at frequent intervals in [illegible] sulphide of potassium mixture until all signs of the fungus have disappeared. Over propagation and a close and moist atmosphere have probably placed [illegible] young plants in a position to court attack.

Caterpillars Attacking Herbaceous Plants.—E. H., [illegible] The specimen sent belongs to the ravenous group of Surface Caterpillars, [illegible] member of the genus Agrotis, and closely allied to the Heart and Dart moth. The mild weather has persuaded it to leave its winter quarters and feed upon the more succulent of the herbaceous plants; later on, if not destroyed, the caterpillars [illegible] turn to brown chrysalids, and a month after that the moth will appear and [illegible] lay eggs from which another generation of caterpillars hatch in a fortnight. Feeding is generally done at night. The best means of ridding the border of these pests is to lightly fork the surface and pick out the caterpillars as they [illegible] turned up, as they seldom go lower than three inches after they have [illegible] feeding. Fresh gas lime will quickly kill the caterpillars, but cannot be used [illegible] there are growing plants, as it would kill them. If, after careful searching, [illegible] still troubled with the pests it will be well to consider the advisability of [illegible] the plants to another site next autumn, gas liming the old border a [illegible] months before any other crop is inserted.

Crickets in Vineries.—T. W. B., Sheffield: There are many means [illegible] which crickets may be prevented from over-running vineries or other plant [illegible] fruit houses, but in every case as much depends upon the persistence of [illegible] operator as the means employed. The great failing is that if the remedy [illegible] effect its purpose at once to consider it worthless. Mix an ounce of arsenic [illegible] half a pint of honey and place portions of the mixture on pieces of glass [illegible] earthenware; stand these about the house where the crickets are plentiful [illegible] evening, and remove them in the morning. On no account admit [illegible] domestic animals to the houses where such poisonous baits are [illegible] mixture should serve for three successive nights provided it is not all [illegible] that period it will become too dry to tempt crickets and cockroaches. [illegible] sized box with holes bored in sides and top, and filled with [illegible] oatmeal mixed with dry salt, will also prove an attractive trap. If the [illegible] the crickets frequent can be found, pour some carbolic acid into them. [illegible] keeping to the honey and arsenic it will be advisable to tempt the crickets [illegible] times with white powered arsenic mixed with roasted apple; this can be placed about the houses like the honey mixture. In all instances be very careful, for arsenic is a deadly poison. Rhubarb leaves are said to be palatable and poisonous to crickets; we have not tried them.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

J. T., Drighlington: Oncidium splendidum, a very good form.

S. F. C., Crouch Hill: 1, A species of Amomum, send when in flower; 2, Maranta bicolor.

S. M. C., Uppingham: One of the numerous florists' forms of the double Anemone coronaria. It is quite hardy, but can be grown in frames or greenhouse.

W. T., Hull: A double form of Narcissus pseudo-narcissus.

L. S. P., Stockport: 1, Chionodoxa Luciliæ; 2, Scilla præcox; 3, the common snowdrop, Galanthus nivalis.

S. A., Lincoln: 1, Dendrobium heterocarpum; 2, Odontoglossum cirrhosum.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

G. V., Wotton: The apple is Bess Pool.

H. G., Isle of Wight: The variety is apparently not known, and is probably a local one. If you have a good dish of fruits left send some along to the next R H.S. meeting, together with a letter stating what you know of the variety. Give the variety a name and enter it to come under the notice of the Fruit Committee. Ryde Beauty, Island Queen, or some such name would be appropriate, and give some idea of the origin of the variety.

Communications Received.—J. T.—S. F. C.—S. M. C.—W. T.—L. S. P.—S. A.—G. V.—H. G.—R. T.—S. C.—E. H.—G. R.—G. H. H.—W. M.—W. G.—S. C.—R. L. H.—W. L.—B.—A. S.—W. G.—D. R. W.—J. C. T.—G. S.—D. T. F.—H. C. P.—J. L. and S.—W. C.—A. C. R.—R. W.

N.C.S. ACCOUNTS.

THERE are several items in the recent statistics that need further explanation. Take, for instance, the two that bulk out so heavily in show expenses—cartage and the hire of plants As for the first, most exhibitors elsewhere pay their own, and have not seldom found that the cost has equalled or exceeded the prizes. But the hire of plants for a great National society's show seems quite unique, and, so far as my knowledge extends, altogether unknown in the provinces. It cannot be that exhibitors are paid for the hire of their plants, else they might be paid twice for the same material—once in prizes and again in hire. We have seen and read a good deal of the evils of overcrowding at chrysanthemum and other shows, but until your issue of March 5 never remember to have read of such sums as £18 15s. 9d., £61 5s., £19 7s. 6d., £17 6s., &c., being paid for the hire of plants as in the case of the shows of the National Chrysanthemum Society. Surely, with the cream of chrysanthemum growers among its members as exhibitors, there should be no space for hired plants at its great shows. Such practices may admit of explanation and justification, but meanwhile not a few distinguished growers fail to see how this hiring of plants contributes to the proficiency of exhibitors, or to the adornment and ennoblement of the science and practice of horticulture.

D. T. F.

OBITUARY.

MR. RIVERS H. LANGTON, we greatly regret to announce, died a few days since at his residence at Hendon, after a brief illness, at the age of thirty-six. Mr. Langton, who succumbed to pneumonia, following on influenza, was an ardent lover and successful exhibitor of the rose, and was a highly-respected and active member of the committee of the National Rose Society. At the meeting of the committee of this society on Tuesday last, much regret was expressed that the society should have lost so valuable a member, and a vote of condolence with the members of his family was unanimously passed. His cheery, helpful presence at the exhibitions and meetings he was in the habit of attending will be sorely missed by his many friends. It is proposed to show the estimation in which Mr. Langton was held by presenting to the National Rose Society a memorial cup, to be competed for by amateurs.

THE BARDNEY SEED FIRM.

SOME nine miles from Lincoln is the town of Bardney. It is the centre of a typical agricultural district. The land is, almost without exception, devoted to farming and market gardening, and this part of Lincoln is noted for its extensive seed farms, which is small matter for wonder, considering the fine system of drainage and irrigation, by which many a square mile of land has been converted into an area that is naturally productive.

On entering Bardney the first object that attracts the attention of the visitor is a modern building of large proportions, with a vast amount of storage area, and with up-to-date accommodation and conveniences for the reception of produce, and light and well-ventilated offices included in the construction. If there is one feature that constitutes the local lion, surely here it is; and the proprietor of the concern, Mr. William Sharpe, is as courteous as his business is prominent. The Bardney seed firm of Messrs. John Sharpe and Son was founded by Mr. John Sharpe, and by him carried on with increasing success until he was eventually joined in the conduct of the business by his son, and on his becoming a member of the firm the prosperity became so marked that, upon his assuming a felicitous domestic responsibility, the auspicious occasion was marked by the passing of the entire commercial control into his hands. Mr. John Sharpe still resides at Bardney, and, although enjoying a well-earned rest, he still takes an active interest in matters pertaining to horticulture, as witness the private gardens attached to his residence, and the range of vineries that adjoin it, which, in season, are of much interest. The gardens are in the charge of Mr. W. Rowland, a trusted servant of many years' appointment, whose pride it is to show to visitors his various stocks and stores.

Of the evolution of the seed business, which forms the chief consideration of the present article, is may be said that, at the present time, Messrs. Sharpe's seed specialities are grown in the Royal Gardens; that large consignments are dispatched in every direction to British and foreign orders; that Governmental contracts for cereals, cultivated for consumption in prison and convict establishments, and, therefore, owing to the simplicity of the dietary, subject to exacting experimental scrutiny; and last, although by no means least, that the productiveness of the seeds sent out is claimed to be of a very high percentage. These are sufficient proofs, were they wanted, that the gradual but substantial development of the business is assured, since it is apparently progressing upon right lines. As in the case of all leading seed growers, there are extensive trial grounds, which are situate round about Bardney; so that, in the case of their own novelties and of other leading varieties originally obtained elsewhere, the stock is very carefully tested, and grown under close personal supervision with the additional advantages to constitution and habit obtainable from cultivation in this favourable district. To meet the requirements of the times, new things are called into being, and the list of introductions brought before the horticultural public during recent years would probably form no inconsiderable list.

Especially is the kitchen garden laid under tribute. In 1895 appeared the Early Eight Weeks' pea of medium height, healthy growth, and asserted to be the earliest known variety. A later introduction that has been put upon the market this season, in fact, is King of the Earlies, which ought to rank royally amongst the table delights of the season, since it has a generous flavour and culinary excellence. It is also of very fair growth, and its podding capacity is ample; considerations that should win for it universal appreciation. A very fine tall-growing pea is the Duchess of York, a marked improvement among second early varieties, and it has been described by one who has a reputation at stake, as the best wrinkled pea he has ever seen; a good bearer and of exquisite flavour. To the cultivation and production of beans much attention has been given with unusually good results. The Elephant Long Pod is one of the latest; it is of remarkable length, and a photo submitted illustrates a well-formed bean of good size, and abundant in seed. It is dwarf of habit, very early in ripening, and promising well for exhibition, if only ordinary care be bestowed upon it. Another variety, Lincolnshire Mammoth, is also claimed to be an acquisition to the table, and a pronounced success for show purposes. Much attention is also given to the cultivation of potatos, the most noteworthy varieties introduced by this firm being: Lucania, an early white kidney of excellent quality and a splendid exhibition variety; Early Six Weeks, said to be the earliest round yet sent out, and although a coloured variety, has proved most valuable on light land; Campania is of this year's introduction, and is likely to prove one of the most valuable varieties sent out for many years; it is a heavy cropper, and ready to lift at the same time as Victor; Mainstay is an oval-shaped variety, quite free from disease, a prodigious cropper, and met with much success on the exhibition table during the past season. At the Liverpool root show, held on October 9 last, Mainstay won the first prize as the best late variety, also a special prize for the best dish or dishes of potatos, and a special prize for the best dish of potatos any other shape except kidney or round. These are but a few items selected from an exhaustive list of good things, equally suitable for the kitchen garden.

Ample provision is made in flower seeds, this section of the business receiving much thought and care. The nurseries devoted to their culture are under skilful and adequate management, while no expense is spared to secure the best results. The cineraria is a favourite here, as, indeed, everywhere. Bardney Beauty is noted for its fine blooms and distinct colours. The sustained popularity of the aster for all purposes has led to the inclusion of many beautiful varieties of this justly popular flower. An exceedingly graceful sort, Improved Giant Comet, has

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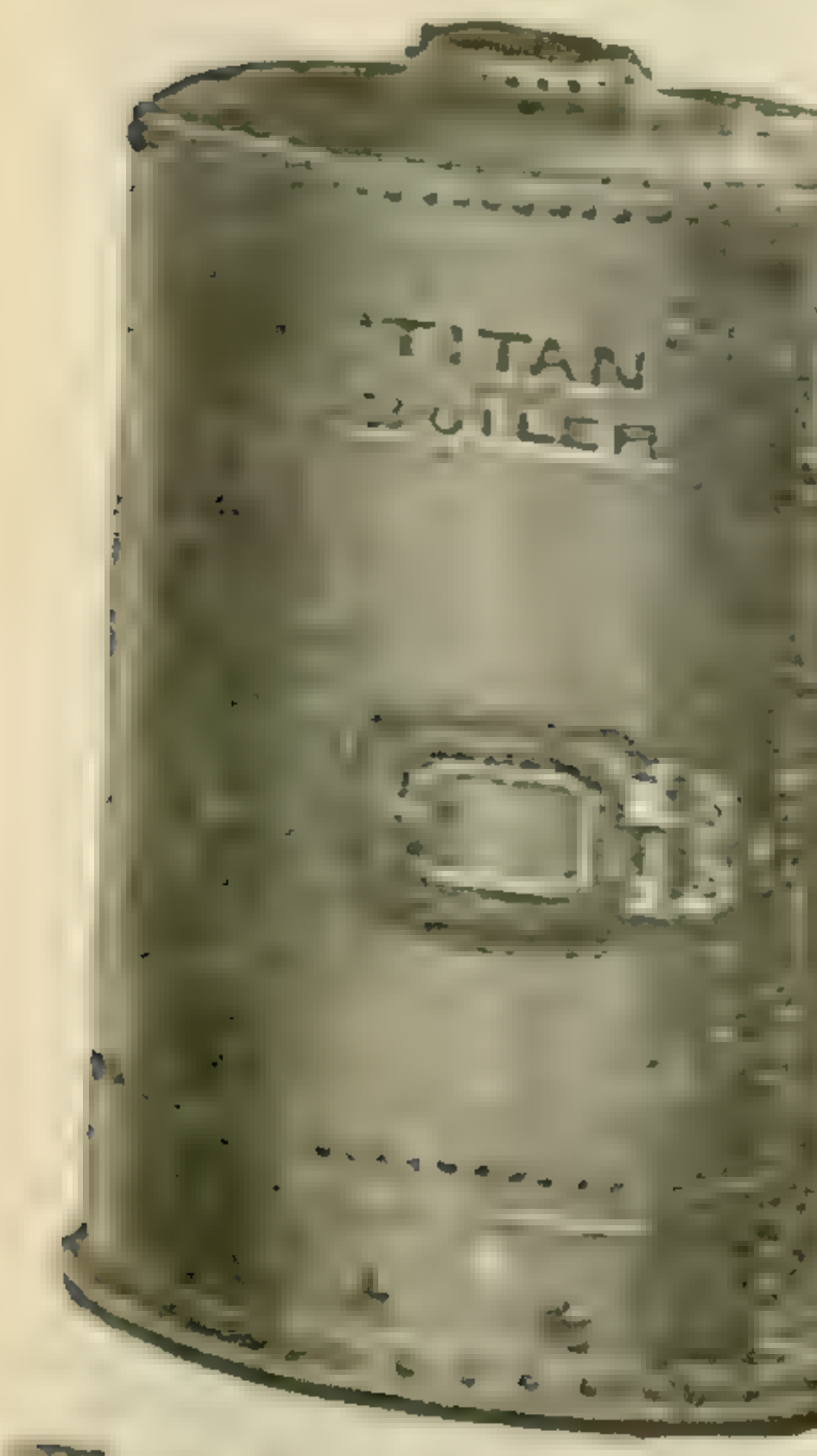

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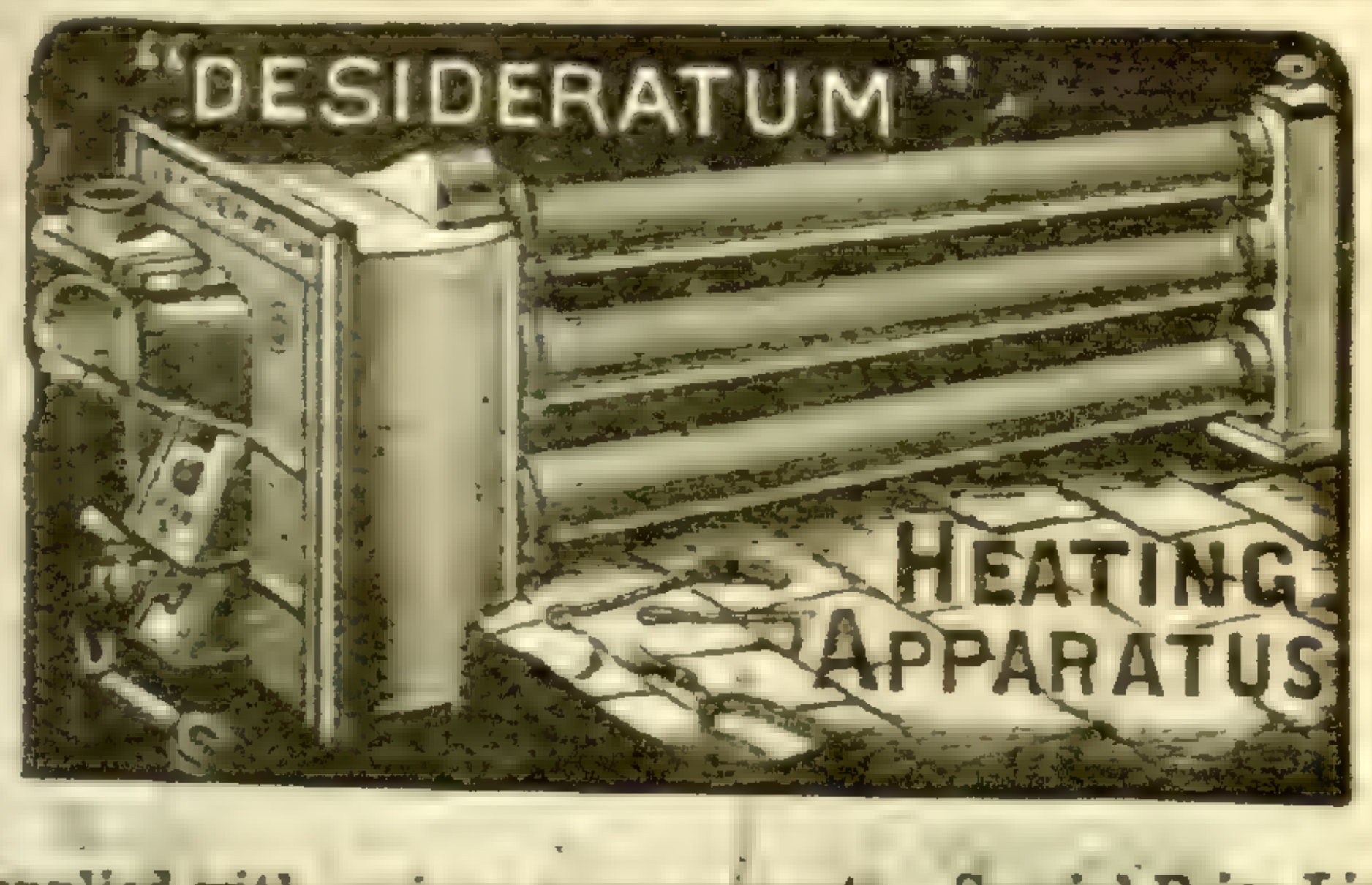

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a profusion of graceful ribband-like petals of varied hues; it is a large and very free bloomer, lasts long in perfection, and is equally adaptable for pot purposes or for out of doors. New Barcney is another charming variety, being more compact of form than the preceding, but exceedingly free, and of special value for garden embellishment. Border flowers include many promising specialities, particularly of the kinds more commonly in request. In this group are many choice strains deserving a trial. For growth under glass there are superb Double-fringed Petunia, Perfection Giant Primula, and Selected Giant Gloxinia, all good things to be included in the seed list.

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NEW INVENTIONS.

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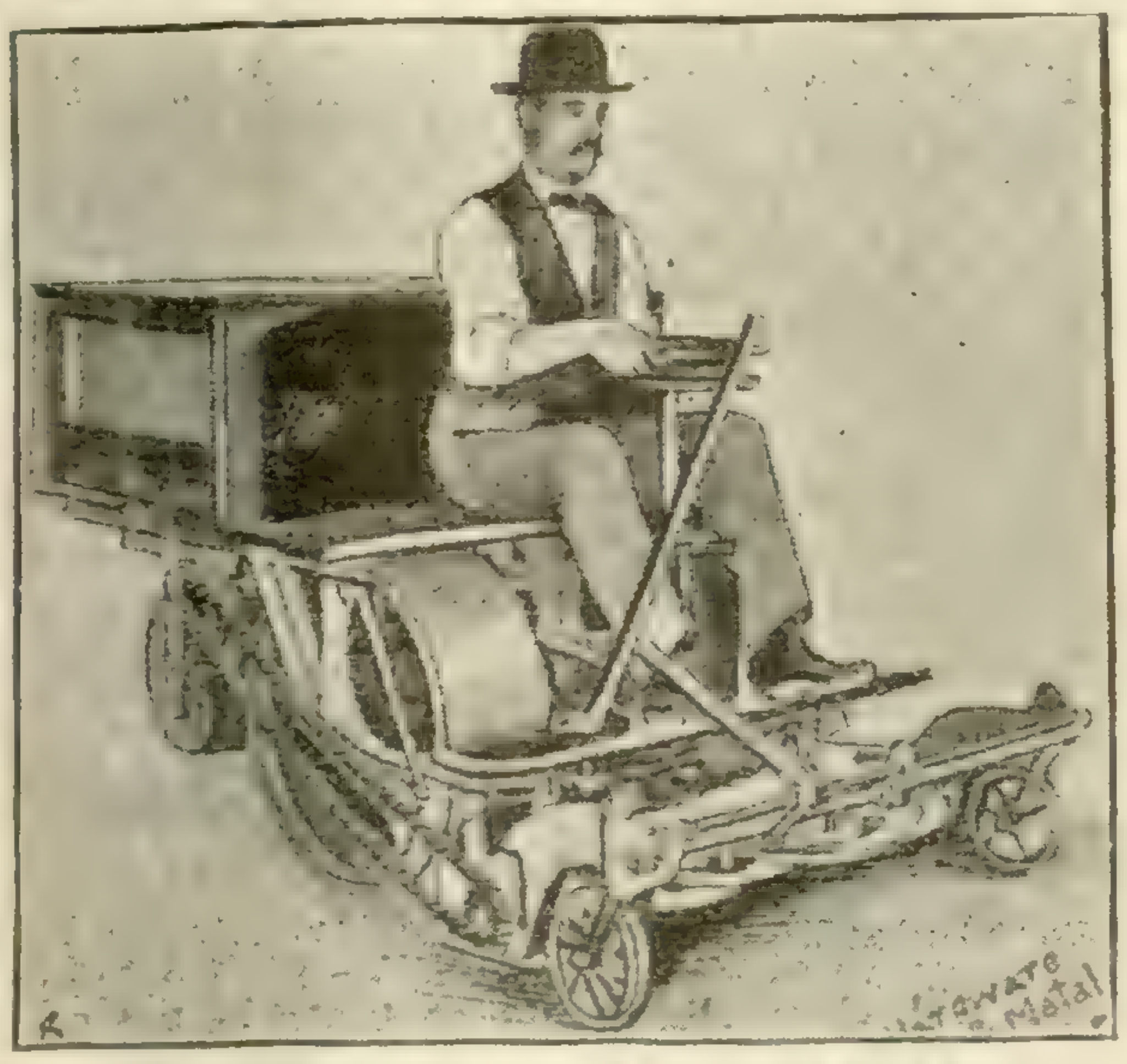
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COMING EVENTS.

IPSWICH SUMMER SHOW, July 13.
IPSWICH CHRYSANTHEMUM SHOW, November 15 and 16.
AYLESBURY CHRYSANTHEMUM SHOW, November 17.
BRIGHTON CHRYSANTHEMUM SHOW, November 15 and 16.
BECKENHAM SUMMER SHOW, July 27.

THE WEATHER DURING THE WEEK ENDING MARCH 5, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	52·9	30·7	38·9	3·83	0·59	1·50
Croydon	51·2	29·2	39·1	3·94	0·44	1·12
Brighton	—	—	—	—	—	—
Bristol	50·0	28·0	39·5	4·17	0·47	[illegible]
Wolverhampton	47·7	28·2	37·7	3·17	0·2[illegible]	[illegible]
Norwich	50·8	28·0	38·5	3·61	0·40	1·02
Nottingham	49·9	28·2	39·2	4·00	0·40	1·02
Liverpool	46·2	32·4	39·0	3·89	0·30	0·76
Huddersfield	45·6	31·3	37·4	3·00	1·13	2·87
Bradford	47·4	33·6	40·3	4·61	0·83	2·11
Hull	48·0	30·0	38·0	3·33	0·37	0·94

The mean reading of the Barometer during the week at Greenwich was 29·65 inches, and that of the Thermometer 38°·9, the latter being 1°·5 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 11 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 15·1 hours. The measured rainfall amounted to 0·59 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 14.—United Horticultural Benefit and Provident Society; Annual Meeting at Caledonian Hotel, Adelphi; chair to be taken at 8 p.m. by Mr. George Wythes.
TUESDAY, MARCH 15.—Annual Dinner of the London Fruit and Potato Trades Benevolent Society.
THURSDAY, MARCH 17.—Meeting of the Linnean Society.

AUCTIONS.

MONDAY, MARCH 14.—Iris Germanica, Lilies, Carnations, Begonias, Dahlias, Roses, &c., at Protheroe and Morris's Rooms.
TUESDAY, MARCH 15.—Carnations, Gladioli, Roses, Montbretias, Cannas, &c., at Protheroe and Morris's Rooms.
WEDNESDAY, MARCH 16.—Liliums, Carnations, Vallotas, &c., at Protheroe and Morris's Rooms.
WEDNESDAY, MARCH 16.—Palms and Plants from Ghent, Roses, Fruit Trees, Border Plants, &c., at J. C. Stevens's Rooms.
THURSDAY, MARCH 17.—Plants, Shrubs, Lilies, Bulbs, Roses, &c., at J. C. Stevens's Rooms.

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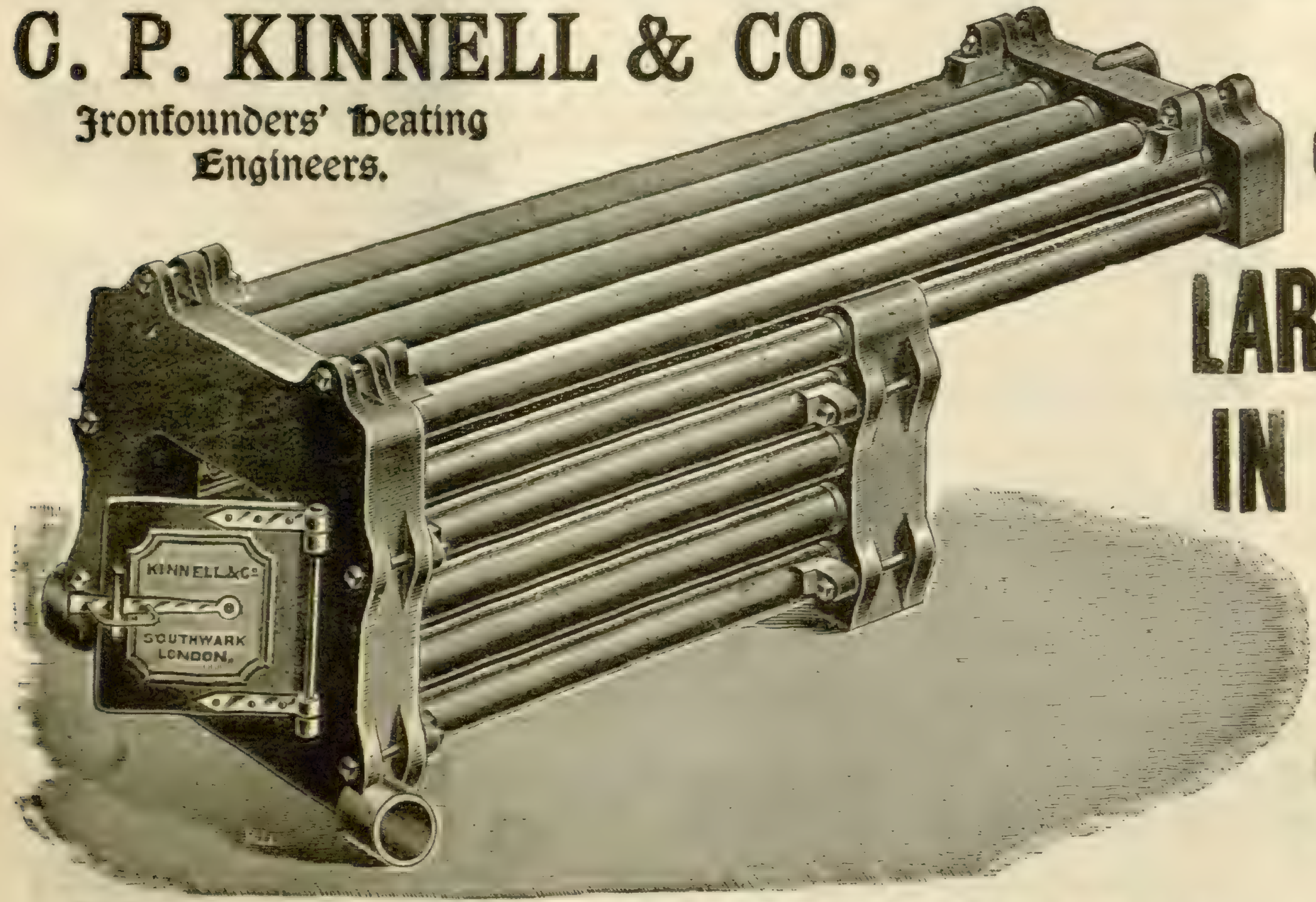

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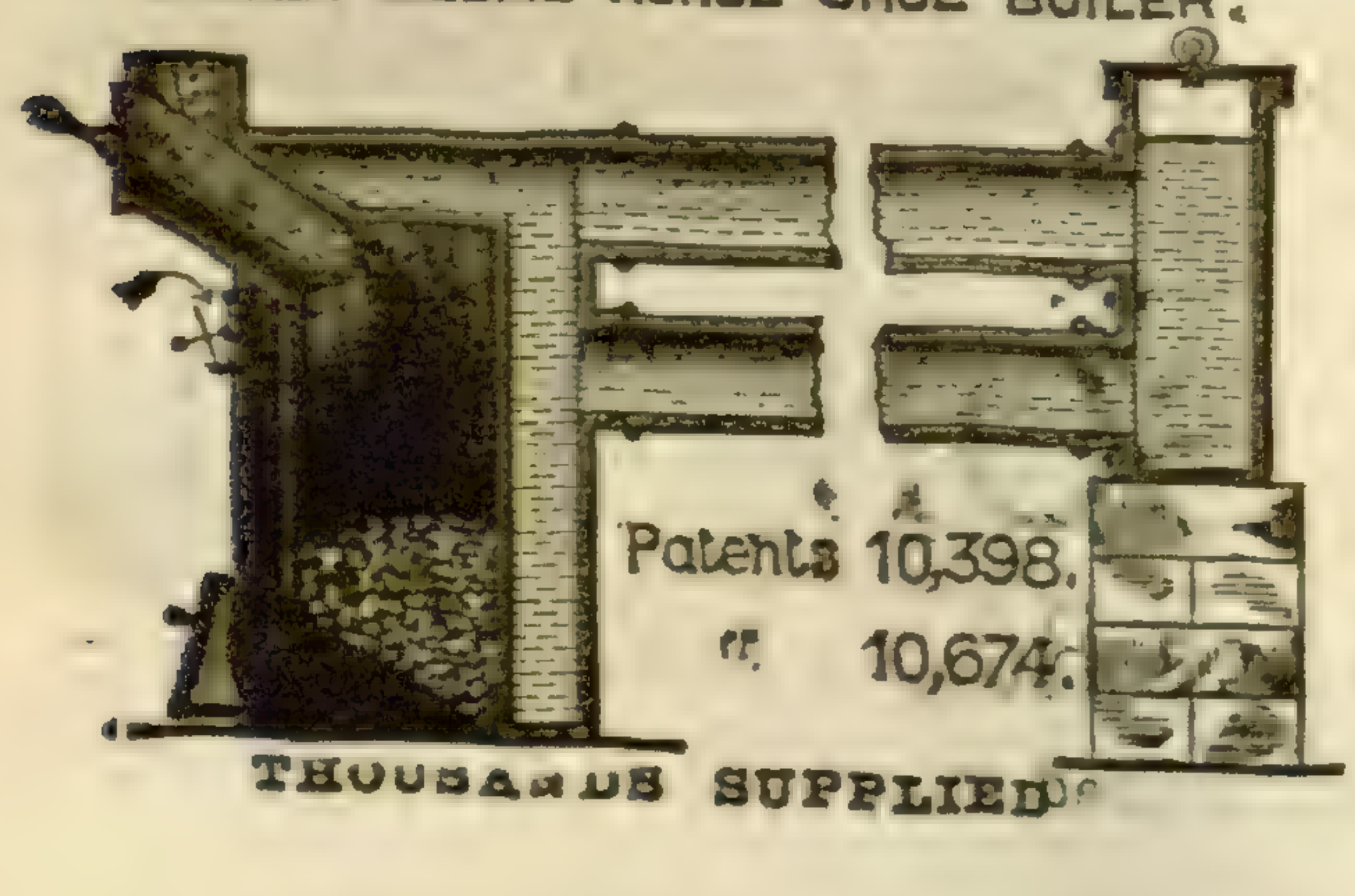

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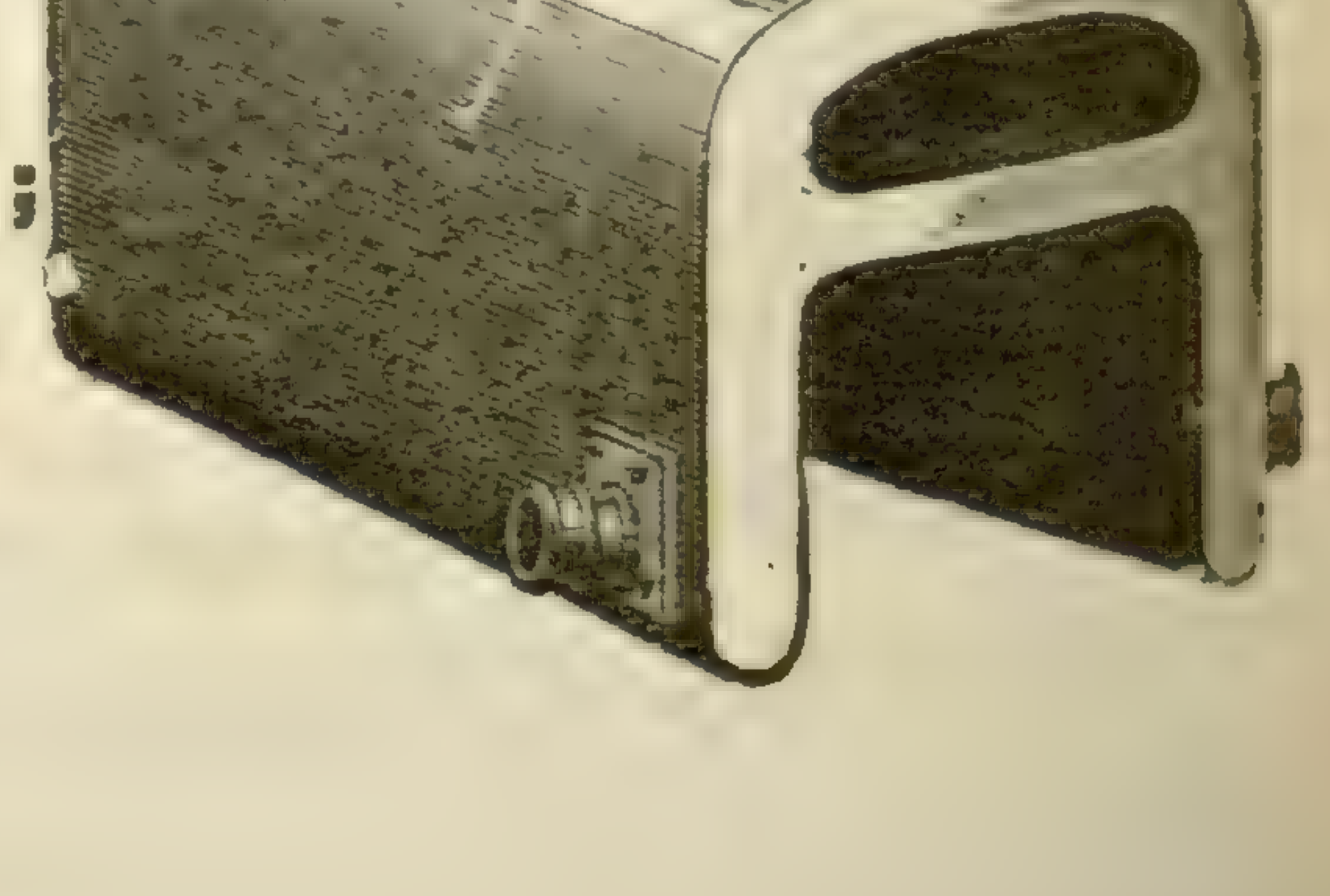

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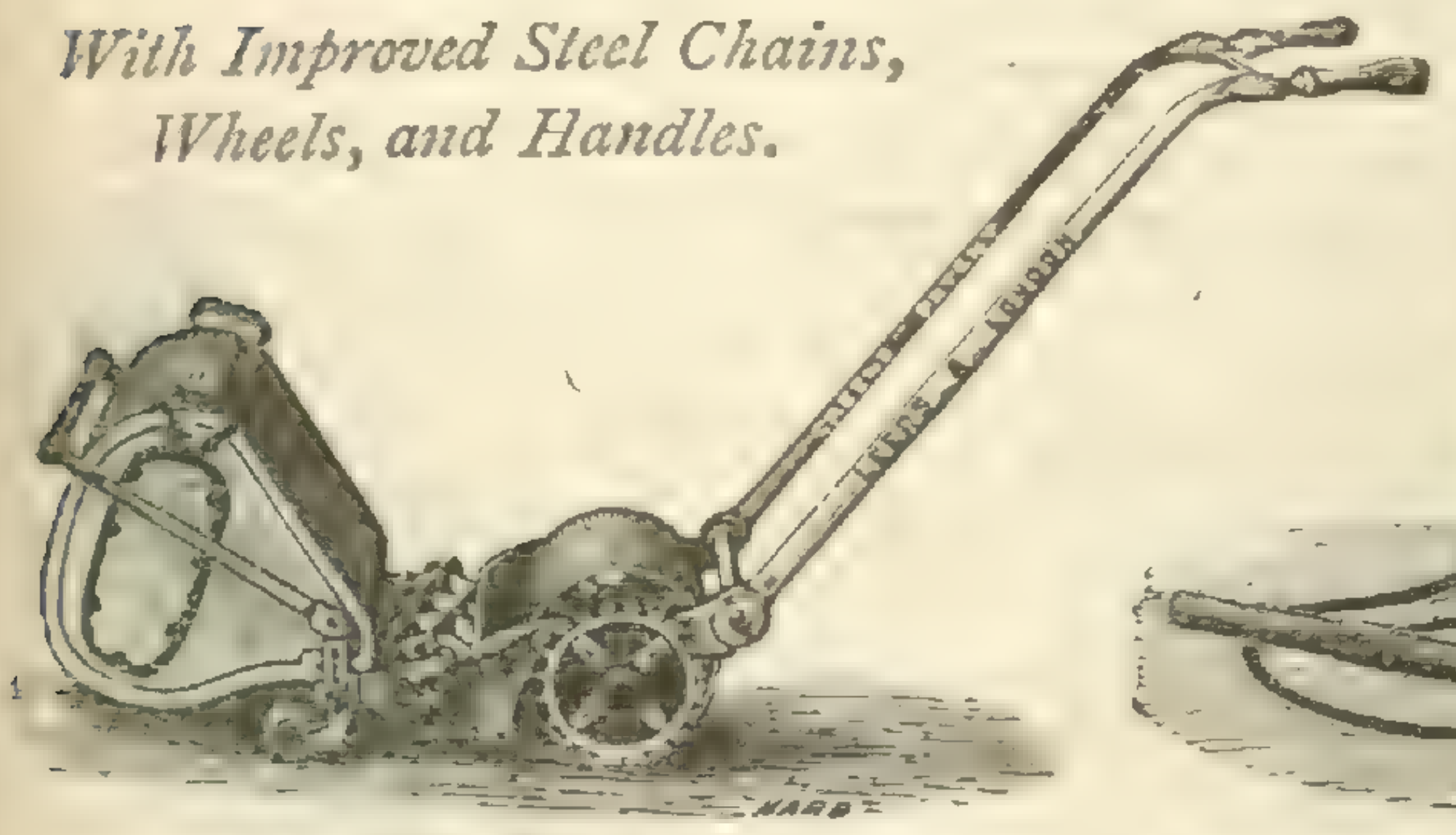

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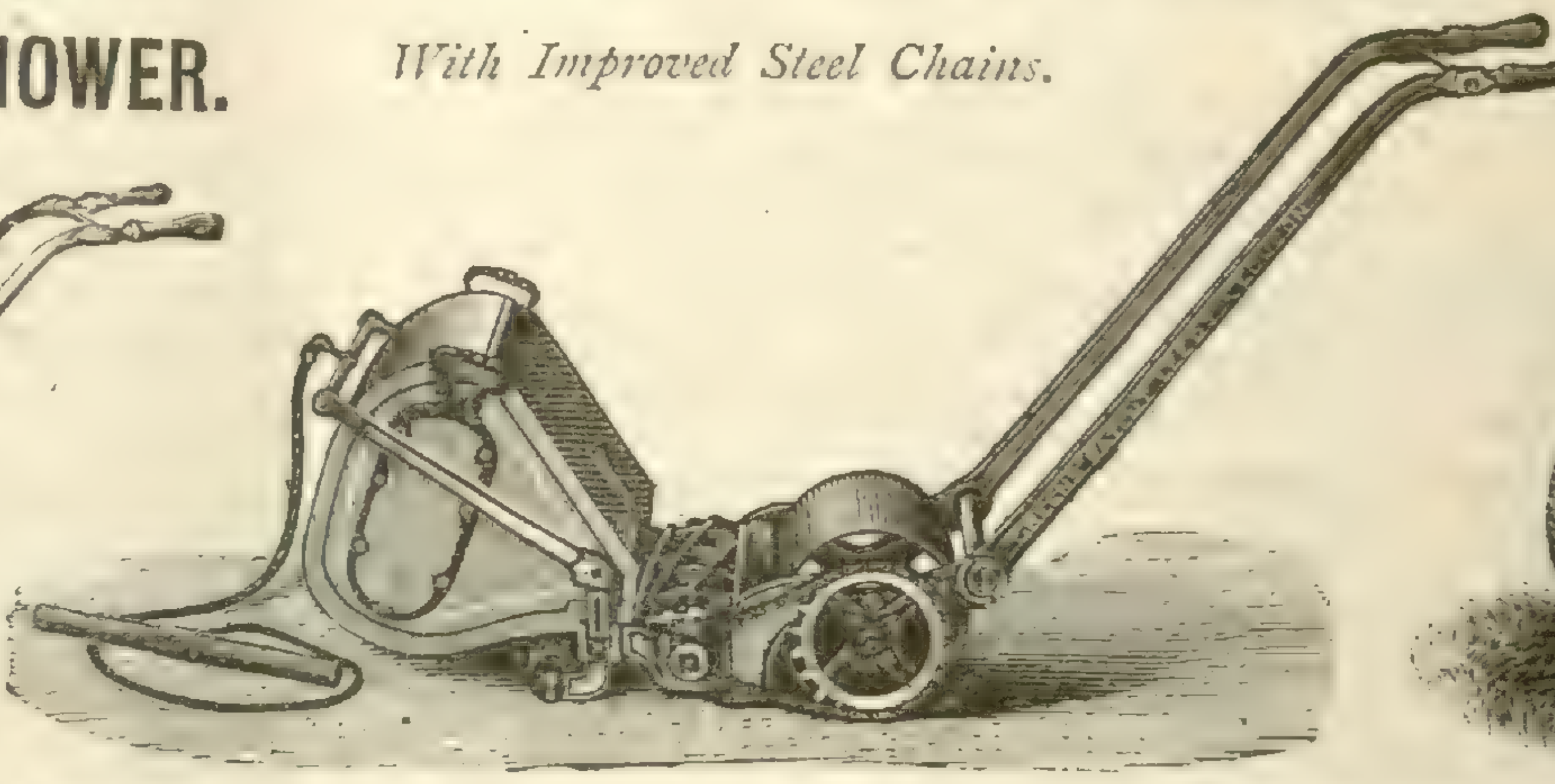

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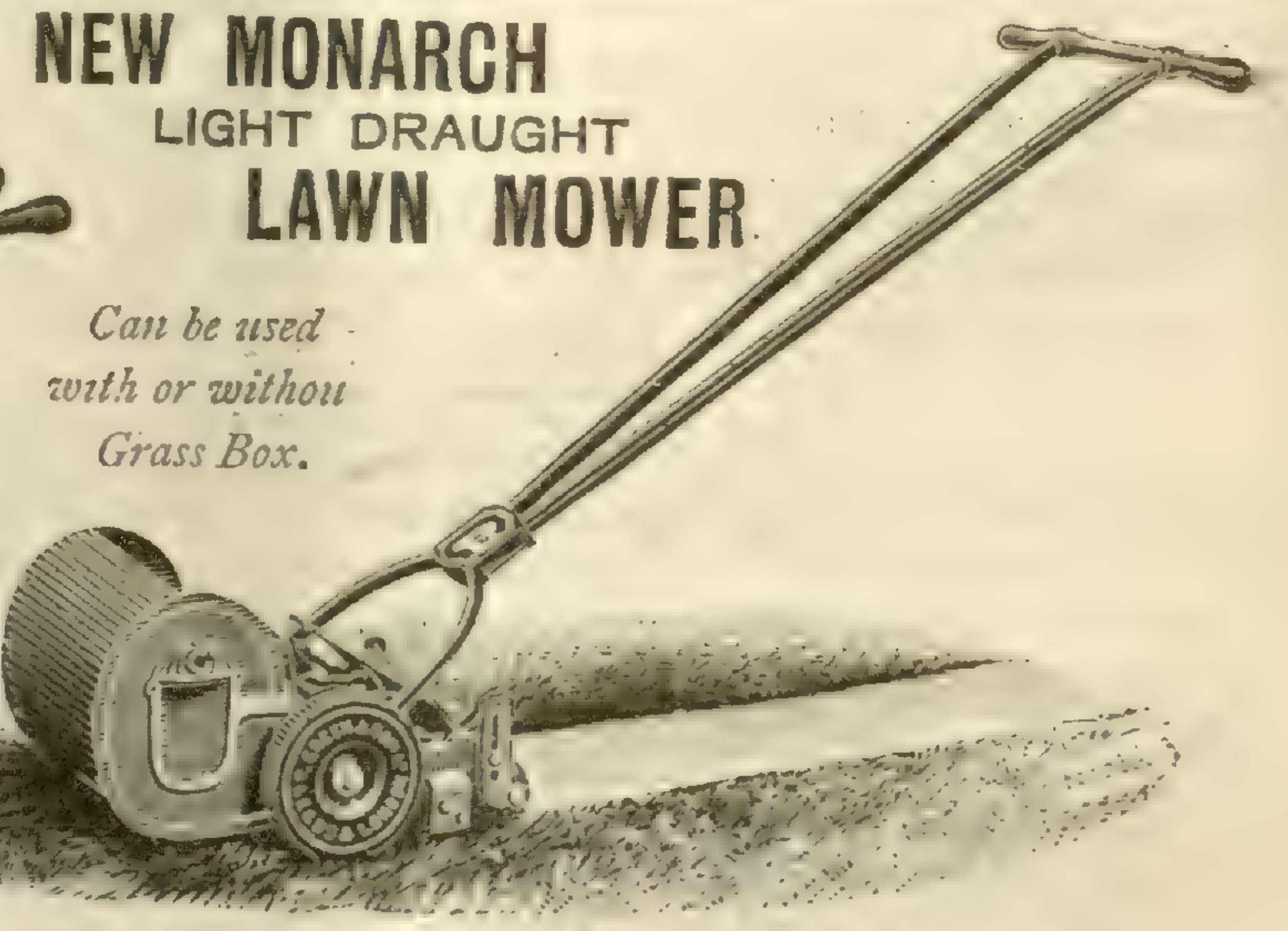

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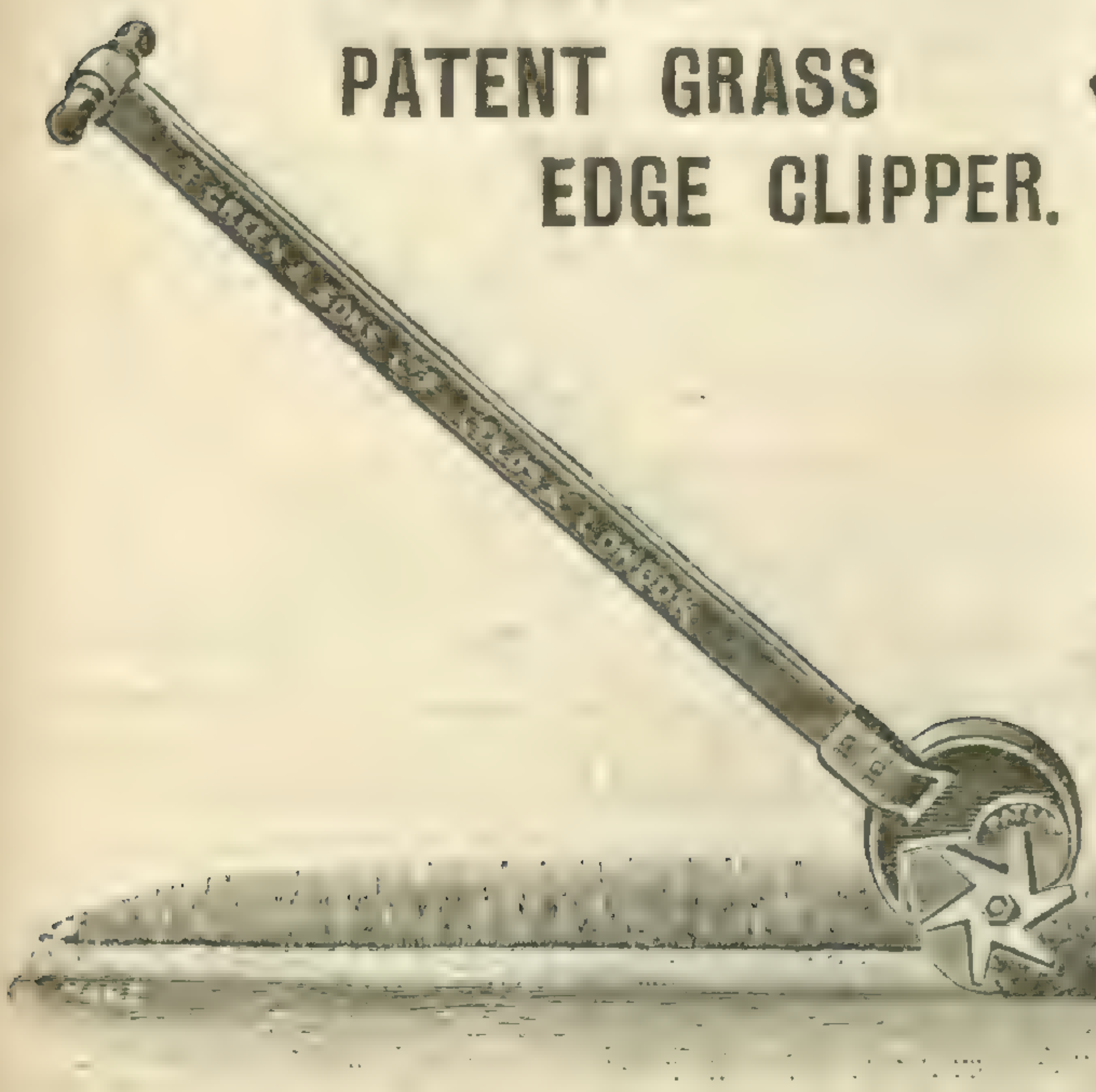

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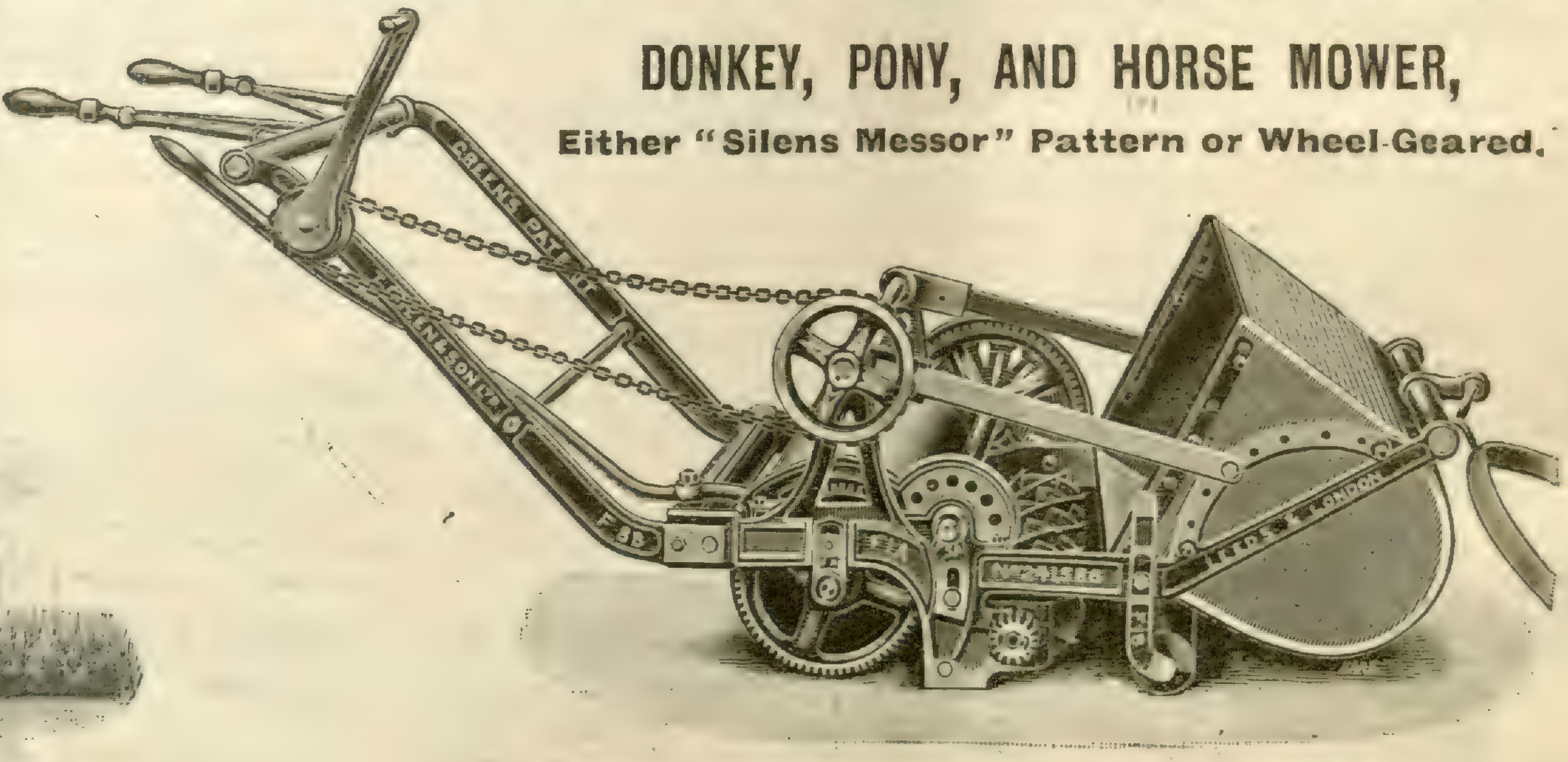

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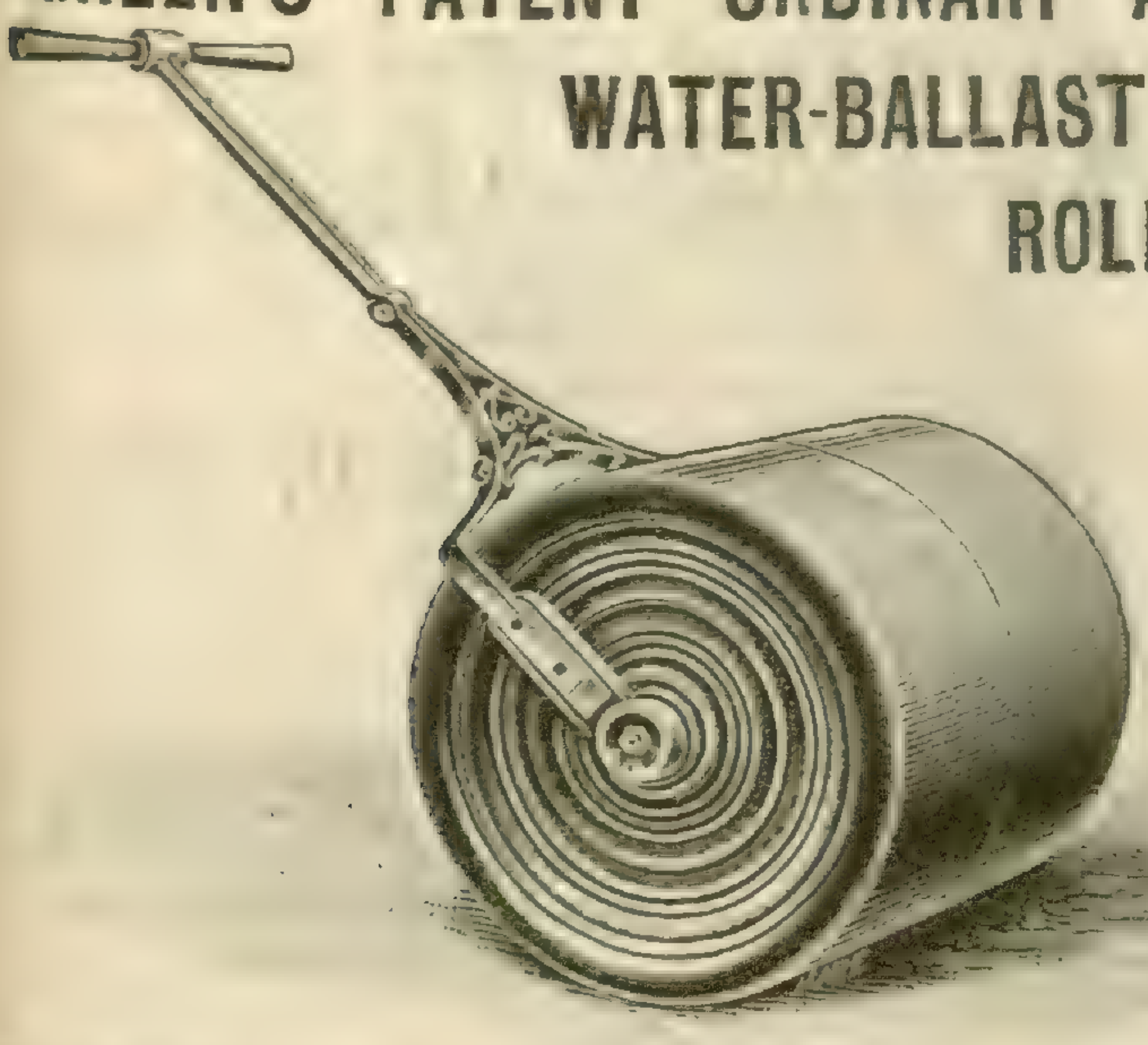

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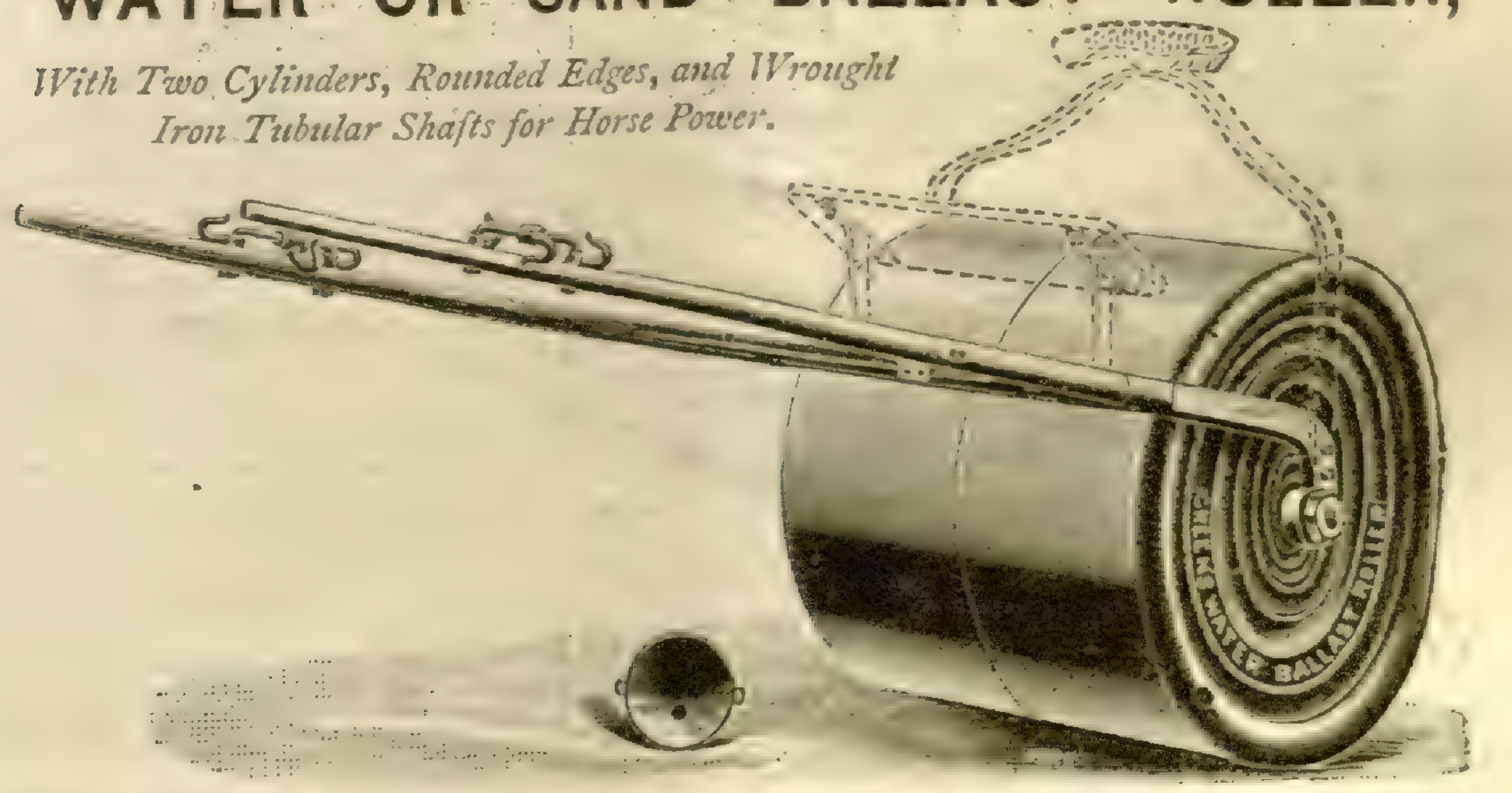

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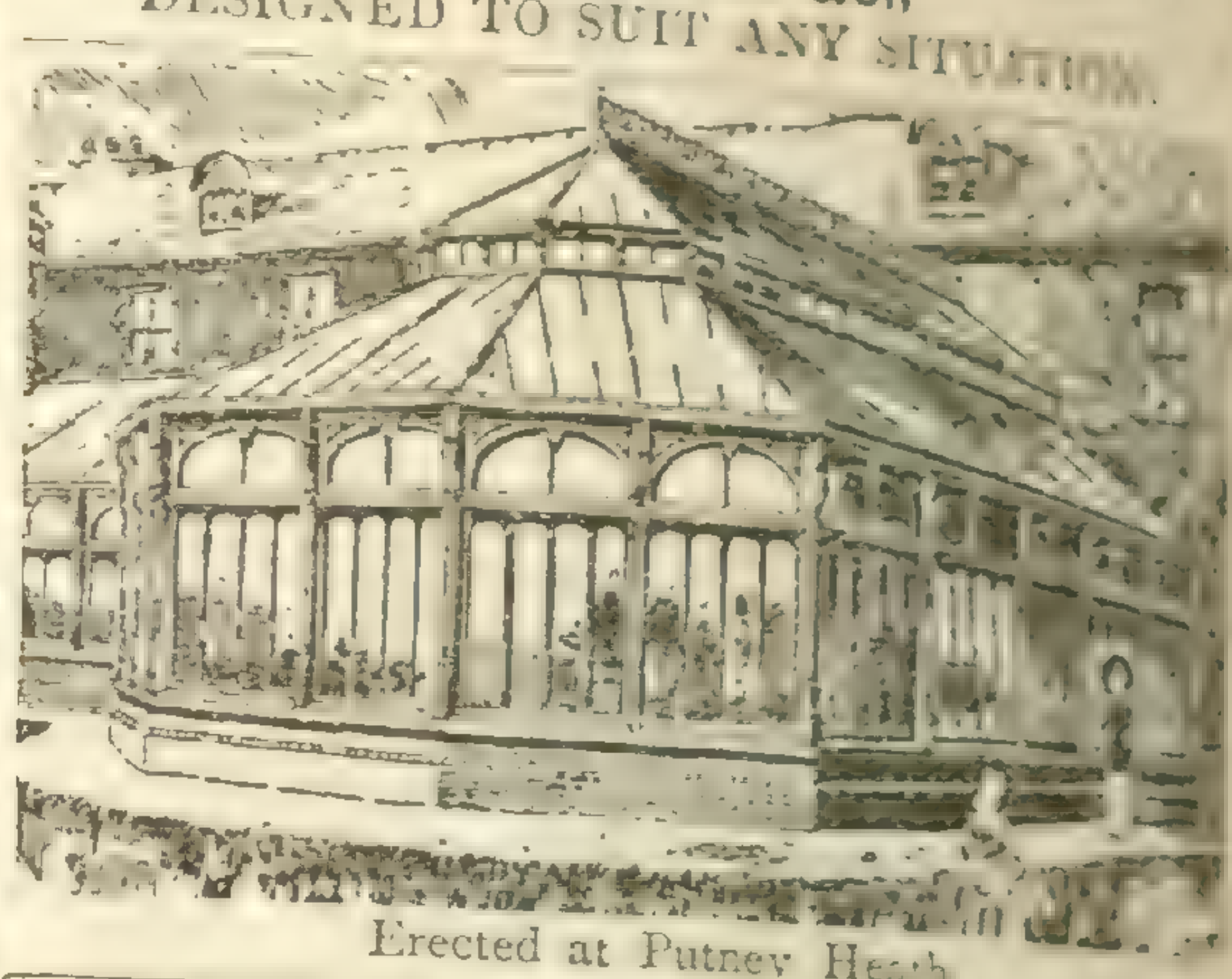

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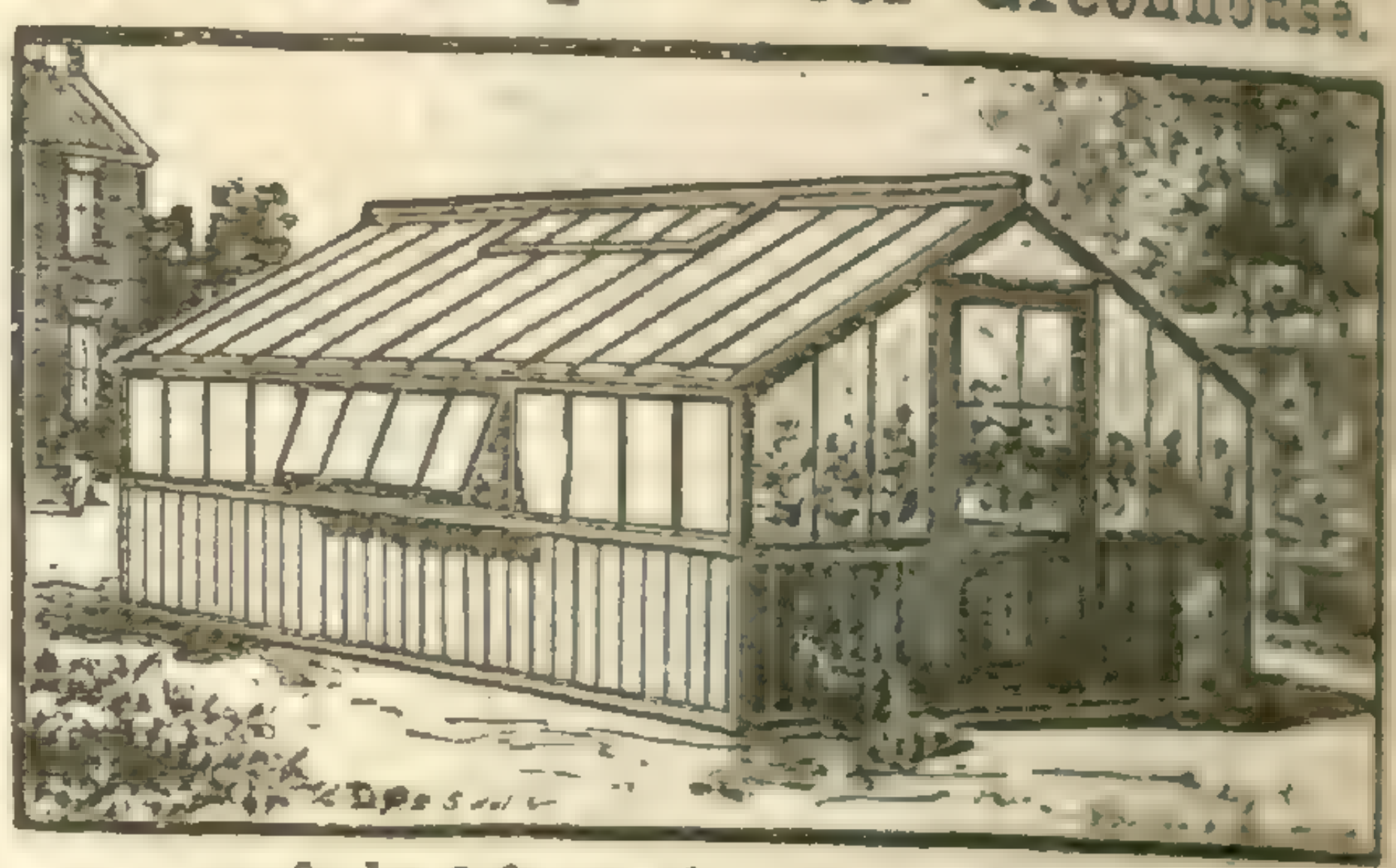

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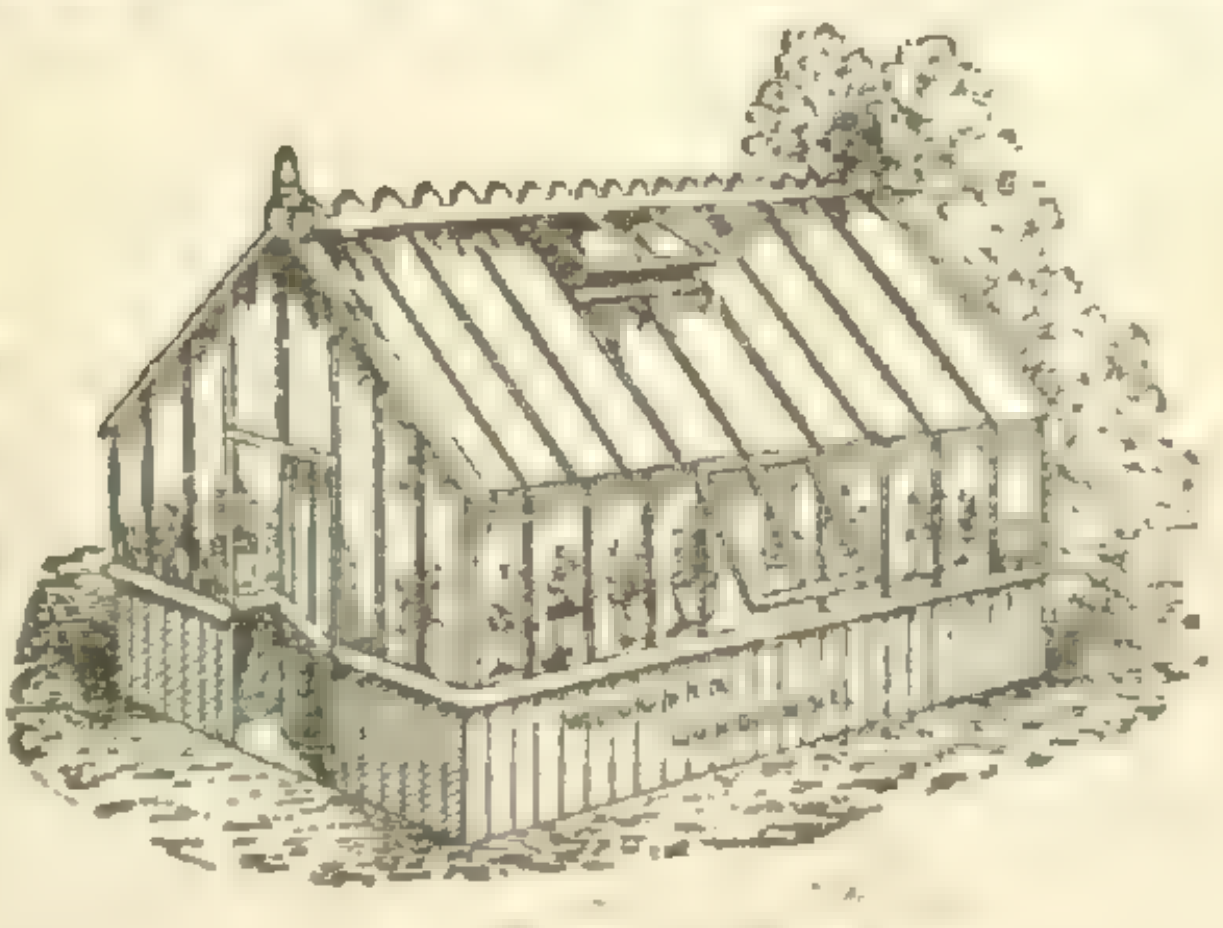

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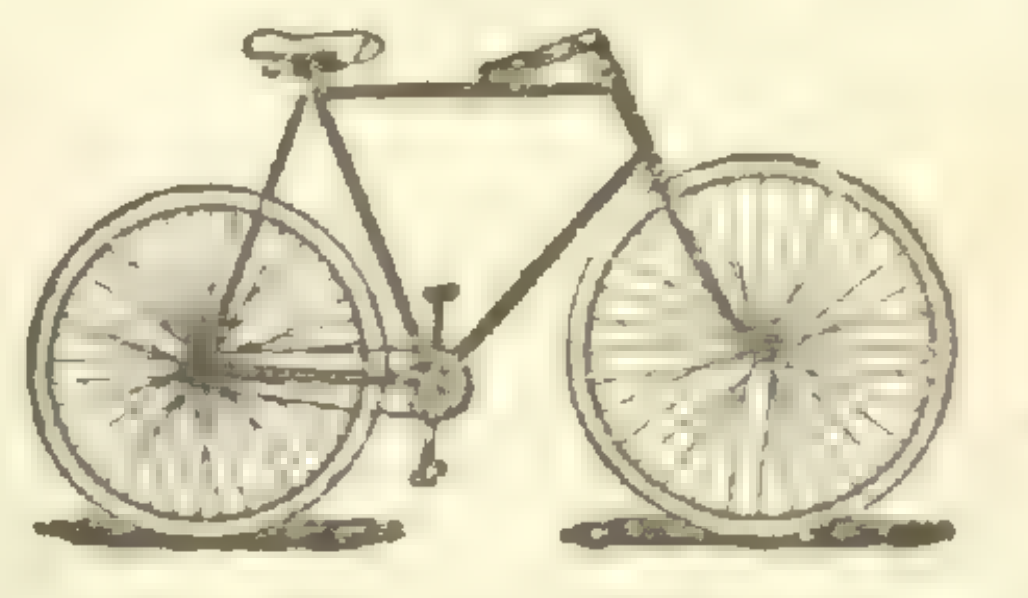

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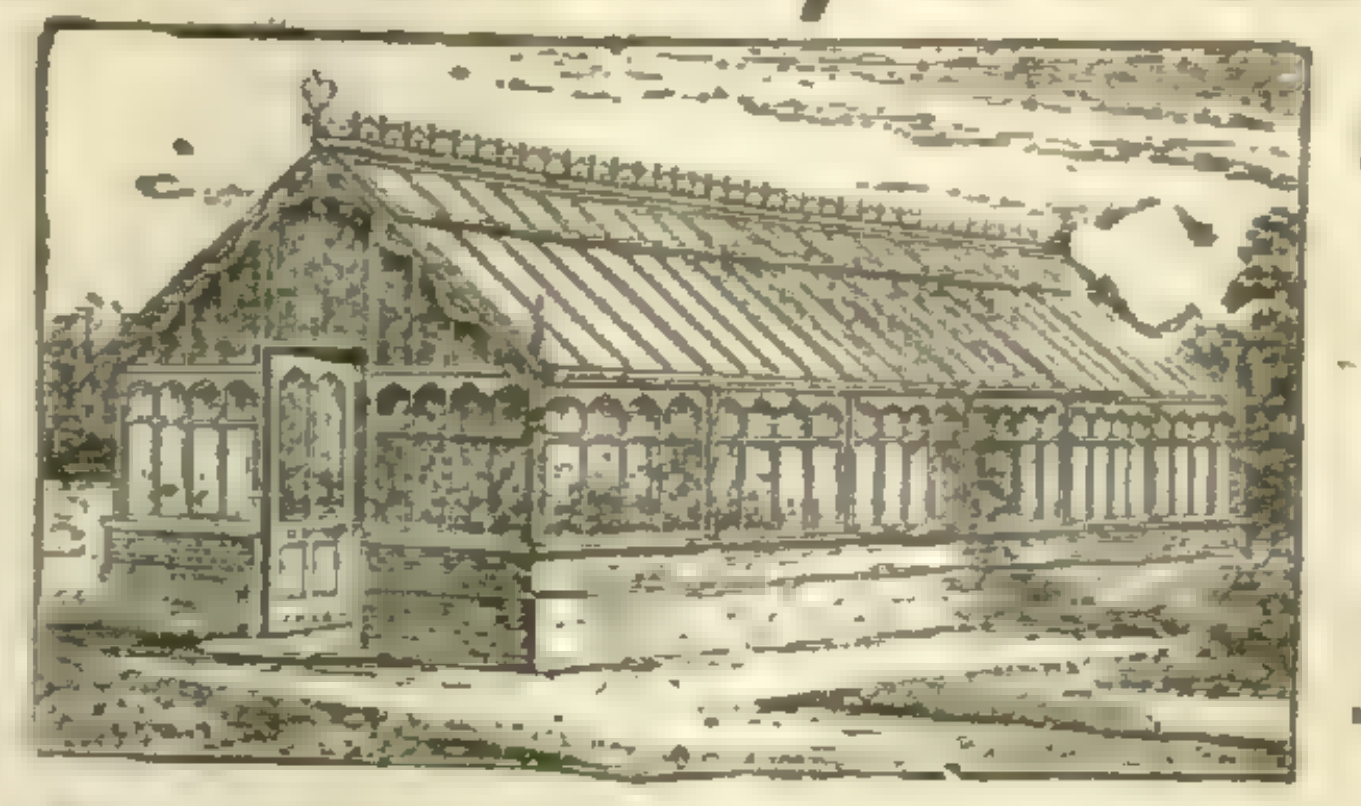

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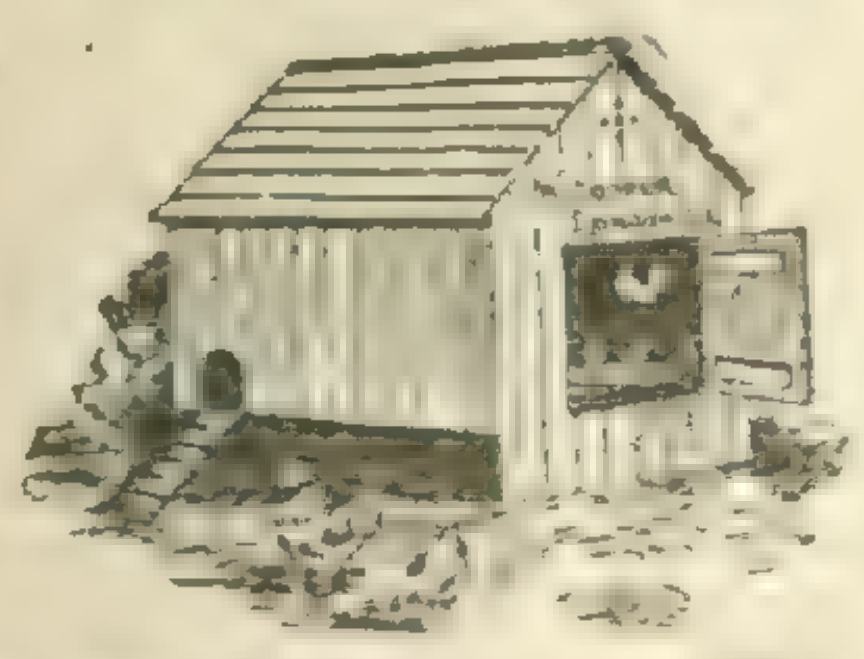

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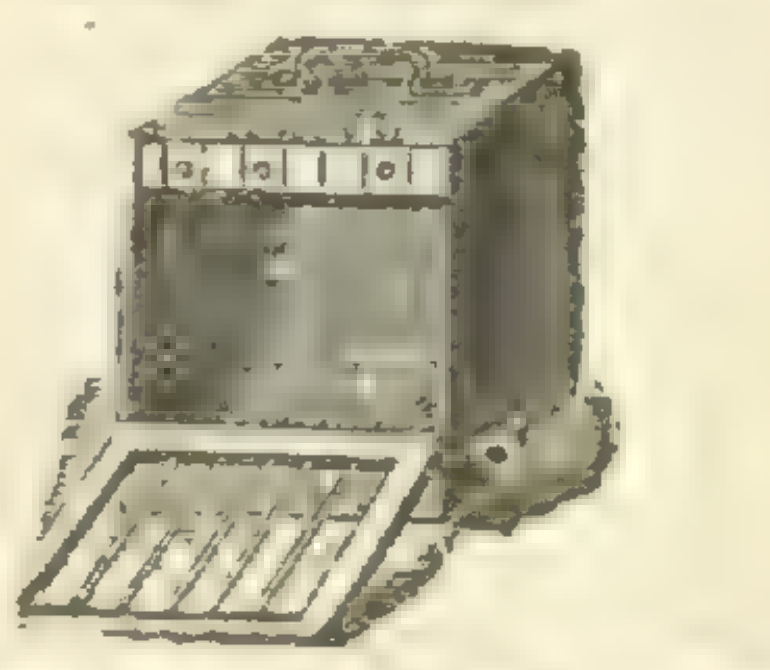

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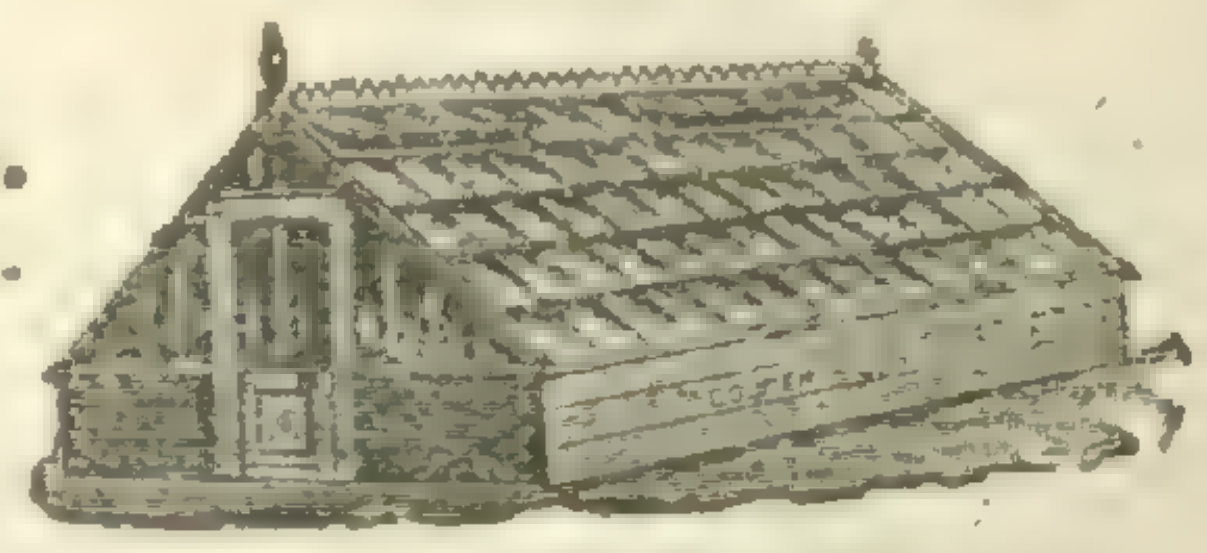

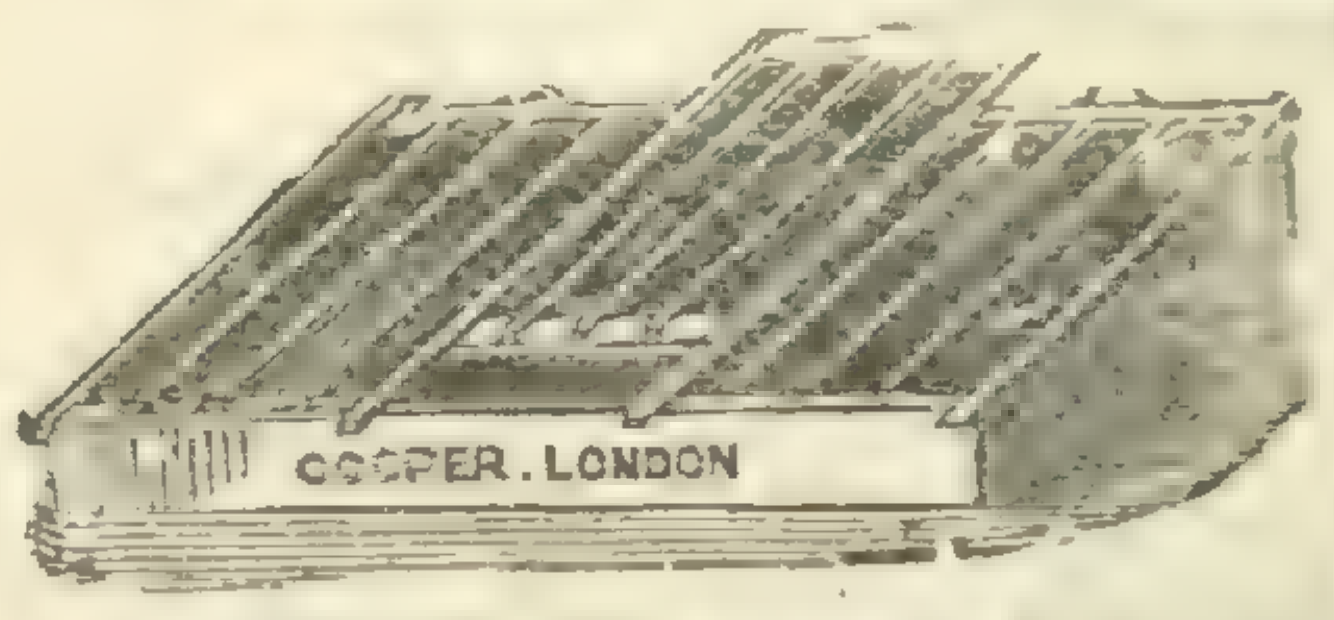

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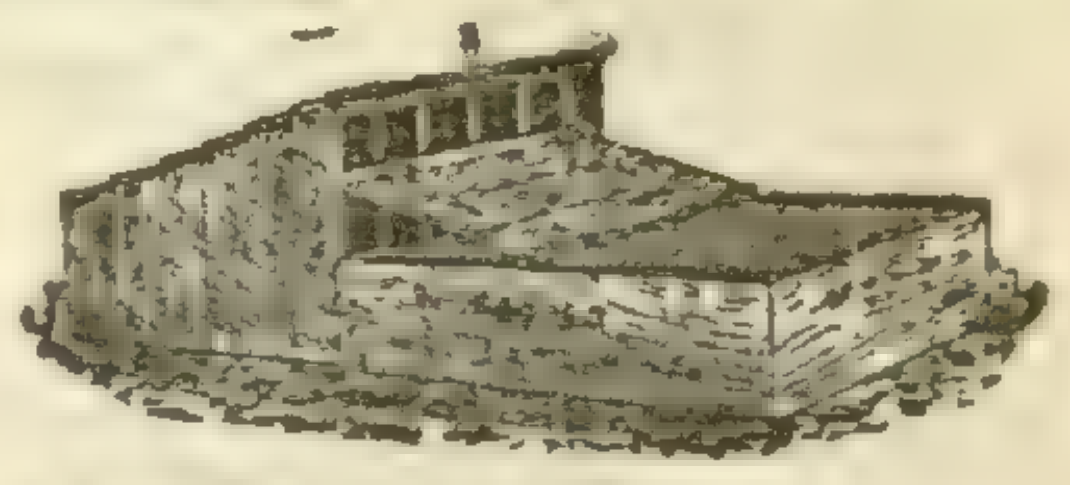

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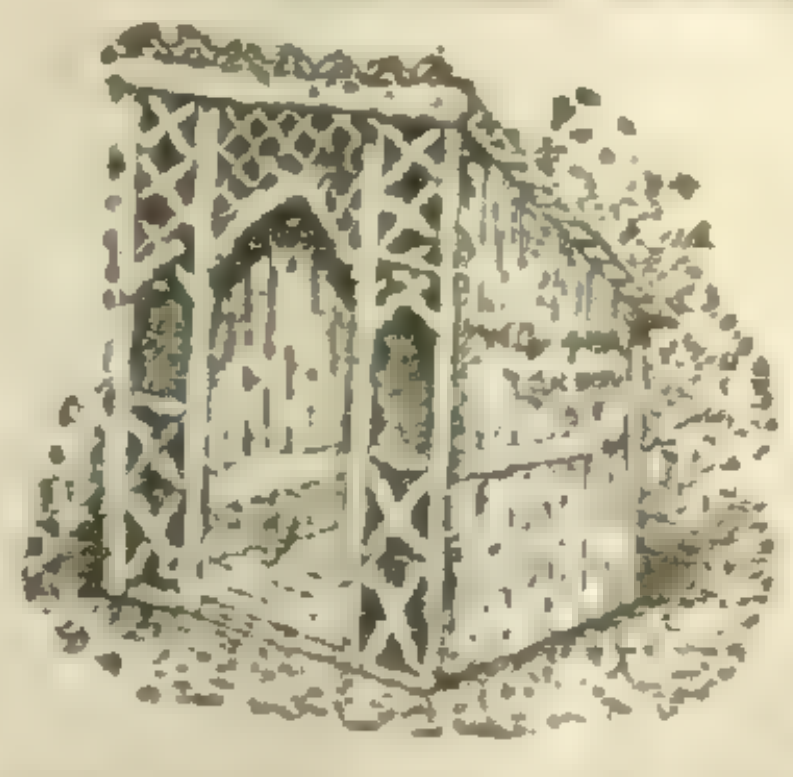

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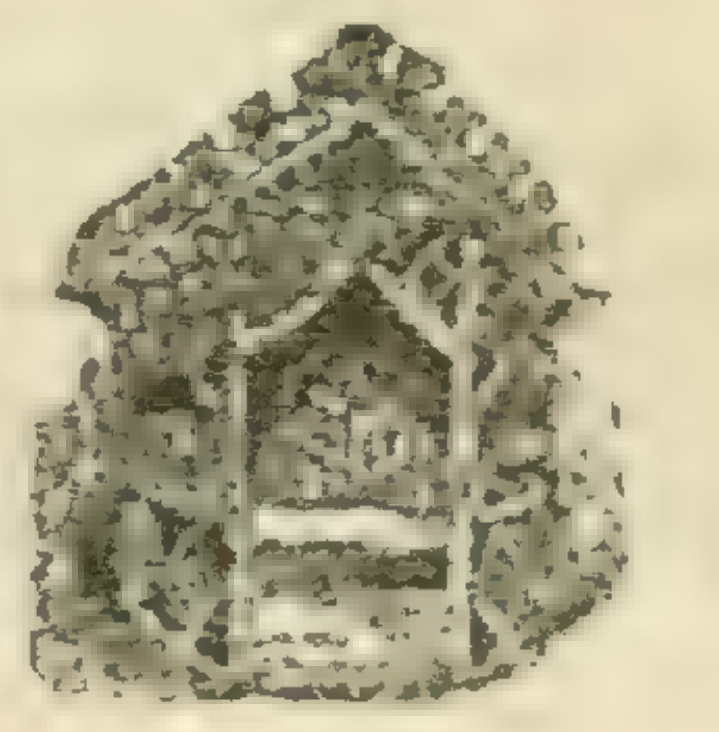

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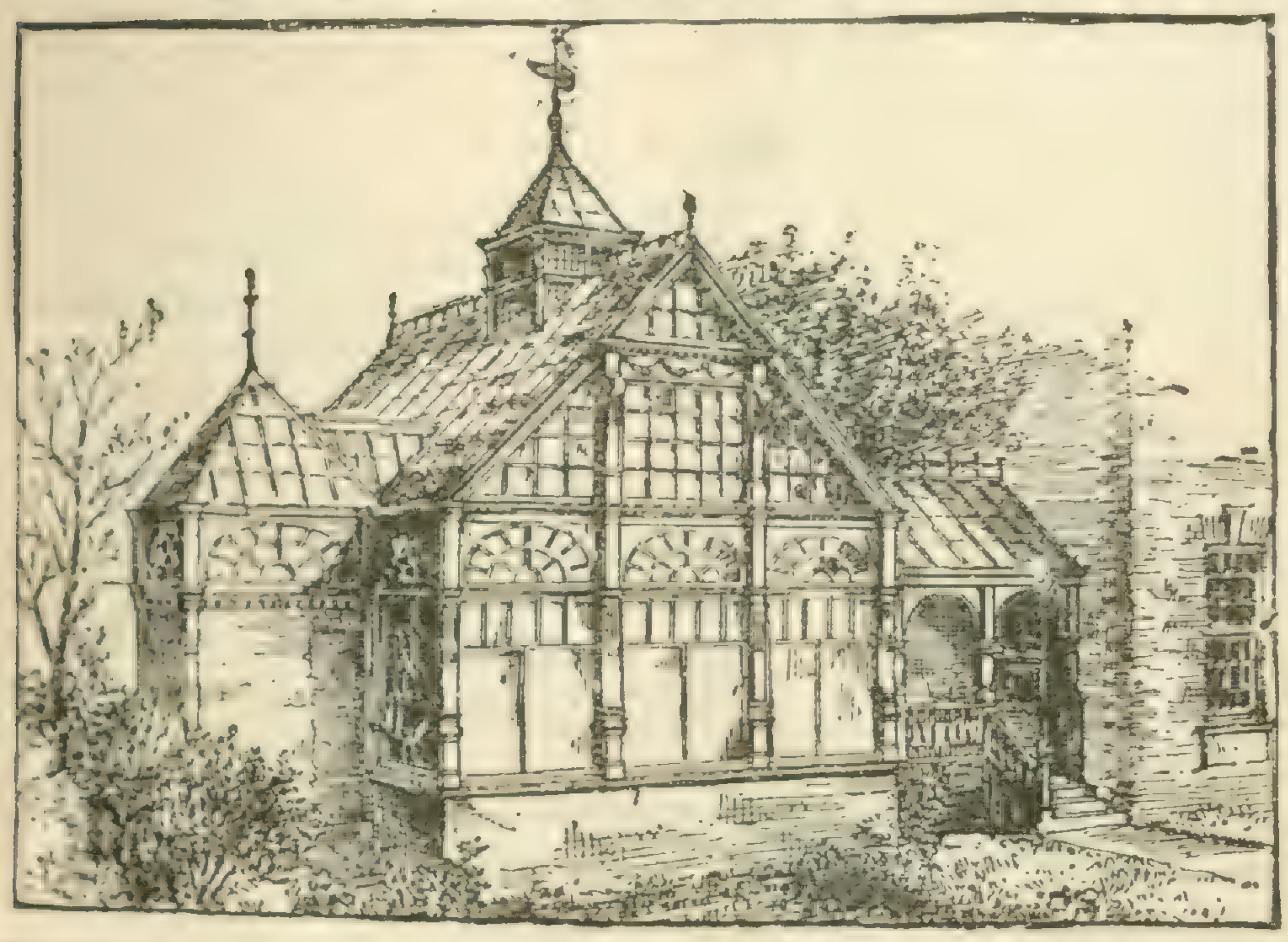

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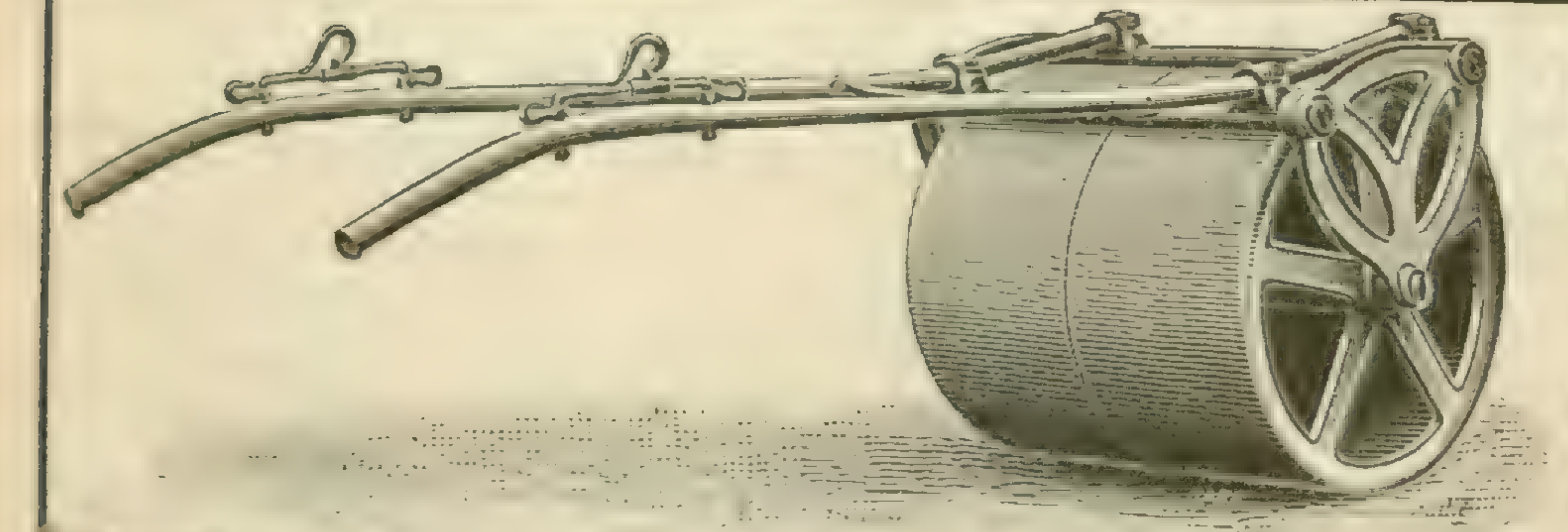

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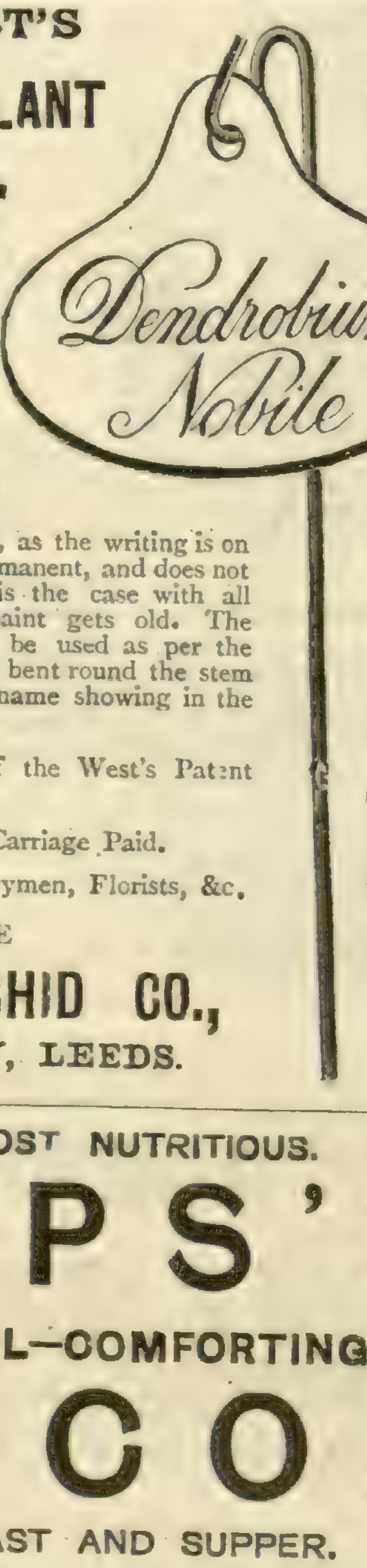

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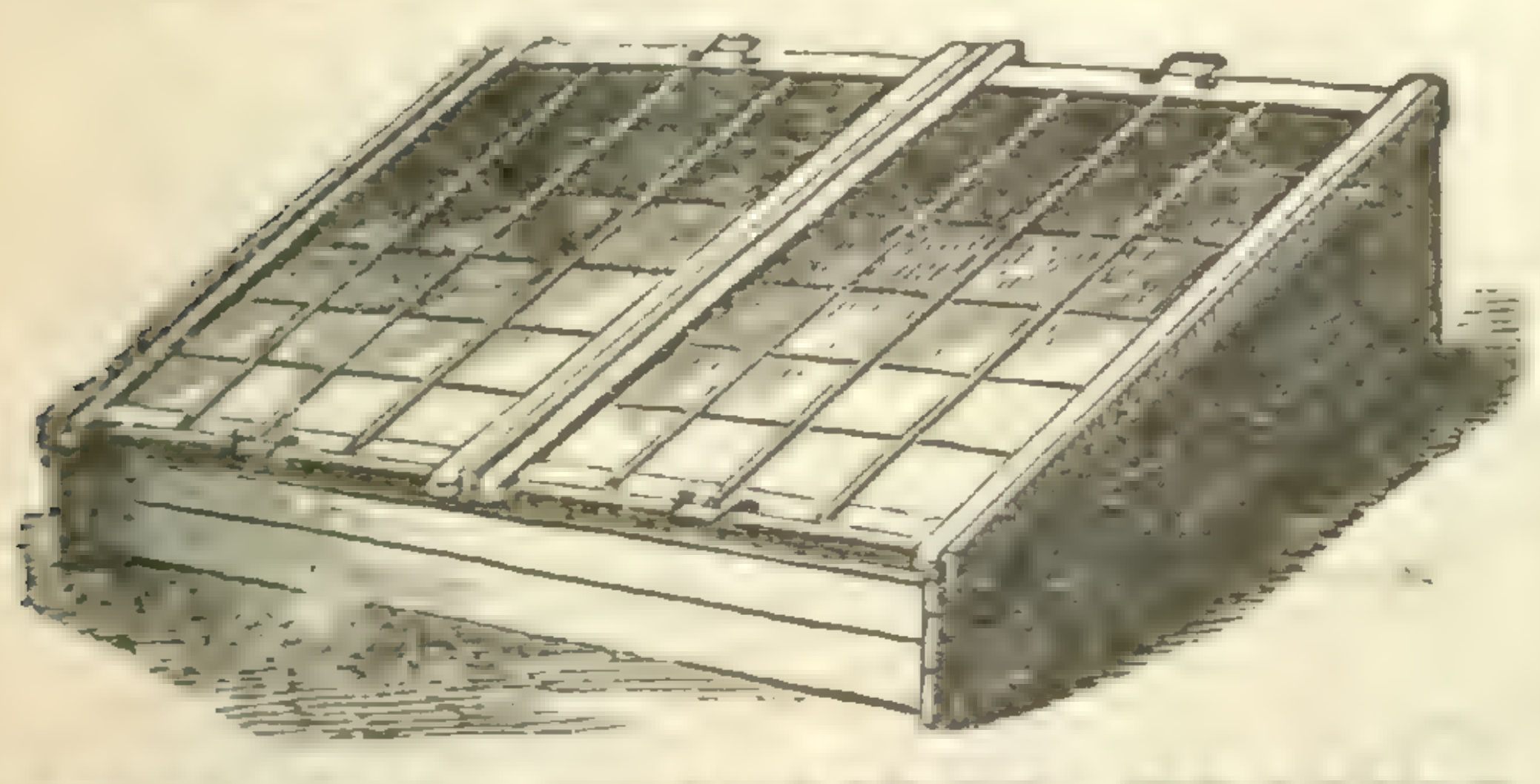

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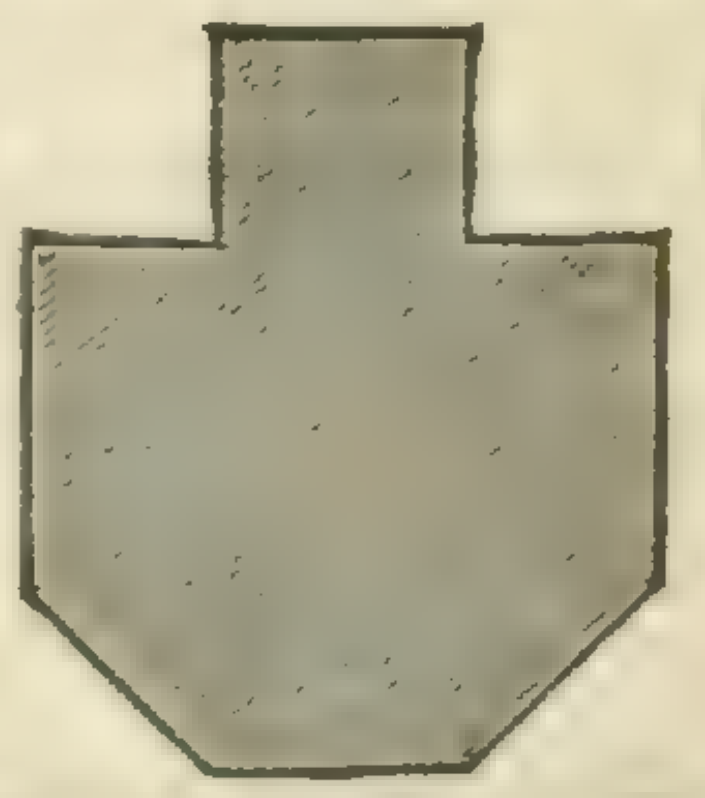

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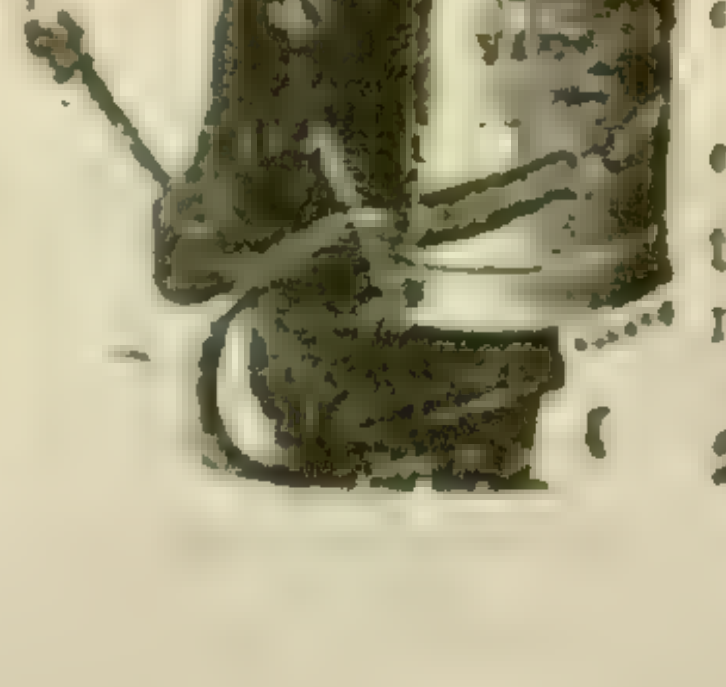

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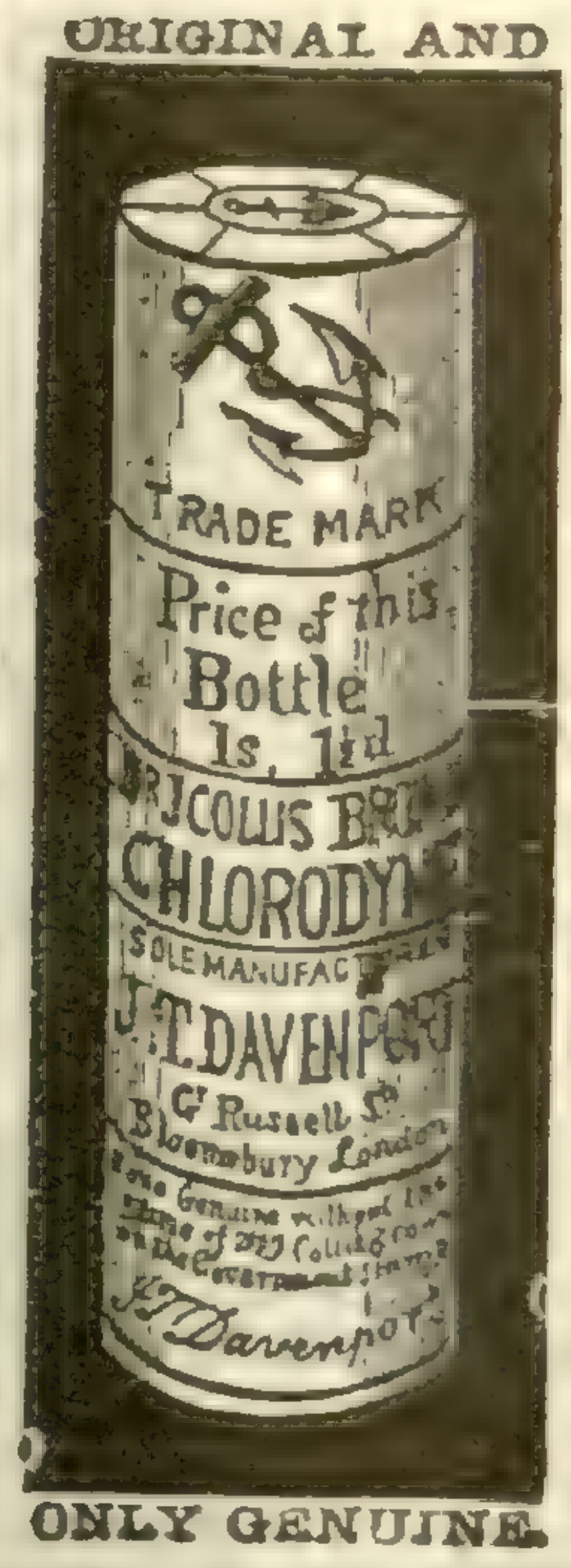

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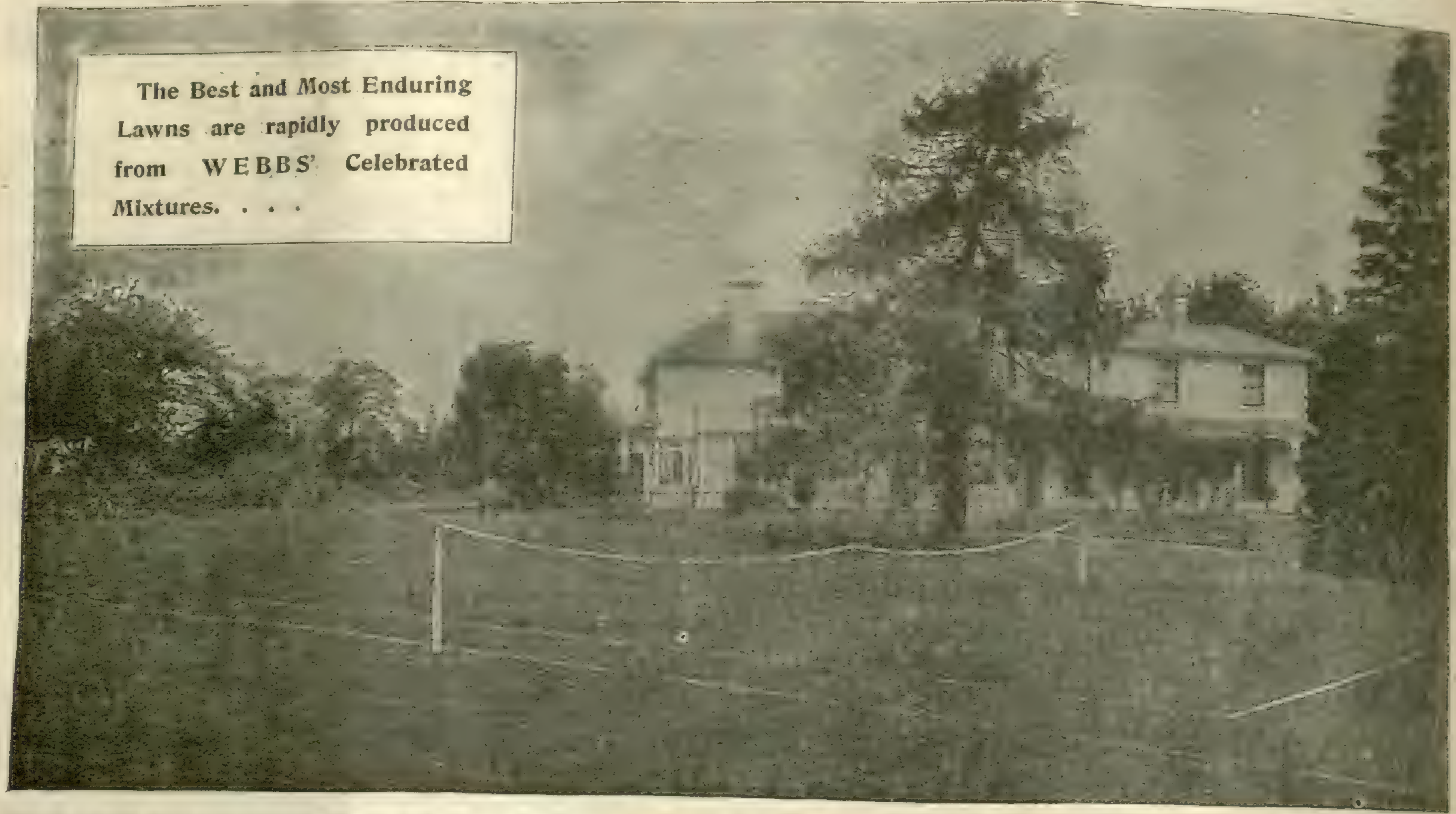

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SALES NEXT WEEK.

MONDAY, TUESDAY, WEDNESDAY, and FRIDAY NEXT.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., as follows:—

Monday, March 21, at 12 o'clock.

HARDY PERENNIALS, PINKS, PHLOX, GLADIOLUS, CARNATIONS, PICOTEES, PINKS, and VIOLETS; choice American Plants; 100 clumps Japanese IRIS, single and double varieties; home-grown and imported LILIES to name; double and single BEGONIAS; new dwarf and other CANNAS; choice greenhouse FERNS, ROSES, and other plants.

Tuesday, March 22, at 12.30 o'clock.

The Battenhall Mount Collection of ORCHIDS, by order of the Hon. PERCY ALLSOPP, who is giving up their cultivation, in all about 1,020 plants; also 700 ONCIDIUM VARICOSUM ROGERSII, by order of Messrs. W. LEWIS and Co.; 200 lots of imported ORCHIDS, by order of Mr. J. W. MOORE, &c.

Wednesday, March 23, at 12 o'clock.

31,826 LILIUM AURATUM, 790 L. SPECIOSUM RUBRUM, and other Lilies, and 1,184 DAVALLIA BULLATA in ball and ring form, the contents of 349 cases just received from Japan; 14,800 African TUBEROSES, 300 EUCHARIS AMAZONICA bulbs, and 150 LILIUM NEPALENSE; 6,000 GLADIOLI bulbs, hybrids of GANDAVENSIS, and others; 400 Standard, Half-Standard, and Dwarf ROSES; PALMS and other decorative plants from the Continent; BEGONIAS, Fibrous Peat, Hardy Border and Herbaceous Plants.

Friday, March 25, at 12 o'clock.

IMPORTED and ESTABLISHED ORCHIDS from various owners.

On view mornings of sale, and catalogues had.

Wednesday Next.

A Choice Collection of Border Plants, several hundred Roses, four fine importations of Evergreens and Shrubs, Flowering Trees, &c., from the Continent, Liliums, Bulbs, &c.; also a fine collection of Stove and Greenhouse Plants.

MR. J. C. STEVENS will SELL the above BY AUCTION, at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, on WEDNESDAY next, MARCH 23, at Half-past Twelve precisely.

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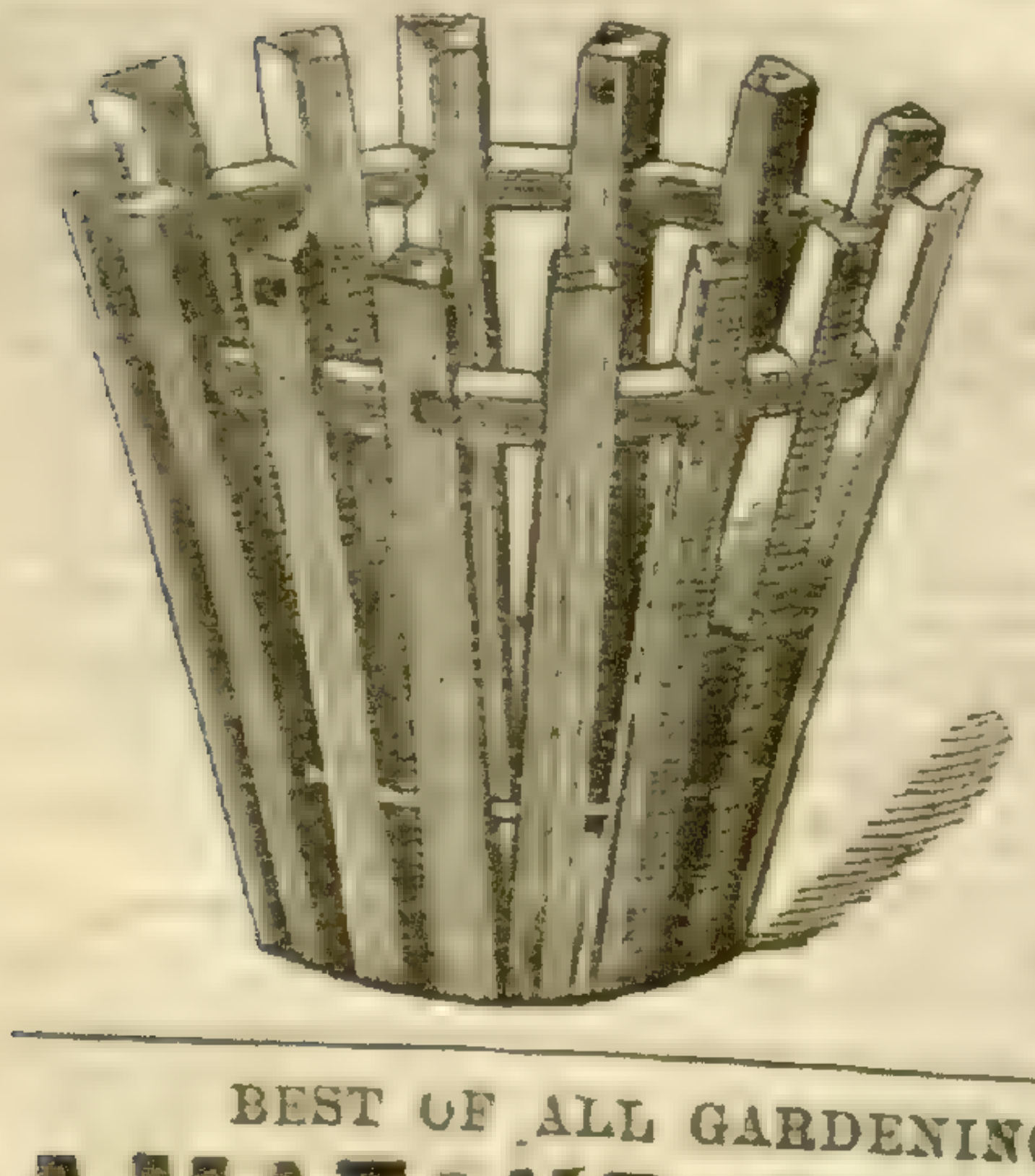

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MR. WILLIAM BULL, having disposed of the Ground of his Branch Nursery in the Ashburnham Road, Chelsea, for Building, the land must be cleared by Midsummer. The whole of the contents, therefore, of Twenty Houses, including—

THOUSANDS OF CHOICE ORCHIDS,

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MESSRS. PROTHEROE & MORRIS,

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WITHOUT THE LEAST RESERVE.

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The above will be followed the LAST WEEK IN APRIL, by a SALE WITHOUT RESERVE, of

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SPECIMEN PALMS, AND OTHER ORNAMENTAL PLANTS,

SUITABLE FOR LARGE CONSERVATORIES, WINTER GARDENS, &c.

The Houses, Boilers, and Hot-water Pipes will be Sold on the Last Day of the Sale in April.

CATALOGUE NOW IN PREPARATION, and will be READY SHORTLY.

As all the Houses and Ground must be cleared, this Sale, being Without Reserve, presents an unique opportunity of acquiring Orchids, New and Rare Plants, and Specimens for Greenhouse and Conservatory Decoration.

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AS THIRD GARDENER; a Lady thoroughly RECOMMENDS a Young Man of 19, who has lived in her service for 6½ years; total abstainer.—Address W. Gearing, Mrs. Mildred, Chigwell, Essex.

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CLERGYMAN can RECOMMEND his GARDENER, who wishes to better himself, as single-handed, or with boy; used to kitchen and flower garden, also fruit growing and glass; married; abstainer; age 27.—F. C., 22, Victoria Road, Great Berkhampstead, Herts.

COWMAN, on Gentleman's Estate; age 28; married, one child; good milker; experienced in weaning and rearing of calves; management of pigs and poultry; fill up time in garden if required; highest references.—T. W. Seward, 18, Trehern Road, Mortlake, S.W.

C. MARTIN, Clarence House Gardens, East Cowes, I.W., wishes to strongly RECOMMEND D. WITHIRINGTON as Gardener, where assistance is given, or (Good) single-handed; single; age 38; 9 years' good character from present employer.

FOREMAN (Inside); age 26; where two or three are kept; thorough experience in fruit and flowers, chrysanthemums for show, stove, and orchids; can be well recommended.—Weston, Waters Terrace, Harpenden, Herts.

FOREMAN; age 28; 13 years' experience in good establishments; thoroughly experienced in fruit and plants, table decorations, &c.; excellent references.—H. Jones, 27, North Road, Highgate, N.

GARDENER (Head); age 26; where two or three are kept; married when suited; experience in all branches. Mr. Browning can with confidence RECOMMEND H. COTTERILL to any lady or gentleman requiring a trustworthy and practical man as above.—Cotterill, Manor Cottage, Old Windsor.

GARDENER (Head Working); where three or more are kept; age 27; married, no family; practical experience in all branches; well recommended by present and previous employers.—C. Jaycock, Woodside, Maidenhead, Berks.

GARDENER (Head); age 33; single, otherwise when suited; 18 years' thorough practical experienee in growing grapes, peaches, vines, figs, melons, tomatos, cucumbers, orchids, stove and greenhouse plants, chrysanthemums, kitchen and flower garden, house and table decorations, and all the requirements of a good establishment; excellent testimonials.—Apply J. Nesling, Wyastone Leys, Monmouth.

GARDENER (Head), for over 19 years as Head at Lea Castle, SEEKS RE-ENGAGEMENT; thoroughly practical in the cultivation of fruits, flowers, and vegetables; left through death and reduction; married, two children, 17 and 11 years of age.—Address William Farrant, Fairfield, Wolverley, Kidderminster.

GARDENER (Head, or Head Working); age 29; thorough knowledge of general routine of garden work; Inside and Out; five years at Kew; life experience; excellent testimonials.—J. M., Virginia House, London Road, Burgess Hill, Sussex.

GARDENER (Head Working); life experience in all branches; married, no family; excellent references; leaving through breaking up of establishment.—Mason Gardener, Nailsea, Somerset.

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GARDENER (Head Working), where not less than five are kept; thorough practical experience Inside and Out; highly recommended; excellent testimonials; seyen years in last place; married, no family.—A. Clanfield, 61, Garlands Road, Redhill.

GARDENER (Head Working); age 35; married; no family; life experience in all branches; wife caretaker if required; 4½ years previous situation as head; excellent testimonials; disengaged.—Ashwell, Bedford Road, Morhanger, Sandy, Beds.

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GARDENER (Head Working).—Mr. Best, Head Gardener to Col. Denison, Babworth Hall, can with confidence RECOMMEND a thorough good all round, practical Man, as above.—Address H. Worman, Babworth Hall, Retford, Notts.

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GARDENER (Single handed, or where help is given); 16 years' experience; age 33; married, small family; good references; disengaged.—F. Bucksey, 38, King's Road, Caversham, Reading.

GARDENER (Single-handed, or where help is given); good experience in greenhouse plants, flower and kitchen garden; can be well recommended; age 24.—W. Randall, Ram-croft Nursery, Bury Street, Lower Edmonton.

GARDENER (Single-handed, or with Help); understands vines, greenhouse, flower and kitchen garden, and the general routine of the business; excellent character; disengaged; age 43; married, no family; total abstainer.—W. Shilvock, near The Reform, Bridge Road, Maidenhead, Berks.

GARDENER (Single-handed, or otherwise); single; age 24; 8 years' practical experience in all branches, house decorations; good references.—E. Dexter, The Gardens, Norwood Hall, Sheffield.

GARDENER (Single-handed or otherwise); age 24; nearly five years' experience in present situation; Inside and Out; good reference; disengaged.—Apply A. Want, 91, The Grove, St. Margaret's, Twickenham.

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GARDENER (Single-handed or otherwise); age 45; married, no family; 17 years' good references from present and previous places.—W. Arch, Clare Road, Barton Road, Cambridge.

GARDENER (Single-handed, or where help is given); life experience Inside and Out; age 26; single.—T. Quinnell, D'abernon Chase, Leatherhead, would be pleased to RECOMMEND H. EARNY as above.

GARDENER (Single-handed); age 27; understands flowers, fruit, vines, vegetables, &c; good references; married when suited; good waiter.—W. Perry, 26, Knox Road, Forest Gate, E.

GARDENER (Good Single-handed); single; age 25; abstainer; thoroughly experienued in all branches, Inside and Out; highly recommenced for character and ability.—A., The Cottage, Gainsboro' Road, Leytonstone, E.

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GARDENER (Second); age 23; good experience with vines, fruit, orchids, stove and greenhouse plants, &c.; confidently recommended from present and previous situations.—W. Gilbert, Coddington Hall Gardens, Newark.

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TO SEEDSMEN. — A SITUATION WANTED in shop or warehouse; ten years' experience; excellent references; age.—E., Goodman, Chatteris, Cambs.

TO HEAD GARDENERS.—Young Man, age 25; SEEKS SITUATION; Inside, or Inside and Out; good scythe hand; 8 years' experience; bothy preferred.—For reference apply Head Gardener, West Park, Damerham, Salisbury.

UNDER GARDENER, where three or four are kept; steady lad of 19; three years' good character; has been third where three are kept; wishes to better himself.—Apply to Mrs. Grote, The Manor, Long Bennington, Grantham.

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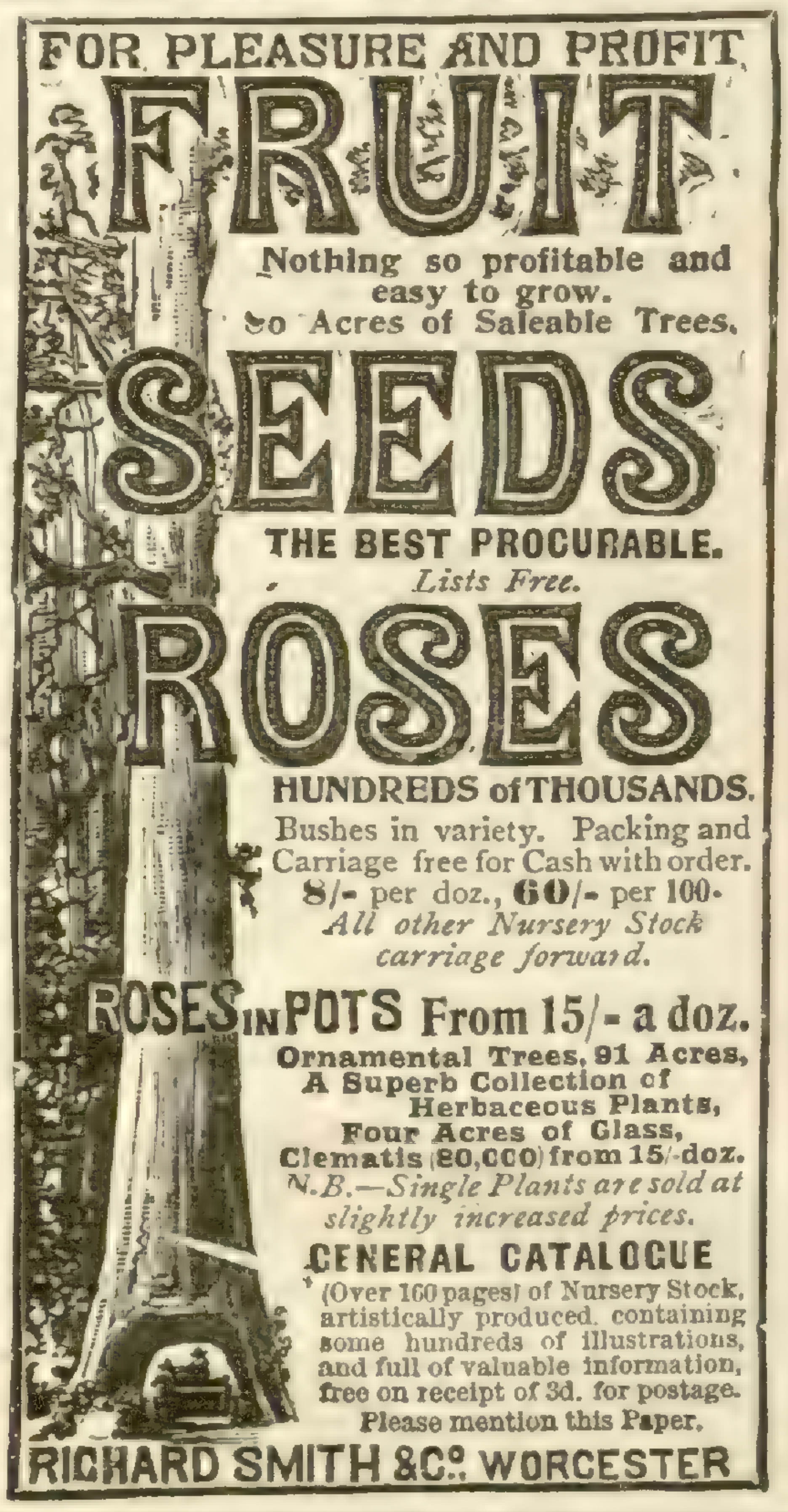
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THE GARDENERS' MAGAZINE.

SATURDAY, MARCH 19, 1898.

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CHRYSANTHEMUM SHOW.
Observe the correct date is NOVEMBER 2 and 3, not as recently advertised, 16 and 17.
The Glen, Ascot. HENRY C. NEEDHAM, Hon. Sec.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.
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For Schedules apply SECRETARY, 37, Preston Road.

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Schedules of the Manchester Flower Shows are now ready, and may be had free on application to
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SHREWSBURY GREAT FLORAL FETE,
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The Prizes in the Schedule amount to £950, with Gold and Silver Medals, &c.
Schedules post free on application to the Hon. Secs.,
Messrs ADNITT. and NAUNTON, The Square, Shrewsbury.

WALTON AND WEYBRIDGE CHRYSANTHEMUM SOCIETY'S TWENTY-FOURTH ANNUAL SHOW, THURSDAY, NOVEMBER 10. Open Class, 48 Blooms, ten-guinea cup, and £3 3s. For schedules apply
GEO. MASTERS, Florist, Walton Road, East Molesey, Surrey.

WOLVERHAMPTON FLORAL FETE.—THE TENTH ANNUAL HORTICULTURAL SHOW AND FETE.
will be held JULY 12, 13, and 14, 1898.
Prize Schedules and Entry Forms from—
WILLIAM E. BARNETT, Secretary, Snow Hill, Wolverhampton.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

NOTES OF THE WEEK.

COST OF PUBLIC PARKS.

FOR some time past there has been a brisk discussion in a section of the dailies of the question of the cost of management of the public parks under the control of the London County Council. It has been readily acknowledged that the parks have been maintained in such excellent condition as to justify a feeling of pride on the part of the residents in London; but the opinion has been freely expressed that the annual expenditure has so grown as to border on extravagance. In the case of Battersea and Victoria Parks, which are unquestionably the two most important open spaces of which the London County Council has charge, it is pointed out that the cost has increased by some 40 or 50 per cent. since they were handed over by the Government to the Metropolitan Board of Works, which has been superseded by the Council. The cost of Battersea Park immediately preceding the transfer in 1887 was £8,910, as compared with £12,775 in 1897-98; and the estimate for Victoria Park last year was £11,855, against £8,316 in the year previous to the park coming under the control of the Council. These increases are unquestionably substantial, and justify some inquiry on the part of those responsible for the expenditure of the ratepayers' money; but they do not necessarily prove that there has been some degree of extravagance as assumed by some of those who have taken part in the discussion. Before the expenditure can be properly regarded as extravagant, it must be satisfactorily determined that either full value has not been obtained from the outlay, or that the maintenance has been carried to a point beyond the requirements of the respective districts. In the case of the two parks here referred to, as of other of the open spaces under the control of the Council, there has evidently been an earnest endeavour on the part of those responsible for their management to render them attractive and convenient, but there have been no signs of a desire to go beyond these two points. It should be remembered in discussing the cost of the public parks that the conditions which have an important bearing upon the expenses are not exactly the same at the present time as they were ten or twelve years ago. During this period there has been an enormous development in the taste for outdoor sports during the period, and the continuous use of every foot of available space for cricket in summer and football in winter, necessitates a heavy additional annual outlay in the maintenance of the turf in good condition. There must also have been a material increase in the cost of maintaining the buildings in repair. As both these parks are comparatively recent creations, the glass structures could not, during the time they were under the charge of Her Majesty's Office of Works, have required much beyond an occasional coat of paint, but of late years they have probably needed more substantial repairs. In both parks there has been an increase in the area under glass, more especially for the purpose of the chrysanthemum exhibitions which, by reason of their extent and beauty, afford unbounded pleasure to immense numbers of the poorer classes resident in London, who, but for the annual displays provided in the public parks, would have no opportunity of seeing the chrysanthemum in its full glory. Again, the additions that have been made to the wages of the labourers during the past ten years, must contribute materially to the total increase in the expenditure; but in no case have they been greater than was necessary, and, to state the case generally, the cost of the parks is in no way excessive, having regard to their extent and the admirable condition in which they are maintained.

EARLY TULIPS.

A WALK through our gardens reveals, to anyone at all observant, the fact that the early tulips so extensively used with such excellent effect as bedding arrangements are thrusting themselves through the soil, obedient to the law of their being which fixes spring as the season of their floral service. The early tulip is a subject of great value to the gardener, supplying him with delicate and brilliant blossoms when flowers are naturally scarce, because it lends itself to rapid forcing. The pretty Van Thol varieties led the way, as they are first in the order of blooming, and though dwarf in height and comparatively small in flower, they possess the fragrance of their progenitor, the South European Tulipa suaveolens. This race, the individuals forming it being somewhat limited in number, are of value in filling baskets and jardinieres for indoor decoration, and they are imported in considerable numbers for the purpose. The scarlet Van Thol is such an advance in size over the white, yellow, rose, and other varieties, that it can be readily imagined it came of more mixed parentage; it is also well adapted for and forms a charming bed in the open, while the others are more adapted for pot culture. T. pubescens, which is regarded as a probable hybrid between T. Gesneriana and T. suaveolens, is considered to be the progenitor of a race of rather later flowering early tulips, of which the Pottebakkers, Bride of Haarlem, Couleur Cardinal, and a few double varieties, are the representatives. In all probability the actual parentage of our most popular varieties will never be finally determined, for one has only to contrast the giant and massive forms of Keizer's Kroon and Proserpine, their tall growth and erect stature, with smaller and dwarfer forms that yet flower at the same time, to come to the conclusion that the former are the offspring of mixed parents. We have, perhaps, no early tulip that can compare with Keizer's Kroon for size and beauty, and yet it is more than half a-century old, and when it first bloomed it must have been regarded as a veritable floral phenomenon; and in the case of this particular variety we have a remarkable illustration of heredity in flowers, for the flowering bulb of a tulip perishes when it has finished its season's task, whether or not it has flowered, but perpetuates its variety in the offsets formed on the radical plate of the parent, and they transmit with unvarying regularity the exact characteristics of the individual from which they were derived, though a little sportiveness is sometimes noticed, such as a partial attempt on the part of a self to break away into some ill-defined flaked or bizarre character. In this country the tulip can be grown for increase more successfully than the hyacinth, as the native soil appears better adapted for the former than the latter. In some of the London parks the great majority of the early tulips which are employed for decoration in spring are carefully looked after when lifted; they are put away carefully in trays of fine ashes in a cool room during the summer, and then examined as planting time approaches, and used for filling the beds. A tulip bulb flowers once, and once only; it has then done its work, and perishes. When a single leaf only is put forth by a tulip bulb the cultivator knows it will not bloom. In the tulip-growing districts of the midlands and north such are technically known as "widows," and not until they throw a second leaf is there hope of an inflorescence being developed.

THE DRY WINTER OF 1897-8.

IN a most interesting report upon the average yield of rain and snow during the five winter months from October to February, as against the fall during the winter of 1897-8, Mr. G. J. Symons, F.R.S., shows very clearly that the land is in need of a considerable amount of moisture. The average total amount of moisture falling during the five months mentioned, taken over a period of forty years, is 10·93 inches, whereas the fall in the winter just ended only totals to 5·62 inches. This is consequently about half the average fall, and on only two occasions since 1858 have there been drier winters, these being 1879-80, with a fall of 5·02 inches, and 1890-91, with a total of 5·31 inches. It is further shown that as in two only of the fifteen individual months was the average fall exceeded, the droughts are due rather to persistent dryness month after month, than to excessive drought in any one or two months. As the wells and underground water supplies are largely dependent upon the percolation of winter rains, it is obvious that such an extremely dry winter is of serious importance to the general body of cultivators, and to residents in the country who obtain their supplies of water from comparatively shallow wells. With a view to determine whether this dryness is local or general throughout the country, Mr. Symons has selected stations well distributed over the country, and at each of which observations have been continuous for at least eighteen years. He then proceeds to give for each of them the average rainfall for the five months, October to February, for the ten years, 1880-89, the actual fall in 1897-98, and the percentage which these last figures are of the above-mentioned average. For the purpose of showing how far the rainfall for the past winter differs from the average it will suffice to give the percentages, which are as follows: Tenterden, Kent, 46; Camden-square, Middlesex, 51; Boston, Lincoln, 51; Bury St. Edmunds, Suffolk, 52; Hitchin, Herts, 52; Hesley-hall, Nottingham, 58; Addington, Buckingham, 58; Ross, Hereford, 62; Alton, Hampshire, 62; Blandford, Dorset, 63; Woolstaston, Shropshire, 65; Newcastle-on-Tyne, Northumberland, 65; Stroud, Gloucester, 65; Hull, Yorkshire, E., 72; Launceston, Cornwall, 72; Manchester, Lancaster, 96; Skipton, Yorkshire, W., 120; and Seathwaite, Cumberland, 127. From a careful examination of the figures here given the facts come out quite clearly. They show that in the north-west of England there has been a wet period, the excess being equal to 20 per cent. in West Yorkshire, and to 27 per cent. in Cumberland. On the other hand in the south-east of England the rainfall has been very short. East of a line drawn from Spurn Head to the Isle of Wight the amount of rain has been about half the average, the absolutely lowest value being at the most south-easterly station. This is a striking example of a feature in the distribution of rain to which Mr. Symons has on several occasions called attention, namely, an oscillation due presumably to differences in the distribution of atmospheric pressure, whereby wet periods in the south-east of England occur with droughts in the north-west of Scotland, and *vice versa*. The balance may be restored within the next few months, but there is no evidence that the drought has yet ceased, and it is, therefore, desirable cultivators should recognise the fact that over the greater part of England the soil contains considerably less than the average quantity of moisture, and also the necessity of conserving the soil moisture to the fullest possible extent by the use of mulching, keeping the surface soil well stirred, and other means familiar to those experienced in garden management.

Decline in Gardening.—Mr. Bryant Sowerby, secretary of the Royal Botanic Society, has been giving a correspondent of the *Daily Graphic* some particulars of the arrangements that have been made for the teaching of gardening in the society's gardens, Regent's Park, and also expressing his opinion of the acquirements of gardeners of the present day. Mr. Sowerby is reported to have informed the correspondent of our daily contemporary that the course of instruction "is to extend over three years. In the first year pupils will be instructed in ground operations, laying out flower gardens and kitchen gardens, and general indoor work in the greenhouses. In the second year the pupils will be taught the duties and knowledge expected of good professional gardeners, from the nature of soils and manures to indoor fruit-growing and the suppression of unnecessary insects; and in the third year they may learn advanced practical gardening." "This," the writer says, "does not appear a very ambitious programme, but it has this great recommendation that any pupil who conscientiously follows it will find himself at the end of three years in a position to earn good wages, for the demand for gardeners is growing, and good gardeners are more rare than good professional footballers." It is not quite clear whether this opinion is founded upon information obtained from Mr. Sowerby, or upon the observations of the writer; but Mr. Sowerby is reported to have said that "Gardening is in a bad way at present. There are only a limited number of gardeners who can do more than rake over the mould; and we could find places for as many competent gardeners as we are likely to cultivate." It cannot be necessary that we should discuss the question as to whether or not a pupil can become "a competent gardener" in the course of three years; for everyone who has any practical knowledge of gardening is familiar with the fact that the time is not more than sufficient to enable him to do more than obtain enough knowledge to make him an efficient journeyman. But the statement that "there are only a limited number of gardeners who can do more than rake over the mould" is so absurd that surely there must be some misapprehension as to the opinion expressed by Mr. Sowerby.

National Chrysanthemum Society.—The adjourned annual meeting of members will take place at Anderton's Hotel, Fleet Street, E.C., on Monday, March 21 next, at six o'clock in the evening, to receive the committee's revised statement of accounts, together with an estimate of receipts and expenses for the current year; to elect a president, vice-presidents, officers, and committee for the year ensuing; to consider certain amendments to the rules; and to transact such business as pertains to the annual general meeting.

Cinchona in India.—At the usual monthly dinner and [illegible] Horticultural Club on Tuesday, the 8th inst., with Mr. Harry J. [illegible] man, a valuable paper was read by Mr. J. A. Gammie, on the cinchona in India, in the culture of which he had been engaged for many years in the Bengal Presidency. Mr. Gammie described the various species of cinchona used, the method of cultivation, and the means adopted through the agency of the Post Office for the distribution of the drug to the various fever-stricken districts. He showed how through extended cultivation its price has been reduced so as to bring it within the reach of all. In consequence of the pressure on our space we are compelled to hold over Mr. Gammie's paper.

Tree Planting on Hampstead Heath.—At the first meeting of the fourth London County Council, the Parks and Open Spaces Committee [illegible] upon the objections raised against the Council for planting trees near Willow Road and Spaniards Road, Hampstead Heath. The committee considered that the trees which had been planted were suited to the heath and would tend to its preservation, and asked that their report be approved. Mr. Bond, M.P., moved, as an amendment, that in the opinion of the Council it is desirable that the trees recently planted east of the Spaniards Road should be removed, and that the Parks Committee be requested to report further as to the reasons which render it, in their judgment, inadvisable to comply with the wishes of the Hampstead Heath Protection Society, as expressed in the letter of Mr. Ernest Lake. Mr. Dickinson seconded the amendment, but after a short discussion it was decided, on the suggestion of Mr. Costelloe, that the report be referred back to the committee.

Black Currant Mite.—An interesting letter has been received by R.H.S. Scientific Committee from Miss Ormerod giving an account of what is being done experimentally at the Duke of Bedford's fruit farm at Woburn, under the direction of Mr. Spencer Pickering, F.R.S. As to the possibility of obtaining "mite-proof" black currants, the only result has been some plants received from [illegible] which she has distributed to the Toddington fruit grounds, to Mr. Speir Newton's farm, Glasgow, and to Woburn. Miss Ormerod has given as exhaustive an account as she could form of the disease in a special appendix to her twenty-first annual report, from the period of its first appearance until the present time. A series of experiments are now being set on foot at Woburn directed to every point which is open for serviceable action, including chemical applications. These will be followed by expert examinations of the contents of the galled buds treated; and with coincident examination of galled buds under precisely similar circumstances, but *not* treated chemically. These experiments will be found detailed in the appendix, pp. 141-158. A conclusion anticipated is that there should be "a difference in broadscale method of growing." Mr. Gordon sent to the meeting sprays of the filbert infested by Phytoptus which he had received from Kent, to show the danger with which the nut crop is threatened. The sprays are erroneously described in the official report as specimens of the hazel nut.

Daffodil Prizes.—Since issuing the schedule of arrangements for 1898, the Royal Horticultural Society has received from Messrs. Barr and Sons, of King Street, Covent Garden, the offer of a silver cup for daffodils, to be competed for at the society's meeting at the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, April 12, open to all amateurs. Notice of entry should be addressed to the secretary, R.H.S. Office, 117, Victoria Street, S.W., and must be posted on or before Thursday, April 7. The particulars of competition for the cup, are "Collection of cut daffodils (polyanthus section excluded), each of the three groups—Magni-coronati, Medio-coronati, and Parvi-coronati—being represented, the flowers to be arranged in bottles which will be provided by the R. H. Society. Not less than forty different varieties and not more than three bottles of any one sort to be staged. Correct naming and elegance of arrangement will be taken into account."

Inner Temple Gardens have been preserved from the builder or from further enclosure by the rejection of the Bill, promoted by the Benchers, seeking powers to extend their buildings in King's Bench Walk southwards. The Bill came before a Select Committee of the House of Lords recently, and was strenuously opposed by the Corporation of London, the London County Council, and the District Railway Company. The Committee decided, after hearing evidence, that the preamble was not proved.

Orchid Roots with Fungus.—With reference to the specimens brought to the last meeting of R.H.S. Scientific Committee, Mr. Murray, of The Gardens, Oakwood, Wylam-on-Tyne, writes to say that he is "convinced that it is from no other cause than from the want of air, or, rather, circulation of it among the plants." In a previous communication to Mr. Douglas, he expressed agreement with Mr. Veitch's interpretation, but not quite in the manner he explained, for he observes, "I ventilate the houses day and night with the ventilators, . . . but the air upon the stages, or, rather, above the stages, where the plants are standing close together, travels very slowly, even with ventilators open, in comparison with that around the centre staging, as plants thereon seldom show signs of fungus."

New Zealand Apples to the extent of five thousand cases are to be shipped from the Canterbury district to London. The packing and shipment will all be done under the supervision of New Zealand Government officials.

The Wimbledon Horticultural Society recently presented its [illegible] secretary, Mr. W. Thomson, with a nearly life-size and quite life-like portrait of himself, prepared by Messrs. Russell and Sons, as a mark of the esteem in which he is held, and as some recognition of the valuable services he has rendered to the society for many years. The presentation was made by Mr. Crocker, the president. We understand that the next summer show at Wimbledon will be held in the grounds of Canizaro House, Wimbledon Common, the residence of [illegible] Mitchell.

The Formation and Properties of Soils forms a question of the widest interest to horticulturists of every grade, consequently we may anticipate a large attendance at the lecture on this subject to be delivered by Mr. J. J. Willis at the meeting of the Royal Horticultural Society to be held on March 22. Mr. Willis has the faculty of placing hard scientific facts before his audience in a most interesting manner, and few have had more opportunities of observing the composition and value of soils.

Carnations and Picotees in the Midlands.—The Midland Carnation and Picotee Society sets an example which may be commended to the notice of societies generally associated with floriculture as worthy of imitation. Instead of hiding their light under the proverbial bushel, the committee very properly take the steps necessary to show the world of floriculture that it is actively engaged in the performance of the work for which it was founded, and that it is fully justifying the views that were given expression to seven years since by those to whom belongs the credit of establishing it. We have received the seventh annual report, and from this we are pleased to learn that, notwithstanding the unfavourable weather experienced on each of the show days the society was able to increase the balance at the bankers'. The report contains a sketch of the work during the past year; the list of the prizes offered for competition at the exhibition to be held at the Botanical Gardens, Birmingham, on July 27 and 28 next, the rules, a list of the finest exhibition varieties, and a paper by Mr. Robert Sydenham on "Carnation Culture." Fifty-two classes are provided in the schedule, and the prizes include a ten-guinea challenge cup for competition in the amateur's classes, and a ten-guinea cup for trade growers. We are pleased to see that border carnations, and arrangements of carnations for personal adornment and the decoration of the house, receive liberal encouragement without there being any diminution in the awards for florists' flowers.

The San Jose Scale (*Aspidiotus perniciosus*) was the subject of some discussion at the monthly meeting of the Entomological Society, owing to its reported occurrence in Great Britain. Mr. R. Newstead stated that during nine years' work on Coccidæ he had never once met with this species among scale-insects taken in this country and sent to him for identification. It was impossible even for an expert to distinguish it, without careful microscopical preparation and examination, from among the thirty or more known species of Aspidiotus, and any attempt to identify it on imported fruit by naked-eye observation, or with a hand-lens, was therefore quite impracticable. The risk of its distribution by being imported on fruit was small. There was, however, much more likelihood of its introduction on plants. At the same time, he saw no reason to suppose that it would be more injurious in this country than the common *Mytilaspis pomorum*. In America the San José scale had several generations in the year, sometimes as many as five, but in this country it would probably conform with the habits of all other scale-insects at present investigated, and become single-brooded. This may be somewhat reassuring, but the probability of the pest not producing more than one brood annually does not in any way render it less necessary to take steps to prevent its introduction into this country.

The Structure of Cycads was discussed at a recent meeting of the Linnean Society by Mr. W. C. Worsell. In the course of his address he pointed out that in cycas the conduplicate vernation and arrangement of the bundles in the fleshy hypogœal cotyledons, the secondary extrafascicular rings, the concentric cortical strands, and, in one species, the peculiar concentric structure of the leaf-traces, in the stem, and in the hypocotyl some curious concentric strands running obliquely out from the cylinder, and, in a small seedling, the secondary vascular cylinders lying outside the normal stele; in the seedling of Stangeria paradoxa the small primary concentric bundles in the stalk common to the two cotyledons, which both higher up and lower down become collateral, and in the adult stem the occurrence of a secondary concentric strand in the periphery of the cortex, which appeared to be the remnant of a once normal system of nude strands; and in Ceratozamia mexicana the vertical succession through the pith of a large stem of effete peduncular cylinders, the peduncles which successively terminate the stem being in turn pushed to one side and their basil region enclosed by a lateral shoot which continues the main vegetative axis. In conclusion, Mr. Worsell endeavoured to demonstrate that certain characters in the vegetative structure of these plants showed them to be nearly allied to, or descended from, certain fossil fern-like plants, notably the Medulloseæ, and these characters were: the extrafascicular zones in the stem of cycas, which really represent the outer portion of the flattened concentric strands in the stem of the Medulloseæ, the inner portion of which has died out, and all the various concentric structures above mentioned. For the type of structure prevailing in the ancestors of the cycads would have been the concentric, whereas in their descendants it is the collateral. The significant outcome of this study is to form, in the vegetative characters of these plants, a connecting link, over and above that already afforded by the discovery of spermatozoids in cycas and ginkgo, between "flowering" and "flowerless" plants. Dr. D. H. Scott, in criticising the address, referred to the importance of certain facts which had been elucidated by the author, which he himself was able to confirm.

Dr. Wilhelm Pfeffer, professor of botany at the Leipzig University, has been invited by the Royal Society to deliver the Croonian lecture. This lecture has for its subject "The Nature and Significance of Functional Metabolism in the Plant," and is being delivered, in German, as we go to press (March 17). Dr. Pfeffer is well known to botanists, especially for his researches in the physiology of plant life.

National Horticultural Society of France.—The following gentlemen have been elected by this society presidents of the undermentioned sections: floriculture, M. Savage; fruits, M. Coulombier; ornamental and useful trees and shrubs, M. Croux; chrysanthemums, M. Lemaire; and roses, M. Maurice de Vilmorin.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

Why do not gardeners read gardening papers? This is a question which has often puzzled me. Perhaps someone may respond that gardeners *do* read the papers, so there is an end of the matter. But I venture to think that the number of regular readers is comparatively limited, and the reason why I have come to this conclusion is that when, in conversation, I have brought up a topic under discussion in one or other of the journals, neither chiefs nor staff were able to respond, because they "haven't noticed what's been said." Understand me, I am not referring to the leading gardens, which are few, but to medium gardens, which are many. I daresay the principal explanation of this fact is that reading is looked down upon with a certain amount of contempt by "practical" men, forgetting, as they do, that it is usually the heads, or, in other words, the most able and practical members of the profession, who become teachers.

I do not want to be prosy, and I have no present penchant for moralising. Neither ever does much good. But common sense ought to tell a man that if he has the chance of getting the experience of a dozen or more first-class cultivators for two or three pence a week, he is as much an ass as ever the law was if he does not take it. I thought this rather more strongly than usual when, on the first Friday in March, an old friend came along the drive in a new spring suit and tumbled himself with a heavy thud into the letter-box, thence sprawling, by reason of his corpulency, out on to the mat. To abandon this subtle allegory, let me say at once that it was the Gardeners' Magazine Spring Number. What though it contained food for differences of opinion on detail in its numerous articles. Was it any the less valuable? Not a bit. To my mind, the man who finds food for the exercise of his critical faculty is the one who gets the most enjoyment out of his gardening and out of his reading. Nothing gives me greater pleasure than to vigorously kick any contributor whom I think I have cornered, unless it be to get an equally vigorous kicking in return. Learn, my excellent young friends, to kick and to receive kicks, both with a kindly heart.

I am going to wander through the forty well-packed pages of the spring Gardeners' Magazine, deliberately, but not of malice aforethought, in search of kicks. It is rather unlucky, though, that the first contributor with whom compliments have to be exchanged is Mr. Wythes, for that portly professional is one of the heavy-weights. There is none of the light comedian or juvenile lead about the Syon chief. He is the heavy man, and, as I have before remarked in these pages, enjoys the rare distinction of Peter's approbation. There are, however, one or two points in his communication on raspberry culture which are open to criticism. In the first place, he appears to deprecate trenching in dealing with light soils. It is just on such soils that trenching is most needed, because the deepening and pulverisation of the ground secures more moisture. The remark that deep trenching means putting the good soil out of the reach of the roots has caused Peter to shake his head; he clearly expected something better from Mr. Wythes. We are believers in trenching, and sustain our belief by solid work, but we take care to so arrange our system as to put the good soil—no matter where it was originally—where the roots are. There are many modifications of plain trenching.

I should like, too, to say a word as to the advice given to cut out the old canes directly the fruit has been gathered. As a matter of labour economics, to coin a phrase, this is, generally speaking, almost impracticable, because the work would have to be done when every available hand is fully occupied with pressing duties. Mr. Wythes writes from the point of view of the private gardener, into whose sphere those worrying economics do not come. The man who is trying to make money can find more fruitful work for his hands in August than raspberry pruning. Nor do I quite look eye to eye with Mr. Wythes in respect to the intrinsic merits of the process. Is it very far-fetched to suppose that the highly elaborated sap of the older canes nourishes, in descending, the basal buds which are the foundation of the following year's canes? I am more and more inclining to the view that it does, in a measure, serve that purpose, and that October is a better month than July or August for pruning, quite apart from the fact that labour is then becoming available.

It is not often that I read an article of Mr. Beckett's with disappointment, but when, under the heading of "Vegetables for Exhibition," I found two-thirds of his communication about early potatos dealing with early forcing, I must confess to a slight tinge of it. There are few of us, probably, whose modest competitive efforts with the noble tuber call for ten-inch pots and heated pits. Perhaps one of these days the Luxian potatos (*pace!* Mr. Prinsep) and other forced produce will be carrying off a gold medal at the Drill Hall, but the time is not yet. However, in the latter part of his communication, Mr. Beckett gives we poor outsiders a little advice, and capital it is, as I can testify, particularly the recommendation to use spent, crumbly manure and leafmould in planting. It ought to be quite obvious that in the case of such a vegetable as the potato, heavy dressings of damp, rank manure must be of questionable value. The stuff may and does give a heavy crop, but the tubers are not of the beautiful texture and speckless skin which we covet. I have never had a more even and clean lot of tubers than when I have mixed leafmould and burnt rubbish, the latter with its rich stores of potash, and spread in the drills.

In the latest of his pleasant articles on "Ferns," Mr. Druery describes himself as a fern "maniac," and hints at a leaning towards the giving away of seedlings as souvenirs. This would support the view I have always held, namely, that there is much method in his madness. And if a consignment of seedlings reaches me per the editor at an early date, I shall hold the view more tenaciously than ever. To the ordinary horticulturist there is a certain coldness and "deadness" about ferns which prevents him opening his heart to them as he does to flowers, but it cannot be denied that some of the crested forms are exquisitely beautiful. There is something, too, to be said for the attraction they exercise—far transcending that of gaudy flowers—on refined minds. There were many people who could make nothing of the original Gulliver until others, more acute, ferreted out the meaning for them. Perhaps the "new Gulliver" is also rather too much for some of us at times, but we shall understand him the better when our intellect departs from the narrow grooves and assumes "cristation."

Mr. E. Molyneux deals some staggering blows at the generally accepted ideas on the fruit question. In particular he traverses the direct advice given editorially in the MAGAZINE—and not there alone—to plant late, long-keeping sorts for market. If the good people of Southampton will not buy average fruit of Cox's Orange Pippin and Bramley's Seedling, Mr. Molyneux should send it to parts where they have some elementary knowledge of real merit in fruit. I did not think the English town existed where American or Tasmanian varieties are better known than Cox's. What Southampton is thinking about to have a prominent horticulturist like Mr. Molyneux at its gates and yet remain in ignorance of our premier dessert apple passes comprehension. But is our friend himself consistent? He condemns Bramley's because it is a late keeper, but commends Lane's Prince Albert, which is another of the late section. Surely the fact that in autumn after autumn gluts bring down prices to a ruinous level shows the danger of advice to grow sorts that must be cleared six weeks before Christmas. Generally foreign competition is more severe in the early part of the season than towards the end, and the result of this is that our large growers are putting down more and more late sorts. Are they all wrong? I doubt it. In any case, it is highly probable that they will want stronger proof of it than the experience of a cultivator who only began planting for market eight years ago.

There is no article in the spring number more interesting than that of Mr. Geo. Harris on allotments in the north. Few writers and few tradesmen give special attention to the rapidly increasing army of allottees, although the evergreen Mr. Cannell is an exception among the latter. The enterprise of the energetic northerners quite shames the apathy of the south. The taking of hundreds of acres and cutting them up into small plots bespeaks real progress. What a pity it cannot be done all over the United Kingdom. Or rather, what a pity there is not sufficient public spirit amongst the people to get it done, difficult or easy.

I thought I should catch it from Mr. Prinsep about those potatos, and I have. It was Peter who egged me on, and when I had partly recovered from the shock I summoned the tempter to my presence, and demanded to know what I was to say in reply. To begin with, Peter displayed a virtuous wrath. He feels himself at full liberty to question my horticultural omnipotence, but no one else must do so. What I have to say is not infrequently wrong to him, but if the world at large ventures to flout me it is characterised as a piece of gross presumption. Having relieved his outraged feelings on this score, Peter delivered the following withering reply to Mr. Prinsep.

"Mr. Prinsep thinks he's wonderful clever, I can see. Perhaps he's been growing potatos longer'n what I have; I daresay he has, according to what he says. Well, if he has, why is it that he grows six hundred of other people's varieties [Steady, Peter, sixty, not six hundred—LUX], and other people don't grow none of his? We've got some here of Mr. Carter's, and some of Mr. Daniel's, and some of Mr. Sutton's, and some of Mr. Webb's, but we haven't got none of Mr. Prinsep's. What do people like them want to get in his way for? Impudence I call it. Now, I should like to ask this gentleman a question or two. He drops in remarks about growing the heaviest crop ever lifted in England, and producing thirty or forty tons an acre. Oh! Perhaps he's grown a bigger crop than my grandfather on my mother's side; but if he has, why doesn't he tell us all the particulars? I can produce mine if he can produce his. If he can grow forty tons an acre, why doesn't he make his fortune and retire? Let him send all particulars, and have 'em published. Now, I should like to ask him another question. Says he, 'It is not actually necessary to put the tubers on their ends till the winter is half over.' Well, what's he want to put his on end in August for? I suppose he does it because it isn't necessary. Now there's ——"

At this stage I interrupted Peter, and pointed out that enough had been said for the moment. By the time Mr. Prinsep has digested the above onslaught, and answered the questions contained in it, more can possibly be said with advantage. My excellent critic is quite right that I am not thin-skinned, and he, in his turn, will not mind my asking him for particulars of the biggest crop in England. What was the variety? What was the actual extent of ground? What manure was used? What steps did he take to check measurements and weighings, so as to prevent accidental errors? Having disposed of this he may, as Peter suggests, tell us why he starts set-preparation in August when it is not, in his own opinion, necessary.

LUX.

Children's Prizes for Flowers.—This year the Wood Green Horticultural Society has provided classes for plants in pots and cut flowers, in which the competition will be open to the children of members. Not only does the society provide the prizes for children, but it has supplied the intending competitors with seeds free. The seeds were supplied in collections of six packets each, one collection comprising seeds of plants suitable for cultivation in the open, and the other of seeds of plants to be grown under glass.

APPLES IN HAMPSHIRE.

WHEN alluding to the kind of trees to plant I omitted to say I planted six-feet standards thirty feet apart, and bushes fifteen feet. Thus we have bush trees in one row above fifteen feet wide, and one bush between the standards in the next row fifteen feet from the row of bushes. Standard trees may be all very well for the future of thirty years, but if I were to plant again I should have bushes only. With view to utilising the space thoroughly, five years since I planted some hundreds of maiden trees of approved varieties of such sorts as Lane's Prince Albert, Lord Grosvenor, Benoni, Worcester Pearmain, and Bramley's Seedling. Between the rows at fifteen feet these maiden trees were planted, and eight feet from tree to tree. At the present time that part of the orchard is now fully grown, the trees almost touching each other. The fruit obtained from these added trees has perhaps hardly been commensurate with the outlay, but here are the trees, and with a little more space would develop into handsome bushes in a short time. The preparation for planting was done in the following manner: six weeks previous stations or holes were taken out four feet square on the surface, and two feet deep, in preference to trenching the whole, as we were wishful to retain the grass between as much as possible. The soil is somewhat peculiar and required dealing with in a systematic manner. The top spit one foot deep is a nice friable loam, below for three feet lies a hard tenacious soil, not absolutely clay but a near approach to it. Owing to its being freely intermixed with large flint stones it cannot be called wet land. In digging out the holes the turf was laid on one side, the top spit by itself and that below by itself. The bottom of each hole was broken up six inches deeper to assist the free percolation of the water from heavy rains. The soil was returned to the holes in an opposite manner to how it was taken out, thus keeping the surface soil—which is the best—in the same position. Mounds six inches high were formed on which the trees were planted, with the object of keeping the roots as near to the surface as possible. The turf was utilised to plant each tree in with the addition of two or three shovelfuls of decayed vegetable refuse and wood ashes with a small portion of half-rotted manure. No manure was used below the roots, thinking this would be an incentive for the root to go deeply in the soil. Mulching and staking of the standards was done at once.

The vexed question of pruning the newly-planted trees was my next thought. Knowing there were several opinions as to the advisability of pruning at once as against non-pruning, I determined to put the two systems to a practical test, although my mind was already made up as to which was most likely to succeed. In February I cut back the bulk of the trees to a few eyes on each shoot, my object being to lay a foundation to increase the size of the trees, starting the bushes as near to the ground as the shape of the trees would admit. The result of this close pruning was to induce a vigorous growth the first year by curtailing the energy of the tree to a limited number of shoots. In some cases I simply removed the point of the shoots, the result being but scanty growth and clusters of flower buds on the shoots retained. In other instances no pruning was done at all, the result being scarcely any growth, and in some instances bloom-buds formed on the point of each shoot, and thus checked future growth. Certainly in the case of Ecklinville this was so, and in addition to the cluster of buds at the point of the shoot many more formed on other parts, and, as I suspected, from the two latter methods of pruning the base eyes remained dormant, and in many instances died entirely. For the above reasons I neither practise nor advise either method, as it is growth we require the first season, and not fruit blossoms. The advocates of non-pruning the first year argue that to give two checks—planting and pruning—at one time is not a good system. The latter ought to be deferred for a year until some recuperation has taken place in the tree as the results of interfering with the roots. Surely, then, to cut a tree hard back after one season's growth is a much too slow policy in these go-ahead days.

My practice of pruning since has been to simply shorten the season's growth sufficient only to ensure sufficient base eyes to burst into growth and furnish the trees properly and preserve their shape. I am not a believer in the hard-pruning principle after a tree has become established. I have no hesitation in saying that, with few exceptions, it is not necessary to root-prune apple trees to induce fertility if space is available to allow a sufficient extension of the branches. Not so when the trees are closely pruned annually.

A few words as to the mulching of the newly-planted trees may not be out of place here. I am a firm believer in the value of mulching for conserving the moisture about the roots during dry weather, but this may be carried to excess. A thick mulching of manure during the month of May prevents the sun warming the soil, and, of course, the roots also. This I hold to be a mistake, as solar heat at that period encourages free root action, which means successful progress. My plan is to remove the mulching on one side for a time to admit of the sun exercising its influence on the soil, and should the weather remain long enough dry to parch the surface soil the manure is returned.

If three-year-old trees are planted many will develop blossoms the first season; it is time well spent removing these, thus concentrating the whole energy of the tree into the growing shoots. I am a firm believer in the practice of summer pruning apple trees. It is not possible to obtain heavy crops of fruit from immature branches. If all surplus shoots are removed they do not incommode the penetration of sunlight, air, and wind, all influences to wood maturation. If these surplus growths are removed at the winter pruning as a necessity, my argument is, why not dispense with them in July, or at the latest in August? Little remains now to be said in this article, which I fear is already too long, but which might have been extended, and perhaps with interest to some of your many readers.

Swanmore Park Gardens. E. MOLYNEUX.

Some Roses of 1896.

Bladud, H.P. (Cooling and Sons).—This rose is rightly described as "an enlarged Mademoiselle Bonnaire." Its colour is white, with blush centre, full, but not very perfect in form, and lacking a high centre. Judging from the thinness of its petals, he blooms would soon damage in wet or damp weather. It has not, up to the present, been very well staged, but it may improve as time goes on. It is, however, a most distinct variety amongst exhibition roses, and is a seedling raised by the late Mr. Henry Bennett.

Ellen Drew, H.P. (A. Dickson and Sons).—This rose is a distinct sport from that old favourite La Duchesse de Morny, which was introduced as far back as 1863, and still holds its own. As everyone knows, La Duchesse de Morny has its particular years, when, from some reason or other, it comes remarkably good, being seen in fine form in all the leading stands, and then for the next four or five years it seems to be lost sight of altogether, like the pale-clouded yellow butterfly. It is not at all improbable that Ellen Drew, following its parent, will behave in the same way, so that even if it does not come to the front in 1898, that is no reason why it may not do so in 1899, or subsequent years. La Duchesse de Morny is bright rose, Ellen Drew is silvery pink, a not altogether desirable colour, but nevertheless distinct. In wood, foliage, and form it is identical with the variety from which it sported. Taken altogether, it is a good, new rose, and one of which we shall probably see more in the coming season.

Lawrence Allen, H.P. (Cooling and Sons).—This promising rose can hardly be called a "native of Bath," for it was one of the late Mr. Henry Bennett's seedlings, purchased by Messrs. Cooling, and sent out by them last year. I was first attracted to this rose by seeing a remarkably fine stand of it exhibited by the introducers at the Bath rose show in 1897, and have seen it since at other exhibitions, generally well staged. It is in colour a soft pink, something, but not altogether, like Her Majesty, with similar wood and foliage, perfect in form, cupped globular, and when well established will probably prove to be one of the best hybrid perpetuals sent out for many years. It would not be at all surprising to see it taking a leading place in next season's exhibitions. If the flowers staged at Bath had been exhibited in the class for new seedlings at any of the National Rose Society's shows, it would doubtless have gained a gold medal. Messrs. Cooling and Sons are to be congratulated upon Lawrence Allen.

Muriel Grahame, T. (A. Dickson and Sons).—There has been so much discussion about this rose that little more need be said. I was somewhat doubtful as to the good qualities of Muriel Grahame last year, owing to there being what seemed two varieties, and knowing its history, and that it was another sport from Catherine Mermet, I questioned whether the sport was fixed. But after the splendid examples staged last year, it is evident that those who supported its claims were quite justified in doing so. Up to the present we have not been able to do much with it, for it makes but weak growth, and does not propagate easily from buds. But then our climate is not suitable for teas, especially of the Catherine Mermet strain. If Muriel Grahame is as vigorous in constitution as it is grand in flower, it will rank with the very best of teas, and run Maman Cochet hard for the premier position.

Madame E. Resal, China (Guillot).—This variety as staged by Messrs. Paul and Son at the Manchester rose show last year, in an interesting group of decorative roses, is highly promising. The flowers in clusters made a very pretty bunch. The colour seemed to vary in shade, so that it is not easy to describe it. It was a kind of coppery-red, something like that old rose Ophirie. As there was no restriction in the Manchester schedule as to the number of trusses to a bunch, it was impossible to judge correctly of its free-flowering qualities. We shall see more of it probably when it becomes better known to the cultivators of decorative roses. Messrs. Paul and Son describe it briefly as "rose, shaded with orange, very free, in the way of Laurette Messimy."

Madame Jules Finger, H.T. (Guillot).—Mr. Benjamin R. Cant had a good flower of this variety in his stand of new roses at the Crystal Palace show last year, and it was worth making a note of, but it is so like the generality of the new hybrid teas, many of which appear to suffer from anæmia, that one cannot at present call it distinct. It is described by Messrs. Paul and Son as follows: "Flowers large and full, creamy-white, shaded with pink, distinct and novel;" but both they and other trade-growers, in speaking of its growth, designate it as "moderate."

Queen Mab, China (W. Paul and Son).—This is a charming decorative rose, and, like most of the Chinas, appears to be very free-flowering. It is something after the style of Ma Capucine, and therefore will doubtless soon be popular with the general public. The raisers staged some very effective bunches of it last year, notably at Manchester, and their description of the rose is as follows: "This variety belongs to the decorative and button-hole class of roses, of which Ma Capucine and Madame Laurette Messimy are good examples. It is, however, perfectly distinct from all others, and is much superior in its sturdy habit of growth and the substance of the petals of the flowers, the latter quality enabling it to last longer when cut than any other rose we are acquainted with. The colour may be described as soft rosy apricot, the centre of the flowers shaded with orange, and the outside tinted with rose and violet; it blooms with extraordinary freedom, and is most excellent for garden decoration and for cutting."

Robert Lebaudy, H.P. (Leveque).—This is a continental introduction, and at present but little known. A few flowers of it were staged in the stands of new roses last year, and these were generally good; notably a bloom at Wolverhampton. Probably, whenever it appeared in the stand, it attracted attention, because it was a distinct red, a decided red, so rare to find amongst the new seedlings. Mr. Benjamin R. Cant thinks it a good rose, and so, not having as yet grown it myself, although we hope to stage it this coming season, it will be well to give his description: "Vermilion red, shaded with purple, large and full, fine flower, and very promising."

Souvenir de Madame Eugène Verdier, H.T. (Pernet-Ducher).—The colour is white, with a faint suggestion of yellow; the flowers are of good size and form, and the growth strong. Some noteworthy examples of it were staged at last year's rose shows, and it has every appearance of being a good rose. The raiser's description is: "Very vigorous, flowers large, very full, and perfect form; colour electric white, shaded saffron yellow. Very fine under glass."

Tom Wood, H.P. (A. Dickson and Son).—We have grown this variety last year on maiden plants, and consider it a good rose, although one cannot help wishing its colour was a little brighter; it is Cheshunt-hybrid red. It has been staged by the raisers, but somehow it lacks brilliancy even with them. I like its habit, for it is strong and robust, producing large, well-shaped blooms, flowering freely. Messrs. Dickson state it to be "a variety of great merit, either for garden decoration or exhibition purposes. The colour is cherry-red, petals large, shell-shaped, and of immense substance; flowers very large, full, and perfectly formed; growth vigorous, and of free branching habit, flowering freely and continuously from early summer until late autumn; the foliage is most distinct, and almost mildew proof."

A Correction.—With reference to my remarks in the Gardeners' Magazine of January 29, upon hybrid tea Clara Watson, knowing it to be sent out by the late Mr. George Prince, and named after Miss Watson, I questioned the statement of Rev. D. R. Williamson in "The Rosarian's Year Book," that this rose was raised by the late Mr. Bennett. I beg to apologise for so doing. The editor of this Year Book writes to me as follows: "The late Mr. Henry Bennett left behind him some pans of seedling roses; these were bought by Mr. George Prince, Messrs. Cooling and Son, and other nurserymen. Clara Watson was one of Mr. Prince's lot." Joseph H. Pemberton.

Young Vines and Cold Borders.

As the time for planting young vines has again arrived, there are a few matters in connexion with this operation to which I would draw the attention of those about to undertake such work. Generally, when a new vine border is to be made, the turf from some old pasture land is cut in the autumn and carted home in dry or frosty weather. Often when the turves are thawed they are chopped and mixed with such things as basic slag, kainit, wood ashes, lime rubble, &c., and the border immediately formed of this mixture. Now, were a thought given out as to the temperature of this mass, and the temperature the young vine roots are in before being planted, few would care to transfer the one to the other until the temperature of the border was raised. Several instances of mishaps have come to my knowledge, and to no other cause could they be traced than a cold border.

In one case the condition was exactly as described, and the temperature of the border could not have been above 45 degrees, if that, for the work of making was finished a few days before the vines were planted. The vines did little good for two years, but afterwards grew away, and are now in excellent health. The young vines were started in a house with a minimum temperature of 55 to 60 degrees, and as the pots were surrounded by the same degree of warmth, the check they would receive on their roots being placed in a soil so much colder than they had previously enjoyed, and just at the time they were required to support growth, proved too much for them. Although the soil was carefully washed from the roots in tepid water and disentangled, yet a certain amount of damage was done, which would in no wise improve their powers of withstanding the shock occasioned by the cold border. During the first year, the growth they made seemed to be limited to the amount of store food the plants contained. In the autumn only a few young rootlets were found. The second year after planting, most of the vines looked better, but real progress was not made until the third year. Since then they have done exceptionally well.

In the case of anyone having a cold border and young vines ready for planting, the question arises, how is it to be warmed? When there is command of hot water, the difficulty might be overcome by giving it a few soakings with the water at 100 degrees, or even more, till a temperature of something like 60 degrees was obtained in the border. By allowing the water to drain for a couple of days, and then planting the vines, using, if necessary, some soil previously warmed in the house for covering the roots. The soil taken out for the purpose of planting could be placed on the top of that immediately covering the roots, and the space occupied by the roots again watered with water at, say, 80 degrees. To retain the warmth in the border, place a bed of fermenting material upon it two feet deep. This bed will also assist in maintaining a warm, moist atmosphere for the canes, as well as materially influencing the growth of their roots. J. Riddell.

The Almond.—This very beautiful flowering tree, of which there are many examples in my neighbourhood, has been having a bad time of it this season, because of the sharp frosts and keen biting winds that have prevailed; hence the blooms have had colour taken out of them, and they have been scorched. Should anyone, however, deprecate planting the almond for this reason they would act very foolishly, because the tree does bloom beautifully and unharmed three seasons out of four at least, if not oftener. That fact, too, is worthy of notice, because some people seem, in relation to fruit trees, never to tire of preaching the importance of getting late bloomers, whereas time of blooming seems to have little to do with danger from frosts, as these so often do more harm late than early. We have good reason as a rule to be very grateful to the almond for the exceeding beauty it gives to our shrubberies and gardens in the very early spring, as well as for its lovely odour.—A. D.

HARDY SPRING FLOWERS.

ALTHOUGH the setting in of cold weather during the last few weeks has somewhat retarded many spring flowers, and unfortunately somewhat spoiled some less hardy ones, such as the beautiful Rhododendron præcox, Megasea Stracheyi, and others, there is now nevertheless a fair show of seasonable hardy flowers, and beds which were bare a few days ago are now a mass of bloom. Of bulbous plants, Chionodoxa Luciliæ and C. sardensis are no doubt the most showy of the squill tribe. No plants increase more readily or are so easily grown as these two species of chionodoxa, it being almost impossible to find every small bulb of them in clearing a piece of ground. What with bulbs left behind and seedlings which flower the second year, these plants are everywhere to be found, and no matter whether the ground is turned over ever so deep, they will manage to come through. To acclamatise chionodoxas and have them particularly fine, I should recommend the following method of culture. Plant the bulbs as early as possible in the open ground, not shallow but about twelve to eighteen inches deep. Such bulbs will not be the earliest, but, on the other hand, will neither suffer from frost, which sometimes spoils the early-flowering ones, nor from exceptionally dry weather, and so die off prematurely; and there is the advantage that when the leaves have disappeared, which is usually in May, some other plant can be placed on the top of them, without interfering with the bulbs. There are, at present, about five species of chionodoxa known: C. Luciliæ with sky-blue, star-shaped flowers with light centre; C. sardensis with smaller deep blue flowers; C. gigantea (C. grandiflora) with large violet blue flowers being easily distinguished from C. Luciliæ by its broader leaves, few but large flowers, and broader segments; C. Alleni is synonymous with C. grandiflora; C. Timoloussi, a small-flowering later form of C. Luciliæ, and hardly worth cultivating; and C. cretica, a small-flowered species with pale lilac or lilac-purple flowers, remarkably free; there is also a fine white form of this. C. nana is a dwarf violet or purple flowered species, but is not so easily grown as the more showy C. Luciliæ, C. sardensis, and C. grandiflora. Of C. Luciliæ, C. sardensis, and C. grandiflora there are now pure white forms in cultivation, lacking, however, the vigour of the types.

Scilla bifolia, although by no means as showy as the chionodoxa, is a remarkably handsome plant when well grown; bulbs should, however, not be left out of the ground for many days, and deep planting as in chionodoxa should be adopted. The flowers of the ordinary Scilla bifolia are small, star-shaped, and purple blue, the pedicels being usually purple or brownish; S. bifolia grandiflora has larger and deep coloured flowers; S. bifolia taurica is closely allied to S. bifolia grandiflora, but has a denser raceme, and the stamens are brownish purple; Scilla bifolia Whittalli differs from the ordinary S. bifolia in the more numerous flowers longer pedicels, as well as lighter blue colour. S. bifolia has a very wide distribution, and this explains its great variation. S. bifolia alba with pretty, creamy white flowers; S. bifolia rosea with delicate rosy or flesh coloured flowers; and S. bifolia rubra an exceedingly rare plant with deep rosy flowers are all good. Of the latter, Mr. T. S. Ware had a few years ago a stock consisting of about two dozen bulbs, but being attacked by the narcissus fly, imported from Holland with Dutch polyanthus narcissus that were planted near them, they all died excepting one small bulb, and having been dug in deep, this plant has not been moved, and shows no signs of increase. I only know this rare and beautiful plant to be in two other collections in England, and I greatly doubt it being known at all on the Continent out of the Baden-Baden collection.

Colchicum libanoticum is really one of the most handsome of its genus; it belongs to the many-flowered small-growing kinds, and is closely allied to C. montanum, C. bulbocodioides, and C. Steveni, as well as the bulbocodiums; the numerous flowers are delicate rose, flesh-coloured or white. This is a very vigorous growing kind, and perfectly hardy in this country. Sisyrinchium grandiflorum and its white flowering form are the only two which can claim to be really handsome. The grassy-like leaves and scapes are glabrous, about nine inches to a foot high, the flowers being campanulate, of a delicate purple or white; they are easily grown in a sheltered, partially shaded spot in not too heavy soil. Next to Anemone blanda, which has been here in flowers since the first week in January, and is still in bloom, A. ranunculoides is the earliest; the flowers are pale yellow. This species is best grown under trees. Tulipa violacea, of recent introduction, and one of most distinct and sweetest of tulips, is a small-growing species, the leaves being narrow and short; flowers are of a beautiful rosy carmine or rosy violet, rather small, reminding one somewhat of the equally handsome T. pulchella. This is the earliest of tulips, and is flowering now in Mr. Ware's collection planted without protection, and though the sharp frosts of last week have destroyed many flowers, this seems none the worse. Eranthis cilicicus differs from the well-known winter aconite (E. hyemalis) by flowering quite four weeks later. In growth it is taller, the leaves and involucre being more divided, while the flowers are of a deeper yellow. It is a very pretty plant, and far more showy than the ordinary winter aconite. Adonis amurensis, the earliest of adonis, and quite as easily grown as A. vernalis, has leaves finely cut, and large, much-branched stems, twelve to eighteen inches in height; the flowers are large and yellow. This was well figured in the GARDENERS' MAGAZINE of March 20, 1897, p. 169.

The primulas are quite numerous. Primula Allioni from the Maritime Alps, is of slow growth, but its bright rosy lilac flowers are very pretty, and the plant is fine for the rockery planted in fissures or between stones. P. Clusiana has large, carmine, deep purple or violet flowers; being so easily grown, and such a handsome plant, it should be in every garden. P. calycina and P. Wulfeniana run closely into P. Clusiana, and flower also later. In sunny places the handsome Primula minima has already commenced flowering, while in its native habitat, one usually does not meet it in bloom before June. It is of very dwarf growth, seldom growing above half to one inch high; its flowers are, however, large, sometimes as large as a two-shilling piece and rose coloured. It is very easily grown, and on the Alps I have invariably seen it on meadows among short grass at an altitude of 4,000 to 6,000 feet. P. rosea is just opening its fine flowers, and will no doubt be at its best, if the weather remains mild, by the time these notes appear, Dentaria digitata is again commencing to produce its long terminal racemes of deep violet or lilac-purple flowers. This is best grown under trees or in half-shady beds. Corydalis Ledeboureana and C. rutæfolia have pretty, fernlike, glaucous leaves and lilac and purple flowers. They are both easily grown in a sheltered, sunny position in light soil or in pots.

Of narcissi the following sorts are in bloom: N. pallidus præcox, both the large flowering form and the much smaller, though equally handsome form of the mountains; N. minimus and N. nanus, both small Ajax or trumpet species with yellow flowers; N. nobilis, the perianth being primrose with sulphur divisions; N. obvallaris, uniform yellow; N. Golden Spur, and N. Henry Irving, large, yellow. In the house the new bicoloured Narcissus Victoria is flowering, and is undoubtedly a grand acquisition. In shape it is similar to Narcissus bicolor grandis, formerly the finest of the bicolor Narcissi, but this being late and not forcing early is of less value as a cut flower than N. Horsfieldi or N. bicolor Empress. The flower of N. Victoria is also larger, and under ordinary treatment it flowers as early as N. Horsfieldi, and forces even more readily. Being of vigorous constitution, much more so than most of the new trumpet narcissi, and being very prolific, it is bound to become very popular, especially as a cut flower. Beds of this narcissus at Tottenham look very promising, and will soon be in bloom. Crocus biflorus nubigenus and C. Sieberi var. versicolor, two of the prettiest of crocus species, are again in flower, also the handsome C. Balansæ.

G. REUTHE.

ANTHURIUM CULTURE.

THE anthuriums are invaluable for the decoration of our stoves, many of them being worthy of a place for the beauty of their foliage, apart from the spathes. In establishments where ample room is at the command of the cultivator, those species remarkable for their richly marked foliage should be cultivated, as, without exception, they are strong growers, requiring abundance of head room as well as a large receptacle for the roots, such as very large pots or pans, or even in the case of exceptionally large specimens a shallow tub should be used. The roots of all these species run along either on or just below the surface of the soil in which they are potted, therefore a deep receptacle would be quite unnecessary, in fact detrimental to the well-being of the plant. The most beautiful foliaged anthuriums are A. crystallinum, A. Warocquianum, A. Veitchi, and A. magnificum; the spathes of the latter variety, though of no great beauty, are deliciously scented. A. Scherzerianum, and its many forms are indispensable in a collection, A. S. Wardi being one of the best, and A. S. Williamsi, with its pure white spathes forming a fine contrast to it. Other excellent kinds are A. Andreanum, A. Rothschildianum, A. fevrierense, A. ornatum, A. Lindenianum, A. floribundum, A. Rothschildeanum, and these require very careful treatment, not having so strong a constitution as A. Scherzerianum.

Early in the month of March is the best time for repotting the members of this genus, as they commence making their new growth about that time. The receptacles must be quite clean, and be filled to within four inches of the top with clean potsherds, placing over these a few pieces of charcoal, and after that a good layer of the roughest of the compost. The latter should consist of equal parts fibrous peat and loam, with a liberal addition of broken charcoal and silver sand, the two former to be used in a rough lumpy state. Having the soil and pot ready, take the old plant and ball of soil and carefully remove with a pointed stick a portion of the exhausted compost, separating and spreading out the roots on the new soil, placing some compost over them, and slightly mounding it up to the neck or collar of the plant. During the growing season the temperature should range from 65 to 75 degrees, with a rise of ten degrees by sunheat; the atmosphere must be highly charged with moisture, though in the winter months when the plants are also at rest a much lower temperature will suffice, and less atmospheric moisture. At no time, however, must an anthurium be allowed to become quite dry. When the specimens have become established in the new soil and are showing signs of active growth they require copious supplies of water, rain water for preference, which should be at the same temperature as the atmosphere in which the plants are growing. Syringing should be performed twice a day, and water should be thrown on the paths and stages at frequent intervals throughout the day. All those not requiring a fresh shift should be top-dressed with fresh soil after the exhausted compost on the surface has been removed.

The propagation of anthuriums may be readily effected either by offsets taken from the old plants, or from seed. The latter should be sown as soon as ripe in pans filled with finely sifted peat and sand, placing a sheet of glass over the soil; when the seedlings make their appearance put them singly in small thumb pots and place in a light position in a warm moist house, afterwards growing them as advised for the specimen plants. The magnificent contrast afforded by the deep rich green leaves and bright scarlet spathes of A. Scherzerianum and its varied forms cannot be surpassed, and the effect must be seen to be appreciated. The spathes also last for a considerable time in a fresh state either on the plant or when cut and placed in water for house decoration, where they are invariably appreciated both for their beauty and interesting appearance.

H. T. MARTIN.

Stoneleigh.

Relationship of Calycanthaceæ and Rosaceæ.—Dr. B. Longo has been studying the embryology of the Calycanthaceæ, and, according to the "Atti dei Lincei," he has discovered in their ovules certain characteristics forming a link between this order of plants and the Rosaceæ.

PEACHES ON OPEN WALLS.

SINCE the introduction of so much glass into our gardens, it is doubtful if that care is taken to grow peaches out of doors as there used to be in the days of our forefathers. There are so many other things demanding attention that it is almost impossible to devote time to all, therefore some must be omitted or neglected. We know that the same number of varieties were not in cultivation years ago as there are at the present time, but whether they were hardier or not is an open question. We have now a long list of varieties all of which are said to be good, at least the descriptions given would lead those unacquainted with them to think so. There are, however, some of but little value, either as regards flavour or fruitfulness when grown against walls, more especially in cold districts, as they are too tender. The south of England is not altogether the most favoured part for the cultivation of peaches, though in some places they do fairly well. The great drawback here is the time they commence to grow in spring. Here some of the varieties were bursting into flower ere the shoots had been fastened to the walls. I noticed some of the blossoms showing colour as early as February 10, and no wonder that they receive a check later on when in full bloom. This is not only the case with the early varieties, but many of the late kinds are also showing flower. Some of what are termed first-class varieties are of no use whatever in this district.

Taking Barrington as an example, its fruit is large and of a good colour, but as regards flavour quite worthless, as it is both woolly and juiceless. Dr. Hogg is also only fit for stewing. The tree is also too tender for outside cultivation, as it is usually attacked with mildew in the most favourable seasons. Lord Palmerston is a pretty peach when well grown, and that is the only recommendation it possesses. Early Silver, though a fine peach under glass, is of no use on the open walls, and the same may be said of several of the newer kinds. Alexander does fairly well here, though in some seasons the foliage blisters terribly. Last season it was attacked in such a manner that very few leaves were to be seen until after midsummer. Bellegarde is a good peach; the tree is hardy and most prolific, nor is it so subject to mildew as some others. The fruit is of medium size, quite large enough for all ordinary purposes; the colour is good and flavour excellent. On the open walls we seldom fail to have a crop. Condor is also a good variety, producing fruits both large and of excellent flavour, but the tree is not very hardy. Grosse Mignonne is a good peach for outdoor cultivation; the tree is hardy and prolific, and the fruit both good in size and quality. Prince of Wales usually does well, and produces some fine fruit of most exquisite flavour. Royal George and Violette Hative both deserve a place on account of their fine flavour and productiveness. The best of the late varieties with me is Sea Eagle; this is both large and of good quality, and though not so hardy as some, usually produces a crop. Warburton's Admirable and Golden Eagle, in favourable seasons, are of fair quality and are the latest varieties we grow. Exquisite is of poor flavour here.

We defer pruning and nailing as long as possible to prevent the flowers from becoming too forward, and when the trees are finally fastened to the walls, netting is at once put over them to ward off the frosts, which with us are often very severe just as the trees are in bloom. The netting used is such as the fishermen have on the Cornish coast for catching pilchards, having a mesh of about half an inch. This, if hung loosely, will ward off several degrees of frost. It is, however, after the trees have gone out of flower that the most mischief is usually done, for if there should be cold east winds during May, the leaves blister to such an extent that most of them fall off, and the trees become so crippled that the summer is far advanced before a fair growth is made. If some protection can be afforded whereby the cold winds are warded off, the foliage will develop, and an early well-ripened growth will follow; but when a late, ill-matured shoot is made, this is so sappy as not to be capable of ripening, and the consequence is but few flower buds, and only one wood bud as the terminal. When trees reach this state it is seldom that they produce good fruit, and the best plan is to take them up to make room for others. Cold winds are not the only cause of failure. We are sometimes told that all growths should be laid in; that it is a mistake to take off laterals and so forth; that trees grown on the extended system, that is by laying in all the lateral growths that are made, give finer results. This, however, is a mistake, for such wood seldom ripens properly, and usually sets but few flower buds. Where there is a tendency in young trees to make over-luxuriant growths, the best plan is to stop them when three or four inches long, the sap will then be directed into other channels. The lateral growth from such shoots will not be so strong, but if by chance it should again take the lead, this may be stopped a second time when it has attained a length of eighteen inches. If one or two of the top buds from such shoots should afterwards break, these should be encouraged, as they will take the sap and so prevent the buds lower down from pushing. When trees are inclined to make too much wood it is a sign that the roots are too deep, as this seldom happens where the roots are near the surface. With young trees growing in borders that are highly fed for the production of good vegetables, there is some difficulty in keeping the roots shallow, as many of them then become injured in digging. It is, however, good practice to have the borders where peach trees are growing occupied with an early crop, which can be cleared off by autumn so that the roots may be lifted every second year and brought nearer to the surface. In the operation of lifting, the soil will be stirred to sufficient depth to allow the roots of vegetables to go down, and an abundance of young rootlets will be formed on the peach trees to maintain them in a healthy flourishing condition. Peaches in the open are often neglected when they require constant attention. That is soon after they have passed out of flower. Aphis then makes an attack on them, and if this is not kept in check soon causes the leaves to curl up and wither.

H. C. PRINSEP.

A FEW VINE NOTES.

THE exact time for vine planting will always be an open question, and in the majority of instances large growers have but little choice in the matter; the canes must be put in either as the houses are ready, or when the canes can be obtained. The spring, however, is the season when most are planted, and this on account of the tomato crop which is grown in the houses the first year or two. One thing I notice very particularly, and that is, as vines are planted and, of course, started, so do they expect to be made ready for starting in following seasons. Some vines under my own care were planted early in the first month of last year, the tomato plants being also ready; gentle fire heat was given at once, and the result now is that starting this set the second season at a similar date is no trouble at all. Again, vines planted in the autumn up to October take a good hold of the soil, and are of the best for early forcing. Late spring-planted canes, though generally doing well, have much to contend with, the chief drawback being the forwardness of the tops, which are far in advance of the roots, while the latter are not yet established in the new border.

With judicious culture year by year, a week or two can be gained if vines are required for any specially early crops, and the same in a degree applies to the late varieties. Thus, if a late house is well heated, it can well be started a fortnight later; for instance, a Gros Colmar house with four pipes has to have fire heat by March 1. A similar house with six rows can be started two or even three weeks later, and then catch up with the first. Such items are worth consideration, more particularly if the vines are established and fires have to be specially lighted for each house. Shutting up houses according to the weather, even during the resting period, will also be an aid to prompt starting. What all growers look for is a regular break, and also a strong one, as, given this, fruiting will be satisfactory. We have the advantage of inside borders, and the roots are thus not only at command, but also ready for work in fact, I begin to question if these roots are ever dormant, as I have particularly noticed after Christmas pruning there is a continuous bud swelling.

What is technically known as "vine breaking," or, in other words, bud bursting, is always a very anxious time for growers, more particularly with young vines and those started out of season. No doubt if we could always wait for a natural start, the vines would be both regular in this respect and also stronger, but against this would be the extreme lateness of colouring and ripening of grapes. I have made many little experiments this year to induce a regular break, and there is no doubt the more horizontal and nearer the ground and pipes the rods are the better the break. Not content with this, I have also reversed the rods more than once, and feel satisfied I have gained something. Rods tied down in the usual way will have a certain number of the buds on the under side; to reverse the rods and thus bring them to the front for a change must give both sides an equal chance of sun, &c. Of course, I am now dealing with young two-year canes. Older rods do break freely, and not only this, but also appear to start at the same time year by year.

Bottesford Nurseries, Notts. STEPHEN CASTLE, F.R.H.S.

NOTES FROM IRELAND.

FOR mild weather, accompanied with abundance of rain and wind, the winter of 1897-8 should break all records. Up till now we have had but one slight frost, and that early in autumn. I notice in several places geraniums that have been out in window-boxes all the winter are still in flower, and save where the foliage is damaged by wind, they are as fresh as in summer. Snowdrops were in full flower on January 1, and are now quite over, while they are succeeded by the crocuses and daffodils. I do not remember seeing the latter in flower during the second week in February before this season. Brompton and the intermediate stocks have been flowering continually throughout the winter, as also have wallflowers and polyanthus, with daisies, forget-me-nots, &c. Roadsides and hedgrows are gay with daisies and primroses; while the pleasure grounds have been ablaze with colour since early in November by reason of Rhododendron Nobleanum. We shall in all probability suffer for this mild weather during the present and following months; I have too frequently noticed after an exceptionally mild winter, we have sharp and frequent frosts in this locality at the time when fruit trees, &c., are coming into blossom.

The season of 1897 appears to have been a bad one for onions, as, save in one notable instance, everyone is complaining of the crop; to have the bulbs so small was bad enough, but that these should fail to keep is worse. The few apples and pears that came to perfection in this neighbourhood also kept very badly. Snow's Winter White, Early Penzance, and Adam's Early White broccoli are now rendering a good account of themselves; Penzance, I consider, is by far the best of this trio. I noticed a splendid plot of Ellam's Early spring cabbage at Summerville recently, from which, Mr. Ellicott had been cutting fine heads since January 15. As far as my knowledge goes, this is a record-breaker for early cabbage. The seed was sown about July 20, the resulting plants being afterwards planted in a large square in the open garden, and not on a sheltered border. After this, I am more firmly than ever convinced that Ellam's is difficult to beat as an early cabbage. In your issue of the 19th ult. "Lux" gives the opinion of his faithful henchman, the immortal "Peter," concerning seed potatos; well, last season I planted about half an acre of large Champions without cutting the sets in any way, the culture, otherwise, was as usual, but when the crop was lifted there was not any difference to be seen between them and the result from the smaller, or cut sets. After that test I am no longer an advocate of large seed potatos.

Glenstal. R. WELLER.

SNOWDROPS IN SHRUBBERRIES.

SNOWDROPS are so far accommodating that they may be successfully cultivated under diverse conditions without any special difficulty, as strikingly exemplified in many gardens of the United Kingdom early in the year. In some cases they may be found in irregular clumps along the margin of borders devoted to hardy perennials, in others they bespangle large areas of turf with "pendent flakes of vegetating snow," and occasionally they are employed with much success in carpeting borders occupied by deciduous shrubs. Under no conditions do they appear to greater advantage than when springing from the turf of orchards or pleasure grounds, as witness the charming effects annually produced in the grounds of Dunrobin Castle, and those of many others of our old country houses. But they do not invariably succeed when planted in the grass; and in many cases it is not easy to assign a cause for their gradually dying out, when in other gardens, where similar conditions appear to obtain, they grow vigorously, and produce an abundance of fully-developed flowers. There are, of course, many instances in which no difficulty is experienced in arriving at a correct conclusion in the matter, as, for example, when they are planted in positions where the mowing has to be commenced early in the year. In the case of snowdrops, as in that of other bulbous plants, a rapid decline in vigour, followed by death, is inevitable when the plants are deprived of their leaves before they have had time to complete their allotted functions. As so well understood by those who have a knowledge of plant physiology, the leaves are as essential to bulbous as to other plants, and without them the formation of the embryo buds and the storage of reserve materials required by the plant when commencing to make new growth are impossible, consequently, when planted in those parts of the lawn which have to be kept closely shaven from early in the spring until the autumn, they become so weakened by the removal of the leaves that they die out in a comparatively short period. In the mixed border they sometimes fail to give satisfactory results, owing either to their disturbance or to the soil being too rich to admit of the perfect maturation of the bulbs.

There is one position in the garden in which snowdrops invariably succeed, and that is the shrubbery border. Planted amongst deciduous shrubs the snowdrops enjoy sufficient light to enable them to complete their growth, and after the shrubs are clothed with leafage the roots absorb the moisture in the soil at so rapid a rate as to keep the border dry. Consequently the dryness of the soil checks the growth at a sufficiently early period to ensure the bulbs having a long season of rest, and by its continuance until the end of the summer it imposes a safeguard against premature growth. As the result of their being able to make their growth under conditions more favourable than in the mixed border or in the grass, and then having a full season of rest, snowdrops become thoroughly established in the shrubbery and give a wealth of flowers annually. In the Royal Gardens, Kew, they are employed with singular success in beautifying the shrubbery borders as so well shown in the accompanying illustration of a shrubbery planted with Galanthus Elwesi. At Kew they are planted rather thickly in borders devoted to philadelphus and other flowering shrubs, and the plants increase in number and vigour, and annually produce a delightful effect. The border illustrated is contiguous to the collection of British ferns, and each year proves immensely attractive to visitors during the period when the surface is carpeted with foliage and flowers. What has been accomplished at Kew may be repeated with more or less success elsewhere, and with a full knowledge of this we advise the general planting of the snowdrops amongst deciduous shrubs.

G.

ELWES' SNOWDROP (GALANTHUS ELWESI) IN SHRUBBERY AT KEW.

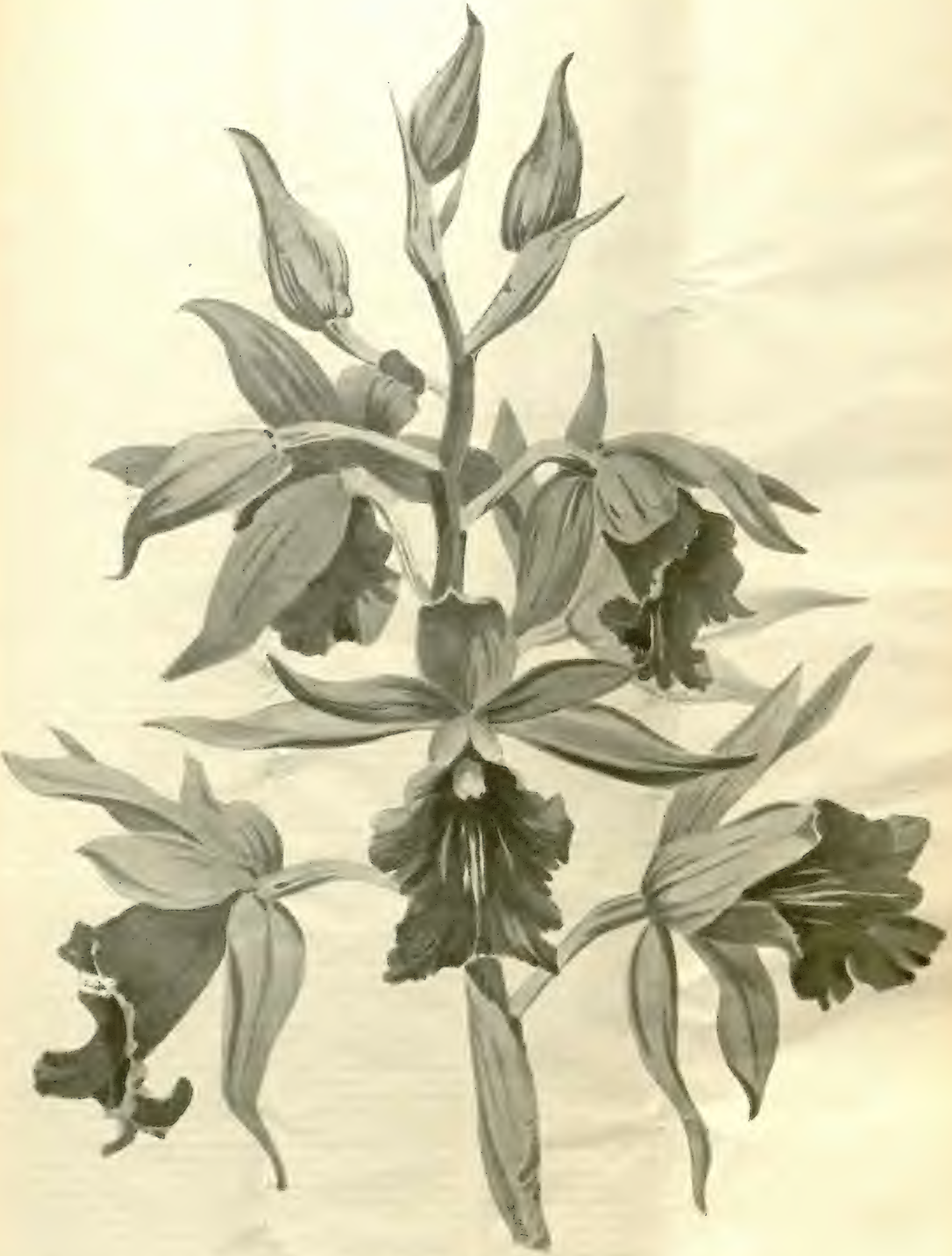
HYBRID PHAIUS.

THE numerous species and hybrids of phaius are not less remarkable for the beauty of their flowers than for their stately appearance. P. grandifolius, P. Blumei and its forms, P. Wallichi, and P. bicolor certainly combine the two attributes of beauty and stateliness, and the three former have to a large extent transmitted them to their progeny. The two most beautiful species, if we regard exquisite shape and colouring as the highest attributes of beauty, are those from Madagascar, viz., P. tuberculosus and P. Humbloti, neither of them being particularly easy to grow. These make up in beauty what they lack in size and stateliness. The first named of the two has been a great favourite with hybridists, as will be seen by a reference to parentage of hybrids given below. Phaius maculatus has been once used as a parent, and its merits, when well grown, should warrant its further utilisation for the production of garden phaius. It is extremely free-flowering, and if exhibited in bulk at some R.H.S. meeting it would not fail to attract attention. Some good specimens of this widely-distributed species are annually flowered in the cool orchid house at Kew. Those species of phaius which have not hitherto yielded hybrids, or, at, least, no hybrids from them have yet been flowered or recorded, are the Cingalese P. bicolor; P. philippinensis, from Mindanao and the Philippine Isands; and the comparatively new, and still rare, P. roseus, discovered by the Earl of Scarborough, and flowered in this country in 1892. Besides these there are several species that are hardly ever seen in cultivation, but which might prove of value to hybridists. For the purposes of this article Phaius Blumei will be considered as a distinct species, though it would seem most correct to give it as a variety of P. grandifolius, but Phaius grandifolius var. Blumei var. Sanderianus is too big a name for frequent repetition.

The honour of first seriously considering the advisability of producing hybrids of phaius belongs to Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne, and his first effort was made with a view to combining the beauty of form and colour seen in P. tuberculosus, with the robustness of some more easily grown species, and P. Wallichi was chosen. The result was P. Cooksoni, named by Mr. R. A. Rolfe in honour of its raiser. It is now eleven years ago since Mr. Cookson commenced a series of experiments that have been wonderfully successful, for the majority of hybrid phaius are a tribute to his skill and foresight. Messrs. J. Veitch and Sons, Chelsea, and Messrs. F. Sander and Co., St. Albans, have also raised hybrid phaius of great value to horticulturists. The following is a descriptive list of phaius hybrids up to date, all bigeneric hybrids such as Phaio-calanthes, and those known in gardens as thunias which now constitute the deciduous section of the genus Phaius. being excluded.

P. AMABILIS was first brought into notice on February 14, 1893, by its raisers, Messrs. J. Veitch and Sons, Chelsea. This is a hybrid between P. grandifolius and P. tuberculosus. The flowers measure nearly four inches across, the sepals and petals being fully an inch and a half long, white, flushed with pink. The large lip has the side lobes clasping the column so as to form a tube which has a yellowish external base; the broad apex is rich purplish crimson with greenish veins towards the throat. The plant is intermediate between the two parents, and produces spikes about fifteen inches high. It was named by Mr. J. O'Brien, and has gained a F.C.C. from the Royal Horticultural Society.

PHAIUS COOKSONI is a robust hybrid between P. tuberculosus and P. Wallichi, the latter being the seed parent. In growth the plant is fairly intermediate in character between the parents, while in the flowers the pattern parent has transmitted its leading features to the labellum



PHAIUS NORMAN.

and left the sepals and petals to mostly resemble those of P. Wallichi. Naturally, when there are numerous seedlings from one cross, and also when in other establishments the same cross is effected between plants that differ slightly from the originals, there will be some diversity of colouring in the hybrids. This is so in P. Cooksoni, but as a general rule the sepals and petals are light rose, sometimes with a pale salmon hue or yellow brown tint along the middle; the petals are shorter than the sepals, and a trifle broader. The lip is funnel-shaped, and deep yellow on the lower basal portion externally; on the inner surface the colour is bright yellow at the base and along the disc; the sides of the throat are marbled with crimson brown. The mouth of the lip is broad, and the reflexing margin is beautifully frilled and crisped; this area is chiefly deep rose-coloured and spotted with rich carmine purple, each flower measures about five inches across, and ten to twelve are produced on a spike. Mr. Cookson effected the cross in February, 1887; the seed was sown in December of that year, and the seedlings flower when a little over two years of age. A first-class certificate was granted to this orchid by the R.H.S. on March 11, 1890.

PHAIUS COOKSONIÆ is another of Mr. Cookson's triumphs, and commemorates Mrs. Cookson. This is a fine orchid of the P. Marthæ class, and obtained by crossing P. Humbloti with P. grandifolius. The sepals and petals are nankeen yellow, tinted orange. The lip is a wonderful piece of work; side lobes scarlet veined with gold, front lobe deep rose streaked and mottled with crimson. There is a long yellow disk, and the margins of the front lobe are prettily frilled and crisped. P. Cooksoniæ was exhibited before the R.H.S. on June 11, 1895, and was awarded the prize as the best hybrid orchid of the year. The hybrid was figured in the GARDENERS' MAGAZINE of June 15, 1895, p. 353.

P. HYBRIDUS is the title given to an orchid obtained by Mr. Cookson by crossing P. grandifolius with P. Wallichi. The sepals and petals are coppery-yellow, and the lip is creamy. The flower much resembles that of P. grandifolius, except that the predominant colour is yellow and its shades.

P. HYBRIDUS GRAVESII is the result of the reverse cross to P. hybridus. It was also raised by Mr. Cookson, and flowered in the collection of Mr. H. Graves, Orange, New Jersey, and named in compliment to its owner by Mr. Rolfe. This has large flowers, and these resemble those of P. Wallichi; they are five inches across, and have cinnamon-brown sepals and petals with a whitish reverse; the lip is whitish, with a rosy front lobe and yellow keel.

P. MACULATO GRANDIFOLIUS is a Veitchian hybrid of singular beauty, and one whose parentage is recorded in its name. It has bold arching foliage, as in P. grandifolius; these are deep green, and make a fine contrast with the flowers. The latter are pale yellow tinged with rose, so far as the sepals and petals are concerned, but the lip is creamy white with a rich crimson-brown base and veinings of this colour on the front lobe. The side lobes are convolute, and the margins of the front lobe frilled in a charming manner. This hybrid gained the highest honour for a new plant from the R.H.S. on October 10, 1891.

PHAIUS MARTHÆ is a charming hybrid, and already a most popular phaius. It is one of Messrs. F. Sander and Co.'s hybrids, trained by crossing P. Blumei with P. tuberculosus. The sepals and petals are pale buff yellow and of good size and substance. The lip is also pale yellow with a large golden disc; the lateral areas of the apical lobe are a pretty shade of rosy crimson. Awarded a first-class certificate, R.H.S., on March 13, 1894. In growth P. Marthæ is intermediate between its parents, but it has a fine constitution and flowers freely.

P. NORMAN was described in the issue of March 12, and is figured in the present number. It is a wonderfully beautiful and effective hybrid between P. Blumei Sanderianus and P. tuberculosus. The flowers are large and the sepals and petals are coloured with carmine and rose, while the large and handsome lip has old gold or orange side lobes, and a large spreading apex that has a rose foundation and mottlings of red and crimson. The long disc or keel is golden. *P. Norman rosea* is from the same seed-pod as the former, and is wonderfully free, quite small plants carrying three spikes. The flowers are scarcely so large as in the type, and differ in having rosy sepals and petals, a more yellow throat to the lip, and a more crimson front lobe. *P. Norman aurea* is very distinct, though also from the same seed-pod. It has large pale yellow sepals and petals, and a yellow base to the lip. All three are very fine orchids, and the two former gained each an F.C.C. and the latter an A.M. from the R.H.S. on March 8 last. The cross was effected and the plants raised by Mr. N. C. Cookson, and the whole stock of seedlings was purchased from him by Messrs. Charlesworth and Co., Heaton, Bradford. This firm exhibited those forms already described, and they hope to have further variations, as several seedlings are as yet unflowered. The first plant flowered at four years of age. Phaius Norman and its forms grow well in an intermediate house, and are remarkable for their robustness and freedom of flowering. When in bloom they can be taken without fear of harm to a conservatory, where the flowers will last for six weeks in perfection. P. tuberculosus was the pollen parent in this case as in most others.

P. OWENIANUS is a handsome phaius raised by Messrs. F. Sander and Co., St. Albans, and exhibited by them at the R.H.S. meeting of May 23, 1894, when it gained a F.C.C. This form has for its parents P. Humbloti and P. Oweniæ, the latter being the pollen parent. It is a fine hybrid, with purple-brown or crimson-brown sepals and petals, and a lip that is a delightful combination of gold, crimson, and magenta; the triple keel is golden, but the prevailing colour of the lip is crimson. This hybrid was two years and ten months old from seed sowing when it flowered.

P. OWENIÆ came from the St. Albans Nursery, but the parentage does not appear to have been recorded. It somewhat resembles P. bicolor, but has brownish purple sepals and petals. The lip has a chrome yellow base, and a rich bright purple front lobe tinged with crimson. When shown by Messrs. F. Sander and Co. on April 24, 1894, an award of merit was granted.

C. H. C

WORK FOR THE WEEK.

COOL ORCHIDS.

THE usual time for repotting Odontoglossum crispum is the early autumn, but any plants that have passed out of flower, and are in sour material, must quickly be removed from such, or else the new roots will be killed as fast as they are put forth. Pots large enough for the development of the next two years' growth should be used, with plenty of drainage, and the plants should have all the old material removed from their roots, and any old roots cut away. Repot in a compost of good fibrous peat and sphagnum moss, and place in the shadiest position, and frequently damp between the pots to keep a moist atmosphere. Care must be taken in watering, allowing the compost to become moderately dry before giving water. Semi-established plants should have a little of the old material carefully picked out and be resurfaced with fresh, clean moss. Odontoglossum madrense should be repotted or top-dressed, as necessary, while O. Harryanum, also O. nebulosum, will also require a little new material at this season. O. Andersonianum, in variety, is now making a nice show of branched spikes, and produces a good effect arranged with the O. crispums; the spikes last for a long period in perfection, but this naturally weakens the plants, and is likely to have unsatisfactory results. The flower-spikes, after they have been open a reasonable length of time, should be cut off and placed in water, where they will remain fresh for a further period. The culture of O. Andersonianum does not differ materially from that of O. crispum, but it is perhaps a rather better grower. Dendrobium infundibulum is now in bloom, and its beautiful pure-white sepals and petals, and golden-blotched lip, form flowers that last five to six weeks in perfection, and are most useful for cutting. This species greatly resembles D. formosum, but has more slender stems. There are but few dendrobiums which can be cultivated with much success under cool treatment, but this species, like D. Jamesianum, thrives admirably in the odontoglossum house, suspended from the roof, and does best in pans or baskets of small size, allowing sufficient water to keep the compost nicely moist during growth, and in winter enough to prevent shrivelling of the pseudo-bulbs.

Lælia præstans is a species that is often grown in an intermediate temperature, but it may be grown with equally good results in company with the odontoglossums, and undoubtedly the flowers that are produced in the autumn are much better in colour than those seen in a warm house; it is a dwarf grower, and should be grown in pans or baskets, suspended from the roof, at the warmest end of the house, but as near the glass as possible, and where there is plenty of light. These plants may now be repotted or top-dressed as each particular case demands; the usual compost of peat and sphagnum will suffice over good drainage. Keep this nicely moist, and never allow it to become dry while the plant is growing. The same remarks apply to Lælia Dayana and L. pumila. Any plants of Epidendrum vitellinum that require repotting or top-dressing should be attended to at once; pots are preferable to pans or baskets for their culture, but in any case a light position in the cool house is essential; do not allow them to become dry at this season, or the flower spikes, which will soon commence to show, may be weakened. Cypripedium villosum and C. Boxalli that have finished flowering ought to be repotted at once, if this is necessary, using compost as advised for C. insigne in a former calendar. Continue the same care in ventilating as previously advised, and damping down two or three times a day in bright weather.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

THE sun has now so much power that shading will be necessary during the middle part of the day for the majority of the occupants of the stove. Where blinds are available they should now be fixed in position, to be lowered on all bright days about half-past ten and drawn up again about two p.m., at the same time giving the house a thorough syringing. Where blinds are not available and where permanent shading is resorted to in the way of Summer Cloud to protect the plants from the strong rays of the sun, something temporary should be arranged for a few weeks as it is too early at present to apply the permanent shade; mats thrown over the roof, loose pices of tiffany, or, failing these, a light wash of whitening and water will afford a protection from the sun. If a house can be given up to crotons altogether these will require no shading whatever after they become established in their new pots, affording them plenty of heat and atmospheric moisture, as it is only under such treatment that their brilliant colouring is seen to perfection. Marantas are generally impatient of strong sun, and should be arranged in the most shady part of the house; dracænas should be kept toward the shady end. When all the repotting is done have the gravel, or whatever material the plants stand upon, turned or renewed, and arrange the plants so as to allow each the maximum of space, and instead of arranging on the dot system try the effect of massing. Old plants of strobilanthus that were cut down a few weeks ago are producing plenty of cuttings now; insert these singly in thumb pots containing equal parts of loam and leafsoil with sand added; if plunged in the propagating case, kept shaded and attended to for water with an occasional syringe overhead, they will be rooted in a fortnight, when they can be stood in the body of the house for a few days before potting on.

The earliest tubers of caladiums will be now ready for potting on, and a suitable compost for their successful culture consists of equal parts of turfy loam, fibrous peat, and leafsoil (the two former not pulled or broken down too fine), a little well-decayed manure, with a good sprinkling of sharp silver sand. When potting, a little discretion is necessary to place the weak growers in smaller pots, and the stronger growers into larger ones. Afford good drainage, as caladiums need a quantity of water during the growing season; press the compost firmly with the fingers. The varieties of caladium have increased wonderfully of late years, and no collection can be complete without it contains a few, at least, of the newer kinds. A few that will be found useful are Candidissima, Prince of Wales, Comtesse de Condeixa, Reine de Portugal, John R. Box, Luddemanni, F. W. Moore, Her Majesty, La Lorraine, Alice Van Geert, Botafogo, and Princess Royal. After potting they will be benefited if plunged in a moderate bottom heat for a time, as this will stimulate root action, and reduce the necessity of watering to a minimum until the soil is occupied with roots. Cuttings of Adhatoda vasica and A. cydoniæfolia may now be inserted; they strike readily in bottom heat, and the latter is a useful subject for training up pillars in the stove; the flowers are white and purple, and make a splended display towards the end of the summer. If grown in pots, pinch frequently in the early stages of growth, or it will present a straggling appearance. Adiantum Farleyense will now be pushing into growth, and any repotting or splitting up necessary should be attended to; this adiantum thrives better without peat; a compost of two parts loam, one part leafsoil, and a good sprinkling of sharp sand, also a few pieces of broken sandstone, and a little of some good artificial manure will suit it admirably; afford a light position at the coolest end of the stove, do not shade too heavily, and do not syringe them overhead. During mild weather the night temperature of the stove should be 65 to 70 degrees, by day 70 to 75 degrees, allowing a fall of five degrees on cold days and nights; this will be found better for the plants than trying to keep up to the maximum temperature by means of excessive heat in the pipes.—J. Tunnington, *Ripley Castle Gardens.*

KITCHEN GARDEN.

In the southern counties and in warm situations it will be necessary to commence putting out plants that have been protected in frames through the winter or have been raised under glass. Cauliflowers should be the first to command attention, as most of the plants raised from seed sown in the autumn have grown large; great care must be exercised in transferring them to the open quarters, removing them with balls of earth attached if possible, for should they flag to any considerable extent in all probability bolting will take place. If potted as previously advised they may be planted out without any fear of their suffering through disturbance, but when planted from the open frame protection of some kind must be afforded until the roots are running in the soil. Should the weather be showery at the time of planting, this may be dispensed with, but if the sun is bright in the daytime an inverted flower-pot put over each plant will materially check evaporation. Plants raised from seed sown in January should be thoroughly hardened off before being planted out, otherwise they will suffer considerably. Lettuces that have been afforded the protection of a cold frame, and those that were pricked out on the open borders in the autumn should now be planted out, while plants raised from seed that was sown in heat should be hardened off that they may be ready whenever a favourable opportunity occurs for planting. Where new plantations of Globe Artichokes have to be made, the present is a favourable time to perform the work. In all private establishments a portion of the stock should be taken up and replanted each year. This will not only keep the plants in a healthy condition, but will prolong the season of this useful vegetable. The present winter has been favourable to this vegetable, the young growths being well advanced at the present time. Those springing from the old stems near the surface should be discarded, as these seldom produce fine fleshy heads; rather choose those that start the lowest, as such will grow away more freely and send up stronger flower stalks. If these are planted in rows three feet apart and kept well watered until roots are formed, the plants will then take care of themselves. A dwarf crop of some kind may be taken from between the rows, such as turnips or lettuce. Artichokes like good ground, in fact it cannot be well too rich; and for this reason, when it is of a questionable character, give a good top-dressing of thoroughly decayed manure.

Jerusalem artichokes may now be planted, choosing medium-sized sets, and planting them in an open place. Often the crop of these is unsatisfactory, as they are planted too much in the shade, and not allowing sufficient room. Though artichokes will grow almost anywhere, far better results will be obtained if a sunny spot is chosen for them, and a distance of two feet six inches or three feet allowed between the rows, and half that distance between the sets. Horse radish is also another neglected vegetable, being often put out in any out-of-the-way place, instead of cultivated in rows properly. The whole of the old bed should be taken up, selecting those roots that are large enough for use, and laying them in by themselves. Those about the thickness of a man's finger ought to be selected for sets, and after rubbing off all the small rootlets, plant in rows two feet apart, allowing a distance of nine inches between the plants. The ground for this crop cannot be too rich, therefore, previous to planting, it should be liberally manured and deeply trenched. Those who have not yet planted their seakale sets should lose no time in doing so; for, though they will not start into growth until the soil is warmer, roots will commence to form, and growth will be more rapid later on. There is much art in getting large well-matured crowns for early forcing, particularly on poor ground, and unless a good start is made, there is not time for growth to mature. Asparagus beds ought to have the surface slightly loosened, that the sun's rays may the more readily warm the soil and encourage the growths. Whenever the soil is sufficiently dry on the surface, run the hoe through all growing crops, such as spinach, cabbage, parsley, onions, &c. If these are afterwards dressed with artificial manure, they will grow away far more rapidly. Attend to sowing small seeds, such as spinach, lettuce, radishes, brussels sprouts, cauliflower, carrots, and parsnips, whenever the weather is favourable.—H. C. Prinsep, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

Peach trees in all stages of growth will require considerable attention as to the manipulation of both wood and fruits, early trees having had the fruits thinned and shoots disbudded down to the number requisite for a crop, and growths laid in to furnish a supply of bearing wood for next year. The latter will require tying in carefully, so that it may be evenly distributed over the trees and in a proper direction to preserve the general trend of the branches outward. Misplaced growths which have been left on to draw sap to any fruits left at their bases should be kept rigorously pinched in. Personally, I rarely find it necessary, except in the case of very shy bearing varieties, to preserve any of such shoots. As regards thinning the fruits, past experience will be the best guide as to whether they may be safely reduced to the number needed for a crop, before stoning, or whether a certain percentage must be allowed for dropping during that process; in some gardens no such reserve is necessary, while in others it would be unwise not to leave it. During stoning there should be no raising of the temperature, this being the best means of counteracting any tendency to dropping; 55 degrees as a maximum night temperature may be considered safe. See that the roots are kept sufficiently moist, and that the trees are syringed freely when the weather is favourable, this being the best means of keeping down red spider. Mid-season trees should have the surplus shoots removed by degrees until disbudding is finished, but I do not recommend great hurry in this work, but prefer to spread the work over several weeks. The main point to bear in mind when disbudding peach trees is to carefully reserve a well-placed shoot near the base of last year's growth and another near the end of such growth, though it may be necessary for fully furnishing the trees to allow also a few intermediate shoots to form, but no shoots should be retained eventually without a definite reason for their retention, as crowding the trees with surplus growths is very bad management, resulting in weak and badly ripened wood. Trees in cold houses will now be in bloom, or just passing out of that stage, and with these the work of thinning may be begun at once, and soon brought to a close, first of all removing all embryo fruits from the under sides of the shoots, and then those worst placed on the upper portions, keeping an eye to having the crop evenly distributed over the trees, at about one foot apart. During the bitter east winds prevalent in March it is no uncommon thing to find, in these cold and oftimes draughty houses, that an attack of mildew has set in almost before the trees have begun to grow, and this necessitates a close watch being kept on the tiny shoots of such varieties as Royal George and Red Magdalen, which are peculiarly liable to mildew, and an application of flowers of sulphur made to all shoots affected; early attention to this will prevent bad attacks.

Where it is intended to inarch new sorts of grapes on old stocks, it is best to have the new ones in the form of strong canes in pots; these should be brought into the vinery and stood in position a week or two after the house is started, as it is well to have the stock in a slightly advanced stage of growth to that of the scion. Place the pot in such a position that the shoot selected can be easily brought into connexion with a well-placed shoot on the stock, and when the growth of both has advanced to a semi-hardened condition, take a corresponding slice off the sides of either, taking care not to cut too deeply; then bring the two cut surfaces together, and bind tightly with raffia. In about a month the stock shoot may be cut back to within three or four leaves of the junction, and from that time all the force will go to perfect the growth of the scion, so that it is possible to grow quite a strong cane the first year. Where pot vines can be spared for the work it will be found that inarching is far superior to grafting for vines. Forward pine suckers may now be removed by twisting them out at the point of union with the parent stem, and after having a few of the smallest leaves stripped off, a small portion of the stem should be removed, when the sucker will be ready for potting up.—J. C. Tallack, *Livermere Park Gardens.*

THE STRUGGLE OF PLANTS FOR EXISTENCE.

In an able lecture given at the Ipswich Museum on the above subject, Mr. W. E. Watkins, secretary of the Technical Education Committee, stated that food was the first necessity of all living things, animal or vegetable, and the means employed in obtaining that food gave rise to the greater part of the variety of life, or the struggle for existence. Taking a twig of pine and burning it they would find that the residue was a fine ash, which was all that remained of what the tree had obtained from the soil. The rest of the wood had disappeared in smoke and gas into the air. It was from the air that plants derived most of their food, taking it in by the stomas, or leaf mouths; after entrance the air circulated through a great number of little cells, each of which was a microscopic chemical laboratory, where the plant manufactured from the air its sugar, gum, starch, and cellulose. It was the carbonic acid gas in the air that the plant utilised, and of this ingredient there were only four parts in every ten thousand. Yet out of that their great forests and fruitful cornfields were formed. During sunlight each of the little plant cells was actively at work, using up the carbon, and allowing the oxygen to return to the air. So while the plant was absorbing a gas that was very harmful to animal life, it was giving back oxygen for animal consumption. The lecturer demonstrated by experiment the process of absorption and manufacture alluded to, showing the immense importance of air space for plants, and the necessity of avoiding crowding, or weed aggression, that both rob the soil and air at the expense of the plant in cultivation. So true was this that at Bramford crops of wheat and barley had been grown for five years successively on unmanured land, and had produced larger crops than elsewhere in the neighbourhood by simply keeping the land clean and free from weeds, and enabling the plant to have a chance of getting the cheapest of all foods—air.

Mr. Watkins then turning to the fungi and bacteria, said that the mushroom and the mould on jams were both true plants; so also were bacteria. They were totally unlike the green flowering plants, which were homely in their tastes, and were content with water, air, and soil. The fungi and bacteria required highly organised food stuffs. They fed upon the gums, sugar, &c., of the green plants, and some particularly fastidious required even the blood of man for their sustenance. Throwing a succession of examples on the screen, their characteristics and habitat were discussed. The cholera and anthrax bacteria were among the most interesting. These plants were inconceivably small, and yet their work for good or evil was inestimable. It had been observed that a single bacterium would split itself into two bacteria in twenty minutes, and, if in a suitable medium, in eight hours they would become upwards of sixteen millions. Each microbe worked upon the blood as a ferment, splitting up the chemical components round it to make food for itself. In its struggle for existence it attacked the life blood of the animal, and the functions of the organs were disturbed. But there were other bacteria that were useful to man, such, for example, as the microbe that curdled the milk and enabled them to make cheese, and the fungi utilised for the preparation of a green cheese. There was a generally prevalent idea that in some cheeses the green streaks were caused by the use of copper wire. This was not so; the copper wire was used to make holes through the cheese, and the air introduced the pencillium microbe that at once began to grow. It was precisely the same kind of microbe as attached itself to damp boots, and the reason for the mould on boots was because the blacking employed contained sugar. The white fungus sometimes found on cheese was dung fungus, and indicated that the producers of the cheese were not sufficiently clean and careful in their dairy work. Very much allied to the bacteria were the yeast plants, which had been used so long by man to produce a leavened loaf. These plants required oxygen, and to obtain it they split up the sugar, and converted it into carbonic acid gas and alcohol. The gas escaped from the vat, the alcohol mixed with the wort and converted it into beer.

Turning to parasitic plants, a variety were thrown upon the screen showing how insidiously they worked and sapped the life of the plants to which they attached themselves. Among these he enumerated the familiar "witches broom" on cherry trees. The vine fungus and the means to combat it were also dealt with, and a most interesting lecture concluded with some curious lantern slides exhibiting the action of certain fungi, carnivorous plants, &c.

Pruning Newly-planted Fruit Trees.—Every year the question crops up, Should newly-planted fruit trees be hard pruned or not? This inquiry probably arises from the fact that fresh people are constantly taking to fruit culture, and hardly know which course is the best to take. When at the Cobham vineries, to which I recently referred, the manager said, "No matter how strong the rods of the newly-planted vines, I cut them hard back to the ground line, and let them make entirely new rods." The result is strong root action also, so that the roots and wood react upon each other to each other's best production. Precisely the same thing occurs in newly-planted trees. If wanted to bear fruit immediately, without consideration for their future welfare, then leave the wood growths alone after planting. Very poor root action corresponds with poor wood growth, and the buds generally are converted into fruit buds, which the following year carry bloom, though much of it may be infertile; but generally a crop results, and the tree in consequence receives a check from which it is long recovering. Especially in the case of standard trees, but the application is general, it being wisest to cut back, say to one third their length, the heads as received from the nursery. Thus the new branches are fairly stout and well leaved, creating strong sap action, which aids strong root action also. It is of the highest importance to secure strong growth both top and bottom at first, even if, a few years later, lifting or rod pruning be needful to check wood development. The wood must be first secured in any case, and if later found to be too luxuriant, root check will soon bring fruitfulness. Into the culture of fruit trees for any purposes, much that seems to be artificial treatment must inevitably be applied; but whilst Nature's chief aim seems to be the production of wood, the cultivator wants a crop of fruit also.—A. D.

LAW.

ARE GLASSHOUSES AGRICULTURAL LAND?

THE question whether glasshouses in nurseries and market gardens may for rating purposes be regarded as agricultural land has during the past twelve months been much discussed, both in horticultural and legal circles, and may now be considered to have been fully answered. On the 11th inst., judgment was given in the Court of Appeal on an appeal (SMITH and OTHERS, Overseers of Worthing v. RICHMOND, Surveyor of Taxes), argued before the Master of the Rolls, Lord Justice Rigby, and Lord Justice Vaughan Williams, by the surveyor of taxes from a decision of the Divisional Court given on August 2, 1897.

The question came before the Divisional Court on a special case stated by the quarter sessions for West Sussex on an appeal by the overseers of the parish of Worthing from a decision of the assessment committee of the union of East Preston under the Agricultural Rates Act, 1896 (59 and 60 Vict., c. 16). The case raised an important point relating to the rating of glasshouses in market gardens. By section 1 of the Agricultural Rates Act, 1896, "the occupier of agricultural land" in England is made liable, in the case of every rate to which the Act applies, to pay one-half only of the rate in the pound payable in respect of buildings or other hereditaments. The facts, as summarised in the *Times*, were as follows: Robert Piper was a grower of fruit, vegetables, and flowers at Worthing, and described himself and was commonly known as a market gardener and nurseryman. He was the owner and occupier of rather more than four acres of land, on which fifty-seven glasshouses or greenhouses of various sizes were erected. The houses were used by the appellant for the purpose of growing tomatos, cucumbers, and grapes, and, to a smaller extent, other vegetables, for the purpose of sale. The plants and crops grown therein were watered and heated by artificial means, and grown upon soil placed upon prepared beds inside the houses and matured much earlier than in the open ground. The vines were planted inside the houses and the roots ran partly in the soil under the houses and partly passed through apertures in the walls into the soil outside. Fifty-one of the glasshouses were thus used for growing vines. In the cucumber houses (which were six out of the fifty-seven houses) there were inside the houses dwarf brick walls supporting corrugated iron sheets, upon which soil taken from the other parts of the nursery ground was placed. In the beds so formed the cucumber plants were planted. Beneath the iron sheets and between them and the ground there were hot-water pipes. The area actually occupied by the fifty-seven houses was rather more than two acres. The rest (rather more than two acres) consisted chiefly of vine borders, paths, and the stokeholes. The whole of the houses were built upon dwarf brick walls like an ordinary greenhouse. It is provided by section 9 of the Act that, "unless the context otherwise requires, the expression 'agricultural land' means any land used as arable, meadow, or pasture ground only, cottage gardens exceeding one quarter of an acre, market gardens, nursery grounds, orchards, or allotments, but does not include land occupied together with a house as a park, gardens other than as aforesaid, pleasure grounds, or any land kept or preserved mainly or exclusively for purposes of sport or recreation, or land used as a racecourse."

For the purposes of the Act section 6, subsection 1, requires certain returns to be made to the Local Government Board. Subsection 2 provides that "for the purpose of the returns statements showing the gross estimated rental and rateable value of the agricultural land in a parish, and in the case of any hereditament separately valued which consists in part of agricultural land and in part of buildings or other hereditaments of each such part, shall be made by the overseers of every parish and corrected by the assessment committee and sent to the surveyor of taxes and be subject to objection or appeal by the said surveyor and overseers" as therein provided. In pursuance of the requirements of subsections 1 and 2 of section 6, of certain regulations made by the Local Government Board under subsection 3 of that section, the overseers made the prescribed statements, and sent them to the assessment committee and the surveyor of taxes, and in such statements they returned Mr. Piper's property and other property of a similar nature as agricultural land. The assessment committee, however, on the objection of the surveyor of taxes, decided that the statement, to the extent to which it includes land partly covered with glasshouses, was incorrect, and corrected it by striking out that entry. Upon the hearing of the appeal before the quarter sessions it was contended for the appellants, the overseers, that the particulars of the gross estimated rental and the rateable value of the hereditaments in question were correctly entered by them in their statement under the heading of "agricultural land," and that the decision of the assessment committee to correct the statement by striking out the entry was wrong, and in support of their contention they cited the case of "Purser v. Local Board for Worthing" (18 Q.B.D., 818). For the respondent it was contended that the case relied on by the appellants did not decide that glasshouses were not buildings, but merely that the land was not the less used as a market garden because the glasshouses had been placed upon it, and that the definition of agricultural land in the Agricultural Rates Act, 1896, was to be read subject to the context, and that the context in the Act required that any buildings should be excluded from the term agricultural land, that the glasshouses were buildings within the meaning of the Act, and that it followed that either the whole of the hereditament in question should be excluded from the overseers' statement, or, alternatively, that so much thereof as consisted of buildings should be inserted under the heading of "buildings not being agricultural land." The quarter sessions were of opinion that the contention of the appellants was right, and allowed the appeal and ordered the statement of the overseers to be altered by restoring all the items which formed the subject of the appeal to the condition in which they were before they were altered by the assessment committee, subject to the statement of a case for the opinion of the Court. Upon the appeal to the Divisonal Court the Judges differed, Lord Justice Collins being of opinion that the buildings in question were to be treated as part of the market garden, while Mr. Justice Ridley thought that no buildings were entitled to the partial relief granted to agricultural land. Mr. Justice Ridley, however, as junior Judge, withdrew his judgment, and consequently the appeal was dismissed. The surveyor of taxes appealed to the Appeal Court. The appeal was heard on February 8.

The Attorney-General (Sir Richard Webster, Q.C.), Mr. Day, and Mr. Trevor appeared in support of the appeal; Mr. Joseph Walton, Q.C., and Mr. Clavell Salter were for the overseers.

The Master of the Rolls said,—The question in this case is whether glasshouses in or on a market garden are to be rated as buildings or as agricultural land under the Agricultural Rates Acts, 1896. The Court of Quarter Sessions held that glasshouses ought to be rated as agricultural land. On appeal to the Queen's Bench Division the members of the Court were equally divided, and the appeal was dismissed, but leave was given to appeal to this Court. The glasshouses in question are clearly buildings in the ordinary legal meaning of the word. The case stated leaves no doubt on this point. The question turns entirely on the true construction of the Act of Parliament, 59 and 60 Vict., c. 16. The ninth section contains a definition of agricultural land, but no definition of buildings nor of market gardens or nursery grounds. The Interpretation Act, 1889, contains, in section three, a definition of land; and, this word, when used in subsequent statutes, is to include buildings, unless a contrary intention appears. The Interpretation Act, 1889, contains no definition of buildings, market gardens, or nurseries. The ninth section of the Act of 1896 clearly shows that land there cannot possibly mean or include buildings in the early part of the section, for the definition is that agricultural land means any land used as arable, meadow, or pasture ground only. Market gardens and nursery grounds are, however, also declared to be agricultural land, and this is the enactment which gives rise to the difficulty with which we have to deal. The definition in section 9, however, must not be used to contradict other parts of the Act, or to introduce anomalies which the language of the enacting part of the statute does not justify. Market gardens and nursery grounds may or may not have buildings upon them. If they have not no difficulty arises; but if they have, then comes the question, how are those buildings to be rated? To answer this question, we must look to the enacting clause, which is section 1. Here we have "agricultural land" used in connexion with, and, as I think, plainly contrasted with, "buildings and other hereditaments." Similar language is used in sections 5 and 6. This express mention of buildings makes the whole statute perfectly clear to my mind, and removes the doubt caused by the use of the words "market gardens and nursery grounds" in section 9. The only conclusion at which I can arrive is that buildings are not to be treated as agricultural land for rating purposes under the Act of Parliament. The case of "Purser v. Worthing" (18 Q.B.D., 818) does not, in my opinion, assist the Court in construing this Act of Parliament. That case merely shows that a market garden *prima facie* includes the buildings upon it used for market garden purposes. To urge that market gardens and nursery grounds do not cease to be so because they are more or less covered with glass houses is to urge what is quite true, but is beside the mark. The question is, how are such houses to be rated under this Act of Parliament? My answer is, if they are buildings, they must be rated as such, and not as agricultural land. Mr. Salter, in his very able argument, suggested that buildings used only for covering land which was cultivated under their protection ought to be distinguished from other buildings, and ought to be held to be agricultural land. I can find nothing to justify a distinction between one class of buildings and another for any such purpose as his argument requires. Section 5 speaks, no doubt, of buildings used for the cultivation of land, but this clause in no way shows that such buildings or any others are to be rated as agricultural land. In my opinion, the appeal must be allowed and the orders of the Queen's Bench Division and of the quarter sessions must be reversed, with costs here and below.

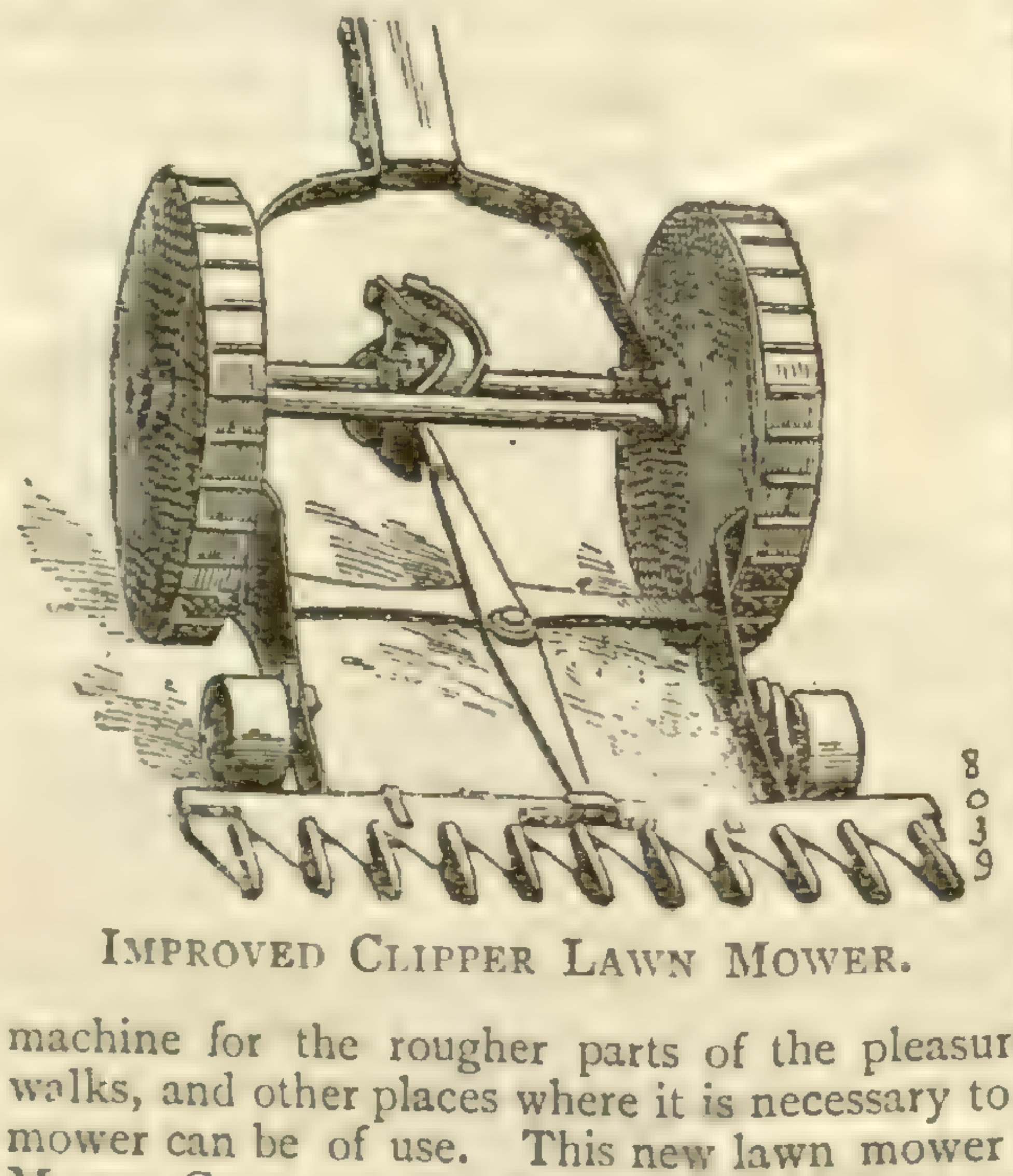
Lord Justice Rigby delivered a written judgment to the like effect.

Lord Justice Vaughan Williams differed. His Lordship agreed with Lord Justice Collins, that the cases of "Purser v. Worthing Local Board" and "The London and North-Western Railway Company v. Llandudno Commissioners" showed that *prima facie* this land covered with these glasshouses was part and parcel of the market garden, and therefore agricultural land, the occupier of which was entitled to the benefit of this exemption. The form and collocation of words used in this Act was not new as defining partial exemptions in rating cases. He could find nothing in the tenour or details of this Act to lead to the conclusion that the words "market gardens" and the other collocated words should receive a different construction, so as to exclude from agricultural land the buildings on each hereditament, whatever their character. After discussing sections 1, 5, 6, and 9, his Lordship arrived at the conclusion that the land covered with glass houses fell within the exemption, because the buildings were part and parcel of the market garden, which, by the terms of the definition, was agricultural land, and were used exclusively for the purpose of cultivating the land.

The appeal accordingly was allowed.

NEW INVENTIONS.

The Improved Clipper Lawn Mower is said to surpass other machines of its kind in simplicity. Instead of knives spirally arranged on a cylinder, the Clipper has a cutter bar and fingers, these being placed before instead of behind the front rollers. The accompanying illustration shows that the wheels travel over the ground where the grass is cut, never rolling down the standing grass with the wheels. The small gauge wheels at the side are to gauge the height you wish to cut the grass. The knives can be sharpened in the machine with a small file or whetstone, or can be taken out and ground, but they must never be sharpened anywhere except on the beveled side of the knives. There is a Pony Mower which has a cutter bar twenty-four inches long. It makes no difference to the Clipper Mower how high the grass is or how many weeds there are in it, and this renders it an extremely useful machine for the rougher parts of the pleasure ground, margins of woodland walks, and other places where it is necessary to use a scythe before the usual lawn mower can be of use. This new lawn mower is sent out by the Clipper Lawn Mower Company, Norristown, Pa., U.S.A.



IMPROVED CLIPPER LAWN MOWER.

Mr. W. Smythe.—I should like to add my meed of praise and esteem for this good gardener, so well spoken of by Mr. A. Dean. Basing Park is but nine miles from Swanmore, and coming here as I did, quite a stranger, twenty years since to undertake the making of this garden, I found Mr. Smythe a capital neighbour in every way. Many a time have I gone to him for information on what were to me knotty points, and in every instance the life-long experience of this man was at my command. I therefore know and appreciate the value of information so well, truthfully, and liberally given. Not only is Mr. Smythe a specialist, but he is one of the best all-round gardeners that I know.—EDWIN MOLYNEUX.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," [illegible] containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

The Geographical Distribution of Plants.

There is no fact better established in geology than that the earth's crust is not stable, but is constantly undergoing extensive changes and subsidences; this brings it to pass that land and water surfaces are not constant but changing, and that many regions now separated by the sea have in former times been connected, and many now connected have but lately become so. These changes have forced vegetation to perform migrations which have been small or extensive, slow or rapid, just in proportion to the change, and these have been accompanied by great changes in climate, including even such extreme conditions as prevailed in the glacial period.

Alpine Floras.

In looking at the distribution of plants in a broad way, the first feature to strike attention—according to Mr. W. F. Ganong, of Harvard University, in a lecture delivered to the Massachusetts Horticultural Society—is the constancy with which upon higher mountains we find plants characteristic of regions far to the north of them in the northern hemisphere and far to the south of them in the southern, and in all cases cut off from their brethren by many valleys and plains occupied by wholly distinct species. Thus upon the Rocky Mountains, the Alps, the Himalayas, and others are herbaceous plants which are found growing at the sea level around the Arctic Ocean. Farther down these mountains come plants which grow in southern parts of Alaska, Labrador, Northern Scandinavia, and Siberia. Now, it is plain why they can live there—the heat and moisture conditions upon the mountain side and at the sea level farther north are similar, as we have seen; but how did the plants get upon the mountains from the north? The natural means of spread of the species themselves are hardly sufficient to explain it. But the solution is undoubtedly found in late geological history. In the glacial period, geologically very late, there descended from the north a great ice sheet of enormous thickness which drove all vegetation before it. It came so far down that Arctic plants were driven south of the region in which we are now living, and Arctic plants flourished all across the United States just south of a line from about forty degrees north latitude on the Atlantic coast, running diagonally northwestward and in corresponding regions in the eastern hemisphere. Along the high mountain ranges these plants extended much farther south, finding upon them their natural conditions of heat and moisture. Then the ice sheet retreated; the Arctic plants followed it, each tending to return to its own latitude. But along the high mountains the conditions did not change much, and the Arctic plants found upon them homes, where the species of the lowlands could not compete with them. In the valleys, however, the more southern species were at home, and soon drove out the Arctic intruders. So widespread and definite was this agency that there has not been a mountain range explored in the northern hemisphere upon which traces of these Arctic plants have not been found; moreover, the lower ranges, those not high enough to reach the line of perpetual snow, like the White Mountains, have not the extreme Arctic forms upon their tops, but sub Arctic or very cold temperate forms, and these extend south along the hill ranges, ascending as they go. A very interesting point in connection with this is the fact that in the glacial period some of the Arctic and sub-Arctic forms managed to cross the equator along the highest mountain chains of the Old and New World, and established themselves in the southern hemisphere, and are there found on the mountains at the present day. Hence we have a great natural group of plants called the Arctic alpine flora, consisting chiefly of low herbs, the distribution of which is all around the northern hemisphere, upon the shores of the Arctic Ocean and southward upon nearly all mountains high enough to reach the limit of perpetual snow; and even extending, sparingly, on the great ranges into the southern hemisphere, at length reaching the sea level near the Antarctic Ocean.

The second feature is that in the southern hemisphere, we have a very similar, though much less abundant, Antarctic alpine flora, which is found near the sea level on the islands of the southern ocean, and extending northward upon the mountains of Chili, Australia, Tasmania, and New Zealand, and even up to Borneo. The phenomena of the distribution of this flora are so nearly like those found in the northern hemisphere, that it is believed its distribution can be explained by a southern glacial period.

Temperate Floras.

Proceeding next to temperate regions, we find a most marked contrast between the northern and the southern hemispheres. In the former we find the plants—the ordinary trees, shrubs, and herbs which we all know—all across Europe, Asia, and America, to be much alike in character, and the differences between the plants of different regions are rather those of relative richness or poverty in forms than of differences in the forms themselves—a point to which I will refer again. Hence, with the exception of a specially rich assemblage in the Caucasian and western Mediterranean region, all the plants of the northern temperate zone are grouped into one flora called the intermediate or temperate flora, and the rich exception of which I spoke is appropriately called the Mediterraneo-Caucasian flora. This latter is exceedingly rich in species, six-sevenths of those of all Europe belonging to it. Now the uniformity of this northern temperate flora is very fully explained by what is known of its history. Around the Arctic Ocean, and at several points in Greenland, Spitzbergen, Siberia, and other places, there are found abundant fossil deposits of plants in Tertiary rocks, which fossils are undoubtedly the remains of the ancestors of our living north temperate vegetation. Not only are the species of the fossil and living forms very similar, but in many cases they appear to be identical. Our north temperate flora, then, in the Tertiary period, lived and flourished all around the Arctic Circle and within it, and probably extended to the North Pole itself. Then great climatic changes drove it southward, and it peopled all Europe, Asia, and America with a similar flora. This was subsequently driven to the south by the glacial period as we have noticed, and in the changes attendant upon that process and its return northward parts of it suffered severely.

In Europe this flora is for the most part a poor one, having much fewer species than our own. This is explained, doubtless, by the fact that in Europe the mountain ranges run east and west, and as the glacial sheet advanced southward, the plants of Central Europe were caught between it and the increasing local glaciers from the Pyrenees, Alps, Apennines, and Caucasus; there being little chance for escape, many of the forms were exterminated, particularly those not having natural means of wide dissemination, and many of those which escaped the icy jaws of the glaciers were pushed across the Mediterranean. This they were unable to re-cross when the glacial ice-sheet retreated, and but few of the exiled forms could return to their homes again. That this was the true course of events is rendered nearly certain by the fact that these missing forms are found fossil in late deposits in Central Europe, showing that they existed there anterior to the glacial epoch. Central Asia has to some extent suffered in a similar way, and Greenland had its flora swept off into the sea, and it has not now the plants to which the climate of its southern part entitles it. But the conditions were very different in Eastern America and in Eastern Asia. Here the mountain ranges run north and south, or nearly so, and in Asia the great ranges end before they reach the sea. Thus a free passage was open along which the plants travelled south out of harm's way, and returned again when the enemy retreated. Hence, the floras of Eastern America and Eastern Asia are both exceedingly rich in species and most strikingly alike, each having preserved nearly all of its species through the vicissitudes of glacial times.

Peculiarities of Distribution.

But why is not the flora of Western America rich like that of Eastern America? This question is not so easy to answer. It is true the Rockies run north and south; why were not all the western plants preserved? Several causes have contributed to destroy them, one of which is the extreme unevenness of the region west of the great mountains, and hence the crowding and extermination of some species, and also the fact that the very uniform climate of California is not so favourable to the northern species accustomed to more variable conditions as it is to the more southern forms of Mexico; and these latter have travelled in large numbers into California, and possibly by direct competition have exterminated some species, and certain other geological conditions have doubtless contributed somewhat to the same end. But the fact remains that, like that of Europe, the flora of the Californian region is poor in temperate species, while those of Eastern America and Japan are rich and much alike.

In the southern hemisphere we find a very different state of things. There the great continents, separated from each other from a most remote period, possess floras strikingly distinct from each other, so that it is necessary to assign to each great body of land its own distinct flora. This gives us the Australian flora, showing some slight traces of connection with the region to the north of it, and with New Zealand. Australia has so long been separated from the other bodies of land that its flora has had time for a great deviation from that of other countries. Indeed, it is notorious for its unlikeness to that of any other country. Next, the Andean flora, that of South America, which shows some slight connection with that of New Zealand and Australia.

Then the Mexico-Californian flora which extends up the west coast of America from Chile to Mexico and into California, being the source of many of our present Californian species; and lastly, the South African flora, one that is very rich in species and remarkably varied. And just as our north temperate plants have representatives on the mountains far south of them, so these southern floras have some of their members on mountains far away to the north. "The plants of Fuegia extend northward along the Andes, ascending as they advance." Australian genera reappear in Borneo, and even cross to China and Japan; New Zealand forms are upon the mountains of New Caledonia; South African, in the lake region of Africa, in North Africa, and even in the Canary Islands and Asia Minor. In all these cases the southern, like the northern, forms ascend the mountains as they approach the equator, and descend toward the sea level after they have crossed it. Now, what is the history of these widely-separted regions? There seems every probability that in times far back all these floras came, not from the south, but from the north; and the time when they had a common home there is so remote that the floras have had time to diverge greatly. That this is the correct view is sustained by the fact that these southern floras are much more like those immediately to the north of them than they are like one another; that there is no evidence of a southern continent from which they could have come; that while most peculiar species of the south have relatives, either living or fossil, in the north, none of the northern forms have fossil relatives in the south.

Floras of the Tropics.

Lastly we come to the tropical floras, characterised by great abundance of all kinds of vegetation, and with a preponderance of succulent, moisture-loving plants. Of these there are three, remarkably distinct, if we consider the relationship of the plants of which they are composed; very similar if we consider their general appearance. They are: the American flora, reaching its highest development in the valley of the Amazon. It is excessively rich in species and luxuriant in growth. Secondly comes the African flora, still imperfectly known, but also very rich. Many of its general characteristics have been vividly sketched for us in Mr. Stanley's latest work. And thirdly is the Indo-Malayan flora, including India and all the East Indian Archipelago, with the Malay Peninsula, and extending even to Australia and Japan. The relationships of these three are sufficiently well known to indicate that while they differ much from each other, they are more alike than are the floras of the south temperate zone we have considered, a fact tending to show that the former may have been connected with each other more recently than the latter. From this the step is but a short one to the theory some years ago propounded by an English naturalist, that all the floras, and therefore all the plants of the earth, have originated in the northern hemispheres and that they have spread southward in successive great waves, the more southern and older floras being the most ancient of these, the more northern floras later in time.

In conclusion, to sum up the whole matter, I hope I have shown that while the causes controlling the distribution of plants are many, and rendered tremendously complexed by their interaction, we can separate out the principal agencies and trace their effects; that the agencies limiting distribution are, the needs of plants with reference to the amounts of heat and moisture to which they have respectively become adapted, and also by the past history of each plant, placing it in some one region, and not in all to which it is adapted; and finally, that the active distributing agent, aside from the comparatively feeble efforts of the plants themselves and man's insignificant effect, has been the successive migrations compelled by past climatic and geological changes, and these migrations have resulted in the distribution of all plants over the earth's surface into those different groups or floral which we have just considered, which groups probably all came in a series of great waves from the north.

Forced Rhubarb.—How welcome at any time, but especially in such a season as the present, when apples are scarce and dear, is forced rhubarb. Yet, all the same, how exceedingly dear it is! Sold in bundles of three stems for threepence, or at the rate of one penny per stem of about twenty inches in length, no wonder it is not for the million in the middle of March, as it will be some few weeks hence. But it seems as if there is great room for an expansion of rhubarb forcing. What may be the price obtainable by the grower it would be interesting to hear, but the price I name is what the consumer has to pay. Bottled gooseberries are about the same price relative to product, as these do not shrink, and they are quite as palatable as are those gathered in June. Whilst it does seem as if the pulping or jam-making of fruit was rather overdone, there seems no doubt whatever but that good bottled or tinned whole fruits are in great request, and there is not the least probability that the public taste will vary, except in the direction of wanting much more.

EXHIBITIONS AND MEETINGS.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY, March 13.

THERE was a fairly good attendance at the annual meeting of the above friendly society, which took place at the Caledonian Hotel, Adelphi. Mr. George Wythes occupied the chair. Having read the minutes of the previous annual meeting, &c., the Secretary (Mr. Collins) read the report and financial statement for the past year.

REPORT FOI 1897.

In presenting the annual report and balance-sheet for the year ending January 10, 1898, the committee have great pleasure in stating that the society continues in a prosperous condition. Sixty-eight members joined during the year, twenty-one lapsed, and three died, one being a lapsed member, and the amounts standing to their credit in the ledger have been paid to their nominees. The membership is now six hundred and eighty. The amount of subscriptions paid by members to the benefit fund, including arrears for 1896, was £1,064 14s. 2d. The amount paid to sick members was £232 9s., there having been forty-six members on the fund. The amount of subscriptions to the Benevolent Fund from honorary and benefit members was £129 1s., and £23 10s. has been granted in small amounts to four members from this fund.

The Convalescent Fund is progressing favourably. It is suggested that this fund should now be incorporated in the rules. The amount received for this fund, including donations at the annual dinner, was £28 0s. 8d. Two members received £1 10s. each from this fund. The Management Fund shows a balance of £77 15s. 7d., having benefited to the extent of £10 10s. by donations at the annual dinner; also £10 6s. 6d. by advertisements in the annual report. The annual dinner was again held at the Holborn Restaurant. H. B. May, Esq., occupied the chair, and fulfilled his office in the best manner possible, and everyone present thoroughly enjoyed the evening's entertainment. The accounts were audited by Messrs. W. Gunner and G. Dixon, and found correct. The committee again invite members of the craft to join this society, and so lay by something for a rainy day, taking for their motto, "Union is Strength."

FINANCIAL STATEMENT.

Limits of space prevent us from giving in detail the balance-sheets of the four funds, but we may state that the balance in hand on the Benefit Fund is £9,857 11s. 5d., as against £8,834 5s. 5d. at the commencement of 1897; the Benevolent Fund has increased its balance on the right side from £2,604 0s. 5d. to £2,805 3s. 9d., and the Convalescent Fund from £304 6s. 6d. to £338 3s. 8d.; the balance in hand on the Management Fund is £77 15s. 7d., which compares favourably with that of £44 14s. 7d. last year. The treasurer's statement of accounts shows the actual working of the year, and is as follows:—

TREASURER'S STATEMENT OF ACCOUNTS.

Dr. *Receipts.*	£	s.	d.
1897. March 3			
To Balance in hand	60	4	5
1898. March 9			
To Honorary members' subscriptions for 1897	47	5	0
,, Benefit members' subscriptions, 1897	1,042	2	3
,, Ditto Benevolent ditto	75	11	9
,, Ditto Convalescent ditto	28	0	3
,, Ditto Management Fund ditto	73	19	0
,, Ditto Arrear subscriptions, 1896	22	11	11
,, Ditto ditto Benevolent Fund	6	4	3
,, Ditto ditto Management Fund	5	14	6
,, Revocation fees, rules, &c	0	5	6
,, Advertisements in report and balance-sheet, 1896	10	6	6
,, Donations at annual dinner, to Management Fund	10	10	0
,, Dividends on investments per trustees	366	19	0
	£1,749	14	9

Cr. *Expenditure.*	£	s.	d.
1898. March 9			
By Sick pay from Benefit Fund	232	9	0
,, Payments to nominees of deceased members	15	14	10
,, Payments from Benevolent Fund	23	10	0
,, Payments from Convalescent Fund	3	0	0
,, Payments from Management Fund	97	6	2
,, Investments, stamps, and commission	1,305	10	3
	1,677	10	3
By Balance in hand	72	4	6
	£1,749	14	9

STATEMENT OF LIABILITIES AND ASSETS.

Liabilities.	£	s.	d.
1898. January 10			
To Benevolent Fund	2,805	3	9
,, Convalescent Fund	338	3	8
,, Management Fund	77	15	7
,, Benefit Fund	9,857	11	5
	13,078	14	5
Balance	93	10	1
	£13,172	4	6

Assets.	£	s.	d.
1898. January 10			
By Investments at par valuation:—			
Nottingham Corporation Stock	5,500	0	0
Manchester ,, ,,	1,600	0	0
West Bromwich ,, ,,	3,300	0	0
Cardiff ,, ,,	1,100	0	0
York ,, ,,	600	0	0
South Indian Railway Government Stock	1,000	0	0
	13,100	0	0
Cash in hands of treasurer	72	4	6
	£13,172	4	6

Total invested money... ... ... £13,100

Audited and found correct.
GEO. DIXON,
W. GUNNER, } Auditors.

Mr. Hudson, who read the treasurer's accounts, informed the meeting that he had obtained a valuation of the society's investments, and at their middle value, as quoted on the Stock Exchange recently, the Nottingham Corporation Stock, £5,500, was worth £6,380; Manchester Corporation Stock, £1,600, worth £1,760; West Bromwich Corporation Stock, £3,300, worth £3,5[illegible]; Cardiff Corporation Stock, £1,100, worth £1,155; York Corporation Stock, £600, worth £642; and South Indian Railway Government Stock, £1,000, worth £1,225. Thus their £13,100 invested now had a total value of £14,742.

Mr. Wythes, in moving the adoption of the report and balance-sheet, said: It has been a very great pleasure to me to listen to the most satisfactory account of the working, financial and otherwise, of this society for the year ending January 10 last. From inquiries made I have been enabled to discover something of the general progress of this excellent society. The advance has been simply astonishing; and when the merits of the society, however, are carefully considered as they should be, by every gardener in the kingdom, it comes as a matter of surprise to me that the increase has not been more rapid. There can be no question as to the sound financial basis of the society, for there is an invested capital at par value of £13,100, but which I am informed by the treasurer, is actually worth £14,742 10s. There are about 720 paying benefit members now on the books of the society, and the investments work out at an average of nearly £[illegible] 10s. 8d. per member. Some members of course have close upon £90 to their credit, but these are the oldest members, and there is less, as a matter of course, to the younger ones. If one turns to the management expenses—and here let me pay a well-deserved compliment to the officers and committee for the admirable way in which the affairs of the society are being managed—there is this gratifying fact to be noted, viz.: the entire working expenses of the past year are only about six per cent. of the income. Members and non-members should note this, and contrast it with the working of other societies of a similar kind. It may well be asked, Can other societies of any standing show such a sound financial condition as that of the United? I think not. There must therefore be some other reason why the members do not increase more rapidly than they do. Personally, I am disposed to think it is caused by negligence and apathy; some do intend to join perhaps, but put off doing so from year to year. Some think possible they can do better by joining mixed societies. Can they? I think not. It must be very evident to everyone who thinks the matter out that large societies with many branches cannot possibly be worked so cheaply as the United, controlled by a central board of management. There is a fascination, perhaps, in the regalia and paraphernalia some societies have, but this does not benefit the individual members. The investments of the United during the past year, as we have just heard, amounted to £1,200, or £100 per month. For the past two years £1,100 each year were the sums invested. Thirteen years back, I have been informed, there was invested the sum of £301 17s. 6d., which for that year (1884) made up the total of invested monies to £3,000, so that from 1884 to 1897 the increase at par value has been more than £10,000.

The members should not lose sight of the fact that the Executive Committee are still enabled to allow each one respectively 3 per cent. per annum on the balances standing to their account in the ledger. This allowance of 3 per cent. cannot go on many more years at the present price of sound trustees' stock, which do not realise now more than 2½ and 2¾ per cent. The more one considers the rules of this society, the more disposed will they be, in my opinion, to give every credit to the originators of the United. I am glad to see here to-night some of the original members who have never drawn one penny from the funds. Every member should do his best to obtain fresh members, never missing a chance to press home the essential features of the society, and bearing in mind the motto of the society, "Union is strength!" I have not the slightest doubt that there are many candidates for the pension of the Gardeners' Royal Benevolent Institution (a society I am much interested in) who would be only too glad if they were members of the United; yet many do not appear to have belonged to any society at all. I hope, when the report of the past year's working is noted in the horticultural Press, that many more will be induced to join. I have not the slightest doubt that these reports and notices have been the means of inducing many gardeners to join the ranks, and the willingness with which any notice of the society is inserted by the several editors deserves every possible recognition. I should like to draw attention to the "Voluntary Convalescent Fund." Its name describes its use very well, indeed. What an advantage this fund should be to young gardeners throughout the country; those, for instance, who are either in bothies or lodgings, and who after an illness would be greatly benefited by a change of air. When I and others in this room were in a bothy or lodgings, we had no such opportunity as this fund affords of regaining health and strength. To young gardeners, therefore, who are moving from garden to garden, I would say, "Bear this fund in mind!" In conclusion, I would refer to the remarkably low death-rate which, in spite of what some say to the contrary, points to the healthiness of gardeners in general and their longevity in a marked manner. Then, of course, it must be added that our profession will bear a very favourable comparison with any other for those cardinal virtues which go to build up good character and healthy bodies. I have much pleasure in moving the adoption of the report and balance-sheet of the year 1897.

Mr. W. Marshall, who may be regarded as the originator of the society, seconded Mr. Wythes' proposal. He contrasted the present state of affairs with that which obtained in the childhood of the society and expressed his thanks to Providence for sparing him to see a scheme for the benefit of gardeners attain such a prominent and sound position. He congratulated the society upon its management and present position. The report and statement being adopted unanimously it was decided, upon the proposal of Mr. Cole, that 2,500 copies be printed and circulated.

The next business was to elect four committeemen in the place of those retiring, the retiring members offering themselves for re-election. Those elected were Messrs. Thomson, Wheeler, Cook, and Wood. A vote of thanks to the treasurer, proposed by Mr. Cole, was responded to by Mr. Hudson, who once again pledged himself to do all he could on behalf of the society. The Chairman having warmly congratulated the society upon having such a hard working and painstaking secretary, proposed the re-election of Mr. Collins to that post. Mr. Collins was unanimously re-elected and thanked the members for their confidence in him. So far as we can gather Mr. Collins receives the stupendous sum of £35 10s. for his services during the past year. Votes of thanks to the committee, the trustees, and horticultural press, were all unanimously passed. A vote of thanks to the chairman, moved by Mr. W. Marshall, and seconded by Mr. Cook was carried with acclamation.

SPECIAL GENERAL MEETING.

A special general meeting followed the annual general meeting, and was held to consider the advisability of altering Rules 8 and 14, and of adding a new rule to be numbered Rule 18A. On the motion of Mr. Hudson, it was unanimously agreed to alter "£20," in Rule 8, to "£30," this raising the salary of the secretary in future by £10. It was the opinion of the meeting that even with this [illegible] the secretary would not be by any means overpaid. Mr. Burge proposed, and Mr. Cole seconded, that after the words "lower scale" in Rule 14 the words "with the privilege of increasing this to," should be added. This rule has reference to the two scales of payment in vogue. The addition was agreed upon after it had been pointed out that the conjunction "and" following "lower scale" in the old rule would have to be deleted. A proposition to strike out the word "successive" after "twenty-six" in Rule 14, relating to the amount of full sick pay any member is entitled to receive, was moved by Mr. Thomson and seconded by Mr. Winter, both of whom showed that it was necessary to omit the word "successive" to prevent any imposition upon the society. The old rule would allow a member to have, say, twenty-five weeks' full sick pay, and then another similar period after an interval of perhaps a fortnight or so. The idea of the movers was to prevent any one member from having more than an aggregate of twenty-six weeks' full sick pay during any period of fifty-two weeks. An independent listener to the discussion would have inferred that the society had been imposed upon or had barely escaped imposition, but this was shown not to have been the case. It was eventually decided to omit the word "successive" in the rule under notice.

Mr. Cole moved that the Convalescent Fund be now incorporated into the society's affairs by rule, and that a new rule, to be called Rule 18A, should be added to those already drawn up. Mr. Marshall seconded the motion, and it was unanimously agreed to adopt the new rule, which reads thus: "Voluntary Convalescent Fund.—The object of this fund is to give members a change of air during convalescence. The Committee of Management to have power to relieve members of this society from this voluntary fund as they may deem advisable. All cases must be recommended by a duly qualified medical practitioner."

A further vote of thanks to Mr. G. Wythes for continuing as chairman concluded the proceedings.

ISLE OF WIGHT HORTICULTURAL ASSOCIATION.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport a few days since. Dr. J. Groves, B.A., J.P., presided over a large attendance of members. Mr. J. H. Larkin, Los Altos, Sandown, prepared a paper on "The Cultivation of Asparagus," of which the following is an abstract: Asparagus, said Mr. Larkin, thrives best in a deep, sandy, well-manured soil. When I have a new bed made I select a nice open piece of land, and have it deeply trenched and well manured. I prefer beds about four feet six inches wide, and planted with three rows of plants at about sixteen inches from row to row, and the plants nine inches apart. I generally procure good one-year old plants. The best time I consider for planting is from the middle of April to the middle of May. Of course planting can be done earlier, but I believe it to be a mistake to plant asparagus too soon, as if it should be a cold spring the roots are so liable to decay. Watering assists growth in dry weather, and liquid manure is very beneficial to poor soil, also a little salt occasionally during early growth. I believe in clearing off the grass early in the autumn before the seed berries fall, as it is a mistake to leave them to ripen and fall on to the beds, as, in consequence, a considerable number of seedlings come up and cover the bed, which are quite as troublesome as weeds, and should be pulled up. After the beds have been cleared of weeds and grass I generally give a good dressing of rotten manure and seaweed, and let it lay till March; and if the weather is inclined to be fine, we simply take a wooden rake and draw off the rough material on the surface. It is important not to exhaust the crowns by cutting too late in the season, unless we have a very late spring. I do not cut after the third week in June, and am careful not to allow an inexperienced person to cut the heads, as they so often injure those just pushing from the crowns, and reduce supplies. I have had nothing to do with forcing asparagus of late years, but when occupying a position where early supplies were required, we used to endeavour to send to the kitchen at Christmas forced rhubarb, seakale, and asparagus. We used to use ordinary brick melon pits, filled in with prepared stable manure and leaves well trodden down to within one foot of the glass. Two days afterwards this was covered with a layer of mellow soil about three inches thick. As soon as the fermenting material had arrived to a safe temperature, from 70 to 80 degrees, strong roots were carefully lifted and placed closely together on the warm soil and then covered with some more prepared soil. The manure should be well trodden to prevent too much sinking and to keep in the heat. In fact, you want the bed to be prepared in much the same manner as for mushrooms—that is, firm and solid. The only attention required afterwards is to cover up the frames from frost and to give an occasional watering, a little salt being dissolved in the water. A little ventilation will be required in mild weather. If blanched asparagus is required, that can readily be obtained by excluding the light. Though, as I have said, I have myself cut asparagus on a Christmas morning I do not recommend forcing asparagus quite so early, as by commencing to force in February much better results are obtained, the flavour being more highly appreciated. The variety I prefer is Connover's Colossal, but there are several other varieties in cultivation of much merit.

Mr. R. Parsons obtained the association certificate for cultural merit for a collection of cyclamen. After some discussion the forms of certificates to forthcoming Island shows, and the question of printing the monthly proceedings, were adjourned to another meeting.

It was decided to hold the April meeting at Shanklin, and that it should take the form of an exhibition of spring flowers. The arrangements of excursions were left in the hands of the secretary. Twelve new members were elected.

THE SCOTTISH HORTICULTURAL ASSOCIATION'S MAJORITY.

THIS society, which is now between six and seven hundred strong, celebrated its sturdy majority by a supper, under the chairmanship of its president, Mr. Todd, on Wednesday, March 9, in the Bemrose Hotel, Princes Street, Edinburgh. There was a good gathering of representative horticulturists, the croupiers being Messrs. Dunn and R. W. E. Murray. The Corporation of Edinburgh were ably represented by Bailies Hay and Mackenzie; visitors by Messrs. Robertson (Glasgow), and W. P. Melville (Dundee). Among other members and friends were: Messrs. Dunn, Janes, Grieve, Loney, D. T. Fort, W. McKinnon, A. Mell, W. Carmichael, Byron, D. P. Laird, R. Laird (the energetic secretary), and many others. The usual loyal toasts were given by the President in patriotic and enthusiastic terms. In the absence of Mr. R. W. E. Murray, the Secretary (Mr. R. Laird) proposed "The Army, Navy, and Reserve Forces." Mr. Mackenzie then proposed "The Lord Provost and Magistrates of Edinburgh," gracefully acknowledging the assistance received from the Corporation in carrying through their great shows. For many generations it had been the good fortune of Edinburgh to be ruled by a body of intelligent, patriotic, and far-seeing men. He could look back to 1851, and was simply astonished at the progress they had made in various directions, especially in the sanitation and adornment of their fair city. Bailie Hay responded in an eloquent and able speech. As great educators, it afforded them much pleasure to foster the love and culture of flowers, and to know that their services in these directions, amid their ardous duties, were appreciated by the members of this association and kindred societies. Bailie Hay subsequently, in proposing the toast of the evening, "The Scottish Horticultural Association," dwelt on the small beginnings of their society in the Bible Society Rooms. They had been banded together for the noble art of horticulture, and had now reached a strong and healthy majority. They had been most successful, and he was sure the citizens of Edinburgh owed them a deep debt of gratitude for the privilege of visiting their chrysanthemum show, which was the admiration of all classes of people and second to none in the world. He hoped the corporation would always be in touch with them, and would never stint their donations to this and other kindred institutions. He gave place to no one in his love and admiration for their association, which had done so much good in the past and was capable of doing even more good in the future. The toast was most cordially received, and responded to in able and eloquent terms by the President (Mr. Todd). He said they had done what they could to deserve success. The public had backed up their efforts, and ample success had followed. They had had no ebbtide, and their success had gone on year after year. They had added to their numbers and increased their usefulness. Since the chrysanthemum shows were established they had gone on with unvarying success. They were most grateful for all the help rendered by the corporation. The public had come to look upon their show as one of the most attractive entertainments of the year in their city. With every fresh success they had attempted to strengthen and widen their attempts at bringing together the very best in the way of chrysanthemum and other floral products, and those certainly culminated in their last show. They had also, he thought, done wisely and well in devoting part of their income to charity. Mr. J. P. Laird proposed "Gardeners and Gardening," to which Mr. Dunn replied; Mr. A. J. Johnstone "The Nursery and Seed Trade," to which Mr. Milne replied; Mr. Bailie Mackenzie "Kindred Societies," replied to by Mr. W. P. Melville; "The Founders" by Mr. D. Mitchell, replied to by Mr. Robertson Munro; "Commercial Horticulture" by Mr. Long, replied to by Mr. Scarlett; "The Secretary and Treasurer" by Mr. McKinnon; and "The Chairman, President Todd," by Mr. D. T. Fish. At the conclusion of a very full programme of speeches, songs, &c., which made the evening pass speedily and pleasantly, the President, in his own name and that of all the preceding presidents, presented the association with a handsome album containing all their photographs, which will prove of very considerable horticultural and historical interest later on.

D. T. F.

OBITUARY.

PROFESSOR KIRK, F.L.S., the distinguished botanist and arboriculturist, who for a long period occupied an important position in the Department of Woods and Forests of New Zealand, died a short time since in that colony. Professor Kirk, who was of Scotch extraction, spent the greater part of a long life in New Zealand, and rendered valuable service on behalf of the arboricultural features of the islands. He was a distinguished botanist, and his "Forest Flora of New Zealand" is the standard work upon the forest growths native to the islands. Since the production of his principal work he has continued, from time to time, to publish interesting monographs upon New Zealand timbers. A very valuable report on the trees suitable for forest cultivation in the colony was issued by him in 1886, at which time he held the position of Conservator of State Forests in New Zealand, and he is understood to have been engaged up to the moment of his death upon a great work devoted to the botany of Australasia.

COMING EVENTS.

ASCOT AND SUNNINGDALE CHRYSANTHEMUM SOCIETY, November 16 and 17.
FALKIRK SUMMER SHOW, August 27.
FALKIRK SPRING SHOW, March 31.
HUDDERSFIELD CHRYSANTHEMUM SHOW, November 11 and 12.
LIVERPOOL SPRING SHOW, March 30.
NEWTON STEWART FLORAL FETE, August 17.
R.H.S. OF IRELAND SPRING SHOW, April 1.
STIRLING HORTICULTURAL SOCIETY, September 1 and 2.

MARKETS.

Covent Garden.

THERE is a moderate supply of fruit on offer, but prices are high and trade generally is quiet. Oranges meet a fair demand. Green vegetables are in request, and there is a moderate potato trade. Cut flower trade fairly brisk,

FRUIT.—American and Nova Scotian apples, 15s. to 25s. per barrel; English grapes, 2s. to 3s.; Belgian, 1s. 6d. to 1s. 9d. per lb.; pineapples, 2s. to 6s. each; Cape peaches, 6s. to 10s. per box; bananas, 4s. to 10s. per bunch; dates, 10s. to 12s. 6d. per cwt.; Valencia oranges, 8s. to 15s. per case; Jaffa, 8s. 6d. to 12s. per box; Canary tomatos, 10d. to 1s. 6d. per tray, 3s. 6d. to 4s. 6d. per case; lemons, 8s. to 16s. per case.

FLOWERS.—Arums, 2s. to 3s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 3s. to 4s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 4d. to 9d.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinth, 4s. to 6s.; daffodils, 2s. 6d. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 4d. to 6d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Italian cauliflowers, 3s. to 4s. per basket; celery, 6s. to 15s. per dozen rolls; spinach, 2s. to 2s. 6d. per bushel; eschallots, 1s. 6d. to 2s.; mushrooms, 6s. to 8s. per 12 lb.; Brussels sprouts, 1s. to 1s. 6d. per half-sieve; green mint, 4s. to 5s.; parsley, 2s.; leeks, 1s. 6d.; carrots, 2s. to 3s. per dozen bunches; rhubarb, 1s. to 1s. 6d.; French lettuce, 9d. to 1s.; cos ditto, 2s. to 2s. 6d.; cucumbers, 3s. to 6s.; endive, 1s. 4d. to 1s. 8d. per dozen; cabbages and savoys, 3s. 6d. to 5s, 6d. per tally; Valencia onions, 6s. 6d. to 8s. 6d. per case; English, 5s. 6d. to 6s. 6d. per cwt.; new potatos, Canary, 10s. to 16s.; Malta, rounds, 10s. to 14s. per cwt.; French, 2½d. to 3d. per lb.

Borough Potato Market.

Supplies are light and prices unaltered, save for an upward tendency for the best stocks, a tendency that would be accentuated if the weather turned colder for a week or so.

Dunbars, 120s.; Scotch Magnums, 100s. to 110s.; Hebrons, 100s.; Snowdrops, 90s.; Bruce Maincrop and Sutton's Regents, 90s. to 95s.; Reading Giants and Saxons, 85s. to 90s. per ton; Belgians, 3s. 3d. to 3s. 9d.; Germans, 3s. 6d. to 4s. per bag.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates.

Fasciated Holly Growth.—J. H, W., Handsworth: We are obliged to you for the specimen sent; it is a monstrous example of fasciation and remarkably interesting. We hope to allude to the matter in a future issue.

Roses in Pots.—W. J. T., Bristol. Prominent articles on the cultivation of Roses in Pots appeared in our issues for June 27, 1896, and October, 17, 1896. Application for these and any other back numbers of the GARDENERS' MAGAZINE you may require should be made to the publisher of the GARDENERS' MAGAZINE, 4, Ave Maria Lane, E.C. We can only on very special occasions reply to correspondents through the post.

Diseased Violets.—S. W., Portslade: Since the receipt of letter and specimens we have not had sufficient time to investigate the disease properly. There is a fungoid attack, but probably this is a result rather than the cause of failure. The effect produced upon the foliage is precisely that we should expect to find if the violets had been excessively fumigated, and the frames kept closed during a period of bright sunshine. The soil appears not to be the cause of failure, judging from the roots sent. A strong insecticide may also have been the cause of failure. We should be glad to hear whether or not the violets were fumigated severely.

Marjoram.—A. B., Henley: The term Marjoram is a collective one, often used as a generic title in gardens for the various species of Origanum grown as herbs. The most popular species is Origanum Majorana, formerly known as Majorana hortensis, whence its garden name. This is catalogued usually as Sweet Marjoram or Knotted Marjoram, and occasionally as Garden Marjoram, all three names referring to the same plant. Pot Marjoram is Origanum Onites, while the Common or Wild Marjoram is the native Origanum vulgare. O. Majorana is a native of North Africa, and O. Onites comes from the Mediterranean shores. The former is not an annual, although being but half hardy in this country it is generally treated as such.

Failure with Hyacinths.—J. G. C., Birmingham: The failure of hyacinths to properly complete the stem that bears the flower-head may be due to one of two causes. There may have been a severe check of some kind just as the spikes were becoming prominent; or, and as is most likely the case, the bulbs were not properly ripened last year. Unless great care is exercised some "green" bulbs are likely to find a place in a consignment, especially if other than the very first-class bulbs are purchased. With regard to the decay of roots when hyacinths are cultivated in water we have not seen this occur; we presume, however, that the fault lies in keeping the water in the glasses at a higher level than the base of the bulb. We find it best to keep the surface of the water a quarter of an inch below the junction of root and bulb.

Failure of Peach Tree.—A. C. R., Frome: The failure is due to improper soil and a fungoid attack that took advantage of the weakened condition of the tree. What the fungus is we cannot say from the account you send or the tiny specimen of wood. The best thing to do is to destroy the tree and obtain a new and healthy one. It would take a lot of time and trouble to bring the specimen back to health again, and in any case you are likely to lose two crops of fruit. If you are determined to try and restore health, then wash the roots clear, cutting back all that are cankered or damaged; remove all dead or affected wood, and shorten the remainder considerably to induce sturdy growth. Dress the tree with a strong solution of soft-soap suds and sulphur, and place the roots in a well-drained spot and a good turfy loam.

Vine and Fern Weevil.—W. L., Bolton: The grubs sent are those of the Vine and Fern Weevil (*Otiorhyncus sulcatus*); these are great pests when once established, and do much harm to the roots of ferns, vines, &c It is generally the best plan to shake the soil from the roots of affected plants, and then wash them so as to make sure no grubs remain, and then carefully repot the subjects. The old soil should be shaken into strong brine so as to kill the grubs. If the grubs are moderately active, plunge the infested pots into warm water and leave them there for a few hours as this will cause the pests to rise to the surface, when they can be disposed of; this method should first be tried, provided the plants are well established. Do not in any case allow the grubs to pass into the pupa and then into the beetle stage or you will have trouble, especially among the vines and ferns, also with a prospect of an increased number of grubs in the pots next season.

Fruit and Vegetable Culture in Cornwall.—B., Tottenham: There is undoubtedly room for more men in Cornwall to start business in the cultivation of choice fruits, flowers, or vegetables for the early markets, but whether you would succeed or not we have no opportunity of judging; this depends largely upon business capacity and cultural ability. The best plan will be to obtain employment in the south or south-west of Cornwall, preferably in a market establishment, and remain there for at least a year, so as to have opportunities for becoming acquainted with the peculiarities of climate, soil, &c., before starting a business of your own. In any case you should obtain land reasonably near a railway station. As you do not require a high rate of pay there should be no great difficulty in obtaining employment as the result of a little judicious advertising. The GARDENERS' MAGAZINE has a large Cornish circulation, and at the same time you might try some of the leading Cornish newspapers.

Botanical Magazine.—W. T., Cowes: The earliest volumes of the *Bot. Mag.* are of very little commercial value when separated from a complete [illegible] or long run. We have found early double volumes of this work on [illegible] at 6d. each. When the volumes are not consecutive, as in the [illegible] of thos you have, this further depreciates their value, so that you can [illegible] expect more than 1s. per volume. You might write to Messrs. W. Wesley and Co., 28, Essex Street, Strand, London, stating the number of volumes you have and their dates, and asking what they will offer for the lot. The Messrs. Wesley are large dealers in old gardening books.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

A. S., Sheffield: 1, Davallia bullata; 2, Scirpus Holoschœnus; 3, Scirpus Holoschœnus variegatus; 4, an Iris or Moræa, send when in flower; 5, Tradescantia virginica; 6, Nepeta hederacea variegata.

K. B., Henley: 1, Pelargonium citriodora; 2, P. crispum majus; 3, not recognised, probably a seedling form; 4, P. fragrans; 5, P. Lady [illegible]; 6, P. quercifolium.

W. D., Botley: The specimen sent is Bryophyllum calycinum, a stove succulent plant of considerable interest but no great value. If a leaf is laid on moist sandy soil, in a stove, young plants will be produced from the bases of the [illegible] along the leaf margin.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

A. S., Sheffield: 1, Lady Henniker; 2, Victoria; 3, Braddick's Nonpareil; 4, Dumelow's Seedling; 5, Welford Park Nonsuch; 6, not recognised, probably a cider apple.

L. M. S., Gloucester: 1, Uvedale's St. Germain; 2, Egremont Russet.

Frant: No letter or initials were sent with these two apples, so we have given the name on the postmark to facilitate identification. In the usual way we take no notice of queries or specimens sent without the sender's name and address. 1, Golden Russet; 2, Wyken Pippin.

THE WEATHER DURING THE WEEK ENDING MARCH 12, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	47·0	29·5	37·7	3·17	0·01	0·03
Croydon	48·3	26·5	37·3	2·94	0·00	0·00
Brighton	—	—	—	—	—	—
Bristol	49·0	27·0	35·2	1·78	0·14	0·36
Wolverhampton	46·8	25·3	34·2	1·22	0·00	0·00
Norwich	46·2	22·8	36·2	2·33	0·03	0·08
Nottingham	47·6	24·0	35·0	1·67	0·00	0·00
Liverpool	47·4	28·8	37·1	2·83	0·15	0·38
Huddersfield	51·0	25·0	35·9	2·17	0·00	0·00
Bradford	51·0	29 6	39·1	3·94	0·00	0·00
Hull	51·0	25·0	36·4	2·44	0·05	0·13

The mean reading of the Barometer during the week at Greenwich was 29·89 inches, and that of the Thermometer 37°·7, the latter being 3°·2 below the week's average in the 50 years 1841—90. The direction of the wind was north-easterly, the horizontal movement of the air being nearly equal to the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 18·0 hours. The measured rainfall amounted to 0·01 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 21.—National Chrysanthemum Society, Adjourned Annual Meeting at Anderton's Hotel, Fleet Street, at 6 p.m.

TUESDAY, MARCH 22.—Royal Horticultural Society, Committees Meet at 12 o'clock; Lecture at 3 p.m. on Soils by Mr. J. J. Willis.

WEDNESDAY, MARCH 23.—Torquay Gardeners' Association, Spring Show.

SATURDAY, MARCH 26.—Royal Botanic Society, Meeting.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, AND FRIDAY, MARCH 21, 22, 23, AND 25, Hardy [illegible] Pinks, Phlox, Gladiolus, Carnations, Violets, Iris, Cannas, Lilies, Begonias, [illegible] &c., at Protheroe and Morris's Rooms.

WEDNESDAY, MARCH 23.—Stove and Greenhouse Plants, Roses, Shrubs, Border Plants, [illegible] &c., at J. C. Stevens's Rooms.

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The Geographical Distribution of [illegible] ...
The Weather ...
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Young Vines and Cold Borders ...
ILLUSTRATIONS.
Elwes' Snowdrop (Galanthus [illegible]
Shrubbery at Kew ...
Hybrid Phaius ...

"THIEVES! POLICE! MURDER!" are the blood-curdling cries which are [illegible] times heard in the silent watches of the night coming from the bed of some unfortunate [illegible] from what is termed a disordered liver, or dyspepsia. Horrible nightmares are a common [illegible] of these complaints, and the lives of the victims become a burden to them in [illegible] Holloway's Pills and Ointment have long been famous for the cures they have wrought [illegible] cases, because they act directly upon the liver. The Ointment rubbed on the skin [illegible] immediately to that organ, whose blood and nerves it rectifies. One trial is all that is [illegible] cure will soon follow. The Pills are also the best known antidotes for want of appetite, [illegible] and flatulency.—[ADVT.]

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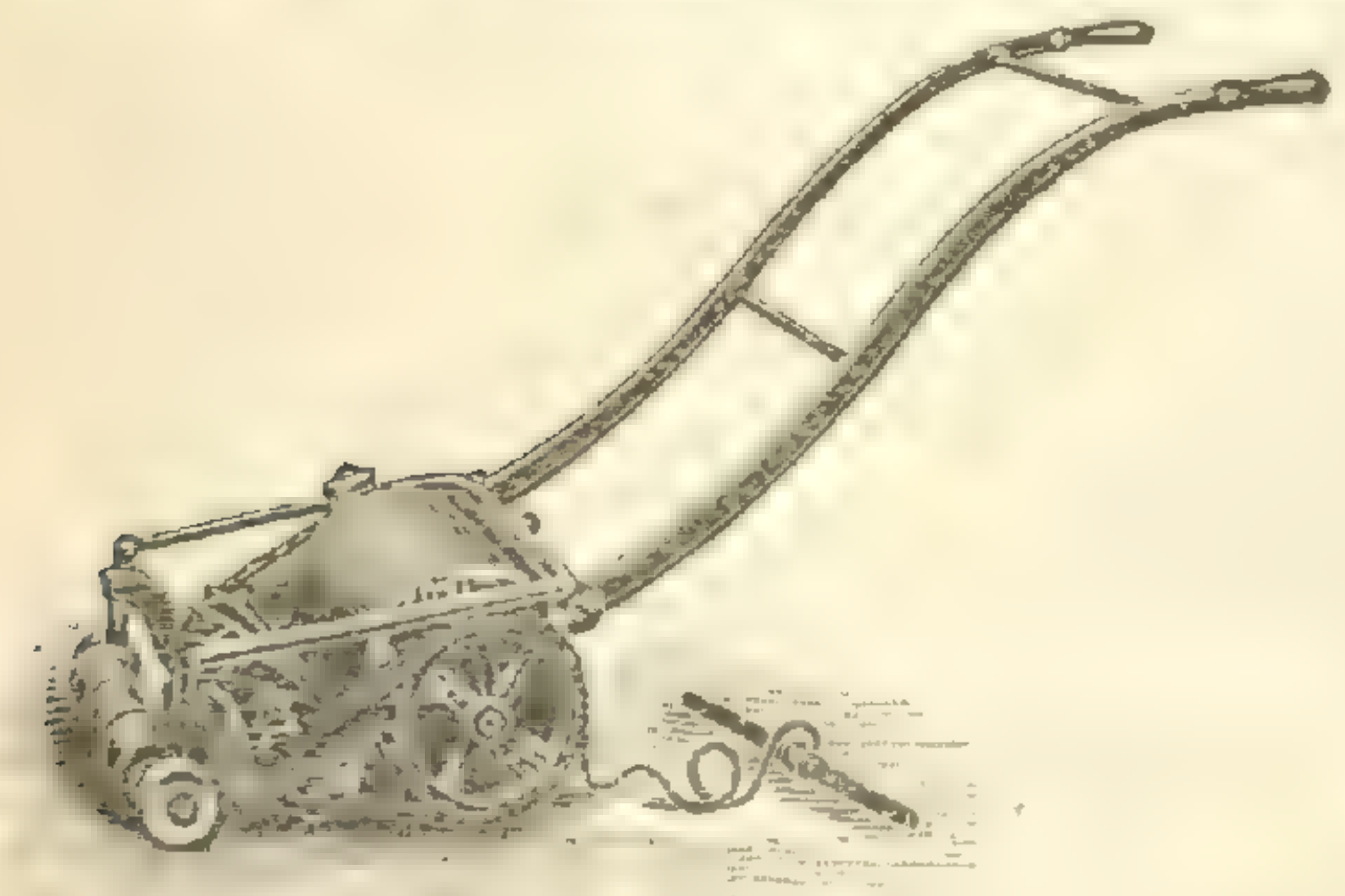

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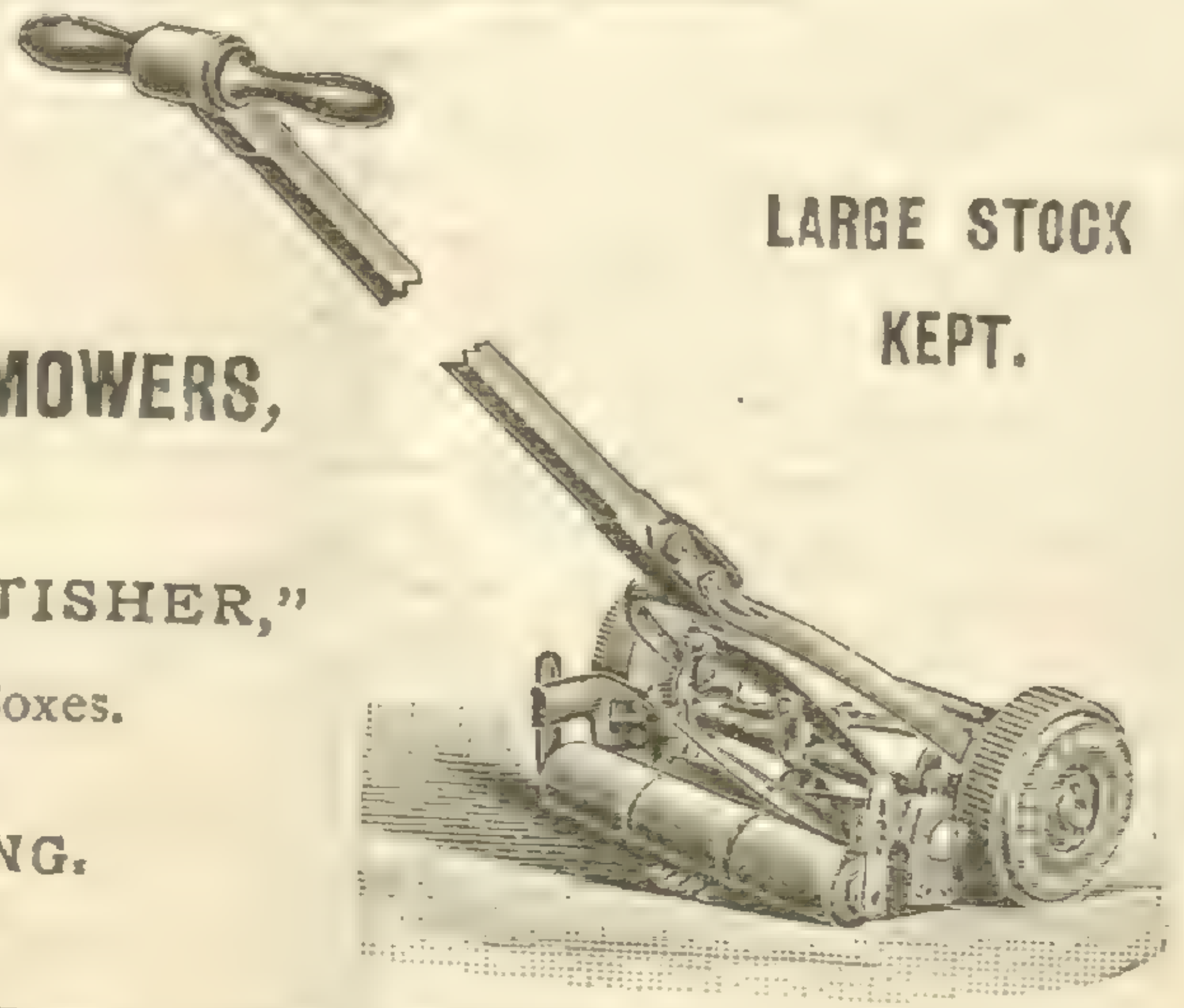

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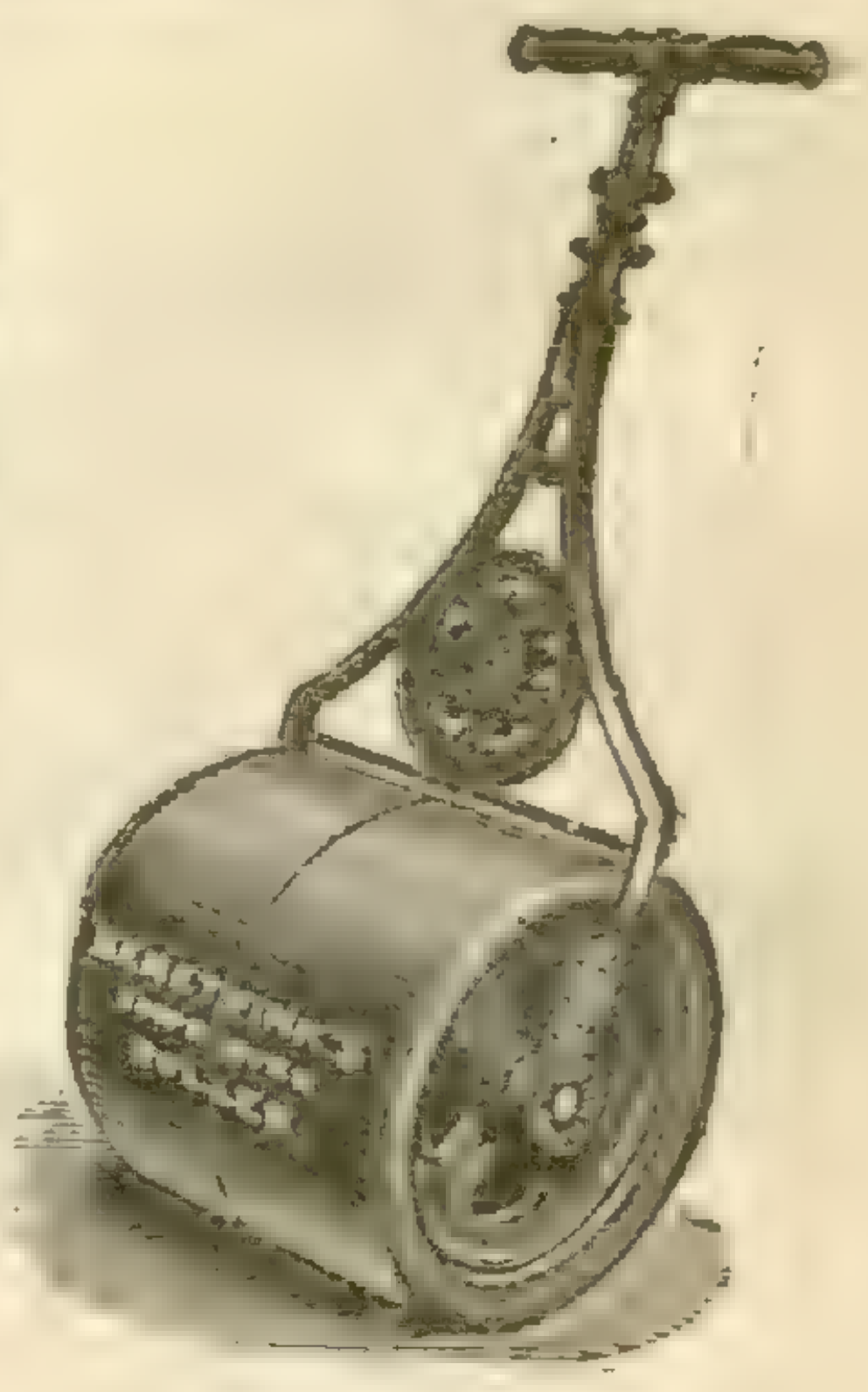
20 ,, 20	3	0	14	1	13	6
22 ,, 22	3	2	14	1	18	0
24 ,, 24	4	0	14	2	5	6
26 ,, 26	5	2	0	3	5	0



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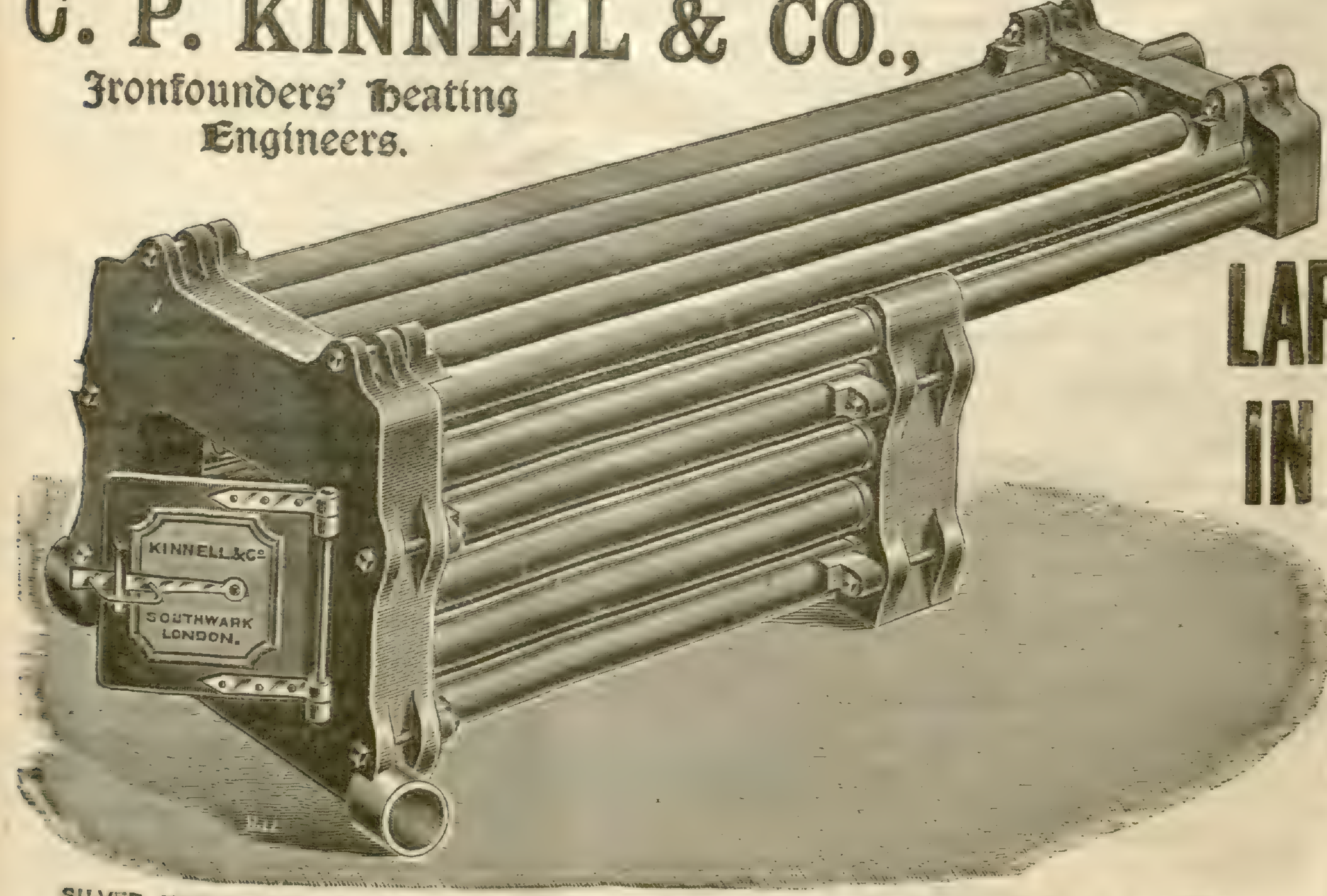

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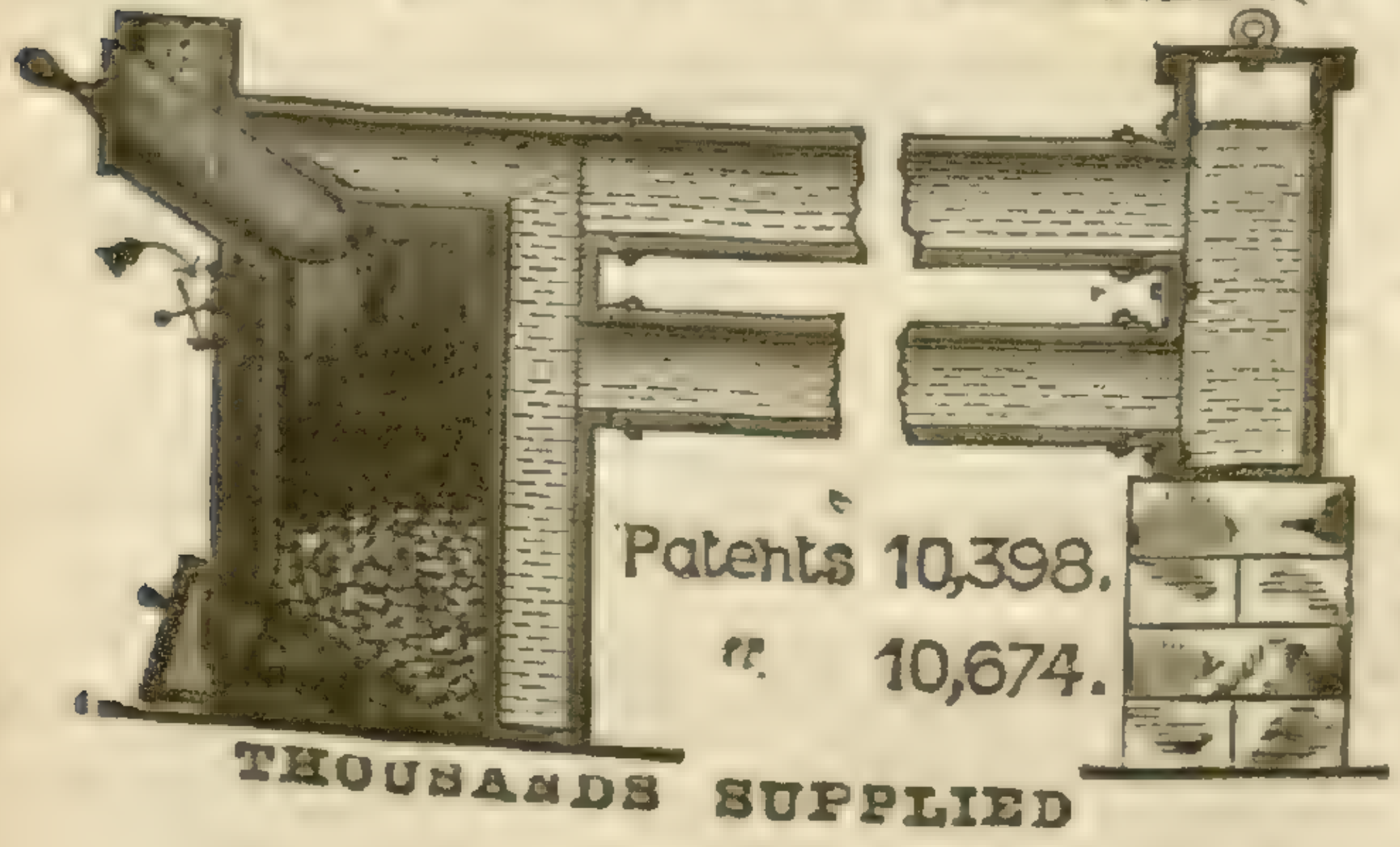

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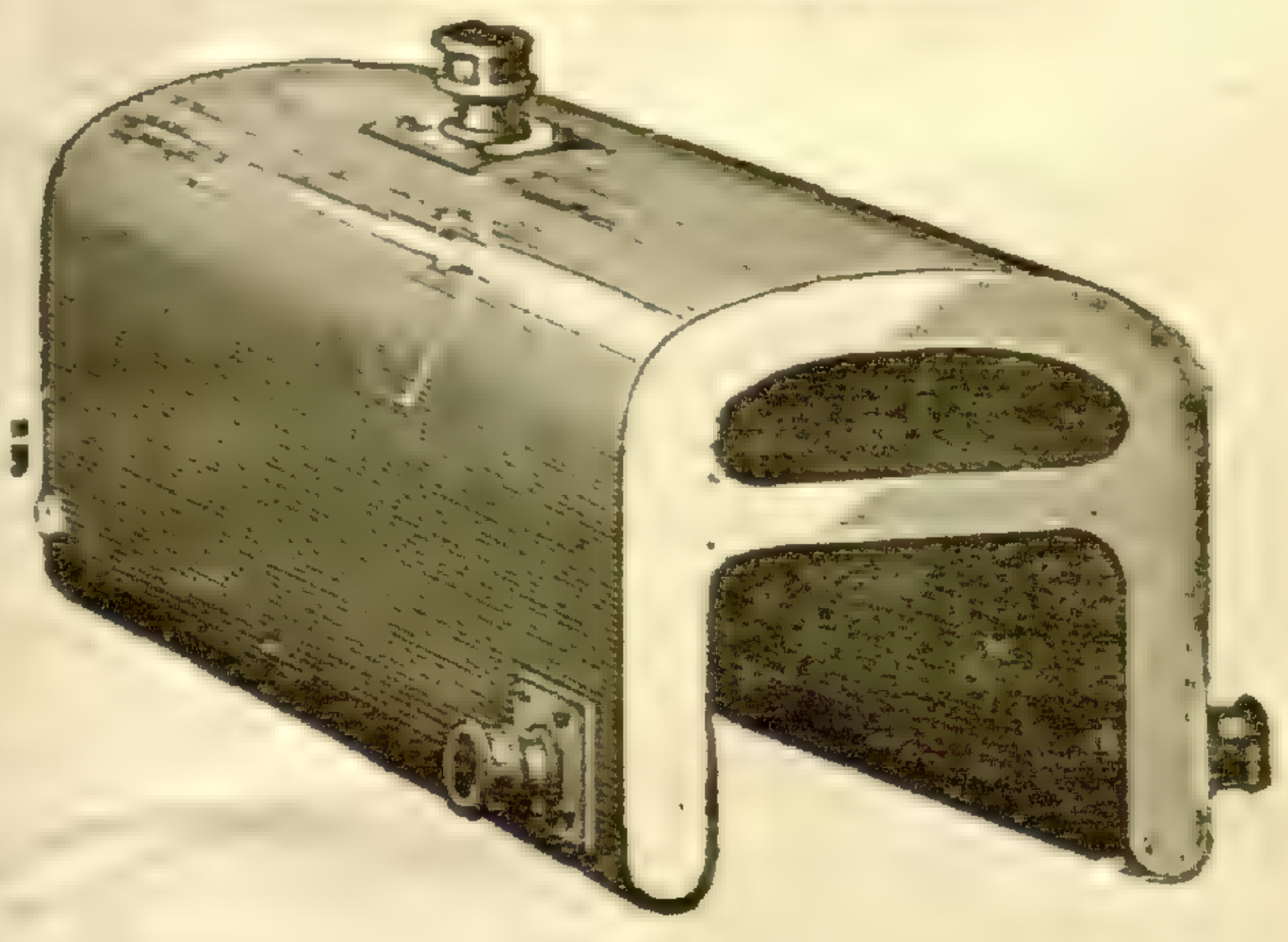

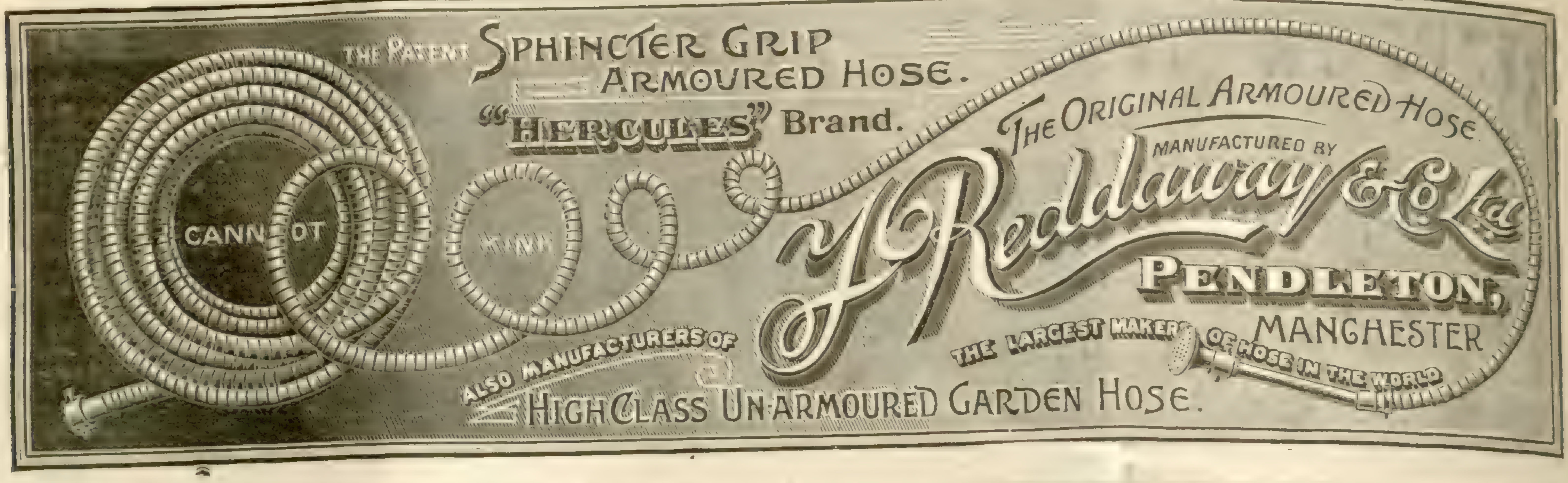
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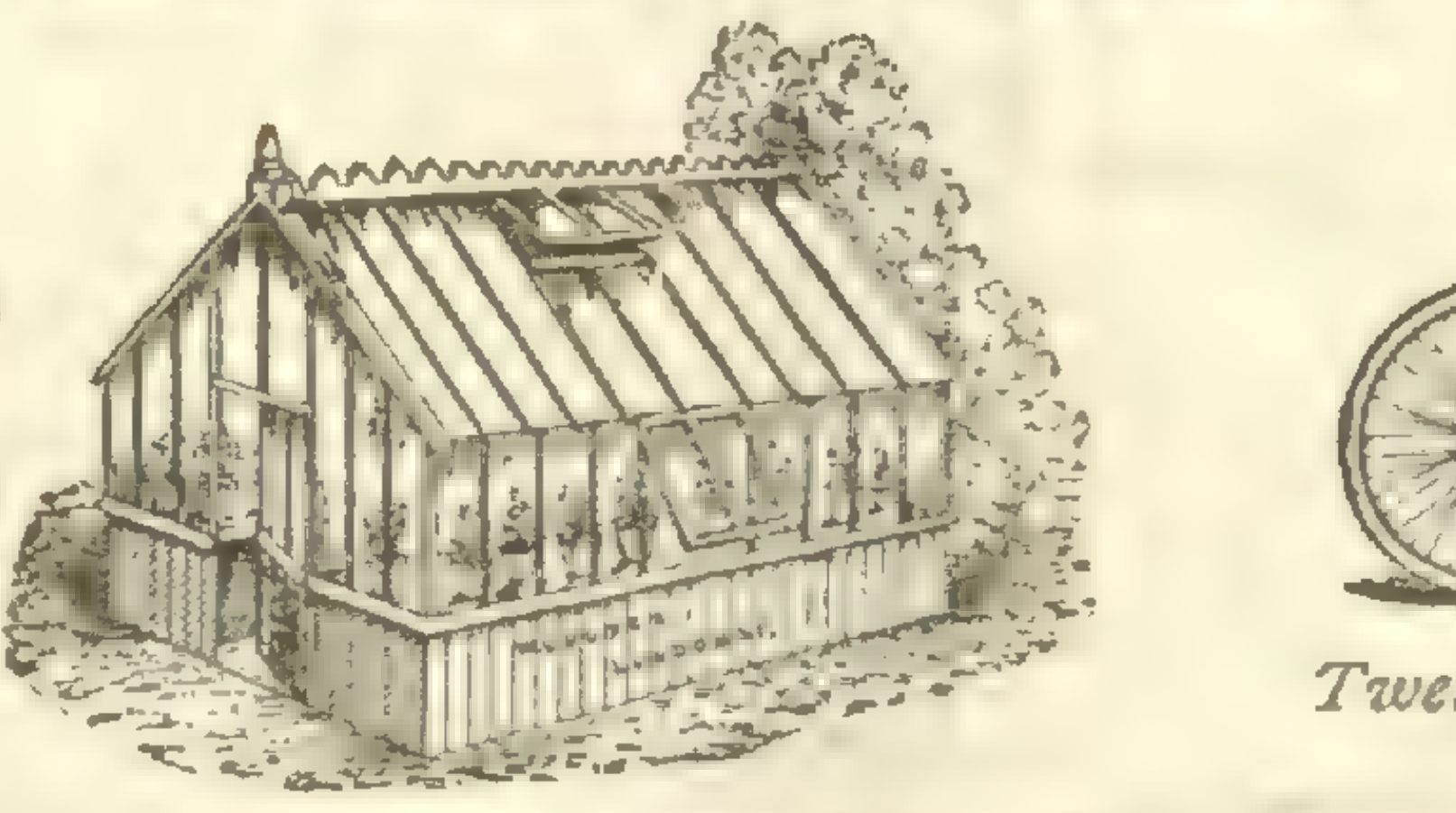

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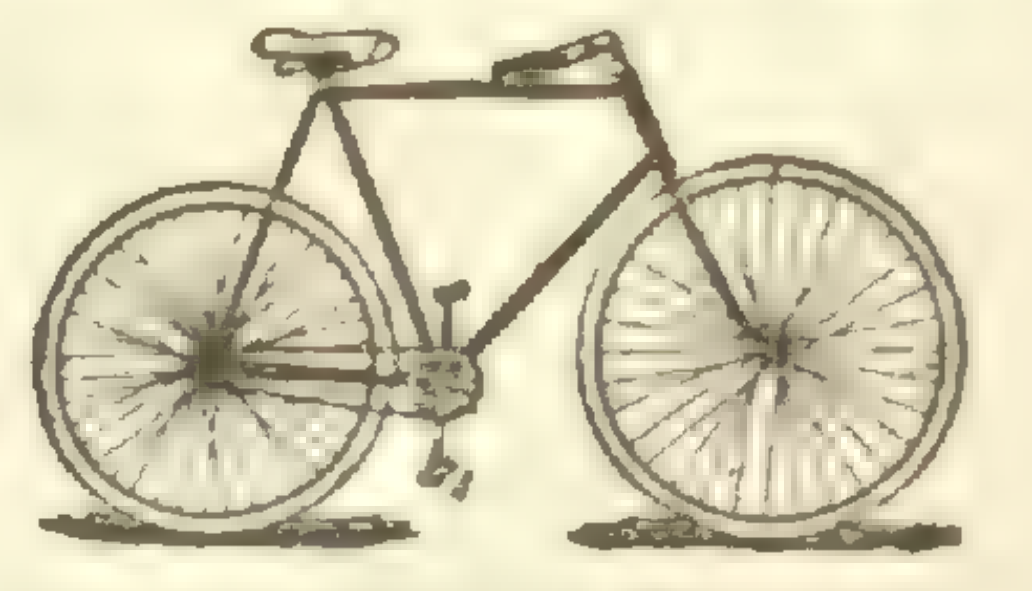

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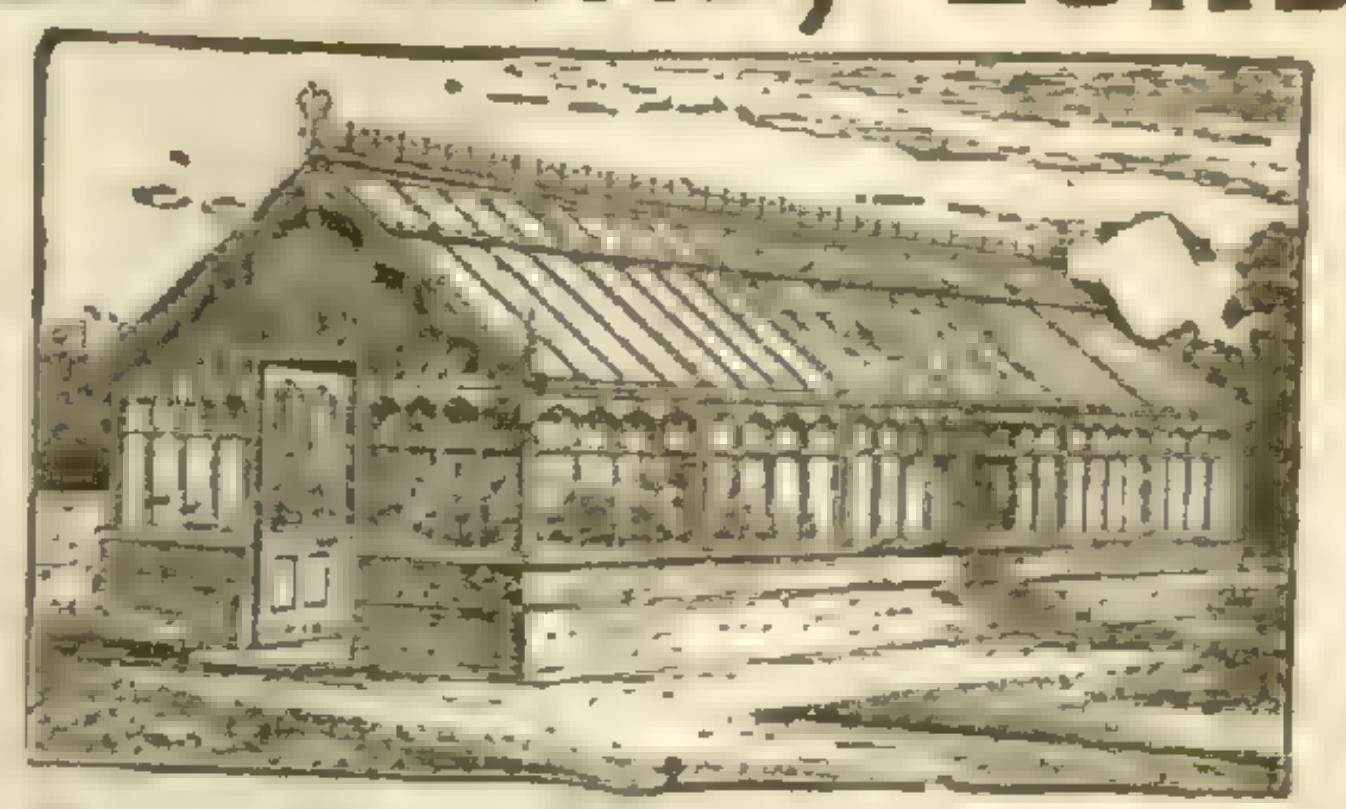

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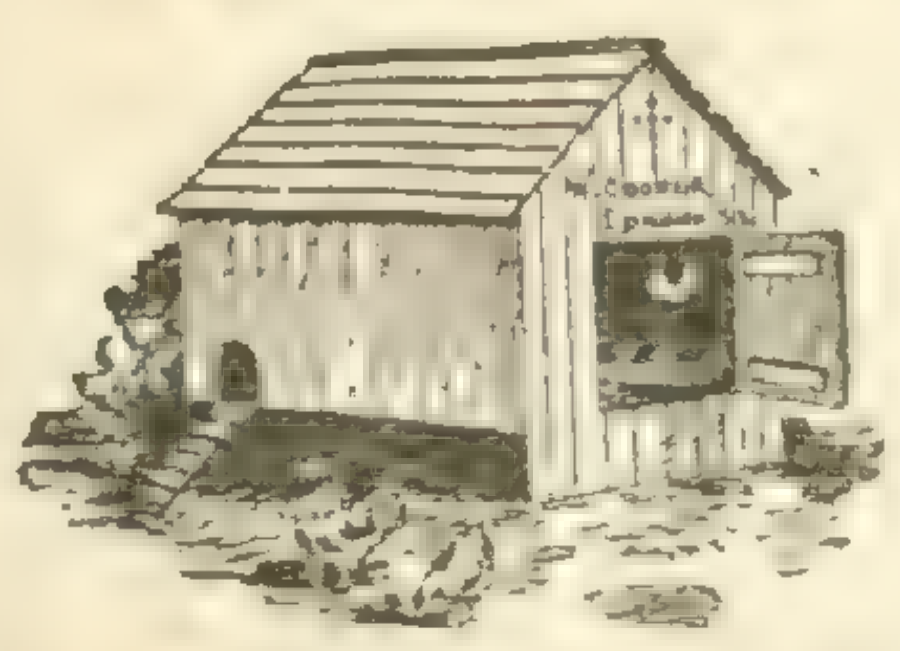

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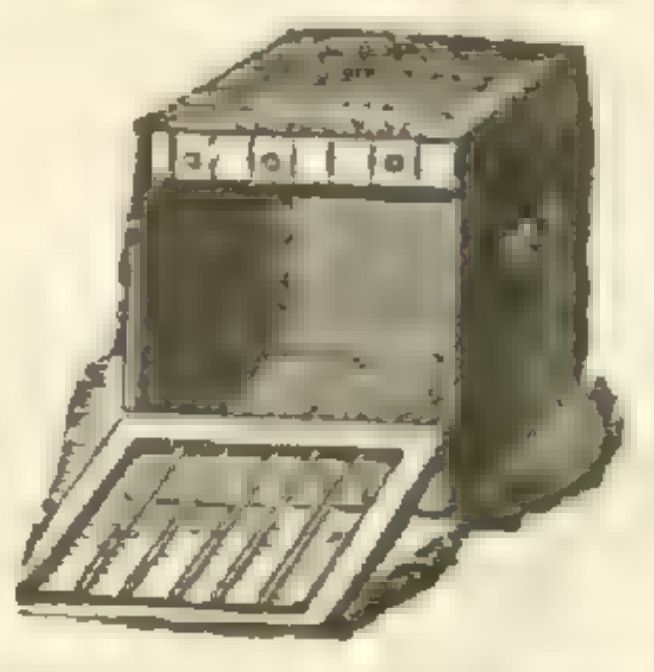

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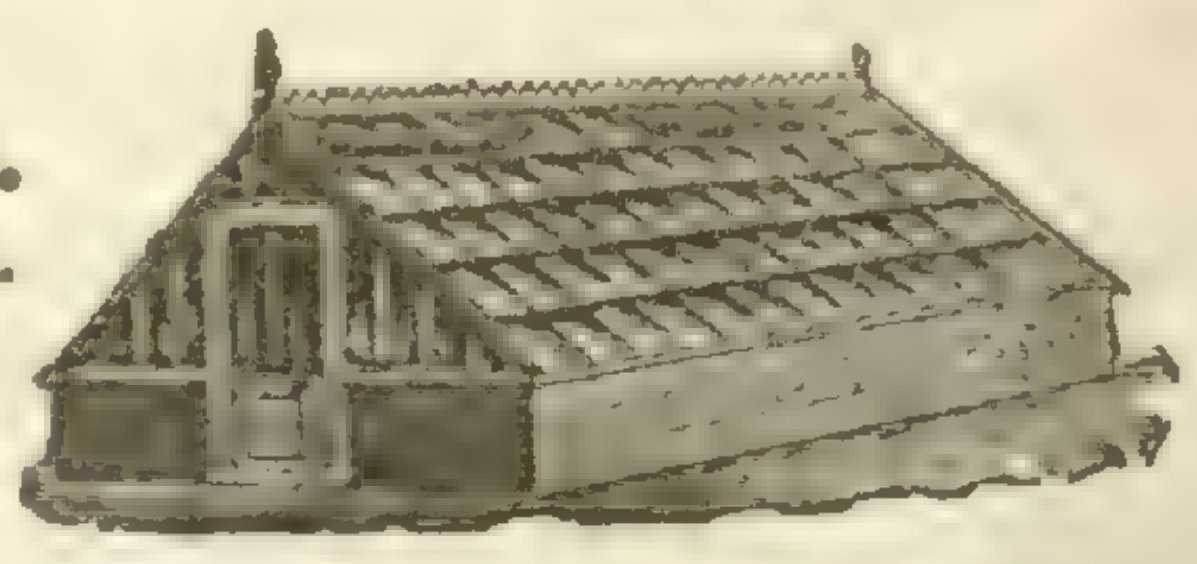

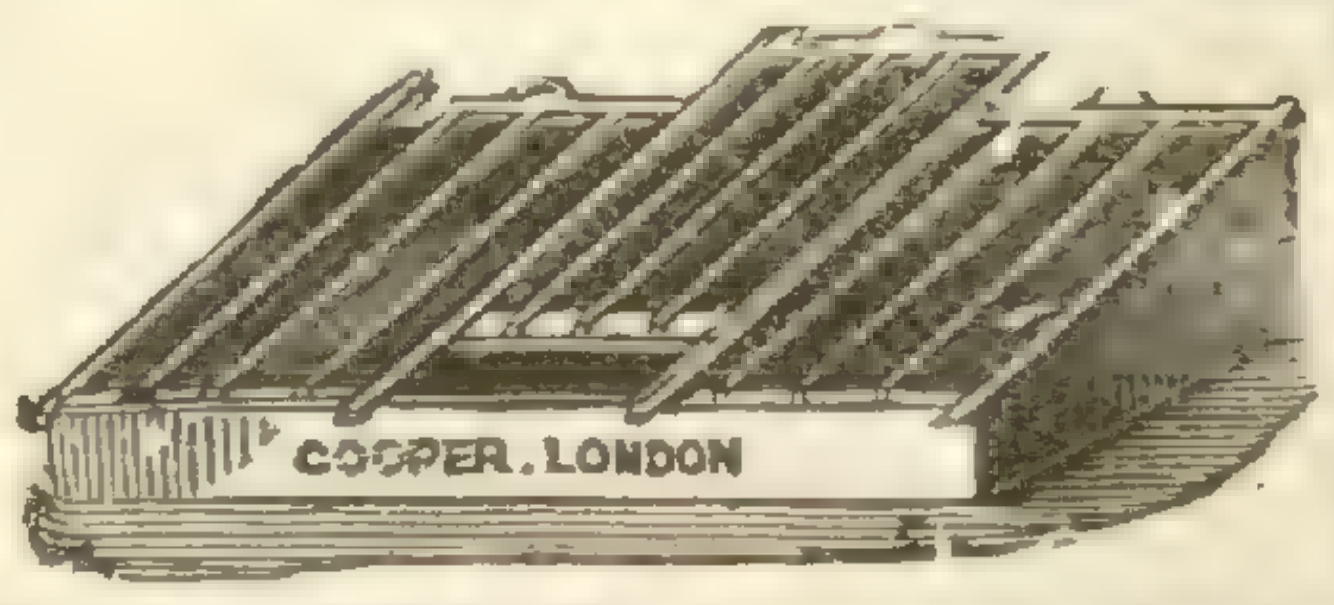

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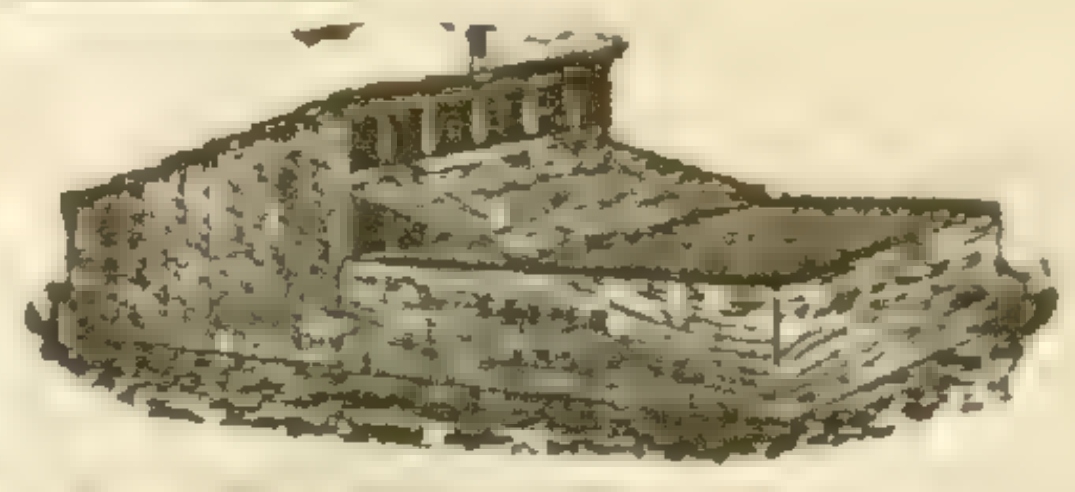

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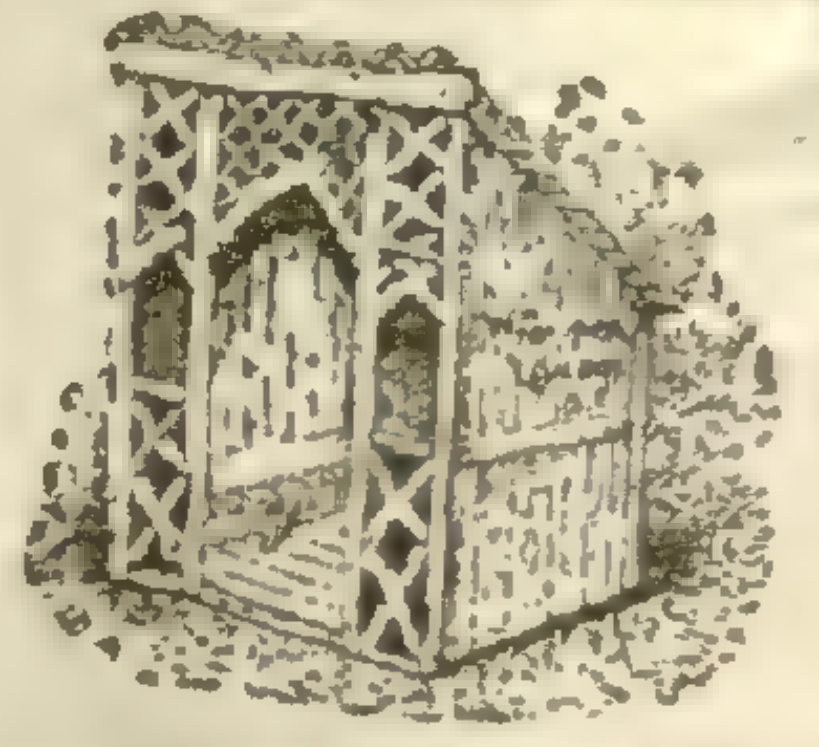

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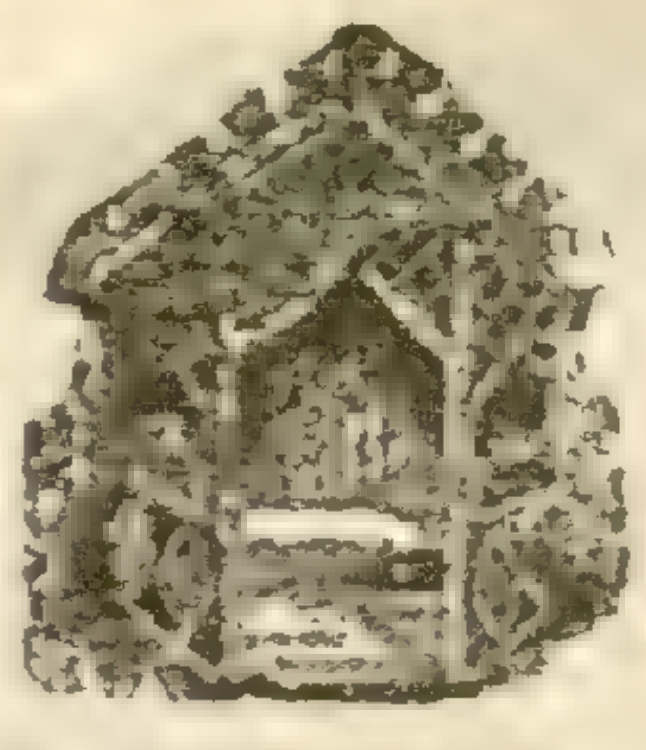

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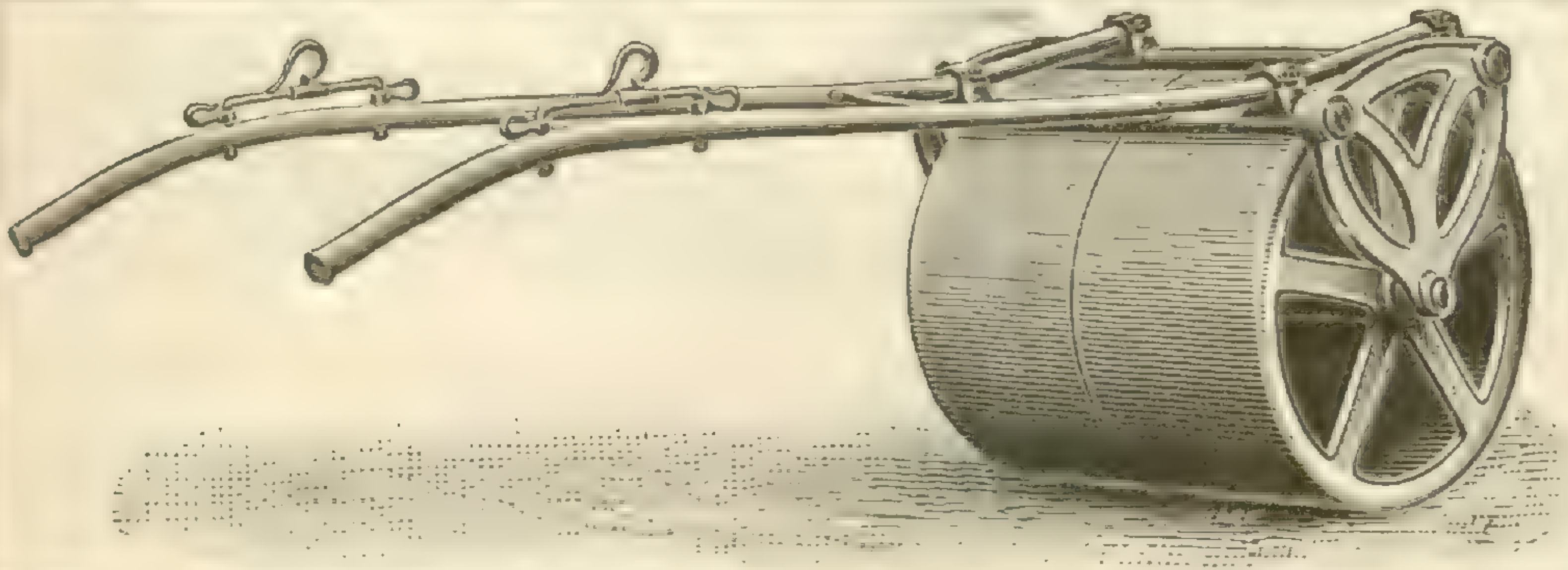

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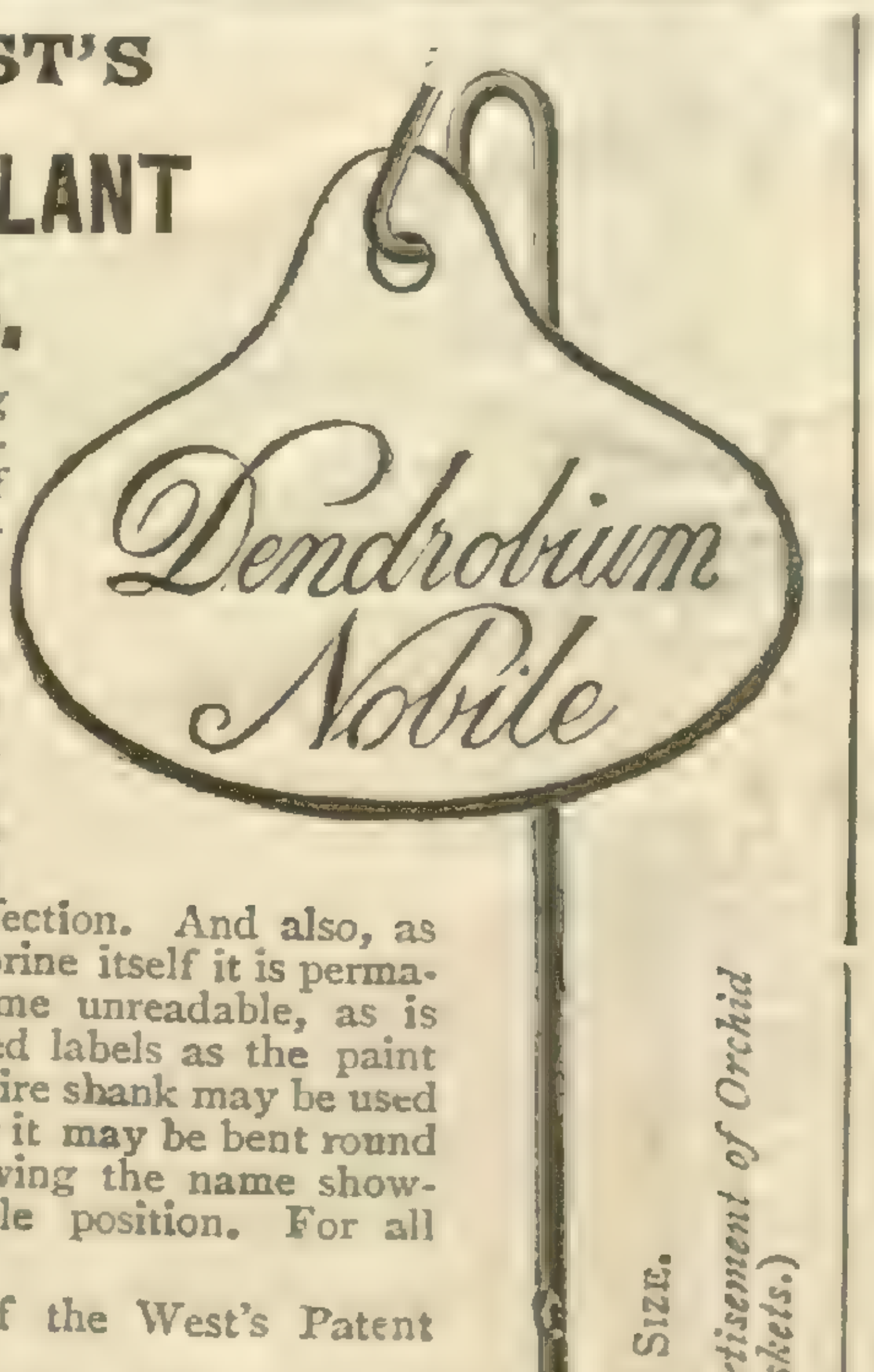

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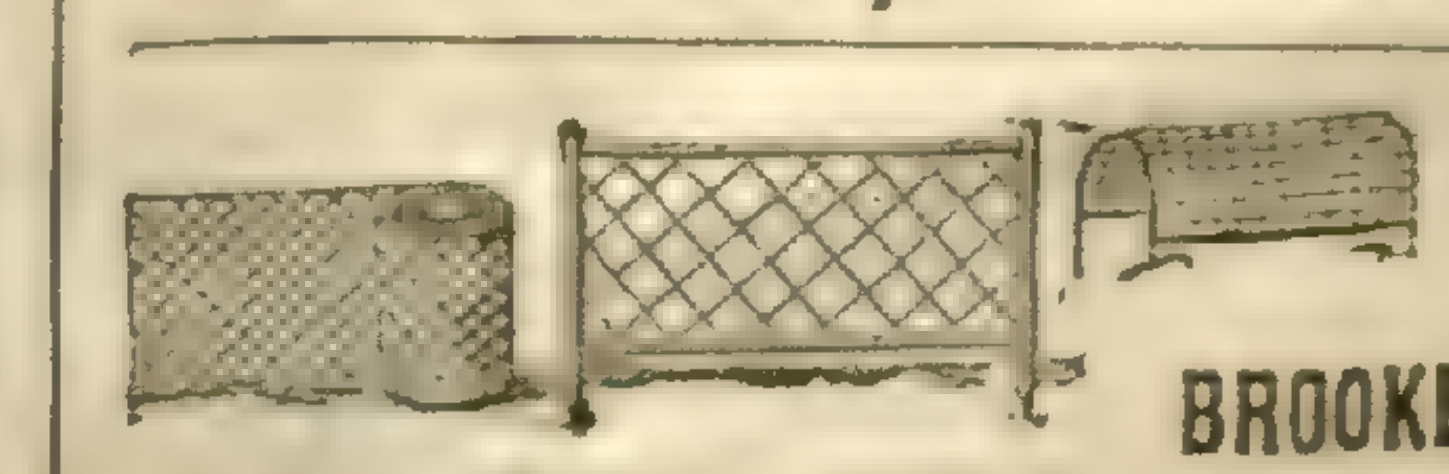

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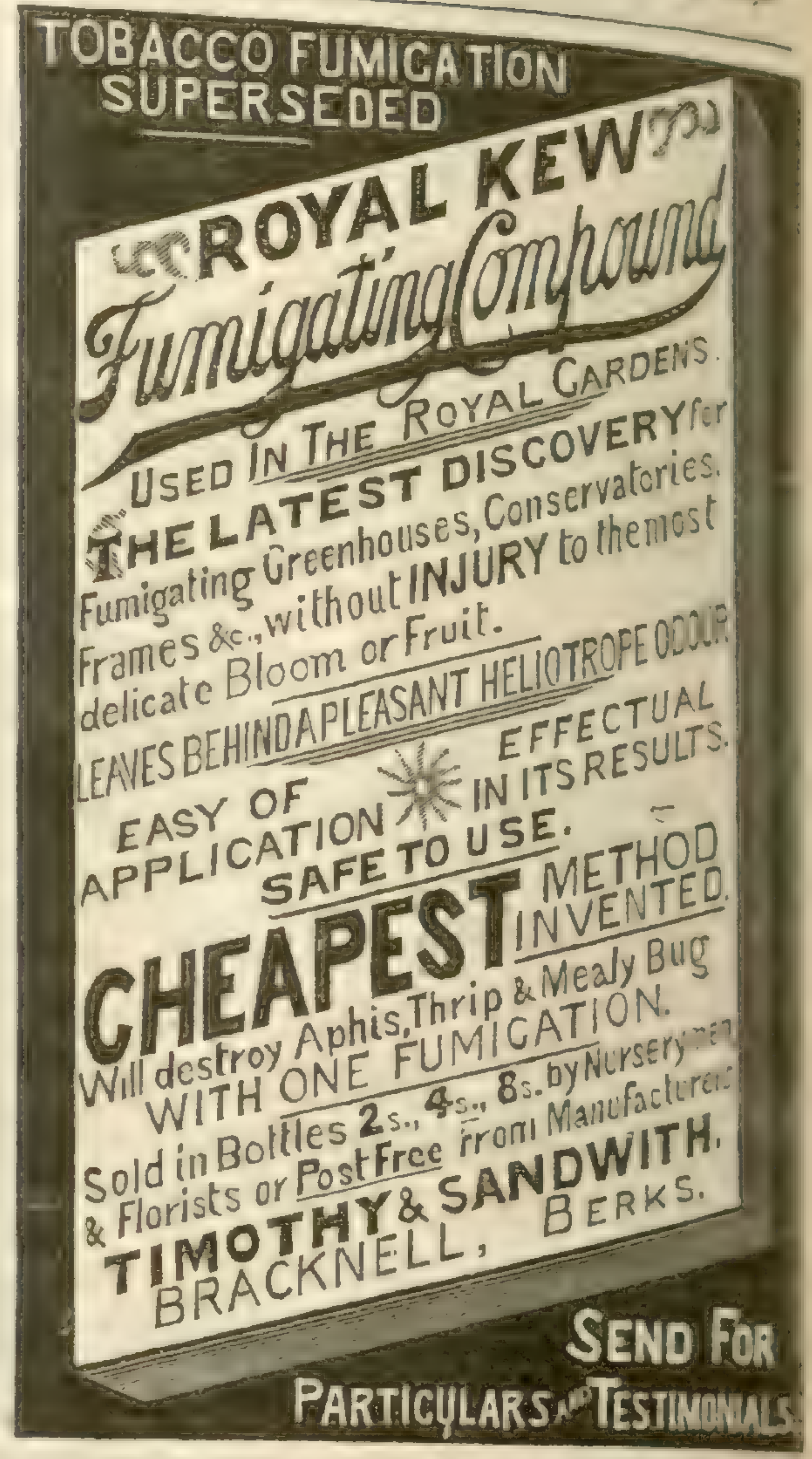

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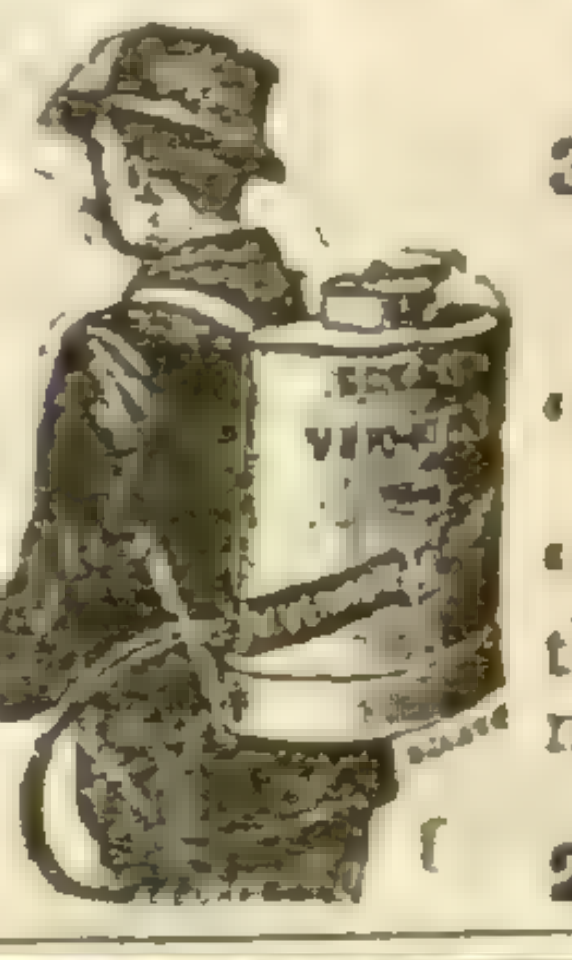

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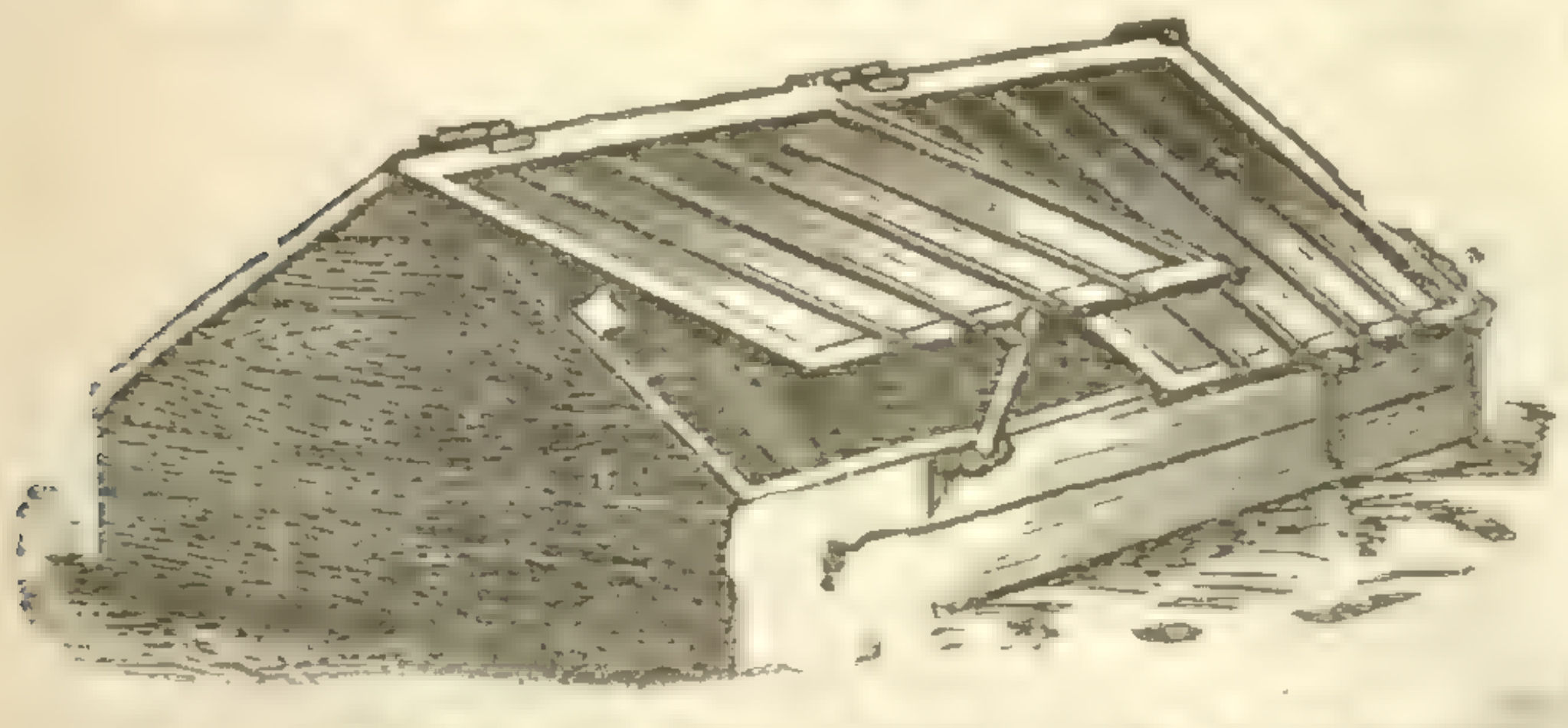

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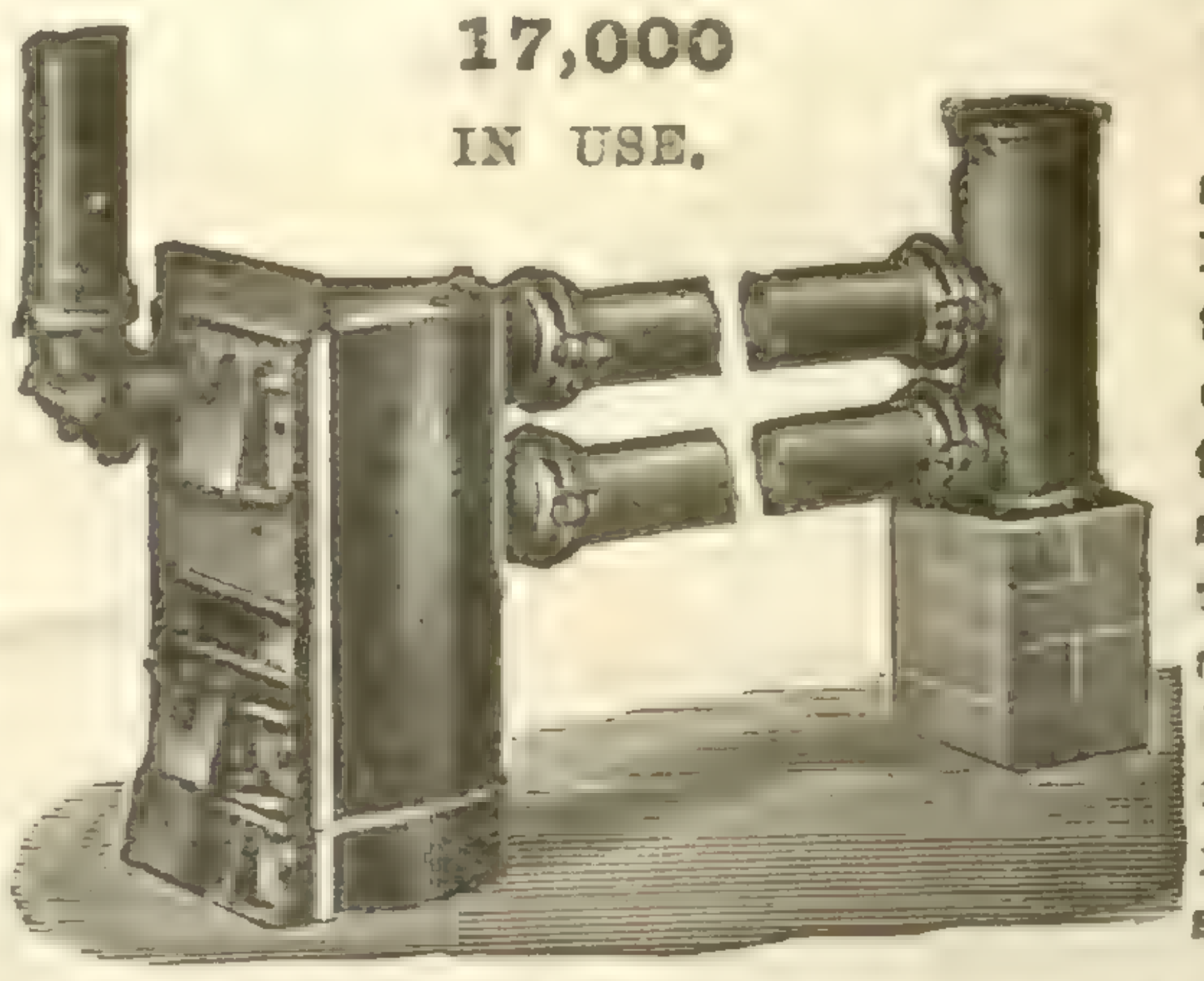

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9X13	200 ft.		at 15/-	14X18
9X14		**4ths 21-oz.**		14X20
10X12	100 ft.	stock sizes as stated in margin, 8X12 to 12X12	at 8/6	14X24
10X14	200 ft.		at 16/-	15X20
12X12	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at 11/-	16X18
12X13	200 ft.		at 21/-	16X20
12X14		**3rds 21-oz.**		16X24
12X16	100 ft.	stock sizes as stated in margin, 8X12 to 12X18	at 9/3	18X20
12X18	200 ft.		at 17/6	18X24
12X20	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at 12/6	
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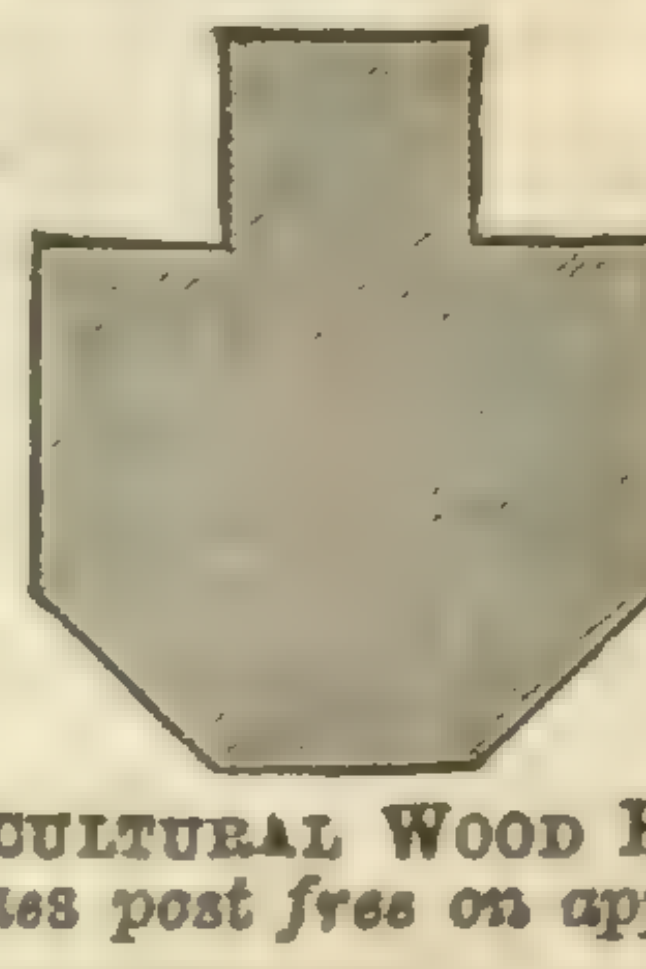

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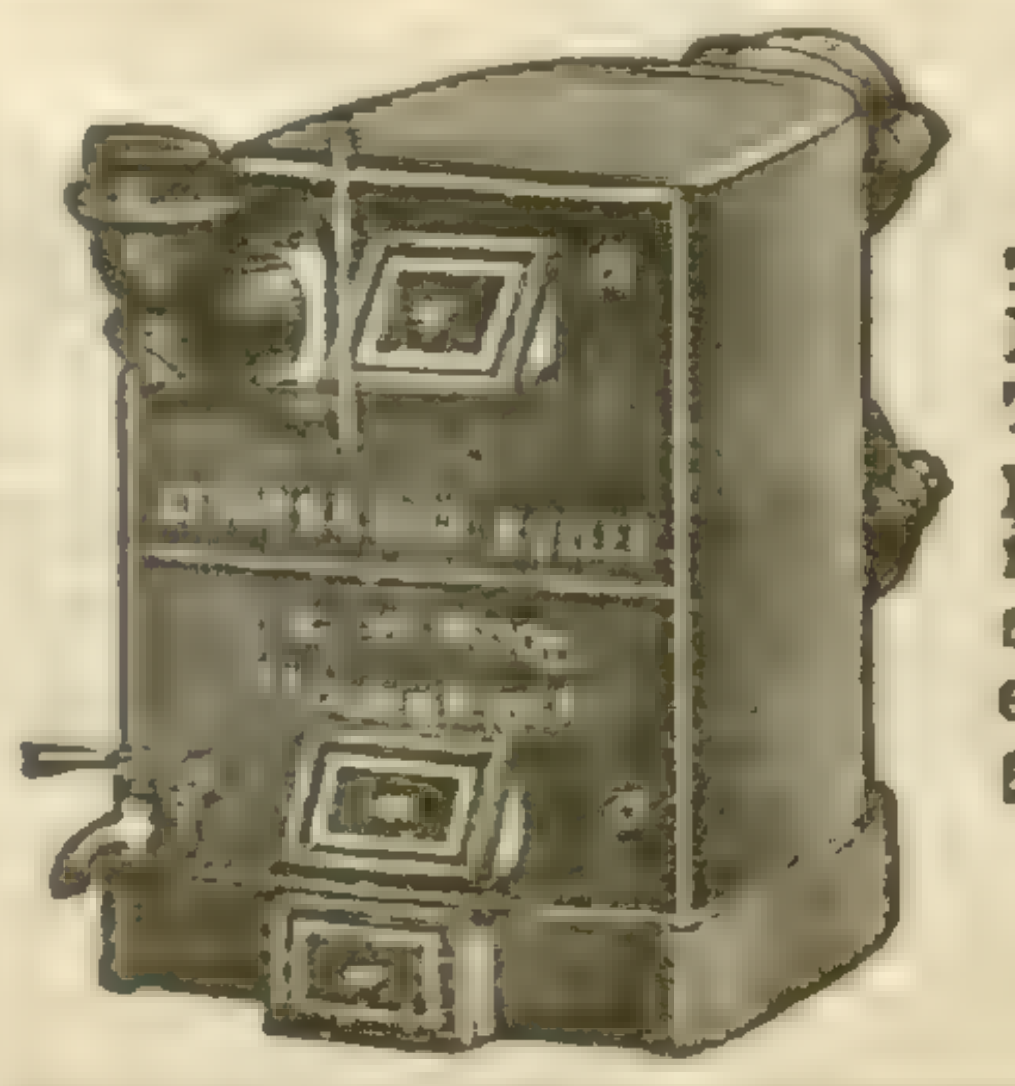

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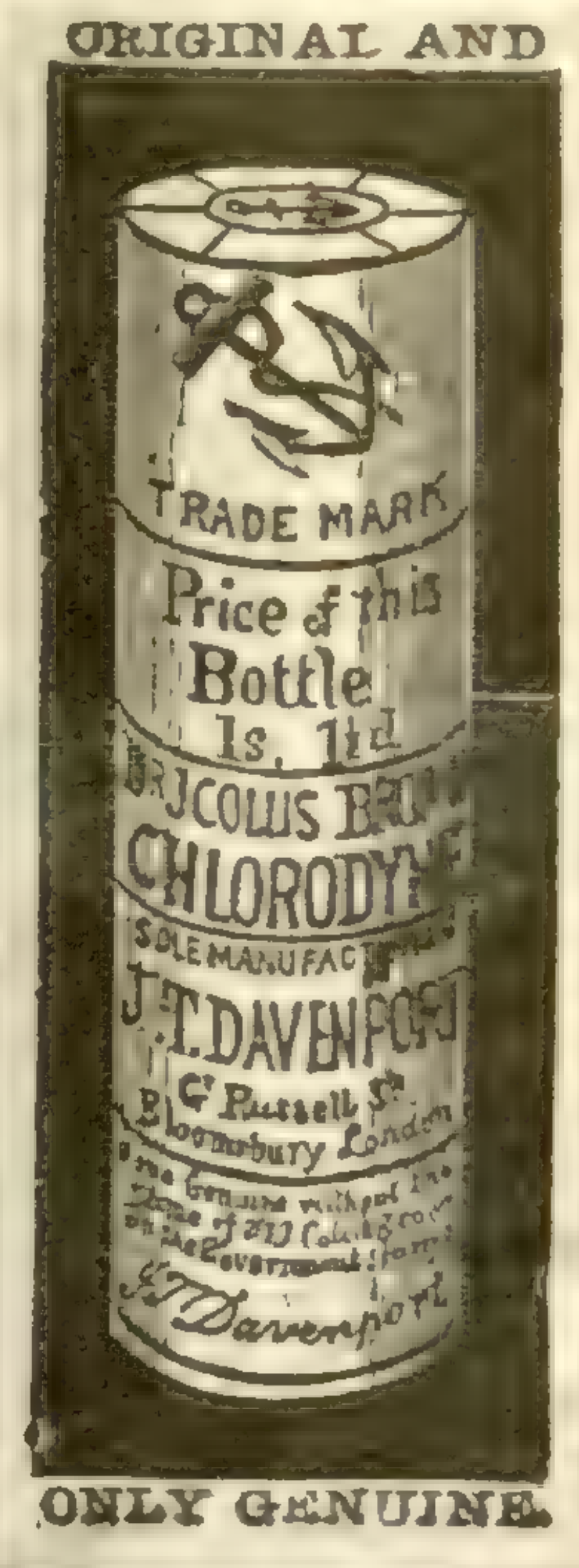

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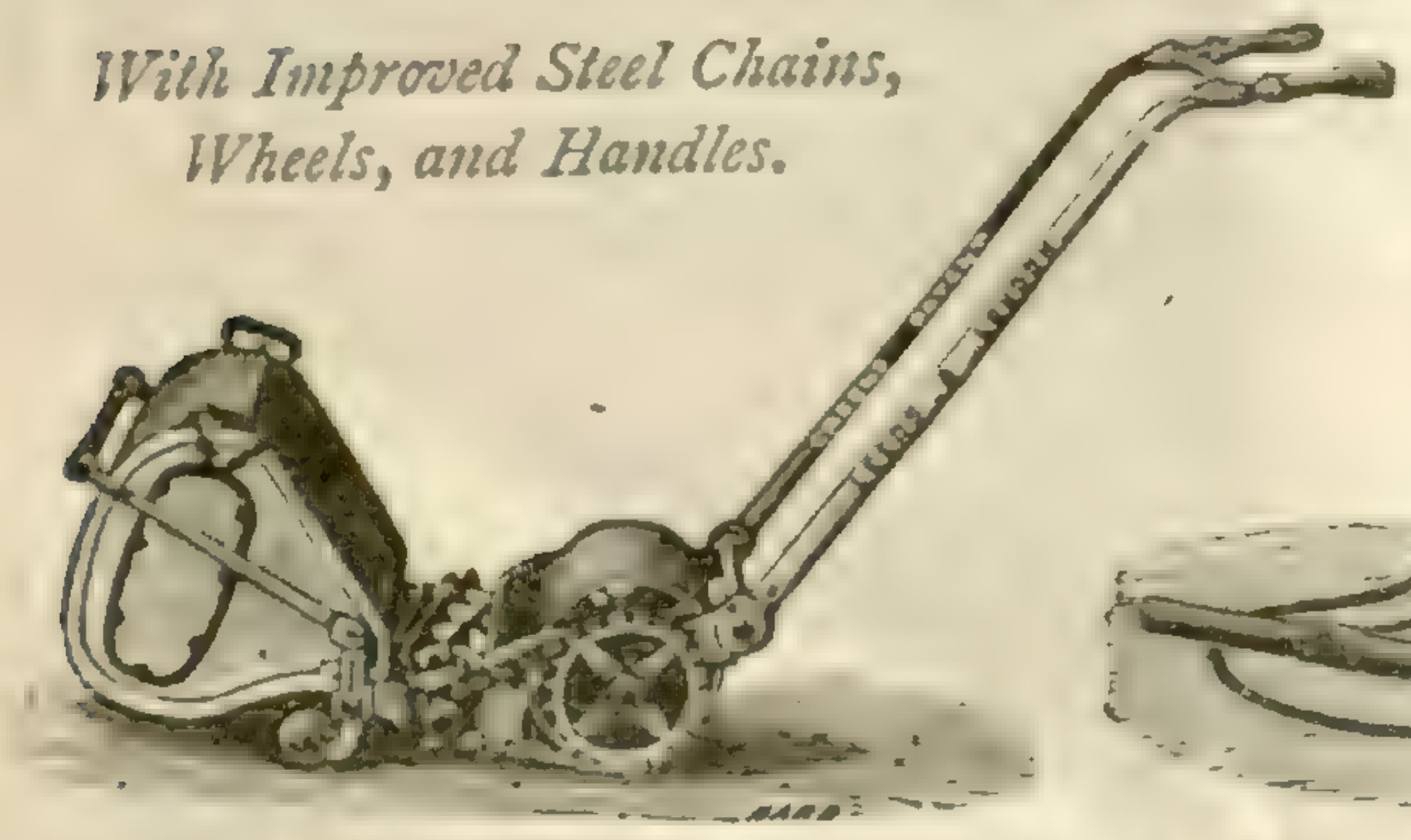

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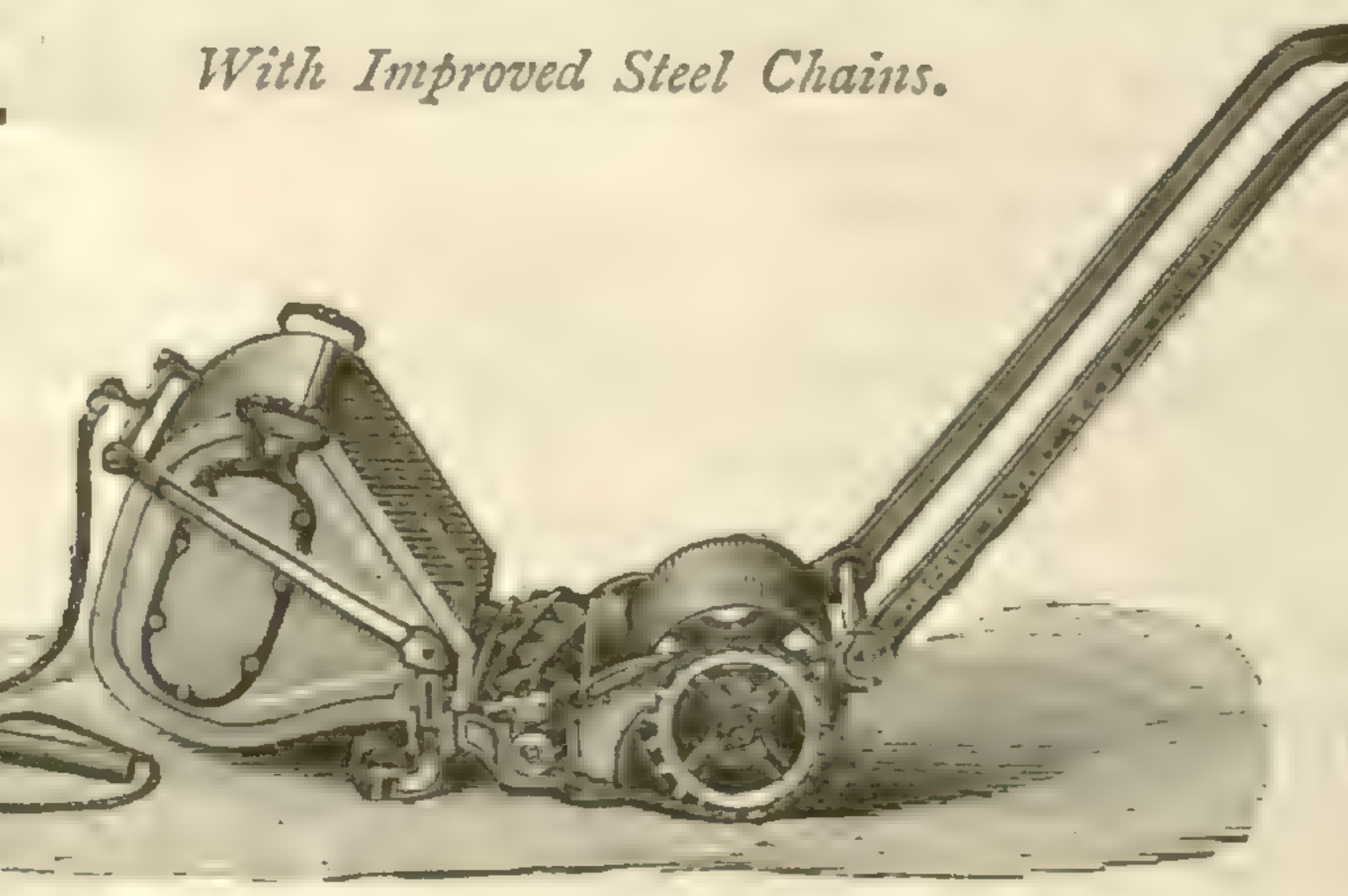

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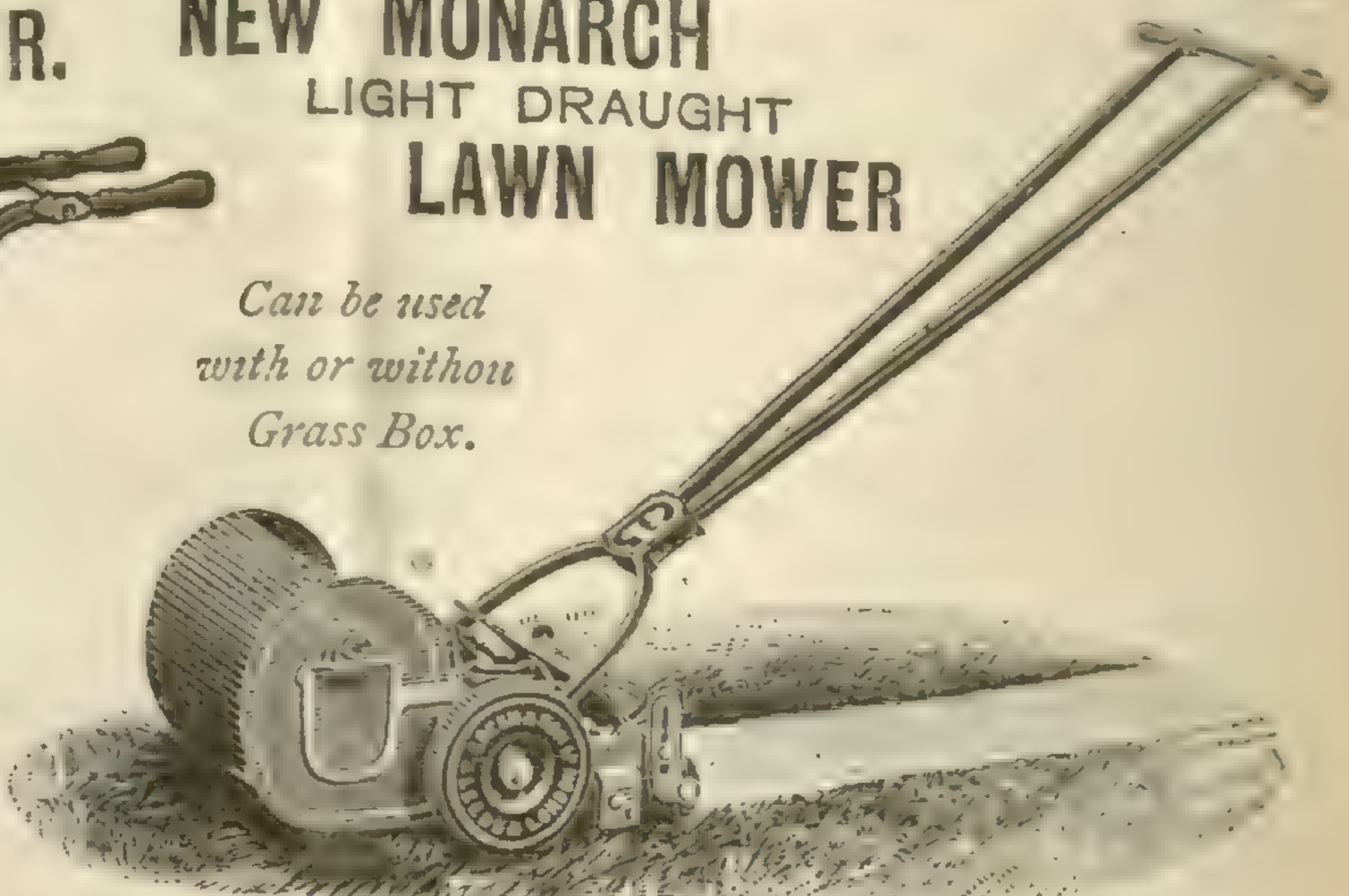

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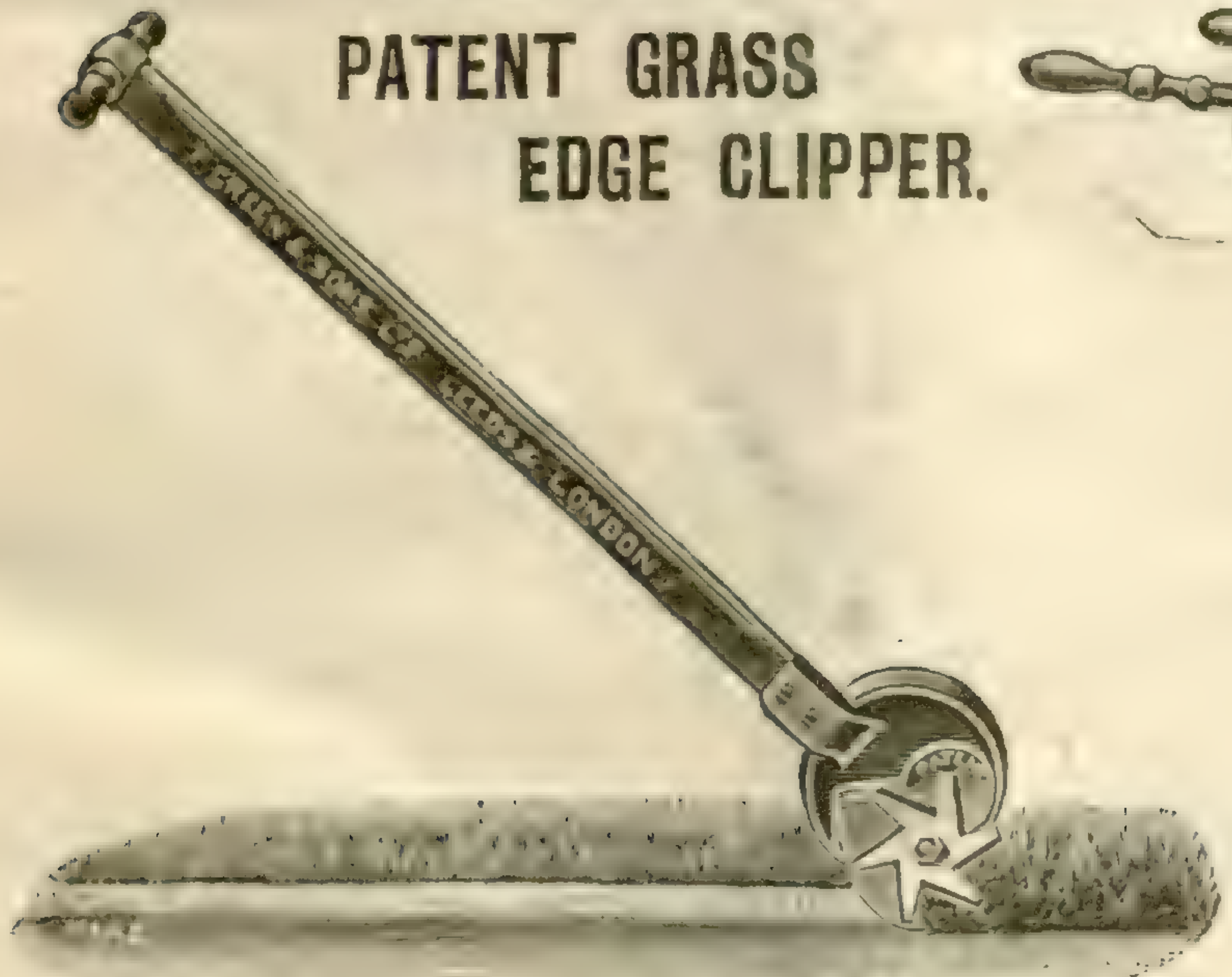

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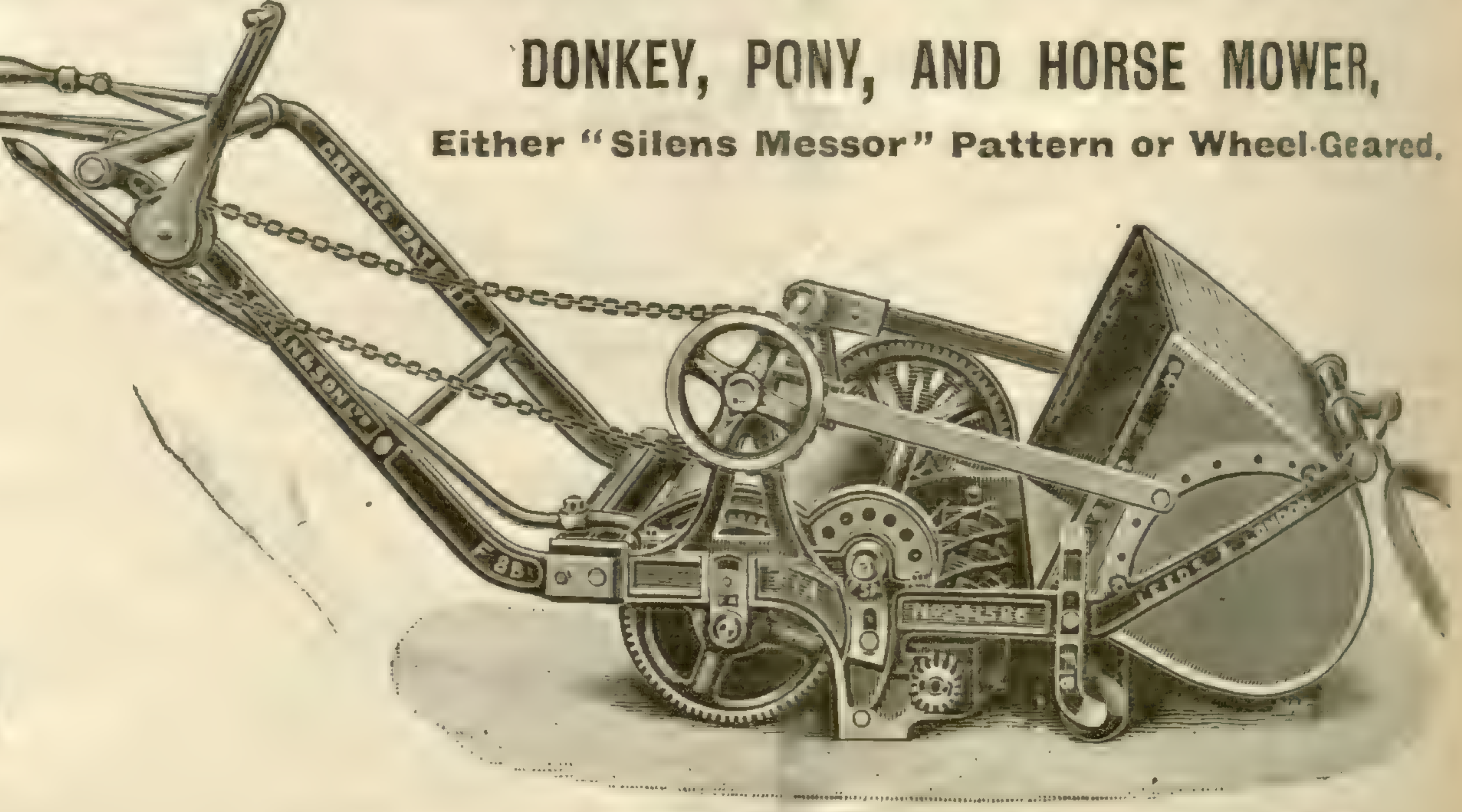

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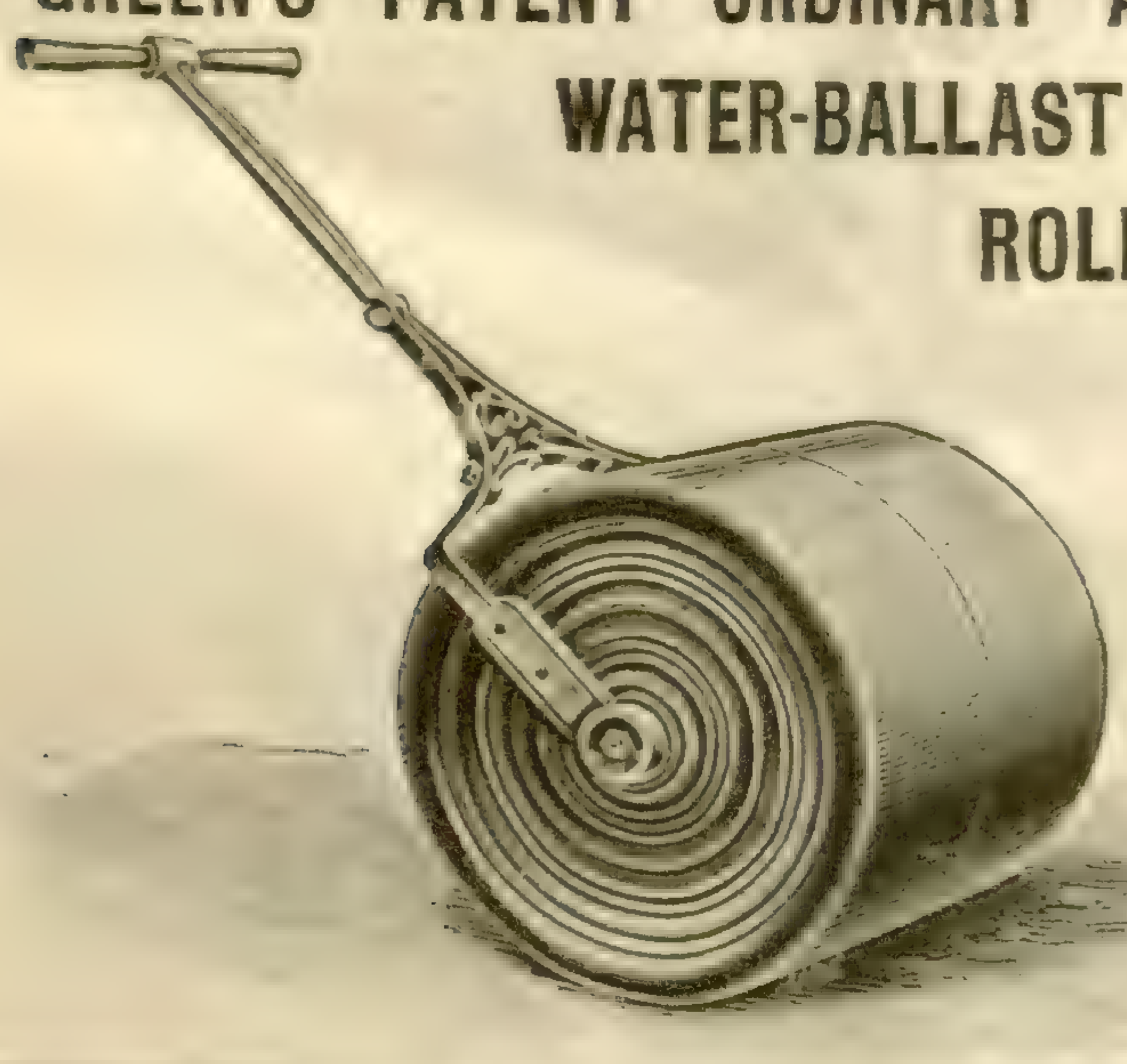

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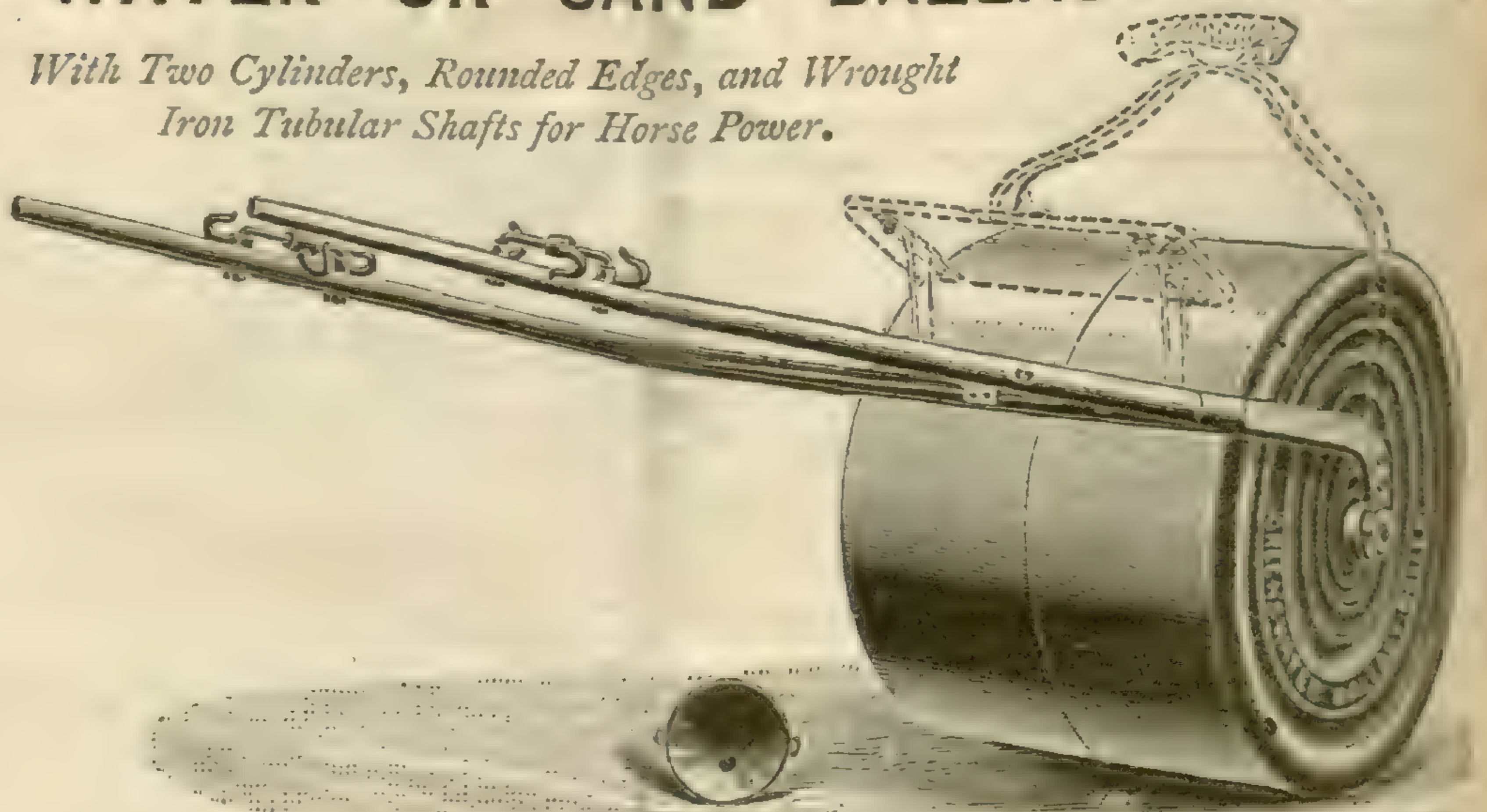

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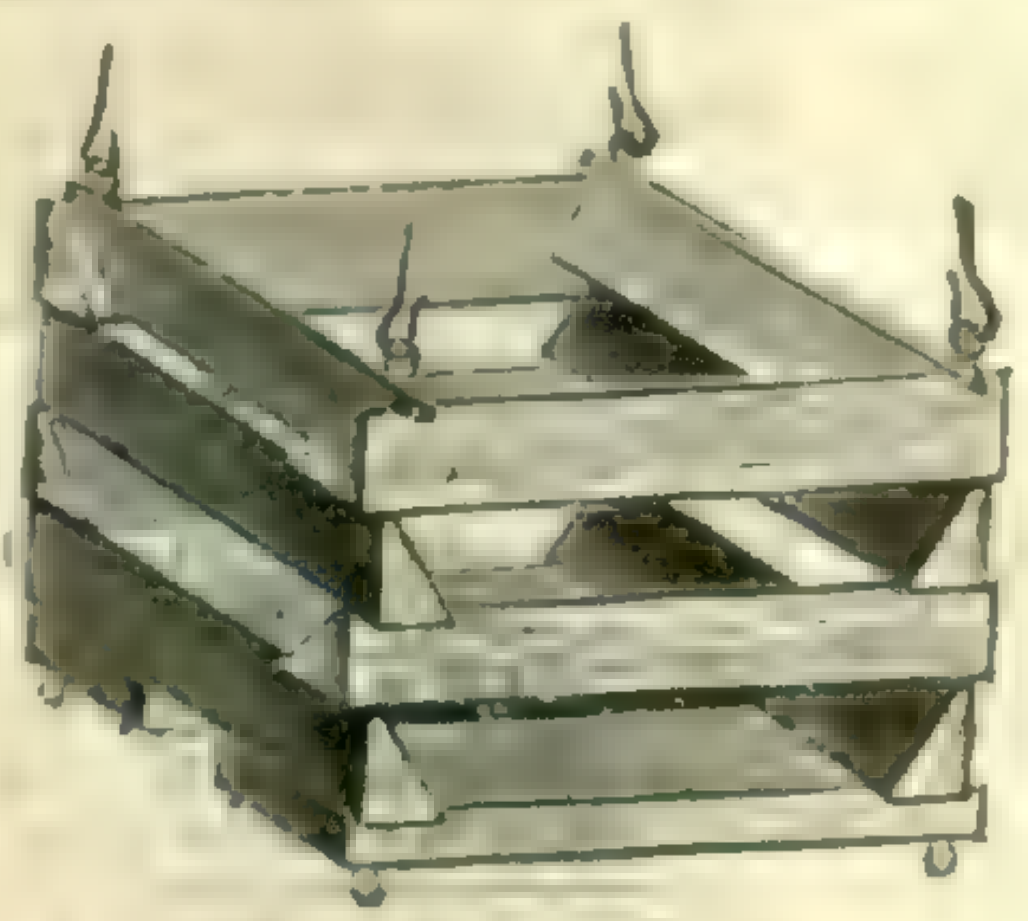

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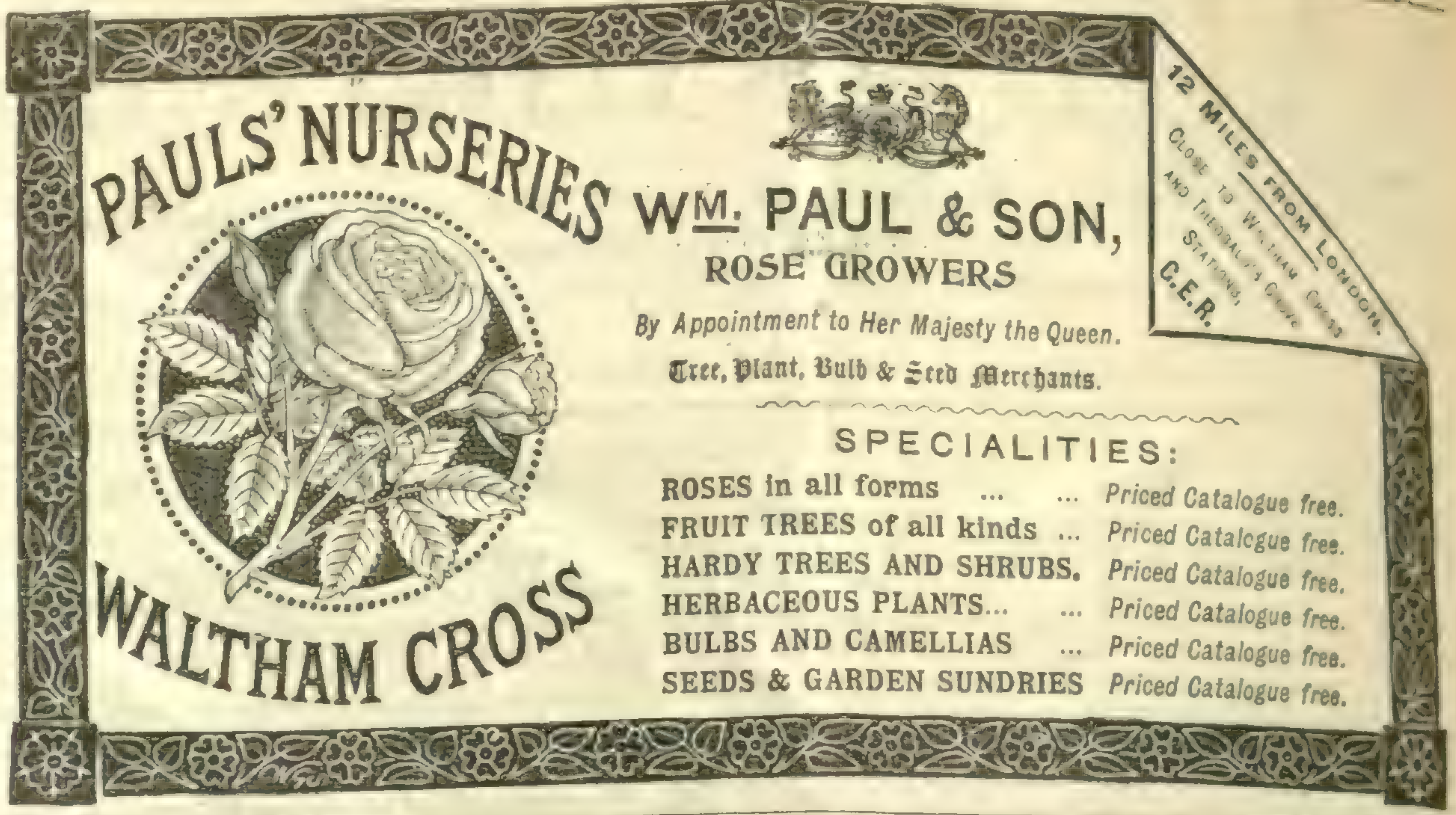

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Powder or Liquid.

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100 square yards of Paths or Drives kept clear of Weeds by applying **2s.** worth of this Weed Killer.

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GARDENER (Head, where one or more are kept); married, two children; strong and energetic; experienced in all branches; Inside and Out; nine years in present situation; well recommended; at liberty.—DAVIES, Hill Gardens, Lutterworth.

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GARDENER (Head Working), where not less than three are kept; age 27; life experience in all branches; can be highly recommended by present and previous employers; two years in present situation as general foreman; married when suited.—W. DENCH, Beechlands, Newick, near Lewes, Sussex.

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GARDENER (Head Working; where two or three are kept); experienced; Inside and Out, including orchids; age 28; married; good character.—MAYHEW, Bunker's Lodge, Oakwood, Chichester.

GARDENER (Head Working); life experience in vines, melons, cucumbers, tomatos, also orchids, stove and greenhouse plants, kitchen and flower garden; married, no family; excellent references.—MASON, Gardener, Nailsea, Somerset.

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GARDENER (Single-handed, where boy is kept, or second where three or four are kept), accustomed to Inside and Out; age 23; good reference.—F. BERRIDGE, Down Place, near Guildford.

GARDENER (Single-handed, or where help is given); good experience in greenhouse plants, flower and kitchen garden; can be well recommended; age 24.—W. RANDALL, Ramscroft Nursery, Bury Street, Lower Edmonton.

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GARDENER (Second); nine years' experience; Inside and Out; nearly four years in present situation; excellent references, age 24.—J. W., 2, Wickham Cottages, Totteridge, Herts.

GARDENER (Second, where three or four are kept); age 27; 10½ years' experience in flower and kitchen garden; 4 years' good character; near London preferred.—W. WARE, Tichborne Cottages, Lindfield, Haywards Heath, Sussex.

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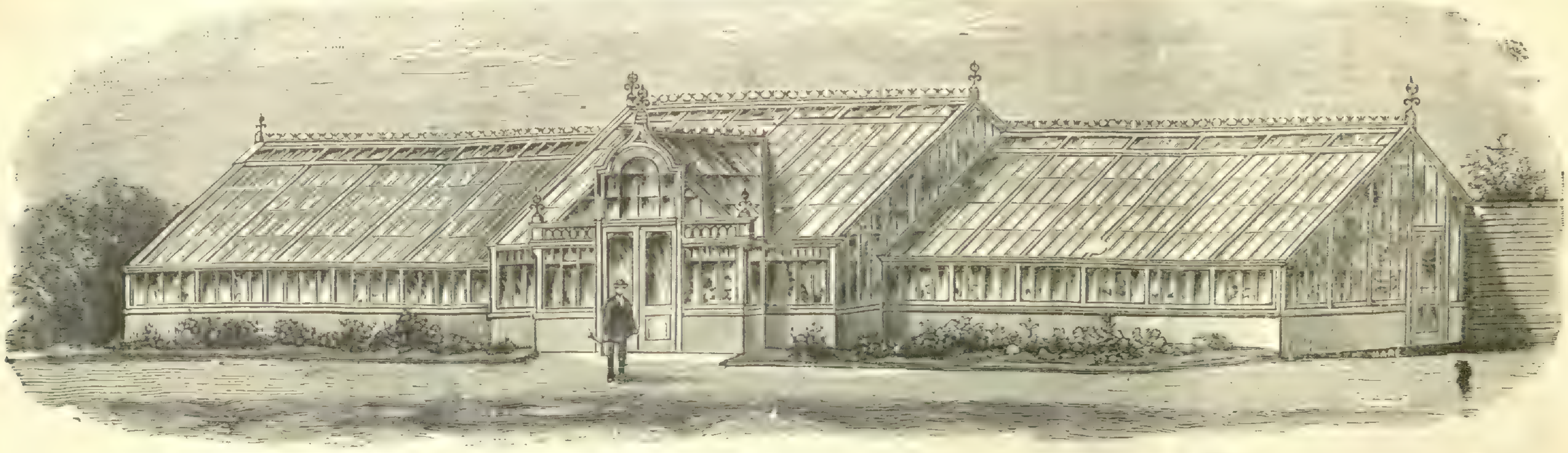

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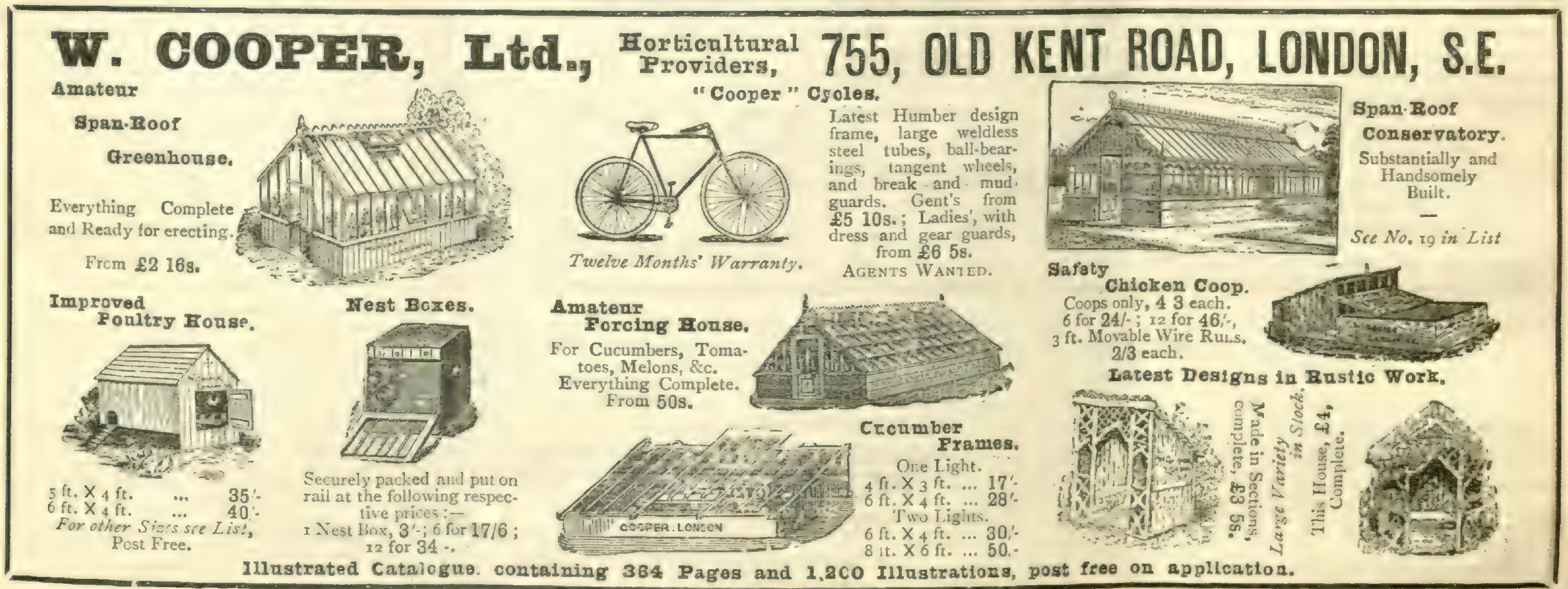

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THE GARDENERS' MAGAZINE.

SATURDAY, MARCH 26, 1898.

ROYAL BOTANIC SOCIETY GARDENS, REGENT'S PARK.
GENERAL ARRANGEMENTS, 1898.
SPRING FLOWER SHOW, WEDNESDAY, MARCH 30. Tickets 2s. 6d. each. Summer Plants and Flowers, and Royal National Tulip Society's Show, Wednesday, May 11. Floral Fête and Children's Parade, Wednesday and Thursday, June 8 and 9. Tickets for the Summer Shows or Floral Fête, 4s. to April 30; afterwards 5s., or 7s. 6d. on the days of the Fêtes. Fellows' packets of ten tickets £1 11s. 6d. Twenty tickets £3, before end of April only.
Band Promenades every Wednesday, and certain Saturdays, from May 26.
RHODODENDRON EXHIBITION by Messrs. J. WATERER, daily during June.
EXHIBITION OF NATIONAL AMATEUR GARDENING ASSOCIATION, JULY 9. Admission 1s.
SUMMER SHOW OF LADIES' KENNEL ASSOCIATION, THURSDAY and FRIDAY, JUNE 23 and 24.
BOTANICAL LECTURES, in MAY and JUNE.
Fellows and Members have free admission to all Fêtes.
Nomination forms and all particulars can be obtained of the SECRETARY, at the Gardens, Regent's Park.

ROYAL BOTANIC SOCIETY GARDENS, REGENT'S PARK.
SPRING FLOWERS.
EXHIBITION, WEDNESDAY, MARCH 30, at Two o'clock. Prizes for Hyacinths, Tulips, Azaleas, Orchids, Forced Roses, and other flowers.
Life Guards Band, by permission.
Admission 2s. 6d. Tickets to be obtained at the Gardens, or by post.
Schedules of prizes to be had on application to the SECRETARY, at the Gardens.

FOLKESTONE AND DISTRICT GRAND CHRYSANTHEMUM SHOW
(open to all England) will be held at the PLEASURE GARDENS THEATRE, FOLKESTONE, on NOVEMBER 15 and 16, 1898.
Open Classes for 24 Japanese, £4, £3, £2.
,, ,, ,, 12 Japanese, and 12 Incurved, £4, £3, £2.
,, ,, ,, 12 Japanese, 50s, 30s., 15s.
,, ,, ,, 12 Incurved, 60s., 40s., 20s.
With Silver-gilt and Silver and Bronze Medals of N.C.S.
Schedules now ready.
T. J. HARRISON, J. WAITE, } Joint Secretaries, 9, Radnor Park Crescent, Folkestone.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF
MANCHESTER AND THE NORTHERN COUNTIES.
£600 IN PRIZES.
Schedules of the Manchester Flower Shows are now ready, and may be had free on application to
P. WEATHERS,
Curator and Secretary,
Royal Botanical Gardens, Manchester.

THE THIRTY-FIRST ANNUAL SHOW of the TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY will be held in the PARK, TAUNTON, on THURSDAY, AUGUST 11, 1898. Schedules may be obtained of the Secretary, JOHN S. WINSOR, 16, Hammet Street, Taunton.

WILTS HORTICULTURAL SOCIETY.
ANNUAL SHOW AT SALISBURY,
AUGUST 10, 1898.
£120 IN PRIZES.
For Schedules apply to GEORGE NICHOLSON, Secretary, Salisbury.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

NOTES OF THE WEEK.

NATIONAL CHRYSANTHEMUM SOCIETY.

HALF-AN-HOUR or so before midnight on Monday the adjourned annual meeting of the National Chrysanthemum Society was brought to a close, and although the members who formed part of this memorable gathering must have been wearied by the discussion, which had proceeded with but one slight break for five and a half hours, the majority conld hardly have failed to experience a sense of satisfaction that the whole of the business had been disposed of. The first adjournment was, under the circumstances, inevitable, but a second would have been highly undesirable, for not only is it necessary the schedule should now be issued; but it is desirable the controversy should not be further continued. The results of the action of those members who are desirous that the affairs of the society should be conducted on business lines will be regarded as satisfactory or otherwise according to the standpoint from which they are judged; but we have overwhelming evidence that they have given much satisfaction to the majority of the members. More might possibly have been accomplished with advantage, but sufficient has been done to place the society on a more satisfactory basis than at any previous period in its history. The air has been cleared, the members have shown that they are determined the committee should exercise the powers vested in them, and the members of that body have at last become alive to the necessity of accepting their responsibilities. The action that was taken with a view to enable the members to know exactly the financial position of the society at the present time was fully justified by the events. The report and balance-sheet were referred back at the first meeting with instructions to the committee to prepare a proper balance-sheet, to prepare an estimate of the receipts and expenditure for the current year, and to report on the advisability of reducing the number of shows or the expenses of those which had been arranged. These instructions were carried out, and the revised financial statement presented to the members showed that it had been necessary to draw from the reserve fund nearly £50 to pay off outstanding liabilities, and that the estimated expenditure exceeded the estimated receipts by £48. The committee wisely recommended the reduction of the expenditure by about £70. The meeting accepted the recommendation; and, instead of indulging in a speculation as to what would have have happened at no distant date had no check been imposed upon the policy that obtained, we will consent ourselves with saying that the society is now quite sound financially, and that there is no reason why it should not build up a reserve fund proportionate to the position of the society. The lateness of the hour at which the questions relating to the place of holding the exhibitions was reached, prevented them being discussed at any considerable length; but we are pleased to say that they were considered in a business-like spirit, and in the result a resolution was passed instructing the committee to consider them, and report to a general meeting of members to be held in November next. If this be done, the members will be in a position to discuss the matter with profit to the society, and come to a decision on proper data. Whatever may be the outcome of the inquiry which the committee has been instructed to make, we have no doubt whatever that the beneficial effect of the reforms that have been made will be felt long before the date fixed for the meeting, at which the results are to be presented to the members.

SAVING THE PEACH CROP.

ONE of the chief difficulties in the outdoor culture of the peach in the United Kingdom is unquestionably the effective protection of the flowers and young fruits from spring frosts, and as this difficulty necessarily arises from the early period of the year in which the trees bloom, methods of retarding the development of the flowers are deserving of careful attention. In this direction numerous experiments have been made in this country, but in no instance with conspicuous success; unnailing the trees that the growth may not be unduly stimulated by the heat radiated from the wall, shading the trees in advance of the flowering season, and reversible walls, are perhaps the most important of the various methods of retarding the flower buds that have been suggested. The reversible walls were the invention of the late Mr. Shirley Hibberd, who devoted much time and money in perfecting the idea, and they consisted of panels of wood so made that they could be shifted from one side to the other of the trellis to which the trees were trained. During the winter the panels were placed on the south side of the trees to screen them from the stimulating effects of the sun, and there they remained until the trees were in bloom, when they were removed to the north side. Theoretically the idea was a capital one, but it was found impracticable to have walls of sufficient height to ensure success in peach culture because of the enormous weight of the panels. Shading with canvas blinds is seldom adopted, and attempts at retardation are now practically limited to unnailing the branches and keeping them away from the wall until the buds are beginning to expand. The risk of the precocious flowers being injured by frost is by no means confined to this country, but is equally great in much lower latitudes than ours. In the State of Missouri, for instance, where peach culture forms an important industry, the destruction of the blossom buds frequently inflicts a considerable loss upon the growers. It is therefore not surprising that the subject should have been investigated, and it would appear that the experiments conducted at the agricultural experiment station at Colombia have given results of considerable practical value. Missouri lies in nearly the same latitude as the south of Spain, but, as a matter of course, is subject to the extremes of weather characteristic of a continental climate, and has a lower temperature than is experienced in England. The injury done to the fruit buds in Missouri is usually due to the effects of frost upon them after the buds have been stimulated into growth by warm weather during the winter and early in the spring. The premature development of the buds is due to the warmth the buds receive, and is practically independent of the activity of the roots, as proved by the fact that it may occur on warm sunny days, while the ground is frozen to a considerable depth. The flower buds of peach trees are well able to withstand the effects of from ten to twenty degrees below zero, provided they are dormant; on the other hand, a frost with the thermometer at zero will kill buds that have, under the influence of warm weather, previously commenced to swell. Shading the trees with board sheds, and whitening them to prevent their absorbing too much heat, was tried at Colombia with good effect, and of the two the first-named method was the most effective, and it was found that the use of these board sheds enabled the peach buds to pass uninjured through the winter, when 80 per cent. of those unprotected were killed. Trees thus protected bloomed later, continued in flower for a longer period, and set their fruit more freely; but the protection is necessarily much too costly to be used other than on a large scale.

Garden Roses formed the subject of a lecture given by Mr. George Gordon, V.M.H., before the members of the Brighton Horticultural Society on the 17th inst. The meeting was held in the Oddfellows' Hall, with Mr. Balchin in the chair; and, judging from the attendance, much interest is evinced in the district in roses specially adapted for the embellishment of the garden. Mr. Gordon, after a brief reference to the popularity of the rose in ancient and modern times, the favour with which the flower has in all times been held by the poets, its mythological associations and the development of the several sections, proceeded to speak of the practical aspects of rose culture. Until within a comparatively recent period, it was pointed out, but scant encouragement was given at the exhibitions to roses that did not conform to the properties formulated by the florists, with the result that undue preference had been given to form in estimating the value of varieties. As the result of the recent expansion in the policy of the National Rose Society roses of special value for enhancing the attractions of the garden were now to be seen at the exhibitions, and visitors were surprised by the wondrous beauty of many varieties that were practically unknown. Mr. Gordon said that it was essential the standard of excellence should be maintained, and suggested that varieties in which high quality was combined with attractive colouring and freedom and continuity of flowering should have the preference. The continuous production of flowers was spoken as one of the most important attributes of roses grown for garden decoration and the supply of cut flowers, and the utility of the hybrid teas, teas and chinas was pointed out. It was suggested that only those hybrid perpetuals should be planted that bloomed throughout the summer and autumn, and that there should be a large extension in the planting of the hybrid teas and teas, more especially the latter, which can be grown with so much success in the southern counties. Good cultivation was essential to the full enjoyment of roses in the garden, and the several details essential to success were briefly described, and some of the more desirable varieties mentioned.

N.C.S. Exhibitions.—At the adjourned annual meeting of N.C.S., on Monday, the following resolution, moved by Mr. Moorman, was passed unanimously: "That a sub-committee of five members (exclusive of *ex-officio* members) be appointed to inquire (*a*) what places can be obtained for holding our future exhibitions either by a subsidy as now or in reliance on our own resources to proceed on independent lines; (*b*) to closely examine the whole question of minor shows with the object of ascertaining their advantages or otherwise to the society; (*c*) to fully consider the question of selling the floor space, and to report the result of their investigations to the general committee, who shall formulate such recommendations to a general meeting of members to be held on the evening of the first day of the November exhibition, and that no future fixtures be made before this date."

National Auricula Society.—We are pleased to learn from the report of the committee that the past year was the most successful for a long time past. There was, we are informed, a large accession of new members, and the financial statement shows that the balance in hand, although not so large as the friends of the society could wish, was materially increased. Last year the date of the exhibition was too early to admit of many of the northern growers taking part in the competition, and this year the show will be held a fortnight later (April 26), and, as usual, in conjunction with the R.H.S. meeting at Westminster.

Two and Three-Spathed Arums.—Mrs. Richards, of Westridge, near Ryde, forwarded to R.H.S. two stems, one with two spathes, the other with three, both from the same plant. They were very finely developed examples, and it was, in the opinion of the Scientific Committee, reasonable to expect such might prove constant. In the opinion of that body a permanent form with two or more spathes would be very desirable, but we regard it as undesirable, for the single spathes are far more elegant and beautiful than are monstrosities with several spathes crowded on one scape.

Chrysanthemum Exhibitions at Kingston, held annually during the past twenty-one years, have in a most marked manner assisted to bring the favourite autumn flower to the state of perfection in which we now know it. For very many years the Kingston and Surbiton Chrysanthemum Society held magnificent displays, and the prizes offered attracted the best growers in the kingdom; of late, however, the society has not been so well supported as of yore, and there was a danger of its collapse. Despair did not, however, enter into the composition of the commitee, and the members have bravely stuck to their work, so that now the whole of the liabilities have been discharged, with the exception of what is due to the collector and assistant secretary, who voluntarily offered to let that stand over. It is satisfactory to find that last year's subscriptions exceeded in amount the sum received in 1896, and had the takings at the door come up to the average, with a small reduction *pro rata* from the prize money (which is provided for in the rules), the accounts would have stood differently. As it is, the committee are determined to make an effort to wipe off the debt due to the collector, and are encouraged therein by the knowledge that the society has passed through critical periods more than once in its existence of twenty-one years. It has been definitely fixed to hold a show on November 1 and 2 next in the Drill Hall.

Horticultural and Forestry Education in Edinburgh.—The courses of instruction which have now for some years been in progress under the system instituted by Professor J. Bayley Balfour, the Regius Keeper of the Royal Botanic Garden, Edinburgh, is still as popular as at its first inauguration. The numerous subjects taken up by well-known specialists are made as complete as possible, and the benefit to the young men attending is apparent to all. The subject in progress now is "Landscape Gardening," being a course of five lectures by Henry E. Milner, Esq., A.M.I.E.E., F.L.S., V.M.H., &c., who lectures on consecutive evenings during the week, commencing on Monday, 21st inst. For the commencing lecture the syllabus shows the manner of dealing with the course: Introduction. The Development of Landscape Gardening. Enunciation of General Principles. The second leads up to the Selection of the Site. The Approach, The Terrace, and the Kitchen Garden. Third—Drainage Water. Structures, including Steps, walks, bridges, &c. The fourth takes up the Formation of the Ground, and Planting, and the last gives the wide subject of Design. The lectures, as are well known, are given in Botanic Garden, and these lectures are thrown open to the public through the courtesy of the Regius Keeper. The lecture on Monday was attended by a large number of persons interested, and a very instructive and pleasant history of the early styles of gardening were noticed by the lecturer from the earliest records down to the present century, concluding with a brief review of the value of the judicious uses of water, style of planting in the immediate vicinity of the house, and the uses of colour in the idea of promoting imaginative distances. The more practical points to be brought out will be brought out in the succeeding lectures, as will be apparent by a glance at the items upon the syllabus.

Mr. W. Bull's Orchid Sale, which takes place next week at the Ashburnham Road Nurseries, Chelsea, should prove a great attraction to those interested in this remarkable race of plants. The collection is extensive, and consists of fine, vigorous stuff; it includes most species with many notable varieties, too numerous to name, and its sale affords the enterprising orchid buyer an opportunity, not often met with, of obtaining a bargain worth securing. The sale will commence on Thursday next, the 28th inst., and be continued until the 31st inst., inclusive.

Highgate Chrysanthemum Society is extending its range of work, and it will be of some interest to watch the development of the new departure it has made. The other day we had an intimation to the effect that it had ceased to be affiliated with the National Chrysanthemum Society, and that it had decided to have its own certificates and medals, and now we are informed that it has appointed a Floral Committee and that "all persons, whether members of the society or not, are invited to exhibit new varieties of chrysanthemums at the meetings" of that body. The regulations have been drawn up on similar lines to those of the National Chrysanthemum Society, and the members are Mr. T. Bevan, Mr. J. Brooks, Mr. J. Brooks, jun., Mr. F. W. Birt, Mr. F. J. Matthews, and Mr. T. L. Turk, with the president (Mr. C. F. Cory Wright), the treasurer (Mr. J. McKershar), and the secretary (Mr. E. W. Boyce), the first-named gentleman being, it is interesting to observe, the chairman of the N.C.S. Floral Committee. It is proposed to hold three meetings during the chrysanthemum season, and the dates arranged are October 31 and November 8 and 14. Considering that ample opportunities are afforded in the metropolis for determining the merits of new chrysanthemums by bodies whose decisions command respect throughout the United Kingdom, the setting up of a third certificating body in London appears to us to be quite unnecessary.

Cyprus Diseased.—A specimen received by R.H.S. from Dr. Church, having the bark split and detached and infested with fungi, was forwarded to Kew for further examination. The following report was received: "Cupressus dolabrata.—This is a typical example of bark-scorching, the cortex being first killed by exposure to the sun's rays, afterwards splits and forms sun cracks, and finally separates from the wood. The fungus present—Corticium lacteus, *Fries*—is simply saprophytic on the dead parts."

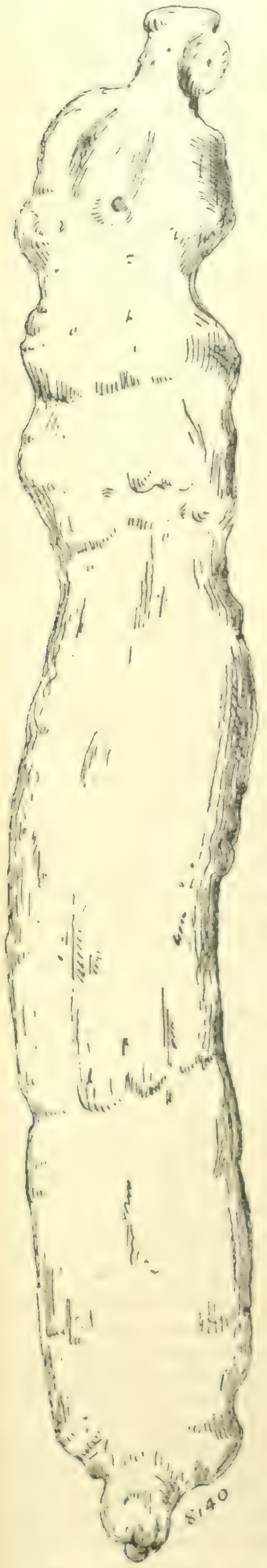
National Carnation and Picotee Society.—This society received a slight check last year, but it is financially so strong that the slight diminution in the balance in hand in no way interferes with the maintenance of its vigorous policy. Last year the exhibition was held in the gardens of the Royal Botanic Society, and the attendance was less than the committee "could have wished," and the flowers, owing to the untoward season, below the average. This year the exhibition will be held at the Crystal Palace on July 20. During last year there was an accession of seventy-eight new members, making a total of three hundred and fifty, and we are glad to observe that while membership may be obtained by the annual payment of five shillings, but few take advantage of it, with the result that the subscriptions of the above-mentioned number of members amounted last year to £236 6s. 6d. The classes for undressed blooms are continued, and the conditions for exhibiting in these classes have been altered, and they can now be exhibited either in boxes, bottles, or glasses.

Sprouting Broccoli.—A remarkable specimen was received the other day by the Scientific Committee of R.H.S. from Mr. W. P. Wright, Willesborough, Ashford, Kent, from the central and much-enlarged stem of which a large number of good-sized lateral shoots had appeared. It was suggested that if it be capable of being "fixed," it would probably prove a valuable acquisition.

The Sheffield Chrysanthemum Society does not forget the social side of life while it is engaged at the sterner business of advancing the interests of horticulturists in general and chrysanthemum growers in particular. It recently held a concert and ball at the Cambridge Hall, and the affair was well patronised; for as this, with the exception of the annual exhibition, is the only opportunity the ladies have of meeting with the members; there was a very large attendance. It pays at Sheffield to cater for the fair as well as the sterner sex.

NEW ARTICHOKE SYON LONG WHITE.

MANY and long have been the discussions held at various times upon the subject of artificial selection as practised by the horticulturist and agriculturist. In one sense artificial selection is akin to natural selection, inasmuch as it results in a survival of the fittest—the fittest for the purpose in view. In maintaining true stocks of their specialities our nurserymen and seedsmen have recourse to the most rigid selection, for unless this were done there would be more or less reversion to the original types. This selection entails a large expenditure of time and money, but of course it pays in the end, both the seller and the buyer. In the case of root crops, the process of selection is carried on, year by year, by those who have reputations at stake; but here the intervening and rejuvenating process is brought about by seed sowing. Some potatos, however, have been produced by the selection of tubers until a variety distinct from the original has been fixed. Seedlings are, in the case of potatos, most in vogue because of their vigour. With the tuberous rooted or Jerusalem artichoke (*Helianthus tuberosus*), there is very little opportunity, in this country at least, for either increase or differentiation by means of seedlings, as this seldom flowers and still more rarely seeds in the United Kingdom. Propagation has, however, been provided for by means of underground and swollen stems, generally known as tubers, which form the vegetable so dear to many. Until recent years little selection had taken place among artichokes, and the crop was usually relegated to some out-of-the-way, overshadowed part of the garden. In fact, the artichoke and horseradish were grown where nothing would succeed, and received but scant attention.



SYON LONG WHITE ARTICHOKE.

Two firms have taken in hand the improvement of artichoke tubers, with the result that two white varieties have been introducted to cultivation, and have become popular. One of these, Sutton's White, has fine round tubers, with white skin, the other, Vilmorin's White, has tubers of decidedly elongated shape. From the year of its introduction to commerce the first-named was cultivated at the Syon Gardens by Mr. George Wythes, and by growing the crop in an open position, and on ground that had been well manured for the previous crop, fine tubers resulted. Then, by careful selection, rounder tubers were produced, and in a few years a potato-like type, with shallow eyes, was fixed, and proved a material advance on the original form. The elongated artichoke, known as Vilmorin's White, was similarly cultivated, but instead of selecting from round tubers, the inclination of the variety to produce elongated tubers was assisted, and only those tubers showing great length and substance were selected each season for planting. After several years of such rigid selection Mr. Wythes has obtained a remarkably distinct artichoke, white skinned and white fleshed, often measuring twelve inches in length, and of good thickness. This new variety, Syon Long White, yields abundant crops, and the tubers are almost devoid of those warty excresences so plentiful on the old artichoke, and which necessitated thick peeling, and consequent waste, to ensure a shapely appearance when upon the table. The eyes are also very superficial, and when cooked the tubers have a distinct and pleasant flavour. The very largest may be cooked and served like salsify, when they are much appreciated; or they may be peeled and cut into two or more pieces if preferred. Mr. Wythes states that this new form is as vigorous as could be desired, and as hardy as the old dark-skinned type. Consequently it is best to leave the tubers in the ground until needed for use, placing some dry litter over the crop, or a portion of it, in the winter, to prevent hard frosts causing any difficulty in lifting. The accompanying illustration represents Syon Long White artichoke on a much reduced scale, but it afford our readers an opportunity of appreciating what Mr. Wythes has accomplished as the result of several years of careful selection towards a particular ideal. The variety now comes true every year, so that it is what florists would termed "fixed." Mr. Wythes has in other directions done excellent work in the improvement of vegetables, but in no sense have the results been associated with a greater degree of interest than with the improvement of the Jerusalem artichoke.

MICHAELMAS DAISIES.

I WAS rather surprised to read in a recent issue that "Lux" does not approve of the extended cultivation of early-flowering chrysanthemums, thinking that these will not find favour with the public. I was not thinking so much of the general public when penning my few notes as of gardeners in a similar position to the celebrated "Peter" and myself, and by sending to our editor early in the year I thought it would give those who might be induced to grow them an opportunity to obtain what I know to be really good and useful varieties. I must apologise for having "worried" even one of the readers of the GARDENERS' MAGAZINE, and particularly so distinguished a one, but I really cannot conceive a gentleman with such truly enthusiastic gardening proclivities as "Lux," having once seen well-grown bushes of Ivy Stark and Mdlle. Marie Masse, for instance, in their September beauty, being disposed to bestow anything but praise on their charm and usefulness in the garden. Perhaps "Peter" has not yet grown any but the dull-coloured and inartistic varieties for his master, and so opportunities have been lacking for the appreciation of those which I feel justified in recommending for either large or small gardens. I shall be very pleased, if I may be allowed, to post just a few rooted cuttings to our editor for him to forward to the "Luxian" garden, where, I am confident, they will flourish, and please also, and by their appeals next September for increased cultivation they will restore the good understanding which, I am sorry to learn, is slightly strained between us at present.

I am quite in accord with all the good that may be said of the Michaelmas daisies, and it was rather a coincidence that we were planting a border of some eighty varieties on the same day which gave the invite from "Lux" in the MAGAZINE, to urge the claims of these useful and charming flowers. These perennial asters are so easily grown and readily increased that for a few shillings a splendid selection may be purchased and grown by anyone who has room for autumn flowers. The height of the plants varies from one foot to six or seven feet, according to the variety and condition of the soil in which they are planted. The habit of growth, too, is varied; in some it is extremely light, spreading, and graceful; in others, close and compact, forming dense heads, while some are quite erect and others pendulous.

They form quite an interesting feature in a garden if given a border entirely to themselves, where a collection of varieties may be planted in informal arrangement and their respective merits easily compared. In such a border the aim should not be to obtain as much uniformity as possible by planting all the tall varieties in a back row and the dwarf ones in the front, but rather allow the most dense in habit of the tall ones to occupy the back of the border, and the very light and graceful tall ones, like Aster lævis Chapmani, may be planted well forward amongst less tall ones. Then, such a fine spreading head as Coombe Fishacre makes must not be too closely surrounded by other plants, as half the effect of this is destroyed by anything like crowding. The colours are not difficult to deal with, as they are mostly shades of lavender and blue with some white and one or too rosy coloured sorts. In mixed borders of herbaceous plants they help to keep up a display until late autumn, and for cutting nothing is so useful for large vases, as the long, branching stems need no special arrangement; simply cut two or three and place them in the vase just as they come from the plants, and nothing can improve them. The employment of the best and most showy varieties in large groups amongst shrubs is, perhaps, the most charming of all arrangements, especially for distant effect. In large gardens where many positions can be found for planting in this way, it is, perhaps, best to avoid repeating a variety, but to have only one large group of each of the best. The effect of a group of some two dozen or more plants of Ella disposed amongst thinly planted shrubs, or planted *en masse* in the foreground of a shrubbery at the end of some natural vista is most beautiful, and helps to sustain the interest of the garden when most of the border plants are past their best. It is important, in order to ensure the best results, to plant where a sheltering background lends its influence, because the colours are mostly pale, and need a dark contrast to emphasise them; if planted in the open much of their charm is lost.

Annual replanting and division, with a liberal dressing of manure to the soil, will be found the most satisfactory management. If the plants are not divided, the numerous growths at the base must be well thinned, particularly so in branching, and much-spreading sorts or too crowded a growth means less vigour and poor display. One very important feature is the tying up of the plants to stakes; the whole beauty of the plants is frequently destroyed through the bundling together of the growths in tying. It must be the aim to preserve the free and natural habit, and this may easily be done by just looping each of the main branches to a stout stake, which may be entirely hidden by the plant. A good selection of varieties is included in the following, and it will suffice to give just the names. Ella and Harper Crewe are about six feet high; Coombe Fishacre, A. Chapmani, A. cordifolius Diana, A. cordifolius elegans, Maia, Apollo, Snowflake, A. Shorti, A. versicolor, and A. vimeneus, each between four and five feet; A. acris, A. amellus, A. densus, A. lævigatus, A. ericoides elegans, and A. vimineus nana are less than three feet in height. These by no means exhaust all the good ones, but the list embraces the best, and also those named give a succession of blossom from early September until the end of October. Plants are easily raised from seeds, and a very large proportion of good types may be obtained from carefully saved seed. I saw a large bed of seedlings from A. amellus in Mr. Davis's nursery at Framfield last autumn, and considerable variation was noticeable both in colour and time of flowering. Cuttings rooted in spring make capital dwarf plants, and by this means, when it is desirable, the height of various sorts may be reduced to provide any special feature in the flower garden, though, generally speaking, plants allowed to grow naturally will produce the best effect.

Trent Park, Barnet. W. H. LEES.

FRAGRANT ROSES.

THE title of this article is reminiscent of the odorous atmosphere of summer, which, now that our much-loved roses are beginning to unfold their luminous, and in many instances richly fragrant, leaves, does not seem so far away. In the meantime the daffodil is filling our woods and gardens with its far-shining golden hues, and the auricula, fairest and most fragrant of the flowers of April (to be followed in due course by the lily of the valley), will soon be here. Many, indeed, are the floral fascinations that lie between us and the first efflorescence of the rose.

I have always regarded the want of fragrance in certain roses, otherwise of great attractiveness, as a very serious limitation; and I have been gratified to discover from one of his most recent and most interesting contributions on rose cultivation and selection that the Rev. H. D'ombrain takes a very similar view. Such roses, for example, as Baroness Rothschild, Spenser, and Her Majesty, however commanding in their dimensions, lose a great deal in the estimation of thousands by their want of this attribute, which is so powerful in its influence as to cover a whole multitude of weaknesses wherever it appears. To my mind it is almost more valuable than colour in a flower. The Oriental poppy is lustrous in aspect and impressive in size; but who would prefer it to the sweet-scented violet, hiding itself, like humility, amid its all-enfolding leaves? Who, on the other hand, save an ardent exhibitor, would prefer a scentless flower of Her Majesty, however majestic, to an intensely fragrant bloom of La France? I entirely coincide with the strongly-expressed opinion of the venerable founder of the National Rose Society (which was not originated for the perpetual conservation of flowers without sweetness), that roses which have not the essential attribute of fragrance should be remorselessly relegated to oblivion. It is, nevertheless, much to be regretted that some of our finest dark crimson varieties which we cannot entirely dispense with, such, for example, as the famous Duke of Edinburgh and its numerous variations, have so little attractiveness in this special direction. Of these it may expressively be affirmed that their colour is their salvation. But, on the other hand, we could survive the absolute extinction of such scentless pale-pink varieties as those which I have indicated, so long as we possessed, and were proud of possessing, more decided pink roses of a widely different description, such as Mrs. Sharman Crawford, one of the finest creations of the Dicksons at Newtownards; Mrs. John Laing, and Madame Gabriel Luizet, of which the last-mentioned will not soon be superseded.

Nearly all of the hybrid perpetuals have fragrance; many of them, however, only to a limited extent. Among the sweetest of these are Marie Bauman, Beauty of Waltham, Crown Prince, and Captain Hayward, raised by the late Mr. Henry Bennet, which is, perhaps, from this special point of view, the most attractive of them all. There are many other roses belonging to this class which might also be enumerated and highly eulogised, but this is not essential. Mr. Cranston's Crimson Bedder has in a former article on a kindred subject been much commended as a beautifully coloured and richly fragrant rose. Most of the Chinas and polyanthas, moss and Provence varieties possess a delicate aroma; among them may be mentioned Madame Laurette Messimy, of comparatively recent introduction; Queen Mab and Duke of York, raised by Mr. William Paul; Cramoisie Superieure; Hermosa, an improvement in fulness and form on the "Old Monthly" rose; Anna Marie de Montravel, sweetest in my estimation of the dwarf polyanthas, which has an odour peculiarly its own; the pink and white Provence; Blanche Moreau, finest of all the moss roses, and the eminently beautiful Crested Moss. Very fragrant alike in flower and foliage are the Austrian, Persian, and Penzance briars, and the latter are fascinating long after they have ceased to bloom.

Nearly all the noisettes and teas have a fragrance which is at once delicate and refined. Among the former are L'Ideal, the venerable Lamarque, and the finest of this section, the superb Maréchal Niel, which, it is to be regretted, is not adapted by nature for effective garden cultivation. Of Cloth of Gold I cannot speak either from observation or experience, as I have never had the privilege of seeing it in bloom. The perfume of Gloire de Dijon is very pleasing; so also, as a natural consequence, is that of Belle Lyonnaise and the graceful Bouquet d'Or, whose nature is so amiable that it succeeds admirably in my garden on a wall with a northern aspect, where it is, necessarily, greatly exposed. I find it much hardier and much more reliable than Reve d'Or, which requires a very sunny situation, and usually has to grow to its full dimensions before it attempts anything in the floral direction. Aimée Vibert has no fragrance whatever, but the foliage is beautiful, and when it does bloom it produces a vast number of flowers. Of all tea roses, perhaps, the most attractively fragrant are Souvenir d'un Ami and Souvenir de S. A. Prince. Niphetos and Madame Bravy have an exquisite perfume, the latter particularly; while Catherine Mermet and her daughters, Bridesmaid, The Bride, and Muriel Grahame, have a fragrance of a very peculiar character, which has been compared, not without reason, to that of a ripe peach. The most odorous of the Bourbons are Acidale, Mrs. Paul, and Madame Isaac Pereire. Mrs. Paul was raised at Cheshunt in 1891, and is a variety of immense vigour, unique colour, a fragrance rivalling that of Viscountess Folkestone, and imposing dimensions. It has the habit of its parent, Madame Isaac Pereire, but in no other respect save that of strong growth and freedom of flowering can any other resemblance between those closely affiliated roses be found. The fragrance of Mrs. Paul is of an entirely different quality from that of the majestic rose from which it was derived. This is a phenomenon—if such it may be termed—remarkably rare.

The most fragrant of all roses are the hybrid teas, and of these the most attractive are La France, Caroline Testout, Duchess of Albany, Cheshunt Hybrid, Camoens, Augustine Guinoisseau, Viscountess Folkestone, Lady Mary Fitzwilliam, White Lady, and Princess May. Of these by far the richest in its perfume is the incomparable La France. I understand that its illustrious raiser, the late M. Guillot, did not know to what section this gracious rose belonged. I sometimes think it is, to some extent, of hybrid China extraction; but this is a matter of little importance so long as it possesses those splendid characteristics which have made it what it is—one of the grandest existing roses for exhibition, and one of the most effective for garden decoration.

DAVID R. WILLIAMSON.

APPLES AS ESPALIERS.

IT is an interesting and economical method of cultivation to grow apples as espaliers, and one which especially commends itself to the owners of small gardens. Espaliers when compared with bush and pyramid trees take up but a small amount of space, and this is a great desideratum with many. As a rule, room can be found for but few trees grown in bush or pyramidal form in gardens of modest pretensions, as they encroach too much on the area at disposal for vegetables. This difficulty may be overcome if espaliers are employed, as they not only economise space, but enable owners to grow a greater number of varieties in a given space. The best plan is to plant the trees by the side of the walks, and so form a kind of fence, which leaves the remainder of the ground at liberty for other purposes. If planted eighteen inches or two feet from the edge of the walk, the narrow border so formed in front can then be utilised for growing strawberries, or low-growing flowering plants, lettuces, parsley, or anything which will not interfere with or injure the roots of the trees. Even in gardens of large areas, where plenty of space is available, a few rows of espaliers are always useful, while they certainly are ornamental if planted where they can be seen to advantage.

Espaliers are often planted to screen off the vegetable quarters, and in this case the trees should stand back quite a yard from the edge of the path. The border formed in front of the trees, as a result of this arrangement, comes in useful for strawberry growing, and a host of other things which it is not necessary to mention. This same form of tree can also be used to form a boundary line between flower borders and the vegetable quarters, when herbaceous and other flowering plants have to be accommodated in the kitchen garden for affording quantities of cut flowers. The taller and rank-growing plants should be eschewed, unless an alley quite a yard wide can be left between the back row of plants and the trees. Another good way of utilising espaliers is to plant them so as to enclose blocks of span-roofed houses and pits, when the latter are built in a conspicuous part of the garden. The enclosure so formed makes a nice finish, while the trees offer not the slightest obstruction to the free passage of light. Convenient openings must, of course, be left so that the houses and pits may be readily approached. Again, in the case of a range of lean-to houses, it is far better to plant espaliers to form the boundary line to the vegetable quarters facing the range than to employ bushes or pyramids, as the latter very often give too much shade.

Regarding the cropping capabilities of the apple when grown in this way, the results are very satisfactory, and the fruits produced are, generally speaking, clear skinned and high coloured, the latter varying according to soil and locality. Some sorts are much better adapted for growing as espaliers than others, and in the list which will be given subsequently only those will be mentioned which succeed as such. For small gardens a selection can be made which will afford a supply from early September up till March or April. For this purpose Beauty of Bath, Worcester Pearmain, Ribston and Cox's Orange Pippins, Adams' Pearmain, Allen's Everlasting, Lord Grosvenor, Beauty of Kent, Warner's King, Golden Noble, Reinette du Canada, and Wellington are twelve [illegible] sorts. If only half the number is required, select numbers one, [illegible] seven, ten, and twelve. If a more extended list is wished for, King of the Pippins, Fearn's Pippin, Lewis's Incomparable, Golden Reinette, Pearson's Plate, Blenheim Pippin, Ecklinville, Lord Derby, [illegible] Tyler's Kernel, Sandringham, and Annie Elizabeth may be added, which brings the number up to twenty-four.

Suitable trellises on which to train the trees can be constructed of wooden posts and galvanised wire at a cheap rate. Iron standards are, of course, the most durable, but much more expensive. Stout oak and larch posts, with the lower portions creosoted, or charred, and then plunged while hot into gas tar, will endure for a good many years. The height of the trellis need not exceed five feet, or five feet six inches, and the wires should stand fifteen inches apart. Radisseurs, or straining bolts, should be fixed at one end of the trellis for the purpose of tightening the wires, both at the time of fixing and for future use, should any of the wires become slackened. As to distances, the trees may be planted from twelve feet to fifteen feet apart, according to space at disposal. When in bloom espaliers are easily protected from spring frosts, either by means of hurdles thatched with straw or bracken, or blinds of Frigi Domo, or similar material. In the latter case a few short stakes are required to keep the blinds from coming into contact with the trees. The hurdles should be stood close up to the trees with the top leaned against [illegible] the highest wire. In either case they act as a very efficient [illegible] protective agent.

A. W[illegible]

Stoke Edith Gardens.

Yellow Ground Picotees.—Practical expression has been given by the Midland Carnation and Picotee Society to the suggestion made in these pages a few years since that separate classes should be provided for yellow-ground picotees possessing the requirements of the florist. In the schedule several classes are provided for them, with prizes more liberal than in the corresponding classes for white ground picotees and show carnations. It is stipulated in these classes that "Any bloom that has not a continuous picotee edge, or has more [illegible] colour on the yellow ground, will be disqualified; for example, [illegible] Gift, and such-like flowers will be admissible, but not such flowers as [illegible] Bail and Yellow Hammer."

VEGETABLES FOR EXHIBITION.

ONIONS.

THE onion (*Allium cepa*) is one of the most useful and largely cultivated vegetables in this country. At the same time it is not nearly so extensively grown as it should be, and when one considers the large quantities annually imported from Spain and other countries, it is indeed surprising that market gardeners and farmers at home do not turn their attention to the production of these bulbs on a larger scale. Almost any kind of land, when properly prepared, will grow onions well, but unquestionably the most suitable soil is a deep light loam, which will only require enriching and preparing during the winter months. When, however, one has to deal with less favourable mediums, such as stiff clay, or chalky and gravelly soil, more attention and care will have to be bestowed to produce satisfactory results. The onion is a deep-rooted plant, consequently merely digging over the ground and working in a little manure is not sufficient. In all cases the land ought to be thoroughly trenched, and heavily manured during the winter months. Onions require a long season of growth, and the sowing made early in the season gives by far the best results, as the bulbs may be properly matured and ripened before the summer is too far advanced. One often hears of onions keeping badly, and this is in nearly all cases due to bad harvesting. For ordinary summer crops the site should be selected during the autumn. Many people make their onion bed on the ground previously occupied by spring cabbage, a very good practice which I generally adopt myself. If alternated each year, that is onions following cabbage, and cabbage following onions, good results will ensue. On the first favourable occasion in early autumn, wheel on a thorough dressing of good farmyard manure (it is scarcely possible to give too much), and as soon as the ground is in a moderately dry state, the trenching should be done to a depth of not less than two feet six inches, breaking up the bottom thoroughly with a fork. Begin with a layer of the longest of the manure, and on this should be thrown the top spit, then a layer of the shortest of the manure should be added. No attempt should be made to break the soil to pieces, but the whole ought to be left in as rough and lumpy a state as possible, so that the frost and winds may penetrate it thoroughly. Leave in this way till early spring. As before stated, the seed should be sown early, say, from February 25 to not later than the end of the second week in March, if possible. At this season we are very much at the mercy of the weather, owing sometimes to prolonged frost and much wet, either of which may prevent the operation, especially so on heavy soil, but no chance ought to be missed after the first-mentioned date. A mixture of soot, wood ashes, and lime in equal proportions should be strewn over the bed; and on heavy soil, in addition to this, a thorough coating of road-grit will prove of much value. Fork over the bed to a depth of eight inches, breaking up the lumps as fine as possible, and leave it for three or four days; then proceed to prepare for seed sowing.

A short-toothed wooden rake should be used to make the bed as level as possible, and draw off any large stones or rubbish; next mark out the beds, the drills being from ten to twelve inches apart, a distance I recommend in all cases. Round the outside of the bed an eighteen-inch alley should be allowed, and one of fifteen inches at every eight feet of width. The drills should be drawn very shallow, after which sow fairly thick and evenly. Cover in the seed with the feet, walking down each row and pressing down the soil firmly on both sides, after which the beds should be trodden down firmly in the opposite direction, walking across the beds. The wooden rake should again be brought into use over the whole bed, after which finish neatly with an iron one. The beds should be left as even and fine as it is possible to make them, and a small rake may also be passed down the alleys. Good gardeners pride themselves on their onion bed, and well it looks when properly done. A quick free growth must be encouraged to ensure a good crop, so that immediately the young plants are above the ground and the rows can be seen, the Dutch hoe should be brought into use, and the soil stirred carefully between the drills. This should be done frequently, and the young plants should be lightly dusted with fresh soot weekly. As soon as large enough commence thinning and hand weeding. It is a great mistake to thin severely the first time, unless extra large bulbs are wanted, and these are more easily obtained by another method, which will be set forth later. As a rule, for all ordinary culinary purposes bulbs from the main sowing will be quite large enough, and when hard thinning is practised an attack of the onion fly will often play sad havoc with the crop. If thought to be too crowded, and all is going well, another thinning can be made at a later period. When the weather is showery, in addition to the application of soot, which is a capital stimulant, a light dressing of some good artificial manure should be given and stirred in with the Dutch hoe. I have found Smyth's fertiliser a good and safe manure for this purpose. Should the weather continue dry for any length of time, give good drenchings of water, using if possible that taken from the sewage tank. As soon as the growth appears to be complete the top should be carefully laid down with the hands, turning them all one way in a neat and business-like manner, and not knocking them down with a broom, as is frequently done. This latter practice is much to be deprecated, as the growths must necessarily be damaged by bruising, and any injury greatly impairs the keeping qualities. In about ten days or a fortnight the whole should be pulled up and laid in beds to finally ripen, where they should be turned over about every third day when the weather is dry. In about nine or ten days they ought to be ready for taking under cover, placing them thinly in an airy shed and turning once or twice before storing. No better way for keeping onions can be found than roping them and hanging them up in a cool shed. Failing this, lay thinly on shelves.

Aldenham House Gardens. E. BECKETT

CAMELLIAS AT WALTHAM CROSS.

IT is not exactly pleasant to reflect that the most beautiful of the flowering plants should be subject to the caprice of fashion, and that in consequence of a change in the trend of public taste that the camellias, with their wondrous beauty of leafage and flowers, should have for so long a period been relegated to the cold shade of neglect. Once the most popular of the hard-wooded plants that thrive in the conservatory, they so steadily declined in public favour that they have been practically banished from many trade collections, and their cultivation materially reduced in private gardens. Why there should have been so continuous an ebb in public favour is not easy to explain, or, indeed, to understand. The enormous increase in the cultivation of the chrysanthemum during the past twenty years has undoubtedly been one of the contributing causes, and it may be assumed that the winter-flowering carnations have proved formidable competitors for public favour. If the camellias were of use only for the production of flowers for personal adornment and home decoration in a cut state, their decline in popularity could be readily understood; but having regard to the fact that their value consists in their usefulness in enhancing the attractions of the conservatory and winter garden early in the year, it is surprising that these handsome shrubs should have suffered so severely from the competition to which they have been subjected.

Happily, the neglect of camellias has reached the bottom, and that once more the tide of public taste has begun to flow in their favour. We have full justification for the opinion we hold upon this point in the fact that there is a steadily increasing demand for camellias, and more particularly for large specimens. This we mention with considerable pleasure, not because we hold their shapely blooms and exquisite colouring in high estimation, but from our knowledge that we have no shrubs at home in the conservatory that can compare with them in attractiveness at this season of the year. As so well known to those who have kept themselves well acquainted with the various phases of horticulture, Messrs. William Paul and Son have throughout maintained their magnificent collection in its completeness, and unless we are much mistaken they are now obtaining an adequate reward and devotion to these beautiful shrubs. We have been acquainted with this collection for many years, but at no time have we heard any complaint as to the difficulty in disposing of the immense number of plants raised annually, but now we learn that the demand has of late so materially increased as to necessitate renewed activity in the maintenance of stock. The extent of the collection, and its richness in splendidly developed specimens has, no doubt, been an important factor, but we are disposed to attach greater importance to the fact that the whole of the stock is of home growth. Long before the decline in the popularity of the camellia, Messrs. W. Paul and Son recognised the superiority of home-raised plants over those of continental origin, and the practice which was then initiated has been continued until the present day, and with highly satisfactory results.

As we have explained in previous references to the camellias at Waltham Cross, the collection occupies a span-roof structure about one hundred and thirty feet in length and thirty feet in width, and includes an immense number of buxom bushes, ranging from five feet to over twenty feet in height. We have also spoken in high terms of the remarkable skill that is brought to bear upon the plants, and of their robust condition and the abundant production of flowers that have resulted from the practice adopted. But in no season in which we have have had an opportunity of seeing them have they presented a more satisfactory appearance, or gave a greater wealth of flowers, than the one through which we are now passing. The collection is unique, and of much value for the object lessons it affords upon points of practice and in the selection of varieties; and, with regard to the latter, it may be said that nowhere in the United Kingdom is so large a number of distinct and beautiful forms to be met with. Special attention has been devoted by the firm to the raising and introduction of new varieties, as well as to the growth of old ones, and the novelties now form a large and important group. Chief among the varieties raised at Waltham Cross are Beauty of Waltham, a distinct and beautiful variety, with good habit and finely-formed flowers of a pleasing flesh colour. Duchess of York, a charming camellia with bold rose cerise flowers and excellent foliage. Exquisite, a fine variety with large, handsome, rose-red flowers and good foliage, and The Duchess, a distinct variety, distinguished by the beauty of its rose-pink flowers and handsome foliage. Messrs. W. Paul and Son have also been successful in introducing a considerable number of beautiful camellias from Portugal, which not only have flowers of superb form, but foliage surpassing that of the majority of those of Italian origin. Bold, deeply-coloured leaves are hardly less necessary in a camellia than are handsome flowers, and those who are acquainted with the beautiful variety known as the Marchioness of Exeter will be gratified to learn that the Portuguese camellias in the collection are not less satisfactory in this respect. The eight varieties enumerated in the catalogue of the firm are all so good as to occasion some difficulty in determining their relative merits, with one exception, and that marks so decided an advance as to at once place it in premier position. This is José Marques Loureiro, which has the habit and the ample dark foliage of Marchioness of Exeter, and pure white flowers posssessing the characteristics of those of the Double White, but with rather more boldness. It is believed that it will eventually supersede the Double White, and there is full justification for the belief. Other Portuguese camellias of special value are Barao de Mogofores, bright rose, in the way of Reine des Fleurs, but of a softer shade of rose; Camillo Aureliano, rose-pink splashed with white; Duarte d'Oliverro, rich rose, very distinct; Horto Loureiro, flesh pink flaked with rose and crimson. Several of the Portuguese varieties were received through the Marquise Fronteira, Benifica, near Lisbon, who, when visiting the Waltham Cross Nurseries, was so charmed with the collection that he sent the firm a selection of the finest grown in Portuguese gardens.

The collection of older varieties contains many of remarkable beauty that are comparatively little known, while all the varieties with which the English cultivator is familiar are strongly represented. Of the self-coloured varieties that are remarkable for their distinctness and beauty, mention must be made of, as especially desirable in collections: Alba plena, pure white; Auguste Delfosse, red-crimson; Baron de Vriere, peach colour; Beali, crimson; Benneyi, bright red; Chandleri, crimson, very free; C. M. Hovey, scarlet-crimson, very fine; Conspicua, rose, semi-double, very free and desirable; Dionisia Poniatowski, white, very fine; Fatima, deep rose-red; Fimbriata, one of the most beautiful of the pure white varieties; Guillaume III., dark rose-red, large, superb form; La Constituzioni, rose-pink, large, fine shape; Marchioness of Exeter, glowing rose, fine habit, and large handsome flowers; Malhotiana, deep crimson, large and effective; Rafia, dark crimson; Rose de la Reine, rose-crimson; and Souvenir d'Emile Defresne, bright red. Conspicuous among the varieties with striped and blotched flowers, by reason of their attractiveness and high quality, were: Adelina Benvenuti, flesh flaked crimson, exceedingly beautiful; Countess of Derby, white, flaked rose; Donckelaari, crimson, flaked white; Countess of Orkney, white, flaked carmine; L'Avenir, rose, margined and striped white; Madame Ambroise Verschaffelt, white, flaked and spotted red; Princess Clothilde, white, striped with carmine, semi-double, and very effective; and Tricolor, flesh striped with crimson, semi-double.

The foregoing are mentioned as indicating a few that are specially suitable for small collections, but there are large numbers of other varieties that are of great beauty and deserving of the highest encomiums, as will be seen in the course of an inspection of the Waltham Cross collection.

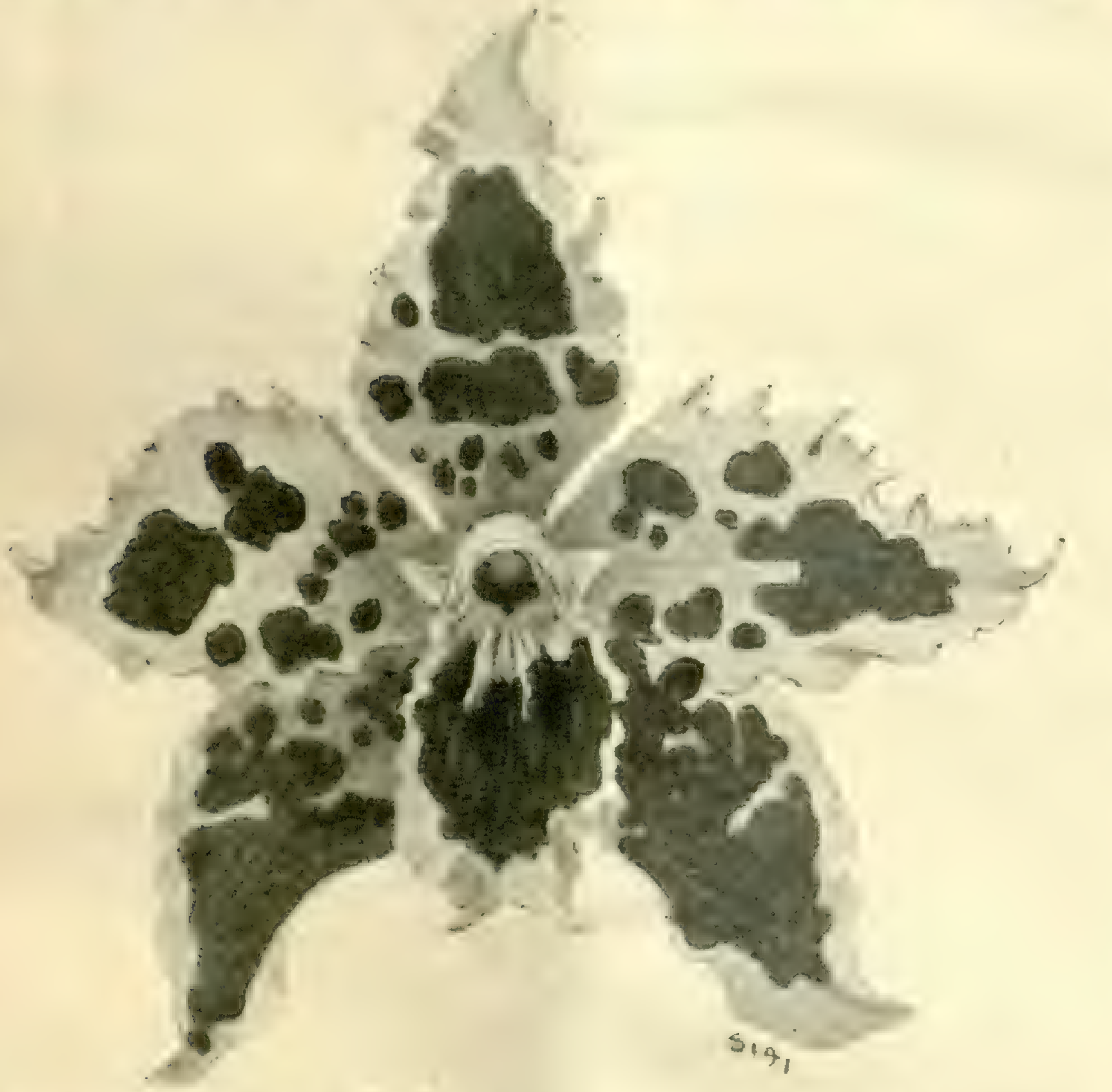
NOTES ON ORCHIDS.

DENDROBIUM RAINBOW.

THIS is undoubtedly one of the most beautiful dendrobium hybrids yet raised; it is the result of crossing D. Findlayana with D. Ainsworthi. Its flowers are of good substance, each measuring three and a half inches across, the sepals slightly twisted, broad and white; petals tipped with heliotrope; lip pure white, measurone and a quarter inches across, tipped with heliotrope, and the throat having a large blotch of deep claret colour, surrounded by a light orange zone. A fine plant of this handsome hybrid was recently in flower in the collection of H. H. Bolton. Esq., Height Side, Newchurch, Manchester, carrying about twenty flowers, and was exhibited by the gardener, Mr. W. Eastwood, at the Manchester and North of England Orchid Society meeting on February 10 of this year, when it was unanimously awarded a F.C C. It was raised in the celebrated collection of Sir Trevor Lawrence, Burford. G. S.

ODONTOGLOSSUM WILCKEANUM PITTIÆ.

This wondrously beautiful odontoglot is certainly the finest of its section. Not only does its exquisite chocolate markings on a yellow ground commend it to the fancier, but its robustness commends it to the orchid grower in general, and reflects considerable credit upon Mr. R. Aldous, gardener to its owner, H. T. Pitt, Esq., Rosslyn, Stamford Hill. Each bloom measures about three-and-a-half inches across, and has all the segments more or less fringed along the margin.



ODONTOGLOSSUM WILCKEANUM PITTIÆ. (Flowers yellow and chocolate.)

When exhibited before a recent meeting of the R H.S., this fine orchid, carrying seventeen or eighteen flowers on one spike, merited a first-class certificate. The nearest relation to O. Wilckeanum Pittiæ is probably O. W. Queen and Empress, a beautiful form in Baron Schröder's collection at The Dell, Egham.

EPIDENDRUM XANTHINUM.

One of the most showy of epidendrums is the Brazilian E. xanthinum, a species discovered by Von Martius, in the province of Minas Geraes. It is tufted in growth, and the long slender stems, clothed with two rows of linear-oblong leaves, terminate in the flowering season with a large-clustered head of rich, golden flowers, each flower about three quarters of an inch across; the lip is an attractive organ, its three lobes being exquisitely fringed. The species is generally amenable to cultivation, and may be grown in an intermediate house, or even in the cool house for the greater part of the year. When in flower it is a fine orchid for association with palms, &c., for grouping, as its long growths and effective racemes give additional grace and colour to the arrangement. This old orchid is figured in the *Bot. Mag.*, t. 7,586.

CYPRIPEDIUM BEECKMANI.

We have previously described this unique and handsome hybrid cypripedium on the occasion of its appearance before the R.H.S. in November last. It has Cypripedium Boxalli superbum as one parent and C. bellatulum is questionably recorded as the other. Whatever its parents it is a fine orchid, partaking largely of the form and size of the seed parent. The green, white margined dorsal sepal is broad and spotted with dark vinous purple; petals broadening towards the apex, rich reddish purple brown, margined with yellowish green; lip reddish purple brown tinged with rose and greenish yellow. This hybrid, named after Mons. Eugene Beeckman, chief of the private department at L'Horticulture Internationale, is admirably figured in *Lindenia* t. 600.

Large Ivy Stem.—Professor Henslow exhibited at the recent meeting of R.H.S. a section of ivy, some ten by eight inches in diameter. It grew round a tall holly, about fifty feet in height, at Zeals Rectory, Wilts.

GLADIOLI.

WITH the season of gladiolus planting now at hand, the thoughts of those who grow these remarkably beautiful flowers turn instinctively to those who have done so much to improve both the constitutional vigour of the plant and increase its floral productiveness and beauty. Among the names of those who, at home and abroad, have made such wonderful progress in the provision of new varieties for the embellishment of our gardens and the adornment of our houses, one comes forcibly to mind by reason of the rapidity with which it has become prominent in this connexion, and because of the extreme beauty of his productions. The reference is to Mr. J. Burrell, of Messrs. Burrell and Co., Cambridge. Mr. Burrell entered with vigour a few years ago into the business of raising gladiolus, chiefly of the gandavensis section. So skilfully has cross fertilisation and the raising of seedlings been performed, that a very high percentage of the forms raised are of the greatest horticultural value, as all who have seen the exhibits staged by the Cambridge firm will admit. Beauty in colour and form, stately and vigorous, well-furnished spikes, characterise all the Cambridge productions, while their comparative youthfulness and the first-rate methods of cultivation adopted ensure fine corms that invariably give a good account of themselves if well cared for.

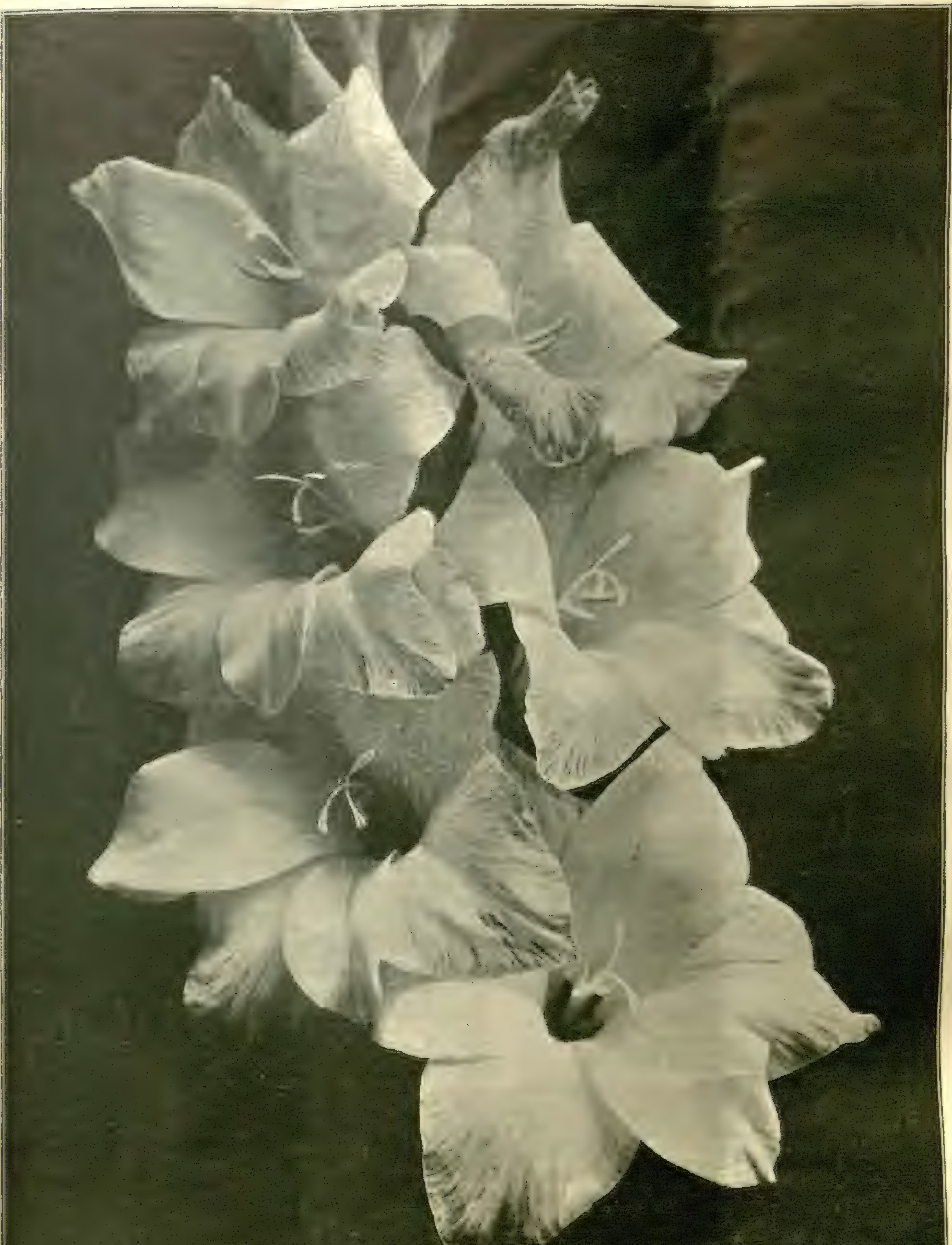
Opinions differ among amateur growers as to the kind of soil best suited to gladiolus culture, but Mr. Burrell, having grown gladioli in all kinds of soils and mixtures, has had opportunities for judging which are best, and his conclusion is, the best results are obtained on a somewhat heavy yellow loam of an adhesive nature, without any admixture of sand. On such a soil he is able year after year to keep up a vigorous and healthy stock of gladioli, and no matter whether the seasons be hot or cold, dry or wet, always has a good measure of success in producing flowers and corms. His conclusions have reference to the fine hybrids of the gandavensis section, but it may be taken for granted that whatever suits these, as regards soil and general conditions, will also suit the purpureo-auratus hybrids and Saundersi varieties, and these three sections contain all the most beautiful late-blooming gladioli worth cultivating for the beauty of their flowers. In recommending a somewhat heavy loam Mr. Burrell does not forget that splendid flowers of gladioli are produced in soils of a light, sandy, and even gravelly nature. In fact, as regards the mere production of fine flowers, this may be done in almost any kind of soil whatever; but a cultivator is only really successful when, in addition to fine flowers, he is also able to keep up a healthy stock year after year, and this is more likely to be attained in a good holding loam rather than in any other kind of soil, at all events so far as the drier and warmer counties of England are concerned. Where the rainfall is excessive and the climate less warm and sunny, some modification of the foregoing opinion might be necessary, and a soil of a lighter nature found more suitable. Although it does not appear that the gandavensis hybrids flourish on stiff clay, they succeed admirably near Cambridge on a soil closely approaching clay, but where the drainage is good and the rainfall light—an average of about eighteen inches a year.

Excessive manuring Mr. Burrell considers extremely harmful, and likely to generate a disease with which the whole genus is afflicted more or less, according to the nature of the cultivation given it. At Cambridge the corms are grown on ground which has been well manured for the previous crop, and this produces quite as good results as when the ground is specially manured for the gladioli alone. An excess of humus in the soil is distinctly harmful, and the stock will remain far healthier in what is termed clean soil. At various times the gladioli have received moderate dressings of bone meal, fish manure, muriate of potash, and other artificial manures, but all with doubtful results. Sometimes a slight mulching with fresh straw litter is given, but generally those grown without any mulching do equally well. Liquid manure in any form whatever Mr. Burrell never gives his gladioli.

For the fungus disease which attacks the corms of gladioli, and with which the whole genus appears to be more or less affected, no remedy for complete eradication has yet been found. Various suggestions have been thrown out, among others that of breeding new races direct from the species; and some importance has been attached to the reintroduction of G. oppositiflorus, a plant of considerable vigour. A gladiolus with its flowers placed in opposite directions on the spike is a poor garden plant compared to one with its flowers all facing in one direction, and Mr. Burrell has no faith in going back to the species as a remedy for improving constitution. He rather recommends clean cultivation, the selection of vigorous hybrids as parents, and the raising of young stock to replace worn-out corms, as is done in the case of most garden plants. His own annual loss from disease barely reaches ten per cent.

With reference to what the future may hold for gladiolus Mr. Burrell still holds the opinion expressed before one of the 1896 R.H.S. meetings, that we shall have at no distant date remarkable and new colours, including all shades of blue, and giving flowers and spikes equal in size to the fine gandavensis varieties, and, like the latter, opening a considerable number of flowers at the same time without loss of constitution. As many of the hybrids of gandavensis are as yet unrivalled in vigour, and beauty of flower and spikes, he does not fear loss of constitution by an infusion of the good qualities of these into other sections in order to obtain a greater variety of novel colours.

The remarkably handsome variety Lauretta, of which an illustration is given herewith, is one of the fine seedlings raised by Mr. Burrell. The illustration is reproduced direct from a photograph, and represents a short spike that we specially selected for the purpose of showing the flowers their natural size. These are of superb form and substance, and are white, shaded pink and flaked and striped with rose, and a more exquisite combination of colour it would be difficult to conceive. Other of the Cambridge-raised gladioli of recent introduction and special excellence comprise Bernice, pale yellow; Comedy, soft salmon-pink with white centre and richly painted with crimson; Cygnet, delicate lemon



GLADIOLUS LAURETTA. (Flowers white, pink, and rose.)

tinted white, very chaste and beautiful; Dora Craven, white, with carmine blotch on the segments: Ella, lilac, shaded rose, with crimson blotch on the segments; Elvira, white, suffused rose and flaked with red; Fiametta, rich salmon rose, very distinct and beautiful; Gertrude, white suffused with rose and marked with a few crimson stripes; Grand Mogul, cerise, heavily painted with mulberry and tinted with slate colour at the margin; Hilda, ivory white flaked with rose at the margin; Martial, rich crimson, flaked with scarlet and dark crimson, effective; and Rosalie, delicate salmon pink.

PROPORTIONING PRIZES TO POINTS.

SHOULD it happen that any readers of the GARDENERS' MAGAZINE have been interested in the note by A. D. on the new departure at Shrewsbury in proportioning the prizes to the points gained in two large classes, there may be further interest in the knowledge that the system is already in force on a very extensive scale in the county of Kent. Acting on a suggestion by the Lord Lieutenant (Earl Stanhope), the Technical Education Committee of the Kent County Council established a series of garden, allotment, and show competitions three years ago, giving a set of prizes, value 50s., to each village where lectures on practical horticulture were delivered. The money was divided into four prizes of the respective values of £1, 15s., 10s., and 5s., which for cottagers are, it will be agreed, not illiberal. Certainly they are above the average. Upwards of fifty village competitions resulted. In the course of my judicial work, I was struck by the number of instances in which a few points separated all the prize-winners. In some cases only four or five marks represented the difference between the first and fourth gardens, yet the difference in the prizes was 15s. Another fact that arrested my attention was that in some villages, where the cultural level was low, a competitor secured £1 with less marks than were earned by a second competitor in another village, yet who, owing to the higher level of the work there, only secured a fourth prize. Both these things seemed to me to call for rectification, and after due reflection I submitted to the committee a scheme for establishing an entirely new basis of awards. This was to give prizes at the rate of one penny per point, and do away with fixed prizes altogether. The scheme has worked well. To give an example I open my judging book at random and take the following instance: (1) A, 173 points, prize 14s. 5d.; (2) B, 168 points, 14s.; (3) C, 163 points, 13s. 7d.; (4) D, 152 points, 12s. 8d.; total, £2 14s. 8d. It will thus be seen that the prizes are in exact proportion to the merits of the gardens, as they could not be on a fixed basis.

On this system it is advisable not to fix the number of prizes. We do not do so in Kent. We have a minimum standard, and if it is not reached no prize is awarded, even if the rule means excluding every competitor, but things have never been so bad as that. On the other hand, we have a maximum standard, every competitor attaining which gets a prize to the full value of his points. This insures that good centres get more money than weak ones, as they deserve to do. Allowance is made for any striking disadvantage of soil. We have centres getting five, six, and even seven prizes, and earning from fifty to seventy-five per cent. more than they did on the old system. The extra money comes in the main from the weak centres, as the total cost to the committee is about the same as it was before. But (and this is instructive) there are cases where a low-point centre under the fixed prize system has become a high-point centre under the proportionate system, the competitors having perceived the necessity of pulling themselves together.

The more this system is studied the more plainly its justice and workability become manifest. Many authorities have expressed their approval of it. Mr. George Gordon was one of the first, if I remember aright, to instantaneously perceive its advantages, and Mr. John Wright, with his great judicial experience, approves its simplicity and efficacy. It may be asked how the system is applied to collections of produce. It is as follows: A standard is fixed for each vegetable, of which we usually ask for nine kinds. The average marks are, say, eight; thus it is possible for a competitor to get seventy-two altogether. This is a much smaller number than can be earned with a plot, so we raise the "scale of pay" to 2d. per point—result, a first prize of 12s. No. 2 may have 66 marks, prize 11s.; No. 3, 60 marks, prize 10s.; No. 4, 54 marks, prize 9s.; and No. 5, 50 marks, prize 8s. 4d.; total, £2 10s. 4d. If others reached a standard of two-thirds the maximum, *i.e.*, 48 marks, more prizes would be given. A rich society giving about £25 to one important class could follow the same system, but calculating the prizes at 1s. or 2s. per point instead of a penny or twopence. To my mind the fixed number of prizes is the weak point in the Shrewsbury arrangement. The number of prizes, like the value, ought to be decided by one thing—merit alone.

Although I have had many inquiries about the Kent system, I have not hitherto drawn prominent attention to it in any of the leading organs of horticultural opinion. I do so now partly because the subject is exciting attention, partly because honour for the innovation belongs, not to Shrewsbury, but to the Kent Technical Education Committee—a body which is unceasing in its endeavours to give practical help to all classes of horticulturists.

W. P. WRIGHT, *Horticultural Superintendent,*
Kent C.C. Technical Education Committee.

ROSE SHOW FIXTURES FOR 1898.

June 15 (Wednesday).—York.*
,, 16 (Thursday).—Colchester.
,, 23 (Thursday).—Bath (N.R.S.).
,, 25 (Saturday).—Windsor.
,, 28 (Tuesday).—Southampton,† Sutton, and Westminster (R.H.S.).
,, 29 (Wednesday).—Canterbury, Croydon, and Richmond, Surrey.
,, 30 (Thursday).—Eltham, Gloucester, and Norwich.
July 2 (Saturday).—Crystal Palace (N.R.S.).
,, 5 (Tuesday).—Harrow, Redhill
,, 6 (Wednesday).—Farningham, Hanley, Reigate.
,, 8 (Friday).—Ulverston.
,, 12 (Tuesday).—Wolverhampton.*
,, 13 (Wednesday).—Newcastle-on-Tyne.*
,, 14 (Thursday).—Halifax (N.R.S.), Canterbury (Hospital Fund), and Helensburgh.
,, 26 (Tuesday).—Tibshelf.

* Shows lasting three days. † Shows lasting two days.

The next list of fixtures will appear early in April. In the meantime I shall be glad to receive the dates of any rose shows (or other horticultural exhibitions where roses form a leading feature) for insertion in that list.

Rosebank, Berkhamsted, Herts. EDWARD MAWLEY.

FIDLER AND SONS, READING.

THE ancient and interesting town of Reading numbers among its inhabitants not a few men remarkable alike for their business ability and enterprise, and the [illegible] they have risen from comparative obscurity to be among the leaders of their profession as well as capable and generous townsmen. One example especially appeals to us as horticulturists, and we feel sure that our readers will be interested in a brief account of the firm of Messrs. Fidler and Sons, Reading, a firm [illegible] throughout the world, or, at least, wherever potatos of high quality are grown.

On a very small scale the business that has now reached such considerable dimensions was commenced by the father of the present proprietor some forty years ago. The great up-building of the concern was left, however, for Mr. J. C. Fidler, who now controls it, and it is a monument to his industry and ability. Enterprise, combined with clear foresight, has characterised all his undertakings, and his aim as a business man has always been to sell the best possible article, and to sell it as cheaply as possible. Mr. J. C. Fidler is sole proprietor of the business, but is assisted in its conduct by his two sons. Some idea of the extent of the seed and potato trade carried on in the new premises the firm occupies in Friar Street, will be gathered from the fact that not less than a hundred persons are herein employed. The block of buildings comprising warehouses, order-rooms, offices, and shop, have been built by Mr. Fidler to suit the requirements of the business, and they are lighted throughout by electricity. At present the output of garden seeds is slackening, but the almost empty bins and shelves show that there has been a remarkable run on the leading kinds of vegetable seeds supplied by the firm. One shelf was pointed out to us where at the beginning of the season over five tons of a certain culinary pea were packed in pint and quart packets; this is now almost empty. Very many of the bins in the big order-room have to be filled over and over again from the warehouses above to meet the demand that has been exceptionally heavy this year. Farm seeds are largely supplied by Messrs. Fidler and Sons, and the huge stocks of mangold, turnip, swede, cabbage, clovers, beans, &c., so largely used in farming, represent a very large sum of money; orders for these are now coming in apace, and the building seems pervaded with a sense of unostentatious prosperity.

MR. J. C. FIDLER.

Potatos.

If there is one branch of the business of seedsmen in which the Messrs. Fidler excel, it is in the production and introduction of potatos. To raise seedling potatos does not require much space, but to properly test them when raised and compare them with tried varieties of high quality means the cultivation of a large area. To ensure satisfactory trials Mr. Fidler farms some five hundred acres at Southcote, Battle Farm, and Honey End, all within easy distance of Reading, and here all the new or promising potatos are thoroughly tested ere they are distributed. With an experience extending over forty years, Mr. J. C. Fidler understands as much about potatos as any man living, so that his views are worth recording. In the production of a new potato three things must be aimed at, viz., strong parentage, fine quality, and high cropping power. An ideal potato is one that is kidney-shaped, a heavy cropper, strong constitutionally, and [illegible] tubers that are handsome in appearance, floury when cooked, and finely flavoured. The nearer a potato is to such an ideal the more popular it becomes, though, as Mr. Fidler states, there are a few people who like what is generally known as a "waxy" potato, and on the Continent these hard potatos find considerable favour for "chips" and stews. The variety that has done more than others to give fine constitution and high cropping powers to its progeny is Champion. Consequently this variety, either as parent or grand-parent, has exercised considerable [illegible] in the potatos sent out by the Messrs. Fidler. The shape of a potato has [illegible] to do with its popularity, for while excellent quality is found in round and [illegible] shaped sorts, yet the great wholesale demand is for kidneys, and this [illegible] because such are the more easily peeled, and the largest buyers are hotel [illegible] and restaurateurs. With regard to constitution Mr. Fidler finds no [illegible] between, rounds, pebble-shaped, or kidney varieties, and he should know, [illegible] sidering the amount he grows on his own farm and in other parts of the country. The output of the firm, for potatos, from the beginning of November to April, including both eating and seed tubers, averages over three hundred tons per week. The highest output in one week was six hundred and twenty tons.

The average life of a potato, according to Mr. Fidler, is twelve years; [illegible] that age a variety loses vigour, no matter how well grown or how carefully [illegible] is changed. Unfortunately for the great body of potato growers and [illegible] new potato is looked at with some degree of diffidence for the first four or five years of its public life, and as a result it has run half its course ere it becomes properly appreciated and widely grown. Naturally, those who make a speciality of raising new potatos, cannot, by reason of the expense incurred, sell sets of a new seedling as cheaply as those of a variety already a proved commercial success, so that the raiser is not all to blame, as some think. To succesfully combat the potato disease there must be a succession of new and vigorous potatos, and, to bring these before the public as their merits deserve, Mr. Fidler looks hopefully to agricultural and horticultural societies and to technical education centres, where trial grounds are managed. Potatos ranking next to wheat among the chief foods of the country, the discovery of meritorious potatos by means of strictly independent trials in various parts of the country seems a necessity. For such independent trials all new potatos should be sent immediately introduced, so that with those varieties proving satisfactory in every respect growers may, after viewing the crop or reading the reports, be emboldened to plant it largely, and so have the benefit of heavier crops than would result from a variety that had lost the vigour of youth. Probably no disease-proof potato will ever be raised, but the disease is most successfully resisted by new and strong-growing varieties. The expense attaching to potato raising may be guessed at by Mr. Fidler's observation that only from five to ten per cent. of the new potatos that are finally put on trial after raising ever become a commercial success. This means that the set of Fidler's potatos listed in the 1898 catalogue is the *crême de la crême* of from two to four hundred seedlings put on trial.

Mr. Fidler grows all the leading varieties of potatos by whomsoever raised, and he finds that by careful cultivation and spraying he has almost an immunity from disease. In ordinary seasons spraying is done twice by means of a Strawson machine, and the liquid used is Strawsonite. This fungicide Mr. Fidler speaks highly of, as he considers it not only effectual if properly applied (spraying twice in wet seasons), but has found that plots sprayed with it show a heavier yield of tubers than those unsprayed.

Fidlers' Potatos.

During the long period that the Messrs. Fidler have been raising new potatos, they have placed upon the market a considerable number of varieties. Some have had their day, and been superseded by those now so well known. Others have scarcely yet been tried since introduction, but they have a good future before them. Among the most important and successful maincrop varieties introduced have been Fidlers' Reading Giant, and Fidlers' Colossal, both of which are now quoted on all the leading potato markets, and cultivated wherever potatos are grown in quantity. Improved Imperator, another of the firm's introduction, differs from the type in having shallower eyes and more refined appearance and quality; two other white, round potatos that have been eminently successful are Fidlers' Prizewinner and Cluster Regent. Among other introductions are Challenger, Onward, Early May, Rising Star, Hercules, White Rose, Prolific, Success, Improved International, Monarch, and Improved Ashleaf, all varieties of proved excellence and heavy cropping powers.

The two newest potatos raised by this firm are Fidlers' Early Eclipse and Fidlers' Queen. The former was introduced in 1897; it is a white kidney that matures early, and is of first-rate quality. Already it is being grown extensively in Yorkshire as a market variety Fidlers' Queen is an exceptionally fine white kidney potato that the Messrs. Fidler are distributing for the first time this year. It is the result of a cross between Fidlers' Reading Giant and Sutton's Early Regent, and has produced three tons per acre more than the Reading Giant, besides being ready to lift quite fourteen days earlier. The tubers are of full medium size, flattish, with white, rough skin, and white flesh of excellent flavour. In habit it is strong and robust, resisting disease in a remarkable degree. Having studied all aspects of the potato trade, Mr. J. C. Fidler has not overlooked the Jersey crops, and he is confident that in Fidlers' Queen the Channel Islanders will have a potato suitable for their early cultivation, and one that will prevent the losses, so frequent of late years, resulting from the deterioration of the varieties so long in use in Jersey and Guernsey. Mr. Fidler is offering gold, silver, and bronze medals, in addition to cash prizes, for the best crops of Fidlers' Queen raised in Jersey from 1 lb. weight of sets. By this means he hopes to popularise the variety before it loses vigour.

Mr. J. C. Fidler.

The head of the firm is in many respects a remarkable man. He is the essence of geniality and has a physique that would in years past have recommended him to the recruiting sergeants of the Life or Horse Guards. His enterprise is seen not only in his farms and in the big potato and seed business he has built up but also in his contributions to the improvement of the town of Reading. Whole blocks of old fashioned shops and houses have been acquired by him, and in their places he has erected handsome shops and offices, arcades, and public institutions, which are a source of profit to himself and attraction to the townspeople. It would seem that Mr. Fidler values modern methods of procedure; he saw a great future for electric light, and backed his opinion to such a tune that he is now director of the Reading Electric Lighting Company. His wholesale and retail fruit business, added to choice vegetables, forms one of the smaller items, but many would wonder where Mr. Fiddler finds an outlet for the quantities of cases of oranges, lemons, bananas, &c., that he imports, and which in varying numbers are always to be seen near the Friar Street offices. Mr. Fidler loves to do things on a large scale, as becomes a large man with a large heart. Many schemes he has under consideration, and some of these were unfolded to the writer a few days ago; as, however, they might startle folks unduly they must be treated *sub rosa.* One scheme that has proved an unqualified success Mr. Fidler did not unfold, but it is a fact nevertheless, that amid all the complications of a big concern, or combination of concerns, he has time to be generous. It is to his credit that on the occasion of the Jubilee celebrations last year Mr. Fidler provided, entirely at his own cost tea for fifteen thousand (15,000) children at Reading, and, in addition, gave tea to about a thousand friends and helpers who had previously assisted the children to enjoy themselves. Mr. Fidler has both deserved and commanded success as a townsman and as a horticulturist, and in the latter connection the records of the Royal Horticultural Society bear ample testimony to the excellence of his introductions.

The Green Fruit Buyers' Association was formed a few days ago for the express object of securing needful reform in the methods of purchasing fruits from brokers that now obtain. The chief complaint is against the system of purchasing oranges, and the association will strongly advocate an extension of the Liverpool method which permits inspection of the boxes at the time of buying, against the present haphazard system of marking the boxes before examining their contents, which does not permit the buyer to estimate the percentage of bad fruits per box. The association was instituted at a meeting held in the Sale Rooms, Pudding Lane, under the presidency of Mr. Hoar.

WORK FOR THE WEEK.

WARM ORCHIDS.

THE sun has now considerable power, consequently shading will have to be considered. The glass on all warm orchid houses ought to be well examined, and all squares of inferior quality removed and replaced with good clear glass. I have many times noticed large yellow patches in the centre of a leaf, and on further examination a bubble or flaw in the glass above will be found, and this very often is the cause of injury. The houses generally, during the weather we are having, vary very much in temperature. This rises high by day and falls quickly towards evening. My advice at such times is not to give much top veutilation, for when the damping is done in the afternoon, and all ventilators closed, much moisture settles on the plants, and the contrast in atmospheric conditions is too great. If the blinds are lowered during the hottest part of the day, and the ventilators used carefully, a free circulation of air will be kept up and humidity retained. Potting, top-dressing, &c., &c., will require every care and all possible attention at the present season. Thunia Marshalli and T. Bensoniæ are rejected by many orchid growers, perhaps because of the short duration of the individual flowers; these orchids are, nevertheless, well worthy of cultivation owing to their extreme beauty. They are now pushing forth their young growths, and must be repotted at once; being strong-rooted subjects they require plenty of pot room and a mixture of rough peat and loam in equal parts, and a little leaf mould, a little silver sand, and chopped sphagnum added. A neat stick must be tied to each growth, and sufficient space allowed between them for their development. The pots must be well drained, and the plants kept below the rim to allow for plenty of water during active growth.

Calanthes of the deciduous sections are not highly valued amongst connoisseurs, but what orchids are more graceful and useful? At the present time, if they have been rested in the ordinary way calanthes will have to be repotted, and the sooner this is done the better, for the roots grow quickly, and are easily broken. Calanthes do well in either pots or baskets suspended from the roof, in a shady position in any warm moist structure; a melon house is a very suitable place, but under any conditions the syringe must not be used on the foliage, or disease is very apt to appear; a good compost for these calanthes is fibrous loam, and about a fourth part of peat, rough leaf mould, and a little dried cow manure, with some silver sand; the pots should be drained to about a third of their depth, and watering must be done very cautiously until growth is vigorous. Cattleya Lawrenceana is fast pushing up its sheaths, and must be placed at the warm end of the cattleya house, and in a dry position; this species appears to absorb moisture more readily than most cattleyas. C. Mendeli and C. Mossiæ are more or less sheathed, and will require more water. Such as are failing to show indications of flowering may be repotted if required, and those with sheaths and making new roots may be top-dressed, providing great care be taken not to disturb the position of the plant in the pot. Dendrobiums generally will now be at their best, and providing a good display. This will afford those interested in hybridising a good opportunity for selecting parents, and this ought to be a very important consideration. We have discarded many weedy dendrobiums from our collections, forms that would not have been produced had the hybridiser used a little judgment in the selection of parent.—F. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

THE potting on of chrysanthemums, and providing suitable positions for the young plants, will entail both time and forethought for some weeks to come, as most cool houses and frames will be well stocked with bedding and other subjects; and to obtain the best results next autumn, the plants must not be starved in small pots at this season, nor crowded together. For the most part, the desired number will be now well rooted in sixties, and most probably occupying shelves near the glass in late fruit houses and the like. This is a grand place for them up to a certain stage, as it ensures sturdy growth. As the sun gains power, the small amount of soil quickly dries, so that much attention will be needed to keep them moist. It would prove a saving of labour, as the plants are placed into thirty-twos, to arrange them on a bed of ashes in a shallow frame and a great advantage to the plants also. In such a position they can be kept rather close for the first few days after potting to give them a start, and so long as frost is excluded, there is no fear of the low temperature checking their progress, as they simply revel under these conditions, while they quickly become puny when confined in a close, humid atmosphere. It is very necessary at each future potting to use a compost both coarser in character and containing more feeding properties than is possible or desirable during the early stages. Turfy loam pulled to pieces, with a little leafmould, road grit, and a sprinkling of bone meal, will answer the requirements of the roots until the final potting. It must be remembered that in the ordinary course the plants will remain in thirty-twos for many weeks, therefore the more soil that can be placed in the pot without ramming it too hard the better it will be for them, and the valuable space should not be sacrificed by placing a lot of crocks in the bottom, one broad one being all that is necessary with proper compost and careful watering. Plants that have been growing in peach houses are not always free of green fly, and it is necessary to examine them, especially at the tips, and cleanse them where necessary before they are potted and so save much trouble later on. The frame should be in an open position, though sheltered from cutting winds, and no attempt should be made to shade the plants, a mere dimming overhead if the foliage appears limp after potting is all that is required.

The present time should not be lost to strike a good batch of suitable varieties of zonal pelargoniums for winter flowering. These are indispensable in affording a brilliant display during the dullest months. It is best to place one cutting in each thumb pot, as such can be potted on when rooted without giving a check. Use sandy soil, and they strike freely in a warm greenhouse or frame. Pot up cannas that have been at rest during the winter, and as the plants are most suitable for decorating when grown in thirty-twos, many of the stools will require dividing. Until growth is well up the pots may stand close together in a warm place where they can be syringed overhead, but plenty of room and light must be afforded as they unfold their leaves. In most gardens every place will now be crowded, but the houses should be relieved as much as possible by the removal of many of the hardier plants to cold frames. Pot on autumn-sown intermediate stocks, and directly the flower buds are visible assist the roots with liquid manure once or twice a week. These will prove useful for cutting or furnishing window-boxes and the like later on. Among other seed that is being sown now, the Marguerite type of carnations should not be forgotten; rightly managed, they yield a wealth of sweet-scented flowers of all shades most of the winter. Sow in gentle heat, but harden the seedlings off as soon as possible after they are a couple of inches high, to cause them to make stocky growth. Keep them potted on as the roots require more room, and arrange them near the glass, pinching out the points of the longest shoots if the plants appear to be drawing up weakly. Late batches of cinerarias should be placed in a north house or pit, which will not only retard their flowering, proving an advantage at times, but the foliage and flowers come a much richer colour than when exposed to the sun. Sow successional batches of seed according to the demand there is for these plants, keep the soil thoroughly moist at all times, and stand the vessel containing the seed on a shelf in the stove, or, what is better, plunge it in a gentle hotbed. Prick off young stock, and keep them in a growing atmosphere for a few weeks onger before removing them to cooler quarters. The same remarks apply to primulas. Some do not trouble to save cyclamens after the first year, and trust to seedlings each season to furnish the plants. It is not desirable save any that are not of good form and colour, but with a good strain I prefer to grow the bulbs on for a year or two. In this case remove the plants as they pass out of flower to a cold pit, but water should be afforded regularly for a time, or the bulbs shrink and are much weakened. As the season is upon us when there will be a great demand for flowering plants and cut bloom, it is necessary to examine carefully the stock at command, hastening some and retarding others, so as to save disappointment.—RICHARD PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

IN the frames placed on slight hot-beds, as recently advised, the annuals should now, or within the next week or two, be sown. Among the principal or most useful subjects best sown under glass are: zinnias, double and single; stocks, asters, salpiglossis, Nemesia strumosa, Phlox Drummondi, Gaillardia picta Lorenziana, and petunias. For sowing draw out shallow drills about four inches apart, covering the seeds at a depth according to their size. Very small seeds, as those of salpiglossis and petunias must be covered very slightly with finely-sifted soil. The frames should be kept close and shaded until the seedlings appear, afterwards gradually withholding the shading and admitting air in greater quantities as the seedlings develop, to prevent them drawing up spindly. Double zinnias, gaillardias, Phlox Drummondi, and marigolds in variety, form useful bedding plants, and may be used as substitutes for bedding pelargoniums. If the flower beds or borders are unoccupied in which these are to be planted, they may be lifted carefully from the frame early in May and be planted direct, affording shade with a few branches for a day or two if the weather be warm with bright sunshine. Stocks and asters may be treated in the same way, or be pricked off into other frames or a sheltered border as soon as large enough to handle. Seeds of Lobelia speciosa, pentstemons, and antirrhinums, if not already sown, should be put in forthwith, sowing in pans or boxes of light soil, and afterwards standing in a forcing house or on a good hot-bed. The same remark may apply to seeds of various subtropical bedding plants as ricinus, Cannabis gigantea, Melianthus major, nicotiana, Solanum robustum, variegated maize, and Perilla nankinensis. Dahlia roots stored in dark places under benches and similar positions and which it is intended to plant again in the borders, should be brought into a lighter position as soon as growth starts, or they may be placed together in a sheltered corner outside, and be just covered with leaf-soil or cocoanut fibre refuse. Treated thus the shoots made are strong and sturdy. A few mats or other covering should be kept in readiness, after growth has started, in the event of frost occurring. Young plants struck rom cuttings recently should be potted off singly and grown on for a short time in warmth. Cuttings may still be inserted if it is desired to further increase the choicer varieties. Tuberous begonias intended for bedding should be placed in pots of a suitable size, or they may be boxed up in leaf-soil or Jadoo fibre and be grown on sturdily to the end of May, using very little artificial heat. Seedlings should be forwarded for a time in a warm house. The potting off of bedding pelargoniums should now be completed, and the plants kept rather warmer until re-established. The propagation of irisines, coleus, alternantheras, Mesembryanthum cordifolium variegatum, ageratums, and similar subjects, may be carried on as fast as cuttings are obtainable; but several of these may be increased very rapidly a little later where frames or hot-beds are available for dibbling in the cuttings thickly, and where they strike in a few days and produce a further supply of cuttings to be treated in a similar manner.

The present and the next few weeks will be found a suitable time or the spring planting of rhododendrons and other American plants. Too late planting is not advisable, but with showery weather and an ample supply of water for application to the roots if required, these subjects may be moved with safety as late as the middle of May. At the time of writing the weather remains dry and cold, but this can scarcely last long, seeing the exceptionally dry winter and spring up to the present experienced, and the chances are that the coming month may be somewhat wet. Unless a heavy rainfall occur shortly, trees and shrubs generally must suffer considerably should a dry summer follow, the water supply in many districts being now extremely low. Where the natural soil consists of a heavy clay or much chalk it is useless planting rhododendrons, and in this case made-up beds or borders of a suitable compost becomes a necessity. This need not necessarily be of peat, as both rhododendrons and Ghent azaleas will grow and flower freely in a compost of sandy loam and leaf-soil, and as these subjects are chiefly surface rooting, a great depth of soil is not required. The plants should be pressed firmly in the soil, and given one good watering if the weather remains dry, afterwards applying a good mulch of rotten leaves or other suitable material. Kalmias, vacciniums, hollies, and other evergreen shrubs may also be safely planted. The appearance throughout the summer of ivy on walls and fences is much improved if all the old foliage be cut clean away at this season, a bright fresh growth soon taking the place of the old. This is easily done with hedge shears or reaping hook, afterwards giving a brush over with a birch broom to remove dirt and rubbish. Any necessary pruning of trees and shrubs should be finished off forthwith. Laurel hedges require a considerable amount of cutting to keep them in good form, and all small shoots are best cut with a knife or secateurs, while those of holly and box may be clipped with the hedge shears. Where mowing has not commenced, lawns should be swept and well rolled, and grass verges to walks and beds be neatly cut with the edging-iron, squeezing the turf down firmly first with a fairly heavy roller.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

THE season being an early one grafting should now be proceeded with, as there is no gain by delay, indeed, the reverse, if the trees and scions were prepared as previously advised. Grafting old trees, or those of any age, is so well understood that it is not necessary to detail the procedure here. I would, however, state that if a larger number of branches than is usual are left, I mean those of a smaller size, then by inserting more grafts the tree reaches a fruiting condition much sooner. There are various methods of grafting, but so far as I have seen, none are superior to whip grafting and crown grafting, of which there is an improved method, but not applicable in all cases; it is advised when the stock is large or old, or for trees that have been headed back. In whip grafting the scions should be selected with care, as it is necessary that they fit the stock as nearly as possible, and make a complete union. I prefer wax to clay for binding, as, if used n a warm state, it is superior in every way. Crown grafting is different, [illegible] the branches were previously shortened, the cut portion may now need [illegible] piecee removed to provide a new surface to work upon. There is no [illegible] scions freely on all branches able to support them, as it builds up the tree [illegible] sooner. Many condemn grafting, and would have all trees on their own [illegible] but by judicious grafting, and careful selection of stocks, we have largely [illegible] our best orchards and fruit gardens in the country. Pears should be taken [illegible] before apples, as they are more forward, and though slightly checked by [illegible] rosts, growth is more advanced than usual. Cherries should follow [illegible] much depends upon the state of the trees, and it may have been necessary [illegible] these trees ere this. Plums are often budded in summer; in fact, many [illegible] to adopt this plan with stone fruits, but if grafted there must be no longer [illegible] and apples may be done last, as these are the latest.

Now is the time to shorten back newly planted fruit trees, and by pruning [illegible] season anyone may see what buds are likely to take the lead. On the other [illegible] with trees from a good source where attention has been given to the [illegible] the trees, there will be little pruning needed save the shortening of a few [illegible] much may eventually be done by pinching the growths in a green state. [illegible] cutting back of newly planted trees, especially stone fruit, soon after planting [illegible] gumming, and at times the shoots or branches die back a long way. Trees [illegible] make a gross growth the first season owing to the check caused by removal, [illegible] if cut now the back buds will soon break. With wall trees, I am aware, it [illegible] necessary to use more judgment in the selection of leaders if the trees are [illegible] large, but even then if necessary to cut harder back it will benefit the trees [illegible] work is done now. For all newly planted fruit trees March and April are [illegible] months, as, owing to the prevalence of east winds, the trees, if at all [illegible] roots, suffer and the bark shrivels; this should be prevented as far as possible or it will produce canker and decay. It is, therefore, well at this date to renew the mulch, and under walls it may be necessary even to give moisture to promote new root action. Much may be done to assist the trees by gently dewing them over early in the day and again directly the sun has left the skies if the growth is at all backward and the bark inclined to shrivel. All staking of trees in the open should now be completed; the ties must not be tight enough to cut the bark, nor loose enough to allow the tree to work loose in the soil. We have just finished making the borders of wall trees neat for the season by giving a top dressing, it is well to keep in view that raised bordersin very light soils dry quickly, our fruit borders are slightly lower than the borders in front and so the moisture does not run away so quickly. Cherries and apricots suffer more from drought than apples and pears, indeed peaches and nectarines may be included when the fruits are swelling freely. Drought is frequently the cause of aphis attacking the trees so early in the season. No time should be lost in giving trees which last year were infested with mealy bug a thorough cleansing, and this can be done now, before the leaves appear, to better advantage. In the case of young trees I have found it well to paint the wood with soluble petroleum.—G. WYTHES, *Syon Gardens.*

THE DARLING DAFFODIL.

THE daffodil figures much in English poetry. One likes Quarles's gay name for her, "the gilt-bowl daffodilly." She occurs exquisitely in Marvell, in one of the most liquid and dewy-fresh poems of the language:—

> "I am the mower Damon, known
> Through all the meadows I have mown.
> On me the morn her dew distils
> Before her darling daffodils;
> And if at noon my toil me heat
> The sun himself licks off my sweat.
> While going home the evening sweet
> In cowslip-water bathes my feet."

Nor must Drayton be forgotten, and his delicious pastoral, in which Daffodil is a maid—"in a frock of Lincoln green." But the poets are full of her.

Her name is beauty itself. If you think on it the English names of flowers are as near like to flowers as possible in nearly every case. She is supposed to derive her name from asphodel, which the old writers often call affodyl. They were like the peasants of to-day in giving even slightly resembling flowers the same name. Gerard speaks of her as daffadowndilly, and Lyte dubs her "yellow crowbels." The supremely happy namers of flowers of long ago gave her no prettier title among many than Sweet Nancy.

Spenser speaks of the daffodils being used for wreaths and garlands, and says Lyte:—"Besides the ornamental use of daffodils in decking garlandes and houses in spring time, the plant hath many physical properties. When the root was mixed with honey and applied as a plaster, it cured aches, pains, and strains. When eaten or drunk (an infusion of it) it helped coughs and colics, and mixed with vinegar and nettle-seed it was used as a cosmetic, breaking away spots from the face."

An old poet talks of Narcissus being turned into "a withered daffodil," but though narcissus and daffodil are sisters, the daffodil is not the beautiful youth, but the Poet's Narcissus. Hear a Scotch poet of the sixteenth century, Alexander Scott, usher in Spring:—

> "The cushet croods, the corbie cries,
> The cuckoo couks, the prattling pies
>   To geck there they beginne;
> The jargon of the jingling jays,
> The crocking craws and keckling kays,
>   They deav'd me with their dinne.
> The painted pawn with Argus eyes
>   Can on his May-cock call,
> The turtle wails on withered trees,
>   And Echo answers al.
> Repeating, with greeting,
>   How faire Narcissus fell
> By lyeing and spying
>   His shadowe in a well."

It was the Poet's Narcissus that Proserpine let fall from Dis's [illegible] being the last she had gathered, it has been accounted by the [illegible] flower of imminent death.

But the association of the narcissus with death comes not only from the [illegible] youth and the daughter of Ceres, but, as Gerard tells us, "Sophocles [illegible] narcissi the garlande of the infernal gods, because they that are departed [illegible] with dethe, should worthily be crowned with a dulling flower." [illegible] of the herbalists assure us that the scent of the narcissus causes a [illegible] may be fatal.

The Fates wore wreaths of narcissus about their heads. Europa [illegible] nymphs, plucked the narcissus:—

> "That wench with these this wench with those
> Trim flowers themselves did all delight.
> She with Narcissus good in scent,
> And she with the Hyacinth content."

In Devon, different varieties of the single white narcissus are [illegible]minately as gooseflaps, gracie and goosie daisies, Lent-pitcher, [illegible] and—a theft from the cowslip—tosty-toss. The double yellow and white [illegible] are butter and eggs and curds and cream. The double white in [illegible] Lady's ruffles, a name shared with a double campanula. The cup [illegible] thought to contain the vain tears Narcissus shed.—*Pall Mall* [illegible]

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, March 22.

Once again we have to record a first-rate show at the Drill Hall, for the meeting was a very full one, and practically all the space was occupied. The R.H.S. council will soon have to seriously consider the advisability of renting a larger hall at the present rate of progress. Novelties were not very plentiful, but there was a fair number of interesting plants on view.

Floral Committee.

Groups of considerable size were arranged all round the hall and along the ample tables; daffodils, roses, amaryllis, ferns, hyacinths, and clivias were the most prominent subjects on view; but of these the roses were the most admired, especially the long-stemmed blooms staged by Mr. G. Mount, and the fine specimens from Messrs. W. Paul and Son.

An extremely pretty exhibit came from Messrs. J. Laing and Sons, Forest Hill, and consisted of bouquets, sprays, chaplets, and other floral arrangements of a high order of merit; orchids and roses were largely used, the white Cœlogyne cristata being finely represented. Mr. G. Mount, Canterbury, staged a grand lot of rose blooms, sweet, fragrant, full and brilliant; Captain Hayward, Catherine Mermet and Mrs. W. J. Grant, and Mrs. J. Laing were especially beautiful. Some ten dozen splendid flowers were staged by Mr. Mount, many on tall stems, and the exhibit was greatly admired, both for the earliness of the roses and the cultural ability displayed by Mr. Mount. Messrs. J. James and Son, Farnham Royal, showed a fine group of their splendid strain of cinerarias; the plants were remarkably dwarf, and each had immense flowers showing a charming variety of colours. Some of the blooms must have measured nearly five inches across. From Messrs. W. Cutbush and Son, Highgate, came a display of the yellow Richardea Elliotiana, acacias, Souvenir de la Malmaison carnations, and other flowering and foliage plants, including a number of well-grown examples of Thyrsacanthus rutilans. Mr. W. Rumsey had a large display of roses, staging in the aggregate some fourteen dozen blooms of good quality; the principal varieties on view were Souvenir d'un Ami, Maréchal Niel in quantity, Niphetos, Beauty of Waltham, Innocente Pirola, and the new h. p. Mrs. W. Rumsey.

Mr. A. Chapman, gardener to Captain Holford, Westonbirt, Tetbury, staged a really grand lot of amaryllis or hippeastrums, the plants were strong, and bore stout spikes of large and brilliant blooms of fine shape. A goodly number were named, and these compare very favourably with any previously seen at the Drill Hall. The arrangement of the groups was also good. Tulips in great variety came from Messrs. R. and G. Cuthbert, Southgate: this was a big exhibit, and all the leading early sorts were represented; the Pottebackers, the Keizer's Kroon, Ophir d'Or, Joost Van Vondel, and Toreador were especially attractive and noteworthy. Mr. H. B. May, Edmonton, once again showed clematis in small pots, handsomely flowered, and eminently suited for conservatory decoration. These were arranged with ferns and palms, but the place occupied by the group was not a good one as regards light; Henreyi, Lord Lonsdale, Lord Neville, Albert Victor, and Fair Rosamond were conspicuous varieties. Daffodils in pots from Mr. T. S. Ware made up a telling exhibit, and were fronted with erythroniums, fritillarias, muscaris, trilliums, early primulas, saxifragas, and other early spring flowers. Bunches of the earlier daffodils were also arranged. Messrs. J. Laing and Sons, Forest Hill, put up a large exhibit of flowering and foliage plants; clivias, streptocarpus, azaleas, Leea amabilis, Richardia Elliotiana, caladiums, and crotons were the most conspicuous and interesting plants. Messrs. J. Hill and Son, Lower Edmonton, put up a fine lot of ferns, mostly popular varieties and species—adiantums, aspleniums, nephrolepis, &c.; both small and large specimens were staged, and the whole display proved a most refreshing contrast to the brilliant groups around.

A wonderfully interesting group of clivias came from Messrs. J. Veitch and Sons, Chelsea; these were remarkable for the size and boldness of the trusses and the brilliant colour of their large and substantial flowers. Several of the varieties gained awards of merit, one in particular, which had flowers of quite a yellow colour, was very beautiful; Optima has huge orange flowers. The group was effective in the extreme. The Messrs. Veitch also staged Clematis Marcel Moser, and C. Nelly Moser, two handsome striped forms, also baskets of Shortia galacifolia and flowering trees of Pyrus floribunda atrosanguinea. A batch of the brilliant winter scarlet carnations was staged by Messrs. H. Low and Co., Clapton. Hippeastrums and clivias in variety came from Messrs. B. S. Williams and Son, Holloway, and the same firm showed a splendid lot of varieties of Azalea mollis. Messrs. Barr and Sons' contribution to the show consisting of a first-rate exhibit of narcissi, all cut blooms; Madame Plemp, Empress, Obvallaris, Weardale Perfection, the New Victoria, Mrs. Walter Ware, Captain Nelson, Madame de Graaff, and Glory of Leiden were all the very best varieties, and staged among a large collection of early-flowering forms; a few blooms of Anemone fulgens further lengthened the exhibit. Messrs. Paul and Son, Cheshunt, exhibited large pans of Megasea Stracheyi, Primula denticulata, Anemone Pulsatilla, Hepatica tricolor, &c., all being in full flower. Mr. J. Heath, gardener to J. Watts, Esq., Newmarket, staged a batch of wallflower, a form that may prove useful for bedding. Cinerarias of good quality came from Mr. J. R. Box, Croydon, and drew many expressions of admiration from the visitors by reason of their beauty of form and colour.

Messrs. W. Paul and Sons, Waltham Cross, have not for a long time been public exhibitors of hyacinths, and it was quite a treat to see a firm that formerly made a great name for these bulbous plants once again before the public with a splendid collection of some two hundred specimens in a large number of varieties. Sterling Beauty, yellow; Pelissier, scarlet; Princess Amalie, white; Vurbaak, red; Lady Derby, pink; King of the Blacks, very deep in colour; Peineman, blue; and Princess Mary of Cambridge, light blue, were a few remarkable for the length and breadth of their spikes. Messrs. W. Paul and Son also showed a fine bank of roses, all new varieties: Enchantress was in fine condition, and represented by two large groups; other new sorts were Auguste Riviore, Sylph, Souvenir de Madame Eugene Verdier, and Charlotte Guillemot. The Jadoo Fibre Company made an exhibit of plants grown in the fibre, and some of the plants were grown in glass pots to show the way roots take to this new medium. The St. George's Nursery Company, Hanwell, staged a splendidly-grown group cyclamen, representing a high-class strain.

Orchid Committee.

It is a long time since there were so few orchids at a Drill Hall meeting as on this occasion. There were several good novelties, however, and these excited no small interest.

Mr. W. A. White, orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, brought up a few neat little plants of Epidendrum Endresi, E. varicosum, Sarcochilus Hartmanni, and Masdevallia Pourbaixi. Messrs. Hugh Low and Co., Clapton, were the only large exhibitors of orchids, and they staged a handsome lot of odontoglossums and dendrobiums, with several beautiful forms of Cattleya Mendeli, some cypripediums and lælias. Phalænopsis Stuartiana var. punctatissima was also shown, and is a distinct form of a fine orchid.

Mr. H. T. Pitt, Stamford Hill, gained a cultural commendation for a plant of Odontoglossum excellens Rosslyn var., a beautiful orchid, with ten large flowers on the spike. Mr. J. T. Gabriel, Streatham Hill, sent a good form of Cattleya Trianæ. Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham, exhibited Odontoglossum crispum Princess Christian, a handsome form, with crimson markings on a pure white ground. Mr. Wise, gardener to Dr. F. Hills, Croydon, sent a flowering specimen of Odontoglossum coronarium. Mr. E. Ashworth, Harefield Hall, Wilmslow, sent a fine white form of Dendrobium nobile, named D. n. Ashworthiana, and also a hybrid odontoglossum in the way of O. Rossi and O. aspersum, named D. hybridum Ashworthianum. Mr. Standing, gardener to Miss Ford, Worthing, sent Cymbidium Lowianum and a three-flowered spike of C. eburneum.

Frau Ida Brandt sent a form of Oncidium cuculatum Phalænopsis, remarkable for its rich purple markings. Messrs. B. S. Williams and Son, Holloway, were accorded a vote of thanks for a small collection of orchids, in which cœlogynes, dendrobiums, and cypripediums predominated. Mr. T. Rochford, Broxbourne, sent a pretty brown spotted odontoglossum, named provisionally O. Rochfordianum. Odontoglossum crispum roseum was shown finely by Mr. J. Drew, gardener to J. B. Brookes, Esq., Finstall Park, Bromsgrove.

Fruit and Vegetable Committee.

Extremely few exhibits came before this body, so that their labours were few. In fact, Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, was the only exhibitor apart from the competitions. Mr. Wythes won a cultural commendation for half a-dozen punnets of Royal Sovereign; fine fruits and well coloured.

Mr. J. C. Tallack showed the best-flavoured apple in Lamb Abbey Pearmain; Mr. Herrin, Dropmore, second, with Sturmer Pippin. For pears, Mr. Ross, Welford Park Gardens, was awarded a second.

Medals.

Silver-gilt Flora Medals were awarded to Messrs. W. Paul and Sons, for roses and hyacinths; to Mr. G. Mount, Canterbury, for roses; to Captain Holford, for amaryllis; to Messrs. J. James and Son, for cinerarias, and to the St. George's Nursery Company for cyclamen.

Silver Flora Medals were awarded to Mr. W. Rumsey, for roses; to Messrs. J. Veitch and Sons, for clivias; and to Mr. H. B. May for clematis.

Silver Banksian Medals were awarded Messrs. J. Laing and Sons for clivias, wreaths, &c.; to Messrs. Hill and Son, for ferns; and to Messrs. Hugh Low and Co. for orchids.

NATIONAL CHRYSANTHEMUM SOCIETY, March 21.

The adjourned annual meeting of this society was held at Anderton's Hotel, Fleet Street, on the above date. The hour for commencing should have been six o'clock, and by that hour a large number of members had gathered, but could not obtain admittance until twenty minutes later, owing to the lengthy deliberations of the committee. After the notice of the meeting had been read, the meeting was resumed with Mr. T. W. Sanders in the chair.

Mr. B. Wynne opened the proceedings by drawing attention to a remark made by Mr. Gordon when discussing the finance of the society, wherein he stated in effect that medals had been voted to certain officers of the society at a time when the society could not afford it. As the recipient of one of the medals Mr. Wynne felt rather hurt at the remark, and he asserted that he had had no idea of the society's position when the medals were presented. Any pleasure he might have had in possessing the medal had now been entirely discounted, and he begged to return the medal, for which he had no further use. In reply, Mr. Gordon said that the set of medals, in which Mr. Wynne's was included, were paid for in a previous year to that they had been discussing, and so they had no power to deal with them; he, however, did not have the Jubilee medals in his mind when discussing finances, but rather the presentation of gold medals and costly illuminated addresses on a more recent occasion. He hoped that Mr. Wynne would retain the medal, for with it went the best wishes of the society. The explanation was received with applause, and Mr. Wynne was loudly applauded upon again resuming possession. The minutes of previous business were then accepted with a slight emendation. Mr. Fife proposed the adjournment of the meeting for twenty-four hours, because the chairman was the chairman of the Executive Committee, whose methods of management they were come together to discuss. If the meeting, however, would promise to assist the chair, and if it believed in the impartiality of the chairman, then he would withdraw his motion. The motion was withdrawn, and the chairman proceeded by formally moving the adoption of the revised financial statement. This was seconded, and then Mr. Cholmeley asked why there were no signatures of the auditors to the new statement of accounts; the reason of a small difference in the reserve fund, allowing for the withdrawal of a certain sum; and whether it was true the treasurer had not received or disbursed the society's moneys, and if so, whether there was any need to elect a treasurer in future. Mr. Pearse asked why bill posting appeared on both sides of the accounts. The Chairman, as an answer to Mr. Cholmeley, read a letter from the auditors, in which they stated that having once audited the accounts and found them correct, and in accordance with vouchers produced, they had performed their duties, and so did not feel at liberty to attach their names to a further statement, and one not made by them. They further asserted that at the audit they had no knowledge of any liabilities of the society, and they had not been asked to value the society's assets. Messrs. Cutbush and Stubbs, both of whom were present, held to the statements made in their letter.

Mr. Dean followed with an explanation by the item of show expenses previously objected to, and stated that he had always endeavoured to reduce such expenses, as a careful examination of the accounts would show. These figures have already appeared in our columns. Mr. Moorman objected to references to old methods of management, and said, so far as he could see, the show expenses were £102. He considered that the business of the society had not been properly conducted; balances to the good had been shown, whereas, at the same time, the society was really considerably in debt. The medal and printing accounts were too large, and he thought tenders for these should be asked for. He strongly objected to selling the ground floor space at the Aquarium for miscellaneous exhibits, and placing the real exhibits of the N.C.S. in the dark galleries. The annual dinner account he thought far too high, and strongly opposed the presentation of tickets for that function to the daily press. Mr. Dean said Mr. Moorman's assertion as to show expenses was a reckless one, for £50 of the sum was for postage and telegrams, chiefly incurred in sending out the schedules, medals, and certificates to affiliated societies, replies to entries, &c.; these expenses could not justly be lumped with the other show expenses. Mr. Moorman's reply was that "Petty cash—stamps, telegrams, &c.", appeared in the accounts, and he naturally inferred that petty cash was the largest item of the £50 15s. 10d., and so ought to go as show expenses.

Several other members having spoken, Mr. Starling explained his position as treasurer; he had known that debts had accumulated from year to year, although the accounts showed a balance in hand. He had told the society he had such knowledge, and had, time after time, asked the members to appoint a treasurer having full powers of that office. So far as the accounts they saw were concerned, they were correct. He considered that a national society should have a reserve fund, and properly balance its accounts year by year. He had instituted the reserve fund, but now he did not feel able or justified in assisting a national society as he had done its local progenitor. If there was any blame he would accept it, for he had neither time nor health to enter into all the work and difficulties arising out of the office. He, however, had discussed the finances because he had finally concluded to resign office, and he did not wish the incoming treasurer to experience the difficulties he had. There were no outstanding liabilities, and though they had no balance in hand to start with there were fifty odd pounds to fall back upon. Mr. McKerchar observed that if the treasurer or other officer of the society had any doubts as to the correctness of accounts they should have placed all such doubts before the society. Then also all liabilities incurred in each year should be met the same year, so that at the annual meeting everyone would know the precise condition of affairs. Mr. Willis wished to know whether he was to understand that the auditors did not know of liabilities outstanding when auditing the accounts? It was shown by the letter read that they had had no such knowledge. Mr. Willis thought this could not have been, seeing that in the financial statement audited and presented February 28 some items showed that certain bills were but paid in part. Others joined in the discussion, notably Messrs. Mills, Spicer, Waterer, Newell, Gordon, Tagg, Cannell, and Bevan. Mr. Starling asserted that the auditors did know of outstanding liabilities, or should have done, by reason of certain payments on account. There were cries of "Vote!" and the result was a passing of the revised financial statement, though not unanimously.

The report then came on for discussion, after its adoption had been moved by Mr. Sanders, and seconded by Mr. W. Beckett, but a proposition by Mr. Moorman that the estimated receipts and expenditure for the ensuing year be first considered was carried. Mr. Dean then read the estimates, containing the minimum of subscription and a maximum of expenditure: Receipts, £1,066 11s.; expenses, £1,115 1s. 6d.; result, a deficit of £48 10s. 6d. Since this estimate had been drawn up, the Secretary informed the meeting, the Schedule Sub-committee had reduced the amount of prizes and expenses, this bringing the total expenditure down to £1,044 3s., and thus leaving a balance in hand of £22 8s. These estimates having been accepted, the report was discussed. Mr. Moorman moved that in the first paragraph the words relating to resources, finance, supporters, and prestige be deleted, as these could scarcely be reconciled with what had already happened. Mr. Beckett and Mr. Willis supported Mr. Moorman. Messrs. Taylor and Ballantine considered the report a correct one. Mr. Moorman differed, and did not consider that the society was financially sound after a loss of £70 on the year's working, or its resources as great as ever when about half the reserve fund had been used up. Mr. Cholmeley opined that the words in question were unnecessary, but if the report was altered, it would fail to be that of the committee. Mr. Moorman's amendment having been put and rejected, Mr. Addison moved that with the deletion of Paragraph 8 relating to the increase of prizes the report be adopted. This was put and carried, and so the report was passed.

Votes of thanks were then accorded to the auditors, and to the president; and Sir Edwin Saunders was unanimously re-elected president, on the motion of Messrs. Cannell and Langdon. The next item was the formal acknowledgment of the treasurer's resignation, and a recommendation of the committee that Mr. Starling be made an Honorary Fellow of the N.C.S., and receive a small gold medal and a letter of thanks for his past services to the society. Mr. W. Beckett moved that this be done, and Mr. Ballantine seconded the motion, adding to it, That the letter of thanks be engrossed on vellum. The motion was carried, and Mr. Starling feeling responded. The re-election of Mr. T. W. Sanders as chairman of committee was proposed by Mr. G. Gordon, who alluded to the good work Mr. Sanders had accomplished; Mr. Waterer seconded, and said he himself would accept the position of vice-chairman, only on condition that Mr. Sanders occupied the chair. Mr. Sanders was unanimously re-elected to the chair, and Mr. Waterer to the vice-chair. Previous to the election of secretary, Mr. Moorman proposed and Mr. Rundle seconded that the society have a paid secretary, and that such official have no vote; this was carried unanimously. Messrs. Bevan, Wells, and Mills raised questions as to salary and advertising for a secretary, but the Chairman pointed out that under the rules the secretary had to be elected by the annual meeting, or a special general meeting. Five scrutineers having been appointed, the meeting proceeded to elect a treasurer, a secretary, and thirteen members of committee. There was a heavy poll, and it was found that Mr. Ballantine had been elected treasurer. Messrs. Dean and Cummins were nominated for the post of secretary, the former winning with 63 votes; Mr. Cummins, 43. The committee-men elected and the votes accorded were: Mr. T. Bevan, 94; Mr. G. Langdon, 78; Mr. A. Taylor, 77; Mr. W. Howe, 70; Mr. W. Wells, 63; Mr. Kendall, 59; Mr. W. Higgs, 59; Mr. T. L. Turk, 56; Mr. J. T. Simpson, 56; Mr. W. Daniels, 53; Mr. F. Gilks, 51; and Mr. Fife, 44. Messrs. A. Outram and Rowbottom having each gained 43 votes, it was decided by a show of hands that Mr. Outram be elected. Twenty-seven members were nominated as committee-men.

After waiting a considerable time for the result of the poll, the Chairman proposed that the meeting proceed with the new rules. He earnestly requested that all should remain and discuss whatever they thought necessary, and not leave the responsibility of passing the new rules to a few. He also appealed to the members to assist him by orderly conduct, brief speeches, and keeping to the question before the meeting, and conduct the remaining business as quickly as possible. The chairman then formally moved that the old rules be rescinded and the new ones substituted; this was seconded by Mr. H. J. Jones, and the meeting then, taking rule by rule, agreed to them in the main, though several amendments of varied importance were made as the work proceeded. At eleven o'clock Mr. Moorman moved that the meeting be adjourned for a fortnight, but this motion was rejected. Finally, at twenty-two minutes past eleven, the meeting concluded with a vote of thanks to the chairman, and the election of Mons. E. Calvat and Mr. Starling to Honorary Fellowships.

Those who took part in the discussion of the new rules were Messrs. Cholmeley, Moorman, Fears, Rundle, Woodason, Wynne, and Dr. Gorton. We have not space to give the amended new rules, but they will soon be in the hands of members. However, it may be stated briefly that in future delegates from affiliated societies will have, unquestionably, the power to vote and otherwise act as committeemen. Subscriptions in future will be due on January 1 instead of March 1, and the accounts will be balanced on December 31 of each year; also in future the annual meeting of the society will be held on the first Monday in February. The secretary will not act as show superintendent except by order of the committee. There are nineteen rules now, and these are really [illegible] ones revised, emended, and brought up to date, so as to be less cumbersome [illegible] the old ones. Messrs. Cholmeley and Stubbs are auditors for the ensuing year.

READING GARDENERS' ASSOCIATION.

"COMMON Mistakes in Fruit Culture" was the subject of an excellent [illegible] tical and instructive paper given by Mr. George Bunyard, of Maidstone, [illegible] Reading and District Gardeners' Mutual Improvement Association [illegible] evening last in the Club Room, British Workman. Mr. C. B. [illegible] over a large attendance of members, including a contingent from the [illegible] Gardeners' Association. Mr. G. Bunyard, in introducing his [illegible] his reason for taking up this particular one was that he, as an expert, had been very often called in to report on certain failures in fruit culture, and that if these failures were embodied in a sort of talk together it would, he felt, be practical, as well as being profitable to each one. The whole routine of the cultivation of apples, pears, peaches, nectarines, gooseberries, and similar fruit was touched upon, including planting, the cropping of the fruit borders, summer pruning, [illegible] pruning, soils, labelling, importance of the early thinning of fruit, ingathering of the fruit, fruit trees in pots, grafting old trees, artificial manures, obtaining [illegible] true to name, differing seasons, and the literature of the day as regards [illegible] culture.

The paper was followed with the closest attention, and at the close many questions were asked and an interesting discussion took place, in which Messrs. Parfitt, Martin, Turton, Webb, Woolford, Neve, Hobbs, and Hinton took part. At the close a very hearty vote of thanks was accorded to Mr. Bunyard by the members, as well as their congratulations on his and his family's escape from the terrible epidemic that had so recently visited his neighbourhood. A great feature of the meeting was the magnificent exhibit of orchids made by Mr. Woolford, gardener to Alfred Palmer, Esq., of East Thorpe, including some splendid [illegible] of Dendrobium nobile and D. Wardianum, two specimens of the latter, in [illegible] pans, carrying eighty to seventy-eight blooms. On behalf of the members the president tendered to Mr. Woolford their thanks for the trouble he had taken in bringing such a fine exhibit to the meeting, especially with regard to Dendrobium nobile, as at their last meeting a controversy had arisen as to the advantages and disadvantages of pruning D. nobile. Mr. Bright, of Whiteknights Park Gardens, showed a splendid head of a new clivia, and Mr. Neve, of Sindlesham [illegible] Gardens, varieties of apples.

NEW PLANTS AND FLOWERS.

ODONTOGLOSSUM CRISPUM PRINCESS CHRISTIAN.

THIS is a most handsome odontoglot, having large and prettily-spotted blooms. The flowers are pure white, and the petals have fringed margins. All the segments are pointed, and the petals have a few large blood-red spots, but the sepals have both spots and blotches of this intense colour. Each flower is [illegible] inches across, and a dozen were borne on a spike. F.C.C., March 22. [illegible] Ballantine, gardener to Baron Schröder, The Dell, Egham.

ODONTOGLOSSUM HYBRIDUM ASHWORTHIANUM.

A most curious orchid, having O. Rossi, or a form of that species, as one parent. The sepals are narrow, very dark brown on a green ground. Petals bright rosy purple with brown spots at the base. The cordate lip is bright rose. A.M., R.H.S., March 22. Mr. E. Ashworth, Harefield Hall, Wilmslow.

DENDROBIUM NOBILE ASHWORTHIANUM.

This is a pure white-flowered dendrobium, and as much like a form of D. [illegible] as of D. nobile. The committee, however, passed it as a D. nobile form. The sepals and petals are slightly twisted and of a transparent whiteness; [illegible] broad and creamy white; the latter is also broad. F.C.C., R.H.S., March [illegible] Mr. E. Ashworth, Harefield Hall, Wimslow.

ODONTOGLOSSUM HYBRIDUM ROCHFORDIANUM.

A most interesting odontoglossum, that seems to have a close affinity with [illegible] Hunnewellianum. The blooms are about an inch and a half across; the petals are creamy, with red-brown spots; the sepals are creamy with a brown tint and heavy blotches and spots of red brown. A.M., R.H.S., March 22. [illegible] Rochford, Turnford Hall Nurseries, Rochford.

CLIVIAS.

Optima has very large blooms from three to four inches across, and of a [illegible] orange colour; the bases of the segments are of a yellowish hue.

Favourite. This variety is most distinct, the trusses large, and the flowers of full size but of a rich yellow shade, faintly tinged towards the apices of the segments with orange. Both the foregoing gained an A.M., R.H.S., March 22. Messrs. J. Veitch and Sons, Chelsea.

HYACINTH CITY OF HAARLEM.

A beautiful single-flowered hyacinth producing a splendid spike of large bells of a very light but telling buff shade. A very fine hyacinth and most distinct. A.M., R.H.S., March 22. Messrs. W. Paul and Son, Waltham Cross.

DRACÆNA EXQUISITE.

A handsome dracæna with leaves three inches across, and about fifteen inches long; these are deep green with creamy margins to the young foliage, and [illegible] margins to older leaves. Many of the leaves are finely-coloured with bright [illegible]. This should prove useful as a vase plant, and for similar purposes. A.M., R.H.S., March 22, Messrs. J. Veitch and Sons, Chelsea.

HIPPEASTRUMS.

Beacon is a gorgeous variety with rounded flowers of the richest crimson [illegible]. All the segments are of immense breadth and substance. A.M., R.H.S., March 22. Mr. Chapman, gardener to Captain Holford, Westonbirt, Tetbury.

Clonia, a very pretty form with a creamy-white ground colour, feathered with scarlet towards the edges and tips of the segments.

Tacola, a round orange-coloured form, the colour varying in shade. Over the centre of end segment is a broad white band.

Ideala has a white ground colour, and over this are shadings and splashes of deep orange-scarlet, especially marked towards the apices. A fine bold form. The three foregoing each gained an A.M., R.H.S., March 22. Messrs. J. Veitch and Sons, Chelsea.

AZALEA JAPONICA RUBRA.

A pretty azalea with crowds of small and rich scarlet-red flowers on all the slender growths. It has a bushy habit, and in shape the flowers are not unlike those of Azalea amœna. Mr. W. Smythe, gardener to W. Nicholson, Esq., Basing Park, Alton.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. [illegible] "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates.

Gasoline Motor Lawn Mower.—C. D., Newbury: We are at present unable to give you the address of the makers of the Motor Lawn Mower illustrated recently in our columns. It is an American invention.

Botanical Magazine.—W. P., Dursley: The volumes referred to by our correspondent W. T., Cowes, were some of those issued during the first twenty years of the *Bot. Mag.* The volumes you mention are among the most expensive of the whole set.

Curators of London Parks.—E. S., Kew: The addresses you need are—Mr. W. Browne, Superintendent, Hyde Park, W.; Mr. F. J. Coppin, Superintendent, Battersea Park, Battersea. Kensington Gardens are under the same management as Hyde Park.

Oncidium sphacelatum.—P. S. T., Hull: This is an easy orchid to cultivate, and one that is frequently seen growing and flowering freely when treated as an ordinary stove or intermediate house plant. If, however, your specimen is not in the best ot health, it will need careful treatment. Directly new growths commence to push and new roots to form is the proper time to repot or top-dress the plant, using a compost of fibrous peat and sphagnum, with ample drainage below. As the species likes warmth more than most oncidiums, it may with advantage be placed in a warm house during the period of active growth; after the growths are completed, stand the plant in a cooler and dryer position, such as a greenhouse or vinery, and give less water. Water must not be wholly withdrawn, as the species objects to anything like drying off. A strong specimen in full growth will stand syringing frequently; indeed, owing to the progression of growths some become so placed that their roots do not soon reach the soil, consequently syringing is almost necessary. It will probably be best to break up your plant to ensure a good and clean start.

Cypripedium Mrs. H. Druce.—We have received from Mr. G. Walker, gardener to H. Druce, Esq., St. John's Wood, the following letter, and desire for correction: "I beg to say that a mistake was made in your report of the R.H.S. meeting of March 8 last, as contained in your issue of March 12, concerning my hybrid, Cypripedium Mrs. H. Druce (C. niveum crossed C. bellatulum). Being the raiser I know the parentage is correct. The foliage is quite distinct from that of C. Godefroyæ; also, the flowers of C. Mrs. H. Druce have a white ground, while in C. Godefroyæ this is yellow." In reply, we have to congratulate Mr. Walker upon having raised a handsome cypripedium between two interesting species. We still hold the opinion that C. Mrs. H. Druce is nothing but C. Godefroyæ artificially produced, and not differing much in any material respect from the latter. It has long been thought that C. Godfroyæ was but a natural hybrid between C. niveum and C. bellatulum, though in some plants the influence of C. concolor instead of C. niveum seemed apparent by reason of the creamy or faint sulphur tinge. Some objection to this origin of C. Godefroyæ as a natural hybrid have been raised, the chief being that of geographical distribution, This objection has been removed by the production of C. Godefroyæ as a result of crossing C. niveum and C. bellatulum, the plant flowering in the collection of G. W. Law-Schofield, Esq., New Hall, Hey, Rawtenstall, of which our coadjutor, Mr. Shill, has charge; the seedling has been generally recognised as C. Godefroyæ. When we consider the variation to be found in C. bellatulum, and in C. concolor, which extends towards the less variable C. niveum, we can understand how the progeny of varied forms of these would also be varied and allow for the present difference found in C. Godfroyæ. Our correspondent states that C. Godfroyæ has yellow-ground flowers; he might with equal propriety have stated they had white ground flowers, for the shade varies from purest white in C. Godfroyæ Gardenianum to primrose yellow in C. Godfroyæ luteum. The form in which C. niveum and C. bellatulum appear most distinctly as parents is known as C. Godefroyæ leuchochilum; others, as noted, appear to be the result of a cross between C. concolor and C. bellatulum, while still others may be the result, and doubtless are, of combining C. concolor with C. niveum. It has been suggested, and with much probability, that the whole group of cypripediums here referred to are but variations from one type and the result of the intercrossing of such variations. However, for the present it is sufficient that C. Godfroyæ has been produced at New Hall, Hey, and at St. John's Wood, by crossing C. bellatulum and C. niveum, so the provisional name of C. Mrs. H. Druce cannot stand, and C. Godefroyæ var. Mrs. H. Druce would be both cumbersome and unnecessary. Mr. Walker has proved both the New Hall, Hey, cross, and opinions long held. The Orchid Committee of the R.H.S. considered the hybrid Mr, Walker has raised to be C. Godefroyæ.

Names of Plants.—P. S. F., Hull: Oncidium sphacelatum. No, the daffodil is not an uncommon form.

H. J., Barton: 1, Chlorophytum elatum; 2, send when in flower; 3 and 4, next week; 5, Pulmonaria officinalis; 6, Thalictrum minus.

S. O., Hampton: 1, Prunus Pissardi; 2, Muscari botryoides; 3, Saxifraga oppositifolia.

N. A. F., Wroxteth: 1, Asplenium Nidus avis; 2, Selaginella Emileana; 3, Choisya ternata; 4, Hibbertia dentata; 5, Eupatorium riparium.

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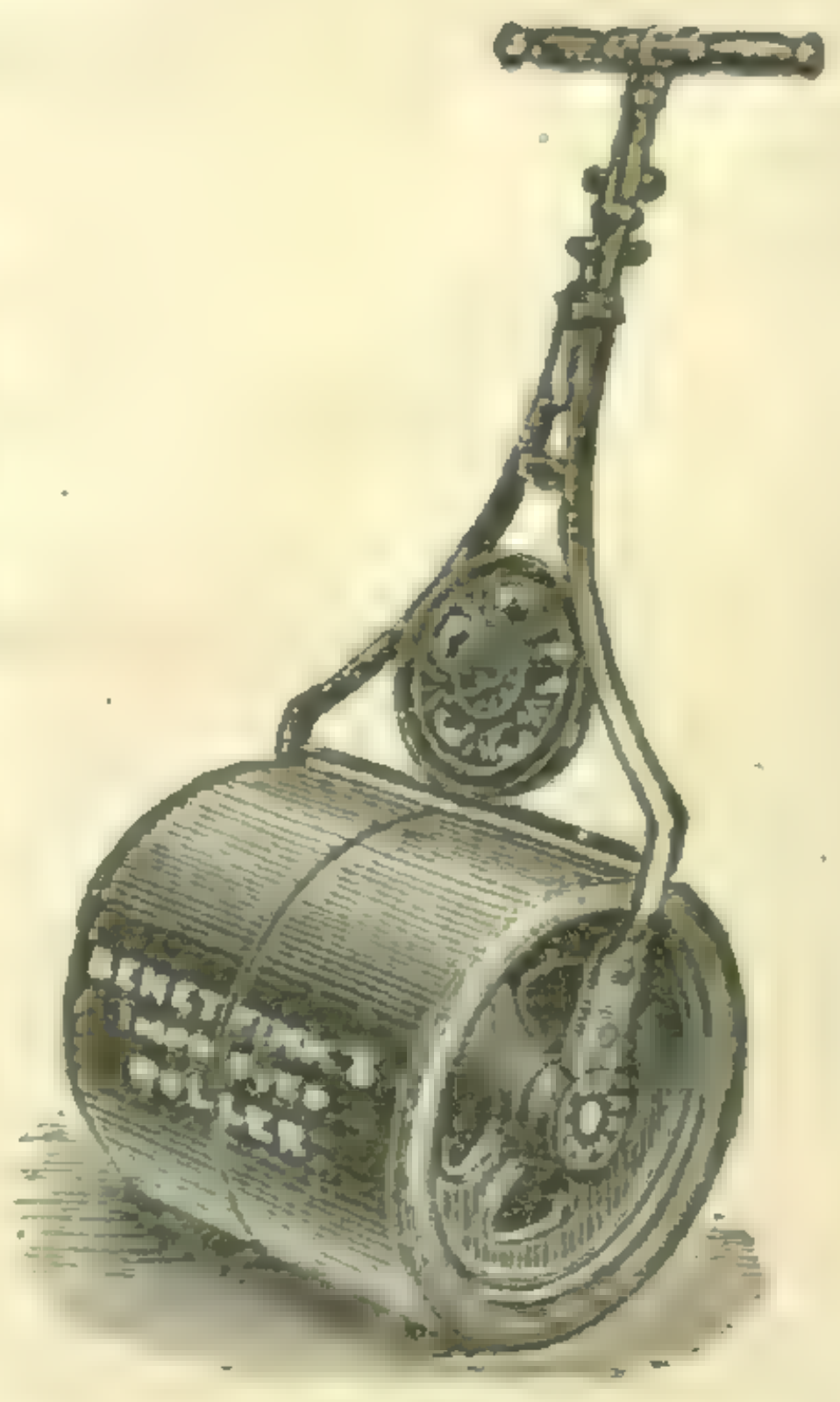
20 ,, 20	...	3	0	14	...	1	13	6
22 ,, 22	...	3	2	14	...	1	18	0
24 ,, 24	...	4	0	14	...	2	5	6
26 ,, 26	...	5	2	0	...	3	5	0



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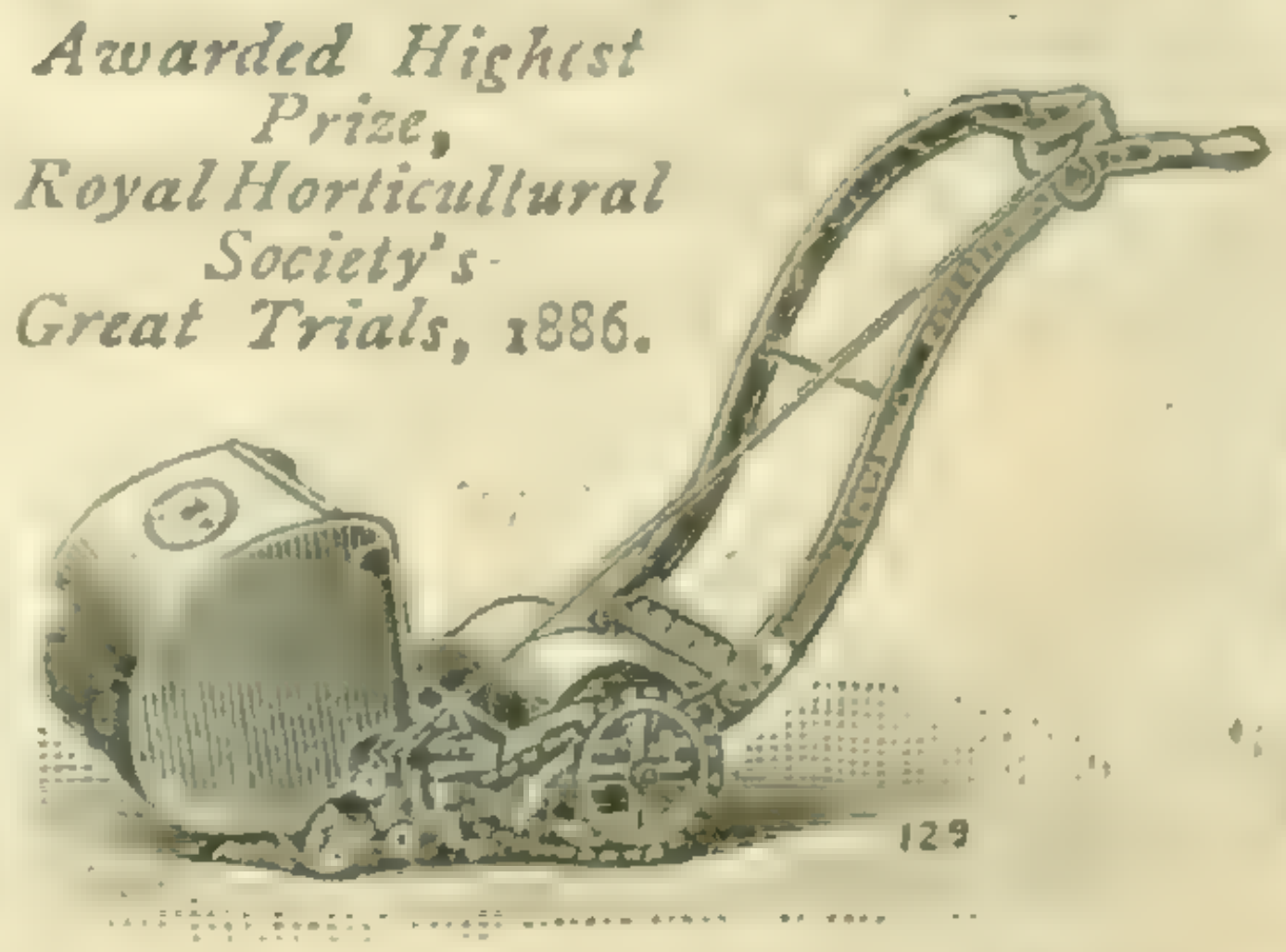

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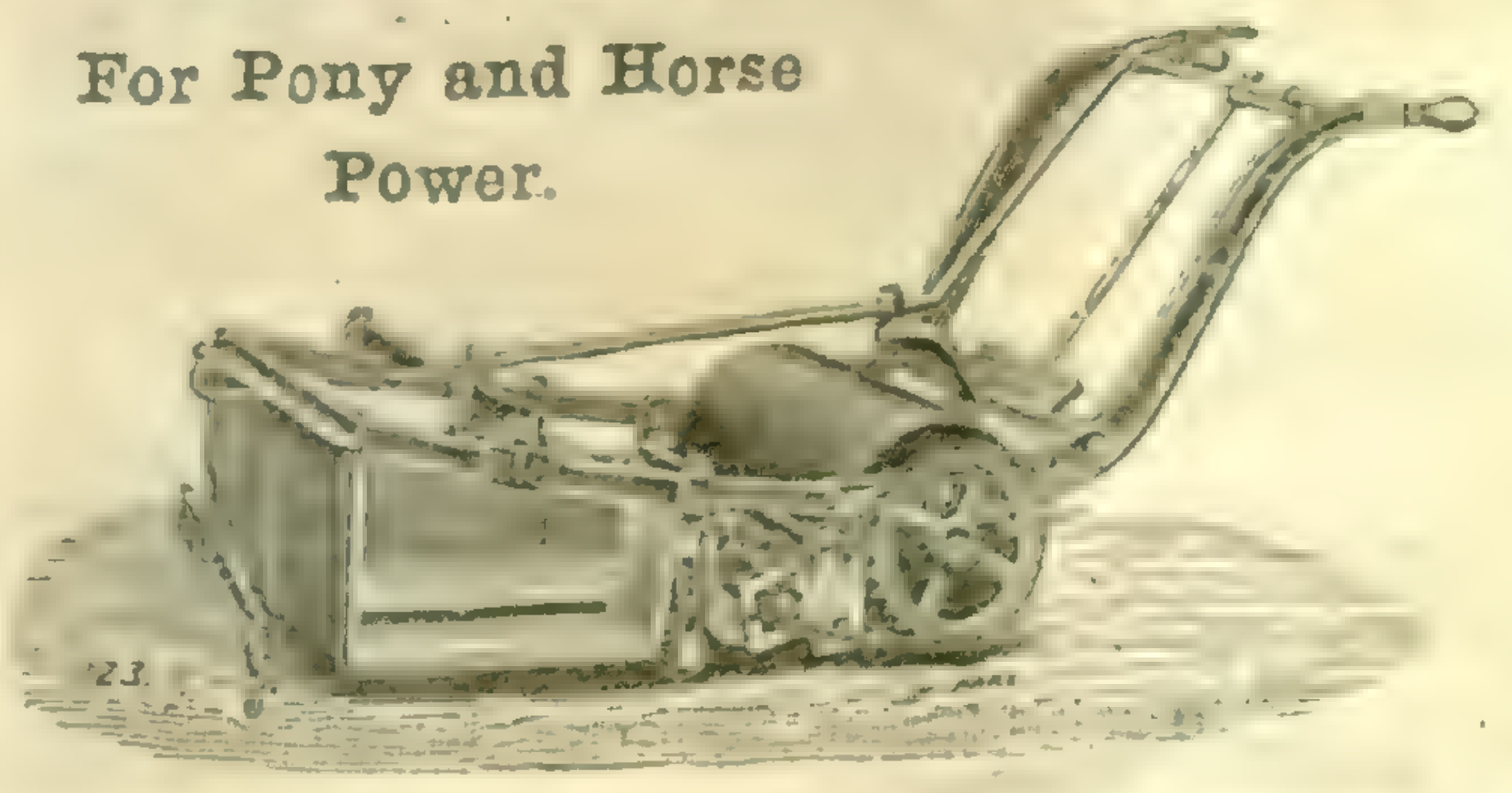

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M. G., Grantham: Billbergia nutans.

H. W., Brixton: We will reply as early as possible.

Names of Fruits.—H. T., Stratford-on-Avon: 1, Bergamot Esperen; 2, Jean de Witte; 3, Round Winter Nonsuch.

N. E., Andover: 1, Bellisime d'Hiver; 2, Lane's Prince Albert.

MARKETS.

Covent Garden.

FOR fruits of the highest quality the prices are well maintained and the demand is good. Green vegetables are very dear and supplies seem to be shortening. Potato trade somewhat slow and prices firm.

FRUIT.—American and Nova Scotian apples, 15s. to 25s. per barrel; Californian Newtowns, 9s. to 12s. per box; pineapples, 2s. 6d. to 6s. 6d. each; English grapes, 1s. 9d. to 3s.; Belgian, 1s. 3d. to 1s. 9d. per lb.; Almeria, 10s. to 18s. per barrel; bananas, 5s. to 9s. per bunch; lemons, 5s. to 15s. per case; Valencia oranges, 8s. to 15s. per case; Jaffa, 8s. to 12s. per box; Canary tomatos, 1s. to 2s. per tray, 3s. 6d. to 4s. 6d. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 2s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 4d. to 9d.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinth, 4s. to 6s.; daffodils, 2s. to 5s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 4d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Asparagus, 2s. to 8s. per bundle; seakale, 10s. to 15s. per dozen punnets; rhubarb, 1s. to 1s. 6d. per dozen bundle; celery, 8s. to 15s. per dozen rolls; mushrooms, 6s. to 8s.; eschallots, 2s. per 12 lb.; English, onions, 5s. 6d. to 6s. 6d. per cwt.; Valencia 7s. to 9s. per case; cabbages and savoys, 3s. to 5s. per tally; Brussels sprouts, 1s. to 1s. 3d. per half-sieve; spinach, 2s. to 2s. 6d. per bushel; carrots, 2s. 6d. to 3s. 6d.; green mint, 4s. to 5s.; parsley, 1s. 6d. to 2s. per dozen bunches; French lettuce, 9d. to 1s.; cos lettuce, 2s. to 3s.; endive, 1s. 4d. to 1s. 8d.; cucumbers, 3s. to 6s. 6d. per dozen; Italian cauliflowers, 3s. to 4s. per hamper; new Canary potatos, 10s. to 16s.; Malta, rounds, 10s. to 14s. per cwt.; French, 2d. to 2½d. per lb.

Borough Potato Market.

There is a steady trade at recent prices. Home supplies are shortening.

Dunbars, 120s.; Scotch Magnums, 100s. to 110s.; Hebrons, 100s.; Snowdrops, 90s.; Bruce, Maincrop and Sutton's Regents, 90s. to 95s.; Reading Giants and Saxons, 85s. to 90s. per ton; Belgians, 3s. 6d. to 4s.; Germans, 3s. 6d. to 4s. 9d. per bag.

MR. A. E. SUTTON has entered upon his duties as head gardener to the Earl of Carlisle, at Castle Howard, Welburn, Yorks. Mr. Sutton was formerly six and a half years as head gardener to the Earl of Carlisle at Naworth Castle, Carlisle.

THE WEATHER DURING THE WEEK ENDING MARCH 19, 1898

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	60·0	27·2	45·7	7·61	0·25	[illegible]
Croydon	62·0	23·0	45·1	7·28	0·01	[illegible]
Brighton	—	—	—	—	—	—
Bristol	52·0	29·0	44·0	6·67	0·13	[illegible]
Wolverhampton	57·3	24·8	42·7	5·94	0·09	[illegible]
Norwich	63·4	25·0	44·2	6·78	0·02	[illegible]
Nottingham	56·8	26·3	44·0	6·67	0·10	[illegible]
Liverpool	57·7	33·8	44·1	6·72	0·28	0·71
Huddersfield	—	—	—	—	—	—
Bradford	59·0	33·4	46·6	8·11	0·20	[illegible]
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·82 inches, and that of the Thermometer 45°·7, the latter being 4°·4 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 7 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 13·3 hours. The measured rainfall amounted to 0·25 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MARCH 30.—Royal Botanic Society, Spring Show.

AUCTIONS.

MONDAY, TUESDAY, THURSDAY, AND FRIDAY, MARCH 28, 29, 31, AND APRIL 1, Standard and Dwarf Roses, Hardy Perennials, and Lilium Auratum, at Protheroe and Morris's Rooms.

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ILLUSTRATIONS.
Syon Long White Artichoke ...
Odontoglossum Wilckeanum Pittiæ ...
Gladiolus Lauretta ...
Mr. J. C. Fidler ...

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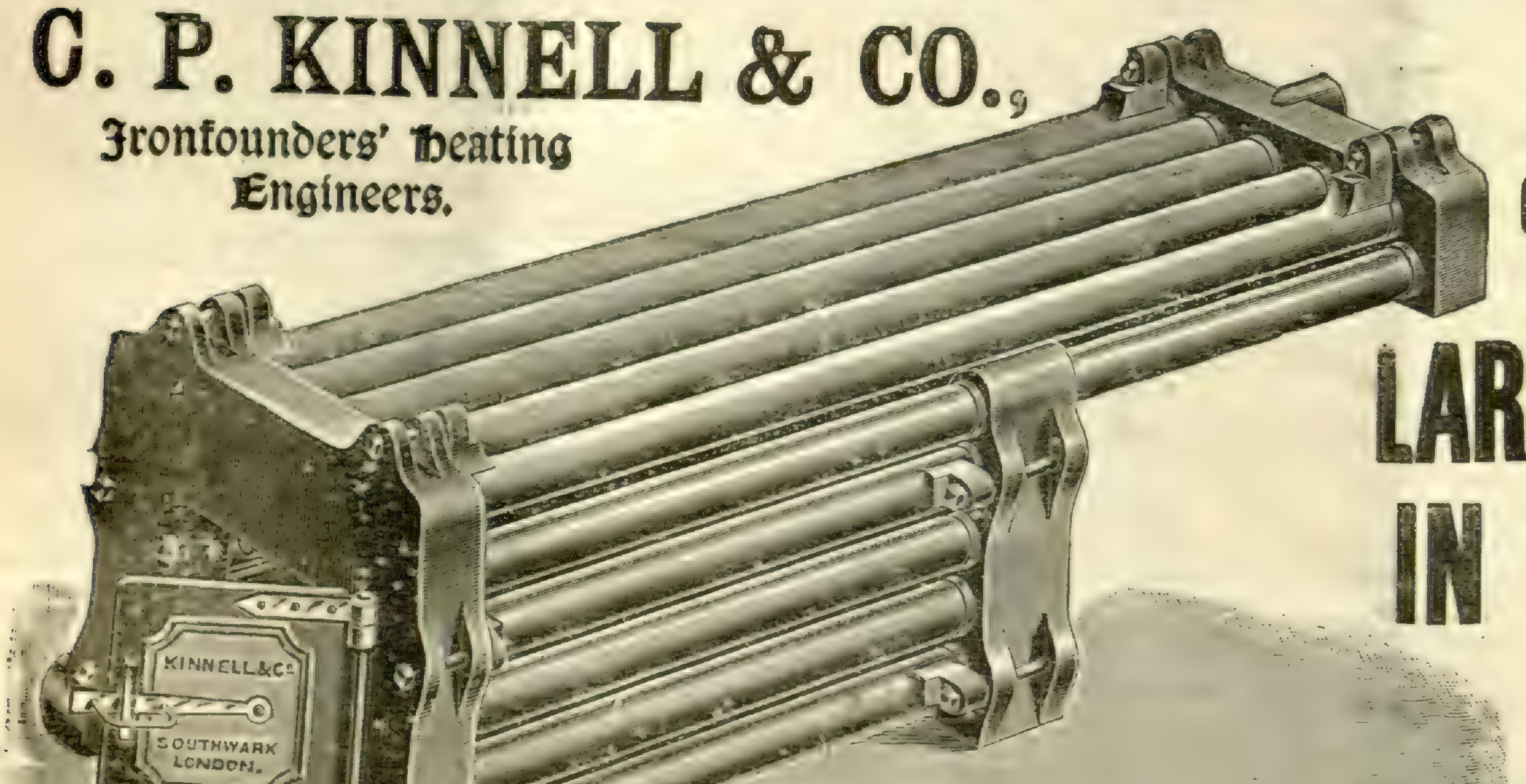
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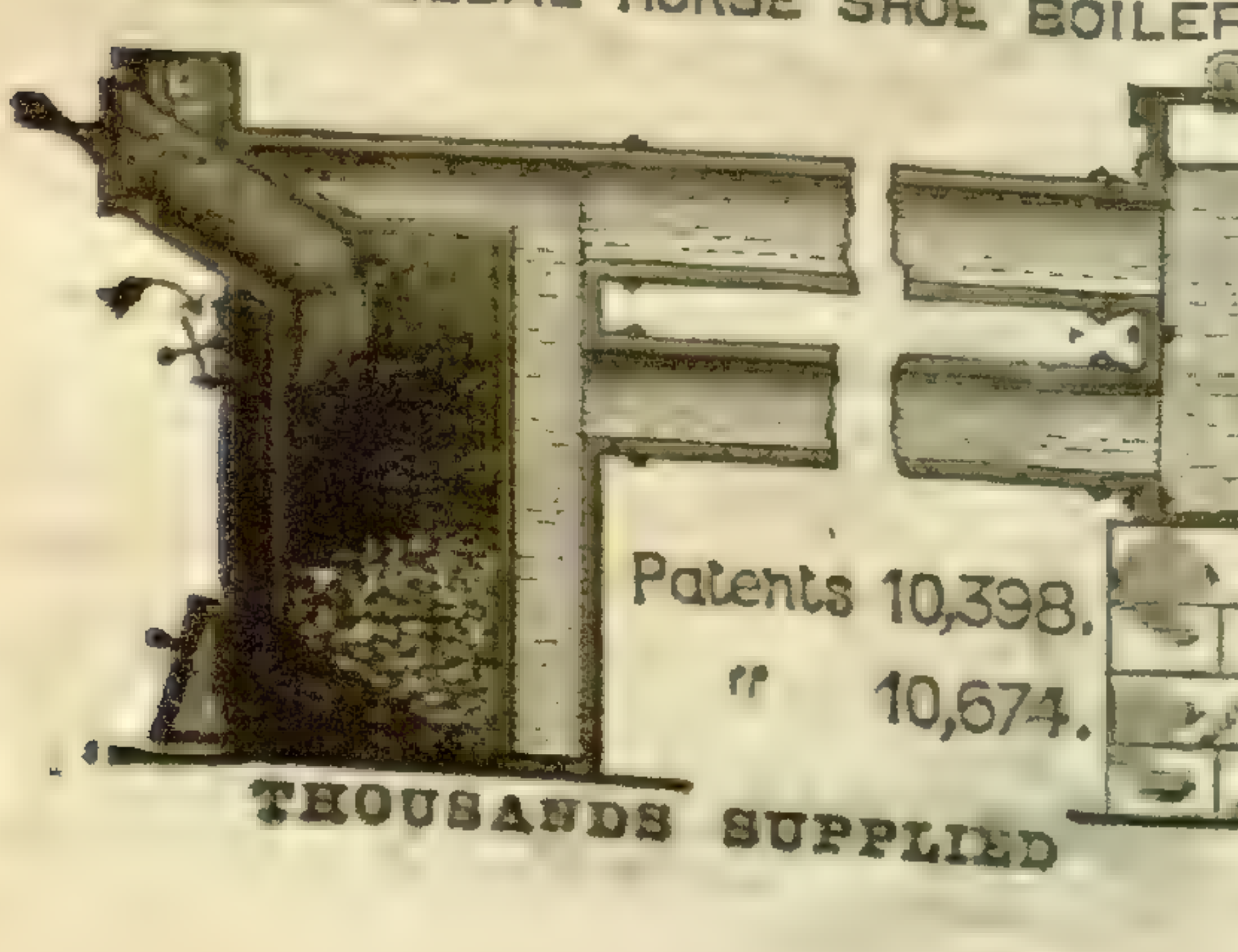

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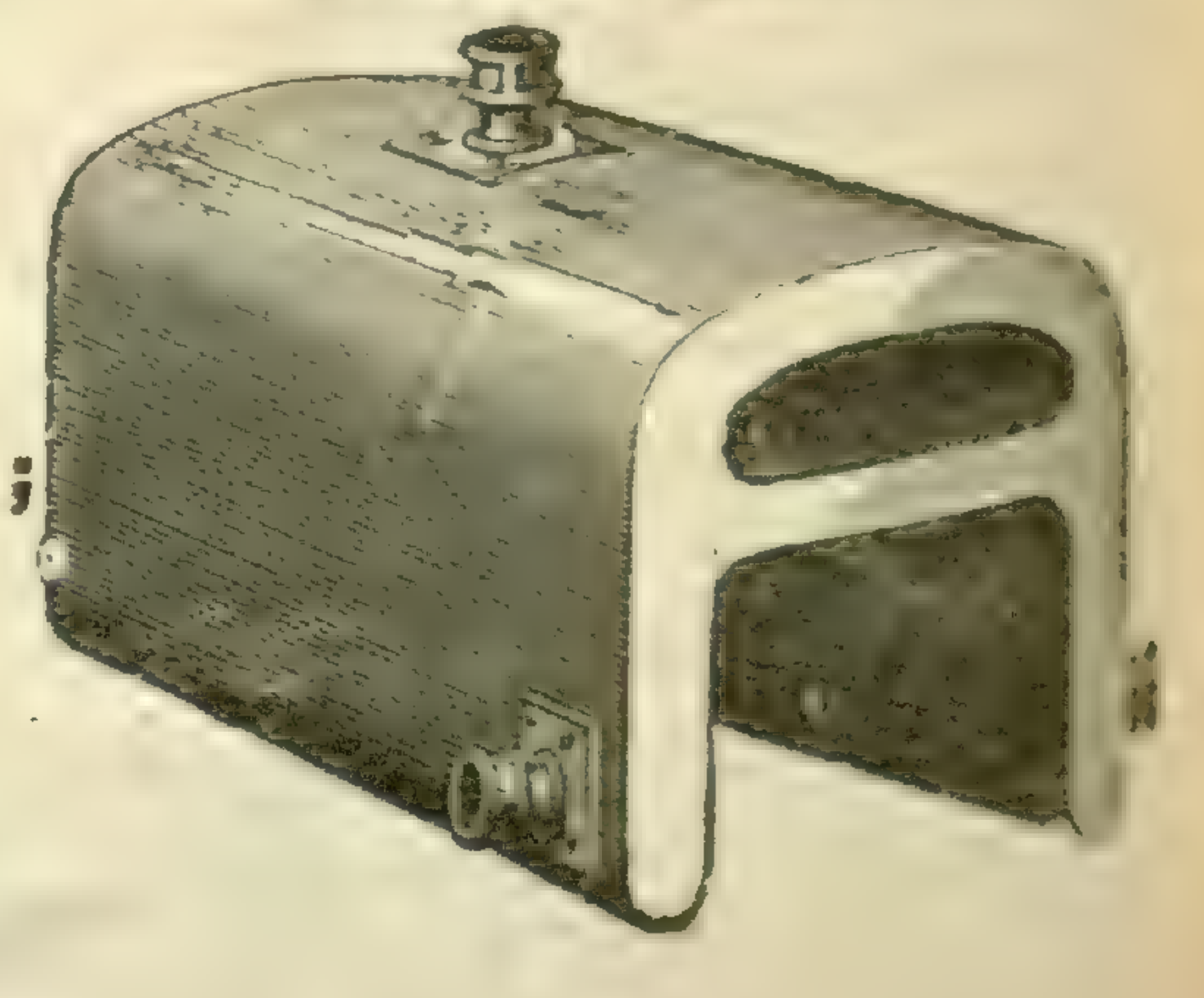

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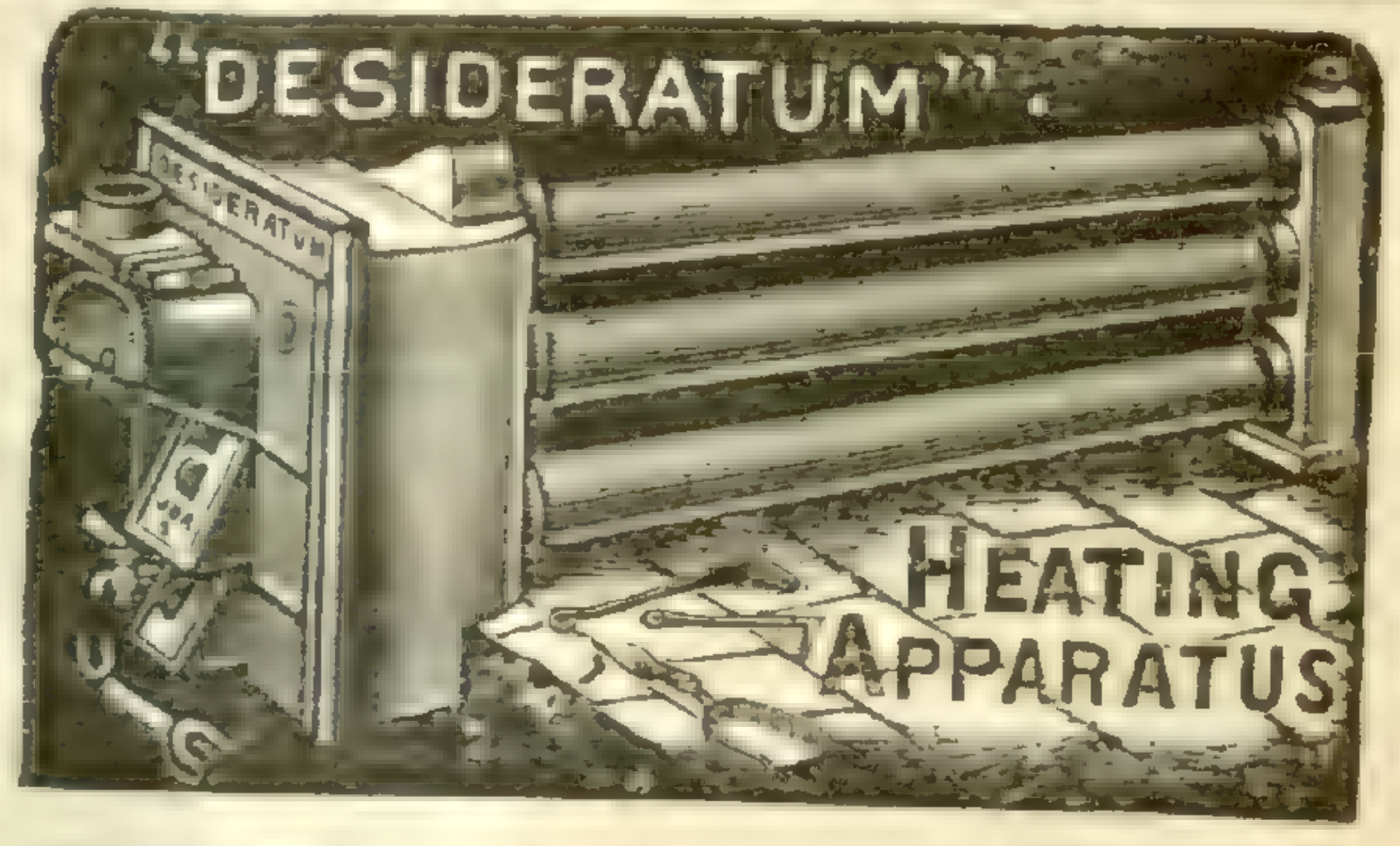

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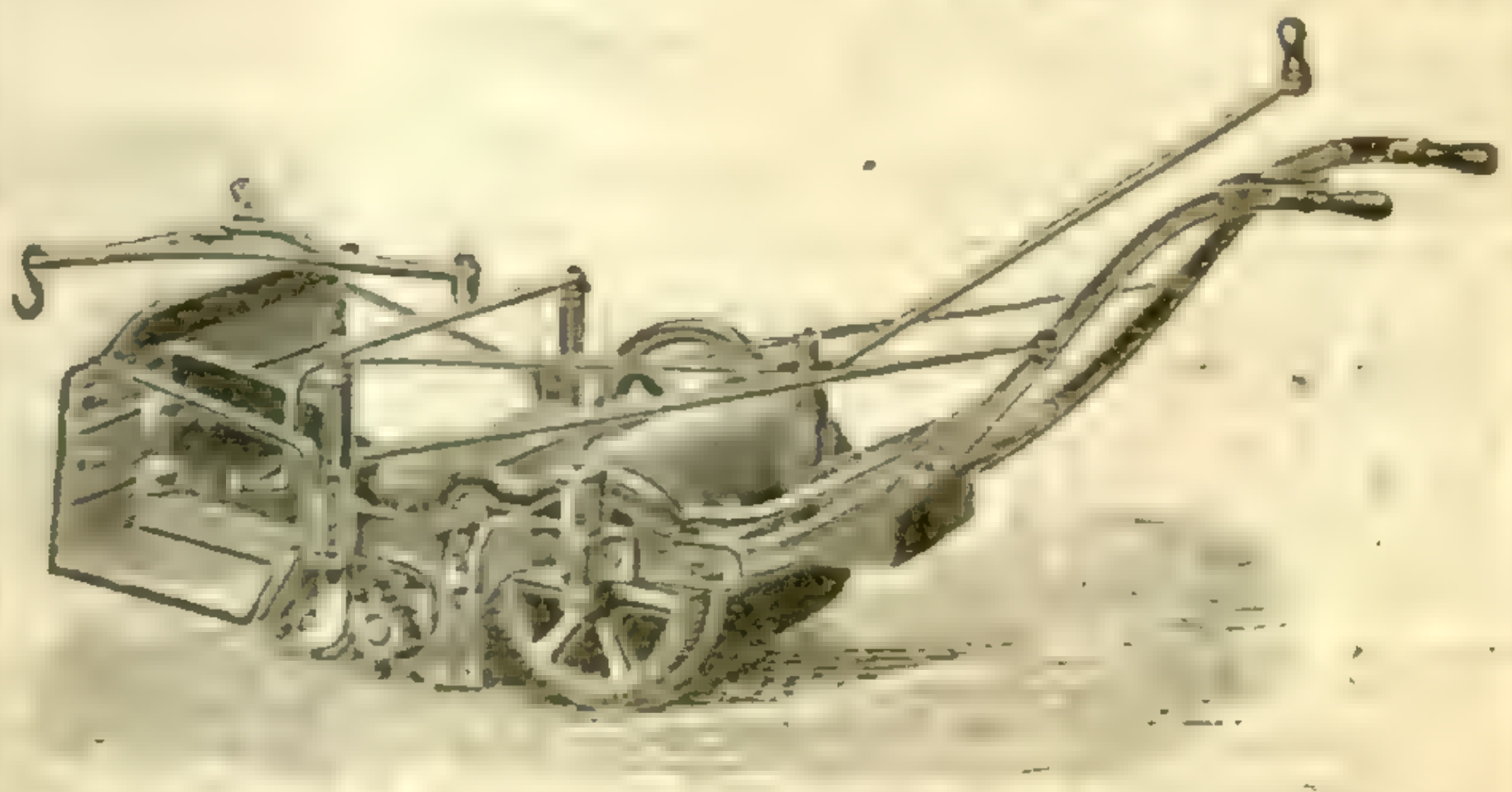

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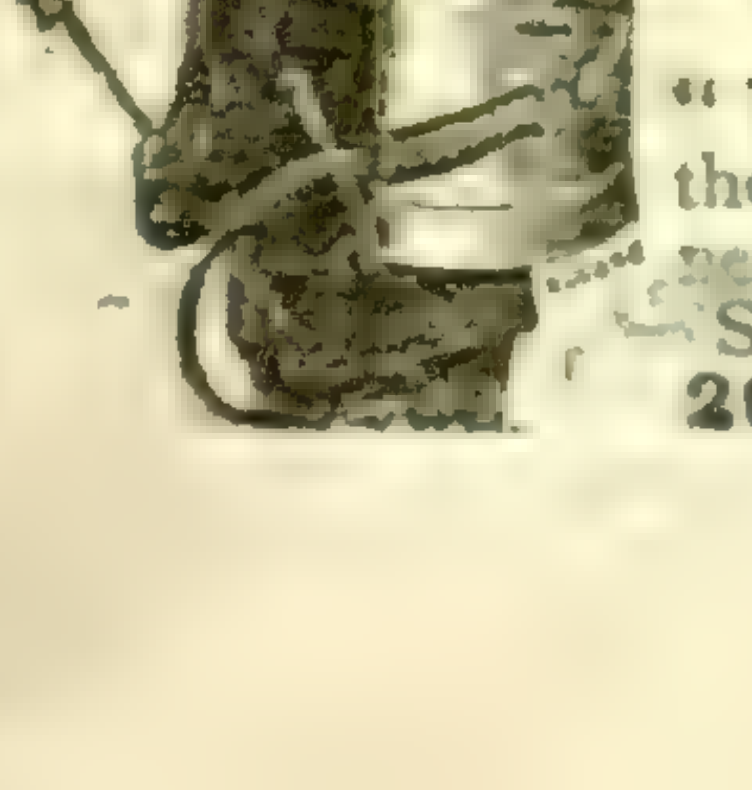

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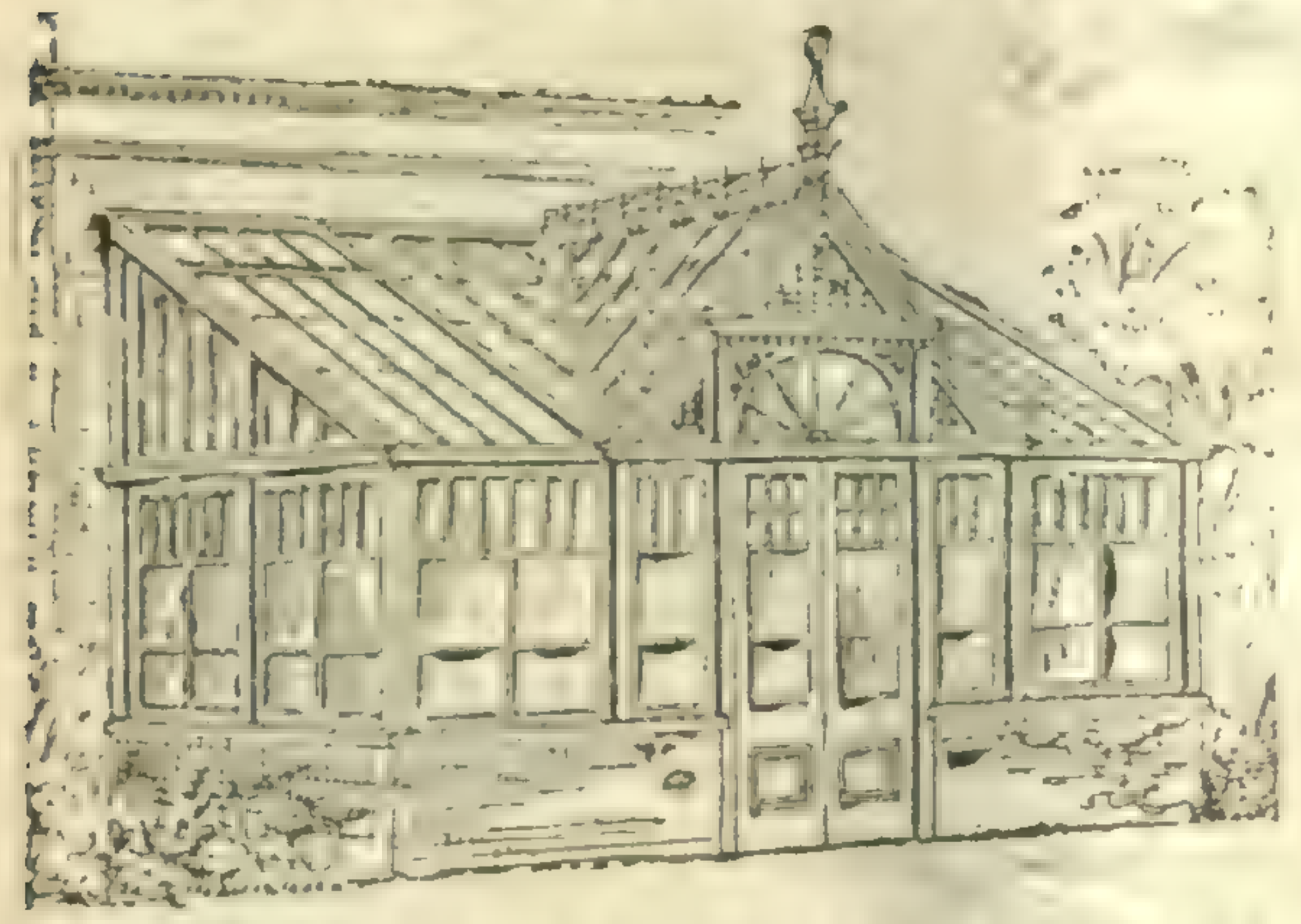

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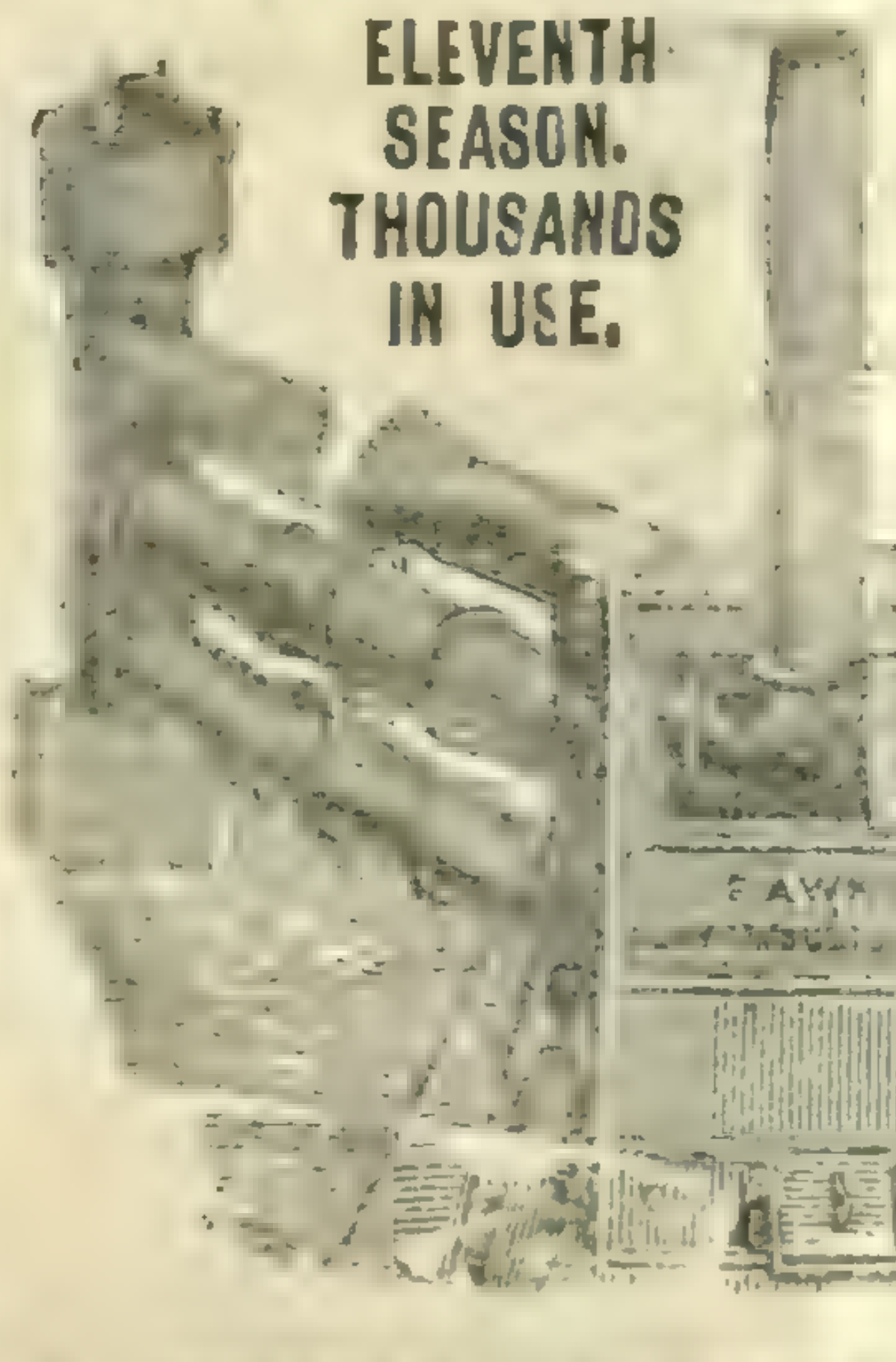
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Every Packet, Bag and Seal bears the Trade Mark, as shown in centre of the above cross, which is the only Guarantee of Genuineness.

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ELLIOTT'S New Shading for Glass Houses.

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IT combines efficiency with appearance, convenience with economy, and its effects are lasting. It is easily removed when necessary with hot water. It can be supplied either pale green or grey.

Beware of spurious imitations, which are offered through the success obtained for many years by Elliott's "Summer Cloud" Shading, and see that in ordering you get the "Summer Cloud," which is the only original and bona fide article, with the Trade Mark on each packet.

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THE WORLD-FAMED BLOOD PURIFIER.

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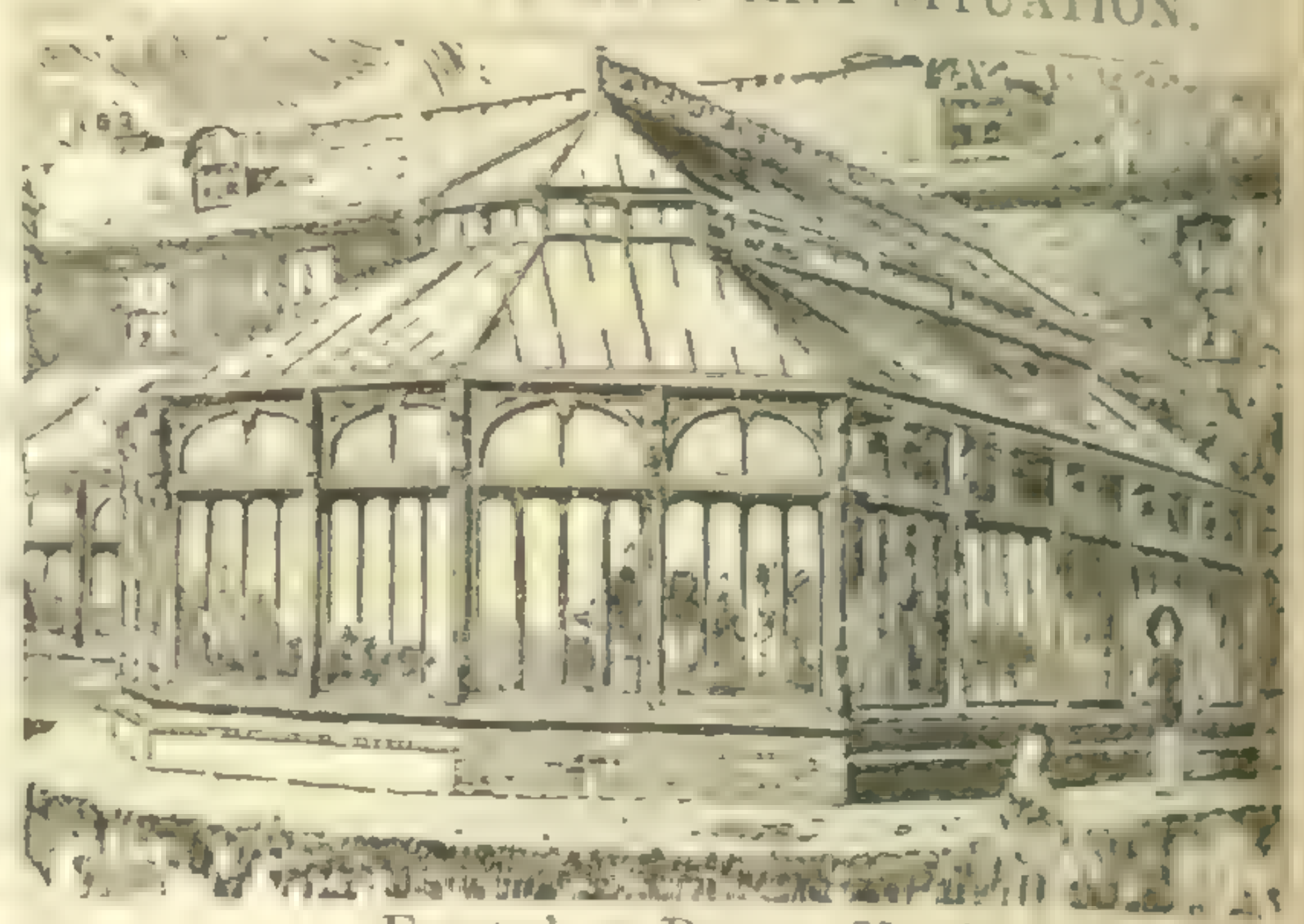

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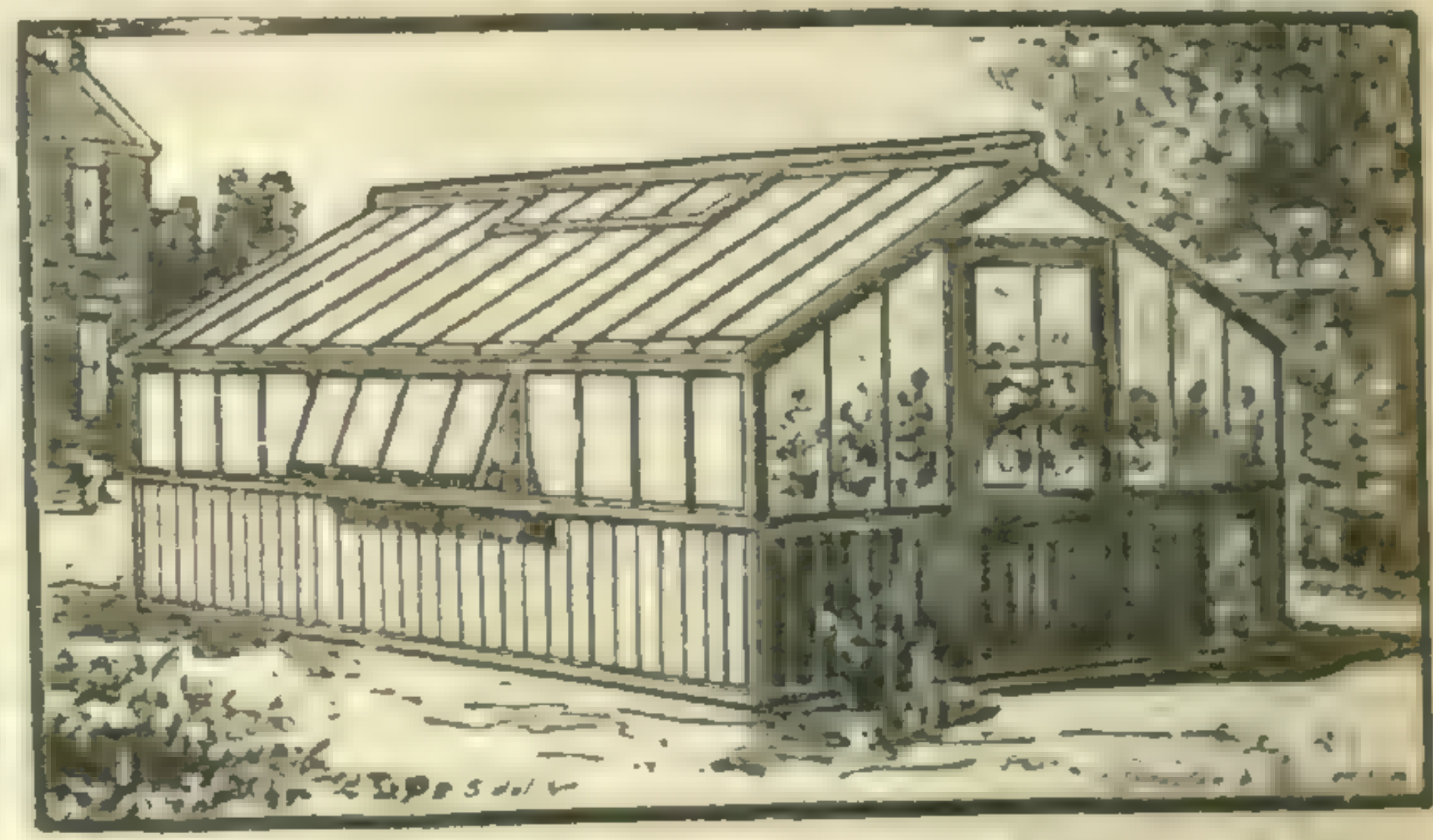

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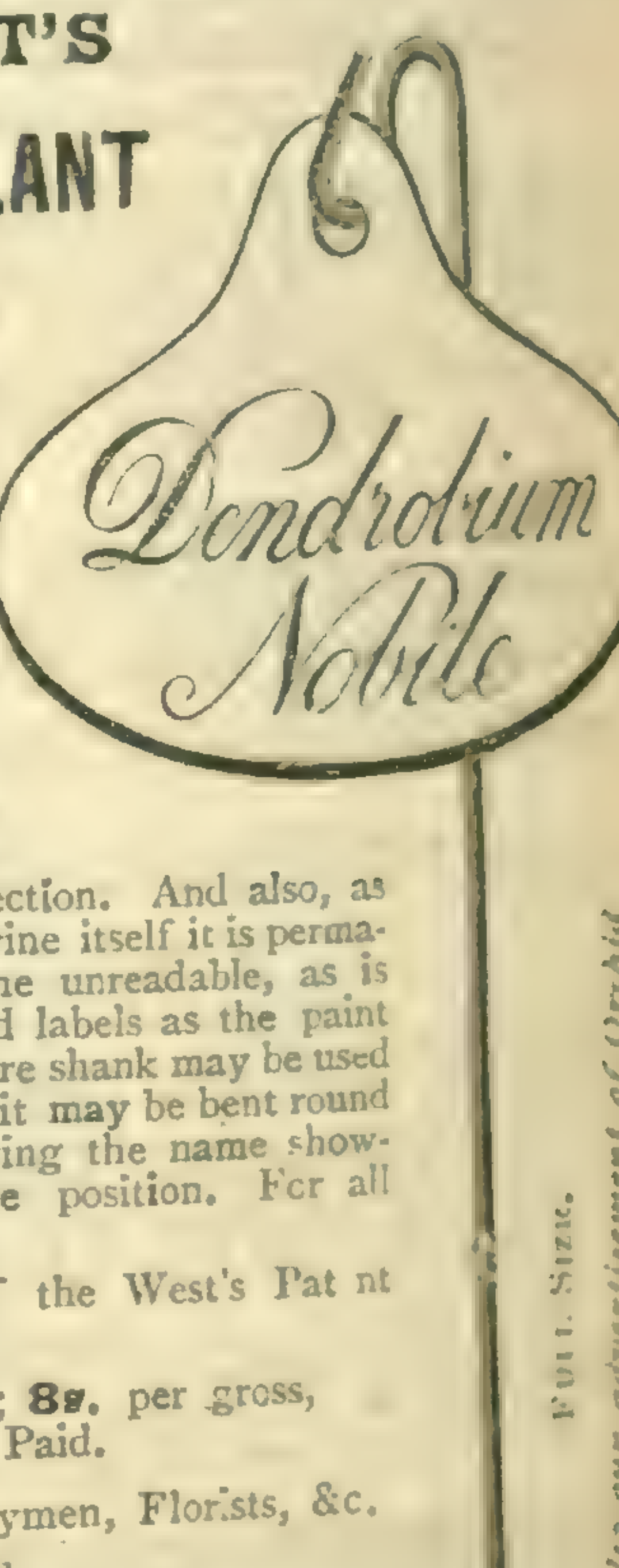
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FULL SIZE.
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The "Ivorine" Writing Disc, which is to be written upon, being made of a specially prepared substance, having the properties of real ivory, is imperishable, and does not corrode or eat away, like wood and metal labels; and being ivory-white, when written upon by a common lead pencil or pen and ink, it shows to perfection. And also, as the writing is on the Ivorine itself it is permanent, and does not become unreadable, as is the case with all painted labels as the paint gets old. The copper wire shank may be used as per the illustration, or it may be bent round the stem of a plant, leaving the name showing in the most readable position. For all horticultural purposes.

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Promoting a rapid, healthy, and robust [illegible] generally.

It is a clean and dry powder, with very [illegible]

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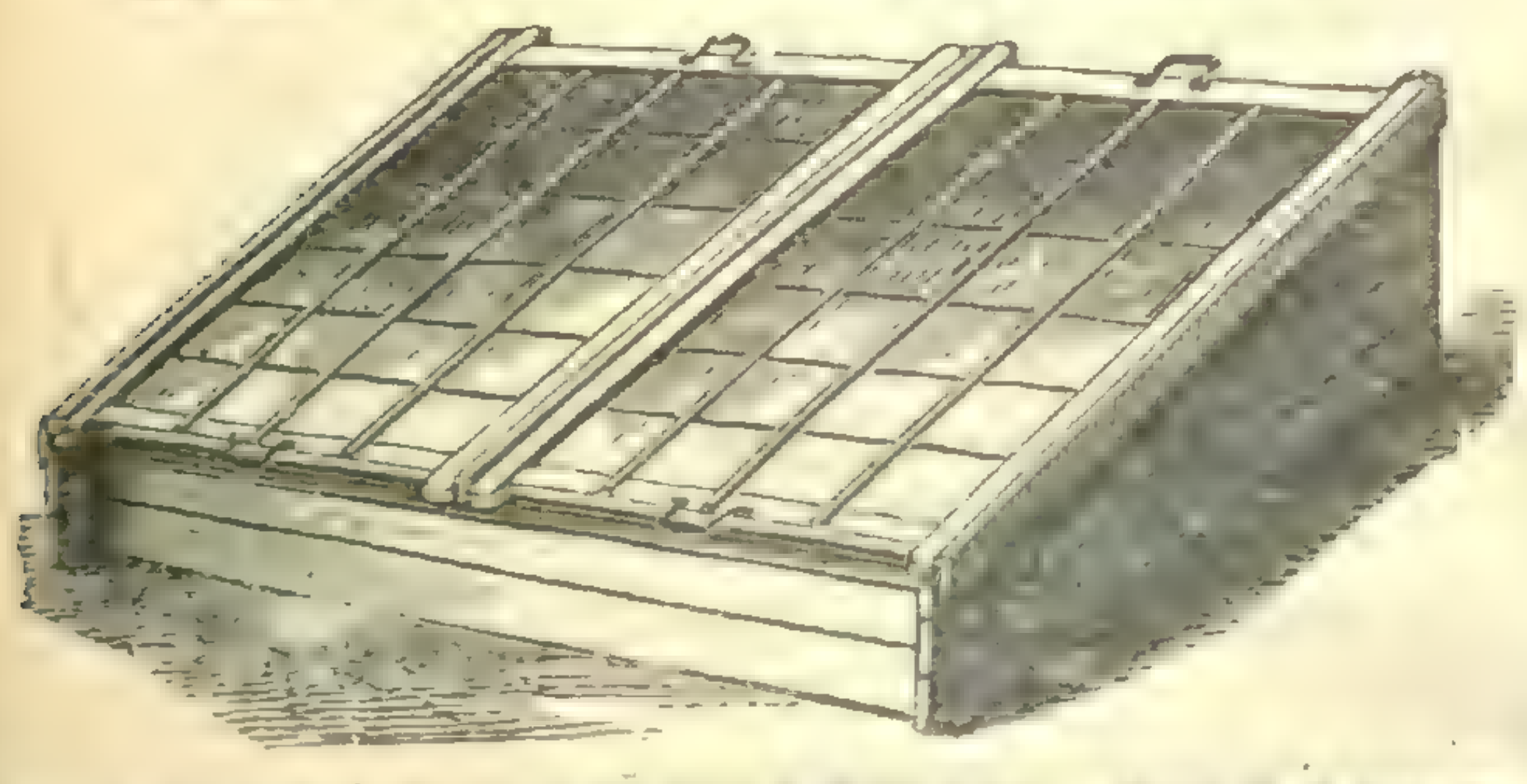

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Yet how often one sees poor yellow, moss-grown spaces in place of green, velvety turf. The cause is poverty, constant mowing, and nothing done in the way of restoring the exhausted fertility. Stable manure is an eyesore on a neat Lawn, but

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may be applied with little trouble or expense, and is washed in by the first shower. Will not burn the grass as some compounds do. Apply 2 oz. to square yard any time from now to end of March, 14 lbs., 4s.; 28 lbs., 7s., in Tins. ½ cwt., 12s.; 1 cwt, 20s.

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RAW CHINCHAS PERUVIAN GUANO, the genuine article, pure as imported—the highest quality [illegible] analysis 10 per cent. Ammonia, 17 per cent. [illegible] and 4 per cent. Potash. Unequalled for CHRYSANTHEMUMS, Roses, Tomatoes, Celery, &c. Best fertiliser for use in gardens, greenhouses, nurseries, and market [illegible]. Be sure and ask for CHINCHAS Peruvian Guano, [illegible] get it. OHLENDORFF'S GUANO GARDEN MANURE (made largely of Chinchas Guano) [illegible] for plants requiring only mild [illegible]. Analysis guaranteed: 5 per cent. Ammonia, 24 [illegible] and 4 per cent. Potash. These splendid [illegible] can be obtained of most nurserymen, seedsmen, and [illegible] the country, or direct from the importers of [illegible] Peruvian Guano; the Anglo Continental Guano [illegible], 15, Mark Lane, London, E.C., at [illegible] Chinchas Peruvian Guano, 1 cwt. bags, [illegible] ½ cwt. bags, 8s. 6d.; 14 lb. bags, 5s.; [illegible] 1s. 6d.; and 1¼ lb. tins, 1s. each. [illegible] Garden Manures:—1 cwt. bags, 16s.; ½ cwt. bags, 9s.; 14 lb. bags, 3s.; 7 lb. [illegible]; and 1¼ lb. tins, 6d. each. Prices in [illegible] from London, excepting that of the 1¼ lb.

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Of reliable quality, to be cleared at the following low prices:

Stock Sizes.	Boxes	4ths 15-oz.		Per Box	Stock Sizes.
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9X13	200 ft.	margin, 12X14 to 18X24	at	15/-	14X18
9X14		4ths 21-oz.			14X20
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10X14	200 ft.	margin, 8X12 to 12X12	at	16/-	15X20
12X12	100 ft.	stock sizes as stated in	at	11/-	16X18
12X13	200 ft.	margin, 12X14 to 18X24	at	21/-	16X20
12X14		3rds 21-oz.			16X24
12X16	100 ft.	stock sizes as stated in	at	9/3	18X20
12X18	200 ft.	margin, 8X12 to 12X12	at	17/6	18X24
12X20	100 ft.	stock sizes as stated in	at	12/6	
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NOTE.—No Box can be divided, and one size only is contained in each Box.

The above Glass is offered subject to being in stock on receipt of order. The prices are *ex* Wharf London, from whence all Railway Companies' Vans collect.

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1½ by 3,
at 6/6 per
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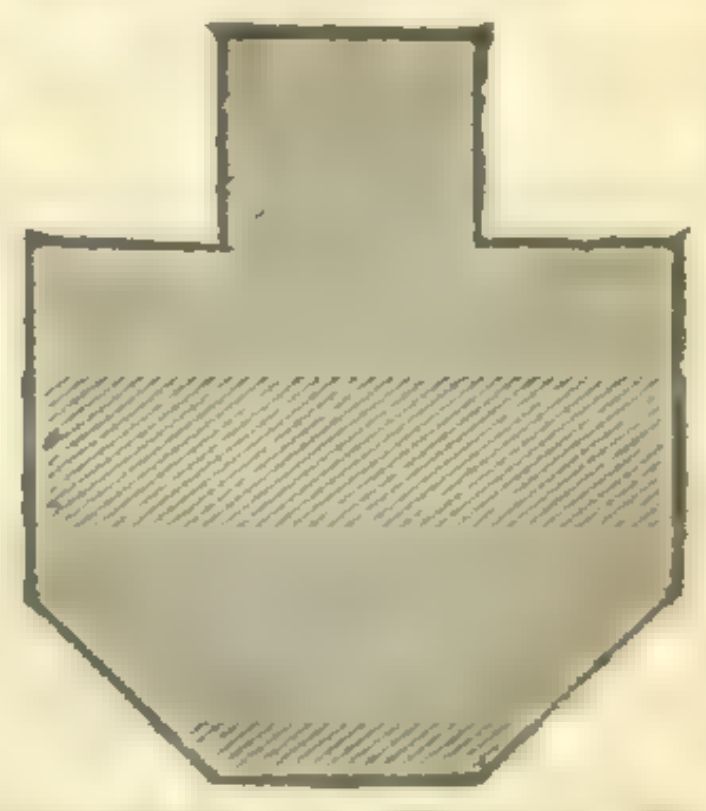

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Catalogues post free on application.

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Fir Tree Oil INSECTICIDE

For destroying Insects on Plants. Used by every Orchid Grower of any note all over the world.

The CHEAPEST and BEST.

Half pints 1/6, pints 2/6, quarts 4/6, half gallons 7/6, gallons 12/6, 5 gallon drums 10/6 per gallon Carriage Paid.

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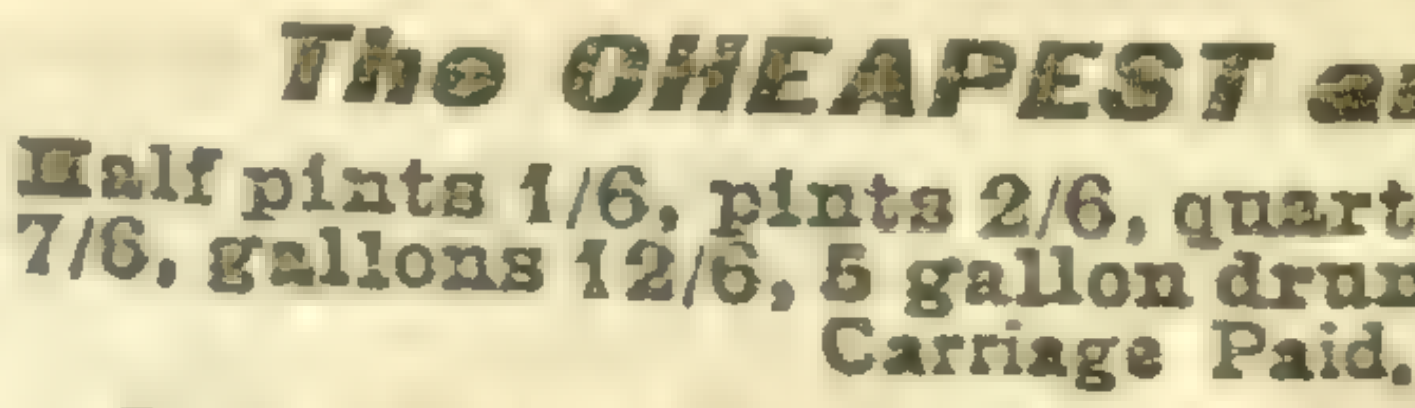
Sold by all Seedsmen. *Pamphlets free on application.*



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SEED PROTECTORS, 2s. 9d. doz., yard lengths.
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POULTRY HURDLES and all Wirework. List.

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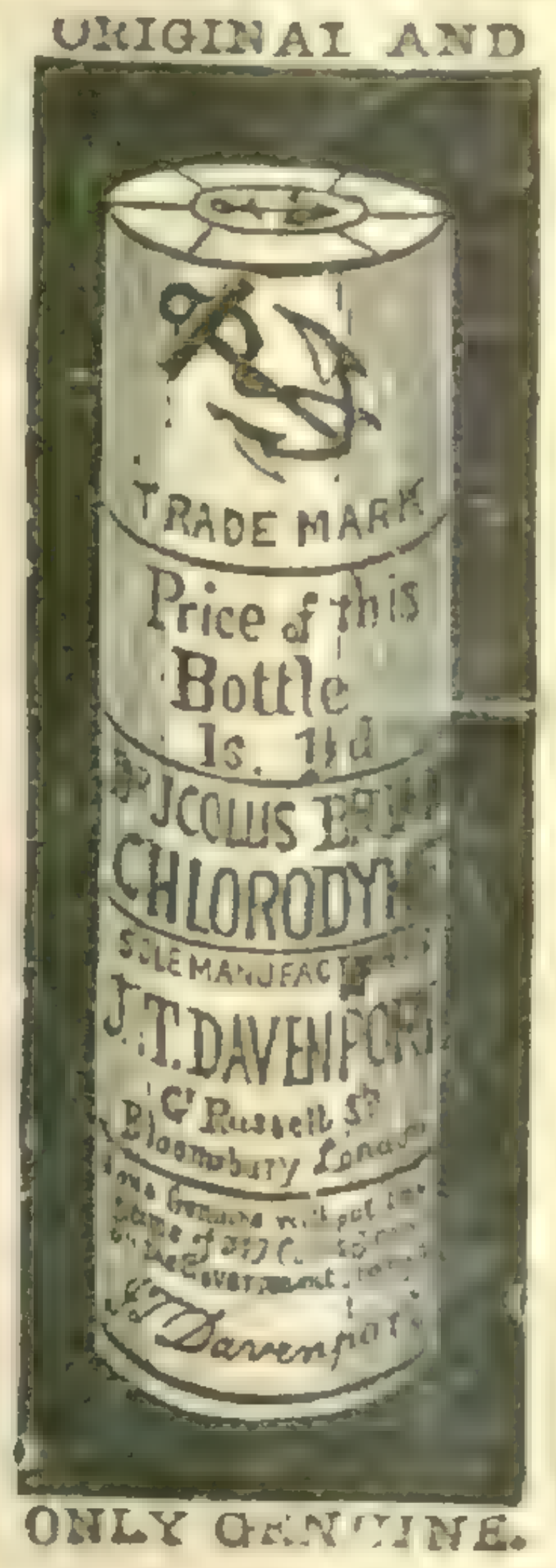

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Bears on the Government Stamp the Name of the Inventor,

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Sold by all Chemists, 1s. 1½d., 2s. 9d., 4s. 6d.

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BEST AND CHEAPEST MANURE FOR GARDEN USE.

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THEY ARE THE FIRST, FOREMOST, AND BEST IN THE WORLD. Over 240,000 have been sold. Beware of deceptive imitations.
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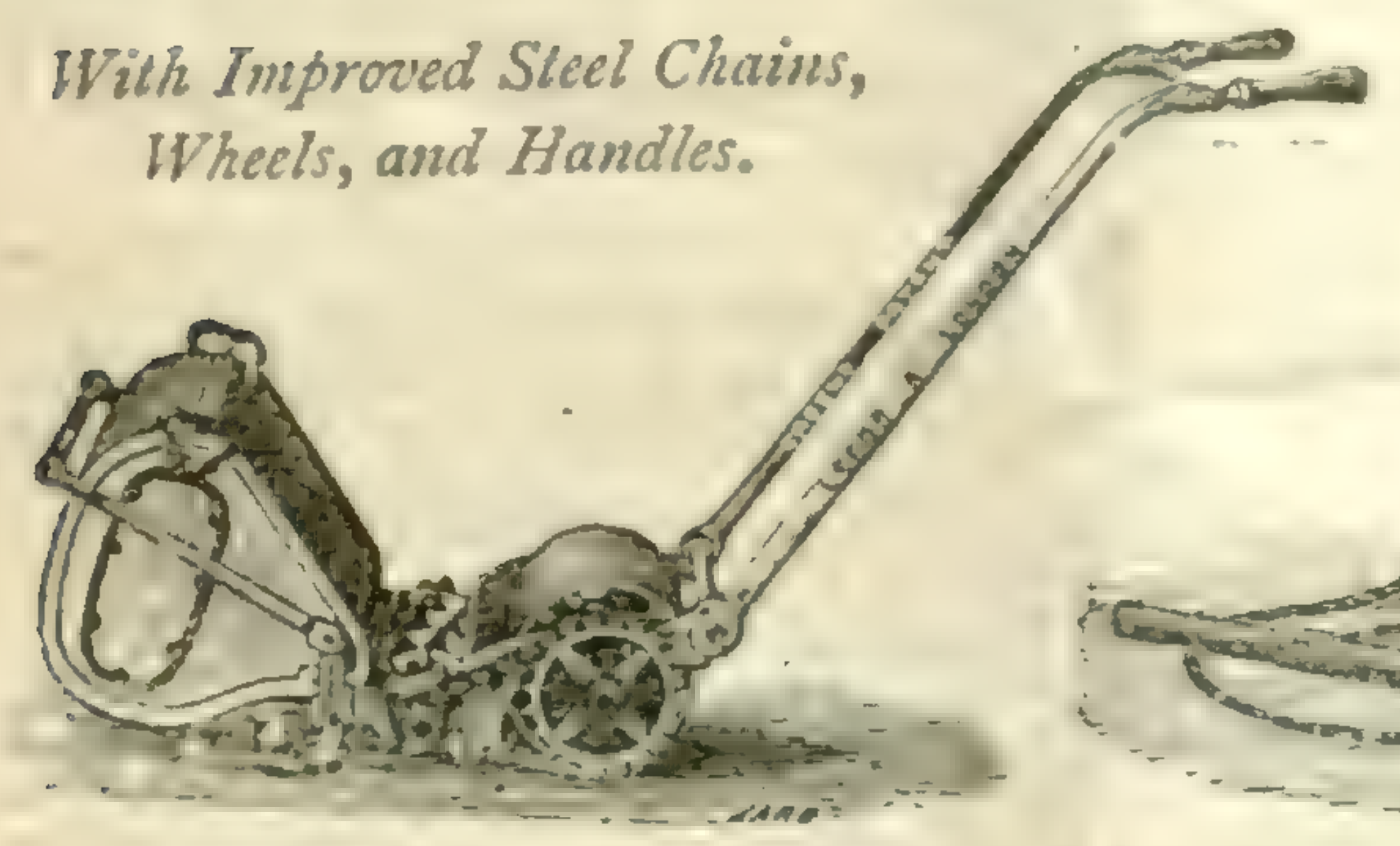
With Improved Steel Chains, Wheels, and Handles.



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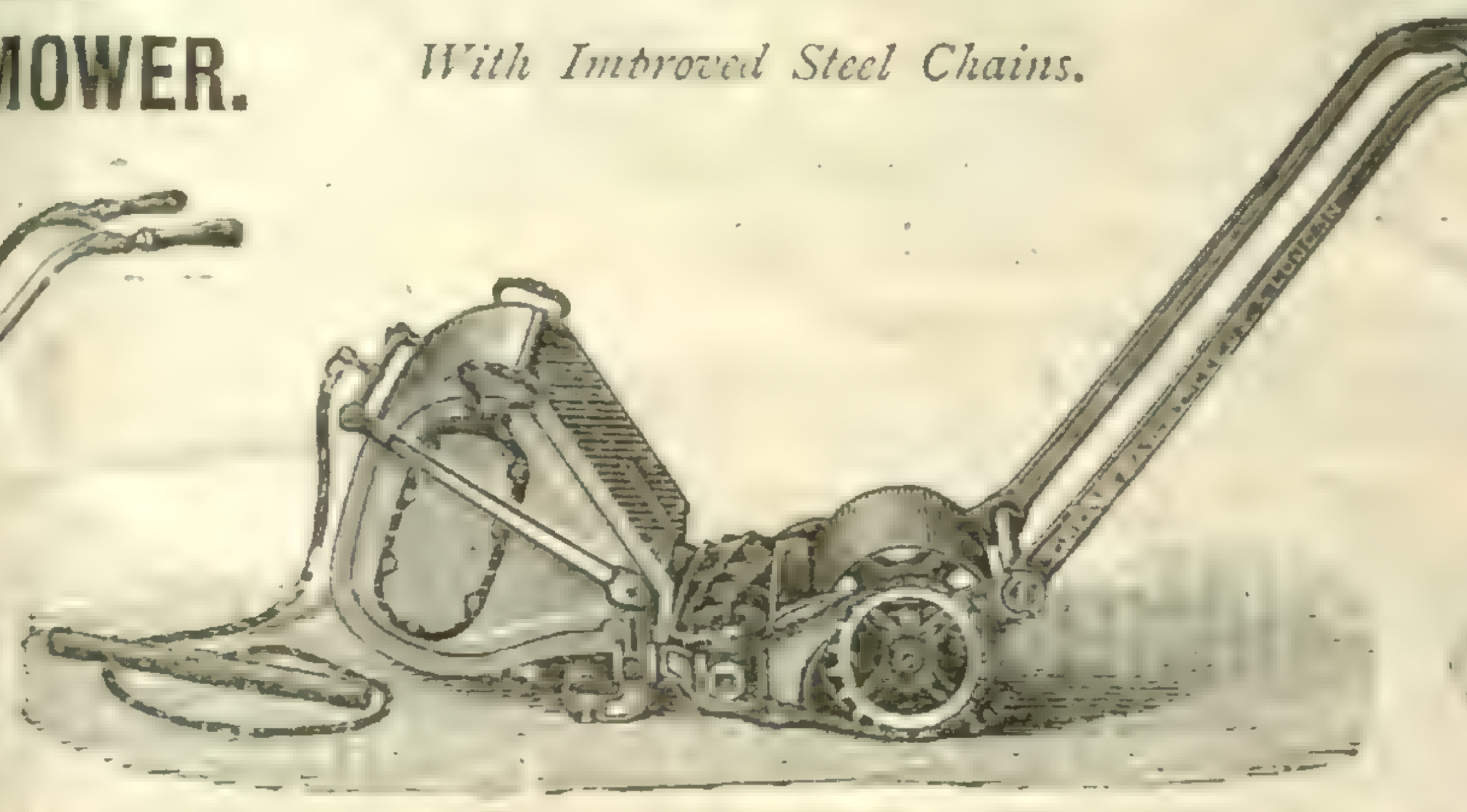

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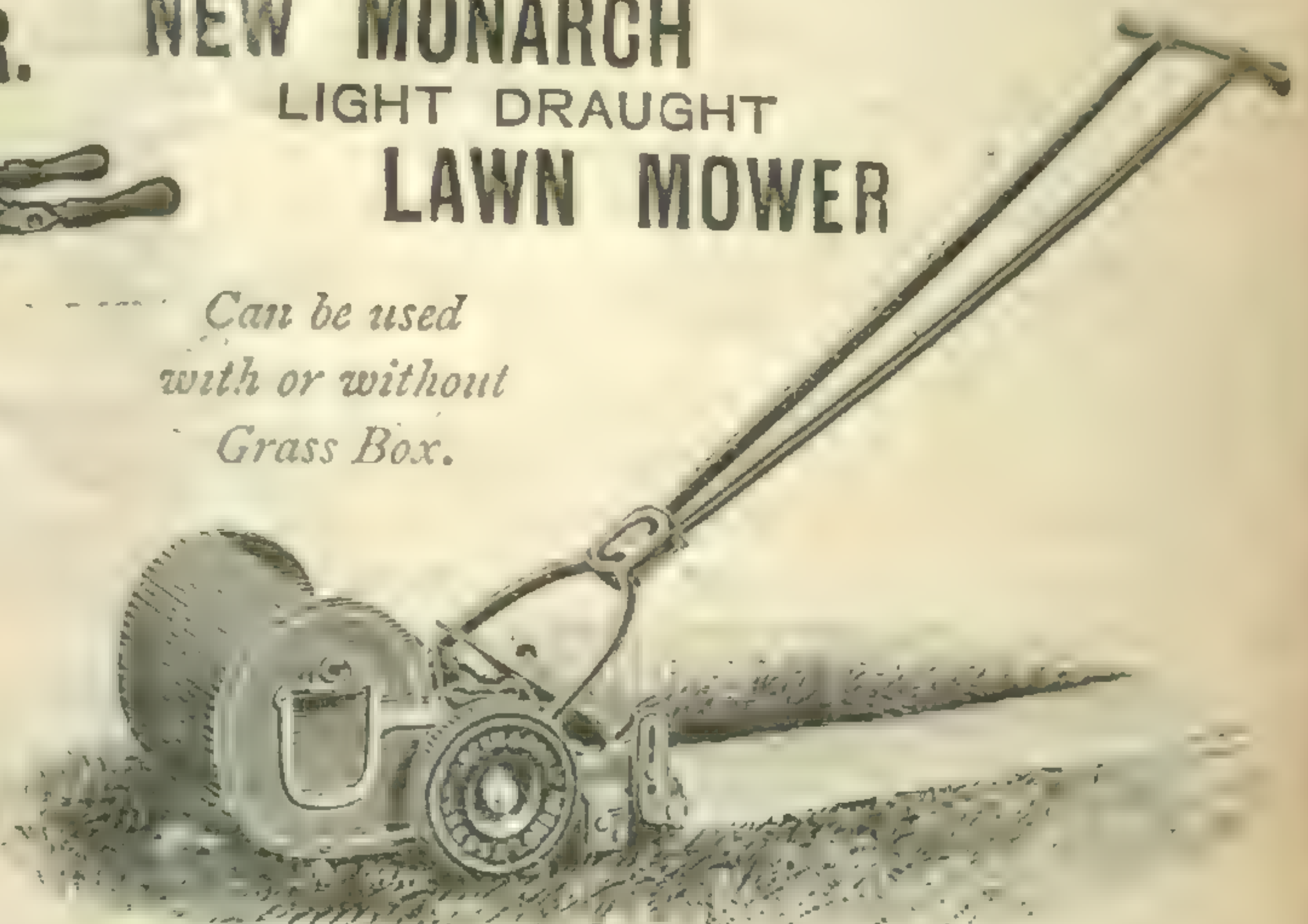

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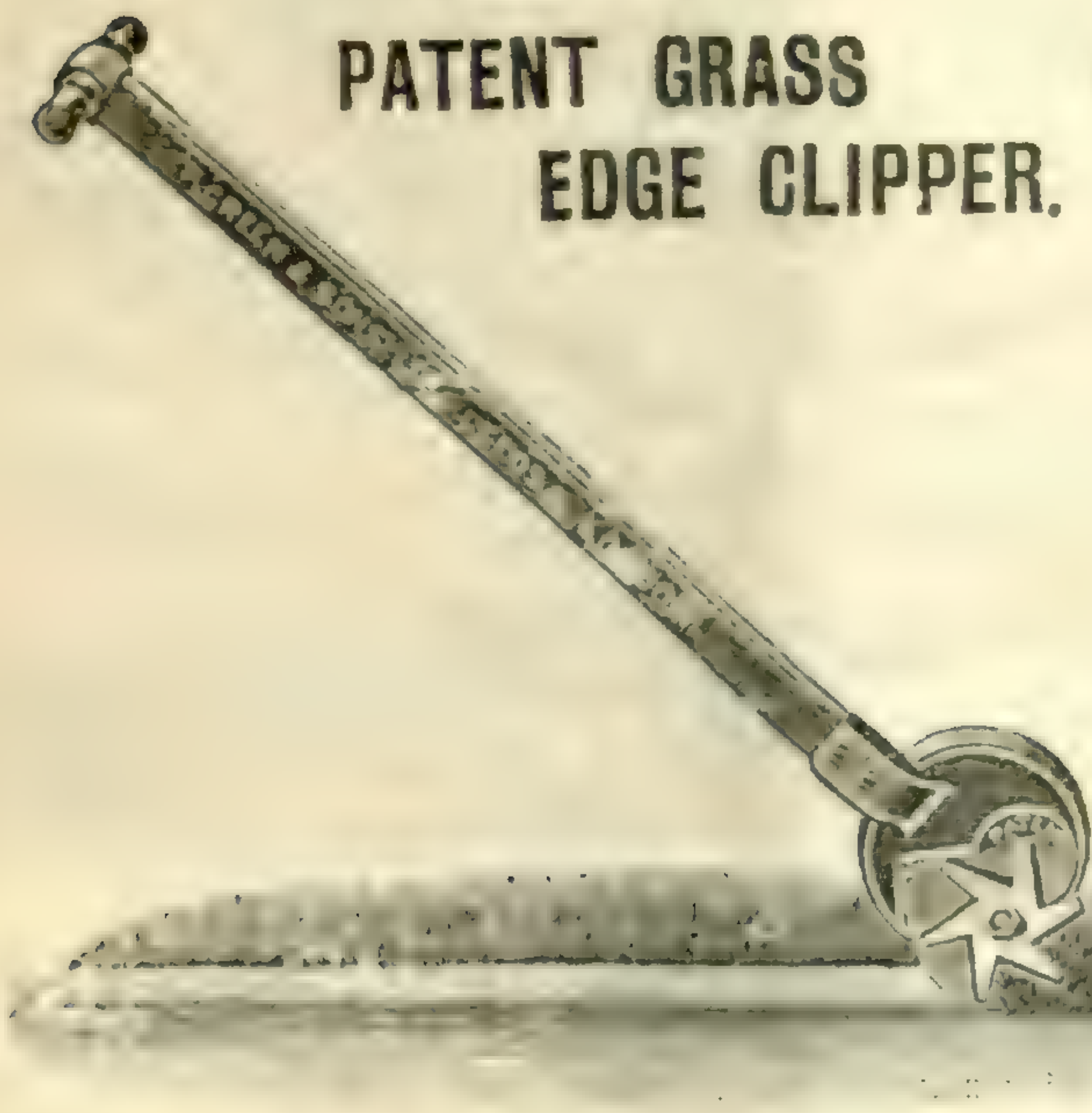

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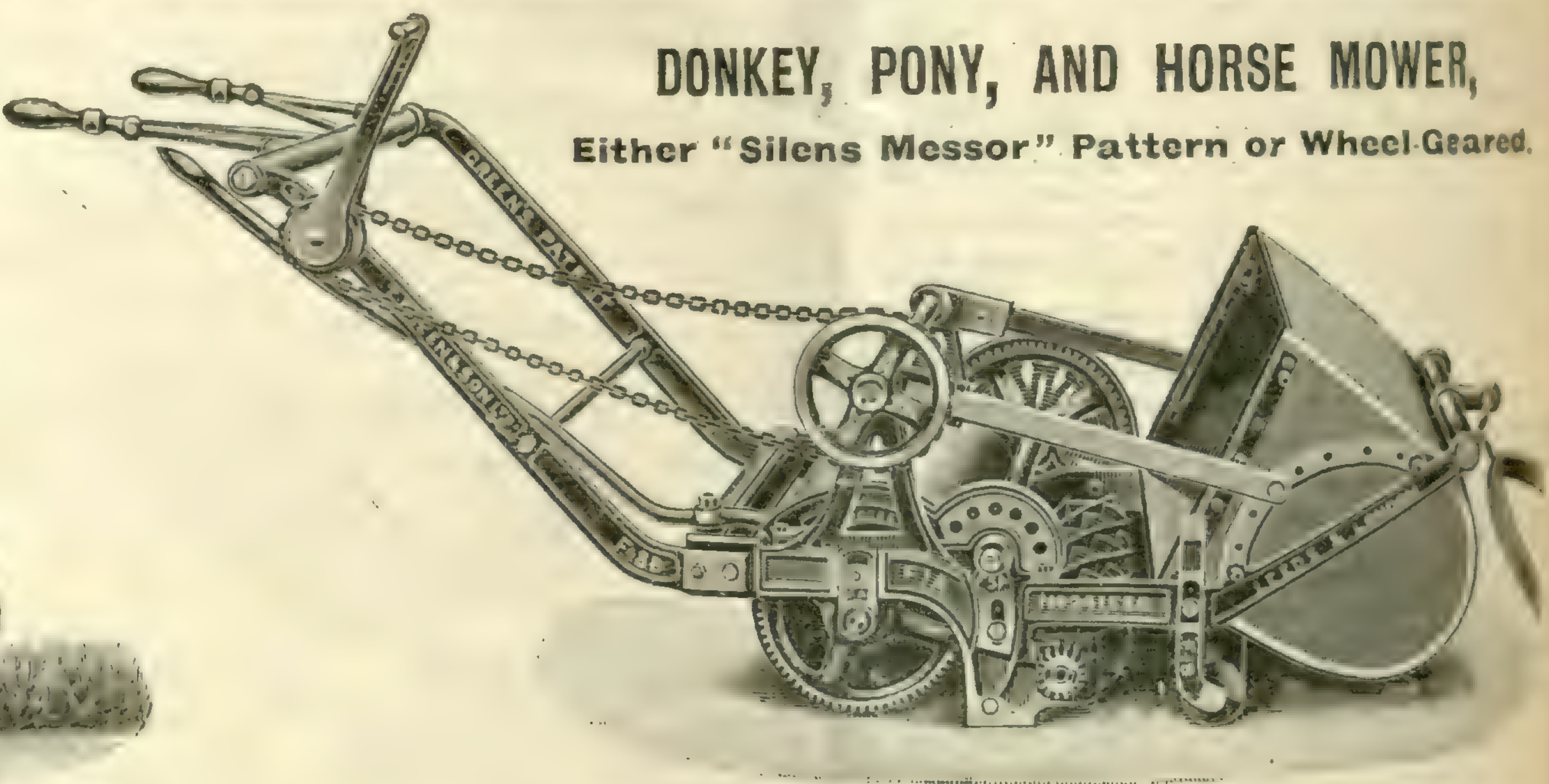

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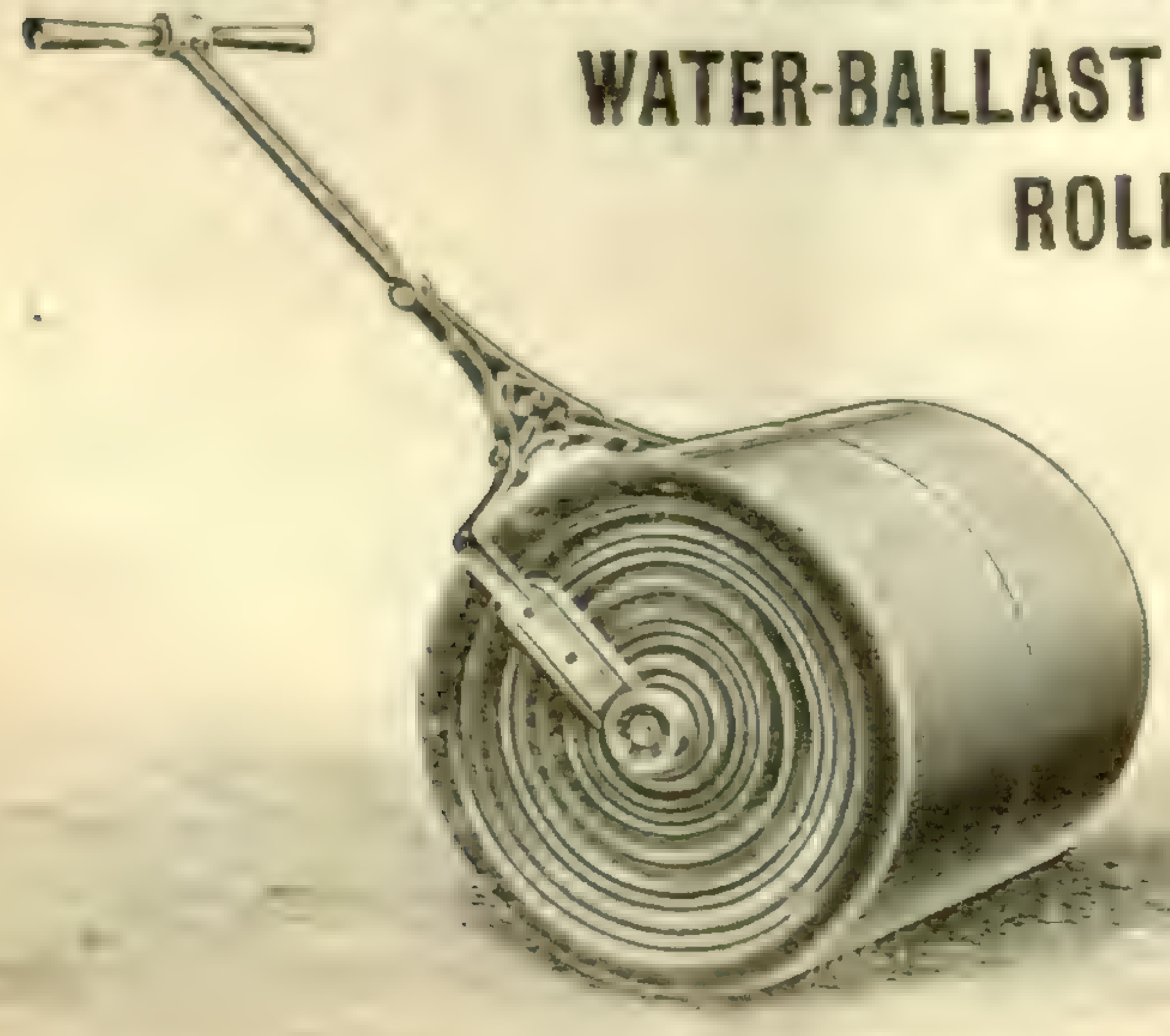

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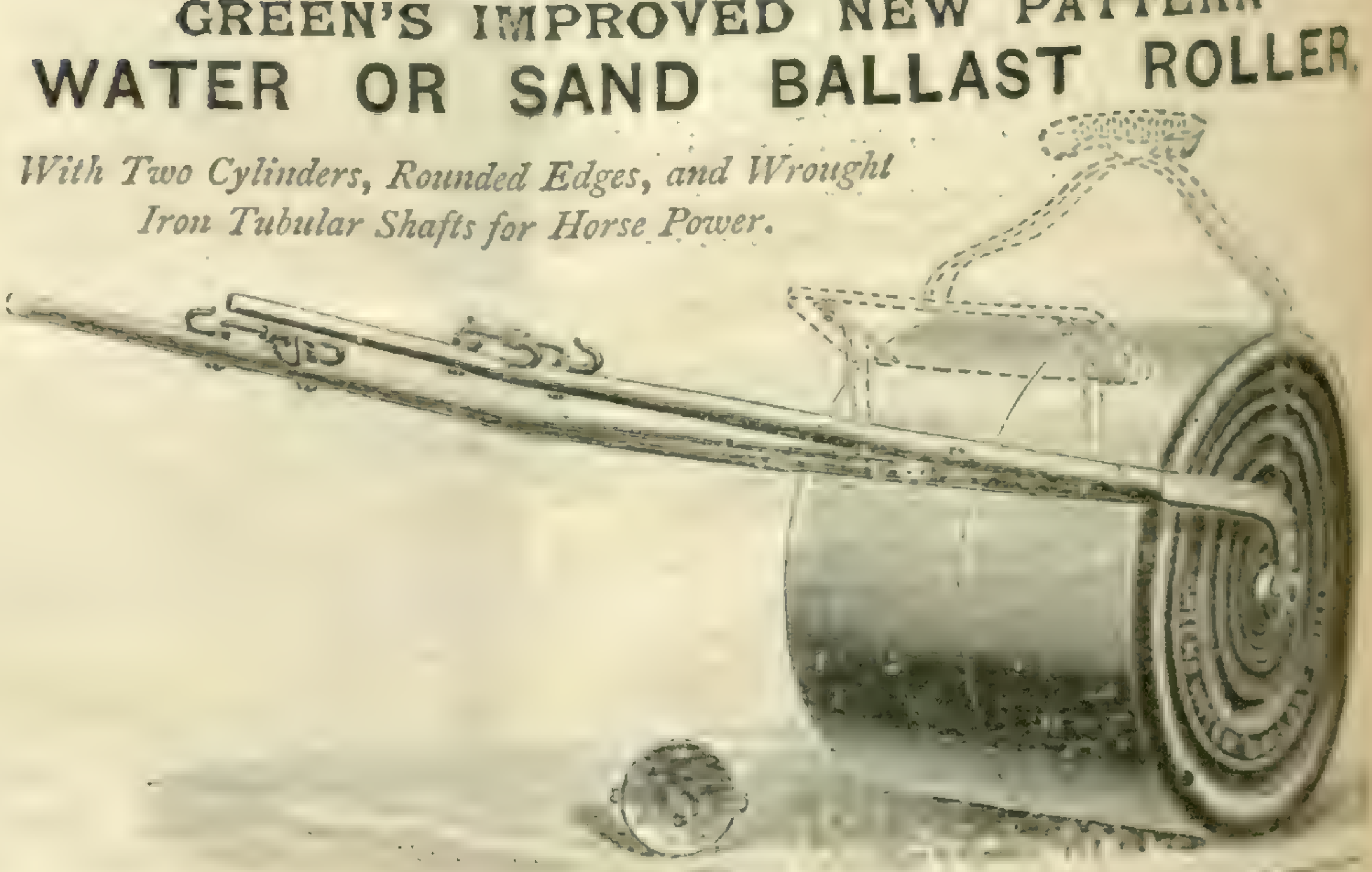

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London: Published at the "Gardeners' Magazine" Office, 4, Ave Maria Lane, E.C., Saturday, March 26, 1898; and may be had of every Newsagent and Bookstall.
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THE GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

EVERY SATURDAY, TWOPENCE.

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No. 2,318.

SATURDAY, APRIL 2, 1898.

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Owing to the continued increase in circufuture the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

HORNSEY URBAN DISTRICT COUNCIL.

QUEEN'S WOOD, HIGHGATE.

APPOINTMENT OF KEEPER.

The Hornsey Urban District Council REQUIRE the SERVICES of a KEEPER and his WIFE for the Queen's Wood, Highgate.

The wages will be 30s. per week, with Lodge, and until the Lodge is completed and ready for occupation the wages will be 40s. per week.

Applicants must be between 25 and 40 years of age, and preference will be given to those having had previous similar experience and who possess a knowledge of Forestry.

Applications, in own handwriting, containing particulars of past and present employment, with copies of not more than three recent testimonials as to character and competency, marked outside "Keeper, Queen's Wood," must be received on or before the 18th April next, and be addressed to Mr. E. J. Lovegrove, Surveyor, Council's Offices, Southwood Lane, Highgate, from whom printed particulars of the duties can be obtained on application.

By order,
F. D. ASKEY,
Clerk to the District Council.
Offices, Southwood Lane, Highgate, N.,
28th March, 1898.

BARR'S Illustrated SEED GUIDE. Free.
For the best Vegetables and most beautiful Flowers.

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GEE'S Superior "Bedfordshire Grown" Cabbage Plants, the best early or late varieties, at 3s. per [illegible] of 1,200 on rails for cash. Also fine Reds, Lettuce, and Onion Plants, at 4s; Asparagus, healthy roots, at 2s. 6d., 3s. 6d., and 5s. per 100; 20s., 30s., and 40s. 1,000. Home Grown Seeds, Plants, Potatos, and Roots, best of all kinds, at most reasonable prices for season. Special quotations to large buyers on hearing requirements. See Catalogue. Please name this paper when writing.
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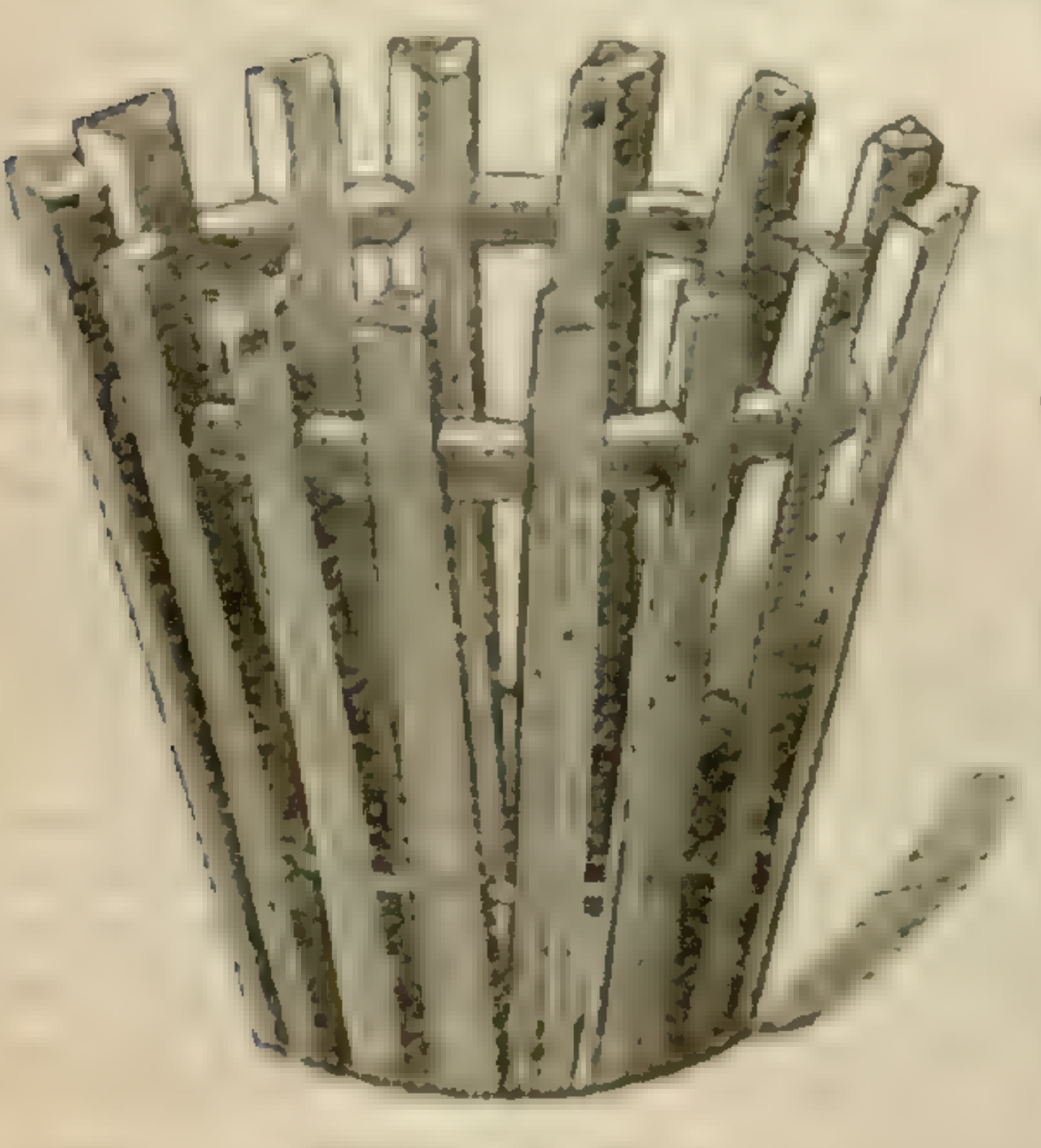

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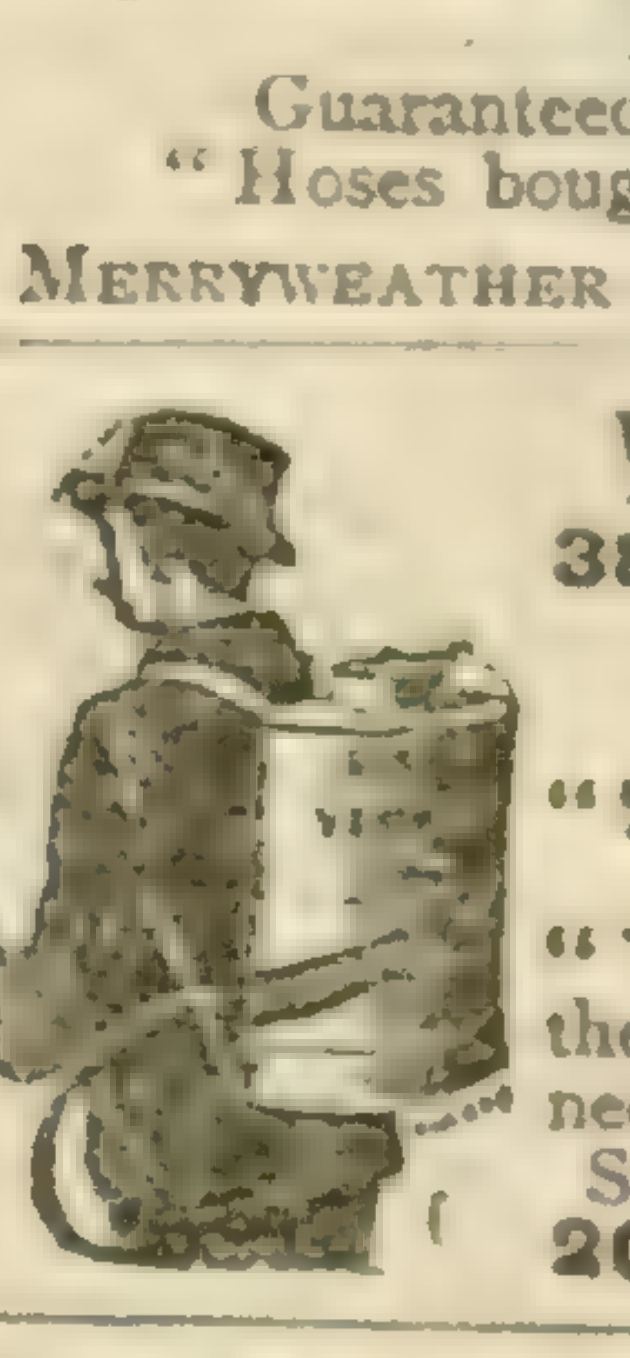

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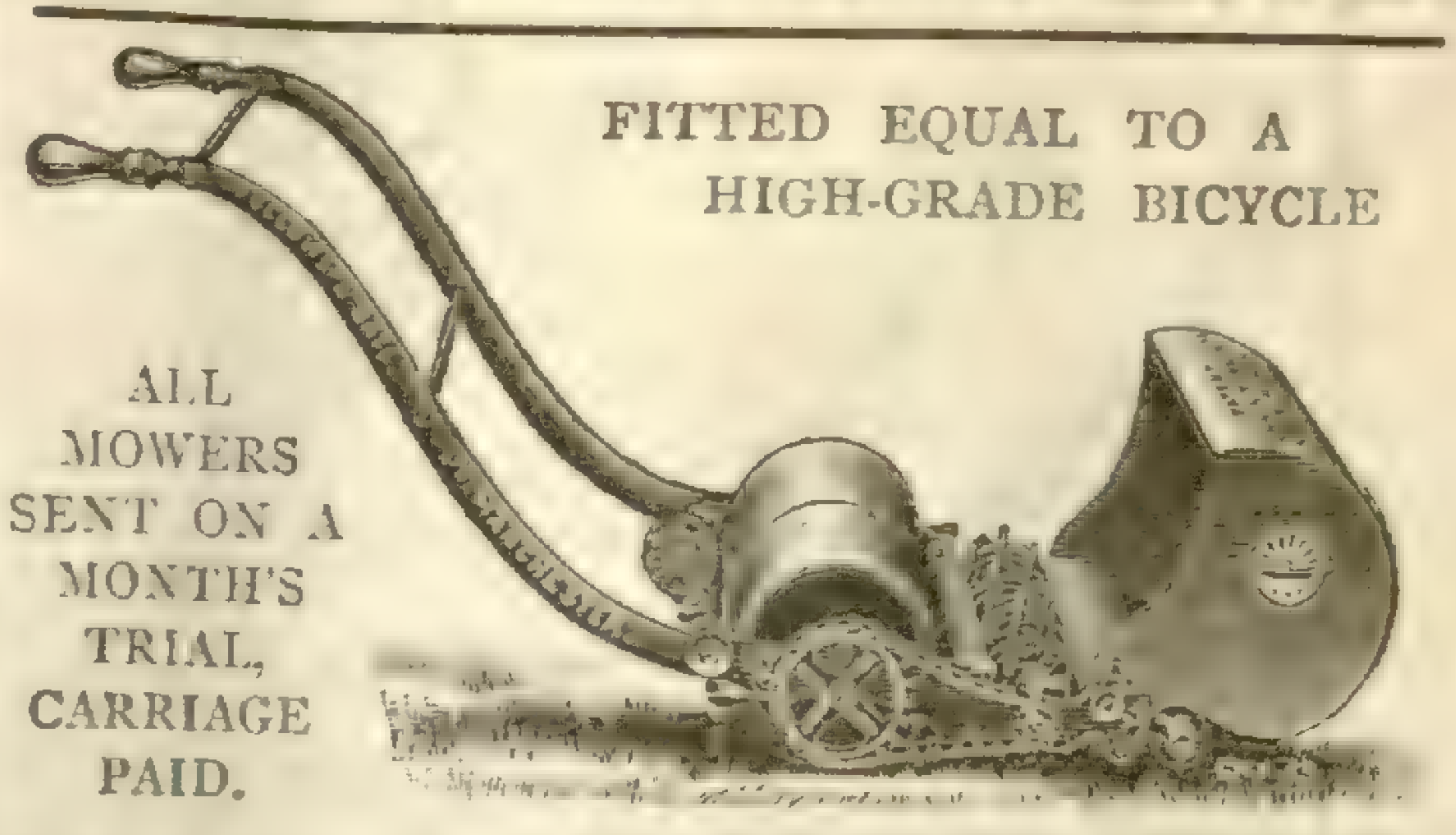
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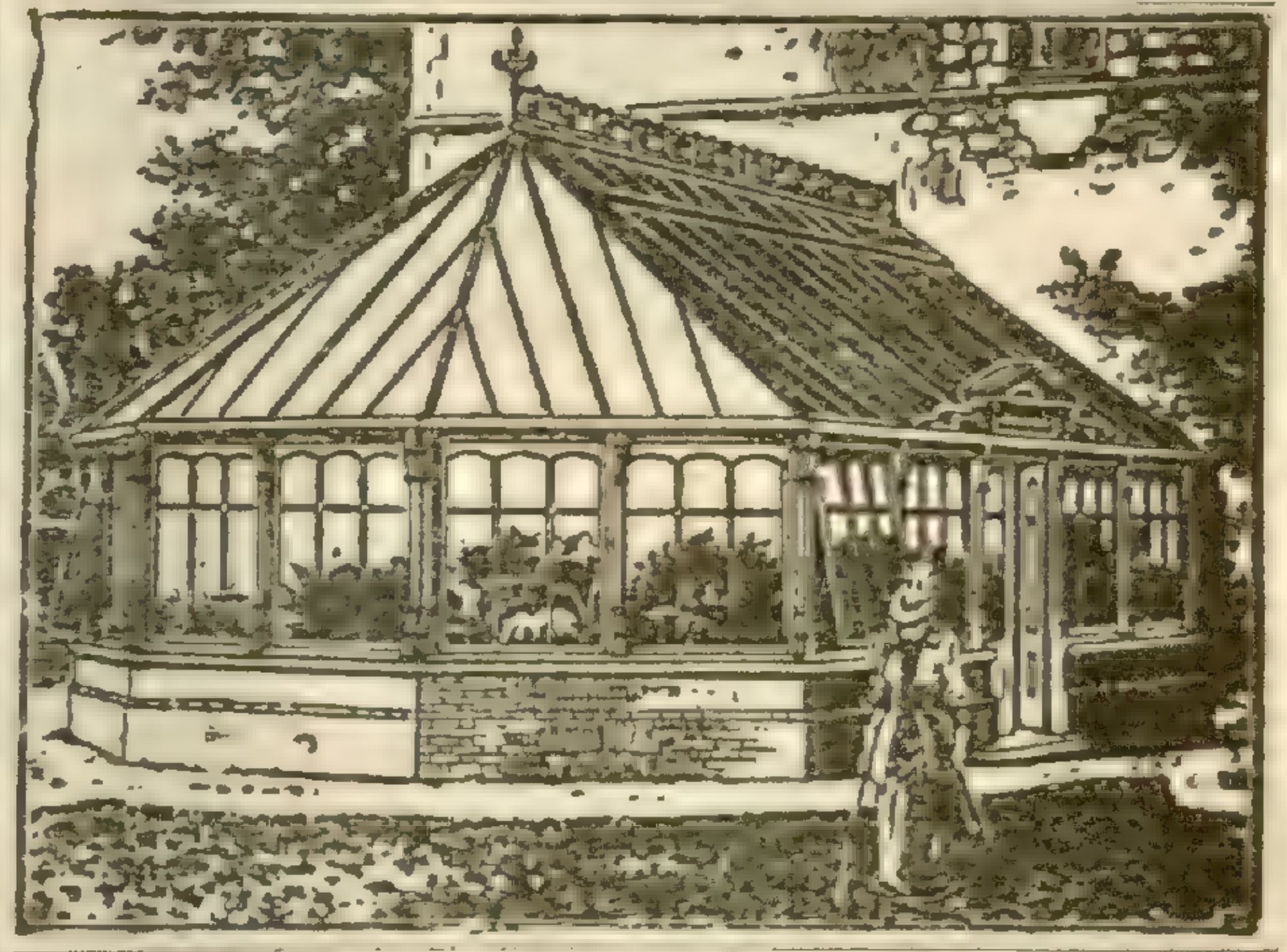

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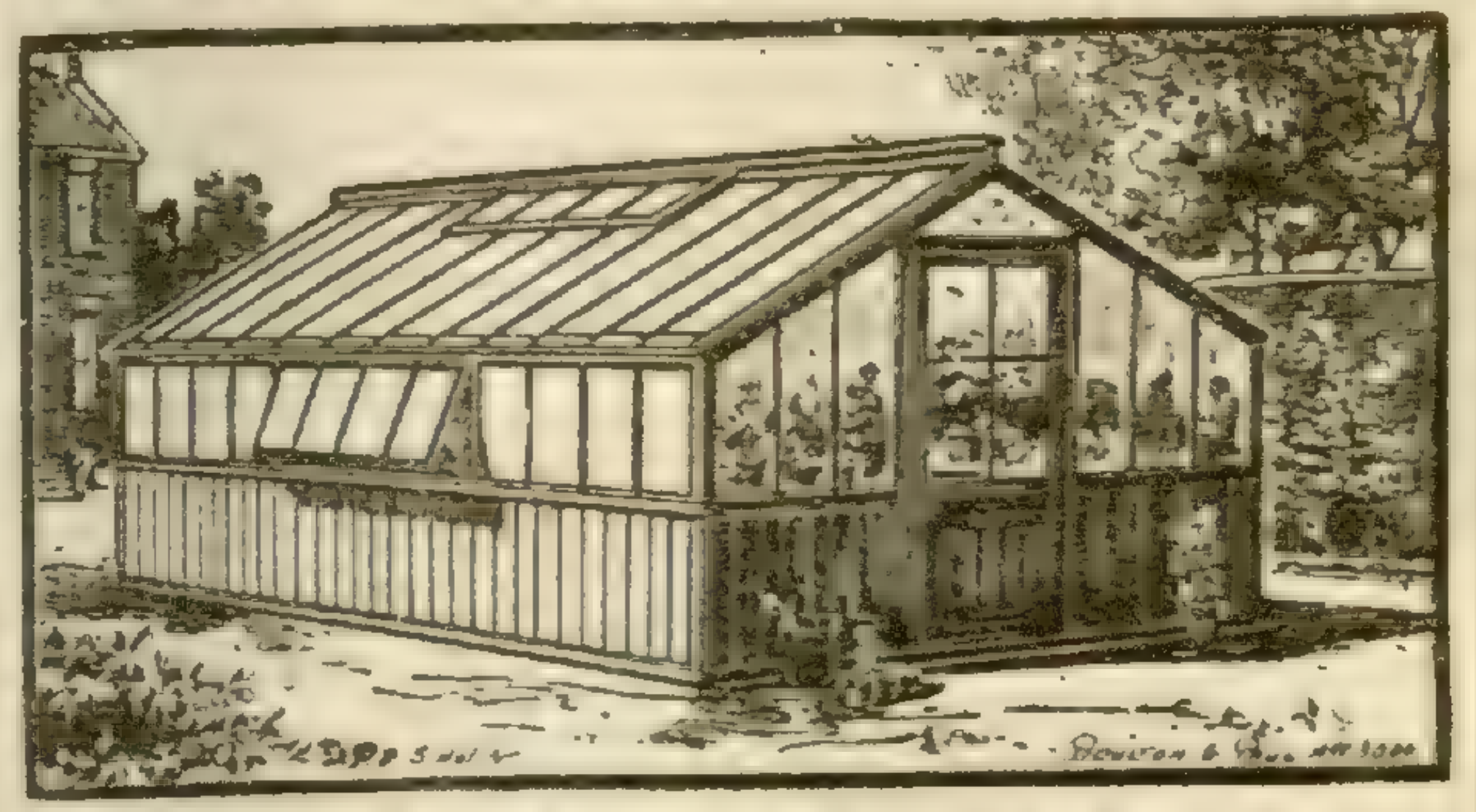

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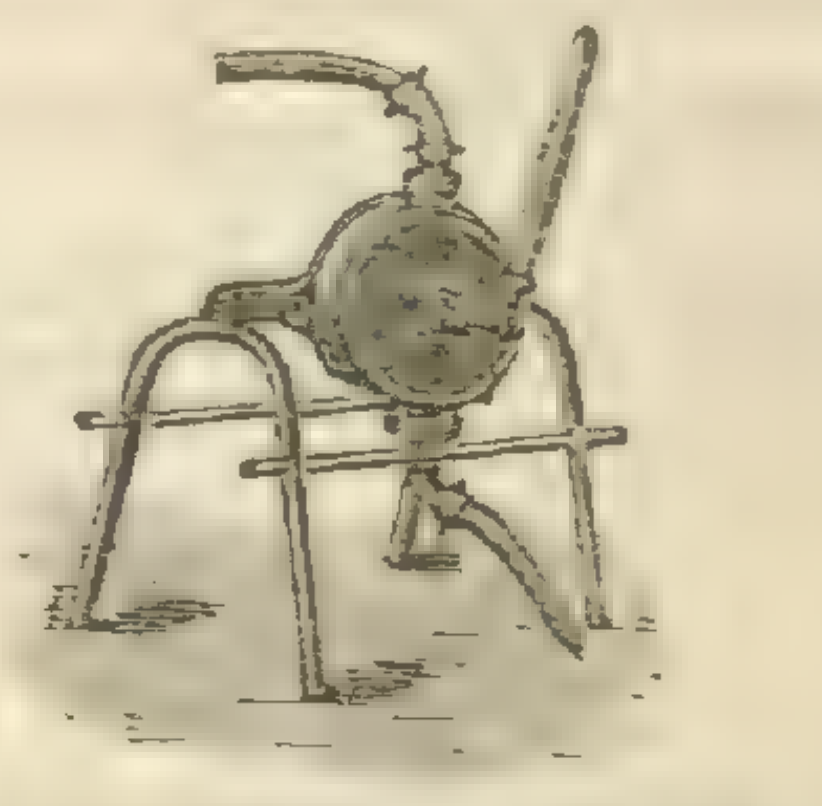

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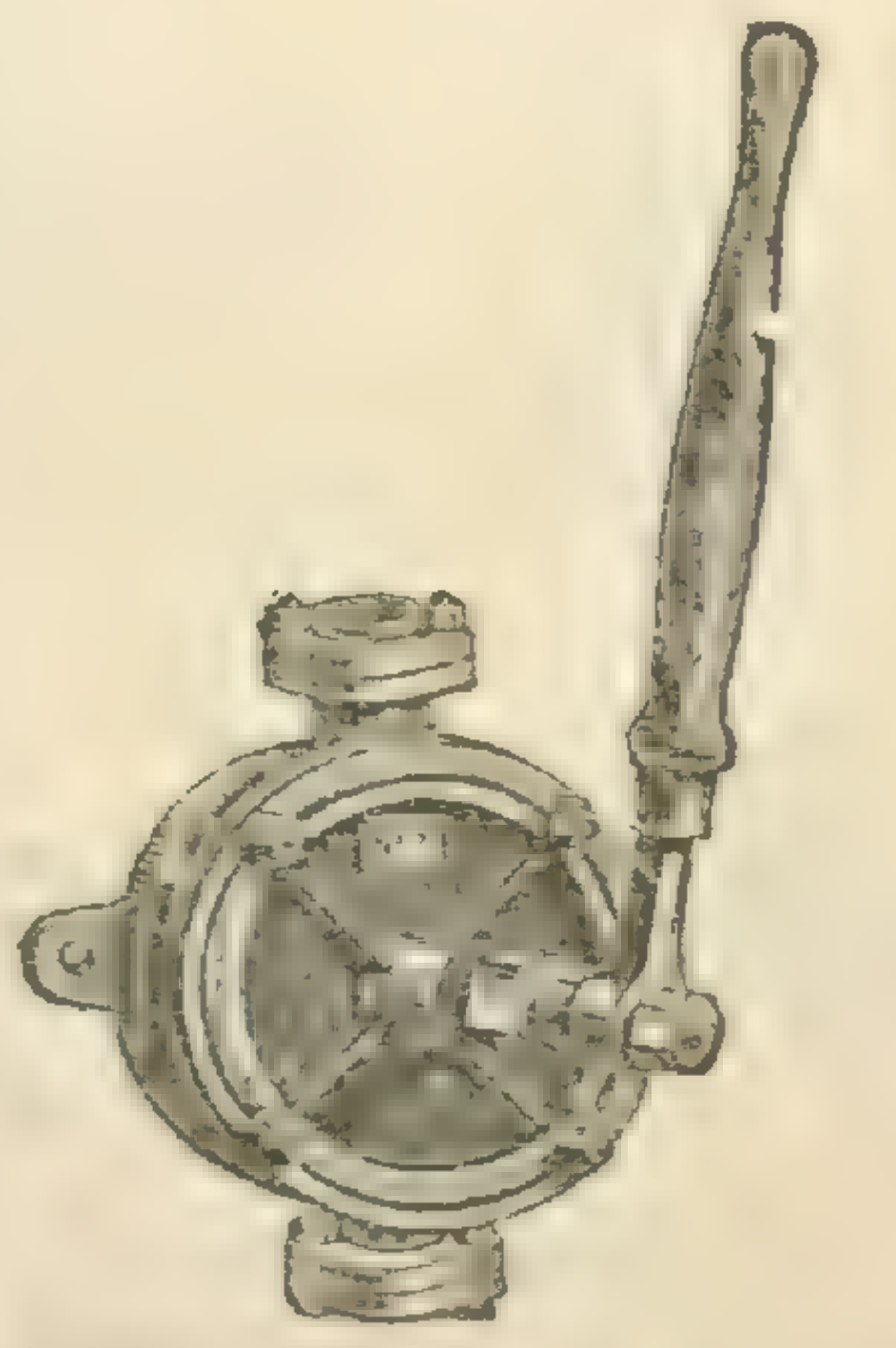

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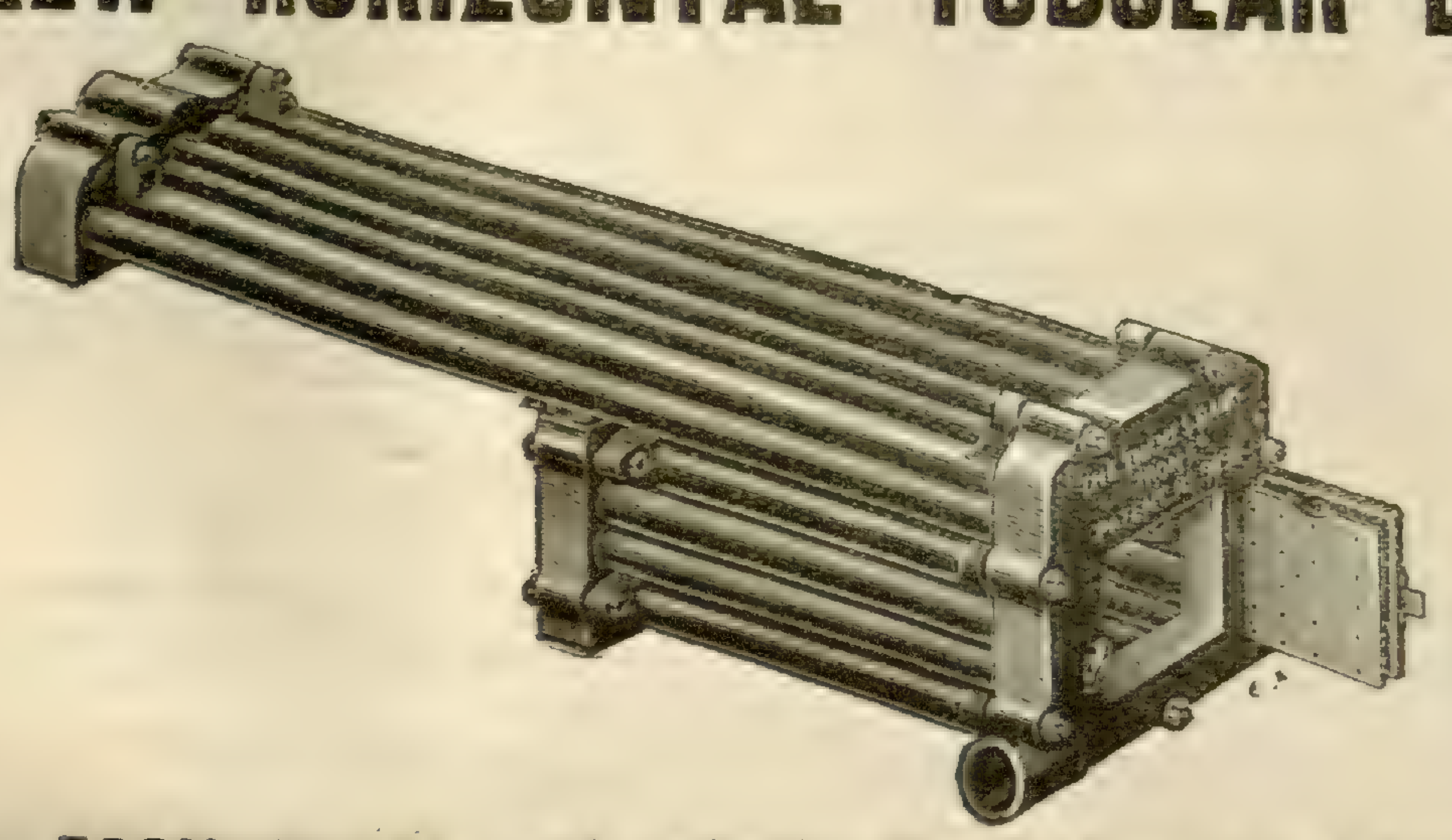

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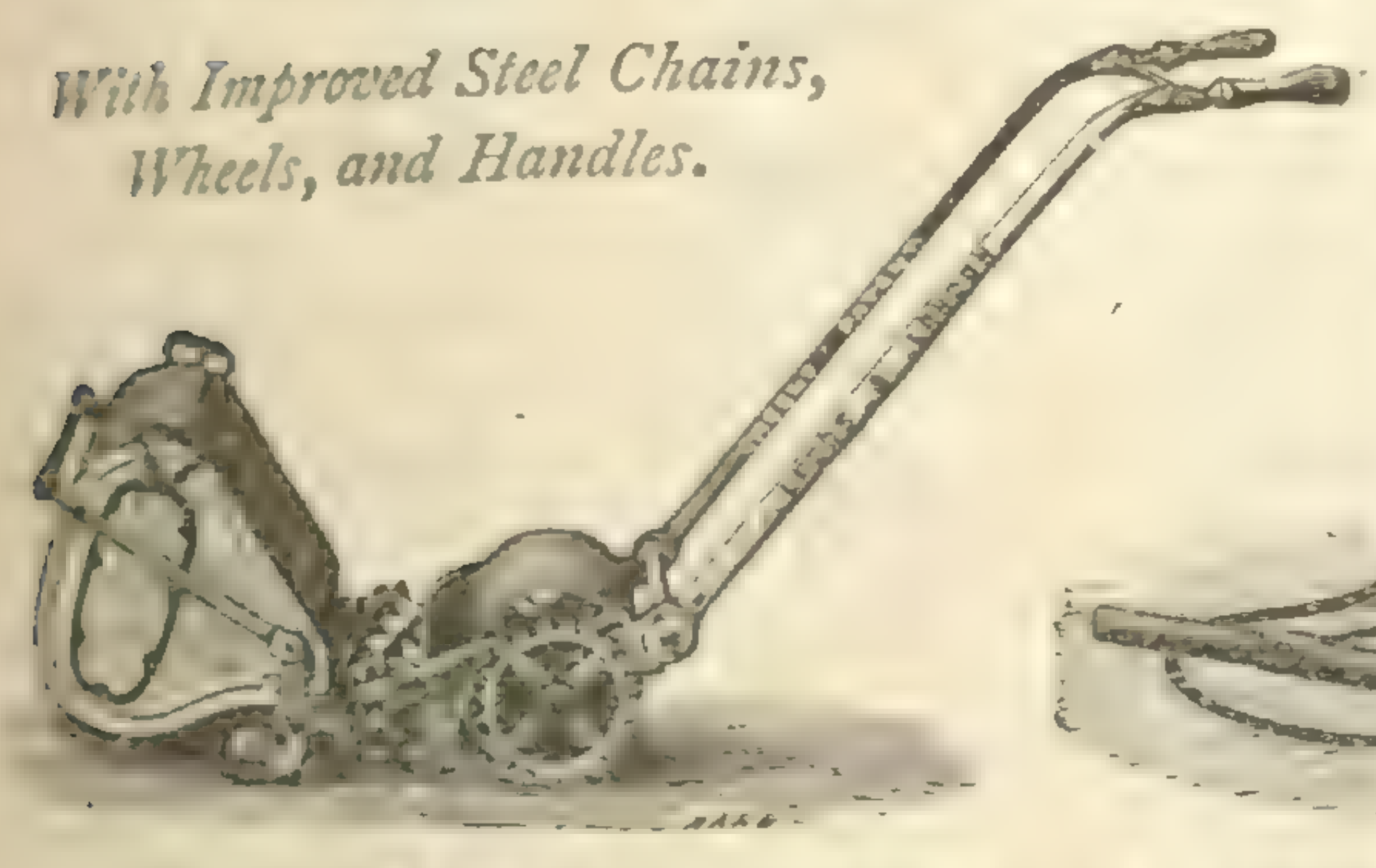

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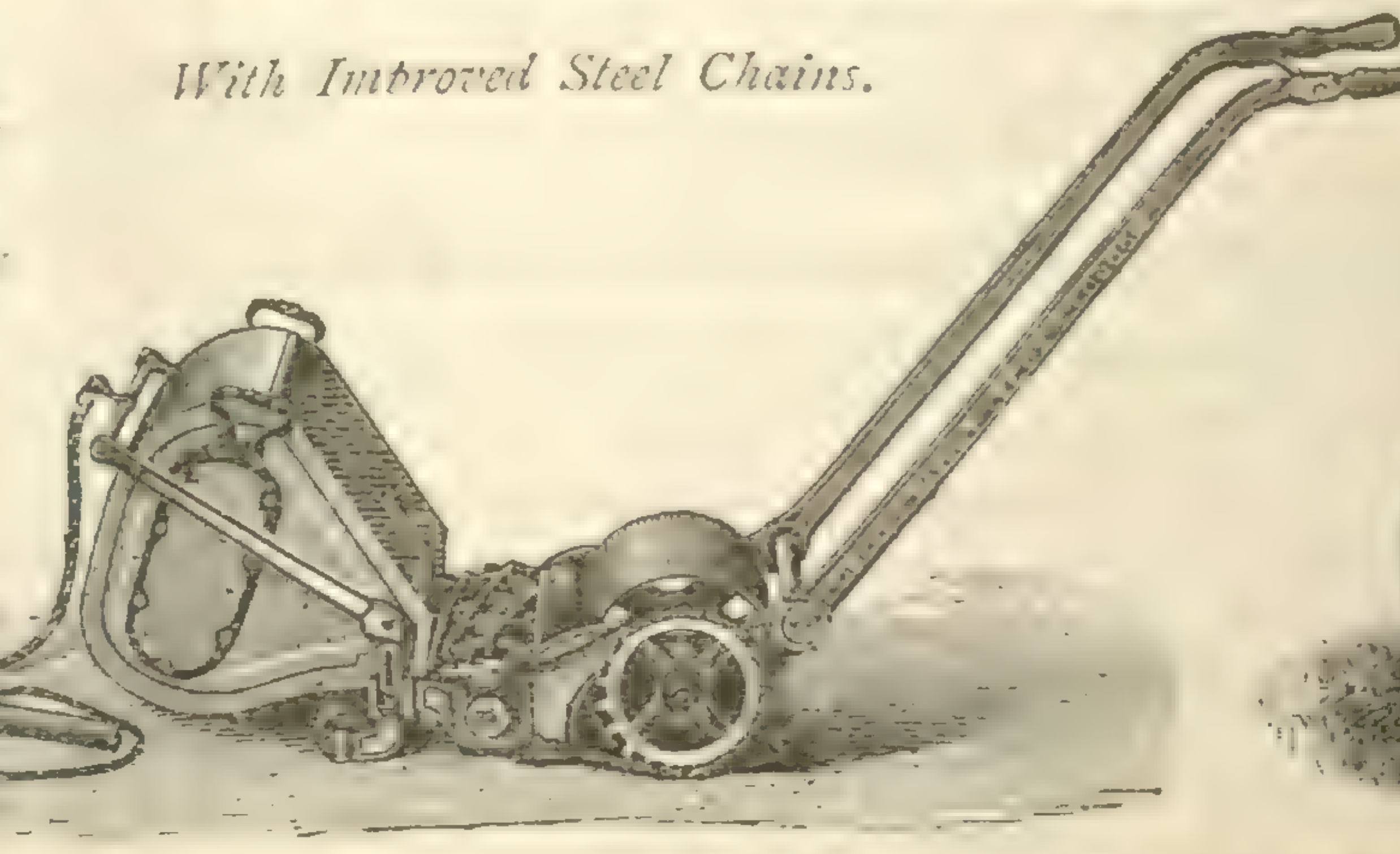

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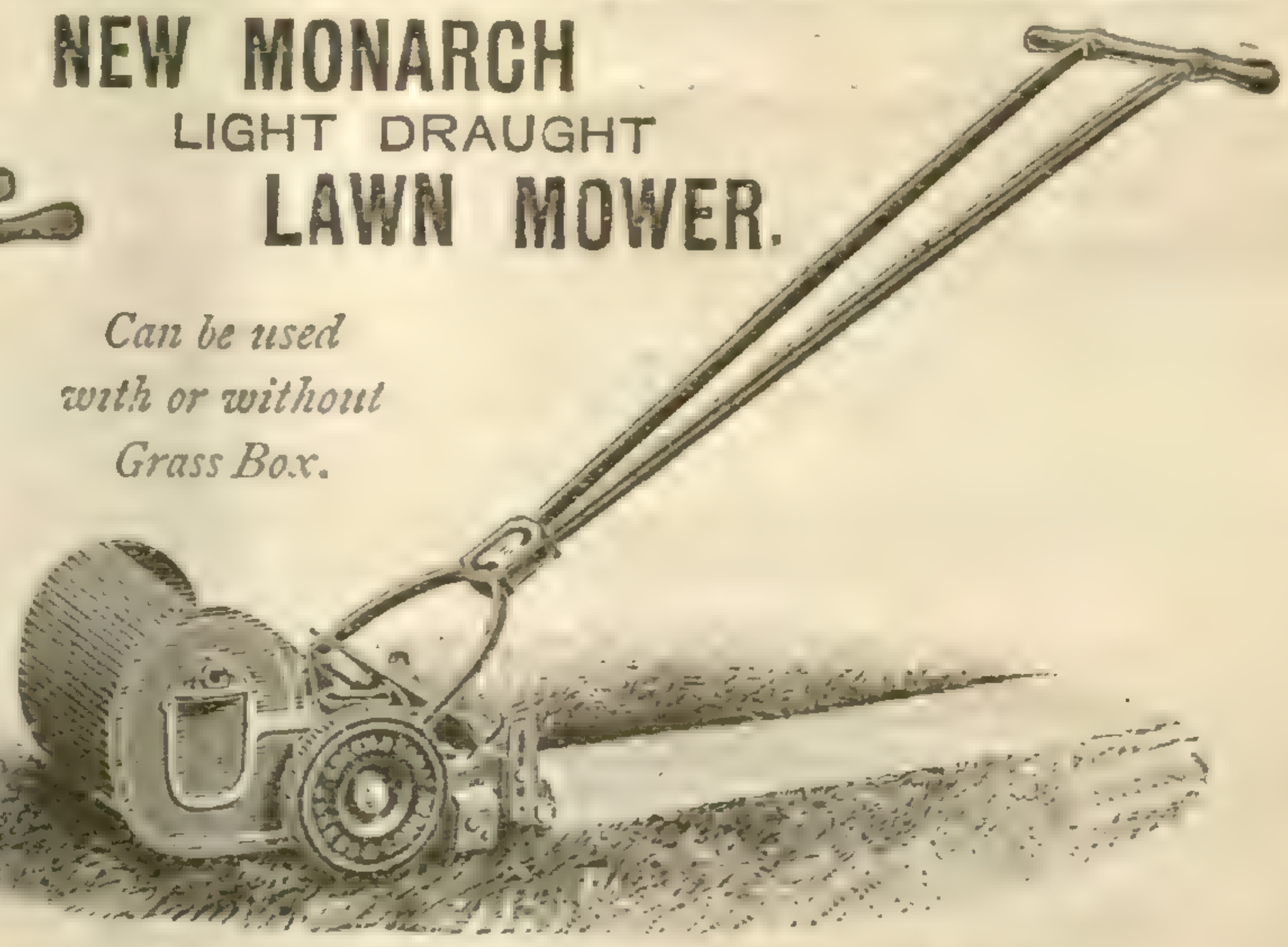

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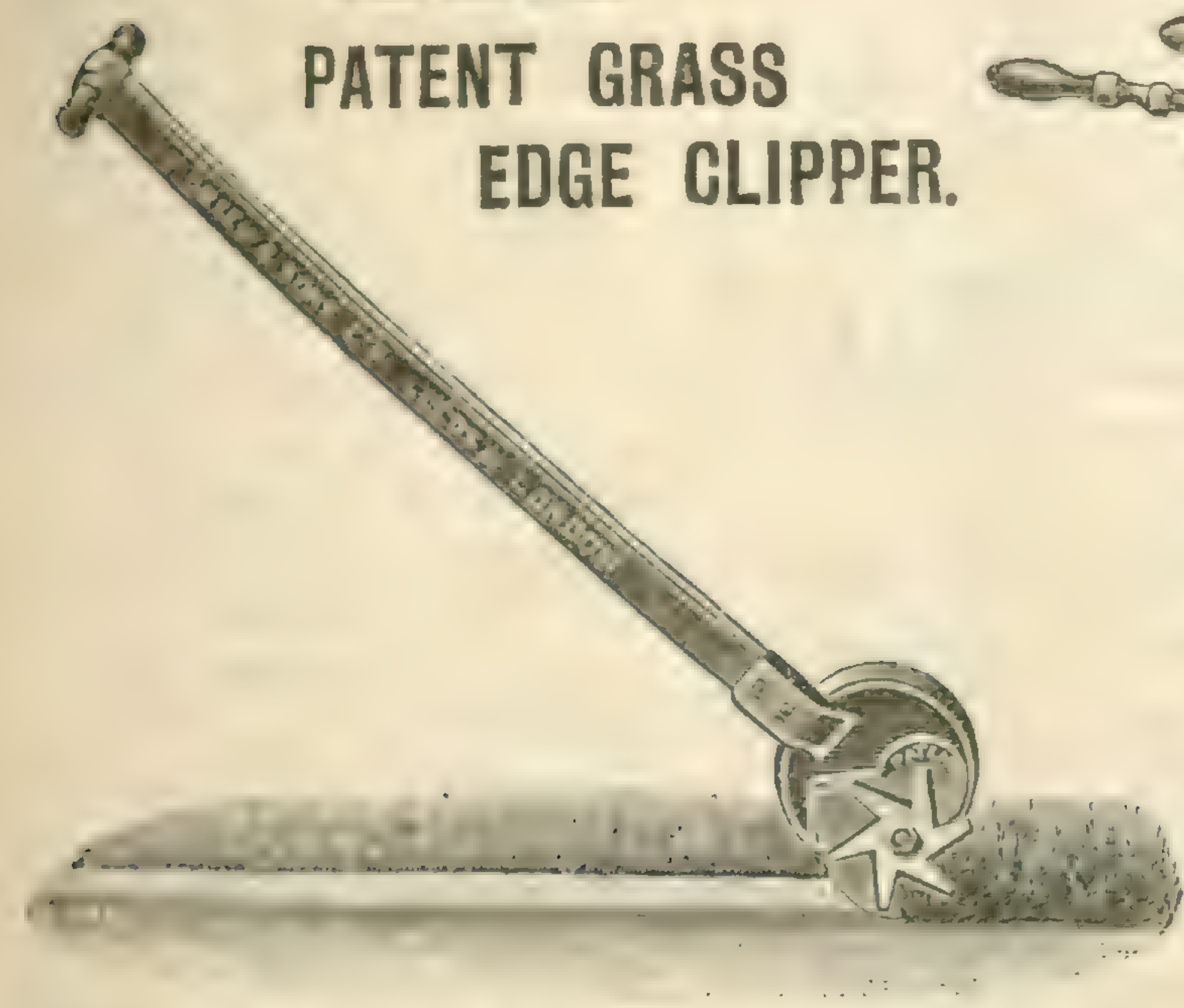

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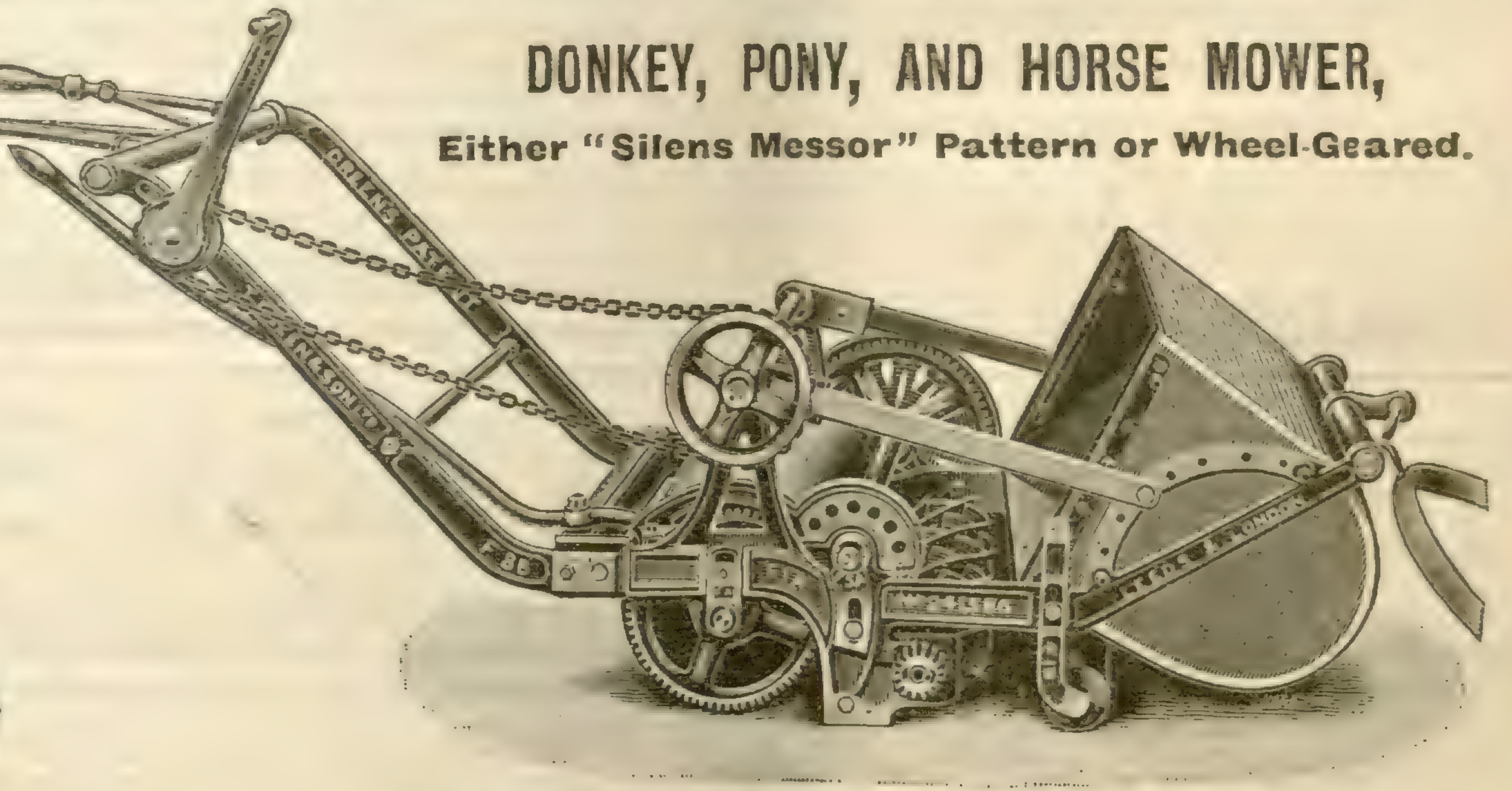

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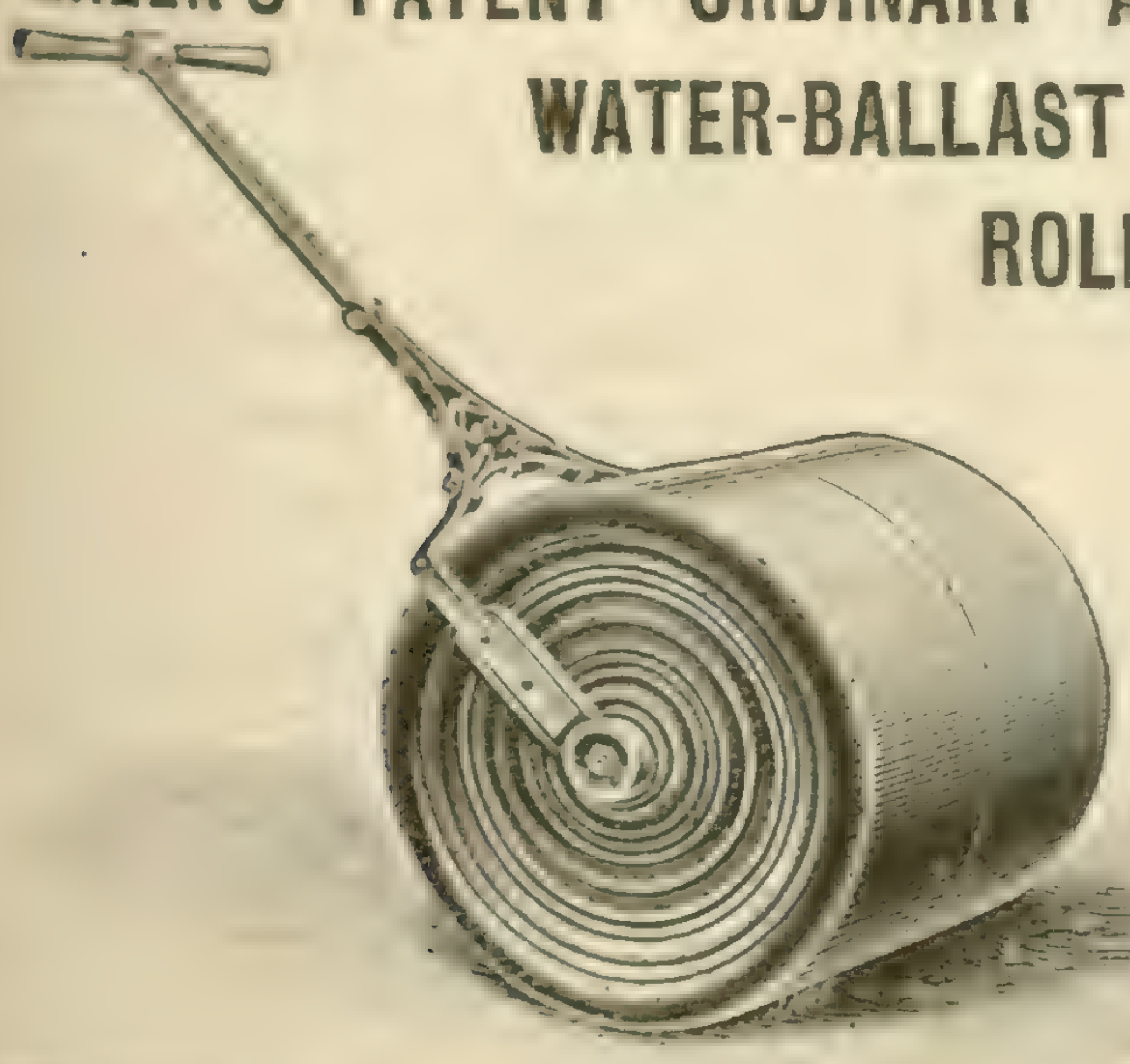

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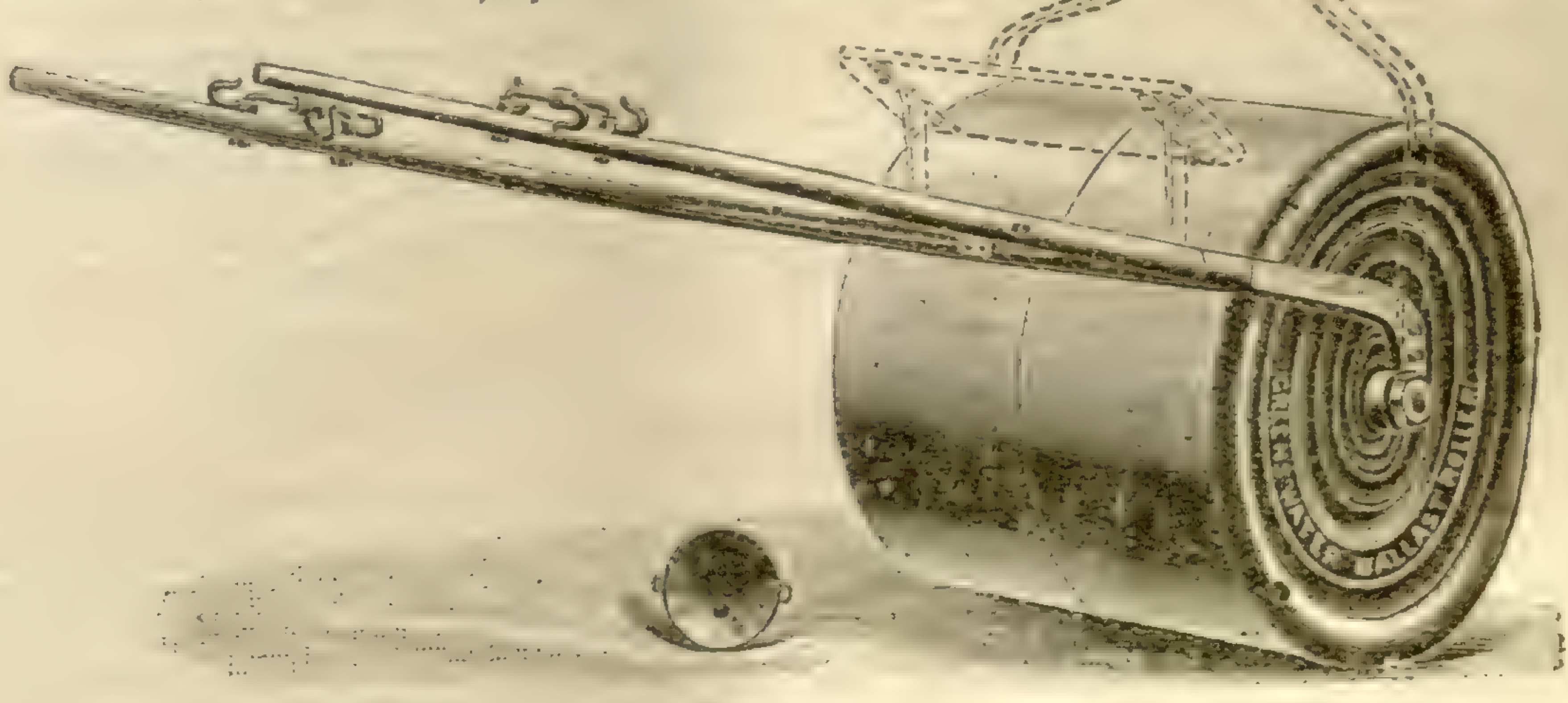

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THE GARDENERS' MAGAZINE.

SATURDAY, APRIL 2, 1898.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

NOTES OF THE WEEK.

A STARTLING STATEMENT.

A DISTINGUISHED horticulturist gave expression a short time since to the apprehension that many of the large trees about the country, and especially in and near towns, are slowly but surely dying from dryness at the roots. There is too much reason to fear that the statement carries with it a conviction as to its truth which raises it above the level of a mere opinion of an alarmist. Even in the country, away from the impure atmosphere which encompasses crowded districts, there are to be noticed indications that many trees of great dimensions show signs of decay, and that not merely from old age. We have had long spells of drought during the past few years, and their effects have been perceived deeper down in the soil than is generally supposed. A planter informed us a few days ago that two feet below the surface in the cases of various soils, there is much dryness. Trees planted on mounds to secure picturesque effects appear to be suffering severely in many instances. When we come to towns and their suburbs, where sewerage works and elaborate artificial drainage are resorted to, there are indications of decay in trees that induce serious misgivings. We see our streets being planted, but the surfaces above the roots are asphalted over, so that no surface water can reach the roots near the trunk; happy is it if the extremities of their roots can find their way into or near some drains where they come into contact with moisture. There are magnificent trees at Clifton, Bristol; they line the roadway on either side, standing up tall and strong against the everlasting sky; but it is seen many of them occupy the ridge of a slope down which rain water runs to the channels at the sides of the roadway provided to carry off the surface water. What is true at Clifton is unhappily true of many other places; the London parks afford many illustrations of the kind. We plant abundantly; but do we sufficiently recognise the necessity for feeding trees already established, especially such as are of large size, which we have reason to fear are living on too scanty an income? In addition to lack of moisture, there is also to be endured a worn-out soil, which means slow starvation. Trees that had once been in the vigour of development, under whose boughs men and women have walked, and said pleasant things in their praise, are unfortunately on the decline. It is distressing to witness such falling away into something like decrepitude; trees into whose limbs the native strength of the soil had passed, making them the pride and glory of a neighbourhood, visibly declining, and yet, not because they are old; indeed, many are quite in the prime of life. They appeal to us, though not in audible speech; but they seem to say, Give us something to sustain our vigour. Here we are tied hand and foot to some spot, where we have been feeding for many years, until we want food, and, above all, moisture, which is a form of food. If you wish us to salute you with a glorious drapery of green leaves, the deepest, richest green, and start into an even more luxuriant growth, give us the means of doing this—food. Such is the sermon the "tongues in the trees" preach to those who will give heed to their utterances. Corporations and urban district councils take great pride in planting, and in many cases the selection of trees is good, and the work well done; but few of the members appear to be concerned greatly in the after welfare of that they plant. Practical arboriculturists are needed on many of the councils, or some nurserymen with knowledge and needful pertinacity. Let anyone inspect a large tree, such as an elm, which has been bowled over by the irresistible energy of a tremendous gale, and it will be found there is an unimagined dryness of the soil. We would have those in power no longer remain wholly blind and deaf to the fact that trees are as capable in their way of hunger and thirst as the cattle in the homestead. Means of irrigation are ready to hand; if thoughtfulness can be aroused, action may be expected to follow, and to incite to these is the object we have so much at heart.

WHITEWASHING PEACH TREES.

ALTHOUGH whitening the branches of peach trees for the purpose of preventing the absorption of heat and the premature development of the flower buds, is less effective than the shade of boards; it is of considerable value for the purpose, and it has the advantage of being inexpensive. At the Colombia Experimental Station the most suitable preparation for whitening the trees was a wash of lime with one-fifth of skim-milk added to the water, and about one pound of salt dissolved in each pailful. The mixture is applied by means of a spraying machine and the dressing is repeated as frequently as the rains may render necessary, but a wash properly prepared and carefully applied will adhere for some weeks. In Missouri, four applications during the winter and spring months were sufficient to keep the trees whitened sufficiently to effect the object in view, and the first dressing is applied towards the end of December or early in January, and the trees are then sprayed twice to ensure their being thoroughly covered with the whitewash, which is made of a consistency that will just allow it to pass readily through the nozzle of the spraying machine. The buds of the whitewashed trees at Colombia remained dormant until April, while those of trees not treated commenced, under the influence of warm weather, to swell freely at the end of February, and the beginning of March. As in the case of the trees shaded by boards, the buds of those which had received a coating of whitewash suffered but little from the severe weather, but not more than twenty per cent. of the exposed buds passed through the winter uninjured. It is also of interest to state that the whitened buds were about a week later in expanding than the others, and also set their fruit more freely, because this fact appears to show that the whitening of the branches checks the swelling of the buds in winter rather than retarding the development of the flowers in spring, and suggests that no definite opinion on the value of whitewash in retarding the development of the flowers should be expressed until it has been put to a practical test. To demonstrate the influence of colour in heat absorption, thermometers were covered with purple material, and these registered during bright sunny weather an average of fifteen degrees higher than did those covered with white material of precisely the same texture. There is nothing new in this demonstration, for Franklin and Leslie long since proved by experiment the great difference in the absorptive power of black and white material.

THE SCILLY DAFFODIL HARVEST.

THE harvest of daffodils that has been gathered in the Scilly Isles during the past season, has been so unsatisfactory as to fully justify the complaints that are being made on all sides by cultivators of these flowers. Before the close of last year it was seen that the crop would be considerably below that of the previous season; but few of the growers anticipated such unsatisfactory results as have been revealed by the figures now at command. During the first two months of 1897 the consignments of flowers from the islands to the metropolitan and other markets in the United Kingdom, reached a total of three hundred and eleven tons, but in the corresponding months of the current year, only one hundred and sixty-two tons of flowers have been sent to market, or rather more than half the crop of the preceding year. This immense drop has, of course, made a material difference in the returns of the growers, who are indulging in some amount of speculation as to the cause of the check which the industry has unhappily received. There is some difference of opinion upon this point, but it is less than might have been expected, and there appears to be a disposition among the majority to attribute the failure to unfavourable climatic conditions. There may be some justification for the opinion so generally held as unfavourable weather during the season of growth or the ripening of the bulbs would seriously influence the production of flowers. But it may be that a thorough investigation of the course of procedure followed by cultivators of the daffodils in these favoured isles would reveal some weak points and we are strongly inclined to the opinion that it is desirable cultivators should carefully consider whether their practice will not admit of improvement. We suggest this being done, for the results of our inquiries justify the belief that the chief cause of the falling off in the supply of flowers during the past season was not untoward weather but indifferent culture. It would appear that the growers do not sufficiently appreciate the importance of a well-devised course of procedure in the cultivation of daffodils for the production of flowers for market, and, in consequence, the plants do not attain sufficient vigour to ensure satisfactory results. It appears to us that a more thorough preparation of the soil, a more liberal use of suitable manures, and a frequent change of crop, are urgently needed. The importance of a proper rotation is evidently not fully appreciated in the Scilly Isles, and in consequence the daffodils are in many instances grown for too long a period on the same land, with the result that the soil becomes exhausted, and the plants so weakened as to readily suffer from adverse influences. Therefore it is absolutely necessary that something should be done to improve the system of culture, for unless a material change is made without delay, the crops will steadily decrease, and the industry cease to be a source of profit to the islanders.

Gardeners' Orphan Fund.—Charles E. Keyser, Esq., writing from Aldermaston Court, Reading, under date of April, 1898, says: Having consented to occupy the chair on April 20 at the annual Festival Dinner of the Royal Gardeners' Orphan Fund, I wish to appeal to all lovers of gardens and gardening for a liberal response towards this most deserving charity. The object of the fund is to make allowances or grants of money to aid in the maintenance and education of the orphan children of gardeners. At the present time, sixty-four children participate in the benefits of the fund, by an allowance of 5s. per week until they attain the age of fourteen years; special grants are also made towards apprenticing or otherwise promoting the start in life of any boy or girl who may be eligible for such assistance. The principle on which the charity is conducted, is one which strongly recommends itself to the benevolent: the granting of allowances to children in their homes, thereby assisting the mother to maintain her family, is one of the best that can be adopted. From what I have seen of the management of this charity, I can confidently speak of the excellent work it is doing among a deserving class, and of the economical way in which the work is carried out. There are no expensive buildings or offices to maintain. Beyond the payment of necessary working expenses, which are kept at the lowest limit, all monies received are directly applied to the relief of the orphans. I strongly recommend this charity to your benevolent consideration, and trust that you will use your great influence in its support. We trust that Mr. Keyser's appeal on behalf of this excellent charity will meet with a liberal response.

Societies Affiliated with the R.H.S. having expressed a wish that they may be allowed to use the parent society's badge, the Council, desiring to meet this very legitimate wish for some outward symbol of affiliation, but considering it better that the badge should not be actually identical with that in ordinary use by the parent society, have caused a new badge to be struck, which may be used by affiliated societies, on letter paper, schedules, &c., as they may think fit. A printing block of this badge will be presented to every affiliated society (there are now over one hundred) on application to the secretary, and on signing an undertaking to return the same if the affiliation should for any reason be ended.

Horticulture at Manchester.—We are pleased to have evidence of renewed activity in horticultural circles at Manchester, more especially in the work of the Royal Botanical and Horticultural Society of Manchester, which has exercised an important influence for good upon horticultural progress in the United Kingdom during the past half century. Mr. P. Weathers, the curator and secretary of this society, sends us particulars of the arrangements for the current year, and from these we learn that a great horticultural exhibition is to be held from May 27 to June 2; a rose show on July 9; an exhibition of the produce of the gardens of amateurs and cottagers, September 3; and an exhibition of chrysanthemums, November 15 and 16. The first three exhibitions are to be held at Old Trafford, and the chrysanthemum show at the Town Hall. At the Whitsun exhibition orchids receive liberal encouragement, five classes being provided for collections, and the prizes are such as to justify the anticipation of a brisk competition. The prizes in the amateurs' class for a miscellaneous collection are of the value of £20, £12, and £8 respectively, and prizes of the same value are offered for groups of miscellaneous plants arranged for effect on an area not exceeding two hundred square feet; British and exotic ferns, stove and greenhouse plants in bloom, and remarkable for the beauty of their foliage, and hardy herbaceous plants, with a host of other subjects proper to the season have ample provisions made for them. The schedules of the rose and chrysanthemum shows are comprehensive, and that of the cottagers' show is of much interest.

Liquid Air is not, perhaps, of such immediate importance to the gardener as the mixture of oxygen, nitrogen, and carbonic acid, which constitutes atmospheric air under normal conditions, but the process of liquefaction is so highly interesting as to justify some reference to it. Dr. Linde has invented an ingenious air-liquefying machine, and this has recently been on exhibition at the rooms of the Society of Arts. It is based on the fact that air, not being a "perfect gas," undergoes a reduction of temperature when it is suddenly allowed to expand from a high to a low pressure. This cooling effect is made cumulative by allowing each lot of cooled air in turn to abstract heat from the air in the chamber previous to expansion, so that the expanded air continually starts from a lower temperature. In this way a temperature is obtained low enough to produce liquefaction, and allow even of liquid air being drawn off by a tap—of course, under proper conditions to prevent heat getting to it. The machine on exhibition gives off nine-tenths of a litre of liquid air an hour, with a continuous expenditure of three horse power. The reduction of pressure undergone by the air is from two hundred to sixteen atmospheres. The liquefaction of the nitrogen and oxygen in the air is simultaneous, but the nitrogen evaporates first, so that in this way pure liquid oxygen can be obtained.

Pollen Grains.—With what marvellous beauty Nature fashions even the smallest of her productions was strikingly illustrated at the meeting of the Royal Botanic Society on the 19th ult., under the chairmanship of Dr. St. George Mivart, F.R.S., when the Fellows gave an exhibition of pollen grains as seen under the miscroscope. Many of the slides were of a most interesting nature, and the development of the pollen was shown by a series ranging from its first inception within the anther of the flower up to the formation of the pollen tube and the fertilisation of the ovule. Other slides were much admired for the great beauty of the markings upon the wall of the grains.

Chionodoxas continue to enjoy a high degree of popularity, and deservedly so, for they are so exquisitely beautiful that in the season of flowering they have no superiors. In the Royal Gardens, Kew, they are grown in immense numbers, and at the present time they constitute a delightful feature. C. Luciliæ forms a series of beautiful pictures on the slopes and ledges of the rock garden, and this species and C. sardensis is used with much success in carpeting the surface of shrubbery borders in the same way as the snowdrops in the example of which we gave an illustration in our issue of the 19th inst.

Hyacinth Culture for Exhibition has of late years so materially declined in the neighbourhood of the metropolis that it is now a rare occurrence for these flowers to be contributed in any considerable quantities and in exhibition form at the metropolitan meetings. Hence the collection of splendidly grown specimens exhibited by Messrs. W. Paul and Son at the meeting of the Royal Botanic Society on Wednesday was of much interest, more particularly to those who remember the time when a hyacinth show formed one of the most important items in the society's programme. The specimens staged were equally remarkable for their short, stout foliage and massive spikes, and reminded us of the examples which had on more than one occasion placed the firm at the head of prize winners in a severe competition.

Early Herbals and Old Gardening Books are steadily acquiring importance, and the remarkable collection included in the important sale of books by Messrs. Sotheby, Wilkinson, and Hodge during the week ending the 26th ult. created an immense amount of interest among book lovers. The early herbals included a French MS. of some three hundred and fourteen pages, entitled "Le Livre des Simples Médécines," written in the fifteenth century. This important manuscript contains besides the herbal several treatises on diseases and their remedies, written partly on vellum and partly on paper, and is embellished by several hundred coloured drawings of plants, &c., and ten paintings of hunting scenes and husbandry processes. The biddings were brisk, and soon reached £99, when the hammer fell, Mr. Quaritch being the purchaser. Not less spirited was the competition for "Arbolayre cotenãt la Qualitey et virtus Proprietez des Herbs," a small folio, printed at Lyons by Husz, probably in 1485, and so exceedingly rare that only one other copy is known to exist, and that is in the Bibliothèque National at Paris. It is a translation of the German Herbal printed at Bale, and contains numerous fine woodcuts, that at the back of the title being particularly good. This was sold to Mr. Robson for £68. Several copies of the "Buch der Natur," one of the finest of the woodcut books produced at Augsburg in the fifteenth century, were offered, and they realised good prices. The extremely rare first edition, printed at Augsburg by Bamler in 1475, is a small folio, illustrated by numerous full-page woodcuts, coloured by a contemporary artist, practically uncut, and in the original publisher's binding, and after a spirited bidding the hammer fell at £101, the purchaser being Mr. Quaritch. The rare first edition of "Herbarius sive Aggregator," a small quarto of one hundred and seventy-four leaves, illustrated by one hundred and fifty woodcuts of plants in contemporary colouring, and issued from Schoeffer's press, sold for £25. There were three editions of "Hortus Sanitatus Herbis et Plantis," a small folio, illustrated with spirited woodcuts of plants and gardening operations; the copy printed by Pryss in 1487 realised £14; that issued from the press of R. Beck in 1490 £15 15s., or five shillings more than was obtained for Lord Ashburnham's copy sold in December last; and the extremely rare *editio princeps*, with a date, printed by J. Meydenbach in 1491, £35 10s. The old gardening books included a fine copy on thick paper of "Buillard's Flora Parisiensis," published in 1776, and containing six hundred and forty finely coloured plates (£10 10s.); "Bussatos Giardino di Agricoltura," a rare work, printed at Venice in 1599, and containing illustrations of gardening utensils, grafting, &c. (£2 9s.); "Chambers's Plans and Views of Kew Gardens," a folio containing fine engravings of the gardens, published in 1763 (£2 2s.); "The Countryman's Recreation," a fine copy of one of the rarest of the old English books on gardening, and published in 1653 (£8 5s.); "Dunstall's Book of Flowers, Fruits, Beasts, Flys, and Worms," four vols., fully illustrated, published in the years 1661-63, an interesting book (£15); "Desgot's Parterres," a folio with illustrations of flower gardens, by Le [illegible] and others, published in 1730 (£3); "Ferrari's Florum Cultura," a rare work with engravings of flowers and gardens, and published at Rome, 1633 (£3); "Flowers," a collection of thirty-two drawings, in water-colours, of flowers, supposed to be by Marie Joseph de Saxe, mother of Louis XVI. (£6); "Flower Garden Displayed," an interesting and rare work published in 1732, and containing some four hundred representations of the most beautiful flowers of the period (£[illegible] 15s.); "Franeau's Jardin D'Hyver," a rare quarto, published in 1616, and embellished with numerous plates (£5 2s. 6d.); "Lawson's A New Orchard and Garden," an interesting work containing directions for planting orchards, grafting fruit trees as practised in the seventeenth century; "Tulips," a fine folio published Paris in 1781, and containing forty finely-executed coloured plates of the finest florists' tulips then in cultivation; "Ehret's Plantæ Selectæ," a rare [illegible] containing one hundred superbly coloured plates and mezzotint portraits of [illegible] Dionysius, D. Christophorus, Jacobus Trew, and Joannes Jacobus Haid; "Elsholtz Garten Baw," a somewhat interesting German book, published [illegible] Berlin towards the close of the seventeenth century. There were many other old German books of special interest, but space will not permit mention being made of them, except to say that a good copy of the "Catalogue of Plants" propagated for sale by a Society of Gardeners in London in 1730, and embellished with a fine frontispiece and twenty-one coloured plates, realised £2 2s.

At the British Association Meeting to be held at Bristol the [illegible] of Section K, Botany, will be Professor F. O. Bower, F.R.S., president; Professor Marshall Ward, F.R.S., vice-president; Mr. A. C. Seward, Professor J. B. Farmer, and Mr. J. W. White, secretaries, the former to act as recorder to the section.

Flowers for the London Schools.—An appeal is once again being made on behalf of the children in the London elementary schools for a small supply of either wild or cultivated flowers weekly or fortnightly throughout the spring, summer, and autumn. There is a fund known as the Children's Flower Fund, which defrays all expenses, so that friends in the country are only asked to collect and forward the blooms. If those who are continually amid flowers, foliage, and pure air could but understand the pleasure a few flowers in a school affords the children and teachers, there would be no lack of helpers. The flowers not only brighten the school and give pleasure, but they are useful for object lessons, for drawing, and also in the numerous botanical classes now held. Full particulars can be obtained from Miss M. S. Beard, 36, Ridgmount Gardens, W.C. Last year two hundred and seventy-four boxes of flowers were sent, and these supplied twenty-nine schools, leaving nearly nine hundred and fifty public elementary schools flowerless.

Malformed Scotch Fir.—Mr. H. J. Veitch submitted to the Scientific Committee a curious mass of stunted boughs, the whole resembling a hedgehog, and probably caused originally by a phytoptus fungus. Dr. Masters observed that short boughs struck from such specimens were used as miniature trees, for rockwork, &c.

Fruit Sellers and Buyers are at present each airing their grievances. We have shown how the buyers, or middlemen, have combined with a view to obtaining redress when the goods bought do not come up to their expectations. The brokers retort that while losses do occur, yet quite as frequently the buyer obtains better packages than he expects, but makes no return of the difference in value. One of the brokers' conditions of sale is that "Intending buyers are requested to thoroughly inspect the bulks, as the goods will be delivered from the warehouses with all faults and defects, and no allowance will be made for errors of description or defects of quality, quantity, or condition. If any of the contents of any package are spoilt, damaged, unsound, or otherwise defective, so as to be unfit for human consumption, such defective goods are not intended by the brokers or purchased by the buyers for the food of man; and the buyers shall separate such defective goods from the bulk, and shall not use or sell any such defective goods for the food of man." The brokers hit the buyers rather hard when they refer to the current prices of lemons; these are now selling at from 3s. to 6s. per case of three hundred to three hundred and fifty fruits, and yet the consumer cannot obtain good lemons for less than one-half penny or one penny each, mostly the latter figure.

The Crystal Palace has throughout its existence been so closely connected with horticulture, especially by reason of the fine exhibitions provided there, that our readers cannot fail to be interested in the movement now on foot for its purchase by and for the nation. At a recent conference of local authorities, presided over by the Lord Mayor, a resolution was moved, "That in the opinion of this conference the present is an opportune time for the Government to secure as a permanent place of instruction and recreation the Crystal Palace and its grounds as a national institution; and, further, that this conference is of opinion that every means should be taken to prevail on the Government to acquire and maintain the same for the enjoyment of the people for ever." The Crystal Palace can be acquired for £750,000, and it is urged that part of this sum should be defrayed from the large amount in the hands of the Royal Commissioners of the International Exhibition of 1851. We understand that leave to deposit a petition for a Bill has been asked of the House of Commons on behalf of the Crystal Palace Company. The petition shows that the financial position of the Crystal Palace is such that there is risk of a collapse of the undertaking. No interest has been paid for some years on the second (1887) debenture stock, and unless the concern is at once reorganized, and fresh working capital is introduced, the revenue may shortly become insufficient to meet the interest on the first debenture stock. Certain proposals have recently been made to the directors as to a plan of reconstruction, under which additional capital may be provided, and a provisional agreement for carrying out this plan is in course of completion. The amount of the company's capital and debenture stock is, however, admittedly much beyond the present value of the property. The plan now in contemplation involves a very large reduction of the nominal capital, and the conversion into an amount more nearly representing the value of the property—a complete reorganization of the capital being essential before any further capital can be raised. The necessary reorganization can only be effected by an Act of Parliament. The petitioners humbly submit that the preservation of the Crystal Palace, and of the educational and other institutions carried on by the company in connection therewith, is a matter of public importance. The area of the site of the palace and grounds is about 190 acres of freehold land. The petitioners apprehend that unless they obtain leave to introduce their Bill in the present Session, the chance which they now have of obtaining the required additional capital will be lost. The petition bears the seal of the company, and is signed on its behalf by the chairman and secretary. Jurisdiction in the matter of the petition is with the Standing Order Committee of both Houses.

The Scilly Isles Flower Trade for January and February of the present years shows a large falling off from the corresponding period of 1897. In 1897 the export of cut flowers for the two first months of the year totalled to three hundred and eleven tons, but this season it fell to one hundred and sixty-two tons. This is due to the failure of early crops, but higher prices than usual have almost equalised matters.

Twin Apple.—A remarkable monstrosity was sent to R.H.S. Scientific Committee. Instead of being the result of the fusion of two flowers, as occurs in tomatoes—*i.e.*, a "synanthic" condition, a vertical section revealed the fact that they were the result of a bifurcation of the axis below, the under side of the apple giving no signs of its being a twin.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

BEATEN BY A HIDDEN FOE.

"THERE never were finer black currants went out of Sheppey than were grown in this plantation, though I say it as shouldn't; and now look at them. It's enough to break a man's heart, it really is, to have the most paying crop we had clean ruined in about three seasons." The speaker was a fruit grower who, by dint of hard work and perseverance, has turned a rough piece of freehold ground into a pleasant homestead, and does his best to turn it to profit by the cultivation of fruit. The situation is a hillside gently rising from the lowlands of the Isle of Sheppey, and within sound of the hammers at Sheerness Dockyard. Though somewhat bleak and wind-swept, the monotony of the landscape is counterbalanced by the fertility of the soil, which, like all that district of Kent, is well adapted for fruit culture. We stood by the side of a huge pile of black currant bushes which had been grubbed, and after bringing grist to the mill in a substantial quantity for some years, were placed there to fill their last office—fuel for the fire.

Every swollen bud on the bushes told its own tale of woe, and the disconsolate air of the grower as he gazed on the remains of his once profitable crop seemed to suggest that he was helpless, and, confessing himself beaten, had thrown up the sponge. There has been some controversy in these pages recently respecting the ravages of the black currant bud mite, with suggestions for its extermination; but while the grass is growing the horse is starving, and it is when one is brought face to face with such an instance as this that one realizes fully the terrible devastation caused by this invisible pest. There are many growers who know nothing of it, fortunately for them, and, indeed, are unaware of its existence; but this is no proof against its spreading, and, in the interests of the black currant industry, no efforts should be spared ere we become, so far as is possible, conversant with the life history of the pest, and the means of combating it. With apologies for digression, I return to the grower and his troubles. "It's not so bad fighting an enemy when you can see him," was his logical assertion, "but with this thing we're completely in the dark. We know nothing about it, and, what is more, no one is able to tell us much. It's there, that's evident"—pointing to the heap before him—"but where it came from, what it is, and how it spreads is quite beyond me. I suppose the creature is alive in the bud, but what beats me is how it gets there. There seems nothing but losses nowadays, and it was the best crop we had. It's some new-fangled thing, I suppose, come to make bad times worse, for I have been growing currants all my life, and never heard of it before."

"When did it first appear?" I asked. "About three seasons ago, as near as I can remember, I noticed some of the buds swelling early as I thought. I showed them to a friend of mine, and he said I was going to have a good crop as the buds were coming on so well; but as for mite, I never dreamt of such a thing, because I'd never heard of it. Well, I didn't take much notice of it that season, as I thought it was owing to the mild spring, but the next year they were worse. One day a man who had been in Scotland called on me, and in talking about black currants, he said they could do no good with them there on account of the 'button bud.' Button bud, said I, what's that? Why, you've got it, says he, picking off a shoot, and since then I've had good reason to know what it is, and so has many another in these parts." "What did you do then?" I asked. "Well, I began to make inquiries, and I found out what the swelling of the buds meant. I think sometimes that if I had known soon enough what it was I might have checked it that first season, but you see I'd never heard of it. Somebody told me to pick the swollen buds off and use lime, which I did, but they got worse, and then I thought if I cut the bushes down entirely the fresh shoots would be alright." "Did it answer?" "Come and look," was the reply, and leading the way up the plantation we came across a row of bushes that had been cut back to the ground with the hope of clearing the pest, but with no effect, as almost every bud bore unmistakeable evidence that it was harbouring a mite. "It's no good," he said, "they'll have to come out, though it's a pity, for black currants do so well on this land. When we cut away all the old wood and let them make a fresh start I thought they must grow free, but it is, as I said before, the thing's a mystery."

"You form no idea of the cause, I suppose?" "None," was the emphatic reply. "I was told once that perhaps I had over manured the ground, and I thought there might be something in it, as I feed the bushes well, but that theory is no good, because a neighbour of mine is just in the same plight, and he has never manured at all. The decision I've come to is that it has been brought into the neighbourhood through planting from infested stocks, though in some plantations quite close to here the bushes are quite free, and in others they are just as bad, though no fresh planting has taken place for years. I have heard that there is a variety of black currant which is quite free from it, but I don't know; the proof of the pudding is in the eating." "What shall you do to replace the loss?" I asked. "I'm afraid I can't replace it," said the grower. "My black currants have sold at the rate of a hundred pounds an acre more than once, and I thought of growing nothing else. I'm glad I didn't though, as this has taught me that its always wise not to have all your eggs in one basket. I've planted up much of the ground with gooseberries, but I shall have another try at the black currants if I can get a fresh stock entirely, and feel sure that they are free from mite; but there's the difficulty—knowing." "But havn't you read about this pest?" "Oh yes, but I never got much satisfaction out of that. I've seen pictures of it, showing its jaws and body, how many legs it has, and all the rest of it, but what is the good of that? Then we hear that this might prevent it, and perhaps the other would kill it; but to me there seems only one remedy, and that is fire, though I do regret that I did not know what it was at first."

Such are the sentiments of a market grower, who has good reason for being acquainted with the black currant bud mite, for in a few years he has lost the principal source of income. This is not a solitary instance, and the question at issue is whether, if something is not done to deal effectually with this enemy, the cultivation of the black currant in England will not become an industry of the past. In Kent the fruit is largely grown, but when the advent of the mite means the ruin of a plantation in so short a time, a general spread of it would make the extermination of the fruit by no means impossible. Perhaps the strongest hope lies in the introduction of a variety that is proof against it, though in such an acquisition quality has also to be considered. It is only reasonable to suppose that propagation from infested stocks is a great incentive to the growth of the pest, but there appears to be so little known of the life history of the mite, that it is difficult to say definitely how it spreads. One thing, however, is certain, that among the many enemies of the fruit grower this is one of the most deadly, and at the same time the most mysterious. It is a question that calls for the efforts of scientists and others, and should not be looked at in the light of learning the ways and habits of an interesting, though invisible, insect, but more from the fruit grower's point of view, to whom it is a desperate enemy, and one that seems to become more forcible year by year. It is when among growers who are dependent on black currants to pay their rent that one sees the trouble caused by this unseen foe, and the urgent necessity of means to check the evil. As yet it does not appear to have generally reached an advanced stage, though judging from our scanty knowledge of the pest, and the uncertain means of combating it, we must face the fact that we are in danger of being beaten by an invisible foe. H.

PEACHES IN THE OPEN.

IT is always a pleasing stimulant to read "Lux's" "Morning Mixture." Perhaps all the more so because we cannot always agree with him. The concluding paragraph of his last mixture is keenly satirical, but it is too obvious that some of his latest utterances on potato culture maintain dead silence on greening and ending up of seed potatos as among the surest modes of preventing disease, and of hastening maturity, improving the sample and adding to the weight and bulk of the produce.

I am in no fighting mood, though I cannot agree with him that the high level of out-of-door peach culture in the olden time, of which I have heard and seen a good deal, was, or is, very much of a myth. No, friend "Lux," it was solemn fact, to be reckoned with and learned from if we are to come up to the level of our fathers. Copings, prunings, fly nettings, &c., may have exerted a powerful influence on the out-of-door culture of peaches in British gardens, but the strong statement that peaches are indubitably more tender than apples, pears, or plums I cannot endorse. Where the crops of the last three have been ruined peaches have again and again escaped. "Lux" will no doubt say, Yes, but your peaches were on walls, and the other fruits in the open. Yes and No, is my answer. Of course, none of us have succeeded, unless in very exceptional sites, soils, and seasons, in ripening peaches or nectarines of high quality in the open air. But, on the other hand, who amongst us have not lost crops of plums and pears on the same walls on which peaches have ripened in safety? I think, however, it would be safe to assume when "Lux" writes of the hardiness or tenderness of these he means under their ordinary conditions or environments of culture; that is, the peaches on walls and the apples, pears and plums in the open. And if so, I can give an emphatic No to his assertion that the peach is indubitably the more tender.

Then "Lux" has another strong string to his bow. Look, he exclaims, over large nursery quarters after a severe frost, and the true lesson of the general non-success of peaches out of doors will be learned at a glance. Well, I have often looked, and have failed to learn the same lesson of the tenderness of peaches as "Lux." Allow me to say what I have learned: The crying evils of gross stocks, rich soils, heavy manuring; the concentration of the vigour of the maiden peaches into shoots long and strong as fishing-rods, making them delicious tender food for the first hungry taste of Jack Frost, and model homes for canker, mildew, and all the diseases that peaches are heir to in our fitful climate. But I have also seen thousands of young peach trees, under less stimulating cultural environments, with wood and buds of moderate size, hard and brown almost as nuts, and so thoroughly ripe and dormant as to pass through our normal frosts in the open with impunity; though, of course, after October or November planting, the safety of such trees is made doubly secure by affording them the shelter of a wall.

The decline and fall of our modern culture of peaches in the open-air in Britain—if it has declined and fallen, which I am not at present careful to prove—has come about, not from the cooling down of our climate, but for lack of the due preparation of our young trees, and more careful culture and training of the old ones. "Lux" will hardly deny that our fathers spent far more time on the nurture and training of their peaches and other wall trees than we do to-day. Glass has long been the rage and fashion in horticulture, and grapes and other fruits under glass, orchids, chrysanthemums, fine foliage plants, &c., absorb much of the time, the skill, and the patience that used to be devoted to peaches in the open. Even "Lux" himself seems to have something of this spirit when he penned the sentence about copings, prunings, greenfly, &c.; yet I am sure he would be the last to deny that one cannot grow perfect peach trees or fruits and greenfly together. Our fathers fought the latter to the death with the garden syringe or engine, and if modern growers had the time and the patience to go and do likewise it would be found that their success was no myth, but sober, every-day fact. The cry of most peaches in the open to-day is not for a warmer climate, but more water at top or bottom. D. T. FISH.

OUTDOOR TOMATO CULTURE.

NOW that tomato cultivation has become so popular, information is eagerly sought after, especially by amateurs, and as I have recently had several letters, many from readers of the GARDENERS' MAGAZINE, asking for information, I may be allowed to make a few remarks concerning the cultivation of this vegetable. It is just possible for all amateurs to grow their own tomatos, provided they have a small garden that receives a little sunshine; but very much depends upon the energy and care of the cultivator. If one has glass, they had much better purchase a few strong plants towards the end of May, but by means of a greenhouse or frame they may be raised very easily. For outdoor culture tomatos must never at any time be coddled, but from the first be brought up hardily. For outdoor crops two sowings ought always to be made to provide a succession, because the earlier varieties will in a long season become exhausted; whereas in a later sowing there will be a lot ripening upon the plants which will keep the supply going well nigh on to Christmas, and this is a distinct advantage. I have known a cottager to keep tomatos up to Christmas.

Seeds should be sown in a pot or small box, but either should be well drained, that is, put plenty of broken potsherds at the bottom of the pot or box. If a few plants only are required, I should strongly advise the use of five-inch pots, there not being so much anxiety about damping off with such. The first batch should be sown from about the third week in February to the second week in March, the time entirely depending upon the means at hand to subsequently grow them on. If these are in a frame previously placed upon a bed of leaves, or other fermenting material, the seedlings will begin to show in a temperature of fifty-five degrees, in about eight to ten days; and as soon as they are well up admit a little air for an hour or two each day, but this must be given at the back or top of the light, and the light should be tilted up with a piece of wood or a small stone; about half an inch will be ample, unless the sun shines very hot, when more would be necessary at the middle of the day. While upon this subject, I would lay stress upon airing at the top, instead of the bottom, for by opening at the highest point, the moisture escapes at once, and after this, fresh air comes in gently or gradually, and takes the place of the moist close atmosphere. All airing should be done upon similar lines.

Soil used for seedlings need not be very rich, but a good mixture for potting should consist of fresh turfy loam with a very small quantity of leaf soil and spent hot-bed or mushroom manure, the whole to be used rough; a few handfuls of bone-meal may be mixed with the soil, for the last potting, with considerable advantage. When the seedlings are about three inches in height, they should be pricked out singly into small pots, and great care should here be exercised that the stem be not squeezed or injured, as this may cause a check, if not absolutely kill the tender plant; after the operation of potting off is finished, put the plants back into the frame, or on a shelf in the house where they may be kept close for a day or two to enable them to establish themselves in the new soil, after which they may be aired again daily, and above all kept near the glass, in order to keep them dwarf and stocky. When the pots are full of roots, another shift into larger pots should be made, and still another, the soil being about the same as before, but made very firm. Gradually give more air and finally expose altogether under a wall, or other suitable protection, but they should be covered up at night with some light protecting material, and even after they are planted out they should be protected in case of frost.

When ready for planting dig out a hole and put therein a little fresh soil, such as collected road scrapings, this furnishing excellent material for tomatos. The plants may be placed in the open ground if no wall space be at command, and trained up sticks or hurdles, or, in fact, anything to keep them from touching the ground. As they make growth carefully watch them, and tie with strong raffia as often as is necessary so to do. Never neglect this duty at the proper time, or breakages will occur, and all the care and work of perhaps a couple of months will be undone. As the plants make headway carefully pinch out all the side shoots or laterals. This is necessary to keep the main stem strong, and one stem, as a general rule, will yield a good supply of excellent fruit; but if it is desirable to have several stems the point should be pinched out quite early, so that all the stems intended to be grown may be of equal strength. If extra fine fruit are desired the clusters should be thinned directly it is seen how many fruits have set. During the growing season the plants should never suffer from drought, but should be fed now and again with farmyard liquid or other manures obtainable.

Other uses may be made of spare tomato plants. They may be grown in pots and trained over arches or porches of dwelling-houses, and when such positions are due south I have seen excellent crops taken, or they may be trained in a variety of fancy ways, as they can be directed to travel at the will of the grower. All those fruits that do not ripen during September should be taken inside, when they may be hung up in a warm place where it is not damp. Examine them frequently, and cut them if it is necessary. The best variety I have grown out of doors is Carter's Outdoor, a free grower that produces fruits very early and of good shape, colour and flavour. Another very well-known variety is the Sutton's Earliest of All. The best late variety I have grown is Ham Green, but I should strongly advise all who intend to grow outdoor tomatos largely to make early and late sowings of the first-mentioned sorts.

W. A. COOK.

Compton Basset.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," [illegible] containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

FORCED LILAC.

THROUGHOUT the north of Germany and also in many parts of France lilacs are cultivated extensively for forcing, and subsequently the business of forcing is also largely entered into, for on the Continent, as at home, lilac—especially white lilac—is in great demand during the winter. Whether our moist insular climate is altogether to be blamed with regard to our non-production of lilac bushes fit for forcing, is rather an open question, but it is a fact that hitherto the lilacs forced in the British Isles are chiefly imported from France and Germany. It is probable that in the sunniest parts of our country suitable plants might be cultivated to, in some degree, meet the demand. A somewhat poor l is necessary, frequent transplantings to ensure a quantity of short fibrous roots, plenty of moisture during growth and a position that would ensure a thorough ripening of the wood. We are persuaded it would also be a great gain to grow the plants in pots one whole season before forcing, plunging the pots during that season, and otherwise caring for the plants. Among the most pleasing sights to be seen in the Hamburg and Berlin nurseries during the earliest months of the year, are the houses of forced lilacs, for not only do our continental neighbours grow plants for others to force, but they produce flowers of the highest quality and in quantity for home consumption, and in a smaller degree for export. Those who visited the opening display of the recent Hamburg Horticultural Exhibition, will remember how beautiful were the huge groups of lilacs in wonderful variety and deliciously fragrant that adorned the big hall and a minor hall on the other side of the grounds. Many of the varieties not yet thoroughly well known in this country force as readily as the older forms. In the matter of improving lilacs, fixing and distributing new varieties, the French florists have led the way, and deserve our thanks for the many splendid single and double forms now in commerce.

HOUSE OF FORCED LILACS AT BERLIN.

The accompanying illustration represents part of a lilac house in the nursery of Mr. Gustav S. Schultz, Lichtenberg, Berlin, and the photograph from which it was reproduced was taken a few days before Christmas. Mr. Schultz finds it profitable to produce large supplies of flowers during December, January, and February, as during those months the demand is keen and prices high. The varieties represented are Charles X., a deep purplish form that comes white when forced in the dark, and is one of the best for the work; and Marie Legraye, a handsome and large-flowered single white form. Other sorts that find favour in Germany, are the red Souvenir de Leon Spathe; the pale lilac, double-flowered Michael Buchner; the superb double white Madame Lemoine, and the pure white Alba grandiflora.

The Hop Hornbeam.—Referring to your note in a recent issue of the GARDENERS' MAGAZINE respecting the hop hornbeam tree, I beg to say that my father tells me that there is a fine healthy tree in the grounds of Batts Park, Taunton, the only tree of the kind he ever saw, except the one at Kew.—H. CLARKE, *Taunton.*

THE BENDING-STALKED MARIGOLDS.

THE genus of South African composites known as Dimorphotheca is closely allied to the better known Calendula. It contains twenty or so species, and these, by reason of the slender and slightly bent stems supporting the flower heads, were formerly known as bending-stalked marigolds, an appropriate, but not euphonious title. The species are either annual herbs or perennial and shrubby; the leaves are usually narrow, entire, and more or less toothed or cut. The flower heads vary in colour from white to scarlet, and when well developed are about three inches across. So far as cultivation is concerned they are very easily managed; being half hardy they may be used for the flower garden during the summer and for greenhouse decoration during the winter. The perennial species are readily propagated from cuttings if given a little extra warmth until rooted. For the annuals it is only necessary to sow seeds in heat during February and March, gradually hardening off the seedlings, so that they are ready for planting out in May. None of the species like over much moisture, so that when grown in pots they should have ample drainage afforded and be placed in a sandy compost that is otherwise fairly rich.

The white flowered Dimorphothecas are:—D. annua, from Simon's Bay, introduced as far back as 1752. D. Tragus, a large-flowered species with purple or bronze shading along the underside of the ray florets; during the summer the flower heads commence to expand about seven a.m., and are fully open soon after mid-day, but by three o'clock they begin to fold up again. D. graminifolia has grassy foliage and big heads consisting of purplish disk florets, and rays that are white above and brownish orange below. D. pluvialis, D. hybrida, D. medicaulis, and D. fruticosa all have white ray florets with either purple or yellow along the lower side, or in the disk florets. A newer introduction is D. Ecklonis that seems fairly plentiful in the neighbourhood of Port Elizabeth. Collected specimens are much more dwarf than those cultivated in this country, the latter attaining a height of eighteen inches at flowering time in the month of July. Whether this will become popular it is difficult to say, but it is easily grown from imported seed and has been flowered as a bedding plan at Kew. The species is shrubby at the base and clothed with oblanceolate, subsessile leaves sparingly toothed, and pale green. The flower heads measure three inches across and, as seen in the illustration, contain about sixteen white ray florets each, these being striped and shaded with violet—save for a white margin —on the lower surface; the small disk florets are also of a blue shade.

Species with brighter flower heads are fairly numerous, and some of them are so attractive that they seem to invite improvement by means of selection of seedlings. D. aurantiaca, referred to by Aiton, and figured in the *Bot. Mag.* t. 408, or just a hundred years ago, produces bright orange coloured ray florets as its name implies. D. chrysanthemifolia introduced about 1790 is an early flowering species with bright yellow rays and dark disk florets; D. dentata introduced about the same time, is also yellow. D. cuneata, better known, perhaps as Arctotes glutinosa, is remarkable for its clammy or sticky leaves and stems; it is also a very bright plant the ray florets being of the deepest orange or orange-scarlet shade. D. Barbariæ, introduced from Caffraria in 1862, has purplish flower heads, and is synonymous with D. lilacina; it is perennial, and well repays attention as a greenhouse plant. K. P.

Potatos for Exhibition.—I always read with the greatest possible pleasure the Morning Mixture prepared for us by "Lux." It is easy to take, and generally has a beneficial effect. I must thank him for the honour he does me in reading my articles, and if, under the above heading, I may seem to be a little in fault, it is because I have endeavoured to deal with the production of high-class vegetables for all purposes, and because "Lux" had surely not read the second part of my article (divided by the editor) when he wrote. I do not for one moment suppose that every reader of the GARDENERS' MAGAZINE is in a position to put in force all my suggestions, but I never mention any but what I know to be possible from practical experience, and which are being carried out in our practice here at the present time. I advise "Peter" to worry his master for a few suitable pots and a good heated pit; and these gained, he will then, I am certain, be able to give good returns for the small outlay. I am looking forward with much interest to the discussion likely to follow anent the production of heavy crops, how they are produced, and who really is the champion.—EDWIN BECKETT.

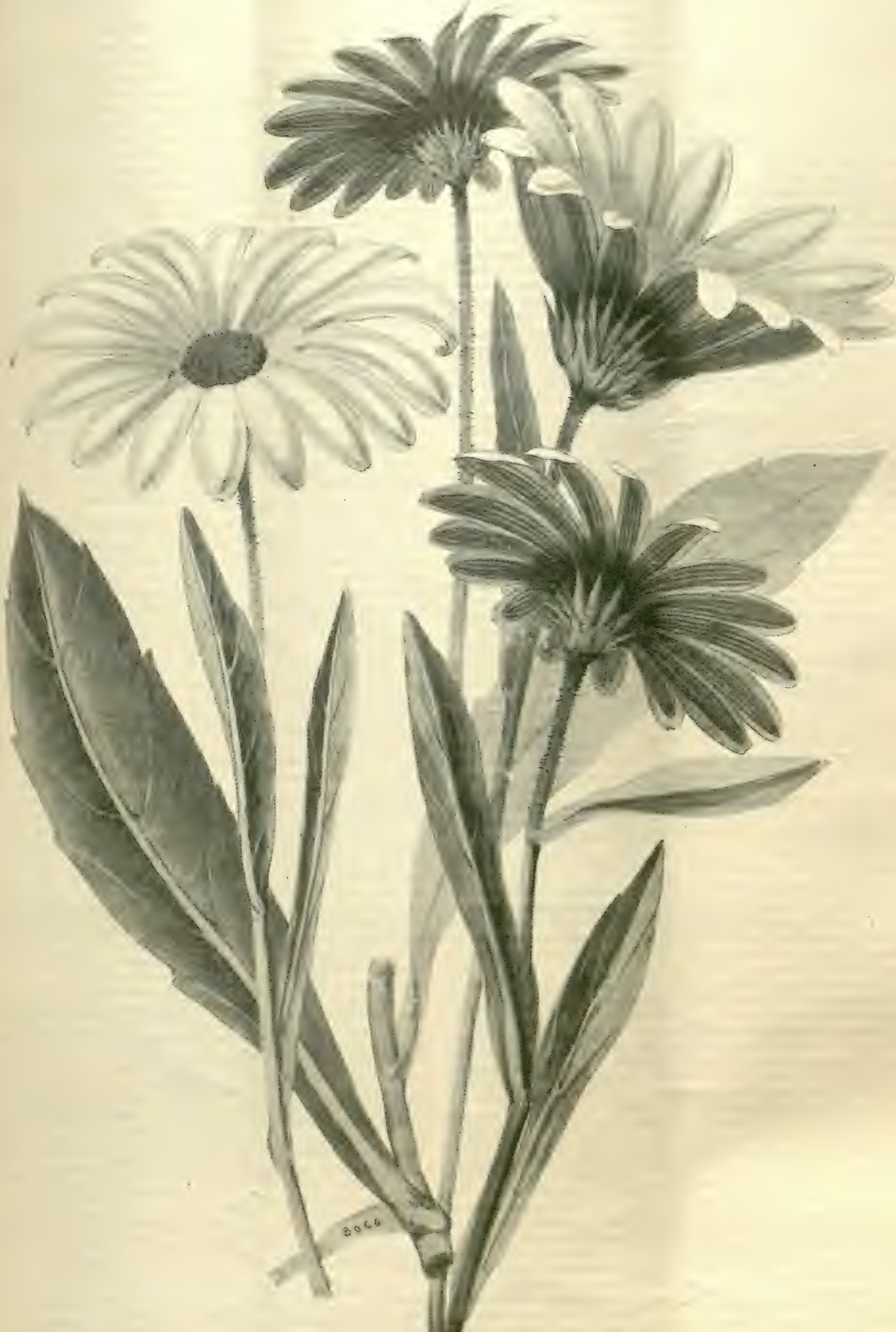
Crops of Potatos.—I observe your "humorous" correspondent "Lux" has been gibing mildly at Mr. Prinsep with respect to potatos, and I notice he seems to have inferred that Mr. Prinsep had grown a crop of from thirty to forty tons per acre. I do not understand that he said anything of the sort; what he did say was that to grow a couple of hundredweight from a pound of seed tubers (as was done in the Hooper competition some years ago) was one thing, but to grow from thirty to forty tons per acre was quite another. I should think it was. I have often read of wonderful crops of this nature, but have never seen them; Thirty tons per acre, some seven and a half bushels per rod! Who has ever lifted so much? Four bushels per rod is a very heavy crop as all know. A greater crop would be one of gigantic tubers, fit food for cattle, but not for man. The famous Hooper competition referred to, for the heaviest produce from single pounds of new American potatos, did result in the production of marvellous crops, but these were obtained quite artificially, subjecting the tubers to warmth and moisture, propagating the shoots, or cutting and obtaining from a single pound some seventy to eighty plants, and growing these in rich deep soil, and producing huge tubers. It is very well to say in such case that it represented forty tons per acre, but to assume thereby that any ordinarily planted crop will produce one half that bulk, would be ridiculous. With respect to size of sets, I like always to select just what I prefer for planting when the lifting of the crop takes place in the autumn. Then I gather up the handsomest tubers I can find, that range from two to three ounces. It has been shown in Surrey that two-ounce sets give the best average results, because in planting them there is less waste than is the case when larger sets are employed. No set needs more than one good stout shoot. That is enough for all purposes, and that one stout shoot a two-ounce set will give as strong as will one of six or more ounces.—A. D.

VEGETABLES FOR EXHIBITION.

Summer Onions for Exhibition.

DURING the last few years very great strides have been made in the production of exhibition onions, which now form one of the attractions at our vegetable shows during summer, autumn, and winter. No exhibitor will stand much chance of winning in a class for a collection of vegetables (onions should be included in all collections, large or small) unless he can put up large, handsome, well-ripened bulbs. In addition to the improvement made in the varieties now grown, the cultivation is now also much better understood. In the first place the site for the onions must be selected during early autumn, and a light, airy, open spot should be chosen. It is not at all necessary to change the ground for this crop annually, as on the same piece of ground I have successfully grown our exhibition onions for some years with a visible improvement each season. In endeavouring to produce fine exhibition bulbs, the following conditions must be secured: (1) A very rich deeply-trenched soil, (2) sowing the seed early in the year under glass, and (3) giving the young plants every encouragement before planting out. As to the time of trenching up the ground, much depends on the nature of the soil one has to deal with. On all kinds of light soils this is best done in the autumn, but when it is stiff and heavy, the top soil should be forked up to the depth of about ten inches in the autumn and left in a quite rough state, the trenching being delayed till quite the end of February or the beginning of March, and only done in fine weather. Too much manure can hardly be applied, and nothing is better than that from the farmyard, but on heavy wet land, burnt garden refuse, road scrapings, or old mortar rubbish should be liberally added. The trenching must be thoroughly done, at least two feet six inches deep, better still three feet, breaking up the bottom, on which should be placed from five to six inches of the longest of the manure, putting another layer of the shorter material about ten inches from the top. I am aware many people advise keeping the lower soil at the bottom, but this I consider a half-hearted measure, and aim at making the whole depth of soil good; this cannot surely be accomplished when the lower spit is kept buried from the air and the action of the weather. This applies especially to the onion bed when intended to be kept as such for some years. Whether the trenching be done in autumn or spring, no attempt should be made to break up the soil, but leave it in as rough a state as possible and apply a good coating of soot and lime as soon as finished. Leave in this state till the first or second week in April (or as soon after as the weather will allow) and then prepare to plant out. Fork over the ground to the depth of about eight inches, breaking up all lumps as finely as possible, add another slight dressing of soot and Smyth's fertiliser, rake down neatly and mark out the rows and alleys. The beds should be formed from eight to ten feet in width, and the rows should be fifteen inches apart, allowing one foot from plant to plant. Nothing is gained by overcrowding. Boards should be used to walk on when planting.

Sowing the seed and preparing the young onions prior to planting out, as before mentioned, is of the utmost importance, as from the very first it is necessary to build up strong and sturdy plants. For some years I practised sowing the seed in sixty-sized pots, but I have come to the conclusion that boxes answer the purpose equally well, and they have this advantage, that they are much more convenient, occupy less room, and so many more can be grown in the same space that there is a better selection of plants at planting time. The same kind of boxes as recommended for early peas and beans are very suitable, being two feet in length, one foot in width, and four and a half inches deep. They should be thoroughly drained, using some rough fibrous loam over this to prevent the soil mixing with it. The soil I recommend is two parts good fibrous loam, one part well-decayed leaf soil, and one part of half-rotten horse-droppings, that from a spent mushroom bed being preferable to any other; add sufficient road sand to keep the whole porous. The soil must not be used when wet, but should be placed under cover some time previous to use. The whole should be passed through a quarter-inch sieve, and then filled into the boxes to within half an inch of the top, making it quite firm. The seed should be sown thinly, and just buried with the finest soil; press down firmly with a smooth piece of board, and well water in. From the 1st to the 10th of January is the best time for sowing, and a vinery or peach house just started is an ideal place for raising the seed, but, failing this, a greenhouse or pit will answer very well. I have seen very fine onions grown by a cottager who had no other convenience for raising the seed and nursing on the young plants than his own cottage window and a small home-made cold frame. The seed was sown in six-inch pots, raised inside the house, and the seedlings placed outside on the sill when the weather was favourable; when large enough the plants were pricked out in the cold unheated and carefully attended to till planted out in April, the result being fine exhibition bulbs. This grower (who is a large prize-winner) has practised this for years, and I mention it to prove the old adage which applies to gardening as to other pursuits, "where there's a will there's a way." As soon as the young plants are above the soil and can be handled no time should be lost in pricking them out into other boxes, using the same kind of compost, but adding a six-inch potful of [illegible] to every bushel of soil. No chill must be given at this stage, and it is better to perform the work in the temperature in which the plants are growing. The strongest and best plants should be selected, lifting them with a pointed stick and putting them in with a dibber at a distance of three inches apart all ways. Continue to grow them in a temperature of about 55 to 60 degrees, and as near the glass as possible, syringing frequently. In bright weather shade if necessary to prevent flagging. After and otherwise give every encouragement to quick sturdy growth. After the plants become well established stir up the soil between them with a pointed stick and remove to a light and more airy position, a [illegible] brick pit being the best place. Syringe twice daily and admit abundance of air when the weather will allow, removing the light altogether on



DIMORPHOTHECA ECKLONIS. (Flowers white and blue.)

favourable occasions. A cold frame should finish and harden off the plants prior to planting in their final quarters, and the lights placed over them only in rough bad weather.

The second or third week in April is the time for planting, and the young onions should be carefully lifted and planted with a garden trowel, disturbing the roots as little as possible in the already prepared soil. The soil should be pressed very firmly about them and water given if the weather is dry. Syringe overhead two or three times a day till the plants become established. For the first two or three weeks the soil should be stirred very shallow between the plants, after which a good mulching of sifted horse droppings to the depth of two inches should be applied. Water freely in dry weather and damp overhead frequently. About every ten days apply a slight dusting of some reliable artificial manure and soot in equal quantities. This is best done in the evening in showery weather. As a rule the onion fly is not very troublesome to these early sowings, but it is always well to keep a few plants in reserve, and to remove and replant without delay any that do not start away satisfactorily, or that show the least signs of being affected. It is a capital plan to pot on a few of the plants from the boxes into five or six inch pots for this purpose, so that when planted they will receive but little check. Sometimes mildew will make its appearance, and in a short time seriously damage the whole bed. This must be constantly watched for. It generally appears in one place first, and unless stringent measures are speedily adopted to arrest it, it will in a few days spread to the whole of the bed, and growth will be seriously checked ; therefore not a minute should be lost in trying to stamp it out. Cut off and carefully remove and burn every affected leaf, and dust thoroughly with fine slacked lime and black sulphur.

If all goes well, I venture to say no crop cultivated in the kitchen garden will give more pleasure during the growing season than the onions. Except to keep the beds free from weeds by hand pulling, and to give thorough waterings in dry weather, nothing further in the way of labour will be required till growth is completed, which should be by about the middle of August. Before finally lifting, the most promising bulbs should be partially lifted with a small hand fork, which will help to ripen, and prevent them splitting should the weather be wet. Choose a fine day for selecting and lifting the crop. Much care is necessary in handling the bulbs ; indeed, too much pains can hardly be taken so that they are not bruised or damaged in the slightest, or they will not keep in a sound condition for any length of time. Exhibition onions ought to be handled as carefully as ripe peaches, for the largest and best are the least likely to keep well when damaged. In finishing off the ripening it is absolutely essential that they should be kept dry. I have found the most ready way of accomplishing this is to place the bulbs in boxes holding about a dozen each, which should be half filled with wood wool for them to rest on. These can easily be moved from one place to another, and during fine weather they should be stood out in an open sunny position, bringing them under cover at night. During wet days a cool, airy vinery is a suitable place, or failing this, a cold frame will answer, if kept well aired. The bulbs should be turned daily, so that every part becomes exposed. After this has been thoroughly done the bulbs should be cleaned, only removing the loose skins. Pare off the roots neatly, and shorten the tops (leaving about six inches), which should be tied tightly at the end with fine twine, then store away in a cool dry room till wanted.

Onions for exhibition should be large, small necks, thoroughly ripened, and of good shape. Without doubt the finest type for exhibition, is the true form of Ailsa Craig (one of the finest onions ever raised), which ought to be globular in shape. I prefer to arrange the bulbs with necks upwards in green moss, edged with parsley.

Autumn-sown or Winter Onions.

This is a most useful and important crop to grow either for exhibition or ordinary use. To grow these successfully, the ground must be prepared as for the summer crop and the onions planted thereon from the seed bed very early in the spring, indeed on the very first favourable chances. Many practise growing the onions where sown, and for ordinary purposes this will suffice, but for exhibition, I am fully convinced much better results will accrue when transplanted to a well-prepared piece of ground. Generally speaking, among amateurs and cottagers, the seed is sown too early, consequently much of the crop runs to flower in the spring. Two sowings should be made, one about August 20, and another about a week later. In mild weather and on light soils, the latter sowing will often prove to be the best. A piece of ground selected in the open for the first sowing, and a south border for the last is advised. It should be deeply dug but not manured, and the bed should be made very firm and dusted well over with soot and wood ashes, finely sifted. The drills should be nine inches apart and the seed sown thinly, when little other attention will be required, except occasional hoeings, till the spring, when the strongest and best plants should be lifted carefully with the trowel. Plant firmly and hoe about them frequently for the first month, when they should be top dressed with sifted old mushroom bed manure and kept well watered during dry weather. For spring and early shows such onions are indispensable, and form one of the most important and telling dishes of vegetables. They are never expected to be ripened off for the earliest shows, and the outside skin only should be removed. The bulbs should be large, clear, and of good shape, and arranged on a large dish, facing them up nicely like cauliflowers and garnishing with parsley. Such onions never keep well for any length of time, so that it is not advisable to grow them extensively. For late shows the spring sown ones should always be exhibited in preference, but when classes are made for both, which is often the case, the bulbs should be ripened off and exhibited in the same way as the summer ones.

Unless required for any special purpose in large quantities, generally sufficient onions for pickling can be selected from the general bed sown in the spring, but to ensure them in quantity, the seed should be sown thickly on a poor piece of ground about the end of April.

Potato onions are hardly worth notice, being very little cultivated now. They should be planted on a good piece of ground, fifteen inches from row to row, and ten inches apart, and moulded up in the same way as potatos. The crop should be lifted and stored in the root room, about the end of June.

Varieties of Onions.

There are now, as with many other kinds of vegetables, a large number of very excellent varieties of onions in cultivation, but I will mention those only which I have proved to be first-rate in each section. For spring sowing and for general crop, James' Long Keeping, though an old variety, still holds its own as one of the very best. True to its name, it is one of the very best keepers. Another very excellent kind is Veitch's Main Crop, of splendid quality and a good keeper. Improved Reading is also a fine variety. For exhibition, without doubt, Deverill's Ailsa Craig is far and away the best ; well-grown specimens of these are a pleasure to look at, both growing and on the exhibition stage. Deverill's Cocoa Nut is also a fine onion, of good quality and very handsome, but not so large as the preceding. These globe-shaped sorts, when well presented, will always find most favour with experienced judges, and rightly so. Among the flat types, Deverill's Lord Keeper, Deverill's Anglo-Spanish, Sutton's A1, Cutbush's Barnet Hero, Carter's Record, and Cranston's Excelsior, are all grand varieties, and each worth growing. No doubt there are others equally as good, but these have specially come under my notice. For autumn sowing, white Leviathan is a grand onion for the early shows. It produces bulbs of great size and I have grown it myself twenty-one inches in circumference. Unfortunately it is a bad keeper and should not be largely grown, but when well arranged on the exhibition stage, it is of excellent appearance and very [illegible]. Blood Red Rocca, when true, is grand for exhibition, and can be depended on for later shows more than the above. Lemon Rocca is also a distinct and valuable addition and comes in well for late spring shows. There are many others, but the three named will be found quite sufficient for any garden. For pickling purposes, the old Silver Skinned is still the most popular.

Aldenham House Gardens. E. BECKETT

DOUBLE WINTER STOCKS.

THE chief value of the winter stocks, the Brompton, and the Queen types, is, that when they pass in safety through the winter, they bloom in spring before the summer varieties are sufficiently advanced to display their flowers. It is, therefore, usual to sow the seeds in July or August, plant out in September or later, as the case may be, to stand the winter. The difficulty of keeping the plants in safety through the winter is great, unless they are on a warm dry border, through which water passes away freely ; and then, when a dry time sets in in late spring or early summer, the plants will suffer greatly. The stock is a soft and succulent plant, it may be said to be of a tender character at all times, and when a mild growing autumn lasts nearly up to Christmas, and is followed, as frequently happens, by drenching rain, with sharp frost close on its heels stocks suffer, especially when they on moist heavy land.

One of the most useful of the winter stocks is that known as the Queen, with which the Brompton type is often confounded. In fact there are two types of the Queen, both somewhat dwarf, and free from change ; one having the flowers borne on short stems and therefore more compact on the spike ; the other with the blossoms more broadly spread from the spike. In the case of each of these types there is generally a good proportion of double blossoms. The true Brompton stock is of tall and strong build, not branching out as do the Queen type, but producing only one stem, generally strong and of considerable length. When such stocks produce large double blossoms, they are very fine, but the percentage of large full flowers of this character is small.

Suggestions have been made as to the adoption of means to secure doubleness in stocks, but it is doubtful if any of the prescribed means, when applied, really conduce to this end. Multiplication of the petals appears to be the general cause of doubleness in stocks. Some botanists suppose that the act of doubling is due to a mere excess of development, and that is doubtless the reason why, in selecting plants for seedling, those blossoms are preferred which appear to possess more than the normal number of petals. It is matter of general knowledge that double forms are more frequently found among cultivated plants than wild ones, and when, as sometimes happens—though the occurrence is remarkably rare—a wild primrose is found to have become double, it usually appears in the case of a plant showing excessive vitality. But it is said that starvation will produce the same result, though the florist is aware of but very few cases indeed of such a cause producing doubleness in blossoms : indeed, his general experience is in the other direction, viz, that the starvation of plants usually producing double flowers will frequently cause them to become single. Dr. Seemann has mentioned an interesting fact, the great preponderance of double flowers in plants derived from the northern hemisphere, when contrasted with those procured from the southern ; and this seems to point to the effect of cultivation in [illegible] the flowers. The stock illustrates one fact, namely, that when the disposition to form double flowers is established from any cause, the tendency becomes hereditary. "There are races of stocks," says Dr. Masters, "in which, out of hundreds of plants, scarcely one double-flowered form is met with ; on the other hand, when the tendency is set up, single flowers become the exception." The soil in which stocks are grown may, if what is known as the plethora theory be set up, have a direct influence on doubling in a nutritious, strong loam, well and deeply dug and manured, at the same time possessing enough of sand to assist the roots in running freely in it ; the Brompton stocks flower freely and [illegible] producing noble spikes of bloom when the blossoms are fully [illegible] Given good soil and careful selection of blossoms for seed purposes, the tendency to double may be hastened. Let it not be forgotten that seed must come from single flowers, as the double blossoms do not produce any

R. D.

WORK FOR THE WEEK.

COOL ORCHIDS.

CYMBIDIUM LOWIANUM and its hybrids should now be flowering, but any that have not produced spikes, but are producing young growths, may be attended to. C. eburneum and C. Mastersi that have gone out of flower will also require attention. These orchids dislike root disturbance, and should not be repotted unless it is really necessary. The old compost should be carefully picked out with a pointed stick, taking care not to damage the fleshy roots; and the new material given should consist of good fibrous loam, lumpy peat, and chopped moss, with plenty of rough charcoal, broken crocks, and silver sand to keep the soil sweet. The material must be well worked down between the roots and made moderately firm, keeping the surface of the soil a little below the rim of the pot. When the potting is necessary, a good shift should be given that will suffice for two or three years; the old pots should be broken with a hammer, as the plants will have so filled them that it is difficult to extricate the roots without injury. The warm end of the cool house suits cymbidiums admirably, insect pests being less troublesome here than in a higher temperature. Water should be sparingly afforded after root disturbance, but a plentiful supply will be needed when growth is free. Plants of the brilliant Sophronitis grandiflorum are now rooting from the growths that have just flowered, and all that require repotting or top-dressing should be taken in hand, using a compost of peat and sphagnum in equal parts. Cochlioda Noezliana, C. vulcanica, and C. rosea are also sending out new roots, and should have fresh material given them; if a shift is needed, pans or baskets should be used, and these suspended from the roof. Cochliodas delight in a liberal supply of water during the growing season. The singular Epidendrum (Nanodes) Medusæ, the flowers of which last a long time in perfection, is now starting to grow, and should have new material afforded it. It does best in well-drained baskets suspended from the roof in the coolest position, and delights in a plentiful supply of water all the year round.

The present is a suitable time to attend to the repotting of Maxillaria grandiflora, M. venusta, M. luteo-alba, M. præstans, &c. They should be grown in pots or pans three parts filled with crocks, using a compost consisting of three parts sphagnum to one of peat. Care should be taken in the watering of the newly-potted plants, giving only sufficient moisture to keep the moss alive until they have become well rooted, when they should have a plentiful supply. The odontoglossum house will be found the most suitable place for them. Trichosma suavis should be repotted, if necessary, as root action has commenced; rough fibrous peat, fresh sphagnum, and a little fibrous loam, with silver sand added, will suffice over good drainage. When in active growth they must be kept moderately moist, and should never be allowed to become dry at any season, as they have no thick fleshy pseudo-bulbs to support them. The beautiful Odontoglossum Uro Skinneri is now producing flower spikes, and will also require attention, repotting or resurfacing any that require it, for new roots will soon appear from the partially-developed growths. Green and black fly is sure to be troublesome in the cool houses at this season, especially on the young growths and flower-spikes of odontoglossums. A sharp look out should be kept for thrip, and on the first discovery of these insects the house should be fumigated with XL All vaporiser; it is the safest plan to fumigate under the directions issued rather than over, as odontoglossums are more liable to injury from fumigation than most orchids. A calm night should be chosen for the operation, taking great care that the foliage is quite dry; the atmosphere, however, should be fairly moist, as the fumes are then more effective. The temperature of the cool houses should be from 50 to 55 degrees by night, with the day temperature of 58 to 60 degrees, and a further rise of five degrees with sun heat. Damping should be done as previously advised, and ventilation given freely on all suitable occasions.—E. SHILL, *New Hall, Hey, Gardens.*

STOVE PLANTS.

SOME of the old stools of poinsettias should now be placed in the propagating house, or where a brisk temperature is maintained, so that they may push into growth for the purpose of affording cuttings. Syringe them freely overhead and amongst the pots, but afford water sparingly at the root. When the shoots are from three to four inches long cut them from the plants with a small heel of old wood attached, and insert them singly into thumb pots containing a mixture of equal parts of loam, cocoa-nut fibre refuse, and leafsoil, with a good admixture of sand, also surfacing the pots with sand, so that when the dibber is inserted some of the latter may fall to the bottom of the hole for the base of the cutting to rest upon. Plunge the cutting pots in a brisk bottom heat, be careful not to keep the soil too wet, and syringe overhead occasionally with warm water, also when water is afforded to the soil see that it is at a temperature approaching that of the plunging material. Another method of propagating them is by cutting up the ripened portions of the stem into lengths of two or three joints and inserting them thickly in pans or six-inch pots, but the first mentioned is the most satisfactory, and with care very few cuttings will be lost. It will be time enough to start the main batch of plants for cuttings the third week in April, as the plants resulting from these, if well attended to and not given a check, will afford splendid bracts on stems from one and a half to two feet high. Euphorbia jacquinæflora requires the same treatment as poinsettias, excepting that three cuttings should be placed in each pot, to be potted on when rooted without dividing them.

Eucharis specimens which it is desired to split up may now be attended to; turn them out and shake all the soil away, sort the bulbs into their various sizes, the largest bulbs to be placed five in each eight-inch pot, six of the next sized in similar pots, and so on. A few of the largest bulbs might be potted singly into six-inch pots, as when flowering such are very ornamental for vases in rooms. A good compost for eucharis is three parts loam, and one part leaf-soil with plenty of sand and broken charcoal added. The drainage must be ample, at least one-third the depth of the pot, placing over this moss or good fibrous pieces of loam, then a little of the potting compost, and on this arrange the bulbs, afterwards adding the remainder of the soil; press the soil firm, and leave a space of from one and a half to two inches between the surface of the soil and the rim of the pot for holding water. Eucharis are thirsty subjects, but are very impatient of stagnant moisture; therefore the free escape of water must be provided for. They should never be rested in a cool temperature, but be kept in the stove all the year round. As regards the eucharis mite, I do not think it is so much to be feared as many imply; we sometimes find it in our bulbs, but it does not affect them, as they grow and flower freely, yet they have very little soil in the pots and abundance of drainage.

Put in cuttings of Thyrsicanthus rutilans, inserting them singly in three-inch pots of sandy soil; plunged in a brisk bottom heat they will quickly root. Pitcher plants or nepenthes requiring larger baskets should be attended to, but be careful not to injure the roots, as they are very brittle; the compost requires to be quite open and porous and to consist of good fibrous peat, sphagnum, and sand. Any specimens that are too tall should ere this have had their heads removed, inserted in pots, and plunged in a brisk bottom heat, or they can be notched and massed in the same way as dracænas. Nepenthes require a strong moist heat with shade from sun. Panax fruticosum bipinnatum, P. f. multifidum, and P. f. Victoria may be propagated by cutting up the roots and stems into pieces an inch and a half long; press these into pots of sandy soil and place in a propagating case. These are useful subjects for home decoration. Achimenes which were started a few weeks ago should now be placed in their flowering pots or baskets, using a compost of equal parts peat, loam, and leafsoil, with sand and about one-fifth part of thoroughly-dried cow manure. Achimenes look especially well in baskets, and if there is convenience a few baskets should be made up to be grown in the stove until coming into flower, when they will be better removed to a conservatory or corridor where there is less humidity in the atmosphere. The latest plants of allamanda, stephanotis, and clerodendron should now be started, but see that the old soil is thoroughly moistened through before repotting or top-dressing. All stove plants which have not been repotted and which are now in active growth will be benefited by an occasional application of some good fertiliser. Gloxinias advancing towards flowering will require stimulants. In houses given up wholly to foliage plants, liquid manure in the evaporating troughs will be of advantage to the plants. Large palms in pots as large as it is desirable to afford them, and which it is found difficult to water satisfactorily through the raising of the ball by the roots below, need attention; have rims of zinc about five inches deep placed round the rim of the pot, pressing it about an inch into the pot, and allowing the ends to overlap about three inches. By this means they can be afforded additional top-dressing, and watering is a simple matter.—J. TUNNINGTON, *Ripley Castle Gardens.*

KITCHEN GARDEN.

SELDOM has the ground been in better condition for sowing and planting than during the present month, for the mild winter enabled all digging to be done in good time, and the exceptionally dry weather has been all that could be desired for pressing on with work. The cold winds and frosty nights have retarded the growth of cauliflowers and peas, but where these have not already been planted the first favourable opportunity should be taken advantage of. All small plants, such as onions, lettuce, parsley, &c., must be planted with care, and if the weather be dry should have a gentle watering in the morning that the surface may dry again before nightfall. Potatos may now be planted in most districts. It is, however, well not to be in too great a hurry with these, especially in low-lying districts that are subject to late spring frosts, for when the young growth is cut down it is seldom that satisfactory growth is made afterwards, the tubers being usually small. The distance allowed between the rows of these must greatly depend on the variety and the quality of the ground. Here we plant the early ones two feet six inches, and the strong-growing kinds three feet, which is not too much. April is always a busy month in the kitchen garden, therefore all work that can be done early will prove a great help later on when everything is in active growth. Where making new asparagus beds is contemplated, the work should now be taken in hand; in some gardens it is not necessary to drain, as this is done naturally, but where the land is cold and composed of a stiff loam or clay, it becomes absolutely necessary to make special preparations if fine heads are to be produced. Instead, however, of going to the extra labour and expense of taking out the ground and filling in with rubble, make the beds on the surface by raising them eighteen inches above the surrounding ground. The soil underneath should be broken up to allow as much of the surplus water as possible to pass through in winter, and so prevent the earth from becoming sodden. Those who can afford to wait may sow seed, but where it is necessary to have a supply quickly planting had better be resorted to. It is well to have a stock of young plants always in readiness by making a sowing each season. A sowing of the early kinds of broccoli should be made on a warm border to yield a supply of early plants; the same may be said of such varieties of cauliflower as Autumn Giant, Autumn Mammoth, Early Giant, Pearl, and Magnum Bonum. Brussels sprouts and borecole should also be sown. It is a good plan to sow several varieties of the latter, for should the winter prove severe some will survive; here Sutton's Favourite does well.

Scorzonera is seldom seen except in large gardens, and then it is not always grown well. It is perhaps one of the most difficult roots to bring to perfection, on poor ground, that the gardener has to deal with. Those who have found any difficulty in growing good roots would do well to make holes with a dibber from a foot to fifteen inches deep, and fill them with fine soil, which should be pressed down, sowing three or four seeds in each, afterwards thinning the plants to one at each station. Salsafy may also be grown to perfection in the same way, but where the ground is in good condition there should be no difficulty in growing either of these when sown in drills about fifteen inches apart, and treated in the same way as parsnips. A small sowing of chicory may be made about the middle of the month, but it should be liberally treated, otherwise these early sowings are apt to run to seed. Celery for the main crop should now be sown on a slight hotbed; celery ought not to receive any check from the time the seedlings appear above the soil until the plants are fully grown, for if they do it is seldom the stems are of much worth, being pithy and tough. A sowing should also be made on a warm border where the soil is rich; plants from such sowings are always preferable for late crops. Make sowings of mustard and cress, radishes, lettuce, and other salads, that there may be no blanks. Watering newly-planted subjects requires great care at this time of the year, for when it becomes necessary to do this the nights are usually cold, and if watering be done in the after-part of the day, the temperature of the soil becomes so reduced that the plants suffer seriously. When it is necessary to water, always do it in the early part of the day, that the plants do not suffer thereby. See that the hoe is worked between all growing crops where there are any signs of weeds, as this will not only keep them in check, but will assist in promoting the growth of the plants.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

ROUTINE work in vineries will now occupy much attention, as, once well started, growth is very rapid in the early stages, and prompt attention must be given to disbudding, tying down shoots, fertilising the flowers of shy-setting varieties, and thinning the bunches, as each of these stages are reached. In disbudding, an eye should be given to the matter of overcrowding, as in many cases far too many shoots are left on, and these not always the best placed. No growth should be permitted for which ample room cannot be found without crowding, as weight and finish of crop depends far more on the proper development of the principal leaves than on any other thing. Take Muscats, for instance; and we find that unless we can have fairly large primary leaves and finish them up properly, the fruit is never of the best; and when shoots are crowded in at something like one foot apart, the vines are sure to break weakly and to show poor bunches next year. I use the Muscat of Alexandria as an instance, because some of its inherent failings, such as shyness of setting and predisposition to shanking, make growers particularly anxious to obtain a good show of bunches, and to ensure this, far too many spurs are left on, these leading to an aggravation of the evils mentioned. A good rule as regards stopping is to pinch out the points of shoots as they reach the length which allows them to meet their neighbours without overlapping, and whether this should be at the second, third, or other bud beyond the bunch selected will depend on the distance between the rods. Very good results are sometimes obtained by stopping at one joint beyond the bunch, but with ample room I prefer to leave one or two additional leaves. Whichever leaf is selected for pinching back to there should be no delay in pinching when that point is reached. In modern vineries where the training wires are placed at a good distance from the glass, it is best not to tie down the shoots until it can be done without fear of their giving way at the base; but where the vines are very near the roof they cannot be left so long, and in this case, it is necessary to do the work very gradually, only putting the slightest pressure on shoots of such brittle varieties as Alicante, Gros Maroc, and the like, nothing being more disheartening than to find some of the best breaks hanging suspended by a strip of raffia. Vines in flower should have the atmosphere kept dry about them, damping down should be suspended or only very slightly done, and evaporating pans kept empty, these being necessary precautions, especially when the weather is dull, for with much atmospheric moisture in the house the pollen cannot be freely distributed. Free-setting varieties require nothing further than a few smart taps of the rod about noon, but such shy setters as Muscat Hamburgh, Muscat of Alexandria, Alnwick Seedling, and others must be dealt with more carefully. The best method I have found is for some one with a naturally cool and dry hand to draw the hand gently over the bunch; this method rarely fails to produce a good set. Another good plan is to use a big camel-hair brush, such as is used by exhibitors of chrysanthemums for manipulating their blooms. In houses containing such varieties, it is a great help to have at least one vine of the free-setting Black Hamburgh planted at the coldest end, so that it may distribute its pollen through the house.

Before the vines come into bloom, and as soon as the best bunches can be selected, all surplus bunches should be removed, nothing being gained by leaving them. Where grapes have to be cut and kept in bottles, it is well to bear this in mind when selecting bunches of varieties that show more than one bunch on a shoot, as the general rule to leave the bunch nearest home, provided it be a good one, should not be followed in its entirety; bunches so placed being sometimes too close home to allow of cutting a sufficient length of shoot to reach the water in the bottles. Thinning should be persevered with as soon as ever the berries have reached a suitable size, as they swell quickly at first and soon get beyond the stage in which they can be dealt with properly. I choose the early morning for this work as it can then be carried out with greater comfort to the operator, but of course it is not always possible to confine operations to this period. Watch carefully for signs of red spider, and apply the usual remedy of sulphuring the pipes, taking care to make the pipes as hot as possible previously. This remedy should not be carried out, and will rarely be necessary, until the berries have reached the size of peas, if done before this the strong fumes will cause rust. Another precaution when sulphuring is to be sure and have a little ventilation on the house at daybreak next morning, and gradually increase it, so that the maximum of air is reached earlier than usual that day; this will prevent scalding.

Melons that are showing fruits should have the laterals stopped at one joint beyond the fruits, and as the flowers open they should be fertilised. The more nearly the flowers open together on each plant the better will be the chances of a good set and uniformity of swelling. Should the plants fail to set the flowers on the earliest laterals, or, should these fail to show a good lot of fruit, it will be best to pick off what there are, and encourage a development of sub laterals. The time lost will not be much, and the crop will be a better one by so doing. During the flowering period, and after, keep up a brisk temperature by day, and not less than 65 degrees by night. The bottom heat should also be brisk, so that the plants may grow freely. Sow for succession and for frame plants if these are needed.—J. C. TALLACK, *Livermere Park Gardens.*

Malva crispa.—Many of the mallows are very beautiful subjects for the decoration of the glasshouse, and for the most part are herbaceous perennials. The species named above is an annual, and is well worth a place in the sub-tropical garden or shrubberies. It is vigorous in growth, attaining to the height of six feet or more, forming an erect pyramid of densely-packed, broad foliage, the margins of which are beautifully curled, and of a pleasing shade of green. Seed may be sown in March on a gentle hotbed, and when the seedlings are large enough to handle they should be pricked off into small sixties and grown on freely. Afterwards gradually harden off, and by May they will have become strong plants for transferring to the position they are to occupy for the summer. I know of nothing so suitable for packing such fruits as strawberries, figs, and thin soft fruits for travelling long distances as the leaves of this mallow, for they are soft as silk, and the curled edges of the leaves appear to me admirably suited to the purpose, preventing, as they do, the fruits when packed rubbing against each other; in fact, they are a boon, for they have no equal. If a piece of rather poor ground can be spared near the packing shed on which to sow the seed, so much the better, for they will then be close at hand to furnish supplies. Sow the seed rather thickly, that the plants may not attain large dimensions, for the small leaves will be of more service than large ones for the purpose named.—H. T. M., *Stoneleigh.*

Double Cinerarias.—These beautiful flowers do not seem so popular as their merits deserve, for they are far preferable for cutting than the single forms, whereas for furnishing they last in good condition much longer. I do not despise the single varieties, as these are extremely useful for conservatory or greenhouse decoration and materially assist in keeping a bright and effective display all through the months of winter and spring. The double-flowered varieties are just as easy to cultivate as single ones, and may be either grown from cuttings or raised from seed. When one has a good colour or an extra fine form it should be propagated and this can easily be effected by offsets obtained from the base of the plant. If the specimens, when flowering is over, are put into a warm moist house they will soon emit young shoots which can be removed and propagated in the orthodox way; after these have rooted grow them in a cold pit, potting them on as they require it till they fill a seven inch pot; after this feed them with liquid manure, and as soon as the flower heads are showing give them about half a teaspoonful of Standen's manure each, as this will help them very considerably. Their greatest enemy is aphis, and this should be kept away by fumigating with XL All vapouriser. I have enclosed a few blooms which were produced from seedlings raised from Messrs Carter's strain. Most of them are now over, but at Christmas I had a a most splendid double white, which I am propagating. It had flowers as large as a golf ball, and these so numerous as to nearly cover the foliage. We find the double forms useful in a variety of ways, and they are as a rule much admired.—W. A. COOK, *Compton Basset.*

THE CINCHONA IN INDIA.

QUININE is principally obtained from the bark of trees and shrubs belonging to the genus Cinchona. Indeed, till about twenty-seven years ago it was hardly known that it was obtainable from any other genus; but it was then ascertained that the bark of an allied genus, Remijia, also yielded it, although in smaller proportion. In 1880, and for several subsequent years, when cinchona bark was scarce and dear, and quinine selling at famine prices, remijia, or Cuprea Bark, as it was commercially called, was imported from South America for the European quinine factories in very large quantities; but later on, when the markets became stocked to overflowing with the rich cultivated cinchona barks of India, Ceylon, Java, South America, and other countries, prices fell, and the importation of Cuprea Bark became unprofitable, and, consequently, ceased. The price of quinine is now so low that it would hardly pay the manufacturers to work up remijia, with its small proportion of alkaloids, even if they got it for nothing; for the expensive manipulation of a large quantity of bark, to get only a little low-priced quinine cannot be a profitable operation. Owing to over-production, the price of both cinchona bark and sulphate of quinine has fallen so low, that the planters get actually less for the bark than it costs them to grow and market it, whilst the quinine-makers can hardly have fared much better; but the fever-stricken millions of the malarious parts of India and other hot countries reap the benefit; and to benefit them, rather than either planter or manufacturer, was the avowed object of our Government in introducing the cinchonas to India and other countries. The results have exceeded the most sanguine expectations, for the introduction has been the means of bringing the price of quinine so low as to place it within easy reach of the very poorest. It is one of the few medicines of foreign manufacture that the natives of the East, almost without exception, implicitly believe in, and their confidence in it is likely to continue whilst quinine remains so cheap that there is but little temptation to adulterate it. Many substitutes have been from time to time put on the market, but not one has stood the trial test, and quinine is likely to remain, as it so long has been, the only safe specific for malarial fevers.

Formation of Cinchona Plantations.

With regard to forming cinchona plantations, Mr. J. A. Gammie, who has recently retired from the charge of the Bengal Government plantations, a charge extending over thirty years, told the members of the Horticultural Club that the planter in the East has no convenient nurseryman to indent on for his plants as his brother at home has, so must raise his own, and, in fact, do everything for himself, from the making of bricks to the building of factories and fixing machinery. In Sikkim there were, practically, but two methods of raising plants practised, viz., by seed and by cuttings. In the earlier years of the enterprise seed was not obtainable, and plants had to be raised from cuttings, which was done in the ordinary way. There were three main species to deal with: C. succirubra, or Red-bark; C. officinalis, or Crown-bark; and C. calisaya var. Ledgeriana, or Yellow-bark. Usually ninety-five to one hundred per cent. of the succirubra cuttings rooted without any trouble, but officinalis was not so accommodating, although not very troublesome, and Ledgeriana was almost a complete failure, but of many and many a batch of it not a single cutting rooted, and seldom more than five to ten per cent.

There was nothing peculiar either in the way the seedlings were raised. The seed was sown in long, narrow, terraced beds, protected by low thatched roofs from rain and sun, but open at the sides for free admission of air and light. The seedlings were kept in the same sort of protected beds, with several transplantings, as they grew and required more room, till six or nine inches high, when advantage was taken of a spell of dull weather to remove the thatch and get them inured to the weather previous to planting out in the plantation. The sites selected for plantations were on the steep mountain slopes, at elevations lying between one thousand and five thousand feet, flattish ground being avoided, as cinchonas cannot long endure stagnant water at their roots; and artificial drainage, however elaborate, does not do much good with a yearly rainfall of one hundred and twenty to two hundred and fifty inches. On the selected sites the jungle, usually consisting of a mixture of trees, bamboos, and shrubs, is cut close to the ground, and great care taken to leave nothing uncut to ensure everything dying and drying together, otherwise there might be an imperfect burn which would entail extra work in the final clearing. The cutting is best done in December, after the dry season has fairly set in, and the burning in the end of March, when the weather is hot and dry. After the ground is cleared, roads have to be traced and made, and pegs put down in straight rows at the distance apart it is proposed to plant, usually four to six feet each way. Then pits of about two feet across and nearly as much in depth are dug out, and afterwards filled in with the same soil mixed with any convenient decayed vegetable matter, and on those little mounds the plants are firmly planted, one at each peg, after the soil has been well saturated with rain, and the sky is overcast. At the time of planting, the seedlings are usually from twelve to fifteen months old, counting from date of the sowing. For three or four years the ground between the plants has to be kept fairly free of weeds, and occasionally dug over. Afterwards but little cultivation is necessary, as the plants will be covering the ground and able to take care of themselves.

Varieties of Cinchona.

When the first plants were large enough to yield bark suitable for chemical analysis, it was found that the Red Bark, whether from seed or cuttings, was fairly uniform in quality, and of the typical character, *i.e.*, rich in the inferior alkaloids, cinchonidine, and cinchonine, but rather poor in quinine. So it was only a question of expediency whether the plants were raised from seeds or cuttings, the result in alkaloids being the same. It is not a good bark for quinine making, but is, perhaps, the most useful to the ordinary druggist for his [illegible] and other preparations. The Crown Bark was also uniform in quality and true to type, however raised. It is one of the very best barks for the manufacture of sulphate of quinine, as it is rich in quinine, and comparatively poor in the other alkaloids. It thrives to perfection in Travancore and other parts of southern India, but is rather a failure everywhere in the more northern Himalayan regions. Its stem bark will yield from three to six per cent. of its weight of sulphate of quinine. The Yellow Bark behaved quite differently. The cutting-raised plants, [illegible] of course, yielded bark of exactly the same composition as the parents, but the seedlings differed in the most perplexing way, both from their parents and from each other. The better sorts yielded from eight to ten and even sixteen per cent. of sulphate of quinine, but the inferior sorts, which were quite as numerous, or perhaps more so, less than two. To make matters worse, the good [illegible] quite indistinguishable from most of the bad till the trees grew up and yielded bark, and not always then even. The original seeds, from the Andes, yielded just as mixed a progeny as the Indian grown did in later years. They were [illegible] in Bolivia for a Mr. Ledger by his half-caste servant, who was afterwards killed for having procured them for export, and thus destroying the monopoly of so valuable a product to its native country. These seeds were first offered for sale by [illegible]

Ledger to the India Office, who refused them, not knowing that they were of any special value, or that they differed from varieties of calisaya already in India. Ultimately they were divided between a Madras private planter, for his plantation on the Nilgiris, and the Dutch Government, for their plantations in Java. Part of the planter's share was afterwards exchanged with the Madras Government for other sorts of cinchona seed, and, through an old friend, I got a very small packet, from which we raised eight hundred plants. These were the parents of most of the Ledger plants, since grown in India and Ceylon, for the species did not thrive on the Nilgiris, but speedily died out, and the Dutch were careful to reserve the Java-grown seeds of the better varieties for their own use for many years. But till the first-grown bark was analysed, neither the Dutch nor English had any idea of the value of the prize they possessed, and till the trees flowered the species even was uncertain. The first flowering specimens were submitted to the late John Eliot Howard, the famous London manufacturer of the purest sulphate of quinine ever put on the market. Mr. Howard had made a special study of the genus cinchona, and published extensively on both its botany and chemistry, and was for many years a trusted adviser of Government on the introduction of the cinchonas to India, in which he took the keenest interest. So, altogether, he was in the best position to determine the species. He pronounced it to be a variety of calisaya, and named it Cinchona calisaya var. Ledgeriana. A few years later Moens, the superintendent of the Java plantations, who was a most excellent analytical chemist, but made no pretence to any knowledge of botany, raised it to specific rank under the name Ledgeriana; and Dr. Trimen, of Ceylon, agreed with him.

But there can be no doubt, I think, that Howard was right, and his name ought to stand. At any rate, the Government of Bengal adhere to it. It is a most variable plant in foliage and habit of growth, as well as in the colour of its flowers, which vary from pure white to bright pink. After the general flowering of the trees, chemical analyses showed that those with white, nodding flowers, and small seed-capsules, were rich in quinine, whilst those with pinkish flowers, however slightly tinged, or with straight flower-stalks or large seed-capsules, were poor; but as there is rarely a rule without an exception, it turned out that the very richest of all in Java had pink flowers. But with this notable exception, so far as I know, the rule holds good that the white-flowered varieties are rich in quinine, and the coloured poor. For instance, a mixed sample of bark collected under my own personal supervision from twenty trees bearing white flowers, but differing more or less from each other in foliage and habit of growth, yielded eight per cent. of crystallised sulphate of quinine; whilst a corresponding sample, collected at the same time and place from twenty trees, with flowers tinged pink, yielded but 2·93 per cent., or nearly two-thirds less; so the formation of plantations, consisting of the rich varieties only, became a matter of the first importance, for it cost no more to grow a rich sort than it did a poor, and the yield of quinine would be more than doubled.

Artificial Propagation.

To ensure this increased yield with any degree of certainty some plan of artificial propagation was necessary, as the seedlings often came untrue to type, and sometimes were a very mixed and inferior lot indeed. Attempts at propagation by cuttings had ended in failure everywhere, and layering was a slow and unsatisfactory process. The other obvious plan was grafting, but that in the ordinary way was slow and expensive, as it had to be done under glass-roofs; so in the end, in Sikkim, we had to do the best possible with selected seed, and give up artificial propagation, much to our regret. But in Java, where the climate and soil are much more favourable to cinchona growth, plants grafted under glass, and afterwards planted out in the open, made good growth, and yielded profitable returns on the expenditure.

A good many years ago, a private planter from Java, a Mr. Weinschenk, told me of a discovery he had made in open-air grafting, by which, according to his account, he got excellent results. In fact, he claimed by it to have almost no failures, and very little expense. But to this I cannot further testify than that I tried his plan on a small scale, but under favourable circumstances, with results that inclined me to view it with favour. His plan was very simple, but new to me. He commenced by making his graft sick, as he phrased it, by ringing its base, and letting it remain on the parent tree till its leaves became of an unhealthy colour, when he cut it off, and fixed it on the stock in the usual way. His whole discovery lay in making his graft sick beforehand, which, to me, appeared a very absurd procedure, but it really may have some reasonable foundation. Perhaps some one will be good enough to give the plan a trial with fruit and other trees at the proper season of the year, and chronicle the results. It should be done when the plants are in active growth. Mr. Weinschenk was a man of many theories, one of them being that the bark of the cinchona, and not the roots or leaves, had the predominating, if not the entire, influence in the chemical conversion of the sap into the different alkaloids. Once when I was with him on a visit to the Nilgiri cinchona plantations he asked the late Mr. M. A. Lawson, then superintendent of the Madras Government plantations, but formerly Professor of Botany at Oxford, and consequently well acquainted with vegetable physiology, where he thought the controlling chemist was located—whether in the leaves, or in the roots, or where? Mr. Lawson answered, off-hand, "In the leaves, of course." "How is it, then," said Mr. Weinschenk, "that if I cut over a plant of C. succirubra and graft on it C. Ledgeriana, which I let grow to some height, then behead and graft on a C. succirubra top, when I shall have C. succirubra leaves and C. succirubra roots, but the bark on the Ledger part of the stem, however many years afterwards, and however much it may have increased, will still be normal Ledger bark, and in the same way the C. succirubra bark at top and bottom will continue to be of the typical C. succirubra character, *i.e.*, the Ledger bark will continue to contain a large proportion of quinine and but little of the inferior alkaloids, cinchonodine and cinchonine, and the C. succirubra *vice versâ*. Therefore," said Mr. Weinschenk, "I maintain that the controlling chemist is neither in the leaves nor in the roots, but in the bark itself." Of course, the obvious weak link in this chain of argument is the fact that the bark on the Ledger part of the composite tree was started while it bore Ledger leaves. But I think it is suggestive of possibilities of getting branch sports by the engrafting of other bark, and that the bark may really have a large influence in determining the nature of the alkaloids, or the colour of the flowers, or in other ways. It is just possible that some of the inexplicable branch sports may have originated in the accidental engrafting of bark from kindred species or varieties.

(*To be continued.*)

Lonicera fragrantissima at Spye Park.—This honeysuckle has flowered [illegible] profusely at Spye this season, and the big bushes have bloomed continuously for several months; the flowers are used in a variety of ways—even for sprays and [illegible] work; indeed, they have been in great request owing to the lovely perfume they emit. This species deserves to be more generally grown, for as yet it is comparatively rare in gardens.—W. A. COOK, *Compton Basset.*

THE HARDY FERNERY.

As hardy ferns are now preparing themselves for the summer campaign by generally reawakened root activity, and a swelling and pushing of the crowns prior to sending up their annual crop of plumes, it behoves their owners without further delay to overhaul them, and see that when they do arise in all their glory they may do so under the most favourable conditions. Undoubtedly their vital energies are so invigorated by the long rest they have had that they will now stand almost anything in the way of division and disturbance with impunity; and as there are no delicate fronds to damage, such operations as repotting and dividing leave no lasting mark throughout the season, as they are very likely to do later on. With the deciduous species the ragged stumps of last year's fronds can be neatly trimmed away, but with the evergreens, such as shield ferns, hartstongues, and blechnums, it is certainly better to leave those fronds which are still healthily green until the new growth has well risen; the old fronds will then speedily lose their vigour, the vital forces of the plant being then directed to the new ones; but there is little doubt that ere this stage is reached the cutting off of green foliage impoverishes the plants. All brown portions, however, can be cut away with impunity. Pots which have been sunk in the ground to obviate risk of winter drought through forgetfulness can now be lifted, washed, and reinstated, intrusive worms or other vermin being removed, and a little mulching of fresh soil introduced if needed.

When numerous crowns have developed division is beneficial, since the frondage of isolated crowns is always much more finely developed than where several are fighting for root-room with each other, quite apart from the fact that the fronds when mixed up cannot possibly show to advantage. The best way to perform this dividing operation is to shake the plants out, and, carefully avoiding any pressure on the growing centres, force the crowns apart with a blunt wedge, unless, as often happens, they can be pulled asunder with the fingers. Sometimes the attachment is so strong as to yield to neither method. Then, if the growing centres show a decided indentation between them, a sharp knife may even be used to part them, though it is not advisable to pursue the cut beyond the actual fleshy connexion, but, this severed, to pull the crowns apart, the individual roots often interlacing, and the fewer of these which are cut the better. Young plants produced as bulbil offsets are almost invariably wedged off, and come away with their little bunches of roots all ready for planting. Some ferns, the shield ferns especially, produce bulbils on the fronds, and many varieties which are not called proliferous, occasionally have one or two near the base. These, if the variety be a desirable one, can easily be reared into plants by cutting the frond into small sections bearing the bulbils, and inserting these in good soil or cocoa-nut fibre, and keeping them close and moist. It is always worth while when cutting off the old fronds to look out for these, since even when stuck round the edges of the pots, they will usually root and form acceptable little gifts later on to admiring visitors. Ferns with running roots or rhizomes, such as the polypodies and bladder ferns, are best left alone if good specimens are wanted, the P. vulgare varieties especially taking a long time to form established plants. If necessary, however, they may now be divided up into as many plants as there are growing eyes, care only being taken to see that a portion of rhizomes are attached to give a fair start. The oak and beech and limestone ferns grow and spread very rapidly, and a pan of leafy compost dotted over with divisions of these just buried in the soil, become a thing of beauty and a joy for the summer in a very short time.

Out of doors it is not wise to be over neat as regards old fronds and leafy débris which may have collected about the crowns until March's drying winds have spent their fury. These afford great protection, and their premature removal may lead to a sudden check and do much harm. Under glass, where all choice varieties should be, even of hardy ferns, everything may be made as neat as possible, and, for the reasons given, the sooner the better, handling now doing no damage. Spores of good things may now be sown with advantage, and if there be a warm corner available, they will come on all the quicker there. It is early yet to talk of white fly and similar pests, but it is well to bear in mind that the eggs are now on the fronds if the vermin have had a chance of depositing them last season, and that the right time to fumigate and clear the house is after these eggs have all hatched, and before the flying stage is reached, between which two epochs there is a period of several weeks. To wait until flight betrays their presence is simply to permit a second batch of eggs to be laid, after which no fumigation can be as perfectly annihilative as with the first brood. Take a fly-bitten fern and watch it so soon as the sun gets a little power in April, and presently tiny white or greenish larvæ will be found. Wait a bit, however, give them a fortnight or three weeks at the outside, there are still unhatched eggs which smoke will not affect. Then fumigate, and quite probably the entire brood will be disposed of for the season.

In arranging pot ferns in conservatories or ferneries proper, take care to have every plant within easy reach. It is always those in the background which, from lack of inspection, form the breeding grounds of vermin, or, failing this, get dry sooner or later. "Out of sight out of mind" is a very solid fact as a rule, and, to avoid the risk, the nature of the, as yet, unrisen plants must be considered, since pots which now appear fully visible may be utterly eclipsed in a month or two by some rapidly growing neighbour. Small varieties, then, to the front, and robuster ones behind should be the rule, especially as, when once the plants start into growth, it is not well to shift them about from place to place, as so doing is very apt to result in distorted fronds due to changes of light aspect.

CHAS. T. DRUERY, F.L.S., V.M.H.

The Fruit and Vegetable Canning Industry has advanced by leaps and bounds in the United States of America, until at the present time it employs upwards of sixty thousand persons and represents an invested capital of thirty million dollars, equal to six and a quarter million pounds sterling.

THE WATER GARDEN.

PLANTS AND PLANTING.

HAVING previously referred to the best methods of constructing various forms of water gardens, both on a large and on a small scale, I will now deal with the necessary preparations for planting, and will also enumerate the most suitable plants. In the case of water in the rock garden, where a comparatively small pond or stream would probably have to be dealt with, these preparations would naturally differ from those required for water gardens on a bolder scale. As cemented ponds will seldom be made more than two and a half to three feet deep, the best way to deal with these is to form (with rough dark stones) irregular enclosures, to be filled up with leaf mould, peat, loam, &c., to within a foot of the intended surface of the water. Planted into these irregular submerged beds aquatics of all descriptions will thrive far better than if merely sunk in baskets or pots. Quite near the margin some of these beds might be filled up, so that the surface of the soil is only four or six inches below the surface of the water; these situations would be admirable for plants loving to be only partially submerged like Typha minima, menyanthes, the Bog-Arum, and others. Large ponds as well as small ones should, if at all possible, be so constructed that by opening a valve the water can be lowered at will, or even drained off altogether. This greatly facilitates planting operations, and enables one to clean out a pond, or check the growth of, or abolish, certain water plants. In the case of planting waterlilies and other aquatics into large ponds it would be well to deposit on the bottom of such a pond mounds of leafmould and loam, and, when the plants are strong enough, to plant them into large wicker baskets and place them on the mounds previously prepared, so that the crown of the plant is about twelve to eighteen inches below the waterline. The wicker basket will soon decay, but by that time the roots will have penetrated into the good soil below and the plants will flourish as well as could be desired, and will also soon be strong enough to withstand the ravages of water-rats and other vermin. But if the plants are not strong and well developed it would be advisable to grow them during the first season or two in a small tank or basin, or if they must be planted into the large pond to surround them with wire netting for protection.

The arrangement of plants in the water garden must, of course, depend entirely on circumstances, such as the number of plants available, the size of the pond, stream, bog, or whatever form of water garden is to be planted. The laying down of hard and fast rules for arranging water plants is, of course, impossible. This is as much a matter of taste as the painting of a picture. But the laws of colour and harmony that apply to the artistic grouping of other ornamental plants are the same here; such grouping should never be conspicuous, and should appear to be Nature's work rather than that of man. It has already been pointed out that it would be absurd to cover the whole of the water with plants. Irregular groups of flowering aquatics, such as water lilies, will be much more effective than single specimens. Here and there the groups should be separated by a comparatively large expanse of water, and near the shore furthest away from the eye specimens or groups of tall growing plants may be introduced with good effect.

The banks of a pond or streamlet are of even greater importance, with regard to the arrangement of plants than the water itself. Nothing could be worse than an uninterrupted fringe of plants around the whole pond. However thickly we may plant the parts where the land projects into the water, or where, at least, convex shorelines are formed, in some portions, and especially in the concave parts of the bank where the water would form a kind of bay, there should be grass only, mixed here and there with groups of iris and such dwarf plants as would never form an obstruction to the view. In other words, instead of a narrow belt of plants all around a pond, the plants should in some parts be united into large bold masses, in others sparsely scattered, and in still others there should be nothing but the green sward. In the case of a bog-garden by the waterside the best plan is to group the tallest plants at a considerable distance from each other, and carpet the spaces between with groups of dwarfer kinds. Whatever plants we may use for the embellishment of the water garden our arrangement can be picturesque only if we follow Nature, and import to our work something at least of that indescribable wild charm, careless grace and simplicity found in and around natural ponds and streamlets. I will not make any attempt to give anything like a complete list of plants for the water garden, nor can I give any detailed descriptions without exceeding my limits of space. I will, however, enumerate some of the best, which from experience I have found most suitable.

By submerged plants are meant those which, when planted, would have their crowns covered by not less than ten or twelve inches of water. The very first rank among these must, of course, be given to the waterlilies, and as most waterlilies increase so rapidly that they would, in a short space of time, become too large for the small pond of a rock garden, I will here, first of all, name a few of the smallest kinds, but it must be understood that these might also be grown in larger ponds where they would be well in sight and could be protected from fast-growing varieties. In a like manner many of the plants here classed as "large waterlilies" might with advantage adorn the small pond of a rock garden for at least several years until they become really too large, when they might be either reduced or transplanted to a larger pond.

Exeter.

F. W. MEYER.

DISOBEDIENCE IN THE ARMY is looked upon as one of the gravest crimes a soldier can be guilty of, and in the past it has often been punished with death. The fate of a battle and the lives of thousands of men, let alone our national honour, have often been dependent upon the prompt carrying out of what might have seemed a trivial order. Discipline without good health, however, would be like a house without a foundation; therefore great pains are taken to keep our fighting men free from disease. Holloway's Pills have always been found an excellent medicine for this purpose, as, in addition to cleansing the blood, they invigorate and give tone to the system.—[ADVT.]

EXHIBITIONS AND MEETINGS.

ROYAL BOTANIC SOCIETY, March 30.

FOR once in a way the fates were kind, and the spring show at Regent's Park was held during delightful spring weather. We sincerely hope that such good weather will be dispensed to the society at all its 1898 exhibitions and fêtes. There was a bright display on this occasion, but almost entirely composed of trade exhibits; indeed, considering the lack of competition, it is a wonder that the R.B.S. offer prizes at all. Spring flowers were greatly in evidence.

COMPETITIVE EXHIBITS.

The first prize for a collection of hardy spring flowers was secured by Mr. T. S. Ware with pans of Primula obconica, P. verticillata, Muscari botryoides, and M. b. alba, Orchis pallens, Androsace carnea, Orphrys speculum, one of the Bee orchids, chionodoxas of various kinds, Epigæa repens, Hepatica triloba cærulea, Trillium grandiflorum, Fritillaria meleagris, hardy cyclamen, primroses, saxifragas, adonis, and a few other subjects all in flower.

The St. George's Nursery Company secured the chief award for twelve cyclamen with handsome specimens in twenty-four sized pots. The first prize for hardy azaleas was secured by Messrs. Morle and Co., Finchley-road, with forms of A. mollis; Mr. Kemp, Barnes, second. Mr. J. Mowbray, gardener to the Hon. H. C. Legge, Slough, secured first prize for a dozen cinerarias with large specimens. For orchids Mr. G. Cragg, gardener to W. Walker, Esq., Winchmore Hill, secured first place with Cattleya Shilleriana, Cypripedium Rothschildianum, Oncidium sarcodes, Ada aurantiaca, Cattleya Trianæ delicata, and Phaius grandifolius. Messrs. Morle and Co. were awarded a second prize for hyacinths.

The silver Daffodil Cup offered by Messrs. Barr and Son for the best collection of cut daffodils, polyanthus forms excluded, was won by Mr. W. J. Grant, Bassaleg, Monmouth, with an interesting collection of about sixty varieties; some of the most notable forms were Glory of Leiden, Emperor, Johnstoni, Empress, Sir Watkin, Figaro, Poeticus, Præcox grandiflorus, Albicans, W. J. Goldring, Gloria Mundi, Mrs. Langtry, J. B. M. Camm, Odorus, Mrs. Walter Ware, King of the Netherlands, Backhousei, Katherine Spurrill, Horsfieldi, and Hume's Giant.

TRADE EXHIBITS.

Messrs. B. S. Williams and Son, Holloway, were large exhibitors, staging a fine batch of brilliant-flowered clivias, including the leading varieties. Forced lilacs and Azalea mollis flanked a big group of amaryllis, the varieties Dr. Masters and Gerald Balfour being especially noteworthy. Orchids were well represented by odontoglossums, cœlogynes, and specimens of the charming Phaius Norman. Messrs. J. Laing and Sons, Forest Hill, had an extensive display of flowering and foliage plants; Dracæna Goldieana, caladiums, Leea amabilis, boronias, cytisus, azaleas, clivias, acacias, yellow and white arums, heaths, tree pæonies, palms, and crotons, not forgetting some brilliant streptocarpus, combined to make up a good display. Clivias, Azalea mollis in variety, spiræas, ericas, mignonette, Primula obconica, and liliums were tastefully associated with ferns, palms, foliage begonias, and other useful and charming palms by Messrs. J. Peed and Sons, Norwood. Mr. G. Kelf, gardener to Mrs. Abbott, South Villa, Regent's Park, put up a large group of miscellaneous plants suitable for conservatory decorations; deutzias, azaleas, tulips, lily of the valley, hyacinths, narcissi, dielytras, heaths, &c., were the principal subjects associated with palms and ferns. Messrs. W. Cutbush and Son, Highgate, had a conspicuous group of acacias, [illegible] eriostemons, Magnolia Soulangeana, Richardia Elliottiana, Souvenir de la Malmaison carnations, boronias, diosmas, &c.; this was a most attractive exhibit.

A beautiful display of daffodils was arranged by Messrs. Barr and Son, Covent Garden; Sir Watkin was well represented, and so were Horsfieldi, Weardale Perfection, the new bicolor form named Victoria, princeps, C. J. Backhouse, rugulosus, Incomparabilis Stella, maximus, and tortuosus; these were all cut blooms. In pots they had Horsfieldi, Emperor, Empress, Victoria, Madame Plemp, Santa Maria, Grandis, J. B. M. Camm, Cernuus, Golden Spur, &c. The whole display was good and the flowers remarkably fine. The St. George's Nursery Company, Hanwell, set up a big group of finely-grown cyclamen representing a first-rate strain both as regards colour and habit; a large white form shown by this firm deserves a special mention for its size and substance. A big regiment of stalwart hyacinths from Messrs. W. Paul and Son, Waltham Cross, secured a large share of the general admiration; the spikes were invariably [illegible] and full, and the foliage dwarf, deep green, and bright; there were specially [illegible] developments of Koh-i-noor, pink; Von Schiller, rose pink; La Grandesse, white; Jacques, blush; and City of Haarlem, yellow. The Messrs. Paul [illegible] staged a group of fragrant roses, the leading varieties being the wonderful and perpetual Enchantress, Madame Jules Grolez, and Madame Abel Chatenay. In addition to these displays a large exhibit of camellias in considerable variety came from Waltham Cross; both plants and cut flowers were staged. Another [illegible] of cyclamen came from the Church Road Nursery Company, Hanwell; all the specimens were well grown, but the rich purple form was conspicuous by reason of its brightness. Narcissi, both cut and in pots, were largely exhibited by Mr. T. S. Ware, Tottenham. Sir Watkin, Obvallaris, Grandis, Victoria, Alexandra—a fine new ajax form of rich yellow colour; Empress, Maximus, Spurius, and [illegible] Leedsi and Barri forms were shown in good condition.

A handsome group of orchids was staged by Messrs. Hugh Low and Co., Enfield; it included some charming odontoglossums, O. luteo-purpureum being very good; Cymbidium eburneo-Lowianum, Dendrobium Boxalli, lycastes, [illegible] Odontoglossum Edwardsi was conspicuous over all. One of the [illegible] exhibits was that of lily of the valley, shown by that great master [illegible] of cultivating them—Mr. T. Jannoch, Dersingham. Mr. Jannoch [illegible] pyramids and pans of this popular flower, and in every case the spikes [illegible] and stout, carrying from ten to fourteen large, pure white, fragrant bells. [illegible] A. W. Young and Co., Stevenage, were exhibitors of cinerarias. [illegible] Messrs. W. Rumsey and Son, Waltham Cross, came in for a large [illegible] tion, and were greatly appreciated; Maréchal Niel and Niphetos [illegible] largely represented. Messrs. B. S. Williams and Son, Holloway, [illegible] of daffodils, bouquets and crosses of roses, stocks, and lily of the valley; a chaplet of cycad foliage and white lilies was a simple and effective production. Mr. H. B. May sent a few ferns; Asplenium ornatum, Doryopteris [illegible] Lomaria ciliata major, a grand plant; Pteris longifolia Mariesi, Davallia [illegible] maxima, and Gymnogramma Mayi, a sulphur form, were the leading kinds.

Messrs. J. Laing and Sons had a large table of floral arrangements, [illegible] bouquets, sprays, and crosses; the firm is taking a special interest in the [illegible] tion of these works of art, and have made a special department [illegible] bouquet of roses and cross of red roses and white stock were most successful, [illegible] were some of the sprays. The exhibit displayed a great variety of designs. [illegible] Edmonton, [illegible] extensive exhibit of ferns from Messrs. J. Hill and Son, pleasing relief to the bright daffodils, &c. Some big specimens of nephrolepis, Alsophila excelsa, lomarias, &c., were displayed over baskets of smaller examples of the most popular ferns, chiefly adiantums, aspleniums, and gymnogrammas. Varieties of Azalea mollis, shown by Mr. W. Kemp, Ganzale Nurseries, Barnes, were bright and well flowered. Some exceptionally well grown mignonette was exhibited by Messrs. Morle and Co., Finchley Road. Messrs. J. Carter and Co., High Holborn, exhibited a fine strain of cinerarias, both colour and size of flowers being of the best.

MEDALS.

A Silver-gilt Medal was awarded to Messrs. Wm. Paul and Son, Waltham Cross, for their combined exhibit.

Large Silver Medals were awarded to Messrs. J. Hill and Co., Messrs. Hugh Low and Co., Mr. Kelf, gardener to Mrs. Abbott, Messrs. J. Laing and Sons, Messrs. B. S. Williams and Son, the Church Road Nursery Company, Hanwell, and St. George's Nursery Company.

Silver Medals were won by Mr. T. Jannoch, Messrs. J. Carter and Co., Messrs. W. Cutbush and Son, Messrs. J. Peed and Sons, and Messrs. Barr and Sons.

Bronze Medals were secured by Mr. W. Kemp, Messrs. J. Laing and Sons, Mr. H. B. May, Messrs. W. Rumsey and Son, Messrs. B. S. Williams and Son, Messrs. A. W. Young and Co., Messrs. Morle and Co., and Mr. T. S. Ware.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.

THE first show of the year in connection with the above society took place at the Town Hall, Albert Square, Manchester, on March 15 and 16. Several years ago this show was made up of ordinary spring-flowering plants—hyacinths, tulips, cinerarias, primulas, cyclamens, &c.—but the one this year was mostly orchids, and not of the common types either, but first-class.

Mr. Ashworth, of Wilmslow, had a collection that contained many gems, and included the white form of Dendrobium nobile, D. Wardianum alba in several varieties, especially one named Harefield Hall var., the strong yellow contrasting so well with the white; D. Juno, D. Melanthopthalmum, and many others well worthy of note. Cattleya Trianæ in variety was well represented, and a few cypripedium seedlings came, the result of C. Chamberlainianum crosses. A gold medal was awarded, and several F.C.C.'s and awards of merit were here well deserved. On the right hand side of the hall, Mr. Cypher, of Cheltenham, staged, as usual, a splendid lot of well-grown plants, dendrobiums predominating; D. Schroderianum was very striking, and there were some good phaius, Cattleya Trianæ, Cœlogyne cristata alba, cypripediums, &c., and all well deserved the awards gained, as well as a gold medal. Next to Mr. Cypher, a grand lot of plants was put up by Mr. Robson, of Bowdon, dendrobiums again predominating; D. nobile Fisheri was a gem, having a large flower of a deep colour; D. nobile Robsonæ was good, and gained an F.C.C.; Cymbidium eburneum was also well grown. The group merited a silver medal, though gold medals have been awarded to worse.

On the left-hand side of the hall Messrs. Charlesworth and Co., of Bradford, staged a group of plants, not so large as others before mentioned, but, at the same time, full of good things. Here was represented Phaius Norman, figured in the GARDENERS' MAGAZINE of March 19, in quantity for such a rare thing; this is well worthy of a place in collections, being so rich in colour, and bold. Dendrobiums, odontoglossums, cymbidiums, trichopelias, &c., completed the group. Phaius Norman gained a F.C.C. Mr. Cratrix, West Point, Whalley Range, Manchester (gardener, Mr. McLeod), had some fine orchids, and Cypripedium Harrisianum albens is the best variety seen; Dendrobium rubens grandiflorum gained F.C.C., and was shown amid Lycaste Skinneri alba (a good variety), Dendrobium Amesis, D. Rolfæ, many choice forms of D. nobile, Odontoglossum Wilckeaum (A.M.), Cypripedium leysenianum, C. vexillarium, a cypripedium hybrid the reverse cross to C. Thompson (A.M.), Lælio-cattleya, Mrs. Astor, and other good things. Mr. Lofthouse, gardener to A. Warburton, Esq., Haslingden, staged some good odontoglossums and dendrobiums; Lycaste Skinneri alba was good, and so was Dendrobium cybele nobilius, and to these awards were given. Mr. Stevens, gardener to W. Thompson, Esq., Stone, again brought some of his famous odontoglossums, intermixed with good examples of dendrobiums in variety; a silver medal was awarded. A dendrobium hybrid, obtained by crossing D. nobile with D. thrysiflorum, and something in the way of Wiganæ, gained a F.C.C.; this was from the Walton Grange collection. Mr. Stafford, gardener to F. Hardy, Esq., Tyntesfield, showed hybrids of dendrobiums; D. Clio alba gained an A.M. Some good odontoglossums and cattleyas were shown, Mendeli var. May gained a F.C.C. Mr. Morton, gardener to Mr. Hinchcliffe, Ashfield, Hale, Altrincham, had a very effective group, consisting of dendrobiums, cymbidiums, cœlogynes, cypripediums, &c., well put up with palms and ferns; silver medal. G. F. Moore, Esq., Chardwar, Bourton-on-the Water, showed cut spikes of odontoglossums and dendrobiums.

Messrs. Ker and Son, of Liverpool, had again a splendid collection of amaryllis, some of the finest varieties being Vulcan, Momus, and Imperial; and in the lighter colours, Aphrodite, Minos, Saturn, and other intermediate ones being equally good. Messrs. Dickson, Brown, and Tait, Corporation Street, Manchester, had a fine collection of hyacinths, all the best varieties being represented; daffodils and other bulbous plants also appeared. Messrs. Birkenhead, of Sale, had a fine collection of ferns, stove, greenhouse, and hardy forms, in first-class condition, such as polystichums, polypodiums, aspleniums, athyriums, davallias, adiantums, pellæs, braineas, &c. The scented fern, Lastræ fragrans, proved of great interest. Mr. Bruce, nurseryman, Stretford, Manchester, sent a collection of carnivorous plants, which was of great interest to the public. Mr. Edward Sherwood, Nottingham, had a display of rustic vases. Mr. P. Weathers sent some spring-flowering plants from the Botanic Gardens, Old Trafford; and R. Brown, Esq., sent miscellaneous cut blooms, grown outside at Sunny Hill, Llandudno. Altogether the show excelled those of previous years,

SPRING FLOWERS AT BIRMINGHAM.

A SINGULARLY beautiful show of forced spring flowers was that seen in the conservatories of the Edgbaston Botanic Gardens, Birmingham, on the 15th inst. and following day. For this delightful feature the subscribers were indebted to the liberality of that enthusiastic florist Mr. Robert Sydenham, who furnished all the liberal prizes offered in a dozen classes, besides giving others of a special nature to the largest exhibitors. The spring shows of the [illegible] Society having fallen through, Mr. Sydenham came in to fill the void last year. Then the show was pretty but small, whereas this year it was double the dimensions and the quality really high-class. There were classes for single hyacinths, in dozens and half dozens in pots; of single tulips the same, also in narcissi, and in Polyanthus narcissi; for lilies of the valley, cinerarias, spiræas, collections of spring flowers, and cut narcissi. The competition in each case was capital, showing how numerous and capable are the gardeners and amateurs of the district in growing spring flowers. The banks of tulips, those of the collectors of diverse plants, the superb display of bouquets and floral designs and stands made by Messrs. Perkins and Son, of Birmingham and Coventry, and not least the big bunches of hyacinths, tulips, single and double, narcissi and other bulbs, staged by Mr. Sydenham, gave colour of exceeding brillancy to the show, which was arranged by Mr. W. B. Latham, the curator. Of new tulips Unique, in Mr. Sydenham's group, calls for special notice. It is a white Pottebacker having a gold base and ribs presenting exceeding beauty. Proserpine rectified was also a very beautiful tulip, the white flutings or stripes on the rich coloured petals being of a very refined form. The collection included all the best varieties in commerce. The exhibition was crowded with visitors each day, and clearly demonstrated the exceeding popularity which attaches to early bulbous and other plants when gently forced into bloom.

NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the General Committee of this society was held at Anderton's Hotel on Wednesday evening, with Mr. T. W. Sanders in the chair, when a somewhat lengthy agenda was disposed of. The most important business of public interest was the election of the Floral, Classification, and Finance Committees, which, by reason of the large number of nominations, occupied some time. The ballot for the members of the Floral Committee was proceeded with, and on the report of the scrutineers Messrs. D. B. Crane, J. P. Kendall, W. H. Lees, J. W. Moorman, H. Cannell, W. Howe, and G. Langdon were declared duly elected. The Classification and Catalogue Committee comprises, under the new rules, fifteen members, and the following were elected: Messrs. H. J. Jones, G. Gordon, T. Bevan, C. Gibson, W. H. Lees, H. Cannell, J. W. Moorman, W. Mease, D. B. Crane, J. Lyne, W. Wells, G. Stevens, M. Gleeson, E. Beckett, and W. Higgs. The members elected to serve on the Finance Committee are Mr. G. Gordon, Mr. G. E. Willis, and Mr. J. W. Moorman.

SUMMER BEDDING.

THE liking for the system of bedding out, which was so popular a quarter of a century ago continues, and many of the materials employed to work out various effects are grown largely in these days and used in much the same way. There are certain persons in the trade who lay themselves out to maintain a supply—a business that can pay only on the assumption, which may be reasonably held, that very large supplies have to be provided. So rapidly and cheaply are various soft-wooded subjects used for bedding purposes produced, that the trade generally find they can purchase popular bedding plants cheaper than they can grow them, and so what is a much larger industry than is generally supposed has been built up. The system which favours the employment of soft-wooded plants in the decoration of the flower garden, in masses, in zones, in segments, and in various mixtures, is one which will not readily die out because of its convenience. There are a very large number of amateur gardeners who have small gardens, and are fettered by limited means of production and expenditure, who find cheap bedding plants of suitable character and easily obtainable, a great boon. No better estimate perhaps can be found of the popularity of what may be termed our common bedding plants, than a study of those who crowd the windows of some of the premises of the firms who have branches in the City at this season of the year. The philosopher will find much in the survey to interest him; the social reformer to encourage him. The majority of them are young men in whose breasts may be the awakening of a desire to cultivate some of the flowers which make an appeal to his better nature.

The first beginnings of many a successful career as an amateur cultivator have doubtless been conceived by the contemplation of a shop window. We like to contemplate the cultivation of flowers as an antidote to grosser things. Such occupations, innocent, interesting, and pleasant, do something towards softening the manners and subduing the mind. It is curious to observe how many of the favourite bedding plants which were popular with the last generation, still hold their own. There is a loyalty in matters floricultural which holds firmly to subjects of proved usefulness and effectiveness. Verbena Purple King is a case in point; for its perfect habit of growth and the agreeable shade and persistence of its colour, it has never been surpassed. Boule de Niege is still a popular white; and Lustrous, which emanated from Salisbury many years ago, our best scarlet. It is so with the Erinus type of bedding lobelia, with the ageratum and that fragrant subject, the heliotrope, one of the most favourite of the latter. Miss Nightingale takes us back to the period of the Crimean War. Among bedding calceolarias, the fifty-year old amplexicaulis is unsurpassed for its peculiar shade of colour, and excessive propagation does not operate to weaken the constitutional vigour it has ever possessed. No bedding coleus has ever surpassed the old Verschaffelti, and yet thousands have been raised since its introduction many years ago. The most useful alternantheras were in cultivation when the bedding-out system was at fever height. And then our bedding pelargoniums: the old varieties hold their own, and defy a multitude of aspirants to the seat of honour they occupy. Master Christine, Madame Vaucher, Mr. William Paul, and a few others, take us back to the time when the Pelargonium Society was a power; when Peter Grieve was raising his fine tricolors; Dr. Denny improving the zonals; when the pelargonium held the field, and the tuberous begonia appeared to dispute its supremacy. As a bedder among the tricolors, who shall dare to say that Mrs. Pollock has been surpassed for general usefulness, or the old Flower of Spring and Lady Plymouth among the silver-foliaged varieties. The golden-leaved Crystal Palace Gem is practically without a rival.

There are other sections of plants which illustrate the persistency of individuals, such as Centaurea ragusina and Gazania splendens. There is a remarkable peculiarity attaching to the latter; that while during the prevalence of dull weather in summer the flowers close, they expand freely in autumn, let the weather be ever so sunless. Many other plants employed for bedding can be raised from seeds—the aster, stock, mimulus, Phlox Drummondi, mimulus begonia, annual dianthus, and similar subjects are invaluable; but these many amateurs have convenience for raising. The subject which more than any other restricts the convenience of the amateur for keeping of bedding plants through the winter is the claims the chrysanthemum has upon him. Were it not for this Eastern flower, which can now be had in bloom from July until February, but little else would beautify his greenhouse in autumn. Some of the early-flowering varieties of the chrysanthemum can fittingly find a place in our flower borders from July onwards. Dwarf and compact in growth, they are singularly prolific of bloom and lasting also.

OBSERVER.

CHRYSANTHEMUM LEAF RUST.

THERE is no doubt that the fungus, or rust as it is called, which has lately affected chrysanthemums in this country is one of the troubles which beset plant life that will need constant watchfulness on the part of growers to prevent its spreading seriously. I have found on inquiry that the disease was far more widely distributed last season than most people supposed, and though one heard occasional reports of its existence it did not seem to create general uneasiness in the minds of growers.

Those who are unfortunate enough to find it amongst their plants, however, need not be unduly alarmed, for a rapid and vigorous growing plant like the chrysanthemum should be easily cleared of a parasite such as this. The most important fact to bear in mind is that the reproductive powers of the fungus are very great, as the spores are produced in immense numbers and rapidly distributed. The spores, when seen under the microscope and magnified some 450 diameters, have the appearance of brown seeds, similar in shape to stock seeds. So far as I have observed they do not grow on the stems or upper surface of the leaves, but invariably on the under side.

Though we may have a remedy in the "Bordeaux mixture," or sulphide of potassium or other fungicides, that will destroy the spores, it is evident that we cannot destroy the growth in the leaf itself, hence the best remedy is to pay every attention to the plants to induce a hardy growth and to remove each leaf that shows signs of the rust, if possible, before the spores become distributed elsewhere. All affected portions should be handled as gently as possible so as not to disturb and scatter the spores, and they should be burned. If a collection is carefully examined regularly and all traces removed in this way, there should be no difficulty in stamping it out, but if the fungus is left about the plants it will in all probability prove destruction.

It is commonly reported that the pest was introduced into this country from America on the variety Niveus; if so, it is curious that we have not seen or heard more about it before, as Niveus was sent over in 1893, and has been grown in every collection, and very extensively too, yet we do not become familiar with the disease till 1897-98.

We first noticed it in these gardens last November on plants of Viscountess Hambledon and Souvenir de Petite Amie; every plant was carefully looked over, but little more was found, and this on some bush-grown plants of Golden Gem. Though every particle which we could discover was carefully burned, we have found here and there a spot on the young stock this spring, but I have little fear of being able to eradicate the pest by the repressive measures alluded to. The varieties most susceptible to the attacks of the fungus will doubtless be those which make the most fleshy and succulent leaf growth, or especially those which are unduly fed with manures; so that my usual caution to inexperienced growers against the too free use of manure in the early stages of growth needs special emphasis this year in view of the probable attacks of the fungus.

Through the kindness of Mr. J. W. Odell, of Stanmore, who has sent me specimens mounted as microscopic slides, I have been able to examine both the chrysanthemum rust—Uredo Chrysanthemi—and the rust which infests carnations —Uredo carophyllus. Growers of carnations will probably be familiar with this latter, and the two are possibly identical, for the only difference apparent under the microscope is that those spores taken from the carnation are slightly paler in colour; no difference can be discerned with the naked eye.

It will be interesting to prove this, and Mr. Odell tells me that he has infected the two species with both forms of rust in order to arrive at a satisfactory conclusion. Should they prove to be identical, then the blame of origin may be removed from Niveus, as the rust was well known amongst carnation growers prior to the introduction of this well-known chrysanthemum.

It will be an advantage to know also what is the probable length of time for which a spore will exist on the soil or any place which is unsuitable to its germination. It is possible that experiments may prove the value of fortifying the plants, by means of certain solutions in watering the roots, against the invasion of the spores, and I am sure our editor will kindly find space for the communication of any means which is likely to prove satisfactory in stamping out this fungus.

I have several letters from growers who say that they do not anticipate any serious difficulty in dealing with it, and my object in writing is not to alarm those interested, but rather to put them on guard against the possible increase of the fungi unobserved.

Trent Park Gardens. W. H. LEES.

COMING EVENTS.

ANCIENT SOCIETY OF YORK FLORISTS: First show, April 13; second, May 18; third, June 29; fourth, August 3; fifth, September 7; Chrysanthemum Show, November 16, 17, 18.
ASCOT CHRYSANTHEMUM SHOW, altered to November 2 and 3.
BRIDGEWATER HORTICULTURAL SOCIETY, August 4.
BRIXTON AND STREATHAM CHRYSANTHEMUM SOCIETY, November 2 and 3.
BUTE HORTICULTURAL SOCIETY, at Rothesay, August 24 and 25.
CRUDWELL HORTICULTURAL SOCIETY, August 25.
CUCKFIELD SUMMER SHOW, August 17.
DROITWICH HORTICULTURAL SOCIETY, August 1.
FAVERSHAM CHRYSANTHEMUM ASSOCIATION, November 16 and 17.
GRANDPONT AND SOUTH OXFORD SHOW, August 18.
HEATON MERSEY FLORAL SOCIETY, August 13.
LADYWELL AND LEWISHAM COTTAGERS' SHOW, August 10 and 11.
LEWES CHRYSANTHEMUM SOCIETY, November 16 and 17.
LEE AND BLACKHEATH SUMMER SHOW, July 6 and 7.
LECHLADE HORTICULTURAL SOCIETY, August 4.
LEIGH AND BRANSFORD HORTICULTURAL SOCIETY, July 28.
NORTHAMPTON CHRYSANTHEMUM SHOW, November 9 and 10.
NEWPORT PAGNELL HORTICULTURAL SOCIETY, August 3.
NEWBURY HORTICULTURAL SOCIETY, JUBILEE SHOW, August 1.
PEMBROKE DOCK HORTICULTURAL SOCIETY, August 17.
PRESCOT AND DISTRICT HORTICULTURAL SOCIETY, July 21.
READING HORTICULTURAL SOCIETY, July 14.
ROYAL BOTANIC SOCIETY OF MANCHESTER: Whitsuntide Show, May 27 to June 2; Rose Show, July 9; Amateurs and Cottagers' Show, September 3; Chrysanthemum Show, November 15 and 16.
SEVENOAKS SUMMER SHOW, August 10.
TAUNTON DEAN HORTICULTURAL SOCIETY, August 11.
TONBRIDGE CHRYSANTHEMUM SHOW, November 16 and 17.
WALTON AND WEYBRIDGE CHRYSANTHEMUM SHOW, November 10.
WEST OF ENGLAND CHRYSANTHEMUM SHOW, at Plymouth, November 1 and 2.
WILTS HORTICULTURAL SOCIETY, August 10.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Potatos for Exhibition.—T. O. H., Aberystwyth: Articles on this subject appeared in our issues of March 5 and March 12.

Hardy Camellias.—S. C. G., Farnham: A goodly number of camellias are hardy in the south of England and Ireland, but unless well sheltered from cutting winds they do not expand their flowers properly. The variety to which you allude is probably Camellia Beali, with crimson flowers. This flowers freely out of doors in the south of Devon, Cornwall, and the Isle of Wight, and continues in bloom for about three months.

Exhibiting Primulas and Auriculas.—C. S. H., Hythe: The prizes offered by the National Auricula and Primula Society at the exhibition to be held at the Drill Hall on April 26 can only be competed for by members of that society, or Fellows of the Royal Horticultural Society. If you make yourself eligible for entering such competitions, the secretary of either society will furnish you with full particulars. The R.H.S. secretary is to be found at 117, Victoria Street, S.W. Mr. T. E. Henwood, hon. secretary of the National Auricula and Primula Society, resides at Auricula Villa, Hamilton Road, Reading.

Violets in Frames.—S. W., Portslade: We do not find that the damage was due to fungoid attack in the first instance, but rather that some error of cultivation rendered the tissues so tender that they were laid open to fungoid attack. We have found the best results arrived at by lifting the young violets when well rooted and the crowns plump and firm, and planting them in the frames where they are to remain and flower during winter. Raise the bed and frames, as this allows of better drainage, and violets detest stagnant moisture, especially during the dull season.

Tomatos in Frames.—T. F., Salisbury: There is no difficulty in growing tomatos in frames provided the frame is in a sunny position, and that the plants are strong and sturdy. Do not plant too early, otherwise there may be a difficulty in keeping out frost should such occur. Plant firmly, and towards the front of the frame; then place a board or boards so as to form a slope from front to back, and face the south. On this the plants may rest and be secured loosely, and in such a position they will have the full benefit of sun. Air must be given carefully until the weather becomes settled, after which the lights may be removed for a greater part of the day.

Artificial Fertiliser for Fruit Plantations on Light Soils.—J. L., Oundle: Muriate of potash and superphosphate will prove the most serviceable manures in combination at the rate of one and a half hundredweight of the former and one hundredweight of the later per acre, or even larger quantities if the soil is very poor. One hundredweight of nitrate of soda per acre will assist the trees if they have not been making good growth of late; it serves to stimulate growth, and also by keeping the soil moist it enables fruit trees to tide over spells of very dry weather. Of course, if the soil is very light nothing is better for it than a heavy dressing of rotten farmyard or stable manure both to enrich the land and keep it moist.

Polygonum cuspidatum—W. W., Henley: This plant is not a bamboo, nor has it any affinity to bamboos. It is a Japanese perennial herb that will grow to a height of from four to eight feet, according to the richness of the soil and the supply of moisture during hot weather. It is a handsome species, and grown as an isolated specimen it is very effective. Flowers are produced in summer, they are small, creamy white, and borne in large numbers on a profusion of drooping panicles each four to six inches long. The flowers are succeeded by scarlet fruits. A good dictionary of plant names is Johnson's Gardener's Dictionary, published by Messrs. G. Bell and Co., Covent Garden; price 9s. net. No book contains the names of all plants.

Carrot Fly.—E. G., Ashford: If possible select a piece of ground that was gas-limed early in the winter, and has laid fallow since. Fork over the surface and then make all firm and level. Sow in the usual way, and thin the crop as early as possible; after thinning give the crop a good watering, unless the weather be showery, so as to stop all holes whereby the Carrot Fly can obtain access to the roots and so deposit its eggs. Encourage the crop by hoeing, watering, and other items that make for good cultivation. Mix a quart of paraffin with a medium-sized barrow-load of finely-sifted wood ashes, and use the mixture as a top-dressing both after sowing and as fast as thinning is completed. It will be obvious that thin sowing acts as a preventive, because the seedling carrots do not then raise the ground as when thickly sown, neither is the ground so much loosened at the time of thinning. Watering with soot-water acts as a preventive, and also as a stimulant to the carrots. The great points—after the land has been properly prepared—are to keep the ground firm around the roots and to encourage free growth.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

D. P., Wickham: 1, Gaultheria procumbens; 2, Abies balsamea; 3, Saxifraga oppositifolia.

F. F., Chichester: 1, a pale form of Dendrobium nobile; 2, Masdevallia triangularis.

S. F. G., Nottingham: 1, Asplenium Belangeri; 2, Nephrolepis rufescens tripinnatifida; 3, Adiantum Luddemannianum.

N. P., Eastleigh: 1, Megasea Stracheyi; 2, Muscari conicum; 3, Clivia miniatum; 4, Forsythia viridissima; 5, Scilla siberica.

Communications Received.—J. L. and S.—M. H. W.—M. E.—R. D. —D. T. F.—R. L. H.—J. L.—W. H. L.—W. P.—H. H. D.—J. B.—G. W.—J. T.—W. N. B.—C. S. H.

The Rating of Greenhouses, &c.—Although the law is, in rude parlance, set down as a "hass," yet it is not so much the law that is in fault when legal judgments vary, and are so inconsistent, as is the interpretation put upon it by those who constitute the legal luminaries of our courts. No doubt very much of this inconsistency of interpretation and of judgment is due also to the phraseology of Acts of Parliament, which, being drafted by lawyers, seem to be so flooded with verbose verbiage that they seem rather to hide their meaning or the intentions of the framers than to exhibit them. Possibly, did laymen draft Acts of Parliament on plain common-sense lines, the lawyers' occupation, like that of Othello, would be gone. If an Act states that market greenhouses are, like agricultural land, partially exempt from rating, there ought not to be the least trouble in understanding that such is the case. But when it is said in two lower courts that greenhouses are so far exempt, and in a higher court that they are not exempt, how is it possible to do other than exclaim "a plague on both your houses"? The High Court of Appeal is, after all, not the highest court, and that seems an absurdity, because the House of Lords is the final determining factor; and it is hoped, if the recent decision of the Master of the Rolls is to be appealed against, that it will be determined by the Law Lords very speedily. Such varying of judgments do not help to attract respect for the law. The sooner a final judgment is given the better.—A. D.

The Gipsy Moth (*Porthetria dispar*) is still proving a great pest in the State of Massachusetts in spite of efforts made to exterminate it. According to Mr. L. O. Howard, of the Division of Entomology of the U.S. Department of Agriculture, the gipsy moth was introduced in 1869 for silk-growing experiments. Some examples escaped, and these settling amid the undergrowth and scrub multiplied slowly but steadily until by 1889 the moth was recognised as a pest that must be seriously battled with. Since that time it has done enormous damage by the defoliation of deciduous trees over an area of 22,089 miles. Many methods have been adopted for its extirpation, and the State has spent on these no less than £151,000, in addition to grants from Congress equal to £8,333. Spraying with arsenate of lead, the use of creosote to destroy deposited eggs, grease banding to prevent ascent of caterpillars, and trapping by means of bands of burlap canvas have been the principal methods employed against the moth, with the result that about nine-tenths of the colonies existing in 1891 have been exterminated. Mr. Howard considers that were it not for the difficulty of dealing with woodland undergrowth, a continuance of the present measures would soon terminate in a complete extirpation of the pest, and one of the greatest experiments in economic-entomology in the history of the world would have accomplished its aim and end.

NEW BOOKS.

Supplement to the Ninth Edition of the Rose Garden. By William Paul, F.L.S., &c. (Simpkin, Marshall, and Co., London).—The supplement to the ninth edition of "The Rose Garden," which has been recently published, is of special interest as a reminder of the fact that the first edition of this justly famous work was published exactly half a century since, and showing the advance made in the improvement of roses during the past decade. The original edition of this work was published in 1848, and it is not surprising it should have created an immense amount of interest far beyond rosarian circles, for it was considerably in advance of the books on the rose that had previously been published, and the author had not reached the age considered essential to the production of books on technical matters that shall be regarded as the highest authorities on which they treat. Since the issue of the first edition, which at once placed Mr. William Paul in the front rank of rosarians, "The Rose Garden" has undergone many improvements, and has been kept fully abreast of the progress made in rose culture; but the original plan has been modified rather than changed, and when we consider the high degree of popularity it has enjoyed throughout the past fifty years, one can hardly fail to be impressed by the remarkable judgment displayed by Mr. Paul at this early period of life. The ninth edition, in which every phase of rose culture is discussed with fulness and exceptional ability, was published in 1888, and the chief object, we are told, in publishing this supplement is to bring the information as to new roses up to date. The supplement, in fact, consists of a selection of roses introduced from 1888 to 1898, and as it comprises those varieties only which are considered most worthy of cultivation, it is of much value as a guide to the roses introduced during the period. Altogether two hundred and twenty-nine varieties are enumerated and described in the selection, and it is interesting to observe that the greatest advances during the period covered by the selection, in rose development, have been in the tea-scented varieties and their hybrids, the polyanthas, and the sweet briars. "With regard to the novelties of the last ten years," observes Mr. Paul in the interesting preface, "there are unquestionably some splendid acquisitions both of sorts suited for the more perfect adornment of the flower garden or for the tables of the exhibition," and no one with a knowledge of what has been accomplished in the improvement of the rose of recent years will be disposed to question the statement. Mr. Paul also speaks of the trend of public taste for varieties that are remarkable more for their freedom and continuity of flowering than for the large size and fine form of their individual blooms, and while he evidently regards the increased popularity of garden roses with considerable favour, he fully appreciates the superb form characteristic of the flowers of varieties that find favour with those who aspire to honours at the exhibitions.

Willing's British and Irish Press Guide for 1898. Price 1s. (James Willing, jun. (Limited), 162, Piccadilly, W.)—When a book has reached its twenty-fifth annual issue, it may be assumed with perfect safety that it has fulfilled its mission, and is appreciated by those who resort to it for information on matters relating to the Press of the United Kingdom. The work has long occupied a place on our bookshelves, and we are consequently in a position to speak from practical experience of the care with which the annual issues are compiled.

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14 by 14	...	1	2	7	...	1	6	6
16 ,, 16	...	2	0	0	...	1	9	6
18 ,, 18	...	2	2	14	...	1	14	9
20 ,, 20	...	3	0	14	...	1	18	9
22 ,, 22	...	3	2	14	...	2	3	9
24 ,, 24	...	4	0	14	...	2	11	9
26 ,, 26	...	5	2	0	...	3	11	6

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MARKETS.

Covent Garden.

The wintry weather has caused a shortening of supplies, so that with a moderate demand prices are fully maintained. Fruit of all kinds finds a ready sale, and there is a slight improvement in the demand for potatos.

Fruit.—American apples, 15s. to 28s. per barrel; Californian Newtowns, 8s. to 12s. per box; English grapes, 1s. 9d. to 3s. 6d.; Belgian, 1s. 6d. to 2s. per lb.; bananas, 4s. to 9s. per bunch; pineapples, 2s. 6d. to 6s. 6d. each; lemons, 5s. to 15s. per case; Canary tomatos, 1s. 6d. to 2s. per tray, 4s. to 5s. per case; Valencia oranges, 10s. to 16s. per case; Jaffa, 9s. to 12s. per box.

Flowers.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 2s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; red roses, 3s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 4d. to 9d.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinths, 4s. to 6s.; daffodils, 2s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

Vegetables.—Seakale, 12s. to 18s. per dozen punnets; celery, 9s. to 15s. per dozen rolls; English, onions, 6s. 6d. to 7s. 6d. per cwt.; Valencia 7s. to 9s. per case; asparagus, 2s. 6d, to 8s. per bundle; French lettuce, 1s. to 1s. 3d.; cos lettuce, 2s. to 2s. 6d.; endive, 1s. 6d. to 2s.; cucumbers, 3s. to 6s. 6d. per dozen; parsnips, 3s. to 4s.; cabbages and savoys, 3s. 6d. to 6s. per tally; carrots, 3s. to 3s. 6d.; green mint, 4s. to 5s. per dozen bunches; Italian cauliflowers, 3s. to 4s. per hamper; rhubarb, 3s. to 4s.; forced, 1s. 3d. to 1s. 6d. per dozen bundles; mushrooms, 6s. to 8s. per 12 lb.; spinach, 2s. to 3s. per bushel; Brussels sprouts, 1s. 3d. to 1s. 6d. per half-sieve; potatos, Canary new, 10s. to 16s. per cwt.; French, 2d. to 3d. per lb.

Borough Potato Market.

Supplies are moderate, and though the demand is not brisk, it has improved during the cold weather. Prices are keeping steady.

Dunbars, 120s.; Scotch Magnums, 100s. to 110s.; Hebrons, 100s.; Snowdrops, 90s.; Bruce, Maincrop, and Sutton's Regents, 90s. to 95s.; Reading Giants and Saxons, 85s. to 90s. per ton; Belgians, 3s. 6d. to 4s.; Germans, 3s. 6d. to 4s. 9d. per bag.

CATALOGUES RECEIVED.

Pinehurst Nurseries Co., Pinehurst, N.C.; U.S.A.—Trees and Shrubs.

T. S. Ware, Tottenham.—Hardy Perennials, Hardy Florists' Flowers.

Herd Brothers, Penrith.—Agricultural Seeds.

Cooper, Faber, and Co., Southwark Street, S.E., and Witham.—Wholesale Catalogue.

J. Cheal and Sons, Crawley, Sussex.—Dahlias, Violas, &c.

E. H. Krelage and Son, Haarlem.—Novelties.

Wm. Clibran and Son, Market Street, Manchester.—Farm Seeds.

Barr and Sons, Covent Garden.—Alpines and Hardy Perennials.

Harrison and Sons, Market Place, Leicester.—Farm Seeds.

A Recreation Ground for Lee, some seven acres in extent, has been offered to the London County Council by Viscount Baring and the Earl of Northbrook, for the public use, in commemoration of the Queen's Jubilee. The Parks and Open Spaces Committee recommended the London County Council to accept the gift and maintain the land as an open space.

THE WEATHER DURING THE WEEK ENDING MARCH 26, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	52·1	28·0	37·5	3·06	0·56	1·42
Croydon	50·6	24·0	36·6	2·56	0·56	1·42
Brighton	51·8	30·0	39·2	4·00	0·36	0·91
Bristol	55·0	27·0	38·1	3·39	0·41	1·04
Wolverhampton	50·8	26·1	36·8	2·67	0·17	0·43
Norwich	53·2	28·2	37·2	2·89	0·84	2·13
Nottingham	51·9	27·1	37·6	3·11	0·20	0·51
Liverpool	48·8	30·7	38·3	3·50	0·07	0·18
Huddersfield	49·4	28·7	36·9	2·72	0·25	0·63
Bradford	52·4	31·6	39·8	4·33	0·21	0·53
Hull	54·0	27·0	37·2	2·89	0·36	0·91

The mean reading of the Barometer during the week at Greenwich was 29·73 inches, and that of the Thermometer 37°·5, the latter being 4°·4 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 40 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 16·5 hours. The measured rainfall amounted to 0·56 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

Tuesday, April 5.—Scottish Horticultural Association.

Wednesday, April 6.—Royal Caledonian Horticultural Association Spring Show. Two Days

Thursday, April 7.—Linnean Society.

Saturday, April 9.—Royal Botanic Society's General Meeting.

AUCTIONS.

Monday, Tuesday, and Wednesday, April 4, 5, and 6.—Dwarf Roses, Orchids, and Lilium Auratum, &c., at Protheroe and Morris's Rooms.

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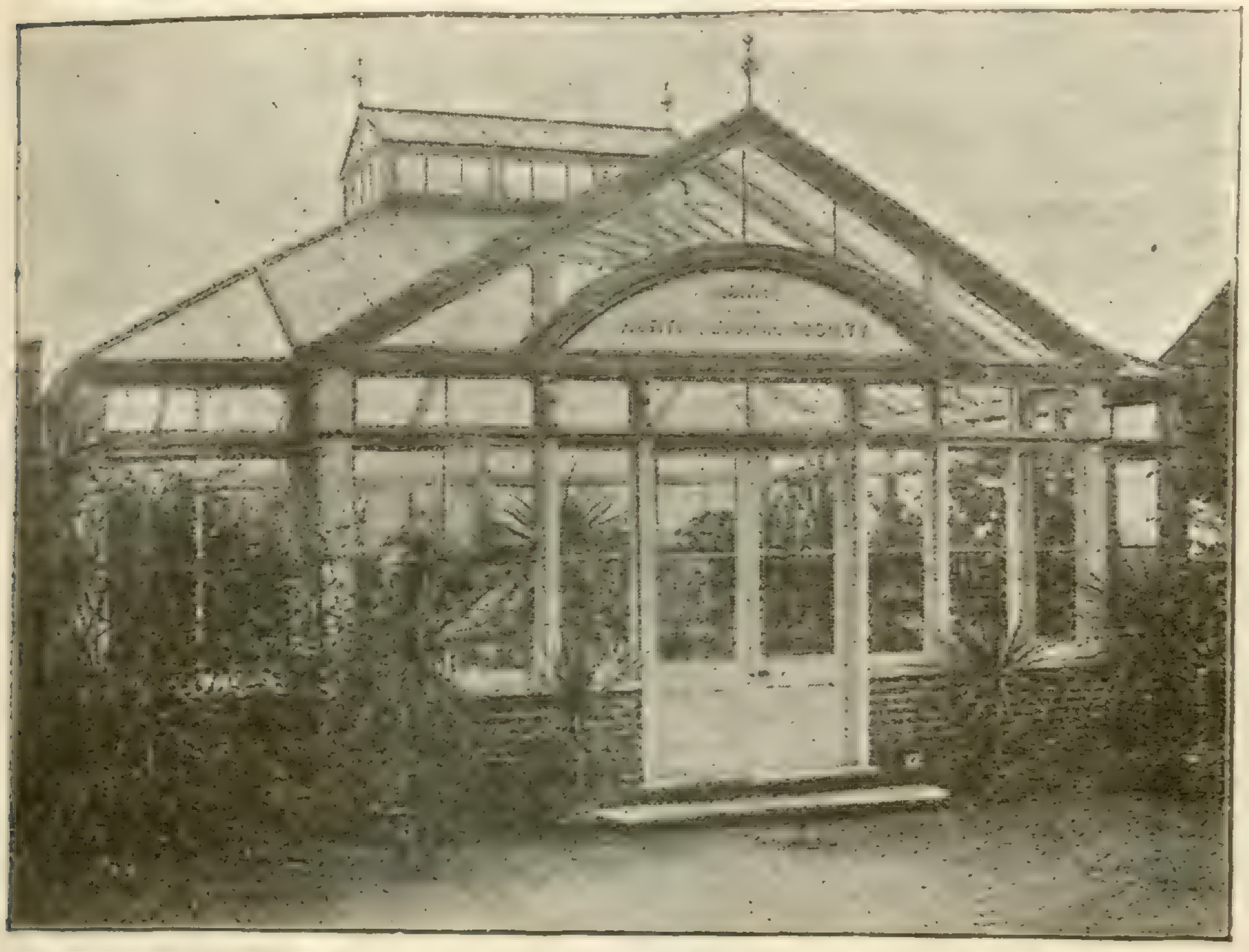

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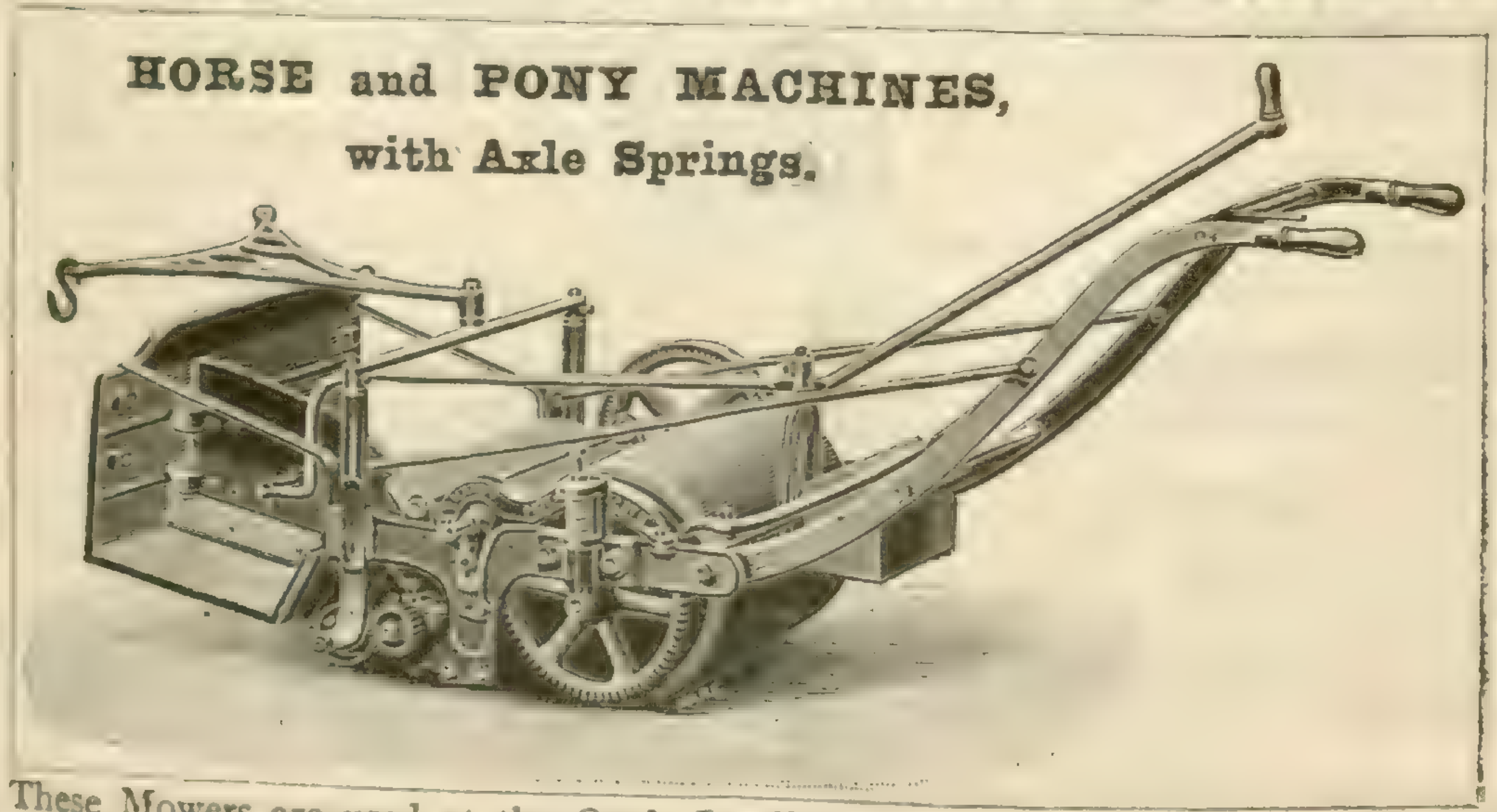

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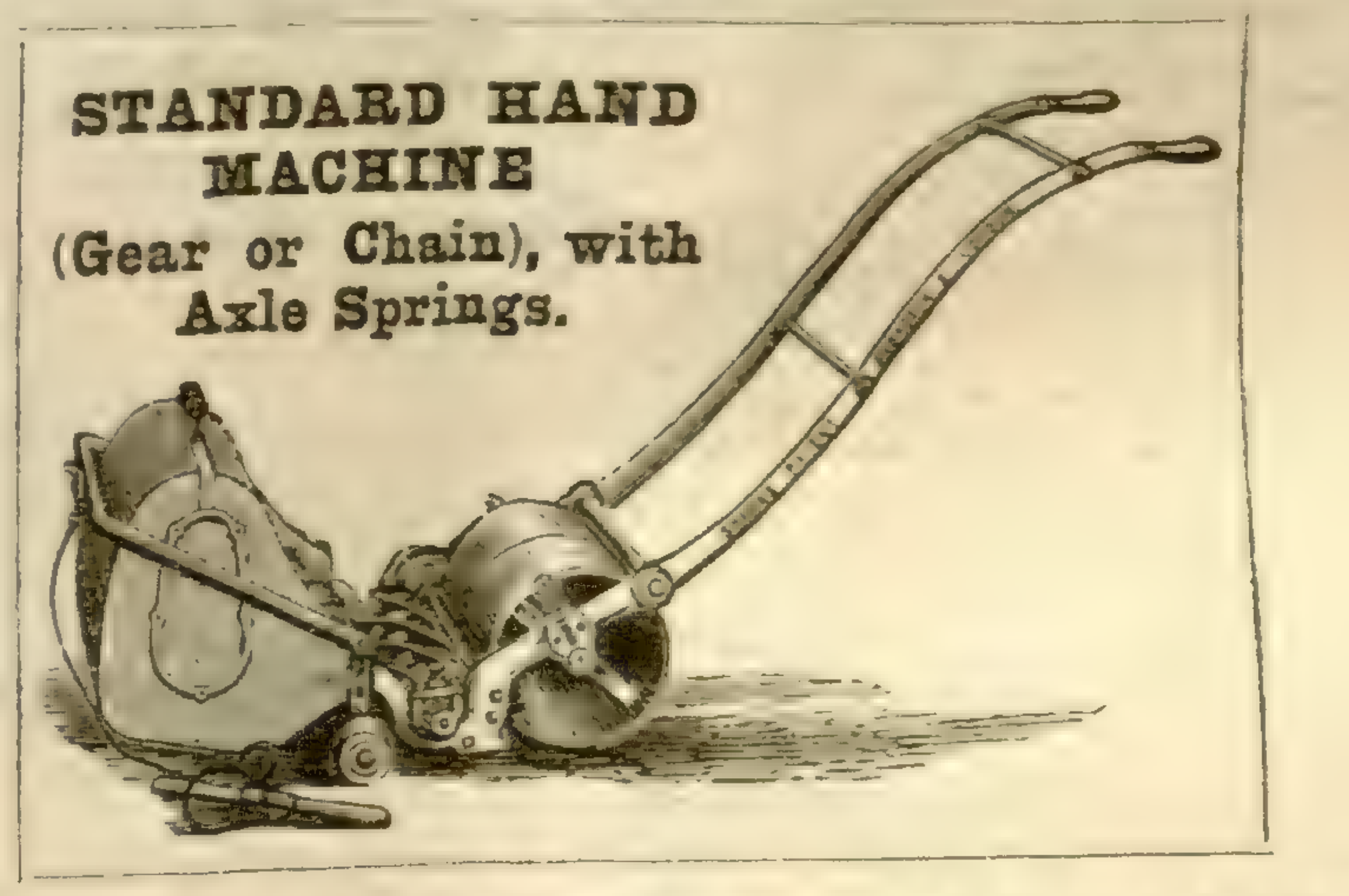

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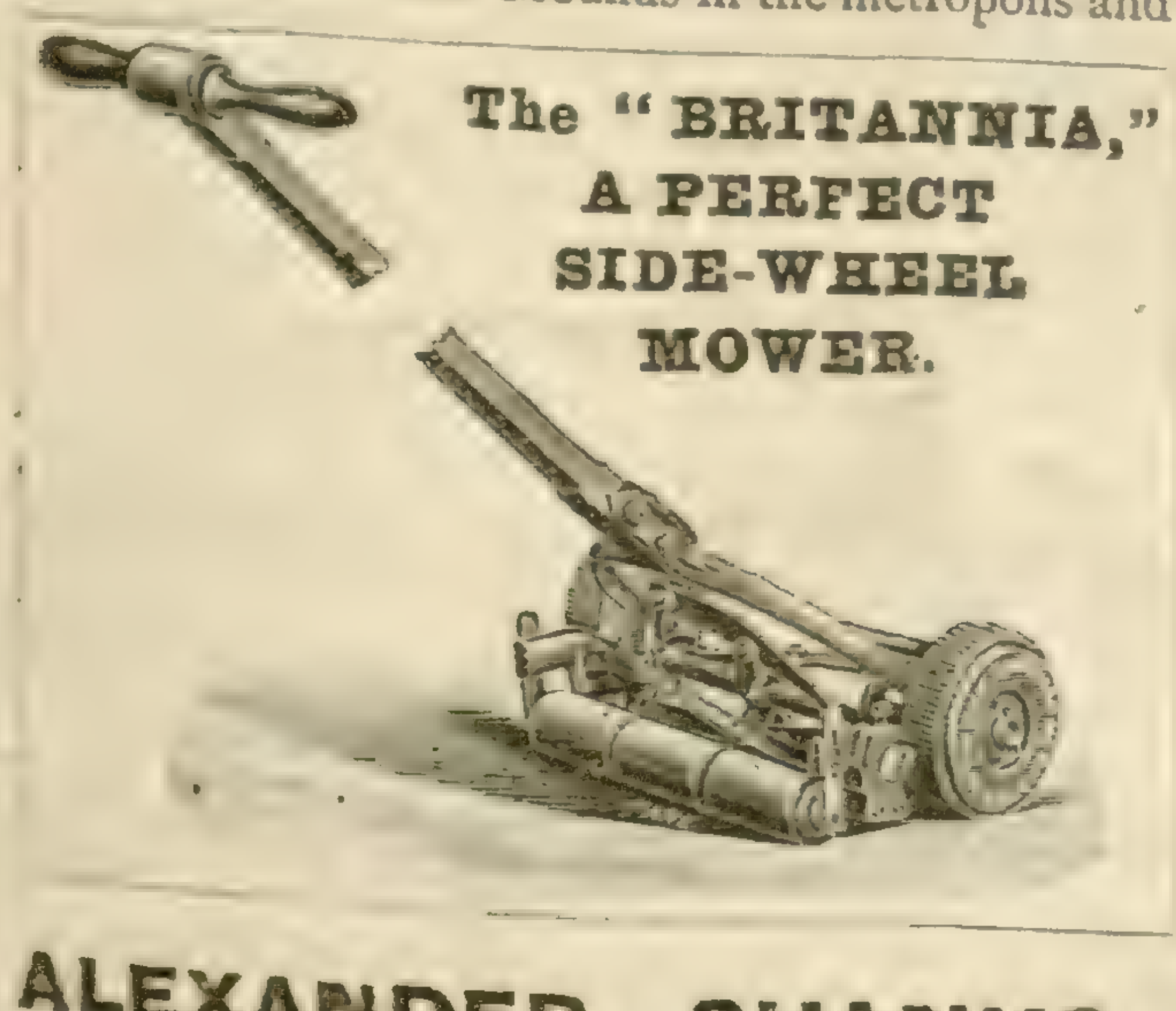

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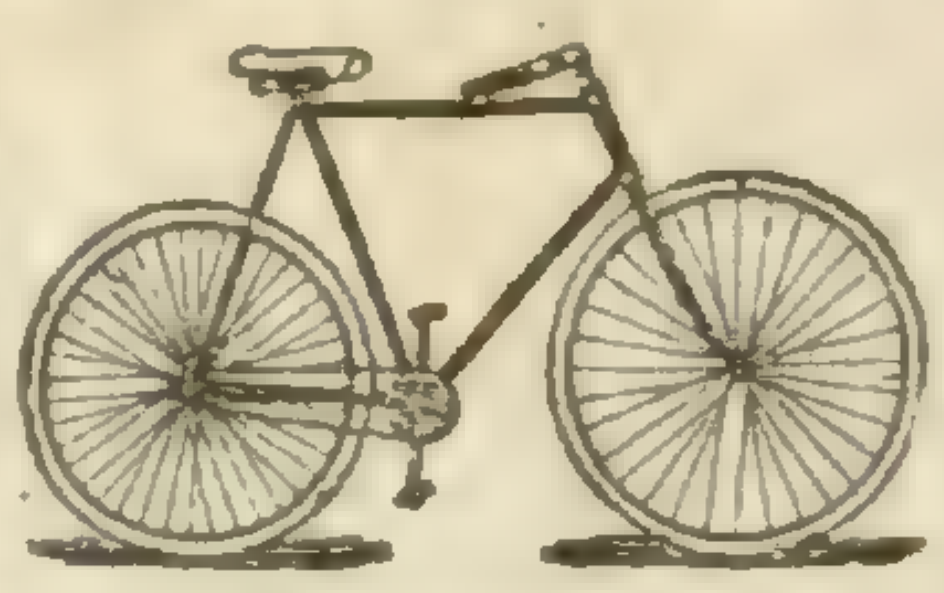

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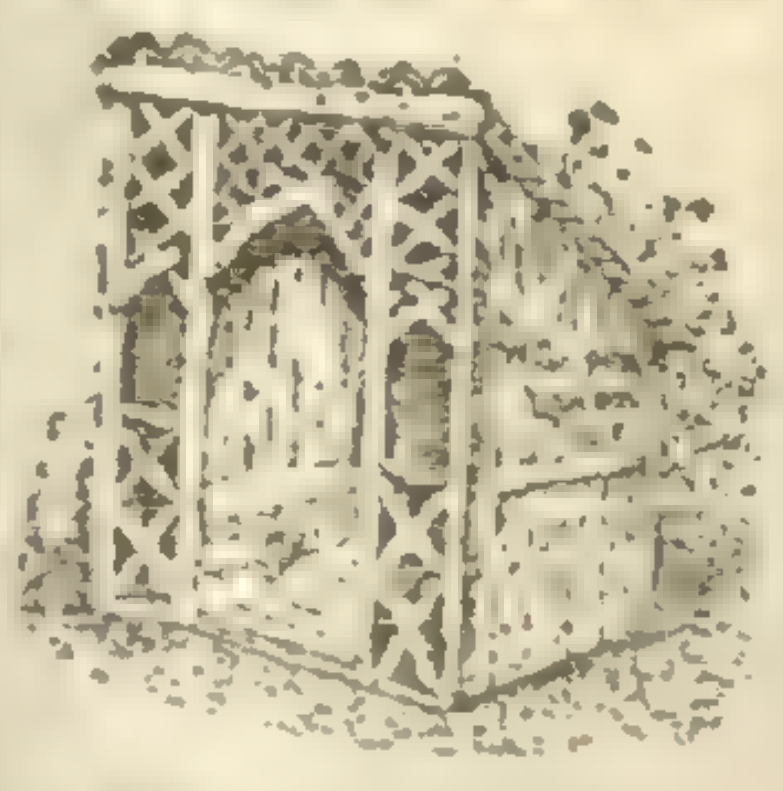

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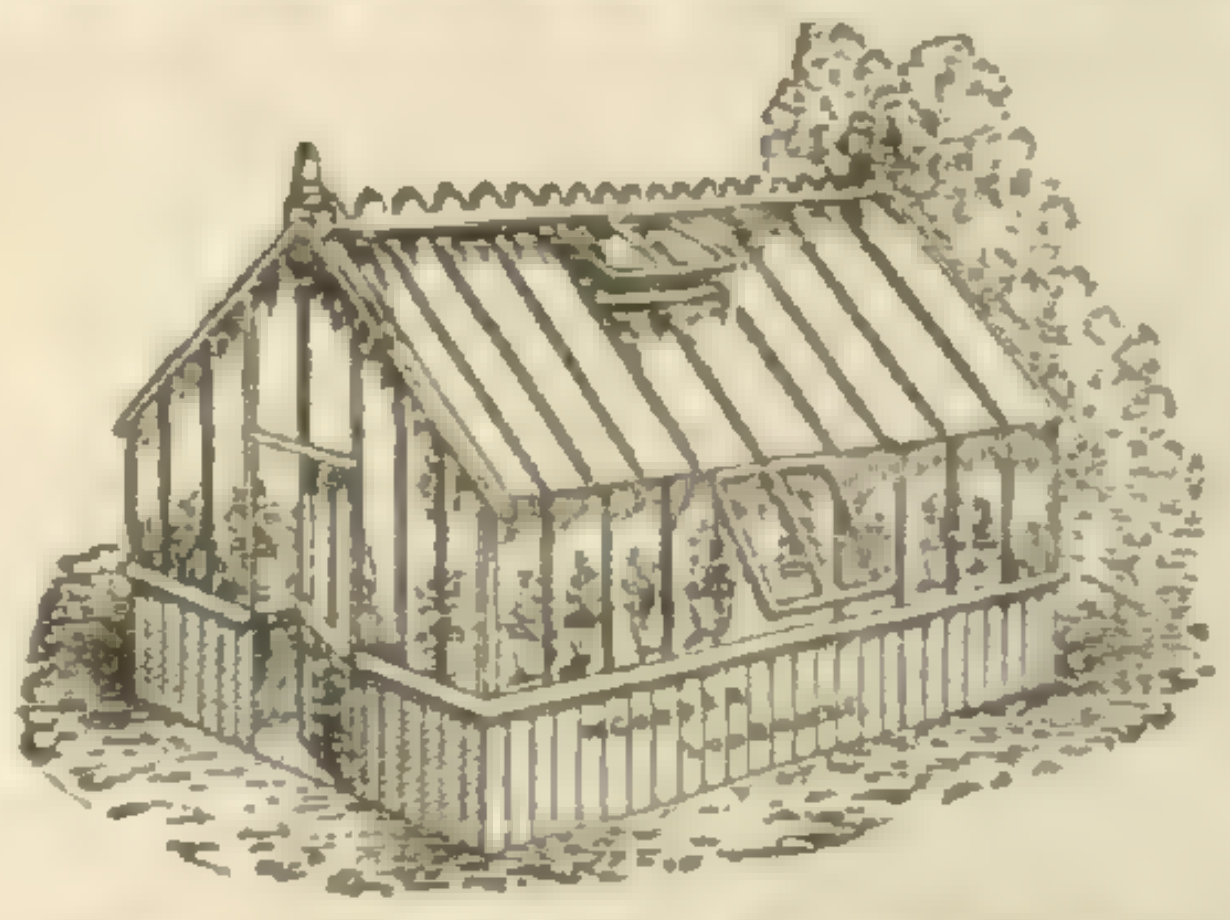

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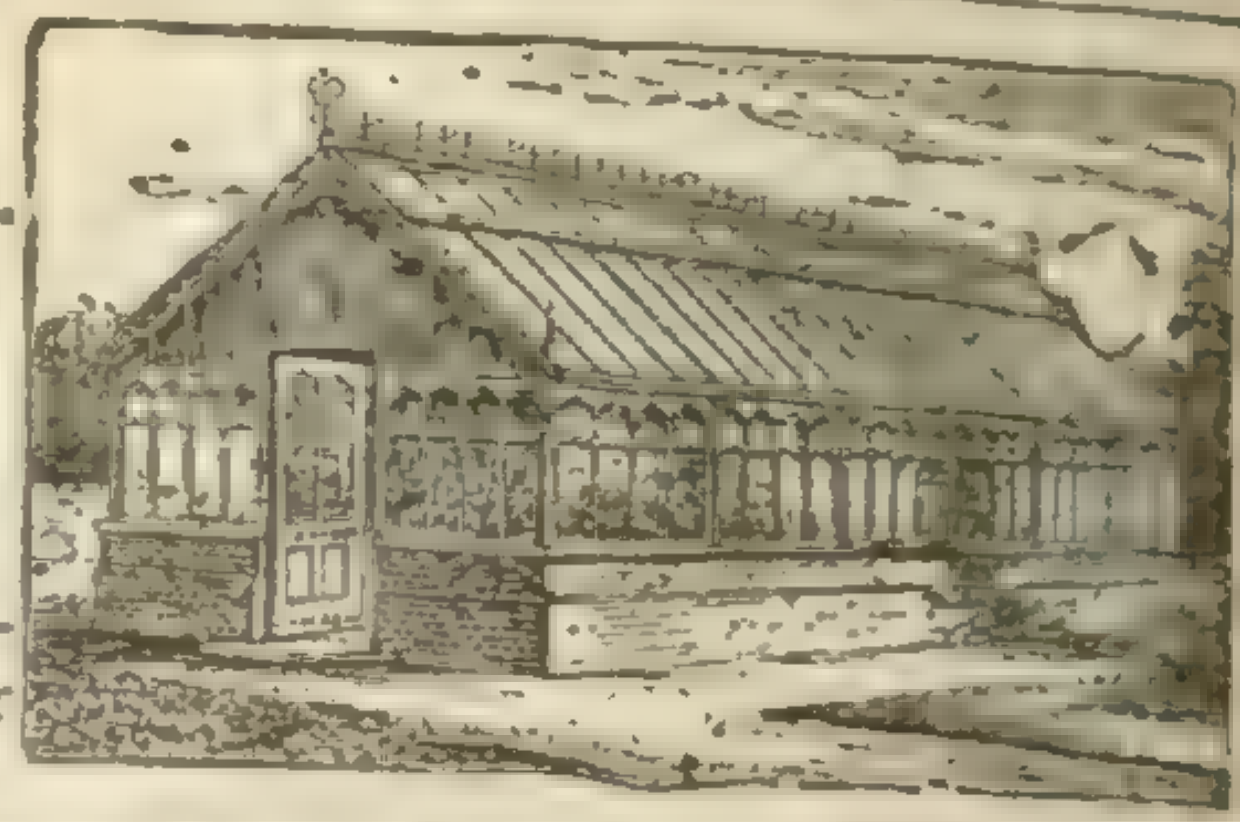

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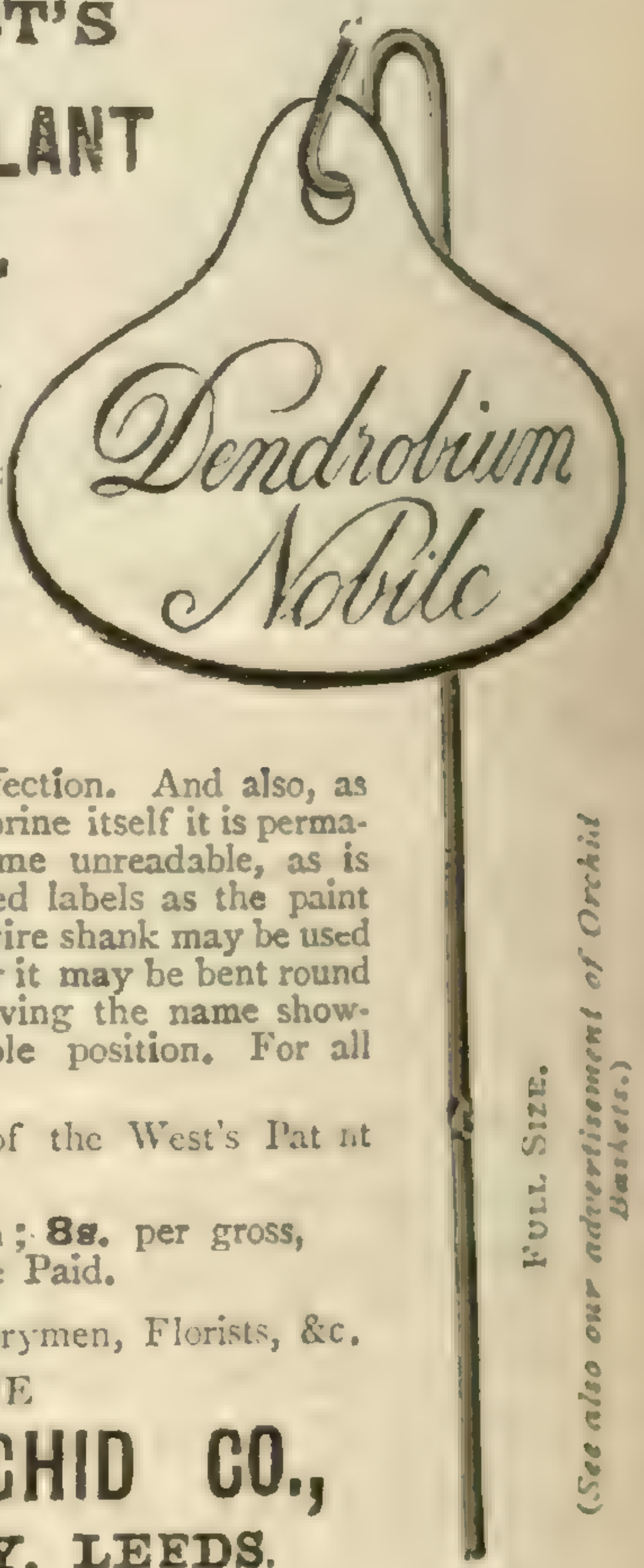
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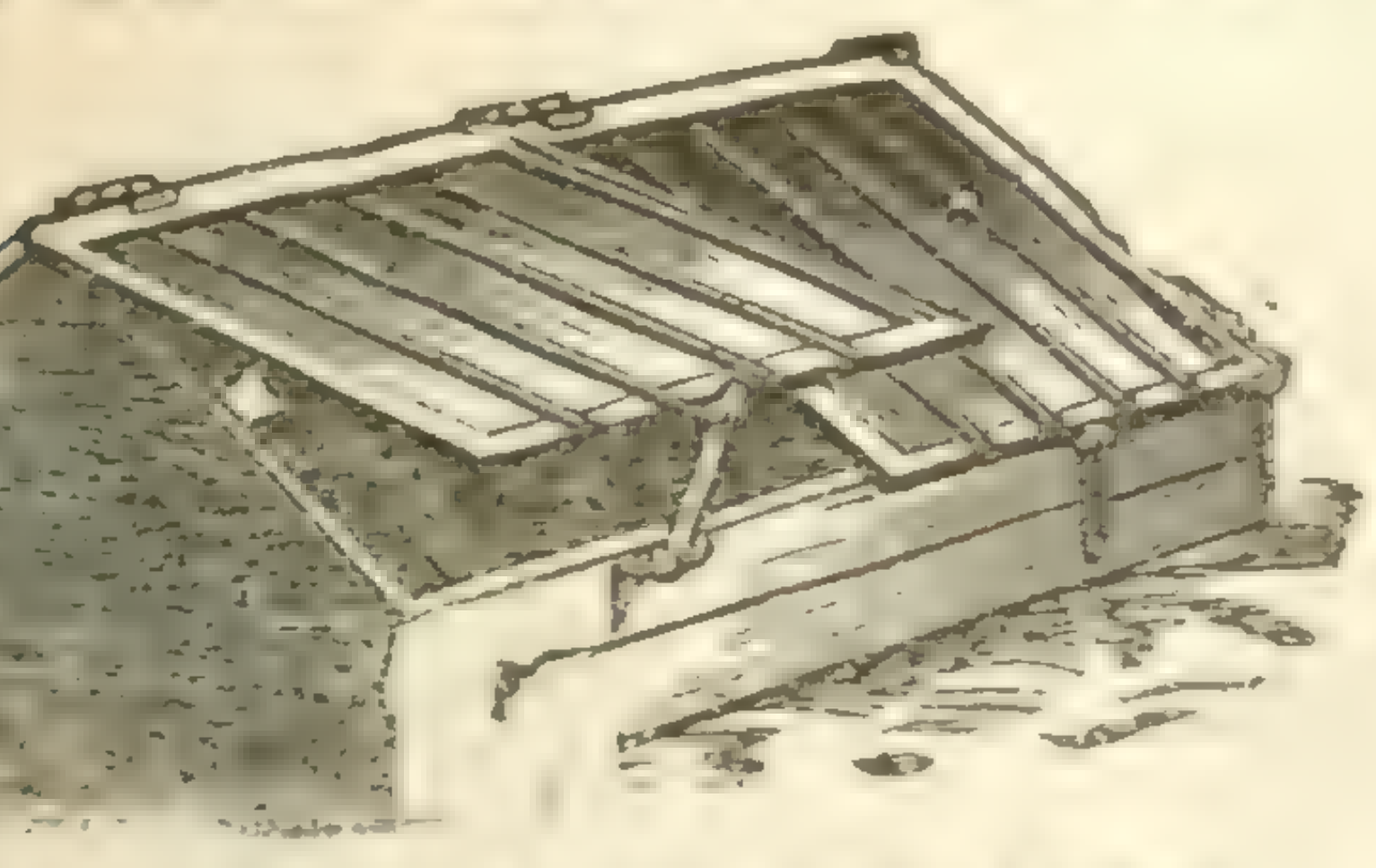

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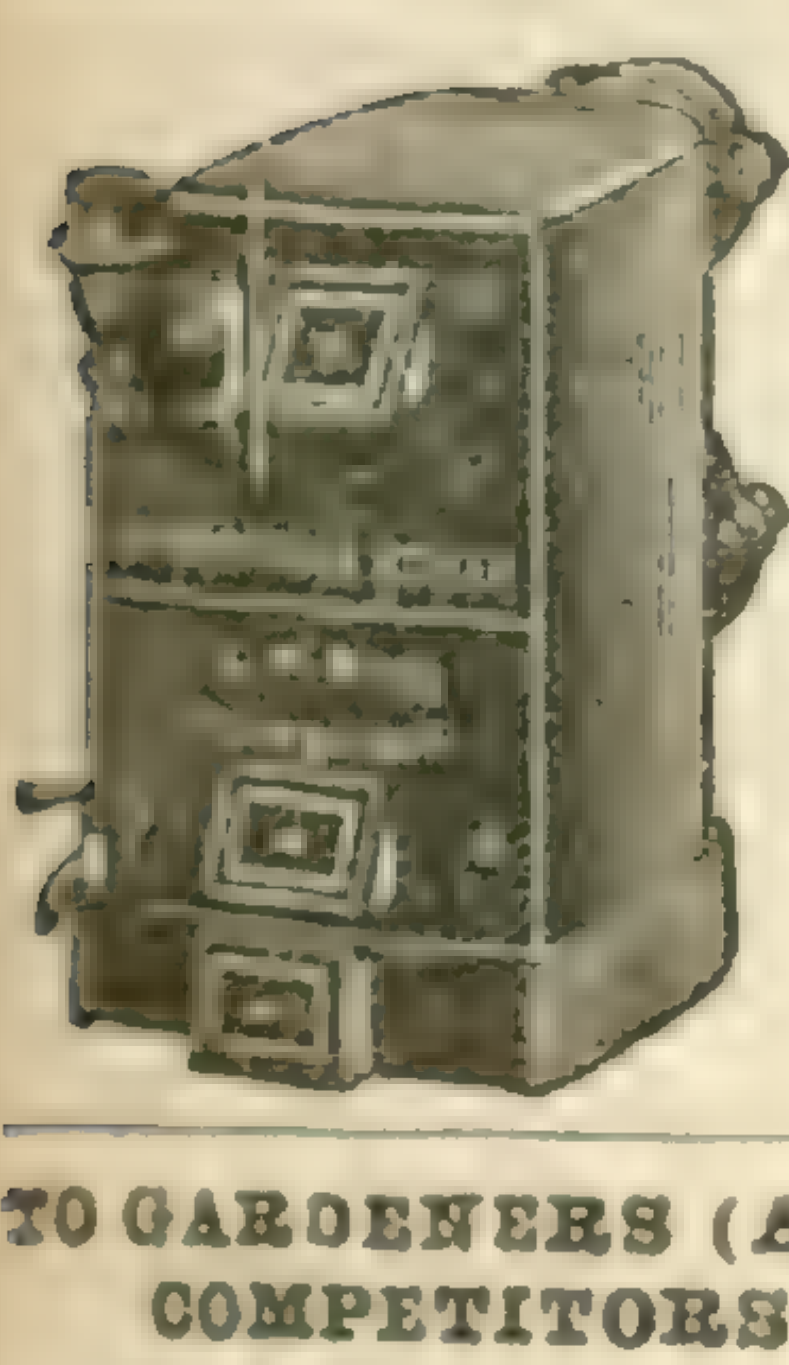

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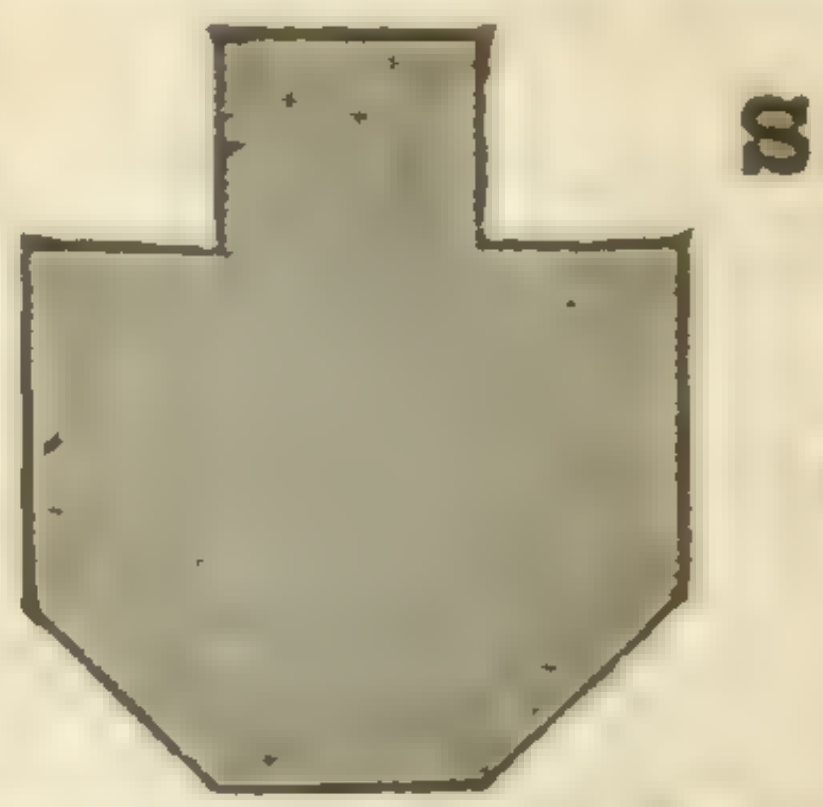

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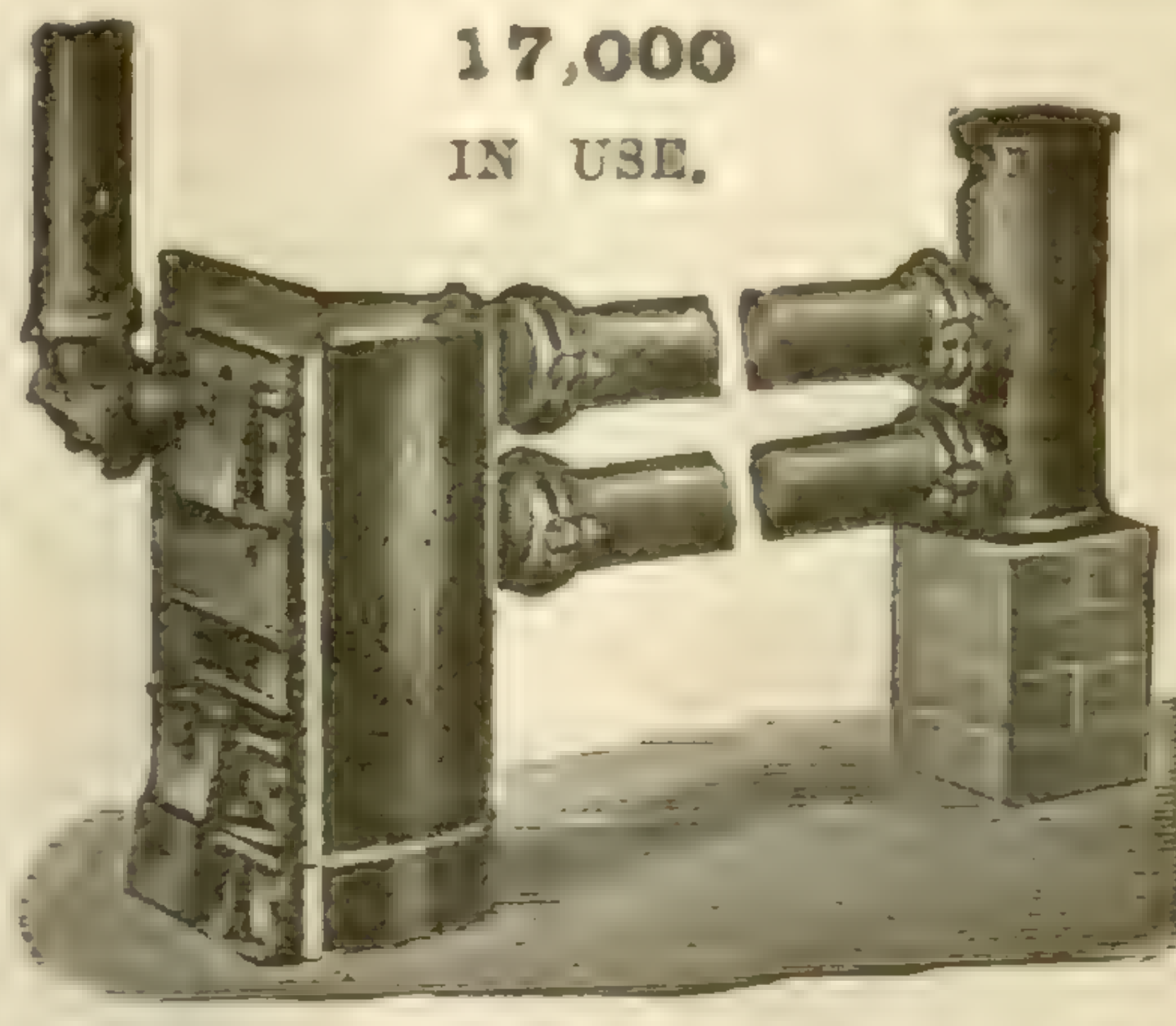

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EVERY SATURDAY, TWOPENCE.

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MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., as follows:—

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51,126 LILIUM AURATUM and thousands of other LILIES, the contents of 450 cases received direct from Japan, 1,450 Standard and Dwarf ROSES (Maréchal Niel, Captain Christie, and Gloire de Dijon); 250 Standard and Spineless GOOSEBERRIES, 3,000 Tuberous BEGONIAS, 1,000 VALLOTTA PURPUREA, 800 MONTBRETIA CROCOSMAFLORA, and 200 ARUM PALESTINUM SANCTUM, from the Continent; 300 English-grown Dwarf ROSES, GLADIOLI in great variety, Herbaceous Plants, &c. Also 850 RICHARDIA PENTLANDII and RHEMANNI, and 200 DISA HERSCHALLI, received direct.

Thursday next, April 14, at 12 o'clock.

70 Lots of Stove and Greenhouse FERNS and PALMS, Hardy Perennials, New and Rare Choice AMERICAN PLANTS, JAPANESE IRIS, Double and Single BEGONIAS, Dwarf and other CANNAS, and a large assortment of Hardy Border Plants and Bulbs.

Friday next, April 15, at 12.30 o'clock.

500 CATTLEYA MOSSIÆ, from Messrs. W. L. LEWIS and Co.; 284 Lots of ESTABLISHED ORCHIDS from a private collection, and IMPORTED and ESTABLISHED ORCHIDS from other sources.

On view mornings of sale, and catalogues had.

Wednesday next, April 13

465 RICHARDIA (CALLA) PENTLANDII (the Yellow Arum).

425 RICHARDIA RHEMANNI (the Pink Arum).

200 DISA HERSCHALLI (the blue Disa); also DISA GRANDIFLORA.

MESSRS. PROTHEROE and MORRIS will include the above in their LILY SALE on WEDNESDAY next, April 13.

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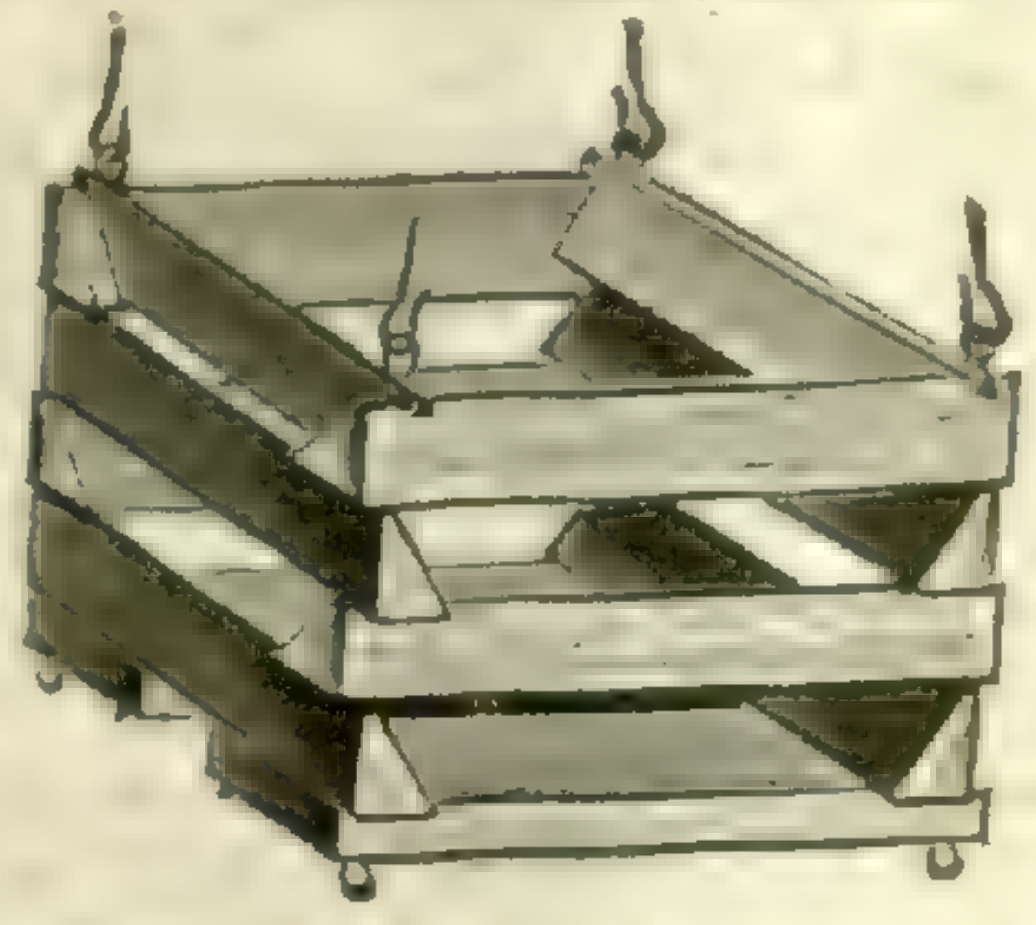

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GARDENER (Head Working), age 42; married; no family; life experience in all branches of the garden; 4½ years' good character, 4 years and 3 months previous.—HARDING, 4, Lancaster Road, New Barnet.

GARDENER (Head Working, or good Single-handed); age 31; single; experienced in all branches; 10 years last situation; excellent references.—J. NEWITT, Brownlow Road, Willesden.

GARDENER (Head Working, or Single-handed where help is given); thoroughly experienced in all branches; age 28; total abstainer; married, one child.—E. T., 5, New Street, St. John's Wood, N.W.

GARDENER (Head Working); age 40; no family; good practical experience in all branches; understands land and stock; wife, dairy and poultry if required; good character. CROCKFORD, The Gardens, Ham Manor, Angmering.

GARDENER (Good Single-handed, or with help); age 26; married, one child; eleven years' practical experience in all branches; nearly three years in present situation as Second; good references; within 25 miles of London.—H. [illegible], 58, Allen Street, Maidstone.

GARDENER (Single-handed, where boy is kept, or second where three or four are kept), accustomed to Inside and Out; age 23; good reference.—F. BERRIDGE, Down Place, near Guildford.

GARDENER (Single-handed, or otherwise); experience in glass, flowers, kitchen garden, &c.; nearly five years last situation; good character; age 24; disengaged.—A. WANT, 91, St. Margaret's Grove, Twickenham.

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GARDENER WANTS PLACE where boy is kept, or good single-handed; up to melons, peaches, cucumbers, tomatos, kitchen and flower garden; married when suited; age 25; good character.—R. W., 12, Birchett's Buildings, Shepperton, Middlesex.

GARDENER (Under). — R. Carter, Gardener, Waresley Park, Sandy, can, with confidence, RECOMMEND W. WATERS, who has been here four years; age 22; character and capabilities very good.

GARDENER (Under); Inside, or Inside and Out; age 20; four years in present situation; well recommended.—E. WOTTON, Tremlett, Wellington, Somerset.

GARDENER (Under), age 20, SEEKS SITUATION; South of London preferred; well recommended; state wages.—GARDENER, Holly Bank, Stoneygate, Leicester.

HEAD GARDENER SEEKS SITUATION where two or three more are kept; age 35; life experience in all branches; good references.—W. PINK, 3, Cowdry Road, South Wimbledon, Surrey.

IMPROVER (Inside and Out), age 17, REQUIRES SITUATION as above in some big private garden; four years in present situation; good character and reference. State wages, E. MARLOW, near Church, Hallaton, Uppingham.

IMPROVER.—WANTED, SITUATION in the plant and fruit houses; five years' experience Inside and Out; good references; bothy preferred; age 19.—Apply W. EARL, Pixham Lane, Dorking, Surrey.

IMPROVER.—Wanted a SITUATION in a Gentleman's garden; age 21; 2 years' good references; Inside and Out; bothy preferred.—W. J. MORGAN, Crabtree Cottage, Withington, Hereford.

JOURNEYMAN (First, Inside); age 22; life experience; excellent references.—H. TOMALIN, 70, Cheesehill Street, Winchester, Hants.

JOURNEYMAN (Inside, or Inside and Out); age 24; abstainer; seeks situation as above; two and a half years in present situation; four years previous; can be well recommended by present Head Gardener.—A. FRENCH, The Gardens, Finches, Lindfield, Hayward's Heath, Sussex.

JOURNEYMAN (Inside, or Inside and Out), age 23, SEEKS SITUATION; three years' good practical experience in present situation; good character and references.—E. HARRIS, The Lodge, The Towers, Pinner, Middlesex.

JOURNEYMAN (Inside, or Inside and Out), age 19; 4 years' experience; bothy preferred; good references.—F. B., Fernhill, Blackwater, Hants.

JOURNEYMAN, age 21.—W. Rowe, Squerryes Court Gardens, Westerham, Kent, can with confidence RECOMMEND H. MONEY as above; six years experience; three years in above gardens.

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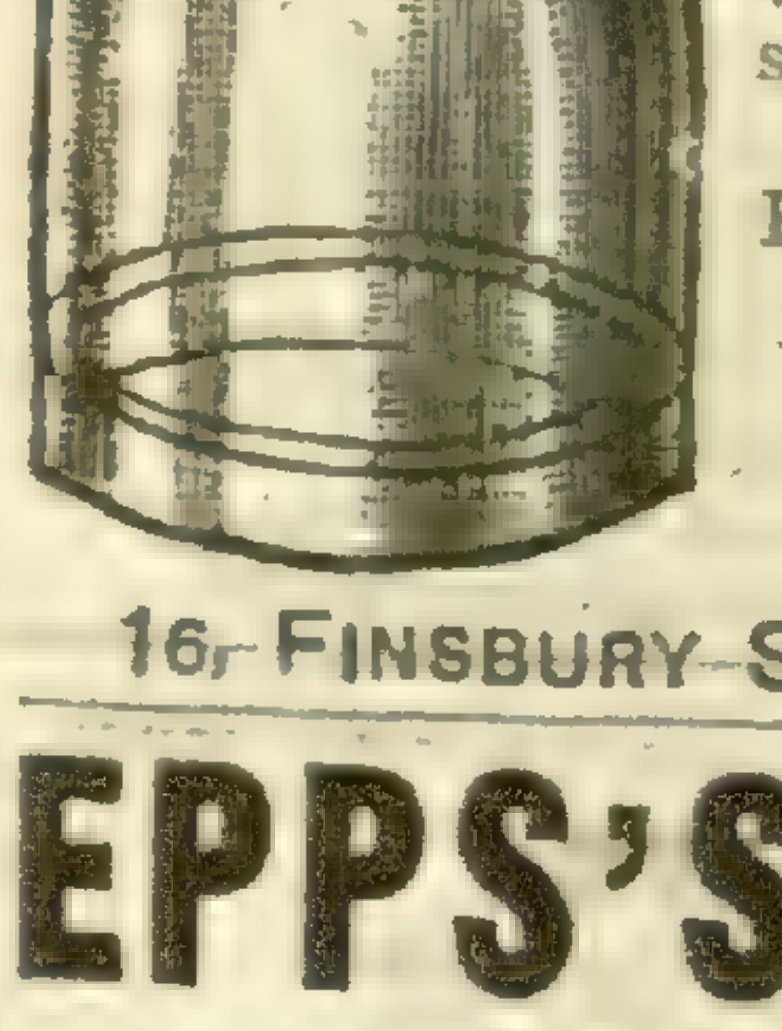

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THE GARDENERS' MAGAZINE.

SATURDAY, APRIL 9, 1898.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

NOTES OF THE WEEK.

THE GHENT QUINQUENNIAL.

THE opening of the great horticultural exhibition at Ghent on the 16th inst. is, as usual, anticipated with an immense amount of interest throughout Europe, and horticulturists, without regard to nationality, will learn with something more than an ordinary degree of satisfaction that the gathering has the promise of surpassing in extent, in attractiveness, and in interest the most successful of the previous quinquennials held by the Royal Botanical Society of Ghent. The schedule is more comprehensive than on any previous occasion, and contains upwards of seven hundred classes, and these are so arranged as to ensure an adequate representation of every phase of horticulture, as far as it is possible to represent it at this season of the year. As becomes their importance and interest, new plants remarkable for the beauty of their flowers or the ornamental character of their leafage have the first division devoted to them, and as this section includes twenty-four classes the novelties should form a large and highly interesting feature. The enormous development which the cultivation of orchids has undergone of late years is strikingly exemplified, for whereas ten years ago orchids formed but a very small part of the show, no less than seventy-two classes have been provided for these fascinating plants, and the importance of this section is indicated by the fact that in the chief class, that for one hundred plants, the gold medal presented by the King of the Belgians is offered as the premier award. In a second class for the same number of plants the premier award is an object of art, of considerable value, presented by Comte de Germiny; and in the other classes upwards of twenty gold medals are offered. Turning to the other sections, we find that there are twenty-nine classes for anthuriums and other aroids which enjoy so high a degree of popularity in Belgium and other of the Continental countries; fifty classes for palms, which constitute an important feature of commercial horticulture at Ghent; twenty classes for collections and single specimens of ferns; thirty-six classes for forced shrubs and herbaceous plants, and in these much that is instructive should be found; thirty classes for greenhouse and hardy azaleas, which are grown in such immense numbers in the Belgian nurseries. The more important of the other sections are those devoted to stove plants, cycads and pandanads, greenhouse plants, New Holland plants, alpine and hardy herbaceous plants, bulbous and tuberous plants, trees and shrubs, agaves and yuccas, bouquets and table decorations, and fruits. As will be gathered from the brief enumeration of its more salient features, the exhibition should not only be highly interesting and enormously attractive, but it should afford object lessons of much value to horticulturists. There is usually a goodly muster of Britishers at the Ghent Quinquennial exhibitions, but it must be confessed that those of our compatriots interested in horticulture have not as yet taken full advantage of the opportunities they afford for becoming acquainted with the practice which obtains in Belgium, which has been aptly termed the nation of gardeners. The misapprehension which so generally exists in horticultural circles as to the cost of a visit to the historic city of Ghent has no doubt exercised a deterrent effect upon many, and it is therefore a matter of considerable practical importance that it should be removed. There are several routes between London and Ghent, but those who are desirous of combining economy with comfort may be advised to travel by way of Harwich and Antwerp. The splendid steamers performing the service are unsurpassed in comfort, and the cost of a second-class return ticket from Liverpool Street and other stations on the Great Eastern Railway is about twenty-seven shillings, a sum that may well be described as very small in proportion to the educational value of the visit during the continuance of the exhibition to the city of Ghent, which has long been the chief centre of commercial horticulture in Belgium.

THE POTATO CROP.

THE statistics relating to the yield of potatos in Great Britain in 1897 recently issued by the Board of Agriculture, are at the present time of much interest, for although planting operations are well advanced over the whole of the United Kingdom, considerable breadths of potatos have yet to be planted. As our readers were fully informed in the autumn, the home-grown crop of potatos was last year indifferent in quality and below the average in quantity, and the prices that have ruled throughout the winter have clearly indicated that the deficiency was considerable. From the official returns we now learn that this deficiency amounted to 950,000 tons as compared with the crop lifted in the previous year. This decrease in quantity was due in part to a shrinkage in the acreage, and in part to a lower yield per acre, the area under potatos being 504,914 acres, against 563,741 acres in the preceding year. With the exception of 1894, this is the smallest area that has been devoted to the potato crop during the past thirteen years, and this decrease in the area, coupled with the fact that the yield per acre was the lowest during the period, is sufficient to account for the comparative scarcity of home-grown supplies of potatos. The estimated total produce of potatos in Great Britain last year was 2,608,000 tons as compared with 3,562,000 tons in 1896, or a drop of nearly one-fourth. The average yield per acre is stated to be 5·38 tons for England, 5·10 tons for Wales, and 4·55 tons for Scotland; giving an average for the whole of Great Britain of 5·17 tons, as compared with 6·32 tons in 1896, and a ten years' average of 5·97 tons. From these figures it will be seen that the yield per acre was last year 1·15 tons below that of 1896, and 0·8 tons below the decennial average, The cultivators in Scotland suffered most severely from the unfavourable climatic conditions that obtained during the period over which the growth of the potato extended, and in no year since the produce statistics were first collected has there been so low a yield north of the Tweed. The previous lowest average was in 1890, when the yield was 478 tons per acre, or four and a half cwts. in excess of the average yield obtained last year. On the other hand, the yield per acre of the Welsh crop was considerably above the minimum obtained in the Principality, for in 1890 the average was only 4·43 tons, and in 1888 it was 4·5 tons. The highest recorded average for England is 6·75 tons per acre in 1895; the highest average for Scotland, 6·56 tons per acre in 1887; and the highest average for Wales is 6·96 tons per acre, also in 1887. As the result of the deficiency in last year's crop prices much above the average have ruled in the market, and these have attracted enormous supplies from abroad, the imports for the past three months amounting to 91,973 tons, as compared with 5,500 tons imported in the corresponding period of last year. The Irish crop was even more deficient than that of Great Britain, and it may be assumed that the shrinkage in the Irish supplies has helped materially to enhance prices, for in consequence thereof Ireland has had to buy large quantities of potatos both for eating and planting. It is not surprising that the high level of prices should have induced many cultivators to determine to plant a larger area than usual with potatos; but we trust the general body of growers for market will proceed cautiously in this matter, for an undue extension of the area, which so generally follows a high range of prices, will have the effect of glutting the market and bringing down the prices to so low a point as to leave no margin for profit.

THE AURICULA.

THE first of the special floricultural societies to hold an exhibition in London is that which fosters the cultivation and exhibition of the auricula. While making this fine old-fashioned florists' flower the leading feature, other and varied representatives of the genus are invited, and so many beautiful and some rare species are placed before the public. Were it not for the action of this society many charming forms of the primula would be in some danger of becoming lost to cultivation, because they are by no means commonly grown. The auricula is just now becoming extremely interesting to the florist. It begins to be active in February; it moves forward with stately steps in March; and early in April, though sometimes earlier in time, it commences to unfold its exquisitely beautiful flowers. Meanwhile they have developed their foliage, the leaves gaining in size and vigour daily. Some leaves are green; some have a slight powdering of white meal; others are densely covered with a snowy farina; and the rosette of leaves becomes a striking feature. The green edged varieties—the chief and most valuable type because it has so few high-class representatives—are destitute of meal save that zone of snowy whiteness which surrounds the tube; the grey edges have in some instances mealed foliages of greater or lesser density; the white edges are mainly mealed, the leaves of some very heavily; many of the selfs have leaves largely sprinkled with farina; others have foliage destitute of it. What particular purpose this silvery meal serves in the economy of Nature, is a matter not easy of demonstration. "The flowers," said the Eastern sage, "tell all their secrets to the stars," but their whisperings in many cases fail to reach the ears of men. Meal on the leaves is always in association with farina on the petal edges; though the converse does not always hold good. No two varieties of any one section are exactly alike, and though the range of the section appears somewhat narrowly limited in the schedule of properties laid down by the florist, yet it is possible to raise a large number of seedlings, "every one of which will be found to possess some difference of pattern in its leafy dress, and yet none depart in general fashion from the familiar type." Superficial observers, seeing a collection of auriculas in bloom, are apt to think there is much sameness; but the grower who knows the varieties well, observes in them sharply defined lines of distinction which are as familiar to him as the notes of a music score to an instrumentalist. The greatest diversity is shown in the self class of the florist's auricula, because the range is greater. A deep maroon or velvety black, or a rich blue, provided all other parts of the flower be equally good, usually have the highest value; while in the case of the commoner alpine type, the marginal colour, the exterior band lying beyond the white or golden centre, may and should be shaded, the basal tint shading away to a paler one; the margin of the true self auricula must be unshaded, without the least tendency to pale towards the petal edges or on the surface. This gives a sharp and striking contrast to the zone of white meal surrounding the golden tube in the centre of the corolla. Paler shades of blue, pale wine tints, and anything approaching red, provided it is unshaded, are also acceptable, and even yellow, though a yellow self does not rank high; and yet there is something in the combination of white and gold that fascinates. Green is such an uncommon colour in flowers, that it is, perhaps, not to be wondered at the florists placing the green-edged auricula in the highest rank. Truly has the auricula been termed a "fascinating flower," and it may further be said of it that at all seasons of the year it assumes aspects which are always interesting. The beauty of its plumage of leaves in the height of their development, and in the absence of flowers, has a powerful attraction for the cultivator.

The Royal Caledonian Society is holding its spring show as we go to press, and our Edinburgh correspondent wires that it is a remarkably successful display. Hyacinths, tulips, narcissi in variety, cut roses, roses in pots, and tables of plants are the most prominent features, and attract a large number of visitors. Prizes are offered to the extent of £272, and the society provides music of the highest order, consequently both exhibitors and visitors are numerous.

Starch in Potatos.—Professor E. S. Goff, of the Wisconsin Agricultural College, has been investigating the various conditions affecting the amount of starch in potatos. In the course of these he found that, in different varieties of potatos, when grown under precisely similar conditions, the feeding value may vary to the extent of one half, or even more; while with regard to their percentage of starch, this was also found to vary considerably under the same conditions of cultivation. In the case of different tubers of the same variety, under the same cultural conditions, this variation in the starch content amounted to about a third or more, a difference which did not seem to Professor Goff to be due to heredity. Tubers growing deepest in the soil contained the greatest amount of starch. Mr. Goff also found that potatos which had turned green owing to exposure to sunlight, must not necessarily be considered as containing less starch than others; while he found no relationship to exist between the size of the potatos and the amount of starch they contained. It is, however, well known on this side of the Atlantic that excessively large tubers, produced as the result of a too liberal application of nitrogenous manures, contain a smaller percentage of starch than do those of medium size grown under ordinary conditions. An interesting point elicited was the fact that the flavour of the potato does not depend on its percentage of starch; while the more starch it contains the sooner it cooks, and the more it swells in the process.

The Salt Water Flood in Essex during November last did a vast amount of damage, and unfortunately its influence has not yet been spent. Some fifty thousand acres in this county were flooded during the gale and high tides, some tracts being under water for seven or eight days. Mr. T. S. Dymond, staff lecturer on chemistry to the Technical Education Committee of Essex, states that this land, in its ordinary condition, contains only ·01 per cent. of salt, whereas the flooded land is found by analysis to contain ·20 per cent., equal to two tons an acre in the top six inches of soil. This excess of salt is injurious to vegetation. Peas and tares have suffered severely, wheat has been damaged to a less extent, and where the seed had not germinated does not seem to have been affected. The most serious and more permanent effect, however, is due to the effect of the salt on the earthworms, which after the flood were found strewn upon the surface of the ground, whence they were carried off by the gulls. The use of worms in assisting the drainage and promoting aeration of the soil is universally recognised, and their extermination in the heavy flooded land is therefore a serious matter. The sea salt also, owing to its power of absorbing moisture, renders the soil moist and difficult to work, and also prevents the aeration which is necessary to the roots of the plants, and for promoting fermentation of humus and nitrification. It is believed that many of the Lincoln fens have been rendered unfertile by the destruction of earthworms due to an inundation of salt water early in the century.

Orchid Roots with Fungus.—With reference to the nature of the fungus attacking orchid roots in a damp atmosphere, referred to at the last meeting of R.H.S. Scientific Committee, Dr. W. G. Smith, of the Yorkshire College, Leeds, writes as follows: The orchid aërial roots sent contained a fungus which lives on them, and has killed some already. The absence of any form of reproductive organs renders it impossible to identify the parasite. Other portions of diseased plants (*i.e.*, leaves) would be required to ascertain the true nature of the fungus. The fungus present attacks living cells, consumes the food laid up by the plant, and finally kills the roots. A disease having somewhat the same effects has been found in the vanilla plants of Mauritius.

The San Jose Scale.—The fact that the Canadian legislature has passed a measure prohibiting the importation into the Dominion of fruit trees and vines from the United States indicates that there is considerable apprehension regarding the possibilities for mischief of the San José scale. In Ohio, which is only separated from the fruit-belt of Southern Ontario by Lake Erie, the recent introduction of the scale is traced to two nurseries in New Jersey, the pest having gained access to the latter state through a consignment of plum trees from the San José valley, California. As late as the spring of last year infested stock was in two cases sent into Ohio, through carelessness. In the one case the infested plant was Cotoneaster frigidum, a close ally of a native English shrub—but this was destroyed before being transplanted on extensive private grounds. The other case involved peach trees, which had actually been planted out, but were condemned and destroyed on their being found to be infested with the scale. The extreme minuteness of this insect, its close resemblance to other less harmful species, and the ease with which it conceals itself about the wrinkles of the bark, or under the leaf-buds, all add to the difficulty of its detection, especially when it is present in only small numbers. The Ohio authorities take a view of the general question at issue which shows that they cannot but sympathize with the efforts of people in other countries who adopt or advocate a similar line of action. In a recent bulletin they remark—and it is evident that they speak for the whole of the United States—"It would seem but justice to ourselves, as a nation, that whenever it shall appear that a destructive insect or disease is being introduced into this country, in or upon a particular kind of fruit, brought from some particular locality, and that such insect or disease is likely to cause destruction to the fruits of this country, the Secretary of Agriculture should have authority to protect each and every state from such introductions, to the extent of prohibiting the importation of that particular kind of fruit from localities where such destructive insects or diseases are known to exist." Incidentally it is mentioned that Ohio apples can only gain admission into British Columbia after inspection and being found free from the larvæ of the codlin moth; also, that United States nursery stock is, with that of Canada, prohibited from admission into Cape Colony.

Public Park and Museum at Dulwich.—Mr. F. J. Horniman, M.P., who has done so much already for the South East of London, proposes to house the collections of curios and natural history objects more elaborately than the house they have occupied at Forest Hill (also presented by him) will allow. To this end the Horniman Free Museum is now being built, with galleries, courts, and a large lecture theatre; special provision will be made for zoological and entomological specimens. This museum Mr. Horniman will present to Dulwich and the neighbourhood, together with fifteen acres of surrounding land, which he intends to convert into park and recreation grounds. A library and rooms for scientific clubs will be provided in a mansion already on the estate.

Bees and Fertilisation.—Professor B. Barrows has given an additional reason for not spraying fruit trees while in flower. Wetting the flowers prevents proper pollen distribution, and the use of arsenites injures the delicate floral organs. The learned professor, referring to the importance of bees in fertilising flowers and the recently discovered fact that nearly all varieties of apples, except Baldwin and Greening, are self-sterile, and depend upon other varieties to supply pollen to fertilise their flowers, said the same was true of pears, plums, and grapes. The fruit keeper should therefore avoid spraying his trees with arsenites while in flower, as this will kill the bees which he so much needs, and especially as spraying will be much more effective if done a week later.

Our Native Plants are not nearly so well known as they should be, and those who have a special knowledge of them do not often present the information they possess to an audience in the most acceptable manner. Judging, however, by the reception accorded to Mr. W. W. Pettigrew, head gardener to the Cardiff Corporation, when he lectured upon this interesting subject at the Engineers' Institute, the necessary information with respect to distribution and other matters was given in a most interesting manner. The lecture was illustrated by limelight views, many from photographs taken in Roath Park, Cardiff.

Phosphatic Manures.—An experiment directed to determine whether [illegible] phosphoric acid in mineral phosphates could be rendered available by fermenting the phosphates with farmyard manure, as has been claimed by certain [illegible] has been conducted at the Wisconsin Agricultural College. Finely ground phosphate was mixed with farmyard manure at the rate of fifty pounds of phosphate per ton of farmyard manure. A sample of this weighing eleven pounds was enclosed in a glass jar, the top covered with two thicknesses of canvas, and the jar inserted in the middle of a fermenting manure heap, where it was kept four months. The phosphoric acid soluble in citric acid at the beginning and the end of the experiment was determined. The mixture of farmyard manure and phosphate at the commencement of the experiment contained ·237 per cent. of phosphoric acid [illegible] soluble in citric acid; while after fermentation for four months the [illegible] ·241 per cent., thus showing that little (if any) of the phosphoric acid had been rendered available by the process of fermentation, since the slight [illegible] between these figures might easily be accounted for by slight errors in the [illegible] of analysis.

Ants and Aphis.—A small species of ant, commonly distributed in the Mallee, has a curious habit of keeping in close confinement a rather large mealy aphis, which feeds on the stems of young eucalypts. Writing in the *Victorian Naturalist*, the organ of the Field Naturalists' Club, Mr. J. C. Goudie states that round and over these aphides the ants construct a domed covering of particles of bark, grass, &c., which serves the double purpose of imprisoning the aphides and excluding other ants. Some of these coverings appear to be entirely closed, while others have an opening left in the edge; this doorway is, however, constantly guarded by a pair of ants, which continually move about in the open space, and seem much impressed with the importance of the duty assigned to them. Each enclosure contains generally from three to a dozen aphides, and about the same number of ants. Upon making a breach in some of these structures, for the purpose of observation, he noticed that many of the "live stock" were immediately seized by the ants and forcibly removed to a place of safety. The ant under notice is about a quarter of an inch in length, and is of a uniform dark reddish-brown colour, and forms its ordinary habitation under logs, or in old rotten stumps, and sometimes in the ground. Several other species of ants are very assiduous in their attendance on the various aphides, Tetigonidæ, and coccids, but the above is the only kind noticed that uses such extraordinary means to secure a monopoly of the much-prized "honey-dew."

Sugar and Fruit Cultivation in Jamaica.—According to Sir Henry Blake, late governor of Jamaica, this West Indian colony is not in such a bad way as has been suggested. Before the Chamber of Commerce he observed that in considering the question of Jamaica's condition and possibilities, it must not be forgotten that the circumstances of the island differed from all the other islands of the British West Indies. The island contains 2,692,000 acres, of which about 2,340,000 were cultivated. At present the area under cultivation of the staple crops is 30,000 acres in sugar, 19,000 in bananas, 25,000 in coffee, 11,000 in cocoanuts, and 1,700 in cocoa. The value of the crops last year was £360,000 from sugar, £316,000 from bananas, and £169,000 from oranges. The question arose, Where did Jamaica come in in the general cry of distress? It was not dependent upon any one industry. The sugar production gave the largest ready money return, and was most far-reaching in its effects upon other industries. He looked with apprehension upon the destruction of the sugar industry by the long continued assault of foreign bounties, but he knew that the mere creation of a peasant proprietary would not supply the remedy. In Jamaica there was every anxiety to try and push forward those industries already established, and to establish new ones, but the effect of the West Indian Commission's report had been to obliterate credit, and for the present to paralyse effort. If progress was to be secured in the future it would be necessary for the Imperial Government to give some assistance under safeguarding conditions, enabling local governments to guarantee a certain proportion of capital at low interest where real effort was being made. Sir Henry did not find fault with the recommendations of the West Indian Commission, but he thought Jamaica had a right to ask for the co-operation of the Mother country in establishing a direct line of steamers between that colony and England, as by that means the orange and banana industry of Jamaica would be largely improved, and both these products could be brought to England in proper condition.

Old World Plants and Seeds for America.—Some time ago we stated that Professor N. E. Hansen, Professor of Horticulture at Brookings, South Dakota, had commenced a tour through Eastern Europe and Asia for the purpose of securing seeds and plants likely to be useful in the more arid regions of the United States. The tour was made under the auspices of the U.S. Department of Agriculture, and Professor Hansen, now returned, is preparing his report for the department. He returned with about three car-loads of seeds, and these will be distributed to the various State experiment stations, where the powers of the resulting plants to withstand heat and drought will be carefully observed. The professor made collections in Western China, Siberia, Russian Turkestan, Trans-Caucasia, and Eastern Russia.

Potato Culture Without Water is, according to Mr. T. B. Terry, of Hudson, O., U.S.A., quite possible. He claimed, at a recent meeting of the Michigan Horticultural Society, that, under proper conditions, he could grow a good crop without a drop of rain from planting until harvest. The first requirement is a large amount of humus in the soil. This can be secured by turning under two or three clover sods, and the soil will then be like a sponge to hold rain water and give it up to the crop during the drought. If the soil is of the proper nature and is well supplied with plant food there will be no difficulty about securing a good crop. Mr. Terry grows only medium early sorts that will enable him to sow the land to wheat after taking off the crop. He plants about four inches deep, in drills thirty-two inches apart, and from twelve to twenty inches between the sets, using from six to eight bushels of seed per acre. While this amount of seed will give good results on rich, well-prepared soil, a larger amount will generally be necessary. Before the potatos push through the soil the land should be worked twice with a harrow, to loosen the surface and kill any weeds that may start. When the rows can be seen a cultivator should be used. The teeth may be run four inches deep at this time, but, later on, after the tops are four inches high, this would break many of the roots, and a depth of two inches should be the extreme. At least once a week, and as soon as the ground is in condition, after every rain a shallow cultivation should be given up to the time the vines cover the ground. Much of the cultivation can be done with weeders, at the rate of fifteen acres per day. At first they can be run across the rows, but, later, after taking out some of the teeth, the land should be worked with the rows. This will not only keep the weeds down, but it will act as a mulch and prevent the loss of water by evaporation from the soil. With a soil rich in humus, and a proper amount of plant food, a good crop can be grown, even in a dry season, if careful attention is paid to the stirring of the surface soil.

Ivy Sports.—Dr. Masters exhibited sprays of a peculiar small-leaved dwarf ivy, remarkable for sending up vertical shoots with distichous leaves, though unattached to a wall, at a recent meeting of R.H.S. Scientific Committee. The habit appears to have become fixed, even in free-growing branches. On some shoots, however, the leaves were spirally arranged, as is usual on such branches. It may be observed that the change from the distichous arrangement of the leaves on the horizontal branches of the common laurel to a spiral one, when the boughs grow erect, is common; but it is not a fixed character.

"Blight and Blessing" is the title of the lecture to be given by Mr. F. Enock, F.L.S., at the meeting of the Royal Horticultural Society on Tuesday. We find there is some speculation as to the manner in which a happy union will be effected between such an ill-assorted pair, and also that there is an opinion abroad to the effect that nondescript titles are undesirable in the programme of the society.

Mr. William Iceton, the genial proprietor of the Granard Nurseries, Putney Park Lane, has had to extend his establishment to meet the increasing demand for palms, lily of the valley, liliums, caladiums, table plants, &c. We understand that he has taken the Merton Lodge Estate, situated near West Hammersmith station, and between Ravenscourt Park and Turnham Green stations on the Richmond and Ealing branch of the District and L. and S. W. Railway.

The Lesser Celandine (*Ranunculus Ficaria*) is henceforth to be regarded as a dwarf form of a dimorphic plant, whose dimorphism is of a kind known as gynodiœcism. This, says *Nature*, is Professor F. Delpino's views, the latter contending that the hermaphrodite form is the larger plant, so common on the Riviera, known as Ficaria calthæfolia, and that our Ficaria ranunculoides [?] is the smaller female form of the same species. This theory accounts for the facility with which the Celandine is propagated agamically, and the sterility of its pollen.

Vine Browning. — At the recent meeting of R.H.S. Scientific Committee Mr. Hudson presented a young shoot, the leaves of which were blistered and brown. This is due to the presence of the well-known myxomycetous fungus, Plasmodiophora vitis, which is allied to P. brassicæ, the "slime fungus," which gives rise to club disease, or finger and toe, in cultivated cruciferous plants. The only known remedy is to cut away and burn all affected leaves or shoots. It is described and figured in Viala's "Maladies de la Vigne" (p. 400).

A Horticultural Society for Edmonton was initiated a few days ago at a large meeting presided over by Mr. Councillor Rowe in the absence of Mr. H. B. May. A small membership fee, fortnightly meetings, and lectures upon botany and horticulture were suggested, and the meeting expressed a hope that Mr. H. B. May would act as chairman, and give the society the aid of his long and practical experience.

Evolution of Flowers.—In reference to this interesting question a correspondent writes: The theory of the origin of flowers by the selection of insects is one which has attracted much attention both in scientific circles and from the general public. Set forth by Darwin in the "Origin of Species," it has been largely developed in a series of interesting publications by Sir John Lubbock and Mr. Grant Allen. Some fresh and interesting light has now been thrown on it by a series of experiments recently carried out by Professor Plateau, of the University of Ghent. Professor Plateau has arrived at the conclusion that insects are indifferent to the colours of the flowers they visit, and that they are guided to them in a very subordinate way by sight. The experiments on which the Belgian professor bases his far-reaching conclusions are briefly these. Having covered the brightly-covered flowers of single dahlias in his garden with bits of green leaf, he found that they were still visited by insects. This seemed so much at variance with the generally received view that insects are attracted to flowers chiefly by their colour that Professor Plateau instituted a prolonged series of experiments and observations to put the matter still further to the proof. The result has been to confirm and strengthen the conclusions drawn from the first experiments. Cutting off the brightly-coloured corollas of such flowers as lobelia, evening primrose, foxglove, &c., he found the remaining green parts were still visited. Again there are some brightly-coloured flowers which are seldom, or never, visited by insects, owing to their lack of honey. Notable among these is the scarlet geranium of our garden. But when a little honey was placed on geranium flowers bees came to them at once, those blossoms which had not received honey being passed over. Other conspicuous flowers were tried in a similar way with like results. The experiment of removing the honey-bearing parts of a flower, and leaving the brightly-coloured part which was supposed to be attractive was also tried with the single dahlia. Its inner florets were removed, leaving the conspicuous outer ones, a piece of yellow leaf being placed in the centre. No insects went to these honeyless flowers, but as soon as a drop of nectar was placed on them they visited them freely as before. Again, Professor Plateau made artificial flowers with pieces of green leaf, each furnished with a little honey. These were freely visited by insects; but artificial flowers made of coloured material were neglected even when supplied with honey. In further support of his views Professor Plateau is able to bring forward the following facts as to the habits of insects in visiting flowers: They will pass freely and with apparent indifference from one colour to another of varieties of the same species growing together in our gardens; they visit a great number of green and greenish-coloured flowers; there are many small and inconspicuous flowers which are also freely visited. Such is a brief outline of Professor Plateau's observations and experiments, from which he believes himself justified in drawing the conclusion that sight plays a very subordinate part in attracting insects to flowers. Their bearing on the theory of the insect origin of flowers is obvious.

The Horticultural Club holds its next monthly dinner and conversazione on Tuesday, April 12, at six p.m. The subject for discussion is "Seedling Narcissi," and it will be opened by the Rev. G. Engleheart, one of the most successful raisers of daffodils.

HIPPEASTRUMS AT CHELSEA.

DURING the last week in March and the first two or three weeks in April a very large number of gardeners and employers visit the Royal Exotic Nursery, King's Road, Chelsea, for the express purpose of viewing the collection of hippeastrums or amaryllis in flower at that season. Not only do they come to see the gorgeous display of colour Messrs. J. Veitch and Sons provide, but they come to buy the plants, and the number of buyers is annually increasing, so that quite a hippeastrum cult has now arisen. Indeed, not a few gentlemen vie with each other in the management of the hippeastrum, and exhibit their new purchases or new seedlings to admiring visitors, just as the orchid fancier does his choice odontoglossums. In gardens of any pretensions a batch of hippeastrums is now a necessity for conservatory decoration about Eastertime, and nothing could be finer than the ample, brilliant blooms borne on stately spikes. Formerly the shade of colour known as orange-scarlet predominated, but now, thanks principally to Mr. Hast's untiring efforts, a great variety of colours are represented. Year by year it is not easy to state exactly how much progress has been made among the hippeastrums at Chelsea, but those who have regularly visited the collection for ten or more years find that with the flowering of each new lot of seedlings there is an improvement in shape, variety of colour, purity of the white ground, average number of flowers per spike, strength of foliage, &c.

Fortunately there is no keener critic of the Chelsea hippeastrums than Mr. Heal himself, and none know better than he what result to expect from certain crosses. It is now twenty-three years ago since the first batch of seedling hippeastrums was raised at Chelsea; previous to 1876 seedlings had been raised in a desultory manner, but that year saw their cultivation commenced in earnest. Gradually this new race gained favour, until in 1882 the large span-roofed house, now occupied entirely by hippeastrums, was erected. Since then there has been steady progress, with one or two exceptional bursts ahead, as happened nine or ten years ago, when the enormous-flowered varieties Champion and Optima were produced. The centre bed of the "Amaryllis House" at Chelsea holds 1,100 plants, yielding some 1,500 spikes. During the flowering season there a always from three to five hundred spikes flowering simultaneously, and as each spike carries three or four big flowers the display can be imagined by those who have not seen it. Taking the exhibition as a whole there are two points upon which improvement is very evident this year, viz., the strength of the foliage and the increased diversity of colour. Stout, healthy foliage always enhances the display of this or any other flower, so that improvement in this direction is no small matter.

The older-named varieties that were propagated regularly from offsets are fast disappearing owing to the increased beauty and strength of the seedlings; this, and the fact that such quantities are sold each year, is the reason why by far the largest proportion of the plants are absolutely new and flowering for the first time. Some of the very best of the lighter forms that appear this year are: Padusa, with a white and blush ground colour, crimson feathering, and orange-scarlet apices to the segments; Belus, ivory-white, with dark crimson feathering towards the base of each segment; Feronia, one of the most beautiful, a round flower with prettily reflexed tips to the segments, white throat and margins, scarlet ground colour, and crimson feathering; Cadmea, purest white, with just a few faint rosy-crimson markings; Damalis, creamy-white, with rich scarlet shading; Maceris, blush, with pretty rose veinings and shadings; Harmatus, white, with orange feathering; and Jarbas, a big broad flower with a peculiar faint yellow tint suffusing the creamy-white ground. Whether this will be the forerunner of some yellow hippeastrums time alone will prove. One of the finest forms, and one which flowered in 1897 for the first time, is Mrs. George Gordon; the white is of the purest, and on this are a few flakes of deep crimson. Jobates is a good ivory-white, with remarkable pencilling of crimson on the upper three segments; Pactolus, white and pale orange; Forfarus, ivory-white, crimson, and scarlet; Raphana, white and rosy-scarlet; and Lacenta, white, with deep crimson veinings and orange-scarlet shading, make up a splendid lot of light varieties.

Among darker and more gorgeous varieties Ovid takes a high position by reason of its fine shape and pure soft-scarlet colour, it is a grand variety; Altrata, crimson scarlet with dark veins, is very attractive; Orion shines, as it should do, it is a fine crimson-scarlet form with purest white feathering; Bellanus, rosy-crimson with a suspicion of both salmon and blush, is a most distinct variety; Cyrene is crimson with rose shadings; Bassera is a monster form, orange, with intense orange-scarlet veins; Hygeria is another very distinct form having rosy-crimson flowers, the crimson being deepest at the bases of the segments; this should prove a serviceable parent for future generations. A beautiful hippeastrum is Baroda, its intense crimson flowers are shapely and the colour gleams as if highly polished; Cajesta, orange-scarlet and crimson, reminds one of Champion, but is an improvement as regards colour, especially in the deep and undulating veins; Galenus is clear orange-scarlet; Vagesus is deep crimson and bears several rounded flowers; Harpegus is deep scarlet with crimson shading along the centres of the segments; Ballatus is very handsome, its rich orange-scarlet colour being relieved by the white bases and centres of the segments. Two others must suffice, Zabalus and Damas; the former is rich crimson with a shade of rose suffusing it; Damas has a mixture of crimson and orange-scarlet, these colours intermixing in a most wonderful and indescribable manner, indeed written descriptions inadequately afford any index of the glow and life that a hippeastrum flower possesses—it must be seen to be fully appreciated.

Autumn-sown Onions.—Of these Mr. Beckett, in his excellent paper on Exhibition Onions, states that they never keep for any length of time. Is not that early decaying due more to variety than to any other cause? Probably twenty persons out of every hundred sow in the autumn Tripoli or Italian varieties, partly because these bulb large and early, and partly because the practice of sowing these varieties in the autumn is quite traditional. All of them are notoriously of little value, the white-skinned especially; indeed, these latter begin, as a rule, to decay the moment they are ripe. For that reason how exceedingly wasteful must such bulbs be. What would happen were the harder brown-skinned forms of the round and globe types we now so largely sow in the spring sown in the autumn for the production of fine summer bulbs? Would they decay as early as the soft Tripolis? I think not. In any case, we shall by and by be able to test that point at Chiswick, where there is now growing from an autumn sowing a very large collection of onions, including both Tripoli and Spanish types. As to winter hardiness, the entire batch was hard hit by some of the dense sulphurous fogs of the winter; but the Tripoli were rather worse affected than the Spanish varieties. So much for hardiness. As to keeping, we shall see later on. Also we shall be able to test tendency to bolt to flower or otherwise, on the part of diverse types or stocks. So far as has been practicable, plants from each autumn sowing have been lifted and transplanted into a row close by, whilst a spring sowing of the same variety has also been made.—A. D.

PINCHING CHRYSANTHEMUMS.

THE knowledge that many varieties of chrysanthemums may be induced to give first-rate blooms at a given time through studied manipulation of their shoots, is not unlikely to prove a snare to some whose knowledge and experience as growers is not very great. I am disposed to think this may be especially so with small cultivators who do not usually [illegible] their plants into vigorous growth until late in the spring. Too often, people who meet with failure do not take sufficient pains to determine the exact cause, and on learning that someone who has grown good blooms, adopts a certain practice, or uses a particular manure, they immediately conclude that their remedy is to follow such lines. The great point, however, is to first of all locate exactly the weak spot in our [illegible] management, and then, knowing where we fail, we are much more [illegible] to command success by the avoidance of similar errors.

Since Mr. Shea first recommended "pinching," with a [illegible] "timing" the flower buds, in his very interesting contribution [illegible] chrysanthemum literature, a great deal of conflicting advice has [illegible] given on this subject, and sometimes I am afraid it has not been [illegible] on actual experience. This is especially the case where definite advice is given with regard to novelties which have been grown but one season and in one locality, and though the information may be offered entirely in good faith it does not always prove to be correct. The difference between pinching well grown and early rooted plants, and taking away the points of those which may only just be rooted, or are in a weakly condition, is of serious moment. Growers must allow for this, for to pinch indiscriminately when the plants are not in condition, may mean, if not the ruin of the plant, certainly the prospects of obtaining first-rate blooms. As I pointed out in a recent article, the later propagation of those varieties which give their best blooms from early crowns may probably prove better practice than early rooting followed by pinching, and doubtless such a method, especially for small growers, will be gladly adopted, only it is most important that late cuttings should be firm in growth and strong. Bearing in mind the fact that a week's difference in the "taking" of the flower buds of some varieties, means the difference between a first and a second rate flower, or one which may be too early or too late for a given exhibition, the need of more than one plant of a variety and method of treatment is obvious. It cannot be too strongly urged on amateur growers, who purpose exhibiting their flowers, that a large number of varieties often reduces their chances of success, and that a number of plants of from two to three dozen of the best and most constant, is ample to enable them to enter small classes with better prospects of taking a first place. A few varieties which should be pinched during the first week of April are Golden Gate, R. Dean, Louise, Rose Wynne, Col. Chase, Thérèse Rey (for second crowns), Mons. Gruyer, A. H. Wood, C. W. Richardson, Dorothy Seward, Madame Rozain, Mrs. F. A. Bevan, Mrs. [illegible] Matthew Hodgson, Duchess of Fife, Lord Rosebery, Lyne, jun., [illegible] Stoke Newington, Lady Dorothy, Princess Teck, and the Queens.

Though an occasional sprinkle of clear water over the plants is desirable at this time during bright weather, it is bad practice to give [illegible] and particularly so just as the frames are closed, because we want to [illegible] a soft growth. Most growers are, at some time in their experience, [illegible] or less guilty of encouraging a too rapid and succulent growth [illegible] plants are in frames, and then when the plants are stood out in the [illegible] they suffer proportionately from the cold winds which we so frequently have during May. Such undue hastening of the growth has also the disadvantage of rendering necessary the potting into flowering [illegible] earlier date. If the plants are ready for this during the last week [illegible] it is quite soon enough. The main point now is to give plenty of room between the plants so that the lower parts of the stems have the advantage of sunshine. Remove the lights entirely when the weather is still and mild, and during such weather they should not be closed down at night. Late-rooted cuttings, and amongst these should be a batch of single-flowered sorts, will need potting up soon, as by this time [illegible] should be well rooted. They require to be grown freely, and the [illegible] and attention for these ought to be quite as much considered as for [illegible] main batch, otherwise they may prove disappointing. I do not [illegible] experience is general this season, but of our own stock, so far, we do [illegible] Viviand Morel and Chas. Davis showing flower buds as they [illegible] It is more than probable that this unfortunate peculiarity will assert [illegible] later on, but good strong plants will be less likely to do so, and [illegible] sooner recover a free growth.

It is remarkable what a number of sports have originated from [illegible] Carnot. I have had two more yellow ones sent me for trial [illegible] and even if they do not prove to be of a richer colour than [illegible] sent out they may possess the advantage of a stronger [illegible] we have Mr. Mease's sulphur-coloured sport, and an eminent [illegible] sent for trial what he believes to be a pink one.

W. H. [illegible]

Trent Park Gardens.

Sir Joseph D. Hooker, G.C.S.I., F.R.S., has been [illegible] the Wilde medal by the Manchester Literary and Philosophical [illegible] Wilde lecture was this year delivered by Professor Michael Foster, [illegible] the Physical Basis of Psychical Events."

Discoloured Palm Leaves were submitted to the Scientific [illegible] R.H.S. by Mr. W. A. Holmes, of the Putney Nurseries. [illegible] with numerous translucent spots, and had been taken from [illegible] the Continent. An examination appeared to indicate a previous [illegible] grubs, but none were present, the interior tissue having [illegible] spots; so that the new leaves would probably be quite healthy.

THE WATER GARDEN.

Waterlilies.

THE small water lilies include Nymphæa pygmæa, the smallest, perhaps, of all waterlilies, bearing an abundance of pure white flowers, not much larger than a half-crown piece. Nymphæa pygmæa var. Helvola is only a trifle larger and has pale yellow flowers. Nymphæa odorata minor, a small form of the white American waterlily, has leaves not more than three or four inches across, and small white flowers. Nymphæa Laydekeri rosea is perhaps the gem of, at any rate, the inexpensive kinds, The flowers, which are two or three inches across, are at first pale pink, then crimson, and at last rosy purple; several plants put together into a group have a magnificent effect, undreamt of ten years ago. From this form several hybrids, some of them of exquisite shape and colour, have been raised. Nymphæa Laydekeri fulgens, cup-shaped flowers of a brilliant crimson. Nymphæa L. lilacea, sweet-scented flowers of dark rosy purple colour with yellow stamens. N. L. purpurata is distinguished by large crimson flowers with orange stamens. Nymphæa Laydekeri lucida also has orange stamens and brilliant red flowers. Nymphæa Robinsoni, another deep red form, shaded with yellow, and having orange stamens. It seems to grow freer than the preceding; the leaves are spotted with brown. Nymphæa Seignoureli is straw-coloured, shaded with rosy carmine, stands well out of the water, and has leaves spotted with brown.

The two last-named are among the latest introductions, and are, therefore, among the most expensive.

The large waterlilies are as follows: Nymphæa alba, the common white waterlily; Nuphar luteum, our common yellow waterlily; and the likewise yellow American Nuphar advena, are bold, handsome plants, which may be used with good effect in large waters; but since the introduction of Marliac's exquisite hybrids they are quite surpassed. Some of the most important of these hybrids are: Nymphæa Marliacea albida, a plant of which is shown in the illustration of the rock garden, page 131, February 26, 1898. The dazzling white flowers are nine inches across, rise well out of the water, and are most abundantly produced. Nymphæa M. carnea is equally large, but has flowers of a delicate flesh colour and large handsome leaves; it grows rather rapidly. Nymphæa M. chromatella is another very robust grower, with pale yellow flowers and handsome spotted leaves. Nymphæa M. rosea, also most excellent, with very deep rose-colour flowers. Nymphæa M. ignea, still very rare, has flowers of a deep red colour and orange-red stamens. Nymphæa M. rubra punctata is light rosy purple, spotted with dark red orange stamens. Then there are the forms of Nymphæa odorata, the sweet-scented white American waterlily, which is itself very desirable. The following are among the best: Nymphæa o. rosea has sweet-scented pink flowers of good size; Nymphæa o. rosacea is distinct from the former, has bright rose-coloured flowers with lighter centre, and is fairly robust in growth; Nymphæa o. exquisita has not only red flowers, but dark red leaves as well—the flowers are a deep rosy carmine; Nymphæa o. caroliniana is also most desirable, and has delicate pink flowers with yellow stamens; Nymphæa o. sulphurea is an excellent yellow, deeper than N. M. Chromatella, and of robust growth. At Messrs. Veitch's nurseries in Exeter the varieties just enumerated flourish in pots, which are hung in a large tank by means of bamboo canes thrown across the water. The introduction of the foregoing exquisite nymphæas has marked a new era in "water gardening."

Other Aquatics for Submersion.

Aponogeton distachyon has already been mentioned as requiring to be kept in check, or it will soon monopolise a whole pond, even if this be acres in extent. Stratiotes, the Water Soldier, has most peculiar aloe-like leaves, and is striking on that account. Villarsia Humboldtiana (syn. Linnænthemum) and the yellow-flowering V. nymphæoides are rather fast-spreading dwarf plants, suitable for planting between taller water plants. Nelumbium speciosum is not hardy under ordinary circumstances, but when a small flow of warm water from a factory or other building is obtainable, it will stand even a continental winter, as I have had an opportunity of observing. The large orbicular leaves borne on long stems, and the handsome pink flowers, are most distinct and attractive.

Some few plants need only to be partly submerged, in other words, they are plants for shallow water, for the embellishment of which we are by no means confined to such well-known native plants as the Bulrush (*Typha latifolia*), the Sweetflag (*Acorus Calamus*), or the Arrowleaf (*Sagittaria sagittæfolia*). The Arum Lily does exceedingly well in such shallow water in the south and west of England; even though in severe weather the leaves might be destroyed, they will send up fresh leaves and flowers as soon as the warmer weather sets in. Pontederia cordata is a handsome American aquatic, with spikes of sky-blue flowers. Menyanthes trifoliata, the Buckbean, has beautifully fringed, sweet-scented flowers, but unfortunately somewhat rampant in its growth. Calla palustris, the Bog Arum, looks well in masses, and grows seldom more than nine or ten inches high.

Waterside plants I will notice in a future issue.

Exeter.

F. W. MEYER.

A Central Agricultural Institute is most desirable in the United Kingdom, and the matter is under consideration as a result of a resolution passed at the British Association meeting held last year at Toronto. Agriculture has vastly improved in Canada under the influence of such a central institution, acting as a point of union for the various bodies interested, and by the conduction of original agricultural research. At present the various agricultural societies, associations, clubs, colleges, county councils, &c., of the Kingdom are being invited to express an opinion as to the desirability of a central institute being created by the Government. A committee has been appointed to receive the reports, and act as desirable.

ON LANDSCAPE GARDENING.

GARDENING is an art that can only be efficiently taught by example. Much may be learned by observation, but far more by execution. Professor Bayley Balfour, the Regius Keeper of the Royal Botanic Gardens, Edinburgh, strives to combine both modes of instruction for the young practical students under his care. The young men on his staff work in the gardens during the day, and are provided with lectures and literature in the evening, free of cost. The period of service is three years, during that time a regular course of instruction has to be gone through. At the end of that period, unless the men are retained to fill higher positions in the staff, situations are found for them elsewhere. The public thus secures as gardeners, foresters, or factors, men as competent as a good training can make them. This dual or rather multiple system of teaching has now been in operation for about six years, and is so popular that the number of applicants far exceed those of vacancies. As showing the character of the instruction given and as suggestive hints to horticultural societies, it may be stated that the following courses of lectures have been given this winter. Over twenty on Forestry, by Colonel Bailey, lecturer on Forestry in the University of Edinburgh; three on Nursery Work, by the veteran cultivator, Mr. James Grieve of the Redbraes Nursery, Edinburgh; and a series not yet finished on the Botanical Character of Trees, by Mr. A. D. Richardson, a foreman of the outside department at the Royal Botanic Gardens. In prosecution of the same schemes of instruction, Mr. Henry E. Milner, of London, has given a series of lectures on Landscape Gardening. Three prizes, a first of £3, a second of £2, and a third of £1, are to be awarded to the students who score the highest number of marks in the subsequent examination.

History of Landscape Gardening.

Mr. Milner's first lecture was introductory, and largely historical. He showed how, at the dawn of ancient civilisation, gardens were found in Egypt, China, Babylon, Rome, Greece, &c. In tracing the size and progress of landscape gardening in Britain, Mr. Milner showed the effect of the Italian Renaissance, the Dutch and French styles, on the more sober English style. Coming to the Elizabethan era, he mentioned Hatfield and Holland House as good existing samples of gardens of the period. He also named Thurston, Capability Brown and others, such as Repton, and London, whose works he commended, Marnock, Price, Le Nôtre, and others. Through the many thoughts of these and many more minds, Nature's beauties in scenery, the art that serves to minister to the better feelings, became more definite in its tendency, until the present development of the art of landscape gardening, truthfully and distinctly styled English, has been reached. As Mr. Milner truly shows in his recently published volume on the subject, up to the commencement of the century landscape gardening was mostly the work of architects; and was characterised by formal art features, by intricacy of designs in parts, and by treatment of the ground as a plane surface. Nature it is true is ever at work, and as time passes it clothes even a neglected garden with beauty, and makes an unsightly rubbish heap lovely with her gifts.

Water, by low constant gentle action, or by sweeping force, has been a principal agent in forming the natural surface of the earth. Nature seldom presents a straight line in any of her forms. Lines running in a direction from the line of vision make the space so marked longer; whilst lines running across it make the distance appear less. Falling ground appears shorter, whilst level ground at the base of a hill or rising ground seems longer than it really is. The idea of spaciousness may be artificially promoted by the breaking of boundary lines, and by providing various objects to attract the eye, just outside the direct line of sight; vision invariably travels down hollows or depressions, or through any opening; thus, the idea of distance may be created by directing the vision to distant objects that may be brought into the artists' plan. Trees serve to frame a particular view. The contrast in foliage in trees and shrubs gives variety, and a gradation of colours promotes the idea of distance. Trees should clothe the hill-tops, and slopes in masses of irregular outline. A sky line of trees should not be continuous, but broken. A valley appears deepest when not planted, just as a hill appears higher than it really is by being planted at its summit. Grass clothing the ground surface has an expression of stability; and by its colour it brings out the tint of foliage to which it forms a base and a background. The beauty of water at rest is of universal acceptance. Created water scenery must harmonise with the surrounding land; for fitness to surrounding conditions is itself a measure of beauty. A lake expresses spaciousness, but much on its charm is due to its outline. A river expresses action. Trees on high banks on the margin of water diminish its extent when seen from the opposite side, and may make it dull. An opening in the trees, or an opening in the bank gives a gleam of light, and the length in that direction will appear greater. It is indispensable that portions of the lake and its shores should be hidden from other points on its margin. If the lake be large the end may be turned behind a wood or a hill, or failing such natural objects, by interposition of planting. A vast sheet of water may compel our wonderment, but the picture none the less is circumscribed; if we are able to take cognizance of its features all at once our imagination is confused. In such circumstances the mind seizes with avidity and delight on distant but definite objects, such even as a shore of broken form, or a headland.

Mr. Milner concluded his first lecture with a lucid résumé of his subject matter, claiming for landscape gardening that it was an art which created beautiful compositions upon the surface of the ground. He invited the young men before him to appreciate the greatness of the work before them, and to enter into the spirit of the art. It was the business of the landscape gardener to appreciate the many means whereby Nature expressed her beauty, and to use these means artistically.

Site, Approach, Terrace, Kitchen Garden.

Mr. Milner treated the question of site, in his second lecture, under such sub-headings as sun lines, or aspect in relation to the points of the compass; relation to surrounding objects; natural shelter; convenience of access and occupation; levels of the land and character of the subsoil. As to relation of the house to the sun, throughout the southern and midland counties, S.E. is the best aspect, as thus different rooms would enjoy a more equal distribution of sun than if the front was due south, and the back due north. In more northern counties, more directly southern aspects may be preferred. Having moderated the extremes of heat and cold, sunshine and shadow indoors, Mr. Milner advocates bringing in all possible beauty from surrounding scenery. Distant scenery often lends enchantment to a home view. Views of hills and mountains, lakes and rivers, sea, spreading moors, or mere expanse of field or meadow, if not overdone, are mostly welcome. Shelter is of the utmost importance, and there is nothing so effectual as a wooded hill, this shelter should be provided on the north-eastern, northern, and north-western sides. Were Mr. Milner resident in Edinburgh he would probably include west as also needing protection. Trees or shrubs form the best shelter, as these break and disperse the waves of wind; while solid walls divert them into cutting draughts, or tumble them over in bulk in cold masses.

Considering that homes and gardens are made for daily or hourly use, proximity and facility of access can hardly be too much insisted upon. Only architects, landscape gardeners, and cultivators, can tell of the many homes that have been ruined and gardens spoiled through lack of due attention to the ground levels. Though homes should not be perched up on hills, those are generally the healthiest and the best that are sufficiently elevated. The ground line of the house should always be level. As to the character of soil and sub-soil, there is a general agreement of opinion in favour of gravelly or sandy soil on chalk, sandstone, or other rocks. Mr. Milner, however, would have no fear of building on well-drained clay, were a layer of concrete placed over the clay first. The site of the house, its design, and general arrangement greatly influence the site and character of the gardens. The house should command fine prospects to the south-east and to the south-west; the chief approach or entrance should be on the north-western fall; the offices on the north-eastern side; the stables and kitchen gardens beyond. The pleasure gardens should have an eastern aspect; the south-west looking into into or over the park. The house should also rest upon a base or terrace, which is as needful to give it dignity, as a pedestal is to enhance the artistic merit of a beautiful vase. As to the approach or carriage road, this should always be, or appear to be, the most direct route to the house, and the gradients should not be steeper than one in fourteen feet; should not run paralled with nor be seen from the public road; nor be less than nine feet wide, nor more than twelve feet for a single carriage, or twelve to eighteen feet for carriages passing freely. Mr. Milner gave much useful information as to the position of lodges and entrances from public roads at such points or turns as to make the private approach look the more important road. For straight approaches or avenues, an imposing entrance should be made, and they should also have an imposing finish in a fine mansion. When practicable carriage roads should enter the park on level ground; there should be a considerable level space, called the forecourt, of gravel ranging from thirty, forty, or more square yards, allowed for the arrival, departure, and exercise of horses. The banks of carriage drives, drainage, gulley holes, the levelling of roads, walks, and grounds by spirit levels, and boning rods were then described and illustrated on the black board. Three-inch pipes were considered sufficient for four hundred yards, and four-inch pipes for longer distances on carriage or other roads.

The terrace might be a wide single walk round the house, or a massive built work with copings crowned with vases—the length of the terrace gives importance to a place, its width should be equal to the height of the front of the house. The width of the grass should be twenty feet, that of the walk from nine to twelve feet, and of the grass at the edge of the slope not less than six feet. Terrace slopes should not have a greater depth than five or six feet. Where a greater depth is needed two slopes should be made with a level width between them, if not less than four feet. Where the depth is three feet, the slopes should be two and a half feet, for smaller slopes, such as sunk ponds, two and a half feet will suffice. The steps used in connection with terraces should be as solid and plain as possible. For a two-and-three-quarter feet slope, the tread should be fourteen inches, the rise six inches; for two-and-a-half feet slope the tread should be fifteen inches, with a rise of six inches. Good Portland stone is best, though granite is generally used, as at the Crystal Palace.

The kitchen garden soil and site should be favourable, and the garden should not be further than three to five hundred yards from the house. A hillside sloping towards the south and sheltered by distant plantations from northerly and easterly winds would form an ideal site. From one and a half to two or more acres of good land, two and a half feet deep, well drained and richly manured, should be allowed. The walls on the north side ought to be mostly furnished with glass houses, on the south should be twelve or fourteen feet high, while ten feet is a good height for the east, west, or south walls. Mr. Milner does not approve of broad permanent coping on fruit walls, but described and illustrated a very good temporary coping formed thus: build in the wall and on the coping pieces of one and a quarter inch japanned iron tubing about six feet apart, in which can be placed iron rods projecting in front beyond the wall, having a pin at the outer end. On this support in the spring are placed light twelve-inch boards, which are retained there as long as necessary. Netting can also be suspended from these rods to protect the fruit against frost, birds, &c.

Drainage.

To show the necessity of drainage a few general principles as to the qualities and quantity of water were referred to. One inch of rainfall per acre gives one hundred and one tons, or 3,630 cubic feet of water, which would fill a tank thirty feet by twelve feet by ten feet, yielding two and a half cubic feet, or fifteen and three-quarter gallons per minute if the same fall continue twenty-four hours. The annual rainfall of London averages twenty-six inches, and it is reckoned that at least two-fifths of it percolates through the soil, the other being lifted by evaporation. As water is heaviest at a temperature of forty degrees it follows that the warm rainwater and air cannot displace the colder already in possession, hence the necessity of removing the cold stagnant water by means of drainage. Raindrops are also highly oxygenated, and their passage through the soil by drainage brings this essential aid to vigorous growth within easy reach of the roots of plants. Streams of warm air also follow on the back of descending water, and this also is charged with many ingredients for the support of plant life.

The depth and fall of drains are of great importance. In clay soils, three feet deep and sixteen feet apart; in light soils at intervals of forty feet and four feet deep. In non-porous soils the drains should be filled to within six inches of the surface with porous material. The fall of main outfall drains should be 1 in 500, or 10 feet 6 inches per mile. In collecting drains the minimum fall should be 1 in 250, or 21 feet per mile. Facts, figures, and formulas were also shown on the blackboard for measuring the discharge of water through pipes or open channels. The following table of water discharged through pipes of different diameters can hardly fail to be generally useful, as well as to give one a vivid idea of the vital importance of the drainage of land: A 1 in. pipe discharges 3 gallons per minute; a 2 in. 18 gallons; a 3 in. 50 gallons; a 4 in. 112 gallons; a 6 in. 283 gallons; a 9 in. 778 gallons; a 12 in. 1,600 gallons; an 18 in. 4,400 gallons. As to the size of drains in main walks, 3 in. pipes will suffice for 100 yards; if much over this 4 in. had better be used. The centre roads or walks, connected with gulleys, or the outlet kept well above the level of the discharge, is the safest position for main drains. Sites or characters of soil powerfully modify drainage, such soils as clay, sand, loams, humus, calcareous, and peaty soils, requiring distinct treatment.

Water in Garden Scenery.

Coming to water as an essential element of landscape, Mr. Milner had much to say of its beauty and of the best mode of heightening its effects in landscape. How true it is that each river has an individuality, a fascination of its own. When we wander from lake or river, we soon return to them again as to old friends. Water adapts itself to and should ever be true to its own environments. We should imitate the beauty of Nature's operations, but not distort her efforts. The placid lake has its own special beauty on low-lying land, the shining river strongly sweeping through fat meadows, the rushing stream leaping over the rocky cascade. The landscape gardener's treatment of the lake and stream are different. Very much of the beauty of the lake flows from its outline, and its charm largely consists in the variety of its creeks, bays and promontories. No regular figure, not even a semi-circle, should be used. The prevailing line must be concave. Portions of the lake and its shore must be hidden from the spectator from other points on the margin. Large trees on the opposite shore or the end of a lake lessen by more than their height the apparent extent of water. Lakes surrounded by trees also give a gloomy impression. Belts of wood or banks of earth, as already intimated, should be broken. The main views from the house should be directed into the bays, as here is the widest expanse of water. As the form suggests, the idea should be fostered that these were formed by Nature. In the process of excavating the lake the promontories or projecting points should be raised above the surrounding level. Islands should never be placed in the centre of the lake nor nearer the shore than sixteen feet. Should these be connected by a bridge with the mainland, it should span the narrowest point and at right angles with the shore.

The depth of lakes should not be less than three feet. This will be obvious when it is borne in mind that the evaporation in a dry season may exceed the rainfall by some thirty inches in the year. Mr Milner proceeded to give careful and elaborate instructions as to the excavation and rendering waterproof lakes, ponds, or other artificial pieces of water. Even on strong clays there are generally at least some six inches of surface soil more or less porous, while on more porous lands the entire lake bottom and sides must be made water-holding either with concrete or puddled clay. Concrete is perhaps best on sandy or gravelly soils on a solid foundation. It should be made of one part of hydraulic lime, or one part of Portland cement and six parts of broken stone or sand. This, Mr. Milner showed by a section, should be laid twelve inches thick on the bottom and eighteen inches at the side, this being floated home with one inch of pure cement. There are two ways of puddling lakes, ponds, &c., into water holding. One is to use the clay in a similar way as cement. After cutting, beating, maturing, or forcing it into plasticity through a mortar mill, then stamp or ram in the clay a foot thick over the bottom and eighteen inches up the sides like cement. In many cases there may be a retentive base for the water in the natural soil, and the water leaks through the sides or ends. In such cases it is cheapest to dig out a space for a puddle gutter down to the water-holding space. This trench should increase in width as it descends, and the surface should rise a part above the water level. It should not anywhere be less than eighteen inches in thickness.

Fountains.

Of fountains, of which illustrations were given, interesting particulars as to height of basins, jets, discharge of water, were given. Many garden fountains do not rise higher than a foot above the ground; some, however, rise to a height of three feet. Mr. Milner quoted those at the palace of Count Festetics, at Thesthelly, in Hungary. The fountain basins are raised three feet above the general level, and from each basin radiate walks and similar stone basins to contain plants; the effect is said to be good. The height of a jet of water is less than the head owing to the resistance of the air, the friction through the pipes, and other causes. Thus with a head of eighty feet and a jet of one inch diameter there will be a loss of ten feet, reducing the jet to seventy feet; but with quarter-inch jet the loss would be about forty feet, or half the height of the head. The form of the nozzle and size of the discharge pipe likewise very largely control the distribution of water. Thus, with a head of eighty feet and quarter-inch jet the discharge is 8·58 gallons per minute, with half-inch 34·3, and with one-inch jet 137 gallons per minute.

Bridges.

These were very fully treated, especially in their carrying capacity and breaking powers. Elaborate figures were given as to best material, sizes, &c., which render breakdowns impossible. The breaking power of all bridges should always be far higher than their carrying capacity. Turning from the engineering aspect, and the landscape gardening effect of bridges, it was shown how they should always be made to harmonise with their position. If placed on a straight walk it should be massive and partake of an architectural character; if in a winding walk or crossing a running stream, of a rustic or picturesque character. For such purpose a peeled oak, larch or fir can be used. Boat-houses, summer-houses, arbours and seats often add convenience and beauty in such connections.

D. T. F.

Harrow Weald, Middlesex, is being brought under proper government by the Board of Agriculture. Conservators will be appointed whose duty it will be to preserve the turf, shrubs, trees, plants, and grass, to execute such works of drainage, levelling, fencing, planting, &c., as may be necessary for the protection and improvement of the common, and to set apart a portion or portions for games. They will be empowered to frame and enforce bye-laws for the preservation of order and the prevention of nuisances, the removal of gamblers, card-sharpers, gipsies, &c., and generally for the prevention or restraint of any act or thing tending to the injury or disfigurement of the common, or to interference with the use thereof by the public for purposes of exercise and recreation.

French Beans.—There is no worse month than March for the culture of French beans. There are extremes of heat by day and of cold by night, and this is the very reverse of what the crop likes. Then we have the very cold, cutting winds to deal with. Lastly, there is the question of water, which should always be warm. In sowing I find the general error is to sow too deep; one inch or one and a half inches below the surface is ample. A spare box of seed should be sown at the same date—or a few days later than the crop—so that any blanks can be filled up. Water the seed box carefully, so that in planting there will be [illegible] flagging. As a rule, I have found transplanted beans about equal to the [illegible] for crop, though they may be more dwarf. Where there is space for sowing [illegible] end of March, a good and certain crop is readily obtained, and if the [illegible] are low the crop is heavy. Clean foliage is an absolute necessity, not only for the beans themselves, but also for the other inmates of the house. Sir Joseph [illegible] is the best variety with me, notwithstanding the many sorts I have tried, [illegible] and old. While they enjoy fairly rich soil and do well up to flowering time [illegible] almost any material, after then it is time to feed them. Soot in any [illegible] desirable and safe food, and this can be given either in liquid or solid form. [illegible] pailfull of cow manure soaked over night and diluted and strained next day will be found useful, but use no cold water.—*Stephen Castle, F.R.H.S.,* [illegible] *Vineries, Notts.*

THE BEST GUIDE to the garden for the whole year is the "Gardening [illegible] containing practical articles on the cultivation of Flowers, Fruit, Vegetables, [illegible] "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

THE GHENT SCHOOL OF HORTICULTURE.

Situated on rising ground in a pleasant suburb of Ghent is the celebrated School of Horticulture and Agriculture of the State of Ghent. Not only is it pleasantly situated, but it is admirably managed, under the able directorship of M. Emile Rodigas, whose name is a household word in the horticultural community of Belgium. The school is aided by State and Government, and is under the special care of the Minister for Agriculture. The various courses of lectures given and classes held are such as, together with the practical work that has to be performed in the extensive gardens and nursery, would give to a young and aspiring horticulturist a magnificent start in his profession. A complete course of instruction occupies three years, but the authorities do not confine their attention entirely to the resident students. When visiting the school about midday on one occasion we remarked to M. Rodigas that not by any means were all the students youths and young men. The genial director pointed out that the middle-aged students did not work in the school grounds, but were from surrounding gardens and nurseries—men who were anxious to advance themselves, and to that end gave up half their dinner hour to attend the lectures open to them at the State school.

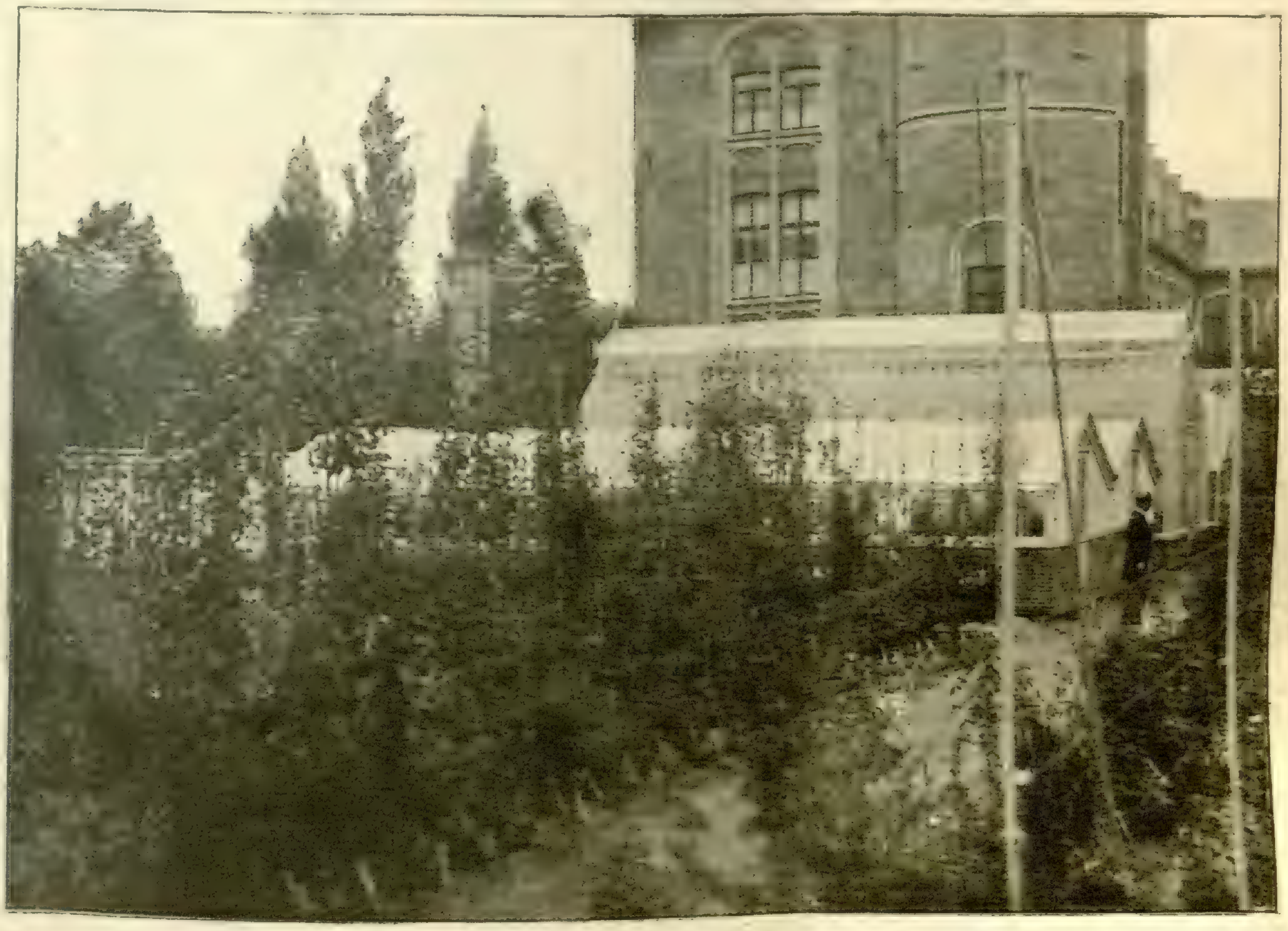
M. Emile Rodigas,
Director of the Ghent School of Horticulture.

A history of this famous school would prove interesting reading, for in its earlier days it had to contend with some difficulties. It was instituted in 1849, for on April 24 of that year it was agreed to provide suitable instruction for twenty-four students desirous of studying horticulture and its allied sciences. The scheme was approved by the Government on April 30, when presented by M. C. Rogier and M. Louis Van Houtte, and the Minister of the Interior was instructed to see it executed. In later years the school has come under the Department of Agriculture. Horticulture has long been one of the leading Belgian industries, and nothing has done more for its advancement during almost half-a-century than the Ghent School. Belgium has much to thank MM. Rogier and Van Houtte for, because it was owing to their untiring efforts that the institution obtained a fair start. The latter, one of the most eminent and broad-minded horticulturists of his day, was mainly instrumental in securing Dr. Planchon as director of the school. Not only was Dr. Planchon a brilliant scientist, but he possessed remarkable administrative ability, and this is evidenced by the code of regulations he drew up, and the courses of instruction he instituted. Both these have been modified to suit the needs of the times, but they have served as a base for codes drawn up for the principal horticultural schools of later times. It was ever the aim of the authorities to secure the best of instruction, consequently there was a succession of illustrious professors, and a sure foundation of theoretical and practical knowledge was laid in the minds of the students.

Another director of note was M. Jean Jacques Kickx, who, after a brilliant career, died on March 27, 1887. Mons. Kickx was succeeded in the conduct of the institution by the present director, M. Emile Rodigas, whose portrait is published in the present issue. M. Rodigas entered the Ghent School of Horticulture as one of the professors in 1860, so that his connection with the establishment has lasted thirty-eight years. M. Rodigas is beloved by all who have been students, or who have in any way been associated with him, and on at least two occasions there have been great reunions and demonstrations that must have delighted him. These were in May, 1885, when he had been professor for twenty-five years; and in 1895, at the conclusion of thirty-five years' service. Besides being an administrator and professor M. Rodigas is an ardent lover of hardy plants, taking an especial interest in alpines, and finding the greatest pleasure in conversing about them. To the stranger, as the student, M. le Directeur is equally pleasant, and those who have once visited him at the school never forget to make a call when in its neighbourhood. M. Rodigas will have plenty of visitors during the forthcoming Ghent Quinquennial Show.

To afford practical instruction for a large number of students, and in all the branches of horticulture and agriculture, a large area of land is necessary, so we find the State school of Ghent surrounded by about eighty-four acres. This gives some variety in soils and aspects, and room for plantations of forest trees, nurseries, rose garden, pinetum, glass houses, &c., &c. The establishment is divided into four divisions, the first being the school proper, part of which is shown in one of the illustrations; this includes the large lecture rooms for public conferences, the laboratory, school offices, and residential quarters. The second division comprises the extensive glass department, and the large fruit garden in which it is situated. The houses are devoted to fruit and plant culture, vines, new Holland and Cape plants, and orchids are especially well represented. The third division practically covers all the plants out of doors excepting fruits ; vegetables are largely grown and varieties tested; annuals find favour, and large breadths are grown to teach the business of seed harvesting later; herbaceous and alpine plants are freely cultivated, especially such as are serviceable for horticultural purposes, as apart from purely scientific interest. One of the accompanying illustrations shows a corner in the alpine garden, while another gives the principal block of glasshouses. Division four is a comparatively new feature, and is not found close to the school, but a few minutes from it. Here are grown collections of conifers, ornamental trees and shrubs, and here also are the fruit tree and other nurseries. A businesslike method obtains everywhere, and there is evidence that the students take a keen interest in their work as well as in their studies, and hitherto such evidence has not been contradicted by the results obtained by those who have passed through the prescribed course of instruction with credit. As showing the capacity of the establishment, it may be noted in connection with the fourth illustration that the laboratory allows of thirty students practising at one time.

In conclusion, it will be of interest to readers to have some idea of the course of study M. Rodigas has found to be productive of the best results when combined with practical horticultural and agricultural exercises. During the first year the student is taught the Flemish, French, and English languages, mathematics, freehand and mode drawing, and physical geography as general subjects. In natural science he studies botany and physiology, physics, chemistry, and geology, in addition to applied chemistry, agronomy, principles of agriculture and horticulture, aboriculture, and kitchen gardening. Anatomy, designing, and planning are also added. During the second year all the foregoing subjects are continued in an advanced stage, while zoology and entomology, so far as these affect the student, are studied together with landscape gardening, construction of glass houses, and garden archi-



GHENT SCHOOL OF HORTICULTURE.

tecture. The third year finds the student progressing in his studies, and frequent revision and examinations fix them upon his mind. He is now able to appreciate the widespreading influence of the profession he has entered, and so, ere quitting the school, he is instructed in all the legislation affecting the industry, and allied subjects, such as beekeeping and dairying, are dealt with. His education assumes a more commercial aspect, and he may study special subjects, such as sugar extraction, distilling, brewing, wine making, &c. The necessity of intensive culture is made apparent, as also is that of economical methods of procedure, the necessity of insurance, and values of land, and capital and labour. Altogether, a smart young man entering the Ghent School of Horticulture has an opportunity during his three years' course of obtaining such general, practical, and theoretical knowledge as many a Briton would be glad to possess, but which his Government does not provide.

THE PLANTING OF GLADIOLI.

WHATEVER may be the difference of opinion as regards planting gladioli, whether it should be done in March or April, no one will hesitate to plant during this fine weather. I do not think that any fresh light has been thrown upon the many questions which have perplexed growers of this beautiful autumnal flower, and therefore the old ways had better be adhered to. There are some things which I have always advocated in the spring work connected with this flower; and there is one point on which nothing need be said, namely, the choosing of a favourable day, and the non-planting when the ground is at all wet. I have also advocated for many years the cutting of the large corms in two where there is a sufficiently pronounced eye to be seen; it is better, I think, for the shoots of two spikes of the same bulbs are sure, more or less, to interfere with one another, and where the variety is a scarce one you by this means double your stock. I know some object to this plan, but I have never heard a good reason against it, and as far as my own experience goes, the corms produced by those thus treated are larger than where they have been planted whole. Another point is that it is desirable to give the plants plenty of room, not so much for the sake of the nourishment supplied as for easier manipulation afterwards. I have seen them grown very closely together, not more than four or five inches apart, and apparently without any loss of vigour, but any one who has grown them knows that the roots do not at all spread but go straight down. I have known them planted a foot apart, but I do not think this necessary; eight inches is far enough. As I grow nearly all named varieties, I am particular about their being carefully labelled; I use the labels about a foot long, and, moreover, write down the names in a book, so if any label is displaced I can immediately rectify it. In planting I bore a drill about five inches deep, and put a little road grit or powdered charcoal at the bottom, so that when the corm is planted there are about four inches of soil from it to the surface; when the whole row is planted it is covered in and the next row proceeded with; from this time forward until the shoots are about a foot in height they will require but little attention save weeding. In all these directions I have simply in view the varieties of the gandavensis section; I have grown some of the Lemoinei and nanceianus groups, and these being robust growers may be left in the ground from year to year, giving the clumps a slight covering of ashes during the winter. These do not to my mind equal those of the gandavensis section, either in length of spike or colouring; what may yet be evolved from them it is, with the experience of the gandavensis section before one, difficult to tell; I remember when we were contented with spikes of four or five blooms opened at once, whereas now we have from sixteen to twenty expanded at once, these being twice or three times the size of the old varieries.

When writing of the gladiolus there is always one painful fact to be noticed, namely, the decay of the bulbs, and the past season has been no exception to the general rule in that respect. When I lifted my corms in the autumn I thought I had never had a healthier looking lot; the skin had that soft silky appearance which usually portends a healthy bulb underneath, but, alas! for the vanity of human wishes. I always make a point of stripping off the outer skin before planting, and in very many instances a mass of corruption underneath manifested itself, caused by a fungoid growth which completely destroyed the vitality of the bulb. In all such cases the question arises: is this the cause of the decay or the result of it? Opinions have differed and will differ, but whatever the opinion the melancholy result is the same. I have seen the disease in bulbs imported from France as well as in home saved ones; it is of course very aggravating when you have paid half a guinea for a corm, and when you have seen it start vigorously into growth to find it all at once drooping its head and refusing to expand its flowers. Having grown gladioli close upon forty years, I can testify that I am as much at sea now as I was at the commencement of my culture with regard to the disease. I have seen a dozen bulbs planted of one variety, when perhaps only two of them have succumbed, and I have in other seasons lost nearly my whole collection. As my garden contains a good deal of old manure, it may be, although I change position every year, that this is injurious to the corms; this is, I know, the opinion of my friend Mr. Burrell, at Cambridge, but I have never known anyone who has grown gladioli who has not had to deplore losses. It is not everyone that has such splendid soil as Mr. Burrell has in which he can grow roses and gladioli so well; there is, however, this comfort, that anyone who wishes to continue their growth has only to save the small bulbs, or spawn, as we call it, which in some varieties is very abundantly produced, and seems to be in no way affected by the decay of the parent bulb.

GLASS STRUCTURES AND FRUIT GARDEN, GHENT SCHOOL OF HORTICULTURE.

It may be asked, perhaps, what varieties are to be recommended. I would suggest that the following varieties be obtained, they can be had for a few pence each: Africaine, very dark chocolate brown; Amalstree, pure white with violet blotch; Amitié, pale creamy rose; Archduchess Maria Christine, white tinted and flaked with carmine; Atlas, pale porcelain; Baroness Burdett Coutts, lilac, tinted with rose and purple; Caméléon, slaty lilac, striped with white; Caprice, creamy white, shaded carmine; Carnation, pale flesh, tinted with carmine; Cervantes, bright rose; Conquérant, dark purplish carmine; Corinne, carmine, with white stripes; Dalila, bright rose, striped with white; Dr. Bailly, bright scarlet; Enchanteresse, pale rosy white, striped with violet, large and fine; Eugéne Souchet, bright rose, with large white stripes; Flamboyant, bright scarlet crimson; Formosa, pale satin rose, large and fine spike; Glaive de Feu, salmon rose; Grand Rouge, scarlet crimson; Horace Vernet, purple red, striped with white; Le Vésuve, fiery red; Matador, bright cherry red, very late; Meyerbeer, bright vermilion; Néréide, pale lilac rose; Ondine, white, tinted with lilac; Orphée, cherry rose; Pasteur Ovide, purplish carmine, striped pure white; Pactolus, yellow; Pyramide, clear delicate rose, slightly tinted orange; Pollux, carmine; Pyramide, clear delicate orange rose; Rayon d'Or, yellow; Rossini, dark purplish red; Sceptre de Flore, rose colour; Shakespeare, white, very early flower; Tour du Monde, dark cherry, shaded lilac.

There are many newer varieties of much merit, but I think those named above are sufficiently varied, and will not fail to give satisfaction to the grower.

H. H. D'.

THE FUCHSIAS OF FORTUNATUS.

I TEMPTED Fortunatus and he fell.

It was the old story—a quiet worker pursuing his useful way in a country place, happily ignorant of the turmoil of the world, until the word "exhibition" was mentioned, then a transformation into the eager, restless, combative being whose heart is no longer in the garden, but in the money-bags of committees.

LABORATORY, GHENT SCHOOL OF HORTICULTURE.

I had done an evil thing unwittingly in recommending Fortunatus to try his strength at the shows. He was so striking an example of practical genius unexploited, and appeared, in his staid, reflective way, so completely under self-control, that a prospect of harm arising from a suggestion that he should make a bid or reputation seemed remote. But a few victories made the error plain.

A CORNER IN ALPINE GARDEN, GHENT SCHOOL OF HORTICULTURE.

Fortunatus secured his first triumphs with vegetables, but I, who had been trained where big specimens grew, perceived that his real strength was as a plantsman, and threw out a suggestion that he should concentrate his efforts on pot stuff. Willingly assenting, he gathered round him his rough material and read up for hints from the noisy, "practical" ones who clamour to advise. Now, when you have been where the big plants are, you can claim to have learned one great initial lesson, namely, that it is not the clamorous ones who win the prizes, although, by dint of the noise they make, they get put on committees and wear ribbons and rosettes at the principal shows. As great nations are governed by secret cabinets, so the work of nations is done by the quiet thinkers. Therefore when this eager young gardener, ambitious and aspiring, went to the oracles I smiled, and only when he came back empty did I tell him what the Old Chief taught me—the chief who won countless prizes by his steady but wordless pertinacity.

It was with fuchsias that Fortunatus most yearned to shine. He did them well, but not so well as to satisfy him after he had seen the photographs I showed him of the Old Chief's plants. The prints were yellowing with age (which, being photographically interpreted, means with the imperfect oxidation of the silver salts), but they showed plants of noble and majestic proportions, by judgment seven to eight feet high, absolutely symmetrical, and bloomed from base to summit. Very likely some modern gardeners would have sneered at them, for the simple but sufficient reason that they could not produce the like. To sneer at a plant is as easy as a sneer at a man, and each is the usually cheap refuge of baffled impotence.

Fortunatus envied, and, recalling one maxim of the Old Chief for the young fuchsia, I threw out a suggestion of phosphates. The anxious cultivater stared. Phosphates for fuchsias! He had never read that, and, rather alarmed at the unknown thing, raised seven or eight objections, but the seven or eight-feet fuchsias in the photograph silenced them all. The mixture was prepared as follows: From the loam store was drawn three parts, chopped up, not sifted. The selected portions were full of fertile fibre, well-decayed and fat with sustenance. From the spent mushroom bed was taken one part—dry, friable, crumbly stuff, as full of nutriment as the loam. This was lightly rubbed through an inch-meshed sieve, but not powdered. From the leaf-mould heap was drawn one part more, and it was treated exactly the same as the mushroom manure. To a heaped barrowload of these three ingredients were added one quart of wood ashes and one quart of superphosphate. Fortunatus began to get more comfortable as the heap progressed, for he liked the look of it; in fact, the gusto with which he set about the task of mixing was pleasant to witness. By the time he had done he had more than a glimmering of the why and wherefore of it all, for, as he administered the finishing touch, he remarked quietly, "There's another ingredient in this here mixture, and that's brains."

We won't stay to argue whether it was the loam, or the manure, or the leaf mould, or the wood ash, or the superphosphate, or the brains which suited the fuchsias; but something did, for they throve amazingly. Such mats of fibre did they push into the sweet and firmly-compressed soil that they were asking for a larger pot and yet another, before the neighbouring plants had made a fair start. The delighted grower watched the extension of healthy, succulent shoots—whole sheaves of them—with a beaming eye. It need hardly be said that this exuberance received watchful attention; that it was judiciously restrained and controlled, never being permitted to develop into rampant barrenness. In the course of one short season, the fuchsias, very moderate material when first taken in hand, were stately pyramids nearly six feet from the base of the pot and full of flowering wood. It was evident that in the heavy task before them a little extra help was needed. Fortunatus obviously yearned to hear the word "phosphates" once again. He had taken a fancy to it. It represented a mysterious thing that fuchsia growers had unaccountably overlooked, and was at the bottom, he believed, of all his success. When, therefore, I said "nitrates" instead of "phosphates" he was crestfallen. But I explained that the nitrates in the fibre were much more likely to be exhausted than the rich store of phosphates, and prescribed a top-dressing of finer mould with a small admixture of powdered fowl manure; supplemented by applications, made twice a week, of a nitrate of soda solution, half-an-ounce to the gallon of water.

The flowering of the plants was the event of the season. They bloomed magnificently. People seeing the noble pillars of lustrous grace asked each other if the modern objection to large things because they are large and irrespective of their intrinsic beauty, is well founded—whether, in short, we are not making too many concessions to the ladylike "sweet and small" school. Be that as it may, the plants came triumphantly through the exhibition ordeal. The name under which praise was given to them by the reporters of the gardening press was not that at the head of this article, but in every other respect each reference and statement is perfectly accurate. I say this to answer a possible criticism that because the form of the present communication is not quite similar to the orthodox style it must necessarily be more than half fiction—a criticism not the less unlikely because so very foolish.

But the history of Fortunatus and his fuchsias is not quite told. When the next season came and with it the time to survey the framework of the dormant plants, hope sprang lightly in the exhibitor's breast. Could he but clothe these skeletons as they had been clothed the year before, they would, with the natural development and expansion of greater maturity, be such plants as the world never saw. Unhappily, however, the phosphates and nitrates still haunted him. He relegated the loam and the leaf-mould, and the manure, and the wood ash (and with them the brains), to a subordinate position, and crammed the phosphates and the nitrates in. But although the head loomed big the roots dwindled, and at a crucial moment the magnificent superstructure collapsed.

It may help the ingenious reader to take the moral which I had in mind in the beginning if I hint that public applause and sensational curiosity no more suffice to make strong National societies than phosphates and nitrates do plants, but that a loamy reserve and fertile working balance mingled with brains, give a sure foundation. Beyond this I can only say that if the moral does not show itself, perhaps the hint given with regard to the compost may be a justification for what is herewith written. After all, a seven-foot fuchsia is as good as an attenuated moral, so if the latter remains obscure try the soil mixture and see if the brains are there.

W. PEA.

Slugs and Snails are, like the poor, always with us, and are so destructive, more particularly in gardens of small size, that any new suggestions for their destruction are deserving of attention. A method of destroying these pests, which are especially active this season, is described in the *Journal de l'Agriculture*. The destructive molluscs seek refuge in large numbers in hedges and shrubs, and the plan is to spray these, especially near the ground, and before the appearance of the leaves of deciduous shrubs, with a weak solution of sulphate of copper (blue vitriol, or bluestone), the strength not exceeding four per cent. Morning or evening is the best time for spraying, and the snails will be speedily killed. After the foliage has appeared sulphate of copper by itself becomes injurious, but *bouillie bordelaise* (lime and sulphate of copper solution) or, better still, *bouillie bourguignonne* (sulphate of copper and carbonate of soda dissolved in equal parts) should be sprayed vigorously into the midst of the bushes. For ivy-covered walls it will suffice to sprinkle sulphate of copper solution along the bottom of the walls only.

AN EVENING DOSE.

RASPBERRY CULTURE.

I DO not so much mind "Lux's" weighty condemnation of my notes on "Modern Raspberry Culture," but I certainly have good cause to reflect upon the note of warning as to Peter's non-approval of my methods of culture. As this seemed a case of two to one I began to think either "Lux" or Peter, or both, were affected by the cold unseasonable weather coming after the genial spring experienced before the advent of the Spring Number of the GARDENERS' MAGAZINE, or that their raspberries were touched by frost, or, at any rate, I had touched a tender spot. I immensely enjoy reading "Lux's" notes, but am greatly troubled when they relate to myself and Peter joins the fray.

"Lux" says I deprecate trenching, and that on such light soils trenching is most needed. In spite of Peter, however, I must remind "Lux" that the raspberry is surface rooting, so why trench to three feet, for the roots will not reap any benefit, as the drains would take much of the good food dug in. Peter should keep the good soil nearer the surface, and he will have better results than if it be put out of the reach of the roots. At Syon the soil is shallow, only twelve to fifteen inches deep in some parts, and resting on gravel. If we trenched such ground in the usual way our raspberries would cut a sorry figure. I may be told one need not bury the good soil, or that I might take out the gravel and put in good soil, but this would not be profitable where large quantities of raspberries are grown. My advice is, feed from the surface rather than from below, for the roots are not at the depth "Lux" advises.

Now for the second instalment. From the labour point of view "Lux" deprecates my advice as to cutting out old canes as soon as the fruits are cleared, because there is not time to do the work at the proper season. Are we to ruin our prospects of splendid new canes and big crops because of the time it takes to remove old ones? Really I expected better things from "Lux." We do not hesitate to summer-prune fruit trees even if time and labour are scarce at that season. We are much too fond, as gardeners, of excusing ourselves "because there was not time to do this or that." The removal of old raspberry canes does not take a great while, and as to the results of the system, it is patent to all that crowded plants cannot finish up the new growths for next year's fruit like those given plenty of air and light. By this system the whole energy of the plant goes to the upbuilding of fruiting canes and not to useless ones; "Lux" should also remember that the roots of raspberries are severely taxed if all canes are left till leaf-fall. In light soils, after a dry summer, the plants look none too well if they have borne a heavy crop and so have to be relieved as much as possible. With regard to economy I can assure "Lux" that in these days of high pressure practically every gardener has to study it; the private gardener has often more worry than the large market grower. I have never been fortunate or unfortunate enough to live in any garden where economy had not to be considered. I only wish we could have that same influence in the matter of outlay that Peter appears to have with "Lux." I conclude by hoping to retain "Lux's" good opinion though we may differ on raspberry culture.—G. WYTHES, *Syon Gardens*.

SUGGESTIONS.

HAVING read with great interest the "Morning Mixtures" in the GARDENERS' MAGAZINE, I have come to the conclusion that Peter is an indispensable part of it. Indeed, so prominent has this interesting and mysterious person become that the Mixture would be dry without him. It is not every lover of horticulture that possesses such a treasure, and perhaps that is why "Lux" is so proud of him; his type, however, is fast becoming extinct. It is all very well telling us what Peter does and when he does it, but what we gardeners of modern times want to know is, how he does it. How entertaining would be an illustration of Peter up-ending his potatos, or of "Lux" hiding behind him after being "egged on." One can imagine that when trouble is about Peter receives an extra "Well, what?" to help swallow the righteous indignation that pours in, while his master bravely shelters himself at his back. I wonder if "Lux" is allowed to roam about Peter's sacred domains without being overshadowed by a sense of trespassing. It would seem not, for I think if Peter would only consent "Lux" would yet be induced to receive a box of ferns from Mr. Druery, for deep down in the Luxian heart there is secret admiration for the lovely ferns, which far outshines the coldness of the ordinary horticulturist; he states that some of the crested forms are exquisite, but is this because Peter's form is crested, and "Lux" dare not say any other? What are Peter's ideas concerning good ferns,—and will "Lux" induce him to give his ideas on the "Lady Gardeners"?—FOI.

HORTICULTURAL LITERATURE.

I NOTICE that "Lux" in his Morning Mixture on page 179, asks "Why [illegible] not more gardeners read gardening papers?" I have no doubt that there are a great many in the profession who do not read the papers devoted to horticulture, and for various reasons. Some think themselves above taking the advice of others in a better position for acquiring knowledge and information on the different branches of the art. I for one believe in obtaining all the information possible on all subjects that may be of assistance to me and help to make me better able to properly fulfil my duties. I not only read with great interest and profit the GARDENERS' MAGAZINE, but I also preserve for future reference the [illegible] most valuable articles, by either pasting them into a blank page book or [illegible] the leaves entire; very many of the articles are too valuable to be read over once and then passed by—they need to be thought over. This, perhaps, may appear a rather childish method, but I find it very helpful, and therefore can with confidence recommend it to all young gardeners who like myself have not the room to [illegible] up all the numbers. We should get all the information possible from whatever source is available, we should make a real study of all that relates to the profession, not be afraid to ask reasonable questions of those older and more experienced than ourselves, strive to do our duty in every detail, and aim high. I am of opinion that many do not read periodical horticultural literature because their minds are not really in the work, and as soon as they are away from it gardening is almost the last thing that would be thought of until the next morning. Those in [illegible] positions with a number of young men under them should do all they can to encourage reading so that minds may be cultivated as well as gardens.—D. BURRIDGE, *Wellingborough*.

Laxton's Noble v. Royal Sovereign Strawberry.—I started the former on the first day of the New Year, and the latter a fortnight later, but Noble was ready on March 13 and Royal Sovereign on March 20. [illegible] remarkable freedom this season; Noble is rather short in the stem, and [illegible] throws the truss beyond the pot, while Royal Sovereign throws out a good [illegible] flower stalk, which is a distinct advantage. I do not consider either of very high flavour at this season, nor can we expect anything extraordinary; [illegible] Sovereign on our heavy soil is of very good flavour grown naturally. [illegible] Seedling is our next batch, and the fruits are of excellent flavour when not [illegible] too hard or too early in the season.—W. A. COOK.

WORK FOR THE WEEK.

WARM ORCHIDS.

SEED pods that ripen on orchids during the winter months are generally (or should be) put in small paper bags and hung up in a warm house for the effects of the sun to fully ripen them. If ripe, the present is a good time to sow seed, and amateurs, as a rule, are very anxious to raise seedling orchids. Seeds well ripened is the first essential. Select pots of orchids that are full of roots and the compost sweet, avoiding those overgrown with sphagnum, as seeds would be smothered before the year is out. Dendrobiums are the best sown on their own pots in the warmth, and the same applies to the raising of cattleyas and Lælia-cattleyas. Cypripediums are best sown on cypripedium pots, this ensuring their always being moist. Great care must be taken after sowing, and the watering done very cautiously. Always keep a record of dates, &c.

Imported plants should be examined and well watered before anything else is done to them; Dendrobium spectabile, of late introduction, will require stove treatment and syringing each morning to start it into growth. Dendrobium-phalænopsis Schröderianum may now be potted and placed in a warmer house, and given a slight syringing each morning until active growth takes place. Dendrobium formosum giganteum may also be potted and placed in the same house, but not syringed, as this being hirsute retains the water, and so causes the young growths to rot. Epidendrum radicans will now be growing, and will enjoy the syringe on suitable occasions; this must be placed in the hottest house and raised as near the glass as convenient, in order to bring ont the flower spikes. It also must be fumigated with XL. All occasionally, as a preventive against thrips and red spider. Renanthera coccinea thrives best in the heat, trained under the roof, close to the glass, and also enjoys the syringe. Vandas of the suavis and tricolor sections will be just showing for flower spikes, and it is of the utmost importance that syringing be done carefully, keeping the water out the axils of the leaves where the flower spikes appear. Aerides Fieldingi will also be showing spikes, this thrives well in pots; in the East Indian house magic paste must be put down where spikes are showing, and traps set for wood lice, such as potatos cut in halves and hollowed out in the middle; scale also attacks the spikes and causes malformation, vapourising is a good remedy for this. Lælia purpuratas should have finished their growth, and those that have not must be placed at the warm end of the house. Lælia tenebrosa can be served likewise. Lælia elegans that is failing to flower, and requires repotting, may be attended to; baskets are preferable to pots for this, as they can be suspended from the roof where convenient. Cattleya Schilleriana will be forming buds at the base of the sheath, and careful watering will be necessary; Cattleya dolosa will also be showing flowers, and require more moisture at the roots. Brassovola Digbyana is growing fast; it thrives well in a few degrees more heat than the cattleya house affords, placed in baskets, and suspended from the roofs in a light position. This is a very useful orchid for the hybridiser, owing to ite peculiar labellum.

Lælia anceps is now rooting fast, so the syringe must be used in the morning; shading over this species is not required; they need all the sun possible, a free circulation of air, and plenty of moisture. Miltonia Roezli, after such trying weather, is apt to fall a victim to red spider and thrips, so must be syringed often when the weather is warm, and must be fumigated; it thrives well in a warm house with plenty of moisture.

Shading will now require great attention, and also the firing, so as to keep the atmosphere in a right condition in all the houses. Cattleya houses will require damping in the morning and again in the afternoon.—T. STAFFORD, *Tyntesfield Gardens.*

THE FLOWER GARDEN.

A SELECTION of annuals and biennials should be made for sowing in the open borders, and many of the following may with advantage be added to those given in a former calendar, for besides embellishing vacant spots on borders they furnish flowers for indoor decoration. A few of the most serviceable for cutting should also find a place in the reserve garden, where the flowers may be gathered without unduly encroaching on the flower borders for the supply. Another sowing of sweet peas should be made to form a succession to those sown previously, as unless all seedpods be kept strictly picked off a succession of flowers cannot for long be maintained from the same plants, but by making successional sowings good flowers are secured, and a few fresh seeds may be saved from the early sowing if desired a consideration with some of the new and choice varieties. I prefer sowing in clumps or blocks of distinct colours, rather than in a mixture. Mignonette, of which scarcely too much can be grown, should also be sown freely; if a few seeds be scattered among roses in beds and raked in it forms a groundwork, and does not materially affect the well-being of the roses if kept within bounds and clear of the plants. Marvel of Peru, an old-fashioned tuberous-rooted plant may be easily raised from seed if sown now in slight warmth. These may be used as dot plants in mixed bedding or for filling vacancies in borders. Old roots saved from previous years may be treated somewhat like dahlias, or if potted up singly and started in slight warmth will make strong plants to go out at bedding time. For sowing on the open borders, which should be done during the next week or two, a good selection will be found in the following, in addition to those to be transplanted from frames already enumerated. Sunflowers of various heights; annual chrysanthemums, both single and double, all very useful; sweet scabious, helichrysums, Bartonia aurea, coreopsis, several kinds, all annuals excepting C. grandiflora, and this blooms equally well the first year; Clarkia elegans, C. rosea fl. pl., C. integripetala, C. pulchella, C. pulchella fl. pl., Collinsia bicolor, Centaurea cyanus, Convolvulus minor, eschscholtzias in variety, Godetia Whitneyi, G. Duchess of Albany, G. Apple Blossom, G. Lady Albemarle and G. Duchess of Fife; Linum grandiflorum coccineum, lavateras, remarkably lasting in a cut state, L. rosea splendens is a beautiful variety, and L. alba splendens is a white-flowered counterpart. The sweet sultans in three colours, white, purple and yellow, should not be omitted, nor several varieties of poppies, including Shirley vars; Phacelia campanularia, Canterbury bells in various colours for blooming next year; nasturtiums in several colours, and Whitlavia grandiflora. For trailing over trellises and similar spots use can be made of Tropæolum canariensis, Convolvulus major, and the tall-growing nasturtiums.

The beautiful blue Salvia patens, a valuable half-hardy perennial, may be raised from seeds sown in pots and placed in heat until germination has taken place. Old tuberous roots of the same may be potted up and treated as advised for Marvel of Peru. Lobelia cardinalis, if its increase be desired, should be split up and potted singly, giving a start in slight warmth. Young fuchsia plants intended for bedding must not be allowed to become root-bound and stunted in growth, but be given a shift in pots a couple of sizes larger, and kept growing steadily. Bedding calceolarias should be transplanted from the pits where struck somewhat closely together, into others, or temporary frames, stood on a firm base; use about six inches in depth of loam and leaf soil and plant six inches asunder. If made moderately firm the plants will lift with good balls attached for eventually transferring to the flower beds. Where the latter are standing empty these calceolarias may now be planted direct to their summer quarters, and be sheltered temporarily with a few branches or other covering, and in this way become well established before warm or dry weather sets in. Late planting is often the cause of calceolarias dying off suddenly in early summer, as hot weather sets in before they are thoroughly re-established. Violas may be similarly treated, but, being quite hardy, require no protection.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

THE recent severe gales make us anxious about the hardy fruits; with us apricots appear to have set fairly well, but it is full early to note results. Fortunately for the peach and nectarine blooms, we have not had much frost after the rain, and it is this that does so much mischief by destroying the pollen. After biting east winds there is an early attack of aphis, and a great deal of this can be disposed of by early disbudding, and a large proportion of the new shoots are best removed at an early date. It is not well to disbud trees all at once, but it often happens the small weakly shoots not needed for next season are those most infested. I am a strong advocate for early disbudding, and some of the earliest trees will be ready to operate upon by the time this is in print. Apricots that have set many fruits will need early attention. Many advise leaving thinning till it can be seen what fruits will take the lead, but there are always a large number of badly-placed fruits that must be removed in any case, leaving the better placed fruits for later attention. It is yet full early to treat on stopping and disbudding, but the work on warm walls in the southern part of the country will soon be in full swing. I am much adverse to disbudding in cold weather, as I have seen the shoots left for next season blister badly, and this must be avoided and the work spread over several weeks. Some excellent growers advocate leaving the trees longer, in fact till the shoots are several inches long. I do not, as I have seen evil results from late disbudding. As regards thinning of fruits, it will be well to note the variety. Some are much stronger grown than others, and will carry more fruits. Our Hemskirk apricots always carry far too many fruits, also the smaller kinds, such as Breda and Kaisha or Syrian, and though we thin now we never thin sufficiently, as so few fruits drop.

A few words as to disbuddtng may not be out of place. The fruiting shoots should, whenever possible, have one or two well placed shoots left at their base for next year's fruiting wood, and in due course should be laid in. In training peaches or nectarines this space should always be allowed for, as the new wood to be good must be well developed. If the trees are at all thin, other shoots at from six to nine inches apart may be left on the fruiting wood, and a final shoot at the top. The best placed buds (above, not at a joint) must be left to develop the fruit. Any other shoots with fruit at the base should not be rubbed off, but stopped or pinched to two or three leaves, as this will assist ln building up the fruit at the base. The leading shoots on young trees will need care in selection, and those not needed for furnishing should be rubbed off; avoid crowding; select well-placed shoots on each side of the branches, not at foot or back of the branches; do not select shoots because they are strong, for if at all gross it is better to stop back and so obtain smaller growth; I fall to see the necessity for the hard cutting back often practised, as once the tree has made sufficient leaders to furnish it then allow it to grow freely, using the knife sparingly, as it far more profitable to cover a space in three years than in six, and strong rank growth is easily checked by pinching. Blister is a serious evil in some gardens, and it is well to remove affected leaves, and in bad cases mildew soon covers the parts injured, so must be dressed with a weak sulphur solution. Another evil is curl, and in many cases blackfly is the cause. Apricots need stopping when at all gross, as these strong shoots take an undue proportion of sap, and though with young trees leaders are needed for extension, select those best placed and of medium growth. The apricot fruits freely from spur growths and the aim should be to encourage this mode of growth, any shoots not needed to lay in being converted into spurs by stopping to the third or fourth leaf from the base. The apricot is so subject to loss of branches that it is advisable whenever possible to lay in shoots here and there in case of sudden collapse during the fruiting season.—G. WYTHES, *Syon Gardens.*

Intense Culture.—At a recent conference held by the Royal Arsenal Co-operative Society the question of co-operative agriculture was discussed by such well-known authorities as Dr. Paton, Professor Bottomley, and Mr. H. Wolff. It was proved beyond question that by intense culture agricultural land could be made more productive and profitable than it is at present. This is a point we have long urged, for we have seen many succeed when they have "gardened" their farms instead of starving them. Professor Bottomley, of King's College, drew attention to one of the many small agricultural colonies now succeeding in various parts of the country; this was at Pembury, near Tunbridge Wells, where the villagers, by means of combined credit, and borrowed capital took a farm where the two previous occupiers had been ruined. They all succeeded, however, save the one who took over the hop garden. The co-operators buy in common their seeds, their manures, and machinery, and sell in common their produce in Tunbridge Wells, and the land which previously failed to maintain two men and a boy now supports eighteen adult labourers.

Barley Wine.—The British Consul at Naples, in his last report, refers to the subject of the production of artificial wines from barley, which he mentioned in his report for 1896, and then received some attention in this country. He now summarizes the process, and compares the revolution likely to be caused in wine-growing countries by this discovery to that caused by the discovery of beetroot sugar. It seems that a large factory is at work at Wandsbek, near Hamburg, producing the so-called Malten-Weine, which have the characteristics of the wines of Southern Europe, owing to the entirely new process of fermentation to which they are subjected. The factory is said to produce about a quarter of a million gallons per annum. The discovery was due to Pasteur, who, however, never carried it beyond the theoretical point; and it was left to Mr. Hansen, a Dane, and Dr. Sauer, a German bacteriologist, to carry Pasteur's theory into practice. The barley is malted and carried to the point of fermentation, when lactic acid and vinous ferments are introduced, the mass being subjected to sundry variations of temperature. Sherry, port, Tokay, and Malaga have thus been closely imitated. When fermentation is completed, the liquor is put into huge vats of about 4,500 gallons, and thence into casks of 1,500 gallons, where it is artificially matured by being raised to a high temperature. The transformation of the substances which give the liquor its taste and bouquet is thus accomplished in a few weeks, instead of requiring as many years, and, at the same time, all extraneous matter derived from the ferments is sterilised and rendered innocuous. The liquor can then be drawn off into small casks or bottles, and in three or four months it is ready for consumption. These artificial wines have a large percentage of alcohol, 19 per cent., or even more, being derived wholly from fermentation.

EXHIBITIONS AND MEETINGS.

THE NURSERYMEN AND MARKET GARDENERS' HAILSTORM INSURANCE CORPORATION (Limited).

THE third ordinary general meeting was held at Simpsons' (Limited), on Thursday, March 31, when the following report was presented:—

The directors, in submitting to the shareholders their third annual report on the business of the corporation for the year ending 23rd February, 1898, together with the audited accounts, have to state that no alteration in the amount of capital issued has taken place during the past year.

HAILSTORMS.—The hailstorms which occurred during the year 1897 will long be remembered for their extreme violence, for the large area over which they fell, and for the devastation and ruin which they wrought, more than eighty nurseries being very seriously damaged. On the 16th April, 1897, severe storms caused considerable damage to glass and crops at Luton, Dunstable and Bedford, as well as in Lincolnshire, Cambridgeshire, and North Herts. On the 24th June, 1897, hailstorms of unprecedented violence occurred simultaneously in Essex, Hertfordshire, and Middlesex, the results being most disastrous at Chelmsford, Ingatestone, Ponder's End, Enfield Highway, Waltham Cross, Enfield, New Barnet, Heston, near Hounslow, and Harrow. The glass-houses at over sixty nurseries were wrecked by these storms, and crops in several localities were completely destroyed. Many of the nurserymen, market gardeners, and farmers were not insured, their losses amounting to many thousands of pounds. In Essex alone the damage to glass and crops was estimated at over £50,000. On the other hand, the owners of thirty nurseries whose glass-houses were severely damaged, had insured with this corporation, who immediately surveyed the properties, assessed the damages, and paid the claims within six days of the storms occurring. When it is known that these nurseries are situated at considerable distances from each other, that the total length of the glass-houses exceeds twenty-five miles, that every house had to be carefully examined, and every pane of glass broken or cracked by hail counted, the fact that all were surveyed, the claims satisfactorily assessed (one amounting to £886 1s. 0d.) and settled within six days, demonstrates the prompt and satisfactory manner in which this corporation carries on its business. The vast amount of damage done by these hailstorms, together with the prompt and satisfactory manner in which the claims were assessed and paid, have resulted in the operations of this corporation becoming much better known and appreciated.

The directors are also pleased to draw attention to the fact that though the corporation had only been established so short a time the whole of the claims were paid without any further call on the shareholders being made. Every possible effort has been made to inform the public of the special advantages and reduced premiums offered by this company, and the directors are gratified to be able to announce that the premium income this year is more than 50 per cent. over that of the preceding year. The directors again desire to draw attention to the special advantage of insuring with this corporation, viz.: that those insured can replace immediately their own glass broken by hail, the corporation paying them at the rate per square foot at which the glass is insured. Another special advantage, and of which several insurers are availing themselves, is that of being able to cover wholly or partially the value of the contents of their glass-houses by increased insurance of their glass—an advantage offered by no other insurance company. In accordance with Clause 92 of the Articles of Association, no directors' fees have been paid.

REVENUE ACCOUNT.

Income.—The income from premiums amounted to £1,360 17s. 0d., which, with dividends derived from investments, £45 7s. 3d., and transfer fees, 7s. 6d., made the total income £1,406, 11s. 9d.

Expenditure.—The total sum charged against revenue was £2,228 11s. 11d., comprising:—

Claims paid £1,532 17s. 5d., less reserve £300	£1,232	17	5
Commission on insurances	142	2	8
Working expenses	261	11	2
Loss on sale of investments	8	16	8
Formation expenses, amount written off, ...	80	0	0
Reserve for unexpired risks, ...	500	0	0
10 per cent. written off office furniture and fixtures ...	3	4	0

The necessity for setting aside £500 for unexpired risks is apparent from the fact that the whole of the claims paid (£1,532 17s 5d.) were on policies unexpired at the end of February, 1897, the premiums on which went to the credit of that year's account.

BALANCE SHEET.

Capital and Liabilities.—

Shareholders' capital, 5,000 shares of £5 each	£25,000	0	0
Called and paid up, 10s per share	2,500	0	0
Sundry creditors	5	5	0

Assets.—Of the paid-up capital, after deducting balance of formation expenses and cost of furniture, £1,085 10s. 9d. is invested in 2¾ per cent. Consols, amounting at cost price to £1,151 6s. 6d.; £300 in 3½ per cent. Liverpool Corporation Stock, costing £407 13s. 6d.; £129 16s. 2d. India 3 per cent. Stock, costing £143 6s 6d.

Owing to the number of claims paid and the large reserve set aside for unexpired risks the directors do not propose to declare any dividend for the past year, whilst they consider it desirable to state that in consequence of the large increase in the income the corporation is, in their opinion, at the present time in a much stronger financial position than at any previous period of its history. In expressing this opinion the directors desire to add that they are thoroughly satisfied with the result of the last year's business, and to express their thanks to the various representatives of the corporation for their efforts during the year.

The report was passed unanimously, and the retiring directors, Messrs. Robert Piper, Edmund Rochford, William Sams, F. Sander, N. N. Sherwood, and P. C. M. Veitch, were re-elected. The auditors, Messrs. Baker, Haward, and Watson, were also re-elected.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY,

March 29 and 30.

FOR all-round excellence we have seldom seen a better show than that held in the Dome and Corn Exchange, on the above date. So general was the competition that no more exhibits could possibly have been staged.

In the open classes Mr. J. Hill, gardener to C. Wallis, Esq., Springfield, Withdeane, was first for a well-arranged group, which, although not containing any choice subjects, was so well set up as to beat that of Mr. G. Miles, Dyke Road Nursery, Brighton, who had some well-grown crotons, clivias, dracænas, and palms, backed by large plants of Acacia cordata. Tables of flowering and foliage plants were also good, and here Mr. G. Miles was first, having for his most notable plants Begonia Gloire de Lorraine and pot roses. Mr. [illegible], gardener to E. A. Wallis, Esq., Upper Lewes Road, ran the above very close. The third prize table from Mr. J. Harper, gardener to E. A. Tucker, Esq., Vernon Place, Preston, contained some good caladiums and gloxinias. Mr. Harper was first for a collection of orchids, having Lycaste Skinneri splendens, Sophronites coccinea (very bright), Cattleya Trianæ, and Lælia harpophylla especially good. Mr. H. Garnett, gardener to R. G. Fletcher, Esq., Mount Hurry, Preston, followed, his Cœlogyne cristata, Oncidium sphacelatum, Cypripedium Rothschildianum, C. philippinense, Cattleya citrina, being good. A specially interesting feature was the dressing of a mantel-piece and hearth with plants. Mr. G. Miles won with a very simple arrangement, containing Begonia Gloire de Lorraine, small palms, ferns and the common primrose. Mr. E. Meachen, gardener to Mrs. Armstrong, Woodslee, Withdeane, came second. Hyacinths in pots were good, Mr. House, gardener to Sir F. Mowatt, K.C.B., Withdeane Hall, winning for twelve. Mr. E. Anderson, gardener to B. [illegible], Esq., Melodia, Preston Park, won for twelve pots of really good tulips. The lilies of the valley were more numerous and better than usual, Mr. A. E. Golding, gardener to H. St. George Voules, Esq., Dyke Road, just beating Messrs. W. Miles and Co., Hove. Mr. J. House won for six pots of freesias. Lachenalias were excellent; we have seldom seen L. tricolor better than those from Mr. J. T[illegible], gardener to Sir Grenville Smythe, Wickhall, and from Mr. J. Hill, gardener to C. Wallis, Esq., Withdeane. Mr. W. E. Anderson was well ahead in a strong class for six pots of mignonette. Mr. Harris, gardener to Mrs. Eversfield, Denne Park, Horsham, won for violets, staging the true Neapolitan and just beating Mr. J. Hopkins, High Cross, Framfield. Mr. G. Miles was first for double flowered primulas, and Mr. G. F. Bunney, Brighton, first for the same number of single-flowered plants. In a class for six auriculas, Mr. J. Pearl, gardener to B. Y. Bevan, Esq., Withdeane, won with large plants of alpine varieties, but not of good quality. Mr. M. Tousle, gardener to F. Barchard, Esq., Little Horsted, was well in front for six hydrangeas.

The table plants were good and of neater growth than usual, Messrs. W. Miles and Co., Hove, winning, and also first for twelve pots of well-flowered narcissus. There were some remarkably good cyclamen, Mr. C. Murrell gardener to Mrs. Jenkins, Burgess Hill, being awarded first prize. Cinerarias were smaller than usual, but clean; Mr. G. Hart, gardener to H. Head, Esq., Buckingham, Shoreham, won for twelve pots; but genistas were better and far more numerous than usual. The best dozen came from Mr. Head, the Drive Nursery, Brighton. Spiræas were also a great improvement, Mr. G. House, gardener to Sir F. Mowatt, K.C.B., winning for twelve grand pots. Amaryllis were not numerous, but the six winning pots from Mr. G. House were of exceptional merit, and we have not seen these showy spring flowers better done. We did not think the greenhouse azaleas were sufficiently finished; the best nine came from Mr. J. Hill, gardener to Clarkson Wallis, Esq., Springfield, Withdeane, closely followed by Mr. E. Meachen, gardener to Mrs. Armstrong, Woodslee, and who has generally had some grand examples. In the Ghent and Mollis section there was great improvement, the six plants from Messrs. W. Miles and Co., Hove, would have been hard to beat at any exhibition. Pot roses were better than we have seen them here for some years. Mr. A. Polley, gardener to J. Dunk, Esq., Rose Villa, Stamford Avenue, winning with six good specimens, the best being La France, Marie Baumann, Niphetos, Madame Cusin, Rubens, and Heinrich Schultheis. Callas from Mr. E. Anderson were exceptionally well flowered and large for the size pots used.

The class for twelve bunches of cut narcissus is always strongly contested. This year Mr. J. Harper, gardener to E. A. Tucker, Esq., Vernon Lodge, Preston, had some really good blooms of Golden Spur, Sir Watkin, Henry Irving, Princeps, Incomparabilis Leedsi, Cynosure, Pallidus præcox, Queen Bess, and rugulosus (Jonquil). Mr. M. Tourle, gardener to F. Barchard, Esq., Little Horsted, who had such a magnificent stand last year, was a close second, followed by Mr. J. Hopkins, gardener to L. Thornton, Esq., Framfield. Mr. H. Garnett, gardener to R. G. Fletcher, Esq., Preston, had some good cut flowers, the most showy being Eucharis amazonica, Phaius Sanderiana, Cypripedium Rothschildianum, C. Boxalli, and Boronia heterophylla. There were six boxes of twelve cut roses, the first award going to Mr. G. W. Piper, The Nurseries, Uckfield, for a very clean lot of blooms, consisting of Maman Cochet, Rubens, Madame Willermoz, Jean Ducher, Alba Rosea, Catherine Mermet, Kaiserin Augusta Victoria, Bridesmaid, Souvenir d'Elise Vardon, Comtesse de Nadaillac, The Bride and Madame Edouard Helfenbein; Mr. G. Miles second. An arrangement of natural flowers suitable for a dinner table called out some good stands. First prize was awarded to Mr. E. Meachen for an arrangement of mixed flowers, that did not commend itself to many tastes to nearly the same extent as the graceful and simple arrangement of narcissus and foliage, from Mrs. M. Tourle, The Gardens, Horsted Place.

There were a large number of non-competitive exhibits. Messrs. J. Cheal and Sons, Crawley, showing plants and fruit; Mr. G. W. Piper, The Nurseries, Uckfield, had cut roses in quantity; staging Sunrise, a new tea rose not yet in commerce, and most distinct. Mr. A. Kemp, Coolhurst Gardens, Horsham, [illegible] some good fruit and potatos; Messrs. Cutbush and Son, Highgate, N., a [illegible] stand of hard-wooded plants and cyclamen; Mr. W. Goodcliffe, [illegible] Nursery, Worthing, a grand group of ferns; and Messrs. Balchin and Sons, Brighton and Hassocks, a stand of azaleas, hydrangeas, ericas, amaryllis, &c.

SOUTHAMPTON, March 29 and 30.

THE first spring exhibition held under the auspices of the Royal Southampton Horticultural Society took place on the above dates in the Victoria Hall. For a first exhibition it was a great success from a horticultural point of view. The competition in most of the classes was keen, while the exhibits left little to be desired. In front of the orchestra were two capital collections of [illegible] arranged with ferns and foliage plants, and which were quite the centre of attraction. Mr. E. Carr, gardener to W. A. Gillett, Esq., Fair Oak Park, [illegible], was an easy prize winner with freely flowered examples, amongst which the following were conspicuous: Cymbidium Lowianum, Dendrobium [illegible], Odontoglossum crispum, O. Pescatorei and O. triumphans, Miltonia [illegible], Lycaste Skinneri, and Lælia flava, together with several profusely flowered [illegible] of Dendrobium nobile, produced a brilliant effect. Mr. A. Pragnell, gardener to Captain Shaw Storey, Elm Lodge, Bursledon, was a good second with [illegible] choice examples neatly staged. For a collection of miscellaneous plants [illegible] for effect there were three competitors, all staging creditably; Mr. E. Carr [illegible] again successful with good material somewhat closely arranged, Mr. W. [illegible] gardener to Miss Todd, Sidford Lodge, Shirley, a good second; Mr. E. [illegible] florist, Shirley, third. Stove and greenhouse plants were well represented. [illegible] eight specimens Mr. Peel was the most successful, staging healthy [illegible]; Mr. [illegible] freely flowered greenhouse rhododendrons, anthuriums and azaleas; [illegible] second, Mr. Carr third. Azaleas were freely contributed; for four [illegible]

Mitchell, gardener to W. Willis Fleming, Esq., Chilworth Manor, was an easy winner; Mr. C. Horsey, gardener to J. C. E. D'Esterne, Esq., Elmfield, Millbrook, second. Mr. Longster, Burgess Street Nurseries, had the best single specimen azalea. Mr. Mitchell contributed grandly flowered Deutzia gracilis in the class for this plant. Cinerarias were well shown by Mr. Horsey, who won first prize for four, staging also fifty plants "not for competition," for which a "highly commended" card was given. Mr. Wills was the most successful exhibitor of hyacinths, staging fairly good specimens in the class for twelve. Primulas, cyclamens and lily of the valley were well staged, Mr. Carr securing leading honours in the two former classes, and Mr. Mitchell winning in the latter.

Cut flowers were interesting if not numerous, Mr. Carr winning first prize for an epergne or stand neatly draped with choice orchids interspersed with ferns and other greenery; Miss Wadmore, Basingstoke, securing a similar recognition for a basket of cut flowers tastefully arranged. Contributions of miscellaneous plants not for competition were especially deserving of notice. Mr. B. Ladhams, Shirley, had a pleasing group of lilacs, zonal geraniums, hardy azaleas, blue primroses, cut narcissus and a choice collection of alpines all tastefully arranged. Messrs. Brightman and Andrews, Southampton, contributed azaleas, ferns, lily of the valley, &c. Mr. E. Wills had a really fine display of well grown nursery sttock. Messrs. Longster Bros. had a similar although smaller group. Mr. Fuidge, hon. secretary, also deserves some recognition for the tasteful and efficient manner in which all the arrangements were made.

THE PEOPLE'S PALACE HORTICULTURAL SOCIETY,

March 31.

The first of a series of four exhibitions during the present year took place at the People's Palace, Mile End, on the above date, and was most satisfactory, as showing a marked advance in the culture of the hyacinth, tulip, and narciss. The tables placed in the Queen's Hall were full of highly creditable exhibits, and one of the leading competitors, who resides in the City Road, showed among his three specimen plants one of Araucaria excelsa, nearly four feet in height, and of proportionate diameter, furnished with branches down to the pot, and in fine health, which, he stated, he grew in a window. Tables of spring-flowering plants were a pleasing feature, and among the hyacinths there were excellent specimens of King of the Blues, this being largely shown. Keizer's Kroon, Proserpine, and White Pottebakker are the favourite early single tulips. There were excellent pots of Polyanthus narcissus, and such single daffodils as Horsfieldi. Emperor, Empress, Golden Spur, and others bore well-developed flowers. In most of the leading classes there were good entries. Once a month some competent person delivers a lecture to the members on some topic related to East-end gardening; and a social monthly meeting is also held, to which the members bring any plants or flowers they may have in good character, and give their method of treatment. These meetings are said to be productive of great good, and operate to maintain the interest of the members in the work of the society.

READING GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

Mr. W. H. Lees, of The Gardens, Trent Park, New Barnet, read a paper on "Profitable Orchids" before the members of the above association on Monday evening last, Mr. C. B. Stevens presiding. The formal business having been transacted and a sum of £5 5s. been voted to the special fund raised by the Reading Horticultural Society, the president called upon Mr. Lees to give his paper. In introducing his subject the essayist said that it was not his intention to treat the subject from a market grower's point of view, as the title seemed to imply, but from that of the private gardener, dealing with those kinds most suitable for cutting and decorative purposes. The general routine of the cultivation of odontoglossums, cattleyas, lælias, dendrobiums, cœlogynes, calanthes, cypripediums, oncidiums, was briefly dealt with under the following headings: Ventilation, heating, staging, watering, manuring, potting, compost, insects, fumigating, &c. The following orchids were recommended for the purpose already named: Odontoglossum triumphans, O. hystrix, O. Halli, O. odoratum, O. crispum, O. Rossi, O. Edwardi, O. Harryanum, O. Pescatorei, Cattleya Percivaliana, C. Trianiæ, C. Mendeli, C. Mossiæ, C. gigas, C. Dowiana, C. Gaskeliana, C. labiata, C. Skinneri, C. Harrisoniana, Lælia purpurata, L. elegans, L. harpophylla, L. anceps, L. autumnalis, Dendrobium nobile, D. Wardianum, D. phalænopsis Schröderianum, Cœlogyne cristata, C. c. Lemoniana, Cypripedium insigne, Oncidium tigrinum, &c. An interesting discussion ensued, in which Messrs. Martin, Stanton, Turton, Woolford, and Bound, took part. A splendid exhibit of orchids was made, which greatly added to the interest of the meeting, and helped to illustrate many of the remarks made by the speaker. Those who contributed the plants and cut flowers were Mr. Woolford, gardener to Alfred Palmer, Esq., East Thorpe (dendrobiums, cypripediums, cœlogynes, odontoglossums, and oncidiums); Mr. J. Pound, gardener to Dr. May, Caversham (Dendrobiums fimbriatum oculatum); Mr. G. A. Parsons, Oxford Road (dendrobiums); whilst Mr. Stanton, Park Place Gardens, exhibited some spikes of bougainvilleas. A hearty vote of thanks was passed to Mr. Lees and to those members who had been the means of bringing together such a beautiful collection of bloom.

NEW PLANTS AND FLOWERS.

PHAIUS NORMAN.

This fine hybrid, recently described and figured in these columns, was exhibited by Messrs. B. S. Williams and Son, Holloway, at the R.B.S. spring show of March 30; a botanical certificate was awarded.

ZYGOPETALUM PERRENONDI.

An attractive zygopetalum and a hybrid between Z. Gautieri and Z. intermedia. The sepals and petals are green barred with dark green and dull purple. Lip large, bright violet purple veined with dark purple. B.C., R.B.S., March 30. Messrs. B. S. Williams and Son.

ODONTOGLOSSUM TRIUMPHANS INTENSE.

A very fine form of a well-known orchid; it has large highly-coloured flowers, the rich brownish-crimson blotches showing up splendidly on the yellow ground. The segments are broader than usual, though of good length. B.C., R.H.S., March 30. Messrs. H. Low and Co., Enfield.

CYMBIDIUM EBURNEO-LOWIANUM.

This fine hybrid is now quite well known. It is the result of crossing C. eburneum with C. Lowianum; the large flowers have ivory-white sepals and petals, and a white lip on which is a conspicuous horseshoe-shaped crimson mark. The flowers are also fragrant. B.C., R.B.S., March 30. Messrs. H. Low and Co., Enfield.

CLIVIAS.

Mrs. A. Sykes.—A splendid clivia of fine shape and the richest orange-scarlet shade along the upper halves of the segments. The throat is yellow, tinged with orange. Flowers of the largest size; truss large. F.C., R.B.S., March 30. Messrs. J. Laing and Sons, Forest Hill.

O. O. Wrigley.—A handsome variety with immense flowers and broad segments. The colour is intense orange-scarlet with a pale orange throat. F.C., R.B.S., March 30. Messrs. B. S. Williams and Son, Holloway.

NARCISSI.

Mrs. Walter Ware is a fine bicolor Ajax form, with handsome frilled trumpet of a golden yellow shade, and a spreading creamy perianth. A bold variety. F.C., R.B.S., March 30. Messrs. Barr and Son.

J. B. M. Camm.—This is a well-known Ajax daffodil, with pale sulphur trumpet and white spreading perianth. One of the best of the whitish forms. F.C., R.B.S., March 30. Messrs. Barr and Son.

ASPLENIUM MAYI.

A useful decorative fern with fronds about ten inches long, pinnate, and with the pinnæ deeply and narrowly cut. The colour of the frondage is deep green, and the surface is smooth and polished. This should prove a most useful asplenium for house decoration, as it could be readily sponged if necessary. B.C., R.B.S., March 30. Mr. H. B. May, Edmonton.

PTERIS GRACILIS MULTICEPS.

A graceful pteris, with finely divided and crested tips to the long depending pinnæ. This is an extremely pretty variety, being an elegant divided and crested form of the now well-known Pteris serrulata gracile. B.C., R.B.S., March 30. Mr. H. B. May, Edmonton.

ASPLENIUM HILLI.

A handsome spleenwort, with stout fronds about fifteen inches long, and much divided like lace-work. It is a bulbiferous form, and intermediate between A. biforme and A. Belangeri, the influence of the latter being very evident in the minute divisions. B.C., R.B S., March 30. Messrs. J. Hill and Co., Edmonton.

HYACINTHS.

Cineraria has bold stout spike and rich blue bells, the latter with lighter centre almost shading to white. A very effective hyacinth.

Ball of Gold has very large bells, with broad segments of a clear, soft sulphur-yellow. These are borne freely on a stout, compact spike. The title scarcely applies to the variety, for the colour is not golden. F.C., R.B.S. to each, March 30. Messrs. W. Paul and Son, Waltham Cross.

CAMELLIAS.

Pride of Waltham.—A fine pale pink variety, freely veined and tinted, with deep flesh pink. The flowers are large and handsome.

Boadicea.—A big, bold flower, with rounded segments; colour, blush pink with heavy veinings of rich and bright rose-pink. F.C., R.B.S., to each, March 30. Messrs. W. Paul and Son, Waltham Cross.

SOW THE SEEDS of good health, prune and strengthen sickly and weak branches of the tree of life, with the aid of Holloway's World Renowned Pills and Ointment. The Pills improve the appetite, strengthen the digestion, and regulate the liver. Under treatment with the Ointment, bad legs become sound, scorbutic skins cast off their scales, and scrofulous sores cease to annoy. When rubbed upon the abdomen, it checks all tendency to irritation in the bowels, and averts diarrhœa and other disorders of the intestines, frequently prevailing through the summer and fruit seasons. Heat bumps, blotches, pimples, inflammation of the skin, and enlarged glands, can be effectively overcome by using Holloway's remedies, according to instructions given to each purchaser.—[Advt.]

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THE CINCHONA IN INDIA.

(Concluded from page 217.)

Collection of Bark.

In Sikkim, the periodical crops of bark will be got from thinnings and prunings from the fourth or fifth year up to the twelfth year, when the trees will be at their best, and it is then more profitable to totally uproot, and plant on fresh land, than to allow them to remain longer in the ground. The plan originally laid down was to plant out 2,400 acres, and afterwards keep up this area by uprooting 200 acres annually and planting as much; but factory demands and other circumstances often compelled modifications, although in the main the plan was adhered to till of late years, when it was found that bark for the factory could be got from Travancore and elsewhere at less than it cost to grow in Sikkim, where planting operations have consequently been restricted of late. So Sikkim is gradually becoming more of a manufacturing than a cultivating centre for the East India cinchona industry. When the trees are uprooted, the bark of the larger roots, stems, and thick branches, is collected by peeling or beating off with wooden mallets. The smaller branches and roots are peeled by pulling them smartly through between two upright sticks stuck firmly and closely together in the ground when the bark comes away in ribbons. One or two heavy and cumbrous machines have been invented for collecting this small bark, but none has answered better than the two simple sticks stuck in the ground, which reminds one of the old story of the inventor and his cabbage-cutting machine, which, the inventor declared, after all its good points had been explained and praised, cut cabbages nearly as well as an old kitchen table knife did. The bark is at once spread out to dry either in open or heated sheds according to the weather, and when properly dried and protected from damp and rot, will remain chemically unchanged for scores, or perhaps hundreds of years. Although the total uprootal plan is the most profitable for Sikkim, it is by no means so for countries geographically better situated for the growth of cinchonas. On the Nilgiris, for instance, where several species thrive to perfection, the usual plan of collecting is that devised by the late Mr. McIvor, the first superintendent of the Madras Government Plantations, and usually known as the stripping process. By it the half of the stem bark is taken from the standing trees in vertical strips of about an inch and a half in width, from the collar up to the lower branches, or as high as may be thought advisable. If the trees are quite healthy the bark will part from the wood, at the proper season, of course, with the greatest ease, and leave the cambium layer uninjured.

Immediately after the stripping, the stem is covered thickly with moss, or other soft substances, to exclude the weather. From the edges of the cuts, and all over the surface of the cambium layer, the new bark forms evenly and with marvellous rapidity. In a year, or less, the renewed bark will be as thick as the original, and the remaining strips of original bark may be taken. Afterwards there may be annual collections of renewed bark for a considerable number of years. It is a curious fact that the renewed bark is much richer than the original in quinine, and consequently more valuable—often to the extent of 25 to 50 per cent. The plan requires generous treatment of the trees in the way of manure and cultivation, as only trees in vigorous growth will stand it; but it well repays the extra expenditure. For this discovery, and many other things, the cinchona industry is heavily indebted to Mr. McIvor, perhaps more so than to any other man. Several modifications of his stripping plan have been tried, but none has succeeded so well. Perhaps the best of them is the shaving plan of the Dutch in Java. By it the outer half of the bark, all round the stem, is removed with spoke-shaves, and the stem covered up in McIvor's way. As it is well known that the great proportion of the alkaloids is located in the outer half of the bark, and very little in the inner, it is claimed for this plan that the whole of the useful factory bark can be removed by it, and the useless left behind to carry on the life-work of the tree.

It was also supposed to be less injurious to the trees, but, according to my experience, it is quite the other way. McIvor's plan, which was in operation many years before it, no doubt suggested it to the Dutch. Coppicing was tried in Sikkim, but was a commercial failure, as by it we lost the bark from the original roots, which usually amounted to quite one-third of the whole out-turn. As the coppice shoots grew, they threw out new roots for themselves and the old ones died, and their bark was lost to us for ever.

Manufacture of Quinine.

After the collection of the bark its plan of disposal had to be decided. The easiest plan, which also would have been the most profitable for the plantation for many years, would have been to sell the bark in London, and buy back the manufactured sulphate of quinine. But the Government, both in India and at home, were anxious to have it worked up at the plantations, so as to save the heavy transport charges, and at the same time render India independent of other countries for her quinine supplies. The Madras plantations being the oldest, were the first to attempt local manufacture, but after some years of continual failure gave up the scheme as hopeless. Their experiments were conducted by Mr. Broughton, the quinologist to the Madras Government, who did most excellent and useful work in his laboratory, but did not succeed so well in the factory. So his experimental factory was shut up and the bark sent for sale to London, where for many years it fetched most profitable rates. But the Bengal Government, who began their manufacturing experiments a little later than Madras, persevered till success was attained. Now Madras finds it pays better to adopt the Bengal plan of local manufacture than to ship the bark. There were numerous processes tried at the Bengal plantations, but it will suffice to give brief details of the three principal. The first, which was started in Madras, and afterwards tried in Bengal, was supposed to be the process then worked by the European makers of sulphate of quinine, who, however, gave no information on the subject, but jealously guarded their trade secrets, which, of course, was perfectly legitimate and business-like, but plainly showed that no help in starting quinine making in India was to be had from them. By this plan the alkaloids were extracted from the bark by repeated hot digestion with water mixed with a little sulphuric acid, and afterwards precipitated from the acidulated liquours with milk-of-lime. The precipitate was collected on calico filters, dried, powdered, and treated with strong hot spirits of wine to dissolve out the soluble alkaloids from the insoluble sulphate of lime which formed the bulk of the precipitate. Then the alcohol, containing the alkaloids in solution, was mixed with a little dilute sulphuric acid and recovered by distillation for future use, and the remaining acidulated liquor treated in the ordinary way for the recovery of the quinine and other alkaloids. But the plan proved a miserable failure both in Madras and Bengal. It missed more than half the alkaloids, and was tedious and costly to work. This was unfortunate, as the chemicals required to work it were mostly procurable on the spot, an important consideration in a mountainous country, where carriage is difficult and expensive. Lime was found and burnt on the place; carbonate of potash was made from the ashes of Artemisia and other indigenous plants; and the alcohol from Indian corn grown [illegible] squatters. The method of spirit-making adopted was the one in [illegible] among the hill tribes of the Eastern Himalayas, and differs from [illegible] process for making grain spirit in dispensing with the malting-step. The Indian corn is coarsely ground, and heated till soft in as much water as it will soak up; then mixed with a small quantity of powdered ferment-cake, and put into baskets lined with bracken-fronds to ferment. When sufficiently fermented, the moist mass, with a little added water, is treated in the usual way in an ordinary still. Afterwards, the weak spirit thus got is put through a rectifying still to get it up to 60 degrees over proof, the strength required. The ferment cakes are made on the same principle as mushroom spawn, and consist of rice and the fresh fleshy roots of a rather pretty-flowering Himalayan shrub—Polygala arilata—pounded [illegible] together. The soft mass is made into round cakes an inch thick, and [illegible] with a little old ferment cake in powder. The cakes are then packed away loosely among fern fronds in a warm place, and the light excluded till the ferment fungus has permeated them, when they may be dried and stored for future use. It is a matter of common belief among all the tribes that whoever makes these cakes will be ever after afflicted with sterility, so only women beyond a certain age will make them. I do not suppose there is any real foundation for this idea, but in dealing with eastern people it is always wise to respect their little prejudices and superstitions.

The second plan to be described was a very simple one, and inexpensive to work, but unfortunately, like the last, missed a large proportion of the alkaloids. For a good many years, however, it did good, useful work, while a better was being devised. It was never used in the manufacture of sulphate of quinine, but only for making the medicine known in India as cinchona febrifuge, which is a mixture of the whole of the alkaloids, both amorphous and crystallisable, found in the Red Bark. It is not so elegant a preparation as sulphate of quinine, but is an excellent substitute for it in malarial fevers. In fact, some of the best Indian doctors prefer it. For some years it was sold at less than quarter quinine rates, and was a great boon to poor people. In making it the powdered bark was repeatedly macerated in wooden tubs, with a very dilute muriatic acid, for a few days at a time, and the resulting liquors mixed with a solution of caustic soda to precipitate the alkaloids they had dissolved out or the bark. After standing twenty-four hours, the precipitate was collected on filters, purified, dried, and powdered, which completed the operation.

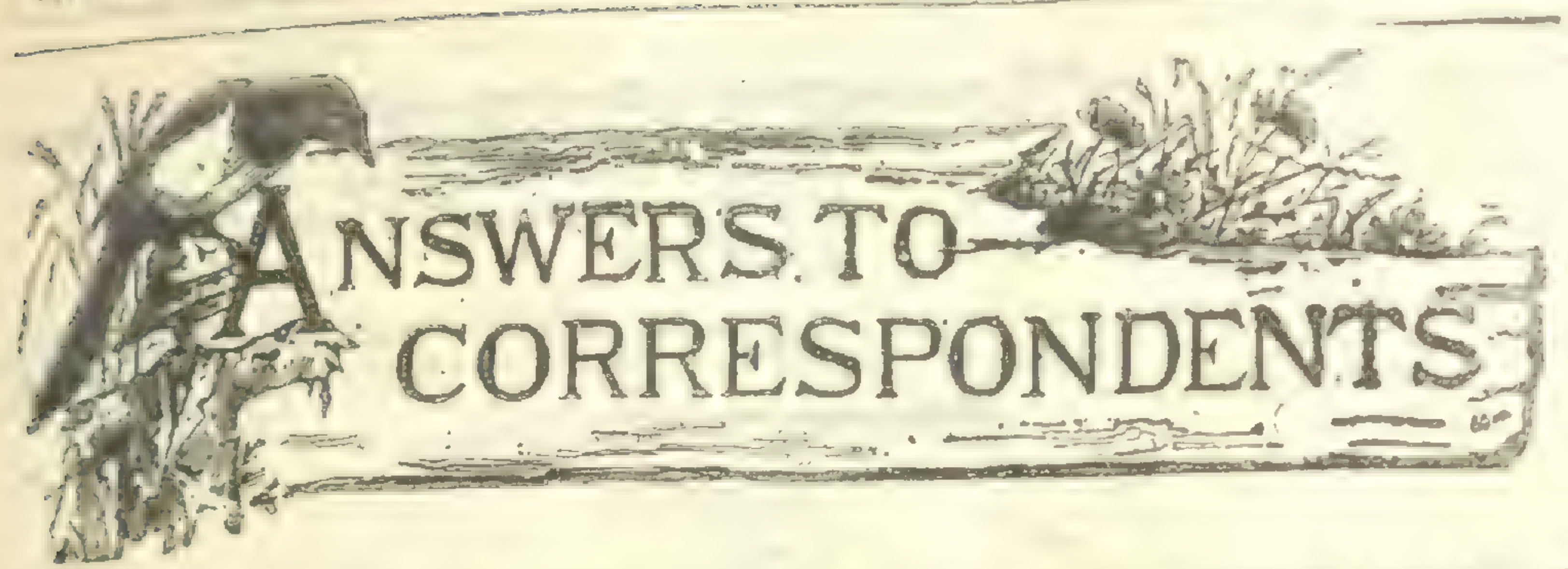
The third process is the one now in operation in the East. It was started at the Bengal plantations in 1885, and at Madras a year or two later. Now it is being adopted by the Dutch in Java. It is a satisfactory process, as it completely exhausts the bark, and is not very expensive to work. The bark is reduced to an almost impalpable powder by means of disintegrators driven at a high speed by water turbines. The powder is then mixed with water, caustic soda, and shale-oil; heated by steam-coils to about 160 degrees Fahrenheit, and kept constantly stirred by machinery for about an hour, when the stirring is stopped and the mixture allowed to rest quietly for an hour or two to let the oil—now containing the alkaloids—rise clear and bright to the top. The oil is then transferred to another vessel and thoroughly stirred up for a few minutes with sufficient dilute sulphuric acid to remove the whole of the alkaloids from it. After separation, by repose, the oil is drawn off for the next batch of bark, and the acidulated liquor, now containing the alkaloids in solution, is heated in steam-jacketed [illegible] neutralised with a weak solution of caustic soda or ammonia, and set aside to [illegible] and crystallise. To purify the crystals thus obtained they are collected, squeezed, redissolved in boiling water, digested for a few minutes with a little animal charcoal, filtered very hot, and allowed to cool, when the sulphate of quinine crystallises out quite white and clean.

Distribution of Quinine in India.

How to get the quinine to the very poorest in the outlying fever districts of Bengal at the lowest possible price, without burdening the public revenues, was an anxious question till the happy thought occurred to Sir Charles Elliott, late Lieutenant-Governor of Bengal, to make use of the Post Office Department [illegible] this purpose. He ordered the quinine to be put up in sealed packets of five [illegible] each, an ordinary dose, by jail labour, and sent to every outlying post office in Bengal for sale at the low price per packet of one pice, which is the lowest coin in ordinary circulation in Bengal, and of the value of about one farthing. Not only is a stock of these packets kept at all the post offices, but the postmen who visit the outlying hamlets have to carry them in their bags, and sell to any one who may ask for them. The postmasters and postmen get a small commission on the sale. A better or cheaper plan of distribution I cannot conceive, and the Italian Government have paid the Indian Government the compliment to adopt it for part of Italy.

Sulphate of quinine, quite equal in quality to the very best brands in the market, is now turned out by the Government at the Bengal factory alone, at the rate of about 1,000 lb. a month. Not many years ago, the annual quini[illegible] of the Government of Bengal was less than this monthly output. Madras [illegible] soon be turning out as much as Bengal, and perhaps more. So the Govern[illegible] can take credit for freely accomplishing the task they set themselves when introducing the cinchonas to India, as I trust I have proved to you without trying your patience over much.

Prevention of Potato Scab.—The scab of potatos may, [illegible] *Rural New Yorker*, in most cases, be prevented by soaking the seed in a [illegible] of corrosive sublimate. This remedy has been in use for several years, [illegible] been so generally successful that there can be no hesitation in [illegible] as thoroughly reliable. The chief objection to its use is its [illegible] nature. For this reason great caution should be used to prevent the [illegible] poisoning the food or drink of any animal, but at the strength here recom[illegible] it may be used to disinfect wounds. The solution should not come in [illegible] with metal, but should be prepared in earthenware or wooden vessels. To [illegible]pare the solution dissolve two ounces of corrosive sublimate in [illegible] fifteen gallons. In this solution soak the seed potatos for one [illegible] then cut and plant. After the seed has been soaked do not put it in boxes [illegible] receptacles in which scabby potatos have been kept. The scab fungus is [illegible] of living year after year in the soil, and, in some cases, the soil has become so [illegible] with it that, when potatos are grown therein, little benefit is derived from [illegible] the seed. In all ordinary cases, soaking the seed as directed will [illegible] from being scabby. Where the soil is badly infested, [illegible] secured good results by sprinkling sulphur in the open furrow at the [illegible] hundred pounds per acre. Professor Arthur has prevented the [illegible] the seed potatos for two hours in formalin, using eight ounces [illegible] water. This may be prepared in any kind of vessel, and has a [illegible] in that it is not poisonous. In purchasing the formalin, ask for the [illegible] formaldehyde gas, which is the name under which formalin is kept [illegible] chemists.



ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Four-course System of Farming.—H. B. E., Buckingham: Briefly stated, the four-course system is as follows: First course—fallow crop, roots, such as potatos, mangold, swedes, and cabbage; second course—barley and oats; third course—clover, or clover with rye grass, beans, and peas; fourth course—wheat.

Nitrate of Soda for Asparagus.—A. W. P., Maidenhead: An excellent dressing for asparagus beds at the present time is half an ounce of nitrate of soda per square yard, to be followed by a similar dressing about the second week in May. Salt is valuable because it attracts and retains moisture about the roots of the asparagus. Soot, as a fertiliser for asparagus, is not used so much as it should be; it does not show to advantage, however, if the soil be at all chalky.

White Fly on Tomatos.—E. F. H., Barnstaple: As a rule this is not a very troublesome pest in gardens, though where large quantities of tomatos are grown it sometimes becomes a nuisance. It may be overcome by dipping or syringing the plants, using a solution of Calvert's carbolic soap at the rate of 2 oz. to each gallon of water. Dissolve the soap in hot water and then add the cold, using the solution in a lukewarm condition.

Cypripedium hybridum gigas.—J. C., Grantham: This cypripedium, of which you have lost the record, is the result of crossing C. Lawrenceanum with C. Harrisianum nigrum, and gained an award of merit from the Royal Horticultural Society on January 14, 1892. It was raised at Elstead, Godalming, where Mr. Bond is gardener to C. L. N. Ingram, Esq. Purplish crimson, white, and green are the prevailing colours. The dorsal sepal measures two and a half inches across.

Scorched Vine Leaves.—L. W. W., Slough: The vine foliage sent has been severely scorched by the bright sunlight of the past few days. Scorching, such as this, frequently occurs when a period of dull weather is followed by several days of bright sunshine. The damage is due to the lack of ventilation, or proper ventilation, for during dull weather some growers are too apt to coddle their vines, the leaf tissues are weakened and then are unable to stand the subsequent bright light and heat. When fine weather succeeds a period of dulness be careful to commence ventilating the vineries early in the day by opening the top ventilators a very little, increasing the opening as the day advances and the sun gains power. Vine growers need to be up early in the morning during March and April.

Pansy Bronze Prince.—L. F. H., Berwick: This crimson-bronze pansy was raised and sent out by Mr. H. Eckford, Wem, Salop; about four years ago it made its first appearance so far as we recollect.

Names of Plants.—M. I., Surbiton: 1, Pteris umbrosa; 2, P. serrulata; 3, Selaginella galeottiana; 4, S. amœna.

W. T. P. Chelmsford: Spiræa media, better known as S. confusa.

M. J. S. Exeter: 1, Cydonia japonica; 2, Sedum aizoideum; 3, Medicago lupulina; 4, Muscari botryoides; 5, Azalea mollis.

K. G. Luton: 1, Gesnera macrantha; 2, Clivia miniata; 3, a Tecoma, send when in flower; 4, Mahonia aquifolia; 5, Azalea amœna; 6, Acacia cordata.

B. S., Manchester: 1, Begonia albo-coccinea; 2, Lachenalia tricolor; 3, Semele androgyne; 4, Coccoloba platyclada.

L. M. A., Retford: 1, Oncidium sphacelatum; 2, Phaius grandifolius; 3, Dendrobium Bensoniæ; 4, Trichopilia suavis.

C. F., Bangor: 1, Vanda suavis.

F. P. S., Sunderland: 1, Megasea Stracheyi; 2, Acacia dealbata; 3, Thyrsacanthus rutilans; 4, Cyperus alternifolius variegatus.

G. A., Ealing: 1, Narcissus minimus; 2, Chionodoxa Luciliæ; 3, Narcissus Tazetta var.

MARKETS.

Covent Garden.

FOREIGN apples are scarce, but the best samples command high rates. For oranges and lemons there is a keen demand. Seakale and rhubarb are cheapening, but there is scarcely sufficient to meet the demand. Green vegetables are in moderate supply, and realise fair prices. Potato trade moderate, with a good demand for new.

FRUIT.—Nova Scotian apples, 15s. to 28s. per barrel; Californian Newtowns, 7s. to 12s. per case; bananas, 5s. to 10s. 6d. per bunch; pineapples, 2s. to 6s. each; English grapes, 1s. 9d. to 3s. 6d. per lb.; lemons, 6s. to 15s. per case; Canary tomatos, 1s. to 2s. per tray, 3s. 6d. to 5s. per case; Valencia oranges, 9s. to 10s. per case; Jaffa, 10s. to 12s. 6d. per box.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 2s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; red roses, 3s. to 6s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 4d. to 9d.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; Roman hyacinths, 4s. to 6s.; daffodils, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. 6d. per bunch.

VEGETABLES.—Seakale, 12s. to 15s. per dozen punnets; celery, 8s. to 15s. per dozen rolls; English onions 7s. to 9s. per cwt.; Valencia 10s. to 12s. per case; cabbages and savoys, 3s. 6d. to 5s. 6d. per tally; green mint 4s. to 5s.; carrots, 3s. to 3s. 6d. per dozen bunches; French endive, 1s. 6d. to 1s. 9d.; lettuce, 9d. to 1s. 3d.; cos, 2s. to 2s. 6d.; cucumbers, 3s. to 6s. per dozen; asparagus, 2s. to 8s. per bundle; French beans (Madeira) 2s. 6d. to 3s. 6d. per basket; French green peas, 5d. to 6d. per packet; Kentish broccoli, 1s. to 2s. 6d. per dozen; Brussels sprouts, 1s. to 1s. 6d. per half-sieve; Canary new potatos, 10s. to 16s.; Malta, 10s. to 14s. per cwt.; mushrooms, 6s. to 8s. per doz. punnets.

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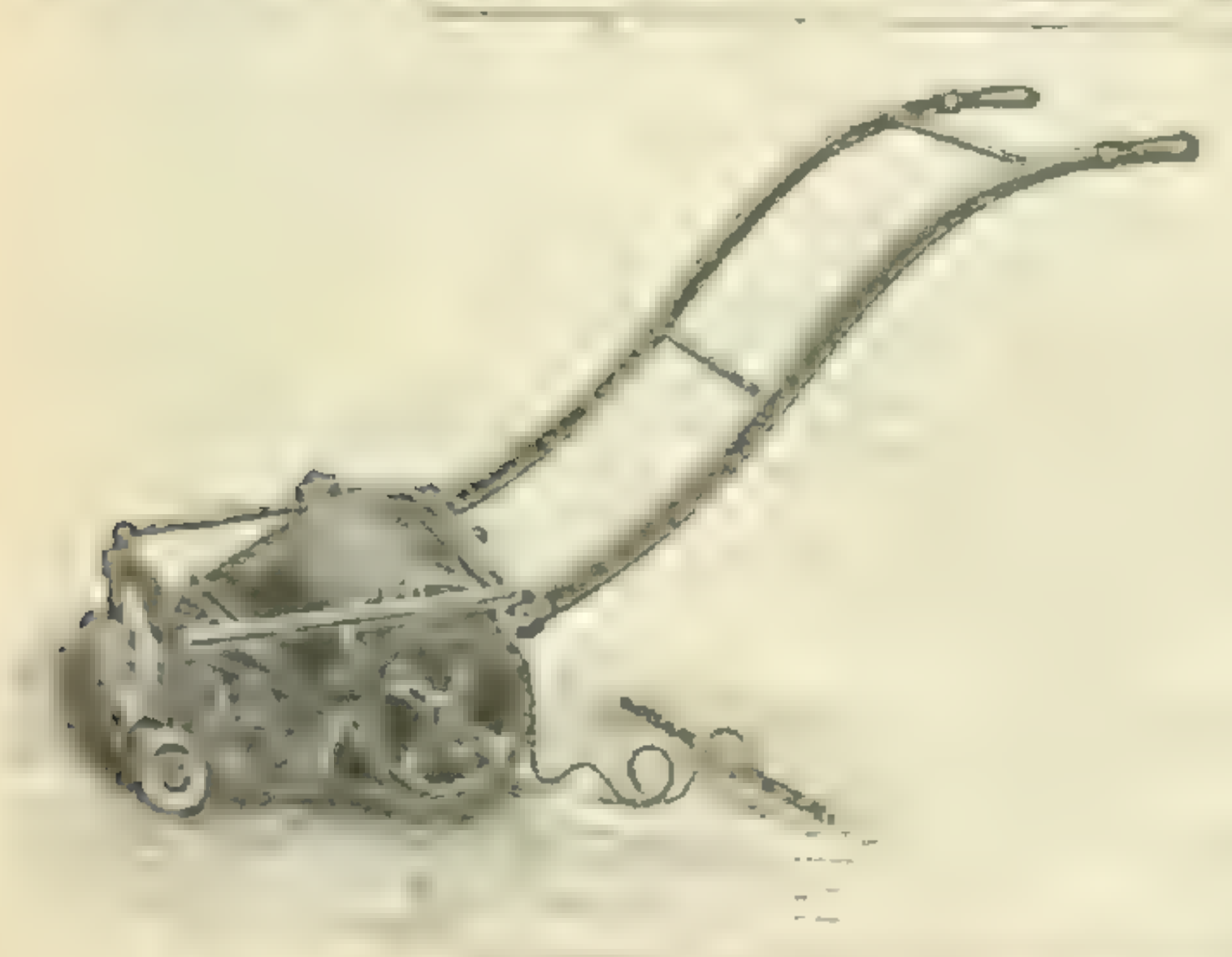

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SIZES:—22 in., 24 in., 25 in., 28 in., 30 in., 36 in., 42 in., and 48 in.
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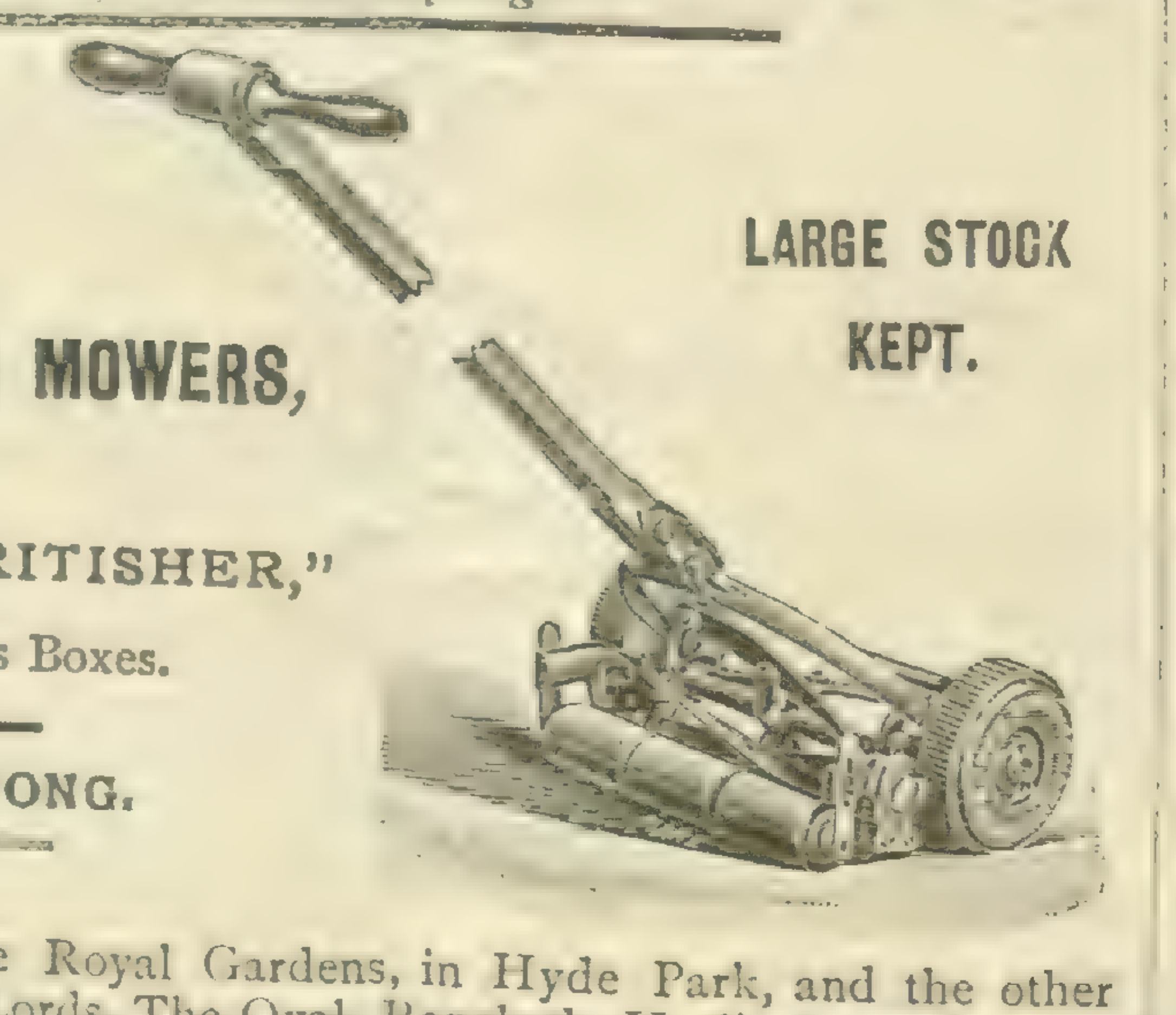

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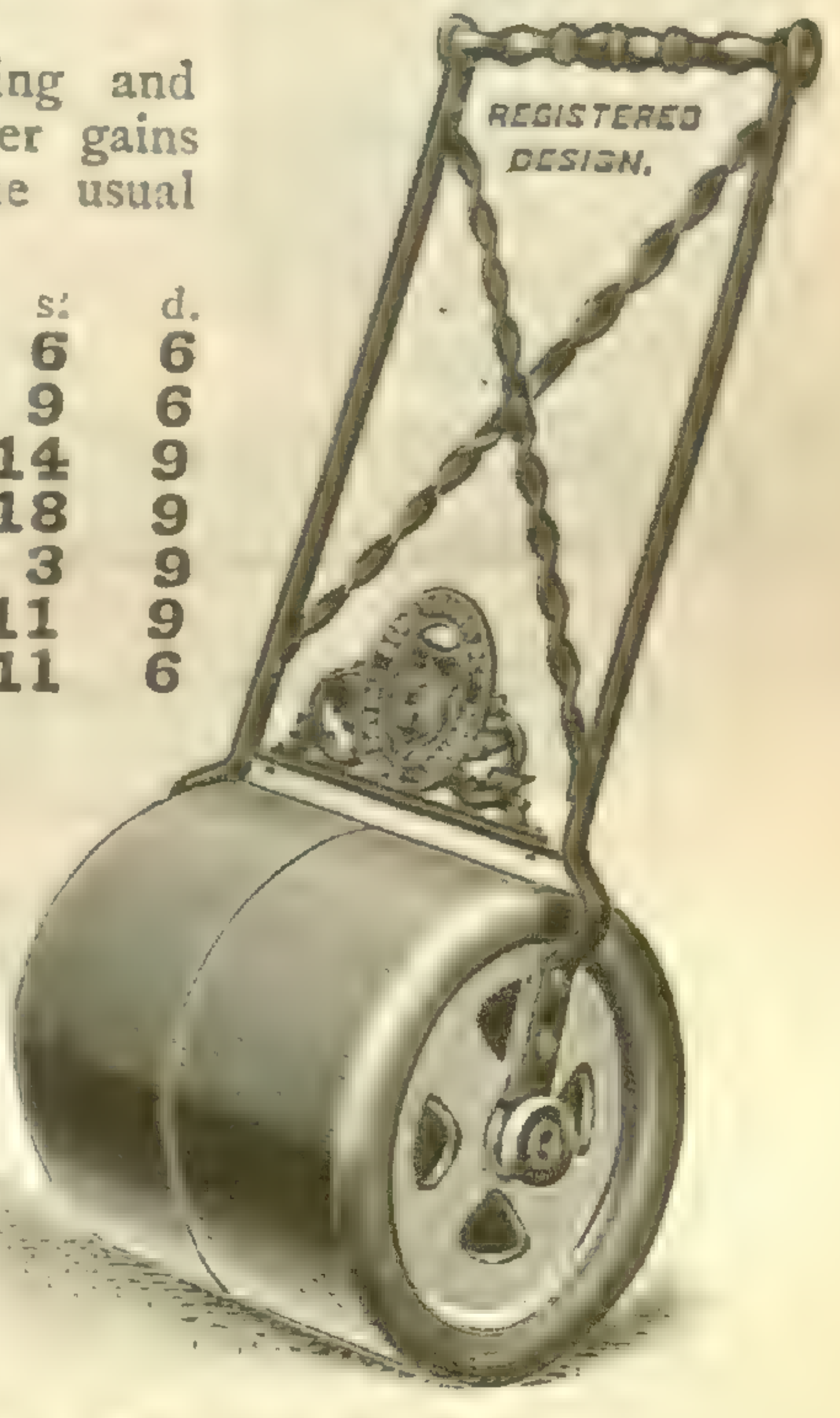
BENETFINK'S REGISTERED GARDEN ROLLER.
ADVANTAGES.
By Making the handle square, lengthening and connecting direct to ends of Roller, the user gains great power of manipulation with half the usual expenditure of force and risk of breakage.

Size in.		cwts.	qrs.	lbs.		£	s.	d.
14 by 14	...	1	2	7	...	1	6	6
16 ,, 16	...	2	0	0	...	1	9	6
18 ,, 18	...	2	2	14	...	1	14	9
20 ,, 20	...	3	0	14	...	1	18	9
22 ,, 22	...	3	2	14	...	2	3	9
24 ,, 24	...	4	0	14	...	2	11	9
26 ,, 26	...	5	2	0	...	3	11	6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Borough Potato Market.

Supplies are about equal to the demand, and prices do not show any alteration.

Dunbars, 120s.; Scotch Magnums, 100s. to 110s.; Hebrons, 100s.; Snowdrops, 90s.; Bruce, Maincrop, and Sutton's Regents, 90s. to 95s.; Reading Giants and Saxons, 85s. to 90s. per ton; Belgians, 3s. 6d. to 4s.; Germans, 3s. 6d. to 4s. 6d. per bag.

THE WEATHER DURING THE WEEK ENDING APRIL 2, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	55·0	30·7	40·7	4·83	0·15	0·38
Croydon	54·5	32·0	40·1	4·50	0·35	0·89
Brighton	56·2	31·4	41·7	5·39	0·03	0·08
Bristol	55·0	31·0	40·0	4·44	0·23	0·58
Wolverhampton	51·4	[illegible]	36·8	2·67	0·17	0·43
Norwich	—	—	—	—	—	—
Nottingham	52·0	28·0	37·8	3·22	0·49	1·24
Liverpool	48·0	34·2	40·3	4·61	0·11	0·28
Huddersfield	50·8	32·0	37·4	3·00	0·35	0·89
Bradford	54·0	41·6	40·4	4·67	0·49	1·24
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·451 inches, and that of the Thermometer 40°·7, the latter being 3°·8 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 33 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 28·9 hours. The measured rainfall amounted to 0·15 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 12.—Royal Horticultural Society, Committees meet at 12 o'clock. [illegible] at 3 p.m. entitled "Blight and Blessing," by Mr. Frederick Enock.

WEDNESDAY, APRIL 13.—Ancient Society of York Florists, Spring Show.

SATURDAY, APRIL 16.—Ghent Quinquennial Exhibition opens and continues until April 24.

AUCTIONS.

WEDNESDAY, THURSDAY, AND FRIDAY, APRIL 13, 14, AND 15.—Dwarf [illegible] Auratum, Gooseberries, Begonias, Ferns, Palms, Iris, Cannas, &c., at Protheroe and Morris's Rooms.

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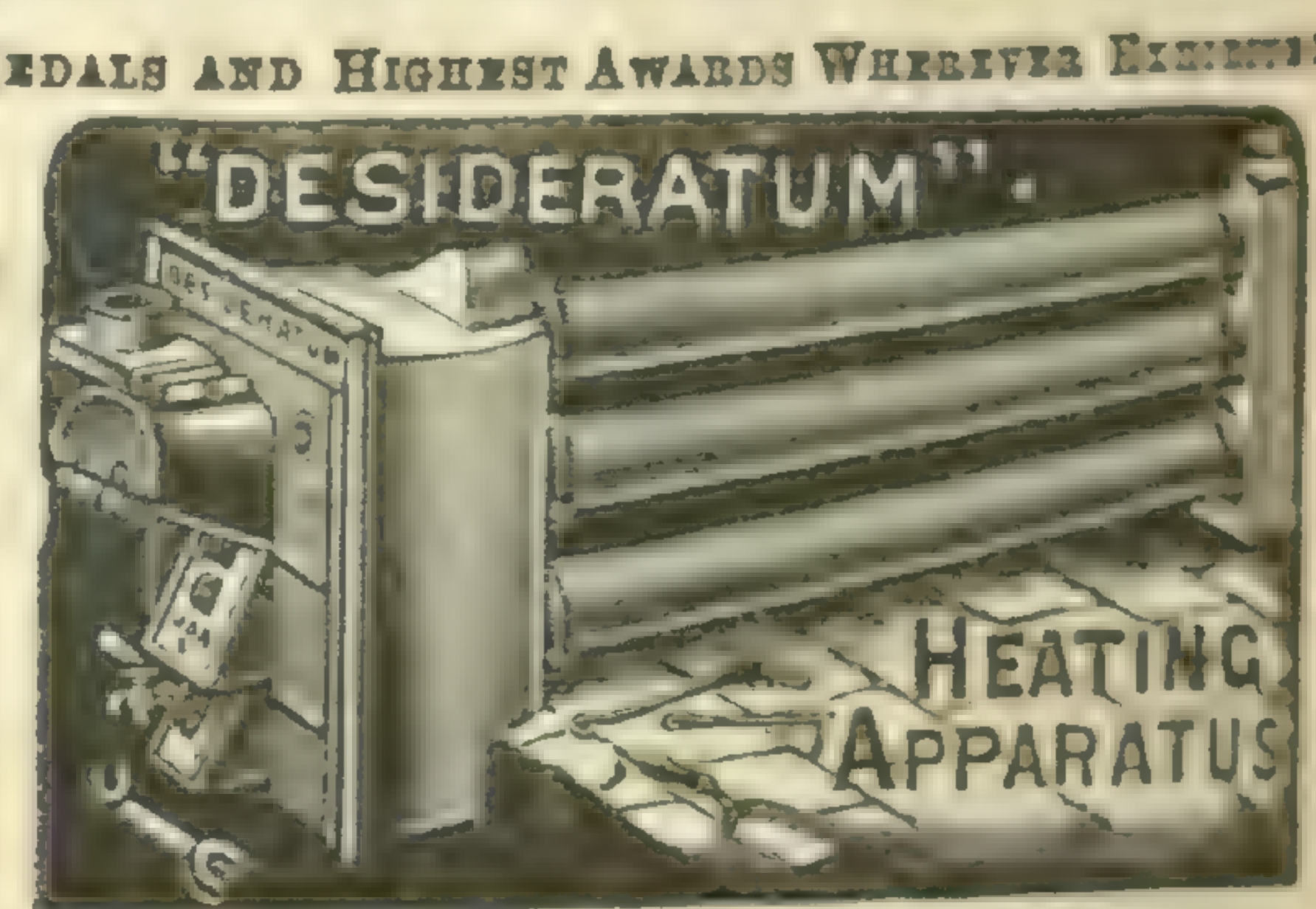

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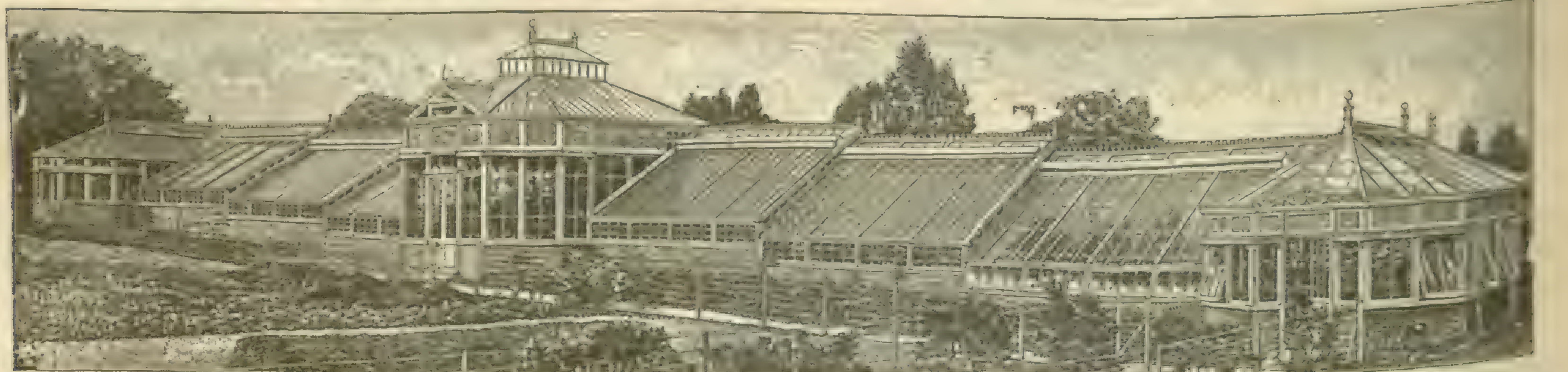

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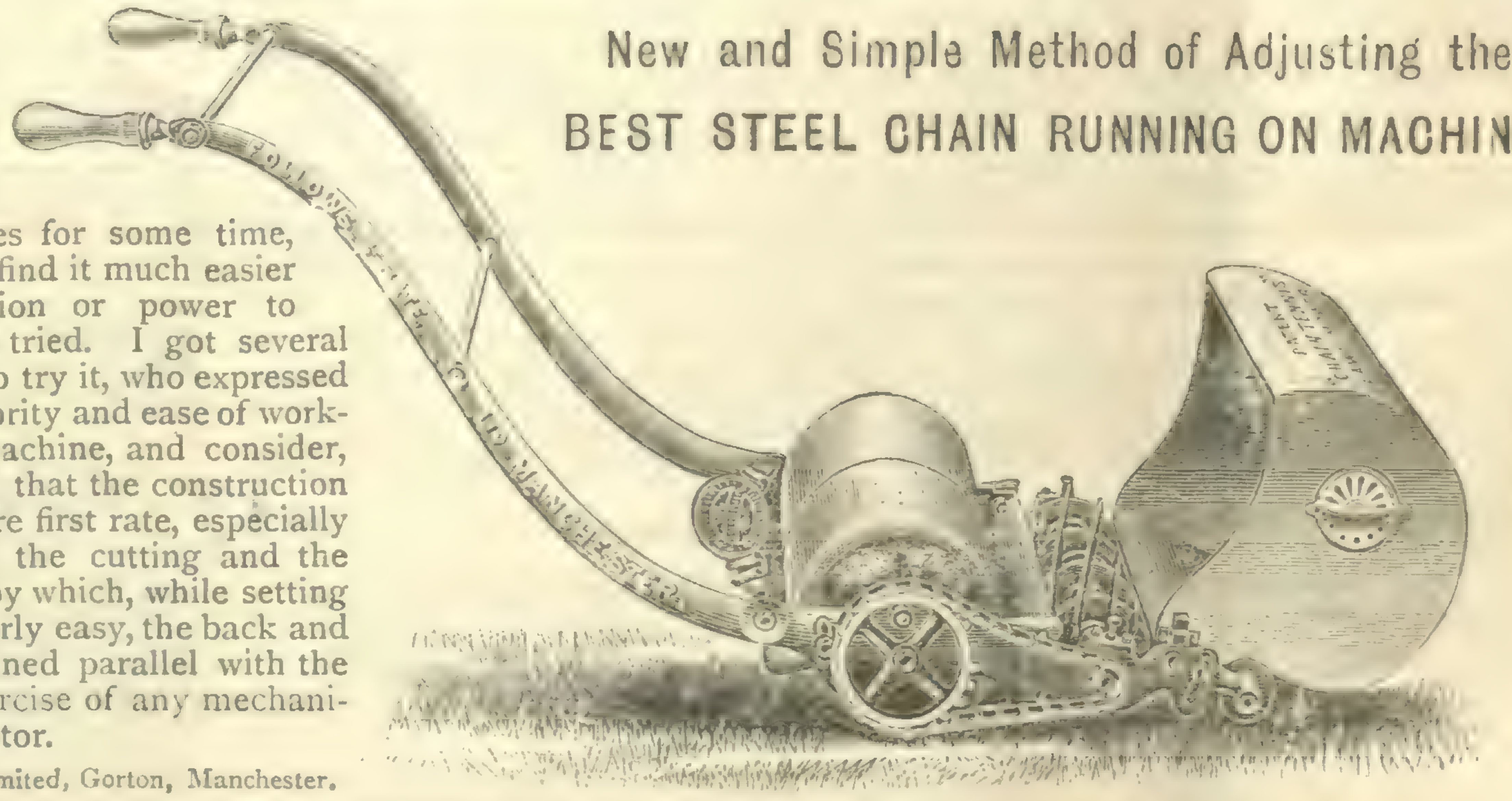

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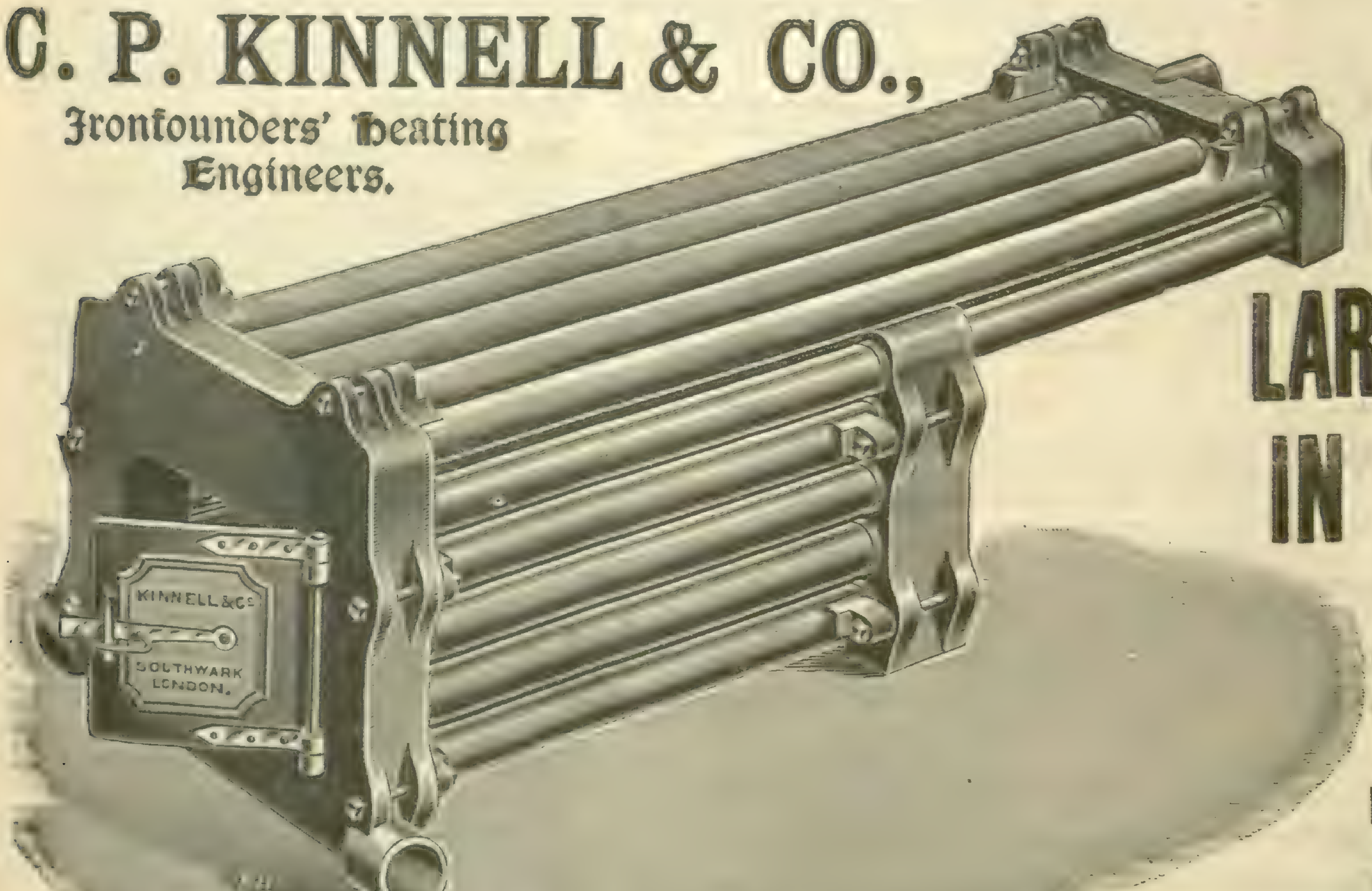

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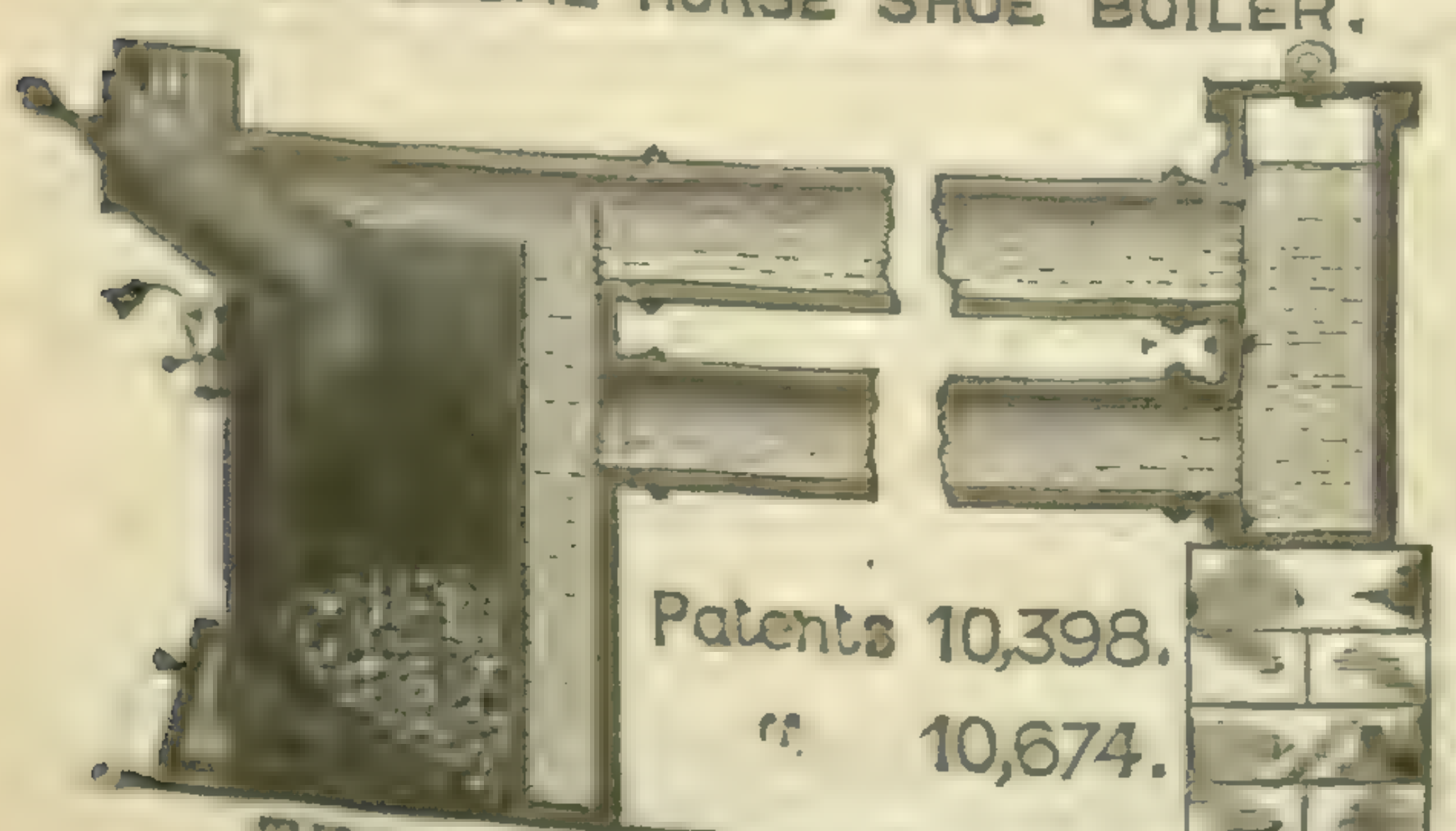

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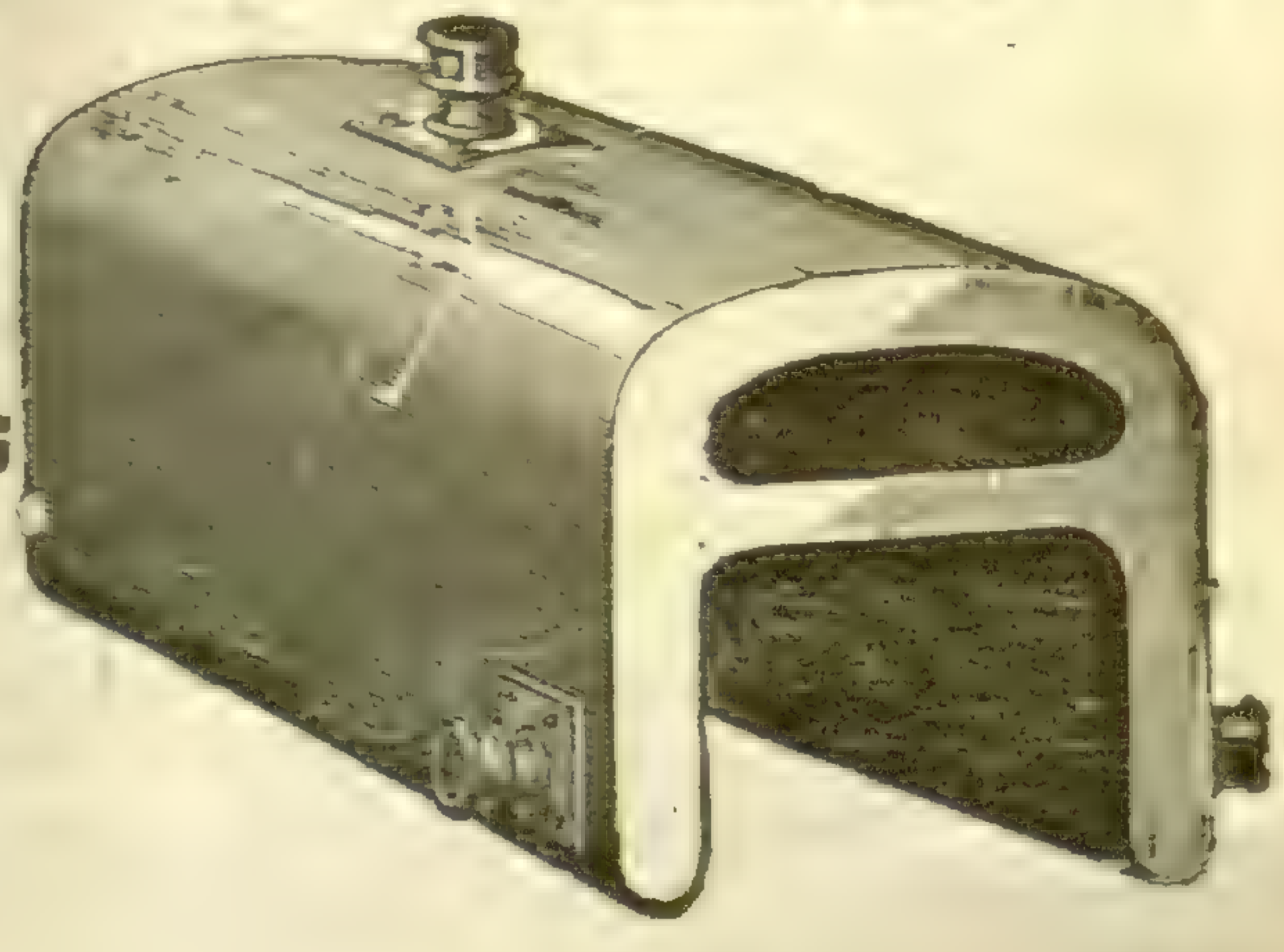

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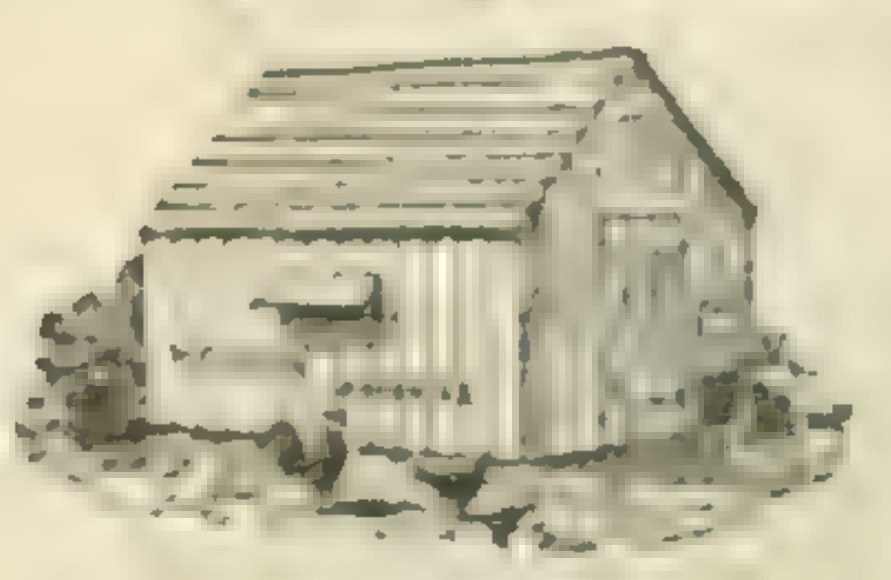

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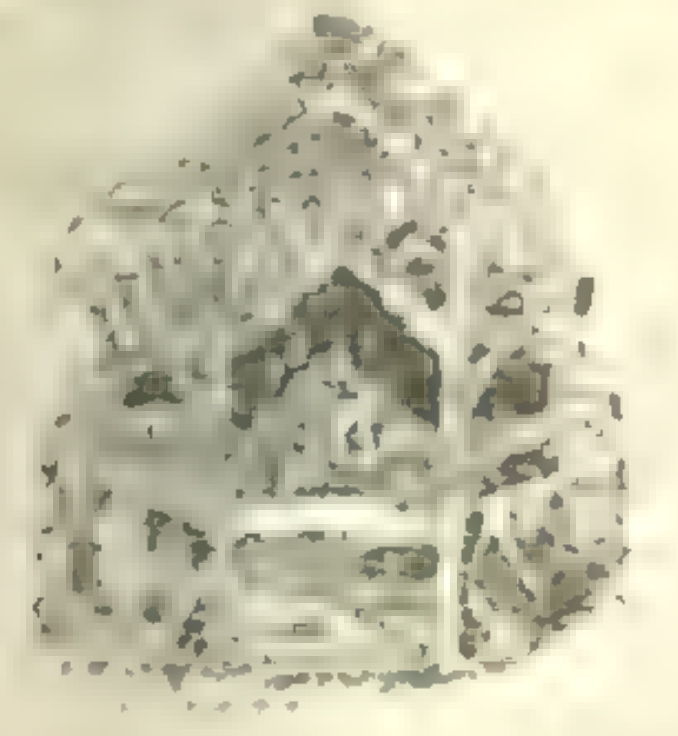

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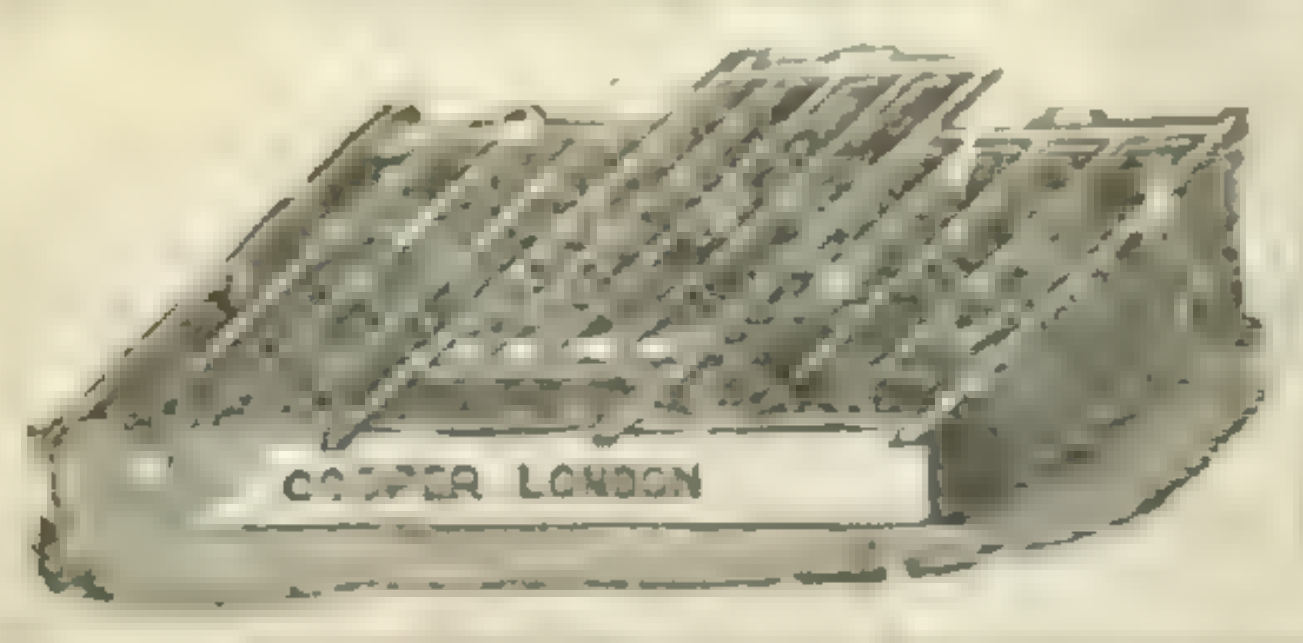

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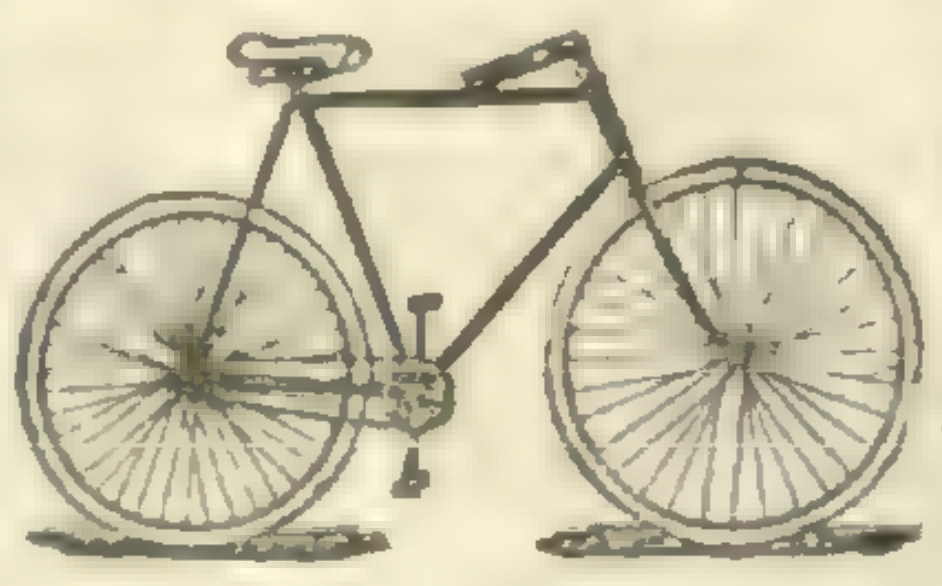

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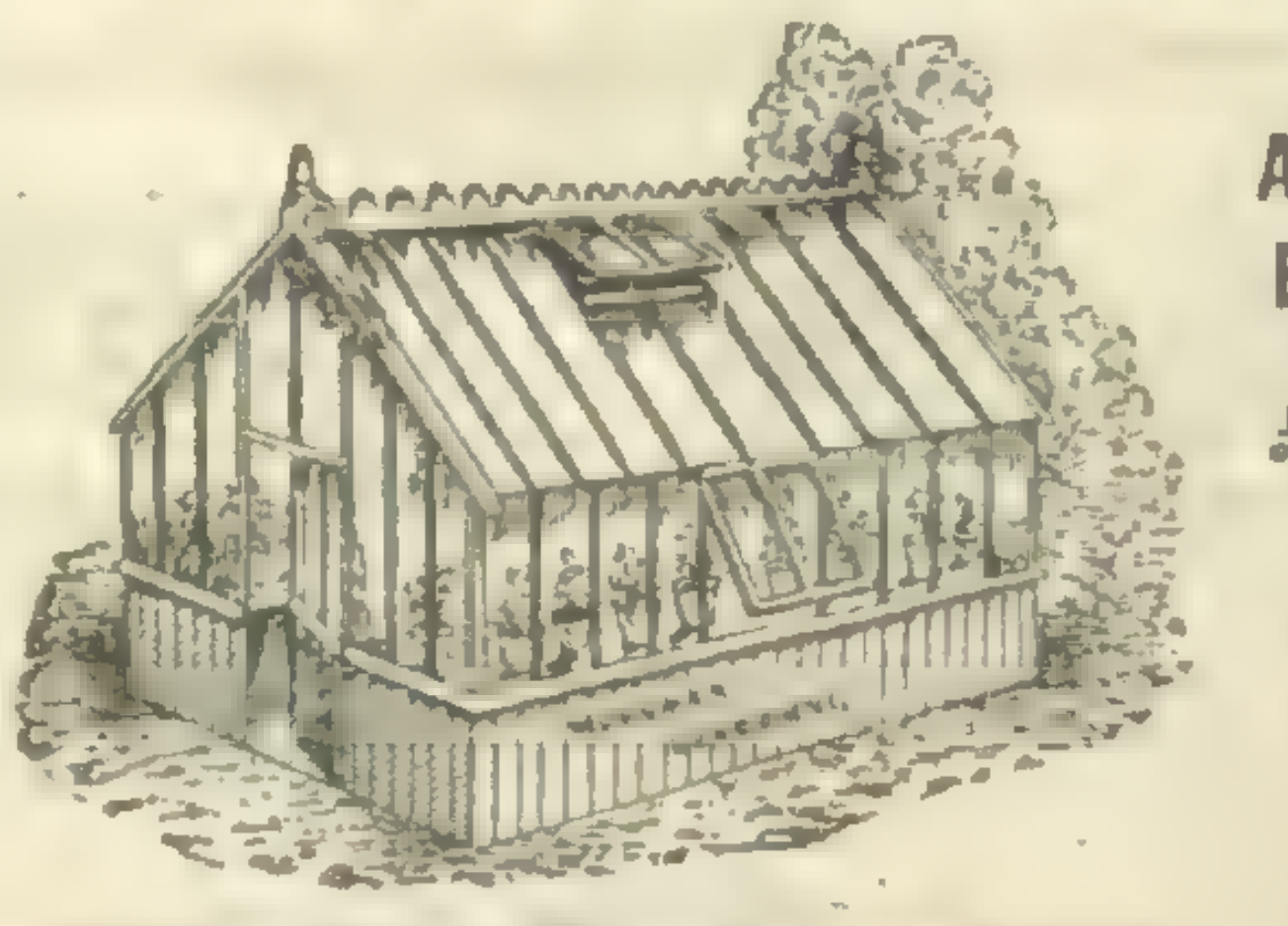

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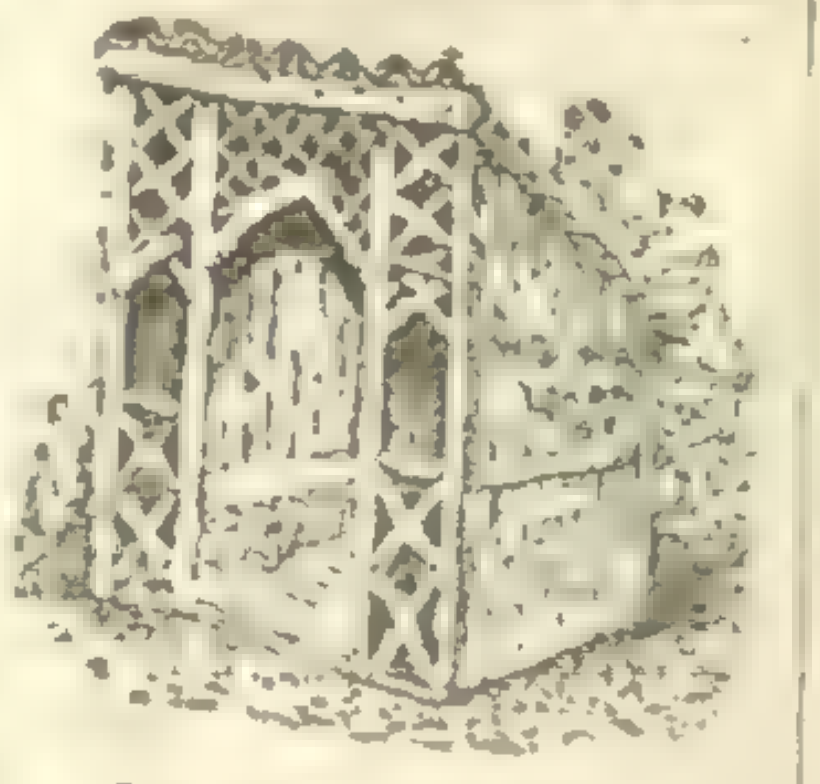

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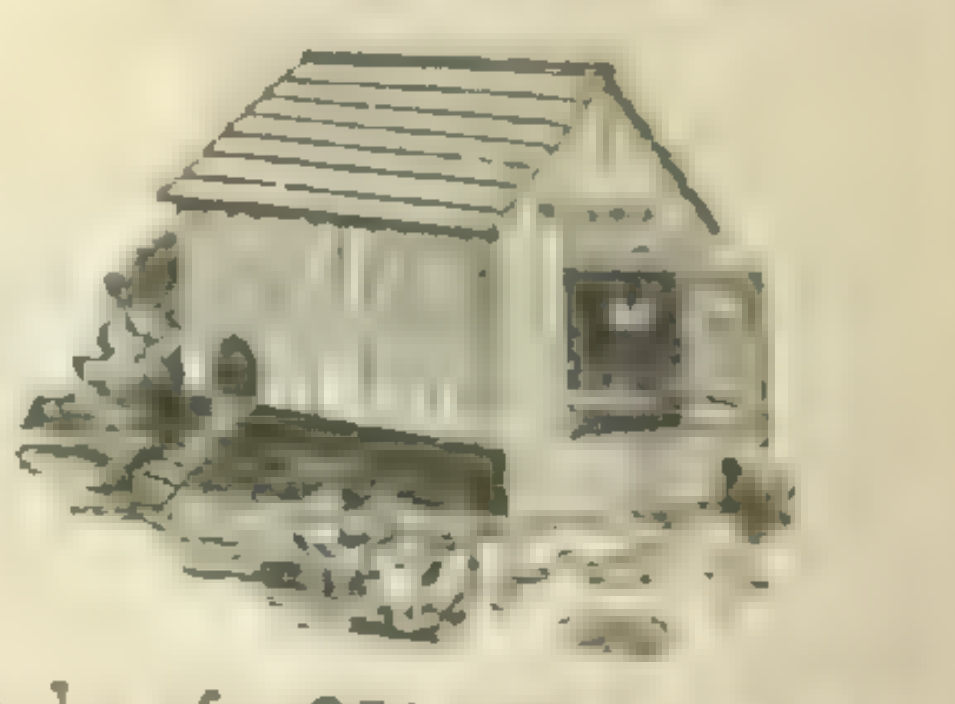

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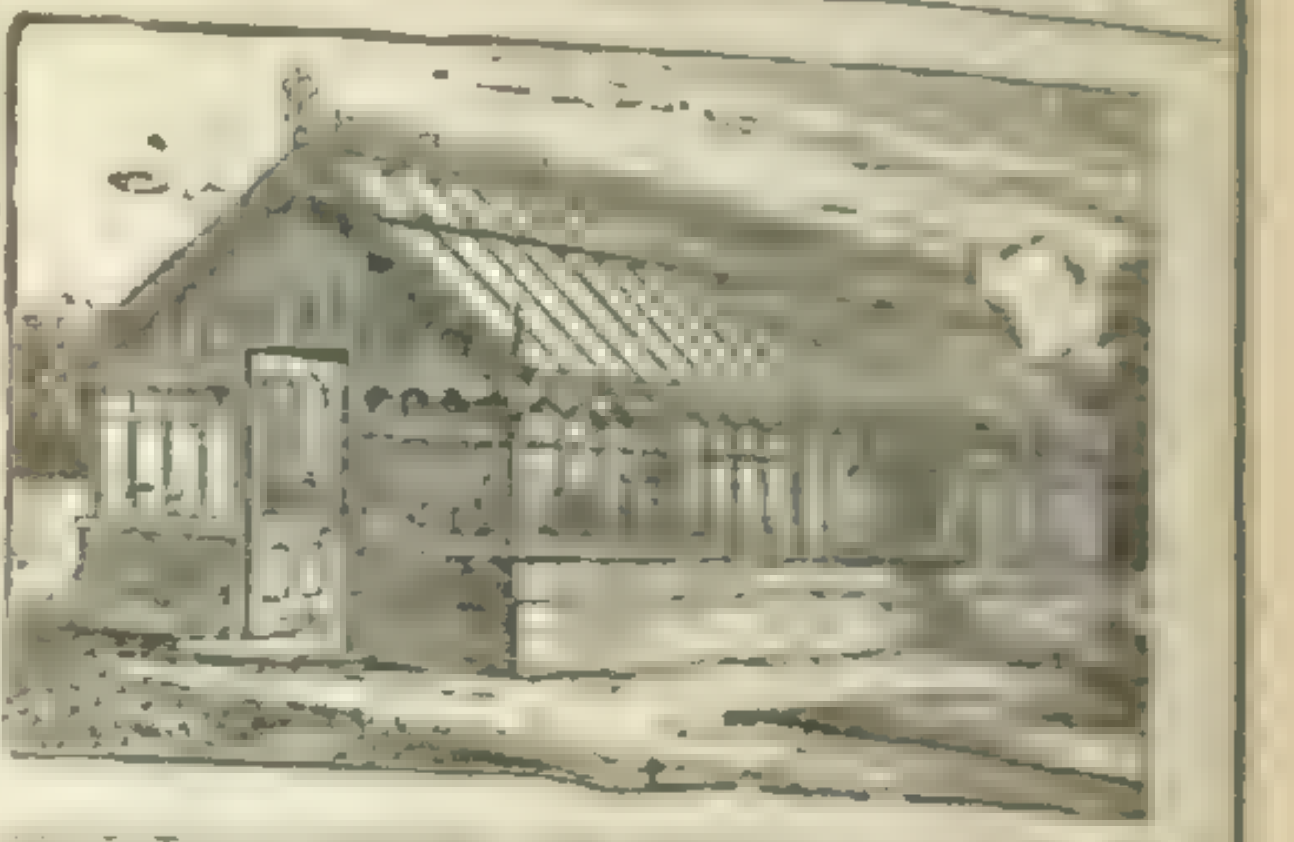

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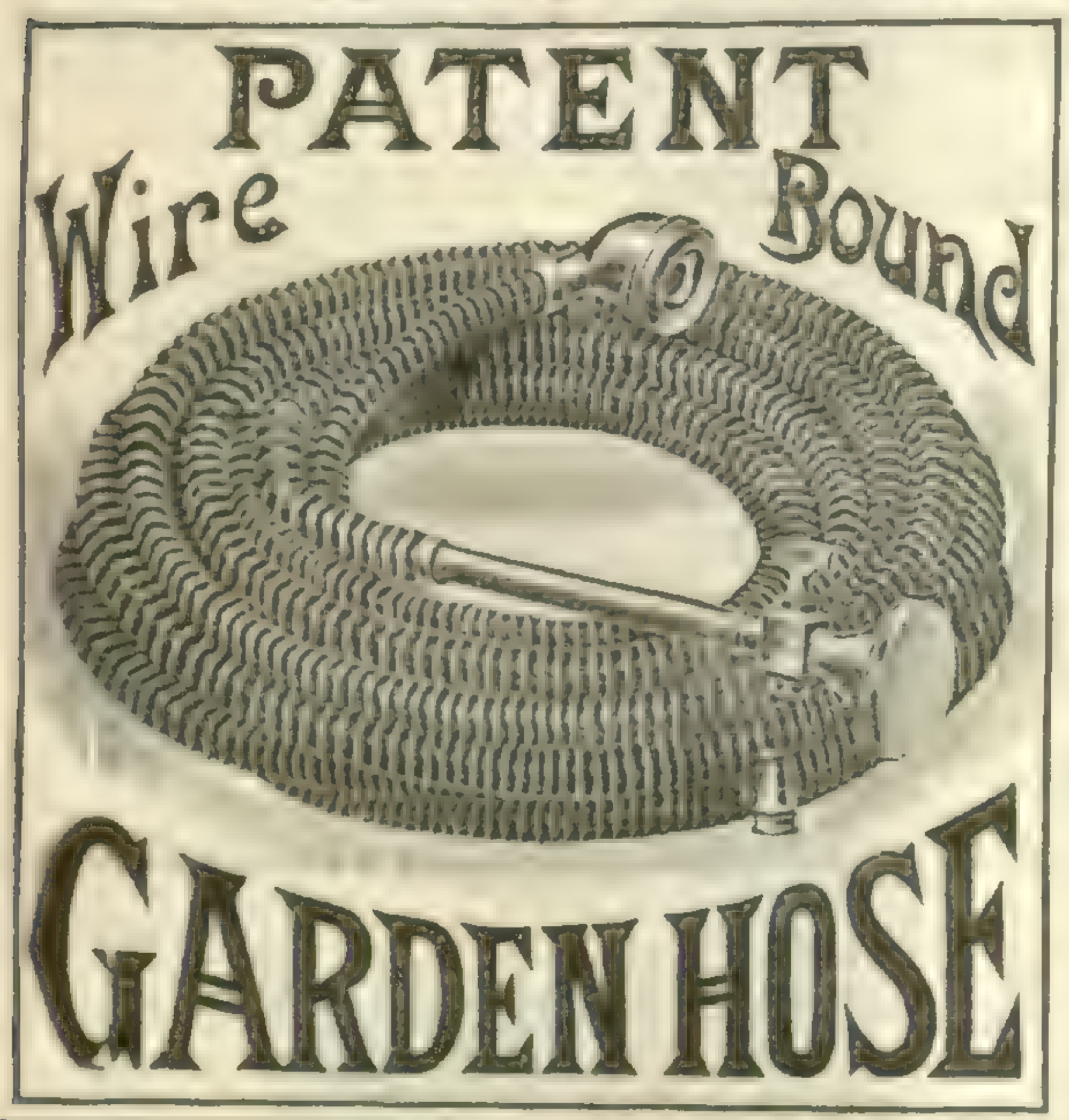

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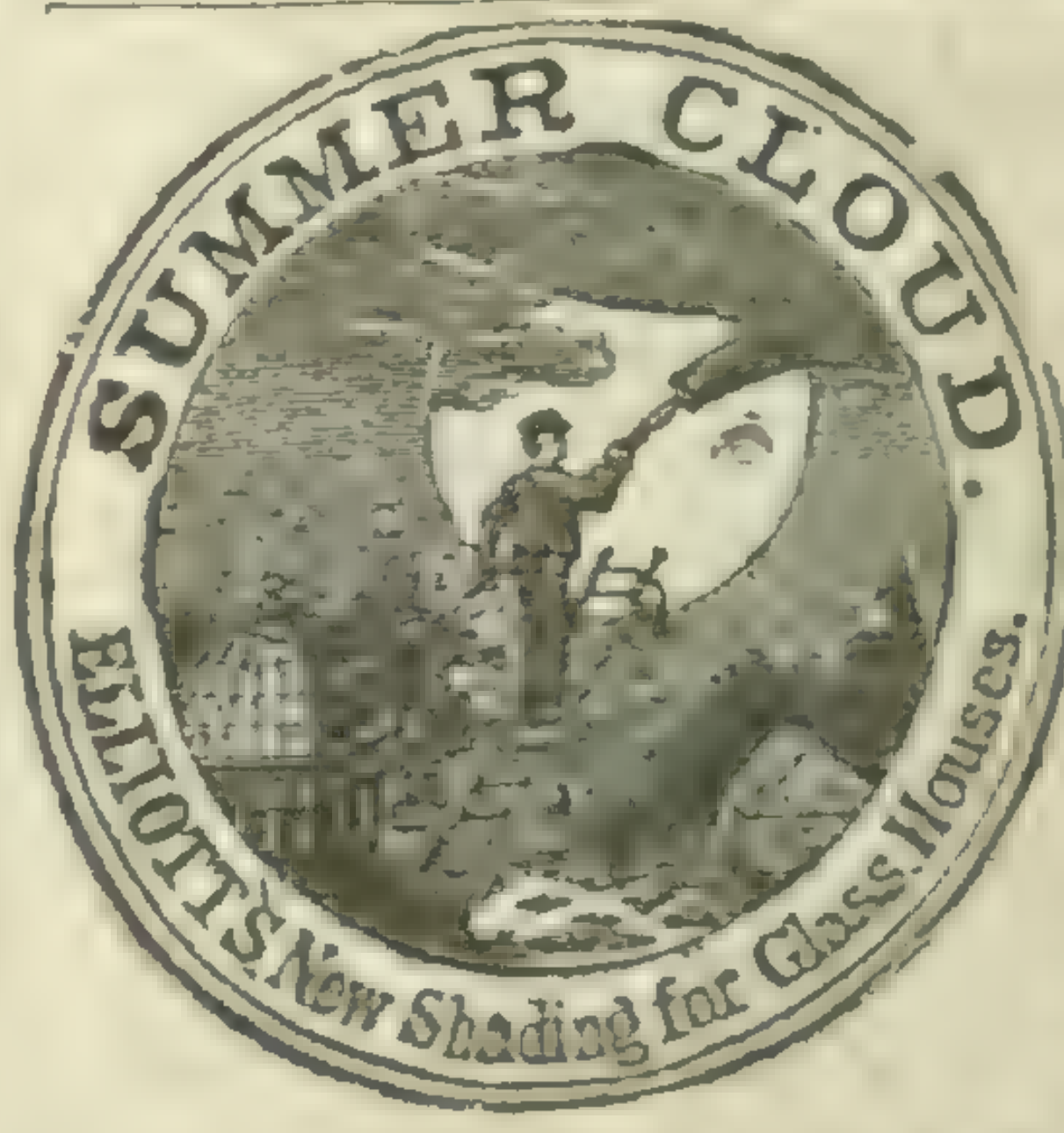
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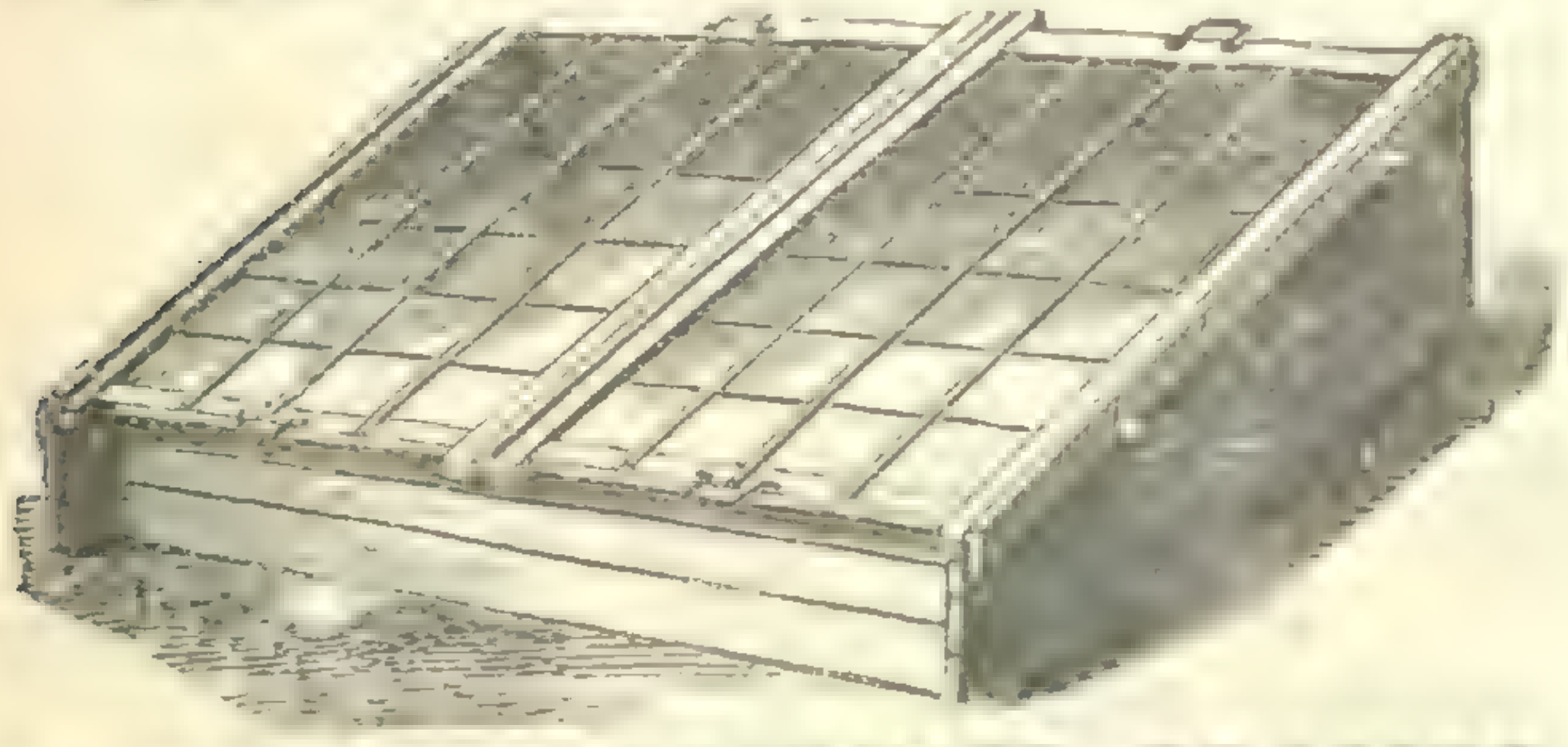

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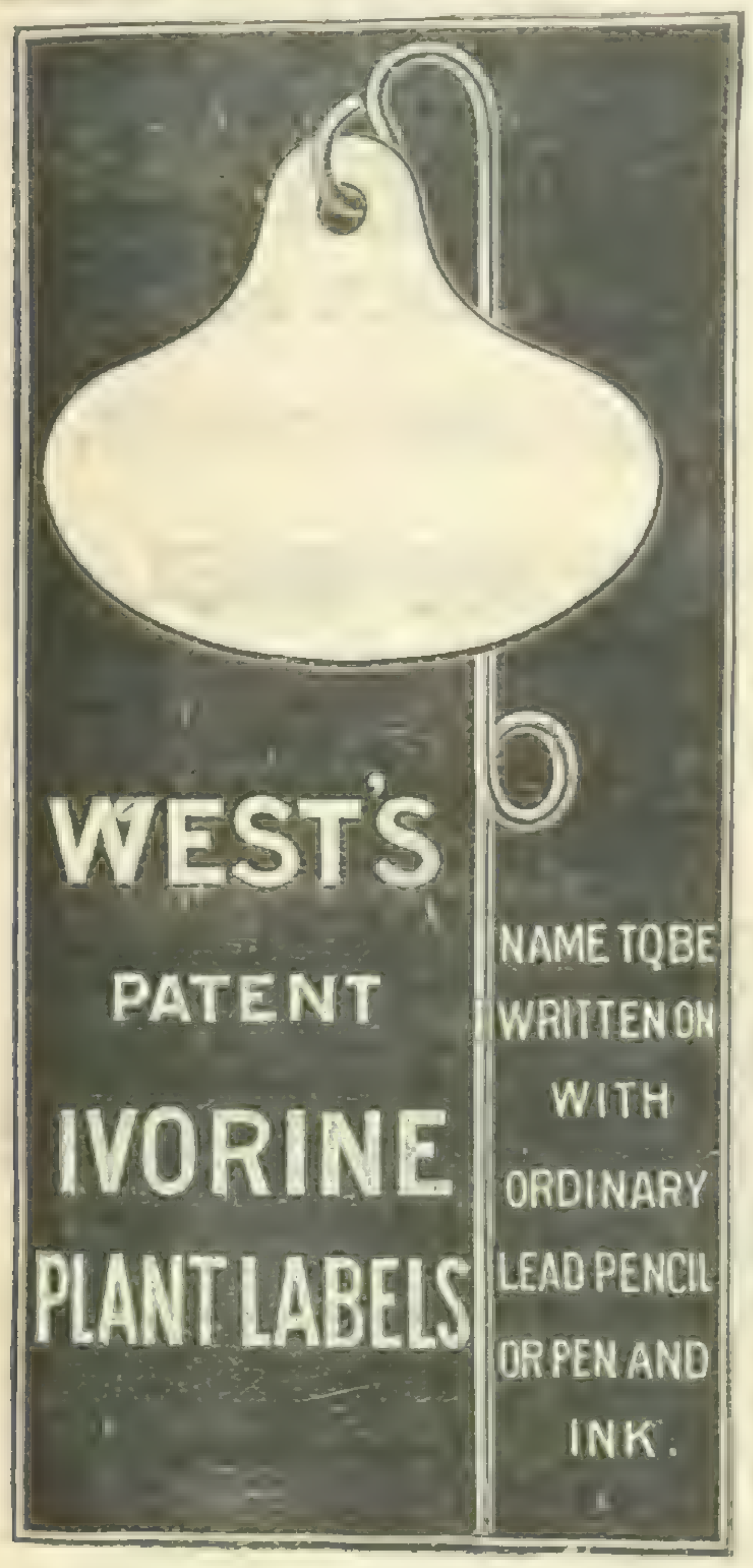
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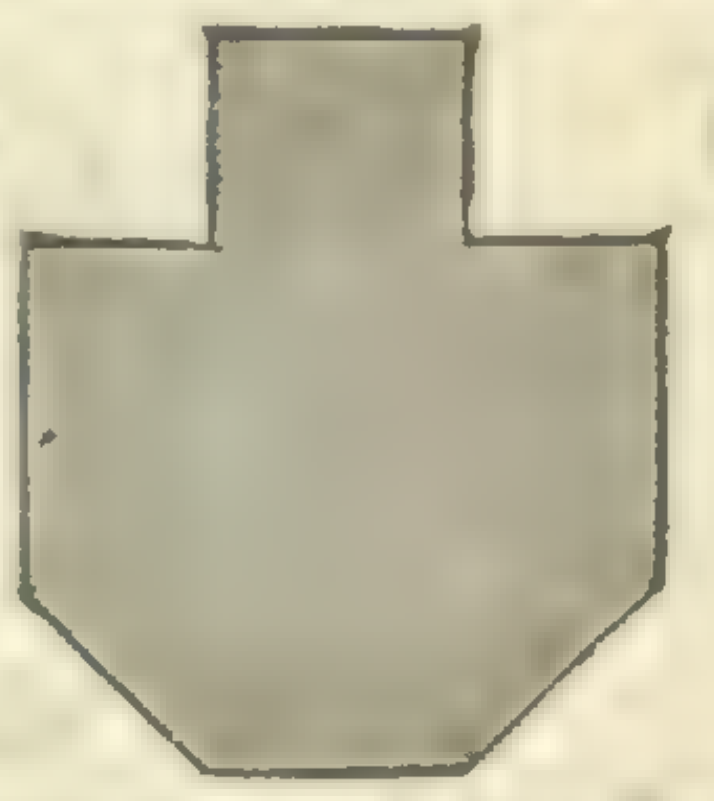

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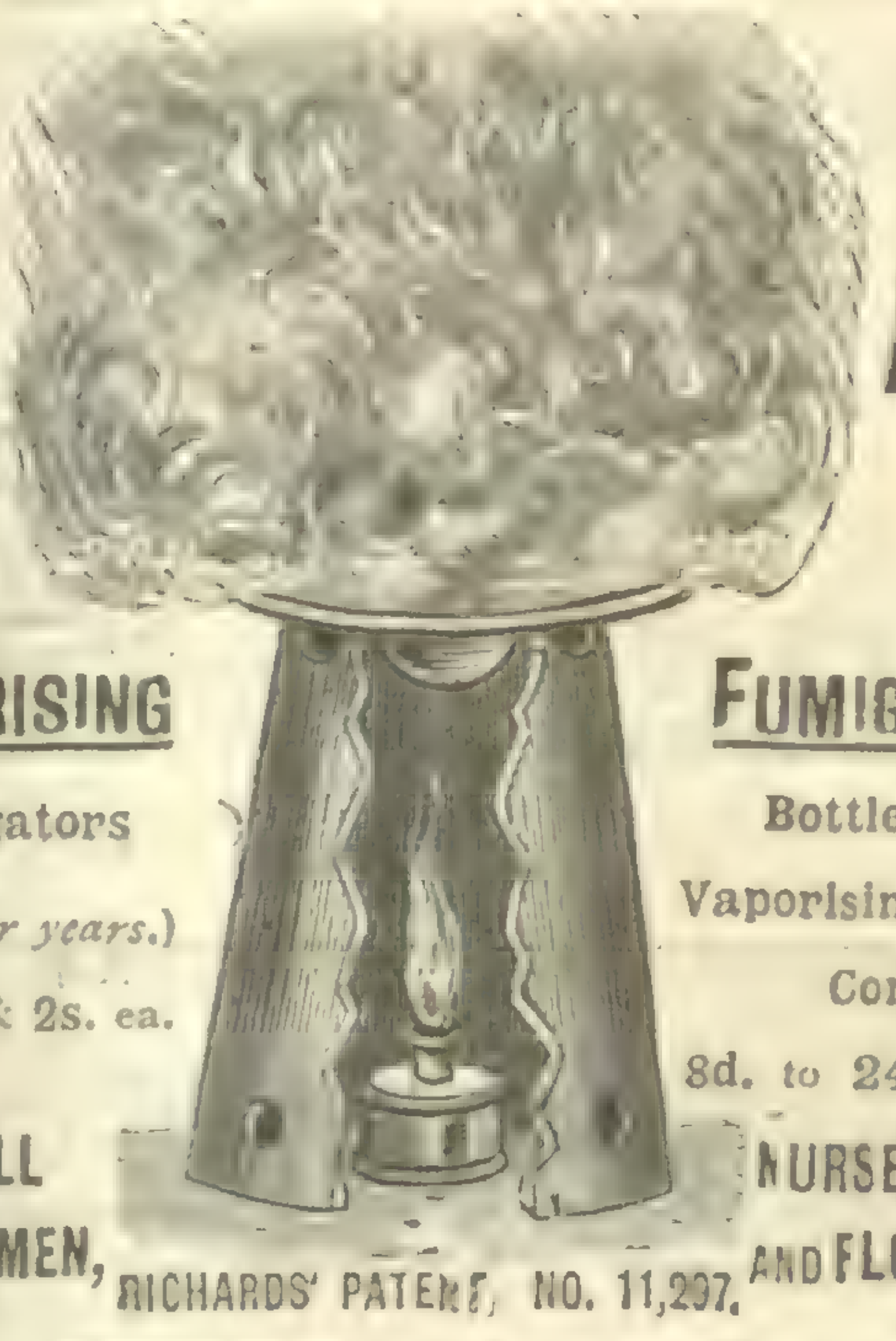

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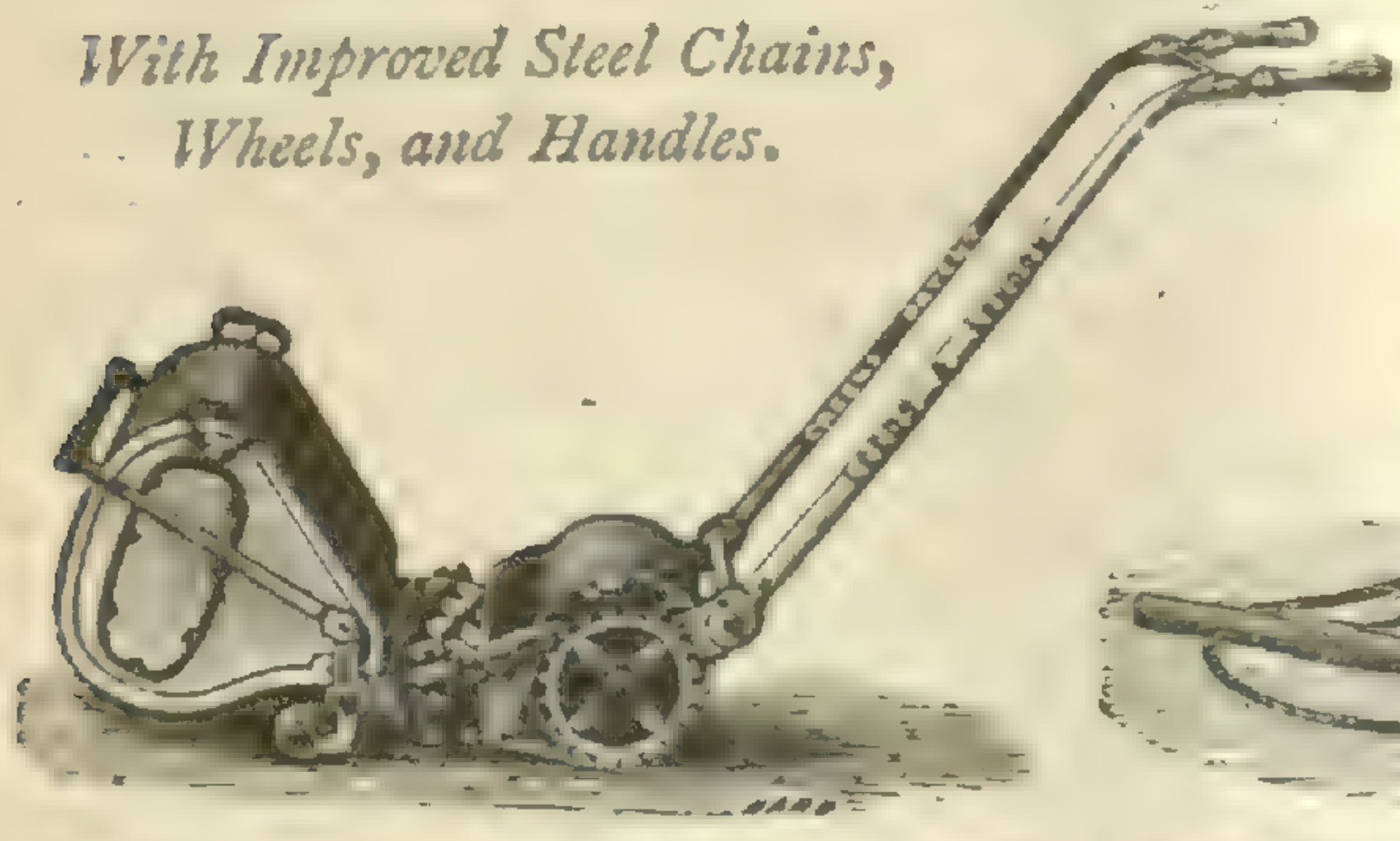

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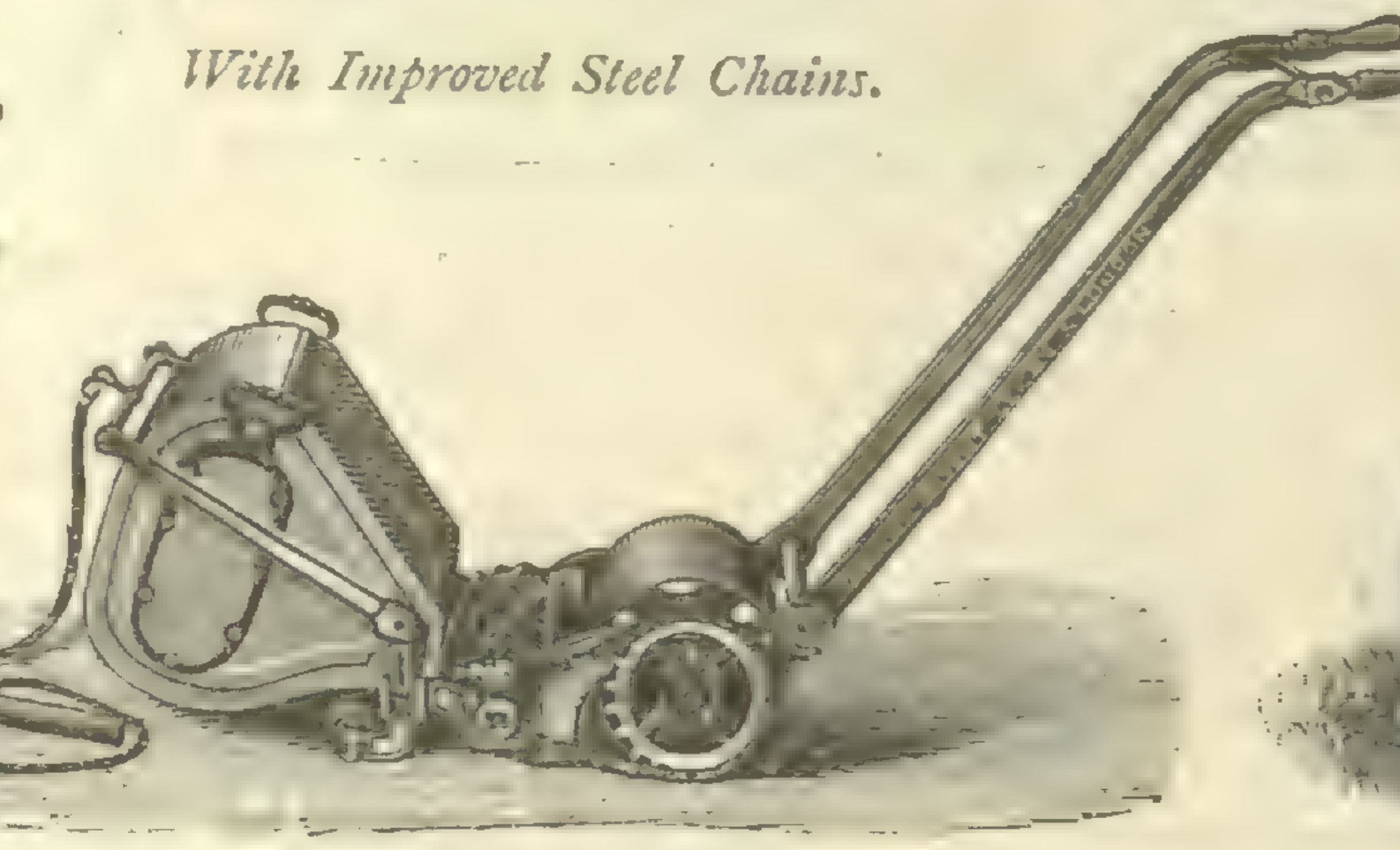

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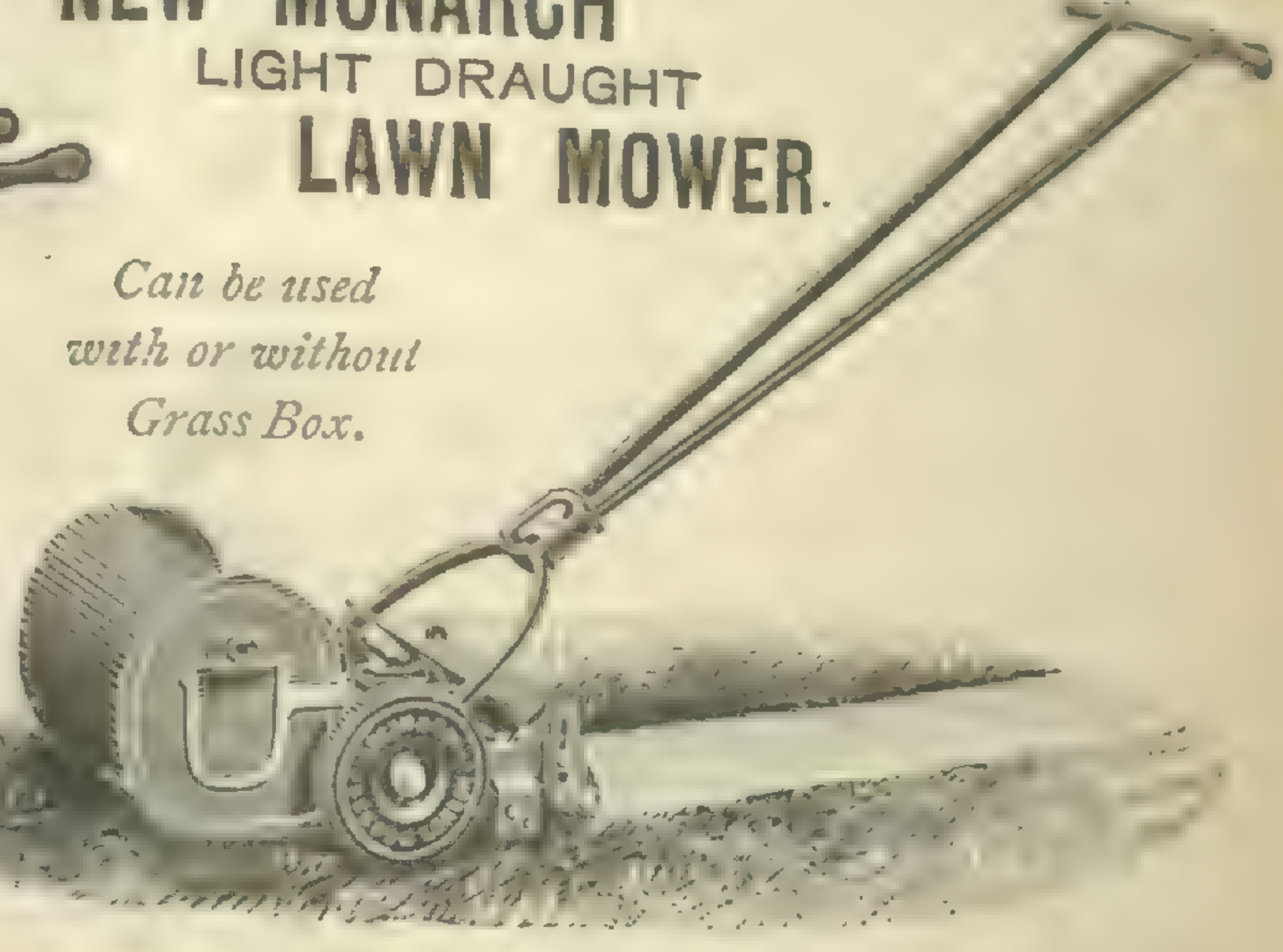

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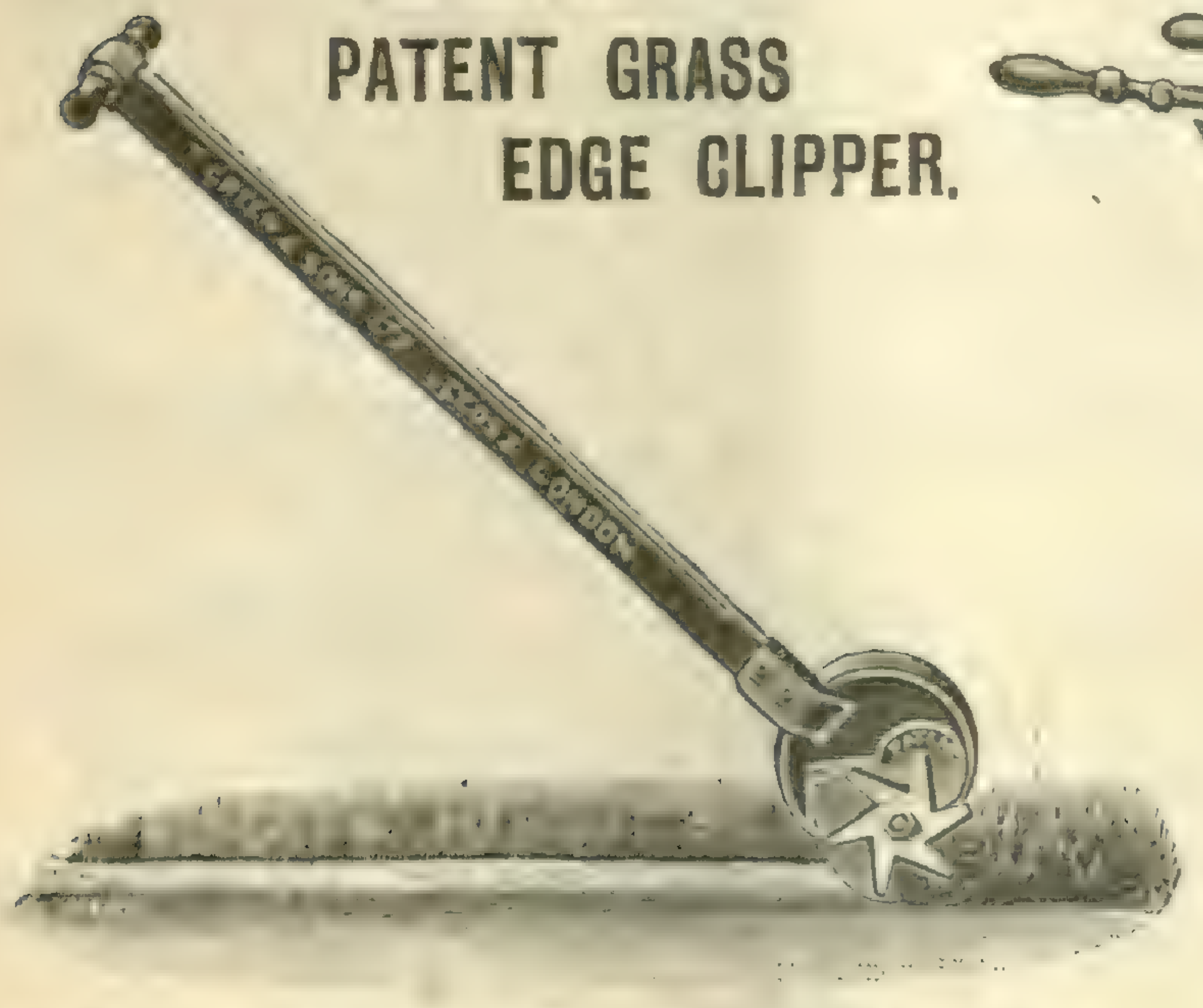

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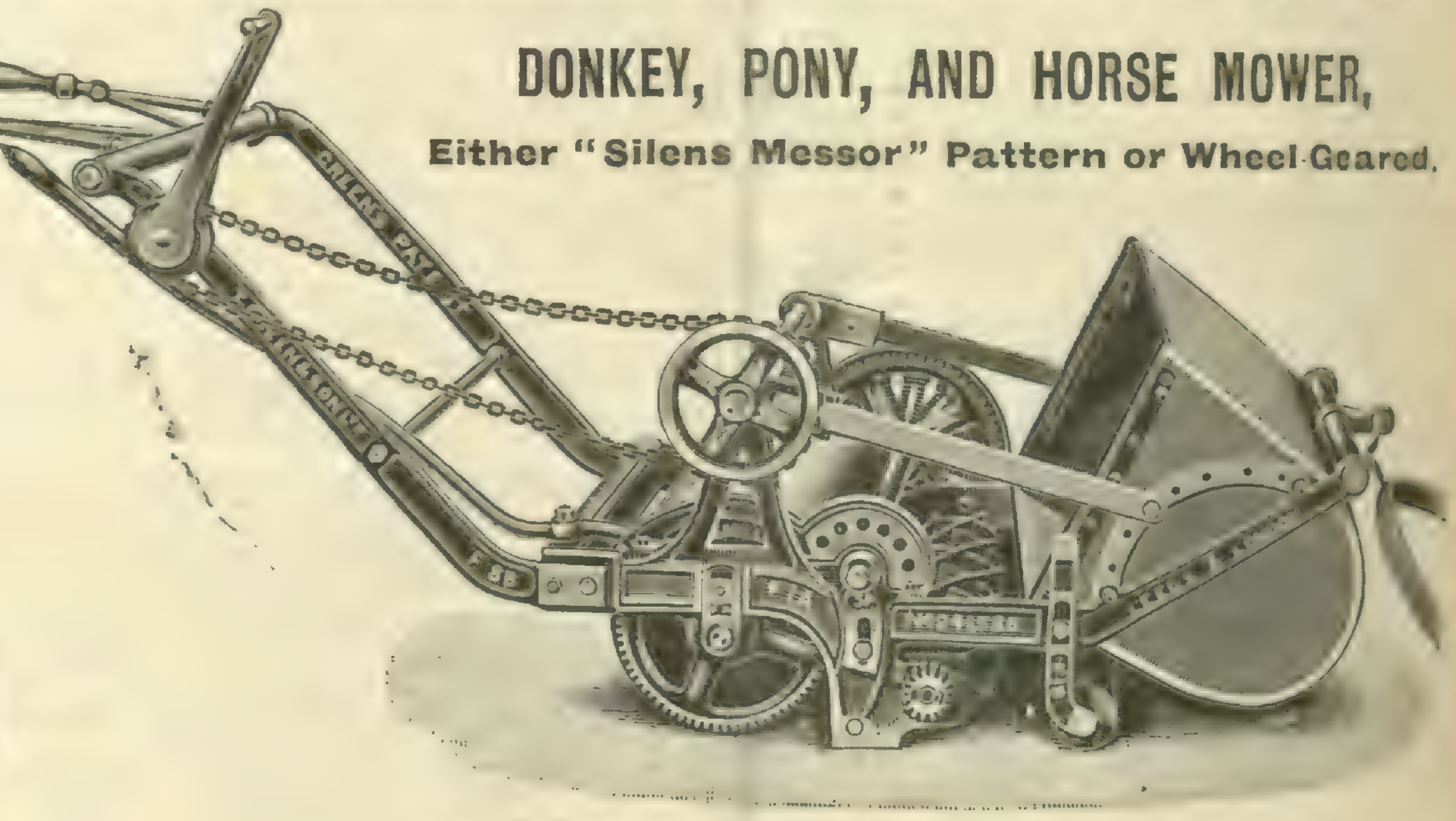

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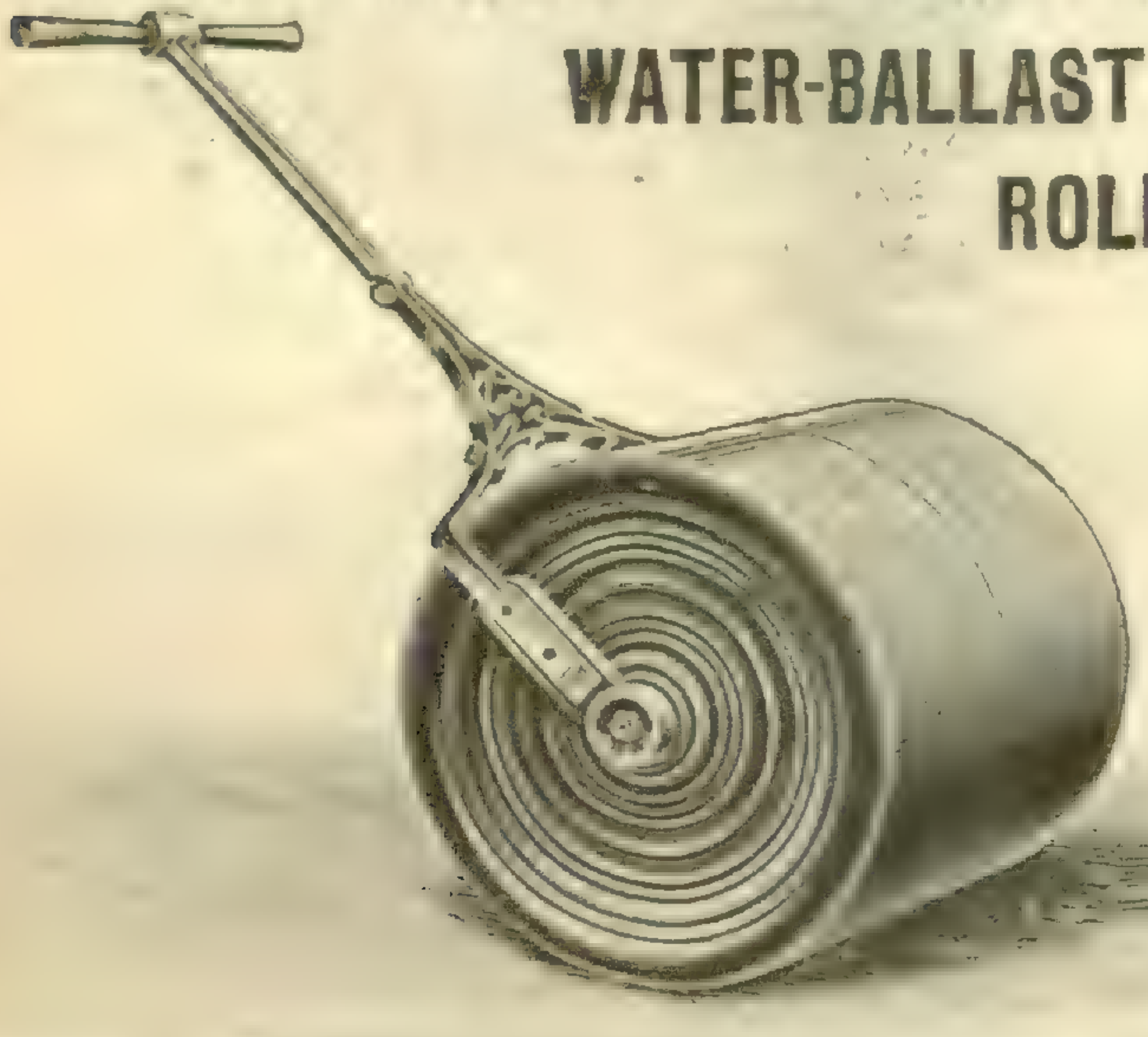

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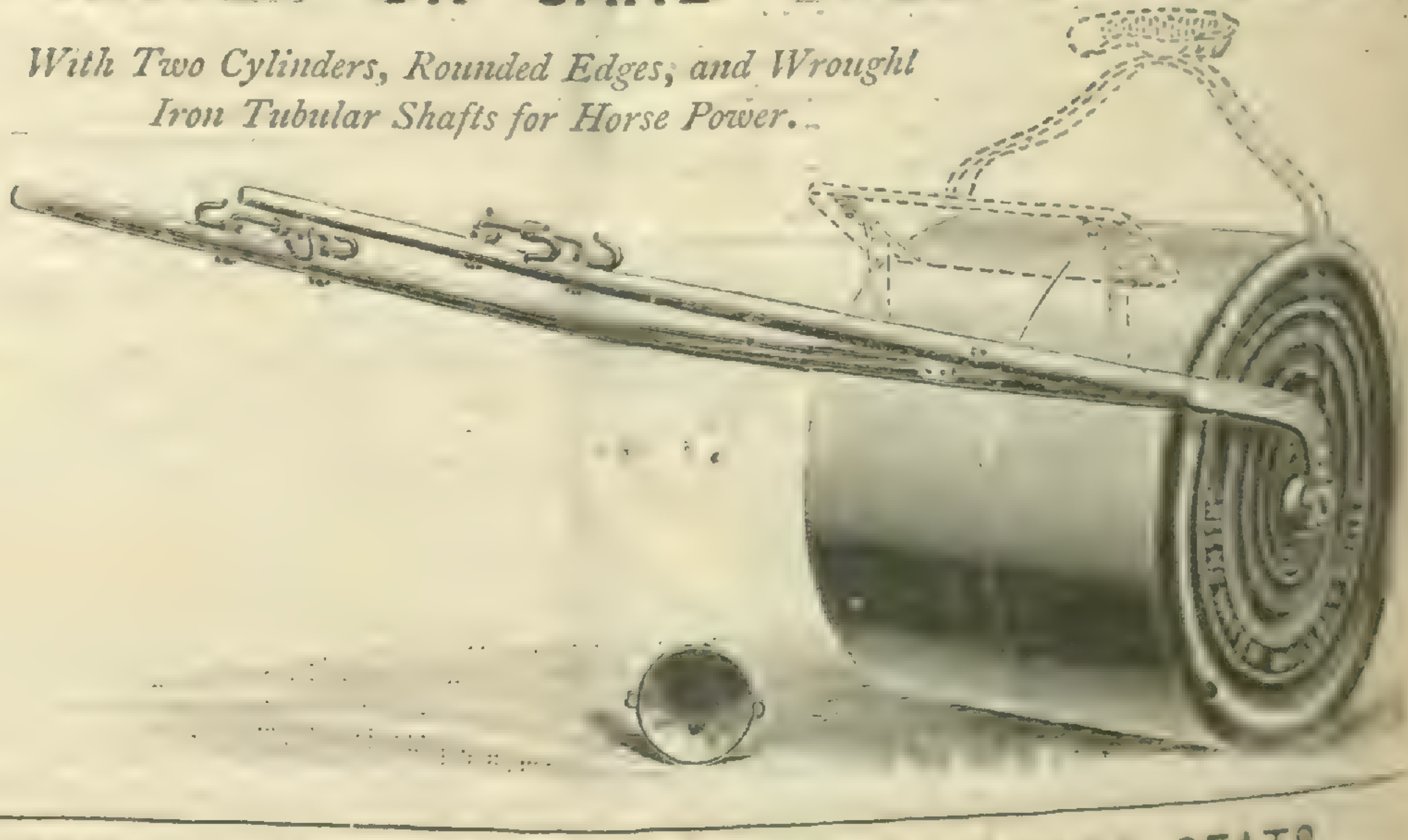

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THE

GARDENERS' MAGAZINE

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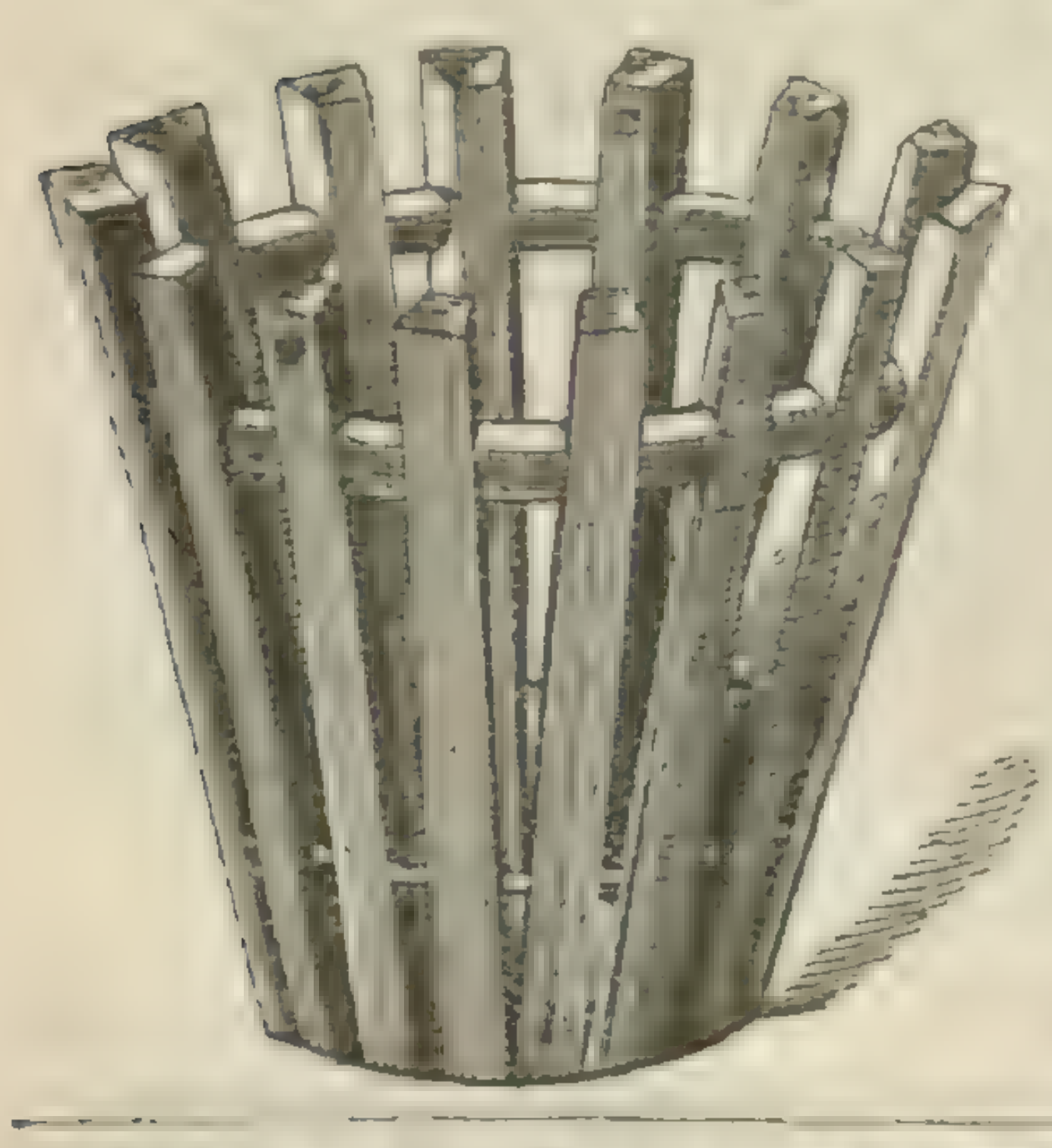

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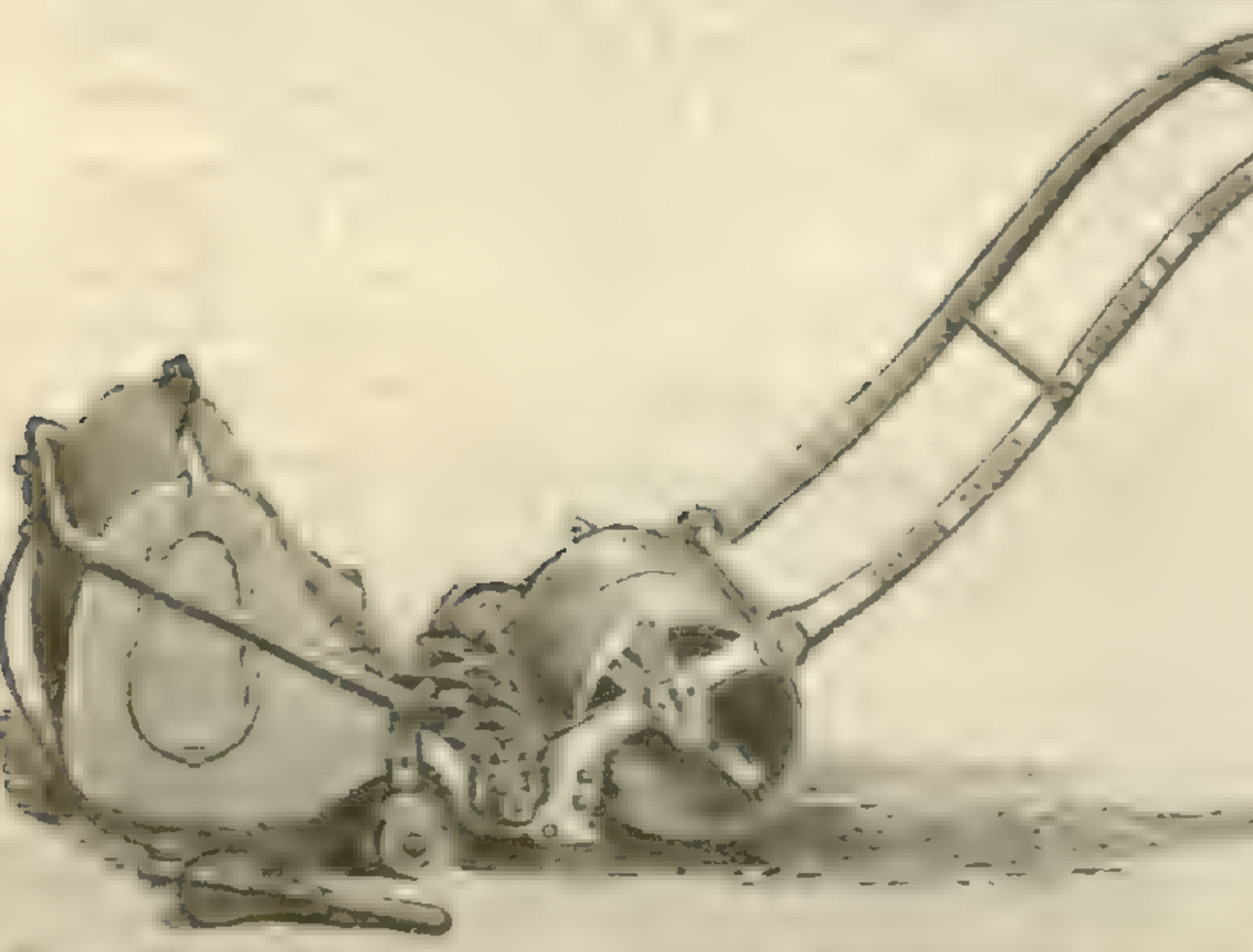

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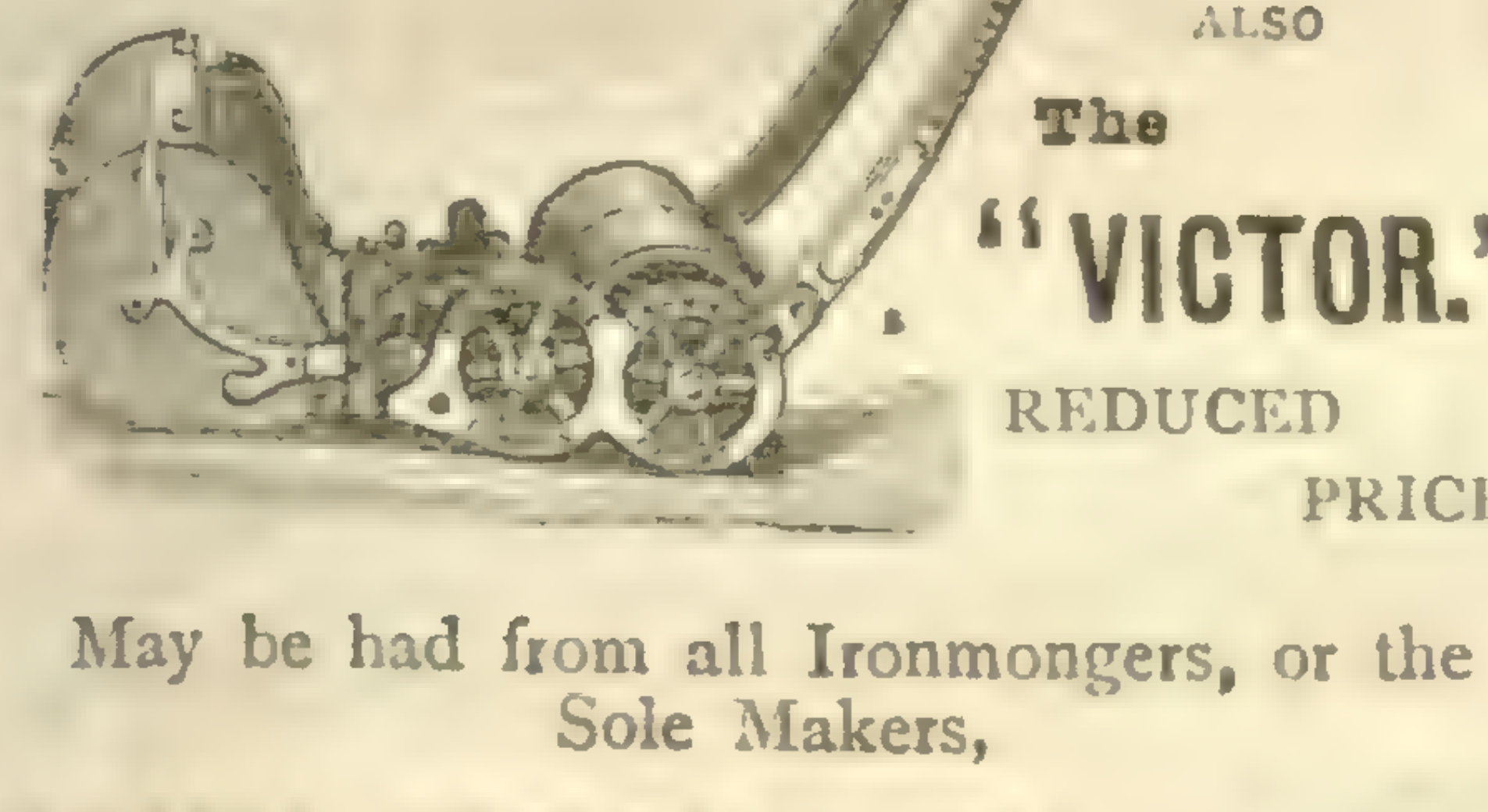

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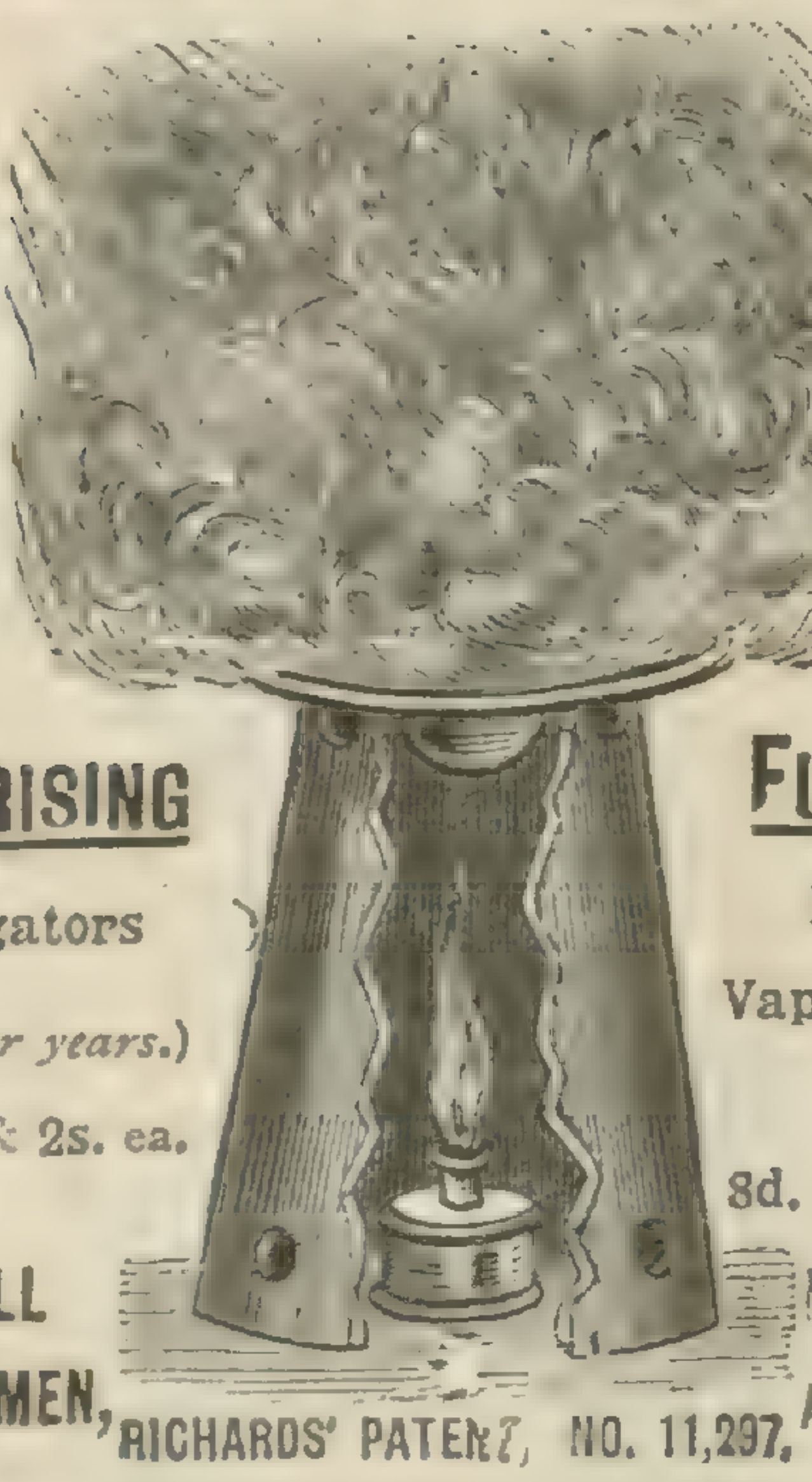

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THE GARDENERS' MAGAZINE.

SATURDAY, APRIL 16, 1898.

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HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" will in future go to press earlier. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on Wednesdays.

NOTES OF THE WEEK.

SPRINGTIME.

Now that blustering March is well in the rear and the smiles and tears of April checker the face of the heavens with sunlit clouds, big dashes of clear blue, and here and there a vapoury veil of near or distant showers, the lover of his garden feels once again that life is indeed worth living, and the world a mine of marvels and beauties combined. No longer has he to be satisfied with the mere hints of coming things embodied in swelling buds and shoots which have to be sought for in precocious nooks and corners; the ground now is rampant with exuberant growth, the gaudy crocus blooms, first in the field, are now bedded in a spiky chevaux de frise of subsequent leafage; the broad glaucous green foliage of the tulips spreading wide, displays the coming blooms in many stages, the early Ducs already flaunting their brilliant chalices of scarlet and gold in the face of the sun, while the buds of their later and statelier relatives are still nestling in the hearts of the leaves in preparation to follow. Here is a clump of Crown Imperial pushing up so strongly and rapidly that one would expect at least a six-foot growth to result, though soon the circlets of malodorous blooms will cut the soaring short. The blue hepaticas, here and there, look like little bits of heaven's blue dropped from the sky above, and under the pretty blossoms the leaves are pushing vigorously to greet the sun as well. The crimson shoots of the pæonies glow in the sunbeams and sparkle ruddily with the rubies left by the latest shower. Among the alpine plants, one and all, saxifrage and sedum and all their kin are spreading their rosettes abroad; while primulas of all kinds, auriculas especially, seem literally bursting with vigorous life and energy after their long spell of winter rest. Shrubs of all descriptions are rapidly donning their leafy suits, and although the trees proper are tardier with their toilets, a very slight examination will show that the sap is busy at work and that the swelling buds will soon be shaking out their leafy plumes in response to the coaxing sun and showers, like all the rest. The hardier fruit trees, fortunately, are warily biding their time and keeping their precious freight of blossom well wrapped up until the night frosts grow less keen and perilous; and only the apricot and peach are foolish enough never to unlearn the lesson of their native land, and hence, year after year, spread their delicate blooms to the nipping airs of March in ever vain attempts at fruition. One of the most interesting studies indeed which we can take up in our garden strolls is that of adaptation of our floral pets to the seasons. Our native plants know quite well what they are about, and if of tender constitution, no blandishments will tempt them forth until they are fairly safe, while those of more precocious habits, laugh at the frost and snow, and take every opportunity between whiles of making growth and keeping up their character of firstlings of the spring. April indeed has phases of beauty which distinguish it from all other months of the year; its characteristic waywardness, a blend of blazing sun and warm rain, constitutes the very ideal of growing weather, good alike for roots, leaf, and blossom; and as a contrast to the bleak and blustering, keen and cutting months of winter and earlier spring, fills the heart of the true garden lover with an ineffable joy which the more generous floral gifts of summer fail, through satiety, to evoke.

WILD LIFE AT KEW.

The addition of the grounds of the Queen's Cottage at Kew to the Royal Gardens is not, in the opinion of Mr. W. H. Hudson, likely to prove an unmixed benefit, and his position as an ornithologist entitles the views to which he may give expression to careful consideration. These grounds form one of the three nearly perfect fragments of unspoilt Nature and harbours of refuge of all wild creatures which exist on the borders of the metropolis, and Mr. Hudson states that in them he has counted forty three species of birds that breed annually. These include the pheasant, partridge, carrion crow, jay, green woodpecker, wry neck, nuthatch, nightingale, and other shy birds that have become rare in the neighbourhood of London. Whilst he has counted forty-three species, he believes that a full list would number forty-seven species, and it is due to this sanctuary, where the birds breed unmolested, that so many species are to be seen and heard at Kew. Mr. Hudson believes that a grave mistake will be made if the visitors are to have unrestricted liberty in the use of the grounds, and suggests that they should be confined to the walks and green drives. It is no small boon, he says, and properly so, to the visitors from London—the tired workers with brain or hand in search of refreshment to body or mind—to see its masses of verdure and shade, old ivy-grown trees, unkept bramble, furze, and holly bushes, and to hear the enlivening sounds of wild bird and animal life. There has been no obstruction to sight of any description between the gardens to which the visitors have access and the grounds, which were private only in a restricted sense, and the public so far as seeing and hearing go, have always been in the enjoyment of this open space. Mr. Hudson submits that he does not urge the importance of maintaining this spot as a sanctuary for wild life, so much in the interest of the ornithologist, the artist, and the lover of the picturesque, as in that of the myriads of workers, who, being bound to London, have but few opportunities for obtaining a glimpse of unadulterated Nature. The authorities are urged to hand down this gift of the Queen to posterity as nearly as possible in the condition in which it has been received, and this, he contends, can only be done by imposing some restrictions upon visitors. Anticipating the contention that the dwellers in the metropolis are in want of more open spaces, therefore of this one, and that to deprive them of the opportunity to roam at will among the trees, or to sit on the grass, would be to take away the value of the gift, it is pointed out that these grounds form an infinitesimal portion of the six thousand acres to which the public have free access southwest of the metropolis. There is much in the views expressed by this distinguished ornithologist that deserves attention, for it is in the highest degree desirable that where possible all that remains of unadulterated Nature near London should be preserved. We, however, do not share in his apprehensions as to the effect the admission of the public will have upon the birds and animals that have hitherto found a safe retreat within their boundaries, for the Queen's Cottage is situate in the most remote corner of the gardens, which comparatively few visitors explore during the early spring months.

THE INDEBTEDNESS OF ARCHITECTURE TO THE GARDEN.

It is said that the idea of the Corinthian column in architecture was suggested by a sight of the leaves of Acanthus Ispinosus growing about a pot. The acanthus is an ancient plant, for it was known both to the Greeks and Romans, who employed it for decorative purposes; and on one occasion the leaves of this plant having entwined themselves in a graceful way about some support standing by them, suggested to Callimachus the Corinthian capital. It was probably A. mollis which suggested the design of the capital, as both Greeks and Romans made use of this species, forming garlands of its leaves, with which they clothed their buildings, their furniture, and even their clothing. Virgil narrates that the acanthus formed the basis of a design embroidered on the mantle of Helen of Troy; and tells us that the handles of Alcimedon's cup were enwreathed with what he elsewhere terms the "Smiling acanthus." Whether the tradition connected with this plant be true or not, it is scarcely necessary to inquire; certain it is that architecture owes much of its beauty, much of its perfection, to flowers, foliage, and trees. Nature in the garden, in the park, and in the wide expanse of country scenery affords one of the best assistant schools of pure taste; not only to the architect in his outline, and in his enrichment, but to artists connected with almost every branch of manufacture in which embellishment is demanded. The history of the origin of the Corinthian order, which might possibly be contrived to give an interest to the invention, though so often repeated, and so well known, may, nevertheless, be here told once more as a pleasing anecdote of ancient manners. A young maiden of Corinth having died her mother or nurse collected in a basket the toys which she was fond of while alive, and carried them to her grave, where she left the basket covered with a tile, to preserve it contents from the weather. The basket, it is said, happened to be set upon a plant of acanthus. The plant thus being depressed in the middle, its leaves and stalks spread outwards, and grew up around the sides of the basket till they were bent down by the tile which lay projecting over its top. At that time Callimachus, the sculptor, chanced to pass by the grave, and being pleased with the agreeable appearance of the foliage and novelty of the form, he converted it to the purposes of architecture; and having made some columns of a more delicate proportion than had been used before, he adopted the basket and leaves of the acanthus for the capital, and thus established the symmetry and ornaments of the Corinthian order. It is by no means impossible that architecture may have owed the origin of the arch, pointed and circular, to the natural outlines of trees. The wooded avenue, and rows of forest trees not unfrequently represent arches of the most magnificent character, the contemplation of which can never fail to interest and gratify the cultivated mind.

FRUIT AND VEGETABLE IMPORTS.

THE Board of Trade returns for March are better than were those for the first two months of the year, but they again show a falling off in the exports of British and Irish produce and manufactures, the aggregate value of the decrease being £813,408. There is, on the other hand, a material increase in the value of imports, and a small increase in that of the exports of foreign and colonial merchandise. The increases and decreases of the produce in which we are specially interested are about equally balanced, and we have again to record a large drop in the import of apples, and a material augmentation in the supplies of potatos. The imports of apples amounted to 160,779 bushels of the value of £51,778, against 618,219 bushels of the value of £152,978 in the corresponding month of last year, There was also a considerable drop in the imports of grapes, for during the month we only received 1,649 bushels as compared with 3,205 bushels last year, the value being £3,445 and £5,991 respectively. Pears, on the other hand, show an increase, for 3,153 bushels were imported, against 1,796 bushels last year and 124 bushels in 1896, but there was a material drop in relative values, more especially when compared with the imports in the year last named, when they were returned as worth twenty shillings per bushel. Plums were imported in much larger quantities than in the corresponding month of any previous year, the aggregate imports amounting to 90 bushels, against six bushels in March 1897. It is of interest to observe that with the augmentation in quantity there has been an enlargement in relative value, for while the six bushels are returned as of the value of £18, or £3 per bushel, that of the 90 bushels is entered at £408, or considerably over £4 per bushel. Unenumerated fruits continue to increase, and the quantities received aggregated 68,701 bushels of the value of £35,849. Immense quantities of potatos were again received, the total for the month being 635,872 cwt., against 45,203 cwt. received last year. Germany sent us 321,310 cwt., and France 86,448 cwt., but from the Channel Islands we only received 782 cwt. Onions were received in smaller quantities than in the corresponding month of the two preceding years, but it is satisfactory to observe that there was a material increase in values. Butter, bacon, cheese, eggs, and other minor products of the farm, continue to be received from abroad in enormous quantities, as indicated by the fact that the value of the latter, imported last month was of the value of £1,510,589.

Ghent Quinquennial Horticultural Exhibition.—As we are going to press our special correspondent cables that the preparations for the great exhibition which opens at Ghent on Saturday are well advanced, and that there can now be no doubt, as suggested in our issue of the 9th inst., that the gathering will be the most important of the magnificent exhibitions that have been held under the auspices of the Royal Agricultural and Botanical Society of Ghent. Already a considerable number of the members of the jury have assembled in the city and are to be found exploring the numerous commercial establishments in its vicinity, or inspecting the many objects of interest other than those relating to horticulture. The jury consists of two hundred and eleven members, and comprises the most distinguished horticulturists in Europe. According to our Belgian contemporary, *La Semaine Horticole*, the members of the jury include thirty British, fifty-four Belgian, sixty-seven French, twenty-five German, sixteen Dutch, six Italian, four Russian, four Swiss, three Luxembourg, and two Sweedish horticulturists, with delegates from Austria, Brazil, Spain, and Japan. The programme arranged for the period over which the exhibition extends, is full and well devised. The members of the jury will assemble at the Casino where the exhibition will be held, at 9 a.m. on Friday the 15th inst., and the judging will be proceeded with shortly after that hour. At the luncheon to the jury, on the completion of the judging on that day, the Veitch medals conferred upon Comte de Kerchove, M. Ed. André, and M. Latour Marliac by the Veitch Memorial trustees, will be presented. On Saturday His Majesty the King of the Belgians, will visit the Casino at 8 a.m. for the purpose of a private view and meeting the jury, and at 10 a.m. he will formally announce the opening of the exhibition. On the evening of the same day an International Raout will be held under the auspices of the Chambre Syndicale des Horticulteurs Belges at 8 p.m., at the Société Union, Place d'Armes, Ghent, and for this gathering evening dress is prescribed. A concert will be given at noon in the Place d'Armes on Sunday the 17th inst., and in the evening the jury will be entertained at a banquet in the salon of the Grand Theatre, at which several of the Ministers of State will be present. It is anticipated that the King of the Belgians will give a garden party at Laeken on the 17th inst., to which the diplomatic body and the members of the jury will be invited. Monday, the 18th inst., is an open day, but on Tuesday, the 19th inst., there will be an excursion to Brussels, and the members of the party will visit the glass houses in the gardens of the King's residence at Laeken. The members of the jury will have free admission to the Botanic Garden, Hotel de Ville, Belfry, the ruins of the Abbey of St. Bavon, and the museums of the city of Ghent. They will also have admission to the Comtesse de [illegible] winter garden, at Ghent, from 18th to 24th inst.; and they will have access to the Concord and Union Clubs, and the rooms of the Société Royale des Melomanes, during the time the exhibition is open. A full and special report of the Ghent Exhibition will appear in our next issue.

Boxes of Flowers from the Riviera have, until the commencement of the present month, been dispatched during the winter to friends at home at a very cheap rate. Thousands of such boxes, not exceeding three-quarters of a pound, were sent weekly as "samples of no value" at the rate of about 3½d. each, much to the pleasure of those who could not leave this country for the more favoured health resort. On April 1, however, orders were issued from the G.P.O. that all such boxes were to be refused admission into England, and returned to the senders. Whatever the legal rights of the Post Office authorities to stop such parcels, it seems an extremely harsh proceeding on their part to exercise their authority without due notice, and before the season of sending flowers from France and Italy to Britain was at an end. Unless alterations are made in the tariff flowers costing 3½d for postage home will in future cost 1s. 4d. per parcels post.

Open Spaces in London continue to receive the close attention of the Metropolitan Public Gardens Association, and at the monthly meeting held the other day it was announced that, as the result of the representation of the association, the Home Secretary had refused to sanction the Cross Bones Burial Ground, Southwark, being built upon. It was also reported that progress had been made in the laying out of several grounds, and it was stated that Charles Square, Hoxton, had been commenced, and that trees had been planted in the new riverside ground at Putney. It was agreed, if its maintenance were secured, and if funds were forthcoming, to lay out the churchyard of St. Mary, Plaistow, at a cost of about £300. Amongst many other matters which engaged the attention of the meeting may be mentioned Ham-common and Lammas Lands, Bridgewater Square, the "Postmen's Park," Pymme's Park, Edmonton, and some vacant land at New Cross.

The Sources of Commercial India Rubber will be fully explained by Dr. D. Morris, C.M.G., Assistant Director of the Royal Gardens, Kew, in two Cantor lectures to be delivered before the Society of Arts, John Street, Adelphi, on April 18 and 25. The lectures commence at 8 o'clock.

Royal Sovereign Strawberries were selling for 7s. 6d. per basket of eighteen fruits in the leading West-end fruiterers' shops a few days ago. At the same time, home-grown green peas and French beans were realising extremely high prices, while large bunches of giant asparagus sold for a guinea each. Not a few of the market gardeners who grow largely under glass have been making handsome profits upon early green pea and French bean culture, as the season has been a good one for those growers outside the metropolitan fog area.

A New Cactus Society, to be known as the Bath and West of England Cactus Society, is being formed for the promotion of the cultivation of cacti and other succulents. This new body will be affiliated with the National Cactus Society, and it proposes to hold an exhibition in connection with the Bath Rose Show on June 23 next.

Memorial to the late M. Jean Linden.—Under the presidency of Comte Oswald de Kerchove de Denterghem, a committee has been formed to consider in what manner a most fitting memorial can be raised to the late M. Jean Linden, as a recognition of the services he rendered to horticultural and botanical science. The committee consists of such well-known gentlemen as MM. le Comte de Bousies, de Middeleer, Dutrieu de Terdonck, Kegeljan, Lubbers, Massange de Louvrex, Baron Osy de Zeegwart, and Warocque. M. Kegeljan is treasurer and M. Lubbers, secretary of the Société Royale de Flore de Bruxelles, is secretary. The co-operation of all botanists and horticulturists, both professional and amateur, both in Belgium and other countries, is desired so that the memorial may be of an international character.

A Botanic Garden at Nantes is to be established immediately and [illegible] on the lines of the Royal Gardens, Kew. A rich citizen of Nantes is incurring the initial expense, and it is proposed to cultivate here such plants as are likely to prove of service in the French colonies.

The Apricot Crop.—Our coadjutor, Mr. A. W. Ward, Stoke Edith Park, writes: In spite of the untoward weather that prevailed more or less throughout the month of March, apricots have passed through the ordeal remarkably well. Although as much as 14 degrees of frost was registered on one occasion, the [illegible] sustained no harm, they being well sheltered by Frigi Domo blinds, while the [illegible] broke the force of the bitter cold north-east winds which blew so persistently during the past month. But little rain fell during March, and the heavy snow storms which swept over various parts of the country affected this district to a slight degree only. What snow fell could not reach the blossoms as the blinds were kept drawn so long as the storm lasted. They were thus kept dry, and the sharp frost which succeeded the storm the next morning left them uninjured. The blossoming has been one of great profusion, both spurs and young wood being covered with flowers, which were strong, bold, and well developed. The weather was too cold for the bees to put in but an occasional appearance to assist in the setting of the blooms; all the same a heavy crop has been secured, and quite equal to the phenomenal one of 1896. Protection is still accorded the trees at night and will be for some few weeks longer, until a sufficient quantity of foliage has developed and become hardened enough to protect the fruits. The latter are now swelling apace, and in the course of a week or ten days the first thinning will be done, when all that are badly placed will be removed, and the twins, [illegible], and clusters of fruits thinned down.

A Memorial to Marcello Malpighi, the celebrated botanist and biologist, has just been completed. It is a volume filled with information concerning a great scientist and philosopher who lived and worked during the latter half of the seventeenth century,and as a memorial it will be more widely appreciated than the fine bronze statue erected to Malpighi at Crevalore last autumn. This memorial volume contains contributions by Professors Atti, Virchow, Haeckel, De Michelis, Todaro, de Giovanni, Weiss, Kölliker, Romiti, Eternod, Cattaneo, Perroncito, and Pizzoli. These deal with the life of Malpighi or his work in biology, pathology, histology, comparative anatomy, and in connection with the silkworm. The comparative merits of Malpighi and Nathaniel Grew are discussed by Professor Strasburger, especially in connection with their views upon the anatomy of plants. Professor Morini deals in detail with the botanical studies of Malpighi, and shows the condition of botanical science ere Malpighi commenced his studies. Of special interest to us is the account of Malpighi's relations with the Royal Society, presented by Professor Michael Foster; this contains forty-two letters that passed between Malpighi and the Royal Society. The work, printed in Italian, concludes with a bibliography and an account of medals struck in honour of Marcello Malpighi.

Flowers in New York at Eastertide are sold in enormous quantities for church, home, and personal decoration, and it has been estimated that the city and suburbs expend at least a million dollars during Holy week upon flowers, foliage, and growing plants. The most popular flowers are the pure white blooms of Lilium longiflorum Harrisi, and the big spathes of Richardia æthiopica; lily of the valley, azaleas, and violets are in great request, the latter being scarcely produced in sufficient quantity to meet the immense demand. Roses on long stems are in great demand at Eastertide, and the varieties most required this season have been American Beauty, President Carnot, Bridesmaid, General Jacqueminot, Ulrich Brunner, Catherine Mermet, and Mrs. Grant. Carnations, tulips, hyacinths, daffodils and jonquils, sprays of forsythia, staphylea, deutzia, smilax, asparagus, and fern fronds are all present in enormous quantities, and find a ready sale at moderate prices, for the days of extravagant profits are over.

Vanda Miss Joaquim, the interesting and beautiful hybrid, raised artificially, between V. teres and V. Hookeriana is admirably figured in the current double number of the *Lindenia.* Cattleya Mendeli var. Empress Queen is finely figured in the same issue, and is noted for the large and dark apex of the lip. Other orchids pourtrayed are Oncidium Batemannianum, a lovely species often met with in gardens under the name of O. Saintlegerianum; Odontoglossum Thibaultianum, no doubt a natural hybrid between O. crispum and O. odoratum; Saccolabium giganteum Petotianum, a beautiful albino variety; Cattleya Hardyana Reginæ, dedicated to the Queen of the Belgians; Cymbidium pendulum, a somewhat uncommon plant, with depending racemes of white and purple flowers; and Lælio-cattleya Pallas inversa, the reverse cross to the original hybrid; this was raised by Mons. Mantin, the original by Messrs. J. Veitch and Sons.

Dr. R. Hamilton Ramsey, the genial and hard-working president of the Torquay Gardeners' Association, was recently presented, on behalf of a hundred and thirty-three members of the association, with a magnificently framed and richly illuminated address, as a token of their personal esteem and regard, and in acknowledgment and appreciation of the invaluable services rendered by him to the association as its president. The presentation was made at the sixth annual meeting.

The Colony of Newfoundland is now very largely in the hands of one man, Mr. William Reid, the son of a famous Canadian contractor, and himself a great contractor. When constructing a railway for the colony Mr. Reid was paid fifteen thousand dollars per mile, and no less than two and a half million acres of land, with the right to select the land himself. Mr. Reid now owns gigantic coal fields, dry dock, telegraph system, a great part of the railway, a small fleet of steamers, and an electric railway; with all these in good working order, he has now time to turn attention to his enormous forests on the land already referred to, for these, as lumber and pulp mean a huge fortune in themselves.

Brown Turkey Figs of high quality and good size were submitted to the Fruit and Vegetable Committee of the R.H.S. on April 12 last by Mr. J. F. McLeod, gardener to J. Pierpont Morgan, Esq., Dover House, Roehampton. About three dozen examples in prime condition were staged, and these were culled from a tree that covers a space six feet by eighteen feet, and has a crop of four hundred and seventy fruits all of fair average size. Mr. McLeod is as capable a fruit grower as he is a plantsman, and that is saying a good deal.

New Park for Lee.—We recently stated that the Earl of Northbrook and Viscount Baring had offered to present to the public, in commemoration of the Diamond Jubilee of her Majesty the Queen, a piece of land nearly seven acres in extent in Bromley Road, Lee, for the purpose of a recreation ground. Later advices show that the only conditions attached to the gift are that the ground should be taken over by the Council and laid out and properly maintained by it as a recreation ground, and that the costs of Lord Northbrook's solicitor and surveyor should be borne by the Council. Building operations were going on in the district, and there was a Board School close by. In the circumstances the London County Council Parks Committee did not hesitate to suggest that the Council should undertake the charge of the land on behalf of the public. It was estimated that the value of the land to be presented to the Council was £4,125, and that the solicitor's and surveyor's charges would therefore be about forty guineas and twenty-five guineas respectively. There might, however, be some other slight expense, and they therefore asked for a vote of £100 in order to cover all possible outgoings. They estimated the cost of laying out the land, including fencing, seats, and watch box, at £1,000, and the annual cost for maintenance at £200.

NEW PLANTS AND FLOWERS.

Eulophiella Peetersiana.

A magnificent orchid, the spike carrying over two dozen flowers and buds; it is from three to four feet long, and each flower measures three and three quarter inches across. The segments are equal, spreading, rounded at the apices, broad, and of a rich but soft purplish-rose colour; the tips of the sepals have a crimson flush at their centres. Lip white inside and whitish underneath, the side lobes rosy at the outer tips, and the front lobe also coloured soft purplish rose. In the throat are six long lines of dull brownish yellow, terminating in several tooth-like prominences at the base of the apical lobe. This is a Madagascar orchid discovered by M. Hamelin, and to Sir Trevor Lawrence belongs the honour of first flowering it in cultivation. F.C.C., R.H.S., April 12. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart.. Burford Lodge, Dorking

Cypripedium Olenus magnificum.

A superb cypripede, and, no doubt, the grandest of the hybrids in which C. bellatulum has been a parent. It is the result of crossing C. bellatulum with C. ciliolare. The flowers measure five inches across. The dorsal sepal is hooded, orbicular, pointed, white-ground, but this almost obliterated, especially in the centre and base, by the intense claret-purple veins and shading. The broad petals have rounded apices; the ground colour is white, tinged with rose, but this is only noticeable towards the apex owing to the shading, spotting, and veining of claret-purple, the latter colour almost covers the basal half, and is very bright and polished. Foliage, strong, light green, mottled and tesselated with dark green. F.C.C., R.H.S., April 12. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

Phalænopsis Stuartiano-Manni.

An interesting hybrid between P. Stuartiana and P. Manni. The flowers of the latter have been enlarged, and the segments broadened by the influence of the former, and the green colour has been lightened considerably. The sepals and petals are about an inch long, palest green, dotted with brown; lip brown with a white tip; side lobes small, white edged, and lined inside with rich red brown. A.M., R.H.S., April 12. Messrs. J. Veitch and Sons, Chelsea.

Epidendrum elegantulum leuchochilum.

An albino form of the typical hybrid between E. Endresio-Wallisi and E. Wallisi. The sepals and petals are pale creamy green, and the lip is purest white, with a tiny golden disk. A.M., R.H.S., April 12. Messrs. J. Veitch and Sons, Chelsea.

Masdevallia ventriculata var. longicaudata.

A tiny orchid to have such a long name. It is a small grower, and has dull crimson flowers, tubular, and with three long greenish tails. B.C., R.H.S., April 12. Mr. W. H. White, Burford Lodge Gardens.

Dendrobium Aspasia var. Langleyensis.

A lovely dendrobe, with yellow sepals and petals, and rich golden centre to the lip. The sepals and petals are half an inch broad, and of the palest nankeen yellow. Lip, rich golden-tinted orange with red-brown blotches at the base. A.M., R.H.S., April 12. Messrs. J. Veitch and Sons, Chelsea.

Odontoglossum Wilckeanum Pitt's var.

A splendid odontoglot, with flowers three and a half inches across, yellow, with crimson-chocolate spots and blotches. The sepals are broad, but acutely pointed; the ground colour is yellow, and on this are some very large crimson-chocolate blotches; the petals are pale yellow, and the markings smaller and a little brighter; the margins of the petals are fringed. Lip palest yellow, with a red-brown blotch. F.C.C., R.H.S., April 12. Mr. H. T. Pitt, Stamford Hill.

Phalænopsis Schroderæ.

A very pretty phalænopsis, with palest rose flowers and brighter rose lip. This is the result of a cross between P. leucorrhoda and P. intermedia Portei. The sepals are nearly white, but the petals have a rose tinge. The side lobes of the lip are spotted with brown at the base, and veined with rose at the apex; the front lobe has a greenish-yellow tinge at the base, but down the centre are veins of deepest rose. A.M., R.H.S., April 12. Messrs. Low and Co., Bush Hill Park, Enfield.

Daffodils.

Lady Helen Vincent.—A fine Ajax form, with sulphur yellow and spreading perianth, and rich yellow corona, long and waved at the mouth. A.M., R.H.S., April 12. Messrs. Barr and Son, Covent Garden

Homer is a lovely form of the poeticus race, with very broad pure white segments, and an orange crown edged with deep scarlet. F.C.C., R.H.S., April 12. Rev. G. Engleheart.

Oriflamme.—A somewhat small-crowned form, with fine orange corona and spreading creamy segments; this is an incomparabilis form. A.M., R.H.S., April 12. Rev. G. Engleheart.

White Queen has a fairly large trumpet, very broad and prettily frilled at the mouth; the colour is pale yellow at opening, fading to rich cream colour. Perianth spreading and segments broad, French white in colour. F.C.C., R.H.S., April 12. Rev. G. Engleheart.

Lucifer.—A lovely narciss that suggests Sir Watkin, but is more refined. The spreading segments are pale sulphur, shading to cream; trumpet short, richest orange, waved at the mouth. A.M., R.H.S., April 12. Rev. G. Engleheart.

Lady Margaret Boscawen.—This is a noble bicolor, with very broad and spreading perianth of a French white shade. Trumpet clear, golden colour. F.C.C., R.H.S., April 12. Rev. G. Engleheart, Andoversford.

Dracæna aureo-striata.

A handsome dracæna in the way of D. Lindeni, the broad recurving leaves having numerous long bands of yellow with other bands pale of green and broad ones of deep but bright green. The yellow colour fades slightly as the leaves age, but they still retain their beauty. A.M., R.H.S., April 12. Messrs. Hugh Low and Co., Bush Hill Park, Enfield.

Hippeastrum Daones.

A handsome form with broad substantial segments that have irregular white margins and bases, but are otherwise coloured rich scarlet with deeper veins; a beautiful variety. A.M., R.H.S., April 12. Messrs. J. Veitch and Sons, Chelsea.

Camellias.

Mrs. J. Buchanan is a beautiful semi-double camellia, white ground with rich scarlet and crimson stripes and specks.

Pride of Waltham, a charming flesh-pink camellia of large size and very double; the petals are pointed and the veins of a deep rose shade.

Duchess of Teck is a bright rose pink camellia of good shape and with faint red veins along the margins of the segments. A.M., R.H.S. to each, April 12. Messrs. W. Paul and Son, Waltham Cross.

FAILURE OF FLOWER CROP OF THE ISLANDS OF SCILLY.

NEVER since the commencement of the culture of narcissus for cut flowers by the Scillonians has the crop been so light as this season. There are many theories about the phenomenal failure, and some people are pessimistic enough to believe that the culture of flowers in the Scilly Islands is doomed, concluding the soil or bulbs are entirely exhausted; others think that a change of culture is imperative, otherwise the flower crop will always be light in future. Without, however, ignoring the great benefit narcissus would derive through a change of soil and rotation of crops, I may, perhaps, venture to say that the direct cause of this season's failure is undoubtedly climatic influence. The winter of 1897 was mild, though dry, and what with an exceptionally dry spring and early summer, together with heavy March gales, early maturity, and consequently weakening of bulbs, resulted, so that I never have seen smaller and poorer bulbs than last summer. In dry exposed places, of weak-growing sorts, such as Narcissus poeticus ornatus or incomparabilis, the last year's flowering bulbs have entirely disappeared, leaving only the non-flowering offsets struggling on for existence. On the other hand, where properly sheltered from gales and sea-spray, and in a deeper and more retentive soil, the slight crop has been less apparent this season in Scilly; but, of course, here, as in agriculture, with the best of soils, unless well-managed the crop is often poor in the best of seasons.

Owing to long connection with the firm of Mr. Ware, of Tottenham, who has done much to increase the flower trade of Scilly, I can speak with experience, and I must say that I have seen very few places where less trouble is taken with flower culture than in Scilly, and the treatment is often most injudicious. The bulbs are often ploughed out and again ploughed in—at least, it is called ploughing; scratching would be a better term, for the soil is not moved to a greater depth than four or five inches, the sub-soil being hard. As for cleaning; well, this is done by many growers not more than once a year, and should the weeds grow too freely, they are simply mowed down, even when the leaves are still green. As a trial only, I saw clover sown on the beds which would have to be cut long before the leaves of narcissus had turned yellow; I don't suppose the same grower would like to do this with his potatos, which would almost be the same; in the one case we have the bulb for next year's flower, and in the other hand the tuber for food. Strong growing Narcissus Tazetta, or polyanthus forms, like Scilly White, Soleil d'Or, and Grand Monarque, are often left in the same piece of ground for four to six years, and if lifted are mostly replanted in the same ground. The newer hybrids of Ajax, and the Medio coronatæ, these should certainly never be left longer than two to three years; in some cases only for one year, and then be planted in well-prepared ground, which had at least a year's change, with early potatos or another crop.

Owing to the somewhat shallow soil, which is, however, exceptionally good in some localities certain sorts cannot be grown at all to be profitable these should have long been discarded for sorts more adapted to the islands; but one still finds the old common Pheasant's-eye narcissus, Biflorus, Stella, Major with, others grown in localities where they have not produced a crop, ever so light, for years. There are some growers in Scilly who have, with a less heavy crop of flowers this season in comparison to last year's abundance of flowers, nothing to complain of, especially as prices were better; but these were invariably those who take greater trouble with their culture than the majority, but even these would not favourably compare with the industrious French flower-grower of the South of France. With such a matchless climate as that of Scilly all that is wanted is shelter against gales, strong growing sorts of narcissus (early as well as late flowering), and a change of ground, with a certain amount of labour to keep the beds free from weed; I feel well assured that a little more labour bestowed will greatly help to avert another failure like the present one, brought about largely though it be by unfavourable climatic conditions. There is still another matter I wish to draw attention to, and that is the careless way some have of packing flowers when not perfectly dry, or by leaving injured blooms with the perfect flowers; the bulk realising often on this account very poor prices, so poor that I have known cases where the price obtained was not sufficient to cover cost of carriage. The latter is very heavy, but in spite of this Scilly can always hold its own on account of a favourable climate. To sum up, the Scillonians should use more labour and cultivate better, change crops frequently, grow suitable varieties, and pack the flowers more carefully. G. REUTHE.

I have just noticed your article upon the daffodils of the Scilly Isles in the issue of the 2nd inst. and thought that perhaps a few remarks from this district might be of interest to your readers. Firstly, I am rather doubtful as to the failure of the Scilly crop of bloom being due to faulty cultivation, though unable to speak from personal experience. At the last meeting of the R.H.S. I was talking to Messrs. Barr's salesman (Mr. Logan) who said that he had never seen such foliage in his life as he had seen this season on the farms of the Scilly Islands; he also said that one grower had learnt how to grow the variety Henry Irving in a perfectly healthy manner, and now had a stock of some tens of thousands. This man at any rate has got a long way ahead of most cultivators.

I am inclined to think that the season has had much more to do with the failure of crop than improper cultivation; for this reason, namely the complaint of poor blooms, or little of it, seems to be very general. From Lincolnshire, Hampshire, and our own neighbourhood one hears bad reports, especially with regard to the early kinds.

Our own stock certainly looks far below the average; neither foliage nor buds look really promising. This is the more noticeable in the [illegible] kinds, the later ones, such as Empress, Emperor, Bicolor, Grandee, [illegible] look about as strong as usual in foliage, but the buds do not give [illegible] the numerous blooms we are favoured sometimes with. My own [illegible] that a very mild winter is bad for the daffodil, the buds become excited into growth too early, and the blooms have not time to develop. Certainly we never had finer blooms than after the severe winter of 1894-95. In that year (1895) the very first bloom to open was on N. minor, on March 25, and we had no quantity of bloom open until as late as April 14, yet when they did come out they were extremely fine. Of course "one swallow does not make a summer," and one season will not prove a theory. I am only comparing two seasons which I have in my mind. It would be interesting if some of your readers in other parts of the country would say how the season is treating their daffodils. The late gales and snowstorms have knocked all the life out of early blooms, the first flowers of Golden Spur, Queen Bess, Mrs. Thompson, &c., were made into pulp. I hope we may have a very favourable ending to the season after such a bad opening.

Chilwell Nurseries, Notts. J. DUNCAN PEARSON.

GARDENERS' ROYAL BENEVOLENT INSTITUTION

"VICTORIAN ERA FUND."

YOUR readers will doubtless remember that this fund was established last year to commemorate the completion of the sixtieth year of her Majesty's beneficent reign. They also will recollect that its object is to temporarily assist unsuccessful candidates, whilst awaiting election, who have been (or their husbands) subscribers to or life members of the institution. The total amount received up to December 31 has been invested, and the committee are glad to be able to announce that the income derivable therefrom this year will enable them to distribute the sum of £106 10s., the first half of which was sent on April 1 to eighteen unsuccessful candidates as follows, and has been divided at the rate of 15s. for each year they (or their husbands) had subscribed:—

	Years self or husband subscribed.	Amount sent April 1, 1898. £	s.	d.
Byran, Andrew ...	13	4	17	6
Nixon, Francis ...	13	4	17	6
Plevy, James ...	12	4	10	0
Staples, George ...	11	4	2	6
Wood, Caroline ...	11	4	2	6
Gibbons, John ...	10	3	15	0
Watt, James ...	10	3	15	0
Hackwell, Elizabeth	9	3	7	6
Wills, George ...	9	3	7	6
Barnfield, Alfred	8	3	0	0
Hatch, Annie ...	8	3	0	0
Mitchell, Lucy ...	7	2	12	6
Shearn, Joseph ...	7	2	12	6
Lee, Alexander ...	5	1	17	6
Evans, Thomas ...	4	1	10	0
Gould, William ...	2	0	15	0
Thomas, William	2	0	15	0
Woodward, Emma	1	0	7	6

From the above it will be seen that the aggregate number of years of subscriptions is one hundred and forty-two, which at 15s. for each year gives a [illegible] of £106 10s., the first instalment of which, as already stated, was sent on April 1 last and the remainder will be sent on October 1 next. The Committee are very anxious to bring up the total amount of this fund to £5,000, to do which they require a sum of £925; and I should like to draw attention to the generous offer made by N. N. Sherwood, Esq. (trustee), to contribute £50, provided the amount required be raised, in response to which the following gentlemen have each kindly promised a similar sum: Arthur W. Sutton, Esq., Reading; Leonard Sutton, Esq., Reading; Harry J. Veitch, Esq. (treasurer); and several smaller contributions have already been received. The Committee sincerely hope that before the close of the year they may be able to announee that the balance to make up the £5,000 has been received. They trust, therefore, that every well-wisher of the institution will note that the "Victorian Era Fund" is still open, and that donations to it will be most gratefully received. The committee also desire again to emphasise the notice which has already appeared in your columns and elsewhere that this fund is intended for the benefit of those only who have subscribed to the institution. GEORGE S. INGRAM, *Secretary.*

AVERAGE LIFE OF A POTATO.

WITH regard to the opinion of Mr. Fidler, which appeared in the GARDENERS' MAGAZINE of March 26, respecting the average life of the potato, which, he says, would be twelve years, I cannot quite agree with him. In the first place we will take the Ashleaf Kidney, which cannot be beaten for earliness, productiveness, and quality. This potato has been cultivated for over sixty years. I tried last year twenty different sorts of potatos, besides eight varieties [illegible] saved seedlings, which promised well for two seasons, but did not give [illegible] satisfaction of the old variety Ashleaf and Gloster Kidney. In the [illegible] I find nothing to come up to the old Irish potato, the Flounder, either [illegible] or quantity; this potato has been grown for many years, is one of the [illegible] and cooks well when quite young. I grew a better crop last year from the [illegible] named three varieties than I have for many years, and my opinion is that [illegible] fully cultivated they will go on as they have done for any number of years. [illegible] we must not pass by the old Scotch Champion, for it is one of the [illegible] potatos of the very best cooking quality, and very productive; [illegible] variety, and as good a cropper now as ever it has been. I find nothing [illegible] crop variety to equal the Magnum Bonum, sent out by Messrs. [illegible] in the year 1876; it cannot be surpassed for late keeping, is very [illegible] disease-resisting potato, and as vigorous a grower now as when [illegible] introduced.

Then we have the Bruce, a splendid potato for main crop and disease resisting; the quality all that can be wished for, and again this is a very old variety. I grow the varieties that answer my purpose the best. I want both quality and quantity, for I need annually from twenty-six to thirty tons, so I have found [illegible] by experience the best croppers. I do not, however, decry the later introduced varieties sent out. Mr. Fidler opines the average life of a potato is twelve years, and after that age a variety loses vigour, no matter how well grown or how carefully the seed is changed. In my opinion, when potatos are well ripened and properly stored during winter, the life of the potato is of much longer [illegible] and I for one do not believe potatos deteriorate. T. DAVI

The Gardens, Castle Hall.

Spontaneous Hybrids of Hardy Plants.

IN a garden like that at Edge Hall, where hardy plants are allowed to shed their seed and the seedlings are only weeded up when they become so thick or so large as to be obstructive, it is natural that many accidental or spontaneous hybrids should be produced between species having close affinity. But plants are curiously capricious in this matter; for we find that many which are closely allied both in appearance and habit, never produce a cross, whilst there are others in the same genus which cross so readily that the seed ripened in this garden can never be depended upon to come true. For instance in the genus Dianthus, D. alpinus and D. neglectus flowering together on the same rockery, do not mix; whilst D. cæsius and D. superbus, and some others are always being transformed. Again I have never seen a cross between Scilla sibirica and S. bifolia, which flower and seed by hundreds in the same border; but S. bifolia crosses abundantly with Chionodoxa Luciliæ. In others, as aquilegia, polemonium, verbascum, the tendency to cross seems general. As regards the fertility of hybrids it is perhaps imprudent to dogmatize; though many are, as far as my experience goes, invariably barren, polemonium, verbascum, campanula, papaver, belonging to this class, whilst others are more or less sparingly fertile, though never constant, either producing an ever-varying progeny, or reverting to one or perhaps both of the parents.

These hybrids of hardy plants generally have the merit of a prolonged flowering season, and, in many cases, of greater vigour of growth and facility of increase by division, than either parent, though it might be too much to assert that this vigour lasts indefinitely, or that they have a duration of existence to be compared to that of a species. It would be difficult to prove this, because similar hybrids are probably produced repeatedly, and duration of life only comes into the question where both parents are perennial; for, as far as I have observed, when the cross is between a perennial and a biennial or annual the plant always follows the shorter-lived parent.

It is impossible in a short notice to speak of all the hybrids I have noticed, but I give particulars of a few of them. All the perennial species of polemonium seem to cross when grown near together. Perhaps the most remarkable fact about them is the readiness with which P. flavum becomes impregnated with the pollen of P. cœruleum, and the exactness with which the seed reproduces the pollen parent, both with blue and with white flowers. The type of P. cœruleum always has what is called an ascending growth, whilst the hybrid has divaricate stalks; but the most obvious and certain distinction is the profuse seeding of the type, and the sterility of the hybrid. Still, the characters so nearly resemble those of the pollen parent that if I had not repeatedly satisfied myself that the seed was produced by P. flavum, I should have thought it incredible. P. reptans, P. humile, and the variety commonly called in gardens P. Richardsoni, all intercross, and some of the results are very neat and distinct border plants. To turn now to verbascum, the readiness with which the Mulleins all cross is well known, and some of the hybrids of biennial kinds are very beautiful, the various colours of V. phœniceum being imparted to the tall branching habit of such biennial species as V. Blattaria and V. Lychnitis, but these are only lucky accidents, which cannot be artificially produced with any certainty as to the result. However, crosses between V. phœniceum and V. nigrum produce true biennials, varying widely in colour, and often having great merit, as they send up a succession of profusely flowering spikes, and may easily be perpetuated by dividing the root into lengths; still, their duration is not for many years.

Poppies sometimes produce interesting hybrids, not only the allied Papaver orientale and P. bracteatum, which if grown from seed ripened in the same garden produce an indiscriminate and intermediate but fertile offspring—or P. nudicaule, P. alpinum, and pyrenaicum, which also assimilate, and are perhaps only varieties of one type, so their crosses are fertile—but also such distinct kinds as the tiny P. caucasicum, which has more than once in my garden produced a cross with P. Rhœas, to die of course at the end of its first flowering, and never producing a seed. But I have a very good perennial hybrid poppy not produced in my garden, although raised there, from seed given me of P. rupifragum, fertilised with pollen of P. orientale. It is intermediate in character, very ornamental, and flowery, being absolutely sterile, but increased slowly by division. Before dismissing poppies I should like to say a word about the very distinct poppy known in gardens as P. umbrosum, from the Caucasus, its botanical name is P. commutatum, and it is now considered a variety of P. Rhœas, but though I have for some years grown it in the same bed with the many coloured P. Rhœas, the two forms continue distinct, and I have never been able to observe any intermediate characters.

Heuchera sanguinea has produced two distinct hybrids in Edge Garden, of both of which it is inferred to be the seed parent, from the fact that the conjectured pollen parents grew at a distance. One is obviously a cross with H. cylindrica, a species having rather large pale-green flowers. This hybrid has pink flowers, not without a suspicion of green; the spikes are produced plentifully all through summer and until late in autumn; the habit is good and intermediate. The other has also pink flowers, but smaller, and the habit of the plant is more diffuse; it was probably from the pollen of H. hispida, or one of the kindred dark-leaved species. It resembles closely what I have seen offered in nurseries by the name of H. brizoides. Both these hybrids are sparingly fertile, and their seeds have come up, but have not yet flowered. The giant Spiræa kamtschatica, which resembles a giant meadow sweet, eight feet high, seems to behave like a plant which produces no pollen in Edge Garden. I have examined the dry plumes without being able to find any seed; but nearly every year two or three seedlings come up near it which have produced pale-pink flowers, the stature being hardly half that of the parent; they seem to be intermediate with S. venusta, and are graceful plants, superior to S. kamtschatica.

Other hybrids of which I have established a stock are Aster Thomsoni with A. amellus, and A. Thomsoni with A. pyrenæus, both of merit, both on account of their habit and elegance, and their flowering season, which lasts from early summer to late in autumn. Both are entirely barren, though I dare not assert that hybrids of asters, which come abundantly in the garden are always barren. Columbines are plants of which every species seems ready to cross with any other in the genus, and the crosses are all fertile. Their flowers are supplied with pollen by the bees as soon as they open, so that no species in the garden can be trusted to reproduce itself, and they undergo from generation to generation endless changes. If, however, the best species, like A. cærulea, are not frequently supplied, the stock has a tendency to deteriorate, and to be merged into the strongest kinds, chiefly the old world A. vulgaris. By eradicating the inferior flowers as soon as they show, and selecting the finest for seed, a good strain is kept up, but the same plant will give seed which produces both stubby short spurred and fine long-spurred flowers. There is no space here to speak at length of hybrid primroses, and the alpine primroses are not happy in the soil and atmosphere of this garden, so get little attention, but many of the genus cross readily; the wild yellow auricula, and the self-purple kinds, probably P. viscosa, cross readily, producing every variety of border auricula. P. rosea and P. denticulata have also crossed, but the mixture was only fit for the rubbish heap. I only mention one more hybrid in conclusion, a very pretty and elegant plant, between Ranunculus amplexicaulis and R. gramineus. The large flower, of citron colour, and the leaf and habit being in all respects half way between the two. It is unfortunately of delicate growth, and hardly seems likely to produce an established stock.

Edge Hall, Malpas. C. WOLLEY DOD.

Potting v. Planting of Arum Lilies.

THE system of growing arums in pots the year round finds favour with many who grow large quantities, and who require spathes at certain seasons, commencing as early as possible. For many years we planted out our arums, repotting them in the early autumn, and this system I have advised in these pages for the production of especially fine spathes. Needing a great many more plants than previously for decorative purposes, and these in large batches, we have for the past two years followed a different course of culture, growing arums always in pots, and treating them more like bulbs than otherwise. The season for resting arums will soon be at hand, so that my note will apply at this date. We usually rest our plants from May to early July, and this is an important part of their culture. The arums will have ceased to flower by the early part of May, and it is advisable to rest them at that season if early winter flowers are desired; by feeding and abundant supplies of moisture arums may be had in bloom at midsummer, but I think at that season, with a wealth of other flowers, they are unnecessary, while they are of great value at Christmas and Easter. It is to the production of winter spathes that my note refers.

From the end of April or early in May for about six weeks or two months our arums are placed in the open close together, much in the same way one would treat pelargoniums after flowering, and treated thus they lose many of the outside leaves. They are kept quite dry until potting time, and then the plants are shaken clear of the old soil and placed in pots; the largest roots will need eight-inch pots, as the growths are nearly as thick as one's wrist; there is the advantage in growing the plants singly that they are then most useful for decoration, and can be used to better advantage. The smaller plants go into smaller pots down to five-inch sizes. I need not dilate upon composts, as nothing new can be said, but it is well to pot firmly to obtain strong, sturdy foliage from the start, as thick, leathery leaves are as important as spathes for decoration. After repotting it is important to water carefully until new roots are plentiful; and the plants well repay cold frame shelter in rainy seasons, and growth is soon vigorous, and the plants should stand on a warm border or be exposed to full sunshine, so that by the middle of September they will be ready for housing. I have potted up much earlier than advised, after a much shorter rest, and plunged the pots up to their rims in an open border; this plan may with advantage be carried out by those who object to severe drying off. There is no difficulty in obtaining plenty of spathes for Christmas by the culture advised above, and this means much to many growers. From the time the plants are housed liquid manure may be given freely, as the pots will be full of roots, and the flower stems advancing.

Take now the case of plants put out in borders in May or June after flowering; of course it is necessary to divide if the plants are to occupy medium-sized pots when lifted, as they increase so rapidly that the smaller growth greatly robs the flowering plants. Potting up being done at the usual time, it is impossible to lift without breaking some roots, and there is thus a check; indeed, I have seen plants flag badly, for in some cases the ball of earth falls away from the roots, and for a time the plants are busy making new roots, and so flowering is retarded. I admit large individual spathes may be obtained from plants treated thus, and to many this may be an important point, but of course each one must study his own wants. On the score of general utility, I am strongly in favour of retaining the plants in pots all the year round, and drying off if large quantities of flowers are needed. There is also less labour needed for this system, and to many this is a consideration; the one potting up suffices, whereas quite as much time is taken in planting, and potting up has still to be done.

Syon Gardens. G. WYTHES.

MANDERSTON, DUNS.

THIS fine estate is the country seat of Sir James Miller, Bart., and is picturesquely situated about two miles from the small town of Duns, and the same distance from the station of Edrom, in Berwickshire, on the North British Railway. On the morning of my visit to the gardens of this establishment the walk from Duns was a most enjoyable one, along the well-protected and tree-lined road. Arriving at the lodge, Mr. Sharp, the gardener, was soon found, and he very kindly pointed out the objects of interest. As soon as one enters the gates the tidiness and general well-cared-for appearance of the place attracts notice: then, also, everything seems in the right place, and the good taste of the proprietor is well displayed.

The glasshouses are situated to the north of the mansion in the large, walled-in kitchen garden. They face south, and consist of a long range containing both plant and fruit houses. Entering by the stove end attention is drawn to a superb specimen of Polypodium subauriculatum suspended from the centre of a dome; this plant carries about a hundred fronds varying from twelve to fifteen feet in length, the stretch across the pinnæ being more than eighteen inches. Its receptacle is a wooden basket about two feet six inches in diameter, and it certainly is a wonderfully well-grown specimen. Other occupants of this house are useful palms, dracænas, and a fine lot of Anthurium Scherzerianum and its varieties, all bearing plenty of spathes. In the peach and nectarine house adjoining a good set was evident; the trees are grown upon the spur system now seldom adopted, and for some reasons scarcely to be commended. Figs covered the back wall, and a large number of pots of iris, ixias, Gladiolus The Bride, were being brought on for conservatory decorations. The vines in the next house were Muscats, and gave evidence of good bearing. The borders have lately been remade by Mr. Sharp. The conservatory, which forms the centre of the range, is a tall structure, the centre artistically planted upon a raised rockwork, palms, ferns and flowering plants giving it a very pleasing appearance. At one end is arranged a waterfall with a pool below, upon the surface of which the shadows of the surrounding plants are thrown. Against the roof are Cobæa scandens variegata, heliotrope, Plumbago capensis, and many other plants, while the side stages are filled with pots of liliums, cyclamen, richardias, azaleas, rhododendrons, &c., and the effect of these in conjunction with the greenery of the centre is very effective. Another peach-house gave promise of a good stock of fruit, the trees here being trained to the trellis both in the front and along the back wall.

The other end of the range contains an intermediate house. The centrepiece of this house is a huge example of Ficus elastica which is bearing fruit. Other occupants are gloxinias, Euphorbia jacquinæflora, ferns, &c., all making a very considerable display. Leaving this range of houses the kitchen garden is entered, and here everything was ready for cropping. Well-filled herbaceous borders edge the walks, and there was an abundance of crocuses, scillas, primulas, &c., in flower. A walk from the mansion bounded by a well-trimmed hedge of conifers leads through an arch and beaten wrought-iron gate into this garden, a sundial finding a place in the centre in close proximity to the range of houses. A large quantity of cut flowers are required here, and in the outer garden are frames of violets from which Mr. Sharp has been cutting nearly all the winter. Passing through some small pits filled with eucharis, crotons, and other plants requisite for the decoration of the house, besides a batch of Richardia Elliotiana, Vanda teres, and some phalænopsis, over a tank, we come to the orchid houses proper. These are span-roofed and built of teak which is plainly varnished. The warm house is filled principally with cypripediums, calanthes, and vandas, and of the first genus several good plants were in flower: C. Chamberlainianum, C. hirsutissimum, C. Exul, and Dendrobium densiflorum, were in evidence, as also a good plant of a Bromeliad—Tillandsia Regneli. In the well-filled cattleya house some good specimens of cattleyas and lælias were in flower, as also was a fine lot of Dendrobium nobile, D. Wardianum, and Cœlogyne cristata alba. A monster specimen of Epidendrum prismatocarpum, four feet or more through occupies a prominent position opposite the door. Of odontoglossums there were good examples in flower of O. Andersonianum, O. triumphans, O. Halli, O. crispum, &c. Wooden lath blinds are in use here and spoken very highly of.

In the garden are a few large oaks, elms, and limes, dotted about the north front, which is now being relevelled. Leading from the garden to the house is an ornamental piece of rockwork through the end of which runs a little stream. Here are many alpine and herbaceous plants and ferns which appear to enjoy their positions. To the south side of the house the ground slopes to a large sheet of water surrounded by a wood through which walks are cut. A bridge of stone spans a small stream and leads to one of the lodges, and along this road tree felling is being conducted to give space for good growth to those left. Although rather exposed to the winds from some directions, some good views are to be obtained of the surrounding districts from Manderston, and I was loth to leave this beautiful estate of Sir J. Miller.

H.

At Brooke House, Isle of Wight, the conservatory and greenhouses, under the capable management of Mr. W. Tribbick, contain some very interesting and well-grown plants. A large collection of Eucharis amazonica is in fine health. In the orchid department are some fine specimens of Dendrobium Paxtoni, and D. fimbriatum. The cypripediums in variety, promise a good show of bloom. The large collection of seedling amaryllis in a house adjoining the orchid department, is exceptionally fine; and elsewhere huge plants of cliveas, arums, and [illegible], are all gay with bloom, whilst there are two especially noteworthy plants, namely, Iris fimbriata, with eleven large spikes of bloom, and Iris Robinsoniana—the Wedding Flower. There are many other things of interest to the lovers of horticulture, says our Isle of Wight correspondent, at this charming garden.

VEGETABLES FOR EXHIBITION.

PARSNIP.

FOR some reason the parsnip (*Peucedanum sativum*) is not held in such high esteem as many other vegetables. One often hears the remark; "I like any kind of vegetables except parsnips." Nevertheless it is considered a most wholesome and nutritious article of food, and when well cooked it is much prized by many during the winter months. Anyone who owns a garden may cultivate them for ordinary use with very little trouble. It is a free-growing plant, is subject to few diseases or garden pests, and is extremely hardy. Indeed, after the roots have been subjected to severe frosts the flavour is much improved. A light sandy loam is unquestionably the favourite and most suitable soil for parsnips, but I have never seen a failure on any kind of land when properly treated. The ground should be deeply and thoroughly trenched during the autumn (certainly before Christmas), but not manured. A piece of ground previously occupied with celery is preferable to any other. The ground should be forked over and broken as fine as possible by the end of January or beginning of February, after which the seed should be sown at the very first opportunity, as in all stages the parsnip is perfectly hardy and a long season of growth is necessary. Drills should be drawn one and a half inches in depth and eighteen inches asunder. The seed should be sown thinly, pressed in, and levelled down finely with the wooden rake. Neat alleys should be thrown out on either side of the bed, and the whole should be finished off and left in a tidy manner. As soon as the seedlings are in the rough leaf thin them to one foot apart, and if the surface be stirred frequently nothing further will be required till growth is completed. Parsnips are much the best when left in the ground to be taken up as required, but it is as well to have a few in readiness in case of a long and severe spell of frost, or it will be found very difficult to lift them when the ground is hard. By the beginning of March the remainder should be lifted and stored under the north wall in sand or ashes, or the roots will commence to grow again, in which event they will be of little use.

Only a favoured few possessing an ideal soil for parsnips will be able to produce the fine clean-looking specimens often seen at our autumn shows, without a certain amount of care and trouble. But an enthusiastic exhibitor will not mind this, providing he can meet with success; and I am certain, from personal experience, that the very finest of roots may be grown on any soil if the cultivator will follow out the advice here given. As for beet-root and carrots holes must be bored, but these will require to be thoroughly made, and a depth of five feet will ensure this. Use a mixture of loam, road grit, and thoroughly decayed leaf soil in equal proportions, adding one peck of wood ashes to every barrow-load. The whole should be thoroughly mixed and passed through a quarter-inch sieve, and should be used as dry as possible. It should be pressed firmly into the holes, which must be twenty inches apart, and two feet from row to row. A small hole one and a half inches in depth should be made to receive the seed, in which four or five should be placed. These should at once be covered with fine road sand. Thin the seedlings to one at each station, and once a week, at least, the plants should be dusted over with soot, and the Dutch hoe used frequently. This is all that is required, and the cultivator may rest assured that when the time comes for lifting he will be rewarded with fine exhibition specimens from a small number of plants without digging over a great portion or possibly the whole of the permanent bed. In my opinion parsnips ought never to be shown before the end of August or beginning of September, but for October or November shows I consider them a most important dish in a collection of vegetables. The specimens should be of medium size, long and tapering from the top to the tip of the root without any sign of coarseness or canker, with the skin clean and white. Parsnips ought never to be dug up for exhibition till the day previous, or much of their freshness will be lost. They should be thoroughly soaked in cold water and carefully sponged but not rubbed, all the small rootlets should be removed with a knife and the leaves cut off to within three inches of the crown. Six is generally the number shown, and the whole should be arranged on a carpet of parsley in a pyramid, of course choosing a faultless specimen for the top. In close competition, however, each root will be examined, and rightly so; but nevertheless it is quite lawful for an exhibitor to present his produce to the judges and public in the best and most pleasing way he can, and arrangement, in my opinion, ought always to be taken into consideration. The Student, Hollow Crown, and Sutton's Tender and True, are all first-rate kinds for any purpose.

E. BECKETT.

Aldenham House Gardens.

WHITE TURKEYS.

THIS beautiful breed is probably more common in the south of Europe than elsewhere. At all our first-class shows a few are to be met with, but they lack the size of Bronze American and Cambridge Bronze. Those who breed them declare that the flesh is the finest of all in flavour, and I recently met a lady who breeds both bronze and white turkeys, and she declares that her husband, a well-known Midland baronet, will not have the former, and can at once distinguish [illegible] the table. This may be partly predilection, but he evidently knows the difference, and is very strong in his preference. A good white turkey is very handsome, and he has all the qualities of his race. Personally, I believe that the better quality is scarcely due so much to breed as to size, for the big birds are coarser in flesh, and lack the fine flavour which characterises small or medium-size turkeys. It would hardly do to apply this theory all round, for then we should have to alter many ideas and aims, but in poultry it is true. The biggest fowls are never the best, and frequently the largest eggs lack that flavour which is found in smaller ones. Weight, therefore, should only have its due influence.

T. B.

LANDSCAPE GARDENING.

Formation of Ground, and Levelling.

After a few general remarks on the importance of plan and system, Mr. Milner advised in his third lecture making a plan of the ground as it is. For this purpose the Ordnance Survey maps proved very helpful, and these might be divided into sections by lines, and so enlarged as to clearly indicate the physical characteristics and surface formation, artistic trees, buildings, rising and falling of the ground, the site of the house, terrace, pleasure grounds, stables, kitchen gardens, &c. The first two points insisted on by Mr. Milner after the choice of the site for house and gardens, were to husband the surface soil for future use; and to make a good solid approach, notably and preferably the back road, to form a useful road for the heavy cartage incidental to building. Plans should also be detailed showing the intended levels of drives and other parts. Numbered pegs should be put in at a minimum distance of one hundred feet apart, and the gradient line should be marked on the plan section to give the depth of cutting and filling, and the position of each peg. When the levels are settled, the drains for roads, walks, &c., can be laid, and if only surface water is to be carried, three-inch pipes are sufficient for two hundred yards, but for longer distances four-inch pipes are needed. On level roads or steep gradients, the gully holes should be twenty-five yards apart, but on a slight incline fifty yards apart. They should be more frequent on walks, as the gradients are often steeper and the gravel finer. The gratings for gully holes on roads should be nine inches, and on walks seven inches. Outlet pipes from gully holes should be placed at least six inches from the bottom to allow for deposit, which should be frequently removed. In forming roads and walks at least six inches of broken bricks, stones, coarse gravel or well-burnt ballast should be spread over the bottom; four inches will suffice for walks. Over this put a coating of stone that has been broken to pass through an inch riddle, and then of fine gravel three inches thick on drives, and two inches on walks, should be spread. A drive fourteen feet wide should have a fall of three inches from centre to sides, and a walk of six feet two inches fall.

Turf edging should rise one inch above the rolled surface of the road or walks. Turf, especially, that on slopes should have nine inches in depth of uniformly good soil under it to prevent scorching and irregularity of growth. As to the formation of lawns there is no better way than laying them with turfs three feet long and one foot wide and one inch deep, or sowing them with forty-five pounds of mixed grass seeds per acre. It speaks volumes for the soundness of the late Mr. Robert Thompson's receipt in his "Gardeners' Assistant" to find this still valued by Mr. Milner. Certain general principles were referred to as to curved lines whether of surface, walks, or roads, and the general rule laid down that the curves should be set out with broad sweeping lines the chord of which should be so great that each sweep should be hidden from the succeeding bend. A multiplication of meaningless curves on walks should be avoided, as should be the creation of the wriggling serpentine lines so often seen in little gardens.

Planting.

Planting, in landscape gardening, has a wide and special meaning. It includes far more than preparing the soil for the plants, or placing the plants skilfully in the ground. Mr. Milner said that as a skeleton must be clothed with living flesh to be a thing of beauty, so the undulations or main features of the ground need to be covered by verdant grass, with its delicious expression of restful quietude; and thereon Nature lavishes her infinite variety in form, height, colour, and contrast. The gradations of the sky line, the fine irregularities of line where the lower verge of foliage touches lawn or grass, the emphasis of sunshine and of shadow, have to be considered as well as trees and plants. These form our landscape, and practically these are the chief points to be settled before we plant. One place needs shelters, a second concealment, a third opening to reveal a distant prospect. Rising ground may apparently be raised, if we cover it with wood, but the trees should be tallest as they reach the summit; the outlines of groups in a park should not be regular, nor in a succession of easy sweeps, or form a serpentine line. They should have strong prominences marked by detached trees that stand out boldly in the group, and they should present deep recesses. In plantations near the eye lights and shadows are more apparent than on distant groups, and the effects are stronger, therefore dark foliage planted in a near recess makes it appear deeper still. White foliage or blossoms seem to be nearer the spectator than they really are. Objects become fainter in effect as they retire from the eye, so detached clumps, or a single tree of lighter green, will therefore seem to be further off than an equidistant plant of darker hue. A regulated gradation of one tint to another will apparently add to the length of a continuous patch, according as the gradation commences with foliage of light or dark green. When a long continuous line of boundary or other planting cannot well be broken, for sheltering or other reasons, a pleasing variation may be given by placing light green plants of graduated tints at certain positions in its course, as the effect is to give the idea of distance at those points; this idea of expanse will be still more promoted if the sky line of the tree tops is lowered with a gentle curve, lowest where there is the lightest shade of green.

Among the dark foliaged trees may be named the oak, chestnut, beech, elm, Austrian pine, spruce, cedar of Lebanon, hemlock, fir, yew, and holly. Among the lighter greens—Plane, birch, ash, acacia, lime, poplar, willow. laburnum, larch, Abies concolor, Pinus insignis, Abies Douglasi, and Cedrus Deodara. Among red-greens are varieties of maples, the American oak, and purple beech. Among white-greens—Buckthorns and poplars. Mr. Milner at the close of his lecture, illustrated the grouping of trees in relation to their character, and colour, as well as the furnishing of villa gardens, &c., with illustrations on the black board. He also briefly referred to the effect of judicious pruning in relation to the planting and furnishing of landscapes, noticing the Japanese mode of dwarfing plants—keeping a century-old tree down to three inches—and some spruces that he had seen in East Anglia a few feet high and a hundred years old. Some details of his method of transplanting large trees, with lists of trees and shrubs for different soils and sites, concluded an informing lecture. All ground for planting should be trenched at least two feet deep, and in making new gardens all good earth from foundations of buildings, roads, &c., should be stored for forming raised banks, or deepening surface tilths.

With a staff of thirty men as many as twenty trees whose stems average one foot in diameter at the ground level, with a height of thirty to forty feet, have been safely removed to new positions at an average distance of one hundred yards in one day. The trees were prepared on the previous day. Those most suitable for removal are horse chestnuts, sycamores, maples, limes, beeches, service trees, and mountain ash. Open a trench five or six feet distance from the stem, severing the larger roots and winding the smaller round the ball of the tree. At a depth of three or four feet dig nearer the stem, shaping the ball like an inverted cone, leaving a base of earth two feet in diameter under the stem. Bind ball and roots firmly round with matting, and then place thick planks on each side of the central support. Pass good ropes two-thirds of the way up the stem of the tree and pull one of these in the direction of the main plank, and draw the tree over to one side. Place two or three six-foot planks under. Pull the tree over on the opposite direction and repeat the operation. The tree has thus a platform of planking resting on the two bottom ones, or sliding planks on wheels, the cross planks forming a carriage slide. Place the sliding planks in the line to be traversed, and also at the easiest way out. The cross planks should be bound together and a piece of matting placed over the stem. Pass a strong rope over the stem and let it cross the ball diagonally. Carry each end with a half-hitch over the stage of cross planks, and deliver an end of the rope to men on each side of the tree. These, ten or twenty in number, take the two ends of the rope and are ready to start. Planks are, meanwhile, laid from those under the tree to the required distance, care being taken that each succeeding plank end is placed a distance of six inches under the preceding one. These planks are then wetted or smeared with clay if the way is uphill. Two men hold guide ropes to steady the tree, and the others drag the tree to its place. Arrived there, remove the ropes, planks, and matting; place the roots on the site in about two feet of good soil, then ram the other soil firmly round the roots. For smaller trees, not exceeding six inches in diameter and weighing about a ton, a small sledge is more convenient. If many roots have been removed the leaf area of the tree should be reduced about one-fourth.

Mr. Milner concluded his lecture on planting with lists of plants for different soils and aspects of which it may be useful to name a few in each division. For shady places or undergrowth—Aucubas, berberis, yew, evergreen privet, laurel, holly, St. John's Wort, vincas, abies, blackthorns, and hornbeam. Chalky soils—Elder, ribes, thorns, beech, box, cotoneasters, yew, poplars, St. John's Wort, Prunus Pissardi, guelder rose, and periwinkle. Peaty soils—Rhododendrons, azaleas, andromedas, heaths, willows, birch, hemlock, spruce, white cedar, and kalmias. Exposed situations or near the sea—Pinus pinaster, P. austriaca, P. maritima, Abies cephalonica, poplars, sycamore, wych elm, thujopsis, cupressus, juniper, euonymus, white spanish and crimson broom. Near towns or in smoky districts—Austrian pinus, service trees, birch, almond, crabs, planes, chestnuts, willows, berberis, deutzias, laurestinus, evergreen laurel, privet, weigela, euonymus, hollies, and lilacs of sorts.

D. T. F.

THE PEACH.

The cultivated peach is a tree that will not successfully withstand either excessive heat or cold; Spain, Italy, Greece, Persia, and countries enjoying similar climates to these seem best suited for its culture. It will not thrive in a torrid climate owing to its requirement of an annual rest; nor in a very cold climate, for here the soil is too cold for the roots in winter, unless the peach is grafted on to some hardier stock such as the plum or almond. The almond is the favourite stock with most gardeners in this country. Peaches requires at least the protection of a wall in England, and some consider a broad coping is also necessary, but this all depends on the situation. The trees flower rather early, generally at the end of March, but blossoms will stand a large amount of cold so long as frost is kept from them, and they are dry; but excessive heat on the other hand proves very injurious. Seedlings are readily produced, but budding and grafting are the general means employed for propagation. We must, however, have seedlings ere we have new varieties, and seedlings also provide stocks, indeed, a stone sown in the autumn will produce a shoot fit for budding in the following autumn with proper care. Peaches do very well on their own roots indoors; but unless the climate and situation are very favourable, when grown outdoors, they, in a few seasons, become weak, the leaves become tinged with yellow, and the tree is soon useless, probably because the soil has been too wet or cold for the tender roots of the peach, whereas those of the almond or plum being more hardy would stand the unfavourable conditions better.

A south or a south-west aspect, with a well drained border, suits peaches, but if the subsoil is wet and the border insufficiently drained, the tree will take up more moisture than is needful, and the result will be rank growth that will fail to ripen properly. On the other hand it should not be very dry and sandy, or during the hot weather the tree will suffer from drought unless a large amount of labour is expended in watering. The trees not only require moisture for their growth, but also sufficient to replace that given off by the leaves during the time of bright sunshine or dry winds. If the roots are not supplied with sufficient moisture to meet these wants the tree must consequently suffer, for so long as the roots contain any moisture the leaves will draw from them until eventually exhaustion and shrivelling occur. In hot dry weather there is also that little pest red spider to be guarded against, and it can only be kept in check by a regular application of water on both sides of the foliage every day. Peaches will not support a good crop of fruit if in a poor and sandy soil, nor will they do so in a heavy clay; the most suitable mixture for a peach border is good turfy loam mixed with some dry cow manure and a good supply of lime siftings. Such a compost can be afterwards enriched by a top dressing of bone meal. It is an excellent plan to keep the surface of the border covered with a layer of stable litter, for this keeps out the frost in winter and prevents excessive heat from drying up the soil in summer. The trees are very apt to gum, especially if they grow with excessive vigour during the summer, so as to necessitate a hard pruning in the following spring; this can, of course, be avoided by careful summer pruning.

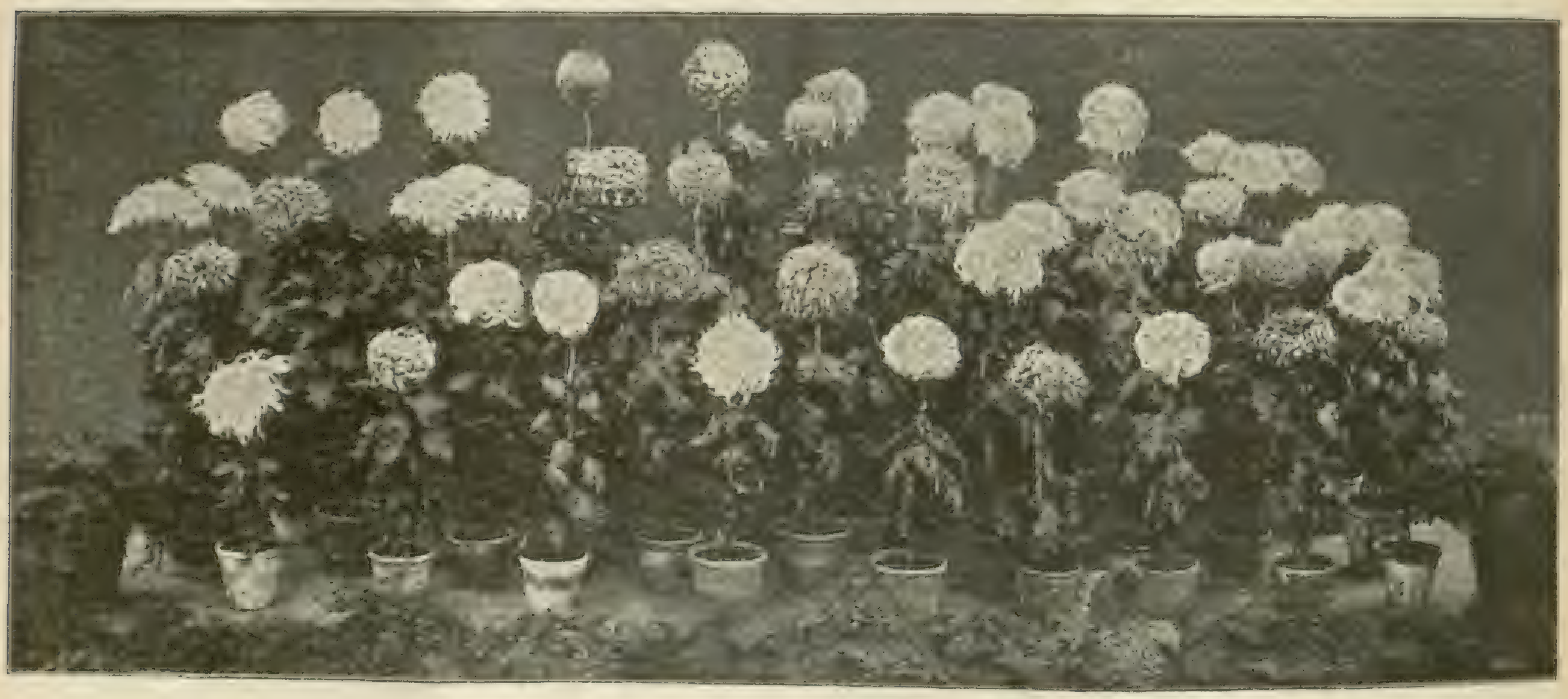
Earwigs are very destructive to the fruits, and are best trapped by placing pieces of broad-bean stalk about the tree and emptying them into some hot water every morning. Fruit should be fully exposed to the sun, especially as they near the ripening stage. When gathering the fruit it should be taken in the middle of the hand with the soft part of the fingers and thumb well behind it. In this way the most delicate fruit may be pulled, with a due amount of care, without risk of injury, as when ripe it readily parts from the stem.

F. J. Cole.

DWARFED CHRYSANTHEMUMS.

As the remarks in the Gardeners' Magazine in November last, descriptive of the plants then in bloom here, appear to have created some interest among cultivators of the Autumn Queen, I am induced to refer to the subject. For grouping, either for competition or for home decoration in conservatories, rooms, &c., this system of late cuttings is invaluable, and I feel certain there are many gardeners who, if they once tried it, would be more than pleased with the result. I may at once say I do not claim it to be a new system, for it has been practised in France, and discussion on the same was held in Lyons in 1896. With the remark not long since made that there was not much in the system I entirely agree, but to how many other methods might not this apply with equal force?

It is about four years since I first grew a few dozen chrysanthemums from late-struck cuttings, and was so pleased with the result that each year since I have increased the number of plants grown, and also tried many more varieties. For some years previous I had practised what is known as the cutting-down system, and to me this always seemed a most barbarous one. Cuttings were struck in December and plants grown on until the beginning of June; then the plants were cut down and labour was thrown away; then when the time for blooming came *how jew* produced blooms fit for cutting for exhibition as such; but by striking late some of the finest blooms I have ever seen have been produced, and during the past four years many have been exhibited on winning stands in strong competition, a result I have never seen from cut-down plants. Should anyone want to grow exhibition blooms alone, not caring for grouping, &c., I do not recommend them to try this system alone, but, as before stated, when both are required, I know of no system to equal this, for by it you can have plants in forty-eight and thirty-two sized pots, carrying from one to three blooms, the stems ranging in height from one to three feet, and with foliage to the rim of pot; such plants are invaluable.



DWARFED CHRYSANTHEMUMS AT FOXBURY.

I will as briefly as possible explain my practice, also give a list of varieties I have found to do best under it. There is another advantage however, I might just mention, that is, late-struck plants seldom throw up suckers until late in the autumn, and generally these are much stronger than from older plants; as every cultivator knows, many varieties begin to throw up suckers early in August, and these having to be continually taken off, it happens that when the time comes for taking cuttings, these are often drawn and weak. Then also you can store many more six-inch pots in a given space than the ordinary nine or ten inch ones, and this is a consideration where a large collection is grown. As many plants and varieties as I think I shall require are kept as cool and hardy as possible, giving sufficient protection in severe weather to keep them alive; this last season many have been standing at the foot of a wall, out of doors, as we have had so little frost, and they have needed scarcely any protection at any time. Had the weather been very severe, I would have plunged the pots in ashes, and covered the tops with a mat or litter. About May 18 or 20 we begin to take cuttings, putting each cutting singly in a thumb pot; the pots are then placed in a frame on a spent hotbed, where there is a very slight bottom heat. In about eight or ten days some will be rooted, when they are at once removed to a cold frame, and gradually hardened off; if left only two days after rooted they become drawn, therefore it is necessary to look over them every day until all are rooted. As soon as the plants are ready they are shifted into sixty-sized pots, and stood in an open position, and when these pots are full of roots we give a shift into forty-eight or thirty-two sized pots, according to variety and strength of the plant. During the remainder of the summer they require similar treatment to that accorded other chrysanthemums, care being taken not to let them become dry, for being in such small pots they require feeding, little and often being the safest plan. Some varieties will show a bud shortly after the cuttings are rooted. Such must be pinched off, and as the plants break from one to three shoots should be left as the cultivator deems fit. Of course when one shoot only is left, the bloom will be finer than if three are left, some varieties, viz., Souvenir de Petite Amie, Louise, Phœbus, W. Trelase, W. H. Lincoln, Boule de Or (Calvat's), Elsie Teichman, Viviand Morel, C. Davies, and several others will give good blooms, and make pretty plants when three shoots are left. Some varieties will grow from ten inches to two feet before showing a bud, and if this shows after August 1 it should be secured, as it is by these plants extra fine blooms are produced.

The following varieties I have found do well under this system of culture: Japanese—Col. Smith, one bloom, generally grows two feet high; Vivand Morel, Lady Hanham, and C. Davis, one to three blooms; Emily Silsbury, one to three; Lady Byron, Melano, Matthew Hodgson, Mr. A. G. Hubbuck, Oceana, W. Wright, Woods Pit, Mr. Gus Henry, Modesto, Sunstone, Hairy Wonder, C. Shrimpton, Duke of York, and E. Molyneux, one bloom each; Golden Gate, Etoile de Lyon, and John Shrimpton, one to three; H. L. Sunderbruck, Kentish White, Lady Randolph, Madame Carnot, Golden ditto, Mutual Friend, Miss E. Addison, and Miss M. Blenkiron, one each; Mrs. C. E. Shea, this variety when half expanded looked most promising, and some blooms were over a foot across, but before the centre developed the outer petals were past, therefore I shall not again try more than one or two plants of this variety. Mrs. C. H. Payne, very good, one bloom; Mrs. H. F. Druet is very pretty and distinct, one bloom; M. Chenon de Leche, very fine and dwarf, one bloom; Niveus, very good, one; Phœbus, one to three blooms; Pride of Madford, one; Reine d'Angleterre, one; Lady E. Saunders, very good, one; and Australian Gold, one. The foregoing have all done well. I have tried many other sorts, and some have been equal to the above, but others not so good; these named may be relied on. There are two other varieties, viz., Mrs. H. Weeks and Mrs. C. Blick, when grown on single stem, with their fine large foliage drooping over the pots, and monster blooms above, have only to be seen to be admired, but there is this difference with these two: cuttings should be put in by the end of March; confine them to one shoot, and taking the first bud that shows, as for the best bloom of Mrs. H. Weeks I had the bud was taken July 27. Others taken August 1 and later were not so good. Mrs. Blick may be taken a little later, but I like to obtain buds of this before August 20. Plants of these two varieties treated as above produced some of the finest blooms I saw last season.

The following incurved varieties I have found do well, but I restrict them to one bloom, with the exception of Mrs. Rundle and her sports, on which I have three: Sir T. Lawrence, Duchess of Fife, D. B. Crane, C. H. Curtis, the best of all grown this way, Bonnie Dundee, C. B. Whitnall, R. Petfield, G. Haigh, Mrs. R. C. Kingston, Harold Wells, Lyne jun., Mr. J. Murray, M. P. Martignac, Ernest Cannell, Major Bonnafon, Baron Hirsch, Mrs. G. Rundle, Mr. G. Glenny, and Mrs. Dixon. The last three are very pretty, producing three good blooms in a six-inch pot, and never growing more than three feet.

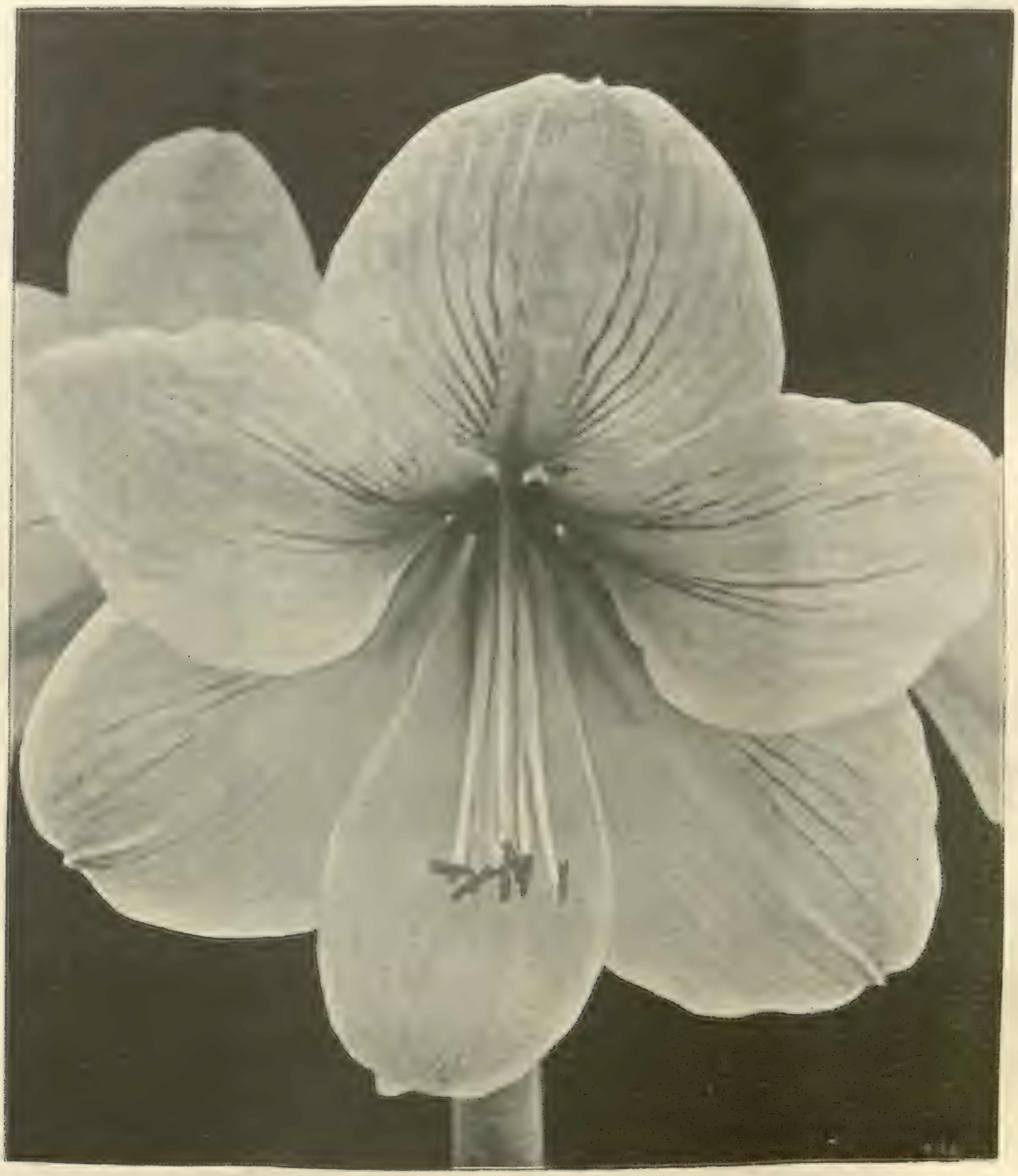
J. Lyne.

Foxbury Gardens.

Farm Labour in Queensland.—We learn from the Emigrants' Information Office, Westminster, that in the agricultural districts of Queensland there is a demand for good ploughmen and farm hands. The sugar industry is in a prosperous condition, and there are excellent openings for farmers with a little capital, after they have acquired some experience of the country. Miners and mechanics are in demand at some other of the Australian colonies, and in Canada.

HIPPEASTRUM MRS. GEORGE GORDON.

Among the seedling hippeastrums flowering for the first time in 1897 at the Chelsea nursery of Messrs. J. Veitch and Sons there were a number of particularly beautiful forms, especially attractive by reason of the great breadth of their segments, the rounded outline of the flower, purity of the white ground colour, and general robustness. At the head of these fine light varieties came the variety now illustrated, and named Mrs. George Gordon. With the exception of a few crimson and rosy crimson veins and pencillings, the variety is wholly white, and so it follows closely the almost pure white Iphis. A bloom of Mrs. George Gordon measures seven and a half inches across, and three or four flowers are produced on a spike. Seedlings from this variety have been obtained already, so that the extreme beauty of form will, it is hoped, be perpetuated. As stated in our report of the Chelsea exhibition, hippeastrum Mrs. George Gordon is again this year one of the very finest of the light varieties.



HIPPEASTRUM MRS. GEORGE GORDON. (Flowers white and crimson.)

GOOD STRAWBERRIES FOR FORCING.

A short time ago, in these columns I saw a solitary note condemning Strawberry Royal Sovereign, and thought the writer a bold man. We have just gathered one crop of strawberries of this variety; three hundred plants were started at the end of December for hard forcing, and I am more pleased with the behaviour of Royal Sovereign than in previous years, as few plants have failed. The percentage of fruit per per plant has been larger than from other varieties. For many years we relied upon Vicomtesse Hericart de Thury for first supplies, and, as regards flavour, it has few equals; but in our sunless locality we always experienced a difficulty in persuading the flower trusses to extend beyond the leaves, and another point was the smallness of the fruit. Royal Sovereign produces flower-trusses so freely that it needs support even in February, and the fruits are all one can desire, equal in size to ordinary summer fruits from open beds, while the quality is really excellent for strawberries at the season named. Quality in forced fruits of any kind is a debateable point, but in March a strawberry that is firm, large, and good, even if it is a little acid, cannot be much condemned.

Taking an interest in these fruits I recently made it my business to interview one of our largest Covent Garden salesmen as to the strawberries sent him, and I found Royal Sovereigns a long way ahead of all others, and I was not at all surprised considesing it produces so few small fruits, carries well, and is of a bright, fresh colour. This variety, being grown so readily, has, however, brought down the prices. From the private grower's point of view I have found Royal Sovereign a grand variety for forcing, and it can be grown with the certainty of a crop. At the present moment we have, in various stages, close on two thousand pot plants of this variety, and it is a great favourite for large gathering in the open early in the season; probably we have close upon five thousand fruiting plants this season: this shows it is appreciated. I know of no other variety so reliable for first supplies if grown well.

Another really excellent forcing strawberry is La Grosse Sucree. This produces beautiful fruits, and what is better, forces freely; for many years this was our March and April strawberry, but this year we gave Royal Sovereign a trial and we were not disappointed. La Grosse Sucree in the open is not so vigorous in our soil as the newer variety, but for forcing we still grow it by the thousand, and like it for its fine setting property, splendid dark-red points, its quality and shape. For later supplies, so far, we have found it difficult to beat the well-known but good President. I am aware it has a tendency to mildew, but taken in time mildew is easily kept down; and this variety is of first-rate quality, packs well, and will hang for days in a cool, dry house without loss of flavour. For cropping in the open as a midseason variety it is one of the best. For many years we grew several varieties for forcing from February to June, but the above kinds have proved so reliable that we grow them only.

G. Wythes.

WORK FOR THE WEEK.

COOL ORCHIDS.

CŒLOGYNE cristata and its varieties are usuallv grown in the intermediate house, but amateurs who have not this accommodation will find this beautiful orchid grow satisfactorily under cool treatment; no collection, however small, is complete without it, for it is certainly one of the best winter-flowering orchids we have, and deserves every care and attention that can be possibly given. Small plants, when grown in baskets suspended from the roof, and well established, flower freely, but old established clumps when properly treated flower much more abundantly; these specimens should not be disturbed unless they have overgrown their receptacles, or it is desirable to increase the stock, as it thrives best when a mass of bulbs. Plants that are in a good healthy condition soon overgrow the receptacles in which they are cultivated, and having no material to root in the bulbs soon decrease in size, and therefore cannot produce strong flower spikes; in such cases the leading pieces around the plants may be cut off and made up into small compact specimens. It is now a good time to attend to such matters, if necessary. Pans of a suitable size should be filled to within two inches of the rim with clean drainage, over which place a good layer of rough moss; the compost should consist of lumpy peat and fresh moss, with a little fibrous yellow loam and finely-broken crocks intermixed. After repotting, cœlogynes require careful treatment, as any root disturbance usually causes the pseudo-bulbs to shrivel slightly; do not deluge the plants with water in order to plump up the bulbs, but stand them in a shady position, syringe overhead, and damp between the pots. When well rooted in the compost and growing freely, an abundant supply of water should be given and more light afforded without exposure to bright sunshine; they will then make strong healthy plants.

Oncidiums are favourites with most lovers of orchids, and of the cool species there are many of remarkable beauty and distinctness. Such species as O. crispum, O. curtum, O. cuculatum, O. prætextum, O. candidium, O. Marshallianum, O. Gardnerianum, O. Phalænopsis, O. Forbsei, O. concolor, &c., may be grown in company with the masdevallias or odontoglossums, and are best grown suspended from the roof in well-drained pans or baskets; only a thin layer of material should be used, as these plants dislike a large quantity of moisture-holding material about the roots. They require a liberal supply of water during the growing season, but after growth is completed only sufficient should be given to keep the bulbs plump and firm. Numerous importations of these species takes place at the present season, and when the plants reach the grower they are sometimes very much shrivelled owing to their long journey, but it is not a good practice to pot these up in such a condition. After they have been thoroughly cleaned and all decayed roots and bulbs cut away, they should be laid on the stage in the cool-house, over a thin layer of sphagnum, occasionally spraying them over on fine days; this will help to plump up the bulb, and new growths will push out, from which roots will soon appear. When this stage is reached potting up in suitable sized pans, in a compost of equal parts of peat and moss, may be performed; keep the atmosphere nice and moist around them and water carefully.

We often have very changeable weather during this month, and constant watchfulness is necessary; shading should be used freely, and air should be given in accordance with the outside conditions. A regular supply of moisture must now be kept up by thoroughly damping the paths, stages, and other surfaces at least two or three times daily; very little heat from the hot-water pipes will now be wanted unless the nights be cold. as is sometimes the case. when a little should be given in order that ventilation may be maintained, for cool orchids do not like a stagnant atmosphere.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

DURING April is a suitable time for propagating Reinwardtia tetragyna, one of our most showy winter-flowering intermediate-house plants; its flowers are yellow, about an inch in diameter, and though the individual flowers do not last long they open in such quick succession that the plants are literally covered with bright yellow for several weeks during the dull winter months Though the old plants may be cut back and grown on a second season, by far the best results are obtained from those raised by cuttings inserted in April. For cuttings choose the strongest points of the old plants, insert singly in thumb pots of sandy soil and plunge in the propagating case; when rooted put into three-and-a-half-inch pots, and again later into six-inch pots, in which they will flower. A suitable compost consists of two parts loam, one part peat, with leafsoil, sand, and a little well-decayed manure, pinch frequently during growth to produce compact specimens, and as they are subject to red spider the syringe must be frequently employed to keep it in check. During the latter part of July and through August the plants may be grown in a cold frame where they will receive plenty of air and sunshine to ripen their shoots. Tops of dræcenas, crotons, and dieffenbachias which were notched and mossed a few weeks ago may be cut away, if the roots are showing, and potted into five or six inch pots, being careful not to break the rootlets during the process; when potted plunge in slight bottom heat and keep well shaded until established. Eyes of dræcenas inserted in pans early in the year will now have made growths of from three to four inches high; instead of potting these with the old piece of stem attached, cut the growth away with a sharp knife and insert in a thumb pot, as by this method better plants are obtained. Prick off gloxinias, Cyperus alternifolius, Isolepis gracilis, gomphrenas, Saintpaulia ionantha, Didymocarpus malayanus, and other subjects before they become drawn in the seed pots, using light sandy soil containing plenty of leafsoil, as there is nothing better than the latter to encourage root action in small seedlings. Asclepias curassavica, though seldom seen, is worthy of extended cultivation; it is generally afforded greenhouse treatment, but better results will be obtained if it is grown in an intermediate or stove house. We have a large batch which have been flowering for many weeks; they have had a night temperature of 60 degrees all winter, with 5 degrees rise by day. If seed is sown or cuttings inserted at the present time they will produce useful plants for the coming winter; six-inch pots are a suitable size to flower them in, the compost consisting of loam, leafsoil, well-decayed manure and sand.

Climbers in the stove will require frequent attention in the matter of regulating and tying-in the growths, as it is of importance that these should not become too thick on the roof and unduly shade the plants below; attend to this matter at least once weekly, cutting out superfluous shoots, and in the case of stephanotis, clerodendrons, dipladenias, and aristolochias give timely attention to tying before the shoots twine themselves round the wires. Aristolochia gigas, though not exactly a desirable plant to grow on account of the disagreeable odour of its flowers, is still sometimes grown owing to its gigantic size and quaint form. If allowed to grow at will it is apt to drop its flowers, and to obviate this each shoot should be pinched when it shows a flower bud, and thus a crop of flowers will be obtained. Cuttings of Scutellaria mocciniana, if not already put in, should be inserted at once in sandy loam. All cuttings as they fill their pots with roots should be potted on before they suffer, or they may receive a check from which they may never thoroughly recover. Attend closely to shading, especially when a bright day follows two or three dull ones. Afford air moderately on hot sunny days, avoiding draughts. Close early to run the temperature up to 85 or 90 degrees, at the same time giving the plants a good syringing and damping well among the pots, on paths and walls. The night temperature of the stove to be maintained at 70 to 75 degrees by fire heat; intermediate house, 60 degrees by night and 65 by day.—J. TUNNINGTON, *Ripley Castle Gardens.*

KITCHEN GARDEN.

PEAS for main crop may now be sown, choosing such varieties as Danby Stratagem, Veitch's Main Crop, Invincible, or Superabundant, any and all of which are first-class kinds. In some districts where the soil is light and poor, and where the rainfall during the summer months is slight, special care must be taken in the cultivation of this crop. The ground should have been dug in the autumn that the soil may have settled down to conserve the moisture. In sowing make the drills rather deeper now than in the earlier part of the year, and plant rather than sow the seeds. Where tall growing kinds are grown, these should be allowed a greater space than the dwarf or medium ones, as more moisture will be needed for their support. There are from eight hundred to a thousand peas in a pint of seed, therefore if a double line be planted, placing the seeds about three inches apart, half a pint will be sufficient to plant a row twenty yards long. As soon as the early varieties commence flowering give them a slight dressing of sulphate of ammonia, and if the weather be dry a gentle sprinkling of water to dissolve it. Make a sowing of Dwarf French Beans in a warm sheltered border where the plants can be afforded protection in case of frost. There are so many good varieties to chose from that it is difficult to say which is best, but as most gardeners have their own particular fancies I must leave them to choose. Prolific Negro is a favourite here for a first sowing. Another sowing should also be made of broad beans, such as Masterpiece Longpod or Green Giant. Carrots in some gardens form an important crop. On light hot gravelly soil they are difficult to grow unless special prepartions are made for them, but on some soils fine clean roots may be produced without any difficulty. It is far preferable to make small sowings at intervals of three weeks or so till the first week in June, than to sow a lot thus early in the season, as the roots under good cultivation become coarse and overgrown, necessitating lifting too early in the autumn. In all private gardens it should be the aim to have tender succulent roots instead of those large specimens so often seen.

Brussels sprouts, savoys, borecole, and some of the early brocccli should be sown where not already done, but it is far better to defer the sowing of these for a few days than to have the plants overcrowded in the seed beds. Dwarf stocky plants always give the finest results, so for this reason sow thinly and plant early. Turnips may now be sown with little risk of their running to seed, but no more should be put in at one time than will afford a supply until the next sowing is ready. As the ground becomes cleared of broccoli it should be dug in readiness for another crop. Where land is plentiful and there is no necessity for over cropping, it may be reserved for runner beans or celery, but where space is limited late potatos may be planted. As the frames become cleared of potatos, French beans and other crops, they may be planted with vegetable marrows, cucumbers, tomatos, &c. The latter are always useful later in the season. Pot on capsicums and other tender plants before the pots become crowded with roots, and pay special attention to all small plants that they do not suffer for want of water. There are so many things needing attention now that a little neglect is apt to throw one back for a considerable time. All vegetables under glass must be allowed abundance of air on all favourable occasions and the syringe should be brought into play where red spider makes its appearance. Do not neglect the sowing of small salads, as these will be in greater request as the weather becomes warmer; though growth is made much more quickly there is a greater danger of the supplies running short on account of the salading so soon becoming unfit for use.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

PLANTED-OUT figs which were started early in the year will now be taking their final swelling, and will be ripening in the course of a few days. I usually have the first dishes of brown Turkey about the 25th of April, and just previous to their ripening I have the borders thoroughly soaked throughout with liquid manure, heated to about 90 degrees. The borders at this stage cannot have too much water, as the strain of a heavy crop during the next few weeks will be [illegible] for, in addition to the ripening crop, the second crop will be showing on the new wood. I lay especial emphasis on the timing of the heavy watering [illegible] recommended, as I have repeatedly found that, when given at the right period, it influences greatly the size of the individual fruits, and vastly increases their value for home use or for sale. Particular attention must also be paid to such trees in the matter of syringing, and I recommend that they should be heavily syringed morning and afternoon, to remove every vestige of red spider previous to ripening the fruit, as it will only be possible to give occasional syringings from that time until the crop is removed, and, if spider is in evidence previously, the second crop and the leaves will be stunted and disfigured. Keep up a brisk growing temperature, ventilate early, and increase the ventilation gradually, so as to reach the maximum about eleven a.m.; shut up and syringe soon after two o'clock. I should have mentioned that when the liquid manure given the borders is strongly impregnated with ammonia, in which stable drainings, for instance, are especially rich, air should be left on the house until the sun goes down, and put on again before [illegible] the next morning, as the fig leaves are very liable to scorching under the influence of an atmosphere heavily charged with ammonia. Pot trees which have been divested of their crop should not be neglected. All small growths, except [illegible] wanted for the production of branches, should be cleaned out to prevent the crowding of the better wood. The pots should be turned round once a week so that each side of the tree may have the benefit of full sunlight.

Strawberries ripened after this date will be better flavoured than the earlier ones, still, to have them at their best, one or two precautions are necessary; and, in addition to keeping the plants well apart, and close to the glass, a great improvement in flavour may be brought about by withholding water for several hours before gathering. The early morning is the best time to gather, as the [illegible] are then cool, and they may be kept in good condition for several hours if [illegible] thinly in boxes lined with cotton wool, on which have been spread a few [illegible] other soft leaves. Where the fruits have to be packed and sent away by [illegible] rail, it is necessary to pack them in strong shallow boxes holding one layer [illegible] and each fruit should be enclosed in a spinach leaf of suitable size before placing in the box. Firm packing, without undue squeezing should be the aim. After a trial of many kinds of leaves, their own included, for packing strawberries, I have found none to equal spinach, which are of a cool nature, and of good substance, and I recommend their use to those who have never tried them; they should only be allowed to become slightly flagged before use, as, if left too [illegible] difficult to handle. Routine work among strawberries will consist in setting the flowers when they open, giving the plants with swelling fruits plenty of liquid manure till colouring commences, after which clear water only is advisable, thinning to the requisite number of the best formed fruits, and in hurrying on later batches as fast as room can be found for them. Before being placed in the forcing house the plants should be dipped in some approved insecticide, and for that purpose I have been using this year, for the first time, the X.-L. All insecticide, with which I am greatly pleased. The latest batches should now be removed to cold frames where possible, as they will then commence to grow gently, and will require very little more than cool-house treatment to ripen their fruits, just in advance of the earliest outdoors. The possessors of well-stocked, cool and orchard houses will have reason to congratulate themselves on their possession this year. The night frosts have been severe here for the time of year, and prolonged, and much of the blossom on wall plum trees, &c., has been killed; very few nights have passed lately without a register of ten or twelve degrees of frost, and this, succeeded by bright sunny days, is too much for such tender blossoms. The trees under glass should be kept as cool as may be, and well aired. They will require but little other attention just now, except to see that they do not become dry at the roots, and to keep down insect pests.—J. C. TALLACK, *Livermere Park Gardens.*

HOME-GROWN APPLES.

It is very satisfactory to be able to record the advance that home-grown apples appear to have made in public favour during the past season, as in quite remote parts of the country they have been offered for sale alongside those of foreign growth, and in every instance that has come within my notice they have stood the test well, and have been much appreciated by purchasers.

An acquaintance of mine in this county who supplies large quantities of fruit over a widely extended district, was last autumn bewailing the unsatisfactory condition in which the American apples were arriving; and he had just cause for complaint, for of several barrels opened at one time not one proved to be of good quality throughout, and some of them contained fruit that was decidedly inferior both in size and quality, and being badly bruised through faulty packing, much of it could hardly be disposed of at a profitable rate. I had often previously advised him to give English-grown fruit a trial, but to no purpose, as he considered that the American article had got such a firm hold of the market that any of the home-growth, however fine it might be, could not successfully compete against it. On this occasion, however, the circumstances already related favoured a trial of the latter being carried out, and an order was eventually sent to a Herefordshire grower for a small quantity of the best market apple then in season, leaving the choice of the variety entirely to himself.

In response to the order, a very fine sample of Blenheim Pippin was received; these were well-selected, and the packing of them so well done that scarcely a fruit was marked, and when exposed for sale they quickly drew the attention of customers; and although the price was at first thought to be rather high, this objection was soon overcome, as the quality either for dessert or culinary use was all that could be desired, and the fruit, owing to its soundnes, could be kept a considerable time without deterioration. The first consignment was disposed of in a short time, and other orders were dispatched at intervals throughout the season—as long as the variety was obtainable. The vendor has since expressed himself as well satisfied with the results of the venture, as the fruit in every instance arrived in excellent condition, and the demand for it increased as its merits became more known, and customers were willing to pay a good price for a good article. He intends in future to increase this branch of his trade.

This is only one case where preference for home-grown *versus* foreign apples has been shown; but as it occurred in a district where for many years the latter have furnished the principal supply, I thought it worthy of mention, as it proves that if fruiterers could be induced to invest in good apples of home-growth the public are willing to purchase the same, and would thereby promote the development of a profitable home industry. In this part of Scotland there are not at present any orchards for supplying the wants of the population, and it is only in years when the fruit crop is very abundant that apples grown in private gardens are obtainable, and only then for a very short time in the gathering season. The supply from this source consists principally of sorts that quickly deteriorate after reaching maturity, or of those not worth storing. Fruit of this description commands a ready sale, and at a price frequently as high as can be obtained for the best samples in a fruit-producing county at that season. To aid in the better distribution of home-grown apples some method is needed whereby the producer and retailer, or even the consumer, may become better acquainted with each other, as at present very few of the most constant readers of horticultural literature could, I fear, give the necessary information to an inquirer to enable him to apply direct to the grower for a supply of fruit. If the system of advertising so largely carried out in all matters connected with the garden was applied to fruit also, not only in the horticultural papers, but in the pages of local newspapers as well, giving the price and description of the different varieties as they came in season, it would greatly tend to open up a profitable trade to the benefit of all concerned.

Galloway House, Wigtownshire. JAMES DAY.

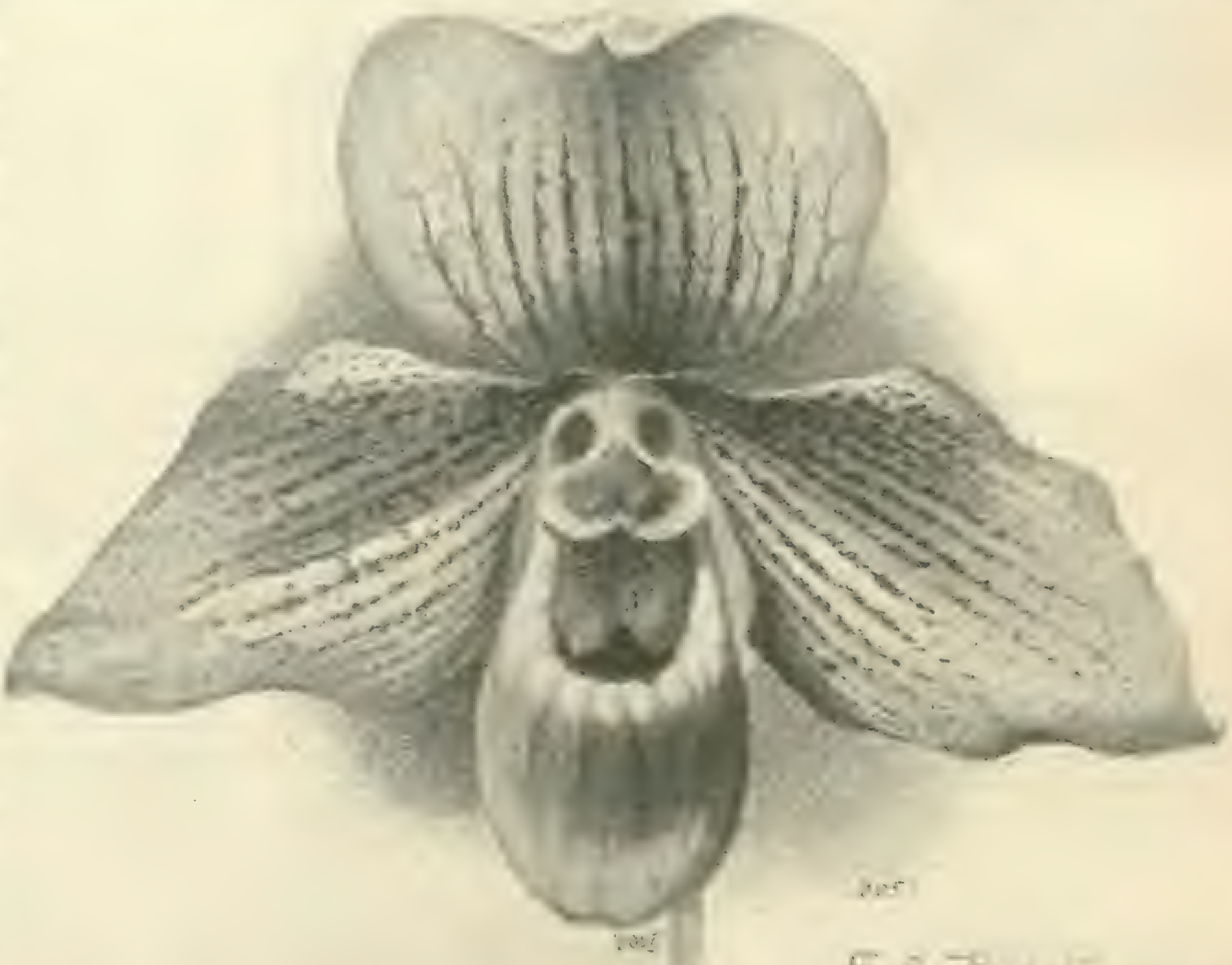
NOTES ON ORCHIDS.

ONCIDIUM SARCODES.

UNDOUBTEDLY this is one of the most useful and easily managed of oncidiums. Like some other species it appreciates more warmth during the winter months than is afforded the majority of odontoglossums, while at the same time it needs to be always kept moist, though little water is needed during the season of comparative rest. The bright yellow flowers, heavily spotted and blotched with red-brown, are borne in long, slender, and graceful branching spikes, the latter varying from three to five feet in length. These need to be supported, but their beauty is altogether spoiled when several spikes are wound round a balloon trellis or one made of stout stakes. Select a few tough osier stems, or similar green sticks, and place one to each spike varying the length and stoutness according to the weight to be supported. If the specimen is to stand in a conservatory, or elsewhere where it has to face a certain direction, then the spikes should be disposed so as to droop gracefully in a half circle. If standing alone, then the spikes may depend all round. The use of tough and somewhat pliable stakes is a great advantage for this and other long-spiked orchids, as it prevents stiffness of appearance, and the green bark is not so prominent as green paint on deal stakes. Oncidium sarcodes was first received in England by the Royal Horticultural Society in 1849. C.

CYPRIPEDIUM F. S. ~~AMES.~~ Roberts.

This is a new cypripedium which has a general resemblance to C. Cowleyanum, and like it was probably raised by crossing C. niveum with C. Curtisi. In the case of the hybrid in question the pollen parentage has not been recorded. When Cypripedium F. S. Ames was exhibited by Messrs. Hugh Low and Co., Clapton, on January 11, at the Drill Hall, it was the chief attraction in their group. The flower is of good size, as will be seen by the accompanying illustration. The large and rounded dorsal sepal is white shaded at the base with rose, and also heavily veined and lined with deep rose. The broad sepals stand out boldly, and have reflexing tips; in colour they are similar to the dorsal sepal, with additional spottings and dots of deep purple. The lip betrays the influence of C. niveum by its shape and rounded opening; it is large and fully pouched, rose-coloured, veined with dark rose or even a purple flush; base white. Measured across the fully expanded petals the flower has a breadth of four and three-quarter inches. Cypripedium F. S. Ames is a welcome addition to the hybrids of C. niveum.—C. K.



CYPRIPEDIUM ~~F. S.~~ AMES. See p. 256.

CATTLEYA SCHILLERIANA.

This orchid appears to be flowering earlier than usual in the majority of establishments. It varies considerably in colour, but in the more recent importations there has been a large percentage of fine forms. Many will remember the magnificent C. Schilleriana Hardy's var. shown at the Temple Show, in 1897, by F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey; this superb orchid was figured in the GARDENERS' MAGAZINE on that occasion on p. 311, May 29, 1897. Reichenbach named the species after Consul Schiller, in whose collection, at Hamburg, it first flowered in 1857. Two years later a much different type was sent to Kew by the Messrs. Backhouse of York, and this Sir W. Hooker named C. Schilleriana concolor. The species comes from Brazil, and bears some considerable resemblance to C. Acklandiæ, but has darker and rounder leaves. Judging from appearances there are grounds for the belief that C. Schilleriana is a natural hybrid between C. Acklandiæ and C. guttata. Some difficulty is sometimes experienced in keeping the flowers fresh for any time, but this may be managed by placing the flowering plant in a drier atmosphere than it previously experienced. Do not, however, allow the flowers to stay on the plant until they fade; a fortnight is quite long enough, then cut them and stand in a tube of water. H. C.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

HUMUS IN ITS RELATION TO SOIL FERTILITY.

The term humus is applied to a large class of compounds derived from the decay of former animal and plant life. The animal and vegetable materials (organic matter) undergo decomposition in the soil, the final result of which is the disappearance of these substances, leaving only a few gases and a small amount of mineral matter. When the organic matter is in its intermediate stages of decomposition, and mixed with the soil, it is known as humus. Opinion as to the fertilising value of humus has swung, pendulum-like, from one extreme to the other. The alchemists taught that the spirits left the decaying animal and vegetable matters and entered plants. By many of the earlier chemists, humus was considered as supplying the larger part of the materials necessary for the development of the crop, but when the combined labours of De Saussure, Boussingault, Dumas, and Liebig demonstrated that the air supplied plants most of their food, particularly that part which was supposed to come from humus, scientists, as a rule, assigned a low value to humus. From the very earliest times, however, farmers have assigned a very high value to humus as a factor of soil fertility, and this belief was strengthened by the observed facts that soils rich in humus were, as a rule, highly productive, and that such materials as animal excrement or barnyard manure, which supplied the soil with an abundance of humus, possessed a marked fertilising power. Although many of the old theories which were supposed to account for the value of humus are no longer tenable, recent experiments have shown that there are sound scientific reasons for ascribing to humus a high value as a factor of soil fertility, and have demonstrated that "farmers are wholly right in attaching great importance to the preservation of humus in their soils." As the account by Prof. H. Snyder, B. Sc., Minnesota University, given in the Year Book of the U. S. Department of Agriculture will show, humus performs a number of different functions in the soil which are of the highest importance in crop production. It influences the temperature, tilth, permeability, absorptive power, weight, and colour of soils, and directly or indirectly controls to a high degree their supply of water, nitrogen, phosphoric acid, and potash.

Loss of Soil Humus and Decline in Fertility.

A virgin soil or one recently cleared may show a high state of productiveness for a number of years after it is brought under cultivation. Gradually, however, a decline in fertility is observed, which is slight at first, but more marked after a lapse of fifteen or twenty years. Experiments have shown that the decline in fertility is not entirely a result of the removal from the soil of the essential fertilising elements—nitrogen, phosphoric acid, potash, or lime—but is due in many cases to getting the land out of condition through a loss of humus. Experiments conducted by the Minnesota Agricultural Experiment Station on different types of soils worn by continuous grain cropping have shown that when a fertiliser was used containing nitrogen, phosphoric acid, potash, or lime, or when any one of these materials was applied alone, there was "in no case an increase of over three bushels per acre of wheat and two of flax. * * * With soils that have been cropped for twenty years, the largest increase was four bushels per acre." The difference between the grain-producing power of new soils and of worn soils of the same original character was about fifteen bushels per acre. These results, as well as many others which could be quoted, make it clear that the decline in fertility of the soils was not entirely due to a loss of the essential elements of fertility, and that we must seek the cause elsewhere.

The most important difference, physical or chemical, between the composition of old, worn soils and new soils of the same character is in the amount of humus which is presents. That the loss of humus is an important factor in the decline of fertility is also indicated by the fact that with methods of farming in which grasses form an important part in the rotation, especially those that leave a large residue of roots and culms, the decline in productive power is much slower than when crops like wheat, cotton, or potatos, which leave little residue in the soil, are grown continuously. Under grass and similar crops the soil humus increases from year to year, while the continuous culture of grain, cotton, or potatos gradually reduces the original stock of humus. Grass and grain crops in rotation result in alternately increasing and decreasing the humus of the soil and keep the land in a higher state of productiveness, although more nitrogen, phosphoric acid, and potash is removed from the soil than when grain, cotton, or corn is raised continuously. In no case, however, do those systems of farming which return humus-forming materials to the soil reduce the land to so low a state of productiveness as do those systems in which there is a continual loss of humus from the soil. Agriculturally considered, the two most important points regarding the composition of humus are (1) the presence of nitrogen as a constant constituent, and (2) the chemical union of the humus with potash, lime, and phosphoric acid, forming humates.

Nitrogen in Humus.

Humus, as ordinarily obtained from the soil, contains from 3 to 12 per cent. of nitrogen. According to Professor Hilgard, the soils from arid regions are poor in humus, containing from 1 to 2 per cent., but this humus is correspondingly rich in nitrogen, in many cases containing 14 per cent. In many of the prairie regions the soil contains about 5 per cent. of humus, and this humus contains about 10 per cent. of nitrogen. Since, therefore, nitrogen is one of the prominent constituents of humus, it is easily understood how a loss of humus has also resulted in a loss of nitrogen. This decline in the nitrogen content of the soil is one of the most serious results of the loss of humus from the soil. A virgin soil containing 4 per cent. of true humus and 0.35 per cent. of nitrogen will after twenty years of grain cropping show about 2·5 per cent. of humus and 0·2 per cent. of nitrogen. In the twenty years, therefore, there has been a loss of 1·5 per cent. of humus, equivalent to about 3,500 pounds per acre, and 0·15 to 0·2 per cent. of nitrogen, which is equivalent to 3,000 to 5,000 pounds of nitrogen per acre. Since fifty pounds per year of nitrogen is a large quantity for any ordinary grain crop to remove, the twenty crops have at the most removed nine hundred pounds of nitrogen. At least 2,500 pounds have, therefore, been lost by the decomposition of the humus, the nitrogen being lost either in the free state or in the drainage waters. For every pound of nitrogen removed in the crops during the twenty years of cultivation there has been an additional loss of three or four pounds of nitrogen from the soil by the decomposition of the humus.

We know that most if not all of the changes that organic matter undergoes are the result of the action of microscopic organisms. Such changes as nitrification, or the transformation of organic nitrogen into nitrates and its opposite denitrification, or the reduction of nitrates to the gaseous nitrogen, besides many others which might be mentioned, are illustrations of the work of these minute organisms. Humus furnishes a medium peculiarly adapted to the activity of these organisms. The decomposition of humus, by which it loses its nitrogen, is due chiefly to the combined action of the organisms of nitrification and denitrification. The nitrifying organism feeds upon the humus, breaking down its organic nitrogenous constituents and producing nitrates which may be washed out in the drainage, and the denitrifying organism completes the work by feeding on the nitrates, producing free nitrogen gas, which escapes into the air. Nitri[illegible] is one of the most important natural provisions for rendering the inert [illegible] of the soil available to plants, and a certain amount of it is necessary [illegible] growth, but it can be readily seen that under injudicious management [illegible] tion of the soil it may work a positive injury by causing unnecessary waste of [illegible] nitrogen, or, in case of rich soils, it may supply the growing crop with [illegible] much nitrate and thus produce a rank growth of straw and leaves.

Bare summer fallowing is widely practised, and has been very beneficial [illegible] the succeeding crop by increasing the available nitrogen of the soil, but frequently more nitrogen is rendered available than is necessary for the following crop, and whatever the crop is unable to utilise is lost by leaching or else escapes into the air. The available nitrogen is thus increased, while the total nitrogen is greatly decreased. Experiments at the Minnesota Agricultural Experiment Station indicated that one year of fallowing caused a gain of 0·0022 per cent. of available nitrogen and a loss of 0·0114 per cent. of total nitrogen in a soil containing originally 0·1536 per cent. of total nitrogen and 0·0002 per cent. of available nitrogen. For every pound of nitrogen rendered available by the [illegible] treatment there was a loss of over five pounds of nitrogen from the soil. Bare summer fallowing is, therefore, only temporarily beneficial at the expense of the total humus and nitrogen of the soil. When a soil is poor in humus and nitrogen the loss of nitrogen is much smaller, but even then it is doubtful whether bare summer fallowing is a wise practice. In no case should summer fallowing be practised on a new soil. Autumn cultivation keeps the humus and nitrogen of the soil in better condition than late spring. Nitrification goes on in the soil until quite late in the fall, and in the south the process goes on the entire year. The change is most rapid near the surface, where there is plenty of oxygen from the air. In early fall ploughing the available nitrogen formed from the humus is near the surface, where it does the sprouting seeds and the young crops the most good. With late spring ploughing this available nitrogen is ploughed under, and inert organic nitrogen is brought to the surface. In old soils the process of nitrification does not go on rapidly enough to furnish available nitrogen to the crop. In a new soil the process of nitrification is liable to go on too rapidly. Deep ploughing and thorough cultivation aid in nitrification. Hence the longer the soil is cultivated, the deeper and more thorough must be its preparation. Ploughing must be done at the right time, preferably in the fall, so as not to interfere with next year's water supply. The application of lime and wood ashes aids in the reduction of nitrogen of humus to available forms and prevents the formation of sour [illegible]. Good drainage is also necessary to nitrification in the soil. In water-logged soils the humus does not decompose normally, but peat is produced on account of the absence of oxygen. We thus see that nitrification, although sometimes a serious source of loss, may be largely controlled by the management of the soil.

Another source of loss of humus in the prairie and forest regions is the frequent burning over of the land. Soils covered with pine, in which sand largely predominates, frequently lose half or three-quarters their total nitrogen when visited by forest fires. The sand, being of an open and porous nature, aids in the [illegible] complete combustion of the humus. In the timbered regions of the North-west the great forest fires of 1894 resulted in the average destruction of 1,500 pounds of humus nitrogen per acre, to say nothing of the nitrogen lost in the burning of the timber. Analyses of soils, before and after the fire, made by the Minnesota Agricultural Experiment Station showed a loss in some cases of 2,500 pounds per acre of nitrogen, equivalent to a loss of 75 per cent. of the total amount in the soil. The prairie fires have not been so destructive upon the humus as the forest fires, because the burning has been confined more to the surface. An average prairie fire, however, will remove more nitrogen from the soil than five [illegible] crops of wheat.

Mineral Matter in Humus.

Besides being a great reservoir of nitrogen, humus is an indirect means of supplying the plants with other fertilising constituents. Humus as it occurs in the soil is combined with potash, lime, phosphoric acid, and other compounds which are essential as plant food. The decaying animal and vegetable matters form various organic acids, which combine with the potash, lime, iron, and alumina, as well as with other elements, and form a series of compounds known as humates, of which but little is definitely known. By some, the potash, lime, and other mineral constituents of the humus are regarded as simply associated with the humus and not organically combined with it, but there are a number of facts which indicate that the union is chemical and not simply mechanical. The mineral matter combined with the humus is characteristically rich in phosphoric acid and potash, two compounds which are of great value agriculturally. The mineral matter combined with the humus from different soil types, however, is not always of the same nature, and the amount of plant food thus combined with humus has not been extensively investigated. In the case of rich prairie soils over 1,500 pounds of phosphoric acid and 1,000 pounds of potash per acre to the depth of one foot have been found to be in combination with the humus. In the case of soils poor in humus and worn by cropping, the amount may be reduced to 100 pounds per acre. The average of analyses of the mineral matter of the humus from [illegible] productive prairie soils yielding 25 per cent. of humates showed 7.50 per cent. of potash and 12.37 per cent of phosphoric acid. In these soils, which were well supplied with humus, 1,500 pounds of phosphoric acid per acre out of a total of 8,750 was combined with humus, and 1,000 pounds of potash out of a total of 12,250 pounds. According to Hilgard, the amount of phosphoric acid [illegible] found associated with humus varies from 0.1 to 0.5 of the total amount in the soil, indicating in many cases the amount of this element available to plants.

Value of Humates as Plant Food.

The value of these various forms of humates as plant food has been the subject of extensive investigations and many of these experiments indicate that the humates, when acted upon by the proper micro-organisms, are very valuable forms of plant food. At the Minnesota Agricultural Experiment Station oats and [illegible] have been successfully grown when the only forms of mineral food were [illegible] potash, lime, magnesia, iron, and humic phosphate and sulphate. [illegible] material obtained from rich prairie soil was mixed with pure sand, which [illegible] practically no plant food, and gypsum was added to prevent the formation of [illegible] humus. The mixture was watered with leachings from a fertile field, [illegible] introduce the organisms which usually carry on the work of humus decomposition. Oats seeded in the soil thus prepared finally produced fertile seeds, the [illegible] plants containing fifty times more potash than was in the seeds sown, and [illegible] sixty times more phosphoric acid. The only source from which the plants [illegible] obtain these substances was the humates added to the soil. In experiments [illegible] which the soil leachings were omitted the oat plants made only feeble [illegible] growth, plainly showing that unless the potash, phosphoric acid, &c., [illegible] with the humus is set free by the action of the micro-organisms the plant is [illegible] to use them. There are a number of facts in field practice which also [illegible] plants are capable of feeding on humates. The roots of plants, particularly [illegible] of grains, will always be found clustering around any decaying vegetable [illegible] that may happen to be present in the soil. When wheat or oats follow a corn crop the roots of the grain will be found in many cases to completely incase any decaying pieces of cornstalks that are present. The cornstalks are not rich in plant food, but they decay in the soil and combine with the soil potash, phosphates, &c., forming humates which the grain feeds upon. Large piles of sawdust many feet in height and circumference are frequently left around sawmills, or the sawdust is used for filling in low places. The sawdust is very slow in decomposing, but in time it is covered with vegetation which must obtain most if not all of its mineral food in the form of humates.

Means of Increasing the Humates of the Soil.

Inasmuch as both experiments and observations in the field appear to strongly indicate that plants have the power of feeding upon humates, it becomes important to determine to what extent the addition of animal and vegetable matters to the soil is capable of affecting the amount of available plant food.

Experiments conducted at the Minnesota Agricultural Experiment Station have an important bearing upon this question. To a box holding one hundred pounds of loamy soil twenty pounds of cow manure was added. The contents of the box were kept moist and well mixed. At the end of twelve months the amount of mineral matter combined with the humus was determined, and the amount found compared with that originally in the box. Another box containing an equal amount of the same soil to which no manure was added was treated in the same manner. In the first case the mineral matter originally present in the manure was deducted, as well as the amount which was only soluble in the solutions used in the analysis. The results were as follows :—

Increase of Humates in the Soil due to Applications of Manure.

	Total humates in 100 pounds of original soil.	Total at the end of 12 months in manured box	Gain of humates from soil through manure.	Total humates at the end of 12 months, no manure.	Loss when no manure was added.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*
Potash	7.25	9.14	1.89	6.92	0.33
Soda	7.84	10.11	2.27	7.50	.34
Iron	2.44	4.13	1.69	2.46	—
Magnesia	.35	.54	.19	.27	.08
Alumina	2.96	4 64	1.68	2.75	.21
Phosphoric acid	11.97	13.99	2.02	11.50	.47

As will be seen, the cow manure increased the amount of mineral matter combined with the humus to the extent of fifteen to twenty-five per cent. of the original amount present in the soil. In addition to adding new elements of fertility to the soil, it has also resulted in changing a part of the potash, magnesias and phosphoric acid, as well as other solid elements, into forms more valuable as plant food. The manure, therefore, not only has a direct fertilising value, but is also useful in making the inert plant food of the soil more available. A number of facts in field practice also point to the same conclusion. It is well known that barnyard manure is among the most lasting in effect of any of the fertilisers which can be applied. This is undoubtedly due to the power which the manure possesses of uniting with the soil potash, phosphoric acid, &c., to produce humates.

It has been frequently observed that when potatos are cultivated on new prairie land for three or four years in succession, both the yield and the size of the potatos decrease. When the land is seeded to a grass crop, the sod ploughed under, and potatos again planted, the yield and size of the potatos are often nearly the same as when the land was new. This result has been attained without the addition of any manure to the land except the vegetable matter in the sod which has furnished materials for the formation of humates. In the same way, wheat grown continuously on prairie soil will gradually decline in yield, but if grass is alternated with the wheat, nearly the original yields are restored. Besides performing the useful functions just discussed, which are essentially chemical in character, humus profoundly modifies the physical properties of soils. This influence is most marked in relation to the water content and temperature of the soil.

(To be continued.)

ROSE SHOW FIXTURES IN 1898.

June 15 (Wednesday).—*York.
,, 16 (Thursday).—Colchester.
,, 23 (Thursday).—Bath (N.R.S.).
,, 25 (Saturday).—Windsor.
,, 28 (Tuesday).—†Southampton, Sutton, and Westminster (R.H.S.).
,, 29 (Wednesday).—Canterbury, Croydon, and Richmond, Surrey.
,, 30 (Thursday).—Eltham, Gloucester, and Norwich.
July 2 (Saturday).—Crystal Palace (N.R.S.).
,, 5 (Tuesday).—Harrow and Hereford.
,, 6 (Wednesday).—Farningham, †Hanley, Redhill (Reigate), and Tunbridge Wells.
,, 7 (Thursday).—Woodbridge.
,, 8 (Friday).—Ulverston.
,, 9 (Saturday).—Manchester.
,, 12 (Tuesday).—*Wolverhampton.
,, 13 (Wednesday).—Ipswich and *Newcastle-on-Tyne.
,, 14 (Thursday).—Halifax (N.R.S.), Canterbury (Hospital Fund), and Helensburgh.
,, 21 (Thursday).—Sidcup.
,, 26 (Tuesday).—Tibshelf.

* Shows lasting three days. † Shows lasting two days.

The next list of fixtures will appear early in May. In the meantime I shall be glad to receive the dates of any rose shows (or other horticultural exhibitions where roses form a leading feature) for insertion in that list.

Rosebank, Berkhamsted, Herts. EDWARD MAWLEY.

SENTENCED TO DEATH.—These are the most terribly significant three words we have in the English language. Thousands of wretched creatures, whose lives have become forfeited to the outraged laws of their country, have heard them pronounced with feelings of sickening terror. The man who has neglected the most simple laws of health feels that all is indeed lost, when the dread sentence is pronounced by the doctor, who has used all his medical skill upon him in vain. In the latter case, however, the door of hope has been opened, through the medium of Holloway's Pills and Ointment. They have effected a cure at the last moment, as thousands of testimonials, being constantly received, will prove.—[Advt.]

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, April 12.

NOTWITHSTANDING the rough weather and the date of exhibition falling next to Easter Monday, there was a first-rate show on the above occasion at the Drill Hall. Daffodils were naturally very plentiful, so also were forced plants, roses, and orchids. Fruit and vegetables made up a very small show.

FLORAL COMMITTEE.

There was a splendid display before this body, and it was remarkable for variety and extent. Cinerarias, daffodils, ferns, and roses were very prominent.

Pot roses were staged by Messrs. Paul and Son, Cheshunt, and made a good display ; among the most notable varieties were Madame Hoste, Rev. Allan Cheales, Antoine Revoire, a beautiful rose, La France, Innocente Pirola, Captain Hayward, Madame Chedane Guinoisseau, Bacchus, and Catherine Mermet. Mr. H. B. May, Edmonton, made a pretty exhibit of spiræas, hydrangeas, and Crimson Rambler roses, grandly flowered, set amid well-grown pterises and maidenhair ferns ; a few clematis were included. Cinerarias from Messrs. J. Carter and Co. were bright, fragrant, and well grown ; the heads and flowers were both large, and the specimens were not too stiff in general appearance, but showy and pleasing both to gardener and florist.

Ferns in considerable variety were staged in fine condition by Messrs. J. Hill and Co., Edmonton ; maidenhair ferns were well represented, so were aspleniums and pteris ; the gymnogrammas excited a great deal of attention. Mr. W. Kemp, the Gunyah, Barnes, put up a group of Azalea indica in considerable variety ; the plants were small but freely flowered and fine for conservatory decoration ; Apollyon, white ; Theodore Reimers, purplish-rose ; and La Victoria, salmon-red, were three distinct varieties. The whole group was edged with fragrant lily of the valley. A group of light and elegant cinerarias, hybrid forms between the garden or florist's cineraria and C. cruenta, came from Messrs. J. Veitch and Sons, Chelsea ; the deep blue and the lilac forms were exceedingly pretty and effective. The same firm showed Azalea obtusa alba, a dwarf white-flowered form, Rhododendron racemosum, Deutzia Lemoinei, and Azalea carminata splendens. Streptocarpuses in variety were shown by Messrs. J. Laing and Sons, Forest Hill. the flowers were of an immense size and borne freely on erect stems ; the deep purple and blue varieties were especially attractive, but all were good. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher showed a splendid lot of Marie Louise violets and a few bunches of Leedsi and Ajax daffodils. Messrs. W. Paul and Son, Waltham Cross, once again showed camellias, thus proving that these handsome plants and flowers are available over a long season.

Mr. H. Walters, gardener to Lord Gerrard, Eastwell Park, Kent, staged three dozen splendid blooms of Maréchal Niel roses and a few blooms of other sorts. Mr. C. Turner, Slough, showed three baskets of Nepeta glechoma variegata ; this makes an extremely elegant basket plant, the slender growths and prettily-variegated foliage depending gracefully. Mr. R. Brown, gardener to F. Barry, Esq., Windsor, sent several dozens of camellia flowers that had been produced on unprotected trees. Forced laburnums, deutzias, and Staphylea colchica made up a fine and showy group from Messrs. W. Cutbush and Son, Highgate. Messrs. Sutton and Sons, Reading, made a pretty exhibit of cinerarias ; these were tall-growing forms obtained by crossing the florist's form with C. cruenta or vice versa. The spreading heads of flowers are large and graceful, fine for grouping or for conservatory decoration, and in a variety of colours from palest lilac to deepest purple-blue. These forms vary in height from two to four feet and are extremely useful.

Roses in quantity came from Mr. W. Rumsey, Joynings Nursery, Waltham Cross ; Maréchal Niel, Mrs. Rumsey, Niphetos, Ethel Brownlow, Reine Marie Henriette, and Safrano were the varieties most extensively staged ; the blooms were much admired and their fragrance appreciated. A magnificent set of ten dozen exquisite blooms of Maréchal Niel roses was staged by Mr. J. Walker, Thame, Oxford ; these were a very fine lot. Messrs. R. Wallace and Co., Colchester, sent a small collection of Dog's Tooth violets, showing Erythronium revolutum Watsoni, E. Hartwegi, and E. giganteum ; Tulipa Greigi, a beautiful species, was also shown, as well as Iris caucasica, Fritillaria lanceolata gracilis, and F. plurifolia. Mr. W. Bardney, gardener to Sir P. Walker, Osmaston Manor, Derby, showed half a dozen seedling clivias, the varieties Wm. Bardney and May Bardney being especially fine in shape and colour. Mr. E. Beckett, Aldenham House Gardens, Elstree, sent a variegated form of Deutzia gracilis ; the foliage is prettily variegated with cream and pale green.

NARCISSI.

Daffodils were a great feature of the show, and Messrs. J. Veitch and Sons staged a collection of very fine flowers chiefly large and medium crowned varieties : Victoria, Incomparabilis Beauty, Golden Spur, Sir Watkin, Emperor, Empress, Maximus, Horsefieldi, Golden Plover, Captain Nelson, Princeps, Odorous rugulosus, and Incomparabilis Gloria Mundi were splendidly represented and finely coloured.

Messrs. Barr and Son, Covent Garden, had a most extensive collection of daffodils and early spring flowers ; the leading varieties, such as Sir Watkin, Empress, Emperor, C. J. Backhouse, the new Victoria, Incomparabilis Beauty, Henry Irving, Goliath, Barri Conspicuus, Obvallaris, and Michael Foster were represented by big full bunches of handsome blooms. Rarer sorts were naturally not so largely represented, but King of the Netherlands, Johnstoni Queen of Spain, Mrs. Walter Ware, P. R. Barr, Leedsi MM. de Graaff, Sir Stafford Northcote, Madame de Graaff, Weardale Perfection, St. John's Beauty, Minnie Hume, and J. B. M.Camm were well shown. A few hyacinths and saxifragas, &c , also came from Mr. Barr.

A group of seedling and hybrid narcissi from the Rev. G. H. Engleheart was a great attraction to daffodil lovers, Flamingo, Flambeau, Dorothy Yorke, and Lucifer were fine medium-crowned forms. Lady Margaret Boscawen, Homer (a poeticus hybrid), White Queen, Southern Star, white and scarlet crown, Torch, and Sir Walter Scott, also a poeticus form, were among the best. Mr. T. S. Ware, Tottenham, sent numerous varieties of narcissi, but in the majority of instances the bunches were too small to be effective ; doubtless the day following Bank Holiday is not the best one for a show. The leading Ajax forms were staged, and there were bunches of the rich golden Maximus ; a few tulips and primulas flanked the daffodils.

ORCHID COMMITTEE.

Although not extensive the exhibits before this body were of a most interesting character, and several really good novelties were on view.

In the group staged by Messrs. J. Veitch and Sons, Chelsea, there were fine specimens of the beautiful Lælio-cattleya Pallas, Cymbidium eburneo-Lowianum, one bearing three good spikes ; Lælia Latona, with four brilliant blooms, and another with five ; Cypripedium Schröderæ, Lælia Euterpe, Epidendrum elegantulum, Epiphronitis Veitchi, a gem of an orchid; Lælio-cattleya Ascania, a lovely cream and yellow hybrid between Lælia xanthina and Cattleya Trianæ; and Cattleya intertexta, a lovely rich rose-coloured cattleya obtained by crossing C. Warneri with C. Mossiæ; dendrobiums and other orchids completed the group. The Messrs. Veitch also showed Phalænopsis Stuartiano-Manni, a cross between the species named; Epidendrum elegantulum leucochilum; Epidendrum Phœbus, a novel hybrid between C. vitellinum majus and E. O'Brienianum; Lælio-cattleya Cypheri, and Dendrobium Euryclea.

Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, staged a most interesting lot of plants; the centre piece was a magnificent cypripedium—C. Olenus magnificum—whose parents are C. bellatulum and C. ciliolare; its rich claret-coloured markings were splendid. Eulophiella Peetersiana, with rich rose flowers, was represented by the first spike of the species that has yet flowered in this country; Odontoglossum coronarium miniatum, Cymbidium Devonianum, with half a dozen spikes; Leptotes bicolor, Odontoglossum Pescatorei var. Prince of Orange, O. nebulosum candidum, Epiphronitis Veitchi, with fine spikes of bloom; and Masdevallia leontoglossa were among the other orchids staged from this famous collection. Mr. J. Bradshaw, The Grange, Southgate, staged a pretty group in which odontoglossums in variety were arranged around a large Cymbidium Lowianum; Lælia Latona, Oncidium olivaceum, Cattleya Mendeli, and C. Trianæ in variety; Cymbidium eburneo-Lowianum and Cattleya speciossissima were other notable and attractive orchids.

From the Cambridge Lodge collection of R. I. Measures, Esq., Camberwell, Mr. J. Chapman brought Dendrobium nobile Cooksoni, Cymbidium Devonianum, with six spikes, Cymbidium eburneo-Lowianum, Angræcum modestum, Cattleya superba, Cypripedium Chamberlainianum, C. Argo-Arthurianum, C. Merops, and a few curious pleurothallus. Mr. Thorne, gardener to Major Joicey, Sunningdale, staged a group consisting almost wholly of the beautiful Epidendrum (Diacrum) bicornutum; about three dozen spikes were on view, and amid these we noted Brassia Lewisi, Dendrobium atro-purpureum Joicey's var., and Lælia cinnabarina. Mr. King, gardener to J. Colman, Esq., Gatton Park, Reigate, sent Cœlogyne cristata alba, well flowered, a white Lycaste Skinneri, Dendrobium nobile nobilius, finely flowered, Dendrobium Brymerianum, and Miltonia candida. Mr. C. Hamilton, Dunmore Park, Stirling, N.B., sent a grand form of Dendrobium nobile, with a fine lip. Mr. C. Kench, gardener to W. J. Moss, Esq., Wintershill, Bishop's Waltham, sent a fairly good form of Odontoglossum Ruckerianum. Mr. J. Lofthouse, gardener to A. Warburton, Esq., Vine House, Hasleden, sent Odontoglossum crispum Lindeni, and a white form of O. Pescatorei.

From Baron Schröder's collection at the Dell, Egham, Mr. Ballantine brought Odontoglossum Osmani, the magnificent O. crispum Schröderianum, and O. c. Dellense, a yellow-ground form. Mr. H. J. Pitt, Rosslyn, Stamford Hill, showed Odontoglossum Wilckeanum Pitt's var., a huge-flowered form with deep chocolate markings on a light yellow ground. A pretty form of O. Andersonianum, yellow ground, came from Mr. W. E. Walker, Percy Lodge, Winchmore Hill. Phalænopsis Schröderæ, a cross between P. leucorrhoda and P. Portei was shown by Messrs. H. Low and Co., Enfield. Mr. King, Gatton Park Gardens, sent a long branching spike of Odontoglossum ramossissimum.

Fruit and Vegetable Committee.

As before stated, there were but very few exhibits of fruit or vegetables.

Mr. J. Miller, Ruxley Lodge Gardens, Esher, gained a cultural commendation for a basket of fine mushrooms. A cultural commendation was awarded to Mr. J. F. McLeod, Dover House Gardens, Roehampton, for about three dozen good specimens of Brown Turkey figs. Mr. E. Beckett, gardener to Lord Aldenham, Aldenham House, Elstree, merited a cultural commendation for a basket of fine examples of Royal Sovereign strawberries. Mr. Bull, Billericay, sent a seedling apple named Aurora.

Mr. C. Herrin, Dropmore Gardens, Maidenhead, was first with Sturmer Pippin, and Mr. J. C. Tallack, Livermere Park Gardens, second with Court Pendu Plat apples in the Veitch classes for flavour.

Medals.

Silver-gilt Banksian Medal to Mr. H. B. May, Edmonton.

Silver Flora Medals to Messrs. W. Paul and Son, Waltham Cross; Mr. W. Rumsey, Waltham Cross; and Messrs. Paul and Son, Cheshunt.

Silver Banksian Medals to Mr. J. Walker, Thame; Messrs. J. Veitch and Sons, Chelsea; Mr. Thorne, gardener to Major Joicey; Mr. J. Bradshaw, Southgate; and to Mr. King, gardener to J. Colman, Esq., Reigate.

Bronze Flora Medals to Messrs. Wallace and Co., and to Messrs. J. Carter and Co., Holborn.

Bronze Banksian Medals to Lord Gerrard, Ashford; and Mr. W. Kemp, Barnes.

EDINBURGH SPRING SHOW.

THE spring exhibition of the Royal Caledonian Horticultural Society, held in the Waverley Market, Edinburgh, on April 6 and 7, was a distinct success. Narcissi of all kinds, tulips, forced plants, &c., were well represented, while orchids were never before seen in such fine condition. Vegetables were scarcely up to the usual standard. The entries totalled to five hundred and thirty five, and high quality as well as quantity was apparent on every hand.

Mr. Francis Nicoll, Craigclowan, Perth, won the leading honours for a table of orchids in which odontoglossums and dendrobiums figured largely; Mr. Malcolm McIntyre, gardener to Sir C. Tennant, a good second. Mr. M. McIntyre, who was the leading prize-winner throughout, won the chief award in the class for a table of plants, the space being a circle twelve feet across; here Mr. McIntyre arranged palms, amaryllis, clivias, orchids, liliums, lily of the valley, &c., in a charming manner; all the plants were well grown, and the prize was well deserved. A silver cup presented by Messrs. T. Smith and Sons, Edinburgh, goes with this first prize. The second-prize winner was Mr. G. Wood, Oswald House, Edinburgh; Mr. J. Cocker, Chesters Hall, Northumberland, third. Mr. M. McIntyre's list of first prizes includes chief awards for ten forced plants in bloom; six stove and greenhouse plants, in flower; three varieties of Azalea indica; six hardy azaleas; six foliage plants, exclusive of palms; twelve cyclamen; two amaryllis; two guelder roses; and six Primula obconica; these he gained in addition to several seconds in the plant classes. Mr. W. Bennett, Hanley Lodge, Gogan, secured first prize for half-a-dozen forced plants exclusive of hyacinths and tulips; Mr. McIntyre coming second. Mr. J. Bald, Canaan House, Grange Loan, was second, and Mr. Bennett third for ten forced plants. Two superb greenhouse rhododendrons secured for Mr. A. Calder, Calderbank, Trinity, a first prize; while for three hardy ferns, well grown in tubs, Mr. G. Chaplin came to the front. Mr. J. Bald and Mr. G. Chaplin, St. Leonards, were first respectively for two and four azaleas. Mr. D. Wilson won first prize for four specimen orchids, and Mr. J. Wood was first for one orchid; Mr. M. McIntyre coming second in each class. Ferns were quite a feature, Mr. J. Wood winning for three distinct exotic species; Mr. J. Pearson, Rockville, for three adiantums; Mr. W. Anderson, Woodcroft, Clinton Road, for six dwarf British ferns; and Mr. A. Pryde, Newington House, for one specimen tree fern with a three-foot stem. Mr. Alexander McMillan, Douglas Castle, who was second for cyclamen, had a fine pair of dracænas and was first for six cyclamen. Mr. S. Abbott and Mr. D. Mackay were the leading prize winners for pot roses, showing good specimens. Mr. J. Cumming, Green Park, Liberton, came to the front for pelargoniums and also for cinerarias, making a good show of each. Well grown and fragrant mignonette came from Mr. A. Brown. Messrs. Reid, Staward, R. Stuart, and A. Paterson were the leading exhibitors and prize winners in primula and polyanthus classes.

Numerous plant classes were provided for nurserymen, these comprising azaleas, rhododendrons, forced plants, palms, conifers, evergreen shrubs, Japanese maples, ferns, table plants, hyacinths, and tulips. The leading prize winners were: Mr. J. Downie, Messrs. R. B. Laird and Sons, Messrs. J. Dickson and Sons, Mr. E. Campbell, Gourock; and Mr. W. J. Watson, Newcastle.

Mr. J. Meiklem, Sunnybank, Bridge of Weir, had the best two dozen hyacinths and the best six in two distinct classes. Mr. Bald, Mr. J. Pearson, and Mr. S. Brydon divided the honours for narcissi and tulips.

In the fruit classes Mr. M. McIntyre was again very successful, winning firsts for a pineapple, six pots of strawberries, and thirty strawberries. Mr. W. Smith, Dalkeith, was first for black and also for white grapes. Mr. J. Cairns showed the best twenty-four kitchen apples in six varieties; Mr. J. Day, Galloway House Gardens, a good second. Mr. McKinlay, Musselburgh, was first for dessert apples; Mr. J. Cairns and Mr. Day following in order.

In the vegetable classes there was a wide distribution of prizes. Mr. W. Harper won for a collection of twelve vegetables, distinct, and for asparagus; Mr. D. Kidd, for leeks and cucumbers; Mr. G. McDougal, for tomatos; Mr. W. Macrobie, Abbey Hill, for mushrooms; Mr. J. Cossar, for French beans; Mr. J. Shearer, for seakale; Mr. W. Henderson, for rhubarb; Mr. W. Galloway, for new potatos and cabbage; Mr. A. Lauder, for broccoli; Mr. J. Laing, Blairgowrie, for onions; and Mr. W. Spence, for carrots and swede turnips.

ISLE OF WIGHT.

THE Isle of Wight Horticultural Improvement Association held its second annual non-competitive exhibition of daffodils and spring flowers at Shanklin on April 2. The opening ceremony was performed by the Lady of the Manor (Mrs. White-Popham), and was well attended.

The exhibits were numerous and of first-class quality. Messrs. Barr and Sons, London, received the association certificate for cultural merit for a magnificent collection of daffodils. They also received first-class certificates for daffodils Duchess of Westminster, Barri Conspicuus, and E. J. Berkeley. Mr. John Gell, St. Lawrence, received the association certificate for cultural merit, for thirty vases of daffodils (Sir Watkin being especially fine). Mr. W. H. Jobling, Spring Hill, E. Cowes, received a similar award for a collection of hardy spring flowers. Mr. F. Woods, Steephill Castle, Ventnor, staged a collection of cinerarias for which he received the association certificate for cultural merit; Mr. J. H. Silsbury, Shanklin, also received a certificate for a collection of daffodils.

Other exhibits of note were palms and dracænas from Mr. F. Silsbury, Clarendon Lodge, Shanklin; a group of miscellaneous plants and flowers effectively arranged from Mr. C. H. Snook, Westhill, Shanklin; a collection of flowering and foliage plants from Mr. S. Banks, Shanklin; cut blooms of tulips from Mr. J. H. Perkin, Los Altos, Sandown; fine seedling amaryllis and large spikes of Iris fimbriata from Mr. W. Tribbick, F.R.H.S., Brooke House, Brooke; and floral decorations from Mrs. A. Carter, Rosendale, Shanklin. The popularity and usefulness of the association is becoming more appreciated, and the attendance was remarkably good. Several new members were enrolled during the afternoon and evening.

SHIRLEY GARDENERS' ASSOCIATION.

THE annual general meeting of the above society was held at the Parish Room, Shirley, Southampton. The President, Mr. W. F. G. Spranger, presiding over an average attendance of the members. The report showed that twelve meetings had been held during the past year, five hundred and sixteen members attending, giving an average per meeting of forty-three. The attendance it was felt should average more with a membership of one hundred and forty. The accounts showed a balance of £3 odd in favour of the association with some still to come in. The president, vice-presidents, treasurer, and secretary, were re-elected, and a committee of fifteen were balloted for. A most sincere and hearty vote of thanks was accorded to the President, and also to the horticultural and local press. Some of the members and their friends then gave a pleasing entertainment, which was very much appreciated by those present.

THE WEATHER DURING THE WEEK ENDING APRIL 9, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.		In Inches.	In Centimetres.
	Fahrenheit.		Fahrenheit.	Centigrade.		
London	67·2	[illegible]	[illegible]	9·61	0·13	[illegible]
Croydon	67·5	[illegible]	[illegible]	8·83	0·07	[illegible]
Brighton	57·2	[illegible]	[illegible]	7·94	0·09	[illegible]
Bristol	64·0	[illegible]	[illegible]	7·89	0·42	[illegible]
Wolverhampton	[illegible]	[illegible]	45·4	7·44	0·49	[illegible]
Norwich	—	—	—	—	—	[illegible]
Nottingham	[illegible]	[illegible]	[illegible]	7·72	[illegible]	[illegible]
Liverpool	[illegible]	31·2	[illegible]	7·72	[illegible]	[illegible]
Huddersfield	[illegible]	[illegible]	[illegible]	7·72	[illegible]	[illegible]
Bradford	[illegible]	32·6	[illegible]	8·78	[illegible]	[illegible]
Hull	[illegible]	[illegible]	45·3	7·39	[illegible]	[illegible]

The mean reading of the Barometer during the week at Greenwich was [illegible] of the Thermometer [illegible], the latter being 3°·3 above the week's average [illegible] 1841—90. The direction of the wind was variable, the horizontal movement of [illegible] 12 per cent. above the week's average in the 16 years 1860—75. The duration of [illegible] sunshine in the week was 47·8 hours. The measured rainfall amounted to [illegible]

CATALOGUES RECEIVED.

Barr and Sons, Covent Garden.—Hardy Perennials and Alpines.

H. Cannell and Sons, Swanley, Kent.—Floral Guide for 1898.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Revolution in Chrysanthemum Culture.—G. C. J., Hitchin: You will find your query answered in the present issue under the heading of "Dwarfing Chrysanthemums."

Bamboos—M. H. W. Walkley: The work to which you refer is "The Bamboo Garden," by Mr. Freeman-Mitford, of Batsford Manor. The book is published by Messrs. Macmillan and Co.

Botanical Names of Popular Flowers.—C. O. S., Hertford: The following are the correct botanical names of plants recognised by the popular names sent. Scarlet Monkey Flower, *Mimulus cardinalis;* Sassafras tree, *Laurus Sassafras;* Pasque-flower, *Anemone Pulsatilla;* Sweet Woodruff, *Asperula odorata;* Wallflower, *Cheiranthus Cheiri;* Mint, *Mentha viridis;* Liquorice, *Glycyrrhiza glabra;* Liverwort, *Marchantia polymorpha;* Dogwood, *Cornus sanguinea;* Hemlock, *Oenanthe crocata;* Goldielocks, *Chrysocoma Linosyris:* None-so-pretty, *Saxifraga umbrosa.*

Potting Caladiums.—F. W., Derby: You should pot on the caladiums whenever necessary to produce large and well-grown specimens until a reasonable time before the exhibition, or until foliage production ceases. Equal parts of leaf-mould, fibrous loam, and dry cow manure, with a little peat and sand added, make a first-rate compost. If the size of pot is limited, or it becomes apparent that further potting will answer no useful purpose, then liquid manure should be afforded all well-rooted examples. Scarcely any shade is necessary, save for a day or so after potting. Maintain a moist atmosphere and treat the plants liberally in every way.

Pinching Chrysanthemums.—R. S., Colchester: Joseph Chamberlain and Mary Molyneux are distributed this season for the first time, so that it is not possible to advise on the special treatment of these without experience of their growth. The distributor of the first named (Mr. Davis) says in his catalogue that J. Chamberlain "is an easy doer on crown bud," and we believe Mary Molyneux will be best from natural second crowns; if this variety does not show a "break" bud by April 25, try pinching one plant then, and allow another to grow on to the natural break. They both appear to be strong growers. Pinch Mrs. F. A. Bevan and Mrs. S. C. Probin at once (should have been done by April 7), and take second crown buds; both these are liable to damping of the blooms, and though they should be well grown be careful not to feed with strong manures late in the season. Western King is best from buds about August 20 to 25; if your plants are strong and forward pinch April 20, and take second crowns; late or weakly plants will probably not show their crown buds too early, and need not be pinched.

Stopping Chrysanthemums—W. B., Otley: The query comes somewhat late. The following are the dates, according to Mr. Lees. Nos. 6, 7, 9, 11, 14, 15, 18, 20, 21, and 30, should be all right if ordinary crown buds are taken. Nos. 1 and 2 are rather uncertain in bud formation; secure a bud as near August 20 as possible. Pinch No. 5 about March 10, and take second bud on ordinary crown. Nos. 4, 8, 10, 19, 22, and 27 take second crowns. Strike No. 28 about the end of January; take crown bud, it comes early. Pinch Nos. 3, 16, and 29 April 10, and take crown buds. Pinch Nos. 23 and 26 on April 18, and take crown buds. Nos. 13, 24, and 25 not grown; No. 12, no use.

Globe Artichokes.—H. L., Hendon: New plantations of globe artichokes should be made this month, choosing for the purpose a plot of well-worked rich soil that is moist though well drained. Place the clumps about four feet apart each way, or the rows four feet apart and the plants three feet apart in the rows. Choose strong suckers, but not those that are at all woody. Remove the large outside leaves and plant the suckers about half their depth in the soil. Some gardeners remove and pot up the suckers as they are ready, and keep them in a well-aired cold frame until planting time. Good waterings will be necessary to ensure establishment, while a seakale pot for each plant will be useful to ward off brilliant sunshine for a week or two, and also to afford some protection from severe frosts should such occur.

Doronicum plantagineum for Forcing.—R. C. F., Guildford: This plant should be divided every year, and replanted in rich soil, if good specimens for early flowering be desired. It does not require forcing, in the general acceptation of that term. Lift a few examples during late autumn, and pot them up, afterwards standing them in a cold frame. If kept free from frost, and watered as they require moisture, they will come into flower early, and prove most useful for conservatory decoration during February. The large bright golden yellow flowers are also extremely useful for cutting, and for this purpose alone a good batch would prove useful in any garden. After flowering, turn the plants out of their pots, divide, and plant out in rich ground; water freely if the weather be dry, and they will be ready for potting again in the autumn.

Hoya bella.—M. C. G., Romford: The requirements of Hoya bella are a light porous soil and a well-drained pot or tub. The compost should consist of fibrous peat, loam, and leaf-soil, mixed with an abundance of mortar-rubbish or sand and finely broken crocks. From August until February very little water is needed, and during the winter a temperature of 55 degrees will suffice. The best time to repot or plant out this Hoya is during February or early March; the warm greenhouse will prove a suitable home for it, and we should not hesitate to pot at once rather than badly starve the specimen. If placed against a brick wall the Hoya needs little support, as it emits rootlets from the stem which cling to the rough surface. Hoya bella comes from Taung Kola, and was introduced in 1847. The genus was named after a Mr. Hoy, who at one time was head gardener at Syon House, Brentford. The hoyas are popularly known as Honey-flowers.

Nitrogenous Manures for Potatos.—B. K., Cambridge: Either sulphate of ammonia or nitrate of soda are excellent nitrogenous manures for potato cultivation if given as top-dressing. The former, if a good sample, should be used at the rate of 1½ lb. per rod, this amount being applied in three dressings of half a pound each, at the first hoeing, first earthing, and final earthing up; these latter operations take place approximately at the middle of May, beginning of June, and middle of June. Nitrate of soda may be applied at

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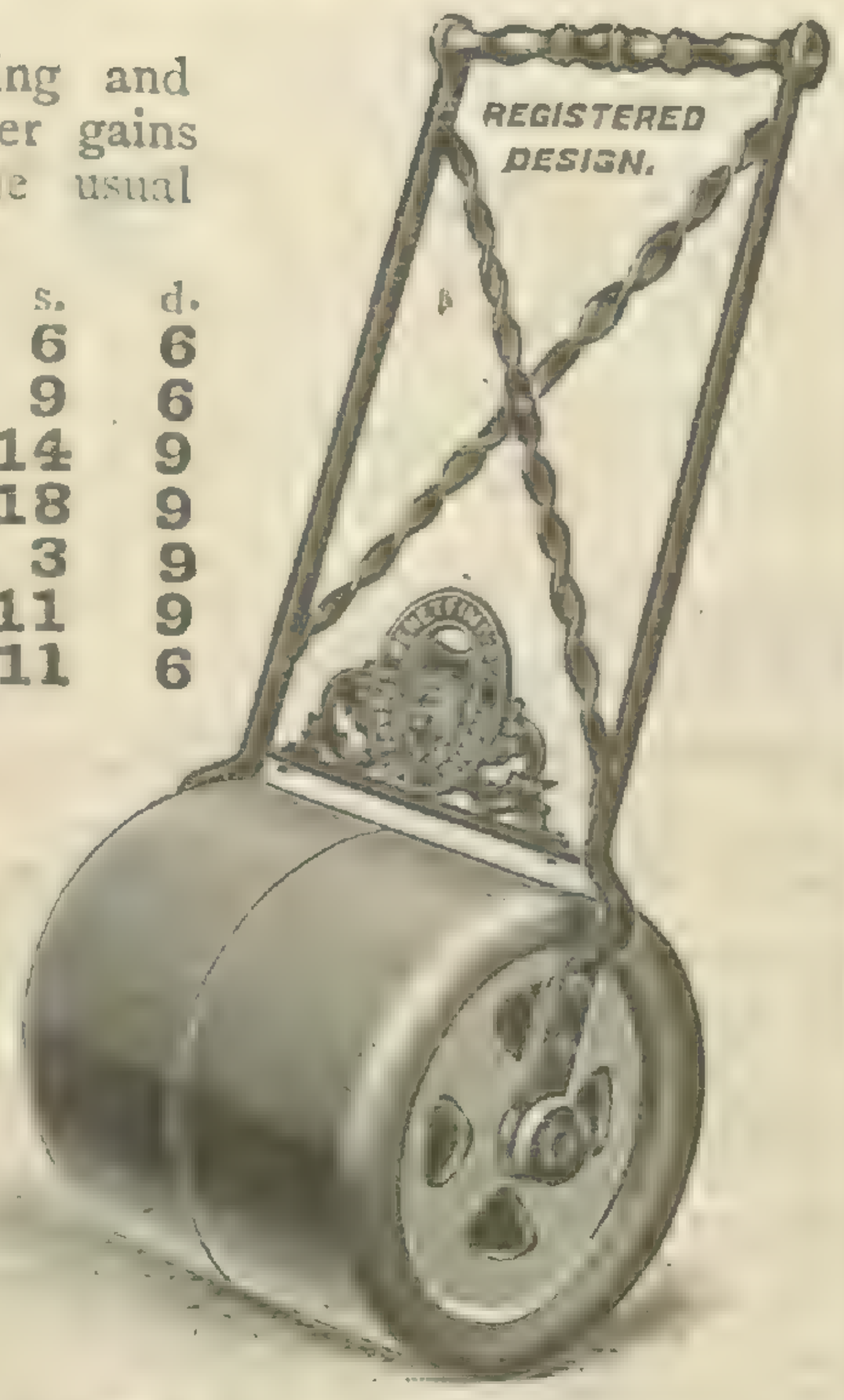
18 ,, 18	...	2	2	14	...	1	14	9
20 ,, 20	...	3	0	14	...	1	18	9
22 ,, 22	...	3	2	14	...	2	3	9
24 ,, 24	...	4	0	14	...	2	11	9
26 ,, 26	...	5	2	0	...	3	11	6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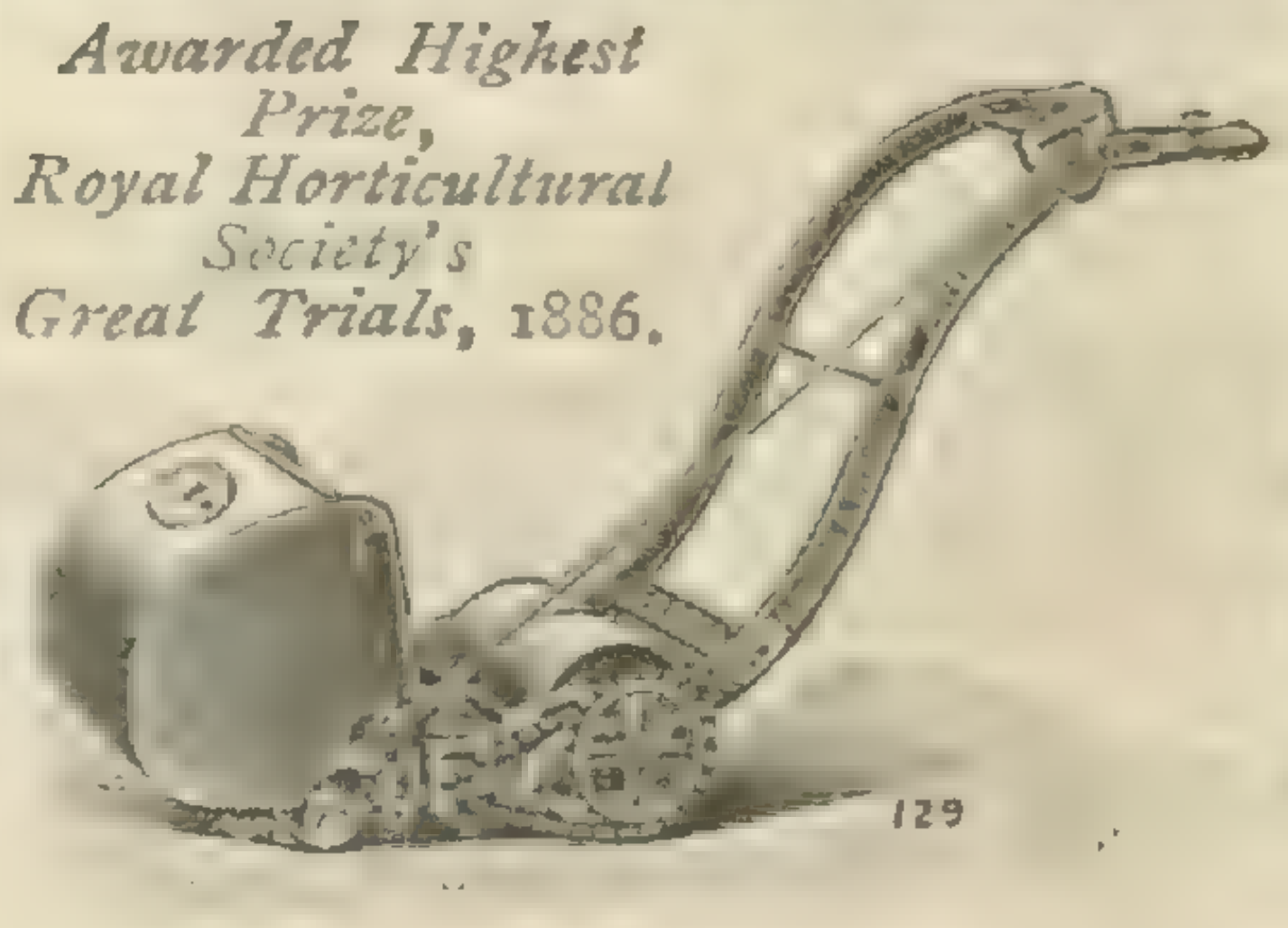

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12 ,, ,, ,, by a man	3	7	6	21 in., can be worked by two men...	6	15	3
14 ,, ,, ,, ,, ,,	4	2	7				

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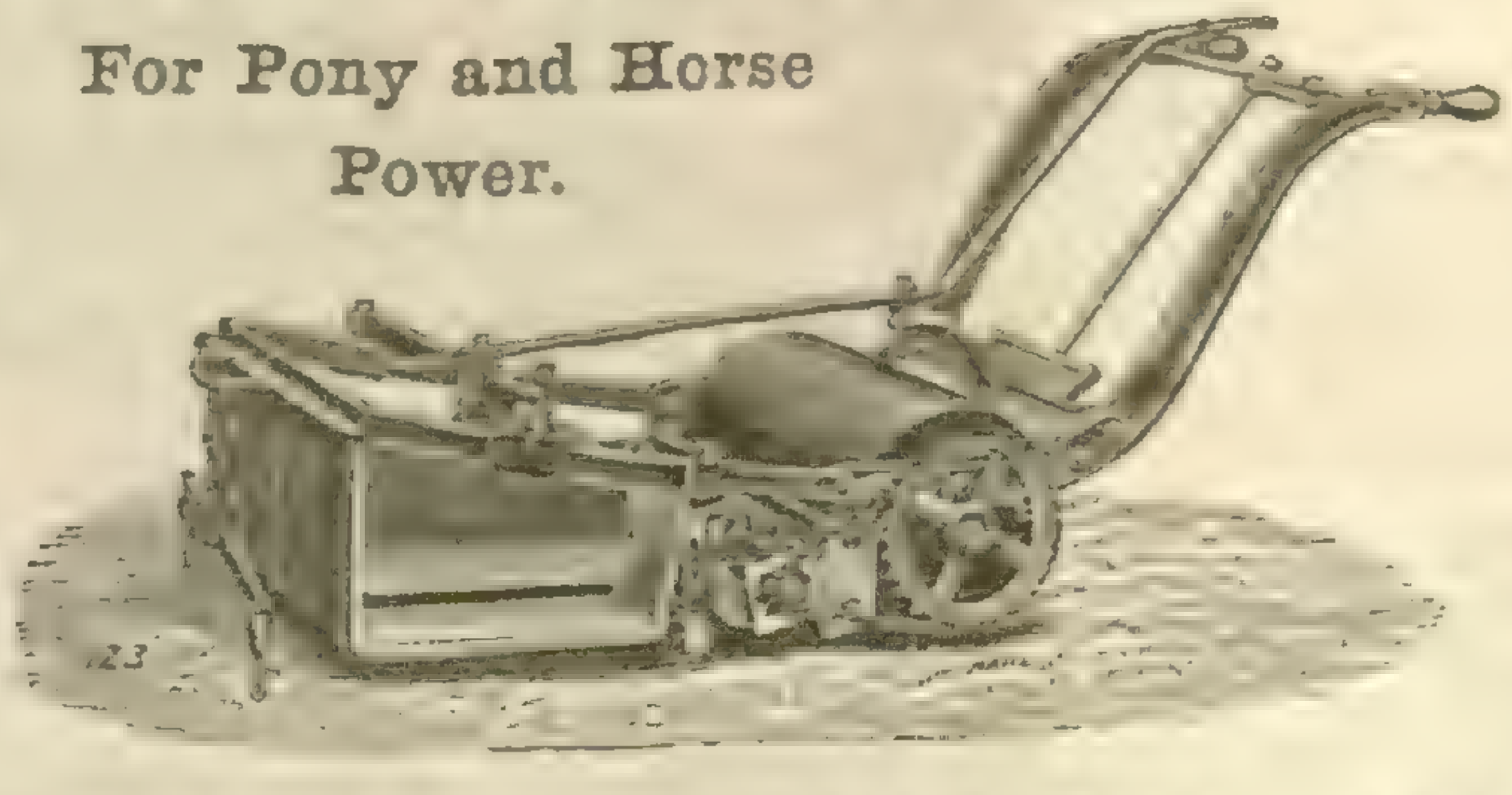

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the rate of 2 lb. per rod, as its value as a nitrogenous manure compared with sulphate of ammonia is as three to four. It is, however, a quick-acting manure and especially valuable on light soils. The 2 lb. should be divided into three equal parts, and one of these used on the three occasions before noticed. Both these manures are only of advantage when the land is in good condition otherwise. We have used both on land of medium texture and good condition, and have found scarcely any difference in the resulting crop, though the soil does not seem so used up after sulphate as after nitrate. If your land is very light use nitrate of soda, as it tends to keep the soil moist.

Names of Plants.—M. E., Ripon: 1, Clivia miniata, also known as Imantophyllum miniatum; 2, Cyperus alternifolius; 3, Yucca aloifolia lineata-lutea; 4, an abutilon, send when in flower.

C. C., Calville: The yellow-marked leaf is Cineraria maritima aureo-variegata; the other specimen is probably Gazania ringens, but it was too much damaged to allow of certain identification. See rules as to sending plants for naming.

J. D., Garliestown: Bifrenaria Harrisoniæ, known in some gardens as Maxillaria Harrisoniæ.

Communications Received.—R. B.—R. S.—W. H. L.—C. H.—H. C. P.—R. D.—C. T. D.—T. S.—D. T. F.—R. C. R.—M. H. S.—J. W.—A. D.—C. J. D.—J. H.

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MARKETS.

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MODERATE supplies of all kinds of produce meet a steady demand. The cut flower trade has been very brisk.

FRUIT.—American apples, 15s. to 28s. per barrel; Tasmanian, 10s. to 16s. per case; Californian Newtowns, 9s. to 14s. per box; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 6s. each; lemons, 6s. to 16s. per case; English grapes, 2s. to 3s. 6d.; Belgian, 1s. 6d. to 2s. 3d. per lb.; Valencia oranges, 9s. to 16s. per case; Jaffa, 10s. to 12s. per box.

FLOWERS.—Arums, 5s. to 6s.; carnations, 1s. to 3s.; eucharis, 4s. to 5s.; gardenias, 2s. to 3s.; Lilium Harrisi, 4s. to 5s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; red roses, 3s. to 6s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 4d. to 1s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 4s.; Roman hyacinths, 4s. to 6s.; daffodils, 2s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 9d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Forced rhubarb, 1s. to 1s. 6d.; natural, 3s. to 4s. per dozen bundles; asparagus, 2s. to 6s. 6d. per bundle; mushrooms, 6s. to 8s.; eschallots, 2s. to 2s. 6d. per 12 lb.; seakale, 12s. to 18s. per dozen punnets; French endive, 1s. 6d. to 1s. 9d.; lettuce, 9d. to 1s. 3d.; cos ditto, 2s. to 2s. 6d.; cucumbers, 3s. to 6s. per dozen; French beans (Madeira) 3s. to 3s. 6d. per basket; green peas, 4d. to 5d. per packet; carrots, 3s. to 3s. 6d.; spring onions 3s. to 4s.; green mint 4s. to 5s. per dozen bunches; cabbages, 3s. 6d. to 5s. per tally; Brussels sprouts, 1s. 6d. per half-sieve; cauliflowers, 1s. to 2s. per dozen; Canary new potatos, 10s. to 16s.; Malta, round, 10s. to 12s.; French, 2d. to 3d. per lb.

Borough Potato Market.

Home supplies show a large falling off, and, with a reduction of foreign supplies, prices are well maintained, and have an upward tendency.

Dunbars, 120s. to 130s.; Scottish Magnums, 105s. to 115s.; Hebrons, 100s. to 110s.; Snowdrops, 95s. to 100s.; Bruce Maincrop, Sutton's Regents, Reading Giants, and Saxons, 95s. per ton; Belgians and Germans, 4s. to 4s. 3d. per bag. New—Maltese rounds, 12s. per cwt.; Jersey hothouse, 3½d. to 4d. per lb.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETING.

WEDNESDAY, APRIL 20.—Annual Festival Dinner of the Royal Gardeners' Orphan Fund, at the Hotel Metropole.

AUCTIONS.

TUESDAY, WEDNESDAY, AND FRIDAY, APRIL 19, 20, AND 22.—Dwarf Roses, Calceolaria, Pansies, Geraniums, Japanese Lilies, Gladioli, Iris, Begonias, Ferns, Palms, Orchids, &c., at Protheroe and Morris's Rooms.

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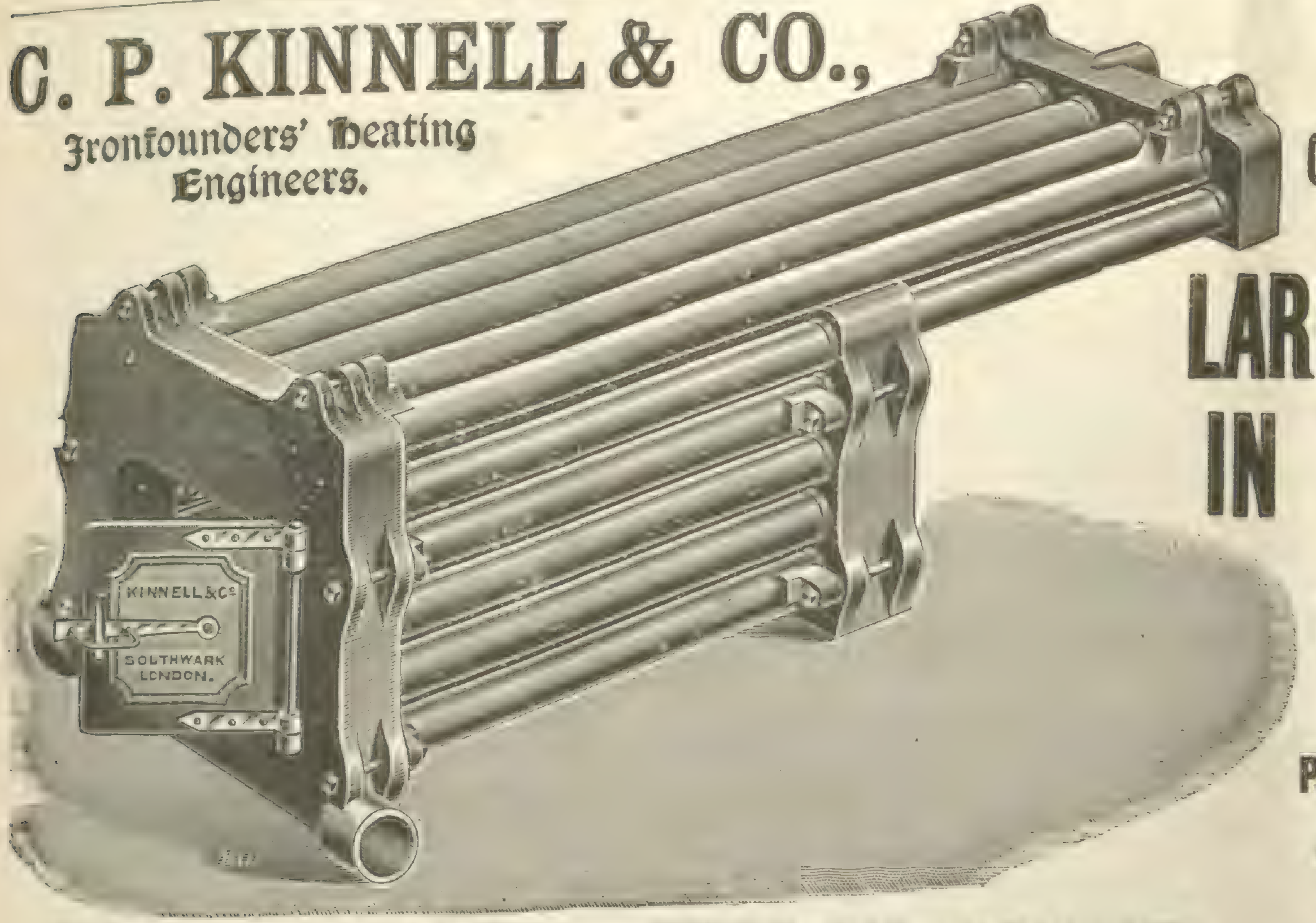
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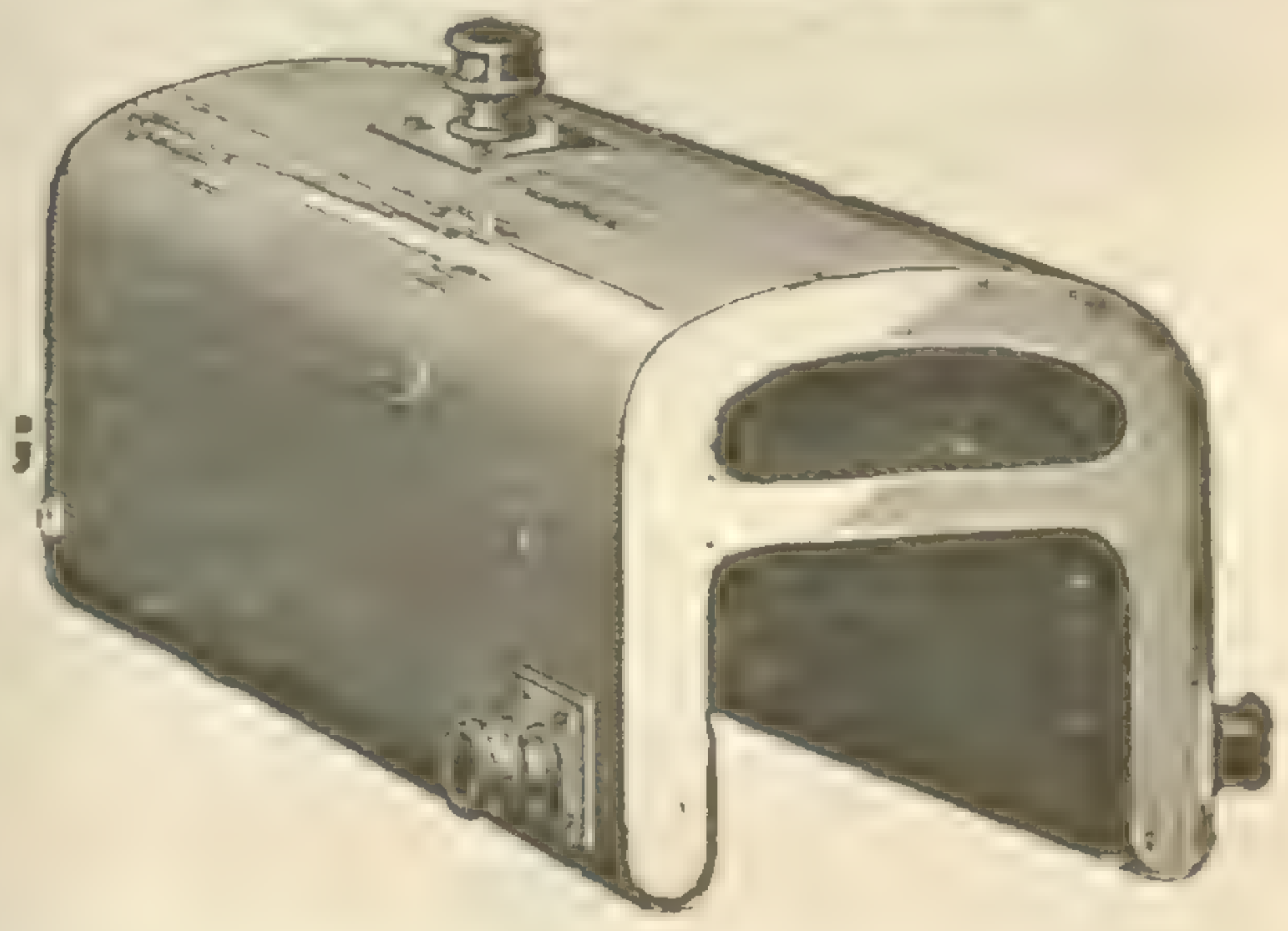
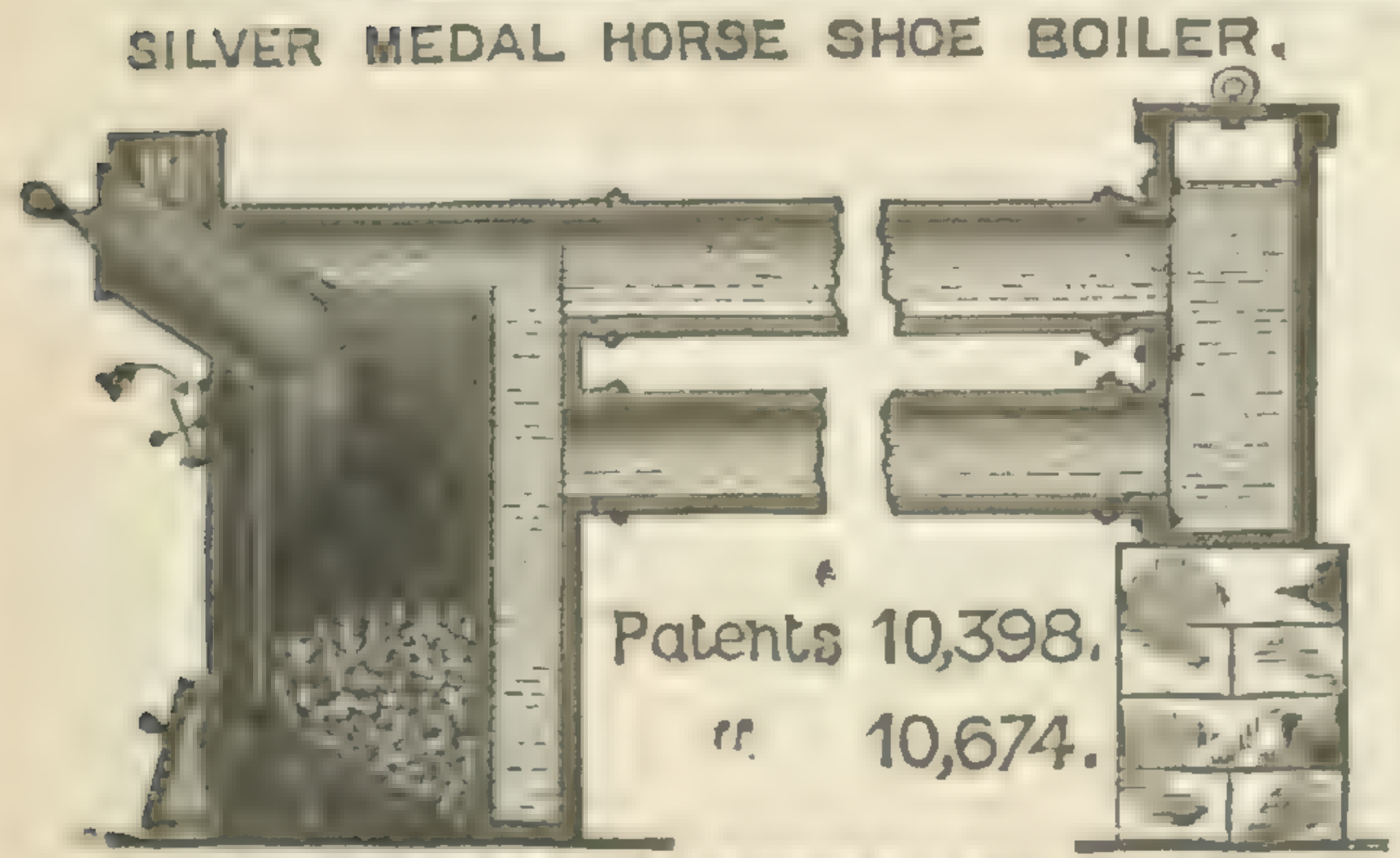


SILVER MEDAL HORSE SHOE BOILER.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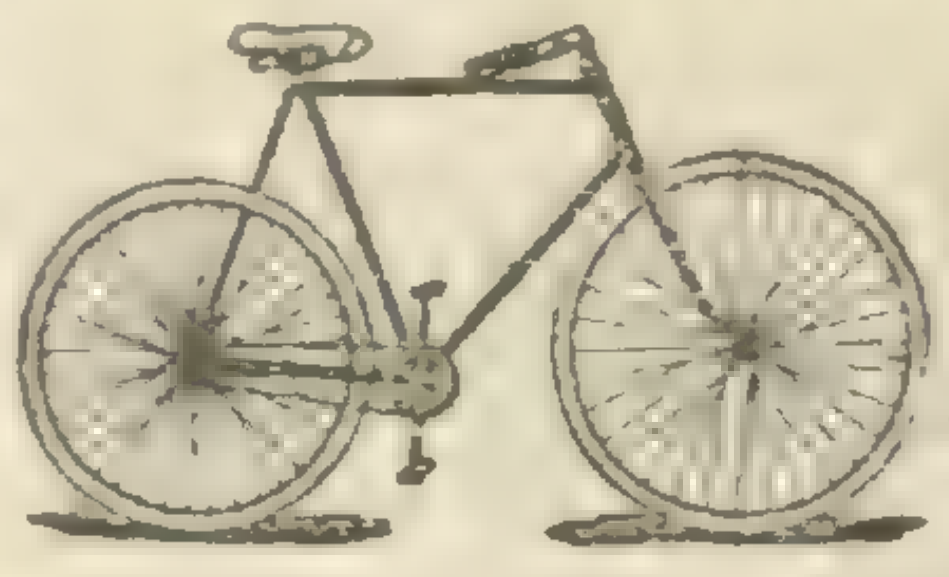

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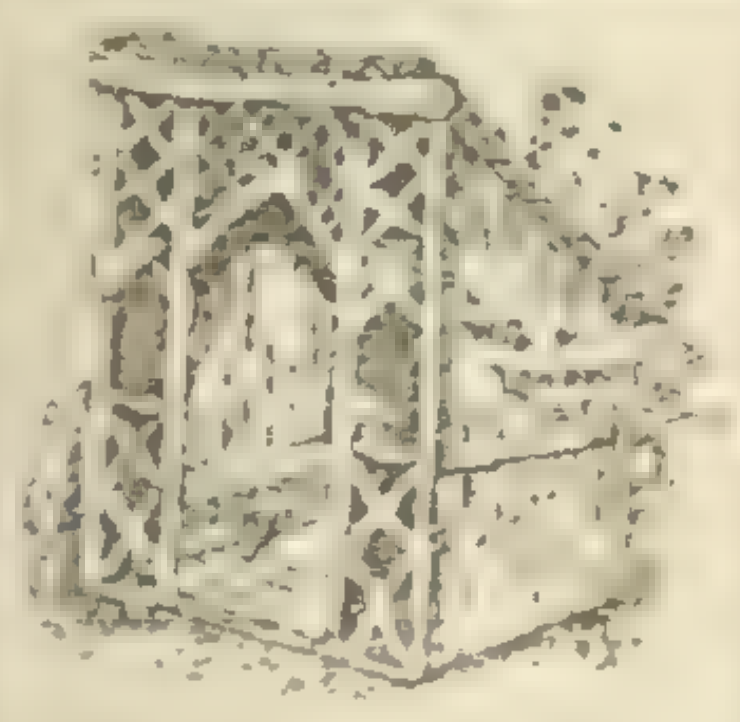

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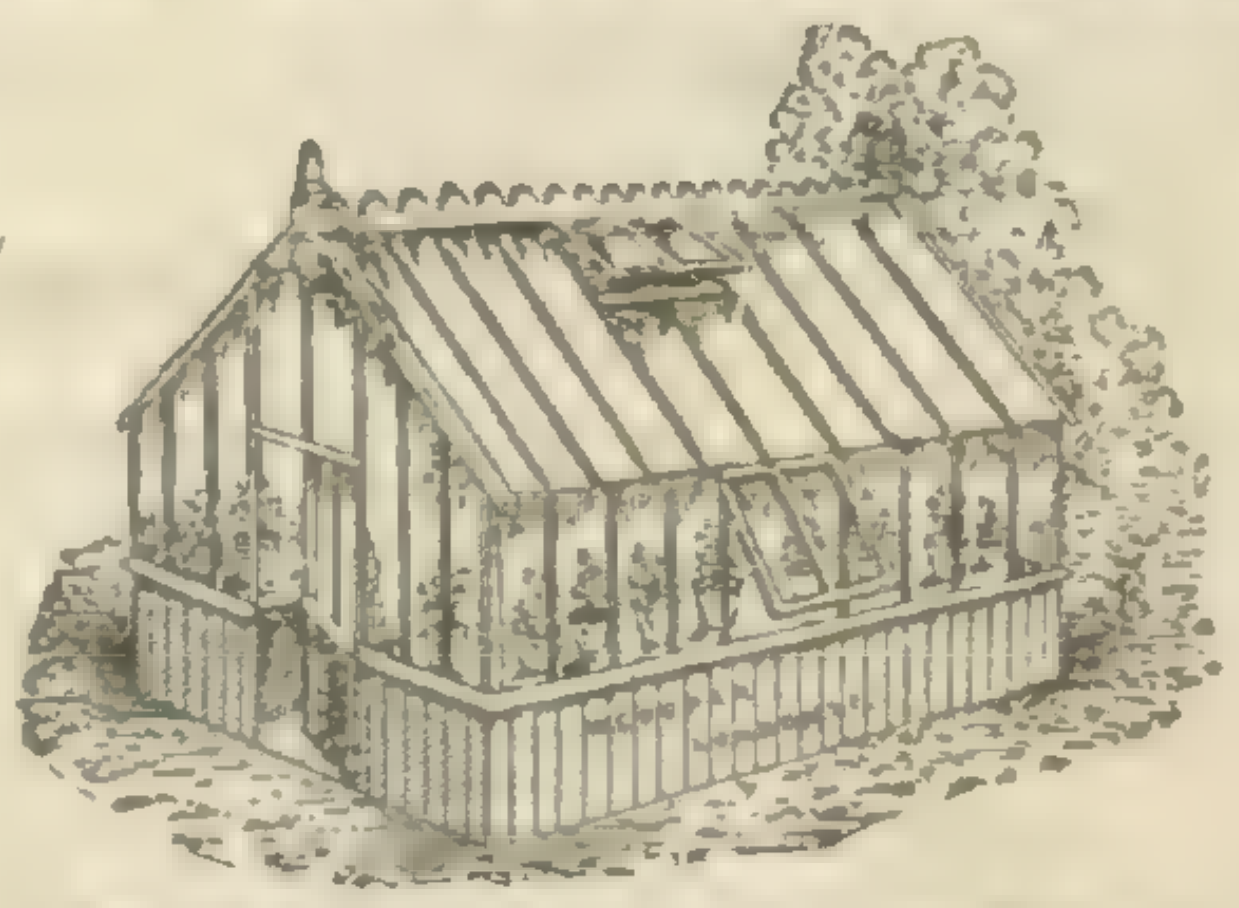

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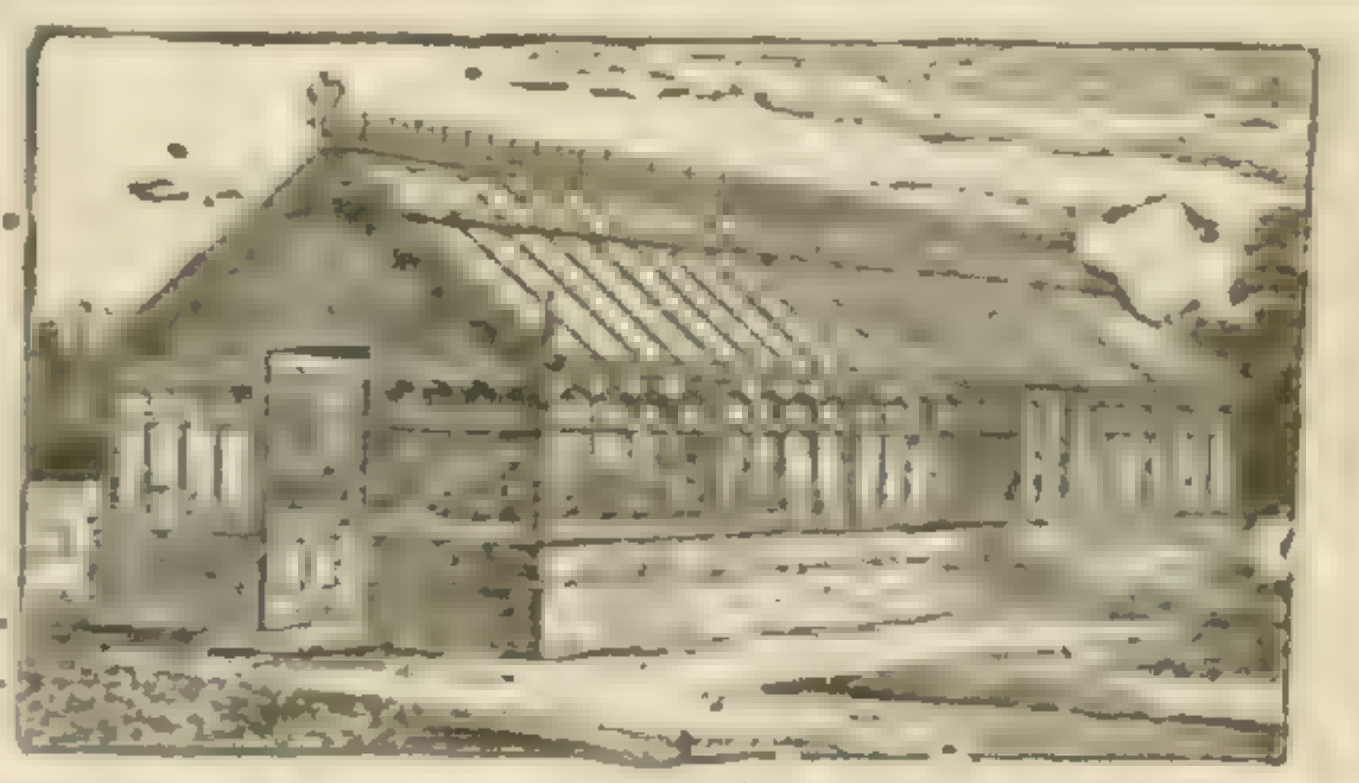

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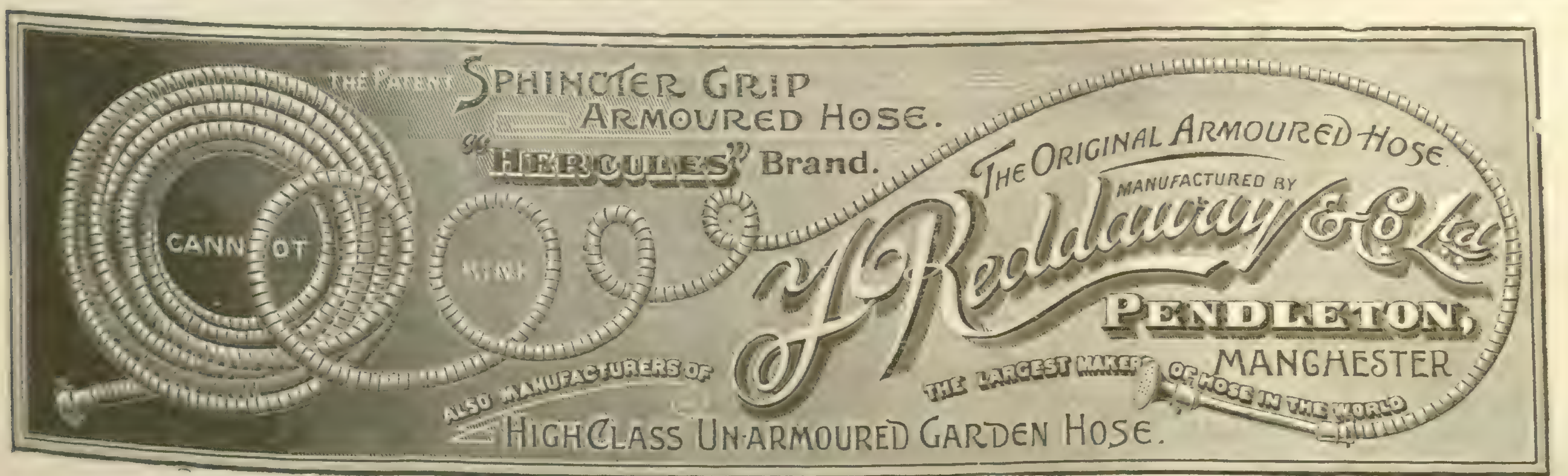
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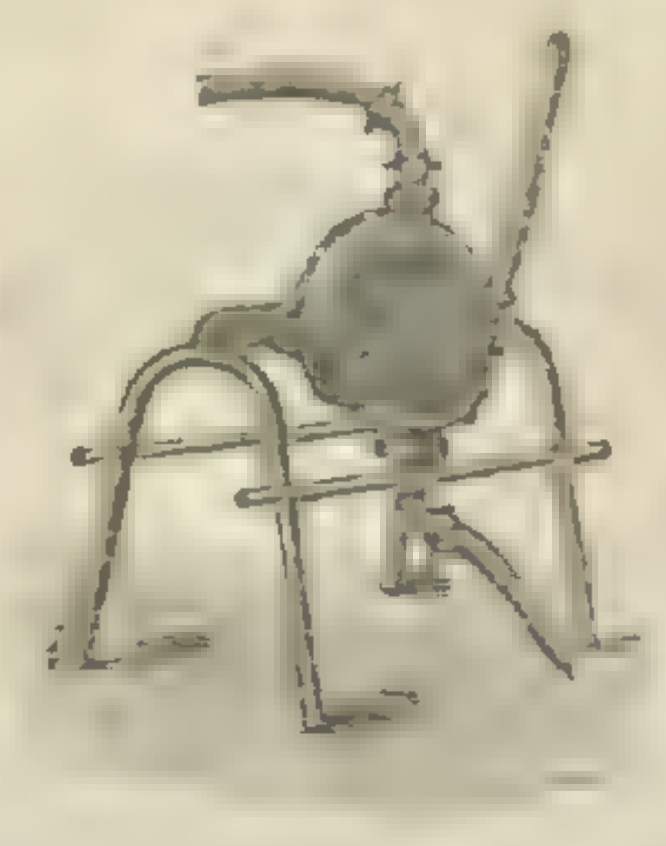

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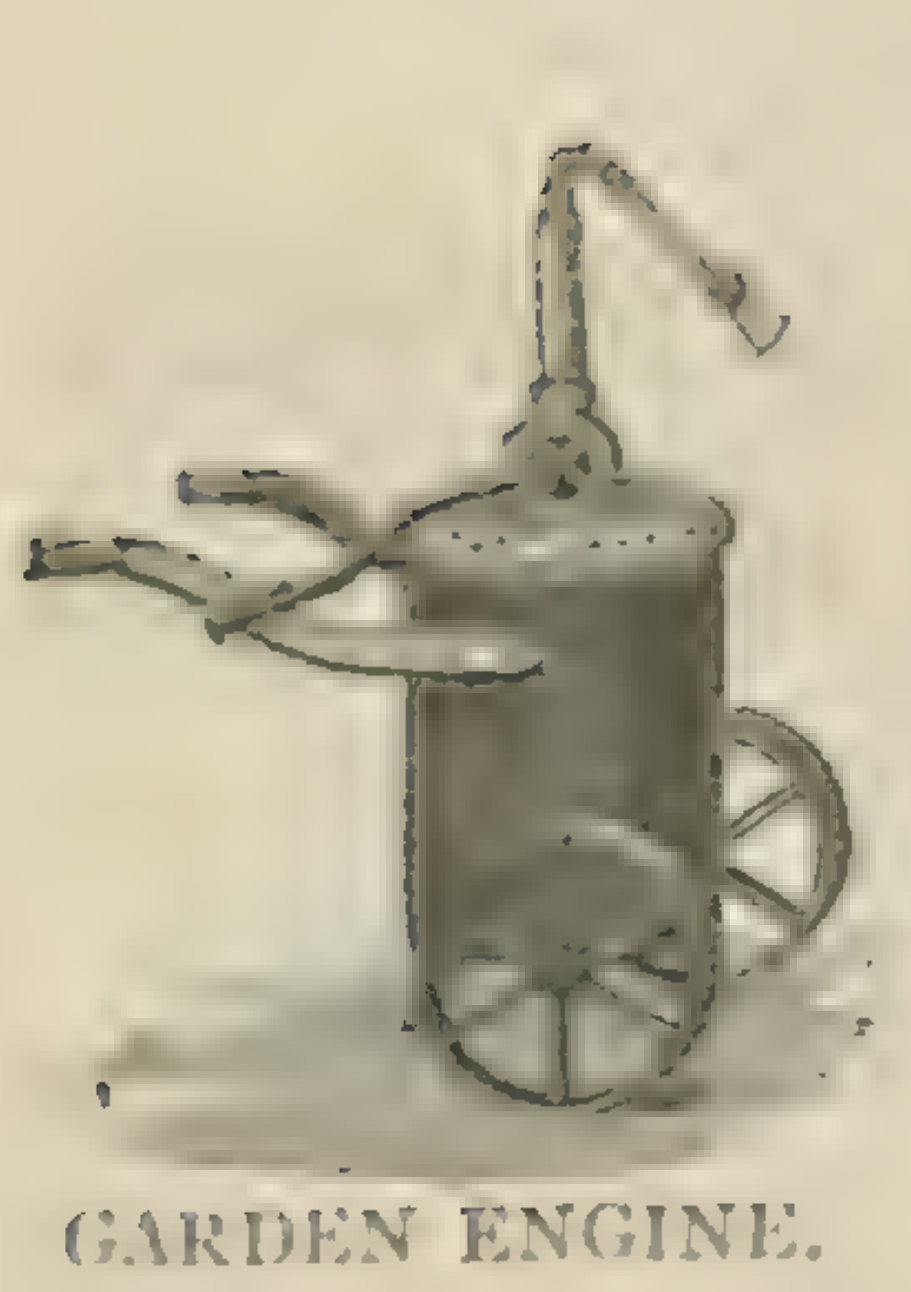

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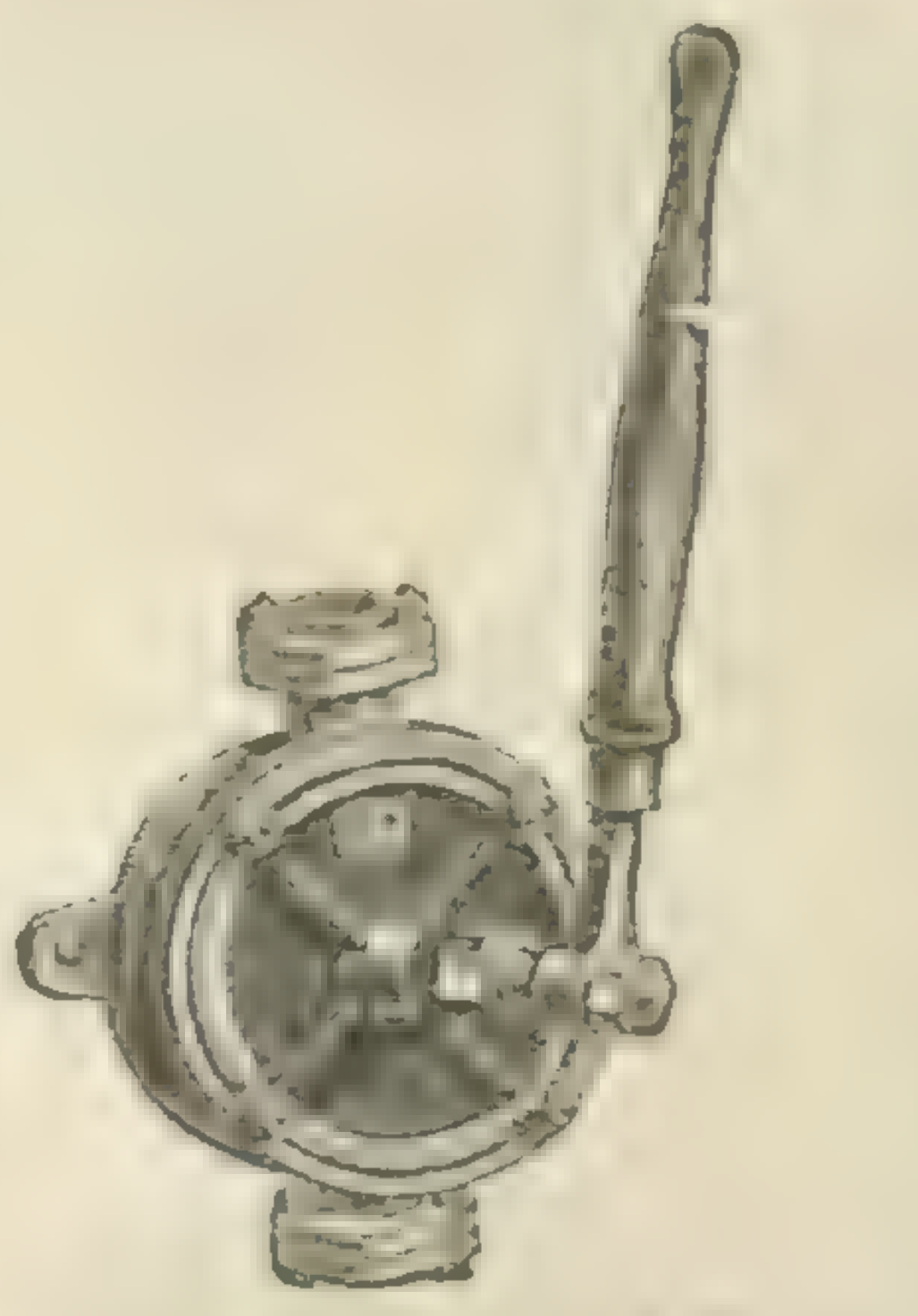

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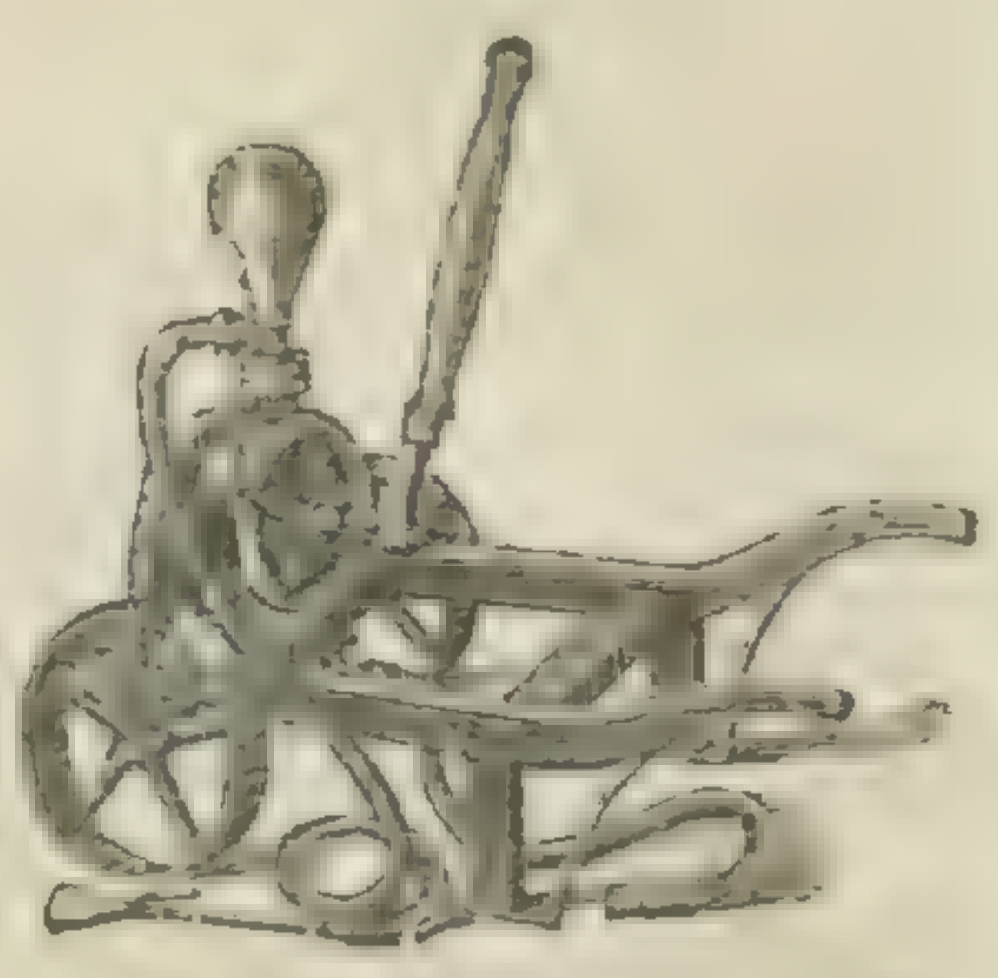

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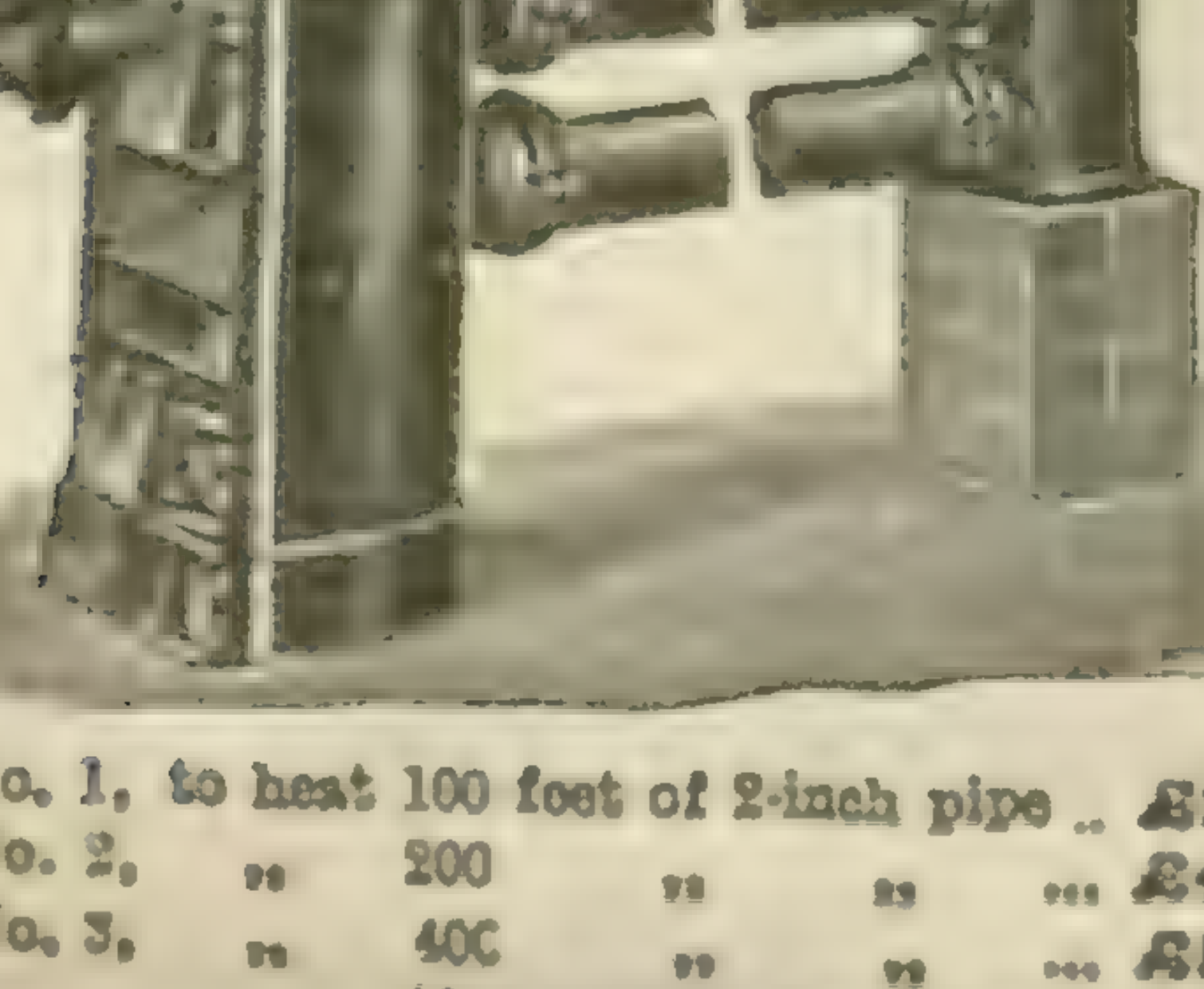

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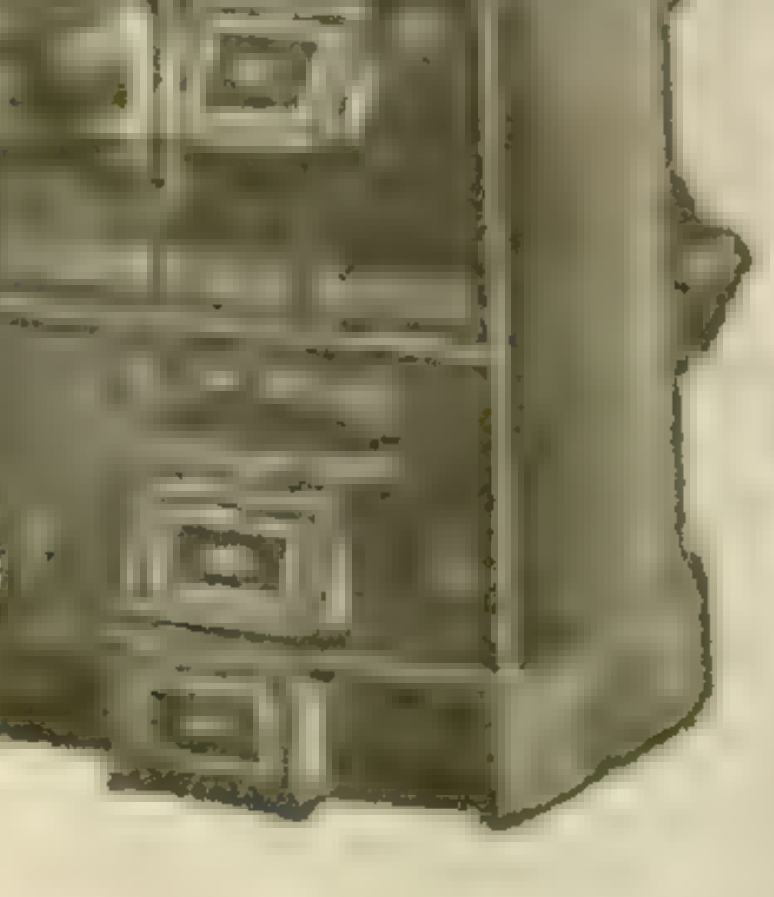

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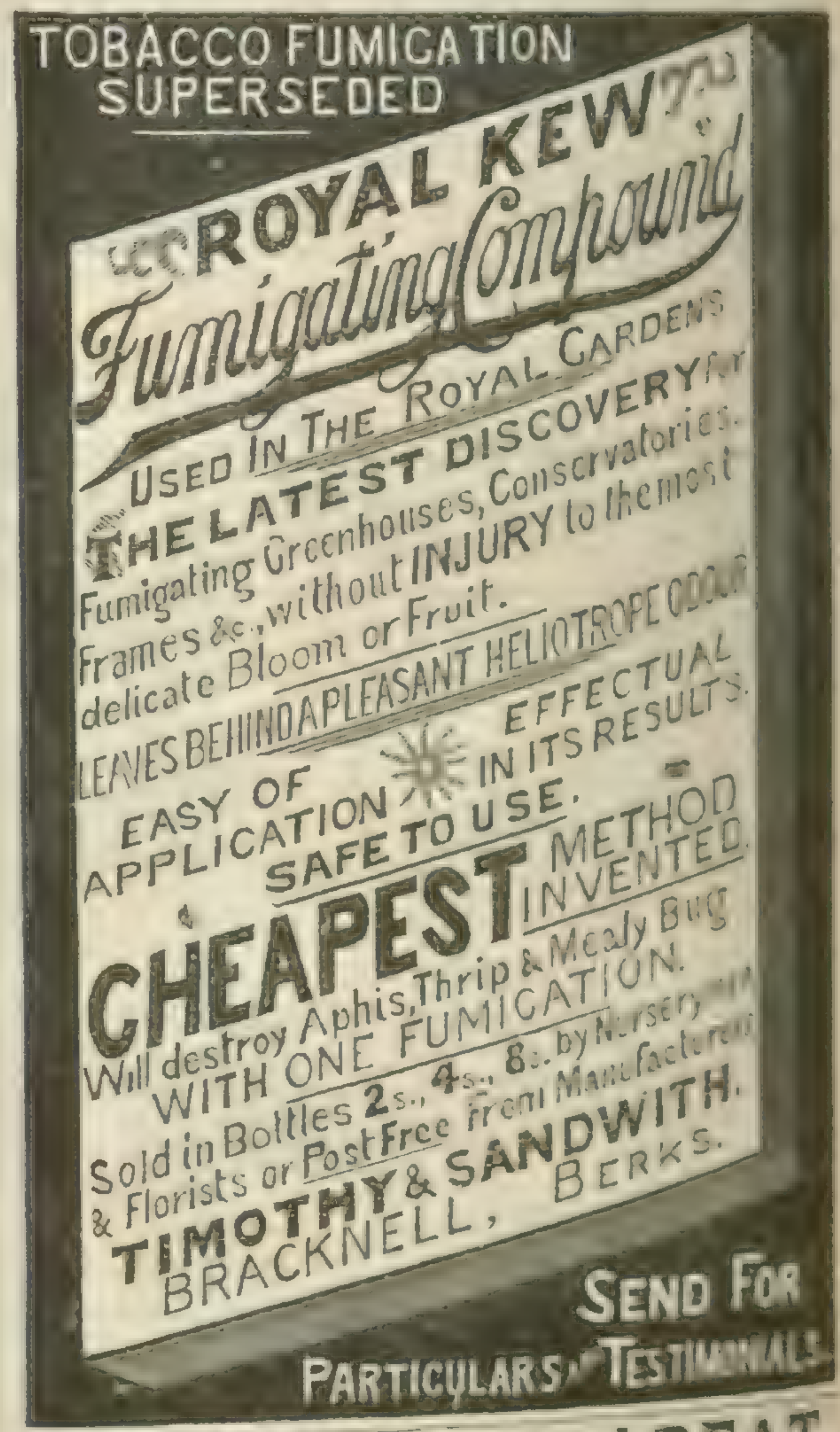

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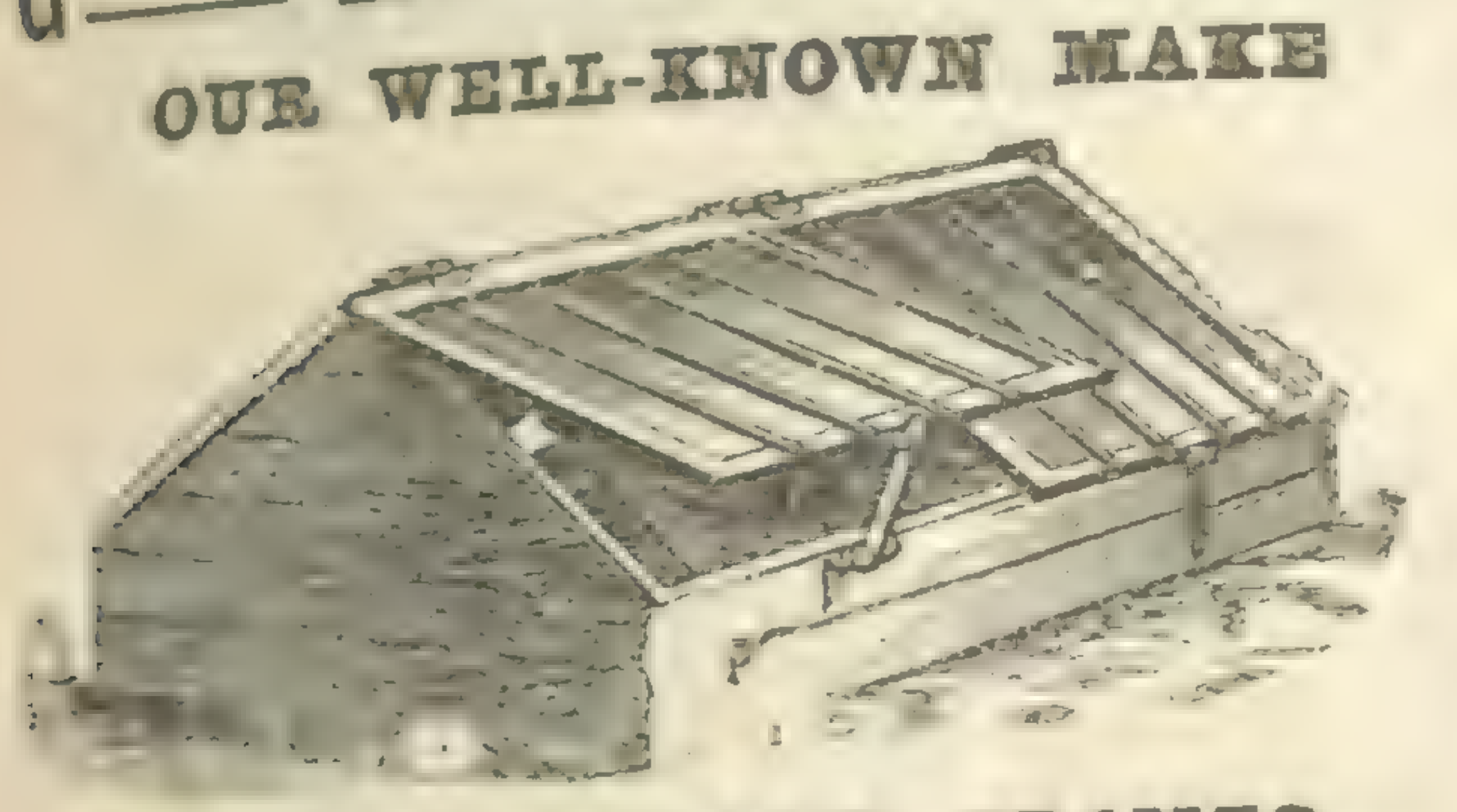

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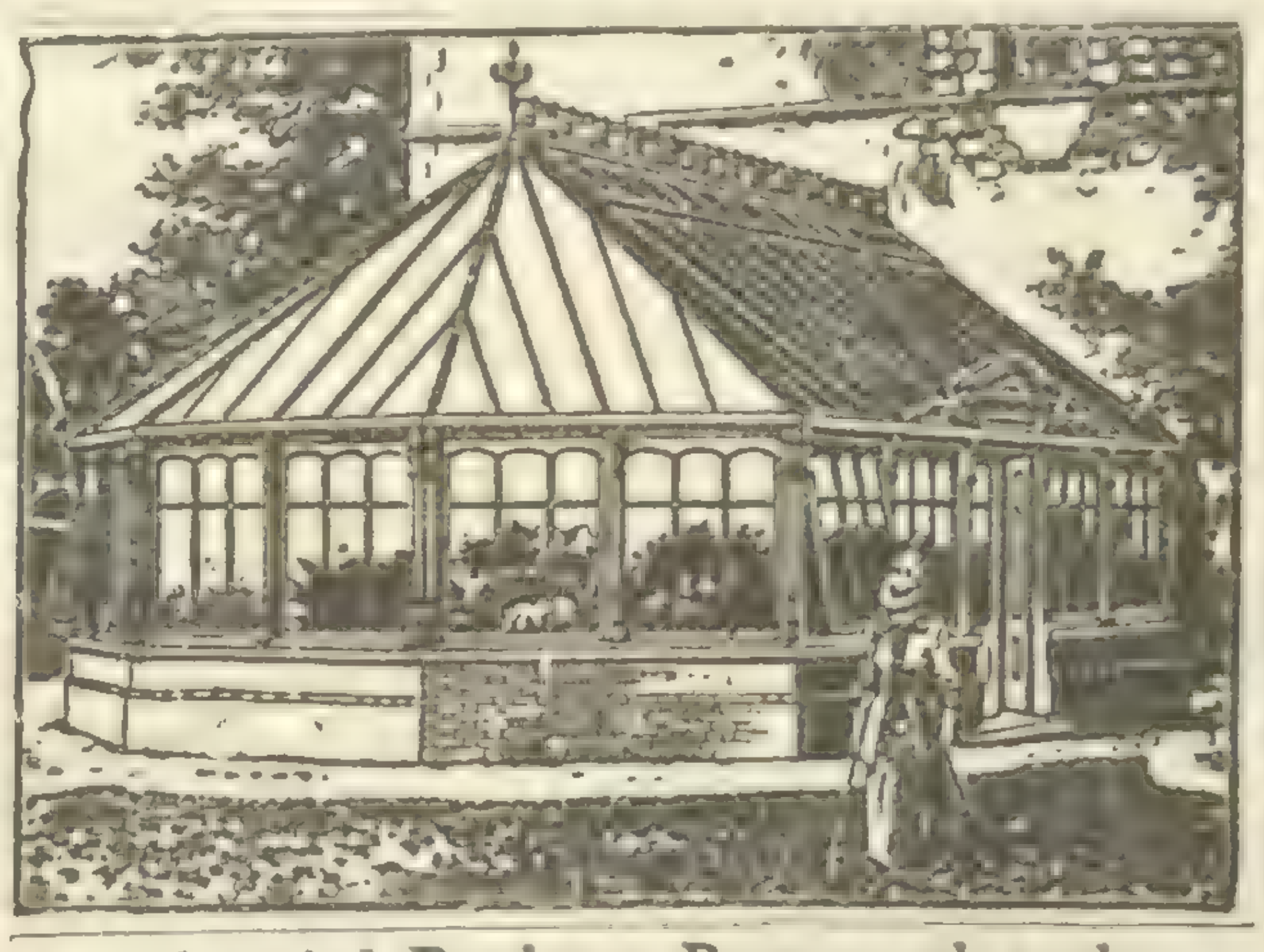

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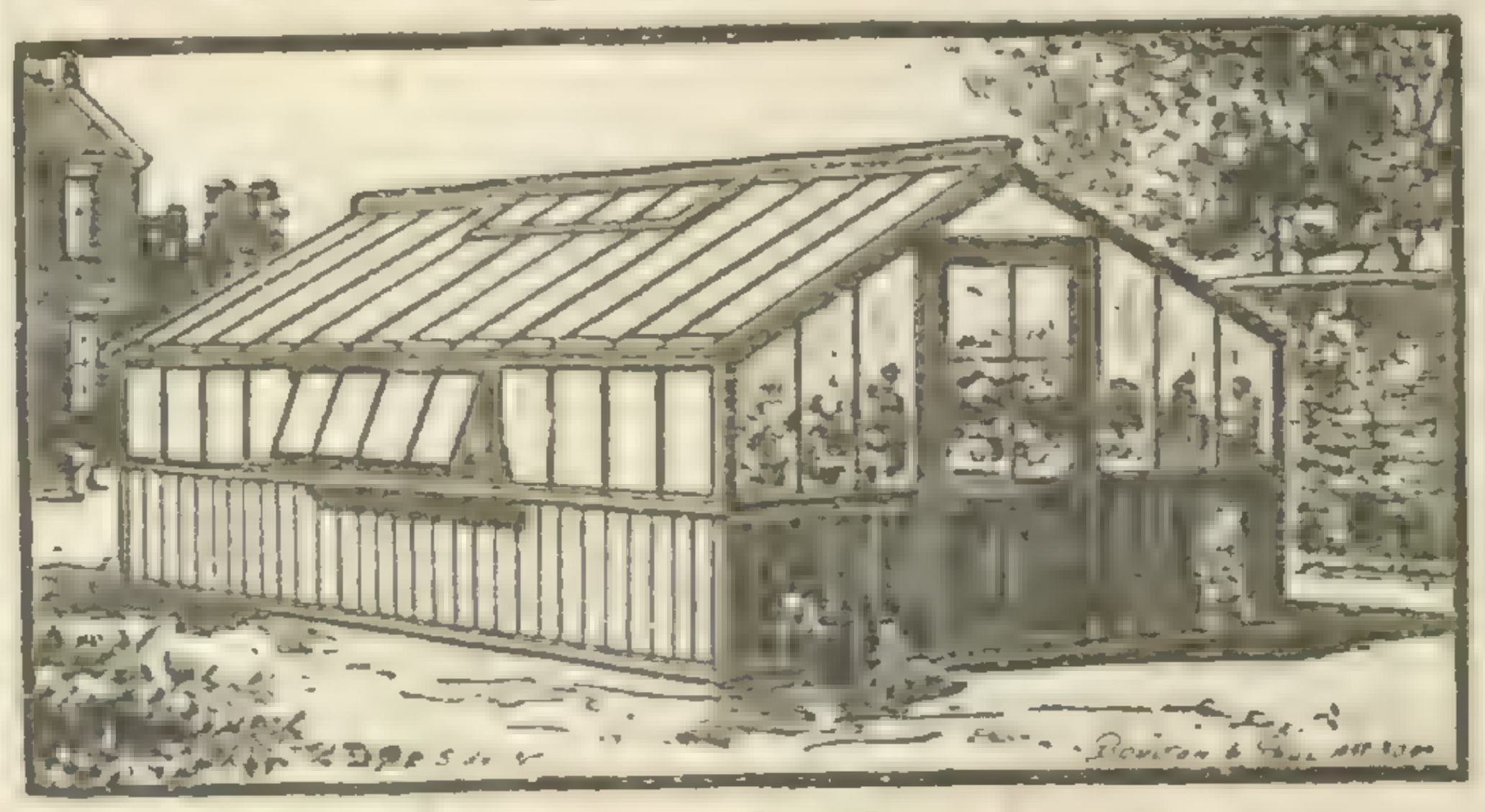

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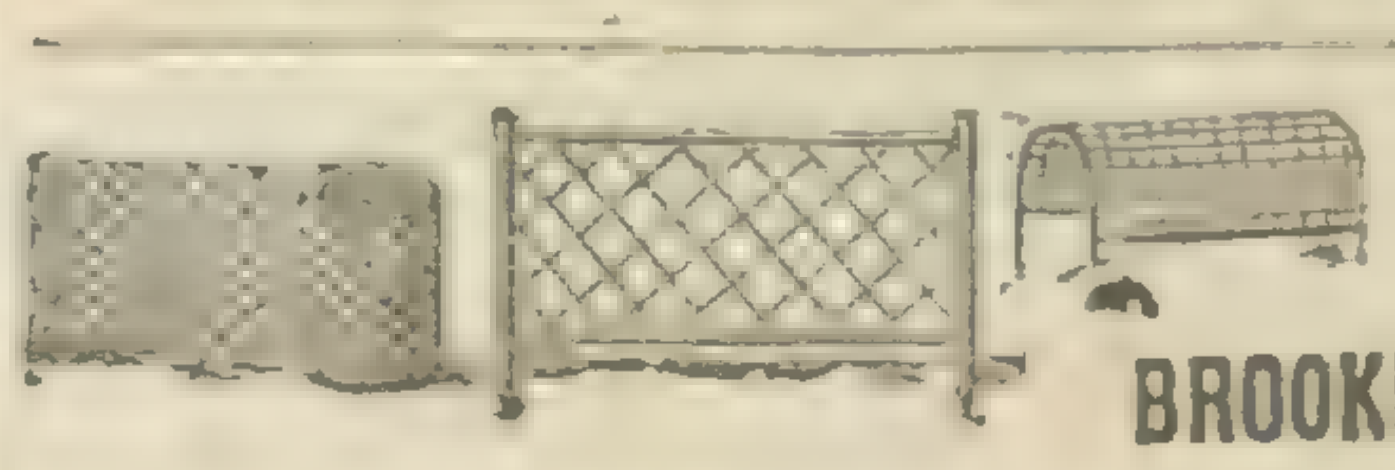

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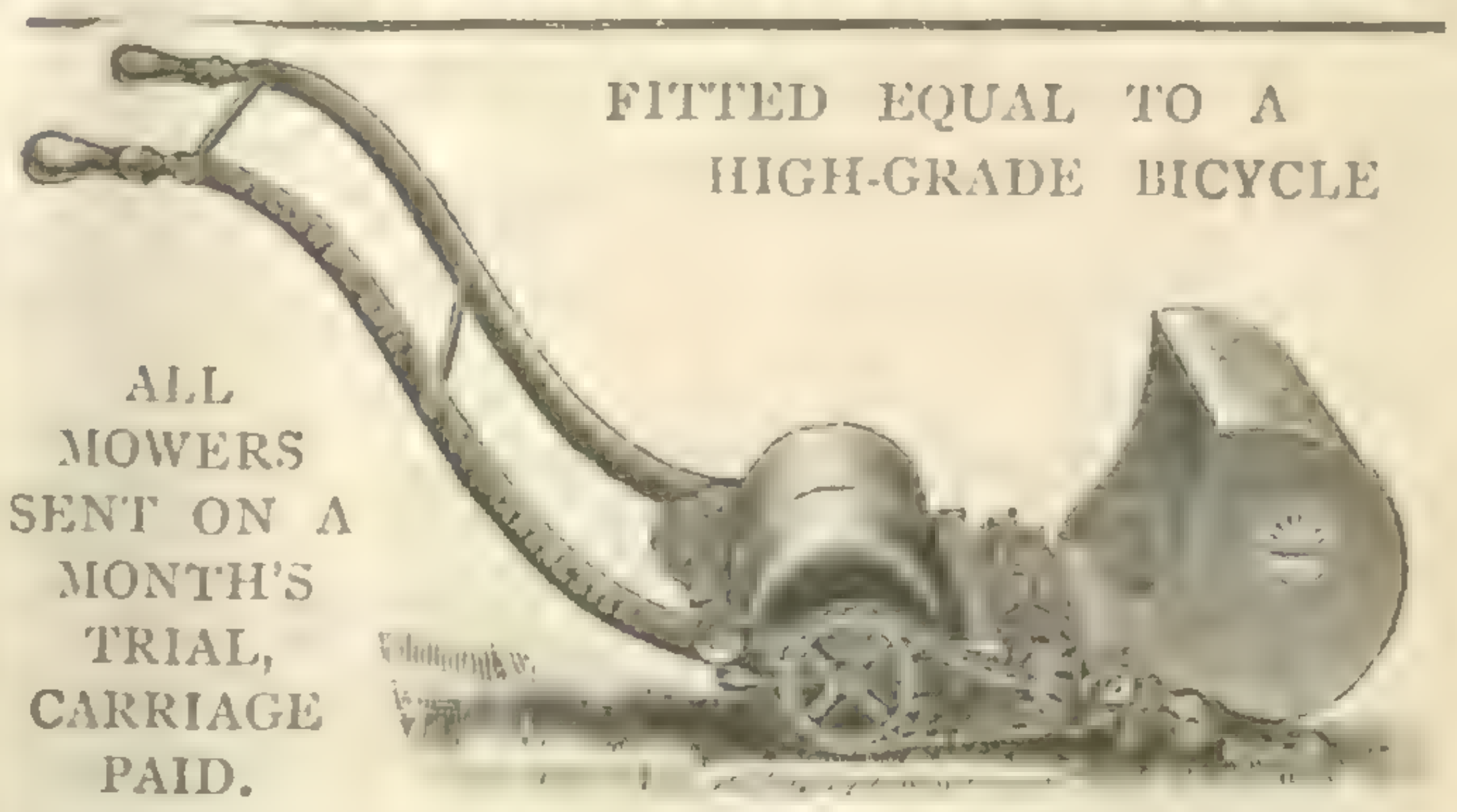
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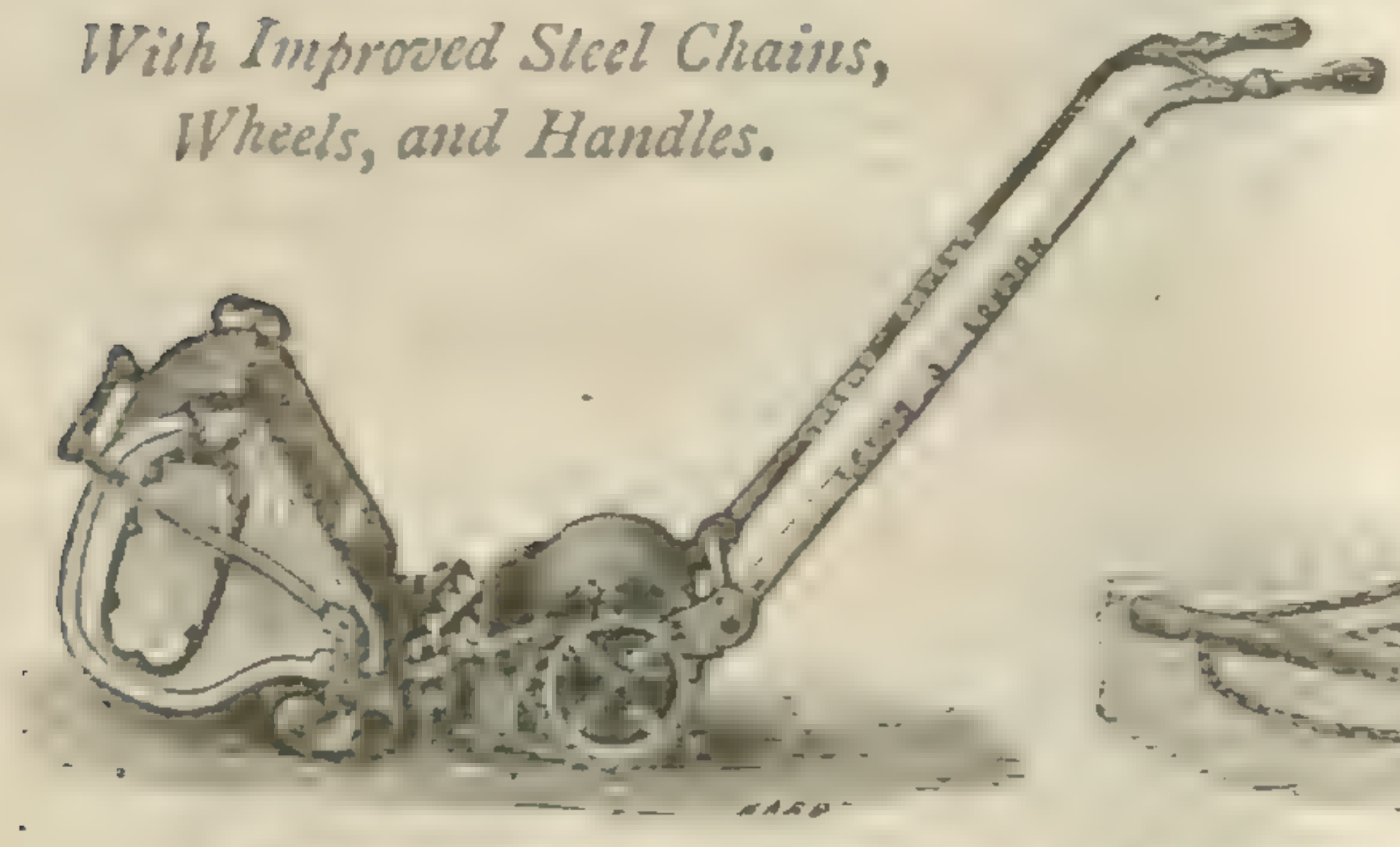

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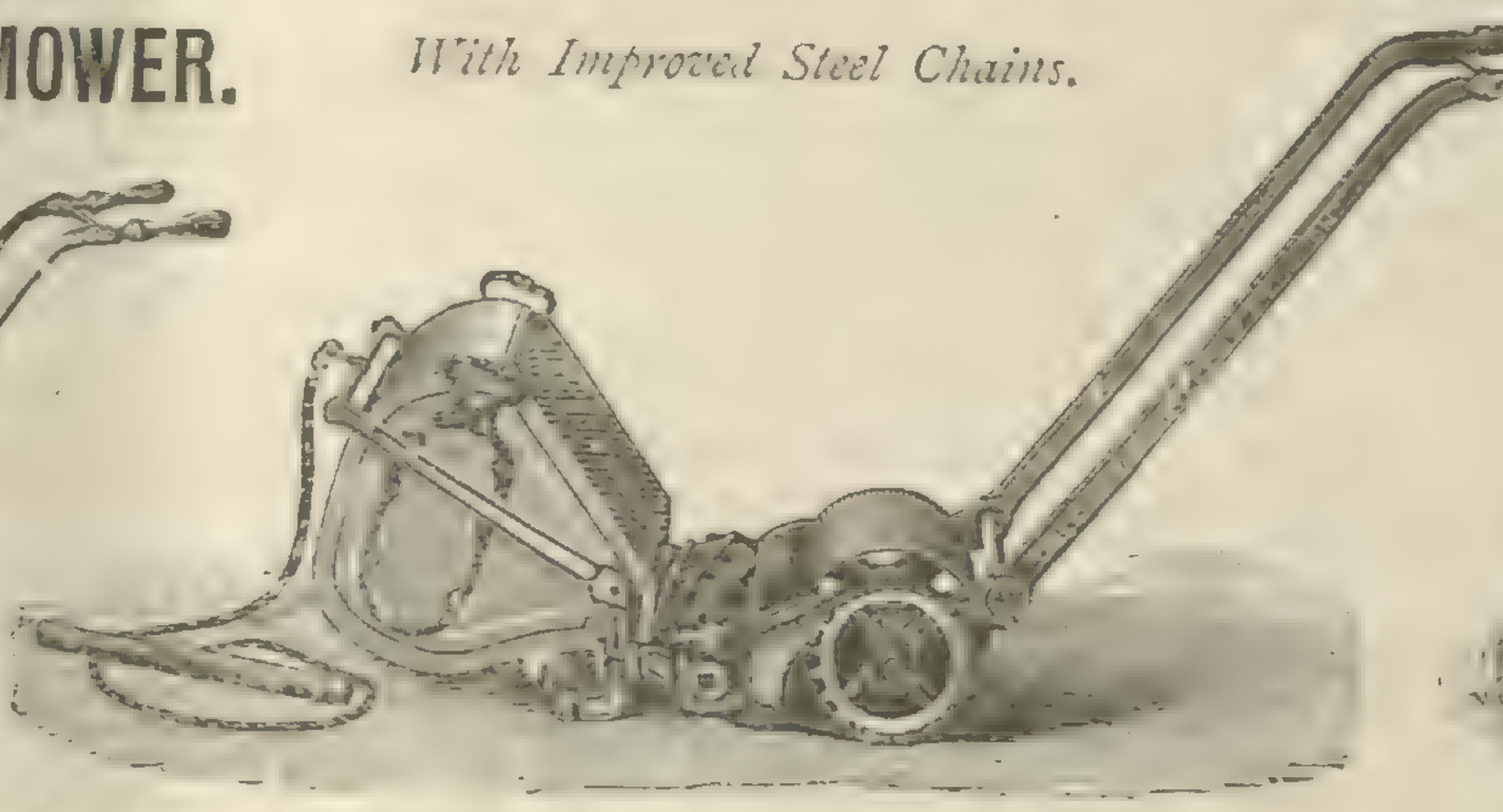

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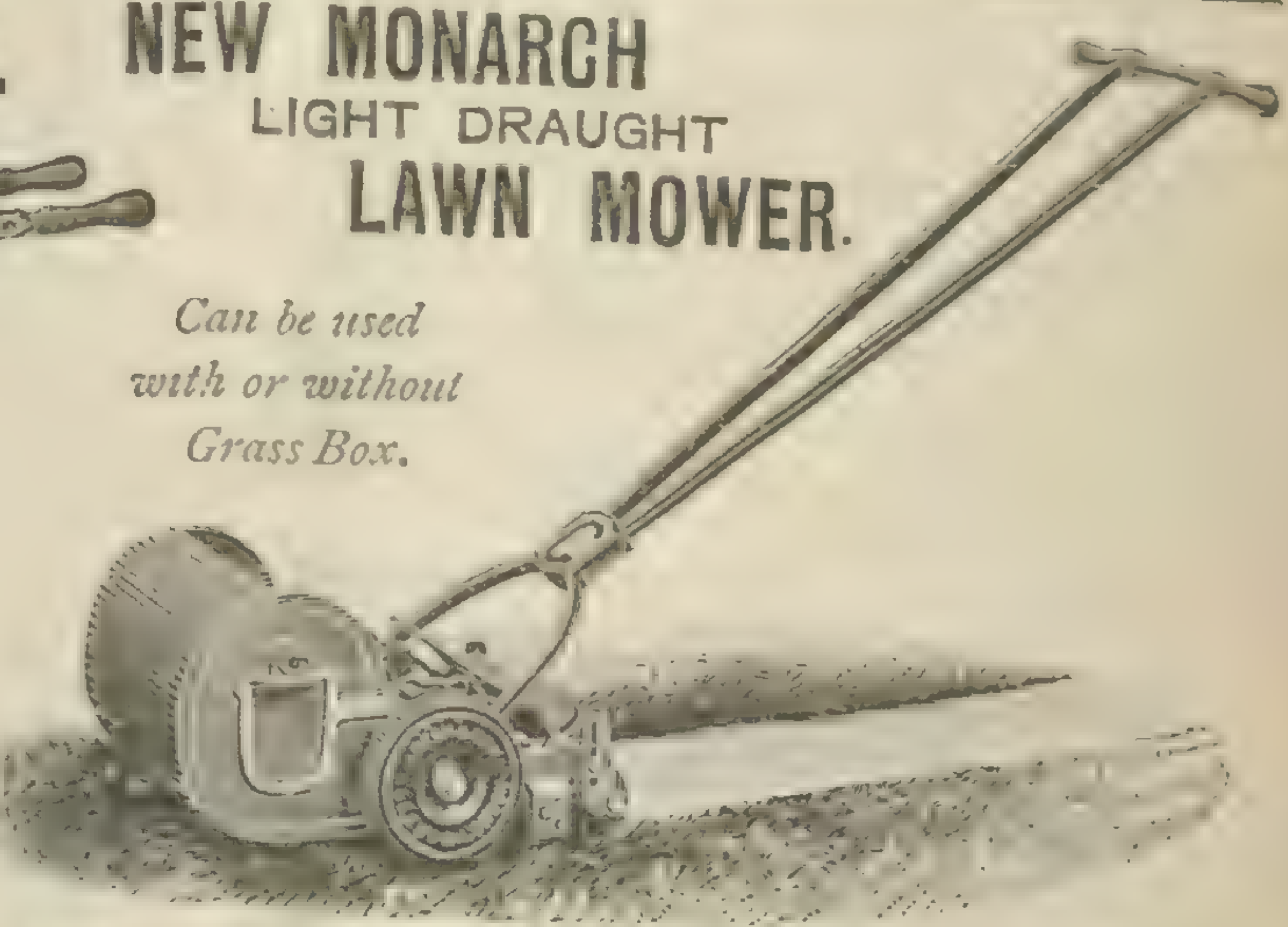

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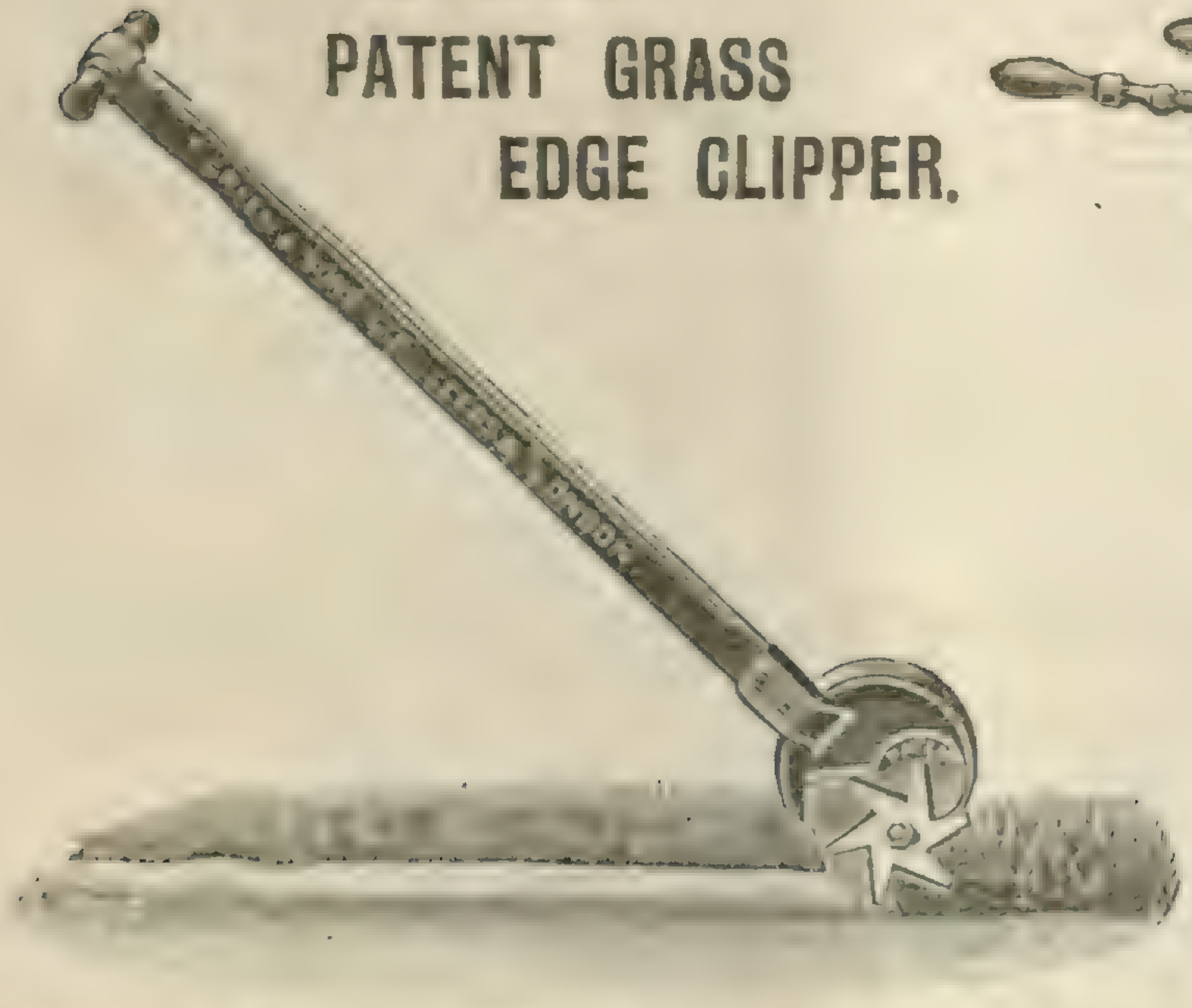

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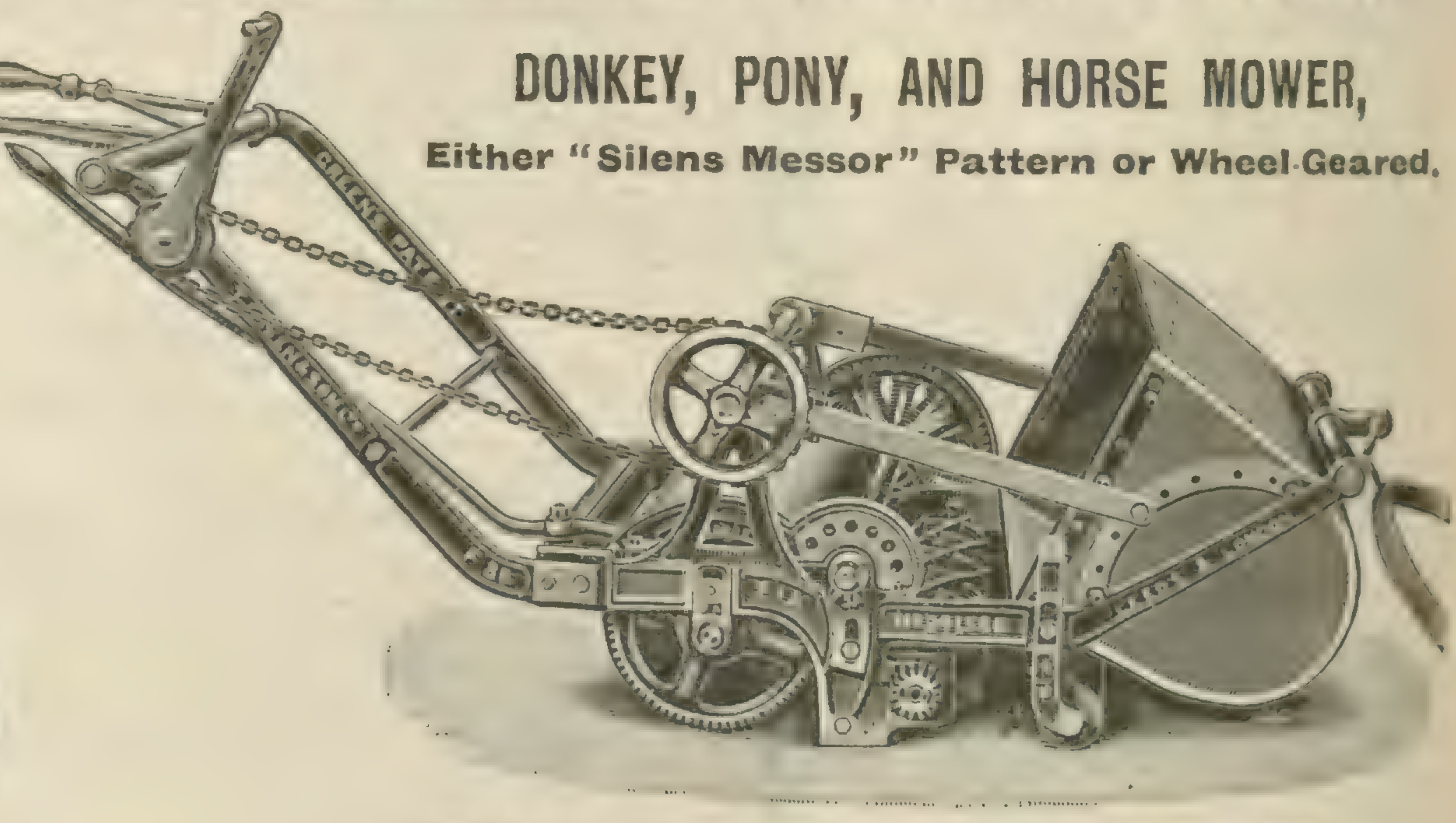

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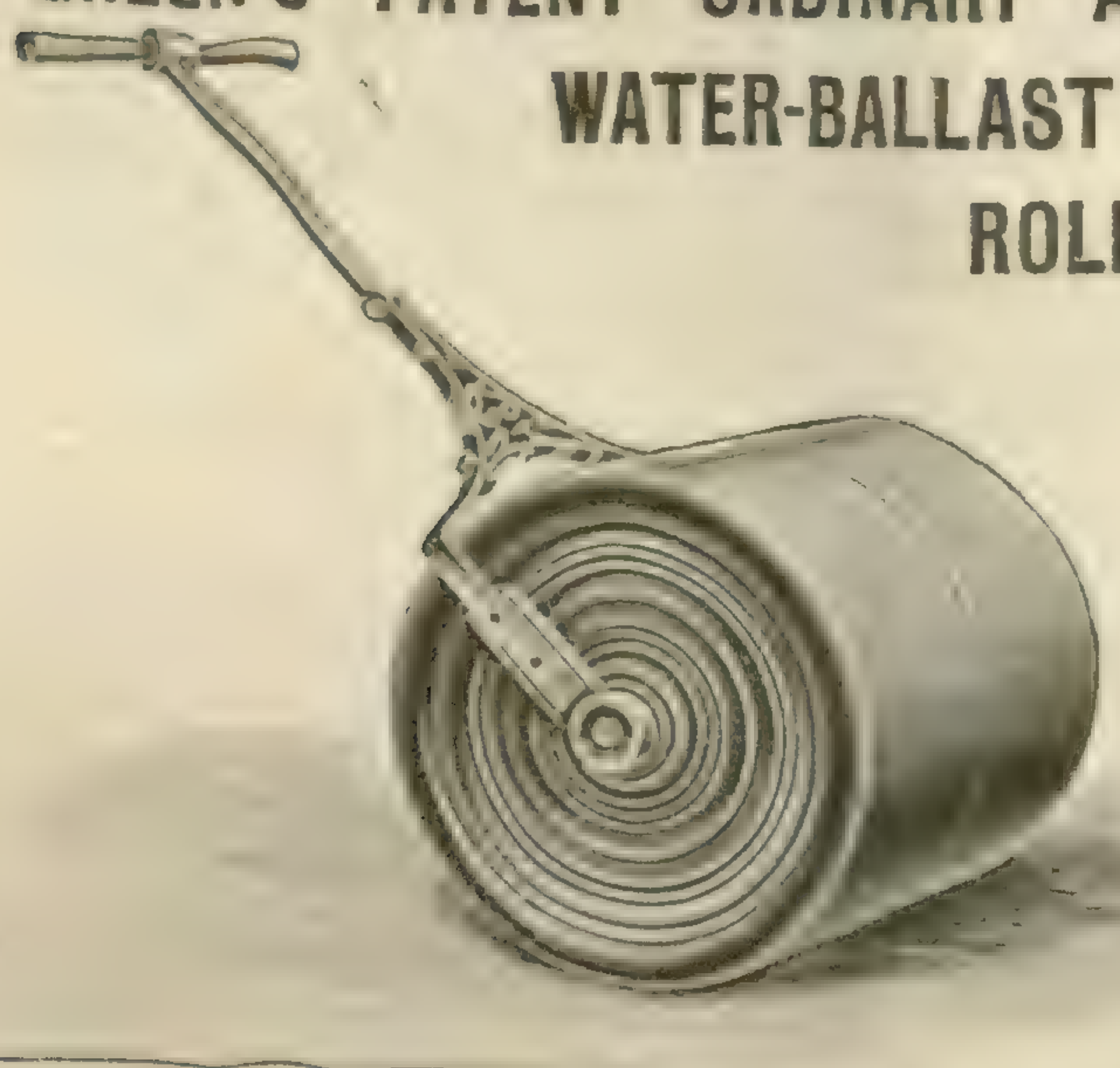

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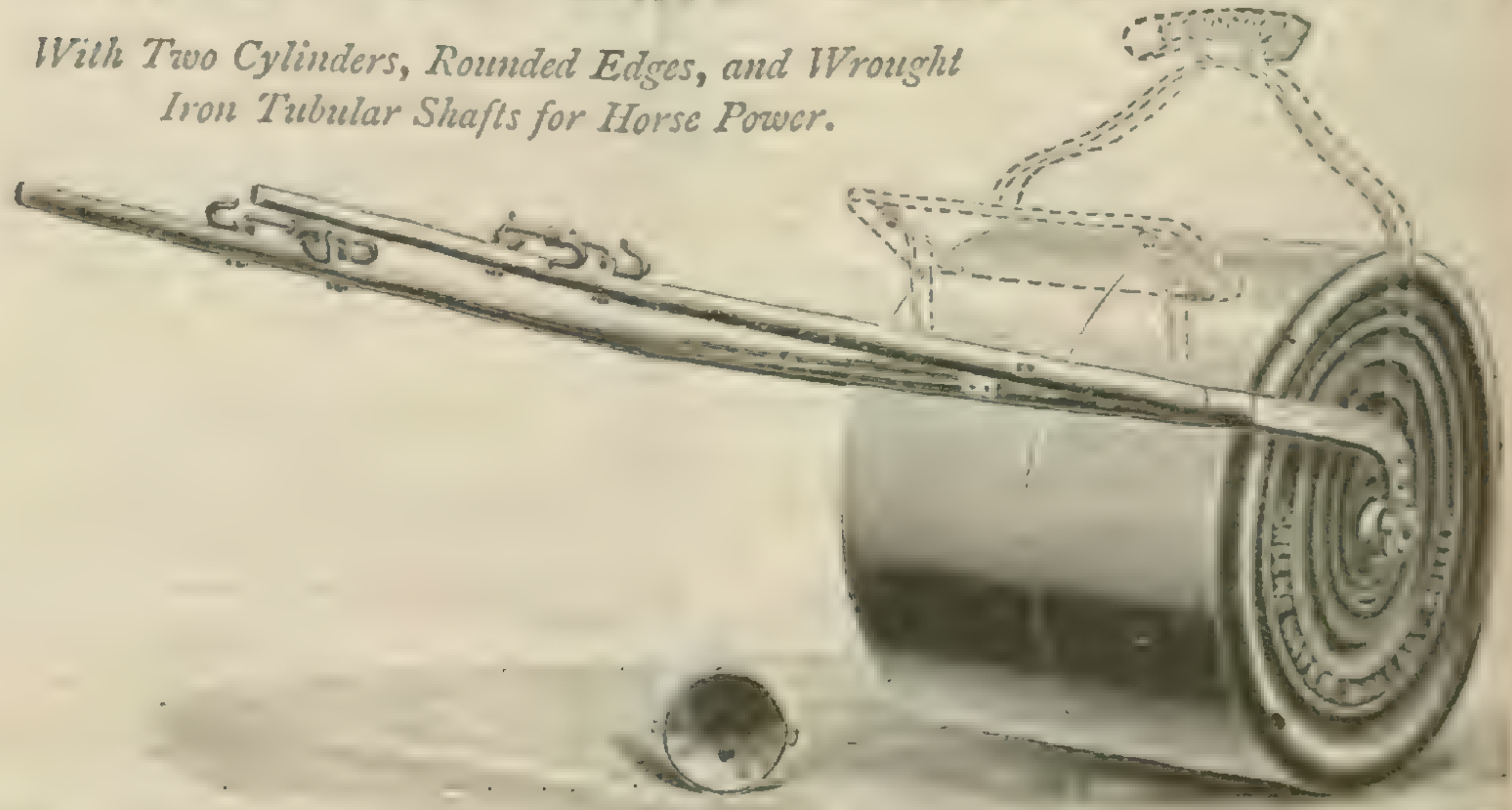

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FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
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No. 2,321.

SATURDAY, APRIL 23, 1898.

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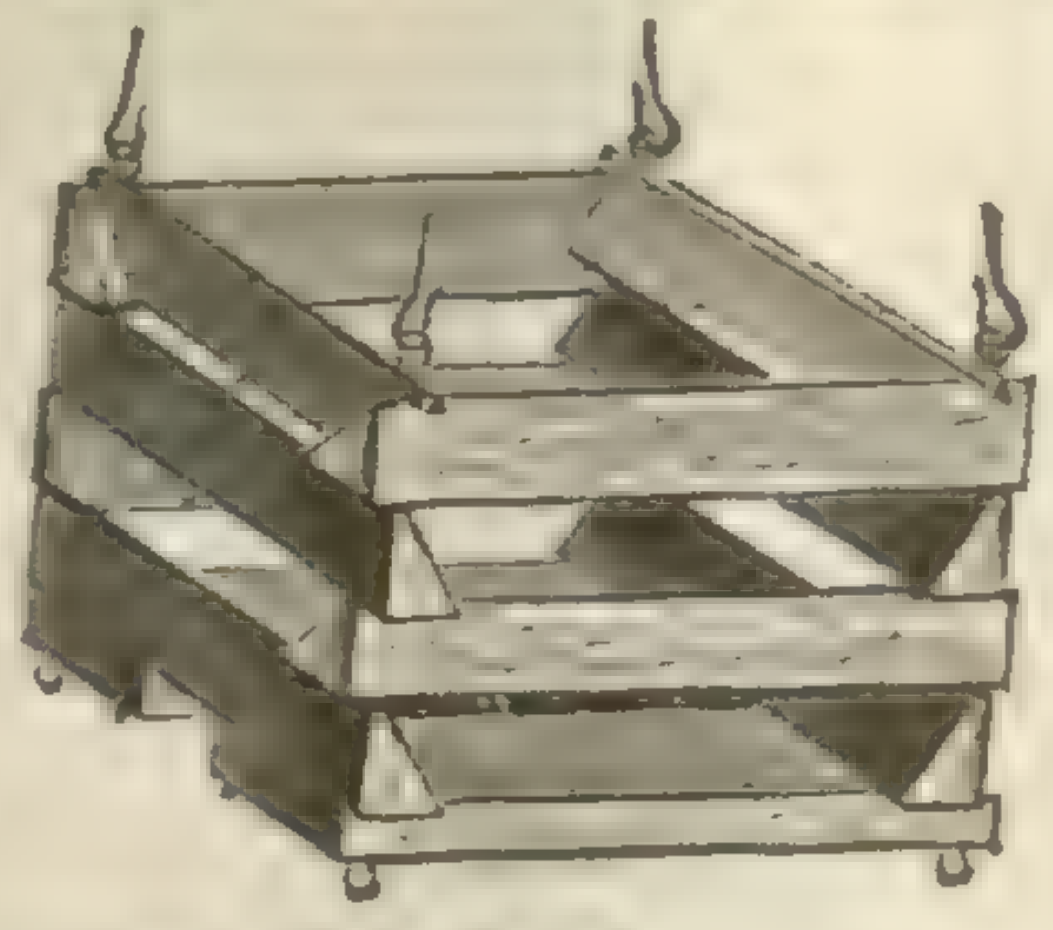

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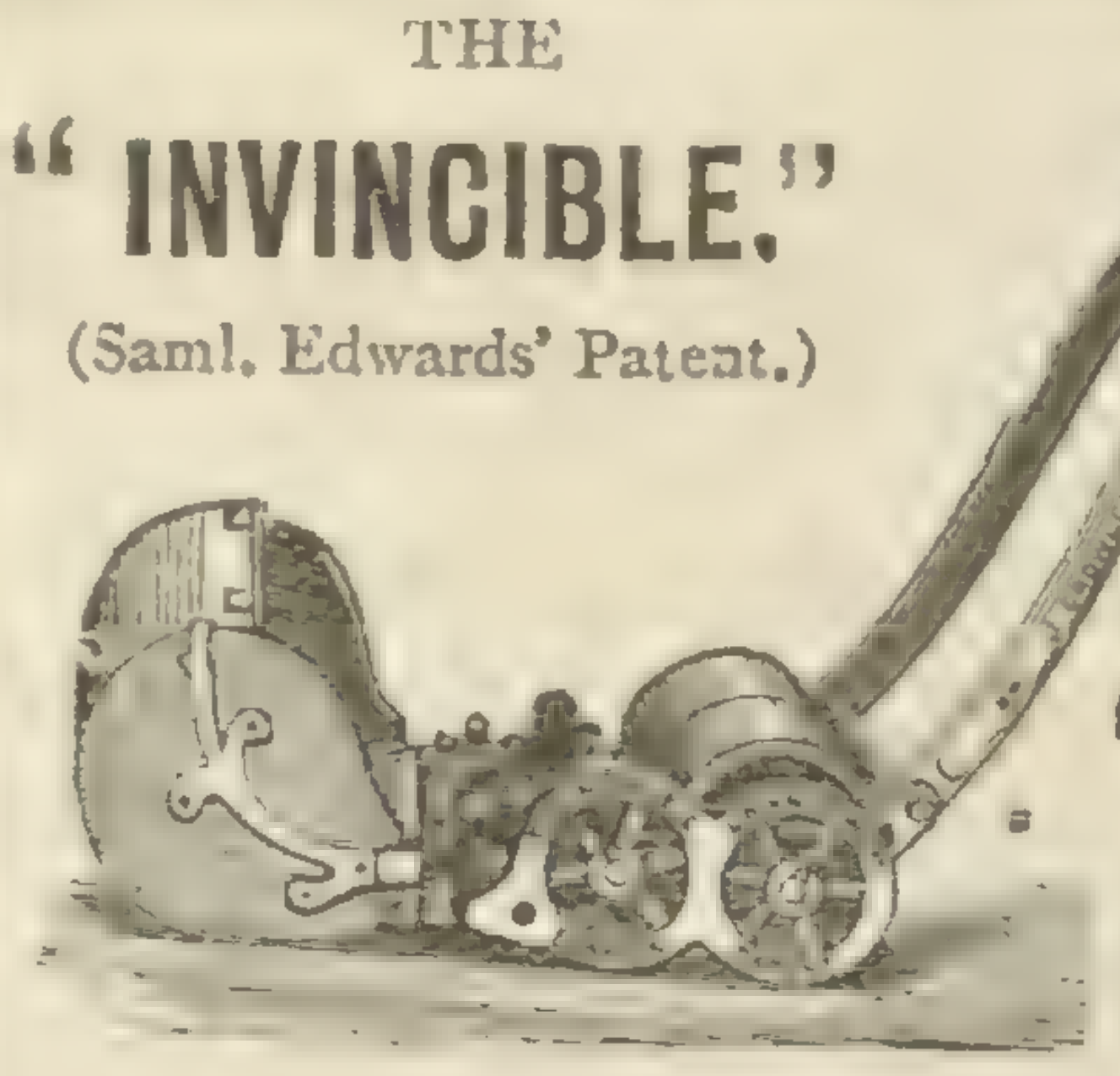

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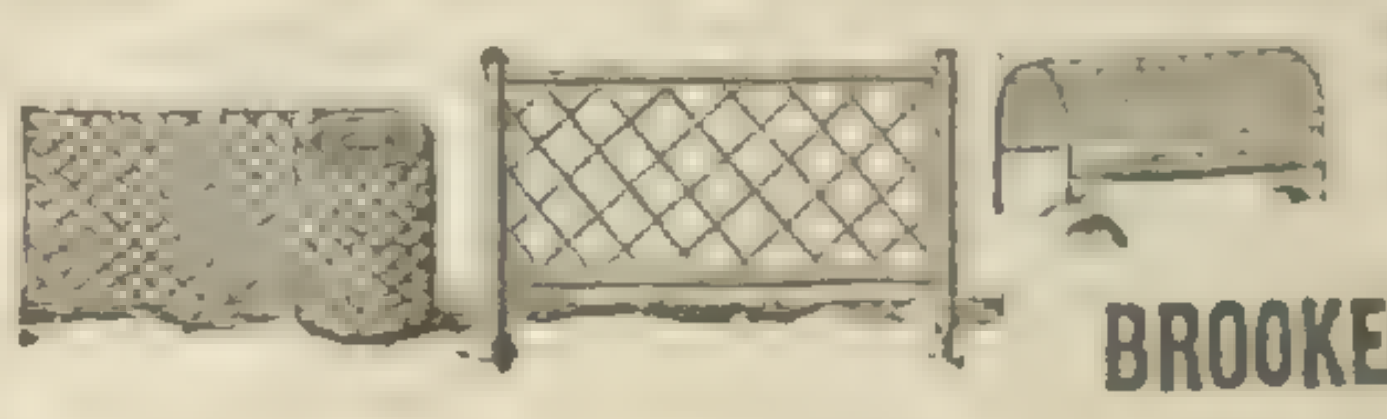

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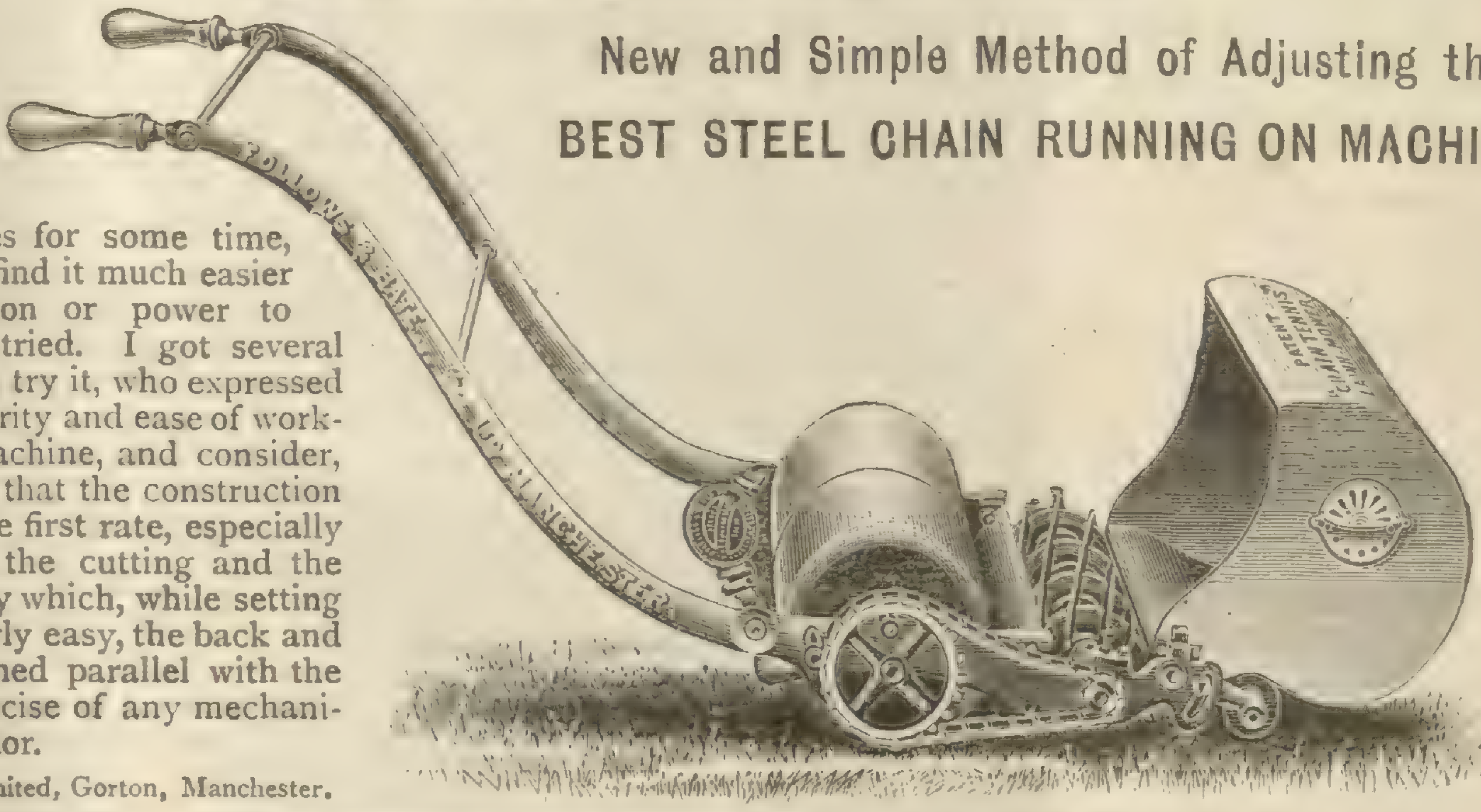

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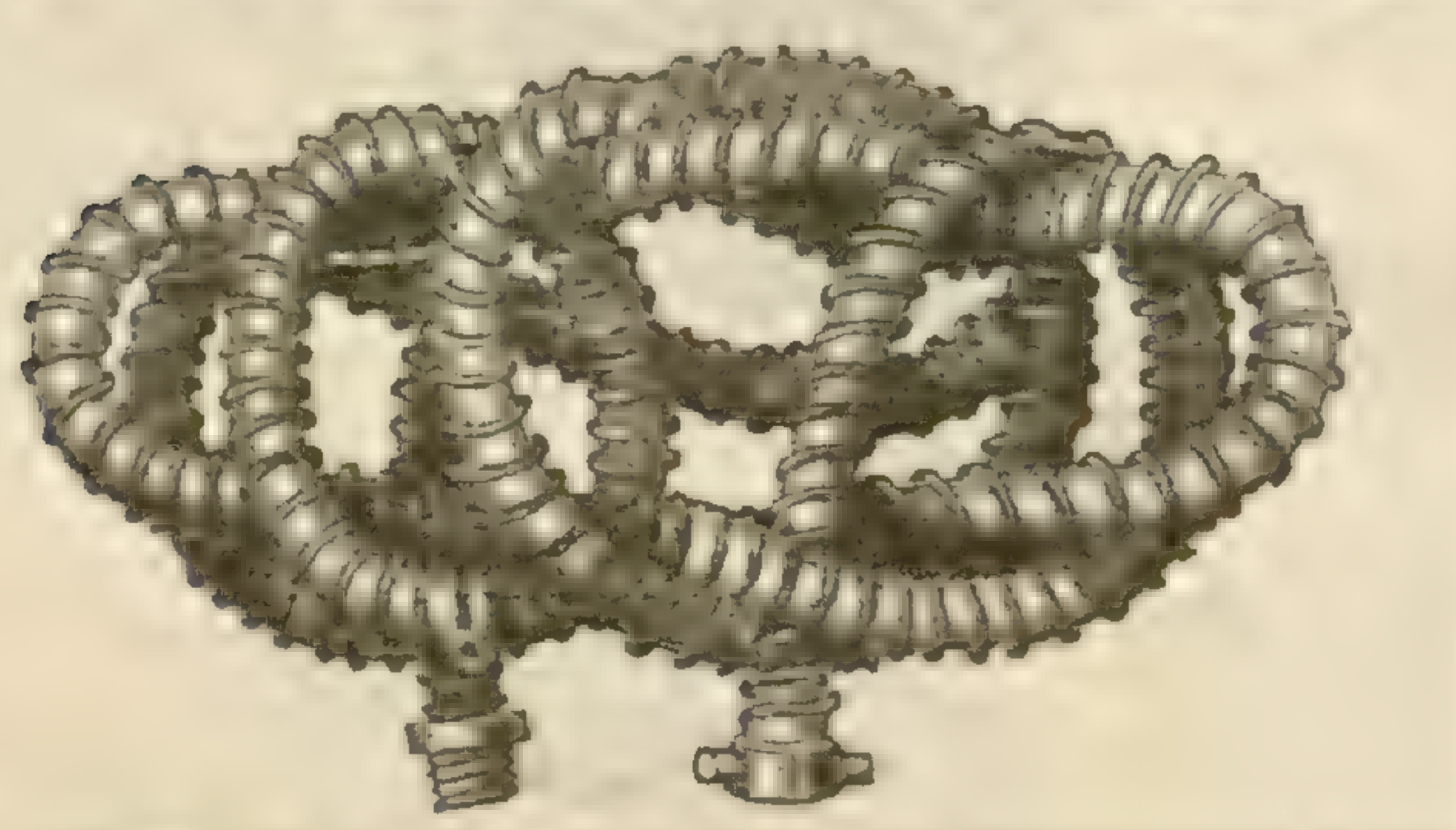

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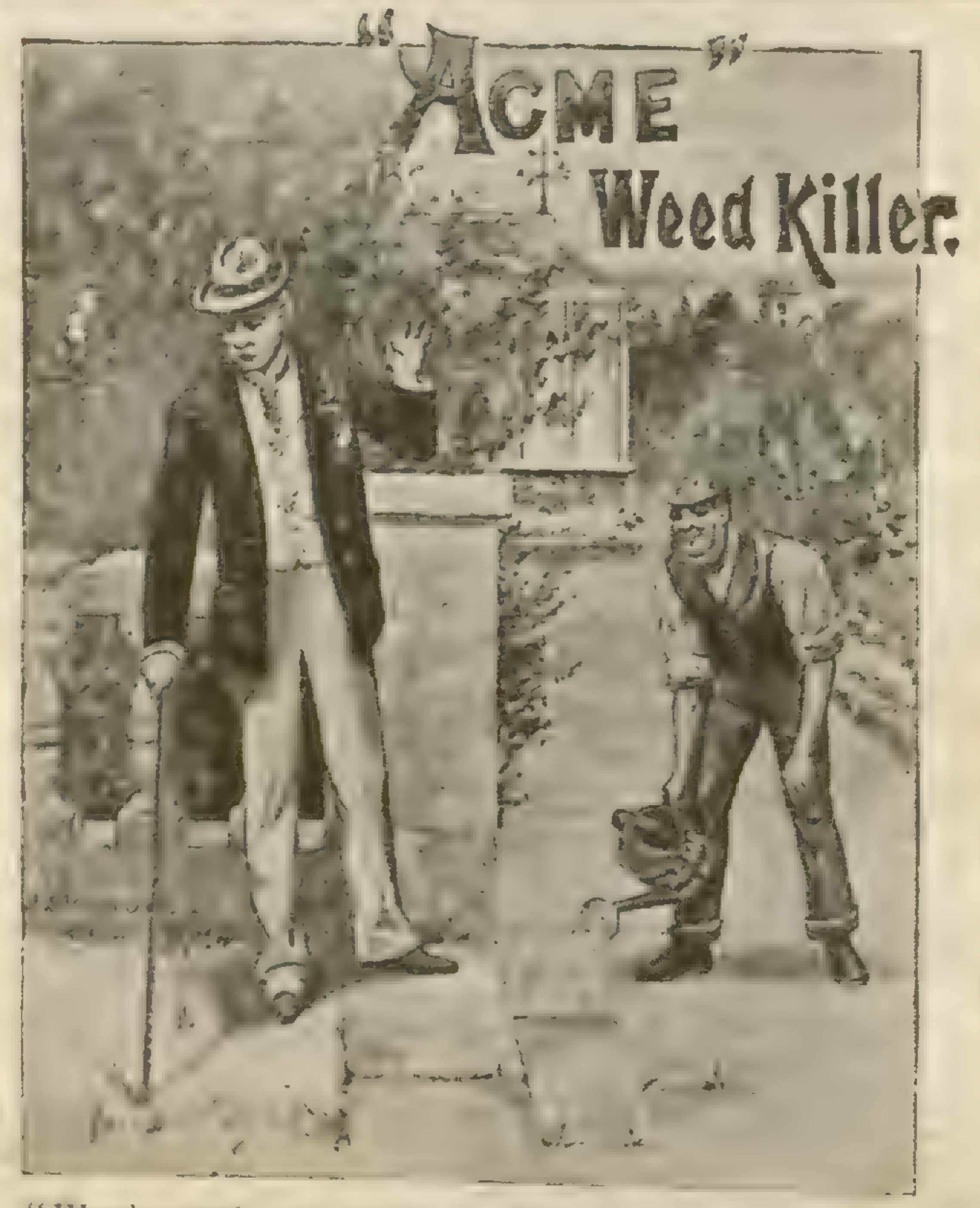

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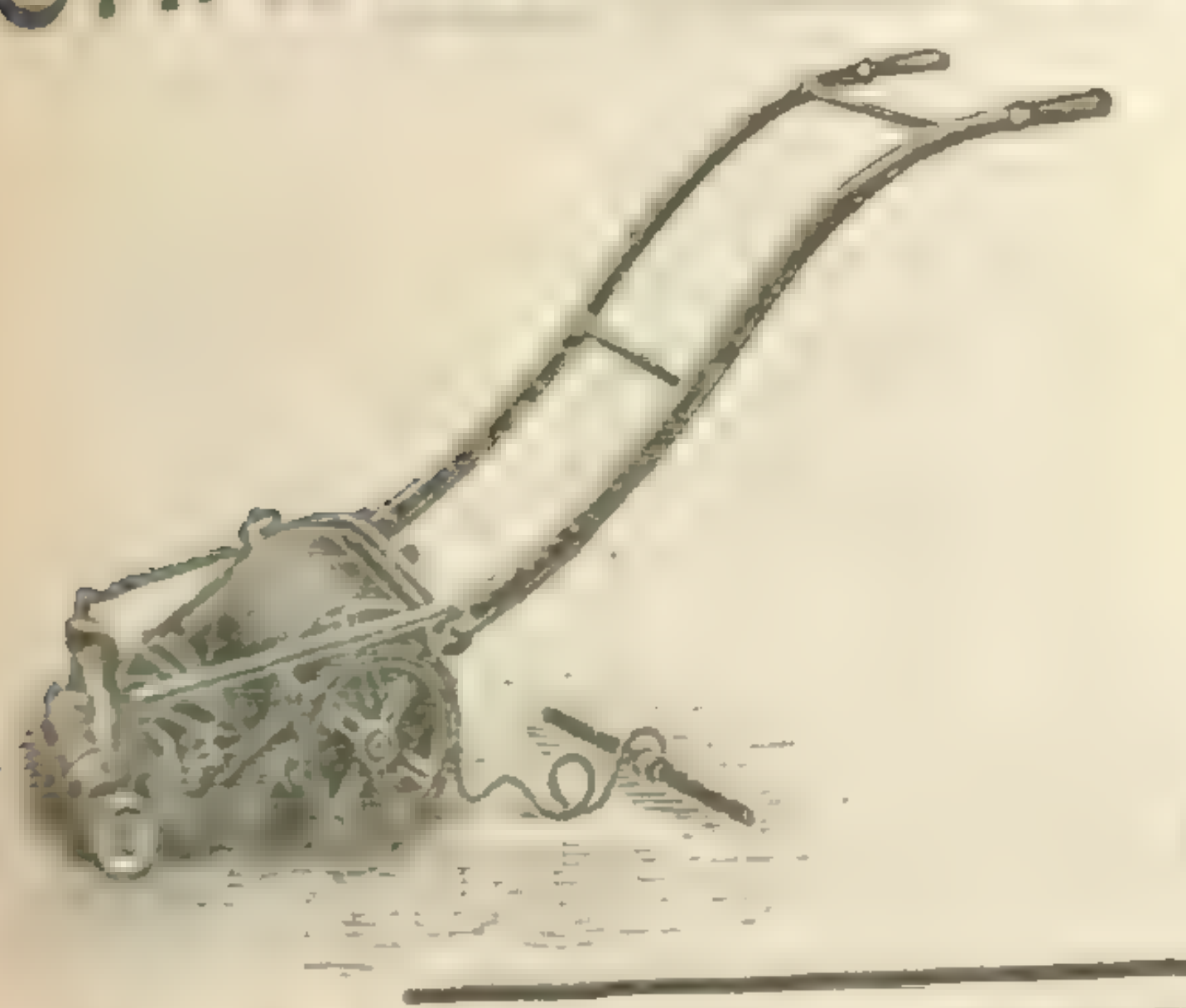

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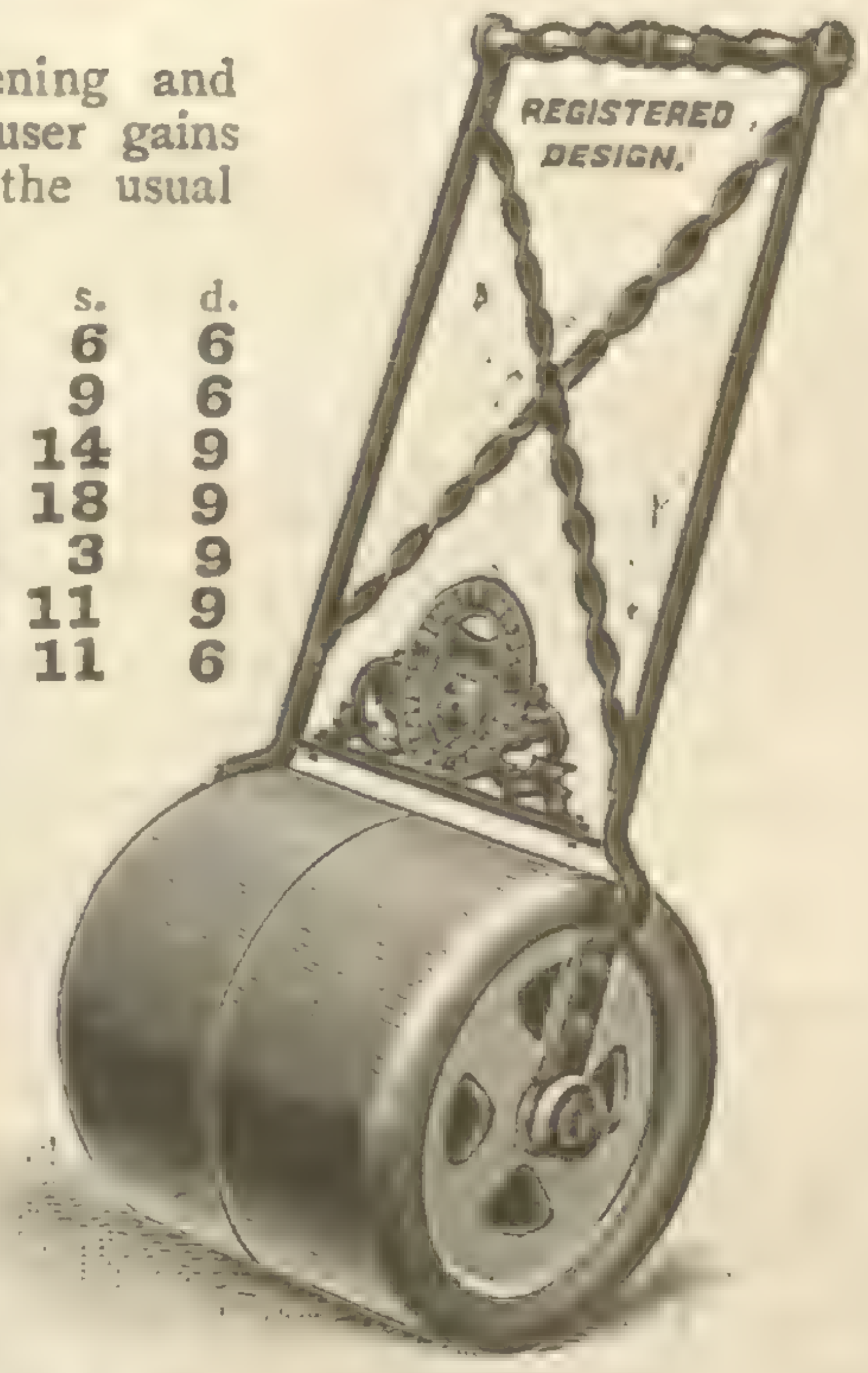

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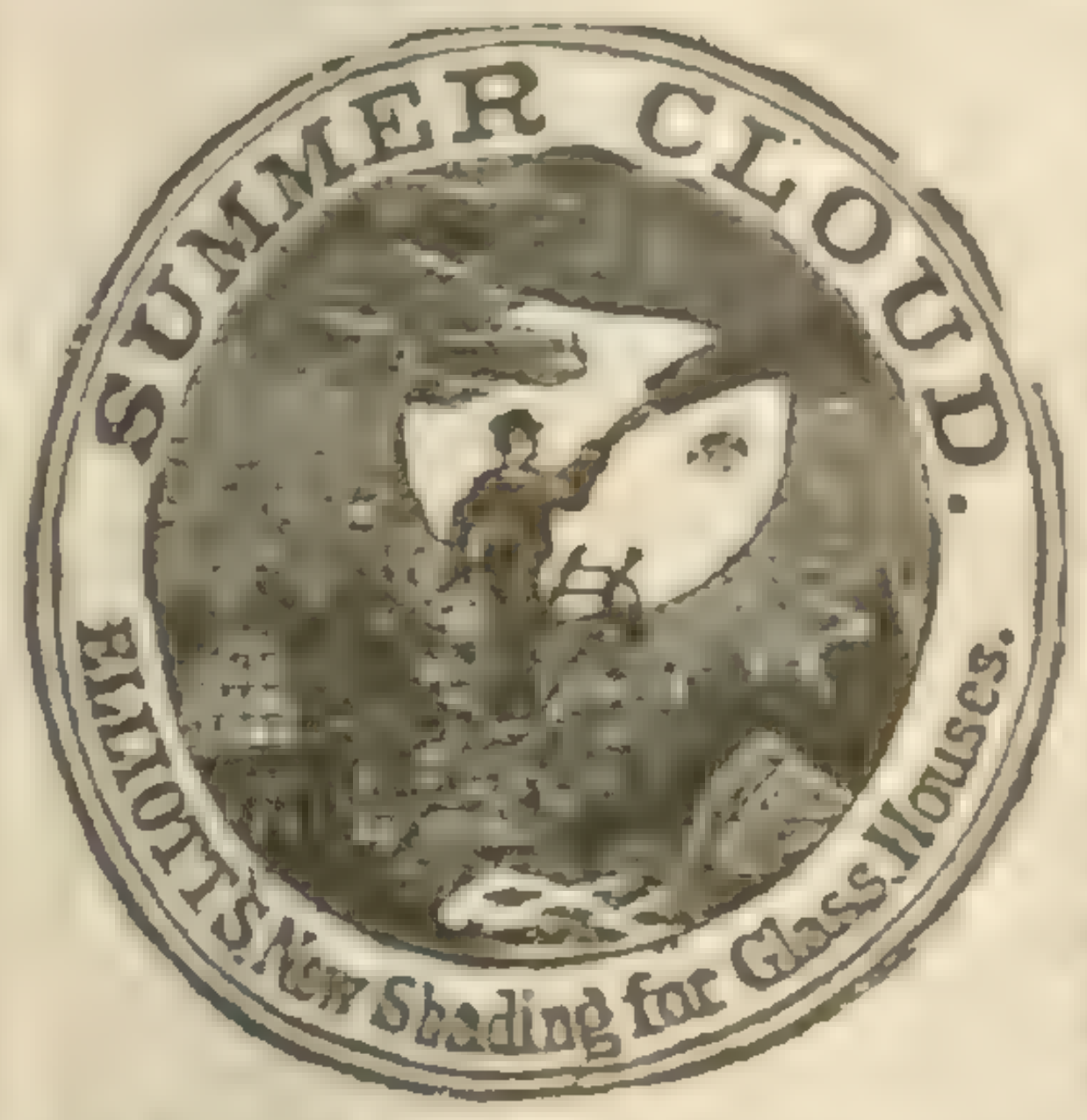
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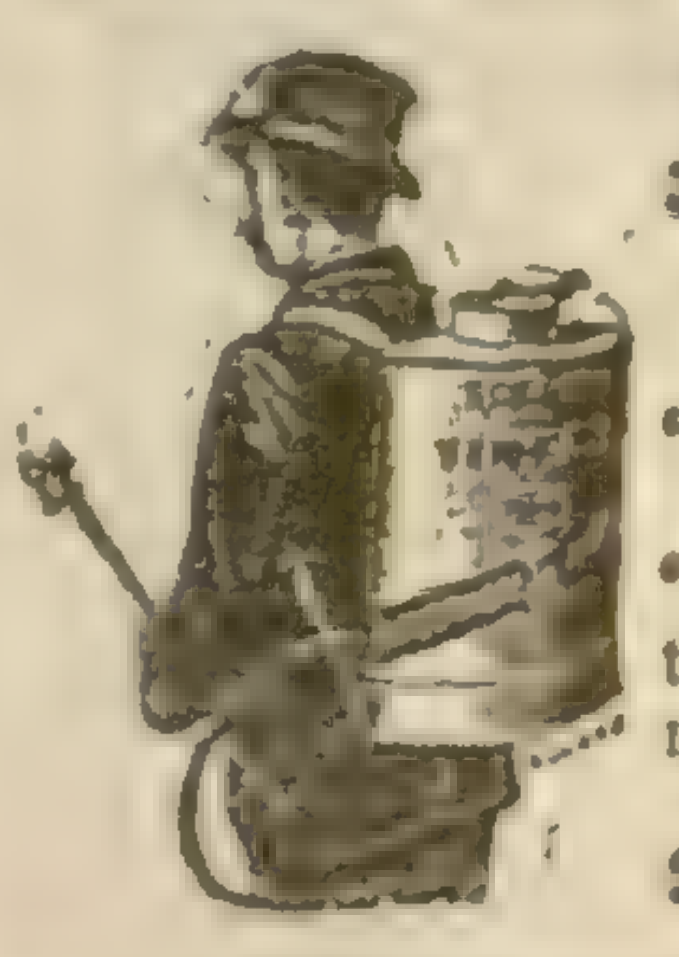

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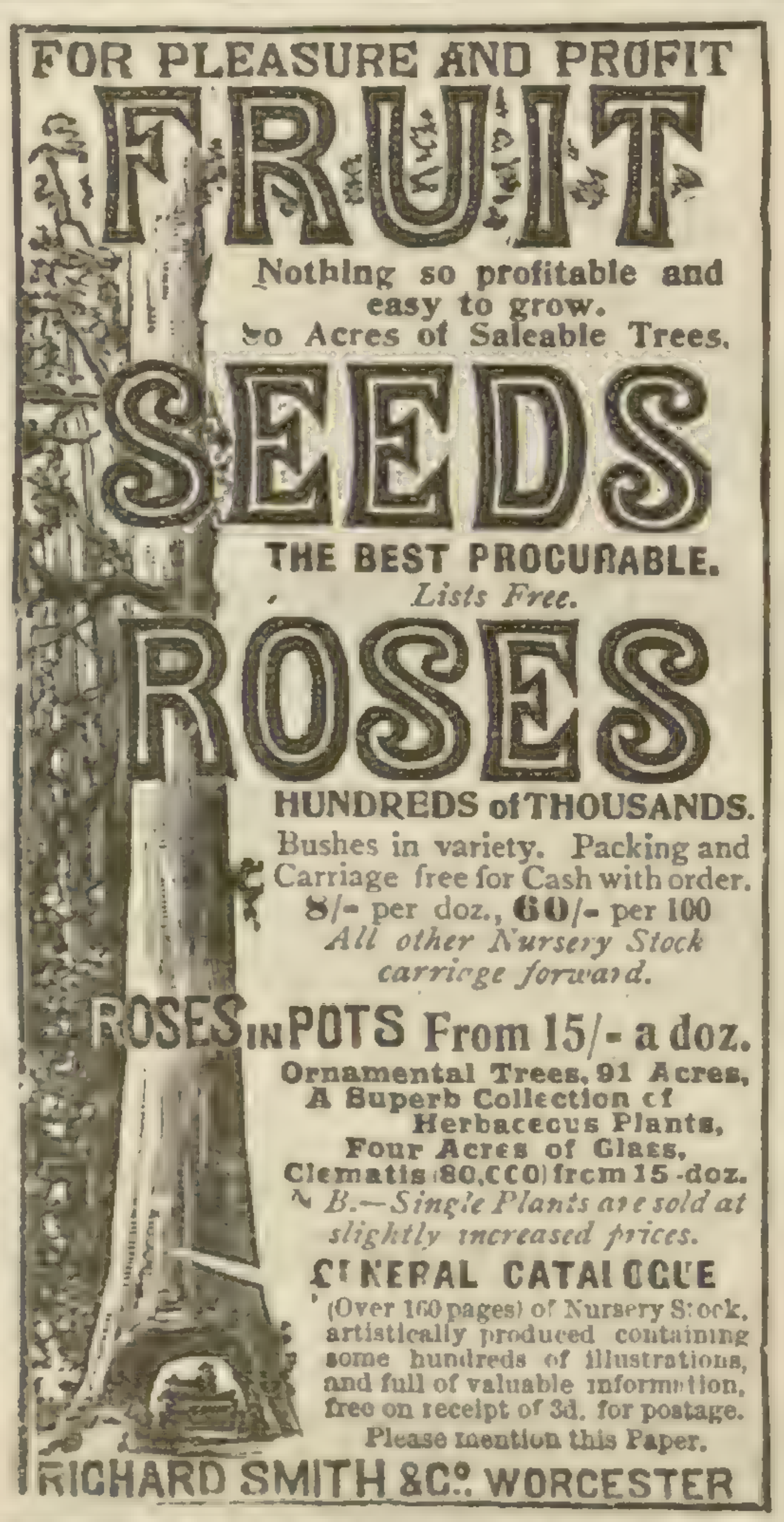

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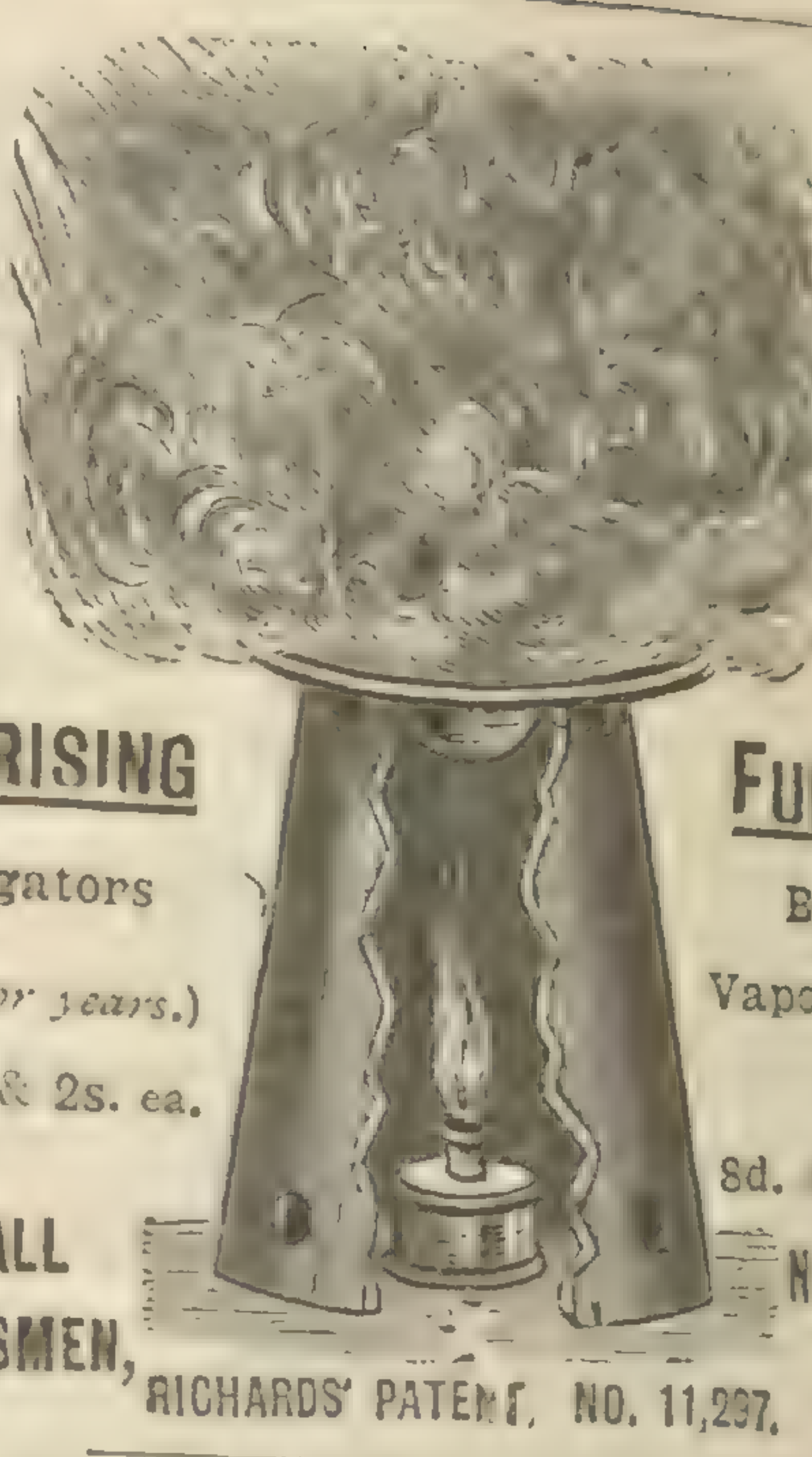

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THE GARDENERS' MAGAZINE.

SATURDAY, APRIL 23, 1898.

ALEXANDRA PALACE, WOOD GREEN, GRAND SUMMER FLOWER SHOW,
MAY 18, 19, and 20, 1898.
Schedules of Prizes from
RICHARD DEAN, V.M.H., Superintendent, 42, Ranelagh Road, Ealing, W.

BRADFORD AND DISTRICT CHRYSANTHEMUM SOCIETY.
The TWELFTH ANNUAL EXHIBITION of CHRYSANTHEMUMS, FRUIT, and PLANTS will be held in ST. GEORGE'S HALL on NOVEMBER 11 and 12.
Schedules will be ready in a few days, and may be had on application from
R. EICHEL, Hon. Secretary, 16, Westcliffe Road, Shipley.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.
GRAND EXHIBITIONS to be held on WHIT SATURDAY and MONDAY, MAY 28 and 30, 1898, and SEPTEMBER 21, 1898, at CHELTENHAM. Schedules and entry forms sent on application to the Secretaries,
Messrs. GEO. TOVEY and R. HENRY SMITH, 53, Regent Street, Cheltenham.
Entries close May 21 and September 17, 1898, respectively.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE GHENT QUINQUENNIAL.

THE special report of the horticultural exhibition that is now in progress at Ghent, which we give in the present issue, will enable those of our readers who were not present to obtain an adequate idea of the general scheme, and enable them to determine with some degree of exactitude the chief points on which it differs from the horticultural exhibitions held in the United Kingdom. It will be seen that it exceeds in extent the largest of the gatherings that have taken place in this country since the great international exhibition held in 1866, and that due regard has been paid to the grouping of the multifarious subjects with a view to the production of artistic effect. In this respect it presents a marked difference from the exhibitions held at home, and as an object lesson in the tasteful arrangement of plants at public exhibitions it should prove of immense value. Whether full advantage will be taken of the lesson remains to be seen, but the prospect is not hopeful, for in but few instances does there appear an active desire on the part of those responsible for the arrangement of our flower shows to present to the public the material at their command in the most attractive manner. To adopt a scheme similar to that formulated at Ghent is under ordinary circumstances impossible, because of the large space required and the heavy expenses that would be involved in carrying it out. Much, however, might be accomplished in rendering our exhibitions more attractive than they usually are, and we should be pleased to see a serious attempt made at the Temple Shows to follow the example of our Belgian friends. We are perfectly aware that it cannot be closely followed; but the larger tents might be rendered less monotonous by the more liberal use of stately palms and tree ferns. The great features at Ghent are the azaleas, hardwooded greenhouse plants, the palms and cycads, and stove plants grown for elegance of aspect or the attractive colouring of their foliage, and these are, with some other features, immensely attractive. We, however, miss the hardy flowers, the alpines, the miscellaneous plants, and the fruits and vegetables, which contribute so materially to the attraction and interest of British exhibitions; and also the glorious display of orchids that proves so great an attraction of the Temple Shows, and to this extent the Ghent Exhibition suffers in interest. Of the judgment, the good taste, and the energy displayed in carrying out the Ghent Quinquennial it is impossible to speak too highly, and more particularly deserving of praise are the Comte de Kerchove, the president of the society; M. Ed. Pynaert, who was responsible for the arrangements; and M. Fierens, the courteous secretary, who at the [illegible] gatherings were heartily congratulated on the splendid results of their well directed labours.

PLANT DEFENCE.

THE very interesting paper on Cinchona by Mr. J. A. Gammie recently published in these pages dealt exhaustively with the marvellous developments which have been effected by cultivation upon the quinine elements of the bark of the cinchona tree, and its consequent increased value to mankind. Nature, however, in the evolutionary creation of the cinchona plants undoubtedly endowed its little cells with the power of fashioning the intensely bitter active principle known as quinine for its own particular benefit, and not that of man, so that here, as in innumerable other cases, its virtues as a tonic and febrifuge appear to be altogether outside its *raison d'être*, regarded from the human point of view. Knowing, as we do, what a host of tree foes may find harbourage in the bark, or bore through it and prey upon the vital tissues immediately beneath it, not unfrequently inflicting mortal injuries, it is reasonable to assume that a bitter acrid principle, such as quinine, would constitute a most effective protection against the borers, and probably the other vermin as well. Such protection, however, can only be due to actual bitterness, and though it is a curious fact that this bitterness seems correlated to some extent with tonic and febrifugal qualities, these latter can hardly have figured in any way in the evolutionary development of cinchona, since if the boring insects are subject to any diseases curable by such agency, they would have been encouraged rather than deterred by such medicinal aid. In this particular connection it would certainly be of intense interest to know how far trees, whose wood or bark possesses pronounced medicinal powers, enjoy immunity from vermin, boring or other. The bark of a tree, as everyone knows (save the bark-cutting vandals who mutilate our suburban avenues), is of vital importance. We may lop and prune the branches, and even cut down the trunk to the ground without destroying life altogether; buds will be left, and these in time will reinstate the growth, but if we cut out a ring all round the bark, the tree is usually killed. The active life of a tree, the circulation of its sap, the interchange of vital materials supplied by the roots on the one hand from the moisture and salts of the earth, and by the leaves on the other from the nutrient gases of the air, is all carried on in the thin strip which lies between the bark and the last ring of wood formed by the previous year's growth. The old wood does nothing but supports the mass of growing branches and leaves, all the life work goes on in the slender zone described. Sever this, then, and we see at once the tree must be paralysed, and also know the reason. This being the state of affairs, it is clear that evolution must have done much to strengthen the protective nature of this vital armour, and it is a curious branch of botanical study to examine in how many and varied ways these armour plates are strengthened to meet the offensive tactics of the foe, whose weapon or habits are simultaneously varied to strengthen their attacks, precisely as the two branches of our war department are ever active in devising more powerful missiles and stronger resistants. In cinchona bark, however, we presumably bring in a different factor; and just as the calm and dignified Oxford professor parted with a deftly administered pinch of snuff, two bulldogs which a whole party of students were vainly trying to drag asunder by main force, so a small percentage of quinine deftly distributed through the cortical tissues probably baffles the stoutest borer that even the tropics can produce, by drastic effects upon its palate, and, may be, its constitution also.

THE PLEASING PRIMULA.

So we translate that handsome form which was originally known as P. cortusoides amœna, but now generally recognised as P. Sieboldi. It is a species that will remain associated with the name of John Gould Veitch as one of his discoveries in Japan. The type P. cortusoides had long been known to us; but in Sieboldi there is seen such a marked advance in the size of the blossoms and the vigour of the foliage, that it is not surprising it was at first regarded as a valuable new species. After it had been some time in cultivation, it was found that the honour of having first discovered it belonged to Siebold; hence the later specific name. The original form as introduced, and still in cultivation, is represented by a bright rosy crimson saucer-shaped flower, with smooth edges. Later introduced varieties were the white, having a limp and ill-developed corolla fimbriated on the edges; the rose and white smooth edged, named grandiflora; and a lilac-coloured type named lilacina, so distinct from the others, having a well-expanded and flat corolla, at that time so distinct and altogether unique in character as to rank as a true species. Beautiful and interesting as these charming primulas were, they did not call forth so much enthusiasm as their later and less worthy relative P. japonica did when introduced later in time. It appears strange, but it is nevertheless true, that these fine forms of P. Sieboldi were in cultivation in this country for a considerable time before any steps were taken to cross fertilise them, but it was done about the same time by Mr. James Allen, at Shepton Mallet; Mr. A. Dean, at Bedfont; and M. Victor Lemoine, Nancy, France; and from that time onward new varieties have put in an appearance, showing a wide range of colours, shades of blue having been met with in the case of the common primrose. But despite their beauty their variety, freedom of bloom, and the readiness with which they lend themselves to cultivation, they are by no means generally cultivated, though they bloom in April and May. The species and varieties raised from it are deciduous hardy perennials, having creeping rhizomatous roots, which spread themselves below the surface of the soil in which the plants are growing, and soon form large clumps, which are capable of division, and thus a variety can be largely increased. It is a plant impatient of too much moisture in the soil, and when planted out permanently should be on rock work, where moisture can readily pass away from the roots, for it is stagnant water which is so harmful, especially so when the plant is at rest. It is usual to grow this species in pots, dividing the roots in the autumn, or at the end of the winter. Every eye will make a plant, and one or more can be placed in a small pot of suitable soil, and if given protection from frosts, there is soon made small flowering specimens, and it has now become the practice to exhibit the various varieties in boxes or baskets, standing a number of small plants in each, and so forming dense masses.

Blights and their Parasites.—Without doubt in selecting as the title of his recent lecture at the Drill Hall "Blights and Blessings," Mr. Enoch, the able entomologist was rather more alliterative than exact, yet those who heard his singularly interesting and beautifully illustrated address could realise that in referring to blights and blessings he was but conveying the thought dominant all through that if we are as gardeners cursed with blights, the blights are, for our good, equally cursed with destroyers. A good title would have been "Insect Banes and Antidotes." Very interesting indeed was it to learn of some of the parasites which seem in their turn to do so much to feed upon and destroy the insects which primarily feed upon vegetation. There is, for instance, the grub or caterpillar of the wasp fly. This is a creature little regarded, but those familiar with it recognise that its somewhat long body with gold and black markings make it to resemble the water wasp. Possibly for that reason it generally gets wantonly destroyed. Yet this same fly will deposit its egg on the underside of a leaf, and evidently always on a leaf infested with aphis. Shortly it becomes a caterpillar, and thence it proceeds to eat up the aphis. Unlike the ladybird, which seems chiefly to use the aphis as milch cows, feeding upon the sweets they secrete, this wasp-fly caterpillar destroys the feeding insects. It is strictly vegetarian at second hand, for the blight insect feeds upon the vegetable leaf, and the caterpillar the insect. Erecting itself on its posterior, perhaps perched on the ridge of the leaf midrib, it darts its head at the insect, lifts its high up, sucks it dry, leaving only a white skin, and then proceeds to devour another, and so it goes on at a rapid rate, destroying the blight wholesale. Mr. Enoch's moral is that gardeners should get some knowledge of entomology to enable them to distinguish insect friends from their insect foes.

Earlier Opening of Kew Gardens.—This question received a full share of attention in the House of Commons on Monday. In the course of the discussion on the vote to complete the sum of £115,000 for the maintenance of the Royal Parks and Pleasure Grounds, Mr. Akers-Douglas said with reference to his decision to open the gardens at an earlier hour in June next, and the two following months, there never had been a difference of opinion as to opening the gardens at an earlier hour subject to two conditions—that the gardens would be taken advantage of by the public; and, secondly, that it would be safe in the interests of science and the students at Kew to grant an extension. It had at length been decided to open the gardens on June 1 at 10 a.m., and to open them at that hour every morning for the following three months. If it was found that the public appreciated the new arrangement, and visited the gardens to the extent that the advocates of the earlier opening of the gardens said they would, the Office of Works would make the extension of hours—as far as the summer months went—permanent. The Queen's Cottage would be handed over by the Lord Chamberlain's Department to the Office of Works on June 1, and, as soon after as the Office of Works could make the necessary arrangements, the grounds would be opened to the public. It was the intention to preserve the grounds as far as possible in their present condition. They would only open a path from Kew Gardens to the cottage. The rest would remain much in its present condition. It would not be cut up unnecessarily, and it should still form one of the most beautiful bits of wild country in the proximity of London, and be, as it certainly had been, a sanctuary of all bird life in the district.

Rating of Market Gardens and Nurseries. — Our readers will remember that in a recent issue we referred at length to the decision of the Court of Appeal which reversed the decision of the lower Courts in the case of Smith and others v. Richmond. As the higher finding results in market gardeners and nurserymen failing to participate in the relief given under the Agricultural Rates Act of 1896, it is but natural that those most interested should endeavour to obtain a reversion of the Court of Appeal's decision. To do this means a large expense, and carrying the case to the House of Lords for a final settlement; and provided those affected will let Mr. G. Munro, of Covent Garden, know what help they will afford the Market Gardeners, Nurserymen, and Farmers' Association, the latter body will take the matter in hand if sufficient funds are forthcoming, so that there is the prospect of a most interesting struggle.

Sweet Scented Flowers and Fragrant Leaves form an excellent combination, and the lecture on them to be given by Mr. F. W. Burbidge at the R.H.S. meeting on Tuesday next should be of exceptional interest.

Ghent Quinquennial Exhibition.—The illustrations accompanying our report of the Ghent exhibition are reproductions of photographs specially taken by Messrs. B. Jacobs and Co., photographers, of Ghent.

A Remarkable Allium from Western Asia, and one that flowered at Kew last summer, is Allium Schuberti. It is a strong-growing species, with scapes about a foot high, and bearing heads of rosy flowers; sometimes as many as two hundred, each with a long pedicel, are grouped together. This should prove a plant of horticultural merit; it bears the name of its discoverer, and has been introduced by Messrs. Herb and Wulle, Naples. In addition to the foregoing, three other interesting plants are figured in the current issue of the *Bot. Mag.*, and these are Myosotis dissitiflora Dyeræ, a robust free-flowering forget-me-not, forwarded to Kew by Mr. E. J. Lowe, F.R.S., Shirenewton Hall, Chepstow, and named after the wife of the director of the Royal Gardens; Crocus Malyi, a native of Dalmatia, spring flowering, and with large white flowers, having yellow throats; and Rheum ribes, a handsome rhubarb, with green and red flowers, and large blood-red fruits.

A Botanic Garden at Aberdeen is likely to be founded and commenced at an early date, for we are informed that Miss Cruikshank, sister of the late Dr. Cruikshank, has offered £15,000 to the Aberdeen University for the provision of such a garden in memory of her brother.

Surfacing Flower Beds.—Mr. George Wilson, F.R.S., sends the following interesting note relating to covering the verdure during the winter months: Some time back I recommended covering beds with the evergreen sedum, a bit of which I enclose, and dotting bulbs singly about it. I have now carried this out on a large raised bed at Oakwood, using bulbs having blue flowers, such as Chionodoxa gigantea, C. Luciliæ, C. sardensis, and different muscari. This has been much admired, and is, I think, worthy of a note. I propose trying another sedum bed, with the best of the smaller and lower-growing species of narcissus.

Auriculas and Primulas should constitute the two chief features at the R.H.S. meeting on Tuesday. As the exhibition of the southern section of the National Auricula Society will be held, and as the season has on the whole been favourable, it has the promise of being one of the best shows the society has held for some years past. The exhibition will continue open until five o'clock.

Hyacinths in Hyde and Regent's Parks are now a most beautiful sight, while their fragrance is not offensively strong, though they are cultivated in enormous numbers. It is the general opinion, with which we concur, that in no preceding year have these bulbous plants been seen to better advantage in the parks named, and in no other season have the arrangements and colour effects been so skilful and beautiful. The beds are first-rate object lessons in combinations of colour, and gardeners should avail themselves of the opportunity these displays afford of making the acquaintance of many handsome varieties not yet so well known as their merits deserve.

A Winter Garden at Hastings will probably be one of the attractions of this fine seaside town in the near future. It is proposed to erect a handsome building that will be capable of holding four thousand people; the estimated cost is between £30,000 and £40,000.

Fertilisation of the Yucca.—The fertilisation of the yucca by means of the grubs of the yucca moth (*Pronuba yuccasella*) is a remarkable example of complex instinct. As so well described by Mr. C. Lloyd Morgan, the silvery, straw-coloured moths emerge from their chrysalis cases just when the large, yellowish-white, bell-shaped flowers of the yucca open, each for a single night. From the anthers of one of these flowers the female moth collects the golden pollen, and kneads the adhesive material into a little pellet, which she holds beneath her head by means of the greatly enlarged bristly palps. Thus laden, she flies off and seeks another flower. Having found one, she pierces with the sharp lancets of her ovipositor the tissue of the pistil, lays her eggs among the ovules, and then, darting to the top of the stigma, stuffs the fertilising pollen-pellet into its funnel-shaped opening. Now, the visits of the moth are necessary to the plant. It has been experimentally proved that, in the absence of the insects, no pollen can reach the stigma to fertilise the ovules, and the fertilisation of the ovules is necessary to the larvæ, which in four or five days are hatched from the eggs. It has been ascertained that they feed exclusively on the developing ovules, and in the absence of fertilisation the ovules would not develop. Each grub consumes some twenty ovules, and there may be three or four such grubs. But the ovary contains some two hundred ovules. Of these, therefore, say, a hundred are sacrificed to the grubs of that moth through whose instrumentality alone the remaining hundred can be fertilised and come to maturity.

The Postmen's Park.—Some very absurd notions are abroad in connection with the Postmen's Park, the open space near the General Post Office. In some journals a large amount of correspondence has been published, and from these it would be inferred that there was a great danger of the tiny park soon being built upon. If the real facts of the case had been considered much ink would have been saved; it is but a small addition to the park that is contemplated, and possibly ere this appears the necessary money will have been forthcoming, and it has been made.

An American School of Forestry, the first of its kind, has recently been founded by the State of New York. The sum of ten thousand dollars has been granted by the State Legislature to cover the expenses of the first year, and authority has been granted for the purchase of forest lands in the Aidirondack region to the extent of thirty thousand acres. This new school of forestry will be connected with the Cornell University.

Cypripedium F. S. Roberts.—The beautiful cypripedium figured in our issue of April 16 (page 249) was, by an unfortunate slip of the pen, wrongly named F. S. Ames. The name given should have been F. S. Roberts, and the description throughout applies to that fine hybrid, which is one of the introductions of Messrs. Hugh Low and Co., who named it in compliment to Mr. F. S. Roberts, of Bannerfield, Selkirk, N.B.

Scale Insects are of many kinds and very numerous, and amongst the less injurious species that are liable to be mistaken for the San José scale *(Aspidiotus perniciosus)*, are the Putman scale *(Aspidiotus ancylus)*, often fatal to current trees; the apple mussel scale *(Aspidiotus conchiformis)*, common enough in England; the camellia scale *(Aspidiotus camelliæ)*; the English walnut scale *(Aspidiotus juglans-regiæ)*; and the scurfy bark-louse *(Chionaspis furfurus)*. As the result of the extremely warm weather of April, 1896, the San José scale began breeding very early in Ohio that year; the consequence was that trees but slightly infested in the spring were thoroughly coated with scale by the time when the leaves dropped in the autumn. There being four or five generations in a year, it is calculated by Professor F. M. Webster that a single female may be the progenitor, during that period, of 1,608,040,200 individuals. Paraffin oil applied with a sprayer is, says an experienced Ohio fruit grower who has sprayed one hundred apple trees, "the remedy for the San José scale." It may be recalled that it was on "Californian pears" that quantities of living San José scale were found lately in a consignment which was landed at Hamburg, and led to the prohibitive action of the German Government. California contains the centre—at least in North America—from which the pest has gradually been spreading. At the annual session which has just been held in Paris, of the Société des Agriculteurs a motion was unanimously adopted in favour of a resort to such measures as should preserve France from invasion by the San José scale. With regard to Great Britain the Board of Agriculture is making inquiry into the subject, and will probably publish a report for the information of fruit growers. In a matter of this kind promptness is of the utmost importance. The circumstance that the San José scale particularly dislikes cold and wet should rather militate against its becoming acclimatized in this country.

The Paris Sewage Farm.—A large sewage farm has been laid out at Achères for purifying the Paris sewage before allowing it to pass into the Seine. The inhabitants of Paris number 2,500,000, and the total flow of sewage is stated to average 17,660,000 cubic feet per diem. This is collected in great intercepting sewers, which convey it by gravitation down to Clichy, where it is raised 118 ft. by powerful pumps and distributed by gravitation through the farm. The pumping engines at present installed are capable of indicating 1,200 horse-power in the aggregate, but future additions will raise this to 6,000. It is stated that experience shows that 1 acre of suitable soil can take 1,580 cubic feet of sewage daily, so that an area of about 11,120 acres would be needed to deal with the whole of the discharge of the Paris sewers. A very high degree of purification is reached, the effluent proving to contain fewer bacteria per cubic centimetre than most uncontaminated streams. The land also has been greatly increased in value, being now worth five times as much as it was before being made the receptacle for the sewage. As a natural consequence, neighbouring landowners, who originally had fiercely opposed the establishment of a sewage farm in their midst, are now claiming to have the sewage supplied to their own properties. The farm at Achères is 2,471 acres in extent, and is under the control of M. Bona, a civil engineer, who in the main raises beetroot, though this crop will admit of much less sewage being passed on to the land than certain others. The main conveying the sewage from the pumping station is 43·2 in. in diameter, whilst a secondary system of pipes, ranging from 31 in. to 16 in. in diameter, serve as feeders to the irrigation trenches, into which the sewage passes through 11½ in. valves. The ground is laid out, and the irrigating trenches are so arranged that the only service needed in regulating the flow, is the opening or closing of the regulating valves just mentioned. The crop which can stand the most sewage is grass, a meadow being, it is stated, uninjured by a flow of 2,430,000 cubic feet per acre per year; lucerne can take 1,790,000 cubic feet per annum; artichokes, 593,000 cubic feet per annum; flowers, parsley, sorrel, &c., 536,000 cubic feet; leeks, cabbages, and celery, 325,000 cubic feet per annum; whilst beetroots, carrots, and beans will take only 197,000, and potatos, asparagus, and peas but 141,000 cubic feet per acre per year.

San Jose Scale.—The Dutch Government is taking prompt measures to deal with the San José scale, should the necessity arise. Dr. Ritzema Bos, the leading authority on crop pests in Holland, has been commissioned to visit the United States in order to make a personal investigation of the subject. On leaving Amsterdam he came to England so that he might discuss the matter with Miss Ormerod, and on Saturday last he sailed from Southampton. In addition to his entomological qualifications Dr. Ritzema Bos is one of the highest living authorities on the Anguillulidæ.

The Largest Nursery of the European Continent is said to be that of the Messrs. Spaeth, at Rixdorf. This nursery, according to the *National Nurseryman*, includes 700 acres, 680 of which are planted with stock, which comprises practically all the trees and shrubs that can be grown in the open air in that climate. The business was established in 1720 by Christopher Spaeth, the great-grandfather of the present proprietors. It has remained in the hands of the Spaeth family and in direct line continuously from father to son. The order has been as follows: 1720 to 1746, Christopher Spaeth; 1746 to 1782, Carl Friederich Spaeth, I.; 1782 to 1831, Carl Friederich Spaeth, II.; 1831 to 1863, Johann Carl Ludwig Spaeth; 1863 to 1898, Franz Ludwig Spaeth. By means of an elaborate system of ditches throughout the large nursery, affording unusual facilities for draining and irrigation, many kinds of nursery stock not generally grown in European nurseries are handled. The annual output of the Spaeth nurseries consists of 500,000 standard fruit trees, 300,000 dwarf fruit trees, 3,000,000 ornamental trees, 1,000,000 shrubs, and 500,000 conifers. Between 300 and 400 employés are given work in the nursery. The employés have a sick benefit association with a membership of 500, a kindergarten to which sixty children besides those of the employés and officers are admitted, and a restaurant. There is also a library connected with the institution containing many foreign publications, which are at the disposal of the young gardeners.

Aconite or Monkshood.—In dealing with the natural order Ranunculaceæ from an economic point of view, in *Knowledge*, Mr. J. R. Jackson, A.L.S., refers to the acrid and poisonous properties of the Monkshood (*Aconitum napellus*). He shows that the aconite is valued economically both for the rhizome, or rootstock, and for the leaves, both of which contain the alkaloid *aconitine*, though the rhizomes are said to be six times stronger than the leaves. The rootstock is most active in the winter and early spring, and for medical purposes should be collected at those periods. The fresh rhizome varies in size from three to six inches long, broad at one end, and tapering to a fine point. It descends perpendicularly into the ground, and gives off numerous rootlets. It has an earthly odour, and a taste which is slightly bitter at first, but which is succeeded in a few minutes by a burning sensation, and a tingling or numbness in the lips, cheeks, or tongue. The market is mostly supplied with aconite root from the wild plants, but some of the dried root is imported from Germany. Though aconitine is one of the most virulent poisons known, it is an extremely valuable medicine. Tincture of aconite is much used for outward application to allay pain in rheumatic and similar affections. The accidents that sometimes occur from mistaking aconite root for horseradish can only happen at the time when the plants are leafless, as the foliage of the two plants is very distinct; and even then the tapering and dark-coloured root of the aconite is quite different in appearance to the long, cylindrical light-coloured root of the horseradish. Several other plants belonging to the same order, natives chiefly of America and India, furnish useful medicines. The small black seeds known as fennel-flower seeds are also the produce of a ranunculaceous plant—Nigella sativa, an annual of the south of Europe, Levant, &c. The common name is derived from the fennel-like odour the seeds have when fresh. In the East they are used as a carminative medicine and for flavouring curries, as well as to keep insects from woollen cloths.

Manures for Celery.—Dr. Bernard Dyer's experiments in celery growing at Hadlow have been conducted under the disadvantage of several dry seasons, and celery is a crop that cannot well do without a plentiful supply of moisture. He has endeavoured, he states in the *Agricultural Gazette*, to grow the crop with the same dressings of manure that have been used in experiments with many other crops, viz., a "heavy" dressing of fifty loads (say twenty-five tons) per acre, a "light" dressing of twenty-five loads (say twelve and a half tons) per acre on another plot, and a similar dressing of twenty-five loads per acre on several other plots, with the addition of various quantities of chemical fertilisers. In moderately wet seasons, or on rich garden soil retentive of moisture, we should probably have grown good crops in this way, but the manure, although placed in the trenches in the usual way, has been insufficient in such dry seasons as we have had, even with the aid of chemical fertilisers, to produce heavy crops. The chemical fertilisers, viz., phosphates with and without kainit, and with nitrate of soda in quantities varying from one to four hundredweights per acre, when used in conjunction with manure, have very largely raised the crop, as compared with manure alone. In 1896 the crop grown with phosphates and four hundredweight of nitrate of soda per acre, in conjunction with twenty-five loads of farmyard manure per acre, gave a crop 10 per cent. in excess of that produced by fifty loads farmyard manure per acre. In 1895 a like dressing gave the same results as heavy manuring, but in 1897 the heavy dressing gave somewhat the best crop. In ordinary celery growing it is customary to use dressings of manure very greatly in excess of what we have used even on our heavily-manured plot. We hoped to ascertain if these heavy quantities could be replaced by the liberal use of chemical fertilisers in addition to smaller quantities of manure, but the weather has been too dry to satisfactorily test the question. We have each year grown good marketable celery, and even that is something to accomplish in very poor and newly-converted agricultural land, with what a market gardener would regard as meagre dressings of manure, and in what, under any circumstances, would at Hadlow be, owing to the weather, bad celery seasons. Although good celery, however, it has been too small to properly gauge the productive capabilities of the soil and the manure under really favourable circumstances, our best crop having averaged only twenty ounces per "head." Our experiments clearly establish the fact that a liberal use of nitrate of soda in conjunction with phosphates, when added to manure, greatly increases the weight of the crop, but, in dry weather at all events, it appears to be desirable to use more manure than we did, in addition to the chemical fertilisers, in order to enable the latter to do the full work of which they are capable.

The Beech-bark Felt-scale *(Cryptococcus fagi)* has special reference made to it in Miss Ormerod's annual report, and what she has to say with regard to the pest is specially worthy of notice, the more particularly in that it is a member of the family Coccidæ. The felt-scale itself is by no means new to the insect fauna of Great Britain, for it is not only widely distributed, but it is extremely injurious to beech trees, the bark of which becomes covered with the felt-like material secreted by myriads of the coccids. As their generic name implies, they are exceedingly small, but owing to their immense numbers they are powerful for mischief, which is effected by piercing the tissues of the tree and sucking the plant juices. A year ago, at Rangemore, Burton-on-Trent, on Lord Burton's property, this pest was reported to be "destroying all the beech trees in the woods," and there are various records of its destructive work in other parts of the country. Scale insects generally have the capacity of multiplying with great rapidity, and this particular member of the group forms no exception to the rule. Unfortunately, no very effective means are at present known for coping with the pest, though it is surmised that soft-soap washes, with a little sulphur or some kind of mineral oil incorporated with them, would be retained by the "felt," and by contact would destroy the insects and eggs beneath. "But," as the author remarks, "here, as with other forest insect attacks, it would be impossible at a paying rate to apply dressings to large areas of infested woodland; small numbers of trees, or trees which, for any particular reason, it was wished should be preserved, might in all probability be cleared from the attack, but further than that remedial measures do not seem available."

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

I FANCIED I could see the twinkle in the editorial eye as he popped on that seductive heading, "An Evening Dose." Of course I began a smile of complacency, already tasting the sweet nectar of that flattery which imitation brings. But, Phœbus! what a reawakening! I have scarcely got over the shock yet. A few more such "doses" and I shall seriously contemplate handing over this column bodily to Peter. There are certain mixtures which have to be well shaken before taken. This, however, is one of those doses which reverse the order of events, and severely shake the miserable mixer.

Let me, however, hark back a little bit. It will serve a double purpose—enable me to get a little breath, and also to acknowledge a very handsome and unexpected compliment. For the soft answer that turneth away wrath commend me to Mr. Lees. I ventured on a mild expostulation at the introduction of autumn flowers when we were all trying to forget about everything except glorious spring; and behold! the assailed one retorts with an offer to send a few young specimens of the plant objected to, in order to bring me round to a wiser view. What can I say but that I am abashed and silenced at the genial good-nature of this rare-spirited gardener, and gratefully accept his offer? The very thought of it refreshes me. It is as jam to the powder compared with that terrible evening dose. Mr. Lees may rest assured that the plants he sends will have the best of care, although they may not be handled with quite the same skill as they would have received from the giver.

Somehow or other I can never resist an opening for breaking a lance with "A. D." Not that I bear him the slightest ill-will. I know—few, perhaps, so well—that under his somewhat rugged exterior there is a kindly heart and a deep, single-hearted love of gardening. But a critic so keen and persistent is bound to raise antagonisms, even though they be friendly ones. Here is "A. D." coming to the rescue of Mr. Prinsep, and thumping me heartily. But the excellent Buxted gardener might well cry, "Save me from my friends." "A. D." thinks I have misread Mr. Prinsep. Well, all I can say is that on page 161 the latter plainly declared that he had "grown the heaviest crop of potatos ever produced in England," a line or two afterwards alluding to thirty or forty tons per acre. If the latter does not convey a definite statement of a marvellous crop, the former does, and taken in juxtaposition with each other, anyone may be excused who connects them. However, nothing is more simple than to settle the matter. Did Mr. Prinsep's crop—"the heaviest ever produced in England"—exceed thirty tons per acre? If it was not a full acre, what was the extent of ground and the quantity of produce lifted? We can easily calculate then. "Records" are the order of the day; let us get at the potato record. Mr. Beckett's testimony proves that I am not the only celebrity who is interested on the point.

Mr. Fish defends the old peach-grower valiantly. All honour to him and them. But his attempt to controvert what I still regard as an absolutely incontrovertible proof of the greater tenderness of peaches will not do at all. When you see, as I have seen, plums and peaches in the same soil, on the same stocks, growing side by side, showing absolutely different results after a hard spring frost, you may take it for granted that neither soil nor stock is at fault, but relative hardiness alone. Plums, Mr. Fish, make "fishing-rod" shoots as freely as peaches do, but they are not cut in the same way. I should not dream of accepting the inference that soil and stocks are in fault in the nursery, because that would be putting blame on the nurseryman which he does not deserve. The leading trade growers take the utmost pains to furnish their trees with firm, ripe bearing wood for their own protection. I hope I shall not give offence if I say that as far as my observation goes there are more instances of good nursery trees made gross garden ones than overgrown trade stuff toned down in private places.

Whenever there is a general movement on well-defined lines depend upon it there is some well-marked economic cause. There has for many years been a steady movement in the direction of substituting indoor for outdoor peach culture. The fact is, the cheapening of glass and timber has led to what would have been done half a century or more ago under similar economic conditions. Peach growers of those days would have gladly availed themselves of the advantages which now exist, if it had been in their power. I have before wondered at the simplicity of the plea that it is the overlooking of the fly which leads to so many troubles with outdoor peaches. We have thousands of growers who produce splendid peaches under glass, and they succeed because they pay attention to the salient points—cleanliness, careful training, prevention of exuberance, &c. Well, are we to assume that directly these successful growers get into the open air, all their skill goes off at their finger tips? Do they fail to recognize the deadly "fly," and lose all idea of ripe wood? I might first add, as something of a peach grower, that the fly is black and not green.

It is not often that I can trip up so practical a man as Mr. Wythes in a transparent fallacy, but I think I have him on the hip over those raspberries, or perhaps I ought to say over the soil. The idea that food elements are washed down to the drainage when a light soil is deeply worked, is utterly wrong; the exact reverse happens. Would Mr. Wythes try to turn Nature upset down? If so, then he has tackled a more redoubtable adversary even than Peter. What about capillary attraction? Rains that tend to take food elements down are periodical; capillarity that tends to take them up is practically incessant. I know this truth is not widely recognised, but it is a truth all the same. If I am not mistaken, I read an article bearing on this in the MAGAZINE some time ago. I read, too, the report of a lecture on Dutch bulb-growing, by one of our leading nurserymen. He spoke of hyacinths in the open air, with trusses eight inches long, grown in sand worked five feet deep, and fed with cow manure. There is a lesson in working light soil for you.

Not less sweeping is Mr. Wythes on the pruning question. "Are we," he asks, "to ruin our prospects of splendid new canes and big crops because of the time it takes to remove the old ones?" What deadly suggestion have I made that the comprehensive word "ruin" should come in? Properly-pruned raspberries are never crowded, even when they have their full complement of fruiting and new wood. Leave the pruning till autumn, and there is still no crowding, because, if judgment is exercised at the annual cutting, every shoot, old and young, has abundance of air and sunlight. This is a natural outcome of intelligently studying the habit of the plant, which is absolutely different to that of fruit trees. A grape vine really gives a better parallel. I do not suppose Mr. Wythes cuts his laterals back to the base directly he has removed the bunches any more than I do. He leaves them to ripen, so that the elaborated sap may nourish the basal buds as it recedes. The comparison is not exact, but it suffices, and it is practical.

"Suggestions"! *Ma foi*, I am all but paralysed with horror at the levity of a correspondent on page 232. I am keeping the MAGAZINE out of my henchman's way until I have got him in a cheerful mood. Then, perhaps, I can gather in the lightnings of the breaking storm, and send them along the wire.

LUX.

GARDEN RANUNCULUSES.

BOTANICALLY the garden ranunculuses are known as Ranunculus asiaticus, but through selection and crossing of the different varieties of the species they are now usually classed into three or more distinct sections, such as Persian, French, and Turban ranunculuses, and a selected forms of Persian varieties are sometimes called Scottish ranunculuses, having peculiarly striped, spotted, and variegated flowers. For all ordinary purposes, however, the three former sections will suffice. The difference between Persian (usually double Persian) and French is therefore not so very great, excepting that the latter have finer, larger, and brighter-coloured flowers, all perfectly double. The Turban varieties are of more vigorous growth, usually with larger and coarser foliage, and self-coloured, perfect, rose-shaped flowers, and are earlier than the other forms. On this account they are the best adapted for bedding, and especially for parks in or near large towns.

These garden ranunculuses, as I shall collectively call them, because, after all, there is really very little difference between the sections, are, without doubt, among the most showy and useful of plants, and those who have ever seen them in perfection will say the same. For some unknown reason they have, generally speaking, gone almost out of culture in this country, and, in fact, it is very rare indeed one sees them, and then only put in the most unsuitable soil or position, and often overgrown by shrubs or weeds. On the Continent, especially in France, some parts of Belgium, and Holland they are still in great favour, and much attention is paid to their culture, though even here they are not always seen at their best. To grow them successfully, the soil should be neither too dry nor too damp, but well drained and light, no matter what the constituents. The most favourable results are usually had when well-ripened roots have been planted in a somewhat alluvial soil mixed with leafmould and plenty of coarse sand, with a position sheltered against cold, drying winds, as well as the fierce rays of the sun, though not shady, or even partially so. To have a succession of bloom it is advisable to plant the ranunculus in three distinct sets—the first, say, in November, in a cold frame, the second in March, and the third in April or May; the last two sets, of course, in the open ground. They can be planted right into the summer, but unless well protected against sun and heat these are of very short duration, and the plants sometimes die off before the flowers develop.

As the roots of these magnificent plants are so very cheap, a hundred of them only costing a few shillings, it is best to plant them in beds like tulips or crocuses, and only in well-prepared soil, covering the beds after planting with cocoa-nut fibre; if planted during the winter, cover with straw, which should be taken away when the danger of frost has passed; then with a little protection, such as shrubs or trees afford, and sufficient moisture, a good crop of flowers is certain, and there are few plants as variable in colour and as beautiful when in perfection. There are all shades of colours, excepting, perhaps, blue; but yellow, purple, crimson, black, white, salmon, &c., are all represented, and the flowers are often deliciously scented, and consequently most useful at all seasons. For those who have never grown the ranunculus, I enumerate a few of the best varieties, although there are a great number impossible to describe or enumerate here.

DOUBLE PERSIAN RANUNCULUS.—Bouton d'Or, double [illegible]; Citrone, yellow; Jaune Supréme, yellow; Queen of the Netherlands, black; Brilliant Orange, orange; Queen Victoria, violet; Mont Blanc, white.

DOUBLE FRENCH RANUNCULUS.—Duc de Brabant, light orange; Emperor Frederick, orange; Pio Nono, black-brown; The Shah, pale yellow; L'Etincelante, crimson; Salvator Rosa, scarlet; Couleur Café, dark brown; Mathilde Christine, white.

DOUBLE TURBAN RANUNCULUS.—Viridiflora, green, the petals red tipped; Grandiflora, crimson, yellow striped; Herculus, white; [illegible], scarlet; Seraphic d'Alger, yellow; Turban Carmine, carmine coloured; Sans Pareil, scarlet.

As with some anemones, the little claw-like tubers of these ranunculuses retain their vitality, when kept dry, for two years, and sometimes longer, provided they were well ripened.

G. REUTHE.

THE GHENT QUINQUENNIAL HORTICULTURAL EXHIBITION.

The great exhibition, which has attracted immense numbers of horticulturists from all parts of Europe to Ghent during the past week, is in every way a splendid success, and worthy of the city which has long been recognised as one of the most important centres of horticultural activity on the continent of Europe. It is the fourteenth of the quinquennial exhibitions instituted by the Société Royale d'Agriculture et de Botanique de Gand, and there is a remarkable consensus of opinion among both citizens and visitors that it is unquestionably the best. In the seven hundred classes provided in the admirably arranged schedule all kinds of ornamental plants that can be shown to advantage at this season of the year are represented, and the immense number of collections testify in no doubtful manner to the high-class skill of the Belgian and other cultivators who have taken part in the exhibition. Palms and cycads of magnificent proportions abound; plants remarkable for the beauty of their foliage, other than cycads and palms, are contributed in immense numbers and splendid condition; orchids are shown in numbers equal to those staged on previous occasions; and hard-wooded plants, grown for the beauty of their flowers, are plentiful, and serve to remind the British visitors of the splendidly-developed Cape and New Holland plants, which for so long a time constituted the most important and attractive features of the exhibitions held in London and other of the great centres of the United Kingdom. The large number of collections could hardly have failed to give rise to a feeling of regret that no longer can we see at home in any considerable numbers specimens of hard-wooded plants equal to those so plentiful at Ghent. The great feature of the gathering is unquestionably that formed by the azaleas, of which considerably over a thousand plants, ranging from eighteen inches to eight feet in diameter, are shown, producing a wealth of colour, of which no one who has not seen the display can have an adequate idea. A portion of the azaleas are shown in the accompanying illustration of the exhibition house, which will be useful as indicating the character of the plants and the taste with which they were grouped with a view to general effect.

RARE PALMS EXHIBITED BY THE SOCIETE HORTICOLE GANTOISE, GHENT QUINQUENNIAL.

As on several occasions, the exhibition is held in the magnificent winter garden and the grounds of the Casino, which is conveniently situated on the north-west side of the city. The winter garden is a large building of iron and glass, and, as will be seen from the illustration given herewith, is extremely elegant in design. The ground floor of this spacious building was laid out by M. Ed. Pynaert, who is one of the ruling spirits of the horticultural institutions at Ghent, to form a series of mounds, slopes, and banks, intersected with broad walks, with a miniature lake, lawn, and rockwork in the centre. The illustration of the winter garden will indicate the general arrangement of the structure, although a portion only of the building is shown. In the winter garden are arranged the greater portion of the plants remarkable for nobility of aspect or the beauty of their foliage and colour is given by the resplendent hues of the leafage of the crotons and dracænas, and by the brilliant scarlet spathes of Anthurium Scherzerianum, of which there are numerous collections of magnificent specimens. The anthuriums are, indeed, shown in such large numbers and splendid condition as to constitute a striking feature. Two groups of orchids, and both remarkably good, also have a place in the winter garden, as also has the interesting collection of plants shown by M. Lucien Linden in memory of the late M. J. Linden, all the plants represented having been introduced by that distinguished collector and horticulturist, who, as our readers have been informed, died during the past few months. The collections of orchids other than groups are arranged in the salle of the Casino, and the corridors are devoted to bulbous and new plants, botanical diagrams and specimens, plans of gardens and estates, and many other objects of interest.

The accommodation afforded by the winter garden for tender plants was again supplemented by an immense annexe, which for convenience may be described as the exhibition hall. This has been erected from a design similar to that of five years ago, and may be described as a span-roof building of wood, glass, and canvas, many hundreds of feet in length and width, and some thirty or forty feet in height. A portion of the roof is of glass, and to subdue the light and enhance the appearance of the building thin canvas in alternate bands of pale yellow and mauve is suspended beneath the roof, as so well shown in the illustration. The sides and pillars are painted a light green, and the general scheme of colouring may be described as exceedingly pleasing. Two series of oblong beds are arranged along the centre, flanked by broad raised banks on either end, and at the exteme end is a large circular bed, considerably raised, surrounded by irregular slopes and with a bank round the sides. On the large circular raised bed the magnificent specimens of azaleas shown by Comte de Kerchove and M. Ghellinck de Walle are arranged to form a trophy group, and although one may not agree with the formal style of training adopted, it was impossible to avoid being impressed by the extreme splendour of the display. These specimens are shown in the distance in the illustration of the exhibition hall. The oblong beds, of which a portion are shown, are devoted to the large collections of medium-sized azaleas. Greenhouse plants are arranged round the sides of the building with exceptionally fine Van Geer kentias, seaforthias, and other palms thriving in the cool house.

The general plan of the exhibition hall is similar to that adopted on the occasion of the quinquennial gathering held five years since, and it is difficult to conceive one that would be more suitable for the purpose. The building, in consequence of the much larger space required for the accommodation of greenhouse plants, has been made one-third larger, and it is connected with the winter garden, which is a manifest advantage. The grand saloon through which access is obtained to the winter garden is reached by two flights of steps, and between these is a huge mirror, which reflects the majority of the groups arranged in the building, and adds immensely to the effect. From the balcony connecting the two flights a magnificent view of the whole arrangements is obtained, and this balcony was more or less crowded throughout each of the days we were at the exhibition.

The social functions constitute an important part of the Ghent quinquennials, and this gathering is in no way an exception to the rule. If anything, the hospitality was more lavish than on previous occasions, and the best traditions of the city in this respect are being fully maintained. On the morning of the 15th inst. the members of the jury began to assemble at the place of exhibition at nine o'clock, and on their meeting in the grand saloon shortly before ten, the Comte de Kerchove, president of the society, offered them a hearty welcome to Ghent. The roll was then called, and the Britishers who answered to their names were: Drs. Bayley Balfour and Maxwell T. Masters, and Messrs. William Bull, George Gordon, E. Hill, J. Hudson, W. Iceton, H. J. Jones, R. W. Ker, J. Laing, D. P. Laird, Hugh Low, F. W. Moore, J. O'Brien, Owen Thomas, W. Protheroe, Thomas Rochford, F. Sander, A. Turner, J. H. Veitch, William Watson, J. Weathers, H. Williams, and Brian Wynne. As the names were called the members advanced to the table, signed their names in a large book especially provided for these gatherings. This formality having been disposed of, the President expressed the satisfaction that was felt by the executive of the Ghent society in having the assistance of the delegates of the principal societies of Amsterdam, Berlin, Dresden, Geneva, London, Paris, Vienna, and St. Petersburg in bringing to a successful conclusion the quinquennial exhibition. Comte de Kerchove then addressed the jury, and directed attention to the remarkable development which the Ghent exhibitions had undergone since they were instituted. The first exhibition was held under the auspices of the society on February 7 and the three following days, 1809, and a room of comparatively small dimensions was sufficient for the accommodation of the plants shown; but on this occasion six thousand seven hundred and fifty-two square metres were required for the display of the collections in competition. The exhibition afforded ample evidence of the great development which the taste for horticulture had undergone, and of the assistance the society had received from the State, the province, the city, and its members in carrying out the project. Comte de Kerchove also testified to the support received from the King of the Belgians, whom he described as the foremost amateur in the kingdom. The society had, he believed, done much useful work in aiding in the development of a taste for plants, which were now so largely employed in beautifying the home. The art of horticulture had, he said, greatly extended in and near the city of Ghent of late years, and in proof of the correctness of his views upon that point, he said that whereas there were one hundred and eight nurseries in 1889, there are now two hundred and thirty-nine establishments. The Count then spoke of the large number of beautiful plants which had been introduced from their native habitats, or produced by the skill of the hybridist, and of the valuable work accomplished by previous occupants of the presidental chair. He also paid a warm tribute to the memory of the late M. Jean Linden, and directed attention to the interesting collection of plants introduced by that great collector and explorer which had been arranged in the winter garden. Speaking of the labours of the jury, Comte de Kerchove said the exhibitors were eagerly awaiting the decision of the jury as to the relative merits of the production, for awards made by the eminent horticulturists he had the honour of addressing were the greatest honours that could be obtained.

At the close of the address the members were arranged in thirty-nine sections, with M. Leon de Bruyn, the Belgian Minister of Agriculture, as honorary president, and M. O. Viger, president of the National Horticultural Society of France, as president general. The jury then proceeded to make the awards, and this was in many instances a very difficult task. At the close of their labours the members were entertained at lunch, Comte de Kerchove occupying the chair. This function occupied the greater part of the afternoon, owing to the number and length of the speeches. The speeches, if of greater length than those to which we are accustomed in the United Kingdom, were for the most part remarkably good. In the course of the proceedings, Dr. Masters presented in felicitous terms the Veitch Memorial medals that had been granted by the trustees to M. Ed. André and Comte de Kerchove, both of whom acknowledged in suitable terms the honour that had been done them. This presentation was followed by M. Viger investing M. E. Pynaert with the insignia of a knight of the order of Mérite Agricole, a proceeding which invoked much enthusiasm, as indeed did the presentation of the Veitchian medals. In the evening the members of the jury were invited to a reception by the Burgermaster and a concert at the Hotel de Ville. The reception was a very pleasant function, but the concert was not well suited to the occasion, and but few members remained for any length of time.

On Saturday morning, the 16th, the exhibition was formally opened by the King of the Belgians, under the most favourable climatic conditions. His Majesty, accompanied by the Queen of the Belgians, Princess Clementine, and suite, reached the Casino a few minutes after eight o'clock After a few of the members of the executive had been introduced to the King, the royal party made a leisurely inspection of the exhibition, leaving shortly before noon. In passing through the grand saloon a pause was made by the royal party for the purpose of enabling his Majesty to receive the members of the jury. Saturday was practically a free day, the only public function being the Raout in the evening offered to the visitors by the Chambre Syndicale de Horticulture. This gathering took place in the saloons of the Union Society, and was a pleasant affair. The 17th inst. was a busy day, for the jury was invited by the king to a garden party in the winter garden at Laeken, and this was an exceedingly brilliant affair, some fifteen hundred being present. This was followed by a grand banquet to the jury in the saloons of the Grand Theatre, Ghent, at which the Comte de Kerchove presided. The principal speakers were the same as at the luncheon on the previous Friday, and, as on that occasion, the speeches were, in most cases, long; but the whole of the proceedings were so extremely pleasant that the prolixity of some of the speakers in no way troubled the guests, and, after all, so important and successful a gathering justified the many matters of interest being talked about, and it must be said that the banquet was not less satisfactory than were the other arrangements.

Indian Azaleas.

Azaleas were exhibited in immense numbers and in magnificent condition, and arranged in huge beds and bold groups; they produced a wealth of colour and constituted a glorious feature. The Indian azaleas, for which the Ghent exhibitions have long been famous, were of exceptional excellence, and produced so brilliant a display as to prove highly attractive to the many Britishers present. The specimens were mostly in the form of standards with rather flat heads, and although rather too formal to satisfy æsthetic tastes they were so attractive as to disarm criticism with regard to the style of training that finds favour with the Belgian cultivators. In the class for twelve specimens the Comte de Kerchove, Ghent, was awarded the gold medal offered as the first prize with large, neatly-trained, and densely-flowered specimens. The varieties staged included Louise Margottin, a beautiful variety, the flowers white flaked deep rose; Roi Leopold, scarlet, very fine; Princess Louise, semi-double, salmon pink, the specimen seven feet in diameter, and so freely flowered that hardly a leaf was visible; Le Vengeur, glowing rose, the edges elegantly frilled; Louise Vervaen, pure white, the flowers very large; A. Borsig, double white, one of the best of its section; Comte de Chambord, delicate pink with white margins, flowers large, fine shape; Concinna, rose purple, very fine.

The most important collection of azaleas from a spectacular point of view was the collection of thirty specimens from M. Ghellinck de Walle, Ghent. The specimens ranged from six to eight feet in diameter, were literally solid with bloom, and these thirty giants arranged to form a trophy at the north end of the exhibition house produced a startling effect. Taking the number of plants, the size of the individual specimens, and the superb development of the flowers into consideration the collection may be described as the finest that has yet been presented at a public exhibition, and the award of the object of art offered as the first prize to M. Ghellinck de Walle was well deserved. The most remarkable of these magnificent examples were Souvenir de Lyon, Maenhout, Comte de Chambord, Bijou de Paris, Theodor Korner, Baron de Vriere, Roi Leopold, Hoorbrenki, Duchesse Adelaide Nassau, Marie Vervaen, Madame Ambroise Verschaffelt, and Harry Veitch. M. Ad. d'Haene, who also was awarded an object of art, had a collection of large finely flowered specimens.

One of the most interesting of the classes provided for Indian azaleas was that for sixty plants in pots of limited size. There was a spirited competition, and in the several collections all the best of the new and old varieties were represented. The premier award was a work of art of the value of two hundred francs, presented by MM. de Smet; and gold medals were offered as the second and third prizes. The several collections were so evenly matched in point of merit as to have given rise to considerable difficulty in determining their relative merits. In the result the premier award was made in favour of Société Anonyme Horticole (Louis Van Houtte, père), who had superbly-flowered examples, with heads ranging from eighteen inches to two feet in diameter, and remarkable for their extreme freshness. Among the many fine varieties represented in the collection the following were made note of as being of exceptional excellence: M. J. de Fontanier, glowing rose, semi-double; Souvenir of Duke of Albany, pure white, with an occasional flake of rose; Louise Cuvilier, white, flaked vermilion, semi-double; Pauline Mardier, soft rose, pleasing, double; Madame Ad. d'Haene, bright pink, carmine blotch; Baronne de Vriere, pure white, with an occasional rose stripe, margin elegantly frilled; Oberst von Kutzinci, rich scarlet, semi-double, very fine; Perle de Ledeberg, white, freely flaked with vermilion, semi-double, exquisitely beautiful; Gloriana, fl. pl., white, suffused green in early stages; Baron N. de Rothschild, rich purple, semi-double, effective; Comte Chambord, delicate pink, with carmine blotch; President Pfaff, scarlet; Madame J. Vervaen, soft pink, with rose blotch; Aristides Effendi Azarian, deep pink, with white margin, singularly beautiful; President Oswald de Kerchove, salmon-pink, semi-double, beautiful; Madame W. Van Houtte, pink, paler margin; Princess Mathilde, white, with vermilion stripes and flakes; Comte Ernest Turati, rich crimson-purple; Germania, glowing rose-red; M. Leopold Botelberg, Melle-by-Gand, was a close second, his plants being a size smaller than were those in the first-prize collection, but they were superbly bloomed, and the flowers were in the highest state of development. The varieties of exceptional excellence represented in the collection included Vervæneana soft salmon-pink with carmine blotch and white margin, semi-double; Anna Kleine, pure white semi-double; Comte Charles de Kerchove, pink with carmine blotch; Madame Vandercruyssen, glowing rose, superb form, very effective; Roi de Holland, vermilion; Niobe, double white; Baronne de Puynode, flesh freely flaked like a carnation, exquisitely beautiful. The small gold medal in this class was awarded to M. A. Van Acker, Loochristy with an excellent collection, and the silver-gilt medal was awarded Messrs. F. Sander and Co., St. Albans, with a collection that in the opinion of some experts deserved a higher position in the competition. The plants were remarkable for their uniform size and for the superb development of the individual blooms. It included several exceedingly beautiful varieties not represented in the other collections, notably Konigen der Weissen, pure white, immense size, and grand form; Frau Herman Seidel, pure white, semi-double; Arlequin, rose-pink striped, and flaked purple, distinct and showy; Violacea multiflora, purple, rich and effective in contrast with the red and salmon shades; Miss Bertha Frobel, green-white, distinct flower; [illegible], brilliant scarlet; Rosea picta, flesh white, freely flaked with rose, a charming and attractive variety; Baron Von Horn, rich rose flower, finely frilled.

Two excellent collections were staged in the great class for one hundred varieties of azaleas without restriction as to the size of pots. The class was of interest from the fact of its affording the large cultivators an opportunity of exhibiting all the most noteworthy varieties in one collection. M. Ad. d'Haene, Gendbrugge, occupied the post of honour with medium sized and superbly flowered examples, in which the following varieties were conspicuous by reason of their high merit: Noble Belgique, salmon and pink; Hermione, brilliant rose; Gloria Belgica, white, prettily striped like a scarlet-flaked carnation; Charles Lieber, white, striped with rose purple and of superb form; Camille Vervaen, brilliant rose red; Imperatrice des Indes, delicate pink with dark border; Edmond Vervaen, rich red carmine; Roi de Holland, an old but excellent scarlet variety; Memoire L. Van Houtte, fulgent rose, large and of superb form; Lina Boreim, pink, small, double, but very desirable for the supply of cut flowers; Princess Mathilde; Madame Leon Chabot, pink with carmine blotch, exquisitely beautiful. The second award was made in favour of Société Anonyme (L. Van Houtte, père), Ghent, who had large densely flowered specimens. The most noteworthy varieties were: Cocarde Orange, brilliant orange scarlet, semi-double; Victor Cuvilier, red magenta; Mons. J. de Fontanier, semi-double, rosy red; Noblissima, double white, flowers very large, grand form; Stephenson Clark, rich rose carmine, semi-double, very fine; Souvenir d'Arthur Veitch, deep scarlet; Madame de Grève, pale pink, white margin, carmine markings; Dr. Moore, rose magenta, very effective; Duchesse Ferdinand Munez, white, scarlet stripes; P. N[illegible], white, vermilion flakes, large very effective; Madame J. E. Planchon, white, freely striped pink, pleasing and effective; Theodore Reimers, rich purple, semi-double, very effective; Mdlle. M. Planchon, pure white, elegantly fringed, Professor Walters, deep vermilion blotch on upper segments and pale pink margin, one of the finest of this pleasing shade of colour; Pluto, glowing scarlet, the finest of its colour; J. T. D. Llewellyn, flesh pink, deeper in centre, double, superb form; Eugene Mazel, orange scarlet, with violet blotch, effective; Hermosa, soft rose pink, double; Archduke Ernest, orange red, large.

The groups of twenty azaleas were of great excellence, and the large number of collections in the two classes for this number of plants contributed their full share to the display produced by the Indian azaleas. The varieties were chiefly the same as the larger classes to which reference is made above. The Comte de Kerchove was the recipient of the work of art offered in the amateurs' class for twenty plants, and M. Ad. d'Haene was awarded an object of art in the trade class for twenty, and MM. Vervaen frères were awarded a gold medal. The premier award for a specimen azalea with double flowers, was obtained by M. J. F. Vervaen-Vaveart, Ledeberg, Gand, with a grafted plant trained in a pyramid with the several varieties to form distinct bands of colour. At the base was a broad band of rose-coloured flowers; following this was a ring of pure flowers, next rose-coloured flowers deeper in hue than those at the base, and at the apex was a cone of pure white flowers. Specimens of this character are of interest as indicating the ingenuity of the cultivator, but they have little to recommend them for the purpose of embellishing the greenhouse and conservatory.

Mollis and Ghent Azaleas.

Varieties of Azalea mollis are strongly represented, both in point of numbers and the development of the plants; and the masses of yellow, primrose, orange and buff flowers produce a bright and pleasing effect. The finest collection is that of thirty plants from M. A. de Smet, Ghent, who was awarded the gold medal. The whole of the plants were grown in standard form, and carry large finely-developed heads of bloom. In a second class for thirty plants of Azalea mollis, M Pynaert van Geert was awarded the gold medal for [illegible] developed bushes. M. B. Spae obtained premier honours for twenty [illegible] MM. Koster et fils, Boskrop, were first for the same number obtained from the intercrossing of mollis and sinensis, with well-grown examples. The plants shown were mostly unnamed, and, judging from the immense number exhibited it would appear that the Belgian raisers have not made much progress [illegible] development. Ghent azaleas were represented by several collections consisting of well-bloomed examples, but the varieties shown do not call for any special remark. The finest collection of thirty plants was contributed by Société Anonyme Horticole, to which was awarded the large gold medal.

New Azaleas.

New azaleas were not very numerously shown, and a few only of those exhibited were of special value, being in the majority of cases too much like those already in cultivation. Betsy de Brau, from MM. Koster et fils, is a beautiful mollis variety with the flowers of a pale orange colour suffused scarlet. Mdlle. E. Eckhaute, contributed by M. Eckhaute, is a striking Indian variety, the flowers semi-double with rose pink with broad white margins and red brown spots at the base. M. Eckhaute exhibited an unnamed Indian variety, the flowers large with broad petal and of a rich rose salmon ; one of the best of the novelties.

Orchids.

Notwithstanding the large number of classes devoted to orchids the display of these was rather disappointing. The groups by M. Vincke-Dujardin, M. Peeters, and Mr. Thompson redeemed the exhibition from mediocrity, as in all these the plants represented good culture.

A most attractive group of orchids was shown by M. G. Vincke Dujardin, Bruges, and it was good enough to capture the gold medal offered by the King. It contained a glorious assortment of odontoglossums, crispum, Andersoni, and luteo-purpureum forms. Miltonia Bleuana nobilior carried seven fine blooms of exceeding beauty. Eulophiella Elizabethæ, with about three dozen flowers and buds on one spike, proved a great attraction, as did Cypripedium Rothschildeanum ; good examples of Ada aurantiaca, resplendent with spikes of orange-coloured flowers. Oncidiums abounded, especially O. tigrinum, O. Harrisonianum, O. crispum, and O. sarcodes. Cymbidium Lowianum was in force, while Cattleya Lawrenceanum superba, with three flowers, made a fine centre piece. Cymbidium eburneo-Lowianum and Phaius Cooksoni were among the rarest and most beautiful of hybrid orchids, and these with other species and varieties already mentioned were associated with a variety of masdevallias, lycastes, and dendrobiums.

A GROUP OF PLANTS ILLUSTRATING THE LATE MONS. JEAN LINDEN'S DISCOVERIES.

An exhibit of orchids from Mons. A. A. Peeters, Saint Gilles, Brussels, was beautifully set up, the flowering plants being set amid light forms of maidenhair ferns. The cattleyas were not large, neither indeed were any of the specimens, but the varieties were in all cases good. Cattleya Mossiæ Reineckiana showed up well, and had for companions C. Schröderæ, C. Bowringiana, C. Lawrenceana, the beautiful and rare C. Parthenia, with five grand flowers ; C. Parthenia gratissima, with rose-tinted segments and some golden shading in the throat ; and C. maxima. The new Phaius Norman and its varieties aurea and rosea were a feature of the exhibit, as were half a dozen examples of Zygopetalum Pierrenoudi, a hybrid recently described in these columns. Other very choice orchids in a choice collection were Phaius Cooksoni, Miltonia Bleuana nobilior, Sophronitis Veitchi, Lælio-cattleya Hippolyta, Lælia Latona, Eulophiella Elizabethæ, the pure white Cattleya intermedia var. Parthenia, Cypripedium selligerum, and Masdevallia Veitchi grandiflora. There were one hundred plants in all, and the group was awarded the object of art offered by M. le Comte de Germiny of Gouvelle, France. In M. Smet Duvivier's first prize collection of thirty orchids there was a Lycaste Skinneri alba, with seven flowers ; Cattleya Schilleriana, C. Mendelli rosea, Dendrobium thyrsiflorum, Odontoglossum cariniferum, with a long branching spike ; Oncidium lameligerum, and a fine specimen of Cymbidium eburneum.

The Williams Memorial medal was offered on this occasion for the best fifteen orchids, and it fell to M. Metdepenningen for a moderately-good collection arranged with palms. Cymbidium Lowianum, Cattleya amethystoglossa, Oncidium sarcodes, Odontoglossum Edwardi, O. Andersonianum, O. crispum, Trichopilia suavis, Cypripedium Lawrenceanum, and C. Chamberlainanum were leading specimens. A curious and interesting class was that for the largest number of species grouped together, and here M. Van Imschoot secured the gold medal ; comparatively uncommon orchids here staged were Ansellia nilotica, Eria floribunda, Dendrobium tetragonum, D. Kingianum, Angræcum Leonis, Epidendrum Cooperianum, and Lycaste lasioglossa. For three orchids representing different genera, M. de Smet Duvivier secured the only prize with Cymbidium Lowianum, Odontoglossum luteo-purpureum, and Oncidium sarcodes.

Only one competitor entered for the gold medal for thirty odontoglossums, and had there been others, we think our compatriot, Mr. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, Staffs, would have been difficult to displace. Mr. Stevens' collection not only represented fine varieties, but excellent cultivation ; indeed, there were not better-grown odontoglossums in the whole show. Among forms of O. crispum those of especial beauty and merit were O. c. roseum leucoglossum, a fine white-lipped variety, with rosy sepals and petals ; O. c. Annie, shaded with rose and blotched with crimson, the margins of the segments waved and fringed ; O. c. Thompsoniæ, with two spikes of large, full, white flowers, with one spot on one or two of the segments—twenty-six flowers altogether. O. luteo-purpureum amplissimum, with eighteen flowers ; O. Coradenei expansum, fourteen flowers ; O. Wilckeanum nobilior, with twenty-three flowers ; O. hystrix, with three fine spikes ; O. sceptrum leopardinum, with four spikes ; and O. Roezli alba, with ten spikes, were among the most notable examples on view, though mention must be made of O. sceptrum Stevensi and O. Humeanum splendens. According to the jury, the best odontoglossum, single specimen, was O. Madame Metdepenningen, a yellow-ground form of good shape, with rich brown blotches ; it had but six flowers. Tastes differ, of course, and at home we should probably have placed Mr. Thompson's O. Halli, furnished with nine spikes, first, and here placed second.

The three new hybrid orchids that gained for M. Van Imschoot a gilt medal were Cattleya Alberta (C. Loddegisi and C. superba), we should have thought it simply a Lælio-cattleya elegans form ; Epidendrum Endresio-Wallisi, and Masdevallia Pourbaixi. M. Metdepenningen led the way for fifteen odontoglossums. In his group there was a good O. luteo-purpureum, named coronarium, the brown colour being almost crimson ; O. Ruckeri and O. guttatum also deserve mention. In a group of orchids shown by M. F. Pauwels, Antwerp, we noticed a flowering specimen of Coryanthes macrantha. The best specimen oncidium in the show was O. sarcodes, sent by M. de Langhe-Vervaene ; this is a beautiful oncid, but does not look well when the spikes are rigorously staked and tied. M. Maron, Brunoy, secured the silver-gilt medal for the best hybrid obtained between two genera ; his specimen was Lælio-cattleya Henry Greenwood, a hybrid between C. Hardyana and a form of Lælia elegans. It has very soft rose sepals and petals, the latter being broad and waved. The big lip has a broad golden throat, with an apex and marginal rim of rich purple ; the lip is very handsome and of great size. The same exhibitor contributed the best lælia—a flowering specimen of L. Digbyana. M. Maron showed a lot of cattleya and lælia hybrids, chiefly C. Louis Chalon, a cross between C Trianæ and C. Lawrenceana. Among some orchids shown by M. Henri Vanderstraeten, Bruges, was a good Cymbidium Lowianum, with heavily-coloured lip, and a good example of Cypripedium Exul.

Twenty-five cypripediums is but a moderate number to exhibit now that there are so many species, hybrids, and varieties ; for such a number M. Pynaert van Geert, Gand, gained a first prize, his rarest examples being C. bellatulum album, with one flower ; C. Exul, with ten blooms ; C. macropterum, and C. Mastersianum, carrying fifteen flowers. In a similar class, but for amateurs, M. J. Moens was to the fore, showing C. Niobe, C. selligerum majus, and C. Kienastianum, in good condition ; all the plants were rather small.

An extremely pretty form of Odontoglossum crispum named King Leopold was shown by Messrs. Sander and Co., ; the spottings of red are freely scattered over a palest rose ground. This firm also had a group of Lycaste Skinneri alba with their new plants. A case of anæctochi from M. A. Dalliere, Ghent, drew much attention, as it contained good specimens of A. Dawsoni, A. Sanderianum, A. petola, A. intermedia, &c.

New Plants.

One of the most extensive and interesting of exhibits was that staged by Messrs. F. Sander and Co., St. Albans, England, and Bruges. About thirty yards of tabling in one of the special side corridors was occupied by the display, and it certainly emphasised the energy and spirit that has hitherto been one of the great features of the St. Albans establishment. A quite large number of new plants were shown; indeed, it was practically a new plant exhibit, though some few of the species staged have now become fairly well known in leading horticultural establishments, notably Dracæna Godseffiana and the older D. Sanderiana. The latter was represented by a monster pyramidal specimen, with the leading central growths about eight feet high; it was a mass of growth, and covered with light and handsomely variegated foliage. D. Godseffiana occupied a big tub, and was a splendid mass. The new D. Broomfieldi from Thursday Island occupied a prominent position, and was admired for its stateliness; it has somewhat stiff foliage, the leaves being about eighteen inches long and three broad at their widest; green, margined with white, and streaked with palest green and white. Among palms there was a big example of Geonoma Pynaeertiana, a Malaysian plant with broad fronds, bifid at the apex, and set on very short stems; Calamus Laucheana, an elegant palm with curiously interrupted pinnæ on its fronds, three or four of these being set close together, and then a similar space left bare; the gaps are left opposite each other; Kentia Sanderiana is a graceful little geonoma-like palm with square-ended pinnæ; Kentia Warteliana will probably turn out not to be a kentia some day, it is, however, a most distinct palm with rising stem, rough and whitish; the broadly pinnate fronds are short, very thick, grey beneath, and curiously stipulate; Calamus Alberti is particularly elegant, so also is the very pale green Calamus Caroli with closely-set pinnæ; and Licuala Jeanenceyi, a native of Australasia, is akin to L. horrida, but not so well armed, its stiff, shining fronds seem to point to its value for decorative use. Panax Mastersiana is a strong-growing araliad from the Solomon Islands; for large stoves it would be useful, but it seems scarcely handsome enough for general cultivation, notwithstanding its long drooping foliage. Leea Roehrsiana is a bold species with deep metallic green foliage; it is a giant L. amabilis without its bright colouring. Aralia Balfouriana, from New Caledonia, will scarcely replace A. Guilfoylei, though distinct from it. In Pandanus Sanderi, from Timor, we have, however, a very fine pandanad that cannot fail to run P. Veitchi close for popularity; the creamy-green groundwork is lightly striated with deep green and white, and thus the plant is much more variegated than P. Veitchi, and there is a yellowish tone throughout; it is a handsome plant, and whether a distinct species or not, it is distinct enough from a horticultural point of view. A very distinct and useful plant, Acalypha Godseffiana, formed a margin to the whole group; it has green, shining leaves, with creamy white margins, these marginal bands including the serrations; it branches freely, and can thus be easily kept in good form. A prominent item in the St. Albans display was a case of the pretty Anæctochilus Leopoldi, a strong-growing species, with leaves five by six inches, deep velvety green, with veinings and pencillings of dull golden yellow; this case was received by the Messrs. Sander on March 4, after the plants had undergone a journey of four months from the Philippine Islands—they travelled amazingly well for anæctochili. Lastly, though by no means least, and certainly not finishing all the new plants—we have to mention Acalypha Sanderi, from New Guinea. This has very bold green leafage, deep green in the blade, pale green in the petiole; more remarkable than the bold leafage and stately habit are the inflorescences, one produced from the axil of each leaf, like a long crimson velvet tassel, nearly an inch thick, and from one to two feet in length. This species will certainly be grown as freely for its flowers as A. Macafeeana is for its handsome foliage; it was the most conspicuous new plant in the Sanderian group, and created much interest.

Anthuriums.

M. Arthur de Smet contributed a splendid lot of anthuriums, staging twenty large specimens of A. Scherzerianum and its varietal forms; the majority but highly cultivated forms, though A. S. atrosanguineum was very distinct by reason of its broad deep red spathes. Some freely flowered amaryllis set among the tubs of anthuriums added not a little to the general effect. A large specimen of Anthurium Scherzerianum grandiflorum was shown by M. Arthur de Smet; it was in a big tub and measured about five feet across, and carried some five dozen or so of rich scarlet spathes. This fine example only secured a second prize. A first-class silver medal was awarded the Comtesse de Kerchove for her big Anthurium Hookeri, as the best example of an anthurium showing exceptional culture, the leaves were five or more feet long and over two feet broad, and there were thirteen of them on the plant.

M. Arthur de Smet took the lead for twenty five anthuriums in flower, securing the work of art with large specimens of A. Scherzerianium, A. Souvenir d'Antoine Chantin with crimson spathes, A. Rothschildianum var. Secretaire Fierens and A. Scherzerianium var. excelsior, closely akin to A. S. Wardi. Anthuriums in great variety were well shown by the Société Anonyme, Ghent, and these secured the large gold medal offered as second prize in the class for twenty five specimens: A. atrosanguineum, A. Scherzerianum album, A. Perfection, and A. Souvenir de la Exposition in the way of A. Rothschildeanum were among the most attractive examples. A second-class gilt medal was awarded M. Arthur de Smet for six varieties of Anthurium Andreanum, and his set included a white spathed hybrid form, unnamed; a deep scarlet form; A. A. salmoneum; and A. A. sanguineum, the latter very attractive. M. Vervaene-Vervaert gained a gold medal for twenty examples of Anthurium Scherzerianum, and the second prize for a score of plants representing this species and its forms was won. M. Arthur de Smet gained the second class gold medal; A. S. salmoneum, A. Rothschildeanum Helvetia, white with big scarlet blotches, and A. S. Souvenir de A. Chantin with deep crimson spathes, were notably distinct forms in this collection.

Hardy and Tender Rhododendrons.

Rhododendrons were contributed in considerable numbers, and arranged in bold banks round the side of the exhibition hall produced a rich effect. The object of art offered as the first prize for forty specimens of hardy varieties, was awarded to M. Ed. Pynaert Van Geert, who contributed splendidly-flowered and tastefully arranged specimens. The varieties were chiefly of English origin, and included Lady Clermont, Mrs. John Penn, Charm, Joseph Whitworth, Notobilis, Barclayanum, Mrs. John Clutton, one of the best of the white varieties; Blandyanum, a fine rose-coloured form introduced to cultivation many years since; Kate Waterer, a pleasing rose-coloured variety; Sir Robert Peel, bright red; Cynthia, a superb variety, producing huge trusses of bright rose-pink flowers. Especially good was the collection of twenty-five specimens from M B. Fortie, Ghent, who was awarded, and deservedly so, the large gold medal. The specimens were of medium size and remarkable for the splendid development of the flower trusses. Especially deserving of mention were William Austin, a superb crimson form; Cynthia, Madame Masson, Madame Cavalho, J. M. Brooks, Neige et Cerise, an appropriate name for a charming variety—the flowers are produced in noble trusses, and white with bright cerise margin; Madame V. Charon, very fine, the flower brilliant crimson; Comtesse Salvi, an exquisite form, the flowers delicate lavender tinted pink; Souvenir de John Broughton, a superb variety, the flowers borne in noble trusses and of a brilliant rose pink, one of the finest of the hardy rhododendrons for flowering under glass, and Prince Camille de Rohan, flesh-pink with dark markings. M. L. Spae-Vandermeulen, Ghent, and M. Bernard Spae also contributed excellent collections to the rhododendron classes. Rhododendrons requiring the protection of a glass structure for their successful cultivation were not numerously shown, but the collections exhibited were highly meritorious. The finest collection of Japanese and Himalayan species and their hybrids was that for which Mr. Joseph Baumann, Ghent, was awarded the gold medal; it comprised large finely-flowed specimens, of which the most noteworthy were Aucklandi, a beautiful species, the flowers flesh white; Fragrantissimum, one of the finest of the white Himalayan rhododendrons; Dalhousianum, a distinct species with yellow-white flowers, which should prove useful to the hybridiser; Edgworthi, a beautiful white and fragrant form; Roseum odoratum, a handsome rose-coloured variety; Magniflorum, a superb white form in the way of Fragrantissimum but with larger and more finely-formed flowers; and Dalhousianum Victoriænum, a handsome form remarkable for the superb development of the flowers.

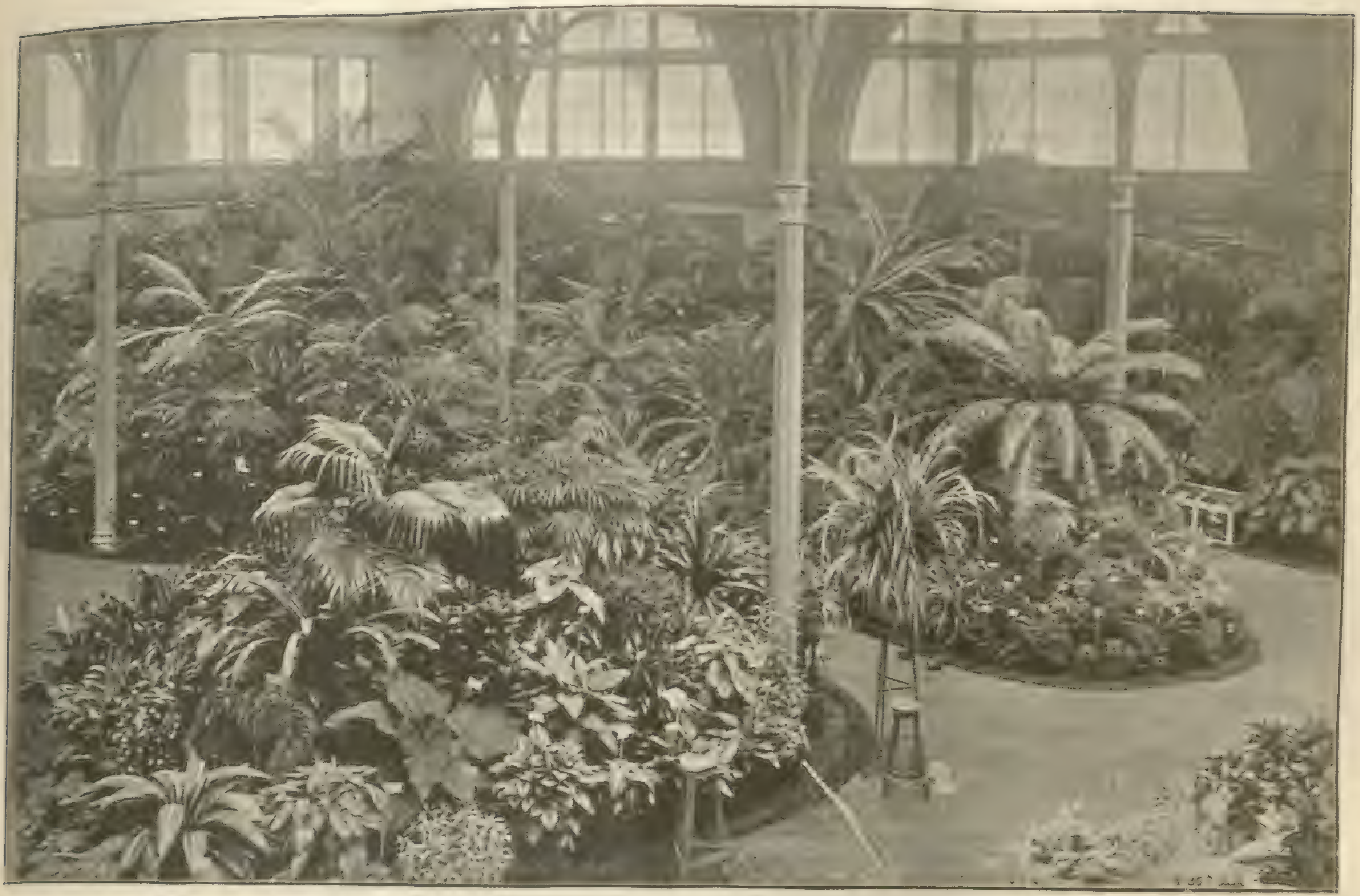
Stove Plants.

Seldom have we seen finer stove plants than were contributed in quantity at this show. Here, however, the majority of the specimens (though recognised as miscellaneous) were what we at home regard as stove plants as their names will show. In almost every case cleanliness and general high cultivation was evidence that M. Rigouts clearly won his place as the leading exhibitor at any rate, in the eyes of Britishers.

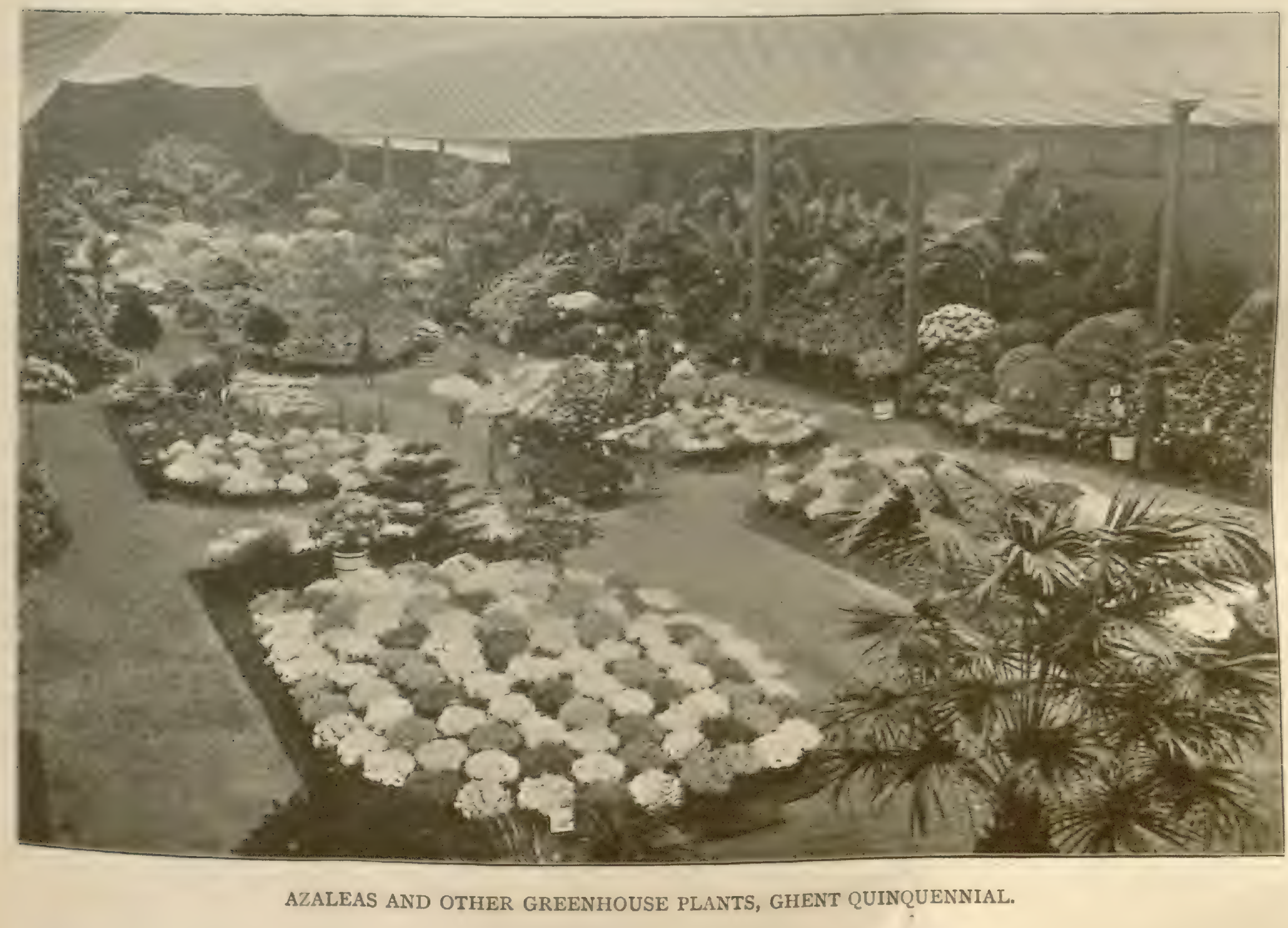
A huge bank of large specimen plants placed in tasteful arrangement before the double staircase of the winter garden of the Casino was exceptionally fine, and though some of the specimens were obviously made up, yet the majority were cultivated as shown, and exhibited a wonderful degree of cultural excellence. Such exhibits are not seen at home in these days. This display was from La Société Anonyme Horticole Gantoise, Ghent, and worthily won the Œuvre d'art, valued at 200 francs, offered as first prize for forty specimens, flowering or foliage, and in memory of M. Louis Van Houtte, pére. At the back, near the balustrading of the staircase, were fine examples of Kentia Belmoreana, Pritchardia grandis, Pandanus Veitchi, Cycas revolutum, Anthurium Veitchi, with very long foliage; Alpinia vittata, a fine clump of variegated foliage. Lower down were Dracæna Godseffiana, D. Sanderiana, Phyllotænium Lindeni, a fine plant; Alocasia gigantea, Phœnix Roebelini, exceptionally gracefully and well furnished; Eucharis amazonica, Spathiphyllum picturatum, Pavetta borbonica, Dieffenbachia Fournieri, Aralia sonchifolia, Leea amabilis, Oncidium sarcodes, and Adiantum Farleyense. The third prize fell to the firm trading as M. Louis van Houtte, pére, and the collection shown by them was staged alongside that already noticed. Big plants of Kentia Belmoreana, Alpinia vittata, Philodendron Sellowi, Cycas revoluta, Erica Cavendishi, Anthurium Veitchi, Coccoloba pubescens, and Zamia varicosa, formed a first-rate background for smaller examples of Nephtylis picturata, Dracæna Doncetti, Croton Warreni, Pimelia spectabilis, Schismatoglottis Robelini, Phœnix Robelini, Nepenthes mixta, and Dieffenbachia imperialis nobilis. The second prize, to the value of 200 francs, was awarded to M. Albert Rigouts, Meirelbeke-lez-Gand, but we are of opinion that some judges would have awarded this the chief honours of its class; it was a grand collection, and staged along the extreme end of the big hall. Towering over the centre was a large and well-grown Encephalartos, and grouped around this were noble specimens of Croton Queen Victoria, Cocos Weddelliana, Pandanus Veitchi, Alpinia vittata, Dicksonia antarctica, Dieffenbachia imperialis nobilis (with eighteen of its big spotted leaves), Philodendron Gossianum, the curious Coccolaba pubescens, and Clerondendron Balfouri. Lower down we noted a highly-coloured and handsome plant of Helicoma illustris, Pandanus Baptisti, the unspined species from the Solomon Islands; Dracæna Godseffiana, Alocasia argyrea, Polypodium difforme macrophylla, a new plant from Borneo, and a very fine fern as here shown; Vriesea Moensiana, Phœnix Roebelini, most graceful of date palms; Dracæna Sanderiana, Phyllotænium Lindeni magnificum, deserving its varietal name by reason of its robustness and more than usual complement of colour in the leafage. Orchids were represented by Cymbidium Lowianum, Odontoglossum luteo-purpureum, Oncidium ampliatum majus, and Anæctochilus petola, a pan two feet in diameter filled with the pretty green and gold foliage of this pretty little orchid.

There were a considerable number of groups of twenty-five stove plants with coloured foliage, and the premier collection was arranged by H. Millet-Richard, Ledeberg; it was a fine set, the plants being all beautifully clean and splendidly cultivated, though not of enormous size; Cyanophyllum magnificum, Alocasia metallica, Spathiphyllum pictum, Hibiscus Cooperi, Maranta regalis, Dieffenbachia Fourneri (grandly coloured) Dracæna Goldiana, D. Godseffiana, Curculigo recurvata variegata, and Anthurium Warocqueanum were a few notable plants in a splendid set. Another success of M. Rigouts was the winning of second prize—a gold medal to the value of 150 francs—for twenty-five stove foliage plants remarkable for striped, marbled, or spotted leafage; Aglaonema picta, Heliconia illustris, Dieffenbachia Jenmani, and Nephtytis picturata attracted our attention to this group. A handsome set of stove plants arranged in a sloping bank near the rustic bridge and water was contributed by the Société Horticole Gantoise, and merited a small gold medal; due regard to the colour of foliage had been evinced in the arrangement. The most notable plants were Heliconia illustris, highly-coloured Spathiphyllum picturatum, Dieffenbachia magnifica (its [illegible] spots showing well against the green ground colour), Dracæna Godseffiana, Leea amabilis, Alocasia Lindeni, and Croton Czar Alexander (a large-leaved form with gold veins on a green and brownish ground). Fifteen plants of Pandanus Veitchi from M. K. J. Kuyk, Mont St. Amand, made an effective group near the orchids; but a set of larger plants arranged by MM. de Verdonck, [illegible], made quite a little pandanad forest. One of the largest specimen pandanus in the was a towering example of P. Desmetianum, a bold green-leaved form shown by M. Pynaert van Geert, and securing for him a silver medal.

The chief award for fifteen ornamental foliaged plants was gained by M. [illegible] de Cock, Ghent, with some large spreading palms of popular kinds, as [illegible] and Ciboteum Sheidei, Philodendron Corsiensis, Cycas revoluta, &c. [illegible] Société Horticole Gantoise again scored for twenty miscellaneous plants, [illegible] similar kinds to those otherwise referred to. In the nurserymen's [illegible] twenty miscellaneous plants, M. van den Abeele gained second place [illegible] interesting collection that included handsome specimens of Adiantum Farleyense, Cymbidium Lowi, Maranta Sanderiana, Cyanophyllum magnificum, Vriesea [illegible]lata, a small Ataccia cristata, Anthurium crystallinum, and Ag[illegible]belini. In the same class plants staged by M. A. Rigouts gained a [illegible] medal; notable plants here were Aglaeonema costa, beautifully [illegible] admirably grown; Dracæna Godseffiana, in full flower; Curculigo [illegible] medio-picta, a form with several creamy-white regular bands down the [illegible] the leaf; Anthurium crystallinum, Philodendron Melinoni, Alocasia Lindeni, and [illegible] Oncidium Marshallianum. For six plants with handsome foliage, and [illegible]



VIEW IN THE WINTER GARDEN, GHENT QUINQUENNIAL.



AZALEAS AND OTHER GREENHOUSE PLANTS, GHENT QUINQUENNIAL.

ing as many different genera, M. A. Rigouts was placed first with Peperoma argyrea, an old plant now not often seen; Dracæna Sanderiana, Dieffenbachia Jenmanni, Maranta Veitchi, Pandanus amaryclidifolius, and Croton Oerstedti (labelled Aureo-punctatissima). Mons Gustave Botelberge, Ghent, showed four large tubs of Atrelizia Reginæ, carrying in the aggregate twenty spikes of their curious yellow and purple-blue flowers; such large examples are scarcely ever seen in this country outside our leading botanic gardens.

M. Rigouts practically swept the board when competing in classes for stove plants, and he secured a gold medal for twelve specimens with ornamental foliage with the same kinds of plants as shown and enumerated elsewhere. Abutilon Sellowianum in the third prize set of twelve stove plants was remarkable for its thick but soft foliage, quite yellow, finely speckled with green and brown, and veined palest green; this was shown by M. Millet-Richard, Ledeberg. M. Rigouts secured the silver-gilt medal for half-a-dozen specimen stove foliage plants, Croton Andreanum, Alocasia pucciana, and Croton Baron J. de Rothschild being conspicuous. The first prize group of twenty miscellaneous plants, amateurs, was from M. Bedinghaus; big ferns and dieffenbachias were shown in addition to pretty examples of Acacia cordata, Ruellia Mackoyana, with deep rosy flowers; Vriesia Lubbersi, with three spikes, Eriostemon linifolium, &c.

Camellias.

Camellias were not contributed in large numbers, but those shown were of great merit and remarkable for profusion of flowering, having regard to the comparatively late period. In the great class for thirty, M. L. Eckhaute, St. Denis, Westrem, was awarded the first prize, consisting of an object of art, for spendidly developed specimens, chiefly trained in pyramidal form, and freely flowered. The varieties were mostly those well known in the United Kingdom, but we noticed a few beautiful varieties that are comparatively unknown in this country. One of the finest of these is Madame Cochet, which has large and superbly formed flowers, of a delicate flesh colour, occasionally striped and flaked with brilliant carmine. Camellias: Société Anonyme Horticole were awarded a gold medal for an excellent collection. The finest of the collections of camellias was that of fifteen plants shown by M. E. de Cock.

Dracænas and Crotons.

The Société Horticole Gantoise secured the large gold medal offered for twenty-five handsome foliaged dracænas; all the specimens were well grown, though the colours were scarcely so brilliant as one would expect a month or two later. D. Goldieana, D. Gladstonei, D. Wilsoni, D. Barteti, and D. amabilis were represented by handsome specimens with robust foliage right down to the pots. Near the water basin a group of dracænas did not seem so much out of keeping as at first one would imagine them; these were a second prize lot, and gained a gold medal of the second class; D. Lindeni, D. Baptiste, D. Norwoodiense, D. imperialis, D. amabilis, D. Smetiana, D. speciosa, and D. Alphonse de Cock were the most attractive examples.

The twelve crotons that secured for La Société Horticole Gantoise the first prize in their class were beautifully coloured and moderately large bushy specimens, clean and most attractive, the collection forming a fine patch of colour near some dracænas and aroids. The varieties shown were Madame Bause, Sunshine, Madame Linden (very broad gold and green foliage), Mons. Bause, Madame Ruffant, Morti, Countess, Madame Bruant, Madame Leon Duval, Georges Lebucer, Amiral Cuverville, and Albert Truffant.

Cycads.

The finest lot of fifteen cycads came from M. de Ghellinck de Walle, and it speaks volumes for plant culture in Belgium that such a collection should come from one establishment: Encephalartos Altensteeini, E. horrida, Zamia Perowskiana, Z. Lehmanni, Dioon edule, Cycas circinalis, Z. Ghellincki (a feathery form with tomentose foliage), Z. masura, Z. vernicosa, Z. Katzeriana, Z. Maclura, Cycas revoluta (with a trunk five and a half feet high), Z. Hildebrandi, and Cycas scamensis, a very handsome cycas, well furnished.

Palms.

For fifteen rare palms the Société Horticole Gantoise was awarded the gold medal as first prize for Licuala Dr. Oxley, Calamus subangularis, Daemonorops javanensis, Geononia acaulis, one of the species with short stems and undivided fronds; Chamærops hystrix, Livistonia Hoogendorpi, Ceratolobus concolor, a light green form; Brahea havanensis, Trachycarpus Khasyanus, Penanga Kuhli, a fairly good plant of the common coco-nut palm Cocos nucifera; Oncospermum Van Houtteanum, Licuala grandis, and the Oil Palm, Elais guineensis. The chief attraction in the fifteen classes for palms was the class for twenty-five specimens, the first prize being a work of art offered by M. le Comte de Kerchove de Denterghen, president of the society. This coveted award fell to the Société Horticole Gantoise for a collection of handsome, large and clean specimens that fully occupied one big corner of the largest hall. Chief among these palms were Thrinax chuco, Maximiliana regia, Verschaffelia splendida, Cocos insigne, Livistonia chinensis, Kentia australis, a Phœnicophorum, Areca lutescens, a big clump; Wallichia oblongifolia, Chamædorea elegans, Kentia Lindeni, a pretty plant of Caryota urens; the spiny Astrocaryum mexicana, with two flower spikes; Thrinax elegans, and a huge Rhapis flabelliformis.

In the nurserymen's class for fifteen large palms the first prize was unanimously awarded to M. Em. de Cock for examples that could only find space in huge houses or where the summer climate would allow of their being put out of doors Thrinax argentea, Ceroxylon niveum, Kentia Forsteriana, Phœnix senegalensis, Rhapis flabelliformis, Arenga saccharifera, Livistonia altissima, Geonoma imperialis, and the graceful Thrinax grandiflora were conspicuous examples. The gold medal offered as a second prize for fifteen palms (nurserymen) was won by M. Albert Rigouts with very large specimens, the set including Kentia australis, Rhapis flabelliformis, Sabal Blackburnianum, Areca Baueri, Seaforthia elegans, over twenty feet high, and a fine specimen of Phœnix senegalensis.

Among the palms shown by M. Ad. de Clercq-van-Ghyseghem, Ledeberg, was a finely variegated Latania borbonica, quite a large specimen.

Ferns and Asparagus.

A handsome group of ferns, forming a splendid bank by the rustic bridge and pond in the winter garden, constituted a collection of thirty tree and other ferns, and was beautifully in keeping with the surroundings of grass and water. This lot came from the Comtesse de Kerchove's collection, and included among the larger examples big specimens of Cibotium Barometz, C. princeps, Cyathea medullaris, Marratia Willincki, and Angiopteris evecta. Smaller specimens were of Adiantum sancta Katherinæ, A. assimile, Polypodium Billardieri, Goniophlebium glaucophyllum, Davallia epiphylla, Oleandra nodosa, and Asplenium bulbiferum. An interesting group of twelve ornamental asparagus, shown by MM. Duriez frères, contained fair specimens of A. deflexus, A. tenuissimus, A. medius, A. plumosus nanus, A. comorensis, A. plumosus cristatus, A. Broussonetti, A. retrofractus aborescens, A. Sprengeri, and A. virgatus, the latter a decidedly handsome plant, though not so valuable for cutting as A. plumosus and its forms. M. Ed. Pynaert van Geert secured a second prize for an Elk's Horn Fern showing a large and old example of the popular P. alcicorni, this measuring nearly six feet through. The same exhibitor gained a special prize—silver medal—for Polypodium aureum, grown in a tub. M. Pynaert van Geert had to be content with second place for thirty ferns, winning a gold medal with a miscellaneous collection that followed that of the Comtesse de Kerchove.

In a miniature greenhouse, and well closed in from the influence of the drying atmosphere around, M. Arthur de Smet, Ledeberg-lez-Gand, showed a dozen filmy ferns; these were comparatively small, the biggest specimen being an example of the Killarney fern, *Trichomanes radicans*; others were T. Lushnathianum, T. reniforme, Todea superba, a neat example; T. pellucida, T. species, T. plumosa, T. hymenophylloides, Hymenophyllum demissium, H. caudiculatum, and H. flexuosum. The Comtesse de Kerchove was successful for six tree ferns, securing the work of art offered by the council of the society; Cynthea medullaris, Cibotium Schiedei, Cyathea Beireckiana, C. dealbata, C. Smithi and Dicksonia squarrosa; the two latter have very long slender trunks, the Dicksonia being probably nearly twenty feet high. The Messieurs Duriez frères easily came first for a dozen ferns, notable specimens being Adiantum macrophyllum fol. var., A. fragrantissimum, Asplenium Belangeri, and Acrostichum crinitum, the Elephant's Ear fern. M. Ed. Pynaert van Geert secured a silver medal of the first class for twelve pterises, his set containing such comparatively new sorts as P. Mayi, P. Reginæ, P. serrulata gracilis, P. Victoriæ, P. Wimsetti, and P. longifolia Mariesi.

The only group of ten Elk's Horn ferns came from M. J. de Cock, Ledeberg, and included a big example of Platycerium alcicorne, and smaller ones of P. grande, P. Hilli, P. Willincki, P. majesticum, P. bicornis, and P. alcicorne majus. P. Hilli was very good.

Bulbous Plants.

Bulbous plants were plentiful and good. In the six classes provided for hippeastrums the Britishers were delighted to see that Messrs. R. Ker and Sons, Aigburth Nurseries, Liverpool, secured all the first prizes; they arranged a large collection around the salon, and throughout these exhibits great excellence, both of strain and cultivation, was evident. Flowers were round and segments broad, the green bases to the sepals and petals were almost absent, and there was a considerable variety of coloration observable. In the class for forty specimens Messrs. Ker were followed by MM. Krelage and Son, Haarlem, whose plants seemed to have suffered somewhat during transit. Messrs. Ker and Sons took the only prizes offered for twelve amaryllis with a first-rate set, and won the gilt medal for half-a-dozen examples—one form, named Nestor, rich orange-scarlet and white, being of especially good form and size. The work of art offered for the best seventy-five hippeastrums also comes home to Liverpool, and the plants that won it were the centre of admiring crowds throughout the exhibition; nearly every plant in this set carry four flowers per spike, a high percentage. Whatever there was to be won for amaryllis the Messrs. Ker secured easily. Polyanthus narcissi were best shown by M. Kuyk, Mont St. Amand, but they were not above average excellence.

Hyacinths did not strike us as being of special excellence; but those specimens shown by M. Byvoet, and gaining the work of art as first prize for 150 plants in fifty varieties, were moderately good. The best varieties were King of the Blues, Tabista, Leonicas, Cardinal Wiseman, King of the Yellows, King of the Blacks, Moreno (pink), Czar Peter, and Charles Dickens, all popular sorts at home. The Messrs. Byvoet frères, Overveen, had much the best hyacinths in the show, and, besides the set already alluded, they scored for 100 hyacinths, with an even set of very fair merit; La Grandesse, Princess Amalie, Charles Dickens, Grandeur a Merveille, Lord Derby, Bird of Paradise, and Piennmann were the varieties showing the finest spikes. M. Kuyk came second, and M. Van Houtte third; but reversed their order of precedence in the previous class. No particular new variety was to be seen in M. Kuyk's first prize set of fifty narcissi. M. L. Van Houtte was to the fore with small collections of hyacinths. M. Kuyk, Hillegom, won a large gold medal for a large group of hyacinths, staged effectively in pans of separate varieties, ten bulbs per pan, and usually nine to twelve spikes on each; these pans, bedded with ferns, were very effective—Gertrude, Queen of the Blues, Madame Van der Hoop, La Grandesse, and Cavaignac were very fine, as was the yellow Ball of Gold.

M. Kuyk had a bright exhibit of tulips, showing these in pans, ten bulbs per pan; there were thirty pans, so that the blaze of colour can be imagined. A gold medal was awarded. Double tulips were best shown by M. Kuyk, and the varieties were all popular, especially the double Tournesols.

The cyclamen classes were monopolised by M. L. P. de Langhe-Vervaene, Brussels, who made extensive displays of his variously coloured papilio forms, one of which we figured some time since. These show the variation of form that can be evolved from the ordinary type by following up any small break from the usual shape; all the colours save the deepest crimson were seen in M. de Langhe's collection, and he won the gold medal for fifty examples, and also the Williams' Memorial medal offered for the best twenty-five specimens. The papilio cyclamens are quite as floriferous as the commoner forms, but seem scarcely so effective.

Bromeliads.

These interesting plants are extensively cultivated in Belgian gardens and nurseries, and were accordingly very strongly represented. A collection of thirty bromeliads exhibited by M. de la Ruye-Cardon, Ledeberg, was worthy the gold medal awarded. Leading examples were Nidularium rutilans, Caraguata cardinalis, with long scarlet centre; Tillandsia Zahni, with several spikes of yellow flowers; T. splendens major, T. Lindeni, with numerous rich blue blooms; Vriesia Barilletti, Tillandsia tessellata, T. Wartelli, with a long, sword-like scarlet spike; Vriesia Leodinense, with orange and yellow spike, and V. hieroglyphica, with handsome foliage.

MM. Duval et Fils, Versailles, scored for fifteen bromeliads in flower; they were all small plants but well grown, and such as would attract the attention of the curiously-inclined at home. Vriesia Rex, V. cardinalis, and Caraguata Zahni were most interesting. This firm had also the best three bromeliads, a Vriesia Rex superba, a strong form of the type. For twenty-five examples of the same species the MM. Duval put up a little company of Vriesia Poelmanni, a handsome crimson scarlet spathed hybrid between V. gloriosa and V. [illegible] Scepti.

Bromeliads are fairly popular with our Belgian friends, but many of them are not very handsome except when in flower. M. J. Moens, Lede, gained a second prize in the amateurs' class for fifteen specimens. Tillandsia van Volxem and Nidularium argenteo-strealum were good specimens.

Trees and Shrubs.

Trees and shrubs were exhibited in immense numbers, and, arranged for the most part in the grounds, formed a highly interesting feature. Lilacs were especially good, and were associated with the greenhouse plants. MM. Lemoine et fils, Nancy, took premier position for lilacs, staging very pretty plants of President Carnot, blush; Emile Lemoine, double white; M. Jules Finger, semi-double white; Charles Joly, double lilac; Michel Buchner, very large flowers; Abel Carriere, with large branching spikes of pale lilac flowers; Leon Simon, a fine double blush form, were very fragant and handsome. A beautiful bank of Marie Legrange lilac, single white, made a fragrant exhibit from M. L. de Bock, Ghent; they were admirably forced. M. de Bock secured several medals for forced lilacs, and in every case his plants were splendidly flowered.

M. Fred. Burvenich, père, was awarded a gold medal for a collection of conifers; this was a good exhibit, but there wanted some choice variegated forms to enliven the whole; Juniperus sinensis, Podocarpus Koriana, Picea excelsa clanbraziliensis (very dwarf), Abies lasiocarpa, and A. Nordmanni were deserving of mention. This exhibitor showed large numbers of conifers, and won the chief [illegible] everywhere; we could not find, however, any specially meritorious varieties [illegible] new or rare, but the whole collections were of good average quality. Hardy evergreen shrubs were freely arranged out of doors, and in bulk added not a little to the effectiveness of the whole exhibition; they consisted of seedling aucubas, hollies, laurels, enonymuses, buxus, berberis, &c. M. Burvenich set up a really good lot of well-fruited aucubas in pots, both green and variegated forms. Standard hollies were a little out of the common, and the chief collection came from M. Bedinghaus; H. arborea aureo-variegata and H. a. marginata were by far the most handsome, though all those staged were very well grown, from four to seven feet high, and with heads two and a half to three feet through. Four specimen [illegible] laurustinus freely flowered and fragrant, were much admired; these were placed close to the Conpure entrance by M. E. Eeckhart. M. Léon Fretin [illegible] the best standard bays, marvels of patient cultivation, and admirable as such. M. Bernard Spae was responsible for some gigantic phormiums, both green and variegated, and some standard laurustinas full of fragrant white trusses of flowers.

Shrubby plants with ornamental foliage were a feature, and admirably contributed by M. A. de Mayer and M. J. de Cock; Laurustinus aureo-variegatus, Eleagnus pungens medio-picta, Skimmia japonica variegata, Euonymuses in variety, Hedera argentea, aucubas and hollies made up interesting exhibits that suggested we do not take full advantage of coloured foliage for [illegible] and conservatory decoration during winter. The Comtesse de Kerchove secured the first prize for a specimen eriostemon with a bulky example. Big enonymuses came from M. Bedinghaus, and some of the varieties of E. japonicus were immense examples, but fairly coloured. Standard roses from M. C. Vanderhaagen, pére, were nicely flowered, and made up a fragrant exhibit; the varieties were mostly popular sorts.

Greenhouse Plants.

Greenhouse plants, remarkable for the beauty of their flowers, were represented by numerous collections, consisting of specimens so highly developed that they could hardly fail to afford pleasure to those of our compatriots who are interested in hardwooded plants. For a collection of plants introduced from the Cape or New Holland M. E. Collumbien was awarded the gold medal for excellent examples of Diosma fragrans, Correa cardinalis, Boronia hetrophylla, Acacia [illegible], Polygala Dalmaiseana, and other well-known subjects. In the corresponding class for amateurs M. E. Bedinghaus was awarded premier honours. Several good collections were contributed to the two classes for twenty Cape and New Holland plants, and the Comtesse de Kerchove and M. J. de Cock were first in the amateur and trade classes respectively, the premier award being in each case a gold medal. The remarkable beauty of Boronia elatior when grown to a specimen size was admirably exemplified in the collection of twenty plants for which M. Piers, Ghent obtained premier honours. These ranged from two to three feet in diameter, and were profusely bloomed, the bright pink campanulate flowers presenting a pleasing contrast to the elegant bright green foliage.

The King's prize for twenty-five greenhouse plants was worthily won by M. Emile de Cock, Ghent, with a handsome exhibit of large plants of Eriostemon [illegible], Boronia elatior, very graceful and freely flowered; Acacia grandis, a mass of golden balls; Polygala Dalmaisiana; Cymbidium Lowianum, with seven [illegible] spikes; Acacia cordata, bristling with soft yellow flowers; Azalea linearifolia, a mass of pale rose blooms, and in fine condition, such as we do not see it at home; Grevillea Preissi, Medinella magnifica, some azaleas and camellias, made up a fine exhibit. M. Bedinghaus, who was second in this class, led the way for fifteen greenhouse flowering plants, showing towering acacias, a fine [illegible] Chandleri, and a spreading azalea, Marie Van Houtte, six or seven feet across. M. Bedinghaus made a reputation for New Holland and Cape plants, his exhibits reminding one of the olden days, when these subjects were popular in England. He led the way both for twenty and ten specimens, showing large and freely flowered examples of Acacia verticillata, A. linearis, A. arumata, Leptospermum scoparium, Bauera ericoides, Metrosideros semperflorens alba. Standard Cytisus racemosus, ten feet high, and with big rounded heads, a mass of golden yellow, came from M. Eugene de Cock. A splendid standard of Acacia paradoxa from M. C. de Loore attracted our attention by reason of its size. Diosma fragrans is a charming plant with large white flowers, each with red basal vein, was a notable specimen in a group of M. Collumbiens'. Pyramids and standards of Genista alba from M. van Driessche were exceedingly pretty, as shown smothered with small pure white flowers. M. van de Wynckel, Ghent, staged a finely developed lot of Citrus sinensis, the oranges clustering thickly all over the large [illegible]. A set of somewhat small ericas won leading honours for M. de Clerque [illegible]; E. herbacea and its forms, E. Willmoreana and E. arborea odorata were the best of a middling lot. M. Bedinghaus's large standard Polygala [illegible] secured a chief award, but was scarcely fully in flower. Gnaphalium [illegible] from M. Eggremont were curious fine examples of careful culture, but scarcely to our taste. M. Bernard Spae, Ghent, merited a gold medal for araucarias, a speciality in Ghent; he showed varietal forms of A. excelsa, notably A. glauca robusta, the strong A. Bidwilli, A. Cooki, A. gefride elegans, A. Rulei, a stiff grower, and some others. M. Leon Fretin, Mierebeke, also had a fine group, staging smaller specimens of A. Cunninghami, A. Cooki, A. glauca robusta, A. [illegible], and A. Cunninghami glauca.

Aroids.

Aroids were contributed in large quantities, and on the whole well cultivated. The premier group of thirty plants representing as many species, came from that [illegible] cultivator, M. Rigouts, who had fine anthuriums, Aglaonemus costata, [illegible], Philodendron gloriosum, Alocasia pucciana, and Nephythitis [illegible]. For fifteen aroids M. Rigouts again led the way with highly-cultivated [illegible], among which Dieffenbachia Baumanni was conspicuous. M. Louis van Houtte, père, took secondary position here. M. de Smet Duvivier contributed a considerable number of anthuriums, crotons finely coloured, alocasias, and bertolonias, gaining numerous gold medals for the displays. The Société Horticole Gantoise arranged twelve pretty spotted forms of Anthurium Scherzerianum, one named A. Princess Clementine having its spathe very heavily checked with scarlet on a white ground. A new medium-sized Richardia named Perle von Stuttgart came from M. Wilhelm Pfitzer, Stuttgart; it is a compact grower, and rather larger in the spathe than Little Gem,

Dieffenbachias were plentiful in all the large collections, and in the class for ten specimens M. Rigouts maintained his position as a splendid cultivator by carrying off the silver-gilt medal as first prize, with well-coloured examples; the kinds were D. Memoria Corsi, D. Gartneri, D. picta, D. Bowmanni, D. nobilis, D. Fournieri, a pretty plant; D. imperialis, D. Jenmanni, D. magnifica, and D. Bausei; some specimens had as many as ten growths. The best set of fifty caladiums was set up by M. L. van Houtte, pére; they were medium-sized examples, but far too crowded together to be seen to advantage; the best-coloured specimens were of Candidum L'Automne, one of the yellowish green varieties; Louis van Houtte, deep burnished crimson; Ovala, Gabriel Lemoinier, and Raymond Lemoinier, creamy with rosy crimson centre. M. A Dalliere, with dwarf plants, gained a silver-gilt medal as a first prize for caladiums; his varieties M. Bause, M. de l'Aigle, and Countess being the best shown, and each highly coloured.

Miscellaneous.

Bertolonias from M. Dalliere were very handsome, especially the silver and rose-coloured Souvenir de Antoine Chantin and Fr. Marchand; Comtesse de Kerchove, silver and green, Prince Albert, bluish silver and green, were also very attractive. The same exhibitor contributed a yellow variegated form of the now popular Saintpaulia ionantha. M. Jules de Cock sent a good lot of bertolonias highly coloured and most robust. A large example of Nepenthes mixta won for M. L. Van Houtte, père, a gold medal; it carried about fifteen pitchers. The same firm were awarded a gold medal for a collection of nepenthes, but the pitchers were past their best.

Messrs. Vilmorin, Andrieux, and Co., Paris, were large exhibitors of both double and single cinerarias of good form and colour; they also staged a splendidly flowered lot of white Primula obconica that met with much appreciation. Herbaceous calceolarias from MM. Vilmorin gained a gold medal, while the cinerarias and primulas gained their share of leading awards. Tricolor and other coloured foliaged pelargoniums from M. H. de Coninck, St. Denis, were of interest to not a few, Bijou d'Or, Princess of Wales, Crystal Palace Gem, Canary, and Sappho were good golden sorts. while tricolors were represented by Lady Cullum, Alpha, Countess of Graiz, Sophie Dumaresque, and Mrs. Pollock, the two last being the most handsome.

Dracæna Goldieana was superbly shown by Messrs. De Reuse frères, Ghent, who staged twenty-five splendidly coloured specimens, bedded in asparagus. For this display they justly gained a first-class silver medal as first prize for the best coloured dracænas. Some magnificent specimens of Dracæna Doucetti were staged, and these were four and five feet high, and furnished to the ground with handsome leafage; M. G. Gyzelinck had the best pair, but there was not much to choose between the second prize pair, and we have never seen finer specimens.

Aralia leptophylla is an imposing plant when well grown, and its inflorescence, if not adding to its beauty, does to its interest; a big specimen was shown by M. G. Gyzelinck, Melle.

Succulents were poorly represented, though M. Bedinghaus obtained the large gold medal for the best collection of twenty-five specimens. There were some good yuccas here, but the agaves looked starved.

Non-Competitive Exhibits.

A magnificent group of hippeastrums came from Messrs. J. Veitch and Sons, Chelsea; the variety in colour was especially observable, the white grounds being of especial note; some of the blooms gave evidence of somewhat hard forcing, but on the whole it was a brave show, and delighted the eyes of our continental friends. In addition to the hippeastrums the Messrs. Veitch made a fine show of nepenthes, sarracenias, and other pitcher plants, including Heliamphora nutans, Cephalotes follicularis, Darlingtonia california; the pitchers of the nepenthes were remarkable for their size and production at such an early month of the year; N. Dicksoniana, N. Veitchi, N. mixta, N. formosa, N. cincta, N. ampullacea, N. Burkei excellens, N. Curtisi, N. Mastersiana, and N. sanguinea were among the finest of the specimens staged; a few droseras, ferns, and asparagus furnished an edging and groundwork to this splendid exhibit.

Carnations were well shown by Messrs. W. Cutbush and Son, Highgate; the varieties were principally Souvenir de la Malmaison forms, Winter Scarlet, Daybreak, and E. G. Hill. A few palms formed an admirable background for a dozen and a half flowering specimens of Richardia Elliottiana.

An extremely interesting group was the large and fine display by Messrs. Linden and Co., L'Horticulture Internationale, Brussels, and set up to show as far as possible the comprehensiveness of the late Mons. Jean Linden's introductions. To mention a quarter of the species displayed would occupy far more space than we can spare, and would serve no useful purpose at the present time. We may remind our readers, however, that they are indebted to M. Jean Linden for such well-known plants as Bignonia Rodigasiana, Caraguata cardinalis, Leea amabilis splendens, Cocos Weddelliana, Spathiphillum floribundum, Dioon edule, Phyllotænum Lindeni, Gunnera manicata, Anthurum magnificum, Dichorisandra angustifolium, Stenandrium Lindeni, Maranta majestica alba, Cyanophyllum magnificum, Tradescantia superba, Dracæna Lindeni, Maranta illustris, Iresine Lindeni, Hæmanthus Lindeni, Acalypha triumphans, Fittonia argyroneura, Anthurium crystallinum, Odontoglossum cirrhosum, O. luteo-purpureum, O. Pescatorei, O. crispum, O. triumphans, Cattleya Mendeli, C. labiata Warocqueana, C. Trianæ, and Miltonia vexillaria, in addition to very many fine palms and large growing stove plants such as find a place in all well-appointed gardens. Aralia gracillima was one of M. Linden's finds.

A big specimen of Cyntodeira fulgida, grown in the shape of an armchair, was sent by M. A. Dalliere, Ghent. This was a remarkable case of patience put to a poor use.

Autumn-sown Onions.—"A. D." is quite right, as far as our experience goes, in surmising that the harder brown skinned varieties of onions, if sown in the autumn, will keep a great deal longer than the Tripolis. We have had bulbs a pound in weight of Sutton's A 1 grown from autumn-sown seeds and as sound as possible in January. How much longer they would keep I cannot say. In the event of a very mild season, as a preventive to bolting, we have found it answer well to transplant in autumn instead of waiting till spring.—C. J. Dicker, *Frant Court.*

SOME ROSES OF 1897.

In considering the merits of roses sent out for the first time some ten months ago, it is obvious one can only judge of them principally as seen at the exhibitions, or, in the case of British-raised roses, as set before us prior to being distributed. Now it has been proved in more than one instance that however good a rose may appear whilst in the hands of the raisers, and coming from the climate and soil where it is at home, a very different account of the rose may be given when tried in another climate and in other hands. Messrs. Dickson and Sons will pardon me, I am sure, for giving as an example Margaret Dickson, a gold-medal rose, which they have staged, and continue to stage, so well. With us in the south it makes long, coarse growth, with many blind shoots, and a flower only here and there, but too thin, too hollow to be of any use. It may be our mismanagement, but we have patiently tried it on manetti and briar, as maidens and cutbacks, and hoped on year after year; but now we have given it up as quite useless to us, so that in dealing with roses of 1897 we can only in some cases give first impressions, and for the most part must fall back upon the raisers' descriptions.

Countess of Caledon, H.T. (A. Dickson and Sons) has been before the public since 1895, when it was awarded a card of commendation at the National Rose Society's show at Derby. Probably by reason of its colour and general character it has not been awarded a gold medal, nor has it won such universal favour as Mrs. W. J. Grant in 1894, or Ulster in 1897. Messrs. Dickson state that Countess of Caledon "is a magnificent variety of undoubted merit, alike useful for exhibition or decorative purposes. It is of vigorous growth and free branching habit, flowering in great profusion throughout the entire season. The blooms are large, of great substance, and perfect form, with large stout petals; colour, rich carmine rose; splendid."

Empress Alexandra of Russia, T. (William Paul and Son).—This rose was well staged by the raisers at the Manchester Rose Show last year, the judges deservedly awarding it a certificate without hesitation. In colour and habit it reminded one of that old copper-coloured rose, Ophirie, but of much better shape. Some of the flowers were not very well formed, but others were decidedly good and well up to exhibition standard of excellence. Considering that this is its first year, one must not be too exacting as to form and substance. I think it will turn out to be a very good rose. From its distinctness in colour and freedom in flowering it will be useful for decorative purposes. The raisers describe it as "rich lake-red, shaded with orange and fiery crimson; very large, full, and globular; of vigorous growth, fine foliage, and great freedom in blooming; a most distinct and effective tea rose, splendid also for pot culture and late autumn and winter blooming. Plants in full bloom exhibited by us at the Royal Horticultural Society's meetings on November 26, 1895, December 15, 1896, and March 9, 1897, received a silver Banksian medal and an award of merit, and were universally admired by all visitors present on those occasions."

Mrs. Frank Cant, H.P. (Frank Cant and Co.).—I can speak more decidedly of this rose than of any of the others in this list, having seen it, not only as staged at exhibitions, but also as growing in Mr. Frank Cant's rose grounds. There it was sturdy and upright in growth, vigorous, and bearing well-formed flowers of good substance, quite distinct in colour. As far as my knowledge of it goes, I can fully endorse the raisers' description of it, which is as follows: "This is a charming new rose distinct in every way from all others. Its colour is a beautiful clear pink, the edge and back of petals silvery white, while the base of the petals are fully two shades deeper in colour. The flowers are large, very full, perfectly formed, and produced abundantly, every shoot bearing a flower. Its habit of growth is erect and vigorous. Not only is it a valuable exhibition rose, but also one of the finest pot roses in cultivation. Exhibited at the Royal Horticultural Society it gained an award of merit. Exhibited at the Crystal Palace National Rose Society Show, card of commendation.

Miss Ethel Richardson, H.P. (A. Dickson and Sons), has been exhibited by the raisers several times last year, and if my memory serves me true, some good flowers were staged in the open treble class at Trentham last season. As a white or blush H.P., it is quite distinct. The growth did not appear to be very strong. The raisers' description is as follows: "This superb rose is thoroughly distinct from anything extant. It is of moderate growth and free-flowering habit. The flowers are of very large size, imbricated form, with high centre, the petals large, smooth, and slightly reflexed; colour almost pure white, with pale flesh centre. As an exhibition variety, we feel confident this rose will take high rank."

Robert Duncan, H.P. (A. Dickson and Sons), is one of the set of three new roses sent out last year by this firm. The raisers tell us that it is another very distinct and fine hybrid perpetual, of vigorous growth, flowering abundantly. The blooms are large, perfectly formed, and of good substance; petals large and shell-shaped; colour bright, rosy lake. highly meritorious variety either for garden decoration or exhibition purposes."

There are also three summer-flowering climbing roses, announced as "The Three Graces," and said to be companions of Turner's Crimson Rambler, but I have not seen them. They are thus described:—

"Aglaia (Yellow Rambler).—Bright orange yellow, a vigorous climber, producing large bunches of flowers; highly spoken of in Germany and America." An illustration of this rose climbing up a wall is given in Messrs. Paul and Son's catalogue. It looks a very handsome rose.

"Euphrosyne (Pink Rambler), with large bunches of small pink flowers."

"Thalia (White Rambler).—Very large bunches of white flowers."

There are a few other roses of 1897, some of which have been seen at last year's exhibition, but of which it will be sufficient to give the names and descriptions as taken from the trade catalogues.

Enchantress T. (William Paul and Son).—Flowers creamy white slightly tinted with buff in the centre; large, full, and globular, the petals slightly recurved at the edges; of vigorous growth, fine foliage, and great freedom in blooming; a most distinct and effective tea rose, splendid also for pot culture and late autumn and winter blooming. Messrs. Paul go on to say: "Plants in full bloom, exhibited by us at the Royal Horticultural Society's meetings on November 26, December 15, 1896, and March 9, 1897, received silver Banksian medal and award of merit, and were universally admired by all visitors present on those occasions."

Ferdinand Batel, H.T. (Pernet et Ducher).—"Colour varying from pale rosy flesh to nankeen yellow; flowers fair size, very free blooming."

Ferdinand Jamin, H.T. (Pernet et Ducher).—"Rosy carmine, shaded salmon, large well formed flowers."

Marguerite Appert, H.T. (Vigneron)—"Bright red, very large flower of full and globular form."

Madame Cadeau-Ramey, H.T. (Pernet et Ducher).—"Rosy flesh, shaded with yellow at the base and bordered at the end with rosy carmine, flowers large and full, very promising."

The Rev. Allan Cheales, H.P. (Paul and Son).—"A large pæony-like rose. of extraordinary novelty and beauty of colour, pure lake with reflexed silvery-white back petals; an early and late bloomer, producing large masses of its vividly-coloured flowers. Very vigorous, with handsome blue-green foliage. A cool season exhibition rose, and as a garden rose excellent for bedding in masses. Named in compliment to one of our oldest amateur rosarians. It proves to be finest rose-coloured forcing H.P."

Waltham Standard, H.P. (William Paul and Son).—"Brilliant carmine, shaded with scarlet and violet; opening flowers very vivid in colour, with fine stout petals keeping well to the end; shape and petal of A. K. Williams; of vigorous growth and fine foliage. A grand exhibition rose, and also one of the best for garden decoration."

Joseph H. Pemberton.

BOMAREAS.

Those members of this genus now in cultivation form some of the most ornamental of our climbers for the warm greenhouse. They are natives of the mountainous regions of south-western America, and many are found at extremely high altitudes. In the "Handbook of Amaryllideæ" as many as seventy-five species are described, but a very small proportion of these are to be found under cultivation; indeed, they are very seldom to be seen outside of our botanical gardens. Considering the little difficulty attending the cultivation of these free-growing plants, and the charm possessed by them when in bloom, it is a matter for wonder that they are so often neglected. The roots are tuberous, and swell out to a considerable size, and being of quick growth require a substantial soil for compost, and they succeed well in borders given good drainage, the latter being a great point in their culture. The elongated stems grow to various lengths, usually to ten or twelve feet or more, while the foliage borne along these is of an acute oblong shape. At the termination of these growths are formed the inflorescences, and if they are allowed to hang for several feet from the roof they are shown to best advantage. The best results are attained when the growths are trained upon single strings or wires, as no crowding then occurs, and each stem receives all the light possible. At Edinburgh they are planted upon the stage in the cool end of the Succulent House, and in this manner, as at Kew, they are found to do well. To pot culture they do not take kindly, and it is far better to prepare a bed of soil for them in the most suitable spot available than to attempt to grow them in pots, for in the latter they have generally the appearance of being starved.

Just now there is flowering here Bomarea patacocensis, which for some time enjoyed the synonymous name of B. conferta. This is undoubtedly the gem of all the species in cultivation, and at the same time one of the strongest growers. When seen in good condition, with several of its large umbels carrying twenty to thirty flowers each, and in such condition as it grows here, at Kew, and at Trinity College Gardens, Dublin, it is not readily forgotten. In August of 1896 seedlings were sent here by Mr. F. W. Burbidge, and these are now flowering, the rich crimson colour rendering the umbels conspicuous. This species is figured in the *Bot. Mag.* t. 6,692, and was introduced about 1882 by Messrs. Shuttleworth and Carder. B. Carderi is also a fine plant, with a compound umbel which, upon strong plants, forms very large heads of bloom of a loose habit. An inflorescence of this lasts for several months in flower. The leaves of this species are glabrous. In colour the floral segments are pale pink spotted with brown. One of the most prolific species is B. frondea; it produces dense flowered umbels of reddish [illegible] blooms, and flowers over a considerable period. The habitat is at from eight to ten thousand feet elevation on the Andes of New Granada. B. oligantha is a native of the Andes of Peru, and produces slender [illegible] with umbels of only six to eight flowers, these being of a dull red [illegible]

Bomarea edulis chontalensis is a pretty variety, found by [illegible] the outskirts of the woods in the Chontales Mountains of Nicaragua, and introduced in 1871. It has a branched inflorescence [illegible] unequal spreading peduncles, and the blooms have a rose-red [illegible] and yellowish inner segments. Other species are B. caldasiana, a [illegible] coloured plant and a free bloomer; and B. ærtifolia, a slender [illegible] species from Mexico, the colour of the flowers being a pretty combination of yellow and red. The temperature maintained where these plants are grown should be above that of an ordinary greenhouse, yet [illegible] requires to be grown in a stove—as they may be sometimes seen—and a free circulation of air is required to grow these handsome [illegible] well.

Royal Botanic Gardens, Edinburgh.

R. L. Harrow.

SCARCITY OF LATE PEARS.

[illegible] correspondent, Mr. G. Wythes, does well in calling attention to this important subject, for there are many varieties of pears catalogued as [illegible] in season from January till April, and yet few of them are found to [illegible] good condition after the turn of the year. That soil and situations have much to do, not only with the time of ripening, but also with the [illegible] of pears, all who have had much experience in their cultivation will admit; and also that seasons vary, and cause a considerable difference in the time many of them are available for use. Still, it is puzzling to discover how nurserymen compile their lists. If they were compiled years ago, when many of the varieties were grown as standards in open orchards, then one could understand that there would be a difference in their time of ripening, as many were grafted on the pear and white thorn stocks; but now the quince is mostly used, and being shallow rooted, the fruit doubtless matures much earlier, and though they may seem hard at the time of gathering, they soon change, even when kept in a very cool place.

We will take, for example, Beurre Diel. I have had fruit of this variety, a pound in weight each, gathered from espaliers, which kept in good condition till the middle of January. The fruit was allowed to hang on the trees till the middle of October, and then stored in a cool place. Here, in the south, the fruit is seldom good after the middle of November, even when the greatest care is taken in gathering and storing. Forrelle refuses to grow with me in any position, yet in some gardens this is a fine variety, of both excellent flavour and appearance; in North Wales I grew it against a south wall, and grafted on the pear stock, and no pear could have been finer in flavour at the end of January. Hacon's Incomparable was also very fine on the light sandy soil in the district above referred to, but here, even against a south wall, it cracks, and is of no use. Glou Morçeau, on the same warm, sandy soil was excellent. Gathered the second week in October from cordon and espalier trees, the fruit remained in good condition till the end of January; but here, on a cold, stiff soil, the fruit cracks badly, and what few are perfect usually ripen about the middle of November. Ne Plus Meuris, grafted on the pear, and grown as an espalier, was excellent on the warm, sandy soil in Denbighshire; but here the fruit is of but little value; there fair-sized specimens were obtained, but here in the south they are neither so large or of such fine quality. Winter Nelis, a fine old pear that should find a place in every garden, as it is of first-rate quality, and though not large, will usually give a crop of fruit. At Buxted it ripens too early, especially when grown on the quince, for though we had a good crop last season, the fruit was all ripe in November, not a specimen being left even till the following month, though they were not gathered until [illegible] late in October. Zephyren Grégoire is a fine-flavoured variety, but like Winter Nelis, is only of medium size, and therefore finds but little favour with those who grow only for exhibition. In favourable seasons this will keep good, even in the south, till January. Van Mons. Leon le Clerc, when grown on the pear stock, is particularly fine; I have had specimens weighing eighteen ounces that have been in grand condition in the middle of January, but in some seasons, and on cold, stiff soil, it is most unsatisfactory.

Jean de Witte, when grown on the pear stock, will keep in condition fully two months longer than when grown on the quince. This fine old pear is not thought so much of nowadays, since all the rage has been for huge fruits, but if flavour is to count for anything, then both this and Passe Colmar should have a place. Bergamotte Esperen is another medium-sized variety that does not find so much favour as it ought; the tree is not a strong grower, but the fruitfulness of this variety should commend itself to all. Like most others, however, when grown on the quince the fruit ripens fully a month earlier than it ought. Like Mr. Wythes, I am greatly disappointed with Le Lectier, and with me the fruit was early ripe in December, and of but second-class quality. The only thing in its favour was size. President Barabe was fairly good, but could not be considered first-class. I have never yet eaten a good fruit of Beurre de Jonghe, for here they go woolly before fully ripe, and even in the most favourable seasons it will not keep beyond the middle of November. Beurre Rance is often so gritty as to be almost worthless, though in favoured situations, and on warm, sandy soil, the fruit is fairly good. On the cold soil here it is quite worthless. Chaumontel, grown against an east wall in some seasons, is quite passable, though in others the fruit is poor and gritty; even at the best it is seldom we have been able to keep it till January. Easter Beurre is usually good, though in [illegible] autumns this is also liable to crack; still, as a rule, it is one of the [illegible] late varieties we have. Josephine de Malines is sometimes very good, especially when grown against an east wall. On the pear stock this [illegible] does better than on the quince.

The question now is, Are we not by growing pears on the quince [illegible] bringing them more quickly into maturity, causing the fruit to ripen earlier than when grown on the pear stock? if this be so, then the remedy is as bad as the disease, for though we may have more fruit at an earlier date, we sacrifice more than is gained by being without good pears when dessert of any kind is scarce. I should be glad to know what others have to say on this subject, as it would be very interesting to hear their experience. Most of us know that, by allowing the fruit to hang as long as possible, it will retard its ripening, but with respect to the various kinds of stocks used to play such an important part, it would be more interesting still to have opinions.

[illegible] Park Gardens.

H. C. PRINSEP.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," [illegible] articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

WORK FOR THE WEEK.

WARM ORCHIDS.

THE repotting, top-dressing, and re-basketing must be proceeded with, as the season is advancing rapidly for this kind of work for many species and varieties. The dendrobiums generally that require a warm temperature will have in most cases finished their season of flowering (except in cases where they have been retarded for exhibition and other purposes), and must receive general attention and be placed in their growing quarters, after being well sponged over with soft-soap water and loosely tied to neat sticks. Where grown in pots, a mixture of fibrous peat with all the small dust shaken out, the best sphagnum cleanly picked and washed, a little charcoal and broken crocks will suffice. The plants must be kept well above the rim of the pot, and the pots used must be as small as possible, according to size and condition of the plants. Green fly is a great pest at this season and attacks the young growths and flowers, so a fumigating with XL All will be necessary occasionally. The roller blinds must be used to keep the atmosphere humid, as root action is now vigorous. Dendrobium fimbriatum and its var. oculatum, D. thrysiflorum, D. chrysotoxum, D. suavissimum, D. aggregatum, D. densiflorum, D. Jenkinsi, and others in this section will in some cases have finished flowering, and now require also repotting, &c.; these should not be repotted unless they really require it, as often a top-dressing is quite sufficient. Cattleya minucia, C. Ashtoni, and C. Johnsoni—the result of a cross between C. Harrisoniæ and C. gigas—will first be commencing their new growth, and if any of these require attention they must receive it at once. Pot-shaped baskets are the best to use, suspending these from the roof along with the rest of the choice cattleyas, lælio-cattleyas, &c. Cattleya Harrisoniæ, C. amethystoglossa, C. guttata, C. Leopoldi, C. velutina, and C. Forbesi, will all require top-dressing or potting. Cattleya Skinneri will probably be flowering and must receive less water, as it is liable to damp; the driest place in the house ought to be chosen for it. Cattleya Bowringiana will now be rooting fast, so more water must be afforded. Cockroaches, woodlice, and slugs must be well kept down in the cattleya house, otherwise they will eat off all the roots. Cattleya Mantini (now a general favourite with orchid growers, especially its var. nobilio), the result of a cross between C. aurea and C. Bowringiana, thrives well in a basket suspended from the roof, and if not already attended to must receive attention forthwith.

Oncidium sphacelatum and O. sphacelatum majus may be grown in any warm house kept at 55 or 60 degrees during the winter months; and it may be found in almost any amateur's collection, and is one of the easiest of orchids to grow; it will now be showing flower, so a few more degrees of heat will assist it. Those that are failing to flower and require repotting should receive immediate attention, and the compost should consist of rough fibrous peat, sphagnum, a little charcoal, and a little silver sand; the pots need to be drained half their depth with clean crocks, and tied firmly down with a few sticks. Sufficient water must be given to keep each bulb plump. Oncidium flexuosum is another old orchid, and when a place suits it well it should not be removed; it thrives well suspended in square baskets in the store in a compost similar to that advised for O. sphacelatum. Thrips and red spider trouble these, and the syringe ought to be used about them on favourable occasions. More damping will be required now, and shading will also require attention; pests will trouble us very much, so fumigating must be done occasionally as a preventive. The temperature may rise a few degrees all round, but the ventilation must be well watched to guard against cold draughts by night and day.—THOMAS STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

AT no other season of the year is it necessary to use so much discretion in affording ventilation to these structures as now and for the next few weeks. At the time of writing there is bright sunshine, which quickly raises the temperature, but as a searching east wind is also prevalent it would be better to let the temperature rise somewhat higher than usual than to open the ventilators for an inrush of cold air. For the most part plants of all descriptions have either been repotted recently, or are developing young and tender foliage, therefore anything approaching a draught through the house would prove anything but suitable to the well-doing of the plants. Fresh air for a short time daily, whenever the weather is favourable, is necessary to encourage clean healthy growth, but until the outside conditions become more balmy, this should be admitted from the highest point of the house, using the side ventilators with caution. The desired temperature is more easily secured, and a nice growing atmosphere maintained by turning off artificial heat, early on bright mornings, and dewing the stages and other parts of the house with tepid water several times during the day. We are not in favour of using heavy blinds for shading greenhouse plants generally so early in the season, as this is apt to promote weak growths; a temporary screen, however, will now be necessary at mid-day, especially for plants in full bloom and also those whose roots have been disturbed. It is undoubtedly the best and neatest way to shade palms, camellias, &c., growing in lofty houses, to paint the roof-glass over with summer cloud, or some other mixture which will not wash off readily. This saves much time and trouble, as the plants enjoy both shade and moisture; a permanent shade, until the autumn, proves an advantage in every way. Established palms, tree ferns, and the like planted in the borders of the conservatory will require copious waterings from now onwards, and the syringe should be freely used about the stems and fronds of tree ferns, to ensure free and clean growth. Hanging baskets from the roof should be gradually watered more freely as the occupants become established, as anything approaching dryness at the roots now would probably lead to failure.

The greenhouse rhododendrons are among the finest plants grown, and may be had in succession by means of gentle forcing. On no account should much heat be employed or a scarcity of moisture in the atmosphere be allowed, as thrips would probably attack the foliage and the blooms fail to open properly. To keep the plants uniform, pinch out the points of those shoots not set with flower buds. Another class of plants that might be grown side by side with these are the daphnes, as the same treatment suits both. Neither will survive coddling for any length of time, and to keep them in robust condition, syringe them liberally during fine weather and admit plenty of air, closing the house early while they are making new growth. Now is a good time to pot these. Clean pots, carefully drained, are necessary; and the compost should consist of good fibrous loam, one-seventh of decayed manure passed through a fine sieve, and coarse sand—a liberal quantity of the latter should be used, and press the compost firmly round the roots. Plants that are in a good condition at the roots, but somewhat straggling in habit, may be pruned into shape. They will break freely if not over-watered and the tops kept syringed. Autumn-struck cuttings of marguerites should be potted on as required, using old potting soil to ensure sturdy growth and plenty of bloom. Unless small decorative plants are required early, pinch out the flower buds as they show, until within a few weeks of when required; as the pots become filled with roots, use soot water, which gives substance to the bloom and deep colour to the foliage. Cut back cytisus as they pass out of flower, and as new growth appears, repot them if necessary, standing the plants in a warm, shady, and moist position for a few weeks, afterwards, gradually hardening them to more sun and air.—RICHARD PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

BY the time these notes appear the supply of flowers of the violets will have become exhausted, and as soon as possible after the plants should be taken up, divided, and replanted. With most varieties there will be an abundance of runners or young plants already formed for making up the new plantations. Any old plants or surplus young ones not required should be planted out in odd corners, or by the sides of woodland paths, the old Czar variety being one of the best for this purpose. For the new plantations, or beds, from which a supply of fine violet flowers are required, a piece of fresh ground should be annually given that has been previously prepared by deep digging, and the incorporation of a good dressing of thoroughly decomposed manure. If newly dug it should be trodden over and made firm before planting. Put the young plants out about a foot apart each way, and if the weather be dry, an occasional watering, and almost daily sprinkling overhead towards evening should be afforded until they are partially established. A mulch of old mushroom bed manure or leaf mould is of much assistance in dry weather, when red spider is liable to attack the foliage if the surface soil is allowed to remain dry for any length of time. Any spare spots near walls, with a south-west or north aspect should also be utilised in order to forward and prolong the supply of flowers as much as possible. Several fine single varieties have been sent out during the past few years, Princess of Wales is a grand variety, very free and a large flower, with a good stout stalk, a decided acquisition. Amiral Avellon and California are also strong-growing varieties, but, as far as my experience goes, not equal to the first-named variety for free blooming and sweetness combined. Wellsiana and the Czar should also be grown, while Rawson's White is the best single of that colour. The double varieties are not so generally grown and flowered outside, but during the past few winters plants have stood the weather fairly well, and flowered freely. New beds of lily of the valley may yet be made up, the crowns being somewhat late in starting this season. Where these have become thick and matted together, so that small flowers spikes result, they should be lifted, the crowns sorted over, planting the smaller by themselves, if required. The site of the new beds should have been trenched and manured freely, as a frequent renewal is not necessary. The selected crowns should be planted in sloping drills, chopped out with a spade, about four inches apart, allowing about half the space in the row, press the soil firmly against the crowns, which should be kept just under the surface, and afterwards give a slight mulch of old mushroom bed or similar short manure. West and north borders are the best adapted for lily of the valley culture, those on the north aspect forming a succession to the others.

During this and the coming month the planting of aquatic plants, as water lilies and similar subjects, is best carried out. Considerable attention has been given this style of gardening the past few years, partly caused by the introduction of the fine varieties of nymphæa, by the French raiser, M. Latour Marliac. These are quite hardy, and may be trusted to withstand our most severe winters. With the addition of the bright-coloured varieties of this raiser, including purple, rose and pink in various shades, also sulphur yellow, a good choice in colour is now obtainable, and where the necessary depth of water can be obtained, these may be added at a moderate cost. Where the pond water is from two to four feet deep is a suitable position, with a deposit of mud a few inches in depth. The best method for starting their cultivation is to plant the roots in shallow baskets containing about a bushel or more of soil, consisting of fibrous loam and one third leaf-mould mixed together. The roots may be fastened in with wire or string, and before submerging the basket lay a few stones over the surface of the soil. It is almost useless planting where swans are kept, as they pull off the young leaves and otherwise destroy the plants; water rats are also sometimes troublesome. The pruning and planting of roses and shrubs, &c., should ere now have been completed, and plants of the former may with advantage be given a mulch of half-rotten manure. The hardening off of bedding stuff should receive due attention. Pelargonuims may with safety be transferred to cold pits, or skeleton frames, and be given temporary protection when necessary. Where small plants of golden pyrethrum are required for edging or carpet bedding, seeds should be sown thinly now in frames on a slight hot bed. The planting of the main batch of gladioli should be completed forthwith, the corms deteriorate if kept later out of the ground. Beds or borders filled with carnations may have gladioli planted between them, to flower after the former are out of bloom, they will be of little inconvenience to the layering of the carnations. Bare spots on lawns may be renovated now during showery weather, by sowing grass seeds in suitable mixture, adding a little fine soil after, and pressing firm with a moderately heavy roller.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

IT may appear strange to advise watering hardy fruit trees at this time of year, but in some soils it is necessary; for instance, a shallow soil resting on gravel is so soon drained of moisture that it needs earlier supplies than some think, and in many cases its application would prevent loss of fruit by dropping. At the time these notes are penned we have still an insufficient rainfall, and having a thin shallow soil, it has been necessary to give newly-planted trees, under walls with a good coping, several waterings; these trees were planted late, and we gave moisture freely to prevent the bark shrivelling. One thorough watering is better than several small ones, especially if a mulch of short manure is given, as this retains the moisture and promotes new root action. Not only do wall trees benefit by the mulching, but those in the open also, as their roots will not then suffer from drying winds. It is necessary to plant many fruit trees shallow to prevent the roots going too deeply, and a mulch now will benefit such. I am not in favour of heavy dressing of wet manure, as this does more harm than good at this season. After the severe gales we have experienced of late, it will be necessary to attend to the supports and ties of young trees. For some weeks past, previous to the flowers opening on wall trees, we gave our fruit trees in sheltered places the overflow from tanks of both liquid manure and rain water, as there are few fruits but what are thus benefited; this with a mulch now keeps matters right for a long time. I am adverse to heaping up large quantities of material over the roots, but some short strawy manure which lies lightly is useful. Trees on sloping banks may have better material, as it will be neeessary to keep the roots cooler, and in sandy soils cow manure, if partially dried, is an excellent mulch and fruit trees like it greatly. In heavy lands such aids as spent mushroom, manure or old hotbed materials may be used for surface dressings.

Some weeks ago I mentioned the necessity of giving fig trees on walls more exposure if the growths were not crowded last autumn and were well ripened; in this neighbourhood we have had no frost since to injure growth, and there will be no need for further protection, but if pruning has been delayed it is well to have the work completed. With an ample supply of young shoots there will be too much wood, and it is well to lay in the new wood wherever possible, removing the old bare growths, which often make many weak shoots that unduly crowd the tree. Some of the longest and naked branches should be clean cut out, or at any rate cut to a healthy shoot. I prefer close training in to the wall for figs, as the fruit is earlier and of better quality; six to nine inches should be allowed between strong fruiting shoots, as the leafage is large and the wood soon suffers if shaded. With old trees there will be a need of thinning out some of the older weak shoots to prevent crowding, as the best fruits will be produced on well-matured wood of last year and not on the small weak spray growth. Sucker growths at the base should be removed, though at times it may be well to secure a well-placed one to replace a poor leader. Now is a good time to plant fig trees on open walls, but such should not be too forward. Few varieties are superior to the White Marseilles, Brunswick, and Brown Turkey; many prefer the latter, but so much depends upon the locality. Near the south coast the fig tree does grandly in the open, especially the Brunswick, but for walls I find Brown Turkey specially suitable; whatever variety is grown, guard against a rich soil or manures at the start, or grossness will result. Figs succeed best in chalky soils, and where chalk cannot be given I have found a liberal quantity of old mortar rubble mixed with fairly strong loam and a liberal quantity of wood ashes is a good compost; for enriching poor soils use bone meal freely in preference to animal manure. If the land is wet or clayey well drain the same, but make the portion near the roots as hard as possible to prevent them going downward; this can be done by thoroughly ramming the materials used for drainage. If the trees have been grown in pots, it will be necessary to spread the roots out, as with pot trees there is a tendency for roots to go downwards, and this must be avoided. Mulch after planting, and give ample moisture in dry weather.—G. WYTHES, *Syon Gardens.*

VEGETABLES FOR EXHIBITION.

RADISHES.

THE difference between a properly and badly grown radish (*Raphanus sativus*) is most apparent. When radishes are well cultivated and brought to the table at the right time they are generally liked, while they make a wholesome and refreshing salad during spring and summer. On the contrary, radishes that are produced on poor soil are a long time growing, and so become indigestible and scarcely fit for human food. To produce radishes of the best quality at all times the ground should be moderately rich, deeply dug or trenched; that which has been manured heavily the previous season is best, and the crop at no time should be allowed to suffer for want of water. The earliest supplies should be produced on gentle hotbeds when a constant supply is required, and should be sown in small quantities about every ten days; we practise sowing some each time when planting potatos or sowing carrots in pits and frames, scattering the seed thinly broadcast after the potatos are planted, and in the case of carrots drilling between the rows. These will be ready before the potatos require to be earthed up, and do no harm to the carrots. For a succession, turf pits, skeleton or cold frames, where they can be easily protected against frost, are suitable, after which warm, snug parts of the garden will suffice. It is surprising what large quantities are cultivated by our market gardeners and the ready sale they find for them, especially when produced early in the season, when they are most remunerative. I am well acquainted with one man who depends chiefly on this crop for a living, and he is generally first in one of our large markets; he commences to sow as early in the year as the weather will permit, protecting the seed with straw until the young seedlings are above the ground, after which, in the event of a sharp spell of frosty weather, pea-sticks are laid over them, and a thin layer of straw on these, the whole being carefully removed on all favourable occasions, and only very rarely are these early sowings a failure.

During the hottest part of the summer, when radishes are often wanted, some little difficulty will be experienced in producing them fresh and good unless grown in a shady cool part of the garden. A north or north-east border is a capital site for growing them during July and August. If sown about every ten days through the spring and summer, and kept well supplied with water, little trouble will be found in keeping up a constant supply. The seed may either be sown broadcast or drilled, the former I prefer. The seed in either case should not be sown thickly, for not only is this a waste of seed, but good radishes cannot be grown [illegible] overcrowded. Small beds should be marked out, and the seed [illegible] buried with the rake, and protected thoroughly against birds. There are now many excellent kinds in the market, including long olive and turnip-shaped varieties well adapted either for forcing or outdoor cultivation. But the two kinds I recommend for general cultivation [illegible] Wood's Frame for early use, and French Breakfast for later [illegible] both old but first-rate varieties.

In staging a collection of salad, not only are well-grown radishes indispensable, but they are very attractive, and help to brighten up the exhibit, and in a miscellaneous collection of vegetables several kinds should be included, for when neatly and judiciously arranged they form a pleasing feature. At all times and for all purposes radishes should be pulled when quite young, and for exhibition should be thoroughly [illegible] and tied up neatly, the long kinds in fan-shaped and the [illegible] turnip sorts in round bunches; about twelve of the former and [illegible] of the latter make suitable-sized bunches. It is a good plan to [illegible] in pieces of damp muslin during transit. For winter use the [illegible] known as Black Spanish is often grown; it should be sown [illegible] August in drills one foot apart, and thinned to eight inches. T[illegible] should be taken up early in November and stored in sand [illegible] when they can be taken out for use as required. Some [illegible] a liking for these, but personally I do not consider them worth cult[illegible] E. [illegible]

Aldenham House Gardens.

HUMUS IN ITS RELATION TO SOIL FERTILITY.

(Concluded from page 251.)

Humus and the Water Supply of Crops.

A SOIL rich in humus not only absorbs more water, but holds it more tenaciously in time of drought than a soil poor in humus. In fact, this is one of the most important differences between soils rich in humus and those poor in humus. A soil which by long cultivation has lost half of its total humus will show a loss of ten to twenty five per cent. of its water-holding power. These differences are well illustrated in the following table, compiled from data obtained in the examination of two typical Minnesota soils :—

WATER CAPACITY OF SOILS CONTAINING DIFFERENT AMOUNTS OF HUMUS.

	Water.		
	In original soil.	After 10 hours' exposure to the sun.	Loss
	Per cent.	*Per cent.*	*Per cent.*
Soil richer in humus (3.75 per cent.)	16.48	6.12	10.26
Soil poorer in humus (2.50 per cent.)	12.14	3 94	8.20

Humus is also an important factor, especially in sandy soils, in assisting the capillary rise of subsoil water to the roots of crops. In a mixture of sand and humus, water will rise to the surface by capillarity much more rapidly than in pure sand. As is well known, soils which are properly manured and thus supplied with abundant humus retain more water and yield it up more slowly and evenly to growing crops than unmanured soils. The part which the humus takes in the water supply of crops is sufficient in itself for placing a high value upon the humus of the soil.

Humus and the Heat of Soil.

Humus soils are generally considered cold or sour, but this is not always true of them. In humus soils decomposition or oxidation of the organic materials is constantly taking place, and this oxidation is accompanied by the evolution of a certain amount of heat. A portion of this heat is used up in warming and evaporating the additional water stored up in the soil on account of the humus, but even after this is provided for there is still some heat left from the oxidation of the humus to aid in warming up the soil. It should be observed also that humus, as a rule, imparts a darker colour to the soil, and thus causes it to absorb more of the heat of the sun. In autumn humus soils are not affected by sudden changes of temperature to the same extent as soils poor in humus, the difference frequently being sufficient to ward off an early frost and to enable corn in the Northern States to reach its full maturity Applications of humus-forming materials, such as manure, have frequently been observed to raise the temperature nearly a degree, and this in colder climates is often sufficient to prevent the growth of a crop from being checked. In the colder regions soils which are poor in humus freeze much deeper than soils which are richer in humus. So far the attempt has been made to demonstrate that the chemical action of humus in rendering available plant food in the soil makes it of the greatest value as a fertiliser; that it consists in materially bringing about the physical conditions in the soil best suited to the growth of plants; that it furnishes a medium peculiarly [illegible] to the activities of such organisms as those of nitrification, which are useful in plant growth; and that loss of humus from the soil is always attended by a marked decline in its productiveness. It is now important to discuss the means by which this valuable constituent of soils may be conserved and increased.

Means of Maintaining the Humus of the Soil.

On account of the variable composition of humus it is difficult to state the definite amount which should be present in all soils. A large amount of humus, containing a very high per cent. of carbon, approaching in many cases the composition of charcoal, is not as valuable as a smaller amount of humus, which is capable of readily undergoing decomposition. With an excessive amount of water, and in the absence or scarcity of the proper soil elements, like lime, potash, &c., humus-forming materials may produce sour soils, but in good soils well stocked with lime, there is but little danger of this result. It is safe to conclude, therefore, that soils as a rule will be benefited by those systems of culture which conserve or increase the humus content. The liberal use of well-prepared farm manures, green manuring, and a judicious rotation of crops are the three most important means of maintaining the humus of the soil. In the arid regions, and in many of the prairie sections, the proper preparation of *farm manures* is a problem which has not as yet been satisfactorily solved. On account of the slowness of decomposition of the straw in the manure, many farmers in the regions named have begun to look upon manure as a detriment rather than a benefit to the land. In these regions, however, the soil is in greater need of humus that in the regions of uniform summer rains, and it is of the highest importance to devise some system of preparing the produced manure on the farm so that it may be utilised to the fullest extent. The humus materials of the soil may be increased by the use of well-prepared muck. It is best to draw the muck during the summer. After drying, it can be used as an absorbent in stables, for which purpose it is very valuable, many mucks having the power of absorbing more than their own weight of liquid. When muck is mixed with urine, it readily undergoes fermentation, which increases its fertilising value. The brown mucks are much quicker in their action than the black. A little marl or land plaster mixed with the muck keeps it from forming sour mold.

Clover and plants of the leguminous family are more suitable for *green manuring* purposes than any other class of farm crops, because, in addition to supplying an abundance of humus-forming materials, they add to the soil large amounts of nitrogen drawn principally from the air. In the South the cowpea is extensively used for this purpose with good results, and crimson clover has proved valuable on the sandy coast soils of the Eastern States. Where land is cheap and fertilisers and labour are expensive, green manuring will doubtless prove to be the most economical way of maintaining fertility. When land has a high value and labour is cheap, better returns will be obtained from feeding the crop to stock and using the manure rather than resorting to green manuring. Another means of maintaining the humus of the soil is the practice of proper systems of rotation of crops. The general laws which apply to the rotation of crops, are in perfect accord with the conservation of the soil humus, but definite rules cannot be given on account of the variations in soil and climate of different parts of the country. The methods of farming which are the most destructive to the soil humus are continuous grain cropping without manures, and the continuous cultivation of cotton, corn, or potatos, whilst the methods which increase the soil humus are the growing of grass crops and dairy and stock farming, which result in the production of large quantities of manure. These statements are by no means intended to discourage certain cultures, but to encourage a definite course of rotation in culture, and the use of more well-prepared farm manures, so as to keep up the humus of the soil.

Summary.

1. The decline in the crop-producing power of many soils is due to a loss of the partially decomposed animal and vegetable matters known as humus.

2. The humus of the soil is decreased by the continuous cultivation of grain, cotton, potatos, or any crop with which the land is kept constantly under the plough without the addition of any humus-forming materials.

3. The loss of humus involves a loss of the nitrogen, which is one of the elements composing humus. The loss of nitrogen from the soil is not always due simply to the nitrogen removed by the crop, but is frequently caused by waste of the humus by improper methods and systems of cultivation.

4. The humus of the soil is increased by the use of well-prepared farm manures, green manures, and by a systematic rotation of crops in which grasses, or preferably clover, form an important part.

5. The loss of humus from the soil results in decreasing its power of storing up and properly supplying crops with water. Soils with a liberal amount of humus are capable of more effectually withstanding drought than similar soils with less humus. In arid regions the loss of humus from the soil is more serious than in the regions of continuous summer rains.

6. In sandy soils the loss of humus is most severely felt. In poorly drained soils, where there is a deficiency of lime, potash, and other similar materials, the humus may form sour mould, but this can usually be corrected by a dressing of lime, marl, or wood ashes.

7. Humus-forming materials, like the decaying animal and vegetable matters in farm manures, have the power of combining with the potash and phosphoric acid of the soil to form humates which are readily assimilated by plants when acted upon by the proper soil organism. These humates thus increase to a marked extent the available plant food of the soil.

8. Farm manures and other humus-forming materials are not only valuable for the elements of fertility which they contain, but also for the power of making the inert material of the soil more available to plants.

9. In soils where there is a good stock of reserve materials it is cheaper to cultivate fertility through the agency of humus than it is to purchase it in the form of commercial fertilisers.

MILK PRESERVATION.

THE British Consul at Cherbourg devotes a long section of his last report to a new form of competition by French agriculturists with the British dairy industry. This is the growing export of milk from Normandy to this country. It appears that a wild herb which is very common in France proves an effective and harmless antiseptic, the discovery having been made by observing that the milk of cows which had eaten of the herb did not turn sour so rapidly as other milk. A single drop of a tincture obtained from the plant was found to stop all fermentation in a quart of milk for six days, while the butter made from milk so treated kept better than any other. The secret has been purchased by a French firm, which has fitted up a dairy and factory close to the docks at Cherbourg, and arrangements have been made to collect milk on all the roads leading out of the town. A detailed account of the working of the factory is given in the report, but certain disadvantages are pointed out. The tincture seems to disappear by evaporation after having sterilised the milk; at all events chemical analyses have failed to trace it. "What will be the effect of the prolonged consumption of this milk by children or invalids cannot yet be determined. The analysis is, of course, only negative, and medical opinion might not be favourable to the constant absorption of an unknown substance, however small the proportion." Further, there is no guarantee that the milk exported from Cherbourg has come from dairies where the inmates are free from infectious disease; it is certain that no diseased cow contributes to the supply, but there the guarantee ceases. Nor does the company's veterinary adviser inquire into the water supply of the farm. "It may be taken for granted, therefore, that the exported Cherbourg milk is safe only so far as the health of the cows producing it can affect it. It is the rich milk of healthy cows, at pasture all the year round, and milked in the open air." The early operations of the company during the closing months of last year were not as large as was anticipated, but over 76,000 gallons were despatched to England in October, November, and December last, and reached an average of 1,200 gallons a day during December. "If Normandy milk ever becomes a danger to our home dairy industry, it will be due to the intervention and assistance of British firms, doubtless greatly to the advantage of the British consumer, just as some years ago London firms went to the rescue of Normandy butter vendors when the Paris market was closed to them, an intervention so fruitful in consequences to the Norman farmer on account of the enormous extension thereby given to the Normandy butter export trade. Normandy, even more than Denmark, finds the butter export trade hampered by the competition of Australasia. No further expansion of the Normandy butter export trade is likely, but England will be deluged with foreign milk if Messrs. Lepont's attempt to form a limited liability company with the help of English dairymen is successful." The Consul points out that there are other preservatives besides this new secret antiseptic, and concludes :—"What is it then that stands in the way of West-country and Irish farmers doing by concerted action what Cherbourg proposes to accomplish with the assistance of British purveyors for the teeming millions of our metropolis? Surely some means might be found to remove that which blocks the way to a very effective means of relieving distressed agriculture."

MR. GEORGE A. BISHOP, steward to Sir Humphrey F. de Trafford, Bart., Hill Crest, Market Harborough, has been appointed by the Secretary of State for the Colonies to the position of superintendent of the Botanic Station, Bermuda—a position worth nearly £500 per annum. Mr. Bishop will be remembered as the originator and chairman of the Wolverhampton Chrysanthemum Society, and as an active member of the executive of the Wolverhampton Horticultural Club, and the Wolverhampton branch of the Gardeners' Royal Benevolent Institution. His brother, Mr. Alfred Bishop, head gardener at Westley Hall, Bury St. Edmunds, will succeed Mr. G. A. Bishop at Hill Crest.

"THERE'S A CHIEL AMONG YE TAKIN' NOTES, AN' FAITH HE'LL PRINT 'EM," has now become a saying so familiar that no apology need be made for introducing it; especially as it is intimately associated with the Press, which has helped in publishing the value of Holloway's Pills and Ointment. "The chiel that had been takin' notes" for the past fifty years of the cures effected by these wonderful remedies, has frequently informed the public that they have no equal. He has noted where they have been successful when other medicines failed, and he has been particular in stating that at this period of the year they are especially useful, as they cure or relieve dysentery, diarrhœa, all stomach and bowel disorders, bile, and indigestion.—[ADVT.]

ROYAL GARDENERS' ORPHAN FUND.

A VERY large and influential gathering was present at the annual festival dinner, held at the Whitehall Rooms, Hotel Métropole, on the evening of Wednesday, April 20. Charles E. Keyser, Esq., presided, and was supported by Sir Trevor Lawrence, Bart., Messrs. N. N. Sherwood, Martin J. Sutton, Leonard Sutton, J. Laing, H. B. May, H. Turner, G. Wythes, G. Gordon, S. Segar, R. Dean, A. H. Weeks, G. Reynolds, R. Cannell, W. Marshall, A. F. Barron, G. Monro, J. Smith, H. J. Jones, J. G. Veitch, G. Nicholson, Assbee, T. Rochford, P. Kay, and others. The dinner was served in the usual elegant and admirable style that characterises the functions held at this fashionable resort. At the conclusion of the repast the Chairman submitted the usual loyal toasts in felicitous terms, and these were well received, as is ever the case with a company of Britishers.

The toast of the evening, "Continued Prosperity to the Gardeners' Orphan Fund," was proposed by the Chairman, who said he felt the toast was rather a large order for him, and he felt diffident, especially coming after such noblemen and gentlemen who had previously filled the post of chairman at festival dinners. He knew, however, that the cause which brought them together was a first-rate one, and he was glad to announce that it had about £10,000 invested funds. The orphans under its care numbered nearly seventy, and in providing for these they were dealing with the children of those who had been connected with horticulture and had fallen by the way. The committee, he said, were sorry they could not afford more assistance, and he hoped he might persuade those present to unload their pockets for the sake of the orphan and the fatherless. He appealed to those who had been blessed with comfortable circumstances to aid the fund, as by so doing they were often helping in a very material manner the widow who also has been left unprovided for. The Chairman said he felt quite proud to preside over such a large attendance, and he felt sure that as so many had returned from Ghent to attend the dinner they had a very great and hearty interest in the charity, and would do all they could to make the contribution list of the evening a very large one. In conclusion, he eulogised the services of their treasurer, N. N. Sherwood, Esq., who for so long had held his present position and done so much for the fund. With the toast he coupled the name of Mr. Sherwood. The toast was drunk with enthusiasm and followed by rounds of cheering. In response, Mr. Sherwood returned thanks for his hearty reception, and thanked the chairman in a most hearty manner for his presence at their annual dinner. He then briefly referred to the position of the fund, its usefulness, and its need. He reminded the meeting that last year the subscriptions fell off a little, and that regular annual subscriptions were greatly needed, so that an assured income might be obtained. He hoped to see the time when all the orphans who were needy would be put on the fund as each annual election-day came round. He also suggested that gardeners should bring the matter before their employers, and as one way of helping the fund, suggested that owners of large horticultural establishments should contribute thirteen guineas per year, and so maintain one orphan, and this subscription might be on the name of the mansion, a favourite child, or otherwise be a memorial. He always did all he could for the society, and it was a great pleasure and recompense to read some of the thankful letters received from widows who had children on the fund. Such letters went to his heart, and would do to those of others could they but read them. Such letters showed what a grand institution they were assisting. Mr. Sherwood's brief but able speech was well received by the company.

The next item was the reading of the subscription list, and as various familiar names and the amounts promised were made known, the applause grew louder and the company very enthusiastic. The following is the list as read: Mr. C. E. Keyser, £116 16s.; Mr. Assbee, £63 6s.; Mr. N. N. Sherwood, £58 14s.; Mr. G. Reynolds, £32 18s.; Mr. N. M. Rothschild, £26 5s.; Mr. M. J. Sutton, £25; Mr. L. Sutton, £25; Mr. A. de Rothschild, £10 10s.; Mr. S. M. Segar, £19 19s.; Mr. A. W. Weeks, £16 5s.; Mr. J. McLeod, £10 16s. 6d.; Mr. W. Robinson, £10 10s.; Mr. A. W. Sutton, £5; Mr. H. J. Adams, £5 5s.; Mr. J. B. Stevenson, £6; Messrs. Dicksons, Chester, £5. These, with further smaller amounts, made up a grand total of a little more than £515.

The toast of "Gardeners and Gardening" was proposed by Mr. Martin J. Sutton, who said he came to fill the place that should have been occupied by his brother, Mr. A. W. Sutton, who had been detained by the illness of one of his children. He observed that he was not a gardener, and that, strange as it might seem, he had no garden; he was an agriculturist, and as such he could not but admire the intelligence and spirit of gardeners as a body. He felt perfectly sure that one of the methods by which agricultural prosperity might be restored was that the farmer should become a great deal more of the gardener. He referred to the remarkable advance made in horticulture, and concluded by expressing the opinion that gardeners were a splendid set of men. Mr. A. H. Weeks responded, and thanked Mr. Sutton for his eulogistic remarks anent the horticultural profession and horticulturists. The latter were always among the most trusted of servants, and they often took far more care of their employer's property than of their own. One had only to become acquainted with horticulturists to fully appreciate them.

Mr. W. Marshall, the chairman of the Executive Committee, ably proposed "The Health of the Chairman," stating that whatever other claim he had upon their notice, Mr. Keyser claimed their attention for the admirable way he had presided, and the handsome manner in which he had helped the fund financially. He was glad to say that the fund was now becoming widely known and British gardeners were understanding that it had been instituted and was being kept going purely for their sakes and that of the children of any who fell in the battle of life. C. Keyser, Esq., responded suitably, saying that he felt he took as great an interest in horticulture as any of the noblemen who had filled the chair in earlier years. He alluded to his able gardeners—Mr. Gleeson at Stanmore and Mr. A. Galt at Aldermaston Court—and said that he hoped in future to afford them ample opportunity of displaying their ability at forthcoming London and provincial shows, for he saw how well the tradesmen exhibited, and as an amateur he felt he ought to show what his establishments could produce of fruits, flowers, and vegetables. He modestly alluded to his share of the subscription list, and said that he expected further sums from friends abroad, and hoped before long to have a further accession of £50 or so. As an amateur he was proud to be found among so many well-known operative gardeners, and he thanked them all for their generous response to the fund and to the toast of his health.

The toast of "The Press" was proposed by Mr. R. Dean, who alluded briefly to the value of the daily press, and more fully to the great indebtedness of the fund to the horticultural press, coupling with the toast the name of Mr. G. Gordon, editor of the GARDENERS' MAGAZINE.

Mr. Gordon responded, thanking the company for their hearty response to the toast. All horticultural pressmen felt it their pleasure and duty to do all they could for the gardening charities. He considered that the speedy rise of the Orphan Fund was largely due to the influence of the horticultural press and that of its representatives who assisted in the conduct of the charity. As compared with the sister charity, they had made as much progress in ten years as it did during the first thirty years of its existence. With regard to an increase of subscriptions and contributions, he held that very much might be done by gardening associations and horticultural societies throughout the kingdom, as with a little enterprise concerts, exhibitions, &c., might be instituted for the benefit of the fund. From this source alone he thought that not less than £500 a year ought to be received.

The function concluded shortly after ten o'clock, and was altogether a most enjoyable one. The tables were prettily decorated with daffodils, azaleas, orchids, &c., contributed by Messrs. Barr and Son, Sander and Co., J. Laing and Sons, and others. Messrs. Wills and Segar arranged the flowers. Votes of thanks were accorded all the foregoing firms. The musical arrangements of the evening were in the hands of Mr. Herbert Schartau, who, as usual, provided an admirable entertainment.

LANDSCAPE GARDENING.

Design.

IN his fifth lecture Mr. Milner stated that few definite rules can be insisted on with regard to design, but a few general principles may be laid down. Sites, soils, and environment largely dominate our landscapes. In fact some one has truly said that gardens should grow out of rather than be imposed upon their surroundings. Simply to copy another place or design is to invite failure. Geological formation, surface features, extent, climate, aspect, near and distant properties and prospects, powerfully affect our gardens. In the pictures created by landscape gardening the view is always changing—we see the picture on all sides; colours change and plants grow, so that in a few years a mere complementary effect may have changed to a tall tree and may be wholly marring the original effect in the landscape. In forming the surface of the ground into lines of grace and beauty we can hardly do better than follow pretty closely on the heels and example of Nature. In Nature, as already observed, straight lines are seldom found. Straight lines are the production of art, so the terrace, being artificial, may be treated more formally. Beyond the line of the terrace wall, slope or walk, the design of the garden may be naturally treated and freedom allowed to assist. Uneven ground, curved lines, and planting, are the chief means employed to bridge the barrier between the formal and the natural. Groups should not only be, but always appear to be posted in the right place. By the use of different heights of trees and shrubs great variety is obtained. Keep the prominent points high and the intervening bays low; avoid monotony and uniformity. Special subjects of interest such as roseries, rivulets, rockeries, groups of shrubs, and herbaceous plants increase the freshness, variety and beauty of landscapes.

Lawns express repose, and should be more than a grassy expanse shut in between woods—they should lose themselves as natural openings or glassy glades in a wood. Nothing should, however, block up or decrease the expression of expanse and repose, nor must it be forgotten in respect to distant prospects that the eye involuntarily travels down hollows; that trees and shrubs form the richest fringe to lawns, and that the rise and fall from one level to another on lawns should not be made by one railway-like embankment drop, but by means of the ogee or double curve. Neither should the extent of the whole garden or lawn ever be visible at a glance. The unfolding as well as the growth should be gradual—there should also be a difference between the furnishing of the gardens proper and park.—Exotic, more rare, and smaller trees should prevail in the gardens, while in the park big single trees or plantations should appear. In the garden we group the plants in regard to form, colour, size. We plant the hills and bare the vales, but this only expresses half a truth—for Nature plants on every side, not alone on the hills. The great point is to shun uniformity or monotony of size, form, and colour.

Terrace and Flower Gardens.

Coming nearer to the mansion, and with a general reference to a house of the nineteenth century, Mr. Milner proceeded to give much information as to the formation of parterres and terraces as features of garden landscape. He stated as an axiom that the treatment of the ground next the house should be artistically formal, with regular lines of turf, slopes, walks, or beds, all displaying harmony, so far as may be, with the architectural character of the building. As already shown the foundation of this is laid in gravel or other walks of sufficient width, with stretches of grass on either side, turf banks and steps leading from higher to lower levels, and frequently, if sufficient space on the level of the terrace allows it, a formal flower garden, either on the same level as the house, or sunk in a panel a foot to a yard below it. Much information was given as to the size and character of terrace gardens. Their general characteristics should be greater length than width. Such gardens may be laid out on grass or gravel, and edged with box, yew, or other dwarf shrubs. In furnishing these terrace gardens it should be borne in mind that they are chiefly looked down upon from a height of some five feet, and consequently they should not be placed too near to the house. Besides the usual bedding and foliage plants, choice variegated and other shrubs, trees and plants, such as box, yew, retinosporas, hollies, euonymus, and yuccas, have a good effect. As gardens posted so near to the house are always in sight no pains should be spared to preserve them always in full freshness and beauty. Much attention to details will be necessary, as height must be regulated by pruning, and the plants should be frequently renewed during the season, and so far as possible they should be kept in bloom through most of the season. Sunk panel gardens look best when about eighteen inches deep, and most beds embellishing terrace gardens, whether in the form of ellipses or rectangular, should run lengthways and in line with the [illegible].

Mr. Milner, showing some drawings and sketches, referred to the [illegible] effects of avenues running through a wood in the direction of a [illegible] distance. A grand avenue should have a width of fifty feet between the trees and at least forty from tree to tree, the best trees being elm, ash, oak, horse chestnut, and lime. Madresfield Court was cited as a domain where a good [illegible] fine avenue could be seen. Much useful information as regards estimating [illegible] then followed.

With some remarks on the laying out of public parks and cemeteries, proposals for the improvement of villa residences, and the presenting to each student of a rough sketch to be enlarged and improved before the examination, Mr. Milner concluded a series of lectures that have excited much interest and suggested much thought on a branch of our science and art that is far too generally neglected in these days of hurry and rush.

Professor Bayley Balfour at the close conveyed the hearty thanks of the meeting to Mr Milner for the grasp of subject and ability that he had displayed, and the amount of information he had given them. He hoped also Mr. Milner might be prevailed upon to publish the lectures *in extenso*. The lectures were free and open to the general public, ladies as well as gentlemen being welcome.

D. T. [illegible]

CYCLAMEN AT GODINTON PARK.

We are constantly in the habit of seeing at the Drill Hall during the winter months large collections of cyclamen in splendid order, but these are contributed by nurserymen, and it is rarely that we see them grown to any extent in private gardens (at least, that is my experience); we see some plants, it is true, more or less well done, but it is rare to find a house entirely devoted to them, and therefore a notice of a collection I saw a short time since may not be uninteresting to your readers.

Godinton Park, once the family residence of the Tokes, and now that of Mr. G. Ashley-Dodd, is situated about a couple of miles from the well-known railway station at Ashford, in Kent. The park is not very extensive, but contains some fine timber, while the Chestnut Toll is a landmark for many miles round. With this exception, however, the park is level, differing in this respect very much from Eastwell and Chilham, which are situated on the range of hills that run through this part of the county; but of the house itself it is impossible to speak too highly; it is not large, although it has been added to considerably in the last two years. It is a delightful specimen of Tudor work, and the hall and staircase are beautiful examples of the best period of that exquisite style of architecture. I do not think that any lover of the beautiful would grudge the time, if he only stopped at Ashford and drove out to see this charming house. The additions made to it were under the supervision of Mr. Blomfield, and they do not in any way interfere with its character. I have known Godinton all my life; I have seen during tue past thirty years many occupants, but being hitherto only tenants they had not any special interest in the place, consequently an air of neglect brooded over park and gardens; when it was purchased by Mr. G. Ashley-Dodd all this was over; the whole aspect of the place was changed; this has been especially the case in the gardens, which are quite altered. A rose garden has been made, and the most popular flowers are cultivated, and under the able care of Mr. Frost (son of that Mr. Frost whom many of us remember at the Royal Nurseries, Slough) promised to be a very attractive feature in the neighbourhood.

The end of March is not generally an interesting time in which to visit a garden, and I was greatly impressed with the rich treat offered through Mr. Frost's intelligent care of his plants; and to one who, like myself, can look back to the time when the Persian cyclamen was considered one of the most difficult plants to grow, the change is marvellous indeed; the rapidity with which plants are grown to a flowering size, from the time of sowing, is very remarkable; there were plants here the seed of which was sown in December, 1896, that had been in bloom for some considerable time; the corms were of good size, and carried about a couple of dozen flowers; this, however, can be exceeded if necessary, and I believe Mr. Frost could have them in flower in eight or nine months if required; I saw some sturdy little plants in the vinery, raised from seed sown in December, that will come into flower in November next. There was the usual variety of colouring, ranging from the purest white to the darkest crimson, and it must be remembered that all these results have been obtained by a process of selection, and not of cross hybridisation, that is, no other species have been introduced to induce these variations; some of the flowers, those of the giganteum strain, as it is called, are very large, and the plants two years old were bearing hundreds of blossoms. The different varieties can be relied on to come true from seed, although showing some variations in the tints. There is also some difference in the form of the flowers; some are more open than others; for instance, "Butterfly," which is a perfectly pure white, is much more open—that is, does not turn its petals back so much as the old varieties do; and there are some which have an ugly fashion of turning four of their petals, while the other does not reflex at all; this does not at all add to their beauty, and I myself should be inclined to discard these, and retain only those of a more regular form. Some curious things for which we cannot account come out in course of cultivation; thus the very dark variety known by the name of Vulcan does not produce seed anything like so freely as the others, nor are the flowers so large; why this comparative sterility will occur in this dark-flower variety it would be difficult to say. Then, again, in the matter of perfume, how does it happen that some have that delicate scent that is associated with its name, Cyclamen persicum odoratum, while in a great majority of plants it is totally wanting? As you enter the house in which Mr. Frost has his plants staged you at once recognise this delicious scent, but you may take up plant after plant and be unable to detect it, some only possessing it. And so in the matter of foliage; in some plants the leaves are beautifully marbled, and in others nearly plain; in some, as in the giganteum strain, the foliage is very large; in others it is neat and compact.

How, then, are these admirable results obtained? In the first place a good strain of seed is obtained and this is sown in November or December, and placed in an intermediate house, the compost used being light and friable; as soon a the corms are of a sufficient size (which will be about the size of a large-sized pea), they are pricked off into thumb-pots, the compost used being loam, leaf-mould, well-rotted manure, and sand, and as the plants increase they are again potted into larger pots in the same compost. A cool frame is the best place for them during the summer months, and a northerly aspect the best position for the frames, air being given at all times, and the plants not being exposed to rain; it will thus be seen that the cultivation which these plants receive is based on good sound principles; there is no quackery about it, and there is nothing that any amateur may not carry out. Of course the same method of treatment may be adopted where an amateur has smaller facilities, and wishes to grow a smaller number of plants. The curiously-crested form which Messrs. Low and Co. have exhibited at the Drill Hall and elsewhere does not appear to have occurred in the collection under Mr. Frost's care, but there does not seem to be any end to the variations which we may expect in this beautiful class of plants. Should growers be able to obtain large white varieties with a coloured crest in the centre of each petal it will form a very pleasing addition to those already in cultivation, and, [illegible] what has already taken place within the last twenty-five years, you may well say "Why not?" At any rate, if they will mark any deviation from the normal form, it is most likely they will obtain something which will be worth looking after.

H. H. D'.

HORTICULTURAL CLUB.

The usual monthly dinner and conversazione took place on Tuesday evening, April 12; notwithstanding the holidays and the Ghent Exhibition, which drew several of the members, there was a good attendance. The chair was occupied by Mr. George Paul, J.P., V.M.H. The Rev. George Engleheart was the [illegible] of the evening, and gave a very valuable address on "Seedling Narcissi," in raising which, as is well known, he has been so successful; he exhibited some of his [illegible] productions, which were greatly admired, and had previously obtained [illegible] and awards of merit at the Drill Hall; an interesting discussion followed, in which many of those present joined.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

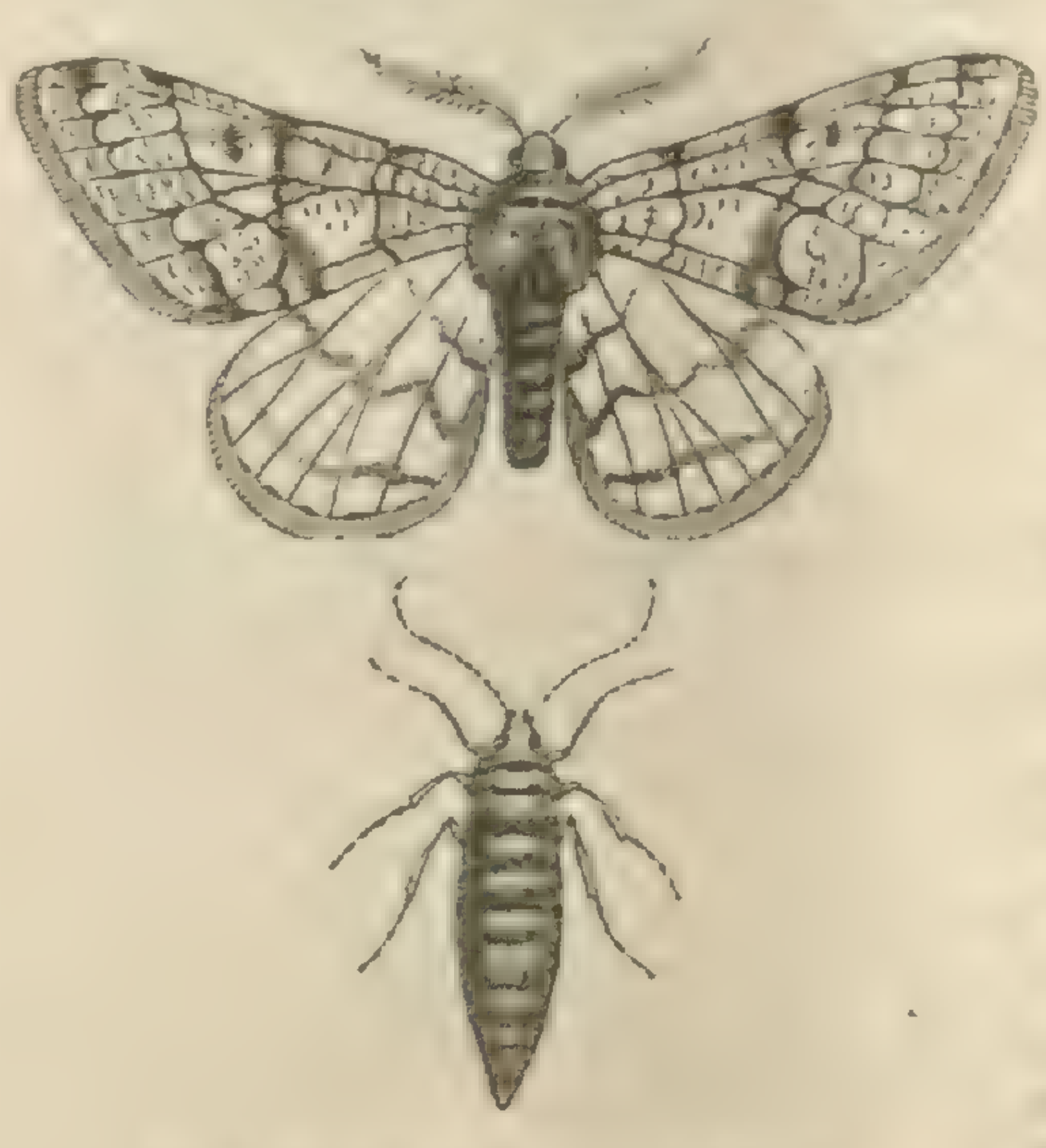
Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Florists' Directory.—S. H., Reading: The book to which you refer is "Maddock's Florists' Directory," a work published in 1792, by James Maddock, a Walworth florist of no small repute. Its full title reads, "The Florists' Directory; or a Treatise on the Culture of Flowers"; to which is added a supplementary dissertation on soils, manures, &c. The flowers treated upon in the 272 pages are the hyacinth, tulip, ranunculus, anemone, auricula, carnation, pink, and polyanthus. Copies may sometimes be purchased at second-hand book-sellers, and they vary in price according to their condition.

Planting Pansies.—G. E. A., Rugby: It is not too late to plant pansies, but the sooner the work is done the better, so that the plants become established before dry weather sets in. A deep moist and rich loam suits pansies, as it will keep them cool. Give water as necessary after planting, and early next month give the bed or plot a top-dressing or mulch of equal parts leafsoil and dried cow manure, sifted and mixed together; put this on directly after a good shower or heavy watering. Allow no flower buds to develop until you are sure the plants are well established. Keep the surface regularly and frequently stirred with a Dutch hoe and give an occasional overhead spraying with clear water as the sun begins to decline until flowering commences.

Pale Brindled Beauty Moth.—L. D., Gloucester: The twigs sent have clusters or rings of caterpillar eggs upon them, doubtless those of the pale brindled beauty moth *(Phigalia pilosaria)*. This moth appears early in the spring, sometimes by the middle of March, and the female soon commences to lay its eggs on small shoots towards the top of the tree, and form a ring round it. As soon as the season is sufficiently advanced for the leaves to unfold, the caterpillars are hatched, and at once commence their attack upon the delicate foliage. They are about an inch in length, pale green, with tufts of hair at the joints. The ants have a decided partiality for the caterpillars, which are carried away by them in large numbers when first hatched, more particularly from trees not exceeding eight or nine feet high. The male moth, shown in the upper part of the illustration, is of comparatively large size, the fore wings greenish grey, with brown markings; the hind wings are dull white, with bright brown heavy cross stripes. The female is wingless, small, and of a coffee-brown colour. The attack of the caterpillars of this moth may be greatly mitigated, if not prevented, by the use of grease bands, as in the case of the winter moth. This band is formed by spreading cart grease of good quality over a broad strip of grease-proof paper, and then fastening it round the stem of the tree. Spraying the trees with a solution of Paris green in the proportion of two ounces to forty gallons of water, when the caterpillars are hatched, will destroy large numbers by poisoning their good. Repeat the spraying after an interval of a fortnight, and if found desirable spray the mature foliage with a solution of half a pound of Paris green to a hundred fallons of water. Always keep the mixture agitated when spraying.



Pale Brindled Beauty Moth.
Male and Female.

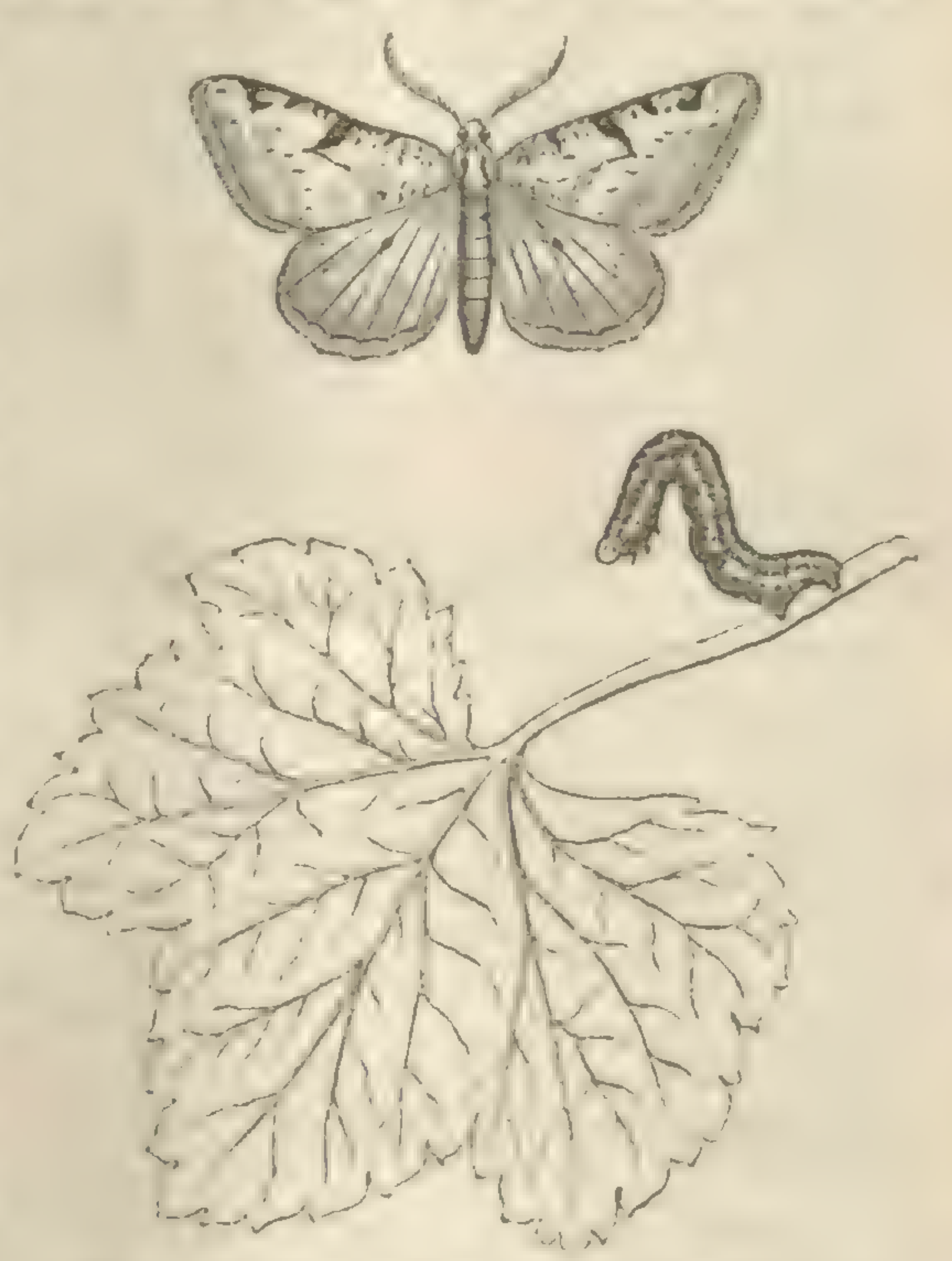
Window Boxes.—W. E. C., Kensington: It is by no means difficult to have a really good window box display at this season of the year, provided a little care be taken with the plants, such as providing them with water when necessary, for the soil in window boxes needs to be watered several times during an ordinary winter. We have, at the present time, a really good show of hyacinths, tulips, and daffodils, with a background of blood-red, yellow, and an intermediate form of wall flowers, and a front margin of fancy and gold-laced polyanthuses. Medium-sized clumps of doronicums are placed in the more roomy parts of the box, and these will have expanded their earliest golden flowers ere this reply appears in print. In the same boxes we had an early display of snowdrops, chionodoxas, and crocuses of sorts. Substantial soil in the first instance, and water as needed are, of course, essentials for an early spring show.

Throatwort.—H. H., Bury St. Edmunds: The scientific name of the throatwort is Trachelium cæruleum; we agree with you that it is a plant not often seen, but still very desirable. It is a native of Spain and Italy, and has been in cultivation for about 350 years. For greenhouse and conservatory decoration and for grouping it is a charming plant, but for some unknown reason it has been banished from most gardens during the past half-century, until now, quite a large number of our principal gardeners do not recognise it when they see it. It is easily propagated from seed, or by cuttings made from the side growths taken and inserted in sandy soil during the present month. A little warmth assists root formation, but as soon as the cutting becomes an individual plant it must be grown hardily, a cool greenhouse or frame sufficing. Pot on as necessary, thirty two-sized pots being large enough for general use. Give liquid cow manure as soon as the flower heads are seen. There is a white-flowered form of the species.

Hardy Ferns.—M. S., Basingstoke: It is now quite safe to remove dead fronds from hardy ferns, and also all the brown and decaying fronds from those species which do not lose all their frondage during winter—such as the harts-tongues. Plants may be divided now, though we prefer to wait until growth is a little more advanced, provided the situation of the fernery is considerably shaded. Where the soil has been washed away from the fern stocks add some new material, such as good loam and leaf mould in equal quantities; peat may be added but is not a necessity.

Bouillie Bordelaise.—F. H., Cambridge: As this is the best fungicide for such pests as potato and tomato diseases, apple scab, &c., we have not the least objection to repeating the formula and method of manufacture for the benefit of a new reader. There are several methods of making Bouillie Bordelaise or Bordeaux mixture, but one of the simplest and most effective compositions is as follows: mix four pounds of quicklime in a gallon or so of water and allow this to settle; in another vessel mix six pounds of sulphate of copper in four gallons of water, and to this add the liquid from the lime solution; mix the two liquids thoroughly, and add sufficient water to make forty gallons of the mixture; before application, give the mixture another good mixing and apply it in the form of a very fine spray that will settle on all parts of the trees or plants under treatment.

The Small Magpie Moth.—C. A., Uxbridge: The slim caterpillars sent are examples of the caterpillar of the small magpie moth (*Phalæna halias*). Sometimes this proves as great a pest as the Magpie Moth (*Abraxus grossulariata*), and we have already seen specimens on red-currant bushes ready to feed upon the tender foliage. Hand-picking will be the best method of getting rid of the pest, and a sharp-eyed lad can soon detect and destroy the caterpillars as they lie close to the stem. Dust soot and lime upon and under the bushes. At the end of May the caterpillars that have escaped will be full fed, when they will descend to the ground and among the surface nodules they will assume the chrysalis state. This is the gardener's opportunity, for if the surface soil is removed to the depth of an inch and a half and burned or buried deeply (about two feet) in some other part of the garden, the pest will be got rid of effectually. Replace the soil with some good material such as road-scrapings, old potting-bench refuse, or rich garden soil.



Small Magpie Moth, and Caterpillar.

Nitrogenous Manures—R. B., Kent: The question you raise with reference to the rapidity with which nitrate of soda and sulphate of ammonia becomes exhausted, is of considerable interest. As Sir J. B. Lawes has pointed out in discussing the valuation of unexhausted manures: When nitrate of soda is used as manure, its nitrogen does not enter into fixed combinations within the soil, but nitrate is dissolved in the soil-water, and unless taken up by vegetation, much passes into the drains, or into the subsoil beyond the reach of the roots of the crops. When salts of ammonia are used, part of the ammonia is temporarily taken up by the soil, but it is, more or less rapidly (according to the character of the soil and of the season), converted into nitrate, and is then subject to loss by drainage as when nitrate of soda is used. The loss by drainage will, as a rule, be the most when these manures are applied to grain crops, but materially less when applied to root crops or to permanent grass, as these crops have a more extended period of growth, tending to keep the soil-water nearer the surface, and to greater utilisation of the nitrogen. When these artificial nitrogenous manures are used for grain grops, they leave some nitrogenous crop-residue (stubble and roots); the more so the greater the amount of the increased produce due to the manure. When used for root crops, there will, as a rule, be much more of the supplied nitrogen recovered in the crop than in the total produce of a grain crop. When applied to permanent grass, there will also be much more of the supplied nitrogen recovered in the increase of crop than when applied to a grain crop; and there will at the same time be more crop-residue in the case of permanent grass.

The Pear Midge.—H. P., Norwich: Little can be done to combat the pear midge (*Diplosis pyrivora*) after the flowers expand as the pest makes its way to the centre of the flower a little previous to the buds opening. If your pears have not yet opened their flowers spray them frequently, until expansion, with the following mixture: Seven pounds of soft soap and ten pounds of quassia chips, boiled together with a little water; add a little Paris green, strain through a cloth and then dilute with one hundred gallons of water. Use the mixture warm. Pick off all infested fruits as they appear and burn them; they can be detected by their abnormal swelling. In his description of the species, Schmidberger states that the number of eggs these midges lay vary from one to sixty, which hatch in a very short time, if warm at four days from deposition; before the blossom is expanded they descend to the core; here they continue till the inside is exhausted. They generally leave at a rainy time, coming out on to the exterior of the young fruits, by cracks or boring out, from whence they spring to the ground. Often they remain in the pear until the fruit falls. The period of the full development of the insect commences as early as January 9, and continues consecutively until April 18, or even later. A gall midge has been seen with its long ovipositor inserted on the side of the blossom before it opened, but generally it lays its eggs on the middle of a single blossom by piercing the petals. The adult insect's general colour is dark grey or black; average length, two-fifths millimetre (or about one-twelfth of an inch): ovipositor, when extended, longer than the rest of the body; pupa, average length, three millimetres; head, thorax, legs, and wing-cases blackish; abdomen, yellow; larvæ length four millimetres; colour, pale yellow; surfaces polished, and very faintly reticulated.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Tuesday, April 26.—Royal Horticultural Society; Committees meet at Twelve o'clock. Lecture at Three p.m. on "Fragrant Flowers v. Scented Leaves," by Mr. F. W. Burbidge, F.L.S.

The National Auricula and Primula Society will hold its annual exhibition at the Drill Hall in connexion with the R.H.S.

AUCTION.

Monday, May 2.—[illegible] Plants, [illegible] Lane, Clapton.

OBITUARY.

Mons. Aime Girard, who died a few days ago, was a great benefactor to his native country, for few men have done more than he to popularise scientific agriculture in France. His chief researches were in connection with the improvement of sugar beet and potato cultivation. He will be long remembered; his experiments in potato improvement and cultivation gave wonderful results, for he showed how the crop could be made to yield a third more than previously, that the percentage of starch could be raised considerably, and that for stock feeding the tubers could be rendered more valuable than before. Aime Girard was the first to conduct experiments in the prevention of potato disease on a proper basis with Bouillie Bordelaise, a mixture now so popular as a fungicide, and discovered by him in use in some outlying French vineyards. The French nation has lost a great man, and agriculturists a friend, by the death of M. Girard in his sixty-eighth year. He was an untiring worker, and his best monument will be the good work he accomplished, and it will keep his name before generations to come.

Mr. W. H. Cullingford, who has long been a warm supporter of associations having for their object the encouragement of floriculture, died, we regret to announce, at his residence at Tunbridge Wells a few days since, in his sixty-eighth year.

Mr. James Crute who, in conjunction with Mr. William Marshall and the late Shirley Hibberd, founded the United Horticultural Provident and Benefit Society, died, we regret to record, on the 14th inst. Mr. Crute was an ardent amateur horticulturist, and devoted much attention to the improvement of garden pots, but of late years he has, in consequence of advancing years, been living in retirement at Bognor.

MARKETS.

Covent Garden.

The general demand is brisk, and with fairly good supplies prices are maintained. For new vegetables there is an increasing request, and these realise high rates. Flowers are plentiful, and sell freely at moderate prices.

Fruit.—Nova Scotian apples, 15s. to 25s. per barrel; Tasmanian, 12s. to 16s. per case; pineapples, 2s. to 5s. 6s. each; bananas, 5s. to 10s. per bunch; lemons, 6s. to 15s. per case; English grapes, 3s. to 5s.; Belgian, 2s. 6d. to 3s. 6d. per lb.; Valencia oranges, 9s. to 15s. per case; Jaffa, 10s. to 12s. per box.

Flowers.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 4s. to 5s.; gardenias, 2s. to 3s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 4s. to 8s.; red roses, 3s. to 6s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; tulips, 6d. to 1s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 4s.; Roman hyacinths, 4s. to 6s.; daffodils, 2s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 9s.; wallflowers, 4s. to 6s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 1s.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 6s. per bunch.

Vegetables.—English tomatos, 9d. to 1s. per lb.; Canary, 1s. to 1s. 9d. per tray, 3s. 6d. to 4s. 6d. per case; mushrooms, 6s. to 8s.; eschallots, 2s. per 12 lb.; French asparagus, 2s. to 5s.; Italian, 1s. 4d. to 1s. 9d. per bundle; spinach, 2s. to 2s. 6d. per bushel; Forced rhubarb, 1s. to 1s. 6d.; natural, 2s. 6d. to 3s 6d. per dozen bundles; mint 5s. to 6s. per dozen bunches; endive, 1s. 8d. to 2s. 6d.; lettuce, 9d. to 1s. 3d.; cos, 2s. to 2s. 6d.; cucumbers, 2s. 6d. to 5s. 6d.; cauliflowers, 1s. 6d. to 2s. 6d. per dozen; Egyptian onions, 6s. 6d. to 7s, 6d. per cwt.; English spring, 2s. 6d. to 3s. 6d. per dozen bunches; green peas, 4d. to 5d. per packet; French beans 3s. to 3s. 6d. per basket; Canary new potatos, 10s. to 15s.; French, 2d. to 2½d. per lb.

Borough Potato Market.

Warmer weather has caused a decline in the demand for potatos, so with moderate supplies prices are only just maintained.

Dunbars, 120s. to 130s.; Scotch Magnums, 105s. to 115s.; Hebrons, 100s. to 110s.; Snowdrops, 85s. to 100s.; Bruce Maincrop, Sutton's Regents, Reading Giants, and Saxons, 95s. per ton; Belgians 4s. to 4s. 3d. per bag. New—Maltese rounds, 12s. per cwt.; Jersey hothouse, 3½d. to 4d. per lb.

THE WEATHER DURING THE WEEK ENDING APRIL 16, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.		In Inches.	In Centimetres.
	Fahrenheit.		Fahrenheit.	Centigrade.		
London	60·5	37·0	49·3	9·61	0·31	0·79
Croydon	62·0	32·0	48·9	9·39	0·56	1·42
Brighton	59·0	36·8	48·0	8·89	0·34	0·86
Bristol	56·0	31·0	46·5	8·06	0·59	1·50
Wolverhampton	55·8	32·2	45·1	7·[illegible]	0·[illegible]	[illegible]
Norwich	59·4	34·0	48·1	8·94	[illegible]	[illegible]
Nottingham	53·1	32·7	45·7	8·17	1·25	[illegible]
Liverpool	56·3	33·3	46·6	8·11	1·10	[illegible]
Huddersfield	55·0	30·4	46·4	8·00	[illegible]	[illegible]
Bradford	56·6	41·6	45·5	9·17	1·[illegible]	[illegible]
Hull	5[illegible]·0	35·0	46·9	[illegible]	1·[illegible]4	[illegible]

The mean reading of the Barometer during the week at Greenwich was 29·66 inches, and that of the Thermometer 49°·3, the latter being 3°·1 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 32 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 25·8 hours. The measured rainfall amounted to 0·31 of an inch.

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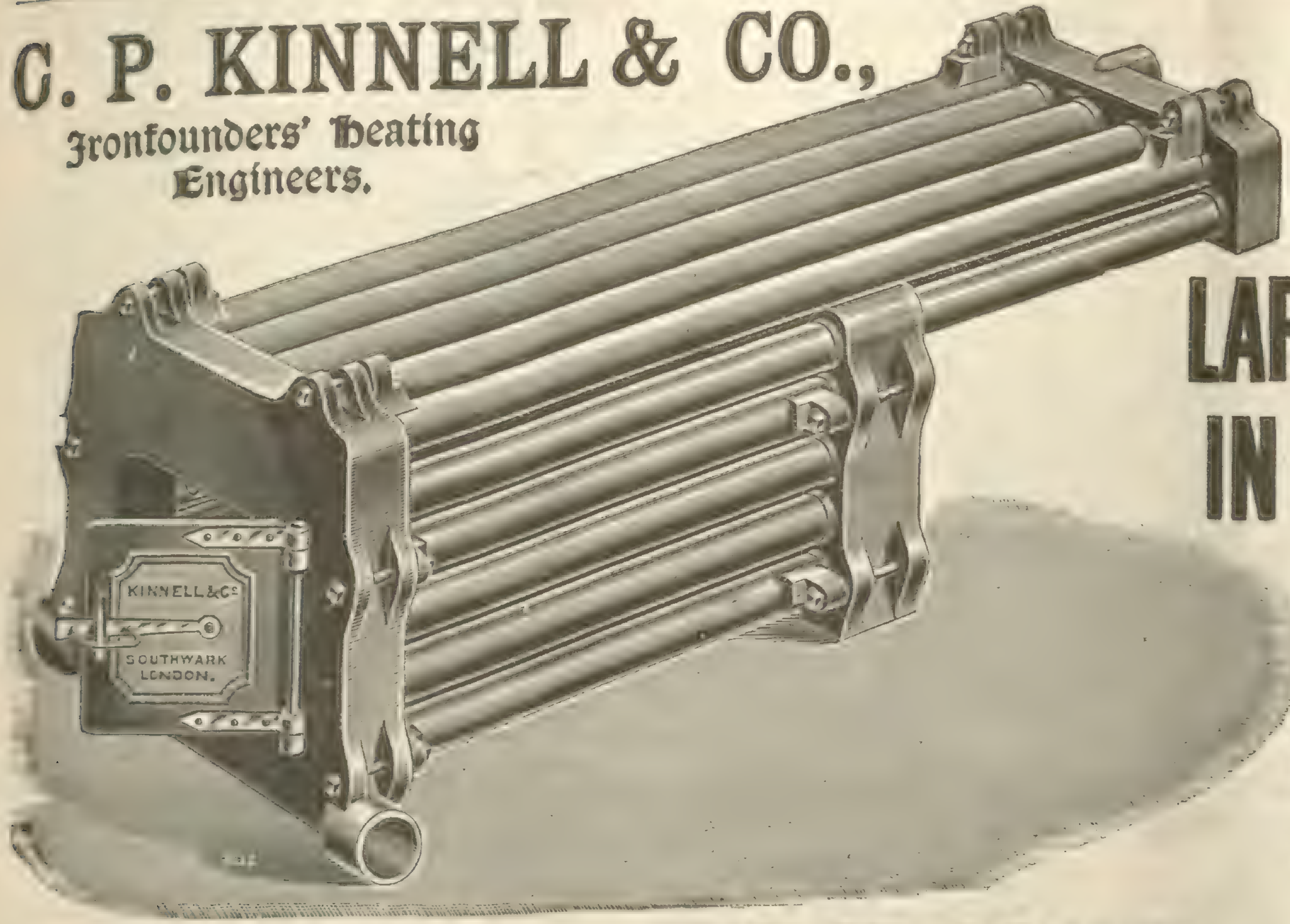

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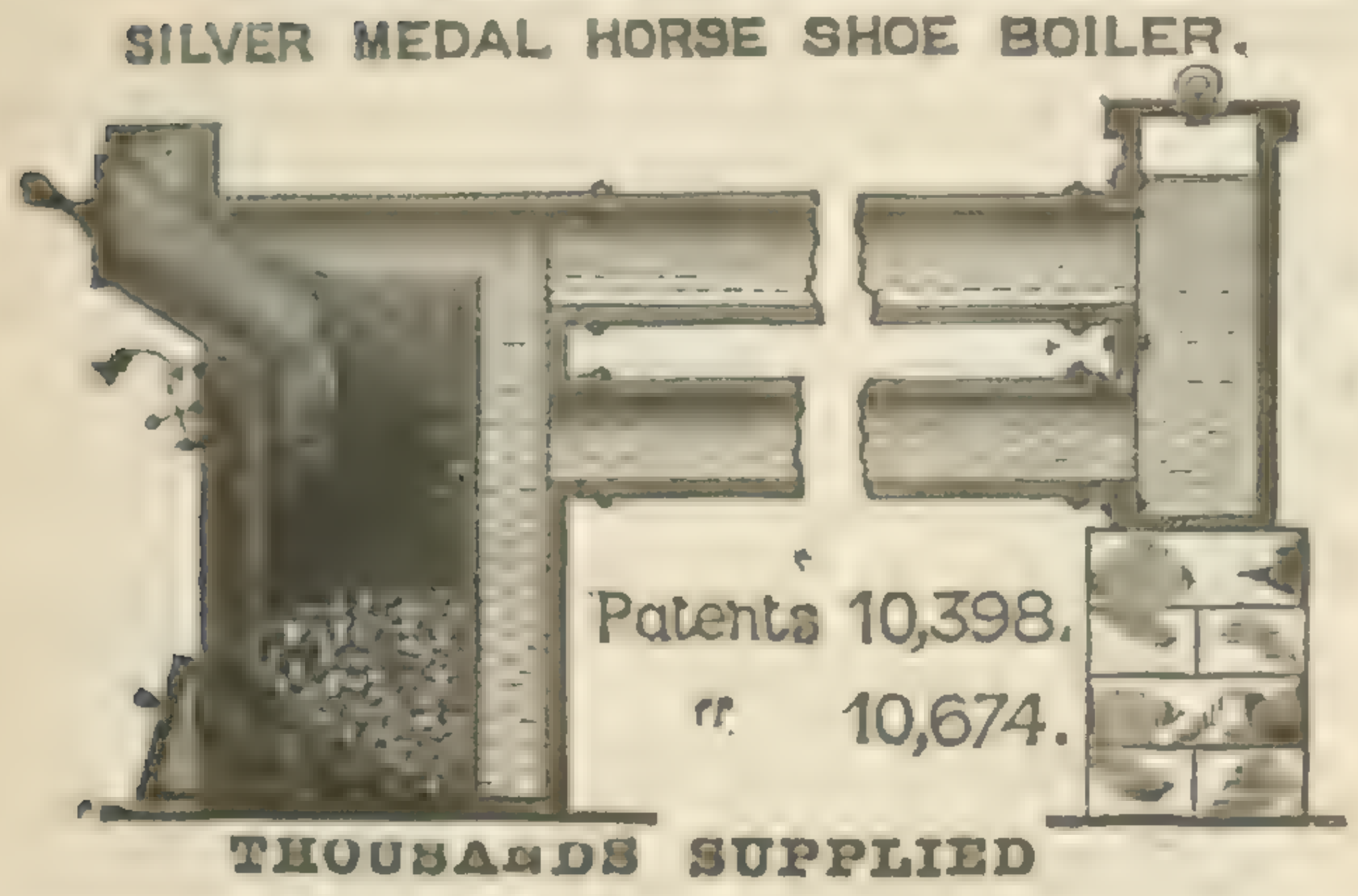

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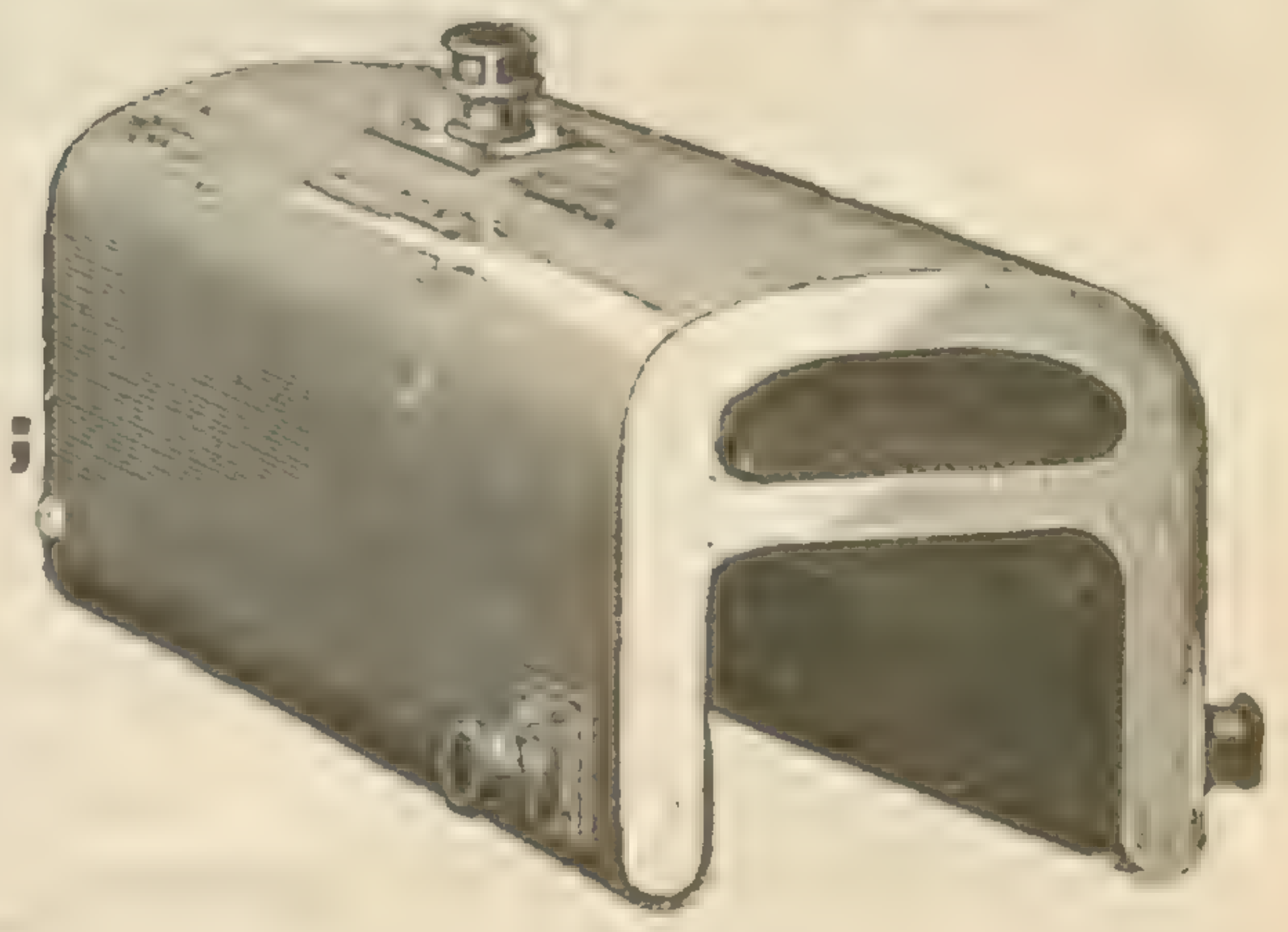

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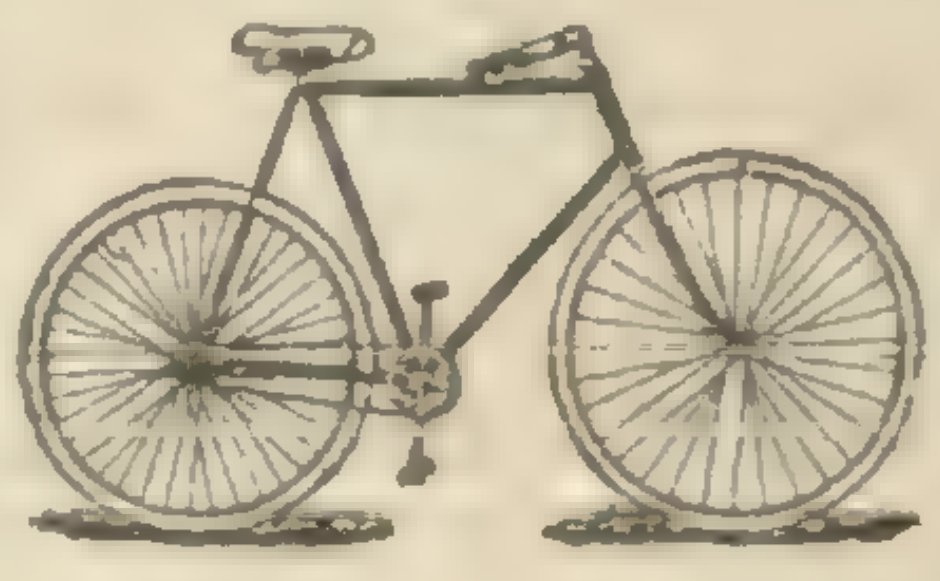

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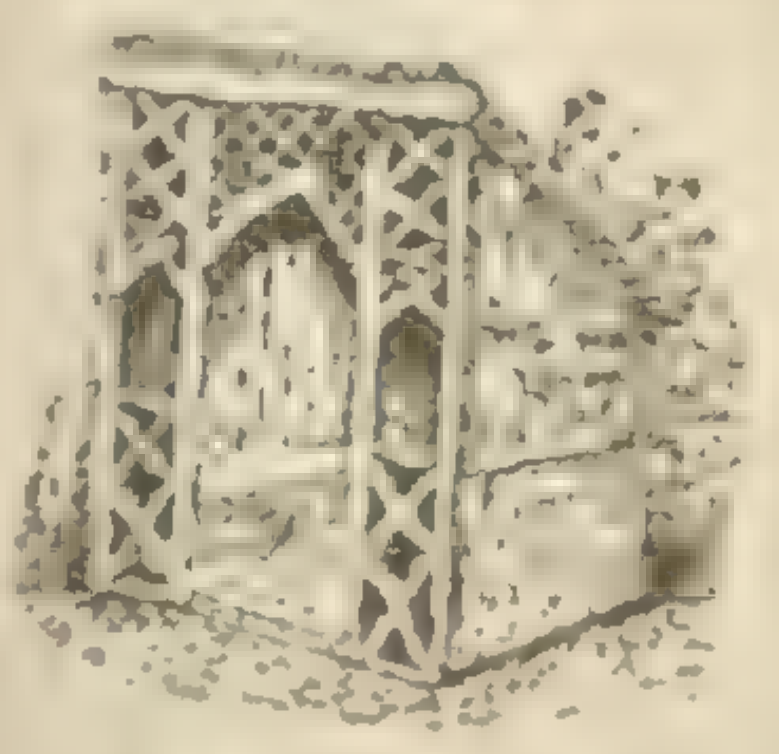

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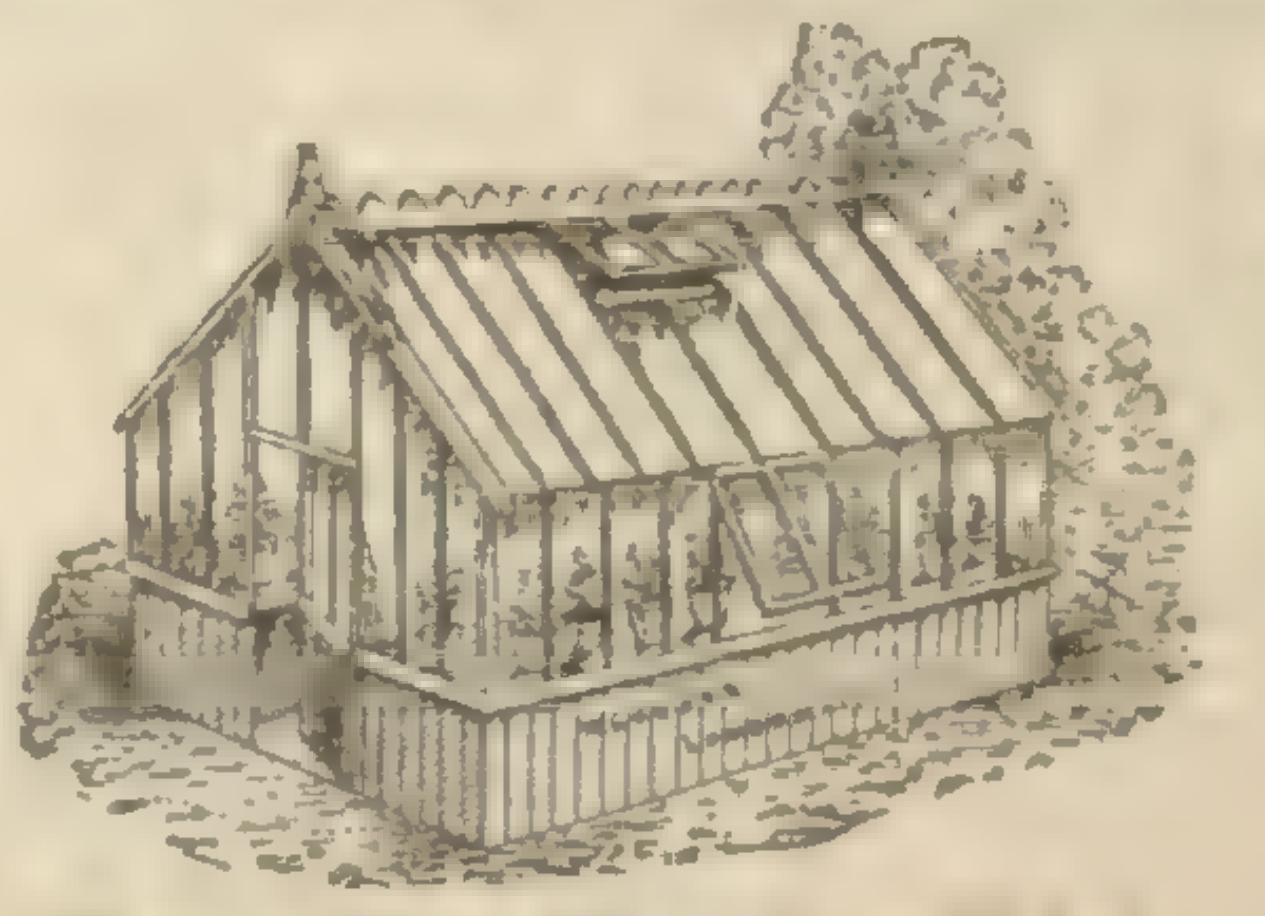

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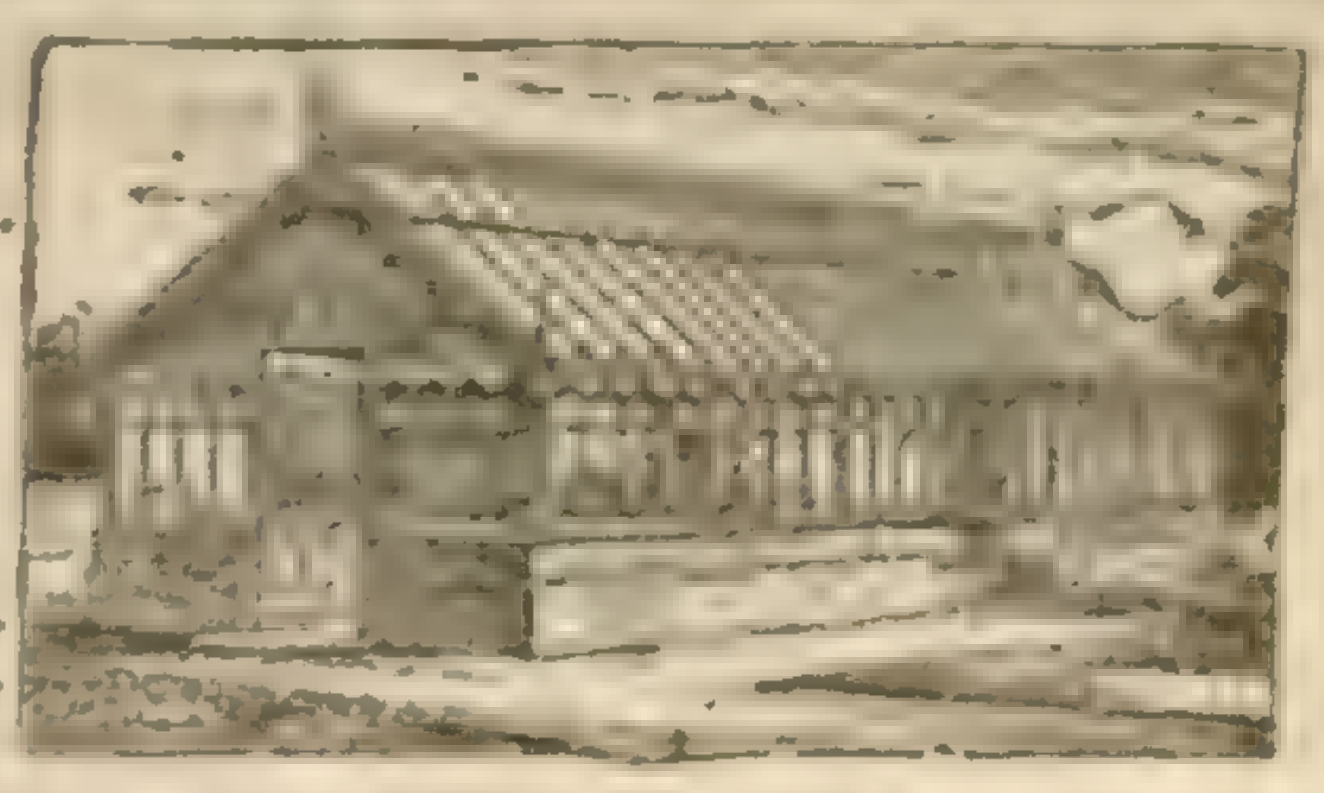

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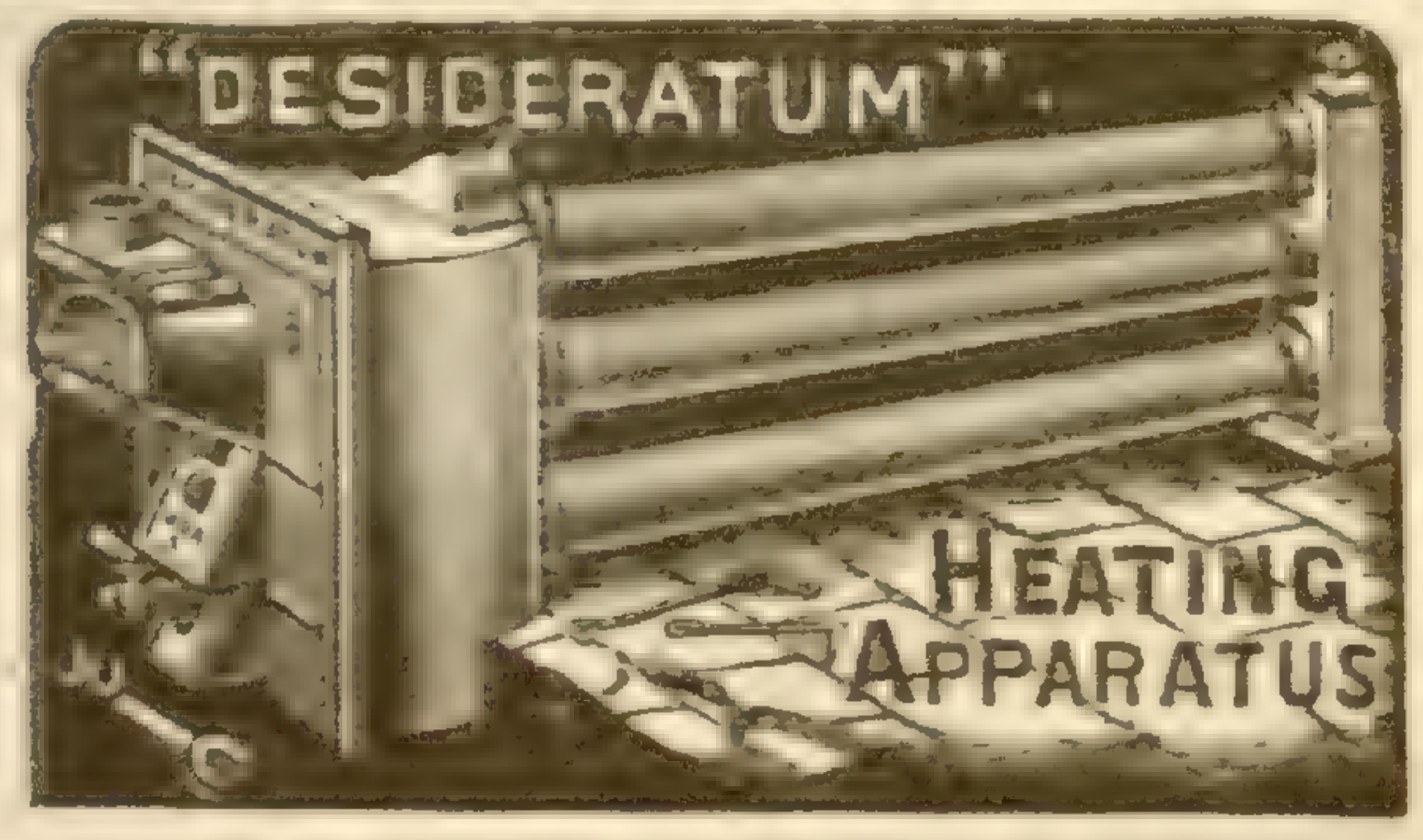

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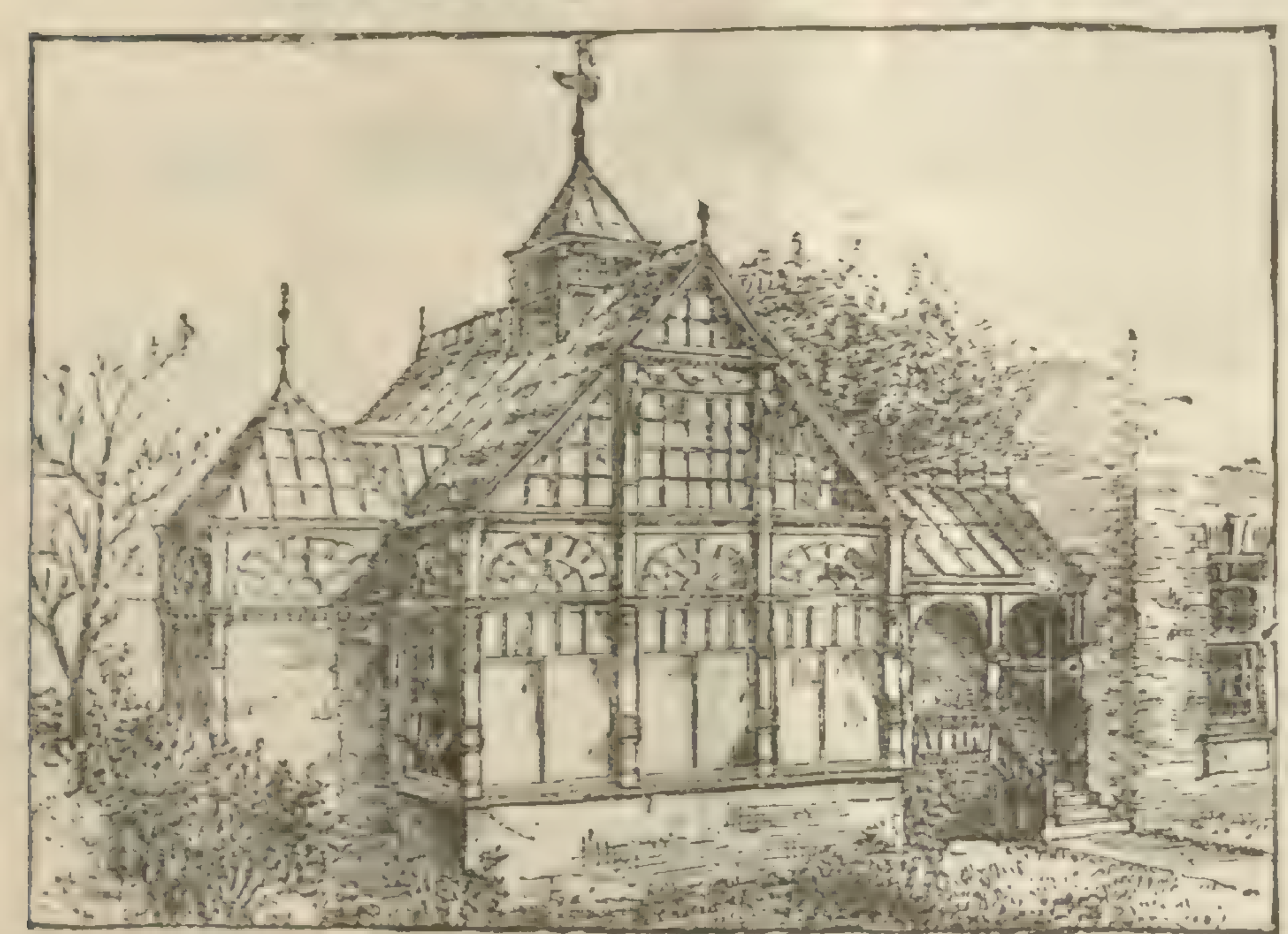

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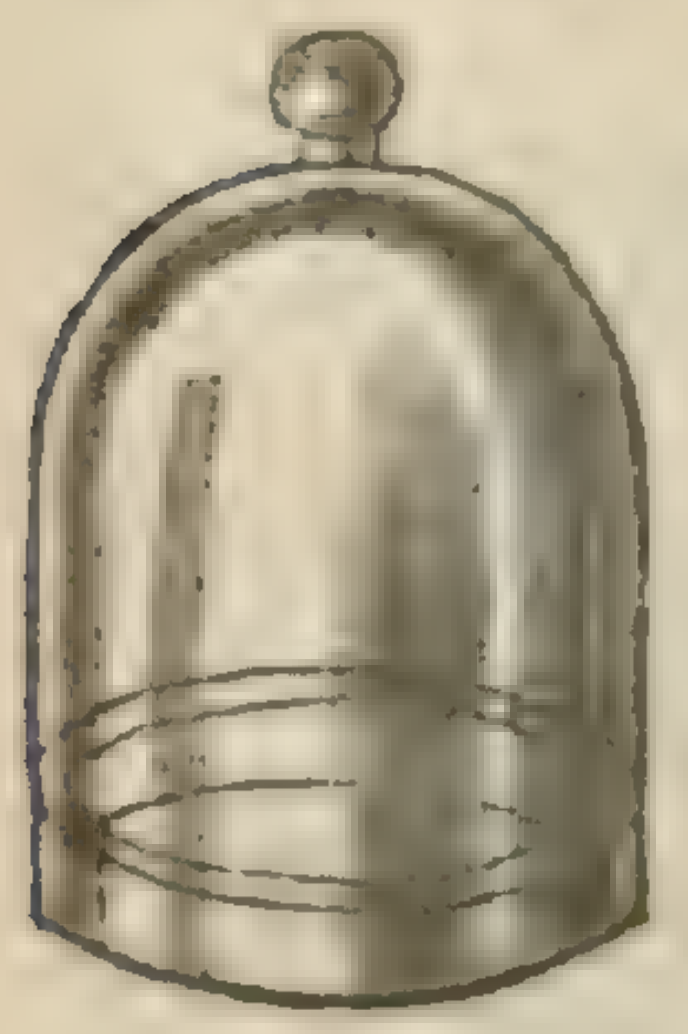

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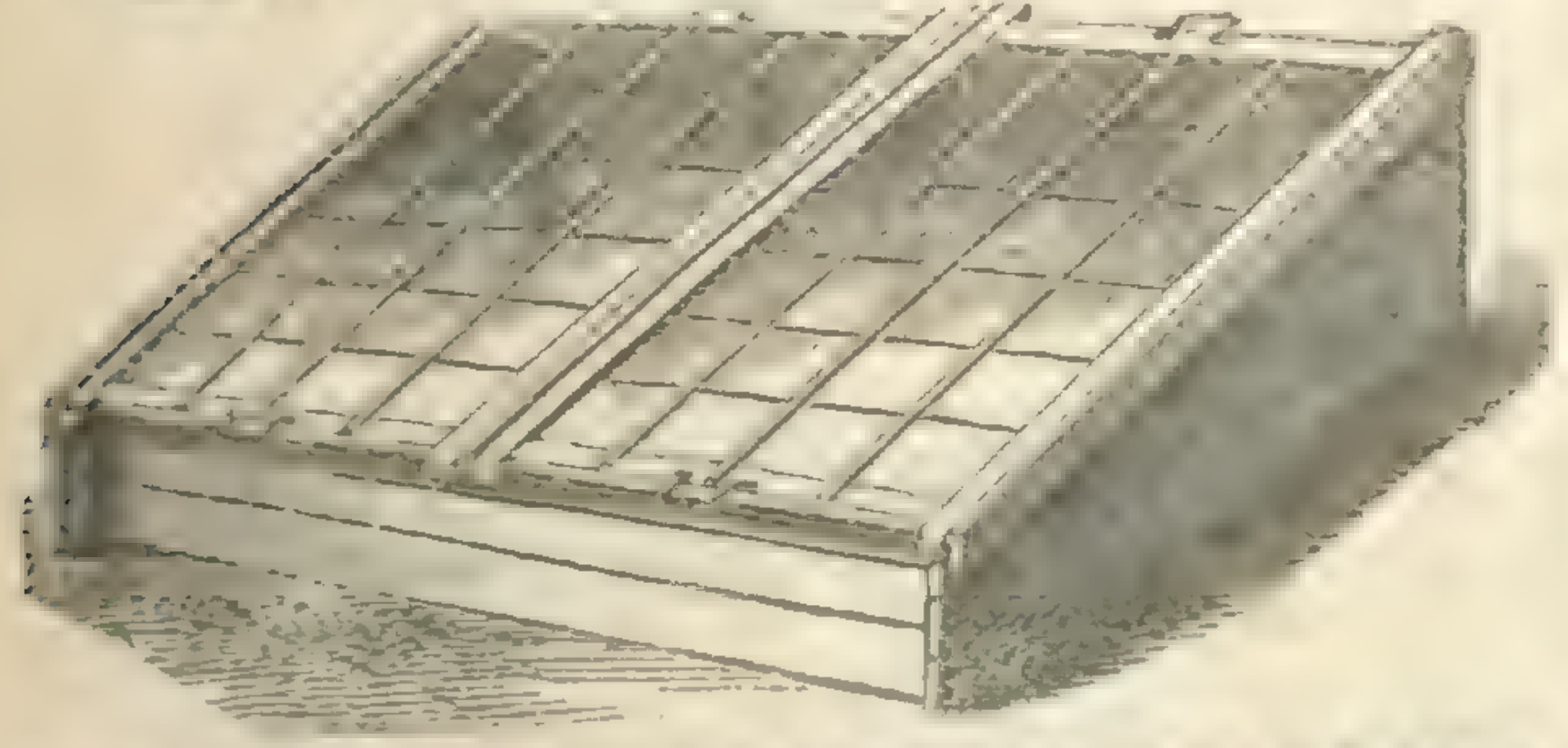

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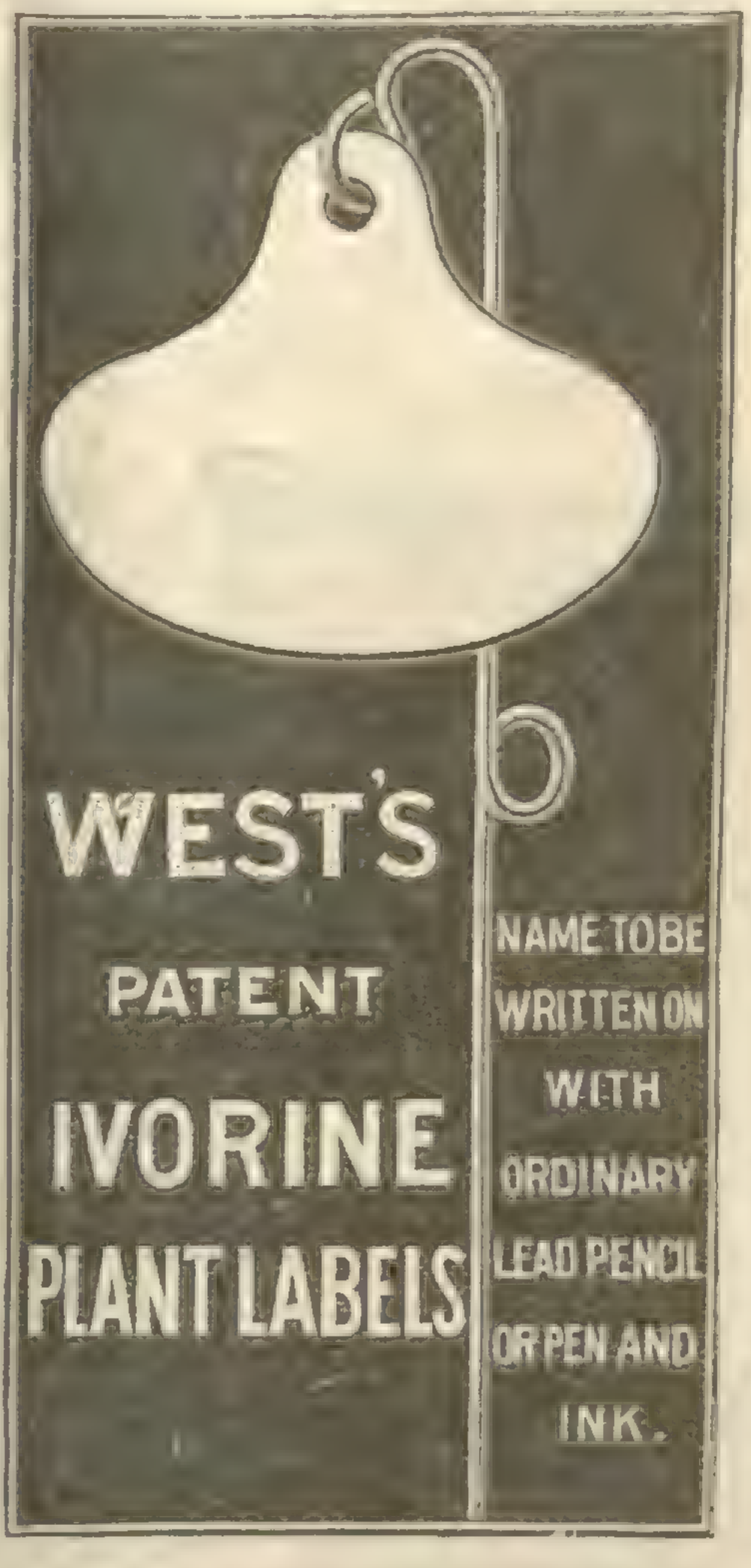
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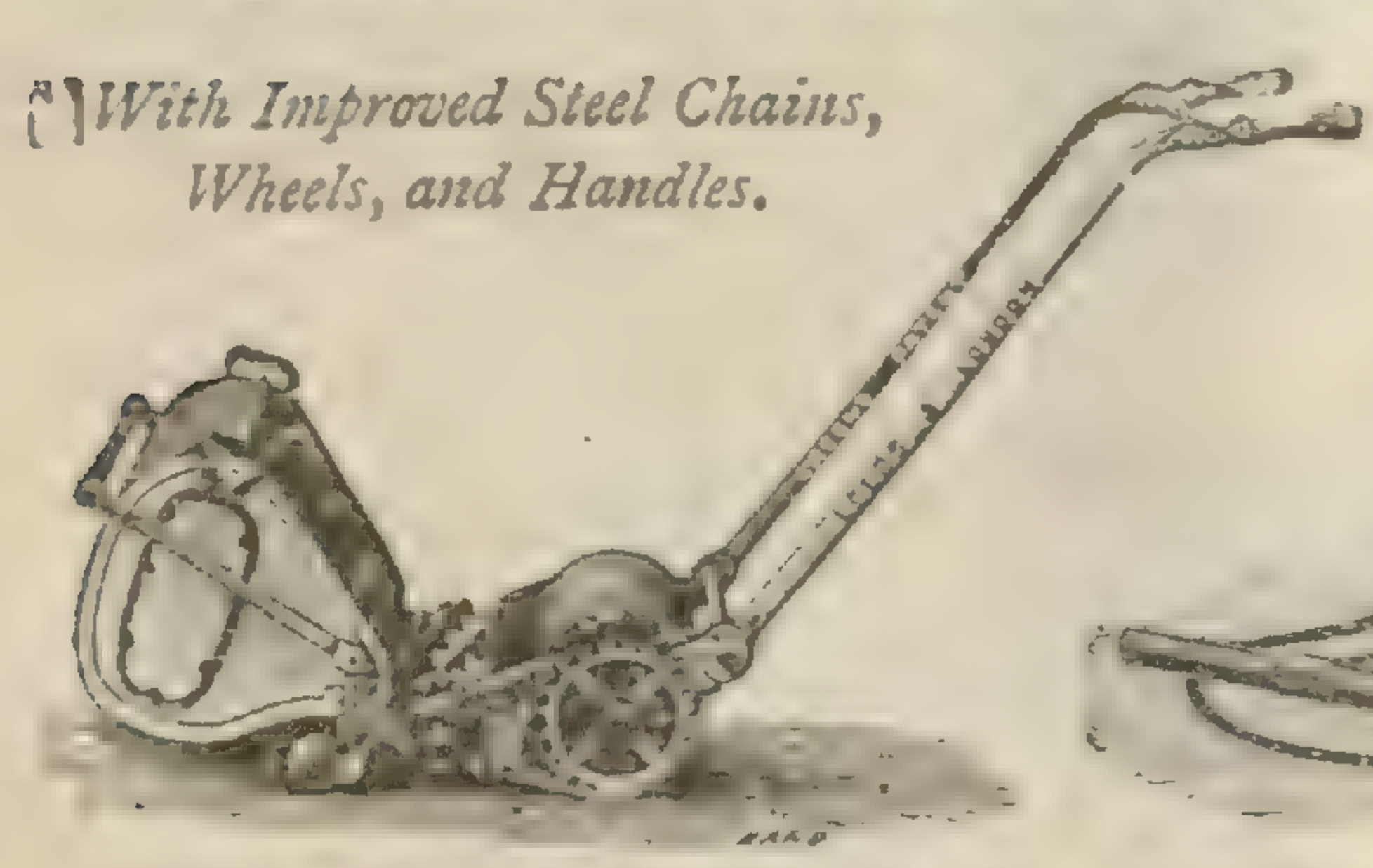

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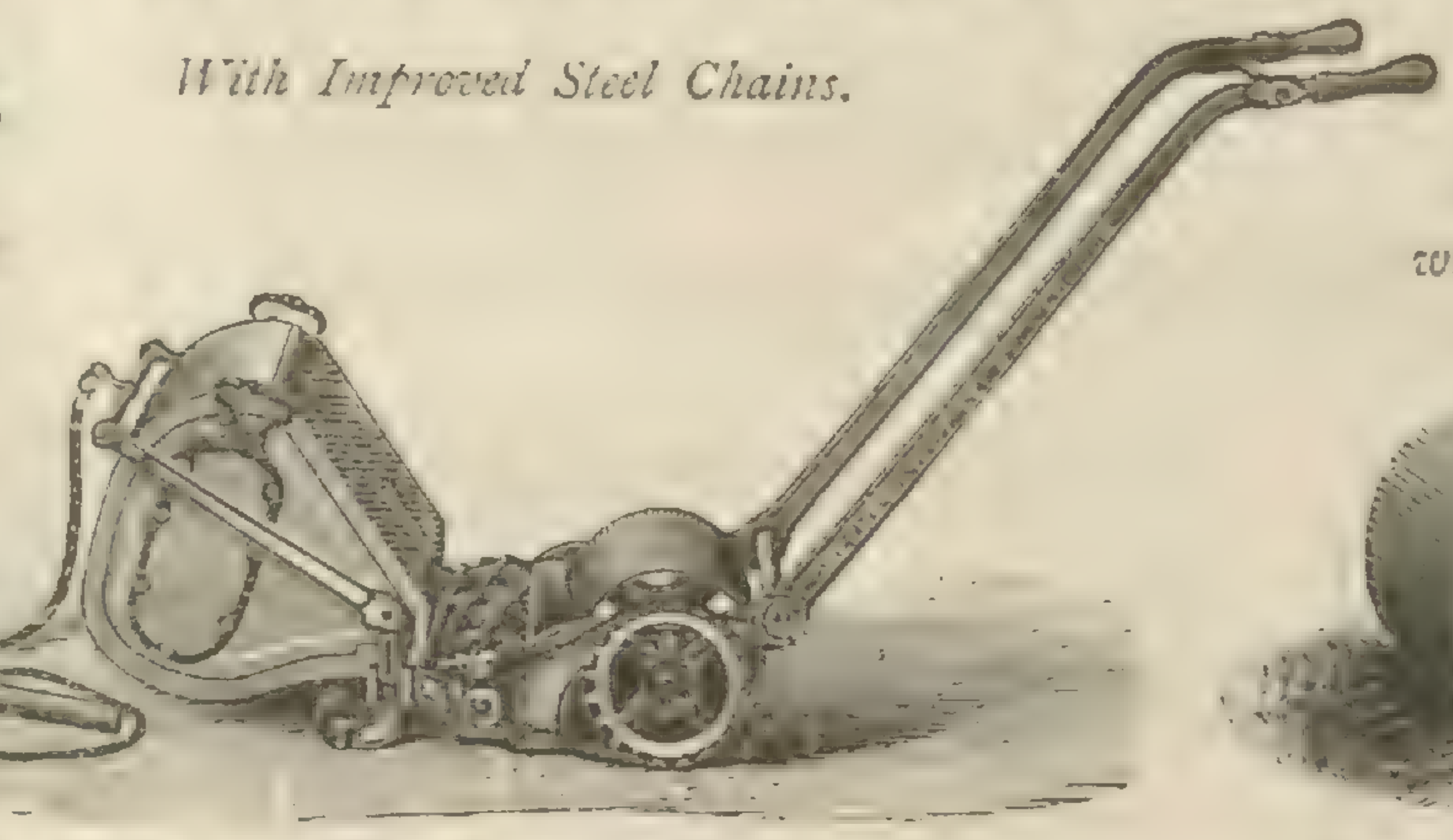

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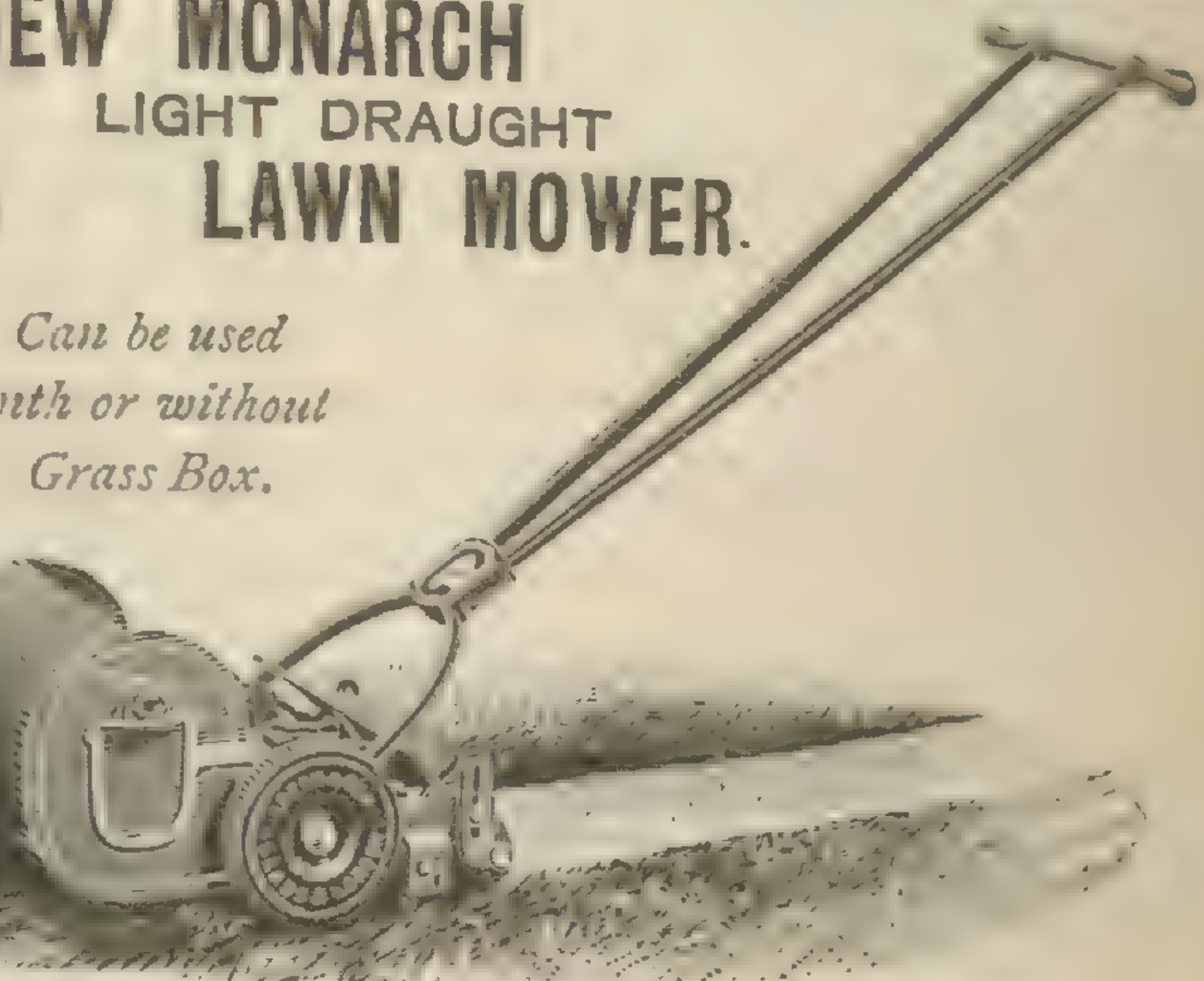

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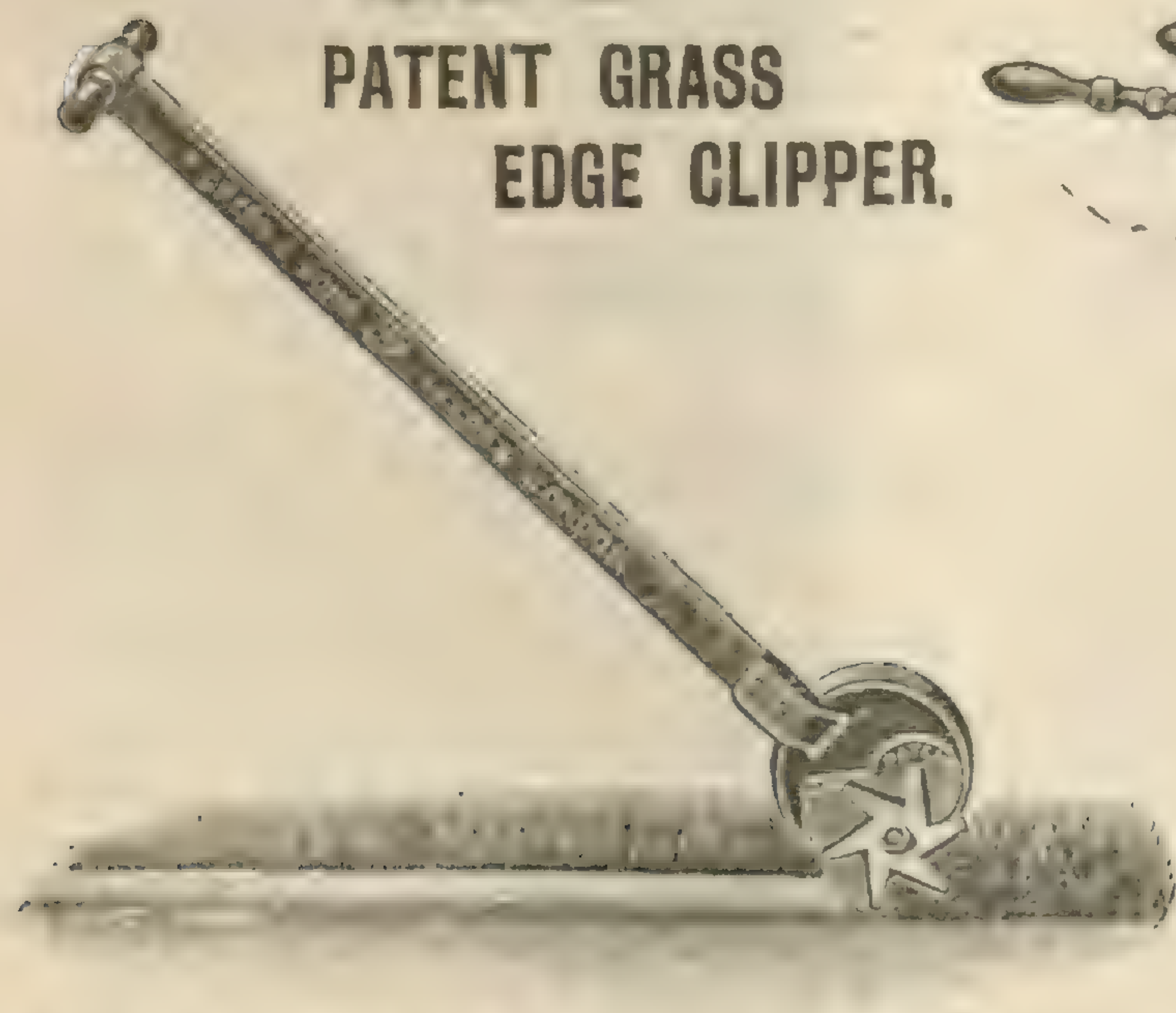

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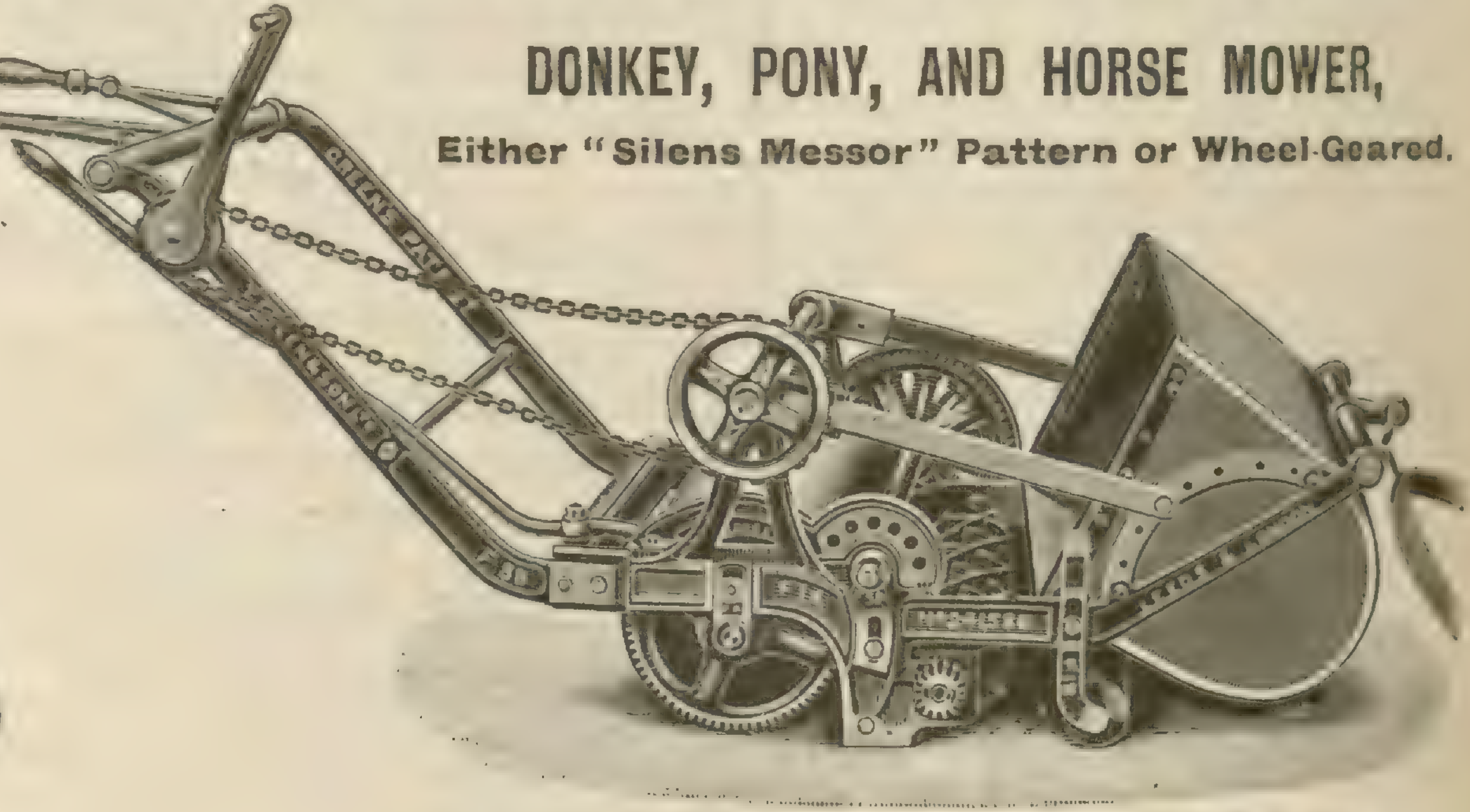

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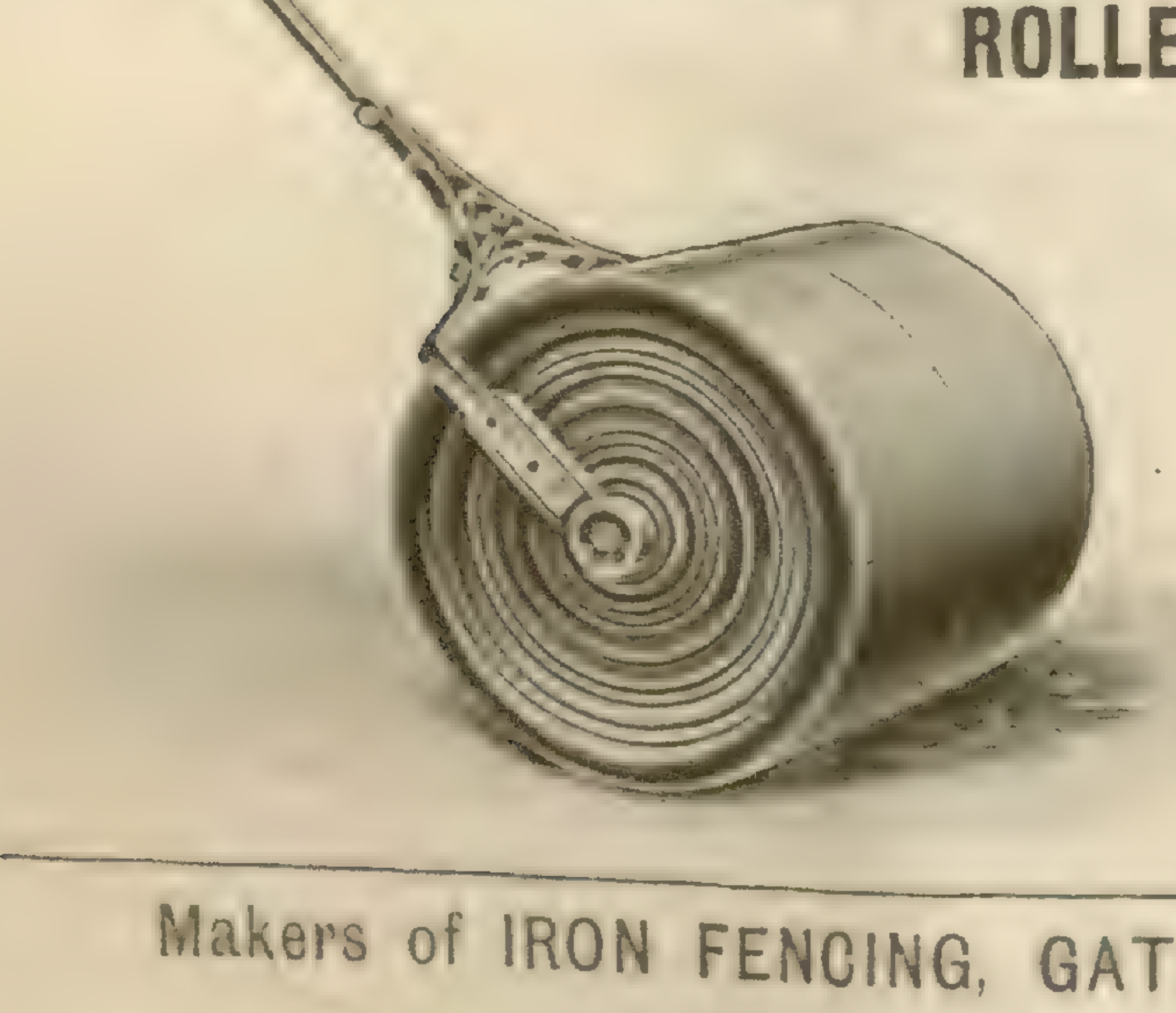

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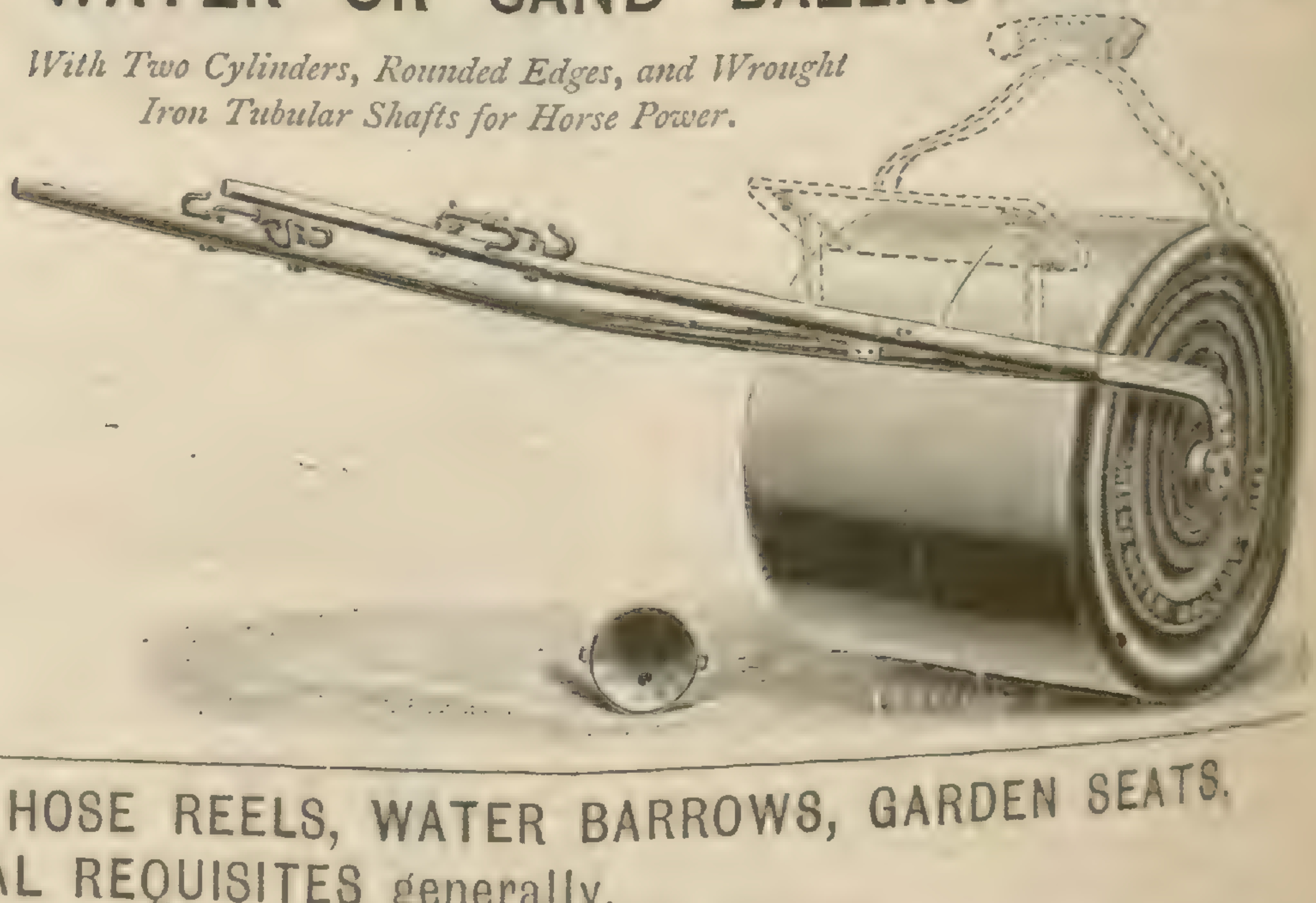

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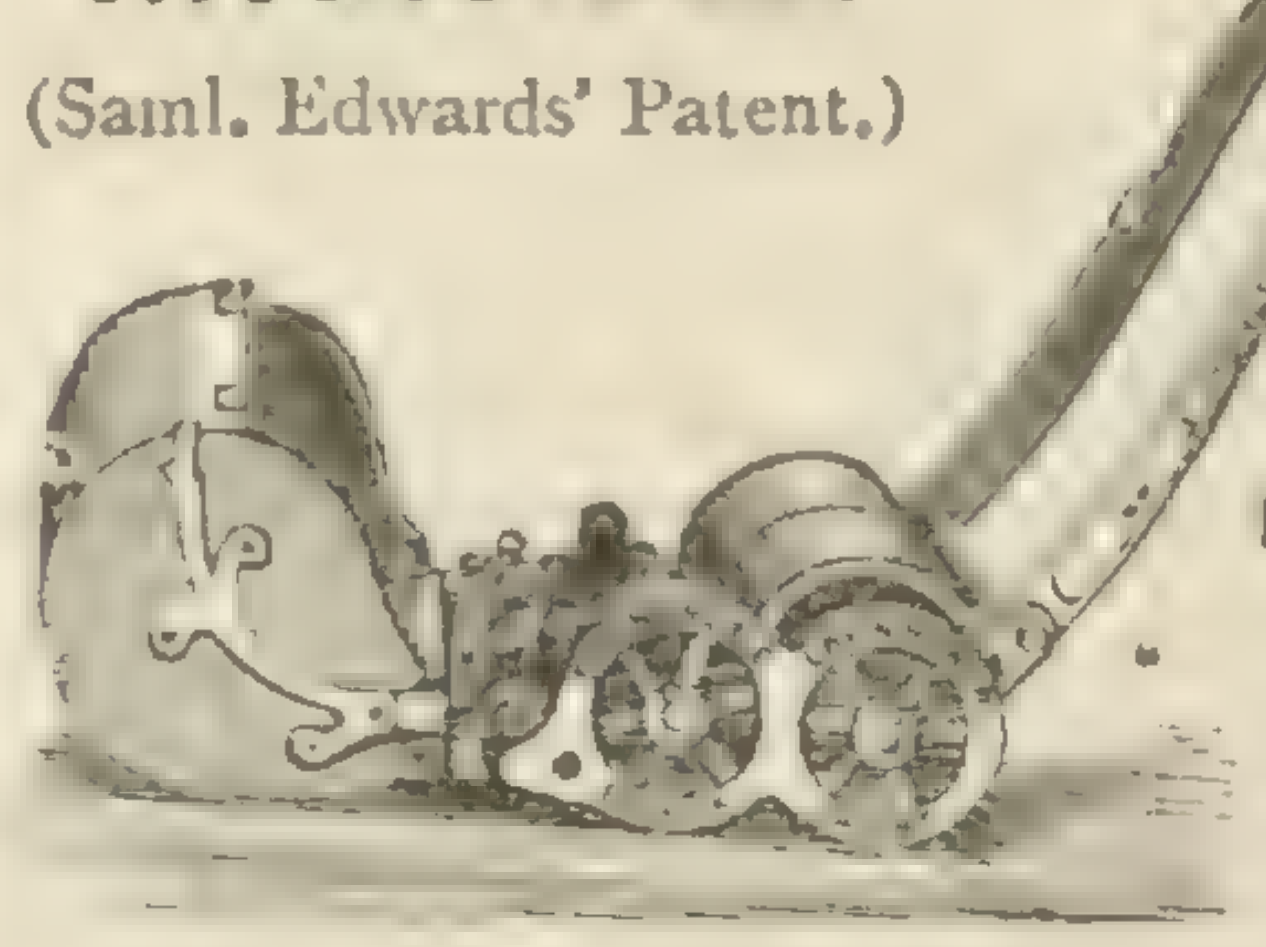

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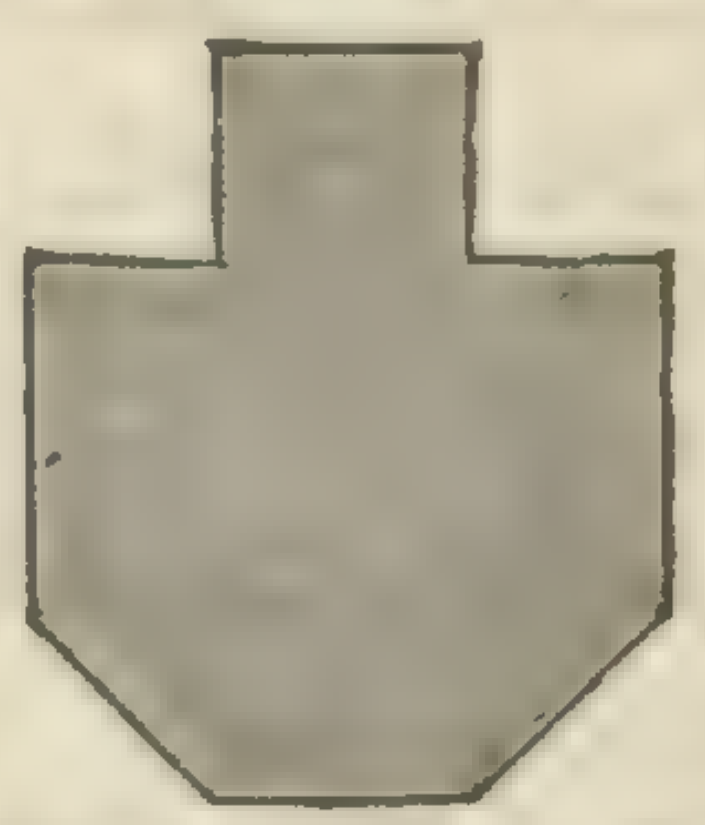

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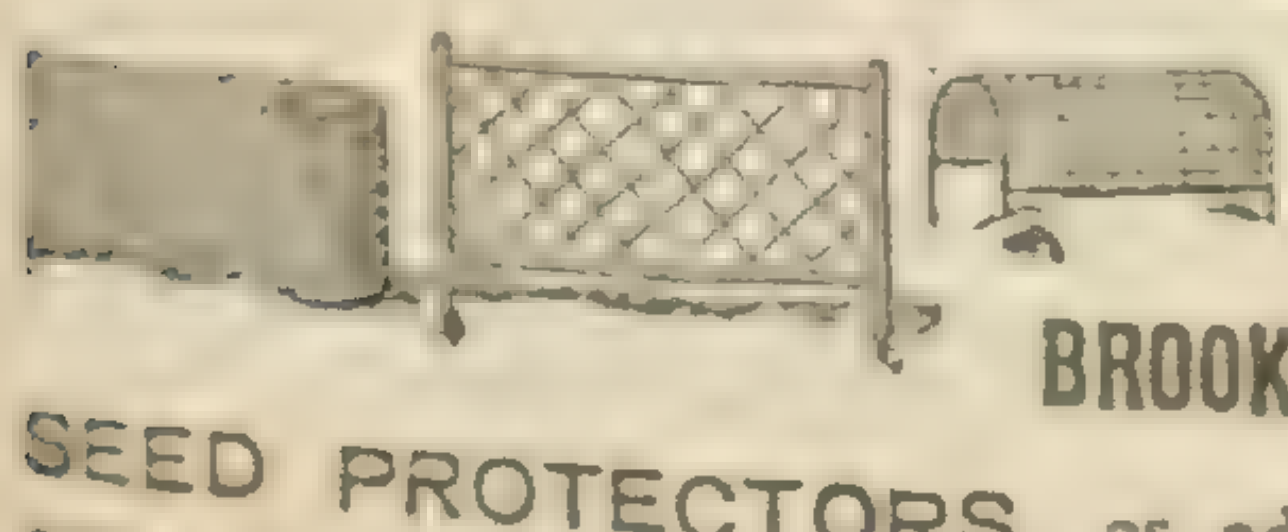

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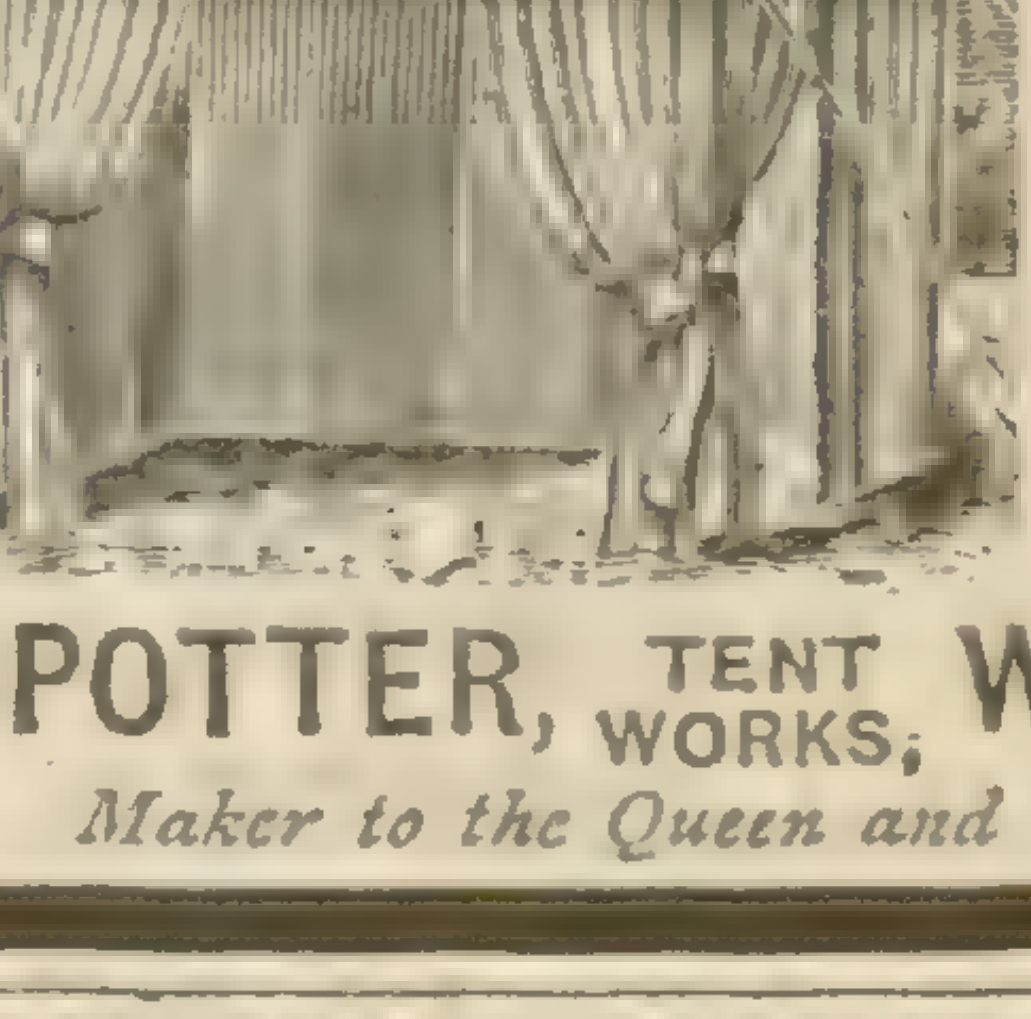

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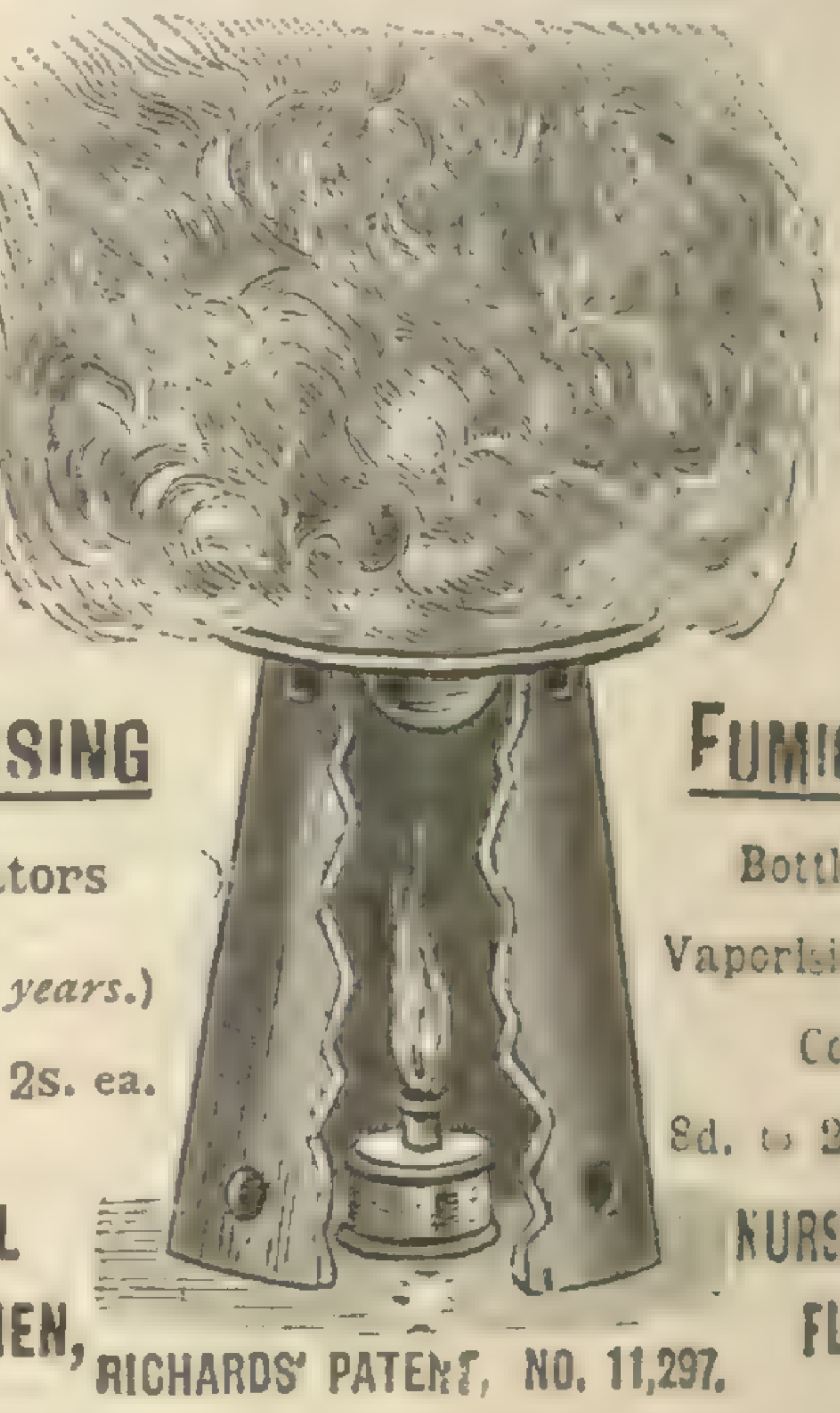

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THE GARDENERS' MAGAZINE.

SATURDAY, APRIL 30, 1898.

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RICHARD DEAN, V.M.H., Superintendent, 42, Ranelagh Road, Ealing, W.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.
GRAND EXHIBITIONS to be held on WHIT SATURDAY and MONDAY, MAY 28 and 30, 1898, and SEPTEMBER 21, 1898, at CHELTENHAM. Schedules and entry forms sent on application to the Secretaries,
Messrs. GEO. TOVEY and R. HENRY SMITH, 53, Regent Street, Cheltenham.
Entries close May 21 and September 17, 1898, respectively.

LECTURES IN HORTICULTURE.—Courses on Flower and Vegetable Culture, Soils, and the Physiology of Plants will be given during the Summer Months at the HORTICULTURAL COLLEGE, SWANLEY. Open to both sexes. Fee, One Guinea the course. Practical training in Bee and Poultry Keeping.
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NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

PLANT NAMES.

No true lover of flowers or plants of any sort is satisfied with vague generalisations, and just as the lover of his fellow-men must needs start a friendship, or even an acquaintanceship, by learning the name, at least, of a fresh introduction, so the real admirer of a new plant cannot rest until its name be known to him in like fashion. Unfortunately, as horticulture has developed, and almost every flower has yielded variety after variety, each one demanding some special appellation, the faculty of memory has become so severely taxed that it is only the specialist who can retain them, and then even only in his own particular branch. The very names of species as compiled at Kew fill several huge volumes, while many of these have varied in scores, and it may be in hundreds, of ways, so that eventually the botanist proper washes his hands of the matter, the scientifically descriptive names upon which the memory might fix are dropped, and the plants are christened arbitrarily with the names of men and women of note or otherwise, or in any fantastic fashion which serves to distinguish them from the crowd. It is also a matter of constant complaint that the same plant is differently named by different people, and this occurs by no means exclusively among non-botanical folk, as a list of scientific synonyms will speedily show. In this particular connection the up-to-date botanist and would-be reformer finds himself handicapped and saddled with an inheritance of misnomers which have become so well known as referring to certain plants that revision simply means further confusion. Even names which are based on recognised specific characters, such, for instance, as the shape and position of the sporeheaps in ferns, are applied to varieties of species which present other characteristics altogether, so that our common lady fern and its mountain sister (Polypodium alpestre) are actually classed both with the polypodies and the spleenworts, two extremely distinct tribes, though they are properly members of neither, but of a quite distinct one. The shield and male ferns are both included in one genus of aspidium as an example of the opposite or "lumping" system, a result of which is that in one of our best text books on the subject one and the same fern is termed aspidium, nephrodium, and lastrea in the text and the illustrations, and in certain lists referring to both. This may undoubtedly be called hairsplitting, but it is, rather, headsplitting; and we cannot wonder that the question of nomenclature becomes a bugbear, for "who shall decide when doctors disagree," and how can we consistently blame Tom, Dick, and Harry for haphazard names when confusion reigns at headquarters? The difficulty arises in two ways—the botanist has his naming work to do very often on the strength of dried specimens and descriptions, which may quite well convey an erroneous notion and lead to a misleading name: he has also to deal with a very wide field, so that it is impossible for him to know as much of the living plants as those who grow them and know them from a better point of view. With the breeder of new forms, the same variety often arises in different hands, and hence gets a different name, all of which points to the value of a single centre of reference as the cure, though such a cure can only be partial, the evil being just as sporadic and recurrent as the "sports" themselves.

PROSPECTS OF THE FRUIT CROP.

THE great plantations of cherries, pears, and plums in Kent, and other of the fruit-growing counties, are now in the full flush of their floral beauty, and the billowy masses of snow-white blossom that greet the eye on all sides add immensely to the charms of the landscape, and give rise to considerable speculation as to the ultimate results of this prodigality of floral wealth. It is yet too early to forecast the fruit harvest of the current year, for a severe frost or a comparatively short period of cold weather is sufficient to destroy the embryo fruits, and reduce the crop to within a measureable distance of the vanishing point. Already we have received several complaints of the injury that has been done in pear and plum orchards by night frosts, and in two or three instances both pears and plums are said to have had their flowers completely destroyed. These facts notwithstanding, we regard the prospects of the crop of each of the three kinds mentioned as distinctly hopeful, and we have little doubt that should the climatic conditions be favourable there will be abundant supplies. Apple trees are just beginning to unfold their rose-tinted buds, and in a short time hence will contribute materially to the beauty of the country districts. In the more southern counties the apple trees are already in bloom; but unlike those of the pears, the plums, and the cherries, the flowers were not sufficiently developed to expose their organs of reproduction to the keen easterly winds and sharp frosts that did considerable damage in some districts to other fruits. There is not only a greater profusion of blossom this year of the whole of our orchard fruits, but by reason of the thorough maturation of the wood in the autumn, the flowers are more perfectly developed than was the case in the spring of 1897, and therefore are better able to withstand the adverse influences to which fruits grown in the open in the United Kingdom are exposed. This fact, taken in connection with the highly favourable change that has taken place in climatic conditions during the past few days, fully justifies the anticipation of heavy crops of our commonly grown hardy fruits.

MANURES FOR TOMATOS.

THE question of the most suitable fertilisers for tomatos is of considerable importance to a very large number of cultivators, and any information that will assist in its solution is well deserving of careful attention. In the current issue of the Royal Horticultural Society's journal, Mr. W. Neild gives in his paper on the cultivation of tomatos, some particulars of the experiments he has conducted during the past two years with a view to determine the best manures for these much appreciated esculents. In carrying out the 1896 experiments, to which alone we shall now refer, the plants were at their final shift put singly into ten-inch pots, and the soil used was "a heavy and adhesive" loam from a pasture. Nothing, we learn, was added to the soil excepting a small quantity of lime rubble for the purpose of supplying the plants with lime and keeping the compost open. On receiving their final shift the plants were divided into ten batches, the following manures applied fortnightly, after the food constituents in the soil had been exhausted, at the rate of one-eighth of an ounce to each plant, and when more than one manure was used, the several kinds were mixed together in equal proportions: (1) Nitrate of soda and muriate of potash; (2) superphosphate of lime, muriate of potash, and sulphate of iron; (3) sulphate of ammonia and muriate of potash; (4) muriate of potash, sulphate of iron, and nitrate of soda; (5) sulphate of iron and muriate of potash; (6) muriate of potash; (7) sulphate of iron; (8) nitrate of soda; (9) sulphate of ammonia; (10) superphosphate. The results obtained were exactly what might have been expected. Nos. 2, 5, 6, 7, and 10 were failures, the fruit being undersized, and the foliage had a yellow, sickly appearance. Nos. 3 and 4 produced a moderate crop, and the plants were fairly healthy; Nos. 1, 8, and 9 made a vigorous growth, and yielded an excellent crop, but hardly equal to that obtained from plants that were supplied with liquid manure from the stables. No figures are given with regard to the weight of the crop, but it will be seen that the best results were obtained from nitrate of soda and sulphate of ammonia when used alone than when combined with muriate of potash, and we are not surprised that this should have been so. Without an analysis of the soil we are not in a position to speak positively with reference to the percentage of potash, but as the soil is described as heavy and adhesive, it is safe to assume that it contained sufficient potash for the requirements of the plants, and that nitrogen alone was required to enable them to make a vigorous growth. Mr. Neild, in his comments on the results, observes: "Potassic manures have long been considered the best for tomatos, and yet when muriate of potash was applied by itself it proved to be a failure," an observation showing that much has yet to be learnt with regard to the food requirements of plants and the application of manures.

There can be no question as to the value of potassic salts as a constituent of the food of the tomato, but they must be in suitable form and proper proportions. In Mr. Neild's experiments the muriate of potash was applied so liberally that at each application the dressing was equivalent to nearly four cwt. per acre, and assuming four dressings were given, we have a total of sixteen cwt. per acre, a quantity so large that it must have seriously affected the health of the plants. Moreover, the muriate is not the best form in which to apply potash to the tomato as to some other crops, as, for example, potatos, tobacco, and sugar beets. Used in moderate quantities it tends to render potatos waxy in texture, to reduce the quantity of crystallisable sugar in beet, and to impair the flavour of the tobacco leaf, and the injurious effect produced is considered to be due to its tendency to give rise to the formation of calcium chloride, a compound more or less injurious to plant life. Potash and phosphates are not sufficiently active to admit of their being profitably used as fortnightly top-dressings, and the preferable course is to mix them with the compost when being prepared, and in moderate quantities, the necessity for this course being brought into strong relief by the results of Mr. Neild's experiments. These results are also useful in reminding cultivators that plants should not be supplied with an excess of some one constituent of their food, but must have, to ensure their full development, the whole of the constituents in proportions adapted to their requirements.

Fertility of Hybrid Orchids.—Before Darwin published his "Origin of Species" it was an article of common belief that distinct species were seldom fertile with each other, and that if hybrids were raised at all they were sterile. Darwin made an elaborate study of the question, and as the result came to the following conclusion: "First crosses between forms sufficiently distinct to be ranked as species, and their hybrids, are very generally, but not universally sterile. . . . The sterility is of all degrees." In "Animals and Plants Under Domestication," Darwin observes, "The sterility of distinct species first united and that of their hybrid origin graduates by an almost infinite number of steps from zero up to complete fertility. . . . This high degree of fertility is, however, rare." Dr. Alfred Wallace held similar views, and so late as 1890 he stated in "Darwinism" "Distinct species on the other hand, however closely they may resemble each other externally are usually infertile when crossed, and their hybrid offspring absolutely sterile." Yet it is recorded that 783 hybrid orchids have flowered, 485 of which were obtained from crosses effected between distinct species, and 248 from the inter-crossing of hybrids. With reference to this interesting question Mr. C. C. Hurst cites in his "Notes on Some Curiosities of Orchid Blending" in the current issue of R.H.S. Journal some figures placed at his disposal by Mr. Reginald Young, of Sefton Park, Liverpool. Taking the East Indian cypripediums, Mr. Hurst states that Mr. Young has made 577 crosses among thirty distinct species, and fifty-three distinct hybrids during the past five years, crossing species with species, species with hybrids, hybrids with species, and hybrids with hybrids, and all under uniform conditions. Out of these 577 crosses Mr. Young succeeded in obtaining 452 pods of good seed, which represents 78·3 per cent. fertile. An analysis of these figures shows that out of 188 crosses between distinct species 179 pods of good seed were obtained, a degree of success difficult to excel even in crosses between varieties of the same species, representing as it does 95·2 per cent. fertile. While out of 389 crosses in which a hybrid was concerned in the parentage 273 pods of good seed were obtained, being 71·8 per cent. fertile, showing a decrease of fertility of 23·4 per cent. in crosses between hybrids as compared with crosses between species. This seems to point to the conclusion that in this cypripedium group while crosses between distinct species are almost, if not quite, as fertile as crosses between varieties of the same species, yet crosses with hybrids, though fertile to a very large extent, are yet slightly less fertile than crosses between species. What is the cause of this slight decline in the fertility of hybrids? From Mr. Young's experiments it seems to be due in a large measure to the loss of power in the male element of the hybrid. For out of 143 hybrids crossed with the pollen of pure species 128 fertile pods were obtained, or 89·5 per cent., showing a very slight loss of power in the female element of the hybrids of 5·7 per cent. While out of 118 pure species crossed with the pollen of hybrids only sixty-seven pods of good seed were obtained, showing 56·7 per cent. fertile.

Smooth-leaved Kales.—It is a fortunate circumstance that the destructive fungus which so generally destroyed the smooth-leaved kales at Chiswick connected with the kale trial there, and in other places in the metropolitan area, does not seem to have extended to the provinces. Certainly, it has not been found everywhere. We very recently saw at Norbiton remarkably nice clean breadths of that hardy kale, Chou de Milan, and later at Hackwood Park, Basingstoke, a fine breadth of delicious Breda kale. It was this variety, the asparagus, Ragged Jack, and similar ones that were so entirely eaten up by the fungus at Chiswick and elsewhere. The Breda is held in very high esteem at Hackwood, and it was evident that at this time of the year a good breadth in perfect health must be a blessing to any gardener. It is to be hoped that these fungus troubles may be of but a temporary nature, and that in a year or two hence all our borecole stocks may be as free from them as the curled ones have been.

Lovers of Curious Orchids, especially of that section known horticulturally as "botanical," will find a large number of interesting species now flowering in the orchid houses at Kew. Some few of the species are sometimes found in private collections, such as Masdevallia Ephippiam, Maxillaria Houtteanum, Cochlioda rosea, Epidendrum elongatum, and Ærides Sandarum; but where only the showiest of orchids are grown these are taboed. A few of these tiny orchids are Maxillaria sanguineum, M. aciantha, a green-flowered Costa Rica [illegible] præstans, a yellow and red brown Guatemalan species; Lycaste [illegible] white and green, worth growing; Calypso borealis, a charming and [illegible] orchid; Disperis capensis and Holothrix villosa, two other terrestrial [illegible] Bletia gebina, Odontoglossum retusum, brown and yellow; Polystachya [illegible] Ornithidium nanum, Epidendrum Linkianum, and E. stenopetalum, [illegible] with white centre to the lip. Those whose knowledge of orchids does [illegible] beyond varieties and hybrids of odontoglossums, cattleyas, and cypripediums, would obtain a fair idea of the enormous variation of form and growth the order contains, by a visit to the Kew collection.

Germination of Beet Seed.—The seed of the beetroot, as cultivators are aware, materially differs from that of other of the vegetables grown in British gardens, and sometimes perplexes those who, not acquainted with its peculiarity, conduct experiments with a view to determine its germinative power. The "seed" of two or three true seeds is enclosed in the hard corky calyx of the parent flower. Hence, when the "seed" germinates in the ground, two or three young plants present themselves at one spot, and this makes the crop more difficult to hoe effectively than is the case with other root crops. But there is an earlier trouble than the one incident to hoeing with which cultivators are not unfamiliar, and that is the uncertainty of germination. An investigation, conducted at the Wisconsin Agricultural Experiment Station, on the influence of varying amounts of water on the germination of beet seed, throws some light on the matter. In the experiment the seeds were placed for germination in asbestos cloth—a drier cloth, containing approximately 87 per cent. of water by weight at the beginning of the trial and 83 per cent. at the end, and a wetter cloth, holding about 92 per cent. of moisture at the beginning and 111 per cent. at the end. The average germination from the two testers showed a difference of fifty seeds for each hundred seedballs—as they are not inappropriately termed—in favour of the drier cloth. It would appear, therefore, that the germination of beet seed in the open ground is liable to be prevented by excess of water in the soil.

New Roses that have the promise of proving useful for enhancing the charms of the garden are sure of a warm welcome, and the new climbing roses presented to public notice by Messrs. Paul and Son at the R.H.S. meeting on Tuesday last did not fail to obtain a full share of attention. They were named respectively The Dawson and Psyche, and the first is a variety raised in the Arnold Arboretum from a cross between the single-flowered Polyantha and General Jacqueminot, and has been grown at Kew for several years past. It has a vigorous free-flowering habit, and produces large clusters of small flowers of a pink colour. We gave a characteristic illustration of this charming rose in the volume of the GARDENERS' MAGAZINE for 1896. Psyche was raised at Cheshunt from Golden Fairy, a dwarf-growing polyantha, fertilised with the pollen of Turner's Crimson Rambler, and has a scandent habit, the growth and foliage closely resembling that of the pollen parent, and the flowers are about two inches in diameter, quite double, flesh pink suffused with carmine rose. The plants shown, although only about fourteen months from the graft, were about six feet high, and were clothed with foliage and flowers from the rim of the pot to the apex. Psyche should prove a valuable companion to Crimson Rambler, and one of our best climbing roses.

Vegetables are so limited in variety at this season of the year that the [illegible] comprehensive and otherwise excellent collection contributed to the meeting of [illegible] Royal Horticultural Society on Tuesday by Mr. George Wythes, of Syon Gardens, formed an interesting feature. The principal varieties represented [illegible] lection are enumerated in our report of the Fruit and Vegetable [illegible] the names are of value as showing that vegetables which may be had in [illegible] early in the spring are sufficiently numerous to admit of the maintenance [illegible] and excellent supply. Mr. Empson also had excellent vegetables in his [illegible] laneous collection.

Australian Medicinal Plants are plentiful, though at present [illegible] have been utilised, and these but to a limited extent. In New [illegible] such plants are abundant, many kinds being found in the immediate [illegible] Sydney, especially in the Parramatta district. One of the most common [illegible] wild penny-royal, a decoction of which is largely used as a tonic. [illegible] oil may be extracted from it, which may be employed both as a medicine and [illegible] means of imparting a pleasant odour and flavour to other ingredients. [illegible] plants of the Gentian family, plentiful enough in the spring, have proved [illegible] efficacious in certain stages of dysentery. The common native raspberry, [illegible] other species of Rubus, possesses astringent properties, which may one day [illegible] it a place in the colonial pharmacopœia; which already includes the native [illegible] saparilla, although, notwithstanding the latter abounds in the [illegible] Sydney, the bulk of the sarsaparilla used by colonial [illegible] country people frequently prepare an agreeable and [illegible] native plant, which costs nothing save the labour of collecting it. It is [illegible] by the name of Sweet Tea or Wild Liquorice. There is also a native [illegible] to the sassafras of the pharmacopœia, which possesses medicinal properties [illegible] but little understood. The native grape yields a rich [illegible] used as a gargle, to be good for sore throat. The native [illegible] perties in common with the European species, and the leaves are frequently [illegible] for making herb tea. Self-heal is plentiful and indigenous, as in Europe; [illegible] bitter and astringent, and occasionally used as a substitute for bark. The [illegible] in England, are supposed to be efficacious in healing cuts, hence [illegible] different species of native currant possess a powerful acid, capable of being [illegible] for flavouring sugar drops or employed as a substitute for lemon syrup.

The Pine Aphis (*Lachnus pini*) was found in [illegible] trees of Cedrus deodara about twenty feet high by a [illegible] the Board of Agriculture in January. The attack [illegible] the trees as to cause them to assume a yellowish hue, and consequently to give rise to some anxiety on the part of the owner. As pointed out in the Board's Journal, it is unusual to find aphids materially damaging plants and trees growing in the open thus early in the year, but there can be no doubt that the abnormal state of the weather until February greatly favoured the attack. Aphids are frequently found alive in winter, but seldom in sufficient numbers to cause injury to the plants on which they are found. The pine aphis attacks several species of firs, especially the Scotch fir, but is not often seen upon deodars. It is one of the largest of the British aphides. The wingless viviparous female is brown in colour, and, according to Mr. Buckton, there is also a darker variety. It has very long legs, particularly the hind pair, and an extraordinarily long beak or rostrum, with a spear-like point, with which it pierces the firs at the base of the "needles," and extracts the sap. Its body is covered with short hairs. Upon the needles of the pieces of deodars sent for examination to the Board little groups of fine white threads were seen, evidently produced by these aphides. The most serviceable remedy would, it is suggested, be to syringe the infested trees with solutions objectionable to the insect, so as to make its food distasteful. Nothing could be better for this than the composition used for freeing hop plants from their peculiar aphides, made by mixing eight pounds of soft soap and the extract of six pounds of quassia chips to one hundred gallons of water. This should be syringed all over the trees by means of garden-engines with strong pumps; or, if the tree is too high, knapsack machines for spraying may be used by men upon ladders. This must be done very carefully, and the syringing would probably have to be repeated.

Trillium grandiflorum is well known as one of the most beautiful hardy plants flowering in spring, but its value for pot culture is not fully recognised; hence the magnificent specimen exhibited at the R.H.S. meeting on Tuesday by Mr. Empson, the chief of the Ampthill House Gardens, is deserving of special mention. The specimen in question was about thirty inches in diameter, and was furnished with a profusion of its chaste snow-white flowers, and it created much interest among the visitors.

At the Swanley Horticultural College courses of instruction will be given during the summer, and open, for the first time, to non-resident students of both sexes. Professor Warrington, of Oxford, will deal with Soils; Professor Henslow will treat upon the Physiology of Plants; and the Messrs. R. and A. Dean will discuss Flower and Vegetable Culture. Courses of instruction in Bee and Poultry Keeping will also form part of the programme.

Vegetable Culture in Italy.—The cultivation of vegetables in Italy has been greatly extended of late years, and the exports of both fruits and vegetables have materially increased. The export of dried vegetables was 498,000 cwts. in 1895 and 794,000 cwts. in 1896, chiefly to Austria, Great Britain, France, Spain, and Portugal. No statistics are available as to the production of fresh vegetables, but cauliflowers, broccoli, artichokes, tomatos, and other fresh vegetables form an important article of export in the winter; the quantity sent abroad in 1895 was 315,000 cwts. and in 1896 380,000 cwts. Only 3,952 cwts. are stated to have been exported to great Britain direct in the latter year. The exports of preserved fruit and vegetables have steadily increased during recent years; in 1893 they amounted to 21,751 cwts., and in 1896 to 64,112 cwts., of the latter quantity 44,556 cwts. were shipped to Great Britain. The production of potatos is practically stationary. In 1870-74 the average yield was 14,121,000 cwts., it fell in 1883 to 11,196,000 cwts., but in the three years 1892-96 it amounted to an average of 14,411,000 cwts. The export in 1896, chiefly to Austria, Malta, and Germany. was 484,000 cwts.

Irish Nurserymen and Market Gardeners.—At a recent meeting of the Council of the Royal Horticultural Society of Ireland a brisk discussion took place with reference to the position of nurserymen and market gardeners under the provisions of the Local Government Bill. The outcome of the discussion was the passing of a resolution "That this Council of the Royal Horticultural Society of Ireland desire to urge on the City and County of Dublin Parliamentary representatives to endeavour to alter the proposed Local Government Bill to the extent of including all agricultural lands in urban districts, as well as rural districts, in the provisions of the Bill. That copies of this resolution be forwarded to the above members of Parliament."

Tacca Cristata, also known as Attacia cristata, is always an interesting plant when in flower, its nodding umbels of purplish flowers, surmounted by two large purple involneral leaves, attracting considerable attention by reason of their peculiar form. At present there is a large specimen of this Malayan plant flowering in the Stove at the Royal Gardens, Kew, and carrying eighteen large fully expanded umbels, besides a few others not yet opened.

Vine Cultivation in Bordeaux was not attended with the best results during 1897, for untoward weather, diseases, and insect pests combined to reduce the production of grapes and consequently the vintage also. Mr. Hearn, British Consul at Bordeaux, contends, however, that most vine diseases can be combated by liberal expenditure and extensive treatment. To the good cultivator phylloxera has few of the terrors that it has to the peasant who cannot afford to fight it. If the diseases only attack singly they may be beaten off by treatment, but when they come up in hordes, as they did in 1897, it is only the most robust vineyards that can make a stand against them. Mildew, blackrot, cochylis, and all sorts and conditions of other evils were rife in 1897, but after the mildew the most mischievous was probably the cochylis. This insect, which hibernates in a chrysalis state, comes forth in early spring as a brown and orange-yellow moth of the size of a house-fly, and lays its eggs on the plants, so that when the grub comes forth it can feed on the vine blossoms. Later generations of grubs finding no blossoms take kindly to the fruit, and so continue the work of destruction. Some success appears to have resulted from dusting the vines with a mixture of naphthaline and sulphur, but this has not been widely tried, and the cochylis certainly had it all its own way in the last vintage. It appears that the appearance of cochylis is contemporary with the destruction of small birds in the vineyards, for these are shot whenever possible, with the result that there is literally no bird life among the vines, and insect life reigns supreme. If the birds were only allowed they would go to the vines in search of grub, cochylis, or other kinds, and obtain for the proprietor a result which no amount of money can accomplish. The principal organ of the viticulturist interest states that "cochylis was last year one of the principal agents in the reduction of the vintage. In certain important vineyards the loss occasioned by this insect amounts to hundreds of casks. And yet this cannot be laid at the door of negligence, since we know of a property where from July 20 to September 10, 5,000 days' labour of women and children were alone employed in looking for and destroying the eggs and larvæ of this insect." Had the birds been allowed they would, says Consul Hearn, have willingly performed the work.

Zonal Pelargoniums at Ghent.—An exhibit that startled our continental friends not a little at the recent Ghent Quinquennial Exhibition consisted of a handsome and extensive display of large bouquets of finely-developed zonal pelargonium blooms from Messrs. H. Cannell and Sons, Swanley, Kent. These were shown in the style the firm has found most suitable during a long career, and one that is well known to visitors to our leading London and provincial displays. It is not necessary to particularise the varieties, but some idea of the effectiveness of the group will be gained from the statement that from ten to twelve dozen large bunches of blooms were set up over a groundwork of greenery. One of the very few silver medals awarded at Ghent for non-competitive exhibits goes to Swanley to show the jury's appreciation of Messrs. Cannell and Son's production.

A New Experimental Station at Garforth, near Leeds, is being established for the instruction of agricultural students. The County Councils of the East and West Ridings of Yorkshire are combining in this matter, and, under the supervision of Dr. Somerville, of the Durham College of Science, Mr. Haydon will at once commence experiments and give demonstrations. A vote of £1,500 has been agreed to as a vote towards expenses. Courses in dairying will be held shortly, and specialised instruction given to youths of fifteen years and upwards.

A New British Flora is in course of production by the Rev. E. F. Linton, who is taking the "London Catalogue" as his basis to work upon. Since the latest floras were published not a few "forms" of British plants and several distinct species have been discovered and described.

Botanists and Mycologists in the United States with officially Government positions number fifty. All but ten of the States possess a State botanist, while New York and Connecticut have two each. Altogether there are fifty-one State experiment stations in the United States.

BOTANICAL GARDEN FOR ABERDEEN.

The following is an abstract from the deed of trust by Miss Cruickshank for founding and endowing a botanical garden for Aberdeen: "The trustees, who constitute also the board of management, are the Principal (Sir William Geddes), the Professor of Botany (Dr. James W. H. Trail), and the Professor of Mathematics (Dr. Pirie), and their successors in their respective offices in the University of Aberdeen, and other three gentlemen whose successors fall to be appointed by the survivors from time to time as vacancies arise. There is to be handed to the trustees by Miss Cruickshank at Whit Sunday first a sum of £15,000 sterling, which is to be employed by them in providing, forming, and laying out and maintaining a botanical garden, with all necessary appurtenances, including provision for the teaching and study of botany as pure science, and as applied to arts and industries, and, in their discretion, the provision of a house as a residence for the keeper of the garden. It is provided that the keeper of the garden may, if the trustees think proper, be the professor of botany in the university, and they may appoint one of their own number to act as factor or cashier for the trust. The garden is to be known in all time coming as the "Cruickshank Botanical Garden," in memory of the donor's late brother, Dr. Alexander Cruickshank, and it is to be held by the trustees in all time for the use, enjoyment, and behoof of the University of Aberdeen, and of the general public, without any preferable right in either, except to such extent, if any, as it may be thought proper by the trustees, in furtherance of the trust, to set apart class rooms, laboratories, or other buildings for the special service of either body. The trustees, subject to the above declaration, are to prescribe such regulations for the use and control of the garden as they may think proper. It is specially provided that the bequest is, so far as the university is concerned, to be in supplement of the annual provision already made by the university court or from other public sources, or by other private donors, for the teaching of botany as above defined in connection with the university, and that if the University Court shall at any time withdraw or diminish their provision the trustees may divert the bequest to other purposes."

Commenting on this munificent gift to Aberdeen University, an Aberdeen correspondent says: Miss Cruickshank's gift of £15,000 is cordially appreciated by both town and gown, and on all sides the opinion is expressed that no more suitable form could have been adopted of perpetuating the memory of the late Dr. Alexander Cruickshank, the brother, whom it is the desire of the donor to honour. Dr. Cruickshank took an exceedingly warm interest in the welfare of Aberdeen University, and he was above all things a lover of Nature and of the sciences of which botany is a leading representative. As Sir William Geddes so well phrased it at the meeting at which intimation was made of the gift, it is a peculiarly happy circumstance that the memorial to Dr. Cruickshank's name should be associated with a science in which he was himself such a proficient. The fitness of the gift is no less noteworthy as regards the University itself. A botanic garden has long been felt to be one of the most urgent needs of the University. It has been an object ever dear to the heart of the popular professor who at present so worthily fills the chair of botany in the University, and the recently formed Endowment Association made the provision of a botanic garden one of its main objects. The public are to share in the advantages of the garden. The gift is for the use of the University, but combined with that there will be access for the public to the garden, and as far as possible to the collections within the garden. Summed up, the Cruickshank Botanic Garden will be a boon not only to the University of Aberdeen, but to the city as well, to the amenities of which it will form a notable and valuable addition.

NATIONAL AURICULA AND PRIMULA SOCIETY.

THE annual exhibition of this society was held in conjunction with the fortnightly R.H.S. meeting on the 26th inst, at the Drill Hall, Westminster. It was a moderate show, and the flowers of fair average quality, for although some were large and coarse others were of especial beauty, and so the balance was preserved. We have seen a more extensive display, and for this occasion the entries were larger than usual, but the cold nights of late have so kept auriculas and primulas from progressing that not a few intending competitors had insufficient flowers properly expanded to warrant them in competing. All things considered, the society is prospering, as was stated at the luncheon held after the prizes were awarded, at the Hotel Windsor, under the presidency of the Rev. H. H. D'ombrain, the veteran florist.

SHOW AURICULAS.

The first prize for a dozen dissimilar auriculas was won by Mr. J. Douglas, Edenside, Great Bookham, with a very neat set of plants carrying good trusses; the varieties were Negro (Pullman), Mrs. Dodwell (Woodhead), Mrs. Potts (Barlow), Greenfinch (Douglas), Acme (Read), Olympus (Douglas), Mr. Henwood (Barlow), Gen. Rudd (Woodhead), Black Bess (Woodhead), Marmion (Douglas), Dr. Hardy (Simonite), and George Lightbody (Headley); Mr. C. Phillips, Bracknell, second; Mr. W. Smith, Bishops Stortford, third; and Mr. J. T. Bennett-Poë, fourth. Mr. C. Phillips secured the chief award for half a dozen auriculas with pretty plants of Richard Headley, J. Simonite, Mrs. Henwood, Mrs. Barnet, G. Rudd, and Mrs. Phillips; Mr. Smith, second; and Mr. J. T. Bennett-Poë, third. The best four plants were handsome specimens of Mr. Dodwell, Abbé Liszt, Lancashire Hero, and Mrs. Potts, staged by Mr. J. Sargent, Cobham; the other prizes in order were awarded to Mr. A. S. Hampton, Reading; Mr. A. R. Brown, Birmingham; Mr. A. Fish, Broxbourne; Mr. W. Palmer, Shortlands; and Mr. J. Gilbert, gardener to Rev. L. R. Flood, Merrow.

The best pair of auriculas came from Mr. P. Hennell, Winchmore Hill, and were J. D. Horner and Acme; Mr. Sargent second, with Abbe Liszt and John Simonite; Messrs. A. R. Brown, A. Hampton, W. Palmer, and J. Gilbert followed, in order as mentioned. Mr. C. Phillips came first for a green-edged auricula. with an unnamed seedling; Mr. Sargent second, with F. D. Horner; Mr. J. Douglas third, with F. D. Horner, and Mr. Sargent fourth, with the same variety. In the class for one grey-edged auricula Mr. Sargent secured first prize, with Lancashire Hero; Mr. W. Smith second, with G. Rudd; Mr. W. Smith third, with Rachel; and Mr. J. Douglas fourth, with G. Rudd. The premier white-edged auricula was Heather Bell, shown by Mr. Sargent; Mr. Gilbert second, with Acme; Mr. J. Douglas third, with Acme; and Mr. A. R. Brown fourth, with Heather Bell. For a specimen self Mr. Fisk was first with Heroine, finely developed; Mr. J. Douglas second, with Mrs. Potts; Mr. Smith third, with Heroine; and Mr. C. Phillips fourth.

For fifty auriculas in not less than twenty varieties, the first prize was won by Mr. James Douglas, Edenside, Surrey, with a group of well-grown plants, the majority carrying large trusses. The varieties staged were Ajax, Black Bess (2), Richard Headley, Lady Churchill, Abbe Liszt (2), Rachel (2), Snowdon's Knight, Ruby, Acme (4), Monarch, Violet, Dinham, Miss Prim (3), Mrs. A. Potts (2), Blackbird, Ringleader, Lord of Lorne (2), Colonel Champneys (2), Seedling (2), Heroine, Heatherbell, Dr. Hardy, Sylvia, Dr. Kidd (2), Venus (2), Ariel (2), Negro, and Perseverance. There were three competitors in this class, and the second award was secured by the Guildford Hardy Plant Company, Guildford, the firm staging a very even set of neat plants. The leading varieties were Acme, Ariel, John Simonite, Pizarro, Rev. F. D. Horner, Mrs. Dodwell, Heatherbell, Mrs. Potts, Abbe Liszt, Phyllis, Beauty, Dr. Horner, Rolt's Green, Brunette, Sam Barlow, Heroine, Talisman, Dr. Kidd, G. Rudd, Lord of Lorne, Andrew Miller, Colonel Champneys, Snowdon's Knight, Sir W. Hewitt, and Alderman. The third prize was won by Mr. C. Phillips, Bracknell.

ALPINE AURICULAS.

Mr. C. Phillips easily won the premier award for twelve alpine auriculas with splendidly-grown specimens of Lady Clementine Walsh, Mrs. Gorton, Jubilee, Sister Mary, Edith Western, Regina, Vandyke, Perfection, Salwin, Evelyn Phillips, Gladys, and Mrs. Martin Smith. The second prize set came from Mr. J. Douglas, Edenside, who had good plants of Firefly, Echo, Dean Hole, Toujours Gaie, Urania, Queen of the East, Orelia, Britannia, Miss Amy Naylor, and Lord Dudley; the Guildford Hardy Plant Company won third place. Mr. J. W. Euston, gardener to Mrs. Whitbourn, Great Gearies, Ilford, was placed first for six alpine auriculas with splendid developments of Urania, Calypso, Tennyson, Schubert, Psyche, and The Bride; Mr. C. Phillips second with Salwin, Lady Llewellyn, Mr. Gorton, Gladys, Chastity, and Evelyn Phillips; Mr. J. Douglas, third; and Mr. J. J. Keen, Southampton, fourth. For four alpine auriculas distinct, Mr. J. Euston, was again first, his plants of Cimiez, Hiawatha, Rosy Morn, and Tennyson, bearing large full trusses of large true blooms; Mr. Walker, Reading, second; Mr. A. R. Brown, third; and Mr. J. Gilbert, fourth; there were eight exhibitors in this class.

The premier gold-centred alpine auricula was Clara, shown by Mr. C. Phillips; Mr. J. T. Bennett-Poë, second, with Dean Hole; Mr. Gilbert, third, with the same variety; and Mr. Phillips, fourth, with Clara. Mr. Phillips also scored for a single white or cream centred alpine auricula, showing Perfection; Mr. J. J. Keen, second, with Amazone; Mr. Douglas, third, with Edith, and fourth, with Toujours Gaie. There were two competitors in the class for fancy alpine auriculas, and here the Guildford Hardy Plant Company took the chief award with handsome examples of Full Moon, Belle, Twilight, Canary Cup, Old Gold, Khartoum, Moonlight, Buttercup, Russet, Innocence, Rosy Morn, and Harlequin. Mr. J. Douglas's second-prize set contained specimens of Rolt's Green, Golden Plover, Octavia. Melita, Old Gold, Lara, Sextus, Hypatia, Poppæa, Golden Oriole, Mauve Queen, and Acté. The premier alpine auricula in the show was a handsome specimen of Mrs. Martin Smith, shown by Mr. C. Phillips, Bracknell; this is a crimson, cherry, and gold form.

In the class for six auriculas, open only to those who have not hitherto won a prize, Mr. Purnell Purnell, Streatham Hill, was first with C. J. Perry, Acme, Abbe Liszt, Miss Prim, Colonel Champneys, and Black Bess; Mr. J. W. Euston second. Under similar conditions a class for six alpine auriculas was provided, and here Mr. G. H. Addy, Waddon, Surrey, came first followed by Mr. Euston and Mr. P. Purnell. The first prize seedling auricula was a rich deep purplish-blue self with fine white paste, shown by Mr. C. Phillips; it was named Mrs. Dranfield. Mrs. Barefoot, gold and crimson, was the best alpine seedling, but Miranda Phillips in the same way was a close second, and both gained certificates.

PRIMROSES AND POLYANTHUSES.

In the class for twelve fancy polyanthuses there were three competitors, and here the first prize was won by Mr. J. Douglas for freely-flowered specimens of yellow, white, crimson, rose, and violet forms, all with extremely large flowers; Mr. J. Dixon, Chelford, came second, and Mrs. Euston third. Mr. J. [illegible] again scored for a dozen primroses, a fine lot of plants but with [illegible] purple hues among them; there was no other competitor. Messrs. Paul [illegible] Cheshunt, easily won first prize for six double primulas distinct, showing [illegible] large pans; the varieties were alba plena, purpurea plena. Croussei [illegible] plena, sulphurea plena, and platypetala plena; the Guildford Hardy [illegible] pany came second, their set containing a pretty plant of Madame P[illegible].

There was keen competition for the prizes offered for a group [illegible] varieties of primula or auricula, arranged on a space of not more than [illegible] ficial feet. The first prize was secured by the Guildford Hardy [illegible] with a pretty set of fancy and alpine auriculas, arranged in a large bask[illegible] pieces of tufa; Mr. J. Douglas, third. Mr. Douglas scored for twelve [illegible] species, or well-marked varieties; these were P. Forbesi, P. pubescens, P. decora, P. japonica, P. verticillata, P. floribunda, P. rosea, P. Sieboldi, P. mollis, and P. intermedia; here the Guildford Hardy Plant Company came second, Messrs. Paul and Son, third; and Mr. P. Purnell, Streatham, a good fourth. The [illegible] six primulas came from Mr. J. W. Euston, and comprised P. floribunda, P. intermedia, P. auricula, P. Forbesi, P. verticillata, and P. obconica, all represented by fine specimens.

The four baskets of primroses and polyanthuses staged in competition made [illegible] very brilliant display; the best one was shown by Mr. J. T. Bennett-Poë, [illegible] contained a grand lot of freely-flowered plants, all high-class varieties; [illegible] Douglas was second, and Messrs. Paul and Son, third.

NEW PLANTS AND FLOWERS.

LÆLIO-CATTLEYA WELLSIANA LANGLEYENSIS.

A BEAUTIFUL orchid with soft rose petals, and blush sepals, and a magnificent purple lip of the shape of Lælia purpurata. The hybrid was obtained by crossing L. purpurata with C. Trianæ, the former being the pollen parent; the [illegible] measure six inches across, and have the appearance of a glorified L. purpurata. The lip has a violet purple tube, and a rich royal purple apex of great breadth and depth; in the throat is a small soft buff area that adds to the beauty of the flower. F.C.C., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

ODONTOGLOSSUM HUNNEWELLIANUM MAJUS.

This is a superb form of a somewhat rare orchid. Its flowers are three inches across. The sepals are yellowish, barred with rich red-brown; the petals are whitish, yellow towards the tips, and spotted and blotched with red brown. Lip creamy white, crisped, and waved, and with a few small red dots. A.M., R.H.S , April 26. Mr. H. Greenwood, Highfield, Hazledene.

CATTLEYA SCHRÖDERÆ HAREFIELD HALL VAR.

A fine cattleya of good shape, and remarkable for the violet [illegible] at the apex of the lip. Sepals and petals are blush tinted. The lip is pale [illegible] tinted and has a very broad, spreading mouth; there are two yellow patches behind the violet purple shading, while the fringed margin is softest rose blush. A.M., R.H.S.. April 26. Mr. Holbrook, gardener to E. Ashworth, Esq., [illegible] Hall, Wilmslow.

CYMBIDIUM CANALICULATUM VAR.?

A curious deciduous species bearing a long spike of forty-five [illegible] black flowers; the tiny lip is whitish in the centre, and with [illegible] margins. The plant is stated to come from Queensland. A.M., R.H.S., [illegible] Mr. D. Smith, gardener to J. Sparks, Esq., Heathcote, Ewhurst, [illegible]

CATTLEYA SEDENI.

This is a pretty hybrid cattleya, obtained by crossing C. Lawrenceanum with C. Percivaliana. The sepals are very substantial, and of a soft rosy-purple shade; the broad and upstanding petals are of a similar colour; the lip has a long tube and spreading mouth betraying its Lawrenceanum parentage. The rose-purple shade is here evident, but the spreading apex is deep purple, shaded with crimson-purple, and with an orange-shaded throat. A.M., R.H.S., April 26. Mr. [illegible], gardener to C. L. N. Ingram, Esq., Godalming.

RICHARDIA RHODESIA.

A splendid golden spathed richardia with huge spathes of a rich and dark golden hue; very broad and full and with the tip much deflected. It is a strong grower and has stout spotted foliage. A.M., R.H.S., April 26. Mr. Jennings, gardener to Leopold de Rothschild, Esq., Ascot.

PTERIS SUMMERSI.

A particularly fine pteris of sturdy but elegant growth and provided with fronds that are much divided and have all the principal pinnæ heavily divided and crested at the apex. This handsome Ribbon Fern may be considered as a [illegible] and heavily crested form of the now well-known P. Wimsetti, from which it is no doubt a seedling. A.M., R.H S., April 26, Mr. H. B. May, Edmonton.

AZALEODENDRON EDOUARD ANDRE.

This is a hybrid between Azalea Mollis and Rhododendron [illegible] flowers have shortened tubes and are of a soft rosy hue, a pretty shade, [illegible] spottings of dark brown on the upper segments. An interesting plant. F.C., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

AURICULAS.

Mrs. Barefoot, a gold-centred alpine auricula of large size and fine shape; [illegible] segments are blackish-crimson at the base, a paler shade spreading almost [illegible] the pale gold ground, the latter being observable at the margin. F.C.C., N.A. and P.S., April 26. Mr. Barefoot, Croydon.

Miranda Phillips.—Another fine gold-centred auricula with rich crimson [illegible] to the segments and broad dull gold margins. F.C.C., N.A. and P.S., April 26. Mr. C. Phillips, Bracknell.

Firefly.—A splendid free-flowering alpine auricula, with rich gold centre [illegible] brilliant cherry-red segments that have dark crimson bases. F.C.C., N.A. [illegible] P.S., April 26. Mr. J. Douglas, Edenside.

ROSE PSYCHE.

This is a fine hybrid polyantha rose, with palest rose-tinted flowers of [illegible] size and very double; the shade may almost be called blush. This is a [illegible] free-flowering variety obtained by crossing the polyantha rose Golden [illegible] with Turner's Crimson Rambler. A.M., R.H.S., April 26. Messrs. Paul and Son, Cheshunt.

AZALEA J. J. DE VINCK.

An effective mollis azalea, with large trusses of broad [illegible] a soft shade upon which the bright brown spots that occur on the [illegible] show up forcibly. A very distinct mollis azalea, or [illegible] obtained by crossing mollis with sinensis varieties. A.M., R.H.S., [illegible] Messrs. R. and L. Cuthbert, Southgate.

HARDY APRIL FLOWERS IN 1898.

AFTER the winterly storms and severe frosts of March, hardy flowers in the middle of April are neither more backward or more forward than usual at this season, but their flowering is decidedly above the average. I mention a few of those in flower in this garden between the April 10 and 20. The flowering of all the daffodils has been very good, and the colours of those with orange crowns is rich and full, as generally happens when they progress in bud slowly, and are not forced rapidly into flower by warm wet weather in spring. Such flowers as Gloria Mundi, C. J. Backhouse, Nelsoni aurantius have been excellent. Maximus has made a splendid show, having come out early and lasted a long time; I never saw larger flowers of it. Most of the bulbs of this variety came from the south of France, where they were collected wild. By care in giving them good loam, a sunny and protected position, and frequent transplanting, these bulbs maintain their character as the finest of the old trumpet daffodils; no variety responds better to good treatment, without which it soon deteriorates. Aubrietias are a great resource to make the garden bright in April. In Surrey and other parts of the country, where the soil is warm and light, I have seen them doing well as an edging on a level border, but they will not do so here. They must grow over a fall, such as two feet or more of stone supporting the edge of a raised bed, on the upper rim of which they are planted, so as to cover the stones down to the ground, and when they reach the ground they may be allowed to spread a foot or two on the level if room can be afforded for it. Aubrietias do not root as they run, but the procumbent stalks seem to be fed by the stones or soil in which they lie, and the further the stalks get away from the roots the finer the flowers. They are now showing grand masses of purple a yard square. There are many varieties, and because these do not come true from seed, it is better to see them in flower before buying them, names being very misleading. Two of the best kinds, one rose-coloured, the other dark crimson, were sent out by Max Leichtlin a few years ago, but both revert from seed to a shabby form of the type. The brightest crimson I have came from Barr's nursery last year under the name of Fire King. A. Hendersoni and A. olympica—the last, perhaps, a true species—have large purple flowers. Another flowering late and abundantly with paler and smaller flowers is known as A. tauricola, though A. deltoidea var taurica would probably be the more correct name. The large plants get bare and shabby in three or four years, and want renewing. This is easily done by pegging down bunches of shoots a few inches from the end, and they will soon root. Those who visit nurseries in April should look out for good varieties of aubrietia and carry them off, paying for them, of course, but not caring for the name. They are probably nearly all varieties of A. deltoidea.

The shady and sheltered parts of Edge garden abound with primroses in April: nearly all the primrose tribe—some alpines of the auricula class excepted—like shade and shelter and moisture. No species is better than the old P. vulgaris. The latest development of this is the blue primrose. I have watched this improving year by year through selection in the garden of my friend, Mr. G. Wilson, at Weybridge. But the primroses at Edge, which are not blue, are also the result of many years selection from mixed colours. The qualities aimed at are size of flower, purity of colour, however pale, and absence of bunching habit, the last being difficult to maintain owing to the presence near of giant oxlips, which are too apt to cross and destroy the true "acaulis" character. In the soil of Edge these primroses last only for two or three flowering seasons, and are seldom good after division, so that continued raising from seed is going on. In summer the plants should be dressed overhead with leaf-mould and decayed manure, and again in autumn. Two other April primroses (both Himalayan) are specialities at Edge—P. denticulata and P. rosea. Both have been greatly improved by selection, and as both divide very well the best varieties can be increased without limit. P. denticulata, which includes, or rather coalesces in gardens with, the variety cashmeriana, has the fault of trying to flower in winter, or even in autumn; and as the flowers are easily destroyed by frost, and the plant makes only one flowering effort in the same season, many are liable to be lost as ornaments in this way. It is not difficult, however, to retard the flowering season by dividing and transplanting in autumn—either dividing severely by cutting the crowns through the middle in August, or more mildly by parting into single crowns in September or October. When this is done they seldom attempt to flower till April, and, with a little shelter, are seldom damaged by frost. Their favourite place at Edge is amongst the gooseberry bushes, where they share the spare ground with columbines. The colour ranges from dark violet, through pale purple, to dull white, for pure white flowers—the white of Narcissus poeticus or Trillium grandiflorum—is not to be found in this species, though it pretends to be. At least a thousand plants of Primula rosea are now in flower in the garden, in masses of fifty or a hundred together. They have to be renewed about every third year, and are troublesome plants to manage, as they require more than mere pulling to pieces and transplanting; but experience alone will teach how to grow them to perfection. The strain grown is a great advance on the type, both in colour and size of flowers. These also are liable to be damaged by sharp frosts when in flower, and like a sheltered place, but do very well under a north wall. The best variety I have is regular in its lateness, seldom coming out till the beginning of May.

Perennial candytufts (*Iberis*) are mostly at their best in April, and the varieties of I. sempervirens are amongst the best of the candytufts. True to its name of "evergreen," a variety of this species called Garrexiana makes such a dense mass of glossy green on the rockery in winter that it would be worth growing for this only; but if the plants are grown as advised for aubrietia, in falls over a steep side, they make a very showy breadth of pure white flowers, and pure white is scarce in flowers. But for a neat and lasting rock plant one or two dwarf forms of I. saxatilis are not to be surpassed. One of these, said to be from the Maritime Alps, comes into flower soon after Christmas, lasting three months in flower, and bears crowds of umbels, each no larger than a sixpence, on procumbent stems, resting on the stones. There is a second variety very similar flowering in March and April, whilst the type I. saxatilis begins in April. Many varieties of perennial iberis, mostly belonging to I. sempervirens, are offered by nurserymen under fancy names; these, like aubrietias, should be looked at in nurseries, and secured when approved. I observe this year an accidental mixture of a plant of purple aubrietia and of I. sempervirens planted side by side on a rockery, which has a pretty effect. Another pure white flower of April is Sanguinaria canadensis. It has a fleeting beauty; the whole flowering season may last through the middle fortnight of April, but each individual flower sheds in about two days. The star-like flowers with narrow petals, called in bulb catalogues "major," are inferior to the round-cupped form with broader petals. S. canadensis is of excellent habit; it thrives in either sun or shade, loam or peat, but it likes peat better and increases fast in it, spreading moderately without becoming crowded. It may be transplanted at any stage of growth, and is never shabby or untidy. The red juice, very like blood, which comes from the root when broken, has given rise to a popular superstition in Canada that it grows wild where murder has been committed. We are reminded of Virgil's story of the myrtles which grew where Polydorus had been murdered, and when pulled up dropped blood from the roots.

Pulmonarias used formerly to be much cultivated at Edge, and a collection was made of every kind to be found in nurseries. There were some with narrow leaves, some with broad leaves, some without spots, some with few spots, some of which the leaf was nearly all spot. They had flowers all blue or flowers all red, or all white, or blue and red mixed. These formed a connected series, which seemed to lead to the conclusion that as far as gardening was concerned they might all belong to one large species. The best forms are useful from their habit of early flowering, but if not in sheltered situations the frost takes the colour out of the flowers. Allied to these is a far choicer plant for the garden in April, the Virginian cowslip (*Mertensia virginica*). A hundred of these are now in flower here in masses of ten together. These want a sheltered place, a moist and rich soil, and leaving alone. They supply enough self-sown seedlings to keep up a stock, having regard to selection, for the colour and habit vary. It is, however, better not to attempt division of any of them. Orobus, or rather Lathyrus, vernus is too good to be omitted from this notice. The species likes a stiff retentive soil, in which it roots so deeply and strongly and clings so tenaciously that it is no easy matter to dig up a three-year old plant. The pods shoot the seeds to such a distance that seedlings come up several yards away. The best and most elegant of many varieties are those having very fine divisions to the leaves, almost filiform. These show the flowers better, and as the seedlings come up mixed, it is better to select them. But some of the broad-lobed leaves have the richest colour of crimson and purple, so that it is better to wait for the flowering before destroying any of the seedlings as weeds. There are some double forms, which are inferior in beauty to the single, and varieties occasionally come with the flowers pale purple or pink or white.

Amongst the many varieties of wood anemone breadths of A. Robinsoniana are, perhaps, the most attractive. It will be remembered that the roots of this species, if not occasionally separated and scattered, form such a close network that they die of strangulation, and the whole mass may disappear in a season and give rise to much speculation as to the cause. Innocent as these flowers appear above ground, they make a hard cake of tubers beneath the surface which few plants can grow through, and when I see an undergrowth of them recommended to ornament the vacant spaces of a border I attribute the advice to want of experience. The best of the varieties, I think, is a gigantic form with pure white flowers, found wild at Doneraile Park, in Ireland. Two or three bulbs due in April may be mentioned. Puschkinia scilloides is a pleasing contrast in its flowers of French grey to the masses of blue squills to which it succeeds. Ornithogalum tenuifolium produces pretty umbels of white flowers almost on the ground level, and does not degenerate like others of the genus into weediness of habit. Then by what name are we to call the late-flowering muscaris, with their conical heads of sky blue coming up in crowds where they were never sown? I bought them some years ago of a distinguished collector, who gave them at least four distinct names, and all these kinds may be there, but I fail to distinguish them. The best of them used to be called armeniacum, but E. Boissier, the botanist of Armenian plants, gives no such name; perhaps a better name is racemosum. Amongst choice alpines doing better than I ever saw them before are Androsace sarmentosa and Laggeri. The first is Himalayan, and has had a flat piece of glass laid across the projecting stones between which it grows, for it damps off with rain in winter; but with this help flower bunches are now as thick on it as they can stand. A. Laggeri, of the Pyrenees, in moderately strong and well-drained loam, grows into raised tufts like thrift, and bears small pink flowers plentifully in April.

Edge Hall, Malpas. C. WOLLEY DOD.

Average Life of Potatos.—I cannot agree with Mr. T. Davies that the Ashleaf Kidney potato is not now beaten for earliness, productiveness, and quality. In each of these points it is, to my thinking, well beaten by Duke of York and Ringleader, and I look upon the former of these as being the very finest early potato in existence. It bears at least double the crop borne by the Ashleaf, and nothing could surpass the quality, while in earliness it is at least the equal of the older variety; I myself find it earlier. Then again there is no comparison between Magnum Bonum and Syon House Prolific for weight of crop when grown under the same conditions, and I find that the latter is of first-rate quality on the sandy soil here. Other comparisons might be made, and all with advantages to the newer potatos; but comparisons are supposed to be odious, and I will only add that when one bears in mind the rise and fall of so many potatos during the past thirty years or so, the weight of evidence is all in favour of the decadence of varieties, no matter how treated.—J. C. TALLACK.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

"FLOWER SHOW SKETCHES."

In the tents at Shrewsbury, the transept of the Crystal Palace at show time, and in fact at all great horticultural gatherings, not the least interesting feature is the gardeners that congregate on these occasions. So wide is the range of human nature interested directly or indirectly in the gentle art that the various grades of gardeners are marked with a distinction somewhat similar to the castes of India. It must be so in a calling having so many degrees under the same heading, and with no clear lines to mark its limit either way. Not long ago I read of an instance where a man described himself as a landscape gardener, and was highly indignant when someone addressed him as a "jobber," though in point of fact his occupation consisted of looking after the welfare of half-a-dozen villa gardens. The gardener as we find him in novels is a different character, and is generally pictured as a simple easy-going type of humanity, who addresses the heroine of the story as "missy," and in whom the habit of respectfully touching his hat to every stranger in broadcloth has grown to be quite a second nature. Your gardener of fiction may sometimes be drawn from life, but generally I think from copy or imagination. I have met with him in bothy days—in books of course—when the fire of youthful ambition burnt at its brightest, and, shuddering to think that possibly my ardent hopes might end in such a realisation, have thrown down the volume with a disgust that would not have been edifying to the author had he been present.

Still, we cannot readily determine what constitutes a gardener. There is the worthy who is the general factotum of the unpretentious establishment. He does not mind being termed "single-handed," because that points to the fact that he does all the work himself, and thereby adds to his credit. But though he fills numerous other offices, such as cowman, poultryman, perhaps groom, and cleans boots and knives, he would resent the idea of being termed an odd man, and has a way of looking down on another man who is only a labourer. He is a gardener, and is spoken of in the drawing-room as *the* gardener, and therefore has as much right, in his way of thinking, to address himself as such as Mr. So-and-So over at the castle, who walks about and gives orders to the large staff of men under his control. We do not gainsay it, as there is no law on the subject. Both are gardeners, but varying in rank. There is another point to be added. The great Napoleon once remarked that every private in the French army carried a marshal's baton in his knapsack. Something similar may be said of gardening. The various degrees are staves of the ladder. Your single-handed man is somewhere not far from the bottom, but there is plenty of room above him for climbing, and many do climb, for some who to-day are not far from the top look back with satisfaction to the time when they were equally proud of being called gardener—though only single-handed.

Big flower shows are the meeting places of all sorts and conditions of the craft, not only the working element but the patrons, who jostle with each other in the mutual endeavour to see everything. The aristocratic-looking gentleman, who busies himself in taking notes, has doubtless a garden and gardener of his own. You wonder what are the motives for which he interests himself. Pure love for gardening may prompt him, and he has decided to become the possessor of something that takes his fancy. Perhaps he is ambitious, and, feeling disappointed at seeing something which his domain does not possess, decides to have it. Or, may be, his notes are only for future reference, to be used in conversation with the gardener at home. If this be the case, he will pay special attention to the novelties, with the hope of staggering that worthy who is perhaps blessed with the gardener's happy faculty of coming out at the right end of an argument. You won't have to go very far before meeting with the fussy lady, the type of which is common at flower shows, particularly in London during the season. She is usually attended by a companion to whom she refers for the name of everything that attracts her attention, and this is straightway entered in the dainty little book that forms part of her outfit. Her moods vary. At one minute she is in raptures over some beautiful object, and at the next discontent marks her tone. She wonders "Why we can't have flowers like those," and "Why our gardener doesn't grow plants like that." She "Will talk to him when they get home," and so on. Poor gardener! the flower show is no good institution for his peace of mind, and we do not envy him his office.

Gardeners themselves are more easy to delineate. The little groups of well-dressed men who converse eagerly together are "heads" from establishments more or less well known. They are talking shop, of course, as gardeners invariably do, and perhaps the last time they met was at a show. At first it is only generalities, state of crops, condition of the weather, and so forth. Then the exhibits come in for their share of criticism or praise, and after the show individually and collectively has been disposed of, the compact of friends who perhaps were bothy mates together years ago, drift unconsciously, yet willingly, into personal matters. Though speaking as a gardener, and writing to gardeners, I think all will readily admit the interest we take in each other's doings. This interest is apparent at flower shows—the meeting place of brothers of the craft. One by one, if not all at once, each member of the group tells of his doings at home, his prospects, and his fears. 'Tis a true saying that every heart knows its own sorrow, and the skeletons in gardeners' cupboards are discussed freely at such gatherings. There is Mr. So-and-So, head gardener at some well-known establishment, who, through his office, is envied by not a few who have never been behind the scenes. But all is not gold that glitters, and though he be too wise to publish his troubles to the world, there is confidence among that little group of gardeners as they hear of his thirty men being reduced to twenty, and the place that he was justly proud of taking the form of a market garden. He knows he will find sympathy, if nothing more, and even that is cheering. Another of the group has just settled in a fresh place, and the remainder are anxious to know how he likes it; whether it fulfils his expectations, and all the rest of it. It is no half-hearted interest mind you, but real and genuine, flavoured with something that is practical in the mutual exchange of a few plants or cuttings.

From personal matters they go on to the doings of others who may only be known to them by reputation, and here you have an instance of the freemasonry of gardening. Well-known establishments are bye-words in the craft, and the names of the gardeners are invariably coupled with them till in a more narrow circle they become to be as well known as great men in the world of politics. If a gardener in such a place is about to leave, the flower show lends itself as a fit and proper place for the *pros* and *cons* of the case to be discussed. At first it is in a strictly confidential manner, that A informs B that So-and-So, of ——, is leaving.

"Leaving! you don't say so; why he's been there for years; what's the reason?"

"I hav'nt heard, but I had it on good authority that it is so. Of course it's only private yet, so you won't say anything."

"Oh no, certainly not."

B then tells what he knows confidentially to C, and so the news goes around till everybody interested knows all about it, and wonders how it is that everyone else is acquainted with the fact.

Vacant places must be filled, and the flower show is a suitable place for the discussion of likely candidates. Here there is not quite the same confidence, and A learns from B who is putting in for ——, without informing him that he himself is a candidate. This is diplomacy, which is embued in gardeners as much as in the rest of human nature. In these competitive days good gardeners are as numerous as good places are scarce. This makes men keen for the plums, and the confidential conversations among the little groups of heads mean more than idle talk.

I have said there are varied degrees of gardeners who congregate at shows, and it is easy to pick them out. There is a pair of friends who are unmistakably gardeners from the interest they take in everything, and the visit to the show is to them a red-letter day. There is a distinct country look about them, and you have not to look twice at their horny hands to know that they belong to the working section. Such men belong to the largest element of the gardening world, officiating at single-handed establishments, or where "two or three are kept." Their interest is no half-hearted one, and they think nothing of the trifles that would worry a greater man. Perhaps the flower show holiday has entailed labour out of the ordinary in the shape of being at work by daybreak, doing the watering and putting everything right. Holidays to such men are rare occurrences, and the cost is a consideration, unless the master or mistress be of a generous turn of mind. Though units in the crowd at a big show, such as they can only visit on rare occasions, these men may be lights of a gardening society somewhere, and moving spirits at the local exhibition. The holiday then is a means of education, and the mental and written notes are for further use when questioned as to what was shown at the Palace, Shrewsbury, or elsewhere. The show absorbs all interest, and rest assured that what they don't see is hardly worth looking for. Adjournment for luncheon is counted a waste of time, and instead of this hand wanders to tail pocket, which contains a package of sandwiches, thoughtfully provided for the excursion by the wife, who may have had some instructions about taking air off, or the time to syringe. If any man thoroughly appreciates a big show it is a gardener of this type, and if signs of his appreciation are wanted, follow him home among his own associates, listen to his description of the exhibition, his praise for some things and his criticism of others—vowing he could have shown better stuff himself. Ask him who was there and it is hundred to one he doesn't know. The newspaper says royalty or some other important personages were present, but he didn't see them, "didn't want particular," he went to see the show, and ask him anything about that you like. Don't think that he is discontented with his little garden after what he has seen. Not he, for he is gardener enough to know that circumstances alter cases. We may in the future have an opportunity of sketching such a gardener in his own particular sphere, but for the present forbear.

H.

Dwarf Kidney Beans.—Mr. Miller, of Ruxley Lodge Gardens, [illegible] very highly the old Mohawk bean as a capital forcer for the later part of the winter. It is odd that this variety seems somewhat to have fallen out of cultivation and from seed lists. Possibly it has had to contend with so many new rivals. Mr. Wythes has an improved Mohawk, obtained by using the old variety as one of the parents, and it has secured honours at Chiswick. I hope to grow both that and the original Mohawk this year in a trial, which will include the best stock obtainable from Reading of Canadian Wonder, Long Podded Negro, Ne Plus Ultra, three of the very best outdoor beans; Sutton's Perfection and Magnum Bonum, the best of Smythe's hybrids, and Ever-bearing, a white-seeded and wonderfully prolific variety, as I saw it fruiting in a garden at Brockham last year. Whilst there have been so many new varieties of dwarfs introduced, we have also increased our list of "climbing" dwarfs, there being now several in commerce, and some gardeners prefer to make a few sowings of these suffice, and dispense with dwarfs outdoors. Tastes differ in relation to quality and flavour of the Smooth Dwarf type of pod as compared with those of scarlet or rough runners. Some prefer one, some prefer another. Possibly Mr. Smythe's [illegible] Wonder with Scarlet Runner may prove acceptable to all tastes. [illegible] no doubt suffer very much as a rule from thick sowing; none [illegible] sown nearer in the rows than six inches to each other, and the [illegible] need intervals of twelve inches to enable the plants to have full [illegible]. The pods are badly treated also in cooking when sliced up small and [illegible] almost into pulp. They should be gathered younger, then be [illegible] and so served to table.—A. D.

DAFFODILS AT DITTON.

The daffodils are like the spring time, ever new, ever fresh, ever beautiful; each season, as their coming is heralded in February by the tiny little Narcissus minimus, we look forward with keen delight to the bold trumpet forms that will brave the winds of March, and we sigh for the exquisite elegance and beauty of Barri, Burbidgei, Leedsi, and poeticus, forms that shall continue the display through April and prolong the season well into May if the sun is not too fierce. And then as cream and yellow, gold and orange, white and silver tints appear above the waving green spear-like foliage we say—and fully believe—that never were flowers so gloriously beautiful, and there is nothing to compare with the daffodils for our gardens, woodlands, or our rooms. With each returning spring we have the same feeling with regard to these fragrant flowers, and it is a pleasure to know that every spring a larger number than formerly are enjoying the wonderful finds and productions of the firm of Messrs. Barr and Sons, of Covent Garden and Long Ditton. No other firm has done so much for the daffodil, either by spirited enterprise in collecting new species and varieties, or purchasing new seedlings and hybrids, or by patient cross fertilisation at the pleasant Long Ditton nurseries with a view to obtaining extra fine forms. This being so it is but to be expected that at Long Ditton a fine display will be on view during daffodil time, and probably not a few surprises in store.

Narcissus triandrus albus.

Narcissus bicolor Mrs. Walter] Ware.

Narcissus Johnstoni Queen of Spain.

It is easy to reach the Long Ditton Nurseries, either from Surbiton or Kingston stations (L. and S. W. R.). If you find yourself at the old town of Kingston it is but a pleasant walk past the Market Place and the King's Stone, and along the river side to Ditton. Turn down a typical Surrey lane between high hedges of white thorn and towering elm, and a short walk brings you to the celebrated nurseries. As soon as the railway arch is passed patches and breadths of colour greet the eye, and you see a big bulb farm combined with a first-rate hardy plant nursery. If Mr. P. R. Barr can spare an hour or two to escort you round then your visit will be of especial interest, for he possesses much practical knowledge.

The first move is to a spot sheltered with lattice work, where the new seedlings and hybrids and the choicest, highest priced daffodils are to be found. Here are Golden Nugget, a strong grower with a finely frilled golden trumpet of great size; this is a fine cross between Emperor and Maximus, the former being the seed parent; Apricot is something distinct in trumpet daffodils, for in its finely-formed tube is a beautiful shade of orange-tinted apricot that goes well with the white perianth. Close at hand is Lady Helen Vincent, a huge golden, large-trumpeted variety, that may be considered as a very refined Glory of Lieden, the latter variety being itself conspicuous here by reason of its bold handsome blooms. Weardale Perfection is being largely used as a parent, and up to date it has not been displaced from the position it attained four years ago as the finest of daffodils. Grace Darling, with twisted and overlapping white perianth segments that form a fine setting for the delicate pale primrose trumpet, demands attention by reason of its refinement and elegance; Victoria, the Messrs. Barrs' 1897 introduction, is a lovely bicolor with creamy-white perianth and golden trumpet, the latter finely frilled at the mouth; Victoria has a splendid constitution and grows freely. Other of the rarer trumpet daffodils that demand a word are Monarch, a magnificent yellow self, that Messrs. Barr ask the modest sum of fifteen guineas per bulb for; Mrs. Walter Ware, a beautiful bicolor, with very pure white perianth and frilled trumpet; Madame de Graaff, the largest white trumpet daffodil, having, however, a primrose tint in the tube of a newly opened flower; J. B. M. Camm, white perianth and soft chrome trumpet; and Madame Plemp, white and gold, a magnificent form with long tube. All the foregoing are more or less expensive, but there are abundance of other trumpet daffodils almost if not altogether their equals in beauty, as strong, and much cheaper. A few of the best for general cultivation, and varieties that are cultivated in thousands, tens of thousands, or hundreds of thousands, at Long Ditton, are Emperor and Empress, two popular kinds; Abcissus, a very late form, and one of the grandest for naturalising; Golden Spur, very early and rich in colour; Johnstoni Queen of Spain, one of the most elegant of daffodils, soft, yellow, with reflexing perianth segments; Maximus, the richest yellow daffodil; P. R. Barr, primrose perianth and yellow trumpet, a parent of several newer sorts; Thomas Moore, bicolor grandis, Horsfieldi, Michael Foster, princeps, cernuus and Cernuus pulcher, very early silvery-white forms; Snow King, W. P. Milner, and Wm. Goldring.

Gloria Mundi heads the incomparabilis group, or medium-crowned daffodils; it is a wondrously beautiful variety with yellow perianth and orange fringed yellow cup ; it is a strong grower, but scarce as yet. Sir Watkin is perhaps the most popular of this section, for its bold blooms stand up grandly and last a long time whether left on the plant or cut and placed in water ; Mabel Cowan, white perianth and orange-tipped cup ; Princess Mary, white ; Stella, white, with yellow cup ; Autocrat, yellow ; C. J. Backhouse, yellow and scarlet ; Frank Miles, soft yellow, twisted segments ; and Gwyther, yellow and orange, are among the best and most useful of these daffodils for all purposes. At the time of writing the Barri, Leedsi, and Burbidgei daffodils are still in fine condition, some of the forms being at their best. For elegance, especially in a cut state, they surpass the trumpet varieties, though they do not possess the substance and boldness of the latter. Nearly all are eminently suitable for naturalising, and their lightness renders them especially beautiful growing in grass. Some of the best are at the same time among the cheapest, and to see these in masses at Long Ditton is to fall in love with them on sight. Two very choice Barri forms are Sensation and Siddington ; the former has a white perianth and canary cup, the latter tipped with orange ; Siddington, introduced two years ago, has a yellow perianth, the segments being shaded with a richer tint, the cup is broad and margined with deep red ; this is a beautiful form, and usually has two flowers on one stalk. Dorothy E. Wemyss is another lovely Barri daffodil, its spreading white perianth amply setting off the canary yellow cup. Barri conspicuus is one of the best known of this group, and nothing can beat it for massing ; it lasts well in a cut state, but must be taken in the bud if its rich orange shading is to be retained as long as the flower lasts ; it lasts long in water, and is in every way a grand variety. The Leedsi varieties are sweetly pretty, and for tall vases they are eminently suitable. Among the finest varieties are Beatrice, pure white ; Fanny Mason, white, with canary yellow perianth ; Katherine Spurrell, very broad, white perianth segments, and pale canary cup ; M. Magdaline de Graaff, a lovely daffodil with pure white perianth and orange-tinted cup ; Minnie Hume, white, lemon cup, very free and fine ; and Mrs. Langtry, white, and with white cup edged with rich yellow. A peculiar Leedsi form is named Oddity, it has silvery white flowers with the centre filled with small florets.

The Burbidgei daffodils are hybrids from N. poeticus ; they flower somewhat later than the majority of daffodils, and are light and graceful. Three varieties that are first rate and make a good set are Ellen Barr, John Bain, and Falstaff ; all have white perianths, but in the former there is a citron and orange cup or crown, in the second a lemon cup, and in the third a citron cup. Little Dirk, primrose perianth and orange-tipped cup is bound to become a favourite, though the flowers are somewhat small ; Model, Vanessa, St. John's Beauty, and Agnes Barr are all beautiful. The late-flowering poeticus forms are now in full beauty at Long Ditton, and they are numbers of jonquils and Tazetta narcissi from which to make selections. Then there are the Nelsoni group, one that is not sufficiently well known, for few are more beautiful than Nelsoni major and Nelsoni aurantius, with their firm yellow and orange-tinted cups. Hoop Petticoat narciss are still in flower, and there are several beds of the charming Narcissus triandrus albus, one of the most delightful of all daffodils, and, by reason of its drooping blooms, known popularly as Angels' Tears.

Those who go to see the later daffodils will find much else to interest them at Long Ditton, for the Messrs. Barr and Sons have fine collections of tulips, and the named bedding varieties are very fine. Fritillaries of many kinds, including a fine strain of F. meleagris, are flowering, and there are some rare and beautiful Dog's Tooth violets for lovers of hardy flowers. Primulas of sorts, violas, saxifragas, species of tulips, and trilliums will provide the lover of plant genus with plenty to do for an hour or so comparing their beauty and points of interest. More commonly grown hardy plants are to be seen in abundance in plot and bed, on rocks or by the streamlet, in broad fields or even in the hedgerow, for close to the offices is a hedge where periwinkle, furze, ficaria, primroses, and all sorts of daffodils luxuriate, and make an extremely pretty picture.

VINES IN APRIL.

THE third week of April is a very busy one for vine growers having vines that were started the first week of March. While tying, beyond keeping the points away from the glass is not a necessity, it is of the utmost importance that a very rigorous system of stopping should be maintained to make the most of the vine's strength. In actual practice I find this is the third time I have attended to the vines already. Removing all doubles, or rather taking the worst out, stopping above the flower bunch, &c., all this taking much time. However, it is a most interesting operation when all looks well. At this date I find a good few sub-laterals are ready for stopping, and so there will be no waste growth by the time the vines are in flower. I generally have all growths tied permanently into position before the actual flowering period. There is no doubt that the weakest point in the vine's annual history is just before flowering. New root action can now be quickly detected by the increase of vigour, for a continuous growth is the test of good condition, and I find that this is attained best from vines which break fairly naturally.

It is most interesting to note the many peculiarities of the several varieties of grapes. By the end of this month it should be determined how many bunches are to be left on the vines, and then reduce the number showing, always leaving the strongest bunches ; growers will know the capabilities of their own vines, and so can regulate the crop accordingly. With me, in the majority of cases, ten bunches of the late varieties will weigh twenty pounds. Black Hamburgh, however, in the mid-season houses always weigh less, and so more bunches are left. The actual size of the bunches in the several varieties can only be judged by actual experience. For a three-pound bunch of Gros Colmar three inches should be its length before in flower ; but Gros Maroc is always far less in proportion to weight. Alicante, again, must be much longer than Black Hamburgh. Lastly, with Canon Hall and Muscat of Alexandria growing side by side, the former is double the size, but later on, when the grapes are ripe, there is not such a disparity in size and weight. A vine in good condition, with berries thinned just when ready, will progress steadily, and increase the size of both berries and bunches at the same time. A hot morning will necessitate careful ventilation, and application of water, &c. Avoid draughts, but admit air, and remember that healthy vines will almost always keep clean.

Bottesford Vineries, Notts. STEPHEN CASTLE, F.R.H.S.

ODONTOGLOSSUM PRINCESS CHRISTIAN.

IN a collection of the very finest odontoglossums it is extremely difficult to determine which form is the best ; the owner may set great store by a unique form that costs him a very large sum to secure, and naturally he considers this the best ; an unbiassed visitor with a knowledge of what is good among forms of O. crispum, but unaware of the prices paid for those before him, is likely to pick out quite another variety as the best. If he has a leaning toward the highly coloured and heavily blotched forms he will pick out the best of these, while another would turn to the purest white or faintly blushed forms, while yet another would give pre-eminence to a white ground form on which a moderate number of brilliant blotches are placed. We do not pretend that the variety illustrated in the present issue is the finest in the celebrated Dell collection, but it certainly is one of the very finest of the many beautiful varieties belonging to Baron Schröder. It is both robust and beautiful, for twelve handsome blooms were borne upon the spike, part of which is illustrated. Each flower measured four inches in diameter, and a glance at the portrait will show that it is what connoisseurs consider a first-rate form, as regards shape as well as colour. The ground colour is purest white save for a faint rose tinge on the sepals near the very large spots and blotches of intense blood-red. Blood-red spots are also present upon the petals, and these are well defined. The petals have fringed margins, but those of the sepals are entire though broad ; all the segments have pointed apices, but this does not mean that the flowers are stellate, as in a comparatively worthless variety of Odontoglossum crispum. So fine is O. crispum var. Princess Christian that the Orchid Committee of the R.H.S. was practically unanimous in awarding it a first-class certificate on March 22 last, when it was exhibited by Mr. Ballantine.

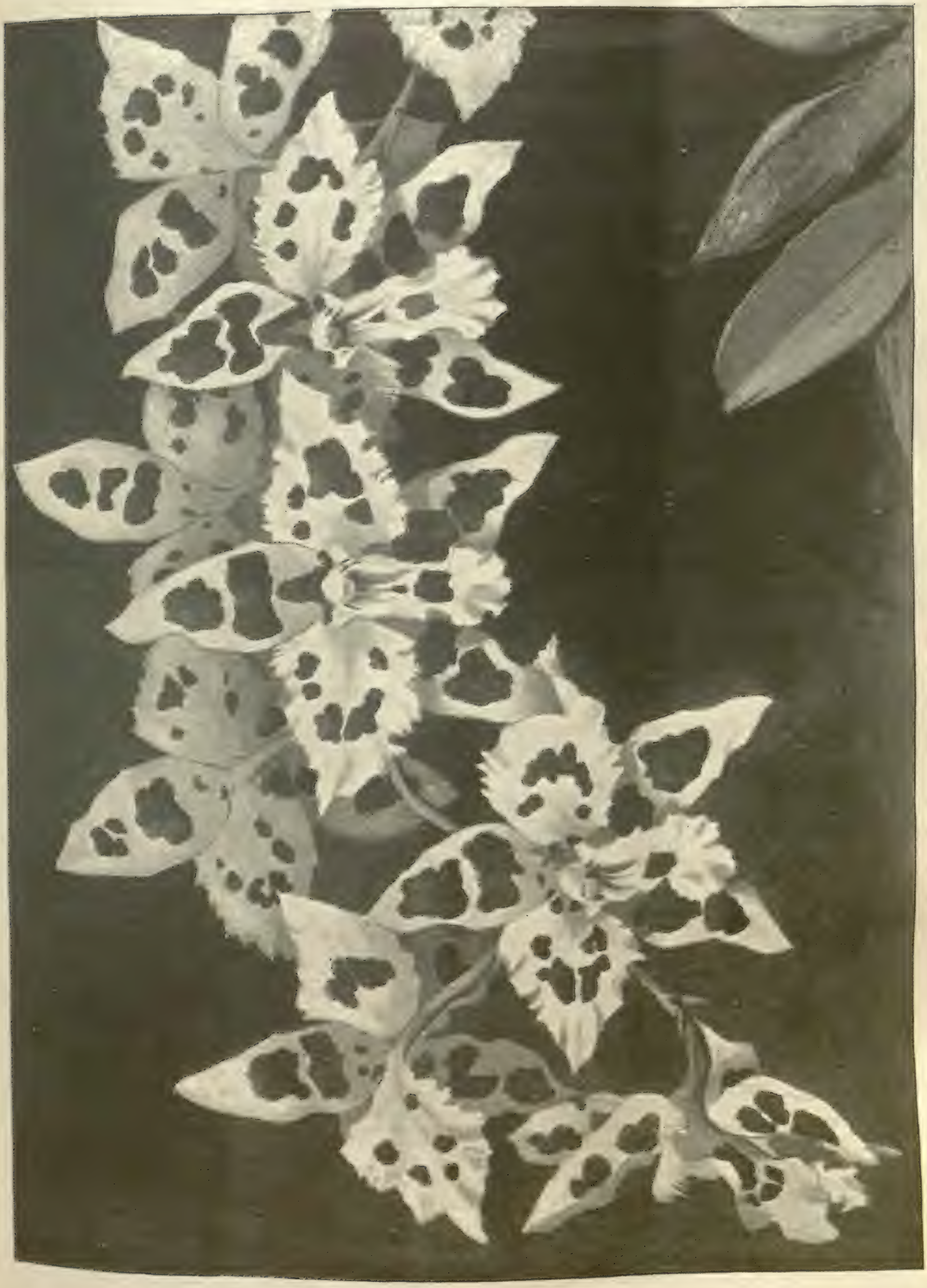
HARDY PEACH CULTURE IN NORTHUMBERLAND.

MUCH that is interesting on the subject of open-air peach culture has been of late given in these columns, and having given much attention to the peaches in the open here and elsewhere, I should like to make a few remarks in favour of growing peaches on the open walls. At nearly all the gardens in which I have been employed, peaches have been grown on the open walls successfully, and this from the extreme west of England and southern counties to this the extreme northern locality. Here we have just now (April 2) a show of bloom which I have never seen surpassed. The large flowered kinds are very beautiful ; the trees are in perfect health and vigour, and should we escape any exceptional frosts there will be a good crop of fruit. Should any proprietor desire peaches in the open where the district is favourable, there is no reason why they should not be grown without glass coping or heated walls. At least they have been grown so here the greater part of this century at least. Two years since we threw out a tree fully seventy years old, but very old trees are not profitable. We have trees thirty years old that make short growth and nearly every year yield heavy crops. The short growth is evidently the result of exhaustion of soil. The trees have not been lifted since planting, but are fed heavily with artificial manure. These have not a fair chance, and I feel quite sure that a great deal of peach-tree failure may be traced to the lack of plant food at the roots. There is not the proper vigour about old trees that have grown in the same soil more than thirty years, as the latter becomes washed and worn out, and should be removed in part at least. We find the vigour of young trees from six to fifteen years of age to be very different, especially when planted in new soil, and I would never plant any tree without the major part of the soil was new if I could help it. We usually keep a young peach tree or two trained on a south wall ready to fill up any vacancy ; we do lose a tree occasionally, but this is soon replaced with a fine young tree, and the shifting of a young tree is one of the best methods of producing good medium-sized wood, which produces fine fruit.

Assuming that we have trees in a healthy state at the roots, the next important thing is to keep them clean up to the time when the fruit is swelling and syringing can be done. I would emphasize this important point, because I know many trees come to grief at this season, and if trees are crippled by green fly and red spider, then success is impossible. The destructive power of these insects is amazing. They should be watched, and as soon as possible syringed off with luke-warm water. As prevention is better than cure, we dress the walls and trees with fairly strong insecticides before the first blooms have opened, using two ounces of soft soap to a gallon of water, or nearly a quarter of a pint of paraffin to four gallons of warm water, giving it a colouring with sulphur. These will keep down the insects during the most critical stage of growth. A large glazed sheet from say forty to fifty feet long is a splendid thing to enable fumigating to be done effectually just before the flowers open. We have similarly treated peaches indoors for many years past, and have been almost completely free from the effects of green fly. Overcropping should be avoided anywhere, especially in the north. Trees should be [illegible] disbudded, doing] the work gradually ; we rarely do much disbudding on outside trees until May, as plenty of growth seems to give vigour, and one has then plenty of shoots to choose from.

We have never unnailed the trees here to remove the growths from the walls, and do not believe we have lost a crop through being early. If we have had a good season to ripen the wood the previous year we [illegible] have a full crop of fruit ; if a bad season, wet and sunless, then the trees fail to bloom properly. We obtain a crop of peaches on the [illegible] heated wall, but shaded with No. 3 fruit-protecting material, as [illegible] as we grow a crop of apples. This protecting material is [illegible] removed from the time it is laid on the walls until about May 13. We have frequently seen visitors from southern counties surprised to see peaches grown in such quantities on open walls so far north. Naturally we do not grow the earliest kinds ; Royal George and Dymond are two of the most reliable varieties for us.

Alnwick Castle Gardens. GEORGE HA[illegible]



ODONTOGLOSSUM CRISPUM PRINCESS CHRISTIAN.

THE FRENCH LILAC TRADE.

THE French lilac trade is not only a very important branch of industry, but its quaint history is equally as significant; thus, whenever the yield is rich, it truly represents quite a little fortune for the inhabitants of the village of Frette, which is situated sixteen miles from Paris. The village itself is in the midst of a veritable lilac forest, having an area of some 1,600 acres of barren, chalky soil, which during the season of three weeks will produce nothing else. The branches are cut, tied together, as if so many sheaves of corn, and transported during night time to Paris. On their arrival at the Halles Centrales, the bundles are duly untied and sprinkled over with fresh water. The village of Frette, thus sells yearly £2,920 worth of the choicest lilac; the five hundred inhabitants either own part, or rent plots of the ground from the State or the Commune. When the lilac season comes to an end, the Frettois, which is the name given to the inhabitants, fall back on hiring themselves out as farm servants, others prefer living on the produce of their river fishing; while during the winter months their principal industry consists of making mats, brooms, and beehives. The village of Frette, though abounding with lovely lilac, is the poorest and the least looked after, as well as the most neglected in every sense of the word, within the department of the Seine-et-Oise. It is sufficient for the peasants of that popular village—who, as already remarked, make their living mostly by lilac-growing, and many make a few thousand francs by the industry—to plant one single stem of lilac in an almost barren field, where nothing else can be cultivated, to possess within a short time a most productive and flourishing shrub. Curious to remark, when the inhabitants are asked to sell part of their ground, they certainly do not keep their buyers waiting long for a negative answer, owing to their exaggerated pretensions about the price of their plantations.

While on a visit to Frette recently, the writer was told of an amusing anecdote which fully corroborates the truth concerning the refusal on the part of the Frettois to reasonably sell an inch of their barren soil. Thus, a cobbler some years ago, who carried on his trade at Frette, and who was a large land proprietor, received an unexpected visit from a Paris land surveyor, the latter having come down specially on behalf of an intimate friend of his, with a view of purchasing a small allotment which belonged to the shoemaker. The cobbler was offered two hundred and fifty francs, or £10, cash down, which implied a price of half a franc, or fivepence per yard, which was considered a very reasonable offer on the part of the surveyor, especially as it was nearly barren soil. The shoemaker, however, most contemptuously refused such a proposal, and exclaimed in the greatest astonishment possible: "What, two hundred and fifty francs! You seem to forget, sir," he continued indignantly, "that without the least trouble my few perches of land represent an annual yield of lilac to me of one hundred and fifty francs alone; now the latter, in twenty years, would represent a sum of three thousand francs [or £120;] such is the price you will have to pay, if you want to buy my insignificant plot of land." Needless to add, the purchase was not effected. This instance clearly illustrates the value set upon their land by Frettois in general.

The whole surroundings of Frette being equally lilac-producing thefts are much on the increase. The Frettois accuse—and not without cause—cyclists of being the most daring thieves, the more so, as there seems to be no bound to their audacious helpings of the flowery shrub. Lilac-thieving is not limited to the village of Frette and its environs, but the suburbs of Paris equally suffer from similar acts of dishonesty. "Guards" are posted at various distances at Frette during the collecting of the shrub, to keep off thieves; but, notwithstanding the most careful watching, cyclists manage to pluck away as audaciously as ever, trusting to the speed of their machines to carry them safely away. The majority, on approaching a shrubbery dismount, creep on their hands and knees to the coveted spot, and cut away at the branches, while some comrades keep watch; at the least signal of danger, they regain their bicycle, thus firmly believing in the maxim that:

> "He who steals and runs away
> Will live to 'rob' another another day."

Generally speaking, the French lilac industry has made great progress of late years; much of this is largely due to the fact that Parisians have taken more kindly to the plant; it is not too much to say that actually lilac is *par excellence* the most favourite flower of Parisians of both sexes. Of course this craze has greatly benefited culture, hence the successful harvests throughout France during recent years. There is an incessant demand for lilac in Paris during the season, especially by housewives, who are to be seen daily laden with the two varieties of lilac; no time is allowed for the flower to fade, as extra quantities are purchased, thus a constant fresh supply replenishes vases in every home, whether poor or rich. The outsides of Parisian railway stations offer a pleasing sight during the whole of the lilac season, where the courtyard is usually filled by roughs of both sexes offering branches of lilac at moderate prices.

So extensive have been the thefts in and around the public parks of Paris and gardens, that a severe censure has been imposed. Thus, the devastation of lilac trees in the Bois de Boulogne, having assumed a terrible increase, the park-keepers at each gate request every person carrying lilac to give the same up, under the penalty of being prosecuted for thieving: too often large handfuls represent a day's collection. Notwithstanding these strict measures, the keepers themselves confess that vigilance and watching prove vain, as far as checking the wholesale breaking of lilac branches and trees is concerned by *promeneurs*, who out of spite not only break twigs, but trample flower-beds down, besides plucking flowers which they store away in their pockets and handbags till safely out of the park gates. It is a well-known fact that the passion of Parisians for all kinds of flowers is irresistible. No French family would ever think of returning home after a Sunday's outing in the country without some horticultural or botanical *souvenir*. Again, the better to check this growing "evil," custom house officers, who are stationed at all Parisian railway termini, call upon passengers carrying flowers to produce a *laisser-passer*; this ticket or pass should by right be signed by the owner of suburban gardens with whom the travellers have been spending the day, and setting forth that the said flowers are not only the outputs of their own gardens, but that the flowers [illegible] were cut with their consent. This check though well intended, is none the less insufficient, for what control is there to prevent the said passengers from increasing their bunches from other people's gardens on their way to the station? Any persons unable to produce the required *laisser-passer* are compelled to give up their bouquets to the officials; no fine is inflicted, as that would entail too much trouble to trace the origin of the supposed theft, and of the owner's identity; all that is done is merely to confiscate the suspected flowers and shrubs, which are ultimately destroyed by the custom house officials.

Though cyclists are looked upon with an evil eye they are not the only sinners, for another class of forgetters of the Decalogue—wealthy ladies—are equally as guilty; thus it is a common practice among rich Parisian ladies who drive about in their carriages to drive to neighbour-woods and favourite spots well stocked with lilac and other flowers. The coachmen are instructed beforehand to keep a good look out, and not to forget to stop when passing a flourishing shrubbery, to mount the box, cut away at the branches, and when a certain quantity has been gathered the sprays are secreted carefully under the seat, and the occupants of the carriage return to Paris smiling with innocence.

EDWARD CONNER.

THE NARCISSUS CROP.

WHEN the first blooms of such common types of narcissi as the English Lent Lily and Telamonius plenus (double daffodil) commenced to open their blossoms, I made up my mind for a poor season. Speaking generally, my fear has not been realised, for up to the present time it has been, in this garden, a really good one. We grow some thousands of bulbs in various places, such as rose borders, pæony beds, amongst herbaceous plants, and in the Michaelmas daisy border, as well as about two acres of wild garden on grass. We never have had so good a display as during the past fortnight. Not only is the foliage robust and healthy, but the individual blooms are of really good quality. At the time when the varieties alluded to were opening their first flowers, a contemporary alluded to the promise of a poor crop, and gave as a reason that the excessive rain and cold weather experienced in March of last year was no doubt the cause. This coincided with my own ideas, as here we experienced more than an average rainfall at the time. No doubt this is all against the due and necessary growth and maturation of the bulbs for the next season's flower crop. By the end of April 13½ inches of rain had fallen in this neighbourhood, which in a yearly average of 30 inches is excessive. I noticed, too, that where the bulbs were growing in less exposed situations, such as near trees, they produced still fewer blooms than those of the same variety quite in the open. This was still further proof that the weather of the previous season was partly responsible for the semi-failure. Less rain having fallen during the two succeeding months, the later flowering kinds were not so adversely affected.

The cultivation of narcissi has, of course, a beneficial effect upon the results, as in all other flower crops. Here there is no comparison in the luxuriance of the foliage and flower of N. Horsefieldi, for example, growing on grass, as compared to others established in the rich soil of the rose and herbaceous borders. Thousands of bulbs of varieties like Ornatus and Poeticus, growing amongst fruit trees, have not the same appearance of robustness, owing to the somewhat poor nature of the soil, as compared with the more generous treatment accorded the bulbs in other sites. To grow narcissi in the best possible condition annually there must be no haphazard method of treatment allotted to the [illegible]. Especially fine are the blooms this season of varieties like Sir Watkin, Emperor, Golden Spur, Princeps, Barri conspicuus, Odorus rugulosus, Mrs. Thompson, Figaro, Queen Bess, Nelsoni major, Albicans, Obvallaris, Maximus, and Telamonius plenus—the last named grown under glass in boxes of rich soil. It is not in every garden where space can be found to grow numbers of the various narcissi in beds by themselves. I adopt the plan above alluded to of filling the space between the regular occupants of the pæony garden, rose borders, as well as among the many herbaceous plants in a wide border, and amongst the Michaelmas daisies. In all these positions we meet with much success. The flowers are extremely useful for cutting, while, when growing, they serve to brighten up an otherwise dull part of the garden during the latter part of March and throughout April.

E. MOLYNEUX.

Swanmore Park Gardens.

Strawberry Royal Sovereign.—I, like Mr. Wythes, have another good word to say for this strawberry, especially for forcing. I liked it from the first when Mr. Laxton sent me a few plants for trial. From these plants I [illegible] April fruits weighing 1½ ounces. For years I have pinned my faith to [illegible] Hericart de Thury for the earliest first supplies, having seen this [illegible] so well cultivated at Heckfield by the late Mr. Wildsmith. The experience so recently gained of Royal Sovereign, under adverse conditions [illegible] imperative that the latter must entirely take the place of the older variety. [illegible] side by side in one of the worst places imaginable—under the deep [illegible] there is at the present time a great contrast in the two varieties in favour of the newest. Even obtaining so little sun as the plants do under such [illegible] circumstances, the fruit of Royal Sovereign has coloured remarkably well.—[illegible]

WORK FOR THE WEEK.

COOL ORCHIDS.

In the cool houses the plants are now starting to grow freely. The spring months suit the occupants remarkably, but the occasional drying east winds are not beneficial, so ventilation should be moderately afforded when they exist, for a dry atmosphere may check the plants and it undoubtedly increases the insect pests. The plants should be examined carefully, and any aphis that have settled on the flower spikes should be removed at once, for if left until the flowers begin to open they cripple them to a large extent. Odontoglossum crispum will be commencing to present a gay appearance, as will O. Pescatorei, O. polyxanthum, O. hystrix, O. luteo-purpureum, &c. These plants carry their spikes in perfection for several weeks. It is, however, a bad practice to let these remain long on the plants, as it naturally causes the bulbs to shrivel. There are some examples that are making new growths and carrying flower spikes at the same time; in such cases the spikes should be cut off as soon as the flowers have expanded, for if allowed to remain the young growths will be weakened considerably. Odontoglossum Oerstedi with its dainty little flowers forms one of the most charming objects in the cool house at the present time; it is a native of Costa Rica, being found there at elevations of 7,000 to 9,000 feet. When commencing to grow this species should be watered very sparingly until root action begins, and even then they should not receive overdoses of water; during the winter months only sufficient water will be needed to prevent shrivelling.

Any plants that have been wintered in the intermediate house may now be removed to their growing quarters, and the warmest end of the odontoglossum house will be found a suitable place for the following during the next six months: Odontoglossum Krameri, O. nævium, O. cirrhosum, Miltonia vexillaria, Lælia harpophylla, Dendrobium infundibulum, D. Jamesianum, Masdevallla Schlimi, and all the chimæra section may be removed, and also M. tovarensis that has become re-established. Masdevallias should receive a good supply of water during hot, dry weather, and it will be beneficial to syringe the foliage of all plants of members of the chimæra section on fine mornings; the other species mentioned should be kept decidedly moist at all times, and as all are liable to become attacked by yellow thrips, a careful watch should be kept, as if allowed to become established the grower will find much difficulty in ridding the plants of the pest. Barkerias are now commencing to grow, and new roots will proceed in due course from the base of the young growths; these plants are best grown in baskets, or on flat blocks of wood, with sphagnum moss about the roots, and suspended from the roof near the glass; a position should be found for them at one end of the cool house, where they may be exposed to full sunshine, and given abundance of water during the growing season. Syringe the plants at least twice or three times daily, and should any become too tall they should be shortened by cutting off a portion of the base, then placing the plants in baskets or on blocks of wood. If baskets are used make the plants secure by tying the stems to the wires, three parts filling the receptacle with crocks and charcoal, and surfacing with moss.

One of the principal operations necessary among orchids making growth is watering, and it takes up a great deal of time now; rain water should always be used whenever obtainable, particularly for syringing, so means should always be taken to supply tanks large enough for a good store in case of long spells of dry weather; the water should be warmed to the degree allowed for the night temperature of the house. I always make it a practice to commence watering as soon as the thermometer indicates the proper temperature of the houses, affording a thorough soaking to all those plants that require it; plants that are grown on blocks of wood and in shallow pans should be examined daily. Small slugs and snails are very troublesome at the present time, and unless kept under will destroy the young roots as fast as they are put forth, which, of course, very much weakens the plants.—E. SHILL, *New Hall Hey Gardens*.

STOVE PLANTS.

WITH the increase of temperature, owing to the progress of the season, insect pests will increase rapidly, and unless unremitting attention is paid to their destruction they will sadly disfigure the plants and cripple growth, for, be it remembered, these pests are pure parasites, and draw their sustenance from the elaborated sap of the plant, thus depriving the host of that matter which otherwise would go to its further development. In this department the most troublesome pests are thrips, mealy bug, and various kinds of scale; to destroy the former, fumigating two or three nights in succession with XL All fumigating compound will effectually destroy it. Regarding the two latter my experience is that to eradicate them is impossible, therefore to keep them in proper subjugation a fortnight-syringing of the infested plants with one or other of the best-known insecticides is the most efficacious plan to follow. Where blinds are not provided for shading, the permanent shading, such as summer cloud, should now be applied; a bright day should be chosen; the house not damped down, and a little air to be kept on until the shading has quite set; if these precautions are not taken the moisture will condense upon the inner surface of the glass, percolate through the laps, and, in running down the outer surface, wash off the application. To obviate the necessity of running frequently to the fire to warm the summer cloud, use a carpenter's glue-pot, or something similar, so that the vessel containing the paint can be immersed in hot water; thus all that is necessary is to change the water when it becomes cooled, and much time will be saved.

Allamandas, stephanotis, and dipladenias, which are being grown in pots and trained upon hollow trellises for the purpose of exhibiting, or being used as specimens in large conservatories when in flower, should have their shoots trained up strings until they have attained sufficient length, and set the flowers, when the strings can be cut and withdrawn, and the shoots tied down carefully to the trellis. Pot up successional batches of gloxinias, tydæas, and achimenes; these require to be drawn near the glass, to have all the light possible, taking care, of course, that they do not become scorched; if grown in a dense shade the flowers are useless for cutting, and the plants will not bear removal for room or conservatory decoration. All stove plants are now growing freely, and, with the exception of those recently repotted, will be benefited by the occasional application of a good fertiliser, but in using this do not apply too much at once, and allow two or three weeks between the applications. If liquid manure is used be careful not to use that which is thick and muddy, or it will render the soil sour.

The end of April is a suitable time to propagate the various varieties of winter flowering begonias, such as B. corallina, B. President Carnot, B. heraclifolia nigricans, B. manicata, B. hydrocoty lifolia, B. Gloire de Sceaux, and B. nitida, may be propagated singly in small pots; such as B. insignis, B. Knowsleyana, B. parviflora, B. hybrida multiflora, and B. fuchsioides may be propagated three or four in a three-inch pot, to be potted off singly when rooted. Loam, leaf-soil, and sand will be the most suitable compost; and if the propagating-case is over-stocked they may be rooted quite successfully in the body of the house, if the atmosphere is kept moist and they are shaded from the sun. The variety Gloire de Lorraine, which is admittedly one of the most beautiful of the dwarf section, is by far the most difficult to work up a stock of, it being difficult to procure shoots free from flower for propagating purposes, and my experience is that it is useless to insert as cuttings those shoots showing flower. Rooted cuttings of Strobilanthus Dyeranus should be potted on into five or six inch pots, potting them firmly and standing in shade—if the sun reaches them they will lose their colour directly. In potting on young plants of Phrynum variegatum and Dracæna Sanderiana pot three young plants of each into a five-inch pot, for if potted singly they have rather a weedy appearance; this dracæna will be found to thrive better on a smaller supply of water than the rest of the family. Close the stove early in the afternoon to raise the temperature up to 90 degrees, at the same time affording a good syringing, and if the house is a lean-to, and dries up quickly, give another syringing before five o'clock.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

FRUITS UNDER GLASS.

MELONS growing on trellises require some support for their fruits, and this should be given in good time to relieve the vines from their great weight. Where the trellises are rigid, the simplest support is formed with strips of matting, either crossed under the fruits or tied to a ring of the same material, in which the fruits can rest without being in any way pinched or prevented from swelling to a good shape. In other cases it is better to join rests of thin squares of wood with a string or wire for attachment to the trellis; there should be a hole with smooth sides in which the eye of the fruit can rest, without fear of its being kept wet. Woodlice are frequently a great nuisance to melons in their earlier stages, and will, if not kept down, either destroy the fruits or render then unsightly. Traps for these insects may be formed of hollowed halves of potatos, which should be laid cut side downwards, and examined frequently; pots of dry moss, too, are good for the same purpose. The best and safest way of clearing out woodlice is to pour boiling water round the sides of the beds and into all crevices to be found in the house, taking care, of course, that the melon roots are not so watered. One or two such applications will do wonders. Afford liberal doses of liquid manure to plants on which the fruits are swelling, as such have much work to do in a short time, and require support of this kind. When netting is completed, return to the application of clear water, and from this time until the fruits are ripe the plants will require less water than they have hitherto needed. During the summer and early autumn months, it is often necessary to depend on frame cultivation of melons, and this is an easy matter, provided constant attention is paid to the linings, and fluctuations of bottom heat avoided. Frames may be planted now at any time, and the general conditions are such as were stated a few weeks ago, the great thing to remember being to always plant thrifty young plants, and not those that are pot-bound. Seeds should be sown for each frame, rather more than three months before the fruit is required. Careful ventilation and early closing to secure the safest maximum of sun heat are important factors in melon culture, and must not be neglected, also plant in soil made very firm. If the bed on hillocks of soil be made along the centre of the frame, pinch out the tips of the plants when they have made three leaves, and form leaders of the two strongest breaks, taking one towards the front and the other towards the back of the frame; take out the points of these leads before they reach the sides, and fruit the plants from the first set of laterals, if possible, so that the frames may not be crowded with foliage.

Work in peach houses will now be plentiful. In the early house the fruits will need exposure to full sunlight by elevating them above the foliage, or by tying the latter back clear of them, never by cutting it off. Syringe freely to keep down spider, and so retain the leaves in perfect condition, see that the borders are well supplied with water, for dryness at the roots must be avoided if good fruits are wanted. Continue disbudding and tying-in shoots, which are necessary items in management. When in doubt as to the removal or otherwise of a shoot, the former is generally the safest course, unless it be the leading shoot above the fruit, when it must be left, but never forget that the general tendency is to leave far too much wood in peach and nectarine trees, and act accordingly all through the season for disbudding. The latest vines will now be getting forward, and a caution as to scalding of berries and leaves may be useful. Lady Downes, one of the most useful grapes for keeping, is especially liable to scald, and houses containing it and all such varieties should invariably have some little ventilation left on at night after the berries have set, and more should be added quite early in the morning. It may, in the case of houses with bad glass, be necessary to shade the roof slightly, the best method being to apply a very thin coating of summer cloud, which must be put on while warm, and with the glass in a thoroughly clean and dry state.—J. C. TALLACK, *Livermere Park Gardens.*

WHITEWASHING PEACH TREES.

A GOOD many British fruit growers will be able to verify the experience of the Columbia Experimental Station given in a recent issue. It is a good many years since some of us discovered that common limewash was one of the cheapest insecticides—cleansing bark, branches, and twigs, and rendering the crevices in wood and bark ungenial to insects of all sorts, sizes, and stages of evolution. It proves not only a powerful cleansing agent, cheap and harmless, but also a protecting force of great potency; and it was also early discovered that the whitewash saved the trees, or rather their blossoms and embryo fruits, through making and keeping them cool. In early life I saw experiments made on some walls, differing only in colours. These were black, yellow, red, blue, white. One fact that came out clear from much doubt and obscurity was the retarding of the blossom of peaches, pears, plums, by from a fortnight to three weeks by whitening. Cultivators hardly need to be told that such retarding in early spring often meant the gain or saving of a crop. The Columbia and Missouri experiments seem to have bettered our practice of whitewashing, inasmuch as it was repeated four times; this, of course, added to their whiteness and consequent coolness and resulting lateness. The salt could have little or no effect in retarding growth, and a little flour added to the skim-milk made the British whitewash stick on from November to April. There is, however, no objection to repeating the whitewash provided it is not used when the trees are in bloom.

In the last week of March a fine peach tree on the open wall so far north as Perth, N.B., was in full blossom; had it been whitewashed it could hardly have been so forward until the middle of April, being thus whitewashed into greater safety. Its experienced grower, however, looks for sure cropping by letting his trees alone. If, he says, growers would only let one peach tree alone and note results there would be a speedy end of all forms and methods of covering and coddling peaches in the open air. Should your readers care to hear more of the size, age, and doings of this fine peach tree at Perth, I will supply these another day. D. T. F.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s, "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

PRACTICAL SUGGESTIONS TO FRUIT GROWERS.

THE following suggestions in the annual report of the Secretary for Agriculture, Nova Scotia, are especially deserving the attention of fruit growers in the United Kingdom :—

I. Upon Insects.

Practically all the applications which are made to destroy insects are designed to act in one of two ways. The substance may be destined to enter the digestive system of the insect and thus cause death, just as many poisons cause death when taken into the stomachs of the higher animals. This method is by far the cheapest, and when possible it is advisable to make use of it.

The second method does not consist in putting poison on the food of the insect, but the material is put directly upon the insect itself. It then causes death either by stopping up the breathing pores, or it penetrates the outer coverings and so enters the body directly. This method cannot be used with success against all insects, as some have very tough and dense coverings which are not readily penetrated by any material that we can use for the purpose. Beetles, for example, can scarcely be dectroyed in this manner. But all soft-bodied insects, such as aphides, and caterpillars, yield readily to the treatment if sufficient material comes in contact with their bodies.

This method of killing insects by means of substance which causes death merely by penetrating the creature's body is rather expensive, and it is resorted to only when the pest cannot be treated by poisoning its food. It thus comes that most grubs and caterpillars are destroyed by means of poisons which are eaten, though they yield to the other treatment equally well.

The food of many insects, however, cannot be poisoned since they feed upon the juice of plants and do not eat the external coverings. It is fortunate that most of these insects have soft bodies, so that they yield readily to treatment if the poison comes in contact with them. Their mouth parts are formed for penetrating the external coverings of plants to a depth sufficient to reach the sap ; just as the mosquitoes' bills are in the habit of penetrating human kind. All aphides belong to this class, as well as the true bugs, these having mouth parts which are adapted to suck, but not chew. The utter uselessness of covering a plant with poisons to protect it from these pests will readily be seen. The insect's beak will penetrate this poisonous layer and it will take no food until the beak has passed the limit of the poison and is deeply buried in the tissues of the plant.

From the above it will be seen that—

(*a*) To destroy chewing insects, such as the caterpillars of the winter moth, poison must be evenly distributed over those parts upon which the insects feed, and this may in some cases be done even before the insect is present, or is visible. Only those poisons which cause death after eaten should be used.

(*b*) To destroy sucking insects, such as plant lice, the materials must be distributed upon the insects as evenly as possible, and it is useless to make any application before the insect has appeared. Only those poisons which kill by coming in contact with the insect's body should be used.

First determine what kind of a pest it is that needs treatment, then select the proper material.

II. Upon Fungi.

Among the fungi we find many enemies. It is difficult to tell just what a fungus is, but some of the principal characteristics may be mentioned. A fungus is a plant ; but, unlike flowering plants, it possesses no chlorophyll. Chlorophyll is the green-coloured protoplasm found in flowering plants, and it is the only substance we know through which plants change crude food to nutritive material. We must conclude, therefore, that fungi do not prepare their own food, but feed upon organic matter, which is already adapted to their wants. They possess no leaves, flowers, or seeds. That part of any fungus which is of most interest to the horticulturist is composed of long, fine threads, are known as hyphae, and collectively they form the mycellium or vegetative portion of the fungus. The mycelium corresponds to the roots and stems of flowering plants.

Spores, which are organs performing the same office as the seeds of flowering plants, are produced by this mycelium either directly, or upon branches (sometimes called sporophores) which are thrown out. These sporophores cause the white downy appearance seen upon grape leaves affected with the downy mildew. A spore, strictly speaking, is not a seed, for a seed contains a young plant, while a spore does not, being usually composed of only one cell. If a spore finds the proper conditions of heat and moisture it will germinate and send out a fine filament, which, if nourished, eventually produces a plant like the original.

Most fungi in the north produce two kind of spores, known as the summer and winter spores. The summer spores are usually borne upon the exterior of the host-plant, or the plant on which the fungus grows. These spores ripen quickly and propagate the fungus rapidly. But if they do not germinate soon after ripening they lose their vitality. The winter spores are usually produced within the tissues of the host plant, commonly in the leaves and fruit. They are the spores which live through the winter ; but in the spring, under favourable circumstances, they germinate, and thus the fungus is again developed. Fungi may be divided into two general classes : those growing upon dead and decaying matter, or saprophytes ; those feeding upon living tissues, or parasites. By far the larger portion possessing interest to the horticulturist belong to the latter class, for in this are included the fungi which do so much injury to cultivated plants.

Yet all parasitic fungi do not attack the host-plant in the same manner. Some immediately penetrate into the interior tissue, and there they flourish, being well protected from outer influences by the exterior covering of the plant. The fungi causing all the more serious diseases develop in this manner and, in fact, the vast majority of plant diseases are caused by such organisms. There are others, however, in which the body of the fungus is almost entirely upon the surface of the host plant, only a comparatively small number of threads penetrating the tissues in order to obtain nourishment. These parasites can be rubbed off, and unless the attack has been very severe, the green, healthy tissue will be seen underneath. This class may for convenience be termed "surface fungi" ; to distinguish them from those which grow within the host-plant ; it is represented by the common powdery mildew of the grape, one mildew of the gooseberry, one of the strawberry, and a few others.

The life histories of the various fungi must form the basis for any methods of treatment which may be adopted. During certain stages of their existence parasitic fungi may be checked quite easily, and at such times the remedies should be applied. It is evident that when a fungus has once become established inside the host-plant it cannot be reached without destroying the tissue of the host in the affected places, which is by no means desirable. The fungus must be destroyed before it enters the host ; in other words, the spores must be killed as soon as they germinate, or better, they must not be allowed to germinate. All applications must be preventive, not curative, since a cure is practically impossible, when the fungus is once established, unless it grows upon the surface of the host.

The line of treatment indicated is this : To cover the stems and foliage of the cultivated plant with some substance that will destroy the spores which may be present, as soon as they germinate, or with one that will have the power of preventing this germination. If that is done the plant will remain healthy, so far as fungi are concerned ; otherwise it will not, unless, indeed, no fungus attacks it. several substances which destroy these spores, as well as the surface fungi have already been found. They are easily applied, safe, and effective, and any grower, who suffers his fruit to be ruined by these parasites is, as a rule, deserving of his loss, for means of destroying the pests are at his command. It is largely the grower's fault if his apples are scabby, and if his potatos rot in the field. Spraying is no longer an experiment, it is a necessity ; and those who recognise this fact are the ones who are reaping the rewards.

Spraying Machinery.

The best spray nozzle, so far as efficiency, simplicity, and cheapness are concerned, is the end of a hose and a man's thumb. Unfortunately, the thumb gets sore and tired, and operations must be suspended to wait for repairs. It is the nearest approach to the ideal nozzle yet devised, if it were only more practicable. It will do all that a good nozzle should do. It throws a fine, mist-like spray, one that will "float in the air like fog." or the particles of water may instantly be made coarser, and the water thus carried to a greater distance ; or still coarser and the water leaves the hose in the form of a solid stream. These changes all take place instantly (after a little practice), and it makes no difference whether the parts to be sprayed are a few inches or many feet away. This nozzle never clogs, but is cleaned automatically, and as quickly as the character of spray is varied. In fact it possesses all the desirable qualities of a spray nozzle, except durability, and for this we must turn to the metals for aid.

All operators do not desire the same kind of spray even for the same kind of work. It is commonly said that the best spray is one which most nearly resembles a fog. This is true so far as the spray is concerned, but the trouble comes in applying it. A fine spray cannot be applied so advantageously us a coarser one, nor can it be applied so rapidly for the reason that the finer the spray the less liquid is thrown, and the smaller the area treated. Whenever the wind blows, a fog-like spray will go wherever the wind carries it, and not where the operator directs it. Sometimes this will be an advantage. It is especially so when the wind is blowing in the right direction. Yet when the other side of the tree is being treated the wind will come from the wrong direction, and much of the material is blown where it is not wanted. In addition to this, the work is more slowly performed, and whether it is more thoroughly done than when a coarser spray is well used is still open to doubt. After having tried both kinds of sprays, it appears to the writer that if the parts to be treated are close by, a fine spray is to be preferred, as then there is less waste and an even application may be made. If the parts to be treated are more removed, being situated from ten to twenty-five feet away, a coarser spray is wanted—the more distant the object, the coarser the spray. The work can thus be done much more rapidly, just as effectually (with the exception of some waste), and much more satisfactorily, than by the use of a fine spray. In case a fine spray is used, it is necessary to have a pole to carry the nozzle to the different parts of the tree, and this is as tedious as it is unpleasant. When a coarser spray is made, there is generally formed enough of the finer spray to float in the air and protect parts which are not directly reached by the operator.

The finest sprays are produced by the eddy-chamber nozzles, and by those in which two streams of water strike each other at an angle. With such nozzles spray can be made as fine as desired, the size of the outlet orifice being the main controlling factor. For long distance work, when the liquid is to be carried ten feet or more, the best spray is formed when the fluid is forced through two flat parellel metal surfaces. The greater the pressure, the greater will be the amount of fine spray and the farther will it be thrown. Although the ideal nozzle has not yet been made in metal, some of the forms now sold are approaching perfection.

All good spray machinery is expensive, and only careless operators will neglect the ordinary methods of preserving it as long as possible. When the pump has been used in applying any of the preparations with the exception of clear water, it should be cleaned. No insecticide or fungicide should be allowed to stand within the pump, but clear water should be pumped through it before it is put away. It is well to oil all the working parts occasionally, as a little oil at times may prevent the metal from being cut, and the pump will be thus preserved much longer than otherwise. Nozzles are also benefited by the same treatment. Oil can scarcely be used too freely on the inside of such apparatus, and an occasional coat of paint on the outside will assist materially in protecting the metal. The careless man pays dearly for his neglect.

Spraying Fruit Trees.

The following suggestions on the spraying of fruit trees are from the pen of Professor E. E. Faville, formerly of the Novia Scotia School of Horticulture, Wolfville :—

No feature in fruit growing should be more thoroughly understood than that of spraying properly with insecticides and fungicides, for by judicious work the crop is protected, it becomes cleaner, markets at a higher price, and often times the crop is saved, especially during the favourable seasons for insects and fungous growths. To spray in season should be one of the chief aims of the operator. We will consider the following remedies for trees affected by [illegible] which are of two kinds : first, those that chew their food ; second, those that [illegible] the juices. The former may be destroyed by poison eaten with food. For [illegible] moth, bud moth, cankerworm, and insects of that character, use the following mixture : 1 lb. Paris green, 200 gallons water. Stir the mixture while spraying, as the greater portion of the poison does not go into solution, thus avoiding [illegible] injury to the leaves. This strength is suited to nearly all foliage. London purple [illegible] may be used instead of Paris green, but it is more caustic, and about twice [illegible] weight of lime should be added. Trees affected with the bark louse or tree [illegible] should be washed early in the season with the alkaline wash made as follows : Soft soap, washing soda, made to the consistency of paint, applied with a [illegible] the tree. In May or early June, when the bark louse is hatching, spray [illegible] kerosene emulsion made as follows : 2 gals. kerosene, 1 gal. water, [illegible] Dissolve the soap in the water by boiling, add kerosene, and churn violently [illegible] mixed. This forms a stock solution, to every one part of which add nine [illegible] water and apply as a spray. This solution is used for all kinds of sucking [illegible] as cabbage worm, scale insects, currant worms, &c. For fungous diseases [illegible] with the Bordeaux mixture, introducing Paris green, thus making the mixture [illegible] combined insecticide and fungicide as follows : 4 lb. copper sulphate, 4 lb. [illegible] (quick), 4 oz. Paris green, 50 gals. water. Dissolve the copper sulphate [illegible] warm water or by placing in a bag of coarse cloth, and hanging in [illegible] gallons of water to dissolve. Slack the lime in four or five gallons of water, [illegible] strain through coarse cloth or screen. Mix the two, add Paris green, and [illegible] mixture in the remainder of the water. When fruit is nearly matured the [illegible] niacal copper carbonate solution is used as follows: 5 oz. copper carbonate, 2 quarts ammonia, 50 gals. water. It is for the same purpose as Bordeaux mixture.

The following wash for old trees with scurvy bark, also used quite largely in Nova Scotia, in the early spring for cleaning trees, is the potash wash consisting of 3 gals. of water, 1½ to 2 lb. crude potash. This must be applied as a spray before buds swell or burst.

SOURCES OF COMMERCIAL INDIA-RUBBER.

The first of the two Cantor lectures on the sources of commercial india-rubber was given by Dr. Morris, C.M.G., on April 18.

In his opening remarks Dr. Morris said that, since the days when Le Condamine first described the rubber-tree of Brazil, and Don José, King of Portugal, in 1755 sent several pairs of his royal boots to Para in order that they might be covered with the water-proof "gum-elastic," the use of India-rubber has enormously increased. Besides the demand in almost every department of arts and manufactures, the rapid development of cycling, and of the use of rubber tyres for carriage wheels, has added largely to the increased consumption of this interesting article. The quantity of raw caoutchouc imported into the United Kingdom in 1830 was only 23 tons. Even in the year of the accession of our Queen it was about 200 tons. Last year it had increased to 20,000 tons.

The present value of the imports are about five millions sterling. The total trade is probably not less than ten millions sterling. More than one-third of the imports is now received from British possessions. In 1888 only about one-fifth was so received. It is estimated that the world's consumption of rubber is 60,000 tons, of the value of fourteen millions sterling. This stupendous quantity of raw material is laboriously extracted from the milky juice of trees and shrubs belonging to three natural orders, viz., the Spurges *(Euphorbiaceæ)*, the Nettles *(Urticaceæ)*, and the Dogbanes *(Apocynaceæ)*. These plants are distributed over nearly every part of the tropical zone—none are found in the temperate zones—the most important being found in the vast basin of the Amazon, an area almost as large as that of the continent of Europe; others are found on the east and west coastt of Africa, in Assam, and the Malay Archipelago.

Hitherto the preparation of India-rubber has depended upon the crude hereditary art of a semi-savage people—the rubber-hunters—who explore the depths of tropical forests, and obtain the rubber-milk at the sacrifice of millions of trees which, owing to the recklessness with which they have been treated, are yearly decreasing.

The result is that many localities where rubber was once abundantly obtained have almost ceased to produce it. New sources of supply have, it is true, been found in West Africa, especially in Lagos, the Congo State, and Portuguese South-west Africa. But here also the work of destruction is rapidly going on. The collectors have to go further and further into the interior, and the cost of transit is thereby greatly increased. An account was given by the lecturer of an important discovery whereby rubber could be extracted from the milk in a perfectly pure state. This is a mechanical contrivance on the principle of a cream separator. This was likely to prove of great value in the preparation of Central American and some West African rubbers where the milk flows in an appreciable quantity and is capable of being brought in by the collectors.

The rubber trees of Brazil were then exhaustively described, together with the distribution of the various species yielding the Para rubber of commerce. The exports from Para in 1897, including rubber received from Bolivia, Peru, and Venezeul, amounted to 22,650 tons. Of this amount fifty-one per cent. was shipped to the United States and thirty-eight per cent. to the United Kingdom, leaving only about eleven per cent. or 2,500 tons for all other countries. The price of Para rubber, which regulated the price of all other sorts, has been steadily increasing since 1894, when it was 2s. 11d. per pound; in 1895 it rose to 3s 2d.; in 1896, to 3s. 4d.; in 1897, to 3s. 6½d., while the average price for the first three months of 1898 was 3s. 9½d.

At the concluding lecture, delivered April 25, it was stated by Dr. Morris that there is a consensus of opinion that in nearly all localities in Central America the trees of Castilloa elastica are being gradually exterminated. Hence the supply of rubber from Mexico, Guatemala, Nicaragua, and the U.S. of Colombia is steadily diminishing. The interesting tree yielding Ceara rubber (*Manihot Glaviovi*) readily propagates itself, and its area has not apparently sensibly diminished of late years. The people are, however, being attracted more and more into the rubber districts of the Amazon valley, and the amount of Ceara rubber exported is comparatively small. Manabeira rubber, on the other hand, seems to be increasing. The tree (*Hancornia specicosa*) is found in the States of Pernambuco, Bahia, Rio de Janeiro, and extends westward to Matto-Grosso. The rubber is cured by means of alum; it is of a pinkish colour, and the price is generally only one-half of that of fine Para. Passing on to the rubber-producing areas of the Old World, it was stated that the rapid development of African rubber was one of the most remarkable incidents of recent years. As regards the world's commerce Africa now occupies an important place as a source of india-rubber. The value of the imports of African rubber into the United Kingdom during 1896 amounted to over a million sterling. Of this foreign possessions supplied rubber to the value of £206,972, and British possessions £844,804. Up to within a recent period all the rubber produced in Africa was obtained from climbing plants belonging to the genus *Landolphia*, with sweet-scented flowers and edible pulpy fruits. In 1894 a new rubber tree (*Kickxia*) was found at Lagos, from which in 1895 rubber to the value of nearly £300,000 was exported. More recently still another new rubber plant (*Carpodinus*) has been discovered in Africa. This is of a semi-herbaceous character with underground stems which are rasped in water and yield rubber of an excellent quality.

The rubbers of Assam, Burma, Penang, and Singapore were then dealt with. Borneo rubber, although known since 1798, has only come into commerce within the last fifty years. It is yielded by climbing plants, closely related to the Landolphias of Tropical Africa, and is generally of excellent quality. New Guinea rubber is in part yielded by a species of ficus. The natives are said to allow the sap to run over their arms and body, and when hardened they remove it and roll it up into balls the size of cricket balls. The prospects of obtaining some of the future supplies of rubber from cultivated trees were favourably regarded. In selecting sites for plantations, preference should be given to localities in which the trees were already found. Para rubber trees introduced into the East at the expense of the Government of India had done remarkably well in Ceylon, Tenasserim, and the Straits Settlements. In Ceylon such trees were estimated to yield one hundred and twenty pounds of rubber per acre after the tenth year. This would give a probable return of twenty per cent. on the capital invested. In the Straits Settlements the trees were found to yield at an earlier age, and the estimated returns per acre were placed as high as thirty per cent. It was stated that where rubber trees were cultivated under suitable conditions they would probably yield a larger quantity of milk than wild trees; also that the rubber, from the greater care and attention it would receive, would be more uniform in quality, and therefore obtain a higher price.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, April 26.

Although somewhat crowded by reason of the multiplicity of exhibits, it was a splendid display that was brought together on the above date at the Drill Hall, Westminster. Daffodils and early hardy flowers of many kinds, azaleas and rhododendrons, roses in grand condition, ferns, gloxinias, dracænas, orchids in variety, fruits, and vegetables, were all presented in good condition and combined to make up a most interesting exhibition. Novelties were fairly numerous, and there were a few magnificent new orchids.

Floral Committee.

This body had a long sitting and much work to do. A charming collection of roses came from Mr. George Mount, Canterbury, and was a great attraction, for the blooms were all of the finest substance and size, well formed, beautifully coloured, and on sturdy long stems; Catherine Mermet, Ulrich Brunner, Captain Hayward, Niphetos, Anna Olivier, Caroline Testout, and The Bride, were the varieties most fully represented. Altogether about ten dozen flowers were staged, and none could be finer. A silver-gilt Banksian medal was awarded. Mr. Rumsey, Joyning's Nursery, Waltham Cross, staged cut roses in quantity, showing large boxes of good blooms of Niphetos and Maréchal Niel, with Ulrich Brunner, Ella Gordon, Caroline Testout, Mrs. Rumsey, and many others in lesser quantities; a most fragrant exhibition, and one that gained a silver Banksian medal. A magnificent lot of Maréchal Niel roses came from Mr. J. Walker, Thame.

Messrs. R. and G. Cuthbert, Southgate, put up some beautiful Mollis azaleas, all represented by nicely-grown specimens. Nicholaas Beets, golden yellow; Anthony Koster, soft yellow; General Vetter, large flowers, yellow with brown markings; Sebastopol, rosy fawn or salmon; and Madame Anthony Koster, creamy white with brown spots; and J. J. de Vinck, were among the best of a good set; silver Banksian medal. Sir John T. D. Llewelyn, Penllergaer, Swansea, showed a large number of trusses of handsome rhododendrons, all cut from plants growing in the open air, and in shrubberies and woods; there were handsome bouquets of R. Thomsoni, and hybrids from it; R. niveum, R. oclivaceum, R. arboreum album, and R. campanulatum, in splendid form; this was a most interesting and instructive exhibit, and revealed to visitors the fine climate of Penllergaer and the high standard of cultivation its owner maintains. Mr. Fyfe, gardener to Lord Wantage, Lockinge Park, sent a lovely lot of Fortune's Yellow rose; bronze Banksian medal.

Messrs. Linden and Co., Brussels, set up a small group of extremely handsome anthuriums, all scherzerianum forms or hybrids; a variety named Beefeater was remarkable for its high colour, while My Love was notable for its clear pale pink hue; a silver Banksian medal was awarded. Celmesia Munroi and Azaleodendron Edouard Andre were sent by Messrs. James Veitch and Sons. G. F. Wilson, Esq., showed an assortment of blue primrose blooms; also a deep violet purple one, and some lovely crimson varieties from his Weybridge Gardens. Hardy rhododendrons and a new hybrid polyantha rose with soft rose pink blooms, and named Psyche, came from Mesrs. Paul and Son, Cheshunt, the same firm staging J. B. M. Camm, a soft rose-coloured H. P. rose of good form. A pan of the curious Lathræa squammaria, a parasite, was sent by the Dowager Lady Bowman.

An exhibit of anthuriums from Mr. Bain, gardener to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, contained large specimens of A. triumphans, salmon pink; A alba, creamy white; A. elegans, cream, spotted scarlet; A. Rothschildeanum maximum, A. Lawrenceæ, silvery white; A. Andreanum, A. Laingi, blush; and A. Perfection, a huge andreanum seedling. These fine aroids were greatly admired, as they make most effective decorative plants when so well managed as by Mr. Bain; silver Flora medal. Mr. Empson, gardener to Mrs. Wingfield, Ampthill, Bedford, sent a magnificent specimen of Trillium grandiflorum album, with probably a hundred of its beautiful blooms all expanded upon it. Messrs. J. Peed and Sons put up a large semi-circular group of dracænas of varied hues, all well-grown plants, arranged over a bed of ferns and amid graceful palms; all the leading varieties were staged. A large cluster of blooms of the beautiful scarlet Brownea Ariza, one of the finest of leguminous trees, was sent by Mr. F. Moore, Glasnevin Botanic Gardens, Dublin.

From Messrs. Paul and Son, Cheshunt, came a collection of early-flowering hardy plants, mostly in pans; among the brightest were Geum Emodi, Caltha monstrosa, Saxifraga Lindisiana, Adonis vernalis, Trillium grandiflorum, Pulmonaria arvenensis, Doronicum plantagineum excelsum, and Cheiranthes Harpur Crewe; Gerberi Jamesoni, with orange scarlet flowers, and the pretty Royal Scarlet Rose were both staged by the Cheshunt firm. Gloxinias from Messrs. J. Laing and Sons, Forest Hill, S.E., looked well amid ferns and dwarf palms; the variety Mrs. Laing, rich violet purple and white, is a fine contrast to the variety John Laing, rich velvet cherry-red shaded with crimson; the group merited a silver Flora medal. A most interesting display came from Mr. H. B. May, Edmonton, and consisted of a group of gymnogrammas, containing a great variety of sorts. G. Parsons, G. Laucheana, G. Allstoni, G. grandiceps superba, a grand golden form with tasselled and crested fronds; G. auratum, G. Mayi, sulphur coloured, G. pulverulentum, G. argenteo cristatum, G. Wettenhallianum, and G. peruviana argyrophylla, the brightest silver form, were among the best of a handsome collection of well-grown plants; silver Flora medal. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, showed a small collection of hardy plants in pots and pans; Anemone fulgens, Primula cortusoides, P. frondosa, P. viscosa, and Androsace villosa were in first-rate condition. The firm also staged a group of daffodils, including three grand pans of the pretty Narcissus bulbocodium; Victoria, J. B. M. Camm, Horsefieldi, and large numbers of incomparabilis and poeticus forms made up a bright exhibit. Some magnificent clusters of the huge white-flowered Rhododendron Nuttalli were shown by Mr. Howe, gardener to H. Tate, Esq., Streatham Hill, and were greatly admired. Erythroniums in great variety were remarkably well shown by Messrs. R. Wallace and Co., Colchester; this exhibit should incite those who have not already done so to cultivate Dog's Tooth violets.

To illustrate the lecture given during the afternoon Messrs. J. Veitch and Sons sent a small collection of fragrant-leaved plants, such as eucalypti, cape pelargoniums, diosmas, humea, prostranthum, adenandra, &c. From Kew, the Director of the Royal Gardens sent a few subjects for a similar purpose, these including the pimento, eucalypti, diosmas, pelargoniums, Myrtus communis, chenopodium, Illicium verum, the Star anise, and others. An interesting exhibit consisted of a display of d'oyleys, lamp shades, fans, &c., all made in the West Indies from dried palm frondage cut into patterns, fastened to light material, and decorated with dried fern fronds; small fronds of gymnogrammas and cheilanthes were largely used, and the effect was charming and elegant; the exhibit was made by Messrs. Osman and Co., the horticultural sundriesmen of Commercial Street, and a silver Banksian medal was awarded it.

Daffodils.

A magnificent exhibit of daffodils came from Messrs. Barr and Sons, Covent

Garden; the Tazetta varieties were largely represented and most fragrant; larger varieties were in force, and amongst the most attractive were Victoria, Apricot, Mrs. Walter Ware, Mr. P. Milner, Gloria Mundi, Glory of Leiden, Prince of Orange, Weardale Perfection, Madame de Graaff (a grand bunch), Shakespeare, Maxima, Poeticus poetarum, P. grandiflora, &c. Some beautiful tulips, not forgetting T. Greigi, made up a fine exhibit; silver Flora medal. Messrs. J. R. Pearson and Sons, Chilwell, contributed a large display of daffodils in variety, staging them in neat bunches, and not crowded together; the Burbidgei varieties were specially clean and fresh, and the trumpet forms also; Glory of Leiden, Beauty of Haworth, J. B. M. Camm, Madame de Graaff, Weardale Perfection, Albicans, Emperor, John Nelson, Maximus, and Princess Ida were all beautifully staged; Leedsi amabilis, Burbidgei Vanessa, Siddington, Barri Conspicuus, Sir Watkin, Mrs. Langtry, Duchess of Westminster, Maurice Vilmorin, and Johnstoni Queen of Spain were among the finest and most interesting of the other varieties on view; this was a very pretty display, and contained not less than seventy very distinct varieties; silver Flora medal. Daffodils also were shown in grand form by Messrs. J. Veitch and Sons, Chelsea; the bunches were staged rather closely together, but the flowers were all first-rate, and looked handsome over the groundwork of maidenhair fern; silver-gilt Banksian medal.

ORCHID COMMITTEE.

The orchid committee had a large number of plants to adjudicate upon, and among them were some of the finest novelties yet produced this season. The groups were scarcely so extensive as on some occasions, but were nevertheless very good and effective.

Some particularly handsome forms of Cattleya Mendelli were exhibited by Messrs. Hugh Low and Co., one, named Mrs. John Bradshaw, being especially beautiful, by reason of its large and highly-coloured lip; C. Lawre-Mossiæ, whose parentage its name betrays, was a notable and handsome orchid, giving evidence of its origin; a handsome form of Odontoglossum Pescatorei and others of O. cirrhosum, O. Andersonianum, O. crispum, and O. Ruckerianum attracted attention, as did Oncidium St. Legerianum, and masses of Dendrobium Bensoniæ, silver Banksian medal. Mr. Wiffen, gardener to J. Bradshaw, Esq., The Grange, Southgate, showed a few charming orchids, including the chaste Cattleya intermedia alba, Odontoglossum crispum Whiffeniana, O. luteo-purpureum sceptrum, and Dendrobium Jamesianum; a vote of thanks was accorded. Mr. Smith, orchid grower to the Right Hon. J. Chamberlain, Highbury, Birmingham, sent a few interesting hybrids, including several plants of Lælio-cattleya Highburyensis, obtained a few years ago by crossing C. Lawrenceana with L. cinnabarina; Epicattleya guatemalensis, a cross between Epidendrum aurantiacum and Cattleya Skinneri, is more interesting than beautiful; a vote of thanks was accorded.

From their Chelsea Nurseries Messrs. J. Veitch and Sons sent a large pan of Masdevallia Veitchiana, with two dozen brilliant blooms, Lælia Latona, finely-flowered, and represented by six specimens: Brassia bracheata, Cattleya Philo, a cross between C. iricolor and C. Mossiæ, and having blush sepals and a gold and rose-purple lip; and Lælio-cattleya Thorntoni, a grand hybrid between Lælia Digbyana and Cattleya Gaskelliana, described fully elsewhere. Two other grand orchids were Lælio-cattleya Wellsiana Langleyensis and Cattleya Schröderæ amabilis; silver Banksian medal. Mr. Howes, gardener to W. Cobb, Esq., Tunbridge Wells, sent a freely-flowered plant of the rarely seen Dendrobium albo-sanguineum, Cattleya amethystina Cobb's var., Cypripedium Gertrude Hollington, with three flowers, and a fine variety of Odontoglossum polyxanthum. Mr. Bond, gardener to C. L. Ingram, Esq., Elstead, Godalming, sent Cattleya Sedeni, a hybrid between C. Lawrenceanum and C. Percivaliana, and having large rosy purple flowers. Mr. Holbrook, gardener to E. Ashworth, Esq., Harefield Hall, Wilmslow, showed the beautiful Cattleya Mendeli, Ashworth's var., pure white, save for a lemon tint in the throat. A beautiful form of C. Schröderæ also came from the Harefield collection, and is named after it.

Mr. Barnes, gardener to the Duke of Westminster, Eaton Hall, sent a very pretty form of Odontoglossum Pescatorei named Duchess of Westminster; this had a number of rosy-crimson spots over a pure white ground. From Sir Trevor Lawrence's collection at Dorking Mr. W. White brought Mormodes [illegible], a very curious species, with long spikes of rich ruby claret-coloured flowers; a beautiful Odontoglossum crispum also came from Dorking. A most distinct and unnamed cymbidium was shown by Mr. J. Sparks, Heathcote, Ewhurst, Surrey. This has a whitish mark on the small blackish-brown lip; it is probably a form of C. canaliculatum. Mr. S. Cooke, gardener to De Barri Crawshay, Esq., showed his magnificent form of Odontoglossum triumphans, named Lionel Crawshay; this is a finely-formed and splendidly-coloured variety, and probably a unique specimen. Mr. H. Greenwood, Hasledene, showed a pretty form of Odontoglossum Humeanum with cream lip and brown markings on the [illegible] sepals and petals. Mr. H. T. Pitt, Rosslyn, Stamford Hill, sent a highly-coloured Odontoglossum triumphans.

Messrs. Linden and Co., Brussels, staged a large exhibit of odontoglossums, and a few other orchids; there was a splendid variety of forms and colours of O. triumphans, O. Andersonianum, O. crispum, O. Pescatorei, O. cirrhosum, O. Wilckeanum, O. Ruckerianum, &c. A showy Miltonia vexillaria occupied a central position; this was richly coloured, and named Memoria Lindeni. O. Wilckeanum Lindeni, white ground; O. crispum Prince Albert, red spots, [illegible] on each segment; Cattleya Mendelli the Pearl, Cymbidium Lowianum, with [illegible] crimson-tipped lip; and Cypripedium Rothschildeanum were among the finest orchids staged in this group. A silver-gilt Flora medal, the highest award on the occasion, was awarded the Brussels exhibit. Messrs. B. S. Williams and Son, Holloway, gained a silver Banksian medal for their collection of orchids, which consisted of many handsome varieties of the beautiful Cattleya Mendelli and a large number of odontoglossums, principally first-rate O. crispum, O. luteo-purpureum, O. Halli, and O. Harryanum forms, the latter especially good.

FRUIT AND VEGETABLE COMMITTEE.

Vegetables were fairly well shown, and from Mr. H. Martin, gardener to Lord Leigh, Stoneleigh Abbey, Kenilworth, came a splendid lot of seakale, that merited a cultural commendation. Messrs. J. Veitch and Sons, sent broccoli [illegible] Favourite, with close oval heads of great value at this season. Mr. J. Read, Buthy Park, Burton-on-Trent, gained an award of merit for a new green-flowered sprouting borecole, evidently a late and free-growing sort.

Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, staged a really good collection of vegetables for the time of year. There were asparagus, seakale, Chelsea Gem and Carter's Early Morn peas; Ne Plus Ultra and Early Favourite French beans; Veitch's Ashleaf, Sharpe's Victor, and English Beauty potatos; Telegraph and Seedling cucumbers, leeks, mushrooms, several sorts of kale, broccoli, Ellam's Dwarf cabbage, spinach, cabbage lettuce, endive, [illegible] Nantes carrots, and Conqueror tomatos were the principal varieties. This exhibit, which gained a silver-gilt Banksian medal, illustrated in a marked manner what great variety of vegetables and salading has to be provided by a large [illegible]

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ment, and also how well our leading gardeners meet the great demands made upon them even at this end of the season. A similar award was made to Mr. Empson, gardener to Mrs. Wingfield, Ampthill House, Bedford, for an extensive collection of first-rate produce. A bunch of bananas (Musa Cavendishi) held the post of honour, and was supported by pots of strawberries, in full fruit, and dishes of Royal Sovereign and Sir Joseph Paxton strawberries; there were two mounds of apples, the variety being a late-keeping seedling from Beauty of Kent. Vegetables were well represented by Carter's Mammoth broccoli, new potatos, tomatos, asparagus, carrots, seakale, leeks, onions, radishes, cucumbers, rhubarb, &c., and altogether there were thirty-eight dishes of fruit and vegetables.

In competition for the Veitch flavour classes, the first prize for apples was won by Mr. Bullock, gardener to C. P. Serrocold, Esq., with Hereford Pearmain; Colonel Brymer, Dorchester, secured second prize with Allen's Everlasting.

READING AND DISTRICT GARDENERS' ASSOCIATION.

ONE of the most interesting and successful meetings in the annuals of this association was that held on Monday, when the prizes offered by Mr. Leonard Sutton at the commencement of the season, 1898, for the best essays on "How to keep the Greenhouse Gay from October 1 to March 31," and "How to Crop the Vegetable Garden to ensure the best varieties of vegetables from October 1 to March 31," were awarded to the successful competitors. The interest taken in the competition was greater than anticipated, thirteen members sending in papers, and it was not a matter of surprise that a good gathering of members assembled on Monday evening to learn the result, and to hear the prizewinning papers read by their writers. After the formal business had been transacted, Mr. C. B. Stevens announced the awards as follows: "How to keep a Greenhouse Gay." (1) Mr. A. W. Blake, Foreman, The Gardens, East Thorpe, Reading; (2) Mr. G. Stanton, The Gardens, Park Place, Henley-on-Thames; (3) Mr. John Botley, Foreman, The Gardens, Warfield Hall, Bracknell. "How to Crop the Vegetable Garden." (1) Mr. E. Trollope, The Gardens, Coombe Lodge, Whitchurch; (2) Mr. H. Wilson, The Gardens, Lower Redlands, Reading; (3) Mr. G. Hinton, The Gardens, Sherwood Lodge, Reading.

The judges were Mr. James Hudson, Gunnersbury Park, and Mr. Edwin Beckett, Aldenham House, Elstree. Mr. Leonard Sutton in presenting the prizes said that he considered the subject of essay writing was one of the most useful and beneficial to the members that the society could take up, for it encouraged the putting of one's ideas on paper, and at the present time it was those gardeners that could go to their employers with well thought-out ideas that would prove successful, and it would also be of the utmost value to the young gardeners who entered these competitions, for they would reap the benefit of their study and research in after life. The President then called upon the various winners to read their papers, and although, of course, all were on the same subject, yet they were treated from different standpoints, thus creating great interest amongst the members present. A hearty vote of thanks was passed to Mr. Leonard Sutton for his kindness in giving the prizes, and also to the members for reading their papers.

Cut flowers were staged by Mr. Woolford, The Gardens, East Thorpe, including two good forms of Odontoglossum crispum, two fine types of Cattleya Lawrenciana, spikes of Amaryllis Empress of India, and spathes of Anthurium Scherzerianum Wardi, also flowering sprays of Prunus sinensis flora pleno by Mr. Swansborough, Warfield Hall Gardens, whilst vegetables were shown by Mr. Stone and Mr. Hinton, including some nice heads of Sutton's April cabbage.

ANSWERS TO CORRESPONDENTS

Sport from Escallonia macrantha.—T. F., Isle of Man: You evidently have a very handsome shrub, and one that cannot fail to become popular, if it proves as free as the parent. It should also prove valuable if carefully propagated until you hold a good stock. The name you suggest would be a suitable one, used after the manner of Escallonia macrantha Ingrami.

Rose and Fruit Cultivation, &c.—H. B., Dover Beck: Suitable books for you will be "The Amateurs' Rose Book," 3s. 6d. (W. H. and L. Collingridge, 148, 149, Aldersgate Street, E.C.); "Fruit Culture for Amateurs," 3s. 6d. (L. Upcott Gill, 170, Strand, W.C.); Nicholson's "Dictionary of Gardening," 4 vols., £3 3s. (L. Upcott Gill)—we understand that a new edition of this work is forthcoming at an early date: and "Hooker's Elementary Botany," 1s. (Macmillan and Co.)

R.H.S. Meetings.—H. G., Isle of Wight: The meetings of the Royal Horticultural Society are duly notified in our columns the week previous to their being held; usually they are notified in the paragraphs following the "Notes of the Week," and always in the "Engagements for the Ensuing Week." The next meeting will be held at the Drill Hall, St. James's Street, Victoria Street, S.W., on May 10. Parcels for exhibition should be sent to the superintendent of the R.H.S. at the Drill Hall. The secretary of the R.H.S. is the Rev. W. Wilks, and his official address is 117, Victoria Street, S.W.

Cultivation of Smilax.—A. C.: The plant to which you refer is no doubt Myrsiphyllum asparagoides, a most useful plant for table and similar decoration by reason of its long growths, clothed with branchlets of rich green foliage. It requires a warm greenhouse, and does best planted out in a bed of loam and leaf-soil to which a little mushroom-bed manure may be added if available. Plenty of moisture is essential, and when well established and growing freely liquid manure may be given frequently. The myrsiphyllum can be easily grown at the foot of the back wall of a greenhouse, and each growth should be provided with a long string up which to twine, when this is done it is an easy matter to cut out one or more growths as required, and have them their full length; if allowed to entwine about each the growths are of little value.

Lumps on Chestnut Stems.—J. M., Hemel Hempstead: There is no need to fear for the health of the tree because the lumps to which you refer are evidence of its vitality and vigour. No doubt the red-flowered variety has been worked upon a stem of the common horse-chestnut, standard fashion, and as often happens the latter is endeavouring to grow. Where a bud or branch originally existed and was not properly removed other minor buds have developed, and these, being rubbed off as produced, have induced the irregular lumps about which you are concerned, and which are once again doing their best to make growth. Sometimes when the head of a tree has been severely pruned and lopped the proper balance between head and root is broken; in its endeavour

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to regain this balance long-dormant buds start into growth along branches and trunk, and into these the energies of the tree are directed. It would be risky to cut off all the lumps, as in the case of the one sent, but much might be done to improve the appearance of the stems in this way, removing a few each year and tarring the wound over with Stockholm tar.

Failing Cucumbers.—W. W., Norwich: Cucumbers do not like a great bulk of soil, but when well rooted they need frequent and small top-dressings of rich material. A large bulk of very rich soil such as you have becomes sour quickly, especially when so heavily and frequently watered as your letter suggests. It is very evident that you have too large a bulk of very rich soil, and that this has to a large extent become sour and cold owing to excess of moisture and lack of ventilation. Give less water at the roots, and allow a very little ventilation on favourable opportunities; shut up early in the afternoon, and at the same time damp the paths, walls, and other exposed surfaces. A light top-dressing of lime will prove useful, and should be carefully pricked into the staple soil. The temperatures of the house and water are all right. We shall be glad to answer any further direct questions upon the subject.

Names of Plants, &c.—S. M. C., Uppingham: Allium neapolitanum; quite hardy, but extensively used for greenhouse and conservatory decoration.

R. R., Woolwich: The creeping plant is the Ground Ivy (*Nepeta Glechoma*); the orchid is Oncidium tigrinum var. unguiculatum.

J. C., Bath: Dendrobium Pierardi.

Douro, Reading: A young plant of Aloe variegata.

THE WEATHER DURING THE WEEK ENDING APRIL 23, 1898

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	64·1	33·1	46·4	8·00	0·00	0·00
Croydon	63·3	27·5	45·6	7·56	0·00	0·00
Brighton	57·0	36·0	44·7	7·06	0·00	0·00
Bristol	58·0	31·0	43·4	6·33	0·10	0·25
Wolverhampton	57·6	31·6	43·7	6·50	0·00	0·00
Norwich	58·8	32·0	42·6	5·89	0·00	0·00
Nottingham	60·2	35·0	45·1	7·28	0·00	0·00
Liverpool	59·3	36·4	45·6	7·56	0·02	0·05
Huddersfield	59·0	33·0	42·6	5·89	0·06	0·15
Bradford	56·6	39·2	46·6	8·11	0·04	0·10
Hull	61·0	31·0	42·4	5·78	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 29·84 inches, and that of the Thermometer 46°·4, the latter being 1°·9 below the week's average in the 50 years 1841—90. The direction of the wind was north-easterly, the horizontal movement of the air being 27 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 46·4 hours. No rain was measured during the week.

IMPORTANT DISCOVERIES OF GOLD are no doubt of great value to society, especially at a time like the present, when the money market is so tight and poverty so distressing. Still, however, there are some things in this world far more precious than gold, in spite of the immense influence it wields over mankind. Health, for instance, cannot be purchased for money, but it may be preserved and secured by the use of Holloway's Pills. No family should be without them, as they are equally good in their effects for either old or young. No complaint can for long withstand their healing power. They drive out all impurities from the blood, strengthen the digestive organs, and cleanse the stomach.—[ADVT.]

MARKETS.

Covent Garden.

THE market is well supplied with all kinds of produce, and there is an even demand, so that prices have not altered much. Seakale, rhubarb, and asparagus are ch [illegible] somewhat, but apples and pears fetch high rates. Potato trade moderate; [illegible] vegetables rather coarse and better sorts selling well.

FRUIT.—English grapes, 3s. to 5s.; Belgian, 2s. 6d. to 3s. 6d. per lb.; Valencia oranges, 9s. to 20s. per case; Jaffa, 9s. to 12s. per box; lemons, 8s. to 15s. per case; English tomatos, 8d. to 10d. per lb.; Canary, 1s. 2d. to 1s. 6d. per tray, 3s. 6d. to 4s. 6d. per case; pineapples, 2s. 6d. to 6s. each; bananas, 5s. to 9s. per bunch; Californian pears, 11s. to 16s. per case.

FLOWERS.—Arums, 2s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to [illegible]; gardenias, 2s. to 3s.; Lilium Harrisi, 4s. to 6s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 4s.; hyacinths, 4s. to 6s.; daffodils, 2s. to 4s; tulips, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 9s.; wallflowers, 2s. to 3s.; primroses, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 1s.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s. 6d.; and pelargoniums, 6d. to 1s. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Egyptian onions, 7s. 6d. to 8s, 6d. per cwt.; English spring, 2s. 6d. to 3s. 6d. per dozen bunches; French giant asparagus, 7s. to 10s. 6d.; Toulouse, 3s. to 4s. 6d.; Spanish, 1s. 4d. to 1s. 8d. per bundle; broccoli, 9d. to 2s. per dozen; natural rhubarb, 2s. 6d. to 3s 6d.; forced, 1s. to 1s. 6d.; new carrots, 7s. to 9s. per dozen bunches; lettuce, 9d. to 1s. 3d.; cos, 2s. to 2s. 6d.; cucumbers, 3s. to 6s.; endive, 1s. 6d. to 2s. per dozen; mushrooms, 6s. to 8s.; eschallots, 1s. 6d. to 2s. per 12 lb.; spinach, 2s. per bushel; Canary new potatos, 10s. to 14s.; Malta rounds, 8s. to 10s.; Algiers, 10s. to 14s. per cwt.

Borough Potato Market.

A quiet trade exists with fairly moderate supplies and steady prices. New potatos are in fairly good request.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTION.

MONDAY, MAY 2.—Greenhouse Plants, Pond Lane, Clapton.

TUESDAY, WEDNESDAY, and FRIDAY, MAY 3, 4, and 6.—Ferns and Plants, Home Grown Lilies, and Orchids, Central Sale Rooms, Cheapside.

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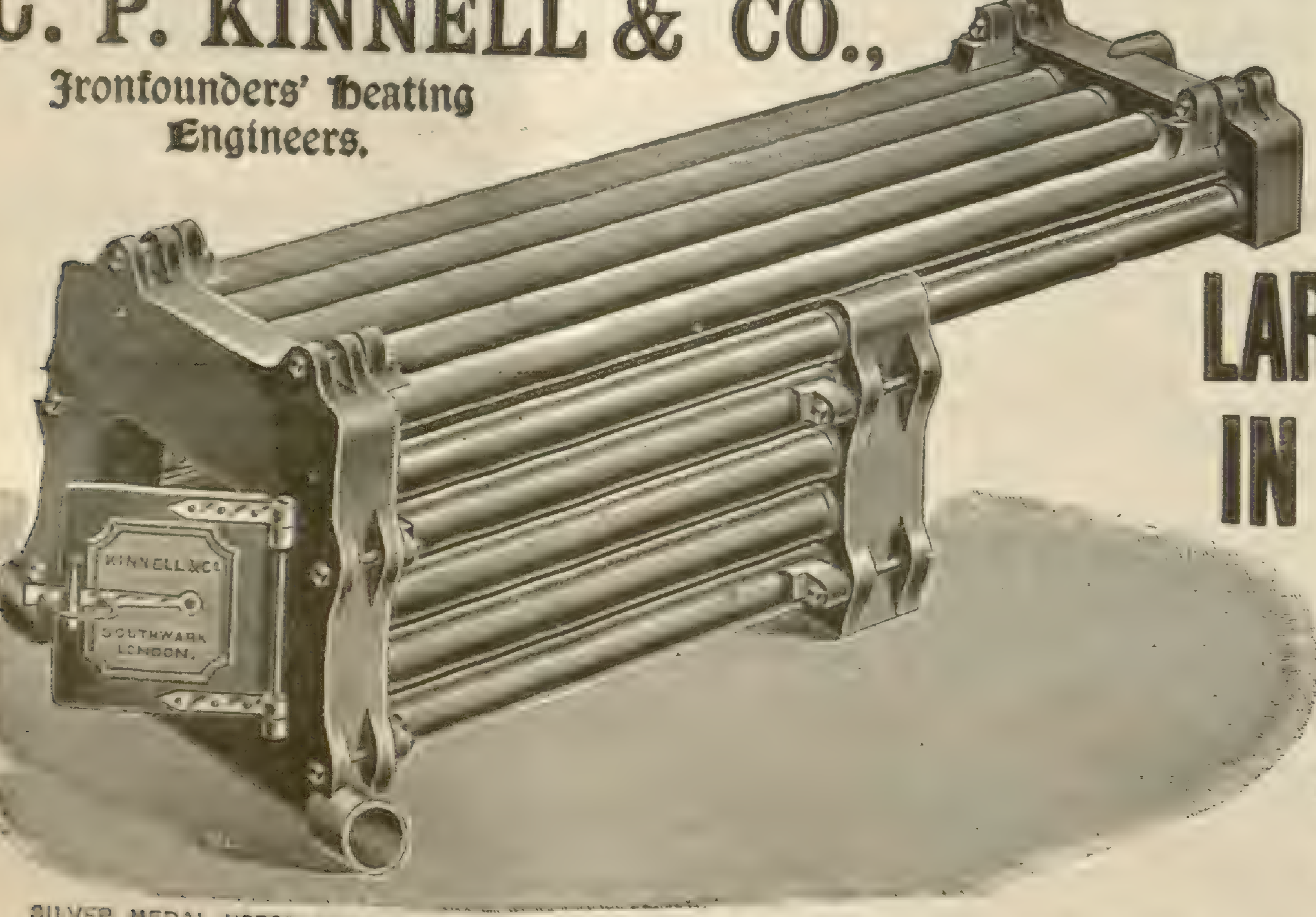

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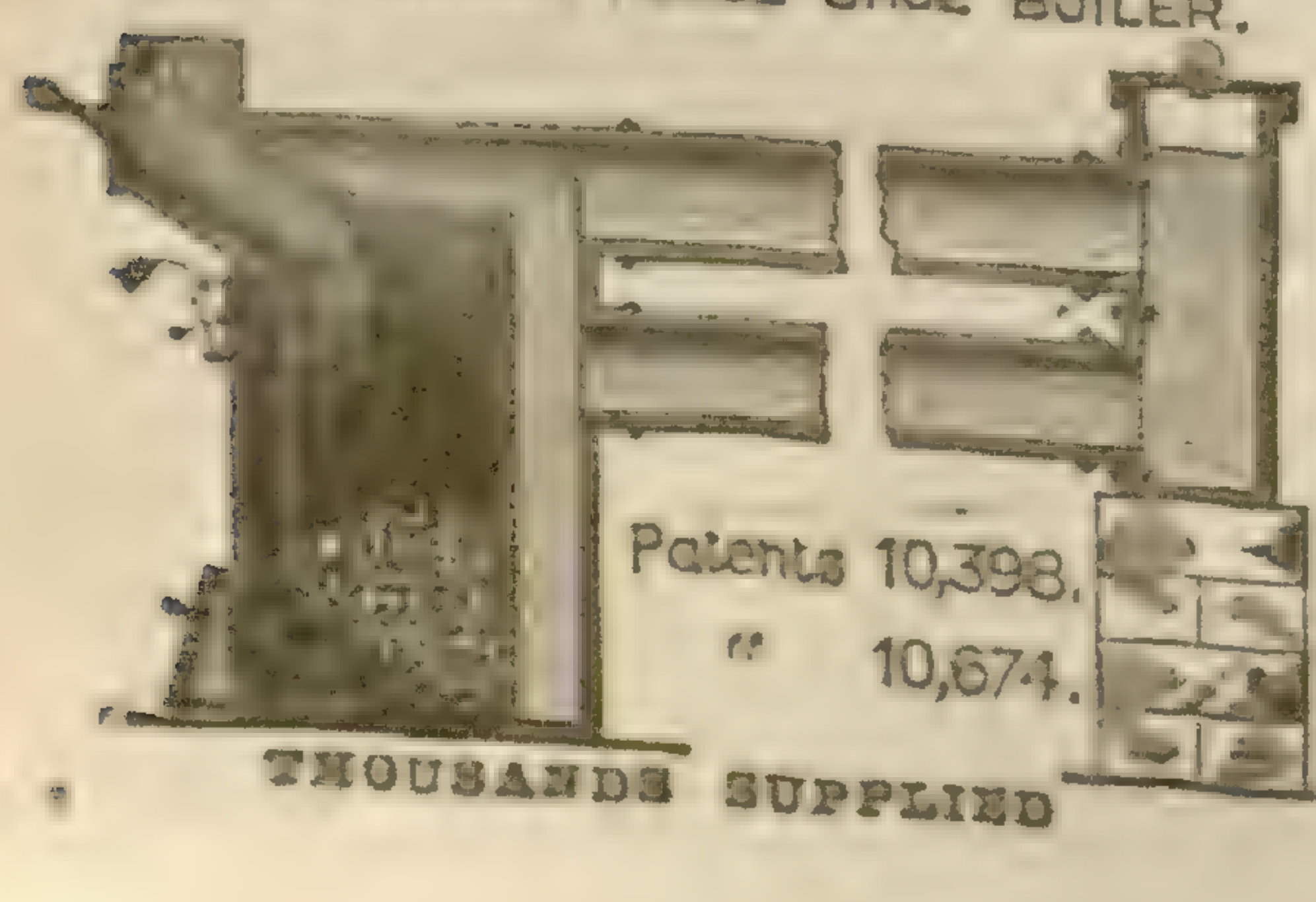

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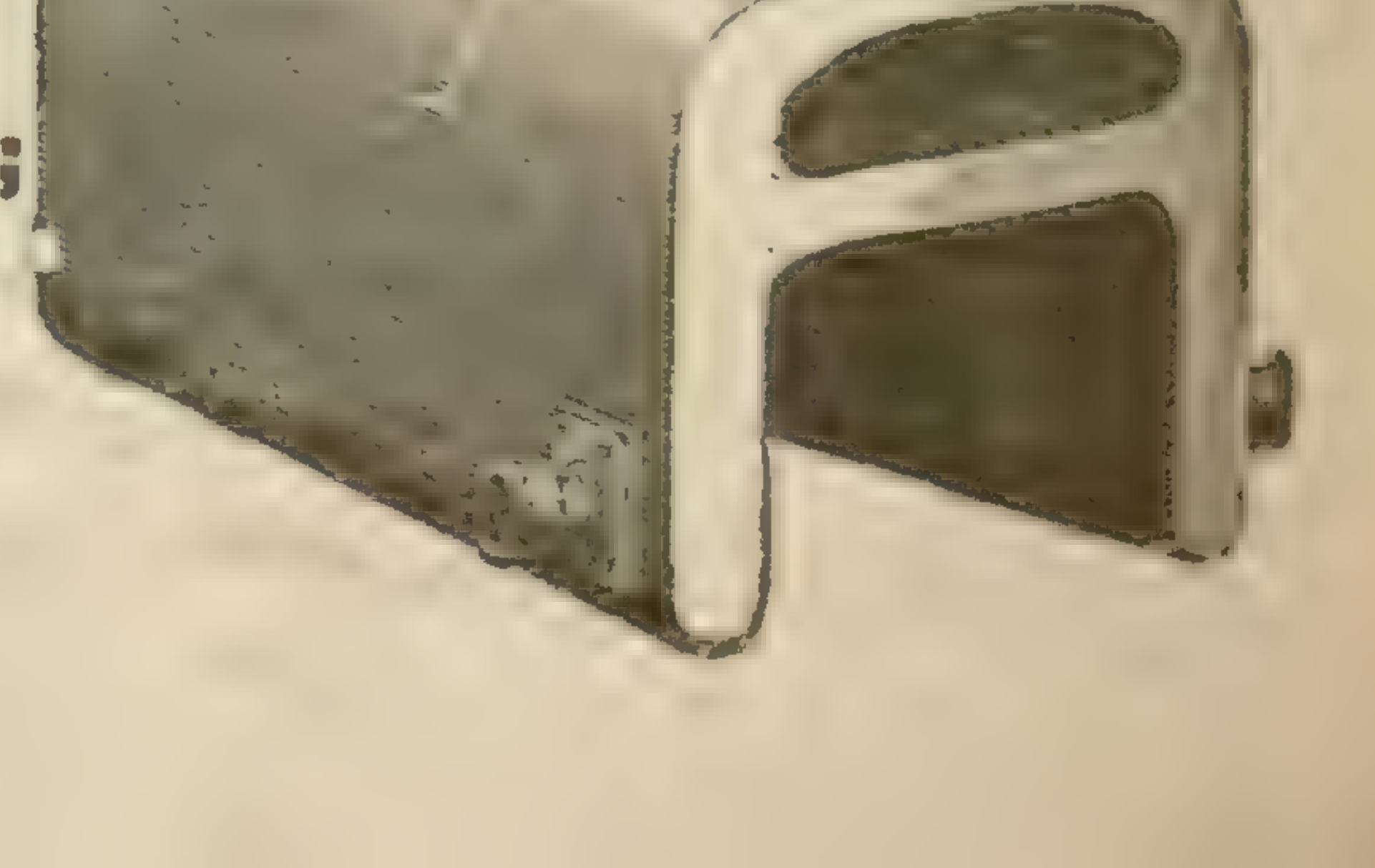

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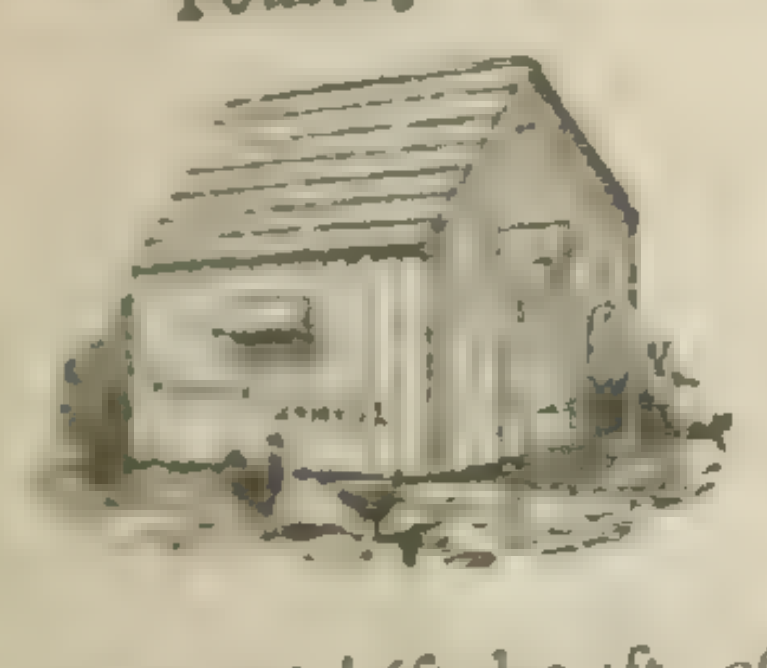

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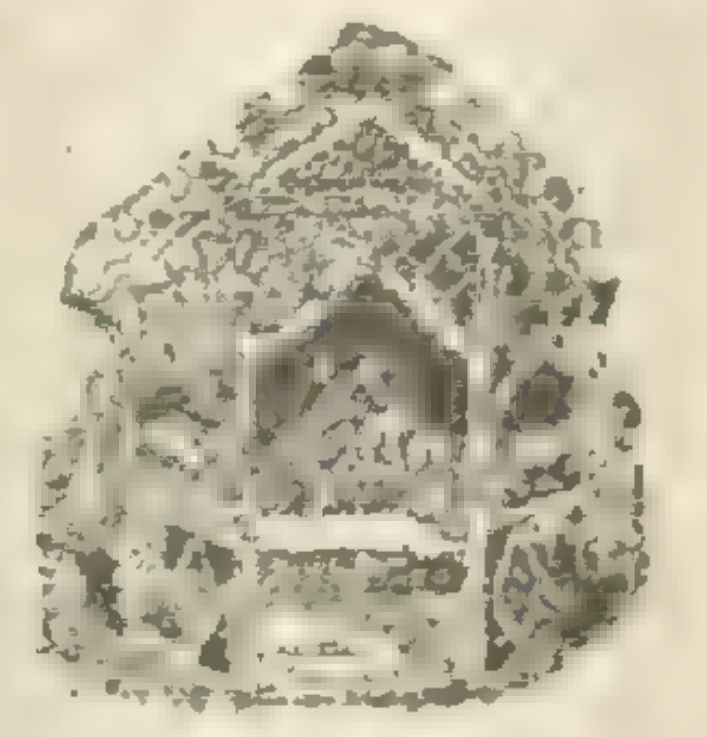

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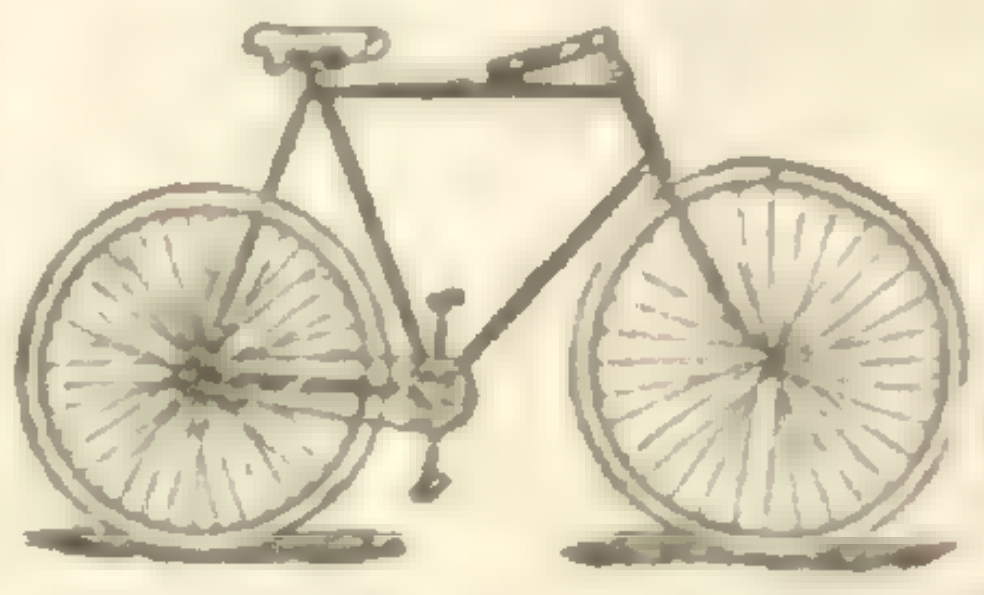

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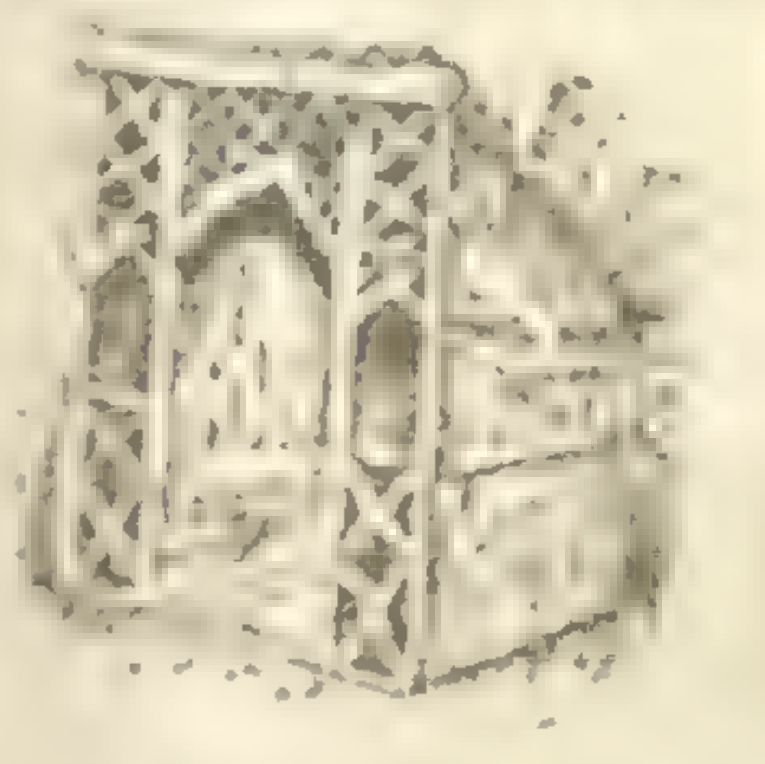

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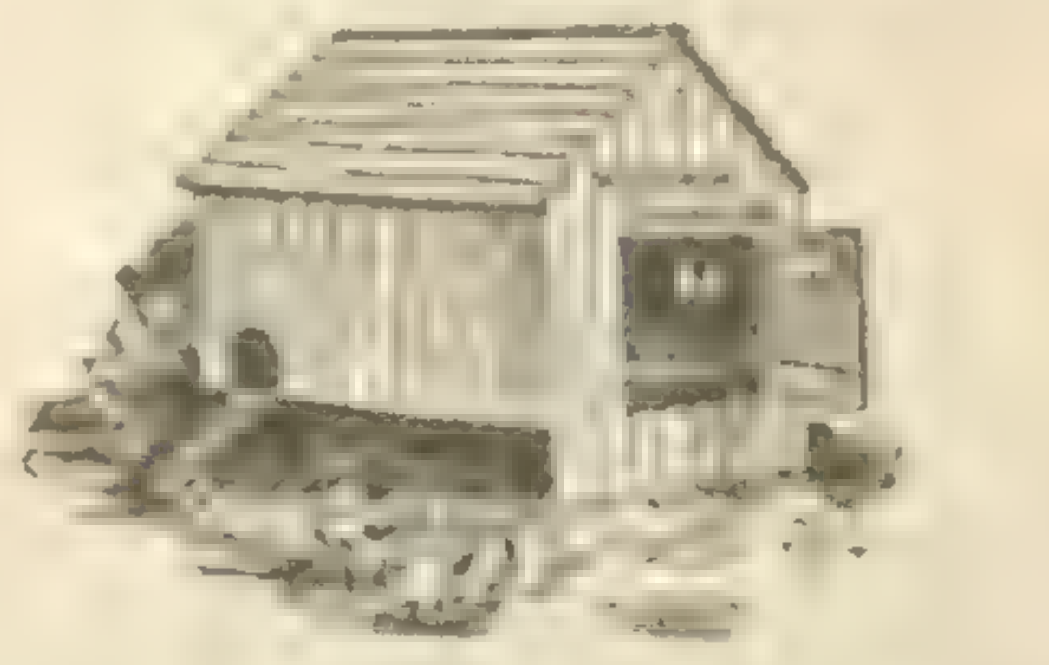

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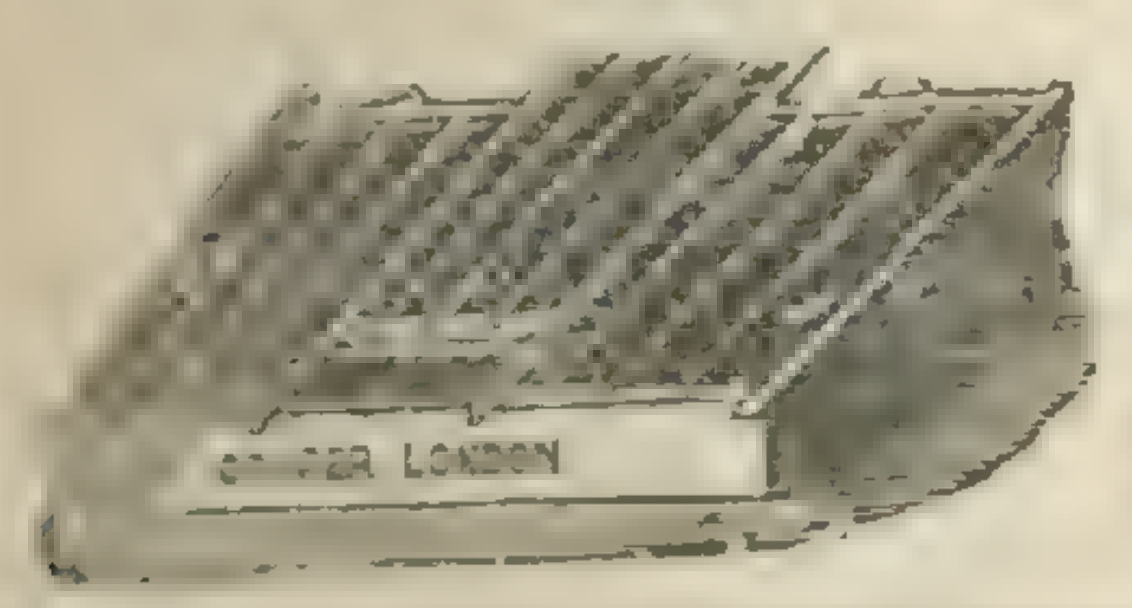

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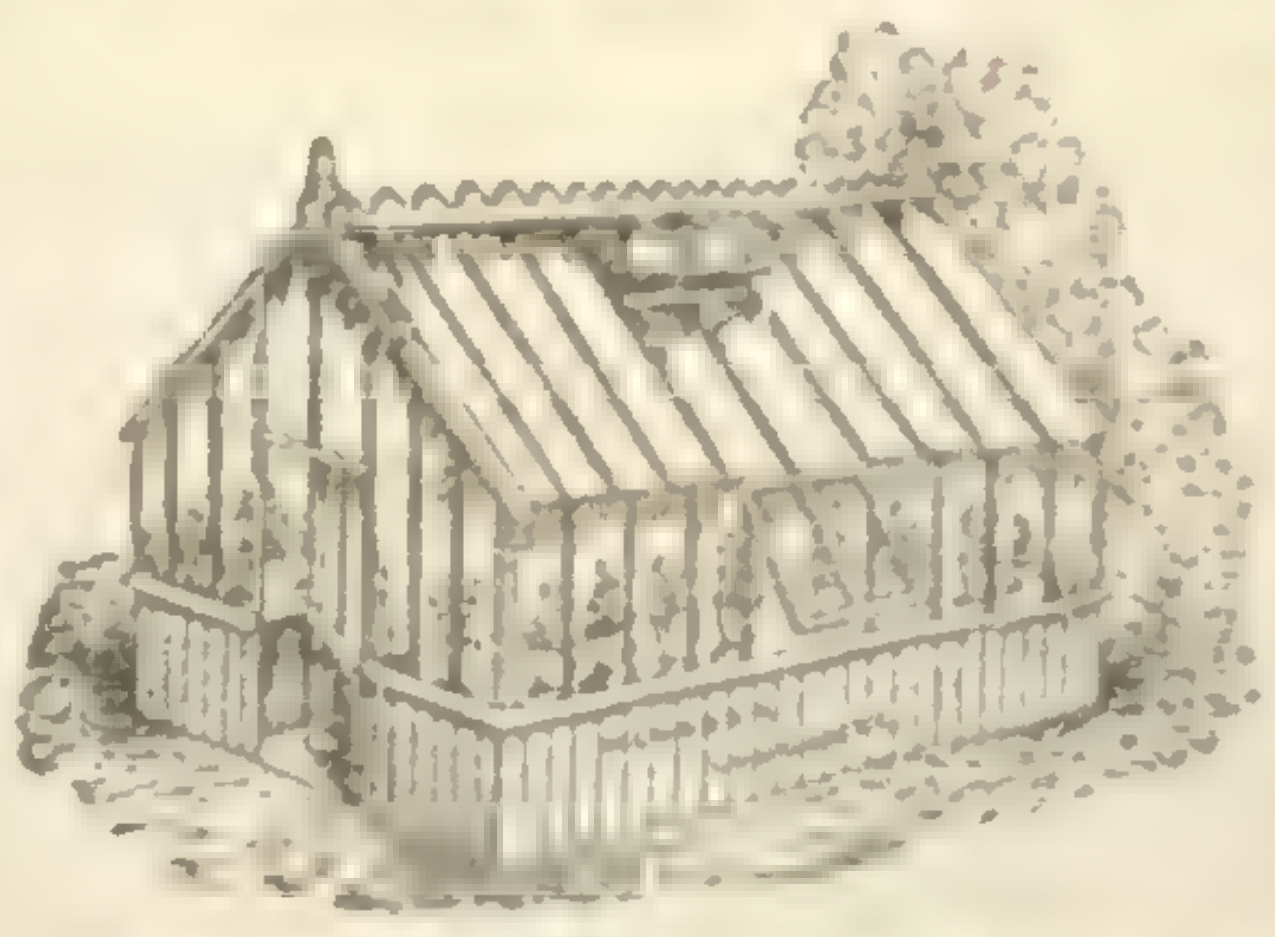

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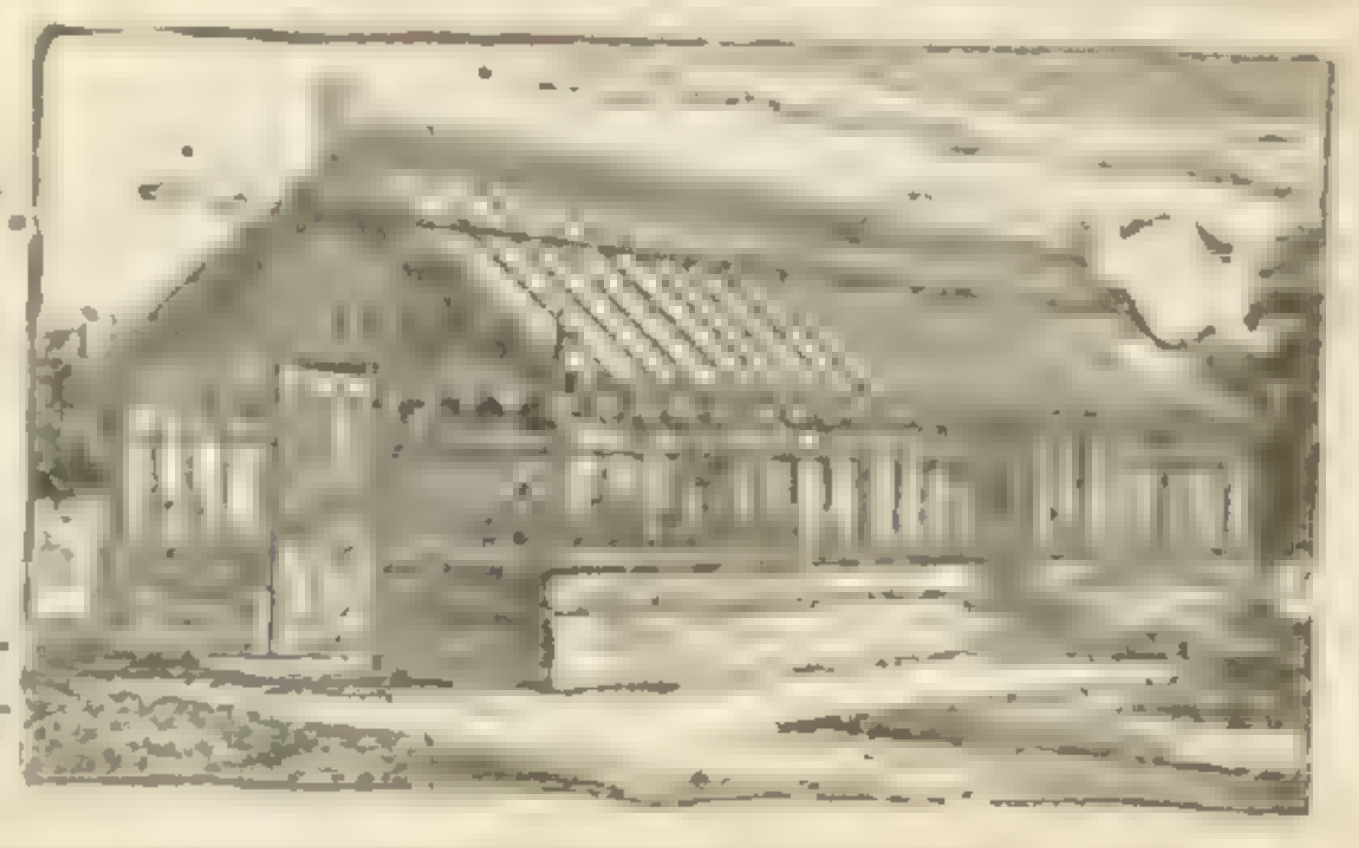

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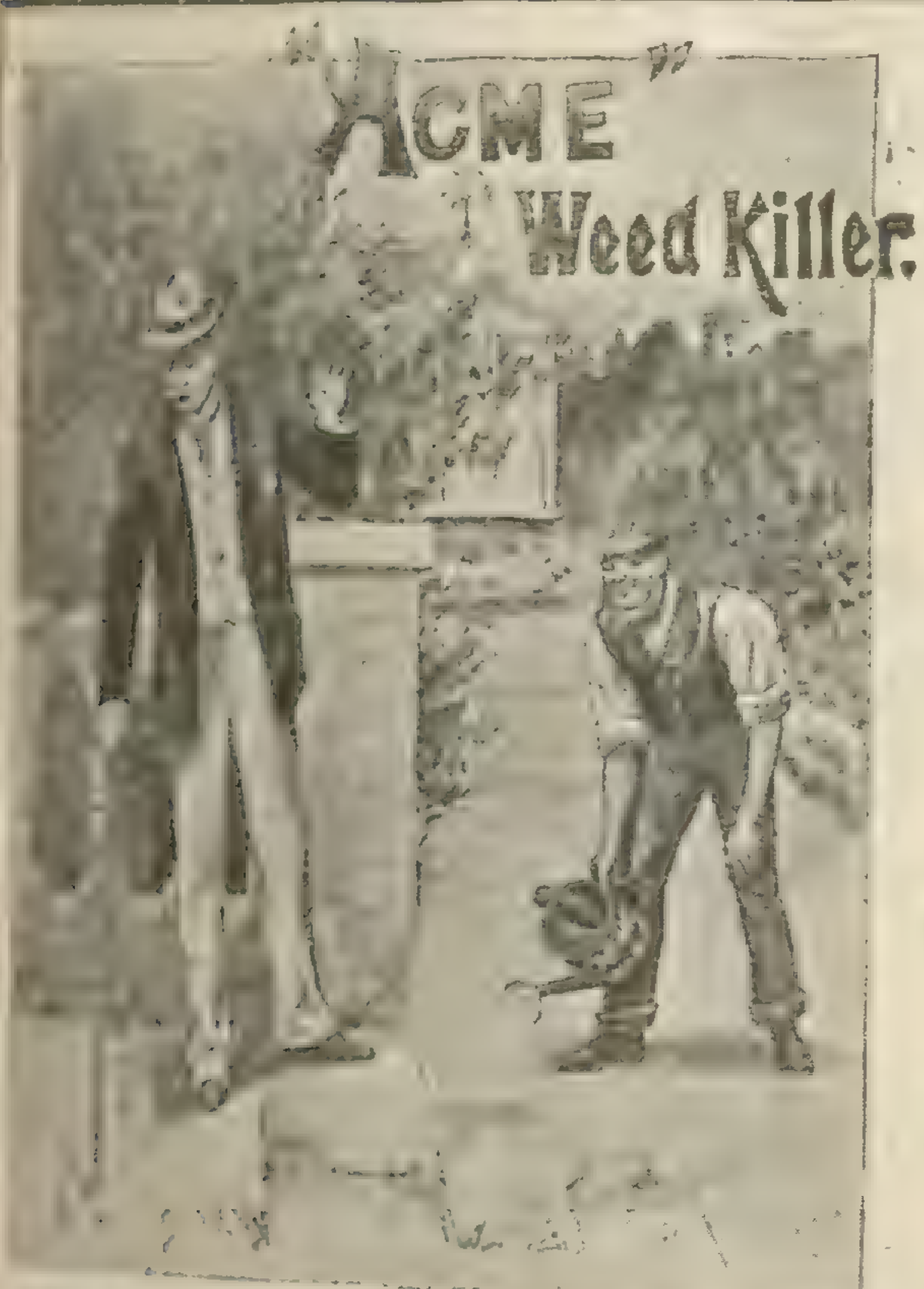

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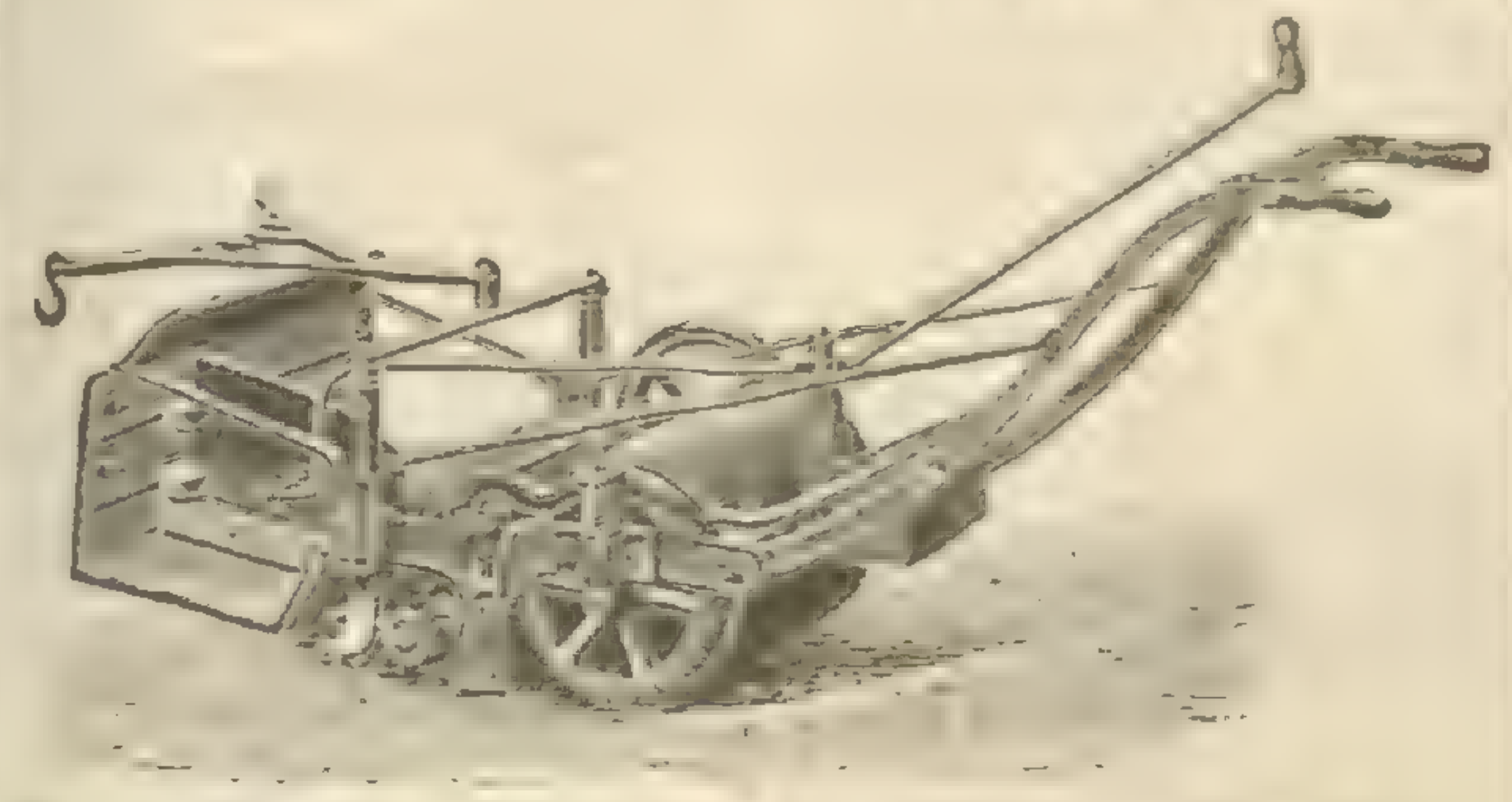

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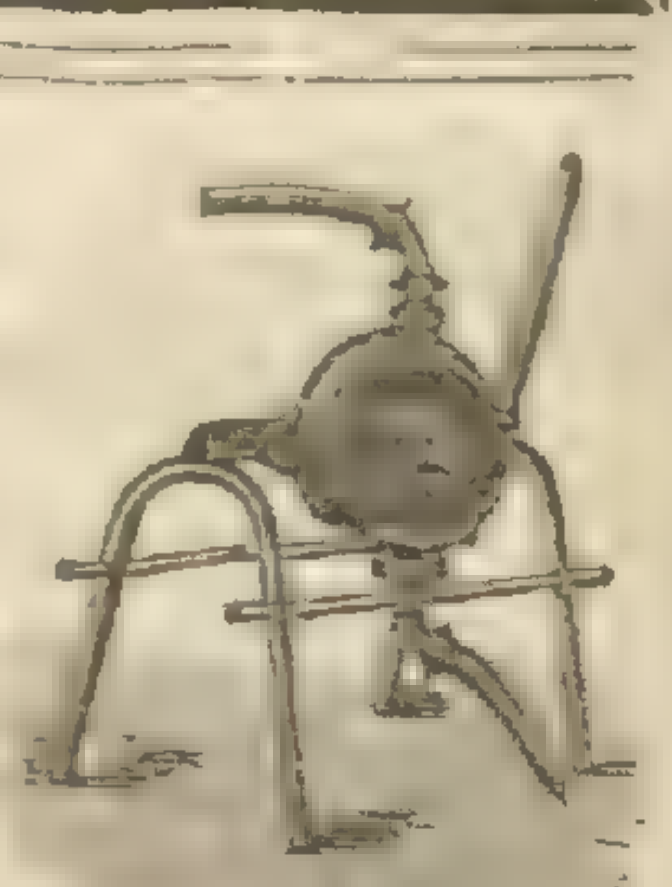

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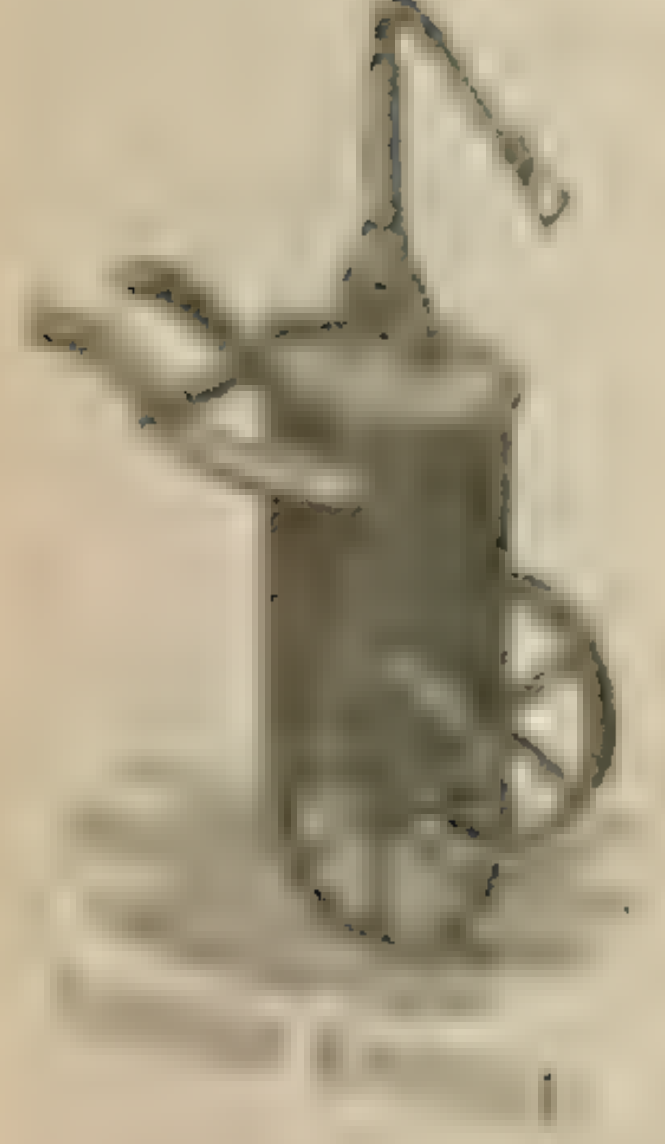

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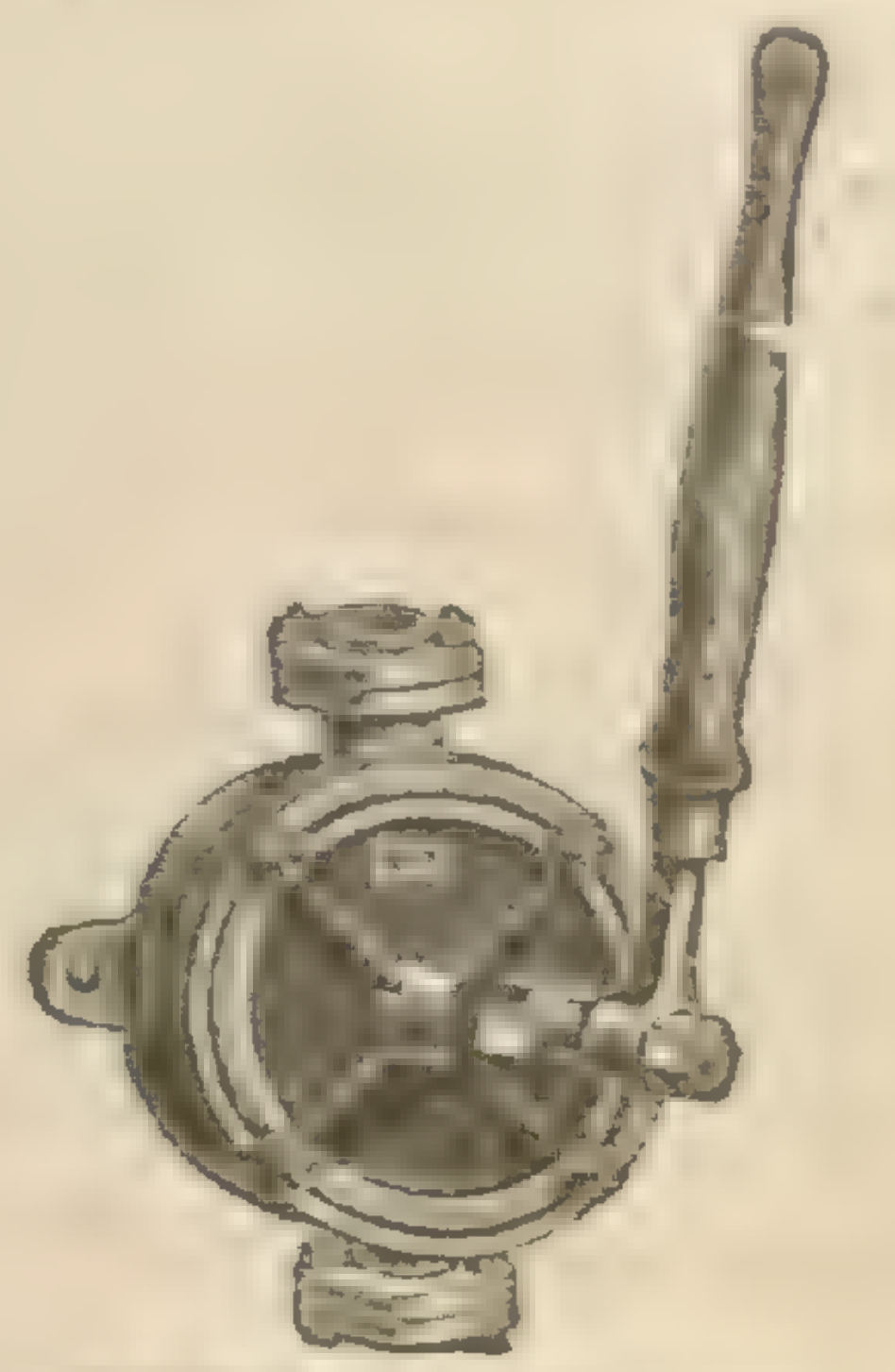

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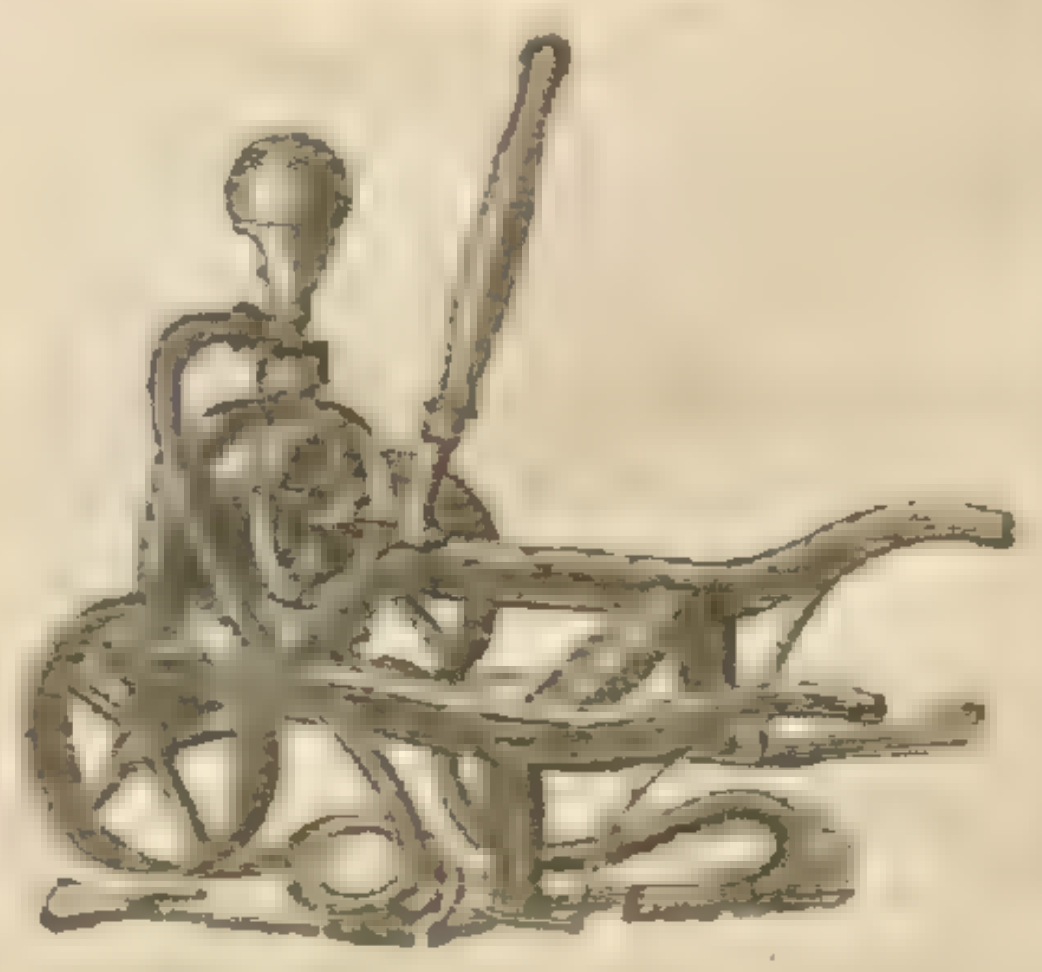

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CLAY'S Successful Gardening

1/. post free, or of Seedsmen, &c.

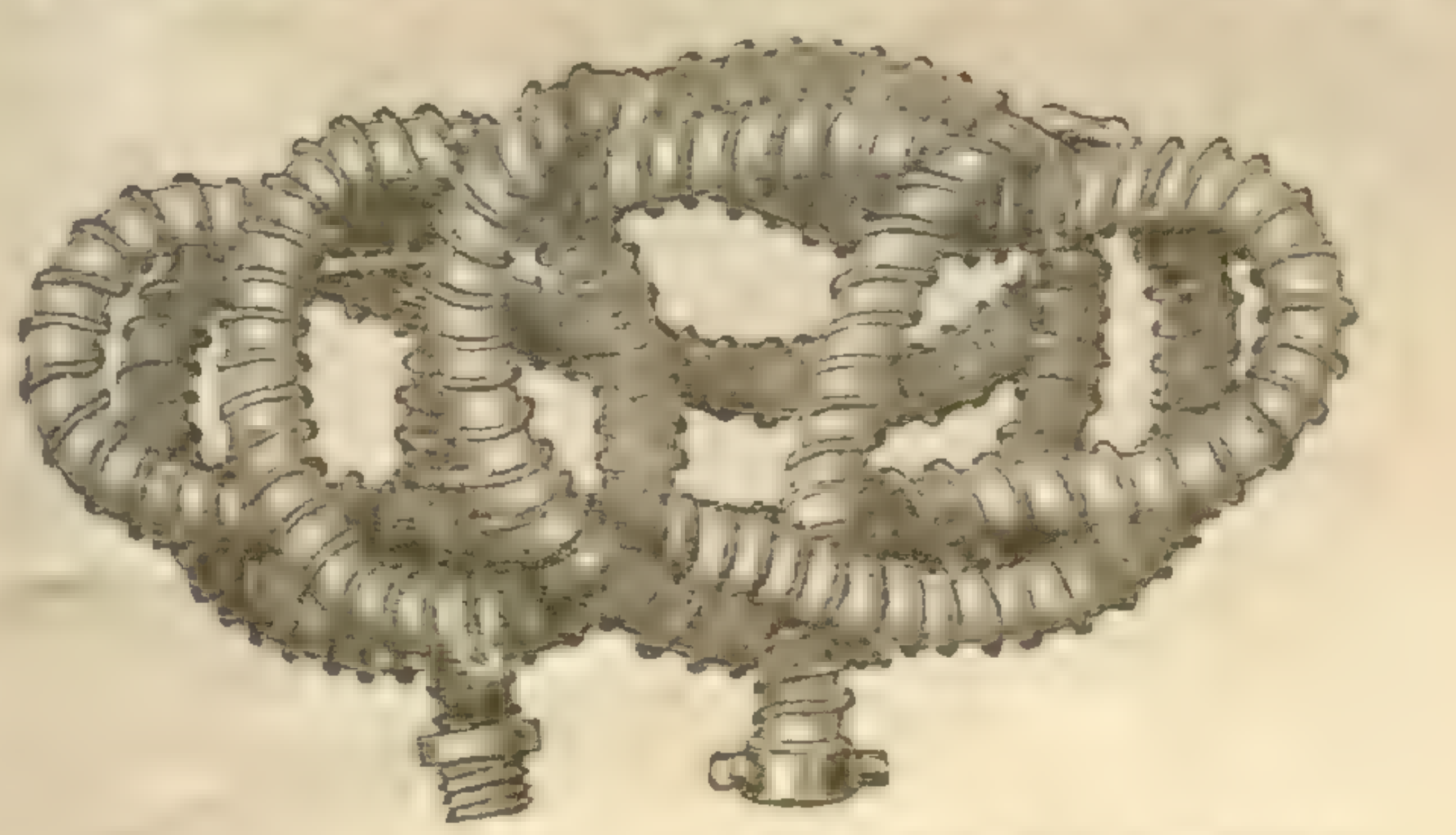
CLAY'S Fertilizer, Invigorator, Crushed Bones (mixed sizes, ½ inch, ¼ inch, meal), Dissolved Bones, Mineral Superphosphate, Basic Slag, Peruvian Guano, Sulphate of Ammonia, Nitrate of Soda, Muriate of Potash, Nitrate of Potash, Sulphate of Potash, Kainit, Dried Blood, Fish Guano, Garden Salt, Sulphate of Iron, Flowers of Sulphur, Quassia Chips, Tobacco Cloth, Tobacco Paper, &c., &c. *WRITE FOR LIST.*

CLAY AND SON, STRATFORD, LONDON, E.

MERRYWEATHERS'

High-class "SPHINCTER GRIP"

GARDEN HOSE



The Hose of the Day is MERRYWEATHERS'.

Guaranteed English Make.
Best Quality. No Rise in Price.

"Hose bought ten years ago still in use."
Write for Gardeners' Catalogue, containing 1,000 illustrations of useful appliances for the garden. Also ask for Price Lists and Samples.

MERRYWEATHER'S
63, LONG ACRE, LONDON, W.C.

Hose users requiring a lighter hose should ask for Merryweathers' Non-kinkable "Red-Grey" Brand. It is cheaper, but equally as durable.

NEW TWINE NETTING, 2 yds. wide, 3d. per yd.; 4 yds. wide, 6d. per yd. 1 inch mesh Tanned Netting, 2 yds. wide, 1d. per yd., 8s. 100 yds.; 4 yds. wide, 16s. per 100 yds. Suitable for seed-beds and lawn tennis courts. All kinds of nets made to order. Established 50 years.—W. Cullingford, 177, Markhouse Road, Walthamstow.

CONTRACTORS TO HER MAJESTY'S WAR DEPARTMENT.

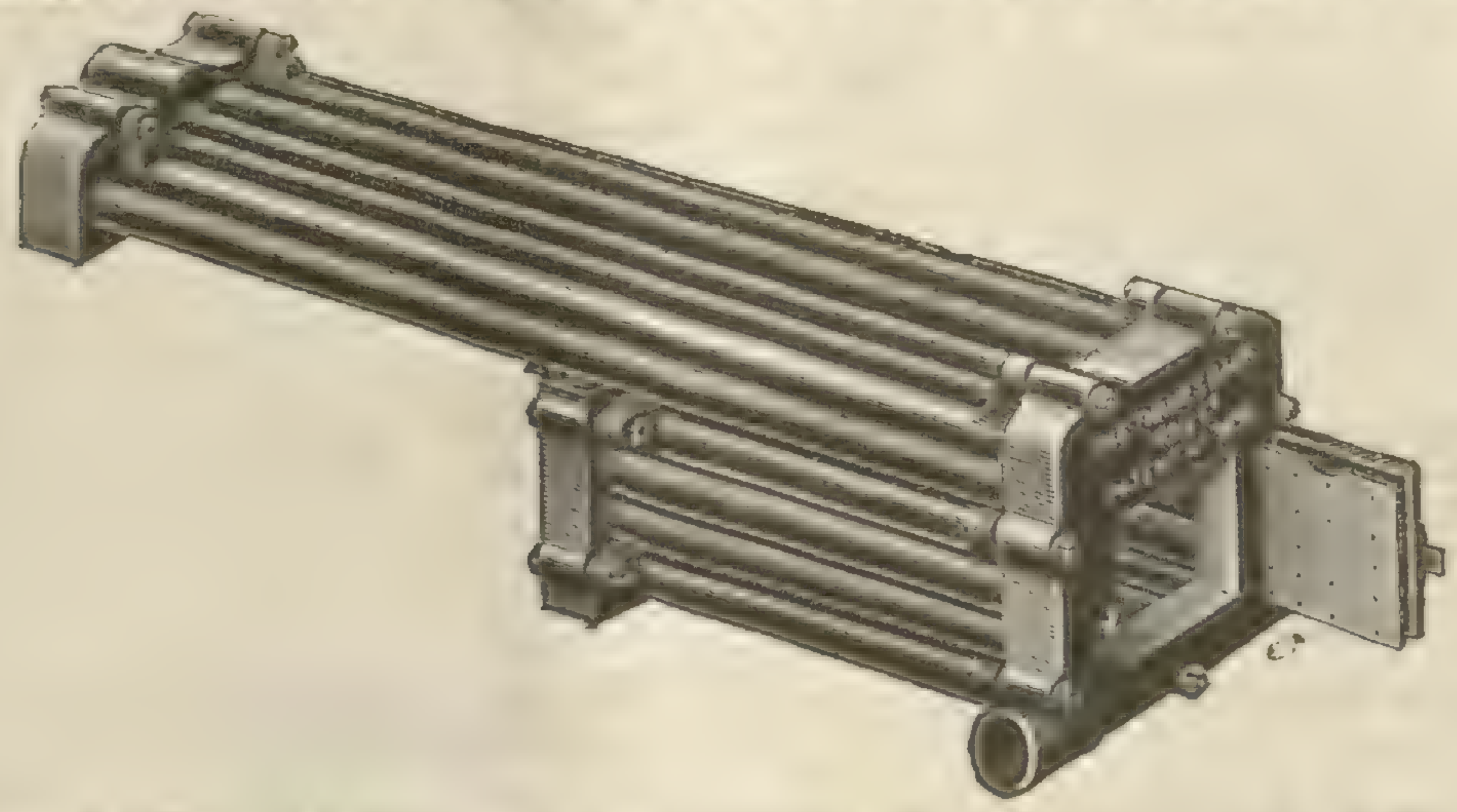
THE

THAMES BANK IRON CO.,

UPPER GROUND STREET, LONDON, S.E.

Telegraphic Address—"HOT-WATER, LONDON. TELEPHONE No. 763, HOP.

THE NEW HORIZONTAL TUBULAR BOILER



POWERFUL, ECONOMICAL, and suitable for SHALLOW STOKEHOLES.
Also made with One or more Additional Sections of Top.

HOT-WATER and HOT-AIR APPARATUS ERECTED COMPLETE, or MATERIALS SUPPLIED.
Iron Pipes, etc., for Gas and Water. Price Lists Gratis. Illustrated Catalogue, 1s.

SANKEYS' famous GARDEN POTS

✻ Bulwell Potteries, Nottingham. ✻

Messrs. Dicksons, Limited, Chester, write; "The Flower Pots you have so largely supplied us with are light, strong, and well made, and in every respect highly satisfactory."

Messrs. Richard Smith & Co., Worcester, write: "We beg to say that we are highly satisfied with your 'Garden Pots.' They are well made, light, yet strong, and we like them better than any other we have ever used."

Messrs. Fisher, Son, and Sibray, Limited, Handsworth Nurseries, Sheffield, write: "We have pleasure in testifying that after having used your pots for the past twenty-five years, we have found them all that could be desired."

SAVE HALF THE COST.

GARSIDE'S BEDFORDSHIRE SILVER SAND

(COARSE OR FINE) is admitted by the leading Nurserymen to be **THE BEST QUALITY** obtainable in the trade. Consumers should **BUY DIRECT** from the owner of these celebrated and extensive Pits, which contain a practically inexhaustible supply of splendid Sand, and thus *save half the ordinary cost.* APPLY DIRECT TO THE PROPRIETOR FOR SAMPLES AND PRICES free on rail or canal; All orders executed with the utmost promptness and under personal supervision. Special railway rates in force to all parts. All kinds of PEAT supplied at lowest possible prices. Sample bag sent on application.

GEORGE GARSIDE, Jun., F.R.H.S., LEIGHTON BUZZARD, BEDS.

NICOTINE SOAP

Insecticide for Washing, Dipping, or Syringing Plants.

TRADE MARK.

(Introduced 1870.)

MANUFACTURED IN BOND, FREE OF DUTY.

Nothing can equal it for the eradication of all insect pests that affect plants, and it is a boon to fruit growers. It thoroughly cleanses without the slightest injury to foliage or young fruit.

In bottles, **1s.**, **2s. 6d.**, **5s.**
In drums, 12lb., **13s. 6d.**; 28lb., **25s.**; 56lb., **50s.**

To be had from the Seed and Nursery Trade generally.

MANUFACTURERS—

CORRY and CO., Ltd., London.

Ask your Nurseryman or Seedsman for

RICHARDS' NOTED PEAT.

THE Stock for 1898 is exceptionally fine. Choice selections for Orchids, Stove and Greenhouse Plants, Ferns, Rhododendrons, &c. By the sack, cubic yard, ton, or truck-load. Can be seen in bulk at London Wharf. Immediate despatch either from London or Grounds. By Rail or Steamer. Prompt and Special Quotations for delivery to any Station or Port.

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TO GARDENERS (Amateur and Professional) COMPETITORS at Horticultural Shows, and Others.

NITRATE OF SODA,

THE NITROGENOUS FERTILIZER
Indispensable for

VEGETABLES, FRUIT, & FLOWERS,

May be bought of all Seedsmen. Price, in Tins containing 4 lbs., warranted of standard purity, with full directions for use,
ONE SHILLING.
Also in **Sixpenny Tins** containing 1¼ lbs.

Books and Pamphlets on the use of Nitrate of Soda on the Farm and Garden, free and post paid, on application to the

PERMANENT NITRATE COMMITTEE,
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THE MOST NUTRITIOUS.

EPPS'S

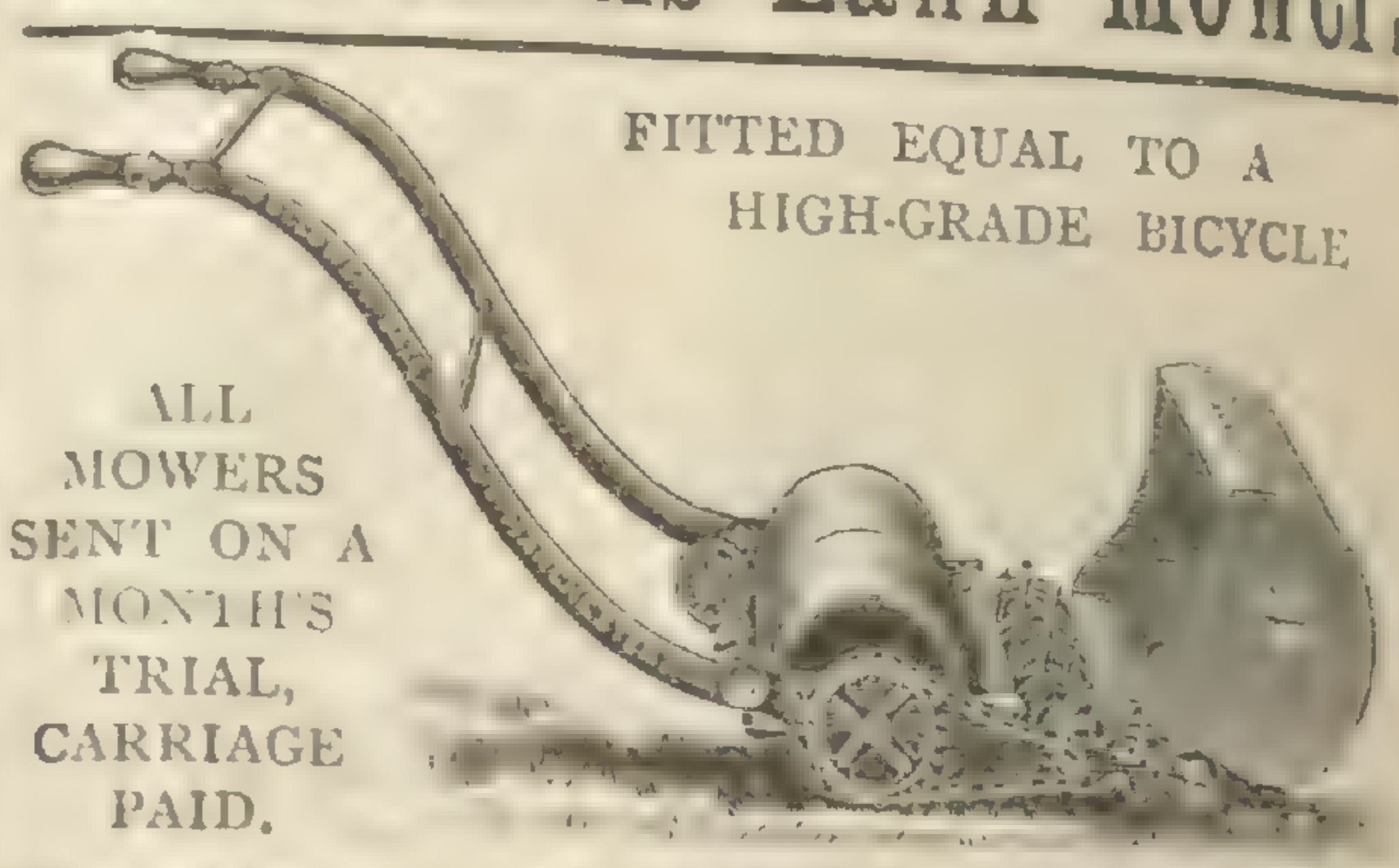
GRATEFUL—COMFORTING.

COCOA

BREAKFAST AND SUPPER.

THE NEW PATENT

Chain Tennis Lawn Mower.



FITTED EQUAL TO A HIGH-GRADE BICYCLE
ALL MOWERS SENT ON A MONTH'S TRIAL, CARRIAGE PAID.

New and improved method of adjusting the chain and front roller
Best Steel Chain running on machine-cut wheels.
WRITE FOR PRICE LISTS.

To be obtained promptly from all Ironmongers and Seedsmen, or, if any difficulty, from the Manufacturers,

FOLLOWS & BATE, LIMITED,
GORTON,
MANCHESTER.

AN ORDER

SAFE
PRODUCTIVE
CLAY'S LONDON FERTILIZER
ECONOMICAL
LASTING

FOR CLAY'S

Should accompany that for Seeds, Plants, &c.

Sold Everywhere in **6d.** and **1s. Packets,** and **Sealed Bags,** 7 lbs., **2s. 6d.**; 14 lbs., **4s. 6d.**; 28 lbs., **7s. 6d.**; 56 lbs., **12s. 6d.**; 112 lbs., **20s.** Or direct from the Works, Carriage Paid in the United Kingdom for Cash with Order (except 6d. Packets).

Every Packet, Bag and Seal bears the Trade Mark, as shown in centre of the above cross, which is the only Guarantee of Genuineness.

CLAY & SON, Manure Manufacturers, Bone Crushers, &c., **Stratford, E.**

CARSON'S PAINTS.

Patronised by 20,000 of the Nobility, Gentry, and Clergy.

ANTI-CORROSION, in Dry Powder,
THE BEST FOR ALL OUTSIDE WORK.
Greenhouses, Garden Lights, &c., &c.
Does not Peel or Blister.
One cwt. of Powder and Oil Mixture Free to all Stations.
LIQUID PAINT, NON-POISONOUS.
For Interior Work.

PRICES AND PATTERNS POST FREE:
GROVE WORKS, LOMBARD ROAD,
BATTERSEA, LONDON W.

NICHOLLS AND CLARKE,

MERCHANTS,

GLASS, PAINTS, OILS, VARNISHES,

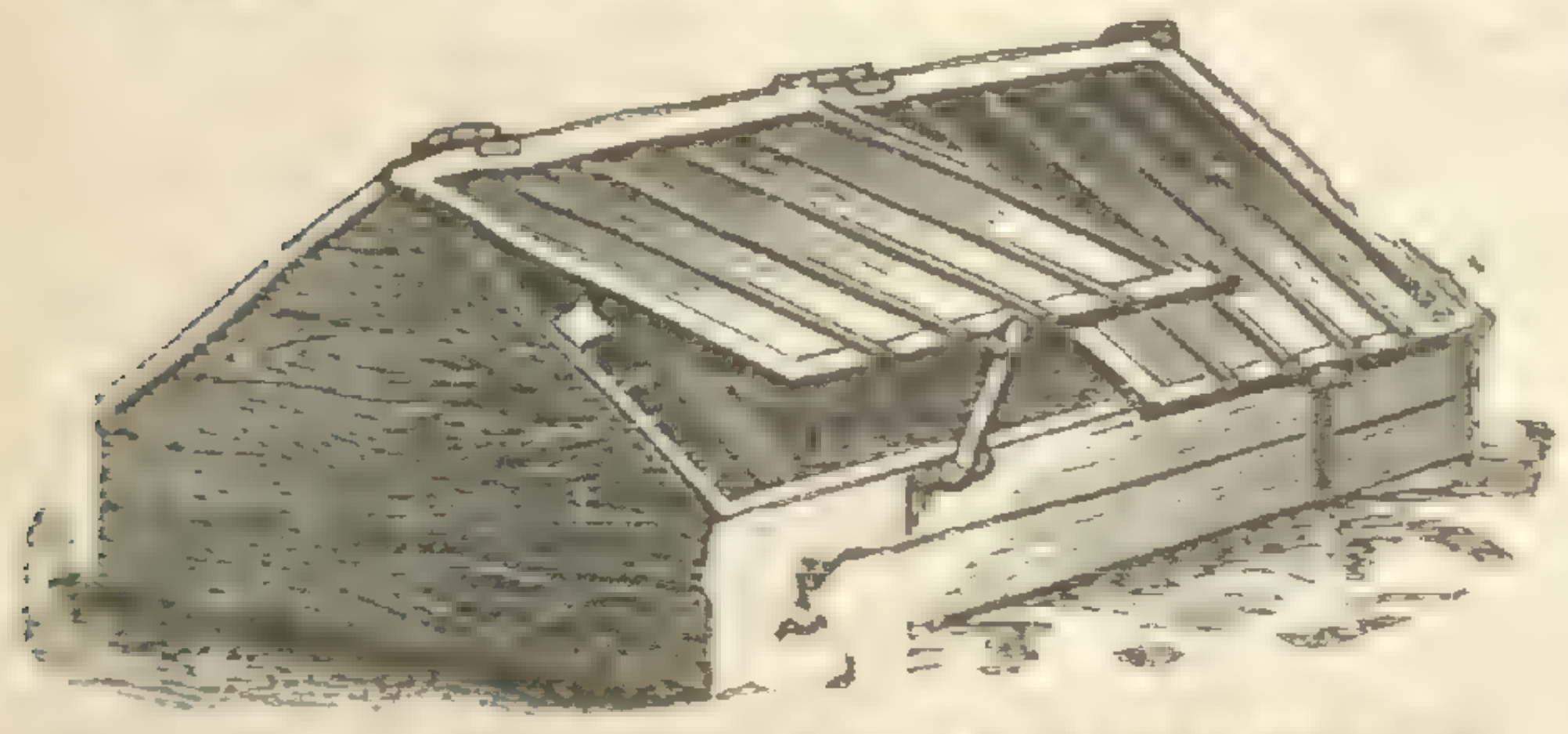
Telegraphic Address—GLASS, LONDON.

HORTICULTURAL GLASS.

A Heavy Stock, 15 oz. and 21 oz., all Sizes.
WHITE LEAD—GENUINE ENGLISH.
BALTIC OIL—DOUBLE BOILED OIL.
PRICES ON APPLICATION.
SHOREDITCH, LONDON.

GREAT REDUCTION IN FRAMES.

OUR WELL-KNOWN MAKE



PORTABLE PLANT FRAMES.

These Frames are made of the best materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices; Glazed and Painted

		£	s.	d.
6 feet long, 3 feet wide	CASH PRICES. — CARRIAGE PAID.	2	0	0
6 feet „ 4 feet „		2	5	0
12 feet „ 4 feet „		4	0	0
6 feet „ 5 feet „		2	15	0
12 feet „ 5 feet „		4	15	0
12 feet „ 6 feet „		5	12	6

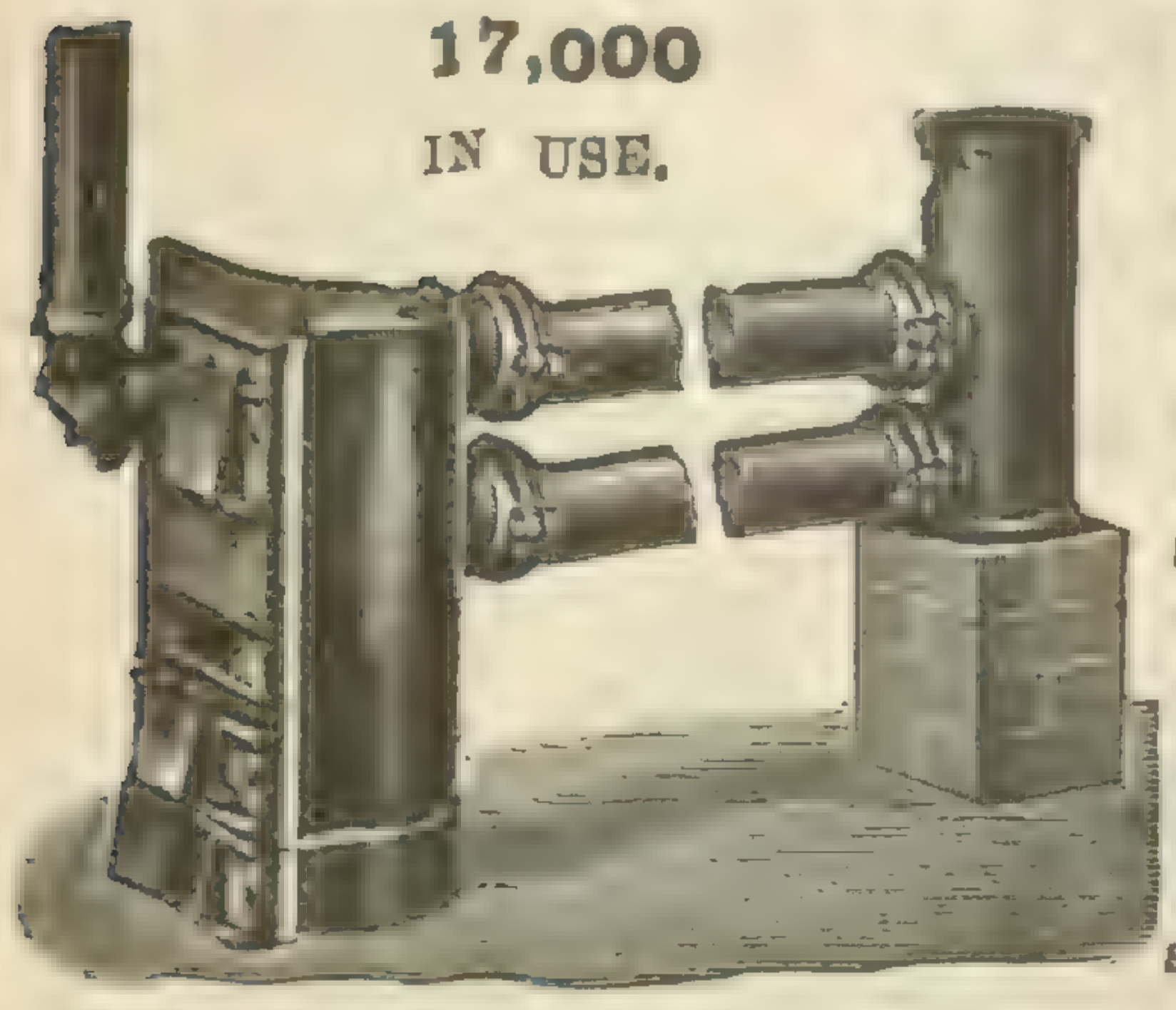
Larger sizes at proportionate prices.

R. HALLIDAY and CO.,
Royal Horticultural Works,
MIDDLETON. MANCHESTER.

THE LOUGHBOROUGH BOILER.

The Pioneer of Cheap, Simple, and Effective Heating for Small Greenhouses.

17,000
IN USE.



The immense sale of this Boiler and the numerous imitations of it sent out in recent years afford abundant testimony to its undoubted success.

No. 1, to heat 100 feet of 2-inch pipe	...	£2 17s. 0d.
No. 2, „ 200 „ „	...	£4 2s. 6d.
No. 3, „ 400 „ „	...	£5 10s. 0d.

Also made in larger sizes.

Complete Apparatus from £4 16s.
Estimates and Illustrated Lists free.

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LEICESTERSHIRE.
London Office:
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G. F. S.
HORTICULTURAL
SHEET
GLASS

21-oz. FOREIGN—200-ft. Boxes. Sizes as under:

12×10	14×12	18×12	15×14	20×14	20×16	24×16	22×18
14×10	16×12	20×12	18×14	20×15	22×16	20×18	24×18

English Glass cut to buyers' sizes at lowest prices, delivered free and sound in the country in quantity.

PUTTY, WHITE LEAD, PAINTS, OILS, BRUSHES, &c.

GEORGE FARMILOE and SONS, Ltd.,
34, St. John St., West Smithfield, London, E.C.; and
Blackfriars Wharf, Upper Ground St., S.E.

Prompt attention given to customers collecting glass at Blackfriars Wharf. Stock Lists and Prices on application. Please quote "Magazine."

GREEN FLY

and all kinds of APHIS, on all plants.

AMERICAN BLIGHT or Woolly Aphis, on Apple Trees, &c., can be destroyed by using

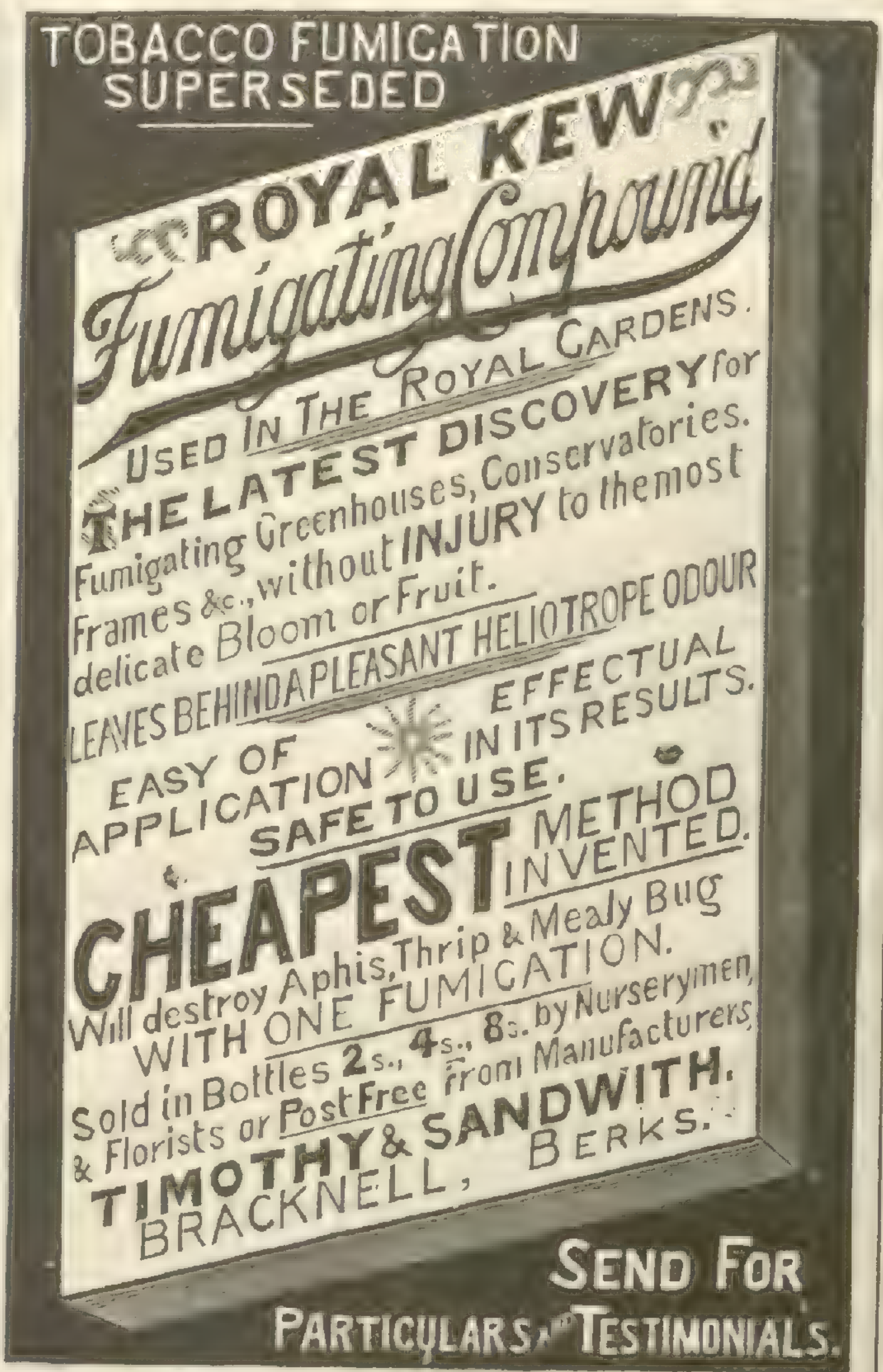
"ABOL" INSECTICIDE.

"ABOL" ABOLISHES APHIS.

The Cheapest and most useful Plant Wash.

ONE PINT MAKES 100 PINTS.

Prices—Pint 1/6: Quart 2/6; Half-Gall. 4/-; Gall. 7/6
OF ALL SEEDSMEN AND FLORISTS.
or post free on receipt of remittance from the
Sole Manufacturers—**E. A. WHITE**, Limited,
Hop and Fruit Growers, **PADDOCK WOOD, KENT;**
Write for full particulars, and name this paper.



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"ROYAL KEW" Fumigating Compound

USED IN THE ROYAL GARDENS.

THE LATEST DISCOVERY for Fumigating Greenhouses, Conservatories, Frames &c., without INJURY to the most delicate Bloom or Fruit.

LEAVES BEHIND A PLEASANT HELIOTROPE ODOUR

EASY OF APPLICATION. EFFECTUAL IN ITS RESULTS. SAFE TO USE.

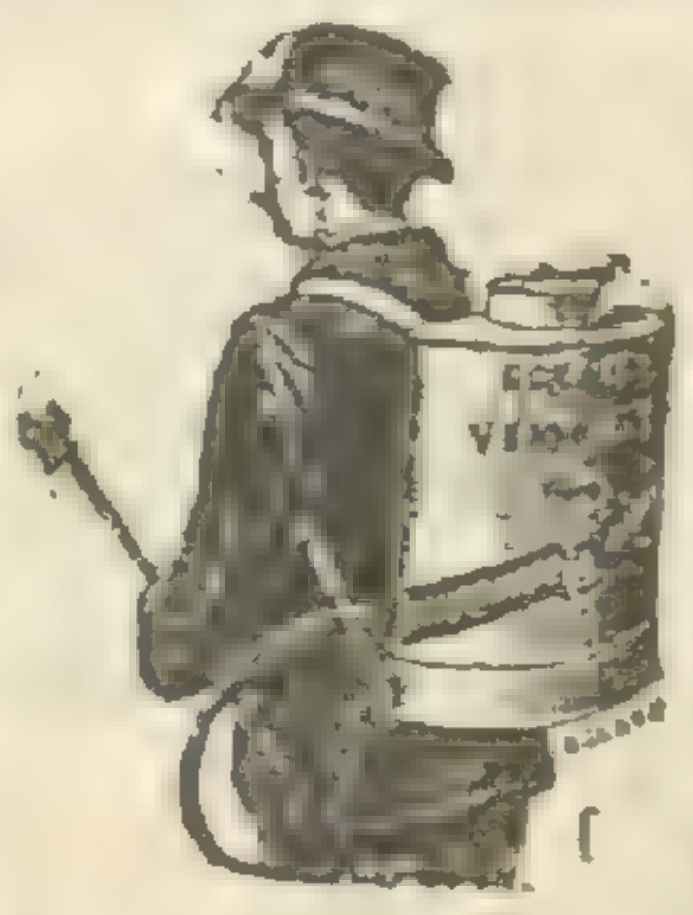
CHEAPEST METHOD INVENTED.

Will destroy Aphis, Thrip & Mealy Bug WITH ONE FUMIGATION.

Sold in Bottles 2s., 4s., 8s. by Nurserymen & Florists or Post Free from Manufacturers,

TIMOTHY & SANDWITH.
BRACKNELL, BERKS.

SEND FOR PARTICULARS & TESTIMONIALS.



VERMOREL'S KNAPSACK PUMPS.

386 First Prizes and Medals.

"ECLAIR" Spraying Pump,
Price 35s.

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Price 30s.

"VERMORITE" (Eclair Bouillie) the Best Spraying Mixture for Instantaneous use.

Sole Agents—**CHAS. CLARK & CO.,**
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WORTH A GUINEA A BOX.

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BEECHAM'S PILLS

FOR ALL

Bilious & Nervous Disorders

SUCH AS

SICK HEADACHE,
CONSTIPATION,
WEAK STOMACH,
IMPAIRED DIGESTION,
DISORDERED LIVER.

AND

FEMALE AILMENTS,

Annual Sale Six Million Boxes.

In Boxes, 9½d., 1s. 1½d. and 2s. 9d. each, with full directions. The 1s. 1½d. box contains 56 Pills

Prepared only by the Proprietor—

THOMAS BEECHAM, St. Helens, Lancashire.

Beecham's Tooth Paste.

RECOMMENDS ITSELF.

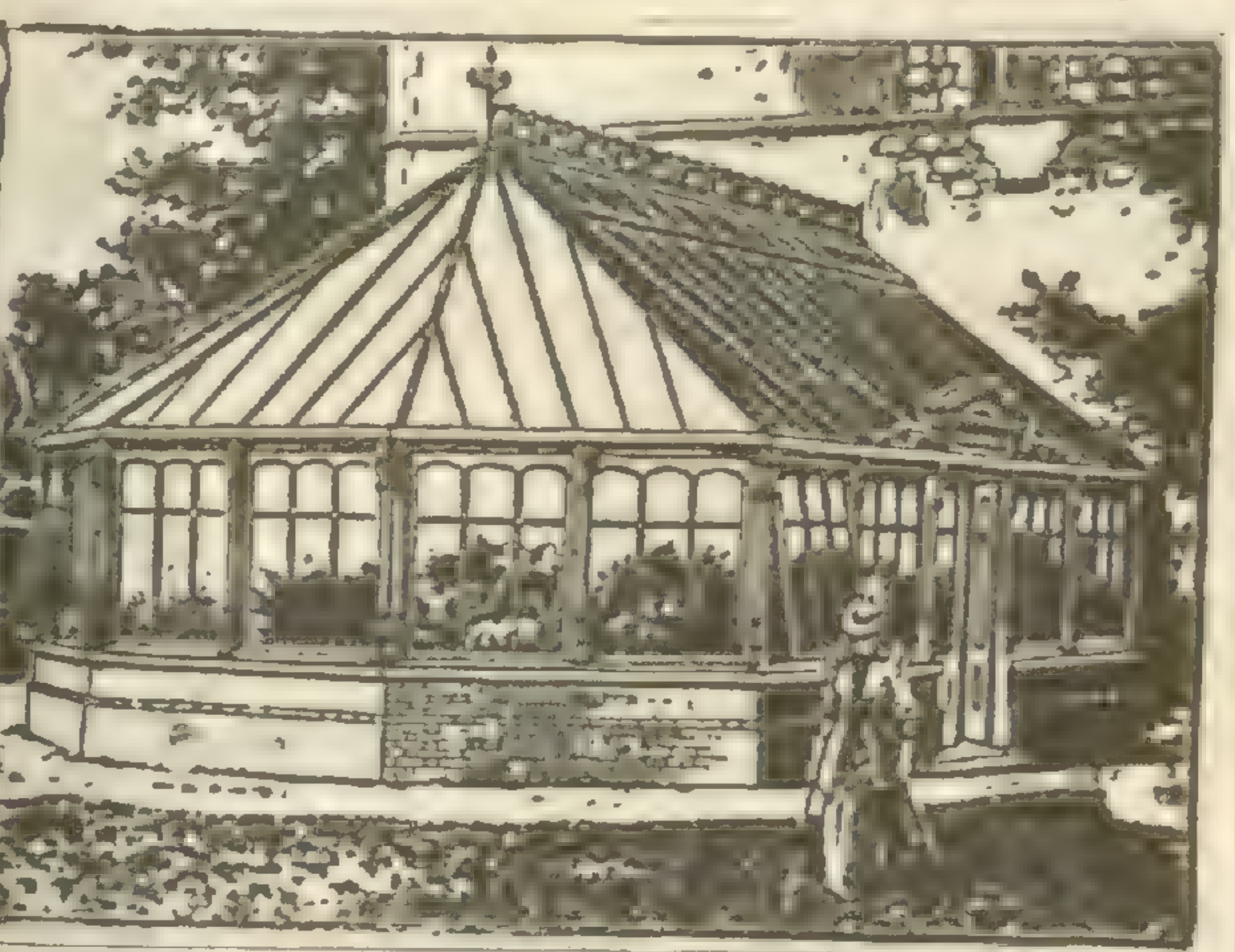
EFFICACIOUS—ECONOMICAL.
CLEANSES THE TEETH—PERFUMES THE BREATH.

In Collapsible Tubes, of all Druggists, or from the Proprietor, for 1s. post paid.

BOULTON & PAUL, Ltd.,

HORTICULTURAL BUILDERS, **NORWICH.**

CONSERVATORIES,
VINERIES &c.,
DESIGNED TO SUIT ANY SITUATION.



Special Designs Prepared and
ESTIMATES SUBMITTED.
Ladies and Gentlemen Waited Upon.

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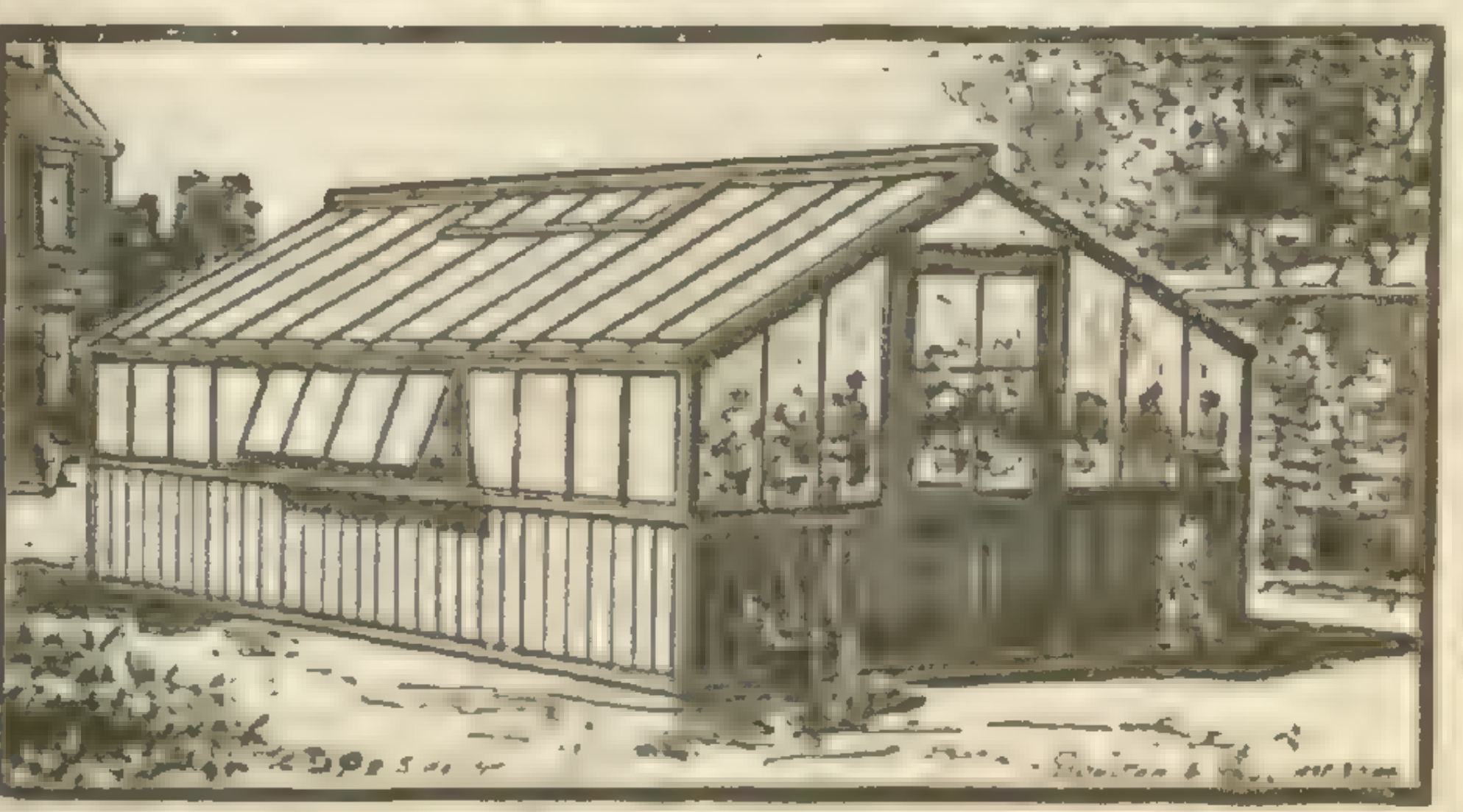

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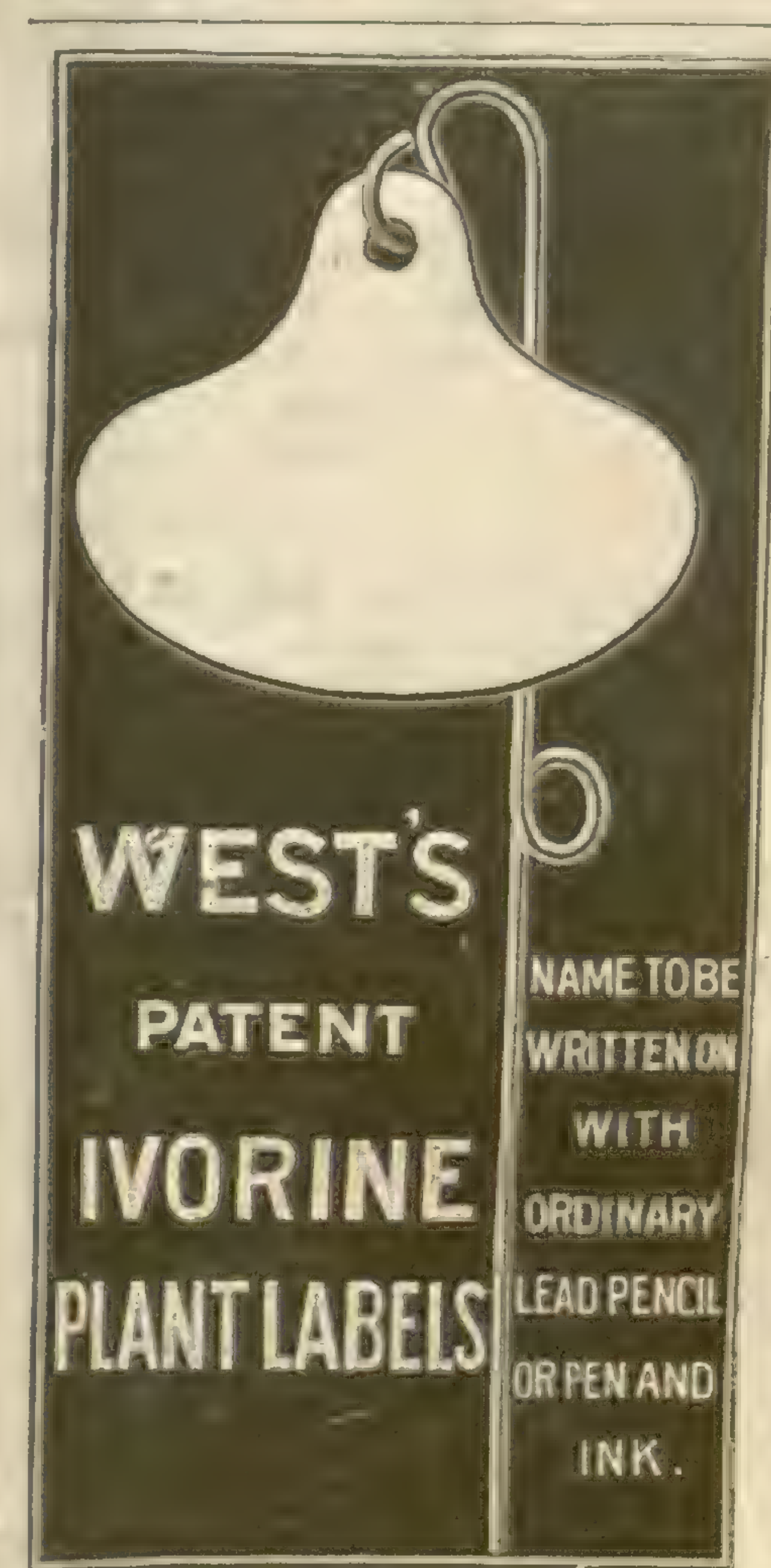
No. 47a.—LEAN-TO, 10 ft. by 7 ft. ... price £8 10 0
Well made, Glazed, Painted, and Carriage Paid.

ILLUSTRATED CATALOGUE FREE.



WEST'S PATENT IVORINE PLANT LABELS

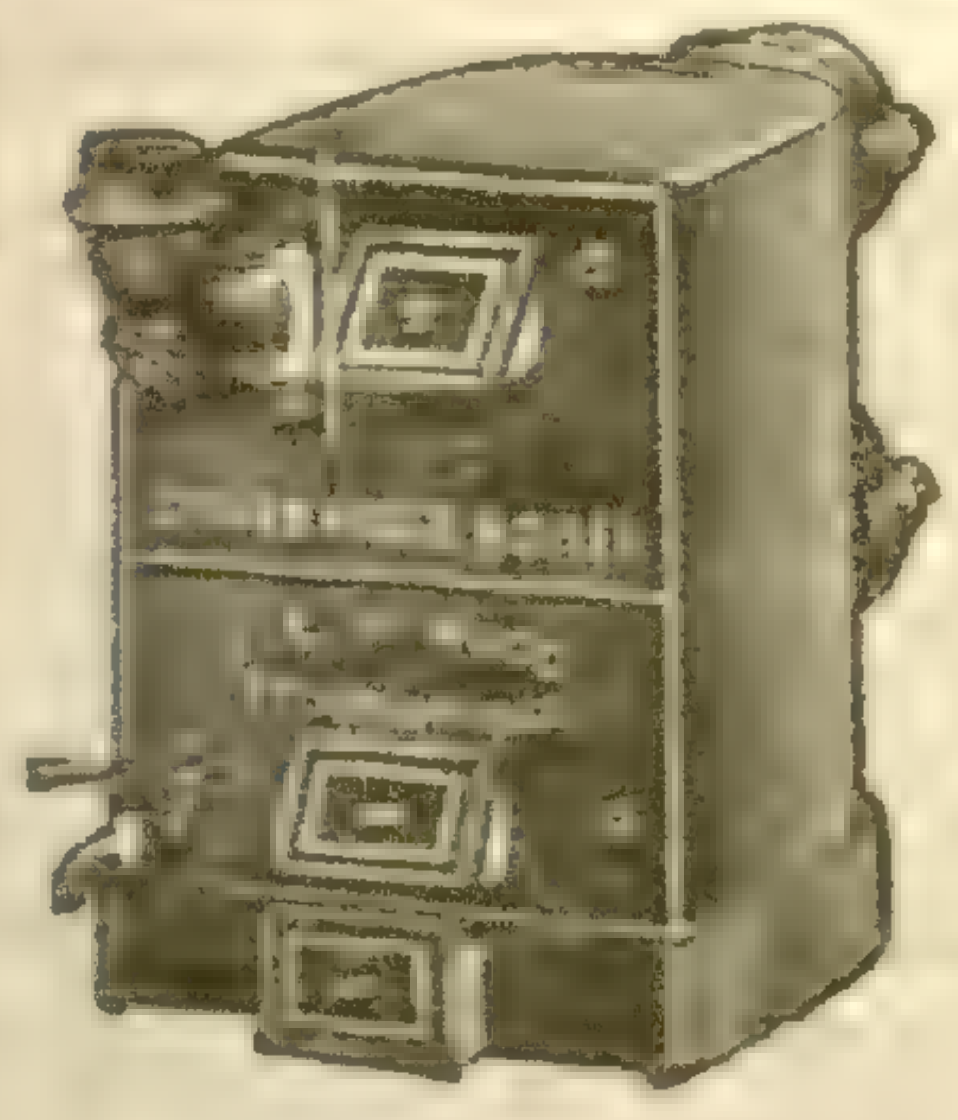
NAME TO BE WRITTEN ON WITH ORDINARY LEAD PENCIL OR PEN AND INK.

The "Ivorine" Writing Disc, Being made of a specially prepared substance, having the properties of real ivory, is imperishable, and does not corrode or eat away, like wood and metal labels; and being ivory-white, when written upon it shews to perfection. And also, as the writing is on the Ivorine itself it is permanent, though washable, and does not become unreadable, as is the case with all painted labels, as the paint gets old. It is for all purposes, and will last a century, either in a greenhouse or out in a garden, and not only is it always ready for use, and may be written on both sides, but the name when written in pencil may be easily rubbed off, and so used as many times as desired.

Samples and Lists of the West's Patent Specialities post free.
Price, **9d.** per dozen; **8s.** per gross, Carriage Paid.
Supplied by all Nurserymen, Florists, &c.

The LEEDS ORCHID Co.,

ROUNDHAY, LEEDS.



The Stourbridge Heating Apparatus,
For Greenhouses, Conservatories, &c.

Most economical and efficient. This apparatus has attained great popularity. Made at our own foundry, and under our own supervision. Before ordering elsewhere, send for Price List, giving full particulars, free by post.

J. and W. WOOD,
Birmingham Street Foundry,
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CONTRACTORS TO HER MAJESTY'S WAR DEPARTMENT.

THE

THAMES BANK IRON CO.,

UPPER GROUND STREET, LONDON, S.E.

Telegraphic Address—"HOT-WATER, LONDON. TELEPHONE No. 763, HOP.

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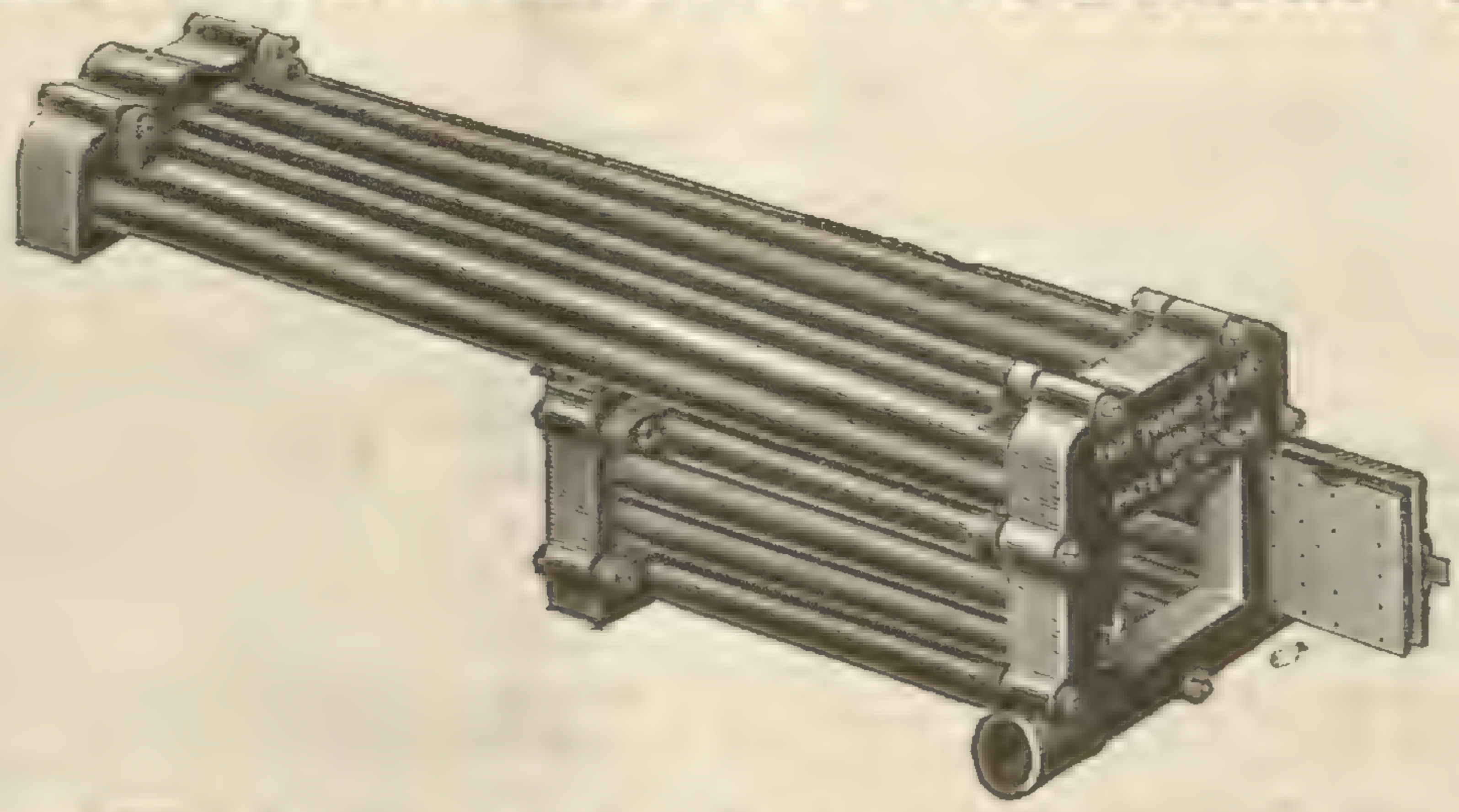

POWERFUL, ECONOMICAL, and suitable for SHALLOW STOKEHOLES.

Also made with One or more Additional Sections of Top.

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(Introduced 1870.)

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G. H. RICHARDS, [illegible], Southwark Street, London, S.E., and Old Shot Tower Wharf, Lambeth, London, S.E. Letters and Orders to Southwark Street.

TO GARDENERS (Amateur and Professional) COMPETITORS at Horticultural Shows, and Others.

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Books and Pamphlets on the use of Nitrate of Soda on the Farm and Garden, free and post paid, on application to the

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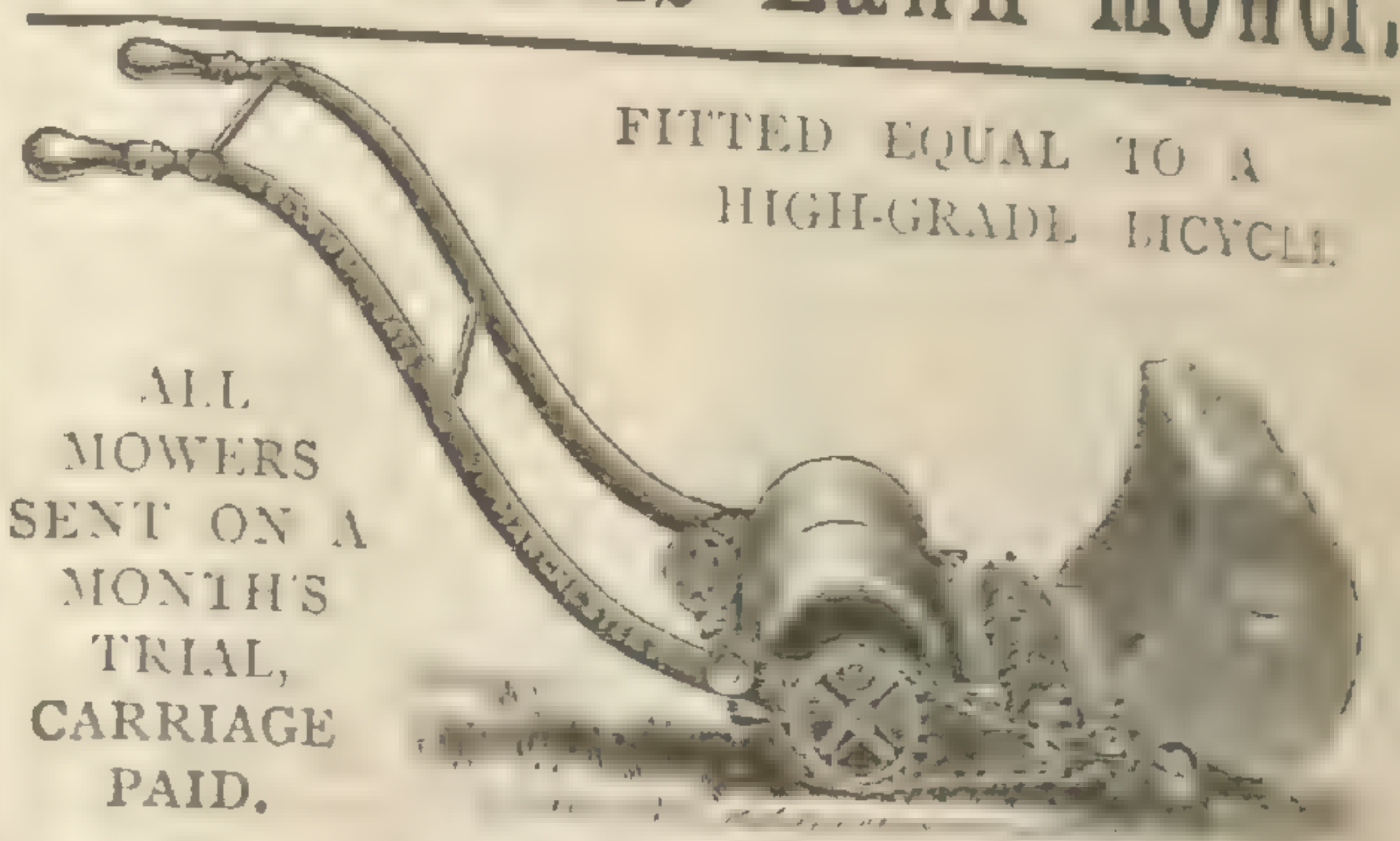
Chain Tennis Lawn Mower.



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ANTI-CORROSION, in Dry Powder,

THE BEST FOR ALL OUTSIDE WORK.

Greenhouses, Garden Lights, &c., &c.

Does not Peel or Blister.

One cwt. of Powder and Oil Mixture Free [illegible]

LIQUID PAINT, NON-POISONOUS.

For Interior Work.

PRICES AND PATTERNS POST FREE:

**GROVE WORKS, LOMBARD ROAD,
BATTERSEA, LONDON W.**

NICHOLLS AND CLARKE,

MERCHANTS,

GLASS, PAINTS, OILS, VARNISHES.

Telegraphic Address—GLASS, LONDON.

HORTICULTURAL GLASS.

A Heavy Stock, 15 oz. and 21 oz., all Sizes.

WHITE LEAD—GENUINE ENGLISH.

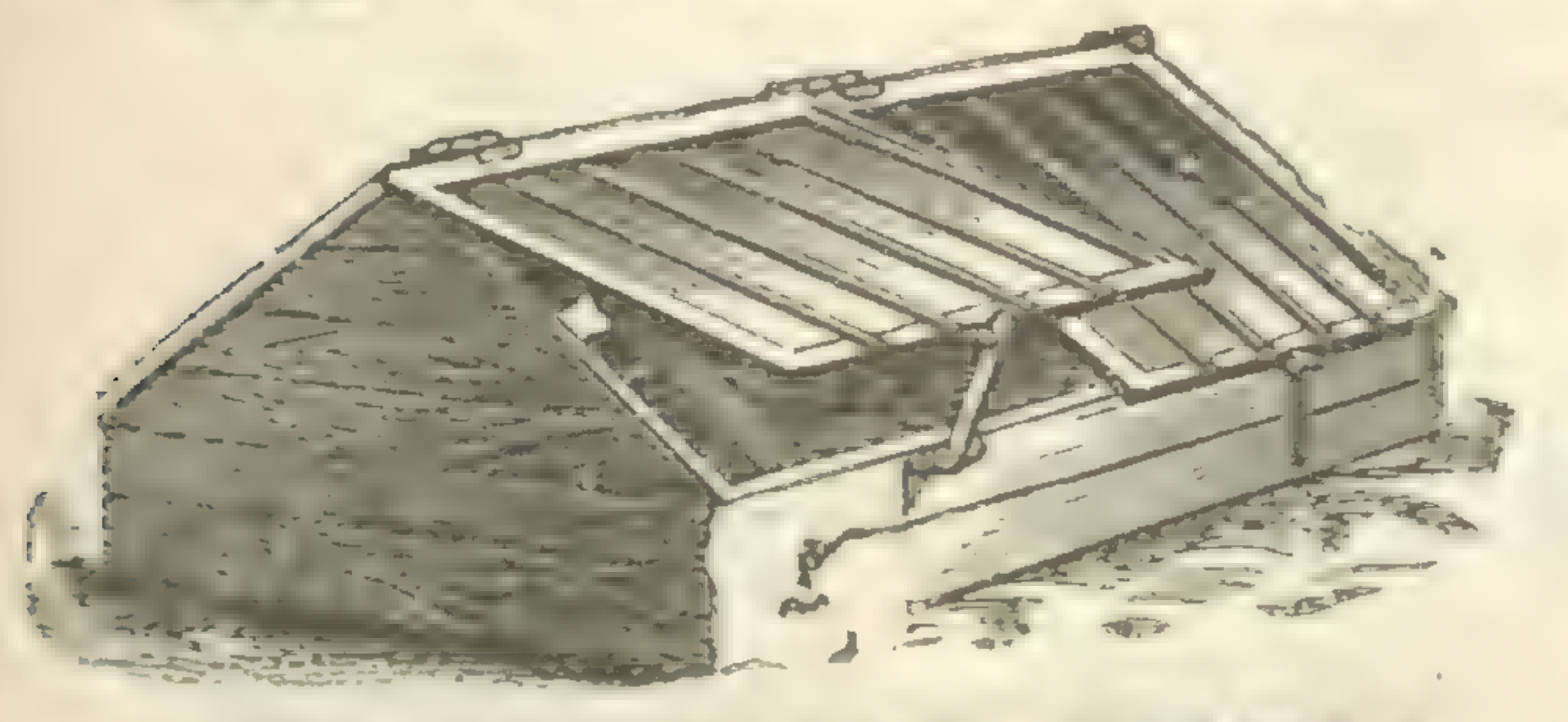
BALTIC OIL—DOUBLE BOILED OIL.

PRICES ON APPLICATION.

SHOREDITCH, LONDON.

GREAT REDUCTION IN FRAMES.

OUR WELL-KNOWN MAKE



PORTABLE PLANT FRAMES.

These Frames are made of the best materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices; Glazed and Painted

		£	s.	d.
6 feet long, 3 feet wide	CASH PRICES. — CARRIAGE PAID.	2	0	0
6 feet „ 4 feet „		2	5	0
12 feet „ 4 feet „		4	0	0
6 feet „ 5 feet „		2	15	0
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Larger sizes at proportionate prices.

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17,000
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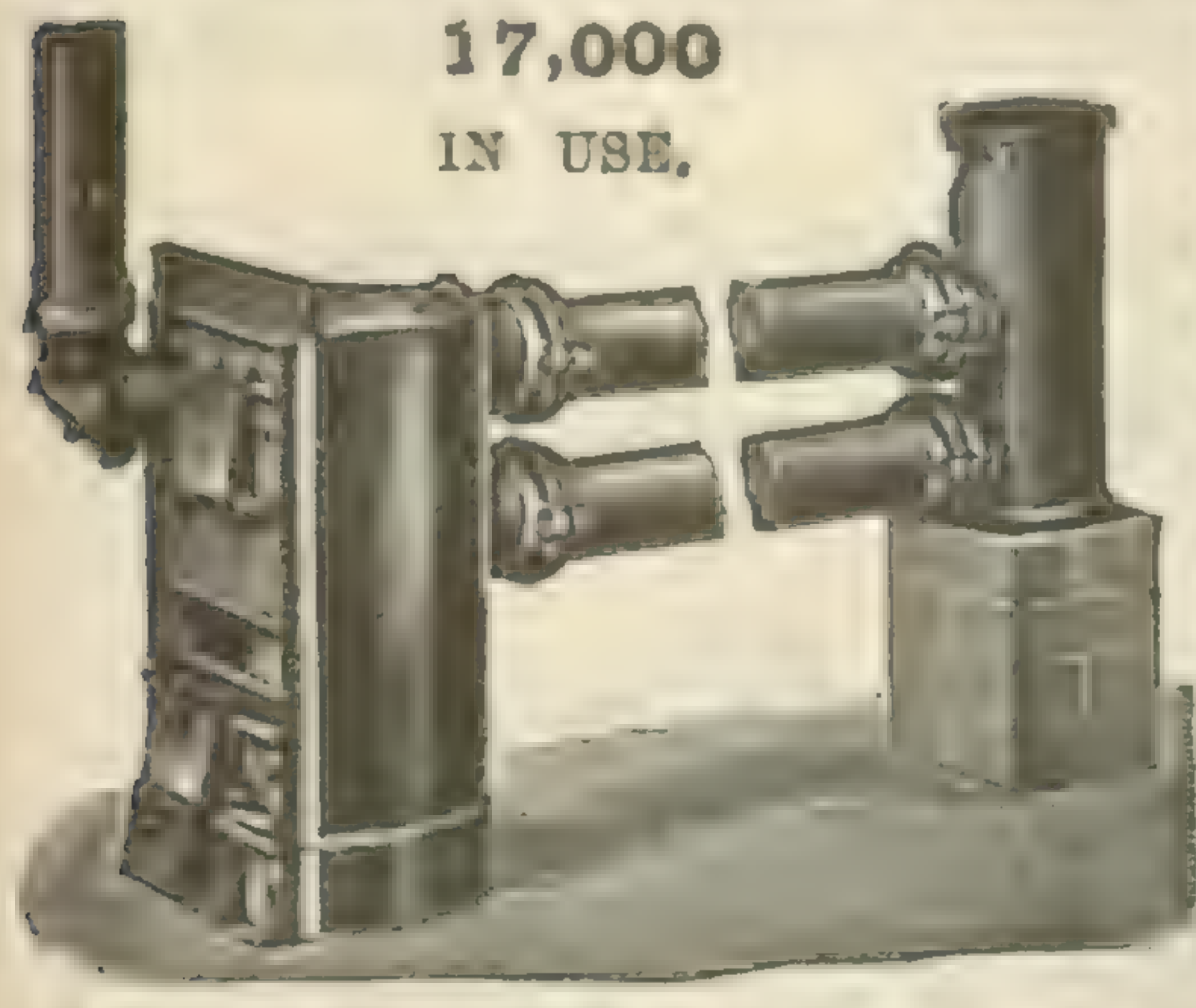

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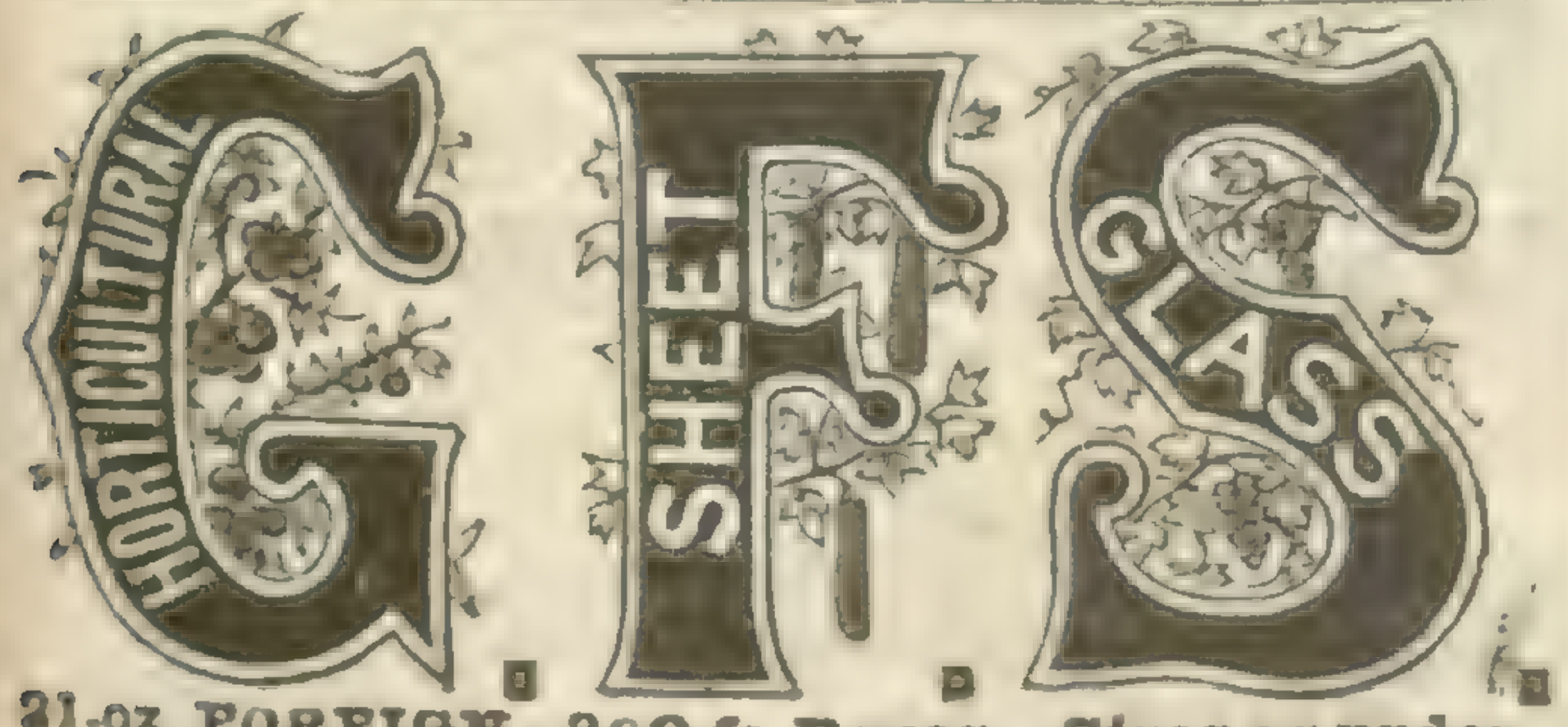
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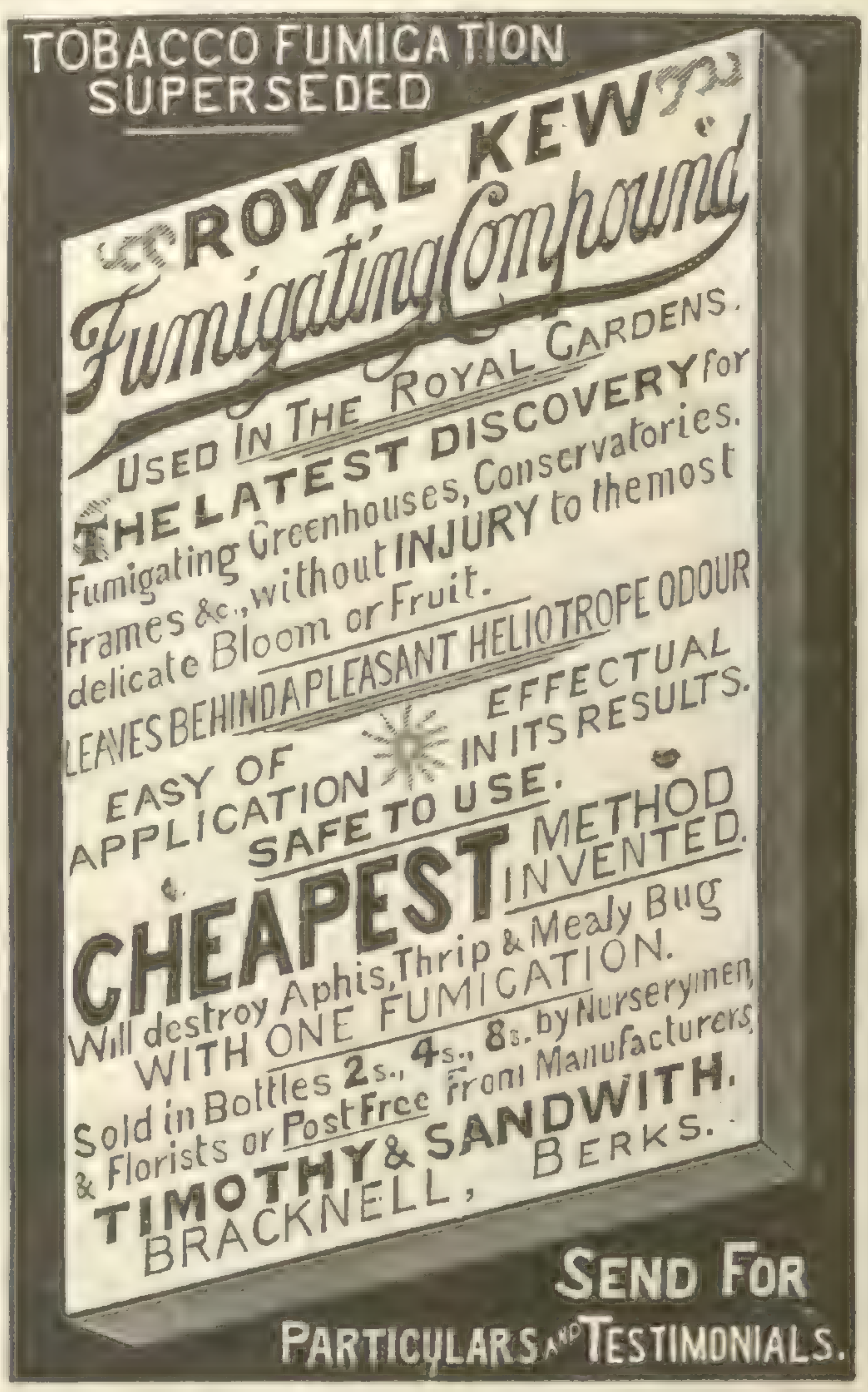
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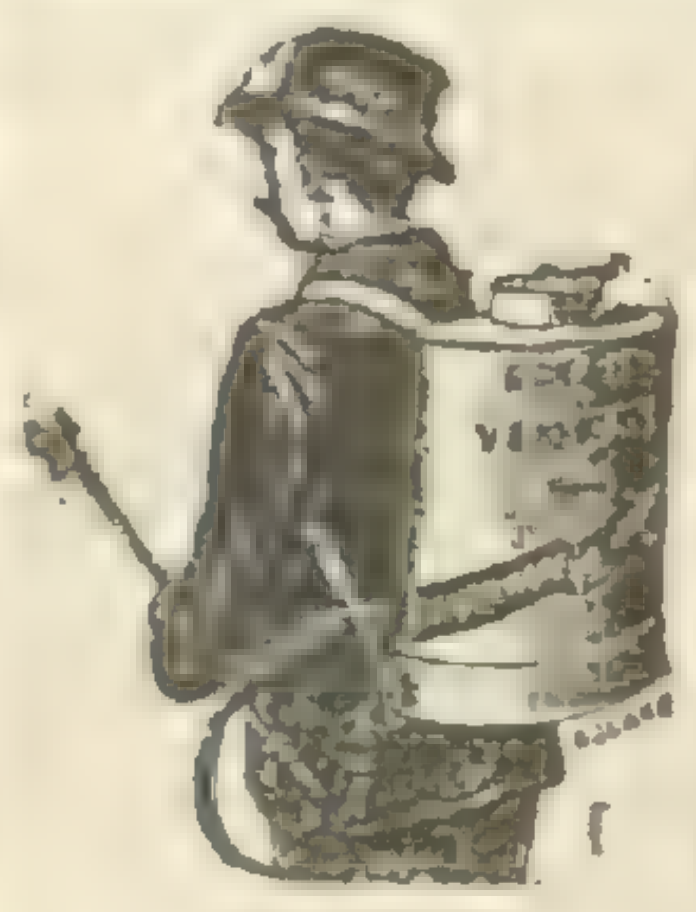

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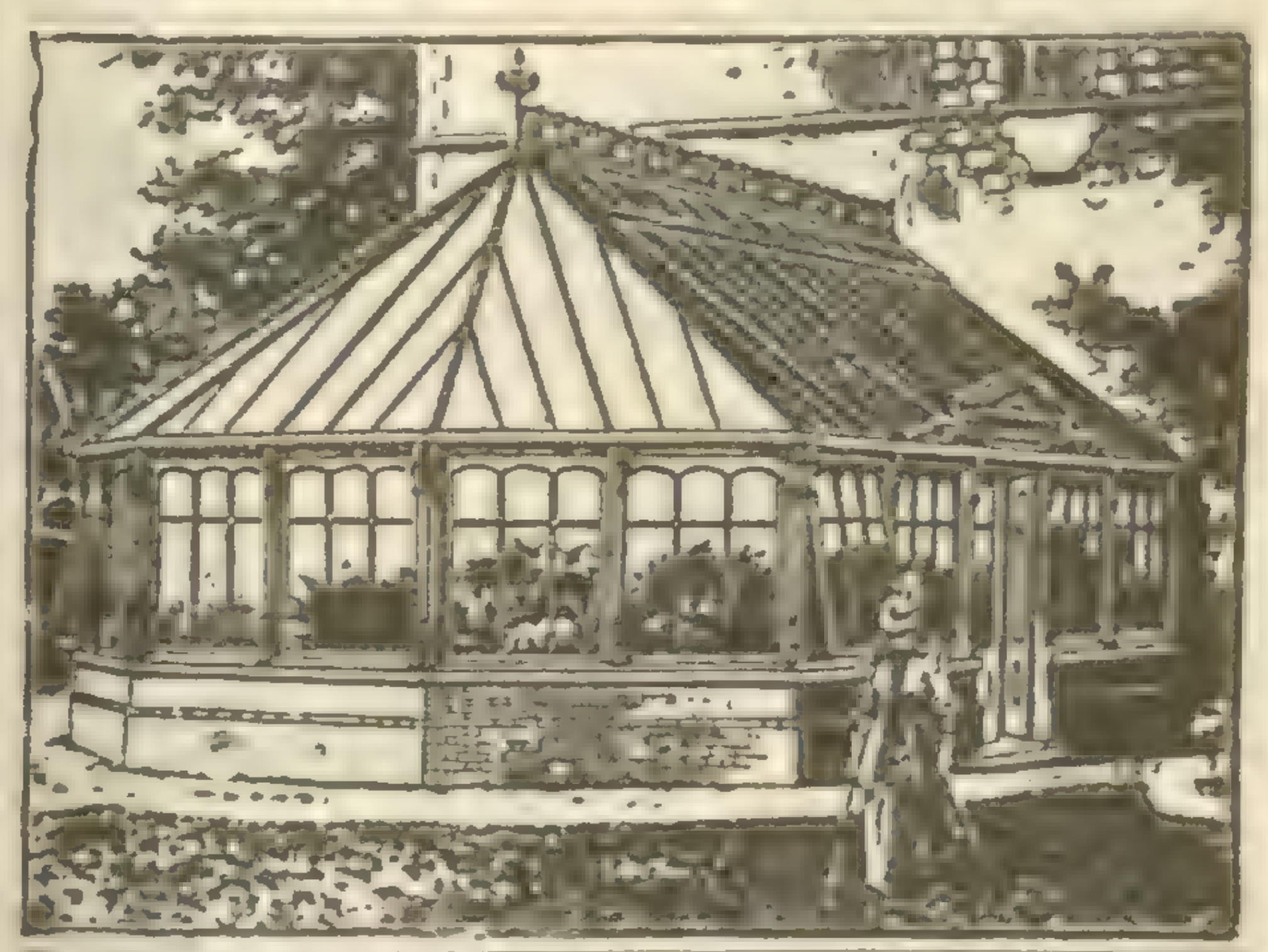

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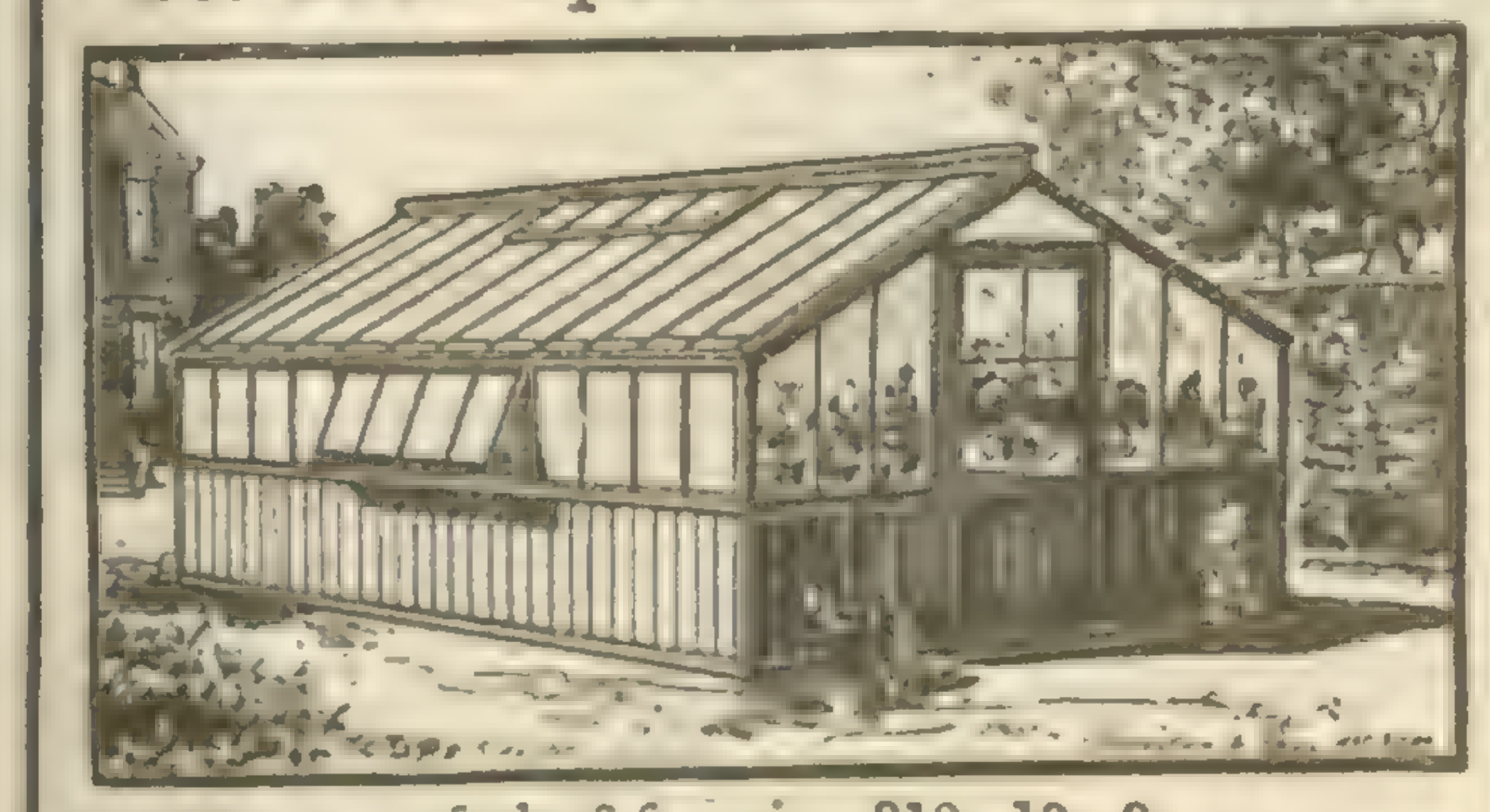

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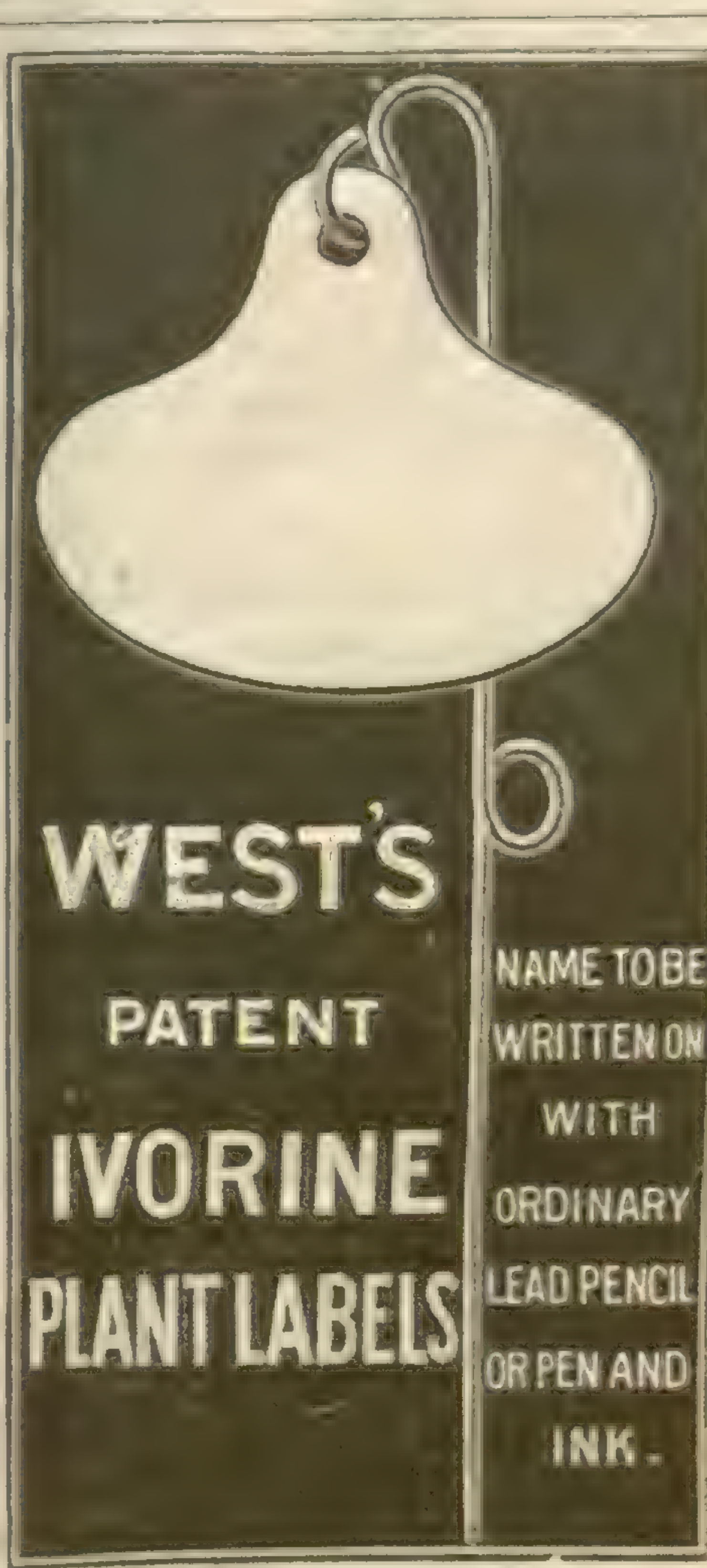
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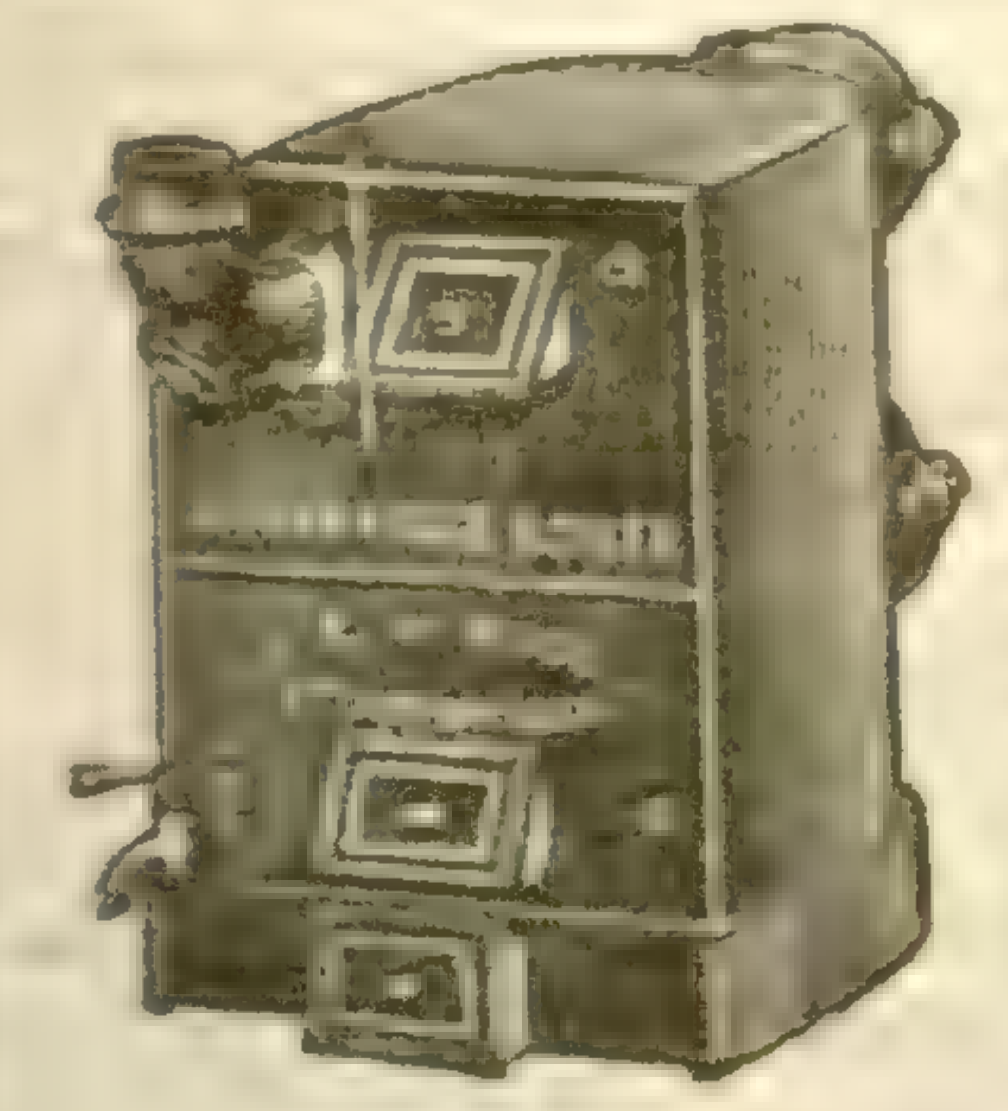

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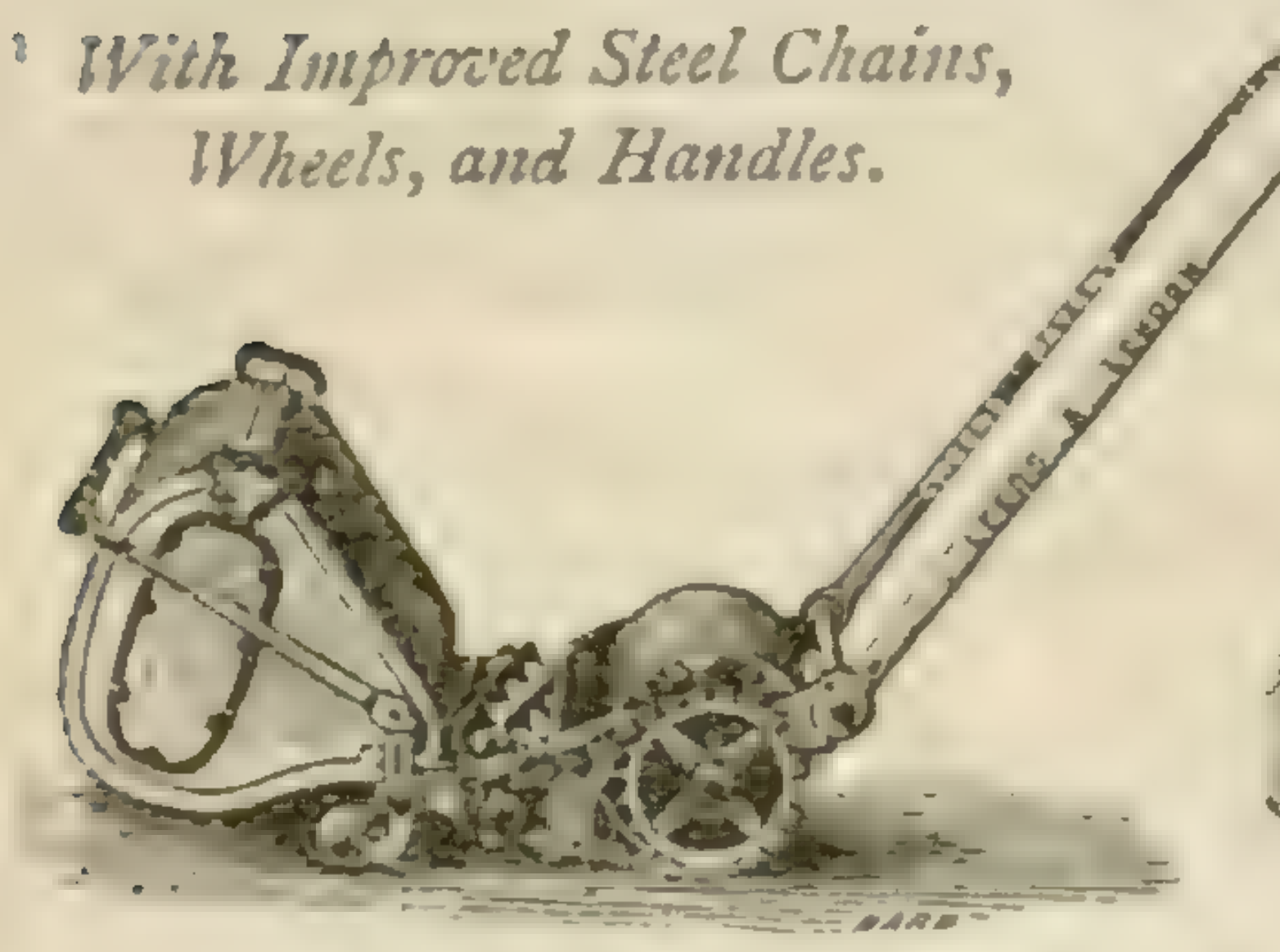

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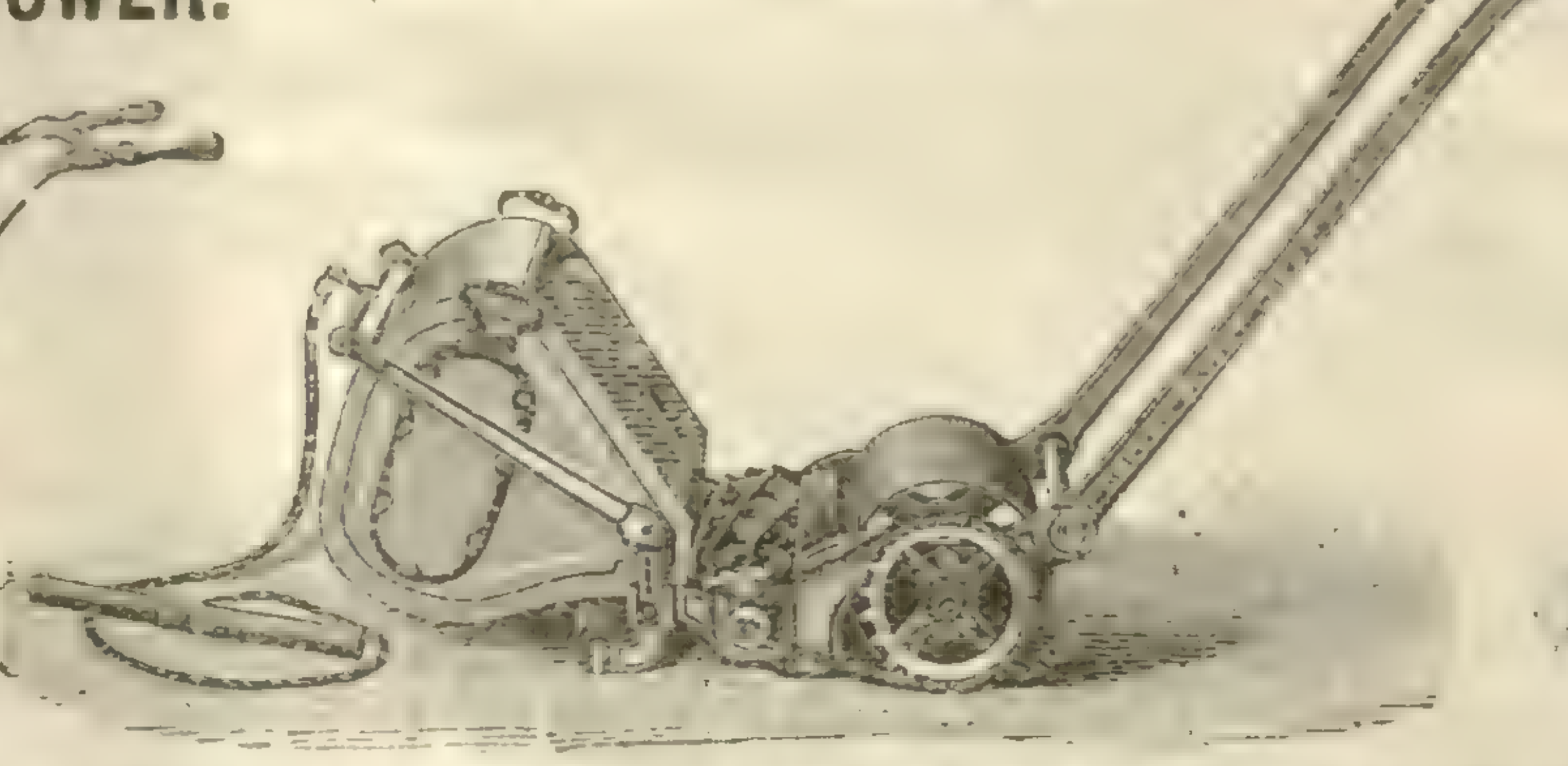

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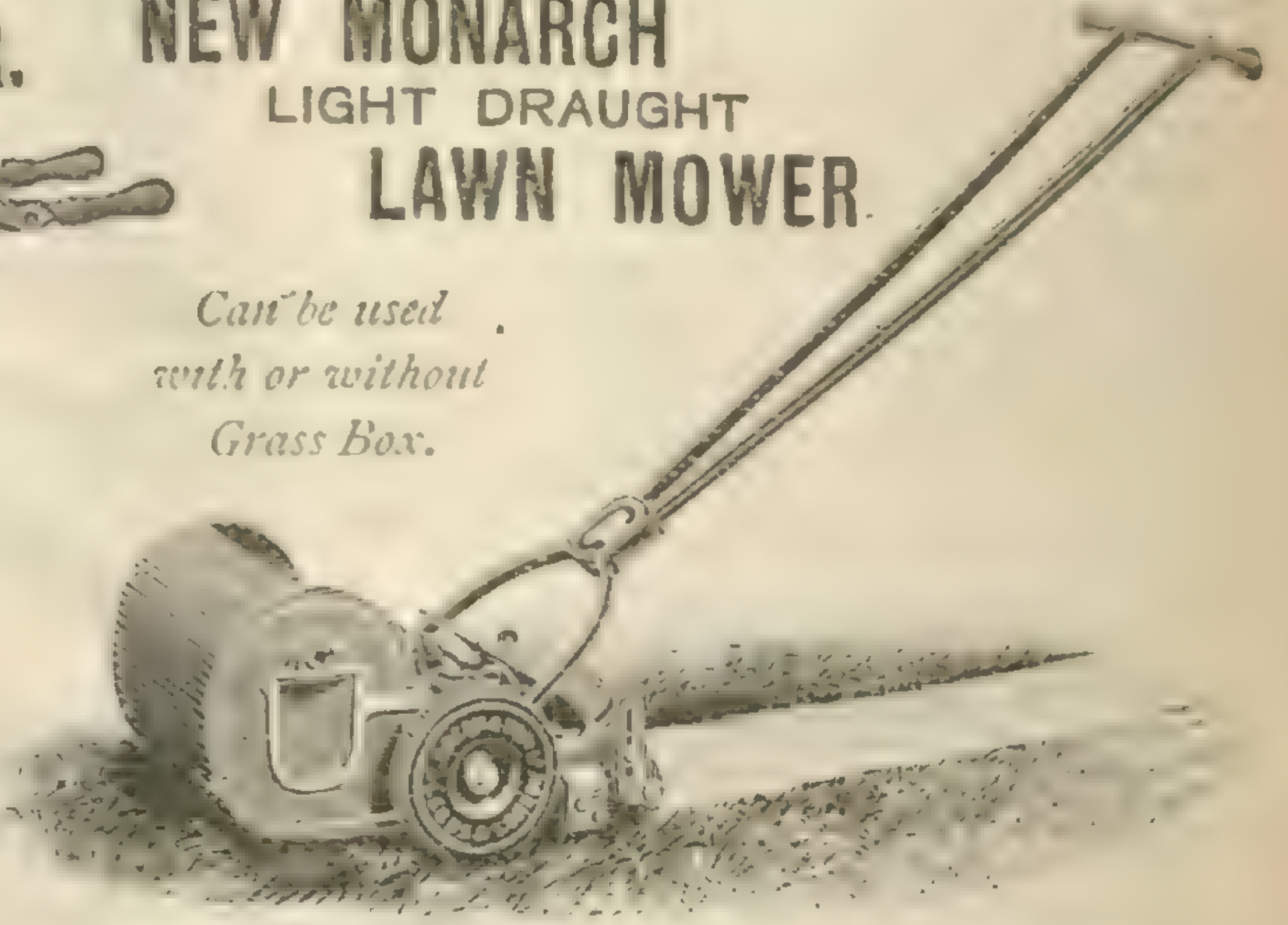

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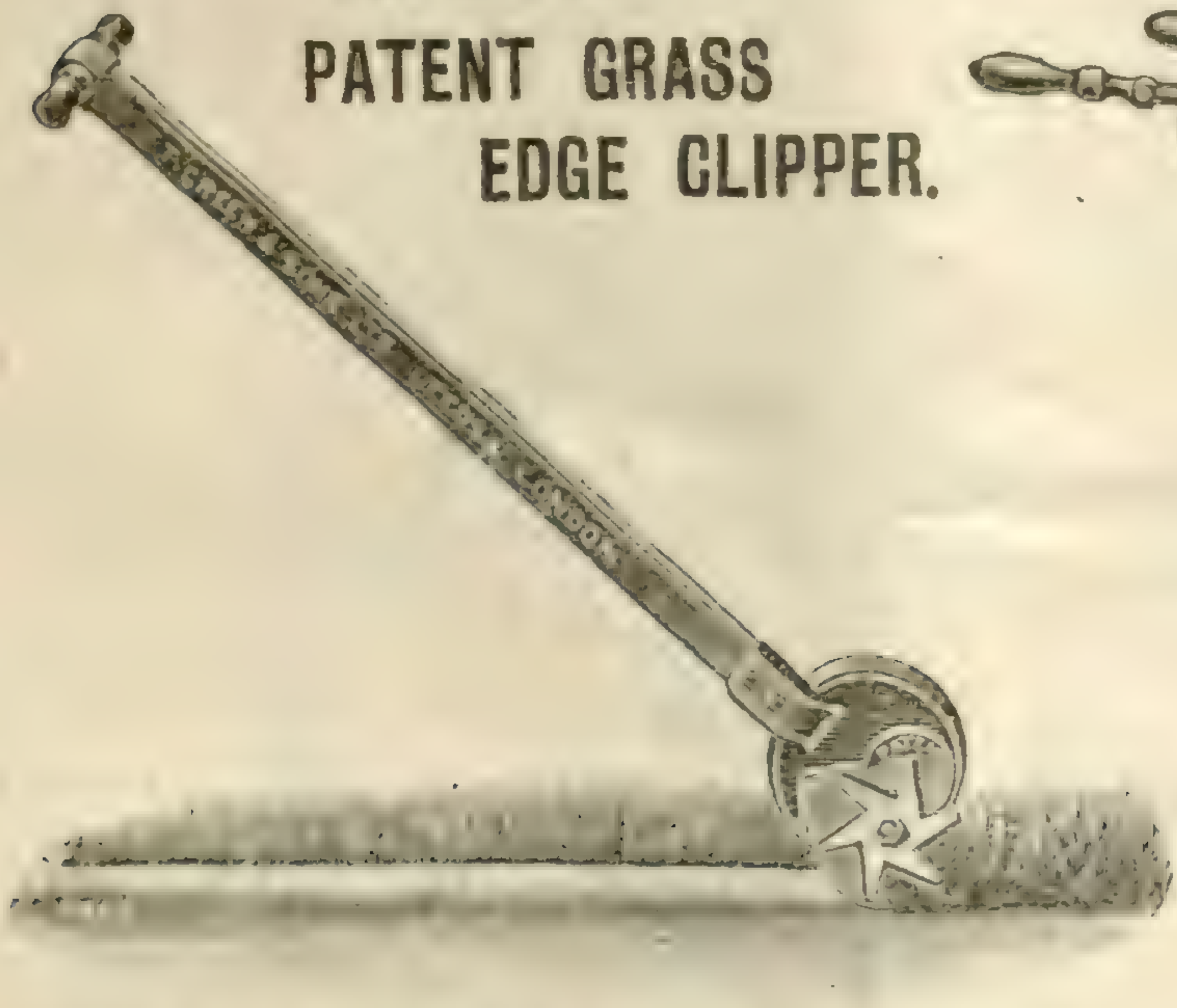

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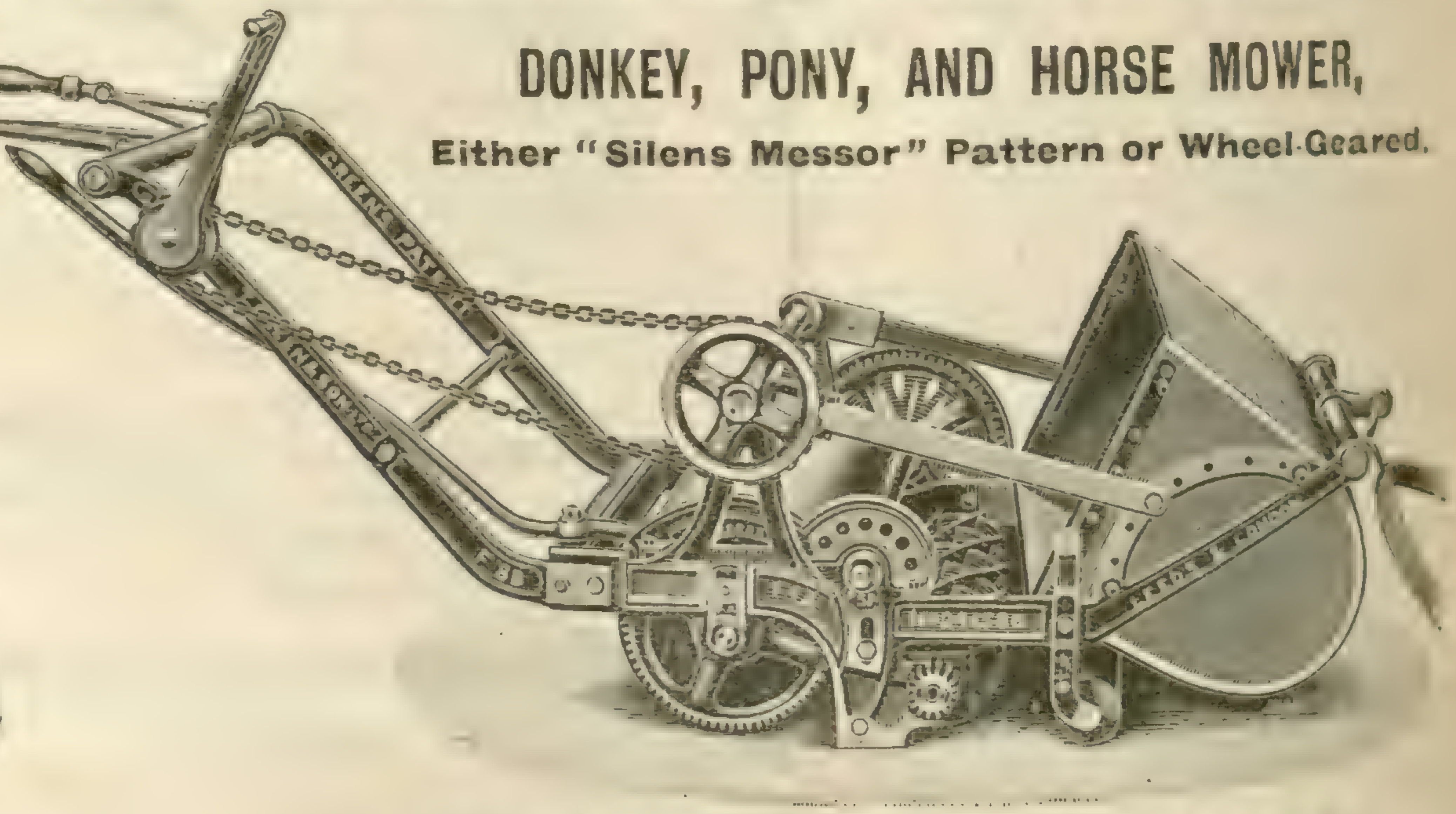

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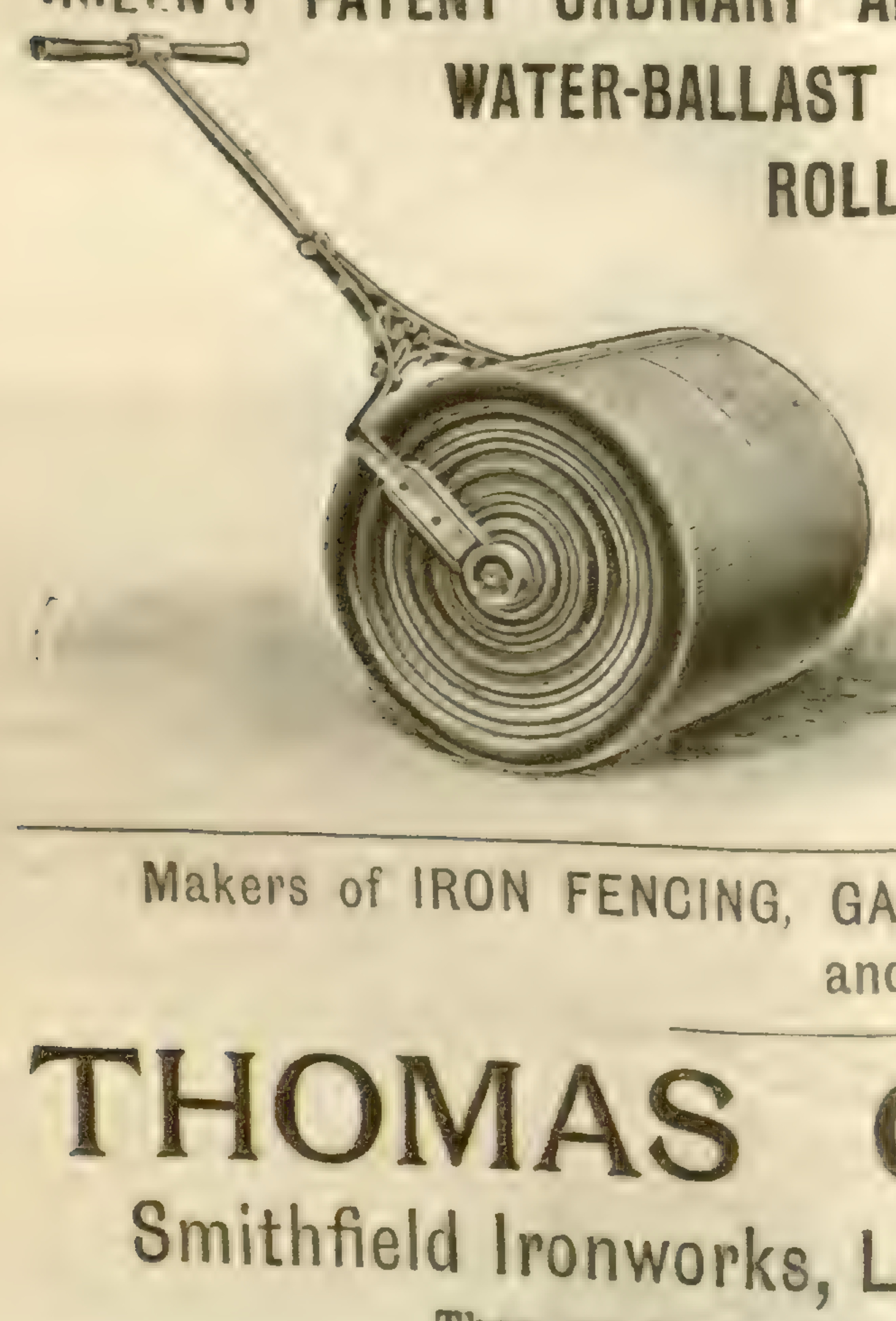

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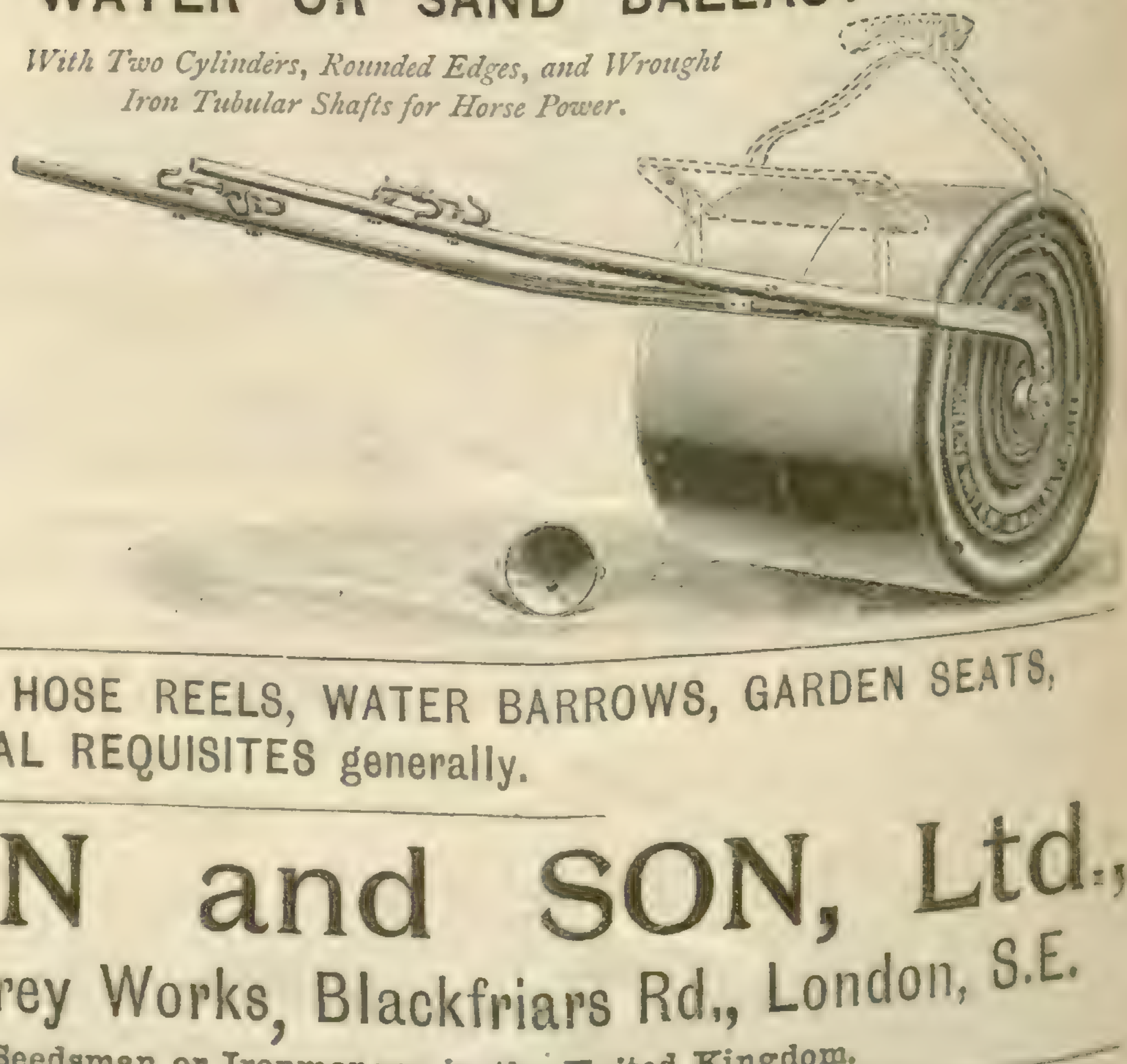

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THE

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FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
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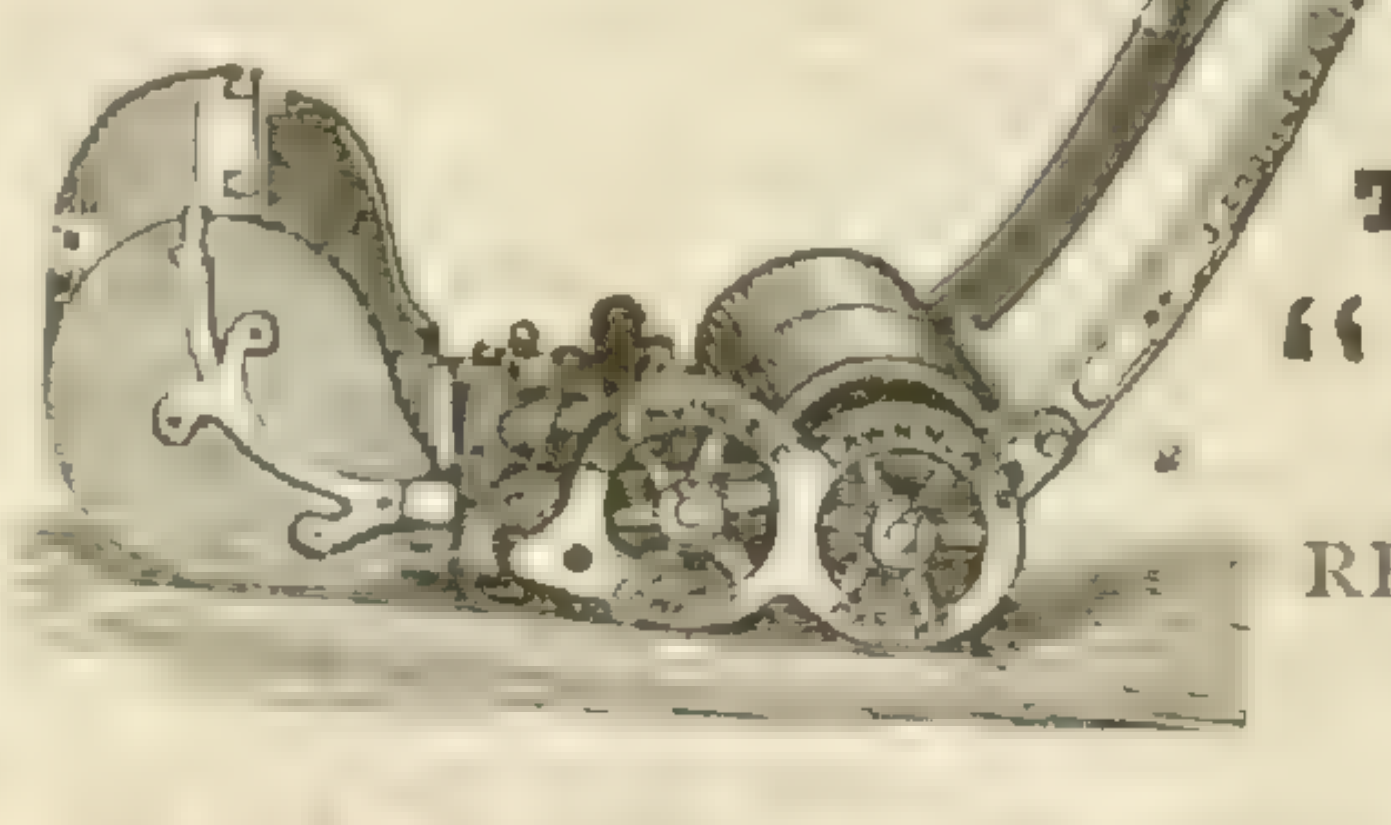

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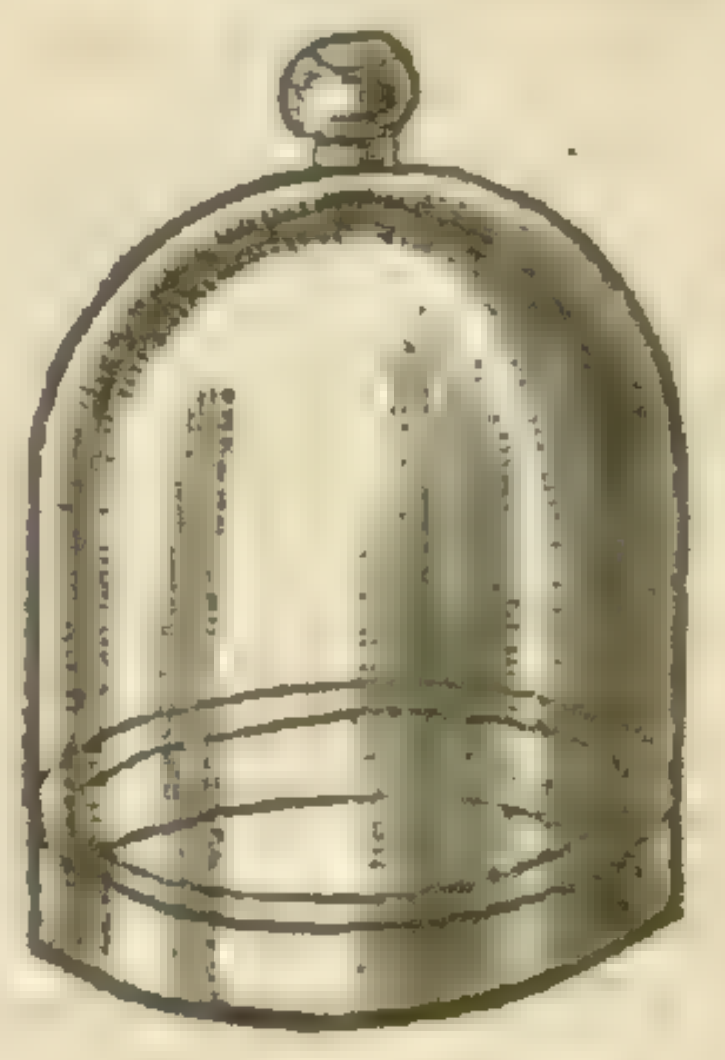

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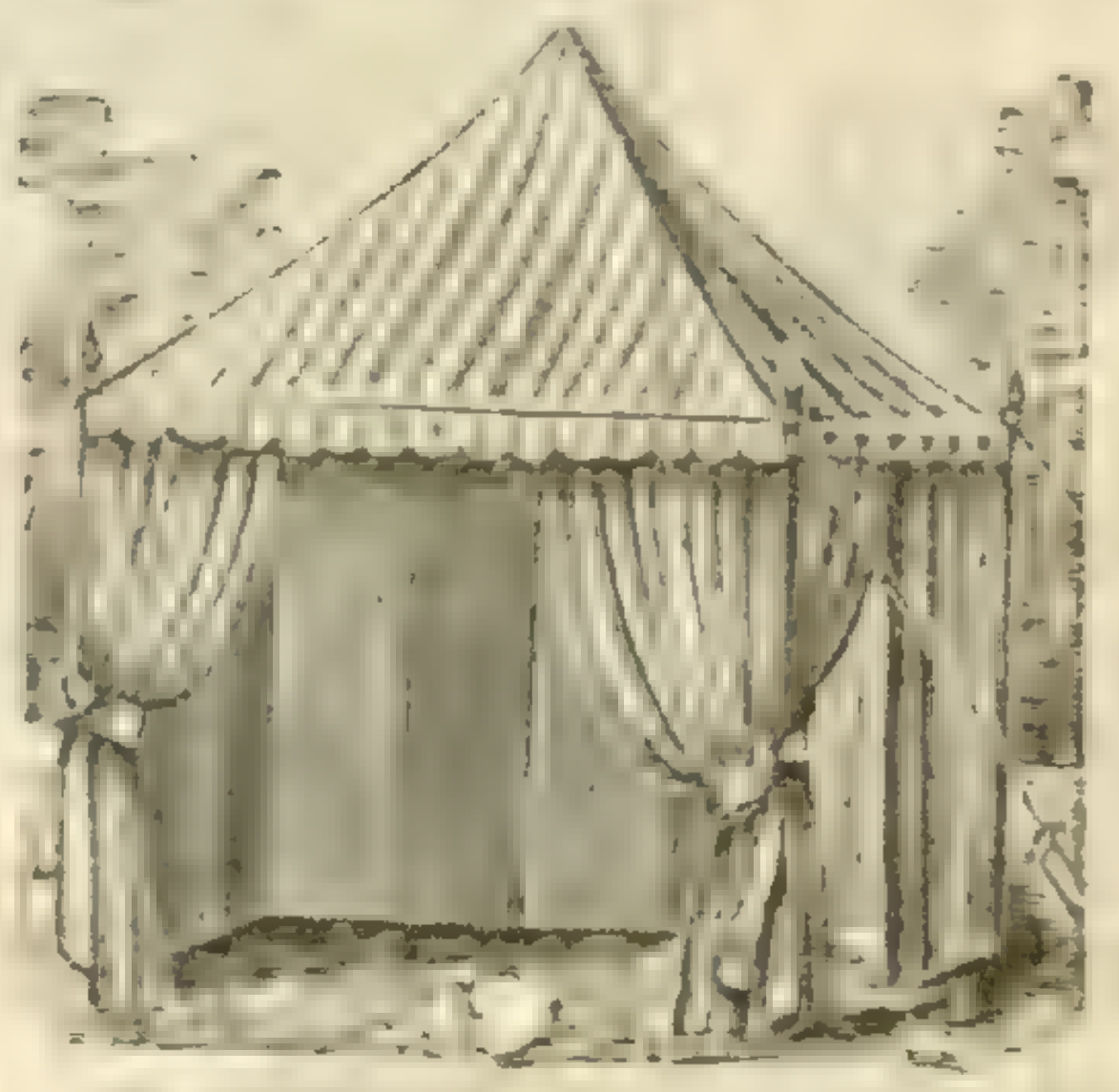

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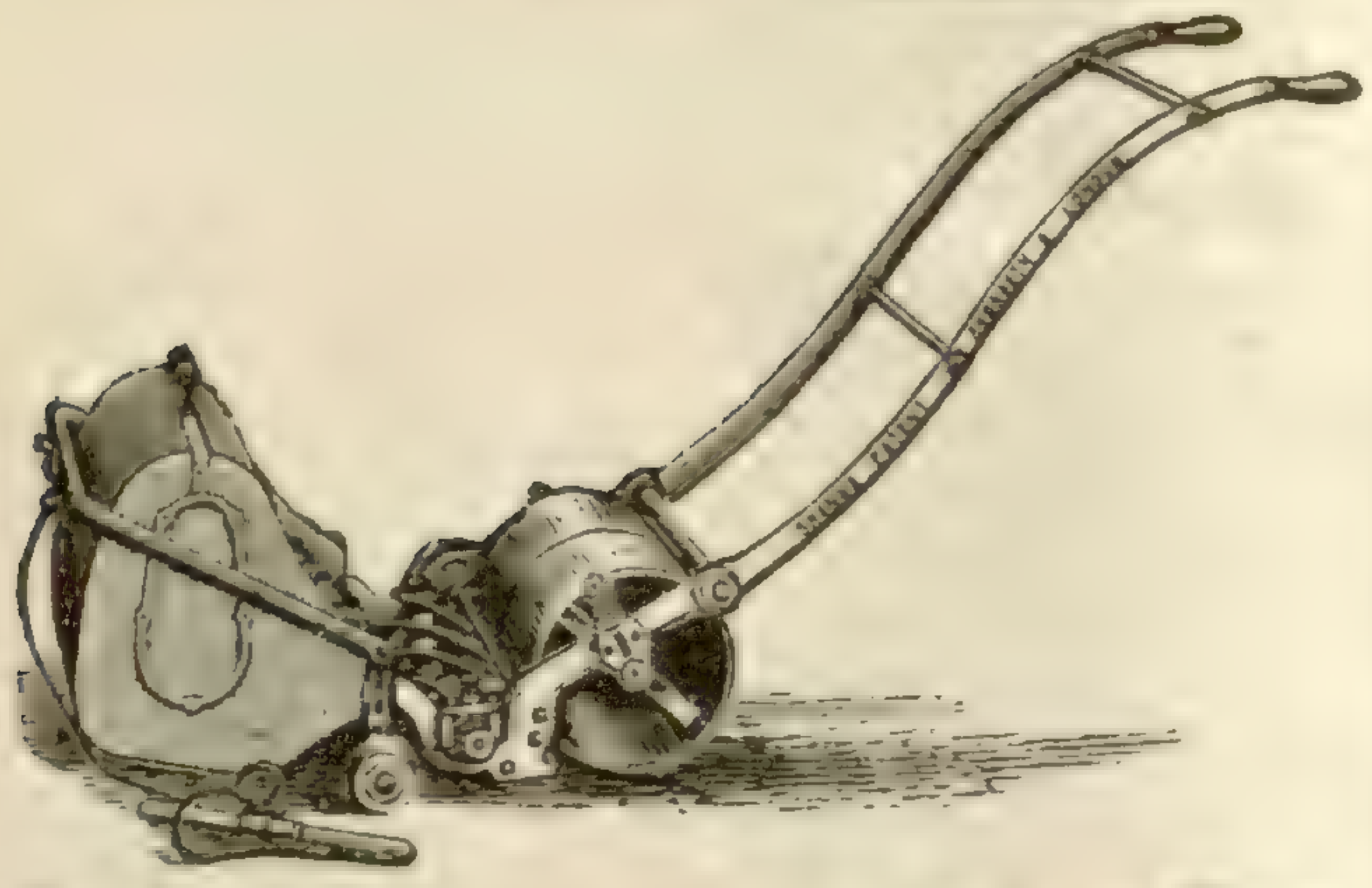

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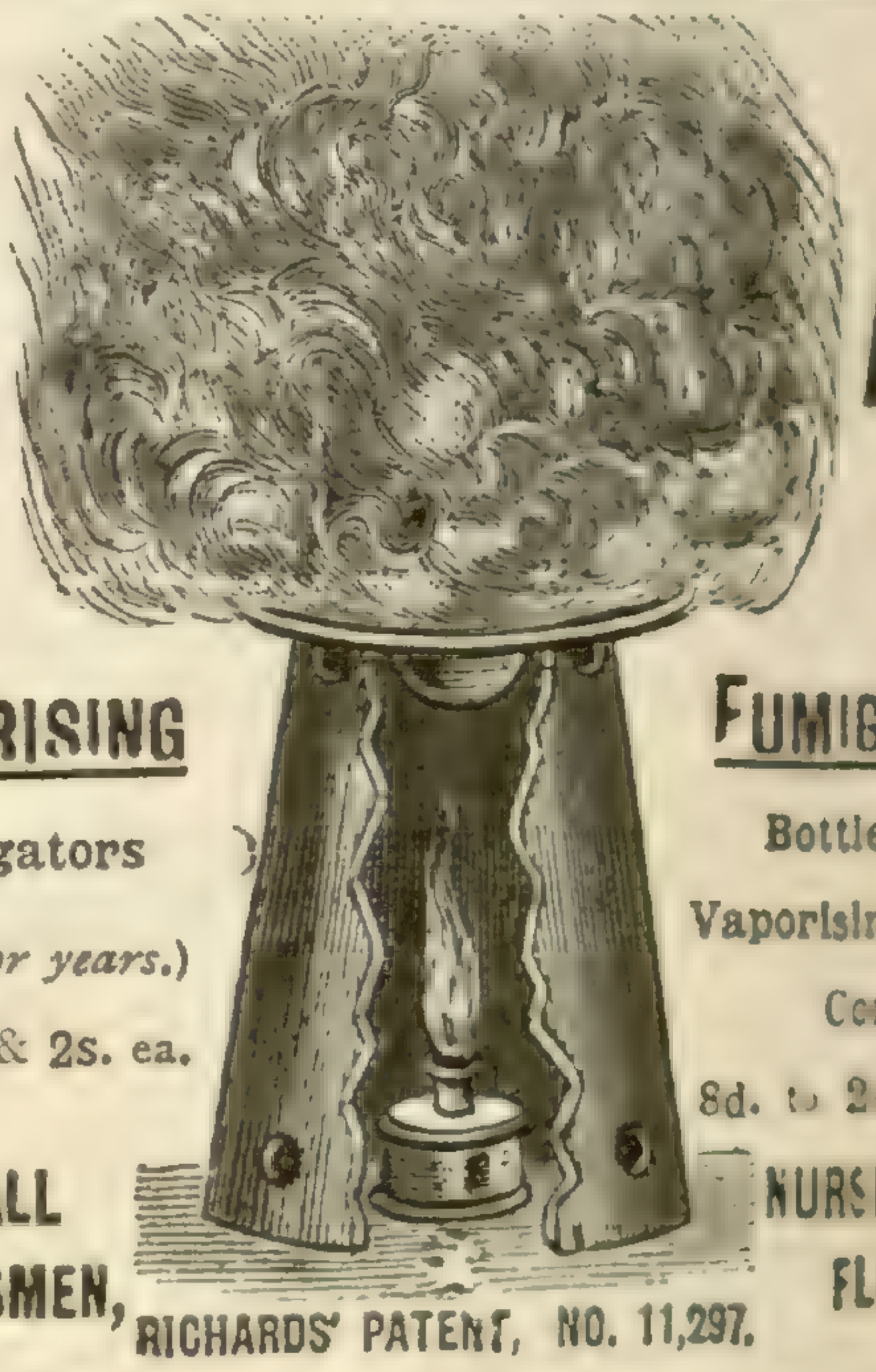

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THE GARDENERS' MAGAZINE.

SATURDAY, MAY 7, 1898.

ROYAL BOTANIC SOCIETY OF LONDON,
GARDENS, REGENT'S PARK.
GREAT SUMMER EXHIBITION OF PLANTS AND FLOWERS.
WEDNESDAY next, MAY 11, at 2 p.m.
Band of the 1st Life Guards.
Tickets 5s., or on the day 7s. 6d. each.
Entries should be forwarded to the SECRETARY, at the Gardens.

ALDERLEY EDGE AND WILMSLOW HORTICULTURAL SOCIETY. —The TWO SHOWS will be held, one at ALDERLEY EDGE on AUGUST 12 and 13, and one at WILMSLOW on NOVEMBER 11 and 12, 1898.
Schedules may be obtained from the
Hon. Sec., GEO. LEADBEATER, Jun., Trafford Road, Alderley Edge, near Manchester.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL
HORTICULTURAL SOCIETY.
GRAND EXHIBITIONS to be held on WHIT SATURDAY and MONDAY, MAY 28 and 30, 1898, and SEPTEMBER 21, 1898, at CHELTENHAM. Schedules and entry forms sent on application to the Secretaries,
Messrs. GEO. TOVEY and R. HENRY SMITH, 53, Regent Street, Cheltenham.
Entries close May 21 and September 17, 1898, respectively.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

PROGRESS IN FRUIT CULTURE.

THE several papers read at the conference held at the Crystal Palace under the auspices of the Royal Horticultural Society are included in the current issue of the society's journal, and form an important part of the contents of that publication. While perfectly aware that all the papers contain much that is of value, we turned with special interest to that in which Mr. George Bunyard discusses the progress made in fruit culture during the past sixty years, for this journal has been closely identified with the question for a long time past, and the author is properly recognized as an authority on matters relating to fruit production. Mr. Bunyard's paper, as might well be expected, contains much useful information, and well deserves careful perusal, but it hardly realises our anticipations, and we confess to a sense of disappointment in reading it. We fail to find any reference whatever to the work accomplished by the late Shirley Hibberd, who, by his vigorous crusade against the repressive system of pruning which so long held sway in the fruit garden, rendered services of so high a degree of value that they should have recognition, however brief, in a sketch of the progress of fruit culture during the Queen's reign. Early in 1876 Mr. Hibberd commenced his attack upon the practice of pruning, which rendered it impossible for the trees to give an adequate return for the labour bestowed upon them, and although he had to bear the brunt of a keen controversy and much misrepresentation, he in no way deviated from the course on which he had entered until he had accomplished the object he had in view and effected a reform in the views generally held with regard to the use of the pruning knife. Previous to that year, as Mr. Hibberd stated in his famous lecture given before the Society of Arts on February 9, 1876, it appeared "to be generally agreed that the treatment of fruit trees in every stage of their existence should be such as to prevent their growth, so that the orchard shall no longer be adorned with fully-developed examples of their respective kinds." Starving stocks were largely employed, and the code of management most commonly recommended included systematic root pruning and summer pinching, with the result that gardens became filled with stunted trees "that cost as much time and labour in the production of a mere pounds of fruit, that would have been sufficient for a ton." Mr. Hibberd persistently urged, and with good effect, that before the cultivator can harvest plentiful supplies of fruit, he must have the trees to produce it. In accordance with those views, he advised that the trees should be allowed to extend both above and below the surface, and that they should above all things be encouraged to so extend their branches that a due proportion of flower and fruit buds might be produced. It was in 1876 a quite common practice at the winter pruning to cut the whole of the shoots of the previous season back to three or four buds, with the result that in a few years the trees became crowded with spray utterly useless in fruit production. To combat this practice, it was urged that the leading branches should be allowed to grow and surplus shoots be removed, for, as cultivators at the present day fully recognise, when a shoot of moderate strength is slightly shortened it will, in the course of the following season, produce flower buds along the greater part of its length, and in the second year bear fruit, provided other conditions are favourable. The advice was acted upon in numberless instances, with the result that trees which previously gave a very small return, now produce an abundance. In hundreds of gardens may be seen bush and pyramidal trees that present a scarred, cankery appearance, some four, five, or six feet from the ground, whilst above the branches present a smooth and otherwise healthy appearance. These scars indicate the point to which the trees were previously cut back, while the growth above is the result of the more rational course of procedure advocated by Mr. Hibberd. The increase in the productiveness of fruit trees in gardens as the result of the reform effected cannot be estimated with any degree of exactitude, but it must represent a money value of some thousands of pounds annually.

EXHIBITION OF CUT FLOWERS.

AS we are within a measurable distance of the Temple Show, it may be well to recall the strictures which are made year after year upon some of the exhibits, which, however beautiful the flowers constituting them may be individually, are wanting in attractiveness, owing to the lack of taste in their arrangements. Although in some cases this is doubtless due to inadequate space granted for the quantity shown, this is but a poor excuse, if any, since the exhibitor knows perfectly well beforehand how much space is at his disposal, but obviously does not grasp the fact that crowding that space as if it were a market stall, is less satisfactory than would be a selection of the best and exclusion of second rates, and consequent higher grading all round. Year after year we find the "market bunch" system adopted, where half a dozen good blooms per cluster would look infinitely prettier and afford a far better opportunity of judging the flowers so shown. Take the flowers as they grow naturally and we find a perfect harmony between them and their foliage, the one setting off the other; the sweet pea for instance, with its characteristic leafage and tendrils, forms a charming spray, but cut a number of these sprays, put no leaves at all, and cram the lot into something little better than a ginger-beer bottle, and where is the natural grace and what are the qualifications of such a bouquet for the first show in London? The curious thing about such exhibits is that the show itself affords annually a liberal education which should lead to their elimination, but first and foremost the actual plants themselves, as they grow, are the best teachers. Next to the proper exhibition of cut flowers individually, comes, of course, the grouping and general arrangements, and here again crowding is a mistake, and very much may be done to enhance effect, by careful arrangement of colours, and the introduction of suitable foliage plants, by way of set off. It is a question whether it might not prove advisable in cases where exhibits are not up to the mark, to call upon the exhibitors when applying for space at future shows, to define their intentions, or failing this, to erect a special tent in some secluded corner, which should tacitly occupy the same status as the Chamber of Horrors at Madame Tussaud's.

A TROUBLESOME ORCHARD PEST.

AS one result of the more intelligent interest that is being taken in economic entomology by the general body of fruit growers, we have recently received from widely separated districts branches of apples that had been injured in a manner that evidently greatly perplexed our correspondents. The bark was punctured at intervals, and on removing it the inner bark and the wood was found to be marked by channels, the branch channels branching off at nearly right angles from the main passage. Although it is not a common occurrence for apple trees growing in this country to be injured in this way, we had no difficulty in recognising the injury as the work of the small bark beetle (*Scolytus hæmorrhous*), which appears to be very troublesome on the European continent and in the United States. The full-grown beetle is about an eighth of an inch long, and russety black in colour. Towards the end of April, or quite early in May, the beetle emerges from the pupa case, and in a very short period it commences to take the steps necessary to ensure the perpetuation of the species. In the first place it bores a hole in the bark of the smaller branches, and forms a passage on the inner side about three-quarters of an inch in length. This task having been accomplished, the eggs, which are whitish, are deposited somewhat regularly on either side, and in a few days the larvæ are hatched, and commence to form channels at right angles to the main passage, chiefly between the bark and wood, but in the case of soft shoots the channels are frequently made through the soft wood. At the end of the channels the grub forms a small receptacle in which it ensconces itself and changes into a chrysalis. After passing through the chrysalis stage the beetle escapes by boring through the bark, and within a very short period commences to deposit its eggs. Two generations of the small bark beetle are produced in the course of the year, and consequently it increases at a somewhat rapid rate where the conditions are favourable to its reproduction. The beetle has the greatest preference for trees that are in a more or less unsatisfactory state of health, and, recognising this fact, American cultivators recommend that when an orchard is badly infested to ring one of the trees, which from some cause may be considered of but little value, to cause it to become unhealthy, and act as traps for the beetles. The ringing is done early in the spring, and the trees are cut down in June and burned, it being, of course, important to perform this operation before the beetles attain full development and escape. Infestation of the trees by this pest is indicated by the ends of the young shoots dying away and the shrivelling of the leaves; and in the case of trees in small plantations known to be infested, it will be advisable to examine the branches and remove and burn all that are found to be punctured. The attack of the beetle may possibly be warded off by painting the wood with a paraffin emulsion, or some other winter dressing, before the buds begin to swell; but this method can only be recommended when a few trees have to be dealt with, and, speaking generally, the pest can be kept in subjection by cutting off and burning shoots seen to be infested.

AN AUSPICIOUS EVENT.

By a happy coincidence the Rev. H. H. D'ombrain, the founder of the Horticultural Club, will attain his eightieth birthday on the 10th inst., the date of the next monthly meeting of the club, and as he has occupied the position of honorary secretary since the commencement, it has been decided to take advantage of the opportunity for presenting him with a token of the appreciation of his long-continued labours, and of the high esteem in which he is held by all. Mr. Harry J. Veitch, chairman of the club, and Mr. George Munro, of Covent Garden Market, have the matter in hand, and they inform us that, "As it is difficult in so short a time to ascertain what would be most acceptable to him, we suggest that he be presented with a sum in a purse, towards which each member should contribute a guinea, asking him to use it as he and his family should prefer." The suggestion is an exceedingly happy one, and knowing the estimation in which Mr. D'ombrain is held by the members, we are quite sure it will be readily accepted and acted upon. It is somewhat unfortunate there should not be sufficient time to take the steps necessary to raise a testimonial that would bear a more direct relation to the remarkable services that have been rendered by Mr. D'ombrain in the cause of horticulture than is now possible. But we presume the members of the Horticultural Club do not wish to limit the pleasure inseparable from showing in a tangible form their appreciation of Mr. D'ombrain's services, and of his invariable geniality and courtesy; but rather that they will gladly welcome expressions of sympathy with the movement from all who take an interest in floriculturists and horticulturists, whether members of the club or not. To recount Mr. D'ombrain's services that have been so freely rendered during the past half century is not now necessary, as he is well known to all as an active and able worker. But his most conspicuous services have been the founding of the National Rose Society and the Horticultural Club, and the conduct of their affairs as honorary secretary from their foundation, and these alone more than justify the steps that are being taken by Mr. Munro and Mr. Veitch with a view to enable those who appreciate Mr. D'ombrain's work to give practical expression to their feelings on this auspicious occasion.

Calandrinia Tweedi is a new and interesting plant now flowering for the first time in England, in the Alpine House at the Royal Gardens, Kew. The foliage is stout and deep green, and the habit of the plant is dwarf; a specimen might readily be mistaken for a statice when not in flower. The flowers are about two to two and a half inches across, and of a soft salmon-tinted flesh colour; they are starry, and have eight segments. The species is from California, and sent to Kew by Mr. Johnson, Oregon; it is said to be hardy, and the authorities are testing its capabilities as a hardy plant in the rockery. Should it resist our damp winters it is a plant that lovers of hardy and rockery plants will soon desire to possess. The genus Calandrinia belongs to the natural order Portulaceæ.

Chiswick Gardens are now well worth a visit, were it only to see the magnificent display of apple blossom that is unfolding day by day. The pears have been, and in a few cases still are, very beautiful, and not many of the trees have been injured by frost. Plums in the open and peaches and nectarines on the walls will not yield heavy crops this season, but plums on the walls have set freely. The vineries all look well, and the Muscat House in particular is showing some very fine bunches that soon will be flowering. Trials of annuals will be on a most extensive scale this season, and the same may be said of violas, while pæonies, phloxes, irises, carnations, &c., are retained. Large trials of peas, onions, radishes, lettuces, &c., are in hand, and kales will also again be cultivated on a large scale. With regard to the onion trial we may say that the autumn-sown crop has not passed through the winter very successfully.

New Ideas Concerning the Codlin Moth.—Professor Shuderland, of the Cornell Experiment Station, is upsetting our notions of the life history of the Codlin Moth. Instead of laying her eggs in the blossom, he declares that the moth does not appear till a week after the blossoms fall, and then it deposits the eggs upon the side of the apple. In about ten days the maggots are hatched, and they then creep around the apple till they find the calyx, into which they creep between the lobes, which have by this time closed tightly. Up to this period the maggots have not eaten anything; but soon after entering the calyx they begin to gnaw their way into the apple. Hence it is argued that trees should be sprayed with Paris green or some other poisonous wash as soon as the blossom falls, in order that the poison may be deposited in the calyx, where it will be eaten by the maggot. If spraying be delayed ten days or longer, the calyx will have closed over the maggot, and the poison will not reach it.

Curious Mushrooms.—From time to time we receive from our correspondents specimens of the curious freaks in which the common mushroom indulges, and sometimes these are very remarkable. Our readers will remember the triplet mushroom figured in our issue of May 5, 1894, p. 243, which represented a large mushroom with two smaller ones growing from its summit, and in an inverted manner, that is to say, the stems were uppermost. We have now to acknowledge a large specimen from Mr. J. Rendle, gardener to J. A. Hunt, Esq., The Laurels, Enfield; this shows the most common form of freakage seen in mushrooms, viz., an ordinary growth with another mushroom growing from the top of it. Mr. Rendle's specimen is the largest of its kind we have ever seen, as each mushroom measured about four and a half inches across, and the two-storied specimen attained a total height of eight and a half inches.

The Botanical Magazine for the current month is a thin number, for four of the five plates are missing, and cannot be supplied until the issue of the June number owing to a fire at the lithographer's. Amomum hemisphæricum is figured, and is a Javanese plant closely allied to the gingers; other species described are Symphyordra Wanneri, a pretty campanula that is annually seen in good condition both in the Rockery and Alpine House at Kew—the flowers are deep violet blue; Kalanchoe flammea, previously described in our columns, a succulent with heads of yellow and orange flowers; Armeria cæspitosa, a Spanish Thrift, with close heads of rosy flowers; and Stephanandra Tanakæ, a Japanese plant akin to the spiræas, flowers white and yellow, leaves clear yellow in autumn.

Variation in Ferns is a subject with which our able coadjutor, Mr. C. T. Druery, F.L.S., V.M.H., is pre-eminently conversant, and has frequently dealt with in our columns, consequently his discourse at the Horticultural Club on Tuesday next cannot fail to prove both interesting and instructive. Mr. Druery's lecture is on "Nature versus Culture in Fern Variation," and it will be illustrated by Nature-prints by the late Colonel Jones, who was also a great authority upon British ferns.

The Eucalypti, or Gum Trees of Australia are now generally recognised, not only as the giants among trees, and as providing splendid timber, but as possessing medicinal virtues of various kinds, but it is not so generally known that such virtues are shared also by different species of tea tree and wattle. The flowers of the native pittosporum yield a jasmine-like scent by distillation; and the boronia and other rutaceous plants abound in volatile oils. The thorn apple, castor oil plant, pimpernel, American nightshade, fennel, wartwort, and other plants differ very slightly, if at all, from those found in other countries. The castor-oil plant not only yields the well-known oil, but the leaves have been successfully employed as a galactopoietic, for remedying the absence of milk in the maternal breast. The thorn apple is used as a cure for asthma, the seeds, when expressed and made into an ointment with lard, being good for irritable ulcers, burns, and scalds. The American nightshade is useful as a purgative; and the pimpernel is employed in mania and hydrophobia; the juice, when employed to the eye in certain stages of ophthalmia, having the property of cleansing it in a remarkable manner. These Australian native plants known to possess medicinal properties, will, at some future date, have considerable industrial value.

National Rose Society's Conferences.—This society has arranged two conferences for the present year, and the first will be held in the Sydney Gardens, Bath, on Thursday, June 23, when Mr. W. F. Cooling will open a discussion by reading a short paper on "How different kinds of roses should be pruned." The second conference will be held in the grounds of Spring Hall, Halifax, on Thursday, July 14, when Mr. George Paul, V.M.H., will open a discussion by reading a short paper on "Rose Exhibiting." On each occasion the chair will be taken at three p.m.

Manures for Potatos.—The authorities of the University Extension College, Reading, have been investigating the question of applying fertilisers to potatos, and in the conduct of their experiments they have had the co-operation of Mr. Arthur W. Sutton. The results obtained indicate that the potato crop does best on land enriched with the manuring of previous crops; that on such enriched land the direct application of many artificial manures to the potato crop may do harm, especially where there is a comparatively dry soil and climate; that on soils in rather poor condition the crop of potatos can be much increased by the judicious application of artificial manures.

Productive Potatos.—The annual report of the Irish congested districts contains a report on the experiments that were made last year with a view to determine which of the most productive varieties of the potato would be the most suitable for cultivation in conjunction with the Champion, which in many places is almost exclusively grown. Eleven varieties were grown on ninety-seven experimental plots, and of these, nine varieties were grown on all the plots, two on seventy-seven plots, and one variety on twenty plots. The varieties selected were Beauty of Hebron, Up-to-Date, Antrim, Wonder, Beauty of Bute, Garton, Main crop, Irish White, Champion, Ardcairn Beauty, and Snowdrop; and the result shows that the most productive was Up-to-Date. A crop exceeding ten tons per acre was produced in thirty-seven instances by Up-to-Date, in eight instances by

Champion, in seven instances by Irish White, in six instances by Beauty of Bute, in five instances by Antrim and Maincrop, in four instances by Beauty of Hebron, in two by Ardcairn Beauty and Garton, and in one instance only by Wonder. A crop exceeding five tons per acre was yielded in eighty-one instances by Up-to-Date, and in seventy-nine instances by Champion, but the last-named varieties produced crops exceeding four tons and three tons the greatest number of times, and in no case did it yield less than one ton per acre, whereas Up-to-Date failed in one instance to produce that quantity.

Scientific Horticulture will not have advanced much as a result of the findings of the R.H.S. Scientific Committee at its most recent sitting. There were very few specimens to be considered, and only four members present. Some vine leaves were received from Mr. F. M. Gulrin, Iscoed, remarkable for a stickiness. This appeared to be attributable to green fly, although none was present. The exudation is the result of puncture. Mr. F. F. Freeman sent some decayed pæony leaves which appeared to have decayed at the junction with the stem. They were forwarded to Mr. W. G. Smith for examination for the presence of fungi. Mr. Henslow described a rather curious case of a bush of Ribes coccinea growing by the south side of some pailings. It had sent up a number of shoots on the north side. The former half were in full leaf bearing very few racemes; while that on the other side was covered with flowers, the foliage being scarcely apparent.

Tomato Disease Prevention.—The cultivation of tomatos has attained such large proportions, both in private gardens and commercial establishments, that the prevention of fungoid attacks is a matter of primary importance. As in the case of the potato, the tomato is liable to be seriously damaged from diseases caused by fungi. The leaf-blight disease begins by attacking the older or lower leaves first, and then extends upwards to the younger parts of the plants. The injured leaves gradually lose colour and become thickened and curled at the margins. Brown spots next appear, and ultimately the leaves die and fall off, the plant being thus rendered incapable of producing and ripening fruit. Tomato blight may arise from the use of seed from diseased and enfeebled stock. It may be contracted through the agency of spores which linger in the soil in which diseased plants have been grown. Trials conducted at the Maryland experiment station have shown the Bordeaux mixture to be an effectual means of checking the tomato leaf blight. In 1896 spraying with the solution four times resulted, over thirty-five varieties, in an average increase of 2·5 tons per acre of marketable fruit. In 1897 spraying three times resulted, over nineteen varieties, in an average increase of 2·2 tons per acre of marketable tomatos. The increase in crop as an effect of spraying ranged from a quarter of a ton to six tons per acre in 1896, and from a quarter of a ton to 4¼ tons in 1897. Some varieties appear to be more susceptible to blight than others. In 1896, however, all save one variety, and in 1897 all except three varieties, gave an increased crop of ripe fruit as a result of spraying. The *bouillie* employed was made in the proportion of 8 lb. of sulphate of copper and 4 lb. of quicklime to forty or fifsy gallons of water; the mixing is, as we have frequently advised in giving directions for the preparation of the mixture, best done in wooden vessels.

The Exhibition of British-grown Fruit to be held under the auspices of the Royal Horticultural Society, at the Crystal Palace, will take place on September 29 and 30 and October 1. The schedule of this show is now ready, and may be obtained on application to the R.H.S. secretary. The next meeting of the society takes place at the Drill Hall on May 10, when the committees meet as usual, and in the afternoon the Rev. Professor G. Henslow, M.A., V.M.H., will lecture upon "Some of the Plants Exhibited." We understand that this occasion will offer the last opportunity for Fellows to compete for the Veitch prizes offered for the best-flavoured apples and pears.

The French National Chrysanthemum Society.—There is every sign of great activity in the executive of this young but rapidly increasing society. Its journal continues to appear, and contains much matter interesting to Continental and other "mummers," and the society has recently had published in separate form some of the principal papers read at the Orleans Conference last November. The papers form a neatly printed pamphlet of thirty-six pages, with illustrations, and the subjects are as follows: Chrysanthemum maladies and parasites, the fertilisation of the chrysanthemum, and the best manures and composts to be used in chrysanthemum cultivation, the last being from the pen of our friend Mr. Fatzer, who, as an able cultivator, speaks with authority. The society, although only in the third year of its existence, now counts more than four hundred members, and includes the names of most of the famous raisers aud growers in Europe.

Importation of Plants into Greece.—The Board of Agriculture state that they have received through the Foreign Office a translation of a decree, dated January 4, 1898, embodying the measures taken in order to prevent the introduction of phylloxera into Greece. By this decree it is forbidden to import from any country, whether infected with phylloxera or not—(*a*) Any parts of vines, whether fresh or dry; (*b*) any living plants or parts thereof; (*c*) madder and liquorice; (*d*) stakes which have been used to support vines; (*e*) vegetable or mixed manure; or (*f*) vegetable soil and any kind of ships' ballast consisting of pebbles, earth, or mixed sand. Importations, under certain conditions, are only permitted from Belgium, Holland, Denmark, Sweden, and Norway, where phylloxera does not exist. Grafts and cuttings of plants (vines excepted) for agricultural experiment stations may be imported through certain ports after many formalities. The importation of the following articles *inter alia* is, however, permitted, viz., all kinds of dry seeds, dried fruits, and dried medicinal [illegible].

The Commons Preservation Society keeps steadily at work, and does a large amount of good in a quiet way. The Kent and Surrey Committee of the society has just issued its report for 1897, this showing that in the counties concerned fifty-five cases of encroachment have been dealt with in the year. Among the more important cases dealt with were those of the Ham Common and Lammas lands, the Clackett's Path, the Abbey Hill Path (Lamorbey), the New Eltham roadside waste, the Chelsfield Path, the Oak of Honor Hill, the Herne Hill right-of-way obstruction, the Field Hedges Lane (Frimley), the Mariners Path (Crockham Hill), the St. Martha's Path (Guildford), the Horsell Common (Woking), the Tunbridge Wells footpath case, and the Coxhill Green (Chobham). The committee complains that owing to local apathy it experiences great difficulty in obtaining necessary support and information, consequently it is anxious to found local branches at all important centres in Kent and Surrey.

New Zealand Apples will not be sent to this country this season, owing to a rupture between the fruit growers and the Colonial government. The Government guaranteed one penny per pound as a minimum, and at this rate a number of growers were willing to ship fruit. Later, however, the Agricultural department made a condition that shippers should advance five shillings per case to cover expenses, beside payments of other kinds, and make their own arrangements as to consignment. The Auckland Fruit Growers' Association took the lead in breaking off negotiations with the Government after these radical alterations of conditions.

An Italian National Chrysanthemum Society.—We are informed that a few amateurs and others interested in the chrysanthemum have formed a provisional committee for the purpose of organising a national society in Italy. Among the names we notice those of our friend Mr. Briscoe-Ironside, Mr. Scalarandis, and others. The lines upon which the new society is to be established are somewhat similar to those of the French N.C.S., and include the promoting of shows in various parts of the country, the publication of a monthly journal, and the granting of medals, diplomas, and subsidies. A preliminary circular has been issued, and as soon as a sufficient number of applications has been received is is expected that the society will take a definite form Mr. Paolo Radaelli, of Milan, is the provisional secretary.

Fruit Cultivation at Las Palmas is beset with not a few difficulties, though with capital, requisite knowledge, and perseverance, these may be overcome. The business is not all pleasure and profit, and Vice-Consul Ferguson does not encourage emigrants. He states that people who want to conduct a fruit business in Las Palmas must have a perfect knowledge of the English market and its requirements, where to, whom to, and how to send their produce home, and, most important, when to send it and when to throw it away. They must be prepared to enter into contracts to sell the whole produce of a given standard of size and quality that the contracted land produces at a stipulated price per one hundred pounds in the case of tomatos and potatos, and at per bunch of so many "hands" in bananas. That means they must have the necessary capital, so that in a dry season, such as last year, when, owing to no rain having fallen, the heat, and concurrent causes, they can afford to take and handle all the fruits, which, unfortunately, ripen and come forward at the same time, making the balance of the home market go wrong, and themselves too if not strong enough to tide it over. In other years the *maleza*, a kind of mildew, will be prevalent, and they will lose all the fruit they have counted on having to ship. The business has large profits when things go right, and, provided the possession of sufficient capital, local knowledge of English markets, good administrative ability to deal with the Spanish fruit-grower, packer, and peon, bodily strength enough to endure long riding in the saddle, under a hot sun, over mule tracks between different villages, and the strain of constant day and night work when a ship is due home, then let them go into the business, and they will prosper; otherwise the best advice is, Don't. The climate is equable, for the tropical heat is moderated by the Atlantic breezes. Winter is almost unknown on the coasts. The east and south-east winds are the scourge of this island. Blowing over the burning plains of Africa, they carry an intensely hot and dry air, which destroys vegetation, and induces disease. The absence of severe cold makes it a pleasing retreat for invalids, and the slight variation of temperature leads many to resort thither. But the very mildness of the atmosphere makes it less attractive to those who prefer a bracing air, and enervating to those engaged in active employment. Then to live as Englishmen live at home, with plenty of fresh meat, is not easy in Las Palmas; land not the least difficulty is the postal arrangements.

Sewage Farming at Congleton.—Mr. W. Bowler has been conducting a large number of experiments at Congleton with the town sewage as a manurial agent for farm crops. The results confirm what has already been found, viz., that carefully used the sewage is a splendid fertiliser, and will increase the yield of some crops as much as fifty per cent. With regard to wheat production, Mr. Bowler states that the increased yield is produced at a cost of less than 1s. per bushel, and that the expense in sowing, reaping, and threshing was practically the same as for the poorer crop. When we consider, he continues, that London destroys annually what would produce fifty million bushels of wheat, which London could restore to the farmer at a cost of 1s. per bushel for the wheat produced, we are forced to the conclusion that no sin could have been greater against Nature. The farmer cannot help himself in this matter. He is practically asked to produce calico without cotton. His whole duty is to feed the teeming population of our great cities, and he naturally looks to the cities for his necessary raw material in return. They offer him, not bread for his co-workers of Nature, the bacteria of the soil, but stones. What, then, would be the consequence if the vast stores of raw material (the base things of the world, which are despised, and which the insatiable maw of the ocean now swallows) were made accessible to the British farmer? Who can limit the increase of national wealth, national employment, and national home-grown food which would accrue to our country if a true natural method of sewage disposal were established in place of the many tinkering artificial devices by which man's prentice hand has tried in vain to improve on Nature both as regards "artificial" manures and "artificial" methods of sewage dispos

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

I REGRET to have to announce the indisposition of Peter. For some time past he has lacked his usual sourness, and been affected by sudden bursts of hysterical cheerfulness. This alarming symptom was followed by another equally amazing and grave. I caught him with pencil (a stump one inch long) and paper (a wrinkled sheet permeated with an odour of tobacco) in obscure corners of the garden, making jottings with an air of desperate and awe-inspiring malevolence. A rumour then reached me that he was preparing a column of notes of his own for the GARDENERS' MAGAZINE, in which various "experts" were to receive such a taking down as they have never experienced in the course of their misspent lives. Happily, however, for their repose and reputation, the unwonted effort has exhausted Peter, and he has disappeared, leaving word that he had been ordered a change of air. He may have gone to the Ghent quinquennial, led on by those wonderful illustrations; he may have gone to the wars; he may have gone to select a new site for the Horticultural Hall. The only things which are certain are that he is not here, and that his manuscript is missing also.

On learning the nature of Peter's task, the result of which I awaited with mingled curiosity and trepidation, I had contemplated a brief respite from literary labour. It seemed to me certain that his communication would have been of so fearful and wonderful a nature that readers would have clamoured for a suppression of the Luxian in favour of the Petronian mixture. As it is, I find myself under the unexpected necessity of girding myself for fresh literary labour. Just at the moment I appear to be at peace with the world, whatever dread onslaught may be looming in the future. There has been no second "evening dose" to disturb my dreams. I will take advantage of the lull to speak of a visit to a friend whom I call the orchid oracle, and of a wonderful new form which will soon see the light. The orchid oracle is steeped to the eyebrows in orchid lore. He knows every one of the thousands of forms, their habitats if imported, their pedigree if cultivated hybrids. He is a walking encyclopædia of orchid information.

There is more than one orchid oracle in existence, but, like the champion cyclist, he is rare. My oracle stands high amongst his fellows, and when I paid my visit I found him gazing abstractedly at a square enclosure of paper in one of his houses, deep in a day dream. Around were thousands of plants, some spearing through like grass on a new lawn, others large specimens with quaint and wonderful flowers. For the nonce they were all forgotten; his thoughts were absorbed in the precious jewel which was shielded from the vulgar gaze beside him. I knew my man, and let him think on. Before me was a strange cypripedium with flowers of pearl, such as I have never seen gracing Mr. Chamberlain's button-hole in the House of Commons. It was a rare bloom of the Lady's Slipper tribe, with milky sepals and pouch, and tails drooping like frosted wire below. So chaste, so beautiful, so valuable a find must have a marvellous rival indeed, methought, that it cannot win even a thought from the artist whose skill has brought it into being. Presently the oracle awakened. He smiled to himself in silent gratification, then stretched out his hand as though to lift the veil and gaze once more on the goddess beneath; but my voice made him drop it, as though he had a chess-board before him and had been about to make a move that he now perceived would have led him to destruction. He breathed a sigh of relief on seeing me, and I led the conversation to the milky cypripedium so as to let him recover his self-command.

It was a pure white form that he is after, he told me, a Sedeni candidulum, let us say, with sepals, tails and labellum chaste as the driven snow. It will be a treasure that orchidists will gaze on with delight, and the possession of which they will vigorously contest. Orchid journals will announce its birth, committees will sit in consideration upon it, and its price will be as a poor man's annual income—when it comes. Then there is the lipless kind, a paradoxical plant which Nature has produced for the evident purpose of setting hybridists at work to make a lip for it. A cypripedium without a lip! It is as a monkey without a tail, as a donkey without ears! The oracle is worried by such a palpable monstrosity, and so he is crossing it with lipped forms in order to astonish the orchid world with a new work of art.

There is, too, a new cattleya of ivory whiteness, with pink and magenta veinings and tinges of gold, a form of surpassing beauty, and redolent with the delicious odour of honeysuckles. This is another hybridising triumph. Its production, like that of the others, has not been the work of a season. The orchid does not yield up its treasures with the swiftness of a vulgar nasturtium. It develops its growth slowly, advancing, tortoise-like, year by year, building up strange, twisted, gnarled stems and swollen bulbs, until at length the period of probation is passed, the colours are mixed on Nature's palette, and the wondrous flowers gush forth in brilliancy and beauty. It is as the transformation of age into youth, as the change from the dull cocoon into the dazzling, fluttering butterfly, as the metamorphosis for which Faust bartered his soul. But the orchid oracle's task is not a Mephistophelian one. He notes the attributes of this species and that, the beautiful form of one, the perfect colouring of another, and then sets to work to unite their respective qualities in one flower. He cross fertilises with care, sows his seed when ready, watches the little strangers through the tender stages of seedlinghood, waits patiently year after year as they develop leaf by leaf, and inch by inch of stem, and then, when the flowering time comes, what is his reward? Sometimes a number of variations that he had never anticipated, a family of brothers and sisters differing each from each, but none valuable; sometimes one grain in a heap of chaff, one stone that will be worth the polishing, and the rest worthless.

In the orchid oracle's laboratory there are few prizes and many blanks, but his work is absorbing in its interest, and his disappointments are but as clouds beyond which is seen the coming sunshine. What time is lost in raising and cultivating new seedlings which prove to be worthless? There is some acquisition secured, sown perhaps some seven or eight years ago, but watched with all a mother's devotion, season after season, until at length it gives its reward. So we wander amongst them, million on million, house after house densely packed, a priceless collection, with many a pause to admire some choice sort, or to speculate on the prospects of a slowly-developing hybrid. And at length we come back to the tent of paper, where the latest and greatest treasure is hidden away. As yet no outsider's eye had rested upon it; the orchid journals had not announced its birth, nor committees sat in consideration upon it. My friend the oracle was, I could see, going to testify his appreciation of my visit and of our chat by giving me the honour of being the first of the general public to gaze upon his precious bantling.

I saw a noble cattleya, with sepals and petals of richest mauve, glistening and shimmering in the sunlight like the sparkling of distant waters. Its surface was smooth and of silky softness, but there was a ripple-like play of colour upon it, as there is in the phosphorescent coruscations on a moon-bathed sea. No vagrant breath of air moved the satiny petals, yet the play of light on their shining folds gave an appearance of gentle oscillation. In the cavernous recesses of the throat were golden veinings, as though they were paths leading to some cave of treasure trove deep down in the heart of the flower. The lip was a carmine of the intensest depth, with purple shadings added, as though there were not warmth and glow enough without them. Not only was its beauty great, but, as the oracle hastened to point out, it gave its glorious blossoms with a lavish freedom. It was a gem indeed, a pearl of great price, and an amateur had eagerly secured the first claim on it at a price which made me cease the wild, foolish jingling of gold in my trousers pocket, and turn regretfully away.

LUX.

DISA LONGICORNU AND D. MACULATA.

WAS there as much evidence in the tubers of the Cape disas as there is in some plants to indicate their requirements, no doubt more success would have been attained in their cultivation by persons with a wide knowledge of plant culture. Could they see the hard, wiry leaves and stem of the blue disas mentioned in my last note, and the soft, ordinary-fleshed ones of the two above-named species, they would at once conclude there must be a difference of treatment to ensure success with each. Probably it may have been observed that the tubers of some are covered with a soft wool, as it were, while others are quite bare and smooth. The extent to which this is developed seems to be in proportion to the dryness of their habitats; and were its parts properly examined doubtless they would be found similar in structure to "root-hairs," and so be the means of obtaining the greatest amount from a very small supply of moisture.

However, be that as it may, Disa longicornu and D. maculata are very different to the others, both in appearance and the conditions under which they are found in a wild state. They are also more rare and [illegible] in their distribution, D. longicornu being confined to Table Mountain and D. maculata to the Muizenberg and Hottentots' Holland Mountains. The flowers of both are of the same exquisite shade of blue, with the hood more or less distinctly veined with green. D. longicornu is readily known from D. maculata by the broader radical leaves and shorter stem, with a much larger flower and a hood terminating in a blunt spur from one and a half to two inches long. D. maculata has more attenuated leaves and stem, and only a blunt projection, scarcely sufficiently developed to be called a spur, to the hood. The whole plant is seldom more than nine inches in length, being about three inches longer than D. longicornu. The colour, combined with a dwarf elegant habit, should make them great favourites with lovers of this class of orchids.

During November, when in flower, the clumps of D. maculata on the ledges or in the crevices of perpendicular rocks are very effective. Viewed from below, with the clear sky overhead, the flowers are almost imperceptible; but in a side view, with the rocks for a background, the elegant poise of the sky-blue flowers on slender ascending scapes is [illegible] to advantage, and creates in one a vain desire to transport them [illegible] to where their unique charms would be greatly appreciated. In December and January D. longicornu, like a sapphire on an elaborate setting embossed with emeralds, is occasionally found studding the face of rocks draped with the lovely filmy Hymenophyllum rarum or the common H. tunbridgense. The well-known partiality of these associates determine at once the amount of percolating moisture that must be present for a greater part of the year. Yet from January to April or May there is a deficiency of moisture, debarring the tubers from retaining the freshness of those with a constant supply, and during which time the disa obtains its necessary rest. The little sun they could possibly obtain would be early in the day, as both disas are only found on the shady or southern side of rocks, usually at the base of the steep banks of wide ravines.

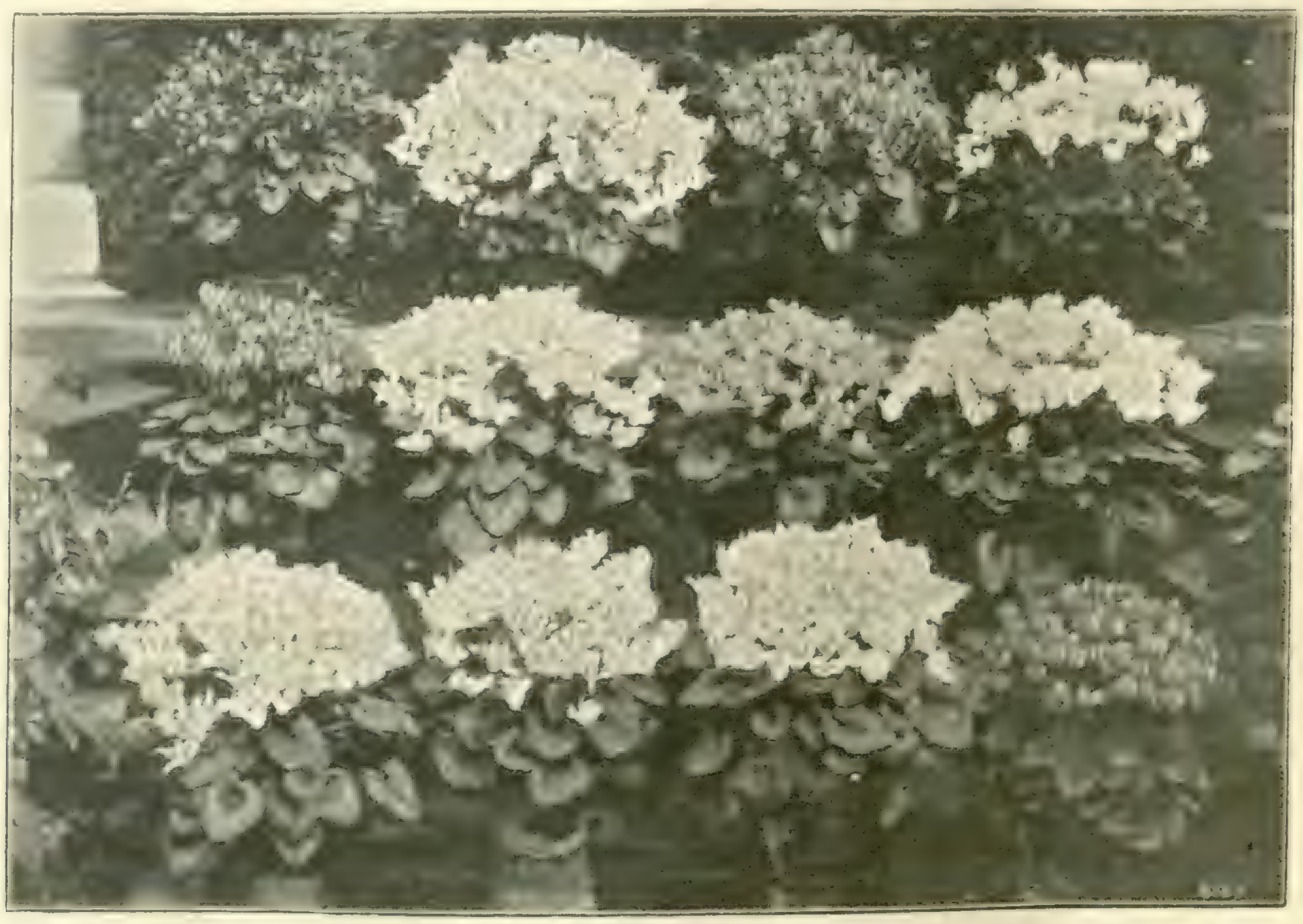
The treatment to ensure success would seem to be that usually given to similar tuberous plants. That is, an abundance of fresh water up to the flowering stage, then gradually diminishing the supply as the flowers wither, until they are at perfect rest, when a shelf in the intermediate house would be an ideal place for them. The soil should be an open fibrous peat, perhaps more spongy for D. longicornu than for D. maculata, which has also a longer rest commencing in December. In their habitats they obtain all possible light without direct sunshine. And we can scarcely think the perpendicular position would be essential to their well-being.

J. W. MATHEWS

Cape Town.

CYCLAMEN AT KEIR.

WE have on previous occasions illustrated in these columns some fine examples of cyclamen cultivated in various parts of England, and showing a very high degree of excellence. We now have the pleasure of presenting to our readers an illustration of twelve specimens of cyclamen grown beyond the Tweed. These are the pick of a splendid collection cultivated by Mr. T. Lunt, gardener to A. Stirling, Esq., at Keir, Dunblane, Perthshire. Mr. Lunt has for a long number of years been widely known as a first-rate cyclamen grower, and as an exhibitor he has been almost as widely respected by competitors, A reference to the illustration will serve to prove that Mr. Lunt is not easily beaten with these useful winter and spring flowers, and that the foliage on his plants is strong and healthy, thus forming a splendid setting for the wonderful quantities of large substantial flowers above.



CYCLAMEN AT KEIR, PERTHSHIRE.

MARIE LOUISE VIOLETS.

THE cultivator of these charming violets who has not the convenience for rooting his stock in frames previous to planting, should split up his plants during the present month. When runners have been suppressed the crowns multiply, so that when divided these are each provided with a fair share of roots. Such divisions are planted straight away into a piece of good ground where they are encouraged as much as possible all through the summer. The aim is to prevent the formation of runners and to develop stout crowns and strong leaves. Partial shade during the greatest heat of summer should be afforded. In September these plants are lifted and placed in brick pits that face south; by planting at this time, and giving a little extra care for a week or so, the plants become thoroughly established when dull November arrives.

Marie Louise violets planted later than September almost always collapse during a long spell of dull weather. Water must be carefully given in winter, and it is safest to err on the side of drought. All runners must be kept pinched off, and also all small leaves and decayed foliage, so that damp is not harboured and rot prevented. When thoroughly established these violets should not need water during December, January, and February, unless the weather be exceptionally bright. About fifty well-grown plants are sufficient for a pit the size of an ordinary two-light cucumber frame.

Marie Louise violets, if rooted early, do very well out of doors in partially shaded places, giving a crop of flowers during autumn, and another in the spring, provided they pass the winter safely. They can also be cultivated in pots or boxes, and in the former they are useful for standing in rooms, when in flower; forcing they object to, and if subjected to heat, quickly dwindle away and become infested with aphis. The cold pit is the best place for the cultivation of Marie Louise violets, and if well rooted, placed near the glass, carefully wired and watered, they will repay the trouble taken.

A DORSETSHIRE GROWER.

Forcing Strawberries.—I was very pleased to note that Mr. Wythes finds La Grosse Sucree such a valuable forcing strawberry. That, too, is my experience, and especially from its very free setting qualities when under difficulties. It happens each year that one or two of our batches have to occupy positions when in bloom that prevent anything like a good set on moist varieties, but La Grosse Sucree rises superior to the position and sets really well, and for that reason I work on a batch or two to come in to meet the difficulty. The natural habit of the plant, which is to make one crown only, and that a good one, on young plants is all in its favour, and it forces really well in five-inch pots; indeed, it is my practice to use no other size for it. Taking it altogether it is really the best of all varieties tor those who have to force their strawberries under the difficulties found in houses where the occupants are of a mixed nature.—J. C. TALLACK.

THE EAST LOTHIAN STOCK.

THOUGH coming somewhat late in the season for my remarks anent East Lothian stocks to be adopted generally, there may be some which may yet be practically followed up with advantage. It is a remarkable fact, though true, that seldom in the southern counties are these stocks seen in the same perfection as in the cooler temperatures of the northern and western counties. This defect is generally attributed to the excessive heat, and accompanying arid conditions so detrimental to vegetation; and, while agreeing that climatic circumstances exercise some influence over their growth, I am of opinion that we are in a greater measure responsible, and that the lack of practical knowledge of the requirements of this most useful subject, or the failure to exercise such knowledge, is the rock on which our hopes perish. I am justified in making this assertion, after having given the matter careful consideration, and in repeated trials, now extending over several years, I have been able to produce crops of superb flowers, as rich in colour as those seen in Scotland—the home of the subject under notice; though I must admit the season was proportionately shorter. Especially was this so in the tropical summer of 1893.

For seed sowing I find from about the middle to the end of January is a good time. The seed is sown in the ordinary way, in pans or boxes, covering them over with about an eighth of an inch of finely-sifted soil. The pans are placed in a vinery at work, which at that season has an average temperature of 60 degrees. As soon as the young stock is fairly through the ground a change into a cooler and dryer house is essential, as at this stage the plants are liable to "damp off"—a gardening expression descriptive of a condition brought about by an over accumulation of moisture. Directly the third leaf is formed the seedlings are subjected to a necessary process, viz., pricked out—*i.e.*, transplanted into quarters in which the tiny plants are afforded space for subsequent development.

Strong cutting boxes are here requisitioned, and I find those prepared from three-quarter inch deal, and made into the following sizes are most suitable, twenty-four by sixteen by four inches; the depth should be still made shallower by having a liberal quantity of drainage placed over the bottom, over which is again placed a layer of well-rotted dung. The soil we use is composed of loam two parts, and one each of mushroom-bed compost, sand, leaf soil, and a dash of soot, and the whole, when well mixed, is fairly well pressed into the boxes. About two and a half inches either way is allowed in pricking off, and this gives ample room. A nice growing temperature is again of considerable advantage, but water must be very carefully and sparingly applied until growth is active; a peach house having a comparative shade is an excellent site at this stage, and then the plants are gradually inured to cooler quarters as they gain size and strength, until about the end of March a frame in which frost is excluded only may be utilised; here the lights must be kept close for a few days, by which time the plants will have taken to their new quarters.

About the middle of April the final planting takes place, and a word as to the preparation of the soil may not be out of place. During the winter months the ground is trenched deeply and a liberal coating of manure placed at the bottom. I use cow manure on account of the lightness of our subsoil, and consequent drought in the hot summer months. The surface is left quite rough that the frost may the better penetrate the staple. In March the whole is deeply forked over, turning it well up. This stage affords opportunity for applying a dusting of soot and dissolved bones, or any of the much-advertised special manures may advantageously be applied. In planting, the plants are placed eighteen inches either way, made firm, and afforded a good soaking should the ground be dry and no immediate prospects of rain apparent; it is always advisable to pot up a few dozens of plants to take the place of any showing single flowers. Water in very dry weather is given once weekly.

Roehampton. J. F. MCLEOD.

MECONOPSIS WALLICHI.

THE Himalayan Poppy is one of the most attractive of hardy biennials, but it is not often met with in gardens; indeed, there are few places where it is grown in any quantity save at nurseries, where hardy plants receive special attention. It is very effective in masses or clumps, and we have grown it for several years in this way. The plants usually attain a height of from five to six feet, with stems as thick at the base as a man's wrist, and they begin to expand their blooms about July, continuing till September. The flowers do not open altogether, but at short intervals, commencing at the top of the stem and continuing downwards, each bloom is cup-shaped, and of a most pleasing shade of pale blue. The foliage of Meconopsis Wallichi is of a very light shade of green and harmonises with the flowers.

The position for the Himalayan Poppy should be a shady one, and sheltered from heavy winds and gales which are most injurious to them. In preparing a bed for them the natural soil should be dug out to the depth of eighteen inches, and if there is not sufficient drainage a little may be added. Then fill the hole up with a compost consisting of half each of boggy peat and rough leaf soil, coarse sand, and a little old chrysanthemum soil should be added, when the bed will be ready for receiving the plants. The early spring and autumn are the best times for planting. When in flower this meconopsis is a great attraction to bees, which pay great attention to it after a shower of rain has fallen on the blooms. Gathering the seed is of great importance; the capsules should be watched every day during September, and when they open at the top, and the seed is seen to be of a dark colour, it is quite time to gather, store in shallow boxes, and place on a greenhouse shelf in the sun for a few days, when the seeds will fall out of the capsules and be ready for passing through a hair sieve to clean them previous to sowing.

Germination is rather a difficult matter. New seed is the best, as that a year or so old seems to have lost its vitality. Indeed, I am quite convinced that with all hardy plants if new seed was more used there would not be so many failures. My method for sowing Meconopsis Wallichi is to procure a clean five-inch pot and put in it about two inches of drainage; over this some rough leaves or soil to keep the finer compost from washing down; fill up with sifted leaf mould and old potting soil with plenty of sand. Give the soil a good watering with boiling water to kill any insects that may be in it, and when it is cool it will be ready for the seed. This should be distributed evenly over the surface, pressed into the soil, and covered very slightly with the same compost. Cover the pot with a piece of brown paper and a small square of glass, transferring the pot to the propagating frame where a temperature of 75 degrees bottom heat can be maintained; a hotbed is even better than the former, as the atmosphere is not so apt to become dry. Plunge the pot, and seedlings should appear in about sixteen days from sowing; keep the sun from these at all times during the seedling stage, and do not allow them to suffer for want of water. A good position for the seedlings is a greenhouse, from whence, after a few weeks, they should be removed to a cold frame and kept near the glass. Slugs are very fond of the seedlings and must be guarded against. When they are fit for handling it is wiser to prick off the tiny plants into light sandy soil in pans. When large enough they should be potted into three-inch pots, using a coarser compost; from such pots they can be planted out where they are to flower.

Meconopsis nepalensis is also a pleasing species with bright yellow flowers that expand a little earlier than those of Wallichi. I find the end or the beginning of the year the best times for sowing the seed, as then there is a longer season of growth before planting time. I have now a nice batch of M. Wallichi, which was raised from seed sown in January this year, and will soon be ready for pricking off into pans.

Totley Hall Gardens. T. W. BIRKINSHAW.

STARVING OLD TREES.

EXPERIENCED cultivators have long been familiar with the facts you so forcibly urged on your readers recently. Could the trees be heard their cry would be for something much more, and better, to eat as well as drink. As I used to tell my hearers when lecturing on Horticulture in East Anglia, we are all familiar with the saying, "All work and no play makes Jack a dull boy." But it is equally or more true that all out and nothing in must end in making garden, orchard, park or street trees—lean, poor, worthless. I once asked a fruit grower who was grumbling loudly as to the miserable state and profits of his orchard, if he had kept any record of the many tons of fruit he had gathered during the forty years he had held it, and how much he had given the trees to eat during that long period. He confessed that he had kept no record of the former, and as to feeding the trees, so far as he knew they had had nothing. Nor had he ever heard of trees eating or drinking like Christians, or horses, or bullocks before, and he evidently thought he had the best of the argument. The feeding and planting of trees is one of those things they do much better abroad than at home. In Paris and other foreign towns each tree may be said to have its own feeding trough and drinking fountain, and both are kept more or less full of good things. Air is also admitted to the roots through open spaces or iron gratings, and this air enables the food, water, and manure to be absorbed and assimilated, and the overhead watering of trees abroad on the eve of sultry days is among the more refreshing sights and sounds to Britishers. Were all our mayors and a few leading councillors to see for themselves our present methods of thrusting tree roots down among a hard and huge network of water, gas, and sewage pipes, and then sealing out all the feeding, genial influences of earth and sky by an impervious, impenetrable layer of concrete, some good might be done. Under such cruel environments the marvel is less that so many trees languish and die than that any live.

D. T. F.

THE TWOFOLD PRODUCTION OF PLANTS.

A TREE, properly so-called, is not a single individual, but is an actual tribe or association of families springing from the parent trunk; closely associated with each other in collateral contiguity and compact union within one stem; yet each preserving a distinct separateness of vascularity, living principle, nutrition, growth, productivity, and subsistence. It is now generally taught that every bud is a distinct offspring of the tree or branch from which it protrudes. [?] When it has come forth into life and form, it pushes its own vessels downwards, inside the parental bark or rind, to the earth, from which they then begin to draw a separate nourishment adapted to promote their development. [?] This they forthwith proceed to transmit to the newly-born shoot, and thereby enable it to expand into foliage and general enlargement. This produces also latent roots which descend into the earth and become the fibre of the wood. Professor Burnett says that every bud should be considered as a distinct individual, containing, at least virtually, roots, leaves, and flowers.

So we find that every ramification of buds, from itself, are so many new individual descendants of the general parent trunk, and the whole tree thus becomes and exists in the state of a large society, or affiliated tribe of distinct individuals, intimately associated together. Hence it follows that all trees and some flowers may be planted by slips or cuttings. For example, the mulberry tree has been raised by planting so large a branch in the spring that the same bore fruit in the summer of the year following. The late Mr. Jaquelin relates that in his garden on one occasion some dahlia branches were broken off by the wind. He placed them in the ground desiring to secure the leaves. In this he did not succeed, but the plants lived and were after a time found to be furnished with tubercles. Here was a new means of multiplication. So we see that branches or cuttings often grow into all their functional organs, and have their principle of life as fully within them as the newborn young of any animal. It appears also that plants produce either shoots or flowers, according as the circumstances under which they are situated lead them. After a long production of shoots without flowers, a vegetable has, when its nutriment, from neglect, has become insufficient for its ramifying elongation, suddenly disclosed its floral organs; and in this way prepared for an offspring by its seeds, when prevented from perpetuating itself by branches; thus evincing that it had received the power of varying its mode of organic reproduction according to the immediate expediency.

Solandra grandiflora, a West Indian shrub, was for many years cultivated in our stove houses and propagated extensively by cuttings. Each plant grew many feet in every season, but these showed no signs of prolification. Left accidentally without water in the stove house at Kew Gardens, the luxuriant growth of its branches was checked, and a flower, for the first time, came into blossom at the extremity of each. Similar treatment has often since produced like results. We see this same principle in the fact that when plants are checked in their growth by cold and frost one effect is to force them prematurely into bloom. This proves conclusively that plants have a twofold mode of perpetuating their species, viz., by branching or by seed. Each is equally effectual, for every new twig is the embryo of a new tree. In the one case the tree completes its offspring within itself, in the other it makes it ready to be subsequently completed, leaving it to undergo first another process—that of hatching in the egg and of germinating in the seed, before the new comer is perfected. All trees have this double power and can exert it. They make new leaves and twigs when not forming flowers and fruit. It is from this action that when a plant luxuriates in foliage it forms fewer flowers. This stops the producing energy from bringing forth shoots and to use its other faculty in producing flowers. Much nourishment results in giving too much vigour for the floral process, but induces ramifications and leaves. With less food it employs itself in the more delicate and beautiful operation of framing its corolla with the attendent stamens, stigmas, and pollen. This explains the apparent phenomena of floral organs changing into leaves, and of green leaves transmutating into those of the flowers. Only one instance is recorded of petals changing into stamens, which occurred in the black currant, but nothing is more common than the alteration of stamens into petals. It is really indifferent though to the living principle into which the nutrition is converted, as either answer equally well for the purpose. In fact, it is a matter determined by circumstances. If interrupted in the elongating process it resorts to the floral. Interfered with again it returns to its foliage. It forms the stamen as a floral instrument, but if disturbed, makes a corolla or stigma, and forms a stamen at another time, or a leaf perhaps instead. The living principle, it is clear, has the choice of doing either, and would seem to do that which it considers best or easiest to perform. Its law is to multiply, and it religiously follows that law.

WM. NORMAN BROWN.

Cactus Dahlias.—In the garden one of the worst features with many varieties of cactus dahlias is that they fail to throw their flowers well above the foliage, but this is being gradually remedied with the newer varieties, and the failing will no doubt be eventually overcome. The following comprise some of the best varieties: Harry Stredwick, dark crimson-maroon; Starfish, orange-scarlet, good; [illegible] Cycle, ruby red; Keynes' White, good white; Mrs. Wilson Noble, pinkish salmon, free; Mrs. Montefiore, deep crimson scarlet; Fusilier, salmon pink; Matchless, velvety maroon; Mrs. Francis Fell, white, drooping habit; Lady Penzance, sulphur yellow; Gloriosa, bright red, tall grower; Bertha Mawley, cochineal, dwarf and free; Mrs. Barnes, pale primrose, tipped pink; Delicata, soft pink; Harmony, reddish-bronze, yellow centre; Countess of Radnor, delicate salmon; Mrs. Turner, deep yellow. The free-flowering pompon varieties are also very useful for garden decoration and for cutting, the small flowers on long wiry stems being always admirably adapted for the latter purpose.—C. HERRIN, *Dropmore.*

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," Price 1s., containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

VEGETABLES FOR EXHIBITION.

RHUBARB.

FEW kitchen garden crops give better returns for high cultivation, and few are more remunerative than rhubarb. It answers well when forced, and it is highly prized in most households for Christmas, and until green gooseberries are ready for use. It revels in a rich, light, sandy loam, but any highly cultivated land will produce it in good quality. It is a deep-rooted plant, consequently the land should be broken up to a good depth. To produce rhubarb of the highest quality, a good open site should be given it, and the ground should be thoroughly trenched, and made very rich with farmyard manure during early autumn to a depth of three feet at least, and the planting should be deferred until the end of February or the first week in March. Nothing is gained by overcrowding, indeed, it is far better to err on the side of liberality of space than otherwise. Four feet from plant to plant is a fair distance, and when more than one row is planted, they should be five feet asunder. Good deep holes should be taken out with the spade, so that the roots are not crippled in planting. The finest of the soil should be carefully worked in, and the crown should be just buried, after which the surface should be mulched with some short stable manure, this being forked in about the second week in April. On no account should any of the stalks be pulled the first season, for the young plants must receive every encouragement to become thoroughly established as soon as possible. Simply cut out any flower heads that may appear, and keep the plantation free from weeds, and this will be all the attention required unless the season should prove a very dry one, and then occasional waterings will greatly benefit the crops.

Early in the autumn, after the growth is completed and has died away, apply a thorough dressing of half-decayed horse manure, which should remain till early spring, when it may be forked in as before advised. If the plants do well good rhubarb should be pulled the second season, but this ought to be done with discretion, as a reasonable amount of growth must be left to allow the plants to build up good crowns for the following year. It is well to keep this always in mind, as it is a common practice to pull rhubarb much too late in the season, and this must considerably weaken the plants for their next production.

Few subjects force more readily than rhubarb if suitable kinds and strong, well-ripened crowns are prepared. Many modes of forcing are practised, but for the earliest supplies by far the easiest and best plan is to lift a few roots each year immediately the growth has died away. For this purpose a small plantation should be grown on a south border, as here the crowns will become thoroughly ripened, and thus answer to early forcing most readily. These plants, after hard forcing, are not worth replanting, so that it is well each year to divide roots and keep up the supply. I know of no more suitable place than the mushroom house for bringing rhubarb forward, but failing this, the forcing house proper; a warm pit, greenhouse, or cellar will answer the purpose. For a succession I much prefer forcing the plants on the ground. Suitable tubs, with the two ends removed, but one end utilised to form a lid, are much to be preferred to rhubarb pots. Just sufficient fermenting material, such as long stable litter and leaves, which will create a sweet gentle heat, should be placed about them, and from well-established roots very large quantities will be produced. It is well to bear in mind that a season of growth must be allowed the plants afterwards, to allow them to recoup themselves before another forcing season; the tubs and forcing material must be removed as soon as the plants show signs of weakness, and the ground forked up and made neat and tidy. On no account should the same roots be forced two seasons in succession. For a further supply previous to pulling outside, tubs should be placed over other roots, but without any fermenting material, and this will afford sticks of excellent quality, and the tubs can be removed very easily from one root to the other, and so the danger of weakening any of the plants to any great extent is considerably lessened. The stock of rhubarb is easily increased either by divisions or seed, but I much prefer the former plan. Anyone, however, wishing to try their hand may easily raise a stock from seed, though these seldom come true to name. The seed should be sown on a warm south border, or better still in a cold frame early in April, and the seedlings should receive every encouragement during the growing season, and be planted out in their permanent quarters the following spring.

Rhubarb is frequently staged in large quantities at many of our summer shows, and enormous sticks are often seen. Like many other productions staged, mere size appears to be the principal aim and practice and this, in my opinion, ought not to be encouraged, as quality should certainly carry most points. The chief points should be high colour, length, and straightness of the stalks, and size, of course, if quality is combined with it. The plants should be thoroughly mulched, and well drenched with liquid manure frequently; that from the farmyard is preferable to all other. The most promising sticks should be selected, and these should be staked carefully to keep them straight, but in such a way that they are not in the least scratched nor bruised. Six sticks are generally exhibited, and they should be as near alike as it is possible to have them. Carefully pull and trim the leaves, leaving about two inches which will improve the appearance of the sticks. Sponge in clean water and neatly tie together with broad pieces of bass.

The varieties I can recommend thoroughly are, Johnston's St. Martin's, very quick and early, and of excellent quality; Royal Albert, a fine old variety, also useful for early work; Myatt's Victoria, though old, is still one of the best; Hawke's Champagne, a fine, highly coloured kind and of good quality; Kershaw's Paragon is a comparatively new introduction, very prolific, and stated never to run to seed. We have grown this somewhat largely during the last five years, and I have never once seen a flower-head on it, which is undoubtedly a great gain. Stott's Monarch is a very large variety, and one of the best for exhibition.

Aldenham House Gardens, Elstree. E. BECKETT.

ACHIMENES.

THESE beautiful gesneraceous plants are invaluable subjects for the decoration of the stove or conservatory, and should commend themselves to all plant growers, for they are easy of culture, and the flowers, which are borne in great profusion, are of diverse and pleasing shades of colour. If the tubers are potted up in two or three successional batches in the spring, the flowering season will be prolonged considerably.

Achimenes make beautiful objects for baskets, for which purpose the colours have a more striking effect if mixed, which may easily be accomplished by dibbling into the moss (with which the basket should be lined) such varieties as the following, which will be found amongst the best for general purposes: A. Ambroise Verschaffelt, A. longiflora major, and its companion, A. longiflora alba, and A. Dazzle. Another very exquisite arrangement may be effected by mixing A. longiflora major and L. alba with A. Sir Treherne Thomas. Other varieties which I consider worthy of cultivation are: A. Aurora, A. Mauve Queen, A. Masterpiece, A. Eclipse, A. Pink Perfection, A. Stella, and A. Williamsi. The varieties enumerated here are all of good habit, being alike suitable either for exhibition or general decoration, the colours varying from pure white, through all the shades of rose, carmine, and crimson, and a few varieties are richly mottled or striped with a deeper colour.

While in a growing state the achimenes luxuriate in a warm and moist atmosphere, but during the flowering season they should be removed to a cooler situation, such as a greenhouse or conservatory provides. The compost I have found admirably suited to the achimenes consists of two parts peat, two parts leaf-soil, and one part each of loam and well-decomposed cow or sheep manure, with a liberal addition of coarse silver sand, the whole to be well mixed and passed through a half-inch sieve. For all ordinary purposes pots will answer well, but for exhibition rather shallow pans are preferable, which should be amply drained, placing over the crocks a good layer of moss, or the rough riddlings from the soil, over which fill in the compost to within two inches of the top; the tubers may then be sown thinly and evenly on the surface, and covered with an inch of soil. Water must be applied judiciously and sparingly until the plants commence to show that growth has actively begun; in fact, at no time must they be over-watered, for I know of no plants more impatient of stagnant moisture at the roots than achimenes. Some cultivators recommend shifting the young plants when two or three inches high. I prefer to plant the tubers where they are to remain, grow, and flower. As soon as they have become established air must be admitted on all favourable occasions, keeping them at all times near to the roof glass. A temperature which suits well to start the tubers ranges from 65 to 75 degrees with sun heat, giving a thin shading during the hottest part of the day. When the plants have attained the height of about six inches, and before they begin to fall about, they should be staked, commencing in the centre with the longest shoot, and gradually insert the others, so that they slope outwards over the rim of the pot or pan; the stakes should be left about a foot beyond the point of the shoot at the time of tying, and frequent attention will be required in keeping them tied from this time until they commence to flower.

Frequent applications of weak manure water will be very beneficial after the plants have become well established, with an occasional watering with soot water; but as the plants begin to show signs of decay, water must be gradually withheld, eventually placing the pans in a dry airy house, that the tubers may be thoroughly ripened before storing for the winter; a position under the staging of a greenhouse will suit them, or failing this, a cellar, the pots or pans being laid on their side and kept quite dry until the time arrives for repotting.

Achimenes increase very rapidly without any artificial propagation, especially when liberally treated, but in the event of the cultivator desiring to increase any particular variety in a short time, the cuttings taken off in the ordinary way and inserted in pots of sandy soil and plunged in the propagating bed will root quite freely.

Stoneleigh. H. T. MARTIN.

Dwarfed Chrysanthemums.—I do not intend to say one word derogatory of the system so ably employed by Mr. Lyne in dwarfing chrysanthemum plants, a method so well expounded on page 246. I would point out, however, that this system has been practised, in perhaps a small degree, to my knowledge, for the last twenty-five years. The editorial allusions made to the plants in November last would lead us to believe this was entirely a new departure. As far back as twenty-two years, however, I remember seeing in St. George's Hall, Liverpool, a group of dwarf plants growing in exceedingly small pots, in fact, some were but sixty size. In each instance the plants carried but one bloom. These, as may be supposed, were all of the incurved section, the Japanese were but few in number in those days. Many times since that period I have grown batches of these dwarf plants, flowering many of them in three-inch pots, merely for the sake of testing the capability of certain varieties, as to the amount of nourishment required to produce blossoms in any form. In the Liverpool districts it is a common practice, in one garden especially, to cultivate these single-stemmed dwarf plants, especially the new varieties, not only for the sake of their flowers, but to enable the cultivator to obtain a full supply of sturdy cuttings in the succeeding autumn, as it is well known, as Mr Lyne points out, that young plants in smaller pots that have not been subjected to so much excessive feeding as the ordinary grown plants, produce cuttings in a more desirable condition. In many of the handsome chrysanthemum groups at the Brighton show, are to be seen specimens of this mode of culture. Four years ago, I noted some wonderful examples of Viviand Morel in the first prize group there. At Windsor, too, can be seen yearly some of these desirable specimens. With the rapid increase in variety in the Japanese section, a wide scope is provided for the cultivation of these dwarf plants. The incurved section does not lend itself so well to this system of culture; at least, for grouping, either in the exhibition room or conservatory, the Japannese varieties are much to be preferred, the graceful habit of unfolding their drooping florets making them general favourites.—E. MOLYNEUX.

MR. ROBERT FENN.

WHENEVER the history of the potato in the nineteenth century, and specially during the long reign of Queen Victoria, is written, scant justice will indeed be done to the subject if it does not include prominent reference to that veteran raiser and grower, of now some seventy-eight years old, the subject of this notice. Born in Suffolk about 1820, Robert Fenn in very early life manifested gardening instincts in a marked way, although he never became what is commonly termed a professional gardener. The mischiefs of childhood wrought with spade and fork became in mature life elements of the most interesting and valuable work; although, after being apprenticed to a London watchmaker, from whose service he ultimately ran away, in sheer detestation of an occupation for which he had no soul, he later took service with one who was at once employer, friend, and companion, for so many years—the Rev. G. W. St. John, then a young man, and recently appointed Vicar of Stanton Lacey, in Shropshire. Here in the vicarage gardens and grounds Mr. Fenn soon found ample room to develop his strong natural taste for gardening, destroying old exhausted trees, replacing them with others, planting here, improving there, and creating much garden interest. Mr. Fenn tells of how here, in the midst of the potatos he then grew so considerably in 1847—Early Morn, Fortyfold, Scotch Regents, Irish Rocks, Farmer's Glory, and others—he was found by the late T. A. Knight, then of Downton Castle, white as a miller with lime, which he was using so freely over the haulm in the hope of checking the spread of what was then so mysterious a disease, or murrain. But smotherings of lime did nothing to check the ravages of the disease, and for many years, especially during cold, wet ones, the potato crops tottered on the verge of decimation.

MR. ROBERT FENN.

So long ago as 1837 Mr. Fenn began experimenting with potatos, raising seedlings, &c., though many years elapsed ere he could show any beneficial results. To Woodstock Rectory the Rev. Mr. St. John was transferred somewhere about 1848, an eventful political year in Europe, and with him went also his *fidus achates*. It was here, too, that Mr. Fenn issued to the gardening papers from time to time those varied series of articles on potatos which attracted so much attention and made "Upwards and Onwards" almost famous. It is impossible to detail the long series of experiments in cross-fertilisation, using for parents the best varieties of the day; but he finally, and after many years' selection, put into commerce Early Market, Rector of Woodstock, Early White Kidney, Bountiful, Red Kidney, and others, all of which had great repute in their day. It was not Mr. Fenn's aim to produce coarse field varieties, but rather those producing tubers of handsome form in good quantity, and of the very best table excellence. But later he found it needful to recognise that there was a demand for heavier croppers, especially for market purposes, and seeing that the American varieties, then in such extreme and excessive demand, were capable of operating in the required direction, he used these both as pollen and seed parents for the production of what became a sort of Anglo-American race. Prior to this, however, he had raised two varieties that were undoubtedly of good size and considerable croppers. These, both from the same seed-ball, were the once universally grown International and the other Woodstock Kidney. The former was the finest and the handsomest of all white kidneys ever raised, but its flesh quality was very undesirable. The latter was, on the other hand, a variety of high table excellence, and handsome, as well as a fair cropper also. But whilst the flowers of International were quite sterile, those of Woodstock Kidney abounded in pollen, hence it became in all directions a most valuable pollen parent for crossing on to the best of the Americans. Using these and other varieties for such inter-crossing, Mr. Fenn raised several batches of seedlings generally of great excellence, and of these two amongst others have invariably shown very high reputations. Sutton Ringleader was one, and the other the beautiful Reading Russet.

After spending many years at Woodstock, where the name of Robert Fenn became a household word, he purchased a pretty rural property, some thirteen acres, quite a small farm, at Sulhampstead, near Reading, where he has been located some twenty-five years. Here, on an excellent stone brash, with ample room and plenty of time to overlook his pets, Mr. Fenn was enabled largely to develop his instincts, and go on crossing the potato. It is an interesting fact, and well worthy of notice, that varieties of potatos raised fully thirty years ago, if not longer, and the stock of which he has preserved and grown annually, are grown with marked success year after year, literally on the same ground at Sulhampstead, and last year the crop was better than ever. So much for potato deterioration. Later years have been occasionally occupied in the effort to raise a new race by intercrossing Solanum maglia with established garden varieties of tuberosum. Nothing of any special value seems to have come from such crosses, and now the latest labours have been directed to intercrossing Solanum Fendleri, a species apparently little used so far in potato production, in Europe at least. The original tubers were sent to Mr. Fenn by his old American friend and correspondent Mr. Pringle, the famous Vermont raiser. Some definite results in small tubers have been obtained, but a few years may have to elapse ere their value or usefulness can be wholly tested. There is, however, no telling what secrets *re* potatos may be hidden in the womb of time, for the advance made in them, and especially in the production of large cropping and disease-resisting varieties has been remarkable. We have had Paterson, Clarke, Finlay, Laxton, and other very successful raisers, but none did so much to create for intercrossing a safe guide and basis, as did the veteran to whom we have been referring. Where he has sown others have been enabled to reap, and that his labours and teachings have not been in vain is evidenced by the fact that the nation is the richer so far as potatos are concerned.

That Robert Fenn may live many years yet is the hope of all his friends. Physically, he is now, in his great age, a far more active and energetic man than are thousands of others not one half his years. He loves the country and all its rural charms; he loves his garden, in which he delights to labour, and his potatos, for which he has all the affection of a loving father. As was earlier said, not a professional gardener, he has all his life been a born or heaven-created one, and is well worthy enrolment in the gallery of garden patriarchs.

A. D.

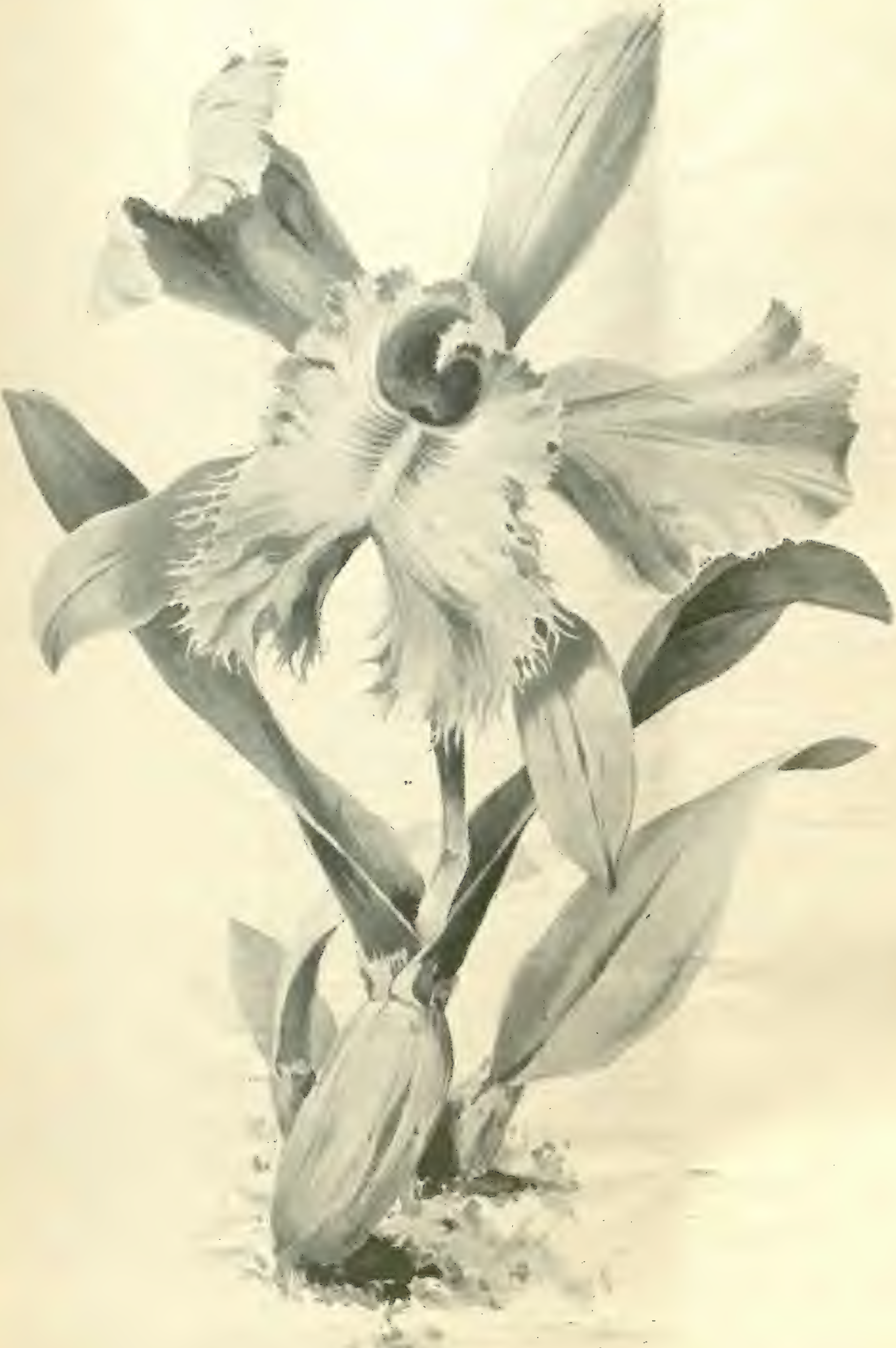
CUCUMBERS.

THREE days in succession, after the spring quarter, we had a real taste of winter; frost, hail, snow and wind, followed by a few days of rain. Yet in spite of this the cucumbers are a success, in every way maintaining a regular supply of fruit. I stop all laterals below the first wire to two leaves, so as to encourage the stem growth, though I do fruit these. All laterals and sub-laterals through the season are stopped to one leaf, and there is a gain on the short-stopping system by not only securing a certain set of fruit but also an increase of crop with shorter lengths of wood. A correspondent has asked how soon he should be able to cut after planting time. This will entirely depend on the means at disposal. I sow seed in the first week of December in an early vinery, and planting the results from forty-eights the first week of February, I cut fruit by the dozen on March 19, and this, remember, without any special hard forcing, though with bottom heat. I had no bottom heat to raise the seedlings, however, so they were longer making plants; yet no doubt when they were planted the change quickly told on them for the better. As they take, under this treatment, a lot of water to keep them healthy, though I have not syringed, it follows that repeated top-dressings are required. This is given weekly in the shape of dressings of soot and soil, silicate and soil, and a little cow manure and soil; the fourth week simply a slight dressing of loam is given, and the fifth week liquid farmyard manure. Do not give any one stimulant in strong doses. The whole surface of the bed is a mass of rootlets which are very precious, and to give an idea of the amount of dressing, in no one crop is the soil raised more than two or three inches. Though shading does not find favour here, yet in the bright weather on the 22nd ult., we had to use Summer Cloud on the west side of one house, as the sun, just shining through in the afternoon, caught the leaves a little.

Cucumber growing is a work of labour if done well, and if the crop will not pay for the labour cucumbers are not worth producing. There is, however, a bright side. The present average per week for young plants is two cucumbers each for cutting, and this will increase directly to three per plant. The aim is to secure straight fruits, and so we have a supply of hanging stones for putting on any inclined to curl, though frequently, before this, we loop the cucumber up, then weight it for the night. Not only does best fruit sell readily, but they are most easily packed. Thinning the young embryo fruits before flowering can be resorted to if the crop is likely to be too heavy for young plants, but a regular stopping and tying must be adopted, for if growth is wild strength is lost. The greatest of all evils that can befall a grower is an attack of eelworms. There is no remedy for this beyond an absolute clear out of soil, washing and starting again with soil from a fresh quarter.

Avoid sudden changes of temperature, and ventilate on the lee side with the sun. The water should always be at the same heat as the house. We have two two-inch pipes in the tanks and they serve us well. I cut on an average a dozen fruits from below the first wire, and this without injuring the plant. Less than a foot deep of soil serves my cucumber crop.

Bottesford Vineries, Notts. STEPHEN CASTLE, F.R.H.S.



LÆLIO CATTLEYA THORNTONI.—(See New Plants, &c., page 298.)

NEW PLANTS, FLOWERS, FRUIT AND VEGETABLES.

LÆLIO-CATTLEYA THORNTONI.

IN this orchid we have one of the grandest of hybrids, and one in which Lælia Digbyana has been used as a parent with Cattleya Gaskelliana. The flowers are on a plan with other L. Digbyana crosses with cattleyas, but here the lip is very long and less circular than in older hybrids. The somewhat narrow sepals are of a soft purplish rose shade, while the broad petals are of a slightly richer hue, but still soft and delicate; the margins of these segments reflex considerably. The huge lip has a big drooping apex, and over this spreads a yellow tint that commences in the yellow throat, and mingles with the rosy ground colour until the latter asserts itself along the frilled and fringed margin. In the centre of the rather square-ended apex of the front lobe, there is a large V-shaped notch that is very distinct. The flower measures nearly six inches across the petals, and is altogether a wonderful production, as will be seen from our illustration page 297. F.C.C., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

MORMODES ÆNANTHEMUM.

A very interesting species, with flowers about three inches across and of a rich ruby-claret colour. The sepals and petals are all about half an inch across at their widest, the former pointing forward and two of the latter pointing backwards. The lip is very curious, the sides folding right back and forming a stiff tube. The column is twisted curiously. B.C., R.H.S., April 26. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Burford Lodge, Dorking.

CATTLEYA MENDELI VAR. BEATRICE ASHWORTH.

A beautiful form, with almost pure white sepals and petals, and a lip that is of the purest white save for the faint lemon-yellow throat. A lovely and chaste orchid. A.M., R.H.S., April 26. Mr. Holbrook, gardener to Elijah Ashworth, Esq., Harefield Hall, Wilmslow.

CATTLEYA SCHRÖDERÆ AMABILIS.

Both in size and colour this is a grand and beautiful variety, its white sepals and blush-tinted broad petals forming a fine setting for a splendid lip, yellow and rosy blush. The lip has a very broad apex, and the yellow throat extends by radiations into the front rosy area; the margin is prettily curled back and exquisitely fringed. Growth and bulbs are strong, and the flowers of great size and substance. A.M., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

DAFFODILS.

Diadem has a creamy-white perianth and an immensely broad shallow cup of orange, edged with scarlet. A.M., R.H.S., April 26.

White Wing has a full pure white perianth of great substance, with narrow but very bright golden cup. A.M., R.H.S., April 26.

White Lady has very large and broad creamy segments, and a medium, soft lemon-yellow crown. A.M., R.H.S., April 26.

Will Scarlet, creamy, broad perianth segments and very broad medium cup of a rich orange-scarlet shade. F.C.C., R.H.S., April 26. All the foregoing were shown by the Rev. G. E. Engleheart.

Ivanhoe is a pretty and neat flower of the medium-crowned section; it has broad perianth segments of a creamy-white shade, and a cup that is rich orange tinted with scarlet. A.M., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

PRIMROSE EVELYN ARKWRIGHT.

A giant primrose previously referred to in these columns; it is a gigantic counterpart of the common primrose and has strong foliage, has flowers as large as a five-shilling piece. A plant was found wild in Dinmore Wood, Hereford, in 1887, and the stock, now the fourth generation. has kept true from seed. A.M., R.H.S. Mr. J. H. Arkwright, Hampton Court, Leominster.

DEUTZIA PARVIFLORA.

A handsome deutzia with corymbs of white flowers, the individuals measuring nearly half an inch across; the stiff green foliage has serrated margins. The whole plant is compact, freely branched, and as freely flowered. for each branchlet ends in a cluster of flowers. A.M., R.H.S., April 26. Messrs. J. Veitch and Sons, Chelsea.

ODONTOGLOSSUM PESCATOREI DUCHESS OF WESTMINSTER.

This is a charming form of a handsome species; the flowers are of good size and shape, indeed, in these respects they would be difficult to beat. On the pure white ground are numerous medium-sized spots of rich rosy purple scattered over the whole surface. It is a most distinct form. A.M., R.H.S., April 26. Mr. N. F. Barnes, gardener to the Duke of Westminster, Eaton Hall.

MELON LORD E. CAVENDISH.

An exceptionally good early melon, and one that attains a large size even thus early. It has greenish white flesh that is of excellent flavour and great depth. A.M., R.H.S., April 26. Mr. O. Thomas, gardener to her Majesty the Queen, Frogmore, Windsor.

READ'S SPROUTING KALE.

This is a useful late kale that partakes considerably of the character of sprouting broccoli. It sprouts freely, and provides at the present time a large supply of useful and succulent leafage of a deep green colour. A.M., R.H.S., April 26. Mr. J. Read, Bretby Park Gardens, Burton-on-Trent.

AURICULAS.

Olympus, a grey-edged variety of good size; edge true; paste good; body colour slight and dark. F.C.C., N.A. and P.S., April 26. Mr. J. Douglas.

Mrs. Dumfield, a handsome violet self, with large flowers and smooth, good paste. F.C.C., N.A. and P.S., April 26. Mr. C. Phillips.

Hiawatha, an alpine variety, with dark reddish ground shading to salmon; pips large and even. F.C.C., N.A. and P.S., April 26. Mr. C. Phillips.

CAMPTOSEMA PINNATUM.

A curious Brazilian shrub with large pinnate foliage, the leaves carrying three pairs of leaflets and a terminal, each six or more inches long, and drooping. The flowers are two inches long, cylindrical; calyx greenish, corolla red or rosy purple; all the corolla segments are narrow, and have incurving lateral margins. It is a leguminous plant from Minas Geraes; seeds were sent to Kew by Dr. Glaziou, Director of the Rio Janeiro Botanic Gardens, in 1888, and a resulting plant flowered in the Palm House at Kew in July, 1897. *Bot. Mag.*, t. 7,582.

DASYSTACHYS DRIMIOPSIS.

A liliaceous plant from south-east tropical Africa; it has long green leaves and spikes of tiny white flowers. The species is of botanical rather than horticultural interest, and was first collected by Sir John Kirk in the Zambesi valley. A living plant was brought to Kew in 1892 by the late Mr. J. Buchanan, C.M.G., and this flowered at the Royal Gardens in October, 1896, after cultivation in a greenhouse. *Bot. Mag.*, t. 7,580.

ANEMONE VERNALIS.

A perennial, villous anemone, with large flowers that are white inside but violet purple on the outer surface, save for a white margin to each segment. So well known is this plant, and so closely allied to our native A. Pulsatilla, that not a few people have regarded it as a British plant, which it is not. Its distribution is from Norway to Central France, and from Saxony to the Italian Alps. *Bot. Mag.*, t. 7,581.

RICHARDIA ELLIOTTIANA.

This magnificent golden-spathed richardia is now so well known that a detailed description of it is unnecessary. It has big golden-yellow spathes of large size and large green foliage spotted with transparent white blotches. The history of the plant has already been detailed in these columns, and we refer to the species to draw attention to the double-page illustration given in the *Bot. Mag.*, t. 7,577.

DAPHNE BLAGAYANA.

A sweetly-scented daphne with terminal heads of white, green-tinted flowers. It is a native of Styria and Carniola, and was introduced to cultivation about twenty years ago by Messrs. J. Veitch and Sons. Being a very dwarf species, it is frequently used in rockeries, and succeeds here if placed amid calcareous rock; it flowers in March, and both for its fragrance and beauty is highly esteemed. *Bot. Mag.*, t. 7,579.

FRUIT PROSPECTS IN SCOTLAND.

THE promise of a full crop of most kinds of hardy fruit is at the present time (end of April) very satisfactory, apricots, peaches, and nectarines excepted. These opened bloom much earlier than usual, and consequently had to encounter the severe frosts and cutting winds that were so prevalent during the month of March, from which ordinary coverings, by way of coping boards and several folds of netting, were but an ineffectual protection. The weather, though severe, was generally dry, and the bloom being plentiful, large, and well formed, hopes were entertained that sufficient for a crop would escape, and at first these hopes appeared to be realised, but as the fruit commenced to form much of it fell from the trees, so that only a moderate crop can now be expected. The cold wave mentioned, though disastrous to early-flowering trees, had the desired effect of retarding the opening of plums, pears, and cherries, which were a few weeks ago in a very forward state. These during the past fortnight have had a very favourable period to unfold and display the abundance and richness of their inflorescence. Of these plums growing against walls took the lead, and it is very seldom that a finer and more profuse display by all varieties has been witnessed; standard and bush trees, and damsons, though later, being equally satisfactory, and appear to have set plenty of fruit.

Pears are at the present time in full bloom, which is abundant, and so well distributed that very old and widely-extended trees are gay from the main stem to the tips of the branches. The foliage this season is unfolding only slightly after the bloom, which enhances the appearance of the trees, but it doing so is not regarded with pleasure by many observant cultivators, who hold to the belief that when bloom and foliage advance together that the fruit does not set so well. Some varieties are more prone to this than others; one—Williams' Bon Chretien—I have never known to open a leaf until the flowers were passed, and this season it is no exception to the rule, either where growing upon the quince or pear stocks, or where grafted upon other varieties which show this precocity.

Cherries, both dessert varieties and Morellos, are full of bloom; the former, where growing against walls, are set, and the fruit swelling off very well. Figs are getting prominent, and indicate a heavy crop, providing no severe check from cold occurs to cause the fruit to drop. Apples will have an abundance of bloom, but as yet only the very earliest varieties are showing colour; but on walls some old trees of Ribston and Cox's Orange Pippins have their flowers fully expanded, and these, to my mind, rival the finest flowering [illegible] that could be selected to take their places, and which on losing its bloom would be valueless for the remainder of the season. Gooseberries have set a very heavy crop, and raspberries and currants of sorts promise well in bloom. Early strawberries upon warm borders are opening bloom, which is large and plentiful. For several years the annual system of cultivation for obtaining early fruit has been adopted here, and the results are more satisfactory than by following the older method of allowing the plants to occupy the same position for two or more years, as the fruits having less foliage above them obtain the full influence of the sun, and ripen earlier. Slugs and insects are not so troublesome when the change is made to fresh ground every year, and labour is saved by planting well-rooted runners in July or August, and clearing off the old plants [illegible]. Maincrop strawberries are very promising, and numerous trusses of bloom are already in evidence among the fast-developing foliage.

The season, which in this part promised to be one of the earliest [illegible], has not fulfilled the anticipations formed at the end of January, as at present [illegible] few flowers can be said to be any forwarder than they usually are at this date.

JAMES DAY.

Galloway House Gardens, Wigtownshire.

The New Cinerarias.—Very interesting it was to stand near the [illegible] the new hybrid cinerarias recently staged at the Drill Hall by Messrs. Sutton and Sons and Messrs Veitch and Sons. How very diversely were the plants regarded. The florists looked askance, regarding them as just what [illegible] in cineraria form half-a-century since. Others, taking a diverse aspect, [illegible] they were a charming break-away from the huge flowers and compact [illegible] the florist's cineraria of to-day. It is commentable to learn that whilst the [illegible] Committee would not look at them, much less make an award, the general [illegible] are calling for seed loudly, and the demand is growing rapidly. The [illegible] feature of the new strain is the adaptability for furnishing flowers for cutting, [illegible] long stems. For that purpose the flowers now are large enough, but the colours greatly need brightening and improving. That seems to be the object the raiser should now aim for.—A. D.

CRICKETING is one of the healthiest exercises amongst our British sports, but [illegible] be excelled in by men possessed of a sound constitution. Even then care must be taken to [illegible] the strength and elasticity of the frame by a judicious course of training. The best [illegible] direction are Holloway's Pills and Ointment. The former invigorate the system and [illegible] blood, while the latter strengthens the muscle, takes the stiffness from the [illegible] cure for sprains, bruises, and contusions. Thousands of testimonials have [illegible] parts of the world, giving evidence that these wonderful remedies will cure [illegible] which afflicts humanity. Full instructions are given to each purchaser.—[Advt.]

WORK FOR THE WEEK.

WARM ORCHIDS.

PHALÆNOPSIS, after having their annual overhauling in the way of adding new material and giving a thorough cleansing, providing they have had the advised treatment, will now be gaining vigour; always, after the flowering season, the foliage flags more or less, as in some other orchids. Syringe between the cylinders early in the forenoon, and give a slight fine spray over the leaves, but care must be taken not to lodge water in the heart, or rot may set in, and ultimately kill the whole plant. If any are grown in baskets they must be suspended over the pathways, so that they are under control of the syringe; all should again be damped round early in the afternoon. The shading must be put down early in the morning, but top air must be avoided at present, the bottom ventilators being used only, though on both sides when the weather is favourable. Liquid cow manure may be used under the stages and about the pathways about twice a week, or cow manure on the one occasion and soot water the other. Carefully sponge phalænopsis leaves with soft-soap water in a weak state, as they enjoy cleanliness. The young fleshy roots are now working freely, and will require to be watched, or slugs, beetles, woodlice, &c., will spoil them; a few young lettuce leaves will entice and trap slugs, and may be examined by lamp light in the evening.

Cypripedium bellatulum will now be coming into flower, and short crutched sticks should be used for the flowers if effect is considered. Hybrids from it and Cypripedium niveum should be served likewise. Cypripediums may have a slight syringe overhead early in the forenoon as well as a good damping between the pots, under the stages, and pathways. In the case of selenipediums great care must be taken as to watering, as they are queer subjects, and over-watering will soon produce rot at the base of the growth; a slight syringe, however, is beneficial. Selenipedium macrochilum and its variety giganteum will be flowering, and it is a good plan to raise them on pots to afford the petals plenty of room for development; neat strong sticks to support the flowers will be necessary, but here, as with other selenipediums, such as S. caudatum, S. nitidissimum, S. grande, &c., great care must be taken to keep water from the flowers. More shading will be necessary, and if the cotton blinds are of a thin texture the glass will need to be slightly limewashed. These selenipediums and other cypripedes will require more moisture in the air now, and liquid cow manure will prove very beneficial if thrown under the stages and on pathways; the best time to give this is in the evening, thus allowing the plants to have full benefit of the stimulant while all is quiet and close.

Chysis bractescens will have finished flowering, and ought to be removed to the dendrobium house; amateurs will find this thrive better than grown in the Mexican house, and plenty of water afforded during its growing season. I would strongly advise all that have recently purchased imported cattleyas to carefully examine them and see that they are perfectly free from cattleya fly before placing them along with the rest of the collection, for it is without doubt a terrible pest if not kept down. It is sad to find it in a good hybrid, attacked perhaps in different places at various periods; first of all in the lead, which has to be cut off, then the back eyes begin to go, and this means the ruin of perhaps an expensive plant. The cattleyas may be sprayed morning and afternoon on bright days, taking care not to wet the flowers; more damping will be necessary, and shading given when necessary, and air put on to keep the atmosphere balanced according to outside conditions.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

THE various plants that will be required to furnish the stages during the summer months would be the better for having the flower buds pinched out until within a week or so of the time they are required to give a display. Standard fuchsias and heliotrope, when nicely grown, form pleasing objects dotted between dwarfer growing plants. To obtain evenly-balanced heads frequent stopping of the leading and strongest shoots is necessary. For covering back walls, or trained up the front rafters, and so on to the roof, these plants are also useful. Creepers of different kinds should be attended to at least once a fortnight, to thin out crowded shoots and train others evenly. Bougainvillea glabra loses half its charm when the shoots are not thinly disposed. The plants should be looked over before growth gets too far advanced, and the main branches disbudded, which will save the removal of a quantity of growth later on. Lapagerias will now require copious supplies of water, or they will fail to give that wealth of bloom afforded by plants well nourished. When the two varieties, rosea and alba, can be grown side by side, so that the sprays of bloom are intermixed; they make a very pleasing feature as a covering for the roof. To propagate these plants a few of last year's shoots should be layered in sandy soil and kept continually moist.

Cannas in variety are most useful and ornamental as pot plants, therefore a good number should be potted on, giving them rich soil and a close humid atmosphere. Lilies of different kinds should receive a top-dressing of rich compost to induce new roots to form at the base of the stem. L. Harrisi will now be coming on in quick succession, and some of the plants should be placed in a cool shady position to retard them as much as possible. Celosias should receive larger pots as required as when once allowed to become pot-bound or dry at the roots they seldom succeed afterwards. Heat, moisture, and rich soil suits these. Tuberous-rooted begonias may be divided if it is necessary to increase the stock of certain varieties. Large bulbs may be divided into three or more parts after a few shoots have formed. The parts should be placed in shallow boxes filled with sandy soil and kept moderately moist until roots form and leaf growth increases, when they may be potted off singly or placed in hanging baskets.

The early batch of winter-flowering carnations should be stopped and potted on as required, and for a time a growing atmosphere should be maintained in the house they are growing in. We find some of the border varieties very valuable for giving a quantity at Easter, notably Duchess of Fife, and those who have not succeeded with the tree section should give this variety a trial in pots. The perfume and colour of the flowers is most pleasing. Early layers should be obtained so that the pots are well filled with roots by August; then the most of them will have practically formed flower stems, and only require the warmth of any ordinary greenhouse in February, to have them in full bloom by the season named. A late batch of both primulas and cinerarias may be raised from seed sown now. Less heat is necessary now the season is so far advanced, ours being raised under handlights in a cool north house. Former batches will have been potted off singly, and for a time they may be arranged somewhat thickly on a cool bed of fine ashes, where they are kept more uniformly moist. All plants, directly the flowers fade, should be removed from the conservatory, as more than probable many of them will have been attacked with green fly, owing to the syringe not having been used while they were in bloom. The time taken very often in staking and tying different plants is a great mistake, as the fewer sticks used the better, and the plants present a more pleasing appearance. One neat stick in the centre is often sufficient to meet all the requirements in the way of support.—R. PARKER, *Goodwood.*

THE FLOWER GARDEN.

HERBACEOUS borders will require considerable attention at this season. In dry weather a hoeing over occasionally should be given to keep down weeds. For adding to the display in these borders and to fill up any spaces a few select annuals may be sown, as the best effects are obtained by the employment of a few varieties sown in moderate quantities, rather than an indiscriminate mixture of many kinds. For this purpose Linum grandiflorum coccineum, godetias, Tom Thumb nasturtiums, Collinsia bicolor, Clarkia marginata fl. pl., and others are adopted as dwarf or low-growing varieties; while for taller kinds, lavateras, annual chrysanthemums, coreopsis, blue cornflowers, sweet sultan in variety, and others may be used. Besides these, annuals sown in frames for transplanting, such as stocks, asters, salpiglossis, marigolds, Nemesia strumosa, annual sunflowers, sweet scabious, &c., are also often useful for this purpose. Towards the back of herbaceous borders, sweet peas may be sown in rings, if space permit, a couple of feet in diameter, and a few sticks be placed in the centre for them to eventually cover, or in small patches if more desirable. Seeds of some of these annuals are very small, and should be scattered on the surface and slightly raked in, while for those of larger size drills or cavities, sufficiently deep to allow of the seeds being well covered, should be drawn out. On these borders some subjects will also need attention in the matter of staking and tying, and more especially does this refer to the herbaceous pæony. These showy plants are fast developing their flower heads, and before further advanced the clumps should receive some kind of support, otherwise, with heavy rain or wind, the growths fall over and soon become spoilt in shape, and are of little use after having once fallen either for cutting or garden decoration. For the sturdy growers of medium height similar to the old P. officinalis, it is my practice to pass a piece of tarred string around each clump just under the foliage when the flowers are in the bud stage, drawing the heads together moderately tight but using no stakes. Treated thus they keep erect and spread open just enough by the time they are in bloom to look natural and show the flowers off to advantage. For taller growers one stout stake is used, placing it at the back of the plants out of sight. The tarred string is passed round the clump beneath the foliage and secured to the stake behind. These subjects are much benefited by the application of good soakings of liquid manure of moderate strength, especially after such a dry spring as the present one, particularly to large and old-established clumps.

The early spring-blooming anemones are useful subjects for cutting or filling small beds. The strain known as St. Brigid's produces a great variety of colours ranging from scarlet to pure white, with both double and single flowers that continue to expand over a considerable period of time. Seeds, if sown forthwith, will produce flowering plants for the coming winter and spring. The soil should be deeply dug and manured, small permanent beds being desirable. Anemone seeds may the more readily be sown if rubbed out with a little silver sand. Primroses, polyanthuses, and Alpine auriculas may also be sown now for the production of flowering plants for next spring. A frame on a spent hotbed, and sowing in light sandy soil, is one of the best means of raising these seedlings, pricking them out on a somewhat shaded border as soon as they are large enough to handle. Young plants of dahlias recently struck in thumb pots should be given a shift into a larger size, rather than allow them to become unduly pot-bound before planting out time, which will scarcely arrive for another fortnight at least. They should now be standing in cold frames and have the lights removed in warm weather. Where old stock roots are merely split up into convenient sized pieces before planting, and little growth has started, they may be planted out about the middle of the month. The flowers from these will be scarcely equal to those from young newly propagated plants, but at the same time they answer well for garden decoration, and produce a quantity of flowers. All dahlias are best mulched with short manure after planting. For use as cut flowers, no section is equal to the true cactus type, these having the advantage over the single varieties of lasting longer in good condition.—C. HERRIN, *Dropmore Gardens.*

KITCHEN GARDEN.

EARLY potatos planted in March have pushed through the soil in some localities, and whenever they appear material should be at hand so as to afford protection against frost, for if once the haulm is cut back the crop is seldom worth lifting. Early planted potatos require a lot of looking after unless a framework be made in the first instance, so that a covering of canvas or straw mats can be put over during inclement weather. Those planted at the foot of a south wall will need watering unless rain has fallen since writing, as the soil has become somewhat dry, and in districts like this, where but little rain has fallen during the present year, the tubers will be small unless assisted. The planting of late varieties should at once be brought to a close, as all danger of frost will be past before the growth appears through the soil.

In the southern counties, and sheltered places where protection can be afforded, a sowing of both scarlet runners and dwarf French beans may be made the first week in May. The former will not have grown too much to require staking before all danger of frost is over, and the latter may easily be protected with mats placed over hoops. These early sowings are always serviceable, as they come into bearing at a time when asparagus is failing. Where room can be found in a cold frame seed of some of the early dwarf kinds may be sown in pots to be brought forward with a view to planting out when danger of frost is past, about half a dozen seeds being placed in a six-inch pot. These can be thinned out before the plants become crowded to two or three.

In most places the main sowing of broccoli may now be made, taking care not to sow too thickly, as the plants are apt to become crowded before they are large enough to transplant. The early sowings should be kept free from weeds, and be assisted by the application of weak liquid manure. Should the turnip-flea beetle make its appearance dust the plants with lime after watering. As the plants become large enough for transplanting see that they are put out. If room cannot be found for them in their permanent quarters, prick them out about six inches apart each way. As the ground becomes cleared of those ready for use it should be manured and dug ready for late peas, it will then be settled down before the time for sowing arrives. Turnips will now grow more freely than those sown earlier, it is, however, advisable to make only small sowings, as in hot weather the roots soon become tough and stringy. For the present Snowball, Stropleaf, or the Early Stone are the best. The ground must be liberally treated for this crop, and plenty of moisture should be given to keep the plants growing. In hot weather the turnip-flea is very troublesome, but this may be kept under if the plants are well supplied with nourishment.

The early peas on borders will now be showing bloom in most sheltered gardens, but unless rain is forthcoming a liberal supply of water should be given to enable the pods to swell quickly. With us the autumn-sown peas look well at the present time, and should no severe frost visit us this month they will be fairly early. With many the main crop of carrots is sown about the end of April, but it is not advisable, where the ground is in good heart, to sow too soon as fine roots may be had from sowings made towards the end of May. But to keep up a succession a sowing of Matchless, James's, or Intermediate may now be put in, deferring the main sowing for another week or so. During the dry weather keep the hoe at work amongst such crops as onions, parsnips, carrots and other small plants, for if the weeds are allowed to grow they will soon spoil the most flourishing of these. Do not neglect to make frequent small sowings of radishes, lettuce, mustard and cress, and other salads. A cool shady place should be found for those used in a small state, as the foliage will be more tender than when grown in the sun.—H. C. PRINSEP, *Buxted Park Gardens.*

HARDY FRUITS.

IN the southern parts of the country I fear the peach and nectarine crop has suffered greatly from the severe weather experienced at the end of March. Many of our trees were in bloom, and some have not a single fruit, no matter what protection they had. Our friends in the north will have escaped, and I am pleased to remark some of the late flowering kinds have set well. This shows the advantage of having different positions and varieties, as if one lot suffers the others may be saved. I once had some excellent crops of peaches from an east wall when those on the south were quite barren. Apricots appear to have suffered less than peaches, doubtless owing to the fruits being set before the severe weather set in. The recent rains have been specially welcome, for fruit trees under wide copings are very dry at the roots. Thinning of apricots will need attention, as it can now be seen what fruits are taking the lead, and it will be safe to remove many of those thickly placed and to reduce the wood growths such as foreright shoots and those not needed for extension. Cherries are blooming very freely, and in our case small birds have been more active than usual in the destruction of buds, and netting became a necessity, Black fly is one of the worst pests we have to deal with in our light soil, and the fruit-grower's task is not an easy one; but wherever it appears active measures must be taken, as it soon destroys much foliage. Dusting with tobacco powder is effectual in mild cases; in others it may be advisable to syringe with tobacco-water or quassia. Newly-planted trees should now be carefully trained, it being important to have the principal leaders in position, and in the case of stone fruits much may be done by pinching shoots not required for extension in preference to using the knife the first season. With drying winds, mulching must not be overlooked, and a thorough watering afterwards will keep the roots active. Now is a good time to reduce the shoots at the stools of raspberries—I mean summer-fruiters; if all are left, they are so numerous they crowd those needed for next year's canes. I prefer to pull them out with the hand, as if merely hoed they soon reappear. Pear and apple trees are this season showing a wealth of bloom. I fear some of the earliest pear blossoms have been injured, but it is too early to speak definitely. Plums are equally good, and other fruits appear to be making up for last year's deficiency.

Strawberries will now need early attention, as on south borders the flower trusses will be showing freely, and I would advise mulching before the flowers expand. There are several ways as regards mulching, and I have tried most of them, but have been obliged to revert back to the old but effectual one of using litter from the stables. I am aware litter in a fresh state with ripe strawberries is objectionable, but placed in position now, that is, a month or six weeks before the fruits ripen, it becomes quite clean by exposure to the rains, and sweet. Grass from lawns is at times advised. I do not know of anything worse, as in a wet season it is infested with slugs and worms, and adheres to the fruit. Clean long straw is not the best protection, as it lays so close to the soil it soon decays, whereas litter is more elastic, and dries sooner. I have seen many crops injured by leaving the mulching till too late, as one heavy storm will cover the fruit with grit, and another point worth noticing is that strawy litter placed in position now may be made good use of should severe frosts follow, as it is a simple matter to shake the litter lightly between the blooms. Last May was one of the worst seasons on record, as frosts destroyed so many of the first blossom, causing severe losses. It is well to be prepared for emergencies. Those who have dry bracken may with advantage use this for protecting, but it is not plentiful near towns, and is not of much value, unless cut in the early autumn and dried. It will well repay the cultivator who has a few rows of early strawberries on a south border to protect with hand-glasses or spare sash-lights, as by so doing fruits may be secured ten days or a fortnight in advance of those not protected, and there is always a brisk demand for the fruits in the open at the season named, as forced strawberries are not plentiful, the season being over. There should be no delay in hoeing through strawberry quarters before giving a mulch; indeed, I prefer to do the work several times, as there is less trouble with weeds during the fruiting season. Spring-planted runners will be benefited by removal of flower spikes if at all weak, as these will not be strong enough to produce a good crop, but they will make up for the extra time given next year by the size and quantity of the crop. Alpine strawberries raised from seed in boxes under glass, if pricked off into frames or boxes some time ago, will soon be in condition to plant out in well-prepared land. Later seedlings should be pricked out and given glass protection for a little longer to give them strength. These will be useful for the supply of late autumn fruits. Last year's plants will need liberal supplies of food, and the surplus growths removed, to give the young fruiting growths more space.—G. WYTHES, *Syon Gardens.*

Onions.—In Mr. Beckett's recent excellent article on "Onions" in the GARDENERS' MAGAZINE, he mentions that the autumn-sown never keep well, and further on he notices the Rocca varieties with some measure of favour. To my mind, the connection is the cause, as, if I wanted onions to keep and be of service after grown, I would never grow Roccas; their texture is of the coarsest, and after you have carefully grown and harvested the crop you may begin throwing them away. There are several very good kinds for autumn sowing; one that I am very partial to, and Mr. Beckett does not name, is Trebons. Whatever I sow in autumn I always include this, and for a good many years now I have never been without onions all the year round. As to spring-sown, many growers, in my opinion, thin the crop too much. If onions are wanted to keep, they must have small necks and be well ripened; this is best effected by growing them thickly in rows, even pushing each other before full grown; there are always enough large ones, and for the general supply of the household, those of a moderate size are most acceptable. For keeping, flavour, and texture of flesh I have not found any to beat the Improved Reading. The bulk of my last year's crop of autumn-sown onions are now gone, but I take the liberty to enclose a sample of Trebons grown from seed sown in August, 1896, to back up what I have written. I am aware the article in question deals primarily with onions for exhibition, and I may be reckoned out of court; at the same time, it is well to know what is best for general utility.—J. HARDING, *[illegible], Sussex.*

[The three specimens sent were of medium size, clean, shapely, firm, and solid, thoroughly bearing out Mr. Harding's statement as to their keeping quality.—ED. G. M.]

THE VICTORIA AND PARADISE NURSERIES.

THESE old-established nurseries, situated at the foot of Highgate Hill, always repay a visit, as besides the usual large stock of ordinary nursery stuff there are several classes of plants that are made a speciality of, and others not commonly seen. Messrs. B. S. Williams and Son have recently disposed of their frontage upon the Junction Road, and the land formerly occupied by a camellia and azalea house; with this exception the nursery remains as of yore. In consequence of increasing business, however, the firm is creating a branch establishment on the breezy slopes of Finchley, where they have taken a nice little estate of some four[illegible] acres. At this branch they will have more room for cultivating large batches of flowering plants and such subjects as are technically known as "furnishing plants," wherewith to meet the increasing demand that comes through their florist's shop on Piccadilly. Here also hardy plants can be readily grown, and such orchids and stove plants that do better under a stronger light than that of Upper Holloway will find a place.

Palms are extensively cultivated at Victoria and Paradise Nurseries, and one can here be suited with either a tiny seedling or a fine towering specimen fifteen to twenty feet high. The large house near the office contains many very handsome examples of Kentia Forsteriana and K. Belmoreana, Areca Baueri, Latania borbonica, Rhapis humilis, and a number of splendidly furnished and large examples of the ever-popular and elegant Cocos Wedelliana. Of the latter and the two first-mentioned palms there are large stocks in all stages of development, while of others, such as Geonoma gracilis, Cocos plumosus, Phœnix dactylifera, and P. reclinata there are numerous neat specimens. Bamboos for indoor decoration are not by any means forgotten, as every day finds these beautiful Japanese plants becoming more and more popular; three especially useful sorts well represented here are those known commercially as B. aurea, B. gracilis, and B. Maximowiczi variegata. Stove plants occupy a good number of houses; Anthuriums, both Andreanum and Schezerianum varieties and hybrids, are freely grown, and show that the Holloway firm is perfectly well acquainted with the variations of the wind of fashion. Of aralias such as A. gracillima, A. Veitchi, A. elegantissima, and A. Chabrieri, the Messrs. Williams always have batches in the best of health and in all stages of development, from the newly grafted or rooted plants up to the perfect specimen. Dracænas in all leading sorts, and crotons in great variety, are now colouring freely; the anthuriums notable for their handsome foliage, such as A. Veitchi and A. Warocqueana, need special mention, as they are thrifty plants capable of making grand examples for large houses. This firm has long enjoyed a special reputation for ixoras, and does not appear likely to lose it, judging from the stocky plants of I. Duffi, I. Williamsi, I. Fraseri, I. coccinea, I. Prince of Orange, &c. It is useless to further enumerate the stove plants here to be found, but several somewhat rare subjects that attracted attention from among a host of others were [illegible] decorans, with trusses of golden flowers; Franciscias, now too seldom seen, and resplendent in shades of blue; Carludovica plicata, a palm-like plant; Cyanophyllum magnificum, Dracæna Doucetti, and the elegant D. Godseffiana, Ficus Cooperi, a handsome plant; and Artocarpus Cannoni.

Begonias, both winter-flowering and Rex forms occupy considerable space, and have to be freely propagated to meet the growing demand; Gloire de Lorraine and Gloire de Sceaux are now flowering. Among the foliage kinds Messrs. B. S. Williams and Son have some good new varieties, such as Ville de Paris, clear silver with green veins; Tananarive, creamy silver with green mottlings; T[illegible]tave, also silver and green, but very distinct in the markings; Chicago, [illegible] handsome foliage, broadly lobed margins, green centre surrounded by silver and with green spottings toward the margin; and an unnamed seedling with deep purplish centre surrounded with silver, and with a rosy-tinted margin. All the older varieties find a place. Caladiums, araucarias, amaryllis, clivias, sarracenias, nepenthes, and cannas attract attention by reason of their numbers and good appearance. The amaryllis are seeding freely, and consequently must have flowered well; the clivias are almost over, but a few remain to indicate the fine strain to be found at Holloway, a strain remarkable for large trusses, substantial flowers, and high colour. The cannas are a first-rate stock, and include the Crozy and Lemoine varieties, the grand new Italian sorts, the best English seedlings, and several fine American sorts; among the latter is a dwarf scarlet and gold form named Mrs. Fairman Rogers, and one of great value. Carnations are specially clean stocks of thrifty plants, and there is a big demand for such varieties as Souvenir de la Malmaison, Princess May, Churchwarden, Queen of Yellows, James Mushlark (maroon), Duke of Fife, Duchess of Fife, Uriah Pike, and John Peter Rugus, a fine red variety. Abutilons, humeas, genetyllis, the pretty variegated Poa argentea (fine for edging), and the variegated form of Agapanthus umbellatus were other cool house subjects deserving of special mention, not omitting big stocks of the golden-spathed richardias.

Passing to the extensive orchid department one is charmed by the multitude of spikes of Odontoglossum crispum, O. triumphans comprising many very handsome forms; O. cirrhosum, O. Ruckerianum, O. excellens, O. Wilckeanum, O. luteo-purpureum, O. Rossi, O. Andersonianum, &c., all on healthy plants and carrying fine flowers. Hanging in a warm house are goodly baskets of Pescatorea Lehmanni, P. Roezli rosea, P. Klabochorum, P. Pantini, and Bollea cœlestis. Phalænopsis Schilleriana and Vanda teres are either flowering or promising flowers on nearly every plant. Cypripediums are doing well, both species, varieties, and hybrids; a few sorts that we noted in the several houses devoted to these orchids were C. Morganiæ, C. Mastersi, C. Io superbum, C. Measuresianum, C. Fitcheanum, C. Charlesworthi, C. Leeanum, C. nitens, C. Chamberlainianum, C. œnanthum superbum, C. grande, C. Sedeni, C. Gertrude Hollington, C. Lebaudianum, and C. Ashburtoni; all other leading kinds are grown and grown well. Dendrobiums and thunias, pleiones and lycastes are well represented. Vandas are a splendid sight, for not only are the specimens clean and furnished to the pots with stout foliage, but large numbers are now in full bloom, especially V. tricolor and V. suavis forms, so that the senses of sight and smell are equally gratified; the vanda house at Holloway is a revelation to many orchid growers. Miltonias and cymbidiums are freely flowered, and the varieties are good; Cattleya Mendeli is very fine, as the firm has a selection of beautiful forms [illegible] represented by fairly large examples. Cattleya citrina and C. Lawrenceana [illegible] contrasting colours, and in an adjoining house are many fine specimens of [illegible] purpurata, now commencing to flower, and including the exquisite L. [illegible] Williamsi. A few other orchids now flowering and not previously [illegible] include the rare but handsome Oncidium loxense, the long-spiked O. [illegible]thum, Odontoglossum Harryanum, O. polyxanthum, O. sceptrum, Tr[illegible] suavis, and the pretty, late-flowering Calanthe Sanderiana.

Altogether there is much to interest and instruct a visitor at the Victoria and Paradise Nurseries, as many will discover during the present month, for May is a popular time for nursery visiting through the metropolitan district, especially about the time of the Temple Show.

HORTICULTURE IN CANADA.

IN the discussion of horticulture in Canada it is perhaps best to treat of horticulture in its widest sense, as embracing the art and science of the cultivation of trees, shrubs, and plants for both utilitarian and decorative purposes. This subject, stated Professor W. Saunders, of Ottawa, at a meeting of the Massachusetts Horticultural Society, covers so wide a field that the brief period of an hour will admit of touching on but a few of its more important features, and, with the view of presenting these in a clear and intelligent manner, he first gave a very short sketch of the country whose horticultural progress he had undertaken to outline.

Geographical Description of the Dominion.

The Dominion of Canada consists of seven provinces, four provisional territories, and a vast area to the north, much of which is yet unexplored. If the traveller through this country takes the train at its eastern boundary, at Halifax on the broad Atlantic, he may ride with one change of cars through to the shores of the Pacific, covering a distance of 3,662 miles, and all within the settled area of Canada. The three most easterly provinces form a group partly surrounded and more or less intersected by the ocean, known as the Maritime Provinces. Following these come the goodly provinces of Quebec and Ontario, the latter stretching westward along the margins of the Great Lakes—Ontario, Erie, Huron, and Superior—until its western boundary is found beyond the Lake of the Woods. Here Ontario joins the "prairie province" of Manitoba, west of which lie the four gigantic provisional territories—Assiniboia, Saskatchewan, Alberta, and Athabasca —comprising vast plains. In part of the territories a wide belt of the country, lying north of the forty-ninth parallel—which forms the boundary line between the United States and Canada—has a dry climate, caused by the hot winds which blow northward from the great American desert. But beyond the spent force of these hot currents, beginning from one hundred and twenty-five to one hundred and seventy-five miles north of the boundary, we find immense partly wooded areas, watered by streams flowing northward, with a soil wonderfully rich and fertile and with conditions favourable for mixed farming, especially for the raising of cattle and for dairying. Still further west stands British Columbia with its sea of mountains enclosing an area abounding in minerals, coal, and lumber. Its waters teem with fish, and some of the fertile valleys are being fast converted into smiling fields of grain and prolific orchards.

Let us touch briefly on the conditions found in each of the divisions of this your neighbouring country, and note the indications of horticultural progress. Prince Edward Island, the smallest of the provinces of Canada, has an area of 2,133 square miles, is one hundred and fifty miles long, and varies from nine to thirty miles in width, and has a population of one hundred and ten thousand. This island has a fertile soil; the climate is cool and bracing in summer, but rather severe in winter. Many varieties of apples, plums, and cherries succeed well there, and gooseberries, currants, and other small fruits are produced in abundance; but the winter season is too severe to admit of growing the more tender fruits successfully. The cultivation of flowers is very general, especially in the cities and towns, in which many avenues of stately trees are found, most of which are European. So also are the shrubs which decorate the grounds about rural and city homes. The number of varieties of trees grown are few, and in shrubs one notices the absence of many beautiful forms which are grown very successfully in other provinces, and which will, no doubt, when introduced, do well here. Horticulture is encouraged by the holding of exhibitions of fruits and flowers in the capital at Charlottetown and elsewhere, which are assisted by grants from the provincial treasury. There is a fine park in Charlottetown, comprising about one hundred and fifty acres, with beautiful drives through the wooded areas and along the seashore—a cool and delightful place of resort for the citizens throughout the summer months.

Across the Northumberland Straits from Charlottetown, some thirty miles distant, lies the province of Nova Scotia, with its twenty thousand five hundred and fifty square miles of area, and a population of four hundred and fifty-one thousand. The climate of the eastern part of this province is mild and well adapted for the growing of many varieties of fruit of high quality and in great perfection. The Annapolis valley, so well known as the scene of Longfellow's beautiful and tragic poem, is specially adapted by climate and situation for fruit growing, and is rapidly being converted into a vast orchard where the choicest sorts of apples, pears, plums, and cherries grow in the greatest abundance. In this valley there is a special school of horticulture, receiving a liberal provincial grant, where practical training is given to students in the propagation and growth of fruits, ornamental shrubs, trees, and flowers. To drive among the beautiful scenes in that charming valley, when the trees covered with blossoms in the spring, or when their branches are pendant with golden fruit in the autumn, is a delight not soon to be forgotten. There are many other localities in Nova Scotia where fruit culture is carried on very successfully, and the exports of fruit from this province are large and constantly increasing. The Fruit Growers' Association of Nova Scotia, which is also aided by provincial funds, is a strong and active organisation, holding meetings at intervals during the year for the discussion of subjects relating to fruit growing and other branches of horticulture, and the information brought out is published in the proceedings of the Association. During the past year the quantity of apples exported was about five hundred thousand barrels. Some of this fruit, I am told, finds its way to Boston, where the high-flavoured Gravensteins are said to be much appreciated; but much the larger portion finds a ready market in the larger cities in Great Britain. In Halifax there are several parks, including in all about two hundred and eighty acres. The Public Gardens, containing about sixteen acres, are also very attractive, and contain some excellent specimens of trees, mostly European, and many varieties of shrubs and conifers, including some choice specimens of Japanese Retinosporas, notably of *Chamæcyparis plumosa* and *C. plumosa aurea*. The Scotch heather, *Calluna vulgaris*, also luxuriates here, and some of the fine flower beds are margined with this pretty plant, which has become naturalised and is growing in large patches in the public parks. Truro and other smaller cities and towns west of Halifax are emulating the capital in the establishment of parks, adorning their streets with avenues of trees, and embellishing their homes with groups of choice shrubs and beds of flowers.

New Brunswick, Quebec, and Ontario.

In New Brunswick, with an area of twenty-eight thousand square miles and a population of three hundred and twenty-one thousand, the climate is not so favourable for general progress in horticulture as in the sister province of Nova Scotia. While orchards have been successfully established in the valley of the St. John river, the varieties of fruit grown are chiefly of the hardier sorts, and the cultivation of large fruits is not general. Small fruits, however, are grown in abundance, and the cool weather in early summer retards the ripening season and permits of the growing of large quantities of luscious strawberries, which, ripening after the main supplies in the New England States, find a ready market in Boston and other cities, with but little competition and at good prices. Recently a public park, comprising two hundred and forty acres, has been established at the City of St. John, occupying a commanding position overlooking the turbulent waters of the Bay of Fundy. Through this park roads are being laid out amidst charming and, in some places, rugged scenery. This must in time become a most attractive place of resort.

The Province of Quebec, with an area of two hundred and twenty-seven thousand square miles, and a population of about one and a-half million, is also making progress in horticulture. In the valley of the St. Lawrence there are many fine orchards, and nowhere does the celebrated Fameuse apple reach so high a degree of perfection as on the Island of Montreal, where many varieties of pears also, and plums of fine flavour, thrive well. In the eastern townships, on the south side of the River St. Lawrence, fruit growing is carried on to a considerable extent, and quantities of apples from this territory find their way to Montreal or are shipped to foreign markets; but on the interior lands, on the north side of the river, only the hardier fruits succeed, and the orchards are few and small. In Montreal and other cities and towns in this province, much taste is displayed in the laying out of the public parks and squares, and in the ornamentation of the grounds of the more wealthy members of the community. Horticultural societies and a Provincial Fruit Growers' Association have been organised, which are aided by provincial funds; annual exhibitions are held, and thus the love for the cultivation of fruits and flowers is fostered.

Ontario is the Banner province of the Dominion, and its wonderful variety of climate and rich horticultural possibilities are as yet but partially known. With the noble area of two hundred and twenty thousand square miles, and a population of two million one hundred and fifteen thousand, this province has twelve and a half million acres of cleared land, about three hundred and twenty thousand acres of which are under orchard, garden, and vineyard. The number of apple trees of bearing age in this province is about six millions, while there are three and a half million more of younger trees, most of which will soon be in bearing condition. The yield of apples in 1896 was very large, and is estimated at fifty-six million bushels. In the Niagara peninsula, and along the shores of the western part of Lake Erie peaches are grown very successfully, and there are said to be over half a million peach trees planted in that part of Canada. Grapes, also, are grown in immense quantities. There are about three million of bearing grape vines in Ontario, producing annually about fifteen million pounds of grapes. There are also large orchards of pears, plums, and cherries, so that Canadian markets are well supplied with home-grown fruits of excellent quality throughout the season, and a large quantity of apples is exported to Great Britain. During the past year more than two million barrels were exported from Montreal. Ontario also sends large supplies of fruit to the prairie districts in the west. A thriving organisation, known as the Fruit Growers' Association of Ontario, has been in existence for the past twenty-eight years, and has done much to stimulate fruit growing throughout the province, and also to cultivate a taste for ornamental trees, shrubs, and flowers. This association receives a liberal annual grant from the provincial funds. The large display of fruit and flowers at the leading annual exhibitions helps to draw further attention to these interesting and important subjects. The Ontario Government also gives annual grants towards the support of horticultural societies, which are established in most of the towns and cities of the province. Under this stimulus frequent floral exhibitions have been held, and the people have been led to vie with each other in beautifying their homes by the planting of trees and flowers, Many large floral establishments are well supported by lovers of flowers. In the cities and larger towns public parks have been established, valuable not only as health resorts, but as repositories for some of Nature's choicest arboreal gifts. Horticulture also forms an important part in the curriculum of the Ontario College of Agriculture, which is located at Guelph.

Manitoba and Columbia.

Adjoining Ontario at its western extremity is the province of Manitoba, with sixty-four thousand square miles of territory and a population of one hundred and fifty-two thousand. Here the climatic conditions are too severe to admit of the rapid extension of horticulture. The larger fruits are not successfully grown, but many of the small fruits are produced in abundance. The people are everywhere fond of flowers, and the long days and abundance of sunshine in the summer months give a wealth of bloom to many annuals and hardy perennials unknown in eastern climates. Westward of Manitoba lie the four organised territories of the Canadian North-West—Assiniboia, with an area of eighty-eight thousand square miles; Saskatchewan, one hundred and one thousand; Alberta, one hundred and five thousand; and Athabasca, one hundred and three thousand. These great divisions extend from the western boundary of Manitoba to the Rocky Mountains, are partly traversed by railways, which have opened up the country for settlement, and a sparse population of from fifty thousand to sixty thousand people is scattered here and there throughout this very large area. The love of trees, shrubs, and flowers is universal on the plains, and luxuriant gardens full of bloom are frequently found among the settlers. In the country to the north lie the unsurveyed and but partly explored districts, occupied only as yet by widely distant trading posts and occasional settlers, but mainly in possession of Indians and fur-traders. In this wide expanse are included the districts of Ungava, Keewatin, Franklin, Mackenzie, and Yukon, comprising in all about a million and a-half square miles, exclusive of the water areas.

The most westerly province, British Columbia, includes three hundred and eighty-two thousand square miles, and has a population of about one hundred and twenty-five thousand. In the busy mining districts not much attention is paid to horticulture, but west to the Coast Range of mountains, where the climate is mild and genial, much like that of England, fruits and flowers grow in profusion. There the holly, laurel, rhododendron, and yew flourish with the apple, pear, plum, and cherry, and in some localities, the peach. In those parts of the province between the Coast Range and the Rockies there are many fine valleys, some of which have not sufficient rainfall to admit of the successful cultivation either of grain or fruit without irrigation. There are, however, many mountain streams available for this purpose, and on some of the ranches very fine apples are grown. The taste for flowers is almost universal, and the long, mild season permits of many of them being grown in perfection. This province has also a Fruit Growers' Association, assisted by a grant from the public purse, and exhibitions of fruits and flowers are held annually in the larger towns and cities. Vancouver and Victoria have both very fine public parks.

Experimental Farms.

The progress of horticulture, as well as agriculture, throughout Canada has been greatly stimulated by the organisation and maintenance of experimental farms by the Dominion Government. Ten years ago this good work was begun, and while the greater attention has been given to measures looking towards the improvement of farming, many lines of horticultural work have been vigorously prosecuted. These experimental farms are five in number, the central or principal farm being located at Ottawa, the seat of government—where, on the boundary line between Ontario and Quebec, it serves the purposes of these two important provinces—and the four branch farms in the more distant provinces of the Dominion. A site was chosen for one of these at Nappan, in Nova Scotia, near the dividing line between that Province and New Brunswick, where it ministers to the needs of three Maritime Provinces; one was located near Brandon, in the central part of Manitoba; a third was placed at Indian Head, a small town on the Canadian Pacific Railway in Assiniboia, one of the North-West Territories; and a fourth at Agassiz, in the coast climate of British Columbia. The climatic conditions prevailing at these several points are all very different, and each location in this respect fairly represents a large area. At each of these farms, orchards and fruit plantations have been established, and a large number of varieties of fruits tested, while similar experimental work has been carried on with many different sorts of ornamental trees, shrubs, and flowers. The selections made in each case have been of such varieties as were thought to be most likely to succeed in the climates in which they were to be tried. In the Maritime Provinces the climate resembles that of many parts of New England, and the branch experimental farm at Nappan occupies a fairly representative position. The climate is milder and more moist than that of Ottawa, and all the varieties of trees and shrubs which succeed at the central farm do quite as well, or better, at Nappan, and many varieties of fruits which thrive in Nova Scotia are not able to endure the more severe winters at Ottawa. At this eastern branch farm there are now nearly four hundred varieties of large and small fruits under trial and about three hundred varieties of ornamental trees and shrubs, and most of these are making satisfactory growth. Many additions are made to these lists every year. Already these plantations are proving a useful guide to the people in the Maritime Provinces, whether they desire to grow fruit or to beautify their homes by ornamental planting.

(To be continued.)

THE WEATHER DURING THE WEEK ENDING APRIL 30, 1898.

STATIONS.	Temperature of the Air. Highest. Fahrenheit.	Temperature of the Air. Lowest. Fahrenheit.	Mean. Fahrenheit.	Mean. Centigrade.	Rainfall. In Inches.	Rainfall. In Centimetres.
London	60·9	29·7	48·3	9·06	0·49	1·24
Croydon	62·0	31·0	48·2	9·00	0·38	0·97
Brighton	61·0	33·4	48·4	9·11	0·49	1·24
Bristol	58·0	33·0	46·0	7·78	0·71	1·80
Wolverhampton	60·4	31·2	46·2	7·89	0·59	1·50
Norwich	62·1	32·8	46·8	8·22	0·44	1·12
Nottingham	59·6	36·5	46·2	7·89	0·64	1·63
Liverpool	58·1	37·3	46·0	7·78	0·59	1·50
Huddersfield	56·8	34·2	44·0	6·67	1·10	2 79
Bradford	58·8	39·6	47·6	8·67	1·08	2·74
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·60 inches, and that of the Thermometer 48°·3, the latter being 0°·3 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 13 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 23·9 hours. The measured rainfall amounted to 0·49 of an inch.

LAW.

A SEED TRADE DISPUTE.

THE case of Howcroft v. Laycock, tried by Judge Lumley Smith, Q.C., at the Westminster County Court a few days since, was interesting inasmuch as the [illegible]ing of his Honour goes a good way to prove that a seedsmen is absolutely protected by his non-guarantee clause. In this case Messrs. Howcroft, of Covent Garden, sued Mr. Laycock, of Midhurst, to recover £21 for seeds supplied him. This claim was admitted, but the defendant entered a counter-claim for £18 as compensation for losses sustained owing to alleged misrepresentation of some seeds supplied. The defendant stated that he purchased from the plaintiffs a two-pound packet of Couve Tronchuda; the seed was duly sown and all possible care taken of it, but the crop turned out to be strong-growing cabbages of the Jersey variety and not the dwarf Couve Tronchuda. The result was that defendant could not sell the crop. The plaintiffs showed that the seed was supplied under a non-guarantee clause, such clause having been inserted in catalogues, invoices, and advertisements. For the plaintiffs, Mr. Hayward said that all seedsmen sold their seeds under a non-guarantee clause; he considered the plants in question not an article of domestic use but used chiefly for cattle feeding.

Mr. A. F. Barron was present as an expert, and decided that the crop resulting from the seeds supplied was not of Couve Tronchuda. Judge Lumley Smith found that Couve Tronchuda was fit for human consumption, but that the plants resulting from the seed supplied by the plaintiffs was only fit for cattle. His Honour, however, considered plaintiffs protected by their non-guarantee clause, and so gave judgment in their favour both on claim and counterclaim, with costs. Defendant had leave to appeal.

NEW INVENTIONS.

The Improved Garden Hose.—The trouble experienced by many gardeners with garden hose bursting, kinking, or rotting, is met by another important improvement in this article by Messrs. Merryweather. This firm has been successful for years past in manufacturing durable garden hoses which shall last more than a season or two in regular work. The latest method of securing durability for their hose consists of an external coating of fine quality rubber of substantial thickness, which effectually prevents the canvas plies being soaked with water, as in ordinary hoses, and prevents rotting, which soon means the destruction of the hose. The ends of each length are also hermetically sealed with rubber to protect the canvas from water. To give flexibility this has an internal coating of the best and most pliable rubber, and thus kinking and consequent stoppage of the flow of water, causing bursts in the hose, is prevented.

OBITUARY.

MR. A. W. BLICK, who was formerly well known in horticultural circles owing to his position as foreman in the Royal Horticultural Society's Gardens at South Kensington, a position he held for a period of twenty-five years, died, we regret to learn, on the 2nd inst., at Brentford. For many years past Mr. Blick had been host of a comfortable inn near the Ealing Road, in the Middlesex county town, and here he was always ready to bring up old horticultural memories, while few men had a wider knowledge of R.H.S. affairs in connection with South Kensington. Mr. Blick passed away in his seventy-second year.

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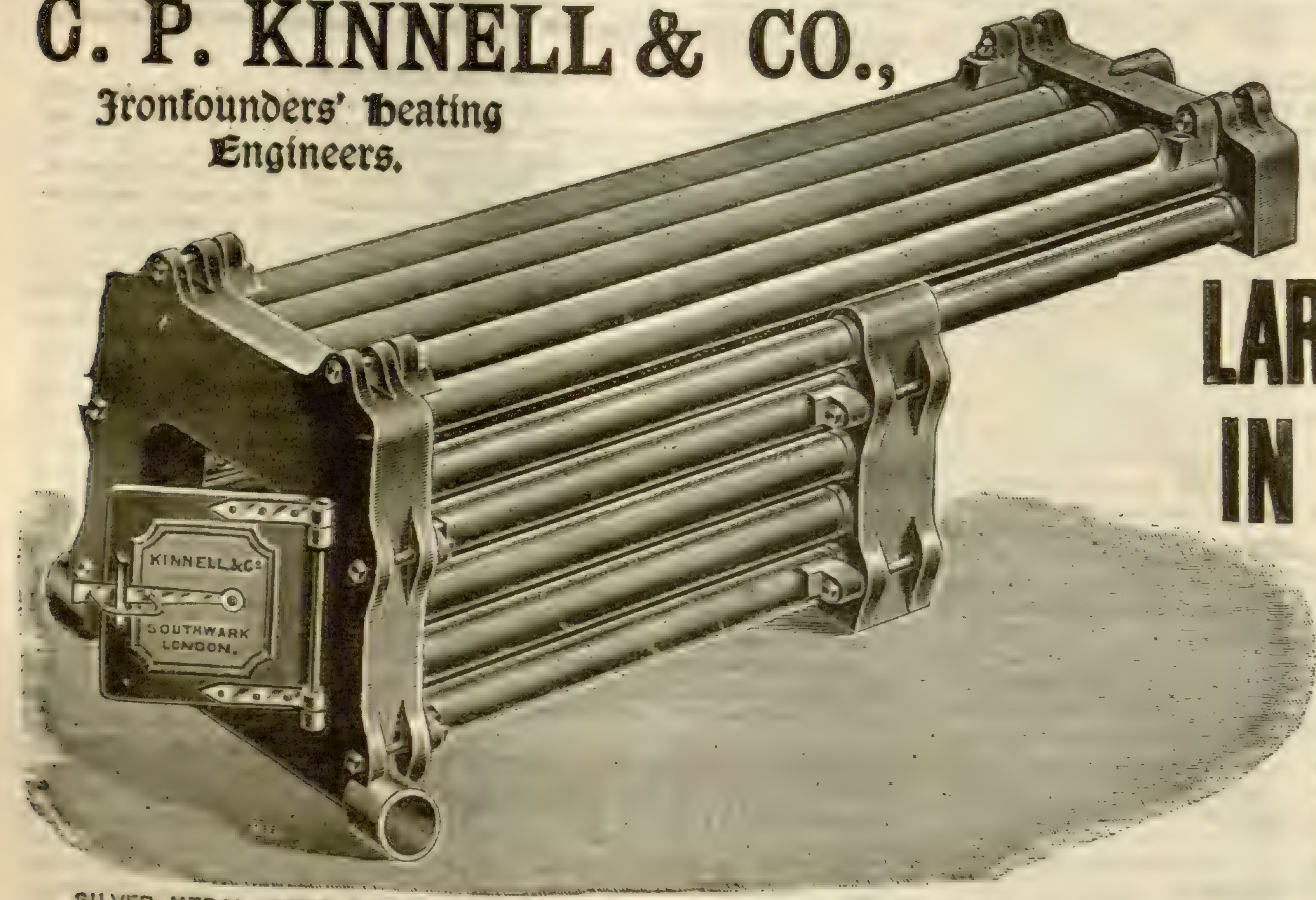

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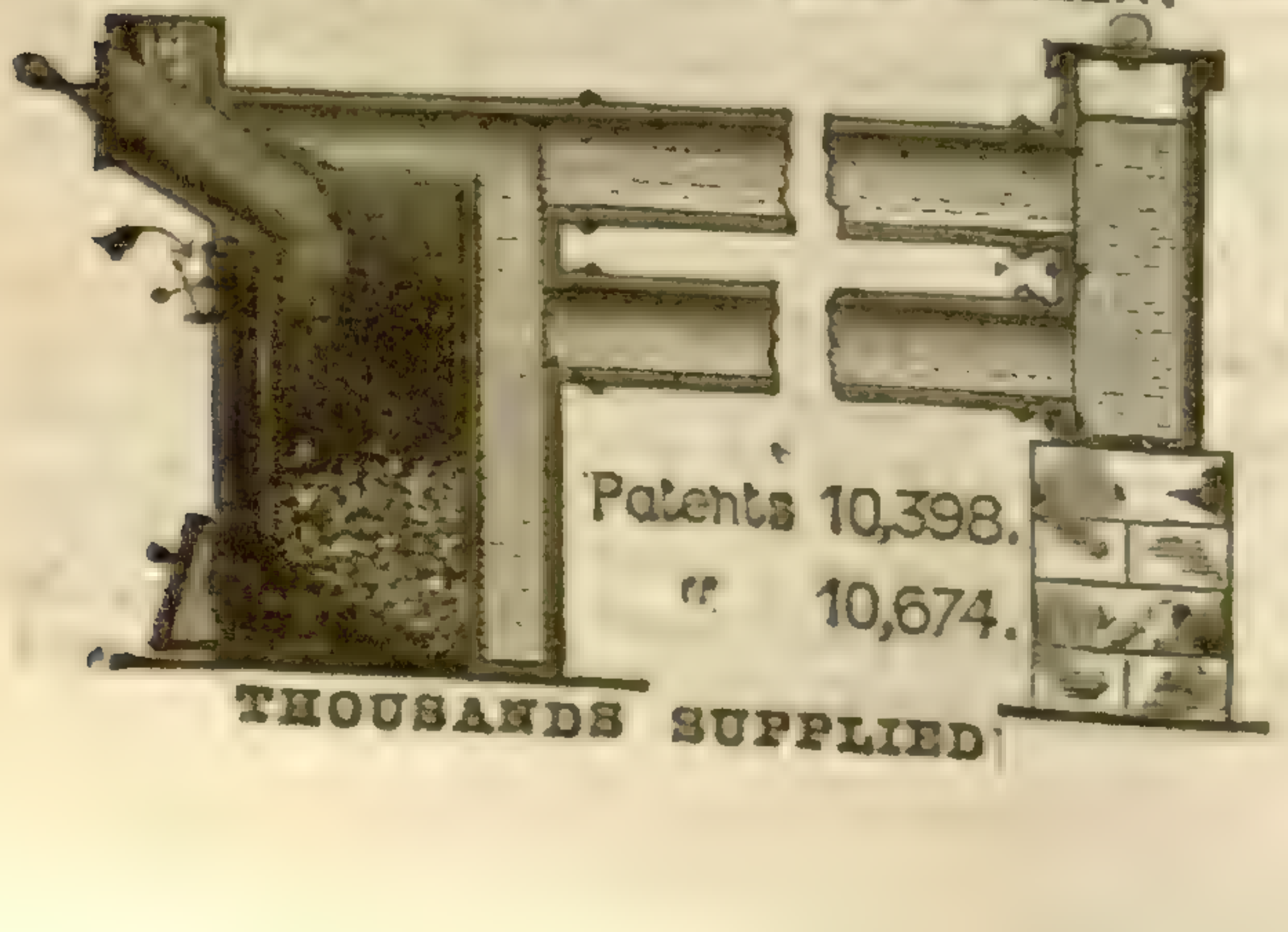

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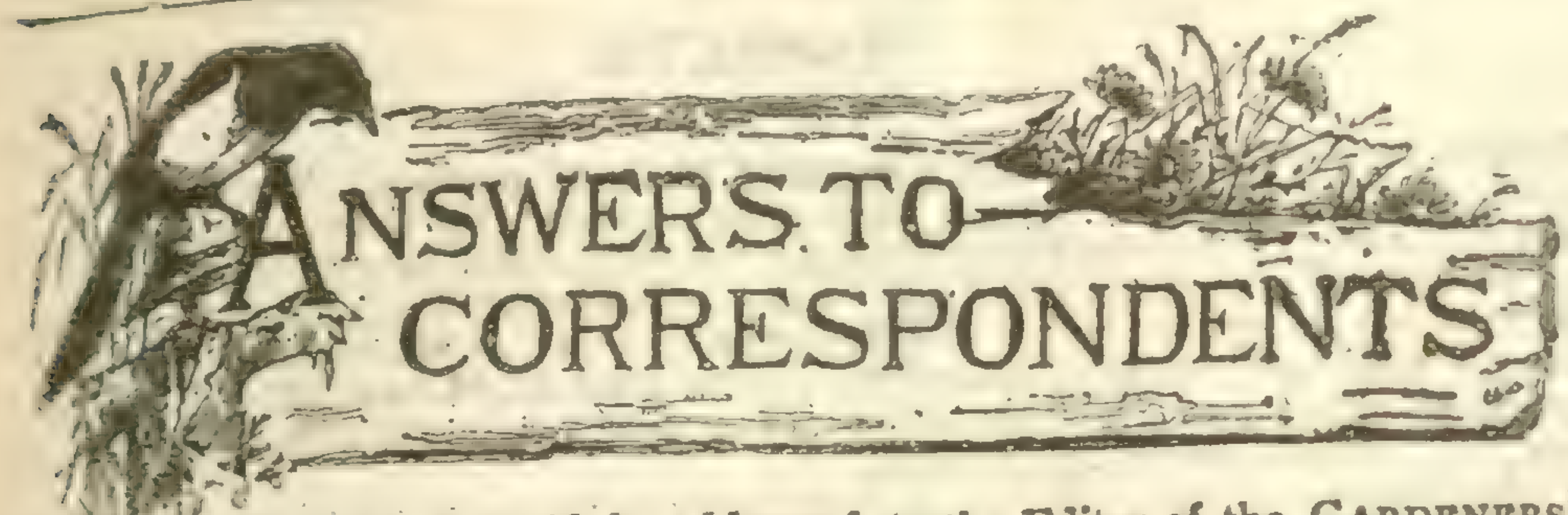

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Diseased Dendrobiums.—T. G. O., Dulwich: We hope to answer your query in our next issue. Thanks for letter.

Rose Cultivation.—A., Bideford: The book you are searching for—"Rose Growing" by D. Gilmour—is published at 12, Mitre Court Chambers, Fleet Street, E.C.

Apples from Isle of Wight.—H. G.: Thanks for letter. You will have seen that the reply was given as early as possible (in our issue of April 30), for the GARDENERS' MAGAZINE goes to press on Wednesdays—see "Notice to Advertisers" on front page. However, you will now be able to take special care of the apple under consideration, and exhibit some selected fruits during the autumn, and an occasional dish at intervals during winter and spring to prove its fine keeping qualities. We suggest that you become a Fellow of the R.H.S. The subscription is one guinea per annum, and the literature you receive is alone well worth the money.

Gros Colmar Grapes.—J. S.: The failure of the young bunches to mature their flowers and set fruit is due, so far as we can gather from the tiny specimen sent, to weakness of growth following incomplete ripening of the wood last season. A badly drained border, or an excessive crop not properly fed, may have been the initial cause of failure; but with such little evidence, and no knowledge of the conditions under which the vines were grown, we cannot help you further. The rods of strong growing vines should be far enough apart to allow of the proper development of lateral growth and leafage. Permanent rods should be from four to five feet apart.

Annual Rose.—A., Bideford: Do not be in a hurry to throw away the pot in which the seed was sown, as, in the comparatively cool place you have for raising seedlings, germination will be slow. A warm pit is the best place for producing the seedlings, and these, as soon as large enough, should be pricke out and eventually potted into sixty-sixed pots. Under favourable circumstances the plants flower about two months from the time the seedlings are fit to handle. Cooler treatment should be accorded as soon as the plants are established in sixties. The rose to which you refer is only annual in the sense that it flowers within a year from seed sowing; it is really perennial, and is said to flower better as it grows older.

Gardening Associations.—W. B., Stockport: There is no central body to which your new society might become affiliated for the purpose of interchange of papers. Affiliation might be made with the Royal Horticultural Society, so that the literature it publishes could be utilised as a basis for discussions. The National Amateur Gardeners' Association offers many privileges to societies affiliated with it; its secretary is Mr. L. Brown, Brentwood, Essex. We do not make distributions of the kind you suggest, but your case is under consideration.

Weeds on Lawns.—C. R., Meopham: You will at this season have to resort chiefly to spudding for the removal of strong-growing weeds on lawns. Early in the spring or in the autumn are the best times for the application of lawn sand, and, though this is costly, it is most effective, killing out the daisies and other spreading weeds, and acting as a fertiliser to the grass. You had better root out all the dandelions, sorrel, and plantains as soon as possible, dropping a few grass and fine clover seeds into the holes thus left; then, early in the autumn, obtain some lawn sand through a horticultural sundriesman, and give the lawn a dressing. The following spring you will be more than satisfied with the results.

Carpet Bedding.—A. B., Bolton: The most comprehensive and freely illustrated work we know upon carpet bedding and summer bedding is one entitled "Album fur Teppichgärtnerei und Gruppenbepflanzung"; it is by Karl Göetze, and can be obtained from Ludwig Möller, Erfurt; the plans and illustrations are very liberal, and the names of plants are the same in Germany as elsewhere. If you do not care for so large a work, and object to anything "made in Germany," then there is the neat little pamphlet recently published by Messrs. H. Cannell and Sons, Swanley, Kent, for 6d.; it contains not less than sixty designs and abundant lists of plants for use in them.

Exhibiting at R.H.S. Meetings.—G. W. P., Middlesborough: You should intimate your intention of exhibiting at an R.H.S. meeting (May 10 is the next) by writing to the secretary, Royal Horticultural Society, 117, Victoria Street, S.W., stating that you wish to submit your plant to the Floral Committee for certificate. If you send the plant, asking that it be staged, nothing further will be necessary beyond instructions for its return. If you bring the plant you should apply to the secretary of the Floral Committee, at the Drill Hall, for an entry card. We presume you have compared your plant with others of its class and find it distinct; two discoloured leaves are insufficient to properly judge a plant upon. The following are the R.H.S, rules with respect to new plants, flowers, and fruits: They must in all cases be sent carriage paid and at the risk of the sender. A separate advice by post card or letter must be sent to the secretary, R.H.S. office, 117, Victoria Street, Westminster. Small parcels should be addressed to the secretary, R.H.S. office, 117, Victoria Street, Westminster. Very large or heavy parcels should be addressed to the Secretary, R.H S., Drill Hall, L.S.R.V., James Street, Victoria Street, Westminster; the postal advice being sent to the R.H.S. Office, 117, Victoria Street. Unless these regulations be complied with the risk of parcels going astray will be greatly increased. The following particulars should be communicated in writing: (1) The name and postal address of the exhibitor; (2) the name of the fruit, flower, plant, or vege-

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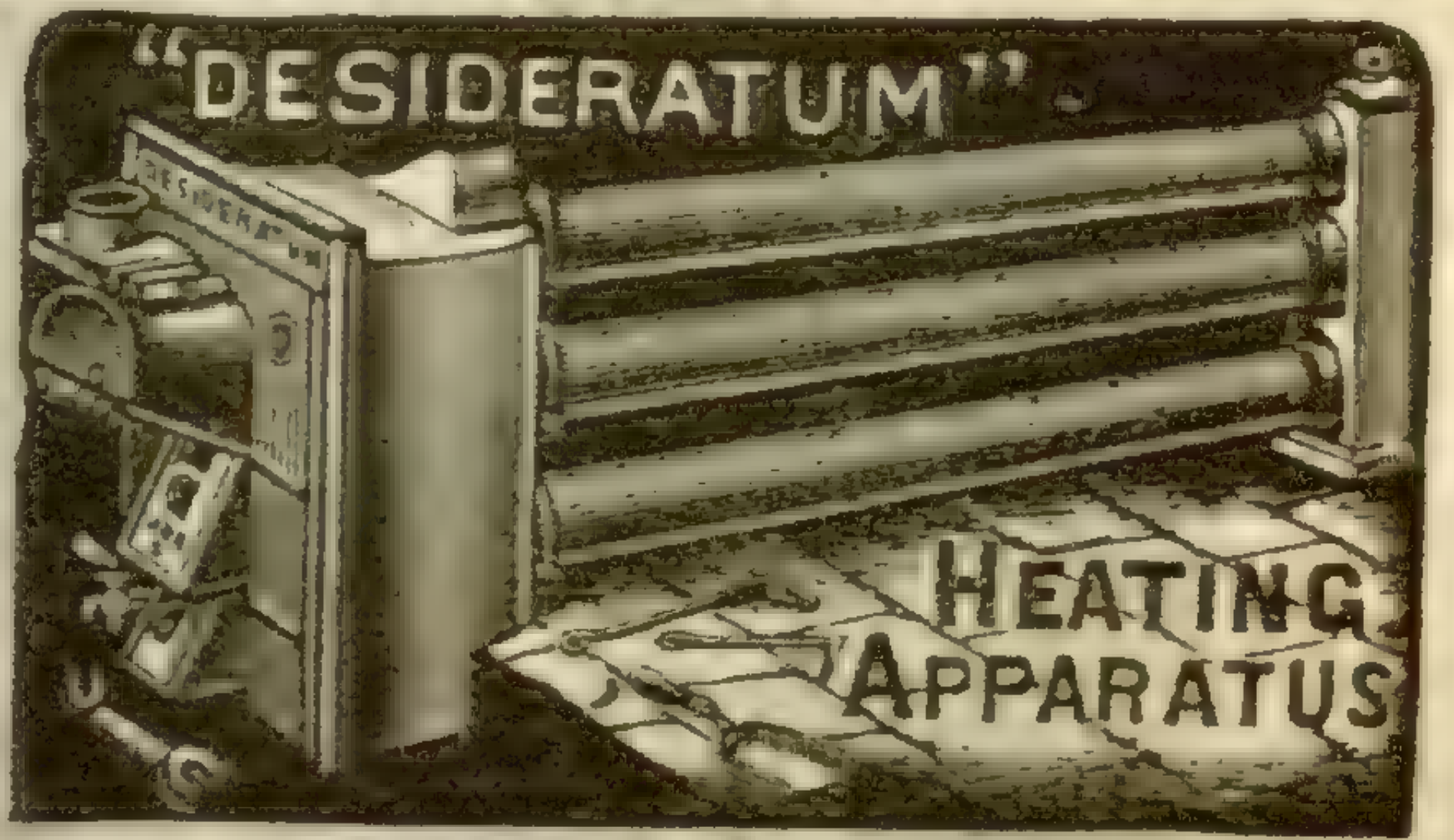

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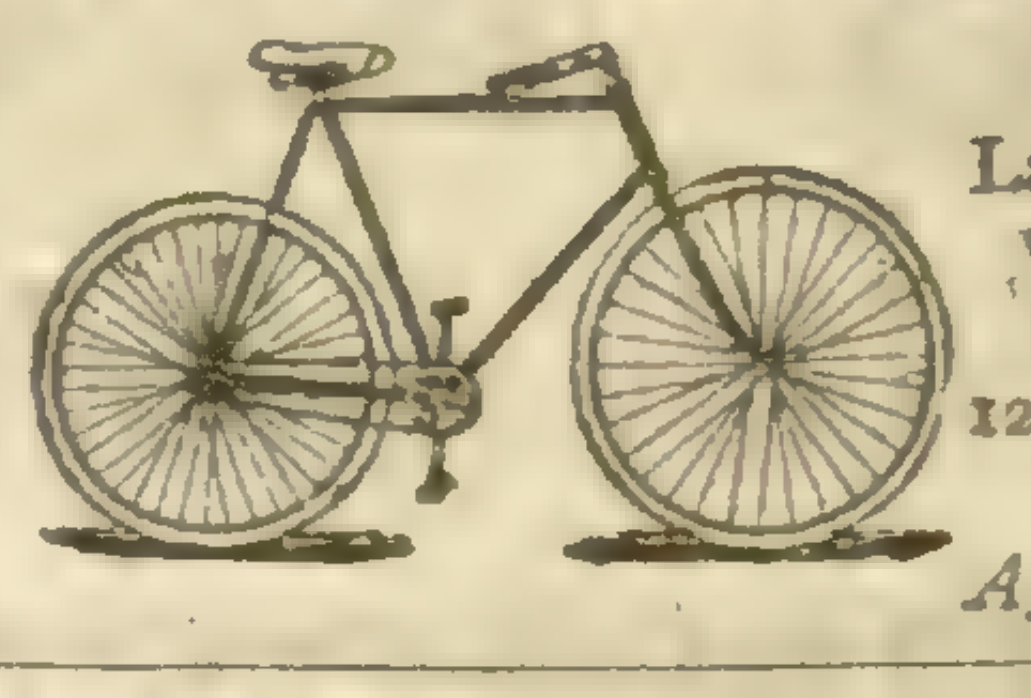

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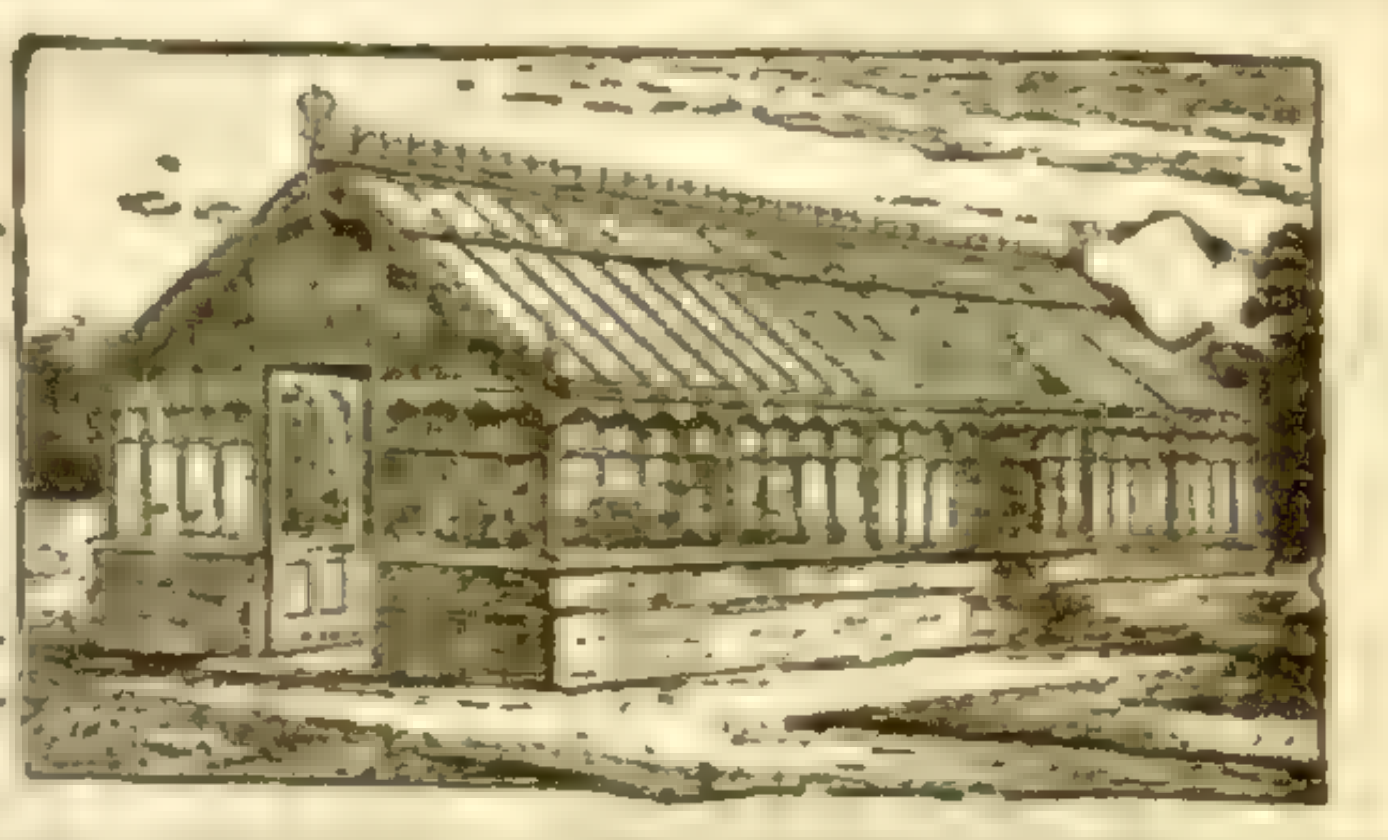

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table, and, in the case of seedlings, particulars as to parentage and date of raising should be given if possible; (3) if an importation, the name of its native country should be added. Seedlings sent without name will receive no award. We may add that the plant should arrive at the Drill Hall, James Street, early on any exhibition morning, as if it arrives later than half-past eleven a.m. it may not receive attention.

Grubs.—F. A. Uxbridge: The grubs sent are those of the Cockchafer or Rose Beetle. Lightly fork over the soil where possible and burn all the grubs that are turned up.

Daffodils from Seed.—S. K., Notts: Seeds should be sown as soon as perfectly ripe in pans of sandy loam. See that the receptacle is well drained, and that the compost is free from lumps; water must be given carefully through a rose, taking care not to keep the soil saturated. Place in a cold frame and put a piece of glass over the pan until germination takes place. Shelter must be given from strong sunshine and cold drying winds. During winter keep the seedlings near the glass and free from hard frost, but remember that daffodils are perfectly hardy, and so give plenty of air whenever possible. The seedlings may be transferred, when fit, to prepared borders of moderately light rich soil, not freshly manured however, or they may be planted from one half to an inch apart in a cold frame, so that protection may be afforded when such is deemed necessary. Two year old bulbs will still be very tiny, and need not more than an inch of space, but after this the bulbs will commence to swell, and as the seasons recur more room and hardier quarters must be provided, though wind screens should always be allowed. When the seedlings first flower they will probably not show to advantage, so it is always best to retain them for two or three years more until a strong bulbs gives a fully developed flower, by which it may be judged. We know of no book on the subject, though much of the information contained in "Ye Daffodyl," to be obtained from Messrs. Barr and Sons, 12 and 13, Covent Garden, London, would prove useful to you. Its price is 1s.

Names of Plants.—R. S. H., Wexford: 1, Primula viscosa; 2, P. verticillata; 3, P. cortusoides; 4, a florists' form of P. auricula.

W. C., Carlow: 1, Fritillaria delphinensis; 2, Dicentra cucullata, probably, flowers were all spoiled; 3, Geum rivale; 4, Epimedium alpinum; 5, Kerria japonica fl. pl.; 6, Boussingaultia baselloides.

A. B., Fawley: 1, not recognized, send in flower; 2, Berberis Darwini; 3, Fritillaria lutea; 4, Dielytra spectabilis; 6, Fittonia argyroneura.

E. A. M., Darlington: 1, Exochorda grandiflora; 2, Cheiranthus mutabilis; 3, Doronicum plantagineum excelsum; 4, Phlox divaricata.

A. F. F., Ripon: 1, Odontoglossum cirrhosum; 2, O. Rossi majus; 3, Trichopilia suavis; 4, a very poor form of Cattleya Mendelli.

Communications Received.—B. F.—C. A. N.—A. B.—W. C.—A. H. G.—J. S.—C. R.—L. O. F.—W. H. L.—G. W.—T. G O.—D. T. F.—H. H. D.—E. S.—J. T.—J. C. T.—R. D.—W. C.—A. O.—W. B.—W. G.—J. R.—T. W. N.—F. A.—J. H.—E. C. K.—W. W.—T. D.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Tuesday, May 10.—Royal Horticultural Society: Committees meet at 12 o'clock. Demonstration at 3 p.m. by Rev. Prof. Henslow, on "Some Plants Exhibited."

Wednesday, May 11.—Royal Botanic Society's Summer Show at Regent's Park. National Tulip Society: Exhibition to be held at Regent's Park, in conjunction with the Royal Botanic Society's Show.

Friday, May 13.—Royal Botanic Society's Lecture.

AUCTION.

Tuesday, Wednesday, and Friday, May 10, 11, and 13.—Orchids, Japanese Lilies, Ferns, Latanias, Seaforthias, Coryphas, Geraniums, &c, at Protheroe and Morris's Rooms.

MARKETS.

Covent Garden.

There are fairly good supplies of most kinds of produce. The choicer green vegetables, apples, and oranges realise high prices; for new potatos and vegetables there is a keen demand. Cut flower trade brisk throughout.

Fruit.—Tasmanian apples, 10s. to 16s.; Californian, 8s. to 11s. per case; N Scotian, 15s. to 25s. per barrel; English grapes, 3s. to 4s. 6d.; Channel Islands, 3s. to 4s.; Dutch, 2s. 6d. to 3s. 6d. per lb.; pineapples, 2s. 6d. to 4s. 6d. each; bananas, 5s. to 9s. per bunch; Valencia oranges, 12s. to 25s. per case; Jaffa, 10s. to 12s. 6d. per box; lemons, 8s. to 15s. per case.

Flowers.—Arums, 2s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. 6d. to 3s.; daffodils, 1s. 6d. to 4s.; tulips, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to wallflowers, 2s. to 3s.; polyanthuses and cowslips, 1s to 1s. 6d.; primroses, 9d. to 1s.; bluebells, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s.; and pelargoniums, 4d. to 8d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 2s. to 3s. per bunch.

Vegetables.—English tomatos, 8d. to 10d. per lb.; Canary, 1s. 6d. to 2s. per box, 3s. 6d. to 4s. 6d. per case; English spring, onions, 2s. 6d. to 3s. per dozen bunches; Egyptian, 6s. to 7s. per bag; rhubarb, 2s. to 3s. per dozen bunches; seakale, 6s. to 9s. per dozen punnets; asparagus, 1s. to 7s. 6d. per bundle; cabbages, 3s. to 4s. 6d. per tally; spinach, 2s. to 3s. per bushel; mushrooms, 6s. to 8s. per 12 lb.; cauliflowers, 1s. to 2s. per dozen; broccoli, 3s. 6d. to 6s. per crate; endive, 1s. 4d. to 1s. 8d.; lettuce, 9d. to 1s.; cos, 2s. to 2s. 6d.; cucumbers, 2s. 6d. to 5s. 6d. per dozen; French beans (Madeira), 3s. to 4s. per basket; new carrots, 6s. to 8s.; turnips, 6s. to 8s.; mint, 4s. to 5s.; and parsley, 1s. 6d. to 1s. 9d. per dozen bunches; Canary new potatos, 8s. 6d. to 12s.; Algiers, 10s. to 14s.; Malta, 6s. to 10s. per cwt.; French kidneys, 2d. per lb.

Borough Potato Market.

The home supplies of potatoes seem to be almost exhausted owing to the long-continued steady demand. Many sorts do not now appear upon the market, but English and Scotch varieties in good condition have advanced in price from 5s. to 10s. per ton. importations from Belgium and Germany have also advanced 3d. or more per bag.

CATALOGUES RECEIVED.

Fotheringham and King, Dumfries.—Herbaceous Plants, &c.
John Laing and Sons, Forest Hill, S.E.—Hardy Perennials, &c.

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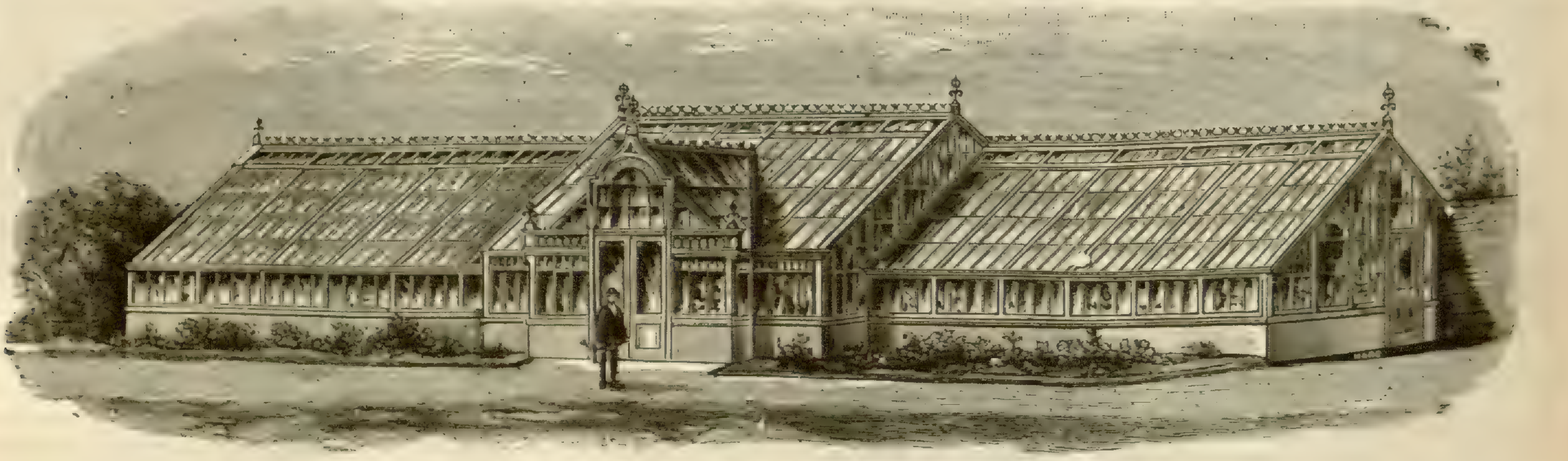

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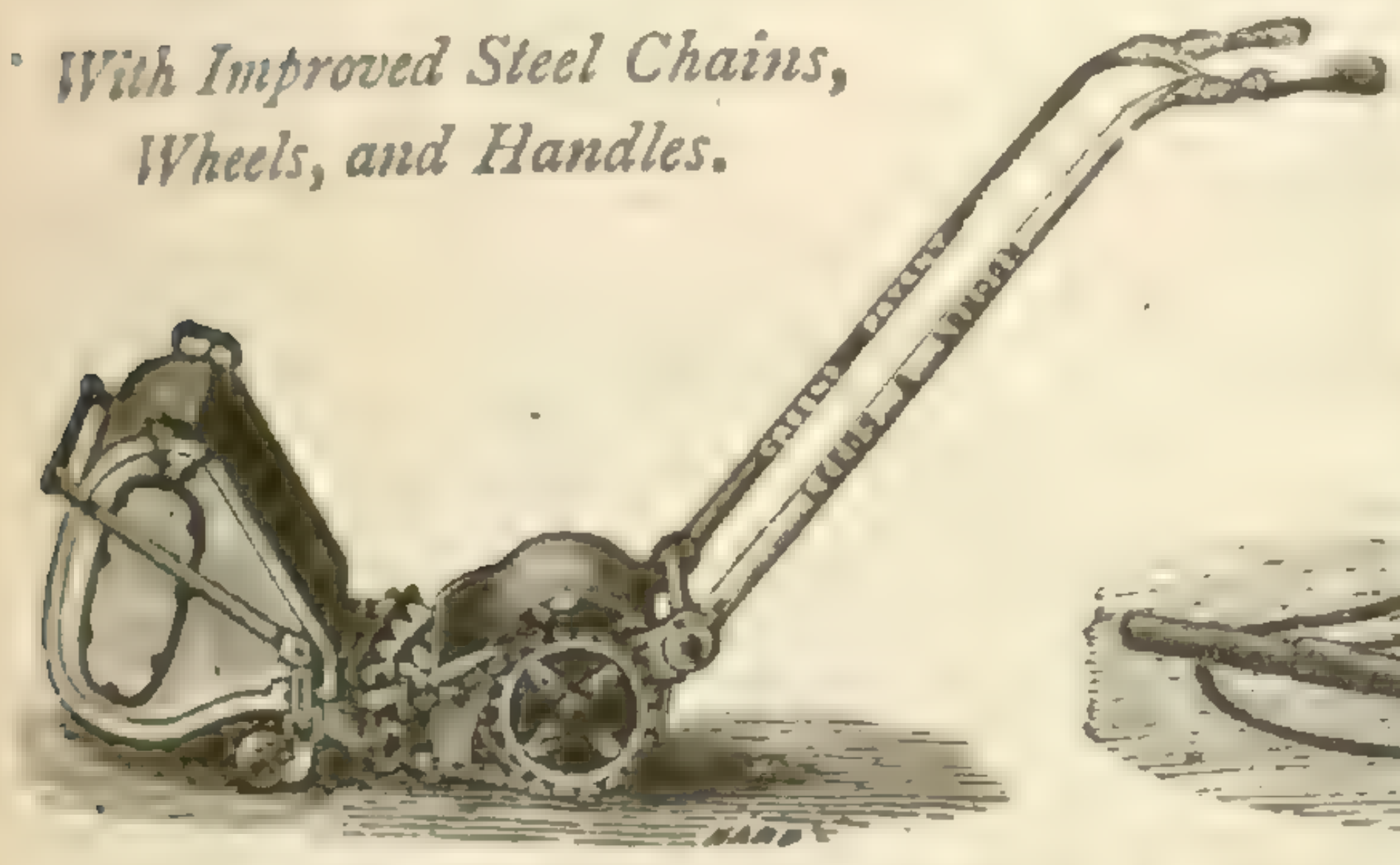

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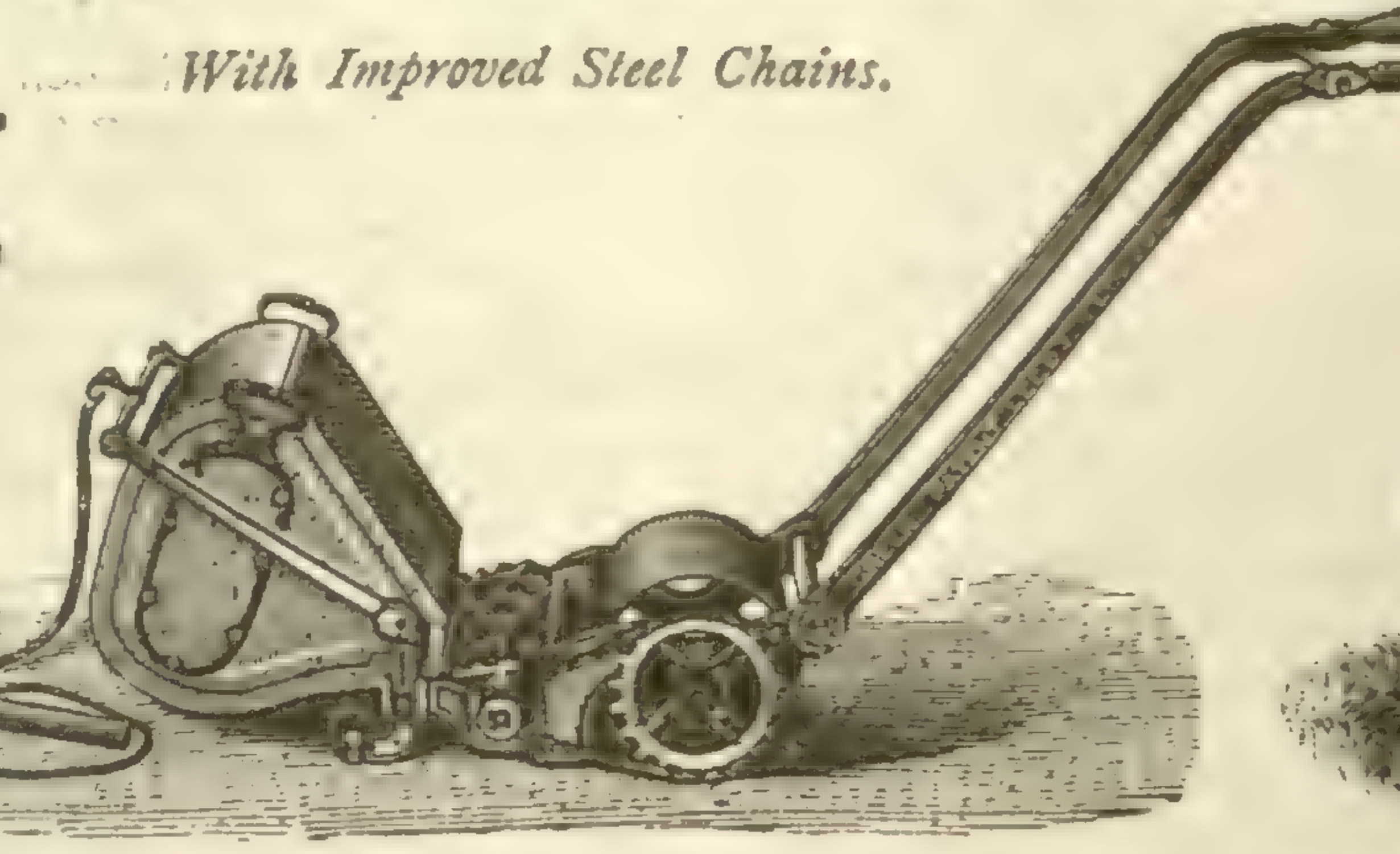

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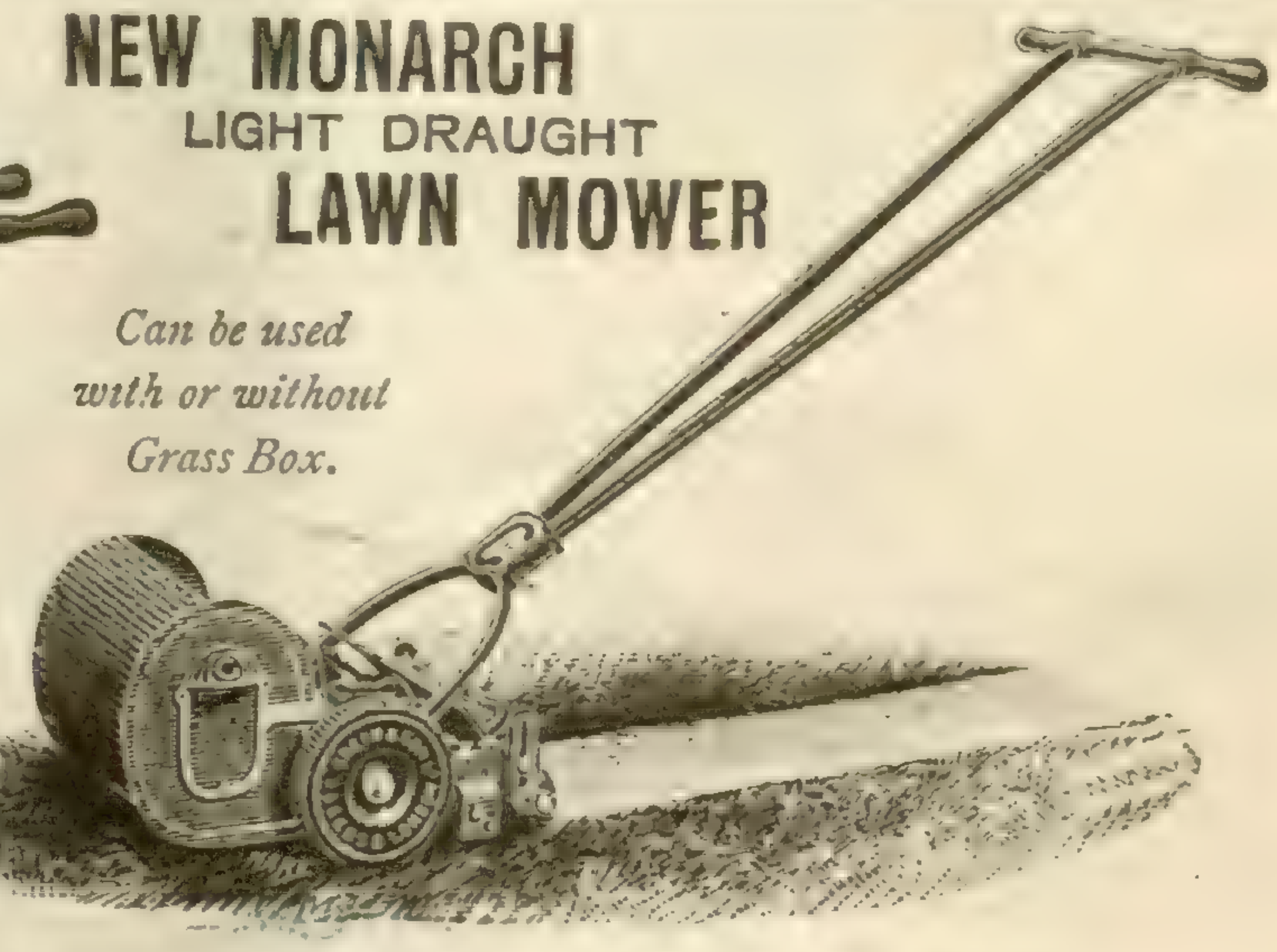

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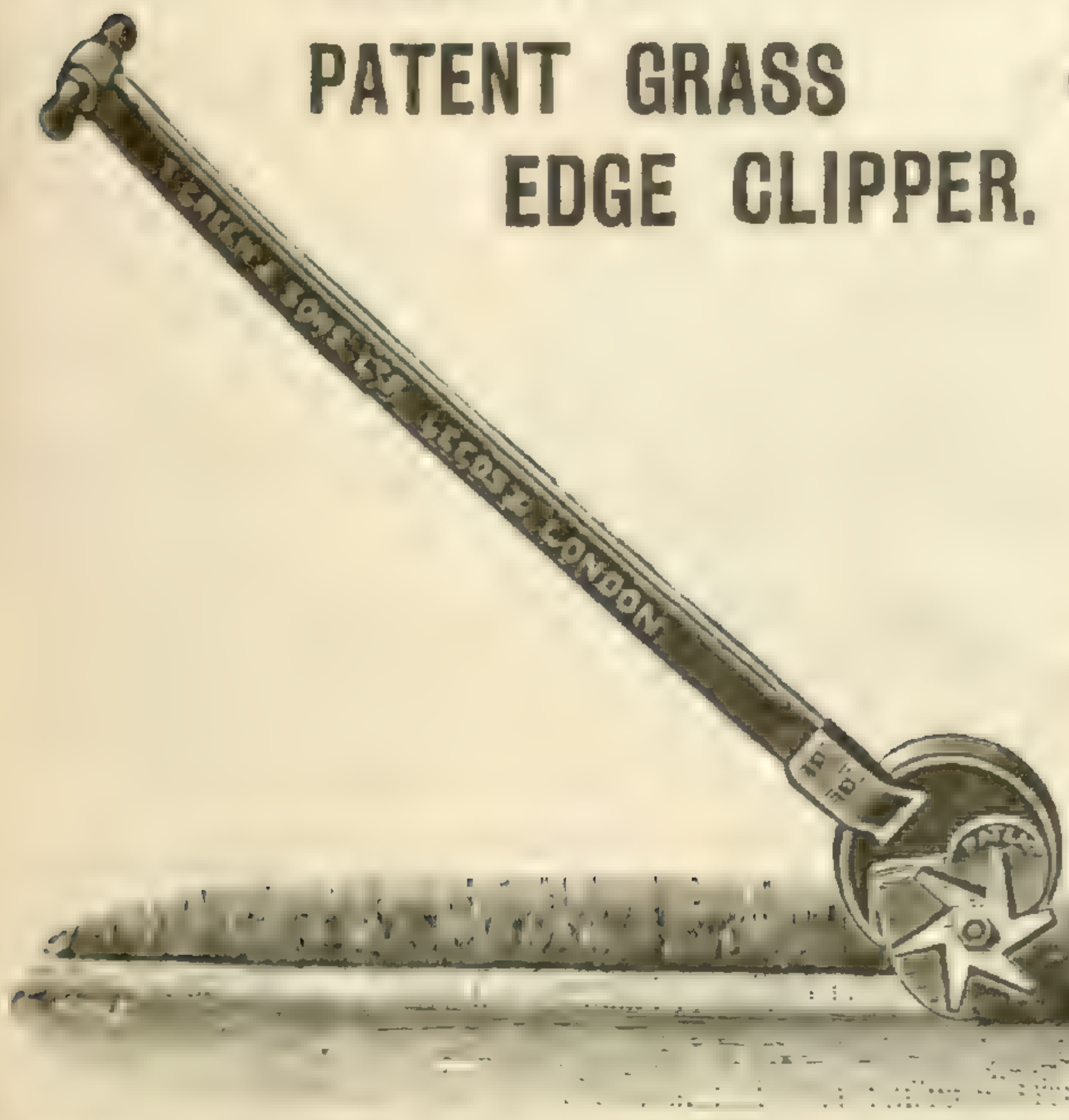

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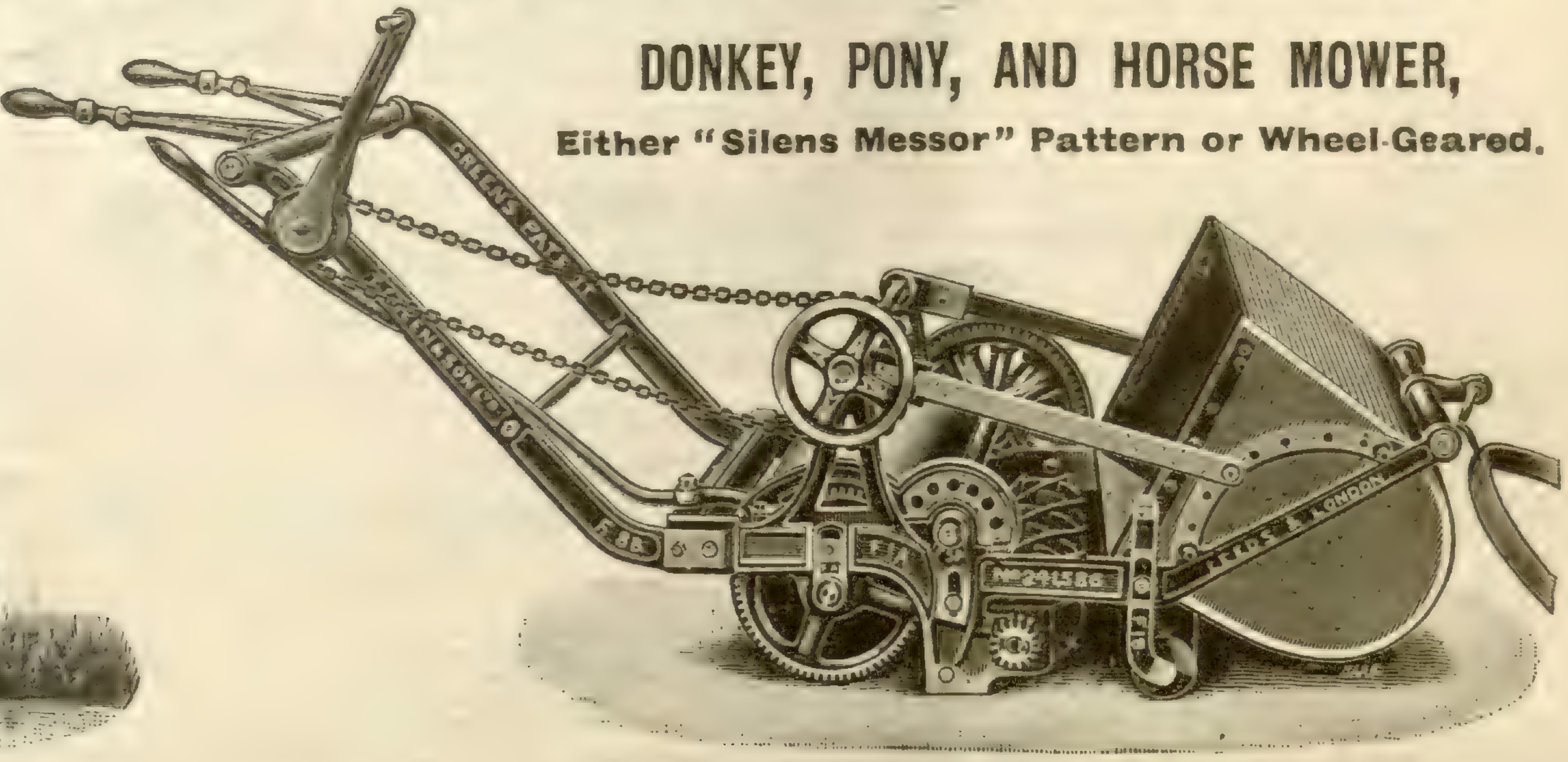

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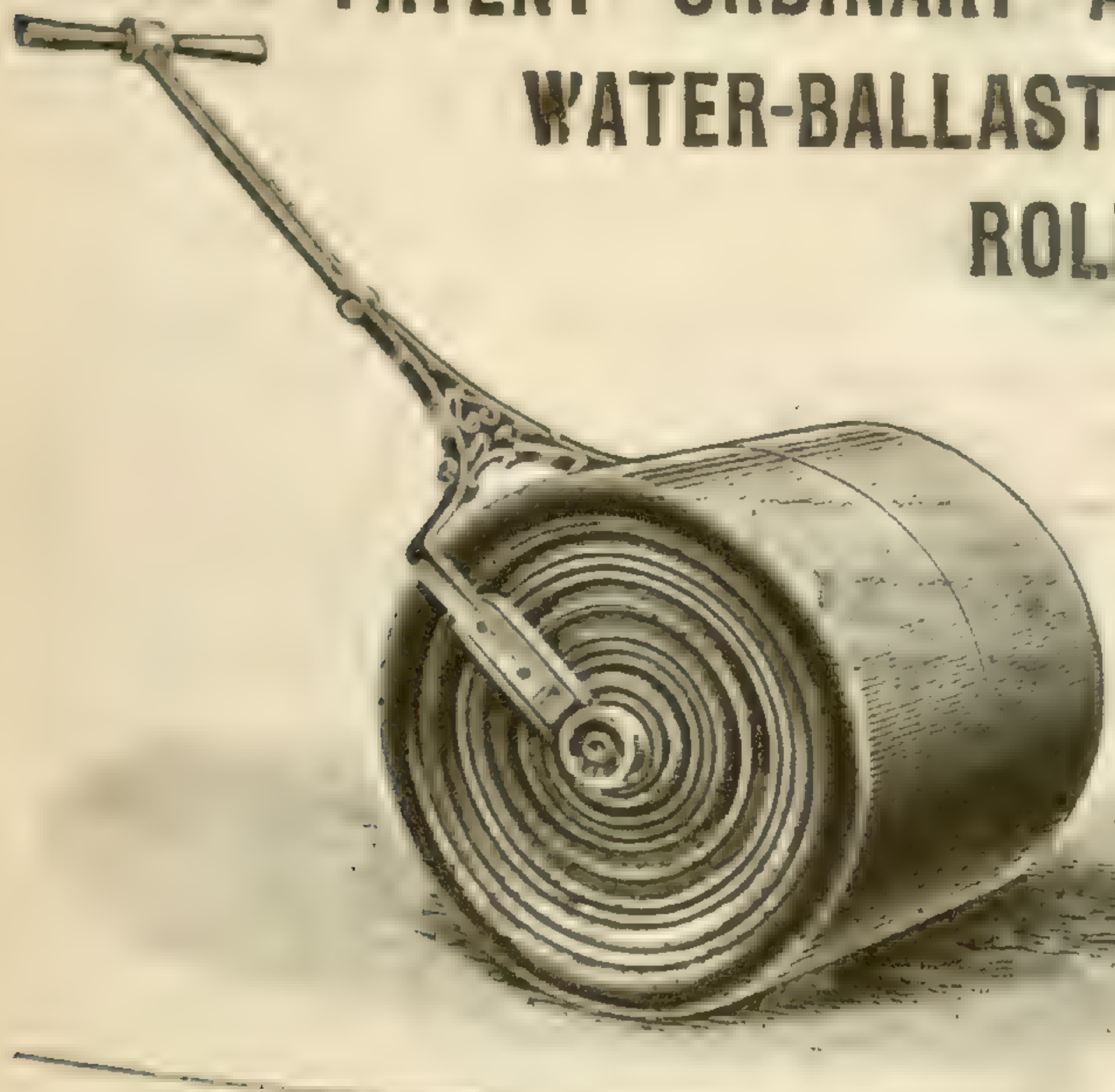

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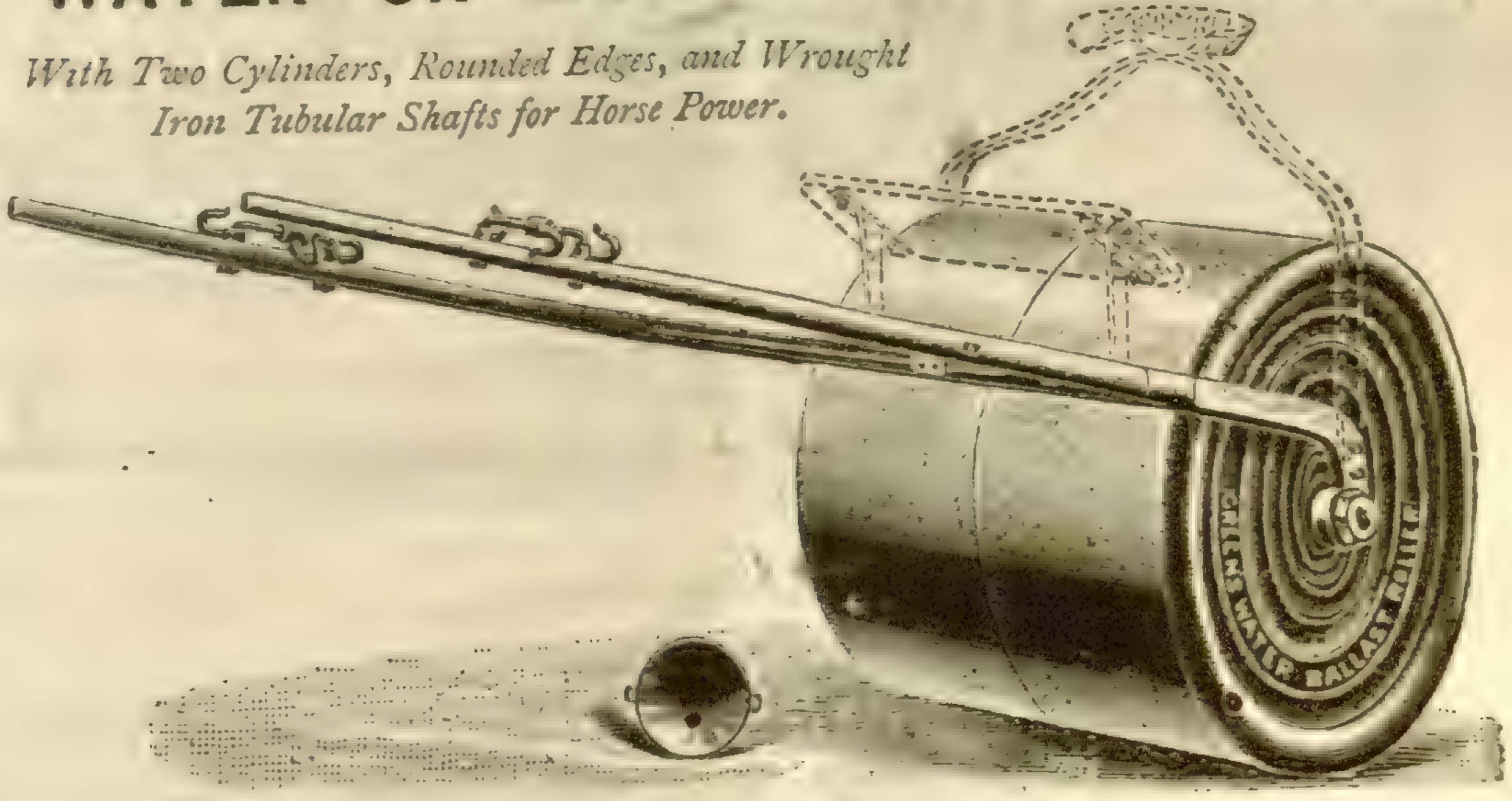

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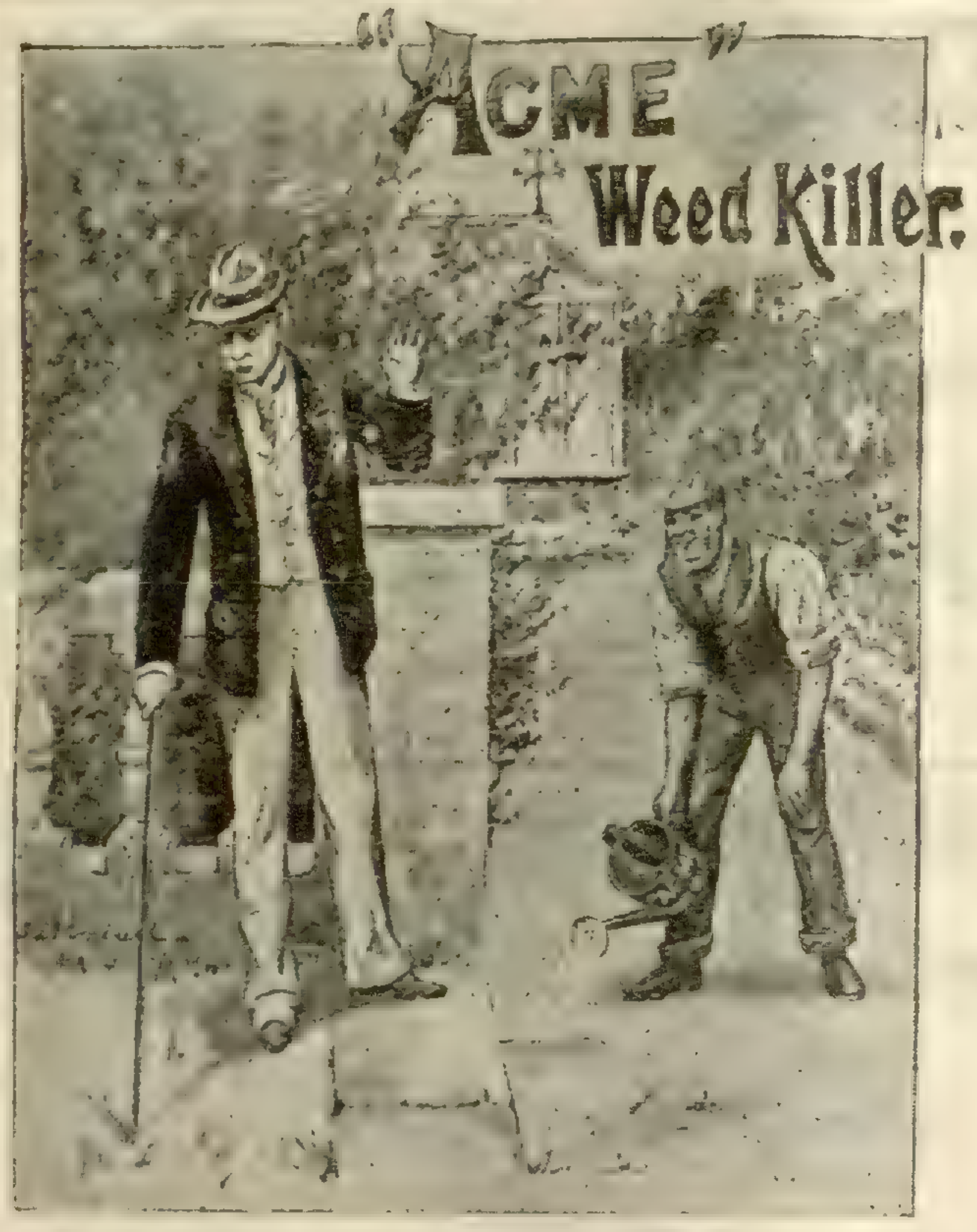

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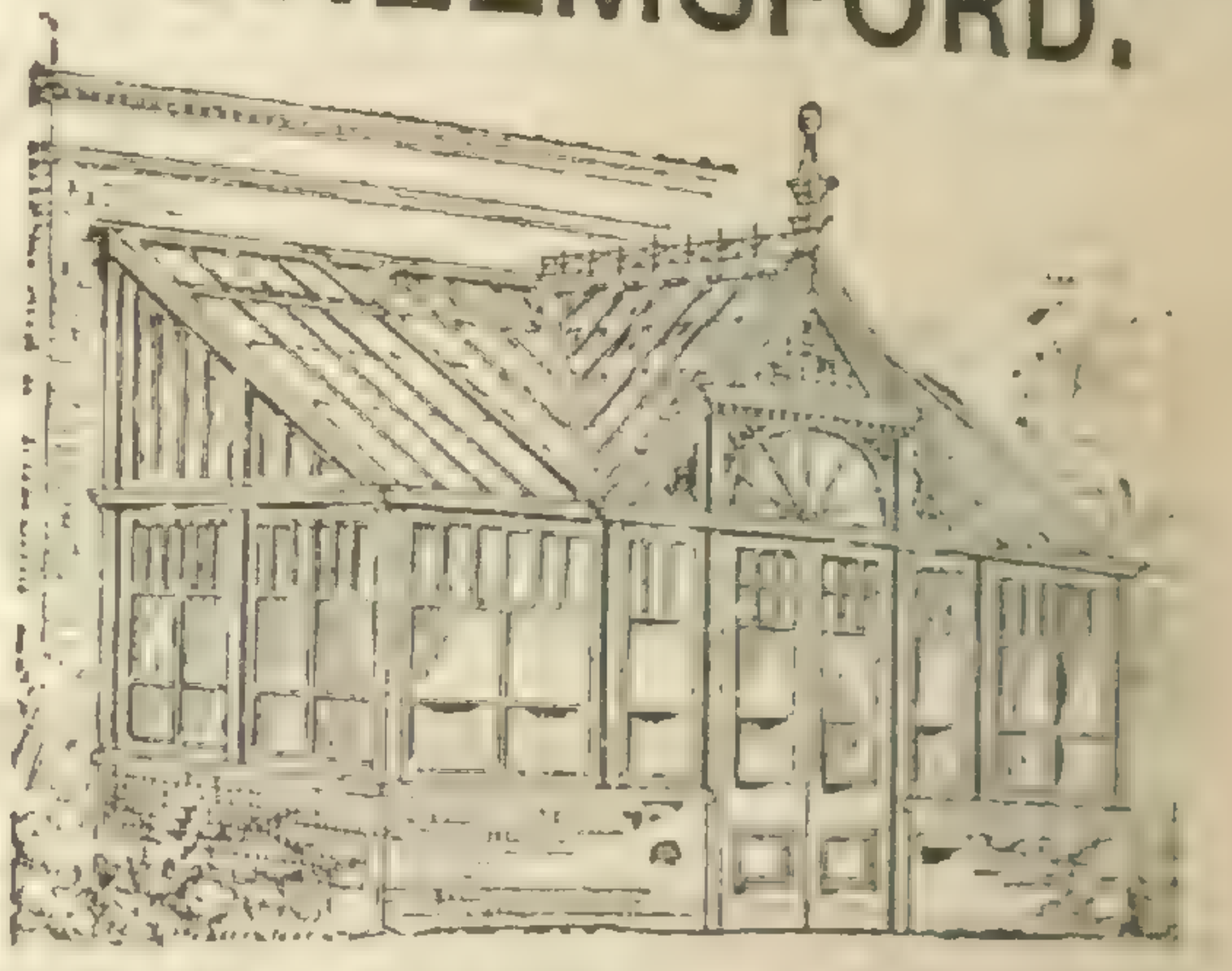

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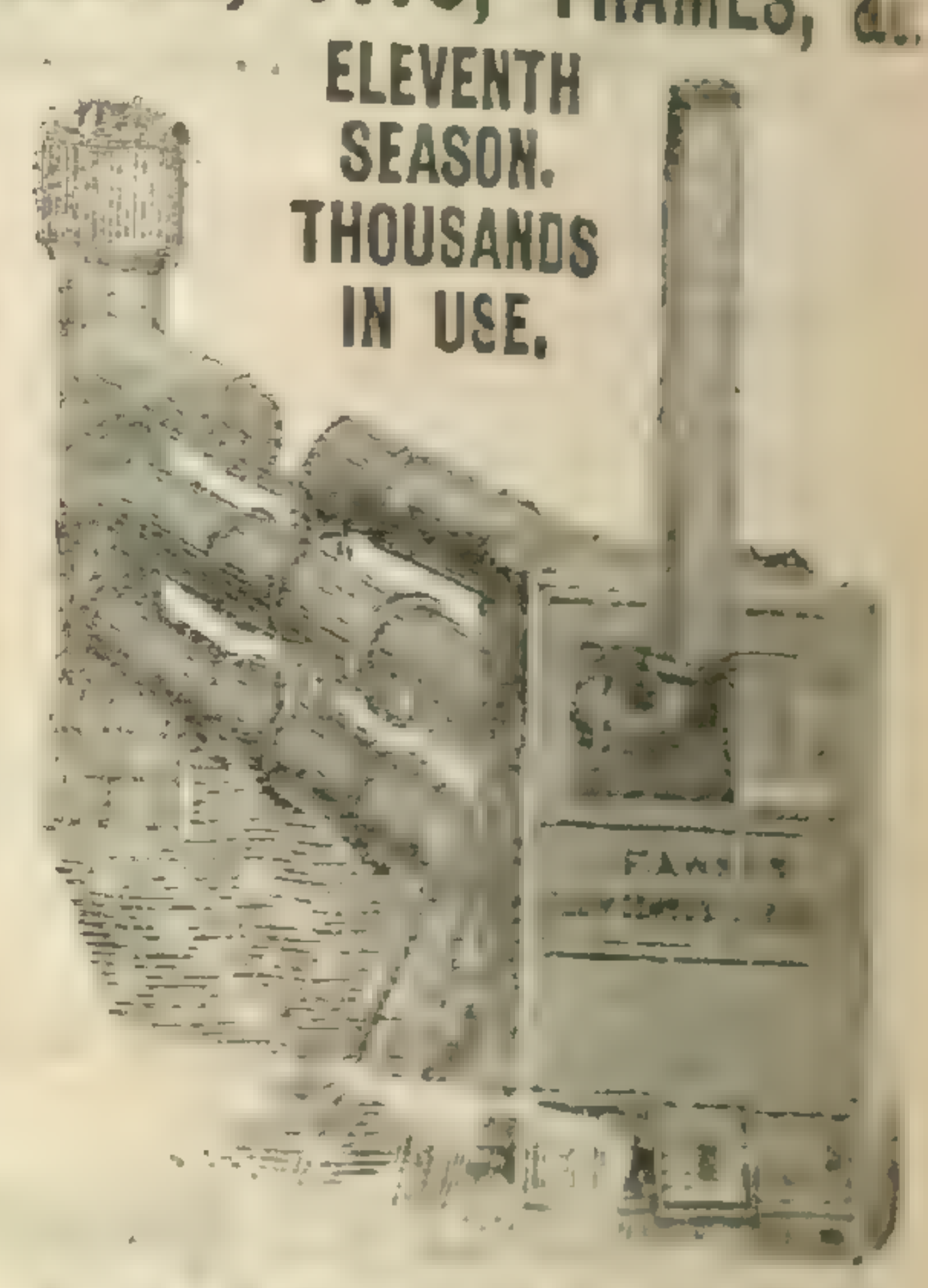

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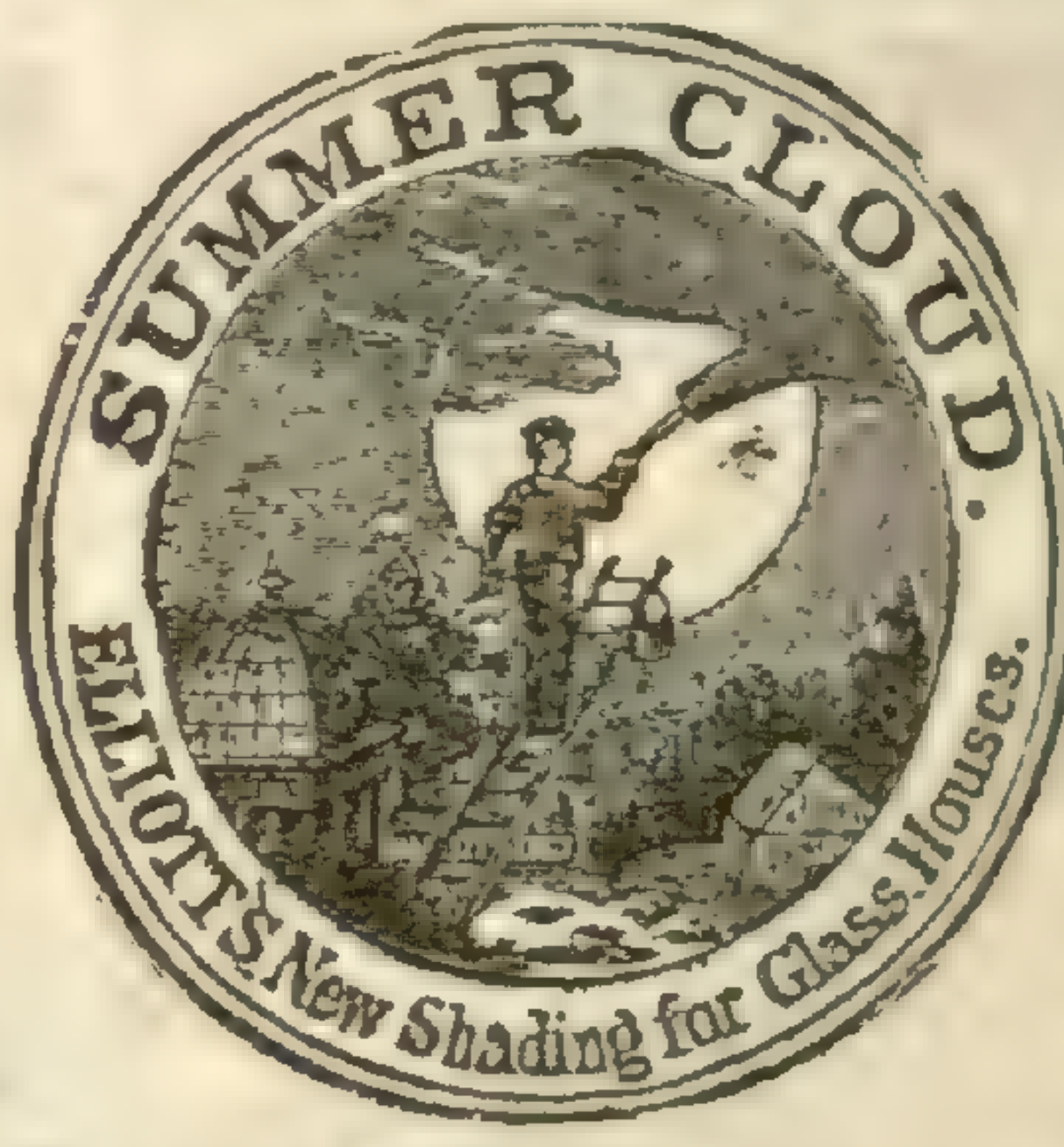
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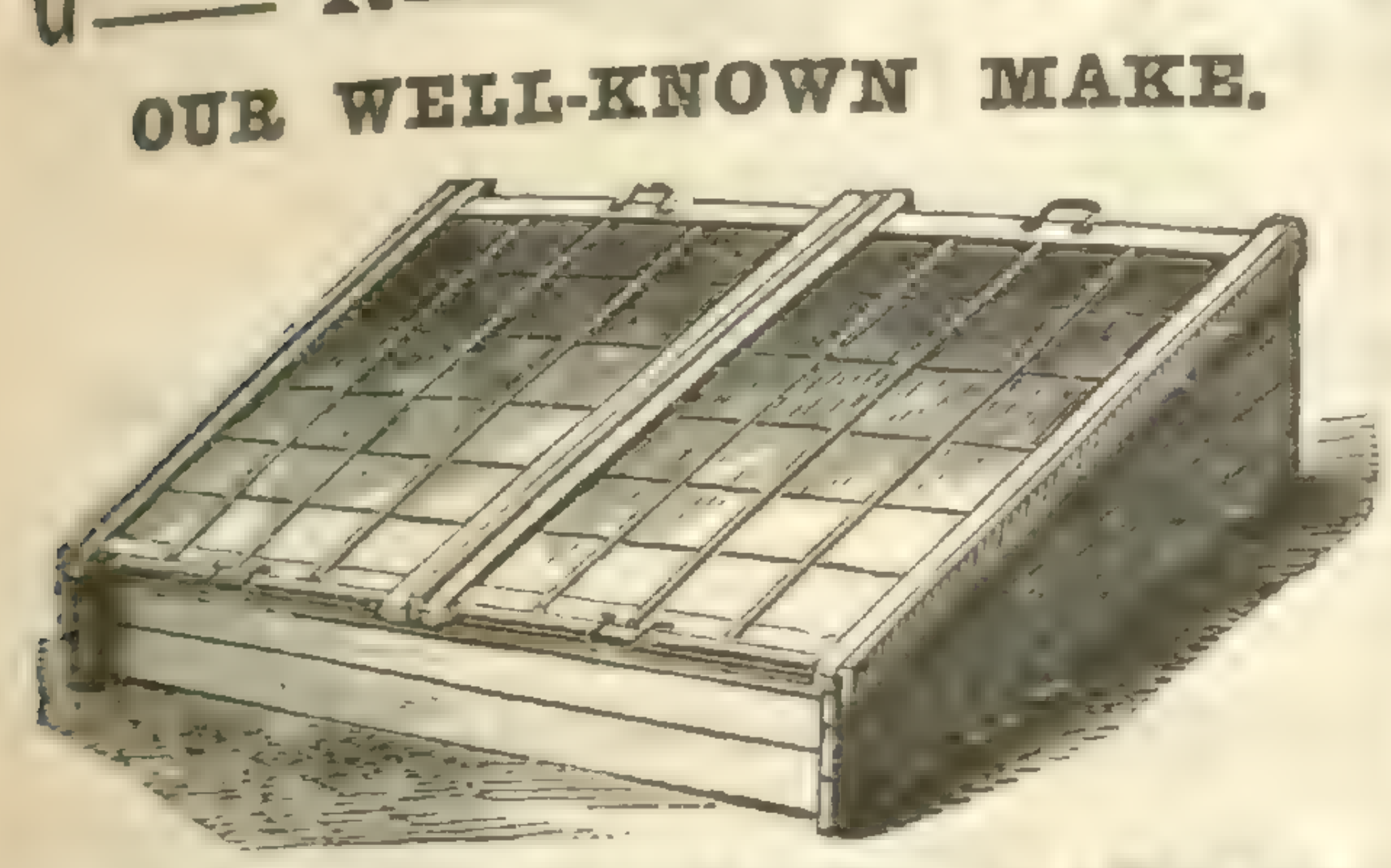

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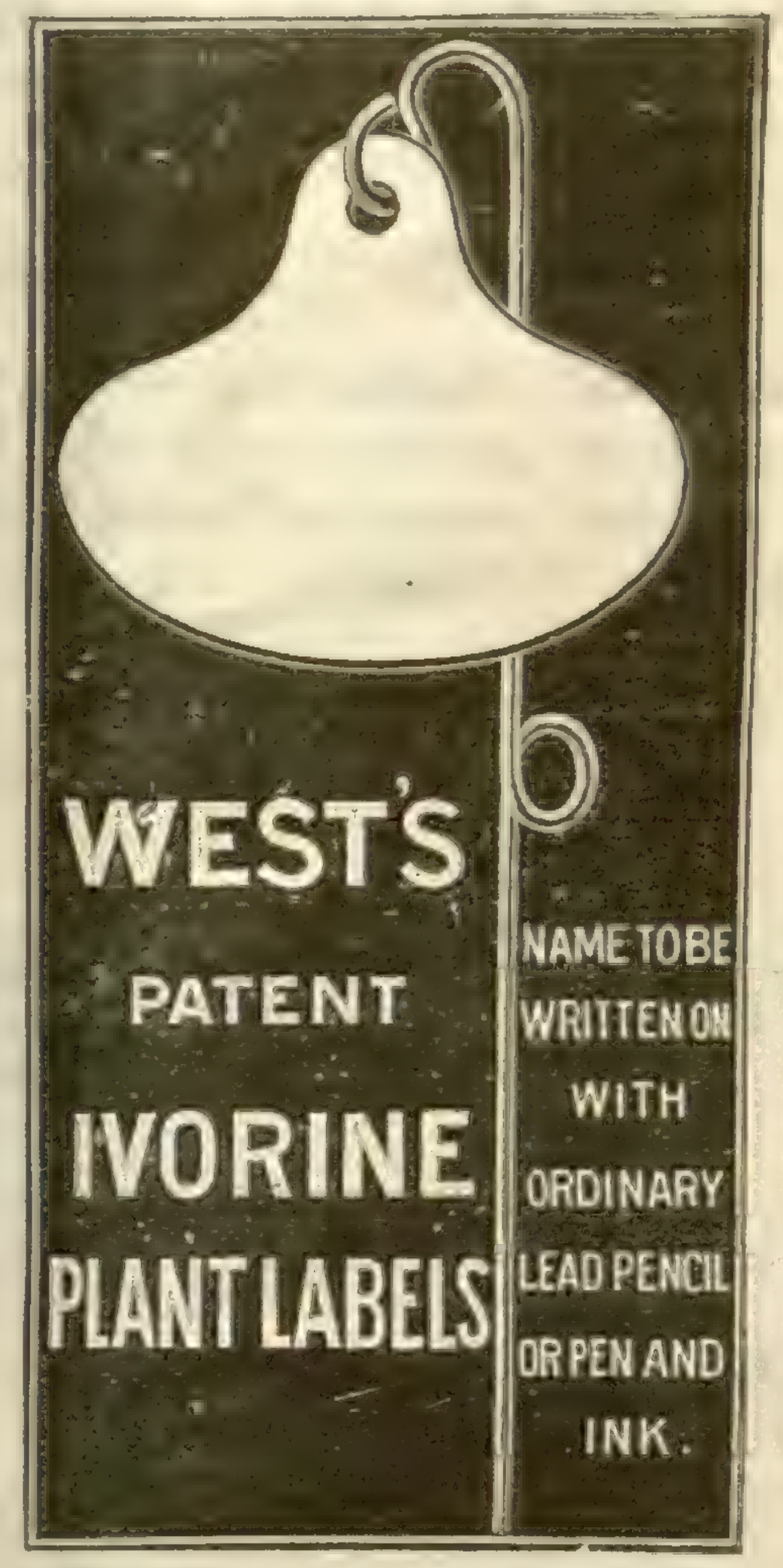
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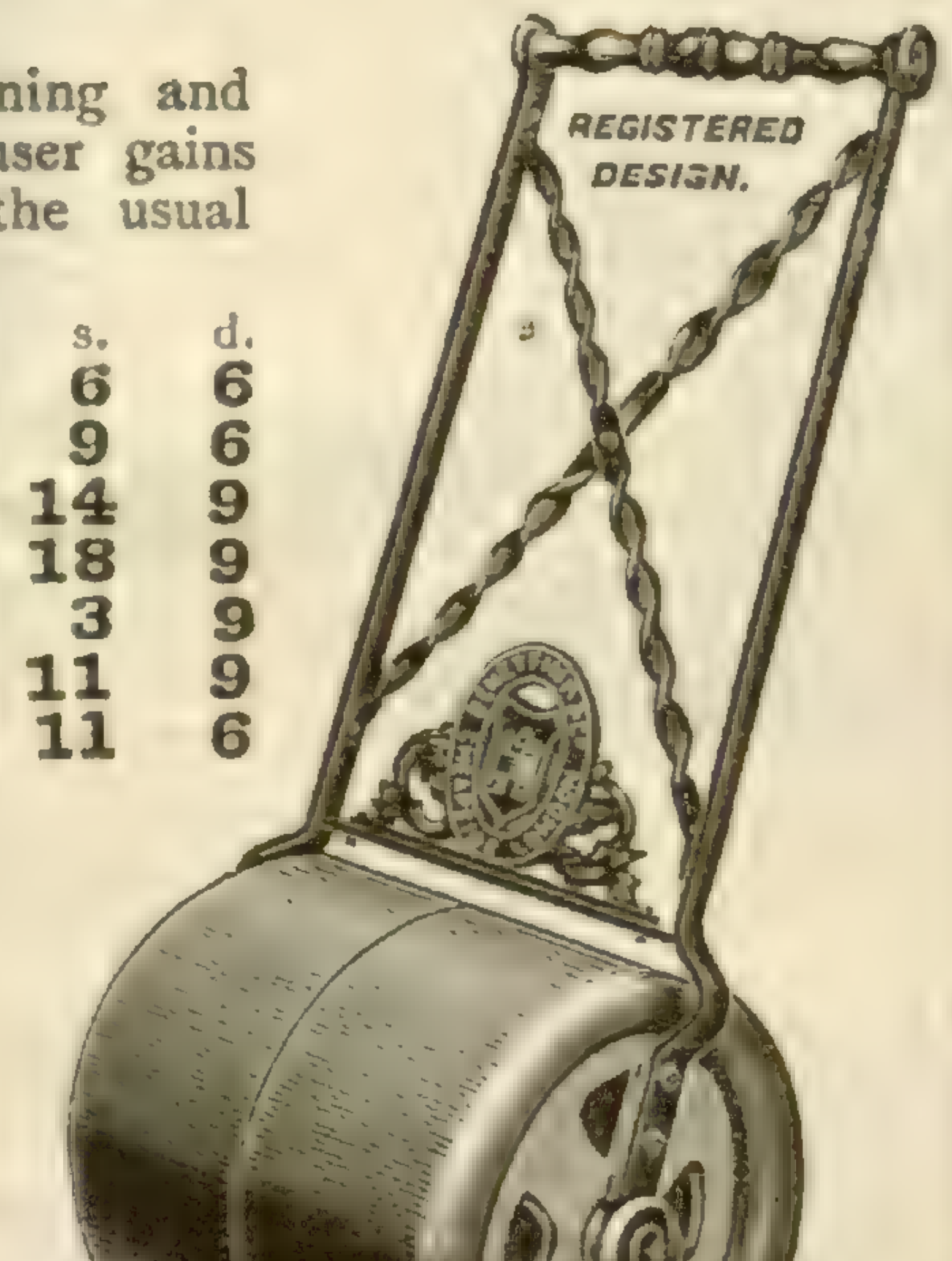
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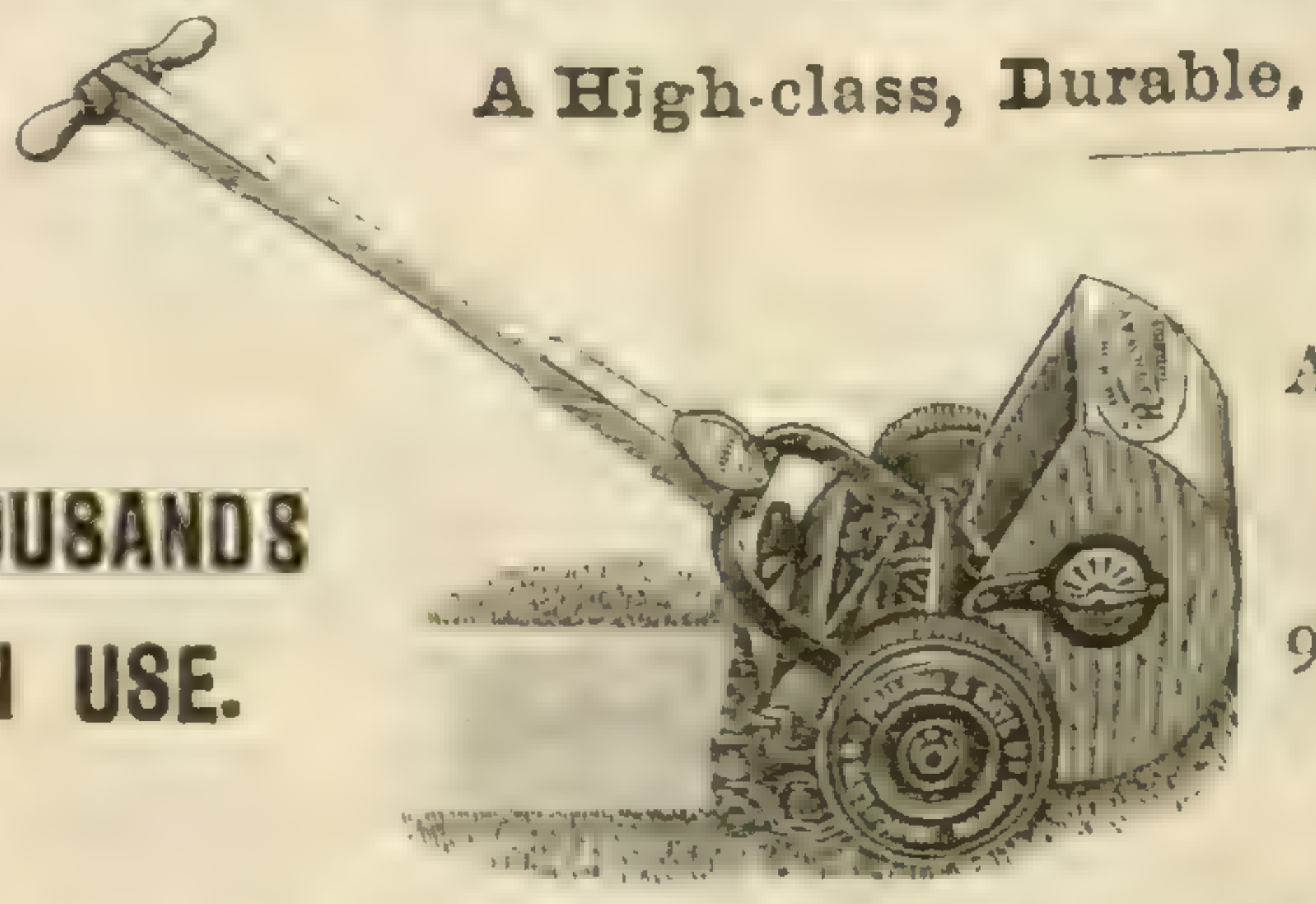

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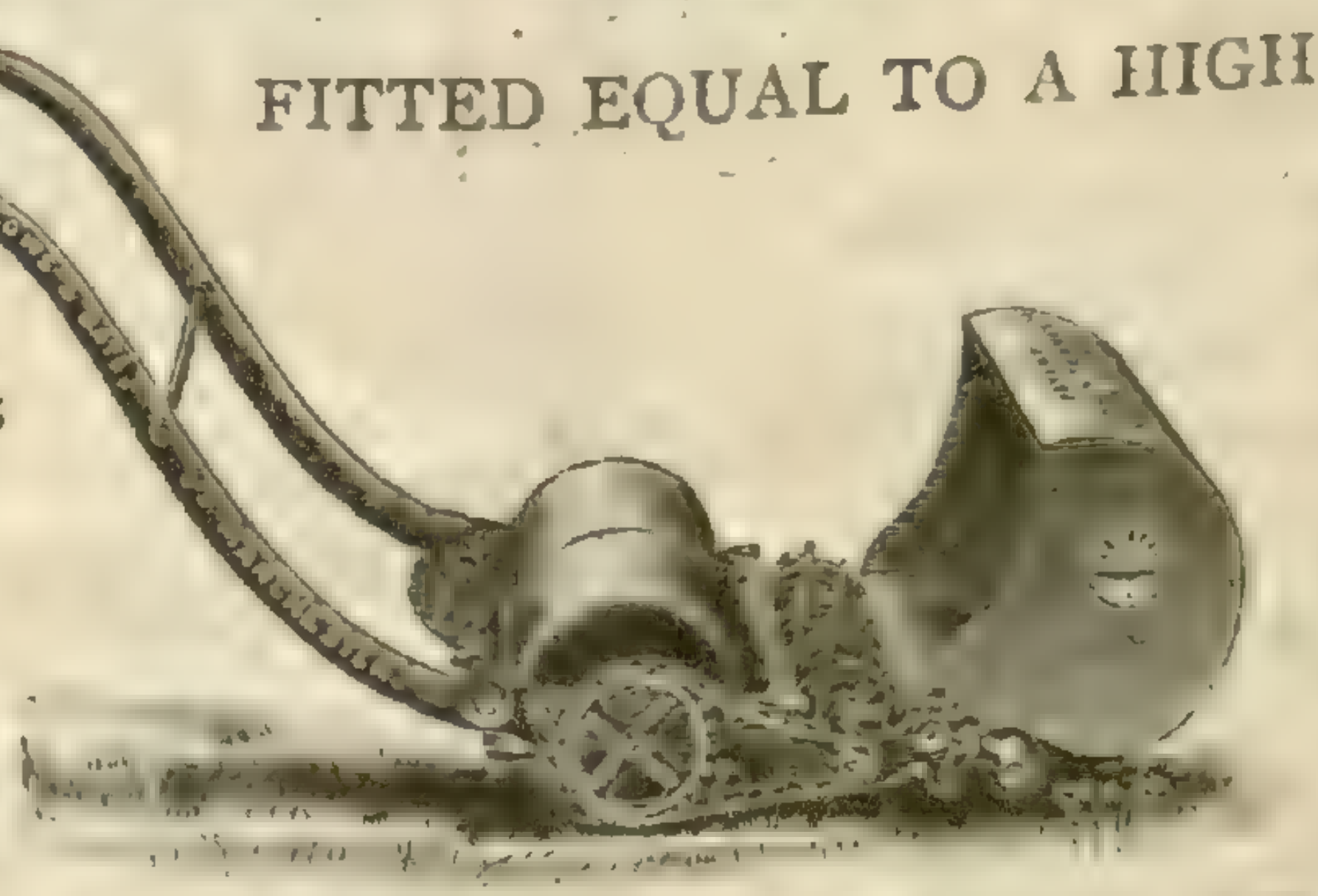

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GARDEN NETTING.—Tanned, Rotless, and Waterproof, for Protecting Beds and Flowers from Frost and Birds, [illegible] X [illegible] X [illegible]. Any lengths and widths from stock. Carriage paid on orders over [illegible] value. Lists and samples free.—A. POTTER, Melbourne Netting Works, [illegible]. Maker to the Queen and Prince of Wales.

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Sales by Auction.

MONDAY and FRIDAY NEXT.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., as follows:—

Monday next, May 16, at 12 o'clock.

Japanese and Home-grown LILIES, Hardy Border PLANTS, CALCEOLARIAS, ASTERS, and other Bedding Plants, DAHLIAS, CARNATIONS, PICOTEES, HARDY PERENNIALS, GLADIOLI, Double and Single BEGONIAS; a consignment of ORNAMENTAL PALMS, LATANIAS, SEAFORTHIAS, and CORYPHAS from the Continent; PHLOXES, Double HOLLYHOCKS, Stove and Greenhouse FERNS, ROSES in Pots, &c.; also 150 cases of Kentia Seeds, principally BELMOREANA.

Friday next, May 20, at 12.30 o'clock.

IMPORTED and ESTABLISHED ORCHIDS from Messrs. F. SANDER and Co.

On view mornings of sale, and catalogues had.

Surbiton.

CAPITAL FREEHOLD NURSERY AND BUILDING LAND.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, in one or three lots, on the Premises, THE SURBITON NURSERIES, EWELL ROAD, SURBITON, on TUESDAY next, May 17, at 12 o'clock, immediately preceding the first day's sale of Stock, the valuable FREEHOLD PROPERTY known as the SURBITON NURSERIES, Ewell Road, comprising about 2 acres, with valuable frontage of 378 feet or thereabouts, together with 5 substantial Greenhouses of recent construction, and fitted with about 3,000 feet of 4-inch Hot-water Piping, and 3 Kinnell's Saddle Boilers, numerous Pits, Timber-built Potting-shed, and excellent supply of water.

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Particulars and conditions of sale may be had on the Premises; of Messrs. Wainwright and Co., Solicitors, 9, Staple Inn, Holborn, W.C.; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Surbiton.

CLEARANCE SALE of PLANTS, HORSE and UTENSILS in TRADE.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the Premises, THE SURBITON NURSERIES, EWELL ROAD, SURBITON, on TUESDAY and WEDNESDAY next, May 17 and 18, at 12 o'clock each day (immediately following the Sale of the Freehold Nursery and Shop), the whole of the well-grown STOVE PLANTS, SPECIMEN PALMS, 1,000 LATANIA BORBONICA, 2,000 TEA ROSES, 5,000 BEDDING PLANTS, 1,000 CHRYSANTHEMUMS, a large Assortment of GREENHOUSE PLANTS, also SHOP FIXTURES and FITTINGS, useful HORSE, VAN, and HARNESS, and other effects.

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OUR NURSERY, full of the most useful and serviceable PLANTS for the season perhaps ever existed, and we shall be pleased to send Catalogues and quote. Our Wallflowers, Polyanthus, Calceolarias, Zonals, French Pelargoniums, Begonias, Streptocarpus, Gloxinias especially for seed, and will be found the most delightful and edifying to all fond of them, and doubly pay for the journey.

"Kilton Vicarage, Bridgewater,
"April 23, 1898.

"I was very much pleased with the beautiful lot of Zonals you sent me. I shall certainly recommend your firm to my friends. Yours truly, (Rev.) S. H. SHEDDEN."

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SEED PEAS, or POTATOES,

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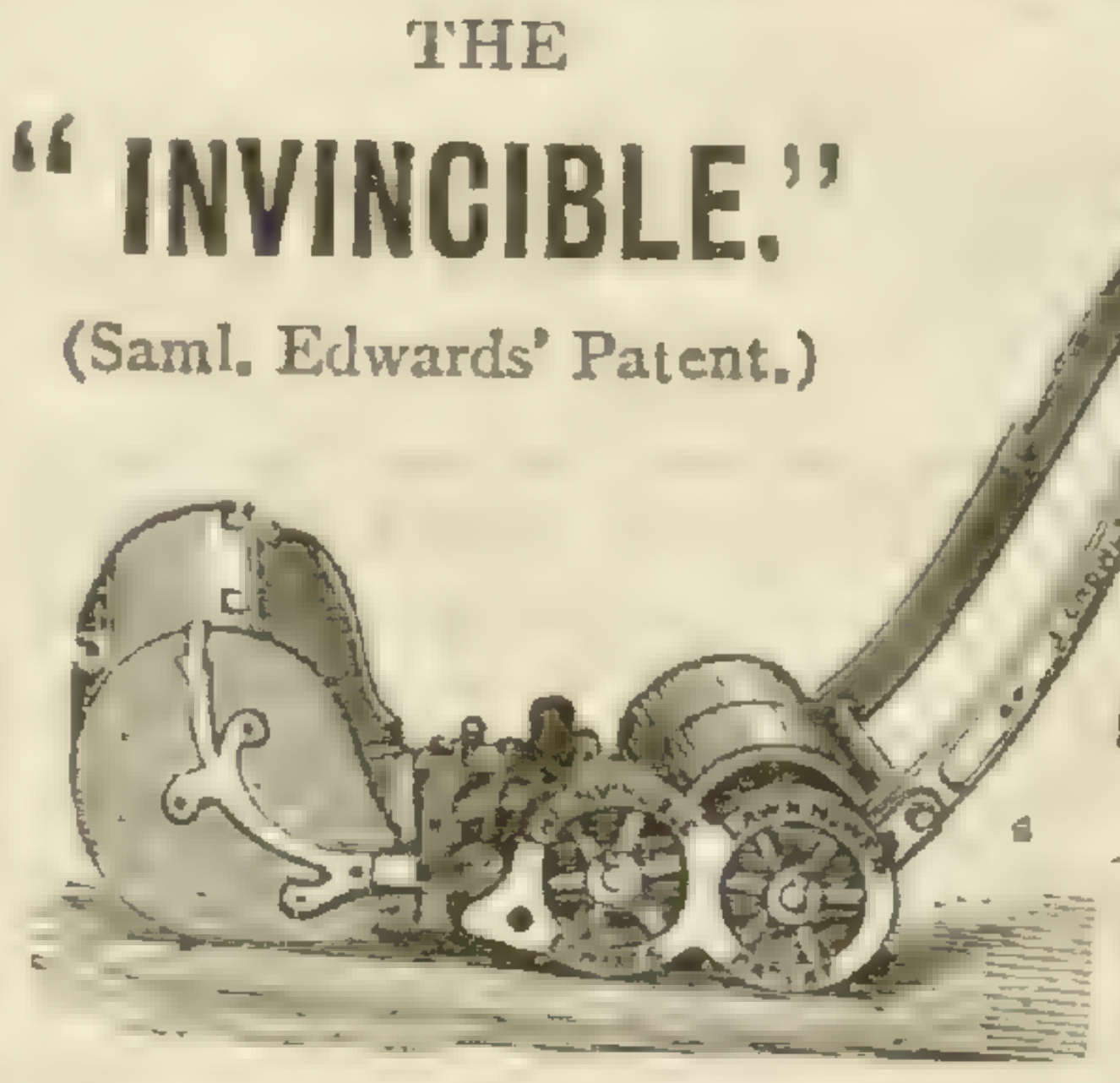

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All Lawns should be dressed at least once a year with this article, its fertilizing properties being equal, if not superior, to anything at present offered.

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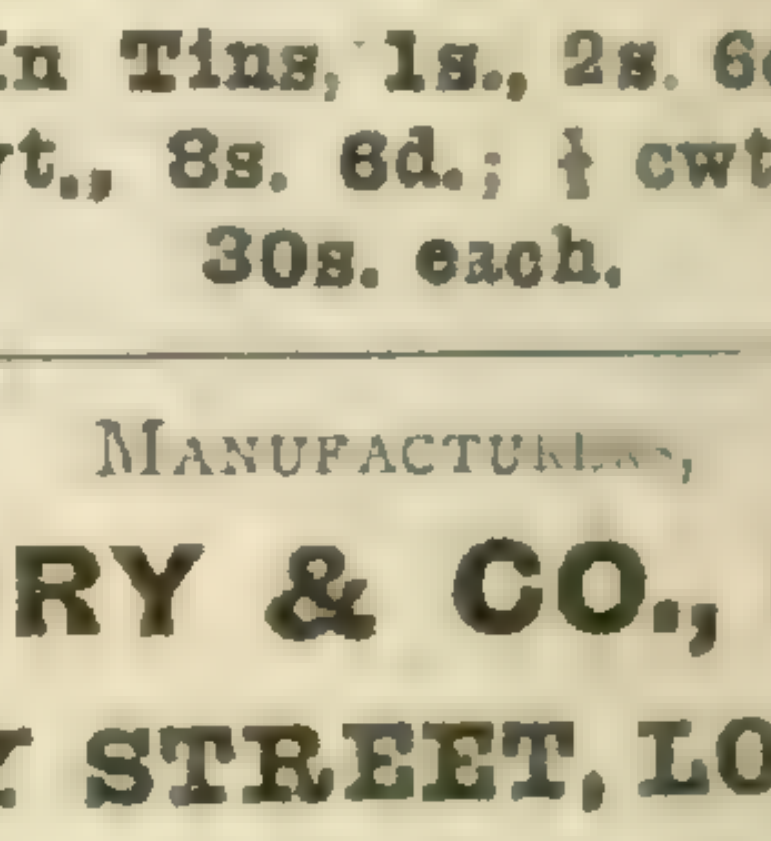

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GARDENER (Head Working); good experience in vines, peaches, and greenhouse plants; married, [illegible]; age [illegible]; five years' excellent character in present [illegible].—[illegible] Cook, Woodlands, Muswell Hill Road, Highgate.

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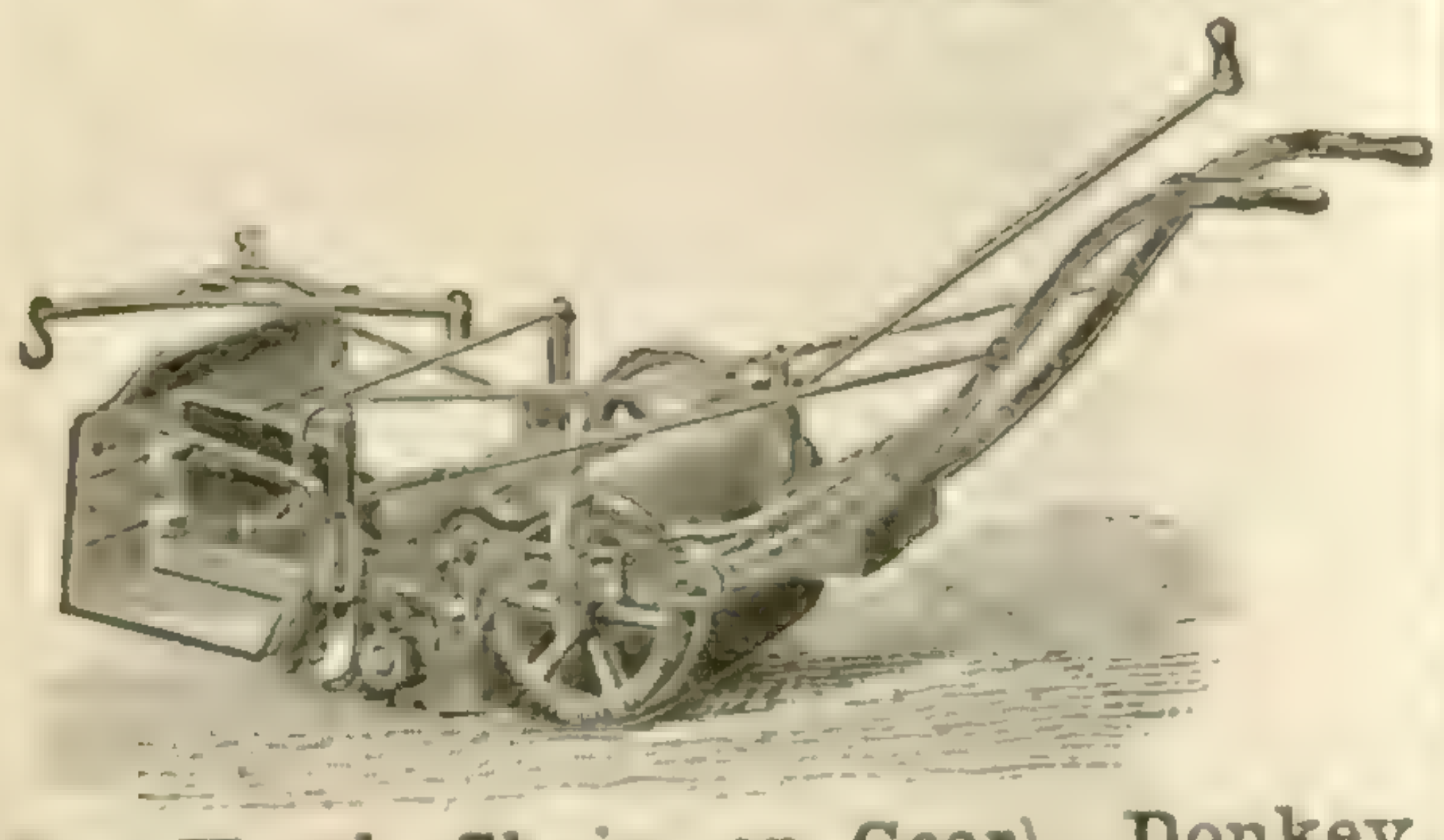

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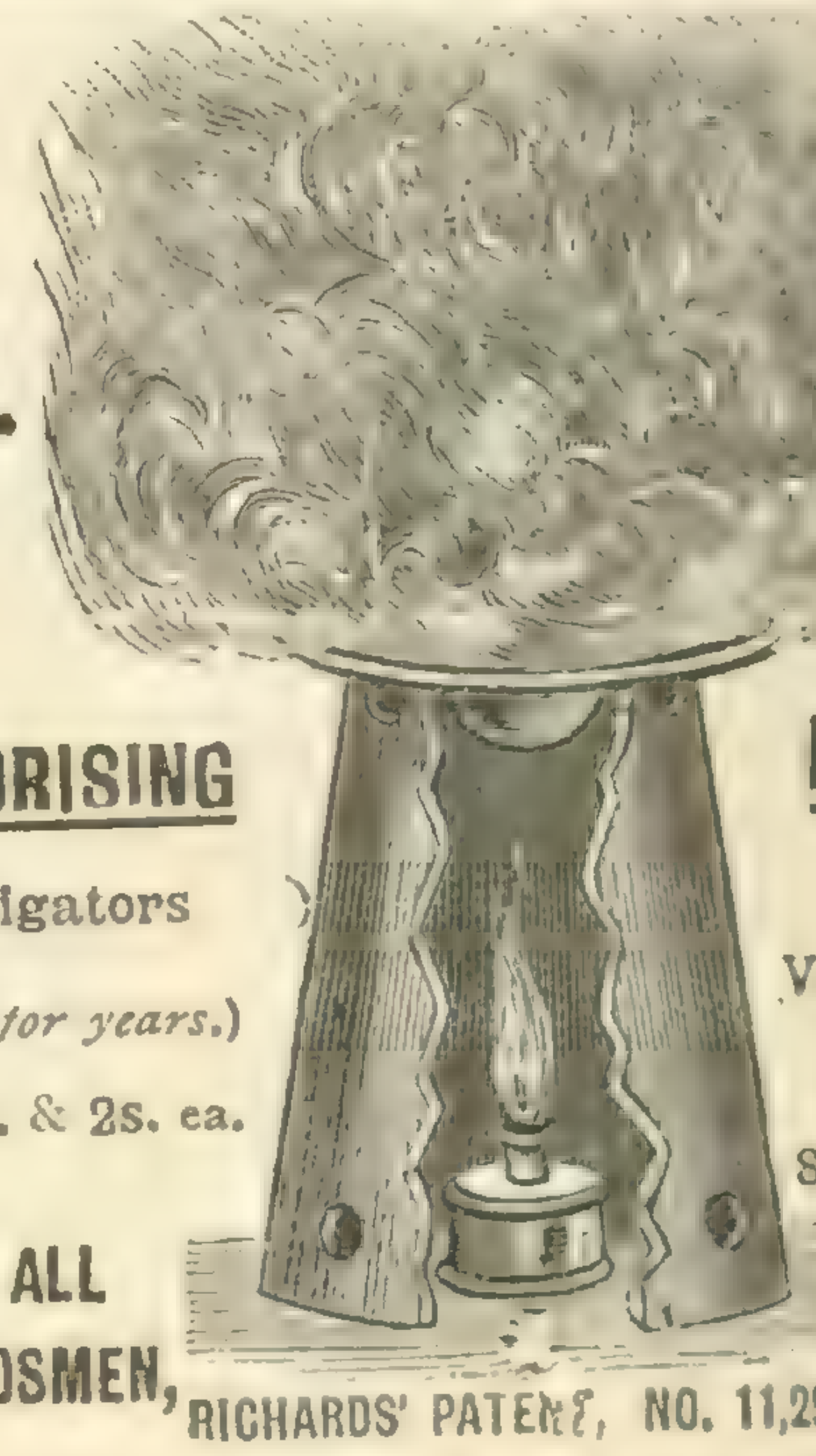

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THE GARDENERS' MAGAZINE.

SATURDAY, MAY 14, 1898.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.
GRAND EXHIBITIONS to be held on WHIT SATURDAY and MONDAY, MAY 28 and 30, 1898, and SEPTEMBER 21, 1898, at CHELTENHAM. Schedules and entry forms sent on application to the Secretaries,
Messrs. GEO. TOVEY and R. HENRY SMITH, 53, Regent Street, Cheltenham.
Entries close May 21 and September 17, 1898, respectively.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being **Five Shillings.** **Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.**

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m on that day.

NOTES OF THE WEEK.

PREVENTION OF CLUB-ROOT.

DURING the past two years experiments have been conducted by Professor Gilchrist, director of the agricultural department of the University Extension College, Reading, with a view to the prevention of the disease known as finger-and-toe and club-root, and have obtained some interesting results. From the official report it appears that in conducting some rotation experiments at Headington, near Oxford, in 1895, it was found that the swedes which formed the first crop were badly infested with club-root, and that in some parts of the field the crop was practically destroyed. The soil of the field is sandy, resting on limestone rock, and in various parts differs materially in its percentage of lime, this difference being to a considerable extent coincident with the damage done by the disease. Soil from two parts of the field was analysed, and where the crop was fairly free from disease, the lime was equal to 5·49 per cent., where the crop was much damaged the soil contained only ·45 per cent. of lime. This fact is of importance as illustrating the great value of lime, as we have so frequently pointed out, in checking the development of the slime fungus which causes the disease. In the following year a portion of this field was marked off into eleven parts, and ten of these were dressed, three with caustic lime in varying proportions, two with sulphate of copper, two with gas-lime, one with chalk, and one with basic slag. The dressings, with one exception, were applied in January, and one of the applications of sulphate of copper was made just before sowing the seed. The report states that "in 1896 none of the dressings had any appreciable effect in reducing the ravages of the disease. It would, in fact, appear from the table given in the report that the dressings assisted in the development of the disease for on the undressed plot the sound roots were at the rate of 5 tons 6 cwt. per acre, the slightly diseased 4 tons 16 cwt., and the badly diseased 2 tons 1 cwt. In no other plot was there the same weight of sound roots, the nearest approach being the plot dressed with gas lime at the rate of three tons per acre, and here the sound roots were at the rate of 5 tons 4 cwt. per acre, the slightly diseased roots 10 tons 18 cwt. and the badly diseased 18 cwt. In none of the dressed plots was the weight of diseased roots less than 9 tons, a fact difficult to understand. In view of the results obtained in 1896 it was decided to again grow swedes and turnips on the same plots in 1897, without any further dressing, to ascertain whether results might be obtained by giving the dressings a longer time to act in disinfecting the soil, and the report states that "all the forms of lime, viz., caustic lime, gas lime, and chalk, gave excellent results." The figures given support this statement, but unfortunately the table is prepared in a different manner and the crop is divided into two portions, good and bad only. In 1897 the crop on the undressed plot dwindled down to 16 cwt., and all the roots were bad. All the roots were also diseased on the two plots dressed with 2 cwt. of sulphate of copper, the crop on that dressed in January being 1 ton 10 cwt., and where applied in spring 10 cwt. The results obtained from the dressing of gas-lime at the rate of one ton per acre, was very unsatisfactory, for the total crop amounted to 2 tons 14 cwt. only, of which 1 ton 10 cwt. were diseased. These figures are perplexing, and should admit of further explanation, for with a dressing of three tons of gas-lime, there was a crop of 11 tons 6 cwt., of which 10 tons 16 cwt. were sound. The plot dressed with 2 cwt. bleaching powder gave 3 tons 6 cwt per acre, of which 6 cwt. were diseased, against a crop in 1896 of 12 tons 3 cwt., of which 10 tons 14 cwt. were diseased. Basic slag gave somewhat peculiar results, for in 1896 the plot which received a dressing of this fertiliser at the rate of 10 cwt. per acre, produced a crop of 13 tons of which 3 tons 14 cwt. were sound, whereas in 1897 the total crop was 5 tons 4 cwt., with 4 tons 12 cwt. sound. The best results were obtained from the dressings of two tons caustic lime, and of four tons of chalk, which gave 17 tons 4 cwt. and 14 tons of sound roots respectively, while three tons of gas-lime and one ton of caustic lime sufficiently satisfactory to justify their use.

YUCCA FERTILISATION.

MR. C. LLOYD MORGAN'S description of the method of fertilisation of the yucca involves such a purposeful action on the part of the moth concerned (*Pronuba yuccasella*) as to differentiate it altogether from the general category of insect fertilisers. In the vast majority of cases, the transfer of the pollen by insect agency from one bloom to another, or one plant to another, is effected altogether blindly; the flowers are visited for the sake of the honey, or, it may be, for the sake of the pollen itself, and as cross-fertilisation is a distinct benefit in most cases, evolution has brought about a myriad cunning lures and devices through which the visitor is made the involuntary carrier of the potent grains from point to point of vital activity. So far as the actual object or effect of these grains is concerned, the insects are as unwilling as the breezes which effect the same essential operation with plants, which, devoid of insect attraction, scatter their redundant pollen crop to the four winds, and find their mates in the wings of the zephyr instead of the bee. This moth, however, goes as systematically to work as the most skilful gardener, and having collected the needful grains of pollen from one flower, packing them carefully into a ball for easier porterage, she flies off with this to another blossom, and carefully applies it in precisely the right place in the stigma which apparently has been so shaped as to facilitate the reception of the pellets. There is no suspicion of accidents; she does exactly the right thing, no more and no less, to ensure cross-fertilisation of that particular flower in the most effectual way possible, and for the particular benefit of the yucca plant itself. "Nothing for nothing," however, is obviously the moth's motto, and she has already arranged a cunning system of taxation through which the yucca community so brought into possible existence, shall pay toll to her descendants as a *quid pro quo.* At the bottom of that stigma lies the ovary of the flower, the future cradle of its new generation, and Mistress Pronuba, prior to putting the finishing touch of fertilisation to the future brood, pierces the ovary wall and gently inserts, cuckoo fashion, her own eggs to bear it company. Now begins a sort of race between the pollen grains above and the hatching eggs below; the former push their slender tubes down through the length of the stigma, and so reach the yucca eggs. These swell and speedily begin to be seeds proper, when lo! their small companions burst their shells, and the toll-taking begins and continues at the expense of the yucca brood, until that of the moth is ready to be launched forth into the world and begin another cycle. The clever moth and mother has, however, been provident enough to arrange for a margin beyond the toll exacted by her youngsters, and equitably leaves fifty per cent. of the yucca brood intact, as her partner's share in the joint transaction, so that fair provision is made for the continued existence of both. Carefully considered, this instance of co-operation between insects and plants is seen to be very wonderful; and it is excessively difficult to imagine how the fashioning and transfer of the pollen pellets by the moth has been brought about, especially seeing that in a flower like that of the yucca, the apex of the stigma is a long way from the ovary, and requires a special visit.

PLANTING ROSES IN SPRING.

AUTUMN planting, when carried out under proper conditions, invariably gives such good results in the rose garden that there is a tendency in some quarters to regard the autumn as the only season in which roses can be successfully planted, and consequently to overlook the opportunity the spring months afford for the formation of new beds and borders of roses, and for filling gaps in those which have been in existence for a considerable period. Autumn is unquestionably the best season in which to plant roses, and should as far as practicable be taken advantage of, but it is not the only one in which planting operations can be performed with success, and it is evident from our correspondence that some reference to the spring planting of roses will be useful to many of our readers. It is, of course, a matter of common knowledge that with special care roses may be transplanted until March is well advanced with the assurance of a satisfactory growth in the season following, but it is not so generally known that plants previously prepared in pots give the best possible results when planted in May. Well-established plants in five or six inch pots are by no means costly, and they may give some excellent blooms late in the season, and will assuredly in the year following surpass in the abundance and quality of their flowers those planted in the autumn; with novelties, it is a decided advantage to obtain plants and bed them out in May, because of the liberal supply they will give of buds for propagating purposes in the course of the summer. In the case of the delightfully fragrant and exquisitely coloured tea-scented varieties, planting in May has much to recommend it, and we would strongly advise those who propose to extend their culture to obtain plants in pots and bed them out at once. The only objection to the practice of forming beds with pot plants is the additional cost of carriage, but this of course will only apply when they have to be obtained from a distance, and in no case will it be found excessive. Plants in growth necessarily require rather more care than those received in a dormant state; and when received from the nursery they should be placed in a frame and carefully hardened, as success will materially depend upon the plants being so thoroughly prepared that when bedded out they are well able to bear the effects of unfavourable climatic conditions without injury. To properly prepare the beds is not less necessary than to have well-hardened growth, and to assist the roots to push freely into the new soil, it is an excellent practice to fill in about the balls with a light rich mixture from the potting shed. Supplying the plants with water until they have become established, and other details, will suggest themselves to the cultivator, who may be assured that he will obtain ample return for the care he bestows upon the plants until they are well established in their new quarters.

FRUIT AND VEGETABLE IMPORTS.

The Board of Trade returns for April are hardly so satisfactory as could be wished, more particularly in the matter of exports. In the imports there is an increase equal in value to 14·5 per cent., but in the value of the exports there is a material drop, this being equal in the case of British and Irish produce to 11·1 per cent., and in foreign and colonial merchandise it is equal to 16 per cent. The increase in value of the imports is to a considerable extent due to the greater receipts of cereals and at higher prices. The increases in the value of the products of the garden and orchard are about equally balanced, the two most marked features being the increase in the supplies of potatos and the shrinkage in the apple supply. The imports of apples amounted in the aggregate to 167,121 bushels, of the value of £73,718, or a drop of 169,213 bushels in quantity, and of £21,789 in value. For the four months there has been a drop of 1,058,000 bushels as compared with the same period of last year. The figures of 1896 are of interest as showing the appreciation in the value of these fruits, for, although the quantities received exceeded this year's supplies by 61,000 bushels, the value is returned at £40,000 less. Cherries, of which 331 bushels were imported in 1897, have no place in last month's returns. Plums, on the other hand, were absent from the returns of April, 1897, but this year one bushel appears to have been received, and this is entered at the value of £2. The imports of pears was somewhat smaller than last year, the aggregate being 1,355 bushels of the value of £743, or a decrease of 25 bushels and £104 in quantity and value respectively. Augmented supplies of grapes were received, the aggregate imports being 2,259 bushels, of the value of £2,694; but on the four months ending April there is a material decline. The imports of unenumerated fruits continue to increase, and their value for the month is £34,406, and for the four months £126,505. The increase in the imports of potatos was even more marked than the decrease in the supplies of apples, for during the month they amounted to 1,186,653 cwt., of the value of £275,630, or an increase in quantity of 1,100,486 cwt. and in value of £234,663. Germany appears to have benefited the most materially from the failure of the potato crop in the United Kingdom last year, for the growers in that country sent us in April 147,037 cwt., against 99 cwt., and in the four months 1,359,215 cwt., against 2,323 cwt. in the corresponding periods of last year. The gain of Germany in money is for the current year £290,269. France has benefitted to the extent of about £50,000, and "other countries" to the extent of £240,000 from the disastrous results of our potato harvest in 1897. In round figures, we have paid during the past four months £600,000 more for potatos than in the two preceding years, and these indicate in some degree how heavy were the losses of cultivators. On the other hand, onions were imported in lessened quantities, the aggregate being 613,633 bushels, and it is interesting to observe that, with a decrease of 23,584 bushels, there is an increase in value of £18,726.

Town Trees.—Of the many improvements that have been made during the second half of the present century, not the least important is the planting of trees in towns. It was long an article of general belief that it was practically impossible to successfully cultivate any of the various forms of arborescent vegetation in smoky towns, but more recent experience has brought into strong relief the fact that while some trees rapidly succumb when exposed to the adverse influence of a smoke-laden atmosphere, others, such as the lime and the plane, will flourish in smoky towns. As the result, large numbers of trees have been planted in the streets, and in many instances they make so satisfactory a growth as to form a pleasing relief to the bricks and mortar, and provide acceptable shade. On the other hand, there are many cases where the trees do not succeed so well as could be wished, in consequence of the rough usage to which they are subjected. Smoke is not the only enemy with which town trees have to contend; in some cases the soil is rendered unfit for promoting a healthy root growth; and in others the heads are mutilated under pretence of pruning. Another enemy is the young rough, who appears to derive an immense amount of pleasure in the destruction of trees that are not of sufficient strength to resist his efforts. As the practice of injuring young trees appears to be on the increase, it is satisfactory to have evidence that the magistrates are beginning to more fully recognise their responsibilities in the matter. At King's Heath the other day the bench awarded a punishment of two months with hard labour, and it is reasonable to assume that the trees in the district will enjoy immunity from injury for some time to come. Similar severity is needed in the suburbs of London, for no sooner is a road planted than some of the trees are more or less injured.

Apple Scab in New Zealand appears to cause fruit growers a good deal of trouble; so much so that the government of the colony has issued a pamphlet prepared by Mr. T. W. Kirk, Government biologist, illustrating the disease, and indicating remedies. A full strength dressing of Bordeaux mixture is advised just as the buds begin to swell, and another weaker dressing after the fruit has set. For an attack late in the year a solution of carbonate of copper is recommended, but this should not be given if the fruits are approaching ripeness owing to the poisonous properties of copper.

The Lady Gardener appears to have given rise to considerable apprehension in some quarters, and one of the horticultural associations has sent to *Truth* a protest against the assumption that a woman can receive a sufficient training in three years to fit her for the position of a head gardener. The association making the protest observes: "If it were a question of the young lady in the florist's shop, or any similar position, we should not attempt to lodge the protest which we ask your permission to do, but when it is reported that a woman has, in the space of three years or so, acquired all the knowledge necessary to take charge of a well-kept public or private garden in all its cultural details, we confess we wonder whether this is a fact or a fiction going the round of the Press. To make a practical gardener it is necessary for the individual to pass through all the various stages of work, including digging, trenching, and other laborious items, and no one can be a competent and qualified judge of good workmanship, and the time required for each operation and other details, without such experience. The work of a gardener is most heavy and laborious. He has to work in the open air under all sorts of climatic conditions, and he has to endure frequent changes of temperature from the hot-house to outside departments, which we find require a constitution of iron to stand. In our opinion the time has arrived when it behoves every gardener to make himself heard individually and by organisation in defence of his profession." There will be no harm in the gardener expressing his opinion upon the question at issue, but it is undesirable that concerted action should be taken with a view to preventing lady gardeners obtaining employment irrespective of any ability they may possess. We, however, are strongly of the opinion that were it desirable, there would be no necessity for such action, as the gardener has nothing whatever to fear from the competition of the lady gardener. Certain operations are well within the compass of an intelligent woman, but, as a whole, the work of the garden is, as pointed out in the protest, so heavy that very few women are physically fitted for it, and their thorough training in practical details, by which alone proficiency can be obtained, is out of the question.

West Indian Mangosteen are likely at no distant date to be regularly imported into this country. The mangosteen is a native of the Molucca Islands, and is cultivated in the Straits Settlement, Java, and in one or two localities in India and Ceylon. The fruit is regularly shipped from Singapore to the Calcutta market. Plants of this well-known tropical fruit have been widely distributed from Kew to the West Indies, and the first West Indian fruits were produced at the Botanic Gardens, Trinidad in 1875. In September, 1891, the Governor of that island forwarded some West Indian mangosteens for presentation to Her Majesty the Queen. The mangosteen fruited for the first time in the Jamaica Botanic Gardens in 1886 (*Kew Bulletin*, 1895, p. 79). Last year a box was received at Kew from Mr. J. H. Hart, F.L.S., of Trinidad, containing nine fruits of mangosteen, which were perhaps the first to reach this country in a condition to allow their merits to be appreciated. Each fruit was separately packed in a compartment with pine wool. Owing to the firm consistency of the outer wall of the fruit, it appears to travel well. The fruits were distributed to the Secretary of State for the Colonies and others. The reports received were uniformly favourable. One fruit was sent to Mr. George Munro, one of the leading fruit salesmen in Covent Garden, to obtain an opinion as to prospects of shipments of mangosteens to this country. Mr Munro replied: "I cut open the fruit and showed it to some of my best customers, and they think with me that if they came in good condition and not too many at first, a business could be worked up in them. At any rate, I should like to try some, and if sent, will do all I can to get a trade for them. They appear to be a fruit that would carry well."

A New Botanic Garden for Ghent.—The burgomaster of the famous city of Ghent recently stated that the municipality proposed to make several new arrangements in connection with its public parks and gardens. The most important item is the proposed creation of a new and extensive botanic garden that will be of great value to the large horticultural community of the city and surrounding districts.

The Nitrogenous Nutrition of Flowering Plants formed the subject of a paper recently read before the Paris Academy of Sciences by Mons. L. Lutz. It was shown that nitrogenous nutrition could be supplied by means of amines, salts of ammonium compounds, and alkaloids. The amines can be assimilated directly without being previously converted into ammoniacal salts or nitrates; those of low molecular weight are the more easily taken up by the plant. Amines unite with acids to form salts and give a strong alkaline reaction like ammonia.

Flora of Mongolia.—Mr. and Mrs. Littledale have made another adventurous journey into the heart of Central Asia; this time to North-western Mongolia, by way of Siberia. Mrs. Littledale made an excellent collection of dried plants, which has been presented to Kew; this comprises between two and three hundred species. Although there are probably few, if any new species, the specimens are specially valuable on account of the admirable care with which Mrs. Littledale has prepared them. In all cases where it was possible the entire plant, including root, was procured. Few professional collectors, state the authorities at Kew, take as much pains as Mrs. Littledale has done.

The Record of the Weather for the first quarter of the year is of exceptional interest. According to the observations made at the Royal Observatory, Greenwich, the mean reading of the barometer was 29·875 inches, being ·100 inch above the average reading in the first quarters of fifty-seven years; the mean reading was ·384 inch above the average in January, ·041 inch below in February, and ·042 in March. The mean temperature of the air was 41·5 degrees, or 2·6 degrees above the average in the first quarters of one hundred and twenty-seven years; it was 6·9 degrees above the average in January, and 2·4 degrees above in February, but was 1·4 degrees below the average in March. In January the weather was generally dry, mild, and dull; in February it was still mild and dull, but with frequent rain; in March, with the exception of a few warm days in the middle of the month, it was cold. At Greenwich, March was the coldest and January was the warmest month in the quarter, the mean temperature in January having been 2·4 degrees higher than in February, and 3·8 degrees higher than that in March. At twenty-seven other stations of observation the mean temperature of the air during the quarter ranged from 38·7 degrees at Llangammarch Wells, 39·3 degrees at Wolverhampton, and 39·5 degrees at Halifax, to 43·7 degrees at Ventnor and at Llandudno, 44·9 degrees at Truro, and 45·1 degrees in Guernsey. The amount of rain measured during the quarter at the Royal Observatory was 3·24 inches, which is 1·71 inches below the average in the first quarters of eighty-three years. The amount was 1·20 inches below the average in January, 0·35 inch below in February, and 0·16 inch below in March. At twenty-seven other stations of observation the rainfall during the quarter ranged from 2·48 inches at Oxford, 2·53 inches at Hereford, and 2·66 inches at Coventry, to 6·28 inches at Halifax, 8·02 inches at Llangammarch Wells, and 14.31 inches at Stonyhurst. The duration of bright sunshine recorded at the Royal Observatory was 156·9 hours, being 17·3 per cent. of the total hours during which the sun was above the horizon, against a mean proportion of 18·5 per cent. in the twenty preceding first quarters. The duration of bright sunshine was 9·9 per cent. below the average in January, and 18·2 per cent. in March, while in February it was 21·1 per cent. above the average.

Visitors to Kew During 1897 numbered 1,239,683, or a falling off of 157,192 from the total of 1896, and of 191,982 from the average attendance for 1887-96. Sunday visitors numbered 485,544. The maximum attendance for one day was 84,431, on June 7; and the lowest, 57, on March 18. The monthly returns for 1897 are January, 12,961; February, 36,124; March, 50,438; April, 169,090; May, 165,036; June, 218,184; July, 187,622; August, 219,650; September, 95,729; October, 55,160; November, 19,254; December, 10,435.

Old Kewites will be interested to hear that Mr. Robert Pantling has been appointed deputy superintendent of the Cinchona Plantations, Sikkim, in succession to Mr. J. A. Gammie, now retired. Mr. J. H. Holland, formerly assistant-curator of the Old Calabar Botanic Station, has been appointed by the Secretary of State for Foreign Affairs to succeed the late Mr. Horace Billington as curator there. Mr. Walter Haydon, who for four years has been curator at the Gambia Botanic Station is now curator of the Sierra Leone Botanic Station on the West Coast of Africa.

Coffea stenophylla at Trinidad.—The Highland Coffee of Sierra Leone (*Coffea stenophylla*) has been widely distributed to tropical countries from Kew by means of seeds and plants. At Trinidad, at only a few feet above sea-level, it has recently fruited, and Mr. J. H. Hart, F.L.S., superintendent of the Botanic Gardens of that colony, has made the following interesting report, which appears in the current *Kew Bulletin*: Some four years ago we received a new kind of coffee from Kew. This has now fruited for the first time, four years from seed. The trees are in robust health, and have given for a first yield a very fair return. This coffee is quite distinct from anything hitherto grown in the West Indies, and appears likely to develop into a valuable minor product. The berries, instead of being red when ripe, as in the Arabian varieties, are a dark purple, and the bean is small and attractive looking. When dried and cleaned it has much the appearance of the finest Mocha. The flavour when made into a cup of coffee is excellent, being fully equal to the finest Arabian, from which there is little to distinguish it in appearance when prepared in the same way. The trees are much more vigorous than Arabian coffee; they have a small, dark, shiny leaf, but the individual branches are somewhat smaller than those of Arabian, and very much less robust than Coffea liberica. Our trees are now eight feet in height, and would appear to be willing to go higher if we would let them. So far as our experience has gone with Coffea stenophylla there is good reason to hope that it will prove a valuable introduction.

Potato Culture in Ireland.—Several of the leading railway companies in Ireland are making concessions with a view to assisting farmers in checking the spread of the potato disease. The concessions are free carriage, at owner's risk, of potato-spraying powder and spraying machines during the present season. The Messrs. Strawson, well known as makers of fungicides and insecticides, have been the chief means of inducing the companies to make these efforts towards the reduction of the dreaded disease. The companies making the concessions are the Midland, Great Western, Belfast and Northern Counties, and the Great Northern Railway Company of Ireland.

Messrs. Mackenzie and Moncur's Works at Edinburgh were severely damaged by fire on the night of May 11. The horticultural buildings, factory, and engineering works suffered, it is estimated, to the extent of £25,000. It is presumed that the fire broke out in the boiler room; it spread rapidly, and was with difficulty confined to the establishment of Messrs. Mackenzie and Moncur.

Artificial Manures in Germany are used on a most extensive scale by both horticulturists and agriculturists; indeed, it is stated on good authority that four times the amount of these are used in Germany than in France. The result of this use and high methods of culture in other directions is that it now seems practically impossible to raise the fertility of the soil any higher.

Rev. H. H. D'ombrain's Birthday.—There was an exceptionally large gathering at the monthly dinner of the Horticultural Club on Tuesday, for so high is the estimation in which the Rev. H. H. D'ombrain is held that the whole of the members, with the exception of a few who were prevented by illness or were from home, were present to take part in the celebration of his 80th birthday. Sir John T. D. Llewellyn, Bart., M.P., presided, and in proposing Mr. D'ombrain's health spoke at some length of the eminent services he had in the course of his long and active life rendered to horticulture. Sir John said that as the founder and the honorary secretary of the Horticultural Club Mr. D'ombrain had rendered services of special value and had endeared himself to all the members as proved to demonstration by the large attendance, and by the unanimity with which the suggestion that the members should mark their appreciation of his services by presenting him with a birthday gift had been acted upon. It was, not as Sir John Llewllyn said, possible to recognise such services by a presentation of money, but such presentation was evidence of esteem, and the whole of the members had united in contributing an equal share to the purse which he had great pleasure of of presenting to Mr. D'ombrain as a birthday gift. They had no lady members and therefore the ladies had not been able to contribute to the contents of the purse; but the purse itself had been contributed by a lady who was especially anxious to share in the pleasure they all had in making the presentation. That the toast was received with great heartiness follows as a matter of course, nor is it surprising that Mr. D'ombrain should have been visibly affected by the hearty demonstration. In acknowledging the expression of kindness on the part of the members of the club, he said he regarded with pardonable pride the remarkable gathering. Many of those before him he had known for upwards of thirty years, others were more recent friends, and he was immensely gratified to find that the places many of his old friends, now gone to their rest, had occupied in the world of horticulture and in his heart, were filled by their sons. He could not anticipate an indefinite future, but he hoped he might have the pleasure of meeting the members on many future occasions. Mr. G. Munro, who had acted as treasurer, having briefly referred to the promptitude with which every member had replied to his communications, the formal proceedings were concluded, and the remainder of the evening was spent in social intercourse. There was a large attendance at the meeting of the committee of the National Rose Society in the afternoon, and at this also Mr. D'ombrain received the heartiest congratulations.

The Old Poplar Tree at Chiswick that had become well known to travellers along the Chiswick High Road, by reason of its enormous size, succumbed to the gale of Thursday, the 11th inst., and in its fall damaged Blandford Lodge, a private residence on the opposite side of Marlborough Road to which the tree stood. This tree is well known to be over two hundred years old, and is supposed to have been one of a series that formed a fine avenue that extended to the river-side in the days when Turnham Green was a broad, open common.

Packing Tomatos for Sending Long Distances.—Mr. W. Neild gives some useful advice on packing tomatos for sending long distances, in the current issue of the R.H.S. journal. He states in the course of his observations that large quantities of fruit are destroyed by bad packing. In many instances the fruit is placed loosely several layers deep in baskets or boxes, with the result that in most cases it arrives at its destination in a bruised and damaged condition. The best system of packing is to place the fruit in a single layer in shallow boxes. The boxes should be strong and light, holding from ten to fifteen pounds each; and when a larger quantity is to be sent away a number of boxes should be placed on the top of each other, and fastened together with strong cord. A little soft hay, dry sphagnum moss, or wood wool should be placed in the bottom of the box, and on this a covering of soft white paper. The fruit should be packed closely together, stalk end downwards. When the box is full or the requisite quantity put in, the fruit should be covered with paper and all vacant spaces filled with the packing material before the top is put on. Too much emphasis cannot be laid upon the absolute necessity of packing the fruit firmly, to prevent it moving about, as it would thereby become damaged. Neither grass nor any damp material should be used for packing tomatos, for if they remain in the boxes for several hours, heating or fermentation takes place, which materially injures the quality of the fruit. When tomatos have to undergo a railway journey it is advisable to gather them before they are fully ripe, as in that state they would reach their destination in better condition. It should, however, be remembered that probably there is no fruit that deteriorates more quickly than the tomato after it is removed from the plant. It is owing to this fact that home-grown tomatos are so incomparably better than those imported. When tomatos have attained their full size, and are cut off in a green state, they will subsequently assume an appearance of ripening, but there can be no comparison between such fruit and that which is ripened on the plant.

NEW PLANTS, FLOWERS, AND VEGETABLES.

LÆLIO-CATTLEYA HIPPOLYTA DULCOTE VAR.

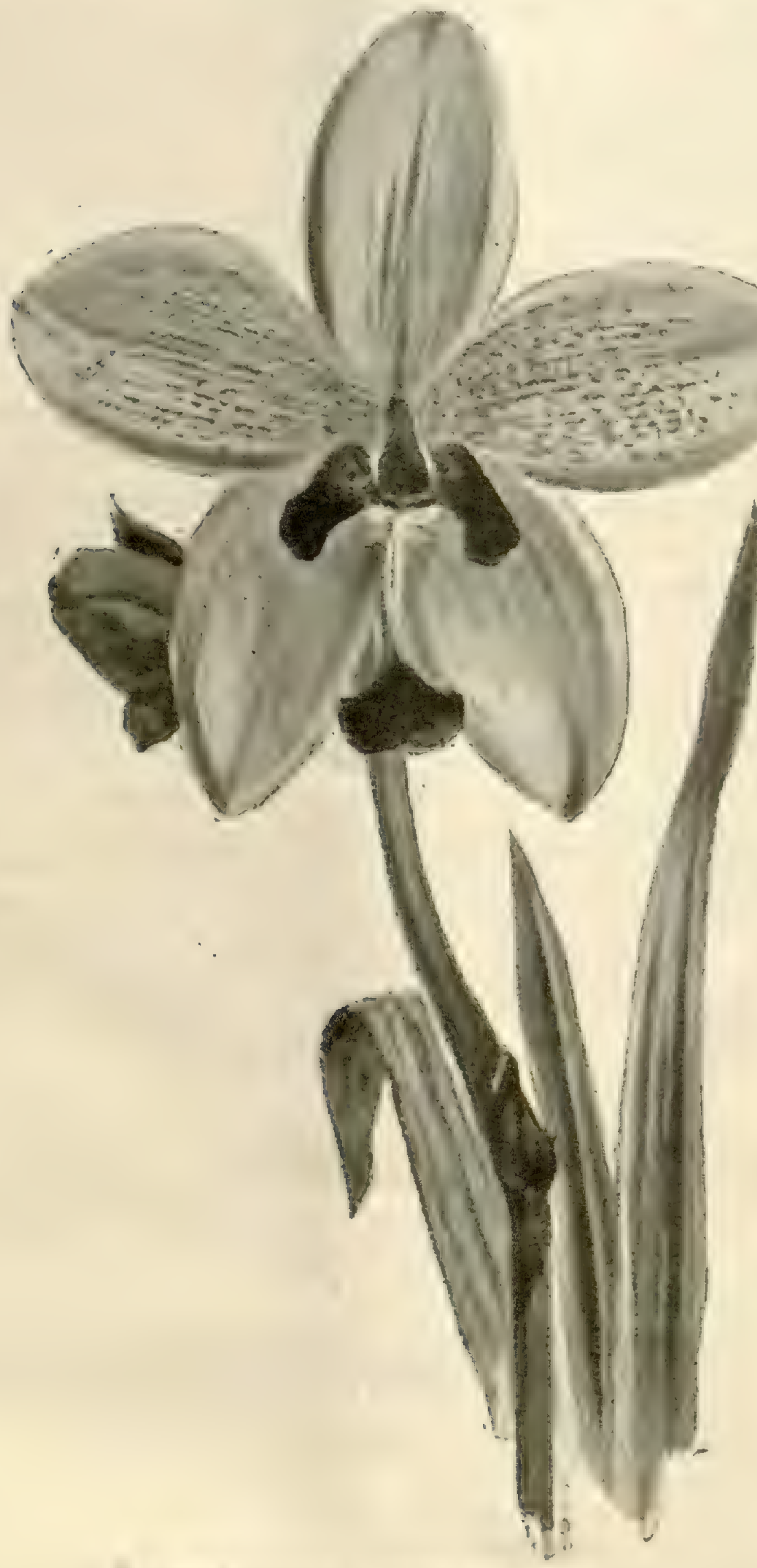
AN extremely handsome form of a hybrid orchid now comparatively well-known among orchidists. It differs from the type in having handsome flowers of an exquisite orange shade with tinges of scarlet, or rather, cinnabar-red, towards the margins of the sepals and petals. The long and somewhat narrow lip is of a curious shade of rosy crimson, and is wonderfully waved and crisped. The plant shown bore five splendid flowers. F.C.C., R.H.S., May 10. Walter Cobb, Esq., Dulcote, Tunbridge Wells.

LÆLIO-CATTLEYA FASCINATOR.

A bold and handsome hybrid with soft rose-purple sepals and petals, and a huge bright purple lip having a yellow throat. The sepals are very narrow, but the petals very broad, though with reflexed margins. The lip has a white tube, but a clear and soft yellow throat; the apex is rounded, large, broad, and frilled, deep and rich purple with pale margin. Obtained by crossing Lælia purpurata with Cattleya Schröderæ. F.C.C., R.H.S., May 10. Mr. Bond, gardener to C. L. N. Ingram, Esq., Godalming.

SPATHOGLOTTIS AUREO-VIEILLARDI.

A beautiful orchid and one of great interest, for it is a hybrid between the two species indicated by the name. The foliage is long and plicate, pale green; flowers two and three quarter inches across, sepals somewhat narrower than the petals, and of a soft primrose tint with faint rose tips. The broad, rounded petals are of a similar colour but plentifully strewn, save at the tips, with very tiny rose-purple dots. The lip has crimson side lobes edged with yellow and cream at their bases; front lobe yellow along the neck and two raised teeth, but with a rich rosy crimson wedge-shaped apex. F.C.C., R.H.S., May 10. Messrs. J. Veitch and Sons, Chelsea.



SPATHOGLOTTIS AUREO-VIEILLARDI.

SOPHRO-CATTLEYA GEORGE HARDY.

A very distinct and interesting hybrid obtained by crossing Sophronitis grandiflora and Cattleya Acklandiæ. The plant has growths about three inches high, surmounted by leaves of a similar length. The flower shown measured precisely two inches across, and had equal sepals and petals, all rounded at the apex. The colour was soft scarlet, with red spots at the tips of the segments. Lip tiny, scarlet with orange base. A.M., R.H.S., May 10. Mr. T. Stafford, gardener to F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey.

CATTLEYA INTERMEDIA FOWLER'S VAR.

A pretty orchid, with growth and spikes like those of Lælio-cattleya elegans. The flowers measure four to five inches across; sepals and petals half-an-inch across, tinged palest lilac; lip large, lilac tube, creamy throat, and tips of the side lobes of a similar colour; front lobe much waved and crisped and of a rich royal purple hue, this colour extending up the centre of the throat of the lip. A.M., R.H.S., May 10. Mr. J. Davis, gardener to J. Gurney Fowler, Esq., Glebelands, South Woodford.

AZALEAS.

Madame Joseph Vervaene, a handsome semi-double Indian azalea, with large flowers of a lovely pink shade, and with numerous bright rose-red spots upon the upper segments. A.M., R.H.S., May 10. F.C., R.B.S., May 11. Mr. Charles Turner, Slough.

Ami Charles Vermeire, a fine single Indian azalea, with an abundance [illegible] and intense scarlet flowers, with a few crimson spots at the base of the [illegible] segments. A.M., R.H.S., May 10. F.C., R.B.S., May 11. Mr. Charles Turner, Slough.

La Printemps, single, rich scarlet with deep crimson-scarlet spots on the [illegible] of the three upper segments.

Ami Victor Cuvelier, a handsome pink azalea with semi-double flowers; [illegible] upper segments are stained and spotted with crimson-scarlet at the base.

Louise Cuvelier, a pretty semi-double variety; pure white and very [illegible] flowers large. F.C. to each, R.B.S., May 11. Mr. Charles Turner, [illegible] Nurseries, Slough.

AURICULAS.

Perfection, a grand alpine auricula with bold trusses of handsome large [illegible] a lovely intense crimson shade and with a beautiful golden centre.

Zixa, a pretty alpine form with blackish-crimson shading at the base [illegible] blood-red segments; centre deep yellow.

Dean Hole, a beautiful alpine auricula with rich crimson flowers, tinged [illegible] deeper shade at the bases of the segments, and with a golden centre. A.M., R.H.S., to each May 10. Mr. J. Douglas, Great Bookham, Surrey.

DRACÆNA ROSE LAING.

A handsome and graceful dracæna, with leaves twelve to fifteen inches long by three inches across at their widest; deep purplish-green, with scarlet streaks on the older leaves; young foliage creamy, with green and red shadings. A very good dracæna. B.C., R.B.S., May 11. Messrs. J. Laing and Sons, Forest Hill.

TULIPS.

Glow, a scarlet Darwin tulip, shaded with vermilion; very neat in appearance, effective *en masse*, and looking well when cut.

Salmon King, a pretty Darwin tulip, with neat flowers of a peculiar shade of rosy scarlet that has not a very near approach to salmon. F.C. to each, R.B.S., May 11. Messrs. Barr and Sons, Covent Garden.

ADONIS PYRENAICA.

A handsome adonis with large golden flowers and finely-divided foliage; a good garden plant and one fairly well known. B.C., R.B.S., May 11. Messrs. Barr and Sons, Covent Garden.

CHEIRANTHUS HARPUR CREWE.

A very much branched and dwarf-growing wallflower, with small spikes of double-yellow flowers. The foliage is small, and the whole plant is very handsome. Flowers sweetly fragrant. B.C., R.B.S., May 11. Messrs. Barr and Sons.

BEGONIA EARL OF DARTMOUTH.

A splendid soft salmon-scarlet double tuberous begonia, of handsome form and neat appearance. F.C., R.B.S., May 11. Messrs. J. Laing and Sons, Forest Hill.

CALADIUM GUARALINGNETOR.

A bold foliaged form with fine crimson-scarlet leafage; towards the tips and margins the colour is bronzy, or deeper darker crimson. B.C., R.B.S., May 11. Messrs. J. Laing and Sons, Forest Hill.

RADISHES.

Barr's First of All Scarlet, an early olive-shaped radish of medium size, firm in flesh, and of a scarlet hue.

Barr's First of All White, rather larger than the foregoing, but otherwise similar in all but colour; pure white. A.M., R.H.S., to each, May 10. Messrs. Barr and Sons, Covent Garden.

Sutton's Forcing Carmine Olive, a useful early radish of good shape, dull scarlet in colour, and firm in flesh.

Sutton's Forcing White Olive is like the foregoing in all but colour; it is quite white, and equally early. A.M, R.H.S., May 10, to each. Messrs. Sutton and Sons, Reading.

Wood's Frame, a good old variety that still proves to be one of the best for early use; it has long red roots that are very crisp and well-flavoured. A.M., R.H.S., May 10. Messrs. Watkins and Simpson, Exeter Street, Strand.

NON-WARRANTY OF SEEDS.

THE case of Howcroft *v.* Laycock, and especially the resulting decision, is one of no small importance to all growers of plants from seed, as it practically gives the seedsman a right to sell any seed he likes under any description he chooses to attach, while absolving him from all responsibility as regards [illegible] That a seedsman should protect himself by a non-guarantee clause [illegible] extent of resulting crop, or even total failure, is justifiable enough, since [illegible] an immense amount of seed of good quality falls into unskilful hands, and hence, [illegible] a thousand and one causes, fails more or less to yield a proper crop; [illegible] quite another matter when a good crop, as regards quantity, being raised, [illegible] found to be of another and different plant to that of which seed was [illegible] invoiced. In the particular case in question, it is true that the difference [illegible] only that existing between two varieties of cabbage, but that difference was [illegible] theless sufficient to cause the defendant, who refused to pay for the seed, [illegible] his labour, use of his land, and the profits he might have made on the [illegible] intended to raise. It does not seem to have been at all disputed that the [illegible] obtained resulted from the seed supplied and sued for, or that it was essentially different from that which should have resulted; and yet it is held not [illegible] the seedsman is entitled to his claim for the value of the seed, but the [illegible] grower is nonsuited in his counterclaim for damages, and saddled with [illegible] costs owing to the seedsman's mistake. Surely no non-guarantee clause [illegible] world can over-ride equity to this extent, for, such a principle admitted, [illegible] immunity from damages and legal rights to the price charged, would [illegible] substitution of different plants altogether if the seeds were similar [illegible] appearance to elude the buyer's vigilance, and reach the stage of germination, [illegible] which time it is possible, or probable even, that the time for replacing the [illegible] article by the right one would be passed, and a season's crop be thereby [illegible] lost to the grower.

On the facts as presented, we certainly do not think the question should [illegible] where it is, though we fully appreciate that the glorious uncertainty of the [illegible] already exemplified in the first decision, renders the trouble and cost of an [illegible] a heavy and onerous matter for a private individual to undertake.

Recent Fire at Messrs. Watkins and Simpson's Establishment. —We are informed that Messrs. Watkins and Simpson have made [illegible] whereby their business is being carried on without interference or [illegible] Mercer Avenue, Neal Street, W.C.

SEAKALE IN THE OPEN GROUND.

Of late years the culture of seakale has made great advances, until now excellent produce can be obtained in one year from the root cuttings. There is no need, either, to force seakale if the supply is needed during the latter part of April and for early May. The old method of growing seakale for many years together in one place, covering it with pots and warm manures, is nearly obsolete, and the modern system is certainly a step in the right direction, as much better produce can be obtained at a smaller cost of labour. Those interested in open-air seakale culture evinced much interest in the fine groups of heads staged from Stoneleigh Abbey at the last meeting of the R.H.S.

At Syon we need seakale in large quantities, and so raise some thousands of plants yearly. It is a simple matter to grow seakale every year from root cuttings, and then produce may be had from November to to the middle of May, probably even later in the month. It has been stated that good seakale may be grown on poor land; I am aware that on the sea coast it grows year after year with little trouble taken to blanch the tops, the sea sand being drawn well over the plant; but these growths cannot compare with that produced on well-manured land. I am aware seakale is not at all fastidious as to soil, for, given ample moisture, it thrives. On the other hand, it thoroughly repays good culture, that is, annual culture, for, given good soil and ample food, the plants in one season will give crowns large enough for all purposes, and vastly better than the old much-divided root with numerous crowns, which cannot compete with plants giving a single crown and grown from one root cutting. There are other advantages with the one-year system; for instance, the crop will not occupy the quarter more than eight months, as it does the crowns good to lift them as soon as leaf-growth decays, if they are needed for forcing. Many think seakale cannot be grown without salt, but this is a mistake.

My note, however, is more concerned with the crowns that give the latest supplies, those we are now relying upon; and such may be grown by everyone who can give the necessary space, and with much less labour than many other vegetables. Once planted, one has merely to keep the quarter clean, and reduce the crown growth to one, and that the strongest; where liquid manure can be spared give copious supplies. We double dig or trench our land in the winter, placing a liberal quantity of decayed manure under the first spit; the position is an open one, as by full exposure a sturdier growth is secured. The planting is done early in April, and we rely upon root cuttings, prepared in the usual way when lifting; these are tied in bundles of fifty and placed in soil till needed for planting. The sets, as they are termed, may be hastened if placed in fine soil in frames, as treated thus they soon form roots at the base, and the crowns are early furnished with a number of small buds, but all these except one must be removed. When planting it is best to place the sets lower than the surface of the soil, as they have a tendency to lift themselves out of the ground as they increase in size. I have not referred to another and an excellent mode of culture, and that is to utilise any small roots of the previous year's growth which were not strong enough to force; these, cut over, will make excellent plants, but they must be cut, otherwise the crown growth will produce a flower. The distance to plant depends upon the space at command; but if the roots are lifted and forced, two feet will suffice between the rows, and fifteen inches between the plants in the rows. We plant two feet by eighteen inches, but lift every other row for forcing in a dark place.

In January or February, according to the season, we cover the plants left at four feet apart between the rows, first covering the crowns with fine [illegible] ashes before banking up the soil; indeed the ashes are a protection, and if placed over the crowns in December so much the better. We bank up the earth at the date named, ridge shape, quite two feet in height, and nearly as wide, for unless there is plenty of soil the tops soon push through. The plants may be grown in this way for two or three years, as not being forced they remain strong, but after the second year the crowns decrease in size and split up. Probably the least trouble is to lift all roots in winter, placing them close together under a north wall if late supplies are needed, and covering them with soil and litter.

Syon Gardens.

G. WYTHES.

Window Boxes.—There is one feature about these objects of domestic culture that merits special notice. It is that they do not, when on sills look-[illegible] the highway, exist solely for the pleasure of the owners. They are as [illegible] to every passer-by who loves flowers, and who does not? A prettily-[illegible] front window, and where there is a pretty front garden also, furnishes much charm to the house and beauty to the locality. Wherever we are privileged to see flowers growing in windows, within or without, or in the forecourts, conclusive evidence is furnished that amongst the inhabitants within reigns a high range of [illegible] and refinement. Whether flowers be or be not refining and humanising, [illegible] certainly they are evidence of the existence of better human nature than com-[illegible] prevails where flowers are not. Window boxes are elements of floral [illegible] not at all difficult to obtain. Wood is, on the whole, the best material, and can easily be made to exactly fit the window-sills on which they are to stand, whilst plain, if substantial, at the back and ends, they may be moderately [illegible] with moulding or lattice work in the front; but as the object of the planter should be to drape the front with plant growth as far as possible, the nature of the box face is of little moment. For hardy plants few thing are more in [illegible] to drape the front than creeping jenny or periwinkles, or some of the [illegible] leaved ivies may be utilised, and for tender plants free-growing lobelias, [illegible], musks, especially campanulas isophylla and fragilis, and ivy-leaved [illegible], are all first-class plants for such purpose. As to how the boxes [illegible] filled, the season of the year and the range of material at disposal should determine. In the winter a few small conifers or shrubs, some spring blooming plants, a few bulbs, anything indeed that will give leaf effect all the winter and bloom and beauty in the spring. As to the summer, there is endless variety, but in all cases too much variety and colour should be avoided.—A. D.

EXHIBITION CHRYSANTHEMUMS.

THE number of shoots which plants may develop to carry large flowers for show purposes is governed by the particular variety or by the condition of the plant. For many years it has been the custom to leave three shoots to each plant, but there are reasons why this is not always good practice. Strong-growing varieties and those which are apt to give blooms of an ungainly character may occasionally have four shoots, providing these can be induced to grow evenly. The greater part of the collection will carry three shoots if rooted in good time and grown well, but some varieties which are naturally weakly will give better blooms if restricted to two shoots; there are also a few which never start three growths uniformly, and consequently the lowermost of the three selected does not become vigorous enough to give a good flower. Now, if this sort is especially liable to damping of the blooms, the lower or weakest shoot may be allowed to remain to prevent the too vigorous growth of the two leaders, but if the contrary, then the weakest shoot may be pinched away at its first appearance, as by this the two best shoots retained will be proportionately more robust. Those plants which are pinched in order to time the flower buds are most likely to have their topmost one or two shoots grow at the expense of the lower one, but this uneven growth is peculiar to a few varieties. Those which are rooted late in the season may, according to the time of propagation and the vigour of the plant, be allowed one, two, or three shoots. Frequently new varieties are not strong enough the first year, through their being subjected to rapid propagation, to carry three blooms successfully, hence it may be sometimes well to confine the energies of the plant to one growth only for the chance of a good bloom, rather than try more. The finest bloom of Oceana I have seen was grown in this way on a late plant by Mr. Beckett, of Aldenham Gardens—just the one bloom on the plant. Side shoots in excess of those required must be carefully removed as soon as they can be safely handled without breaking off the main leaf in the process. Some varieties are so very brittle in the leaf-stalk or at the axes of the leaves that the caution is necessary. Mrs. H. Weeks, Mutual Friend, and Mons. Panckoucke, for instance, are easily damaged.

Many varieties will have either made their natural break or have been pinched to induce the side shoots to grow away by this time. In spite of the mildness of the winter there does not appear to be any undue earliness of the break buds this season. Madame Carnot, Simplicity, M. Chenon de Leche, Mrs. Carpenter, Mrs. H. Kloss, and Western King, amongst others, were showing their buds by April 28, and the pots are becoming well occupied with roots. Where plants have been potted firmly as previously recommended, and in strong soil, watering is a particularly important matter; moisture cannot pass through the soil so freely as if the plants were potted more loosely and in lighter soil. Hence the repeated injunction to water thoroughly when necessary is a point which cannot be too strongly impressed on young growers, otherwise, if sufficient water is not given to moisten the whole ball of soil, the lower portion may become dry, and the roots will consequently suffer. There are some varieties which cannot bear the least excess of water during the early stages of their growth; Madame Carnot, Mrs. Lees, Mutual Friend, and Australie are examples; these soon show a pale, unhealthy colour in their foliage if over-watered, but if the advice to water carefully by examining each plant be followed, it will prevent injury from this cause. It is through indiscriminate attention that plants suffer, on the assumption that because many appear dry the whole batch may be watered, whereas it is possible for a plant of such a strong-growing kind as Eva Knowles to need water three times, whilst Mutual Friend will require it but once during the same time.

The experience of the last few years has been in favour of keeping the plants under protection until after the end of April. The lights of frames may be removed entirely, and when frost threatens or heavy rain seems imminent they may easily be replaced, and so secure the plants from injury. Often, however, one has no choice but to turn out chrysanthemums in order to give frame shelter to more tender plants at this time of year. When this is the case, a position sheltered from cold winds must be found for them, and provision made for a light covering to be run over on very cold nights. If the outside temperature is below 40 degrees by ten p.m. we generally expect and prepare for frost until after May 20 has passed. Stakes will be necessary for most of the plants when removed to the open, and, in tying, either support the shoot its whole length or leave some six inches or more loose, as the tender tops are apt to snap off some varieties under the influence of heavy rain or wind when tied stiffly to within about four inches of their points. No feeding should be necessary under ordinary circumstances whilst the plants are in six-inch pots. Manure may be given if, from force of circumstances, later on, when the plants are ready for their shift into large pots, the work cannot be done just as soon as required, but this only to prevent loss of vigour rather than to encourage strong growth. It is little use giving manures to weakly plants unless they have a goodly number of roots; a healthy root action would generally be better stimulated by slightly warmer and more moist surroundings, and then, perhaps, a little weak liquid manure might do good if the soil is not rich enough.

It may be well to advise caution in measuring the cubic capacity of frames with a view to fumigating. There is usually only such a small space, and one is apt to overlook the fact that the pots and plants occupy a large portion of this, so that it is easy to fumigate too strongly unless due allowances are made.

Trent Park Gardens.

W. H. LEES.

Seed Potatos for Ireland.—We understand that the Government has made arrangements for the distribution of thirty tons of seed potatos among the distressed Irish families in the Patrie Mountains. Relief works have been opened.

FRUIT BLOSSOM.

THE plum trees on the south and east walls have been a foam of white flowers, and when their glory waned the pear trees opened out great clusters of snowy blossoms, and the smaller, paler blooms of the cherry appeared. Last to come, but loveliest of all when it does arrive, is the apple blossom. The grey-brown of its gnarled stems and branches, the vivid green of its leaves, and the pink and white of the bloom, make an apple tree in flower one of the most beautiful colour schemes to be found in Nature.

It is doubtful whether any order of plants can show, with such a similarity of flower, such a diversity of fruit as can the order of Rosaceæ. For besides such well-known and conspicuous examples as the rose, hawthorn, sloe, plum, cherry, almond, peach, apricot, apple, pear, medlar, quince, strawberry, raspberry, and bramble, there are the more insignificant but not less interesting fruits of the burnets, spiræas, geums, and potentillas. The flowers of all these, though differing greatly in size and colour, are very similar in general structure as far as the two most obvious organs, the corolla and stamens, are concerned. Their variations lie in the number of the pistils, and the curious relationships that exist between the pistil and the calyx, and it is to these that the differences of the fruits are to be ascribed.

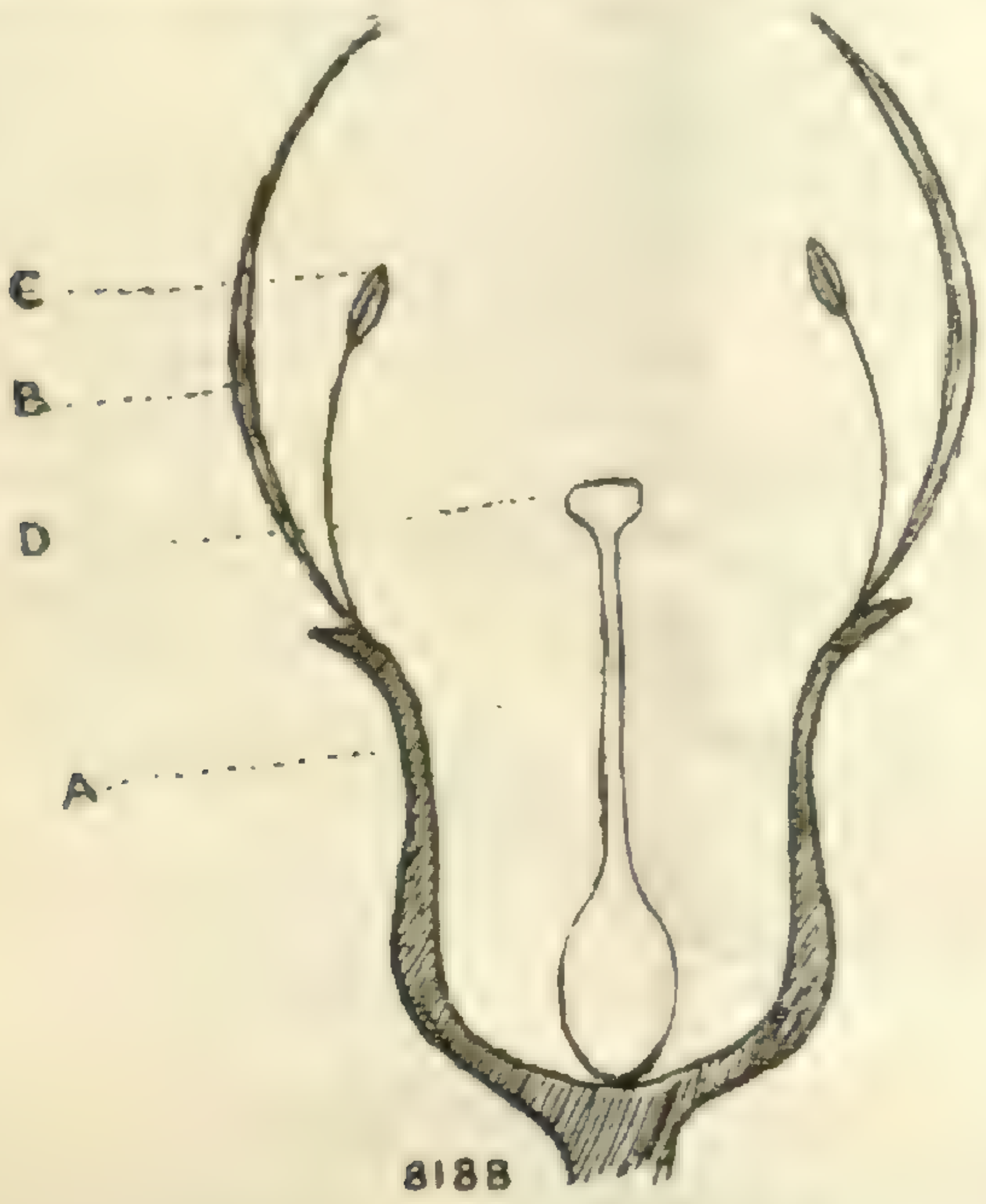


Diagram of Plum Blossom.

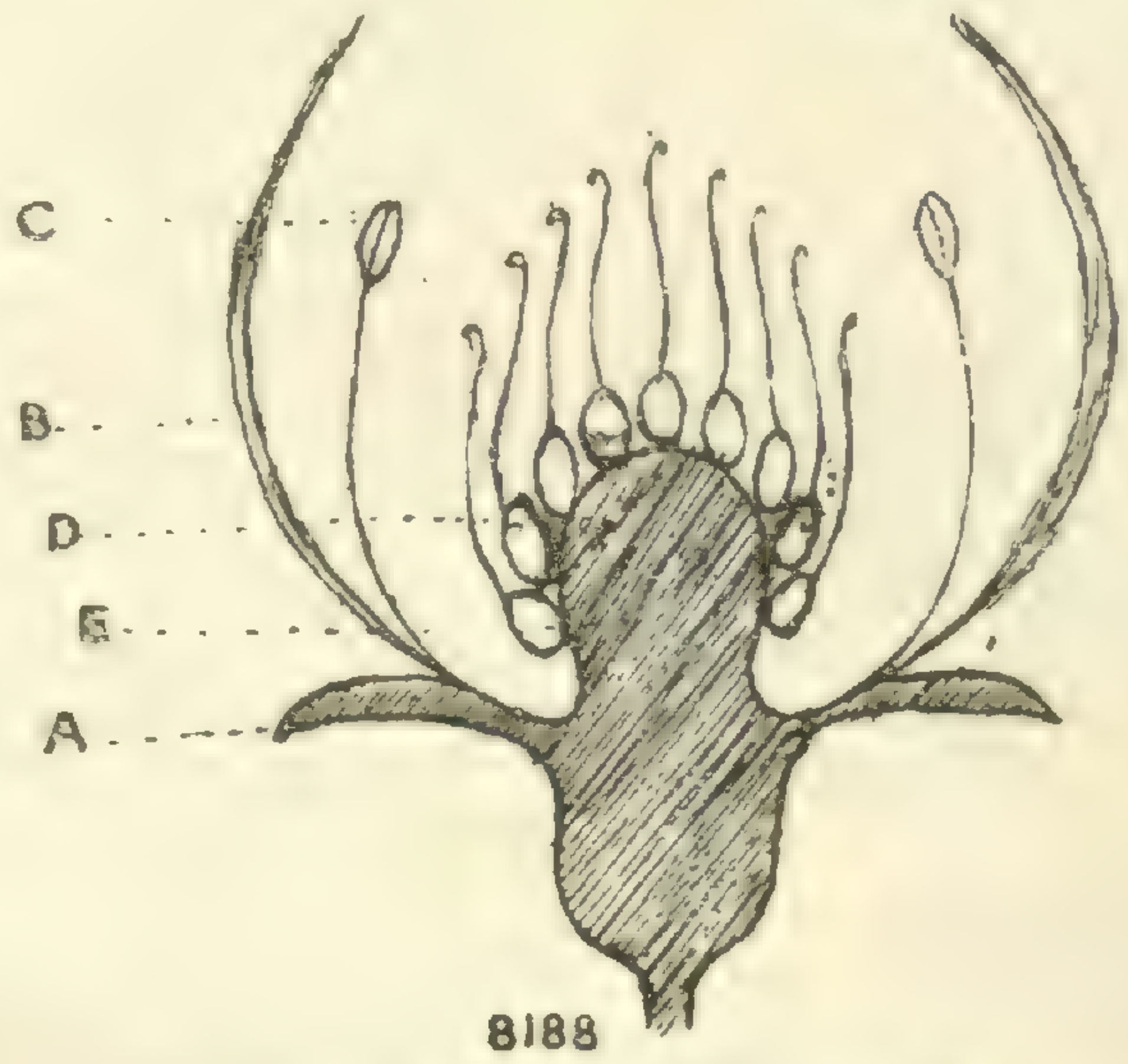


Diagram of Bramble Blossom.

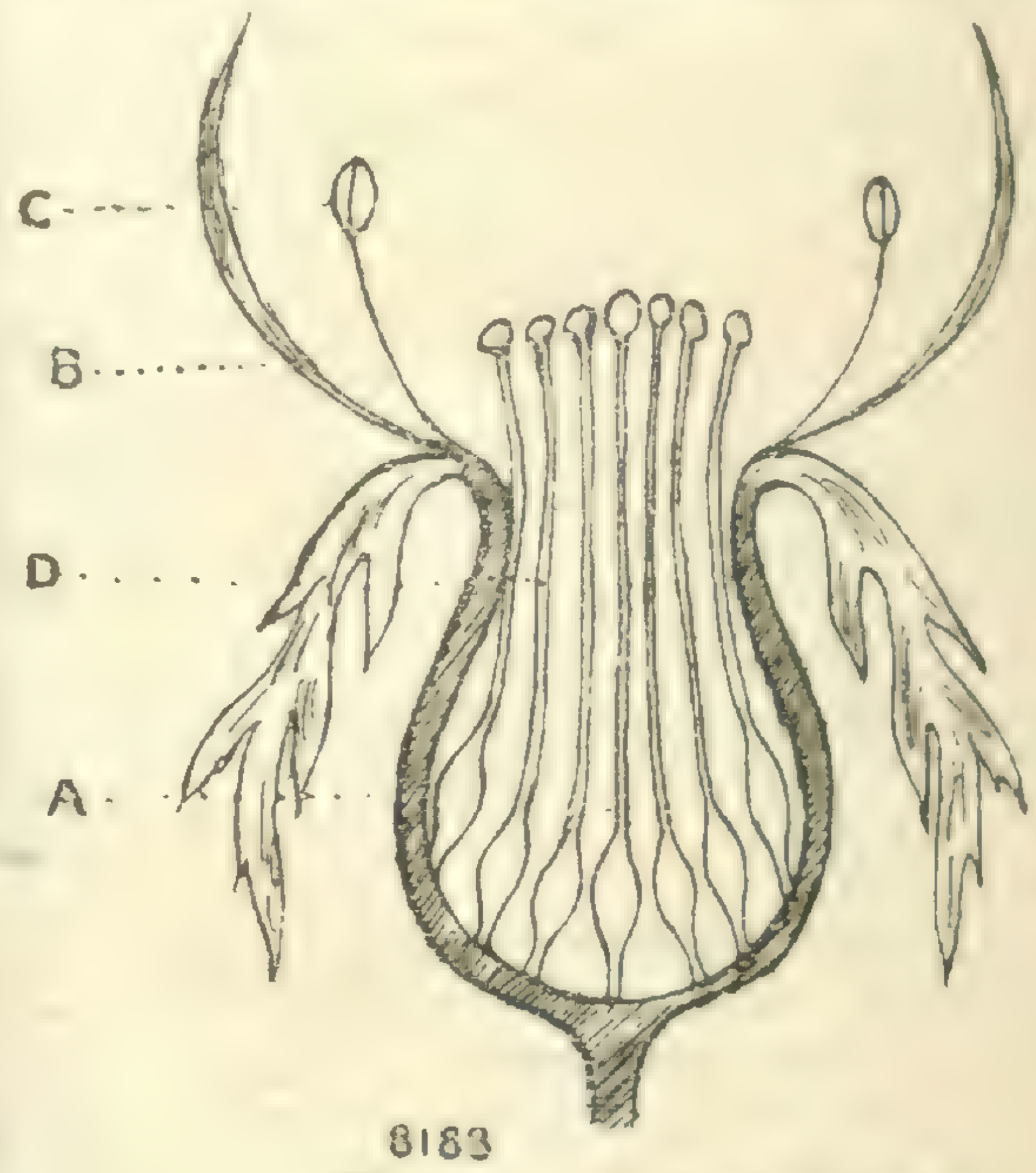


Diagram of Rose Blossom.

A, calyx ; B, corolla ; C, stamen ; D, pistil ; E, disc.

The accompanying diagrams show four of the more important of these variations. No. 1. is of the plum blossom. The calyx is in the form of a deep cup, in the middle of the base of which grows a solitary pistil. This, after fertilisation, develops into a plum, the calyx, corolla, and stamens dying away, and leaving only the fruit on the flower-stalk. The almond, peach, cherry, and nectarine are all formed in a similar way, and are all, technically speaking, drupes ; that is to say, fruits consisting of an outer succulent portion enclosing an inner, stony portion which contains the seed. No. 2 is of the raspberry blossom. The base of the calyx is filled with tissue which rises into the centre of the flower as a conical disc, and bears the pistils. These develop into little juicy drupelets, exactly similar in structure to the drupes, though so much smaller. It follows, then, that a raspberry, bramble, or dewberry is not a single fruit, but a collection of fruits. No. 3 is of the rose blossom. The calyx is tubular in form, and attached to its inner base and sides are many little flask-shaped pistils, the heads of which make the yellow-green centre of the flower. As the fertilised pistil ripens into the small, hard, stony fruit, the calyx-tube ripens with it, entirely enclosing the true fruit, and forming the scarlet hip which makes our hedgerows bright in autumn and which children not inaptly call "Soldiers' Buttons." No. 4 is of the apple blossom. The calyx is, again, cup-shaped, and inside, growing from its base, are two, three, four, or five pistils. After these have been fertilised, an extraordinary change takes place in the flower. The whole of the calyx-tube swells up and develops into a mass of soft edible tissue, which constitutes a false fruit, and encloses the true fruit as the core. Such fruits are called pomes, other kinds of which are the pear, medlar, and quince.

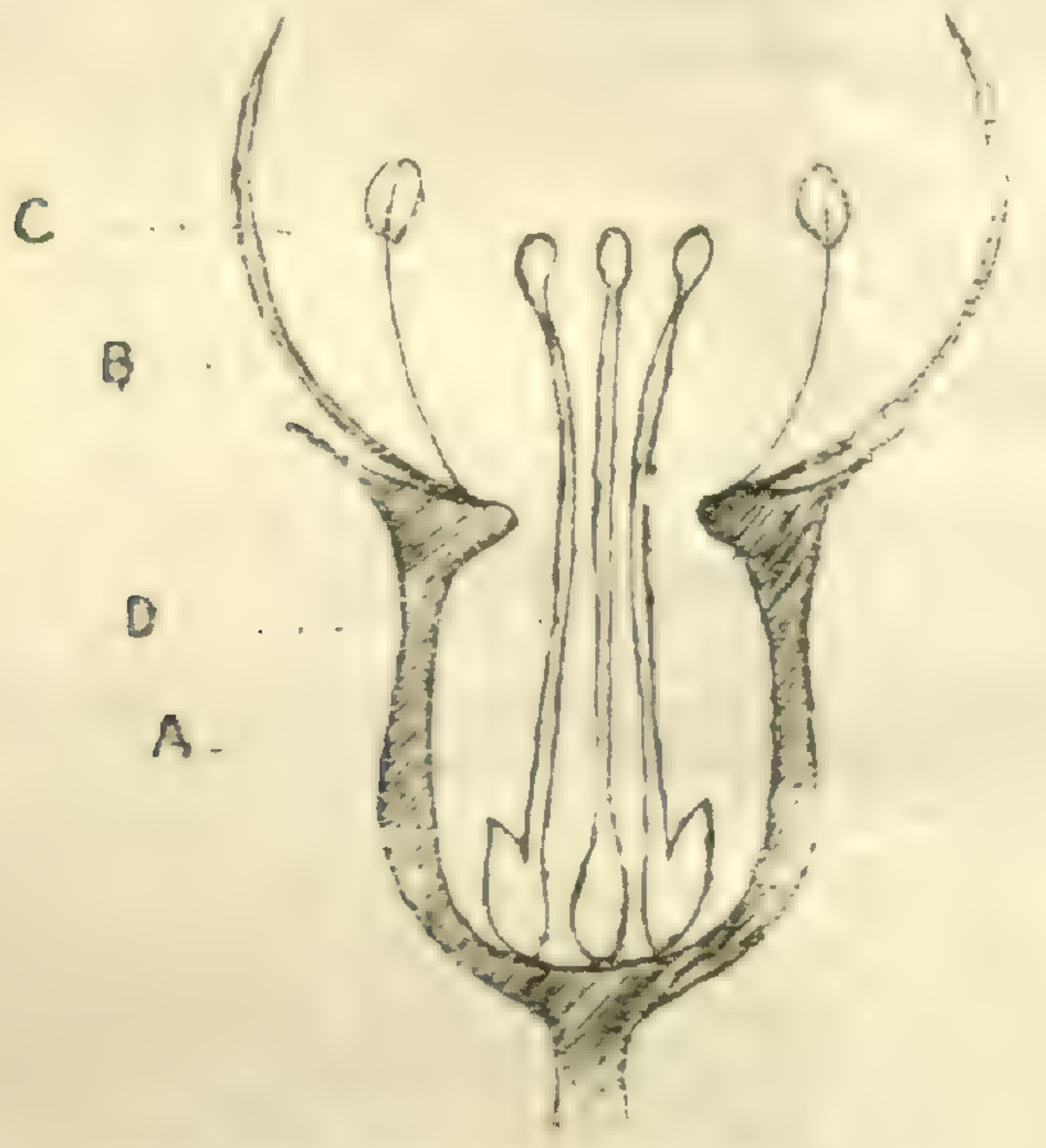
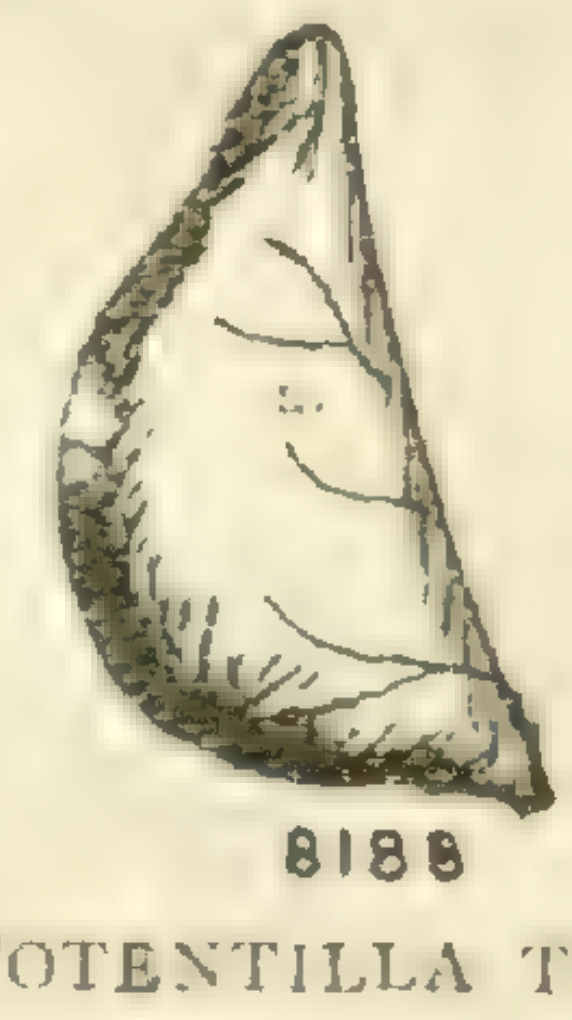
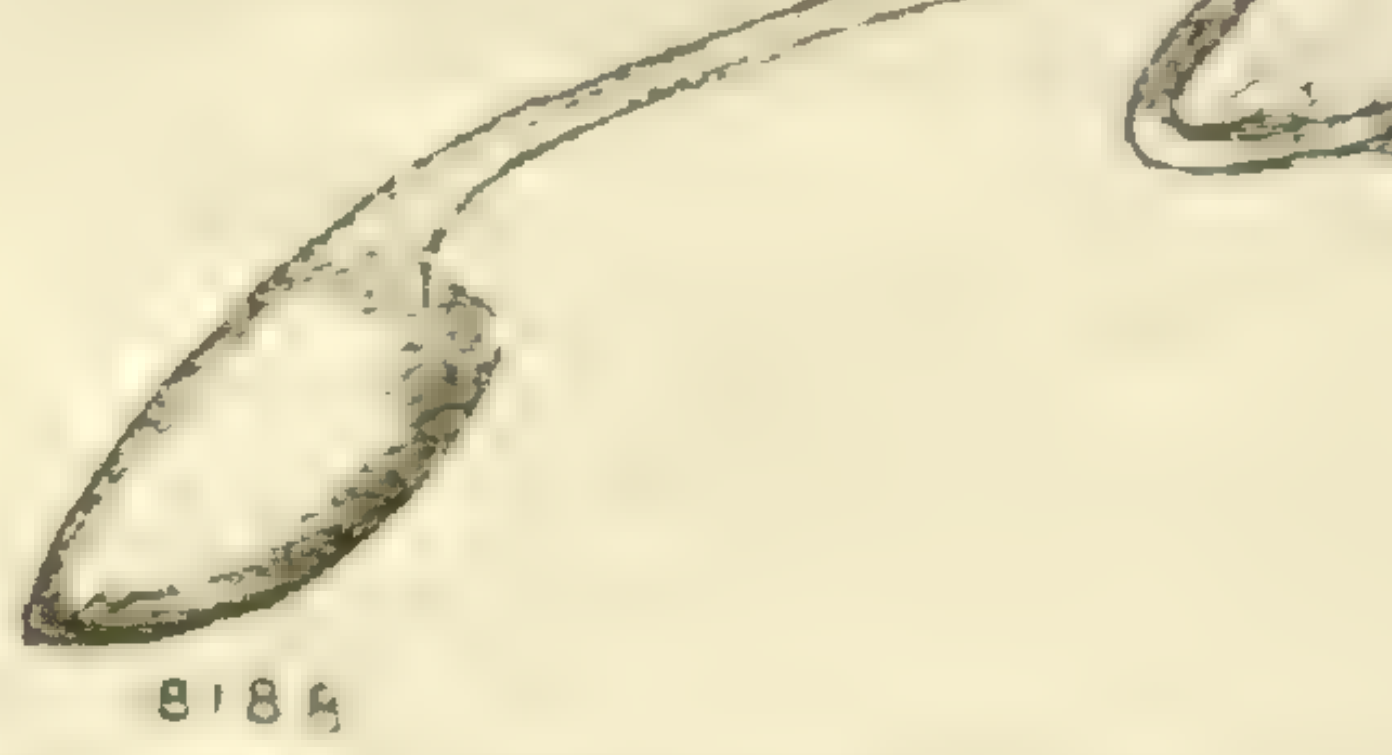


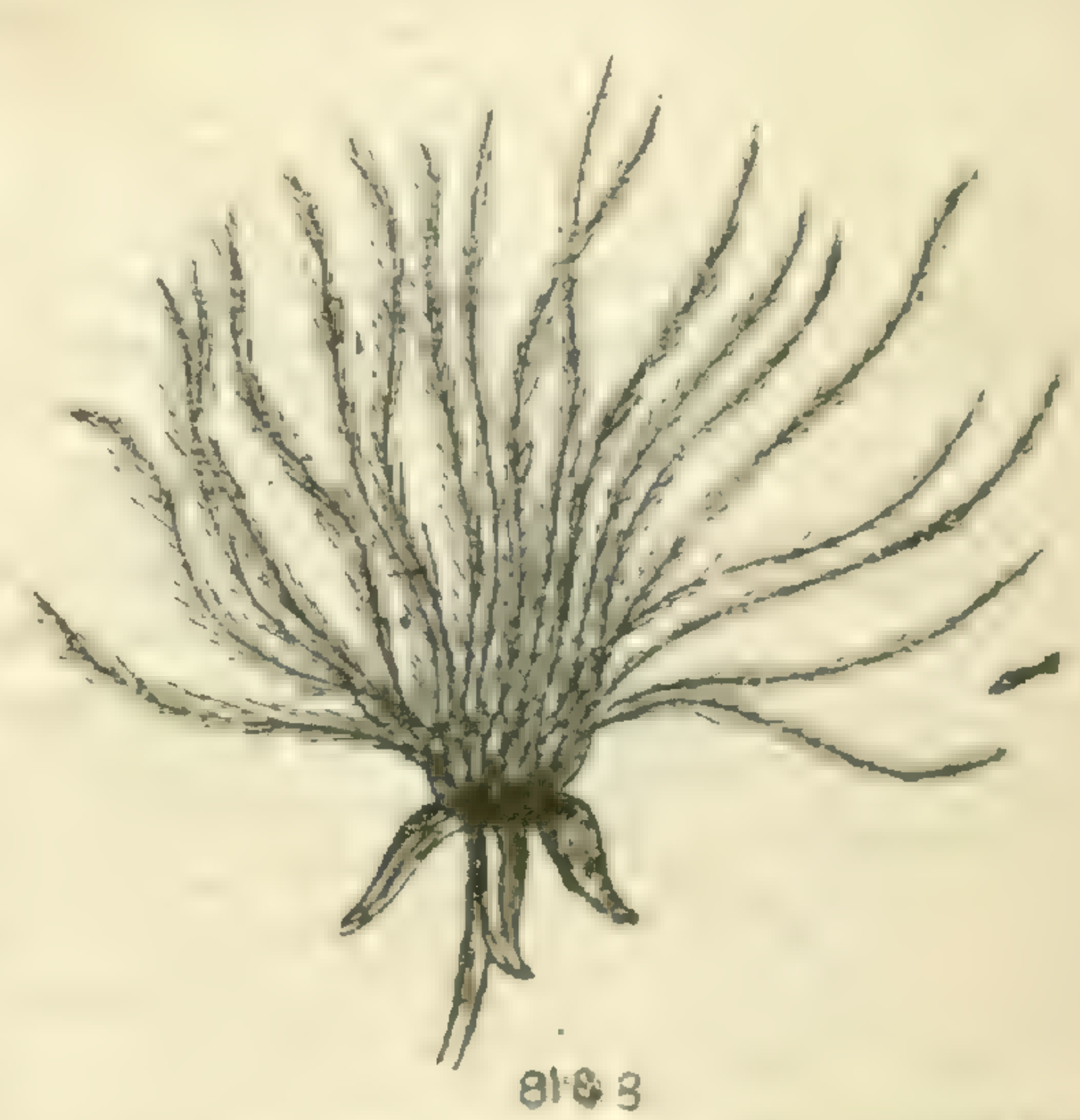
Diagram of Apple Blossom.



Fruit of Potentilla tormentilla.



Fruit of Wood Avens (*Geum urbanum*).



Fruit of Mountain Avens (*Dryas octopetala*).

The fruit of the strawberry is best understood by first examining that of the little yellow-flowered potentilla. This is of the simplest type, consisting of a number of seedlike bodies, technically known as achenes, each containing its seed fast closed in a dry covering. These achenes grow on a dry flattened disc. The fruits of the geums are similar, but they possess appendages which assist in their dissemination. The strawberry is a plant of the same habit as the potentilla, and has the same kind of fruit, but the disc instead of being flat and dry has become large, succulent, and fleshy, exquisite in colour, delicious in flavour, and bears the seed-like fruits embedded on its surface. No order presents more interesting evidences of the process of an evolution extending over many ages than does the rose order. The prototype of our highly developed and highly civilised orchard trees is the little creeping potentilla mentioned above—a humble little plant with yellow flowers and much divided simple leaves, primitive in habit as its colouring, if yellow be, as many hold it is, the primitive floral colour. Out of this, in course of time, evolved a plant known as the barren wild strawberry, placed by some authorities among the potentillas, by others among the fragarias or strawberries. The much-divided simple leaves were transformed to compound leaves with the leaflets, the yellow flowers became white, and the plant grew in tufts instead of in straggling runners. After another lapse of time, out of this came the strawberry, Fragaria vesca, a more erect plant with the same threefold leaves, but with larger, whiter flowers and the edible fruit that has been described. The birds liked the fruit, ate it, and thus dispersed the seeds more effectively than the wind or a chance agent, and the type became fixed and far-spread.

Next in order would come the spiræas and geums, taller herbs, with dry, insignificant-looking fruits, and after them the raspberry and bramble, larger and more imposing plants, with edible fruits, and long, woody stems, which, however, could not hold themselves erect, with fruits so liked by the birds that the dispersion of the seeds and the survival of the type was assured. The primitive rose not only produced an infinite variety of its own kind, which have been further multiplied, developed, and differentiated by culture, but it gave rise to three types distinct from it and from each other—the hawthorn, plum, and apple. In these we arrive at woodland trees which stand erect. The only obvious connecting link between the hawthorn and plum families is the fruit. The hawthorn yields little crimson haws, which are rudimentary drupes. From it the blackthorn, with its larger, more pulpy but astringent fruit, known as sloes, leads to the common wild plum tree, which bears a larger, juicier fruit, but one still scarcely suited in flavour to a civilised palate. By cultivation and selection all the varieties of garden plums have been produced from the sloe and wild plum. The cherry is an issue of the plum; the bird-cherry, with its currant-like bunches of little black fruits, is general in the north of England ; and the common wild cherry, with a fruit smaller but resembling the black garden cherry, flourishes in the southern counties. Lastly we have the large hardy trees of the apple and pear, the former of which may be almost regarded as our staple English fruit.

A. Graveson.

MEMORIES OF GHENT.

THREE weeks ago, from the time of writing, quite a large number of Britishers interested in horticulture could have been found hurrying off, viâ Ostend, Dover, or Harwich, to the agri-horticultural country of Belgium, with the intention of reaching the old city of Ghent in ample time for the opening of the fourteenth quinquennial horticultural exhibition held there. Not a few of these were invited to act as judges at the show, and such had to present themselves at the Casino early on the morning of Friday, April 15, hence their haste. Those who preferred comfort to the saving of an hour or two travelled viâ Harwich, by the Great Eastern Railway Company's service, and so enjoyed a good night's rest on board either the *Cambridge* or the *Ipswich*. From Antwerp to Ghent is not a far cry, and if the early train is caught little time is lost on the journey.

The greater part of Belgium is flat country, a country of verdant greenery, of moist atmosphere, of canals, bridges, and lines of trees. Trees line the roads and canals, and a large number of them belong to the Government; from trees of any age at all the branches are removed up to a height of fifteen to twenty feet, so that progress is not impeded, and small boys do not find it an easy matter to damage the lower branches. The majority of the trees that grow in the towns, especially in the squares and open market places, are provided with a large iron grating that extends three or four feet on all sides of the base of the trunk, and thus prevents damage to the bases of large roots, and affords an opportunity for giving a considerable amount of water to the trees should they need it, and this opportunity is taken advantage of. The soil of the Belgian lowlands is so light and easily worked that no one seems to think of putting foot to a spade when digging; the large heart-shaped spades used would frighten half our garden labourers at home, and indeed they would be unmanageable in some of the stiffer soils found in our islands.

Ghent itself is the centre of an extensive nursery trade, and in it and its suburbs there are over three hundred nursery establishments of varying size, some of them very large and well kept. In very few, however, is there any very large variety of plants cultivated, the general principle is special culture; and the chief subjects grown—grown well and in enormous quantities—are bays, palms (chiefly kentias), azaleas, araucarias, dracænas (largely D. lineata and varieties), anthuriums, and a few other aroids, and bromeliads (chiefly nidulariums caraguatas, and vriesias). Huge ridge and furrow houses are now the order, and their contents are certainly wonderfully vigorous and well furnished. In a comparatively few establishments hard-wooded plants are largely cultivated, and in such are to be seen regiments of Citrus sinensis—the Otaheite orange, ficuses, aspidistras, and Phormium tenax and its variegated form. Whither go all these plants? is the question that naturally arises. They go north, south, east, and west; bays and big palms to Russia and Northern Germany; palms, araucarias, and anthuriums to our islands and many continental countries; azaleas go to almost every country in Europe, and so we might continue. Belgium does a large home trade in plants, but a vastly larger one abroad.

About the wonderful exhibition at the Casino and adjoining galleries and hall little need be said after the comprehensive and amply illustrated report provided by the GARDENERS' MAGAZINE in its issue of April 23. It seemed to the writer that the magnificent azaleas were too dazzling, and placed too close together for artistic effect. Coming from the gallery out on to the staircase head in the annexe the breadth of azaleas made one's eyes blink again. Perhaps Mr. Pynaert, who is the landscape gardener of the exhibition, will think of some means of preventing such an expanse of vivid colours from being apparent all at once upon the next occasion. The effect in the Casino was splendid—restful greenswards, towering palms, luxuriant aroids, bristling cycads, gorgeous orchids, falling water, placid pool, rustic bridge, winding paths, all combined to make up a real garden of pleasure for the visitor, even though such arrangement was a bit hard upon the journalist.

The two most-talked-about plants at Ghent were Acalypha Sanderi, with its long crimson tails, and a huge pyramidal specimen of Dracæna Sanderiana; both these were grown at St. Albans by the firm whose name they bear, and no doubt visitors to the forthcoming Temple Show will also talk a good deal about them. Orchids from Brussels and Bruges were excellent in variety, though small in growth; the odontoglossum from the Walton Grange collection, however, surpassed all others shown. Two hybrid orchids of considerable merit were staged by the raiser, Mons. Maron, Brunoy, who also raised Lælio-cattleya Lady Wigan, shown at the Temple Show of 1897 and figured in the GARDENERS' MAGAZINE of May of that year. Lælio-cattleya Henry Greenwood was the chief newcomer, and it derives its origin from C. Hardyana and L. elegans var.; it combines the habit of both parents, and has large cattleyoid segments. Cattleya Louis Chalon is the other hybrid, and one obtained by crossing C. Trianæ with C. Lawreanceana, an interesting and very free-flowering hybrid with large rosy-purple blooms. Both these hybrids have crossed the water and become the property of Messrs. Charlesworth and Co., Bradford.

Among those Britishers who took part in or visited the Ghent Quinquennial, the London nurserymen figured largely. Ould Oireland was well represented by Messrs. Moore and Burbidge; Auld Reekie sent Professor Balfour, D. Laird, and D. Thomson, and perhaps some others. The Kers, père et fils, went from Liverpool, and Kew sent its Assistant Curator and orchid expert. The horticultural pressmen were very evident, and it was a difficult matter to escape the stalwart presence of the Editor of the GARDENERS' MAGAZINE, for, to use an Americanism, he was "there or thereabouts" whenever anything of consequence occurred, as the report showed. Not the least interesting matter in connection with this exhibition was the large number of Kewites present; old memories were revived and notes compared by Messrs. F. Ashton, F. W. Burbidge, E. Cooper, C. H. Curtis, K. Drost, J. Fraser, R. A. Rolfe, F. Sander, R. H. Pearson, L. Piret, L. Pynaert, W. Watson, J. Weathers, and J. F. Wilke. It is a sign of the influence Kew is continually creating upon matters horticultural, for here were nurserymen, gardeners, curators, botanists, and pressmen. Possibly there were other Kewites who paid a flying visit to Ghent.

Courtesy and attention to those who in any way assist them is shown and given freely by the executive of the Ghent Quinquennial, and in these matters some of our leading horticultural societies have much to learn. The hospitality of the Royal Agricultural and Botanical Society of Ghent was profuse, and all who partook of it felt they were being honoured. It did not perceptibly lessen one's expenses, but it acted as a lubricant to the machinery of human nature, and every one, officials, exhibitors, judges, and journalists, felt constrained to do their very best, and they did it. At Ghent one is reminded that "Love lightens labour," with respect to horticultural exhibitions as well as individuals, and if the "love" has some ulterior motive, the latter is not made glaringly apparent; all ends are served, and everyone feels happy and pleased with everyone else. May the good folks of Ghent and neighbourhood prosper!

Besides its nurseries Ghent has a large flower and plant market held among the trees in the Place d'Armes. Here some of the poorest of the Gantoise may be seen purchasing a few flowers, ivy growths, &c., for home decoration, a pot plant for the window, or some perennials for the tiny garden. Folks of the better class also saunter among the stalls and pick their way amid the scores of burly draught dogs; they, too, make purchases, and about the breakfast hour may be seen carrying home their treasures. About mid-day the market closes, and soon the remaining plants, flowers, seeds, &c., are carted away, and the square is soon swept and watered. From the railway station en route to the Casino one could not fail to notice the number of plants in the windows of houses of all classes; among the better working classes the most popular window plant would seem to be Impatiens Sultani.

It is frequently urged that it would be impossible to organise a big show at home lasting for a week, as the nurserymen and others would not allow their exhibits to remain for such a length of time. This is an erroneous idea, as proved by the Ghent Show, where at least five representative British nursery firms staged extensively, and several of them did not compete for prizes. One English and several continental amateurs of spirit sent choice orchids, and these remained throughout the exhibition. What can be done in Belgium can be done here if only there was a little more cohesion among horticulturists. There has been no really great horticultural display in Britain since 1866, and there does not appear to be any likelihood of growers showing their real strength until the R.H.S. celebrates its centenary. Where such exhibition will take place is a matter already exercising the minds of not a few, for it should be on a scale sufficient to surpass anything of the kind ever before held in this or any other country.

Nothing in Belgium generally, and Ghent particularly, strikes the British stranger more forcibly than the high social status of horticulturists, both amateur and professional. Many notable Belgian horticulturists hold high rank by reason of their birth or merit, and we can find parallels to these at home. But over there the head gardener of any importance is treated like a count, provided his education is good—the general rule; and the nurseryman who has been diligent in business may not only stand before the king, but converse with him, while in his native town or suburb he is looked up to instead of being regarded as "merely the nurseryman." Such men do not give themselves airs, they carry their honours modestly; you meet them at the banquet or raout with the Order of Leopold, or some other decoration in the buttonhole of their swallow-tail coat, and next day you find them at the garden or nursery with soft hat and blue blouse on, busy among the plants or in the office. Our national pride would probably not allow us to do this, and, perhaps, we should kick over the traces if honoured in any way. So it may be these things are best as they are, though those sixty persons who can attach V.M.H. to their names have not given evidence of insanity as some considered they would after the conferment of the order. SERVATOR.

PEAR BEURRE DE JONGHE.

MY gardener has called my attention to a recent article in the GARDENERS' MAGAZINE by Mr. Prinsep, and I should not write, but that the writer says he never ate a good Beurre de Jonghe pear. We have about fifty or sixty pear trees, almost all either espalier or pyramid, and the second best pear we grow is Beurre de Jonghe. It wants picking before quite ripe, but not before the sun has given it a tinge of colour, and then at Christmas it is difficult to beat. I planted nearly all my trees fifteen to seventeen years ago, and tried to plant sufficient varieties and of the sorts to give a dish eight months in the year. A mistake, for if I had to plant again I should take about eight of proved excellence, and be content. My trees are worked both on the quince and the pear. I enclose a list of our kinds as they ripen, with a word as to the quality: Citron de Carme, for the children; Jargonelle, good; Williams, good; Durandeau, most excellent; Marie Louise, very fine; Seckle, delicious; Beurre de Capiaumont, some seasons first-rate; Thompson's, watery; Louise Bonne, very rich; Josephine, sometimes good; Ne Plus Meuris, good in a hot year; Beurre Superfin, excellent; Winter Nelis, splendid; Beurre de Jonghe, next to Durandeau for quality; Beurre d'Esperen, on pear excellent, on quince worthless. I have a dozen others, but they are not of much consequence. T. N.

Shiplake, Henley-on-Thames.

PYRUS SIKKIMENSIS.

A VERY distinct and pretty Himalayan pyrus is the one figured in the present issue—P. sikkimensis. It is perfectly hardy in this country, for its home is at an elevation of from seven to ten thousand feet upon the Sikkim Himalayas. There it attains a height of from twenty to thirty feet, and develops into a stoutly branched tree. In June and July the rose-coloured buds expand, and the whole tree is covered with white, for the inner surfaces of the petals are white, with the very faintest suspicion of rose near the margins. The flowers are borne in corymbs, each is an inch or so across, and carried on a pedicel about two inches long. The ovate leaves vary from three to five inches in length, they are acuminate, and have serrated margins, while the under surfaces are slightly tomentose. In September the small red fruits, speckled with white, ripen, and have a very pretty appearance; these fruits are edible, but not particularly palatable, though Sir Joseph Hooker, who sent home seeds in 1849, states that he made an agreeable stew of them when botanising in the Himalayas. An old tree of Pyrus sikkimensis in the Arboretum at Kew flowers annually in May, a month or so earlier than the species blooms in its native habitat. Though Pyrus sikkimensis differs from the two other Himalayan species, the wild apple and the Siberian Crab, yet, like them, it belongs to the Malus group of the genus pyrus. Horticulturally the species has been known as Pyrus baccata indica, but its true name is that under which it is now figured, one given by Sir J. Hooker. The celebrated collector, Griffith, was the discoverer of this handsome spring-flowering tree, and the Kew Herbarium contains fruiting specimens sent home by him nearly fifty years ago.

SWANLEY AND EYNSFORD.

A VISIT to the two establishments of Messrs. H. Cannell and Sons is at all times interesting, but at no season perhaps is it attended with more pleasure and profit than in the spring. We not only then see the Kentish orchards amid which the nurseries are situate in their more attractive guise, but a considerable proportion of the immense collections of plants in the open and under glass are in bloom, and by taking note of the work in progress in the packing sheds it is not difficult to gauge with some degree of exactitude the trend of public taste in its relation to the garden. It would appear that such things as zonal pelargoniums, tuberous begonias, and dahlias, which have long formed special features at Swanley, have in no way decreased in popularity, for house after house is filled with them. and the great array of cases filled with pelargoniums ready for despatch is the best possible proof that Messrs. Cannell do not grow them wholly for their own entertainment. We have evidence also that herbaceous calceolarias, cinerarias, cyclamen, gloxinias, and Chinese primulas continue to increase in popularity, for the area devoted to these plants continues to extend both at Swanley and Eynsford, the object of their culture being, of course, the production of seed. While these and other important classes of ornamental plants continue to do something more than hold their own, other sections have made their wa to the front; and as the firm is always ready to recognise the merits of novelties the new races of cannas, carnations, violas, and other groups of plants are strongly represented, and the enormous stocks of the cannas grown for the beauty of their flowers are sufficient proof that these highly ornamental plants are much appreciated by the flower-loving public.

The collection of cactaceous plants at Swanley is of interest as indicating the change which public taste has undergone with regard to these plants of late years. A comparatively short time since they were so neglected that the trade in them practically died out, and at Swanley a small structure sufficed to afford accommodation for the collection, which was retained more for the entertainment of the senior member of the firm, who has at all times evinced the keenest interest in his old favourites, than for business purposes. Now these interesting denizens of the vegetable kingdom bask in the sunshine of public favour, and enjoy a high degree of popularity. They have a society and a journal wholly devoted to them, and a brisk demand has sprung up for both choice and ordinary kinds, with the result that the Swanley collection requires a house one hundred and fifty feet in length by about twenty feet in width, besides other structures of smaller size, for its accommodation. One might well be excused for lingering in the principal structure devoted to the cacti and other plants usually associated with them, discussing their peculiarities of structure and their cultural requirements, and still greater is the temptation to refer to them at considerable length. But time presses, and the demands on our space are so heavy that the temptation has to be resisted, and mention made of the more noteworthy kinds only and in the fewest possible words. The mamalarias form a large and interesting group, many of the species being decidedly handsome. Of these the first to attract attention were M. lasicantha plumosa, a distinct variety, remarkable for its dense white down-like covering. M. pusilla is distinguished for its bright red fruits, which are freely produced, and remain in good condition for a considerable period. M. Newmanni attains a large size, has long white spines, and produces rose magenta flowers. M. Pfefferi is of medium growth, with pale yellow spines. M. stella aurata presents a striking contrast to the foregoing, for it grows in dense clusters and each plant when fully developed does not exceed an inch or so in diameter. The echinocactus includes several eminently attractive forms and chief among those of which note was made are E. Grusoni, a striking plant of large growth liberally provided with stout yellow spines, and E. scopa a distinct species with slender cylindrical growths tinted rose at the apex. The cereus are very distinct from the foregoing and contribute materially both to the interest and attractiveness of the collection. C. macrogonus has distinct blue-green fluted stems; C. flagelliformis is remarkably vigorous with long snake-like shoots; and C. peruvianum monstrosum has its growth much crowded and presents a very singular appearance. The opuntias with their flat spiny growths are by no means wanting in attractions; and O. macrodasys and O. leucotricha, both of which are thickly studded with slender yellow spines, are decidedly handsome. Pilocerus senilis and P. Dautwitzi may be mentioned as the most handsome species included in the genus; both are covered with long white hairs, and produce a striking effect in association with the other types. Especially attractive among the smaller growing agaves are Agave Victoria Regina, and A. filifera, and of the many beautiful echeverias mention must be made of E. agavoides, a dense-growing silvery-grey species; E. farinosa a slender-growing species of a bright silvery hue; and E. metallica crispa a distinct form of this well-known succulent with leaves somewhat frilled and elegant in character.

The several houses devoted to zonal pelargoniums are, as usual, aglow with colour and afford abundant entertainment to those that are at all interested in this showy and exceedingly useful class of plants. If the advance in new varieties is less marked than was the case twenty years or so ago the novelties evince a material improvement upon established varieties in the several lines of colour. To mention a few of these it must be said that Crabbe is a superb salmon-red variety, the flowers large and of fine form, and borne in noble trusses; C. C. Tudway crimson-scarlet with bright glow of rose; and Mrs. Tuke bright rose red and of exceptional merit. Madame Alcide Bruneau is an exquisitely beautiful double zonal of neat growth and bearing a profusion of well formed trusses, the flowers are white, the petals margined with a well-defined line of deep rose, as in the case of the florist's picotee. As the forerunner of a new and beautiful race this variety is well deserving of special attention and should be generally grown.

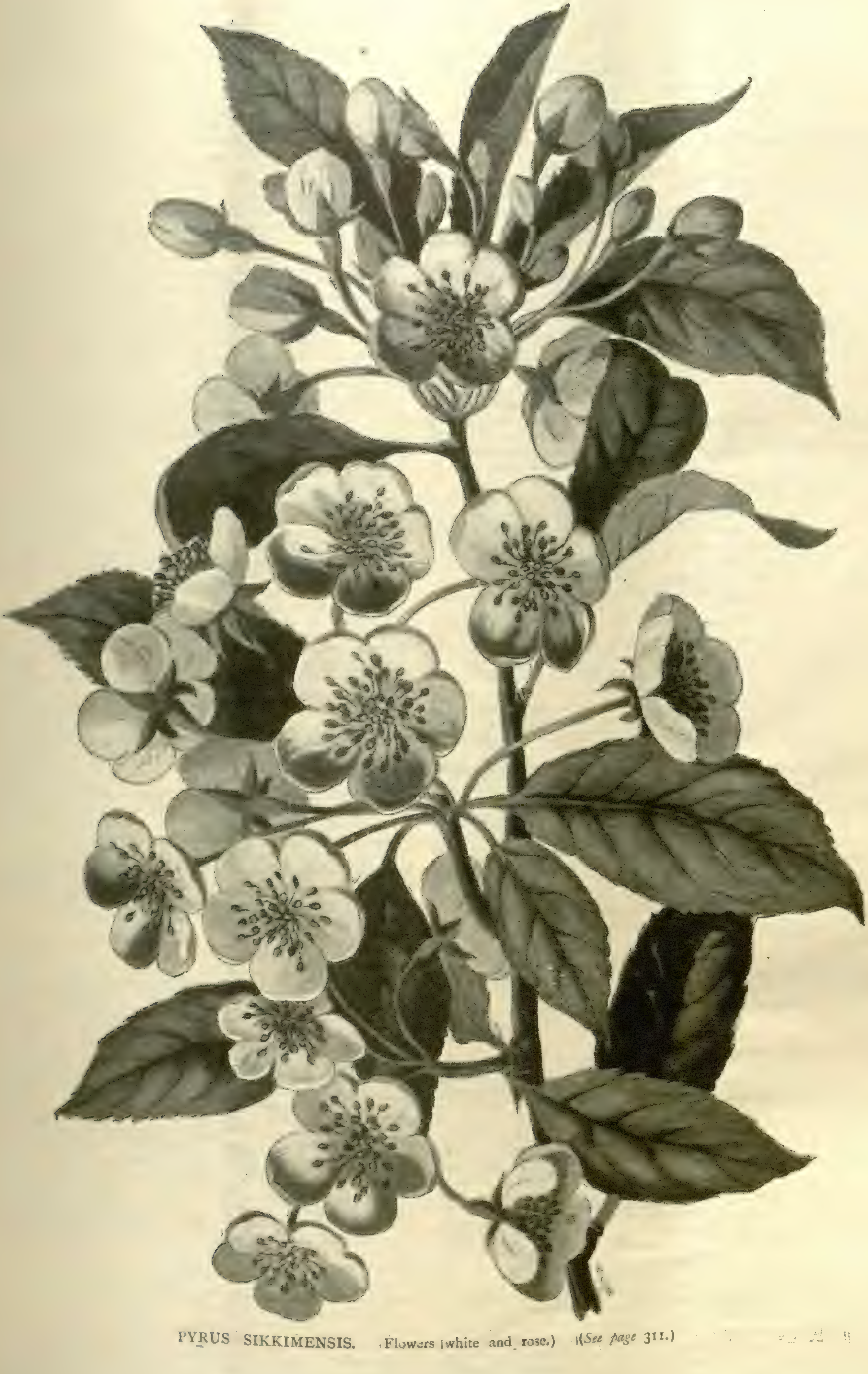
The five or six spacious span-roof houses devoted to Chinese primulas are more interesting than beautiful just now, for the plants are bearing a heavy crop of seed with a stray bloom here and there to remind one of the glorious display of colour produced when the thousands of plants were in bloom, and also of the great diversity of colouring included in the Swanley collection. Especially interesting are the large blocks of plants of the tall-growing and elegant race of which The Lady may be regarded as the type. This elegant primula is extensively cultivated, and associated with it are several beautiful forms that have been obtained by the intercrossing of The Lady with the varieties belonging to the ordinary type. Much success has already been achieved, and it is hoped to obtain a race that will combine the lightness and elegance of The Lady with the colours of the ordinary section. Purple Lady and Pink Lady are two of the best of the coloured forms, and Mrs. Robert Cannell is a charming white form with dark foliage; Messrs. Cannell have also made considerable progress in their endeavour to obtain a race of Chinese primulas with flowers remarkable for their large size and fine form, but borne in distinct whorls on stout stems instead of in dense clusters, and this progress is well marked in the variety known as Pyramidalis alba; in this the flowers are borne in pyramidal spikes fifteen inches or so in height. This and similar forms should do good service in bold decorations, and should be regarded as supplementary to, rather than rivals of, the orthodox types. The usefulness of the elegant varieties of The Lady type for grouping is well shown in the accompanying illustrations.

GROUP OF THE LADY PRIMULAS.

The beauty of the cinerarias is somewhat on the wane, but the magnificent collection, which comprises all the best of the varieties grown under name, is still highly attractive and interesting as a demonstration of the high degree of perfection to which these flowers have been brought by the florist. Here, as in the case of the primulas, Messrs. Cannell have been working assiduously to obtain a race somewhat more elegant in habit than the ordinary type, and by crossing the best of the florists' forms with Cineraria cruenta, they have raised several varieties that can hardly fail to acquire popularity when they are in commerce and become known. The herbaceous calceolarias are a strong feature here, and the immense collection is now rapidly coming into bloom, the richly-coloured flowers producing an attractive display. Gloxinias are commencing to flower freely, and the plants already in bloom give an excellent foretaste of the charming effect that will be produced later on.

The rapidity with which the large-flowered cannas have become popular is remarkable, and knowing how highly appreciated are their large, handsome, and highly-coloured flowers, we were in no way surprised to find at Swanley several spacious structures wholly devoted to them. Konigin Charlotte is still a great favourite, and Austria and Italia, which have flowers of the largest size, are likely to be planted in immense numbers during the current month. Tuberous begonias are to be met with in their thousands, and while on the one hand there are immense numbers coming into bloom, there are still larger numbers in the seedling stage. Begonias are, indeed, so largely raised that labour-saving appliances have to be resorted to, and we were much interested in the simple contrivance invented by the firm for facilitating the work of pricking off.

From Swanley to Eynsford is a pleasant drive of two miles, and the way for the most part is through orchards that gave promise of an abundant harvest this year, a promise that it is to be hoped will be fulfilled. Much might be said with reference to the Eynsford farm, which has proved so admirably adapted for the



PYRUS SIKKIMENSIS. Flowers (white and rose.) (*See page* 311.)

production of seeds. The crops have mostly been sown or planted, and with the assistance of recent rains are making good progress. In the houses and frames we noticed several hundred thousand plants of asters that were being hardened off preparatory to being planted out on the sunny slopes for seed production. It has been found that heavy crops of perfectly ripened seed can be harvested at Swanley, and the Messrs. Cannell are rendering a national service in demonstrating the practicability of producing aster seed at home, and thus making growers in this country independent of supplies from abroad. Immense quantities of stock seed are also produced at Eynsford, but the plants required for seed production are grown in pots and under glass to ensure their enjoying the climate that is to them essential in the production of perfectly-ripened seeds. The area under fruit trees has been greatly extended of late years, more especially for the manufacture of young trees; and roses, which occupy many acres of the fertile valley, are evidently quite at home, as, indeed, are all the occupants of this favoured spot.

PEACHES IN THE OPEN DURING MAY.

THIS month is about the most important in which to deal successfully with peach trees out of doors. Before stating the treatment we gave our peaches, I feel justified, in view of recent notes, in telling "Lux" that after having frosts every night during the time the peaches were in flower, we have now a very good set upon all our trees, and yet these have had but a very light protection—that of a single fish-net hung about two feet in front of the trees. We have a good set, and probably as good as those who delight in covering their trees thickly with all kinds of material, including large spruce branches.

During the first week of this month we cleared away all the fish-nets which were hanging in front of the peach trees, and as soon as this was done, the garden engine, one in which I had an especially strong pump fixed, was brought out. We next dissolved two pounds of carbolic soap in thirty gallons of water, and with this, in a lukewarm condition, we gave the trees a thorough good washing, using about thirty gallons to half-a-dozen trees. The following day we used this engine again, with a mixture of Richards' XL. All insecticide, at the rate of one quart to thirty gallons of water. These operations we shall continue at frequent intervals, until the trees are completely cleared of aphis. After the trees are clean and the weather gradually becomes warmer, the growths will make rapid progress, and each day will show great development.

Another operation of great importance at this time is disbudding. This must be done as soon as possible, and to do it well, some amount of practice is required. Commence by taking away all the front shoots, as these will not be wanted, except by those who grow peaches on the spur system. I well remember Mr. Frost, of Dropmore, used to pride himself on the fine peaches he used to have from trees in a peach-case that were spur-pruned, but the trees never looked tidy by any means. After the front shoots have been removed, then take away all the worst of those that are curled and burn them. Care most for the leading shoots and those at the base of the growths, leaving those naturally placed the best for training up for the next year. If more space has to be covered, of course leave shoots as required for the purpose. Disbudding should be commenced at once, and no time should be lost in effectually cleaning the trees from aphis, as good results depend upon starting the trees well at the commencement.

The next operation should be that of mulching, which should take place after the fruits have begun to swell, and then once a week, in addition to syringing, the trees should have a good watering. Especially should this be done immediately the second swelling, after stoning, has commenced, as they then need nearly all the liquid it is possible to give them. The mulch may consist of stable or farmyard manure, and should be laid on fairly thick—say, three to five inches—but this should be removed after the fruits are gathered. We mulch all our wall trees with stable manure (peat moss), and this is the only way we care to use this manure, for it is not very valuable to dig in.

For syringing the peach trees with the garden engine we have a long length of hose-pipe attached, so that the boy can pump from the walk, and the operator can use the hose quite close up to the trees, which is a great advantage. A man and boy can wash a number of trees in this way in a short time. We syringe our trees every day in hot weather, and use the engine both inside and out for peaches. Varieties on walls, which are full of promise now, are Waterloo, Amsden June, Dymond, Goshawk, Royal George, Princess of Wales, Sea Eagle, and Barrington.

Compton Basset.

W. A. COOK.

The Black Currant Mite.—It is interesting to note, arising from the grave complaint as to the ravages of this insect pest in portions of Kent, that our leading entomological authority, Miss Ormerod, seems to have no palliative to offer to growers other than in absolutely stamping out the plague by total destruction of bush and insect. That is a method of dealing with the pest that few growers on a large scale will care to face, and indeed would be utterly useless if conducted in isolated cases. No possible good could result unless wide areas were compulsorily dealt with, and it really seems, so far as this grave trouble is concerned, that local authorities will have to be granted powers to deal with infected areas just as they now have in the case of cattle diseases. But in this latter case some compensation for destruction of cattle in diseased areas is paid; whereas it will be difficult to adopt such a practice in relation to condemned fruit breadths, as it would be very unfair to the general ratepayer or taxpayer. Miss Ormerod thinks that the proper course to take where there are breadths of infested black currant bushes is to grub them out, root and branch, burn them, and crop the ground with potatoes or other vegetable or corn, and thus starve the mite out. That is all very well, but in the meantime there must be steps taken to maintain a supply of healthy bushes. How is that to be done? Are there any stocks in the kingdom absolutely free from the mite? If there are so much the better. But still, if propagated, these stocks must be kept a long way removed from other old ones for a few years: and to that end it seems needful to isolate them right in the midst of corn-growing-districts, a long way from gardens. Once get the mite into the clean young stocks and nothing would be gained. It seems a pity that the resources of science can furnish no other remedy for a great evil than is found in absolute destruction of stocks.—A. D.

THE GRANARD NURSERIES.

PRETTILY situated in the Putney Park Lane, a long, tree-lined lane that slopes from Putney Heath to a point close to Barnes Common, are the Granard Nurseries, belonging to Mr W. Iceton. If a charming position could ensure the success of an establishment, then one might easily have foretold Mr. Iceton's success, for at present the surroundings are beautiful. There is the delicate greenery of the budding lime trees down the lane; the deeper green of the grass in the meadows that slope away below Dover House and in front of the nursery, with here and there a thickly-foliaged horse chestnut bristling with flower-spikes. Behind and along one side of the nursery runs an orchard, chiefly of pear trees, and these at the time of our visit were a beautiful sight. There are very few houses to be seen from Granard; all is rural. Then, if the day be favourable, the cuckoo, thrush, blackbird, chirping sparrow, and a large variety of birds may be heard all round, so that it is difficult to imagine one is within a few minutes of Putney, and not far from Hammersmith, on the edge of the metropolis. It will be a thousand pities if Putney Park and Roehampton Lanes become ordinary suburban roads lined with houses, but at the present rate of progression towards the south-west greater London will no doubt soon seize them, and their present beauty will pass away.

Picturesque surroundings and pure air, however, have not built up the fine business at the Granard Nurseries, though they may have helped not a little in the production of the healthy, finely developed plants and flowers for which the establishment is noted. The builder is Mr. Iceton, who at the early age of seventeen years commenced business in a small way at Barnes. A moderate amount of success achieved there, coupled with a foresight that indicated the growing wants and necessarily increasing demand of the metropolis for plants and flowers, induced him, still quite a young man, to start on a large scale at Putney Park Lane. Here he started seventeen years ago, and by perseverance, skill, and a keen appreciation of the varying tastes of the great metropolitan public, has made for himself a name that is highly respected by the nurserymen and market growers both of our own and other countries. The establishment has been enlarged to meet the demands made, and it has flourished steadily. Mr Iceton, like other growers, has to meet also a keener competition than in years gone by, and if he does not obtain the high prices of earlier years he has a bigger output, and it is pleasant to find in him a genial gentleman, who is too large-hearted and too busy to be continually grumbling about the downfall of market growing and losses sustained. The profession could do to-day with fewer grumblers, and who shall say that Mr. Iceton's cheerful disposition and smiling face have not done almost as much to improve his position as have hard work and honest dealing? But to return. Only five more years may Mr. Iceton remain at Putney Park Lane, and already, as previously noted in these columns, he has obtained an estate close to Ravenscourt Park and Turnham Green, where very shortly some extensive ranges of cleverly planned glasshouses will be built for him by Mr. Duncan Tucker. This spot will eventually become Mr. Iceton's chief establishment, and as he is but now in his forty-seventh year, and has thirty years' experience behind him, there is little doubt but that, with continued health and strength, there is a fine prospect before him.

To many of our readers Mr. Iceton's name is indissolubly joined, in thought, with palms and lily of the valley. These certainly are the most extensively grown subjects at his nurseries, though several others run them close. Of palms there are dozens of large light houses filled with all the most popular sorts that are in demand for house decoration; under the stages are hundreds of thousands of seeds in various stages of germination, and on the shelves close to the glass are whole armies of seedlings clean and thrifty, and eager to develop sufficiently to take the place of the larger plants as they pass out day by day. There are splendid stocks of the handsome Kentia Forsteriana in all stages from the seedling with its one cotyledon up to tall and spreading specimens that would grace the finest conservatory or winter garden. Kentia Belmoreana, Latania borbonica, Livistonia rotundifolia, Phœnix reclinata, P. tenuis, and P. rupicola, the beautiful Cocos Weddelliana, and taller but not less graceful Cocos plumosus, Areca lutescens, A. sapida and A. Baueri, Rhapis humilis and R. flabelliformis—these are the palms most in demand and seen here in huge quantities, every plant a perfect one for its age. Mr. Iceton has a few pets, and among these are some exceptionally handsome Phœnix Roebelini, possibly the most beautiful of all the Date palms; Geonoma intermedia variegata and Livsitonia aurea, two kinds in which the foliage is distinctly and curiously coloured as the names suggest; and Calamus (Dæmonorops) palembanicus. These the proprietor cares for with the interest of a plant lover rather than of a market grower. Seaforthia elegans is grown but not extensively, as it is a palm that has long since been superseded for home decoration.

Some half-dozen or so of houses are devoted to lily of the valley in various stages of development; you may see the cases of crowns newly arrived from the cool storage, every crown fat and firm and with no trace of suffering from an artificially prolonged winter. Then you pass to darkened houses where newly boxed up crowns are being coaxed into flower and growth; further along the spikes have been produced, and so the various stages can be viewed up to the fully developed spikes of twelve or fourteen large and pure white bells that will to-morrow morning go to Covent Garden, to Bristol, may be to Manchester and elsewhere, to subsequently adorn the corsage of "my lady," to fill the button-hole of the man who goes to the City, to emit their exquisite fragrance in the home, to help make up the bridal bouquet, or perchance to act as tokens in loving memory of some who have passed hence. About two and a half million lily of the valley crowns are grown annually by Mr. Iceton. He has them flowering all the year round; for this beautiful flower he has a big reputation that he is careful to sustain. Tulips are largely grown, but of course have been distributed weeks and months ago. Quantities of the elegant Spiræa japonica are seen, some quite green, but others crowned with snowy plumes. Liliums abound in frames, pits, and houses, and probably not less than fifty thousand are grown each year; the great bulk of this quantity consists of Lilium longiflorum eximium, a variety that is pushing L. Harrisi out of the market, because it is more robust and the flowers more substantial. The climate of Bermuda seems to have weakened the constitution of the famous L. Harrisi; or is it the lack of high cultivation? Whatever the reason the variety is not what it was, and is being passed over by market [illegible]. Some idea of the large number of liliums grown may be gathered from the fact that in the height of the season flowers to the weight of two to three hundredweight [illegible] leave the Granard Nurseries on a market morning. L. Harrisi, L. longiflorum, and L. lancifolium are other lilies grown in quantity. Azaleas, and a few oranges, are cultivated chiefly for providing flowers to meet the home demand.

Dracænas naturally occupy a large number of houses, and the large [illegible] of handsome specimens of D. Lindeni, D. lineata, D. l. variegata, D. Sanderiana, D. Doucetti, D. terminalis, &c., are eye-openers with regard to high cultivation. Eurya latifolia variegata is a popular and handsome plant, whether small or large; it, and euonymuses of sorts, may be numbered by thousands; so also [illegible]

Aspidistras, Ficus elastica, both green and variegated forms; Pandanus Veitchi, finely coloured; Asparagus plumosus and A. p. nanus, Araucaria excelsa, splendidly furnished; Bambusa gracilis, and Selaginella Kraussiana, the latter grown in shallow pans and just now in fine condition. Asparagus plumosus does remarkably well here, and in two pits and one long house it seeds freely, so that Mr. Iceton supplies seed both to home growers and to continental and American nurserymen; the fronds, too, develop finely, and are marketed freely. A few notes on choice caladiums, of which Mr. Iceton has a rare collection, will form a conclusion to this brief notice. For many years all the best and newest varieties have been obtained and well grown and coloured, so that now those in search of choice and new forms will find at Putney Park Lane an almost unique collection. A few of especial note and now developing quickly are Pres. de la Devansay, richly coloured; Ronura, a silver and green form with distinct foliage, in which the basal lobes are missing; Silver Cloud, a beauty, and well named; La Lorraine, now becoming fairly well known; Guill Mar, of a light, transparent pinky shade with dark purple veins, very choice; Rio de Janeiro, pale transparent rose; Rayon d'Or, one of the best greeny-gold forms; Imperatrice Teresa, white and pink with deep purple veins; Mrs. W. Iceton, creamy yellow with whitish blotches, very handsome; Princess Olga, deep crimson; Princess of Teck, carmine centre surrounded by greenish-yellow; Her Majesty, golden green with deeper veins; Roncador, deep green and spotted with white; Flamont Rose, a blunt-pointed German variety, crimson veins and deep rose shading and mottlings; Leon Saye, a variety that has shown some remarkable reversions and variations; Sir Henry Irving, large white centre with green mottled margins; Lady Northcote, Mrs. J. McLeod, quite new; Lord Derby, Lady Moseley, and Donna Carmen Macedo. Besides all the other interesting matter to be found at Putney Park Lane, and the quantity and quality of everything growing there, the nurseries of Mr. Iceton are well worth a visit, if only for a sight of these beautiful caladiums, mostly represented by medium-sized plants.

NARCISSUS AT VALLEYFIELD, PENICUIK.

THE proprietor of this establishment, Alexander Cowan, Esq., has long been known as a collector of these handsome spring-flowering plants, and an enthusiastic cultivator. The collection of narcissi is a large one, and the genus is well represented in all its sections, from the older varieties down to the new seedlings. The garden lies in an interesting district in the valley of the Esk, and is reached by a quick service of trains on the North British Railway, being about fifteen miles out of Edinburgh. On the way we pass the pretty and historical districts of Rosslyn and Hawthornden, both popular with visitors to Edinburgh. The garden lies in the valley, and although not of large dimensions is of varied interest, and in close contact with large paper works, of which this genial proprietor is owner.

When entering the garden of late one was at once presented with a grand display of yellow tints from the large quantities of daffodils growing in beds upon the flat ground, where they have been cared for by the gardener, Mr. Shillington. The greater quantity of the newer kinds and good varieties appear to be grown systematically in beds, in lines, in which manner of cultivation they are easily attended to. The first to attract is the magnificent Madame Plemp, a striking variety with long yellow trumpet tube, and apparently a strong grower here. Another of this section is Weardale Perfection, certainly the largest and most handsome flower of its class, and an expensive plant; near by is J. B. M. Camm, a chaste form, the pale yellow of the throat being very pure. The variety Victoria, offered in 1897, is doing well, being of a bold habit, with a beautifully fringed trumpet; Lady Somerset is a tall grower, and robust, with a remarkable twist in the perianth. One of the most telling in growing *en masse* is Duchess of Westminster, which is here in a large clump a yard or more through, and conspicuous among the whole break; it is a Leedsi form, and the blooms are white in the perianth, with an orange-tinted yellow cup; Marie Magdalen de Graaf is also a distinct and good variety of the same class, and late in flowering. Barri Conspicuus is in favour here as elsewhere, while others of this section noticed were Flora Wilson, with pure white perianth, the cup, edged with a bright orange ring, giving it a striking effect; Maurice Vilmorin, a dwarf form, was also in good condition.

Upon the banks of a dam patches of N. scoticus plenus were at their best, and the picture of vigour, their situation upon this cool slope evidently suiting their requirements. Madame de Graaf is a large variety, and very conspicuous; it gained a first-class certificate in 1896. Mrs. Vincent, Snowflake, W. P. Milner, a very dwarf plant, and William Goldring, all trumpet daffodils, attract attention as we pass. Of the incomparabilis types many are growing extremely strong here, and those noted were Commander, Hogarth, Lulworth, and Mabel Cowan. Natural plantings of narcissi are carried out extensively, and the site chosen is one well calculated to show them off to the best advantage. This is a high bank covered with trees up to the summit, and between these the many daffodils are revelling. The colour of the narcissi is heightened by a groundwork of ivy, which here and there covers the soil. At the base of the bank are planted large beds of Lord Penzance's hybrid sweetbriar roses.

Everything connected with this garden is in good order, and, under the management of Mr. Shillington, kept scrupulously clean. The houses contain some good plants in bloom, while the vineries give promise of a good crop of bunches. But as our visit was more especially to enjoy the narcissi, we leave this department, convinced that all who have the pleasure of visiting Valleyfield in spring will be well repaid. H.

Ramondia pyrenaica.—I have never seen this charming alpine flower so well as this season. Some large plants here are bearing six spikes, each spike carrying four, and, in some cases, five flowers. In a moist shady position, occupying the sloping crevices of the rocks in peaty soil, this Pyrenean primrose flourishes in a surprising manner. The flowers are of a pretty violet-purple hue, with a bright orange eye. The white-flowered form is later with me this season, and only just commencing to bloom.—E. SCAPLEHORN, *Woking.*

WORK FOR THE WEEK.

COOL ORCHIDS.

FIRE heat should now be dispensed with in the cool houses except during cold nights, such as we are having here at the time of writing, when a little heat should be afforded, opening the valves a little in the evening, and closing them again first thing in the morning. When these spells of cold weather prevail it is far better to allow the temperature to drop a few degrees than to use much fire heat. The sun heat now being very strong heavy shading will be necessary to keep the houses as cool as possible during the day time; all the blinds should be raised a foot or so above the glass, thus enabling a good current of air to pass beneath, and so greatly reduce the power of the sun upon the glass. The shading should be removed as soon as the sun has lost its power in the afternoon. When the outside conditions are hot and dry the hose should be freely used, damping down every available space two or three times daily. A slight spraying overhead may be given the plants with advantage after a day's hot sunshine, taking care to use soft water. Odontoglossum cuspidatum xanthoglossum now in flower is a very distinct and brilliantly coloured orchid; it has long branching racemes of golden-yellow flowers, the sepals and petals being blotched with chestnut brown, and the lip having a large reddish-brown blotch at the base; plants of this, after passing out of flower, should have a little of the old material carefully picked out, resurfacing them with a little fresh sphagnum moss. Cymbidium Lowianum and its hybrids, that have had their flower spikes removed, should now be repotted or top-dressed as required, using the same kind of compost as advised in a former calendar; after repotting these plants should receive a thorough soaking of water to settle the soil about their roots, but after this very little water will be needed until the new roots have a good hold of the compost, when more should be given. On bright days it will be beneficial to syringe these plants night and morning, but care must be taken not to allow the water to lodge in the partially developed growths, or injury may follow. Oncidium tigrinum is now commencing to grow after a long rest, and a little new material should be given, consisting of equal parts of peat and moss; water should be given sparingly until the flower spikes make their appearance in the young growths, when a more plentiful supply will be needed until the bulbs are made up.

Plants of Dendrobium infundibulum and its variety, Jamesianum, are now commencing to root freely, and new material should now be afforded them, repotting or top-dressing as each particular case demands, using a compost of equal parts of peat and moss. Pot-shaped teak-wood baskets should be used, as I find these dendrobes root more freely in them than in pots or pans. Anguloa Clowesi and A. Ruckeri are now growing freely, and should have a plentiful supply of water, with an occasional dose of weak liquid cow-manure; the leaves should be frequently sponged, to keep them free from scale and red spider. Lycaste cruenta and L. aromatica are showing flower buds from around the base of the new growths, and any of the plants that require repotting are best attended to at this stage, for, like anguloas, if left until blooming is over, the new growths will be far advanced and probably be checked; these plants require a liberal supply of water during the growing season.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

YOUNG plants of crotons, ixoras, dracænas, &c., which it is desired to grow into specimens in the shortest possible time, must be shifted into larger pots directly they have filled the previous pots with roots. Should they be left too long in the small pots growth becomes restricted, and do what you will afterwards it is impossible to obtain that necessary free growth. Too large shifts are not advisable, as, unless the watering is very carefully attended to, disaster will ensue; small and frequent is the better policy—in this case, there is not so much danger of sour soil. Pot up successional batches of gloxineas, tydæas, achimenes, &c., and afford stimulants to those showing their flower buds, giving either diluted liquid or an occasional surface sprinkling of some good artificial fertiliser. Any variety of gloxinea, of which it is desired to increase the stock, may be readily propagated by means of the leaves. Cut those leaves which are fully developed, sever the midrib in several places, and lay them underside down on the surface of pots or pans of sandy soil. It is necessary to keep the cut surface in contact with the soil by means of small stones laid on the leaf, or by thin wire pegs; place in a propagating case, but do not keep too close or moist else damping will occur. Should all go on well, in a few weeks a bulbil will form in each place where the midrib was severed. Seedlings of gloxineas, saintpaulia, didymocarpus, tydæa, and other things, which were pricked off into pans a few weeks ago, should be potted off singly directly their leaves touch in the pan. Push forward the propagating of poinsettias and euphorbias, taking daily those cuttings which are fit—cuttings that are more than four inches long I do not favour; three to four inches is a suitable length; insert singly in thumb pots of sandy soil, and plunge in a brisk bottom heat. While keeping up a moderate amount of atmospheric moisture around the cuttings beware of damp; this can be obviated to a certain extent by allowing the cuttings to stand clear of each other in the case; damping generally commences when two or more leaves overlap each other. Pot on coleus as they fill their pots with roots, not allowing them to stand long in one pot until they are placed in the largest size they are to be allowed. We have only three varieties which we keep to propagate from cuttings, these being favourites in thumb-pots for dinner-table decoration; the remainder we raise from seed annually, and by this means we have not to use up valuable space during winter in storing old plants.

As the foliage of caladiums attains to full size it should be afforded support, by means of light stakes on thin pieces of wire, to which the foliage should be looped by means of raffia; the plants also, as they fill their pots with roots, should receive weak stimulants occasionally. Peperomias may now be increased freely from cuttings, short pieces of the shoots being severed with a sharp knife and inserted in sandy peat. If they are placed in the propagating case they must not be kept close, but plenty of air allowed them; P. argyreia is the most serviceable. Bougainvillea glabra will now be showing its flower-buds, and should receive stimulants regularly; thinning of the shoots should be attended to when very thick, as the results will then be better, and a second crop of flowers more readily assured. Care will be necessary in watering basket plants to see that the soil is moistened throughout, an occasional dip into a tub or tank will ensure the thorough moistening of the whole body of the soil. Among ferns most suitable for baskets are Adiantum cuneatum, A. caudatum, A. assimile, Nephrolepis tuberosa, N. exaltata, N. davallioides, and davallias in variety; and in places where there is a large grand staircase to be furnished, nothing looks more noble than large baskets of Woodwardia radicans. Ferns of all kinds are now growing freely, and will be benefited by the application of stimulants. The majority of ferns like shade and moisture, but they should not be syringed overhead if there is any fear of the sun catching them while the moisture is hanging upon them, otherwise scorching will occur. Adiantum Farleyense and the various gymnogrammas do not need such heavy shade, and while delighting in a moist atmosphere, are very impatient of being syringed. From March to October Adiantum cuneatum and A. gracillimum succeed admirably in vineries, and plants grown in such houses are generally more serviceable for decorative purposes than are those grown in the fernery proper. Plants of Plumeria alba which have been kept dry since they shed their leaves, and are now commencing new growth, should be afforded water, repotting those requiring it and top-dressing others.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

KITCHEN GARDEN.

THE welcome showers of last week have been of great benefit to all vegetable crops, the fall of rain on May 5 being the largest we have had during the present year, about ·48 in. being registered, so that the ground now is fairly moist. With the land in this condition and the weather warm growth will be very rapid, particularly of small weeds, the hoe should therefore be kept going amongst seedling plants, such as onions, carrots, parsnips, turnips, &c. The thinning of these must also receive attention, for to allow the plants to become overcrowded before they are thinned is a great mistake. It is not necessary that they have the full distance given them at the first thinning, as, if allowed to remain double the ultimate thickness, every other plant may be drawn for use later on. Where the onion fly is troublesome dust the plants with soot early in the morning when the dew is on them, this will make them distasteful to the flies. Cauliflowers for autumn should now be planted out, choosing such varieties as Early Autumn Giant, Autumn Mammoth, Michaelmas White, &c. The distance these should be placed apart greatly depends on the quality of the ground. On good land two feet from plant to plant and three feet between the rows will be found none too much. The last sowing of broccoli seed should now be made. This should consist of such varieties as Standwell, Continuity, May Queen, Late Queen, &c. Another sowing should also be made of savoys for a late supply. We have found none to equal Perfection; it is of beautiful shape and delicate in texture. Brussels sprouts for an early supply should now be planted out, and where the ground is limited they may be allowed nine inches apart between the plants, and two of every three should be transplanted again before the leaves touch each other, finally leaving the plants twenty-seven inches apart in the row, and allowing at least thirty inches between the rows. Seakale raised from cuttings will now be forward enough for disbudding. This is an operation that should be done with care, or several more growths may push from each root. It is a good plan to remove the soil from around the sets to the depth of about two inches and rub of all growths found except one on each root, leaving the strongest. The early celery should now be put out into the trenches, and should the weather be dry at the time of planting, a little shade should be afforded till the plants have taken new roothold. Those for succession should be pricked out on a rich, light soil, that they may be lifted with balls of earth attached when required for planting out. Vegetable marrows may now be planted if protection be afforded them at night till all danger of frost is passed. Potatos that were planted about the middle of last month will now be showing through the soil, and to prevent any being caught by late frosts, a little earth may be drawn over them.

From the present time to the end of the next month is the worst period for the growth of peas, for often those sown at this date are just coming into bloom when the hot dry weather of July visits us, and are on that account very subject to the attack of fly. It is well, therefore, to make sowings once a week from this date until the end of June, as by doing so some are sure to escape this troublesome pest. Late Queen, Autocrat, and Carter's Michaelmas are all good kinds of medium growth. Those who require taller ones will find Duke of Albany a good free sort. Runner beans may now be planted with every prospect of their escaping the frost without protection. Carrots for a late supply should also be sown, choosing such varieties as Intermediate. Spinach is often a troublesome crop to grow in summer, and for this reason the seed should now be sown in a cool shady place, and abundance of water afforded in dry weather.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

YOUNG pot figs, raised from cuttings of the ripened wood last autumn or early in this year, will now require shifting into eight-inch pots, and those, a year older, which are expected to begin fruiting next year should be transferred into ten-inch or twelve-inch pots as soon as possible, so that they may have time to fill the pots with roots before they go to rest. Firm potting is essential, and the soil should be of a richer nature than that recommended for figs planted out in borders, still it should be of a similar porous character, that most suitable being a mixture of fibrous loam, broken mortar rubbish (that from "hair plaster" being the best), and some one-quarter-inch bones, the latter if of good quality may be freely used, and will act as an excellent fertiliser. As the fig enjoys plenty of water in the growing season, it is essential that good drainage, carefully placed in the pots, be provided. After potting, plunge the pots in a moderately warm hotbed, and afford a light shade to the glass for a few days, until they have recovered. The older pot trees, which have already ripened a crop, will have the second crop fairly advanced, and will, in many cases, require a good rich top-dressing, which will not only assist the fruits to swell, but will also help the trees to make good wood for next year. It is a mistake to take a third crop from pot trees, and after the second has ripened, it only then remains to thoroughly ripen up the wood. In the meanwhile prevent any overcrowding of shoots, a limited number of good growths to each tree being better than a crowd of weaker ones. Ply the syringe on every favourable occasion to keep down spider, the great enemy of indoor fig trees. As the fruits in the cherry house begin to show colour, syringing for the time should be discontinued, as it tends to make the fruit crack. If thought necessary to hasten the ripening, the night temperature may be slightly advanced, but it is not safe to go much above 55 degrees at night by fire heat, unless the outside temperature is high; some air should be left on the house at all times, and increased early in the morning. Any grass shoots on orchard-house trees should either be kept close pinched or rubbed off entirely, the latter method only being recommended when such shoots are not in close proximity to bunches of fruits. Pot orchard-house trees, such as plums, apricots, &c., will now derive great benefit from a rich top-dressing, and a similar one should be again applied after stoning is complete. Cool treatment suits these subjects best, and the great things to avoid are sudden rises of temperature, dryness at the root, attacks from insect pests, and sharp draughts when the wind is in the east.

The house of fruiting pines should be closed early with plenty of sun-heat to hasten the advancing fruits. The temperature may be allowed to rise freely at closing time without any fear of injury, provided a very humid atmosphere is created by syringing freely among the plants and also thoroughly damping all available surfaces. Examine the plants frequently, and give weak doses of guano water to all that are swelling their fruits whenever they require watering. The most forward young stocks may now, if well-rooted, be placed in their fruiting pots; this should never be neglected, as starved plants never do well. Keep down all sucker growth on older plants except sufficient to provide stocks, and the aim in this case should be to leave one strong sucker and no more to a plant, and to remove this when it has grown to a sufficient size for propagating purposes. I do not consider it good practice for general adoption to leave the suckers on till they become almost as big as the parent, and certainly it is not kind to the latter.

It is possible in fine autumns to pick good dishes of strawberries from plants which were forced for early supplies. My favourite strawberry, Vicomtesse Hericart de Thury, is certainly the best in existence for this double purpose, and the plants should be well looked after and protected for a week or two after being turned out of the forcing house; then, when the weather is settled and all traces of spider have been removed from the leaves, plant them out in a rich and sunny border and look well after them in the matter of watering. Perhaps the best method is to plant rather thickly in blocks that may be enclosed later on within a frame and covered with lights, which will render the grower independent to a certain extent of the weather we may have when the second crop of fruit is ripening.—J. C. TALLACK, *Livermere Park Gardens.*

TOO-MUCH-ALIKE CHRYSANTHEMUMS.

THE official report of the Classification Committee of the National Chrysanthemum Society is published with the schedule of prizes for the current year, and the following reference to the question of too-much-alike varieties will be of interest to the general body of cultivators for competitive purposes.

At a meeting of the committee held on January 31 a discussion ensued as to the expediency of grouping together varieties of incurved chrysanthemums which might be regarded as too much alike. Eventually it was unanimously resolved that it be a recommendation to the Executive Committee that the following paragraph be inserted in the schedule of prizes:—

"Experience having shown that several chrysanthemums classed as distinct are much alike when staged for competition, it has been found advisable to lessen the risk of duplicates being shown in classes for cut blooms, in which they are required to be distinct; therefore, in the cases of varieties that at certain stages of development closely resemble each other, the blooms exhibited must, in classes for distinct varieties, be sufficiently diverse, so as to be readily distinguished by the judges."

The foregoing report was laid before a meeting of the Executive Committee, held on February 21, when the following resolution was passed:—

"That the report of the Classification Committee be referred back to that body, with the request that they will prepare a list of too-much-alike varieties, for publication with the schedule of prizes."

In accordance with the foregoing resolution, the committee met on April 4; Mr. George Gordon, the elected chairman for the year, presiding, when the following was adopted for publication in the annual report for the present year:—

The following is a list of varieties of chrysanthemums, either classed as synonymous, or as too much alike, or which at times so nearly approach each other in general appearance that they must not be shown on the same stand—

Incurved Varieties.

C. H. Curtis
Major Bonaffon

Duchess of Fife
Mrs. Airdrie

Empress of India
Lady H. St. Clair
Mrs. Cunningham
Snowball
White Queen

Golden Empress of India
Bruce Findlay

Golden George Glenny
Mrs. Dixon
Mrs. C. H. Glover

John Doughty
Mrs. Robert Mudie
Bronze Queen of England

John Lambert
Golden Queen of England
Emily Dale
Emily Dale Improved

John Salter
Mr. Howe

Lady Dorothy
Charles Gibson

Lord Alcester
Princess Imperial

Miss M. A. Haggas
Richard Parker

Mrs. Heale
White Princess

Mrs. George Rundle
Mrs. George Parnell

Princess of Teck
Charles Shoesmith
Christmas Number

Princess of Wales
Beauty of St. John's Wood
Mrs. Heale

Queen of England
Blush Queen of England

Japanese Varieties.

G. J. Warren
Yellow Madame Carnot

Mrs. C. Blick
Mrs. Richard Jones

Pride of Madford
Beauty of Teignmouth

Sunflower
Swanley Yellow

W. Slowgrove
Improved W. H. Lincoln
T. Selwood

Hairy Varieties.

Enfant des deux Mondes
White Louis Boehmer

Hairy Wonder
R. M. Gray

Esau
Princess Ena

The attention of exhibitors is particularly called to the foregoing lists of too-much-alike varieties bracketed together, which should be carefully examined previous to staging blooms for competition.

Androsaces.—Of the various androsaces now in flower there is none so effective as A. sarmentosa. Given a sunny position on the rockery, in sandy loam, it will flourish and produce its runners freely; these should be pegged down and covered with soil to increase stock. The flowers are rose in colour with white centres, born on slender stems. Another diminutive species now flowering is A. cylindrica, with white flowers and yellow centres. This prefers a damp shady position, and to be planted in peat and loam. A. pyrenaica has been in flower since February; it delights in a sunny position, among the fissures of rocks and stones, planted in soil consisting of sandy peat and loam. The plants are literally covered with their pure white flowers, borne on stems scarcely a quarter of an inch high. All the androsaces are charming plants for the rockery, when grown under proper conditions, and in the majority of cases are easily increased by cuttings or seeds.—E. SCAPLEHORN, *Woking.*

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," Price 1s., containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. "Gardeners Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, May 10.

THERE was a much smaller gathering and display on this date than at the previous fortnightly meeting. Many exhibitors were, no doubt, saving themselves for the coming Temple Show, and a few for the Royal Botanic Society's Exhibition. A great many visitors were doubtless kept away by reason of the Drawing Room held the same day. It was by no means a poor show, however, and there were several novelties.

FLORAL COMMITTEE.

Most of the exhibits came before this body, and they consisted chiefly of roses, tulips, hardy flowers and shrubs, crotons, and azaleas. There were few novelties before this committee, and auriculas and azaleas almost monopolised the awards.

Roses in pots, as well as a goodly number of cut blooms, were shown in fine condition by Messrs. W. Paul and Son, Waltham Cross, who were awarded a silver Flora medal for their two groups. Some of the best-flowered specimens were of such charming varieties as Marchioness of Lorne, Jeannie Dickson, Gustave Piganeau, Enchantress, Gloire Lyonnaise, La France, Madame Fanny de Forrest, Victor Verdier, Triomphe de Caen, Caroline Testout, and Prince Camille de Rohan; the cut blooms were chiefly Maréchal Niel and Magna Charta; Medea. Corinna, Empress Alexandra of Russia, Queen Mab, and Zephyr, all Messrs. Paul's introduction; La France, Dr. Andre, Jules Finger, Madame Lambard, and Viscountess Folkestone. From Messrs. J. Veitch and Sons, Chelsea, came a large basket of the sweet, rose-flowered Daphne Cneorum, Anemone nemorosa flore-pleno, Hydrangea japonica Mariesi, a form with huge bracts; Rubus deliciosus, a handsome bramble, and the yellow-foliaged form of Sambucus racemosa.

Messrs. Barr and Son, Covent Garden, staged a most interesting group of hardy plants and flowers. Primulas were well represented, so also were saxifragas, aubrietias, candytufts, pansies, violas, and terrestrial orchids, the latter including Orchis provincialis, O. papilionacea, O. mascula, O. tenthredinifera, O. italica, and O. bombilifera, all very pretty and interesting. Spanish irises were very beautiful. Tulips were much admired, and represented by fine bunches of good flowers; May Queen, Glow, Queen of Roses, Hecla, crimson; The Sultan, blackish marone; Early Dawn, bright rose; and Scarlet Beauty were among the most distinct of the Darwin tulips. Tulipa saxatilis, rose and yellow, is a very distinct species, as is T. Batalini, pale yellow. Picotee was well represented, as also were the parrot tulips, a set of remarkable shape and gorgeous colours. The Messrs. Barr gained a silver-gilt Flora medal, the highest award of the day, for their extensive display. Messrs. J. James and Son, Farnham Royal, Slough, showed a few more of their cineraria hybrids; the plants were the result of crossing the progeny of Cineraria cruenta, crossed with garden forms, with Cineraria lanata. The plants were dwarf, and many showed very distinctly their lanata parentage by the woolly leaves and stems; one or two retained some of the characteristics of the garden form, all were dwarf, and their colours varied from pure white to deep blue and white. Mr. A. Tulett, Crocken Hill, Swanley, staged a basket of plants of Pelargonium A. Tulett, a bright semi-double sport from the well-known F. V. Raspail.

From Messrs. W. Balchin and Sons, Hassocks, Hove, and Brighton, showed some very interesting plants. There was a small group of Browallia elatior, covered with rich blue flowers, all well grown in small pots; Boronia serrulata, clothed in rosy blooms; Erica perspicua nana, a mass of blooms; and some tiny plants of Boronia heterophylla, carrying plenty of its scented flowers. Some handsome azaleas came from Mr. Charles Turner, Slough: Marie Vervaene, white and scarlet; Mons. C. Vuyleteke, scarlet; Louise Cuvelier, creamy white; Ami Charles Vermeire, scarlet; and Dryade, white, semi-double, were conspicuously good. Mr. Turner also sent a pretty plant of the polyantha rose Thalia, a white-flowered Rambler; and also a few flowering specimens of the Princess May form of Souvenir de la Malmaison carnations. Messrs. W. Cutbush and Son, Highgate, showed an extensive group of bright plants, including Erica ventricosa minor, E. hyemalis alba, E. Cavendishi, mollis and Indian azaleas, Hydrangea Thomas Hogg, Boronia heterophylla, and some tall wistarias, these being arranged amid elegant-foliaged Japanese maples, palms and ferns; a silver Banksian medal was awarded.

A magnificent lot of cut roses came from Mr. George Mount, Exotic and Rose Nurseries, Canterbury; those cut with long stems again excited the wonder of growers and visitors by reason of the wonderful strength of the growth and foliage; every bloom was perfect, with full fat petals of good colour, and fragrant. Mrs. John Laing, Caroline Testout, Catherine Mermet, Captain Hayward, General Jacqueminot, Ulrich Brunner, La France, The Bride, and Madame Montet were all wonderfully fine, and the varieties most freely staged; Mr. Mount was awarded a silver Flora medal for his fragrant exhibit. Messrs. F. Miller and Co., Fulham Road, S.W., showed some very fair East Lothian stocks; the white forms were good and sweetly fragrant; the edging of market boxes of pyrethrum was not admired. Messrs. Paul and Son, Cheshunt, showed some pretty sprays of a new double white cherry, and also of Cerasus Watereri. There were pairs of dwarf phloxes suitable for rockery decoration, candytufts, the pretty Arenaria balearica, and Primula rosea grandiflora in the group of hardy plants for which the firm gained a silver Banksian medal.

Crotons in great variety came from Mr. H. B. May, Edmonton, and were represented by neat specimens in forty-eight sized pots; Morti, Van Oerstersi, Thomsoni, Goldi, Flambeau, Reidi, Golden Ring, Ker's Sunshine, Aigburth Gem, Gordoni, and Earl of Derby were notable and highly-coloured examples, and these with all the other sorts shown were finely grown plants, though not large; silver Banksian medal. Mr. D. Storrie, St. Madge's Cottage, Glencarse, showed a large number of splendidly grown and fragrant border auriculas; these, if they did not all conform to the florists' standard, were greatly admired for their freedom, beauty, and fragrance; the majority were yellow and shades of yellow; none of the plants had ever been given shelter, and all were the result of fifteen years of generations of seedlings from one original plant. Mr. James Douglas, Great Gearies, sent several handsome auriculas, all alpine forms; Perfection, gold and crimson; Clytie, marone and yellow; J. Gilbert, purple and white; and Dean Hole, crimson and yellow, were all very fine. Mr. B. Bennett, Cheverells Park, Dunstable, sent a large branched flowering-spike of Dracæna indivisa. Messrs. J. Cheal and Son, Crawley, staged a group of bunches of cut sprays of the various hardy flowering shrubs in season; Cytisus præcox was among the most beautiful of all; violas were choice and good for the early date; Lord Elcho, yellow; Iona, blue and violet; Pencaitland, white; Skylark, blue edged; Duchess of Sutherland, rosy mauve; A. J. Rowberry, yellow; and Bridesmaid, pale lemon, [illegible]y fragrant, fresh, and bright.

ORCHID COMMITTEE.

A large and handsome collection of orchids was tastefully staged by Messrs. J. Veitch and Sons, Chelsea; there were large examples of Cymbidium Lowianum, Oncidium ampliatum majus, Odontoglossum Halli, Vanda tricolor, and Epidendrum Wallisi as background, with such gems as Lælia Latona, Miltonia Warscewiczi, Masdevallia Veitchi, Cypripedium caudatum, Rodriguezia pubescens, Oncidium spilopterum, Lælia-cattleya Ascania, and Cattleya intermedia alba, the latter a fine plant with four lovely and pure-white flowers, a specimen of great worth. A silver-gilt Flora medal was awarded. Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged some handsome varieties of Odontoglossum crispum, some rose-tinted and others finely spotted; Cattleya Mendeli in fine form was shown in company with Lælia purpurata, Cattleya Skinneri, &c. C. intermedia concolor attracted attention among orchidists, while the ladies greatly admired the arching spikes of Oncidium Marshallianum; silver Banksian medal.

A charming lot of odontoglossums and miltonias came from Messrs. L. Linden and Co., Moortebeek, Brussels; there were some lovely white forms of O. crispum, and a splendid branched spike of O. Pescatorei, carrying sixty-four flowers. The forms of Miltonia vexillaria were equally handsome, and all gave evidence of remarkably high cultivation. Some thirty spikes of O. crispum were staged. Cattleya intermedia, Fowler's variety, with a creamy lip and purple tip, was shown by Mr. J. Davis, gardener to J. Gurney Fowler, Esq., Glebelands, South Woodford. Mr. Stafford, gardener to F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, sent some beautiful forms of Lælia purpurata and two blooms of the pure white sobralia; Sophro-cattleya George Hardy, obtained by crossing Sophronitis grandiflora and Cattleya Acklandiæ, was the gem from Tyntesfield; Cattleya Lawre-Mossiæ and Cypripedium Goweri also came from this collection. Mr. Bond, gardener to C. L. N. Ingram, sent Lælio-cattleya Fascinator, a magnificent hybrid between L. purpurata and C. Schroderæ; this has a huge purple apex to a yellow-throated lip. Mr. J. Robson, Bowdon, Cheshire, sent a form of Odontoglossum Rochfordianum. Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, gained a cultural commendation for Cypripedium macrochilum giganteum with two big flowers.

Mr. W. Cobb, Tunbridge Wells, gained a first-class certificate for the Dulcote var. of Lælio-cattleya Hippolyta, a very brilliant form. A good form of Cypripedium hirsutissimum came from Mr. Harris, gardener to P. Crowley, Esq., Croydon. Mr. F. Thorne, gardener to Major Joicey, Sunningdale Park, showed a fine example of Anguloa Ruckeri atrosanguineum, a plant with six large blooms to one growth; Mr. Thorne also sent Eriopsis rutidobulbon, with a spike of eighteen flowers; this is a rare orchid, and one not wanting in beauty. Some very handsome forms of Odontoglossum crispum were shown by Mr. Barrell, gardener to Welbore Ellis, Esq., Dorking; the spikes were strong and the flowers large, substantial, and in many cases prettily spotted; two Miltonias, one with nine and the other with eleven spikes, were both very handsome specimens of good varieties of the well-known M. vexillaria. Messrs. J. Veitch and Sons, Chelsea, staged Spathoglottis aureo-Viellardi, a hybrid between the two species its name indicates; it has yellowish flowers with rosy-red spottings; this firm also sent Lælio-cattleya Wellsiana albida. Vanda teres candida from Messrs. H. Low and Co. was very beautiful, its sepals and petals being pure white; this firm also sent a natural hybrid dendrobium, no doubt a cross between D. Boxalli and D. Hildebrandi.

FRUIT AND VEGETABLE COMMITTEE.

A large collection of radishes grown in frames was brought up from Chiswick by Mr. S. T. Wright. These had been on trial there, and now came before the committee. Five varieties gained awards of merit, and these are referred to in another column. The collection was of great interest to those who have to cultivate early radishes. Mr. James Hudson, gardener to Messrs. de Rothschild, sent sixteen handsome fruits of Rivers' Cardinal Nectarine, all gathered from pot trees started December 2; the fruits were gathered on May 2. Mr. John Ryder, gardener to the Dowager Countess of Limerick, St. Albans, sent some splendid Alexandra peaches for which a cultural commendation was awarded. Mr. Taylor, gardener to C. Bayer, Esq., Tewkesbury Lodge, Forest Hill, showed Waterloo peaches taken from trees in pots started on New Year's Day.

By far the most attractive display before this committee consisted of three boxes of Royal Sovereign strawberries, staged by Mr. G. Norman, gardener to the Marquis of Salisbury, Hatfield; the fruits were of enormous size, and yet of very fine shape; one hundred and twenty eight magnificent fruits were staged, and Mr. Norman well deserved the silver Knightian medal awarded; the fruits averaged an ounce and a half in weight.

Mr. Banten, Buscot Park Gardens, sent a new melon that, however, failed to gain an award; he also sent two good dishes of Royal Sovereign strawberries.

From the Syon House Gardens, Brentford, Mr. G. Wythes showed a seedling lettuce of great merit and earliness; also dishes of Wythes' Improved Mohawk, Syon House Mohawk, Ne Plus Ultra, Sutton No. 66, and Early Forcing French beans.

The first prize for the best-flavoured apple was awarded to Mr. R. Bullock, gardener to C. P. Serrocold, Esq., Maidenhead, for Hereford Pearmain; Mr. Woodward, Barham Court Gardens, second with Calville Rouge. For the best pear a second prize was awarded to Mr. C. Herrin, Dropmore, for Beurre Bretonneau in first-rate condition.

ROYAL BOTANIC SOCIETY.

NOTWITHSTANDING the frequent suggestions of rain made by masses of black clouds alternating with scalding gleams of sunshine, no rain fell on the 11th inst. to mar the summer show of the Royal Botanic Society. There was, however, a boisterous north-west wind that made the weather somewhat unpleasant outside the large show tent and corridor. The display was a fairly good one, and made up chiefly of trade exhibits. It is years since vegetables in any quantity were seen at Regent's Park, consequently Mr. Empson's exhibit was most welcome.

COMPETITIVE EXHIBITS.

For a group of orchids Mr. Cragg, gardener to W. Walker, Esq., Winchmore Hill, secured first prize with a showy lot of odontoglossums, interspersed with Cattleya Mendeli, the fragrant C. citrina, and arching spikes of Oncidium Marshallianum. Mr. Cragg was also first for six orchids. Mr. G. Kelf, gardener to Mrs. Abbott, Regent's Park, was first for six specimen palms, showing big specimens of Areca lutescens, Phœnix reclinata, Chamærops humilis, and Latania borbonica. Mr. Empson was first for a pair of dracænas, one being a large D. Sanderiana; he also was first for six foliage plants with small crotons and dracænas. The first prize for ten specimen roses was secured by Messrs. G. Jackson and Son, Woking, with large examples of Crimson Rambler, Madame Lacharme, Senateur Vaisse, La France, Celine Forestier, and others; Mr. W. Rumsey, second. Mr. G. Mount, Canterbury, was first for twenty-four roses, his set including fine blooms of A. K. Williams, Ulrich Brunner, General Jacqueminot, La France, and Marie Finger; Mr. W. Rumsey, second.

NON COMPETITIVE DISPLAYS.

A large and handsome exhibit was contributed by Messrs. J. Laing and Sons, Forest Hill, and it occupied one of the central sloping banks. This was a gorgeous display of brilliant tuberous begonias, and very handsome gloxinias, graceful spikes of odontoglossums, and lovely cattleyas, intermixed with crotons, bold caladiums, and elegant palms, chiefly cocoses; the whole was bedded in fern and edged with isolepis, and was in every way effective and tasteful. In addition, the Forest Hill firm staged some charming rose bouquets, baskets of Spanish irises, richardias and lily of the valley.

Messrs. W. Paul and Son, Waltham Cross, put up a fine bank of pot roses, fronted with boxes of cut blooms; among the specimens were tall pillars of Caroline Testout, Duke of York, Violette Bouyer, Alphonse Soupert, Jeanne Dickson, Victor Verdier, and Enchantress, all freely flowered and very handsome; in front of the boxes of cut blooms containing flowers of the leading Waltham Cross introductions, was a line of maidenhair ferns that added greatly to the effectiveness of the exhibit.

A most brilliant display of tulips came from Messrs. Barr and Son, Covent Garden. The kinds most admired were the handsome Darwin, or breeder tulips, Tulipa retroflexia, golden yellow, and the extravagant parrot tulips. Large bunches of Cytisus præcox and C. filipes flanked the group, but a background was sadly needed. A charming exhibit came from Mr. H. B. May, Edmonton; this consisted of pretty plants of the Crimson Rambler rose, in 48-sized pots, all freely flowered, and alternated with Spiræa astilboides crowned with snowy plumes. Acer Negundo variegata formed an effective background, while pterises and maiden-hair ferns made a fine groundwork. A few plants of Hydrangea Thomas Hogg, with nice heads, were also shown, and every plant in the group could be seen standing clear of its neighbour. A group of small plants of Japanese maples was staged by Messrs. J. Waterer and Sons (Limited), Bagshot; the most effective varieties were A. japonicum aureum, A. palmatum septemlobum elegans, A. palmatum sanguineum, A. p. digitatum, A. p. atropurpureum, and A. p. dissectum variegatum. The Cardinal nectarine, one of Messrs. F. Rivers and Son's recent introductions, was finely staged by the firm, and represented by well-grown standard trees carrying a splendid lot of handsome fruits. This fine nectarine ripens its fruits ten days earlier than Early Rivers. Sixteen trees were staged, and two boxes of fruits. Mr. W. Rumsey, Joynings Nursery, Waltham Cross, put up a large group of cut roses and flowering specimens in pots. A tall pillar of Claire Jacquier, and the new H. P. Mrs. Rumsey, were greatly admired for their plentiful blooms. The boxes of Niphetos roses contained a large number of fresh, clean blooms.

Mr. G. Mount, Canterbury, transferred his grand exhibit of roses from the Drill Hall to Regent's Park, and some of the blooms were finer than on the previous day. One flower was fully six inches across, and had leaves attached to the stem measuring nine inches in length. About a gross of excellent blooms were staged. Messrs. J. Peed and Sons showed two boxes of bloom of gloxinias, chiefly spotted varieties of great merit; also a box of excellent single begonia blooms. Messrs. W. Cutbush and Son, Highgate, put up a fine lot of Malmaison carnations, together with heaths, azaleas, chiefly gorgeous mollis forms, boronias, wistarias, and Otaheite oranges, arranging these tastefully with palms, dracænas, ferns, isolepis, and elegant Japanese maples. Messrs. A. Young and Co., Stevenage, arranged a collection of early-flowering alpines and other hardy flowers on a sloping bank amid cork, so as to give the appearance of a rockery; the liliums, polyanthuses, violas, irises, primulas, and alyssums proved interesting. The new King of Denmark pelargonium was also shown, it is a semi-double salmon form. Mr. A. Smith, Downes, High Wycombe, sent five boxes of blooms of Maréchal Niel roses.

Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill, Beds, had an extensive display of fruit and vegetables. Bananas, Royal Sovereign strawberries, Duke of York tomatos, Holborn Model leeks, Ailsa Craig onions, Early Forcing French bean, mushrooms, asparagus, and new and old potatos were all very good. There were pots of Carter's Forcing pea, and also freely-fruited specimens of climbing French beans. Radishes were a great feature of the group, and comprised bunches of long, round, and olive-shaped varieties in white, red, scarlet, and yellow, with one or two piebald ones; Delicatesse, Long Scarlet, London Long Red, and Carters' White Naples were good, and appeared very crisp. Mr. T. S. Ware, Tottenham, had an interesting collection of hardy plants staged in pairs; there were good examples of Primula Sieboldi, Dodecatheon splendidum, Ranunculus speciosus, Androsace lactea, Ranunculus parnassifolius, Iris lupina, Darlingtonia californica (in flower), Orchis pallens, O. militaris, O. mascula, O. fusca, Epimedium alpinum, and Ramondia pyrenaica. Messrs. J. Peed and Son, Norwood, put up a noble group of well-developed and highly-coloured caladiums, all of great beauty; John Peed, Duchesse de Mortmart, L'Insolite, Lord Moseley, Rose Laing, Louis van Houtte, and Puvis de Chevannes were notable specimens. The same firm staged a finely-grown collection of dracænas, this including such excellent sorts as Prince Marouk Bey, Excellent, Goldiana, Alexandra Laing, Frederick, and Pendula.

One of the most extensive displays came from Messrs. B. S. Williams and Son, Upper Holloway; it consisted of a large central bank of choice orchids, flanked by anthuriums and clivias. Lælia purpurata, Oncidium concolor, Cattleya Mendeli, Odontoglossum crispum, O. Ruckerianum, O. cirrhosum, and O. luteo purpureum were the most conspicuous orchids, besides Vanda suavis. The clivias were very bright, and showed that these plants are as readily retarded as advanced. There were grand trusses of Ambroise Verschaffelt, atrosanguinea, Lindeni, and Surprise. Ferns in variety, heaths, lilacs in pots, a few cannas, and number of excellent mollis azaleas were also shown, and helped to make up a large and brilliant display. Mr. Prewett, Bayswater Road, had a light and tasteful decoration in yellow Spanish irises and poet's narcissi, arranged in silvered vessels. Messrs. B. S. Williams and Son brought a grand lot of floral arrangements from their Piccadilly branch. The basket of La France and Ulrich Brunner roses was especially fine, while the basket of odontoglossums was almost as good; a mirror frame of white stocks, a bouquet of scarlet pelargoniums and anthurium spathes, and one of roses and lily of the valley completed an excellent and beautiful display. Mr. Keef, gardener to Mrs. Abbott, Regent's Park, staged a bank of well-grown palms and Lilium Harrisi, with a border of gloxinias, small caladiums, crotons, ferns, &c., before them. Azaleas were extensively shown by Mr. Charles Turner, Slough, who staged about forty small and medium-sized specimens. Louise Cuvelier, white; President van Imschoot, crimson-scarlet; La Printemps, scarlet; Dryade, snow-white; Hexe, carmine; Duc de Nassau, rose; and Mrs. Turner, pink, were among the best.

MEDALS.

Silver-gilt Flora Medals were awarded to Messrs. B. S. Williams and Son, Messrs. J. Laing and Sons, Messrs. W. Paul and Son, Mr. Charles Turner, Messrs. J. Peed and Son, and Messrs. T. Rivers and Son.

Large Silver Medals to Mr. H. B. May, Messrs. W. Cutbush and Sons, Mr. Empson, gardener to Mrs. Wingfield.

Silver Medals to Messrs. Barr and Son, Mr. T. S. Ware, Mr. G. Mount, Messrs. B. S. Williams and Son (for florists' arrangements), and Mr. Keef, gardener to Mrs. Abbott, Regent's Park.

Bronze Medals to Mr. A. Young, Messrs. J. Waterer and Sons, Messrs. J. Laing and Sons (for bouquets), Mr. Prewett, and Messrs. Peed and Sons (for cut blooms).

NATIONAL TULIP SOCIETY, May 11.

ON the above date, and in conjunction with the Royal Botanic Society's summer show, the National Tulip Society held its fourth annual southern exhibition at Regent's Park. The display was made in the corridor, and here it was not shaded from the flashes of brilliant sunshine that occurred during the day. The exhibition was not extensive, but there was a very fair, and sometimes very keen, competition in the various classes. There were some wonderfully fine flowers, and also some very poor ones, so on the whole it was an average display.

The chief award for a dozen dissimilar rectified tulips was won by Mr. Alfred Chater, Cambridge, with some fine blooms; the varieties were Duchess of Sutherland, Sarah Headley (feathered), Guido, Orion, Sarah Headley, Samuel Barlow, Glory of Stapleford, Mrs. Jackson, Richard Headley, Modesty, Masterpiece (feathered), and John Linton; Mr. A. D. Hall, Wye, Kent, second, his finest flowers being Comte de Vergennes, Sir Joseph Paxton, Bessie, Annie McGregor, and Richard Yates; the third prize was secured by Mr. C. W. Needham, Royton, Lancs; and the fourth by Messrs. Barr and Sons, Covent Garden. Mr. J. W. Bentley, Middleton, Lancs, secured the premier award for six dissimilar rectified tulips with Lord Stanley, Annie McGregor, Adonis, Comte de Vergennes, William Wilson, and Bessie; Mr. A. Chater second, with Dr. Hutchison, Sarah Headley (feathered), Modesty, Duchess of Sutherland, Masterpiece, and J. Linton; Mr. C. W. Needham was equal second, with nice flowers of Dr. Hardy, Sarah, Duchess of Sutherland, Aglaia, Modesty, and Masterpiece.

Mr. Bentley scored for three flamed tulips with bright blooms of Lord Stanley, Mabel, and King of the Universe; Mr. Needham, second, with Mrs. Jackson, the popular Mabel, and Samuel Barlow; Mr. A. Chater, third. The Samuel Barlow prize for the best pair of rectified tulips, one feathered and one flamed, was won by Mr. J. W. Bentley, with good flowers of Duke of Devonshire and Sir Joseph Paxton; Mr. Hall came second, with Sir J. Paxton and Comte de Vergennes. For six dissimilar breeder tulips, two roses, two byblœmens, and two bizarres, the chief award was secured by Mr. A. D. Hall, who showed Glory of Stakehill, Mabel, John Heap, Lloyd's 200, Annie McGregor, and Excelsior; Messrs Barr and Sons, second; and Mr. J. W. Bentley, third. Mr. J. W. Bentley took leading honours for three breeder tulips, one of each class, with neat blooms of Mabel, Storer's Seedling, and Glory of Stakehill; Mr. C. W. Needham, second, with Annie McGregor, Adonis, and Richard Yates.

The premier breeder tulip in the show was a pretty bloom of the bizarre Goldfinder, shown by Messrs. Barr and Sons. The best feathered bloom was Industry, scarlet, over a creamy ground, shown by Messrs. Barr and Sons. Mr. A. Chater had the best flamed bloom in the show in his splendid Samuel Barlow shown in his first prize set of twelve tulips.

Mr. C. W. Needham arranged an extensive collection of tulips, showing either breeder or rectified forms of twenty-five varieties; Chancellor, Dr. Hardy, Mabel, Samuel Barlow, Talisman, Modesty, Lloyd's Seedling, and Storer's Seedling were among the finest examples. Messrs. Barr and Son, Covent Garden, staged four large boxes of florists' tulips, some in rectified and some in breeder form. Friar Tuck, Talisman, Samuel Barlow, Colbert, Sir Joseph Paxton, Aglaia, Alice, Dr. Hardy, and Amazon, were all well represented. One box contained good blooms of the breeder forms: Mabel, rose; James Wild, bizarre; Miss Hardy, byblœmen; Goldfinder, bizarre; Lord Derby, rose; William Lee, bizarre; and Modesty, rose. The Messrs. Barr were awarded a gold medal for this display, while their group of Darwin and other May-flowering tulips, staged in large bunches in the big tent, and forming part of their display in connection with the R.B.S., was awarded a first prize as the best collection of May-flowering decorative tulips in the show.

As there was no competition in the class for 100 blooms of English florists' tulips, the silver cup offered as a first prize was not awarded, though Mr. Needham's exhibit fulfilled the schedule requirements.

SCOTTISH HORTICULTURAL ASSOCIATION.

THIS association recently held another very successful and crowded meeting in the society's rooms. Among the exhibits on the table were three beautiful blooms of the chrysanthemum W. H. Lincoln, sent from Mr. P. Hunt, Coltbridge Hall, and some very choice narcissus from Mr. J. Alexander, Revesby Abbey, Boston, who had promised a paper on bulb-growing in Lincolnshire. Among the narcissus were fine examples of Sir Watkin, Golden Spur, Incomparabilis, Poeticus, single and double; a very pure paper-white semi-double form of N. orientalis, Bicolor grandis, &c. Mr. Todd, the president, also exhibited a beautiful group of narcissus and irises, arranged with smilax and other foliage.

In the absence of Mr. Alexander, Mr. R. L. Laird, the secretary of the society, read his excellent paper. With a few sentences on the enormous importations from the Scilly Islands, Guernsey, &c.—said at times to total up to two hundred tons of flowers in a day [?]—and the extreme usefulness and durability of daffodils for decorative purposes, Mr. Alexander proceeded to give a brief [illegible] of the culture of two of our best English growers, Mr. T. Kime, Mareham-le-Fen, Boston, and Messrs. White and Sons, near Spalding, some twenty miles distant. The second has the best, or at least the deepest soil, though that of Mr. Kime has been greatly improved by the addition of spent tan and other refuse. The Boston grower plants chiefly in rows from nine to fourteen inches apart; the other in beds four feet wide—the bulbs from four to six inches apart each way, and uses soot and bone dust as top dressings. Immense quantities are grown alike for selling as hardy cut flowers in the spring and for forcing, which begins early in November. Block succeeds block until the latest crops come in from the open ground in April and May. All the finest varieties are grown in quantity, such as Sir Watkin, Golden Spur, and Princess, while Codlins and Cream and other old favourites are not forgotten. It was gratifying to hear from Mr. Alexander that some of the most successful growers were labourers and small holders, some of whom were said to have made as much as £20 of their bulbs.

Among other pleasing features of the meeting was the high testimony borne by Edinburgh experts in flower culture, sale or use, to the high quality of the Lincolnshire and Linton bulbs. None better entered the Waverley Market than France, the Scilly Isles, Holland, nor anywhere else. After a few words from Mr. D. T. Fish, strongly advocating an immediate extension of this promising home industry, Mr. Alexander Mackenzie, of the Warriston Nurseries, proposed a vote of thanks to Mr. Alexander for his paper, which was carried unanimously. Mr. Hay was then elected a life member of the association.

Mr. D. P. Laird, one of the judges at the Great Quinquennial Exhibition at

Ghent, and Mr. Alexander Milne, were then asked by the President to give their impressions of their visit, which proved most instructive and interesting to the members. Mr. Laird did ample justice to the full reports in the horticultural press, and then gave a vivid picture of the great exhibition, its size, and its general interest to all classes, from the King downwards. There were five hundred nurserymen in Ghent; the exhibition consisted of some twelve thousand plants and covered three acres, but of this twelve thousand there were some one thousand five hundred azaleas, and some of the plants eight feet in diameter. There were nine lots of azaleas in thirty varieties. Mr. Laird was also much impressed with the New Holland plants, the Messrs. Linden's memorial groups, the new plants, M. Louis Van Houtte's establishment, and the energy and zeal of royalty in behalf of horticulture. Mr. Alexander Milne was deeply impressed with the number and excellence of the nurseries of Ghent and Bruges. Selection rather than collection seems the chief secret of their success. One large nursery was chiefly devoted to three things—palms, Araucaria excelsa, and sweet bays. The Messrs. Sander, of St. Albans have also an enormous acreage of glass at their nurseries at Bruges. He also found a nursery with ten acres of glass managed by twenty-two men. Slow and sure seemed the characteristic of these workmen, and their hours of labour were twelve and a-half hours a days, from six a.m. to eight p.m., and all for fifteen francs (about 12s. 6d. a week) with only a quarter of an hour for breakfast, and another for dinner. Ghent is indeed an object lesson, said Mr. Milne, in more ways than one, for British horticulture and British horticulturists.—D. T. F.

AVERAGE LIFE OF THE POTATO.

In answer to Mr. J. C. Tallack I planted on March 1, 1897, side by side, ten pounds of the Duke of York and ten pounds of the Ashleaf Kidney. I gave both the same treatment and both sets were well sprouted. I found on May 10 the Ashleaf had a very promising crop under the shaws, and this was ready for use by May 20. The Duke of York was not ready before May 31. I decided to leave the two drills to see the result, and found the Ashleaf Kidney to have the heaviest crop and a better-shaped potato, but one is a kidney and the other an oval potato. Take any potato in cultivation at the present time, and give it and the Ashleaf Kidney, sent out about sixty years ago, the same treatment, and the old variety will come out the victor in quality and quantity.

Mr. Tallack says there is no comparison between the Magnum Bonum and the Syon House Prolific for weight of produce when grown under the same conditions. Up to the present time I have not found any potato to beat the Magnum Bonum. Planted beside Imperator, Up-to-Date, Champion, Lydia, Stourbridge Glory, and Reading Giant I have always found the Magnum Bonum to turn out the heaviest crop, best in quality, and free from disease. It is a variety that will grow and do well in any soil, situation, or climate, and that is a point to be considered. Potatos that will only succeed in a few places are not of the same value as those that will do well in all soils and situations. I found the Ashleaf, Gloster Kidney, and Magnum Bonum to succeed as well with me in Surrey on the chalk soil as they do here on the red soil, which is rather heavy.

Potatos will not succeed under the rough-and-ready treatment accorded in a great many places on lighter soils, such as dibbling them in. The ground should be thoroughly dug and manured during winter, and in the spring forked over; then the drills should be opened about six inches deep and two feet six inches apart, the sets being placed one foot apart; cover in with the fork, leaving a small ridge; in case of frost the ridge can, with very little trouble, be put on the potatos by means of a rake, and they will be safe for two or three weeks longer. Good potatos are often injured by bad practice.

In 1827 Mr. James Wright, gardener at Westfield, Aberdeen, planted the Scotch Pink-eye potato which is referred to in the GARDENERS' MAGAZINE of 1834. The Pink-eye is as good now as it was then, for the weight per acre averaged then from six to eight and ten tons per acre and averaged about the same with me last year; this variety has thus been in cultivation seventy-one years. [We shall be glad if Mr. Davies will tell us the number of the page of the GARDENERS' MAGAZINE for 1834 to which he refers. So far as we can find, Mr. J. Wright (p. 437) wrote, "With the Scotch Pink-eye I am not at all acquainted." Mr. Wright, however, took the same view that Mr. Davies does, that potatos do not degenerate if well cared for.—ED.] If properly treated I do not think potatos deteriorate The average weight per acre of Magnum Bonum, taking one year with another, will be about twelve tons with ordinary cultivation, but with exceptional preparation and heavy manuring they may give a return of from sixteen to twenty tons. The average yield of Ashleaf is eight to nine tons per acre of good sound potatos for eating.

The Gardens, Castle Hall. T. DAVIES.

OBITUARY.

MR. A. SIMPSON, a well-known citizen of York, died on the 4th inst. Mr. Simpson was head of the firm of Messrs. A. Simpson and Sons, Haworth Nurseries, and from small beginnings he made for himself a prominent position amongst the nurserymen of the county. He was associated with the Ancient Society of York Florists, amongst whom (as also a wide circle of acquaintances) he was very highly respected; his connection with the society extending from the year 1868, and for a great part of that time he served on the committee; he filled the office of steward for three years, and in 1894 occupied the position of chairman of the executive, the most successful year, financially, in the society's annals. Mr. Simpson was a prominent figure at the York chrysanthemum shows since they commenced, having had charge of the arrangement of the vegetable exhibits, no very light duty, as those who know the quantity of vegetables usually shown could testify. He was of robust physique and seldom under the necessity for medical treatment, so that his death was somewhat unexpected, his illness being of short duration. A paralytic seizure was the immediate cause of his decease. The interment took place at York Cemetery on the 7th inst., and was preceded by a service at St. Thomas's Church. Many of his colleagues were persent, and the chaplain of the society (Rev. H. Vyvyan) took part in the service. Mr. Simpson was in his sixty-eighth year, and leaves a widow, three sons, and two daughters.—J. L.

Orchid Sale at Clapton.—In consequence of the transfer of their head-quarters by Messrs. Hugh Low and Co., from Clapton to Bush Hill Park Nurseries, Enfield, there will be a sale of a considerable portion of their stock at the former establishment, by Messrs. Protheroe and Morris, from Tuesday to Thursday next, inclusive (May 17 to 19). Orchidists, knowing the valuable character of the plants at the Clapton Nurseries, are not likely to miss an opportunity like the present for securing some of the good things that will be offered.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates

Vines.—J. H. Taunton: Do not give any more manures, or the vines will neither produce leaves or fruit; let feeding alone for a year and in the meantime grow the vines as hardily as possible, and endeavour by all the usual means to secure thoroughly ripened growths so that fruit may be secured next season. Write us again later as to the progress made.

Rusty Pear Foliage.—E. C. K., Ramsey: The foliage has evidently been touched by frost or keen wind while moist and tender, with the result that most of the life has been taken out of the leaves and they have turned brown. Should any leaves on other branches show rusty patches when they reach a more advanced stage send them along, if there is an appearance of attack, as this may prove another matter.

Saving Leaves in Autumn.—W. K., Warwick: If the leaves are intended for use with manure for heating and forcing they should be gathered when dry or moderately so. If gathered when very wet they pack closely together and soon rot; wet leaves also heat quickly, and that is exactly what is not wanted for hotbeds, but rather a steady heat prolonged as long as possible. Leaves gathered for hotbeds should be protected from heavy rains by being placed under an open-sided shed or by covering with a few sheets of galvanised iron.

Twin-spathed Richardia.—T. W., Milford Haven: Though not of frequent occurrence it is still not uncommon to find amid a very large batch of Richardias one or more inflorescences having two or more spathes. We have seen specimens with three highly developed spathes on one stem, but such freaks are anything but pretty. The example you sent has two large spathes, but it is scarcely so handsome as the single form. Such freaks as this usually occur where Richardias are well and strongly grown, and seem in some measure to be an outlet for superabundant energy.

Yellow Pear Leaves.—T. W. N., Chelmsford: The yellow blistering is no doubt due to a severe chill acting upon and disorganising the tissues of the leaf after a spell of mild moist weather, and probably acting in conjunction with a poorly-drained soil. Too heavy a mulching that would prevent the sun from warming the soil might have a good deal to do with the damage. See that the drainage is improved as far as possible at this date, and later on when the fruits are swelling give the tree an occasional supply of liquid manure if the weather is not continually wet.

Climbing Rose in Greenhouse.—A., Ashford: There is a local cause with which we are not conversant acting to prevent the rose from flowering. It may be excess of moisture due to poorly drained border, lack of air on favourable occasions, and absence of sufficient sunshine, owing to shading, to properly ripen growth. The shoots indicated by the red lines should have afforded abundance of blooms but it would not be good policy to cut them back now. Leave them until the autumn or winter and then cut them back two or three eyes. Allow the strong growths to do their best and if they ripen well they need only be shortened after the fall of the leaf; let them go up and do not stiffly train them horizontally. We shall be glad to assist you further if necessary.

Celery on Level Ground.—B. F., Horsham: Celery can be grown, and grown well, both on the level ground, and even on raised beds; but it is usual to cultivate it in trenches, because here the roots can be kept cool and moist better than under the other conditions. For level beds the soil should be of the best, thoroughly worked and mixed with crumbling decayed manure, and also a goodly quantity of the ashes resulting from burning or charring garden refuse. Though such beds should have been made up ere now, it is not too late if suitable materials are at hand. Blanching can easily be effected by the use of stout brown paper and by earthing, using boards to keep the soil in position. Much fine celery is grown thus, but trench culture is generally the safest and certainly the easiest, especially where large quantities of this and other vegetables have to be provided,

Mertensia siberica.—L. O. F., Andover: This handsome early-flowering herbaceous plant presents such a charming appearance when it is in good condition and crowned with drooping racemes of mauve-blue flowers, that it is very reasonable you should desire to know any of its peculiarities. Almost any soil will suit it, but it thrives as well in a light, but not dry soil, as anywhere, especially if a little mulch is given during winter. It needs to be planted where it is sheltered from the prevailing cold winds, otherwise its beauty will be spoiled. Then, also, to keep it in condition for as long as possible it should be protected from the early morning sun during the time it is flowering, otherwise it soon loses its charm if after a few degrees of frost the sun's rays act upon it directly; if a cupressus or other dense tree shades the plant until frost has disappeared, the mertensia lasts in flower a long time.

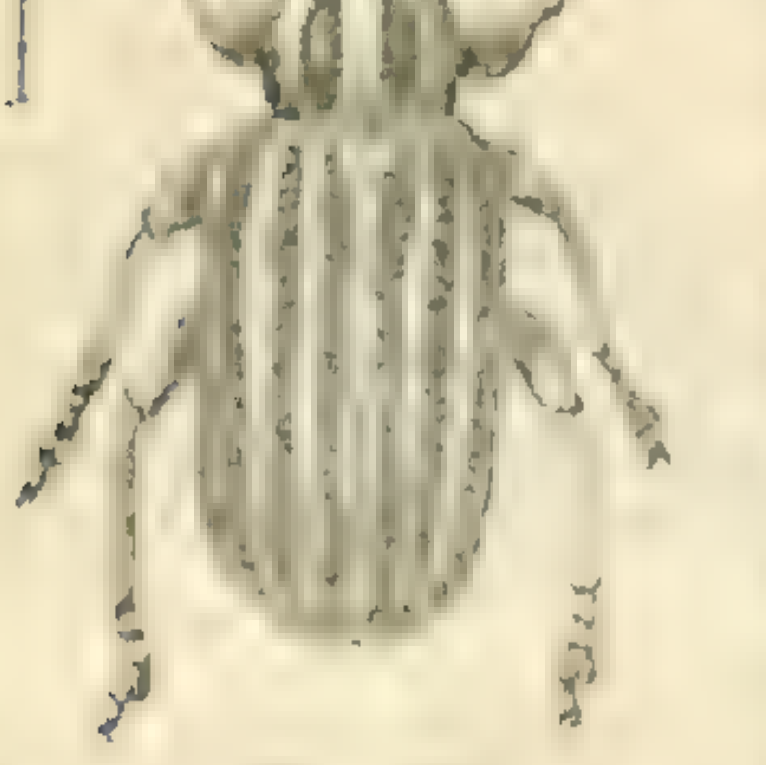
Tea and H.P. Roses.—Amateur, Ashford: Two dozen of the best H.P. roses for your purpose are Alfred Colomb, A. K. Williams, Beauty of Waltham, Captain Hayward, Ulrich Brunner, Abel Carriere, Charles Lefebvre, Horace Vernet, Prince Camille de Rohan, Francoise Michelon, Heinrich Schultheis, Victor Verdier, Her Majesty, Jeannie Dickson, Mrs. J. Laing, Suzanne, Marie Rodocanachi, Baroness Rothschild, Merveille de Lyon, Madame Hippolyte Jamain, Pride of Waltham, Margaret Dickson, Duke of Edinburgh, General Jacqueminot, and Boule de Neige. Two dozen good tea and noisette roses are

Anna Olivier, Catherine Mermet, Comtesse de Nadaillac, Hon. Edith Gifford, Ernest Metz, Francisca Kruger, Maman Cochet, Madame Cusin, Madame de Watteville, Souvenir d'Elise Vardon, Caroline Kuster, Madame Hoste, Maréchal Niel, Innocente Pirola, Niphetos, Souvenir de S. A. Prince, The Bride, Devoniensis, Rubens, Medea, Madame Lambard, Jean Ducher, Perle des Jardins, and Alba Rosea.

Erection of Fence.—W. S., New Malden: The question whether you or your neighbour should erect a fence can only be answered after a careful consideration of the conditions under which the land was purchased. Usually when land is sold in parcels, it is stipulated that the purchasers shall erect certain fences, and probably this was done in your case. If an examination of these conditions should show that your neighbour should provide the fence required for the separation of the two parcels, your proper course will be to call upon him to erect the fence, and intimate that you will hold him responsible for any damage that may be done by cattle in consequence of his failure to do so. Should there be no stipulation as to the erection of the fence, either in the conditions of sale or of the conveyance, you might consult a solicitor with reference to the matter, or proceed to protect your stock with a fence; and posssibly the latter course will be preferable.

Variation in Seedling Maidenhair Ferns.—C. A. N., Doncaster: All seedling plants when grown in quantities present to the experienced eye a large amount of variation, notwithstanding the general fact that many good species of ferns and flowering plants come very true from seed. Wherever several species and varieties of maidenhair ferns are grown together in the same house there is likely to be a considerable variation from the spore parent in the resulting seedlings, for the spores are so minute and easily carried from one plant to another by air, water, &c., that unless very great care is taken it is almost impossible not to sow other kinds than that you intend to propagate. This being so, it follows that several kinds of maidenhair ferns may be sown together, quite unintentionally, and then when the prothallus stage of germination has taken place, the sexual stage is reached, and so what to all intents and purposes is hybridisation or cross-fertilisation ensues. Very frequently it is possible in seedlings of maidenhair ferns to tell what the parents have been, so well are their characteristics combined in the progeny.

Forcing Seakale.—A. C., Rochester: There is no great art in the forcing of seakale, provided the plants have been well grown, the crowns properly ripened and kept, and that warmth and darkness can be provided. The question as to the soil in which seakale should be forced is a simple one, and easily answered; practically any material that will hold moisture, will not ferment, and can be presssed around the crowns, will do. You seem surprised to have seen seakale produced in boxes eight or ten inches deep; many folks would have very little seakale if they did not grow it in boxes. We grow first-rate seakale by putting the crowns about three to four inches apart each way in boxes sufficiently deep to hold the root-stock; the material we use is cocoa-nut fibre refuse, as it is easily carried about, and after use is available for other purposes. Over the box of crowns we invert another box of the same size, and stand the lot in a cupboard where the water-box for the supply of the kitchen boiler keeps the atmosphere somewhat moist. Waterings with warm water are occasionally given. Later batches are produced in the cellar without any artificial heat to assist them. The secret of the whole matter is to thoroughly cultivate the thongs, and so obtain stout stocks each with a single fat and well-ripened crown.


STRIPED PEA WEEVIL.

Pea Weevil.—R. S. M., Worcester: The pest from which your peas are suffering is the striped pea weevil (*Sitones lineatus*). It sometimes does enormous damage over large pea-growing districts, consequently every possible means should be taken to remove it. The weevils first appear during March, and later broods arrive during April and May to prey upon the new pea growth. The margins of the tender leaves are first attacked, and if not stopped the pest passes on to the succulent stems. The perfect insect does this much damage, while the grubs work under the soil and feed upon the more fleshy portions of the roots, so that between insect and grub the pea plants have a bad time of it. Soot and lime should be applied to the rows and between them, as it makes matters distasteful to the pest; in damp weather soot should be used frequently to render the plant obnoxious to the voracious beetles. Then also it is wise to promote rapid growth by occasional top-dressings of stimulating growth, and by applications of clear water in dry weather supplemented by liquid manure as the peas become strong and well rooted.

Successional Flowers.—C. H. B., Norwood: A careful perusal of the columns devoted to Work for the Week, would enable you to determine what to plant, sow, or propagate of the various plants that would serve to provide a succession of flowers the whole year round. Limits of space prevent us from giving such a detailed account as you desire in this column. If, however, you have a file of the GARDENERS' MAGAZINE for 1897, and those numbers of the present year up to date you should find no difficulty in the matter. You are, however, seriously handicapped by lack of a warm pit or intermediate house where a moderate amount of forcing could be conducted. In the winter you might have bulbous flowers of various kinds, provided they are potted early in autumn; there would also be cyclamen, and primulas, azaleas, bouvardias, and forced spiræas, arum lilies, winter-flowering begonias, &c., not forgetting Helleborus niger, for Christmas and the new year, out of doors. For spring, many of these subjects would still be available grown in frames or out of doors, with lily of the valley, zonal pelargoniums, eupatoriums, cinerarias, wallflowers, primroses, polyanthuses, violas, &c., and late flowering narcissi to keep up the supply until the early summer flowers commence. In the summer abundance of flowers can be obtained if a large garden is provided; roses would naturally be largely used, with liliums of sorts, sweet peas in plenty, irises of sorts, sweet sultan, cornflowers,, pyrethrums, double and single, candytuft, begonias, phloxes, carnations, &c., &c., with gladiolus, dahlias, michaelmas daisies, early flowering chrysanthemums, and helianthuses for autumn use. Following these are the great bulk of chrysanthemums to be housed in the greenhouse, and salvias, bouvardias, early cyclamen and primulas to help things along until the forced flowers and hellebores are in use. The latter might be made much of if grown liberally and covered with frames or handlights as soon as the buds are fully formed.

"CRITICISM WILL FOSTER TALENT," is an adage too well known to need dilating upon, especially as it is necessary to speak of something which for many years has defied adverse criticism. Holloway's Pills and Ointment, as sterling remedies for all complaints, are more familiar than "household words," being in constant daily use by thousands of people, who look upon their possession as a positive necessity. Leading medical authorities advise their use as reliable medicines in times of need. As a certain cure for all skin diseases they are unequalled, whilst for bile, sick headache, flatulency, indigestion, and all liver and stomach disorders, it has been truly said they are worth their weight in gold.—[ADVT.]

NEW INVENTION.

New Lawn Mower.—We recently had submitted to us one of [illegible] Follows and Bates' new "Chain Tennis" Lawn Mowers. A great [illegible] possessed by this is the use of an admirable, although simple, device for [illegible] the gear chain. Behind the drum, or cylinder, is placed a lever that [illegible] axle of the drum, upon which the driving wheel is fixed; thus, when the [illegible] hanging loose a slight movement of the lever draws the wheel to any [illegible] distance, and the chain is consequently tightened, and fixed in position for further service. The Gorton firm are introducing upon their invention a quality of chain equal to that used in the production of the best cycles. This machine also possesses an attachment for adjusting the cutting cylinder to any required height, so that any desired length of cut may be ensured, and the method is so easy that those who have had no great experience can readily make the necessary adjustment.

MARKETS.

Covent Garden.

THE moderate supply of fruit meets an eager demand, and prices are high. Oranges sell at high rates, but lemons are somewhat cheaper. Vegetables are abundant and sell at moderate rates, though for forced or early imported subjects the prices are high.

FRUIT.—Tasmanian apples, 10s. to 16s.; Californian, 8s. to 11s. per case; Nova Scotian, 15s. to 25s. per barrel: English grapes, 3s. to 4s. 6d.; Channel Islands, 3s. to 4s.; Dutch, 2s. 6d. to 3s. 6d. per lb.; pineapples, 2s. 6d. to 4s. 6d. each; bananas, 5s. to 9s. per bunch; Valencia oranges, 12s. to 25s. per case; Jaffa, 10s. to 12s. 6d. per box; lemons, 8s. to 15s. per case.

FLOWERS.—Arums, 2s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. to 3s.; daffodils, 1s. [illegible] to 4s; tulips, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to [illegible]; wallflowers, 2s. to 3s.; polyanthuses and cowslips, 1s. to 1s. 6d.; primroses, 9d. to 1s.; bluebells, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays: bouvardias, 6d. to 8d.; white lilac, 2s. to 3s. per bunch.

VEGETABLES.—French asparagus, 2s. to 5s.; giant, 5s. to 7s. 6d.; Worcester, 1s. 9d. to 2s. 3d per bundle; mushrooms, 6s. to 9s.; eschallots, 2s. to 2s. 6d per 12 lb.; broccoli, 6d. to 1s per dozen, 3s. to 4s. 6d. per crate; new carrots, 6s. to 8s. per dozen bunches; spinach, 1s. 6d. per bushel; cabbages, 3s. 6d. to 4s. 6d. per tally; Egyptian onions, 6s. to 8s. per cwt.; English spring, 2s. to 3s. per dozen bunches; green peas, 4d. per pocket; French beans, 3s. to 3s. 6d, per basket; rhubarb, 2s. to 3s per dozen bundles; cucumbers, 2s. to 5s.; endive, 1s. to 1s. 6d.; lettuce, 6d. to 9d.; cos, 1s. 6d. per dozen; seakale, 6s. to 12s. per dozen punnets; Canary new potatos, 9s. to 12s.; Algiers, 10s. to 15s.; Malta, 8s. to 10s. per cwt.

Borough Potato Market.

In view of the increasing supplies of new potatos the demand for old tubers is slackening somewhat. Prices, however, remain firm owing to moderate supplies generally. Dunbars, 130s. to 140s.; Scotch Magnums and Hebrons, 110s. to 120s.; Bruce Maincrop, Sutton's Regents, Reading Giant, and Saxons, 100s. to 110s per ton; Belgians and Germans, 4s. 9d. to 5s. 3d per bag. New—Maltese rounds, 11s.; Teneriffe kidneys, 14s. to 15s. per cwt.; Lisbon rounds, 5s. to 5s. 6d. per box; Jersey hothouse, 3½d. per lb.

THE WEATHER DURING THE WEEK ENDING MAY 7, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	68·0	41·3	51·9	11·06	0·58	1·47
Croydon	68·0	38·5	50·6	10·33	0·78	1·98
Brighton	64·4	43·4	52·5	11·39	0·86	2·18
Bristol	62·0	39·0	48·6	9·22	1·25	3·18
Wolverhampton	58·9	36·2	46·3	7·94	0·58	1·47
Norwich	64·4	39·6	49·4	9·67	1·03	2·62
Nottingham	60·1	38·3	47·8	8·78	0·92	2·34
Liverpool	61·8	41·5	48·8	9·33	0·38	0·97
Huddersfield	60·5	40·4	47·3	8·50	0·30	0·76
Bradford	61·0	43·4	49·9	9·44	0·58	1·47
Hull	63·0	37·0	47·5	8·61	0·46	1·17

The mean reading of the Barometer during the week at Greenwich was 29·64 inches, and that of the Thermometer 51°·9, the latter being 1°·9 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 28 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 36·6 hours. The measured rainfall amounted to 0·58 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

WEDNESDAY, MAY 18.—Society of York Florists: Second exhibition.

FRIDAY, MAY 20.—Royal Botanic Society's Lecture.

SATURDAY, MAY 21.—General Meeting of the Royal Botanic Society. Tam[illegible] Viola Exhibition.

AUCTIONS.

MONDAY AND FRIDAY, MAY 17 and 20.—Japanese Lilies, Asters, Carnations, O[illegible] Seaforthias, Phloxes, Hollyhocks, &c., Protheroe and Morris's rooms.

TUESDAY AND WEDNESDAY, MAY 17 and 18.—Greenhouses, Hot-water [illegible] Garden Utensils, The Surbiton Nurseries, Ewell Road, Surbiton.

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Swanley and Eynsford... ... ...
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ILLUSTRATIONS.
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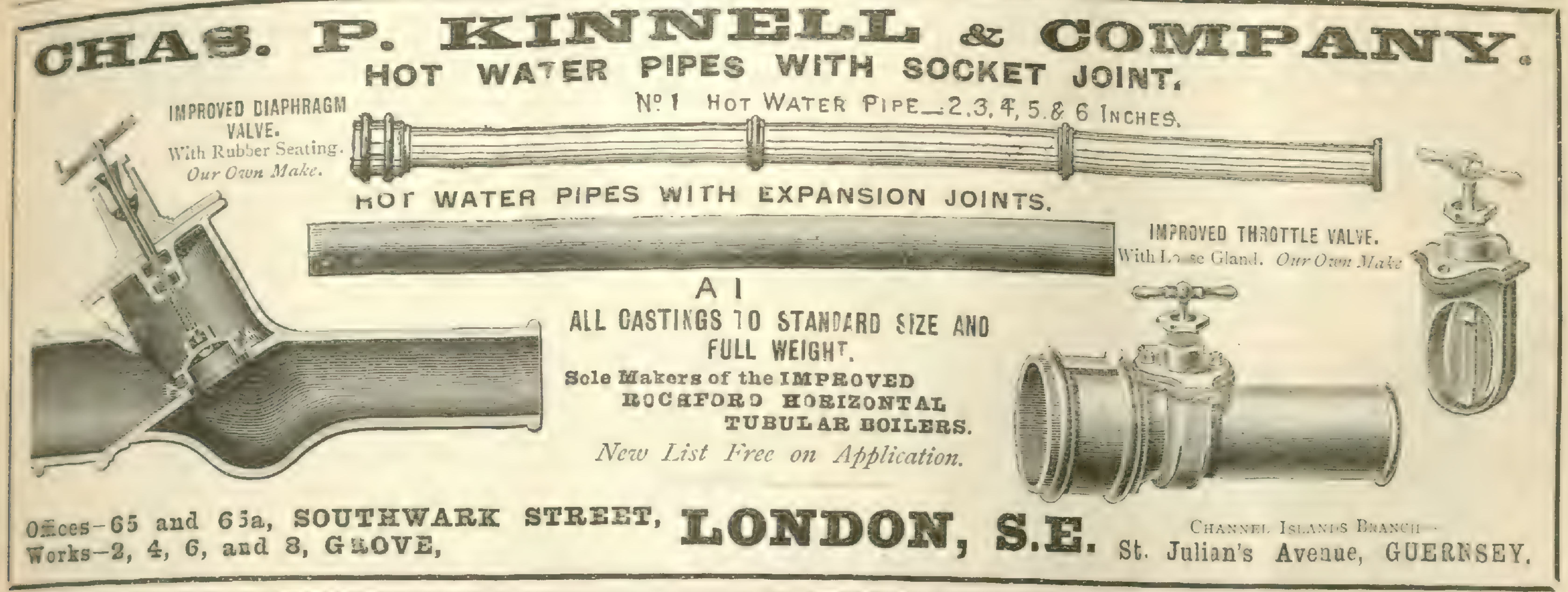
Group of the Lady Primulas... ...
Pyrus Sikkimensis ... ...



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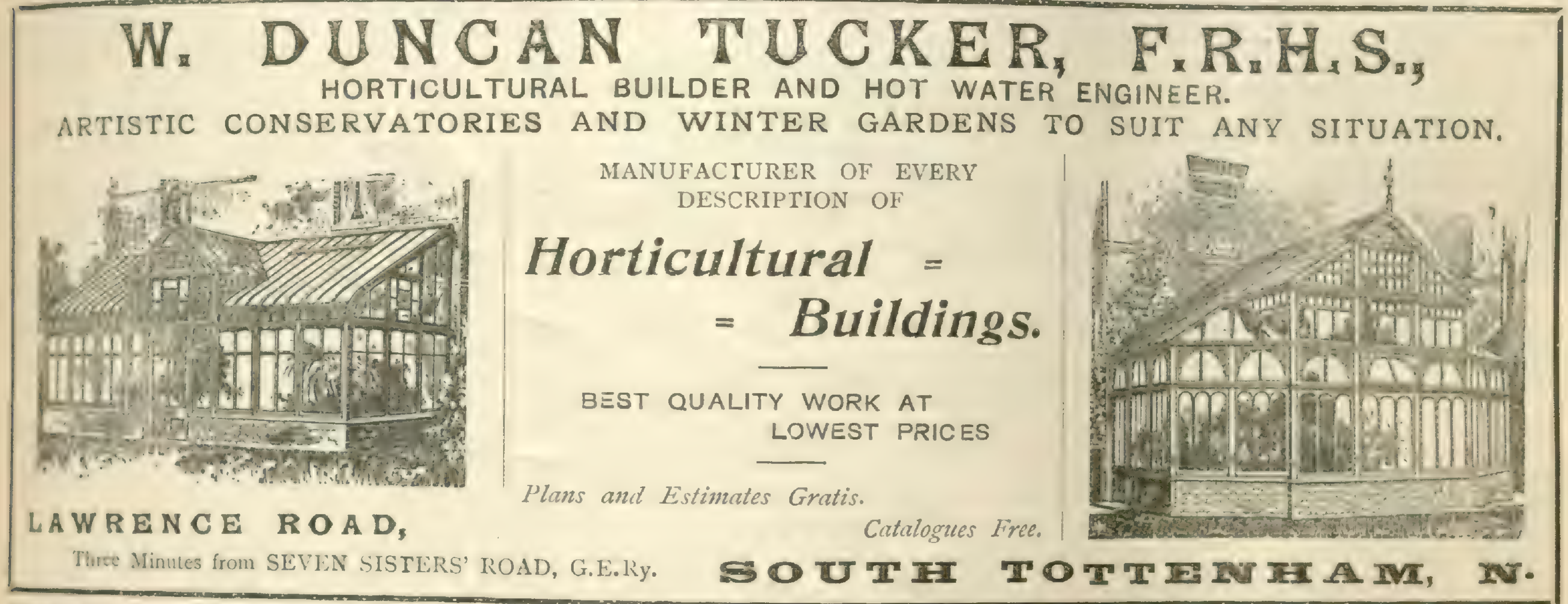

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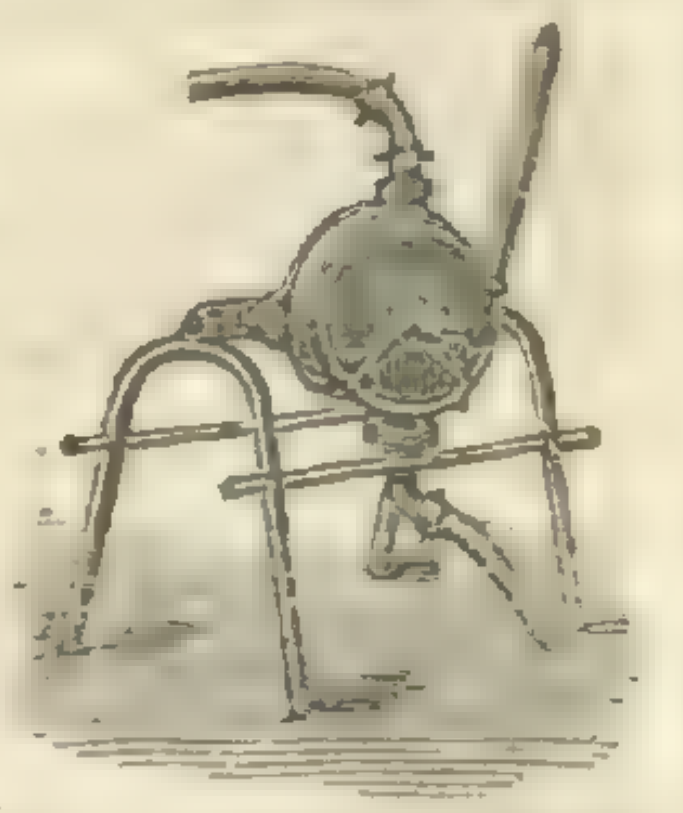

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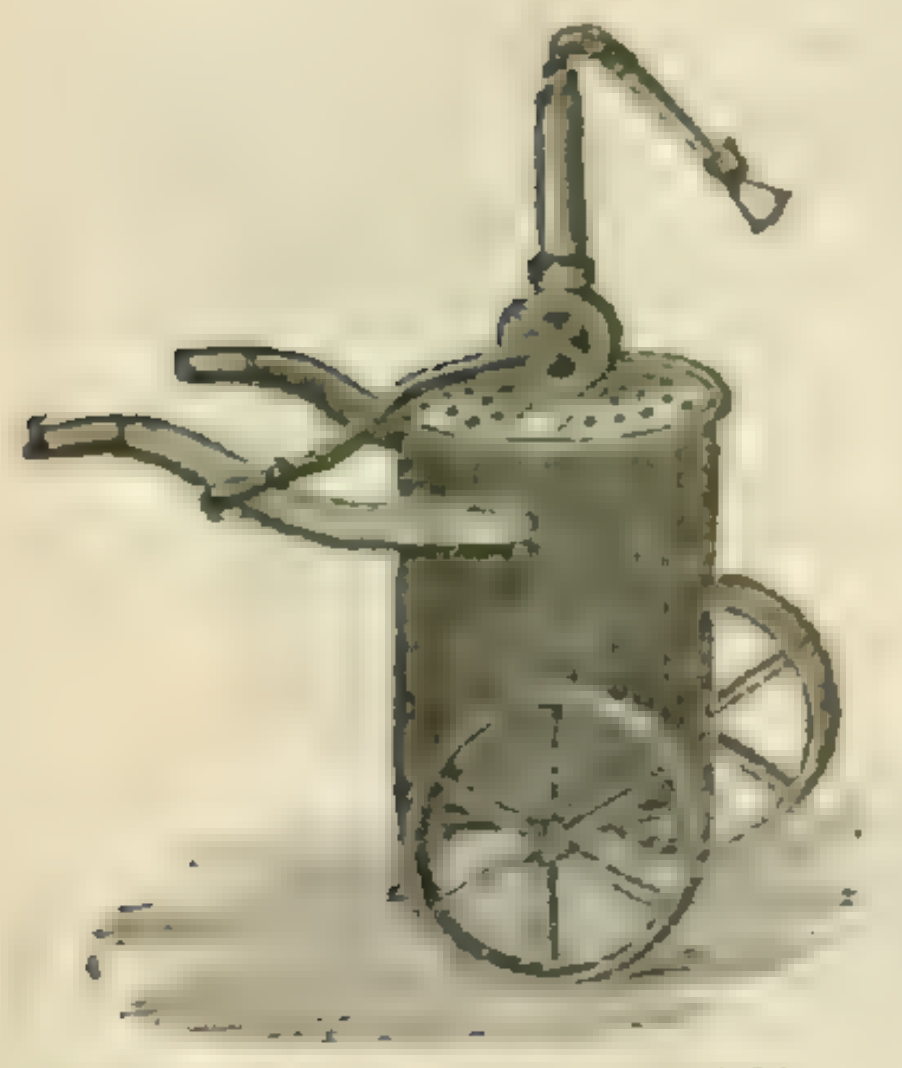

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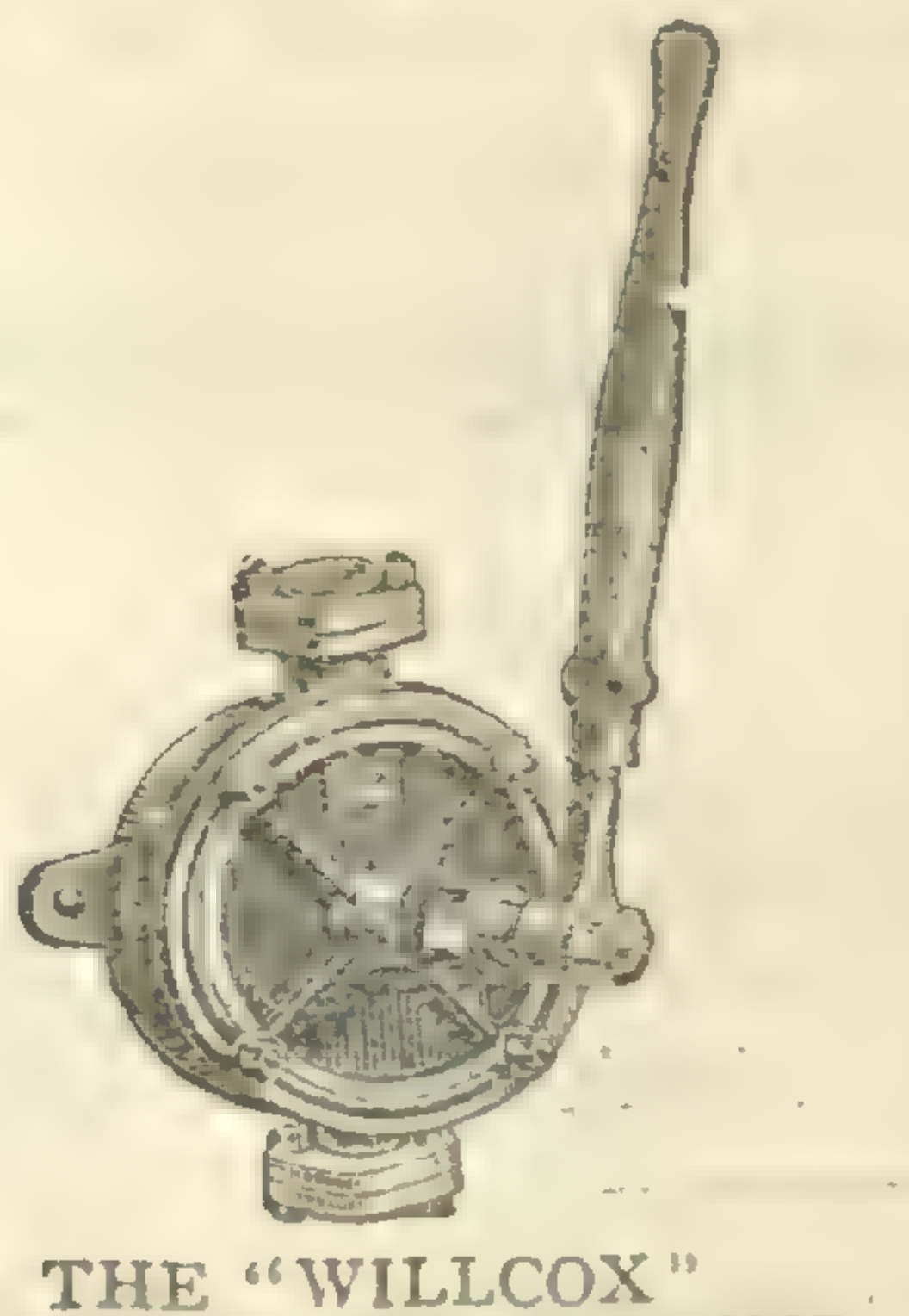

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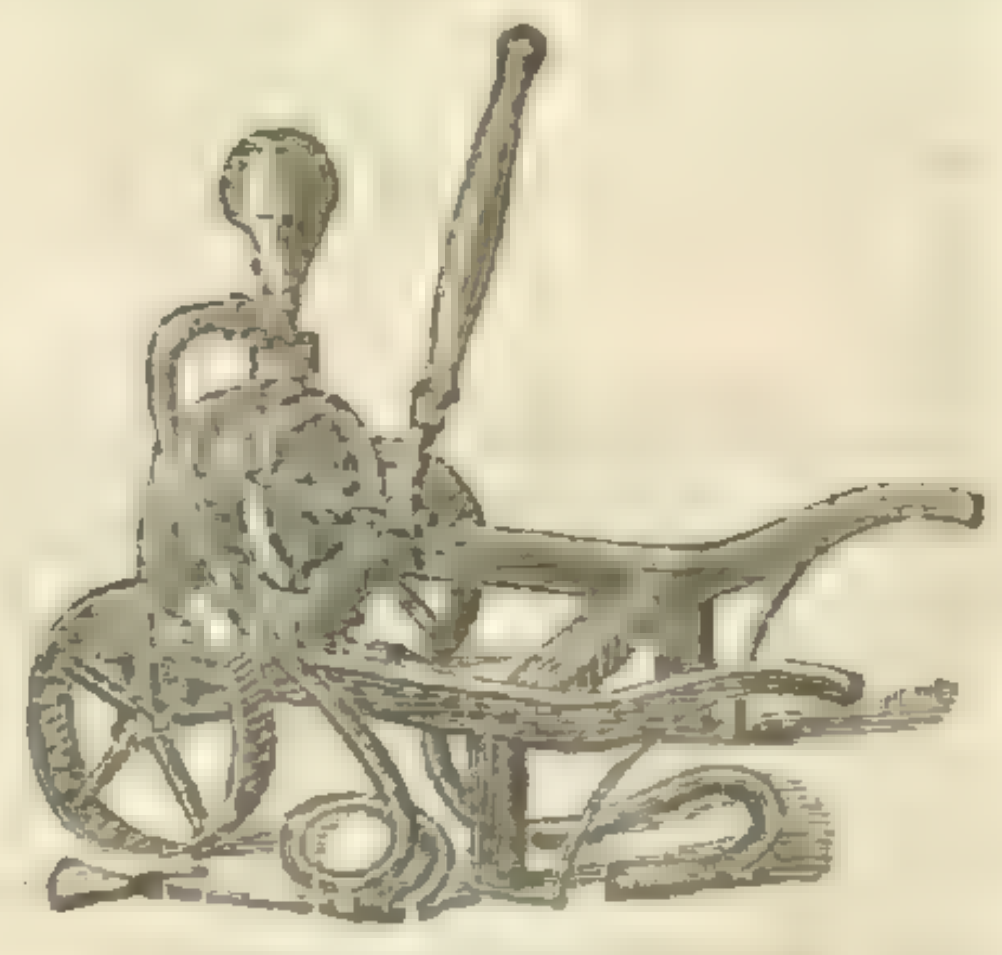

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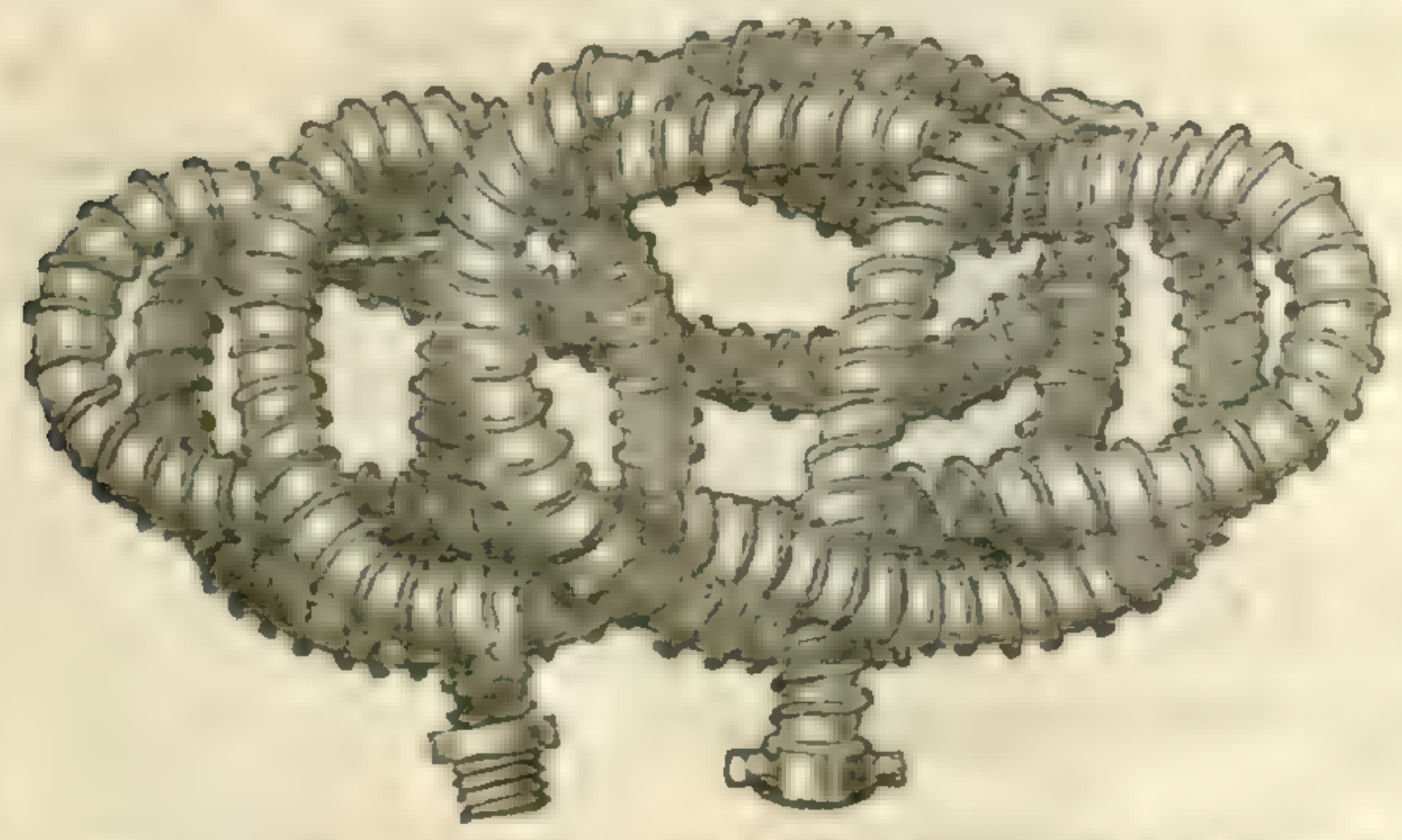

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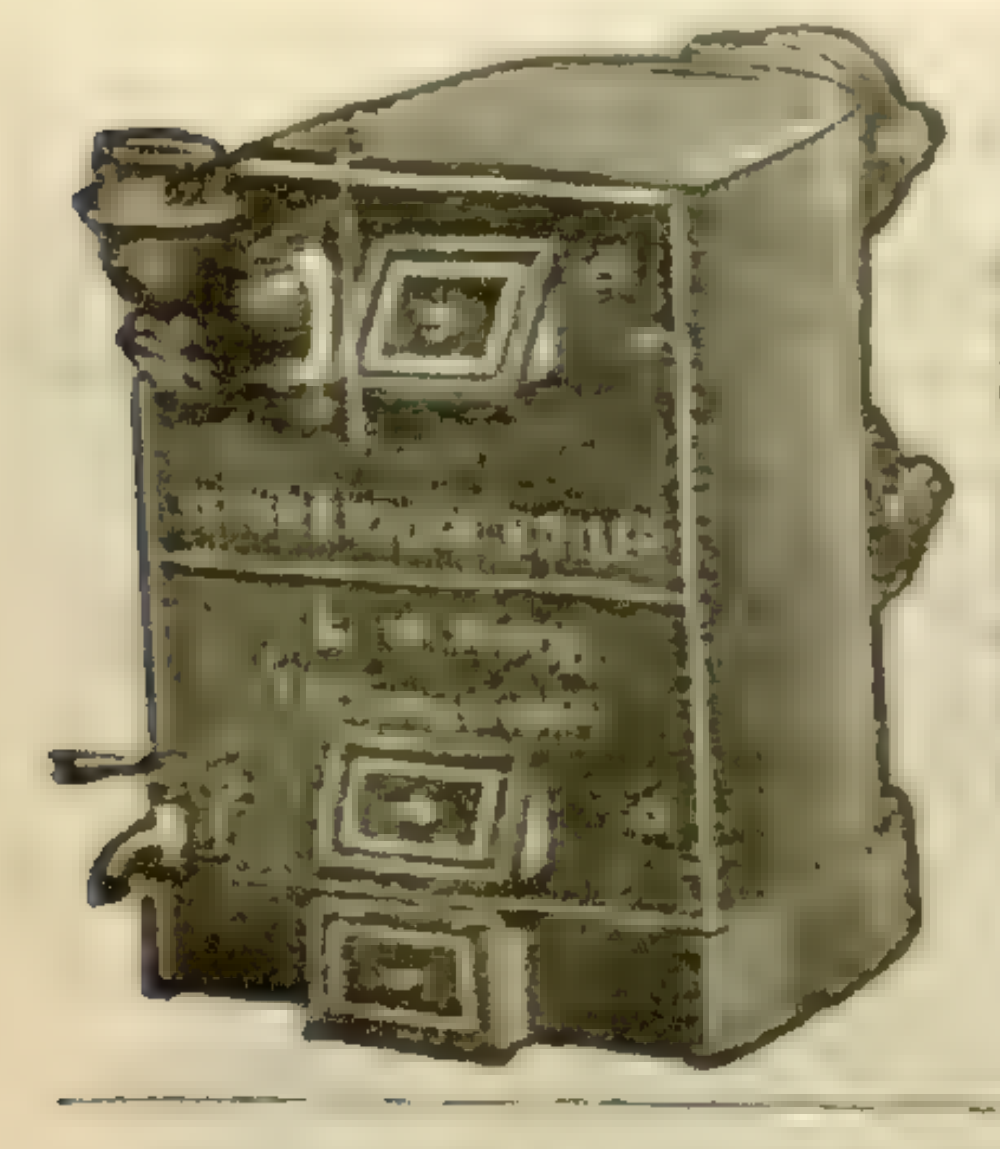

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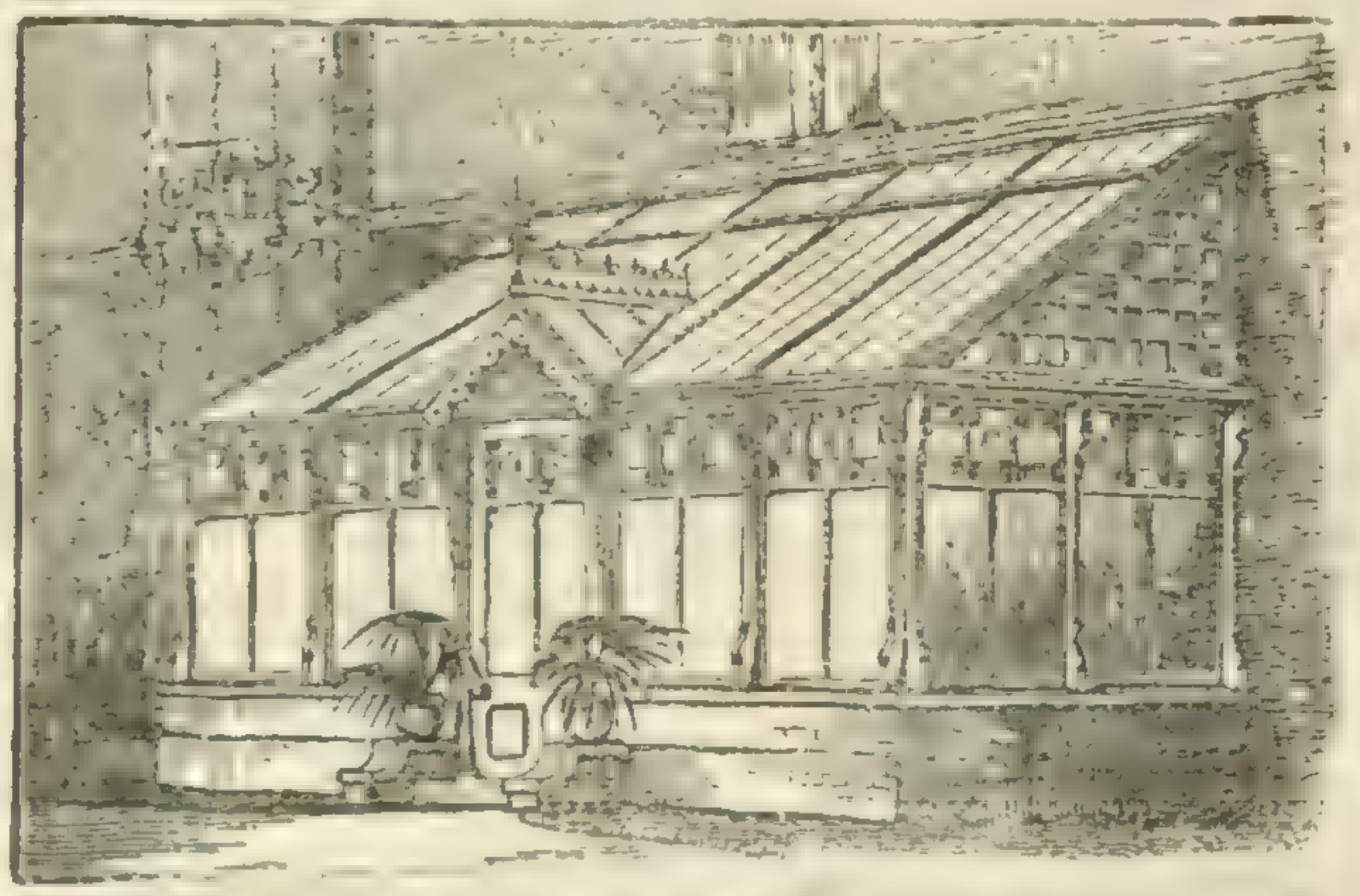

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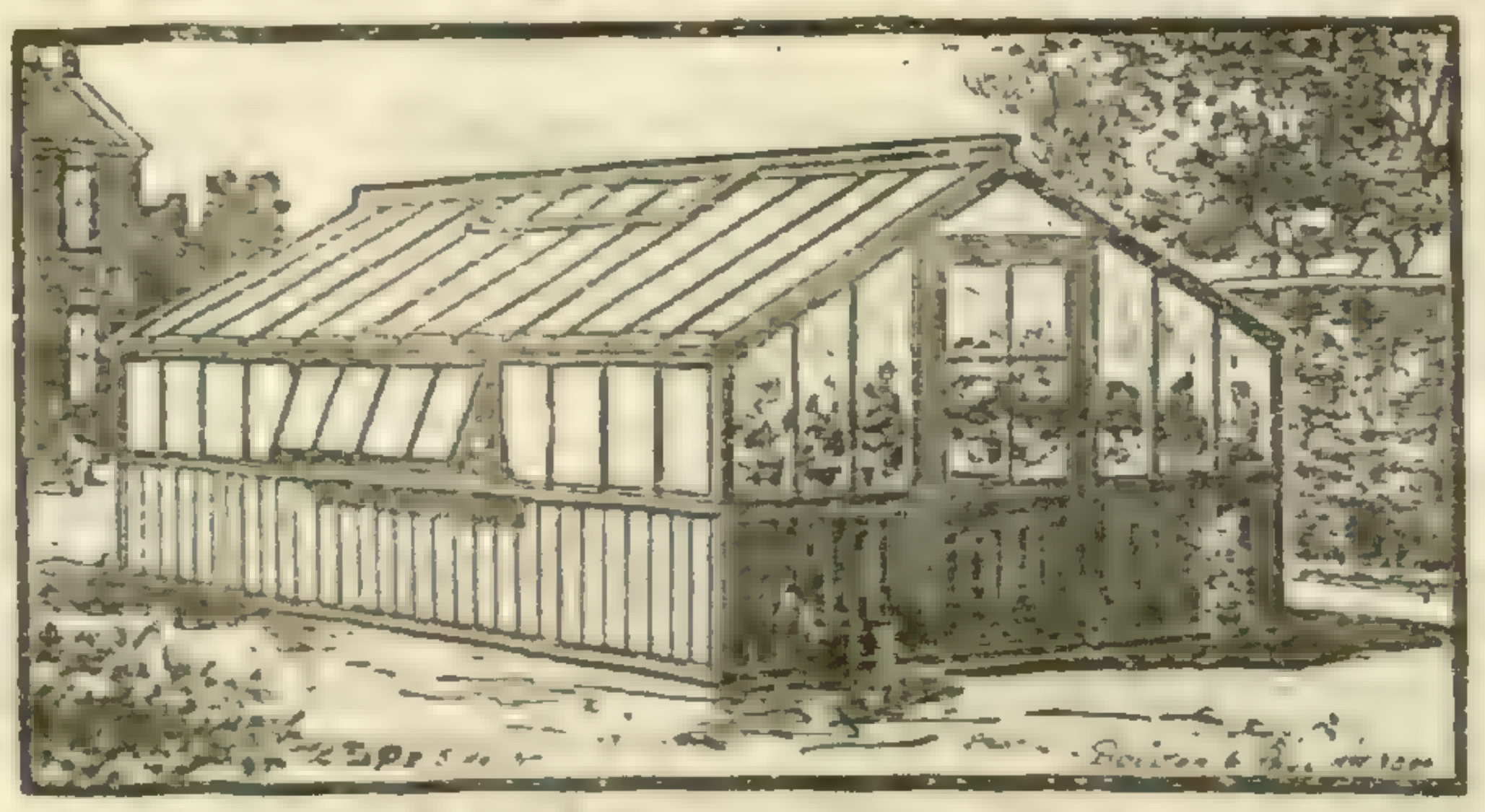

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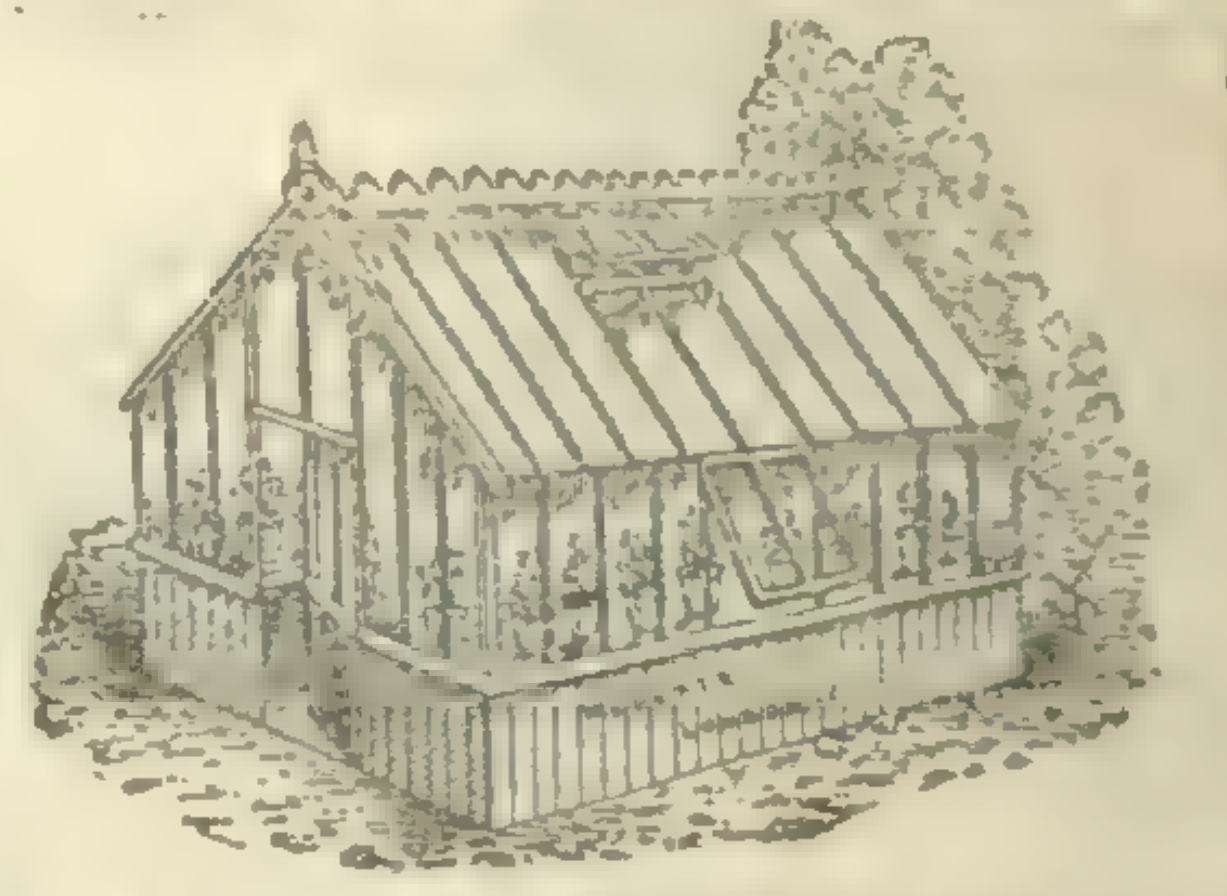

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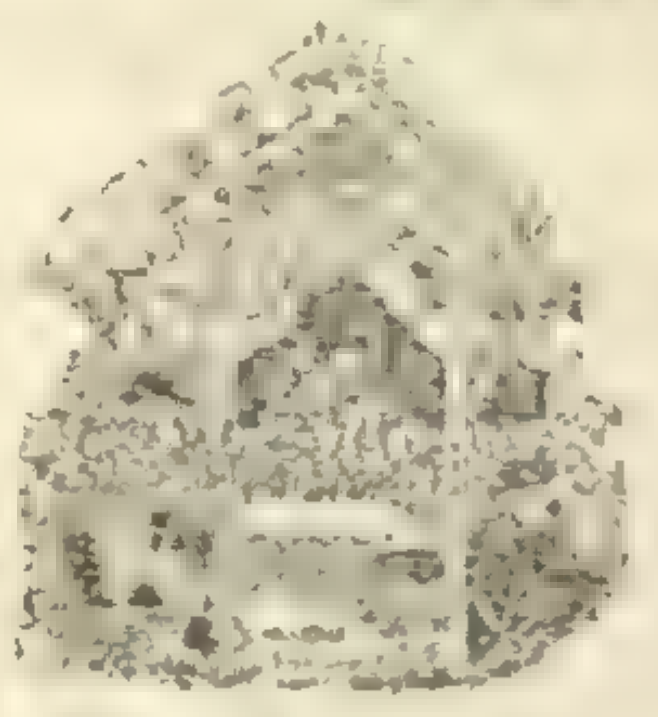

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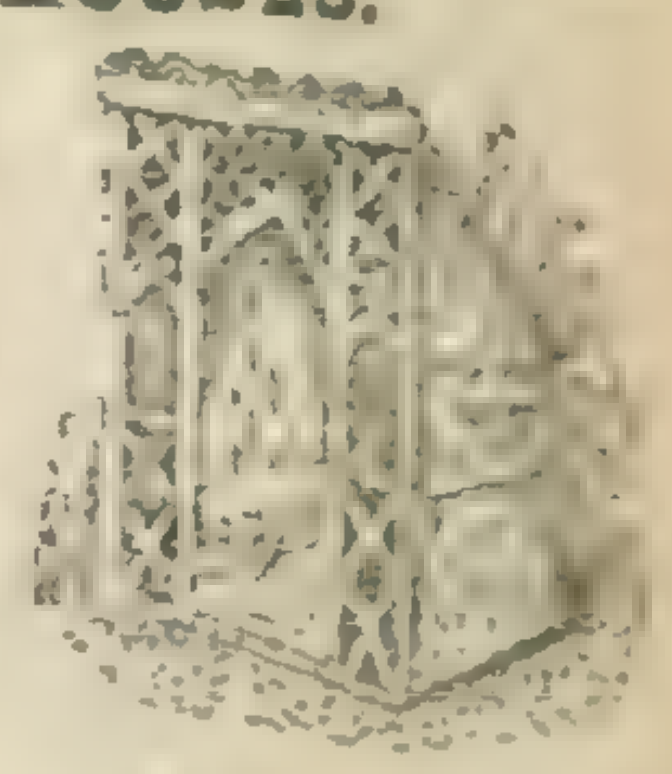

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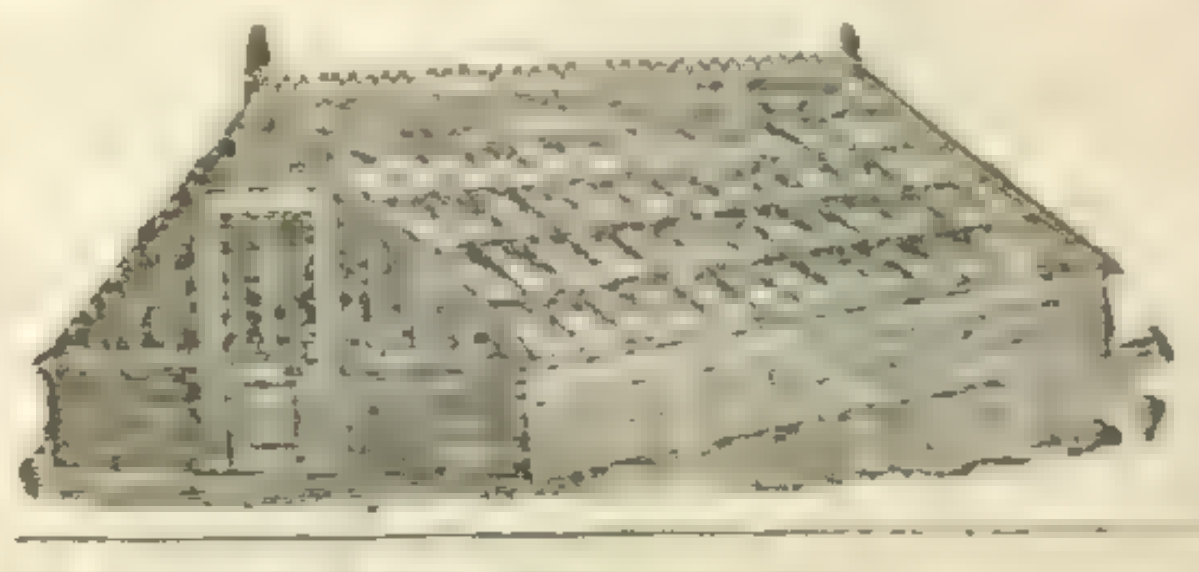

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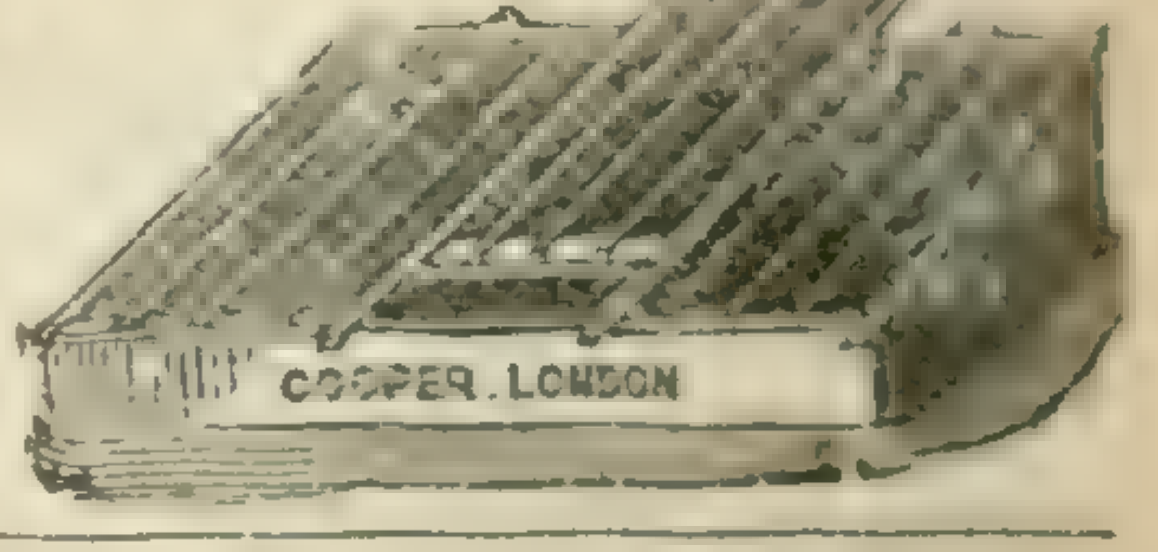

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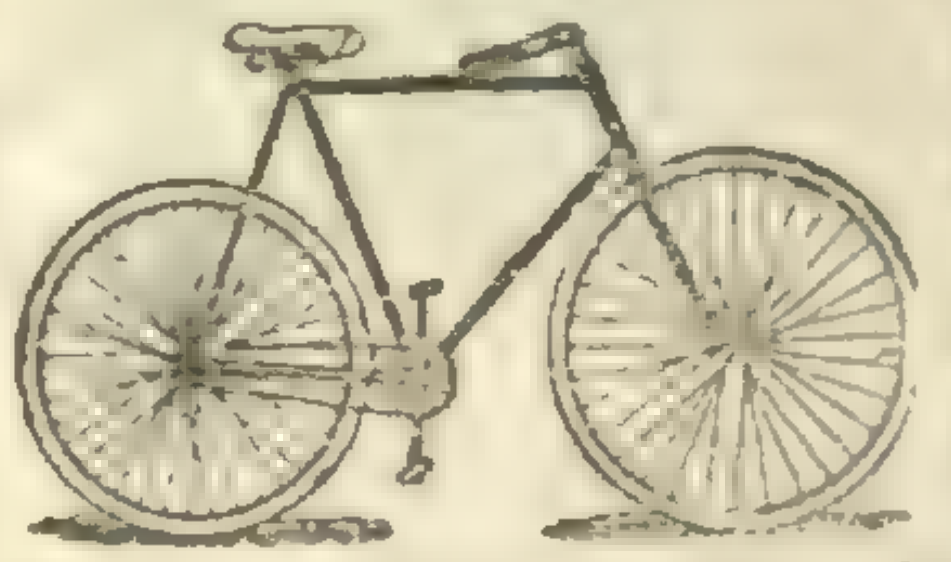

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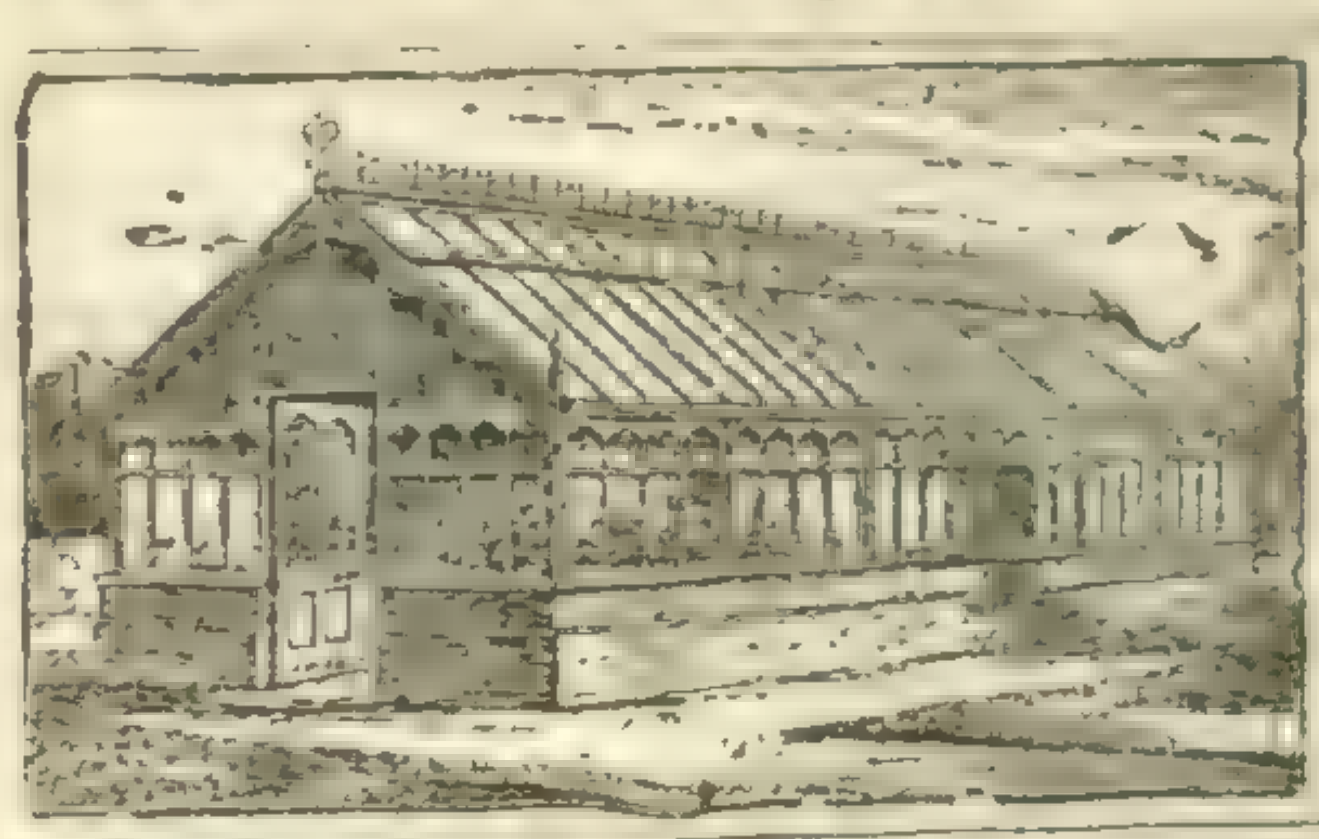

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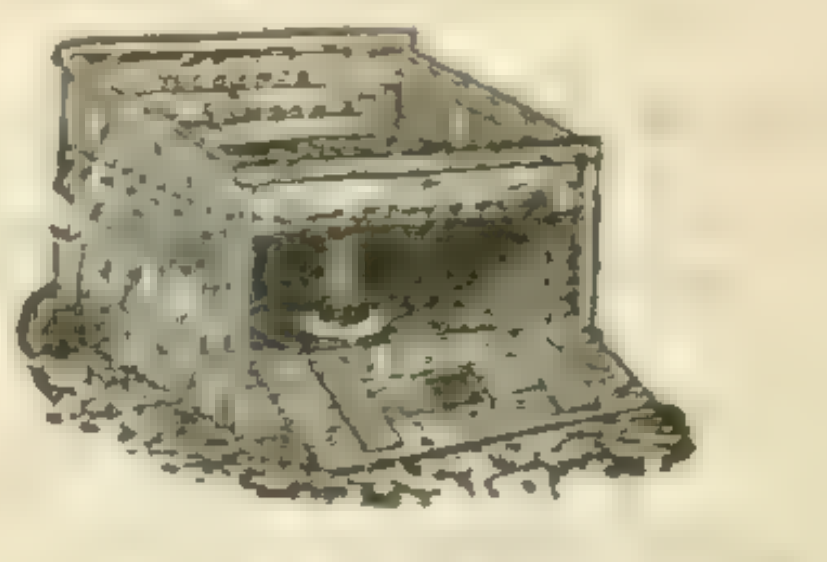

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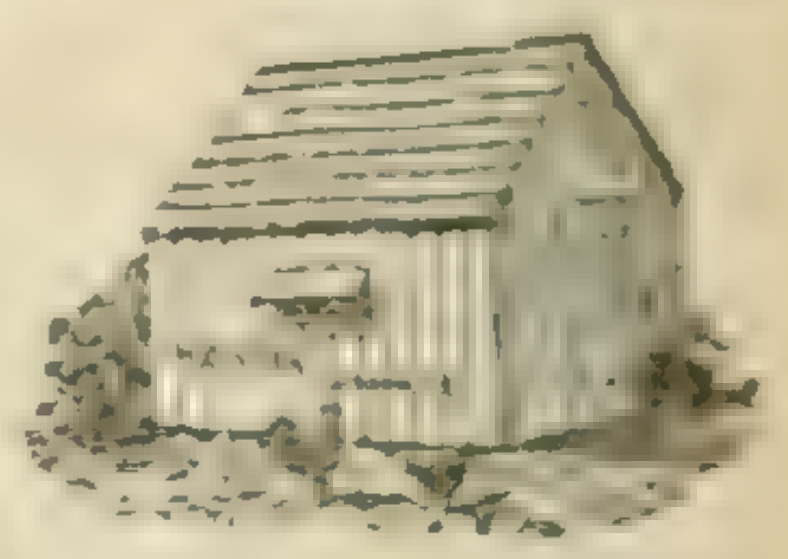

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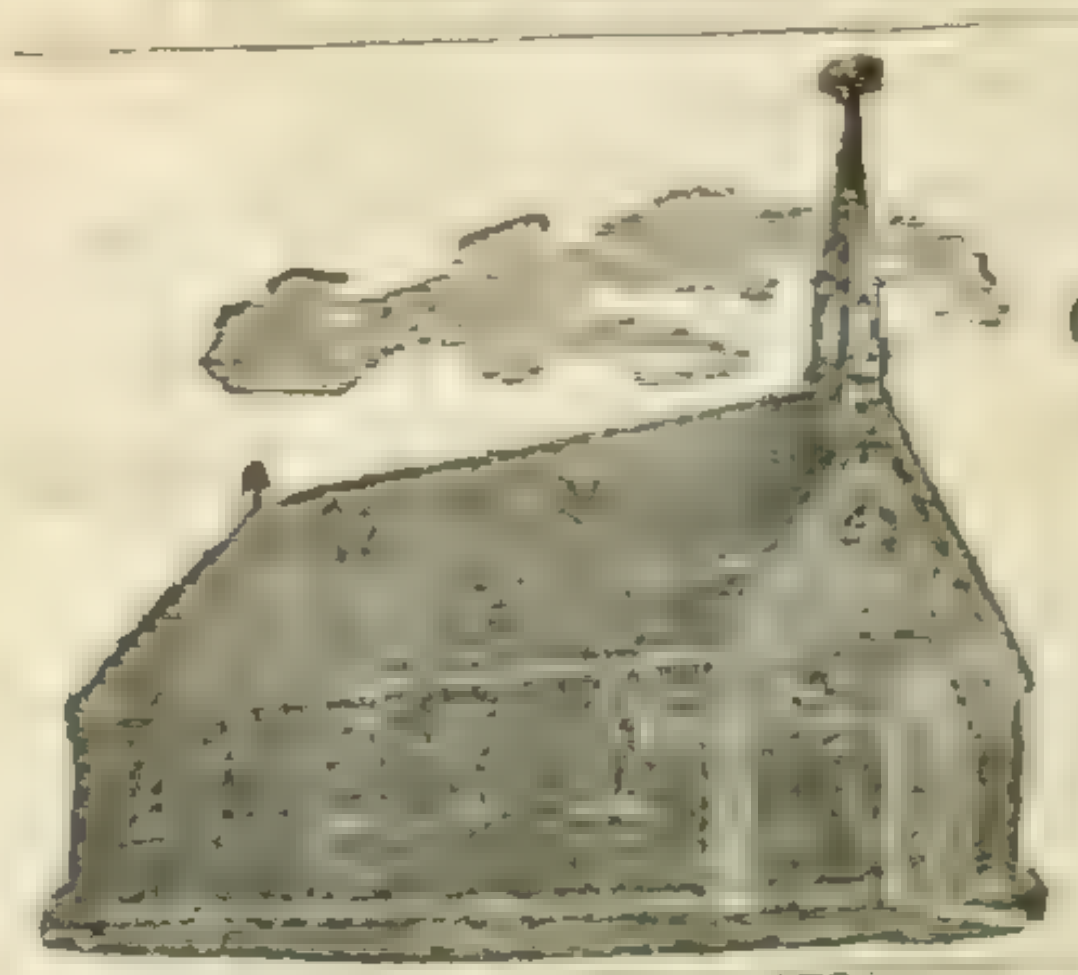

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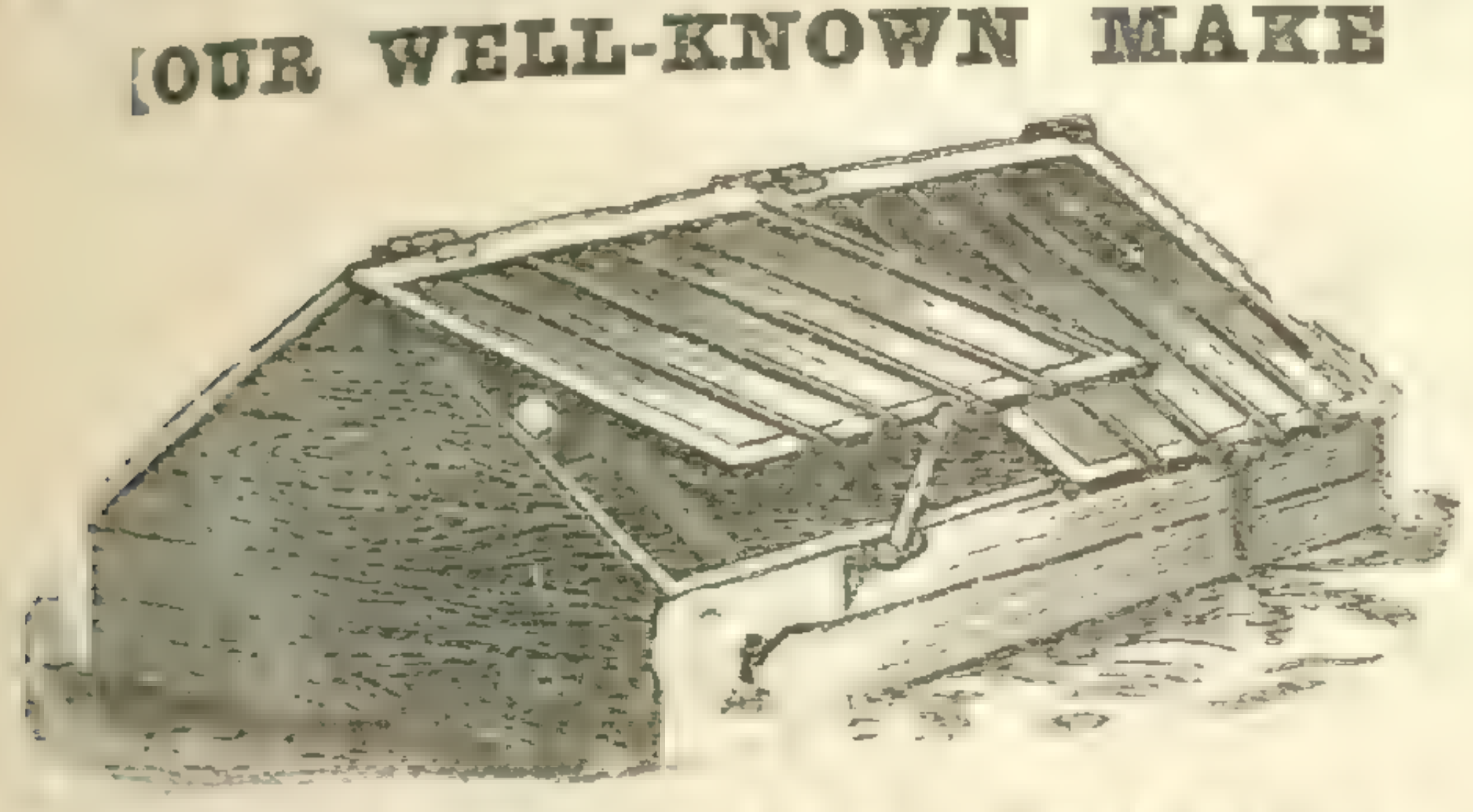

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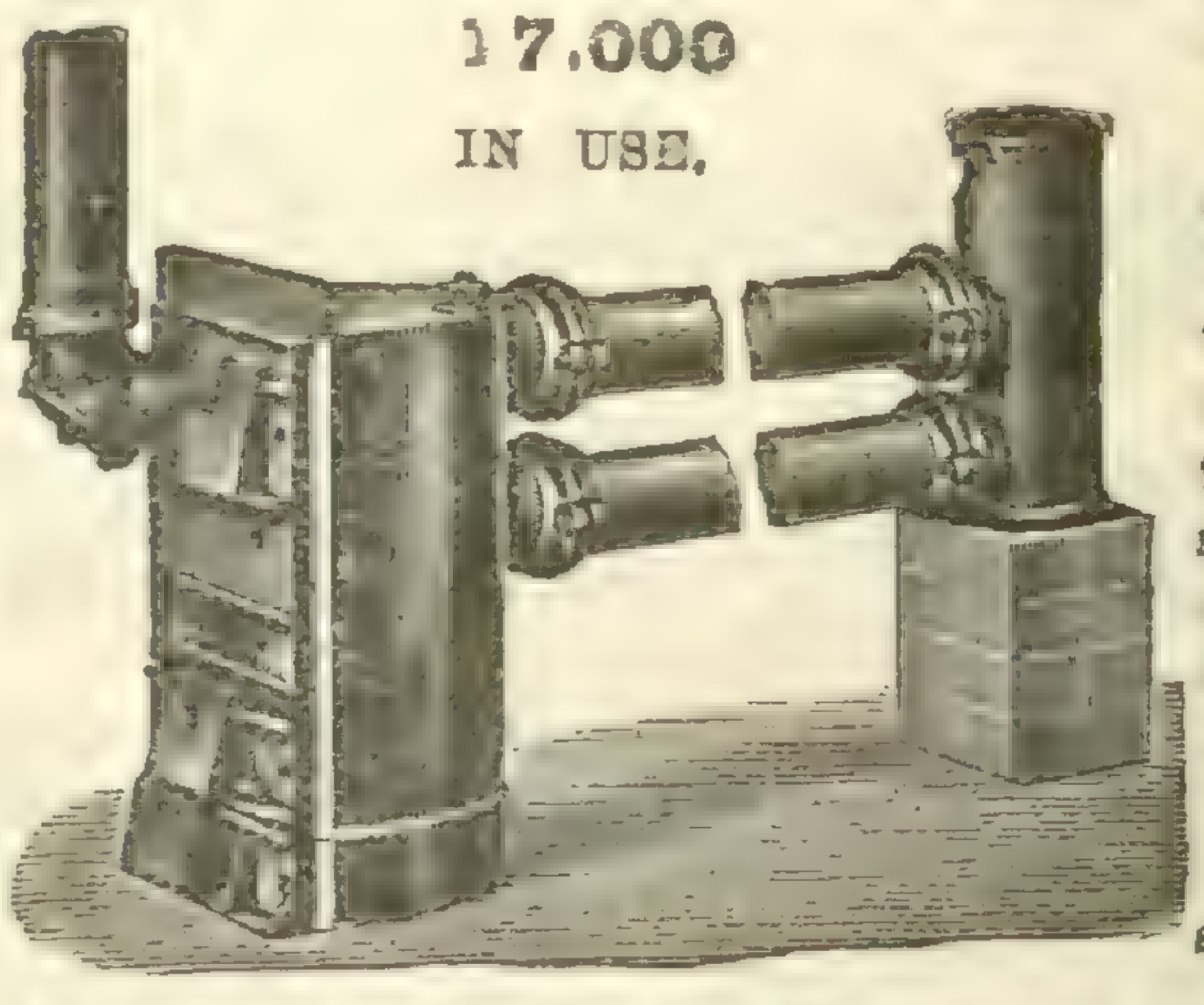

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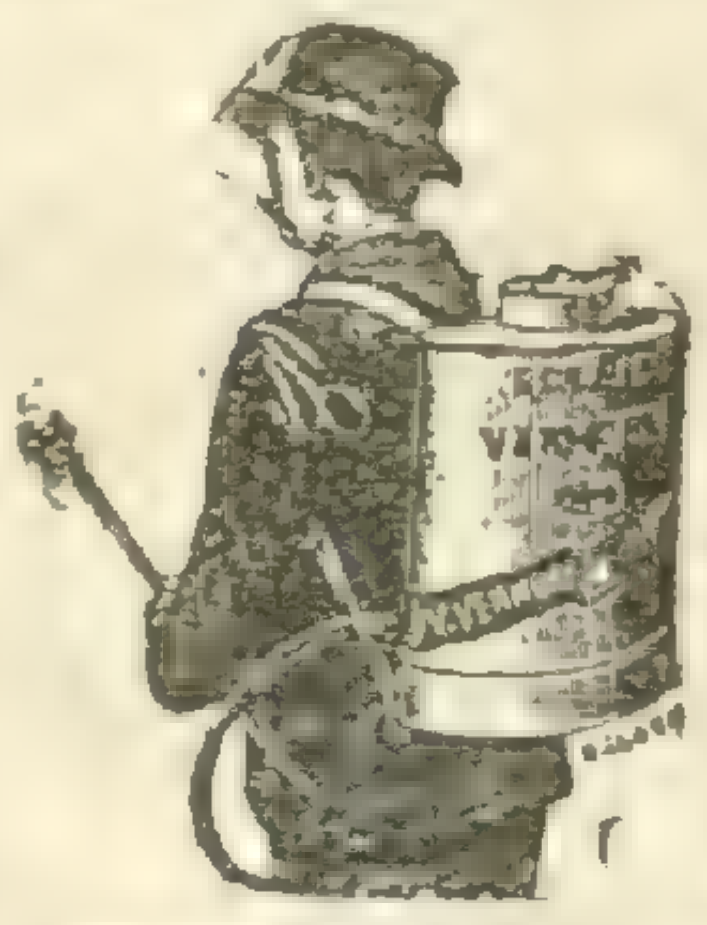

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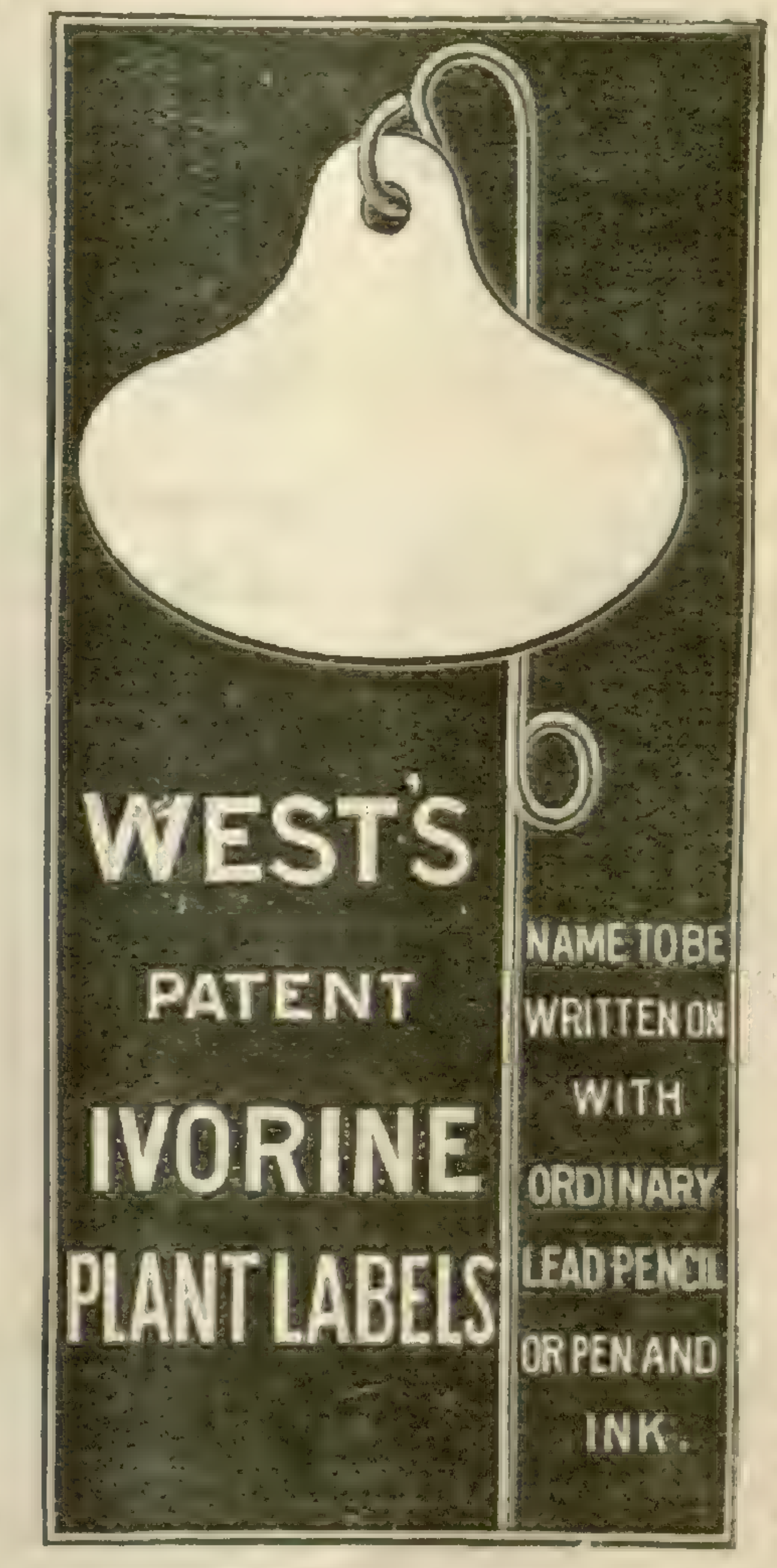
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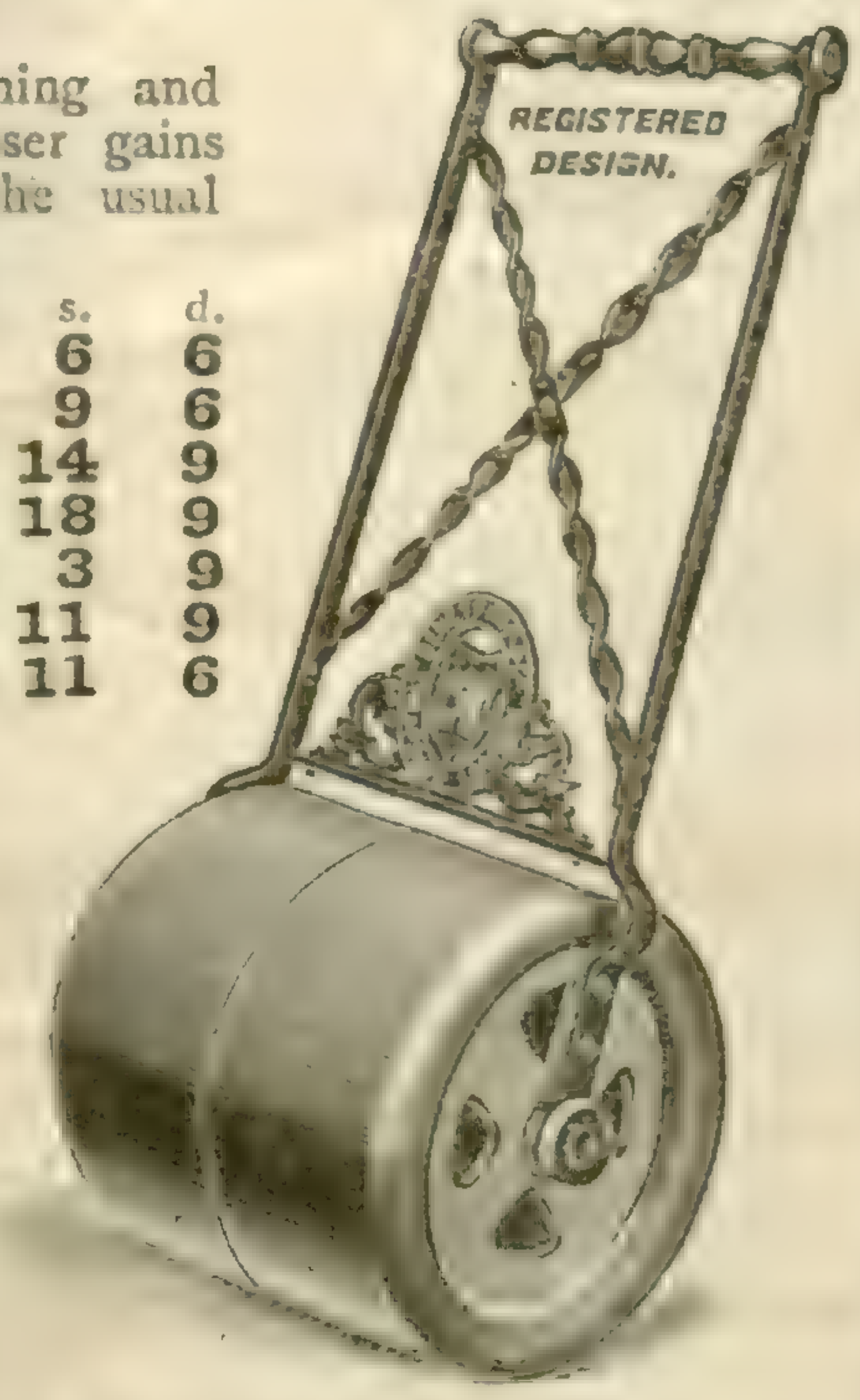
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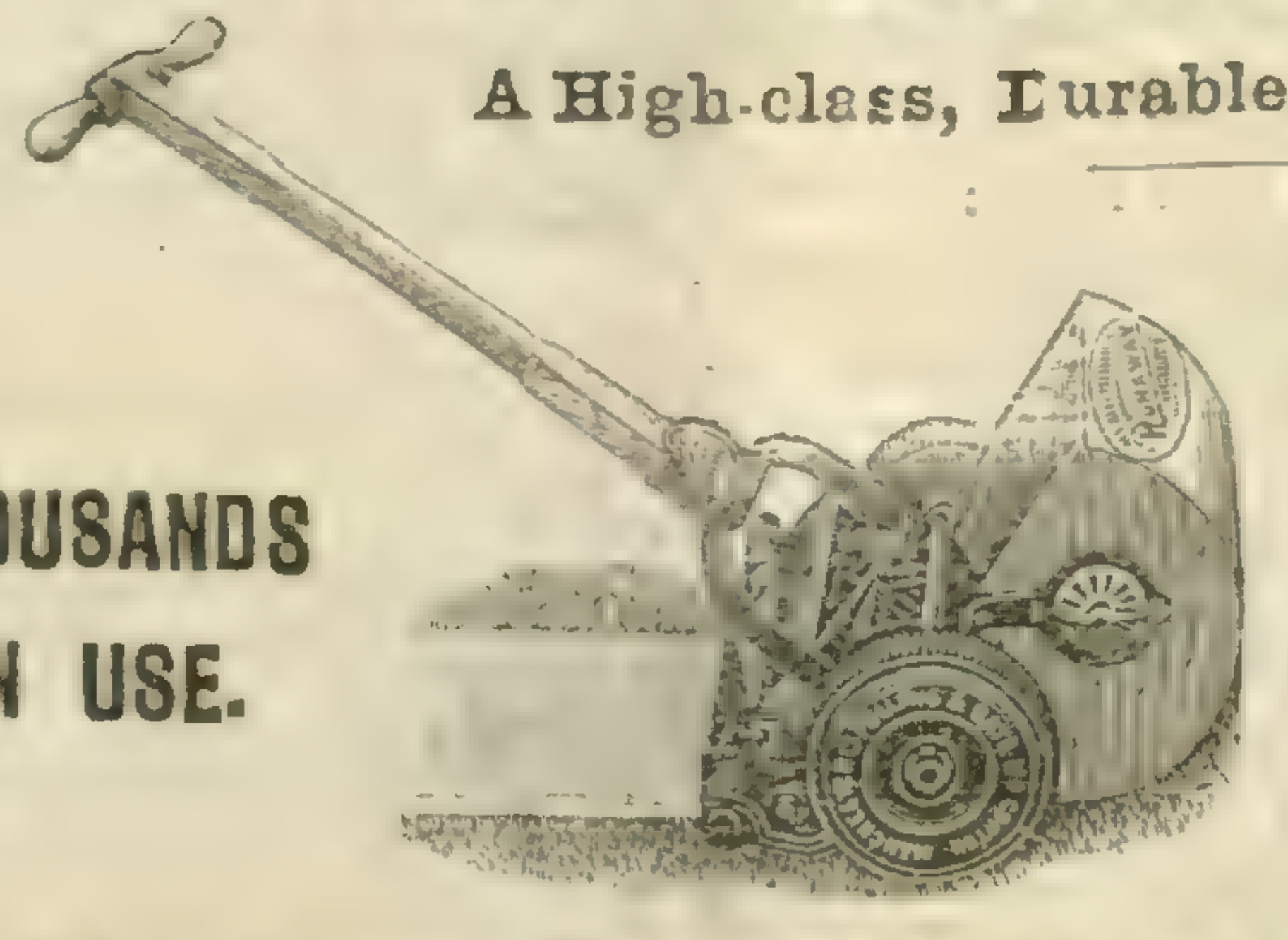

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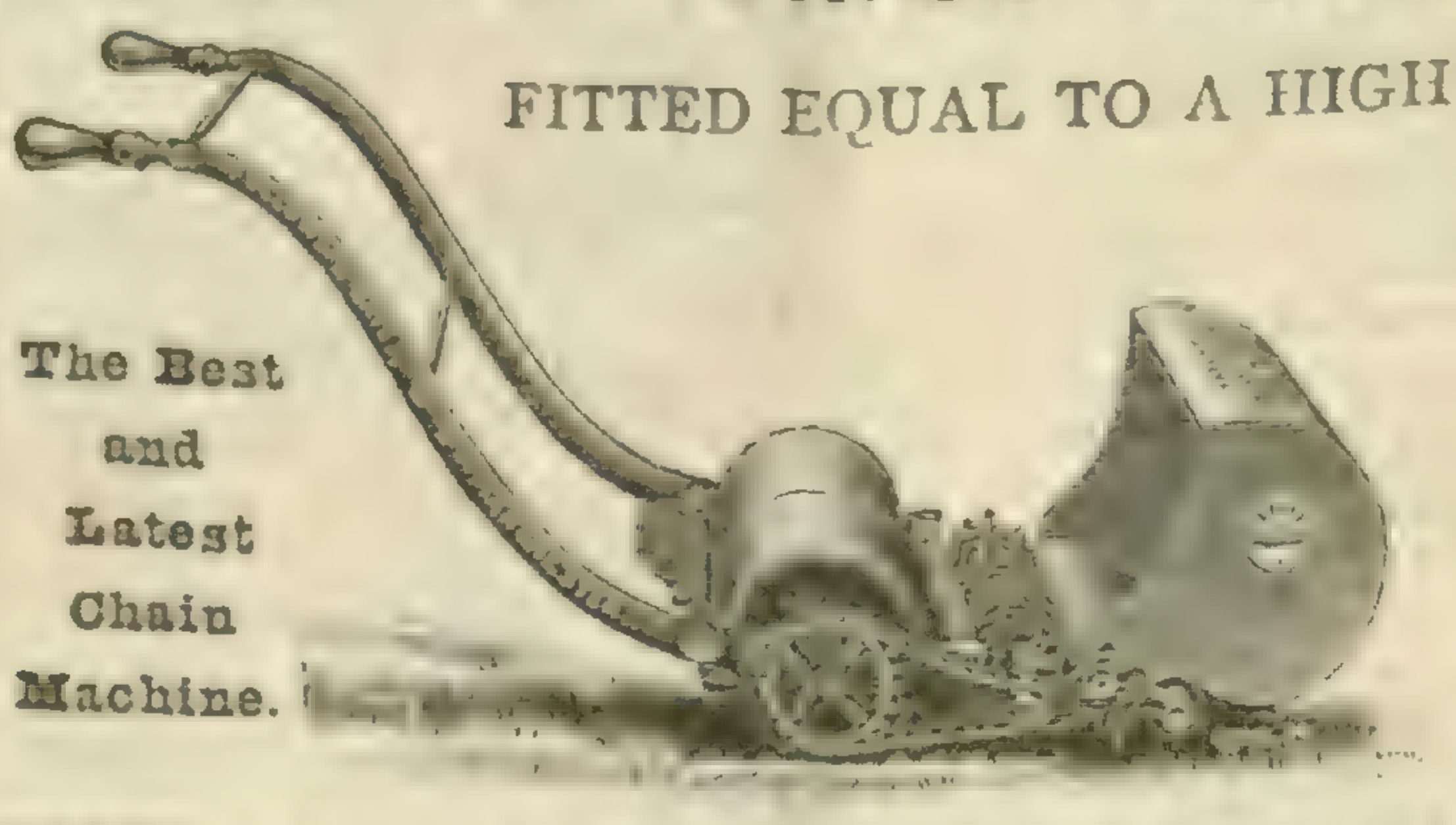

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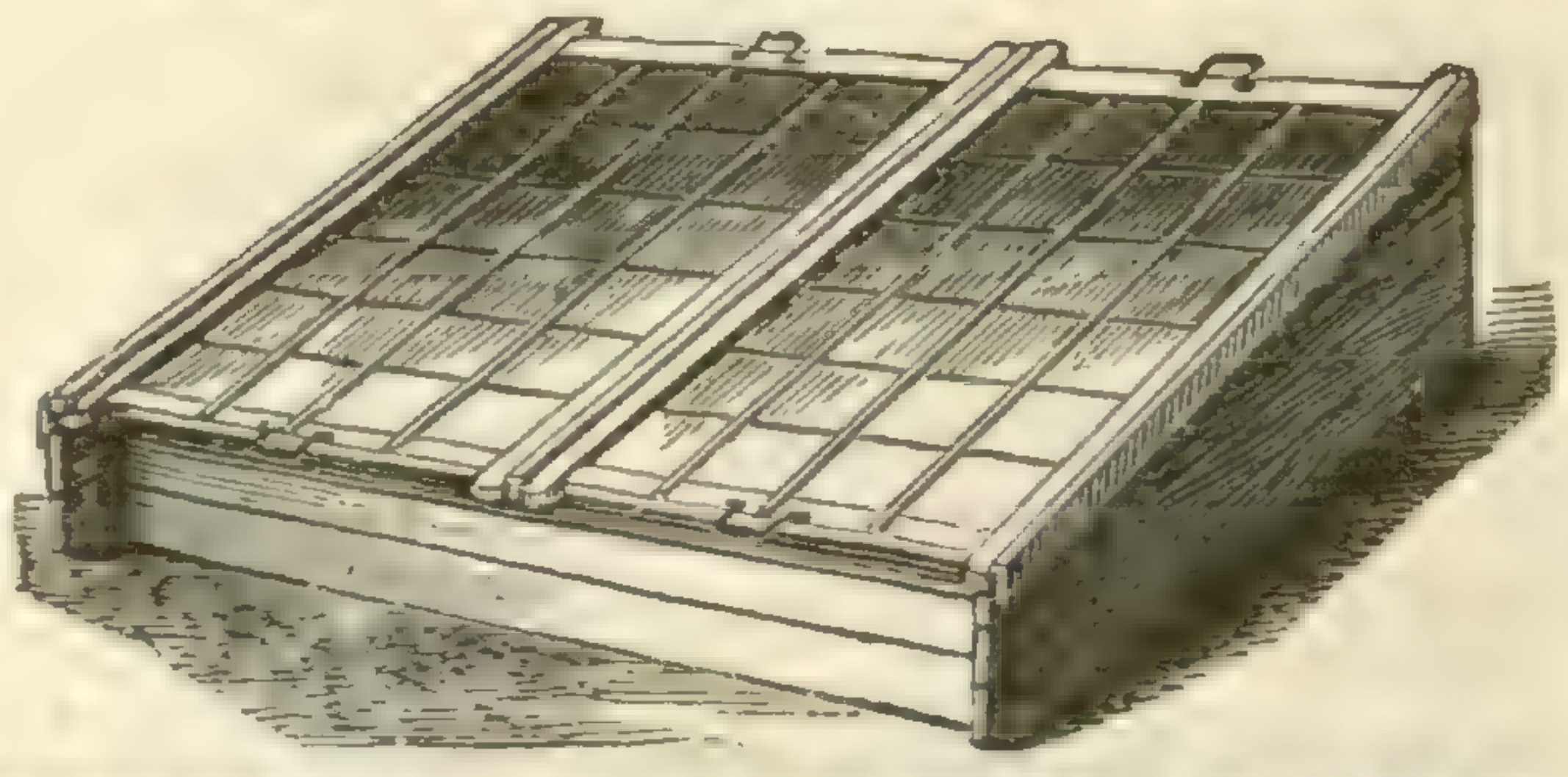

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THE FIFTY-NINTH ANNIVERSARY FESTIVAL DINNER in aid of the Funds will take place at the HOTEL METROPOLE, on WEDNESDAY, JUNE 8th, 1898, when His Grace the Duke of PORTLAND, P.C., G.C.V.O., will preside.

The Committee acknowledge with grateful thanks the following amounts, which have been promised or paid:—

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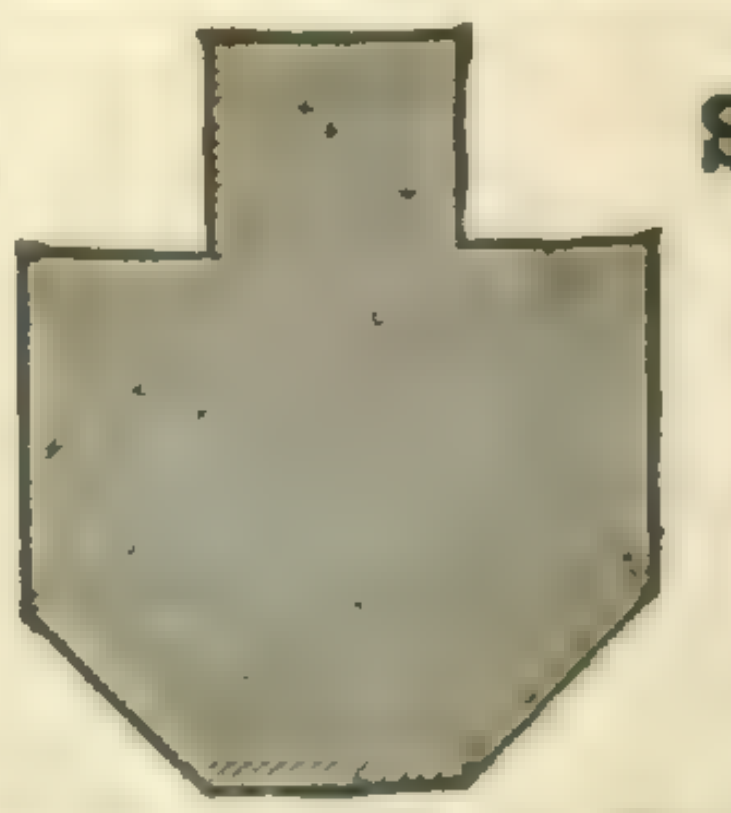

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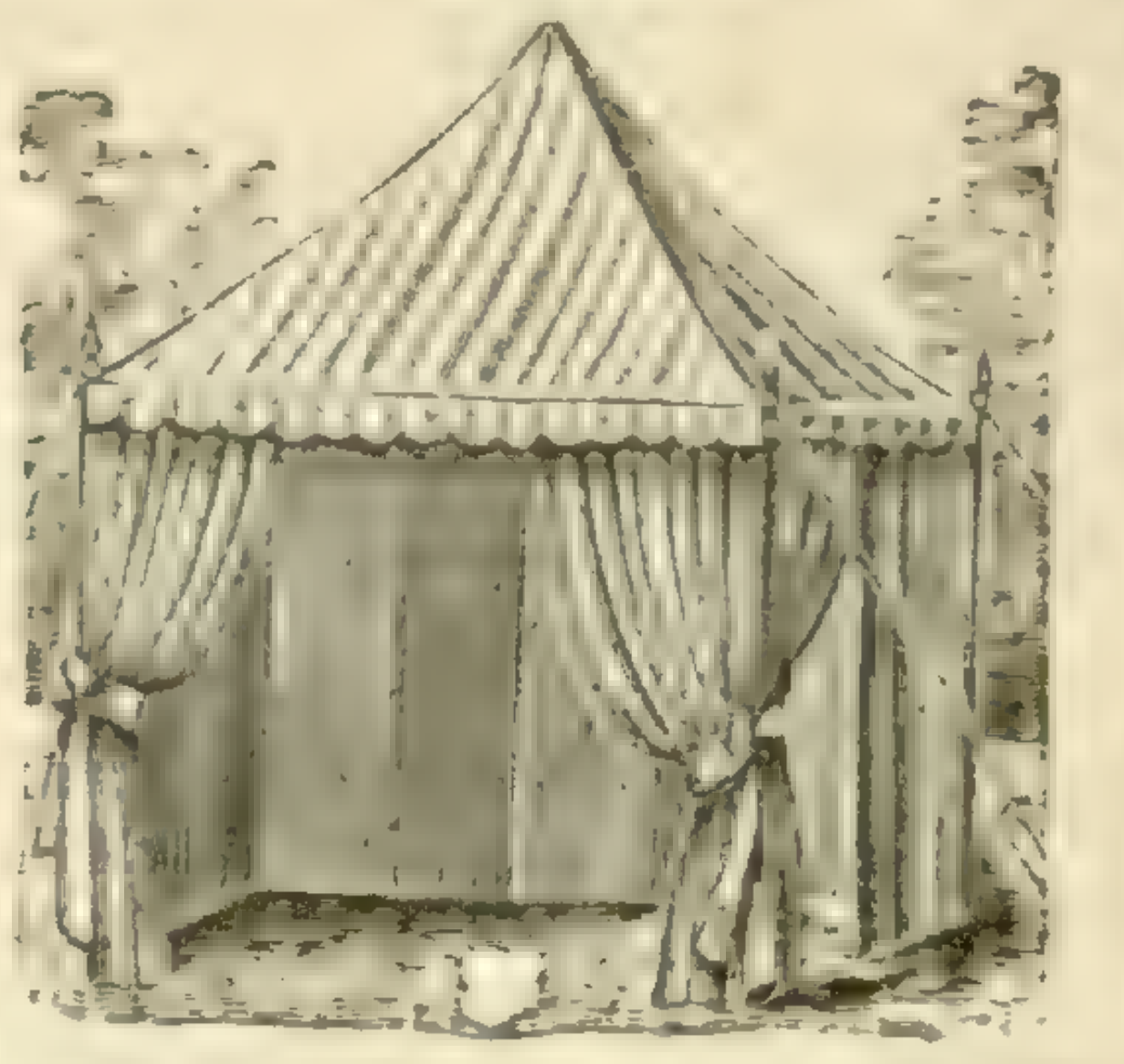

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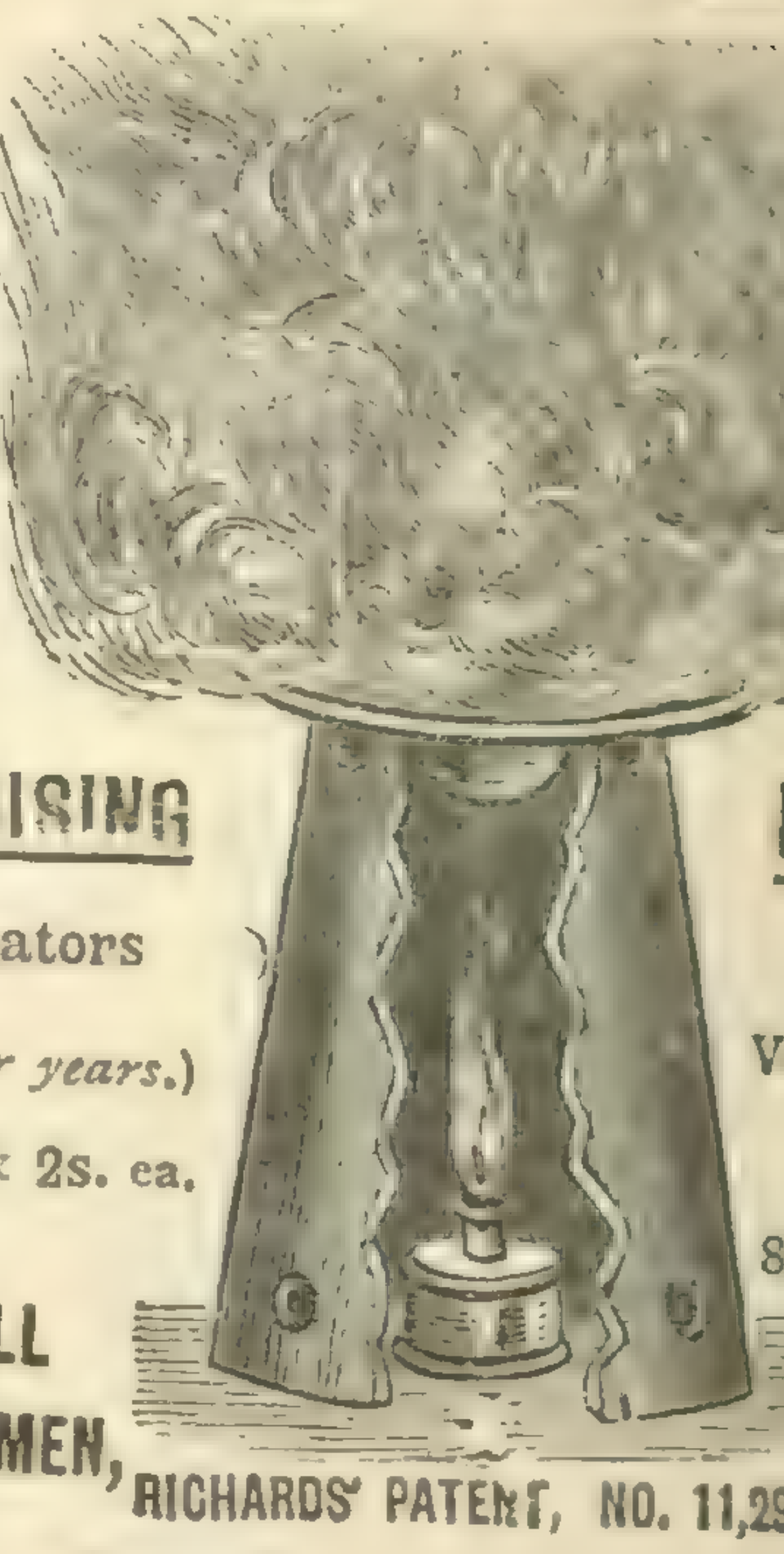

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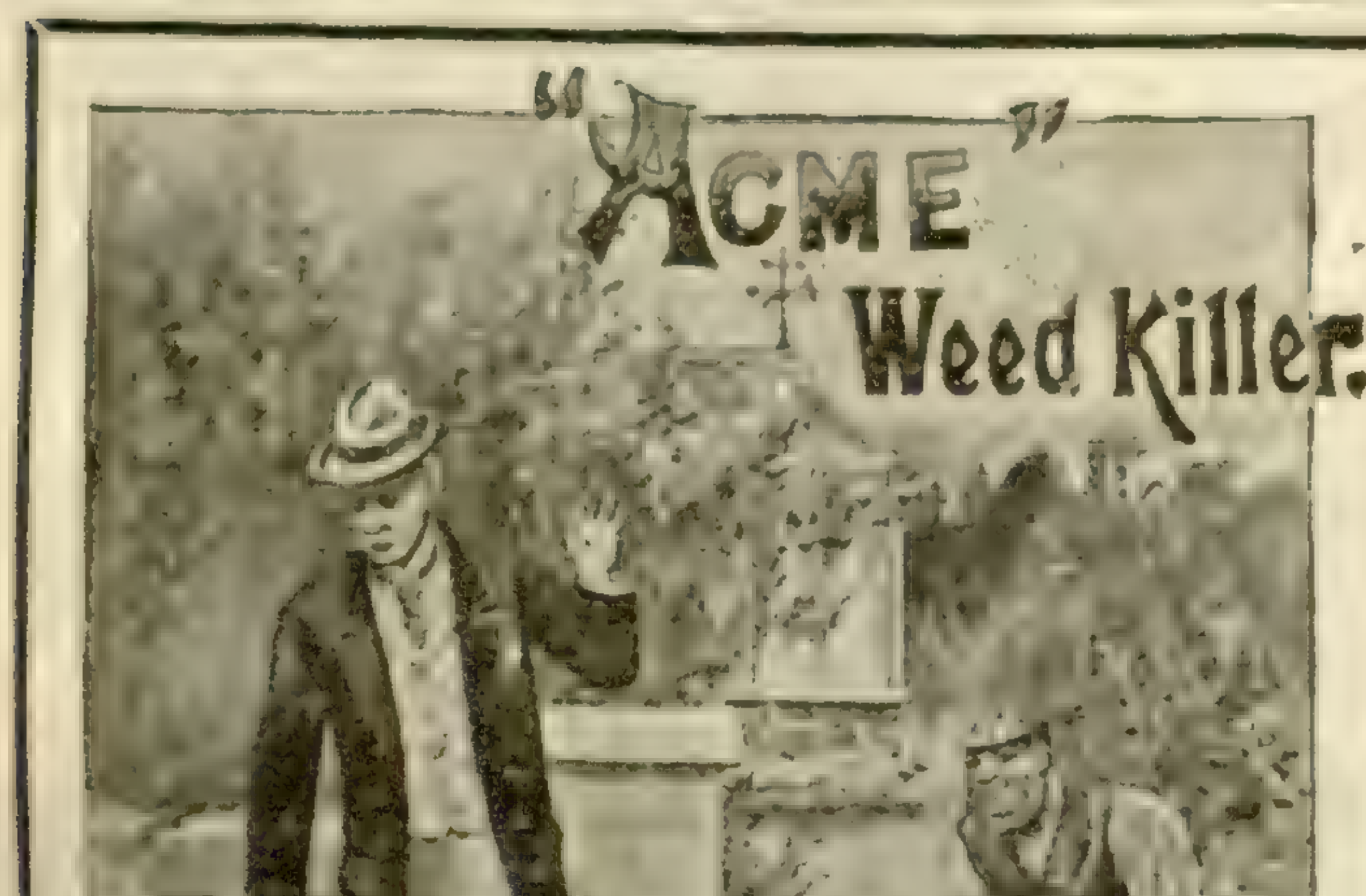

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THE GARDENERS' MAGAZINE.

SATURDAY, MAY 21, 1898.

THE ROYAL HORTICULTURAL SOCIETY'S
ELEVENTH GREAT ANNUAL
FLOWER SHOW
IN THE INNER
TEMPLE GARDENS,
THAMES EMBANKMENT,
WILL BE HELD ON
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NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE TEMPLE SHOW.

SO popular have the exhibitions annually held by the Royal Horticultural Society in the gardens of the Inner Temple become amongst all classes of horticulturists, and an important section of the general public, that it is highly gratifying to learn that the show for the current year, which opens on Wednesday next, has the promise of proving one of the best of the series. It will not surpass in extent the largest of the Society's gatherings in these gardens, for that is an impossibility, in consequence of the restrictions imposed upon the Council by the Temple authorities in generously granting the use of the gardens. It is felt by the governing body, and properly so, that as much space as can be well spared is given up to the tents, and that it is therefore not desirable there should be an increase in either their number or dimension. Had it been possible to increase the accommodation under canvas to that extent there would have been no difficulty in increasing the display to at least double the size of last year, for fully three times the available space has been applied for. Therefore, whatever superiority the exhibition may possess over the best of those previously held, will be in interest and attractiveness. Judging from our correspondence of the past few weeks we have reason to believe that there will be a considerable accession of new exhibitors, and we shall be pleased if our anticipations upon this point are justified by the results, not because we do not appreciate to the fullest possible extent the efforts that have been made by those who have contributed so materially to the splendid success that has been achieved in past years, but new exhibitors are likely to considerably enhance the interest of the exhibition by presenting new objects and by staging their products on lines differing from those followed by the regular exhibitors. Freshness in public exhibitions we regard as of primary importance, and any departure that may be made from the stereotyped arrangements will be as welcome in the Temple Gardens as elsewhere. We cannot hope for such a richly diversified exhibition as that which produced so profound an impression upon visitors to Hamburgh twelve months since, or so brilliant and tasteful a display that filled with admiration the minds of those who had the satisfaction of assisting at the Ghent Quinquennial a month ago; but it is not unreasonable to suggest that the Temple Show might be rendered more attractive than is usually the case. It is impossible, in the space at the disposal of the Council, to produce the picturesque effects for which the exhibitions at Hamburgh and Ghent were remarkable, but exhibitors should have no difficulty in arranging their products with some degree of taste. Unfortunately, a considerable proportion of those who contribute to these exhibitions regard mere quantity as of primary importance, and in carrying out their views so crowd the space allotted them as to suggest a series of stalls in Covent Garden Market rather than an exhibition of the Royal Horticultural Society. If the general body of exhibitors would stage about two-thirds the quantity of plants and flowers that they now consider desirable, and be careful to select the very best, their exhibits would be immensely improved and the general effect in each of the tents be materially enhanced. Nowhere on the Continent is it possible to see such large displays of orchids, of hardy plants, or of cut flowers, and, knowing the superiority of the Temple gatherings in these respects, we are anxious that they should evince taste of a high order, and afford object lessons of special value to those who are responsible for provincial exhibitions.

ROSE EXHIBITING.

WE have so strongly advocated the desirability of presenting roses, and indeed other classes of flowers, to public notice in their most attractive guise, that we are pleased to observe in glancing through the schedule of prizes offered for competition at the exhibitions of the National Rose Society that the decorative aspects of roses is being more fully appreciated by the leading rosarians. The Society has not, perhaps, gone so far in this direction as we could have wished; but in view of the objection which so many have to a material divergence from well beaten tracks, it is no doubt wise, on the part of the executive, to proceed slowly in effecting reforms in methods of staging. We have considerable sympathy with our distinguished coadjutor, the Rev. J. H. Pemberton, in his desire to increase the interest and relieve the flatness of the seventy-two's by the introduction of sprays of the beautiful garden roses, but we are more strongly impressed with the importance of abolishing the use of boxes of the orthodox pattern in the classes for small numbers of blooms. For example, it would be an exceedingly pleasing change to have the contributions to the open classes for twelve blooms of the same variety staged in plain substantial vases or other receptacles, with stems of moderate length, and carrying rich green foliage. Equally pleasant would it be to see the sixes and fours in the amateurs' classes staged in a similar manner. The rosarian, when he cuts his roses for the enjoyment of his friends and himself does not remove them from the plants with a few inches of stem and thrust them into holes cut into a flat board. He cuts them with a sufficient length of stem for the blooms to have several leaves as a contrast to their varied hues, and inserts them singly or several together, in neat but elegant vases. In taking this course the rosarian acts wisely, inasmuch as he presents the products of his skill in a manner likely to give the greatest pleasure, and this is exactly what should be done at the public exhibitions. It is sometimes contended that it would be impossible to determine with the proper degree of exactitude, the relative merits of roses so staged, but we attach no importance to these contentions as we are fully persuaded that those qualified to judge roses, would just as readily pronounce an opinion upon six or twelve blooms arranged in a vase, as they would upon the same number placed on the orthodox box. We are pleased to observe that garden roses receive largely increased encouragement at each of the exhibitions of the National Rose Society, more especially as we know that the classes would have been still further increased, and the value of the prizes augmented, had the funds of the society permitted. In future years we hope to see a further development in this direction, and trust that increased support will be forthcoming to permit of this being done, for, arranged in light bouquets, the garden roses add immensely to the interest of the shows, and greatly enhance the artistic effect, which is so desirable at rose and other exhibitions of cut flowers.

ARTIFICIAL ROOT PRESSURE.

ONE of the most interesting facts relating to vegetable physiology is unquestionably the remarkable absorptive action of roots, and the power they possess of forcing up the moisture they have taken from the soil throughout the system of the plant. This power, commonly known as root pressure, which has so important a bearing upon the life of the plant, has long been recognised, and so far back as 1737, Hales published the results of some ingenious experiments he had conducted for the purpose of measuring the force of the pressure. In the case of the grape vine Hales found the pressure sufficient to force a column of mercury to a height of thirty-nine inches; but according to the investigations of Clark, who published the results rather more than a quarter of a century ago, the root pressure of the black birch is nearly double that of the grape vine. Many other investigations have been made, both in this country and on the continent of Europe and America, but until the experiments initiated by Professor Goff, it does not appear that any endeavour was made to turn the knowledge to practical account. It is generally known that if the fibrous roots furnished with root hairs have been destroyed in the process of transplanting, the leaf buds expand much more slowly than do those of trees that have not had their roots disturbed, and this retardation of development is undoubtedly due to the reduction in the root pressure, or in the force with which the moisture absorbed from the soil is distributed over the system. The cells of the buds can readily absorb water and the roots can take up the water without root hairs, but they cannot do this with sufficient rapidity to ensure the buds obtaining the supplies necessary for the development of growth at the usual rate. Recognising these facts, Professor Goff was induced to make some experiments with a view to determine whether artificial root pressure might not be applied to newly-transplanted trees with advantage, and, according to the annual report of the Wisconsin Experiment Station, successful results were obtained. In conducting the experiments a quantity of distilled water was supported at a height equal to or slightly exceeding that of the tree, and connected by means of a tube with the cut end of one of the principal roots. The water used was contained in a round glass flask, holding about two quarts, and fitted with a rubber cork having two vertical holes through it. In one of these holes a short glass tube was inserted, and to this a rubber tube was attached, and in the other hole a glass tube, reaching nearly to the bottom of the flask was inserted for the purpose of supplying the air required for ensuring the necessary pressure. The flask was inverted on a small platform fixed to a stout post, and the tube connected to the root by being slipped over the cut end and tied on tightly. The trees, it may be added, had their roots pruned rather severely, and when the tube had been attached to one of the roots of each tree the soil was placed about them in the usual way. Professor Goff states that the effect of this root pressure was very quickly shown—in some cases within a few hours. The development of new growth was so greatly accelerated that some of the trees artificially treated commenced to make new growth eighteen days in advance of those to which no artificial pressure was applied. The water flasks remained attached to the trees until the middle of August, but no advantage was gained therefrom, and Professor Goff is of the opinion that the benefit derived from artificial root pressure is limited to aiding the tree in the production of new roots. After new leaves have been developed roots furnished with hairs are produced in abundance, and normal root pressure commences, and this, combined with the suction from above due to the transpiration of the leaves, is sufficient for the distribution of moisture through the system. Although the application of artificial root pressure is out of the question when large numbers of trees are planted, there may be single specimens to which it may be applied with advantage, and the experiments raise a question of much interest to horticulturists.

The Temple Show.—We shall give in our next issue a special and fully-illustrated report of the Royal Horticultural Society's exhibition to be held in the gardens of the Inner Temple on Wednesday and the two following days.

The Bluebell (*Hyacinthus nutans*) is one of the most beautiful of our plants that bloom during the spring season; and as it readily lends itself to artistic treatment, it is gratifying to observe that it is being freely used in the embellishment of the garden. Naturally, the "Blew Harebel, or English Jacint," as Gerard loved to call the plant, is to be found "In the lonely copse and shadowy dell," and this fact has suggested its suitability for the carpeting of shrubbery borders and for clothing bare spaces under trees. At Kew it has been employed largely and with singularly good effect for both purposes, more particularly in the azalea garden, which forms a very attractive feature of the arboretum. The bluebell is also used in planting on the araucaria mound in the botanic garden, and this, now "deck'd with a thousand flowers of grace divine," presents an exceedingly beautiful effect. "Fresh Hyacinthus," as Spenser designates the bluebell, will also the "turf bestrow," and this fact has been taken advantage of by the Kew authorities, and many thousands of bulbs have been planted in the grass in the arboretum and other parts of the gardens; and, beautiful as are the effects produced in the shrubbery borders and under the wide-spreading branches of trees, they are surpassed by the great sheets of azure flowers in the grass. At Syon also the bluebell is planted extensively in the grass, and presents, as at Kew, a charming appearance.

The French Vineyards have suffered severely of late years from insect depredations in consequence of the insane practice of killing the birds whose chief food consists of insects or their larvæ. This matter is prominently referred to by Mr. Consul Hearn, in his latest report on the trade of Bordeaux to the Foreign Office. In his observations on the folly of destroying useful birds, he points out that the appearance of the cochylis, a most destructive insect, is contemporary with the destruction of small birds in the vineyards. No sooner does the "chasse" open than every man and boy is seen with a gun stalking and "potting" every small bird he can get near enough to. The consequence is that there is literally no bird life among the vines, and consequently insect life now reigns supreme. On one property alone from July 20 to September 10, 1897, 5,000 days' labour of women and children was alone employed in looking for and destroying the eggs and larvæ of this insect. "But only birds were allowed free action they would," the Consul says, "assuredly, gladly accomplished this work, and the women and children might be employed in remunerative labour. In the streets of Bordeaux during the autumn and winter thrushes and starlings are offered for sale by thousands, and yet these birds live exclusively on insects." We are glad to learn that a Bill is to be shortly introduced into the Chamber for the protection of birds "useful to agriculture."

Castle Ashby and its Gardens.—With the GARDENERS' MAGAZINE of June 4 we shall present a special supplement, in which Castle Ashby, the seat of the Marquis of Northampton, and its great gardens will be fully described and illustrated. The illustrations of the gardens will include the rose garden, lake and water lilies, Italian garden and conservatory, interior of the great conservatory, Prior's Walk and hardy flowers, Italian archway, view on upper terrace, lower terrace garden, and picturesque trees In addition to the foregoing a double-page plate of the mansion will be given. There will be no extra charge for this issue, and, as a large demand is anticipated we would strongly advise those of our readers who require additional copies to give their orders at once, and thus avoid the disappointment which has been experienced by readers in failing to obtain copies of some previous issues with which supplements of great gardens were given.

A Double Form of Berberis Stenophylla has originated with Messrs. Fisher, Son, and Sibray, of the Handsworth Nurseries, Sheffield. It is like the type in colour and habit save that the golden flowers are very double and unusually persistent; as an early flowering shrub the new form will be welcome as adding variety to the already large number of elegant free flowering shrubs available for garden decoration early in the season. Berberis stenophylla is itself a hybrid between B. Darwini and B. empetrifolia, and now one of the best known of the Barberries. It is elegant and handsome, free and bright, and it seems only in accordance with the general fitness of things that the new double variety should have originated with the Sheffield firm, by whom the parent was raised and distributed. It should be remembered that B. stenophylla is uninjured by our severest winters, and that the flowers are followed by dark and rich purple berries of a most attractive appearance.

The Duke of Portland, in writing from Welbeck Abbey under date o May 11, with reference to his engagement as chairman at the forthcoming festival of the Gardeners' Royal Benevolent Institution, says: "I have promised to preside at the fifty-ninth anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution, on June 8 next, at the Hôtel Métropole, and I venture to ask for the kind assistance and support of all lovers of flowers and gardening. The charity—the only one of its kind in the United Kingdom—whose cause I have undertaken to plead, is now in its sixtieth year, and during its existence has distributed £74,000 to worn-out gardeners, market gardeners, horticulturists, and their widows, in distressed circumstances, and has now upon its funds 168 persons—93 men and 75 widows—who are receiving permanent relief at an annual cost of £3,060. To meet this expenditure the only assured income is £900, leaving the remainder to be made up by subscriptions and donations. Towards this object I earnestly solicit your generous help. I may mention that her Majesty the Queen has been the patroness of the charity for forty-six years, and has always evinced a warm interest in its welfare, and I can therefore confidently appeal on its behalf.

The Royal Society's Selected Candidates.—Fifteen candidates have been selected by the council of the Royal Society to be recommended for election into that body during the present year. Of these fifteen four have special interest for our readers by reason of their successful studies in botany, geology, and meteorology. Mr. Arthur Lister, F.L.S., has become well known by reason of his researches in connection with Plasmodium, and still more so for his papers relating to the Mycetozoa. Mr. Albert Charles Seward, M.A., F.G.S., University Lecturer in Botany at Cambridge, has extensively investigated fossil plants, especially those of the Weald period, as shown by the two parts of "The Wealden Flora" from his pen, and already published. Mr. Alexander Buchan, M.A., LL.D., F.R.S.E., is the author of many important papers on meteorology, including the Challenger reports upon Atmospheric Circulation in 1889, and Oceanic Circulation in 1895; he is also author of "Meteorology" in the Encyclopædia Britannica. The gentleman whose geological investigations have led to his being a selected candidate for admission to the Royal Society is Lieut.-General Charles Alexander McMahon, vice-president of the Geological Society of London. He was the first to discover the granitic origin of the North Himalayan "Granatoid Gneiss," and has contributed valuable papers relating to the geological survey of India, the Lizard Rocks, and Dartmouth Granite.

Strawberries.—Few plants are being better helped by rains that fall so freely as are strawberries. Generally they are looking wonderfully well. There is ample relative foliage, and the promise of bloom is great. It only needs open, mild weather with abundant sunshine to ensure its setting, and another grand fruit crop will be assured. We are now at a critical period of the month, for the twentieth, or thereabouts, often times brings one or two sharp frosts. We may well hope that no more such visitations will trouble us this spring. The value of mulching is much enhanced when the weather is dry, but with frequent rains and moderate sunshine, the longer the work of mulching can safely be deferred [illegible] better. Not only will it be less saturated for the fruits to be upon, but the [illegible] be less cold, a matter of great importance, for soil warmth is essential to the [illegible]ing, colouring, and flavouring of the fruits. Dressings of artificial manures should be given only where the soil is poor, and growth moderate. Such dressings, where the soil is in good condition, would, with such frequent showers, rather tend to excess of foliage production than the development of solid, high-flavoured fruits. It is very interesting to learn from Mr. Norman, of Hatfield House Gardens, that in producing such really grand fruits as he exhibited of Royal Sovereign at the recent Drill Hall meeting he gives but little artificial food. Early rooted runners are potted in due course into six-inch pots in which is one-third drainage, [illegible] compost consists almost entirely of rather fresh turfy loam of the best quality and a little soot added. The potting is very firm. The plants are during the winter plunged in ashes out of doors, and are put into frames only just before needed for forcing. Each plant carries about ten fruits that are very solid, and of the best possible flavour.

Hybrid Cinerarias.—At the recent meeting of the Scientific C[illegible] the Royal Horticultural Society a collection of hybrid cinerarias from Mr. J[illegible] Woodside, Farnham Royal, Slough, created considerable interest. They [illegible] small selection of a numerous progeny, from a cross effected between C. [illegible] lanata and the cinerarias of gardens, the greater number of which were [illegible] semble the garden form; but the present ones had a tomentose stem and branches, as well as the under surface of the leaves, which also in form resembled C. lanata. The blossoms were rather small, some being a pure white, others [illegible] markable for their quantity. Unfortunately the best plant with white flowers refuses to set much, if any, seed; but it was hoped that Mr. James would persevere and try to establish a new race, which would certainly be attractive from the silvery appearance of the leaves.

The Northernhay Pleasure Grounds, Exeter, have been remodelled by Messrs. R. Veitch and Son, Exeter, under the superintendence of Mr. F. W. Meyer. The work has just been completed, and visitors are now able to judge, in a large measure, the very many and desirable improvements made, both in the beautification of grounds and for the accommodation of visitors. One of the most effective alterations has been carried out near the Bucknill Memorial, where, in place of ugly and unattractive slopes, a most picturesque rock-garden has been formed with boulders of real Dartmoor granite protruding from the ground as if they had been forced up by natural upheavals. A cavern is formed, over which small waterfalls emerge There is a miniature pond among the rocks, and it is studded with water-lilies and other suitable flowers, including the most beautiful of Marliac's nymphæas. The overflow water is made to do duty in supplying the necessary nourishment to a fairly large collection of bog plants, which naturally require a good deal of moisture. The plants include blue and yellow gentians, iris, arums, day lilies, and double marsh marigolds, with several ornamental grasses. Scattered among the rocks are edelweiss, mountain cress, harebells, alpine wallflowers, candytuft, phloxes, and other choice mountain plants. The east side of the Bucknill Memorial is very differently treated, though arranged so as to form a harmonius whole. It is designed in the shape of a mountain streamlet, with two small waterfalls supplied by a purling brook, which apparently emerges from the recesses of a little fern-lined rock cave. The overflow here also goes to supply different plants requiring plenty of moisture, and none of the water is wasted. The natural effect is further enhanced by a good collection of choice and native hardy ferns embedded among the rocks, and by the judicious intermixture of rock shrubs, such as the alpine rhododendrons, various species of gorse, rock cistus, and cytisus.

The Postmen's Park.—We are informed that the vicar and churchwardens of St. Botolph, Aldersgate Street, have purchased from the City Parochial Trustees the desirable piece of land in Little Britain that has been so much talked about of late. The terms are that the western portion will be handed over on June 24 next, on the payment of £6,000, and the eastern portion will be conveyed on the payment of a further sum of £6,000, if made within two years from that date. Mr. Norman, the senior churchwarden, has sufficient money subscribed to meet the payment of June 24 next, but needs £3,000 for the second payment,

Horticultural School.—The county School of Horticulture at Chelmsford continues to do excellent work in the teaching of both science and practice to youths engaged in gardening, and during the last season special attention was devoted to the propagation of plants and fruit culture. The school is held in the newly-erected biological laboratory, which is found to be admirably suited for the particular kind of work carried on in the horticultural courses. Referring to the work of the school, the Board of Agriculture's inspector observes in his report: "The most important part of the horticultural work of the Essex Technical Instruction Committee has been the various courses of horticulture at the laboratories at Chelmsford, in continuation of those initiated during the preceding year. No less than five of these, each lasting for three weeks, were held, and the total number of pupils was seventy. The work carried on is scientific and practical, and whenever inspected has appeared of a high order. The class, too, who attended are of the right sort, as they all come straight from gardens to attend the courses." It is satisfactory to know that the training received at the school is not intended by the authorities to be the end, but rather the beginning, of the young gardener's technical education. The aim of the combined laboratory and garden work is to teach right methods, to stimulate original thought, and to arouse in the mind of the pupil a desire to investigate things for himself. It is, in fact, part of the scheme of horticultural education inaugurated by the committee that students, after leaving the school, take up some special line of study for themselves, and so carry on the work already begun in the class-rooms. It is only by such methods diligently and systematically pursued that anything but the very dimmest insight can be obtained of the intricate processes of plant life.

Decayed Peas.—Mr. Cooke, The Croft, Detling, Maidstone, forwarded to the R.H.S. Scientific Committee some young plants of the American Wonder pea, which had failed to grow. They were sown last November, and while many are doing well, others close by turned a sickly yellow. Mr. Sutton observed that his experience was that no wrinkled peas, as the above, were suitable for autumn sowing; the skins, being more delicate than those of round peas, will not stand the winter so well. This was, therefore, the probable cause of failure.

Fertilizers for Lawns and Pastures.—Lawns and pastures evincing a high state of fertility contribute so materially to the charms of the country house, that any information relating to their maintenance in a condition ensuring a vigorous growth of the grass should be taken full advantage of. For some time past the staff of the University Extension College, Reading, has, under the direction of Professor Gilchrist, been engaged in carrying out a series of experiments on the manuring of grass lands. These experiments were made at fourteen centres, and the results show conclusively that phosphatic manures are most useful for improving pasture, both in bulk and (especially) in quality. On the whole, basic slag has been the most economical and effective phosphatic manure for this purpose; at Marlston and at Shinfield it has given excellent results four years after its application. As a rule a potash manure (as kainit or sulphate of potash) has been useful on the lighter soils, especially in improving the quality of the herbage and developing leguminous plants; on the heavier soils potash manures have, as a rule, not been effective. Nitrate of soda has generally increased the bulk considerably in the first year, but has made the pasture coarser; after the first year the pasture has almost invariably been coarser where this was applied, whether the plot has been grazed or mown, and the conclusion must be arrived at that even one dressing of nitrate of soda applied to a pasture will, in after years, do considerable damage; this has been the case whether the nitrate of soda was applied by itself or in combination with other manures. Common salt has not been effective in improving pasture, and in no case has lime given anything like a profitable return. In most cases basic slag has given the results generally attributed to lime at a much less cost. The results at Herriard show that where pasture is rough and benty, a good harrowing in the spring will do much to improve such land, and that manures applied after such a harrowing are more quickly effective. Basic slag, applied early in April, at Herriard, after a good harrowing, gave an excellent result on the grass crop of the same year.

Orchid Sale at Walton Grange.—The sale of surplus and duplicate orchids at Walton Grange, Stone, Staffordshire, the residence of William Thompson, Esq., a few days since, created an immense amount of interest, and there was a large muster of orchidists from various parts of the country. The collection is equally well known for the rarity of many of the forms and the splendid condition of the plants; and in addition to the attractions of the sale, there was an imposing display of flowers, which was considered by those present well worth a long jouney. The odontoglossums, lælias, and cattleyas were simply magnificent, and, being tastefully arranged, produced a beautiful effect. The sale was conducted by Mr. Protheroe, of the firm of Messrs. Protheroe and Morris, and among those present were Mr. Low, of Enfield; Mr. Godseff, of St. Albans; Mr. A. Outram, of Fulham; and Mr. Mason. There were many orchidists from Manchester, Bradford, Liverpool, Birmingham, and other provincial centres. There was a brisk competition for the plants offered, and good prices were obtained, the principal lots being: Odontoglossum excellens Thompsoni, two bulbs and one lead, £147; O. sceptrum aureum, four bulbs with spike, £147; O. Ruckerianum ocellatum, £52 10s; O. Stevensi, six bulbs and two leads, £115 10s.; O. meleagris, one bulb, £36 15s.; O. crispum Alfred, three bulbs, two leads, £26 5s.; O. sceptrum Argus, seven bulbs, two leads, £15 15s.; O. Wilckeanum concinnum, one bulb, one lead, £15 15s; O. crispum aureum, one bulb, one growth, £27 6s.; O. Crispum Katæ, £21 6s.; O. excellens, three bulbs, one lead, £21; Cattleya labiata Peteersi superba, three bulbs, one lead, £78 15s.; C. Victoria Regina, four bulbs; £46 4s.; Cattleya labiata cærulescens, two bulbs, one lead, £31 10s.; Lælio-cattleya pallans, £12 12s.; Cypripedium insigne Dorothy, one old and two new growths, £22; C. Leeanum superbum, one old and two new growths, £31 10s.; C. Rothschildeanum, £22. The sale was well arranged, and the plants in such excellent condition as to bring much praise to Mr. Stevens, the enthusiastic grower, who for so many years has filled this important post with the greatest satisfaction to his liberal employer.

Mr. W. H. Lees has been advising the members of the Wood Green Horticultural Club on the cultivation of crysanthemums, and had the advantage of addressing a large audience. In the course of his lecture Mr. Lees dealt in detail with the cultivation of crysanthemums generally and with the peculiarities and requirements of the leading varieties, and received a hearty vote of thanks at the close.

Freesia Bulbs—Mr. F. Egbert Hollond, Satis House, Yoxford, submitted to the R.H.S. Scientific Committee some bulbs which had been planted last July, had never thrown up any leaves, but had formed fresh bulbs upon the old ones, which had withered. It appeared to be a case common in potatos, when it is called super-tuberation; fresh tubers being formed at the expense of the old one. It was possibly due to the freesia bulbs having been planted at the wrong time of the year, energy being expended in a wrong direction.

Prize Essays.—The French Society for the Encouragement of National Industry offers for open competition a prize of £80 for each of the following: (1) The best report on the agricultural and rural economy of any one province or department; (2) the best report on the physical constitution and chemical composition of the soils of any district of France; (3) the best report on vine culture and on the influence of manures and of vinification upon the quality of wines; (4) the best report on the maladies of cider and on means for checking or preventing them. A prize of £120 is offered for the best report on the alcoholic ferments which are active in the manufacture of beverages, and a prize of £40 for a practical method of getting rid of certain pests of the grape vine. Competitions close on December 31, and papers have to be addressed to the Secretary, at 44, Rue de Rennes, Paris. The society awards each year a large gold medal to the writer who has exercised the greatest influence upon the progress of French industry during the previous six years; in 1899 this medal is to be assigned to agriculture.

The Structure of Dendroceros.—In a highly scientific paper by Professor Douglas Campbell read before a recent meeting of the Linnean Society, and dealing with the structure of Dendroceros, the author concluded that in its apical growth and the form of the thallus, Dendroceros differs decidedly from other genera of the order Hepaticæ. The archegonium corresponds in its structure to that of the other Anthocerotaceæ, and is intermediate in character between Notothylus and Anthoceros. The antheridium is solitary, and arises, as in the others of the order, endogenously. The first wall in the embryo is longitudinal, as in Anthoceros, but the first transverse wall determines the limits of the foot, as in Notothylas. The origin of the archesporium is from the amphithecium, as in the other genera, but it is less massive than in either of these. The division of the archesporial cells into sporogenous and sterile ones is less regular than in either of the other genera, and the primary archesporial cells may be transformed directly into sporogenous ones without any further divisions. In D. Breuteli the spores remain undivided, but in D. crispus they germinate within the capsule, and are discharged as multi-cellular bodies. The absence of stomata from the capsule, as stated formerly by Leitgeb, was confirmed.

SOME FORTHCOMING ROSES.

HAVING considered in the earlier numbers of the GARDENERS' MAGAZINE of this year, some of the new roses of 1894, 1895, 1896, and 1897, let us complete the series by glancing briefly at some of the roses promised to the rose world this spring and, at others which are still, and perhaps will remain for a year or two longer in the possession of the raisers. The southern exhibition of the National Rose Society held last year at Portsmouth will long be remembered for its grand display of decorative roses. Amongst the number of varieties staged at this show were two most promising seedlings, viz. Purity and Royal Scarlet.

PURITY, Hybrid Bourbon (George Cooling and Sons).—For the N.R.S. to award a "card of commendation" to Purity, a decorative rose, is both a sign of progress and also an indication of the excellence of this variety. Hitherto only so-called "exhibition roses" have stood any chance in this class, but a bunch of Purity in the "garden rose" division looked so very charming with its masses of flowers in all stages of its beauty, that the judges awarded it this commendation. The schedule requires three blooms only in the seedling or new rose class, which may be all very well for "exhibition roses," but does not meet the case of "garden roses." For these latter require to be shown in bunches, several stalks cut, each bearing clusters of flowers in all stages of development. Three flowers of Purity were staged in the stereotyped manner in the seedling class, but I do not think this rose would have won a card of commendation had it not been that the attention of the judges was called to the delightful bouquet of Purity staged in the decorative section. The flowers are small, but of good form, buds well pointed, colour white, something after the style of Madame Bravy, but more of the bourbon than tea. The growth was strong and bore masses of flowers on every shoot. It will probably become a most popular rose. We shall doubtless see more of it this season. Messrs. Cooling are sending it out in May this year, and give the following description: "In offering this new rose, we are sure we are introducing a distinct and desirable new variety. As a garden rose, or as a rose to grow for market for cutting, it will be equally welcomed. The colour is pure white, with a faintly flushed centre, the petals are stiff and of great substance, it is of medium size and perfect in shape. It was in flower last year in the open before any other double rose in the nursery, a row of it in June being simply one mass of blossom. It is of semi-climbing habit and appears to require only slight pruning. Owing to the earliness of its flowering we were able only to show it at one or two of the early exhibitions, where it was greatly admired by all rose growers who saw it."

ROYAL SCARLET, H.P. (Paul and Son).—This, probably one of the brightest of red roses, will be sent out in the early summer of this year. A lovely bouquet of it was exhibited last year at Portsmouth, its vivid colour attracting general attention. It is quite single, very free flowering, and should prove most serviceable for massing and ordinary decoration. Messrs. Paul, at Portsmouth, had staged it for setting up in their stand of "garden roses," but since, by the N.R.S. regulations, all hybrid perpetuals were excluded from this class, Royal Scarlet had to be left out in the cold. It was, however, staged separately, and very beautiful it looked, notwithstanding its isolation. It is a satisfaction to learn that the N.R.S. have at last partially relaxed this strict regulation, and from henceforth single hybrid perpetuals will be admitted into the "garden rose" section at the exhibitions. Royal Scarlet is the result of hybridising the semi-double hybrid perpetual Cheshunt Scarlet with either Alfred K. Williams or Marie Rady. Its dwarf habit will make it useful for bedding purposes, and it will doubtless soon find its way at exhibitions into the decorative rose classes where bright reds are much needed. It was awarded a "card of commendation" by the N.R.S., which is as much as could be expected for a single, or indeed any purely decorative rose under present conditions where three specimen blooms are required. When the time arrives that new seedling decorative roses competing for a gold medal may be staged in bunches or sprays instead of in the prevailing way of three stiff wired up flowers only, decorative roses may have a chance of winning a gold medal, but not till then. Messrs. Paul's description of Royal Scarlet is as follows: "A single-flowered H.P. of vigorous bushy habit, with reddish-brown foliage, and bunches of vivid scarlet flowers. This is, we think, the purest scarlet yet produced in roses; it is admirably suited for bedding."

Among the many seedlings exhibited at last season's rose shows by Messrs. Alexander Dickson and Sons, six are here singled out for special notice. With some of these we are already more or less familiar, having seen them in stands of new roses during the last two or three years, but they still remain in the hands of the raisers, and we must await their spring catalogue of new roses to see if any of them are to be offered to the public this year.

ULSTER, H.P. (A. Dickson and Sons).—A seedling of great promise, and which won a gold medal at the Metropolitan show of the N.R.S. at the Crystal Palace last year. The judges had little, if any, hesitation about this award, for there is a certain style or character about Ulster which stamps it as a good rose. In colour it is bright salmon rose, of good form and large size, with petals of considerable substance. Judging from the specimen ground plant shown at the Crystal Palace, it is very vigorous in growth. The raisers exhibited twelve fine blooms at Hereford rose show last year.

LADY MYRA BEAUCLERK, T. (A Dickson and Sons).—This rose is becoming quite a familiar feature among the roses staged by this firm. I think it was staged and named at Ulverston rose show as far back as 1895, and yet it is still a seedling! We watch year by year for its *début*, and when we see it figuring so frequently in the chief classes at the leading rose shows, it is surely reasonable to ask when My Lady is coming out? Some excellent trebles of it were set up at the Crystal Palace last year, and it was also seen in good condition at several other places during the season. I have taken quite a fancy to the rose, and wonder why she is kept in the nursery so long. The colour is hard to describe. It reminds one of Grace Darling, and yet it is not quite like it, with streaks of darker shade and of silvery reflex. But whatever the exact colour may be, it is quite distinct from anything else. It is of good form, with long pointed blooms.

DAWN (A. Dickson and Sons).—Another seedling of good character, a well-built flesh-coloured flower, the result of a cross between Caroline Testout and Mrs. Paul.

LADY CLANMORRIS, T. (A. Dickson and Sons).—A new seedling tea of apparently robust growth; flowers large, with much depth of petal. Colour, white, shaded saffron-yellow. The raiser had a fine bloom of this variety at the Crystal Palace last year.

BESSIE BROWN (A. Dickson and Sons).—A seedling exhibited for the past two years, but not yet sent out. This variety stands so near that indefinite line that divides teas from hybrid teas, that I fancy the raisers are at present somewhat undecided as to its classification. It was staged in good form at the Manchester Rose Show in 1896, and was then described as an hybrid tea. In 1897 it was exhibited as a tea. Messrs. Dickson state that it is robust in growth. Flowers, very large, beautifully formed. Colour, white, with pink centre.

MRS. CHARLES J. GRAHAME, T. (A. Dickson and Sons).—This was exhibited last year under the above name, but I believe when sent out will be called Alice Grahame. An attractive flower of it was staged at the Crystal Palace last season. The raisers state that this is a grand tea, very robust in growth, and flowering most continuously. The flowers are very large and milk white.

JOSEPH H. PEMBERTON.

BRITISH FERNS FOR INDOOR CULTURE.

WITH regard to the varieties of British ferns best worth growing indoors, the space, of course, which is at command comes largely into question, but in most window recesses small-growing species and varieties are to be recommended. As the catalogues issued by those in the trade who make a specialty of British ferns usually indicate the size, we cannot do better than refer to these, merely adding that the cost of many of the very best tasselled, curled, plumose, and curious forms is very small indeed, so that the actual expense need not be great. What I should recommend to those who may be unacquainted with this special culture, is to obtain one or two varieties, say, a frilled Hartstongue, a crested Lady Fern or so, and a crested male fern, and follow the rules cited in a previous issue for a season, until they see how beautiful the developments become. They will then be encouraged to try a few more, and so on; whereas for a novice to start with a number is more than likely to end in disappointment.

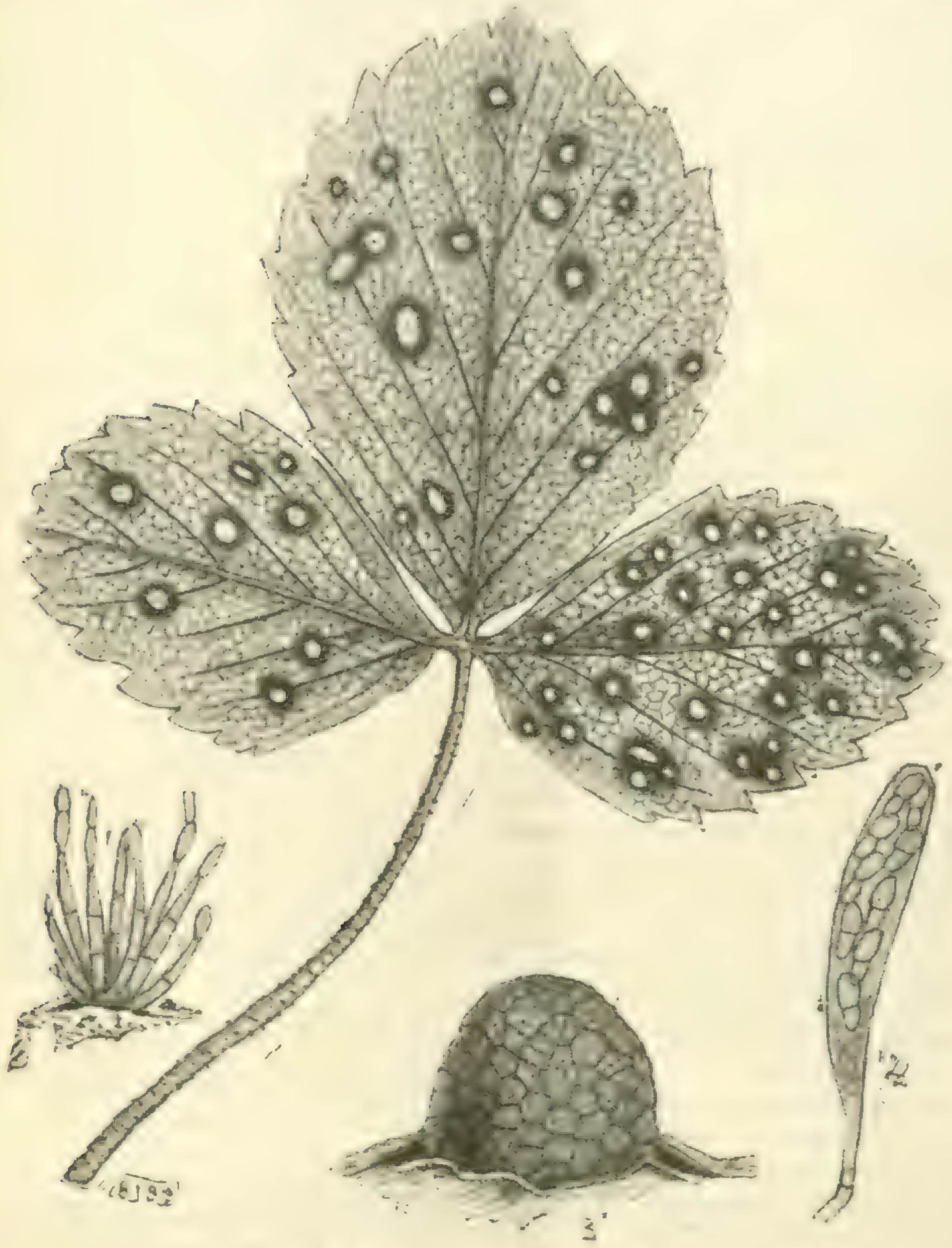
It has often struck me in this connection that the art of raising ferns from spores is peculiarly fitted for ladies. The whole process involves such a nicety of manipulation up to the point of potting the results, that it is a pity the gentle sex are practically strangers to it. This, of course, is a matter which the beginner can only view from afar, though it is, in fact, very simple. Take a shallow pan, well drained and filled with fern compost to within half an inch of the rim. So far so good, but, although we may rub this soil through our fingers, and take every precaution to eliminate anything which may interfere with the development of the tiny ferns, that soil is full of potential life, eggs of insects, seeds of plants, spores of fungi, and even tiny worms, are all ready to avail themselves of your cultural care, and act the cuckoo to your unfledged ferns. Place, therefore, a small piece of paper on the soil, and pour boiling water over it until the pan burns your fingers, the hotter the pan becomes the better, as it is astonishing what heat some of the fern foes survive. Now let it cool, and cover the pan with a piece of glass to prevent the intrusion of foreign germs and spores.

Meanwhile, the fern fronds from which you purpose sowing will have been lying alone between two sheets of glazed paper for a couple of days, and probably when lifted will have shed their spores thickly enough to form a light brown picture of itself. Scrape a little, the merest pinch, of this brown powder, and put it under a microscope. Wonderful! millions and millions of little brown semi-translucent oval bodies present themselves, scattered over the field of view. These are the spores, and as your little pan is obviously incapable of growing millions of ferns—and every spore is fully capable of yielding one fern, and possibly more—you learn, as a lesson from the sight, that a very small pinch will suffice, their sowing being indeed a condition of success. In a few weeks a green blush will spread over the face of the soil in the pan, and shortly resolve itself into a dense multitude of little scales, all facing the light. These scales go on growing until as large as herring-scales, by which time, unless your sowing has been an extraordinarily thin one, they will overlap each other so thickly that pricking-out is necessary to enable them to proceed. Here comes in the need for delicate handling. Prepare other pans as before, scalding and all, and with the point of a penknife pick out small patches the size of peas and insert them in the new compost an inch apart, just pressing them into little depressions so that they are [illegible] the soil. This done, they go ahead in fine style, and spread out so as nearly to fill the inch spaces. Then the transformation scene begins, and here, there, and yonder we shall begin to see the little ferns [illegible] up among the scales which have generated them: and if we be [illegible] and hope for new varieties, we can now start fern hunting at home [illegible] heart's content, for in pans of ferns raised from varieties the chances of new forms are very great. The next step is potting on, and the next, possibly, the renting of a few acres of land to accommodate your [illegible] your bay-windows facing the north only affording space for them.

CHAS. T. DRUERY, F.L.S.

STRAWBERRY LEAF SPOT.

THE strawberry leaf spot (*Sphærella Fragariæ*, Tul.) is a very destructive and widespread disease, occurring wherever the strawberry is cultivated; it is also met with on the leaves of wild strawberries, and from thence probably often passes on to the cultivated varieties. The leaves are the parts attacked by the fungus, the earliest sign of its presence being indicated by the appearance of scattered minute dark-red spots on the upper surface of the leaf. These spots as a rule rapidly increase in number, and also in size, adjoining spots often growing into each other, and forming larger, irregularly shaped blotches. As the spots increase in size, the central portion of each becomes grey or whitish, and is surrounded by a narrow dark-red ring. When the fungus has reached this stage of development, examination with a pocket lens shows the pale central portion of the spot to be sprinkled with very minute white tufts. Each of these tufts is composed of a bundle of very delicate white threads, or *hyphæ*, each of which bears an exceedingly minute reproductive body, or *conidium*, at its tip. When quite ripe the conidia become free, and are then carried by wind, rain, insects, or very frequently by watering or spraying, on to other strawberry leaves, where, if the surface of the leaf is damp with dew or rain, they germinate at once, enter the tissues of the leaf, and soon give origin to a new disease spot. As the conidia are produced in immense numbers, and in rapid succession, the disease spreads very quickly in the case of plants growing near to each other, unless preventive measures are adopted.



DISEASED STRAWBERRY LEAF.

FIG. 1. A diseased strawberry leaf; natural size.
FIG. 2. One of the minute white tufts of the first, or conidial form of fruit; × 400.
FIG. 3. One of the minute black raised points forming the second, or ascigerous form of fruit; × 100.
FIG. 4. A large cell or ascus, containing eight spores in its interior. Many of these asci are produced in the interior of an ascigerous fruit; × 400.

This conidial condition of the disease, which continues in vigorous growth throughout the season, was at one time considered to be an independent fungus, called *Ramularia Tulasnei*. Towards the end of the season, numerous very minute black raised points appear on the diseased leaves; these represent the second form of fruit produced by the fungus, each point being a fruit of complex structure, containing in its interior numerous spores or germinating bodies. These spores remain in an unchanged condition until the following spring, when they germinate and inoculate the young strawberry leaves, giving origin to the first or conidial form of the fungus. Another form of reproduction, which, like the spores, also serves to tide the fungus over the winter season, consists of minute black aggregations of the mycelium of the fungus, called *sclerotia*, which are formed in the tissues of the decaying leaves. These also remain on the ground unchanged until the succeeding spring, when they produce a crop of conidia, some of which find their way on to the surface of the young strawberry leaves and commence the disease afresh.

If the leaves of the strawberry are badly diseased, a good crop of fruit cannot be properly matured; furthermore, plants that have been seriously attacked by the disease, especially if the second crop of leaves, which appear after the fruiting season, is injured, afterwards remain weak, and as a rule are not worth preserving. Repeated experiments, both in this country and in the United States, have clearly proved that the disease can be held in check by the use of Bordeaux mixture. The plants should be sprayed with a dilute solution when the leaves are beginning to expand, and again at intervals if the fungus shows itself. It is most important that the plants should be sprayed after the fruit is gathered, so as to protect the second crop of leaves, as the vigour of the plants, and consequently the quantity and quality of fruit produced on the following season, depends to a very great extent on the amount of material accumulated by these leaves.

All diseased and dead leaves should be raked together and burned, so as to guard against infection the following spring; for although the leaves, if allowed to remain on the ground, would probably decay and disappear during the winter, yet the fungus fruit and sclerotia present in their tissues would not decay, but remain on the ground, and germinate in the spring, when some of the conidea produced would almost certainly find their way on to the surface of the young leaves, and thus commence the disease.

G. MASSEE.

THE AURICULA.

THE genus primula may be said to have held a levée of its admirers on the occasion of the recent exhibition of the National Auricula Society Though the improved modern forms of P. auricula were mainly represented, other species and sub-varieties were well to the fore, and found their admirers. It is well such an exhibition be held annually, and the Royal Horticultural Society is to be congratulated on encouraging the holding of such a display. Some of the best-known species and varieties of primula were seen in P. intermedia, unusually fine in character as shown by Mr. J. Douglas; the delightful P. verticillata, P. obconica; the charming ever-blooming P. floribunda; some varieties of P. Sieboldi; a fine form of P. pubescens, in the Bookham collection; P. japonica, &c., also the primrose, both double and single, with the bolder polyanthus. It was a liberal feast of spring flowers, relished by a large company. It was the florist's auricula, however, which held the field; his green, grey, and white edges, and striking selfs, with brilliant alpines of many shades and pleasing combinations of colours, and the grotesque and striking nondescripts, conveniently denominated "fancies." Those interested in the fascinating flower saw it in numbers, but not at its best. There was little of that superb finish sometimes seen. Nature had not been in a benignant mood; cold winds, frost, and drought induced roughness; the incidence of the weather was too powerful for the best endeavours of the florist, and he was beaten in the conflict. He did his best against unequal odds, and it was gratifying that he did so well. A genial season is required to impart finish to the flowers; it was uncongenial, hence comparative failure. Yet the exhibition was full of interest, as reported in these columns, notwithstanding. The auricula is a perennial, but its life is one of limited duration. "An individual plant may maintain its vigour and blooming powers for a few years, and it is found in experience that plants of some varieties are slower in coming to maturity, and longer lived than those of others. In a dozen plants of any one variety no two may live for exactly the same time, or during their life be in corresponding health. It is impossible to define the life-term of this plant by the duration of a single individual. It may eventually so break into several heads that which of them is the real original no one can say. It may give off increase, and in favour of strong young plants, the parents may have been thrown aside when comparatively worn out; or in its evident old age the plant may have been cut over, and the much reduced and narrowed head induced to go on afresh in restored strength for a time. Some varieties die young; our leading raisers have had experience of young seedling beauties that were short-lived, sometimes to the dying of the seed plant without issue." Such is the testimony of one who knows the auricula well.

Some varieties of show auriculas are longer lived than others, and all the care exercised in the culture of the latter cannot keep them in vigour beyond a limited time Probably a variety cannot be expected to last longer than six years at the outside, hence, then, the necessity for obtaining young stock, so that existence may be secured. This is the way Nature suggests for maintaining a collection in all possible completeness. Some sorts give off increase much more freely than others, while others will form an offset quite at lengthened intervals. Occasionally it is necessary to behead a plant to obtain increases, making a cutting of the top and causing the beheaded stem to break into growth. It may happen that all the care bestowed upon a particular variety will not induce it to make vigorous development, but change has been known to conduce to this result, either by sending the plant to some brother florist to nurse to convalescence, or by exchange of the same variety from a distant part. Further, to maintain the auricula in the characteristic attributes which commend it to the enthusiastic florist, the raising of fresh varieties from seed is vital to its existence. Yet some varieties have been in cultivation for half a century or more, and among them a few of the best. Yet it is a fact that in the course of years they surely, if slowly, wear out, not coming in character so constant or so grand as they used to do. They become more difficult to keep, and pass out of cultivation. There are always growers who cherish the favourites of bygone times, and when the evening of a long day comes at last for those which have become sacred by long association parting brings sore regret. Old varieties will no more live for ever than human beings; and, on the other hand, no new variety has been raised which cannot be surpassed. It is as sure as possible that flowers more fixed and richer in qualities of recognised excellence than the former ones can be raised; and that our improvements will be improved upon, if only men follow who will care to give the love, and thought, and time required to the work.

R. D.

CHAT ABOUT HARDY FRUITS.

EVERY department of a garden possesses rapidly increasing attractions at this time of year, but perhaps none is so full of interest as that devoted to hardy fruits. The flowering period is the season of promise and hope. When our trees are advancing to an abundant blossoming, we have the prospect before us of a later stage in their career when they may be laden with welcome fruits. We have besides, however, the present enjoyment of their beauties; and of all deciduous shrubs and trees in cultivation few can rival and none excel the floral charms of our cherries, plums, pears, and apples in a favourable season. Many writers have advocated planting a few specimens of the best varieties in the ornamental portions of gardens; some amateurs and practitioners have really done this with most satisfactory results, but it is not a plan that can be carried out under all conditions and circumstances. Still in shrubberies forming boundaries to lawns I have seen select fruit trees introduced with admirable effect, short-lived as their charms may be.

Fruit growers may experience all the pleasures of the most advanced æsthetic person in observing the masses of snowy or rose-tinted blossoms adorning their trees, but the economic aspect influences their meditations even more strongly. The satisfaction derived from contemplating an abundant display of flowers is greatly moderated, when sunny days followed by clear nights and sharp frosts, at the blossoming period threaten the partial or entire destruction of all hope as to fruit crops. Much will then depend upon the moisture or aridity of the atmosphere, and within the past week or two the frosts experienced would no doubt have proved more injurious had the air been less dry. Fortunately in a large plantation under my care, and in others that I have seen in the district where plums and damsons have been flowering with exceptional freedom, little damage has been observed, although the night temperature has fallen six degrees below freezing point (Faherenheit) on several occasions. Pears also seem to be safe up to the present time; apples are scarcely sufficiently advanced to suffer, and gooseberries have so far escaped the injury that so seriously reduced the crop last year. But the bulk of our apples have yet to flower; so that there is much anxiety yet in store for us before the ordeal is passed.

The greatest trouble to the naturally energetic is to feel powerless to avert an approaching evil; but the question has often occurred to me whether we could not adopt some workable system of protecting the blossom of fruit trees in the open. In the case of large standard or orchard trees it is impracticable to employ any material as a covering, though in plantations of dwarf trees and bush fruits it is quite possible, the only difficulties being the expense incurred in material and labour. For large plantations this, however, is quite prohibitive, as though a very slight substance in the way of netting, tiffany, or canvas will suffice to check the radiation, yet to cover an acre effectively with protective material secured to posts at suitable distances would cost at least £20. As it is only exposed for a short time the material might last for five years, but there is always the risk of storms not only destroying such an arrangement, but seriously damaging the trees at the same time. Perhaps, therefore, it is not surprising that little has been done in this direction beyond protecting small plots in gardens or compact plantations of bush fruits.

Another method of affording protection from frost has been extensively tried in France and the United States, namely, "smoking," or "smudging" as it is termed. This has given good results, and the cost is not prohibitive if well managed; it therefore might be worthy of more trials than the plan has yet had in Britain. The principle upon which its success depends is that a dense smoke diffused over a plantation checks the radiation, and consequently reduces the danger of sharp frosts. That risks can be thus lessened is beyond question, but it is necessary in the first place that the plantation occupies a level piece of land, not a slope or the bottom of a valley; secondly, the atmosphere should be calm, but this usually is the case when severe frosts are imminent, and obviously the practice would be of little service in a strong wind; thirdly, some substance must be used that will produce a dense smoke slowly and continuously, in order that it may be evenly diffused.

In the French vineyards several patent compositions are in general use, and syndicates have been formed amongst neighbouring growers, so that combined action and mutual protection may be afforded. By this means the cost has been reduced to a few pence per acre, and the results have given general satisfaction. Any substance that will consume slowly and emit a thick, heavy smoke will answer the purpose; damp wood mixed with partly-dried grass, damp hay, straw, and leaves have been employed, while common petroleum, coal-gas oils, tar, and sawdust have been used similarly. Sawdust and tar make a good mixture in the proportion by bulk of three or four parts of sawdust to one of tar, but damp wood or rubbish generally is convenient for many, though it may not be so effective. One gallon of tar and three times the quantity of sawdust will, if properly mixed and attended provide a dense smoke for eight hours, small quantities being ignited in succession. The actual cost of the material does not exceed 2d., and there is only the labour to consider, but this is not serious, as a man or a boy can attend to a large number. The burning material must not be placed near enough to trees to cause injury by the heat produced, and the "smudges" need constant attention in order that they may not burn too quickly, spraying them with water if necessary. This is a double advantage, for while checking the consumption of the fuel, the evaporation of water assists in lessening the radiation; indeed, a trial has been proposed of the effects of evaporating water extensively to arrest radiation and secure immunity from frost.

When the atmosphere is very dry the lowest temperatures are usually recorded, yet I think it is the general experience of growers, as it certainly is mine, that much less injury to blossom results than when the air is moist. In other words, when the air is partly saturated a frost of two or three degrees will do more harm than five or six degrees under drier conditions. This statement seems to be in conflict with the suggestion at the end of the preceding paragraph, but they are not so much opposed as appears at first sight. In the evaporation of water heat is absorbed, and in the condensation of such vapour the heat is again liberated; it is therefore possible to evaporate water by artificial means in sufficient quantities that the vapour, being condensed on cold surfaces, may release enough heat to prevent the temperature falling below freezing point within a limited area. Then we have the protection sought; but if frost occurs at all, it appears that the danger is increased by the moisture present. There is the question to consider, too, whether the greatest injury to blossom results from the actual freezing or sudden thawing. When frosty nights are followed by clear, sunny mornings, the injury to fruit blossom is generally greatest on the eastern sides of plantations, if fully exposed to the sun, and I have observed it also on the eastern sides of individual trees. At such times the presence of moisture may be an advantage in preventing rapid thawing, just as we syringe frozen plants in pots and shade them from the sun rays until the thawing has been gradually effected.

Many have advocated the extensive planting of the Cherry Plum, or Myrobalan (*Prunus cerasifera*), for hedges, a purpose for which its rapid growth undoubtedly renders it suitable. If planted thickly, it forms a dense hedge in a few years, and though not so effectual a protection from cattle as thorn, it yet suffices for all ordinary boundaries, and is a first-rate wind-break. Unfortunately, its precocious leafing renders it liable to severe injury, and this year the leaves were expanding in January, the flowers also being open in February, and the result is that nearly the whole of the foliage has been destroyed by frost. This does not occur every season, but the flowers rarely escape some injury. The myrobalan in this respect resembles the Japanese plums, that are so much in favour in America. Here the flowers are produced so early that in the few seasons I have tried them they have all been destroyed by frosts. A. M.

DWARFED CHRYSANTHEMUMS.

IN the manipulation of chrysanthemums with a view to secure a dwarf bushy growth, it has apparently of late been considered a modern practice to strike cuttings in May and June. But will you permit me to state that this method has been known and adopted to my knowledge for more than half a century? Consequently the sun is not diffusing its life-giving powers on any new innovation or up-to-date practice. If the present generation of cultivators were familiar with the modes of cultivation practised by those designated the "old school" of gardeners they would understand that the practice of striking the cuttings, as has been advised, to secure good healthy, dwarf plants, has been in force ever since the Autumn Queen was introduced into this country.

I reported a paper read on the subject in 1846, and the report appeared in the *Florist Journal*, at that time conducted by my old highly-esteemed friend, the late Mr. Robert Piant. Herein it was advocated that May, and even later, where dwarf plants was the wished-for object, was the very best time for successfully striking cuttings for that purpose. It is recorded in the early writings that the Chinese even adopted the practice, as also the thinning the buds, so as to obtain large flowers; and this practice was thoroughly advocated in the paper alluded to and by one of the members present on that occasion in speaking to the subject. The report as it then appeared I have still in my possession.

There were other methods of propagating the chrysanthemum. Some amateurs especially used to increase their stock by suckers or by dividing the plants; others by layering. I well remember that in August, 1843, being thus engaged to prepare a large stock of plants for conservatory decoration, and very fine plants they made, blooming most profusely during the whole of the dull months of autumn and early winter. The stock plants had been specially prepared by being planted in a fine open piece of ground in a sunny situation. I am now referring to the preparation of plants for a large winter-garden-like conservatory. It should be understood, however, that at the period I refer to garden appliances and glasshouses were in many respects like angel's visits, comparatively "few and far between." So the "old school" gardener had to husband his resources in a very methodical manner, hence those with small accommodation for flowering plants during the autumnal months were in a measure compelled to produce plants as small as possibly convenient, so as not to injure specimens of a more permanent and valuable description.

Very many, as well as the writer, made it an annual practice to strike cuttings of chrysanthemums after the showing of the bloom buds on the growths. These made interesting and very useful plants for mixing with primulas, &c., and added considerably to the cheerfulness of the greenhouse and conservatory. At the time I refer to, gardeners were minus the advantages of the present generation, but I have been privileged to live in the old as well as the new horticultural times, and have practically seen the many and marvellous changes and advancements in the healthy and the mind-invigorating science of horticulture and floriculture.

Lewisham. GEORGE FRY.

Exorchorda grandiflora.—This shrub is flowering very finely again this season, and though it was very much checked by the frost in April, it has braved the weather and been a mass of bloom for some time past; indeed, it is the most conspicuous hardy shrub now in bloom. It will grow in almost any soil or situation; we have it in sunny positions as well as north and west aspects, and thus obtain a succession of bloom which is most useful; in some cases the shrub is not growing in more than nine inches of soil. Planting should be done in October, and if the weather prove dry give a good soaking of water after planting.—W. A. COOK, *Compton Basset.*

MEMORIES OF BRUGES.

BRUGES, the capital of the Belgian province of West Flanders, is an interesting old city, but nevertheless one that retains but a remnant of the glory it possessed in the fourteenth century, when it was the chief commercial centre of Europe. It is only seven miles and a half from the coast, and connected with it by broad and deep canals that are available for vessels of considerable size. With many of its former glories the commercial fame of the City of Bridges has largely passed away, and little seems to have been done to make good the loss by modern methods, as the observation that about one quarter of its population of over 48,000 persons are paupers, will prove. The city wears a sleepy air, and one could imagine oneself dropped back suddenly into mediæval times, but for the dress of the people. You see more sabots at Bruges than at Ghent, and more folks dressed in the older-fashioned provincial style of tall peaked cap and ample blouse for the men, and ample head-gear (or entire lack of any for occasional contrast) with coloured shawls for the women. Bruges contemplates the height from which she has fallen, while other of the old Flemish cities have to a large extent become rejuvenated.

The *portes*, or gateways, of the city are well preserved, and with the ramparts serve to remind us that Bruges once had a great trade to guard, and guarded it well. These old gateways are highly picturesque, and are mostly situated at the end of a canal bridge. Not far from the fine railway station is the Gothic cathedral of St. Saveur; as compared with the cathedral at Antwerp it is a poor affair exteriorly, but inside it is amply proportioned and beautifully decorated, while it contains paintings by such celebrated artists as Van Dost, Jean Bethune, and Dierick Bouts. The church of Notre Dame, with a spire three hundred and ninety-five feet high, is a conspicuous building of some beauty, and said to contain many very fine works of art. The ancient palace of the Courts of Flanders has practically disappeared, but Bruges contains several museums, library, academy, and Palais de Justice, not forgetting the celebrated Belfry, commenced in 1282, and rising to a height of three hundred and fifty-two feet; it contains a grand set of chimes that are only to be heard to full advantage on certain days of the week. Everyone has heard that—

> "In the market place of Bruges,
> Stands the Belfry, old and brown;
> Thrice consumed and thrice rebuilded,
> It watches o'er the town."

If the city of Bruges is now no longer a great centre or silks, linen and woollen goods, it yet has another string to its bow. This string is its increasing horticultural trade, for both inside, but more extensively outside, the city boundaries, nurseries are increasing in number and extent, and all seem to be flourishing. Many of these firms do a very large export trade and employ a large number of men and women; others do an almost purely market business in plants and cut flowers of a choice character. Some grow liliums extensively, others orchids; while a few devote their attention mostly to the seed trade and a more local business. The Bruges nurseries seem to be largely grouped along the south and west sides of the city, and one comes upon them immediately after passing out of either the Porte d'Ostende, the Porte de Gand, the Hazelporte, or other of the gateways towards the south and south-west.

Arrived at Bruges station, you will, if horticulturally inclined, turn sharp to the left after giving up your ticket, and, crossing the railway that leads to Ostend, take a direction almost due south. In a few minutes the pedestrian will be outside the city and clear of the cobble-stone and paving that spoil both boots and temper; here you emerge upon a country road, lined with trees and margined with ditches. Passing a wayside farrier's shop, and strings of farm and wood carts, drawn by stocky Flemish horses, open country appears an either hand, but in the near distance you catch sight of a broad expanse of glass roofing that tells of some enterprising nurseryman. In one point, at least, the proprietor differs from the nurserymen around him—he does not paint his name in black letters across the whitened front of the most prominent building in the establishment. Who then is the great unknown? Unknown!! Why, this is the continental branch of the St. Albans nurseries of Messrs. F. Sander and Co.

Some member of the firm is sure to be at the Bruges establishment, and during the recent Ghent Exhibition it was as much as Mr. F. Sander, his three sons, Mr. Godseff, and several foremen could do to pilot parties of visitors round the establishment, and get through the usual business. Already a hundred houses, all built of pitch pine, have been erected, and all are well stocked; the houses vary in length, but many of them are very long, in three divisions, and running into a long corridor at one end, the corrider serving as potting shed and storage for imported orchids, &c. The nursery has an area of twenty-five acres; more than a third is covered with glass houses, and still others are in course of construction, so that so far as glass is concerned this establishment bids fair to exceed in extent any other of its kind on the Continent.

The brickwork is composed of small and very dense red bricks, and presents a very neat appearance. The woodwork, as previously noted, is pitch pine, so that both durability and smart appearance have been secured; the roofs are light, that is, the glass is wide throughout, so that all possible light is admitted. In the long orchid houses the staging is mostly iron, and double; on the lower iron stage a layer of farmyard manure is placed, and over this is arranged a light and open wooden staging on which the plants rest. Rough tobacco is also placed in quantity, here and there, where heat and moisture can extract from it its insecticidal properties for the benefit of the plants. Shading is almost entirely done by means of the wooden lath blinds so popular and extensively used in continental establishments; this shading breaks up and diffuses the sunbeams, and yet it does not seem to materially lessen the amount of light that would otherwise pass through.

Grouped in the small glass porches that cover the entrances to the ranges comprising the first block of houses, azaleas of all the newer and finer kinds were recently arranged, and these being covered with blooms made a dazzling display. The azalea business is one upon which the firm has embarked with a will, and already they find the demand is greater than the supply. Huge blocks of ridge-and-furrow houses contained thrifty specimens of these Indian azaleas, but these plants have, ere this, been planted in their summer quarters in a compost of oak-leaf mould and the natural sandy soil of the district. Thirty houses are devoted to azaleas, and one of the prettiest sights to those fond of plant raising was the two hundred thousand azalea stocks for subsequent grafting. These figures, together with the statement that here there are about six thousand seedling azaleas, almost all as yet unflowered, will give the reader some idea of the extent of azalea culture at the Sanderian establishment at Bruges. There are tiny azaleas, medium sized and large specimen azaleas, azaleas on the floors, stages, and on shelves close up to the roof; azaleas in pots and azaleas planted out, and by far the greater number were planted on the stages, though since transferred to open quarters for the summer. Vervaeneana, Deustche Perle, Sigismund Rucker, Simon Mardner, Roi des Belges, Cérès, Empress of India, Comte Oswald de Kerchove, and Borsig, are among the most extensively cultivated varieties. These, and very many other kinds being represented by fine stocks that should be first-rate for next season's flowering.

Sweet Bays are not less numerous here than at other Belgian nurseries of note; there are long rows of healthy well-developed specimens, both pyramid and standard shaped, and in many sizes. The wonder is how the enormous stocks of bays can be stored each autumn in the big sheds where they winter. Big bays do not grow up in a night, like Jonah's gourd, but have to be grown for many years ere they reach a profitable size. Several houses are devoted to camellias, and the collection is extensive in its variety. Araucaria excelsa is cultivated in such quantities that quoting figures would be but to bring upon myself the indignation of those who have not seen the stocks here, and who would imagine my signature should be "Longbow," rather than what it is.

Palms arrest the attention by reason of their abundance, cleanliness, and general health. There are hundreds of thousands of them, varying in size from the midget, in a thumb pot, to big waving specimens in large pots or tubs. It is quite unnecessary to pass down one side and up the other in these palm-houses, for those that meet the gaze upon opening the door form a sample of the general contents, so a walk of some hundred and thirty yards is saved—many of the houses are two hundred feet long. The Date Palms, Phœnix rupicola and P. reclinata; Cocoa-nut Palms, such as the towering Cocos plumosus and the beautiful C. Weddeliana; fan palms, such as Latania borbonica and Licuala grandis; Kentias, chiefly K. Belmoreana, K. Forsteriana, and the new and elegant geonoma-like K. Sanderiana; Cabbage Palms, notably Areca Baueri and A. lutescens; and the Chinese Rhapis flabelliformis, and its Japanese relative, R. humilis—these are the principal palms seen at this Bruges nursery, though not a few other sorts are grown, but in lesser quantities.

While selective culture is the chief order at this modern nursery, yet collection has not been altogether forgotten, and the variety of plants to be seen is greater than at many another Belgian establishment. Here are to be seen large batches of the popular Pandanus Veitchi and the once-common P. utilis, of Vriesia tessellata and Eucharis Sanderiana, Dracæna Sanderiana and the spreading D. Godseffiana, D. indivisa and Ficus elastica, Saintpaulia ionantha, gloxinias and foliage begonias, dasylirions and anthuriums, Myrsiphyllum asparagoides and green and variegated aspidistras, nepenthes and bertolonias—and so one might continue. An enumeration of all the plants grown here would prove interesting, but space forbids. Everything, however, is on a large scale, and the houses neat and clean, and the plants as healthy and vigorous as even the proprietor could wish. The ground not covered by glass-houses, offices, bay-sheds, stables, packing-sheds, &c., is being brought under cultivation; as indicated, a very large area is necessary for the azaleas during summer. Another large slice is devoted to the choicer liliums, including half a million of the pure white Lilium speciosum Krætzeri.

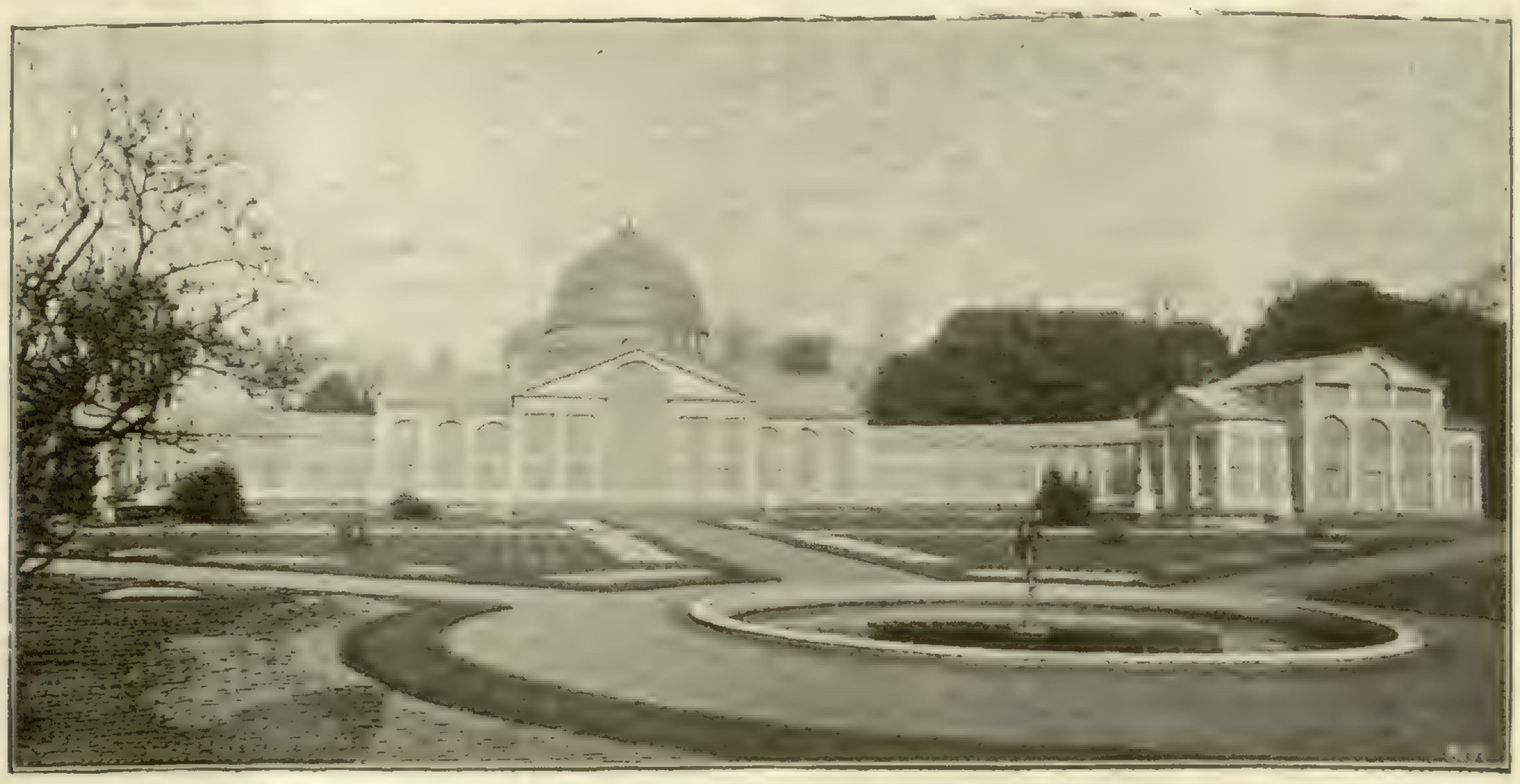
One naturally expects to see orchids a prominent feature wherever the Messrs. Sander go, and certainly the visitor to Bruges will not be disappointed. Here, as at St. Albans, the better known and most popular sorts are grown in quantity sufficient to fill half a house, or it may be two or three houses, and there can be no doubt that when grown in bulk and treated exactly in accordance with requirements, orchids of almost all kinds do their best. The first range covers Odontoglossum grande and Lælia anceps, many thousands of each. Then follow odontoglossums innumerable, some of them pretty little plants establishing themselves contentedly in leafsoil and sphagnum; others sturdy specimens in larger receptacles, and many of them carrying long graceful spikes of handsome blooms. O. crispum, O. luteo-purpureum, O. Halli, O. Wilckeanum, O. Ruckerianum, O. sceptrum, O. Rossi majus, O. Cervantesi, O. Harryanum, O. odoratum, and O. cirrhosum were those most in evidence by reason of their flower spikes, and here and there these were grouped effectively with begonias and other foliage plants. There are big colonies of Lælia purpurata and the lovely cattleya Schroderæ, the latter flowering freely and the former bristling with fat flower sheaths. There appeared to be enough of Lælia purpurata to fill one of the tents at the Temple show, and the majority were first-rate specimens in pans twelve by twenty inches across. All the cattleyas of commercial value are here to be found, from the labiate forms to the tall stemmed guttata section, from the striking C. Acklandiæ to the fragrant C. citrina.

There are crowds of Lycaste Skinnerion, under and over the stages, all in good condition and mostly producing excellent flowers. Oncidum sarcodes and O. ampliatum majus, both very attractive orchids, naturally occupy much space, while the popular cypripediums occupy several houses. Miltonians must not pass unmentioned, nor the suspended ranks of Rodriguezias. The pretty Stenoglottis longifolia also deserves a notice, for it is one of the prettiest of cool orchids, and lasts a very long time in flower. Several houses are devoted to newly imported orchids, such as Odontoglossum crispum, Oncidium tigrinum, &c. Behind the principal blocks there is a small range of short houses and here are to be seen some of the choicest of orchids. A very fine example of Cypripedium drursi was staged along with other choice and rare cypripedes; there was the white C. bellatilum album, lots of the rarer hybrids and hundreds of tiny seedlings that have yet to make their mark; cross-breds having C. Curtisi, C. niveum, C. Roeblingianum, C. Lawrenceanum, C. insigne, and others for parents. Then this range also covers a small batch of odontoglossum seedlings, minute plants as yet, but still up and growing and exciting a good deal of speculation as to their ultimate accomplishments. Then there are seedling lælias, the result of carefully considered crossing, beautiful little toy-like plants in tiny thimble-like pots and each with its small celluloid label attached. Seedling cattleyas are also here, and epidendrums and dendrobes, with a few others of more or less importance, all, however, capable of surprising the hybridist by their superiority to anything of the kind yet seen, or by their exceeding beauty, utility or great worth. However careful the worker may be the results are not always in his hands, and sometimes nature shows in a most marked manner her disgust at the intermeddling of man while at others she rewards his ingenuity, care, and patience by a wonderful combination—such combinations as have from time to time appeared from the St. Albans establishment, and such as it is hoped will in future first display their graceful forms or exquisite colouring at the Bruges branch.

SERVATOR.

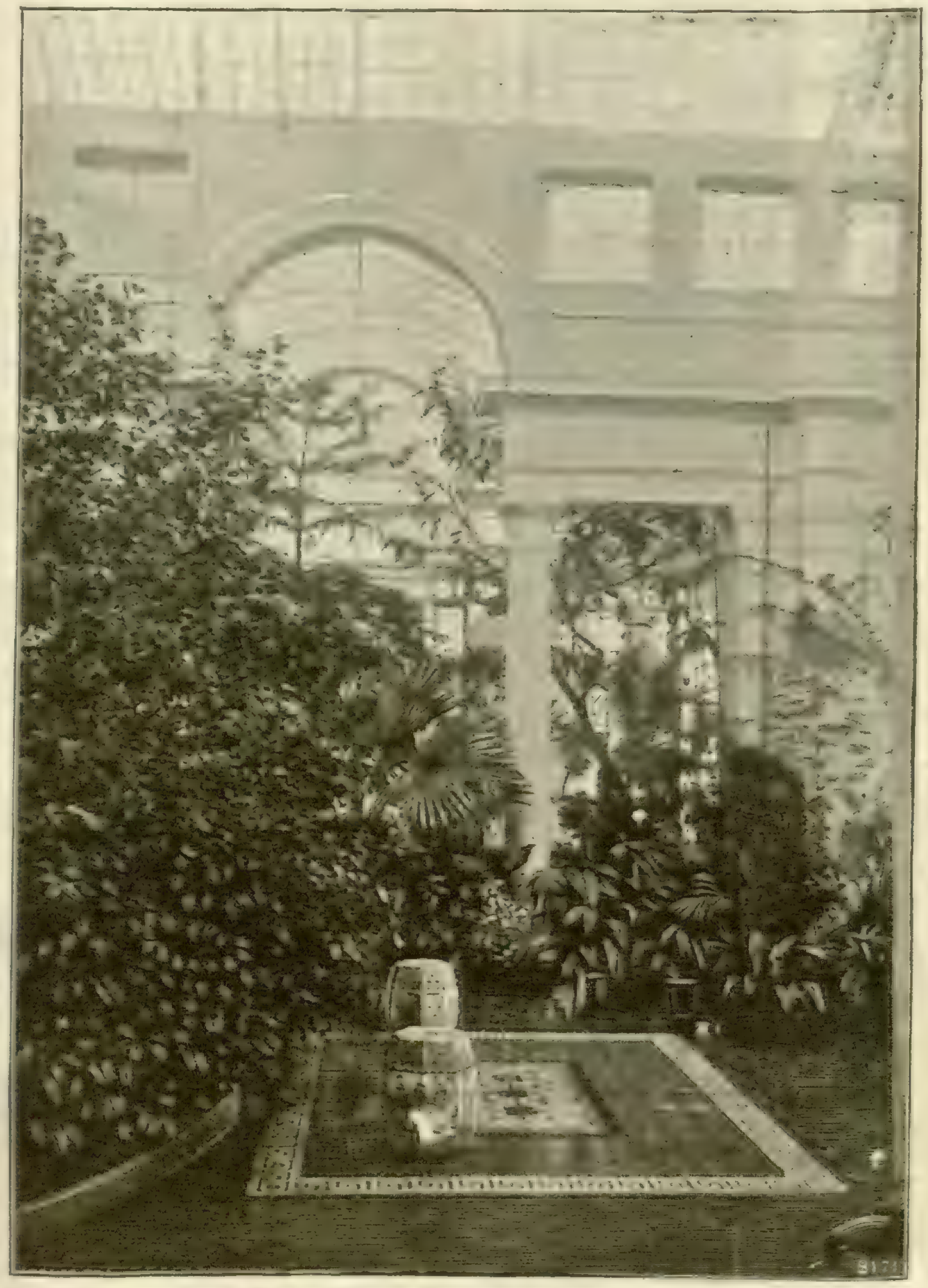
THE SYON CONSERVATORY.

CHIEF among the several features that have contributed to the well-deserved fame of the gardens of Syon House, the historic residence of Earl Percy, is the great conservatory, which has long been recognised as one of the most handsome of the plant structures erected in private gardens early in the century, and widely known for the highly interesting character of many of the plants that have found a suitable home within its walls. At one time this magnificent structure was largely devoted to plants of great botanical interest; at another a considerable proportion of its available area was occupied by splendidly developed specimen flowering and ornamental-leaved plants that made their mark at the public exhibitions and added to the lustre of the gardens. Then at a later period the specimens were superseded by a more varied collection of plants, and the structure became remarkable for the great beauty and interest of the displays annually produced in the sections devoted to plants grown in pots. The structure has since its completion about seventy years ago seen many changes in the character of the plants with which it has been embellished, and now, as the result of shifting fashion and a fuller appreciation of the uses of plant houses from a recreative point of view, it also has had to submit to a considerable modification in the arrangement of the interior, and a brief reference to the improvements that have been effected can hardly fail to be of general interest.



THE CONSERVATORY AT SYON.

The gardens at Syon, as in the case of the mansion, may be traced back for several hundred years, and it would appear that at the commencement of the present century they were considered to have become somewhat out of date, and to be in need of considerable alteration. However that may have been, improvements on a very extensive scale were commenced at Syon in 1825, and carried on during the next two or three years. The alterations and improvements were carried out under the direction of Mr. Forrest, who was one of the most successful garden architects of his day, and was held in high estimation by Mr. Loudon, who, in the fifth volume of the GARDENERS' MAGAZINE says, in reference to his ability, "As a garden architect we know of no man to be compared with Mr. Forrest. Among many examples in different parts of the country, we may refer, as a standing proof of his ability in that department of his profession, to the admirable range of forcing houses and pineries erected in the kitchen garden at Syon." The alterations included the rearrangement of the kitchen garden, and the erection of the long ranges of fruit and plant houses, from which at the present day Mr. Wythes annually obtains such enormous supplies of grapes, peaches, figs, melons, strawberries, forced vegetables, and cut flowers. The erection of the conservatory followed shortly after the completion of the forcing and fruit houses, and in the preparation of the plans of this structure Mr. Forrest had the assistance of Mr. Fowler, an architect of high standing in his profession, and it is probable that it was designed by Mr. Fowler in accordance with the ground and sectional plans prepared by Mr. Forrest. If this be so, Mr. Fowler is, of the two, deserving of the highest meed of praise, for, as originally designed, convenience of internal arrangement was not equal to the ornamental character of the exterior.



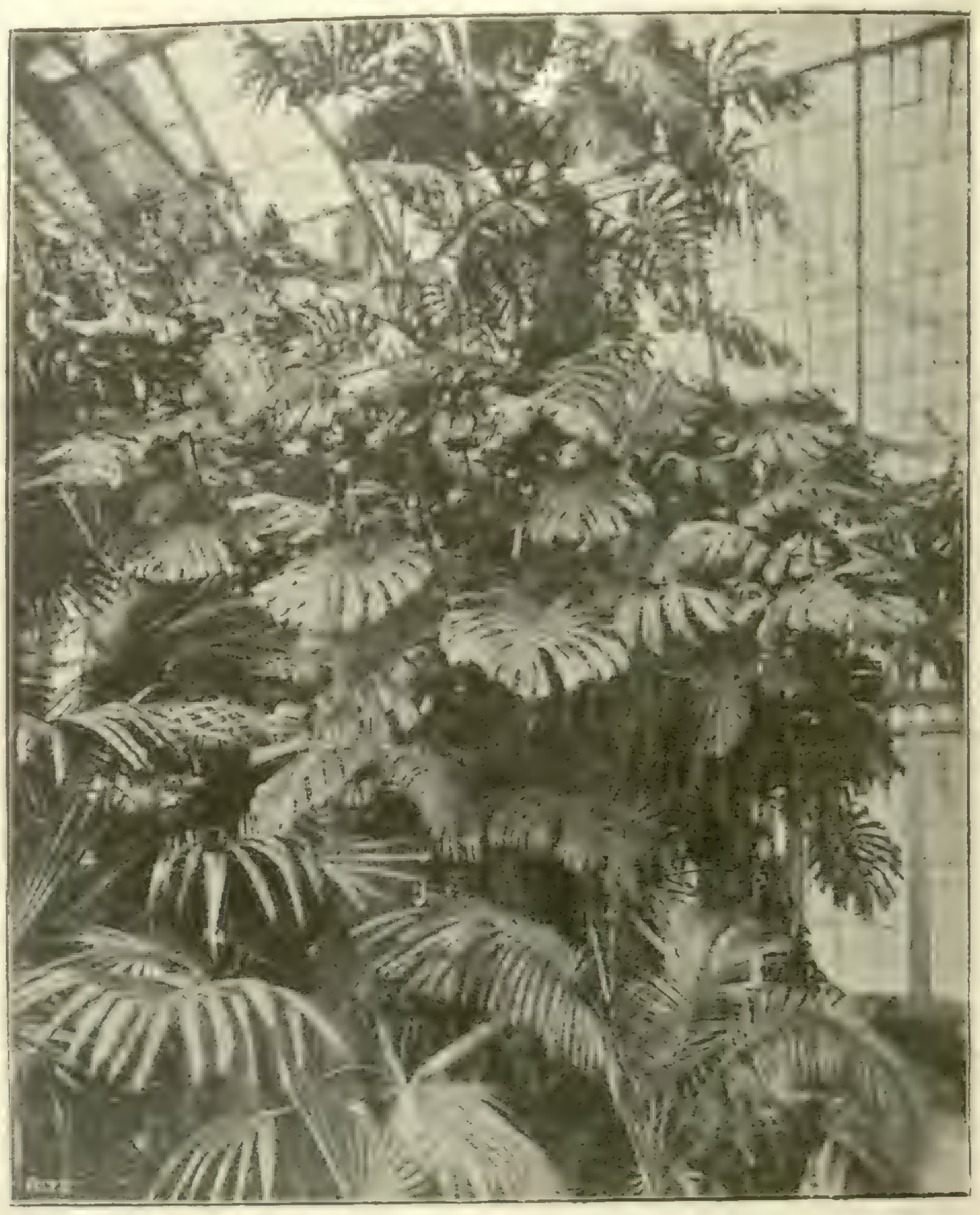
EAST WING, SYON CONSERVATORY.

The building forms the northern boundary of the geometrical flower garden, which occupies a somewhat secluded position a short distance from the northern side of the mansion, and, as shown in the illustration given herewith, it consists of a central compartment and two wings connected by corridor-like structures describing a rather sharp curve. It is three hundred and eighty feet long and the centre, has a length of about one hundred feet and a width of fifty feet, and the cupola or dome rises to a height of sixty feet. The two wings are each about sixty feet in length, forty feet in width, and about forty feet high, and the connecting portions of the building are about twenty feet wide and twenty-five feet high. As originally arranged the conservatory was divided into nine sections, and the corridor-like parts of the building were each divided into three, and in addition were fitted with high stages for the accommodation of plants in pots, and as those in charge had, in watering and giving other attentions to the occupants, to pass along under the stages and mount them by small openings here and there at the back, a more inconvenient arrangement could not well be conceived. The separation of the structure into so many parts rendered it difficult to exercise any considerable degree of taste in the disposition of the plants, and the opening and shutting of the numerous doors detracted materially from the enjoyment of visitors. Moreover, there was but one pathway through the portions connecting the wings with the main body, and as that was hardly wide enough for two persons to pass, considerable inconvenience was experienced, more especially on the occasion of garden parties, when there are between two and three thousand visitors in the grounds.

To obviate this inconvenience, and render the structure more thoroughly enjoyable, Earl Percy decided to have the whole of the glass divisions removed, and the staging abolished, and to have in the narrow sections a series of oblong beds along the centre, with broad paths on either side. These alterations, with others that were rendered necessary in giving effect to the wishes of the noble owner, have been in progress during the past two years, and now they are complete it can rapidly be seen how great is the improvement that has been effected. One of the most important of the improvements that have been made has been the rearrangement of the heating apparatus. Originally the structure was heated by steam, with the aid of upwards of two miles of piping. Steam was in due course superseded by hot water, but in accordance with the views that obtained when the hot water apparatus was fixed the pipes were placed so far below the level of the path that there was a great loss of heat at all times, and some difficulty in maintaining the requisite temperature in severe weather. The pipes have all been taken up and fixed above the level of the floor in accordance with the more correct views that now obtain with regard to the distribution of heat; but as a matter of course care has been taken to so arrange them that they are in no way obtrusive. In the past three sections were devoted to stove plants, but under the new scheme in the centre alone is a temperature adapted to the requirements of tropical vegetation maintained. A considerable part of the roof has been taken off and renewed, and this alone has been a work of considerable magnitude, as will be readily understood.

when it is stated that in building the conservatory plate glass was employed in the roof wherever additional strength was required, whilst the side sashes consist exclusively of that costly material.

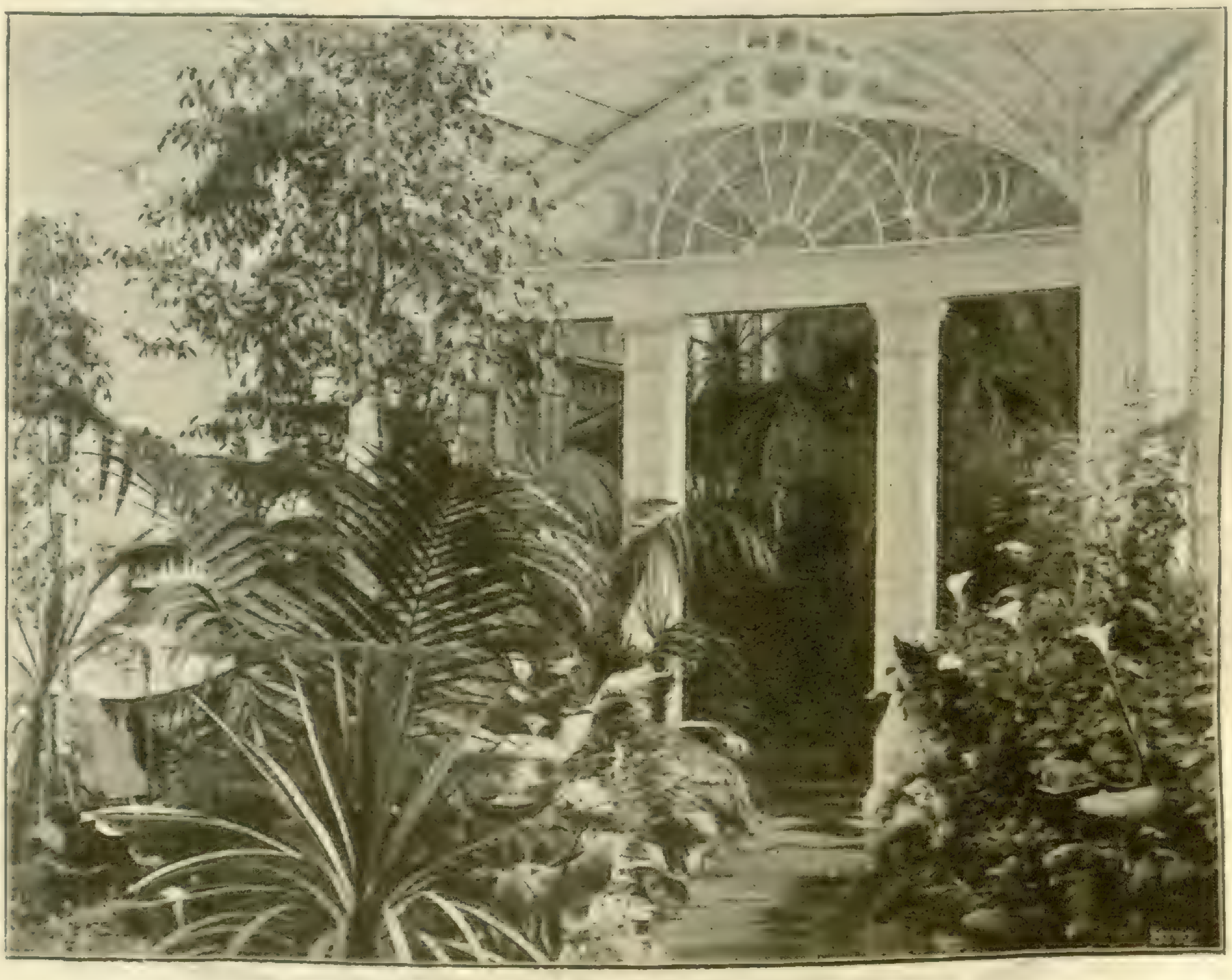
There has been no material alteration in the central portion of the building, nor would it have been practicable, if desirable, for the whole of the specimens are of exceptional size. Especially worthy of mention are the specimens of the Sugar Palm; Cereus hexagonus, one of the largest of the cacti, and here rising to a height of twenty feet or so; Bambusa arundinacea, unquestionably the finest specimen in the United Kingdom, the columnar stems about two feet in circumference, rising to a height of sixty feet, and filling the cupola with a cloud of elegant greenery; and Monstera deliciosa, which has attained a height of about thirty feet, and covers a large space with its huge singularly-divided leaves. This specimen is quite unique, as may be gathered from the illustration given herewith, but to have done it full justice a page illustration would have hardly sufficed. In the two wings at the extreme ends are glorious masses of camellias, planted out in a border against the wall, and finely-developed specimens in pots of Araucaria Bidwilli, A. Cooki, A. excelsa, and A. Rulei; palms of various kinds that thrive in the cool house, acacias, Dracæna australis, D. indivisa, tree ferns, notably cyatheas and dicksonias; Clethera arborea, which annually produces a wealth of its elegant pure white flowers; and the Loquat, which here fruits freely. In each of the corridors there are two oblong beds, with spaces for the grouping of plants in pots, and in the beds bold-growing plants, remarkable for the beauty of their flowers or foliage, or distinguished by elegance of aspect, have been planted out. With these will be associated flowering plants grown in pots according to the season. When the photograph of this portion of the building was taken, from which our illustration has been reproduced, richardias were used with singularly good effect. There is a narrow border both against the glass front and back wall, and in each of these climbers have been planted, as it is a part of the scheme of decoration arranged by Mr. Wythes to drape the wall and the spaces between the upright sashes and festoon the roof with plants of scandent habit. The corridors afford an exceptional opportunity for demonstrating the characteristics of the [illegible] of the greenhouse climbers, and a glance at the plants that are rapidly becoming established reveals the fact that Mr. Wythes fully appreciates his opportunities in this case, as in other details of garden management.



MONSTERA DELICIOSA AT SYON.

It remains to be said that the whole of the alterations have been so admirably conceived and carried out as to justify the bestowal of the highest praise on all concerned. The whole of the structural alterations, including the arrangement of the floor space, were made by Mr. James Gray, of Chelsea, and the rearrangement of the hot-water apparatus was effected by the Thames Bank Iron Company, and Mr. Wythes speaks in high terms of the manner in which the work in each case has been completed.

GEORGE GORDON.



WEST-END OF CORRIDOR, SYON CONSERVATORY.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

VEGETABLES FOR EXHIBITION.

SALSIFY.

SALSIFY (*Tragophogon porrifolium*) is commonly known as the "Oyster Plant," and it is a much esteemed vegetable in many establishments when properly cooked and served. Good roots are easily obtainable when properly treated, as the crop deserves to be. A light, sandy loam, which must have been manured the previous year, is the best for producing fine specimens, and land from which the celery crop has been taken, if it can be so arranged, is preferable to any other. The ground should be deeply trenched during winter, and forked over about the middle of April. It is a common mistake to sow the seed too early, and thus a very large percentage flower prematurely, and the roots are worthless. The first week in May will be full early enough for sowing. Drills should be drawn about an inch and a half in depth, and eighteen inches asunder, and the plants eventually thinned to twelve inches apart. In very dry weather I have found the house sparrow troublesome in eating off the young tops, and have frequently found it necessary to protect the crop with garden netting. Every encouragement should be afforded the crop during the growing season by frequent hoeings, and in showery weather the application of small quantities of artificial manure. I have found soot strewn on during the evening act as a fine fertilizer. The crop may either be lifted in the autumn and stored in sand or ashes, or lifted as required. I prefer the latter plan, taking care to have sufficient uplifted in readiness for use in case a spell of severe weather occurs.

Salsify deserves very much more encouragement at our shows than it generally receives, and when classes are made for single dishes of vegetables at our autumn and winter exhibitions, I am most certainly in favour of this being included. The difference between poor and well grown specimens is most apparent, and in a large collection of vegetables, say, of twelve distinct varieties, during its proper season, I should not hesitate to include it if of first-rate quality. If salsify were in opposition to turnips, both being presented in good condition, I should most assuredly give the preference to salsify, if judging. Few things are more easily and quickly obtained than turnips, but this is not the case with salsify, which requires much more skill and forethought to bring it to perfection. When it is the intention of the cultivator to have it of the best quality for the exhibition table, it will be necessary, on most soils, to bore holes and prepare soils exactly in he same way as advised for carrots. A row or two done in this way will be sufficient, as one may be pretty certain of good results. The crop should be thoroughly mulched and watered in dry weather, of course allowing one plant only to each hole. When lifting, great care should be taken not to break or damage the roots, which should be clear, stout, and tapering, resembling a well grown beetroot, but not quite as large. They should be thoroughly washed and the small rootlets neatly removed. Nine or twelve will make a good dish, and they should be arranged in the same way as carrots or beetroot. In a miscellaneous or ornamental collection of vegetables, salsify should always find a place.

Aldenham House Gardens E. BECKETT.

THE FASCINATING FLORA OF YUNNAN.

THOSE who have closely followed the discovery and introduction of new plants during the past ten years wlll have, from time to time, admired the keenness of research exhibited by Dr. Augustine Henry, who expends practically all his leisure time in collecting plants. Dr. Henry is a member of the Customs Department, and his address is Mengtse, par Laokai, Tonking. Yunnan is the Chinese province wherein Dr. Henry has made wonderful discoveries of plants, both interesting botanically and useful horticulturally. His immense collections have not yet all been determined, but sufficient is known to show that Dr. Henry is not simply a collector, but a botanist of no mean order and a broad-minded naturalist. The richness of the Yunnan flora, with its Himalayan types shading into the purely Chinese, was not suspected until Dr. Henry made serious investigations. Some idea of his keen perseverance, the flora itself, and the difficulties under which he labours may be gathered, however, from the following extracts, which we take from a series of letters sent to Kew by him in 1897, and now published in the *Kew Bulletin.*

Writing at the end of February, 1897, Dr. Henry says: I have just returned from an exceedingly interesting trip to the country south of the Red River, in a district ruled over by an hereditary chief, who treated me with great kindness. I reached the great range separating the Red River and Black River basins, densely wooded with large trees (twenty feet in circumference) to near the summit, where they are replaced by thick bamboo jungle, so that the range, which is very long, is only crossable by passes at different points. The altitude is 8,000 to 10,000 feet. At this, the dead point of the year as regards vegetable life, there was not much out in flower, but I secured a magnificent rhodendron, a magnolia (both great trees), three camellias, Stuartia, &c. There was a Daphne (*indica?*), a shrub with deliciously scented white flowers, a primula at the summit, Ainslæa, two or three species of clematis, &c. Two or three Araliacæe, shrubs and trees, occur also up to the summit. A very common tree was Oliver's Tetracentron sinense, an enormous tree, but with the wood little esteemed. Its fruit spikes were scattered everywhere, and its minute seeds had flown away.

I spent two days on the Red River, where the vegetation is tropical; the banana, tomato, carica, and tamarind occurring everywhere in the wild state. The bizarreness of some of the fruits here was very striking. One tree (Dolichandrone cauda-felina) has long pods (two to three feet) with a dense covering of thick brown hair, exactly like the tail of an animal. On the plateau (7,000—6,000 feet) between here and the Red River I found a curious primula, with radical leaves besetting its base like an onion; it successfully resists the grass fires which here are universal, and flowers indifferently level with the ground or on a peduncle six to eight inches high. Immense evergreen oaks occurred in the mountain forest. The most interesting part of the trip was the aborigines. In the State, twenty miles by twenty miles, ruled over by the chief, not including Chinese settlers, I met with seven distinct races, *i.e.*, distinct physiognomy, speaking mutually unintelligible languages, living apart, never intermarrying, and with different customs and dress. Great red deer, bears large and small, occur in the mountain forests, the smaller bears leaving scratch marks on the trees, in which they build nests to sleep in. I have laid, I hope, the seeds of a friendship with the chief, and hope to gain much thereby, *i.e.*, an intimacy with the aborigines, which is a difficult matter indeed.

My own collection (April 30) has already attained gigantic proportions. I have numbered and labelled 660 distinct species, without making a perceptible gap in the immense pile of bundles of dried plants. I almost anticipate 3,000 species in this year's collection, *i.e.*, the year finishing on July 1. My muleteer is doing good work, being constantly on the road; and I myself am doing everything within a radius of fifteen miles round Mengtse, which includes mountains to 7,000 feet altitude. Pranchet, I believe, estimates Delavay's species from Western Yunnan to be 3,000 in number. Both our collections will have at least 5,000 species, and I venture to predict that Yunnan, when thoroughly explored (say in the twentieth century), will be found to have 10,000 species of plants (phanerogams and ferns with their allies). The rhododendrons have been very captivating. They vary in size from gigantic trees to the tiniest shrubs. The most striking one is apparently confined to a mountain peak north of here, some twenty miles. It has broadly oval leaves, about twelve inches long by eight inches broad, brown on the under surface, and the flowers are a delicate primrose-yellow, quite large and very numerous. The clematis are about twenty to twenty-five species; oaks fifteen; primulas ten (these have been very disappointing in number, and none is conspicuous in any way). The conifers include Cunninghamia, Cryptomeria, Keteleeria, and three species of Pinus; one of these is P. Massoniana; another is very remarkable for its perfectly white bark and large cones, with big edible seeds, perhaps allied to P. koraiensis and P. Armandi; the third I have just discovered. It is one solitary big tree planted on the top of a mountain, over four graves. I have not yet secured cones. It is beautifully pyramidal in shape, and with delicate, very green foliage, and different from any pine I have seen in China.

Talking of soap-trees, there are two here, Gleditschia Delavayi, with its enormous pods, some twenty inches long, and Pancoria Delavayi. The latter is an exact imitation of Sapindus Mukorossi. Of course, it differs technically in flowers and indumentum of the leaves, but no mere non-botanist would dream of putting them in different genera. I will send plenty of fruit of both (and seeds). The Leguminosæ are very numerous; Desmodium, Lespedeza, and Pueraria running riot in number of species. I have secured some very northern forms, as a fagus, a betula, &c. I am inclined to think that isolation, as in Yunnan by its multitudinous ranges and valleys, must play a great part in the invention of new species, and the study of the flora of this province will, I think, enable some one hereafter to get at important factors in this evolution. One of the most curious so-called species here is Ehretia corylifolia; it is a distinct species, but how near it is to the common Ehretia macrophylla! if I don't mistake, I think I shall get connecting links. *Pari passu* with the richness of types in the vegetable kingdom is the extraordinary diversity of the genus Homo. One is inclined at first to think that all the tribes one hears of must be the same people often under a new name. That is not so; the languages are distinct, and the physical characteristics are often very well marked, too.

In addition to my own collection, I have received from Morse, at Lungchow in Kwangsi province, some four hundred species. Some are quite interesting. He sends me Tournefortia sarmentosa, which is hitherto known only as an oceanic plant (Formosa, Mauritius, Philippines, Australia), and it is like the very pretty Osteomeles anthyllidifolia in this respect. By the way, have you the latter in cultivation? He also sends me Dolichandrone cauda-felina, which I found on the Red River. Its pods are the most comic of fruits; a long tail of some prehistoric animal would be near it. What is the meaning of the projecting hook on [illegible] of trees, such as Cæsalpinia sappan? Is it because other climbing [illegible] have such a point? It does not mean a time when tall beasts like giraffes and so on rambled about and got fruits from big trees stuck in their wool. Of course, there are monkeys running about in the trees. I cannot see any possible use, [illegible] in hairs of fruit of Pueraria Thunbergiana, at least any at present. The [illegible] stick on the climbing shrub till they dehisce, and out drops the seed. I forgot to say that I have secured a magnificent Paulownia (the flowers are [illegible] precocious). Unfortunately, I have not flowers of either of the two described Paulownias (P. Fortunei and P. imperialis) to compare with it, but it seems to differ from both; it has much smaller capsules than P. Fortunei, according to description. It is the most magnificent tree, in some ways, that I have ever seen. Seeds of it will have to be collected later on. It would really take a dozen enthusiastic botanists to cope with the work here. The lilies are only four so far: Lilium Browni (?), a lily with yellow flowers, numerous; and a small lily with a solitary pink flower, and L. giganteum. The orchids are very numerous. But I could go on indefinitely. My photographic camera, which has been four months on the way from Haifong to here, is just about to arrive. Can you give any suggestions concerning the uses of photography in botany? Of course, I suppose pictures of trees like the Paulownia, just spoken of, pictures of curious fruits, &c., will be useful.

After relating a little adventure with a leopard, Dr. Henry continues: With regard to seeds, I will do what I can, especially later on, when I shall have less plant-collecting to do in our immediate neighbourhood. But it is really a difficult matter collecting seeds; one arrives on the ground too late or too early. I tried, *e.g.*, to collect seeds of Gentiana serra and rhodantha, common plants, and failed to get a single seed. You may say, why not employ a native? Ah! you do not know the Yunnanese. My muleteer, who collects plants, is the only man I know who could or would do the work, and even he only does about one-tenth of what I could do if I had his time. The others, Chinese and aborigines, are too lazy for seed-collecting. I have secured the first aborigine who would venture into foreign employment; no one had any but Chinese before. He is my groom, and is an experiment. The fact is, that if one had nothing else to do, one might organise plans and people for carrying on such work; but it is difficult for me, as I have a great deal to do. And yet I doubt if many of my specimens will be collected again for fifty years, as I have put no small amount of energy into parts of the botanising. The flowers of a certain Zanthoxylum have cost me three visits to one spot and a expenditure of six hours' time. Money is not what is wanted, but time —oceans of time. Nothing astonishes people at home so much as the fact, a real fact, that in countries like China you cannot do everything with money. Patience is more valuable. I can get a good deal of work out of Chinese on a trip when I am with them, but not otherwise. Chinese are very susceptible to weather—a shower breaks their hearts; they don't like going into jungle, as thorns [illegible] them and tear their clothes. Now, I do not mind a hundred thorns; I wait till I have a lot in, then sit down and pick them out. For the Chinese, the root of the matter is an absence of nervous energy. Their industry, so much talked of, is unreal in most parts of the Empire. They are not exactly lazy, but they do not know how to begin to work, as compared with a European. And as to their ever seriously fighting or competing in the arts of peace or war with the Anglo Celtic race, it is an idle dream.

I would suggest, so great is the variety and beauty of the Chinese flora, and so fit are the plants for the European climate, that an effort ought to be made to send out a small expedition, the funds, *e.g.*, being provided by a syndicate of, say, a horticulturist, a private gentleman or two, &c. I estimate £1,000 would cover the expenses for two years; and what I would recommend is that a man be selected who has just finished his botanical studies at Cambridge. I mean, do not send a collector, but a gentleman, a student and an enthusiast. The locality I would suggest is the mountain range separating Szechwan from Shensi, or thereabouts, the expedition starting from Ichang in April and covering two seasons. A person like me, with daily official work, can do little or nothing. We live in towns, in the midst of cultivation, and the distances to get to the hunting grounds are enormous, and when we do get there we are half worn out. There [illegible] something uncanny in the way in which herbaceous plants disappear [illegible] after they have had their gaudy season of flowering, and when the plant [illegible] the seeds are green, or the capsules are empty. Such are some of the difficulties. My own plant-collecting, since I have been here, is enormous, but at such an expenditure of muscular force! It would be strictly paralleled by that of a bank clerk in London who made excursions on Sundays all over England, and two or three times a year made hurried trips to the Carpathians and the Pyrenees. The bank clerk would really in such a way expend less energy.

I have been reading your [Mr. T. W. Thiselton Dyer's] account of the [illegible] men, which I find very interesting. In a place like this, where one is overwhelmed with the multitudes of the species of plants, one is interested in any [illegible] concerning the reason why. In a previous letter I spoke of the red clay [illegible] so common in this province, and hinted at its possible glacial origin, but I [illegible] think now there has been the slightest glaciation here; the clay is simply a [illegible] out of the universal limestone, and what one finds here is a country which [illegible] not been disturbed geologically for an immense period. The country is [illegible] into innumerable valleys and petty plains and isolated peaks; and isolation [illegible] to be the factor which has kept up so many different forms of life, once [illegible] started. Another interesting series of questions is to find out what are [illegible] the supposed adaptations one sees, *e.g.*, what is the use of the fur like [illegible] on the fruit (an enormous fruit) of Dolichandrone cauda-felina, a [illegible] occurs in the Red River valley. In this hot steaming valley there are [illegible] ordinary fruits; nowadays there are scarcely any large animals, except [illegible] leopards. But there are multitudes of large and ferocious ants which [illegible] foliage of many trees for nest-building purposes. I assume that [illegible] this kind has a meaning, a use, if one could find it out, and people forget the [illegible] which enormous and curious animals in former geological times have [illegible] Take the question of thorns. I think they do serve as protection [illegible] and are not, as regards their preservation, when once developed, mere [illegible] of climate and soil changes.

I was quite disappointed in the spring flora here. The first half of the year [illegible] rainless, and, except in woods with perennial springs and streamlets, the [illegible] country remains almost barren. There is consequently a great variety of [illegible] which can bear long and sustained drought, and the dodges are innumerable. The bulbous covering of scaly leaves in the primrose I mentioned as coming up in [illegible] burnt grass hills is, of course, not a dodge against grass-fires, but a dodge [illegible] the drought it sustains. There is one point in connection with the [illegible] cultivated Primula sinensis which is not, I think, generally [illegible] form occurs in such a different condition of soil from what is adopted in cultivation. In the Yangtze gorges the wild form grows on cliffs in practically earthless ledges, and merely midst the piled-up remains of previous years' leaves, &c. In a word, it occurs in the driest possible situation, and I do not think even in wet weather, in summer, these ledges, when it occurs, really get wet. I am now speaking from memory, but I think I am quite correct as to the habit of the wild plant. The ledges, often hundreds of feet in length, present a beautiful appearance at flowering time in the dry winter season. In connection with this, there is no history to be got of when or how the Chinese began the cultivation of such plants, and it is quite remarkable how few specimens of really wild forms of many cultivated Chinese decorative plants there are, and also curious how many plants called japonica are only Japanese in cultivation, and are originally Chinese in origin. It is also remarkable that the Chinese shrubs in cultivation are scarcely the ones which make the best show in the wild state. At least, that is my opinion. In conclusion, I can see now that there were hundreds of interesting points which I might have noticed earlier in my plant-collecting if I had had the experience or the genius or the teaching. If you ever again come across a budding collector like what I was when we began correspondence some years ago, please insist on his being more than a mere collector, and perhaps you will help to develop a naturalist.

In an August despatch, Dr. Henry writes : I enclose a photograph of a palm taken by Mr. Bons d'Anty in the Upper Shan States south of Szemao. He is the French Consul at Szemao, and is collecting some plants for me, the interesting ones of which you will receive later. He says : " The palm is very common ; it is seen around every temple, and the leaves are used to make paper with, or rather are used as paper, being cut into long strips. In the photograph one can see the way the leaves are cut off for this purpose." I am in doubt as to what the palm is, but doubtless you will be able to identify it at Kew [probably Trachycarpus sp.]. The palms used as paper are Borassus and the Talipot palm, according to Treasury of Botany, but it does not seem to me to fit in with descriptions of these. I also enclose for the Museum, if you think it is of sufficient interest, a sample of the palm-strips with writing on it, sent me by Mr. Bons d'Anty. The writing is probably Shan, but Mr. Bons does not say. From a packet of plants sent me by Mr. Bons, collected on a trip south of the Chinese frontier, into the British Shan States, it would seem that the flora changes at once into the Indian type the moment the Yunnan plateau is left, *i.e.*, it loses Chinese looks. We are having a wet summer, much more wet than last year, and it is very unpleasant. The plague goes on apace. I tried to go out yesterday to the mountains, but had to return on account of the heavy rains. I stayed some little time at a Lolo village on the plain, and rested under a magnificent mulberry, the finest I have ever seen. It had the enormous spreading-on-the-surface-of-the-ground roots, which I think is called Table-kind of root. I went in quest of a Lolo Pundit that I heard of, but we found his house and the compound deserted, as there had been three cases of plague, and the Pundit had fled. I hope to secure his services, but the Lolos are very shy, or rather, I think, they are afraid to link themselves with Europeans, as the Chinese suspect them then of ulterior designs.

Apple Dumelow's Seedling.—I think there must be many who cannot be fully acquainted with the merits of Dumelow's Seedling, one of the most valuable apples for kitchen use in midwinter, or we should see it cultivated more, especially in private gardens. In my opinion it cannot be surpassed; it comes into use early in December, just as there is a demand for good solid fruit for mincemeat, and we need no other to furnish the supply till late in the spring. I know of no other cooking apple to equal it for retaining its firmness and solidity after storing, or for producing a white appearance after cooking. I admit it is rather acid, but that difficulty can easily be surmounted. Out of a selection of over one hundred varieties here this is the variety grown most, and though, generally speaking, apples were scarce with us last season, we were enabled to store from fifteen to twenty bushels of this variety, which have proved invaluable to us.—C. MARTIN, *Cowes.*

Links Between Animal and Plant Life.—In discussing the lowly organisms known collectively as Acinetaria, Professor Ray Lankester gave some interesting particulars relating to the organisms that form, as it were, the boundary between the animal and vegetable kingdom. In his description of the Acinetaria Professor Lankester said they had a simple nucleated-body with one or usually many processes extending from it. These processes were not purely protoplasmic but of definite structure, and were either pointed or ended in suckers which enabled the organism to suck juices from other creatures. Besides dividing by simple fission and conjugating, they also broke up into buds each having a bit of nucleus. These buds separated, and, remaining for a time in a cuplike hollow of the parent's body, acquired a girdle of cilia, which were regarded as evidence of the connection of Acinetaria with the Ciliata. It was probable that the first living things developed from albuminous matters were animals, subsisting on much the same substance as that of which they were composed. At some time in the growth of these living things chlorophyll came into existence, and enabled such as had it to assimilate carbon from carbonic acid and nitrogen from ammonia. The intermediate forms between these and the forms that required albumen were derived from green plants and fed on juices containing sugar and less highly elaborated substances than albumen. Fungi and lichens had this saprophytic mode of nutrition. The adaptability of plants was shown by those carnivorous kinds which digested animal food by means of a ferment. In such the roots became very small and assimilation by the leaves very slight. There was no group of simplest plants corresponding to the Protozoa, and there was no break in the plant series as in the animal. But if a division of plants were attempted, the simplest classes would be Confervoidea, Conjugata, and Schizophyta. The first were platelike or spherical forms, which separated into biflagellate individuals, forming zoospores that conjugated to produce a single mass, whence the new colony arose. If these were imagined to unite in a straight line, a confervoid form would be obtained. In the true filamentous confervæ each member of the series could break up into little bits which escaped just like the zoospores of the Flagellata. The Conjugata were filamentous or single cells, but never formed zoospores. In the Schizophyta, continued division of the cells was the only means of reproduction. There were two series. The Phycochromaceæ lived in fresh or sea water, and had peculiar colouring matters, often without chlorophyll. Their physiology was not well understood. The second series—Bacteriaceæ—were little removed from the first, though they were smaller and more dependent for food on organic matter. The simplest forms of bacteria were filaments which broke up into separate elements; and in a few cases the protoplasm collected and formed resting cysts, which would dry and float in the air, germinating when damped.

WORK FOR THE WEEK.

WARM ORCHIDS.

THE results of our labours will, to a large extent, be seen now in the fine display of flowers of different kinds which will be found in the orchid houses; in almost every collection Cattleya Mossiæ and its varieties, C. Mendeli in variety, C. Skinneri, and C. Schröderæ, will be flowering freely. The latter is one of the gems of the cattleya family, there being such variation of form and colour, in addition to the beautiful odour arising from it; every lover of cattleyas should grow plenty of this, as it is always welcome, and flowers after the earlier forms of C. Trianæ. When in flower C. Schröderæ ought to be kept in a dryer atmosphere than usual, it being very sensitive to damp; it can also be kept back to flower later if required by affording it a cool and dry house. Retarding, however, is not a wise practice, and it is much better for the welfare of the plant to treat it as naturally as we can, allowing it to flower in its proper course, and resting it in the same way. The repotting of the cattleyas mentioned may be done after the flowering season is over, the pots crocked as before advised, using a mixture of fibrous peat and sphagnum intermixed with a few fine crocks. After repotting little water is necessary if syringing is done over and between the pots twice a day; this will suffice until active growth takes place, then plenty of water must be afforded.

Lælia purpurata will also be giving a good display now, and few species are better worth growing, for it is both attractive and bold. L. purpurata Schröderæ is quite distinct, the labellum being beautifully veined; L. Russellianum is in the same style, but not so good; L. p. Backhousiana is another very distinct form, the petals being beautifully feathered and quite different from the ordinary type. Lælia Boothiana is an old orchid, and not much cultivated, owing to its shyness of flowering; yet this plant thrives well if grown with L. purpurata, and the roots allowed to run over the rim of the pot; in fact, we scarcely see it in flower when kept within bounds—it loves to be free, and enjoys moisture. Lælia Latona, a hybrid resulting from L. purpurata crossed with L. cinnabarina, is a grand addition to our hybrids; this may be grown successfully among the cattleyas and lælias. Some vanda of the V. tricolor and V. suavis section will be in flower, and care must be taken to keep the flowers dry; neat stakes will also be necessary to support their weight. Vanda teres will also be flowering, and great care must be taken of the flowers, for bruises soon appear if they are handled roughly. Sobralia macrantha, and S. m. alba—the latter, with the exception of the lemon at the top of the throat, being as pure a white as can possibly be seen—are now flowering. The type is not much sought after, the flowers lasting such a short time; an occasional dose of weak liquid manure will be beneficial to sobralias. Thunias, being of quick growth, will already be showing flower buds; the syringe must be used freely to prevent red spider and thrips, as these orchids are very subject to both pests. Peristeria elata, perhaps, will be found in the collections of amateurs, and if repotting is necessary, this may be done now; if not, do not pot for the sake of doing so. Fires must now be checked early in the morning, and plenty of air be afforded in a proper manner; watering and syringing must be done with discretion yet.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE

FOR the most part chrysanthemums will now be occupying six-inch pots, and as it is not usual to give the plants the final shift until the end of the months they should be attended to at least twice a day during bright weather to see that they do not suffer from want of water. It is also necessary to allow the plants plenty of room in order that they may retain the lower leaves and make sturdy growth. Where a large quantity is grown suitable pits and frames are not always at command to afford the protection the plants still require at night, therefore temporary ones have to be provided until it is safe to fully expose them. A sheltered nook should be selected, and the plants arranged on a bed of ashes, round which place sheephurdles, or boards, to break the wind and to support the night covering.

The plants should be twisted round at least once a week to prevent them rooting into the ashes, and see that greenfly does not gain a foothold, to dislodge which we find it best to dip the tops of the plants in a weak solution of soft soap and water, or a little tobacco powder may be dusted where they are located. Some varieties have a tendency to produce flower buds, which must be pinched out as soon as they can be seen, and the plants encouraged to make clean growth. In the meantime a good heap of compost should be prepared in readiness for placing the plants in their flowering pots. By mixing this now, and turning it over once or twice a week in an open shed it will be in a grand condition when required, as the soot and horse-droppings would heat somewhat, and free the turf of wireworm and other insects.

We are now potting on our main batch of cyclamen raised from seed sown last August. The compost used consists of good fibrous loam two parts, one part of leaf-mould, one-seventh of decayed manure, and a liberal quantity of coarse sand. The plants are being placed in five-inch pots, and by growing them on briskly many of them will be strong enough for pots two inches larger later on. After potting afford a light shade, maintain a humid atmosphere, and avoid sudden inrushes of cold air. Give liberal supplies of water as soon as it is seen they are growing freely. If once allowed to become thoroughly dry weeks elapse before they are induced to grow freely again. All plants that have passed out of flower should be hardened off in a cold frame. Salvias in variety are useful winter-flowering plants, and where a batch have been rooted pot them on as they require it, pinching the shoots from time to time to make them bushy. They should now be placed in cold frames, giving full axposure whenever the weather permits, and so be sufficiently hardy for plunging in the open the first week in June. Many of the most forward plants of kalosanthes will be showing their flower trusses, and as the plants generally are grown in small pots, it will be almost impossible to overwater them, while weak liquid manure occasionally will greatly assist in securing fine trusses of bloom, and give the foliage a deep green colour. Weak soot water is also recommended for the same purpose. Place those intended for succession in cold frames to gradually harden them, where they may be stood in the open later on. Those intended for flowering next year must not be pinched back in any way, as the shoots require a full year's growth before they produce bloom. Pot them on, or if large specimens are required any number of even size plants may be grouped in large pots or pans, and they make bold objects in the conservatory when in flower. Bouvardias that have been kept in cold frames at rest are now starting naturally, and the shoots are very short-jointed and hardy, very different to those produced when the plants are started in a forcing-pit. We are now partially shaking them out, and replacing them in smaller pots. They will be kept close and shaded for a few days, afterwards giving them full exposure, and many of them will be planted out on a south border. In colder localities, however, it would be safer to grow them in cold frames, either in pots or planted out, so as to give the plants the protection of the lights, should the weather prove unfavourable to free growth at any time.—R. Parker, *Goodwood.*

THE FLOWER GARDEN.

The next few weeks will, in the majority of gardens, be an unusually busy time in this department. Where the stocks of such plants as ageratums, coleus, alternantheras, and iresine are still deficient cuttings may yet be struck in time to make plants for June. The easiest and quickest method is by a frame or frames on a hotbed of leaves or manure on which two or three inches of light soil is placed, a little sand sprinkled over the surface, and the whole pressed firm; into this the cuttings may be thickly dibbled just as cut from the stock plants, as at this season they strike most readily. Alternantheras form roots in a few days if kept close, and great quantities may be struck in a few weeks in this way by a continual topping. Hardening off should receive due attention, and any plants coming from a warm house into frames should be kept rather close for a few days; with bedding pelargoniums full exposure, after gradually hardening off, should be given for a week or two before planting out, otherwise the foliage will be liable to suffer from bright sun or cold winds. Where the beds in the flower garden are filled with spring-flowering subjects bedding out for the summer will be somewhat late unless the spring occupants are cleared out before really past their best, the cold and somewhat sunless weather of the last two months having considerably retarded their blooming. If the beds are empty, many subjects may be planted forthwith, especially the hardy groundwork of carpet-bedding arrangements, where these are still carried out. A more pleasing style of bedding is now, however, more generally practised, and plants of a less formal nature used. Edgings of hardy sedums may be made up, and the variegated grass, Dactylis glomerata variegata, quite hardy, makes a capital edging plant. Old clumps, if lifted and pulled up into small pieces, make good planting material, and form an effective edging to beds filled with crimson, scarlet, or pink pelargoniums; and is also useful for covering the surface of a bed as a groundwork where taller subjects are used. Fuchsias, heliotropes, pelargoniums, palms, &c., of four to five feet or more in height, may be used thinly dotted over large beds, with a carpeting of some low-growing or creeping plant, as sedums, mesembryanthemums, and violas, with others of intermediate height, from one and a half to two feet, of tuberous begonias, pelargoniums, or other subjects that may be to hand. This style of bedding is more generally attractive and now much in vogue.

Violas being quite hardy, should be planted out early, and given a chance of becoming well established before hot weather sets in. These also form a good groundwork in mixed bedding, where tall plants are used as mentioned above, while the blue and purple varieties may be associated with variegated leaved pelargoniums only, and make pretty beds. The old Manglesi variegated pelargonium, and the dark blue viola Archie Grant, the former being allowed to retain its small pinkish blooms, makes a charming combination of a simple nature. Stocks and asters should be planted out from where raised in frames, before becoming drawn: I sow rather late and transfer direct from the frame to the borders or beds where they are to flower. Zinnias, marigolds, scabious, gaillardias, salpiglossis, and others are treated in a similar manner, and invariably grow away quickly and do well. Roses are making slow growth, and already maggot and green fly are in evidence. The former must be destroyed by hand picking, or squeezing the rolled-up leaf with maggot. Green fly may be easily kept in check by syringing with a solution of Bentley's quassia extract, a most useful insecticide that may be quickly prepared for use by simply mixing with clear water to the strength advised in the directions. Delphiniums and other plants now growing fast in herbaceous borders should be staked and tied before they become long enough to fall over and grow into a twisted shape, as, when this occurs, they cannot be easily tied erect again. One of the prettiest subjects now in bloom in these borders is Tiarella cordifolia; others, including German iris and pæonies in variety, are fast opening, and the borders will soon assume a gay appearance.—C. Herrin, *Dropmore Gardens.*

HARDY FRUITS.

The cultivator will have plenty to do among hardy fruit trees for the next few weeks, as, owing to the genial rain we have had since my last notes, new growths have made good progress. The earliest strawberries on a south border are blooming freely, and with nice weather fruits will be very early in the south. So far, our earliest variety is Laxton's No. 1, and this is very strong also, but Royal Sovereign promises grandly; in fact, our young plants have been such a mass of flower spikes that it will be necessary to thin out for very early supplies. Mulching, as previously advised, should not be long delayed, and if not done before the flowers expand, it is best left till they are set; there is a great gain, however, in early mulching. Raspberries are now showing great quantities of suckers, and these must be reduced; the plantations must be mulched at this season, and some rich food may be given; in our light soil we give cow manure that has been prepared by placing it in bulk for a while. Old raspberry quarters will need food, and given now it conserves the moisture and builds up strong canes. Newly planted raspberry canes should not be allowed to fruit the first season; indeed, the canes should be cut down almost close to the soil, and if this is done strong shoots will follow. After a dry period, followed by warm rains, weed growth will be difficult to keep under in fruit quarters, so that the hoe should be kept going vigorously upon all favourable occasions. I do not know how the severe weather may have affected the crop of some fruits in the north, but with us gooseberries are scarce, and it will behove the cultivator to pay attention to those left. I find wood pigeons take the fruit when about the size of horse beans; indeed, the gooseberry appears to have many enemies; early in the year the small birds prey upon the buds, and we may now look forward to the attacks of caterpillars. The latter it is well to guard against at this season; we use lime mixed with dry wood ashes as a surface dressing, and find it answers thoroughly, indeed, it is much better given now than when the pest appears on the foliage. Of late years more gooseberries have been grown in an upright position, either trained against walls or a wire support. Last year I saw some trees in a quarter growing against wire fencing, in rows six feet apart, the wires being strained to posts about six feet high; this allowed of covering the whole quarter with a net, gathering the fruit with ease, and keeping birds at bay; at the same time the fruits were better than usual, the bushes having been given high cultivation.

With May well advanced there need be no delay in training peach and nectarine shoots, and in our case, with a sparse crop of fruit on the earliest kinds, the shoots are gross and will need early attention. Much may be done to keep strong shoots for extension, as the growth in one season, if allowed free play, will be great, and one may often do away with any misplaced old or weak wood now to give principal shoots more freedom. This refers to strong shoots on the main branches, and I would advise more freedom of growth, for we suffer much less from canker if young trees are not pruned too hard but allowed to cover a good space yearly. Far better remove intermediate trees than cripple young ones. Shoots springing from the base—those for next season's fruit supply—are often inclined to grow out from the wall, and these give trouble, as it is necessary to keep them in position; but they will now be in condition to be tacked or tied to the supports, and these may often be tied to the old bare wood as growth proceeds. Stopping shoots near fruits will need attention, as, though these may have been stopped previously, shoots push forth new growths, and again need similar treatment. It is well to note at this season that branches of young trees are not cut by ties given at their earlier training, as the shoots are now swelling freely, and the bark, once injured, cannot be remedied, while canker or gumming attacks the wounded portion as the trees attain age. It will not be advisable to defer thinning the fruits much longer; indeed, I have already removed a goodly number where at all thick. Early thinning is not often advised, as there is a danger of dropping during the stoning period. This may be in wet or heavy soils, but our trees never suffer in this respect; indeed, I find we do not thin enough with some varieties, as young trees bear so freely that they may be overcropped. In thinning it is well to examine the trees several times, and it will soon be seen what the trees can carry; in no case should a lot of fruit be left on one part of the tree and only a little on others, but every attempt should be made to distribute it evenly over the trees. The pear crop promises well, and the cultivator will soon be able to clear off the old flowers, which at times stick to the fruit and prevent swelling; with cordon and wall trees stopping will be needed frequently, and removal of useless spray will facilitate fruit swelling. Newly-planted trees will now need a mulch of good manure should they show any sign of flagging in hot weather, while a dewing overhead after hot sunshine will help to foster new growth. Trees recently grafted should be examined, and any that have failed to form a union should be allowed to make a new growth, as budding may be done later on. With grafts growing freely the binding may soon be loosened or moistened if necessary.—G. Wythes, *Syon Gardens.*

AN EXPERIMENT TO INDUCE SPORTING.

The references made some time since in the Gardeners' Magazine to the subject of sporting in chrysanthemums have suggested to me that the following account of an experiment I made in the season of 1896 may be interesting, even if it does not throw any additional light on the subject. It was in the dark days of the winter previous, while lamenting the hard fate of sundry flower-heads of chrysanthemums, which, after being carefully fertilised, had given up the struggle to produce ripe seeds, and hung down helplessly, a victim to "damp," the wish being father to the thought to produce new kinds suggested an experiment in grafting to gain the desired end. The idea may not be new, but as I have never heard or read of anything similar, perhaps it may possess a little merit of originality. My desire at first was to induce an artificial sport from the plant, but neither my reading nor my experience gave me a clue as to the best course of procedure. I had, so to speak, the material, but no tools or formula. Then the thought presented itself of graft hybridising, and though this is no new scheme, the method, so far as I know, is new.

Two plants of similar size but of very opposite character were chosen. These were in three-inch pots at the time, and were potted in pairs in six-and-a-half inch pots. After the roots had taken to the new soil the top of one plant was taken off about five inches from the tip, and a slit was made with an upward cut in the other at the same height. The point of the first was shaped into a long wedge, and inserted carefully in the slit of the second. They were then carefully bound with fine shreds of raffia, and some moss fastened round to insure moisture. Placed in a cool, shaded place, they united perfectly in about a fortnight. The plants were now growing two roots to one plant, and each was contributing an equal share to the maintenance of the growing foliage and resultant blooms. This was evident from stems of each stock swelling throughout the growing season. They were finally shifted into ten-inch pots and were placed with the rest of the collection. The varieties chosen were selected with an idea of ascertaining what effect the union would have on the colour and shape of the blooms. For this purpose Mdlle Thérèse Rey was united with Charles Shrimpton, the lead being taken by the first-named, so that any tinge of colour would show most distinctly on the white flowers. In No. 2, Mdlle. Thérèse Rey was again used in conjunction with J. S. Dibbens, the former being again the leader. In No. 3, Etoile de Lyon was coupled with Brookleigh Gem; in this case the incurved was given precedence, to see if the coarse reflexed blooms would influence its co-partner. In No. 4, Louis Boehmer and Mrs. F. A. Spaulding were wedded, the latter taking the lead; this was to try if the hirsute petals would tell on the smooth ones. No. 5 was Gloire du Rocher with Jeanne d'Or; and No. 6, Charles Shrimpton with Madame Charles Molin, the last-named in each case leading.

The results certainly were not very encouraging; in only one case could I see any variation from the normal. This was in No. 1, in which some petals were a decided pink. In all the other cases I could not distinguish anything from those under common conditions, the blooms, however, being exceedingly large and fine for their particular kinds. This hint may prove serviceable to big bloom growers, and prove a useful help to some beautiful but delicate kinds which have feeble root action; and perhaps might correct the deplorable bud-producing habit of others. As no patent rights have been secured for the process, I make chrysanthemists a present of the idea. Cuttings were taken above the union from the plant which showed a slight pink tint and grown on last season, but they showed no variation from the true variety, and so I suppose the experiment ends, and I am as far as ever from producing sports by artificial means.

To my mind, however, it seems to prove that the roots have little or nothing to do with the colouring of the flower, for although two root stocks were assimilating material and mingling the resultant sap all the summer, yet nothing of a colouring nature could have been collected by them. This, of course, may be nothing new to those versed in colour science and plant structure, but perhaps the experiment may have other teachings to them, and this must be my excuse in taking up so much space to record it.

Wollaton, Notts. R. E. Richardson.

EXHIBITIONS AND MEETINGS.

ALEXANDRA PALACE SUMMER SHOW.

THERE can be no doubt as to the suitability of the central hall at the Alexandra Palace for a big flower show. It is a splendid place with abundance of room, and plenty of light without brilliant sunshine. The exhibition under notice was to a large extent lost in this building, but that was largely due to the near approach of the Temple Show and the Manchester Exhibition, for many would-be exhibitors were holding themselves back for these. If substantial prizes are offered at some future and more suitable date the result should be a really fine exhibition. There would be fine opportunities here for the display of big specimen plants, such as tall palms, tree ferns, bamboos, &c., indeed, for big plants of all kinds, as there would be no necessity for crowding. In addition to the central hall there are huge annexes to it, and these, if occasion demanded, could be utilised for flower show purposes. Certainly no place in London is so well suited for horticultural displays, such as rose shows, &c., and it is comparatively easy of access. The catering, such a consideration to exhibitors and visitors, is excellently done by Messrs. Letheby and Cristopher, of East Grinstead, and perhaps nothing could speak better for their conduct and provisions than the eulogies of the exhibitors and their attendants, who were provided with breakfast by the authorities. "Fancy having hot rolls for breakfast at a show," was the exclamation of more than one attendant.

PLANTS.

Mr. George Cragg, gardener to W. C. Walker, Esq., Percy Lodge, Winchmore Hill, gained a first prize for a table of orchids with a pretty exhibit, the orchids being arranged amid light palms, and over a groundwork of maidenhair fern. Good forms of Odontoglossum crispum, Lælia purpurata, L. tenebrosa, Cattleya Schröderæ, C. Bowringiana, C. citrina, &c., and over all a number of graceful branching spikes of the brilliant Oncidium Marshallianum. But one exhibit of nine specimen plants was staged, and this set came from Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood. The specimens were well furnished, and moderately large examples of Croton Weismanni, Dracæna Gladstonei, Phormium tenax variegatum, Kentia Forsteriana, K. Belmoreana, Dracæna Lindeni, Pandanus Veitchi, Latania borbonica, and Caladium Mrs. H. Veitch, the latter beautifully coloured. Messrs. J. Peed and Son, Norwood, won the first prize for a group of flowering and foliage plants arranged on a space of two hundred and fifty square feet. The group was circular, and consisted of a band of dracænas and caladiums surrounding a big central kentia and liliums. Nearer the front were bright crotons, heaths, boronias, begonias, gloxinias, hydrangeas, &c., all arranged amid maidenhair ferns. The centre of the group was somewhat too crowded, but on the whole the display was effective.

CUT FLOWERS.

In the class for a collection of cut flowers, arranged on a table fifteen feet by four feet, the first prize was won by Mr. Amos Perry, Winchmore Hill, who staged fine bunches of tulips, iris in abundance, including a yellow form of I. pumila named Leander, a rich yellow variety; violets, Geum Hildriechi, G. Eweni (orange), Gladioli, trollius, the pretty Anemone bacailense, phloxes in variety, Cheiranthus Marshalli, &c. Spanish iris in variety also added much to the attractivenes of the exhibit. For a large group of cut flowers, twenty feet by six feet, Messrs. Paul and Son, Cheshunt, secured the first prize for a showy collection, consisting chiefly of bunches of brilliant rhododendrons, Mollis azaleas, Parrot tulips, late narcissi, fragrant violas, some early pæonies, geums, Megasea cordifolia in fine condition, and several forms of the bluebell showing varying and pleasing shades of colour; Scilla carnea was very attractive.

For one bride's and two bridesmaids' bouquets Messrs. Perkins and Sons won the first prize, sending three exquisite bouquets all the way from Coventry; lily of the valley, eucharis, pancratiums, gardenias, Odontoglossum crispum, and O. Pescatorei were the flowers chiefly used, while maidenhair fern and asparagus fronds supplied the foliage. Mr. Henry O. Garford, Stoke Newington, came second, the bride's bouquet being artistically composed of gardenias, roses, and an abundance of stephanotis; the bridesmaids' bouquets were of yellow roses, yellow marguerites, and golden Spanish iris. Mr. L. H. Calcutt, The Bank Nursery, Stoke Newington, came third, his bridesmaids' bouquets of crimson carnation and lily of the valley being very effective. Some beautiful roses were staged by Mr. G. Mount, Canterbury, and, though there were no competititors, other exhibitors would have found the Canterbury grower hard to beat. Mr. Mount was first for twelve and for twenty-four blooms, his stand of twelve containing excellent examples of Ulrich Brunner, Mrs. W. J. Grant, General Jacquiminot, Catherine Mermet, Capt. Hayward, Fisher Holmes, Mrs. John Laing, Niphetos, and Caroline Testout. The set of two dozen contained superb blooms of Mrs. J. Laing, Capt. Hayward, Perle des Jardins, and Catherine Mermet.

The only display of twenty-four bunches of cut flowers came from Mr. G. Cragg, gardener to W. C. Walker, Esq., who put up Lælia purpurata, L. grandis tenebrosa, Cattleya Lindeni, Odontoglossum Pescatorei, O. crispum, O. Cervantesi, Epidendrum rhizophorum, Dendrobium thyrsiflorum, Cymbidium Lowianum, Anthurium Scherzerianum, Cypripedium calceolus, Canna Florence Vaughan, Cytisus albus, Tulip Golden Eagle, &c., &c.

NON-COMPETITIVE.

Mr. S. Mortimer, Rowledge, Farnham, showed a splendid lot of tomatos and cucumbers. The former were Conqueror, and an improved form, and Abundance; the cucumbers were chiefly Lockie's Perfection, Improved Telegraph, and Sutton's Peerless, all well-developed, clean specimens of good serviceable size. A gold medal was awarded to Mr. T. S. Ware for a very long table of hardy plants and flowers, early irises, Cytisus andreanus, narcissi, tulips. Geum Hildriechi, primulas in variety, dodecantheons, aquilegias, hardy orchids, Ramondia pyrenaica, Trillium grandiflorum, and a flowering plant of Richardia Rehmanni, the blush tinted calla.

Mr. James Williams, Oxford Road, Ealing, gained a silver medal for a light table decoration of narcissi. A small gold medal was awarded to Mr. L. H. Calcut for his pleasing exhibit of vases, epergnes, arches, and other elegant floral arrangements, the designs being executed in white lilies, gay Spanish irises, blue cornflowers, and brilliant anthuriums. Messrs. W. Edwards and Son, Notts, arranged ferns in artistic baskets. Messrs. Wood and Son, Wood Green, had a large display of horticultural sundries, including bamboo rods in all lengths and thicknesses, baskets, garden cutlery, samples of soils and manures. Mr. W. Colchester, Ipswich, staged a collection of samples of manures, including their speciality. A bold display by Messrs. W. Cutbush and Sons, Highgate, secured a gold medal; this consisted of big palms, bamboos, and baskets of hydrangeas, with Souvenir de la Malmaisons, carnations, heaths, mollis azaleas, heaths, Otaheite oranges, boronias, crotons, &c., in front, with an edging of maidenhair fern and isolepis; a good display. An exhibit of cacti from Mr. H. G. Bourne, Grove Villa, New Southgate, secured a silver-gilt medal; about a hundred and thirty plants were staged, including many rare species and some new phyllocactus hybrids. A small Cereus giganteus, over sixty years old, occupied a prominent position, as did C. cærulescens; several echinopsis were flowering and making new growths. Others were Mamillaria sub-polyhedra, Opuntia microdasys, Astrophytum myriostigma, stapelias, and Cereus flagelliformis, an interesting display.

READING GARDENERS' ASSOCIATION.

THE first meeting of the summer season of the Reading and District Gardeners' Mutual Improvement Association was held on Monday evening last, when the chairman of the Association, Mr. Turton, presided over a good attendance of members. The subject for discussion was hardy flowers, including shrubs and bulbs. This was introduced by Mr. Townsend, gardener to Sir William Farrer, Sandhurst Lodge, who said that he should refer principally to those varieties which made the garden look gay during the early months of the year, and only those which were grown in the gardens under his charge. The following varieties were touched upon. Flowering shrubs—Amygdalis, abelia, andromedas, buddleas, berberis, cydonias, cerasus, cratægus, ceanothus, choisya, cytisus, carpenteria, chimonanthus, calycanthus, cistus, cornus, deutzia, daphne, Diplopappus chrysophyllus, escallonias, forsythias, Garrya elliptica, genista, iberis, jasmine, kerrias, laburnum, Leycesteria formosa, ledum, mespilus, magnolias, nuttallia, pyrus, prunus, philadelphus, ribes, spiræa, sambusa, ulex, viburnum veronica, weigela. Bulbs—Hyacinths, tulips, narcissi, crocuses, aconite, chiondoxas, triteleias, scillas, grape hyacinths, alliums, ornithogalum, leucojum, dog's-tooth-violets, trilliums. Flowers (flowering from February till the early part of May) hellebores, violets, arabis, laubrietias, daisies, wallflowers, myosotis, primroses, polyanthus, alyssum, doronicum, alpine phlox, and Primula Sieboldi. A discussion followed. An interesting feature of the meeting was the large display of cut flowers, including Primula Sieboldi, daisies, myosotis, tulips, trilliums, pansies, lily of valley, wallflowers, narcissi, auriculas, honeysuckles, roses (outdoor growth), &c. These were contributed by Mr. Turton, Maiden Erlegh Gardens, Mr. W. Smith, gardener to Miss Neild, Greenbank, and Mr. Townsend, the latter exhibiting a splendid grown anthurium showing 45 spathes. A vote of thanks to the lecturer and to those members who had brought the flowers ended a pleasant evening.

ISLE OF WIGHT HORTICULTURAL ASSOCIATION.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last, when there was a large attendance of members present, presided over by Dr. J. Groves, B.A. Mr. A. Key, M.A., formerly of Wadham College, Oxford, gave a most interesting and instructive experimental lecture on "Plant Foods: Their Detection in Vegetables and Soils." The lecturer stated at the outset there were seventy-two elements, and that fourteen of these were generally found in plants, several of them being indispensable and required in larger quantities than others; amongst these were "phosphates," for without which no seed would germinate and fruits would be practically worthless. Mr. Key then performed several experiments showing how to ascertain the presence of phosphates in soils, manures, fruits, and seeds. At the close he received a most unanimous vote of thanks. Several interesting exhibits were staged. Mr. G. Nobbs, F.R.H.S., gardener to Her Majesty at Osborne, received the association certificate for cultural merit for a fine spike of Imantophyllum (Lord Wolverton) with twenty-three blooms. Mr. J. J. Livington, gardener to Dr. Coombes, Newport, staged a fine plant of Dendrobium densiflorum, and Mr. J. Nicholas, gardener to Mrs. Gray, Kintore, Sandown, a well-flowered plant of Hydrangea. Eleven new members were elected. The first excursion of the season took place on May 19 to Appley Towers and St. John's Vicarage, Ryde.

EAST COWES HORTICULTURAL SOCIETY.

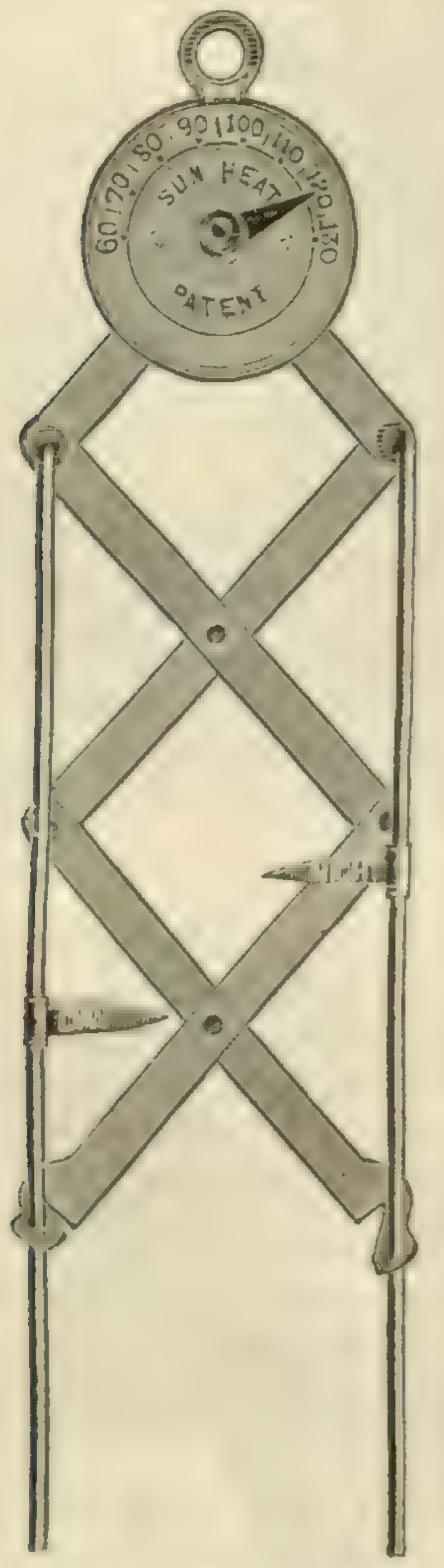
THE fortnightly meeting of the East Cowes Horticultural Society was held on Wednesday, when an excellent paper on the "Cultivation of Carnations" was read by Mr. A. Saunders, gardener at Stanhope Lodge, Cowes. The subsequent discussion proved very interesting and instructive.

The Pleasing Primrose.—I like that name best for the beautiful Primula cortusoides amœna (P. Sieboldi) in its many rich and charming varieties. Though fairly hardy, as it blooms through April and May, it thrives best in sheltered and and well-drained positions. The stature of the flower stems, the thinness of the flower and foliage, renders such favourable environments needful for the full display and careful preservation of their beauty. Those who cannot command cosy sheltered positions for their finer strains of the pleasing primroses in the open air, cannot do better than grow them in pots in cold pits and frames, or use them as window plants, or in cool greenhouses. These are very distinct and different from all other members of the primrose family, and the finer varieties never fail to please, either as plants or cut flowers in small and graceful vases, verdurised with their own elegant foliage.—D. T. F.

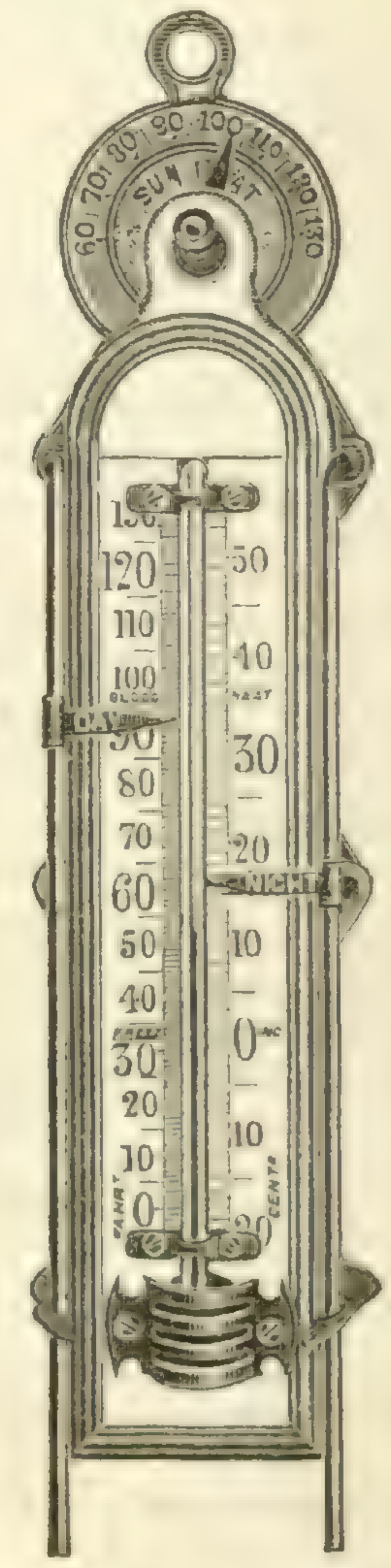
Border Auriculas.—What charm there may be found in these hardy plants even in a large town is evidenced by the exceedingly pretty display made by my fellow townsman, Mr Shepherd, of the firm of Puttock and Shepherd, whose private residence close to the town allotments is fronted by a garden of border auriculas. I saw the plants there the other morning when passing, and many were then in bloom, but by the end of the month the display will be a very charming one. This is not the only town example of the way in which the auricula does here, for there are other ones, but Mr. Shepherd has sought to improve his stock by selecting plants carrying fairly stout erect stems, and flowers of bright, effective colours. There is very much room to improve these auriculas in these respects, and those florists who love them but have no greenhouses or frames may find as much pleasure in cultivating these hardy varieties as the fancier does with his choice house-grown ones. In some respects perhaps more pleasure may be obtained, as these border forms admit of much advance and development. The choice show and alpine varieties admit of very little. Now is a good time for any-one willing to embark in border auricula culture to obtain seed and sow it. Do this in a shallow box or in broad shallow pans; have fine sandy soil on the surface; sow the seed very thinly and evenly, then press it in gently with the points of the fingers; strew a thin coating of the fine soil over all, water gently, then place in a frame or greenhouse, or in a warm place outdoors, covered with a bared light or large pieces of glass, and shade with newspaper. The seed coats are hard and take some time to soften, so that the plant germs can burst through. Seeds of last year should germinate within a month, but often some comes late, and plenty of patience is needed. Still the bulk of the seeds will give plants that will make nice strong ones to flower the following spring.—A. DEAN, *Kingston.*

NEW INVENTION.

Simplicity Thermometer-Holder and Indicator.—This novel and useful invention meets a long-felt want and entirely does away with the old practice of writing small labels and attaching them to the thermometer as guides to the man in charge with respect to the temperature required. The shape and manner of using the holder is explained by the illustration. The rack can be widened or narrowed according to the breadth of the thermometer used, while the movable pointers keep the instrument firm. Besides the "night" and "day" indicators, there is one at the top attached to the knob on which the thermometer hangs, and this can be used to indicate how high the temperature of the house may be allowed to rise by the aid of sun heat. The holder is ornamental as well as useful, and doubtless will in the near future be used in hospitals, churches, public halls, living rooms, &c., as well as in the glasshouses of private and nursery establishments. Mr. A. Outram, 7, Moore Park Road, Fulham, is the inventor, and from him the holders can be obtained at a reasonable price.



SIMPLICITY HOLDER.



SIMPLICITY HOLDER WITH THERMOMETER ATTACHED.

Plant and Seed Protectors.—Mr. William Cutler, of Constitution Hill, Birmingham, who has for a long period produced his series of plant and seed protectors to the satisfaction of many who have used them, is introducing a new patent pea or seed cover of galvanised iron, which deserves attention for its utility and inexpensiveness. The invention consists of a glazed span framework some twenty-four inches long by sixteen broad, provided at each corner with a spike-formed termination, which can be pressed into the ground to any needed depth. As the ends are quite open, a succession of covers can be ranged to any required length without the slightest interference with the protected vegetation, and sufficient air is admitted to exclude condensation. As the glazed roof is in sliding panels, movable at will, further ventilation is available whenever required.

ROSE SHOW FIXTURES IN 1898.

June 15 (Wednesday).—York.
,, 16 (Thursday).—Colchester and Isle of Wight (Carisbrook.)
,, 23 (Thursday).—Bath (N.R.S.) and Ryde.
,, 25 (Saturday).—Windsor.
,, 28 (Tuesday).—*Leeds, †Southampton, Sutton, and Westminster (R.H.S.)
,, 29 (Wednesday).—Canterbury, Croydon, and Richmond (Surrey).
,, 30 (Thursday).—Eltham, Gloucester, and Norwich.
July 2 (Saturday).—Crystal Palace (N.R.S.).
,, 5 (Tuesday).—Harrow and Hereford.
,, 6 (Wednesday).—Chelmsford, Ealing, Farningham, Hanley, Hitchin, Redhill (Reigate), and Tunbridge Wells.
,, 7 (Thursday) —Woodbridge.
,, 8 (Friday).—Ulverston.
,, 9 (Saturday).—Manchester.
,, 12 (Tuesday).—*Wolverhampton.
,, 13 (Wednesday).—Ipswich, Maidstone, and *Newcastle-on-Tyne.
,, 14 (Thursday).—Halifax (N.R.S.), Brentwood, Canterbury (Hospital Fund), and Helensburgh.
,, 16 (Saturday).—New Brighton.
,, 21 (Thursday).—Sidcup.
,, 26 (Tuesday).—Tibshelf.
,, 28 (Thursday).—Bedale.

* Shows lasting three days. † Shows lasting two days.

The next list of fixtures will appear early in June. In the meantime I shall be glad to receive the dates of any rose shows (or other horticultural exhibitions where roses form a leading feature) for insertion in that list.

Rosebank, Berkhamsted, Herts.

EDWARD MAWLEY.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Eucharis amazonica.—D. W. B., Malvern Wells: We hope in an early issue to deal with the matter you mention. Meanwhile we shall be glad to furnish you with any information you require upon the subject. We are always glad to receive letters of the kind you send.

Weed Killers.—J. G. W.: The majority of the weed killers in use are arsenical preparations, and therefore they should not only be used with ordinary care, but the vessels containing them should be kept under lock and key, where those only who are acquainted with their properties should have access to them.

Ficus macrophylla.—H. E. W., Willesden: This is the Australian Banyan or Moreton Bay fig. It is seldom grown in this country outside botanic gardens, but where there is room for it its deep-green and glossy foliage render a not unattractive plant. It is a species easily cultivated, and one that will grow in a stove, succeed in an intermediate house, or exist in a greenhouse. It does best in a warm greenhouse or intermediate house and is not very particular as to soil.

Propagating Petunias.—T. M. F., Warwick: The double petunias with which you are so pleased may be propagated by means of cuttings struck in August. Single forms may also be retained by this means if thought desirable, though seedlings are now so fine that it is hardly worth while to raise stock by means of cuttings. The cuttings may be inserted several together in pots of light sandy soil placed in a temperature of 60 degrees; here they will soon root, and should then be potted into three-inch pots. Harden off as quickly as is reasonable, and keep the plants in greenhouse or pit during the winter, potting them on in the spring.

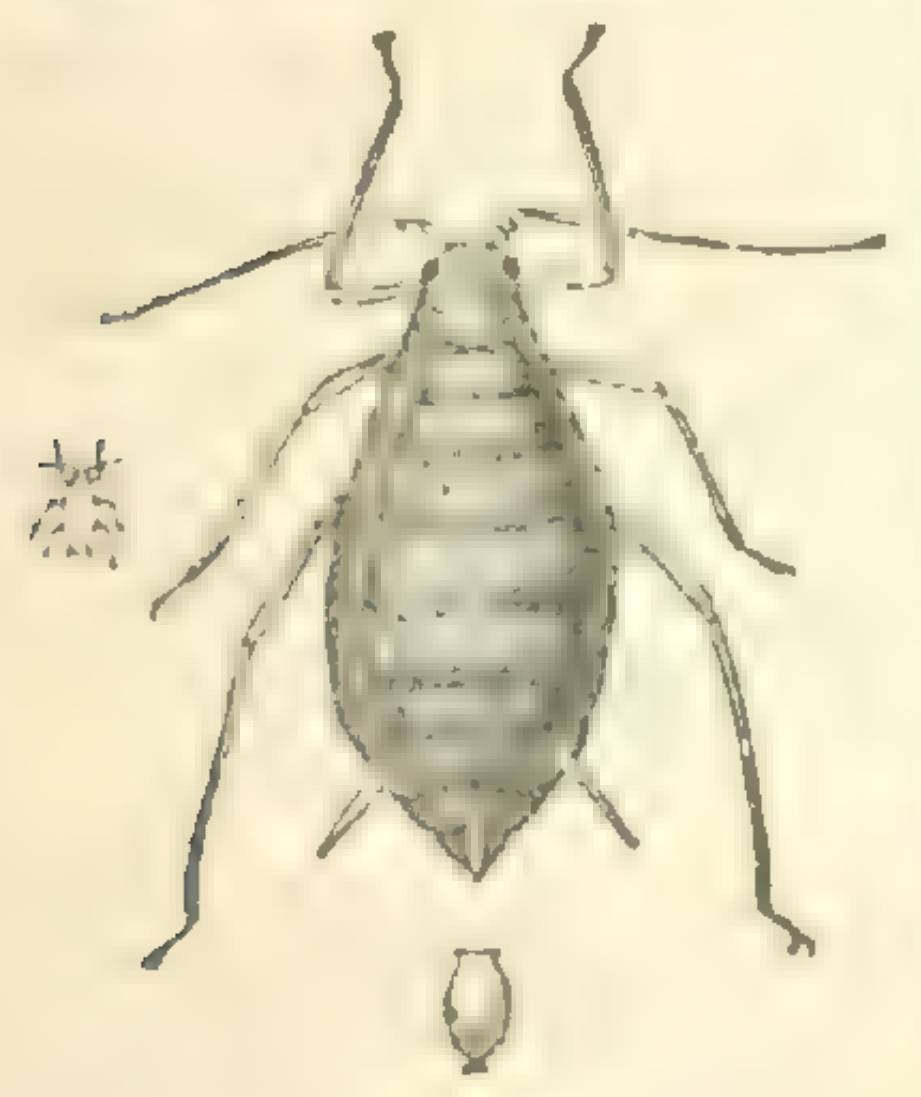
Caterpillar on Peaches.—P. O.: The caterpillar sent was in an advanced stage of decomposition when received, and consequently could not be recognised. It is one of a class known as "loopers," so called because the fore part of the body clings to a twig or leaf, while the centre forms an upward loop, thus dragging the hind part forward; this accomplished, the claw-like feet of the hind part grip the same twig, and the forward part and centre extends. This business is continually repeated, and forms the mode of locomotion. Hand picking will be the best remedy, and with a little patient perseverance the intruders may be cleared out. A cloth spread below the trees may also serve to trap any that fall if the branches are smartly tapped.

Lack of Flavour in Melons.—H. B., Leicester: The lack of flavour was due to two causes—too large a root run, and excesss of moisture when the fruits were ripening. Restrict the roots by means of slates or boards, and when the fruits are ripening reduce the water supply and do not damp down the frame at closing time. Raise the fruits upon clean inverted pots, so that they are under the full influence of all the sunlight that reaches the frame; give a moderate amount of air at this period, and supply water so that the roots only are moistened. You should also remember that some varieties of melons are more highly flavoured than others, but of course no variety will yield luscious fruits if improperly cultivated.

Strelitzia Reginæ.—B. B., Weston-super-Mare: This bold and curiously flowered plant is generally grown in a stove, but it can be even better accommodated in an intermediate, house. A greenhouse will suit it in the summer if more warmth is afforded during the winter. It has stout roots, and consequently needs fairly large pots and a substantial compost of loam, sand, and a little dried cow manure. Propagation is effected by division or the removal of the young sucker-like growths that spring up around the parent plant; potting or dividing should be done as early as possible after flowering, so that the plants become established before winter. Pot firmly, and afford newly potted plants some extra warmth until roots and growth are active, then the temperature may be lowered somewhat, and shade dispensed with altogether.

Globe Amaranth.—E. R., Greenwich: It is somewhat late to sow seeds of the Globe Amaranth, as the usual time for sowing is April. However, it is not too late for a good batch, especially as growth will be quick now. Sow the seed in pans of fine light soil, keep moist, and place in a temperature of from 60 to 70 degrees. Place the pans near the glass as soon as the seedlings appear, shade slightly from bright sunshine, and give a little air on favourable occasions. It is best to sow the seeds thinly, so that the seedlings are not quickly crowded; when two inches high pot the seedlings singly into three inch pots, using a rich loamy soil. Keep the batch close and shaded for a few days; then admit air carefully, and while maintaining a good growing atmosphere see that the plants are not drawn or weakened. Syringe the plants lightly twice a day, and keep the roots nicely moist. As soon as well rooted in these pots transfer the plants to those six or seven inches in diameter; drain carefully, and use a rich loamy compost. As soon as established in these, their flowering pots, an intermediate house or pit will suit them, giving plenty of air in fine and warm weather. When fully grown a somewhat cooler house will suit them better, as here, with a dryer atmosphere, the flowers will develop steadily and last a long time in first-rate condition. Fumigation will, perhaps, be necessary occasionally to keep down green fly. Place a neat stake to support the leading stem of each plant as soon as the final potting is completed.

Failure with Grapes.—E., Wimbledon: The damage is not due to thrips, but to rust and scalding, brought about most probably by an overheating of the vinery, followed by a rapid cooling. When from any cause a vinery becomes too hot, it is folly to open all the ventilators wide so as to quickly reduce the temperature; the more rational method is to admit air gradually, so that the temperature of foliage and berries becomes gradually lessened at the same time, and no chill is given. Sudden currants of cold air also cause the atmospheric moisture of the house to be deposited upon the berries, and this collecting into a drop acts as a lens and magnifies the sun's power, causing scalding. The great point is to air the vineries gradually, commencing early in the morning on bright and warm days; also damp floors and walls frequently in hot weather, as this serves to remedy excessively high temperature. Opening the front instead of the top ventilators is another cause of rust, when done ere the vines have considerably advanced and before mild weather prevails.



Turnip Aphis (Female).

Turnip Fly.—A. E., Winchester: In dry seasons the Turnip Fly (*Aphis rapæ*) often proves most destructive to turnips, and even in ordinary seasons it will put in an appearance if a week or two of dry, bright weather prevails. It varies in appearance, the wingless female being green or yellow in the summer, and dull red in the autumn; while the winged female is brownish black. A wash prepared by adding twenty-eight pound of soft soap and a pint of tobacco juice to a hundred gallons of water is a good remedy; but the most efficient is water to which paraffin has been added at the rate of two wine glassfuls to three gallons of water. To ensure the mixing of the paraffin oil with the water, add one part of soft soap to eight parts of water, and when brought to the boiling point add the paraffin, which will then thoroughly amalgamate with the water and soft soap. When properly diluted apply with a can to which a fine rose has been affixed or by means of a syringe.

Names of Plants.—H. E. W., Willesden: Ficus macrophylla.

W. O., Bristol: We cannot undertake to name florists' varieties of plants; send it to some nurseryman who grows extensively, such as Mr. C. Turner, of Slough, or Mr. H. J. Jones, Lewisham.

R. E. R., Nottingham: Pyrus malus; we should be glad to see a copy of the photograph to which you refer.

J. H., Fetcham: 1, Fritillaria delphinensis; 2, a form of Panax Victoriæ; 3, Pellionia Daveaneana.

L. M.: 1, Larix Europæa var.; 2, please send better specimen; 3, Juniperus chinensis; 4, Pinus Strobus; 5, not recognised; 6, Gentiana acaulis; 7, Sedum aizoideum variegatum; 8, Sibthorpia Europæa.

I. F., Yorks: 1, a mignonette, very poor form; 2, Alyssum saxatile; 3, a form of Prunus triloba.

A. B., Epping: Quite shrivelled when received, send again.

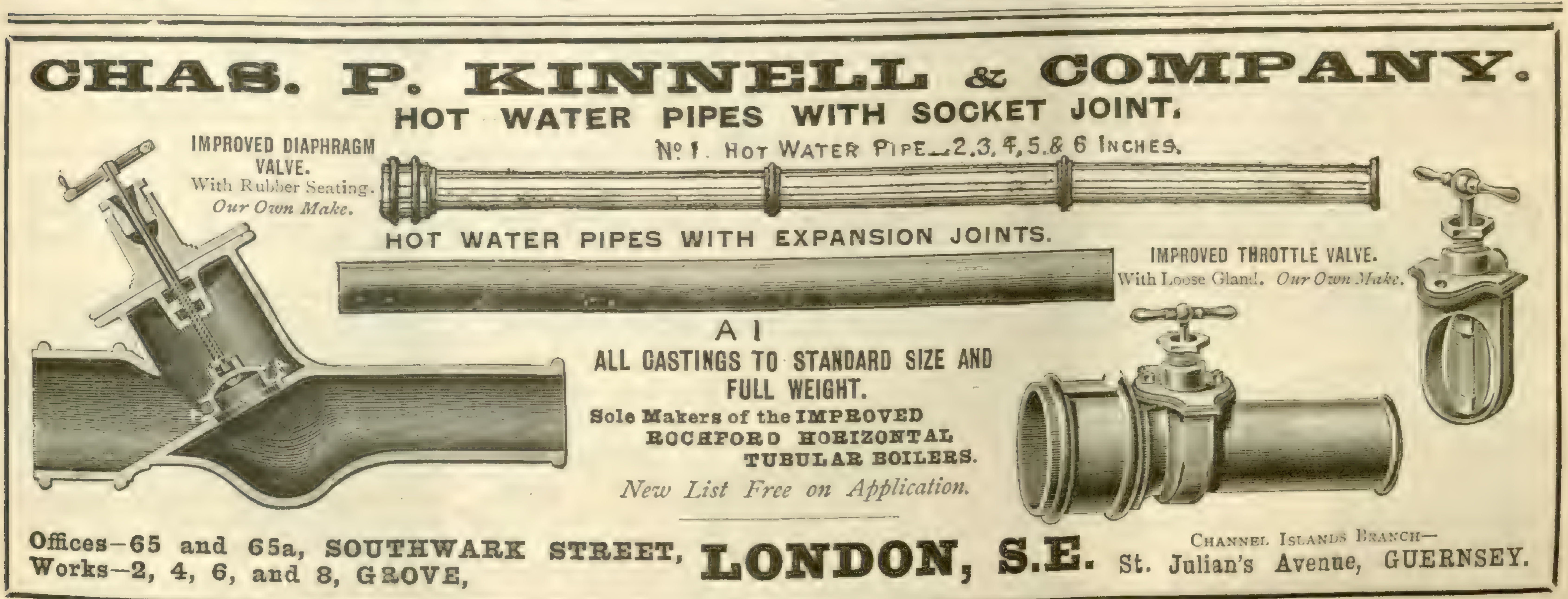
COMING EVENTS.

Alderley Edge and Wilmslow Horticultural Society, August 12 and 13; and November 11 and 12.
Ashbourne Horticultural Society, August 10.
Barnsley Chrysanthemum Show, November 17 and 18.
Bradford Chrysanthemum Show, November 11 and 12.
Dover Flower Show, August 17 and 18.
County of Gloucester and Cheltenham Horticultural Society, May 28 and 30; September 21.
Colchester Rose and Horticultural Society, June 16 and November 3.
Cranbrook Chrysanthemum Show, November 9 and 10.
Dorchester Chrysanthemum Society, November 2 and 3.
Grittleton and Alderton Flower Show, August 17.
Henley Horticultural Society, August 31.
Latton (Wilts) Flower Show, September 1.
Maintree Chrysanthemum Show, November 10.
National Cactus Society, Drill Hall, Westminster, July 26.
Newton Stewart Chrysanthemum Show, November 23.
Nottinghamshire Horticultural and Botanical Society, July 13 and 14.
Parkstone Chrysanthemum Society, November 2 and 3.
Rugby Chrysanthemum Show, November 16 and 17.
Stoke Newington Chrysanthemum Show, November 9 and 10.
Swindon Chrysanthemum Society, November 2, 3, and 4.
Sutton Amateur Rose Society, June 28.
Stirling Maxwell Gardens Horticultural Society, Pollokshaws, August 20.
Thame Chrysanthemum Society, November 17.
Witney Chrysanthemum Society, November 8.
Woolwich Chrysanthemum Show, November 3, 4, and 5.

CATALOGUES RECEIVED.

J. Cheal and Sons, Crawley.—Dahlias, violas, &c.
Frederick Roemer, Quedlinburg, Germany.—Novelties.
H. J. Jones, Lewisham.—Dahlias, Begonias, Pelargoniums, &c.
O'Brien, Thomas and Co., Upper Thames Street.—Garden Furniture.
S. A. van Konijnenburg and Co., Noordwijk, Holland.—Bulbs.
Charles Turner, Royal Nurseries, Slough.—Stove and Greenhouse Plants.
Wm. Clibran and Son, Altrincham and Manchester.—General Catalogue.

UNITY IS STRENGTH may indeed be said with regard to Holloway's Pills and Ointment, for when used together, they are remarkable in their effects upon disease. No matter how stubborn the symptoms may be, they cannot long withstand these remedies. All sufferers, whom other treatment has failed to relieve, should try the celebrated Ointment, which will strengthen and cure them. The Pills recommend themselves to the attention of all sufferers. No injurious consequences can result from their use; no mistake can be made in their administration. In indigestion, confirmed dyspepsia, and chronic constipation, the most beneficial effects have been, and always must be, obtained from the wholesome power exerted by these purifying Pills over the digestion.—[Advt.]



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CROMPTON AND FAWKES, CHELMSFORD.

MARKETS.

Covent Garden.

SUPPLIES of vegetables continue to improve, and there are fair supplies of fruit. Home-grown gooseberries have come along with a rush, but the only apples in the market are Tasmanian. Strawberries are cheapening as the season advances, and new potatos are daily becoming more plentiful.

FRUIT.—Tasmanian apples, 10s. to 18s. per case; pineapples, 2s. 6d. to 5s. 6d. each; bananas, 5s. to 9s. per bunch; Murcia oranges, 10s. to 14s. per case; Jaffas, 12s. to 16s. per box; English grapes, 2s. 6d. to 3s. 6d.; Jersey, 2s. 3d. to 3s.; Belgian, 1s. 3d. to 1s. 9d. per lb.; lemons, 6s to 15s. per case; English tomatos, 8d. to 10d. per lb.; Canary, 10d. to 1s. 4d. per tray, 3s. to 4s. per case; strawberries, 1s. to 1s. 9d. per punnet; Cornish gooseberries, 3s. to 3s. 6d. per small basket.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. to 3s.; daffodils, 1s. 6d. to 4s; tulips, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 2s. to 3s.; polyanthuses and cowslips, 1s. to 1s. 6d.; primroses, 9d. to 1s.; bluebells, 6d. to 8d.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays: bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Egyptian onions, 6s. to 7s. 6d. per cwt.; English spring, 2s. to 3s. per dozen bunches; green peas, 3s. to 4s. per dozen pockets; asparagus, 1s. to 5s. per bundle; French beans (Madeira), 3s. to 3s. 6d. per basket; eschallots, 1s. 6d. to 2s.; garlic, 2s. 6d. to 3s. 6d.; mushrooms, 6s. to 8s. per 12 lb.; lettuce, 6d. to 1s.; cos, 2s.; endive, 1s. 4d. to 1s. 8d.; cucumbers, 2s. to 5s.; cauliflowers, 1s. to 2s. per dozen; parsley, 1s. 6d. to 1s. 9d.; mint, 3s. 6d. to 4s. 6d.; new carrots, 6s. to 7s.; turnips, 6s to 7s. per dozen bunches; spinach, 2s. per bushel; rhubarb, 2s. to 3s. per dozen bundles; Canary new potatos, 9s. to 12s.; Malta rounds, 8s. to 10s. per cwt.; Lisbon, 5s. 6d. to 6s. 6d. per box; French, 2d. to 2½d. per lb.

Borough Potato Market.

Old tubers are decreasing in supply, but owing to the large quantities of New Jersey potatos the demand is met, and fair prices are recorded. Dunbars, 130s. to 140s.; Scotch Magnums and Hebrons, 110s. to 120s.; Bruce Main-crop, Sutton's Regents, Reading Giant, and Saxons, 100s. to 110s per ton; Belgians and Germans, 4s. 9d. to 5s. 3d per bag. New—Maltese rounds, 9s. to 10s.; Teneriffe kidneys, 12s. to 13s.; Jersey, 24s. to 28s. per cwt.; Lisbon rounds, 5s. to 5s. 6d. per box.

Fruit Prospects in Wilts.—The fruit prospects here are at the present very rosy. I cannot remember ever seeing so much blossom upon the trees. Apples, pears, plums, damsons, cherries, apricots, peaches, gooseberries, and currants are loaded with bloom or fruit, and if climatic conditions continue to be favourable we shall have a magnificent crop. What few apples we had last year in the orchard were extra fine, and in point of keeping were good. I sent in the last dish of Cox's Orange on Easter day, April 10. We have several hundreds of apple trees, and all are showing beautifully. Peaches have set with freedom, so also have apricots, and this in spite of very low temperatures during the flowering period. Individual pear trees have been a wealth of bloom, notably Jargonelle with its huge clusters, Pitmaston Duchess, Marie Louise, Doyenne D'Ete, Doyenne du Comice, Comte de Lamy, Williams' Bon Chretien, Beurre Diel, &c. Apples on walls were beautiful, notably, Red Astrachan, Irish Peach, and Cox's Orange. Cherries were a wealth of blossom, and among the best were Bigarreau, May Duke, and Elton. The apricots that have set best are Large Yellow and Shipley.—W. A. COOK, *Compton Basset, Calne, Wilts.*

THE WEATHER DURING THE WEEK ENDING MAY 14, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	61·6	36·0	50·7	10·39	0·54	1·37
Croydon	62·5	33·8	49 9	9·94	0·73	1·85
Brighton	62·6	37·0	50·9	10 50	1·50	3·81
Bristol	61·0	38·0	48·9	9·39	0·75	1·90
Wolverhampton	64·0	33·5	48·0	8·89	0·61	1·55
Norwich	57·2	35·0	47·5	8 61	0·71	1·80
Nottingham	62·5	35·0	48·2	9·00	0·45	1·14
Liverpool	56·8	38·4	46·0	7·78	1·00	2·54
Huddersfield	57·0	36·5	47·9	8·83	1 15	2·92
Bradford	62·4	38·6	49 4	9·67	0·85	2 16
Hull	60·0	36·0	46·4	8 00	0 53	1·35

The mean reading of the Barometer during the week at Greenwich was 29·55 inches, and that of the Thermometer 50°·7, the latter being 1°·0 below the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 24 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 30·8 hours. The measured rainfall amounted to 0·54 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, MAY 24.—Anniversary Meeting of the Linnean Society.

WEDNESDAY, MAY 25.—Royal Horticultural Society's Great Summer Show, to be held in the Inner Temple Gardens, Thames Embankment; open three days. Bath and West of England Show; at Cardiff.

FRIDAY, MAY 27.—Royal Botanic Society's of Manchester. Open until June 2.

SATURDAY, MAY 28.—Gloucester and Cheltenham Horticultural Society; and on Bank Holiday, Monday, May 30.

AUCTIONS.

MONDAY, TUESDAY, AND FRIDAY, MAY 23, 24, and 27.—Japanese Lilies, Calceolarias, Orchids, &c., Protheroe and Morris's rooms.

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The Conservatory at Syon 328
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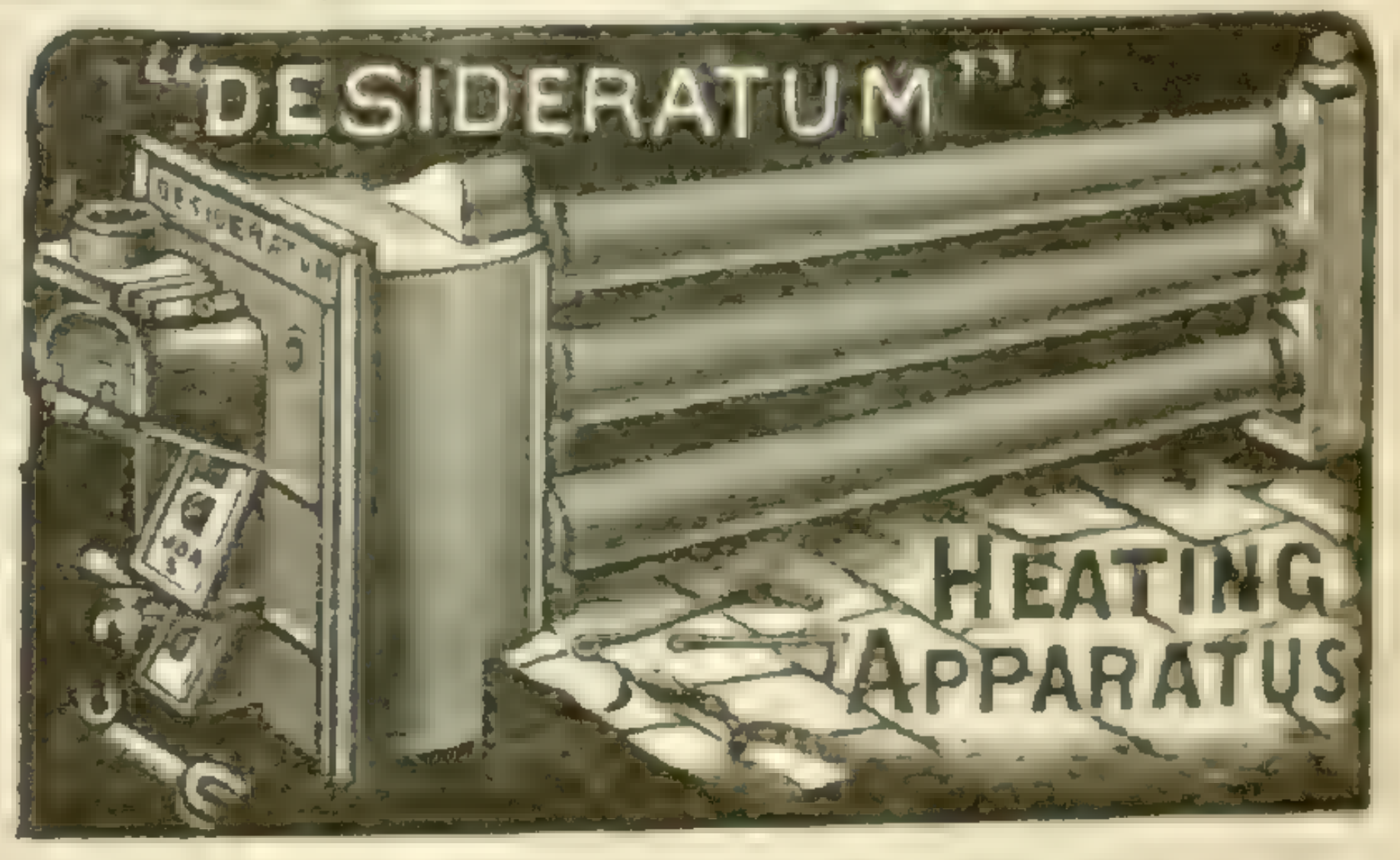

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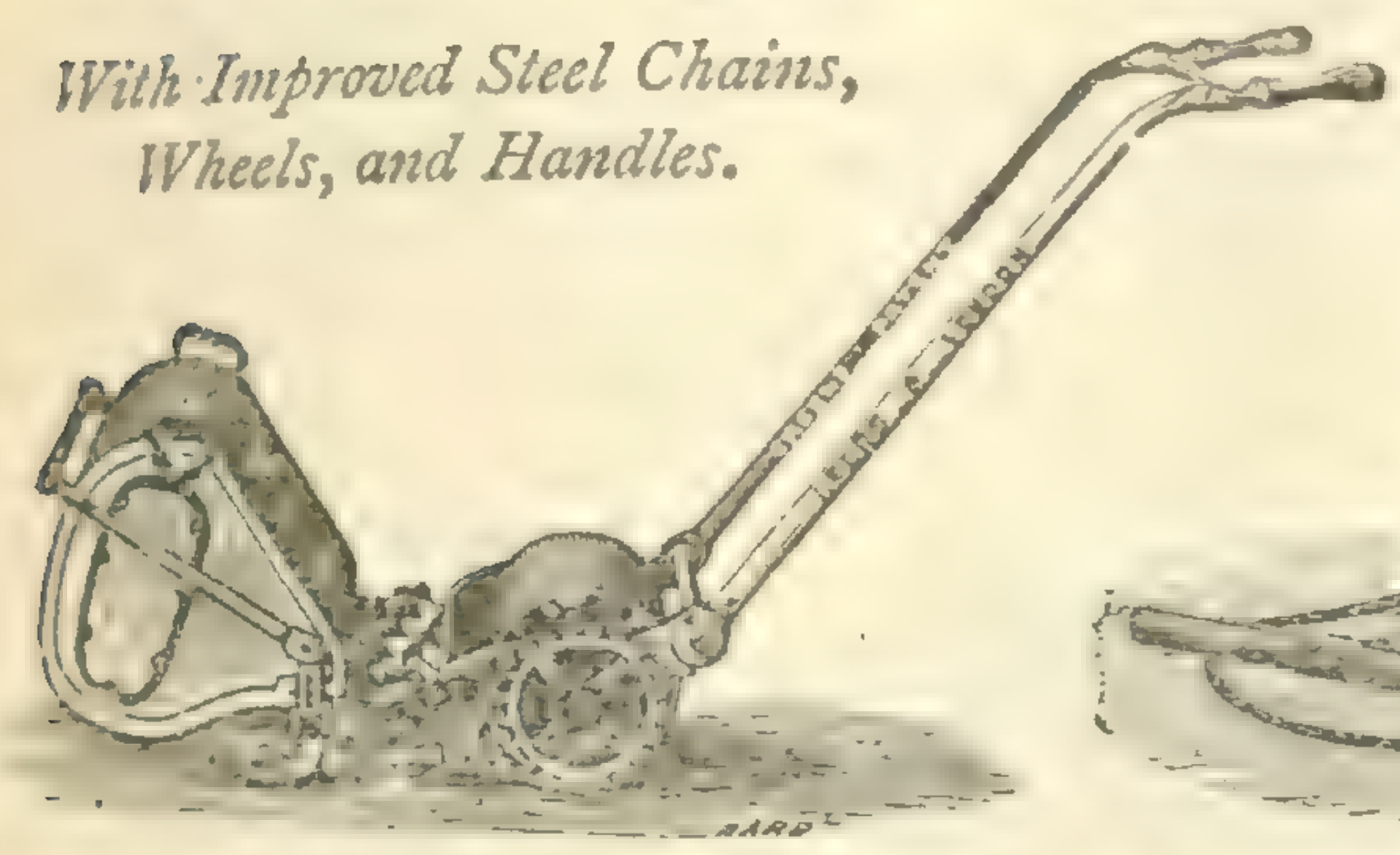

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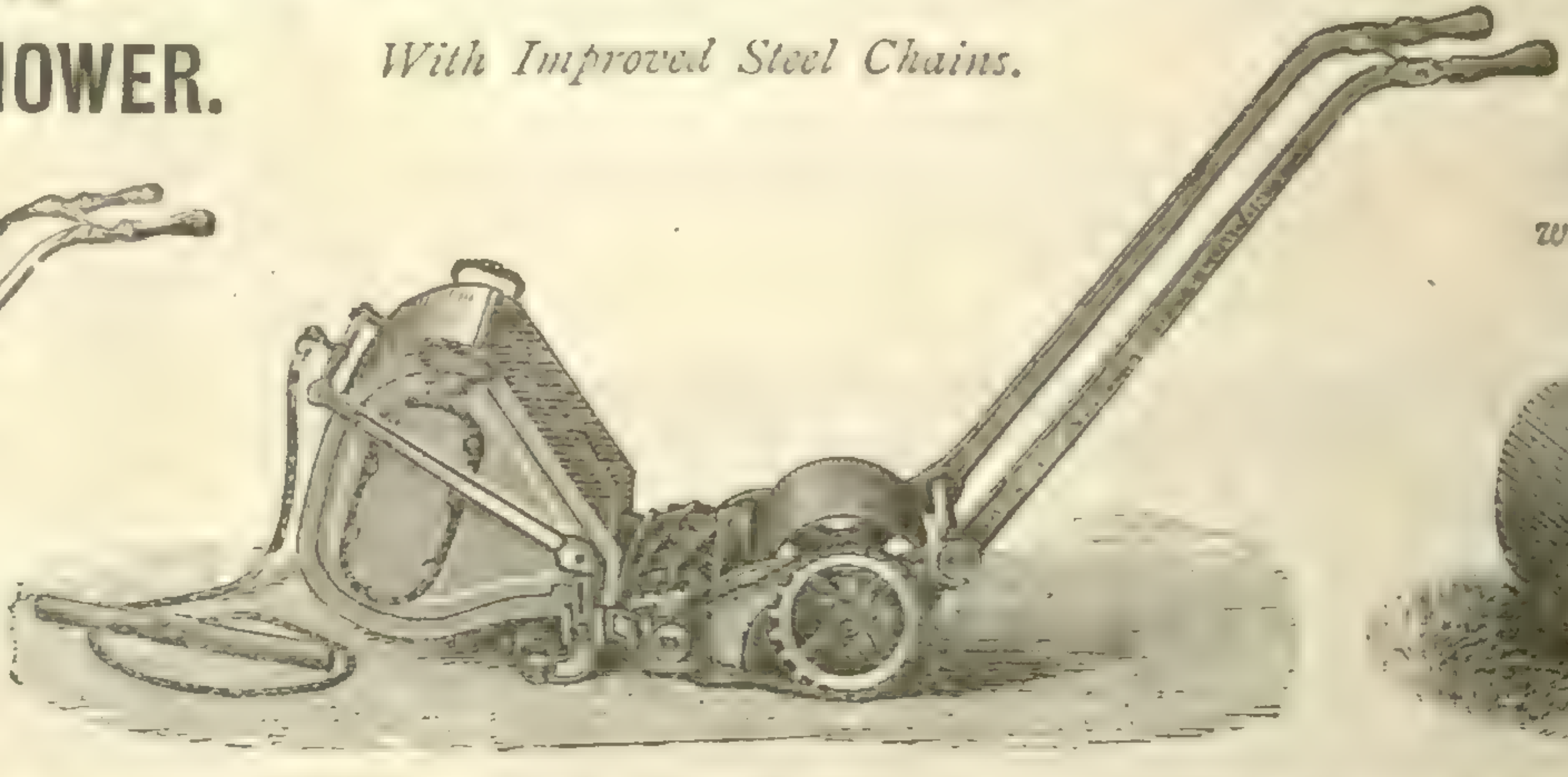

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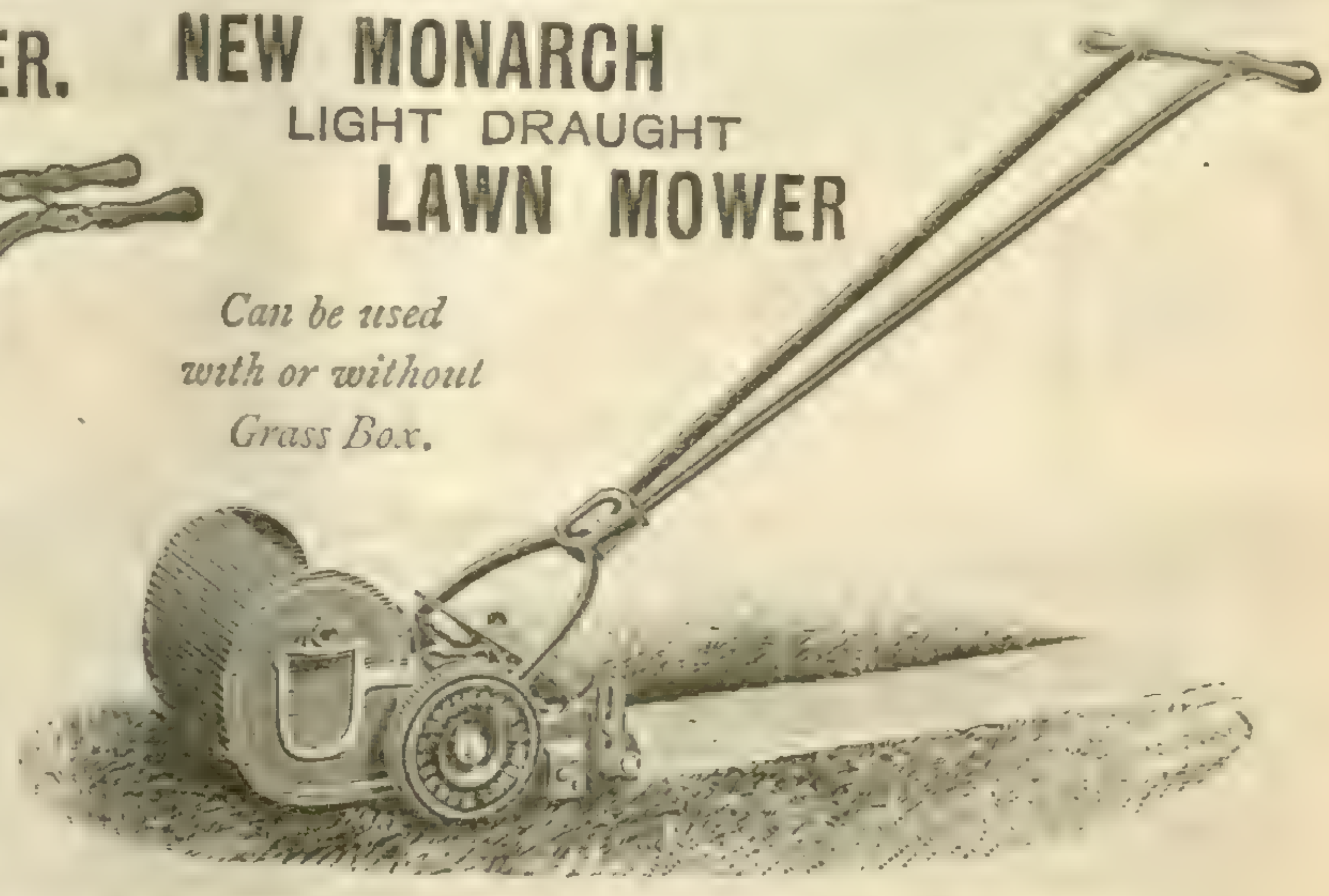

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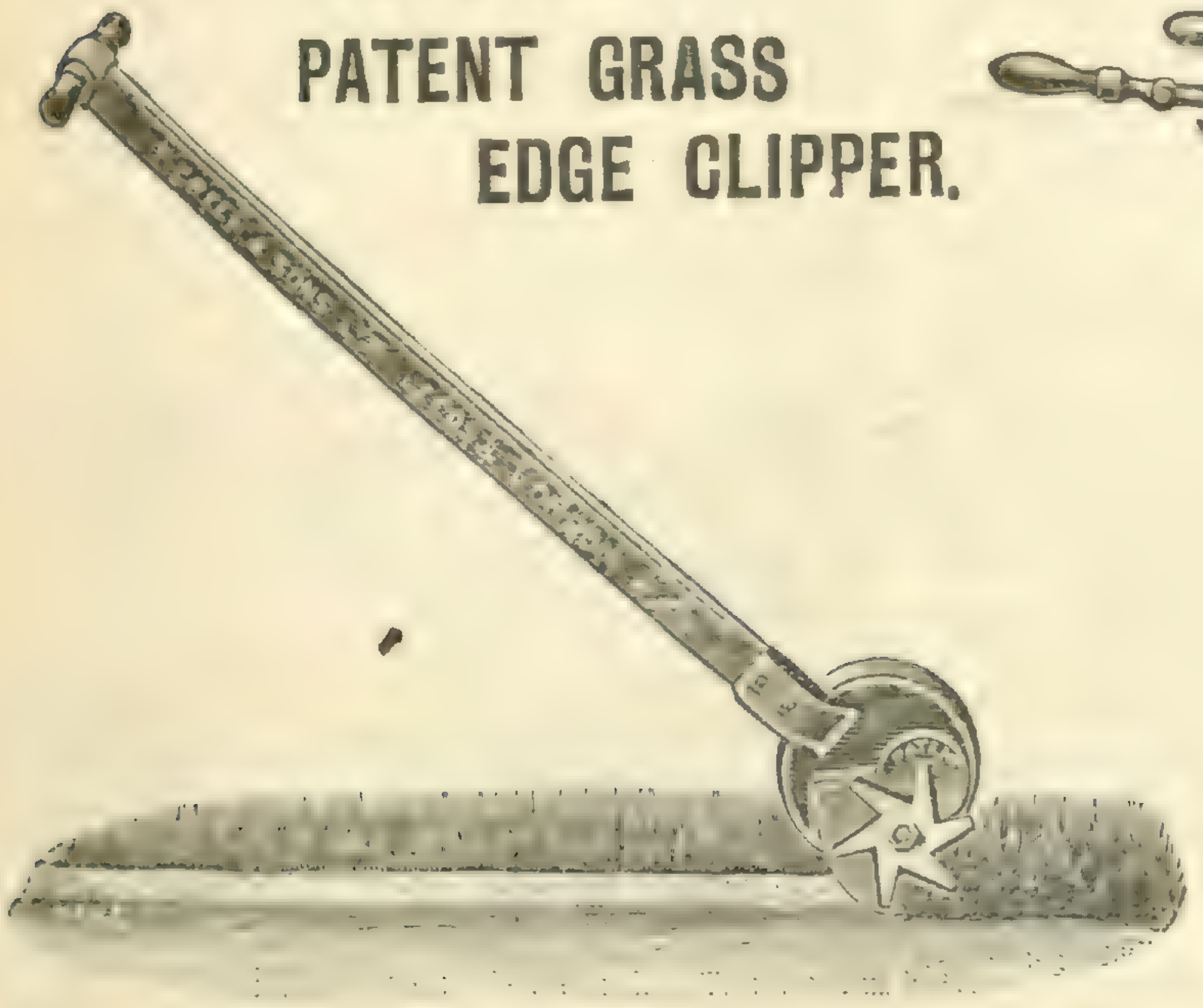

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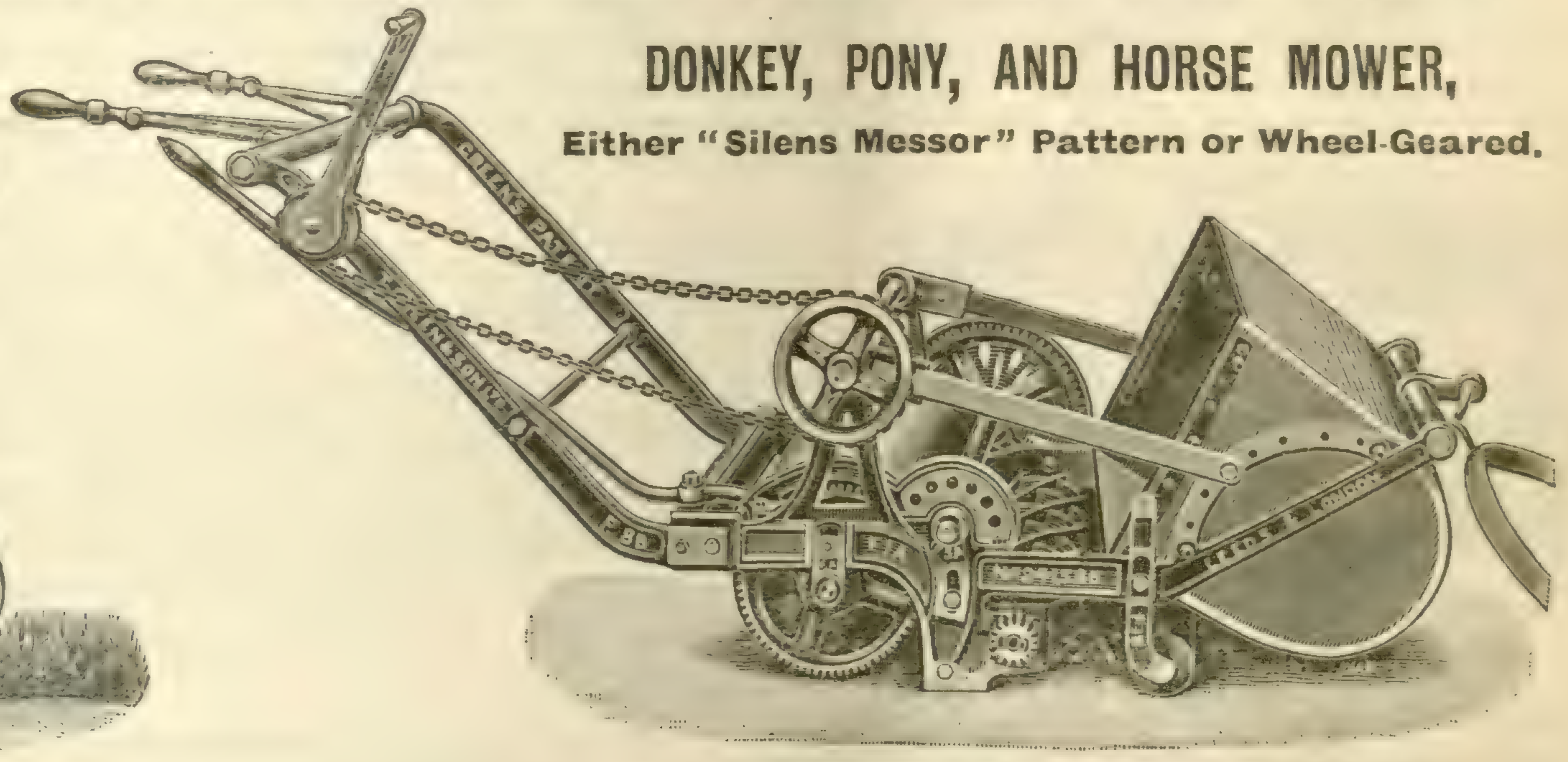

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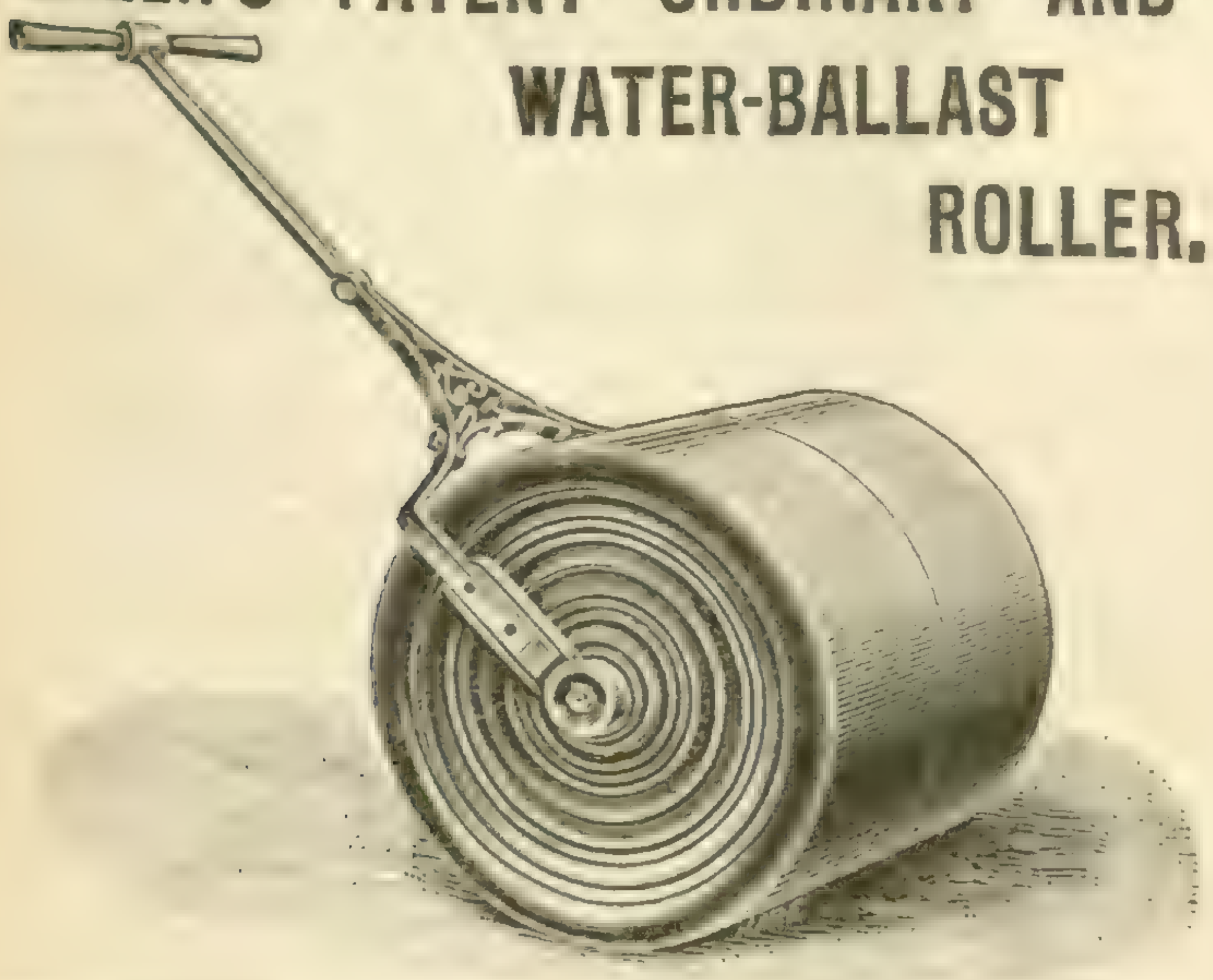

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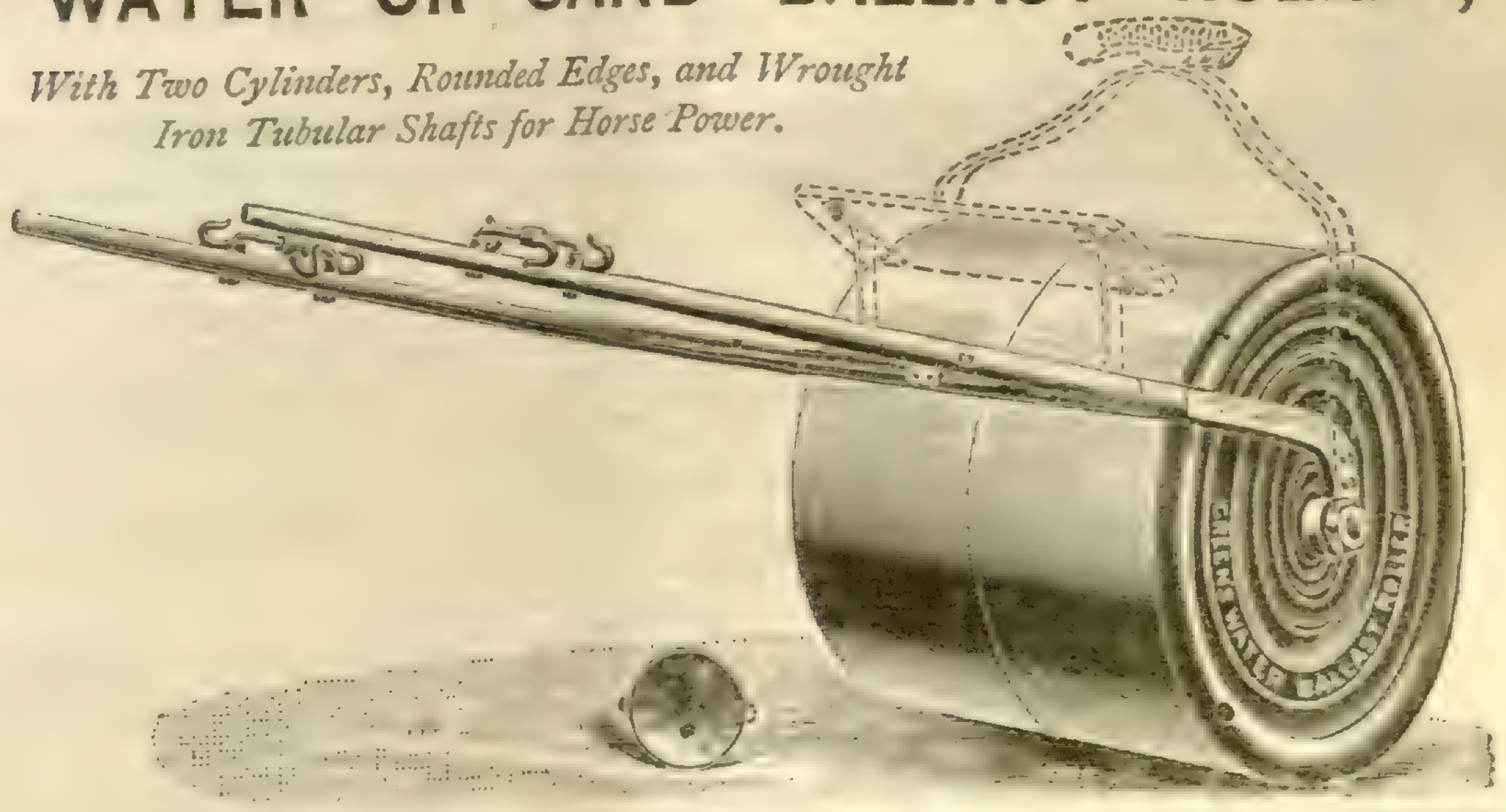

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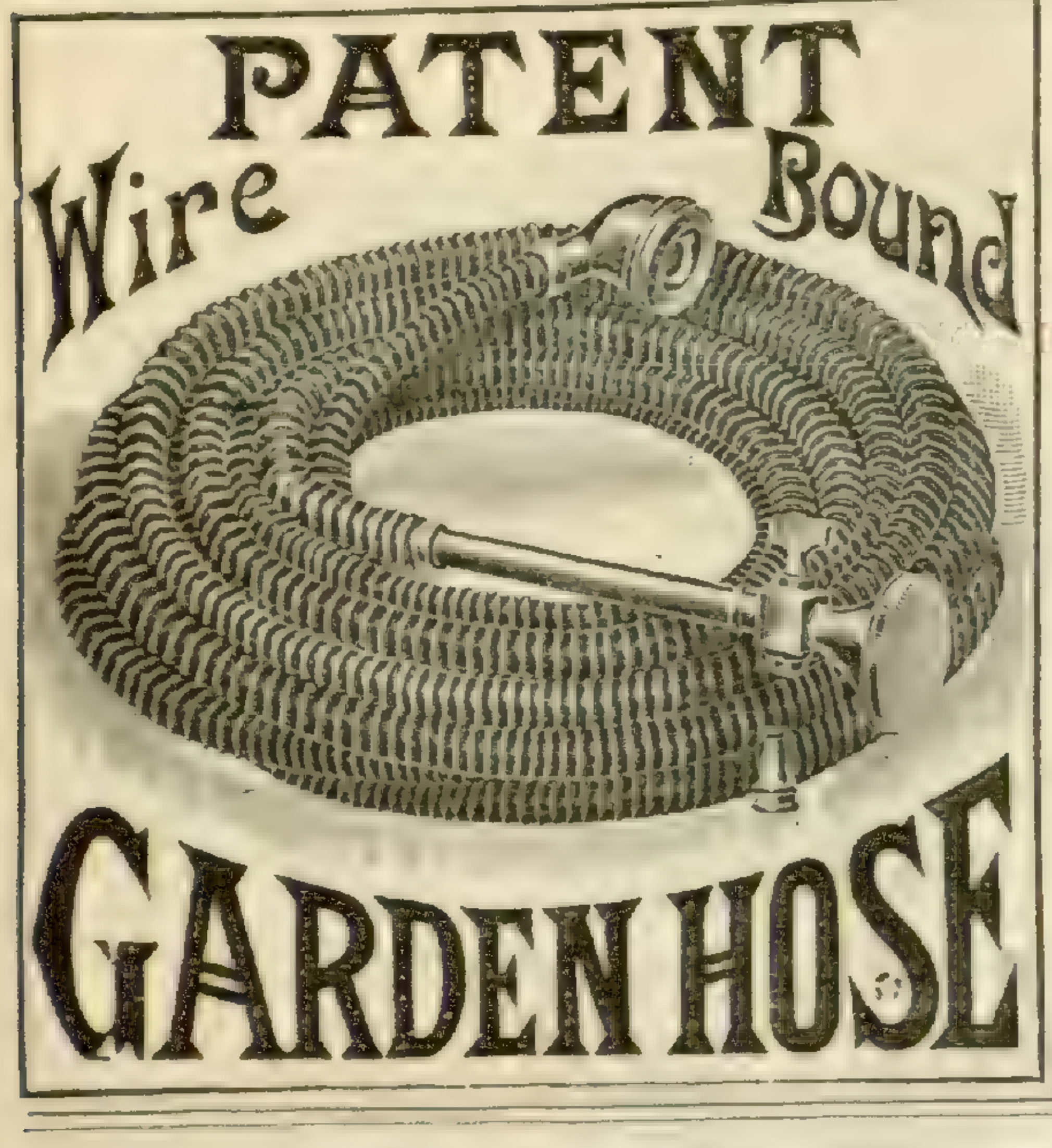

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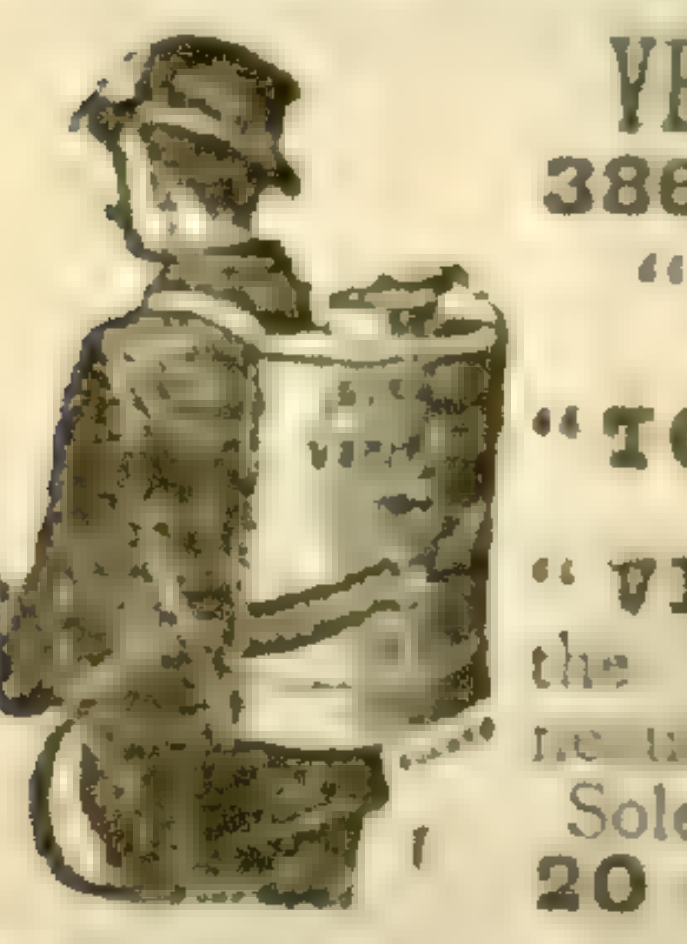

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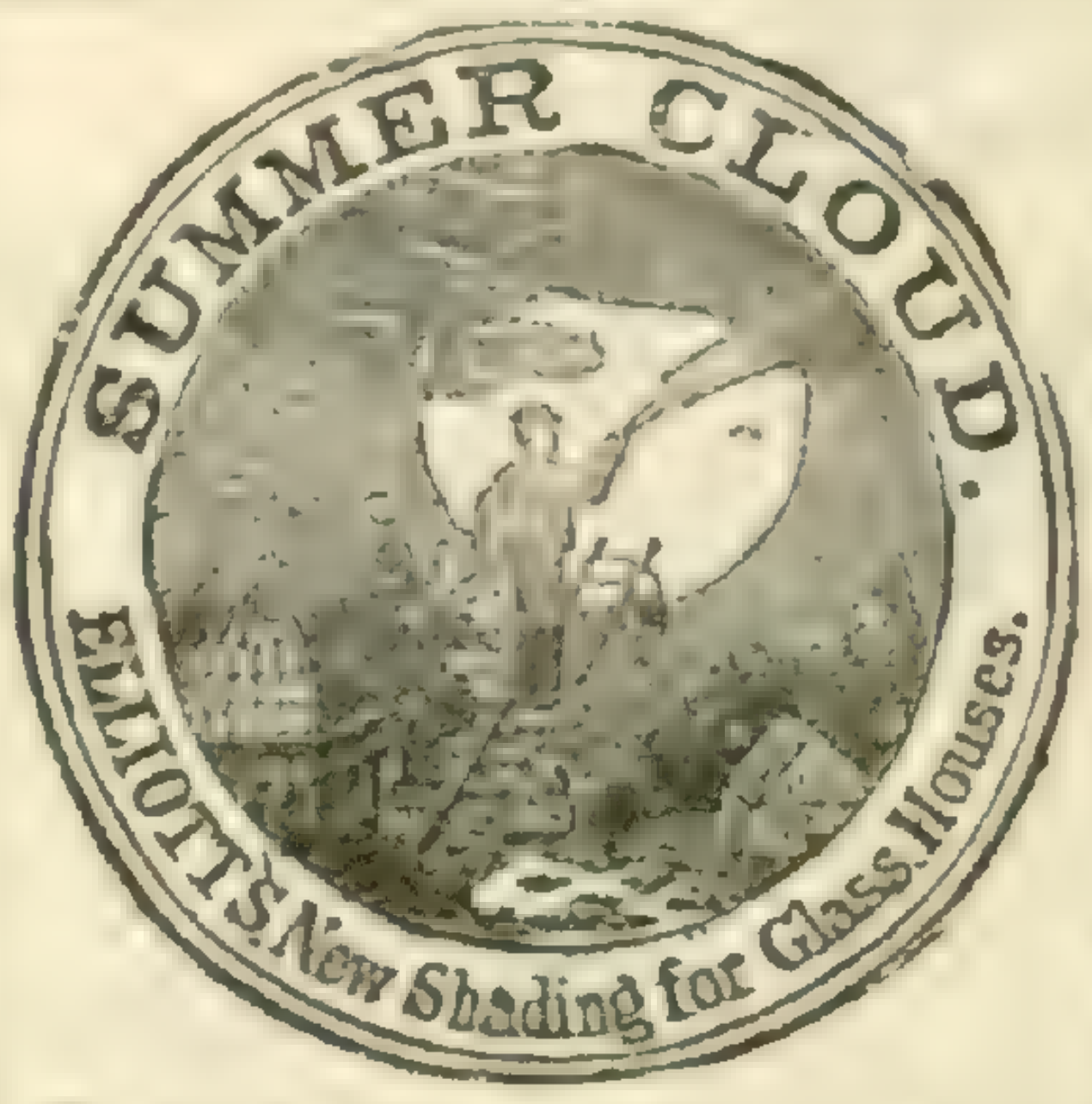
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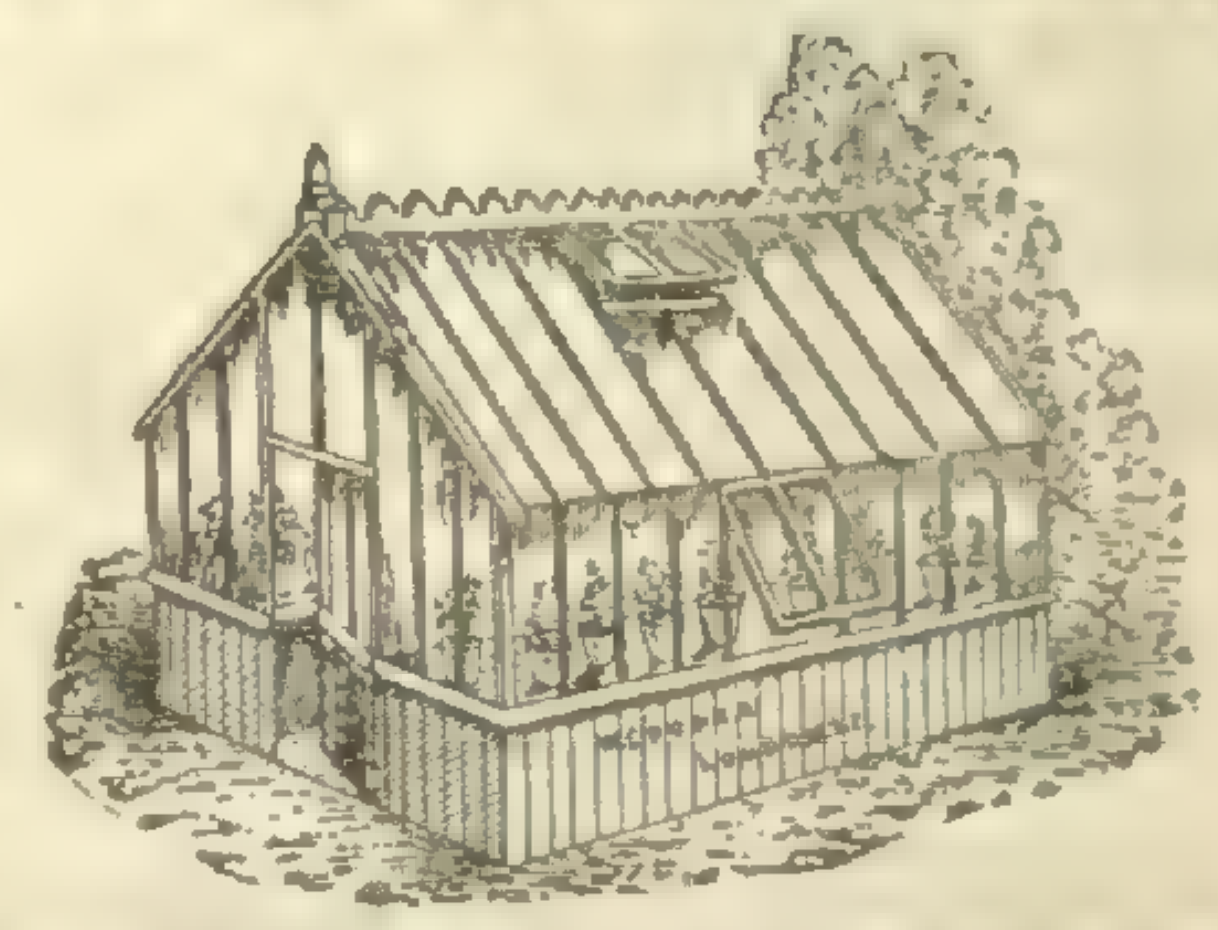

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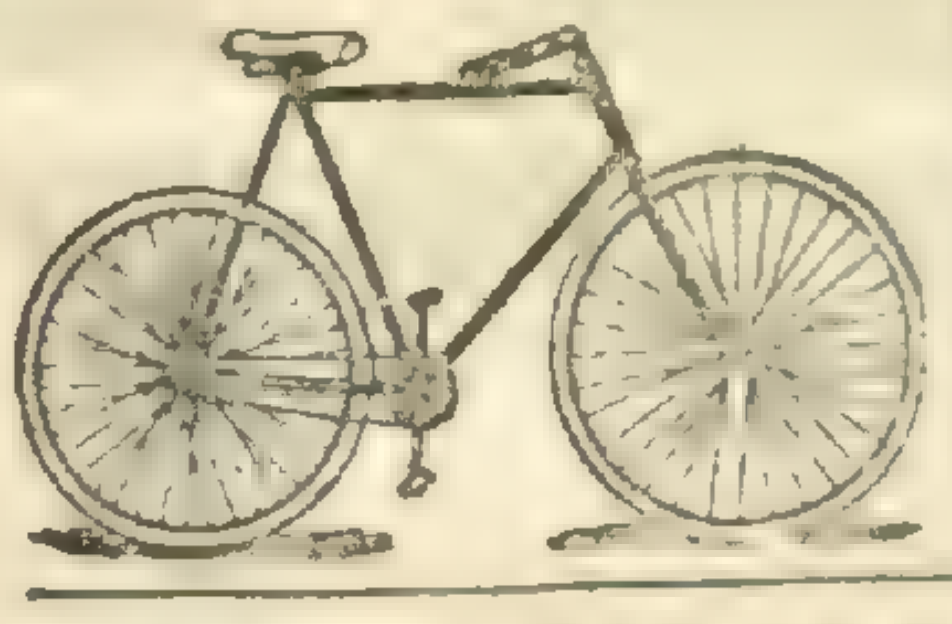

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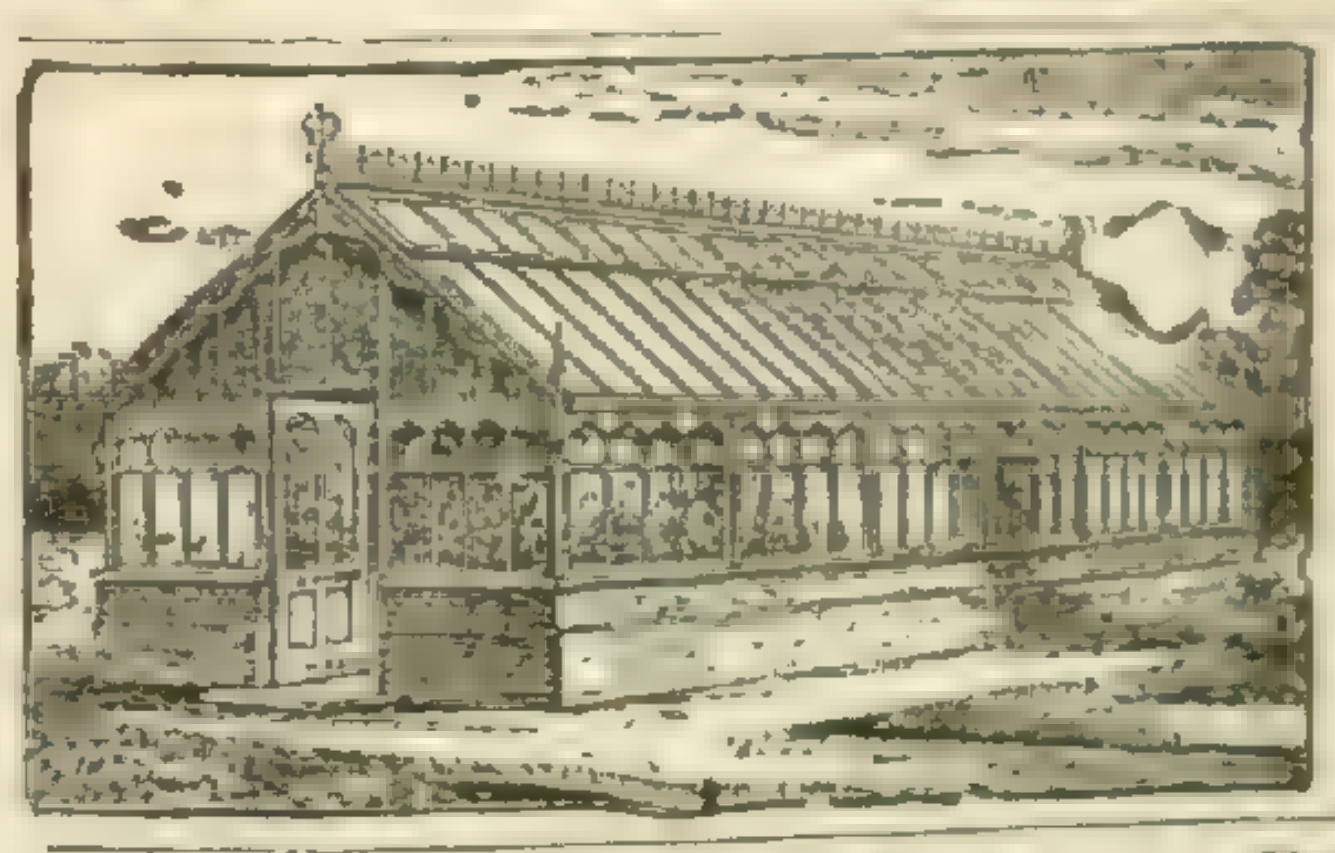

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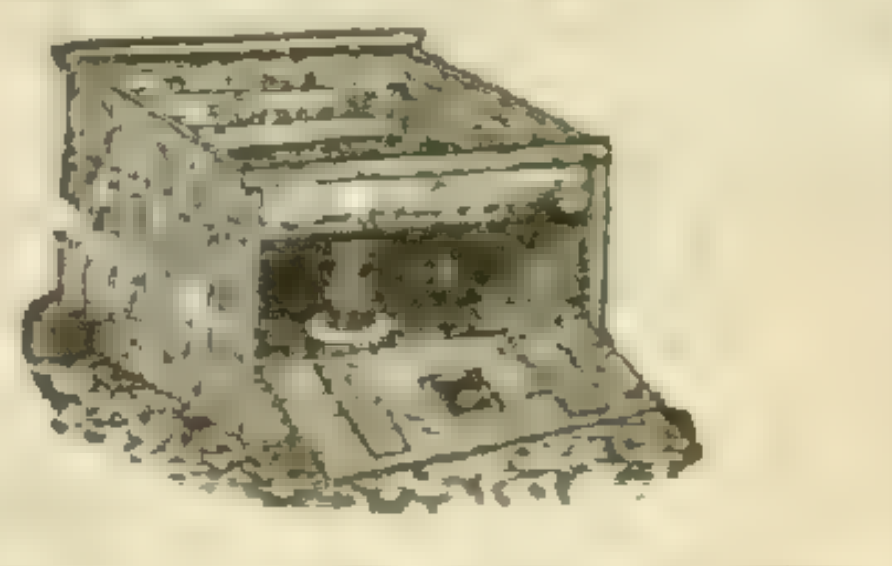

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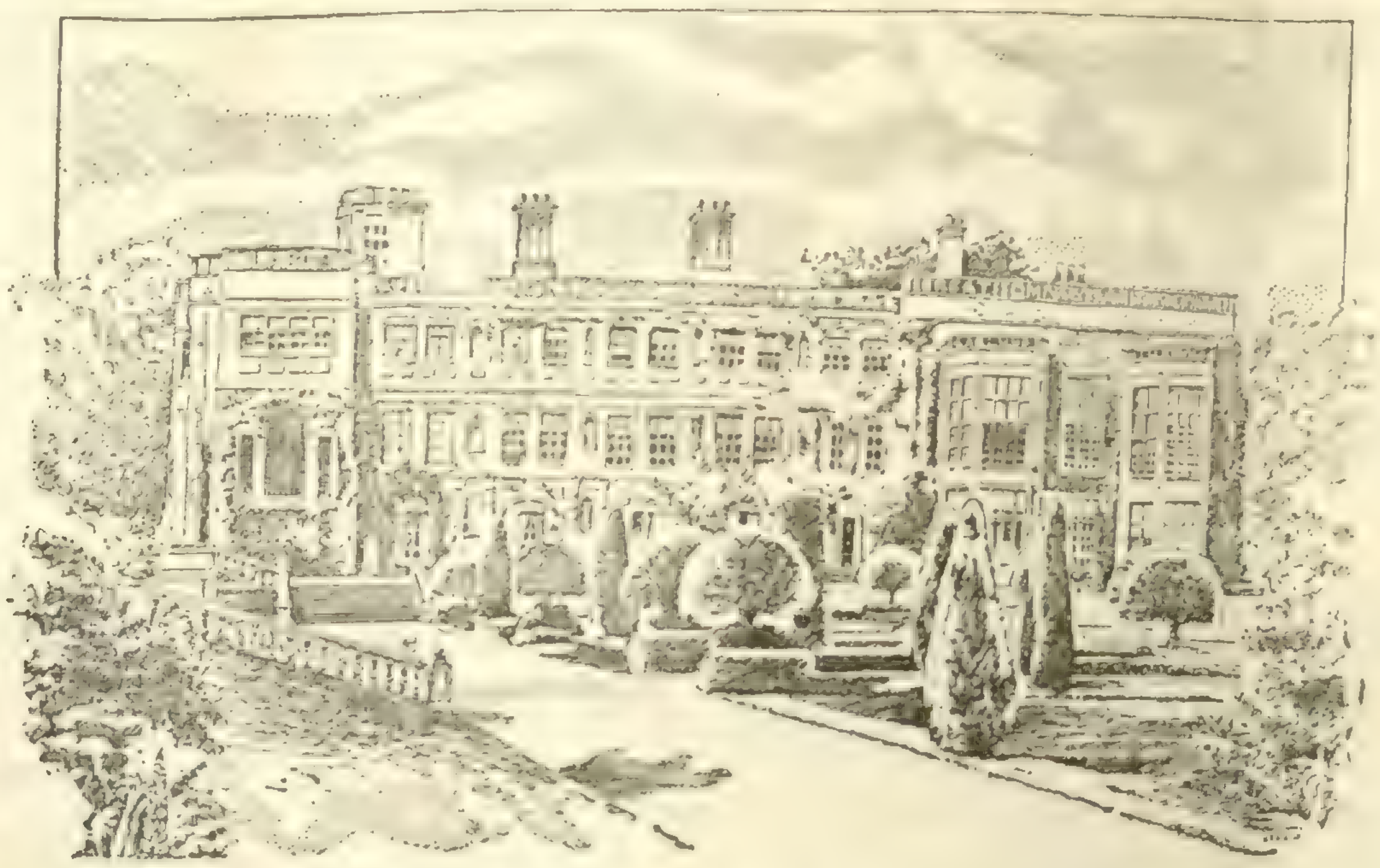

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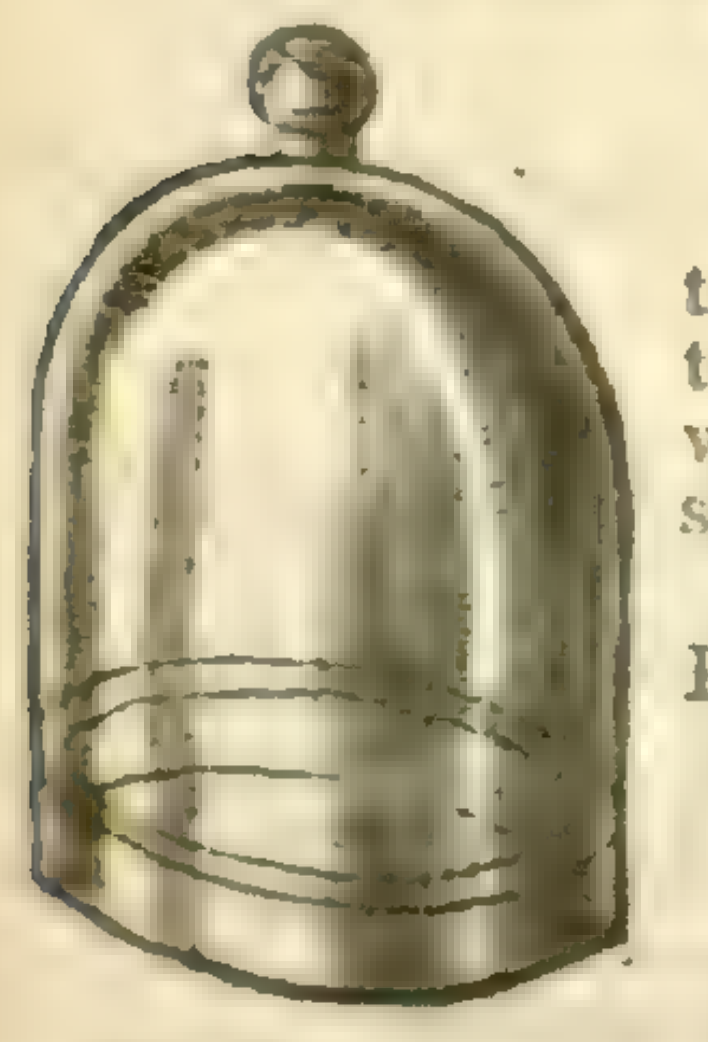

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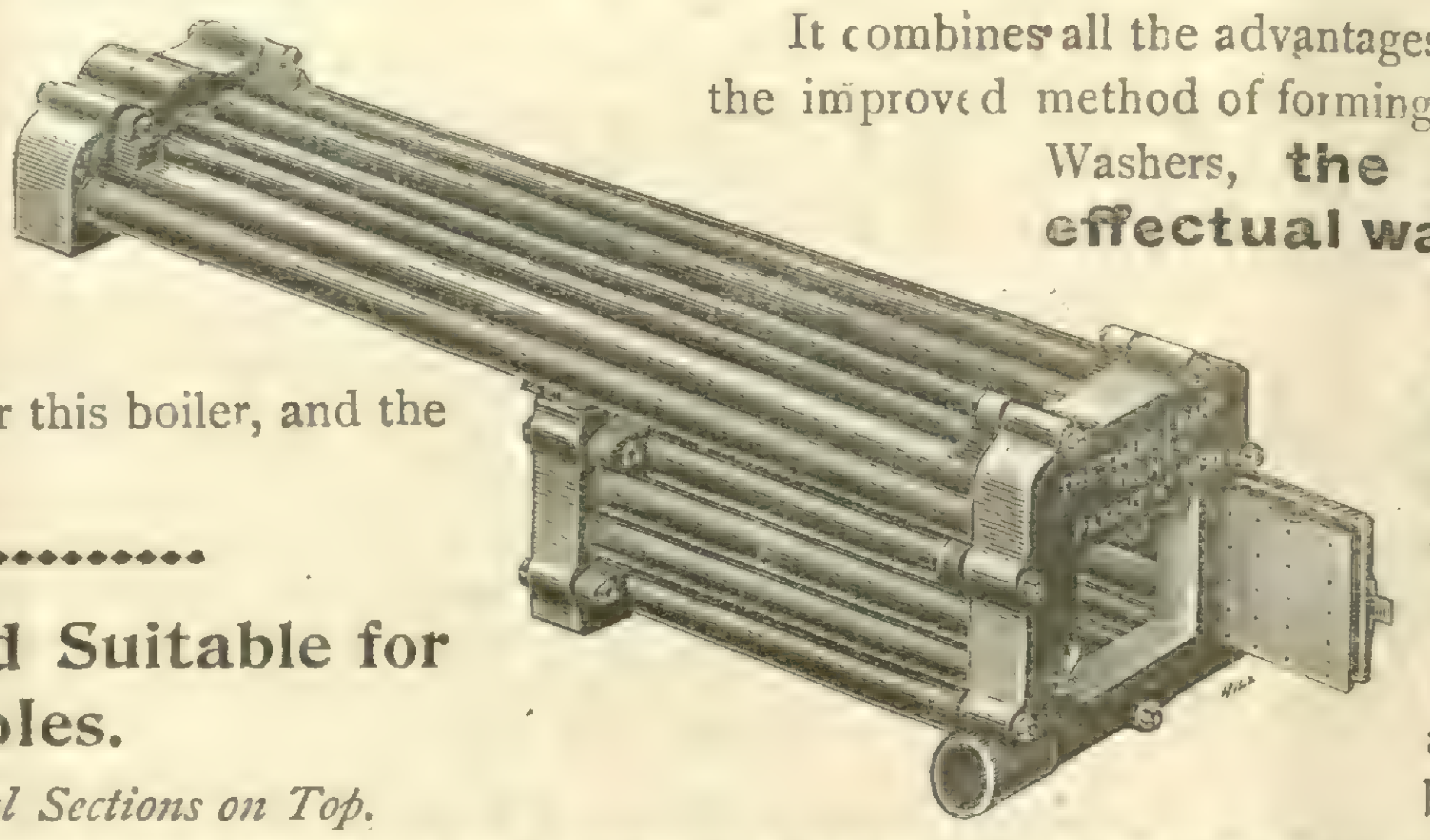

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22 ,, 22	3	2	14	2	3	9
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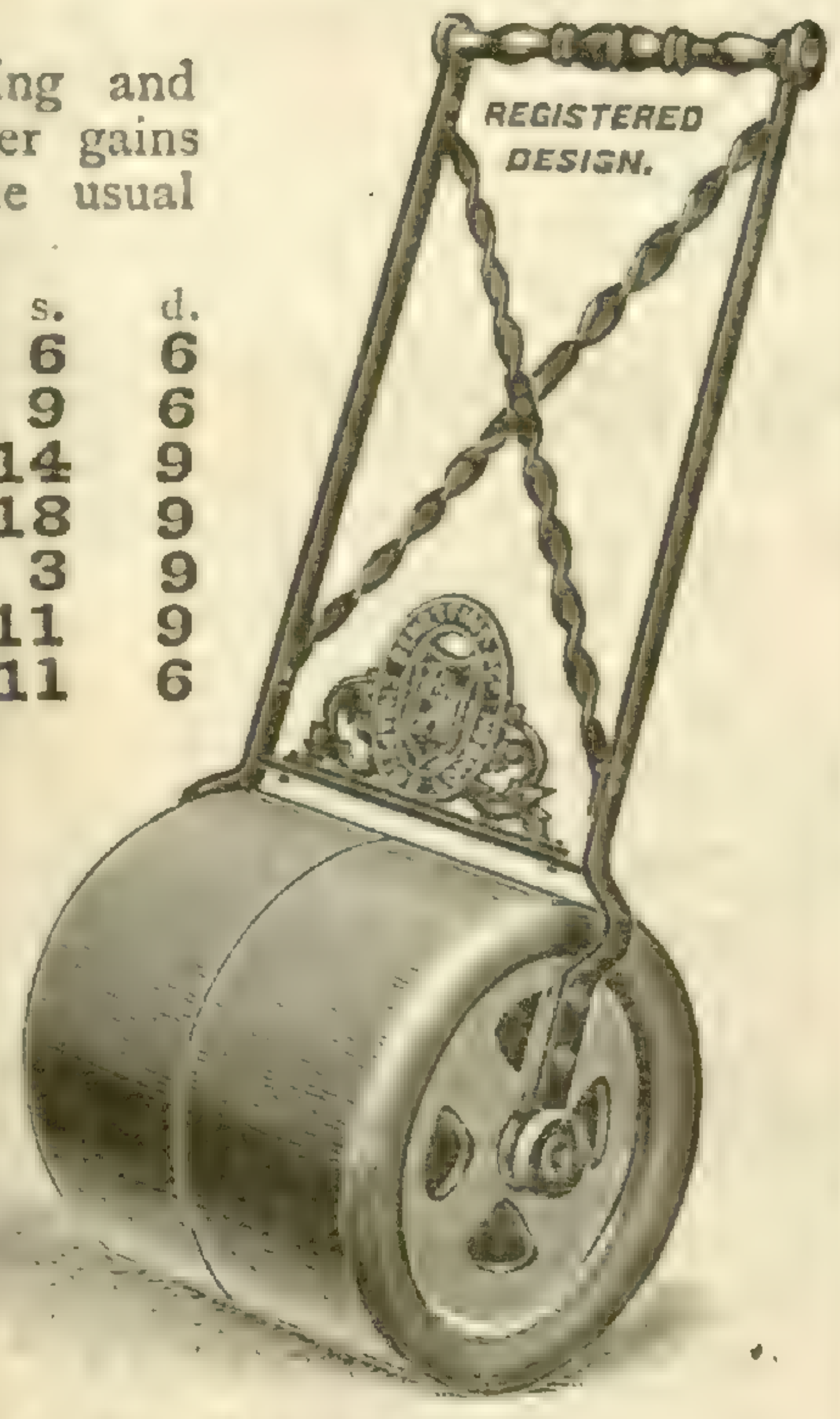
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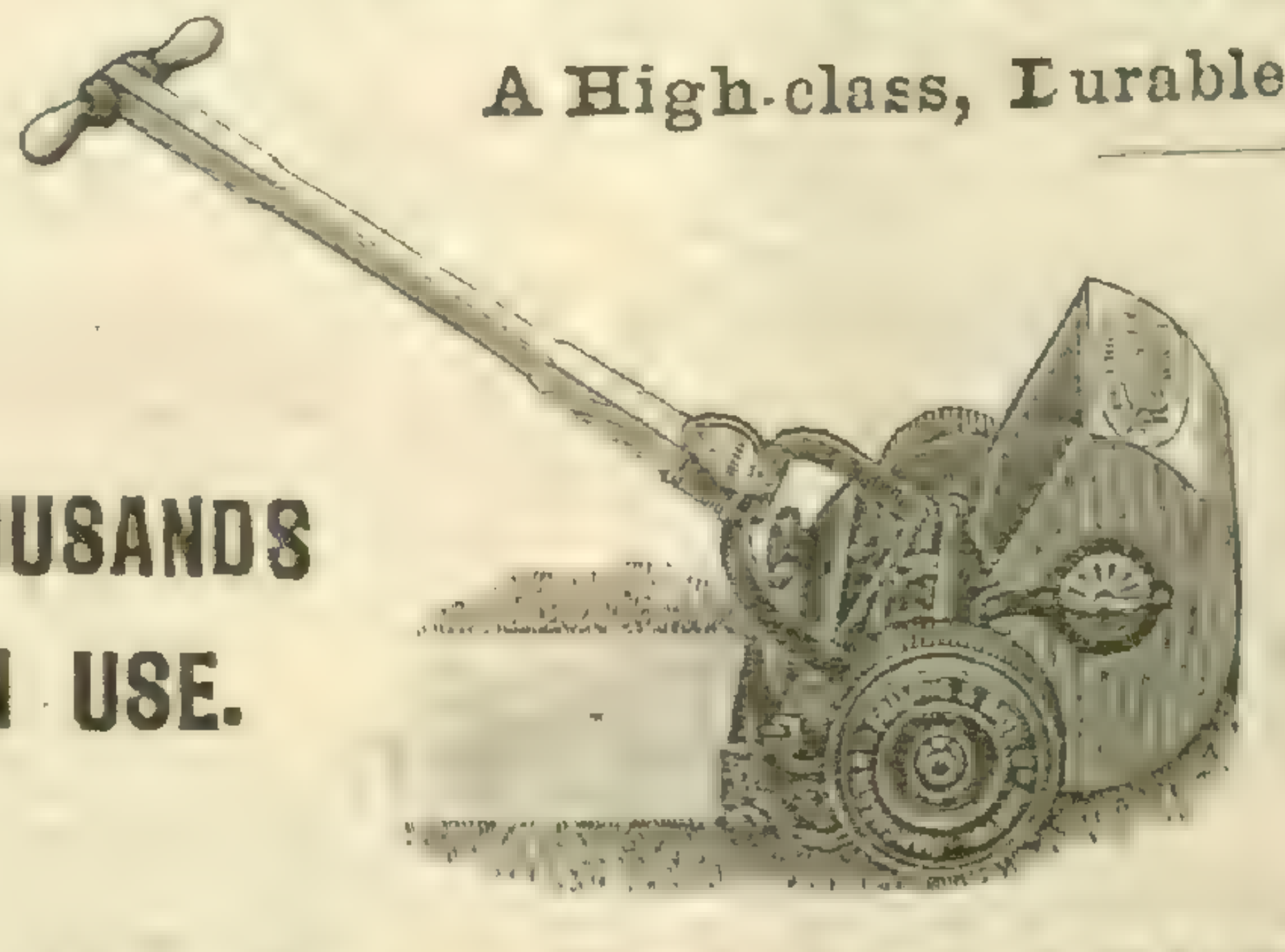
A High-class, Durable, English made Machine.



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Always gives unqualified satisfaction.

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A strong boy can work the largest size.

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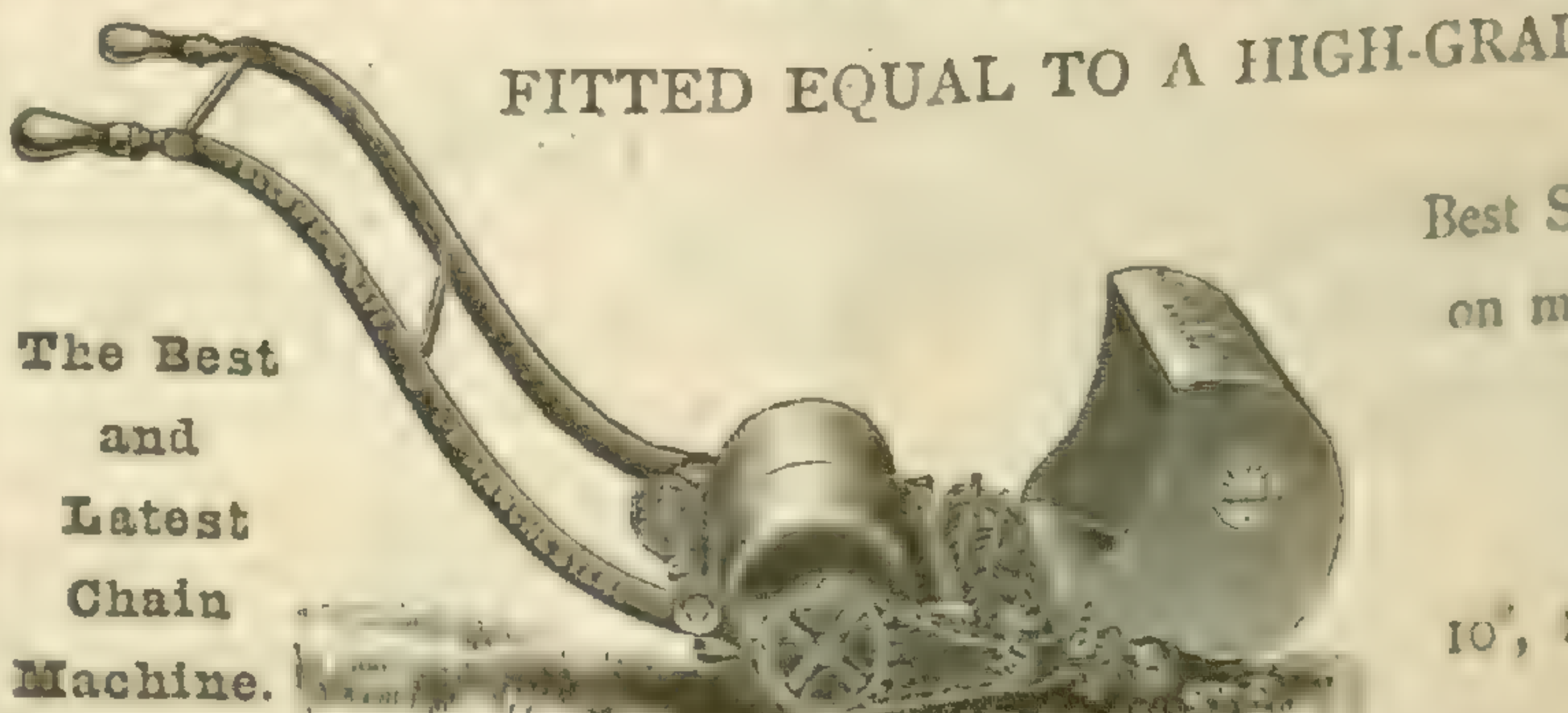
FITTED EQUAL TO A HIGH-GRADE BICYCLE



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THE

GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
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NOTICE TO ADVERTISERS.

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May 12, 1898.

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The Committee gratefully acknowledge the following additional amounts, which have been promised or paid:—

The Baron Schröder	£20	0	0
Earl of Dysart	5	0	0
Lord Wantage, V.C.	10	10	0
Lord L'angattock	5	0	0
Lord Hillingdon (the late)	5	0	0
Lord Wolverton	2	2	0
Lord Armstrong	2	2	0
Sir Frederick Wigan, Bart.	5	0	0
Per W. Crump	23	0	0
Per W. H. Lees	21	0	0
Henry W. Taylor	10	10	0
Colonel Bevington	10	10	0
W. Michell	10	10	0
A. E. Gibbons	10	10	0
G. Sayers	10	10	0
Mrs. Rylands (V. E. F.)	10	0	0
George F. Wilson, F.R.S.	5	5	0
Henry E. Tillman	5	5	0
Mrs. Chrimes (sub.)	3	3	0
Ditto (V. E. F.)	2	2	0
W. Rapley	3	15	0
James Folkard	3	8	0
A. Henderson	2	10	0
F. Chamberlain	2	2	0
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John Russell (sub)	2	2	0
R. Jordan	2	2	0
F. Warr	1	6	0
F. Jacobs	1	4	0
E. Berry	1	1	0
R. H. Tutcher (sub)	1	1	0
G. W. Roger (sub)	1	1	0
Per H. J. Clayton (sub)	1	1	0
George Ellis (sub)	1	1	0
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J. Talmage	1	0	0
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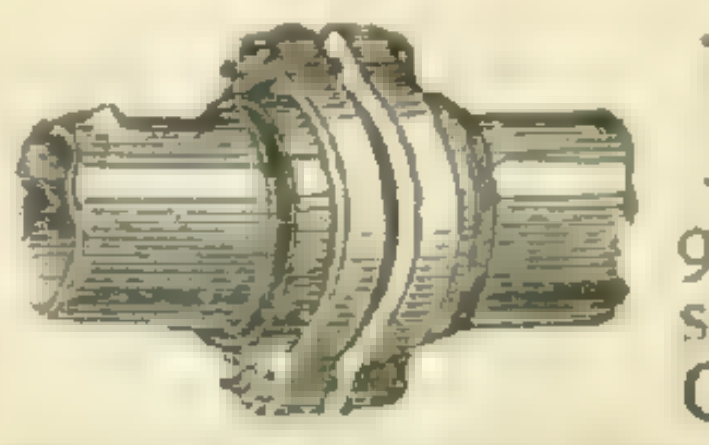

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Lord Wantage, V.C.		10	10	0
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Sir Frederick Wigan, Bart.		5	0	0
Per W. Crump		23	0	0
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W. Mitchell		10	10	0
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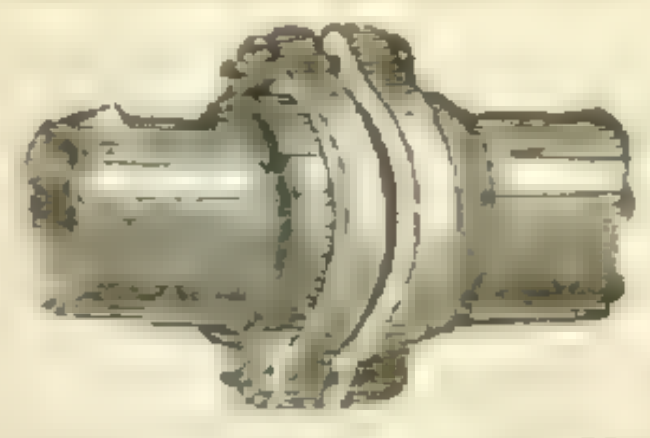

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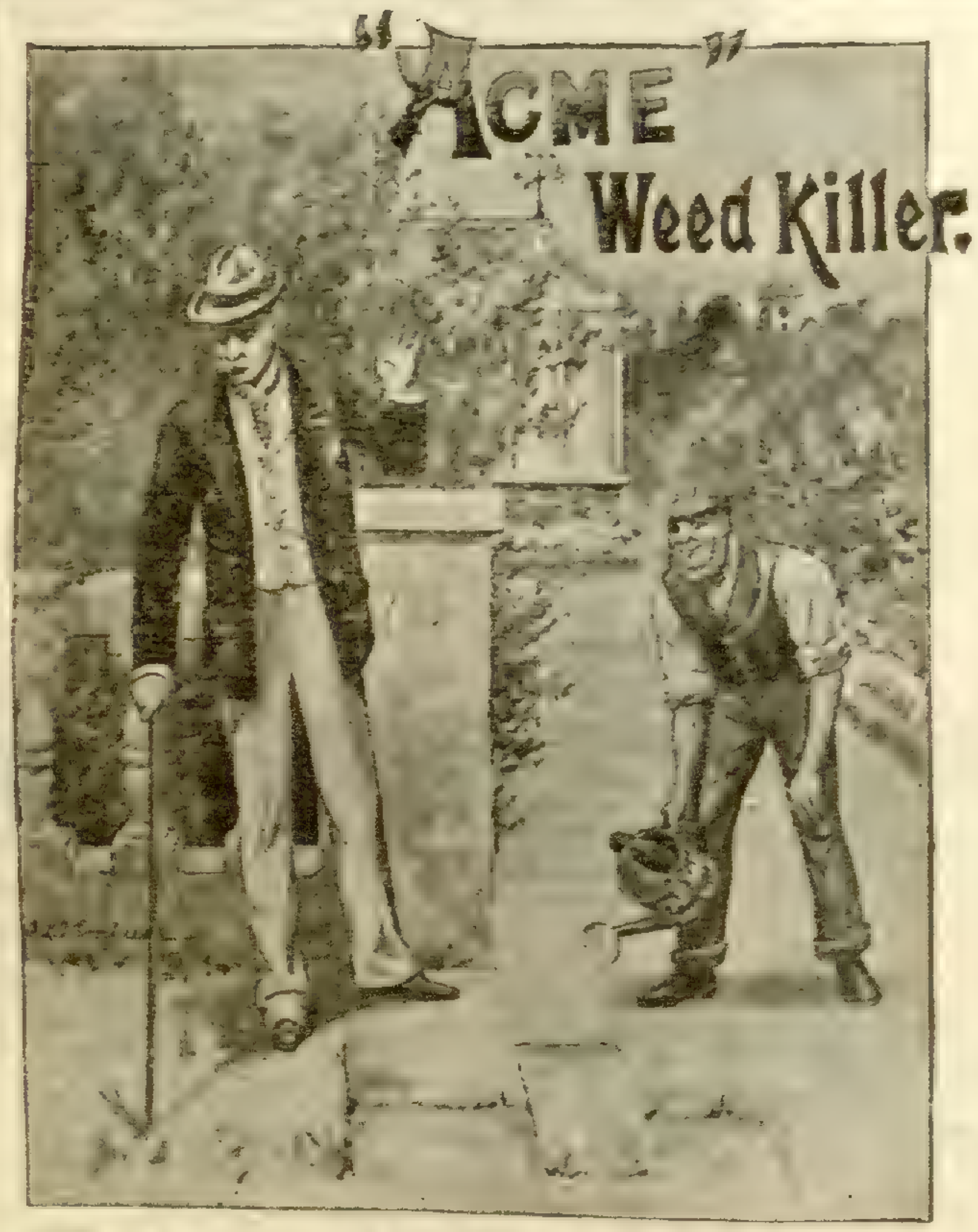
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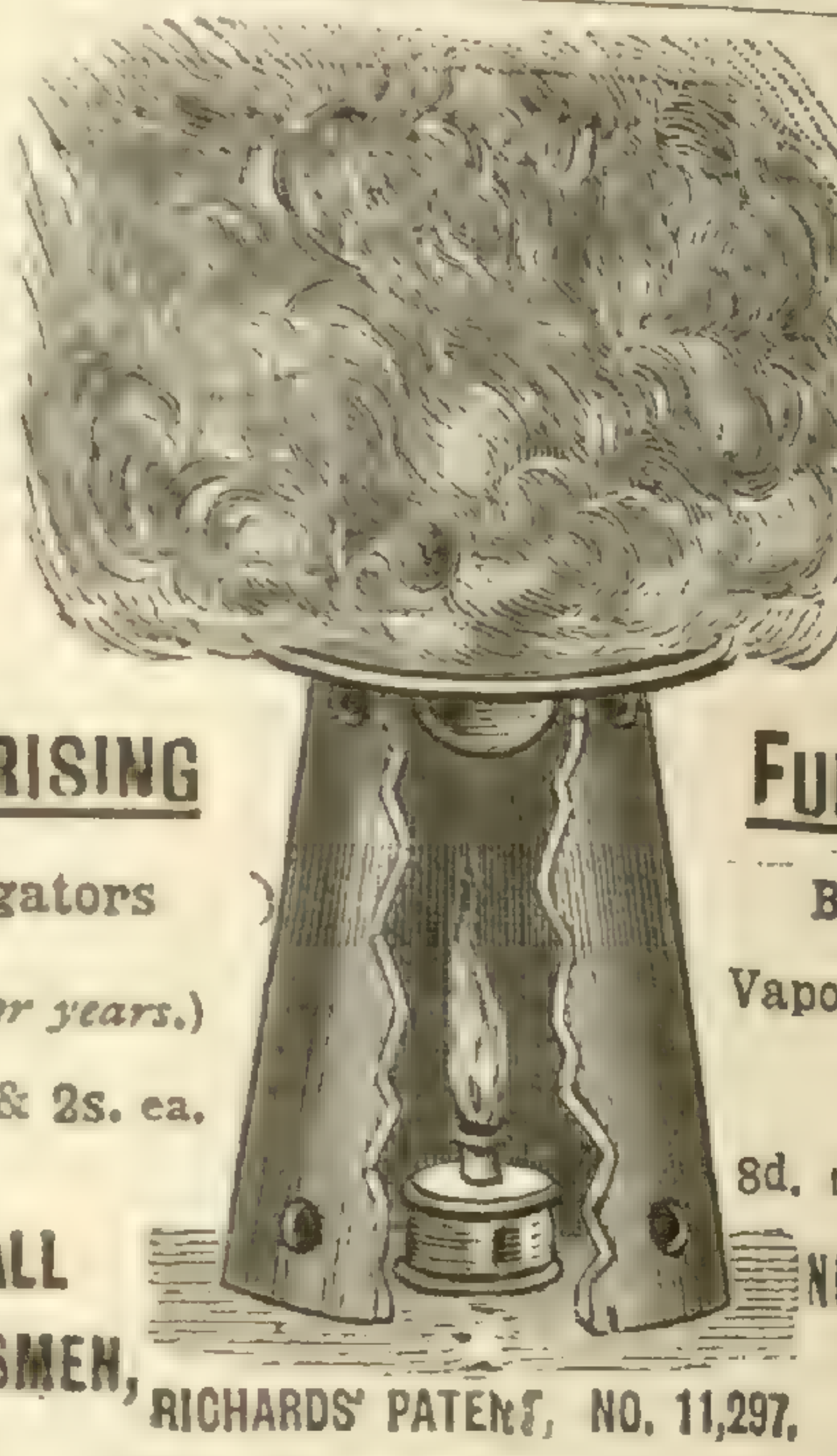
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THE GARDENERS' MAGAZINE.

SATURDAY, MAY 28, 1898.

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NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE TEMPLE SHOW.

AS so well shown in our report, the anticipations to which we gave expression in our issue of the 21st inst. have been amply justified by the event, and the exhibition which during the past week has been held under the auspices of the Royal Horticultural Society in the gardens of the Inner Temple must be described as one of the most successful, horticulturally, of the series. Of the financial results we are not at the time of writing able to speak, but with the continuance of the weather which prevailed on the first and second days it is reasonable to hope that they may prove satisfactory. By these results the question as to whether it was wise to arrange the exhibition for the same week as the summer meeting at Epsom must be answered, but having regard to the fact that the great Whitsun exhibition at Manchester opened on the 27th, it is not unreasonable to assume that there would have been a manifest advantage in fixing the gathering for a week earlier. Regarded as a whole, the products were of a somewhat higher quality than usual, and orchids, roses, and caladiums have probably not been presented in larger numbers or in finer condition than on this occasion, while fruits and vegetables were exceptionally meritorious, and it was gratifying to observe that private growers contributed liberally to these two important sections of the exhibition. The arrangements represented a large amount of work on the part of the several officials engaged in planning and carrying out the details, and we should have been immensely gratified had their labours given more satisfactory results. The difficulties that have to be contended with in carrying out an exhibition of this magnitude under the conditions that obtain must be very great, but they can hardly be such as to prevent some change being made in the arrangement of the tents. Picturesque effect is perhaps difficult of accomplishment, but with the aid of a few large palms and tree ferns, and these should not be difficult to obtain, much of the flatness in the two principal tents might have been got rid of. Something should also be done to enable visitors to inspect the products in the long tents with a greater degree of comfort than is possible under the conditions that obtained, more particularly in relation to ventilation. In the matter of effect and the comfort with which the collections could be inspected, the exhibition necessarily suffers in coming so soon after the Ghent Quinquennial, and possibly the journalists who were present at that great gathering remembered with a tinge of sadness the courtesies they received there, more especially those from the genial, large-hearted president of the Ghent Society. However that may have been, the exhibition was so extensive and contained so much that was of interest in exemplifying the high position which horticulture has attained in this country, that we are anxious that in the matter of tasteful effect and the comfort of visitors the exhibitions of the leading horticultural society may be brought more into line with the great Continental gatherings.

FLOWERING TREES.

ALTHOUGH the season has not been favourable for the development of the flowers of hardy trees blooming in spring they have formed a procession of wondrous beauty, and again reminded us of their great value in the making of garden scenery. The year had hardly began to run its course before the garden was enlivened by the snow-white flowers of Amygdalus Davidiana alba, and these were followed in rapid succession by the delicate pink blossoms of the almond and the slightly tinted bloom of the purple-leaved plum. Later on came the single and double flowered cherries, which have no superiors in beauty; the various species and varieties of pyrus, of which so many handsome forms are at the command of the planter; and now the common laburnam is in its full glory, and as the elegant racemes are gently swayed by the winds the trees suggest to the imagination fountains of gold. The procession of flowering trees belonging to the spring is practically brought to a close by the single and double flowered thorns, which, if blooming less freely than for some years past, are sufficiently attractive to contribute materially to the enjoyment of the garden or park in which they have a place Much might be said in praise of the finest of the trees remarkable for the beauty of their flowers, and in these pages much has been written advocating an extension of their culture, and with, we are pleased to know, good effect. Thousands of trees of the more beautiful kinds have been planted as the direct result of the advice given editorially and by our valued coadjutors; but they have not as yet been planted so largely as we could wish, and more particularly in suburban gardens of comparatively small size. In these the finest only of the trees should be planted, and yet we see garden after garden filled with trees that are, comparatively speaking, so uninteresting and unattractive as to add but little to the enjoyment of the garden. Why this is so is not difficult to understand, and it will perhaps suffice to strongly advise owners of gardens of limited dimensions to root out at the proper season the elms, limes, sycamores, and other timber trees, and replace them with trees distinguished for the beauty of their flowers or elegance of aspect, and happily these two attributes are combined in many of the trees belonging to the class we now have in view. The owners of suburban gardens might also remember that in planting flowering trees for their own enjoyment they will contribute to the pleasure, it may be, of thousands who have no gardens of their own, or plots so small as not to afford space for trees of even moderate development. In the Kew Gardens district flowering trees have, in accordance with the fitness of things, been very largely planted, and the display of flowers during April and May in the gardens that skirt the principal roads is so surprisingly beautiful as to give rise to the wish that what has been accomplished at Kew might be attempted in other suburban districts.

WOMEN GARDENERS.

FROM a manifesto that has been issued by the East Cowes Horticultural Association it is evident the members of that body are greatly perturbed by the efforts that are being made in certain quarters to give women a horticultural education, and very indignant with the horticultural Press for not having given to these efforts the most uncompromising opposition. In the course of the manifesto, which has been published in one of the Isle of Wight weeklies, they say: "It is most astonishing to find that this question of women gardeners is allowed to proceed with, to our mind, its damaging effects, uncriticised by the gardening Press of this country." Proceeding, they state "it is ridiculous to suppose that a woman after receiving three years' training . . . has acquired all the knowledge either to conduct a well-kept private or public garden in all its cultural details." Then, after a tilt at the County Councils for allowing women to participate in the advantages resulting from the disbursement of the educational grant, so far as relates to horticulture, we are told that "If technical education grants are to eventually become the means whereby the hard-working gardener, after years of deep interest in and devotion to his profession, is to be supplanted by a youthful feminine population, the money thus granted had far better be diverted to other channels." These are the main points, and taking them in reverse order, we at once say that the last proposition is not so self-evident to us as it appears to have been to those responsible for the preparation of the manifesto. We, indeed, are wholly unable to accept it, for if "technical education grants" are to become the means, eventually or otherwise, of enabling girls in their teens to supplant hard-working men who have given many years of interest and devotion to the work of the garden, they are far too good to be diverted into other channels. Were they found to possess this miraculous power we should advocate their increase rather than their diversion, and strongly advise both men and boys to take full advantage of them, that they might not only be able to hold their own in the battle of life, but obtain results that under the existing state of things are properly regarded as impossibilities. These results, however, are not probable or possible, and we can assure our friends at East Cowes that they can pursue their avocations without the slightest fear of being supplanted by a "youthful feminine population." With the second proposition we are in full agreement, for as we have repeatedly stated in these pages, it is impossible for either man or woman to become in the time sufficiently acquainted with the details of the work of the garden to successfully manage it. With reference to the astonishment expressed by the association that the question of women gardeners has not been criticised by the gardening Press, we are compelled to observe that the members have failed to take full advantage of the opportunities they have for obtaining information. We have again and again stated in no hesitating terms that gardening as a means of livelihood is utterly unfitted for the general body of women. We have not suggested that women should be excluded from technical education classes in which gardening is taught, or that they should not have exactly the same opportunities as men for the acquisition of a knowledge of horticulture, and we have no intention of changing the position we have taken up on this question. We hold the opinion that women should be allowed exactly the same freedom as men in choosing their avocation; but in giving expression to this opinion we consider it our duty to point out, as we have done on previous occasions, that so great is the difference in the strength and constitutional peculiarities of the two sexes, women, so far as the management of the garden is concerned, cannot compete on equal terms with men.

Dryandra calophylla is a most interesting and handsome species of proteaceæ, and one that is extremely rare in cultivation. A specimen now flowering in the Temperate House at Kew is very attractive by reason of its long semi-pinnate leaves that are covered with a brownish tomentum when young; the young foliage reminds one forcibly of the common ceterach fronds. The flower head is central, with a mass of rose-tinted styles and stamens. The genus Dryandra commemorates Jonas Dryander, a distinguished Swedish botanist, who died in 1810, at a period when proteaceous plants were more commonly grown than now. The younger Aiton's edition of "Hortus Kewensis," published 1810, contains descriptions of nine species of this genus, almost all of them introduced by Peter Good, seven years previously. At least seven of the fifty species recorded have been figured in the *Botanical Magazine*, and D. calophylla, introduced in 1830, will soon be added to that number. It is by the kindness of Mr. James H. Veitch, F.L.S., that this species is now at Kew, for the plant was raised from seed found by him in his Australian travels, and sent to Kew in 1893.

Disease of Lilies.—The disease from which Lilium candidum, L. longifolium Harrisi, and some other of the lilies suffer has been sufficiently prevalent in this country of late years to justify considerable apprehension on the part of cultivators, but it does not appear to have been so destructive with us as in Bermuda and the United States. The attack of the disease is characterised by the spotting and distortion of the leaves and flowers, and usually the stunting of the plant. In America and Bermuda this malady, known as the Bermuda lily disease, frequently destroys from twenty to sixty per cent. of the crop. Amongst the causes of the disease are included worn-out soil, premature cutting of flowers, too early harvesting of the bulbs, carelessness in the selection of stock for propagating, bad treatment during forcing, and the ravages of insects. Investigations carried out on behalf of the United States Department of Agriculture indicate the disease to be due to a combination of these causes. Bulbs become weakened through improper selection and propagation, and this weakening is aggravated by attacks of mites and of certain fungi and bacteria. During forcing the bulbs may become weakened by over-watering, or by allowing the roots to get too dry and then using an excess of water; in such cases the leaves become badly diseased. The blotching and distortion of the foliage are often due to the direct attack of several species of aphides and of young mites, or to the injection of water into the leaves by syringing. To check the disease proper cultivation, selection, and propagation are recommended in order to improve the stock; suitable rotations will prevent the increase of mites and parasitic fungi. It is further advised that the stems should be left on the bulbs to secure proper ripening, and care should be exercised in planting, all injured bulbs being discarded. As far as practicable, injurious insects should be kept in check from the start, and continuous care should be bestowed upon watering and ventilating. Chemical fertilisers are recommended in preference to farmyard or natural manures.

Professor Michael Foster, secretary of the Royal Society and Professor of Physiology at Cambridge University, has been elected president of the British Association for the meeting that will be held at Dover next year.

Roses at Richmond.—A decade or so since roses formed such an important and attractive feature of the exhibitions of the Richmond Horticultural Society that it has been matter for regret that of late years they have not, from various reasons, been adequately represented. We are glad to learn from Mr. Algernon Chancellor, the honorary secretary, that with a view to revive the glories of this section of the society's shows the Mayor and Mayoress of Richmond (Councillor and Mrs. Albert Chancellor) have presented a valuable challenge cup for roses, to be competed for at the exhibition to be held on Wednesday, June 29.

The Worshipful Company of Gardeners have now at least one Freeman who was freeborn, and the interesting ceremony of christening this young gentleman was conducted in the chapel of the British Home for Incurables, Streatham, on Tuesday, the 23rd inst. The new freeman is Robert Cecil Sherwood Gofton-Salmond, son of the secretary of the Gardeners' Company. His God-parents were the Hon. Mrs. Evelyn Cecil, N. N. Sherwood, Esq., and Herbert Haynes, Esq.; the officiating clergy were the Rev. C. C. Gosselin, the Rev. W. Wilks, and the Rev. Canon Allen Edwards. The ceremony was an elaborate affair, and the decorations in the chapel, carried out in white flowering plants and palms by Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood, were particularly handsome and beautiful.

THE GREAT TEMPLE SHOW.

THE eleventh of the series of grand exhibitions held at the Inner Temple Gardens, by the Royal Horticultural Society, took place on May 25, 26, and 27. During the week the chief topic of conversation in the horticultural world has been the Temple Show, and very numerous have been the comments made upon the unfortunate circumstance of the Derby being run on the opening day, while not a few expressed their regret that the great Whit-week Show at Manchester compelled them to leave the metropolis much sooner than they wished.

In point of general excellence the present Temple Show has never been exceeded, for, in spite of the recent dull weather, everything on view was in good condition; indeed some exhibits that reached the Inner Temple Gardens were rejected because their presence would have detracted from the prevailing excellence. In extent the show scarcely differs from those of late years, as it is impossible to increase the space under cover. The available space for exhibits under the five large marquees is about 12,000 square feet, but in addition to this there were several extensive and handsome arrangements of hardy ornamental trees and shrubs arranged in the open, where they were greatly appreciated and looked well.

The principal occupants of the tent nearest the entrance (No. 1) were gloxinias, liliums, cut roses, carnations, hard-wooded plants, and miscellaneous cut flowers. Tent No. 2 contained the various collections of fruits and vegetables, both cut and in pots, bulbous plants, streptocarpus, and a big bank of brilliant phyllocacti. Ferns formed a leading feature in No. 3, with surrounding banks of tuberous begonias and gloxinias; here also were arranged the floral designs and groups of herbaceous plants. In tent No. 4, the large one from which the larger orchid tent is reached, presented a somewhat different appearance this season than usual, for instead of central tiers of staging there were groups of pæonies, pyrethrums, roses, clematis, crotons, maples, and azaleas down the centre, and arranged on the ground. On the side stages were orchids from various sources, including a handsome set from Brussels, calceolarias, cannas, ferns, and anthuriums. In the big marquee the orchids proved the great attraction, as usual, though this year there was a slight falling off in the extent and number of orchid exhibits and exhibitors, notable absentees being Baron Sir Henry Schröder and Wellbore Ellis, Esq. Orchids and new plants filled the centre, and a fine setting for these was formed by the magnificent groups arranged all round; roses in pots came from the leading growers, fruit trees from eminent cultivators, laden with ripe fruit, clematis, three grand lots of exquisite caladiums, banks of rhododendrons, palms, choice hardy plants, carnations. This brief *résumé* will give readers some idea of how the tents are filled, while our detailed report and illustrations taken on the spot will further assist those not fortunate enough to be present to gain a fair idea of the extent, composition, and quality of the exhibition.

It should be added that the exhibitors number about three over a hundred, exclusive of those who stage but one or two new or rare plants for special awards. Considering the size of the display as a whole this is not an extraordinary number of exhibitors, but nevertheless it is twenty more than last year, and there are quite a goodly number of new exhibitors. New plants were both numerous and good, and those who were not present at the Ghent Quinquennial of this year found many pleasant surprises at the Temple in the way of distinct and meritorious novelties. As previously stated in these columns, had all the exhibitors been granted the space they asked for it would have required at least three times the available area to hold their exhibits. It will be understood from this that the R.H.S. Council had no easy task to adjust the spacing, and, having made the adjustment, they rejected all entries sent after the date fixed. The management of the show was in the hands of the Rev. W. Wilks (secretary, R.H.S.) and Mr. S. T. Wright (superintendent), who were ably assisted by Mr. T. Humphreys (assistant superintendent) and Mr. T. W. Turner (foreman), from the Chiswick Gardens.

Orchids.

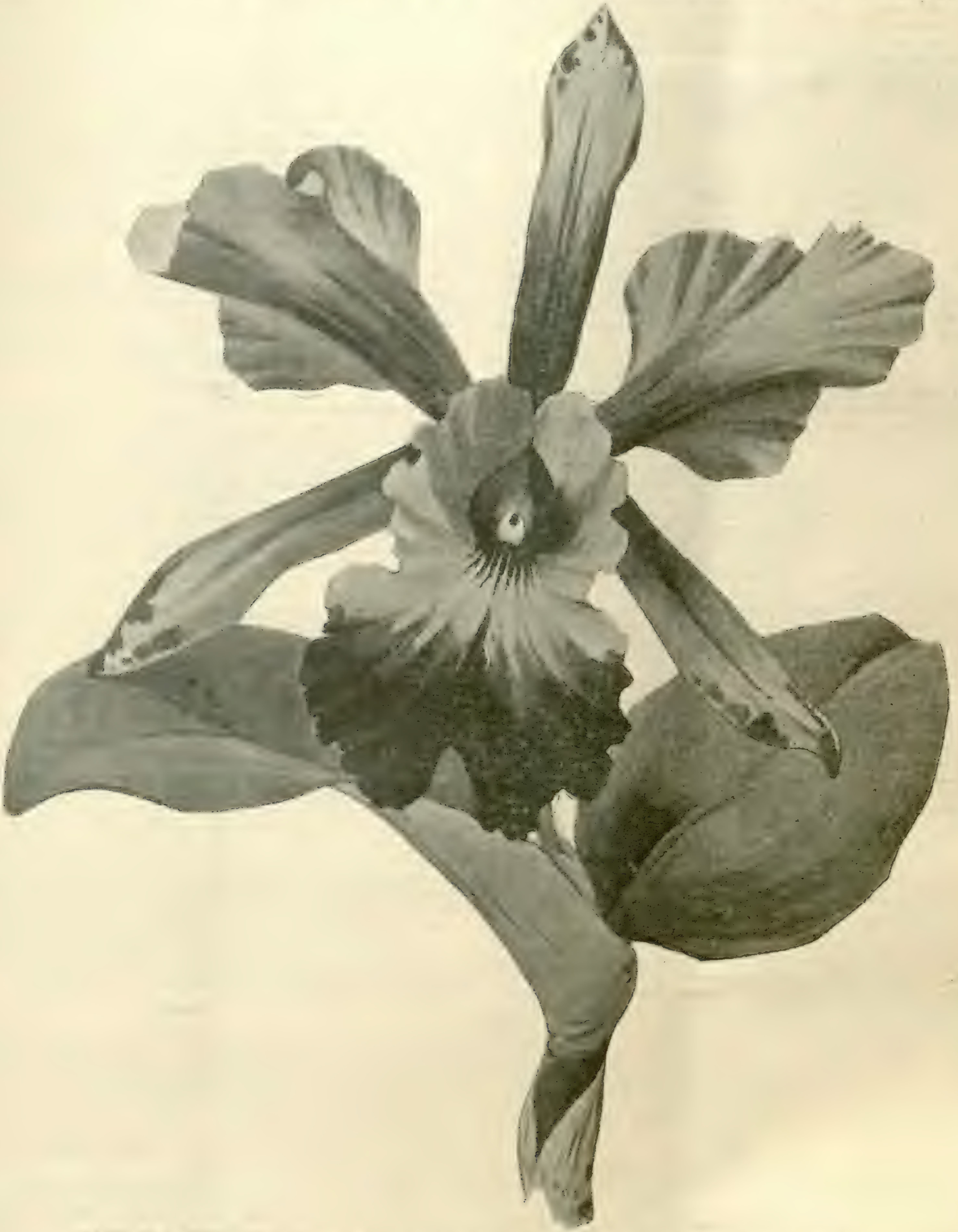
Orchids were the great feature, though scarcely so abundant as usual. Sir Trevor Lawrence's able orchid grower, Mr. W. H. White, arranged a very fine lot of orchids in the position usually occupied by Baron Schröder's collection. It was a large display and contained fine forms of such beautiful orchids as Cattleya Mendeli, C. Mossiæ, Lælia purpurata, Miltonia vexillaria, Cymbidium Lowianum, Oncidium ampliatum majus, and Odontoglossum crispum. Among rare subjects were Schomburgkia tibicinus, with eight fine blooms; Cypripedium Olenus Burford var., with two huge purple spotted flowers on one scape; Cattleya Skinneri alba, a pretty plant with half a dozen flowers; Cattleya Parthenia, with two charming flowers; the curious Colax jugosa, carrying fine pretty bluish-lipped flowers; Odontoglossum luteo-purpureum radiatum, Epiphronitis Veitchi, Renanthera Imschootiana, with blood-red flowers, the curious Dendrobium O'Brienianum striatum, with depending spikes; Macodes petola, Dendrobium Parishi albens, Cattleya Wagneri, a handsome plant; Masdevallia Shuttryana, Saccolabium miniatum, a scarlet-flowered species; the "Blue Dendrobium," D. Victoria Reginæ, Bulbophyllum saltatorium, the delicately coloured Aganisia cærulea, and Maxillaria grandiflora. There were fine large and freely-flowered specimens of Cypripedium superbienis, C. grande, C. barbatum, C. Eleanor, C. Lawrencianum, and C. Swannianum superbum. Masdevallias, epidendrums, and other orchids in variety, assisted to make up an excellent exhibit with the aid of a suitable backing and groundwork of palms and ferns.

A very pretty exhibit of orchids was staged by Mr. W. H. Young, orchid grower to Sir Frederick Wigan, Clare Lawn, East Sheen; this display had a frontage of about fifteen feet, and was a bold exhibit, in which were numerous splendid examples of Cymbidium Lowianum and several large plants of first-rate forms of the popular Lælia purpurata; conspicuous and rare orchids set out among a host of miltonias, odontoglots, masdevallias, and cattleyas, were Cattleya intermedia Parthenia with four chaste blooms; C. Skinneri alba, with about two dozen flowers, Aerides crispum Warneri, the tiny and quaint Eria extinctoria, Disa Kewensis, Odontoglossum polyxanthum grandiflorum, O. Ruckerianum and a famous light form of O. crispum, Aerides Fieldingi, and Lælia purpurata Russelliana. This group also contained Dendrobium Victoria Reginæ, the [illegible] Cypripidium callosum Sanderæ, and C. Kerchoveanum, var. W. H. Young, a cross between C. Curtisi and C. barbatum; the front of the group consisted of drooping spikes of the fragrant Odontoglossum citrosmum. Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, staged a handsome lot of orchids, his group containing a much larger variety than on former occasions; in the centre were large specimens of Cymbidium Lowianum, Dendrobium Pierardi, Cœlogyne Dayana, Odontoglossum Edwardi, and O. Reichenheimei; these and several freely-flowered Thunia Marshalliana were flanked by small groups of Cattleya Mendeli and C. Mossiæ, and higher up by specimens of Cypripedium barbatum, Dendrobium thyrsiflorum, Vanda trees, and Oncidium Marshallianum; ferns and palms were used with great effect here, and the front fringe of panicum was an excellent idea. Mr. M. S. Cooke, Kingston Hill, Surrey, showed a small group of orchids, consisting chiefly of forms of Odontoglossum crispum, [illegible] vexillaria, and Cattleya Mendelli; among the numerous examples of these we noted good specimens of Cypripedium Carteri, Cattleya Schillerianum, Lælia grandis tenebrosa, Odontoglossum polyxanthum, and Cochlioda sanguinea.

A brilliant collection of orchids was that from Mr. J. Cypher, Queen's Road, Cheltenham. It was an extensive exhibit of freely-flowered plants admirably arranged. Lælia purpurata was grandly represented, the form named L. p. atropurpurea being extremely handsome and distinct; L. p. Russelliana was also evident; Cattleya Skinneri gave fine bits of colour, as also did the long spikes of Dendrobium Phalænopsis and Cattleya citrina; Masdevallia Schlimi, M. tovarensis, Cypripedium Exul, Cattleya Acklandiæ, C. Schilleriana, Cypripedium Rothschildeanum, Cattleya Lawrenceana, Oncidium Krameri, and O. Marshallianum were other superb and interesting orchids that attracted considerable attention; Odontoglossum nebulosum and Thunia alba were also very good.

Messrs. F. Sander and Co., St. Albans, had a grand display of orchids and new plants, occupying the whole end of the centre of the large marquee. On one side there was a beautiful collection of odontoglossums, mostly forms of O. crispum, but all excellent, either for good form, colour, or spotting, the spikes robust, and flowers most substantial; O. luteo-purpureum, O. Ruckerianum, O. Halli in variety, and D. Harryana were present in quantity, and their dark flowers contrasted finely with those of O. crispum. Here also were fine forms and plants of Lælia purpurata, Cypripedium conco-bellatulum, Cattleya Mendeli in variety, and the exquisite Zygopetalum Perrenondi. On the opposite side cattleyas were most in evidence with C. Wagneri, very conspicuous, and carrying four beautiful flowers; a great mass of Oncidium ampliatum majus, and a large example of Cœlogyne Dayana, with a number of drooping racemes, occupied posts of honour with Masdevallia Veitchi grandiflora, Cypripedium bellatulum, C. callosum Sanderæ, Lycaste locusta (Sander's var.), Cypripedium Mastersianum with about three dozen flowers, C. macrochilum giganteum, and C. Doncasterianum inversum. Cattleya Skinneri alba and Sobralia macrantha alba were albinos of special note in this large display. In a tasteful group arranged by Mr. A. Hislop, gardener to H. S. Leon, Esq., Bletchley Park, Bletchley, there was a small set of grandly-flowered Vanda teres, with a lovely white sepaled form of Lælia purpurata, and a three-flowered plant of the brilliant Cattleya speciosissima; some lovely forms of Odontoglossum crispum were tastefully disposed among Cattleya Skinneri, C. Schroderæ, and C. Mendeli; a few cypripedes, Oncidium concolor, Epidendrum radicans, and Vanda tricolor were also present in good form.

A glorious group of orchids came from Messrs. Charlesworth and Co., Heaton, Bradford, and not a little of the beauty of the exhibit was due to the liberal use of maidenhair fern among the plants and a backing of fairly dense palms. Three groups of golden oncidiums, O. ompliatus majus and O. Marshallianum, were staged along the top, and had the pretty effect of chains of gold; around these were grand masses of charming forms of Odontoglossum crispum and O. Pescatorei,



CATTLEYA FERNAND DEVIS, F.C.C. TEMPLE SHOW. (Flowers pale rose and rich amethyst.)

and small groups of Lælia purpurata in splendid form. Cattleya Skinneri and Miltonia vexillaria were not only represented by charming varieties richly coloured, but by goodly specimens. Phaius Cooksoni, Masdevallia Veitchi grandiflora, Cattleya Mendeli, Odontoglossum luteo-purpureum, and Dendrobium Dearei contributed to the brightness and interest of the exhibit, but, more than all else, the new hybrids arrested attention. The chief of these were Cattleya Fernand Devis, a beautiful and bold hybrid raised by crossing Cattleya Acklandiæ and C. gigas; it has broad blush sepals and petals, and a spreading carmine-purple apex to the lip. Lælio-Cattleya radiata has been obtained by crossing L. purpurata and Cattleya dolosa, has much of the appearance of the former, but has a more compact flower. L.-c. Admiral Dewey is a lovely hybrid between Cattleya Warneri formosa and Lælia elegans Mastersi; it has bold lilac segments and a glorious labellum that ends in a rich crimson-purple apex; this carried four fine flowers, each about seven inches across. Cattleya Lord Masham (C. Loddigesi and C. superba) is distinct, and so is the brilliant Lælia cinna-brosa, a pretty hybrid between L. cinnabarina and L. tenebrosa.

Forms of Vanda tricolor were conspicuous in the collection of orchids staged by Messrs. B. S. Williams and Son, Holloway; they formed a fine screen against the background of palms, and served to heighten the effect of Cymbidium Lowianum, Lælia purpurata, Oncidium concolor, O. Marshallianum, Odontoglossum crispum in great variety, Miltonia vexillaria in abundance, Lælio-cattleya Latona, Anguloa Clowesi, the interesting L.-c. intermedio-flava, Cattleya Mendeli, rich forms, calanthes, and cypripedes. A small group of scarlet odontoglossum was the contribution of Mr. W. Stevens, gardener to W. W. Thompson, Esq , Walton Grange, Stone, Staffs.; O. excellens, var. Letty Lind, with branching spikes of light flowers; O. crispum Lily, rosy with crimson dots; O. crispum, capartianum, with brownish red blotches in the centre of each segment; O. crispum Dorothy, pretty with light blotches on the sepals; O. tripudians, O. crispum Thompsonianum, large, with deep crimson blotches, and O. c. fastuosum, an exquisitely-formed unspotted variety was the most beautiful sorts sent. Mr. J. O. Clarke, gardener to Ludwig Mond, Esq., 20, Avenue Boad, Regent's Park, arranged a small group of orchids, showing some pretty light forms of Miltonia vexillaria, good Cymbidium Lowianum vars., the fragrant Odontoglossum citrosmum, and several choice forms of cattleya and Mendeli

A wonderfully choice selection of orchids was tastefully arrayed by Messrs. Hugh Low and Co., Bush Hill Park, Enfield; the cattleyas were a beautiful lot, and naturally almost entirely forms of C. Mendeli and C. Mossiæ; besides these there were an abundance of spikes of the best forms of Odontoglossum crispum and Lælia purpurata. Especially rare and choice orchids in this handsome group were Lælio-cattleya elegans Lowiæ, with a crimson-purple apex to the lip; Odontoglossum crispum Dieudonné, a sweetly pretty form with intense spots; O.-c. In Memoriam W. E. Gladstone, with reddish-brown blotches; Cattleya Wagneri, C. Mossiæ Reineckiana, very beautiful; Cypripedium Gertrude Hollington, C. Rothschildeanum, Bulbophyllum Claptonense, Miltonia Bleuiana, and Cirrhopetalum Colletti. The Messrs. Low and Co. show no falling off in their orchids either in the matter of cultivation or excellence of variety. In the No. 4 tent Messrs. W. L. Lewis and Co. made an extensive display of beautiful orchids; it was a grand collection of Lælia purpurata, Cattleya Mendeli, Odontoglossum crispum, Oncidium ampliatum majus, and other popular orchids. Cypripedium Evenor Southgate var. was a conspicuous plant, with two flowers; Cattleya Schilleriana, a beautiful form of C. intermedia, Oncidium spilopterum, Cypripedium grande atratum, C. Gertrude Hollington, Southgate var., Phalænopsis amabilis, and a huge flowered variety of Cattleya Mendeli named Amelia were the most notable choice forms, not omitting a three flowered scape of Cypripedium Rothschildeanum.

A wonderfully pretty and elegant collection of odontoglossums came from Messrs. Linden and Co., Brussels; the strength of spikes, broad and substantial blooms, together with robust foliage, rendered this a most interesting exhibit. In addition to this was the wonderful diversity of variety in colour and spotting. O. crispum zebrinum, finely spotted; O. c. deliciosum, with big, reddish blotches; O. c. umbellum, curiously coloured; O. c. decorum, pure white, with a few large and intense spots; O. Pescatorei Alicise, with violet-purple spots; O Wilckeanum illustre; O. W. rufum, with brown markings; O. W. excellens, O. W. spectabile, and O. polyxanthum expansum were among the leading forms. A great beauty not to be omitted is O. venustum, a natural hybrid between O. crispum and O. Hunnewellianum, was a centre of interest by reason of its good form and free red-spotting all over the waved segments. There were several hundred grand spikes of odontoglossums, and a small group of Cypripedium Lawrenceanum grandiflorum in addition, making a splendid exhibit, to come from such a distance. A small lot of rare and beautiful orchids was contributed by Mr. Jules Hye-Leysen, 117, Conpure, Ghent; Miltonia Bleueana rosea gigantea was a grand orchid with immense blooms; Odontoglossum luteo-purpureum, var. Vuylstekianum, with yellow flowers; O. sceptrum, a fine form; O. cordato-crispum, Cypripedium Leysenianum, and Lælio-cattleya Hippolyta were all in good form and greatly admired.

Mons. A. Madoux, Anderghem, sent a few orchids, but these were staged too near a mass of begonias to be effective. Odontoglossum Charlesianum, a hybrid crispum form, prettily and heavily spotted, was a great feature, and this was surrounded by some excellent forms of Cattleya Mossiæ, C. Mendeli, Odontoglossum crispum, and a good specimen of Lælia Latona superba, besides a specimen of Dendrobium Victoria Reginæ. Messrs. J. Backhouse and Son, York, showed a few orchids arranged with some stove plants; Lælia purpurata, Miltonia vexillaria, odontoglossum crispum, O. polyxanthum, and Cypripedium Rothschildeanum were conspicuously good, staged amid ferns, miconias, Asparagus Sprengeri, &c.

Roses.

Roses constituted one of the most important and attractive features of the exhibition, and proved of much interest to the general body of exhibitors. Messrs. William Paul and Son, Waltham Cross, Herts, exhibited a magnificent group not less remarkable for the taste evinced in the arrangement than for the ample development of the leafage and the high quality of the blooms. Standards and pyramids were remarkably good, and judiciously interspersed amongst the bush specimens added materially to the general effect. Especially noteworthy were the examples of Aurora, an exceedingly beautiful hybrid tea with large finely-formed flowers of a glowing pink hue; Star of Waltham, Crimson Queen, Madame Lacharme, Mrs. John Laing, Medea, Corinna, Duke of York, one of the most beautiful of the China roses, Perle d'Or, Sylphe, Clio, Beaute Inconstante, Crimson Rambler (especially effective in a standard form), Maman Cochet. Cut roses were admirably shown by the firm, both in boxes and baskets; the basket filled with Clio, Augustine Guinnoiseau, Duke of York, and Crimson Queen, all of which have been raised at Waltham Cross, were especially beautiful.

The end of the large tent was occupied by a fine bank of roses from Mr. Charles Turner, Slough. The group consisted chiefly of dwarf bush specimens, all of which were well flowered and distinguished by an amplitude of foliage. Especially deserving of mention were the specimens of La France, Celine Forestier, Crimson Rambler, Camille Bernardin, Francisca Kruger, Madame Abel Chantenay, Juno, an old but beautiful variety which has long been grown with great success at Slough, Souvenir de Madame E. Verdier, Marie Baumann, Madame Lacharme, The Bride, Madame Victor Verdier, Madame de Watteville.

Messrs. Paul and Son occupied one of the lower corners of the big tent with a group of standard and dwarf specimens of surprising beauty. Of the many fine examples, special mention must be made of those of Captain Hayward, Madame de Watteville, Ulrich Brunner, Madame A. Chantenay, Rev. Alan Cheales, a comparatively new hybrid perpetual, especially good in standard form, as was so strikingly exemplified in the collection, and Crimson Rambler. Messrs. Paul and Son also exhibited two beautiful varieties raised from Crimson Rambler, namely, Psyche, a charming blush-coloured rose, of which a description has been already given in these pages, and Diana, a very distinct variety, with white rosette-like flowers, which are produced in large clusters, as in the case of its parent.

A small but attractive collection of roses was shown by Messrs. Frank Cant and Co., Colchester, in the tent adjoining the large marquee. All the plants were well grown and admirably flowered, but the most noteworthy were the standards of Niphetos, Kaiserin Augusta, Victoria, Souvenir de S. A. Prince, Madame Falcot, and Crimson Rambler. Messrs. F. Cant and Co. also had several examples of Thalia, popularly known both in Europe and America as the White Rambler, Mr. W. Rumsey contributed a group of roses in pots, which, arranged at one end of the tent adjoining the marquee, was very attractive. As in other collections, standards were used with good effect in association with bush-trained specimens, and afforded another object lesson on their usefulness in the conservatory. Some of the best standards were those of Mrs. Rumsey, a beautiful hybrid perpetual introduced by the exhibitor a few years since. Mr. Rumsey also exhibited several hundred cut blooms all more or less good, Niphetos and Maréchal Niel being especially good.

Mr. George Mount, Canterbury, exhibited a superb collection of cut blooms, a considerable proportion of which were staged with long stems, and presented a highly attractive appearance. The varieties represented in the collection included Mrs. W. J. Grant, Mrs. John Laing, Caroline Testout, Niphetos, Marie Van Houtte, General Jacqueminot, La France, Ulrich Brunner, Catherine Mermet (represented by some dozens of superbly developed blooms), Fisher Holmes, Baroness Rothschild, and Mrs. Sharman Crawford.

Caladiums.

For gorgeous colouring, bold leafage, and excellent cultivation the groups of caladiums arranged were scarcely to be surpassed. Messrs. J. Veitch and Sons, Chelsea, were to the front with a very fine group of large size. The specimens were marvels of high culture, both as regards size, colour, and general development. The shades of cream, green, crimson, scarlet, golden green, and rose were wonderful for their effectiveness and delicacy, and for the manner in which they harmonise when the varieties are associated; this was a very rich bank of colour. The varieties were all of the best, and at the back was a huge example of Madame John Box, and though it excelled all others in size, it was not better grown than the dwarf Mikado, or yellow and rose Princess of Teck; Prince Adolphe de Rothschild, Louis Van Houtte, Williamsi, a wonderful combination of scarlet, rose, and cream; Rose Laing, Madame E. Pynaert, crimson; Martha Laforge, creamy green; Duchesse de Mortemart, transparent white and dull green; Princess Royal, small foliage, golden green and rose: John Luther, crimson scarlet; Sir Julian Goldsmid, light green, shaded and veined scarlet; and Cascapava, creamy, with intense crimson-scarlet veins, were among the most attractive varieties. None of the plants were crowded, but it was possible to see the full extent of each specimen over the groundwork of maidenhair fern.

Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood, S.E., put up a grand lot of caladiums, arranging the specimens over a groundwork of maidenhair fern. There were superb specimens of Excellent, of which we give an illustration, Princess Royal, Candidum, Icaris, bronze and scarlet; Henry Dixon, creamy, with transparent spots; John Peed, Sir W. Broadbent, scarlet veins over a light green ground; Mrs. J. Peed, Princess of Teck, Ibis Rose, Golden Queen, Reine de Denmark, the beautiful Raymond Lemoinier, W. E. Gladstone, crimson, new; and Charlotte Hoffman, creamy, new, were among the most attractive varieties in a splendid group; the two latter are varieties raised at Norwood. Caladium argyrites and C. minus erubescens made an agreeable edging to the whole. Messrs. J. Laing and Sons, Forest Hill, were also extensive exhibitors of caladiums, putting up a handsome group, in which the forward and smaller plants were somewhat crowded. The plants were splendidly grown and the colours well brought out; the brilliant rosy-crimson and green variety, John Laing, occupied a central position, while large specimens of Triomphe de Comte, Altaire, Flammant Rose, and Baroo de Mamore were arranged along the back in front of the graceful palms. In the foreground were beautiful plants of Guaratuguator, rich crimson, new; Raymond Lemoinier; Sir Julian Goldsmid, Madame Imbert Koechlin, Rose Laing, Lillie Burke, Miracema, transparent pink; Ladas, rosy-scarlet; Mons. Comte, whitish, with scarlet veins; the two popular dwarf caladiums formed an edging together with panicum.

Clematis.

Messrs. Richard Smith and Co., Worcester, once again brought their superbly grown clematis, arranged as usual on balloon trellises, and covered with huge flowers of great substance and beauty. About two dozen of these large specimens, each measuring about four feet high by two and a half to three and a half feet through. Mrs. George Jackman is the best white; Princess of Wales is pale blue; Marie Lefebvre, paler blue, with dark centres to the segments; Madame Edouard Andre, deep rosy-crimson; Countess of Lovelace, double blue; Enchantress, double white; La France, bright purplish-blue; Purpurea elegans, deep purple; and Lawsoniana, lavender were all superb varieties well worth cultivating.

A charming group of clematis came from Messrs. G. Jackson and Son, Woking. This exhibit was very fresh and interesting, as all the varieties were coccinea hybrids; most of the specimens were arranged on balloon trellises, but several were trained as pillars, and some over rustic arches. In every case the flowers are tubular, and a selection of varieties would include Countess of Onslow, bright rosy-red; Duchess of York, blush white; Duchess of Albany, silvery-rose; Grace Darling, rich rose, a more starry form than most; Sir Trevor Lawrence, deep crimson, the newest form; and Admiration, pink, with the segments margined with purplish-rose. A few spiræas and some ferns gave this group a most cool appearance.

Hardy Trees and Shrubs.

A most brilliant effect was produced with hardy-flowering plants by Messrs. J. Veitch and Sons, Chelsea, who had a large display in the big marquee. Some choice rhododendrons made up the centre, a light form named Sappho being very prominent flanked by Lord Eversley, deep rose, and Prometheus, a rich red form;

(*Continued on page* 349.)

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

I AM going to deliberately devote a paragraph to that hoary and time-worn topic—the weather. And why I am going to do it is this: Whenever in the past I have made an incidental reference to it, whatever its nature during the week or two that elapses between the mixing and sending out of the morning dose, a change has contrived to take place, so that the reference is invariably inappropriate. Well, I want a change to take place now, and I give the clerk of the weather a chance of confounding me by basing my remarks on an assumption that it is pouring with rain everywhere. If he trips me up, I shall have made one more sacrifice on the altar of my Queen, my country, and my neighbours' seed beds, which (the seed beds) are at present in a genial condition of paste.

Successful gardening is not the science which some people would endeavour to make out: it is the science of taking opportunities. A man who has got into the habit of promptly seizing chances is a man who could become a good gardener, whether he be at present a Cabinet Minister, a Yankee admiral, or a professional window cleaner. But, inversely, the man calling himself a gardener, who has not mastered the simple art indicated, is as little likely to be a successful horticulturalist as he would be to become famous at the India Office, or in charge of the Cuban squadron. Disguise it how you will, there are no terrific secrets in gardening, but there are certain elements making for success, and the nearer you get to them the better good work goes on. There is usually a specimen of the genus hobbledehoy in my garden, and during the last twenty years a fair string of them (they are known to local horticultural wits as Peter's pigeons, I believe) has passed through. All these young men have one lesson impressed upon them—never to let a chance slip. If the conditions for sowing a successional row of peas are favourable to-day, then to-day, and at no other time, has that row of peas to be sown.

I tolerate, sometimes with amusement and sometimes with respect, those venerable maxims which we are being solemnly assured at our lectures and in our papers are vital to horticultural progress. We all know those maxims. One of them is, never water in dribblets. I have shown up the absurdity of this from a practical point of view before, and now class it as amongst the simply laughable. Another is, keep light soil close, so as to conserve the moisture; it is docketted with the dribblets. A third is, keep the hoe moving in dry weather. Excellent! I am a thorough believer in it, though it is a little humorous to perceive that some of our estimable advisers have got so much into the way of quoting it that that they do so as cheerfully now we haven't any dry weather as when the ground is parched. But whatever the maxim be—whether it be one of those which we keep on using because everybody else does, or one of the list that common sense and experience teach us the value of—I am prepared to back in practical importance the one named above—seize your chances.

The early morning's walk through the garden shows many things in which we can later in the day take occasion by the hand. There is evidence coming in from every quarter about the prospects of a good fruit year. Every man who has his garden has the evidence before his eyes. There has been abundant blossoming, and pictures of beauty the trees have been; but we want more than present beauty, and that is just what many will not get. Old trees, neglected middle-aged trees, even young trees, there are in abundance, which are utterly incapable of swelling off their crop in perfection. They will begin to swell it, and they will succeed to a certain point, but then their energies will fail them, and fruit which ought to have grown to noble proportions will be small, wrinkled, pitted, and fungus-stricken. In the heavy masses of spurs at the present time an experienced eye will have no difficulty in detecting, first, the fruits which Nature will throw off in her own good time; second, the fruits which she may not get rid of, but which under no conceivable circumstances can make good specimens: third, the really promising. I go into no elaborate disquisition on fruit thinning, I simply revert to my maxim—seize your chances.

In another direction, too, we may take off our hats to coy Occasion, and gallantly kiss the hem of her fluttering robe. The thoughtful man perceives that unless troublesome frosts and blighting winds lighten the trees by robbing the cultivator, they (the trees) have heavy work before them. Now, it is at all times more difficult to find jobs for the hands on a wet day than a dry one, but there is one task which is pre-eminently a wet day operation, and that is the application of liquid manure. It sounds incredible, but over and over again I have seen the man who is loudest in his reiteration of the washed-out phrase "never give dribblets," choosing a period when the sun is fiercely hot, and the ground frantically dry, to apply his sewage. If this good man were to indulge in a little less reiteration and a great deal more thinking, he would learn to handle both the dribblets and the sewage better. My present theme is the latter, and I say with regard to it—take advantage of the present wetness of the soil and put it on. If the reader tells me that he cannot do so, for the same reason that a writer could not say anything about Lapland snakes, then I beg respectfully to invite him to imitate my own proceedings, which are—to put a pound of superphosphate and half a pound of guano (not the other way about, if you please) into a ten-gallon tub of water, to stir well, and to apply through a can at the rate of a gallon and a half to the square yard.

When the aforesaid thoughtful cultivator is looking over his fruit spurs he is quite likely to observe some curling of the leaves, and if he opens them out he is pretty certain to find within a creamy caterpillar, about half an inch long. A dreadful nuisance is this caterpillar, especially if you get a lot of him. I cannot truthfully say that getting rid of him is a wet weather job. Try it, and you will find the reverse. But there is one consolation, like the majority of grubs and caterpillars, including that vicious pest the onion fly, continued heavy rain tends to keep him down. Should the clerk of the weather trip me up by ordaining a dry spell about the time these notes appear, the caterpillar must be attacked. No! I am not so sure that it will be Paris green. I am beginning to fight shy of that appetising dish. If I could always be sure of getting an even quality, and if I could be equally certain that the sprayist faithfully carried out his instructions by keeping it rigorously mixed, I should look no farther. But the various editions of Peter's pigeons rather prefer to leave the mixture to its own devices, so that part of it does no harm whatever to the caterpillars, and the other part scorches the tree, for the reason that the particles settle down. I am therefore falling back on my stock emulsion of soft soap and paraffin. It does not poison the caterpillar like Paris green, but it worries and thins him in its own convincing way.

I see a writer refers to what he calls a long-standing delusion amongst gardeners that peach blister is caused by cold winds in spring, and proceeds to demolish the "delusion" by describing the real enemy in all its dread latinity. I was not aware that gardeners in general did labour under the delusion. I thought it was a generally understood thing that the wind stopped short at predisposition, and that the culmination rested with a fungus. This question was thrashed out many years ago in a horticultural journal. I don't remember quite how long it is since, perhaps twenty years, but both our Editor and myself were not the "stout parties" then that we are now. Both warriors—for there were two of them—were doughty champions, and the fight was a rare one. But although it is perfectly true that the wind does not do everything, it is the real culprit after all. The wind pinches the tender young foliage, and down comes the fungus.

LICUALA JEANENCEYI F.C.C. TEMPLE SHOW.

I have had a good illustration of the course of events just lately. A jutting end of one of the lean-to catches the sharp end of the nor'-easters just at that particular point where our present "pigeon" thought it expedient to open a ventilator; why, no one knows, certainly not himself. In an area corresponding to a nicety with the flow of the current, we have blister, and a bad attack too. Of course, being there it would spread, wind or no wind, if we let it, but within an hour of the mischief being observed the wretched *locum tenens* of the absent chief had had his wigging, and been started on a brew of liver of sulphur, a quarter of a pound to ten gallons of water.

I have just been reading "Memories of Ghent," by Servator. So Peter did go there after all, and what is more, took his inch of lead pencil with him!

LUX.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

MELONS IN POTS.

THE culture of melons is frequently ably treated on in the pages of the GARDENERS' MAGAZINE in its calendar notes, but as it is impossible to go into details in the same, a brief note on pot culture may not be out of place. Many have failures with melons owing to the rich root-run afforded, or to which the roots gain access. One may, however, with advantage employ pots, and thus curb the roots, and by so doing induce early fruiting, and prevent gross leafage. In the first place, those who need early melons will find pot culture the best, as here earliness is ensured, and though it is not well to overload the plants, there is no difficutly in taking three nice-sized fruits, and even four, from a plant in a large pot. There is another mode of culture well worth noting, and this is what may be termed the cordon-system. This consists of growing in smaller pots, 10 inches being ample. The pots are plunged to the rims; this allows of liberal top-dressing after the fruits are set, and the perfecting of fine fruits. By cordons it will be understood a single growth is secured, and the plants are from fifteen to eighteen inches apart in the bed at the time the pots are plunged; this may appear close, but it should be remembered that with cordon growth there is close stopping and the melon does remarkably well under this system. Naturally only a limited number of fruits must be taken; from a large variety two fruits are ample, three from a medium, and four from a small sort. On the other hand, if earliness is the cardinal point, I should not hesitate to allow one or two fruits on a plant here and there, as it is important to obtain the first set so as to give all the plants the same treatment, for with fruits at different sizes or ages there is a difficulty in finishing them.

With melons grown in houses the plant is allowed to run to three or four feet and then stopped, and the fruits secured at the earliest period possible. Of course, shoots not needed for fruiting are stopped closer. By this mode of culture the roof space is quickly covered, and fruits are obtained in a shorter space of time than if the plants are allowed to make more growth. More than the requisite number of fruits are set, so as to be on the safe side, and only the best retained. There must be strict attention to stopping, as if the growths run wild there is an end of the cordon system, and the plants fail. With fruiting shoots a little licence may be allowed, but I stop at the second joint beyond the fruits at the start, and allow more joints for future stoppings, as it is an easy matter to tie up the growths so that they do not interfere with the other plants in bearing. For small houses this mode of culture is advised, as it soon furnishes fruit, and, if desired, many varieties may be tried. On the latter point, it is doubtful advice to recommend mere variety, and I do not do so save merely for the sake of trial.

There are other advantages in this system, for gross growers fruit more freely, there is less anxiety as to setting, and the crop is obtained in less time and with less fear of canker than usual. When in pots the plants can be treated better as regards foods; a much firmer, shorter growth is thus secured, and early fruiting induced. The crop, though smaller probably than on plants with more freedom, is more reliable.

I have dwelt at greater length on cordon culture than I intended, but the system is not unlike that for melons in larger pots. Large pots may be employed; many use inverted seakale pots, and this allows of rooting through into the soil, but this matters little so long as the pots are sunk and liberal top-dressings given. I rely more upon the latter than deep root action. For very early fruiting I find sixteen-inch pots large enough; indeed I have frequently used twelve-inch pots with advantage; much depends upon variety and feeding. For pot culture one may use a richer soil than is often advised for melons as growth must be quick, and several crops may easily be taken in the same house by having sets of plants to follow each other. With early fruiters much better results are secured by the use of bottom heat, and, of course, if the pots are too near the hot-water pipes there will be few bottom roots, and in this case there will be more need to encourage surface roots. We feed our plants freely; the pots are not quite filled at planting, and new soil is given as growth is made, but near the stems care is needed to place porous materials. This method is for early fruits, but for later crops larger pots filled at planting time are adopted, and a liberal top-dressing of bonemeal and loam given later.

I am not in favour of starving melons by the use of poor soil; it is far better to obtain early setting and sturdy growth by giving less root-run. In frames or beds of manure here we always plunge large pots, and fill these with the rooting materials in preference to the chance work of having to wait a much longer time for the fruit, for restricted root-action is conducive to early setting. So far I have never seen evil result by a free use of good soil, provided it is given so that the fruits have the benefit of it, and this, I think, will be best insured by liberal top-dressing; there are other means, such as liquid manures, once the fruits are set, but the evil to be avoided is feeding before it is needed, as there should be enough food in the soil, even in pots, to build up plants large enough to produce abundance of flowers. There are a few difficulties with melons in pots, one being that more moisture is needed at the season the fruits are swelling than is usually given; more foods are also necessary, but there is a gain in the end, as one can feed at the right moment and omit moisture when the fruits are maturing, thus securing better flavour.

Syon House Gardens. G. WYTHES.

Hardiness of Tea Rose Safrano.—We were able to cut some very nice blooms of the above rose both from the open and against a very much exposed east wall, on January 4 of this year, which says a great deal for the hardiness of the variety, as we registered 9 degrees of frost during December, and there were plenty of buds to open on January 4. It would be very interesting if some of your correspondents would give their experience of the amount of frost rose buds can withstand and open satisfactorily afterwards. Several of the hybrid perpetuals gave us blooms in January, so also did Gloire de Dijon and Homere from the open garden.—R. TURNBULL, *Beachley, Chepstow.*

POTTING CHRYSANTHEMUMS.

A VERY important stage in the year's work amongst chrysanthemums is reached when the plants are sufficiently advanced to require their last potting. Generally speaking, this final potting time is during the last week in May, but there may be, and in most collections doubtless usually are, a number of plants which will require potting a few days earlier or later just according to their condition. No fixed date need be given, the time for the work to be done is always governed by the weather and the state of the plants themselves. It is most unwise to leave plants in small pots when they really need shifting into larger ones; and on the other hand, it is equally bad practice to give more root room before the six-inch pots are thoroughly well occupied with roots. As it is almost impossible to have the whole batch of plants ready for potting at one time, even supposing it were desirable to do so, there is a week or two occupied, more or less, in putting the plants into their flowering pots. The labour involved in this final potting and subsequent arrangement in their summer quarters, is perhaps the heaviest item in the whole season's work, and though it must not be regarded as the *summum bonum*, any more than any other detail may, it certainly contributes largely to ultimate success. There are many details in connection with the work on which advice will bear repetition to those interested, and to none more than to those who take up the cultivation of chrysanthemums as a recreation for their spare time.

One needs ever to be looking ahead, and to make due preparation before the work requires to be done. Soils, manure, pots, stakes, &c., should be to hand early in the month, so that no unnecessary delay is caused for want of these at the proper time. The loam for this shift must be the best procurable, containing plenty of grass-root fibres, and should have been dug a few months previous to using. Chop or pull the turves into pieces as small as chicken's eggs, and in like proportions, the following quantities will compose an excellent potting soil: Three parts loam, half part each leafsoil, decayed horse manure, old mortar rubble, and ashes from garden refuse fires, with a sprinkling of finely ground bones. Of this latter use more or less according to the quality of the loam. It is a mistake to add a large quantity of artificial manures, as this only renders the soil unhealthy for the new roots, and is much better given at a later period. The manure from old mushroom beds is first-rate for lightening heavy soils, and may be used a little more freely than that which is less decomposed. The bone meal should be of best quality, and a few half-inch bones may be sprinkled over the drainage for all the strong growing varieties. Soot we do not use in the soil, but later in the season it is given freely in the water.

For the greater number we prefer ten-inch pots, but for late-struck plants, and for those naturally not over robust, smaller sizes are best, as it is worse to give too large a pot which does not become well occupied with roots than one too small. Mutual Friend, Australie, Baron Tait, Lady Byron, Therésè Rey, Reine d'Angleterre, and others not more strong growing, do best in nine-inch size, whilst Hairy Wonder, and such moderate growers, will do well in a slightly less pot. Any varieties, too, which are especially liable to damping of the blooms, must not have the largest size pot; over strong growth must not be encouraged, as it predisposes the plants to this weakness, Drainage must be carefully and systematically laid in the pots, as a free outlet for the quantities of water which chrysanthemums need is most important; a light dusting of soot may be sprinkled over the drainage to prevent worms readily finding their way into the soil. The bones used either in the soil or over the drainage must not be raw ones, as these are very apt to cause an unwholesome condition of the soil, into which the roots will not readily penetrate. Frequently mistakes of this kind have been made, especially in putting too many amongst the drainage, where their decomposition has been the cause of a serious injury to the roots. Dissolved bones are the best. Before potting be sure the plants are in a moist condition, though we do not like repotting a plant immediately it has been watered. Place some of the most fibrous soil over the drainage to prevent the fine mould washing down into it, and take care that the new soil is neither dry nor wet, as either condition is not suitable for good potting. Place the plant so that half an inch of soil may cover the surface of the ball, and do not fill the pots too full; about an inch and a half space should be left for watering and subsequent topdressing. Pot evenly and firmly throughout, so that water will soak regularly through. No water need be given for a few days after potting, but if the weather is bright and dry frequent syringings will do much to help the plants recover the check of repotting. They may stand close together for a week, and then, about the middle of June, be arranged in their summer position.

I have not seen any further traces of the leaf rust, and though I would urge all cultivators to keep a sharp look out for this, and to burn any traces they may find, I do not anticipate much trouble in dealing with the fungus causing the disease. Supposing the variety which infests carnations to be the same as that on chrysanthemums, I may point out that the probabilities are that the spores remain fertile for some months, because on an imported carnation plant we found spots last autumn, and these were carefully removed, and the plant constantly watched ever since. No new fungus marks developed until recently, when we have found a little spot or two.

W. H. LE[illegible]

Trent Park Gardens.

A RACE FOR LIFE is taking place in our midst every day, and too often, alas, the [illegible] ends in death. People, as a rule, are apt to look upon some slight ailment which may [illegible] them with contempt, and they thus ignore the simple remedies which would speedily [illegible] to health. When too late they see their error, and bitterly bewail the folly which brings [illegible] premature grave. Holloway's Pills, if taken in regular doses according to directions, [illegible] purify the blood. Disease is thus prevented from weakening the system, and the [illegible] sound constitution is enjoyed. At this season, when fevers, dysentery, and stomach [illegible] common, this wonderful medicine is specially useful.—[ADVT.]

VEGETABLES FOR EXHIBITION.

SEAKALE.

SEAKALE (*Crambe maritima*) forms one of the most important crops cultivated in the kitchen garden, and it is to be regretted that this vegetable is not more widely grown among amateurs and cottagers. Unquestionably, well blanched it is most delicious, and liked by nearly everyone when properly cooked. It is not at all fastidious as to soil, as almost any kind will grow it to perfection. Perhaps the blanching process is the most troublesome, but this little difficulty is easily overcome. Seakale is also easily propagated either by root cuttings or seed, but I much prefer the first-named system, and, after a start has once been properly and systematically made, very little trouble will be found in increasing or maintaining a constant supply. In forming a permanent bed—that is, a place where seakale is intended to remain and be forced annually—an open, sunny position should be chosen; in fact, this will apply to all modes of cultivation. The ground should be heavily manured (farmyard manure being preferable), and well trenched to the depth of from two feet six inches to three feet during autumn, but the planting should be deferred till early in March. The ground should be well forked over, and the rows staked out; plenty of room should always be allowed both between the rows and from plant to plant. I advise a distance of four feet between the rows, and two feet six inches between the plants, as this will allow space for working, and also for the sun and air to assist in the building and ripening up the crowns—an important point towards success. One-year-old crowns should be planted in threes, triangular fashion, about six inches apart. The crowns should be just buried, after which some finely sifted cinder ashes should be placed over and about them. This is a good preventive of the ravages of slugs, which in some seasons are a great annoyance and do much mischief. These crowns should not be forced the first season, but allowed to grow at their own sweet will. The flower head, which will be sure to appear, should be cut out before the flowers open, while the crops must be hoed and kept free from weeds. In autumn, as soon as the leaves have died away, forcing may be commenced, generally speaking, about the first or second week in November. Carefully remove all rubbish and any of the decayed leaves, point over the ground, and build up cones of ashes over the crowns. Seakale pots should be placed over these and covered with some sweet fermenting material, good leaves being far preferable to any other. Use only just sufficient to create a gentle heat, as an excess is very detrimental to the flavour of the produce when cooked; a safe temperature is from 50 to 55 degrees at all times. Air must be quite excluded, and for later supplies as the season advances, less material will be required, and for the very latest cuttings simply cover up the crowns with a good depth of ashes, and over this build some soil, ridge shape, which should be well patted with the spade. The cracking of the soil denotes when the seakale is fit for cutting, and some of the very finest and best flavoured seakale is produced in this way. As soon as the crop is cut the leaves and pots should be removed, once more covering the roots with ashes; the ground should be then forked over and left neat and tidy for the summer. It is surprising what a length of time a plantation will last in this way, in fact, if properly attended to, it is something like wine—age improves it. This is the old method of forcing seakale, and, I think, without a doubt, still the best when quality and flavour are considered. But in these go-ahead times it is not fast enough for many, and especially for market gardeners.

CALADIUM EXCELLENT, TEMPLE SHOW.

When large quantities are required, a more rapid mode of production must be employed, and annual plantations made. This is most easily accomplished. In lifting the crowns for forcing, all the small roots should be trimmed off with the knife, cut in lengths of six inches, and tied in bundles of twenty-five; any time during the winter months will suffice for this work. The bundles should be stood on end thickly together in boxes, placing a little fine soil about them. They may be placed under the greenhouse stage, or even in cold frames, when they will quickly form eyes. Early in April they should be planted out on well prepared ground, in the same way as previously advised, at a distance of eighteen inches between the rows and one foot from set to set. Plant with a dibber, placing a few ashes over each crown, and should the weather be dry, give a thorough watering in. Several shoots will generally break away, and after these have made a fair start, they should be reduced to one, of course leaving the strongest. Frequent hoeings during spring and summer will be necessary, and in dry seasons the crop will be much improved by frequent drenchings of farmyard liquid manure, well diluted. Good forcing crowns are produced annually by hundreds of thousands by this mode of culture. As soon as the foliage has died away in the autumn, the roots may be lifted and forcing commenced. In many large establishments seakale is in request every day during winter, and when plenty of ground and labour are at command, little difficulty will be experienced in producing it. I know of no better place for bringing this forward than the mushroom house, providing the light and cold air are excluded, but if a suitable temperature can be found, it may be forced almost anywhere.

Seakale is easily raised from seed, but, as before stated, I much prefer root cuttings. Nevertheless, some may think differently. The ground should be prepared in the same way as advised, and the seed sown the first week in April in drills about one inch and a half in depth. The seeds should be put in regularly six inches apart, removing every other seedling when large enough, thus finally leaving them one foot asunder and eighteen inches from row to row. They require two seasons' growth before fit for forcing.

From the middle of November till the end of April seakale forms an important and telling dish, but it must be presented in the very best possible condition or little notice will be taken of it by expert judges. It should be thoroughly blanched, stout, not showing the flower heads, and from nine to ten inches long. Twelve heads will make a good dish, and it should be stood in an upright position on a carpet of parsley. It should not be cut till the last moment, and then the air must be kept from it as much as possible; do not expose it on the exhibition table before necessary. I am only acquainted with two kinds of seakale, the old one which has purple tips when forced, and the newer sort, named Lily White, which, to my mind, is an improvement both in appearance and quality, though not so hardy as the older form.

Aldenham House Gardens. E. BECKETT.

THE WATER GARDEN.

Plants for the Waterside.

FOR bold effects by the waterside, perhaps nothing can compare with Gunnera manicata, of which plants twenty-five feet in diameter, with leaves over nine feet across, may not unfrequently be seen in Cornwall and other counties. Gunnera scabra, though not so large, is also most effective. The tall Arundo donax requires a similar position; that is to say, one where its roots can find abundance of moisture, and where the situation is sheltered against rough winds. Bamboos can hardly be considered here, although they do not object to be within easy distance of water. They would certainly make a fine background at some distance from the waterside proper, and the same might be said of Polygonum Sieboldi and P. cuspidatum, which are bold and handsome, but have a habit of becoming wild and so smothering better things. Rheum palmatum and other rhubarbs like the Siberian Rheum undulatum, or the Himalayan Rheum Emodi, are also most effective, and the same may be said of Gynerium argenteum, Arundo conspicua, Elymus glaucophyllus and other ornamental grasses or large ferns like Osmunda regalis.

For groups of colour the following bold flowering plants may be recommended as being easy to grow, and flourishing remarkably well where their roots can feel the moisture. Lythrum Salicaria var roseum superbum, with long spikes of bright rosy purple flowers; Inula helenium and Telekia speciossissima, both having large yellow flowers and bold leaves; Senecio japonicus also has large yellow flowers four inches across on a stem four feet high, and leaves beautifully cut and deeply lobed. It grows well in a swamp, but refuses to grow in a dry position. The blue Himalayan poppy (*Meconopsis Wallichi*) and the yellow Gentiana lutea are both bold and most effective plants for a shady position by the waterside; while spiræas, like the huge Spiræa gigantea, S. venusta, S. lobata, or the handsome chelones, such as Chelone barbata, C. glabra, and C. Lyoni will succeed in either shady or sunny positions. Lilium pardalinum and Lilium giganteum may also be mentioned as effective tall flowers for the waterside.

Medium-sized Plants.

Under this head I will deal with plants varying from one to three feet in height that are suitable for natural or artificial swamps or bogbeds, or the water-soaked banks of ponds and streamlets. The plants here mentioned are equally suitable for the banks of open water or for ponds and streams connected with a rock garden, the only difference in arrangement being that in the case of water-gardens on a large scale the individual groups of plants should be larger.

In a sunny position few things can rival the iris. Both the Iris germanica, with its hundreds of variations, and the handsome Japanese Iris Kæmpferi love the waterside. But in planting them it is of no use to put in a plant here and there; to be seen at their best they should be planted in large irregular colonies, just as we would find our native yellow iris. The same might be said of the spiræas; S. palmata, with its large feathery plumes of pink flowers, is a handsome plant, but it is infinitely more effective when massed than when isolated. Spiræa palmata alba, with white flowers, S. astilboides, S. japonica, or even the double meadow sweet S. filipendula fl. pl., or its near relative Astilbe rivularis, also should be arranged in groups. The double marsh marigold (*Caltha palustris fl. pl.*) becomes a bold and handsome plant when its roots can find abundant moisture, and not less attractive are the white flowering Caltha leptosepala, from California, and Caltha purpurescens, the latter having orange flowers and purplish stems. Another class of flower which grow more vigorous near the waterside than elsewhere are the handsome Globe Flowers, or Trollius, of which Trollius europæus, T. napellifolius, and caucasicus are yellow, while T. asiaticus has an orange shade, and T. europæus albidus is creamy white. The day-lilies, or hemerocallis, succeed best in light soil some little distance away from the wettest ground, but they have a decided love for a fair amount of moisture. Hemerocallis Thunbergi, H. flava, H. fulva, H. distycha, and H. japonica are among the best; all have yellow or orange coloured flowers.

The well-known Funkia Sieboldi and the pure white sweet-scented F. grandiflora alba develop into noble specimens in the proximity of water, and are almost as effective with their bold leaves as with their handsome flowers. The last named is more tender than the former, and requires a little shelter. In Cornwall and South Devon it forms magnificent clumps, requiring no protection there. Myosotidium nobile, which belongs to the order Boragineæ, and resembles a huge forget-me-not in its lovely blue flowers, and a funkia in its large leaves, comes from the Chatham Islands, and is one of the rare plants seldom seen doing well. It is described as loving a shady position, but having repeatedly planted it in the shade with little success, and having since seen magnificently developed specimens in the full sun both at Enys and in the gardens of Mr. Poveys Rogers, at Burncoose, near Redruth, I am inclined to think that light soil, warmth and moisture are more essential to its well-being than shade. The different American cowslips or dodecatheons, also succeed remarkably well in a moist and sunny position, and will sometimes develop flower spikes nearly two feet in length. Perhaps the strongest and most robust is Dodecatheon Jeffreyanum, but D. splendidum, D. Meadia, D. M. album, and D. integrifolium, though smaller, are nevertheless most attractive and suitable for either the bog or the margin of water. Helonias bullata is perhaps more curious than pretty; it grows twelve to eighteen inches high, and has an oval spike of small purplish-rose flowers. The leaves are oblong lanceolate. This requires partial shade. There are quite a large number of rushes, grasses, or their allies which might form an excellent fringe by the waterside; of these I will only mention Carex pendula, Carex riparia variegata, Cyperus longus, Juncus effusus spiralis, and Scirpus Tabernæmontani zebrinus (*syn. Juncus zebrinus*) as being among the most suitable.

Exeter.

F. W. MEYER.

TAMWORTH PANSY AND VIOLA SHOW.

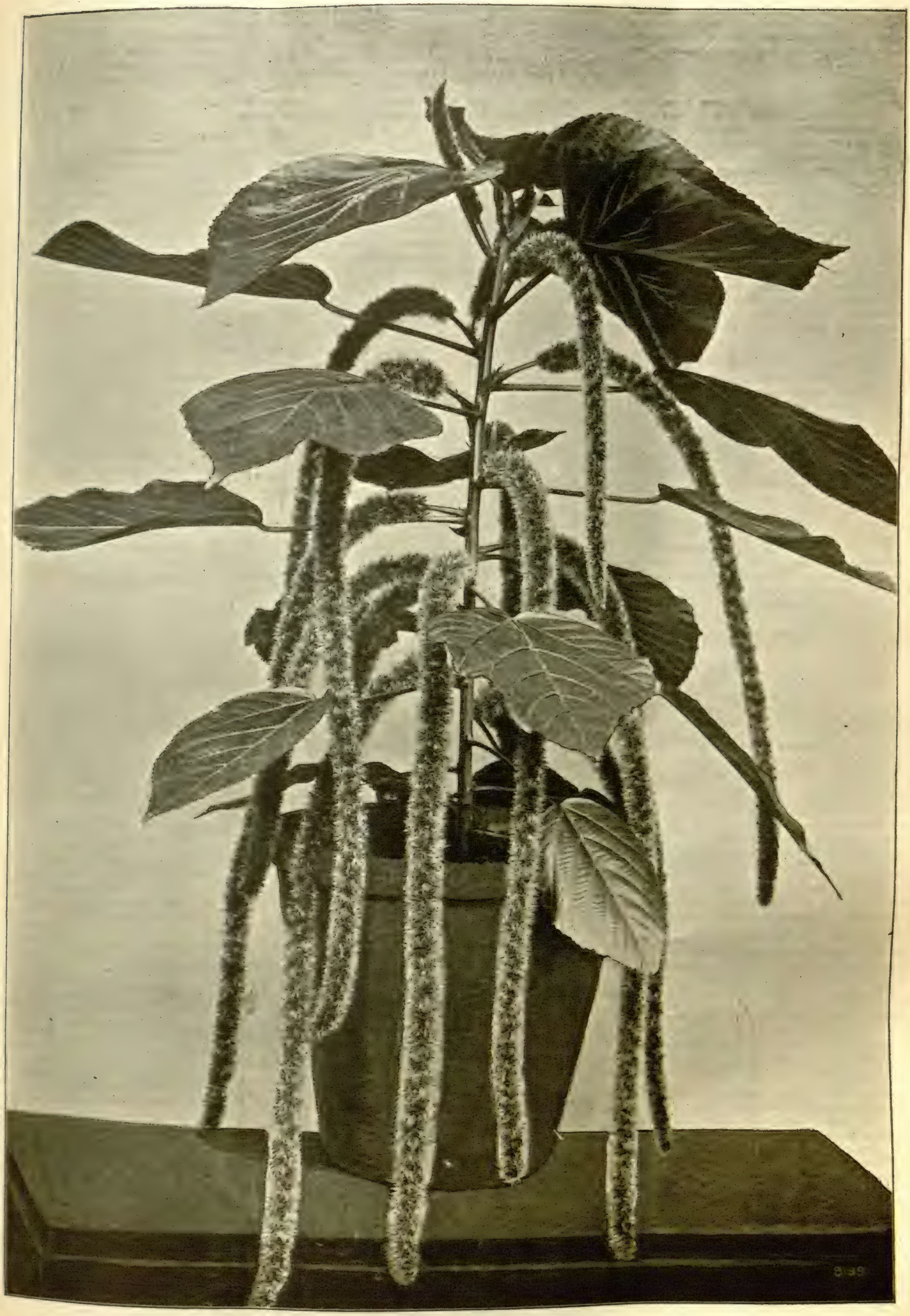
THE exhibition of pansies and violas originated and continued by Mr. William Sydenham, of Bolehall Grounds, Tamworth, was held in the garden of the gentleman on Saturday last. Considering the weather experiences of late, and more particularly so that of a few days previous to the show, it is almost remarkable that so meritorious a display was produced. The exhibition would have been still better but for the fact that the inclement weather of late had in many instances damaged the flowers almost beyond recognition, and there is little doubt that the fortunate prize winners were those whose gardens were situated in favourable quarters. By far the larger display was made with the blooms of the viola, and although there are many ardent admirers of the fancy pansy in the midlands and the north, there is evidence that a keener interest is being taken in the many pleasing and interesting types of the viola.

There were altogether some forty classes in which entries were forthcoming, and one feature, and a particularly pleasing one, was the beautiful array of decorative exhibits. The centre and one side of the tent was devoted to table decorations, wreaths, and other designs, in order that the decorative value of the viola and pansy should be demonstrated. This was undoubtedly a most successful enterprise, as in each instance the rivalry was keen and the decorative effect of true artistic merit. These classess were exclusively confined to the use of pansy and viola blooms, together with their own foliage and with that of the fern of a varied character. For a table decoration the four exhibits were decidedly good and very pretty, the first prize falling to Mrs. Lovatt, Newport, Somerset, [illegible] with a sharp contrast of indigo blue flowers, and those of yellow and white. These were arranged with viola foliage and maidenhair fern, and made a light and elegant arrangement. Mr. D. B. Crane, Highgate, London, N., was an uncomfortably close second with a light and tasteful combination of rich yellow and creamy white flowers; a choice assortment of ferns gave a pretty finish. Mr. J. M. Johnston, Tamworth, was a good third, he using Selaginella K[illegible] chiefly with the blooms of the fancy pansy. The competition with a wreath was very good, the first prize being awarded to Miss. Johnston, Tamworth, with white, pink and pale blue violas arranged with great taste. The wreath was a most lovely exhibit, better in fact than we could imagine was possible with these flowers. Mr. Johnston was second with rich purple flowers with maidenhair fern and Caladium argyrites as a contrast. Mr. J. Smellie, Busby, near Glasgow, was a good third with a light arrangement of light blue on a white ground. The Lyre securing for Mr. Johnston first prize was good, with strings of yellow violas, and framework of fancy pansies. An exceedingly fine exhibit of a huge heart in the class for a decorative exhibit of any other design than those specified secured for Miss E. Sydenham, daughter of the host, the coveted position of first prize winner. This was a most elegant and artistic piece of work, a creamy-white viola on a lavender-blue base, making a very beautiful contrast. This was also put together in a light and easy manner. A hand-basket from Mr. Johnson, rather heavily arranged, was awarded second position, and a neat little cross was placed third. The latter came from Mr. Smellie.

In competition for the prizes for twelve varieties of rayless violas, six blooms in each spray, Mr. W. Maxwell, Glasgow, was first with Dorothy, A. J. Rowberry, Pembroke, Sylvia, Blue Gown, Sweet Lavender in good form. Mrs. Lovatt was a good first for six varieties of the same type of flower, Lucy Franklin, Border Witch, Dorothy, and Sweet Lavender being among her best. Mr. J. Maxwell, another Glasgow grower, was second, A. J. Rowberry and Dorothy being well represented. The brothers J. and M. Maxwell were first and second respectively for three spray rayless violas. For twelve varieties self-rayed violas, Mr. W. Maxwell was first with Lemon Queen, Lizzie Paul, Jenny, Archie Grant, Duchess of York, and Niphetos, in good form; Mrs. Lovatt being placed first for six varieties of the same form, having White Flag, [illegible] Niphetos, and Duchess of Sutherland in fairly good condition; closely followed by Mr. J. Maxwell. The brothers Maxwell also secured the two prizes for three varieties of the self-rayed flowers. For twelve varieties, six blooms each, of any forms or colour, Mr. J. Maxwell was again first, showing, amongst others, Duchess of York, Goldfinch, Duchess of Fife, Bluecloud, Lig Barron, and Lizzie Paul; second prize was well secured by Mr. Leonard Brown, The Cottage, Seven Arches, Brentwood, for blooms of which showed what southern growers can do, but which, like others, gave evidence of the heavy rains of late. Specially good in his stand were Stephen, White Empress, Pembroke. Mrs. C. F. Gordon, A. J.)Rowberry, and a pretty pale-tinted seedling. Mr. Johnston had a grand lot, but these were arranged with fine effect with maidenhair fern, which was understood to be contrary to the rule; an extra prize was, however, given. Six sprays of this type went first to Mr. W. Maxwell, who had some exceptionally good blooms of varieties already mentioned; Mr. Johnston following him very closely. The brothers Maxwell were awarded first and second prizes for three sprays, each staging splendid flowers. A variety named White Empress secured premier honours as the best rayed white, although this was also seen quite rayless in other stands. Blanche, a pretty white rayless variety, secured leading position as the best rayless white, this being followed by Niphetos, a variety rather whiter. Archie Grant, staged by the Messrs. Maxwell, was the selected rayed blue variety. Dorothy and Britannia, from the same source, being those selected as the best rayless blues. Some neat blooms of A. J. Rowberry were placed first as the best rayless yellow; second prize going to Pembroke, a good yellow of the same type. Mrs. Lovatt, with Stephen, easily won first prize for the rayed yellow; Lizzie Paul following in point of merit for second position. This was put up by Mr. M. Maxwell. Mrs. C. F. Gordon was selected as the best rayed variety of the fancy violas, and was well shown by Mr. W. Maxwell; Goldfinch, from Mr. J. Maxwell, taking second honours.

There were a capital lot of fancy pansies, but in no single instance were they named, an omission which should be remedied on a future occasion. The leading prize winners were Messrs. J. and M. Maxwell, who seemed quite in [illegible] their blooms being beautifully fresh and clean, and the colours well defined. In these classes the competition was very good, but there was no comparison in the display they made alongside the freer-growing violas in so many interesting forms and colours.

Mr. Robert Sydenham, Birmingham, had a nice lot of table decorations and designs in which the carnation was arranged in the pretty silvered rustic tubes and [illegible] Mr. William Sydenham staged a grand exhibit of violas in sprays, those most conspicuous being Councillor W. Waters, Mary Stuart, Stephen, Mrs. [illegible] Bellamy, The Mearns, Blanche, Sweet Lavender, Lucy Franklin, Lemon Queen and Lizzie Paul. A pretty little rock plant of miniature dimensions, and [illegible] Tom Thumb, received a first class certificate, the flowers being a rich yellow with dark pencillings. Numerous designs, such as Prince of Wales feathers V.R., &c., were effectively arranged with chaste and delicate violas, and [illegible] striking exhibit with the sprays already referred to.



ACALYPHA SANDERI, F.C.C. TEMPLE SHOW. (Flowers vinous crimson.)

Work for the Week.

COOL ORCHIDS.

The species of oncidium suitable for cool treatment are mostly well worth the attention of the orchid cultivator; the chief cause of failure with these plants is permitting the flower spikes to remain on the plants until all the flowers fade, a pardonable mistake, perhaps, but one that is fraught with danger. Oncidium Marshallianum, O. concolor, O. cucullatum, O. macranthum, and O. phalænopsis are making a nice show in the cool house at the present time, and when the large branching spikes of Oncidium Marshallianum have fully opened their flowers it is a wise plan to cut them off and place them in water, for if allowed to remain on the specimen for any length of time, they will naturally exhaust the plant. Oncidium cheirophorum, O. Forbesi, O. crispum, O. varicosum, and its fine variety Rogersi, with any others that are starting to grow, may now have new material afforded them; the usual peat and sphagnum compost cannot be beaten if placed over good drainage; O. crispum and O. Forbesi require a few degrees more warmth than the others, and may be usually afforded these at the warmest end of the odontoglossum house. A very pretty orchid now in flower in the cool house is Ada aurantiaca; this, with its beautiful orange coloured flowers is very effective when arranged with odontoglossums of the crispum section, as each shows the other off to considerable advantage. As the plants pass out of bloom they may be repotted in a compost of equal parts of peat and sphagnum moss. Pots of a suitable size should be used, allowing plenty of drainage, so that the plants may receive abundance of water during the summer months without the compost becoming sour. The Ada thrives well in company with Odontoglossum crispum during the summer months, but it requires a warmer temperature during winter, for, if kept too cool, the leaves turn a sickly tint, and the under surface becomes badly spotted. Less water will be needed during the winter months, but the soil should never be allowed to become thoroughly dry. Epidendrum vitellinum is another beautiful cool orchid in flower at the present time, and one that lasts a long time in perfection. The plants when in full growth enjoy copious supplies of water at the root until its growths are completed, but, during winter, should be kept rather dry, or the leaves spot badly.

No time should be lost in repotting any plants of Lycaste Skinneri and its variety alba that have finished flowering, as they are now starting to grow freely. Well-drained pots should be used, large enough for the development of two seasons' growth, using a compost of fibrous peat and loam in equal parts, and a little fresh sphagnum moss mixed with broken crocks and charcoal. Great care is necessary in the watering of these newly-potted plants, for, if over-dosed with water, the young growths are apt to rot off, and disease in the bulbs ensue; even when in full growth water should be carefully afforded them. The foliage of these lycastes is frequently attacked by red spider, which must be kept in check by an occasional sponging of the leaves with soft water, while slight sprayings overhead on bright days will help to keep these pests in check. Green and black fly and thrips sometimes put in an appearance, and an occasional fumigation will be necessary to keep them down. Disas may now be placed in a cold frame in a cool and shady spot. The plants should be well syringed night and morning, whenever the weather permits, and never be allowed to become dry at the roots. The airing of the frame should be carefully attended to until the plants become accustomed to their new abode, then, in warm, rainy weather, the lights may be entirely removed. Carefully examine the plants occasionally for red spider and aphis, which sometimes attacks them.—E. Shill, *New Hall Hey Gardens.*

STOVE PLANTS.

The gardenia is one of the most choice among stove-flowering plants, and where flowers are required in quantity the season through, the most successful method is to plant them out. In an old pocket book of mine I have noted the daily cutting from a row of gardenias planted out in a three feet wide border, the length of a forty feet house, at one establishment where I lived as journeyman. We commenced cutting on February 22, and finished November 14, the total being upwards of 3,000 blooms. As I never saw a more healthy hedge of gardenias, or larger individual flowers, the best thing I can do is to detail the treatment they received. The border was thoroughly drained, and as the house had formerly been a pine stove, there was plenty of bottom heat, the gardenias were given the front three feet of the bed. Over the drainage fibrous turves were laid, grass side down, and over this to a depth of eighteen inches was placed a compost of three parts rough fibrous loam, one part leaf-soil, and one part each of lime rubble and charcoal. The gardenias were planted two feet apart, and in two years, by means of stakes placed on either side, the row at two feet from the centre was trained to form a hedge four feet through, and no pruning was necessary after they had filled their allotted space, as all the flowers being cut with long stems prevented the plants reaching too great a height. Stimulants were afforded freely in the form of artificial fertilisers, liquid manure water, and soot water. Mealy bug was kept thoroughly under by syringing the plants every Friday evening with paraffin and soapy water. No shading was given even during the hottest weather, but air was freely admitted during the middle of hot days; three syringings were given daily, at six a.m., closing time (half-past two), and again at five p.m., while the duty man had to thoroughly damp the house at nine p.m. The flowers were cut every morning before breakfast, and placed in water in a cool fruit-room. In places where pot culture has to be relied upon, as the plants go out of flower, gradually harden them off until they will stand in a cold frame, giving very little water. After standing here two or three weeks cut them well back, and remove them to a warm house where a humid atmosphere is maintained, and where they will soon push into growth; any requiring it can then be repotted.

As plants of Clerodendron Balfouri come into flower, syringing must be discontinued; in fact, they would be better removed to the conservatory, and stood in a position free from cold draughts. Allamandas on balloon trellises, that are coming into flower, and have had their shoots trained up strings, should now be tied into position; to prevent the snapping of shoots during the operation allow the plant to become rather dry, as then the shoots will be found more pliable. Tabernæmontana coronaria fl. pl. is now flowering freely, and must be fed; it is a very free bloomer, with flowers sweetly scented, and so it is worthy of extended cultivation; cuttings of the young shoots are easily rooted in sandy soil by plunging the pots in the propagating case and maintaining a moist heat around them. Propagating cases should always be made in divisions, so that those cuttings requiring a drier atmosphere with more air can be kept separate from those requiring a close moist atmosphere. Plants of Hibiscus, that are coming into flower, will require abundance of water, with stimulants occasionally; greenfly is a great pest with these, and must be kept under by a free use of the syringe. As Fransisceas go out of flower, they should receive a slight pruning, and any repotting necessary may be done when growth commences again; these plants like plenty of water at the root, and a free use of the syringe overhead. The present is a good time to put in a batch of cuttings of Fittonia argyroneura and F. Pearcei, the plants to be retained in two and a-half and three-inch pots for dinner-table decoration during the late autumn, F. argyroneura is perhaps the best for this purpose, and when dotted over a table the cushions of silvery-veined leaves have a very nice effect.

Less fire heat will be necessary to keep up the requisite temperature now, especially if the houses are shut up early in the afternoon, so as to bottle up the sunheat. Examine the plants before closing the houses, to see that none are suffering from the want of water. A young man, whose heart is in his work, will know which among his charges are likely to require water more than once a day, and will give the necessary attention. Afford stimulants to Urceolinums until such time as the leaves begin to show signs of ripening, when feeding must be stopped, and less water given. Use the syringe freely on all bright days, keep the evaporating troughs filled, and damp walls and floors frequently during the day.—J. Tunnington, *Ripley Castle Gardens.*

KITCHEN GARDEN.

So far there has been no necessity to use the watering-pot to promote the growth of asparagus this season, for the welcome showers that visited us about the middle of the month thoroughly moistened the soil to a considerable depth, there having fallen in this neighbourhohd about one and a half inches in the course of a week. Asparagus has consequently been plentiful, but as such heavy crops somewhat exhaust the soil, it is well to give the beds a dressing of artificial manure, to be washed into the ground at once, before the plants become exhausted. It is far better to feed the plants now when in active growth than in the winter when dormant. Broad beans will now be in flower, and where there is the least signs of aphis, the plants should be stopped and the points carried away and destroyed. The fly can only subsist on the young growths; therefore, if these be removed there is no fear of injury. Owing to the recent heavy rains, the plants have grown somewhat taller than usual, and are on that account liable to be broken down by high winds; in such cases pinching should be done a little harder than usual, to enable the plants to retain their perpendicular position. Another sowing may be made for a late crop, and the situation chosen ought to be a moist one, as late sown beans, especially on light dry soils, are most difficult to grow in hot seasons. French and runner beans should also be sown for succession, choosing a sheltered situation for the latter, to prevent their being blown about by rough weather in the autumn. With the exception of the check that the early ones received toward the end of March and early in April, the season has been favourable to the growth of the pea crop, which as a rule looks well. Where there are signs of any blanks, through the plants not making the progress anticipated, make small sowing of an early kind to fill up the gaps. Pay special care to the staking of those already far enough advanced, and where the plants are too thick they should be thinned to allow the others more room. Successive sowings should be made of some good late varieties, such as Autocrat, Late Queen, and Michaelmas, any of which will be sure to give satisfaction.

The planting of such things as Brussels sprouts, cauliflower, borecole, and broccoli, will now be general, and should be pushed forward whenever the weather is favourable. Lettuce from the early sowings will now be in use; to maintain a constant supply of fine tender hearts, the plants must be put out when small, allowing ample room for them to develop. Tomato plants that have been brought forward under glass may now be planted out in warm situations, but in cold districts, and where the soil is heavy, it is seldom they pay for the trouble, as the frost cuts them down before the fruit is ripe. Where frames or pits that have been occupied with potatos or French beans can be utilised, these will be found useful for growing tomatos in, as the growths can be trained close to the glass, and in this way far more fruit can be gathered from a dozen plants than from the double number grown in the open, unless the weather should be exceptionally favourable to them. When planted on stiff soil, a quanity of light material should be worked in to keep it open, so that water may pass through freely; for too soppy a growth is not conducive to a free set of fruit. Capsicums and chilies may now be planted on a warm border or in a sheltered situation. The ground on which these are intended to be grown cannot be too rich, for the freer the growth the better the results. They should be planted in rows, and about a foot or fifteen inches apart each way. In cold districts it is better to grow them in pots and place them where protection can be afforded by means of spare lights, when the weather is unfavourable. Both chicory and dandelion may now be sown to produce roots for lifting in the winter. The former on good ground will require thinning to a distance of a foot apart in the rows, while nine inches should be allowed to the latter. Many herbs are required for winter use, therefore it is well to make special preparations at this time of the year. If the young shoots of mint be taken off and rooted in pans or boxes, they will be found far more serviceable than roots lifted from the open ground and potted up as wanted. It is a good plan to have the boxes six inches deep and about a foot wide, and of a convenient length to admit of being easily carried about. Cuttings root more freely in a cold frame where shade can be afforded them, after which they should be exposed to the full sunlight. Tarragon, thyme, and other herbs may be rooted in the same way. Make small sowings of radishes, mustard and cress, and chervil, to keep up a constant supply. The former will do better if sown on a north border.—H. C. Prinsep, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

Early peaches will now be ripe, and require careful attention as to gathering if they are to be placed before the consumer in the best possible condition. The old, but unfortunately not yet obsolete, method of suspending nets under the trees into which the fruits are allowed to drop is a bad one, for in addition to the injury which may occur to the delicate skins and flesh, is the fact that a dropped fruit has already lost, or soon will lose, a great deal of its piquancy, and there is no need to let them be on the trees so long. The best way is to examine the trees every morning before the heat of the day, removing carefully all fruits that will yield to gentle pressure and placing them in carefully-padded boxes, which should then be removed to a dry and cool fruit-room. The fruits of some varieties do not part readily from the tree, even when ripe, and for these it is necessary either to use a pad of cotton wool to prevent actual contact with the hand when gathering or to carefully snip through the stem of each fruit with a thin and sharp pair of scissors, holding a pad of the wool in the other hand to receive the fruit. In case it is necessary to pack for sending away this should be done as the fruit is picked and so save one handling. Single layers of fruit in shallow boxes is the best method of packing, and the boxes should be carefully lined up with wood wool or moss to a point which will only just allow for the depth of the fruit, and a single layer of cotton wool over all. Squares of tissue paper should be in readiness and each fruit placed in one of these, so that the base of the fruit occupies the centre of the paper, the sides being drawn up round but not twisted in any way, then the contents can be easily seen and removed by lifting the papers without disturbing the fruits. Small pads of wood wool or moss placed in the angles between the fruits as the work of packing proceeds will prevent rubbing, and is all that is needed, provided the bottom of the box has been properly padded. Cord the boxes instead of nailing down the lids.

Successional peaches should have their growths thinly and regularly placed on the wires, and, as the fruits approach the colouring stage, they should be exposed to light, and with the apex of the fruit upwards ; also pay due attention to watering, giving liquid manure water if desirable, and maintain the soil in a fairly moist condition throughout, as a good supply of water, provided it is not sufficient to sodden the soil, makes all the difference between good and mediocre fruits. In late, cold houses the fruits will soon be ready for final thinning, that is, in places where the fruit is not liable to drop during the stoning period or to injure from any other cause. In my own case I have to leave a surplus for the time being, not because they drop, but owing to a peculiar form of mildew which attacks the fruits in June when they are becoming quite big and most of such fruits have to be removed, as, although sulphur will kill the mildew, a blemish is left on the fruit which detracts from its appearance, so sufficient are left on for the present to allow for the removal of those attacked. This mildew is not the ordinary form of mildew which attacks the peach shoots, but is confined to the fruits alone, and is due, I believe, to a faulty and very draughty structure which has an insufficiency of ventilation in very hot weather, consequently the occupants are exposed to great extremes of temperature.

In mid-season vineries the bunches will have finished stoning, and should have a final examination, cutting out all seedless and surplus berries. At this thinning it is necessary to recognise the question of the size of berry to which each variety swells and thin accordingly, so that the berries may be sufficiently close to render the bunches firm, but not close enough to prevent proper swelling. Young beginners have a tendency to under-estimate the ultimate size of berry, and leave the bunches so thick that the berries become jammed together, by which not only is size lost, but the fruit falls a prey to damping soon after it ripens. After this date it will be possible to ventilate from the side or front lights without much fear of mildew, except when the wind is easterly and cold ; but the advisability of doing so is not apparent in all cases, and will depend greatly on the structure in which the vines are growing. The only general rule that can be laid down for observance is that sharp draughts should never be created. My own opinion is that as regards the vines themselves, independent of other occupants of the houses, no such ventilation is necessary. The present is a capital time in which to plant out young vines that have been retarded for the purpose. It will be found that such vines will overtake those which have been planted earlier, and, as the weather will probably be warm and genial, a good cane is sooner made, and without so much liability to insect pests, as if planted when much fire-heat has to be used. It is also a good time now to inarch vines in mid-season houses, where the wood is beginning to harden, for at this stage a union is easy, and made without danger of injury to the young vine. A long slice taken off from the sides of stock and scion at a point where they can be easily brought to meet, and then binding the two together so that the cut surfaces join is all that is necessary, taking care, however, that the pieces removed are not thick enough to reach the pith at any point.—J. C. TALLACK, *Livermere Park Gardens.*

HYDRANGEA JAPONICA MARIESI, TEMPLE SHOW. (Flowers rose-pink, suffused blue.)

Vegetables in Season.—Looking at a vegetable stall in the Kingston Market a day or two since, I could but be struck with the variety of produce offered for sale, and generally excellent too, at a time of year that is usually regarded as the baldest of the seasons. Thus there were in abundance small well-hearted cabbages, good white broccoli, solid curled kale, spinach, asparagus, sea kale, tomatos, old and new potatos, beets, radishes, lettuces, French beans, mustard and cress, and some other things. Of course, not all of home growth, but still showing in a notable way how abundant were ordinary garden vegetables. No doubt we owe much to the genial nature of the winter through which all vegetables passed unharmed. It is a rare thing to see such a wealth of broccoli heads so late, and shows that new varieties can be of no service if they are not much later in turning in than are the Late Queens, Models, and other good sorts already so plentiful. Really, we have much to be thankful for this spring. —A. D.

HOUSE DECORATION.

THE growth of house decoration, as regards both plants and flowers, during the last twenty-five years has been something marvellous. Twenty-five years ago, even in the mansions of the wealthy, very little was then done in the way of adornment beyond a very limited number of plants, and a still more limited quantity of cut flowers. In fact, at that period it was almost looked upon as sacrilege to cut flowers. In this matter there has been a wonderful revolution, for most people nowadays seem to think flowers are only grown to be cut, and so popular have they become for personal adornment that even the street urchin will be found "swelling" his buttonhole. To meet this rapidly-increasing demand for plants and flowers enormous ranges of glasshouses have been erected all over the country, but chiefly in the vicinity of large fashionable towns. Foreign markets, too, have sprung up to aid in supplying the demand, and the better facilities for transport and delivery, combined with experience in methods of packing, have enabled vendors in this country to place before their customers hyacinths, tulips, narcissi, and many other flowers almost as fresh as when cut. Of course, the home grown article is always best when it is possible to obtain it, but this is not in sufficient quantitities at command at all times, for an extensive grower remarked the other day to me that they were waiting for the flowers to open to cut them.

Although many of the flowers seen in our markets are of foreign growth, plants are nearly all of home production, as evinced by the huge nursery establishments devoted to their culture. For example, the nursery firm of Messrs. Dickson (Limited), Chester, have a field of glass for the purpose of meeting the requirements of their extensive business in the three kingdoms, with private customers, and the public demands at home. The subjects which seem to be in greatest favour for house and indoor window adornment are palms, and of these the Messrs. Dickson grow millions. In the various ranges of glasshouses they utilize for palms the most fastidious can be satisfied, for plants, from cotyledon to the size of twelve feet in height, can be selected. This public taste for green plants with bold or elegant foliage, either for the cottager or the lord, in adding life and beauty to their homes, speaks well for the discriminating powers of both, as no class of plants looks better or lasts longer in a healthy state than palms. This last remark, however, refers only to well grown plants—plants with abundance of sturdy, healthy foliage—such as are seen at Chester, and not those drawn and bleached by excessive heat and want of light. Among the more select palms that I saw in Messrs. Dickson's nurseries were Acanthophœnix crinita, a lovely subject for dinner-table decoration in a young state ; and Pritchardia pacifica. Of these there were a representative lot, not but that Acanthophœnix crinita is likely to become of general use in private gardens when better known. The older and better known sorts were in their thousands, of which I noted Areca Baueri, lutescens, monostachya, sapida, and Verschaffelti, Calamus ciliaris, Caryota urens, Chamærops fortuni and humilis, Cocos plumosa and Weddelliana, Dypsis madagascariensis, Geonoma gracilis, Kentias in variety, Latania borbonica and rubra, Phœnix reclinata, rupicola, sylvestris, and tenuis, Rhapis flabelliformis, Sabal nubraculifera, Seaforthia elegans and robusta, Thrinax elegans, and Verschaffeltia splendens.

Even among these generally well known species a selection may be made of those that are most suitable, both as regards powers of endurance and effectiveness, for the cottage window and the castle. Therefore, I would include in the twelve best suited for all Areca lutescens and lapida, Chamærops humilis, Cocos Weddelliana, Corypha australis, Kentia australis, Belmoreana, and Fosteriana, Latania borbonica, Phœnix reclinata and sylvestris, and Seaforthia elegans. The amateur will find Chamærops humilis, Corypha australis, Phœnix reclinata, and Latania borbonica the ones which will do best with him. Cocos Weddelliana is such a graceful plant that many fall in love with it at sight, but unless it can be given a stove temperature and only used for house decoration for short periods occasionally, it will become a short lived subject. It is one of the more tender palms, and also one requiring skill to grow it successfully. CESTRIAN.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Pansies.—J. Y., Desborough: We do not recognise the particular strain from which the flower sent was obtained. It is a fancy variety, and very pretty by reason of its wire edge, but it would not successfully compete with the well-known varieties you mention. Fancy varieties would certainly be the most effective—other things being equal—in a class for twelve blooms of any variety or form of pansy.

Border Carnations.—J. Y., Desborough: Any carnation is a border variety that is quite hardy, has a robust habit, flowers freely, and requires the minimum of support. The flowers must be bold and the colour effective. Not a few of the best exhibition carnations make fine border varieties. Of course, for exhibition purposes, border varieties have to be cut from the border where they have been grown unprotected.

Repairs to House.—J. G., Liverpool: In the absence of any written agreement to do so the landlord is not bound to execute repairs. If the trustees do not repair the structure you will not be justified in withholding the rent; you might, however, put the matter to them in a reasonable manner, explaining the verbal agreement of the deceased landlord; then, if they still object to execute the necessary repairs, you could give notice to quit. Rent would have to be paid up to the end of tenancy, but meanwhile, unless to your advantage to do so, you need not do any repairing, having entered into no agreement to do any.

Heating Apparatus.—A. R. R., Orpington: The boiler should be set level, and it will be advisable to have a competent workman to do the work, otherwise a poor job may be made of it. The flow pipes should rise about an inch in every thirty feet, and there should be a corresponding fall in the return pipe. Different forms of boilers give different powers of heating; consequently, it will be best to inquire of the boilermaker what the capacity of his design is, the depth at which the boiler should be set, and the amount of rise and fall in the pipes necessary to insure a good circulation.

To Prepare Quassia.—A. L. M., Halstead: The best and most economical method of preparing a quassia insecticide out of the quassia chips obtainable from horticultural sundriesmen is to soak the chips in cold water for twenty-four hours, and then gently simmer the whole for ten or twelve hours. From eight to ten pounds weight of good quassia wood should be sufficient for one hundred gallons, and to this should be added about five pounds of soft soap. Some of the soap should be used in the water when the chips are stewing, as it helps to extract the bitter principal. If the amount of chips mentioned are used, as much water as can conveniently be managed will do to soak and simmer them in, adding the water to make up the hundred gallons, and the remainder of the soap, dissolved, after straining the mixture from the chips. Quassia is a useful preventive of insect attacks, and has a most cleansing effect upon foliage; but there are other mixtures more effective and easily produced for use as remedies when an attack of aphis has been made.

Cooking Californian Prunes.—G. W., Canterbury: As a rule the great mistake made in the preparation of dried Californian prunes for table is the small amount of time allowed the fruit to soak in water. It requires about two and a-half pounds of these prunes to make one pound of the dried product, and these fruits are exposed to sunshine for about a week during the drying process. When we consider the time necessary to extract the water from the fresh fruit ere it is ready for packing it is manifestly unfair to expect the dried fruit to properly plump up in the two or three hours during which they are usually soaked. Try the following method for stewing Californian prunes: To one pound of fruit, thoroughly washed in several waters and drained, add three pints of cold water, and allow them to soak for from twenty-four to thirty-six hours. Eventually place the prunes in a porcelain-lined stew-pan and allow them to simmer gently for a little less than an hour in the water in which they were soaked. Keep the stewpan covered closely during cooking, and if any sugar is needed add this a few minutes before the fruits are properly cooked, and allow the whole to boil for a minute. Turn it out into a dish and keep covered until cool. The result will be about four pounds of excellent fruit.

Nitrogenous Manures.—W. F. H.: In the cultivation of hardy fruits as in the case of other crops, it is a mistake to supply an excess of nitrogen, even though potash and phosphates are present in sufficient quantities. If more nitrogen be present in the soil than the crop needs, the tendency will be to produce wood and leaves instead of fruits and seeds. In the case of fruit trees an excess of nitrogen will cause them to continue growing too late in the season to admit of the maturation of the wood and the production of properly developed flower buds. For the majority of soils the proportion of one part of nitrogen to one part of phosphoric acid, and three parts of potash will be the most suitable. You should also remember that as nitrogen is the most costly element, and the most liable to loss, it should, whether in the form of nitrate of soda or sulphate of ammonia, be applied with care, and as far as practicable, in exact accordance with the requirements of the trees or plants. There has been considerable discussion of late in America as to whether liberal applications of phosphates and potash would be beneficial where nitrogenous manures had been used too liberally, but as yet nothing approaching an agreement has been reached. There, however, appears to be a preponderance of opinion, and, as we believe, rightly so, that orchard trees are benefited by applying phosphates and potash when an excess of nitrogen has been used, as these minerals help to produce a more perfectly developed wood. A soil that is rich in mineral matters will have its fertility greatly increased by a moderate dressing of sulphate of ammonia or nitrate of soda. Nitrate of soda does not exhaust the land in the manner commonly supposed, but if the supply of mineral constituents is limited, a continuous application of nitrate of soda or other form of nitrogen will by promoting a rapid growth enable the crop to use up the minerals and thereby impoverish the soil. The exhaustion is not caused by the nitrate of soda, but from the fact that the crop has used up the available supplies of plant food. In the case of the majority of garden crops, it is advisable to apply quick acting nitrogenous manures at intervals throughout the period on growth; but with fruit trees the best results are obtained by giving sufficient in one or two dressings early in the season to promote active growth, as when this is done the trees take it up in a comparatively short time, leaving the remainder of the season for the maturation of the wood. It is essential to avoid supplying the trees with nitrogen in excess of their requirements, and especially late in the season.

Mildew on Strawberries.—E. S., Hailsham: It is quite evident that the strawberries have been subjected to atmospheric conditions much too moist and close for their successful fruiting. They have also been staged too closely together, and evidently not allowed sufficient light to strengthen the foliage and perfect the berries. If there is the slightest sign of mildew upon strawberry foliage ere the plants are taken in for forcing, the leafage should be dipped in a sulphur mixture that will stay the fungus. Then, also, if the pest appears after housing, further dippings may be given until the spikes come forward, after that it will be necessary to apply flowers of sulphur or liver of sulphur through a distributor to the parts affected. With stout, well ripened crowns and clean foliage to start with, there should be no difficulty in forcing strawberries for providing fruit at this date, but with so many other subjects in the same house, there is too much moisture at the times of setting and ripening.

Lime for Clayey Soil.—T. E. R., Hull: Lime has a wonderful effect upon heavy clay soils and exerts a mechanical, as well as chemical, action. Lime renders clay soil friable by mixing with the particles and preventing the condition known as "puddling." It also keeps the soil friable in dry weather, for whereas the clay shrinks and hardens in the absence of moisture, the lime does not shink. If you require direct evidence of the mechanical power of lime knead up a ball of pure clay with water and allow it to dry, then, with similar clay, add a little lime and make a ball as before, also setting it to dry. When dry the ball of pure clay will be as hard as a brick, while the ball of clay and lime will crumble readily to powder. Then by its chemical action lime disintegrates the minerals in the soil and sets free the potash for use to the crops. It also exerts a wonderful action upon decomposing vegetable matter, causing the otherwise inert nitrogen to become available as plant foot. All soils containing abundance of organic matter are rendered more fertile by an application of lime, or rather, the fertility is rendered more available to the plants. Again, lime neutralises acidity, and consequently makes a sour soil sweet and healthy. Poorly drained lands are assisted by lime dressings. Lime also promotes the natural formation of nitrates, and is consequently of great vulue on peaty soils.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

J. M., Merstham: 1, send again; 2, Piptanthus nepalensis; 3, variety of Pernettya mucronata; 4, Berberis vulgaris var.; 5, Berberis Darwini; 6, Amelanchier botryapium.

A. B., Fawley: 1, Psoralea arborea; 2, Spiræa prunifolia flore plena; 3, Dielytra spectabilis; 4, Anthriscus cerefolium; 5, an anthemis, send when in flower.

MARKETS.

Covent Garden.

Vegetables are both abundant and cheap, while the quality is all that can be desired. Broccoli are especially good and sell well. The turn of warm weather has increased the demand for salading, as also of green-stuffs generally. Potato trade moderate. Cut flower trade brisk.

Fruit.—Tasmanian apples, 10s. 6d. to 16s. per case; bananas, 5s. to 10s. per bunch; oranges, 15s. to 18s. per case; Jaffa, 10s. to 12s. per box; English grapes, 2s. to 4s.; Belgian, 1s. to 1s. 9d. per lb.; lemons, 6s. to 15s. per case; English tomatos, 6d. to 9d. per lb.; Canary, 10d. to 1s. 4d. per tray, 2s. 6d. to 3s. 6d. per case; strawberries, 2s. 6d. to 3s. 6d. per basket; gooseberries, 2s. to 3s. per basket; cherries, 1s. to 1s. 3d. per box; green figs, 3s. 6d. to 5s.; peaches, 6s. to 12s. per dozen; pineapples, 1s. 6d. to 4s. per pine.

Flowers.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. to 3s.; daffodils, 1s. 6d. to 4s.; tulips, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; wallflowers, 2s. to 3s.; polyanthuses and cowslips, 1s. to 1s. 6d.; primroses, 9d. to 1s.; bluebells, 6d. to 8d.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

Vegetables.—English asparagus, 1s. to 3s. 6d.; Spanish, 9d. to 1s.; French, 1s. 3d. to 2s. per bundle; spring cabbages, 6d. to 9d.; cauliflowers, 1s. to 2s.; endive, 1s. 4d. to 1s. 8d.; cabbage lettuce, 6d. to 9d.; cos lettuce, 1s. 6d. to 2s.; cucumbers, 2s. to 4s. 6d. per dozen; carrots, 3s. to 5s.; turnips, 4s. to 6s.; mint, 3s. to 4s.; parsley, 1s. 6d. to 1s. 9d.; spring onions, 1s. 6d. to 2s. 6d. per dozen bunches; Egyptian onions, 5s. to 6s. 6d. per cwt.; beetroots, 2s. to 3s. per tally; green peas, 2s. 6d. to 3s. 6d. per pad; French beans, 3d. to 4d. per lb.; mushrooms, 6s. to 8s. per 12 lb.; rhubarb, 1s. 6d to 2s. 6d. per dozen bundles; Canary potatos, 9s. to 12s.; Malta round, 8s. to 10s.; Algiers, 14s. to 16s. per cwt.; French, 2d. to 2½d. per lb.

Borough Potato Market.

The demand for new potatos is increasing, as also is the supply. Prices remain unaltered for both new and old. Dunbars, 130s. to 140s.; Scotch Magnums and Hebrons, 110s. to 120s.; Bruce, Main-crop, Sutton's Regents, Reading Giants, and Saxons, 100s. to 110s. per ton; Belgians and Germans, 4s. 9d. to 5s. 3d. per bag. New—Maltese rounds, 9s. to 10s.; Teneriffe kidneys, 12s. to 13s.; Jerseys, 1[illegible]s. to [illegible] per cwt.; Lisbon rounds, 5s. 6d. to 5s. 9d. per box.

(*Continued from page* 340.)

[illegible] prunus and acers with coloured foliage, assisted the bamboos to make a [illegible] background, while on either side of the central mound were large plants of [illegible] varieties of Azalea mollis and A. sinensis. A light scarlet form of Azalea [illegible] named Mikado much was *en evidence*, as were the hydrangeas, notably H. japonica rosea and the large-bracted form named Mariesi, figured herewith. In the foreground were baskets of Philadelphus coronarius Boule d'Argent, white; Ceanothus Veitchianus, clothed in small spikes of blue flowers; Vitis heterophylla variegata, very elegant; Philadelphus Lemoinei; Azalea glauca stricta, very free and with white honeysuckle-like flowers; Andromeda speciosa cassinefolia, with drooping white flowers; and the brilliant yellow Azalea Anthony Koster. Standing up amid all these and many other choice subjects were standards of Cytisus scoparius Andreanus, C. s. præcox, Rosa Wichuriana Manda's Triumph, standard wistarias, and a number of bold spikes of the bold Eremurus himalaicus.

A pretty bank of hardy rhododendrons came from Messrs. J. Waterer and Sons, Bagshot, Surrey; this was set up in the big marquee, and contained some remarkably beautiful varieties; the standards of Cynthia, rich pink; Kate Waterer, rose and buff; Madame Carvalho, white; John Waterer, scarlet; Countess of Normanton, blush and rose; Baroness de Rothschild, scarlet and pink; and Gloriosum, pale blush, were remarkable for their bold trusses and fine blooms. Dwarfer plants of equal beauty were Duchess of Connaught, Countess of Ilchester, pink, margined with scarlet; Pink Pearl, and Fastuosum with a bluish-purple tint. Messrs. J. Cheal and Sons, Crawley, put up a pretty exhibit in one of the large beds on the grass near the entrance; this consisted of several specimens of rhododendron Fred. Waterer, Azalea amœna splendens, lilacs in variety, Mollis azaleas, brilliantly-coloured Japanese maples, elegant conifers, including Cupressus Lawsonianus filifera glauca, Cornus Spathi, golden yews, coloured beeches, and many other choice ornamental trees and shrubs, notable for their fine foliage or their handsome flowers.

In addition to their large, crescent-shaped groups, Messrs. Fisher, Son, and Sibray had a star-shaped group of their charming maples and ivies. In the larger display there was a background of golden oaks, Cornus siberica elegantissima, a mass of silver and gold foliage, and before these were arranged a collection of at least thirty distinct varieties of Japanese maples, including all the well-known and popular palmatum and dissectum forms, and also a fine lot of A. palmatum [illegible]. Larix leptolepsis is a tree that has a great future before it, being hardier and yet a more vigorous grower than the Tyrolean larch; as an ornamental plant it is also likely to be in demand. Another fine subject is the purple peach, a free grower, and with fine red-purple leafage. Other effective plants, bush ivies, Ulmus Wreedi aurea, and the large-leaved Quercus macrophylla; Q. concordia, the Golden Oak; Betula purpurea, the purple birch; and Weigelia Looymannsi aurea, the latter worth growing alone for its bright foliage. Messrs. Fisher, Son, and Sibray excelled their effort of the previous year, and set themselves a task for the future. Messrs. J. Waterer and Sons, Bagshot, Surrey, were large exhibitors of the deservedly-popular and extremely-elegant Japanese maples, showing pleasing specimens of all the principal varieties already [illegible] with reference to other displays; particularly notable were the specimens of Acer palmatum argenteum, A. p. ornatum, A. p. involutum, a small, [illegible] divided green form; and A. dissectum purpureum, a cascade of finely-[illegible] red-purple foliage.

Japanese maples were well shown by Messrs. W. Fromow and Son, Sutton Court Nursery, Chiswick, who arranged a choice set of well-grown plants with pure white liliums. The most interesting maples were Acer palmatum sanguineum, A. dissectum reticulatum, A. d. purpureum, A. palmatum marmoratum, A. dissectum variegatum, and A. palmatum aureum. Aralia pentaphylla variegata made a charming edging to a group of charming and handsome foliaged plants. An attractive lot of mollis and sinensis azaleas, shown by Messrs. R. and G. Cuthbert, Southgate, made a fine gleam of rich colour at the Temple end of the No. 4 tent. The mollis forms were of especially high quality, and every plant was a compact bush smothered in brilliant flowers. Alphonse Lavallee, salmon scarlet; Comte de Quincy, pale yellow; Anthony Koster, rich yellow; General Vetter, orange tinted; Baron Pycke, rich red, were among the most attractive. There were also very fine bushes of rustica forms, all remarkable for their floriferous habit and general effectiveness. The Messrs. Cuthbert had a fine selection of good hardy azaleas.

One of the groups out of doors was arranged by Mr. John Russell, Richmond Nurseries, Richmond, Surrey. In this there were a number of elegant Acer [illegible], and tall standard Japanese maples, chiefly red and purple foliaged forms of the dissectum and palmatum sections. The ivies were very bright, especially Russell's Silver, a charming form; Lees' Silver, Palmatum aureum, and Arborea Silver Queen, particularly handsome. Euonymus latifolius albus formed an attractive marginal band to this interesting group. From Messrs. Little and Ballantyne, Carlisle, came a basket of small plants of Golden King Holly, a [illegible] form and a sport from the Hodgson Holly, the foliage is broad and the [illegible] are turned under the leaf save in the young foliage. The older leaves have [illegible] marking on a creamy ground, but the new leafage is bright golden [illegible] and pale green; a good holly and one that has proved perfectly hardy at [illegible], and a vigorous grower. A group of bamboos and hardy rhododendrons was arranged in a star-shaped bed out of doors, and created much interest. The rhododendrons were Fortunei hybrids, and everyone a mass of brilliant flowers. The bamboos both tall and dwarf were remarkable for their grace, and as these are now becoming popular, the group commanded a good deal of attention.

Stove Plants.

Messrs. F. Sander and Co., St. Albans, had a group of new plants that attracted a vast amount of attention; this occupied the extreme end of the central [illegible] of the large marquee, and consisted chiefly of the new, curious, and handsome [illegible] Sanderi, carrying an abundance of its long depending crimson tassels, [illegible] in previous issues and figured in the present; Dracæna Van der Billi, [illegible] leaved and elegant form with white margined foliage; Licuala Jeanenceyi, [illegible] Sanderi, Anthurium Novelty, with scarlet leafage; Acalypha God-[illegible], with creamy-green margin to the neat foliage; the now fairly well known [illegible] Godseffiana, and the erect D. Sanderiana made up a group of great [illegible] and interest; one other plant of great beauty was that most elegant of date [illegible], Phœnix Rœbelini. A number of anthuriums gave colour to this exhibit.

A small group of the curious and attractive anthuriums came from M. de Smet [illegible], Mont St. Amond, Ghent; all were seedlings from or variations of Anthurium Scherzerianum, and a remarkable feature was the large percentage of [illegible]-spathed scapes. Some notable varieties were Baron Schröder, with a [illegible] and intense scarlet spathe; De Smet Duvivier, with crimson spathe; [illegible] Montefior Levis, scarlet spotted, on a white ground; Rotundiflorum, [illegible] round spathe; and Prince Albert, a fixed twin-spathed, or even triple-[illegible] form of a rich crimson colour. This little group of anthuriums attracted [illegible] of the curious, and was recognised as a most novel display.

In tent No. 4 Messrs. J. Veitch and Sons, Chelsea, arranged a handsome group of crotons on the ground: the specimens were of fair size, clean, well furnished, and brightly coloured; leading varieties were Queen Victoria, the broad-leaved Readi Warreni, with graceful twisted leafage, Eugene Chantrier and Albert Truffant, both with large and bright foliage; Aigburth Gem, Hawkeri, Golden King, Sunbeam, Sunshine, Sinitzianum, and Prince of Wales. An effective group was arranged by Mr. W. Iceton, Granard Nurseries, Putney Park Lane, S.W., and was greatly admired. Kentias, raphis, and cocos, palms, bamboos, and Araucaria excelsa made a bold and graceful background and centre, with clumps of pure white liliums disposed among the greenery. Crotons, gaily coloured; caladiums with broad handsome foliage, heaths, lily of the valley, Otaheite oranges, crassulas, and Azalea mollis were tastefully disposed in the foreground, with raised plants of Dracæna Doucetti and D. Sanderiana. A new and graceful dracæna from Messrs. Dickson, Chester, will no doubt soon be sought after as a table plant, for it is light and graceful. It is named D. Kippsi, and has narrow, curved leaves of a deep purple green, margined, lined, and streaked with deep red. Messrs. J. Laing and Son, Forest Hill, sent two new dracænas, named Rose Laing and Distinction, the former is very handsome, and has been previously described in these columns.

Tuberous Begonias.

The splendid bank of tuberous begonias arranged in the third tent by Mr. T. S. Ware, Tottenham, consisted almost entirely of double forms, and these were of a very high standard of excellence throughout. In form and colour the varieties left nothing to be desired, while the habit of the plants, so dwarf and stocky, was the subject of considerable comment. Fringed and picotee-edged sorts have been much developed during the year, and there appeared to be a greater predominance of the camellia flowered forms than usual. A few good doubles that attracted our attention during a rapid inspection were Mrs. Dumbar Wood, deep yellow; Brilliant, orange scarlet; Golden Queen of England; Samuel Pope, cream, with pink margins; Princess of Wales, creamy pink; Advancement, a curiosity in pink and cream and scarlet; Mrs. S. Pope, pure white; Reynolds Sharp, scarlet; and Beauty of Bexley, salmon.

Tuberous begonias were finely staged by Messrs. J. Laing and Sons, Forest Hill, who set up a long bank of remarkably well-grown stuff, staging the varieties in little groups so as to produce an undulating whole. Single sorts were prominently good, and among these Mrs. J. Pierpont Morgan, yellow; Mrs. Davis, apricot; Earl of Aberdeen, crimson; Countess of Aberdeen, white; General Lockhart, salmon, with flowers six and a quarter inches across; and Marchioness of Salisbury, yellow, were exceptionally fine. Duke of Fife, Mrs. Griffiths, fringed and waved, white; Lady Tweedmouth, carmine; Lady Gifford, salmon-pink; and Lady Charles Beresford, rich red, were a few notable and handsome double varieties out of a large collection of fine forms.

A grand bank of begonias from Mr. J. R. Box, West Wickham, was evidence that this exhibitor is in the front rank of raisers and cultivators of the tuberous begonias, The single varieties were remarkable for the size, form, and brilliance of their flowers; and the double sorts, notable for their stocky habit, and full, elegant, and substantial blooms. Miss Leanard, cream; Zelinda, orange; Hogarth, orange scarlet; and Eureka, yellow, were especially good double varieties; while of the named single sorts, Proserpine, deep rose; Beloma, white, Magnitude, rose; and Canary, yellow, were the most prominent and handsome. A fine lot of tuberous begonias was staged by Mr. H. J. Jones in No. 4 tent, and made a most effective attractive bank near one of the entrances. The great variety of shades of colour represented in this collection was a great feature for Mr. Jones had all shades of crimson, scarlet, orange, yellow, cream, white. pink, salmon, and rose, as well as combinations of several colours. Both single and double begonias were brought from the Ryecroft Nurseries, and on many there was an exquisite fringing that added to the general beauty of form and colour: Star, pink; Mrs. Beckett, salmon; Delight, rose; Primrose Queen May Manser, rose and scarlet; Dr. Shaw, orange scarlet; Ryecroft, salmon buff; Beacon, a lovely crimson; and Novelty, a curious shade of apricot-orange, were the pick of the singles.

Cacti.

The display of phyllocacti by Messrs. James Veitch and Sons, Chelsea, was certainly the most novel exhibit at the Temple Show, and no other excited more interest or drew forth more admiration from the visitors. A wonderful improvement has been made in these during the past few years, and now we may have plants in forty-eight sized pots carrying three of four huge flowers in various stages of expansion, each flower lasting in perfection for three or four days. The colours are as numerous as one could well wish; there are pure white flowers, cream, pink, rose, red, scarlet, orange tinted, pale crimson, salmon, and some with purple shading. The blooms are about seven inches across, and composed of several rows of broad segments around a central tuft of elegant stamens. The foliaceous stems are themselves not devoid of beauty, and certainly the group of plants shown in flower presented no incongruity of flower and leaf, but rather a most brilliant and charming effect that approached gorgeousness, and would have been excessively bright but for the lighter colours and delicate shades associated with the richer forms. Altogether Messrs. Veitch staged between four and five hundred plants in their group, and are to be congratulated upon their fine display.

Mr. G. J. Pritchard, Godwin Road, Forest Gate, exhibited a somewhat large and very interesting collection of cacti, a novel exhibit in which the specimens of Echinocactus aureus, E. Grayssoni, a melocactus, Cereus flagelliformis, C. geometrizans, Pilacereus senilis, Mamillaria Kleimschmidti, Opuntia microdasy, and O. maxima attracted most attention.

Gloxinias.

A brilliant lot of gloxinias was submitted by Messrs. J. Veitch and Sons, who showed splendidly-flowered plants, representing a grand display of beautiful varieties and plants of the very best habit and growth. Achille, white and red; Mars, scarlet; Virginale, white; Triton, purple and crimson; Seraph, scarlet and pink; Cordelia, rose-spotted on white; Aveline, pale pink and cream; Monarch, rich red; Galatia, blush; and Eclatant, scarlet and white, attracted our attention most. Gloxinias in variety were arranged in a bed of ferns by Messrs. J. Laing and Sons, Forest Hill; for the depth of colour, fine shape, and robust growth, the Forest Hill strain is well known. A new form in which crimson and purple were peculiarly associated in the body of the flower, and with the broad white margins to the segments, spotted with purple, was a most distinct advance in a new direction, and promises us a new shade of colour—interesting combinations. The Messrs. Cannell and Sons, of Swanley, displayed their excellent strain of gloxinias in an admirable way, by arranging a moderate number of well-grown and freely-flowered plants in a bed of maidenhair fern. This allowed one to fully comprehend the decorative capacity of each plant, and revealed that not only were the flowers of fine colour or exquisite shape and mottling, but that the plants possessed a first rate habit. White Queen, Princess of Wales, Prince of Wales

Maude, and Mrs. Marshall were especially good forms. Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood, had a choice display of gloxinias, their collection containing a large percentage of charming and beautifully spotted forms. Majestic, Exquisite, pink spotted; Duchess of York, Princess of Wales, Queen of My Heart, and Mrs. W. Weaver, a lovely pink, were the pick of these, while Royal Purple, Empress of India, Mr. G. W. Sawday, Aigburth Crimson, Beacon, Petunia, and Jasper were particularly handsome selfs or shaded forms; the latter was a grand flower, and very rich. A small group of erect-flowered gloxinias in considerable variety was staged by Messrs. A. Young and Co., Stevenage, at the end of their large group.

Pelargoniums.

Mr. J. Pope, Royston, Herts, sent a new seedling show pelargonium named Agnes Alma. This is semi-double, of large size, and of a rich scarlet hue, shaded with brown and pink. Mr. A. Tulett, Crocker Hill, Swanley, arranged a bank of bright, scarlet-flowered pelargoniums, the variety being a richly-coloured sport from F. V. Raspail, and named A. Tulett. Mr. Charles Turner, Royal Nurseries, Slough, contributed some finely-grown and freely-flowered show and fancy pelargoniums, using them to flank his large rose exhibit. Popular sorts, such as Edward Perkins, Lady Isabel, St. Blaise, Magpie, Iona, The Shah, Joe, Mystery, Maid of Honour, and Prince Leopold were most in evidence, and the way in which they were admired showed that the love for such plants has not much diminished. Messrs. A. Young and Co., Stevenage, made a brilliant display with their new semi-double salmon-coloured zonal pelargonium, King of Denmark.

Calceolarias.

Messrs. J. James and Son, Farnham Royal, well sustained their reputation for excellent strain of calceolarias, for their group of these highly decorative plants was admired by all visitors to the show. Every specimen was a model of good culture and dwarf compact habit, while the huge trusses of big blooms were remarkably fine. Both selfs and spotted forms were arranged, and it is a difficult matter to decide which are the most elegant, and opinion among the visitors seemed equally divided upon the subject, though all were agreed that the general quality of the strain was A 1. Very gorgeous were the handsome calceolarias exhibited by Messrs. H. Cannell and Sons, Swanley; these occupied a prominent position in No. 4 tent, and formed a centre of attraction. The colours were good, the flowers were full-sized, and the plants of fine vigorous habit, though at the same time compact and handsome. The intense scarlet and crimson forms from Swanley attracted our attention the most, but the others were no less beautiful. Messrs. J. Carter and Co., High Holborn, had a huge exhibit occupying the whole of the centre of the tent. There were masses of gorgeous calceolarias, mounds of chaste liliums, graceful spiræas, bright streptocarpuses, showy petunias, fragrant mignonette, glowing begonias, dwarf cut sweet peas, irises, anemones in variety, and parrot tulips. In addition to beauty in flowers and plants this firm also catered for other tastes, staging splendid Duke of York tomatos, Stratagem peas, climbing French beans, Model cucumbers, and other choice vegetables and salading; the Duke of York tomatos in pots were thoroughly well cultivated, and looked well with their big racemes of fruit.

Carnations.

A novel and attractive disposition of carnations, azaleas, crimson Rambler roses, spiræas, yellow richardias, and Browallia elata was made by Messrs. W. Cutbush and Son, Highgate, N., and Barnet, Herts. This firm occupied a corner in the big marquee, and put up one of the most tasteful displays in the show. There were valleys of malmaison carnations, slopes of golden and creamy azaleas, mounds of the blue Browallia elatior, and hills of brilliant border and show carnations, and mountains of Rambler roses, spiræas, bamboos, and palms. Liliums were dotted here and there, with a few Calla Elliottiana, the golden arum. Mrs. Andre Campbell, Waterwitch, Uriah Pike, The Gift, Cardinal Wolsely, La Villette, Souvenir de la Malmaison, Princess May, and G. B. Bryant were a few of the best carnations we noted in this large and excellent collection.

A grand lot of pink-flowered Souvenir de la Malmaison carnations occupied the end of the central staging in the large marquee, and these came from Ascott, Leighton Buzzard, where Mr. J. Jennings is the able gardener to Leopold de Rothschild, Esq. The flowers were of large size and finely coloured; they were chiefly in 16-sized pots, and carried on an average eight blooms and buds apiece; a very fine lot. A charming lot of carnations were set up by Mr. Charles Turner, Slough; they were admirably flowered, and consisted largely of seedlings and yellow-ground fancy forms; Knight Errant, rich scarlet; Queen of Fancies, yellow and rose; Ernest, yellow; Delos, scarlet; Buttercup, yellow; Desdemona, pink; and Little John, rich scarlet, were the most notable named forms.

Messrs. Dicksons, Chester, staged a number of plants of their new yellow tree carnation Duchess Consuelo, a form that has been shown under the name of Admiration, and given an award of merit as such on a previous occasion. This is a tall and robust grower carrying enormous rich yellow flowers.

Mr. Perkins, Regent Street, Leamington, put up a group of especially well grown carnations; this display consisting of ten large specimens of a fine yellow form named Primrose Queen, very free, of large size and great substance; a beautiful and free carnation.

Silver Cups.

Silver cups were awarded as follows: to Messrs. Jackman, for clematis and herbaceous plants; Messrs. R. Smith, for clematis; Messrs. Barr and Son, for herbaceous plants; Messrs. Cutbush, for foliage plants, palms, and carnations; Sir Frederick Wigan, Bart., for orchids; Messrs. Charlesworth and Co., for orchids; Messrs. Hugh Low and Co., for orchids; Messrs. Sanders, for orchids and new plants; H. S. Leon, Esq., for orchids; Earl Percy, for orchids; Messrs. Linden and Co., for orchids; Mr. J. Cypher, for orchids; Mr. J. R. Box, for begonias; Messrs. Paul and Son, for roses, &c; Mr. C. Turner, for roses, pelargoniums, and carnations; Mr. Beckett, gardener to Lord Aldenham, for vegetables; Sir J. Pease, Bart., for fruit; Messrs. J. Rivers and Son, for pot fruit trees; Messrs. Sutton and Son, for vegetables; Messrs. J. Carter and Co., for vegetables and flowering plants; and to Messrs. H. Cannell and Son, for cannas, gloxinias, calceolaria, begonia, &c.

Medals Awarded,

Golds medals were awarded to Sir Trevor Lawrence, Bart., or orchids; to Messrs. W. Paul and Son, for roses; to Mr. George Mount, for roses; to Messrs. James Veitch and Son, for caladiums, crotons, cacti, gloxinias, &c.; and to Mr. Hudson, gardener to Leopold de Rothschild, Esq., for pot fruit trees.

Silver-gilt Knightian medals to Messrs. George Bunyard and Co., for apples, &c.; Mr. Empson, gardener to Mrs. Wingfield, for vegetables; and to Mr. S. Mortimer, for cucumbers and tomatos.

Silver-gilt floral medals to Mr. T. S. Ware, for herbaceous plants; Messrs. Perkins, for bouquets, &c.; Messrs. H. B. May, for ferns; Messrs. B. S. Williams, for orchids and decorations; Messrs. Lewis and Co., for orchids; W. Thompson, Esq., for orchids; Jules Hye Lyeson, Esq., for orchids; Leopold de Rothschild, Esq., for carnations; Messrs. W. Blachin and Son, for Leschenaultia, &c.; Messrs. James, for calceolarias; Messrs. Fisher, Son and Sibray, for hardy foliage plants; Messrs. Kelway and Son, for pæonies, &c.; Messrs. J. Laing, for gloxinias, streptocarpus, &c.; Messrs. J. Peed and Sons, for caladiums, &c.; and to Messrs. J. Waterer and Co., for rhododendrons; and Messrs. Cheal and Sons, for shrubs.

Silver-gilt Banksian medals to Ludwig Mond, Esq., for orchids; Mr. H. J. Jones, for begonias; F. Cant and Co., for roses; Messrs. W. Rumsey, for roses; Messrs. Backhouse, for alpines, &c.; Messrs. R. Wallace, for hardy plants, &c.; Mr. George Edom, for tulips; Mr. J. Pritchard, for cacti; Mr. M. V. Seale, for decorations; Messrs. J. Hill and Son, for ferns; Messrs. W. and J. Birkenhead, for ferns; Malcolm S. Cooke, Esq., for orchids; and to Mons. L. de Smet Duvivier, for anthuriums.

Silver Knightian medals to Horticultural College, Swanley, for vegetables; Mr. G. Featherby, for fruit; and to Mr. Hayes, gardener to the Marquis of Northampton, for vegetables.

Silver Flora medals to Messrs. I. House and Son, for violas; Messrs. A. Young, for gloxinias, &c.; Mr. A. Perry, for herbaceous plants; Mr. Moyes Stevens, for bouquets, &c.; Mr. W. Sydenham, for violas, &c.; Mr. L. A. Calcutt, for decorations; Mr. J. Prewett, for decorations; Messrs Jones and Sons, for decorations; Mr. John Russell, for azaleas, &c.; Mr. M. Prichard, for herbaceous plants; Messrs. F. Miller and Co., for mignonette, &c.; Mr. R. Cuthbert, for azaleas; Messrs. Fromow and Son, for maples; Mr. W. Iceton, for foliage plants; Jadoo Company (Limited), for plants; and to Messrs. Cripps and Son, for maples.

Silver Banksian medals to Mr. Koster, for azaleas; Mr. A. Tullett, for zonals; Mr. E. G. Reid, for rhododendrons; Mr. F. Chapman, for asparagus; Lord Foley, for strawberries; Mr. A. Henderson, for fruit and vegetables; Mr. Godfrey, for asparagus; and to Mr. Lawrence, for asparagus.

New Orchids.

The Orchid Committee awarded first-class certificates to Messrs. Hugh Low and Co., Enfield, for Cattleya Mendeli Oakes Ames and Dendrobium Dalhouseanum salmonea; to Messrs. Linden and Co., Brussels, for Odontoglossum Rodyanum and O. venustum; to Mr. Charles Vuylsteke, Loochristi, for Odontoglossum crispum-Harryanum; to Messrs. Charlesworth, Bradford, for Lælio-Cattleya Admiral Dewey and Cattleya Fernand Devis.

Awards of merit to W. P. Burkinshaw, Esq., Hull, for Cattleya Mendeli Amelia; to M. Jules Hye Leyson, 117, Coupure, Gand, for Miltonia Bleuana rosea gigantea; to Messrs. Hugh Low, Enfield, for Cattleya Mendeli Mrs. E. V. Low; to Messrs. Linden and Co., Brussels, for Odontoglossum crispum zebrinum O. decorum, and O. Pescatorei bellatulum; to Messrs. Charlesworth and Co., for Lælio-Cattleya intermedia Flava; to Mons. A. Madoux, Anderghen, for Odontoglossum Charlesianum; and to Messrs. J. Backhouse and Son, York, for Miltonia vexillaria Empress Victoria Augusta.

New Plants and Flowers.

First-class certificates were awarded by the Floral Committee to Phlebodium glaucum Mayi, from Mr. H. B. May, Edmonton; to Acalypha Sanderi and Licuala Jeanenceyi, from Messrs. F. Sander and Co., St. Albans; and to Lilium rubellum, from Messrs. R. Wallace, Colchester.

Awards of merit were made to Holly Golden King, from Messrs. Little and Ballantyne, Carlisle; to Auricula Snowdrop, from Mr. R. Dean, Ealing; to Begonia Mrs. Dunbar Wood, from Mr. T. S. Ware, Tottenham; to Phyllocactus Epirus and P. Agatha, from Messrs. J. Veitch and Sons, Chelsea; to Caladium Ami Schwartz and C. Ibsenianni, from Messrs. F. Sander and Co.; to Eremurus robustus Elwesianus, from Mr. T. S. Ware and Mr. Prichard; to Caladium Guaratinguetor, from Messrs. J. Laing and Sons; to H.T. Rose Aurora, from Messrs. W. Paul and Son, Waltham Cross; to Tree Pæonies Julius Cæsar, Jean de Reszka, and Henry Irving, from Messrs. Kelway and Son, Langport; and to Anthurium Scherzerianum Senateur Montefiore Levis, from Mr. L. de Smet-Duvivier, Grand Belgique.

The space available will not admit of our doing full justice to the whole of the contributions to this great gathering in the current issue, and we shall consequently deal with the remaining sections and describe the new plants in our next.

THE WEATHER DURING THE WEEK ENDING MAY 21, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	61·9	38·1	49·0	9·44	0·78	[illegible]
Croydon	62·0	35·5	47·8	8·78	[illegible]	[illegible]
Brighton	58·4	36·8	48·3	9·06	[illegible]	[illegible]
Bristol	61·0	34·0	46·0	7·78	1·06	[illegible]
Wolverhampton	60·6	34·2	45·2	7·33	[illegible]	[illegible]
Norwich	63·2	33·4	46·4	8·00	0·44	[illegible]
Nottingham	63·0	38·0	46·6	8·11	0·44	[illegible]
Liverpool	56·6	37·7	47·1	8·39	1·33	[illegible]
Huddersfield	57·8	35·5	43·8	6·56	0·80	2·03
Bradford	59·8	37·2	46·9	8·28	0·79	2·01
Hull	59·0	34·0	44·7	7·06	0·53	[illegible]

The mean reading of the Barometer during the week at Greenwich was 29·78 **inches, and the** [illegible] **of the Thermometer** 49°·0, **the latter being** 4°·6 **below the week's average in the 50 years** 1841—90. **The direction of the wind was variable, the horizontal movement of the air being** 4 per cent. above the week's **average in the 16 years** 1860—75. **The duration of registered bright sunshine in the week was** 32·2 **hours.** The measured rainfall amounted to 0·78 of an inch.

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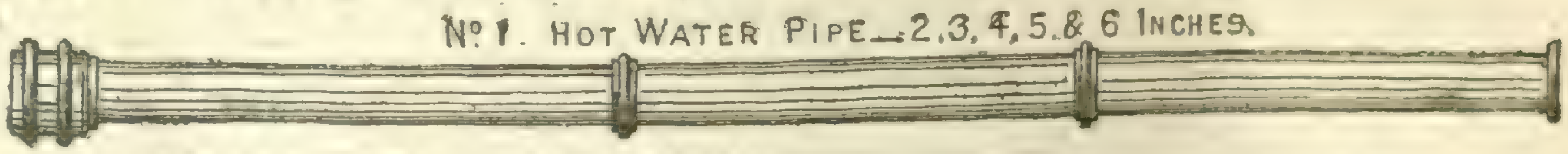
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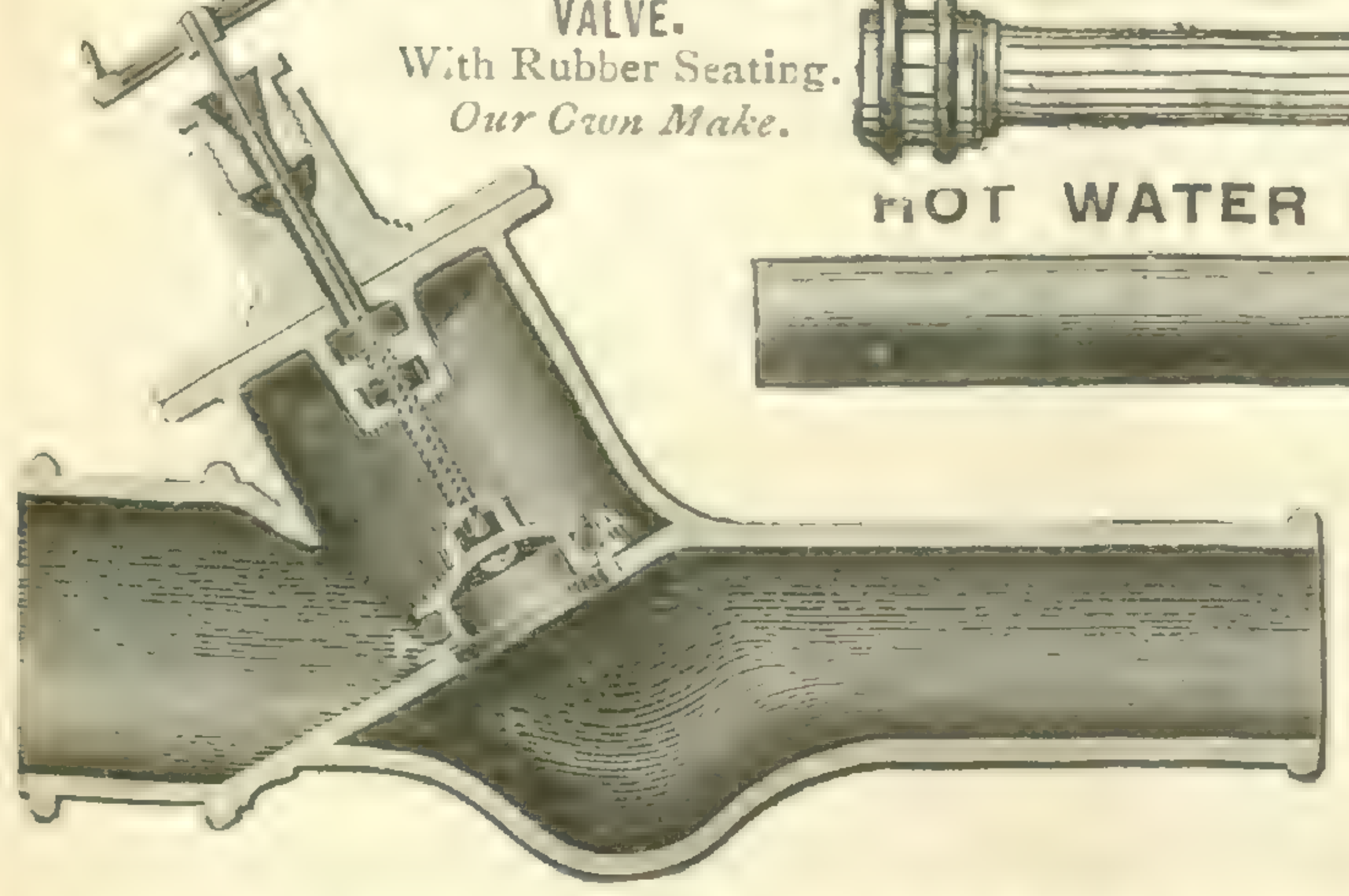
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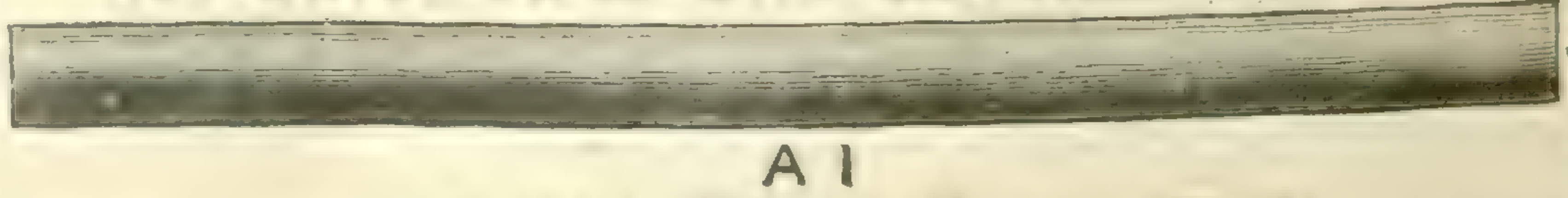

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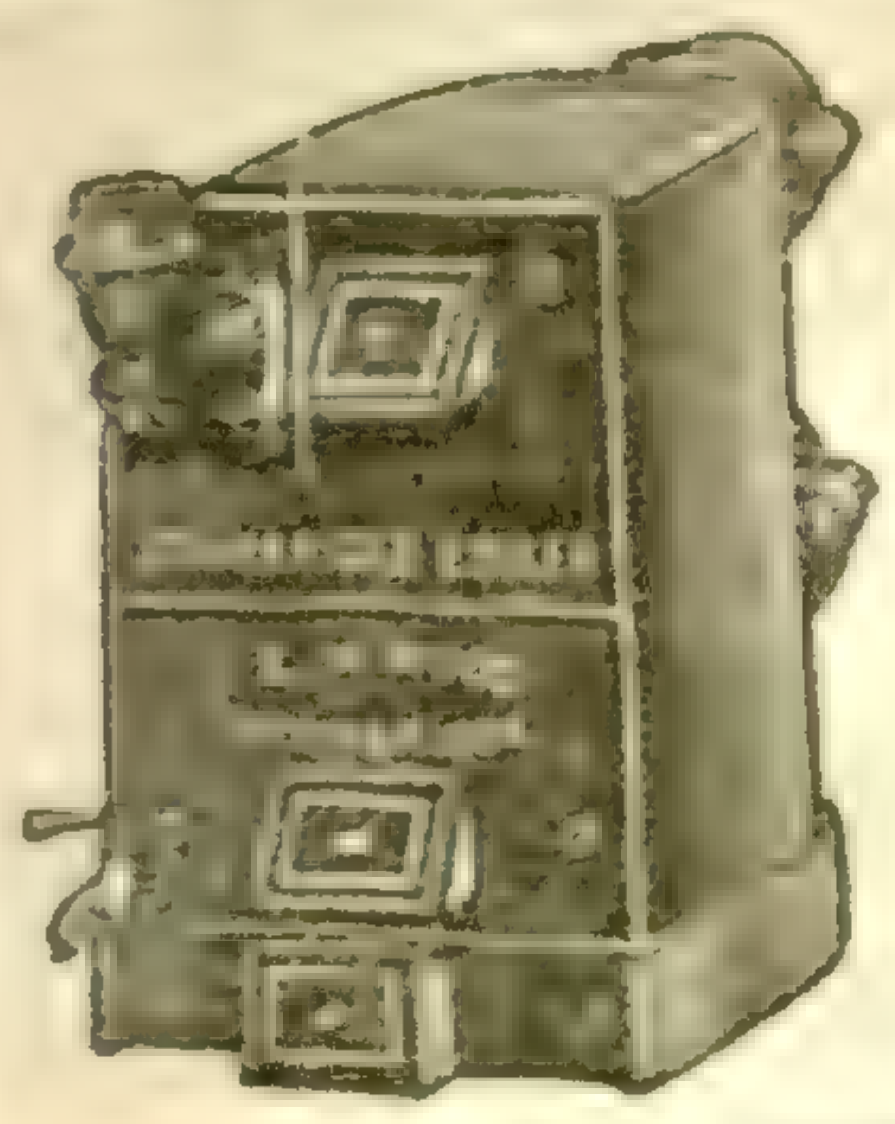

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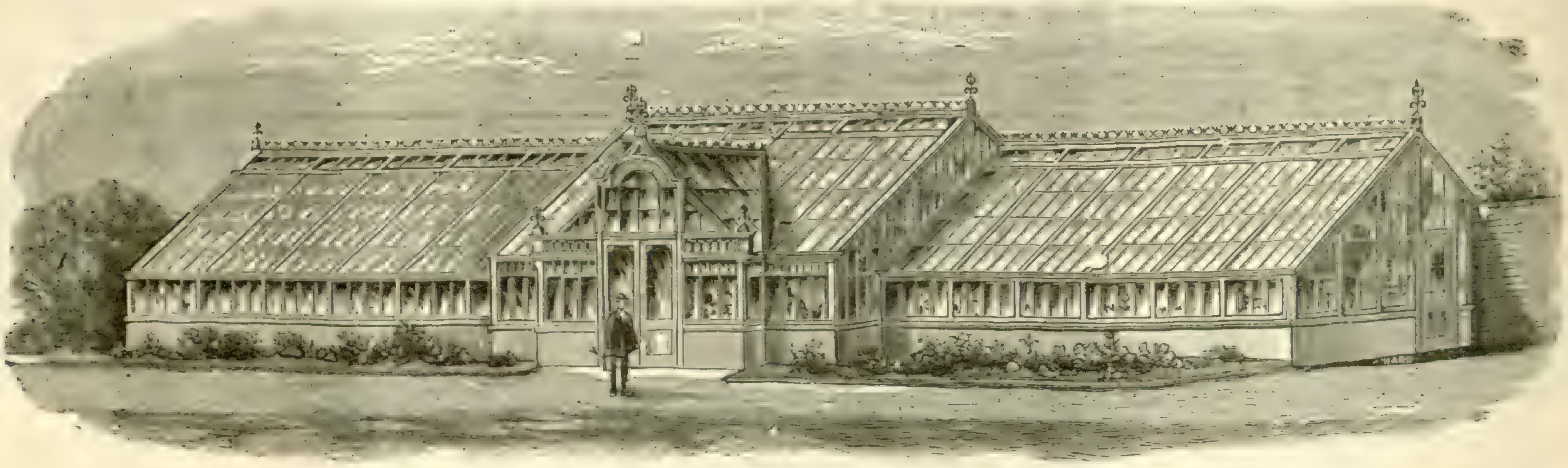

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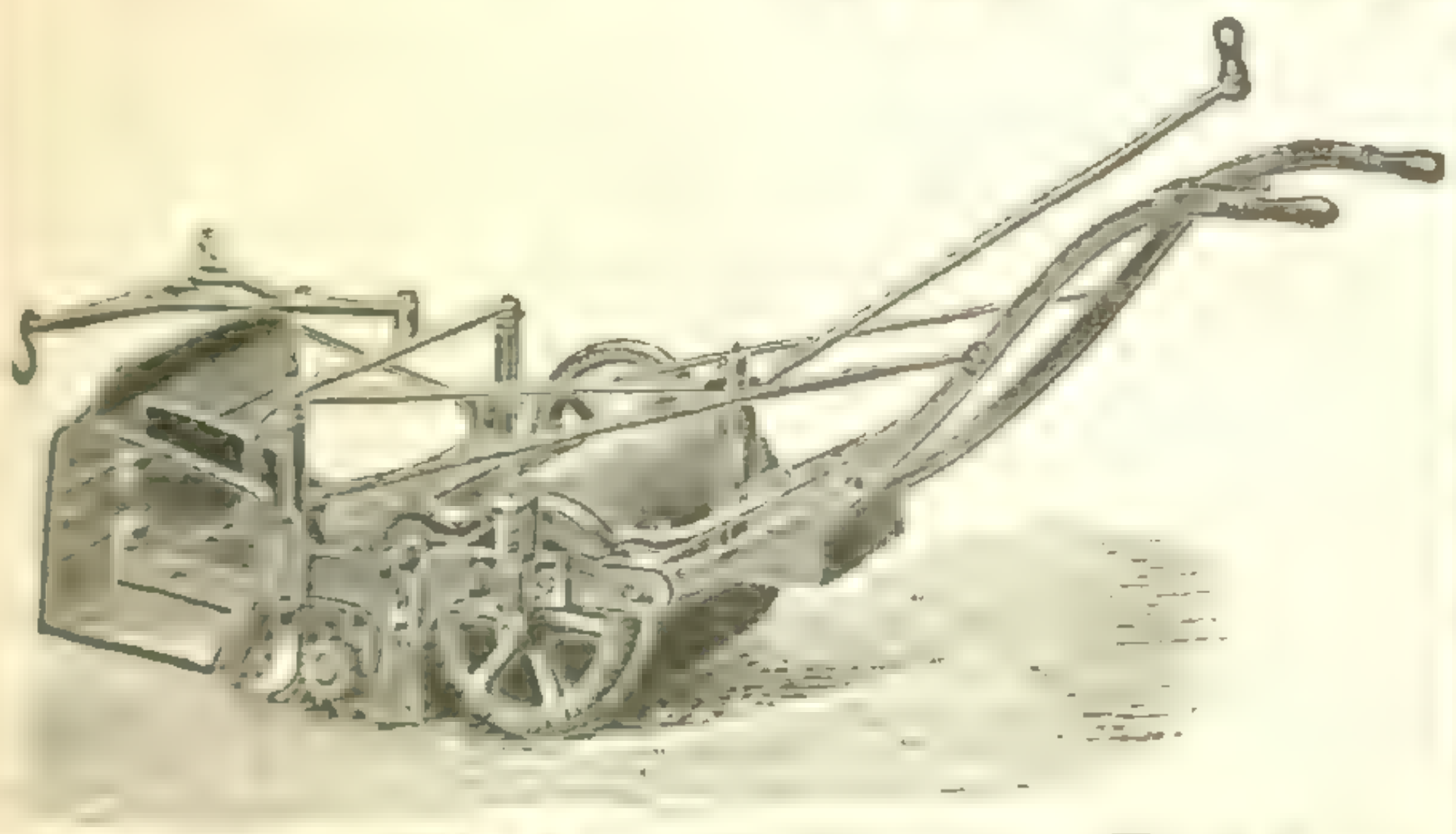

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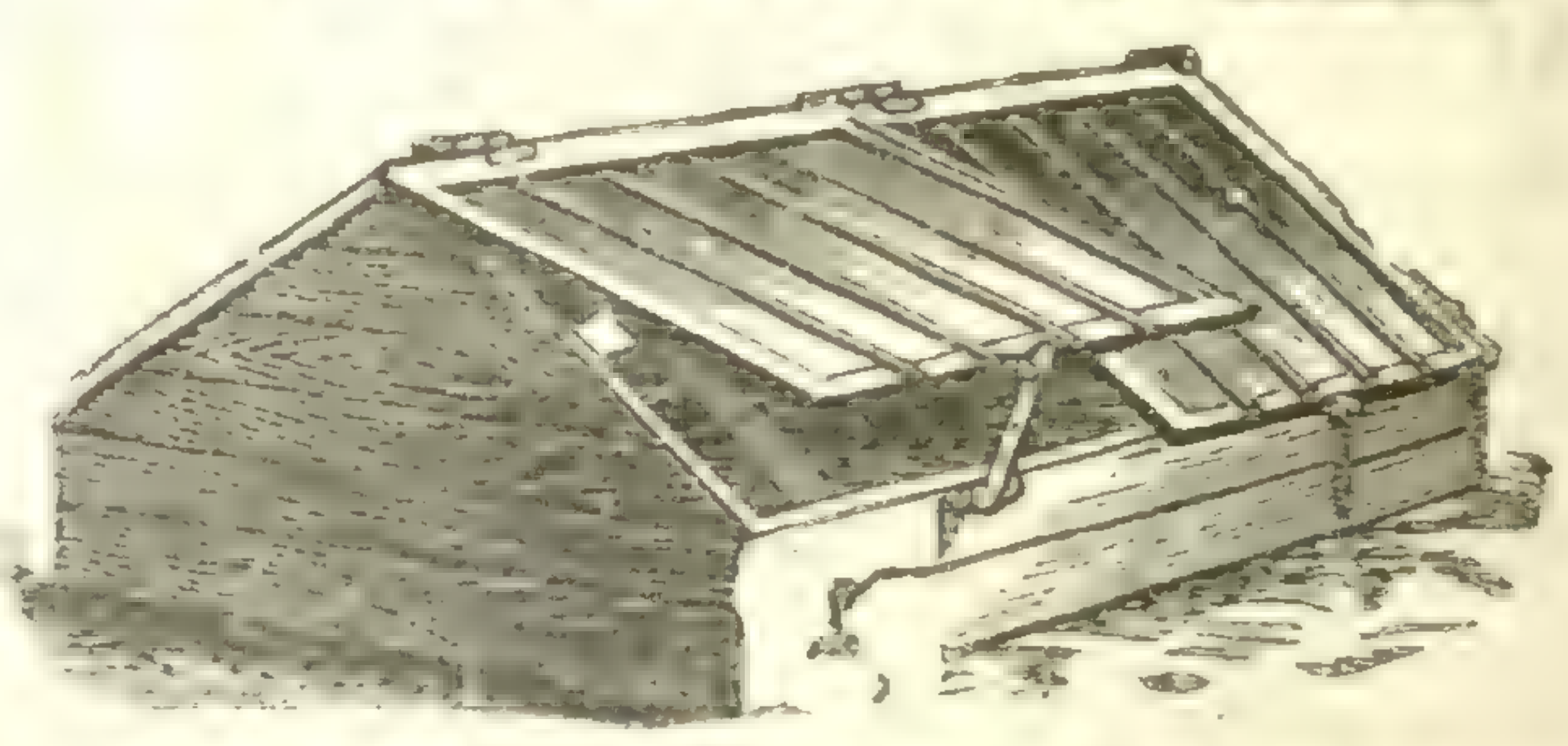

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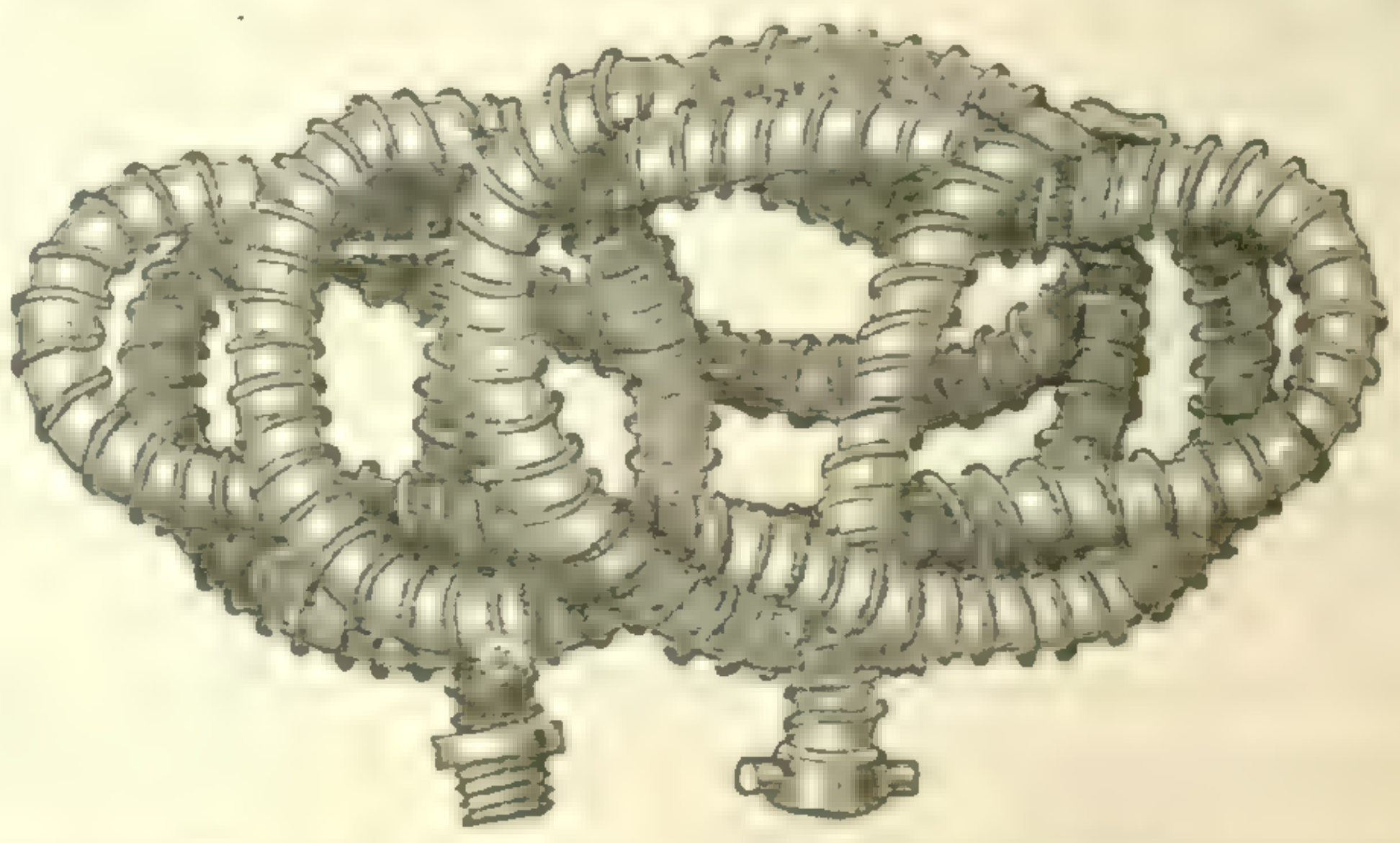

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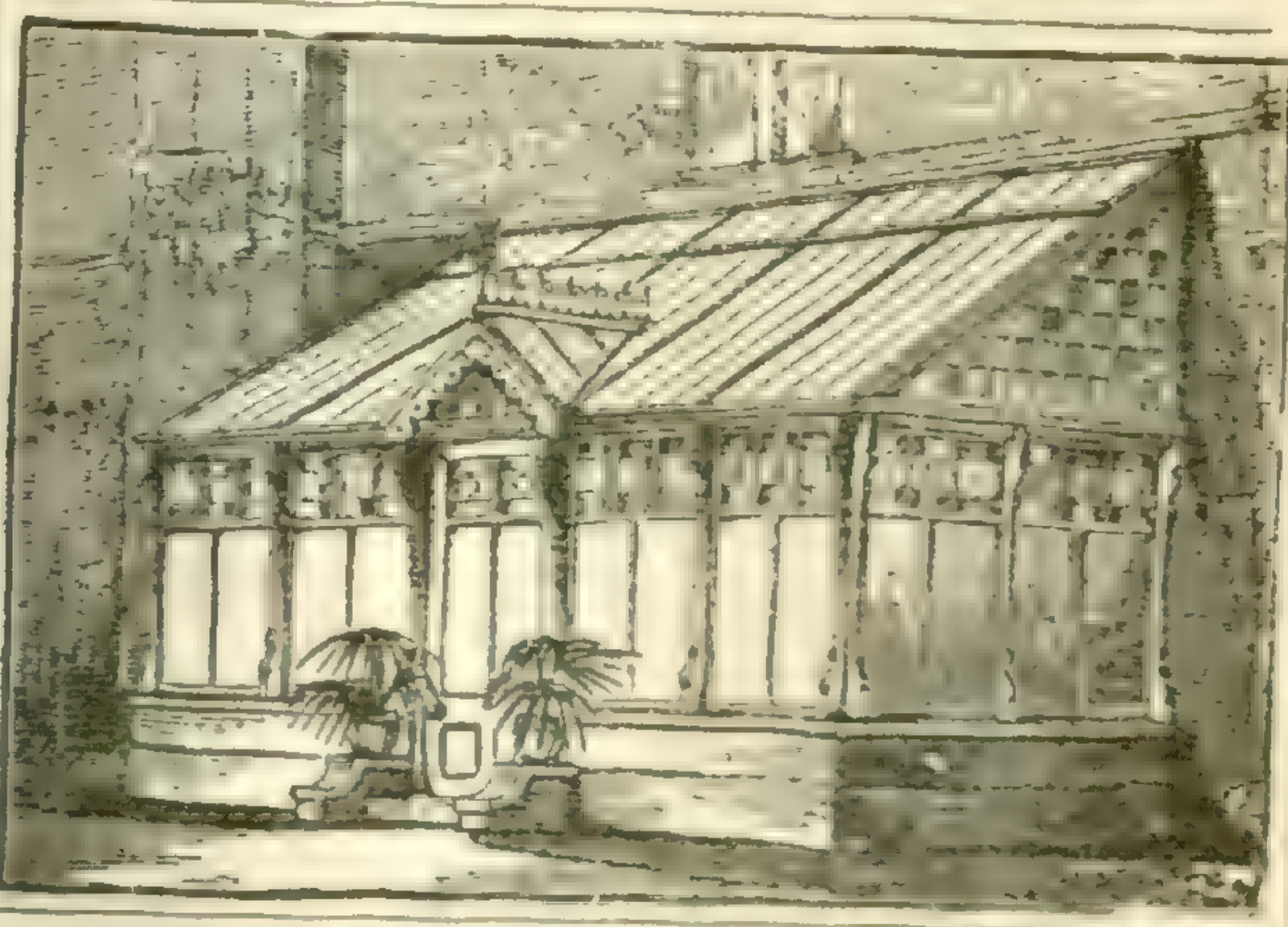

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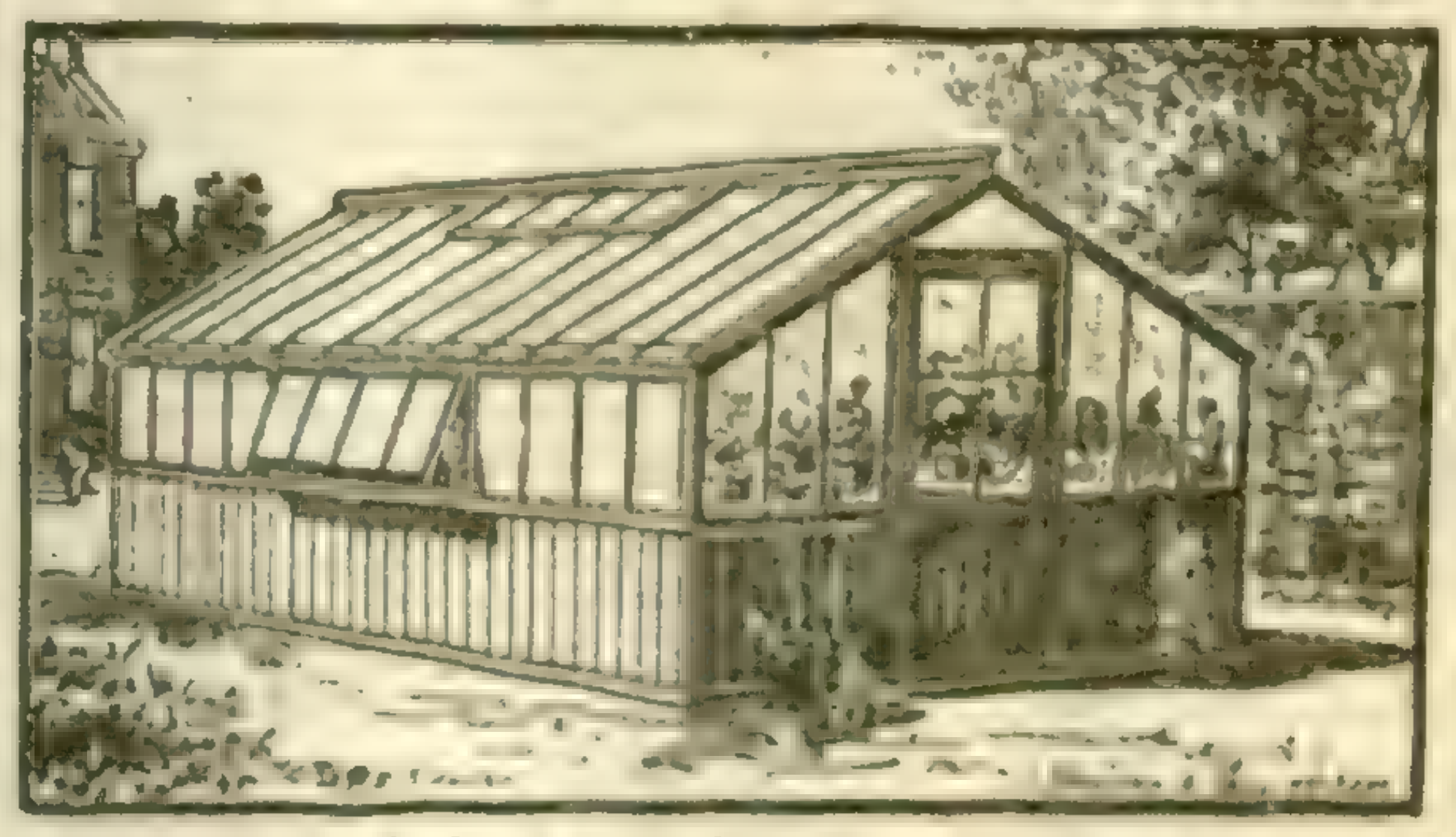

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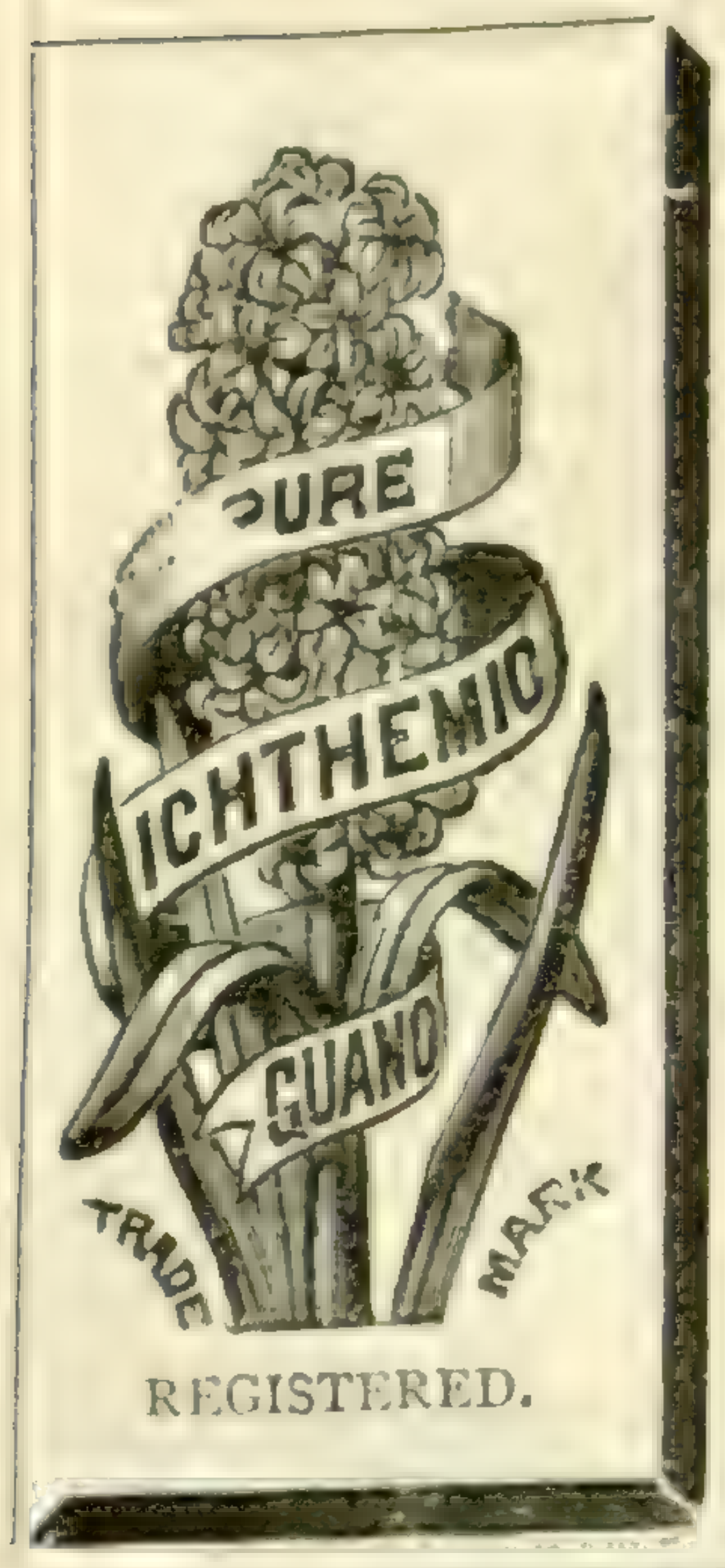

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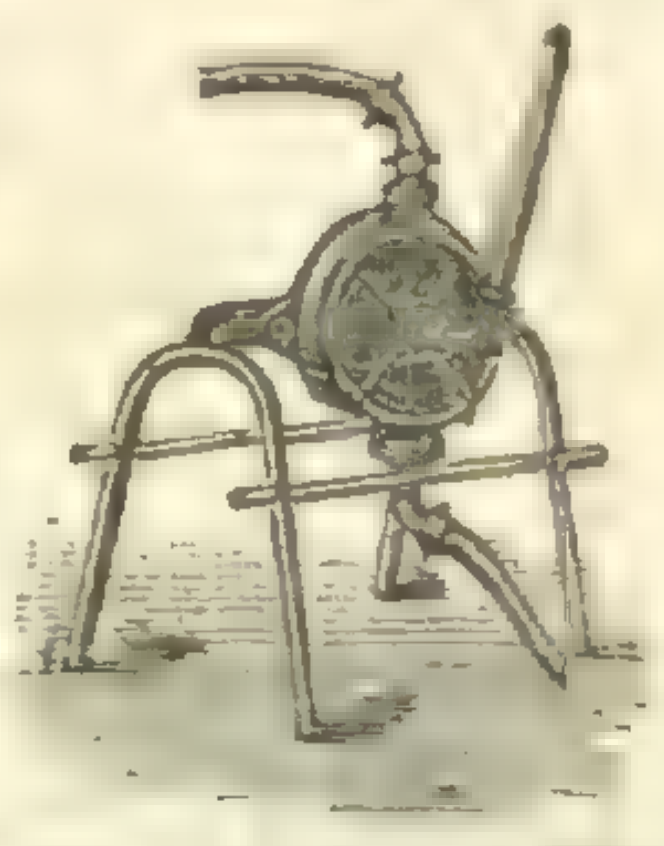

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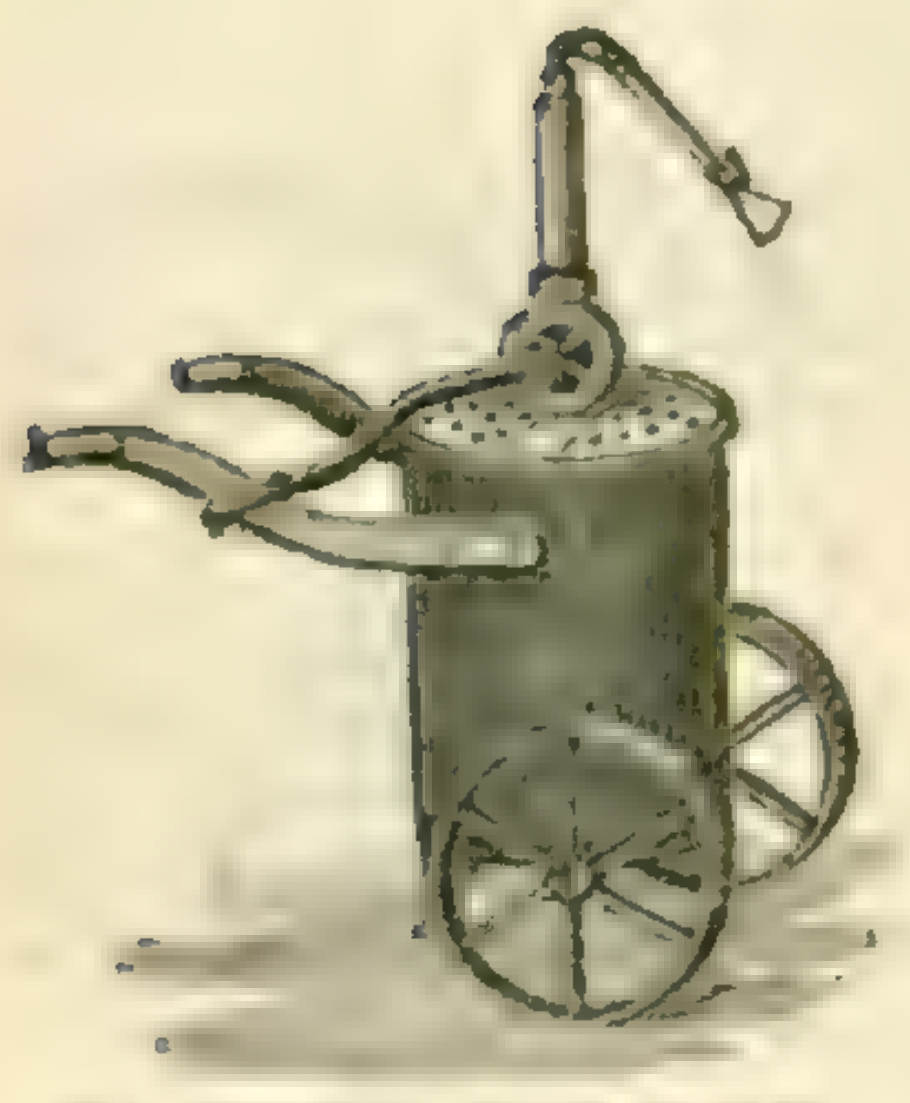

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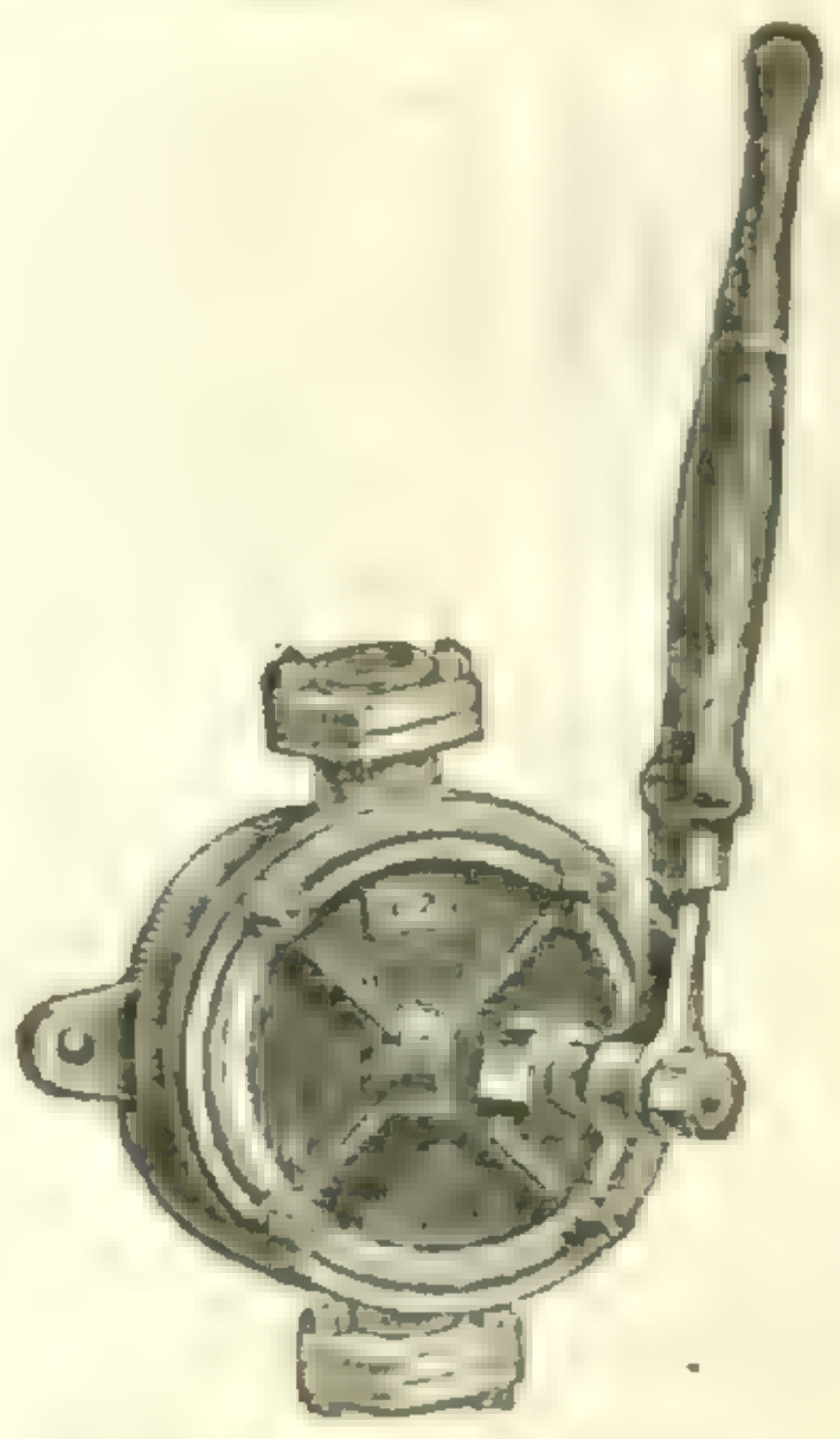

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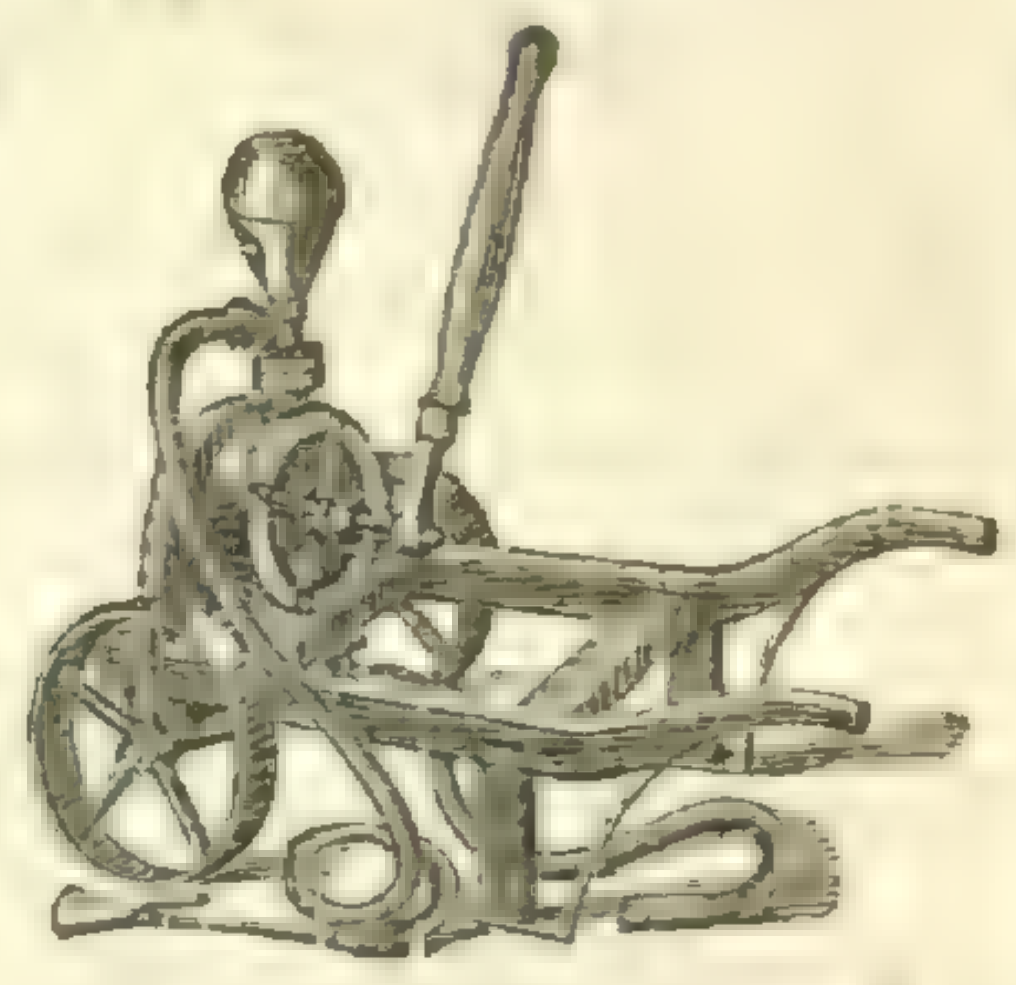

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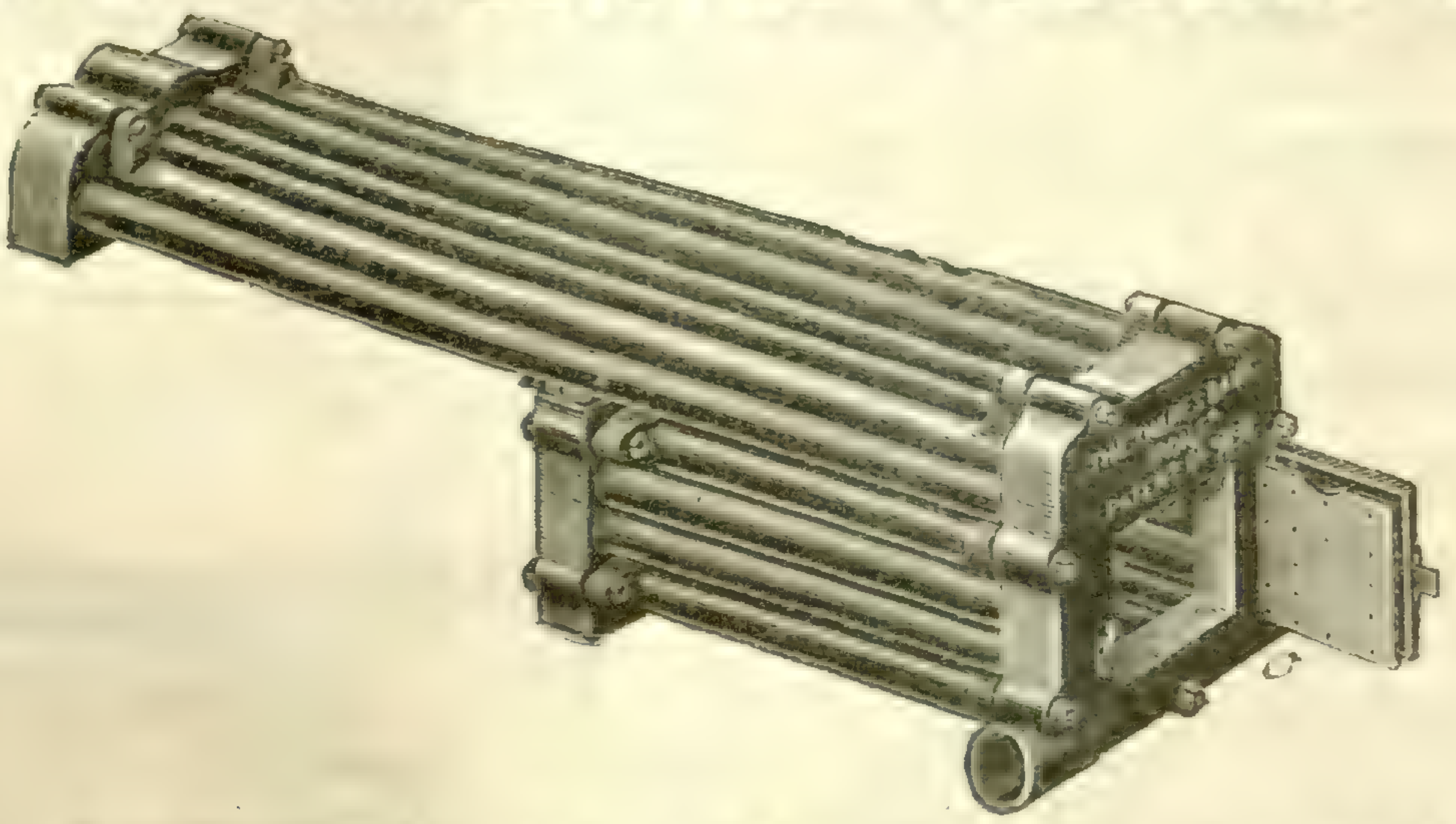

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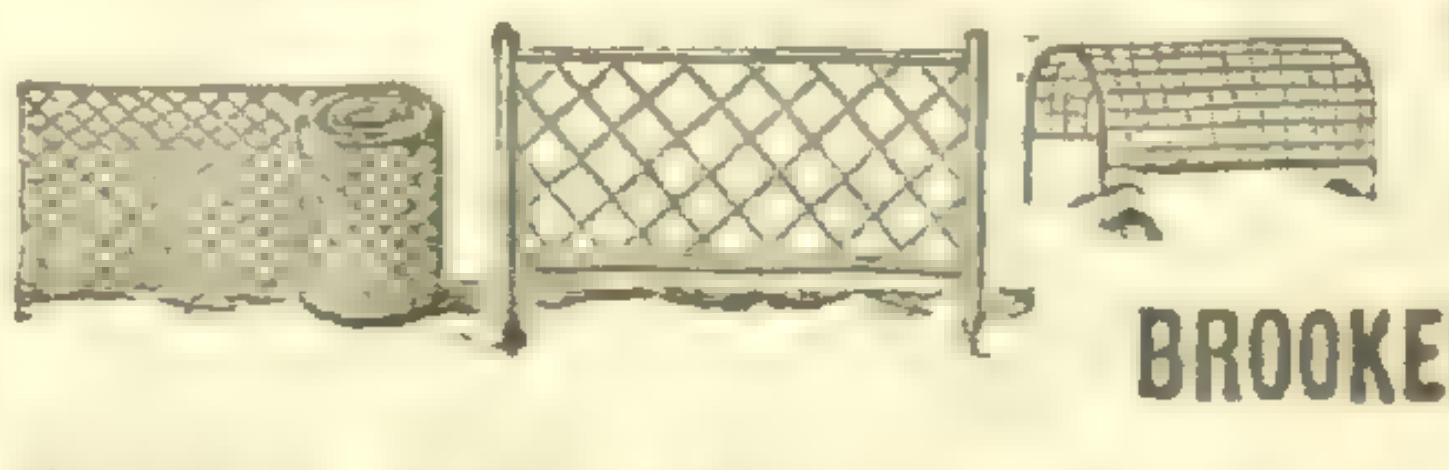

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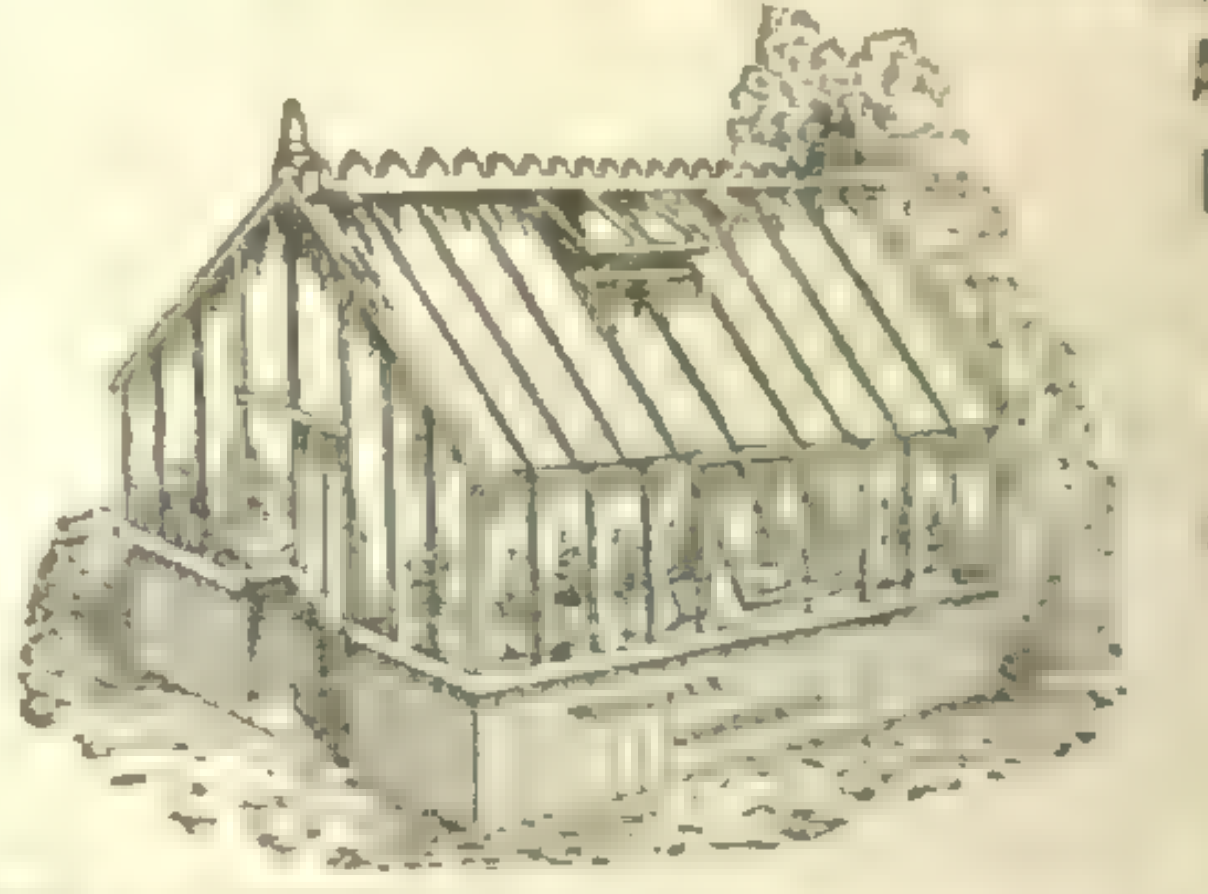

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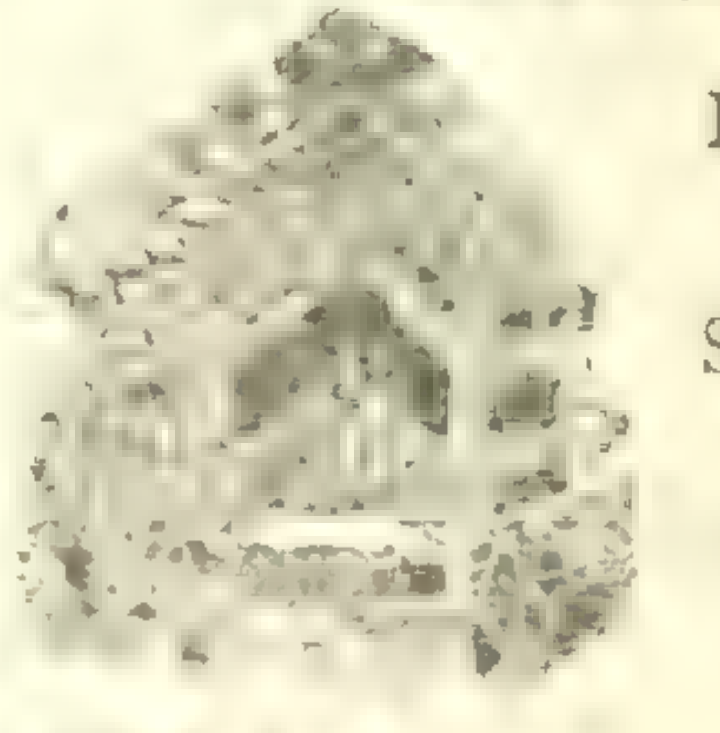

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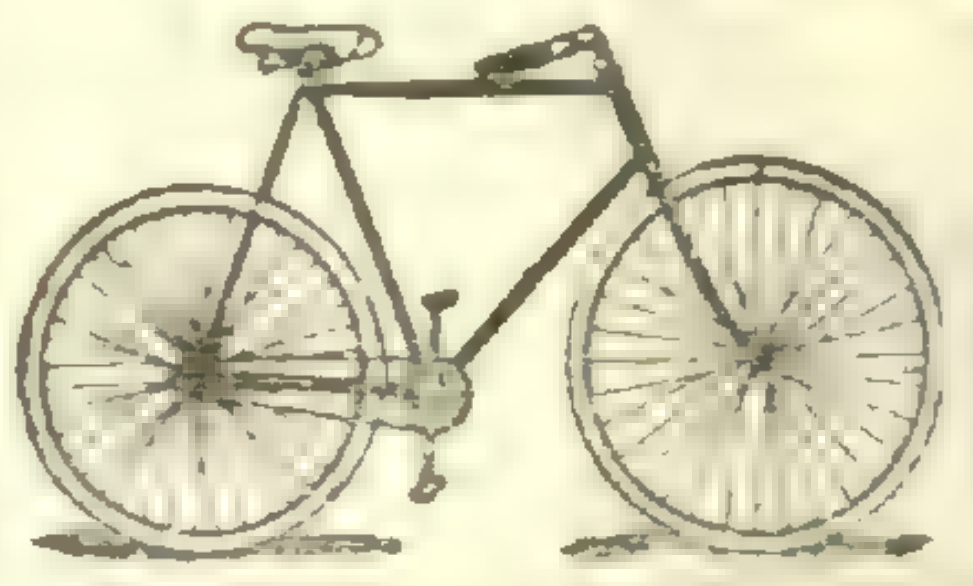

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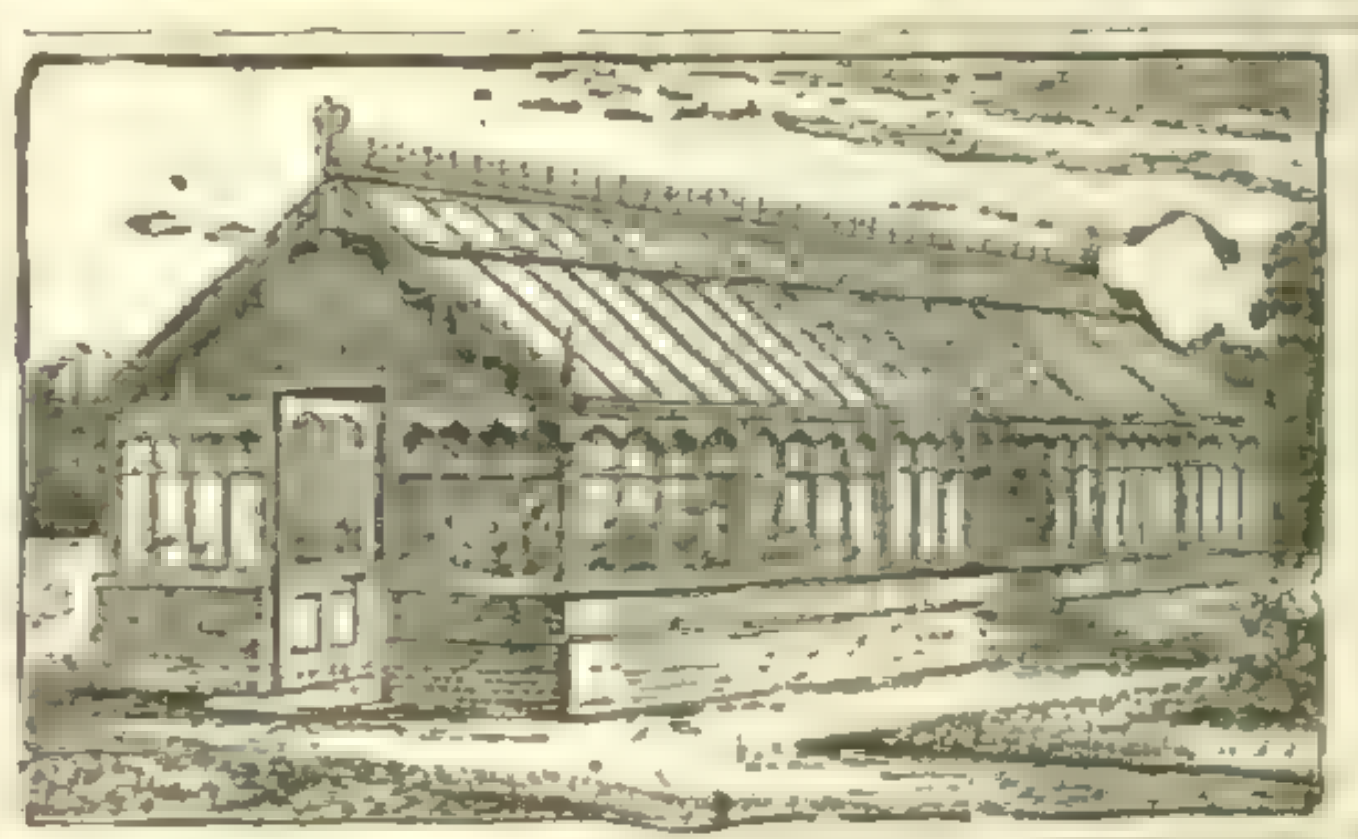

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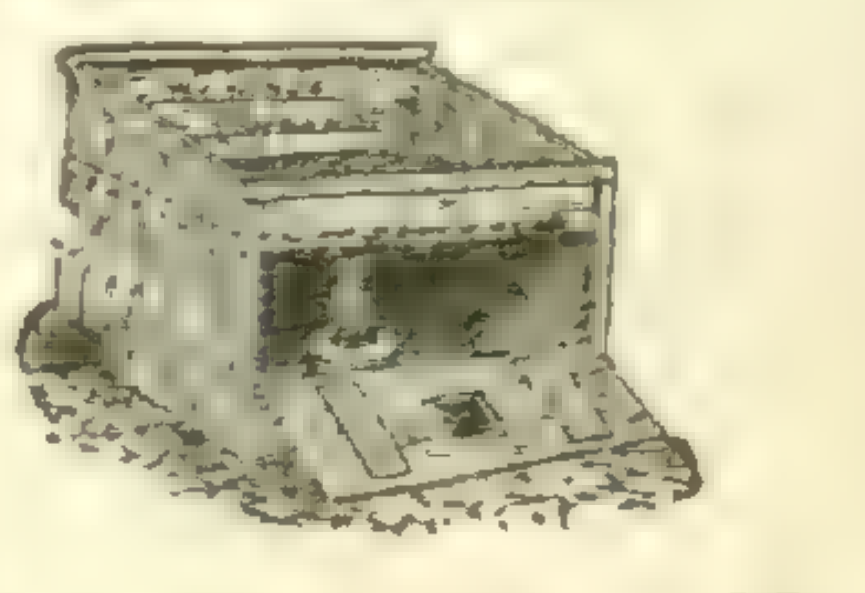

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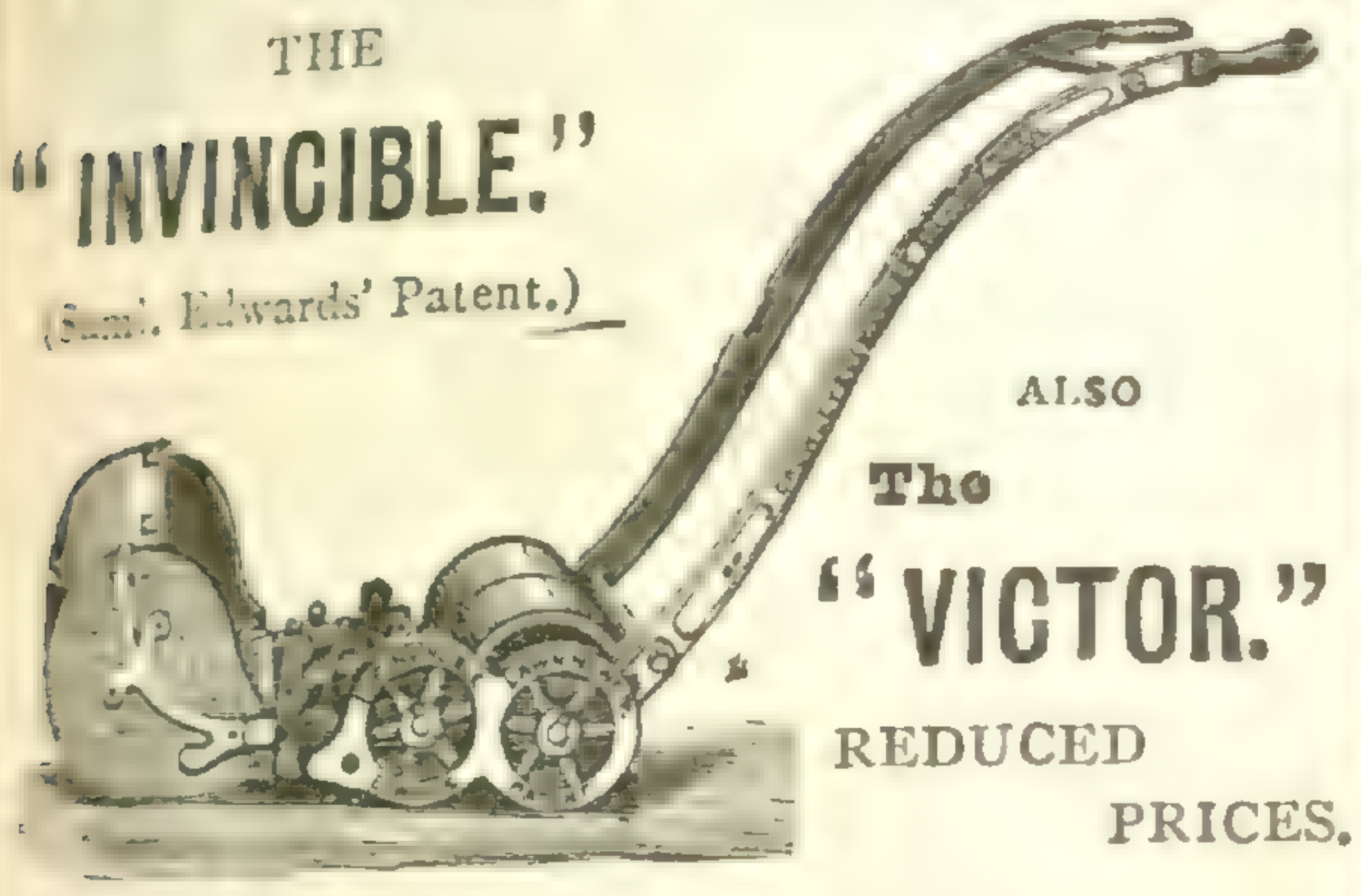

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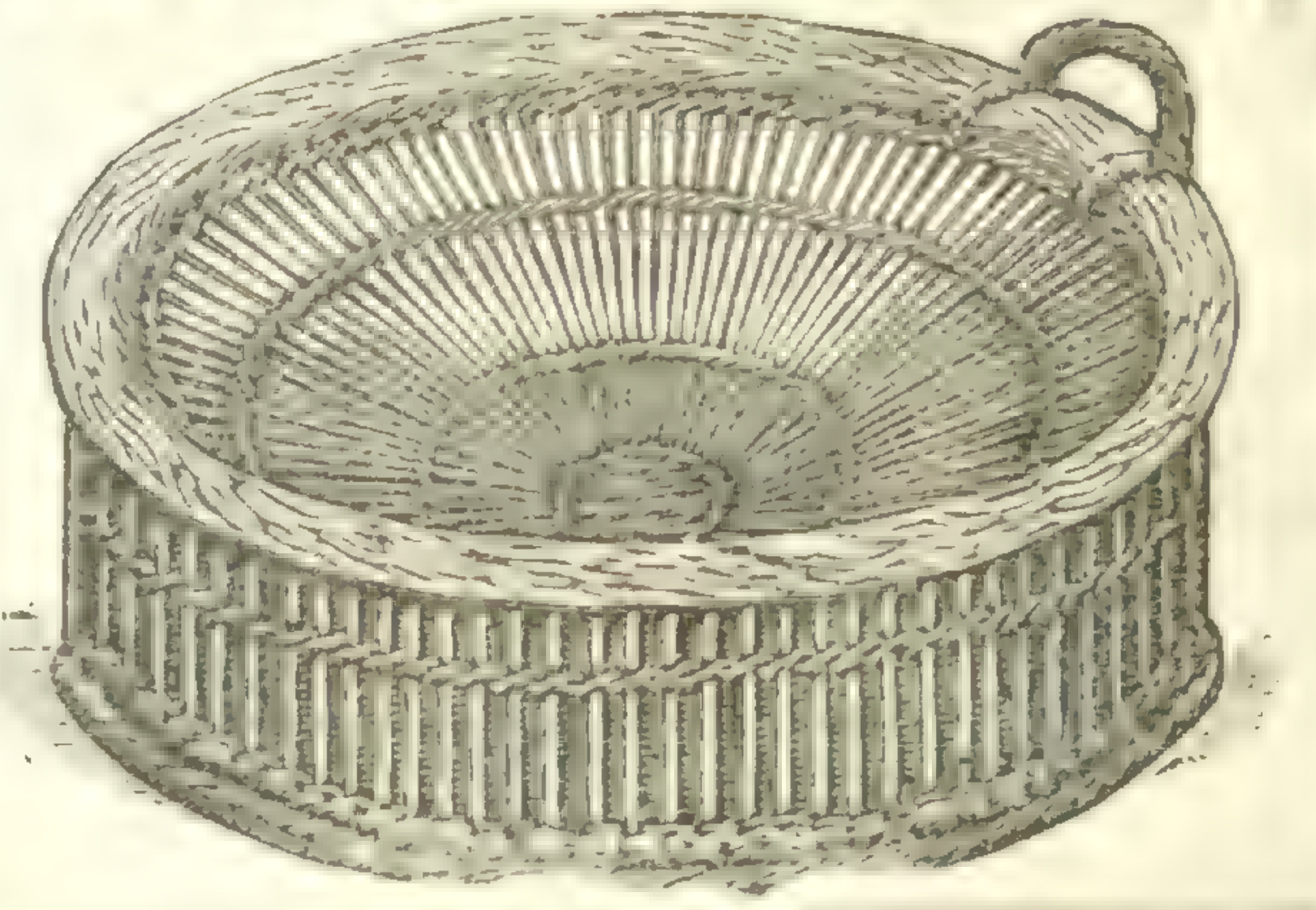

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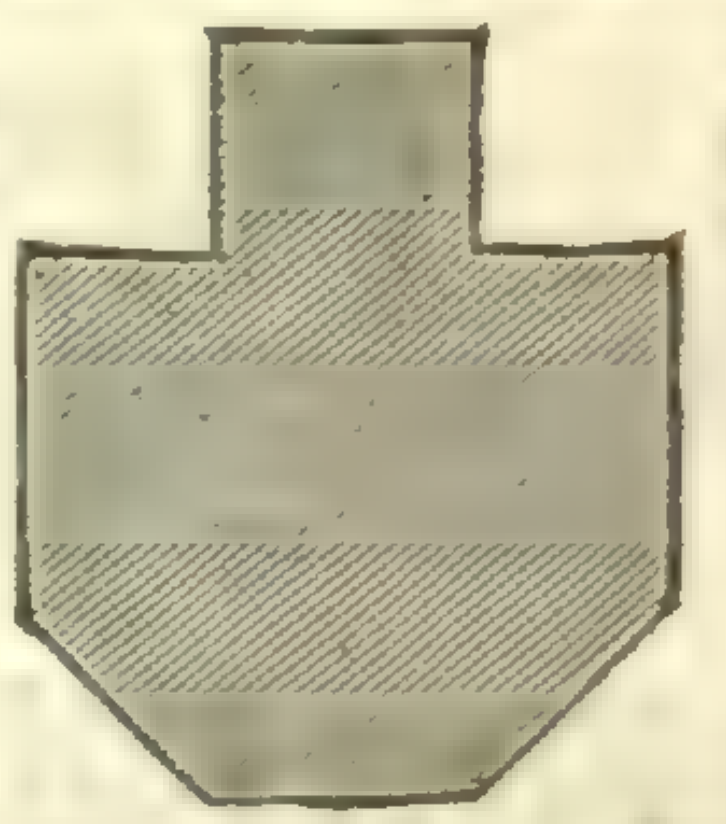

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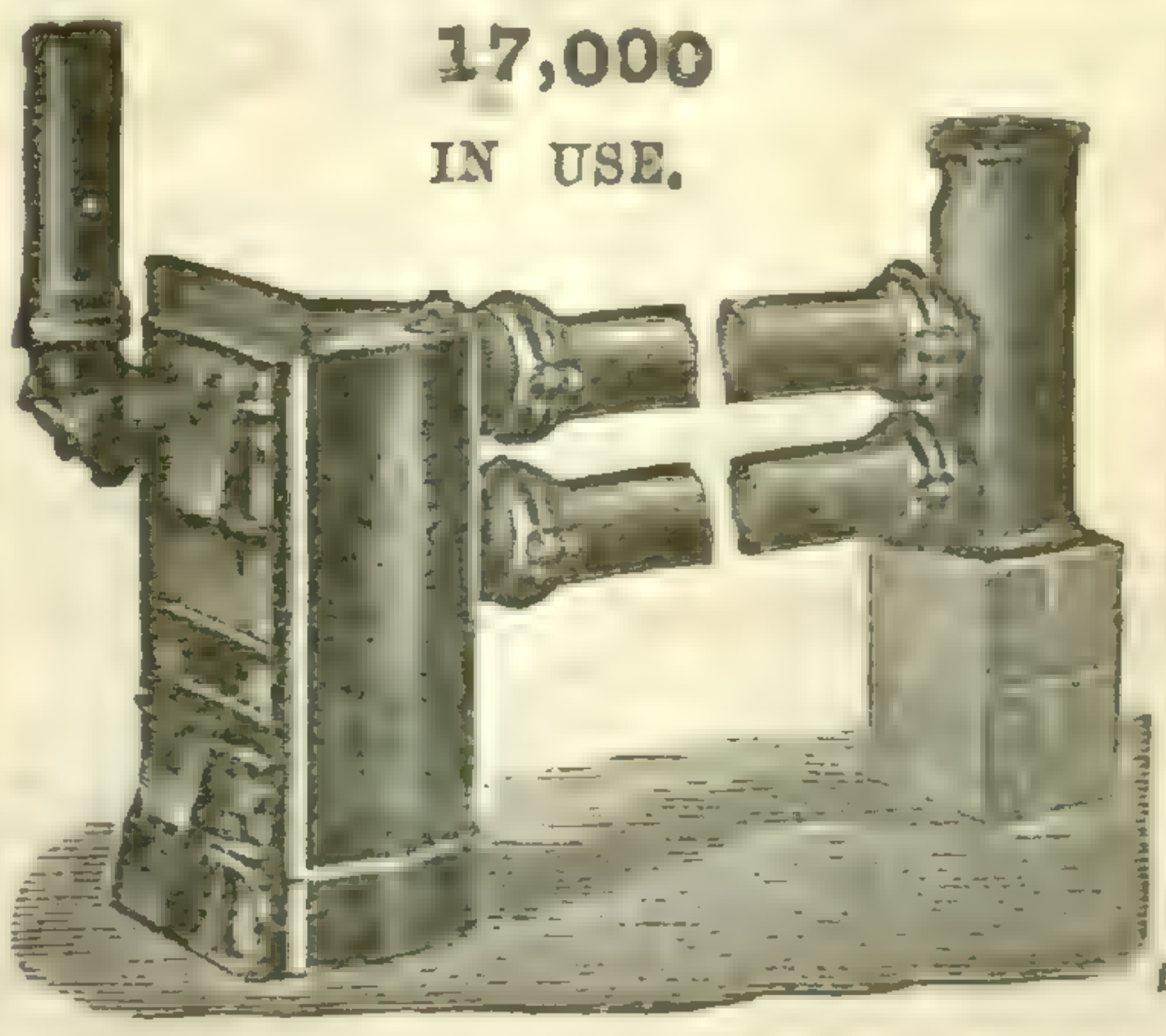

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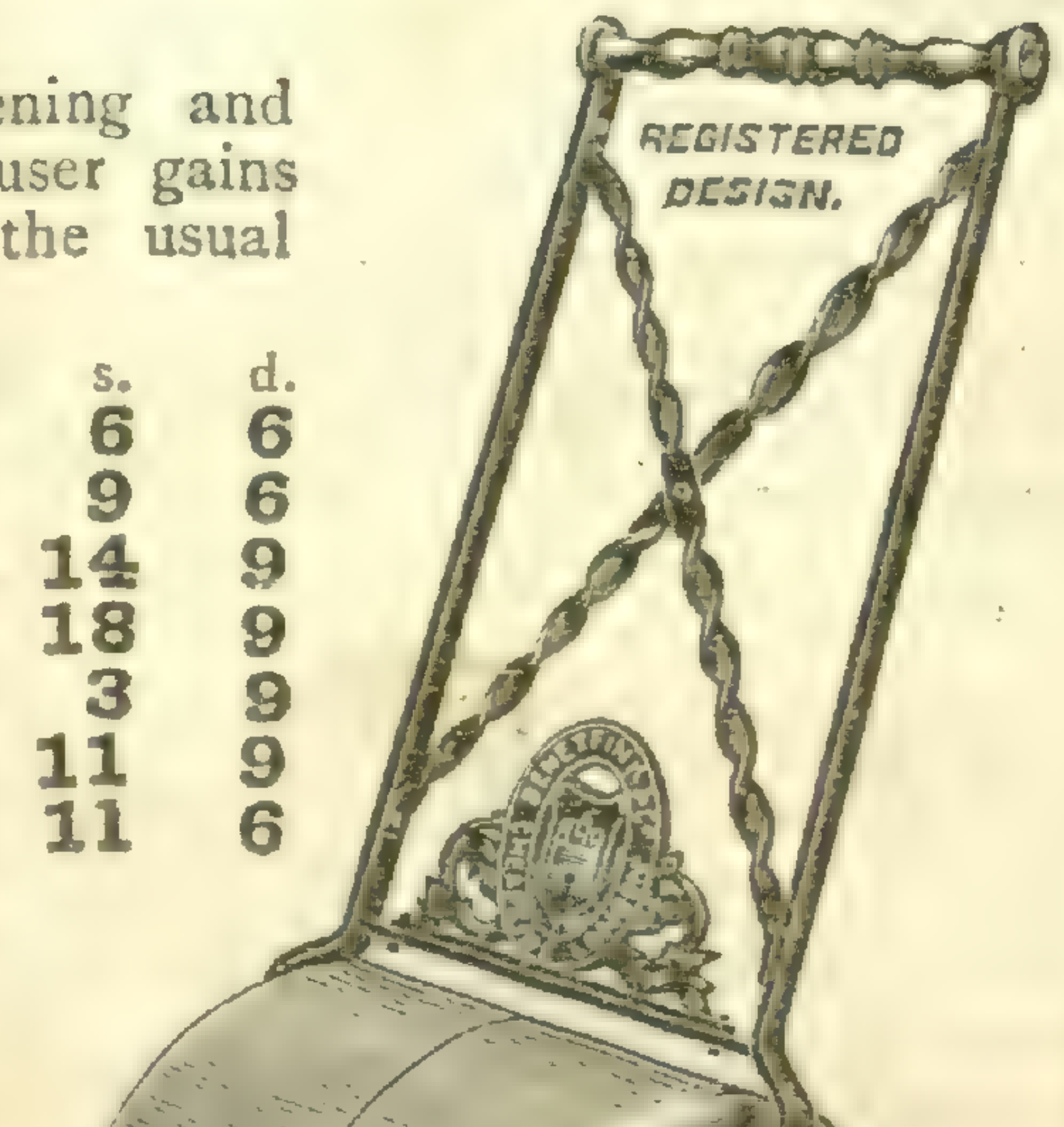
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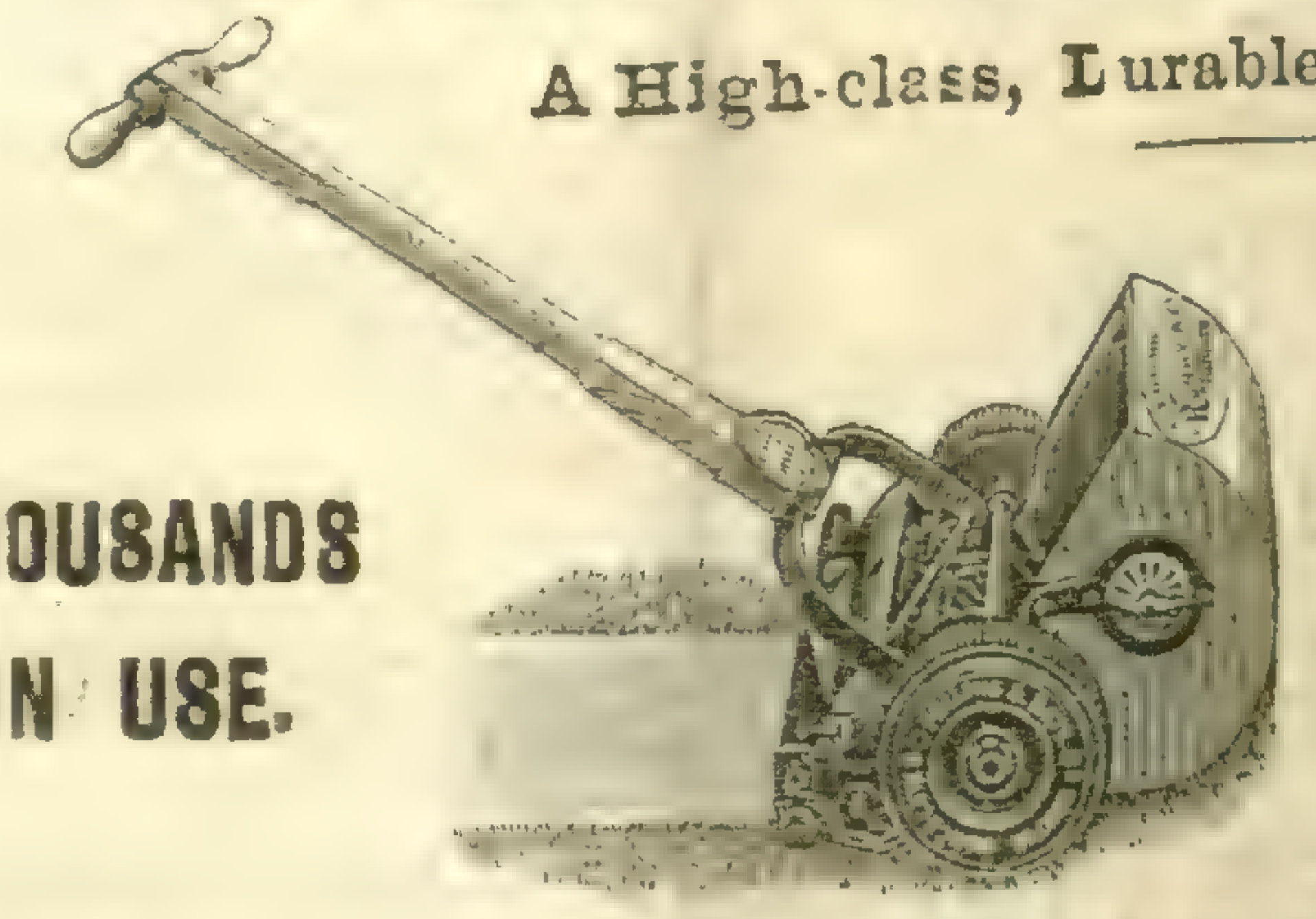

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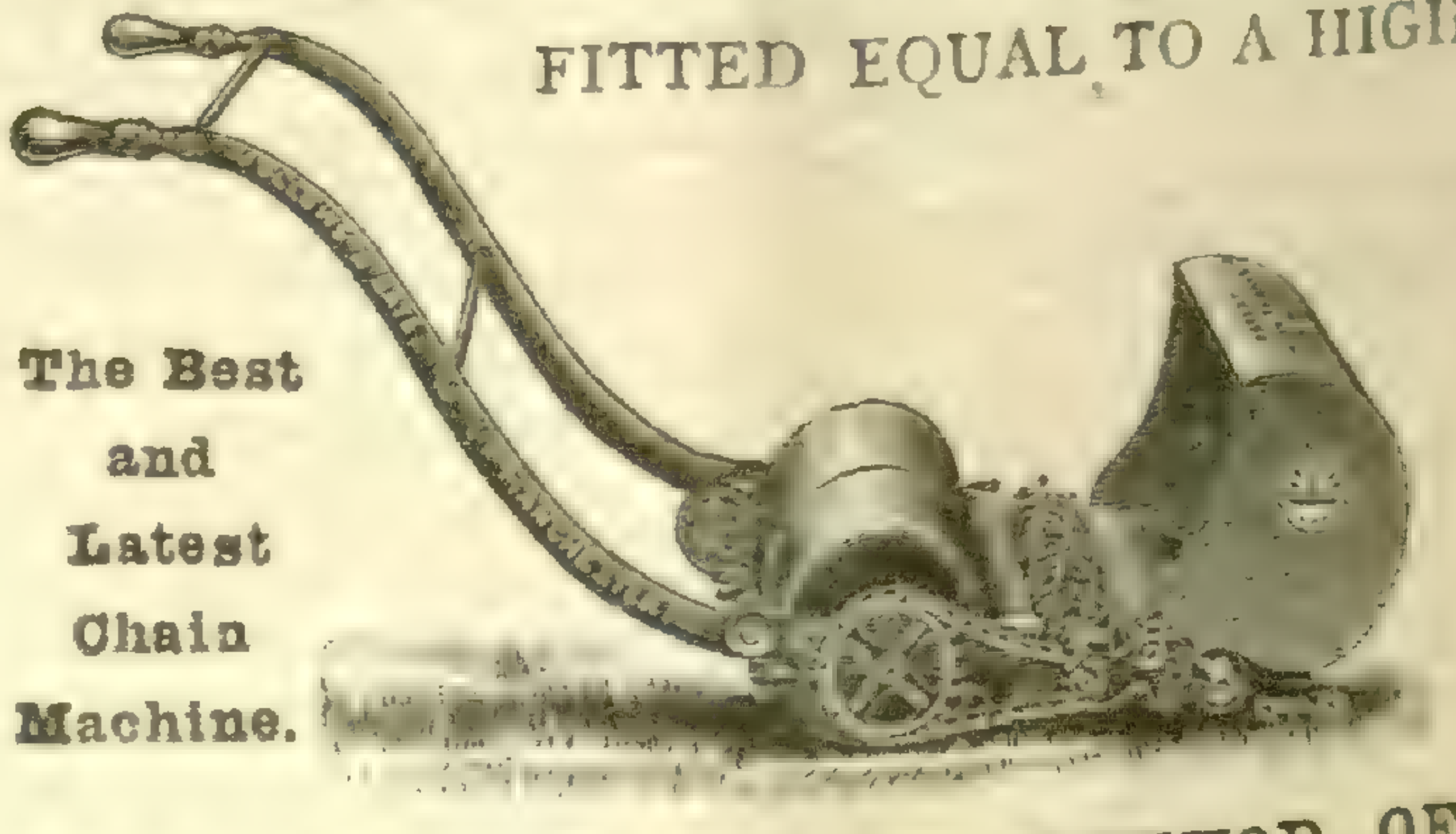

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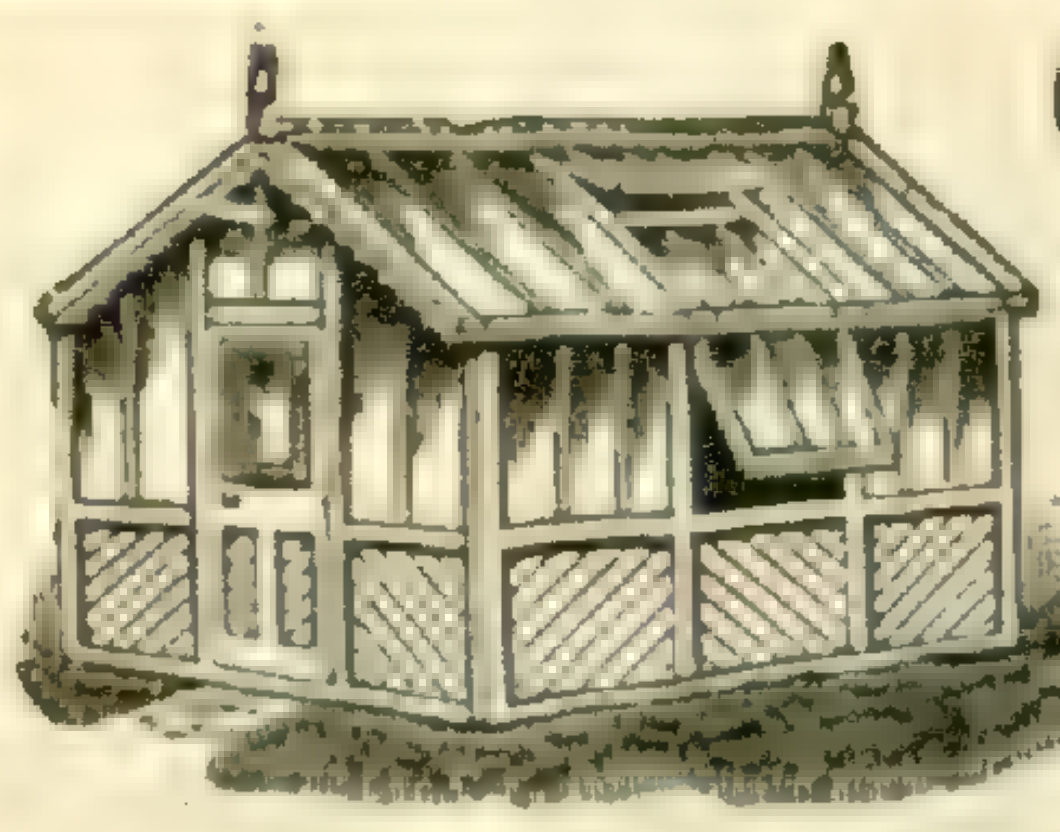

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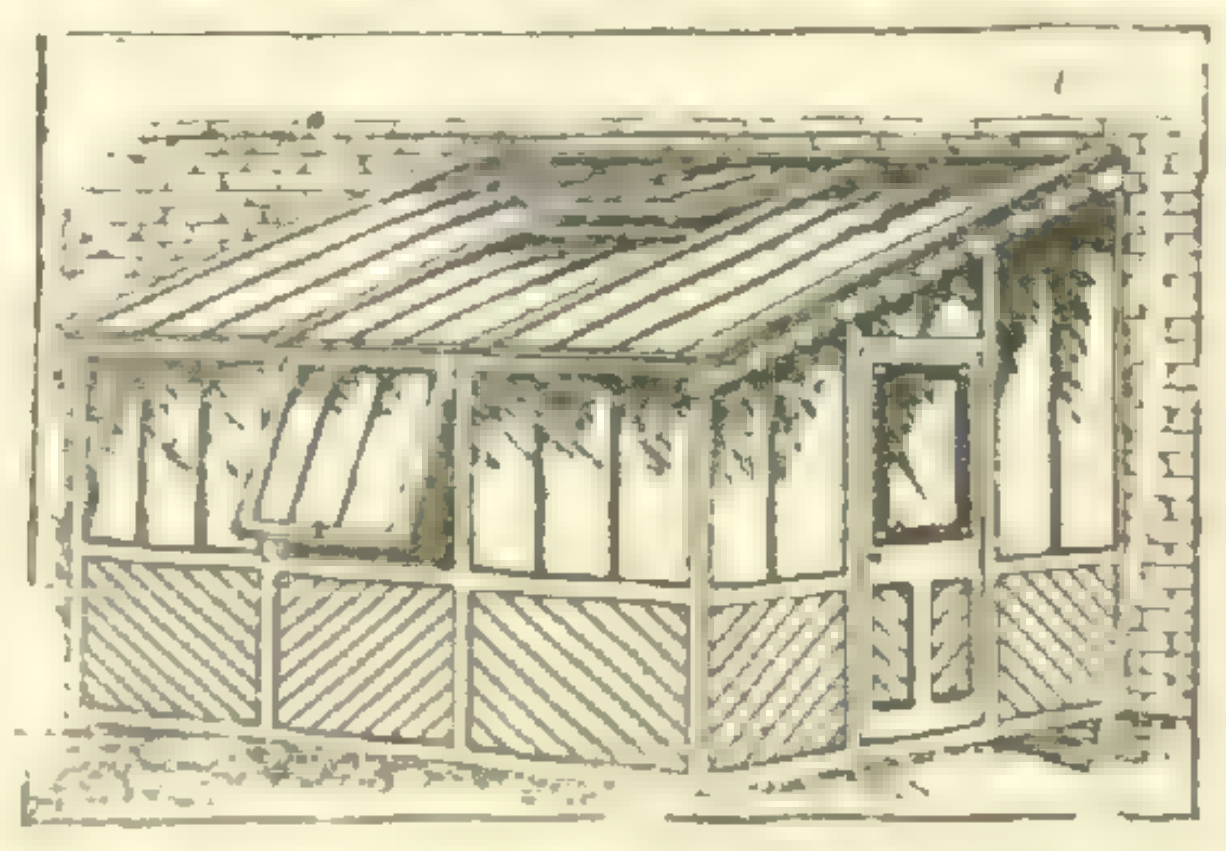

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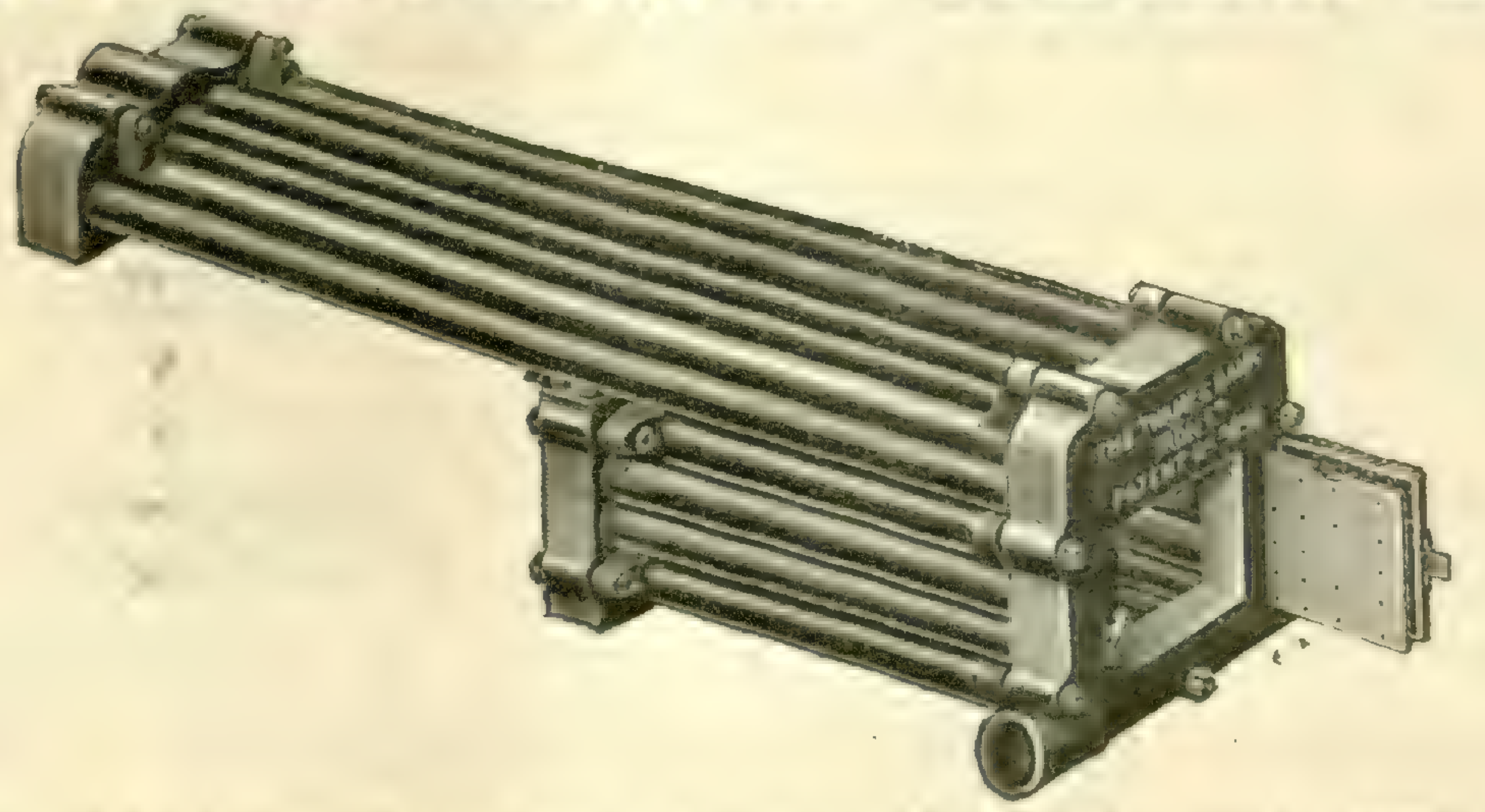

POWERFUL, ECONOMICAL, and suitable for SHALLOW STOKEHOLES.

Also made with One or more Additional Sections of Top.

HOT-WATER and HOT-AIR APPARATUS ERECTED COMPLETE, or MATERIALS SUPPLIED.

Iron Pipes, etc., for Gas and Water. Price Lists Gratis. Illustrated Catalogue, 1s.

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Official Advertisements of Horticultural Societies and Exhibitions are placed upon Leader Page (wide measure) at a Charge of 1s. a-line. Minimum Charge, 5s.

Advertisements ordered on the front page, and Public Companies, &c., 9d. per line. Minimum charge, 5s.

SITUATIONS.—Advertisements of Persons Seeking Employment are charged 1s. for four lines (32 words), and 3d. per line of 8 words after. Situations Vacant are charged 2s. 6d. for four lines and 6d. per line beyond.

All Advertisements for the current Number must be sent not later than Thursday first post, and for Monthly Parts not later than the 24th of each month, to the Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

Post Office Orders must be made payable at the Chief Office, to the order of W. H. and L. Collingridge, and Cheques crossed "London Joint Stock Bank."

Telegraphic Address: "Collingridges, London." Telephone, No. 8[illegible] Holborn.

GREENHOUSES.

INTENDING PURCHASERS should send for our ILLUSTRATED PRICE LIST of Greenhouses, Conservatories, Vineries, Forcing Houses, Garden Frames, &c. Complete from [illegible]. Post free.

S. HARTLEY AND CO.,
Valley Street, Windhill, Shipley, Yorks.

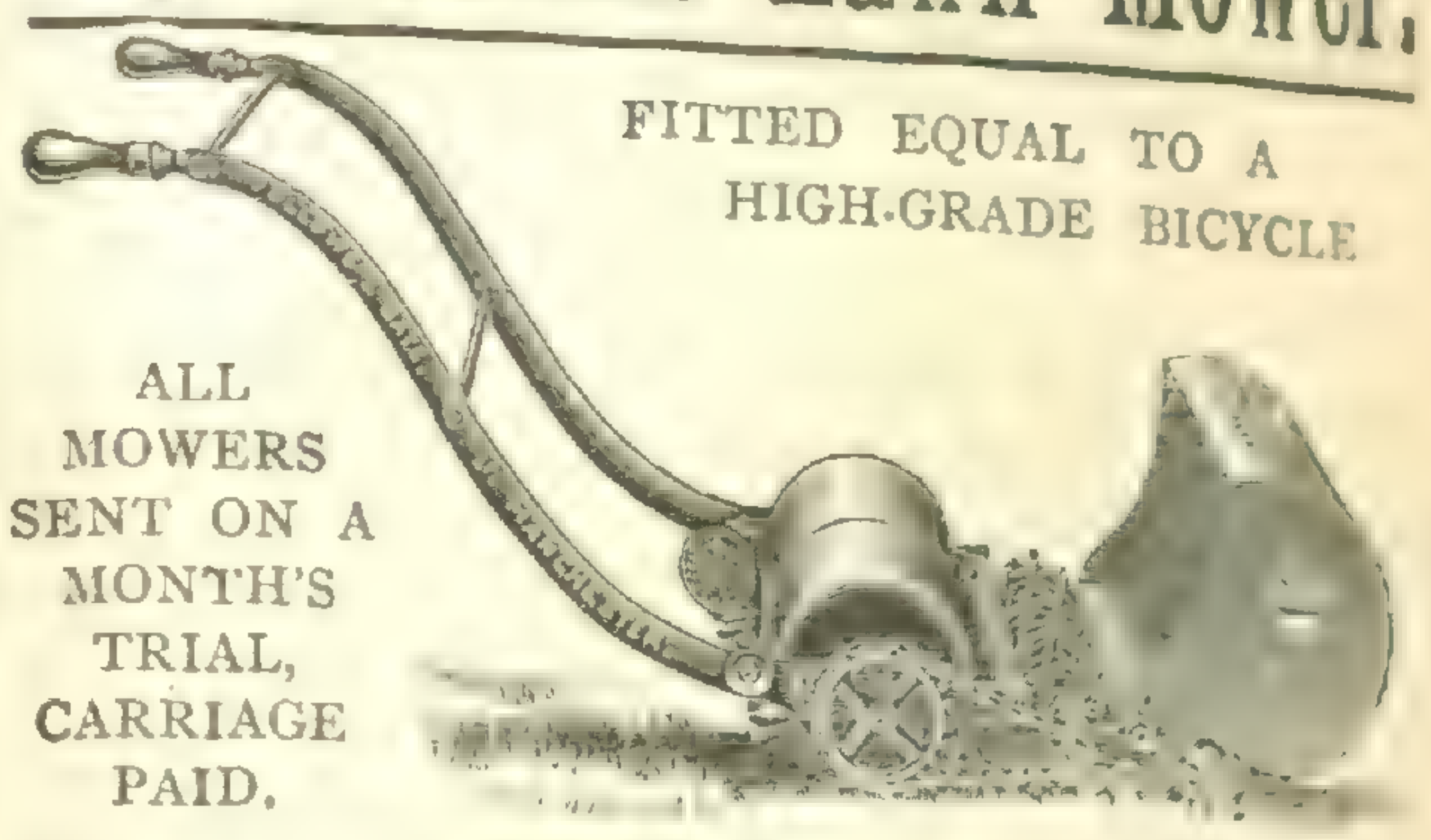
NEW TWINE NETTING, 2 yds. wide, 3d. per yd.; 4 yds. wide, 6d. per yd. 1 inch mesh Tanned Netting, 2 yds. wide, 1d. per yd., 8s. 100 yds.; 4 yds. wide, 16s. per 100 yds. Suitable for seed-beds and lawn tennis courts. All kinds of nets made to order. Established 50 years.—W. CULLINGFORD, 177, Markhouse Road, Walthamstow.

NETS.—TANNED WATERPROOF, small mesh, for protecting Strawberry Beds, Fruit Trees, &c. Cheapest and best in the market. 200 X 1 yards 5s. 6d., carriage paid; extra quality [illegible]. Any width sent. Get list and buy first hand.

SPASHETT and Co.,
Net Manufacturers, Lowestoft.

PROTECT your Fruit Trees and Seed Beds.—Garden Netting, 25 by 8 yds., 50 by 4 yds., 100 by 2 yds., 8s. each; 100 by 1 yd., 4s. each.—P.O. or cheque with order, to L. WREN and SON, 139, High Street, Lowestoft. N.B.—Carriage paid on orders of £1 and upwards.

THE NEW PATENT
Chain Tennis Lawn Mower.



FITTED EQUAL TO A HIGH-GRADE BICYCLE

ALL MOWERS SENT ON A MONTH'S TRIAL, CARRIAGE PAID.

New and improved method of adjusting the chain and front roller. Best Steel Chain running on machine-cut wheels.

WRITE FOR PRICE LISTS.

To be obtained promptly from all Ironmongers and Seedsmen, or, if any difficulty, from the Manufacturers,

FOLLOWS & BATE, LIMITED,
GORTON,
MANCHESTER.

FOR WEEDY LAWNS,
TENNIS COURTS, &c.,
USE THE

PATENT
"WIKEHAM"
WEED ERADICATOR.

An instrument for applying Weed Killer to Lawns, Flower Beds, &c., for destroying weeds without injury to the surrounding grass or flowers. It is so arranged that by simply stabbing the point into the plant, enough liquid is introduced into the sap to destroy it.

When not in use the point is protected by a cover which can be screwed on or off as desired, and in this way may be safely carried about like an ordinary walking stick. It cannot become clogged with earth, and has been acknowledged by all who have used it to be the simplest and best invention that could be brought out for the purpose.

Price 8/- each. Postage, 4d.

"CLIMAX" WEED KILLER

Will keep your Drives, Paths, Promenades, and Stonework bright and free from all vegetation for a whole season, by ONE APPLICATION.

HAS NO SMELL. Can be applied with any ordinary watering can.

It SAVES 100 per cent. in the COST of LABOUR.

NOTE.—It is double the strength of other preparations, 1 gallon makes **51** gallons for use.

PRICES ON APPLICATION.

CATALOGUE, CONTAINING TESTIMONIALS, POST FREE.

Prepared Solely by the
BOUNDARY CHEMICAL CO., LTD.
The Arches, Luton St., LIVERPOOL.

CARSON'S PAINTS.

Patronised by 20,000 of the Nobility, Gentry, and Clergy.

ANTI-CORROSION, in Dry Powder,
THE BEST FOR ALL OUTSIDE WORK.
Greenhouses, Garden Lights, &c., &c.
Does not Peel or Blister.

One cwt. of Powder and Oil Mixture Free to all Stations.

LIQUID PAINT, NON-POISONOUS.
For Interior Work.

PRICES AND PATTERNS POST FREE:
GROVE WORKS, LOMBARD ROAD,
BATTERSEA, LONDON, W.

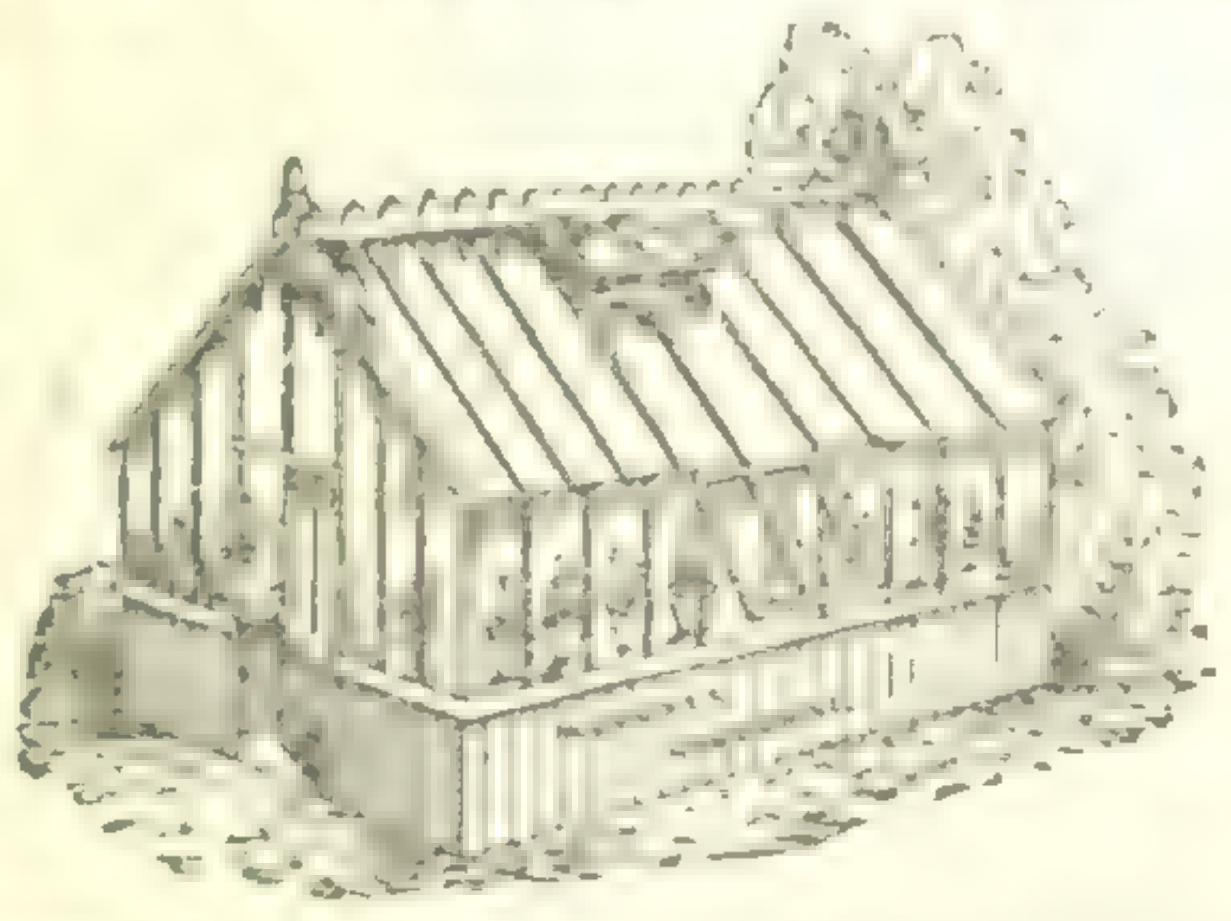
THOSE having Houses to Let or Sell, or Apartments to Let, whether in town or country, should send an advertisement to the "CITY PRESS." The paper is acknowledged by all to be one of the best mediums for the purpose. Prepaid terms: 2 words, One Shilling; three [illegible] Two Shillings. Offices 148 and 149 Aldersgate Street London, E.C.

W. COOPER. LTD.,

Horticultural Providers,

755, OLD KENT RD., LONDON, S.E

AMATEUR SPAN-ROOF GREENHOUSE.



COMPLETE FOR
7ft. by 5ft.
£2 16 0
8ft. by 5ft.
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For other Sizes

AND READY ERECTION.
9ft. by 6ft.
4 0 0
10ft. by 7ft.
5 0 0

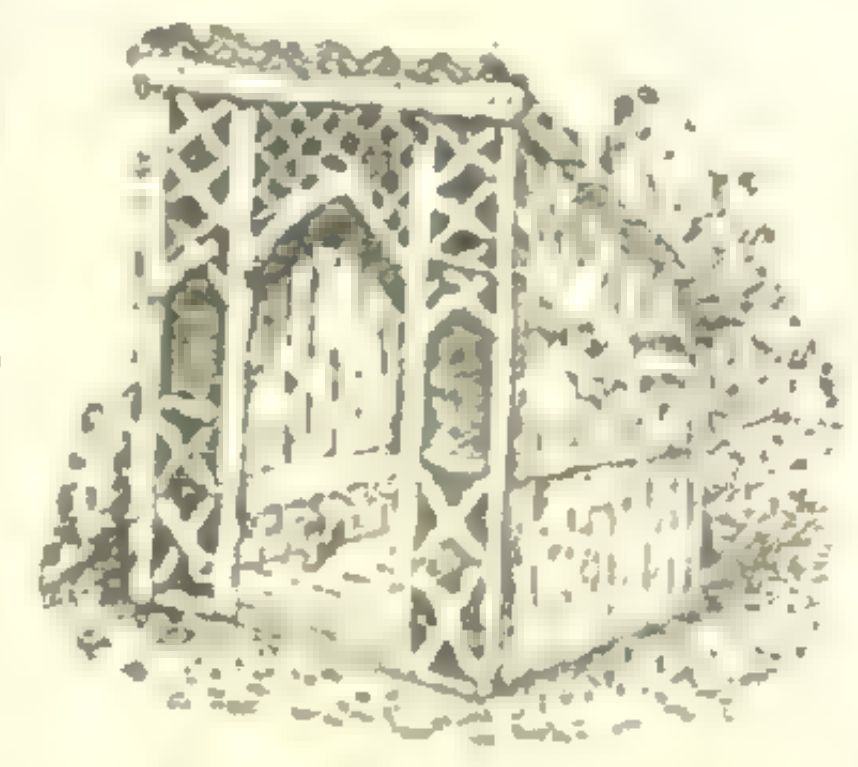
see List.

RUSTIC SUMMER HOUSES.

OUR LEADING FEATURE, £4.

LARGE STOCK TO SELECT FROM.

FOR OTHER DESIGNS SEE LIST.

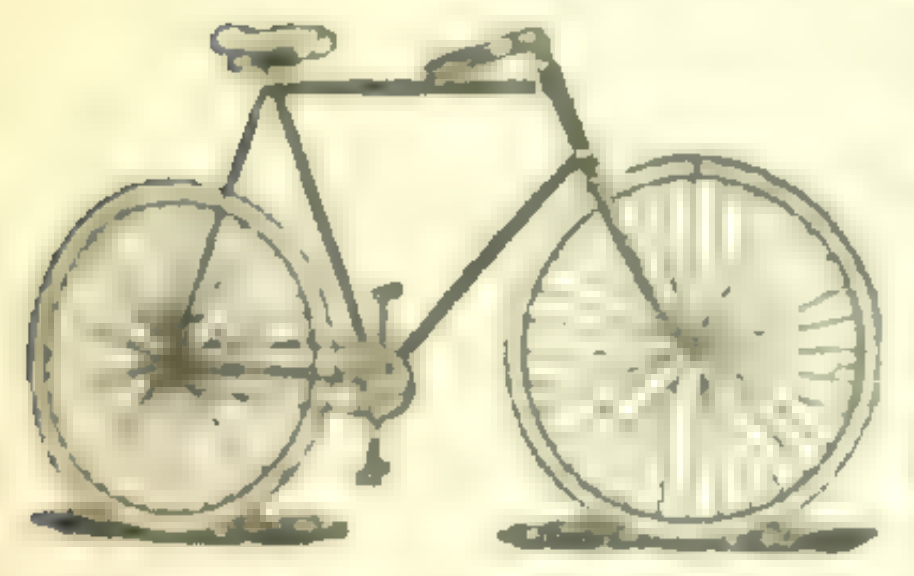


£3 5s., complete.

Amateur Forcing Houses.

For Cucumbers, Tomatoes, Melons, &c.
From 50s. complete.

"COOPER" CYCLES.



Latest Frame, Large Weldless Steel Tubes, Ball-bearings, Tangent Wheels, Break, and Mud Guards. Gent's from £5 10s.; Ladies from £6, with dress and gear guards. 12 MONTHS' WARRANTY. List free. *Agents Wanted.*

Estimates for Every Description of Horticultural Work, Iron Buildings, Rustic Work, &c., &c., Free on Application. Competition Defied.

Span-Roof Conservatory.

Substantially and Handsomely Built.

Everything Complete and ready for Erection.

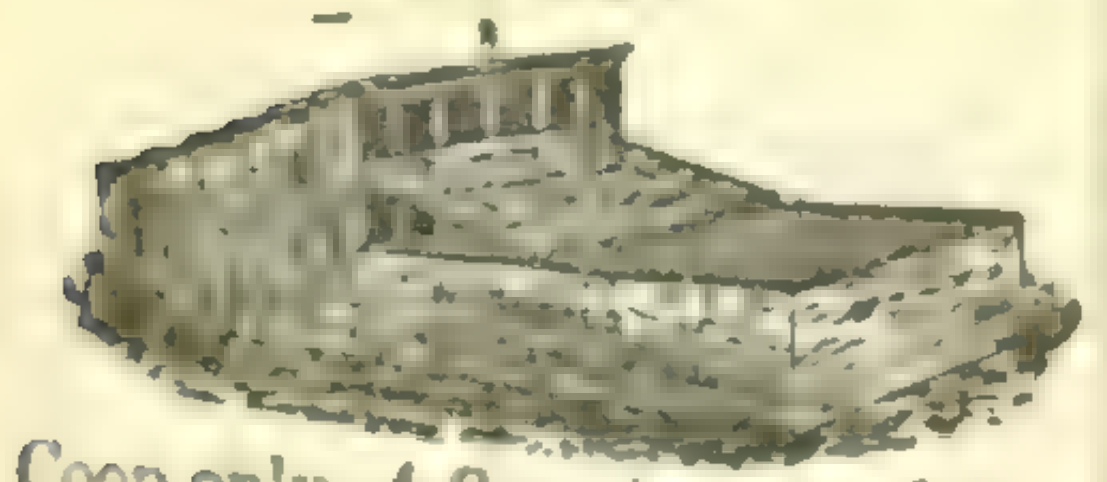
Rapid Propagator
For Raising Plants from Seeds, Slips, or Cuttings.

1 ft. 8 in. by 1 ft. 6 in. ... 16/-
Glass not included.
For other Sizes see List.

Span Roof Poultry House

5 ft. by 4 ft. ... 22/-
6 ft. by 4 ft. ... 25/-
For other Sizes see List.

SAFETY CHICKEN COOP.



Coop only, 4 3 each, 6 for 24/-, 12 for 46/-.
5 ft. Moveable Wire Runs, 2 3 each extra.

NEST BOX.

One Nest Box, 3/-, 6 for 17.6, 12 for 34/-.

IRON BUILDINGS of every Description from £8.

Churches, Temporary Hospitals, Bungalows. Packed on rail, or erected in any part of the Kingdom. See Section IV. in List. Plans and Estimates Free.

ILLUSTRATED LIST. POST FREE. Large CATALOGUE, 364 Pages, 1,200 Illustrations, Six Stamps.

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MERRYWEATHERS' HIGH-CLASS GARDEN HOSE.

MERRYWEATHER'S
RED-GREY

THE HOSE OF THE DAY IS
Merryweathers' RED-GREY Brand.
NO RISE IN PRICE.
Guaranteed English Make, Best Quality.
"Hoses bought 10 years ago, still in use."

Write for Gardeners' Catalogue, containing 1,000 Illustrations of Pumps and other useful Appliances in the Garden; also ask for Samples and Lists.

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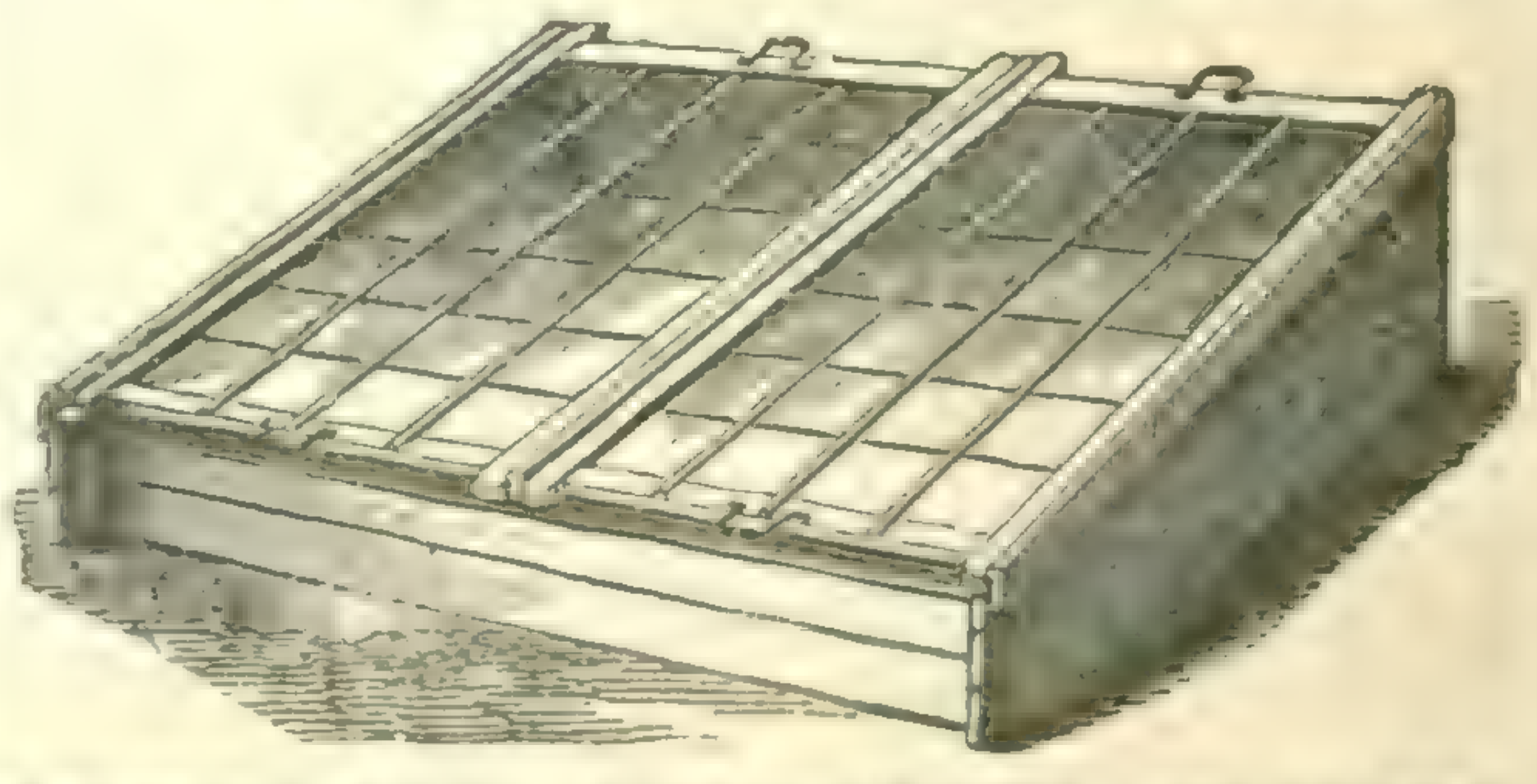
Hose users requiring a steel-wire-bound Armoured Hose should ask for M. & S. "Sphincter Grip" brand.

GREAT REDUCTION IN FRAMES

OUR WELL-KNOWN MAKE.



PORTABLE CUCUMBER FRAMES.

These frames are made of the best materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices.	Glazed and Painted.	£	s.	d.
1-light, 4 ft. by 6 ft. ...	CASH PRICES, CARRIAGE PAID.	2	0	0
2-light, 8 ft. by 6 ft. ...		3	0	0
3-light, 12 ft. by 6 ft. ...		4	2	6
4-light, 16 ft. by 6 ft. ...		5	5	0
5-light, 20 ft. by 6 ft. ...		6	7	6
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Larger Sizes at proportionate prices.

R. HALLIDAY & CO.,
ROYAL HORTICULTURAL WORKS,
MIDDLETON, MANCHESTER.

Fir Tree Oil INSECTICIDE

For destroying Insects on Plants. Used by every Orchid Grower of any note all over the world.

The CHEAPEST and BEST.

Half pints 1/6, pints 2/6, quarts 4/6, half gallons 7/6, gallons 12/6, 5 gallon drums 10/6 per gallon Carriage Paid.

E. G. HUGHES, VICTORIA STREET, MANCHESTER.
Sold by all Seedsmen. *Pamphlets free on application*

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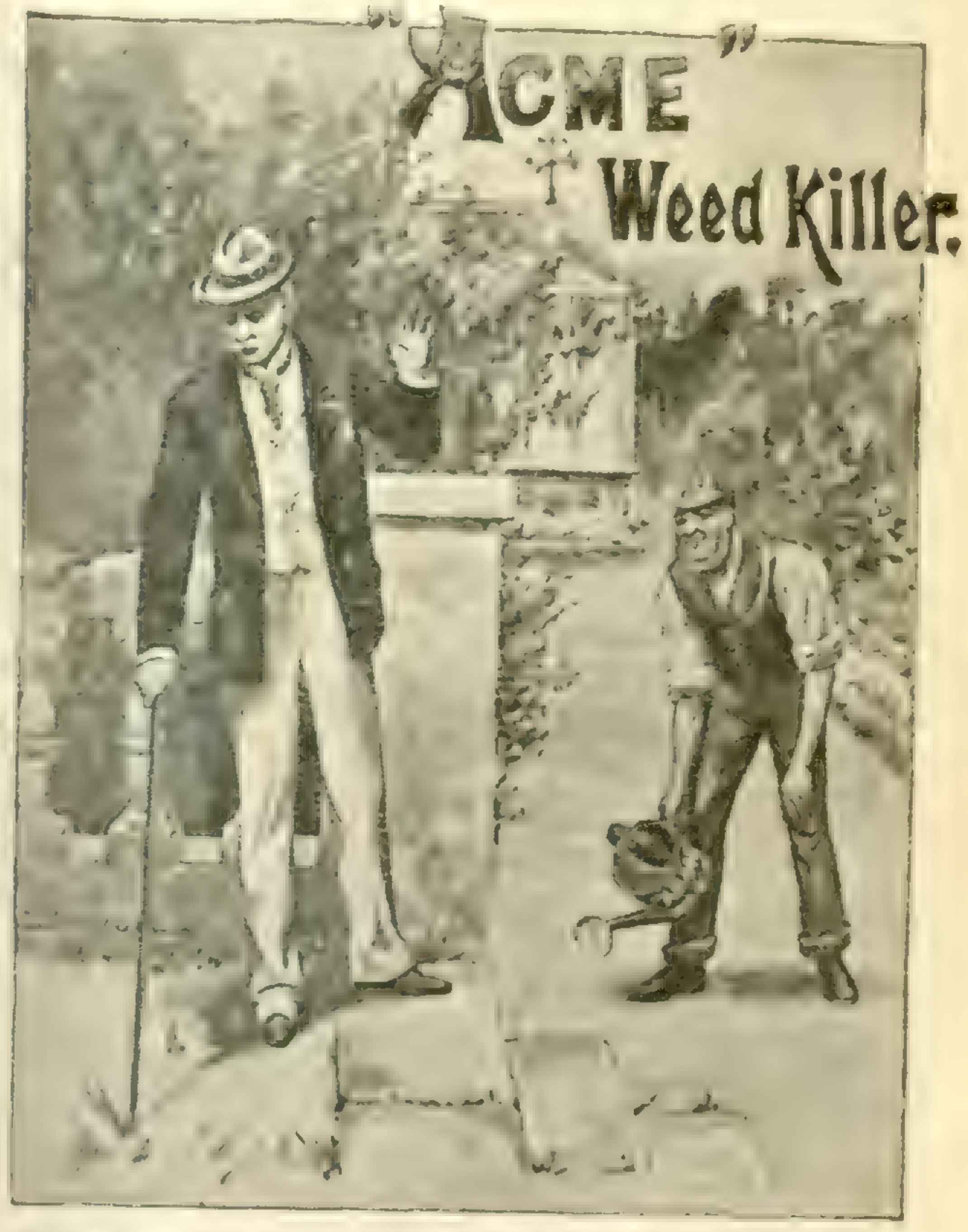
COCOA-NIB EXTRACT.

The choicest roasted nibs (broken-up beans) of the natural Cocoa on being subjected to powerful hydraulic pressure, give forth their excess of oil, leaving for use a finely-flavoured powder—"Cocoaine," a product which, when prepared with boiling water, has the consistence of tea, of which it is now, with many, beneficially taking the place. Its active principle being a gentle nerve stimulant, supplies the needed energy without unduly exciting the system. Sold only in labelled Tins. If unable to obtain it of your tradesman, a tin will be sent post free for 9 stamps.

JAMES EPPS AND CO., LTD.
Homœopathic Chemists, London.



"Weeds, weeds, everywhere. I wonder if that new gardener can suggest anything."

"Yes, Sir, I'm just using the 'Acme' Weed Killer. The best thing in the world for killing weeds."

Used in the Crystal Palace Grounds,
The Royal Horticultural Society's Gardens,
AND IN THE
Principal Gardens of the United Kingdom.

STRENGTH, 1 in 25. One Gall. to 25 Galls. of Water.
DOUBLE STRENGTH. One Gall. to 50 Galls. of Water.
For sizes and prices send for Price List.

THE "ACME" POWDER WEED KILLER.

SOLUBLE IN COLD WATER.

SIZES.	TINS FREE.	PRICES.
No. 1.	To make 25 galls.	1/9 per tin.
,, 2.	,, 50 ,, ...	3/3 ,,
,, 3.	,, 100 ,, ...	6/- ,,

When ordering a single tin, No. 1 size, 5d. for postage must be remitted; No. 2 size, 7d. Carriage paid on No. 3 size and upwards.

Sole Proprietors and Manufacturers,
THE ACME CHEMICAL CO., LTD.,
TONBRIDGE, KENT;
And CARLTON STREET, BOLTON, LANCS.

STANDEN'S MANURE.

TRADE MARK.

ESTABLISHED OVER 30 YEARS.

Exceeds all others in General Fertilising Properties and Staying Powers.

Promoting a rapid, healthy, and robust growth to plants generally.

It is a clean and dry powder, with very little smell.

Its highly fertilising properties render its money value, in comparison with other Manures, at least double, very small quantities will produce favourable and lasting results.

ANALYSIS ON APPLICATION.

Sold in Tins, 1s., 2s. 6d., 5s. 6d. and 8s. each, and in Kegs, well secured to prevent loss through exposure, 28 lbs., 10s. 6d.; 56 lbs., 18s.; 112 lbs., 32s.

To be had from all Seedsmen and Florists.

MANUFACTURERS:—
CORRY & CO., LTD., LONDON.

PROTECT YOUR GARDENS.—Garden Netting, oiled and dressed. Will not rot if left out in all weathers. 100 yards by 1 yard, 3s.; 100 yards by 2 yards, 6s.; 100 yards by 3 yards, 9s.; or so on to any width, carriage paid on all orders over 5s. I DO NOT REQUIRE PAYMENT TILL YOU HAVE RECEIVED AND APPROVED OF THE NETTING.
From HY. J. GASSON, Netting Works, Rye.

GREENHOUSES from £3 8s. VINERIES, conservatories, well-made frames, painted or glazed, from 21s.; illustrated price lists free. Maker to H.M. the Queen and H.R.H. the Prince of Wales.

POTTER, HAWTHORN, and CO.,
Manufacturers, London Works, Reading.
(Name Paper.)

FIELD FLOWERS. By the late SHIRLEY HIBBERD. With Eight Coloured Plates and Engravings. Describing the wild flowers of each month.
Price 3/6.
W. H. AND L. COLLINGRIDGE, 148 and 149, Aldersgate Street

NEW ROSES

AURORA

(Hybrid Tea), flowers rich bright salmon pink in centre, shading paler towards the outside, large, full, and imbricated, handsome buds. Extra fragrant, and produced continuously in great profusion. Award of Merit at the Temple Flower Show, May 25, 1898. Good plants now ready, **10s. 6d.** each.

M. ADA CARMODY

(Tea Scented), ivory white, beautifully tinted and edged with various shades of pink, centre tinged with yellow; large and full, with fine long buds; growth moderate. **10s. 6d.** each.

EMPRESS ALEXANDRA OF RUSSIA

(Tea Scented), outdoor flowers rich lake-red, shaded with orange and fiery crimson; under glass the colours are paler, rosy buff and salmon. Award of Merit R.H.S. **3s. 6d.** and **5s** each.

WALTHAM STANDARD

Hybrid Perpetual), brilliant carmine, shaded with scarlet and violet, shape and petal of **A. K. Williams.** **3s. 6d.** each.

ENCHANTRESS

(Tea Scented), creamy white tinted with buff, of extraordinary freedom in blooming, and one of the most lovely and effective new roses. Award of Merit and Silver Banksian Medal. **2s. 6d.** each; **24s.** per dozen.

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(China), a charming decorative and button-hole rose, producing large quantities of finely formed buds; colour soft rosy-apricot, shaded with orange, and tinted with rose. Award and Certificate of Merit. **2s.** and **2s. 6d.** each; **18s.** per dozen.

A selection of the best new **ENGLISH** and **CONTINENTAL ROSES** of 1897 and 1898, **24s.** and **42s.** per dozen.

Priced Descriptive Catalogue post free on application.

WM. PAUL & SON,
PAULS' NURSERIES,
WALTHAM CROSS, HERTS.

"EUREKA" WEED KILLER.

THE GARDENER'S FRIEND.

Powder or Liquid.

Saves Time, Labour, and Money.

100 square yards of Paths or Drives kept clear of Weeds by applying **2s.** worth of this Weed Killer.

TESTIMONIAL RECENTLY RECEIVED.

ROYAL HORTICULTURAL SOCIETY,
117, VICTORIA STREET, S.W.
Feb. 19th, 1898.

DEAR SIR,
Your "Eureka" Weed Killer gave the greatest satisfaction at our Gardens, and we should be glad of another 5-gallon drum of it.

Yours faithfully,
(Signed) W. WILKS, Secretary, R.H.S.
Vicar of Shirley, Surrey.

TRY "EUREKA" INSECT KILLER!

Clears all Insects without Damage to Plants or Trees.

Price List on application.

MANUFACTURERS:

TOMLINSON & HAYWARD,
Mint Street Chemical Works,
LINCOLN.

CARTER'S TESTED SEEDS.—In sealed packets. Post free. Price 2s 6d., 3s. 6d., and 5s. each.

CALCEOLARIA, CARTER'S VICTORIA.—The finest in the world. Real gems of splendid habit.

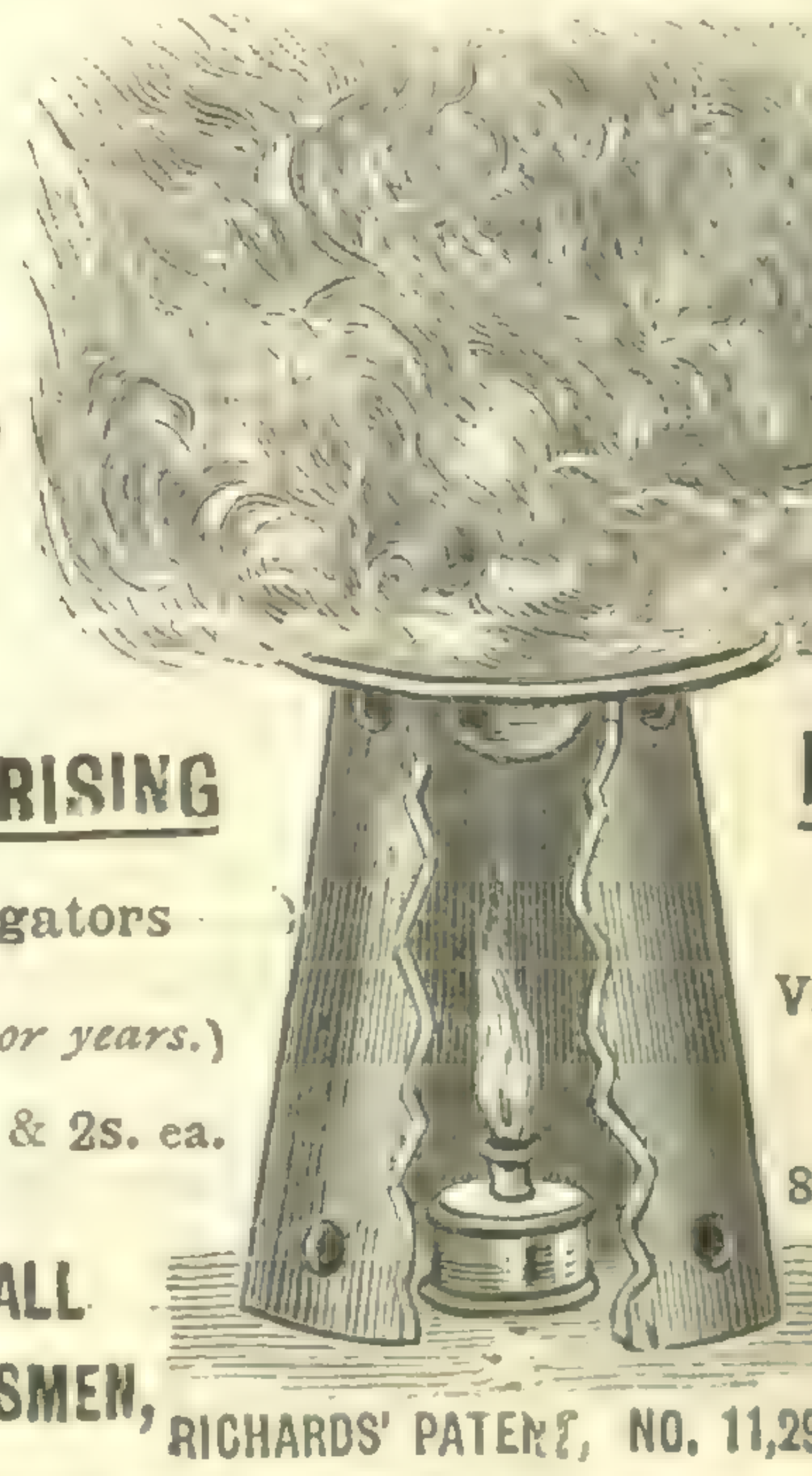
CINERARIA, BRILLIANT PRIZE.—Brilliant colours, endless variety. The grandest strain ever seen.

PRIMULA, HOLBORN PRIZE.—Grand blossoms of rich colours. Single varieties, choice mixed colours; double varieties, choice mixed colours; single in separate colours, viz., blue, scarlet, rose or white; double, in separate colours, viz., crimson, lilac, rose or white.

GLOXINIA, CARTER'S INVINCIBLE.—Magnificent blooms, brilliant colours. These cannot be surpassed.

The above in sealed packets. Post free. Price 2s. 6d., 3s. 6d. and 5s. each.

CARTERS, THE QUEEN'S SEEDSMEN,
237, 238, and 97, HIGH HOLBORN, LONDON.



XL ALL

VAPORISING FUMIGATOR.

Fumigators
(*Last for years.*)
1s. 9d. & 2s. ea.

Bottles of Vaporising Compound
8d. to 24s. each.

FROM ALL SEEDSMEN, NURSERYMEN FLORISTS.

RICHARDS' PATENT, NO. 11,297.

G. H. RICHARDS, Manufacturer & Patentee,
124, SOUTHWARK ST., LONDON, S.E.

100,000 VEITCH'S AUTUMN GIANT CAULIFLOWER, 3s. 6d. 1,000; Dalkeith Brussel Sprout, 2s. 6d. The earlier these are planted in the season the better.

W. HORNE, Cliffe, Rochester, Kent.

☛ IMPORTANT TO GARDENERS.

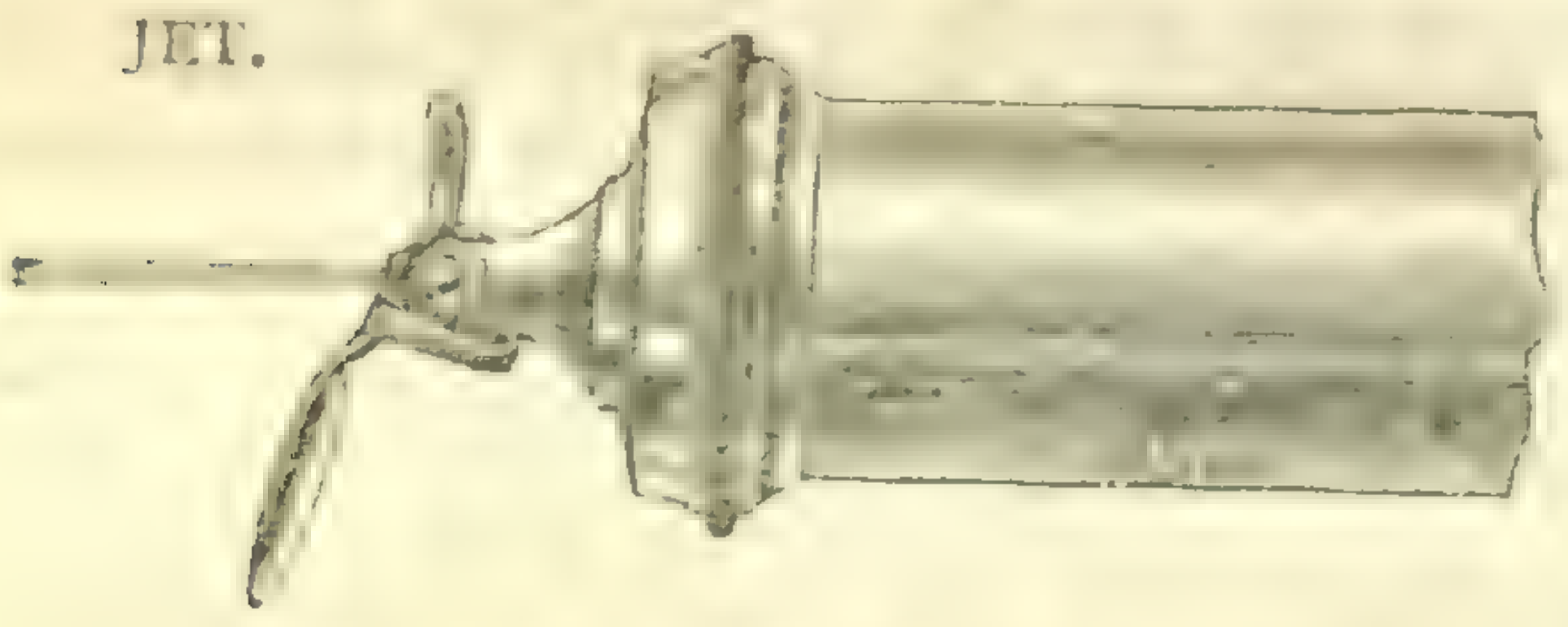
"CARVITA," THE NEW AND MOST SUCCESSFUL CARNATION SPECIFIC.

NO MORE CARNATION DISEASE! Price **20/-** per gallon (making 32 gallons with water); half gallon, **12/-**; pints, **4/-**.

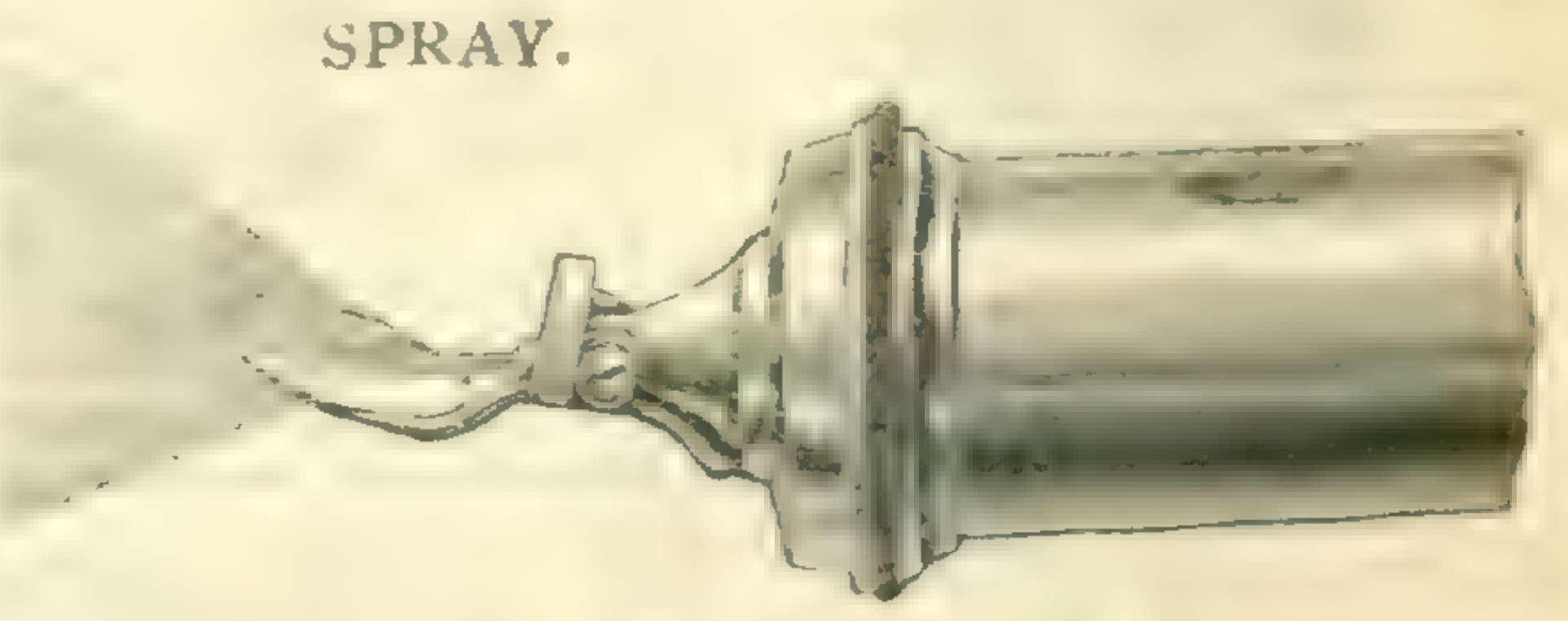
HOW TO GROW CARNATIONS.

Send for our invaluable Guide and Illustrated Supplement. Just ready, containing also particulars of several New and Important Inventions. **No Gardener should be without this useful information.** Sent post free on application.

JET.



SPRAY.



"INVICTA" SYRINGE.

The Latest Invention.—The "INVICTA" Double-Action Syringe. The very best Syringe for Insecticides. Upward, Lateral, or Downward Spray, or full bore Jet by merely turning Syringe. No loose parts. Cannot be clogged. Prices: Bronzed Barrel, Brass Fittings, 18 in. by 1½ in., **3/6**; Polished Brass, Best Workmanship, 18 in. by 1½ in., **12/6** each.

SUN BLINDS AND SHADINGS OF EVERY DESCRIPTION

Made upon the premises and forwarded carriage paid to any part of the Kingdom. WE ARE SPECIALISTS IN SHADINGS. Our own men sent to measure and fix if desired. Priced book of samples free by return of post.

WEEDS KILLED

Save 50 per cent. in labour by using our "ELECTRIC" WEED DESTROYER.

We **Guarantee** Weeds exterminated by one watering. Unsolicited Testimonials to this fact received from all parts. Test and Prove. **Carriage Paid** on 10 gals. and upwards to any part of the United Kingdom. 10 gals. at **1/6**; 20 gals. at **1/5**; 40 gals. at **1/4**. One gal. diluted with 25 gals. of water will clear 100 square yards. Drums allowed full price if returned in good condition.

☛ **We shall be pleased to send a copy of our Illustrated Catalogue, containing particulars of about 500 Selected Garden Specialities upon receipt of Inquiry.**

WM. WOOD AND SON, LTD.,

JAMES L. WOOD, F.R.H.S., Managing Director,

NORTH BRITISH WHARF, WOOD GREEN, LONDON, N.

Telegrams: "Wood, Wood Green, London." **Telephone: 10, Tottenham.**

⁂ *Advertisement Office of the "Gardeners' Magazine"* (Messrs. W. H. and L. COLLINGRIDGE), 148 and 149, *Aldersgate Street, London, E.C*

THE GARDENERS' MAGAZINE.

SATURDAY, JUNE 4, 1898.

CARDIFF AND COUNTY HORTICULTURAL SOCIETY.—TENTH ANNUAL SHOW on JULY 20 and 21. Leading classes: Groups, £39; Roses, £23; Decorative, £36; Cut Flower, £26. Strong classes for Plants, Fruit, and Vegetables. For schedules apply H. GILLETT, Secretary, 66, Woodville Road, Cardiff.

GREAT FLOWER SHOW, RICHMOND (SURREY), JUNE 29, 1898.
£300 in PRIZES.
CHALLENGE CUP for ROSES.
Schedules and full particulars of
A. ALGERNON CHANCELLOR, Hon. Sec., 1, King Street, Richmond, Surrey.

ISLE OF WIGHT ROSE SOCIETY.—GRAND EXHIBITION OF ROSES at CARISBROOKE CASTLE, by kind permission of H.R.H. PRINCESS HENRY OF BATTENBERG, Governor of the Island, on THURSDAY, JUNE 16, 1898. For schedules, &c., write to the Hon. Secretaries,
Rev. G. E. JEANS, Shorwell, I.W.,
E. V. MATTHEWS, 33, St. John's Road, Ryde.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

LOST.—At the TEMPLE SHOW, the ORCHIDS EXHIBITED by M. JULES HYE, of GHENT, BELGIUM, disappeared from the tent on the evening of the last day of the Show.

Any person giving such information to Messrs. JAS. VEITCH and SONS, LIMITED, Chelsea, as will lead to their recovery will be handsomely REWARDED.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

DISCOMFORTS OF FLOWER SHOWS.

FLOWER shows on a large scale have been held in the United Kingdom for nearly seventy years, and during this long period they have, as the result of changes in public taste, varied materially in their distinguishing characteristics. Specimen hard-wooded plants from the Cape and Australia, which constituted the chief attractions of the earlier exhibitions, were followed by plants remarkable for the beauty of their leafage; these had to make way, to a considerable extent, for soft-wooded plants; and now the chief features of these gatherings are orchids, hardy plants, and mixed collections. Throughout the seven decades there has been a continuous change in the predominating features, but in methods of procedure there has been so little deviation from the lines originally laid down that some justification might be found for those who regard the laws governing horticultural gatherings as analagous to those of the Medes and Persians. Flower shows possess at the present time attractions and discomforts about equal to those which characterised summer exhibitions held half-a-century ago, and few problems associated with horticulture appear more perplexing than the continuance of the practices which obtained favour with the past generation of flower show managers. Improvements in matters of detail have in a few instances been made; but there is unmistakable evidence on all sides during the summer season of a want of appreciation of the comfort of visitors, and the most conclusive proofs of the truth of this assertion are to be found in stuffy tents, insufficient seating accommodation, and indifferent or extravagantly-priced refreshments. To those in a robust state of health a walk through several tents crowded with visitors, without a single aperture excepting the opening at each end, may not be attended with any serious consequences; but in the case of ladies with constitutions other than strong, the stifling atmosphere imposes a severe strain upon them, and may affect their health for several days. In the same way, while men engaged in outdoor operations and constantly walking about are not appreciably fatigued by standing about chatting to their friends, the majority of ladies find it very trying to stand for any length of time. Such matters as these should be known to all who assume the responsibilities of carrying out the details of a horticultural exhibition, and there should be no occasion for complaint either of a stifling atmosphere or of an insufficient number of chairs. Ventilation is not less necessary in tents than in rooms, and yet it is a quite common occurrence to find the most careful precautions taken to prevent any change of the atmosphere within them. No tents should be regarded as suitable for use at a flower show that is not provided with ventilators near the apex, and these should be supplemented by openings for the admission of air at the sides. Care is, of course, necessary in regulating the ventilation of tents, and this important detail should be placed under the charge of some one who is equal to the task of admitting sufficient air to maintain a pure atmosphere without exposing plants or visitors to cold draughts or the tents to the risk of injury from gales of wind. Generally speaking, chairs should be provided in larger numbers than appears to be considered necessary by committees, and in many instances some reform should be effected in the supply of refreshments, both in the matter of quality and price. To state the case briefly, some endeavour should be made to remove the discomforts of flower shows, for it is only by making these functions enjoyable as well as interesting that they will continue to receive the support of the general public.

ORCHIDS.

THE grand exhibition of orchids at the Temple, though mainly striking on account of the splendour of the flowers, had a deep stratum of underlying interest in the curious correlation of abundant bloom with apparently a minimum of root nourishment. With most other plants good soil and abundant feeding at the roots appear to be absolutely essential to a free production of blossom, but here we find an apparently dry bit of corkback, or a bundle of sticks wired together round a handful of moss, and therefrom will be depending rich, solid-looking waxen blooms of Cattleya citrina or other species, obviously in the very perfection of health, though all they possess as feeders are a few thick fleshy cords, which hardly answer to the popular idea of roots at all. Then, again, with most plants we look for a fair share of foliage to serve as aerial feeders of the flowers, but here, again, we are confronted with a lot of dry-looking pseudo-bulbs, with here and there a coarse leathery-looking leaf sticking out of them, and from this unpromising-looking mass rises a rampant spray of scores of delicate floral butterflies, as great a contrast as butterflies proper to the uncouth-looking chrysalis from which they emerge. Another point which strikes the outsider is the marvellous diversity of the tribe, ranging from huge spreading yard-long sprays of Cymbidium Loweanum down to tiny dots of plants which almost require a microscope to determine if they be orchids at all, though their names are long enough to read without any aid whatever, save that of a pronouncing dictionary and a pliable tongue. Some flowers, as in the dendrobiums, hang in dense bunches like etherialised laburnum blooms, while others, like the masdevallias, present as striking a contrast as can be conceived within one family of plants by their solitary and brilliant spiky-looking inflorescence. It is, indeed, only when we come to the cypripedium tribe that we begin to feel at home with orchids; these, at any rate, have a sensible home-like habit of growing upright from soil proper, and in addition we find pretty foliage in fair proportion to the bloom; but once again the eccentricity of the orchid tribe takes us by storm when we find these otherwise reasonable members, not content with putting on all sorts of bizarre stripes, spots, and other markings, have absolutely run mad in the moustache line, and after soaring up from the ground for a foot and more, drop the pendulous tips of their moustache aforesaid all the way back again, for what earthly purpose save orchidaceous and audacious dandyism it is impossible to conceive. Natural selection has certainly been at work, but it is just as certainly a puzzle to determine whose the selection has been which decks a lady's slipper with such a peculiarly masculine adornment. While we are thinking of these things, however, our side-eye has been caught by a group of cattleyas, and lælio-cattleyas, in their simple or compound forms, and turning a full glance upon them, we forget all about the oddities in question, and become utterly absorbed in, and entranced by, the wondrous beauty herein evidenced, and reflecting that the grand originals must owe their charms entirely to the appreciative selection of those insects for whose visits as love messengers their beauty has been shaped, we pass on with the verdict that mankind can by no means claim a monopoly of good taste in this wonderful world of ours.

COMMERCIAL ASPARAGUS CULTURE.

THE immense supplies of asparagus that have for some time past been pouring into British markets from Toulouse, the neighbourhood of Paris, and other parts of the Continent of Europe, suggests to us the desirability of cultivators considering whether a considerable proportion of the produce which finds a ready sale in our markets might not be grown at home with advantage to all concerned. The asparagus is indigenous to this country, and if proof were wanting of its adaptability to the climatic and other conditions that obtain in the United Kingdom, we could point to many gardens where the produce of the asparagus is fully equal to the best that is obtained from abroad. There can be no question as to the possibility of our supplying the markets with asparagus equal to the finest of the foreign supplies, and if we fail to do this, a cause other than an unfavourable climate or an unsuitable soil must be sought for. It is evident from observations made in widely separated districts that the possibilities of the commercial culture of asparagus in Great Britain is not fully appreciated by the general body of cultivators. Were it otherwise, the area devoted to the vegetable would be speedily increased tenfold. Asparagus has a great advantage over the majority of vegetables grown for market, inasmuch as its value is much greater in proportion to its bulk, and can therefore be sent long distances at a relatively small cost. Consequently it is specially adapted for cultivation in districts where, owing to the distance from the markets, the more bulky vegetables cannot be profitably grown, a fact which cultivators in remote districts ought not to overlook. In suggesting the desirability of largely extending the culture of asparagus for market, we must not be understood as recommending it as a crop adapted for all soils and situations, and to prevent any misapprehension upon this point we distinctly state that its culture for market should be commenced only where the soil can at a small cost be prepared for the formation of plantations. Rich alluvial soils, such as are to be found in many of our valleys, are the best for asparagus, but any moderately deep and naturally rich, well drained loam will be found suitable, as no heavy outlay will be involved in its preparation, or in maintaining it in a fertile condition. An admirable object lesson in asparagus culture is given by the growers in the Evesham district. A quarter of a century ago some of the market gardeners began to plant asparagus, and finding that under a liberal system of cultivation produce of the highest class was obtained, they made themselves familiar with the best method of marketing, and, as the result, obtained good prices. The asparagus crop has, indeed, been found so profitable in this fertile valley that there has been a continuous extension of the area, and at the present time it is estimated that there are upwards of four thousand acres under asparagus, giving an annual yield of sixteen thousand bundles. What has been accomplished at Evesham should be attempted in other districts where similar conditions obtain, for the demand for fresh gathered produce of high quality is so great that the supplies must be enormously increased before they can seriously affect prices.

Castle Ashby.—With the current issue of the GARDENERS' MAGAZINE is presented a special supplement containing an illustrated account of Castle Ashby and its gardens, and a separate two-page plate of the mansion.

M. Jules Hye's Orchids.—We greatly regret to learn that the very valuable orchids exhibited by M. Jules Hye, of Ghent, at the Temple Show, disappeared on the closing day of the exhibition, and so far no trace can be ascertained of their whereabouts. They were seen by their owner soon after nine p.m. on the Friday, but an hour later they had been removed from the position they had occupied, and he is naturally much distressed at having lost them. The loss of such valuable orchids as these is a very serious matter, and we trust that if they were removed by mistake they will be at once returned, and that if they have been stolen they will be speedily recovered. Messrs. J. Veitch and Sons (Limited) inform us that any person giving such information to them as will lead to the recovery of the orchids will be handsomely rewarded.

The Beauties of the Thames Valley can scarcely be overrated at this season of the year, though, unfortunately, the chilly winds that prevail, and the prospect of frequently recurring storms, render a full appreciation of hill and valley, water and island, trees and flowers, impossible at present. Given an hour or two of fine weather, however, a walk from Kew Bridge to Richmond along the riverside provides a treat for anyone, and especially for those who spend much time in the City. The fragrance and beauty of the hundreds of white thorn rees along the towing-path alone compensate for the time occupied in the walk, but added to these there are golden cascades formed by the laburnum, bending by reason of the weight of blossoms over the boundary wall of the Royal Gardens. The stately chestnuts are grand pictures, their myriads of erect panicles standing out in bold relief against the background of ample foliage; rhododendrons in the gardens and the Queen's Cottage ground add to the general beauty, while one cannot but admire the breadths of elegant white-flowered umbellifers that skirt the margin of the moat and the Old Deer Park. To the beauty of the flowers all around must be added the beauty of form in the trees from the slender willow, the towering poplar, and the massive horse-chestnut to the stately elms, elegant ash trees, gnarled oaks, and quivering birches; neither can one omit to note the charming tints of the leaves from the beautiful green of the young oak leaves to the more sombre hue of pine and yew.

A Chrysanthemum Congress at Lille will be held on November 10, when the following subjects will be discussed: (1) The soils and manures most suitable for chrysanthemums; (2) The best insecticides and fungicides for chrysanthemums; (3) Influence of climate on varieties; (4) Dimorphism of he chrysanthemum and the causes producing sports.

Floriculture at Nice.—The decision of the English Post Office authorities no longer to admit cut flowers from abroad by sample post has caused a good deal of apprehension on the part of the Riviera flower growers. Even Consul Sir J. C. Harris, in his report for 1897-8, says that however justified the decision may be by the abuse which appears to have been made of the privilege, it is certain to be very harmful to the export trade in flowers, to which so large an extension has been given in the Nice district of late years by the much increased facilities of irrigation. In order to give an idea of the large place flower culture has attained to in these days when the keiroun insect has ravaged olive yards and rendered them unproductive, and the phylloxera has equally damaged the vineyards, he states that at the recent meeting of the agricultural society the only subject treated of by successive speakers was the horticultural exhibition which has lately taken place at Nice, and which, indeed, deserved all the praise bestowed upon it. The Consul perceives, however, a tendency to utilise the built-up terraces not only for the growth of flowers, but also for fruit trees, which in a country of prolonged summer droughts require a considerable amount of irrigation. The two crops should do well together so long as the fruit trees are not allowed to grow so large as to interfere by means of their spreading roots with the annual flower culture, for it should be remembered that the flowers bloom in the winter and early spring, when the fruit trees have no foliage, and that the flower plants are allowed to die down in the summer, when the water, which is available all the year round can be used for the benefit of the fruit trees.

Mr. Jurgens, the distinguished landscape gardener of Hamburgh, who was responsible for the preparations of the grounds for the great exhibition held in that city last year, has received the order of Merite Agricole. Mr. Jurgens not only laid out the grounds, but by his geniality and ready advice contributed in no small degree to the pleasure of English horticulturists who visited Hamburgh during the time the exhibition was open.

Exceptional Rainfalls.—Notwithstanding the heavy rainfall of the past few days, it is of interest to mention in this connection that the average of the rainfall registered at thirty-three of the principal towns in England during the week ending May 28 was only 0·57 inches. We have not by any means had an exceptional fall. So far as annual rainfall is concerned the Khasia Hills lead the way with 600 inches; Padupola, in the central province of Ceylon, has a mean average rainfall of 230·85 inches; while in the northern province, at Nedunkeni, the average fall is 64·70 inches, though the total for 1897 was 121·85 inches. A correspondent to *Nature* points out that at Nedunkeni there was an exceptionally heavy rainfall on December 15-16, 1897, when in twenty-four hours 31·76 inches was registered. It will be interesting to point out here that the highest rainfalls previously recorded were at Joyeuse, France, 31·17 inches in twenty-two hours; at Genoa, 30·00 inches in twenty-six hours; at Gibraltar, 33 00 inches in twenty-six hours; on the hills above Bombay, 24·00 inches in one night; and on the Khasia Hills, India, 30·00 inches on each of five successive days.

The Artificial Colouring of Cut Flowers is now becoming only a little less general than the provision of odour, by means of essences, for flowers that have lost their fragrance while travelling from the producer to the retailer. In this connection "Dogberry," in writing to the *City Press*, remarks that: Spring flowers have been plentiful in the streets and shops of the City during the past few weeks, some of them of extraordinary beauty. Things are, however not always what they seem. A personal friend, attracted recently by the strange appearance of a favourite flower in a shop window, went in to purchase a bunch. While doing so he inquired whether the plants could be obtained, and was obliged to rest satisfied with the assurance that they were an exclusive cultivation. A few days afterwards he made a second purchase, which he handed for inspection to a professional florist. Then he learned the secret—the flowers had been painted, or, rather, "improved" by the application of chemical dyes! Alas, what has not modern chemistry to answer for? A gentleman who occupies a high position as a practical chemist tells me that not a week passes without his receiving an application for a dye to make something or other look like something else; but I did not know that the art of "sophistication" had been carried quite so far as it appears it has. I have heard of flowers being artificially scented, but the staining of them will not, I hope, become a common practice.

The First Rose of Summer.—In a postscript to a letter written on June 1, that genial rosarian, the Rev. A Foster-Melliar, writes: My daughter, gathering the first outdoor rose to-day in this very cold wind, suggested, June 1st:

> "'Tis the First Rose of Summer,
> I heard it complain—
> You have waked me too soon,
> I must slumber again."

The Cultivation of the Date Palm (*Phœnix dactylifera*) has steadily increased in the Turkish-Arabian province of Bussorah since the packing of dates in boxes for export to the United Kingdom and America was started about fifteen years ago. Consul L. A. Forbes states that in 1896 the greater part of the country was inundated by unprecedented floods, in which it is reported over a million date palms were destroyed; these trees, it is believed, have been all replaced by young ones, but still it will take six to ten years before the latter produce fruit in any quantity. The high prices which are now obtained by the growers for their dates have rendered the possession of date gardens most valuable property, and the culture of the date palm receives from the Arabs great care, attention, and expenditure of capital in manuring and irrigation, which is not the case with land under any other form of produce. Vinegar is manufactured from dates, and it is probable that whisky could be made from them, as "arak," the native spirit, is distilled exclusively from dates.

Gardeners' Royal Benevolent Institution.—We have to remind our readers that the fifty-ninth anniversary festival dinner of this institution will be held on Wednesday next at the Hotel Metropole. We trust that the Duke of Portland, who presides, will be well supported, and, having regard to the heavy claims upon this excellent charity, we hope the subscription list on this occasion will be a liberal one. The Dean of Rochester has promised to be present, and those of our readers who desire to attend should communicate with the secretary (Mr. G. J. Ingram), at 50, Parliament Street, S.W.

Mr. J. Gray, late of Bodorgan Gardens, Anglesea, was the recipient of a set of handsome carvers subscribed for by the under gardeners before leaving the service of Sir George Meyrick, Bart. It is over twelve years since Mr. Gray took charge of these gardens, during which time he has much improved them and kept them up in a high state of efficiency. General regret was expressed by Mr. Gray's friends when he decided to leave the neighbourhood.

Mr. Ernest Bergman, secretary of the National Horticultural Society of France, received on the occasion of the society's recent exhibition at Paris, the decoration of an Officer of Public Institution.

Flowers for Schools.—At the meeting of the London School Board, the School Management Committee reported that they had had their attention called to the following report from the British Embassy at Berlin, giving the arrangements made in Berlin for supplying primary schools with flowers from the public parks: "In the town gardens here (Berlin), and especially in 'Humboldt-Hain,' flowers are gathered in proportionate quantities during the summer months of the year, and are placed at the disposal of the upper grade and lower grade municipal schools, at their desire, and also at the disposal of private schools for a consideration, for the purpose of furthering the study of botany. The flowers are sent to the schools in especially ordered carts twice a week; they are sent in bundles, each bundle containing fifty specimens of the same species of plant, and only one bundle falls to each botany class. The names of the plants which may be expected during the week are published every Sunday in the public Press. Flowers from the town gardens are not supplied for the decoration of schools, or making presents of them to scholars." The committee were of opinion that similar arrangements might possibly be made in London, and with a view of achieving that object recommended that letters be addressed to the London County Council and to her Majesty's Office of Works, setting forth the arrangements which were now made in Berlin for supplying flowers from the public parks to the elementary schools, and inquiring whether somewhat similar arrangemenss could not be made for the benefit of public elementary and other schools in London. On the motion of Mr. Graham Wallas it was decided that letters be addressed to the London County Council and to her Majesty's Office of Works with reference to supplying flowers to the London schools in the same manner as in Berlin.

Mr. W. Howard, for many years manager to Messrs. J. Veitch and Sons, at their Coombe Wood Nurseries, has now entered upon similar duties with Mr. Anthony Waterer, Knap Hill, Woking. A large number of Mr. Howard's friends at Kingston took advantage of the opportunity his removal from Coombe afforded to present him some tangible token of their good wishes. The presentation was made a few days ago by Mr. A. W. Homersham, J.P., and consisted of a fine gold keyless hunting watch and a purse of ten guineas.

Beauty in Plants and Flowers.—Plant beauty is of two sorts, beauty of colour and beauty of form. In some plants, like the calla, beauty of form predominates; in others, like the pæony, beauty of colour; in still others, like the gladiolus, the lines of stalk, flower, and bud are as noticeably lovely as their colours. In the rose we have beauty both of form and colour. There are different kinds of love for flowers, adds Mr. Henry T. Bailey, of Scituate, Mass., U.S.A. There is the scientific love; those who have only this seldom get the true message of the flowers. At the other extreme are people having a sentimental love for flowers; they pronounce their colours marvellous, and gush indiscriminately over their beauty. The third kind of love for flowers has a basis of intelligent appreciation. The greatest enjoyment is when scientific love is combined with a sympathetic appreciation of beauty.

A New Broom.—Writing to the *Pall Mall Gazette*, Sir Herbert Maxwel says: "Gardeners and garden lovers seem slow to realize the singular beauty of a variety of the common broom which has lately come into the market under the name Cytisus scoparius Andrewsi. In this lovely shrub the standards, or upright petals, are dyed a deep crimson or marone, contrasting vividly with the rest of the golden corolla. It is as easily grown and as hardy as the common type, and may also be forced into bloom a couple of months before it is due to flower in the open. It makes a brave show in the conservatory, and so little are people acquainted with it that visitors almost invariably ask, What is that beautiful exotic?" There is nothing surprising in gardeners and garden lovers failing to realise the beauty of Cytisus scoparius Andrewsi, for no such shrub has "come into the market." The writer is evidently referring to Cytisus scoparius Andreanus, and if this be the case we unhesitatingly say that not only is the beauty of the shrub highly appreciated, but it has already been extensively planted.

Speedy Extraction of Rubber.—At the agricultural exhibition held not long since in Jamaica there was exhibited a new machine for the extraction of rubber from the crude flow of sap. In about two minutes the machine separates the rubber from the milky matter, and is then placed in a suitable place where it will dry in about three hours into sheets or slabs of marketable rubber free from all albumenoid matter. The tree from which the supply was obtained is a species of Castillo.

Progress in Floriculture in America.—For years upon years the progress of floriculture was slow, simply because it was imperfectly understood, and its devotees had hedged it with unbending rules that excluded all but themselves. But a new era of floriculture has dawned. Life is now too short to master even one flower as we have come to understand it. A man deserves to be knighted who takes some sweet floral nymph of the woods, or some old-fashioned favourite of our childhood garden, and make a royal family of it, unlocking the mysterious colours that are hidden in its pale bosom, and turning one modest little cinderella into a hundred queens of beauty and proud grace. In referring to these matters before the Massachusetts Horticultural Society the Rev. W. T. Hutchins, himself an ardent florist and sweet pea raiser, stated that what Mr. Eckford has done for the sweet pea a score of other consecrated noblemen have done for other flowers. The time has not come to canonize these men. They have come through the humble walk of being some rich man's gardener, or they are down on their knees in communion with the soil, wearing the poor man's clothes, earning the pittance of a struggling florist, happy if some lady will pay the cheap price of a nosegay. But if you will believe it they are ushering in the day when floriculture will be the queen of arts, and when men of the proudest ambition and intelligence will aspire to have their names associated in monumental remembrance with the development of some flower. We have carried nothing to perfection yet. One by one the flowers that have great possibilities in them make their advent into this new era. They have only made their graceful bow to us. You have only begun to know a flower when you see it as it is. You must have the prophetic anointing and see it as it is to be.

Ranger's Park, Greenwich, some fifteen acres in extent, was formally opened to the public on Saturday last. The site now covered by flower beds was formerly occupied by Montague House, where the great Duke of Marlborough often resided. This new accession of parkland was cut off from Greenwich Park in 1806 to form a pleasant estate surrounding Ranger's Lodge, a house known at that early date as Chesterfield House. The London County Council are now seriously considering the advisability of acquiring Ranger's Lodge for the purpose of making it available as a shelter to frequenters to Blackheath and neighbourhood.

Rhododendrons and Bamboos are certain to do well in South Devon, consequently these have been employed freely in the work of remodelling and replanting the Northernhay Gardens at Exeter. A piece of land formerly rented by the Northernhay Club has now been added to these public gardens, and so planted as to greatly increase the effect of extent. The new rhododendrons here are now blossoming, and near by is a bamboo garden of small size, but planted with fine specimens of the most beautiful species. On other slopes that formerly were covered almost entirely with laurels and other evergreens, variety has been introduced, and there are now graceful flowering shrubs, as lilacs, syringas, viburnums, thorns, deutzias, weigelas, and hypericums; further along where the common Cytisus scoparius has always done so well, many choice kinds have been planted, such as C. s. Andreanus, C. præcox, C. albus, &c. It is proposed to raise the roof of the band stand, so that during summer it will be possible to suitably decorate the structure with various free growing climbers, and suspended baskets of graceful and bright flowers and plants.

The Double-naming of Florists' Flowers is a matter that often causes much inconvenience in this and other countries, but it is one that is not easily put right unless a central body for deciding which name should be retained was created. The Society of American Florists is making efforts in the right direction, as its Nomenclature Committee intends to lay before the society any cases of misnaming or double-naming of plants handled by the American trade. Such cases will be dealt with, but we are not aware on what lines or how delinquents will be treated. Professor W. Trelease is chairman, so we may feel assured that the question will be thoroughly worked out.

Fatal Effects of Drinking Weed Killer.—It appears almost incredible that any sane person should draw liquid from a cask and drink it without knowing anything whatever of its character; yet it is frequently done, and, in some instances, with fatal results. A sad fatality occurred at Aberlour, Strathspey, the other day from this unwise practice. It appears, from the particulars kindly supplied by a correspondent, that a labourer, while engaged in a garden in the village of Aberlour, finding a cask containing a liquid, drew a small quantity and drank it, under the impression that it was sour beer. Instead of the cask containing that harmless, if decidedly objectionable liquid, it contained a highly-poisonous weed killer, with the result that the poor fellow died within three hours of his having taken the fatal draught. It is very unwise for anyone to drink a liquid from a cask standing in a corner of the garden, for beverages are not usually kept in that way, but, knowing that it is done, all vessels containing weed killers should be kept under lock and key, and bear the inscription "Poison" in bold letters. Not only is it advisable that such sad accidents as this should be prevented, but is desirable that, as weed killers are great aids to the gardener in keeping the walks and drives free from weeds, they should not be brought into disrepute.

A Horticultural Students' Society has been formed in connection with the Essex County School of Horticulture. Towards the completion of the advanced course of instruction at the school last year, the students held a meeting and established a society with the above title. The object of the society is to promote home study and to encourage out-of-door observation of matters and things bearing upon horticulture. Each member undertakes to prepare once a year an original paper upon some gardening subject, such paper to be the result of actual study and experience on the part of the writer. These essays are circulated amongst the members, and notes and criticisms invited. The subjects discussed in the essays prepared in the course of the past winter are of an eminently practical character, and the one published in the quarterly journal of the Technical Education Committee evinces a sound knowledge of the subject dealt with.

An Experimental Station at Tunis has been instituted by the French authorities for the promotion of the sciences of agriculture, horticulture, and meteorology. It is hoped that this station, with its two years' course of instruction for students, its farm, trial garden, and oil refinery, will render valuable service and advice to resident and intending colonists. So far the Tunisian colonist has had no one to whom to go for information with respect to crops or climate, consequently everything is being pushed forward to enable the authorities to open the station in October next. It should be remembered that Tunis is mainly an agricultural colony, and even now cultivates annually a million acres each of wheat and barley, besides producing considerable quantities of wine and olive oil.

Our Imports of Potatos for the first four months of the present year reached the large total of 157,365 tons, or something like fifteen times as many as we did during the same period in 1897. The highest import for one week during the present year was 16,050 tons in the last week of April. Some folks are still urging that, in view of this huge import, British farmers should extend their cultivation of potatos largely; we think otherwise, for the need of such heavy importations was due to the poor crops of potatos produced last year in Ireland and the south-west of England—a failure that does not often occur, or, at least, is seldom so complete as in 1897.

The Great Temple Show.

(Concluded from page 350.)

Hardy Plants and Flowers.

Hardy plants and cut flowers of hardy perennials were, as usual, contributed in immense numbers, and although not in many instances staged so tastefully as could have been wished, they were highly attractive, and of much interest to visitors. Messrs. Barr and Son, 12, King Street, Covent Garden, and Long Ditton, staged a large and attractive collection, in which were admirably represented Genista hispanica pumila, one of the most useful of the dwarf shrubby plants for sunny banks; Aubrietia Leichtlini, a distinct form of these attractive spring flowering plants, and valuable for beds and the rockery; Achillea tomentosa, a handsome, free-blooming, yellow-flowered species; Spiræa palmata, charming as a pot plant; Gentiana verna, Arenaria montana, a beautiful white-flowered rock plant, not sufficiently grown; Saxifraga Camposi, a handsome mossy species, with large white flowers; Phlox divaricata, an American species, with lavender-coloured flowers, and of much beauty; Orchis latifolia, O. maculata, and other of the British orchids; Sempervivum chrysanthum, a distinct species, forming dense masses of pale green; Eremurus himalaicus, the finest of the several eremuri, and represented by several splendidly-developed spikes; Centaurea cyanus Victoria, an elegant form, free in blooming, and of much value for small decorations in a cut state; Trollins europæus, T. aurantiacus; Pæonia tenuifolia, an elegant species with single crimson flowers, and useful for the early period at which it blooms; double and single pyrethrums in great variety, Oriental poppies, Geum coccineum, Aquilegia californica, Campanula glomerata dahurica, a handsome form, the flowers deep-purple and freely produced. Very fine were the spikes of Eremurus robustus, less elegant but bolder in growth than E. himalaica, German and Spanish iris, single pæonies, The Bride gladiolus, and late-flowered tulips in great variety. Messrs. Barr and Sons also had a tastefully arranged miniature rockery, which deservedly attracted much attention.

MESSRS. FISHER, SON AND SIBRAY'S GROUP OF HARDY ORNAMENTAL TREES, TEMPLE SHOW.

Fancy pansies were shown in large numbers and fine condition by Messrs. Isaac House and Son, Coombe Nurseries, Westbury-on-Tyne. The flowers were shown on boards in the orthodox fashion, and in bold sprays, and produced an exceedingly pleasing effect. The firm also contributed several baskets of violas, the varieties of these including White Empress, a pure white bedding variety; W. Haig, rich blue; and A. F. Rowberry, one of the best of the yellow selfs. An attractive collection of hardy flowers was shown by Messrs. J. Cheal and Sons, Crawley, who had in the centre of the collection an artistically-arranged rockery clothed with alpines. Violas were well represented in the collection, as were hardy rhododendrons, Oriental and Iceland poppies, single pæonies, and German, or flag iris.

M. Koster and Sons, Boskoop, Holland, exhibited a large collection of cut flowers of varieties of Azalea sinensis, but in consequence of being staged in boxes in much the same manner as roses and the majority of florists flowers, they were less effective than they otherwise would have been. Anthony Koster, rich yellow golden; De Reichenbach, soft salmon-red; and Alma Tadema, soft cream yellow-tinted rose, may be mentioned as especially desirable for their distinctness and beauty. Mr. F. G. Foster, Havant, had a collection of sweet peas, including the leading varieties in the several shades of colour, which, arranged in neat bouquets with ferns, had a pleasing appearance. Mr. George Edom, Walton-on-the-Hill, sent a small but interesting collection of show tulips.

Messrs. George Jackman and Son, Woking Nursery, contributed a highly attractive collection of hardy plants in pots in which single and double pyrethrums were conspicuous by reason of their splendid development. From the Langport nurseries Messrs. Kelway and Son sent a magnificent collection of hardy flowers, in which the single and double pæonies were prominent. A semi-double white tree pæony, shown under the name of Jean de Reszke, is of surpassing beauty and well deserved the award of merit conferred upon it. Single and double pyrethrums, with a host of other good things for which the firm have long been distinguished were admirably represented, and contributed liberally to the attractiveness of the display. This firm also sent a collection of pæonies in pots, but these appeared to have suffered somewhat from the long railway journey, and did not represent the specimens at their best.

From Messrs. R. Wallace and Co. came an interesting and attractive group of bulbous and hardy plants in which lilies were largely shown. The lilies included Lilium longiflorum, L. Thunbergianum in variety, and the elegant L. tenuifolium. Flag iris were well shown, and especially interesting were the species of hardy lady's slippers, which one seldom sees at public exhibitions in such large numbers as in this instance. The cypripediums represented included C. occidentale, C. acaule, C. candidum, C. parviflorum, C. pubescens, and C. spectabilis. In the collection also were Watsonia Ardernei, Incarvillea Delavayi, ixias in variety, and Iris Korolkowi, of which the finest form is that known as Atrofusca.

Mr. Prichard, Christchuch, Hants, had a comparatively small but very interesting collection of cut flowers, in which Eremurus robustus Elwesianus was conspicuous. This form is an immense improvement upon the type, the flowers being much larger and more closely arranged on the spike. The inflorescence of the specimen exhibited was about two feet in length and six or seven inches in diameter.

Mr. T. S. Ware, Hall Farm Nurseries, exhibited a large collection of hardy flowers and alpine plants, which, arranged at the end of one of the long tents, produced a very pleasing effect. German iris, in great variety, were admirably represented, as were Cypripedium calceolus and other of the hardy orchids. The alpines included many beautiful plants, the saxifragas being especially noteworthy. The most conspicuous object in this fine collection was the magnificent spike of Eremurus robustus Elwesianus, on which an award of merit was conferred.

Mr. W. Sydenham, Tamworth, presented a lot of pansies and violas, the former being very well represented by large sprays of fresh flowers fragrant and handsome—Stephan, yellow; Lucy Franklin, white and yellow; Mrs. H. Bellamy, William Tell, Devonshire Cream, Charm, Mary Stewart, Acme, and Pembroke were notable sorts of excellence. Mr. Sydenham also had numerous designs in pansies and violas.

Messrs. T. Cripps and Sons put up a beautiful lot of well-grown Japanese maples in No. 4 tent, staging these on either side of the entrance. These were most effective, as the various colours which this section provides were associated in a most charming manner. All the best varieties were staged, and represented both by large specimens and elegant tiny plants.

Some beautiful rhododendrons from Mr. E. G. Reid, Beckenham Hill, Kent, made a pretty bank near the exit end of No. 2 tent; scarlet forms predominated, and in combination with massive heads of rosy-coloured varieties produced a fine effect. The plants were all dwarf, and well furnished with flowers and foliage. Messrs. Fisher, Son and Sibray's group of hardy ornamental trees, of which we give an illustration, was described in our issue of the 28th ult.

Fruit Trees in Pots.

Fruit trees in pots were presented in considerable numbers, and as they were mostly bearing good crops, they were by no means the least interesting of the several features. Messrs. T. Rivers and Son, Sawbridgeworth, contributed a collection of well-grown and heavily cropped trees of peaches and nectarines, and chief among the varieties represented were Early Rivers and Cardinal nectarines and Hale's Early and Alexander peaches, Monaco Bianco fig, and May Duke cherry. A large box of exceptionally fine fruit of Early Rivers nectarine was also shown by the firm. Mr. J. Hudson, gardener to the Messrs. Rothschild, exhibited a large collection of orchard house trees in pots. The trees were mostly of medium size and carrying excellent crops of fruit. Among the varieties represented in the collection were Belle d'Orleans, Governor Wood, Frogmore Early Bigarreau, Empress Eugenie, Bigarreau de Schreken, Elton, and Early Rivers cherries, Cardinal, and Lord Napier nectarines; Hales' Early, Early Grosse, Mignonne and Amsden June peaches; Early Transparent Gage, Jefferson, and Reine Claude Comte Althames plums. Grape vines were used with excellent effect for forming a canopy over the trees, the most noteworthy of these being Foster's Seedling and Black Hamburgh. Excellent strawberries were also shown, the fruit of Auguste Nicaise and Royal Sovereign being particularly attractive.

Greenhouse Plants.

An extensive and first-rate exhibit of hard-wooded plants from Messrs. Balchin and Sons, Hassocks, was a revelation to many of exceptionally high culture in these plants; there were big banks of Erica Cavendishi, a blaze of yellow; Erica Spenceri, deep rose; Erica perspicua nana, E. ventricosa rosea, deep pink; and the lovely rich blue Leschenaultia biloba major backed by the white Erica candidissima. The Messrs. Balchin had a lovely lot of well-grown plants that commanded admiration. Mr. Forbes, Hawick, put up a pretty display of his brilliant and free-flowering crimson-scarlet carnation named Yuletide; this is a fine form with broad segments and sturdy, erect habit. In front of these was a collection of pansies and violas in great variety and good quality.

A small group of cannas, remarkably dwarf and with compact spikes of brilliant flowers, came from Messrs. Paul and Son, Cheshunt, and served to illustrate the great value of these plants for conservatory decoration; Daniel Gerard, Mrs. F. Drees, gold and orange, Iona, crimson, and Miss Elsie Perkins, yellow, were notable and distinct forms of great merit. A bold and brilliant display of cannas came from Messrs. H. Cannell and Sons, Swanley. The plants were all robust and carried large spikes of magnificent flowers, notwithstanding that the plants were grown in small pots. For effective and gorgeous colouring the cannas quite equal the orchids. Half a dozen select varieties from Messrs. Cannell's collection are Madame La Barrone P. Thenard, orange; Alex Belliard, deep blood red; Madame Pichon, golden; Konigen Charlotte, scarlet and gold; Duchess of York, yellow, with scarlet spots; and Aurea, clear golden yellow.

Floral Designs.

Miss Edith Langton, Hextable, Swanley, had a pretty table decoration in blue-shaded Spanish irises, white saxifraga, and varigated phalarium; a simple but effective exhibit. The same lady also had a bouquet of pink roses. Miss Dalton, Ludgate Hill, set up some excellent bouquets of roses, associating crimson and yellow varieties; she also had a charming bouquet of cattleyas and odontoglossums, and a handsome wreath composed of liliums, lily of the valley, gardenias, and white gladioli. Miss Bradley, Gipsy Hill, showed epergnes of spiræa, white lilac, pancratiums, stephanotis, and other choice white flowers. Mr. W. Parkin, Sheffield, sent vases and epergnes of various flowers arranged by means of a pliable wire support that admirably answers the purpose of enabling one to arrange flowers to advantage with ease; it is a modification and great improvement over the wire racks already in use. Mr. Moyses Stevens, Victoria Street, Belgravia, had three grand floral arrangements. a basket of white liliums and pink pæonies; a wreath of liliums, stephanotis, and Caladium argyrites, and a harp of double white daffodils, Cattleya Mossiæ, and liliums.

Mr. L. H. Calcutt, Fairholt Road, Stoke Newington, had a tasteful display of arches, epergnes, and tall stands of flowers. In the centre was a tall stand of white liliums, yellow oncidiums, and long drooping racemes of Cymbidium Lowianum; this was a bold and handsome effort, especially as the base was finely finished with Lælia purpurata, Caladium argyrites, and anthurium spathes. Blue and yellow Spanish irises, yellow marguerites, and odontoglossums were the flowers most used in the other designs.

Messrs. Jones and Sons, Shrewsbury, showed some lovely bouquets and baskets of flowers; some of their most effective and artistic combinations were pink and crimson carnations; Lælia purpurata, and leaves of Cissus discolor; blue and yellow violas; bronze, yellow, and blue Spanish iris, pink roses and sweet peas.

Mr. F. V. Seale, Sevenoaks, staged an effective collection of floral arrangements, mostly wreaths and bouquets, in which bright colours and green foliage were extensively used. The use of evergreens seemed rather too free for light effect, but the asparagus and golden irises, and the white lilac and bronze pansies, were novel, as also was the chaplet of coloured pelargonium leaves.

Messrs. Perkins and Sons, Coventry, had, as usual, a beautiful set of bouquets and baskets chiefly composed of orchids and asparagus. The basket of yellow Oncidium sprays, Cattleya citrina, and Odontoglossum Halli, was a superb design. A bride's bouquet of white odontoglossums, stephanotis, and lily of the valley, was a beautiful effort; while the bridesmaid's bouquet of cattleyas and rosy odontoglossums, was at least as effective. The Messrs. Perkins thoroughly sustained their great reputation. Mr. J. Prewett, Lancaster Gate, Bayswater, showed a large number of his light and elegant silvered flower-stands in various designs, filling these charmingly with pink pelargoniums, white lily of the valley, roses, and rhodanthes.

Messrs. B. S. Williams and Son sent from their Piccadilly branch a first-rate lot of floral designs, and these were not too crowded. At the back was a telling bouquet of scarlet carnations and anthurium spathes, and a large mirror framed in double white narcissi, with sprays of odontoglossums and a basal bunch of fine cattleya blooms. In front was a sumptuous basket of orchids, with long elegant sprays of choice odontoglossums springing from a groundwork of Cattleya Mossiæ; asparagus frondage gave the necessary tone of greenery. A big basket of Malmaison carnations was also very effective and beautiful.

Ferns.

An occasional bank or group of ferns forms a relief to one's eyes in such a collection of gorgeous colours as the Temple Show provides; consequently, after leaving the bulk of the orchids, it was pleasant to view Messrs. J. Hill and Son's extensive exhibit of ferns in all shades of green. Arranged on tall stands were specimens of Asplenium caudatum, Davallia Mariesi, D. Fijiensis, Nephrolepis davallioides furcans, Lygodium scandens, and numerous other graceful and depending ferns. Below these were groups of Blechnum braziliense, Cheilanthes elegans, Adiantum cardiochlæna, Gymnogramma pulchella, G. Alstoni, Adiantum farleyense, A. rhodophyllum, A. macrophyllum, and Pteris ludens, with a margin of the most popular market ferns. Several Elk's Horn ferns gave character to the exhibit, which in every way was good, and included the new proliferous Asplenium Hilli.

Ferns in great variety were nicely arranged by Mr. H. B. May, Edmonton, who had a few large aspleniums and platyceriums, staged high above the general exhibit, and thus any idea of flatness was prevented. One fine plant of Platycerium grande was a great attraction, as it is without doubt the finest of the Elk's Horn ferns. Not only were popular ferns shown, but a great number of comparatively rare species and new varieties. Conspicuous and elegant ferns were Pteris longifolia Mariesi, P. Reginæ cristata, P. Polypodium Schneideri, very handsome; P. ludens, a bold species; Phlebodium Mayi, a new and especially elegant and graceful seedling from P. glaucum, dwarf in habit, and with waved pinnæ to the drooping and much-divided fronds. Other notable forms were Gymnogramma grandiceps superba, a fine golden fern; Lomaria ciliata major, the beautiful Pteris gracilis multiceps, Gymnogramma flavescens, and the bold and strong-growing Asplenium marginatum. Adiantums in variety, aspleniums, blechnums, davallias, and many other ferns also came from Edmonton.

A large and varied collection of ferns came from Messrs. W. and J. Birkenhead, Sale, Manchester, and if not quite so extensive as this firm usually puts up, it contained a good selection of kinds. The case of filmy ferns was a great attraction, as it always is. Trichomanes maximum and Todea superba were especially good; Polystichum angulare divisilobum densum is a beautiful hardy fern that was well represented; Athyrium filix fæmina Victoriæ regale is a fine form of a fairly well-known and elegant fern; the violet scented Lastrea fragrans was represented by a basket of neat little plants that, needless to say, were a source of great interest to the lady vistors. The plumose form of Polystichum divisilobum, with Asplenium trichomanes incisum, Scolopendrium vulgare crispum robustum, Athyrium f.-f. grandiceps, and A. f.-f. cruciata grandiceps, were other notable and graceful hardy British ferns. In addition to these, there was a collection of elegant adiantums, selaginellas, gymnogrammas, and other stove and greenhouse ferns.

Fruit and Vegetables.

A tasteful as well as excellent display of vegetables was staged by Messrs. Sutton and Sons, Reading, and palms, ferns, and selaginella were freely used, and amid these were set up baskets of the firm's newer peas, all represented by full pods even at this early date; the variety mostly on view was Early Giant, and one basket of fine pods was forwarded to Marlborough House for the Derby dinner of H.R.H. the Prince of Wales. The cucumbers were splendid developments of such useful sorts as Pride of the Market, Sutton's Peerless, Sutton's A1, a grand and handsome variety, and Matchless.

Messrs. G. Bunyard and Co., Maidstone, put up a splendid lot of apples, arranged to demonstrate how long fruit may be kept in a properly constructed fruit-room. It is scarcely necessary to enumerate the varieties, but there were excellent dishes of Farmer's Seedling, Wagener, Winter Peach, Annie Elizabeth, Calville Rouge Precoce, Cox's Orange Pippin, Winter Queening, Newton Wonder, King of Tompkins County, Flanders Pippin, Reinette du Canada, Murfitt's Seedling, Wadhurst Pippin, Hoary Morning, and Alfriston. Some eighty dishes of fruit were staged, and Mr. Bunyard ably demonstrated their keeping qualities under suitable conditions. Figs in pots formed a backing to the apples.

Mr. J. McIndoe, gardener to Sir J. Pease, Bart., Hutton Hall, Guisborough, contributed a collection of fruit consisting of some twenty-five dishes, all of which were more or less good. Of special merit were the Black Hamburgh and Early Summer Frontignan grapes, Early Rivers and Dryden nectarines, Condor and Grosse Mignonne peaches, Black Tartarian cherries, Yorkshire Beauty and Scarlet Premier melons, Brown Turkey figs, Royal Sovereign strawberries, Scarlet Nonpareil and McIndoe's russet apples, the latter a large and handsome variety.

Mr. E. Beckett, gardener to Lord Aldenham, Aldenham House, Elstree, exhibited a comprehensive collection of vegetables, each dish so good as to render it difficult to make a selection. The broccoli and cabbages were arranged in neat mounds, consisting of about ten superb heads each, and relieved the flatness usually associated with large displays of vegetables produced by private cultivators. The broccoli included Late Queen, Model, Perfection; the cauliflowers, Extra Early Forcing, a valuable variety for use thus early in the season; the tomatos, Dwarf Champion, Duke of York, and Perfection; the cabbages, Ellam's Early and Flower of Spring; the peas, Early Morn; the potatos, Sharpe's Victor, Snowdrop, and Harbinger. Very fine also were the Lyon leeks, Moore's Cream vegetable marrows, Beckett's Victory cucumbers, mushrooms, Green Globe artichokes, and large Paris cabbage and Bath cos lettuces.

Mr. W. J. Simpson, gardener to Miss Wingfield, Ampthill House, Ampthill, exhibited a very large collection, somewhat uneven, but on the whole highly creditable to the cultural skill of the exhibitor. The most noteworthy examples were those of Model leek, Eclipse, Late White, Summer, and Champion broccoli, Warden Park tomato, Model, Early Hartwell, and Jersey Wakefield cabbages, Model and Cardiff Castle cucumbers, and Victor potato. Mr. Simpson also exhibited peas, French beans, and tomatos in pots, which evinced high-class cultural skill, and, arranged along the back of the collection, added much to the general effect.

Mr. Hayes, gardener to the Marquis of Northampton, Castle Ashby, Northampton, staged a comparatively large collection of vegetables, which was of interest as demonstrating the success with which esculents are cultivated in these great gardens.

Rhubarb and asparagus were admirably shown by Mr. F. Chapman, Colchester, the latter being of special interest as indicating the success with which this toothsome vegetable is grown in the neighbourhood of Colchester. Mr. Chapman also exhibited a selection under the designation of New Pea Green, which differs from the ordinary type in the tips of the growths being a light green.

A large exhibit of produce came from the Horticultural College, Swanley, and consisted of a large lot of Sutton's Matchless cucumbers, both cut and growing on the plants; there were early peas in pots, mostly Early Marrowfat, American Wonder, May Queen, and Chelsea Gem; tomatos, Early Ruby and A 1 were good, so also were the early potatos, broccoli, and French beans; mushrooms, asparagus, spinach, radishes, leeks, lettuces, &c., were staged in abundance and fine quality. Mr. J. Nicholls, Lower Tooting, sent samples of a new and early celery named Forcing White; a very early variety; Gross Mignonne peaches of high quality were shown by Mr. Ryder, gardener to the Dowager Countess of Limerick, St. Albans. A grand lot of mushrooms were sent by Mr. George Mount, Canterbury. Mr. G. Featherby, Gillingham, Kent, staged some splendid Hale's Early peaches, Dryden nectarines, early Black Hamburg grapes finely coloured, and some good examples of Covent Garden Favourite cucumbers.

A splendid lot of mushrooms staged by Mr. R. E. Addey, Ealing Road, Brentford, were greatly admired, and around them was a continual circle of gardeners. Mr. Addey showed bricks of his spawn, clusters of mushrooms just appearing, small buttons, larger mushrooms, and full-sized, all of which were well arranged. Mr. L. Mortimer, Rowledge, Farnham, had a splendidly grown lot of tomatos and cucumbers: Eclipse, Sutton's Abundance, Perfection, Conqueror, and Sutton's A1, were fine tomatos staged in boxes; while Tender and True, Telegraph, Sutton's A1, Rochford's Market, and Lockie's Perfection were the varieties of tomatos. Some yellow seed-fruits of cucumbers attracted a great deal of attention. Mr. W. L. Bastien, gardener to A. Henderson, Esq., M.P., Faringdon, sent a splendid lot of Perfection and A1 tomatos; A1 and Telegraph cucumbers, a number of golden skinned seedling melons, and some good French beans, and Walcherene cauliflowers. Mr. Beckett, gardener to Lord Aldenhan, Elstree, sent fine specimens of Sutton's Masterpiece, Countess, A1, Blenheim Orange, and Aldenhan Perfection melons. Mr. T. Robinson, Hollingbourne, also sent a small set of well-grown melons; and Mr. Miller, gardener to Lord Foley, Esher, sent a box of Royal Sovereign strawberries. A bundle of wonderfully large Giant asparagus was sent by Mr. W. Godfrey, of Colchester; it was of immense size.

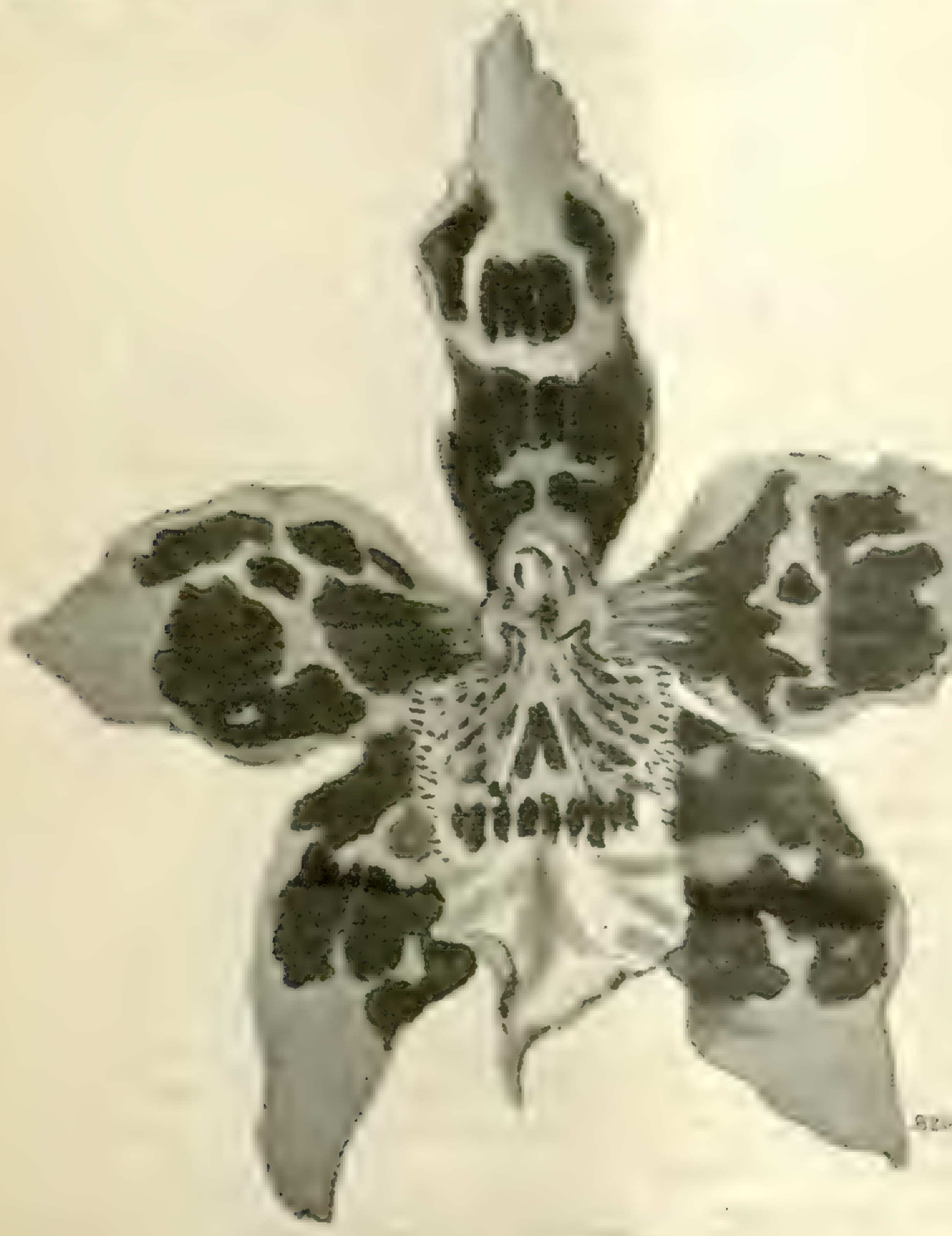
NEW PLANTS, FLOWERS, AND FRUIT.

CATTLEYA MENDELI MRS. E. V. LOW.

A BEAUTIFUL form of a beautiful orchid, having broad white sepals and petals, and a pretty purple tipped lip. The tube of the lip is white on the outside, but rich yellow within, this colour extending towards the broad apex. The purple is not very dark, and into it there run veins of white from the frilled white margin. The petals are of immense width and great substance, and altogether the form is first-rate. A.M., R.H.S., May 25. Messrs. H. Low and Co., Bush Hill Park, Enfield.

ODONTOGLOSSUM CRISPUM-HARRYANUM.

Among the distinct orchids at the Temple Show few attracted more attention than the odontoglossum that is presumably a natural hybrid between O. crispum and O. Harryanum, as its name implies. It is an open spreading flower of large size, and having the general characteristics of O. Harrayanum, but more expanded, and of a lighter colour. The ground work is pale nankin yellow, and, except at the tips of the sepals and petals, is heavily blotched with reddish brown, the markings sometimes extending right across the segments. The lip is pale yellow, and only spotted at the base with reddish crimson, having a fine golden crest; the lip is flat, broad, and with a sharp pointed apex. F.C.C., R.H.S., May 25. Mons. C. Vuylsteke, Loochristi, Belgium.



ODONTOGLOSSUM CRISPUM-HARRYANUM.

CATTLEYA MENDELI OAKES AMES.

A particularly handsome form, with rosy lilac sepals and petals and a brilliant purple apex to the finely formed lip. The broad petals had at their apices an irregular blotch of rich purple that is most attractive and distinct. The lip is very compact, and has a bright yellow throat; the apex is rounded, exquisitely fringed, and frilled, this colour extending well into the centre of the throat. The sepals are of a lighter lilac shade than the petals. F.C.C., R.H.S., May 25. Messrs. H. Low and Co., Bush Hill Park, Clapton.

DENDROBIUM DALHOUSIANUM SALMONEUM.

A wonderfully distinct variety of a well-known and bold-flowered species, differing principally from the type in the softening of the colour and, to a large extent, in the elimination of the side blotches in the lip. The flowers are large, borne as freely as in the species, and of a soft salmon-buff shade. The two blotches in the lip are of a peculiar red hue, brighter than a deep rose. F.C.C., R.H.S., May 25. Messrs. Hugh Low and Co., Bush Hill Park, Clapton.

LÆLIO-CATTLEYA ADMIRAL DEWEY.

A bold hybrid of great beauty, robustness and freedom of flowering. This orchid derives its origin from Cattleya Warneri formosa and Lælia elegans Mastersi; it partakes largely of the L. purpurata character, but has a glorified lip. The sepals and petals are of a beautiful shade of light purplish rose, the sepals being narrower and lighter in colour than the wavy petals. The tube of the lip is very broad, bright rose-purple, with darker veins; inside there are two light creamy patches on either side of a central band of royal purple. The mouth of the lip is fully two and a-quarter inches across rounded, with waved and crisped margin, and of a grand rich red-purple colour, though with a lighter wire edge. Four flowers were borne upon the spike shown, and each bloom was over six inches across without stretching out the segments. F.C.C., R.H.S., May 25. Messrs. Charlesworth and Co., Heaton, Bradford.

CATTLEYA FERNAND DENIS.

A remarkably distinct hybrid between Cattleya Acklandise and C. gigas; the former parent has dwarfed the habit and altered the shape of the latter, but has not affected the colouring so much as might have been imagined. The flowers have a spread of over five inches, and stand up boldly at the apex of the diphyllous slender pseudo bulbs. The sepals are from half to three-quarters of an inch across and nearly three inches long, blush, with pink veins, and having a few irregular spottings of purple at the apices. The broad petals are waved, and have their lateral margins reflexed a good deal, blush tinted, with a hint of lilac colouring. Lip large and open, the side lobes standing erect and wide apart. The central lobe is very broad and rounded, waved, and slightly fringed, deep purplish-carmine, with a band of palest yellow across the base, when the side lobes commence. Throat and column pale purple. This beautiful cattleya was figured in our issue of the 28th ult , under the name of C. Fernand Devis as inscribed on the accompanying card; but the name now given is correct. F.C.C., R.H.S., May 25. Messrs. Charlesworth and Co., Heaton, Bradford.

ACALYPHA SANDERI.

This is a bold, novel, and distinct species, with large ovate deep green leaves set on long light green petioles. From the axil of each leaf a long inflorescence springs, and this is the most attractive feature of the plant, for these are like long crimson tassels, measuring from a foot to twenty inches in length and sometimes an inch in diameter, and like nothing so much as crimson plush, so closely are the flowers placed together. It is a striking plant, and one that will be used largely for decorative effects, grouping, &c. It is a stove plant that when grown to the side needed can be kept in condition in an intermediate house or warm greenhouse for some time. In the case of especially strong plants there are sometimes two to five long long tassels of flowers from the axil of certain leaves. This plant was described in our report of the Ghent show a few weeks back, and figured in our last issue. F.C.C., R.H.S., May 25. Messrs. F. Sander and Co., St. Albans.

LICUALA JEANENCEYI.

This is a handsome palm that can scarcely fail to become popular, for it is elegant, and clothes itself to the base with frondage. The fronds are fan-shaped, but instead of being entire, as in a latania, they are divided to the base into seven or eight divisions; these are squared at the apex, but notched with bifid divisions to the depth of half an inch. The frondage is of a clear, deep green colour that recommends itself. F.C.C., R.H.S., May 25. Messrs. F. Sander and Co.

CALADIUM AMI SCHWARTZ.

A curious caladium, with leaves that endeavour to be cordate but have not their basal lobes much developed; the colour is deep bronzy-crimson, with veins of bright scarlet, and over the whole a sheen-like varnish. This is the result of crossing C. albanense with Madame J. Box. A.M., R.H.S., May 25. Messrs. F. Sander and Co., St. Albans.

CALADIUM GUARATINGUATOR.

Previously described in our columns; a bold caladium of a brilliant scarlet shade, with bronze-crimson mottlings making a broad marginal band. Very handsome. A.M., R.H.S., May 25. Messrs. J. Laing and Sons, Forest Hill.

ROSE AURORA.

A bold and large-flowered hybrid tea rose, having handsome sweetly-scented flowers of a delicate and charming shade of soft pink. The rounded petals are of great size, breadth, and substance, and with a pretty curl along the rounded upper margin. In habit the plant is all that could be desired, judging from the specimens staged; it will be a grand acquisition to its class. A.M., R.H.S., May 25. Messrs. William Paull and Son, Waltham Cross.

LÆLIO-CATTLEYA GOLDEN GEM.

A pretty and distinct hybrid obtained by crossing Cattleya intermedia with Lælia flava var. splendens. The growth is that of L. flava, and the flowers show great evidence both in shape and colour of its influence as a parent. The sepals and petals are half an inch across, nearly two inches long, and of a pretty golden shade of great depth; the petals point forward, and the sepals spread out. The lip is narrow, and has a long lemon-yellow tube formed of the clasping side-lobes; the tips are bright yellow; the apical lobe is of a rich deep crimson colour with purplish-crimson veins, and a tint of brown showing through the crimson. A.M., R.H.S., May 25. Messrs. Charlesworth and Co., Heaton, Bradford.

CATTLEYA MENDELI AMELIA.

A handsome and large-flowered variety with pure white sepals and petals, and a lip that is white save for a faint purplish blotch near the apex and a buff shade in the throat. The petals measure two and a half inches across, and are proportionately long; the sepals are an inch wide. A.M., R.H.S., May 25. Mr. J. Barker, gardener to W. P. Burkinshaw, Esq., West Hill, Hessle, Hull.

ODONTOGLOSSUM PESCATOREI BELLATULUM.

A very distinct form of a pretty orchid, and one that has branching spikes of elegant flowers. On the white ground there is one round rich purple spot at the centre of each petal, while at the apex of each sepal is an irregularly triangular blotch of the same rich rose-purple colour. The small lip has the usual crest and a few spots of purple. A handsome orchid. A.M., R.H.S., May 25. Messrs. Linden and Co., Brussels.

ODONTOGLOSSUM CRISPUM DECORUM.

A charming odontoglot of large size, and with wonderfully substantial segments. The sepals and petals are white, with a creamy tinge at their apices. One irregular and rather large intense crimson-brown blotch appears in the centre of each petal, while one big blotch or cluster of spots of the same deep, rich colour is placed about the centre of each petal. The shapely lip has rich, but small, spots strewed over the white ground, as well as on the golden disc. A.M., R.H.S., May 25. Messrs. Linden and Co., Brussels.

ODONTOGLOSSUM CRISPUM ZEBRINUM.

A pretty and attractive form, with finely-shaped flowers about two and a-half inches across. The ground colour is whitish, with a creamy suffusion. All the segments are spotted and barred with deep reddish-brown, the colour showing right through the flowers. The spike staged carried a dozen exquisite flowers. A.M., R.H.S., May 25. Messrs. Linden and Co., Brussels.

MILTONIA BLEUEANA ROSEA GIGANTEA.

A marvellously fine orchid, carrying eight huge blooms that are too flat to be graceful, but are most effective. The sepals and the spreading lip are palest blush, while the petals are shaded with rose, the colour being most intense at the base. At the base of the lip is a salmon-pink spreading disc. The lip is three and a-half inches broad, and the flower is four and a-half inches across at its widest. A.M., R.H.S., May 25. Mons. Jules Hye Leysen, Ghent.

ODONTOGLOSSUM CHARLSEANUM.

A curious and also pretty odontoglot, having creamy flowers on which the red-brown spots and blotches are so thickly disposed as to almost blot out the ground colour. The spotting is prettiest on the petals, for the sepals are rather blushed than spotted. The backs of the sepals are shaded deep rose, and this tint comes through to the front slightly, giving a curious effect. A.M., R.H.S., May 25, Mons. A. Madoux, Anderghem.

ANTHURIUM SCHERZERIANUM VAR. SENATEUR MONTEFIORE LEVI.

An attractive form with a long round spathe. French white, with an abundance of tiny dots of intense scarlet strewed over the surface. These dots congregate around the margin and down the centre into circular clusters that have a fine effect. A most distinct anthurium. A.M., R.H.S., May 25, Mr. L. de Smet Duvivier, Ghent, Belgium.

Phlebodium Mayi.

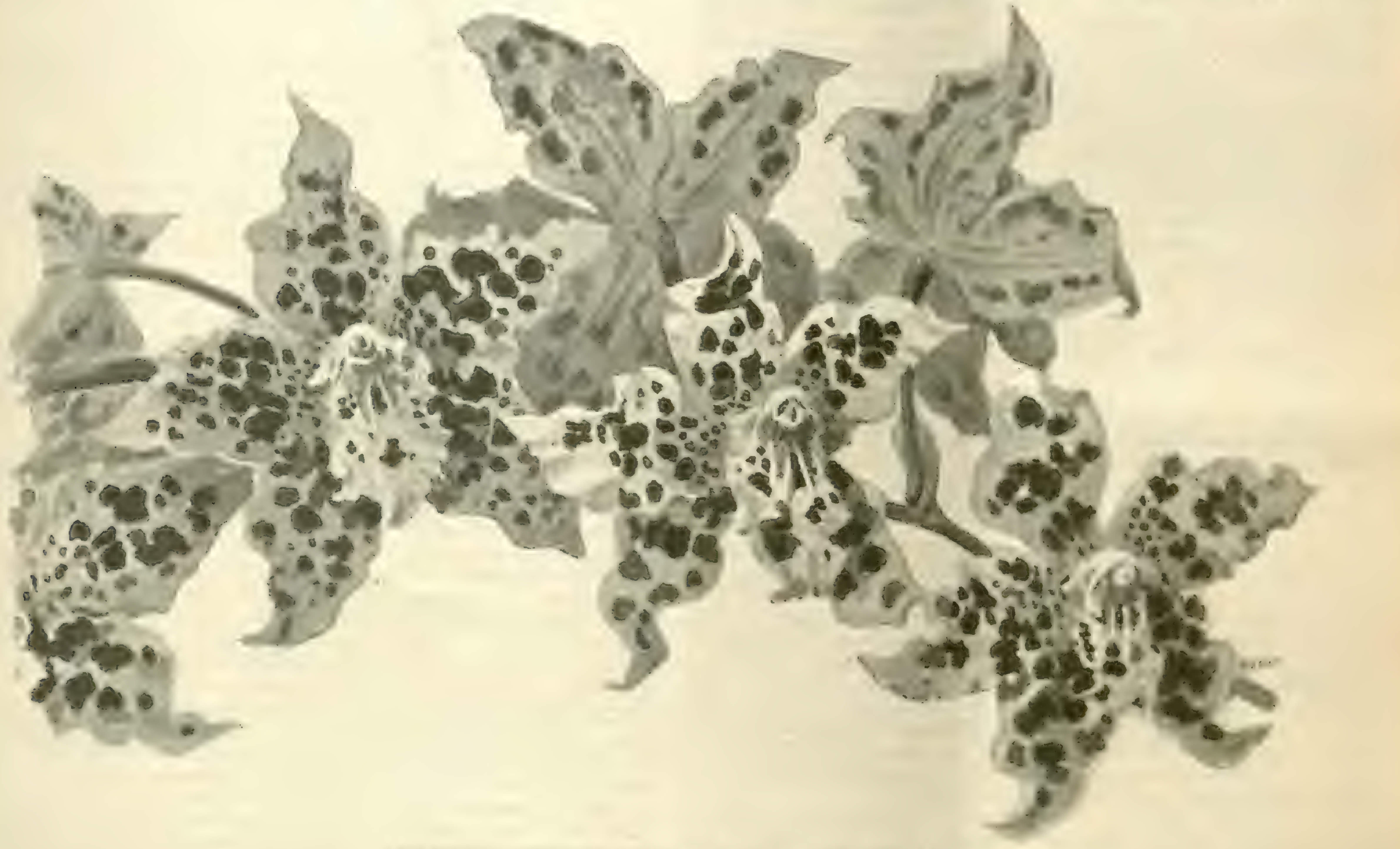
This is an elegant, distinct, and novel fern that will no doubt have to be classed as a variety of Phlebodium glaucum. It is probably not a true seedling from this species, but it is closely related to it. The fronds are a foot across, and divided almost to the rachis; there is a green tint associated with the general glaucous hue, and this, with the blue green tint seen in the veins of young fronds render the plant most attractive. In addition to the elegance of division and colour there is the beauty of undulation seen in all the pinnæ, and the secondary division also. There is a sort of regular irregularity in the whole contour of the plant that is extremely pleasing. If it proves amenable to general cultivation there is a great future before Phlebodium Mayi. F.C.C., R.H.S., May 25, Mr. H. B. May, Edmonton.

Eremurus robustus Elwesianus.

A gigantic eremurus, growing to a height of six feet, and carrying a spike that is at least forty inches long, though about eighteen inches of the lower part had been cleared of dead flowers. The individual flowers are of a pinky blush shade, with a deep pink vein down the centre of each segment; each bloom is about an inch and a half across. A. M., R.H.S., May 25. Mr. T. S. Ware, Hale Farm, Tottenham.

Odontoglossum Adrianæ var. venustum.

A beautiful and most distinct natural hybrid odontoglossum with charming flowers, having a creamy ground colour, over which are scattered in great profusion variously shaped bright red-brown spots. The flowers measure fully three inches across, and there were fifteen of them on a long graceful spike. When the plant is fully established this should make a grand orchid, for already it is a most beautiful one, and was the finest and most interesting odontoglossum in the show. All the segments are pointed, with waved margins, and with a slight fringing on the petals; the spotting almost become blotches on the lower sepals, but are smaller—mere dots at the base of the petals. The combination of colour is very good. O. Adrianæ var. venustum is undoubtedly a natural hybrid between O. crispum and O. Hunnewellianum. F.C.C., R.H.S., May 25. Messrs. Linden and Co., Brussels.



ODONTOGLOSSUM ADRIANÆ VAR. VENUSTUM.

Begonia Mrs. Dunbar Wood.

A handsome camellia-flowered begonia of large size, fine shape, and great substance. The outer segments are prettily fringed, and the whole flower is coloured with a novel shade that might be described as bright golden apricot. The segments are rounded, and some are speckled with creamy white. A. M., R.H.S., May 25. Mr. T. S. Ware, Tottenham.

Tree Pæonies.

Jean de Reszke: An extremely beautiful single-flowered form, with immense white petals, and a central cluster of golden anthers.

Sir Henry Irving: This is a wonderfully intense ruby-crimson form, single, with giant segments of great breadth; a very telling form.

Julius Cæsar: An extremely fine crimson-scarlet, semi-double form of exceptional brilliance and size; a grand colour A. M., R.H.S. to each, May 25. Messrs. Kelway and Son, Langport.

Auricula Snowdrop.

An interesting auricula but not one possessed of great beauty. It is certainly very distinct and novel, for it is perfectly double, and of a soft creamy white shade. It is the result of twenty years' careful seeding and selecting, and probably is the [illegible] plant of its kind in existence. Raised by the exhibitor. A.M., R.H.S., May 25, Mr. R. Dean, Ranelagh Road, Ealing.

Lilium rubellum.

A charming new species of lilium with shapely medium-sized blooms of a pretty rose shade, though the shade of colour varies from rosy blush to deep reddish rose. The growth is slender and the leafage small. Each flower is about three inches across at the mouth and three inches long in the tube. The average height of the plant is eighteen inches. The species has been named by Mr. J. G. Baker, of Kew, and has been found perfectly hardy during the past two winters; it will take its place among the very many beautiful Japanese plants we now have, and occupy a foremost position for bedding liliums. F.C.C., R.H.S., May 25, Messrs. R. Wallace and Co., Colchester.

Phyllocacti.

Agathea.—This is a very fine form, exceedingly free flowering, and producing big blooms of the brightest salmon-pink hue. A lovely variety.

Epirus.—A particularly large-flowered form with extra broad and fleshy segments of a lovely soft rose colour; this is a variety that attracted the ladies' attention as much or more than any other. A.M., R.H.S., to each, May 25. Messrs. J. Veitch and Sons, Chelsea.

Apple Ontario.

A handsome apple, rounded in outline, but with fine subdued ribs. The colour is yellow with a rich crimson scarlet cheek on the sunny side. The eye is large and half open, leafy, set in a deep and broad basin; stalk stout, set in a deep cavity. This is a famous long-keeping apple that should prove useful for late culinary purposes. A.M., R.H.S., May 25, Messrs. G. Bunyard and Co., Maidstone.

Holly Golden King.

A fine hardy holly, with showy broad foliage that in its younger state shows a pretty combination of gold and pale green. The older leafage is yellow with dark deep green centre, the markings being irregular. This variety has proved its hardihood at Carlisle, and grows very vigorously after the season has commenced. It is a sport from the Hodgson's holly, and this should recommend it. A.M., R.H.S., May 25, Messrs. Little and Ballantyne, Carlisle.

Whitewashing Peach Trees.—There is a great deal of truth expressed in the views of the grower to whom "D. T. F." (p. 283) alludes in his notes on the above. Protection, except when of the lightest description, often does more harm than good, as it renders trees and their fruits less hardy. As regards retarding by whitewashing, this might be a very good thing if we only knew the date or dates on which severe frost might be expected, and on the other hand it might be the worst possible thing to do. To illustrate what I wish to convey I may say that hundreds of apricots were killed here by the sharp frosts experienced on the nights of April 23 and 24, when we registered 12 and 10 degrees of frost respectively. The same thing happened in a lesser degree to peaches, but the fruits killed were those below a certain size, while the larger ones escaped either entirely, or with a slight bronzing. Had these fruits been retarded, so that the biggest were only as big as those killed, the whole crop would have been destroyed. Again we almost invariably have some sharp touches of frost in May, and I find that the bigger the fruits are when this happens, the more likely are they to escape injury. It may be said that by retarding we surely escape some frosts, but it is the severity of one frost which comes at an inopportune time, and not the number of frosts, which we have to fear; and my records here tell me that we are as liable to have 12 degrees of frost between the middle of April and the middle of May as we are earlier in the spring, and that no garden trees could be retarded sufficiently to make sure of escape. Whitewashing may and does retard the buds, but when once they burst it secures them no further immunity from injury. In America, where the springs come with a rush, and where there is rarely any further harkings back to winter, retarding must be of very great value, but we are placed differently, and hardly ever know when winter has quite departed.—J. C. Tallack.

TREE PYRUSES.

THE excellent illustration of the Sikkim apple (Pyrus sikkimensis) in your issue of May 14, portrays not only a beautiful, but an extremely interesting tree, being probably the most northern representative of the Malus section of pyruses. But the fact that there is probably not a nursery in this country from which it could be obtained, shows that either its value has been overlooked or ignored by nurserymen. To all intents it is an apple tree, and, beautiful though it undoubtedly is, an edible fruited apple gives much the same effect in flower, with the additional merit of autumn fruit—a second phase of beauty. The value of a tree to plant for ornament in private gardens from a nurseryman's point of view is generally the correct estimate of the merits of a hardy tree or shrub for general culture, and in these days of enterprise and rivalry, they do not knowingly allow a tree, shrub, or plant of commercial value (as they term it) to remain in the comparative obscurity of a botanical collection. It is, perhaps, well that such is the case, otherwise our great national collection of plant life at Kew would be robbed of much of its unique interest if the rarer species were to become distributed everywhere. One has often to deplore the fact that such an interesting plant cannot be obtained in nurseries as formerly. Nurserymen will tell you that "it does not pay" to grow them now as did it their fathers and grandfathers. We are so very commercial nowadays, that even plants are regarded from a strictly business point of view.

While dwelling upon this rare Sikkim tree one's thoughts naturally turn to others of its tribe which have best yielded their tribute of flower beauty for another season. Out of the dozen species of Malus enumerated in the Kew list half of this number are still rare beyond botanical collections; the rest are among the most popular of small flowering trees. One of the finest is the little Japanese tree crab P. floribunda, and this has become a quite common tree throughout English gardens, though its first introduction was comparatively recent. There is no need to describe such a familiar tree, and it cannot well be confused with any other, its slender growth of branches forming a spreading head rarely about ten feet high, at once distinguishes it when out of bloom, and at flowering time every branch is densely wreathed with the pale pink flowers, the opening buds being a rich crimson, a charming contrast to the pink open blossoms. The variety Atrosanguinea is regarded by many as a much finer form, the open flowers being of a much deeper pink than those of the type, but there is not such a marked contrast of tint between the buds as in the original form. Both are first-rate, and should be planted in a group together. The plants from a nursery reach mature growth in about the third or fourth year after planting, and these are especially fine if the soil is good or such as where apples grow well. The semi-double flowered variety Halleana or Parkimanni has the merit of retaining its flowers for a longer time than do the single forms, and for this reason is desirable. It is of the same colour as the type, and the three together make one of the choicest of groups for a lawn, standing out singly, not jostled with common shrubs or trees.

P. spectabilis is a much larger tree, and in my estimation the finest of all the maluses. Nothing surpasses this tree when first in full beauty of flower. It has all the profusion of bloom and richness of colour of P. floribunda, with a loftier and more imposing head. Its flowers are semi-double, and last a fortnight or three weeks in perfection. It is only as old specimens one sees the true beauty of this Chinese crab-tree, and, like the common apple, it takes a long time to mature. As its natural growth it is a stemmed tree. It is an ideal tree on a lawn, and the little floribunda may be grouped round it with fine effect. Though it has been in gardens for over a century it is not common, and nurserymen say they are seldom asked for it. Loudon, in 1838, said "No garden, large or small, should be without this tree." The same remark should be repeated to-day. There is a double variety, flore pleno, grown in nurseries, and a white or whitish variety (flore-albo).

P. coronaria, called the Garland Flowering Apple, is, like P. spectabilis, an old tree, brought first from America in 1724, and this also Loudon said should be in every garden. Beautiful though it is undoubtedly, I should not put it in the first rank, as it does not succeed well everywhere, and is often shy in flowering. The flowers are larger than those of spectabilis, paler in colour, and in looser clusters, but grows about the same height. It is not grown in nurseries, and here again is an instance of the nurseryman's estimate of value.

P. Toringo is another Japanese species of lesser value than floribunda, but still very pretty. As it is not to be found in nurseries under that name there is no need to dilate upon it, and the same applies to P. Ringo. Both species seem to be in a confused state of nomenclature, and possibly they exist in nurseries under their various synonyms.

P. Schiedeckeri, a recent introduction to our nurseries, promises to be one of the finest of the pyruses. It appears to have affinity with P. spectabilis, and possibly is a hybrid. It has all the beauty of P. spectabilis, and flowers when quite small, only a yard high. Nurserymen are taking it in hand very keenly, and we shall soon see it a common tree. What its mature growth is I do not know. P. baccata yields the various ornamental fruited crabs that are so conspicuously beautiful in gardens during the autumn. There are many kinds of showy fruited crabs now, and all excellent for ornamental planting. The most popular are the Dartmouth, John Downie, Scarlet Siberian, Transcandent, and the new Elise Rathe, a pendulous variety most graceful as a small lawn tree. These crab trees and showy flowered apples are among the many things that the intending planter should bear in mind next autumn. If the garden is large enough then plant them all; if space is limited, then the choice should be P. spectabilis, P. floribunda, P. Schredeckeri, and the Scarlet Siberian Crab. Wherever the apple and pear thrive so will these, and even in soils where apple fruit is inferior these flowering kinds grow well; they never reach perfection on thin soils, on chalk, or in hungry sandy soils, but these can be modified to suit the requirements of such beautiful trees. It is worth the trouble.

Kew.

W. GOLDRING.

AURICULAS AT BRACKNELL.

THE floricultural specialist is a production of these days, and it has come to mean one who, having taken in hand the cultivation of one or two florists' flowers, and proving successful in the matter of producing stock, disposes of his surplus plants and thus gains room in his frames. Such an one is Mr. Charles Phillips, the head of a bank at Bracknell, Berks. The auricula and the carnation are the two flowers to which Mr. Phillips gives his attention, and the prizes he has won with both attest to his ability as a cultivator. To provide accommodation for his plants he has built himself a range of two span-roofed houses, one twenty-five feet in length for auriculas, and one twenty feet for carnations. The line is from north to south, and while there is an abundance of light, there is also ample means of ventilation below and at top, as well as at the sides. There is a walk along the centre of the houses, with stages on either side.

The auriculas, on the occasion of a recent visit, were very gay; the collection is select, and the plants finely grown. It can truly be said, in reference to Mr. Phillips' method of culture, that he appears to get the best possible out of a pot of soil. There is not only a vigorous growth, but they also produce stout stems and magnificent trusses of bloom. One sometimes sees plants with ample leafage and scanty blossoms, but at Bracknell the happy medium is hit—flowers and foliage alike are splendidly developed. Happily for his plants, and especially so at this time of the year, Mr. Phillips is much among them, and the small attentions which have so much to do with the well-being of the auricula are constantly rendered. If anyone wishes to make the acquaintance of the modern, up-to-date florist, who is brimfull of enthusiasm, let him pay a visit to Bracknell at the auricula season, and he will be found there.

Mr. Phillips grows a select collection of show auriculas. You can tick off the names of his green edges on the fingers of one hand; they are Mrs. Henwood, Abbé Lizst, James Hannaford, and the Rev. F. D. Horner. Mrs. Henwood is a very strong grower, and throws up stout flower stems bearing a number of large-sized, brilliant-edged pips. I think that, like the Rev. F. D. Horner, probably one of its progenitors, it can be depended upon. It may be pronounced too large by some of the older school, but it is yet a very strong and reliable variety, and when more widely distributed will be indispensable to a collection of twelve. Abbé Lizst was raised by Mr. J. Douglas, an excellent green, very bright; the corolla of excellent shape. It will be remembered it was a plant of this variety which gained the premier award at the auricula show recently held in London. It throws a strong stem surmounted by a symmetrical truss. James Hannaford (B. Simonite) can be denominated a catch flower. It will sometimes come very good, but oftener indifferent. When it was first shown it was hoped it would prove a green-edge with the quality of pip and constancy of George Lightbody; yet it is unconstant and uncertain. The leading grey-edges at Bracknell are Richard Headley, very fine indeed, grand in growth, truss and quality; Marmion, one of the best and most useful show auriculas Mr. Douglas yet raised; George Rudd, very good indeed; George Lightbody, Dr. Kidd, a good, constant flower, which can sometimes be shown as a white-edge; and the Old Lancashire Hero, still one of the best when in good character. White-edges are represented by Conservative; Reliance (Mellor), which does not open kindly, a fault common to some varieties; Acme; Heather Bell, a somewhat coarse flower, weak in tube; John Simonite; and Mrs. Dodwell, the body-colour of which is often too heavy.

Mr. Phillips has made a hit as a raiser of selfs, his two dark varieties, Miss Barnett, shaded claret or plum, good in all its parts, pip smooth and handsome; Mrs. Phillips, rich maroon, a very striking contrast being afforded by the dark self colour. The golden tube and white paste, also of very fine quality. Black Bess, Heroine, so apt at times to come shaded, and Mrs. Potts, as yet our best blue self, though capable of great improvement. Mr. Phillips also has a yellow self which comes very near to Horner's Buttercup in point of quality. Mr. Phillips means to be a raiser as well as a cultivator, and as the gentle art of raising new varieties of show auriculas does not remain long the possession of one individual, his turn may have come. He diligently fertilizes, and already has young seedling coming on apace. It is with the alpine section that Mr. Phillips has scored such striking successes as a raiser. His varieties are characterised by striking gold centres and massive refined pips. Of his new gold centres the following are very fine: Clara, Pluto, Evelyn Phillips, Miranda, Mrs. Gorton, Mrs. Martin Smith, Dreadnought, Topsy, Bronze Queen, A. R. Brown, Chastity, Jubilee Regina, Katrine, Princess Louise, Messrs. Shaw, Vandyke, and Marian. Of white and cream centres, Gladys, Mrs. Barnett, Sister Mary, and Edith Western.

Hundreds of seedlings of alpines are raised every year from the best varieties. As soon as large enough they are planted out of doors, where they remain until they are large enough to flower, running many risks meanwhile from the incursions of worms and garden vermin, heavy rains &c. But they grow grandly and flower superbly, and as promising varieties display themselves they are duly marked and potted. One realises the glorious freedom of bloom in the alpine auricula when they see the mass of flowers the plants will produce. Potting is done as soon as possible after the plants have gone out of flower. The show varieties and alpine find their summer quarters in cool frames in shady spots. The young stocks growing on from offsets taken in early spring are in the best condition.

Of carnations, Mr. Phillips has some seven hundred pots, including a large number of yellow grounds; and with blooms of these he can hold his own on the exhibition table as with his auriculas. The two pet hobbies with Mr. Phillips are these two florists' flowers; and having a good deal of leisure time, he wisely looks to his garden for pleasant recreation, and finds in his plants companions capable of affording him the highest enjoyment.

R. DEAN.

WORK FOR THE WEEK.

WARM ORCHIDS.

DENDROBIUM phalænopsis Schroderianum will now be growing freely; the roots will be forcing themselves from the suspended pans or baskets searching for moisture; a little help in the way of liquid cow manure will be beneficial, and this may be put underneath the stages and all about the floors several times during the week. The syringe must be used freely several times a day on favourable occasions; by so doing, thrips, &c., cannot lodge about them; besides, the moisture refreshes the plants. Slight shading will be necessary, but the dendrobiums enjoy a certain amount of sun, thus enabling them to make sturdy growths. Ventilation by the lower openings must be given, and the top ventilators used only to keep the house at a reasonable temperature. It is useless to attempt to keep one temperature in this house as used to be the case in growing orchids, and no hard and fast rule is required to succeed well. Guard against dry heat, always check the fires at any time when the weather will allow it, to allow the plants as much natural heat as possible.

Spathoglottis aurea and S. Kimballiana will be commencing to grow, and if potting is required this may be done now, the compost to consist of equal parts fibrous peat and loam, a little leaf-mould, and chopped sphagnum. These thrive well in a warm shady place, grown in pots and kept below the rim to allow for water in the growing season. Aerides that have been imported must be well washed, and suspended upside down along the pathway, or anywhere in a shady place where they can be syringed to encourage root action, before placing them in their pots or baskets, the latter being preferable for the dwarfer growing kinds. Stanhopeas are very irregular in their habit where any stock is grown; some are flowering, others commencing to grow, &c.; as a rule, they are very much neglected, and allowed to grow wild as it were. They ought to be treated individually according to their respective habits. Those that have overgrown the baskets may be divided, supposing they are in a proper state. Those likely to flower will require slight watering, sufficient to keep the bulbs plump until growth appears. Teak wood baskets are required in order to allow the spikes to push their way through, and the right materials to use are rough peat and sphagnum, very few crocks, with openings between; these are well worth growing for their curious type of flower and the odour they give.

The hot rays of the sun we have occasionally will be too much for phalænopsis, and the shading must be put down earlier in the morning when necessary. In addition to the blind outside another one must be nailed up to the rafters inside as a permanency for the season, more especially if lath blinds are used, besides being an additional shade, as a matter of fact, must retain the moisture, always allowing a nice growing atmosphere. The bottom ventilators must be left open night and day with the exception of a wild night. After the inner blind has been nailed up less water will be required; syringing between the cylinders twice a day and damping all round, and a slight spray overhead in the morning, will suffice for a time. Where only a small stock is grown they can be placed in one corner of the house and treated accordingly.

The cattleya house must have a good damping in the morning, and the plants a syringing between the pots and a spray overhead before the hot rays of the sun appear; the floors damped again at noon, and another good damping in the afternoon. This must be done according to atmospheric conditions outside. The temperature will be higher with the weather being warmer—phalænopsis, 70 degrees night; cattleya house, 65 degrees night; intermediate, 60 degrees night. The above will all rise during the day by sun, and ventilation must be given accordingly.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

CAMELLIAS in pots or tubs which flowered early will have now completed their new growth. It will therefore be necessary to keep the atmosphere of the house they have been growing in somewhat drier, to harden the wood and prevent them starting into a second growth. As the wood and foliage becomes harder less shading will be necessary, and in a few weeks the plants may be arranged in a sheltered nook outside. Although the plants have finished their growth the roots should be still nourished with weak liquid manure or soot water at least once a week, which will assist the flower buds to plump up later on. Azaleas require much the same treatment. Remove the plants to a cool, airy house as they finish their growth, but continue to syringe them freely to keep thrips in check. Gradually expose the plants to more sun and so prepare them for standing in a sunny position when the young foliage is sufficiently firm to stand the full force of the sun. It is always safe to syringe the plants once a week with some weak solution rather than allow insects to appear and then use strong measures to dislodge them. With ericas and epacris excessive care is sometimes practised in giving water and the plants are greatly injured by being too dry. The compost is made very firm in the pots, and it is necessary to water plants several times over before the ball is thoroughly moistened through. If by chance any of the plants have become too dry, the best way to treat them is to plunge the pots in a tub of water for several minutes. Many ericas which are not doing well would more than probably be found to be too dry at the roots if they were turned out of their pots and examined. The plants should be arranged on a bed of ashes or shingle to retain moisture. The worst position, especially at this season, is an open wood trellis or stage. Shade the plants for a short time when the sun strikes them fully. Pinch the points out of the strongest shoots that are taking the lead of others, or draw them towards the rim of the pots so as to give the weaker shoots a chance of gaining strength. What potting is necessary should be completed forthwith, but in potting up young stock be careful not to give them too large a shift, an inch space round the ball being quite sufficient. Peat is the usual compost used, though we have grown the soft wood section equally as well in good loam and sharp sand. Greenhouse rhododendrons frequently fail to flower profusely through overshading. They practically need no shade beyond a slight one just as new wood is being made, which should be dispensed with directly the foliage is fully formed. The wood must be thoroughly hard and ripe, then every shoot will produce bloom. These may be potted almost at any season, but we prefer potting as the plants pass out of bloom, and just as new growth commences. The roots then become thoroughly established in the new compost before autumn.—R. PARKER *Goodwood Gardens.*

THE FLOWER GARDEN.

OWING to dull and cold weather, spring-bedding plants are holding on into them late, and where much summer bedding is done the spring bedders are in the way when the seasons are so late as the present one. Summer bedding-out should, however, by this date be in full swing, and unless under specially required conditions all spring things must be cleared off forthwith if a satisfactory summer display is desired. The recent rains will considerably faciliate the removal of such subjects as pansies and violas, and these should be laid in temporarily in shallow drills in the reserve garden to be attended to in the way of propagation and division later on. Primroses and polyanthuses may be treated similarly, or if time allows, be pulled in pieces now and planted direct into the reserve garden in duly prepared and rather shady borders, at about eight inches asunder each way, where they should make good plants for use again in late autumn. All these transplanted subjects should be supplied with water when necessary. Bulbous plants, as daffodils and tulips should, if it be desired to preserve the bulbs in good condition for next autumn's planting, be lifted with as many roots as possible. and be laid in shallow trenches in the reserve garden, and if here allowed to ripen off naturally, the bulbs will suffer but little from the moving. As soon as the leaves wither and ripen off, the bulbs should be lifted and spread out in a dry cool shed preparatory to cleaning and storing. A method practised here with several beds of yellow jonquils and Narcissus poeticus is to lift the bulbs from the beds, lay them out on mats while the beds are dug, and manured if required, the largest bulbs are then selected and planted in these or other beds in patches of five or six bulbs with the tops twisted together into a knot, at a space of six to eight inches apart each way. Where the beds are to be planted with pelargoniums or similar subjects, these are easily planted between, and when cleared off in the autumn the bulbs have made a good start.

From this date the bedding out of sub-tropical and other somewhat tender plants may be generally undertaken in all southern localities, and in less favourably situated districts a week or so later. A sub-tropical garden or bed should occupy a sheltered position, where plants of such handsome leafage as ricinus and others may be screened from rough winds by belts of trees or shrubs, yet be open enough to receive all sun warmth from south and south-west, this being essential to ensure free growth and finely coloured foliage, otherwise few of these subjects make a satisfactory display. Where palms are employed, the pots should be sunk into the soil and a small quantity of coal ashes or fine rubble placed underneath each pot. A well-grown kentia or seaforthia forms a good central plant in a large round bed filled with sub-tropicals of a lesser growth. Such a bed may be carpeted with a grey-leaved sedum, as S. glaucum, and thinly planted with dark-leaved cannas, with a good palm for the centre. The variegated Dactylis glomerata, violas, and such like may also be used as groundwork for hedychiums, dracænas of the indivisa type, solanums, wigandias, and Ricinis Gibsoni. Other tall-growing subjects are abutilons, Humea elegans, Melianthus major, niciotianas in variety, acacias, grevilieas, New Zealand flax, aralias, and variegated maize; while for association with these as marginal plants, Perilla nankinensis, Centaurea Clementei, C. gymnocarpa, and C. candidissima, Amaranthus melancholicus ruber, Chamæpeuce cassabonæ, and C. diacantha may be used. All bedding plants turned out of pots should be in a moist state when planted, and the soil and roots will be in the best condition for planting, if watered an hour or two previously. The recent showery weather has been favourable for the planting out of frame-raised annuals, and beds filled with seedling of double zinnias, gaillardias, verbenas, petunias, antirrhinums, &c., soon grow away, and may take the place in many instances of pelargoniums and others that have of necessity to be kept under glass for some months. Annual sunflowers should be planted forthwith; the tall growers are effective at the back of herbaceous borders where room can be given. Annuals in variety sown on borders, or in the reserve garden for cutting from, should be thinned out to a few inches apart as soon as large enough to be handled. All dahlias should be planted, and given a mulch of rotten manure.

Where wallflowers are required for spring bedding the present is a suitable time to sow seeds to produce good stocky plants for going out in the autumn. In hot light soils a north border should be chosen for the seed bed. The seeds should be sown thinly in shallow drills drawn out six inches or more apart. As soon as large enough to moue transplant to other borders, allowing a space of nine inches apart each way. The varieties are now numerous. A good dark and yellow is Veitch's Blood Red and Belvoir Castle Yellow; while a pale primrose will be found in Faerie Queen or Primrose Dame. A very early-flowering variety is Sutton's Earliest of All, which blooms in autumn and midwinter, if the weather be not very severe. Campanula calycanthema, C. pyramidalis, and C. pyramidalis alba should also be sown now.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUIT.

WITH genial rains all kinds of hardy fruit will have greatly benefited, as owing to the small rainfall during the winter and early spring the soil was very dry indeed, and insect pests were becoming most troublesome. Unfortunately for the tender kinds of fruit, we have during the past few days experienced very cold weather, the night temperature having been very low, and with cold easterly winds prevalent the growth has been retarded, and in a few instances I have noticed wholesale dropping of fruit. This is to be deplored, as the stone fruits, such as apricots, early peaches, nectarines, and plums are none too plentiful. Doubtless the dropping is influenced by imperfect setting and the cold weather combined, indeed the growers of hardy fruit have a difficult task, as with every promise of success after a poor season a few days bitter weather soon destroys all prospects of a future crop. With a spare crop, and should warm weather follow the weather described, growth will be most vigorous, and here the fruit grower will need to use discretion, as upon the management of the trees now will greatly depend next season's crop.

The production of gross wood must be prevented, and with certain kinds of trees it is an easier matter to advise than to carry out, as in the case of pears and apples, unless there is free extension the roots have too much play and the trees fail to crop if closely stopped and the roots not interfered with for years. On the other hand, at this season much may be done by pinching in preference to the free use of the knife when the trees are more advanced in growth. I find we obtain much better results from our cordon pears and apples by regular stopping from now to the end of June than by hard cutting of young shoots after that date. In stopping young trees one may with advantage remove weakly shoots altogether, as by hard cutting in the winter every small bud produces a shoot. Spur-pruned pear trees on walls are often seen a forest of small, weakly shoots. I am aware there must be enough retained to equalise root action, but with ample fibrous roots such a large proportion of small, weak wood is not conducive to fruit bud formation. I have found a great gain as regards these fruits by thinning the growths at this season; it not only induces fruit spurs to form and mature—the latter equally important as formation of fruiting wood—but the wood made when ripened is able to produce better fruits, and to battle against variable seasons. I see no necessity whatever for letting wall-trees take their chance from now, and allow all the fruit that shows to ripen. Standards are better able to bear heavy crops. I have dwelt upon stopping and removal of useless wood, but thinning of fruits should now receive equal attention. Unfortunately in our case with some varieties we have but little to thin, as our early peaches are very few indeed owing to the severe weather we had at the end of March, whilst the trees were in full bloom and our favourite nectarine, Lord Napier, of which we have a goodly number of trees, suffered badly. On the other hand, Early Rivers passed through the gale uninjured, and this may have been owing to the bloom being a little more advanced. This will become one of the most valuable trees a fruit grower can have, as it is from ten days to a fortnight earlier than others, and what is better it is a splendid grower, and quite at home on different aspects. Apricots are swelling up freely, and there is now no fear of dropping, indeed, as far as my experience goes, dropping is often over-rated, and at times is assisted by allowing the trees to carry too many fruits before they are thinned. Plums and cherries often drop wholesale, and many think it is the natural way for trees to relieve themselves of the crop, but the strain on the trees is so great it will be found that earlier thinning will in a great measure prevent the loss of fruits that are needed for a crop. The final thinning of cherries should not be delayed, as though I am aware the trees will mature most of the fruits they will be much smaller if all are left, and by judicious thinning of wall trees some of the best kinds, such as Bigarreau Jaboulay, Bigarreau Napoleon, and B. Monstreuse de Mazel are very fine indeed, and are a great addition to the dessert, as they come in early and are much appreciated. The cherry will soon begin to colour, and before this takes place I find a liberal supply of liquid manure or a good fertilizer will greatly assist in swelling up the fruits, but to be of service it is best given before the colouring begins ; on the other hand, trees on walls with a rather wide coping should be well syringed before the fruits colour, as in light soils it is almost impossible to keep the trees clear of black fly, one of the worst pests the cherry is subject to, we use Bentley's Quassie Extract on all our wall trees before the stage alluded to.—G. Wythes, *Syon Gardens.*

THE WATER GARDEN.

Shadeloving Bog Plants.

In the shade we might grow by the waterside an equally large number of handsome plants as in the sun, and, though not pretending to give anything like a complete list of them, I will mention a few of the most important.

The bright purple Primula japonica and the deep yellow Primula sikkimensis were mentioned in connection with Enys ; they certainly deserve a place in every garden where a shady sheltered nook by the waterside can be found. The pink Primula Poissoni and the rare yellow Primula imperialis will, no doubt, become equally popular when they are more plentiful and less expensive. Other bright flowers for a moist and shady position are Mertensia virginica, of a beautiful blue ; Spigelia marilandica, red and yellow ; Sanguinaria canadensis, white or pale lilac ; Actinomeris virginica, yellow ; Trillium grandiflorum, white ; and Ourisia coccinea, scarlet. The last named I find does better in stony poor clay soil than in well-prepared peat. Under this section must also be mentioned some of the shade and moisture loving orchids. The exquisite pink lipped Cypripedium spectabile, the yellow lipped Cypripedium pubescens, and several species of habenaria, with flowers of various shades, are most suitable for a shady corner sheltered by rocks, or for a bogbed shaded by other plants. Some shade-loving plants of medium size are ornamental in their foliage as well as in their flowers. This applies to such as Saxifraga peltata, with peltate leaves a foot across, and pink flowers ; Saxifraga fortunei, with shiny leaves on red stems and trusses of white flowers ; Megasea crassifolia, with large leathery leaves and rosy purple flowers ; Podophyllum Emodi, P. peltatum, and Rodgersia podophylla, all of which I have planted by the waterside with great success in various localities.

Dwarf Plants.

Before closing my list of plants for the water garden, I will briefly refer to another section, namely, dwarf plants ; that is to say, plants seldom more than a foot in height. The value of such for carpeting the ground between the taller plants in bogbeds by the side of a pond, either on a large or small scale in a rock garden, cannot be over estimated. The taller and bolder plants can show to perfection only when they are kept a proper distance apart, and without the aid of such dwarf plants the ground between the larger specimens would otherwise often remain bare. But even without the tall plants a very pretty bogbed in the rock garden might be filled by these dwarf subjects alone.

Most suitable plants for trailing close to the ground and succeeding well in the shade are : Linnæa borealis, Pratia angulata, Hypericum nummularium, Gaultheria nummularioides, Erodium Reichardi, Arenaria balearica, Mitchella repens, and the golden form of the well-known Creeping Jenny. Plants slightly taller and requiring no shade are Cardamine trifoliata, Dondia epipactis, with curious yellow flowers ; Parnassia palustris ; Saxifraga azoides, with yellow flowers ; the rapidly spreading Dryas octopetala ; the yellow Chrysogonum virginianum ; myosotis ; and the scarlet Mimulas cardinalis. No bogbed, large or small, should be without large batches of that loveliest of early primroses, Primula rosea, with its brilliant rosy flowers, which in the improved form *(P. r. grandiflora)* are still larger and of a deeper red. Primula farinosa and P. longifolia are also excellent bog plants specially suited for the rock garden, but being rather minute, they should not be planted too near fast-growing plants. If gritty sand or small stones are mixed with the soil we might here also grow large groups of the deep blue Gentiana acaulis. Insectivorous plants, too, might be introduced, and sarracenia, darlingtonia, pinguicula, and drosera in several kinds are often a great success in a bogbed among rocks.

The following require a shady bog : Rhexia virginica, with beautiful pink flowers ; Epigæa repens, white ; Pyrola rotundifolia, white ; Polygala chamæcistus, yellow ; Polygala chamæcistus purpurea, yellow and purple ; Vaccinium vitis ; Idæas minus, with handsome red berries ; Saxifraga hirculus, yellow ; Galax aphylla, with small white flowers and handsome leathery leaves, which turn scarlet in autumn ; and last, but not least, Shortia galacifolia, with bell-shaped white flowers, slightly shaded with rose, and having handsome reddish-bronze leaves.

This somewhat extensive list of plants suitable for growing in a water garden by no means exhausts the number A great many names have been omitted. I have mentioned only what in my own experience have proved to be the very best, and the experience of others might differ to some extent from mine. But I hope to have shown, at least, that we have a truly astonishing number of plants to choose from, which are most suitable for embellishing the water or the waterside in our parks and gardens, and I venture to hope that the hints given may have interested other lovers of the waterside.

Exeter.

F. W. Meyer.

MEMORIES OF BRUGES.

Returning to the City of Bruges from Messrs. F. Sander and Co.'s Nursery, it is a pleasant walk westward to the suburb of Scheepsdaele. After passing the nearest Porte, it is desirable to turn sharp to the left, when one is immediately upon the Rempart de la Porte Marechale ; some distance below lies the sluggish and broad canal, and down to its margin slope the grass-covered ramparts. A good deal of planting has been done along the top of this huge erection, trees and flowering shrubs having been extensively disposed in large mixed clumps or small plantations. Lilacs, philadelphus, berberis, deutzias, and gorse appeared to be the favourite flowering shrubs. Trees of various kinds, principally lime, elm, plane, and poplar have been placed in these plantations so as to produce an effect as early as possible. One could imagine a bundle of from three to eight young trees planted as received from a nursery, and then, after planting, the several stems tied outwards from the root centre to a surrounding triangular or quadrangular wooden support. By this means a good mass of foliage is quickly produced ; but what about the subsequent results ?

Continuing along the pleasant rampart and crossing the railway twice one reaches the Porte d'Ostende. Outside the gateway and across the line of canals a broad road with double avenue opens out, and on either side are to be seen Belgian nurseries of various sizes. A short walk under the leafy lime trees brings one to an unusually extensive nursery frontage, behind which are the home, offices, and extensive glass-houses of M. Vincke-Dujardin. Nothing is more conspicuous as one enters this famous establishment than the enormous quantities of huge bay trees. There is a splendid avenue of the finest specimens lining the central roadway through the nursery, and some of these are old family friends, for they have been in the family not less than one hundred and thirty years. Behind the glass-houses are big armies of fragrant bays, standards and pyramids, in a variety of sizes, all admirably cultivated, and in the best of health ; here the tubs are sunk into the light soil, and so the drying influence of the sun and wind is kept from the roots to a large degree. Looking at these specimens, it is difficult to estimate the vast amount of time and patience that has been expended upon their production, for the watering, housing, and pruning are items that must require much care and labour.

The houses here are built upon the plan that obtains in all the larger Belgian nurseries, and one that is now extensively adopted at home and in America. Viewing a block from outside one estimates the number of houses it contains by the number of spans that appear ; but enter, and the whole is but one huge glass-house. This method of construction results in a great saving of expense in the matter of brickwork, for the numerous furrows are supported only by light iron uprights, and walls form an enclosure to the whole. M. Vincke-Dujardin has gone one better than many nurserymen in this system of building, for he has in some instances a big central house several hundred feet long, more lofty than all the others, and containing the tallest specimen palms ; into this fine structure, or rather from it, run lower houses along its length, and from these there is no means of egress save through the central structure. I did not count the smaller houses, but probably there are ten or more running from either side of the larger one. This system ensures equable temperature, if such is desired ; it allows ventilation to be afforded with a great degree of accuracy, and entirely prevents cold draughts. Rather heavy shading, and a water supply that seems to be admirably suited to plant cultivation, are other items that assist in the production of free growth and handsome plants.

M. Vincke-Dujardin has become famous for his odontoglossums, both for the admirable forms of the more popular species he has distributed, and the wonderful robustness of all the plants he cultivates. Comparatively speaking, the odontoglossums at Scheepsdaele grow as vigorously and freely as rhubarb, making fine fat pseudo-bulbs, stout purple-tinted foliage, and producing thick spikes of great size, that carry large substantial flowers. It is not many years since that Mr. Vincke-Dujardin accidently discovered that the cool orchids succeeded remarkably well at his nursery ; following this discovery, and at the advice of a well-known English market grower, he purchased odontoglossums extensively, taking care to obtain plants from the very best districts. They grew well, and had to be divided to keep them "sizeable." The varieties of O crispum turned out to be of the very best, and it is a fact that most of the very fine forms of this beautiful odontoglossum that have made their appearance in Europe of late years, have passed through M. Vincke's hands.

Odontoglossum crispum, O. Pescatorei, O. triumphans, O. luteo-purpureum, O. Halli, and O. cirrhosum are here grown in enormous quantities, and their liking for the conditions that prevail is seen in the arching spikes and beauteous blooms. Rarities are not wanting amid so extensive a collection ; rose coloured, yellowish, and spotted form of O. crispum abound, and at the time of my visit there were not a few examples of O. Wilckeanum, O. Ruckerianum, O. sceptrum, and O. Andersoneanum flowering profusely. The attractive Miltonia vexillaria is equally at home in this interesting nursery, and flowers with a freedom not often seen in our islands. Cattleyas, chiefly of the labiate section, fill several houses, the typical C. labiata being present in fine condition. Lælia purpurata promised grandly, and there were fine batches of the popular L. anceps. Vandas occupy considerable space, as also do the cypripediums, the latter flourishing in a manner that would excite the envy of all ardent amateurs. M. Vincke-Dujardin has demonstrated that the species of orchids he grows do not deteriorate under cultivation, for he divides and re-divides his plants as necessary, so as to retain stock of good forms.

The anthuriums are a fine sight when fully flowered, for not only do they give evidence of extremely high cultivation, but there are so many seedlings and hybrids flowering that the variety is charming. Here, as in other Belgian nurseries, a great work is going on in the raising of seedlings of A. Scherzerianum and A. Andreanum, with a view to improvement of form and an increase in the shades of colour. Bromeliads are very attractive, for every plant is a perfect specimen, and only the very best species or hybrids are cultivated. Palms are to be seen everywhere, from the tall specimens of Cocos plumosus, Arecas, and Kentias, that reach to the roof in the central houses already referred to, down to seedlings not yet potted. The quantities of the two principal Kentias, of Latania rotundifolia, cocos of sorts, arecas, and rhapis, are such as fill one with astonishment ; they are clean, handsome, saleable plants, such as M. Vincke-Dujardin has a wide reputation for, and, in spite of their numbers, they will not long remain upon their present owner's hands.

Servator.

EXHIBITIONS AND MEETINGS.

ROYAL BOTANIC SOCIETY OF MANCHESTER.

A MAGNIFICENT show was held at the Old Trafford Botanic Gardens, Manchester, during the whole of Whitsuntide, and, had it not been that the opening day here was the closing day of the Temple Show, Manchester would undoubtedly have seen its finest exhibition up to date. As usual, orchids were the great feature, but new plants, clematis, carnations, rhododendrons, calceolarias, violas, &c., were plentiful, and added to the interest of the display. Everything in the way of arrangement was as nearly perfect as may be, under the able guidance of Mr. P. Weathers, the curator and secretary of the Royal Botanic Society.

There was a keen competition in the class for a collection of orchids, Mr. J. Cypher, Cheltenam, Mr. Robson, Altrincham, and Messrs. Heath and Son, Cheltenham, gaining the awards in order as mentioned; not only did Mr. Cypher have a fine collection of the best orchids, but the group was tastefully arranged. In the amateurs' class for a collection of orchids, E. Ashworth, Esq., Harefield Hall, Wilmslow, secured the chief award with a beautiful set of plants in which particularly good forms of Lælia purpurata, Cattleya Mossiæ, and C. Schroderiæ were noticeable; tasteful arrangement and high cultivation characterised this collection. Mr. A. Warburton, Haslingden, followed with a good group in which some exceptionally lovely forms of Cattleya Mossiæ appeared. Mr. Ashworth also came to the front for a collection of ten specimen orchids, his best plants being Odontoglossum Vuylstekeanum, Lycaste Skinneri, and Cattleya Skinneri alba; this was an open class, and Mr. Ashworth succeeded in beating Mr. J. Cypher, of Cheltenham, and Mr. T. Harker, of Didsbury. The other orchid class was for a collection of cattleyas and lælias, and here the first prize was ably won by Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, who staged a rich collection of handsome forms, all highly cultivated; Mr. D. Gilmour, Sandygate, Sheffield, came second, and Mr. J. Cypher third.

For ten stove and greenhouse plants in flower the only exhibitor was Mr. J. Cypher, who staged splendid specimens of Pimelia spectabilis, Erica Cavendishi, Clerodendron Thomsoniæ, &c., &c., all freely flowered and fully furnished. Mr. Wilkes, gardener to Miss Lord, Ashton-on-Mersey, was a most successful competitor, winning first prizes for a group not exceeding one hundred square feet, for twelve calceolarias, six caladiums, one specimen stove foliage plant, for one flowering stove plant, for six stove and greenhouse plants, for greenhouse foliage plants, and for greenhouse flowering plants, and for a single fern. Mr. J. McIntyre, gardener to Mrs. G. Pease, Darlington, led the way for a group arranged on a space of two hundred square feet; this consisted of palms, crotons, ferns, orchids, and flowering plants in season, all arranged with the taste and lightness that always characterises Mr. McIntyre's exhibits; Mr. Wilkes second. Mr. McIntyre also secured the chief awards for six fine foliage plants with a handsome set of crotons and palms, for ten exotic ferns, for eight table plants, and for six adiantums. Mrs. Kerr, Whalley Grange, and Mr. W. H. Thorley, Chorlton-cum-Hardy, were both successful amateur exhibitors.

Messrs. R. P. Ker and Sons, Aigburth, Liverpool, won first prize for a group of miscellaneous plants arranged for effect upon a space of two hundred and fifty square feet; this was a splendid exhibit, and deserved all the eulogiums passed upon it; Mr. A. J. Bruce, Chorlton-cum-Hardy, was a good second. The only exhibitors in the class for ten hardy ferns were Messrs. W. and J. Birkenhead, Sale, Manchester, who had a most interesting set of handsome forms.

NON-COMPETITIVE EXHIBITS.

The trade growers came out well on this occasion, and provided a good exhibition themselves. Messrs. J. Veitch and Sons, Chelsea, contributed a collection of exceptionally fine orchids, either hybrids or especially fine forms of well-known species; their Lælio-cattleya Endova var. Madame Albert Hye is a grand hybrid between Cattleya Mendelli and Lælia purpurata; L.-c. Ascania, L.-c. Wellsiana, and Lælia purpurata formosa were also very handsome. Messrs. F. Sander and Co., St. Albans, sent their huge specimen of Dracæna Sanderi, together with several new palms, including Licuala Jeanenceyi, figured in our issue of May 28, and a group of the novel Acalypha Sanderi, also figured in our issue of that date. Messrs. J. Cowan and Co., Liverpool, staged odontoglossums, cattleyas, lælias, and cymbidiums in variety, making an attractive exhibit. Messrs. B. S. Williams and Son, Holloway, put up a good collection of orchids and other plants; Messrs. Fisher, Son, and Sibray, Sheffield, showed crotons and orchids in first-rate condition; Messrs. Charlesworth and Co., Bradford, contributed a collection of orchids, which included not a few new and handsome hybrids. Mr. Keeling, Cottingley, was also an exhibitor of orchids.

An exceedingly bright group of well-grown calceolarias came from Messrs. Sutton and Sons, Reading, who also showed a collection of early peas representing the varieties they have distributed. Violas, calceolarias, &c., were tastefully disposed by Messrs. W. Clibran and Son, Altrincham, while Messrs. Dicksons, Chester, were represented by a choice collection of hardy herbaceous flowers, auriculas, pansies, violas, and Japanese maples. Clematis were shown in superb condition by Messrs. R. Smith and Co., Worcester. Rhododendrons from Mr. J. Waterer, Bagshot, Surrey, were greatly admired, but those planted out were scarcely at their best.

Gold medals were awarded to Messrs. Sander and Co., Messrs. Sutton and Sons, Messrs. Fisher, Son, and Sibray, Messrs. J. Veitch and Sons for Lælio-Cattleya Endova var. Madame Albert Hye; and to Sir Trevor Lawrence, Bart., for Cypripedium Olenus Burford Lodge var. Silver medals were awarded to Messrs. Charlesworth and Co., Messrs. J. Cowan and Co., Messrs. B. S. Williams and Son, Mr. A. J. Keeling, Mr. J. Waterer, Mr. A. J. Bruce, and Messrs. R. Smith and Co.

The luncheon was presided over by T. Slatter, Esq., who heartily welcomed Sir Trevor Lawrence, Bart., who was paying his first visit to Old Trafford. Mr. Slatter alluded to the great help the society had derived from the Press, while Sir Trevor expressed his admiration for such a magnificent show. The other speakers were Professor Leo Grindon, Mr. Tait, Mr. Owen Thomas, and Mr. Gribble, all of whom spoke in high terms of the Whitsuntide show of 1898.

COUNTY OF GLOUCESTER AND CHELTENHAM HORTICULTURAL SOCIETY, May 28 and 30.

THE first show for the season was held at the Montpellier Gardens, Cheltenham, on the above dates, and proved a floricultural success. The show was opened under sunny skies, and a goodly attendance resulted, but on Monday the additional attraction of athletic sports drew a very much larger company into the grounds. The schedule provided forty classes, and attracted an average of three entries each.

STOVE AND GREENHOUSE PLANTS were unusually good and numerous, Mr. J. Cypher, Queen's Road, Cheltenham, being in splendid form with his many specimens, he securing the first prize in the open class for ten specimens, the most striking being Azalea Cedo Nulli, six feet high and through; Anthurium Scherzerianum Wardianum; Ericas Cavendishi and venticosa manifica, a noble pair; E. v. albo tincta, five feet through, a perfect mass of white bloom; Clerodendron Balfourianum, and a marvellously grand specimen of Stephanotis floribunda; Mr. W. Vause, Royal Leamington Spa, second, his premier specimen being a noble example of Erica ventricosa grandiflora; Mr. G. W. Marsh, gardener to T. P. W. Butt, Esq., Arle Court, third, having among other good things a fine Anthurium Andreanum, Azalea magnifica, and Dendrobium fimbriatum, the last named being premier in the amateur class for six specimens.

The groups for effect, occupying three hundred superficial feet, were simply charming arrangements, Mr. Cypher leading, with Mr. W. Vause second. Pelargoniums, show and decorative, were well represented by five collections; for a group, Mr. Cypher, Mr. W. Lusty (gardener to Colonel Rogers), and Messrs. Heath and Sons shared the awards; while for half-a-dozen varieties Mr. Rea (gardener to Mrs. Southwood) and Mr. Lusty divided the honours, with brilliantly-bloomed plants. The show of azaleas in the open class was a bright mass of colouring, the plants of full size, fresh, and densely-bloomed, Mr. Cypher, first, with Mr. G. W. Marsh, second; the latter leading in the amateur division, with Mr. Lusty second. The groups of orchids proved most attractive, the visitors lingering round denoting the lovely forms and colours of finely-developed lælias, cattleyas, dendrobiums, cypripediums, odontoglossums, &c., Mr. Cypher filling the place of honour on the one hundred feet space; while for fifty feet, G. F. Moore, Esq, Bourton-on-the-Water, was a good first, Mr. G. W. Marsh, second. Tuberous begonias were presented in variety, Mr. Lusty leading, he also secured the card for a group of well-grown gloxinias. Pansies in pots in ten varieties made a nice break among the larger plants, Mr. R. H. Smith (assistant secretary) being placed first for a dwarf-grown lot, with Colonel Thoyts, second. Herbaceous calceolarias (in dozens) as exhibited by Mr. Lusty and Mr. Cypher, denoted a very excellent strain; and the only other class of plants was for a group of foliage and flowering subjects, Mr. G. W. Marsh taking the card.

CUT FLOWERS though not forming a large feature were most interesting. Mr. W. Lusty securing the honours for eighteen trusses and a dozen tea roses; herbaceous perennials were grand bunches from Messrs. Cypher, Heath, and Son, and W. Vause; Mr. G. W. Marsh, and Mr. R. H. Smith sharing the honours as amateurs. Table decoration, a new feature here, were very tastefully disposed, Rev. J. P. Davies, securing the card over the head of Mr W. Vause; Messrs. Pates and Sharpe, Bayshill Nursery, led in the class for a bride's bouquet, with Miss Smith second, and Mr. W. Vause third.

FRUIT was a small show but fairly meritorious, Colonel Arbuthnot, was placed first with black and white grapes with Black Hamburg and Foster's Seedling; Mr. G. W. Restall led with a dish of strawberries and ten fruited pots of the same; and Messrs. F. Taylor and W. Lusty shared the awards for peaches.

VEGETABLES were fairly numerous and of good quality for a cold damp season, F. H. Wiggins, Esq., taking the cards for a collection of six kinds; a special prize for a similar number of dishes, firsts for cucumbers, asparagus, potatos, French beans and tomatos, wonderfully good for May; Mr. F. Taylor leading for four dishes, and for mushrooms and cauliflowers.

GOSFORD HOUSE GARDENS.

THE visit of the Scottish Horticultural Association to Gosford House, the seat of the Earl of Wemyss, took place a few days ago, when some seventy members joined the president and secretary, travelling by special carriages to the chief entrance at Langniddry, where they were met by Mr. Cook, the courteous head gardener. From thence a fine carriage road, fringed and belted with trees, proceeds for two and a-half miles through woods and fine parks to Gosford House. Here the party was met by Mr. Connor, the factor of the estate. The park embraces some 500 acres, or, including the woods, which abound in game, some thousand acres. Passing through a fine Italian garden, with its massive steps and terraces, the party were met in the marble hall and shown through the picture galleries by the housekeeper. Gosford House is full of the best works of the old masters, and few of the visitors seemed prepared for the great artistic feast before them in the works of Reuben, Rembrandt, Titian, Joerdans, &c., &c., &c. Refreshments were served in the dining-room, and Mr. Todd, in happy and suitable language, conveyed the hearty thanks of the association to the Earl and Countess of Wemyss, through Mr. Connor, for their kindness and hospitality. Mr. Connor bade the society welcome to Gosford in their names, and told them that Mr. Cook had still a great deal more to show them.

The terrace gardens were aglow with wall flowers in two colours—dark purple and soft gold. A good feature was that of several permanent beds of American and other shrubs in the Italian garden. One of the largest of these was filled with Golden Queen holly; then a row of Rhododendron Watereri, edged with a band of Berberis Darwini. Corresponding beds were furnished in pairs—thus, two of Pernettya mucronata edged with dwarf Golden Box; two of Olearia Haasti Andromeda floribunda edged with Alyssum saxatile; two of Skimmia japonica edged with Cotoneedged with Euonymus radicans; two of Skimmia japonica edged with Cotoneaster microphylla. Excellent and liberal use are also made of the golden variegated variety of the dwarf Juniperus sabina. Going towards the pleasure grounds, which consist of some twenty-three acres, some seven acres being water in the form of beautiful lakes, we pass the mound glowing with bright Alpine plants, and the old house which has long been clothed with ivy, Virginian creeper, honeysuckle, clematis, &c. The shrubberies contain a fine collection of flowering shrubs, flowering and other trees with blocks of herbaceous flowering plants and bulbs between. There are also fine specimens of coniferous and other trees, as cedars, Douglas's fir, spruce, Abies morinda, Pinus ponderosa, &c., with catalpas tulip trees, Pyrus sorbus, thorns, and some rhododendrons worthy to rank as trees, being some 18 to 20 feet high and through, in brilliant blossom. The walks, outlines, and furnishing of the lakes, and the delightful green of grass add ever new and fresh charms to the grounds at Gosford.

The kitchen gardens cover an area of some eight acres, and are surrounded with walls about 12 feet high, divided again by a central wall; the walls are well furnished with fruit trees nicely trained, and promising good crops These mostly consisted of apricots, peaches, plums, pears, apples (cordons), and cherries, mostly Morellos. The healthfulness of the fruit trees generally and the excellent appearance of the crops of bush and standard fruits was generally remarked. Salading and vegetables of all kinds were in fine condition. There are some fine vineries at Gosford, and of these four are in one range 140 feet long, 15½ feet high at the back, and 14 feet wide; three peach houses, two being in one range 150 feet long, 14 feet high at the back, and 10 feet wide; and two fig houses 90 feet long, 16 feet high, and 14 feet wide. Besides these there are a range of forcing houses in six divisions filled with melons, tomatos, cucumbers, French beans, and strawberries. A nice stove for palms, ferns, crotons, caladiums, and other decorative plants is provided. Fine batches of Malmaison and other carnations, and zonal pelargoniums, sweet peas, ivy-leaved geraniums, and chizanthus pinnalus for cutting, &c., were seen. Some ranges of useful pots for forcing potatos, &c., and growing violets in winter form useful adjuncts to this department. There is also a useful house for forcing roses, the following being the more prominent varieties, Maréchal Niel, Gloire de Dijon, Belle Lyonnaise, Safrano, Souvenir d'un Ami, Homeré, Marie Van Houtte, Fortune's Yellow, and Cheshunt Hybrid.

The vineries and other fruit houses contained rods and trees in robust health, and carrying good crops. The first vinery contains Black Hamburgh and Foster's Seedling; the second, Muscat of Alexandria; third, Black Hamburgh; fourth, Lady Downs, Gros Maroc, and Alicante; fifth, Black Hamburgh, Gros Colmar and Gros Maroc. Varieties of peaches and nectarines in the early house were: Early Louise, Royal George, Alexandra Noblesse, Grosse Mignonne peaches, and Lord Napier nectarine; second house, Stirling Castle; third, Royal George, Barrington, Noblesse, Walburton Admirable, Late Admirable, Pitmaston Orange and Pine Apple. Figs: Brown Turkey and White Marseilles.

Nothing could exceed Mr. Cook's courtesy and kindness; and, before leaving, Mr. Todd expressed in fitting terms the feelings of all present, as to the very pleasant and instructive character of the society's visit to Gosford. D. T. F.

THE WEATHER DURING THE WEEK ENDING MAY 28, 1898

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	75·0	44·2	54·7	12·61	0·40	1·02
Croydon	76·0	41·3	53·9	12·17	0·05	0·13
Brighton	70·0	42·8	55·0	12·78	0·05	0·13
Bristol	73·0	43·0	52·7	11·50	0·90	2·29
Wolverhampton	68·2	39·0	51·0	10·56	0·43	1·09
Norwich	66·2	36·8	49·9	9·04	0·04	0·10
Nottingham	69·4	44·0	50·9	10·50	0·34	0·86
Liverpool	67·8	44·3	51·6	10·89	1·03	2·62
Huddersfield	62·4	38·0	49·1	9·50	0·21	0·53
Bradford	63·4	41·4	51·1	10·61	0·22	0·56
Hull	64·0	34·0	47·5	8·61	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 29·68 inches, and that of the Thermometer 54°·7, the latter being 0°·9 below the week's average in the 50 years 1841—90. The direction of the wind was easterly, the horizontal movement of the air being 28 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 37·0 hours. The measured rainfall amounted to 0·40 of an inch.

Belgian Fruits and Vegetables find a ready sale in this country, especially plums, cherries, greengages, and pears; so it is not surprising that our imports of these from the busy little continental country amounted last year to nearly 50,000 tons. During the same period not less than 752 tons of living plants, chiefly palms, araucarias, Otaheite oranges, azaleas, and dracænas were exported to Great Britain from one district—that of which Ghent is the centre.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

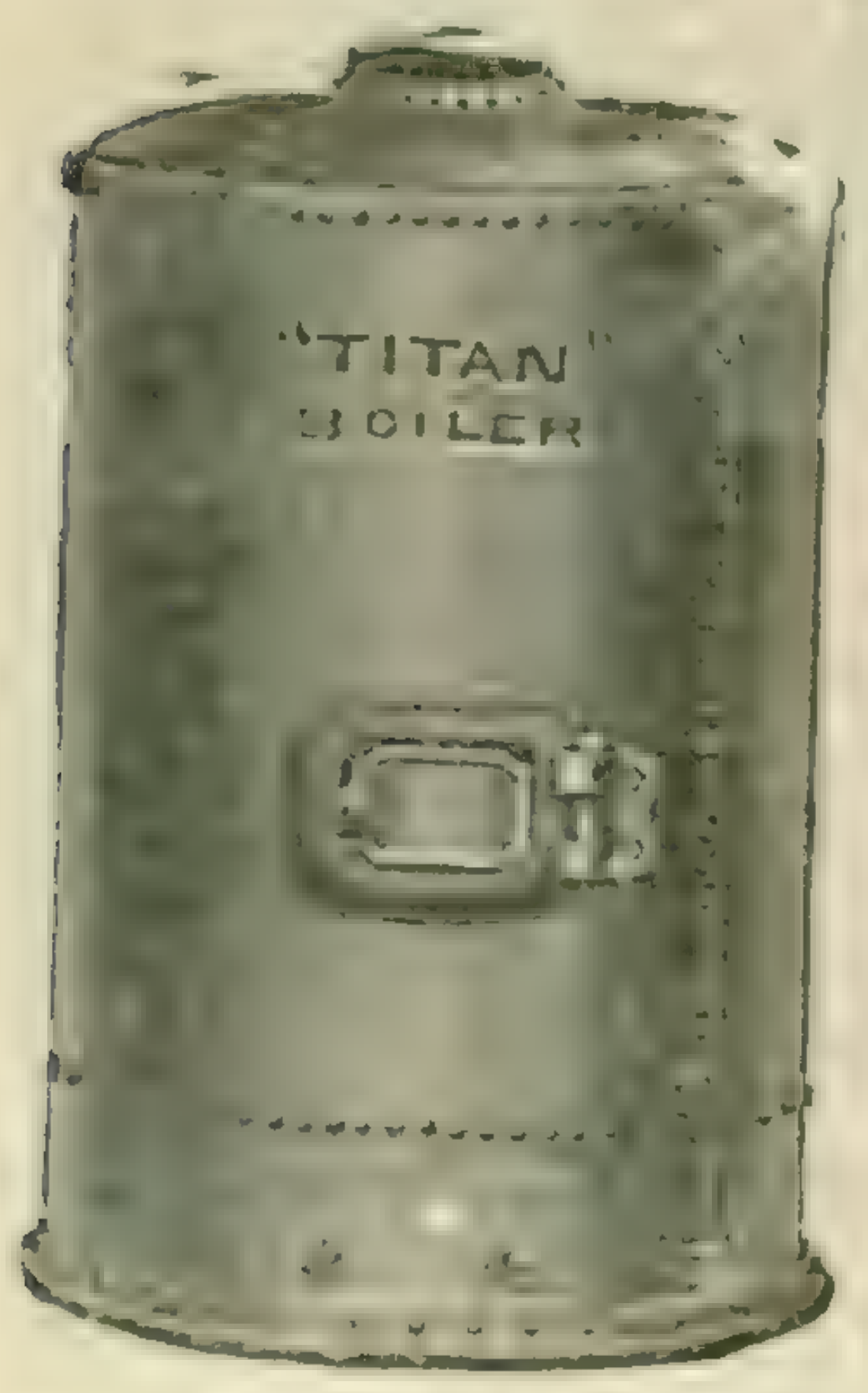
Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Caterpillars on Plum Trees.—A. S. Horley: The little black-headed caterpillar belongs to a species of Tortrix, and is a voracious feeder. If you have a powerful supply of water, an easy method of clearing the trees would be to hose them. Failing this, make one of the tobacco and soft soap or quassia and soft soap mixtures so frequently prescribed in these columns, and wash the trees with it by means of a garden engine or syringe. Lime and soot spread beneath the trees would serve to settle falling caterpillars.

Moss on Fruit Trees.—M. B., Jarrow: We have received the letter, but not the specimen referred to. Judging from your remarks we feel sure that it is lichin and not moss that is damaging the fruit trees in the Irish garden mentioned; whether it be moss or lichen it matters not, as both are great pests in moist localities, especially such as are under the influence of the westerly winds blowing in from the sea. Both should be got rid of as soon as possible, though little can be done to make an effectual clearance until late autumn and winter. Any trees that show signs of suffering should have the moss or lichen removed as far as possible by scraping and scrubbing the trunk and stems, taking care not to injure the bark. If the soil is poor, and moss and lichen are usually indicative of either poor or badly drained soils, add the necessary manures to render it fertile. If the land is very moist, then see that it is suitably drained, and in addition, if at all heavy or peaty, give a good surface dressing of lime, and gently fork it into the ground. In the winter when the leaves have all fallen from the trees the time and opportunity for effectual treatment will arrive; it will then be necessary to scrape and scrub the trees and branches where possible, moistening these with a strong soda and soft soap solution. After this give the trees a spraying with a

HEATING APPARATUS.



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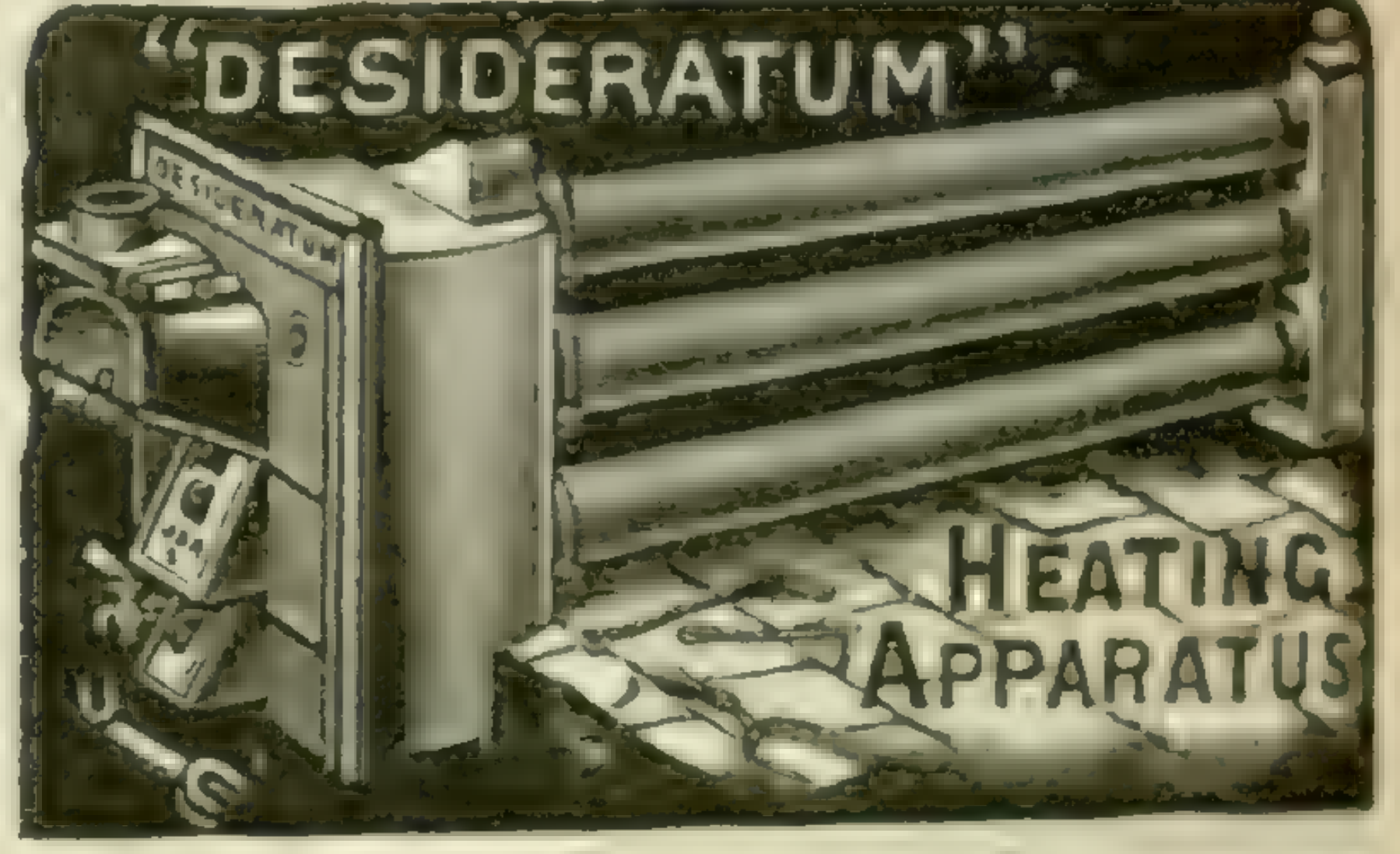

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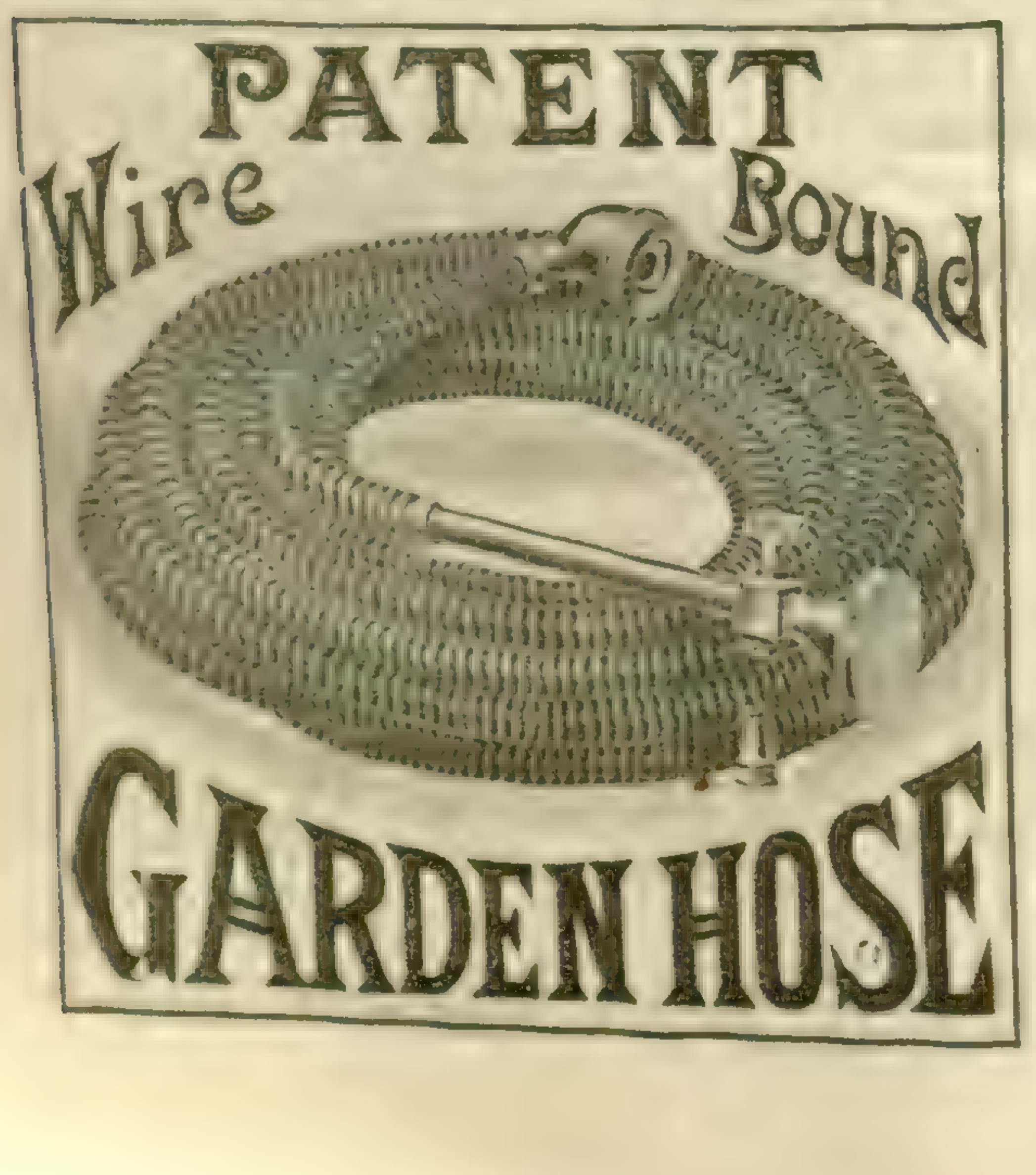

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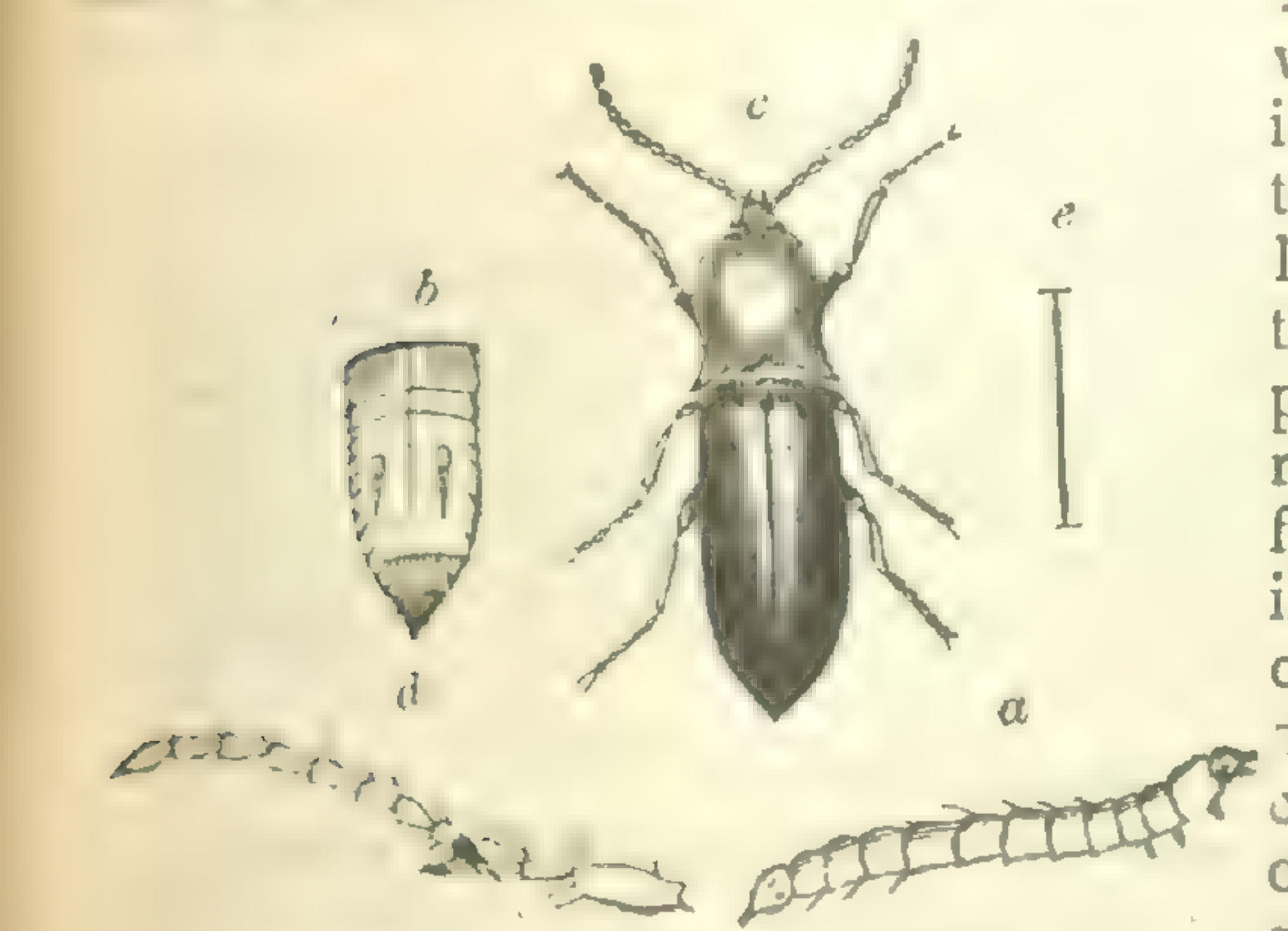
tion of caustic soda and crude commercial potash. These have to be mixed carefully and used with gloved hands. If you write us later we will give you full directions as to the winter cleansing. At present do all you can to assist the trees. Let us know what kind of soil the trees are growing in. With regard to the cherry tree, the damage was, no doubt, due to frost and extreme cold wind; whether it could have been prevented we are not in a position to say. It is a difficult matter to protect trees unless they are trained to a wall or fence.

Malformed Rose Flower.—Cycle, Bowdon: In the peculiar flower sent the lower part of the floral axis has become elongated somewhat. The two petaloid leaves below the calyx and the outer segments above it show an intermediate condition between the foliaceous leaves and the floral ones, showing that there is a tendency on the one hand to assume floral characteristics, and on the other to revert to the original green and foliaceous condition. It is not often that so well conducted a rose as Maréchal Niel produces such a curious bloom as the one you sent us.

Click Beetle and Wireworm.—F. E. S., Chipping Norton: You are quite right; the wireworm is the grub stage of a click-beetle (Elater Lineatus). The beetle is blackish, and its shape is well-shown in the accompanying cut; it deposits its eggs either in the soil close to a plant or in the sheaths of the leaves of cereals. Thus, as soon as the grubs are hatched out, they have plenty to feed upon. Wire worms remain in the grub stage for about four years ere becoming transformed into the beetle stage. One of the commonest and most effective methods of capturing wireworms is to place cut potatos a little below the surface of the soil; these act as traps, and should be frequently examined, and all worms caught should be dropped into a pail of extra strong brine. A piece of stick, eight inches long, stuck into the potato will serve to lift the trap, and also readily indicate its whereabouts.



Wireworm and Click Beetle.
a. Wire Worm; *b*. caudal joint magnified; perfect beetle; *d*. antenna; *e*. length of beetle.

Soil for Hardy Rhododendrons.— F. R., Bognor: It has been proved beyond all doubt that hardy rhododendrons will grow and flower freely in other than peaty soils, so it is not always absolutely essential to remove the natural soil and import peat for them. The one great essential for rhododendron culture is absence of lime in the soil. This ensured, the next question is good drainage, for while the rhododendron requires watering in hot summers, owing to its surface rooting propensity, it hates to be waterlogged or have its roots kept wet throughout autumn and winter. Follow these conditions with a compost of peat, if it is handy, always, and for choicest specimens, using good loam and leaf soil, if peat be absent. Sandy peat is the best rooting medium, but the results from good loamy soil and leafmould, with the addition of dried cow manure, are first-rate. Spring is the best time for planting.

Damaged Chrysanthemum Leaves.—W. H., Lincoln: The leaves have evidently suffered from a severe chill, such as would follow from exposure to frost or keen east wind, when the plants had not as yet become properly hardened. Somewhat similar results would follow the application of an insecticide too strong for the tender tissues, or too heavy fumigation when the foliage was damp and tender. We find no trace of insect or fungoid attack upon the specimens sent. In the case of the grapes sent, there has been a cold current of air passing up under the vines; perhaps a side ventilator has been inadvertently opened.

Crops Under Tomatos.—A.L., Leicester: In such a small house it will not be wise to attempt the cultivation of any other crop under the tomatos. If you are but just planting the tomatos then there are many pot plants that might be allowed standing room for a while. Successive batches of gloxinias and tuberous begonias are not infrequently brought on in such houses, but, as a rule, where this is done there is a greater breadth of border than you have, and so there is little fear of the tomatos experiencing excessive moisture at the roots. Melons will do no good; vegetable marrows will succeed best out of doors, and the alpine strawberries need an open position where, during the autumn, they may be covered with frames, or, at least, with lights, should the weather be inclement.

Names of Plants.—C. T., Brecon: Genista hispanica.

A. S., Horley: 1, Anagallis arvensis; 2, Lycopodium annotinum; 3, Nephrolepis cordata; 4, N. exaltata.

J. P. N., Enfield Lock: Triteleia uniflora.

E. J. C., Croydon: The specimens were packed in a very unsatisfactory manner, and the pad of wet moss put in the canister on top of the little heap of specimens served to damage them considerably, both by crushing, and by extracting the colour from the flowers. A box is much better than a canister, as in the latter specimens are difficult to remove. So far as we can judge, the specimens were Selaginella Mertensi, Abutilon Thomsoni, Cattleya guttata, Dendrobium Jamesianum, and Trichopilia suavis. If you have duplicates send again.

H. S., Warminster: Muscari comosum.

GARDENING ENGAGEMENTS.

Mr. R. Weller, who for eleven and a half years was head-gardener, and latterly steward as well, at Glenstal Castle, Murroe, Limerick, has been engaged as steward and head-gardener to Captain Greer, Crotonstown, Newbridge, co. Kildare.

Mr. W. Jennings, late of Wexham Park Gardens, Slough, has been appointed head-gardener to R. Harvey, Esq., Dundridge, Totnes, Devon.

HARDY MINERS TOIL LONG AND HARD in the bowels of the earth to bring forth precious gems and metals for the use and pleasure of their fellows. In many parts of the world the pick and shovel have struck the first blow of civilisation. Holloway's Pills and Ointment have been potent factors in the quick march of progress, for they have given the armour of good health and strength to travellers both by sea and land. They protect the system from attacks of disease, even in climates where its influence is fatally felt. During the present hot weather, when stomach and liver complaints, diarrhœa, dysentery, &c., are liable to attack anyone, these remedies will be found simply invaluable.—[Advt.]

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COMING EVENTS.

BEDALE ROSE SHOW, June 28.
BRAINTREE HORTICULTURAL SOCIETY, June 8 and 9.
BRENTWOOD HORTICULTURAL SOCIETY, July 14.
CANTERBURY HORTICULTURAL SOCIETY, June 29.
CHELMSFORD AND ESSEX HORTICULTURAL SOCIETY, July 6.
EALING HORTICULTURAL SOCIETY, July 6.
ELTHAM ROSE SHOW, June 30.
FARNINGHAM ROSE AND HORTICULTURAL SOCIETY, July 6.
GLOUCESTER ROSE SHOW, June 30.
HARROW HORTICULTURAL SOCIETY, July 5.
HEREFORD AND WEST OF ENGLAND ROSE SOCIETY, July 5.
HELENSBURGH ROSE SHOW, July 14.
HITCHIN HORTICULTURAL SOCIETY, July 6.
ISLE OF WIGHT ROSE SHOW, at Carisbrooke, June 16.
KING'S SOMBERNE HORTICULTURAL SOCIETY, August 10.
LEEDS FLOWER SHOW AND GALA, June 28, 29, and 30.
MAIDSTONE ROSE CLUB, July 13.
NEW BRIGHTON ROSE SOCIETY, July 16.
NORWICH HORTICULTURAL SOCIETY, June 30.
REIGATE ROSE SHOW, July 6.
RYDE ROSE SHOW, June 23.
SIDCUP ROSE SHOW, June 21.
SWANSEA FLOWER SHOW, August 25.
TIBSHELF HORTICULTURAL SOCIETY, June 26.
TUNBRIDGE WELLS HORTICULTURAL SOCIETY, July 6.
ULVERSTON ROSE SHOW, July 8.
WINDSOR ROSE SOCIETY, June 25.
WOODBRIDGE HORTICULTURAL SOCIETY, July 7.

Fancy Tomatos.—A tomato grower, even on the largest scale, is scarcely human if he has not the desire to try something new, on however small a scale. Then, if he is an eater of tomatos, he will also desire to taste something out of the common. The yellow tomatos we have grown for years, and have had a moderate amount of success with all of them. This time we are growing one sent as Golden Queen—a good grower, fair setter, and with fruit above the usual size, of which I enclose you a bunch. These, though not strictly on the market, sell freely at the shops. Growing side by side with other red varieties, I see little difference in the matter of weight crops under the same conditions. Peach Blow is also doing equally well, and very pleasing is its shade of colour, but I have not yet tasted it. These two varieties are planted out in narrow borders with vines.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*

ENGAGEMENT FOR THE ENSUING WEEK.

AUCTION.

FRIDAY, JUNE 10.—Imported and Established Orchids, Protheroe and Morris's rooms.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

MARKETS.

Covent Garden.

TRADE is somewhat quiet after the holidays, but the moderate supplies of fruit and vegetables meet a fair demand at moderate prices.

FRUIT.—Tasmanian apples, 8s. to 16s. per case; English grapes, 1s. 6d. to 3s. 6d. per case; Jersey, 1s. 3d. to 2s. per case; Belgian, 1s. to 1s. 6d. per lb.; oranges, 15s. to 20s. per case; Jaffa, 9s. to 12s. per box; pineapples, 2s. 6d. to 5s. per pine; bananas, 5s. to 9s. per bunch; gooseberries, 3s. 6d to 4s. 6d. per sieve; French cherries, 5s. 6d. to 7s per half-sieve; strawberries, 2s. 6d. to 3s. per gallon basket; French apricots, 1s. 6d. to 2s. per box.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, [illegible]; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; narciss, various, 1s. to [illegible]; tulips, 3s. to 6s; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to [illegible]; wallflowers, 2s. to 3s.; polyanthuses and cowslips, 1s. to 1s. 6d.; bluebells, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 4s. to 6s.; lily of the valley, 6d. to 1s.; white gladiolas, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—English tomatos, 6d. to 9d. Jersey, 5d. to 6d. per lb.; Canary, 3s. 6d. to 4s. 6d. per case, 10d. to 1s. 4d. per tray; Egyptian onions, 6s. to 7s. per cwt.; English spring, 1s. 6d. to 2s. 6d. per dozen bunches; asparagus, 9d. to 4s. per bundle; lettuce, 6d. to 10d.; cos lettuce, 1s. 6d. to 2s.; endive, 1s. 3d. to 1s. 6d.; cucumbers, 2s. to 4s.; cauliflowers, 1s. to 2s. per dozen; rhubarb, 2s. to 3s.; radishes, 6d. to 9d. per dozen bundles; new carrots, 4s. to 5s.; turnips, 5s to 6s.; parsley, 1s. 6d. to 1s. 9d.; mint, 4s. per dozen bunches; mushrooms, 6s. to 8s. per 12 lb.; green peas, 2s. 3d. to 2s. 9d. per flat; French beans, 3d. to 4d. per lb.; broad beans, 4s per flat; Canary potatos, 10s. to 12s. per cwt.; Lisbon rounds, 5s. to 6s. per box; Malta round, 8s. to 10s. per cwt.

Borough Potato Market.

New potatos arrive in larger quantities, and are cheapening; owing to the small stocks of old these maintain their prices. Old—Dunbars, 130s. to 140s.; Scotch Magnums, 120s. to 130s.; Bruce, Main-crop, Sutton's Regents, Reading Giants, and Saxons, 110s. to 120s. per ton; Belgians and Germans, 5s. to 5s. 6d. per bag. New—Maltese rounds, 7s. to 8s.; Teneriffe kidneys, 8s. to 9s.; St. Malo 11s. to 12s.; Jerseys, 13s. to 14s. per cwt.; Lisbon rounds, 5s. to 5s. 3d. per box.

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22 ,, 22	...	3	2	14	...	2	3	9
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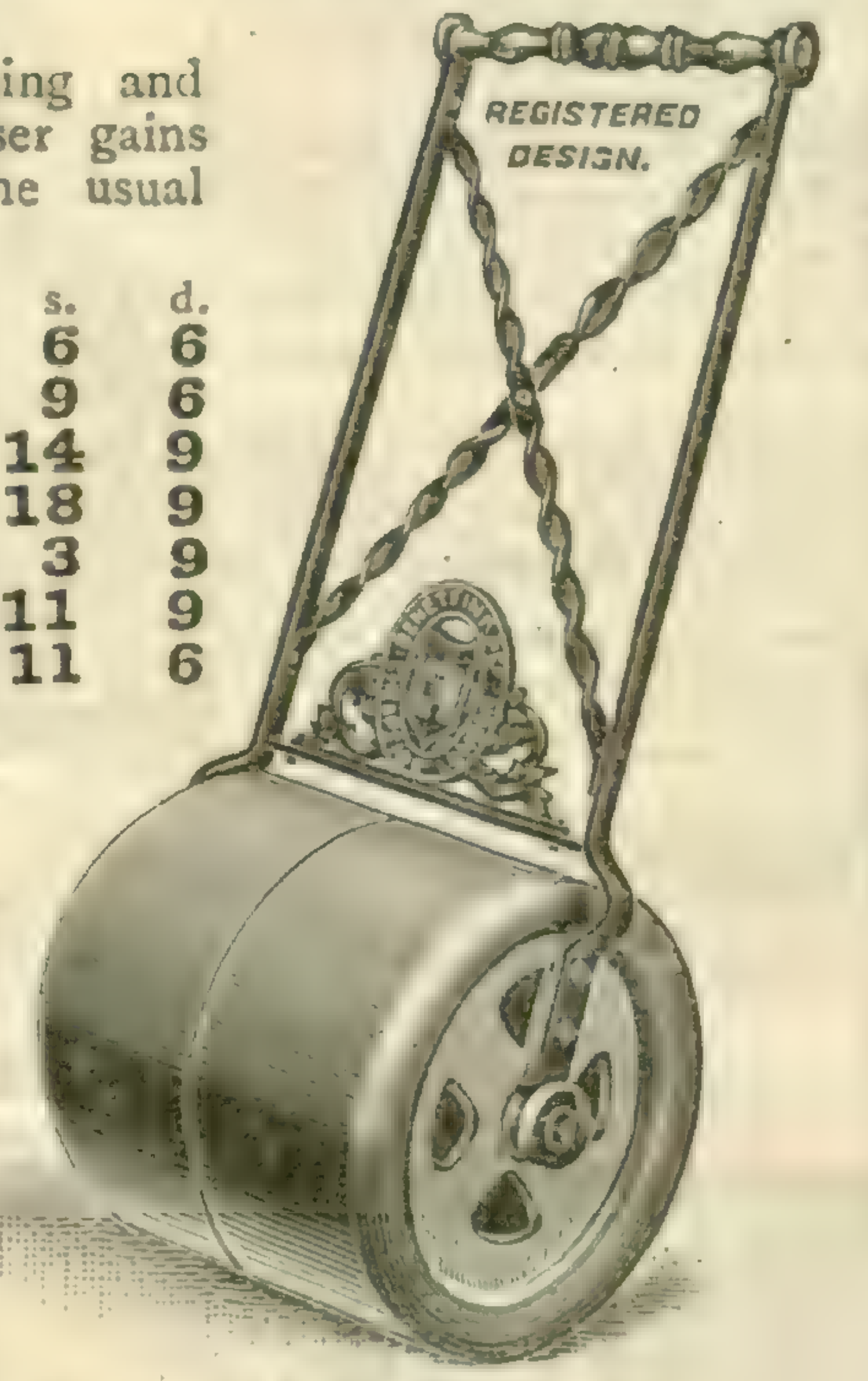
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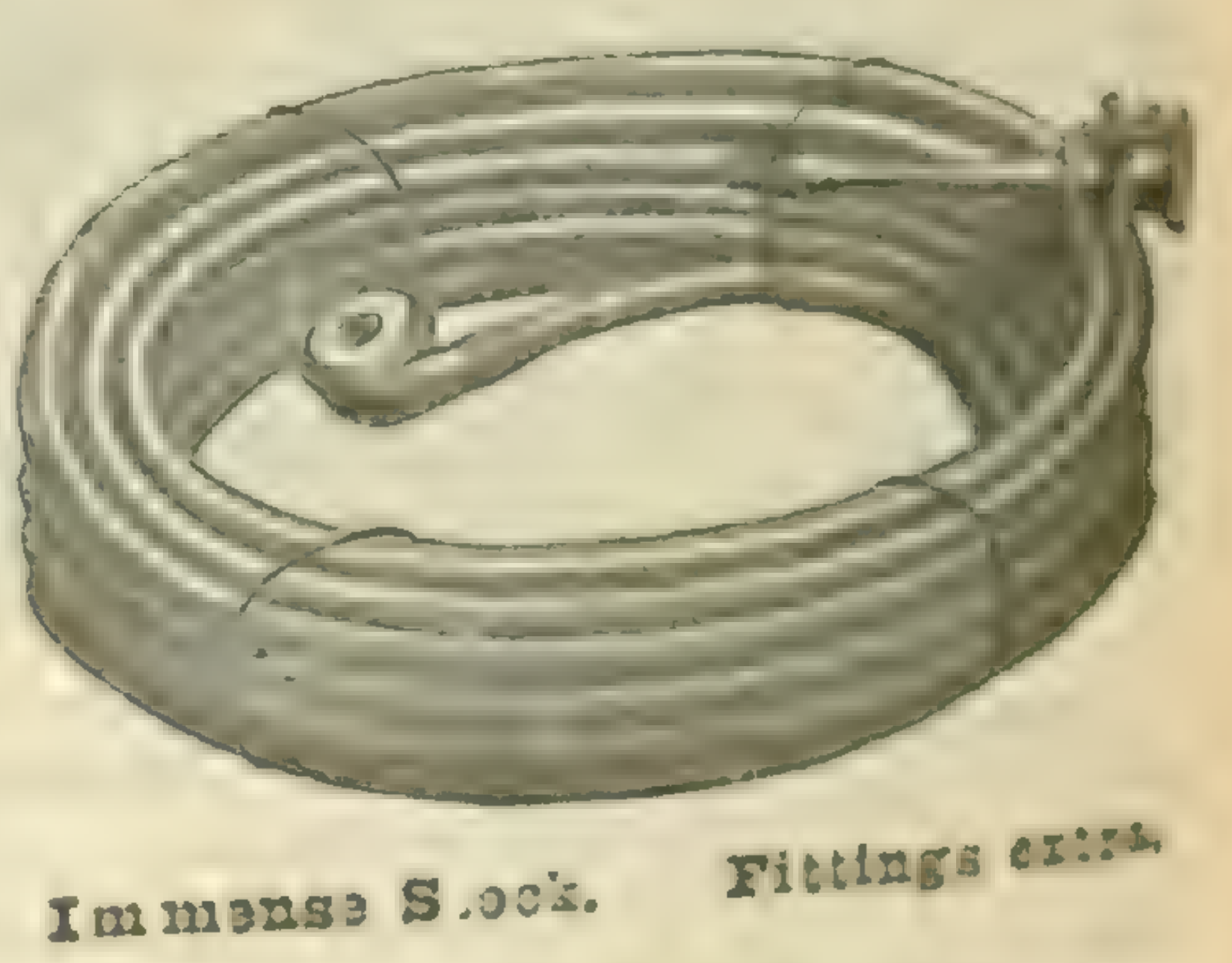

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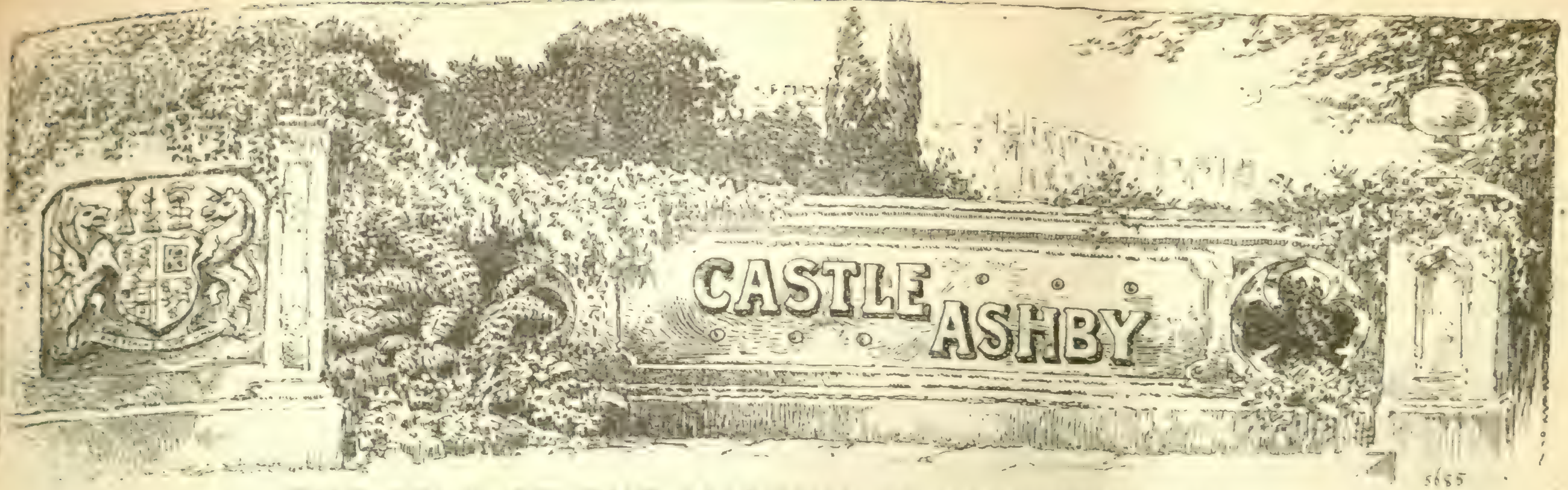


THE SEAT OF THE MARQUIS OF NORTHAMPTON.

THE MARQUIS AND MARCHIONESS OF NORTHAMPTON.

Photog. by J. Russell and Sons.

SITUATE in a charming position overlooking the wide-spreading valley of the Nen, some eight miles eastwards of the busy town of Northampton, is Castle Ashby, for several centuries the principal country residence of the Comptons, and long known for the stately architecture of the historic mansion, the charms of the richly-timbered park, the diversified woodlands, and the beauty and high-keeping of the extensive gardens. The fame enjoyed by the Northamptonshire home of this great family is no new creation. Nearly a century and a half ago Jago, whose name, like that of many other of the minor poets, has passed into oblivion, advised in one of his descriptive poems his readers to—

> "Come, haste with me while now 'tis early morn,
>
> * * *
>
> To where yon point
> Projecting hides Northampton's ancient seat,
> Retired, and hid amidst surrounding shades;
> Counting a length of memorable years
> And solid worth."

The advice given by Jago is as applicable at the present time as when he was looking after his little flock at Harbury, and dividing his leisure between gardening and writing blank verse, and, as evidence that the views expressed upon this point are in no way singular, it will suffice to point to the large number of visitors from the neighbouring towns on the days when the gardens are, by the generosity of the noble owner, open to the public. The charms of Nature and art are, indeed, so happily combined at Castle Ashby as to afford unbounded pleasure to the visitor, while there is so much of interest in the history of the domain as to immensely enhance the enjoyment a leisurely walk through the spacious gardens and grounds is so well able to afford.

It is a delightful drive from Northampton to Castle Ashby; but the mansion is the most readily reached from Castle Ashby station on the Peterborough branch of the London and North-Western Railway, from which it is about two and a half miles, the road for the greater distance being through the park. From the Yardley Hastings side of the park the house is approached by a magnificent avenue commencing at Yardley Chase, three miles distant. The lodge at this entrance is of handsome elevation, and in addition to the Arms of the family, has on the outer pediment the inscription, "Dominvs cvstodiat introitvm tvvm" (The Lord preserve thy coming in), and on the inner pediment, "Dominvs cvstodiat exitvm tvvm" (The Lord preserve thy going out). The avenue is formed with four rows of trees consisting of oak, elm, and beech, and the two inner rows are about three hundred feet apart, and with this space and a broad drive, it is free from the defect which characterises so many of the avenues leading to old country houses in the United Kingdom. Early in the eighteenth century, avenues were planted on the four sides of the mansion, but with the exception of the one which terminates at Yardley Chase, they have disappeared, and it is probable they were broken up, if not wholly removed, when, towards the end of last century, the park and grounds were remodelled by Launcelot, or, as he was popularly designated, "Capability" Brown, then at the zenith of his popularity as an exponent of the English school of Landscape Gardening. From the Castle Ashby station the park is entered by an elegant Gothic lodge, bearing the Arms of the third Marquis, and by taking the footpath that branches off from the drive soon after passing the entrance gates, an eminence is reached from which a magnificent prospect, extending over many miles, is obtained of the fertile valley of the Nen. To again quote from Jago—

> "We view the subject vale sublime,
> And unimpeded. Hence its limits trace,
> Stretching in wanton boundary, from the foot
> Of this green hill as far as human ken

Can reach, a theatre immense! Adorned
With ornaments of sweet variety,
By Nature's pencil drawn—the level meads,
A verdant floor, with brightest gem inlaid,
And richly painted flowers—the tillage plain
Wide waving to the sun a rival blaze
Of gold, best source of wealth!

The "tillage plain" may have had its area materially reduced by the changes that have been made in agricultural practice during the second half of the present century, but the scene, if less varied in colouring during the autumn, is throughout the year of marvellous beauty.

From this point away to the south-east may be seen under favourable atmospheric conditions the spire of the church of Gaston Maundit rising from the midst of the masses of trees, and this village is of interest from the fact that Bishop Percy, the editor of the "Reliques of Ancient Poetry," was vicar of the parish for nearly thirty years. During this period Percy prepared his famous work, of which the MS. is preserved in the British Museum, and entertained Garrick, Goldsmith, Johnson, Shenstone, and other kindred spirits. Many other objects of archæological or historic interest come within the range of vision as the eye roams over the fair prospect, delighted with its manifold charms; but as they do not fall within the scope of the object I have now in view, this indication of their existence will suffice. Proceeding onwards through the park in the direction of the mansion, a glimpse of the venerable pile is obtained through the trees, the grey masonry presenting a pleasing appearance in contrast to the dark green masses of foliage by which it is surrounded. As the mansion is approached through the elegant wrought-iron gates of Italian workmanship, with their handsome pillars from designs by Wyatt at practically the end of the avenue, it can be seen, to quote from Cautley, that—

"No hanging bartizan proclaims defiance,
No thunder-throated cannon hath a place
On flanking turret, or the curtain's space
Arcaded with Italia's elegance.
But, where grim battlements are wont to frown,
The pious architect, with sculpture rare,
A psalm hath letter'd in the massive stone;
The graven scripture peoples the blest air
With holiest thoughts; these the eye calleth down
To teach the heart sincerity through prayer."

VIEW ON UPPER TERRACE.

WEEPING BEECH.

The origin of the name of the estate is not difficult to trace. In the Domesday Book it is entered as Asebi, presumably the place of the ash tree; but later it became known as Esseby David, taking its title from a lord of the manor, one David de Esseby, to whom it belonged in the reign of Henry III., and whose effigy in chain armour has a place in the Lady Chapel of the church of Castle Ashby. At the end of the fourteenth century Ashby, with the advowson of the church, became the property of Walter de Langton, and a few years later the bishop obtained a license from Edward I. to "fortify the mansion at Esseby with kernelled walls after the manner of a castle." This alteration in the structural details of the then existing mansion brought about a change in the name from Esseby David to Castle Ashby. This was accomplished in a very gradual manner, and it is interesting to observe that while in the reign of Edward III. it was designated Castle Ashby by Sir William de la Pole, to whom it then belonged, it was as late as the reign of Elizabeth described under its old name. Sometime during the fifteenth century the estate passed into the hands of the De Ruthyn family, and as they had a seat at Yardley Hastings the mansion at Castle Ashby was abandoned and allowed to fall into decay. In less than a century it had become a ruin, and with reference to its condition Leland wrote "Almost in the middle way betwixt Welingborowe and Northampton I passed Assheby, more than a mile of on the left hand, wher hath been a castle that is clene downe and is made but a septum for bestes." With the purchase of the property by the Comptons a change for the better was effected and the foundation of the present greatness of the estate laid.

It would appear that Sir William Compton, who accomplished so much in raising the family to a greater degree of honour, purchased Castle Ashby in 1512, and leased the property, including the old ruined castle and an enclosure known as the "Castell Yarde." The lease expired in 1583, and soon afterwards the building of the present mansion was commenced; and although there may be some difficulty in fixing from readily accessible records the exact date, there can be no doubt that a very short period was allowed to elapse after the lease had fallen in, for a considerable part of the pile of buildings had been completed prior to the death of Henry, the first Lord Compton, in 1589. Camden observes, in his "Britannia," with reference to this matter: "From hence [Northampton] Nen maketh haste away by Castle Ashby, where Henry, Lord Compton, began to build a faire sightly house." The completion of the mansion as originally designed was accomplished by William, the second Lord Compton, who, in the reign of James I., was created Earl of Northampton. This nobleman had the good fortune to bring by marriage as much wealth into the house, as he had by his personal qualities added honour to it. He married Elizabeth, the daughter and heiress of Sir John Spencer, a wealthy Alderman of the City of London, and sometime Lord Mayor, and she was regarded as the richest heiress of her time. Sir John's wealth was estimated at a sum closely approaching a million sterling, and according to tradition a scheme was projected by the pirates of Dunkirk to carry him off in order to exact a ransom. There is also a tradition to the effect that when Lord Compton became fully acquainted with the immense sum that had been left by his father-in-law that he became unsettled in his intellect. I am not disposed to attach any importance to the tradition, for his lordship was by no means a weakly-minded man; but however that might be, there can be no doubt whatever that Lady Compton had a sufficient strength of mind to properly appreciate the magnificence of her dowry, and the necessity for the careful administration of the wealth she had brought into the house. We have evidence of this in the Harleian MSS., for amongst them we find a letter she addressed to her husband, in which she suggests the best mode of dealing with the funds and also sums that should be placed at her disposal for her personal use. The letter is highly interesting as illustrating some of the aspects of social life three hundred years ago; and with reference to the funds for her personal use, Lady Compton writes: "Now, I have declared to you my mind for the settling of your estate., I suppose it were best for me to bethink and consider within myself what allowance were meted for me. . . . I pray and beseech you to grant to me, your most kind and loving wife, the sum of quarterly to be paid. I would besides that allowance have £600 quarterly to be paid for the performance of charitable work." Then, after stating her requirements with regard to her "women" servants, horses, carriages, apparel, Lady Compton observes: "Also I would have to put in my purse £2,000 and £200," and "also I would have £6,000 to buy me jewels, and £4,000 to buy me a pearl chain." In this letter the desire is also expressed that Lord Compton should "build up Ashby House and purchase lands," and that this desire was granted we have the best possible proof in the magnificent mansion which affords such an excellent example of the architecture of the period.

Since the time when the first Earl of Northampton and this great heiress completed this magnificent pile, eight generations of this great family have passed away, all of whom have been more or less distinguished. Spencer Compton, the second Earl, was commonly called the loyal Earl of Northampton, for his attachment to Charles I., in whose cause he fell in the battle of Hopton Heath. The third Earl specially distinguished himself in Parliament, and was Speaker of the House of Commons in the parliaments of 1715 and 1722, and in 1727 was created Baron Wilmington. Thomson dedicated his "Seasons" to this nobleman, and in his dedication says,—

> "To the patron of her first essay
> The muse, O Wilmington! renews her vow,
>
> * * * * *
>
> Nor art thou skill'd in awful schemes alone
> And how to make a mighty people thrive!
> But equal goodness, sound integrity,
> A firm unbroken uncorrupted soul
> Amid a sliding age, and burning strong,
> To swell the brooding terrors of the storm;
> Not vainly blazing for thy country's weal,
> A steady spirit regularly free."

THE LAKE AND WATER LILIES.

ITALIAN ARCHWAY AND CLIPPED EDGES.

THE PRIORS WALK.

The question of "How to make a mighty people thrive," would also appear to have been uppermost in the minds of the successors of this distinguished member of the family, for, as the records show, each in his day warmly supported all movements that have had for their object the welfare of the people. Not the least zealous in the advancement of the material and moral welfare of the community is the present Marquis, who, as Earl Compton, took an active part in the government of the metropolis. Truly might it be said,—

> "Nor hath the sun with less propitious ray
> Shone on the masters of the various scene,
> Witness the splendid train! illustrious names,
> That claim precedence on the lists of fame."

The main building was presumably completed when James I. and his queen paid a visit to the Earl and Countess of Northampton in 1605. Originally the mansion consisted of a centre and two projecting wings, but later on a façade containing a chapel and long gallery, and connecting the two wings at their southern end was added from designs by Inigo Jones. The main entrance to the mansion is, it may be mentioned, on the southern side, and from this point an excellent view is obtained of the avenue, which is separated from the mansion by a spacious tennis lawn and a still more extensive cricket ground, the road at the termination of the lines of trees branching off to the right and left, and these branches describe a semicircle in approaching the house. The stately pile has a picturesque appearance from every point of view; and the lettered balustrades to which allusion is made in the lines by the Rev. S. T. Cautley, add much to the interest of a close inspection. On the outer and inner sides of the quadrangle, there are inscriptions precisely the same as those on the pediments of the lodge at the Yardley Hastings entrance to the park, and along the balustrade of the building surrounding the quadrangle are other scriptural texts. Commencing at the south end of the west wing is the inscription, in bold letters, "Nisi Dominvs cvstos cvstodixerit Dominvm frvsta vigilat qvi cvstodit eam" (Except the Lord, the Keeper, keep the house, in vain he watches who keeps it). Then follows, "Nisi Dominvs ædificavent omvm in vanvm laboraverant qui ædificant eam, 1624" (Except the Lord build the house, they have laboured in vain who build it). Along the outer balustrade we read, "Beati omnes qui timent Dominvm qui ambvlant in viis ejvs. Lavdate nomen, Domini. Amen. 1627" (Blessed are they who fear the Lord, who walk in his ways. Praise ye the name of the Lord. Amen.) The same idea has been carried out in the design of the balustrades of the terraces, which are of a much later date, but the lettering is in English. The inscription on the balustrade of the upper terrace is, commencing at the west end, as follows: "The grass withereth, the flower fadeth, but the word of God abideth for ever." Along the balustrade of the lower terrace we read, "Consider the lilies of the field, how they grow, they toil not, neither do they spin, yet I say unto you Solomon in all his glory was not arrayed like unto one of these." Beyond is a similarly wrought inscription in Latin in memory of the late marchioness.

The architecture of the mansion is so well shown in the large illustration as to render further description unnecessary, and it will suffice to say that the building is an excellent example of the Tudor style, and that the apartments are in keeping with so magnificent an edifice. These latter are richly stored with works of art and objects of vertu. Nearly all the leading schools of painting are represented by works of the principal masters, the family portraits being particularly noteworthy. The tapestry in the several apartments is of special interest, and mention may well be made of the finely carved oak chimney-piece in King William's dining-room, a magnificent saloon on the first floor at the north-west corner of the building, and named in honour of William III., who was entertained here. The chimney-piece is nearly three centuries old, having been brought from Sir John Spencer's mansion at Canonbury, and is properly considered one of the finest examples of wood carving of which there is record. The view obtained from the battlements extends over a wide range of country, and is so exceedingly beautiful that those who have an opportunity of making the ascent will find in the prospect an ample return for the labour involved. As seen from this commanding position, to again quote from Jago,—

> " The late-trod plain looks like an inland sea,
> View'd from some promontory's hoary head,
> With distant shores environ'd ; not with face
> Glassy and uniform, but when its waves
> Are gently ruffled by the southern gale,
> And the tall masts like waving forests rise."

Such is the scene that from the battlements

> " Displays its graces, intermixture sweet
> Of lawns and groves, of open and retired.
> Vales, farms, towns, villas, castles, distant spires,
> And hills on hills, with ambient clouds enrobed,
> In long succession court the labouring sight,
> Lost in bright confusion."

The walls of the mansion are for the most part clothed with vigorous growing plants of scandent habit, chief among them being an immense specimen of the Virginian Creeper, which, in taking on its autumnal charms, produces a charming effect in contrast with the grey lichen-stained masonry. The Austrian briars flourish with the protection the walls afford, and running riot, annually produce in prodigal profusion their attractively coloured flowers. On the eastern side are several fine specimens of Harrisoni, which appears to be quite at home at Castle Ashby, for there are several finely developed specimens trained to the masonry of the large conservatory. Clematis flammula also grows here with great vigour, and its drapery of green, bespangled in due season with silvery star-like flowers, is pleasing at all times.

Highly-dressed grounds surround the mansion on all sides ; on the west and northern sides are the magnificent terrace gardens, while on the east it is flanked by shrubberies and plantations, amid which nestles the interesting church ; and on the south, as already indicated, is a fine expanse of closely-shaven lawn devoted to tennis and other games associated with the garden. The terrace gardens as they now exist are creations of the second half of the present century, and were formed about forty years ago from designs by Mr. Thomas, and are excellent examples of his highly successful work. They are not the first of the terrace gardens at Castle Ashby, for there is still an old plan in existence of a large terrace garden on one side of the mansion. When the garden disappeared cannot now be stated with exactitude, but it is reasonable to assume that it was swept away by Brown when engaged in making alterations and improvements, for he had but little sympathy with formality in the garden, On the northern side of the mansion, and running its whole length, is a broad gravel walk, and from this there is a gradual slope of velvety turf to the first terrace, on which is arranged a geometrical flower garden in the old French style, remarkably elegant in design, and of special interest as a proof of the great taste of the third Marquis of Northampton, who had the terraces formed, and evinced a close personal interest in the work while it was being carried out by Mr. Thomas. This garden is embellished by two fountains and some closely clipped trees and shrubs, and the beds, which are set in a green carpet of turf, are constantly furnished with plants, as both spring and summer displays of flowers are regarded as essential to the full enjoyment of the garden. At the north-west corner of this terrace is the wishing well, and this has much that is of interest associated with it, for it was in existence when the original house, which Leland described as "now clene down," was occupied. The well is now enclosed by a handsome wall, surrounded by seats, and ornamented by a canopy of the grape vine.

The lower terrace garden on the north side of the mansion has undergone considerable alterations within a comparatively recent period. It has now a carpet of turf, intersected by gravel walks, and on this have been designed beds representing the rose, shamrock, and thistle, and surmounted by a crown, and monograms have also been cut in the grass, each one consisting of the initial letters of the names of the four late marchionesses. The roses and thistles and the crowns may be assumed to indicate the favours of Henry VIII. and James I., which, as so strikingly exemplified in the history of the house, were fittingly bestowed. Beyond the lower terrace is the laurel garden, so called presumably from the large scrolls of the common laurel and the fine specimens of the Portugal laurel, the standards of the last-named being especially remarkable for the splendid development of their heads. There is also a row of exceptionally fine standards of the Portugal laurel alongside the raised walk at the end of the garden, which connects the upper and lower terraces, and forms, as it were, a divisional line between the formally arranged beds and the more naturally-arranged trees and shrubs that separate the terrace from other parts of the grounds to the north-east, and form an effectual shelter from the cold winds from that quarter.

From this point a walk proceeds through the ornamental plantations for a distance of about two and a half miles, and alongside this we find many choice trees and shrubs and a prodigality of bulbous and other flowers that have been naturalised with much success. There are also some fine specimens of the Cedar of Lebanon. One of the cedars in the grounds is said to be nearly one and a half centuries old, but it has suffered from the ravages of time, and is now of interest chiefly for its age. At the north-east corner of the terrace and within a stone's throw of the mansion is the church of Castle Ashby, and, half hidden amid the trees, the edifice presents a picturesque appearance and is of much interest. The church contains several monuments to the memory of members of the family by Tenerani, Marochetti, Blore, and other sculptors. There is also an effigy in chain mail supposed to be that of David de Esseby, the lord of the manor about the middle of the thirteenth century, and a large brass of William de Ermine, a rector, who was instituted in 1367 and died in 1401. In the churchyard is an exceedingly beautiful monument to the late Marchioness of Northampton, who died in 1877. Among the tombs of the members of the family and their retainers are those of the three head gardeners immediately preceding Mr. Hayes, all of whom died in the service of their noble employers. These are Mr. W. Hardy, who died in 1867; Mr. George Beech, in 1883; and Mr. Henry Birch, in 1894—all of whom rendered valuable services in the cause of horticulture in their day. In walking through this small but interesting God's acre one might well be excused for moralising, and saying, with a long-forgotten poet,—

> " Nor youth, nor beauty, nor employment high
> Could grant protection from the rude assault
> Of that barbarian, Death ; who, without form,
> To courts and cottages unbidden comes,
> And his unwelcome embassy fulfils,
> Without distinction, to the lofty peer,
> The graceful bride, or peasant's homely race."

Immediately beyond the southern boundary of the churchyard is the first of a series of ornamental gardens that extend hence to the fruit and kitchen gardens. Passing through a wicket the visitor crosses a great breadth of turf, on which are arranged numerous trees and shrubs, remarkable for elegance of aspect or the beauty of their flowers. Especially deserving of mention are fine specimens of the tulip tree and catalpa, and handsome groups of weigelas, tree pæonies, arbutus, shrubby spiræas, azaleas, and rhododendrons. On the western side is a broad belt of trees, in which are some huge beeches, and—

> " Whose lofty elms and venerable oaks
> Invite the rook, who high amidst the boughs
> In early spring his airy city builds,
> And ceaseless caws amusive."

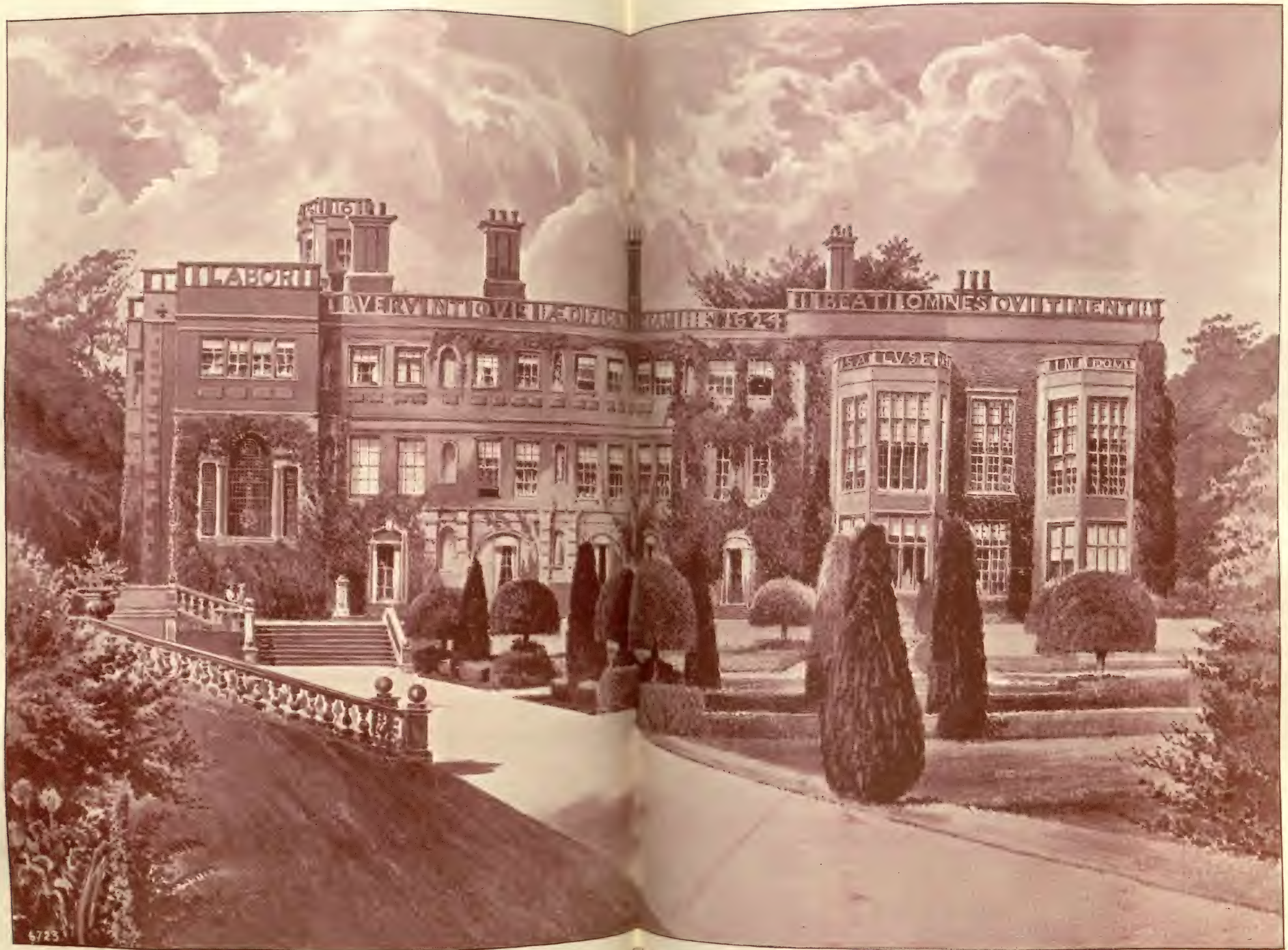
Immediately beyond, still proceeding southwards, is the Italian garden with a conservatory of noble proportions at the north end, and an architectural screen, with corridor and balcony at the southern end. The corridor affords shelter from rough weather, or the heat of a summer day, while from the balcony, which extends nearly the whole width of the garden, a good view is obtained over a considerable area of the pleasure grounds, and nearly the whole of the kitchen and fruit gardens. The photograph from which our illustration of the Italian garden has been reproduced was taken from the platform immediately over the gateway, which is flanked by handsome pillars, and on the southern side of the wall are spacious glass houses. As will be seen from a glance at the illustration, the Italian garden is divided into four equal portions by the four walks that radiate from the centre, and in each of the four segments there is a sunken panel with beds outlined in box and filled with coloured earths. These panels, if not in accordance with the views that obtain on the question of garden ornamentation at the present time, are of interest as an example of garden decoration which was not unknown in Bacon's day, and enjoyed a considerable degree of popularity nearly half a century ago. The central walk has on either side vases and English yews alternately, and on the cross walk there are Irish yews with vases, and near the centre are specimen cupressus. Also of interest in this garden is a large mulberry tree which, from its venerable appearance, must have occupied its present position close upon two centuries.

Passing through the arch at the southern end of the Italian garden several distinct features attract attention. The main walk is flanked on either side by a closely clipped box hedge eight or nine feet high and five or six feet through, and to the right and left are enclosed gardens devoted to flowering plants. To the right is a rose garden consisting of long beds radiating from a small rockery on the north side, and clothed with attractive alpines. The beds have standard roses along the centre, and are filled during the summer with flowering plants that attain perfection in that season, and during the winter and spring with bulbous and other spring-flowering plants, hyacinths, tulips, and narcissi being extensively planted. To the left of the main walk there is a spacious breadth of turf on which are large beds wholly devoted to carnations, and containing in the aggregate many thousands of plants. These are grown chiefly for the supply of cut flowers, which at Castle Ashby, as in the case of other large establishments, are in much request. Beyond the rose garden, on the right, is a large garden chiefly devoted to annual flowers suitable for cutting for indoor decorations ; and contiguous to this is a second rose garden, with a rustic house in the centre, and with trellises over which Crimson Rambler and Gloire de Dijon spread their luxuriant growth, and produce a wealth of flowers. The sides of the rustic house are clothed with Gloire de Dijon rose, clematis, Aristolochia sipho, Jasminum nudiflorum, and other hardy climbers. The beds are chiefly filled with dwarf roses, the principal varieties being Baroness Rothschild, La France, Senateur Vaisse, Duke of Edinburgh, Old Moss, Mrs. J. Laing, and Charles Lefebvre. On two sides of this garden are pleached alleys, which constituted so important a feature of the Elizabethan period, and therefore singularly appropriate in the grounds of a mansion which was built upwards of two hundred years since. To the left of the main walk, and facing the carnation garden, is a spacious border devoted wholly to the German and other flag iris, and the collection of varieties is so comprehensive and the plants so vigorous that it is well able to afford an immense amount of pleasure throughout the season of flowering.

Hardy plants other than those already mentioned are cultivated extensively and with much skill, and these, in their respective seasons, constitute a delightful feature of the gardens, and furnish a wealth of material for house decoration. The Prior's Walk, by which the [illegible] is reached, has on either side broad borders filled with pæonies, [illegible], [illegible], asters, herbaceous phloxes, Oriental and other poppies, iris, Spiræa aruncus, doronicums, centaureas, Chrysanthemum maximum, pyrethrums, delphiniums, trollius, megaseas, and a host of other good things. It may indeed be said with truth that these borders contain—

> " Plants diverse and strong,
> That ev'ry day their blossoms change
> Ten thousand lovely hues !
> With budding, fading, faded flowers
> They stand, the wonder of the bowers,
> From morn to evening dews."

Supplement to the Gardeners' Magazine, June 4th, 1898.



CASTLE ASHBY, THE SEAT OF THE MARQUESS OF NORTHAMPTON.

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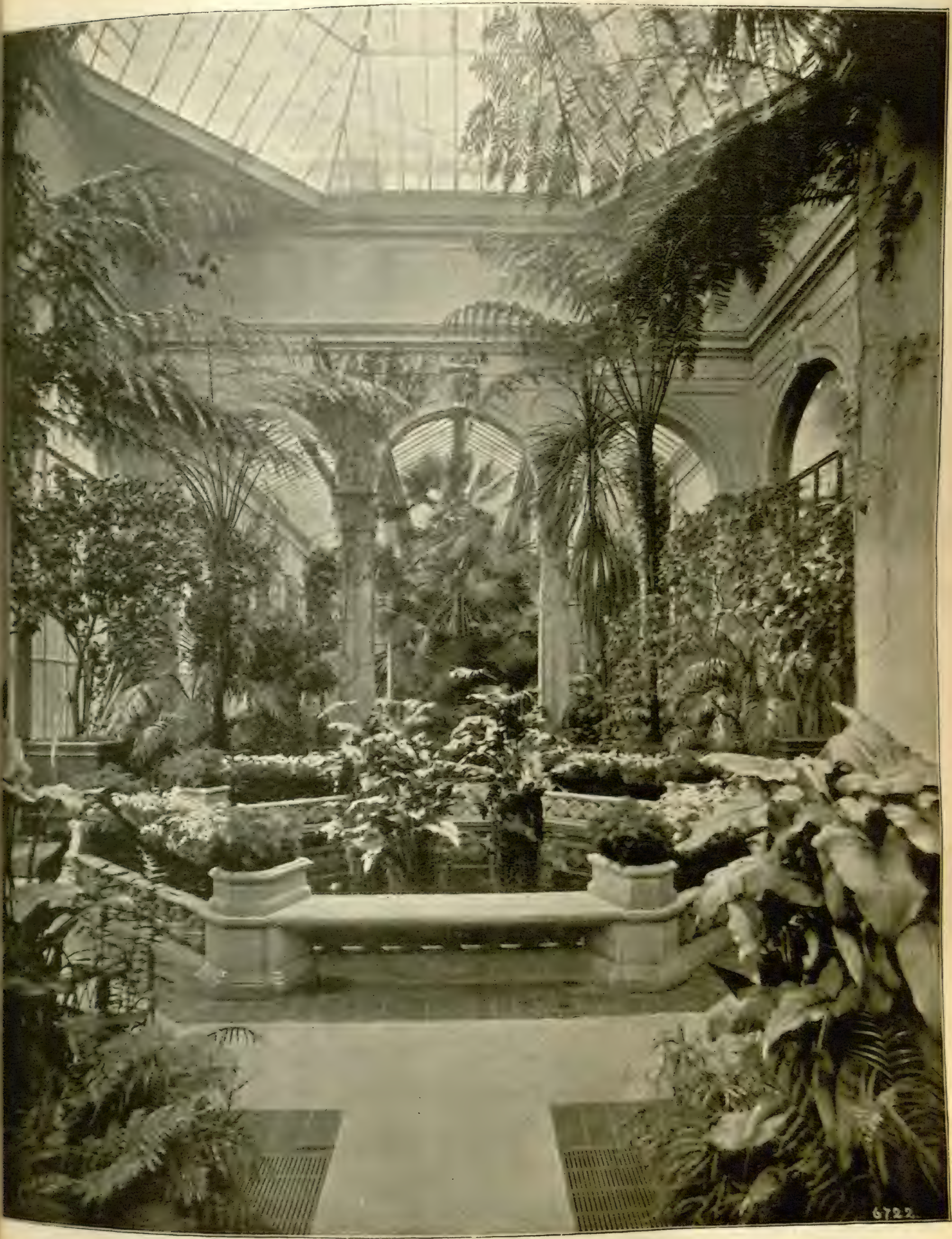


[From a photograph by Bedford, Lemaire, and Co.

INTERIOR OF GREAT CONSERVATORY.

The herbaceous borders at Castle Ashby bear the impress of skilful management, and it is interesting to observe that while there is no over-crowding of the plants, or of the growth of each individual, each specimen is of sufficient proportions to present an effective appearance. In this respect they differ materially from some borders that annually come under my notice, and they may be described as excellent examples of the results that may be obtained from following the advice so frequently given in these pages.

The arboretum is situate on the eastern side of the Italian garden, and contains many noble specimens, chiefly of conifers. Prominent among the deciduous trees is a magnificent example of the weeping beech, which at once attracts attention by reason of its great size and elegant contour, the long slender branches tumbling over each other like the spray of a fountain. Especially noteworthy also among the deciduous trees is the specimen of the double-flowered cherry, and in each recurring spring its—

> "Boughs above us spread
> The whitest shade was ever seen,
> And flicker, flicker, came and fled
> Sunspots between."

The effect produced by this cherry when garlanded by its myriads of snow-white blossoms is at all times good, but it is strikingly beautiful when the tree is, as in this instance, associated with the sombre-hued conifers. Remarkable for their height and development are the examples of Cedrus atlantica, Abies canadensis, A. Douglassi, Picea pinsapo, P. nobilis, Sequoia sempervirens, Wellingtonia gigantea, and Cryptomeria japonica, these being sixty feet or so in height. Conspicuous among the conifers of recent introduction are examples of the exquisitely beautiful Picea Parryana glauca, the silvery hue of these affording a pleasing contrast to the dull colouring of the majority of the firs and pines.

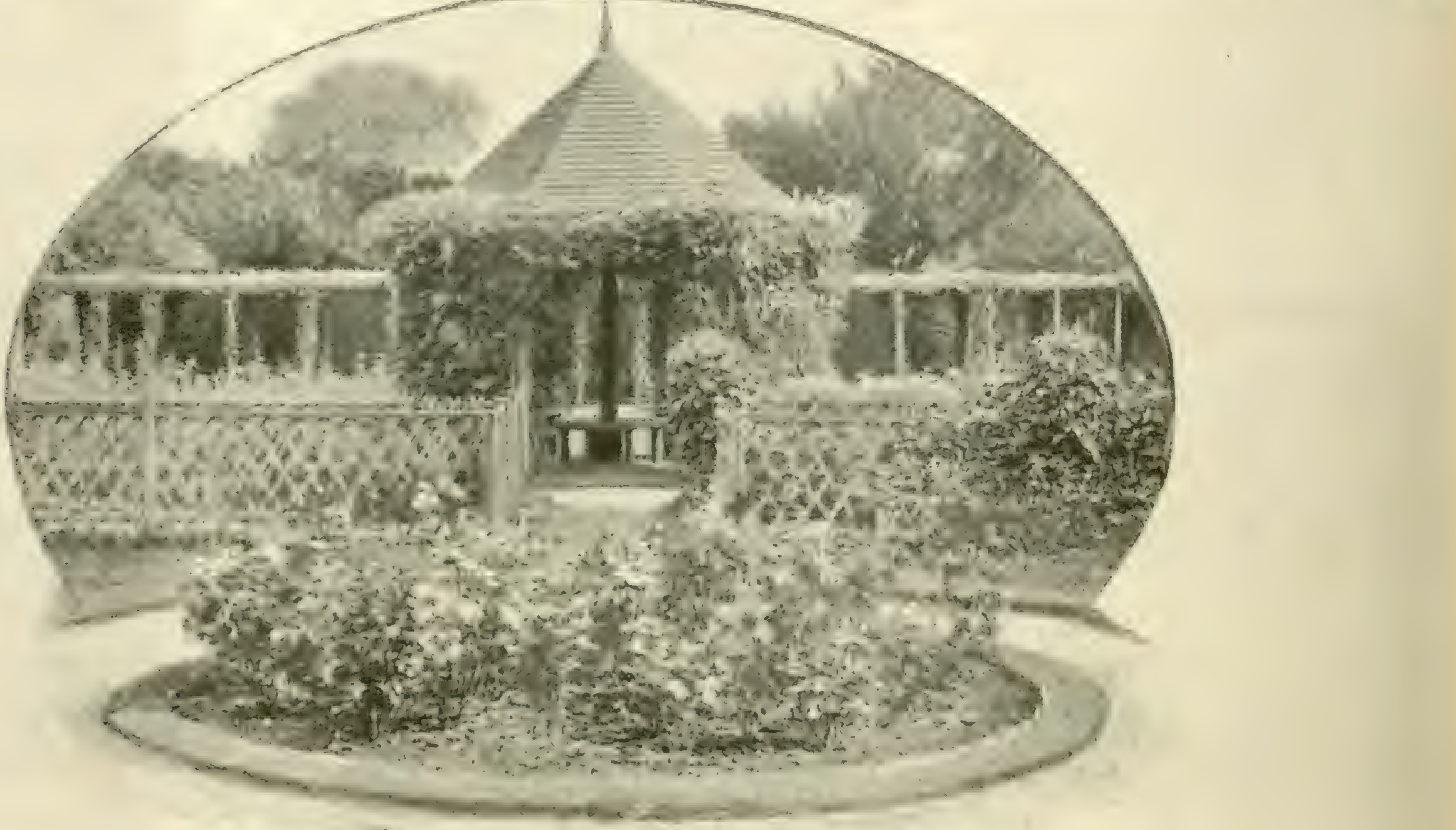
Crossing the stream there is a broad stretch of lawn sloping down to the water's edge for a considerable distance, and intersected by a walk, which is continued into the plantations, and connects with the walk leading to the terrace garden. On the lawn are numerous finely developed deciduous trees, and it may be truly said that—

> "Beneath their waving umbrage Flora spreads
> Her spotted couch, primrose and daffodil
> Profuse, with every simpler bud that blows
> On hill or dale."

Here the cultivation of flowers in the grass has been brought to a high degree of perfection by Mr. Hayes, and from the time the snowdrop makes its appearance until the poet's narciss has lost its charms, the turf is bespangled with flowers of varied hues; golden crocuses and daffodils, crimson polyanthuses, soft-tinted primroses, and some other subjects that are able to hold their own in a struggle for existence amongst the grass may each be numbered by the thousand, and the profusion of flowers, produce so beautiful a picture that the visitor during the spring season might well be excused if, when passing along the walk, he, with the poet, exclaimed,—

> "Hail happy lawns! Where'er we turn our eyes
> Fresh beauties bloom and opening wonders rise."

By following the stream for some distance, and making a detour through the ornamental plantation which commences near the church, the fine sheet of water that gives so much life to the landscape, and so materially enhances its charms when seen from the battlements of the mansion or the terrace, is reached. The lake has a large expanse, and is probably the work of Brown, for it possesses some of the peculiarities that characterise his style. Whether the lake is the work of Brown or not, it forms a charming feature, and it is a point of some importance to mention that in no part is the bank so crowded with trees as to cast a deep shadow on the water and give it the gloomy aspect characteristic of so many water scenes in the United Kingdom. Yet there is sufficient vegetation to give life and diversity to the margin, and to produce a variety of lights and shadows on the water. On turning from the broad features of the water scenery to the details of the lake, it is gratifying to find that the cultivation of water plants is here, as in some other great gardens, receiving increased attention. Hardy bamboos are being grouped in suitable positions on the banks of the lake, while its margin is fringed with the most beautiful of the semi-aquatics which form a large group of exceedingly interesting plants. On the glassy face of the lake float the finest of the water lilies, which have been greatly augmented in numbers and enhanced in beauty by the art of the hybridist. With the several hardy species well known to all who are interested in the water garden, are the finest of Marliac's hybrid Nymphæas, which grow with great luxuriance and bloom profusely; their large pleasingly coloured flowers in contrast with the snow-white chalices of the "stately river queen," attract so much attention from visitors during the summer months. It is satisfactory to place on record the fact that water gardening is being conducted on an adequate scale and with much success at Castle Ashby, for the gardens are visited annually by large numbers of all classes, and it is reasonable to assume that the object lessons given in this, as in other phases of gardening, cannot fail to prove of great value in extending a knowledge of the most beautiful kinds, the conditions under which they attain the highest degree of development, and the positions in which they appear to the greatest advantage.



ROSE GARDEN AND RUSTIC PAVILION.

Contiguous to the arboretum, and on the south side of the kitchen garden, is a broad expanse of grass, to which special attention has of late years been given with a view to its greater ornamentation. It was originally intended for an orchard, and a considerable proportion of the area was planted with bush trees, but the position is not considered the best possible for hardy fruits, and it is intended to form an orchard on a more suitable site and to plant the space with groups and specimens of ornamental trees and shrubs. Alongside the broad walk are rustic posts connected with chains, and over these may be seen—

> "Virgin's bower trailing airily,
> With others of the sisterhood."

The virgin's bower in this case comprises the finest of the large-flowered clematis, amongst which the popular C. Jackmanni is conspicuous, and the sisterhood includes several species of ampelopsis and lonicera, and the several subjects produce in combination a pleasing effect from early in spring until the autumn, when the ampelopsis take on their characteristic colouring. Along the southern side of the enclosure is a broad walk skirted by large beds filled with tea roses distinguished by their robust habit and freedom of flowering, and between the beds are specimens of the most beautiful of the Penzance briars, and these, having plenty of room for their development, spread out their strong shoots to the sun and air, and become in due season garlanded with flowers of exquisite beauty. The tea roses have evidently been placed under the conditions favourable to their wellbeing, and consequently they grow vigorously and bloom profusely, and add materially to the attractions of the grounds. Along the lower side of this lawn—

> "The copious stream
> With winding grace the stately current leads,
> The channel'd lawn its bounteous stream repays,
> With ever verdant banks and cooling shades
> And wandering paths that emulate its course."

Much might be written with reference to the varied and interesting plantations, woodlands, and other arboreal features of the park and pleasure grounds, but with regard to these, it must now suffice to [illegible] that they contain much that is of interest to those who take an interest in ornamental and timber trees.

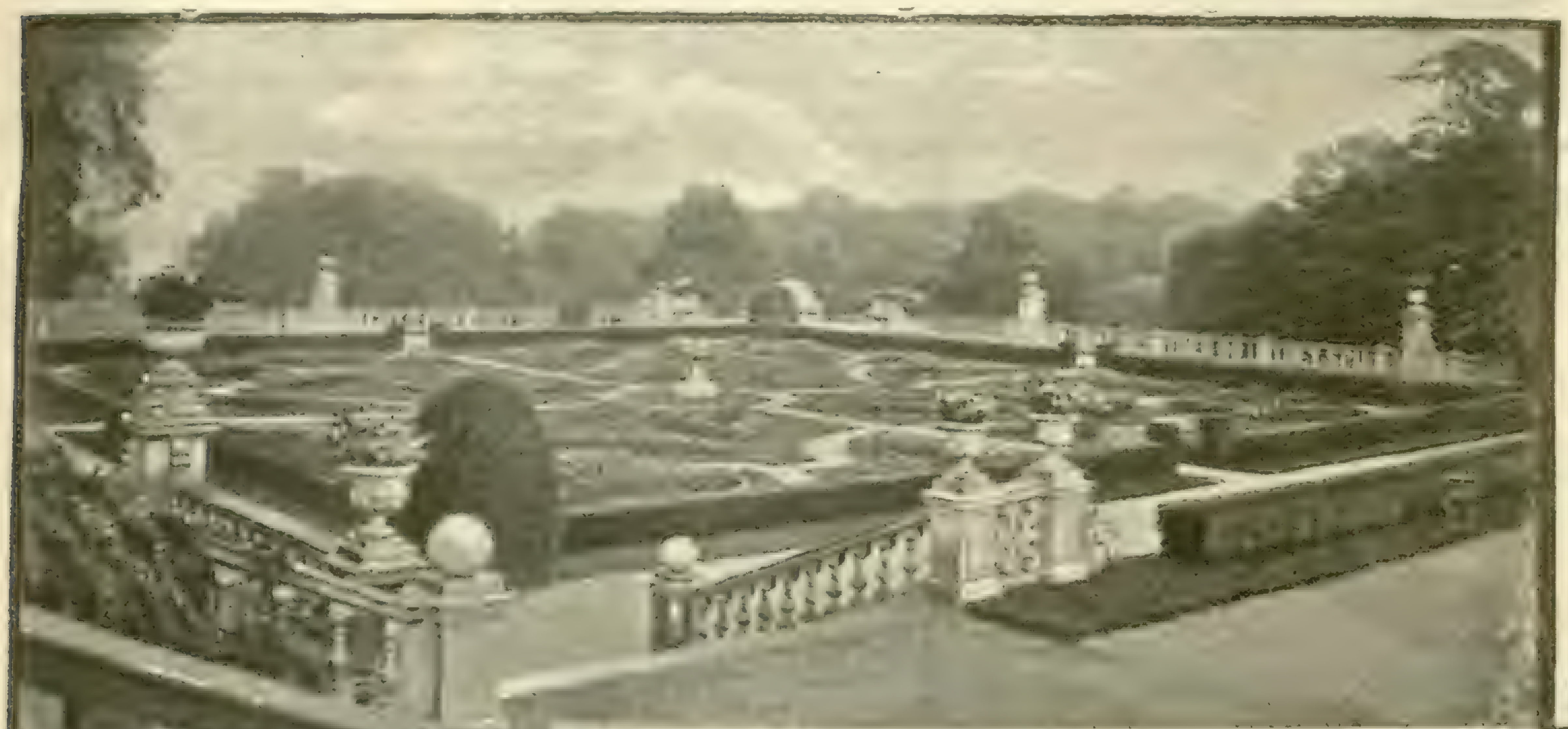
In connection with the arborescent features of Castle Ashby, it may be of interest to mention that the visitor should not fail to continue his journey to Yardley Chase, a fine open stretch of woodland, in which in bygone days the Plantagenets hunted and Cowper moralised. The Chase affords many pleasant walks through its green glades, but is of special interest as containing the remnant of the old oak immortalised by Cowper—who, it may safely be assumed, was an occasional visitor to this relic of the great forest that one time spread over a large portion of this part of Northamptonshire, for it is within a pleasant walk of Olney, long the residence of the poet. Absolute accuracy is not an attribute of the true poet, and we therefore do not expect it in Cowper's "Yardley Oak." Were it otherwise, it would be necessary to point out that Cowper indulged in a full play of poetic fancy when speaking of this tree as—

> "Survivor sole, and hardly such, of all
> That once lived here, thy brethren at thy birth."

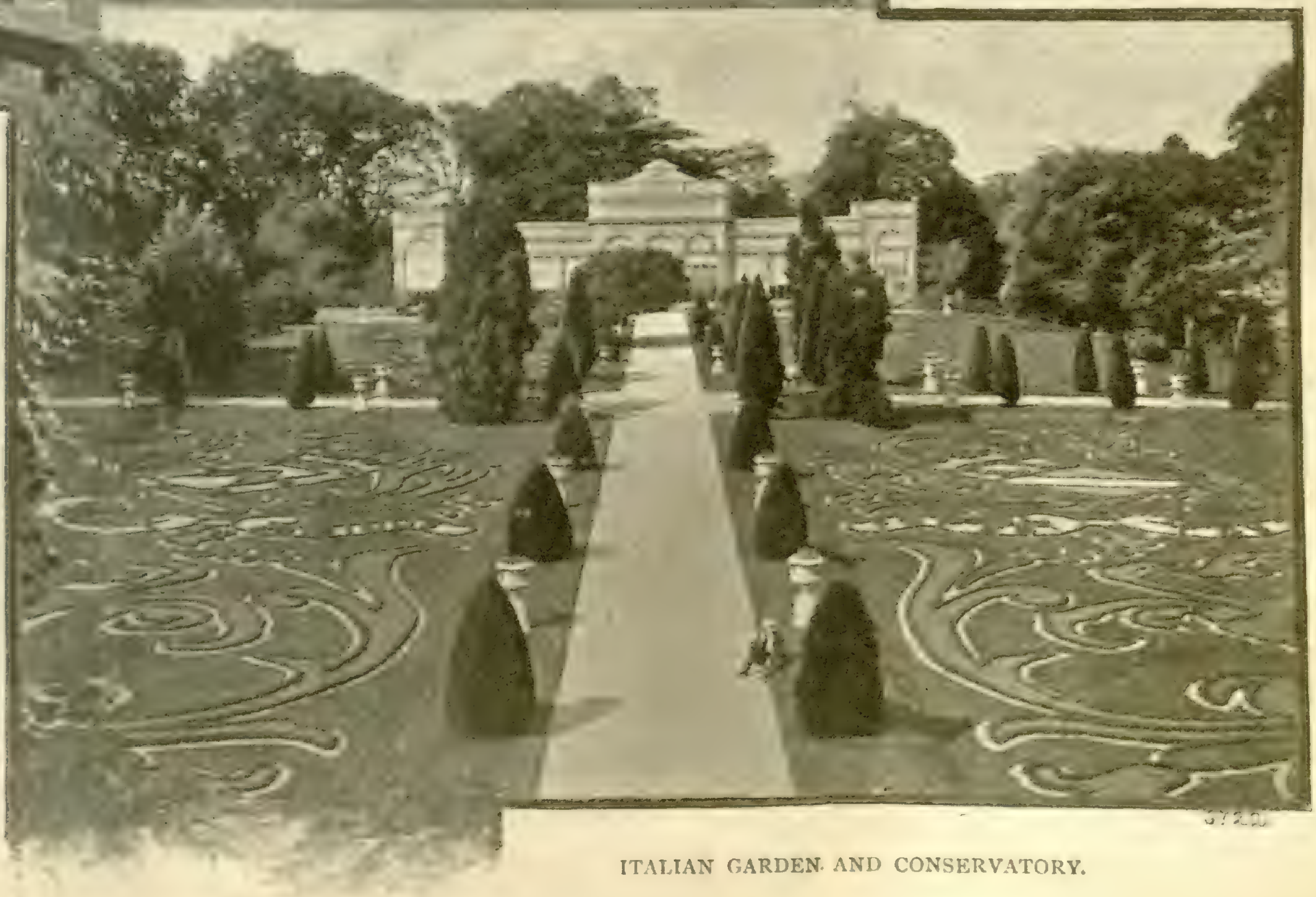
There are a trio of ancient oaks in the Chase, and the two known respectively as Gog and Magog, if not exactly the same age as "Cowper's" oak, may be properly regarded as contemporary with it, for they are of great age, and have long since passed into a state of picturesque decay. Of Cowper's tree but little beyond a mere shell with one or two arms remain, and in looking at its hollow, lichen-stained trunk, it is difficult to resist the temptation to moralize, and say, with Cowper,—

> "Time made thee what thou wast, king of the woods;
> And Time hath made thee what thou art—a cave
> For owls to roost in. Once thy spreading boughs
> O'erhung the champaign; and the numerous flocks
> That grazed it, stood beneath that ample cope
> Uncrowded, yet safe, sheltered from the storm
> No flocks frequent thee now. Thou hast outlived
> Thy popularity, and art become
> (Unless verse rescue thee awhile) a thing
> Forgotten as the foliage of thy youth,

As becomes a large establishment the structures for the cultivation of plants, fruits and flowers under glass are numerous, and form an important and eminently interesting feature. Chief among those devoted to ornamental plants is the conservatory, a spacious building of handsome elevation occupying a prominent position at the north end of the Italian garden, and so attractive within as to be a much-appreciated resort both of the friends of the noble owner and of visitors on the days when the gardens are open to the public. A glimpse is obtained of the conservatory through the archway; but its architectural features are best seen in the illustration of the Italian garden. Briefly described the lofty building consists of a central transept and side wings, and it has a handsome façade of stone similar to that obtained from the neighbourhood of Bath. The stonework is on the outerside covered to a considerable height with Austrian briars, which, as in the case of those trained to the walls of the mansion, bloom profusely and produce a glorious effect during the season of flowering. As will be seen from a glance at the full-page illustration of the interior there is a handsome fountain basin in the centre of the middle division, and that the low wall is divided into eight sections, four of which are provided with receptacles for plants. These are changed from time to time, according to the season of the year. During the winter and early in the spring they were filled with examples of Primula obconica, which were remarkable for the high quality of the strain they represented and the cultural skill that had been brought to bear upon them. When the photograph was taken the sections were occupied by white marguerites, and these in their turn made way in the course of the summer for zonal pelargoniums, or it may be tuberous begonias. The four groups of callas in the basin have occupied their present position for a long period, and they are evidently at home with their roots laving in the water, for they present at all times a luxuriance and produce an abundance of finely developed spathes. As a matter of course they have a large bank of soil in which to obtain anchorage, and this is probably partly renewed from time to time. Surrounding the fountain are huge orange, lemon, and citron trees in boxes, lofty tree ferns, chiefly cyatheas, Seaforthia elegans, and Dracæna australis, with an elegant undergrowth of ferns and flowering and ornamental-leaved plants of dwarf growth. A portion of the roof is draped with the elegant Tecoma jasminoides. For the most part, the plants employed in the ornamentation of the two wings are arranged in beds, of which there are three in each. The principal bed in each extends the whole length, with a broad walk on either side, and in these are planted the stately palms, tree ferns, New Zealand flax, and other objects that help to contribute to the permanent attractions of the structure. Conspicuous among the palms are finely-developed specimens of Corypha australis, Chamærops excelsa, Phœnix dactylifera, P. rupicola, and several kentias. Especially noteworthy also in the central beds are the specimens of Phormium tenax variegatum, which have leaves ranging from eight to ten feet in length, and are admirably coloured throughout. In the borders on the outer side of the walks are arranged the plants of scandent habit with which the roof and wall spaces are clothed, and here were several so remarkable for their development as to justify an expression of surprise by those possessing a wide knowledge of the vegetation of temperate regions. Streptosolon Jamesoni has climbed the wall to a height of twenty feet or so, clothing the masonry on its way, and then spread over the roof, and suspended in the air large clouds of its rich orange-coloured flowers. Many splendidly-developed specimens of this handsome species have come under my notice since its reintroduction, but in no case has its ornamental character been more strikingly exemplified than in this instance. Cantua dependens, Habrothamnus coccinea, Styrax officinalis, Ruscus androgynus, and Pittosporum tobira are also employed with good effect for clothing wall spaces, training up pillars, and draping the roof. Highly attractive also during the summer season are the specimens of Brugmansia Knighti and P. sanguinea, which have noble heads,



LOWER TERRACE GARDEN



ITALIAN GARDEN AND CONSERVATORY.

and produce during July and August enormous numbers of the large trumpet-like flowers. Additional brightness is imparted to the side divisions by the free use, as in the centre, of flowering plants according to the season.

To the right and left of the stately arch which is the subject of one of the illustrations, and forms the southern entrance to the Italian garden, are ranges of plant houses less ornate than is the great conservatory, but of handsome elevation and highly attractive by reason of the excellent condition of their occupants and the taste shown in the arrangement. On the eastern side of the archway one of the structures, with a length of nearly fifty feet and a width of eighteen feet, is devoted almost exclusively to Fortune's Yellow rose, and well does this beautiful tea-scented variety pay for the space and time devoted to it. There are three specimens, and these fill the whole of the root-space and form overhead a dense canopy of the richest green, and produce the richly-coloured flowers in remarkable profusion. Last year the crop comprised five thousand blooms, and that number will probably be exceeded this season, for early in March upwards of three thousand blooms had been cut. This fine old rose is seldom seen at the public exhibitions; but it is satisfactory to know that it is being more largely planted under glass for the production of cut flowers for decorative purposes. We have now many beautiful teas that are well adapted for culture under glass, but there is not one that, having regard to freedom of flowering and attractive colouring, can be said to surpass it. Of its value no better proof could be desired than is to be found in these great gardens. There are also some fine specimens of Luculia gratissima in the rose house, which bloom with great freedom, and the stone pillars along the front of the house between the sashes are clothed with the most elegant of the scented-leaved pelargoniums.

The structures on the opposite side of the archway are devoted to stove plants, and are artistically treated with a view to presenting the occupants in a more natural manner than is possible in structures provided with stages in accordance with the orthodox plan of arrangement. The general collection is planted in borders, of which there are three in each house, the principal one being, as a matter of course, along the centre. The back wall is covered with a dense growth of ferns of various kinds, chief among these being the davallias and nephrolepis, and it may be useful to mention that the general effect of the wall is considerably heightened, more especially during the spring months, by the bright red tints of Nephrolepis Bausei. The narrow wall spaces between the glass panels are clothed with ferns and ornamental leaved begonias, and suspended from the roof are numerous well-filled baskets of adiantums, davallias, and other ferns. In the beds are large specimens of Caladium esculentum, and fine masses of cannas, and to the pillars are trained Begonia fuchsioides and B. President Carnot, the huge clusters of flowers of the last-named being especially attractive. There are necessarily many houses devoted to the preparation of plants for the decoration of apartments and the conservatory, and for the production of cut flowers. To particularise these would require much space, and it will suffice to say that all classes of plants best suited for decoration are grown in immense numbers, and in a manner that reflects the highest possible credit upon the skill of Mr. Hayes, the able chief of the gardens. Crotons, of which Volutus, Œerstedi, and Laingi appear to be held in the highest estimation, are grown by the hundred, while of the richly coloured Acalypha Macafreena several hundred plants are propagated annually, so highly appreciated is it for dinner-table and other decorations. Contiguous to the rose garden is the show house, which has recently been rebuilt, and here may be found at all times a bright display of greenhouse plants grown for their flowers. In the structure are fine examples of Cassia corymbosa and Brugmansia suaveolens well deserving of mention, but of special interest are the examples of Abutilon vexillarium trained under the rafters. With the main stem trained to the rafter and the side growths allowed to hang down naturally, the plant presents, with its myriads of pendant crimson and yellow flowers, a surprisingly beautiful appearance.

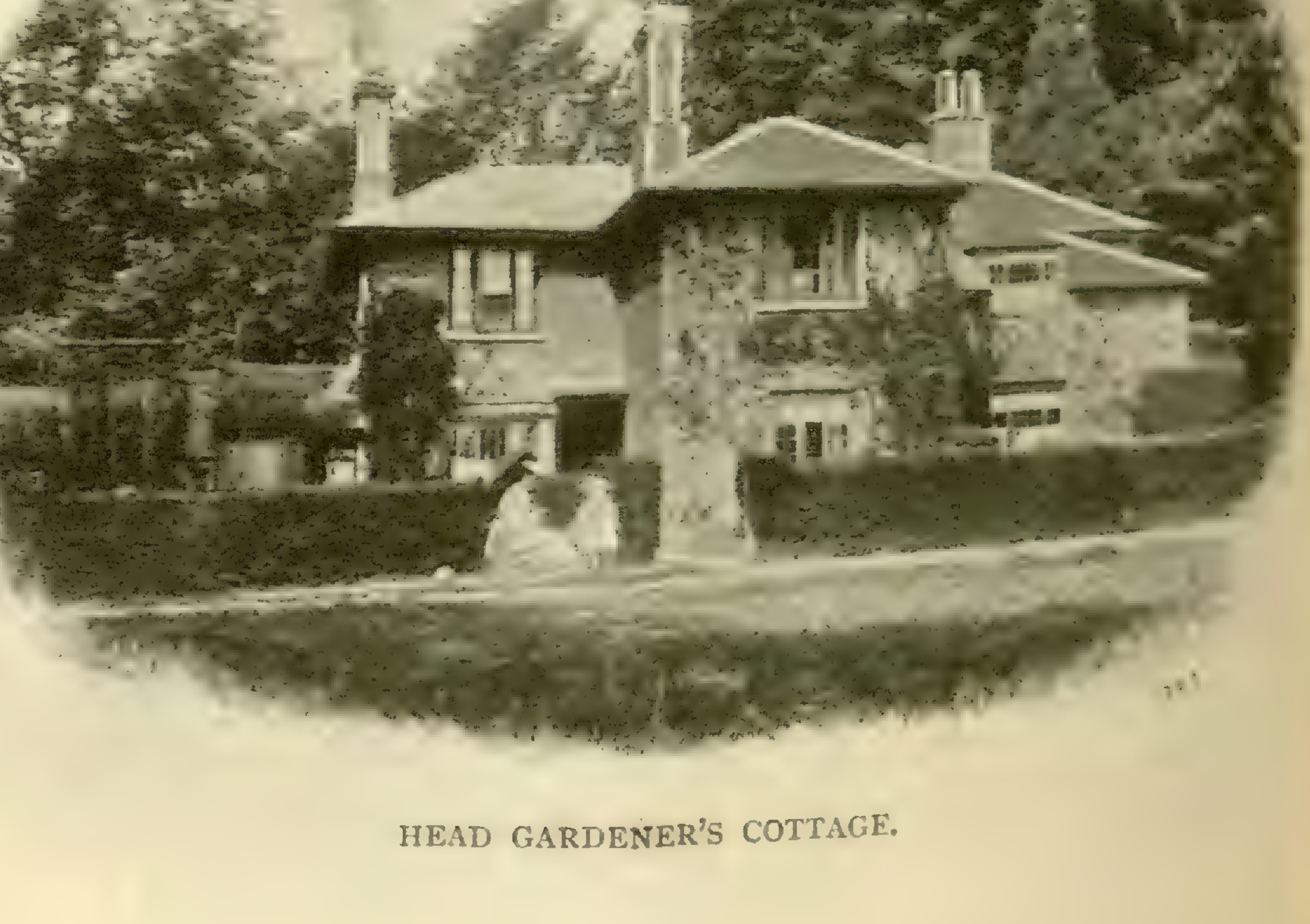
Fruit houses are even more numerous than are those devoted to plant culture, and would justify even more space being devoted to them than is now possible. The first range to obtain attention contains seven houses built in accordance with the views which obtained among garden architects half a century or so ago, and therefore more lofty than is now considered desirable. In this range are excellent examples of fig and grape culture. The most popular of the figs is Brown Turkey, which is grown both planted out and in pots. The Black Hamburgh and Muscat houses have been replanted within the past two or three years, and the vines are making so satisfactory a growth as to suggest many years of usefulness. In another part of the gardens is a large span-roof mixed vinery, and in this Lady Downes, Alicante, Madresfield Court, Black Hamburgh produce heavy crops of finely-finished clusters annually. Six or seven houses are devoted to peaches, and these are so arranged as to ensure a continuous supply of fruit from early in the year until quite the end of the season for these luscious fruits, and the supply is not only continuous, but abundant and of high quality. The favourite peaches are Alexandra Noblesse, Royal George, Hales' Early, Raymacker, Early Alexander, Dymond, Goshawk, and Barrington; and the nectarines held in the highest estimation are Rivers' Early, Lord Napier, Stanwick Elruge, and Victoria. It was interesting to observe that all the houses contained early and late varieties, as it is found that when this is done there is less risk of overlapping or breaks in the supplies than when each structure is devoted to varieties ripening simultaneously. Large as is the number of houses devoted to the cultivation of fruits and ornamental plants, it is evident that they are no more than sufficient to meet the demands that are made upon the garden, for every foot of space that can be utilised in the fruit houses without interfering with the permanent occupants is occupied with strawberries, French beans, and ornamental plants, of which specially large stocks for bedding or other purposes are required. In the frame ground are forcing houses wellnigh innumerable, and in these the crops of cucumbers, melons, and tomatos were of exceptional merit. The walls of the frame ground are covered with tea and noisette roses, the two principal varieties being Vicomtesse de Vezins and William Allen Richardson, both of much value for giving liberal supplies of flowers for cutting.

Within the walls the area devoted at Castle Ashby to the cultivation of vegetables and bush fruits is upwards of five acres, but this is not the whole of the space devoted to these useful crops, as a second garden some acres in extent is utilised for the production of vegetables. The entrance on the northern side of the kitchen garden forms the termination of the broad promenade that runs through the conservatory and Italian gardens, and the department is consequently in direct communication with the ornamental grounds and plant houses. The kitchen garden is enclosed within lofty stone walls, surmounted by a broad coping formed with red tiles, which is picturesque, and no doubt useful in protecting the trees from adverse influence in spring. The area is divided into four equal portions by roads of sufficient width to admit of manure and other material being carted on to the quarters, which are again divided, for convenience of working into two or three parts by secondary walks. At the extreme or southern end of the garden is a large semi-circular space raised two feet or so above the general level, surrounded by a seat and divided into beds, filled with herbs. Gooseberries and currants are grown as multiple cordons, and the practice adopted is to plant two trees about two feet apart and to so arrange the branches of each as to form a circle. Grown in this manner these fruits are said to crop much more heavily than when grown in accordance with orthodox practices. Raspberries are trained to a wire trellis, and of the several varieties grown, Superlative is considered one of the best. The main walks are flanked by rows of pyramidal and bush trees of apples, pears, and plums, and the walls are covered with fan and horizontally trained fruit trees of various kinds, those of pears and plums predominating and yielding an ample return for the space occupied.

It so requently happens that the house provided for the head gardener, and the accommodation for the young men, are out of keeping with the mansion and its surroundings, that it gives me special satisfaction to mention the fact that at Castle Ashby, both gardener's house and bothy have been planned with due regard to appearance and comfort. An illustration is given of the residence of Mr. Hayes; and with reference to the bothy, it may be said that while of handsome elevation it is highly convenient, and so arranged as to ensure a maximum of comfort for the occupants.

Mr. Hayes, who is responsible for the management of these great gardens, has occupied his present position since the death of Mr. H. Birch, nearly five years; and although, comparatively speaking, young in years, has shown such remarkable ability in every department, as to fully justify the anticipation that the high reputation these gardens have so long enjoyed, will, under his direction, with the generous support of his noble employer, be fully maintained if not greatly enhanced.

GEORGE GORDON.



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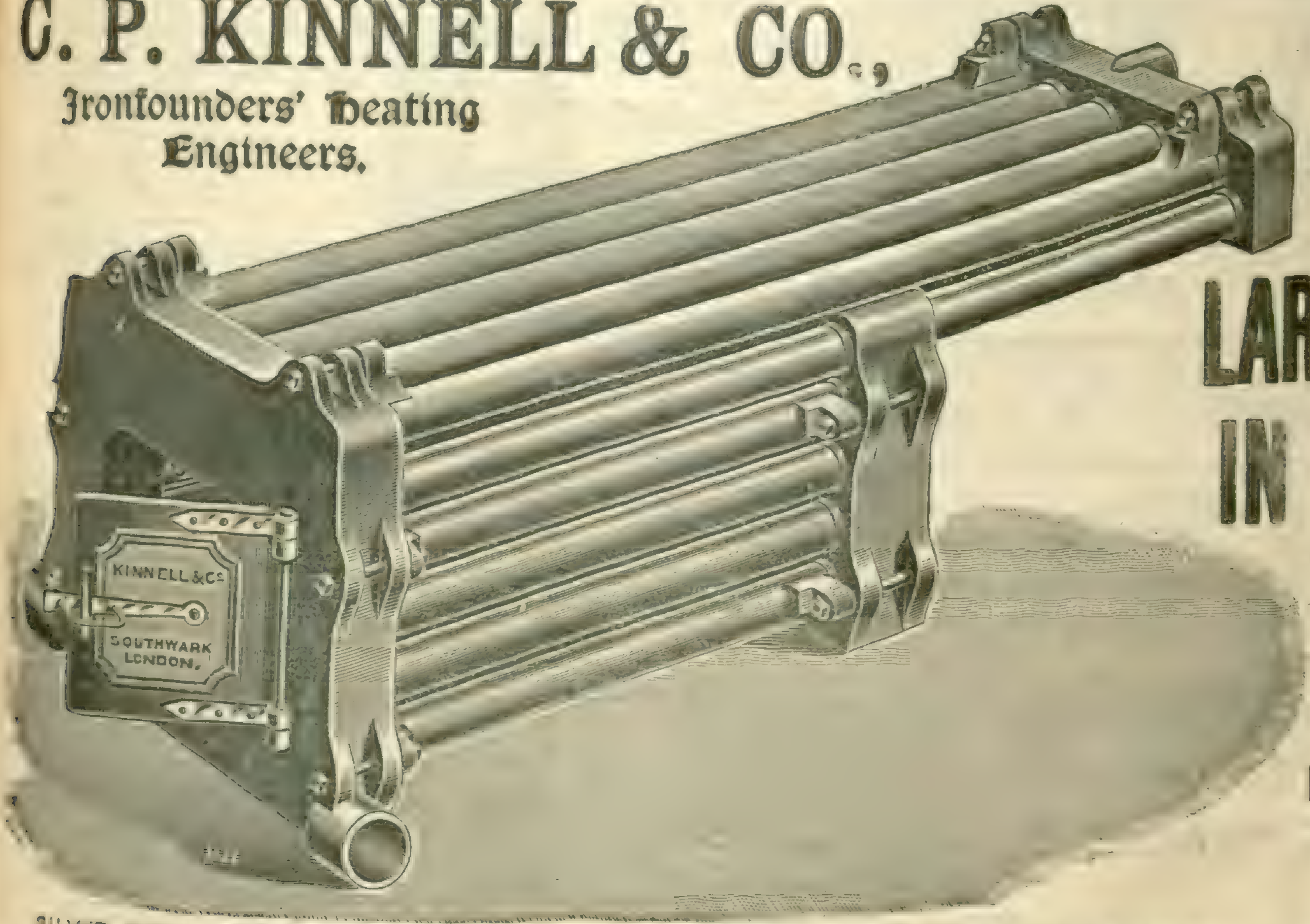

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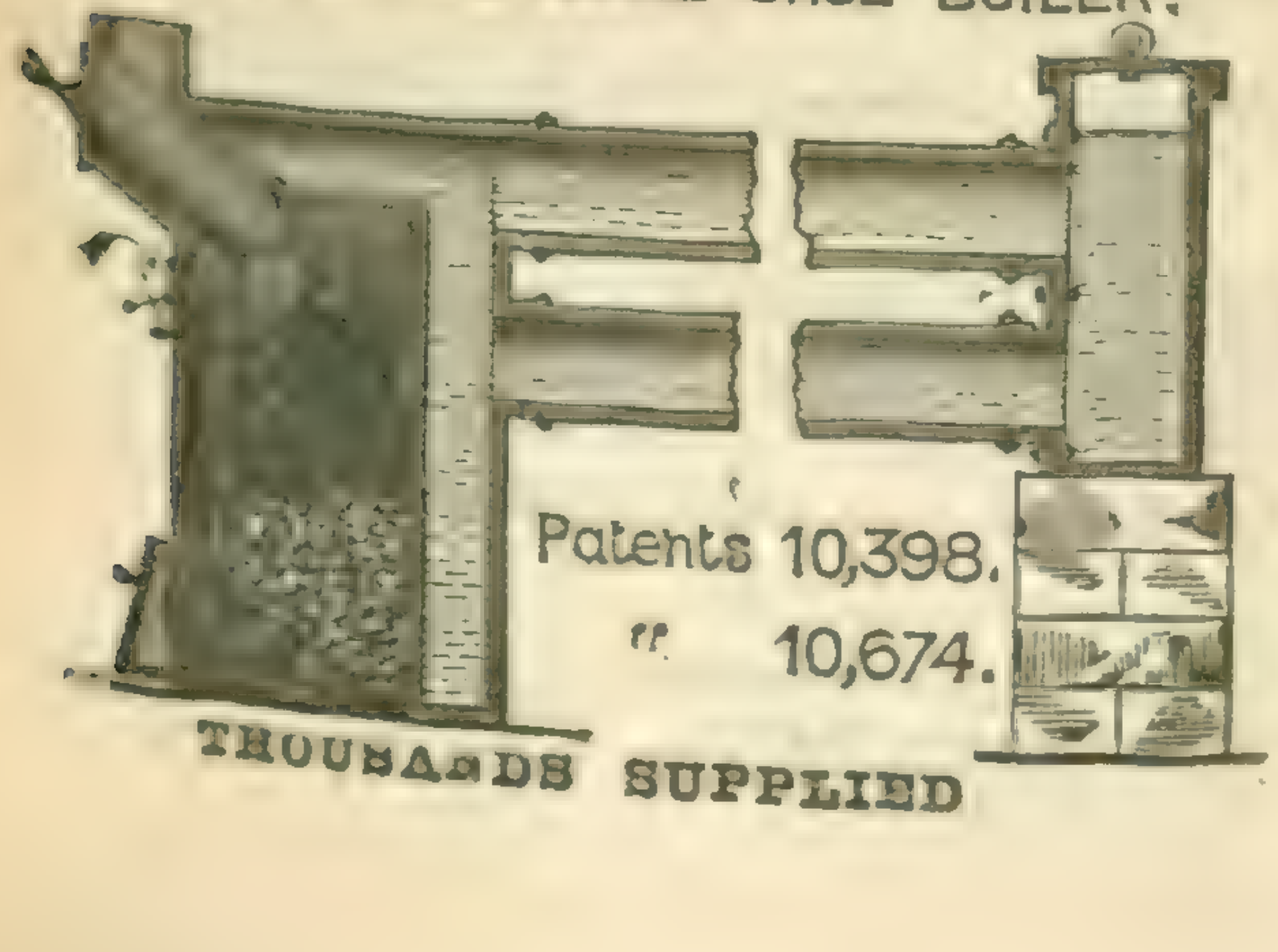
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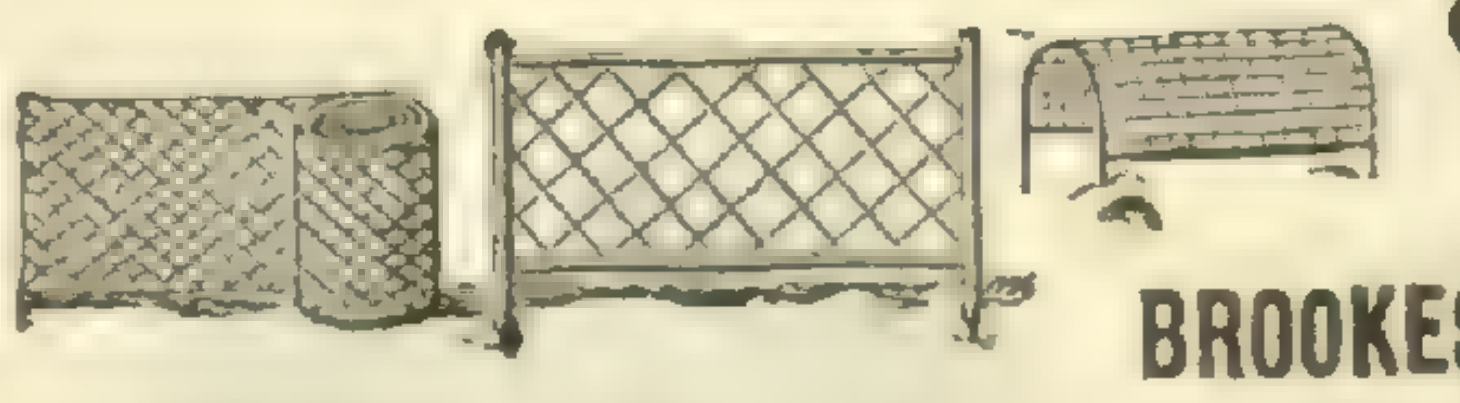

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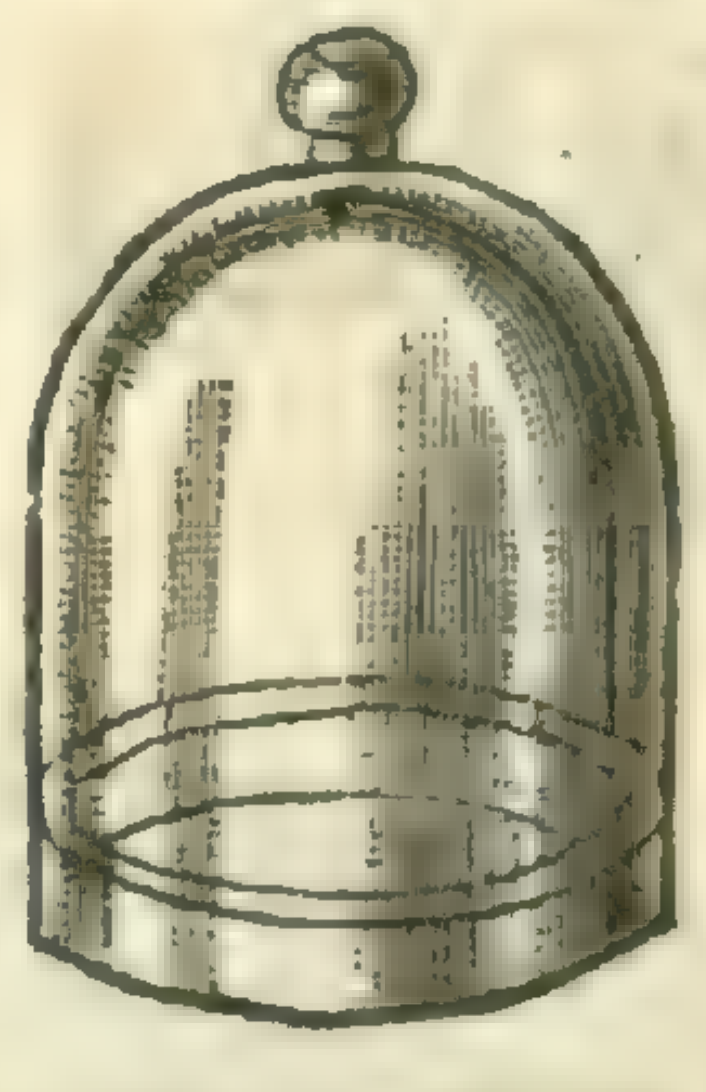

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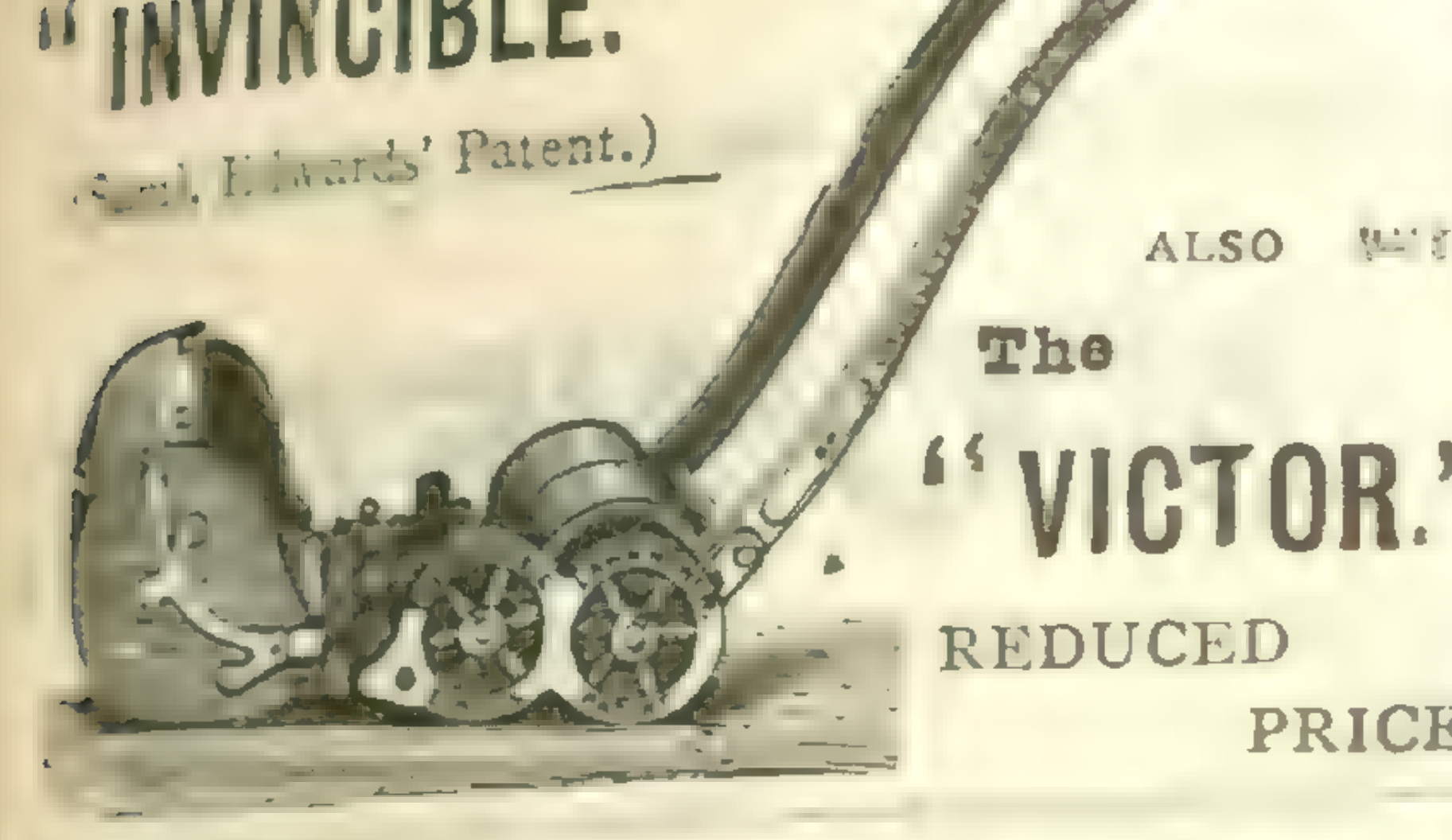

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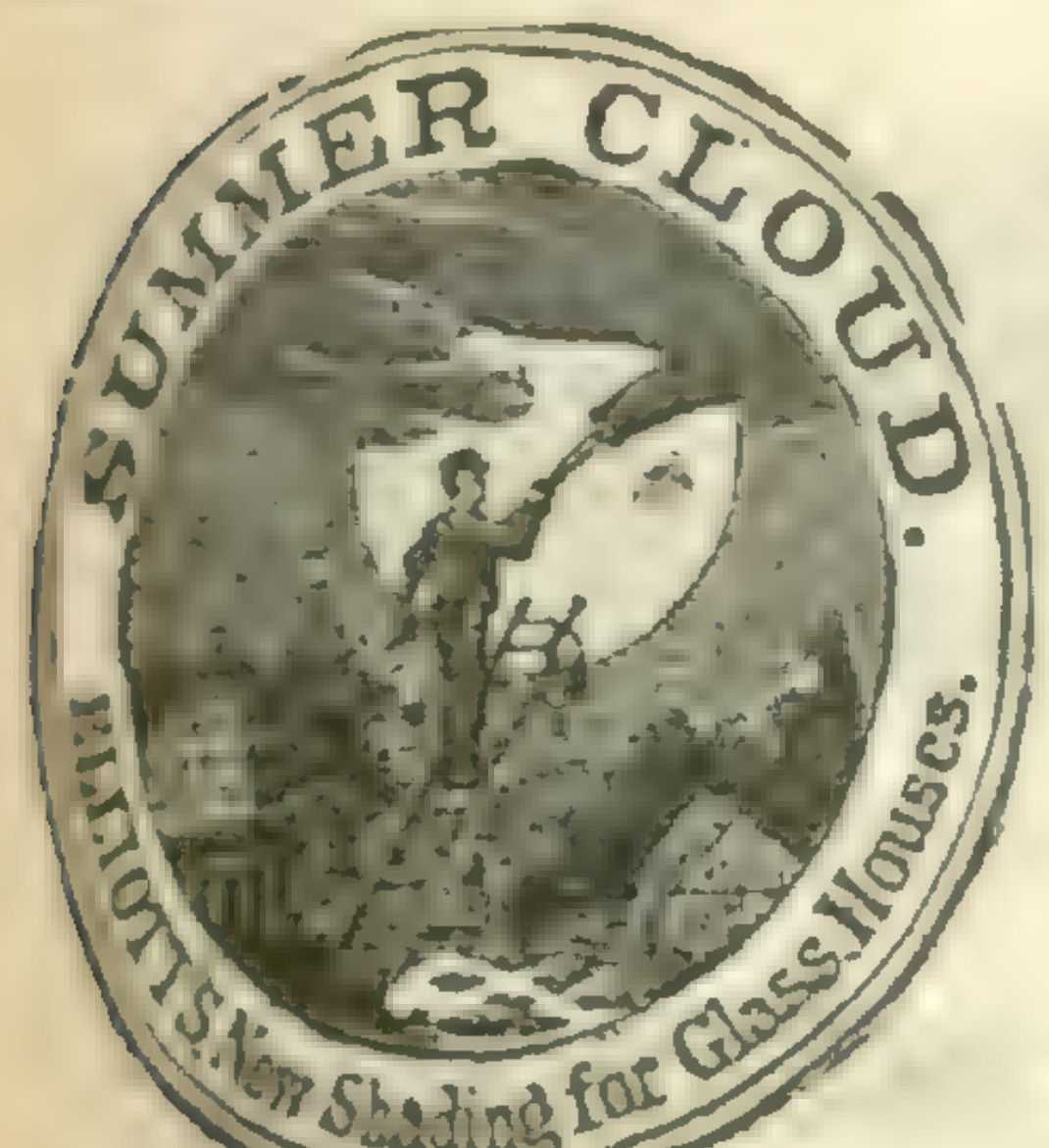
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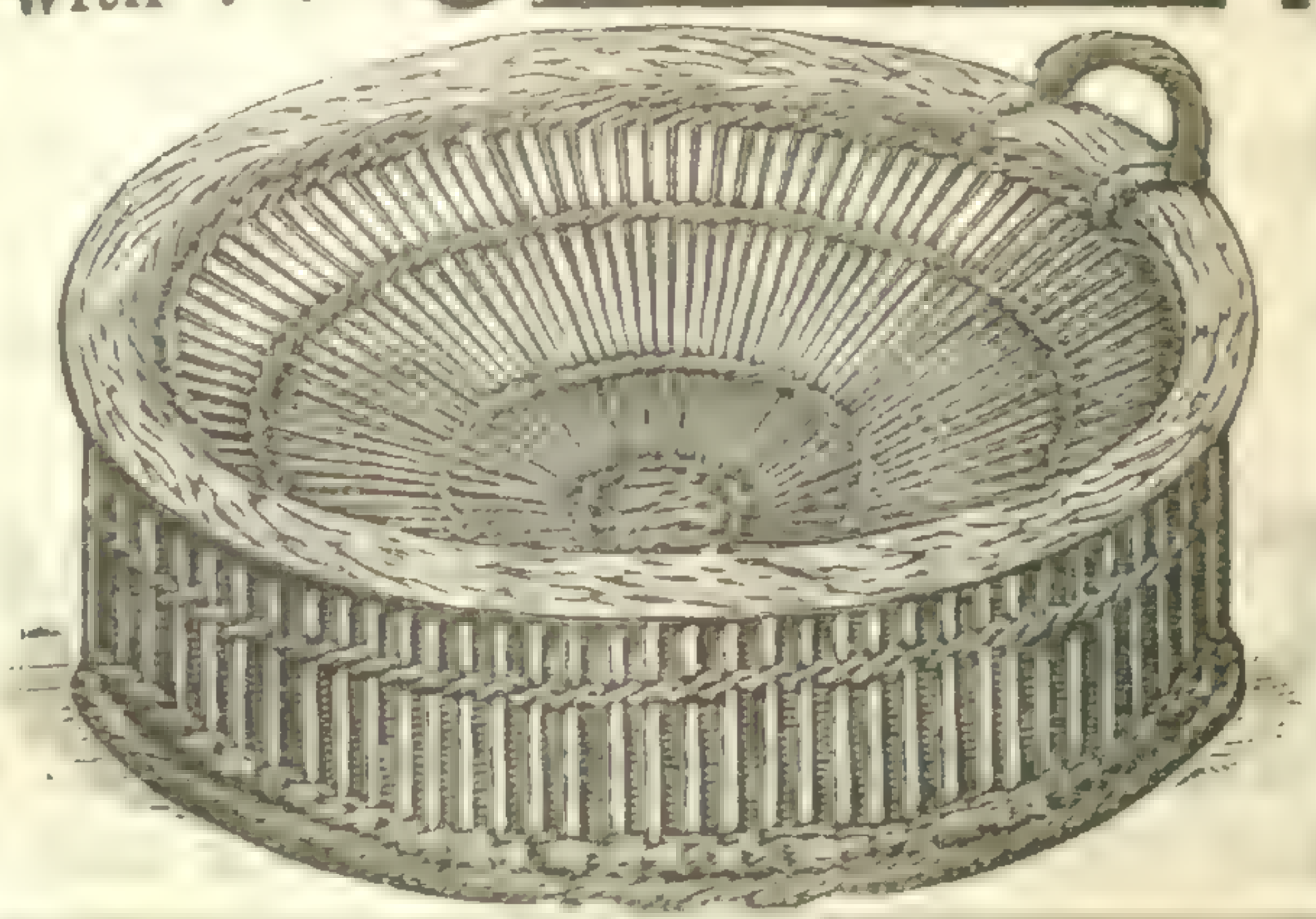

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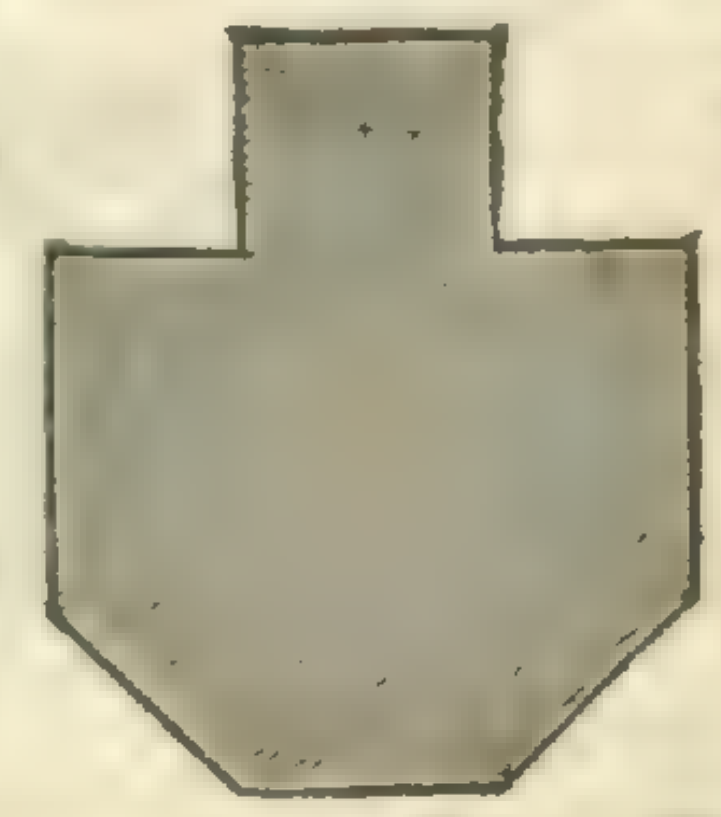

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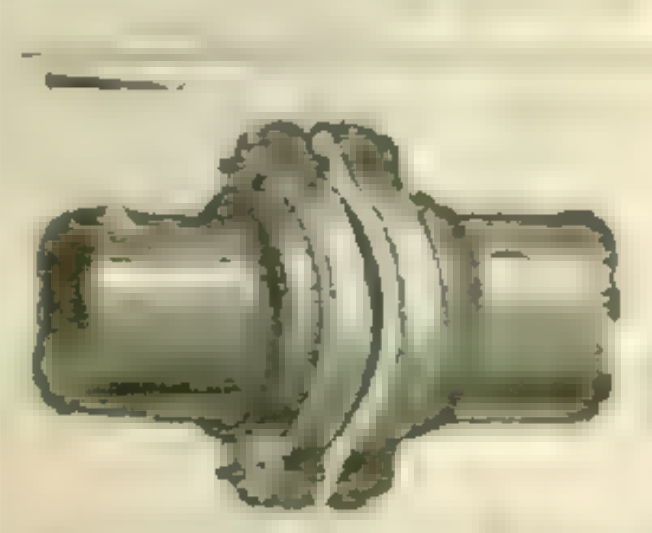

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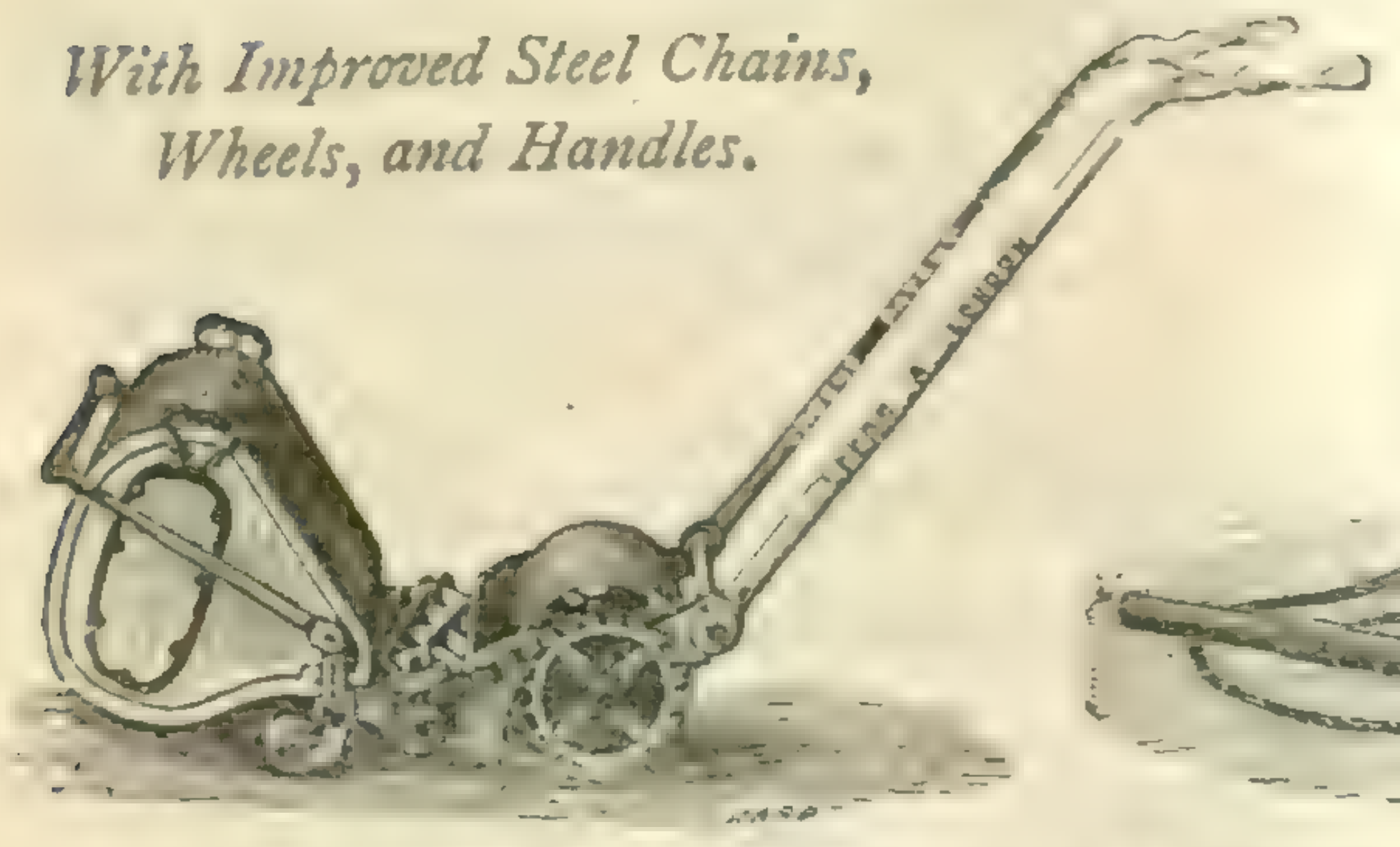

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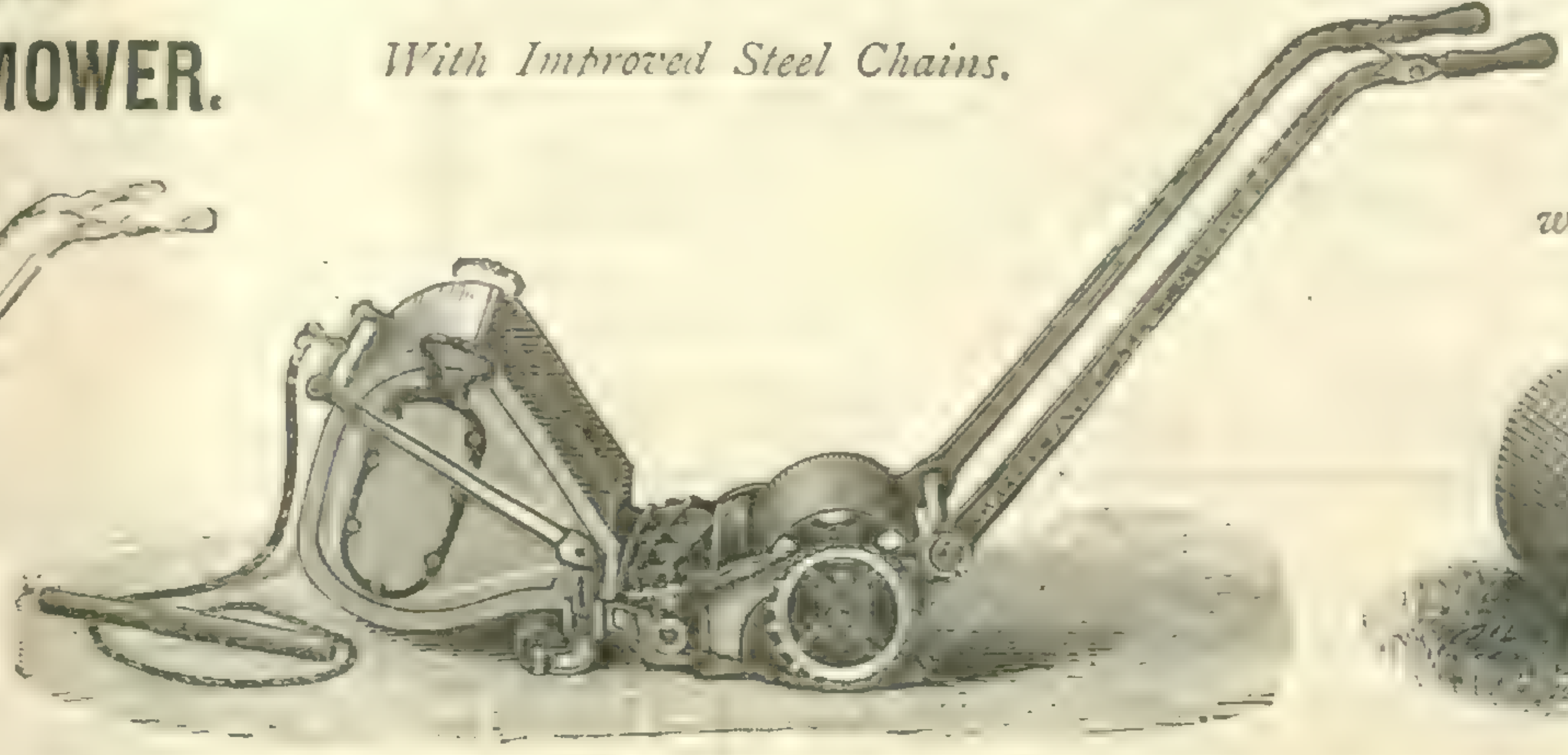

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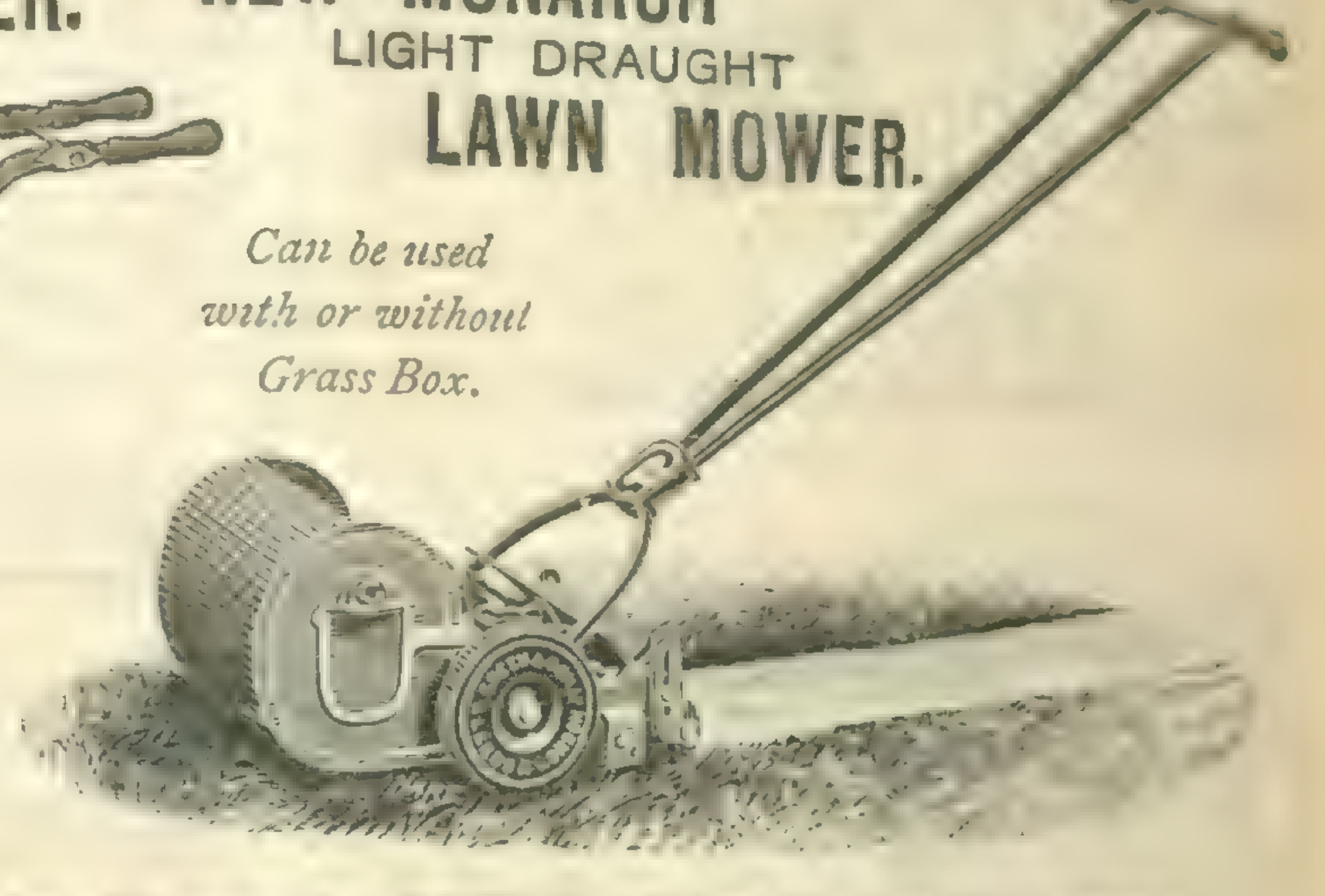

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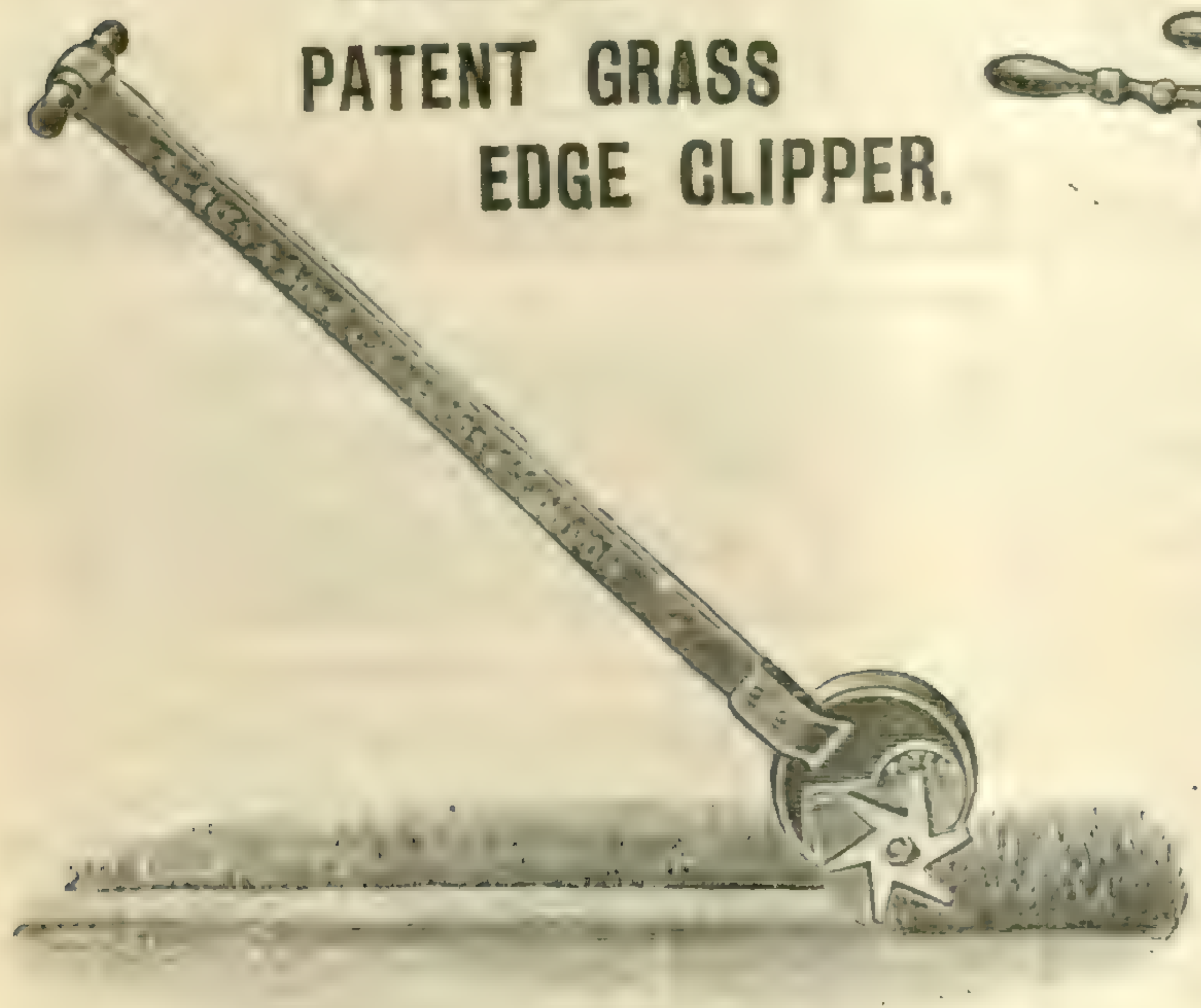

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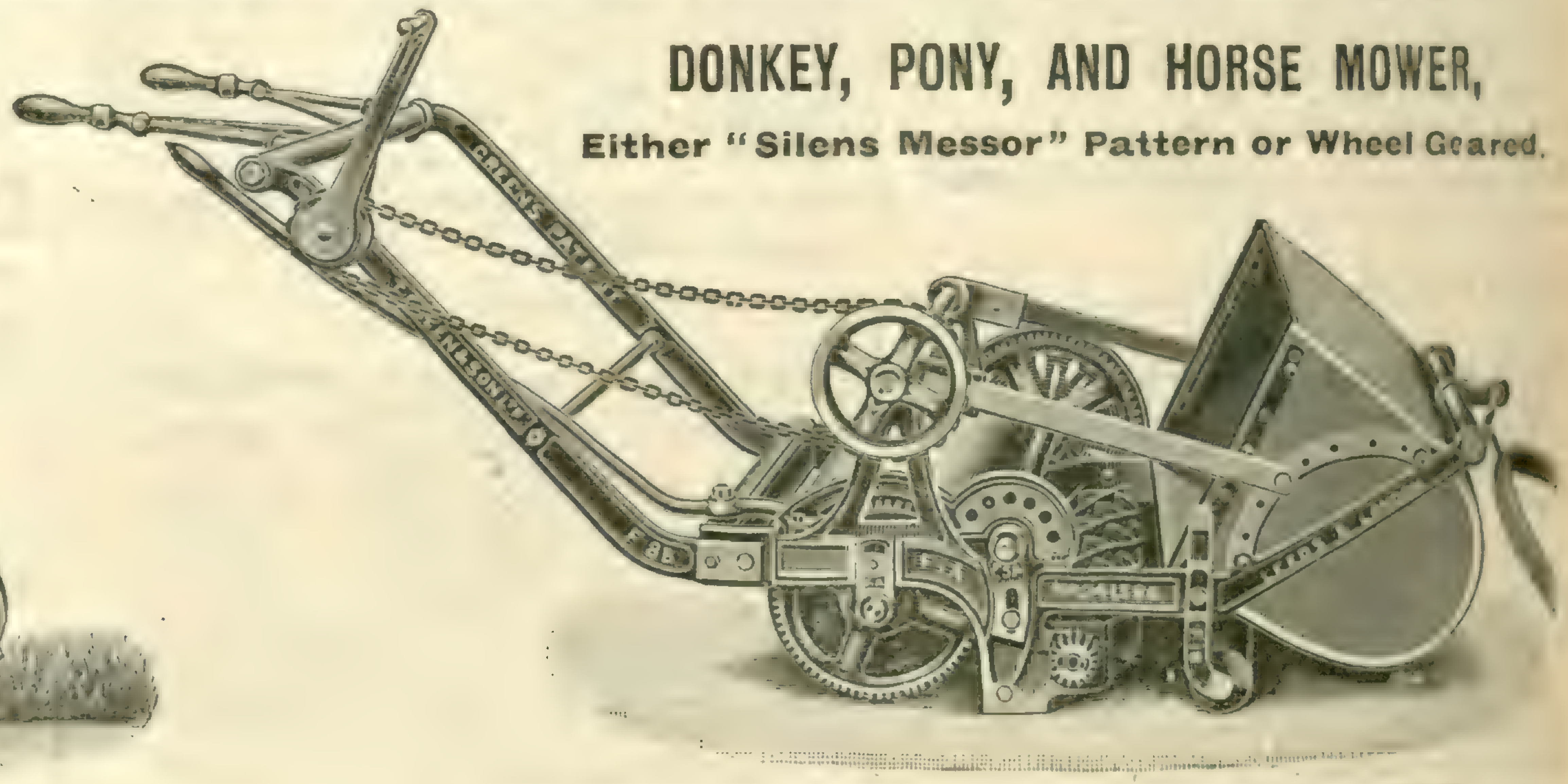

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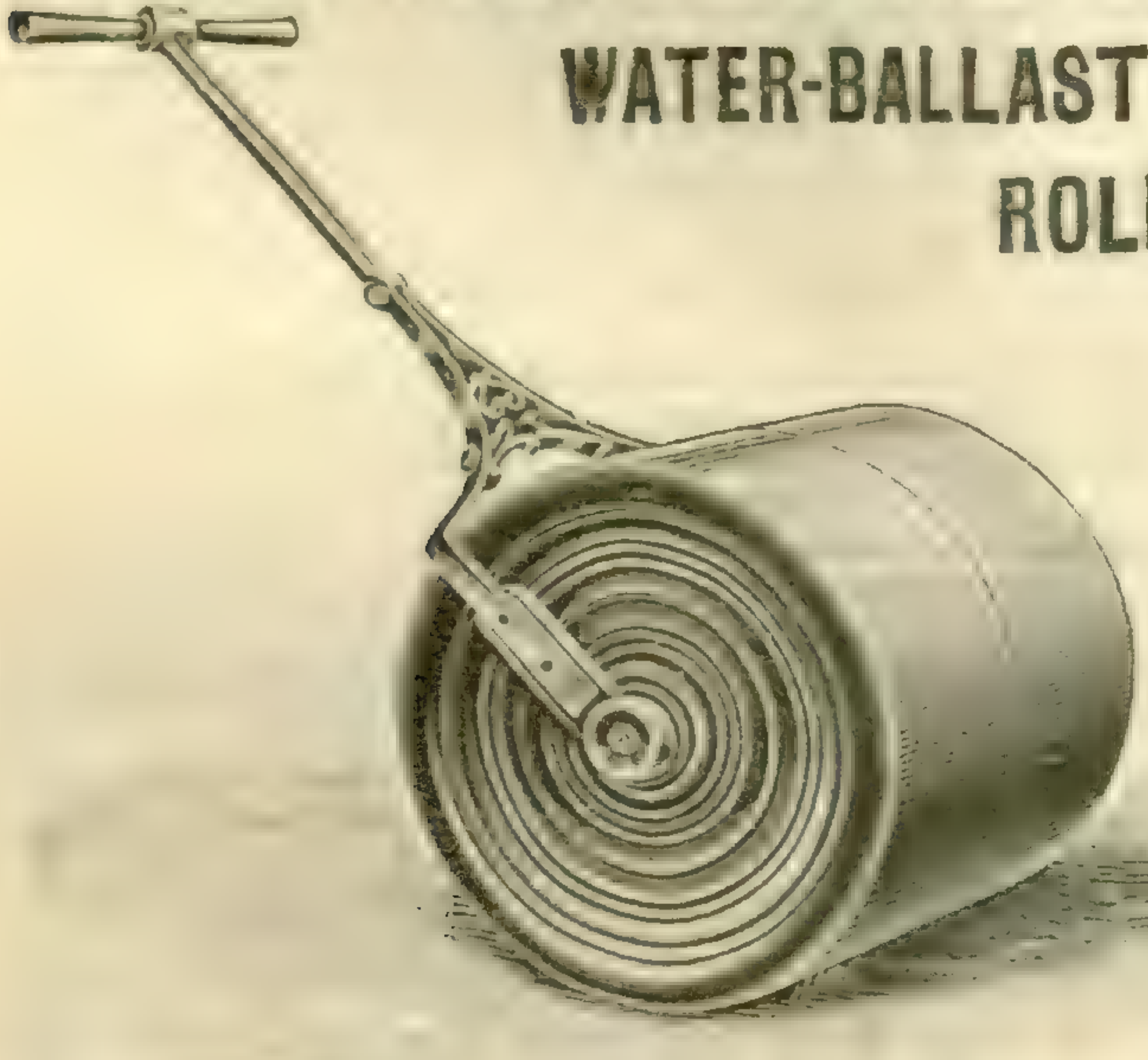

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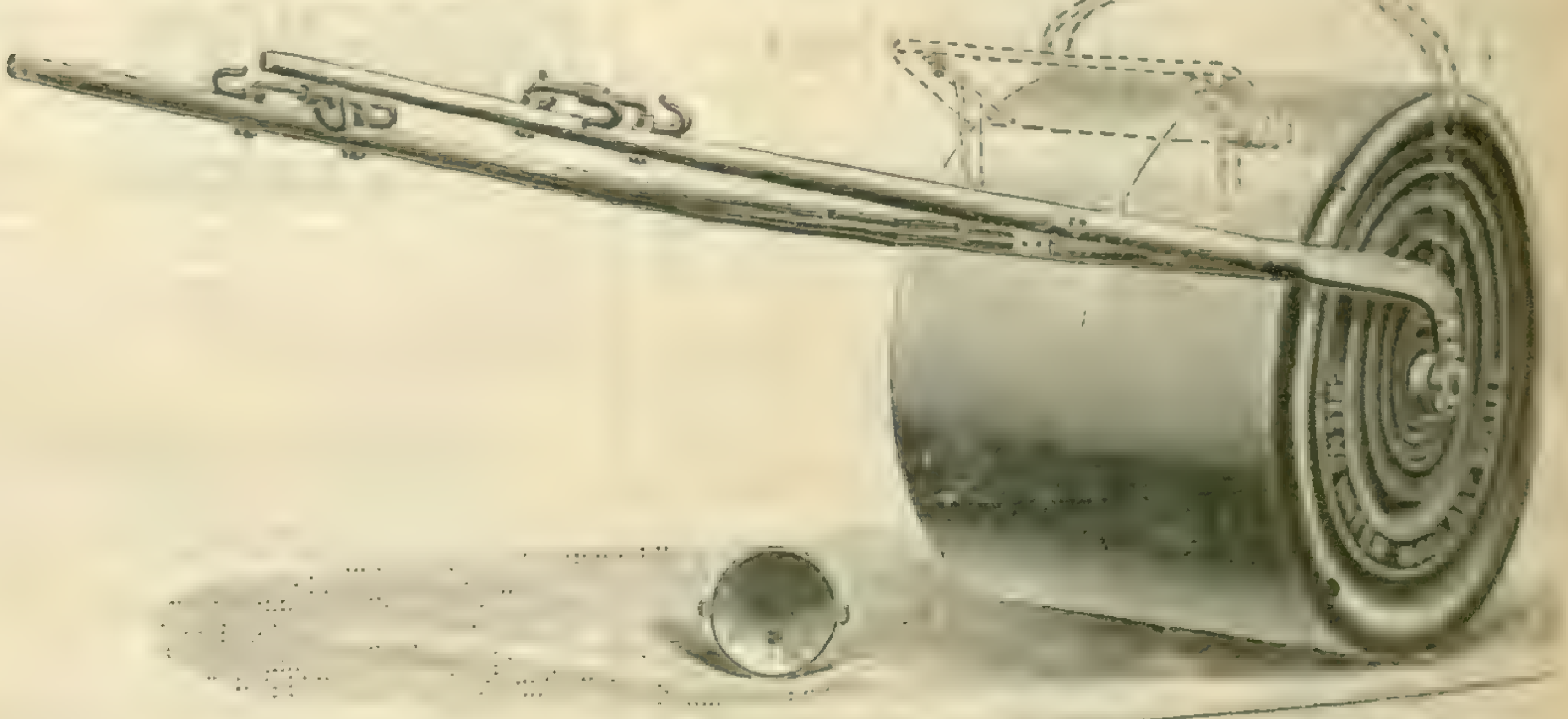

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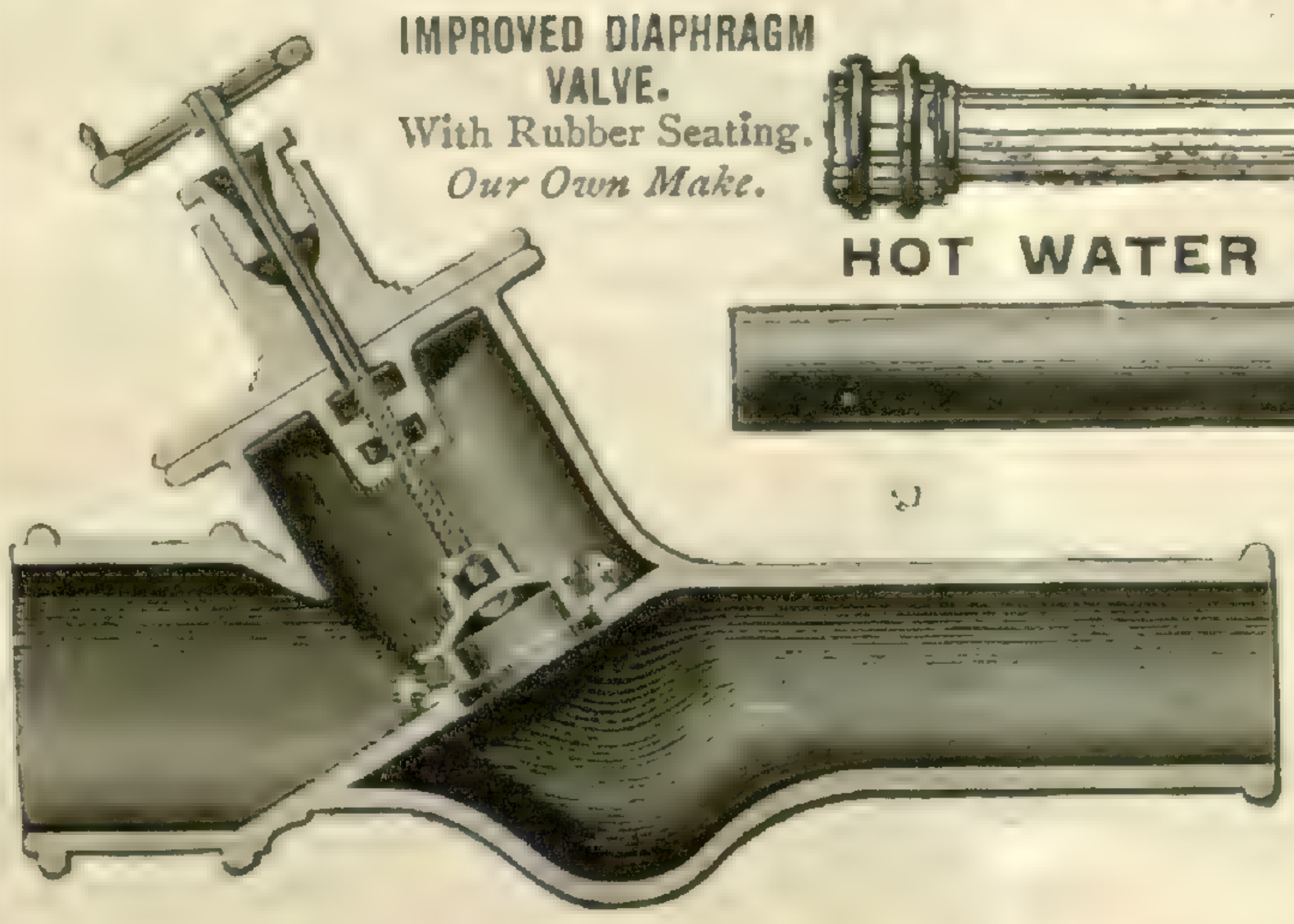

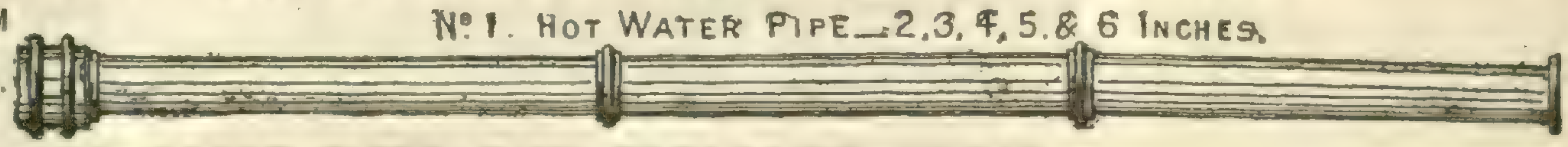

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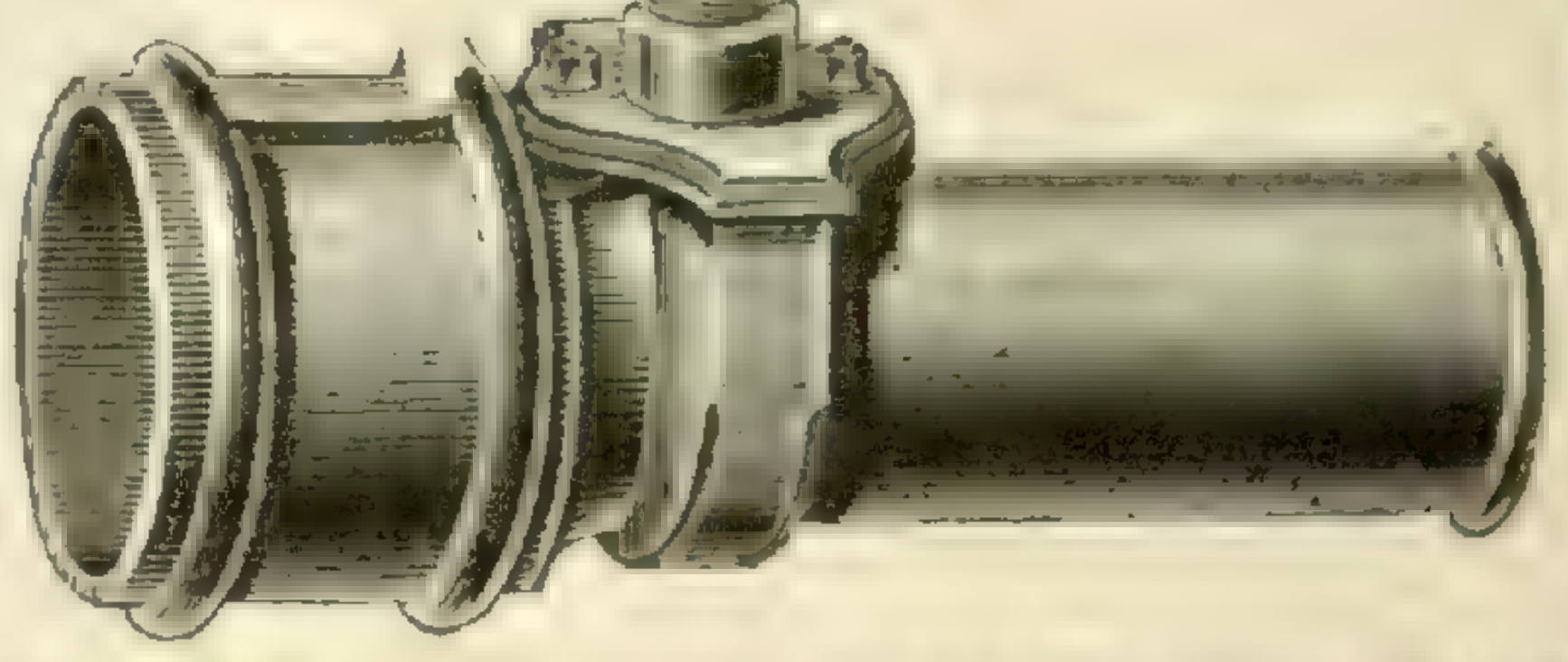

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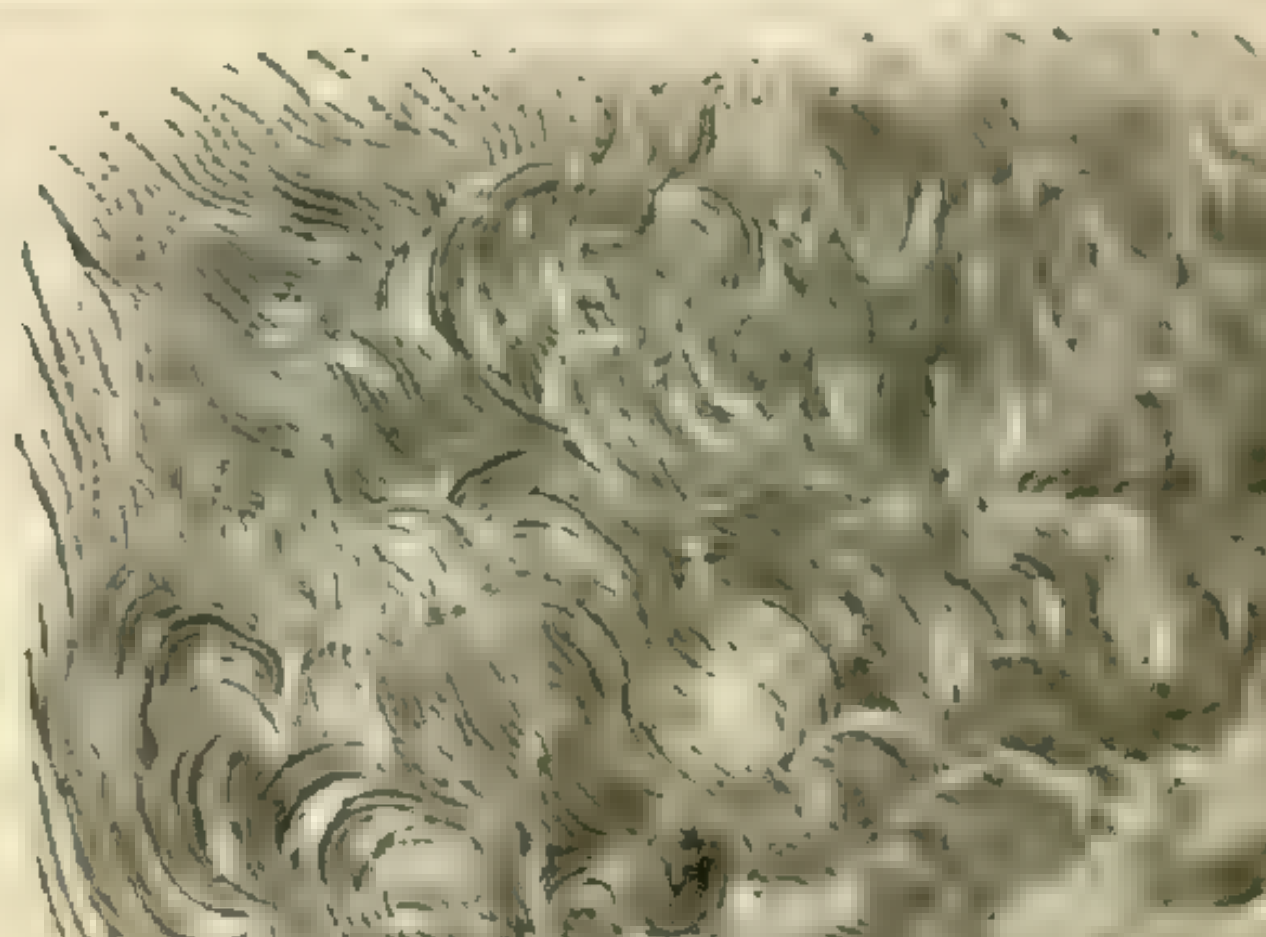

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THE GARDENERS' MAGAZINE.

SATURDAY, JUNE 11, 1898.

CARDIFF AND COUNTY HORTICULTURAL SOCIETY.—TENTH ANNUAL SHOW on JULY 20 and 21. Leading classes: Groups, £39; Roses, £23; Decorative, £36; Cut Flowers, £26. Strong classes for Plants, Fruit, and Vegetables. For schedules apply H. GILLETT, Secretary, 66, Woodville Road, Cardiff.

GREAT FLOWER SHOW, RICHMOND (SURREY), JUNE 29, 1898.
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Schedules and full particulars of A. ALGERNON CHANCELLOR, Hon. Sec., 1, King Street, Richmond, Surrey.

ISLE OF WIGHT ROSE SOCIETY.—GRAND EXHIBITION OF ROSES at CARISBROOKE CASTLE, by kind permission of H.R.H. PRINCESS HENRY OF BATTENBERG, Governor of the Island, on TUESDAY, JUNE 28, 1898. Entries close June 25. For schedules, &c., write to the Hon. Secretaries,
Rev. G. E. JEANS, Shorwell, I.W.,
E. V. MATTHEWS, 33, St. John's Road, Ryde.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW, ALTHORP PARK, NORTHAMPTON. AUGUST 1st and 2nd. £250 in prizes. For best 12 Plants, £15; £10; £5; £2 10s. Central Group for Conservatory Decoration, £12; £7; £3; £2. Collection of Fruit, eight varieties, £5; £3; £1 10s. 24 Roses, £2; £1 10s.; £1. Collection of Vegetables, 12 varieties, selected, £3; £2; £1. Table Decoration, £3; £2; £1. Entries close July 22nd. Schedules and full particulars from
W. B. TROUP, Secretary.
Northampton, June 2nd, 1898.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

DEATH.

SPOONER.—On the 3rd inst., at his residence at Hounslow, Mr. STEPHEN SPOONER, of the Hounslow Nurseries, aged 75.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

EVOLUTION OF THE CULTIVATED STRAWBERRY.

IN an endeavour made at Manchester a few days since to vindicate the claims horticultural and botanical societies have upon the community, Sir Trevor Lawrence stated that they could best estimate the value of their work when they remembered that the fine strawberries now in cultivation originated from the small wood strawberry. As the gathering at which this observation was made was of a festive character, no authorities were given in support of the statement, or questions raised, and it therefore becomes a matter of some importance to inquire how far it is justified by the facts of the case. It is no new thing to be told that the ancestor of the British Queen, Royal Sovereign, and other strawberries in cultivation is our woodland wilding, and that the present race which yield such abundant supplies of large and luscious fruits prove to demonstration the splendid results that may be obtained from well-directed manipulative skill. We have on more than one occasion been present at functions where the strawberry has been used "to point a moral," and if we have allowed the statements made to pass unnoticed, it has been because we are fully aware that gentlemen engaged in commerce not associated with gardening are not usually regarded as authorities on horticultural matters. In the case of the President of the Royal Horticultural Society a very different state of things obtains, and such statements are likely to be accepted without question even by those who possess a somewhat intimate acquaintance with both the practical and scientific aspects of gardening. Hence the necessity for drawing attention to the fact that the origin of the cultivated strawberry, as suggested at the Manchester and some other gatherings, is nothing more than a very pretty myth. The development of the strawberries now at the command of the cultivator affords an excellent object lesson in plant improvement; but there is not a scrap of evidence in support of the views of those who believe them to be descendants from the wood strawberry (Fragaria vesca). This species may be capable of improvement, but the fact remains that it has not undergone any change since Tusser advised nearly three and a-half centuries ago the planting of strawberries found "growing abroad among thorns in the wood." Nor has its pollen been used with any known effect in the fertilisation of other species. It was for a long period cultivated in gardens, when, according to Parkinson, it was "bettered by the soyle and transplanting," but this improvement was simply increased vigour due to a more fertile soil. It may be regarded as surprising that no attempts should have been made to raise a new race by the inter-crossing of the wood strawberry and the Virginian strawberry (F. virginiana), which was introduced early in the seventeenth century; but this does not appear to have been done, for no improved varieties were obtained, until after the introduction of the Chili strawberry (F. chiloensis) and the pine strawberry (F. grandiflora) in 1727 and 1759 respectively. After the last named, which is supposed to be a hybrid between the Virginian and Chili species, had become generally known, the raising of seedlings appears to have received considerable attention, and from that time the work of improvement has steadily progressed. The cultivated strawberry, it will be thus seen, is a quite modern product of the gardeners' art, and consequently there are no mysteries in connection with its origin, or occasion for doubt with regard to its progenitors.

CACTI.

THE large collection of flowering specimens of phyllocacti at the Temple must have opened the eyes of many people to the merits of these plants from the purely floral points of view, since amid a very galaxy of glorious blooms they held their own, and vied with the best. The popular idea of the cactus family is that it consists of a number of curiously spiny fleshy individuals, like crosses between a furze bush and a cucumber, varied occasionally by flattened jointed specimens, indicating faint attempts at leafage. That they bear some sort of fruits is recognised by a few who have made the acquaintance of the prickly pear, and here and there in sunny country cottage windows the creeping cereus and antiquated specimens of the phyllocactus itself have long been regarded as plants which now and again present their owners with a blossom or so to the general wonderment of beholders. The interesting side of the family, apart from its blooms, was very fairly represented by a large collection at the back of Messrs. Veitch's phyllocacti, where at least a hundred different forms of the prickly, hairy, and spiny species were shown in capital condition; with one or two exceptions, however, they upheld the popular idea of bloomless curios, and hence it was difficult for the outsider to believe that a single species out of the many could be persuaded to develop the gorgeous array of blossom presented on the other side of the same stand. The fact of their connection, however, being recognised, the question presents itself whether other species, if taken in hand in a similar skilful fashion, would not still further enrich the world of horticulture. The opuntia, or prickly pear itself, bears beautiful pale yellow blooms, a colour absent in the phyllocacti shown, and we have a vivid recollection on one occasion of beholding a huge bush of this species in its native habitat, so densely covered with its primrose inflorescence as to resemble an azalea with abnormally large blossoms. This must have been an unusually floriferous sport, as only one example among myriads of plants was seen, but none the less does it indicate a possibility. Then, too, with the examples of bigeneric orchids before us, the cacti might yield like results with like handling, and so widen the range of colour and form, which at present is very limited. The culture of cacti is in some respects extremely easy. They are the evolutional offspring of drought and sunshine, coupled with a minimum of root nourishment, and hence under culture they survive and even thrive the better for that neglect of the watering can, which often proves so fatal to indoor plants. It, however, by no means follows that a little attention will not be repaid, and we may be perfectly sure that the grand display produced by Messrs. Veitch was not arrived at altogether on the "let alone" system. The native countries of the cactus have their wet as well as their dry seasons, and the secret of success lies doubtless in due observance of this fact, since Nature is ever the best teacher.

IMPORTS OF FRUITS AND VEGETABLES.

WE have again to record the fact that the Board of Trade returns are less satisfactory than could be desired, for with an increase in the value of the imports there has been a material drop in the exports. The increase in the value of the imports during the past month amounted to £1,360,030, or 3·7 per cent., and the decrease in the exports to £1,430,792, or 7·4 per cent. The decreases in the quantities of the products of the orchard and gardens are more marked than for several years past, and the only increase in the specified fruits and vegetables which can be successfully grown at home is in the imports of potatos. The imports of apples amounted to 97,400 bushels, of the value of £49,946, against 123,928 bushels, of the value of £55,223, in the corresponding month of last year. The drop in the imports of cherries is very marked, for we only received 10,385 bushels, of the value of £10,882, as compared with 56,278 bushels, of the value of £45,020. The supplies of grapes from abroad appear to keep fairly steady, and last month we imported 3,228 bushels, of the value of £5,164. The value of the various nuts used as fruit is returned as £44,390, or an increase of £24,480 as compared with last year, and of about £4,000 in 1896. Pears dropped in quantity to the extent of six bushels, and in value to the amount of £229, the actual quantity and value being 496 bushels and £118 respectively. But few plums were received from foreign orchards, the aggregate having been 91 bushels, of the value of £149, against 3,843 bushels, of the value of £3,057, last year. Unenumerated fruits show a decrease in quantity of nearly 1,000 bushels, and an increase in value of about £3,500, the aggregate having been £88,573 bushels, of the value of £56,078. The imports of potatos were again very large, the total being 1,055,256 cwt., as compared with 385,640 cwt. last year. Of this large quantity we received 484,317 cwt. from Germany, against rather more than 1,000 cwt. in 1897, and 10 cwt. in 1896. France sent us about 30,000 cwt., and the Channel Islands over 100,000 cwt. less than last year, owing probably to the comparative lateness of the spring. The increase in values has not been in proportion to the augmentation in supplies, for while the latter were nearly doubled, the value is returned as only about one-third more. Onions again indicate a decrease, only 352,399 bushels having been received, against 463,939 bushels last year; the values in the two years being £60,889 and £72,578 respectively. It is satisfactory to observe that there has been a considerable appreciation in the value per bushel, and the prices now ruling are sufficient to justify a considerable extension in the home cultivation of these esculents.

The Spanish Genista (*G. hispanica*) has for some weeks past been one of the most showy of shrubs, and even at this date, in spite of continued wet weather, it is a golden glory. There are several fine spreading masses on the higher rockwork in the Rock Garden at Kew, so densely flowered that scarcely anything but the golden colour is visible. A correspondent, writing from North Wales, states that two large masses, each four feet across, have been a great attraction just outside the London and North-Western station at Abergavenny. We agree with him that the species is one of the most effective and beautiful of early flowering shrubs, and, as it lasts a long time when cut and placed in water, it deserves to be more extensively cultivated. The Spanish genista has been grown in British gardens since 1759, but its value is not yet fully recognised except for large rock gardens, where it is generally used with advantage, and always provides an early summer display flowering during May and June.

Autumn Fruit Show.—The Royal Horticultural Society's exhibition of fruit to be held at the Crystal Palace on September 29, 30, and October 1 will include a section for market gardeners, and if there is a spirited contest for the prizes the produce will constitute an interesting feature. In the division open to market gardeners only there are four classes for grapes, one of which is for Black Hamburgh, and in these classes the fruit is to be shown in single layers, weighing not less than twelve pounds. There are seven classes for apples, to be shown in baskets or boxes, two for pears, three for plums and damsons, and one each for peaches, cobs or filberts, tomatos, and melons. Another new feature is the provision of classes for collections of apples and pears to be grown in specified zones, but the prizes appear to us to be insufficient to promote a brisk competition, except in the case of growers resident in the counties within a short distance of the metropolis. One class in the section is for six dishes of apples, four cooking and two dessert, and the other for six dishes of dessert pears, and these are repeating ten times, making twenty classes in all. In this section the Kentish growers will compete among themselves, but the other English zones contain from six to eight counties, while the Welsh, Scotch, and Irish growers compete in the classes provided for the respective countries. The sections in which the competition is open to cultivators in all parts of the United Kingdom are similar to those of previous years, and consequently both collections and single dishes have ample provisions made for them. The classes, rules, and advertisements are mixed up in the schedule in a manner that to our mind is highly objectionable in publications emanating from the leading horticultural society of England.

Fruit Culture in Wurtemberg.—Mr. T. R. Mulvany, in discussing the present condition of the rural industries in Germany, states that in Würtemberg fruit culture is carried on with much success. Nowhere in Germany has he seen finer orchards and fruit trees than in Würtemberg. The income from fruit is one of the chief items in the farmers' books. It reaches an average of £400,000 per annum. Some parishes realise several thousand pounds sterling from cherries alone. However, most money is derived from the apple; the greater portion of the apple and pear crop is devoted to the making of cider and perry, only a few varieties, not suitable for liquor, being sold or dried. It is a remarkable fact that all the home-made wine and cider is drunk in Würtemberg; this is regarded by Mr. Mulvany as a proof of how little the people suffer from poverty. The farm hands and country-folk all drink wine or cider, and the consumption of gin, whisky, and brandy is very small indeed.

The Dutch Horticultural and Botanical Society does not make its awards broadcast, provided its work during March, April, and May is an indication of its sound methods of procedure. There was a meeting each month, and five plants, in all, were certificated, four only gaining the highest awards. The latter were Primula vera acaulis cœrulea, Cineraria Lynchi, Plantago lanceolata variegata, and Eulophiella Elizabethæ. Vanda or Stauropsis gigantea gained a certificate of merit, and, like the eulophiella, was shown by Baron van Boetzelaer, of Maartensdijk.

A Viola Trial on a Large Scale is being held this year by the Royal Horticultural Society at their Chiswick Gardens. A border wide enough to afford room for six plants in a row has been provided, and this border has a run altogether of about a hundred and thirty yards. From Messrs. Dobbie and Co., Forbes, Crane, and Cocker, about two hundred varieties have been received, but probably there are not more than a hundred and fifty distinct forms. At present the plants, having been planted, are thriving amazingly, owing to the cool moist weather and the few flowers already produced are of fine size. It is, of course, too early yet to discuss the merits of the varieties for bedding and general garden use, but we draw attention to the trial because it is one of the most complete ever held, and one that should be of great interest to southern growers, because of the hot, dry climate of Chiswick. Varieties that come through this test successfully are likely to become extensively cultivated in the south of London, whatever their merits or demerits elsewhere.

Orchid Hybridisation is one of the most fascinating of pursuits, whether taken up with a view to profitable returns or merely as a hobby. Since John Dominy raised the first hybrid orchid many years have passed away, and not a few men have risen to horticultural fame by reason of their achievements in crossing species or intercrossing hybrids. Among those who have taken special interest in orchid cultivation, introduction, and hybridisation, scarcely any are better known than Mr. James O'Brien, V.M.H., who has been the hon secretary of the R.H.S. Orchid Committee since its formation, and who knows orchids at sight better probably than any man living. With such a wide knowledge, and opportunities for seeing new hybrid orchids, Mr. O'Brien should place a most interesting account before the Fellow of the Royal Horticultural Society on Tuesday next, June 14, in his lecture entitled "Hybrid Orchids." The lecture commences at three o'clock, but the committees meet as usual at noon. On this occasion, the Sherwood Silver Cup, for annuals and biennials decoratively arranged, will be competed for for the first time.

New Industries for Trinidad.—The usefulness of the botanic gardens and stations in our various colonies cannot be over-estimated, but, unfortunately, there is too great a tendency on the part of colonists and planters to follow old methods and put "all their eggs in one basket." To a large extent this has been the case in the West Indies, where the collapse of one industry has brought ruin to whole colonies. In an able lecture given by Mr. J. H. Hart, superintendent of the Trinidad Botanic Gardens, and published in the *Bulletin* from that establishment, a good idea of the industries that might profitably be developed in the colony is given. Mr. Hart shows that although various rubber producing trees succeed in the island, and those in the botanic gardens yield from four to six pounds of rubber per year, yet the cultivation of these has not been conducted upon any scale outside the gardens. Then, it is pointed out that while Jamaica exports logwood to the value of £300,000 a-year, Trinidad sends none to market, although she could produce quantities, and of the finest quality. No one plants either cedar or mahogany in Trinidad, and yet these grow so well on the island that were the colony transformed into a mahogany and cedar forest it would be one of the richest British possessions. Trinidad might easily grow sufficient of these woods to supply the United Kingdom. Besides these industries Mr. Hart mentions fifty other products capable of development in the colony, and his lecture shows that those most interested have largely failed to take advantage of the opportunities and advice that a well kept botanic establishment affords.

The Devon Gardeners' Outing will this year take place on July 6, the excursion being to Tavistock and Endsleigh, the latter charming establishment being open on that day to the members and friends of the Devon and Exeter Gardeners' Association, by kind permission of his Grace the Duke of Bedford, to whom the property reverted a short time since. As usual Mr. Andrew Hope, the secretary of the association, has made the best of arrangements. The party leave the Queen Street Station at Exeter at five minutes past nine, and travels by [illegible] carriages (L. and S.W.R.) to Tavistock, arriving there at a quarter to eleven. After an inspection of this historic old town, luncheon will be provided at half-past twelve, and then brakes will take the travellers to Endsleigh. On returning to Tavistock a substantial meat tea will be provided, and this will probably be followed by a short social gathering ere the journey homewards is commenced at five minutes to eight. Those intending to join this excursion should communicate as early as possible to Mr. A. Hope, 54, High Street, Exeter.

Lectures at the Chiswick Gardens will be delivered by the Rev. Professor Henslow, M.A., on June 15, 22, 29, and July 6; the meetings will be held in the Big Vinery, and commence at eight o'clock. Free admittance will be accorded to all gardeners in the Chiswick district, and we believe that its extension to the members of the Chiswick staff and the Chiswick Gardeners' Association, as there is likely to be a good attendance from the Ealing and Kew associations. In the following order Professor Henslow will give lectures upon: The "Importance of a General Knowledge of Vegetable Physiology to Cultivators"; "Origin of Cultivated Vegetables"; "Origin of the Commoner Garden Flowers"; and "Origin of Species in Nature, with Suggestions for Experiments in Variation under Cultivation." We heartily recommend these lectures to gardeners of all ages who can attend, for we are sure they will be of the highest [illegible] value, and we may add that Professor Henslow has the faculty of interesting as well as educating his hearers.

The Weather of 1897-98.—Although it may be of greater importance to know what the weather will be during a certain period than what it has been, weather records are not without value. Hence the annual report of the Astronomer Royal on the weather of the year is anticipated with considerable interest by those who devote any considerable share of their attention to meteorology. From the report issued the other day we learn that the number of hours of bright sunshine recorded during the twelve months ending April 30, 1898, by the Campbell-Stokes instrument was 1,529 out of the 4,454 hours during which the sun was above the horizon, so that the mean proportion of sunshine for the year was 0·343, constant sunshine being represented by 1. The rainfall for the same period was [illegible], being 7·21in. less than the fifty years' average. The number of [illegible] only 149. This is a very small annual rainfall; the three smallest falls during the preceding fifty years being 16·33 in. in 1864, 17·61 in. in 1867, and 17·70 in. in 1858. The winter was exceptionally mild, and throughout the year the monthly mean temperatures were in excess of their corresponding averages in every month with the exception of May, September, and March. In January the excess amounted to 5 degrees, the mean temperature for that month being 43·6 degrees, as it was also in 1875 and 1890. In the last fifty-seven years it has only once exceeded this, in 1884, when it had a mean of 43·9 degrees. On twenty-nine days only in last year did the temperature of the air fall to freezing point, the lowest temperature being 23·3 degrees on December 24. The mean temperature of the five months October to February was 44·6 degrees, as it also was in the winters of 1848-49 and 1868-69.

Primula Traılli.—With reference to the identity of Primula Traılli, George F. Wilson, Esq., F.R.S., writes: Having had another year's experience, I can now speak with certainty as to Primula Traılli. I heard from my Indian botanical friend that he had met the collector of the seed sent me as that of P. Traılli, and had shown him the gardening papers which I had sent to India, with figures of plants bloomed here; these, he said, were quite different from P. Traılli; that he had collected other primula seed at the same time as P. Traılli; that the seed was mixed, and that P. Traılli had not come up. I think the best name for the primula which I exhibited would be P. Munroi or P. involucrata major. It is utterly unlike the form of P. Munroi or P. involucrata which I have grown for years. It has, when grown close to the glass, and so free from any tendency to be drawn up, stems above eighteen inches high with long leaves. Probably several of the Indian primroses have different forms. Some years ago I exhibited before the Floral Committee of the Royal Horticultural Society a giant form of P. capitata, which, I suggested, should be named P. capitata major. This received a first-class certificate in October of 1886; and some time afterwards a nurseryman exhibited a giant form of this primrose, which, I suppose, the committee considered different from mine, as this also secured a certificate or award. The committee only followed the usual precedents in rewarding a fine, distinct, new form of primula in the case of P. Traılli, but I think that the name should be changed, and the fact recognised that P. Traılli has still to be introduced.

Dahlia Catalogue.—The National Dahlia Society, which has of late evinced signs of increased activity, has issued an official catalogue of dahlias, compiled by the President, with the assistance of the other officers and the members of committee. The catalogue contains a short bibliography of the dahlia, and selected lists of show, fancy, pompon, cactus, decorative, and single varieties. The varieties are arranged in their order of merit; and, in addition to the names [illegible] colours, the names of the raisers, year of introduction, and height of the plants are given. To facilitate reference, an alphabetical list of the varieties enumerated in the selections is provided. The catalogue will be found of much service to cultivators, more especially to those who take part in competitive gatherings. It is, indeed, so good as to have deserved a more substantial cover. Copies (price 1s.) may be obtained by non-members from the honorary secretary, Mr. J. F. Hudson, Gunnersbury House, Acton.

The Drinking Habits of Some Moths and Butterflies have been carefully noted by Mr. J. W. Tutt, and described by him in the *Proceedings* of the South London Entomological and Natural History Society for 1897. Mr. Tutt shows that several species drink far more water than they need or that is required by their tissues under any condition. Polyommatus damon has been known to sit for more than an hour motionless, except for the slight movements of sucking up and discharging the moisture almost continuously. What this internal bath may really mean we cannot even surmise. Another important factor as to this drinking habit is a strange one; the "thirsty souls" are, so far as Mr. Tutt's own observation goes, and so far as De Nicéville's and Bates' [illegible] show, almost entirely males. Why is this drinking habit confined to one sex, and why is it indulged in whilst the females are away egg-laying, or presenting the strange phenomenon of a perfectly different habit from that indulged in by their lords and masters? It is, of course, quite reasonable to suppose that, if a number of exact observations be made, females in small numbers do visit puddles, and ponds, and streams for drinking purposes. Certain it is that females come to [illegible] equally with males, but this we may take it is for food, and not for drink, and it is just in this that our difficulty lies. We know that moths and butterflies that visit sugar, over-ripe fruit, and similar dainties are of both sexes. They come, it seems, for food; but males alone seem to be attracted by pure water. Does their extra activity give them a greater need in this direction? and has, asks Mr. Tutt, a habit which was at first (and still is in a measure) a necessity become so [illegible] that excessive drinking has literally become a vice?

The Orchid Houses at Kew are now in course of reconstruction. Up to date there have been but two orchid houses open to the public, but in future there will be four, each of the same length as the old ones but narrower. This will allow the flowering orchids to be exhibited in a temperature suitable to their general requirements, and will also lessen the many difficulties that have hitherto attended the cultivation of such a comprehensive collection as the Royal Gardens possesses. During the work of reconstruction the larger orchids and those in flower are now a few in the Cape and Begonia Houses, these having been cleared of their usual [illegible] for the time being. Grammatophyllum Rumphianum, Grammangis [illegible], and Eriopsis rutidobulbon are somewhat rare orchids now carrying good spikes of flowers.

The Horticultural Club monthly dinner and conversazione will be held on Tuesday, June 14, at six p.m. The subject for discussion on this occasion is "[illegible] Culture in Fern Variation," to be opened by Mr. C. T. Druery, V.M.H., F.L.S., who will also exhibit the late Colonel James' "Nature Prints" of ferns.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

It is over once more. It was a big function, and we were all very proud of it, for who besides our noble selves could show such another? Nevertheless, we breath a sigh of relief at seeing the back of it and settle down to a little repose after our exertions. But isn't it curious what expressions are used by the general public with reference to horticultural objects? As an evening train bore me from the Temple on the fateful Wednesday, I caught scraps of conversation between fellow-passengers, which I could only grasp the meaning of with an effort. "A rank outsider," said one, "only been out once or twice before." Dear, dear! What could this be? Ah! happy thought. It must be Acalypha Sanderi. I leaned over and informed the speaker that it had been out at Ghent. "Never heard of the meeting," was his response, and at this display of ignorance I retired in disgust.

They got out at the next station, and my benignity was restored, but another problem speedily presented itself. A man reading a newspaper suddenly looked up with amazement written on every feature. "Jeddah!" he bawled, "Why, perdition and parsnips! I drew him in a sweep and then gave him away." He looked at me, I being the only other person in the compartment, and smiling blandly I responded: "I am not quite sure, sir, that your pronunciation is correct, but Jadoo fibre." I got no farther; the man with the newspaper hurled it from him, stamped on it, flung his hat on the seat, and indulged in such violent gesticulations that I hastily conveyed my avoirdupois into the next compartment. I am still in a state of bewilderment as to why a man who has swept up a little potting material and given it away should behave like a lunatic.

Yes! it was a great show. Although dumped and lumped in the sweet old way, the "'98 Temple" will remain a stimulating memory. The Prince was not there, but Peter was. It was my first meeting with him after his enforced holiday, and I was relieved to observe that his fiery eye had regained its pride. Nevertheless, nothing could have been greater than the affability with which I observed him greeting a number of MAGAZINE acquaintances. Peter's manner said as plainy as possible to Mr. Wythes, Mr. Prinsep, &c., "We may differ on professional points, gentlemen, but we are friends for all that." Not a man of them could resist his engaging condescension.

I have to return thanks for a box of early chrysanthemums received from Mr. Lees, through the editor. It is not often that I get so far from my Midland fastness as Kew, and it was a happy chance that when I did so the box should be there awaiting me. But these beautiful combinations do come about at times. One member of the editorial household did, it is true, fill me with nervous apprehension by picturing the plants as in the last stage of premature exhaustion owing to neglect of watering pending my arrival, but either this was a dreadful libel on the person told off to look after them, or else that abashed being slipped out and dosed them with some wonderful elixir while we were tasting of the cup that cheers except when it does dyspepsia give. Any way, the plants were in jocund health, and I carried them off in triumph. The Luxian garden is now enriched with the following sorts: Ivy Stork, Piercy's Seedling, Mdlle. Masse, Harvest Home, Foucher de Cariel, and Flora.

I think we may safely congratulate ourselves on a good strawberry season. A note on page 322 raises the interesting question of artificial manures. Many of the largest market growers do not believe in artificials for strawberries, but pin their faith to a free dressing of dung at planting time. Perhaps they are not very far wrong in the main, but I have secured such excellent results from the use of sulphate of potash that I am constrained to mention it. I am a little puzzled at the indifference which is displayed towards this splendid salt. A fair, comparative trial shows its great superiority to kainit, and, on the other hand, it does not possess the serious disadvantage of costliness like the muriate. The year before last I experimented with a few rows of President, which were planted the last week in August. Sulphate of potash was dusted in at the rate of a single handful to the yard run, and another application at the same rate was made in April. The plants fruited magnificently, and were in every way superior to others not dressed.

Docketted away amongst other topics for a quiet week is that of gardeners' investments. I draw it out, dust it up, and examine it. A specimen of some interest, is it not, my friends? Perhaps someone murmurs that it would be all right if he had anything to invest, but as he hasn't, he begs to suggest green peas as an alternative subject. My reply is that the possession of money is not everything. If we haven't got it to-day we may have next week, or the week after, or the week after that. Therefore we can study the investment question in a prospective spirit; our pockets empty, but our hearts full of hope. I once heard a bewildered small capitalist plaintively declare that there were many advantages in having no money. "There ought to be," was the response, "there are many disadvantages." The most popular form of investment with most gardeners is a local florist and seedsman business. Sometimes it answers, but it frequently means that the slender capital is locked up indefinitely, while the unhappy speculator has to work twice as long as he did in a private place for two-thirds the earnings.

Next to the "florist and seedsman" attraction stands that alluring demon "bricks and mortar." And a demon it is. It appeals with tempting force to the man of small means, because it suggests something that won't break, like a bank, or run away, like a fraudulent company promoter. But if houses do not irretrievably smash, they do so piecemeal, and the bogey "repairs" is ever present. If they do not disappear *in toto*, tenants do, and with them goes the rent. In the great majority of cases small investments in house property are bad, though it may be different if the owner occupies the house himself. Strange as it may seem in view of the price at which the stock stands, there is no better investment than home railways. A friend of mine recently gave me the result of an experiment with two sums, one invested in home rails and never taken out; the other reserved for such investments as seemed promising, for instance, the purchase and sale of house property and speculation in various industrial undertakings. Though the latter yielded high profit—as much as 10 per cent. at times—the rails won easily with their steady 3 to 4 per cent. over a course of years.

I have long watched the career of the United Horticultural Benefit and Provident Society, and my principal feeling has been one of astonishment that it enjoys, comparatively speaking, such trifling support from gardeners. What are the reasons? It is an institution calculated to do immense good; why do the great majority of gardeners hold aloof? I am firmly persuaded, as I believe I said once before, that the name has a great deal to do with it. Fancy what would have happened if that tremendous institution, the Hearts of Oak, had called itself the National Workmen's Benefit and Provident Institution! It would never have kept its baby body upright under the load. Again, would the GARDENERS' MAGAZINE have been hale and hearty after sixty-five of life if it had called itself the Organ for the Propagation of Useful Information to Horticulturists? We don't as a rule like long names, and if we shorten them we can. Where we can't shorten them we often leave them unuttered, and their valuable advertisement is lost. Consider this, gentlemen, in your committees, and ask yourselves if a short, easy, yet expressive name like Gardeners' Benefit Bank wouldn't suit you better?

LUX.

ROSES AT THE TEMPLE SHOW.

THERE was a grand display of roses at this show from most of the leading trade growers of roses under glass.

In the section for groups of pot roses, Messrs. William Paul and Son, of Waltham Cross, were awarded a gold medal for a very fine collection, well staged and of good quality. Among the many varieties may be noticed: Climbers, Crimson Rambler, and Claire Jacquier; standards, Duke of York, Ulrich Brünner, Mrs. Sharman Crawford, and Paul Neron, one plant of the latter variety, which is usually despised by exhibitors, from its lack of form, bearing flowers that would have been most useful for the back row in a stand of seventy-two or forty-eight. The whole group was bordered by twelve boxes of cut roses, containing twenty-four blooms in each, a box of the yellow tea Medea being especially good. To this firm was granted an "award of merit," for a new seedling hybrid perpetual, Aurora, several pots of which were staged, a salmon-pink, something like Pride of Waltham, yet quite distinct, with thorny wood. A large showy rose, free flowering, good foliage and habit.

Mr. Charles Turner, of Slough, had a fine decorative group, occupying the end of the large tent. As usual in exhibits from Slough, Crimson Rambler was a prominent feature, trailing up the tent poles, festooned in arches, with smaller plants filling up the spaces in front. Here were to be seen some of the finest specimen plants in the exhibition, some of the best being Madame Lacharme, Juno, La France, Celine Forestier, and Marie Baumann. Of standards, mention should be made of Niphetos, Madame de Watteville, and Francesca Kruger, bearing flowers of good form and substance. Two new roses were staged in this group, a white hybrid tea, Souvenir de Madame Eugene Verdier, and a hybrid perpetual, of the Marie Finger type, Madame Abel Chatenay, both very promising.

Messrs. Paul and Son, of Cheshunt, occupied a corner of the large tent with an elegant and interesting group, having less formality in the arrangement than some of the others, straight lines being broken up by a free use of standards. Here were to be seen two seedlings, the result of crossing Polyantha Golden Fairy with Turner's Crimson Rambler. The first-named, Diana, bearing small creamy white flowers, and the second, Psyche, producing clusters of larger flowers of the shade of maiden's blush. These two varieties were Ramblers in wood, foliage, and habit, whilst maintaining the character and size of the Polyantha.

In another tent were staged collections of pot roses by Messrs. Frank Cant and Co., and Messrs. Rumsey, of Waltham Cross. The former had some plants of a new variety, Thalia, or the White Rambler, one of a set of three summer flowering climbing roses announced as "The Three Graces." The latter staged his new hybrid perpetual Mrs. Rumsey, rosy-pink, a sport from Mrs. George Dickson; evidently free flowering.

Without a doubt the finest cut roses in the exhibition came from Mr. George Mount, of Canterbury. Forming a background to the exhibit were several specimens of Crimson Rambler, blooming profusely in small twenty-four pots. The cut flowers, on long stalks, were staged in vases. These were remarkable for the size of the blooms and sturdiness of growth, and amongst the many varieties thus shown were flowers of Caroline Testout, Catherine Mermet, Mrs. John Laing, and Niphetos, which would have stood a good chance as medal blooms at ordinary mid-season rose shows so perfect were they in form and colour. The flowers of Niphetos were remarkable, standing erect on stout stems without any support. Indeed, one or two blooms of this variety seemed more like Devoniensis in texture and shape, and for a time puzzled the judges as to their name. Besides those on long stems were cut blooms staged in seven twenty-four boxes. Four of these boxes contained respectively Anna Olivier, Catherine Mermet, Mrs. John Laing, and Ulrich Brunner; in another box were staged twelve Catherine Mermet and twelve Niphetos arranged alternately; and two other stands contained miscellaneous varieties. It was a lovely group.

JOSEPH H. PEMBERTON.

DOVER HOUSE.

THE horticulturist who has time to do much visiting will have far [illegible] ere he finds a more up-to-date and smartly-kept establishment than that of Dover House, where Mr. J. F. McLeod is the able gardener and steward to J. P. Morgan, Esq., a gentleman of great wealth and keen horticultural tastes, and one well known on both sides of the Atlantic. Dover House is situated just outside London, on the highest part of the little village of Roehampton, that nestles snugly on the northern edge of that fine open expanse comprising Wimbledon Common and Putney Heath. Although the family is not often in residence here, yet everything is kept trim and tidy as though the generous employer were at home. Weeds are nowhere to be seen, save on a part of the lawn sward, and from here they are being ousted by applications of lawn sand.

A walk through the gardens a few days ago revealed the promise of a rich crop of fruits of all kinds. The cherries, not too closely trained to the fence, but given some headway, were a mass of snowy blossoms, and here they never fail to yield a good crop. Pears were flowering profusely, and on the walls had set their crops. Apples, both long-established and newly-planted trees, promise well, while the large collection of a hundred varieties of gooseberries will this season give some indication as to the value of certain sorts as compared with others for this district. The strawberries could not be better, and it is to be hoped that unkind weather will not falsify present promise. Early peas look first-rate, especially in the sheltered kitchen garden on a southern slope. Broccoli has been a great success this season, but the crop is practically finished now; near by is a notably even breadth of the [illegible] Ellam's Dwarf cabbage, perfectly true, and with not a bolted plant visible. The asparagus beds at Dover House are wonderful examples of what continuously careful cultivation following a proper commencement may accomplish in the way of large crops of fine heads of this delicious vegetable. When one talks of the merits of alternate husbandry, and the value of rotation of crops, Mr. McLeod points out a plot of ground that for the sixth consecutive year is cropped with carrots, and surely, if present appearance counts for anything, as fine a set of roots as ever came from the plot will result this season. Mr. McLeod has great faith in farmyard manure, and his faith is seen in his works.

Among hardy flowers, roses are grown in large numbers, but [illegible] violas, and carnations outnumber them completely. In their [illegible] violas are always an unqualified success at Dover House. The [illegible] success is farmyard manure and deeply-worked soil; after this [illegible] plants are the chief requisite, and then the water-can and Dutch [illegible] the tools most called into use. On a large border the violas are [illegible] in variously shaped masses, so that when in flower there are [illegible] contrasts and pleasing harmonies making up a charming whole. The carnations are very abundant, and as healthy as everything else [illegible] gardens. Large quantities are needed for cutting from, and so the Crimson Clove, Gloire de Nancy, Raby Castle, Prince of Orleans, and many other notably free-flowering and distinct kinds are cultivated on a large scale, while rarer sorts find a place and their capabilities tested. Wistarias and magnolias clothe some parts of the comfortable mansion; roses ramble over gateways and arches, forming wreaths of fragrant blooms in summer time; choice shrubs, both deciduous and evergreen, adorn the shrubbery borders; some fine specimen trees, notably cedars and purple beeches, limes, and chestnuts, adorn the grounds; and at present a fine display of tulips and wallflowers in the flower garden are con[illegible] cluding a successful season. Bedding plants are provided in [illegible] for this compact establishment has a capacity greater than one [illegible] supposes. Begonias, pelargoniums (ivy-leaved and zonal), [illegible] humeas, cannas, and a whole host of other subjects are [illegible] hardened off for duty where colour and grace are needed.

The glass department is fairly extensive, and plenty of work is found for seven men. Fruit naturally takes much of the space; peaches and nectarines being especially plentiful; the crops throughout are as large as is consistent with good management, the trees are pictures of health, and the ripening crops are of nicely coloured fully developed fruits. [illegible] Sovereign and Viscomtess Hericart de Thury strawberries are [illegible] forced, and supplies have been provided for many weeks past, while later batches will meet the demand until the out-door crops commence. The vineries are a pleasant sight, the growth and foliage and set [illegible] all first-rate, such as do not call forth apologies or regrets from the [illegible] *de Jardin*. Figs, both in pots and planted out always respond [illegible] to the treatment accorded by Mr. McLeod, and do him great [illegible] Stove plants of many kinds are cultivated, and the collection contains many choice and rare subjects. Flowering plants in variety fill up a large greenhouse, and from here they are drafted to do duty in [illegible] wherever else necessary; spiræas, cliveas, cytisus, lily of the valley, [illegible] carnations figure largely. The rose house is not an amazing success, [illegible] reason of its heavily wooded, old-fashioned roof, and bad situation; [illegible] contains a lot of rose blooms, but the total results do not please [illegible] McLeod, so doubtless ere long it will be removed, and a more [illegible] building erected on a more suitable site. The Malmaison carnations at Dover House are worth making a long journey to see, [illegible] about the date of the Temple show they will be at their best. [illegible] nations are a keen test of a plantman's skill, and out of the test McLeod has come off more than victor, as at least one gold [illegible] testifies. There are a goodly number of specimens in fourteen-inch [illegible] some measuring nearly a yard across, and carrying from twenty to [illegible] fat buds, that ere long will be huge bright blooms. The foliage is [illegible] derfully healthy, and disease obtains no footing; the largest examples are two and a half years old, and were not potted last season. [illegible] houses are smaller, stocky, and equally healthy plants of Malmaison [illegible] nations, and the newer sorts that have been obtained by crossing the [illegible] to obtain higher colour—Churchwarden, for example—and [illegible] veloping sturdily

C. H. C[illegible]

LILIES AND THEIR REQUIREMENTS.

The introduction of Eastern and Western lilies has entirely transformed the aspect of our gardens. This is especially expressive of the influence exercised by such noble species as Lilium candidum, L. auratum, and L. speciosum, not to speak of L. chalcedonicum, L. pardalinum, L. longiflorum, and L. excelsum ; all of which and many others of equal endowment, such, for example, as L. giganteum and L. szovitzianum, have proved themselves capable of producing splendid artistic effects. Such flowers as anemones, irises, violas, and aquilegias are admirable in their spheres ; most of them are at once richly odorous and highly ornamental ; but they have not the majestic elevation and dignity of the altogether imperial lily, whose only serious rival is the rose. I do not hesitate to assert that it gives its cultivator, when once it has been established, infinitely less trouble than any of these. A great many flowers are either delicate or capricious, and require constant attention, especially in late spring and early summer, if they are even to have the privilege of existence. Some of them, such as the tulips, are so weakened by heavy rains and their hardening influence upon the soil, that when their flowering season arrives they make no effort in this exquisite direction, but merely send up foliage without any bloom ; while others, such as the phloxes and montbretias, are sometimes shattered in a single night by the sudden advent of the frost.

But the lilies which give grace and distinction to our gardens are of a different constitution from this. Three years ago the tropical form of one of the tenderest of Japanese liliums, L. longiflorum Harrisi, triumphantly survived the hardest winter I have ever experienced ; though it should be added that the effect of that crucial period on vegetation of every description was greatly mitigated by an unprecedentedly heavy fall of snow, which, by reason of a strong drift, was in my garden eight feet deep, and lay there for two months ere it was entirely melted by the sun.

Only a few lilies, mostly of Indian origin, require the conservatory ; among these are L. Wallichianum, somewhat akin to the longiflorum family, but of less vigorous nature (this variety must not be confounded with Wallichianum superbum, now commonly called "sulphureum"), Lilium Lowi, and L. nepalense, which require bottom heat to start them into activity, and are not more beautiful than their stronger contemporaries, which, if only assigned an adequately sheltered and congenial situation, luxuriate in our gardens. Of the latter, which constitute, most fortunately, the vast majority, one of the grandest is Lilium giganteum, a native of the Himalayas, which must be grown from an offset for several years to ensure its full capability of abnormal growth and bloom. Some of the finest specimens of this imposing lily I have ever seen I saw some years ago at the Royal Exotic Nurseries, King's Road, Chelsea, but I have no doubt that they had been in the first place grown in the open air. The strongest lilies are as a rule marvellously accommodating. I have often thus transferred splendid specimens of auratum, longiflorum, and speciosum from their place in the open garden to the staircase window of this house when the plants were just coming into bloom, with gratifying facility and perfect success. In such instances, however, it is very advisable to keep them shaded as much as possible for several days, till they have become harmonised to their altered environment ; otherwise some considerable extent deterioration may result. If not sufficiently supplied with water they will also inevitably suffer much. Lilies, as a general rule, are not very exacting in the matter of soil, provided it is not defective in drainage—a consideration of the greatest importance, especially during the winter months—or too cold and adhesive to satisfy their requirements. A large number of them are partial to a loamy soil, or one which is considerably impregnated with peat, which is perhaps of all substances the most favourable to fibrous production and root-formation. They are also much benefited by a considerable application of sea sand, which ensures moisture in summer when the ground is parched and dry, and during the floods of winter preserves the bulbs and tender roots from deterioration and possible decay. During the latter exacting season I once lost the finest Lilium giganteum I ever possessed by planting it too near the surface, and not giving it an adequate amount of preservative sand. I find that in my own garden the so-called Persian Lily (L. monadelphum szovitzianum) which is really, as Mr. Baker can tell us, a Martagonian native of Turkey in Asia, is a striking exception to the general rule, and did not realize my sanguine anticipations regarding its potentialities, until it was transferred from its original position in ordinary loam of a somewhat light description and planted in clay. This experience of one of the stateliest and most commanding in its aspect of all lilies, entirely corresponds with the opinion of Mr. Nicholson, of the Royal Gardens, Kew.

Dr. Wallace, of Colchester, whom I have always regarded as one of the greatest living authorities upon this special subject has told us that Lilium auratum, whose decorative value can hardly be over-estimated, and whose adequate culture is, therefore, a matter of primary importance, "likes a top-dressing of dry clay broken very small." If so, it must have something of the nature of Lilium szovitzianum. The latter stately lily is cultivated at Rochester Deanery with remarkable success by the gifted president of the National Rose Society ; and it was my intention to have obtained from him ere this, for the sake of comparison, his opinion of its requirements. There is little difficulty connected with the cultivation of the various members of the great Martagon family (or sub-genus, as each division is botanically called). Lilium pardalinum, indeed, is somewhat arduous to establish, according to my experience, for some of my plants of this justly-admired Californian lily, though planted two years ago, have not yet achieved anything worthy of being recorded, either in the direction of growth or bloom ; but I have some hope that my long-enduring patience (which is amply sustained by other and greater consolations), may be amply rewarded by this time next year. I am the more hopeful of this as Dr. Wallace has described it as being, when thoroughly naturalised, one of the finest existing lilies for garden cultivation. With other famous species from various regions of the world, such as Chalcedonicum (the "Scarlet Martagon"), Dalmaticum, Monadelphum, and Humboldti. I had at first a similarly tantalising experience ; now they are among the grandest ornaments of my herbaceous borders, Lilium dalmaticum reaching a height of eight feet and bearing upwards of fifty flowers. I should think that this species and the beautiful white Martagon would present a striking contrast if grown side by side. Lilium chalcedonicum, by reason of its brilliant complexion, would also associate admirably with these.

The most interesting longiflorums of recent introduction are L. Takesima grandiflorum and L. formosanum, the latter having been introduced, as its name sufficiently indicates, from the island of Formosa. Each of them possesses what may be termed individuality or distinctive characteristics ; but they have not the vigour of Wilsoni or Giganteum.

DAVID R. WILLIAMSON.

NARCISSUS TRIANDRUS AND ALLIED FORMS.

OF wild narcissi at present known and cultivated here and on the Continent, this small group contains undoubtedly the most interesting and pretty species. Unfortunately they will, I am afraid, be never very popular, on account of their difficult culture, rarity, and slowness of propagation. N. triandrus and N. cyclamineus are good seed bearers, and can also still be procured from their native habitat ; but N. calathinus and the form N. concolor are very rare, and the supply is very uncertain, while I doubt whether N. triandrus pulchellus has been found wild during the last twenty years. The best way of growing these forms is to plant them in sheltered spots on the rockery or in borders in clumps. When once doing well, do not disturb them for several years, and then immediately replant them early in summer. All are well adapted for pot culture.

N. triandrus reflexus has small globular bulbs about half an inch in diameter ; the leaves are slender, channelled, linear, and deep green; peduncle about eighteen inches high, bearing from one to twelve flowers ; the flowers are drooping ; perianth about one and a quarter inch long ; segments lanceolate, reflexed ; corona cup-shaped, the colour being pure white. The anthers are variable in length, and usually three shorter ones and three longer ones, and style exserted ; hence, by some oversight, Linnæus thought it had only three anthers, and named it erroneously N. triandrus, but the more appropriate name is N. reflexus. When well grown it is certainly a very desirable plant, but few seem to succeed with this species. Here, at the Hale Farm Nurseries, we grow it in a good loamy soil, planted about six inches deep, and leave the bulbs without disturbance for three or four years. The position is sheltered and half shady : also does well in purely peaty soil. It is a native of Spain and Portugal.

N. triandrus concolor is a Portuguese form, with pale yellow flowers ; it is, however, a very rare plant in English gardens. N. triandrus pulchellus has flowers very much smaller than the preceding, and it seems to be now almost extinct, judging by the few specimens one meets now only in a few collections, and I have no knowledge of its having been found recently as a wild plant. The peduncle of this species is unusually stout, about eighteen inches high, pedicels rather long, segments yellow, and the corona whitish or pale sulphur. N. triandrus calathinus, described in "Redonté's Liliaceæ," is a very local plant of the Isle of Glennaus, where it is found growing round the coast among grass. It differs from N. triandrus in the broader leaves and the much larger and somewhat bell-shaped flowers, the colour being almost pure white. As it grows early, it is liable to be injured by frost, and should therefore be planted in sheltered spots, or grown as a pot plant and kept in a cool frame. It is a very handsome and uncommon plant, rarely met with, and then only in small numbers. This is a fine subject for cross-fertilisation. There are at present a small number of white hybrid trumpet narcissi here and on the Continent, the product of this and Ajax forms, which, when more plentiful, will be eagerly secured by lovers of narcissi.

N. cyclamineus is, in shape of bulb and leaves, closely allied to the above. The flowers are drooping, one to one and a half inches long, segments reflexed, with corona of same length, crenate, golden yellow. This species requires the same treatment as N. triandrus, and when once doing well in any particular place, I should not advise moving it, especially as it increases but slowly by offsets or seeds. N. Johnstoni is probably a natural hybrid between N. cyclamineus and a yellow Ajax form, being intermediate between the two, especially as in the pretty form Queen of Spain, where the segments are slightly reflexed, though not so abruptly as in either N. triandrus or N. cyclamineus. The typical N. Johnstoni has primrose-yellow flowers, and Queen of Spain has deep golden-yellow flowers ; the former is, however, a rare plant, while the latter is fairly plentiful.

G. REUTHE.

Hardy Flowering Trees.—The wonderful and beautiful flowers seen everywhere recently on apple trees, apart from what they signify in fruit production, prove that fruit trees give us beauty that cannot at this time of the year be over-estimated. But we have so many trees non-fruiters, that bloom freely also, and in positions not generally assigned to apples, that too much can hardly be made of them in their seasons. How wondrously floriferous have been the double-blossomed cherries. I have seen trees of these, large-spreading examples too, literally masses of snowy whiteness, such as no other flowering tree could excel. The pretty tinted cherry, Cerasus Watereri, has also been of lovely form, and in various directions a pendulous cratægus has been lovely. How pure and beautiful, too, have been some of the Pyrus tribe. Now the laburnums and coloured thorns are rich in beauty ; also the horse-chestnuts, the robinias, and the high-coloured Judas tree, with many others. All these things merit wider planting.—A. D.

NEW FRENCH ROSES.

FOR a very long number of years I have in one way or another chronicled the advent of the new French roses. I used at one time annually to pay a visit to Paris to see for myself, if I could, what the novelties were. I had many a pleasant chat with old Margottin, with Verdier, Lévêque, and others; and once or twice I went down to Lyons. I do not know that I ever gained much information at Paris except on one occasion, when I was the first Englishman who saw Maréchal Niel; but generally I was told that there had been a thunder storm, and the roses were all "abimées." During those years (more than forty) very great changes have taken place, many of the old rose growers have passed away; Charles Verdier, Margottin, Lacharme, J. B. Guillot, Gounod, and Schwartz, no longer are engaged in the pleasant and profitable occupation of raising and sending out seedlings. But what wonderful flowers they have left us. Will their successors—for some of them have successors—be ever able to give us anything that will surpass Marie Baumann or A. K. Williams, or such teas as Comtesse de Nadaillac or Souvenir d'Elise Vardon? I very much question it. Then, again, I see not only change in those who send them out, but also in the character of the flowers raised. We used to be flooded every year with a great quantity of hybrid perpetuals, good, bad, and indifferent; but now they are few in number, and the prominent place they once occupied is now taken by teas and hybrid teas. It seems as if they thought that they had got to the end of their tether, as far as H.P.'s are concerned, and finding that a new class of hybrid teas had been pushed forward into notice, they had met the implied demand by going in very much for these; and it is a somewhat curious fact that many of the new varieties have been produced from hybridised seed, of which Lady Mary Fitzwilliam, a popular English rose raised by the late Mr. Henry Bennett, was one of the parents.

Of hybrid perpetuals only seven new ones are announced, while of teas there are thirty-two, and of hybrid teas there are ten; this is entirely reversing the former state of things. We used also formerly to see many of the new announcements in the stands for new roses at our national exhibitions; but here again is a new order of things, for since our home growers have raised so many excellent flowers most of these stands are filled with British instead of foreign raised roses. The descriptions are all grand, and the colours announced truly marvellous, but the only guide that we can really have is the character of the raisers and what they have done for us in former years.

Hybrid Perpetuals

Of these, as I have said, there are seven; they are:—

Comte de Montebello (Lévêque); it is described as brilliant cerise-red (of which we have plenty), a large flower and full.

Comte Raoul Chandow (Lévêque); a well-formed flower, vermilion-red shaded with brown.

Comtesse de Greffulke (Lévêque); this is described as a reddish brown shaded with vermilion and purple, a curious combination of colours, but large and full.

Comtesse Renée de Bearn (Lévêque); dark carmine shaded with dark purple, reflex of the petals scarlet.

Louise Muller (Dr. Muller); bright red, borne in clusters, and continuing in flower throughout the season.

Oscar Cordel (P. Lambert); cup-shaped flower, of a clear, bright carmine, very free flowering.

Souvenir de Pierre Oger (A. Oger); a large globular-shaped flower, with large petals of a very bright, beautiful rose colour.

It will be seen from this short list that the greater number come from one firm, which has sent out year after year a number of new flowers, but of these there is but one which remains permanently in our exhibition lists—Suzanne Marie Rodocanachi; two others, Devienne Lamy and Comte de Paris, have had their day but are now superseded.

Teas and Noisettes.

Amélie Pollonais (Nabonnand); glossy light rose, the centre a deeper shade.

Auguste Waltinne (Soupert and Notting); large flower, very full, brick-red, shading off at base to yellow.

Baronne Charles Taube (Ketters); large full flowers, yellowish white, shaded with rose.

Baronne M. de Tornaco (Soupert and Notting); large and stout petals, mother-of-pearl white, reflex of petals golden shaded with very light rose and edged with carmine.

Catharine Gerchen Freundlich (Ketten); outside carmine, rose centre, streaked with coppery red.

Comtesse Gideon de Clermont Tonnerre (Soupert and Notting); brick red, veined with golden yellow, centre dark peach red, reverse of petals orange yellow, colour very variable.

Duc de Carghis (Vve. Schwartz); very large petals, magenta red, sometimes darker, shaded with cream and canary yellow.

Emilie Gonin (P. Guillot); very large well-formed flower, white, tinted with orange yellow, much darker at base; each petal largely bordered with carmine rose. This variety received a gold medal at the Lyons exhibition of 1895.

Fanny Stolwerk (Nabonnand); a very full flower, salmon-rose, shaded with peach rose.

Frau Thérèse Gluck (Gluck); the outer petals dark red, centre of a new shade.

Général Billot (Dubreuil); outside pale amaranth, reflex amethyst, centre purplish crimson.

Gloire de Deventer (Soupert and Notting); creamy white, reverse of petals light rose, darker in centre.

Grande Duchesse Olga (Lévêque); a very well formed flower, of a beautiful creamy white.

Herzogin Marie von Ratibor; well-shaped, creamy white, sometimes of a darker shade, reddish in centre.

Jeanne Forgest (Forgest and Bonnaire); flowers produced singly, outside petals very large, light yellow; centre golden yellow, shaded with rose.

Joséphine Dauphin (Liabaud); large white petals, slightly shaded with yellow in the centre.

Madame Chebaune (Liabaud); globular shaped flower, canary yellow, outside of petals creamy white.

Madame de Moidrey (Vve. Schwartz); flowers borne singly, carmine red, centre bright carmine, reverse of petals tinted with bright carmine and salmony yellow.

Madame Désir-Vincent (Chauvry); globular-shaped flower, chrome yellow, salmon at the base, reverse of petals shaded with rose and violet.

Madame Grenville Gore Langton (Nabonnand); a large full flower, coppery-yellow, red at base, centre rose-lake.

Madame Louis Gravier (Garnow); well-shaped flower, clear salmon shade tinted with orange-yellow, edged with carmine-rose.

Mdlle. Anna Chartron (Vve. Schwartz); a large full flower, well shaped; cream colour, tinted and edged with bright carmine, centre light red.

Mdlle. Germaine Molinier (Vve. Schwartz); apricot-salmon, shaded with rose.

Mdlle. Marie Thérèse Molinier (Vve. Schwartz); peach shade of rose, yellow at base, shading off to light rose.

Marquis de Lagarde (Chauvry); a large full flower, violet-red in spring, dark rose in the autumn, reverse of petals blood-red.

Monseigneur Touchet (Corbœuf); full large flower, well shaped; a beautiful creamy-white.

Raoul Chauvry (Chauvry); light yellow, shaded copper colour, centre sometimes apricot.

Souvenir de Jeanne Cabaud (Guillot); a large well-shaped flower, outside petals coppery-yellow, those in centre apricot-yellow; a very fine variety.

Valentine Altermaun (Nabonnand); a well-made flower, pure white.

There are two or three things that strike one on looking through this list. So many flowers are described as globular, which I hardly think is the true shape for a tea rose; they are much more beautiful when the buds are long and pointed. Then, again, so many of them are high coloured, which to my mind is out of place amongst tea roses. Delicate shades of peach, apricot, yellow, and creamy white are those which I think are generally preferred. And, again, many of them come from apparently unknown raisers; there are, however, two flowers which we ought to look forward to with some degree of confidence, as they come to us from Guillot. I remember the time well enough when we used to speak of the present Pierre Guillot as "Young Guillot," his father being then living. Nabonnand has also given us some good roses, especially in the garden varieties, so that we may look for something pleasing amongst his new announcements.

HYBRID TEAS.

Ferdinand Batel (Pernet Ducher); a long flower of two colours, varying from very light flesh colour to nankeen yellow at the base, sometimes orange-yellow, very beautiful.

Ferdinand Jamin (Pernet Ducher); globular-shaped rose-carmine shaded with salmon.

Grossherzogin Victoria Melita (P. Lambert); long bud, large flower cream colour with yellow centre, somewhat similar to Kaiserin Augusta Victoria, but more vigorous.

Gruss au Teplitz, large cup-shaped flower, cinnamon-red, lit up with fiery red.

Gudrun (C. Jacobs); silvery-pink, centre clear fiery red.

Madame Cadeau Rainey (Pernet Ducher); a large well-shaped flower, rosy flesh-colour shaded with yellow at the base of the petals, which are edged with carmine-rose.

Madame Jules Grolez (P. Guillot); china-rose colour, very free flowering.

Mdlle. Marguerite Appert; a very large globular-shaped flower, brilliant bright red, darker at base of petals.

Preciosa (Vieweg); velvety-shaded carmine-red, shading off to crimson.

Souvenir de Madame Camusat (Bonnaire); fleshy-rose on outside of petals, inside bright carmine-red.

I think it is impossible from these descriptions to accurately gauge what the flowers will be, and so it is to be hoped that we may have an opportunity of seeing the blooms and judging of their merits soon. There are, of course, other roses announced of different classes, but I have contented myself with describing those which belong to the three [illegible] classes of exhibition roses; a great many of them we may [illegible] anything of, but we shall only be too thankful if some of our enterprising professionals will give us the opportunity of seeing them in the [illegible] season; our expectations are moderate, so perhaps we shall not be disappointed.

H. H. D.

Phlox amœna and P. divaricata.—The brilliant colour and easy [illegible] of Phlox amœna should lead to its being more largely grown. Some [illegible] now in flower here are very attractive, the plants being covered with their [illegible] pink flowers, borne on stems six inches in height. As it is neat in habit, it is an admirable subject for edging as well as the rockery, succeeding well in [illegible] any soil. Another dwarf species now in flower is P. divaricata, also known as P. canadensis. The flowers are borne on slender stems, about one foot in height, bearing corymbs of pale-blue flowers. A white variety of this is also in cultivation, making a fine contrast. For the front row of a border, these dwarf [illegible] are very effective when planted in a mass, thriving well in any good [illegible]—E. S., *Woking*.

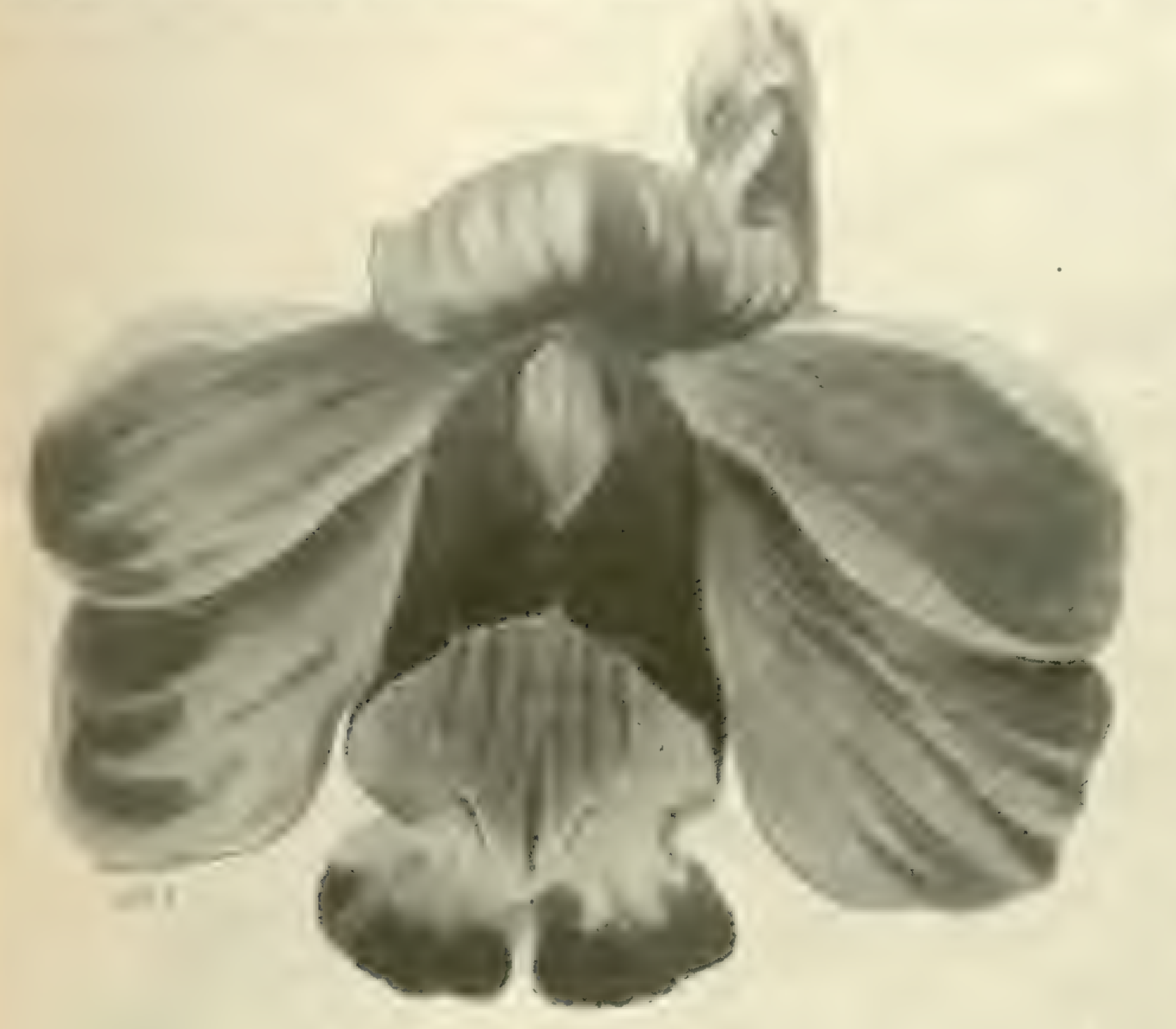
NOTES ON ORCHIDS.

EPIDENDRUM XANTHINUM.

One of the most interesting and handsome orchids that bloom in a cool house during the spring time is Epidendrum xanthinum, a species that grows in a bamboo-like tuft, and has slender stems varying up to three feet in height and clothed with thick, linear-oblong leaves. The long curved peduncle is a continuation of the stem and at its apex bears a sub-capitate raceme of golden flowers, closely packed together. Each flower is about three-quarters of an inch across with a distinct trilobate lip that is exquisitely fringed. This orchid is admirably figured in the *Bot. Mag.* t. 7586. The species was discovered in the Brazilian province of Minas Geraes by Von Martius; Burchell and Gardner both found it at later times and Gardner discovered it in 1837 on the Organ Mountains, near Rio de Janeiro. E. xanthinum is most effective when flowering and is fine for associating with other plants than orchids.

EULOPHIELLA PEETERSIANA.

Undoubtedly the finest of recently-introduced orchids is Eulophiella Peetersiana, a species introduced from Madagascar by Mons. A. A. Peeters, of St. Gilles, Brussels, after whom it has been named. It is a very strong-growing orchid, having a stout rhizome, with a tendency to climb and creep. The leaves vary from two to five feet in length, while the inflorescence rises to a height of five feet, bearing along its upper portion upwards of twenty large rose-purple flowers, as described in our issue of April 16 last. Each flower is three and three-quarter inches across, and, as will be seen by a glance at the present illustration, all the segments are broad and rounded. The soft purplish-rose tint seen in the sepals, petals, and front lobe of the lip is very pleasing. At the tip of each sepal there is a rosy-crimson flush, while the lip is white inside and beneath, except for the six long lines of dull yellow in the throat, these terminating in several wart-like prominences just behind the apical lobe. Like Eulophiella Elizabethæ, this is an orchid needing plenty of heat and moisture, but, being very robust, it is not so difficult to cultivate as the last-named species. It has been ably managed at Burford Lodge by Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., and, notwithstanding its huge spike of last April, the specimen is now growing vigorously again. It is to be hoped that our enterprising orchid importers will soon be able to supply specimens, for even if Mr. Hamelin does not wish to return to his much-talked-of Madagascar wife, there are no doubt others willing to collect orchids in the country where the Rev. W. Ellis made so many finds of horticultural value. A specimen of Eulophiella Peetersiana was sold by Messrs. Protheroe and Morris on the 27th ult. for £39; it was sent to the auction room by Mons. Peeters.—C.



EULOPHIELLA PEETERSIANA

ODONTOGLOSSUM REICHENHEIMI.

This bold orchid is no doubt a variety of the polymorphous O. læve which in its typical form is not a very handsome orchid. O. Reichenheimi is now fairly plentiful in collections and always attracts attention by reason of its robust and somewhat stiff spikes of yellowish-green and purple-brown flowers. The blooms are by no means unlike those of several miltonias as regards shape, and, indeed, the almost entire absense of calli on the lip makes this orchid a connecting link between miltonia and odontoglossum. The sepals and petals of O. Reichenheimi are yellowish green with heavy bars of dark purple brown; the narrow lip is purple and not deflexed as in the true O. læve. It is a most robust growing cool orchid, and when in good condition will produce a branching spike from two to three feet high and bearing a score or more of flowers. As a cool orchid this should not be overlooked by amateurs with small collections.—C.

SACCOLABIUM MINIATUM.

Among small growing East Indian orchids there is scarcely one that produces such brilliant flowers as the Javanese Saccolabium miniatum. Unfortunately it lacks boldness, but then we have plenty of bold orchids though few that bear such bright orange-red flowers as this little species. It flowers freely and a very small plant will bear a pair of cylindrical racemes of small but pretty flowers that are fattish and with a short spur. Specimens do well in the East Indian house either on a block or in a small teak basket with sphagnum moss about the roots; a liberal supply of water is needed and nothing approaching drought should ever be allowed. The species flowers regularly at Kew and it was represented in Sir Trevor Lawrence's collection of orchids at the recent Temple Show. S. miniatum was found in Java by Thomas Lobb in 1846 and introduced by Messrs. Veitch and Sons, Chelsea.—C.

CYMBIDIUM TIGRINUM.

Amongst the hosts of rare, interesting, and beautiful orchids that were brought together recently at the great Temple Show, few interested me more than a splendid example of Cymbidium tigrinum staged amongst the costly gems belonging to Sir Trevor Lawrence, Burford Lodge, Dorking. I was interested, not because it was a stranger—for we have several specimens in bloom here now—but I thought that, others seeing it, they would be induced to cultivate it, for there are few orchids so easily managed as this, while its flowers are both handsome and lasting. It is a very old orchid, being one of the many introduced by the late Rev. C. S. Parish. This gentleman found it in 1863, upon rocks on the mountains of Tennaserim, at an elevation of 6,000 feet. Its elevated home is, to some extent, an indication as to where it should be grown under cultivation. With us it is treated as a cool orchid, being suspended in the Masdevallia house, planted in pans three parts filled with drainage, in a compost of two parts peat, one of fibrous loam, and one of moss. Except when rooting freely, the water supply is very limited. To those who have not had the pleasure of seeing this little gem, a short description may be instructive as well as interesting. It has ovoid pseudo-bulbs nearly two inches in length, each bearing three or more oblong-lanceolate, recurved leaves that are six inches long. The scapes are slender, sub-erect, about a foot long, usually three-flowered, sometimes more, and as the blooms are well separated from each other, their individual beauty is clearly apparent. The sepals and petals are similar and sub-equal, linear-oblong, acute, two inches long, olive-green, paler at the margin, and spotted with red at the base; tip oblong, three lobed, the side lobes rotund, erect, yellow, striped obliquely with red-brown bands; the frontal lobe is sub-quadrate, apiculate, reflexed, white, with short brown-purple transverse streaks; between the side lobes are two raised white lines. The column is arched, pale olive green, and spotted with red below the stigma. Taken all together this is a charming orchid, and one that does not, under ordinary treatment, degenerate; our plants, as evidenced by the bulbs, grow stronger yearly.—W. H. YOUNG, *East Sheen.*

SCUTICARIA HADWENI.

The subject of this note is not one that the R. H. S. orchid committee would consider worthy of a "First class certificate," and yet to a lover of the curious members of the orchid family, this would rank before some having more gorgeous flowers, not that its flowers are unattractive, though somewhat sombre in hue. A plant here in Sir Frederick Wigan's collection, growing in an eight-inch basket suspended from the cattleya house roof, is carrying seven large and distinct flowers. A detailed description will be useful in showing the difference between the species, and the only other member of this genus, S. Steeli. S. Hadweni has a very short creeping rhizome, from which spring the dark green terete leaves, whose base is sheathed to the rhizome in ash-brown bracts. In contrast with the other species, whose leaves are pendulous, and two or more feet in length, these are erect, and from a foot to fifteen inches long. The peduncles are stout, four to five inches long, semi-erect, and one flowered, though on rare occasions it produces two on a scape. The flowers are about three inches in diameter, sepals and petals spreading, fleshy, oblong-acute, chestnut-brown, paler towards the apex, sometimes broken up into blotches on a yellow-green ground, lip broadly obovate, concave, downy within, pale yellow, blotched and spotted with light rose. It has a flat, oblong, three-toothed crest, and a semi-terete column, much spotted with purple, and white at the apex. It was introduced so long ago as 1851, from Rio de Janeiro, by Mr. Isaac Hadwen, in whose garden it flowered for the first time. Its cultivation is very easy, as its requirements are few and simple; all that it needs is being planted in a well-drained basket, in peat and moss used in the proportion of two to one, and never given a large quantity of water, especially during the winter months, when it will succeed for a long time without a direct supply. The shady side of the cattleya house will suit it at all times.—W. H. YOUNG, *East Sheen.*

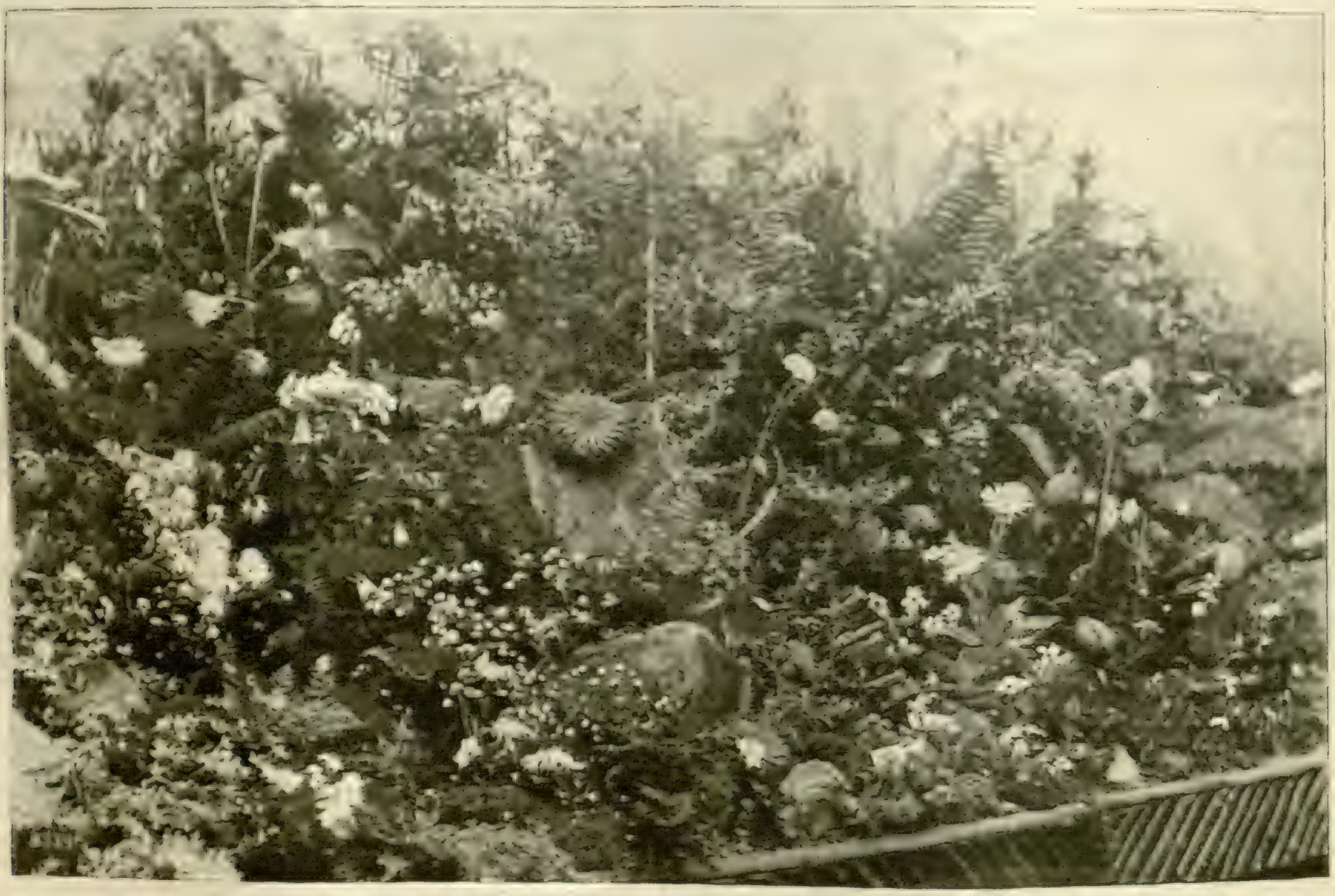
DENDROBIUM TETRAGONUM.

Orchids hailing from Australia are seldom of a very showy character, and the subject of this note is no exception to the rule; but it is of sufficient interest to warrant a few moments' consideration. Presumably, it is a native of the northern regions of the the Australian continent, as it requires a tolerably warm atmosphere to grow in. The plant from which the following description was taken is growing on a block of native wood as imported by Mr. Grimsdale, Kent Lodge, Uxbridge, in whose small, but ever-increasing collection, I had the pleasure of seeing it. It has slender pendulous stems, acutely four-angled, eight to fifteen inches long, attenuated to a slender stalk, which is pseudo-bulbous at the base. These are surmounted with two or three spreading, oblong-lanceolate leaves, three to four inches long. The flowers are produced at or near the apex, usually in pairs, three to four inches across individually, having the sepals yellow, spotted red, the dorsal one narrow, subulate; and the lateral ones lanceolate, much broader at the base than the dorsal one. The petals are white, streaked with red, linear, shorter and narrower than the sepals; tip white, transversely barred with red, broadly ovate, apiculate, obscurely three lobed, with two white lamellæ between the side lobes. As grown by Mr. Grimsdale, its requirements are few, he simply immerses it in a pail of water several times a week during the growing season; and during the resting season it simply hangs up in the stove, and the moisture arising from damping down seems to suffice for a long period.—W. H. YOUNG, *East Sheen.*

Herbaceous Calceolarias at Farnham Royal.—Writing this several days prior to the Temple Show, and having but just seen Mr. W. James's superb collection of herbaceous calceolarias, I can but think the Temple verdict will be that a finer and more brilliantly coloured lot of plants never has been staged there by this well-known grower. I say so much without in the least attempting to prejudice the fine collections that will doubtless come from other growers, for in these days there is a hard fight to have the best plants and strains. But ever since the show made by Mr. James at South Kensington, thirty-two years since, at the Great International Exhibition, with that collection which then became known as the International Strain, there never has been any receding on the part of the firm, but on the other hand there has been if a very steady, at least permanent, advance. The art of growing these somewhat difficult plants seems now to be better understood than it was even then, and the collection at Wood Hill is really a triumph of culture. The whole of the large group being prepared for exhibition were raised from seed sown at the end of June, and they are in sixteen inch pots. Whilst about twelve inches in height, the plants have glorious heads of bloom, some eighteen inches through; none are in the least drawn, all are stout, sturdy, and very clean. The smaller plants, of which there are several hundreds, were from a sowing in July. The whole, now in full bloom, presents indeed a brilliant sight, especially in the low clearly lighted houses. Of colours there is an almost pure white, the best of its kind ever yet seen, and the yellows of various shades are glorious, some of the dark hues partake almost of the fiery scarlet, but there is the usually brilliant galaxy of spotted and self colours in beautiful variety. Few plants need more care taken to insure their safety and entirety on the show-table, after a journey of nearly thirty miles, than do these calceolarias, yet the grand effect obtained from a fine collection amply repays for the labour taken.—A. D.

A MINIATURE ROCKERY.

It is not every grower of hardy plants that will give the time and trouble and incur the expense of constructing and conveying to an exhibition a miniature rockery, upon which his choicest dwarf plants are disposed. Several firms have done this, however, and the most successful have been Messrs. Backhouse and Son, of York. This firm had a most charming display at the recent Temple Show, for their miniature rockery was well put up and as naturally and tastefully planted as possible ; indeed, in no other way could small-growing hardy plants have been so pleasingly exhibited. The illustration of this exhibit, reproduced from a photograph specially taken for us, conveys a far better idea than words can of its effect and novelty. Plants that are readily distinguished are the various saxifragas dotted quite naturally upon or between the rocks, and looking perfectly at home, whether in flower or not. Darlingtonia californica, the curious Side-saddle plant, is very conspicuous, with the pretty Pyrenean primrose, Ramondia pyrenaica near by. Gentiana acaulis was a feature of the display, being represented by a considerable cluster of its blue flowers. Several of the hardy North American cypripediums were present in flower, and C. spectabile is prominent near the Darlingtonia. Here and there are little tufts of dwarf ferns, such as Asplenium fissum and tiny lastreas ; several campanulas were flowering freely, but the most conspicuous member of the order was the deep blue flowered Symphyandra Wanneri. The bold foliage of Podophyllum Emodi is seen on the left of the picture, with Geum miniatum nearer the centre. A fine background for this display was formed of hardy ferns of sorts, rhododendrons, &c.



A MINIATURE ROCKERY.

VEGETABLES FOR EXHIBITION.

SCORZONERA.

Perhaps few vegetables are less cultivated in this country than scorzonera (*Scorzonera hispanica*), and as a rule it is seldom asked for in the kitchen. I have known some cooks quite ignorant even of its name, and I well remember once being asked by a person holding a responsible position as such, "How do you cook that stuff?" and I replied that my business was to cultivate and not to cook. The result was that next day the scorzonera was found in the pig-pail, of course, uncooked. In all suitable sized gardens, however, a place should be allowed for a small bed of scorzonera. The roots when well grown much resemble salsify, and the crop should receive similar treatment. It must not be sown too early, or it will run to seed, even more readily than salsify. The first or second week in May is quite early enough for seed sowing, and the crop should be lifted as required. For exhibition, scorzonera is not very telling in a collection of vegetables, and should only be included as a last resource, except in a miscellaneous assortment. To have it in the best condition, holes should be bored as for salsify, and the roots prepared and staged in the same way.

Aldenham House Gardens.

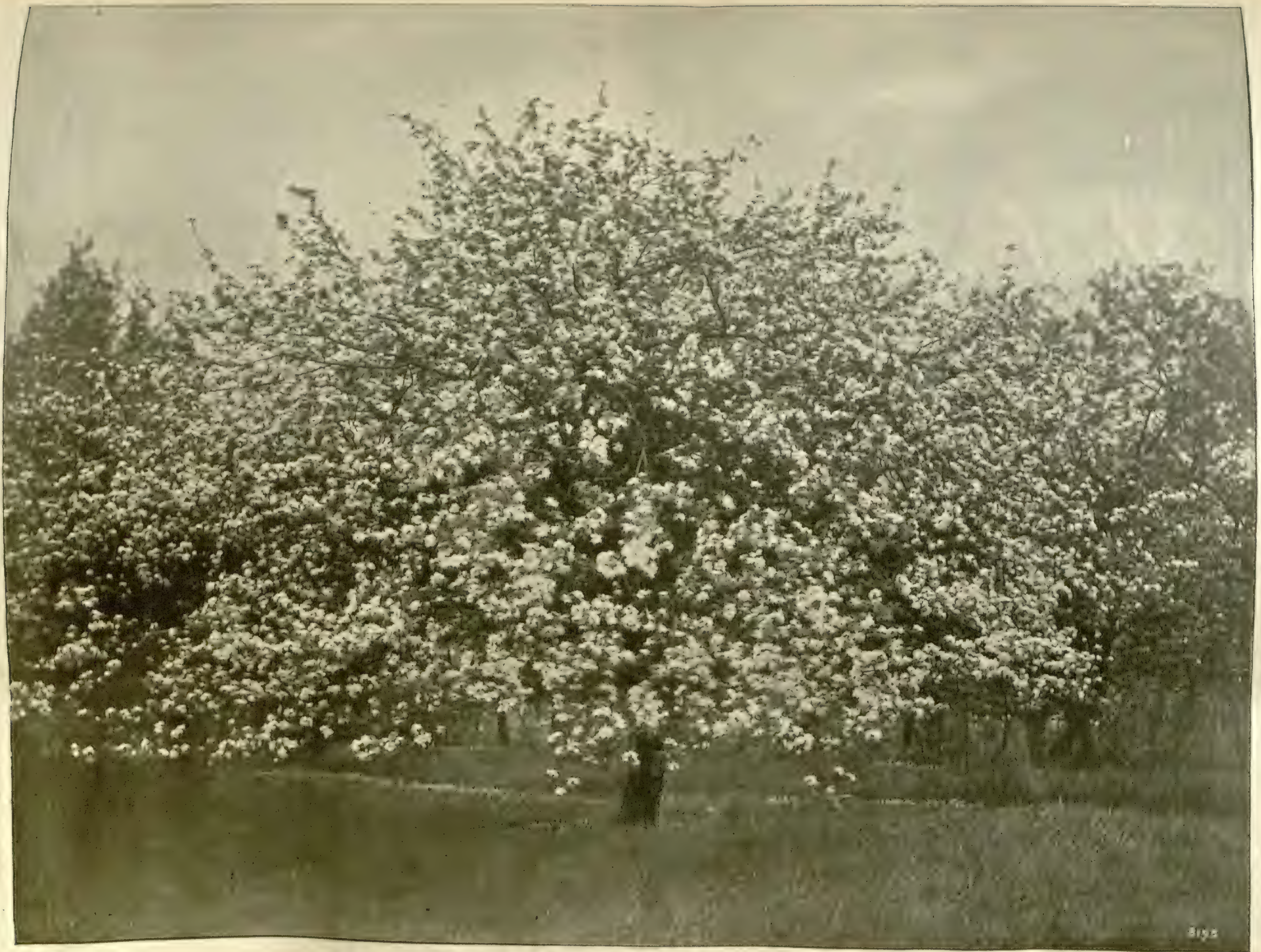
E. Beckett.

A RENOVATED APPLE TREE.

Time after time, and especially in connexion with the series of articles entitled "The Wasted Orchards of England," we have pointed out in these columns that many orchards throughout the country might be rendered productive and profitable if means were taken to renovate the trees. It was shown that in not a few cases all that was needed was a removal of old and dead wood and a thinning out of the branches, with the application of some new soil or fertilising agent to help the trees into renewed life and vigour. We have frequently received letters from various parts of the kingdom, proving that our views are correct, and that the writers have benefited from following the advice given in these pages. One instance, among the many, of the great advantages that accrue when orchard trees are renovated, we give in the present issue. We do not assert that all orchard trees could be so renovated, far from it, a large number are but cumbering the ground, but there are many that with similar treatment and care, or with treatment suitable to the demand of circumstances, could be brought into as healthy and fruitful a condition as the fine Blenheim Pippin apple tree figured in our present issue.

The specimen represented belongs to Mr. J. Woodin, Anerley Road, Anerley, S.E., to whom we are indebted for the photograph from which our reproduction was made. Mr. Woodin writes that the Blenheim Pippin apple tree is one of several of the same variety planted about forty-five years ago. About thirty years ago these trees, with others, came into his possession, and at that time were large healthy specimens that bore good crops annually. After about twenty years they began to show signs of decay, or, at least, a considerable loss of vitality, for the ends of the leading branches withered away, indicating that something was wrong at the roots. The soil is a stiff clay, and so, to remedy matters, Mr. Woodin had a circular trench taken out two feet wide and three feet deep, at a distance of four feet from the trunk of each tree. The clay excavated was burned into ballast, and then used, with some good sound loam, a quantity of crushed bones, and a considerable quantity of wood ashes, all mixed together, for filling up the trenches. This compost, being naturally porous, was made firm in the trench, and very soon the trees rooted into it. The result of the treatment was to immediately put a stop to further decay, and for the last twelve years the trees have blossomed splendidly every year, and, except on rare occasions, when late frosts or heavy rains prevented complete pollination, there have been large crops of good fruit.

The specimen shown is a fine type of an orchard tree, beautiful to look upon when in blossom, and bearing food of a high quality in the autumn. The little trouble and expense taken to renew the life and vigour of such a tree has been abundantly repaid, for the specimen now has a head thirty-eight feet in diameter. Further comment is unnecessary.



A RENOVATED TREE OF BLENHEIM PIPPIN APPLE AT ANERLEY

DWARFED CHRYSANTHEMUMS.

As Mr. Fry has stated (page 326, May 21), the practice of striking cuttings of chrysanthemums in May or June for dwarf plants has evidently been known and adopted for very many years, and even in the country of Italy, where the chrysanthemum can hardly yet be considered up to date, this system has been the usual practice of cultivation in pots, propagation starting from the month of May.

However, my object in trespassing on your space is in reference to an account which I read in the MAGAZINE some months ago, I think, of exhibition cut blooms obtained by propagating in May and June, and the consequent saving of several months, and the most uncongenial ones, of labour. I do not know whether this article was in the mind of your correspondent, Mr. George Fry, but in my opinion the two questions should not be confounded.

If it be conclusively proved that, by starting with cuttings in May, exhibitions blooms can be obtained to equal those the result of winter propagation, a great change will come o'er the scene, but I suppose we shall patiently go on as hitherto, and wait without anticipating such an event. Nevertheless, should some varieties come really good in this way, much credit is due to the originator, Mr. Lyne.

Anything new as to experiments or methods of cultivating the chrysanthemum is nowadays remote, and I will refer in this letter to the article (page 332, May 21) on "An Experiment to Induce Sporting." Some ten years ago, after an exchange of opinions, or rather my receiving advice from a famous horticulturist (I refer to Mr. J. Laing, of Forest Hill), I grafted, or more correctly inarched, several varieties. If any change appeared, I imagined the second year of the plants so treated would be more likely to show it than the first, and for this reason I retained the plants for two or three years, but there was nothing to relate, excepting that the two best blooms of E. Molyneux that I have flowered were from grafts on Guernsey Nugget. I well remember a plant of Bronze Queen which I had grafted on an Empress in several places, and wondering whether the sport might revert in any way.

There is nothing new to record about the chrysanthemum in Italy, except, as my friend Mr. Payne has kindly mentioned, that we have started a National Society, and the starting change has been made to call the chrysanthemum the "King of the Autumn;" but I will leave this matter severely in the hands of the hon. foreign secretary of the N.C.S., who, I hope, will take up the matter, as I have done my best, but without avail.

I enclose a couple of circulars announcing existence of the society.

HENRY BRISCOE-IRONSIDE.

Palanza, Lago Maggiore, Italy.

NOTES FROM IRELAND.

OWING to the continual wet weather, with piercing cold winds, the season bids fair to be an exceedingly backward one. Plums appear to have set a very scanty crop in these gardens; some pear trees are carrying a good crop so far, but other trees have none at all. Cherries and gooseberries are a fair crop; currants are excellent; apple trees are a wealth of blossom. Strawberries, too, promise to render a good account of themselves later on. Early potatos came up well, but during the past week there have been from five to eight degrees of frost, and I have seen several instances where they were cut down to the ground. Late varieties fortunately were not sufficiently advanced to be injured. Several clumps of Gunnera manicata are badly damaged from the same cause. I do not remember to have seen a finer display of tulips than there is, or has been this season. Narcissi have been very good, but in some districts the grub is doing great havoc. Can anyone suggest a certain remedy for the complete destruction of this pest? The rockery is now very gay with numerous phloxes, iberis, saxifrages, alyssums, &c. Saxifraga granulata fl. pl. is exceptionally fine this season; so is Alyssum saxtile in masses. Aubrietias in variety are particularly effective now. In the herbaceous border proper it is too early to find much in flower, but Dielytra spectabilis is particularly showy now, the doronicums are on the wane, as they have furnished a brave display for a long time past. In the wild garden the bluebells are very effective in their varied shades of blue, pink, and white, while the fields are golden with cowslips. The furze hereabouts is a glorious sight, acres and miles of it to be seen a mass of yellow. Blackthorns have been beautiful, but are now upon the wane; they will, however, be succeeded by the hawthorn, which promises a rich harvest of bloom. The Ghent and Mollis azaleas are exceptionally floriferous this year. Azalea amœna, too, is flowering well outside this year. Roses on walls are rapidly expanding. I am greatly pleased with a new hybrid tea rose, of Irish origin, which has been grown in pots here this year for the first time; the colour is coral pink, somewhat after the style of La France in the bud state, it is a glorious rose, but is somewhat loose when fully expanded. The name of this acquisition is Mr. J. W. Grant, it is a very strong growing variety, in fact, if planted out it should make a good pillar rose, or it should be well adapted for covering fairly high walls. Hedges or crab trees are exceedingly pretty just now.

[illegible] Gardens.

R. WELLER.

Frogmore Prolific Tomato.—It is always safe to speak well of the bridge that carries you safely over, and so I write highly of Frogmore Prolific tomato. From seed sown in July, and the plants chiefly grown in 16-sized pots, our crop has carried a very nice lot of fruit, for since the first week in January we have always been cutting ripe fruit. The size of this variety is not large, but the fruits are handsome and most freely produced. A good few are planted out, but pots do equaly as well for this variety. In the middle of winter I find that what fruit then sets partakes very much of the Old Red style, but with lengthening days and better weather a different tale is told. I have not much faith in the actual profits of any winter-grown tomatos, yet, if a vinery is in work with young vines, something must be grown to help pay for labour, and here this variety of tomato is very useful.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vicarage, Notts.*

NOTES OF OBSERVATION.

Pansies.—Judging from the wonderfully fine blotched pansies seen so plentifully in shops and markets, there should be worked at no remote date a revolution in garden pansies, assuming that these plants be purchased largely, as doubtless they are, and are planted in gardens. Really the quality found in these fine blotched forms is of the richest. Few named varieties can possibly excel them. They are the produce of a seed strain of remarkable quality, and it is but needful to have seed produced in great abundance, so that it may be sold fairly cheap, to have just such noble flowers in every garden. Whilst it is assumed that the bulk of the plants come from one source, it seems hardly possible that they can long be a select issue. Anyone can purchase a few dozens, and plant them, and if well cared for there is no reason why the strain should not become common. Beside these ordinary strains look indifferent, though many are wonderfully free, and have large flowers. No doubt they are brought into bloom so early by growing them in frames, but the quantity put upon the market weekly must be immense. The method of production, the soil being highly manured, shows, however, how pansies appreciate high treatment, indeed, how amply such culture is repaid. If we want mere masses of colour only, such as bedding varieties or violas give, then high-class culture is not required; but when we grow blotched pansies of any section we like to have them very fine, of good substance, flowers bold and well expanded, and of rich colours. These features we get in the strain referred to. The old show or English pansy has had to give place to this bold, rich, striking section, just as incurved chrysanthemums have gone down before the fine, varied, and beautiful Japanese. Such changes in popular favour are inevitable in floriculture.—D.

Dropmore.—If to be able to enjoy a visit to a garden or place, however repeatedly made, is evidence of its attractiveness, then is for that reason Dropmore singularly so. But if at any time delightful, even in mid-winter, never is it more so than in the month of May, when the beeches, limes, and birches have just put on their new coats of the loveliest possible shades of green—the sycamore are of the densest in foliage, the conifera dark foils to the new, tender leafeage, and the oaks give a rich golden hue that is wondrously effective in its contrast with the heavier greens. Everywhere there is such a wealth of fine trees of every description that it is not possible to walk a few yards without coming upon some striking specimen or group that at once commands attention. But just now, at the end of May, the vast masses of rhododendrons are becoming brilliant with colour, and the azaleas, singly and in colonies, in every direction fill the air with perfume and the scene with beauty. There are grass and gravel walks and tracks, mile upon mile, that are to the stranger bewildering, yet all is fraught with loveliness. Surely there are few places anywhere just like Dropmore. No wonder so many lovers of the beautiful like to visit it. Never has it been better kept than now; it is under Mr. Herrin's fostering care. In all its features it seems to be so far removed from the modern garden, where all is so new and so mixed. Nothing at Dropmore seems incongruous. Even the glass-houses partake of the general character of the place, and have the merit, that is, if it be such, of presenting adverse conditions for culture, because they are not of modern construction. The quaint flower-garden is as it was in old Frost's time, and its denizens have been materially added to without in any way rendering it farish or formal. Anyone who wished, in easy reach of London, to find complete abstraction from the outer world with all its care and excitements, could not do better than visit the sweet solitudes of the Dropmore groves and glades. What a heaven-like place of sepulture would it make for the wearied dead.—A. D.

The Brassicæ Family.—When the mind is in a reflective mood it is strange to note into what odd channels it will run. It was so with me the other day, when passing a table in the town laden with superb examples of white broccoli heads, and noting their solidity and perfection of form, for they were wonderfully good. My thoughts were insensibly diverted to that assumed parent of all the cabbage tribe, said still to be found on the chalk cliffs of our eastern coasts, Brassicæ oleracea, a very crude leafy vegetable, and marvelled that from out of it should have come, of course, over a period of hundreds of years, such a remarkably diverse family as we see now, is brassicæ, of which these fine broccoli were not the least valuable or interesting. Is there any other parent species in vegetable life that can show such varied progeny, and one so valuable for human food as does this original cabbage, specially cauliflowers and broccoli, the one tender, the other hardy, yet otherwise alike, heads white as snow, solid and handsome, constituting most delicious food? There was a time when the Purple Cape was commonly known and much esteemed. That colour, or one of greenish hue, probably constituted the colour of the first break into broccoli form from the wild cabbage. We see something of that crude originality in the purple sprouting broccoli, so hardy and so useful in its late season. But so far as the production of white heads in cauliflowers and broccoli is concerned, we have got a long way from the old Purple Cape now, and are not likely ever to revert to it. During the past fifty years we have seen great advances made in the production of better forms of white heads, but it may have been three hundred years since that either or both originated in a distinctive form. How remarkably do the two members of the family differ from all the others in development. If we can conceive the human spine creating a head-growth of marrow-like substance, called brain, from out of the spinal cord, just so, from out of the marrow or pith of its spine or stem, does the cauliflower or broccoli plant evolve its head of similar substance, which continues to force up layer on layer of edible matter resembling brain, yet devoid of sensibility, and that matter becomes in the plants to us the highest form of food the Brassicæ can produce. How wonderful is it all when we come to reflect over it, but how apparently, how mysterious! There it is, as we know to our profit, but how originated, and why, remains one of Nature's mysteries. If we turn to the cabbage proper, whether white, red, or savoy, there the plant-forces are directed to the production of leafy masses, which we call heads or hearts, and are all the more valued when compact, solid, and internally white or red, and tender. Probably many persons would give to the white cabbage the highest place in the family circle, because it is everybody's vegetable, and we can have it all the year round. We may say almost as much of the white-headed members also, for they cover nearly all the year. Then there are the kales, which do not give hard, solid leaf-heads, but large clusters of loose leafage, sometimes curled, sometimes plain, some more or less sprouting, but all differing materially from the cabbage. Possibly some of these present the nearest approaches to original breaks from the wild cabbage. Not least, there are the singular Brussels sprouts, which furnish, on the top of a tall, stout stem, a head of trifling dimensions or value, but from the sides of its stem a long, continual series of small, hard, sweet green heads, that are, as food, of inestimable value. In these Nature seems to have diverted food-production from head and pith to the bark or alburnum, again exemplifying the versatility of Nature in the hands of the cultivator.—K.

WORK FOR THE WEEK.

COOL ORCHIDS.

Owing to the immense quantity of orchids now annually imported, and sold by auction at such reasonable prices, very many amateurs, with only the convenience of an ordinary greenhouse, have taken up their cultivation. Odontoglossum crispum is annually imported by hundreds of thousands, and as a serviceable and showy orchid it cannot be beaten; so there is small wonder it is such a general favourite. While this beautiful orchid may be grown without incurring any very great expense, there are also many other cool orchids that the amateur may grow in company with it, such as O. Halli, O. luteo-purpurum, O. Pescatori, O. gloriosum, O. triumphans, O. Cervantisi, O. Rossi, Sophronitis grandiflora, Epidendrum vitellinum, Cypripedium villosum, C. insigne, with many oncidiums and masdevallias, &c. In many instances I have noticed that the amateur who has not a house to devote exclusively to orchids, naturally desires to make the best possible use of it by growing a variety of plants in it. In such cases the house is usually well adapted for the wintering of these cool orchids, but during the summer months it becomes impossible to keep the atmosphere in the right condition for their well-being; there is a way out of this difficulty, and that is to move all the orchids into cool frames or pits for the next three months. If a cool, shady, brick pit is at command, a temporary stage will be fitted up, using sheets of corrugated iron, as they are easily fixed and the grooves carry off superfluous water; the sheets should be covered with a layer of small coke. Where brick pits are not at command, ordinary garden frames may be used, placing them in a cool and shady position, on a hard base of coal ashes; before the plants are removed to their summer quarters, the pits or frames should be thoroughly cleansed by scrubbing the glass and woodwork with soft soap and hot water, and it will be also beneficial to lime-wash the walls of the pits with hot lime, so as to kill any insects that may be hiding. Care should be taken not to crowd the plants together, so that the air may pass freely among them, and also render it easier to damp down, which should be thoroughly done two or three times daily in bright weather. Spraying over-head may also be practised on fine days, and a little air should be left on at night whenever the weather permits, increasing it in the morning; in rainy weather the lights should be tilted, so that the rain cannot reach the plants, and as soon as the sunshine reaches the glass the plants should be heavily shaded, less ventilation being then needed; after sundown the shading should be removed, and more air admitted. Lettuce leaves may be placed about in the frame, as slugs will be almost sure to put in an appearance, and these play havoc with the new roots. Should the nights continue to keep cold after the removal of the plants the lights may be covered with mats, or the change may prove a little too great. Plants grown in this manner become hardy and robust, and seldom fail to flower freely providing they receive careful attention; remove them to their winter quarters about the middle of September, though, of course, this depends upon the weather, for in the south of England they may be left out a little longer if carefully covered by night in case of frost.

Pleiones are now growing freely, and if the plants are strong and vigorous they should receive abundant supplies of water and occasional doses of weak liquid cow manure. Specimens that were not repotted should have a little liquid manure at every alternate watering, and this should be followed up until the foliage shows signs of maturity, when the manure must be discontinued. Zygopetalums will also require plenty of water at the roots, and a soaking of weak liquid manure once a week during the summer months will be greatly appreciated by them.—E. Shill, *New Hall Hey Gardens.*

STOVE PLANTS.

From the middle of June to the end of July is a suitable time for propagating crotons in variety, these to be retained in thumb and three-inch pots for dinner table decoration; some prefer the narrow-leaved varieties only for this purpose. They are certainly light and graceful, and have a pretty appearance upon the table; but where there is a great deal of this work to be done, one must have a variety of material, so that, say, during the course of a fortnight, should there be a table to decorate every night it will be possible to have a change on each occasion, therefore it is advisable to propagate some of the bold, bright-coloured, large-leaved varieties, such as Morti, Queen Victoria, Nevilliæ, Hawkeri, Youngi, Veitchi, Flamingo, &c.; amongst the narrow-leaved section may be mentioned Augustifolium, Aigburth Gem, Chelsoni, Mrs. Dorman, and Golden Ring. Other plants suitable for table decoration are Reineckia carnea variegata, coleus in variety, dracænas, Cocos Weddeliana, acalyphas, panax, aralias, cyperus, asparagus, [illegible], and others. Gloxinias as they pass out of flower should be gradually dried off, and stood in a cold frame in a sunny position to ripen their tubers, gradually giving less water as the leaves decay, until eventually it is withheld altogether. Caladiums, and stove plants generally, which are to be used for decorating in the rooms, ought to be stood in a cooler and drier house for a day or so before removing to the rooms, otherwise the sudden change may be too much for them. When cleaning the rooms in the early morning, the servants generally throw windows and doors wide open; such an experience is enough to try any plant, and how much more so one that has been brought direct from a warm, moist atmosphere. The earlier batches of poinsettia and euphorbia are now ready for shifting on, the stronger into six-inch pots, the weaker into four and five-inch pots, using a compost of good fibrous loam, leafsoil, dried cow manure, small charcoal, and sand: pot firmly, but not too hard. If there is a heated pit which can be placed at their disposal, so much the better; keep them close to the glass, gradually lowering the pots as the shoots extend. Give shade freely until the [illegible] are established, after which it can be gradually reduced until it is only used during the middle of the day; syringe twice a day, closing the frame at the time of the second syringing early in the afternoon

Winter-flowering begonias are ready for potting, and these also may with advantage be afforded a pit to themselves, as they may be grown cooler than the poinsettias, and though they may be syringed on bright days this must not be done in dull weather, or the leaves will damp. Thysacanthus rutilans and Reinwardtia tetragyna will be perfectly happy under similar conditions to the poinsettia for the present. Seedlings of Rivina humilis will set their berries best if grown in the intermediate house; this is a very beautiful plant when well berried, and is generally of great interest to the ladies. Pot on seedling gloxinias as they fill their pots with roots; five-inch pots are a suitable size to flower them in. Asclepias curassavica will now have filled the three-inch pots with roots, and may be shifted into six-inch, in which they will flower; grow them in the intermediate house. All the occupants of the stove are now growing freely, and should be afforded stimulants regularly—not too strong, but rather weak—and often. Repot any requiring it before growth becomes checked through restriction at the roots. Keep insect pests down by a free use of the syringe, or insecticides if this is not sufficient. Attend regularly to the thinning and training of climbers, if they are allowed to become too thick upon the roof the plants under them will suffer from the want of sufficient light. Less help will be required now from the heating apparatus to keep up the requisite temperature, but even in the warmest weather do not let the fire out; a little warmth in the pipes keeps the air in the house moving and healthier for the plants generally. When ventilating avoid draughts, especially in windy weather. By commencing to ventilate early and gradually increasing (anticipating the rise of temperature as it were) it will be possible to keep the temperature correct with a less amount of airing than would be the case were the temperature allowed to rise too high before commencing to ventilate. Anthuriums, alocasias, and marantas, while delighting in a moist atmosphere and copious syringings, must be carefully protected from the sun's rays while the foliage is moist, else they will be disfigured by scorching.—J. Tunnington, *Ripley Castle Gardens.*

KITCHEN GARDEN.

The cold weather of May caused much anxiety to those living in low-lying districts, as the cold nights retarded growth considerably. Never do I remember crops making such slow progress; the only plants that seem to thrive satisfactorily are spinach and cabbage, and these without doubt have done well. Colewort is often much prized in the autumn and early winter, and to obtain strong plants a sowing should be made about the middle of the month, and as soon as the seedlings are large enough to handle they should be pricked out on a piece of rich ground to give them a good start, in which place they may be allowed to stand till some crop is cleared off so that they may be planted out. Asparagus beds that are intended for forcing next season should not be cut over after the 20th inst. Growth should then be encouraged by giving the beds a good soaking with liquid manure, or, if this is not available, some artificial fertilizer, to be well washed into the ground. Mushroom ridges may now be made in the open for a late supply; care, however, must be taken to protect the beds from heavy rains until such time as the spawn has run. There is often much difficulty experienced in producing good mushrooms in very hot weather; for instead of being thick, fleshy, and large buttons, they are poor and of but little flavour. To have first class produce the beds should be made out of the reach of the mid-day sun and where the air is cool. Material should be prepared for successional beds, and when sufficient has been brought together this should be put up in ridges, and when of a suitable temperature the spawn ought to be inserted without delay. All kinds of winter greens may now be planted out, for the sooner the early supply is got in the better. If space cannot be afforded them at present have them pricked out six inches apart, as the plants ought not to remain in the seed beds crowding each other. Runner and dwarf beans have made but poor progress this season owing to the cold weather, the successional sowings being almost as forward as those sown in the early part of May. It is, however, well to be prepared, as it is possible we may have a fine autumn, when growth will continue till quite late in the season. When such is the case late sowings of these always prove useful. A piece of ground should, therefore, be reserved for a row of runners to be put in about the end of the month or early in July. Choose a sheltered situation, if possible, that the growth may not be injured by the rough winds in the autumn. Dwarf varieties of the Canadian Wonder type should now be sown in open situations, as these will make rapid progress in hot weather. Thin out the plants to a foot apart when the second rough leaf has been made so that they may grow sturdy from the commencement.

Celery trenches should be made ready, that the plants may be put out when they are large enough, for it is bad practice to allow them to become crowded and drawn, as is too often the case, owing to the pressure of other work at this time of the year. The manure used for the trenches should be thoroughly decayed, and this ought to be made firm, otherwise the roots cannot take hold of it. When left too loose the manure acts as a drainage and robs the soil of moisture. In planting see that the soil is pressed firmly round the roots, particularly that of a light sandy nature. Celery is a moisture-loving plant; therefore it requires plenty of nourishment if good stems are to be grown. Some prefer planting two or three rows in a trench, and where ground is limited this is doubtless a most economical plan, but much care is required both in watering and earthing, otherwise many of the plants will be spoiled. We prefer to grow the plants in single rows, as by so doing less labour is required in earthing. Make successional sowings of lettuce and other small salads, so as to keep up a constant supply. As the plants become large enough to handle see that they are planted out and kept well supplied with water; otherwise they will not grow satisfactorily. A pinch of endive seed may now be sown, but as this is not generally required while good lettuce may be had a small quantity will be sufficient. Attend to the thinning of all crops as they become large enough so that there may be no overcrowding.—H. C. Prinsep, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

Melons in frames, when growing freely, will need careful careful attention in the matter of watering; the soil on the hillocks must not be allowed at any time to become dust dry, as it is impossible to get water to soak in if this once occurs. At the same time a sodden state of the soil is equally undesirable, and wet should be kept from the collars by fixing some protector such as a length of hoop iron round the stems at an inch or two away. Choose the early afternoon for watering, and, if possible, water when the succeeding night promises to be warm. Keep up the bottom heat by remaking the linings piecemeal, so that only a portion is disturbed at one time, and leaving the rest until heat is again rising from the newly made up portion. Close the frames early, shutting up all possible sun heat and syringing the plants freely before and after they flower until the fruits begin to ripen. This will keep them clean and free from red spider. Should green fly appear, vaporise at once with either of the two mixtures now on the market. Keep down woodlice by trapping, and introduce to each frame which contains these vermin a colony of toads which will be found very useful. In the matter of ventilation never forget that the melon is a tropical plant that will stand a great amount of sun heat without injury but which will not submit patiently to sharp cutting draughts. Should canker assert itself, I find nothing so good as fresh slaked lime freely applied to the stems, this will immediately arrest decay, but the application should be renewed from time to time as the lime perishes quickly from contact with a damp atmosphere. Keep all plants that have set their crop, closely stopped, as only the main leaves are necessary for the good of the plants and nothing is worse for melons than crowding the frames with surplus growth. Plant one or more successional frames and when the plants commence growing again pinch out the points to induce a fresh break for one or more leading shoots; by stopping the plants when small we are far more likely to have a set of fruit from the first laterals made from the new leads, than we are from those made by unstopped plants, and this is a great advantage as the frames do not then become so full of foliage.

Ripening pines will need to have the water supply and atmospheric moisture reduced to obtain really high-flavoured fruits, and if they can be removed to a house by themselves, in which they can be kept with dry surroundings instead of being mixed with plants in other stages of development, so much the better. When once they begin to colour it is easy to arrest ripening, if they are not wanted at once, by placing them in a cool house or shed, but in this case the water supply should be entirely cut off. Continue potting-up young stock as the pots become full of roots, as it is only so much lost time and vigour to wait till a big batch is ready before potting, and nothing is gained by allowing plants to become pot-bound until they occupy their fruiting pots. A portion of the larger plants intended for fruiting early in the autumn may be kept dry for a week or two, as this is generally safe practice to induce them to throw up fruits quickly. Bananas will now benefit greatly by being treated to a top-dressing of bonemeal and good loam, first removing or stirring up the surface soil, which will probably have turned somewhat sour, and then applying from two inches to three inches of the mixture, and over all an inch or two of half-decayed horse droppings. Bones when properly treated, are a perfectly safe manure, and their use can hardly be overdone. The summer weather we may now expect will cause the bananas to grow freely, and sun heat should be husbanded for them, for, unlike many other fruits, the stronger and quicker they grow the better will be the results. Plenty of atmospheric moisture should be kept up in the house. Pot plums and other orchard-house fruits should have the points nipped out of the new growth, as this will develop spurs and prevent the trees from growing wild and straggly. There is no doubt that the finger and thumb form the best pruning instrument for all stone fruits, and especially for those which are liable to gumming, and this fact should not be forgotten while summer growth is going on.—J. C. TALLACK, *Livermere Park Gardens.*

GARDENING CHARITIES AND GARDENERS' WAGES.

RECENTLY there has been a revival of a discussion that has often been mooted and never satisfactorily settled, viz., how far the low wages of gardeners prevent them as a class from supporting the Royal Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution. A correspondent recently stated in a contemporary that he could not do so on an income of 21s. 3d. a week. A subscriber writing in reply doubts whether he would miss this money, or feel the poorer if he subscribed a penny farthing a week to the Royal Gardeners' Orphan Fund, or fivepence to the Gardeners' Benevolent Institution. Perhaps not; but only the wearer can fairly judge of how and where the shoe pinches. And there can be no doubt that poverty is the plea most generally urged by gardeners for not cordially and generously supporting their own charities. We know that others, such as the election of non-subscribers for pensions over the heads of those who have subscribed for years, and other objections are often urged. But as all these matters and the working of our charities from first to last are in the hands of the subscribers, and the funds are administered with great care and exemplary economy, there is little force or foundation for complaints.

And yet there must be something seriously wanting or rotten in the state of Denmark, that is, the state of feeling and action in regard to these charities, when it can be said that out of the thousands of names of gardeners that appear in the "Horticultural Directory" there are only three hundred practical gardeners who contribute to the Royal Gardeners' Orphan Fund, and of these only thirteen hailed from Scotland, the land of gardeners as of cakes, and still fewer from Ireland; and yet at the same time there are eight—children of gardeners—orphans receiving the benefits of this most excellent charity, at the amount of £104 per annum. After such an apt illustration we must forgive the sting of the reproof given by "Subscriber" for its broad and genial humour, which describes Sandy as a decent man who keeps the Sabbath and everything else he can lay his hands on. But it is really not so. The partial, almost complete, neglect of our charities in many quarters arises from want of thought, and neither from hard hearts or indifference or callousness to the sufferings or wants of others. Gardeners have also left their charities to others too often and too much, leaning too heavily on the guineas of employers, nurserymen and the Press, instead of on their own pence and shillings.

The littles of the many may amount to much more than the muckles of the rich, while they would deepen and widen the areas of feeling and of effort. Were every gardener determined to share the burden and the honour of having a finger in the pie of contributing to or helping to administer our charities, the difficult problem of the suffering and the sorrows of our brothers and sisters in distress and their fatherless children would be as good as solved. If, exclaims "Subscriber," nine out of every ten gardeners in employment subscribed five shillings a year there would be no need of elections to the fund, but ample means would be available for the decent maintenance of every gardener's widow or child.

D. T. F.

Phlebodum glaucum var. Mayi.—This very beautiful form of Phlebodum (Polypodum) glaucum, exhibited by Mr. H. B. May, at the Temple Show, is an extremely interesting one to the British fernist, as representing precisely the same sport in that exotic species as we have in the cambricum form of Polypodum vulgare, viz., the plumose type. It is further remarkable as constituting one of those rare instances of a direct sport from the normal, for which we are usually indebted to nature under wild conditions of growth. If we follow the history of fern sports, home or exotic, we almost always find the beginning to be either a find in our native ferny habitats or an importation from abroad, indicating a similar origin elsewhere. These being introduced and raised from spores other sports or variations follow, but the first or initial step, as we have said, does not as a rule make its appearance under culture. There are, of course, exceptions, as in this case, and it would be strange indeed were it otherwise, considering that very many thousands of ferns are raised every season, and it is therefore only to be expected that if, say one in a million of normal plants sport in a wild state, the same ratio will prevail among those raised under culture. Phlebodium Mayi in sporting thus into a form similar to that assumed by our native species, the Welsh Polypody, emphasises the affinity between them already shown by P. Schneideri, a compound of a variety of our P. vulgare (P. v. elegantissumum) and P. aureum (a very close relative of P. glaucum), but the character of the sports does not, as in that case, establish it as a result of hybridization, since P. v. cambricum is invariably barren, as we predict, will be the new fern in question. We understand that the new batch of young plants, in which this form made its appearance, contained other original sports of the same species in the shape of well-crossed examples, which are now being brought on, and this fact goes far to establish a theory I mooted some time ago, that the faculties of cresting and becoming plumose were closely akin in nature, both being due to an abnormal extension of the cellular development. In the plumose types this is distributed generally throughout the frond expanding the tissue into frills, fimbriations, and so on, while in the crested types it is apical only, and the superabundant energy finds a vent by multiplying these apices, and so forming tassels.—CHAS. T. DRUERY, F.L.S., V.M.H.

HORTICULTURE IN CANADA.

(Concluded from page 302.)

Ottawa Experiment Station.

PASSING now at one bound over a distance of seven hundred and forty-two miles west of Nappan, we find ourselves at Ottawa, the capital. Three miles from the centre of the city lies the central experimental station, consisting of four hundred and sixty-five acres. Ten years ago this land was liberally sprinkled with stumps and stones, and encumbered with one hundred and forty acres of second-growth timber and forty acres of swamp. This has all been cleared and reclaimed and brought into a fair condition of cultivation. About three hundred and thirty acres are devoted to agricultural work, thirty-five acres to the testing of fruits and vegetables, twenty-one acres to experiments with forest trees, nine acres to ornamental planting along the margins of the roads and about the buildings, and sixty-five acres to an arboretum and botanic garden. There is an office building with chemical laboratory below, and overhead a museum of farm products, in which the fruits grown at the several farms make a striking display. Near by are the houses of the chemist, botanist, and horticulturist, about which there are [illegible] pretty groups of trees and shrubs. The conservatory consists of two glass structures, each seventy-five feet long, in one of which there is a fair collection of economic and ornamental plants. In the list of the former will be found tea, coffee, cinnamon, camphor, pepper, cinchona, cocoa, and other plants serviceable to man. There are also collections of orchids and cacti, with palms and ferns, and many of the commoner house plants. Another house is used, during the early months of the year, for testing the vitality of seed grain for farmers and for general propagating purposes. The barn, with adjacent planting, shows that the surroundings of even a barn may be made attractive by a judicious use of trees and shrubs.

Orchards have been planted and are used for testing fruits, and the number of varieties of large fruits under trial here is about eight hundred, and of small fruits about as many more. Many new varieties have been produced on the station, by growing large numbers of seedlings of choice sorts and selecting the best, and by cross-fertilisation. Comparative tests have also been made of a large number of vegetables. A useful adjunct to the horticultural department is the apiary, where the busy bees work all the summer day, gathering stores of honey from the flowers of various plants and trees, and in carrying on their regular work render valuable assistance in fertilising the blossoms of fruits. Some people object to planting trees, fearing they may not live long enough to realise much enjoyment from them. To produce the best results comparatively small specimens should be selected. A young and thrifty tree accommodates itself to change of location much more readily than an older one, and the young tree usually develops its normal form more perfectly.

During the early years of our work collections of bulbs—including lilies, hyacinths, narcissus, and many other sorts—were planted in the autumn; but the ground being open and without shelter, the snow at times was so blown off the ground as to leave it nearly bare and most of the bulbs were killed during the winter. To provide shelter, and collect and retain snow over them, an enclosure hedged with arbor vitæ and Norway spruce was planned and the bulbs placed within it; since then nearly all have wintered well. During the winter the enclosure and its surroundings are protected by snow, which gathers within and about it to a considerable depth. The evergreen margin is now about three and a half feet high, and portions of it are almost covered with snow during the [illegible] part of the season. The beds outside this enclosure afford different [illegible] which make them very suitable for certain classes of plants. Within, a constant succession of bloom during the summer is maintained; hyacinths, tulips, and other bulbs in the spring, and later fine masses of lilies, herbaceous peonies, and irises are grown. The lilacs, when in bloom in the spring, are among the most beautiful of shrubs, and what delightful improvements have of late been made in this old-fashioned favourite! More than sixty varieties are under test at Ottawa, and nearly all are doing well. Charles the Tenth is one of the best; it is very rich in colour, a wonderfully free bloomer, and the clusters of flowers are large. Alba grandiflora is also a good variety; its large white flower clusters contrasting with the rich deep green foliage make it very attractive.

Trees and Shrubs at Ottawa.

A group of Scotch Pines (*Pinus sylvestris*) is a prominent feature in one part of the grounds; this was planted eight years ago. The trees were then [illegible] inches high; now they measure from thirteen to fourteen feet. The rich [illegible] colour of this species, which is well preserved throughout the winter, makes the tree an attractive object at all seasons of the year. The Rocky Mountain Blue Spruce (*Picea pungens*) is one of the most valuable introductions of late years, and ranks among the most beautiful of hardy evergreens. The foliage in some specimens assumes a rich shade of steely blue, most striking in the early part of summer. Many of these trees have been planted in different exposures on the central farm, during the past seven years, and all have proved perfectly hardy. The European Mountain Ash, or Rowan Tree (*Pyrus aucuparia*) is a fine [illegible] on the lawn when well-grown and clothed with branches to near the ground; its beautiful foliage and abundant clusters of white blossoms in the spring, followed by bunches of scarlet berries in the autumn, make it attractive all through the season. The Katsura Tree (*Cercidiphyllum japonicum*) from northern Japan is an interesting tree, which is quite hardy at Ottawa. The unique character of its foliage as well as its handsome form, render it most desirable. The Sweet Chestnut (*Castanea sativa* var. *americana*) is a native of the western part of Ontario, and is grown with some difficulty in the climate of Ottawa. After several failures two or three trees have now become established and are doing well. One of them blossomed last spring. The variegated Dogwood (*Cornus mas* var. [illegible]) is one of the most beautiful shrubs at all seasons of the year. The leaves are richly variegated with white and the variegation is well maintained throughout the season. When speaking of the divisions made of the central farm and the purposes to which the several portions were devoted, I stated that sixty-five acres had been set aside for an arboretum and botanic garden devoted to the testing of trees, shrubs, and plants from all parts of the world. Work was begun in this branch six years ago, and already nearly two thousand species and varieties of trees and shrubs, and [illegible] thousand of herbaceous perennials, have been brought together from [illegible] northern sections of the globe, and are being tested as to their [illegible] climate of Ottawa. Canada was for a long time the only [illegible] colony without a botanic garden. This stigma has now been removed, and it is hoped that this institution at the farm will soon reach that stage of [illegible] which will make it a credit to the country.

Permit me to direct your attention for a short time to a few of the [illegible] specimens on this part of the grounds. The European Larch, [illegible] a very handsome tree, valuable for its timber. It is a rapid grower and [illegible] most graceful drooping habit. The Golden Arbor Vitæ is a [illegible]

[illegible] Arbor Vitæ (*Thuya occidentalis*), in which the foliage assumes a [illegible] yellow hue. This is a brilliant object for a lawn and makes a beautiful hedge. The Pyramidal Arbor Vitæ is another interesting form of the same [illegible], quite pillar-like in its growth. The Austrian Pine (*Pinus austriaca*) is [illegible] evergreen, of fine form and habit, very hardy, and a fairly vigorous [illegible]. A tree in the Arboretum which when planted six years ago was eighteen [illegible] high now stands about seven feet. The Norway or Red Pine (*Pinus* [illegible]) has also a stately habit, but is of softer outline than the Austrian Pine and makes a handsome tree. The Mountain Pine (*Pinus montana*) is a very [illegible] object for a lawn. Its low-growing, bushy habit, with branches close [illegible] the ground, makes it well adapted for localities where space is limited.

The Tartarian or Bush Honeysuckle is a free-flowering shrub and one of the earliest to bloom in the spring, and when covered with its pink or white flowers, or later with its bright-coloured berries, is very pretty. Van Houtte's Spiræa (*Spiræa Van Houttei*) is a lovely [illegible], which, during the latter part of May and early in June, is usually covered with masses of white bloom. In growth it has a pendulous habit, and is very graceful in form. Spiræa bumalda is another species of the same genus, which has an upright form. This is also a free bloomer and is very attractive. The Weigelas are very beautiful shrubs which are not entirely hardy at Ottawa, the new wood being usually killed back more or less by the severe weather in winter. In most instances, however, a sufficient quantity of the wood survives to give a considerable amount of bloom. Seibold's Variegated Weigela has proved one of the hardiest forms at the central farm. It blooms abundantly in its season, and its variegated foliage makes it at all times very attractive. The different species and varieties of Philadelphus (known also as Syringa and Mock Orange) are charming objects for the flower border, and quite hardy. The flowers vary in size from one to two inches across; some of them are single and some double; most of the varieties are richly perfumed. The Snowball (*Viburnum opulus* var. *sterilis*) is an old-fashioned but most desirable species for the shrubbery. During the blooming season it is literally covered with masses of snow-white bloom. V. lantana and V. dentatum are also very valuable hardy ornamental shrubs. The Siberian Cornus (*Cornus alba* var. *sibirica*) is another [illegible] useful and hardy sort. It is a pretty shrub when covered with its flat, [illegible] clusters of bloom in June, and when devoid of foliage during the winter, its brilliant red stems form a beautiful contrast with the white background of snow. The Russian Olive, said to be a hardy form of Elæagnus hortensis var. angustifolia, is a small tree of very graceful habit, with foliage and branches of a charming silvery hue, which is best brought out where it has a background of dark green growth. This is a very hardy tree and endures the severe climate of the north-west plains well, and when in bloom its numerous small yellow flowers fill the air with their fragrance.

Later in the season the Japanese Hydrangea (*Hydrangea paniculata* var. [illegible]) becomes a very prominent object in the collection of shrubs, from the large bunches of flowers so freely produced at the ends of the branches. This species has found its way into public favour very rapidly. Only twenty-three years have passed since this shrub was first introduced from Japan, and during that comparatively brief period its merits have been universally recognised, and it has become one of the most widely distributed and favourite shrubs in cultivation. Populus Berolinensis is a Russian Poplar, and [illegible] of the hardiest species tested. It endures the climate in all parts of Canada [illegible] making a strong and rapid growth. Many thousand cuttings of this tree have been sent out from the experimental farms to settlers in different parts of the Canadian North-west. These strike readily, and soon form handsome trees, [illegible], or hedges. A specimen which was planted in the arboretum at [illegible] six years ago as a small tree now stands over twenty-five feet high. [illegible] enquiries are made every year as to the best sorts of shrubs or trees to plant for hedges. To gain experience and furnish object lessons, many different sorts are being tested for this purpose. Seventy-five varieties, have already been [illegible] as sample hedges, each fifty feet long, and a large proportion of them [illegible] had five or six years' growth. These are proving an attractive feature in connection with the ornamental planting at the central farm.

Experiments in Manitoba.

A journey of one thousand four hundred and thirty-seven miles west, by the Canadian Pacific Railway, brings us to the flourishing town of Brandon, in Manitoba, adjoining which is the experimental farm for that province. It is located [illegible] in the valley of the Assiniboine river, and partly on the heights above the [illegible] which margin the valley. This farm has been greatly improved by the [illegible] of trees, about sixty-five thousand of which have been put out in avenues, [illegible], clumps, and hedges. Most of the hedges have been planted with [illegible] growing trees, such as poplars and willows, and enclose good-sized plots of [illegible]. These hedges grow quite tall, and act as wind-breaks during the summer, and help to collect large banks of snow in the winter, which, on melting, leaves the ground in a very favourable condition of moisture. These plantations have [illegible] examples before the settlers, which many have been induced to follow, and [illegible] has produced gratifying results. Tree planting has been further [illegible] by free distributions of tree seeds, large quantities of which have [illegible] collected, especially of the Box Elder (*Negundo aceroides*) and the Green Ash (*Fraxinus viridis*). These seeds have been hitherto collected in [illegible] valleys and ravines in the bluffs in Manitoba and the territories, and [illegible] the past seven years more than five tons of such seeds have been distributed free by mail, and during the same period about 6,000 packages of [illegible] trees and cuttings have been sent out in the same way to settlers in [illegible]. Last year the native trees planted on the two western experimental [illegible] produced seed freely, and more than a ton of this has been collected for [illegible] during the coming season. An arboretum has been started at [illegible], and there are more than one hundred species and varieti-s of trees and [illegible] which have proved hardy, and many more are under test. A large [illegible] of varieties of flowers have also been tried. Nearly all the annuals do [illegible], and the large amount of sunshine they enjoy there brings many of the [illegible] to a higher degree of perfection, and results in a greater abundance of [illegible] than is usually found in the East. In perennials, the hardy list includes [illegible] pæonies, several species of iris, hemerocallis, aquilegia, aconite, [illegible], and many others. The love of flowers among the people is very [illegible], and many take great pride in their gardens.

Hardy Fruits at Brandon.

While most of the hardier varieties of small fruits, such as raspberries, currants, and gooseberries, are grown with success, all attempts to grow the larger fruits [illegible] in the east, such as apples, crab apples, pears, plums, and cherries, have [illegible]; the trees do not endure the climate. There is, however, one small wild [illegible] Pyrus baccata, with a fruit about the size of a large cherry, which has been [illegible] from the northern part of Siberia, that has proved perfectly hardy, having stood four or five winters without showing any sign of winter killing. This bears fruit very freely, and notwithstanding their diminutive size these tiny apples make excellent jelly, and in their present unimproved state would be much appreciated. Efforts are, however, being made to improve this small crab by cross-fertilising it with many of the hardiest sorts of apples. A large number of these cross-bred seedlings will be ready for planting on the north-west farms in another year. Suitable enclosures are being prepared which will afford the young trees some protection, and within two or three years it is expected that some of these will bear fruit. Similar experiments have also been carried on with Pyrus baccata prunifolia, which has also stood one winter in the north-west without injury, and this fruit is about double the size of that of P. baccata. It is probable that some of these cross-bred seedlings will bear fruit of larger size and improved quality, which will be valuable to the settlers there. These trees are both small and low-branched and well adapted to endure the climatic conditions prevailing in the prairie country.

The wild plum (*Prunus americana*) is found native in different parts of Manitoba, and is common in the valley of the Asiniboine river and in the other river valleys in the southern part of that province. The fruit varies much in size, colour, and quality, some trees producing red fruit and others yellow, and while some of the fruit is but slightly astringent and of fair quality, other samples are scarcely edible. Efforts are being made to improve the wild plum by selection from seedlings grown from the best varieties. It is proposed also to follow this up by cross-fertilising with better sorts. The Sand Cherry (*Prunus pumila*) is also a native of the far west. It is common about the Lake of the Woods, and has been found on the prairies as far west as the 108th meridian, and as far north as Prince Albert, which is about three hundred miles north of the United States boundary. The Sand Cherry is a very variable fruit; the commoner forms are about the size of a large Marrowfat pea, with a disproportionately large stone and astringent flesh, while occasional bushes are found bearing fruit as large as the English Morello cherry, with a much larger proportion of pulp to stone and a superior quality of flesh. Fruits subject to such free variations in the wild state may be expected to improve still more, in size and quality, under the influences attending higher cultivation and cross fertilising. It is believed that the prospects in connection with the efforts which are being made to improve the fruits referred to are hopeful, and that there will in time be produced such varieties as will prove useful fruits to the people of the north-west country.

Assiniboia.

A further journey of one hundred and eighty-five miles over the plains brings us to the experimental farm at Indian Head, in Assiniboia, one of the North-west Territories. This farm is about the same size as that at Brandon, viz., six hundred and eighty acres. When this land was purchased it was a piece of bare prairie, without tree or bush. During the eight years it has been occupied tree planting on a rather large scale has been carried on, and there are now growing on this farm, in shelter belts, blocks, avenues, wind-breaks, and hedges, more than one hundred thousand trees. Difficulties were encountered at first from the very strong winds, which gave the trees a stunted appearance, but these obstacles were gradually overcome, and the trees have now made such a free growth that they protect one another, producing a vast improvement in the appearance of the place, and affording much shelter. Although the climate is more severe here, the experiences had with fruit trees and with forest and ornamental trees, as well as with flowers, are nearly the same as those which have been gained at Brandon.

National Park at Banff.

A further railway ride of five hundred and fifty miles from Indian Head brings us to the end of the one thousand miles of plains which stretch from the easterly part of Manitoba to the Rocky Mountains, and now we find ourselves ascending among the foot-hills, the landscape broken into bluffs and valleys with clumps of wood and park-like openings between them, and after two or three hours' more of journeying, Banff, where the Canadian government has established a national park, is reached. It nestles among the mountains, and the efforts to improve this beautiful spot have been mainly in the way of making roads so as to open up the romantic beauties of the place, and render those points which afford the most striking views easily accessible. As we approach this elegant resting-place for tourists, we pass the "Three Sisters," a lovely group of mountains; also the Cascade mountain, whose bold rocky summit rises abruptly from near the railroad track more than five thousand feet above the valley. This mountain derives its name from a small cascade which dashes down the mountain side, in which it has worn a distinct channel. Some of the most lovely views to be had anywhere in the mountains are to be seen at Banff, where there is a delightful combination of mountain, water, and forest. A museum has been established here by the Government, which contains collections of the mammals, birds, and plants found in the national park.

There are also some beautiful lakes in this neighbourhood. Lake Louise is one of the prettiest. The bright green colour of its waters contrasts strongly with the pure white of the glaciers beyond, while the many-hued cliffs, with various shades of brown on the one side and the deep green of the spruce-clad banks on the other, all help to form a most harmonious and striking picture. Near by, but about a thousand feet higher, Lake Agnes bursts upon the view, with wilder and totally different surroundings.

One more stretch of about four hundred and eighty miles, through wonderfully varied mountain and valley scenery, takes us through to the valleys and delta lands of the coast line. Here we have the coast climate, which, on this part of the shore of the Pacific, is cool in summer and mild and moist in winter; but returning eastward towards the interior, it becomes hotter in summer and colder in winter, with less rain. At Agassiz, seventy miles east of the ocean, the most westerly of the experimental farms is located, in the valley of the Fraser river. Seven years ago this place was a wilderness. Now there are one hundred and thirty acres of land cleared and under cultivation, and about half of it has been planted to fruit, and more than two thousand varieties of fruits are under test there, nearly all of which are doing well. The climate is mild, and suitable for this industry, and nowhere do the plum, apple, cherry, and pear bear fruit in greater profusion. Every variety likely to be of benefit to the country is being tested, so that the fullest information may be available to the settlers as to the best and most profitable varieties to plant. All sorts of small fruits succeed remarkably well here. A very large number of ornamental trees and shrubs are also successfully grown, including some of the more tender varieties, which are not hardy at Ottawa. Flowers also succeed admirably in this moist climate. The Japanese and other lilies grow luxuriantly, and during the flowering season they fill the air with their fragrance.

Conclusion.

I must not trespass further. I have but touched here and there on the almost limitless field covered by my subject. I hope, however, that I have succeeded in showing that horticulture is not entirely neglected in Canada, but that individuals, communities, and governments (both Provincial and Dominion) from one end of the country to the other are striving to help along this good work. While we cannot expect soon to reach that degree of horticulture advancement which we see and admire so much in older and wealthier communities like your own, we are striving to follow in a measure your noble example and to profit by the generous help which you are always ready to give. Your Arnold Arboretum has aided our experimental farm work in a princely manner, and your ever welcome publications are a constant stimulus towards progress. Although not quite under the same form of government, we are of the same stock as yourselves, and the love for and appreciation of the marvellous beauties of Nature brings like pleasure wherever we dwell, whether we acknowledge as our ruler a worthy president or a matchless queen. Horticulture is bounded by no political lines, but in every community where the mind is sufficiently cultured to appreciate the wonderful beauties with which the world is studded, there these lovely trees and shrubs and flowers, which combine so much of grace and beauty, become a perennial source of quiet delight. They are but expressions of the thoughts of the great Creator, who established and sustains the laws which govern their growth and development. Some love for the beautiful in Nature is found in almost every breast, and companionship with such charming objects tends to deepen and enlarge that feeling of admiration, to elevate our thoughts and lead them from Nature up to Nature's God.

OLD GARDENING BOOKS.

OLD GARDENING BOOKS are rapidly increasing in popularity and value, as a natural sequence of the more intelligent appreciation of the labours of those authors who, in bygone days, laboured assiduously, according to their lights, in diffusing information on the art of garden management, and the strong desire of large numbers of horticulturists to become acquainted with the changes that have taken place in the practice that has obtained in the several departments during the past three or four centuries. To those who are interested in the bibliography of horticulture these old works have a fascination that is irresistible, and a list of any considerable proportion of the gardening classics is highly entertaining. It is a rare occurrence to find a large number of the early works on horticulture in any one catalogue; hence that recently issued by Mr. Bernard Quaritch, 15, Piccadilly, W., is of so high a degree of importance as to justify a brief reference to its contents. Altogether between eight and nine hundred works are enumerated, but these include several hundred modern works, such as Andrew's "Heaths," Bateman's "Orchidaceæ of Mexico," Forbes' "Salictum Woburnensis," Curtis's "Flora Londinensis" and *Botanical Magazine*, Siebold's "Flora Japonica," Lawson's "Pinetum Britannicum," Lambert's "Genus Pinus," Hogg and Bull's "Herefordshire Pomona," and Elwes' "Monograph of the Genus Lilium." There are, however, several hundred early gardening books, and the catalogue has a value as containing the most complete list that has yet been published. One of the first of the old books to arrest attention is William Lawson's "A New Orchard and Garden" (1623), a small and exceedingly rare quarto, in which the author tells us that "fruit trees well ordered, may live and live 1,000 yeeres and beare fruit, and the longer, the more, the greater, and the better, because his vigour is proud and stronger when his yeeres are many"; and, in dwelling upon the delights of the orchard, asks, "What is greedy gain without delight but moyling and turmoyling slavery?" Fitzherbert's "The Boke of Husbandry" (1537?) is still more rare than the foregoing, and marvellously interesting. S. Hartlib's "Legacie, or an Enlargement of the Discourse of Husbandry" (1651), wherein we are told on the title-page are "bequeathed to the Commonwealth of England more outlandish and domestick experiments and secrets in reference to Universal Husbandry." It is stated in the "Philosophical Society's Transactions" that "England profited in agriculture to the amount of many millions in consequence of the Flanders industry having been made known by this little treatise." Markham's "Maison Rvstique, or the Covntrey Farm" (1606), "Way to Wealth" (1631), and the "English Husbandman" (1635) are three interesting quartos by this author, who appears to have written several books on widely different subjects, and he evidently had a high opinion of gardening, for in the last named of the three books he asserts that "A garden is so profitable, necessary, and such an ornament and grace to every house and housekeeper that the dwelling place is lame and maimed if it want that goodly limbe." Mascall's "A Booke of the Art and Maner How to Plante and Graffe All Sorts of Trees" (1550), and "The Countryman's Recreation" (1560) are the two most important of the several works of the old author included in the catalogue, and they are both intensely interesting for the light they shed upon the practice of the period. Hugh Platte's "The Jewell House of Art and Nature" (1594), and "Divers New Sorts of Soyle Not Yet Brought Into Any Publique Use" (1594) are two of the most entertaining of the works of this author, who was described by Weston as "The most ingenious husbandman of his age," and withal exceedingly modest. Barnaby Googe's "Whole Art and Trade in Husbandry" is a small black letter quarto, in which he states he "put into English" the "foure bookes of husbandry collected and set forth by Master Conrade Heresbatch," but notwithstanding that he altered and increased the work, he did not think it proper "to take from him the honour and glory of his owne trauaile." In this respect Googe differed materially from some of the old authors. Thomas Hill's "The Proffitable Arte of Gardening" is by no means the least interesting of the works mentioned, for Hill devoted attention to bees as well as gardening, and gave in this work "Pleasant Instruction of the Perfect Orderinge of Bees." To those who are not well acquainted with other than modern garden literature the catalogue will be a veritable surprise, and it is not without considerable regret that the pressure on our space will not permit even the briefest mention of other of these old and and interesting works.

Doronicum caucasicum.—Some very fine masses in beds of the above were seen in full bloom during the past month, in the fine nurseries of Messrs. Methven and Sons, Edinburgh, under the able management of Mr. McKenzie. At that period of the year such a free spread of fine yellow blooms, nearly two inches across, form a welcome contrast to the large plantations of the white narcissus that have enlivened these nurseries for some time. Hardly have the golden daffodils—that "Take the winds of March with beauty"—faded in part, than the doronicums take their place on the field of the cloth of gold. The next most brilliant display in the open here in season is made by a choice collection of Dean's strain of hardy primroses, in an infinite variety of four colours, stature, and fragrance. These deserve a place in every garden, as there is hardly any limit to their rich and varied variety of colour and profusion of blossoming.—D. T. F., *Edinburgh.*

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s, "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

NEW PLANTS.

ALLIUM SCHUBERTI.

THIS is a remarkable allium from Western Asia, producing a [illegible] of from one to two hundred bright rose-red flowers on a scape about a foot high; it is a species of considerable horticultural value. A. Schuberti was discovered in Palestine, in the Plain of Jezreel, by Mr. Schubert, and appears to have been introduced to cultivation by Messrs. Herb and Wulle, of Naples. The ovoid bulb is large and entirely underground; the leaves twelve inches long by two inches broad, acuminate, light green, with slightly darker striations. The pedicels are unequal in length, varying from two to ten inches; the perianth is about three quarters or two thirds of an inch across. This species flowered in a warm border at Kew in June, 1897. *Bot. Mag.*, t. 7,587-8.

MYOSOTIS DISSITIFLORA DYERÆ.

During a long period of cultivation, a fairly common forget-me-not, Myosotis dissitiflora, has improved considerably, and there is a very wide difference now between the wild type and the variety under notice. M. dissitiflora Dyeræ is an exceptionally strong growing and handsome form raised by Mr. E. J. Lowe, F.R.S., Shirenewton Hall, Chepstow, and named in compliment to the wife of the Director of the Royal Gardens, Kew. The loose racemes are many flowered, each flower measuring nearly or about half an inch across, bright blue, yellow corona, lobes rounded. *Bot. Mag.*, t. 7,589.

CROCUS MALYI.

A beautiful March flowering species, having large, spreading [illegible] with yellow throat. Crocus Malyi is a native of the Dalmatian [illegible] was discovered at an altitude of 7,260 feet by Herr Maly fifty years or so ago. The perianth tube is three inches long, while the six spreading lobes are each one and a-half inches in length. In addition to the yellow colouring [illegible] the segments, forming a throat, there are numerous yellow hairs [illegible] orange-yellow filaments. This is a perfectly hardy crocus, and flowers regularly at Kew in March. *Bot. Mag.*, t. 7,590.

RHEUM RIBES.

A handsome rhubarb from Western Asia, notable for its undulated leaf surfaces and for its profusion of inch-long blood-red fruits. R. ribes has long been cultivated in botanic gardens, but is little known to horticulturists, though apparently cultivated by Sherard at Eltham in 1724. It was discovered a hundred and fifty years previously by Rauwolf, an Austrian physician and traveller. The species grows to a height of three to five feet; the leaves are ten to twelve inches broad, orbicular cordaie, bullate between the deeply sunk nerves and veins. The erect panicle of green flowers is not particularly handsome, but the small blooms give place to large oblong-cordate achenes of a bright blood-red hue. *Bot. Mag.*, t. 7,591.

ERYTHRONIUM HARTWEGI.

A very pretty Dog's Tooth violet, with white tipped and yellow based segments to the flowers, and having leaves of a dark green hue, marked with paler green. It is a Californian species, where it was discovered by Hartwegi. It makes a very pretty plant, from four to six inches high, suitable alike for cultivation in pots or in the open border. Under the latter conditions it flowers during March, when flowers of all kinds are greatly appreciated. Each flower is three inches across, and has recurved perianth segments. *Bot. Mag.*, t. 7,583.

DRACÆNA GODSEFFIANA.

A novel dracæna, with rambling, branching stems and handsome spotted leaves. It is a very useful and decorative plant, now becoming well known to horticulturists. It was described and figured in these columns May 25, 1895, pp. 305 and 316. It has a bamboo-like habit, with ternately whorled, elliptic leaves, bright green, freely strewn with irregular white spots. The pale green flowers are borne in ascending racemes at the tips of drooping branches. These are not effective, but they are followed by brilliant red, globose berries, half an inch or more across. This dracæna was discovered by Mr. Henry Miller, curator of the Lagos Botanic Garden, who sent it to Kew in 1892. At a later date it was imported by Messrs. Sander and Co., St. Albans, and named after their manager. *Bot. Mag.*, t. 7,584.

PREPARATION OF MANILA HEMP.

OF late years experiments have been made in British North Borneo in the cultivation and preparation of Manila hemp Musa textilis. Mr. W. [illegible] who is engaged in this enterprise, has communicated some interesting [illegible] *Kew Bulletin*, wherein he states that the best fibre yielding form [illegible] is that known to the natives as "Sayung Lanut pula." When once [illegible] the plantation requires little attention as the suckers provide a succession [illegible] A stem is at its best, so far as fibre production is concerned, when about sixteen months old. Such a stem is composed of overlapping layers of the leaf stalks, somewhat similar to a stick of celery, but firmly bound together. The fibre is found just below the surface on the outer side of these stalks. A stem weighs from fifty to eighty pounds. No machine that I am acquainted [illegible] discovered that will extract it to pay. The native method is [illegible] The stem is cut down and each leaf stalk detached from the others. [illegible] the operator sits down with the end of a stalk in his lap, he then [illegible] incision just beneath the fibre at the end, and giving a smart twitch, [illegible] strip or ribbon of the cuticle with the fibre in it, from the whole [illegible] stalk, much in the same way that the fibrous part of a rhubarb stalk [illegible] when preparing it for cooking. This operation is best performed [illegible] itself, as the discarded portions of the stem remain as manure. [illegible] number of ribbons are obtained they are carried to a hut for [illegible] appliances used for the actual extraction of the fibre are of the [illegible] inexpensive character. A blunt knife is obtained and a hole is [illegible] end of it, through which a string is passed and to which a [illegible] stones are tied. The knife is then attached to a block of softish [illegible] of it pressing on the wood against which it is held by the weight [illegible] stones. Another piece of thin rope or string is tied through the [illegible] knife, running over a bit of wood above it, to a treadle worked [illegible] is now complete. The operator twists the end of one of the [illegible] piece of wood so as to get a firmer hold, and slipping it under the [illegible] blade to descend upon it; a steady pull drags the fibre underneath [illegible] holds back all the pith, weak fibre, and other useless matter. [illegible] heavy, it constitutes a guarantee that all the fibre that is not [illegible] strength, and the result is pure strong fibre. A boy can [illegible] the few inches of the end which was wrapped round the piece [illegible] fibre is then hung over a pole to dry. This is soon done if it is a [illegible] hemp is then ready for market.

EXHIBITIONS AND MEETINGS.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

On the 8th inst. the fifty-ninth annual festival dinner of this gardening charity was held at the Whitehall Rooms, Hotel Metropole, under the presidency of Sir Oswald Mosley, Bart. There was a large company, although a goodly number of chairs were not filled. Sir Oswald was supported by Mr. Harry J. Veitch, Mr. N. N. Sherwood, the Dean of Rochester, Mr. Atkinson, and others, while in the assembly we noticed such well known horticulturists as Messrs. H. Cutbush, H. Williams, J. Godseff, J. G. Veitch, G. Wythes, T. Manning, J. Hudson, J. Assbee, G. Monro, A. Piper, R. Dean, H. B. May, T. Rochford, Orchard, Glen, [illegible], Smith, Laing, Cannell, Walker, James, &c.

In [illegible] terms the Chairman proposed the usual loyal toasts, and these having been received, he gave "Continued Success to the Gardeners' Royal Benevolent Institution." He regretted the absence of His Grace the Duke of Portland from the chair that evening, and also the cause of his absence—doctor's orders. A letter from the Duke, expressing his sorrow at not being able to be [illegible] and stating his willingness to take the chair on some future occasion, having been read, Sir Oswald, in a short and humorous speech, referred to the great advancement of horticulture in late years, and to the increasing indebtedness of the public to the gardening community. He had given up many kinds of recreation for that of horticulture, and he felt sure many others had done the same. He deplored the smallness of gardeners' wages in many parts of the country, and also the fact that some employers paid their men a short wage during illness, at a time when more, rather than less, money was needed. In view of this he adjured gardeners to assist themselves and each other by means of such institutions as the Gardeners' Royal Benevolent Institution, so that when health failed and employment could be no longer continued they would receive help. The toast was heartily received, and the duty of responding fell upon the treasurer, Mr. Harry J. Veitch. Mr. Veitch heartily thanked Sir Oswald for coming forward so nobly at the last moment to fill the gap caused by the indisposition of the Duke of Portland. It had been his lot to respond to a similar toast for many years past, and each year he had had the satisfaction of stating that the institution was making satisfactory progress; this year he had the same tale to tell, notwithstanding the many calls made during 1897 upon the pockets of the charitably disposed. As an instance of what the institution had done, Mr. Veitch alluded to a pensioner who recently died; her husband had been a subscriber for some sixteen years, and was put on the funds in 1866, he enjoyed a pension until his death in 1875, and then [illegible] widow succeeded him to the benefits of the institution. The husband received £144 from the institution and the widow £314, making a total of £458 received by the couple, who had subscribed fifteen guineas. It was the desire of the com[illegible] to increase the number of pensioners, but to do this they needed an [illegible] subscription list; during the past ten years the sum disbursed annually [illegible] had increased by £100 per year, until now £3,000 a year was needed, [illegible] apart from office and management expenses. Mr. Veitch appealed to the meeting by an increase of donations and subscribtions to enable the committee to meet, [illegible] possible, the increased applications for pensions. He drew attention to three [illegible] for gardeners wherein the wages offered were 15s., 18s., and 21s. [illegible] respectively; and while allowing that many gardeners obtained higher [illegible] this, it showed that, as a rule, the gardener was poorly paid, and [illegible] expected to save any substantial sum after keeping himself and family [illegible]. A run of ill-health, loss of employment, loss of investments as in the Liberator smash, were all matters that had to be considered, for in too many [illegible] these combined to reduce a gardener to a condition when a small pension was of the highest value to him. Mr. Veitch referred to the success of the Victorian Era Fund, a fund started for the express purpose of assisting those applicants for pensions who failed to become elected; only those, however, who had been subscribers previously would benefit by this fund. They needed £1,000 to make up the £5,000 originally asked for, and of this amount £200 had already been promised. The Thomson bequest was referred to as a way by which those in good circumstances might assist the institution, and have their names kept in memory. In conclusion, Mr. Veitch spoke highly of the work carried on by the various [illegible], and stated that now Mr. A. W. Sutton had taken up the matter they might be quite sure a Reading auxiliary would soon be started.

The Very Rev. the Dean of Rochester was received with much applause as he [illegible] the toast of "Gardening." The worthy Dean said that when once [illegible] the subject of horticulture he scarcely knew when and where to stop, especially when talking with or to brother gardeners. Gardeners had, however, to suffer a good deal sometimes at the hands of those who had no horticultural tastes, and who cared little and knew less about the treasures in your garden which they had [illegible] come to see. He argued that the love of gardening was innate in every human heart, and he urged all gardeners to encourage the taste for horticulture by every means in their power. Briefly and humorously the Dean [illegible] his earliest recollections of gardening, his falling away from his first love, [illegible] conversion by a rose; and he incidentally remarked that it was [illegible] years ago since he took part in the first National Rose Show. He [illegible] the "scarlet fever" of bedding out, and expressed his gratitude to those [illegible] in various ways had introduced a more beautiful style of gar[illegible] the decline of formal bedding horticulture had advanced by leaps and [illegible] now no country on the face of the earth had such beautiful flowers, such [illegible] and verdant lawns as ours had. We had many advantages, but he [illegible]. There was a need for more horticulture everywhere, and for [illegible] of arrangement in the gardens. There was no lack of good gardeners [illegible]: what was wanted was more beauty of arrangement, gardens [illegible] could play at hide-and-seek, a place for lovers to dream in, and [illegible] could rest in peace and think; gardens such as Pope wrote about, [illegible] concealed. He was glad that the taste was now taking the [illegible]. Referring to roses, the Dean eulogised the work of Bennett, W. [illegible], and others, and said he thought there was still a great [illegible], especially in the direction of hybrid teas. He had associated with [illegible] of his time in most of the leading recreations, but he still [illegible] statement that in no other body of men was there that [illegible] existed among gardeners of all classes, from the coronet to [illegible]. In America it was the same as at home; the love of horticulture [illegible]. This being so, let us, said the Dean, be "brothers [illegible]," and to help all those needy ones among us, so that we might [illegible] of Him that perished fell upon me, and I caused the widow's [illegible]." The Dean of Rochester was loudly applauded, and the [illegible], Mr. A. W. Sutton, V.M.H., suitably responded, and [illegible], with the help of Mr. Keyser, an auxiliary branch of [illegible] be started at Reading.

[illegible] "Country Friends," ably put by Mr. G. Munro, V.M.H., [illegible] the creation of more auxiliaries, for at present there were eleven counties containing less than ten subscribers each, and three counties containing but one subscriber each to the institution. Mr. G. A. Dickson, V.M.H., of Chester, responded. "The Chairman's Health" was proposed by Mr. N. N. Sherwood, V.M.H., and received with musical honours. Sir Oswald Mosley responded, and gave "The Health of Mr. G. J. Ingram," the secretary of the institution, and at the same time expressed the thanks of the meeting to Messrs. F. Sander and Co., Messrs. J. Veitch and Sons, Messrs. W. Cutbush and Son, Messrs. B. S. Williams and Son, Messrs. W. Paul and Son, Messrs. Paul and Son, and Mr. H. B. May for the beautiful flowers and plants that adorned the tables, and had added so much to the enjoyment of the evening. The excellent musical arrangements were in the hands of Mr. G. Schartau.

The subscription list for the evening was as follows: Duke of Portland, 50 guineas; Sir Oswald Mosley, 50 guineas and £10 annual subscription; Messrs. de Rothschild, 100 guineas; Mr. Colman, 50 guineas to Victorian Era Fund; Messrs. Hurst and Son, £20; Mr. N. N. Sherwood, 50 guineas (V.E.F.); the Sherwood family, 15 guineas; Messrs. Dickson and Robinson, 38 guineas; Mr. A. W. Sutton, 50 guineas; Mr. M. F. Sutton, 50 guineas (V.E.F.); Messrs. J. Veitch and Sons, £20; Mr. Harry Veitch 50 guineas (V.E.F.); Mr. Leonard Sutton, £50 (V.E.F.); Mr. Munro's list, £131; Baron Schröder, £20; Mr. A. Wilson, £20; Lord Wantage, 20 guineas; Mr. W. H. Lees, £21; Mrs. Courage, £25; Mr. Norman, £15 5s.; Mr. Bond, 14 guineas; Mr. Solomons, 10 guineas; Mr. W. Thompson, 20 guineas; Mr. Maycock, £10; Mr. Nutting, 8 guineas; Mr. Brackenridge, 7 guineas; Mr. Cohen, 5 guineas; Mr. Blair, £5; Mr. G. A. Dickson, from £50 to £100 (list not complete); Worcester Auxiliary, £70; Dean of Rochester, £5; Mr. Crump, 20 guineas; Mr. Jinks, £18 10s.; Mr. Denning, £4 16s.; Mr. Baker, 13 guineas; Messrs. Fisher, Son, and Sibray, 10 guineas; Mr. C. Turner, 5 guineas; Mr. B. F. Smith, 2 guineas; Mr. H. J. Adams, 5 guineas; Mr. Wrench, 5 guineas; Mr. H. Richards, 10 guineas; Mr. Corry, 5 guineas; Mr. McLeod, 2 guineas; Mr. Wimsett, 5 guineas; and other smaller sums, making a grand total of £2,305.

ISLE OF WIGHT.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. Through the indisposition of Mr. F. W. Shirwell, Tonbridge, the hon. sec., Mr. S. Heaton read a short paper on "Bees," and Mr. F. Midlane exhibited and explained various bee-keeping appliances, and for these he received a certificate, as did as did J. E. Watts, Sunbury Gardens, Middlesex, for a patent watering-can. Votes of thanks were given Messrs. C. Collister (Bembridge) and J. Williams (Gatcombe) for their respective collections of acquilegias, Veitch's strain. Dr. J. Groves, B.A., J.P., presided over a good attendance. Several new members were elected at the close of the meeting.

WIDNES PUBLIC PARK COMPETITION.

I WISH to call the attention of intending competitors to the conditions issued by the committee who have this matter in hand. The most objectionable conditions are as follows:—

1st. Only £4,000 is allowed for laying out thirty-four acres of land, fencing in, entrances, and all necessary architectural features, and the formation of a lake and planting. Anyone who has had to do with park formation well knows that this is impossible.

2nd. The committee ask for drawings, which would require at least four double elephant sheets, and in addition to these six perspective views, which are to show the park as it will appear in five years' time. All these drawings are to be in by July 1; showing that the committee do not exactly understand what they are asking for.

3rd. No assessor is named.

4th. If twenty competitors enter the lists the actual cost of their work, including expenses, would amount to £400, or £20 each. For this expenditure the committee offer in premiums the sum of £52 10s.

5th. The committee do not offer to employ the successful competitor. As a matter of information to the younger men, I might add that out of the large number of park competitions I have won in only one instance have I been asked to carry out my design.

THOMAS H. MAWSON,
Architect and Landscape Gardener.
Windermere.

A Disappearing River.—In the St. Mary and Darenth districts of Kent, the inhabitants are becoming concerned at the gradual drying up of the Cray river. Ten years or so ago this was a clear and brisk-running stream, but of late years the springs have become lower and lower, until now the course of the river is dry in some places. The local councils have appointed committees to inquire into the matter, and an official inquiry is being asked for, so that the cause or causes of the loss of water may be discovered, and, if possible, remedied, so that the public health may not be endangered.

The Rating of Glass Houses in Market Gardens.—A meeting of the owners of glass houses in the Dartford Union was, we learn from the *South Eastern Gazette,* held at the Bull Hotel, Dartford, a few days ago, with Mr. Emerson, of Hextable, in the chair. The Chairman said they would have been glad to have left the assessments as they were, but the Dartford Assessment Committee seemed to have formed a conclusion, he did not know upon what grounds, that the horticultural industry was a gold mine. If they had accepted the increased assessments that the Dartford Assessment Committee wanted to impose on the glass houses and nurseries it would have meant almost the annihilation of the industry. Considering the competition that now existed, and was likely to increase, with such conditions as were imposed they could not have made things meet; therefore they were compelled to take the action they did. He traced the history of the appeal, the result of which was that the assessments were reduced sixty-three per cent., or 8s. 6d. in the pound. This successful result had not been brought about without a great deal of expense. Mr. Ayres, Swanley Bottom, gave some particulars showing what benefit they had gained by the appeal. In the first place, it was established that all glass houses should be rated by the amount of land they covered, and the structure not taken into value. A glass house one hundred feet by twelve feet had thus been reduced in net rateable value from 75s. to 42s. 6d., so that a grower having twelve houses of these dimensions would save £25 16s. in rateable value, and if the rate for the year in his parish averaged 5s. in the pound he would save £6 7s. 6d. per year. Mr. Ayres said that thus one year's savings by the appeal would cover the cost of the litigation.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Passion Flower.—H. H., Weston-super-Mare: You will find an excellent account of the Passion Flower in our issue of March 14, 1896, p. 169. For back copies of the GARDENERS' MAGAZINE apply to the publisher, Mr. W. Allen, 4, Ave Maria-lane, E.C.

Green-fly on Roses.—A. R., Basingstoke: Smartly syringe the rose bushes with fairly strong soapsuds, in which you may put a little tobacco liquor or quassia extract. If your rose collection is small, you will find that a little patient perseverance with syringe and soapsuds will effectually clear away the green-fly. Clear water will also dislodge the aphides, and a dusting of soot beneath the bushes will probably prevent their return.

Removal of Fruit Trees from Garden.—J. D. M., Bury: We presume that yours is a private garden, and not in any sense a market or nursery garden. This being the case, you are not entitled to remove the trees you have planted during your tenancy, unless there was an agreement between yourself and landlord allowing you to do so at the expiration of the lease. If you remove the trees next autumn, without having previously obtained his consent, the landlord can, if he chooses, claim and recover compensation for their removal in the absence of such an agreement as indicated.

Fungus on Gloire de Dijon Rose.—J. M., Cupar. The foliage of your rose tree seems to be suffering from a very severe attack of Asteroma Rosæ, a fungus that occasionally does considerable damage to roses. Unfortunately there appears to be no cure for this disease, and all that can be done is to remove the foliage attacked and burn it, dusting the unaffected leafage, stems, and the surroundings with powdered sulphur. A weak solution of sulphide of potassium may be used occasionally as a preventive, as it will destroy many fungi and not injure the host plant.

Maize.—L. G., Birmingham: It will be perfectly safe to plant out the maize plants now, provided, of course, that they have been subjected to the process technically known as "hardening off." To produce fine cobs for table it is the best plan to grow the plants on in pots, so that they are of large size and in large thirty-two or twenty-four sized pots by the end of May or beginning of June; it is also necessary to plant them in a warm position where keen winds will not seriously affect them. Plant on very rich ground and in a shallow trench or basin so that water may be applied freely and advantageously should the weather become hot and dry—an apparently remote contingency at the time of writing.

Rhubarb Flowering.—Amateur, Derby: It is a bad practice to allow rhubarb to flower unless it is planted in a big shrubbery border or near water, where it is very effective when flowering. In the kitchen garden it should not be allowed to bloom, as this has a weakening effect upon the crowns, and consequently affects the subsequent supply. Very often rhubarb is pulled too freely where there are not many crowns, and thus is the cause of many small plantations becoming weaker year by year, until the stems are not worth pulling. Do not pull any stems until during the first season of growth after planting. Cease to pull rhubarb when gooseberries come into use, and give the stools occasional supplies of water or liquid manure, to assist them in the building up of strong crowns for the ensuing year.

Giant Heracleum.—C. B. M., Newmarket: This is a wonderfully strong-growing umbellifer, and one of the Cow Parsleys. It is a native of the Caucasus, and though known to cultivation since 1820 it has only become popular during recent years since the advent of a more graceful style of gardening. Being such a strong grower it is suitable for bold effects in front of shrubs in very large borders, near streams, lakes, and ponds; indeed, it is most effective and natural when planted near water, where it will grow ten or twelve feet high, bearing huge umbels of comparatively small white flowers. This plant is known sometimes as Heracleum giganteum, but its correct name is H. villosum. With regard to your remark concerning the size of the flower, the cart-wheel comparison no doubt refers to the spread of the big rays of the large umbels, for the individual flowers are small.

Wasps and Tomatos.—J. C. F., Swanage: We have not proved for ourselves that tomato plants form a remedy for wasps, but such is said to be the case, and Messrs. Padgett and Read, of Pocklington, have every faith in them, as shown by a communication published in our columns on p. 331, June 9, 1894. They ask whether any readers have found the growing of a few plants of tomatos in vineries had any effect in preventing wasps attacking the grapes when ripe, and then continue: For the past three years it has been our practice to grow several plants in pots, say, one to every six feet, in front of our vineries. These are trained to a wire running horizontally from end to end of each vinery. The ventilators in general use are about three feet deep. The wire is placed about two feet from the bottom of the ventilator, and about six inches from the glass, and is made fast to the framework of vinery by an iron peg with eye through the end. For the past three years we have never had a single grape touched by wasps, although much of the fruit growing in the garden close by had been destroyed, the grapes in vineries around us also suffering very much. What is more, although wasps were more numerous last year [1893] than for many seasons, we never saw a wasp in the vineries after the tomatos were placed there. It would certainly be well worth while to try this method of prevention, as you are annually pestered with wasps. Whether Messrs. Padgett and Read still continue the plan we are not aware; perhaps they will say.

Failure of Sweet Cicely to Germinate.—K. F., Lincoln: It is very rarely that Sweet Cicely is grown for flavouring, or, indeed, for any other purpose in this country, though one finds it grown fairly often in Continental countries, where its leaves are prized by some *chefs* for their sweetish taste and odour of aniseed. Sweet Cicely (*Myrrhis odorata*) is a native plant, and can be propagated at this season by means of cuttings or division of the roots, provided shade and water are subsequently afforded. If sown in the spring seeds of Sweet Cicely seldom germinate the same year, but the seedlings appear the following spring; if sown in the autumn, however, the seeds germinates freely enough next spring, thus proving that the seeds are best sown as soon as ripe. Ordinary garden soil will suit it, and an out of the way corner will suffice unless there are special reasons for cultivating it extensively.

Peach Leaves Falling.—A. C. R., Eastbourne: Peach houses should not be shaded; indeed, you cannot expect to grow peaches well in a house where permanent shading is afforded and the numerous pot plants are considered before the fruit trees. There are two other reasons why the peach tree is loosing its foliage; owing to the absence of permanent shading upon the top lights the sun reaches the tree suddenly, and while its leaves are covered with moisture generated in the house; this causes the scorching or scalding evidenced by the marks on the foliage. In all probability the peach tree has not had sufficient moisture at the roots since commencing to grow, although there has been plenty of atmospheric moisture; the severe check due to scalding, added to other ills, has caused the heavy fall of foliage. The remedy will be to afford the necessary moisture, light and air, giving the tree some liquid manure to encourage and assist it. Peach trees in pots would probably suit you best, as they could be shifted from house to house, or even outside at this season, and so receive light and air.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

F. F., Ascot: 1, Phyllanthus glaucescens; 2, Oncidium concolor; 3, Odontoglossum citrosmum.

D. E. P., Chelmsford: 1, Onosma taurica; 2, Dianthus cruentus; 3, Dryas octopetala; 4, Arenaria balearica.

G. S. G., Bristol: 1, Adiantum cuneatum deflexum; 2, A. reniforme; 3, Didymochlæna lunulata; 4, Davallia Tyermanni; 5, Asplenium Belangeri; 6, Rhepidopteris peltata.

H. G., Glasgow: 1, Peperomia resedæflora; 2, Coccoloba platyclada; 3, Croton Hawkeri; 4, Schizanthus pinnatifidus.

C. S. L., Pontefract: 1, Clematis montana; 2, Acer pseudo-platanus; 3, Quercus pedunculata fastigiata.

M. B., Exmouth: Please send the "geranium" when in flower; the other plant is Centaurea montanæ alba.

E. G. F., Warrington: 1, Viburnum plicatum; 2, Kerria japonica flore pleno; 3, Weigela Abel Carriere; 4, Thuiopsis dolobrata.

C. O. R., Maldon: 1, Phlox subulata; 2, Primula farinosa; 3, Polemonium cæruleum; 4, Gloxinia tubiflora; 5, Diplacus glutinosus; 6, Rhynchosperum jasminoides.

H. C. R. L, Hants.: 1, Oncidium crispum; 2, O. Harrisonianum; 3, an Isoloma (Tydea), one of the now numerous varieties raised on the Continent by hybridising and selection; 4, Miltonia spectabilis; 5, Streptocarpus Wendlandi; 6, Cheshunt Hybrid rose.

J. F., Yorks.: 1, Prunus Padus; 2, Pyrus Aria; 3, a sedum; send Nos. 3 and 4 in flower.

MARKETS.

Covent Garden.

SUPPLIES of green vegetables and salading are plentiful and good, but notwithstanding the brisk demand, prices are rather low. Apples from Australia and Tasmania realise good prices, so also do pineapple, oranges, early strawberries, cherries, and apricots. Gooseberries have cheapened considerably, and rhubarb is not now so much in demand.

FRUIT.—Tasmanian apples, 8s. to 15s.; Australian, 10s. to 18s. per case; pineapples, 2s. to 5s. each; bananas, 6s. to 12s. per bunch; English grapes, 1s. 6d. to 3s.; Belgian, 10d. to 1s. 6d.; Channel Islands, 1s. 6d. to 2s. per lb.; oranges, 18s. to 25s. per case; lemons, 6s. to 15s. per case; French strawberries, 1s. 3d. to 3s. per handle basket; French cherries, 2s. to 3s. per square, 9d. to 1s. per small box; Spanish apricots, 1s. to 2s. per box; peaches, 4s. to 12s.; green figs, 3s. to 4s. per dozen; melons, 1s. to 2s. each.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; polyanthuses and cowslips, 1s. to 1s. 6d.; bluebells, 9d. to 1s.; and violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 2s. to 4s.; lily of the valley, 6d. to 1s.; white gladiolus, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—English tomatos, 6d. to 8d. Jersey, 5d. to 6d. per lb.; Canary, 10d. to 1s. 4d. per tray, 3s. to 4s. per case; asparagus, 6d. to 4s. per bundle; beetroots, 2s. to 3s. per tally; eschallots, 1s. 6d. to 2s.; garlic, 3s. to 3s. 6d.; mushrooms, 6s. to 8s. per 12 lb.; Egyptian onions, 6s. per bag; English spring, 1s. 6d. to 2s. 6d. per dozen bunches; endive, 1s. 3d. to 1s. 6d.; lettuce, 6d. to 9d.; cos 1s. 6d. to 2s.; cucumbers, 2s. to 4s.; and cauliflowers, 1s. to 2s. per dozen; mint, 3s. to 4s.; new carrots, 4s. to 5s., turnips, 5s to 6s.; greens, 2s. to 2s. 6d. per dozen bunches; rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; green peas, 2s. to 3s. 6d. per flat; French beans, 2s. 6d. to 3s. 6d. per basket; Jersey new potatos, 14s. to 17s.; Canary, 10s. to 12s.; Malta rounds, 8s. to 10s. per cwt.; Lisbon rounds, 5s. to 5s. 6d. per box.

Borough Potato Market.

There is a brisk and increasing demand for new potatos, but supplies are now daily growing larger, consequently prices have a downward tendency. There is a moderate trade in old potatos. Dunbars, 130s.; Scotch Magnums, 120s.; Bruce, Main-crop, Sutton's Regents, Reading Giants, and Saxons, 110s. per ton; Belgians and Germans, 4s. 6d. to 5s. 3d. per bag. New—Maltese rounds, 7s. to 8s.; Teneriffe kidneys, 8s.; St. Malo, 10s.; Jerseys, 11s. per cwt.; Lisbon rounds, 4s. per box.

OBITUARY.

Mr. Stephen Spooner, of the Hounslow Nurseries, died, we regret to record, at his residence at Hounslow, on the 3rd inst., in his seventh-fifth year.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Tuesday, June 14.—Royal Horticultural Society; Committees meet at 12 o'clock; Lecture upon "Hybrid Orchids," by Mr. G. O'Brien, V.M.H., at 3 p.m.

Wednesday, June 15.—Yorkshire Fête and Gala; three days. Lecture at Chiswick Gardens by the Rev. Professor Henslow upon "The Importance of a General Knowledge of Vegetable Physiology to Cultivators."

Thursday, June 16.—Linnean Society Meeting. Colchester Rose and Horticultural Society. Carisbrooke Rose Show.

Friday, June 17.—Royal Botanic Society Lecture.

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THE WEATHER DURING THE WEEK ENDING JUNE 4, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	65·6	40·0	51·9	11·06	0·61	1·55
Croydon	66·0	37·5	50·7	10·39	0·66	1·68
Brighton	64·0	42·8	52·3	11·28	0·61	1·55
Bristol	59·0	42·0	49·9	9·94	0·23	0·58
Wolverhampton	61·5	37·2	47·9	8·83	1·18	3·00
Norwich	63·6	36·8	49·8	9·89	0·97	2·46
Nottingham	61·3	35·0	48·0	8·89	0·35	0·89
Liverpool	58·8	41·0	49·1	9·50	1·21	3·07
Huddersfield	58·5	37·2	47·3	8·50	0·75	1·90
Bradford	66·0	39·4	50·7	10·39	0·51	1·30
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·66 inches, and that of the Thermometer 51°·9, the latter being 5°·4 below the week's average in the 50 years 1841—90. The direction of the wind was westerly, the horizontal movement of the air being 29 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 26·4 hours. The measured rainfall amounted to 0·61 of an inch.

Mr. G. W. Cummins, late head gardener to A. H. Smee, Esq., The Grange, Carshalton, has been appointed head gardener to W. H. Lumsden, Esq., Balmedie, Aberdeenshire.

REAPING AND SOWING are the two most important periods in the life of the farmer, and granting that all circumstances are favourable, he naturally, during the latter period, hopes to get an adequate return for his labour. As he sows, he expects to reap, and unless constant industry has been exercised, the harvest is generally a poor one. So it is with regard to health, if we are not constantly on the watch and destroy the germs of disease as soon as they are discerned, the body becomes weakened, and at last is unable longer to resist the attacks of the enemy. Holloway's Pills destroy even the most minute traces of disease, by purifying the blood and strengthening the system.—[Advt.]

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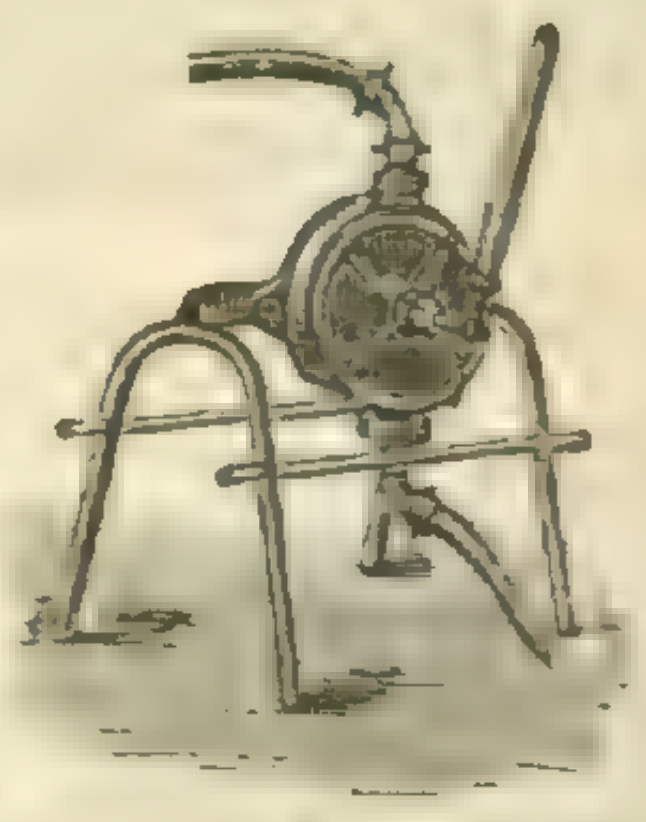

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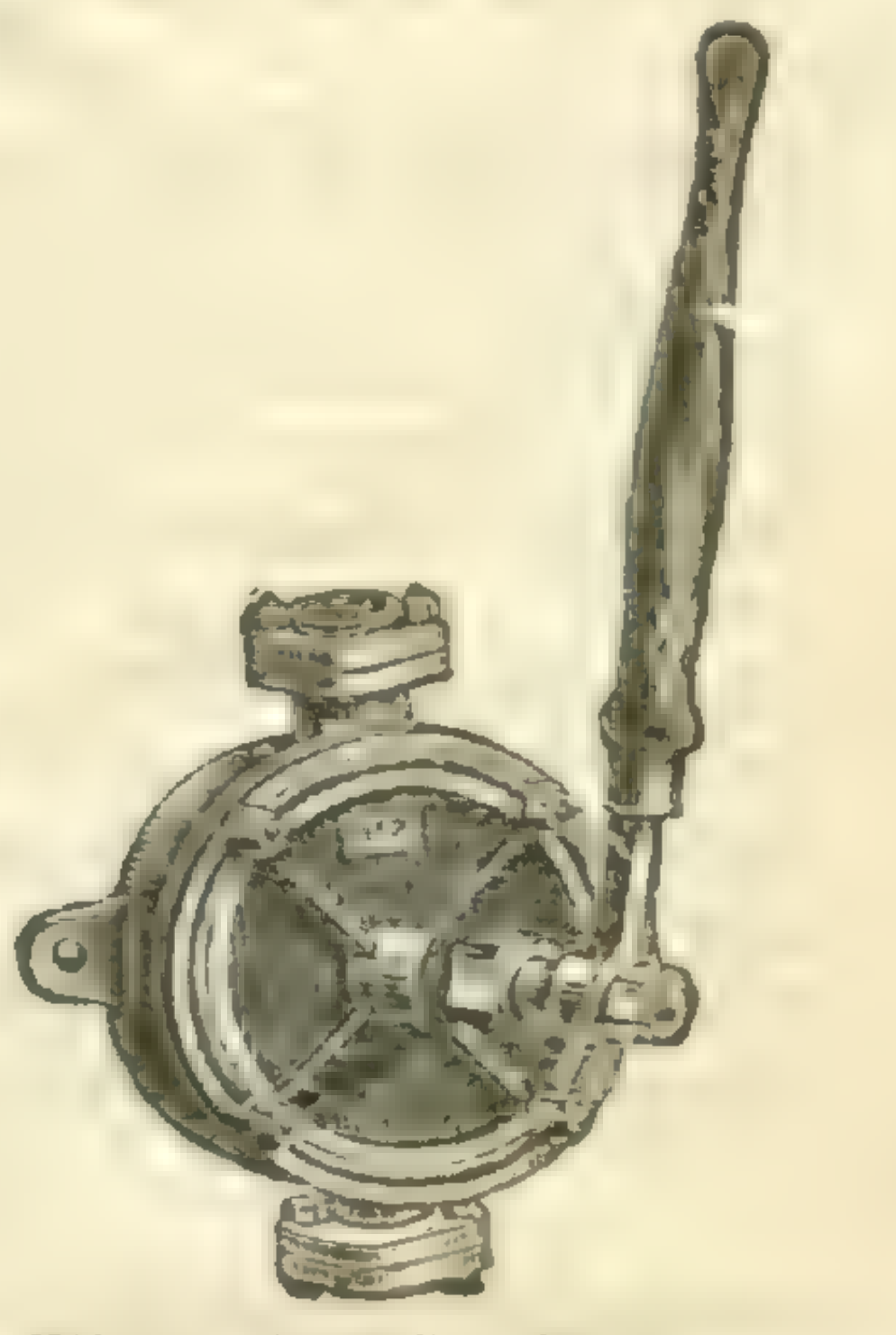
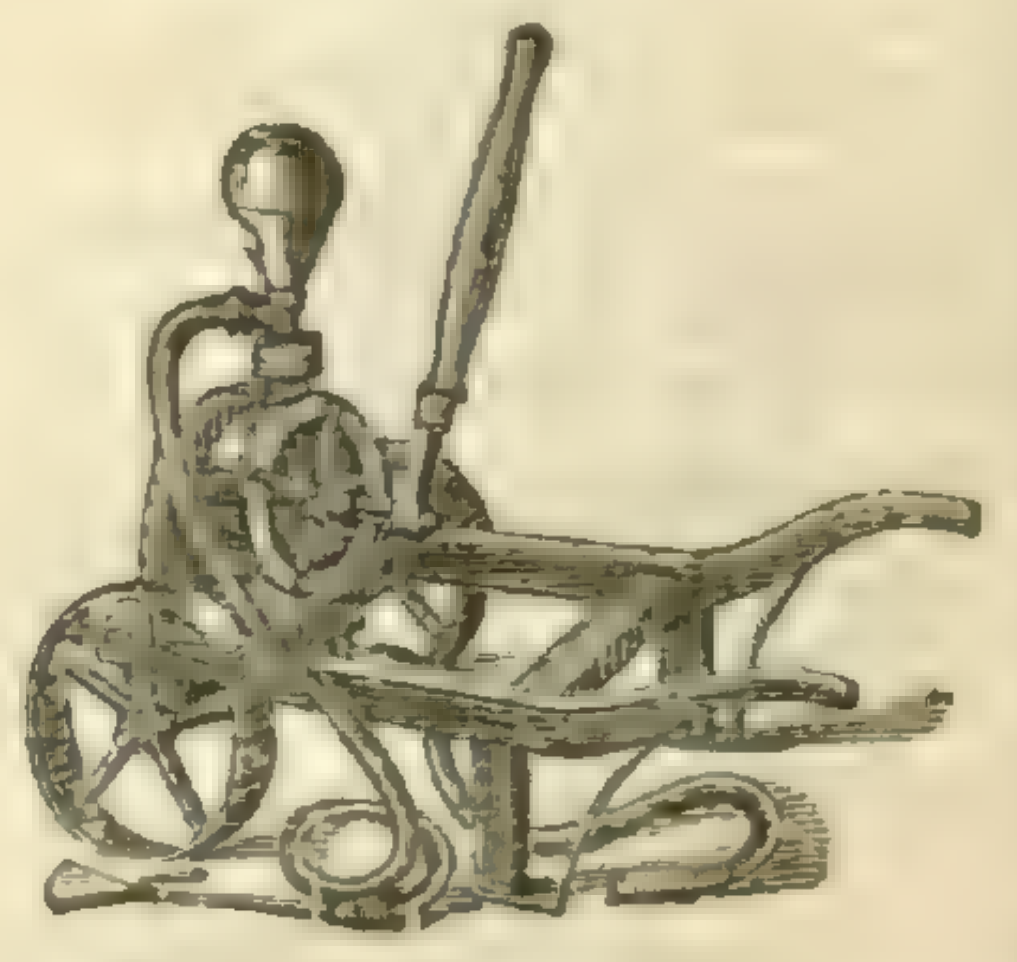


THE "WILLCOX" NEW SEMI-ROTARY PUMP.



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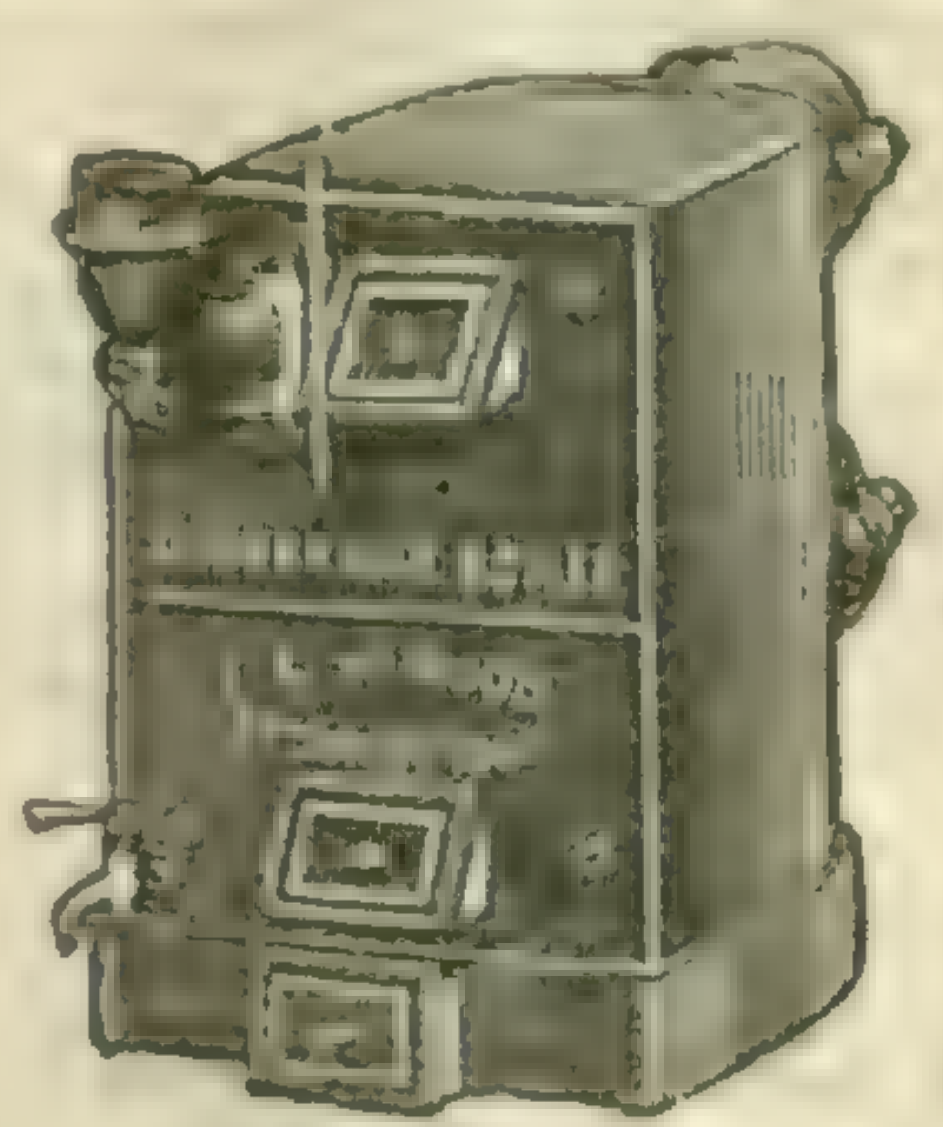

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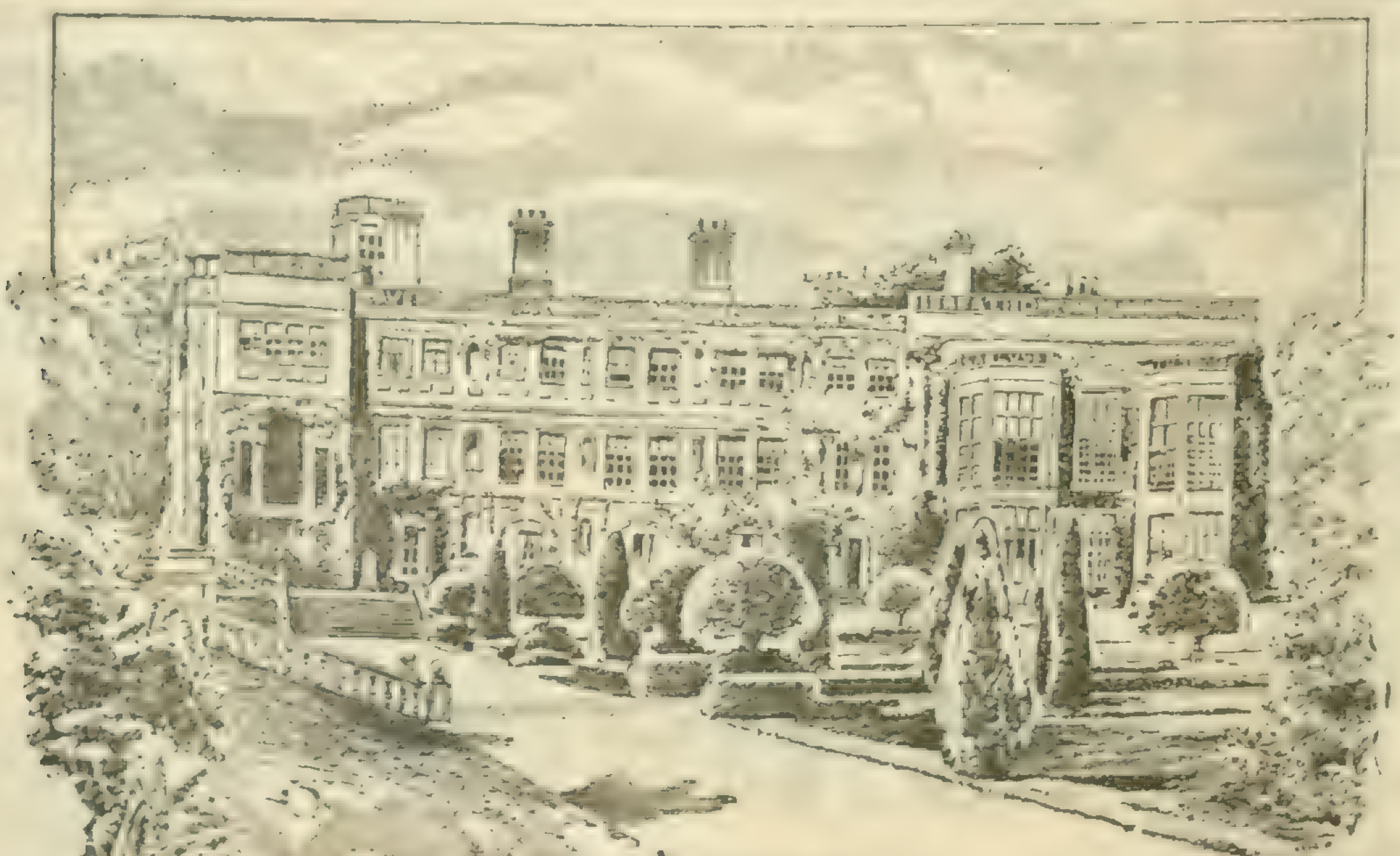

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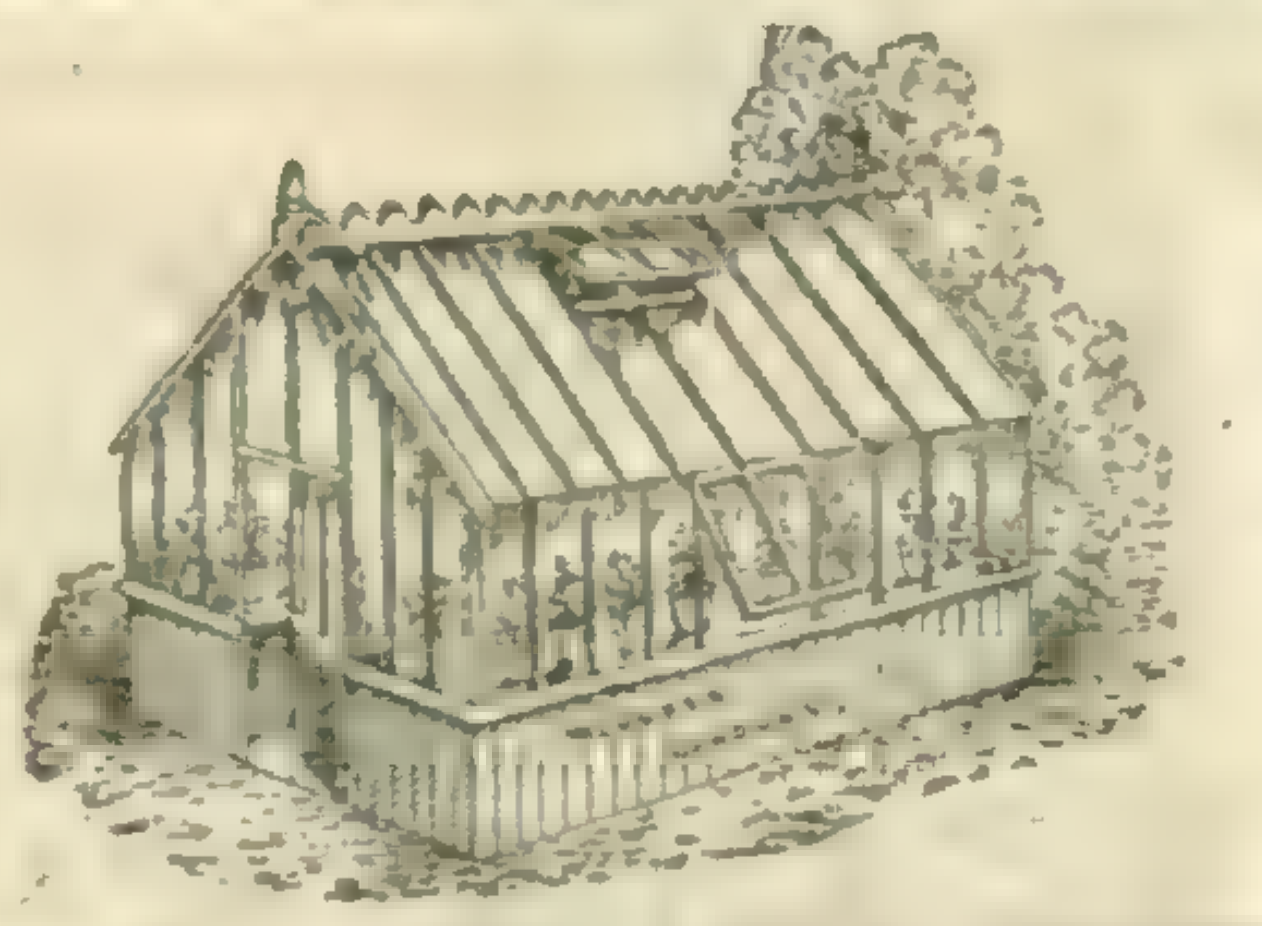

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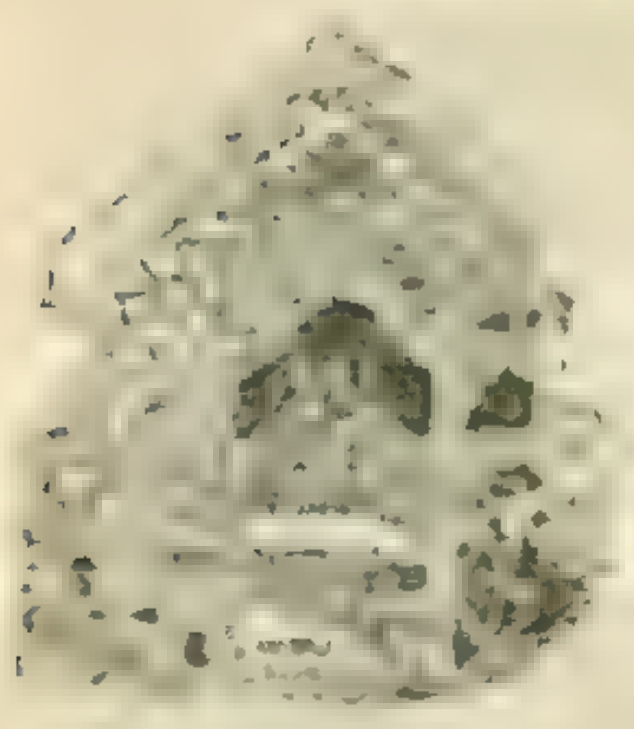

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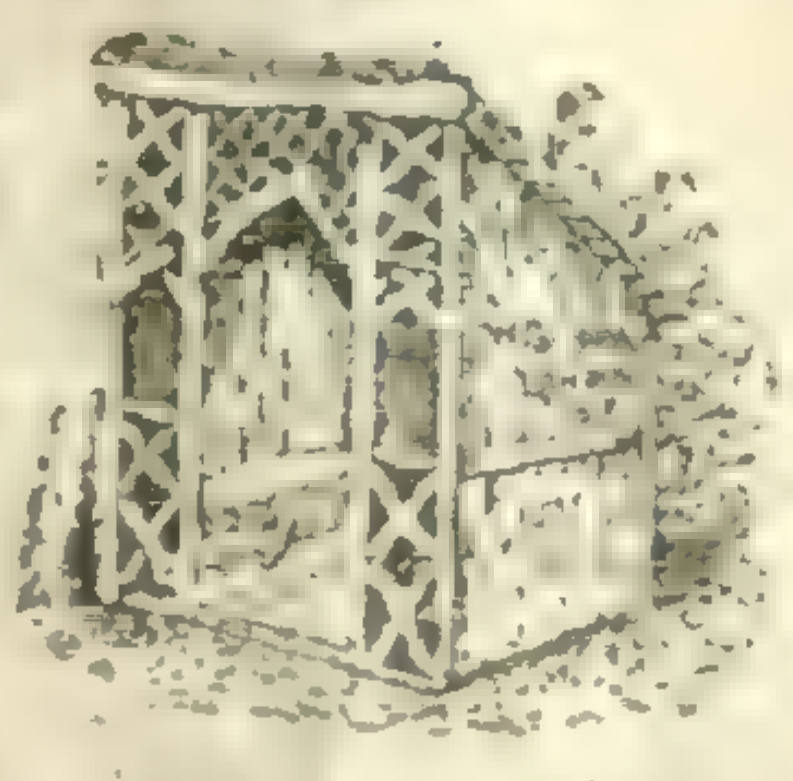

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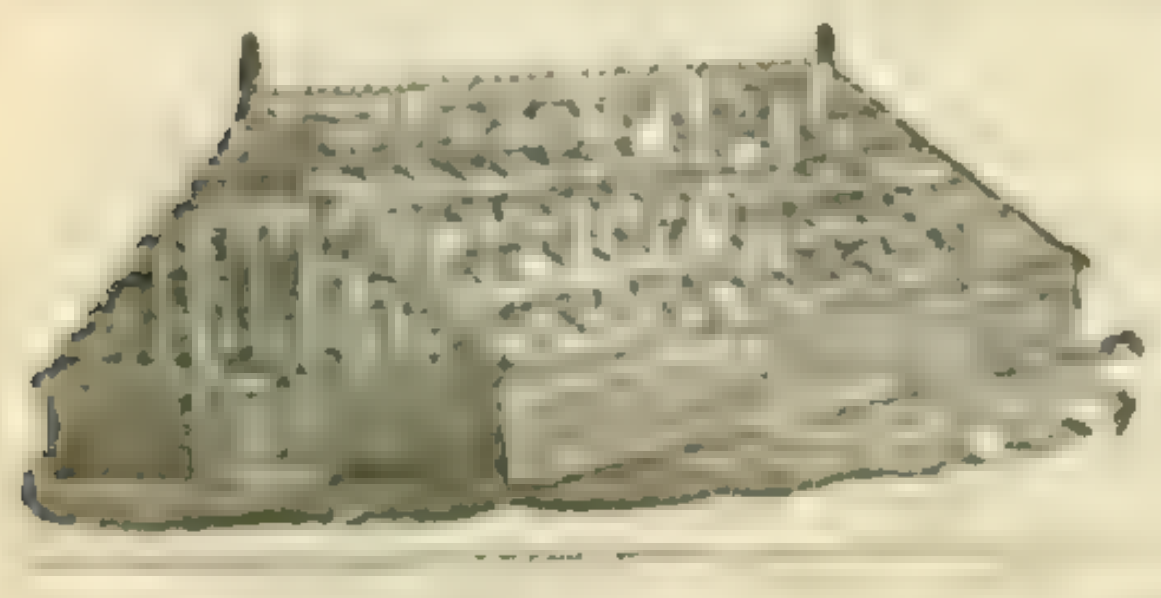

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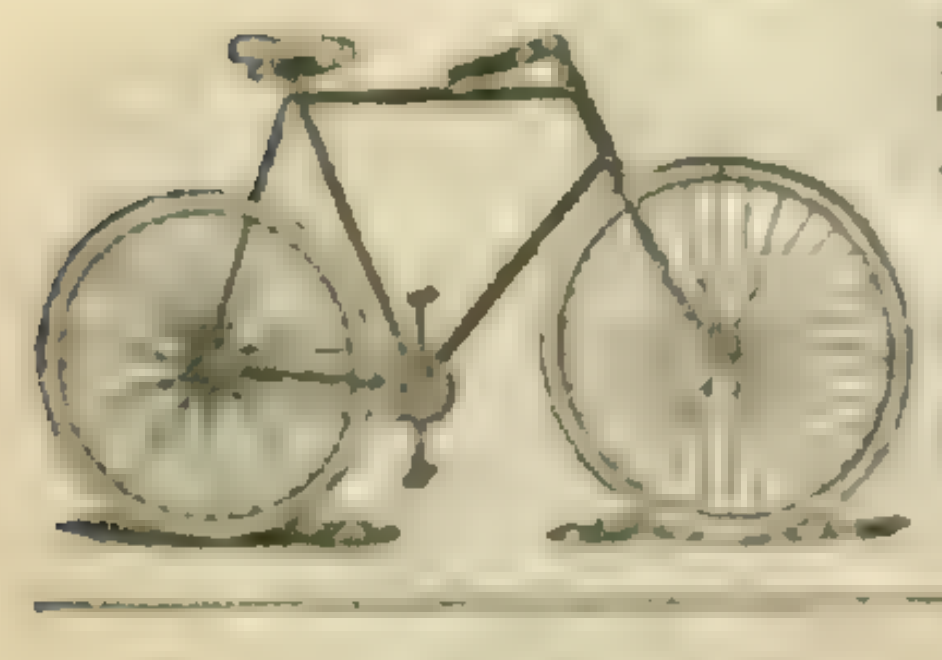

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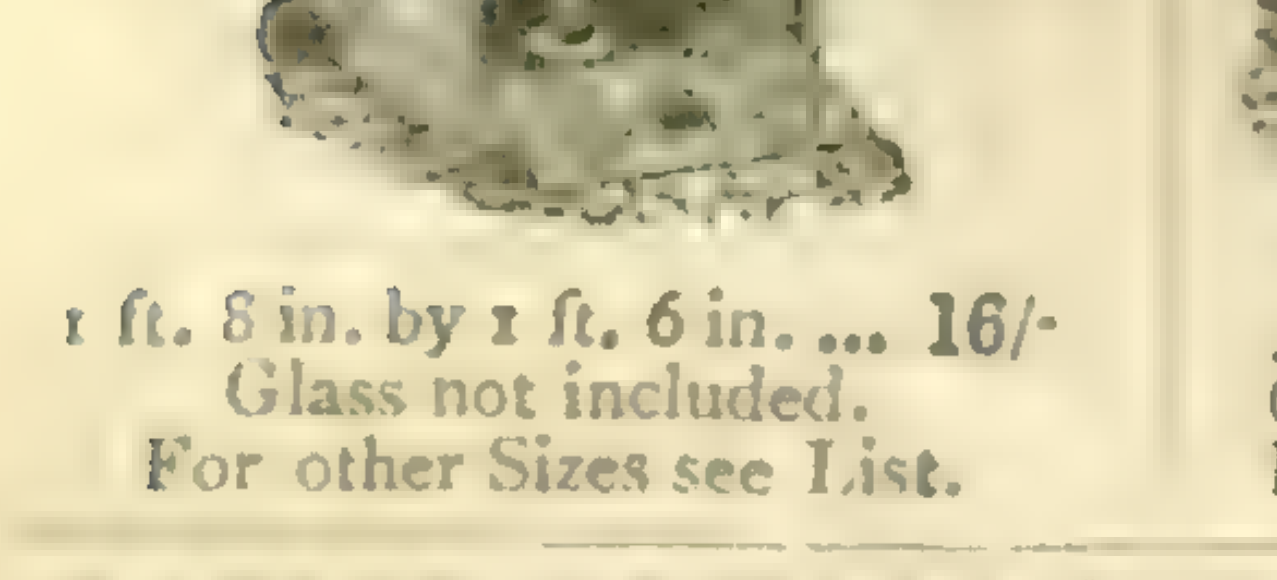

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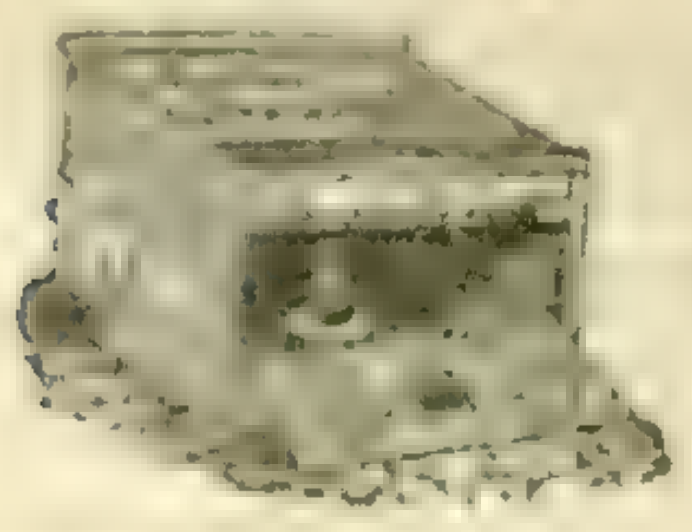

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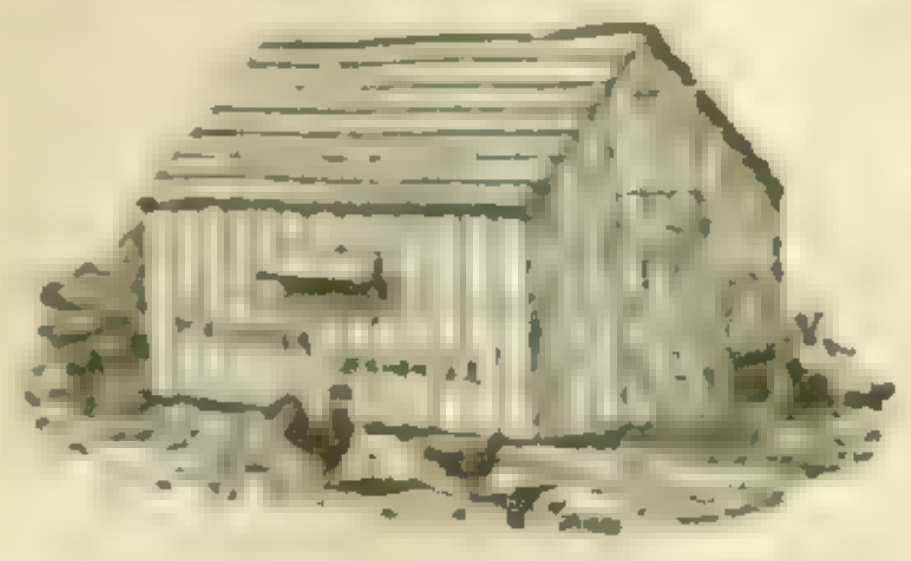

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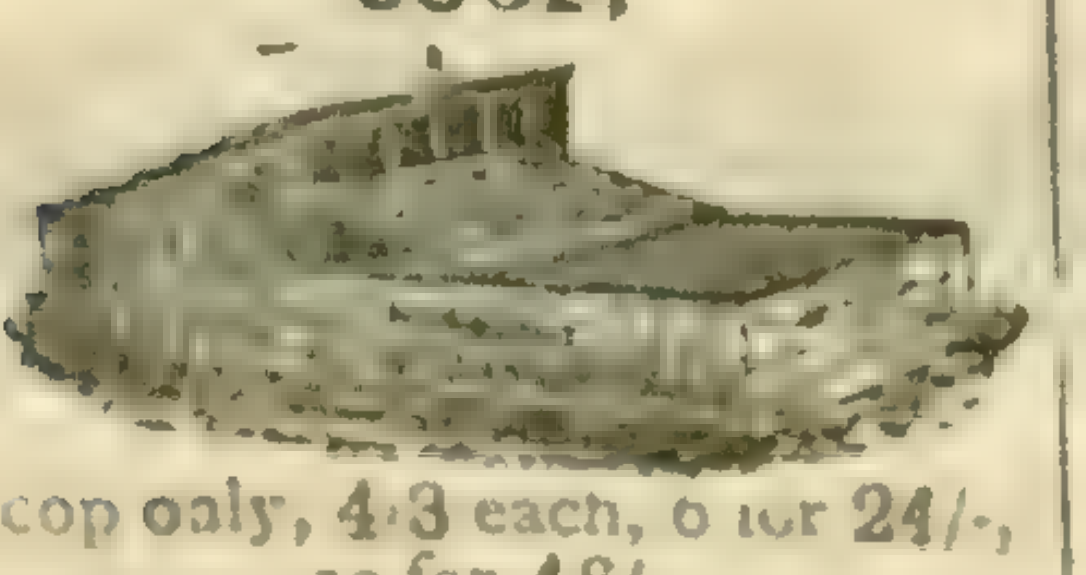

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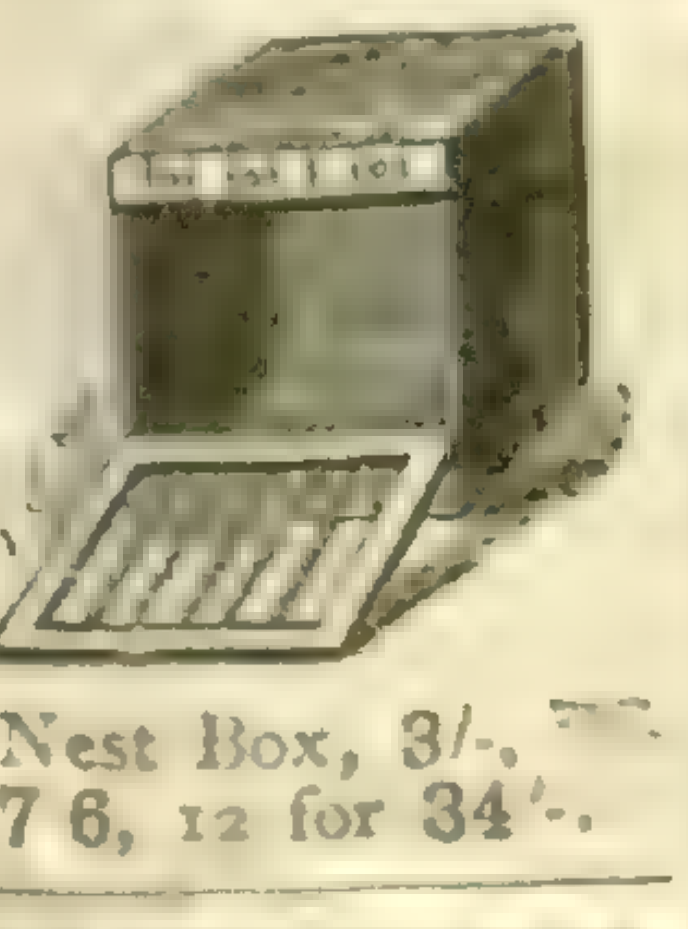

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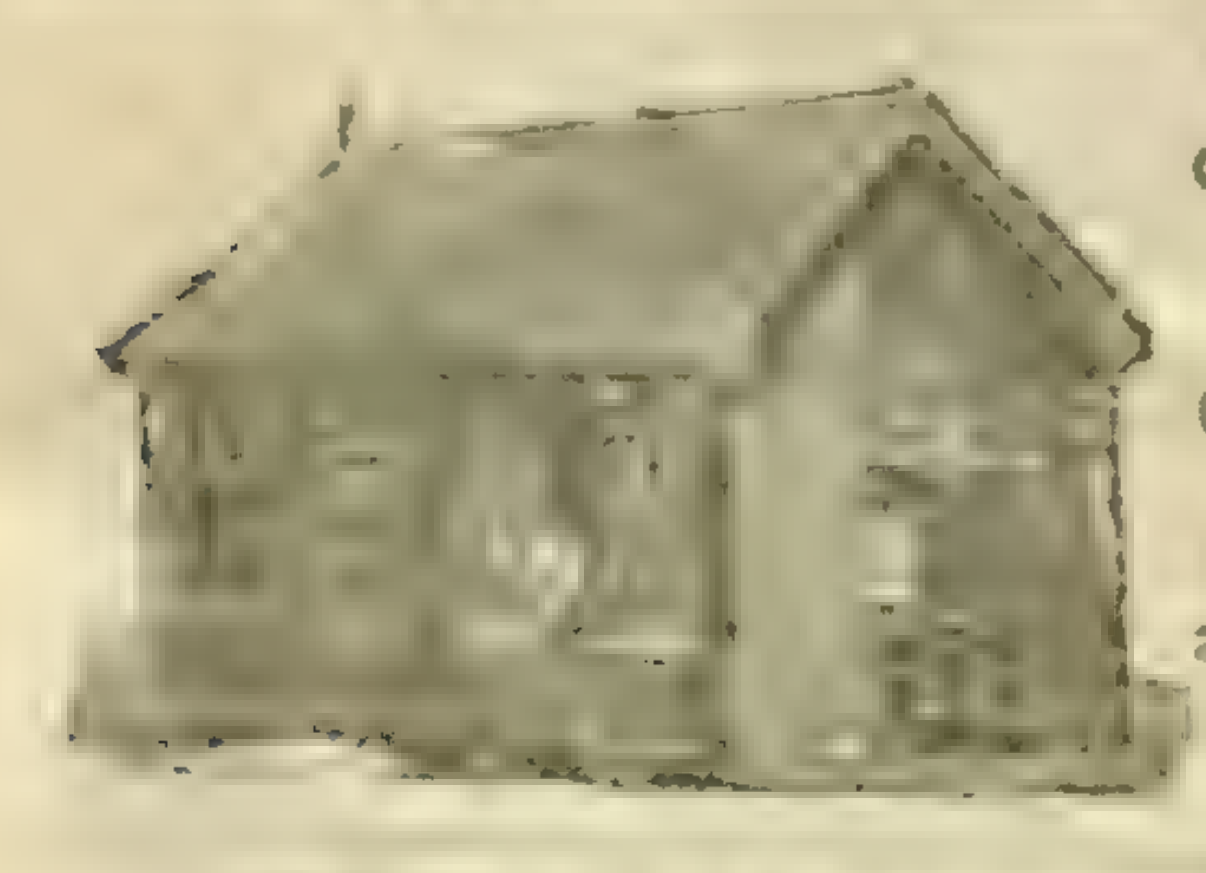

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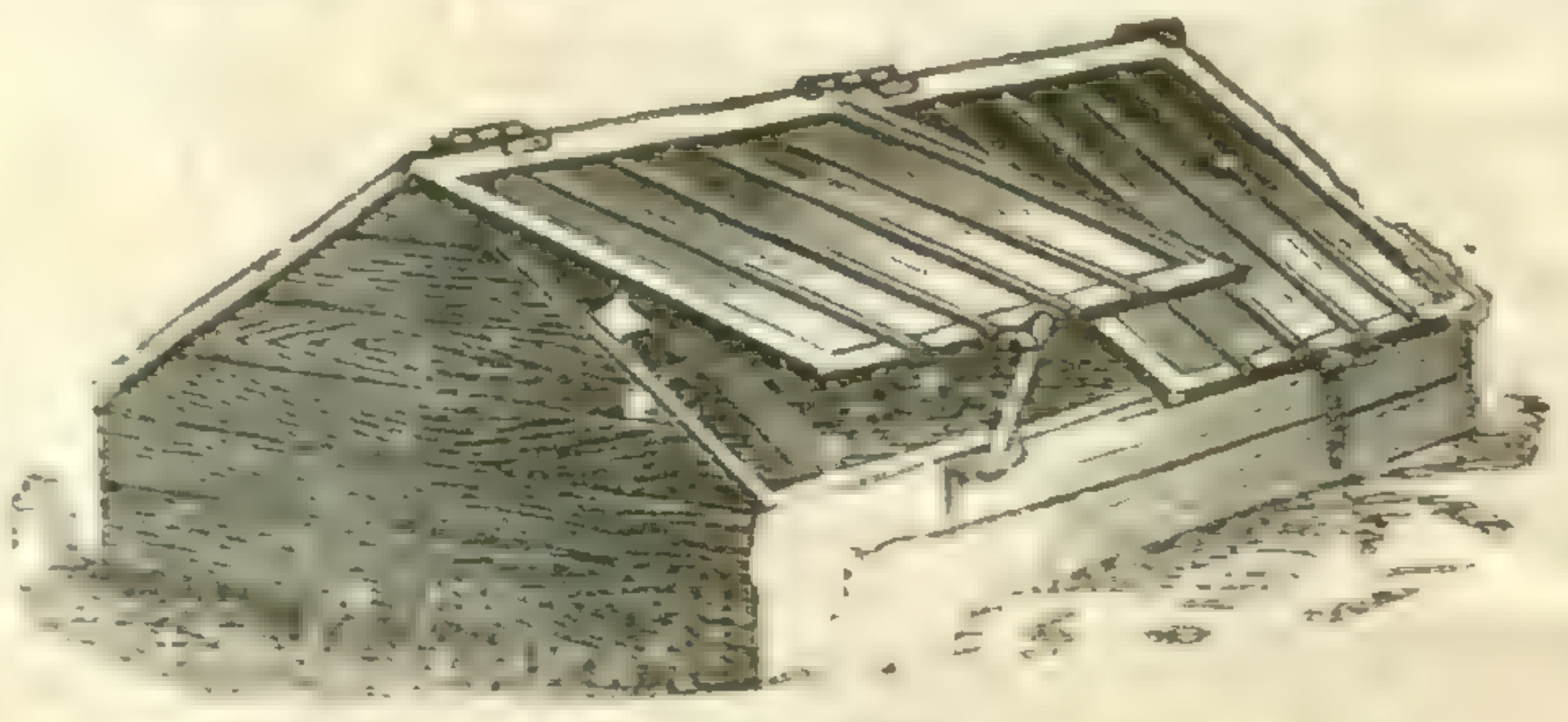

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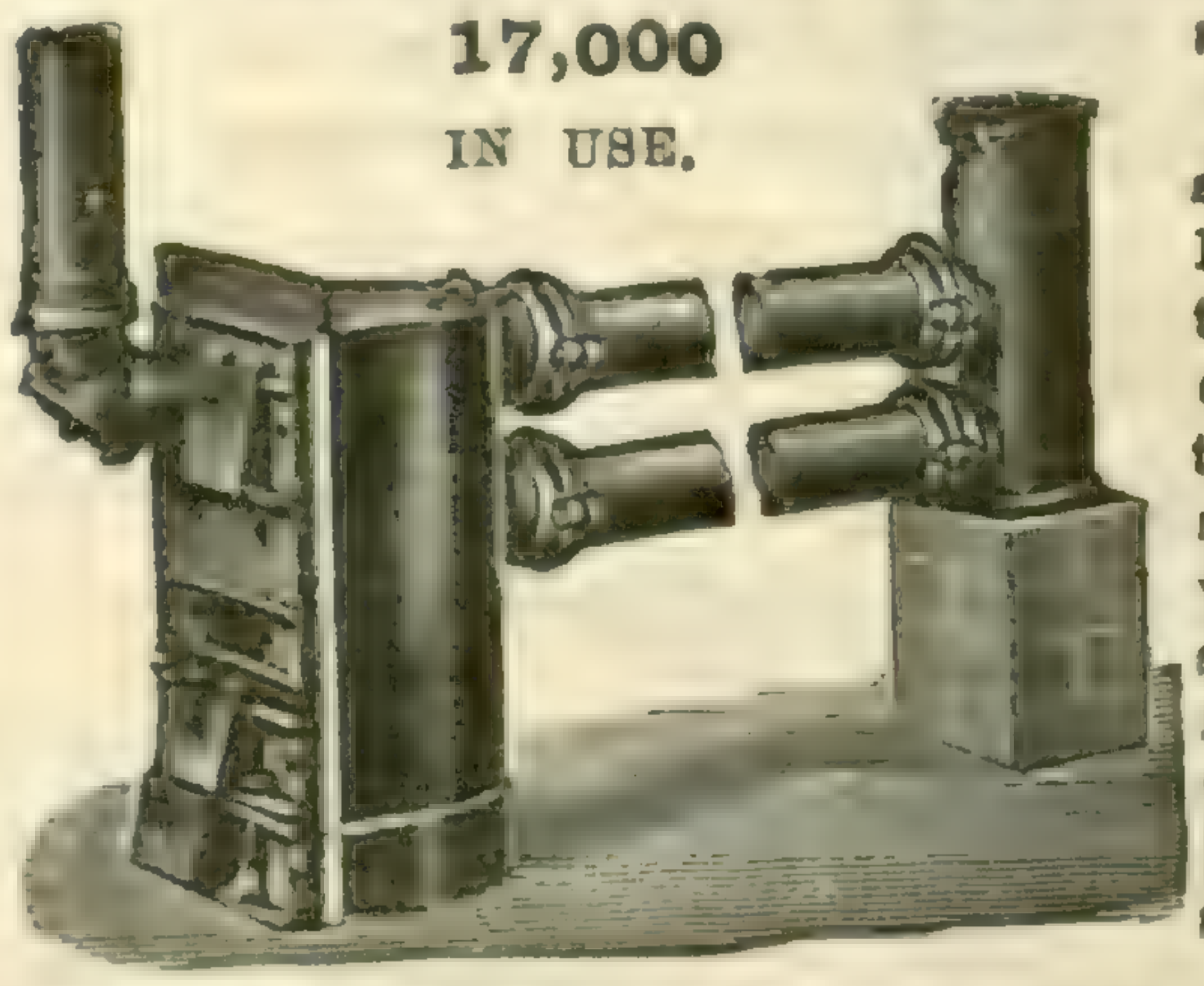

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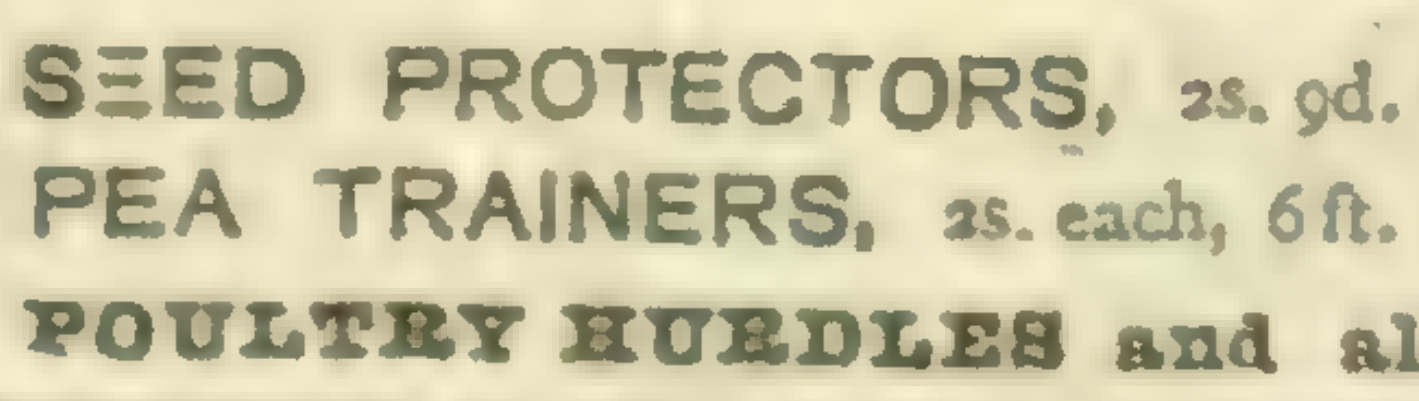

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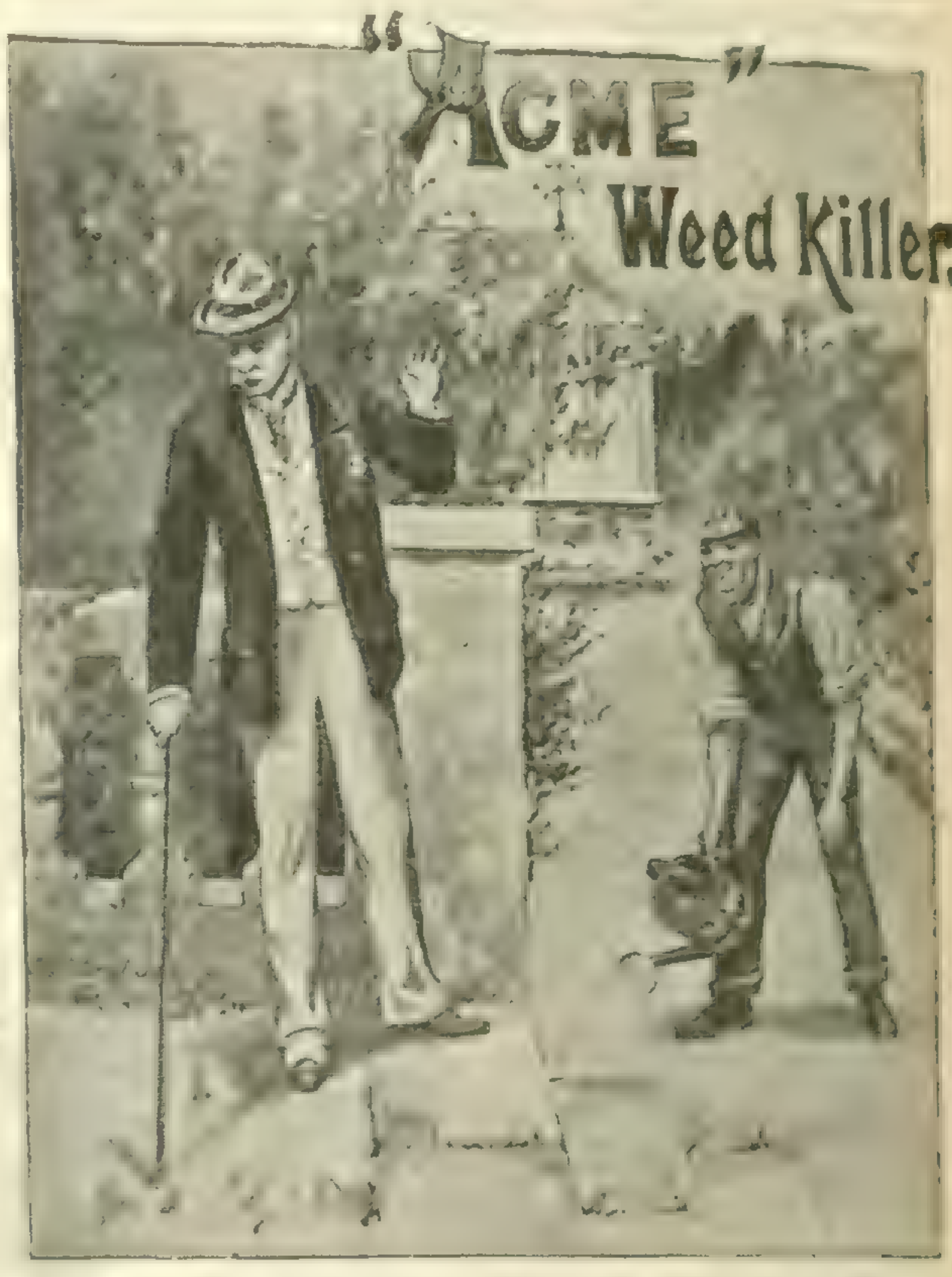

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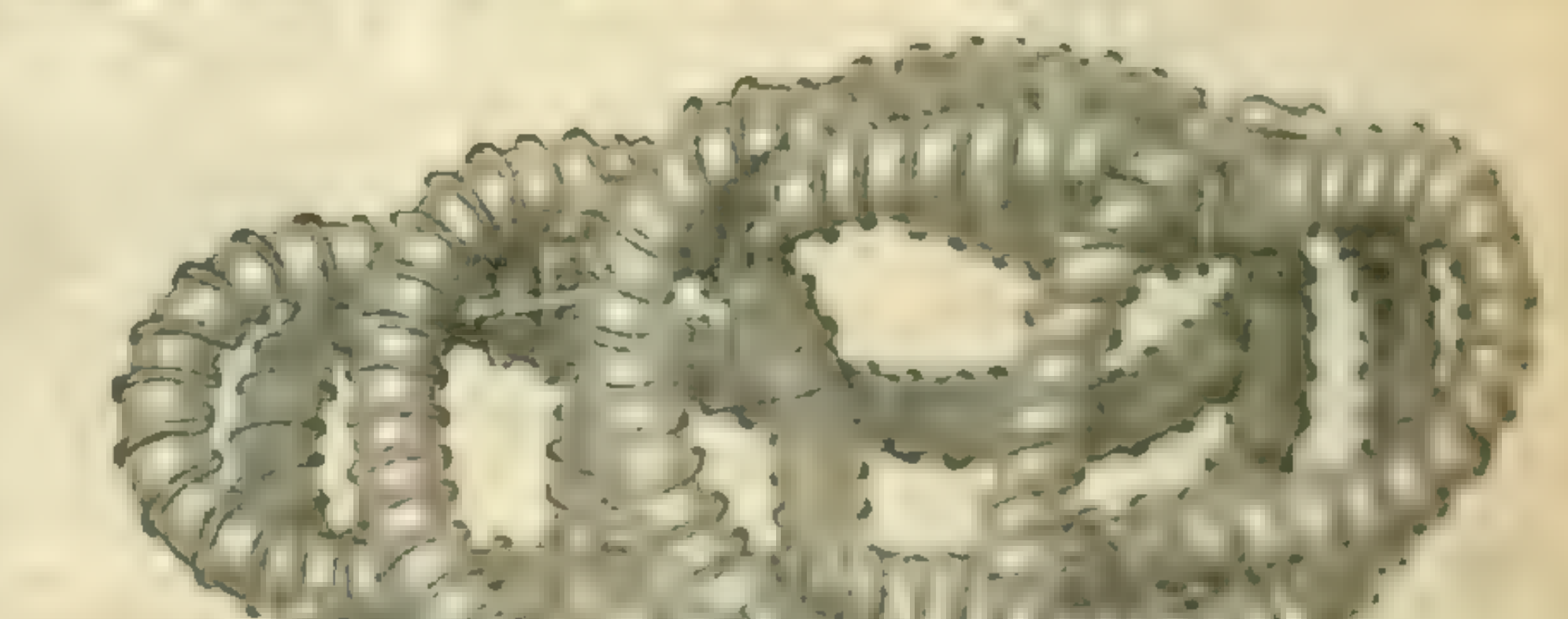

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THE GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS;
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

EVERY SATURDAY, TWOPENCE.

REGISTERED AT THE POST OFFICE AS A NEWSPAPER.

No. 2,329.

SATURDAY, JUNE 18, 1898.

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The following further sums are gratefully acknowledged:—

Anthony Waterer	£10	10	0	G. Allen	£5	0	0
John Roberts	10	10	0	W. L. Corry	5	5	0
Per Geo. Monro—				J. Mallender	4	6	0
Joseph Rochford	5	5	0	J. Condie	4	6	0
John Rochford	5	0	0	A. Squires	4	7	6
Thomas Rochford	5	0	0	W. Wenman	4	11	0
Edmund Rochford	5	0	0	J. Broome	3	5	0
C. P. Kinnell	5	0	0	W. Bain	3	6	0
Geo. Monro	5	5	0	E. F. Hazelton	3	10	0
Geo. Monro, jun. (sub.)	2	2	0	G. Hart	3	12	6
Mrs. Geo Monro	2	2	0	W. T. Wigton	3	0	0
Mrs. Geo. Monro, jun.	1	17	6	H. Perkins	3	3	0
W. Duncan Tucker	3	3	0	J. Corbett	3	3	0
W. Sams	3	3	0	James Douglas	3	3	0
H. W. Lee	3	3	0	Thomas Manning	2	2	0
J. Walker	3	3	0	W. Goldring	2	2	0
Harrods' Stores (sub.)	2	2	0	W. J James	2	2	0
R. Clark	2	2	0	Gardeners' Company	2	2	0
Peter Kay	2	2	0	R. Parker	2	2	0
W. Savage	2	2	0	A. W. G. Weeks	2	2	0
J. Buller	2	0	0	H. B. May	2	2	0
Henry & Co.	2	2	0	W. Gullick	2	5	0
Geo. May	3	3	0	G. Woodgate	2	16	6
Several other sums.				W. Ellis	2	15	0
A. Porteous	10	10	0	W. Smythe	2	10	0
Do. (sub.)	1	1	0	G. Walker	4	0	0
Waxwell, T. Masters, M.D.	3	3	0	R. Balchin	2	16	0
J. Jacques	13	6	0	T. Last	2	2	0
J. Allsop	7	10	0	J. W. Abrahams	3	13	0
W. Birkinshaw	9	17	0	S. Oborne	3	3	0
W. J. Empson	6	10	6	G. Caselton	3	10	0
H. Ballantine	6	19	0	J. Dericutt	2	0	0
H. J. Wimsett	5	5	0	G. Taylor	2	5	0
Philip Crowley	5	0	0	J. Amys	3	19	0
Do.	1	1	0	D. Owles	2	6	0
Wrench & Sons, Lm.	5	5	0	S. Cranfield	2	2	6
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R. Jones	5	5	0	Owen Thomas	2	2	0
Geo. House	5	1	6	N. F. Barnes	2	2	0
				T. N. Cox	2	2	0
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Advertisements ordered on the front page, and Public Companies, &c., 9d. per line. Minimum charge, 5s.

SITUATIONS.—Advertisements of Persons Seeking Employment are charged 1s. for four lines (32 words), and 3d. per line of 8 words after. Situations Vacant are charged 2s. 6d. for four lines and 6d. per line beyond.

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UNDER GARDENER in pleasure ground and kitchen garden; six years with Sir Henry Bessemer; death cause of leaving.—Apply J. Y., 285, Camberwell New Road, S.E.

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WANTED, GARDENER (unmarried) to take charge of small kitchen garden, hothouses, &c.; must thoroughly understand all branches.—Address M. D., Chadstowe, Corbett Avenue, Droitwich, stating age and salary. Must have good references.

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ON THE REGISTER FOR ONE MONTH. IF NOT SUITED AT THE END OF THAT
AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A
R PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN
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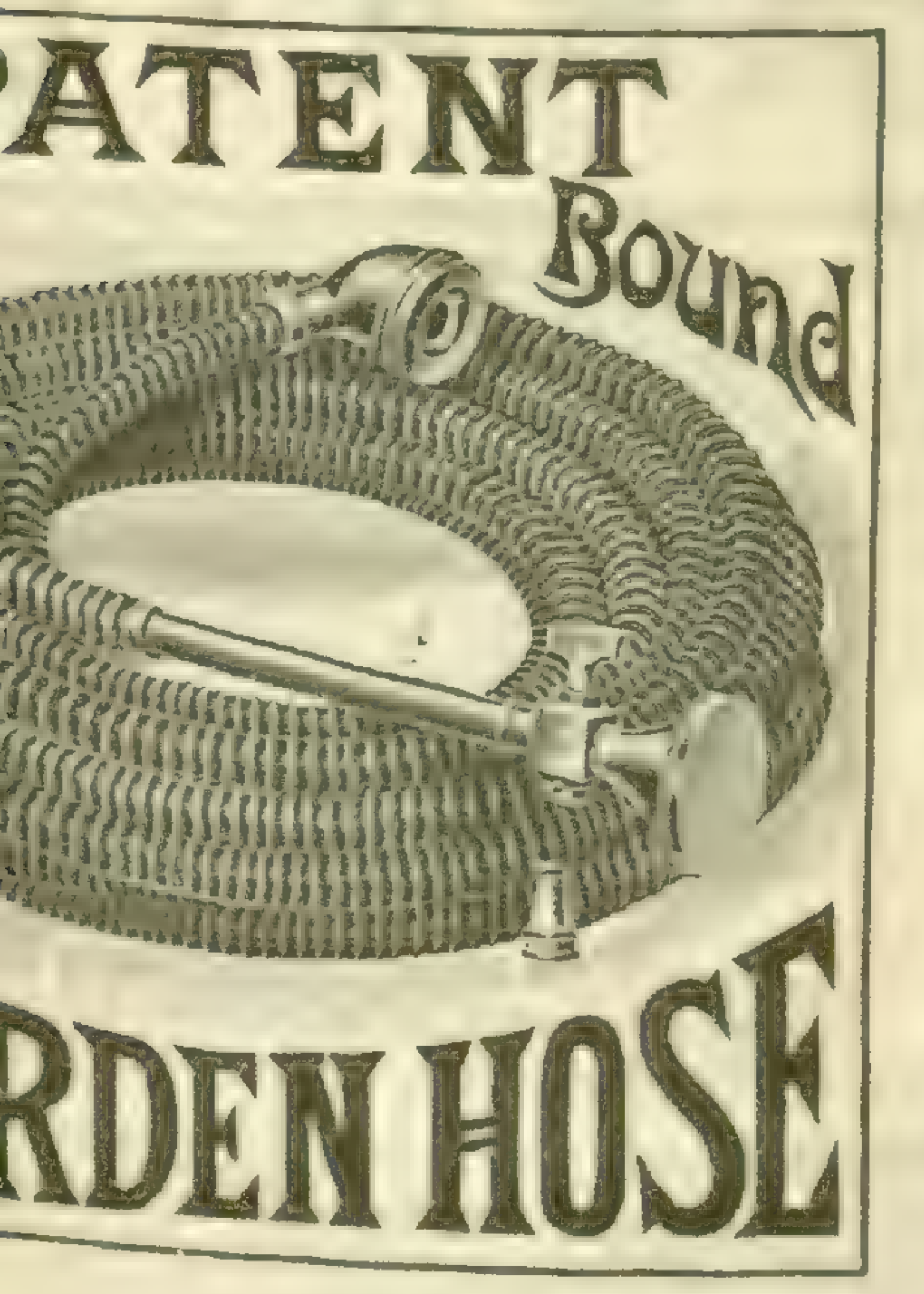

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A COMPLETE DICTIONARY
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PLANTS, FLOWERS, ETC.
By the Editor of "Amateur Gardening."

Descriptions, with Popular and Technical Names of Plants, Date of Introduction into this country, Number of Species in Cultivation, How Propagated, Suitable Soil, Proper Temperature, Time of Planting, &c., &c.

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PROTECT your Gardens.—Garden Netting for protecting Fruit Trees, Seed and Strawberry Beds, &c. Inch mesh Tanned Waterproof, 100 yds. by 1 yd., 3s.; 100 yds. by 2 yds., 50 yds. by 4 yds., or 25 yds. by 8 yds., 6s. each, carriage paid; sent on approval, and compare it with some rubbish advertised. Lawn Tennis Court Boundary Netting, corded top and bottom, 100 yds. by 2 yds., or 50 yds. by 4 yds., 16s. 6d., carriage paid.—ABBOTT, Net Manufacturer, Lowestoft.

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IMPROVED DIAPHRAGM VALVE.
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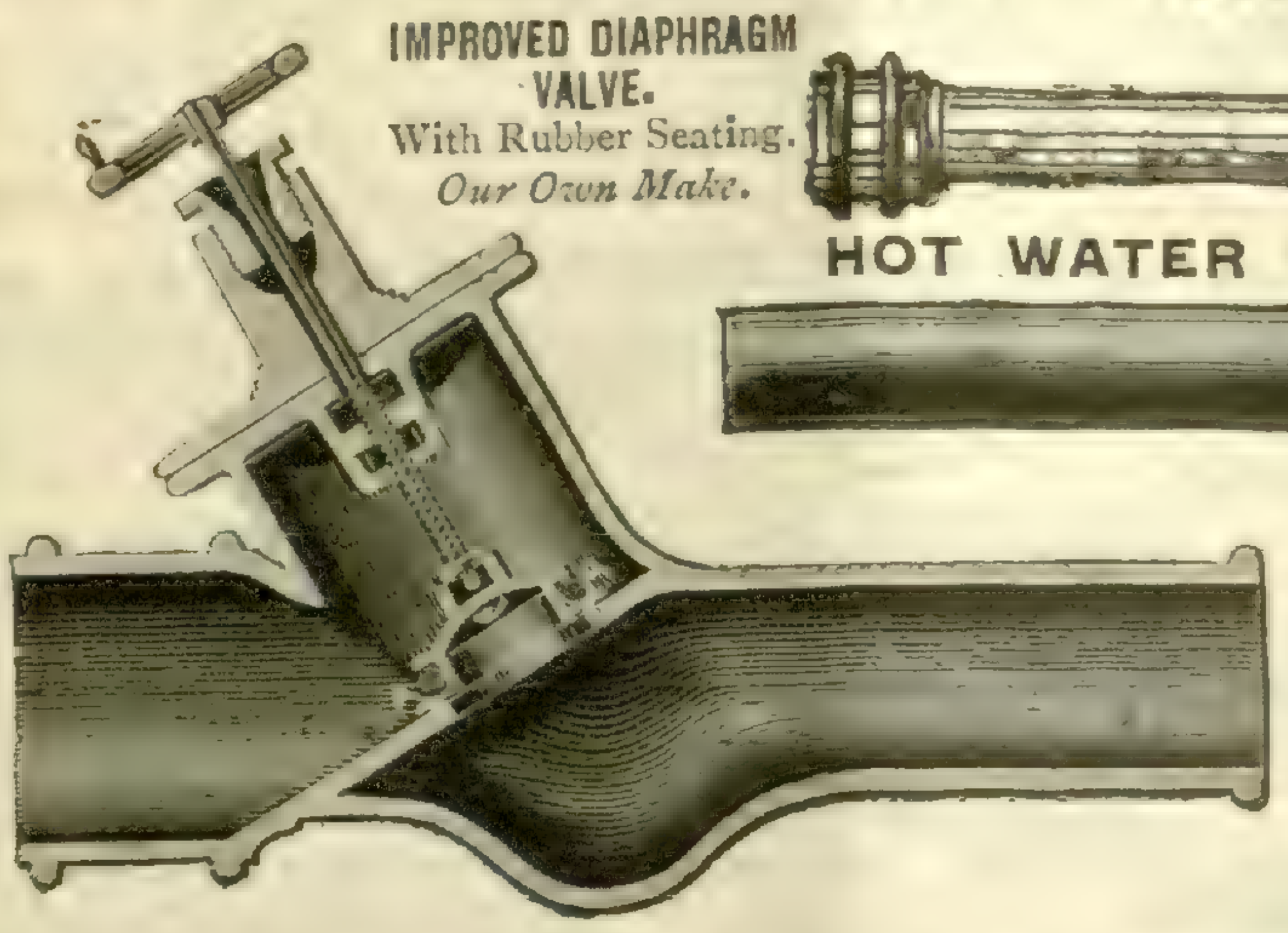

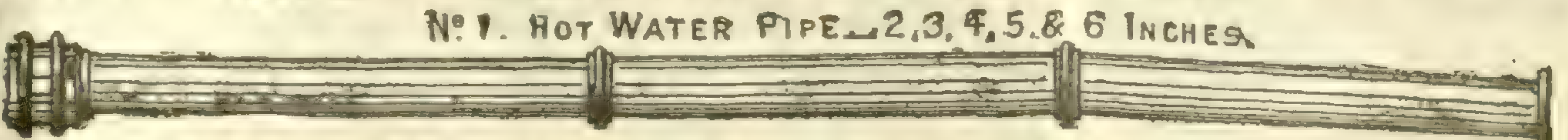

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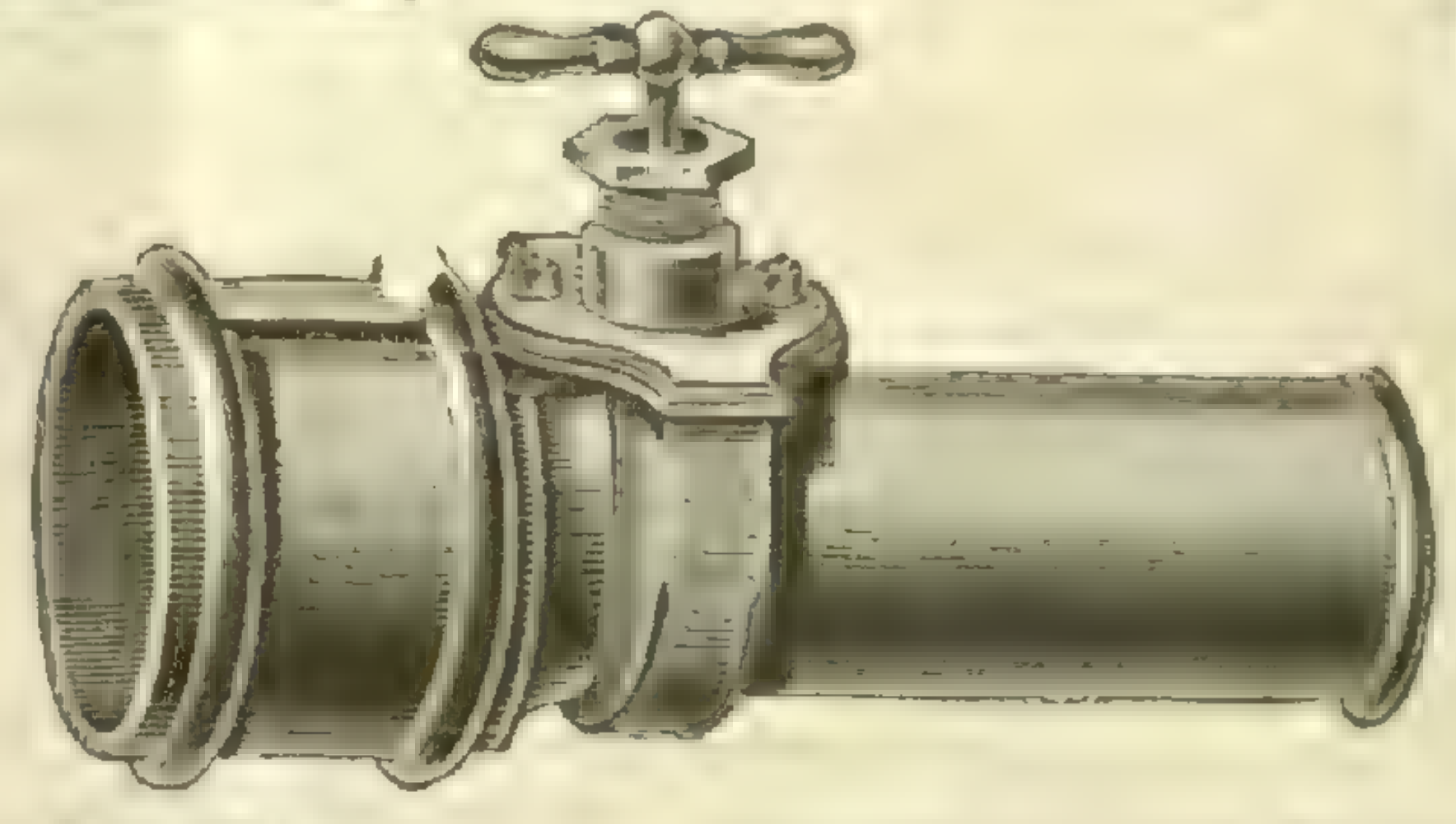

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CLAY'S SUCCESSFUL GARDENING
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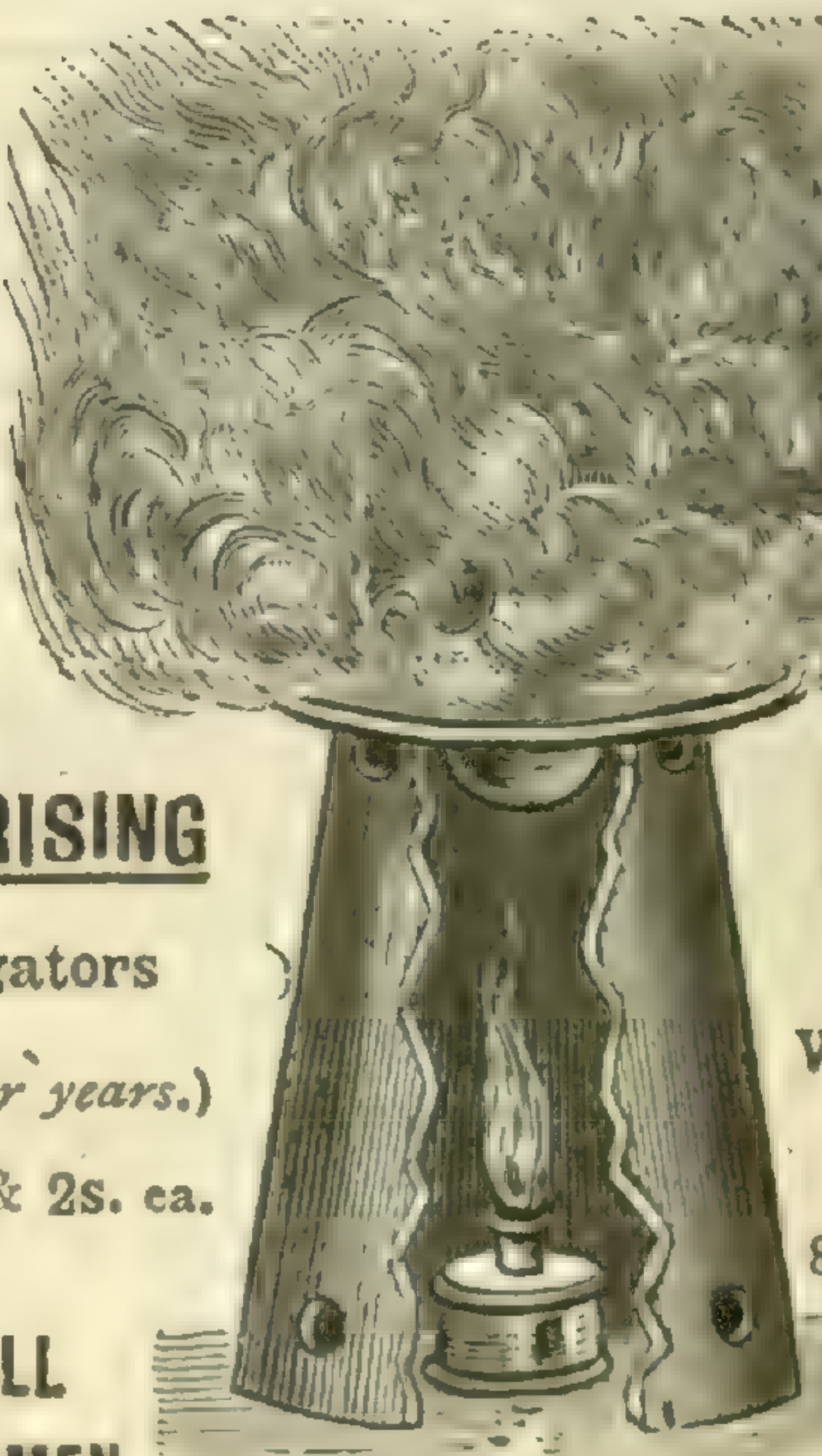

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Messrs. Dicksons, Limited, Chester, write; "The Flower Pots you have so largely supplied us with are light, strong, and well made, and in every respect highly satisfactory."

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ELLIOTT'S New Shading for Glass Houses.

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IT combines efficiency with appearance, convenience with economy, and its effects are lasting. It is easily removed when necessary with hot water. It can be supplied either pale green or grey.

Beware of spurious imitations, which are offered through the success obtained for many years by Elliott's "Summer Cloud" Shading, and see that in ordering you get the "Summer Cloud," which is the only original and bona fide article, and the Trade Mark on each packet.

To be had of Seedsmen and Florists. Manufacturers—

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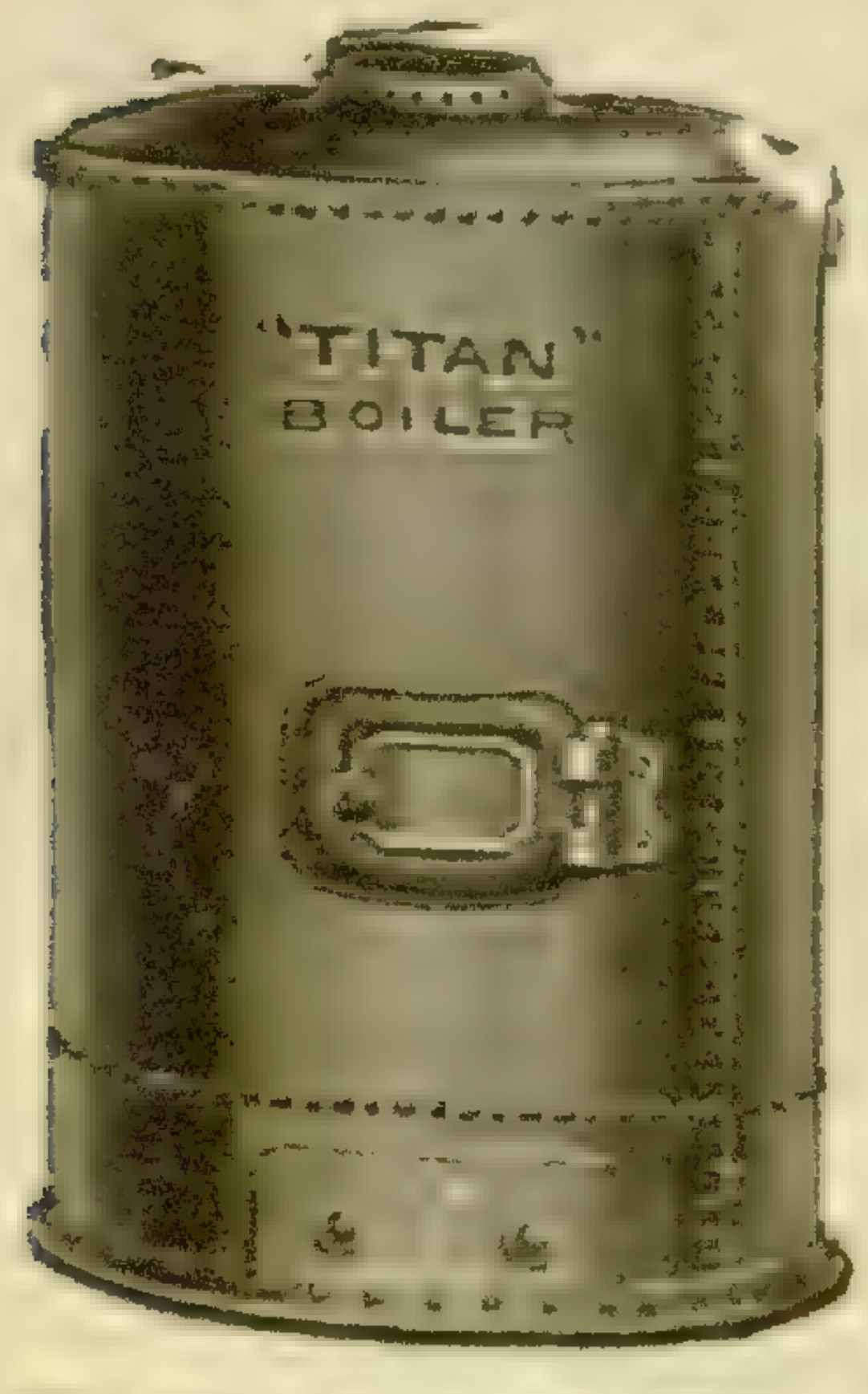

Our "TITAN" Boiler for large ranges of pipes is unequalled. Estimates for complete apparatus.

Our 1896 CATALOGUE contains the largest assortment of Fittings, best selection of Boilers, greatest variety of Radiators, Valves, Gratings, &c., of any in the Trade. 60 pages, Free.

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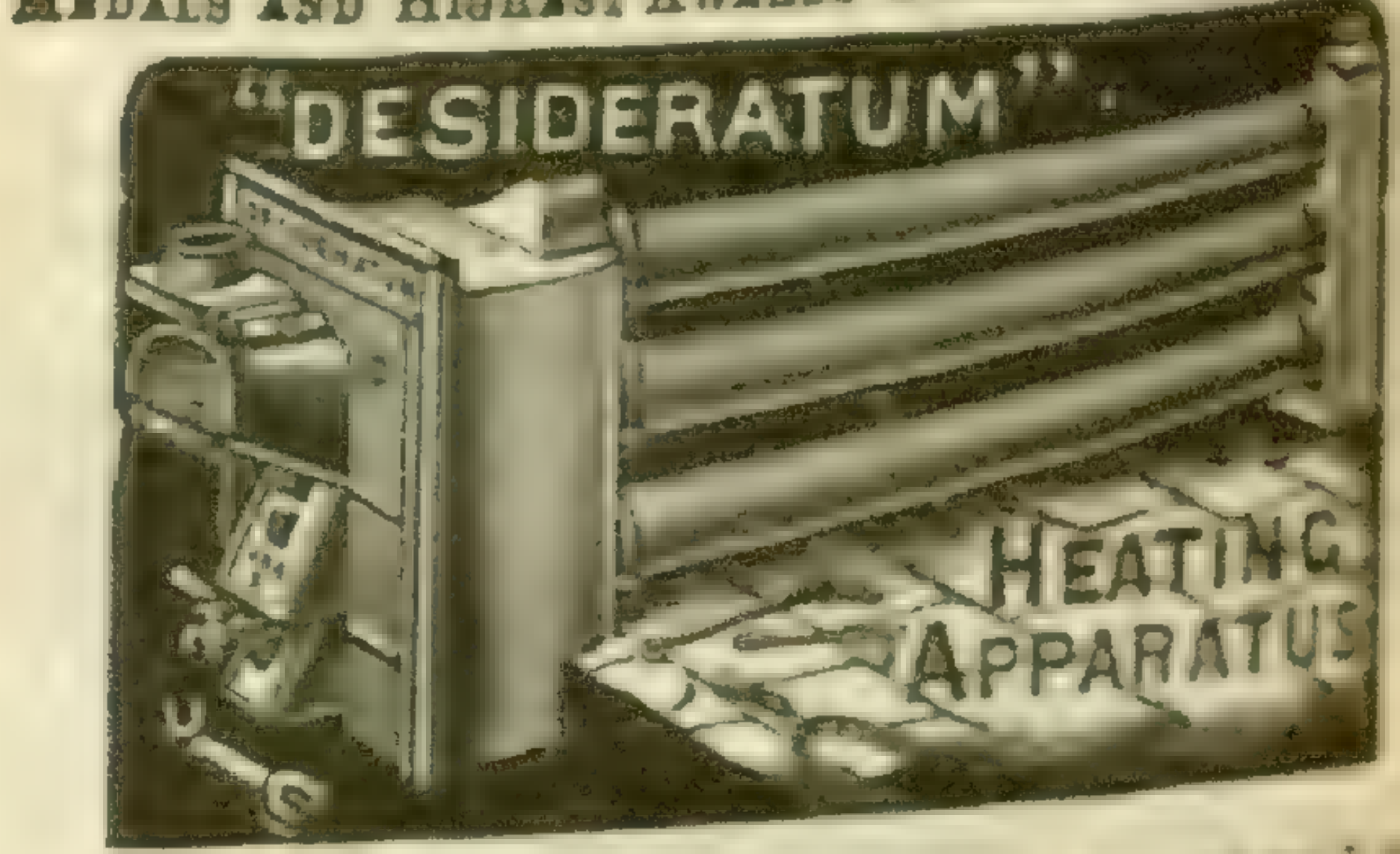

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Works and Head Offices: STOURBRIDGE. London Branch: 35, Old Queen St., WESTMINSTER, S.W.

THE GARDENERS' MAGAZINE.

SATURDAY, JUNE 18, 1898.

GREAT FLOWER SHOW, RICHMOND (SURREY), June 29, 1898.
£300 in PRIZES.
CHALLENGE CUP for ROSES.
Schedules and full particulars of
A. Algernon Chancellor, Hon. Sec., 1, King Street, Richmond, Surrey.

CROYDON ROSE SHOW, WEDNESDAY, June 29th.
OPEN CLASSES.
Challenge Cup, value 25 Guineas. N.R.S. Silver Medals for Amateurs; also N.R.S. Silver Gilt Medals and Good Prizes for Nurserymen.

LEE, BLACKHEATH, LEWISHAM, AND WEST KENT
HORTICULTURAL SOCIETY.
THIRTY-FIRST ANNUAL FLORAL FETE and HORTICULTURAL EXHIBITION,
WEDNESDAY and THURSDAY, July 6 and 7.
Full particulars of C. Helmer, Secretary, 5, Boone's Road, Lee.

NEWCASTLE-UPON-TYNE GREAT SUMMER FLOWER SHOW, held together with the NORTHUMBERLAND AGRICULTURAL SHOW, on Wednesday, Thursday, and Friday, 13th, 14th, and 15th July. The Greatest Show in the North. Visit of the Council of the Royal Horticultural Society. Applications for Space should be made at once. Entries close Wednesday, 6th July, to
54, Westgate Road. J. J. Gillespie, Jun., Secretary.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW, Althorp Park, Northampton. August 1st and 2nd. £250 in prizes. For best 12 Plants, £15; £10; £5; £2 10s. Central Group for Conservatory Decoration, £12; £7; £3; £2. Collection of Fruit, eight varieties, £5; £3; £1 10s. 24 Roses, £2; £1 10s.; £1. Collection of Vegetables, 12 varieties, selected, £3; £2; £1. Table Decoration, £3; £2; £1. Entries close July 22nd Schedules and full particulars from
Northampton, June 2nd, 1898. W. B. Troup, Secretary.

SHREWSBURY GREAT FLORAL FETE,
August 17 and 18, 1898.
The Prizes in the Schedule amount to £950, with Gold and Silver Medals, &c.
Schedules post free on application to the Hon. Secs.,
Messrs Adnitt. and Naunton, The Square, Shrewsbury.

WOOD GREEN AND DISTRICT HORTICULTURAL SOCIETY.
13th ANNUAL EXHIBITION, 9th July, 1898.
SPECIAL NOTICE TO NURSERYMEN.
The Silver Medal of the Society will be awarded to Exhibits of sufficient merit, also £1 1s. to each Trade Exhibitor towards the cost of Staging a Group.
SPECIAL PRIZES.
Three Special Prizes will be awardrd for 12 SPECIMEN PLANTS.
First Prize, £10 10s.; Second Prize, £6 6s.; Third Prize, £3 3s.
Applications for Space should be made to the Honorary Secretary, before the 2nd July next.
E. J. Wickenden, F.R.H.S., Heckfield, Clarence Road, Wood Green, N.

WOLVERHAMPTON.

THE TENTH ANNUAL FLORAL FETE will be held in the West Park,
July 12, 13, and 14, 1898.

PRIZE MONEY GREATLY INCREASED.

ENTRIES CLOSE, FOR PLANTS, July 5th, and for

CUT FLOWERS, FRUIT, VEGETABLES, July 8th.

PRIZE SCHEDULES AND ENTRY FORMS from the Secretary,

William E. Barnett, Snowhill, Wolverhampton.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to the continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

A USEFUL OBJECT LESSON.

THE difficulties that now beset the once flourishing Chrysanthemum Society, which has its headquarters in the historic borough of Kingston-on-Thames, are of something more than local interest, for the society occupied for a considerable period, a position of commanding importance and exercised an enormous influence for good upon the development of chrysanthemum culture in the United Kingdom, and at a time when a stimulus was much needed. The importance of the work that has been accomplished by the Kingston Society would fully justify our making some reference to its present unfortunate position; but it has other claims for consideration, and chief among these is the proof it affords of the correctness of the views to which we have so frequently given expression in discussing matters relating to the welfare of horticultural associations. We have again and again protested against their excessive multiplication; we have strongly advised committees to avoid the clashing of dates, whenever practicable; and we have urged the importance of introducing new features with a view to sustain the interest of the general public. We have, on more than one occasion, had a fear whether our readers might not consider that we were unduly labouring these points, but the necessity for keeping them prominently before those interested, has been abundantly justified in various parts of the country. When the Kingston Chrysanthemum Society was founded, the importance of a vigorous policy was fully recognized, and chief among the features introduced was the competition for a valuable challenge vase; and the annual contests created so much interest that visitors flocked to the place of exhibition in large numbers. As one vase was won, another was provided; but, unfortunately, the importance of introducing new features was overlooked, and each of the vases during the long period over which the competition extended was offered for precisely the same number and classes of blooms. It is, therefore, not surprising there should have been a material decline in the interest evinced in the exhibition. This decline was, it may be assumed, further accelerated by holding the shows on the same dates as those of the National Chrysanthemum Society, and it is difficult to understand why the Kingston Committee should, year after year, have failed to recognise the risk of allowing their shows to clash with the gatherings of their formidable rival in the metropolis. The Committee may have selected the dates the best suited to the district, and have fixed them in advance of the announcement of the fixtures of the National Chrysanthemum Society; but the results have been the same, and we have further evidence of the importance of neighbouring societies avoiding a clashing of dates. There can be no doubt that the last-named body has proved a formidable competitor to the Kingston Society, but it is probable that the competition has been less injurious than that of the numerous small associations that sprung up within a few miles of the borough shortly after the society in question had made its mark. Some of these had a short existence, but they must have had the effect of diverting a considerable sum of money that annually flowed into the Kingston exchequer into other channels. We do not pretend to an acquaintance with the minor details of management, nor is it necessary we should do so, as our object in referring to the position of the society is to show how the strongest of horticultural associations may lose ground by a want of appreciation of the importance of the three important points to which we have given prominence. The restoration of the Kingston Society to a prosperous state is a question that immediately concerns the borough, but having regard to the great excellence of its work in the past, we hope the efforts now being made on its behalf will meet with abundant success.

THE MOCK ORANGES.

THE ivory white flowers of Philadelphus coronarius, which are so aptly described by Mason as "yielding but in scent to the rich orange," now festoon their slender branches and contribute their full share to the attractions of the shrubbery, and once more remind us of the value of that group of shrubs of which the species mentioned is one of the best known. It would be hardly correct to describe the mock oranges, as the species of philadelphus are popularly known as neglected in the sense that they are not generally planted, but it would be quite correct to apply that term to the method of cultivation. Like the common lilac, the more vigorous of the species are well able to hold their own in competition with other shrubs of a similar habit, and in consequence of this they are left to do the best they can in the struggle for existence, instead of receiving the attention they so well merit from the cultivator. More attention to individual plants rather than an increase in numbers is desirable in the case of the well-known species and varieties, for unless they have sufficient room for their development they fail to fully display their great beauty. Philadelphus coronarius is a native of south Europe, and is widely distributed, as indicated by the great difference of opinion that existed between the earlier botanists as to the native place of the shrub. Linnæus states that he found it growing freely in the vicinity of Verona. Ray records having seen it on Mount Salevi, in Savoy, while other authors met with it in other parts of Southern Europe. It was familiar to the Greeks, and it would be difficult to say when it was introduced to English gardens. It is not mentioned in Turner's "Libellus," published in 1538; but it is included in the first edition of Gerard's "Catalogue of Plants" (1596), and in his "Herball" (1597) he states that it was then "growing in my garden in great plentie." Gerard had evidently no great liking for the odour of the flowers, for he observes: "In my judgment they are too sweet, troubling and molesting the head in a very strange manner." He further relates how, having laid some flowers in his bedroom window, they emitted so powerful an odour that "they awaked me from sleep so that I could not take any rest until I had cast them out of my chamber." There are two double forms of this species, of which that known as P. coronarius Keteleri, fl. pl., is the best. P. Gordonianus and P. grandiflorus, both of which were introduced from the United States during the first half of the present century, are of great beauty, and have much larger flowers than those of the first-named species, and these are produced at a later period of the summer. In contrast to the foregoing, all of which make large shrubs, we have the elegant P. microphyllus, introduced from New Mexico about fifteen years since. This is of small growth, and produces an abundance of medium-sized pure white flowers, but is less hardy than the stronger growing species. Of late years these shrubs have received the attention of the hybridist, and already a trio of beautiful forms have been introduced to commerce. These are known respectively as Boule d'Argent and Gerbe de Neige, which are becoming known, and Mont Blanc, which was exhibited for the first time in this country at Westminster on Tuesday. These hybrids are distinguished by their neat growth and profusion of flowering, and should prove of value for the supply of flowers under glass early in the year.

IMPROVEMENT OF PASTURES.

ALTHOUGH the maintenance of grass lands in a fertile condition is by a considerable proportion of cultivators regarded as of less importance than the provision of a good tilth and a liberal supply of plant food for crops grown on arable land, no such distinction is justified. When the grass is eaten off by cattle, very moderate dressings of manure will suffice to maintain the fertility of the land, as a portion of the constituents will be returned to the soil. But when the grass is converted into hay and consumed on another part of the holding, or sold, large quantities of the constituents of plant food are wholly removed, with the result that the soil becomes impoverished, and with an impoverishment of the land there is a deterioration of the herbage and a diminution in the bulk. On the other hand, with the restoration of fertility there is a rapid improvement in the quality of the produce, as well as an increase in the bulk; and one of the most striking examples of the importance of maintaining the soil of meadows in a high state of fertility that has yet come under our notice was met with at Swanmore Park the other day. Three or four years since, Mr. Molyneux, who has occupied the position of head gardener to W. H. Myers, Esq., during the past two decades, added to his other responsibilities the management of the home farm, which includes a considerable area of meadows. Finding in some of these a less vigorous growth of grass than was desirable, Mr. Molyneux decided to apply to a portion of the pastures a dressing, consisting of basic slag and kainit, at the rate of twelve cwt. to the acre, the proportions being one ton of the latter to two tons of the basic slag. The effect of this application is now evident to a casual observer, for the vigour of the grass has been increased to a remarkable extent, and the clovers, which were sparingly represented in the herbage now form an important part, and must add materially to its value. Both these fertilizers are comparatively inexpensive, and as they will continue to exercise an influence for two or three years, the annual cost will be trivial. The soil at Swanmore is rather strong, and therefore the basic slag is more effective than it would be in the case of light soils, but there can be no question that the experiment so successfully conducted at Swanmore Park might be repeated with advantage on many other holdings, for poor pastures are not pleasing to the eye or satisfactory to the pocket.

Lateness of Rose Season.—In consequence of the abnormally low temperature of the past six weeks roses have made so slow a growth that but few blooms of the hybrid perpetuals, hybrid teas, and teas have as yet attained their full development, and considerable apprehension is naturally felt with regard to the success of the earlier exhibitions of roses. The Council of the Royal Horticultural Society have very wisely decided to postpone the rose show, arranged to be held at the Drill Hall, Westminster, on June 28 to July 12. One of the leading rosarians in Ireland informs us that the roses in the North of Ireland are about a fortnight later than usual, and a member of one of the leading firms in Scotland, whom we had the pleasure of meeting the other day, in taking a somewhat humorous view of the situation, said that the present rate of progress in the rose quarters suggested that they would give a good supply of blooms in November. The National Rose Society's exhibition at the Crystal Palace on July 2 will probably be one of the best of the metropolitan shows held of recent years, as the date appears likely to be suitable for growers in the South and the Midlands. At the meeting of the National Rose Society on Tuesday, in the course of a discussion at the close of the business, Mr. G. Paul expressed the opinion that the hybrid teas would be highly satisfactory this season, for in no previous year had they appeared so promising in advance of the season of flowering as is now the case; let us hope this promise will be amply fulfilled.

Chiswick Lectures.—The first of the series of lectures in the gardens of the Royal Horticultural Society was given by the Rev. G. Henslow on Wednesday, and proved, we are pleased to state, a gratifying success. That the lecture would be of the highest excellence was a foregone conclusion, for as a lecturer on botanical subjects Mr. Henslow has but few equals and no superior, and the only point about which there could be any doubt was the attendance, and this was remarkably good. Some sixty or seventy young gardeners, with a few Fellows of the society, were present. Mr. Henslow dealt in his lecture with the leading points in the physiology of plants, and in the course of a masterly address described the chief functions of the roots, stems, leaves and flowers, and showed how a knowledge of these would materially assist the gardener in carrying on his work. In referring to the work that had been accomplished by scientists, and the valuable assistance they had rendered the cultivator, Mr. Henslow pointed to the importance of gardeners closely observing and of recording everything likely to be of value to the scientist in his investigations of the various problems of plant life. At the close of the lecture William Marshall, Esq., who presided, expressed the hearty thanks of the meeting to the lecturer, and the pleasure he felt in seeing so large a number present, and hoped that they would inform their friends of the lectures, as it was desirable that the largest possible number should have the opportunity of hearing them.

A Successful Lady Gardener.—A portrait of Miss Annie Gulvin, who has the distinction of being the first woman to take charge of a garden on exactly the same terms as a man, is given in the current issue of the journal of the Kew Guild. Miss Gulvin, who left Kew in January, 1897, to take charge of the gardens of J. Brogden Esq., Iscoed, Ferryside, South Wales, has contributed to the journal a short account of her first year's experience as a head gardener, and from this we gather that she has been successful in overcoming many difficulties, and has had the pleasure of winning a first prize for vegetables, and having had her salary raised £10 a year. The kitchen garden has an area of five acres, and contains four vineries and an orchard house, and the staff comprises a lady assistant and four men.

The Kingston Chrysanthemum Society.—Mr. A. Dean writes: "Although almost from its origin to now I have taken great interest in the welfare of this society, and have attended every annual exhibition for the past twenty years, yet, perhaps, my interest in its proceedings is greater now, because, having been recently urged to become a member of the executive, I have agreed, subject to certain conditions. When a good ship is in danger of sinking only the rats leave it, and it is then a proper time for those who have real interest in its welfare to do their best to help to save it from being wrecked. The Kingston Society is, I think, the oldest in the county of Surrey; certainly not so many years back it was the leading chrysanthemum society of the kingdom. It is not so now by a long way, none the less every effort should be made to keep it up to its earlier high status. It is now heavily in debt to its secretary and collector. Realizing that the committee have been compelled to reduce the prize list somewhat, but seeing how great a pull exhibitors have had out of the society in years past, that should be rather a reason than otherwise why they should give the old ship all the support they can. To help to that end we want to see a first-rate show presented next November; it will not clash with the National, but will take place on the 1st and 2nd. Kindly let me ask both trade and private growers to bear Kingston in mind, and help the committee to make a splendid exhibition worthy of the old town and of the queen of autumn flowers."

Club-Root Disease.—At a recent meeting of the Chicago Florists' Club, Mr. G. Stollery stated that he had failed in his attempt to grow sweet peas because of the plants having been attacked by the fungus causing club-root disease. He also reported that he had considerable difficulty in cultivating the McGowan carnation, because of its being attacked in a similar manner. Mr. Stollery said cabbage had been grown for many years on the ground he now occupies, and he believed that the attacks from which his sweet peas and carnations had suffered were due to the spores remaining in the soil. As there is no record of Plasmodiophora brassicæ attacking either sweet peas or carnations it is of some importance that the club-root from which Mr. Stollery's plants are suffering should be fully investigated, with a view to ascertain whether the disease is caused by the plasmo-diphora, and if not the identity of the f ungus to which the mischief is due.

New Offices of the Royal Gardens, Kew.—Offices for the curator and assistant-curator, a library and meeting room for the gardeners, and an official residence for the assistant-curator have been provided in the large house which stands in the east corner of the melon ground. This building, formerly a private residence, and known to Kewites as Bell's House or Descanso Lodge, is stated in the journal of the Kew Guild to have been the official residence of Director Aiton. The room—a very large one—which is now the gardeners' library, was in Aiton's time the king's room, having been built by George III. for his convenience when visiting his garden. The term melon ground indicates that this part of the garden contained the fruit houses when George III. was king.

A Royal Rose.—At the exhibition of the Royal Botanic Society, held on the 10th inst., their Royal Highnesses the Prince and Princess of Wales were present, and, in addition to awarding the prizes to the successful competitors in the Floral Parade, made a tour of the exhibition, and especially admired the roses. The Prince of Wales was graciously pleased to name one of Messrs. W. Paul and Son's new seedling roses "The Alexandra," and to accept blooms of it. The Prince also specially admired the Waltham Cross variety Empress Alexandra of Russia.

The Newcastle-upon-Tyne Flower Show.—As already announced this show will be held in conjunction with the Northumberland Agricultural Show in the Recreation Ground on July 13, 14, and 15. This will be one of the largest exhibitions ever held in the North of England. A deputation from the council of the Royal Horticultural Society will travel from London to visit the show and make awards. Several prominent nurserymen from different parts of England have made applications for space.

The Gardeners' Company.—At the recent meeting of this company Mr. Samuel Harmer was admitted to the freedom and livery with the ancient formalities. On the motion of Mr. N. N. Sherwood, the retiring Master, Sir William Farmer was elected the Master, Mr. Philip Crowley the Upper Warden, and Mr. R. [illegible] the Renter Warden for the ensuing year; and, on the motion of Alderman Sir Marcus Samuel, a hearty vote of thanks was passed to Mr. N. N. Sherwood for his services as Master during the past two years. Mr. Gofton Salmond announced the receipt of the following donations for scholarships: £50 from Lord Amherst for the Amherst Scholarships for 1899 and 1900, and £25 from Mr. H. Wood, a member of the court, for the scholarship for 1901.

The Horticultural Building of the Trans-Mississippi Exhibition, which opened at Omaha, U.S., on June 1, is one of the most handsome buildings that has yet been erected for the display of the products of the garden. It is described in (American) *Gardening* as "a magnificent central feature." The building is three hundred and ten feet long by one hundred and thirty feet wide, and one hundred and six feet high, to the belfry. The building is devoted to the floral, fruit, and forestry exhibits, and is admirably adapted for the purpose, the high dome, covered with glass, permitting the exhibition of the tallest ornamental plants. In the centre of the dome is placed the crystal cave, in a pyramid of rocks covered with mosses and flowers and down the sides of which trickle countless little streams to the pool below. This pool is surrounded by a double colonnade with vaulted arches, forming a grand circle. Unrestricted as to motive, or form and surroundings, the architect has succeeded in producing a building singularly striking in its effective features. The basis of design is the chaste Ionic. The details are modelled from flowers, fruits, and foliage. On either side of the stately central entrance are towers, or rather mosque-like minarets. This feature is reproduced on all sides, forming an octagon from which springs the dome. Between these minarets are placed circular colonnades, surrounded by statuary emblematical of the seasons. Above the dome is an open observatory balcony from which can be obtained a grand view, not only of the exhibition grounds, but of the city and adjacent lakes, the picturesque valley of the mighty Missouri, and the lovely city of Council Bluffs, five miles away. Above this open balcony is the belfry. At the ends of the wings are octagonal-roofed pavilions in harmony with and emphasising the general form of design. The wide frieze is beautifully ornamented with cupids, in riotous revelling amid fruits and flowers. On either side of the main entrance, on high stylobate, are placed groups of statuary representing "Night" and "Morning," festooned, the one with Morning Glory and the other with night blooming cereus. The building is profusely decorated with flower urns, hanging baskets, and ornamental plants of every description from semi-tropic climes.

Sweet Peas have attained to so high a degree of popularity in the United States that there is a probability of the flower having a society wholly devoted to it. The Rev. W. T. Hutchins says that an attempt will probably be made at Springfield in July next to launch the association under the designation of the American Sweet Pea Society, and he expresses the opinion that there is now sufficient working force in America on the sweet pea to make the society thoroughly national in character.

New Roses—We have received from Messrs. Dickson and Sons, Newtownards, two coloured plates illustrating the five new roses they are distributing this season for the first time. These comprise two teas, two hybrid tea roses, and one hybrid perpetual. The two hybrid teas are known as Daisy and Killarney, two charming varieties of finely formed flowers of different shades of pink. The two teas, named respectively, Beryl and Meta, have rich yellow flowers, those of the former suffused with saffron and rose, and thus especially desirable for garden decorations and the supply of cut flowers for indoor decorations. Ards Rover is the name of the hybrid perpetual and it has finely formed flowers of a deep crimson colour, and so vigorous a habit as to be specially useful as a climbing and pillar rose.

Something Like a Consumer.—The following question is submitted in the pages of an agricultural contemporary by a correspondent who evidently has consumptive powers of a high order: "Being a consumer of country produce to the extent of about 12 tons of potatoes, 13,000 eggs a-year, and paying about £1 6s. a-week for milk, besides using butter, bacon, fruit and vegetables, rabbits and fowls, pork, beef, and mutton, do you think it would be advisable for me to take a small farm and try and supply my own as far as possible?"

An International Chrysanthemum Exhibition will be held at Lille from November 10 to 15. The several chrysanthemum and horticultural societies in the north of France have combined their forces in the organisation of the gathering. Communications regarding the exhibition should be made to the Secretary General, 19, Rue de Pas, à Lille, France.

The Date Industry of Bussorah.—The largest export of dates in the world takes place from Bussorah, situate some seventy miles up the River Shutt-el-Arab, a river formed by the combination of the rivers Tigris and Euphrates. The date season in Bussorah begins, according to the earliness or lateness of the crop, in the early or middle part of September, and lasts six or eight weeks. Consul L. A. Forbes, in a communication relating to the crop of 1897, says that the crop was ready for packing about the middle of September. At a meeting of growers and buyers, held when the dates are ready for packing, the prices are fixed; the first prices demanded in 1897 were respectively £20, £16 9s., and £10 12s. per 50 cwt. for the three qualities of fruit known as "Hellawis" (best), "Khedrawis" (seconds), and "Sáyers (inferior). These prices would appear to be too high considering the decline in consumption of dates in the United Kingdom, and a combination in London to control the prices and importations has been suggested to prevent serious losses. The quality of the 1897 crop seems to have been exceptionally good, although the quantity was somewhat less than last season, owing to excessive heat about the time the crop was entering into the ripening stage which caused the fruit to dry up and fall. Some gardens were also affected by blight, which caused much fruit to drop off before being matured. It is said that about 750,000 cases of ½ cwt. each were shipped from Bussorah for London, New York, and other places. Besides the shipment of dates in boxes a large quantity is exported in baskets to India and its dependencies. These dates are generally of the inferior qualities, and are transported in native sailing craft.

NEW PLANTS AND FLOWERS.

LÆLIO-CATTLEYA EUDORA SPLENDENS.

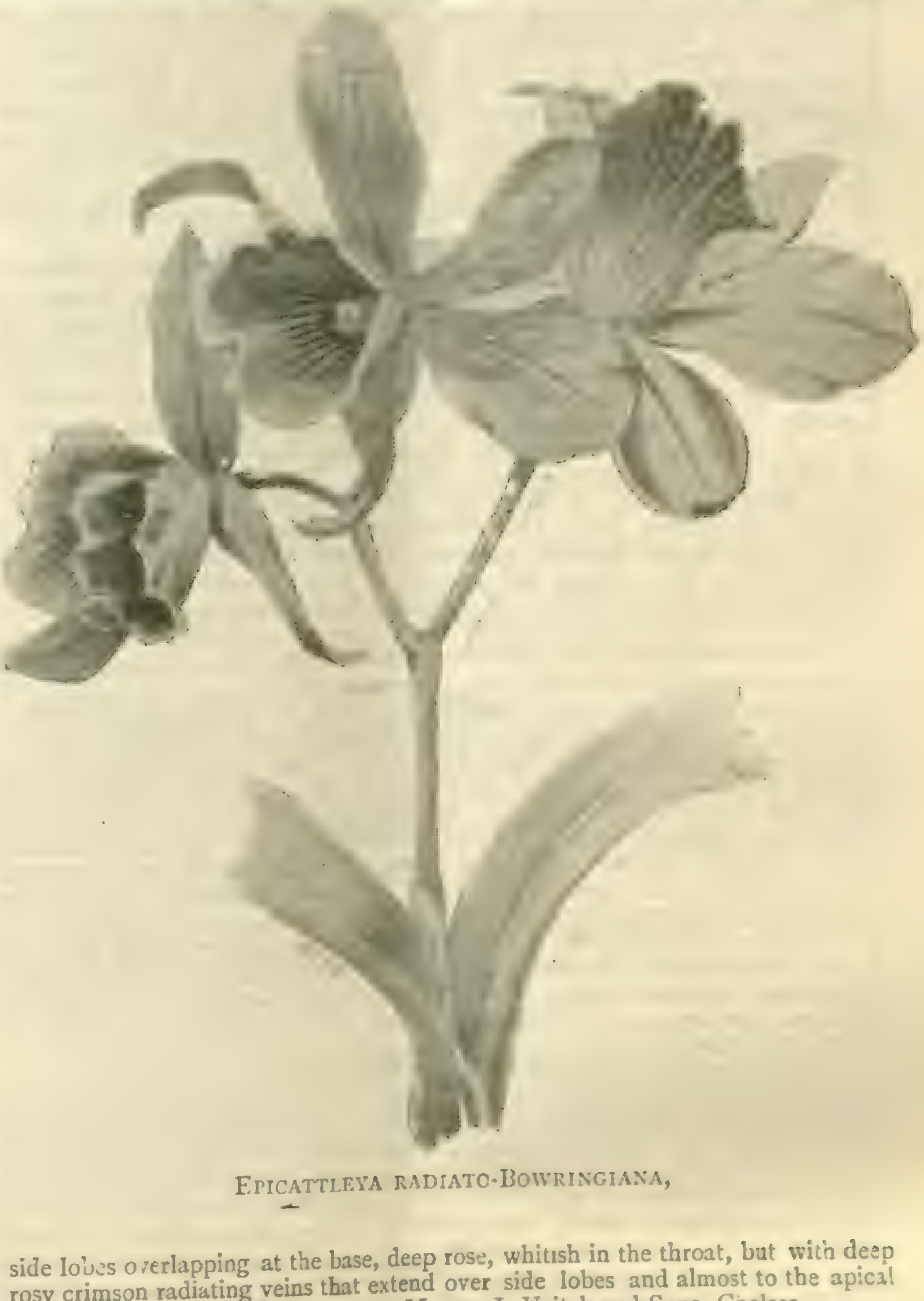
A MAGNIFICENT orchid with deep rose-purple sepals and petals and a broad spreading lip that is yellow at the base and intense crimson-purple at the apex. The sepals and petals are almost four inches long, and the latter are over two inches wide. The tube of the lip is creamy with veins of purple; inside, the yellow throat is stained at the base with dull purple. The broad apex is fully two inches across, and of the finest shade of rich purple, the margin slightly paler. This orchid is the result of crossing Cattleya Mendeli and Lælia purpurata. F.C.C., R.H.S., June 14. Messrs. J. Veitch and Sons.

ODONTOGLOSSUM CRISPUM PRINCE OF WALES.

The most beautiful and handsome form of O. crispum that has for a long time graced the R.H.S. tables. Its beauty does not consist in its spotting, but its purity. The sepals and petals are pure white, save for a faint tinge of rose in some of the sepals. The lip is extra large, white, with golden disk, and three or four rich red-brown spots where the disk ceases. Each flower is four inches and a quarter across, the segments being pointed at the apex, though very broad at base and centre; margins waved in all segments. A magnificent variety, with a spike carrying twelve flowers. F.C.C., R.H.S., June 14, and silver Banksian medal, Messrs. Hugh, Low, and Co., Bush Hill Park, Enfield.

EPICATTLEYA RADIATO-BOWRINGIANA.

This is a novel and interesting hybrid obtained by crossing Epidendrum radiatum with Cattleya Bowringiana. It has dwarf growths, with slender pseudobulbs, surmounted by two or three linear leaves about six inches long. Two flowers were borne on the spike. Each bloom is an inch and a-half across; sepals narrow; lateral ones, curved outwards, and then downwards; deep rose with veins of a darker tint; petals just over half an inch wide and an inch long, elliptic, coloured as in the sepals, but with the veining less marked. Lip an inch long; side lobes overlapping at the base, deep rose, whitish in the throat, but with deep rosy crimson radiating veins that extend over side lobes and almost to the apical margin. A.M., R.H.S., June 14. Messrs. J. Veitch and Sons, Chelsea.



EPICATTLEYA RADIATO-BOWRINGIANA,

LÆLIO-CATTLEYA DUKE OF YORK.

A distinct and strong-growing hybrid, with very deep rosy-purple sepals and petals, the latter fairly broad and standing out boldly. Lips very distinctly trilobate, the side lobes pale rose but deeper at the tips; front lobe spreading, trilobate, intense purple with crimson veins. The lip is fiddle shaped, owing to the contraction between side lobes and apex. This hybrid was raised by crossing a fine Lælia elegans with Cattleya Brymeriana. F.C.C., R.H.S., June 14, Messrs. F. Sander and Co., St. Albans.

MIKANIA SANDERI.

A tall-growing stove foliage plant, having slender purple stems and opposite leaves in pairs; the latter are six to eight inches long by four or five inches broad, ovate, bright green down the centre and deep bronzy or purplish-green towards the margins; the pale green or whitish veins run in all directions, and make the foliage very pretty. F.C.C., R.H.S., June 14. Messrs. F. Sander and Co.

CALOCHORTUS PURDYI.

A most interesting species, with white flowers that are covered on the inner surface of the segments with silky hairs, a quarter of an inch long. These are white, except at the base of the segments, where they are of a deep claret-purple colour. There are also claret-purple stains at the base of the flower, including a crescent-shaped blotch of this colour. The plant grows about ten inches high, and carries long linear, bright green, and burnished leafage. Each growth is branched, and carries an aggregate of six to twelve flowers. F.C.C. R.H.S., June 14. Messrs. R. Wallace and Co., Colchester.

ROYAL HORTICULTURAL SOCIETY,

June 14.

NOTWITHSTANDING the March-like coldness of the weather and heavy, leaden skies that seemed more suited to December or January than June, there was a first-rate show at the Drill Hall on the above date. Orchids, hardy flowers, and carnations, were the leading subjects, fruit and vegetables being a very small display. There was a large attendance, and, we believe that a very large number of new fellows joined on this occasion.

FLORAL COMMITTEE.

Hardy plants and flowers were freely exhibited and occupied by far the largest space in the hall.

Mr. J. F. McLeod, gardener to J. P. Morgan, Esq., Dover House, Roehampton, was the largest exhibitor of the day, and his splendid display down the centre of the hall was greatly admired; it consisted of a large number of grandly grown specimens of Souvenir de la Malmaison carnations, each of these carrying about thirty to thirty-six flowers and buds apiece. Had the weather been a little brighter of late the expanded flowers would have been more numerous, but as it was they were plentiful, large and substantial. Around these monuments of horticultural skill were arranged smaller plants, all in the pink of health and representing the several seedling forms of Malmaison carnations that have of late been raised. The whole exhibit was bedded in maidenhair fern, edged with Caladium argyrites, and with a few palms down the the centre. We congratulate Mr. McLeod upon his fine exhibit and upon its arrangement.

Messrs. Kelway and Sons, Langport, were extensive exhibitors, showing a grand lot of pæonies, pyrethrums, and delphiniums; among the latter, the varieties Beatrice Kelway, blue and white; Albert Edward, violet blue; Amyas Leigh, pale blue; True Blue, very deep; and Clovelly, soft lavender; were specially good in colour, flower, and spike. Extremely beautiful was the exhibit of Messrs. Wallace and Co., Colchester; it consisted very largely of irises, both the germanica forms and the Spanish varieties. Among the former there were baskets of Victorine, white and purple; Sanspareil, yellow and red and white; Chelles, yellow and ruby; and Mr. Newell, blue, all very fine. Among the Spanish iris we liked Chrysolora, yellow; Belle Chinoise, golden; British Queen, white and yellow; Potigier, blue and yellow; Reconnaissance, brown and gold; and Emperor of the West, blue and yellow. Anthericums, ixias, calochorti in variety, brodias, ixiolirions, liliums, and hemerocallis made up a most interesting display. Mr. Wallace had a number of flowering plants of the new beautiful Lilium rubellum.

Baskets and boxes of splendid trusses of rhododendrons were shown by Messrs. W. Paul and Son, Waltham Cross, and these made an effective display; a crimson-rose variety, named Joseph Whitworth, was especially noteworthy; this firm also showed a lot of bunches of garden roses, showing rugosa forms in good condition, and also a display of the double white and Scotch rose; hybrid sweet briars added fragrance to beauty, and proved a great attraction to the ladies. A goodly display from Messrs. H. Cannell and Sons, Swanley, Kent, included a collection of aquilegias in handsome bunches, both double and single forms of the highest beauty and elegance being displayed. Tuberous begonias were finely shown, the flowers being full and bright, and the plants in first-rate condition. Marquise de Travers, pink; Lord Sherborne, crimson scarlet; Lady Lindsay, yellow; Lady Naylor Leyland, carmine; Rosebud, rose pink; and Miss M. Griffith, white, were among the best forms in a splendid collection. Mr. Norman, gardener to the Marquis of Salisbury, Hatfield House, showed a basketfull of splendid spikes of the yellow Mrs. Audry Campbell, and the scarlet King Arthur carnations; the spikes were staked, and the bases fixed in damp moss, so a grand sheaf of blooms was the result. Mr. H. B. May sent a good collection of ferns, showing well-grown specimens of pteris, gymnogrammas, aspleniums, adiantums, and nephrolepis; Gymnogramma grandiceps superba, and G. Mayi were fine, as was Phlebodium Mayi. This group consisted of sixty varieties of ferns, each one raised by Mr. H. B. May, Edmonton, and on that score alone it was highly interesting. Mr. May also showed a fine rose-pink zonal pelargonium, Millfield Rival; a dwarf marguerite, and a golden tropæolum, named Sunlight. Messrs. Collins Brothers, Waterloo Road, and Hampton, showed sheaves of the more popular hardy herbaceous flowers, arranging these effectively; a bright rose single pyrethrum, named Monarch, was very attractive in the centre of this display. Cannas in great variety were staged freely by Messrs. Paul and Son, Cheshunt; the plants were all dwarf, and carried spikes of the most brilliant flowers. Incarvillea Delavayi, two good spikes, was an attractive item among rhododendrons, geums, pyrethrums, poppies, irises, and the graceful loose-racemed Laburnum Alkekengi.

A bold group of hardy flowers from Messrs. J. Veitch and Sons, Chelsea, consisted largely of a fine collection of irises, these being represented by baskets of a variety; Walneri, Fairy Queen, Bergi, Arnoldi, Virginica, Abou Hassan, Bridesmaid, Pallida, and Mrs. H. Darwin were among the best. Pyrethrums, Heuchera sanguinea, an exceptionally fine coloured form; Eremurus robustus, and E. himalaicus were all splendidly represented. Hardy flowers in great variety were shown by Mr. J. Russell, Richmond: irises, pyrethrums, Muscari comosum monstrosum, and Hemerocallis flava being exceptionally good. Messrs. Barr and Sons' contribution was a large one, and consisted of an immense variety of hardy flowers; there was a choice collection of ixias, hemerocallis, pyrethrums, pæonies, Spanish irises, German irises, and other choice subjects. Limits of space prevent us detailing the varieties of iris, but the Messrs. Barr had all the leading kinds and many choice forms not commonly seen, and representing the several sections. Carnation Primrose Queen, a broad petalled variety of primrose hue, was shown in fine condition by Mr. F. Perkins, Leamington. The big group of cannas staged by Mr. H. Cannell and Sons, Swanley, was the most gorgeous exhibit in the show; the plants were splendidly grown in small pots, and each carried a massive spike of brilliant blooms; Aurea, Konigen Charlotte, Ami J. Chretien, Conquerant, Duchess of York, Milne Redhead, Explorateur Campbell, Alex, and Billard were a few of the most impressive varieties in a collection where all were of the greatest value.

Messrs. F. Miller and Co., Fulham Road, S.W., exhibited a good strain of single petunias, and a famous lot of mignonette—Miller's Civic—beautifully grown and flowered. Messrs. J. Veitch and Sons, Chelsea, put up a basket of the lovely Hydrangea hortensis mandschurica, carrying massive blue-tinted heads; Cornus Kousa, Hybiscus syriacus cælestis, Fraxinus Mariesi, a prettily-flowered tree; and Hydrangea japonica Mariesi, a form with huge bluish bracts. Messrs. J. Cheal and Sons, Crawley, made an exhibit of cut spikes and trusses of rhododendrons, Weigela amabilis alba, Cytisus Andreanus, Spiræa Van Houttei, Colutea crocea, Xanthocerus sorbifolia, &c., staging these with sprays of golden and purple foliage of oak and elm and birch. Messrs. F. Sander and Co., St. Albans, arranged a group of their new and attractive Acalypha Sanderi with a profusion of crimson inflorescences, and also a quantity of the variegated D. Godseffianum; a few thunias and sobralias brightened the exhibit considerably. Globba calophylla with queer yellow flowers; and Mikania Sanderi with cissus-like foliage, green and purple green in colour were new plants staged by this firm.

ORCHID COMMITTEE.

There was a choice display before this body, and a fairly extensive one also. From Chelsea Messrs. J. Veitch and Sons sent several freely-flowered examples of Lælio-cattleya Canhamiana, Cattleya Mossiæ Reineckiana, L.-c. Hippolyta, Epidendrum radicante-vitellinum, Trichopilia suavis alba, very [illegible] Epiphronitis Veitchi, Disa Langleyensis, and D. Veitchi. Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., showed a collection of rare and interesting orchids, these including Cœlogyne Schilleriana, a dwarf, green-flowered species, Geodorum Augusti, Bulbophyllum Lobbi Burford var., Odontoglossum crispum, pure white; O. elegantius Baroness Schröder, Dendrobium Parishi polyphlebium, and a grandly-flowered D. Bensoniæ, with about forty flowers on one stout pseudo-bulb. Messrs. J. McBean and Sons, Cooksbridge, Sussex, showed Odontoglossum crispum in considerable variety; some of the rose-tinted forms were very pretty, while one large flower with red-brown spots attracted considerable attention. Mr. H. Wiffen, gardener to J. Bradshaw, Esq., The Grange, Southgate, staged a nice but small collection. His choicest specimens were Lælio-cattleya Aphrodite, L.-c. Arnoldi, very fine; Lælia grandis tenebrosa with four splendid flowers; Cattleya Mossiæ Reineckiana, C. Wagneri, several good forms of Odontoglossum crispum and O. maculatum, and also a rosy-lipped C. Mossiæ, named Admiral Bradshaw.

Mr. W. H. Young, orchid grower to Sir Frederick Wigan, Clare Lawn, East Sheen, showed a seven-flowered specimen of the somewhat rare Scuticaria Hadweni, Lælio-cattleya Canhamiana var. Iolanthe, a superb broad lipped form; the lovely Lælio-cattleya Lady Wigan, Cattleya Mossiæ Maxima, L.-c. Arnoldiana, Lælia grandis tenebrosa, Cymbidium tigrinum, Lælio-cattleya [illegible] elegans, and Miltonia vexillaria var. Constance Wigan, with a fine white lip. Messrs. Stanley-Mobbs and Ashton (late W. L. Lewis and Co.) put up a very handsome group of orchids, showing a considerable number of fine forms of Cattleya Mossiæ, one named Madonna and having purest white sepals and petals and very light lip, being of especial merit; C. M. Aurea, C. M. Sir Thos. Lipton, also a white form with yellow marked lip, were also attractive. Lælia purpurata, Oncidium crispum, Lælia tenebrosa, Cypripedium Evenor Southgate var., C. Rothschildeanum, C. Gertrude Hollington Southgate var., very fine; C. Sir Thos. Lipton (C. bellatulum album crossed C. ciliolare), whitish with black spots; and C. Donald Ross in the way of C. Lowianum were on view, as also was the "blue" Dendrobium Victoria Regina.

Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, showed a large specimen Lælia purpurata, that carried ten good spikes, each with three or four flowers; this specimen was remarkable for the fact that it has been in cultivation for thirty-seven years, and under Mr. Hudson's care for only three years less than that period. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Camberwell, sent a very light form of Lælia purpurata named L. p. Ernesti. Messrs. Linden and Co., Brussels, sent Eulophia congoensis, with large rosy flowers. The Messrs. Veitch, Chelsea, sent Lælio-cattleya Hippolyta aurantiaca, a rich orange colour, and one of the very brightest of orchids; they also sent L.-c. Canhamiana superba, a glorified form of a now well-known hybrid; L.-c. Eudora splendens, Cattleya Gertrude (C. Mossiæ crossed C. superba), and other choice novelties. Mr. S. Cooke, gardener to De B. Crawshay, Esq., Sevenoaks, staged a pretty form of Cattleya Mossiæ named Sprite, and a good L. purpurata. Messrs. H. Low and Co., Clapton, exhibited a grand plant of a magnificent form of Odontoglossum crispum, the spike carrying twelve grand flowers of large size, sepals and petals almost absolutely white, and the tip having three or four red-brown spots on it just below the yellow disk; this form was worthily named Prince of Wales. McBean's variety of O. crispum, with huge red-brown blotches, was very attractive. Messrs. Linden and Co., Brussels, sent O. crispum Dallemagnæ, O. c. Morning Star, and O. c. Le Czar, this having white petals and rose-tinted sepals, the latter having large red blotches.

Mr. H. Druce, Regent's Park, showed four cypripedium of the bellatulum group, C. b. Druceanum, C. Mrs. H. Druce (C. niveum crossed C. bellatulum), C. Walkerianum (C. concolor crossed C. bellatulum), and another form of the latter cross; one had a big flower, white with black spots, and the other a small yellowish flower with tiny dots of blackish purple.

FRUIT AND VEGETABLE COMMITTEE.

Very few exhibits came before this body, the largest being two boxes of new cucumbers shown by Mr. S. Mortimer, Rowledge, Farnham; one is named [illegible] Keeper, and the other Sensation, and both have Telegraph as one [illegible] were excellent cucumbers, tailless and free fruiting. Mr. E. Beckett, Aldenham House Gardens, Elstree, showed the Carter spinach, and gained a cultural commendation.

Mr. J. Prouse, Hallbound Gardens, Beaconsfield, Bucks, showed [illegible] cabbage, a fine early and quick-hearting variety of high quality. Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, exhibited sixteen fine fruits of Lord Napier nectarine, and two punnets of Guigne [illegible] cherries; cultural commendation.

MEDALS.

Silver-gilt Flora medals to Mr. J. F. McLeod, gardener to J. P. Morgan, Esq., Roehampton; and to Messrs. H. Cannell and Sons, Swanley. [illegible] *Banksian* medal to Messrs. Barr and Son, Covent Garden. *Silver* [illegible] to Messrs. Kelway and Son, Langport; Mr. H. B. May, Edmonton; Messrs. J. Veitch and Sons, Chelsea, for hardy flowers, and one for orchids; Messrs. Stanley-Mobbs and Ashton, Southgate. *Silver Banksian* medals to Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton; Messrs. H. Low and Co., Clapton, for Odontoglossum crispum Prince of Wales; Messrs. Wm. Paul and Son, Waltham Cross; Messrs. R. Wallace and Co., Colchester; and Mr. Norman, gardener to the Marquis of Salisbury, Hatfield.

Smilax.—We see in the great demand that exists for this [illegible] plant how much its twining growths are valued for domestic decoration, [illegible] gardener feels it to be his duty to grow a few pots of it; but to see it [illegible] quantity, it is needful to look into one of our market establishments, where [illegible] of it are found by hundreds, and a constant succession is furnished. I was [illegible] day or two since looking through Messrs. Hawkins and [illegible] Twickenham, where smilax is now largely grown. Still with them it [illegible] only some two years. The plants are raised from seed [illegible] are finally put into nine-inch pots. These are stood pretty [illegible] rows across a centre bed, wires are lightly strained across each row [illegible] over the pots, and others four feet above, and small string runs from [illegible] These strings are filled with pretty climbing growths in about three [illegible] then cut, and others take their places. Prices are low, but the [illegible] considerable.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

ALONG KENTISH HIGHWAYS.

No good gardener ever considers that his education is complete. He may always learn something, or see fresh ways that may be improvements on his own, and the fully-taught self-satisfied individual who flatters himself with the vain supposition that he knows all that is worth learning is generally the first to succumb when put to a practical test. But how do we learn after we have passed from the hands of those who are supposed to be teachers and have become teachers ourselves? By many ways; as, for instance, the interchange of opinions among practical men, who, perhaps, may not altogether agree, but after adding and drawing deductions there lies between two extremes a middle course, and that course, possessing elements of both arguments, is generally a fairly reliable one. Doctors disagree, and so do gardeners (even in these columns!) and those who read the MAGAZINE get the benefit of their differences. Thus, then, is reading a means of education to those who know the rudiments off by heart. One practical man steps forth and advances his opinions; another comes along and differs from him, and while the two dogs are, so to speak, fighting over their bone, another comes along and runs away with it. That third is the diligent reader who sifts the arguments on both sides, takes the best out of them, and puts it into practice. He is generally the one most benefited.

Observation is another means of education open to all, but not always taken advantage of. "Keep your eyes open, lad, and miss nothing worth looking at," was the advice given to the writer by a good old gardener who had proved the wisdom of it. One man sees effects and is satisfied, but he has learnt nothing. Another looks on effects, and straightway hunts for the cause. He may not find it till after a diligent search, but having obtained it he has got the whole thing, for one is of little use without the other. And where can we learn from observation? Everywhere, for things appertaining to gardening meet us no matter where we go, the only thing necessary being a gardener's eye to look at them. The occupation is moreover interesting, and what is more enjoyable than a walk round a garden under the care of a brother craftsman? Though interesting and instructive, such walks are, as a rule, like many excellent articles which appear in these columns—purely practical. Human nature, however, demands variety and diversion, which helps us to tackle with new spirit more serious matters. In reading, this diversion is obtained in the perusal of that which breaks away a little from the stern unbending practical side of gardening, and in the case of the writer, diversion was sought and found in a long ramble along Kentish highways.

A man need not necessarily be romantic to be carried away by the beauty of a spring morning, for indeed he would be soulless if he loved it not. There is no spasmodic bursting of a tree here, or the opening of a solitary flower there, but all Nature has received her call and is responding to it with one accord. The movement is so general and even that we hardly notice it. Copse that yesterday was bare branches, has to-day a tinge of green, and to-morrow will be a mantle of emerald. Such is the transformation scene, and who is he that can see and move about among it without feeling the effects of Nature's awakening? But what is there along a highway to interest a gardener? you ask. Everything, I say, for Kent is little else but a garden, with its orchards and plantations, its hop fields and market gardens. Home life itself [illegible] horticulture, for there is scarcely a homestead without its garden, or a village without its gardening society, and even the farmers have so much interest wrapped up in matters coming under the category of horticulture, that to be successful they require more than ordinary horticultural skill. Thus, then, the county is a land of gardens and gardening.

In the spring everyone talks of prospects, wonders what fruit will be like, and how hops will turn out, and whether prices will be good. Judging from present appearances the outlook could not well be better, and the picture of acre after acre of snowy blossoms is one such as can only be seen in Nature. First the plums and pears, then the apples and cherries, all aglow with beauty, all after-results and the state of the grower's finances depending largely on these few weeks of blossoming time. As we go along, the chief thing noticeable is the number of fresh plantations, for fruit culture is markedly on the increase. Here is an orchard perhaps ten acres in extent, with trees planted in lines like the [illegible] on a chess-board. Every one is of the same character and every stem is whitened with lime-wash to the spread of the branches, to destroy insect pests and obnoxious growth. Round each tree the grass looks greener than elsewhere, as a coating of good manure or artificial fertiliser has been applied to assist growth and fruit production. A peep into the branches shows them to be thinly dispersed and the heads open to admit air and sunlight. That is the kind of orchard that, barring accidents, will pay the rent and leave a balance in favour of the grower. Some trees are a sheet of bloom and others are bursting, but all healthy and clean. We know nothing of the grower except that his work proves that he knows his business and it is such as he that continues planting.

A shrewd hard-headed fellow is the Kentish fruit grower. He is somewhat reticent, and is apt to question the advice of any expert, but he puts it into practice all the same, and if he proves it to be sound is ready to swear by it. As we go along we pass another recently formed plantation. The position is somewhat exposed, and a row of damsons [illegible] along the unprotected side. They are to act as a shelter—and a profitable one—to the fruit of more tender nature inside. The [illegible] have been well thought out, as at present the plantation is a hop garden. Probably the grower fancies he can see more in fruit, for the young trees are dispersed between the rows of hops. The latter will remain till the fruit trees are established. Then they will be removed, the ground laid down to grass, a permanent orchard is the result, and during the process the land has been returning something. The field is a gentle slope, and on the lower side we notice the trees have been planted on the surface and the soil spread over the roots in the form of a mound. Further examination proves the soil to be of a wet and clayey nature. The grower evidently knows the resulting evils of planting in such a medium and averts it in the above manner. The trees are gardeners' trees—clean, sturdy, and healthy. They must have cost considerable, and the grower might have got others at half the price, but his work throughout proves him to be a practical man who knows that a cheap fruit tree is often the dearest in the end.

Hops may not be generally interesting to gardeners, but in Kent they are of extreme importance. They are a precarious crop, paying much or little as the case may be, and farmers look back with envy on the golden days of hop-growing, before beer was brewed by the aid of other ingredients besides malt and hops. No garden crop demands better culture or more constant attention. The hop grower must wage a continual warfare against insect and fungoid foes; he must not stint manure or labour, or think too much of the outlay he has to make before he may hope for any return. If he did probably he would not do it, and the result would be failure. The good season of last year has buoyed up many with hopes, and as we look over the hedges on either side we see that digging for the most part is completed, and the big stacks of poles are gradually disappearing to take their places one after the other along the rows. On many farms permanent poles and wire are used, and though the outlay is heavy the job is more permanent. Hop gardens always demand attention. There is the digging, poling, tying, manuring, washing, picking, and drying, all following each other in succession. Of all persons taking part in these operations the dryer is the most important. The work requires experience and skill, and though the man who performs it may take part in all previous operations, he is only a commonplace individual like those around him. When, however, the hop-oast is again brought into use he develops into an important person, and, soaring above ordinary occupations, becomes a dryer on whom much depends. He enjoys this significance so long as hopping lasts, working hard and feeling the importance of his office. Hopping over, he is no longer a dryer, for his occupation has gone, and for another year he takes his rank as a labourer. Hops are always requiring attention, and now signs everywhere tell us that the demand is poles and strings for the quickly growing bine.

From hop districts we again come to fruit, this time gooseberries, currants, and so forth. The bare skeletons of the closely pruned red currants (for Kentish growers always prune closely) are rapidly assuming a green mantle as I write, and early signs of fruit are abundant. The good farmer has all his plantations dug and manured during the winter and early spring, but ever and again we come across the plantation of the inevitable careless man, where the signs are—no digging, no pruning, overgrown crowded bushes, profusion of weeds, and a general air of untidiness. Result—little fruit, poor quality, and a constant grumble about bad times. Gooseberries are no longer bushes of bare branches, but masses of fresh-looking verdant foliage, and early signs of good crops. But there are many things to contend with yet. Frost may come, and the time has not yet arrived for the appearance of the hungry caterpillar and the still more deadly gooseberry mite. Black currants are a favoured Kentish crop, though somewhat uncertain. Last year in many districts they were a failure, but where such was not the case prices ruled high. Bushes generally are starting well, but occasionally we come across plantations where the dreaded mite is in possession. Desolation reigns here, as the farmer has no efficient means of fighting the microscopic foe. From the serious aspects of commercial gardening we note gardening for pleasure in the numerous charming homesteads that skirt the highway as we pass along. Through the breaks in the trees we see that which assists greatly in making English home-life enviable—the garden. Inclination tempts us to enter and explore the interior of the domains, but our business lies along the road, at every bend of which we enter on a fresh landscape, full of features of renewed interest, but everywhere and on everything there is the sign of resurrection to new life, as all Nature answers to the call of spring. Who will say that such a ramble is not only interesting but instructive?

H.

Early-flowering Violas.—Although there have been introduced into commerce so many varieties of violas that they may be counted by hundreds, yet there are lacking some distinctly early-blooming varieties. I do not mean those which flower early in frames—I rather refer to plants that, planted out in the autumn in beds to form carpets for tulips, hyacinths, or daffodils, yet do not show a bloom until the bulbs are over, and just become gay when the usual summer bedding is arranged. There are so many that do well as summer bedders, or satisfy the requirements of exhibitors, that raisers may well turn their attention to the production of very early varieties, such as will bloom in March or April, with the primroses, polyanthuses, arabis, aubrietias, double daisies, and similar hardy plants. To test earliness thoroughly, planting should be done in October, and the clumps should be fairly strong ones. Looking over the very extensive collection of violas planted at Chiswick very recently, I found very few showing flowers. Probably a general bloom will not be found until the end of May. The plants have all been put out this spring, so they should do well and stand as they are through next winter; then they would have excellent opportunity to show their natural early, or otherwise, flowering qualities. In spring bedding, two pansies stand out markedly as early, and they are both old—Blue King, the very best yet seen of its colour for earliness, and Cliveden Purple. We want violas that bloom with these; indeed, even earlier if possible. Perhaps in very warm positions some may bloom early, but generally such is not the case. The plants are so hardy, and so beautiful when in full bloom, that they merit all attention to render them more useful in early spring gardening.—A. D.

CHRYSANTHEMUMS.

SUMMER MANAGEMENT.

As soon as the work of potting is completed the plants may be set out in their summer quarters. A position should be chosen where the full influence of the sun may reach the plants from early morning till the close of the day, because it is very essential to the production of good flowers that the growth be well matured. Any position near large trees, or overshadowing buildings should be avoided so far as they interfere with the sunlight, but at a reasonable distance these offer a considerable advantage as a shelter from strong and cold winds. Most frequently the plants are placed in rows by the sides of garden paths during summer, an arrangement that is very convenient for small collections, but where several rows are arranged together, it is important to set out the rows running from north to south, and leave between these a space of four feet or more, with about two feet from plant to plant, in order to give abundant room for development. Boards or pieces of slate under the pots are necessary to prevent worms entering through the drainage, and also to prevent the plants ultimately rooting through into the ground, and so encouraging a late, and probably too vigorous growth, besides which the check resulting from the inevitable loss of such roots when the plants are removed inside, would be more or less serious in its effect on the opening blooms.

Some years ago we tried the experiment of planting out some Japanese varieties and several Queens along the front of a greenhouse outside. The border was specially prepared with soil as for potting and the plants set out at the end of May. During summer their growth was carefully attended, three shoots were left to each plant and at the end of September the growths were drawn inside the front ventilators and suspended from the roof, the outside portion of the stems being protected and the necessary opening left to admit the stems, also covered, as far as possible, with mats. The resulting blooms were very disappointing, for although the growth was free, and apparently satisfactory, not one of the flowers were up to exhibition form. The lesson we gained from this was that unlimited root room is the adverse of advantageous in the cultivation of large flowers. Possibly an extended trial might have led to more satisfactory results, but we found nothing more encouraging than the saving of labour in watering to warrant further experiment. Extreme caution must be exercised in watering, as it is somewhat difficult to determine, at the present stage, the exact condition of the roots. When the new soil gets fairly well occupied by roots, of course it is a very simple matter, but just after potting the ball of roots naturally dries more quickly than the surrounding new soil, so that there is more need for sound judgment, based on the usual requirements of particular varieties. Such, for instance, as Etoile de Lyon, require considerably more water than the less vigorous and more shy rooting variety, Mdlle. A. de Galbert. Showery weather is apt to mislead us in giving water, by keeping the surface soil moist while the lower portion may become quite dry; hence, in growing plants in pots, the oft-repeated advice against watering in driblets is sound, because there is no appreciable reserve of moisture available for the roots through capillary attraction, as in the case of plants in the open garden; and we must especially guard against the chances of the lower roots suffering from want of moisture.

In this garden we are invariably troubled with thrips, and constant syringings are a great help in keeping these pests at bay. During very hot weather the plants are well wetted over two or three times a day, and the surrounding paths also well moistened. If, owing to dull weather, the damping is discontinued, to prevent as far as possible the encouragement of soft growth, we find the use of the contrivance known as Stone's Pneumatic Spray Diffuser the most convenient and economical method of directing a spray of insecticide into the centre of the growing points; this is more effectual than tobacco powder, because it penetrates more thoroughly, though for aphides the tobacco powder is a very satisfactory agent in keeping the growths clean. Growths will be rapid from now onward, and all such details as staking and tying of shoots will urge their own need, and little beyond this, and the daily routine of watering and syringing will claim attention for some time yet.

The unfortunate disposition to form flower buds instead of growing after the first break is formed appears likely to be troublesome in one or two of this year's new varieties. President Nonin and Lady Isabel are with us as bad as Viviand Morel, and Mdlle. Lucie Faure is likely to prove so. This latter, by the way, will probably be as often shown in classes for Japanese as for incurved, at least outside the influence of the N.C.S. rules. I saw beautiful flowers of distinctly Japanese character from early buds last season, and though on late buds it may prove a very suitable companion for incurved varieties, I am not quite satisfied that this is the most desirable section with which to class it.

A very gratifying feature of several prize lists for the coming season is the increased encouragement offered for displays of cut blooms exhibited in vases with their own foliage instead of the usual method of showing them on sloping stands, denuded of all their leaves and, consequently, of a considerable share of their natural beauties. There can be no question as to which is the best manner of staging the flowers. Blooms cut with long stems and set up nicely in vases with ample foliage present by far the most attractive picture from any point of view. To ensure the flowers keeping fresh and bright over as long a period as possible, and most especially in the often over-heated atmosphere of an exhibition hall, it is better to strip off the foliage from the stem carrying the bloom and tie on a separate stem with leaves. How unnatural and cruel a practice the showing of flowers on bare boards without any of their own natural greenery is, is quite as apparent to those who have to submit to the rules governing competitions as to those who take an outside view, and yet how slowly we relinquish old customs. The Scottish Horticultural Society has done very much to encourage the exhibiting of blooms in vases, and last season were rewarded with exceptional displays in several classes, these forming by far the most attractive features of the cut flower section of the exhibition. One of the most flourishing suburban societies is the Putney and Wandsworth, and I note liberal encouragement is here offered in the right direction. The society has the advantage of Mr. McLeod's services as hon. secretary, which ensures, with the help of a strong committee, a large measure of success.

Trent Park Gardens.

W. H. LEES.

THE STRAWBERRY CROP.

THOUGH full early to talk of the quantity or quality of this crop a few words as to protection and lengthening the season as long as possible may not be out of place. Our earliest fruits this season are on Royal Sovereign, and this variety is very heavily cropped, so will well repay extra attention for the production of fruit as early as possible. By a little additional care we may make the best of what is anything but favourable weather. Plants having a great weight of fruit to support may with advantage be given supports, and I find it a good plan to place tiles or slates under the fruits to promote early ripening. Many will be unable to afford the aids advised, but other means may be employed, and I have found it an excellent plan to place small bushy sticks under the trusses, and if lifted from the soil or protecting material as advised the ripening period will be much earlier, as no matter how well mulched it is a difficult matter in a dripping season to protect the best fruit from slugs, and if they can be kept dry by being lifted there will be a great saving. The placing of twigs is not a tedious work, as if the trusses are held in one hand and the other used for placing the wood a lot of plants may be done in a short time; I do not mean forked sticks, one to each truss, but short, bushy material, to support the weight of fruit. When in country districts I have used all kinds of wood if sufficiently bushy and stout. There are wire supports, but so far I am not much impressed with them, as they are not at all pliable or easily adjusted. In heavy clay soil supports of some kind are needed for large fruits in a wet season to prevent losses. Ordinary mulching will suffice for sorts not used for dessert, and cases, if used liberally, should be placed as lightly as possible over the roots, as heavy rains cause the fruits to lay close to the material, and so it is worth while replacing straw or giving the best position to the finest fruits. Much may be done to further the ripening or removal of useless foliage; indeed, in a wet season I have found it advantageous to cut away a little of the gross leafage, and this admits the light and air so necessary for ripening. Many growers would not agree to the removal of foliage at this season, but so much depends upon the variety, whether closely planted or not, and the weather. Such kinds as have a long stalk will not need this treatment, but these are the sorts that benefit by being raised from the soil or mulch to promote early ripening.

Another point often lost sight of in gardens is prolonging the season as much as possible, and in our own case we endeavour to have the fruit as late as we can. Some of the latest are not the best flavoured, and last year our latest strawberry was Eleanor, only a second rate variety, but where there is a demand for late fruits one cannot always study variety. I wish Laxton's Latest of All was a little later here, for it is a specially good fruit, with a distinct indication of Queen flavour, and a firm fruit not readily affected by rains; though not a gross grower, it is a most prolific variety for its size and quality. Those who can plant the latest varieties on a north border will find these plants invaluable, as they will give fruits when those in the open are past; such are not yet in flower, owing to the late season, so that they will be a welcome addition to the fruit supply in a few weeks' time. I always leave the mulching of these late kinds as long as possible, as I think it retards the bloom. To hasten a few plants on early borders when in the north, I always placed a few spare sash lights over plants growing at the foot of a south wall or in front of vineries, these were placed on inverted ten-inch flower pots, and, given shelter, gave us fruit at least ten days before those in the open came in, and in a wet season the fruits thus protected were of high quality. I have found Royal Sovereign excellent if given protection in this way, and previous to the last-named variety appearing, Noble was our earliest fruiter, but the good quality of the newer variety has ousted Noble.

A word as to protection of the fruits when ripe. I am aware there is nothing new to relate, but I would point out the advantages of netting, so that any one may gather the fruit without moving the nets; this is a great gain, and it can be done now with a great saving of time, as once in position it remains there till the fruits are cleared. Stakes six feet in height placed twelve feet apart will do well as supports if the nets are strained over them, and if light bamboo sticks are used as stretchers at the top so much the better, but lath or other supports to keep the nets in position will suffice.

G. WYTHE.

Warm versus Cold Water for Plants.—The question as to the relative value of warm and cold water for plants grown in a temperature equivalent to that of the ordinary plant stove has been discussed from time to time in America as in this country, and it is of interest to mention that experiments have been made at the Wisconsin Experiment Station to test the effects of water of different temperatures upon hothouse plants. The temperatures tried were 35, 50, 65, and 86 degrees F., the subjects being coleus and tomato plants. Water of the lowest temperature checked the growth of the coleus plants, but no appreciable difference was noticeable in the growth of the plants treated with water of the other three temperatures. Tomatos proved more susceptible to modifications of temperature. As in the case of the coleus plants, their growth was checked by the application of water at 35 degrees F., while they grew best when supplied with water warmed to 65 degrees. For example, twenty days after planting the growth made in millimetres (25 to the inch) was $101\frac{2}{3}$, after watering with water at 35 degrees, $136\frac{2}{3}$ after water at 50 degrees, 154 after water at 65 degrees, and $130\frac{1}{3}$ after water at 86 degrees. In other trials the results were proportionate, water at 65 degrees, having uniformly promoted the most vigorous growth.

LIQUID WEED DESTROYERS.

THE poisonous substances now so largely used for the destruction of moss and weeds upon gravel walks and carriage drives are the means of a considerable saving of labour in the keeping of these in order; while the improvement effected by the surfaces being undisturbed by knife or hoe enhances their appearance, and adds greatly to the pleasure experienced when using them. The present season of the year is generally selected for applying weed destroyers, and, providing the weather is fairly dry, it is the most suitable, for if the work is well carried out weeds will not appear for at least sixteen months afterwards, which will be the autumn of the following year, and as growth, if any, being very slow through the winter months, one application of the mixture in two years will, in most cases, he found sufficient. Settled weather should, if possible, be taken advantage of, and a few days after a heavy rain, while the soil is quite moist below, is preferable, by which means the liquid does not drain away so quickly, and is consequently more effective than when the under strata is very dry.

It is needless to mention the quantity of liquid to use with a given proportion of water, as this and the way to mix it is plainly set forth upon every cask, or package, when received from the manufacturers.

For using upon narrow walks where a tub upon wheels cannot be taken, I have found a paraffin cask very convenient, and easily moved from place to place, as the work proceeds, and as the cubical capacity of this is about forty gallons, the requisite quantity of poison to every cask of water is easily ascertained.

Where grass verges or lawns form the boundaries of the area to be operated upon the application of the liquid is very safely and easily accomplished, but where the edgings are of living plants, as box or others whose roots penetrate deeply, and spread beneath the walk, more care is required. With these the gravel should be drawn back to at least eight inches from the edging, removing with it any weeds, and leaving it in the form of a ridge. In using the liquid this ridge, as well as the rest of the walk, may be saturated, but the application must not be at greater speed than will allow of it sinking direct below the surface, thereby avoiding the risk of damage that would arise should it run very near the roots. In dressing walks with this description of edgings settled weather should be chosen, as a sudden heavy fall of rain shortly after its application would probably carry sufficient of the poison to the sides to cause serious mischief. Neither is it advisable to return the gravel to its place for a day or two after the dressing has been given. A small can, with a well-fitting rose that will emit the liquid in a nearly direct line should always be used alongside living edgings, of whatever form they may be, as stray drops falling upon a well-kept lawn or grass verge will cause very unsightly spots to exist for a long time. For the centres of carriage-drives and open spaces a large can and rose may be used, which will expedite the progress of the work considerably. To be effectual for a long period the entire surface must be evenly and thoroughly saturated, whether or not weeds are visible at the time, for if this is not done the latter will soon after appear upon the seemingly clean places, and so mar the appearance of the whole.

The weed-destroyers now prepared and sent out in a powdered form are very convenient for use where only small quantities are required, as they are easily mixed with water, and, so far as I have observed, are equally as destructive to vegetable life as the liquids, and costing less for carriage, and, there being no returning of empty packages, proves the article to be a cheap and convenient means of keeping gravel paths free from weeds. I have not found any kind of weed that could withstand, unharmed, a proper dressing of the weed-destroyer, for although some of the more tenacious of life will survive its effects longer than others, they all are forced to succumb in course of a few days after the application.

On this estate the necessary gravel for walks and drives is mostly obtained from the sea-shore, and this, though free of ordinary weeds, is apt to contain, more or less, a small growing variety of sedum which is scarcely visible at the time the gravel is removed, but it soon makes its presence known when spread upon the surface of the walks, and proves a most difficult subject to eradicate with hoe and rake, for however clean the surface may appear after the use of these in fine weather, it springs again quite fresh after rain. I have always considered this sedum the worst form of weed to deal with, and one that requires more than ordinary measures to destroy it, but a good dressing of the weed destroyer whenever the walks are regravelled clears it off completely, and no more is required until gravel is again wanted.

Galloway House, Garliestown, N.B. JAMES DAY.

Runner Beans.—I read, not long since, a recommendation by a gardening writer, to sow the old Scarlet Runner bean still, on the ground that it was the most prolific cropper. Those who know the cropping merits of newer and superior varieties would smile at such an assertion, but such advice given to the unlearned is misleading. All who have grown the new long-podded forms, such as Ne Plus Ultra, Prize Winner, Best of All, Exhibition, will recognise the remarkable cropping qualities of these beans, and, allied to length of pod produced, it is really not exaggerating to say that these newer varieties yield almost double the produce the older ones do, because the pods are naturally double as long; but, what is more, keep young, tender, and succulent so much longer after they have become of gathering use than do the shorter pods of old varieties. Our gain in the direction of the newer bean production during the last ten or twelve years has been remarkable, and we shall find it very difficult to get far beyond it. Then, the smooth-podded section, the climbing Canadian Wonder, Tender and True, is an exceedingly valuable addition to our runner stocks; and another most valuable addition to this section is Sutton's Excelsior, that will run, if allowed, to a great height, and produces a wonderful crop of pods. There are two or three others of this section, but these two are the best. When grown in good rows, they take the place largely of several sowings of ordinary dwarf beans, and thus contribute a saving of ground and labour. A sowing of the Golden Butter beans should be generally made to complete the collection, as this variety, where well grown and properly cooked, invariably furnishes dishes that are highly appreciated by all bean lovers.—A.D.

VEGETABLES FOR EXHIBITION.

SHALLOTS.

SHALLOTS (*Allium ascalonicum*) are pretty generally cultivated in this country, and, as a rule, with success. By many they are preferred to onions for pickling purposes, and, in my opinion, the preference is deserved. Their mode of culture is very simple, and, like onions, they may be cultivated for years on the same piece of ground if it is well tilled and manured each season. Any aspect except a northern one will suit them. The land should be well trenched and enriched with farmyard manure during autumn, and, early in the year, as soon as the weather will permit, the bulbs should be planted, in fact the earlier the better. I like, if possible, to plant early in February, as the frost never injures them. The ground should be pointed over with the fork and raked down neat and level. Plant in rows one foot apart and ten inches from plant to plant. On a light soil the bulbs may simply be pressed in with the hand, but not buried entirely, about three parts will suffice; but on stiff, heavy land it will be necessary to use the dibber, pressing the soil fairly firm about the sets. As a rule shallots lose no time in forming roots and commencing to grow, and by the end of June the crops should be matured and ready for lifting, and the ground ready for some other crop. Simply lift or pull up the bulbs, and lay them in an airy sunny place, when they should be turned about every other day, as it is essential to thoroughly ripen them before storing. Any cool, dry, airy room will keep them well, and on wet days they should be examined, cleaned, and sorted, and the smallest bulbs should be put on one side for the following year's crop.

Shallots may be produced from seed, but I have never been satisfied with this mode of culture, as my experience is that they always come very mixed, and too much like bad onions. To obtain the very best results for exhibition some extra care must be bestowed on them. Select, if possible, a southern site, which should be thoroughly trenched, and, as in the case of onions, can hardly be made too rich. Allow a distance of fifteen inches between the rows, and one foot from set to set. Firm, medium bulbs should be selected, and frequent dressings of farmyard liquid should be given, mulching the ground after growth has commenced with half-spent horse droppings. When the growth is completed, it should be carefully laid down for a week or ten days before lifting the crop. Every care should be taken to thoroughly expose and ripen the bulbs before storing, and in wet, sunless weather they should be placed in shallow boxes under cover; cold frames will answer the purpose well. The bulbs, or cloves, as they are generally termed, should be large, firm, thoroughly ripened, of a good bright colour, and with small necks. Twenty-five will make a good dish, all of which should be as alike as possible, and arranged on a large dinner plate. There are now several very excellent kinds in cultivation, but the old Chester variety is still one of the best for ordinary purposes. Veitch's Exhibition, Carter's Mammoth, and the Red Skinned are the best for competition.

Aldenham House Gardens. E. BECKETT.

GARDENERS AND CHARITABLE CONTRIBUTIONS.

WHILST some writers are freehanded in sermonising gardeners because they do not more freely contribute to the funds of the gardening charities or the United Horticultural Benefit Society, it is very interesting to find the chairman of the recent Gardeners' Benevolent dinner, Sir Oswald Mosley, as also the treasurer, Mr. Harry Veitch, lamenting the fact that generally such poor wages are paid to gardeners. Does it not occur to writers that the primary cause cf the lack of contributions to the objects named by gardeners is largely due to this cause? That gardeners are as thrifty a race as any other body of workers there can be no doubt, but they cannot spare money to contribute to everything. I do not say that the large benefit societies present in any way such attractions as the United Horticultural Benefit Society does, because that is one of the very best of its kind in the kingdom. But the objection largely entertained towards it by gardeners is that, having no branches, they can take no active part in its management, and for that reason have in it very little interest. It is because large societies like the Oddfellows, Foresters, Hearts of Oak, and others have branches everywhere that they have become so popular and are so universally supported by the classes to whom they appeal. Then how many gardeners who, when young have become members of these large benefit societies, and once having joined they stick to them. There are, of course, good reasons why they should do so. How many, again, have insured their lives, believing that in doing so they were performing a most meritorious act. Tnat, again, necessitates the payment of annual premiums. How many, specially driven to do so by the necessities of their positions, get married, and in doing that assume heavy financial responsibilities, which increase rather than lighten as the customary family increases; and when to these things is added the fact that relative to the wages paid to ordinary artisans and mechanics, the wage of the gardener is small, how can it be expected that he should be able to find money to contribute to yet other societies, even though they may be such as command his liveliest sympathy, as well as invite his pecuniary support? Then, any gardener is assumed to be a saving man, in the sense that he would use the facilities for that purpose the Post Office places at his disposal. To be in no better position than that he is absolutely dependent week after week on his wages, and has not a penny saved up as a nest-egg, and when trouble comes is enough to render the life of any sensitive man one of intense worry and of bitterness. How many a man who has suddenly passed away has been harshly blamed because he has saved nothing, and made no provision for his family, without any inquiries being made as to his opportunities and capacities? When speaking to the members of the United Horticultural Benefit Society some time since, I said that whilst the popular demand was for a "living" wage, I went further and asked for a "saving" wage, because, unless a man could not only "live" but "save," life was one constant state of bankruptcy, and it was not worth living. I do not wish to shield from the full performance of their responsibilities any of our well-paid gardeners; but much more charity would be shown towards those who are not only so poorly paid, but whose position, unlike the mechanic, are held by such slender threads that he may be in for a few years and out for many months, and thus have every halfpenny he has saved absorbed for sustenance. A. D.

CLIVIAS.

Among the many useful flowering plants available for spring and early summer Clivia miniata and its many fine varieties are worthy of special mention, and more extensive culture. Useful as they are for small gardens, grown in small pots for table, hall, and conservatory decoration, they are even more useful in establishments where there are large conservatories and winter gardens to furnish and brighten. Grown in large pots or tubs they are effective as specimens for standing alone, as the soft shades of orange in the trusses of bold flowers, together with the shining and deep green foliage, render such examples extremely handsome. For cut flowers also clivias are excellent, keeping fresh a long time. The clivias are of easy culture, and especially so as they are not often attacked by insect pests. Having such thick fleshy roots clivias are naturally gross feeders; in this respect it is not unlike the agapanthus, and, like it, will submit to a great deal of rough treatment when not flowering. A suitable compost for clivias consists of rich loam with a little wood ashes and some leaf-soil; when established and growing freely plenty of water is necessary, but when growth for the season is complete much less is required, for though the ball of roots and soil should not become absolutely dry, they should tend to dryness rather than a state of moisture. The temperature of a greenhouse will suffice, and for early plants an intermediate house will best serve; to retard the plants it is necessary to keep them as dry and cool as possible apart from causing injury to them.

The photograph sent [reproduced herewith] represents a specimen that flowered here a short time ago; it, however, does not give an adequate idea of the example, owing to the reduction necessary. The specimen figured was five feet high, including the pot, and five feet five inches across; some of the leaves were three and a quarter inches wide. The trusses numbered thirteen, with an aggregate of two hundred and twenty flowers; one truss carried twenty-seven flowers. Though only in a fifteen-inch pot, this plant flowers freely every year, and has not been potted for several seasons; it is fed occasionally when the spikes are appearing, and also again when growth is vigorous. The form is that known as Clivia miniata superba.

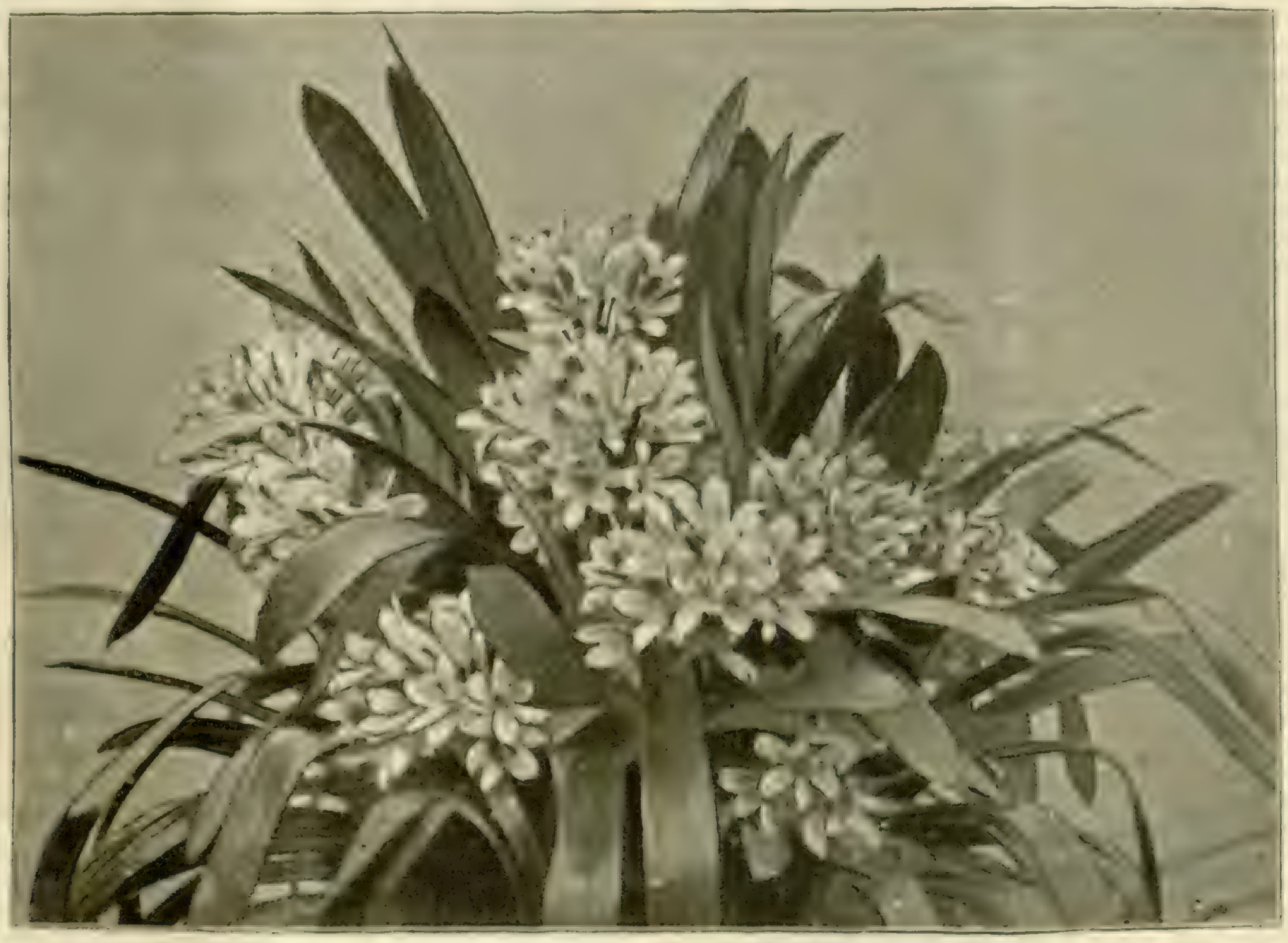
Fairfield Gardens, Cobham. JOHN WALKER.

Average life of the Potato.—I fear Mr. Davies' experience of Duke of York potato has been too limited to allow of his forming a good estimate of its capabilities. I can quite understand its being later than Ashleaf in such a trial, presuming that the latter was from home grown stock and the former bought in, as in that case it would probably have lost its first shoots and been weakened in losing them. I find it the most precocious, and the most prolific early potato I have grown, and it is only by keeping the seed in a much cooler place than that in which the rest of our seed potatos, Ashleaf included, are kept that I can preserve the first shoots at all, and it is very necessary that they should be so preserved. I think Mr. Davies must stand alone, or almost alone, in claiming Ashleaf as the best cropping early potato, and Magnum Bonum as the heaviest main crop. I own to the good qualities of the latter in many respects, but I could name many that would beat it as a cropper, and good potatos too. I ask again, What has become of the many good potatos which have risen and fallen during the last thirty years? Why have they dropped out? It cannot be because of the "bad practice" to which Mr. Davies alludes. I fail to see how that affects the matter. Surely our practices have not gone back, or is it that we only now know how to grow the newer potatos and the older ones are beyond us. If one began to reckon the names of those which have been in their day in the first flight, one would hardly know when to stop, but I refrain.—J. C. TALLACK.

LÆLIO-CATTLEYA HIPPOLYTA.

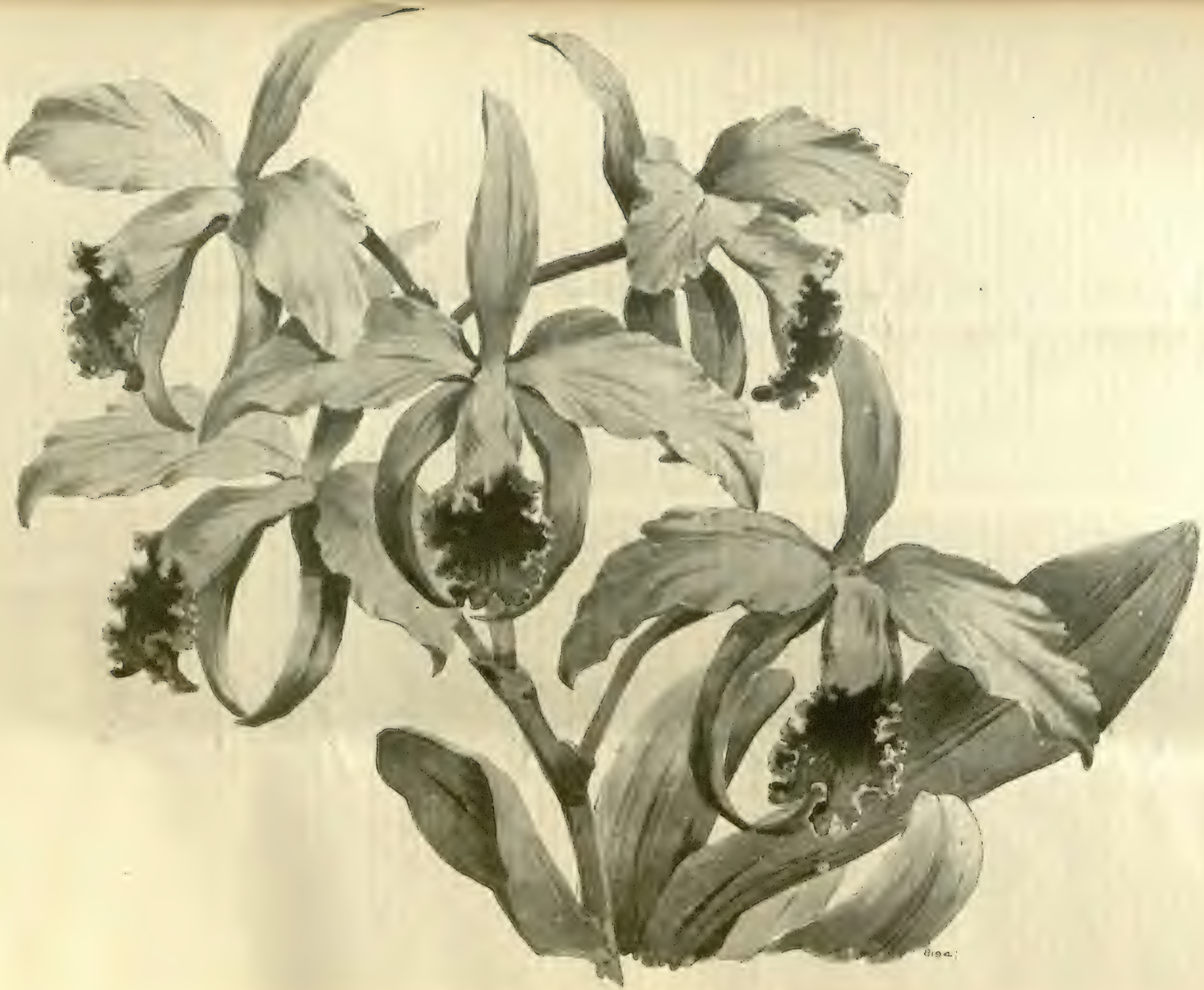
For brilliance of colouring none of the many handsome bigeneric hybrids raised between a lælia and a cattleya can excel L.-c. Hippolyta. One or two others, notably L.-c. Latona rival it, and are in themselves very beautiful and distinct; L.-c. Hippolyta, however, is both distinct and handsome, its spike of spreading flowers providing a glorious bit of rosy-orange colour that serves to increase the beauty of other lælias and cattleyas that may be flowering at the same time. This grand hybrid was raised by Mr. Seden, and is the result of crossing Cattleya Mossiæ with Lælia cinnabarina; the former parent has increased the size of the flowers of the latter and broadened the segments, while the lælia has given its rich colour and modified the shape of the lip considerably. L.-c. Hippolyta was exhibited before the Royal Horticultural Society on March, 25, 1890, by Messrs. J. Veitch and Sons, Chelsea, and a first-class certificate was readily granted. The flowers measure four to five inches across, the sepals an inch, and the petals about an inch and a half in breadth; the sepals are bright orange, but the petals are a charming rosy-orange shade, while the narrow and exquisitely fringed labellum is deep rosy-orange, with a purplish crimson margin.

As in other instances where a batch of seedlings is raised from the same cross there has been seen some variation in the individuals, some having flowers showing a buff rather than an orange tint, and having narrower segments than usual. Then, again, there have been superb forms with larger and more deeply coloured flowers than the majority—gems of the first water. Among the latter the variety now figured takes the lead as a consequence of its vigour, high colour, and fine flowers. Lælio-cattleya Hippolyta Dulcote var. was exhibited at the Drill Hall on May 10 last by Walter Cobb, Esq., Dulcote, Tunbridge Wells, a gentleman who has a large number of rare and exquisite orchids in his interesting collection. This variety is not only fine in itself, but it has been highly cultivated. When exhibited it carried a spike of five flowers, consequently a first-class certificate was awarded. The flowers are about five to six inches across, with petals of a lovely orange shade, through which comes a glow of purple-rose that reminds one of Cattleya Mossiæ; the orange tint is deepest towards the margins, and is very intense upon the broad and somewhat waved petals. The lip is a wonderful organ, broader than in most forms, the side lobes overlapping and hiding the column, orange coloured; the spreading apex has a beautifully frilled margin; the colour is orange-crimson, with a marginal tinge of rose, and with a good deal of yellow towards the purple-lined and shaded base. We congratulate Mr. Cobb upon possessing such an orchid, and also for the high cultural ability of his grower.



SPECIMEN CLIVIA AT FAIRFIELD, COBHAM.

Lilies of the Valley.—If the persons who so frequently send to the papers complaints of the poor condition of their lily of the valley beds could but see the superb beds which Messrs. Hawkins and Bennett have at Twickenham, and learn their treatment and then follow it, we should hear less of these complaints. These large beds, some eight feet wide and one hundred feet long, are planted, to be covered with frames and lights. No bed remains longer than eight years before it is removed, the best of the crowns being selected, then replanted in fresh soil, the old being removed and replaced with fresh. The selected crowns are then set in just under the surface, and at about three inches apart. A good dressing of very short manure is given. Such a dressing is given every year, and occasional soakings with liquid manure are also furnished. Once well established the plants bear ample feeding, and that is best given whilst they are growing during the summer.—A. D.



LÆLIO-CATTLEYA HIPPOLYTA DULCOTE VAR.

WORK FOR THE WEEK.

WARM ORCHIDS.

UP to the present time potting has been the work of greatest importance, consequently insect pests have had more opportunities than usual, so it would be as well to have a general examination and cleansing of the stock. The cattleyas, at such busy times, are apt to get infested with scale, especially around the base of the bulbs, clouding the dormant eyes; this pest must receive immediate attention, being injurious and unsightly. Cattleya aurea is generally first attacked, and if the plants are not in the best of health they will suffer considerably. In the case of Cattleya Mossiæ, C. Mendeli, C. gigas, C. Warneri, C. labiata, and C. Harrisoniæ, a good and a safe plan is to paint the base of the bulbs with methylated spirits in a pure state, using a soft camel-hair brush; this is a successful remedy, but great care is necessary in its use, for if the spirit comes into contact with the roots they are likely to suffer. I have experimented on the bulbs, but not on the roots, and would not recommend others to do so. Cattleya aurea will require more water during the growing season, but do not deluge it if the plants are to be kept in a flourishing condition. Discretion must be used as to the outside conditions as well as the inside; watering twice a week is quite sufficient, though during hot, dry weather frequent damping is essential. The second growth on an imported plant is generally the strongest flowering growth, and if flowering fails, then the third proves to be the best, but after this a rest is essential, bringing it again on a par with the previous year. If convenient, less shading should be given this than the members of the general collection of cattleyas; the foliage will appear light in colour under this treatment, but the tint is natural, and we always find imported foliage yellow. Another queer subject is Cattleya gigas, which will be found very easy to grow, but difficult to flower, and hence is not a great favourite with growers; this will be now advanced in growth, and must have more water afforded, but otherwise the same treatment as C. aurea; the same remarks apply to C. Hardyana and C. Massiana, which are natural hybrids between C. gigas and C. aurea.

Calanthe veratrifolia will be growing freely, and copious waterings will be necessary; this species thrives well at the warm end of the cattleya house, requiring plenty of shade during sunny days. It is an old orchid, and generally found difficult to grow, but if kept clean it usually does well; weak liquid cow manure, given occasionally during the season of growth, is very beneficial. The flowers of this calanthe are very useful for any floral arrangement. Chysis bractescens and C. aurea will be growing rapidly, so copious waterings must be afforded, taking care not to wet the foliage, or it will spot; weak liquid cow manure will be also beneficial to this and similar orchids. Great care is necessary now as regards shading, damping, watering, and cleaning; damping must be done in the forenoon, after dinner, and again in the afternoon; there must be a free circulation of fresh air night and day, with both top and bottom ventilation; liquid cow manure should be thrown on the floors occasionally as before advised, and the syringe used freely where advisable.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

WINTER flowering or tree carnations will be now well established in their flowering pots, and abundance of ventilation should be given the plants to prevent the grass drawing up thinly. In some favoured localities, the plants may be partially plunged in a bed of ashes outside, but we find it best to use frames for them, so that the lights may be placed over, should there come a spell of dull, wet weather. When the soil becomes overcharged with water, the roots do not make healthy progress, which is soon noticed by the foliage losing its natural healthy colour. The lights can always be well tilted at the back, and what watering is required is best done each morning. One central stake is sufficient for most of the plants, the different shoots being supported by neat loops of raffia. When it is seen that one or more of the growths is taking the lead too much, the points of these should be pinched out, so that all may grow equal. During dry weather, the plants are greatly benefited by dewing the foliage over, and also the surface of the plunging bed between them. A slight shade will also prove beneficial for a few hours while the sun is hottest, but it is a mistake to shade them for long or too heavily. Cyclamens, cinerarias, primulas, and other winter flowering plants, should be arranged in shallow frames which are partially shaded from the sun. After each potting, it is necessary to keep the lights over them and the atmosphere moist, but we find when the plants are growing freely, they revel in being exposed to the night dews, whenever it is considered safe to draw the lights off. These plants may be grown to a large size in small pots, which makes them so much more acceptable for filling vases for room decoration. This should be borne in mind when potting, and to have them at their best, in, say, six-inch pots, a carefully prepared rich compost should be afforded, and this made fairly firm about the roots. Always crock the pots carefully, so that copious waterings may be given without fear of the compost becoming water-logged, and as the plants will be standing on a cool, moist base for many weeks, where worms prove troublesome, a little soot sprinkled over the drainage will prevent them entering the pots, and at the same time stimulate growth later on.

The shifting of chrysanthemums into their final pots should be pushed forward now, as such work should be completed if possible by the third week in the month. This is a heavy item of labour, and occupies much time in many gardens, but it is work that cannot be done hurriedly if the best results are required. We recommended preparing a good heap of compost for the purpose some weeks ago; this will now be in first-class condition. The pots, too, having been selected, cleansed, and crocked properly, will allow of the workman proceeding with his work without a check. As it is not always the best policy to water plants directly they are potted, two important matters must be seen to, viz., that the compost used is in a suitable moist condition, as well as the ball of the plants, at the time the work of potting is done. The plants should be carefully looked over about two hours beforehand, and any requiring water should have sufficient given to thoroughly penetrate every part of the ball, which will give time for this to drain off and leave the plants in the best possible condition for potting on. When a plant is watered and potted directly afterwards, there is a danger of making the soil go to a pulp by the ramming in of the new compost, and the plants never do well afterwards. It is also a mistake to arrange the pots in their permanent summer quarters until a week or fortnight after potting. By standing them fairly close together, say, in beds of four rows, so that they may be attended to for watering, &c., one shades the other to a great extent from the force of the sun, and by dewing them over several times a day during hot weather, and also between the pots, new roots are made in the fresh compost before much watering is required. When the plants have recovered from the check of potting and have commenced to grow again, they should be stood in lines and made secure to neat stakes or strained wires in such a way as not to shade each other. Even then watering should be done with care, but water should be given freely when the plants do require it. Pot on recently-struck cuttings; these will make compact plants and prove pleasing objects for dwelling-rooms if the points are taken out and about half a dozen or so of shoots secured. No endeavour should be made to force growth by feeding at the roots. Given a good compost the plants seldom require much assistance until the buds are secured, then stimulants of some kind act beneficially if used with care and wisdom. Over-feeding has been the ruin of many promising collections of chrysanthemum plants, hence the reason of my note of warning, especially to young men and would-be prize winners next November. —R. PARKER, *Goodwood.*

THE FLOWER GARDEN.

THE most important work of the flower garden at this season—the planting out of the summer occupants—should by the time this note appears be mostly finished, and where not completed an endeavour should be made to finish without delay. The stormy weather at the time of writing has been somewhat hindering the work, and the temperature much lower than is usual at bedding-out time, and, indeed, a summer below the average warmth seems very probable. The storms, however, that have fallen have not been sufficient to moisten plants to the roots, and all bedding stuff should have one thorough soaking of water given, while if a mulch of cocoanut-fibre refuse can be afforded where the arrangement allows of its being applied, further watering will not be necessary, at least for some time. In order to encourage a free growth in the plants calceolarias and pelargoniums should have the flowers removed for a week or so after planting, and the points of any long shoots taken out to induce a bushy growth and the covering of the allotted space as soon as possible. Window-boxes and vases filled with pelargoniums, &c., should be kept clean and free from decaying foliage, and where trailing plants are used on tall vases some means should be taken to prevent damage from wind; a piece of wire or string passed round under the rim of the vase, to which one tie may be made will suffice. Herbaceous perennials have made considerable progress during the past few weeks, although pæonies and other subjects are considerably later in blooming than has been the case in the few preceding years. The showers experienced have not been sufficient to moisten the soil around the roots of pæonies and others with considerable leafage, and these will be much benefited by an occasional soaking of water or weak liquid manure. Staking and tying of many occupants of these borders will be necessary, and this should receive attention before the tops become over heavy and tying is more difficult.

Several varieties of the tall-growing Michaelmas daisies will require stakes, and if it be wished to somewhat dwarf their growth, five or six inches of the tops may be taken off now, as this will not spoil the flowering. This treatment may also be given the tall-growing chrysanthemums or Pyrethrum uliginosum at the present time. One of the best blue-flowered summer perennials is Anchusa italica, producing freely stems from two to four feet in height, furnished with flowers of an intense shade of blue, and continuing in bloom more or less throughout the summer. The flower stems must be kept erect, and should be tied to stakes, and not bundled together, which spoils the effect. The double White Rocket, a very sweet, old-fashioned plant, and useful at this season where many cut flowers are required, should also be neatly tied to short stakes. The bright red spikes of the dwarf-growing Heuchera sanguinea are effective either in the border or when used for cut flowers. As soon as flowering has passed the plants should be lifted and divided if it be desired to increase the stock, and in any case, if the clumps are large, this operation will be necessary to ensure good flowering plants for another season. This plant appears to flower more freely in heavy rather than light soils, as here, where the latter prevails, the plants grow strongly, but the flower spikes are thinly produced, whereas in a clayey loam I noticed similarly sized plants were flowering profusely. Carnations are fast throwing up their flower stems, and these must be secured to small stakes, or where grown in reserve for cutting purposes they may have twigs of birch stuck around them to keep the flowers off the ground. It occupies less time than tying to stakes, and for this purpose answers just as well. Where large flowers are desired the small side buds should be pinched off early. Among the roses green-fly has increased wonderfully the past week or two, and frequent syringings with quassia mixture, as before advised, has become necessary to keep this pest under. The bushes should be thoroughly cleansed, if possible, before the blooms open, and if the liquid be used at a temperature of about 120 degrees the mixture is the more effectual. In the pleasure grounds where rhododendrons are grown, these should be examined while in bloom, and in the case of choice hybrids worked on the ponticum stock, any shoots growing away from the latter should be removed, otherwise in time they outgrow and destroy the variety worked upon it.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

SINCE penning my last calendar note we have experienced most changeable weather, cold nights being the rule, with much rain and little sun heat by day, and though the moisture was much needed for the roots, wall trees especially being very dry, the want of sun has caused insect pests to spread rapidly, and these, unless taken in hand at an early date, will cause much mischief. Cherries come first, as these are badly infested with black fly, in spite of much attention early in the season, and as the fruits of the earliest varieties are growing fast and will soon show signs of colouring, there must be no delay in cleansing, otherwise strong insecticides will render the fruits uneatable. Much may be done by stopping previous to washing the trees; indeed, neglect of stopping is often the cause of the trees being dirty, as I have found trees regularly pinched out, and not allowed to grow so long that the knife must be used, are not nearly so subject to attacks as with stronger shoots. I noted the importance of early stopping some weeks ago, and now add that there will be no gain in further delay, or, with black fly so troublesome, the crop will be ruined. Previous to a final cleansing in our light, shallow soil, I always find it advisable to give a good mulch of manure—spent mushroom bed manure is excellent, but one is often obliged to make shifts, and any strawy manure will answer well; this is necessary as the cherry so soon feels the [illegible] of strong sun heat after dull, rainy weather, and the roots being near the surface are greatly benefited by the mulch given just as the fruits are taking their final swelling. Cow manure in light soils is an excellent mulch. There must be no further delay in netting, and give as light a cover or net as possible, as a heavy cover induces insect attacks, and prevents the trees benefiting by night dews which are helpful to the foliage. If a heavier shade is needed to preserve ripe fruit, far better use it during bright sunshine in the way of any extra cover of tiffany or canvas than as a permanent shade. Cherries split badly if the season is wet when the fruits are quite ripe, and any crop to be kept may well be protected by boards or sashes placed over the roots to throw off excessive rainfall.

Apple trees in many places need attention even at this early date, as I notice there are bad attacks of caterpillars. Space does not permit me to deal at length with the various remedies for their destruction; these are well known, and should be used as early as possible. A great deal may be done in the case of small trees by handpicking and burning the grub, and then giving the trees a dressing of insecticide by syringing freely late in the day. I also notice the dreaded American blight, in spite of a dripping month, has made its appearance, and no time should be lost in exterminating this pest, as allowed to remain it will soon kill the trees;

I find soluble petroleum effective, and this may be procured ready for use at a small cost, or raw petroleum is readily made soluble by mixing with soft soap; in very bad cases it may be necessary to paint the portion infected with the petroleum, not diluted. Now is a good time to give young fruit trees, such as apples and pears, a good mulch; this is specially necessary with trees against walls, the mulch keeping the roots growing freely, as these trees, having no large roots to depend upon, are much sooner affected by drought.

Strawberries will now be showing colour where grown specially for early supplies, and the value of young plants for the first crop will be seen in such a season as this, as these plants are much more forward than older ones. I advised on mulching early in previous notes, and its value will now be seen, as the mulching material is well cleansed by rains, and will also protect the roots from drought should this set in. Royal Sovereign is again our earliest fruit, and earlier than Noble or Laxton's Earliest; it is certainly our most useful variety, and does so well in poor soils. On the other hand all kinds are much later than usual, doubtless owing to the cold nights and want of sun, but the crop is a heavy one. For a few early dishes in the open it will well repay growers to cover a few of the forward plants with spare sashes, as by so doing the crop will be hastened and the season prolonged. This advice may be more useful in the colder parts of the country, but even here we find the larger fruiting kinds well repay for the cover given. With an abundance of bloom it will be well to lift the trusses into better positions to ripen, as they are much weighted down by heavy rains and will benefit by exposure. There must be no delay in netting the earliest fruiters, and this is often done by laying the nets directly over the leaves, but it is not the best plan, as the larger birds settle on the nets and have the best fruit; it is much better to support the nets with a few rods or sticks; indeed, if they can be suspended so that the fruits can be gathered without moving the nets it is a great gain in every way.—G. WYTHES, *Syon Gardens.*

USEFULNESS OF CRUCIFEROUS PLANTS.

THE plants constituting the cruciferæ order are mostly herbaceous in character, and particularly abundant in the temperate parts of the northern hemisphere. Though they mostly possess pungent or biting properties, none are poisonous, but, on the contrary, are eminently wholesome and antiscorbutic. The following best known examples of the order will illustrate this: Horse radish (*Cochlearia armoracia*), a perennial herb naturalised in this country, occurring in damp, waste places, and found throughout the greater part of Europe. Under cultivation it forms a thick, somewhat fleshy root, and is much valued as a condiment. Mustard is another condiment of equal or greater value, and is the finely pulverised seeds of two species of *Brassica*—*B. alba* the white, and *B. nigra* the black mustard. They are annual plants widely distributed over Europe, *B. alba* occurring also in Asia Minor, Algeria, and China, and cultivated in the home counties of Essex and Cambridgeshire; while *B. nigra* is also found in Asia Minor, as well as in North Africa and North-West India, its cultivation in this country being chiefly carried on in Lincolnshire and Yorkshire. In the preparation of mustard, or flour of mustard of commerce, the seeds of both species are used mixed, and great care is taken in reducing them to a very fine powder, which is sifted through a fine silk gauze. Besides the use of mustard for table purposes, it is an important medicinal agent on account of its powerful stimulant and rubefacient properties. The cabbage (*Brassica oleracea*) is another illustration of a valuable esculent belonging to this important order of plants. In its wild state it is abundant on the cliffs by the sea coast in many parts of England, especially in the south-eastern counties. The effect of cultivation has produced marvellous changes in this plant, giving us all the varieties of broccoli, Scotch kale, savoy, Brussels sprouts, cauliflower, and even the red cabbage. The same power of culture has also changed the woody root of the common wild turnip (*Brassica campestris* var. *Rapa*) into the fleshy, globular root of our gardens, while the Swede turnip has sprung from another variety of the same species; and the rape, again, so largely grown by us as a green fodder, and on the Continent for the sake of its seeds, from which is expressed rape or colza oil, has originated from still another variety. The radish (*Raphanus sativus*) is still another of the esculent cruciferous roots. The plant is unknown in its wild state, but it has been suggested that it may have sprung from an allied species of the Mediterranean coast. In the early ages it was extensively cultivated in Egypt, and found its way into England about the middle of the sixteenth century. Gerard mentions four varieties as being known in 1597. We cannot leave this interesting family of plants without a reference to woad, the blue colouring matter used by the ancient Britons to stain their skins, and produced by *Isatis tinctoria.* At that early period its culture seems to have been general for the purpose mentioned above, as well as for dyeing cloths, but in later times the general introduction of indigo seriously interfered with the use of woad; and though it is still manufactured in some parts of the Continent, its preparation in this country is fast dying out, and at the present time is carried on only in the neighbourhood of Wisbech, and there it is still made in the most primitive fashion.—MR. J. R. JACKSON, in *Knowledge.*

Root Dryness of Trees.—Reading your recent leader on this subject my mind was irresistibly carried back more than half a century since, when there existed on the northern side of the town of Southampton a noble avenue of elms. It presented a singularly attractive entrance to the town from London then. But when the principles of Macadam in the art of roadmaking came to be adopted, and besides the formation of rounded, hard, impervious carriage-ways, broad gravel paths were formed also; and moisture that previously had easily penetrated to the roots of the trees ran off—deep drains or excavations being cut also for the laying down of sewer pipes, water or gas—then the trees began to shed their bark, and gradually to die. The townspeople believed that this bark-shedding was due to mischief, and rewards were offered for the conviction of the offenders, for no one then assumed that the trees were internally suffering. But one after another died, and presently nearly all disappeared. Now that is just the sort of trouble so many fine avenues of trees have passed through to their extinction. On the other hand how well old trees continue to grow and flourish on pasture, where they not only receive ample moisture, but also plenty of Nature's own food. It is a wise provision of Nature, that tree vegetation shall exist on food of its own production; hence it is that the leafage produced during the summer falling to the ground, largely held in position by the grass or general surroundings, either decomposes and is as food washed into the soil, or is drawn into the soil by worms, these often maligned creatures thus performing valuable work in the economy of Nature. Large old trees want plenty of moisture, and plenty of food. Many of our oldest and finest trees either stand quite alone, or are near river banks. The grand old araucaria at Dropmore owes much of its nobility and luxuriant growth to its contiguity to a lake of water.—A. D.

SOILS AND POTTING.

IN discussing the all important question of soils for pot plants at a meeting of the Massachusetts Horticultural Society, Mr. T. D. Hatfield said: Gardeners seldom fully agree about the proper soil for any crop. Few of us find ourselves having the same conditions of soil to deal with. Our soil may be heavy or light, the land high or low, and with every variation of exposure. We go from one place to another, and often wonder at our neighbour's success when we should consider failure certain. I have received plants with the soil so stiff that I have wondered how they ever dried out when once wet; and from another place where the soil would appear to be about the same as our swamp mud. An acquaintance of mine tells me that at one place where he was gardener the only bit of potting soil he could find was turf from what had at some time been a salt marsh. After it was broken up, and the air and frost went through it, he found he could grow almost anything, from a geranium up to an azalea. Everybody finds a way of dealing with the problem before him.

We gardeners, taken together, are a conservative lot. We believe in "leaving well enough alone." It is a good policy, and one which carries much weight with it, and respect also. There are methods which we continue, often because it is the custom or practice to do so, and often we cannot explain why. Much experience is scratched up in a hand to hand sort of way; we find out as we must, and often we are obliged to experiment for ourselves, for the best practice of one does not always suit the case of the other. The gardeners of the United States have to thank the old-country gardeners, and many of us our old country training; though much that we do here is done differently, yet an intelligent training helps us better to gauge our practice to the altered conditions, and these are principally of climate. Wrong we may be sometimes, and often too particular, but it is better always to err on the side of prudence.

Take the old books, and we shall read: "One-third of turfy loam, one-third of leaf soil, and a third of sand;" or it may be fourths, including rotted manure, or fifths, with peat added; but accurate measuring is tedious work, and too slow to suit Yankee ideas, so the tendency is toward simpler methods. As a matter of fact there are but few mixtures of soil in use to-day. Leaf soil, one of the best ingredients in any compost, is seldom used in any except private gardens. Many gardeners manage to get along without it. Well rotted manure is a good substitute, and in some cases is better. It is necessary, however, owing to the prevailing slipshod methods, that the soil should be light for potted plants. The man with a hose can over-water with safety when the weather is hot, and the plants soon dry out, and when it is cold artificial heat has the same effect. But you cannot persuade the old-time gardeners to use the hose, though they may see that it really makes little difference, if ordinary care is used. Many plants set down as requiring heavy soil may be grown as well in a light soil. Wherever the rose grower is located he finds means of meeting the natural wants of his plants. He may add clay, but will not if he finds he can succeed without it, and he is almost sure to do so.

Take azaleas. It used to be, and is yet in some places, considered necessary to import English peat in order to be successful with them. Ninety per cent. of these beautiful hard-wooded plants are still grown in peaty soil in England. Nothing succeeds like success there as well as here, even though it be arbitration! If an English gardener grows good azaleas in peaty soil he is not likely to change his practice. Ocular demonstration cannot be overcome, and if we will not be convinced by any other argument we must be by this. For instance, take a look at the azaleas grown by Mr. Charles Sanders, gardener for Professor C. S. Sargent, of Brookline, and you will see that azaleas can be grown in soil almost wholly lacking peat.

This brings us to another part of the subject. The successful cultivator of plants finds there are other considerations almost as important as the soil and its consistency. I have tried all kinds of soil for gloxinias, consulting this and that formula. I potted them in light soil, heavy soil, rich and poor, all to little advantage. With these handsome tuberous-rooted plants much depends on caring for the tubers during what is called the resting season, though they are never absolutely at rest and we made a mistake when we enforce it by removing the tubers from the soil in which they had been growing and storing them in dry sand, as is frequently the practice. They should never become thoroughly dry, for living roots will at all times be found, and these require some nourishment. It is important that we should start with sound, healthy roots, start them slowly by withholding water until some leaf growth is made, and at all times keep them near the light, though not in direct sunlight. If we attend to these essential conditions we shall find that gloxinias succeed in almost any soil. Peat soil may be necessary for some ferns, but almost all of them will thrive as well in good loam and leaf soil.

It may surprise you to know that I have but one compost heap, and that is seldom as good as I should like to have it. Good turfy loam is not as plentiful as I could wish, and though it is really the best, some of us have found out how to get along without it. The old country carnation growers are extremely careful when mixing their potting soil—a barrow full of this and that and so much brick rubbish and charcoal; but the American grower prepares his in the field without a foot of turf; he must, and so he does. He has several methods, and perhaps the best and most common-sense one is to cultivate the area for stripping, growing thereon a crop of clover with no object beyond turning the best of what is put into the soil as manure into plant food of the kind which the carnation most needs. The American grower raises more and better carnations than his English compeer. He has, it is true, many advantages not possessed by the Briton. He has better light during the winter time, he has made a speciality of the work, and more than all, he has originated a new type of carnations. What I have said about carnation growing only goes to show that the importance of a prescribed composition of the soil is over-estimated.

When I first set out to pile up potting soil I scratched hard for turf. I landed in New Jersey, and those who have lived in the manufacturing districts about New York know how scarce a bit of turf is. I was bound to have it, and so made up a pile of witch grass dug from the road-side. It was not very bad, for witch grass does not grow in poor soil. I was delighted, however, when I came to Massachusetts, and the possibilities of a rare compost heap grew in my imagination; but I soon learned that turf here was not as free as water by any means. It is an old saying that "one never knows the worth of a thing until he wants to buy it." I was not to be baffled, however, and in less than a year I had half a dozen piles. I scoured the hollows in the woods for decayed leaf soil, and well remember coming across an old-time charcoal burner's camping ground in a clearing, well covered with turf. I thought I had now found just the right kind of soil for everything; but it proved to be the deadest stuff I ever used. Like a fancy dish it was no good without a dressing—a dressing of manure in this case. I made up my mind to keep my find a secret, and did until another was disappointed in the same way, and then, remembering that "misery loves company," I told how I had been deceived.

(To be continued.)

EXHIBITIONS AND MEETINGS.

ROYAL BOTANIC SOCIETY.

THE floral fête and children's parade was held on the 10 inst. instead of on June 8 and 9, the adjournment being made in consequence of the Drawing Room, and as T.R.H. the Prince and Princess of Wales could come to Regent's Park to award the banners to the most successful children's displays. The day, though dull, was fairly fine and there was a fine show, and a large and fashionable gathering to welcome their Royal Highnesses.

GROUPS.

Messrs. J. Laing and Sons, Forest Hill occupied their usual position, and on the semi-circular shape bank they arranged a most handsome group of flowering and foliage plants, associated in a most charming manner as regards colour and effect; tall and graceful palms afforded a fine background for crotons, dracænas, dieffenbachias, and other choice highly coloured foliage plants; before these came groups of the brilliant tuberous begonias for which the firm is famous. Towards the margin were fine orchids, chiefly cattleyas, and odontoglossums were arranged with phyllocacti, in variety, gloxinias, streptocarpus, and anthuriums; producing, with the fringe of green fern and isolepis, a beautiful effect that was much appreciated and duly admired. A most attractive and novel exhibit was put up by Messrs. J. Jackman and Son, Woking Nursery; this consisted of about thirty specimens of their beautiful new Clematis coccinea hybrids. The varieties were Countess of Onslow, Duchess of Albany, Duchess of York, Sir Trevor Lawrence, and Grace Darling. All the plants were well furnished with handsome foliage and elegant tubular flowers; most were on balloon trellises, but some were trained up poles and over rustic arches in a manner that displayed their beauty to the best advantage. A few maples, spiræas, and ferns completed an excellent arrangement.

Very bright and handsome was the display of rhododendrons and azaleas put up by Mr. J. Russell, Richmond, Surrey; all the specimens were remarkably well grown, and flowered profusely, being covered with handsome trusses of large blooms. To the effectiveness of the many fine rhododendrons was added the lighter grace, brighter tint, and sweet fragrance of pontic, mollis, and hybrid azaleas, all hardy sorts of great merit, including the famous Anthony Koster, Daviesi and Nancy Waterer. Messrs. J. Carter and Co. occupied a central position over the fountain basin, where a large draped stand had been raised, upon which the firm showed specimens of their petunias, begonias, calceolarias, gloxinias, streptocarpus, and other specialities, staging the flowering plants amid ferns and palms. From the four corner posts arches of asparagus and such flowers as gladiolus, Spanish iris and gloxinias were thrown to the central pole, and thus an effective exhibit was made up.

A delightfully fragrant display of roses came from Messrs. W. Paul and Son, Waltham Cross, and in it nothing was more admired than the set of pillar and bush specimens of the Crimson Rambler rose, beautifully flowered, and just in its best. The firm's own varieties were well represented by cut flowers or flowering plants of Spenser, the ever-blooming Enchantress, Sylph, Princess May, Clio, &c. The single Scotch roses, seedlings, were greatly admired, and the whole group was greatly appreciated by the visitors. Messrs. Barr and Son, Covent Garden, had a display of choice varieties of iris that made a fine show, because the varieties were staged in large sheafs; a white form, Mrs. H. Drew, was especially good. Poppies and pæonies were gorgeously effective; so also were the pyrethrums, the form named General Wallace, crimson scarlet, being especially noticeable. Lupins, delphiniums, eremuri, and hemerocallis were other flowers largely and finely exhibited by this firm. A large group of the effective, semi-double, salmon-coloured zonal pelargonium—King of Denmark, was arranged by Messrs. A. W. Young and Co., Stevenage. Messrs. W. Paul and Son, Waltham Cross, had, in addition to their lovely roses, a bank of rhododendrons, golden oaks, golden ivies, hardy azaleas, &c., with a number of tall specimens of Bougainvillea Sanderiana, charmingly flowered, rising between and above the other subjects; the rhododendrons were very fine. A group of the more popular orchids, such as Cattleya Mossiæ, C. Mendeli, Odontoglossum citrosmum, O. crispum, Cymbidium Lowianum, Cœlogyne Dayanum, and Brassia verrucosa came from L. Mond, Esq., Avenue Road, Regent's Park; these were arranged by the grower, Mr. J. Clarke, among ferns and palms on a sloping bank, and proved very attractive.

Primrose Queen, a broad-petalled and handsome carnation was stayed in first-rate condition by Mr. F. Perkins, Leamington. Mr. J. Russell's group of American agaves, both green and variegated forms, was not the least attractive or interesting exhibit. A handsome set of spotted, shaded, margined, and self-gloxinias from Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood, shows that the firm keeps well to the front as regards fine form, good colours, and erect habit in their flowers; streptocarpus made an appropriate edging to the gloxinia group. Messrs. A. W. Young and Co., Stevenage, made an extensive exhibit of cut hardy flowers, making special displays of poppies, pyrethrums, irises, and columbines; plants were represented by calceolarias and coleuses. A long table was occupied by Messrs. G. Jackman and Son, Woking, with a fine assortment of hardy flowers in bunches; the pyrethrums, rhododendron, violas, Geranium ibericum, irises, tritomas, pæonies, Papaver bracteatum, Aster alpinus superbus being notably well represented.

Messrs. Kelway and Son, Landport, Somerset, had a famous collection of pæonies and pyrethrums, and it was a pity the firm had not better opportunities of arranging these with some regard to effect. Among the pyrethrums we noted Pericles, yellow; Aphrodite, white; Lord Rosebery, deep red; Transcendant, rose; and Shotones, pink, as some of the finest doubles. The single varieties were equally beautiful, especially the very brilliant James Kelway, Cassiope, Bassanio, and Sir Hugo. The pæonies were extremely fine, both single and double varieties, but owing to the dullness of the day, and the fact that they were staged behind the pyrethrums, etc., they were not seen to the best advantage. Other interesting subjects from Langport were the amaryllis, splendid aquilegias, stately delphiniums, campanulas, irises, etc. When one considers the distance from Langport to Regent's Park, the display of Messrs. Kelway must be considered a wonderful one. One of the most graceful groups came from Mr. J. Russell, Richmond, who on this occasion was a most extensive exhibitor; the group in question consisted of hardy coloured foliage plants, and comprised a collection of the best Japanese maples, Acer negundo, tall and dwarf; irises, both silver and gold variegated, and both bush and climbing plants; euryas, and the brightly variegated Euonymus latifolia variegata, were grandly represented, as also were Prunus Pissardi and Cornus mascula aurea, a very fine exhibit. The Jadoo Company, Limited, put up an exhibit of plants of various kinds, both flowering and foliage, grown in their speciality, Judo fibre; photos of various specimens also grown in the compost, were also in view, and assisted to show the variety of subjects that can be successfully grown in the material.

Messrs. T. Rivers and Son, Sawbridgeworth, Herts, had a splendid lot of fruit trees in pots, chiefly Cardinal, Rivers' Orange, Stanwick, Elruge, and Dryden nectarines, and Grosse Mignonne and Dymond peaches. The trees were in that splendid health that always characterises the firm's exhibits, and they carried a large crop of splendidly coloured and full-sized fruits.

FLORAL DESIGN.

Floral decorations of a high quality were set up by Messrs. B. S. Williams and Son, Piccadilly, W. We greatly admired the superb basket of odontoglossums and cattleyas, the horseshoe of similar flowers arranged lightly over a foundation of white double narcissi, and the bouquet of golden Spanish iris; the fan of narcissi and pink carnations was cleverly done, while the wreaths of roses and croton leaves was a somewhat daring design. A basket of bright gladioli, associated with double white narcissi, was a feature in the collection of floral designs admirably arranged by Messrs. J. Laing and Sons, Forest Hill; their basket of marguerites, cornflowers, geums, and grasses was light and beautiful, suggestive of cornfields and country road sides; bouquets and baskets of orchids completed a pretty set. Mr. J. Russell, of Richmond, designed a lovely bouquet of Cattleya Mendeli, C. Mossiæ, and Odontoglossum crispum specially for H.R.H. the Princess of Wales, but by some mistake it was not presented to her.

MEDALS AWARDED.

Gold Medals: Messrs. J. Laing and Sons, Forest Hill; Messrs. W. Paul and Son, Waltham Cross; Mr. J. Russell, Kew Road, Richmond; G. Jackman and Son, Woking; Messrs. J. Carter and Co., Holborn; Messrs. Kelway and Son, Langport, Somerset; and Messrs. T. Rivers and Son, Sawbridgeworth. Large Silver Medals: Messrs. Barr and Son, Covent Garden; Messrs. A. W. Young and Co., Stevenage; and Ludwig Mond, Esq., Regent's Park. Silver Medals: Messrs. B. S. Williams and Son, Holloway and Piccadilly; Messrs. J. Peed and Sons, Norwood; and the Jadoo Co., Ltd.

CHILDREN'S PARADE.

The parade of florally-decorated children, go-carts, mail-carts, bicycles, &c., was as large as usual, but, on the whole, the arrangements did not appear to be of such a tasteful character as in some former years. The crowds of people who came to see the parade paid little or no attention to the Order of Council, "not to stand on the chairs," and so the view of a large number was obstructed. Fortunately, the rain kept off during the afternoon, but tent-roofs had been erected, and under these the parade was held, and here the awards to successful competitors were given by Her Royal Highness the Princess of Wales. The best display was a double mail-cart from Mrs. G. Kemp; this was prettily decorated with irises, rhododendrons, marguerites, and suitable foliage. The May Day Group, by Miss Lyndon, gained second prize, both pole and streamers being clothed with yellow and white marguerites and blue cornflowers. Mrs. Garford's "Ray of Gold" was pretty, and consisted of a decoration in yellow irises and marguerites. Mrs. Garford's pony-cart was a great success, being tastefully decorated with viburnums, rhododendrons, carnations, and roses, both over and around the vehicle. Miss L. Bayley decorated her bicycle with yellow Spanish irises and yellow marguerites. Indeed, yellow in various shades appeared to be the popular colour both for drapery and flowers. The single mail-cart from Mrs. Buck, the young lady decorated with seed packets, Carter's catalogue, young plants, and quite an array of liliums and other flowers, representing "From Seed to Flower," were both novel and interesting exhibits, as also was "A Little Gardener with Garden Produce"—flowers, fruits, and vegetables—by Mrs. Kelf.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE Scottish Horticultural Association held a crowded meeting at their rooms, St. Andrew's Square, on the 7th inst. After the minutes of the last meeting were read and confirmed, new members nominated, and those nominated at the last meeting admitted, the President (Mr. Todd), in a few genial sentences, called upon Mr. Alexander Johnstone, of Hay Lodge, Trinity, to read his paper on the "Growth of Fuchsias for Home Decoration and Exhibition."

With a brief reference to its introduction, improved merit, and cultivation, Mr. Johnstone boldly affirmed that notwithstanding the inrush of orchids, stove plants, chrysanthemums, palms and ferns, the fuchsia still held its own place and power in modern decorative gardening. In his paper he hoped to prove true to the future, himself, and those amateur friends whom he might be able to assist in their laudable effort to grow fuchsias, and with at least as great perfection in the future as they had done in the past. Referring to the qualities of good fuchsias of different colours and form, in a few terse sentences, Mr. Johnstone was soon in the thick of his subject, preparing well-drained five-inched pots for cuttings, surfacing these with silver sand, filling them with cuttings about an inch or so long, protecting them with glasses, and subjecting them to a general growing temperature of fifty-five degrees, or so. January, February, or March are perhaps the best time on the whole for propagating fuchsias from cuttings. Pot off so soon as well rooted, and so soon as well established remove the fuchsias to greenhouse temperature and treatment. How to grow fuchsias to win first prizes: Mr. Johnstone, under this head, soon showed that he was not an advocate of the rush and race school that force early plants to win their spurs at a year or two old. On the contrary, he spoke of plants two, three, four, five, six, and in one or more cases of old stagers, eight or more years old, that were said to know their way about when taking taking first rank at flower shows.

Old or young, the fuchsia should be rested more or less in winter. Anything a few degrees above freezing will suffice—a temperature, say, from thirty-five to forty. Root dryness, comparative, not absolute, should be added to force the plants to rest.

Reduce the old balls, prune the roots, if desirable, remove most or all the old soil, and shift into the smallest pots the roots can be got into early in the year. If possible a bottom heat of from 60 to 70 degrees for a few weeks, with a moist atmosphere and partial shade, are useful at this stage, to help the roots to grip the fresh soil, and the stems to break away with equal vigour from base to summit. The best soil for fuchsias is about two-thirds strongest yellow loam and one-third of leaf-mould, with a fair propertion of gritty sand. Many growers add a dash of bone meal, or a thin layer of rich bones over the crocks.

The final shift should be given three months before the date of show, and the last stopping be given two months before the same. Mr. Johnstone's comparison of model fuchsias for show to small Cedrus Deodara was so true to our highest conceptions of nature and art among fuchsias that it deserves to live among cultivators as a genuine flash of a great man's genius. With this form and the pot crammed with healthy roots, well fed with a liquid composed of water, soot, and sheep manure the plants will continue models of elegance and freshness, as well as rain down showers of beauty throughout the season. Mr. Johnston recommended that only the finest varieties should be grown, and concluded by naming a few of the older that were still worthy of a place with many of the newer sorts so profusely illustrated and described in our trade catalogues of the day.

Mr. James Grieve led off the spirited and genial criticism that followed. He condemned the cultivation of old plants, stating that none over three years old should be awarded prizes by judges. From a humorous personal reminiscence, it seemed Mr. Grieve's dislike of old fuchsias dates from a painful experience of helping to carry a monster to a show.

Mr. William Carmichael related his experience in growing and judging Bath fuchsias, and stated the best he had ever seen were exhibited by Mr. D. T. Fish at Bury St. Edmunds, when two royal societies, the Royal Agricultural of England and the Royal Horticultural held their two great shows together in the provinces for the first time.

Mr. Fish on the whole agreed with Mr. Johnstone, to whom he conveyed a hearty vote of thanks. The older in reason the plants, and the fuller the pots of healthy roots, the more freely the plants bloom. Several speakers recommended the insertion of the cuttings in the autumn rather than the spring, August and September being probably more suitable for trade stock. Mr. Long directed attention to a useful mode of protecting young fuchsias in winter. Plants from four to ten feet high were lifted and laid in trenches about a foot deep. In the spring or early summer they were lifted, dressed, and pruned, and planted, and grew and blossomed freely. Mr. Charles Comfort, in opening the discussion, wished to add two hints. The first was, never throw a fuchsia away, however old, if doing well; the second is, never pinch and pot a fuchsia at the same time. Allow some six or ten days at least between the shifting and the pinching. Mr. Alexander Mackenzie, of the Warriston Nurseries, strongly condemned old fuchsias and their admirers as antiquated and out of the run of modern fashion of growing flowers, &c., and concluded with a brilliant epitome of the trade side of fuchsia culture. The President, whose father was a fuchsia grower in the west country, in conveying the hearty thanks of the association generally, gave expression to his views on the cultivation of fuchsias. In acknowledging the vote of thanks, Mr. Johnstone replied to his several critics, and expressed the pleasure he felt in having such a large audience. It was announced that the association would visit the nurseries of Messrs. James Grieve and Sons on the 25th inst. to inspect the violas and other good things at the establishment. D. T. F.

GRAND YORKSHIRE GALA, June 15, 16, and 17.

This well-conducted floral and horticultural fête is being held for the fortieth time as we go to press, and the display we now report is no doubt the finest of the whole series. There have been occasions when roses, for instance, have been a far finer show than on this occasion; but take it all in all York has seen no finer horticultural exhibition than that of 1898. In 1897 a fearful gale raged on the morning of the opening day, and, as we detailed at the time, the whole of the many large canvas erections were wrecked and a vast number of fine plants smashed into a shapeless mass, many hundreds of pounds worth of damage being done. The Gala Committee had a large balance in hand, and as soon as possible they obtained particulars and paid the expenses of all the exhibitors. This gave them a loss of about £1,000 on the year's working. On Wednesday last, however, the sun shone brightly on York, there was a genial air, and so the fashionable world of this fine old city turned out *en masse* to the féte. We hope that the total attendance has been so large as to result in a large amount of last year's loss being made up. In former years the Pressmen have had no difficulty in obtaining admission to the tents while judging was progressing and so performing their duties with ease. This season matters were not so pleasant, and at first it seemed likely that no admittance would be granted until the conclusion of the judging—an absurd arrangement. However, the genial chairman, Alderman Sir C. A. Milward, J.P., brought his influence to bear, with the result that the usual facilities for note-taking were granted. All the arrangements for the amusement of the visitors were much as usual, but the arrangement of the exhibition was different, the big pelargoniums, fuchsias, &c., occupying a side tent, leaving the centre for orchids, trade exhibits and groups This departure was a good one, for nothing much better than the general effect produced could have been wished for. May the York Gala prosper as it deserves, and may it be able to soon add many more hundreds of pounds to the amount already disbursed by its committee to local charities!

Groups.

In the class for a group of miscellaneous plants arranged for effect upon a space not exceeding 300 square feet, there were five competitors, so that this class in itself resulted in a really fine exhibition. The competition was fairly keen, and the chief award, of £20, was won by Mr. C. J. Mee, Floral Depôt, Nottingham, who had a tasteful arrangement, in which the highly-coloured crotons and graceful spikes of odontoglossums were especially effective. The background consisted of a wall of virgin cork and moss, in which anthuriums (both foliage and flowering kinds), crotons, dracænas, small palms, caladiums, and other graceful plants were associated in a most natural manner. The ground work of the whole scheme was deep green moss, and here and there were neat and elegant mounds of plants, arranged around some well-grown specimens of cocos, crotons, bamboo, &c.; dotted about the groundwork were smaller single-stemmed crotons of great beauty, liliums, and free-flowered masdevallias. In the front were several of these mounds, varying much in size; the conspicuous centre one was capped by a big Kentia Belmoreana, that was surrounded at the base with a lot of Odontoglossum crispum, O. Halli, O. luteo purpuream, Epidendrum vitellinum majus, and Anthurium Andreanum. The whole group was very handsome, and, though bright, was not gaudy, and had even a cooling and restful effect. The second prize went to Mr. G. Wilson, gardener to Sir J. Reckitt, Bart., Swanland Manor, Brough; the plan followed by Mr. Wilson was not at all unlike that of Mr. Mee but there were mirrors at the back and a pair of great arches of plants; in front of these was a huge boulder covered with ferns and bamboos, and over this trickled a tiny stream of water that fell into a little wandering stream below, where yellow nuphars reposed. Marantas, Rex begonias, caladiums, aglæonemas, and cypripediums were used with great effect, and a flowering plant of Medinella magnifaca was a prominent and pleasing specimen. Mr. J. McIntyre, gardener to Mrs. Gurney Pease, Woodside, Darlington, gained third prize with a pretty arrangement that was a trifle too crowded over the base; two tiny fountains were not a great success, but the cultural ability displayed in the crotons, alocasias, &c., was very great. Mr. W. Vause, Summers Place, Leamington, secured the fourth prize, while the fifth was won by Messrs. R. Simpson and Son, Selby, Yorks.

Orchids.

Mr. James Cypher put up a charming group of orchids, and with it succeeded in winning the Victoria prize of £20 and a gold medal. The group was arranged effectively with palms, azaleas, bamboos, asparagus, and similarly bright and elegant subjects. Two orchids, extending from the centre to the outer corners of the group, were clothed with cattleyas of various kinds, including plenty of the drooping C. citrina; graceful spikes of odontoglossums and oncidiums arched over either way, while reaching up from below were tall oncidiums and robust cypripediums. The ground-work consisted of groups of splendid forms of Cattleya Mossiæ, C. Mendeli, Odontoglossum crispum, Miltonia vexillaria, Masdevallia Veitchi, with the butterfly flowers of Oncidium Papilio hovering here and there among and over the whole; this group was a most refreshing sight. Mr. J. Robson, Altrincham, secured second place, showing massive clusters of odontoglossums and cattleyas; some fine plants of Oncidium sphacelatum were shown, but the associated foliage plants were too dense.

The first prize for ten orchids was awarded to Mr. J. Cypher, Cheltenham, who showed good forms of Cattleya Warneri, Lælia purpurata, Cattleya lobata, Thunia Veitchi, Odontoglossum hystrix, Epidendrum prismatocarpum, and Lælia grandis tenebrosa; Mr. J. T. Barker, gardener to W. Burkinshaw, Esq., Hessle, second, showing a good Epidendrum Medusæ. Mr. Cypher was also most successful in the class for six orchids, staging large examples of Cattleya Mendeli, C. Mossiæ, Thunia Marshalliæ, and Epidendrum vitellinum majus; Mr. Johnson, gardener to T. Statter, Esq., Stand Hall, Manchester, second; and Mr. W. Townsend, gardener to E. B. Faber, Esq., Belvedere, Harrowgate, third. Mr. Cypher came to the front again in the class for three orchids, winning with nice examples of Oncidium macranthum, Cattleya Mossiæ, and Lælia purpurata alba; Mr. A. Hall, gardener to J. E. Waterhouse, Esq., Macclesfield, second; and Mr. Johnson third. The best specimen orchid was a fine example of Lælia purpurata, carrying half a dozen lovely spikes of exceptionally-large and beautiful flowers. This came from Mr. C. Lawton, gardener to H. Harrison Broadley, Esq., Welton House, East Yorks; the second best specimen was a very large Cypripedium Lawrenceanum, shown by Mr. F. Nicholas, gardener to the Earl of Zetland, Upleatham; Mr. A. H. Hall, third, with a good Oncidium Marshallianum. For six rare orchids, Mr. J. T. Barker came first with small examples of Cattleya Mossiæ alba, Cypripedium bellatulum-godefroyæ, Lælia tenebrosa Charlesworth's var., Cypripedium bellatulum album, Lælia purpurata Othello, and Odontoglossum crispum Charlotte; Mr. Johnson second, his set including Cypripedium callosum Sanderæ, the fine C. Gertrude Hollington, and Dendrobium Victoria Reginæ.

Specimen Plants.

The specimen stove and greenhouse plants are always a great feature at the York Show, and they look fine arranged around the central pole of the big bell tent. Numerous large palms and crotons were also arranged this year at the end of the side tents, and were very effective in such positions.

Mr. J. Cypher once again put up his leviathan specimen stove and greenhouse plants, and once again succeeded in securing the leading awards. His group of ten specimens comprised grand examples of Latania borbonica, Kentia Forsteriana, Cycas undulata, Phœnix rupicola, Stephanotis grandiflora, Erica depressa, [a mass of yellow flowers; Phœnicoma prolifera Barnesi, Clerodendron Balfouri, Pimelia dionæfolia, a grand specimen; and Bougainvillea Cypheri. The second prize was won by Mr. F. Nicholas, gardener to the Earl of Zetland, Upleatham, Marske-by-the-Sea; this grower staged some very fine azaleas, an Anthurium Scherzerianum of first-rate form, and a splendid Ixora Williamsi in addition to other flowering plants, crotons and towering palms. Mr. R. Vause came third, with smaller but well-grown plants. Mr. J. Cypher scored for three cape heaths with medium-sized examples of the pink Erica ventricosa grandiflora, E. depressa, and E. affinis; Mr. C. Lawton, second; and Mr. J. Sunley, Milford Junction, third. Mr. J. McIntyre led the way with four crotons, staging big highly-coloured bushes of C. Sinitzeanus, C. Queen Victoria, C. Aigburthensis, and C. Baroness Rothschild. Mr. J. McIntyre, gardener to Mrs. G. Pease, Darlington, put up a first-rate half-dozen exotic ferns, taking first prize with ample specimens of Adiantum Mariesi, A. cuneatum, Davallia hirta cristata, D. Mooreana, D. fijiensis, and Gleichenia Mendeli; Mr. J. Snowdon, gardener to the Rev. G. Yeats, Heworth Vicarage, was a good second, with Gymnogramma chrysophylla, Davallia bullata, Asplenium nidus-avis, Polypodium aureum, Davallia hirta cristata, and Adiantum Williamsi, a fine specimen. Mr. J. McIntyre led for three exotic ferns with huge examples of Gleichenia rupestris, Davallia fijiensis, five feet across; and D. Mooreana. A good Adiantum Farleyense secured the chief award for Mr. J. Snowdon as the best single exotic fern; Mr. J. McIntyre second, with a smaller plant; and Mr. Nicholas third, with Lomaria zamiæfolia.

For six stove or greenhouse plants Mr. J. Cypher took first place with rotund specimens of Bougainvillea glabra, Aphelexis macrantha rosea, and a large mass of Anthurium Scherzerianum carrying fine spathes; Boronia elatior, Clerodendron Thomsoniæ, and Erica depressa were also first rate. Mr. C. Lawton, gardener to H. H. Broadly, Esq., East Yorks, was second; and Mr. M. Vause, Leamington, third. Mr. Sunley scored for three stove and greenhouse plants, showing Erica ventricosa, Genetyllis tulipifera, and Anthurium Scherzerianum; Mr. C. Lawton second. The best specimen of azalea was a huge mound of rosy flowers shown by Mr. J. Cypher, the variety was Holfordiana; Messrs. Jackson and Co., Bedale, second, with a beautiful soft rose-coloured variety. Mr. C. J. Mee was first for a stove plant with a robust specimen of Anthurium Scherzerianum; the second prize-winner's name was not recorded, but he showed a large stephanotis freely flowered though a little past its best; Mr. J. Rollison, gardener to W. Bateman, Esq., Pannal, Leeds, third, with an anthurium. Mr. J. McIntyre had the best half dozen ornamental foliage plants, his collection comprising three huge crotons and the same number of palms. The leading exhibitor of hardy ferns was Mr. W. J. Nicholson, Ripon, who won two first prizes and staged fine examples of Trichomanes radicans, Scolopendrium crispum, Lastrea filix-mas cristatum, Struthiopteris pennsylvanica, Osmunda interruptum, Adiantum pedatum, Athyrium f. f. Pritchardi, &c.

Cut Flowers.

A beautiful collection of hardy flowers put up in splendid sheaves by Messrs. Harkness and Son, Bedale, York, won the first prize, the group being arranged on a space eighteen feet by fourteen feet. Here were beautiful bunches of liliums, Spanish and German irises, pyrethrums, mulleins, Heuchera sanguinea, poppies, aquilegias, &c., the whole in first-rate condition, and making up a really fine display. The second prize was secured by Mr. A. Perry, Winchmore Hill, who had a fine exhibit of popular flowers; Messrs. R. Smith and Co., Worcester, secured the third prize with a bright group of pæonies, irises, and pyrethrums; Mr. W. Hutchinson, fourth. Messrs. J. Burrell and Co., Cambridge, secured first prize for twelve bunches of hardy border flowers with handsome sheaves of Iris pallida, Hemerocallis flava, Iris orientalis, Pyrethrum Pericles and P. J. N. Twerdy, Iris spuria, Heuchera sanguinea, Onosma tauraca, Hieracium villosum, Phlox ovata, and Achillea mongolica. Mr. G. Cottam, Alma Gardens, Hull, came second with a good collection, and Mr. J. McIntyre followed closely for third place.

Some choice blooms were arranged by Mr. Nicholas, who gained first prize for a set of stove and greenhouse flowers; Lælia purpurata, Dendrobium nobile, Eucharis amazonica, streptocarpus, amaryllis, ericas, and Ixora Williamsi were grandly shown; the second prize collection consisted almost entirely of popular orchids. Mr. M. Campbell, High Blantyre, took first prizes for two dozen show pansies, and for a similar number of fancy pansy blooms, showing handsome sets in both instances. Mr. J. Smellie, Busby, was a close second in both classes.

PELARGONIUMS.

The pelargoniums are ever a great attraction at the York show, and this season they looked as well as ever, and there was the usual combat between Mr. Eastwood, Mr. McIntosh, and Mr. Pybus. All these plants were arranged in a side tent with the fuchsias, where they made a magnificent blaze of colour, and afforded an object lesson in careful cultivation and patient training.

Mr. R. McIntosh, gardener to J. T. Hingston, Esq., Clifton, once again led the way for a group of twelve show pelargoniums, putting up a superb lot of flatly trained specimens, each a picture of high cultivation, and simply smothered with flowers; the varieties were Queen Bess, Tommy Dodd, Duchess of Bedford, Edward Perkins, Garibaldi, Miss W. Hingston, Madame Hilaire, Rose Queen, Triumphe de St. Amand, Madame Thibaut, Lady Isabella, and Kingston Beauty. Mr. Isaac Eastwood, gardener to Mrs. Tetley, Westood, Leeds, had to be content with second place, but it was a close second, and his set included grand examples of Kingston Beauty, Madame Desmoulin, Master Richard, Magpie, and Madame Hilaire. Mr. McIntosh scored again in the class for six show pelargoniums with splendid developments of Kingston Beauty, Queen Bess, Madame Hilaire, Mrs. W. Coombe, Digby Grand, and President Hanson; Mr. Eastwood followed with even larger plants of Madame Desmoulin, Kingston Beauty, Queen Bess, Painted Lady, Master Richard, and Magpie. Mr. Eastwood beat Mr. McIntosh for three specimen show pelargoniums, his Madame Desmoulin being a superb plant, covered with salmon-hued flowers.

Mr. H. Pybus, Monckton Moor, Ripon, took leading honours in the class for six double-flowered ivy-leaved pelargoniums, showing large pyramidal specimens of Madame Thibaut, Prince of Wales, Beauty of Castlehill, Ginnie Jillet, Souvenir de Chas. Turner, and Hohenzollern; Mr. Eastwood, second; and Mr. McIntosh, third. In each case the plants were more backward than usual. Mr. Eastwood had the best three double-flowered ivy-leaved pelargoniums, winning with freely-flowered examples of H. Cannell, Langson, and Boreas; Mr. H. Pybus, second; and Mr. G. Cottam, Cottingham, third.

Mr Eastwood occupied the post of honour for a dozen specimens of zonal pelargoniums, making a superb display with exceptionally grand plants of Princess of Wales, H. Cannell, Aspasia, Lady Brookes, Mrs. Gordon, Rev. J. Atkinson, Lady R. Churchill, Mulberry, Mrs. W. Paul, Dr. Orton, Divine Comedy, and John Watson; Mr. H. Pybus, of Monckton Moor, Ripon, was a very good second. Mr. Eastwood held leading place for three double zonal pelargoniums, with Empress of India, salmon; Le Cygne, white; and Cremeneaux, scarlet; Mr. H. Pybus came second, and Mr. G. Clarke, gardener to Messrs. Wharton, third. In the class for nine double-flowered zonal pelargoniums, Mr. Eastwood won the first prize with fairly large examples of Mrs. Cope, scarlet; Madame Patti, rose; Cremeneaux, bright scarlet; Dr. Jacoby, salmon; Lord Cecil, rosy scarlet; Jules Simon, pink; Clara Pfitzer, pink; Lord Mayor, purple; and Le Cygne, white; Messrs. R. Simpson and Son, Selby, second. Mr. Eastwood again led the way for three zonal or nosegay pelargoniums, showing examples of Mrs. Kelley, Henry Jacoby, and Swanley Gem, all masses of fine trusses and the flowers of a brilliant hue; Mr. H. Pybus, second, with much smaller plants. For six zonal or nosegay pelargoniums, Mr. Pybus was first, showing lovely masses of Mrs. Kelley, Salmon Queen, President Thiers, Mulberry, a fine colour; Mrs. Turner, and Circulata; Mr. Eastwood had to be content with second place in this competition, but he was first for eight fancy pelargoniums.

ROSES.

Roses were very poor throughout, and the competition was by no means keen. The trying weather is, of course, answerable for this state of affairs. Messrs. Jackson and Co., Bedale, took first prize for a group of roses, showing a fairly good set of freely-flowered bushy plants; La France and Mrs. J. Laing were notably good. Mr. H. Pybus had a much smaller collection, mostly of tea-scented varieties, and gained second prize.

In the open class for seventy-two roses, Messrs. J. and A. May, Bedale, secured the first prize with a very moderate set, in which the best blooms were of Ulrich Brunner, Gustave Piganeau, Maréchal Niel, Margaret Dickson, La France, The Bride, Caroline Testout, Jean d'Arc, Mr. J. Laing, S. M. Rodocanachi, Fisher Holmes, and Mrs. S. Crawford; Mr. G. Mount, Canterbury, came second. Mr. G. Mount led the way for forty-eight roses, his best being Madame Montel, Camille Bernardin, Cleopatra, Captain Hayward, Ulrich Brunner, General Jacqueminot, and Anna Ollivier; Messrs. J. and A. May, Bedale, second. Mr. Mount won the first prize for thirty-six blooms of roses, distinct, his Maréchal Niel, Mrs. J. Laing, Mrs. Sharman Crawford, Captain Hayward, S. M. Rodocanachi, and Marie Hoste being much the best flowers; Messrs. J. and A. May second.

Messr. J. Burrell and Co., Cambridge, led the way for two dozen roses, distinct, with very fair flowers of Horace Vernet, E. Y. Teas, Catherine Mermet, Captain Christy, A. K. Williams, Chas. Lefebvre, and Thos. Mills; Mr. G. Mount, second, and Messrs. J. and A. May, third. Mr. Mount had a very fair dozen white and yellow roses, gaining first prize with Maréchal Niel, Anna Olivier, Niphetos, Caroline Testout, Marie Van Houtte, and Perle des Jardins; Messrs. J. and A. May, second. In the class for eighteen cut roses Messrs. Burrell and Co., Cambridge, won the chief honours with fair flowers of Marie Baumann, Etienne Levet, Horace Vernet, Innocenti Pirola, Chas. Lefebvre, Ulrich Brunner, Thos. Mills, Maréchal Niel, Le Havre, Bridesmaid, Duke of Connaught, Souvenir d'un Ami, Captain Hayward, Souv. de S. A. Prince, Prince Arthur, Madame Hoste, Duke of Wellington, and Marie Van Houtte; Mr. Mount second, and Mr. W. Hutchinson, Kirby Moorside, third.

MISCELLANEOUS PLANTS.

Fuchsias made a good show along the top of the central stage in the pelargonium tent, but they were too formally trained, pyramid-shaped, to be really handsome; for half-a-dozen specimens there was a keen competition, and Mr. McIntosh took the premier award; Mr. Eastwood, second; and Mr. G. Clarke, Burton Grange, York, third. The best group of carnations was staged by Mr. Tullett, Barnard Castle Gardens, who had a pleasing collection of Souvenir de la Malmaison carnations in the centre of his exhibit, and smaller-flowered sorts at the side; this was a very pleasing display. Mr. Sunley was awarded a third prize. Table plants were fairly well shown, and Mr. C. J. Mee, Nottingham, secured first prize with an elegant set of neat azaleas, crotons, pandanus, &c.; Mr. J. R. Rollison, gardener to W. Bateman, Esq., Pannal, near Leeds, was a good second.

Mr. G. Potter, Werby, York, won the first prize for eight distinct begonias with freely-flowered specimens, chiefly single varieties, but all good sorts. Mr. G. Clarke, gardener to Miss Wharton, second; and Miss Barstow, third. Calceolarias were well shown by Mr. R. Lawson, who secured first prize with neat examples; Mr. A. Lunt, gardener to Lord Herries, Everingham Park, York, second; and Mr. W. Spavin, gardener to W. Bellerby, Esq., York, third. The best set of gloxinias came from Mr. W. Fletcher, gardener to T. M. Lambert, Esq., Beechlands, York; who was closely followed by Mr. Dobson, gardener to R. Lawson, Esq., Clifton, and Mr. Spavin. For a group of tuberous begonias, Messrs. R. Simpson and Son came first with but a moderately good collection, and Miss Wharton, York, second. Mr. J. W. Clarke, Clifton, and Miss Wharton took first and second prizes respectively for six coleus.

FLORAL ARRANGEMENTS.

The floral arrangements were good, but not so numerous as one could wish for. Messrs. Perkins and Sons, Coventry, gained the first prize for a pair of bridal bouquets, showing beautiful designs in white odontoglossums, stephanotis, &c.; Mr. G. Webster, Sunderland, second. Messrs. Perkins and Sons also won first place in the class for a pair of ball bouquets, showing elegant and brilliant displays of bright odontoglossums, Oncidium macranthum, and other graceful orchids arranged with asparagus and fern fronds. Messrs. Loughton and Sons scored for a single hand bouquet, and staged a fine design in pale colours. Messrs. Perkins and Sons led for a pair of hand bouquets, designing these with Dendrobium phalænopsis, yellow oncidiums, and rose-tinted odontoglossum spikes; Mr. G. Webster, a good second.

The best group of natural flowers arranged in a basket or stand was an arrangement by Mr. G. Webster, Sunderland, who had a most tasteful display of mauve cattleyas, blue tinted irises, gloxinias, richardias, &c., arranged with plenty of fern frondage; Mr. G. Cottam, Hull, second, with a pretty grouping of Spanish irises. The best hand basket of flowers, orchids excluded, came from Messrs. Perkins and Sons, Coventry, who had a lovely basket of golden Spanish irises and pure white, fragrant liliums; Mr. Webster second, with Spanish irises, hemerocallis and red carnations. The Messrs. Perkins added to their other prizes that of first for a hand basket of cut flowers, open, and here they had a gorgeous and tasteful arrangement of brilliant cattleyas, graceful odontoglossums, sweet lily of the valley, and fragrant stephanotis.

FRUIT.

To many a gardener the most interesting display was that produced by the competition in class 78, a class for a decorated table of ripe fruit, ten feet by four feet six inches. Not more than fourteen nor less than ten dishes of fruit were allowed, and not more than two distinct varieties of one kind. Flowers and foliage had to be arranged in glass epergnes, and by the exhibitor or a *bonâ fide* assistant. As regards the judging, the judges had instructions to take into consideration quality of fruits and plants, beauty of flowers and foliage, harmonious blending of colours, and general arrangement for effect. The whole table had to be judged by points, and the marks awarded placed upon each exhibit; the lists of marks had not been set out when our report was taken. The chief award fell to Mr. J. Tullett, gardener to Lord Barnard, Raby Castle, Darlington, who used odontoglossums and schizanthus to great advantage, both in epergnes and specimen glasses, amid his fine lot of fruit. He showed Black Hamburgh and Muscat of Alexandria grapes, Brown Turkey figs, Royal Sovereign and James Veitch strawberries, bananas, two melons, Downton nectarines, good peaches, and very fair pineapples. The second prize was won by Mr. Goodacre, gardener to the Earl of Harrington, who used Cattleya Mossiæ, odontoglossums, especially O. cirrhosum, tastefully, with asparagus and smilax sprays; especially fine dishes of fruit were Royal Sovereign strawberries, Lord Napier nectarines, Black Tartarian cherries, Muscat of Alexandria and Black Hamburgh grapes, and the Crawford peach. The third prize was won by Mr. J. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., Hutton Hall, Guisborough, who had two vases of odontoglossum, oncidium, and heuchera spikes, with trailing sprays of selaginella and asparagus; the fruit was of high quality, including Muscat of Alexandria and Black Hamburgh grapes, Bellegarde and Dymond peaches, Early Rivers and Stanwick Elruge nectarines, red and yellow dessert tomatos, a pair of fine melons, Brown Turkey figs, and The Czar plums.

Mr. McIndoe showed a good collection of six kinds of fruit, winning with treble clusters of Foster's seedling and Black Hamburgh grapes, Stanwick Elruge nectarines, Bellegard peaches, Brown Turkey figs, and a seedling melon. Mr. McIndoe was the only exhibitor in this class. Mr. McIndoe was also the foremost exhibitor of four kinds of fruit, winning first prize in close competition, and staging good bunches of Black Hamburgh grapes, Stanwick Elruge nectarines, Brown Turkey figs, and Scarlet Premier Melon. The second prize fell to Mr. J. Easter, gardener to Lord St. Oswald, Nostell Priory, Wakefield, who showed Madresfield Court Grapes in good condition, and Rivers York peaches, Lord Napier nectarines, and Early Favourite melon; Mr. Goodacre, Elvaston Castle, third, and Mr. B. Ashton, gardener to the Earl of Lathom, Ormskirk, fourth.

There were eight stands of three bunches of Black Hamburgh grapes, and on the whole they were good clusters. Mr. J. Johnson, Wharfedale Nursery, Boston Spa, was first with nicely finished bunches of fair size; Mr. J. P. Leadbetter, gardener to A. Wilson, Esq., Tranby Croft, second; and Mr. J. Tullett, third. Mr. Tullett, gardener to Lord Barnard, Raby Castle, was awarded first prize for white grapes, winning with three large bunches of Foster's Seedling; Mr. W. Nichols, gardener to the Right Hon. Lady Beaumont, Carlton Towers, York, second, with finely coloured Buckland Sweetwater; Mr. G. Wilson, gardener to Sir J. Reckitt, Bart., Brough, third, with Foster's Seedling. For half a dozen peaches Mr. A. Alderman, gardener to J. D. Ellis, Esq., J.P., Worksop, secured first prize with Hale's Early, finely coloured; the second prize was secured by Mr. J. Easter, gardener to Lord St. Oswald, Wakefield; Mr. J. Wallace, Keele Hall, Staffs, third, with Bellegard. Mr. A. F. Pike, gardener to C. H. Wilson, Esq., Warter Priory, Pocklington, won chief honours for a dish of nectarines with very good specimens of Lord Napier; Mr. Goodacre came second; and Mr. C. Slade, gardener to the Duke of Newcastle, Clumber, Notts, third, with Lord Napier.

Quite a quantity of melons were shown, Mr. McIndoe and Mr. Goodacre coming first and second for scarlet fleshed varieties, the latter staging Read's Scarlet, and the former a seedling. Mr. Ashton, gardener to the Earl of Lathom, Ormskirk, had the best green fleshed melon, in Royal Jubilee, a big fruit; he also won second place with a seedling. Mr. Slade scored for a white-fleshed melon with Favourite; Mr. Steadman, gardener to Colonel Thorpe, Newark-on-Trent, second. Mr. A. F. Pike, Pocklington, showed the best figs, his Brown Turkey leading, out of eight competitors; Messrs. Leadbetter and J. Wallis were second and third respectively.

The two competing dishes of strawberries were very fine, and here Mr. A. Alderman, Sparken House Gardens, Worksop, was first with good fruits of Royal Sovereign; and Mr. G. A. Keywood, gardener to W. H. Battie-Wrightson, Esq., Doncaster, second with the same variety. Out of six competitors, Mr. C. [illegible] was first for tomatos, staging a splendid dish of fruits of Perfection; Mr. A. H. Hall second, and Mr. W. Nicholls third with Frogmore selected.

VEGETABLES.

The chief award for a collection of vegetables was well won by Mr. J. McIndoe, Hutton Hall Gardens, with a grand lot of produce: the [illegible] and [illegible] rowfat peas, Magnum Bonum dwarf beans, Long White marrows, and [illegible] cucumbers were first rate. Mr. J. W. Clark, Clifton, was third. In addition to winning first prize in the class provided by Messrs. Sutton and Sons, as already shown, Mr. J. McIndoe won the chief award in the class for six kinds of vegetables provided by Messrs. Webb and Sons, Stourbridge, also showing a grand lot of produce here.

NON-COMPETITIVE EXHIBITS.

The tradesmen of the country nobly supported the committee of the York Gala by turning out in large numbers, and putting up splendid non-competitive displays of various kinds. Orchids, caladiums, hardy trees and shrubs, and cut hardy flowers were all staged in grand condition.

Messrs. Fisher, Son, and Sibray, Handsworth, Sheffield, occupied a space of about nine hundred square feet, putting up a splendid display of various kinds of stock, and arranging their exhibit in three sections. Near the entrance to the tent there was a lovely bank of choice varieties of rhododendons put up in a most tasteful and natural style. Next followed a charming group of hardy trees and shrubs, chiefly Japanese maples in variety, cornus of sorts, purple oak (Quercus robur purpurea), standard and bush ivies, one, a golden form named Hedera spectabilis aurea, being especially grand in colour and habit; euonymuses, choice and new lilacs, and golden elder helped to make this section most attractive; it was altogether a very choice collection of beautiful plants. The third group from Handsworth consisted of choice stove plants, and the nepenthes were remarkably fine for the season of the year, especially the plants of N. Burkei, N. mixta, N. Curtisi, and N. Mastersiana, the latter in three varieties. Anthuriums were good, so also were the crotons, especially the new variety Her Majesty. Rare plants in this goodly collection were Dracæna Veitchi variegata, a splendid specimen, possibly the finest of its kind; Aralia pulchra, a bold plant with glazed, elegant foliage; tall palms, heliconias, &c., completed a fine display.

A very large exhibit came from Messrs. J. Veitch and Sons, Chelsea, and it was chiefly composed of the splendid specimen caladiums that attracted so much attention at the recent Temple show; other subjects of note were Richardia Elliottiana, the Gratus and other hybrid streptocarpus, crotons, dracænas, Leea amabilis, and other choice flowering and foliage plants. The caladiums were superbly shown, finely grown, and highly coloured. A notable plant in the Veitchian group was a splendid dracæna named Exquisite, notable for its highly-coloured and elegant foliage. Messrs. W. Cutbush and Son, Highgate, put up one of their characteristic and artistic groups of Malmaison and other carnations, arranging these with pontic and mollis azaleas, Lilium Harrisi, Erica Cavendishi, crassulas, and Hydrangea paniculata. It was a lovely group put up in a most pleasing manner, with miniature hills and vales.

Messrs. J. Peed and Son, Roupell Park Nurseries, Norwood, S.E., showed a beautiful group of well-coloured and well-grown caladiums; this was an especially bright group, and included examples of their new seedlings, W. E. Gladstone, rose and cream; and Solfarino, greenish cream and light veins. Other notable sorts were Princess Royal, Lady Mosley, Silver Cloud, Ibis Rouge, Oriflamme, Comtesse de Perousse, and Madame Koechlin. This firm also set up a very bright group of tuberous begonias, both double and single forms, representing a carefully selected strain of high quality. Carnations, gloxinias of very high quality, and streptocarpuses in variety, also came from Norwood in fine condition. The Messrs. Sutton and Sons, Reading, had a very extensive display of their specialities, showing a first-rate collection of peas, tomatos, and gloxinias, all represented by large specimens in pots, the two former being heavily fruited, and very handsome in appearance. Among the heavily cropped peas we noted The Sutton Forcing, Perfection, Early Giant, very fine; Excelsior, and Sutton's Seedling, as especially noteworthy. The tomatos were grown on single stems, two stems, or three stems, and trained in a variety of shapes so as to show off to the best advantage the ample racemes of Sutton's Abundance, Sutton's Prince of Wales, Peachblow, Sunbeam, Sutton's Dessert, Eclipse, and Best of All. The gloxinias were grand, some of them five inches across; Her Majesty, Duke of York, and Duchess of York were famous sorts. Messrs. R. Smith and Co., of Worcester, put up a bank of hardy flowers in great variety, arranging these with graceful bamboos, liliums, and a few of their unique specimen clematis; irises and pyrethrums were a feature, and a few roses contributed much to the general effect. Messrs. Dickson, Chester, arranged a table of cut hardy flowers, putting up fine sheaves in a most tasteful manner with due regard to colour effect. Crowding was avoided, and it was possible to distinguish the various fine poppies, irises, pyrethrums, ixias, hemerocallis, liliums, sparaxis, pæonies, &c. The Spanish iris were splendidly put up, so also was the new yellow carnations, Duchess Consuelo, and the comparatively rare Gerbera Jamesoni. Messrs. W. Clibran and Sons, Altrincham, put up a collection of cut hardy flowers together with a few ferns and small greenhouse plants. Pansies occupied the foreground, and were far too closely crammed together to be pleasingly effective. Messrs. Jarman and Co., Chard, exhibited pyrethrums, aquilegias, liliums, spiræas, poppies, irises, rhododendrons, and roses in good condition, making an effective display. Ferns were pleasingly exhibited by Messrs. W. and J. Birkenhead, Sale, Manchester, this firm staging a remarkably comprehensive collection of stove, greenhouse, and hardy species and varieties; adiantums were exceptionally well represented, so also were the pleasing selaginellas, elk's horn ferns, lygodiums, aspleniums, nephrolepis, &c. The plants were all small but very well grown and extremely beautiful. Mr. R. Sydenham, Birmingham, showed some pretty silvered utensils suitable for filling with flowers for table and other decorations; carnations and sweet peas were used.

A superb group of orchids was arranged by Messrs. Hugh, Low, and Co., Bush Hill Park, Enfield; the cattleyas were superb, especially the forms of C. Mossiæ, C. Reineckiana, C. Wagneri, C. Mendeli, &c. Cypripediums in variety, Oncidium macranthum, Lælia purpurata, L. grandis tenebrosa, select forms of Odontoglossum crispum, the lovely Cattleya Mossiæ Arnoldiana with pure white sepals and petals, and the albino Cypripedium Lawrancianum Hyeanum were splendidly represented in this handsome and large collection. Messrs. J. Veitch and Sons had a group of choice orchids, showing Lælia purpurata in fine condition, L. tenebrosa, Lælio-cattleya Hippolyta, Cattleya Mossiæ Reineckiana superba, Lælio-cattleya Eudora Langleyensis, L.-c. Cahbamiana superba, Cypripedium Curtisi in fine form; the rare Vanda cristata superba, with green and crimson flowers, Epiphronitis Veitchi, Trichopilia suavis alba, and Cattleya Shilleriana with six flowers on a spike. Messrs. B. S. Williams and Son, Holloway, N., sent a pretty group of orchids and foliage plants; the odontoglossums were specially good, the arching spikes making an elegant display. Oncidium macranthum, thunias, and some finely-grown vandas were included; and with the orchids were associated flowering plants of Schubertia grandiflora, and Malmaison carnations.

A big group of new and rare plants was contributed by Messrs. F. Sander and Co., St. Albans, who showed magnificent specimens of Dracæna Sanderiana, the graceful D. Godseffiana, the novel-tasselled Acalypha Sanderi, the variegated A. Godseffiana, Dracæna Van der Bilti, in the way of D. Doucetti, but even more elegant; and Rex begonias in great variety. Orchids were associated with these plants, chiefly Lælia tenebrosa, Phaius tuberculosus, Dendrobium Deari, Oncidium St. Legerianum, Lælia purpurata, and cattleyas in variety. Mr. M. Campbell, High Blantyre, N.B., showed a really fine exhibit of fancy and show pansies of high merit, together with a large and varied collection of violas arranged in sprays. Mr. S. Mortimer, Rowledge, Farnham, Surrey, staged some remarkably fine cucumbers, both sorts shown being seedlings from Improved Telegraph. Mr. G. Yeld, Clifton Cottage, York, sent some beautiful seedling hemerocallis, including Apricot, a very pleasing form, free, and with large apricot yellow flowers.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Golden Leaved Trees and Shrubs.—A. F., Aberystwyth: A few of the best golden-foliaged trees and shrubs are the Golden Elder, Golden Oak, Golden Laburnum, Golden Privet, Golden Catalpa, Golden Acacia, Golden Poplar, Golden Elm, and Golden Currant. Then, of course, there are hollies ivies, weigelas, cornus, &c., with foliage of a more or less bright golden hue.

Standard Mignonette.—R. H. P., Durham: To produce standard specimens of the mignonette it is necessary to train up a single specimen to a height of two feet, and then pinch out the growing point to cause lateral growth; when the new shoots commence to grow they must be reduced to three or four near the apex, and all others be removed entirely. Pinching must again be resorted to, to obtain a neat and full head; and as soon as this is gained, then the specimen may be allowed to flower.

A Curious Chinese Fruit.—W. A., Oxford: The fruit sent is a shrivelled specimen of the Lychee, Litchi, or Leechee. The plant that yields this fruit is Nephelium Litchi, an evergreen, sapindaceous tree, native of China, and capable of cultivation in our hothouses. The imported fruits come from India and China, and though they form a novel addition to the dessert, they do not equal the fresh produce, for the gummy pulp surrounding the seed has shrunk considerably during transport. When fresh, the fruit is about the size of a small walnut.

Knol-kohl or Kohl-rabi.—E. A. L., Bury St. Edmunds: The present is a good time to plant Kohl-rabi, or the turnip-stemmed cabbage (*Brassica caulo-rapa*). Seed should have been sown in March, at the same time as the bulk of winter green stuffs, and the seedlings should now be ready for transplanting. The plants should be set out about three feet apart each way, and should be planted so as to leave the larger portion of the stem above the ground. The crop is readily eaten by cows and sheep, indeed, they prefer it to cabbage or turnips; it is also a heavy crop, two pounds of seed being sufficient to furnish an acre of land and provide fifteen to twenty tons of bulb-like stems that keep as soundly as swedes. Hares and rabbits are very fond of Kohl-rabi, and if they abound will soon destroy a crop. The smaller specimens are very good for table use when well and properly cooked.

Crow-berries.—C. B., Berwick: The crow-berry is an Empetrum, and the popular name includes all members of the small genus. The plants are hardy, dwarf, and evergreen; spreading heath-like over comparatively moist places and bearing small wholesome and palatable berries. In the north, the Empetrums, and especially E. nigrum and its variety scoticum, are valuable for providing food for grouse and ptarmigan, the former eating the berries, and the latter feeding upon the leafage during winter. Propagation is effected either by means of seeds or cuttings; seeds should be sown either in spring or autumn; they take a long time to germinate, often remaining under the soil for a whole year. Cuttings can be taken during the summer, and should be inserted in fine sandy peat under a hand-light. The crow-berries like plenty of moisture, but not stagnant moisture, and they succeed best on damp peat beds.

Myosotis dissitiflora.—D. D. S., Winchester: The best time to sow seed of this forget-me-not is as soon as it is quite ripe. Cut the flower stems from the best plants as soon as it is seen the seed is almost ripe; lay these on a sheet of paper and place in a greenhouse, frame, or sunny window, where ripening will soon take place. Sow the seed on a piece of rich and finely-worked soil, taking care to keep it regularly moist, when seedlings will appear in a fortnight. If the weather be very hot and the seed bed exposed it will be a good plan to stretch a piece of canvas a few inches above the surface to prevent rapid drying. So far as possible you should follow out this plan, transplanting the seedlings into nursery beds as soon as large enough. Another plan is to carefully lift the best plants when preparing for summer bedding and transplant these upon a rich border where shade and moisture is afforded; here the seeds will ripen, and falling out will sow themselves; a slight stirring of the surface soil as soon as the seeds have ripened will suffice to cover the seed, and germination will soon take place.

Principles of Manuring.—W. B. F., Herts: There is no great difficulty in obtaining a clear idea of the principles of manuring; but before fertilisers can be applied with the highest degree of success, some experience in their use and close observation of the effects of the applications made for the various crops are necessary. The most important functions of manures is, as so well stated by Professor Gilchrist, of the University Extension College, Reading, to supply plant food necessary for the growth of crops, and deficient in the soil. In many cases manures improve the physical and mechanical condition and the texture of the soils to which they are applied. Thus lime, when applied to sour land, decomposes and renders harmless the sour organic acids, whose presence in the soil is the cause of the sour or acid condition of the land. When farmyard manure is applied to land the texture and physical condition of the soil is much improved by the organic matter of which this manure is largely composed. Manures may act on plant food already present in the soil, convert it into such a condition that it can be absorbed by the roots and plants. The manurial value of lime is due principally to the action of this manure on the food of plants already present in the soil. The necessary constituents of plant food generally deficient in soils are nitrogen, phosphoric acid, and potash. Nitrogen occurs in manures as: nitrates, as in nitrate of soda; ammonia salts, as in sulphate of ammonia; and organic nitrogen, as in dried blood and rape meal. Nitrogen as nitrates is immediately available as plant food; nitrogen as ammonia salts soon becomes available; nitrogen as organic nitrogen is much more slowly available. Phosphoric acid combined with lime is generally present in manures as: insoluble phosphate of lime, as in bone meal and basic slag; and soluable phosphate of lime, as in superphosphates and dissolved bones. Insoluble phosphate of lime is converted into soluble or superphosphate by treating it with sulphuric acid. Soluble phosphates are generally more active than insoluable phosphates in promoting plant food. Potash is the valuable ingredient in kainit, sulphate of potash, and muriate of potash. Potash has generally a better effect on light than on heavy soils. Artificial manures should be purchased on a guaranteed analysis, and the source from which their fertilising ingredients are derived should be stated. This latter precaution is especially necessary in purchasing bone or mixed manures. In order to be able to compare the relative values and cost of different manures, the purchaser should receive from the seller a statement giving the percentages of any valuable ingredients the manure contains. The percentage of nitrogen in a manure should be stated in its equivalent of ammonia, that of insoluble phosphoric acid as phosphate of lime, and soluable phosphoric acid as phosphate of lime, and that of potash salts in their equivalent in potash.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

A. E. M., Uttoxeter: 1, Amelanchier canadensis; 2, Berberis stenophylla.

F. E. D., Reading: 1, Papaver bracteatum; 2, Oxytropis cærulea; 3, Tropæolum tricolorum; 4, Marsilea quadrifoliata.

L. H., Normanton: 1, Clematis coccinea; 2, Campanula glomerata; 3, Philadelphus coronarius; 4, Phillyrea spinosa.

R. O. W., Gloucester: 1, Combretum purpureum; 2, Leschenaultia biloba major; 3, a very poor Lælia purpurata.

H. C., Gravesend: 1, Silene orientalis; 2, Heuchera sanguinea; 3, Genista hispanica; 4, Aquilegia glandulosa.

W. L., King's Lynn: 1, Asplenium biforme; 2, Nephrolepis Duffi; 3, Nothochlæna sinuata; 4, Gymnogramma Alstoni.

The Fruit Bloom and Fruit Prospects.—There is such a very wide disparity generally between the bloom promise on fruit trees and the fruit now seen, that I hope it may be possible for some clear conclusions to be arrived at as to the causes of this disparity, when fruit returns are furnished. That we rush hastily to conclusions as to the cause, I have no doubt. It is very desirable, too, that the conclusions should generally be unanimous. Last year there were great anticipations that were falsified by results. By some it was, as usual, attributed to the spring frosts, by others to the demoralising influence of the previous heavy autumn rains on the flower-buds, and some gave other reasons. I should like to see some attention given to the probable influence of an excessive bloom on fruit production, also whether anyone did in the early spring experiment by pulling off one-half the bloom from a tree, to see what the effect would be, and stating what that result was. Most certainly there is on every hand great disappointment. There will be a fair crop of apples, but not at all a heavy one, which may, after all, be a good thing. Pears will be a very light crop, and plums very much lighter; indeed, in many cases there are none. Cherries set heavily, but many fruits have fallen. Still of these there should be a fair crop, Morellos, indeed being a heavy one. Gooseberries are very plentiful and cheap. Red currants fair, and black currants the same, but aphis is terribly prevalent. It is odd that with a season of moisture we should have aphis infesting everything, everywhere. We ought to have a grand strawberry crop, and no doubt shall now that only a very few blooms were injured by the frost. I hope we may obtain from contributors of keen observation the most practical reasons for the causes that have led to such a moderate fruit crop following such a wonderfully profuse bloom.—A. D.

An Effective Insecticide.—Many experimenters have tried to obtain paraffin in solution, and such substances as carbolic acid, turpentine, resin, and benzine have been used for this purpose. They have all failed, however, either on the score of expense, or more decidedly through the separation of the ingredients on the dilution of the liquid. Mr. Hubert H. Couzens, M.A., of the South-Eastern College, Wye, Kent, states that he has tested all known modifications of these materials, besides many others not mentioned, and, as the outcome of his investigations, alighted upon naphthaline as the key to the preparation of a solution of paraffin. To protect the invention from being exploited by outside manufacturers, it was patented by Mr. Couzens; and any resident in Kent or Surrey who wishes to prepare this wash, can secure working instructions on application to him, provided they send a stamped envelope for reply. Naphthaline is really purified "salts of creosote" or "creosote crystals." It dissolves in soap and in paraffin as well, and thus enables soap to dissolve paraffin even when highly diluted with water. The dissolved napthaline also ballasts the minute globules of undissolved paraffin, and by increasing their intensity retards, and, in fact, absolutely prevents any separation of oil from the liquid. The proportion of paraffin to soap should not exceed twenty five per cent., while the naphthaline should form about six per cent. of the final product. In the case of very hard water, it is necessary to reduce the proportion of paraffin, or else to add more soap to the wash before it is applied. The first essential for success with this wash is lathering power. Unless the liquid lathers freely, it will not wet the insects, but "beads" off. At a strength of thirteen pounds per hundred gallons of ordinary water, this liquid will kill all the ordinary sucking insects met with in this country, and the cost is about 1s. 2d. per hundred gallons of wash. Mr. Couzens states that he has used it for three years on hops, fruit trees, and roses with great success, and has abandoned quassia and all other forms of paraffin washes, and uses this substance alone. An ordinary labourer can make enough of the mixture in a couple of hours to yield 4,000 to 10,000 gallons of wash. On one occasion, with the help of two men, enough was made in a few hours for 40,000 gallons of wash. As the product will keep for thirteen months or more if stored in tubs or firkins, and readily dissolves in cold water, it is described as doing away with all necessity for the use of boilers during the busy season, and the wash is always ready to hand in a concentrated form.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. 'Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

MARKETS.

Covent Garden.

FRUIT and vegetables are now plentiful, and with a good demand prices are moderate. Strawberries are cheapening fast, so also are cherries and apricots. The cut flower trade continues good, and supplies are not over abundant for the season of the year.

FRUIT.—Tasmanian apples, 8s. to 15s. per case; English grapes, 2s. to 3s.; Channel Islands, 1s. 6d. to 2s.; Belgian, 10d. to 1s. 6d. per lb.; pineapples, 2s. 6d. to 5s. each; bananas, 6s. to 10s. per bunch; English tomatos, 6d to 8d.; Jersey, 5d. to 6d. per lb.; Canary, 10d. to 1s. 4d. per tray, 3s. to 4s. per case; French cherries, 9d. to 1s. per box, 2s. to 3s. 6d. per square, 4s. 6d. to 8s. 6d. per half-sieve; apricots, 6d. to 1s. per box; peaches, 4s. to 12s. per dozen; lemons, 8s. to 16s.; oranges, 12s. to 25s. per case; strawberries, 1s. 6d. to 3s. 6d. per gallon basket; gooseberries, 3s. to 4s. per half-sieve.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; violets, 9d. to 3s. 6d. per dozen bunches; azaleas, 6d. to 9d.; stephanotis, 2s. to 3s.; lily of the valley, 6d. to 1s.; white gladiolus, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Asparagus, 9d. to 4s. per bundle; endive, 1s. 3d. to 1s. 6d.; lettuce, 6d. to 9d.; cos, 1s. 6d. to 2s.; cucumbers, 2s. to 4s.; cauliflowers, 1s. to 2s. per dozen; mint, 2s. to 3s.; new carrots, 4s. to 5s.; turnips, 5s. to 6s.; parsley, 1s. 3d. to 1s. 6d. per dozen bunches; Egyptian onions, 6s. to 7s. per cwt; English spring, 1s. 6d. to 2s. 6d. per dozen bunches; green peas, 6s. to 8s. per bushel; French beans, 3d. to 4d. per lb.; mushrooms, 6s. to 8s.; eschallots, 2s. to 2s. 6d. per 12 lb.; rhubarb, 1s. 6d. to 2s. 6d.; radishes, 6d. to 9d. per dozen bundles; broccoli, 4s. to 6s. per crate; spinach, 1s. 6d. to 2s. per bushel; Canary potatos, 9s. to 12s.; Malta rounds, 8s. to 10s.; Jersey, 13s. to 15s. per cwt.; Lisbon rounds, 5s. per box.

Borough Potato Market.

There is a good trade in new potatos, and owing to increasing supplies prices have fallen. There is still a fair demand for old potatos. Dunbars, 130s.; Scotch Magnums, 120s.; Bruce, Main-crops, Sutton's Regents, Reading Giants, and Saxons, 110s. per ton; Belgians and Germans, 4s. 6d. to 5s. 3d. per bag. New—Maltese rounds, 6s.; Teneriffe kidneys, 6s. to 7s.; St. Malo, 8s.; Jerseys, 8s. 6d. to 9s. 6d.; Cherbourg Flukes, 8s. to 8s. 6d.; ditto, Kidneys, 7s. 6d. per cwt.; Lisbon rounds, 3s. 6d. to 4s. per box.

THE WEATHER DURING THE WEEK ENDING JUNE 1, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	76·0	47·2	60·2	15·67	0·32	0·81
Croydon	75·4	47·0	58·5	14·72	0·23	0·58
Brighton	76·8	47·6	58·5	14·72	0·29	0·74
Bristol	74·3	45·0	57·1	13·94	0·17	0·43
Wolverhampton	73·2	41·4	54·9	12·72	0·10	0·25
Norwich	74·0	46·6	57·2	14·00	1·87	4·75
Nottingham	71·5	48·3	57·4	14·11	0·17	0·43
Liverpool	72·3	49·8	56·8	13·78	0·09	0·23
Huddersfield	69·8	46·5	55·4	13·00	0·08	0·20
Bradford	73·4	51·2	58·6	14·78	0·20	0·51
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·85 inches, and that of the Thermometer 60°·2, the latter being 2°·0 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 5 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 41·1 hours. The measured rainfall amounted to 0·32 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, JUNE 20.—Royal Agricultural Society's Show at Birmingham, four days. Oxfordshire Horticultural Society.

WEDNESDAY, JUNE 22.—Jersey Horticultural Society's Rose Show.

THURSDAY, JUNE 23.—National Rose Society's Show and Conference at Bath. Ryde Rose Show.

FRIDAY, JUNE 24.—Royal Botanic Society Lecture.

SATURDAY, JUNE 25.—Windsor Rose Show. Royal Botanic Society General Meeting.

AUCTION.

FRIDAY, JUNE 24.—Imported and Established Orchids, Protheroe and Morris's rooms.

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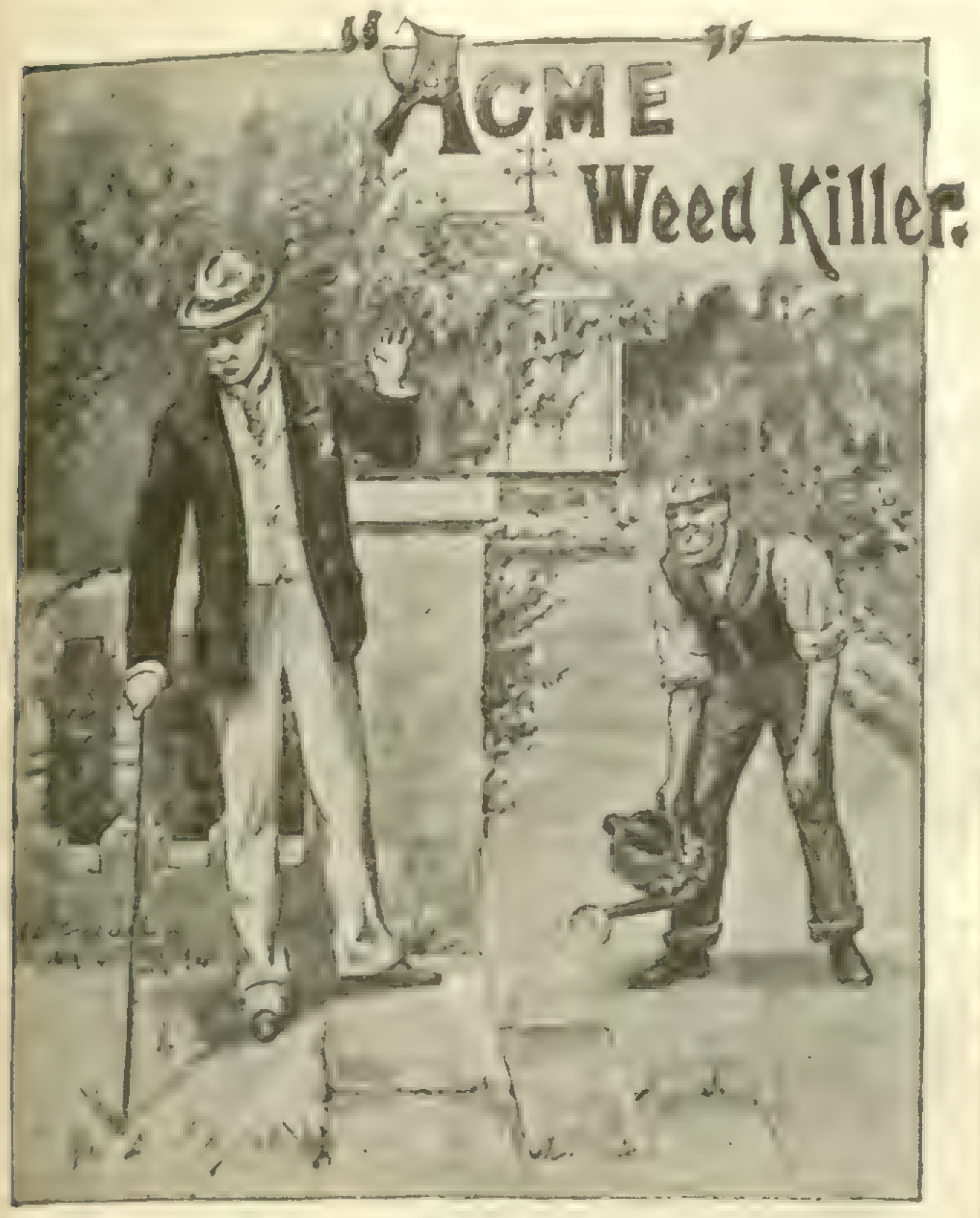
Work for the Week ... ...
ILLUSTRATIONS.
Specimen Clivia at Fairfield, Cobham ...
Lælio-Cattleya Hippolyta Dulcote Var ...
Epicattleya radiato-Bowringiana ...

IS BRITISH SPORT DYING OUT? has often been a [illegible] very satisfactory to know that a negative answer can be given. [illegible] Englishmen has improved during the past half century, and the [illegible] is attributed to the better style of living which has been [illegible] temperate, both in eating and drinking, and, above all, the system [illegible] purified by medicines of sterling worth, such as Holloway's Pills and Ointment. [illegible] sport will never die while people use these remedies, which will cure [illegible] give strength in place of weakness.—[ADVT.]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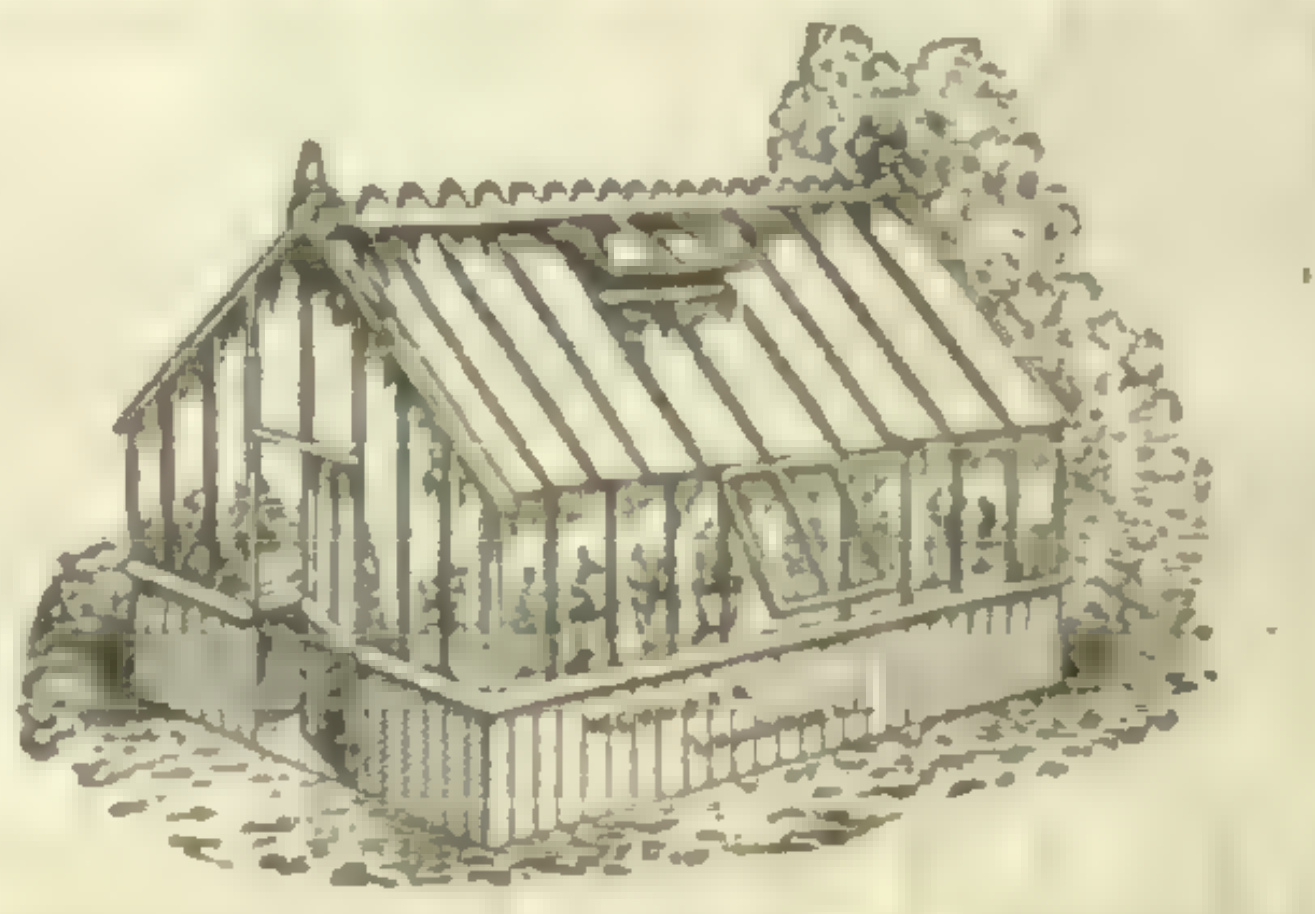

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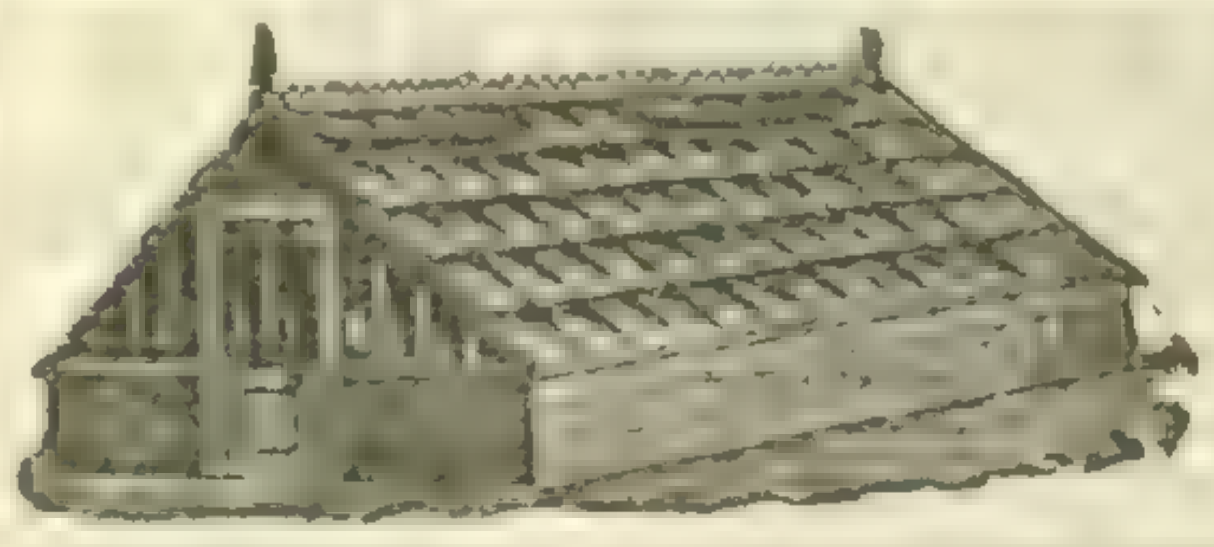

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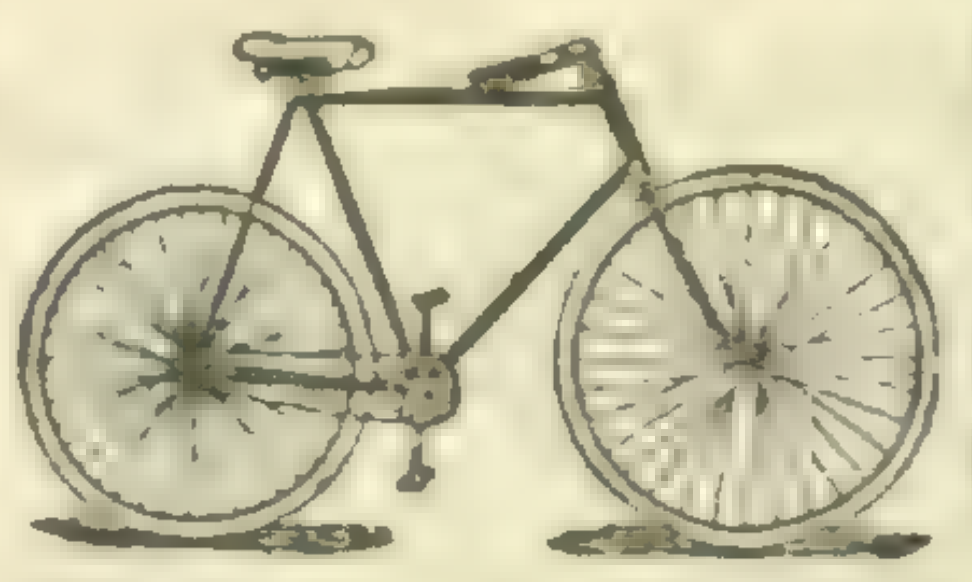

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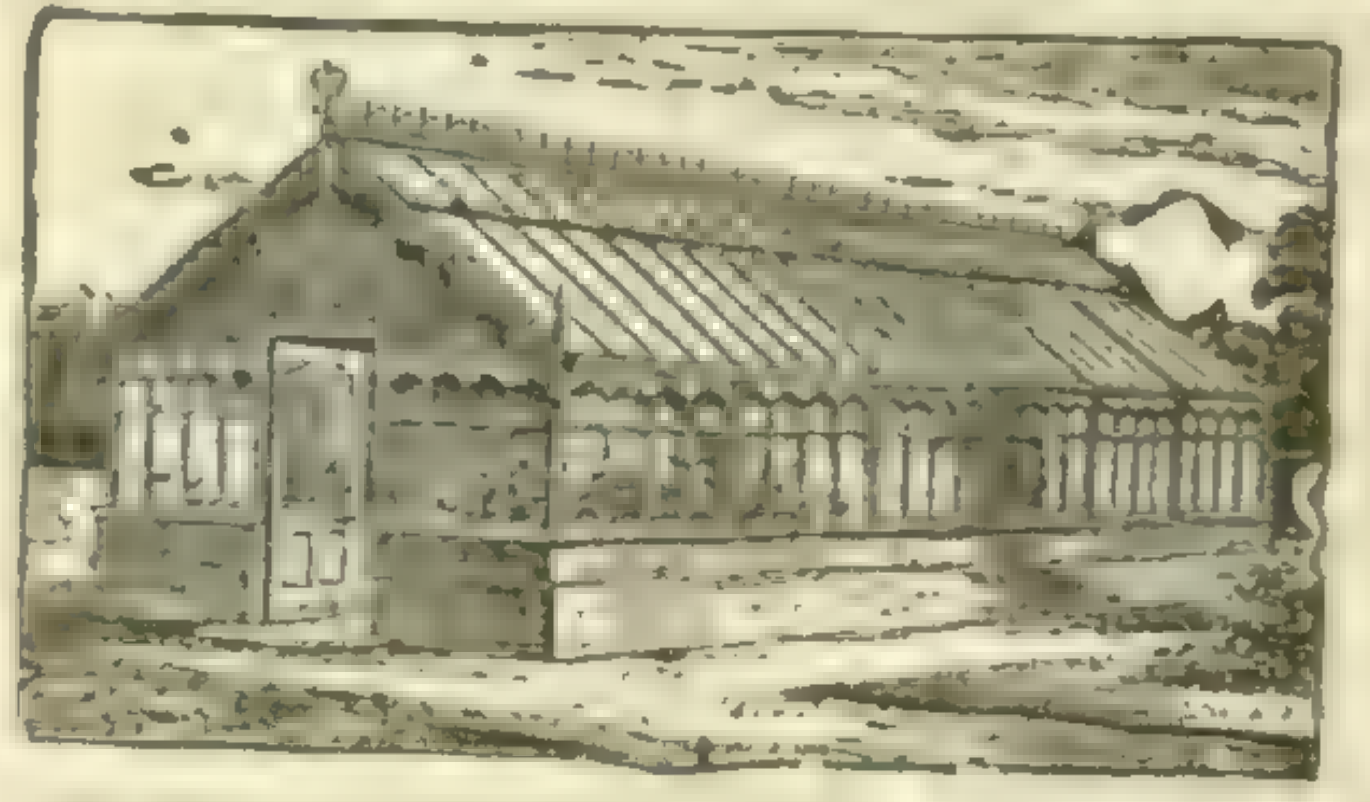

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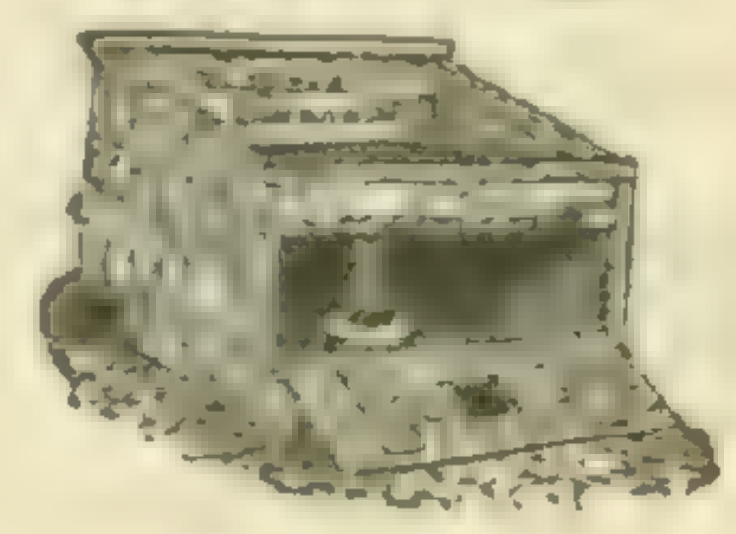

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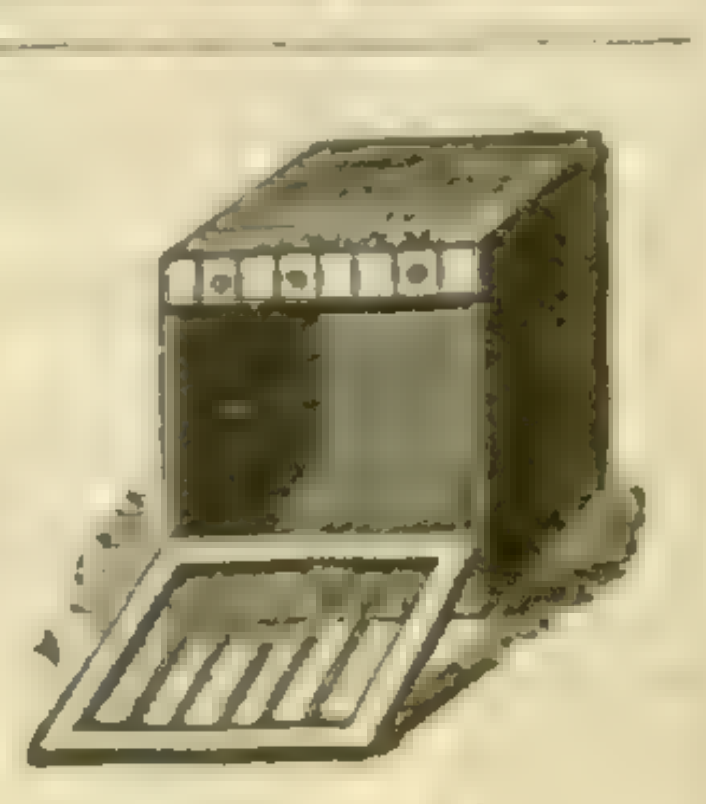

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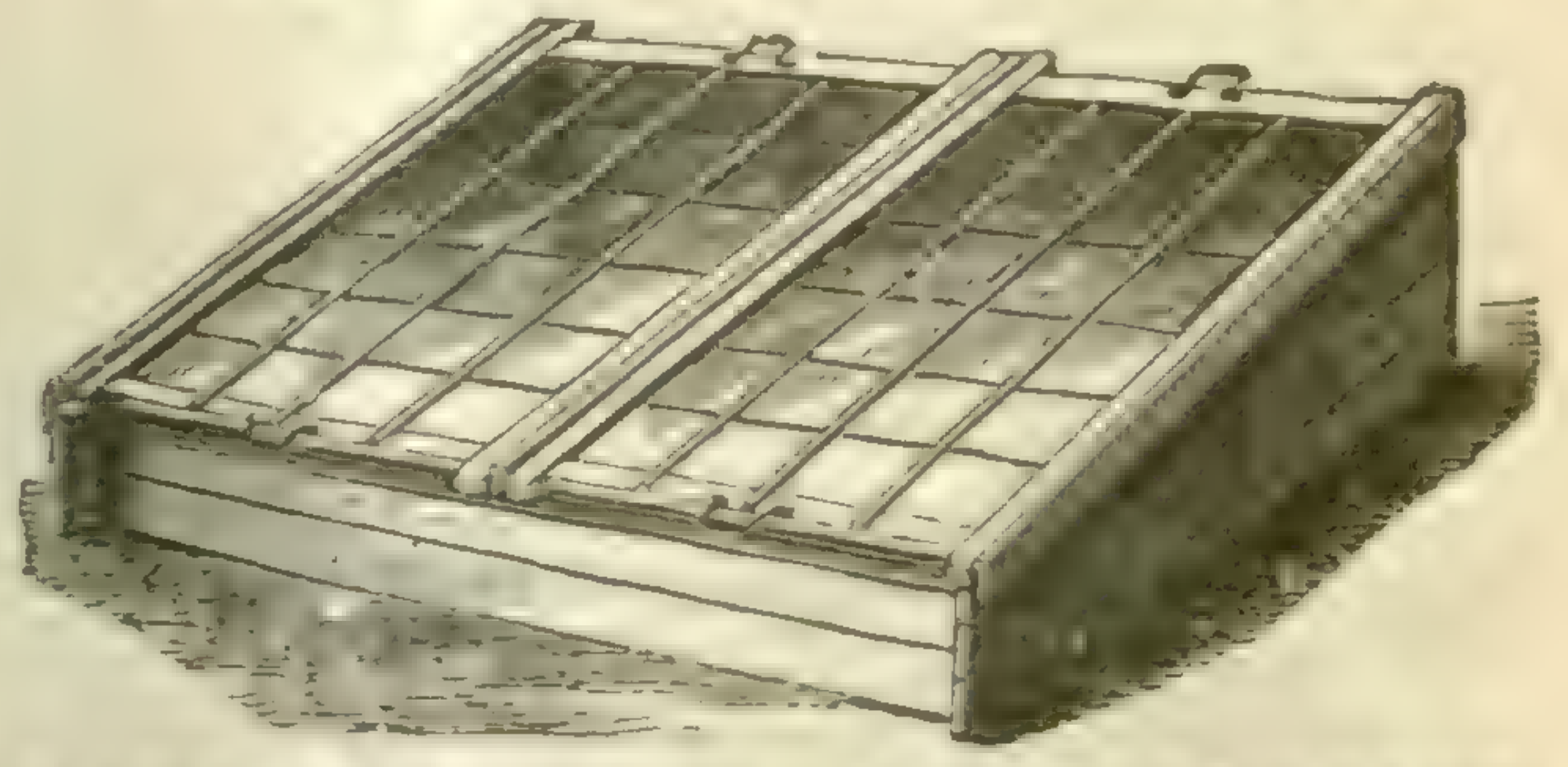

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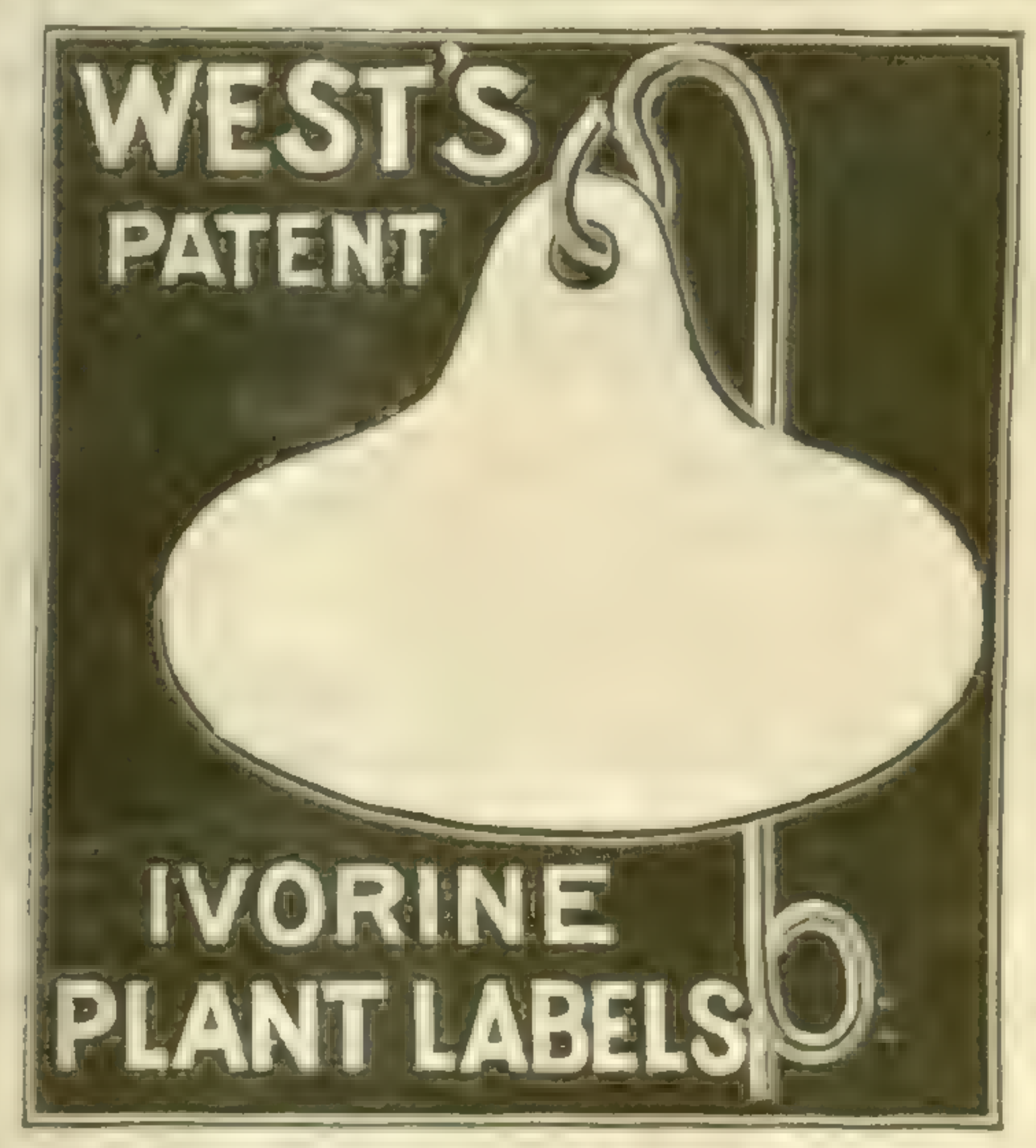

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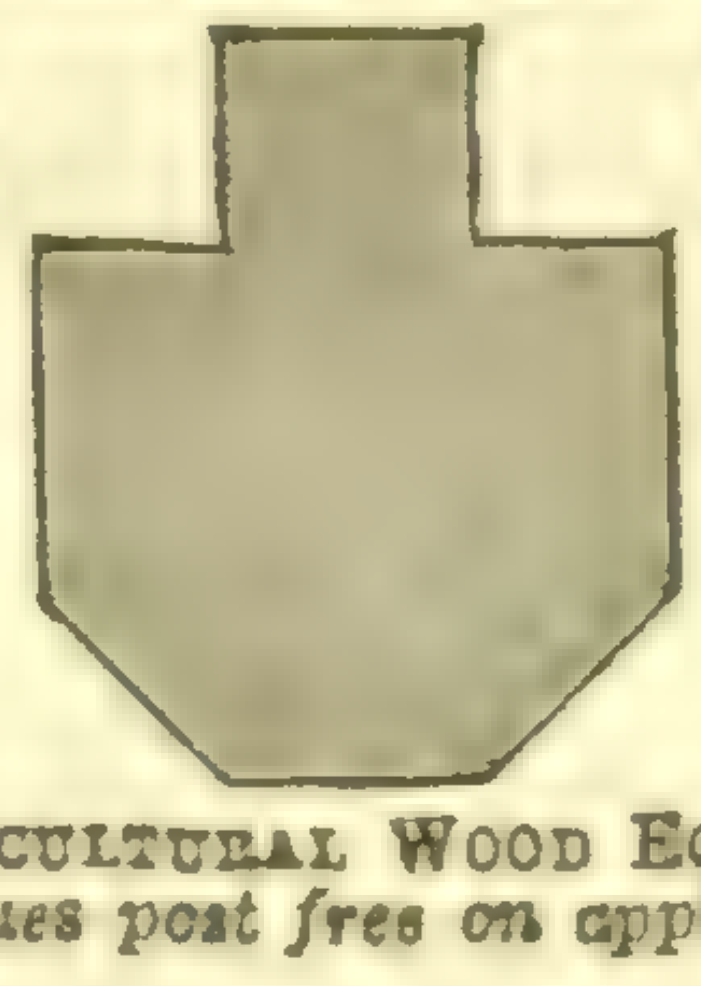

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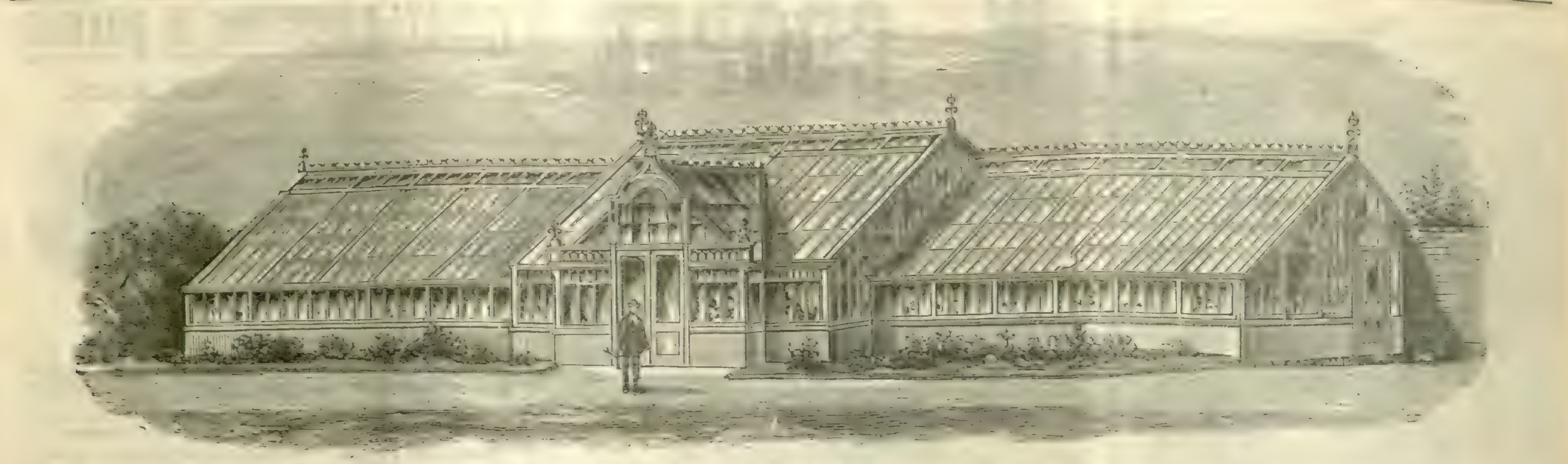

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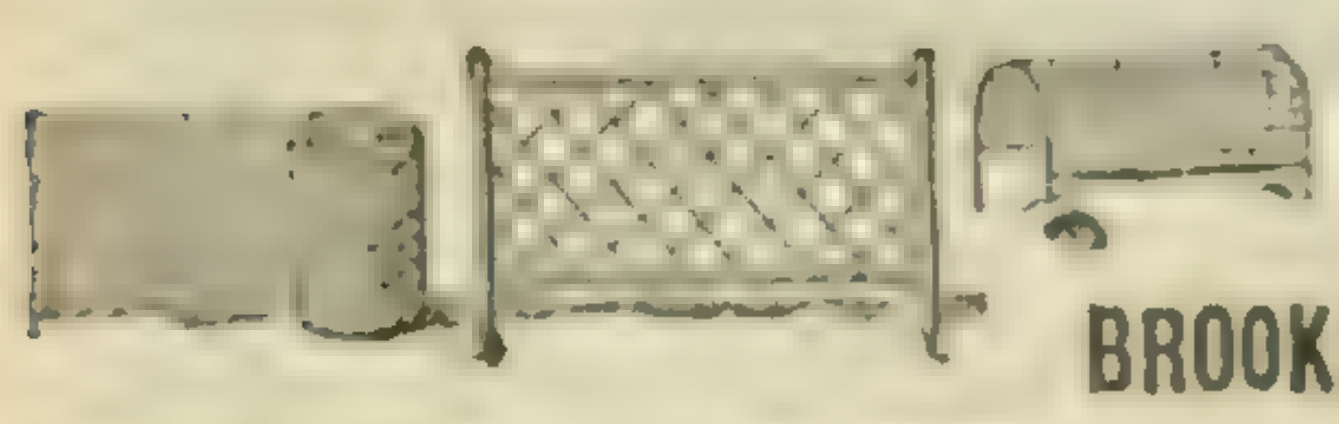

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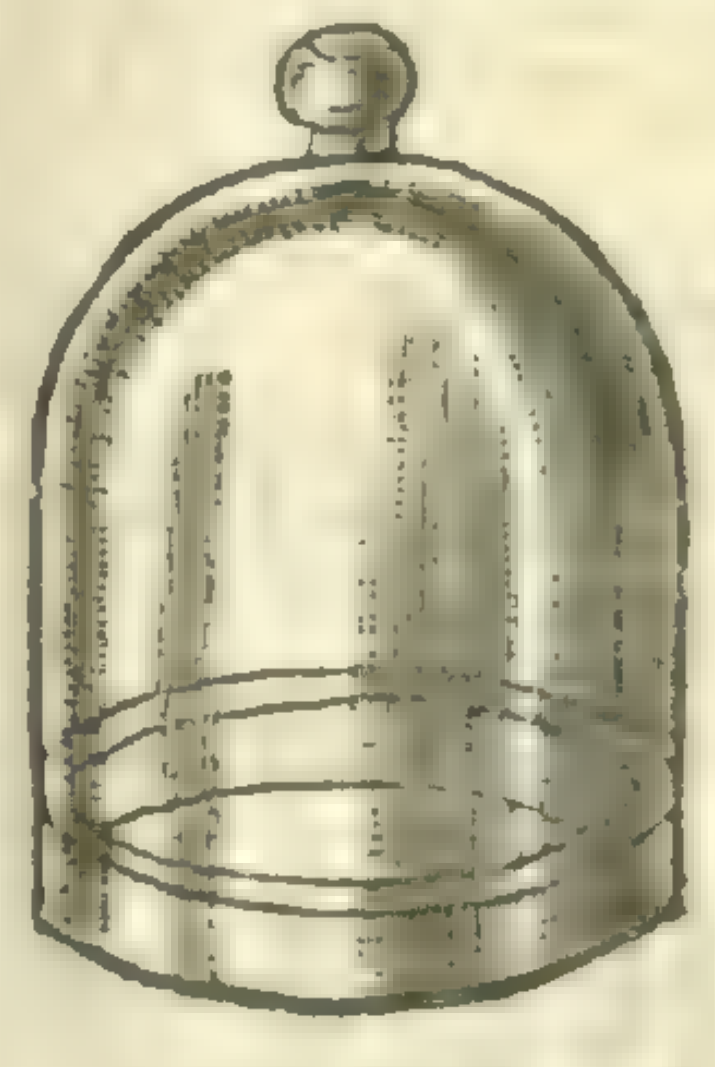

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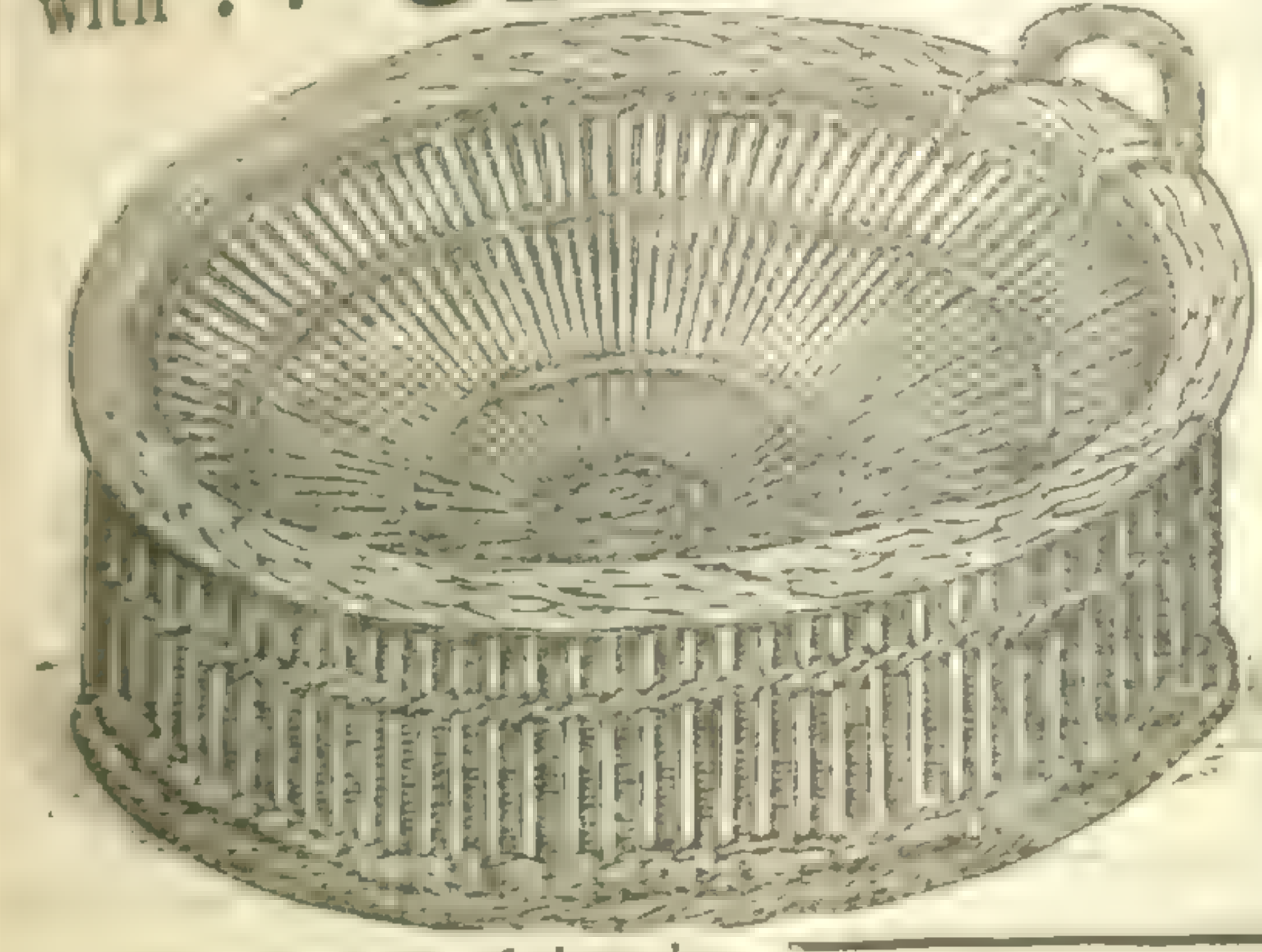

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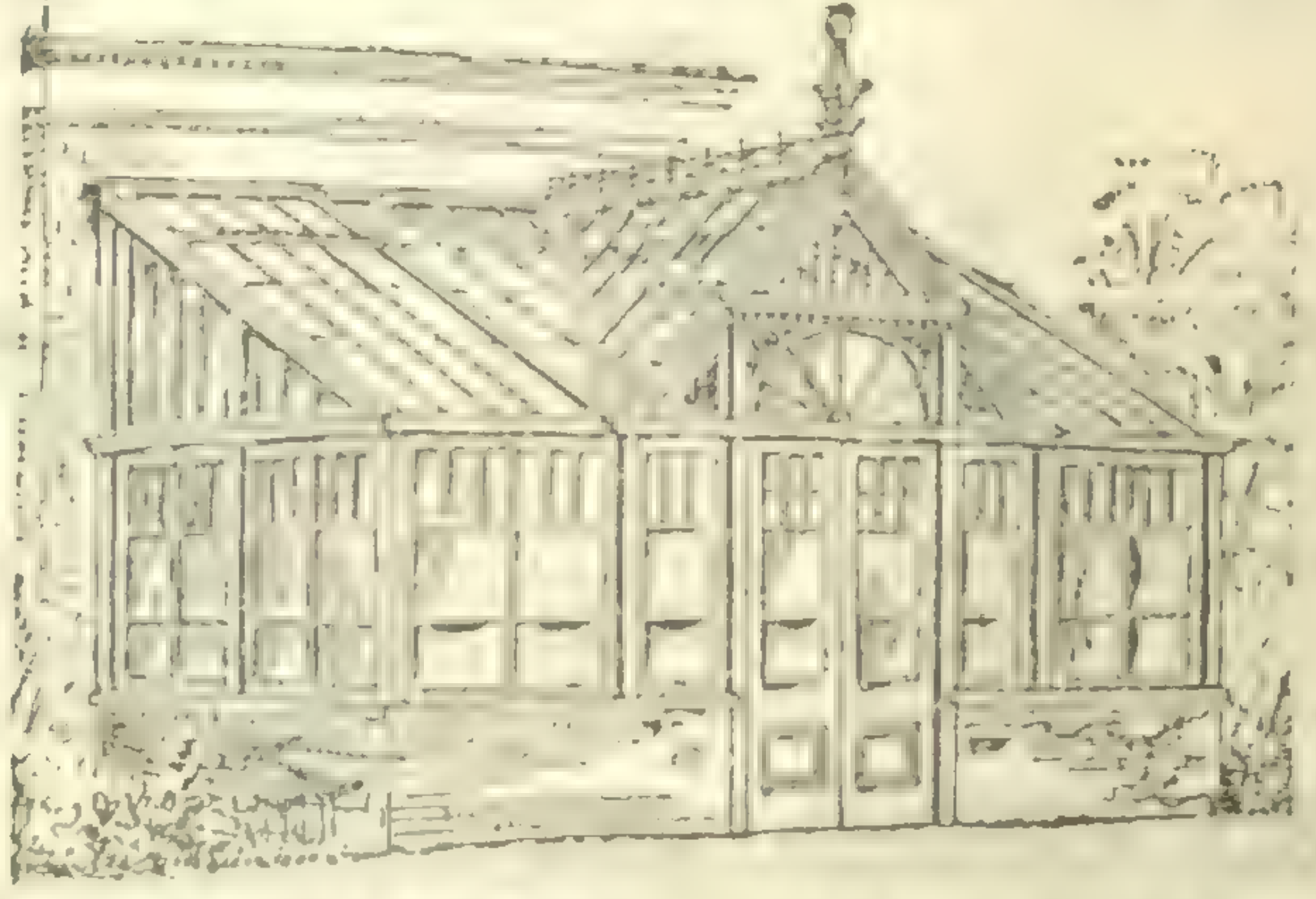

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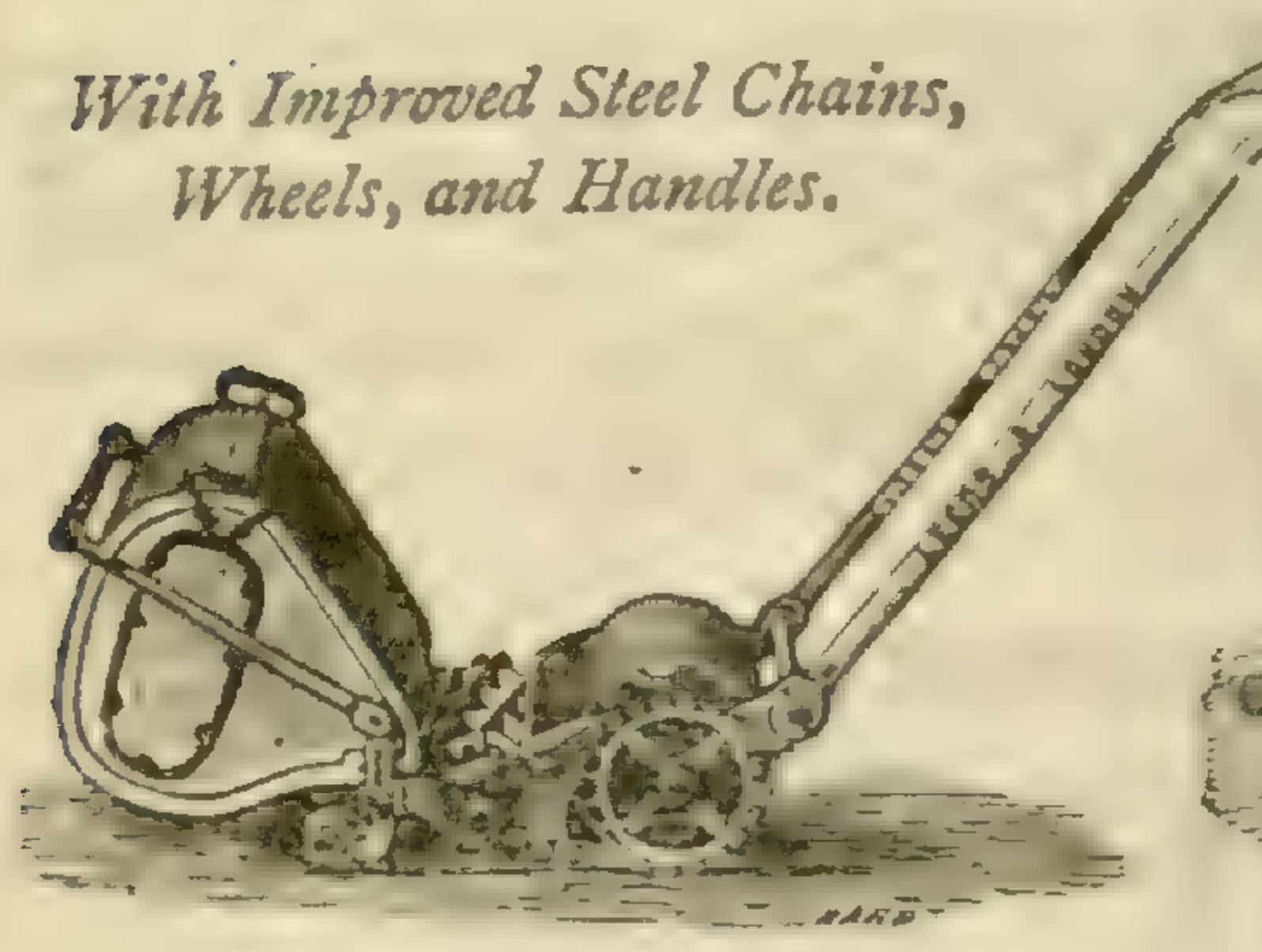

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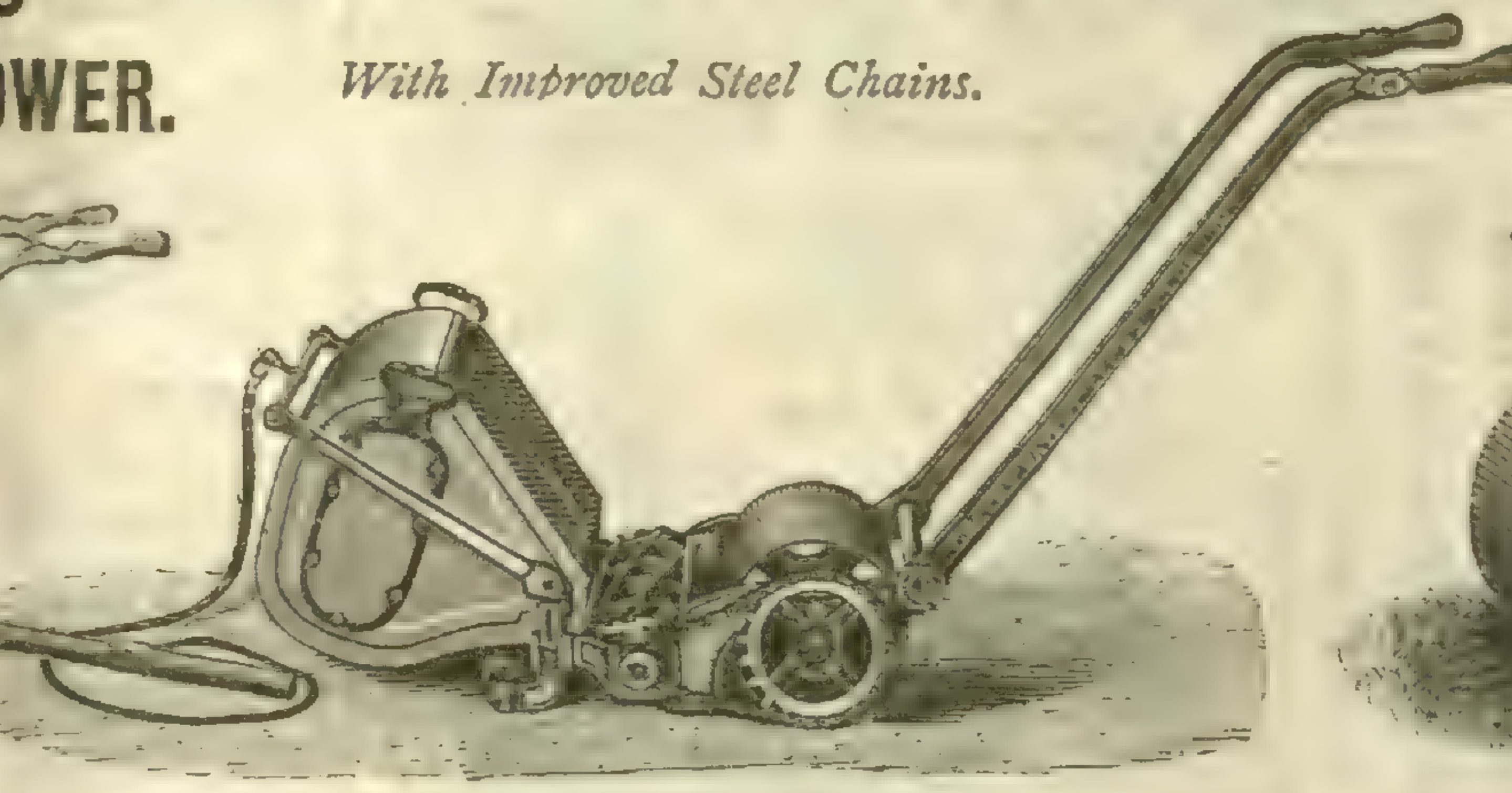

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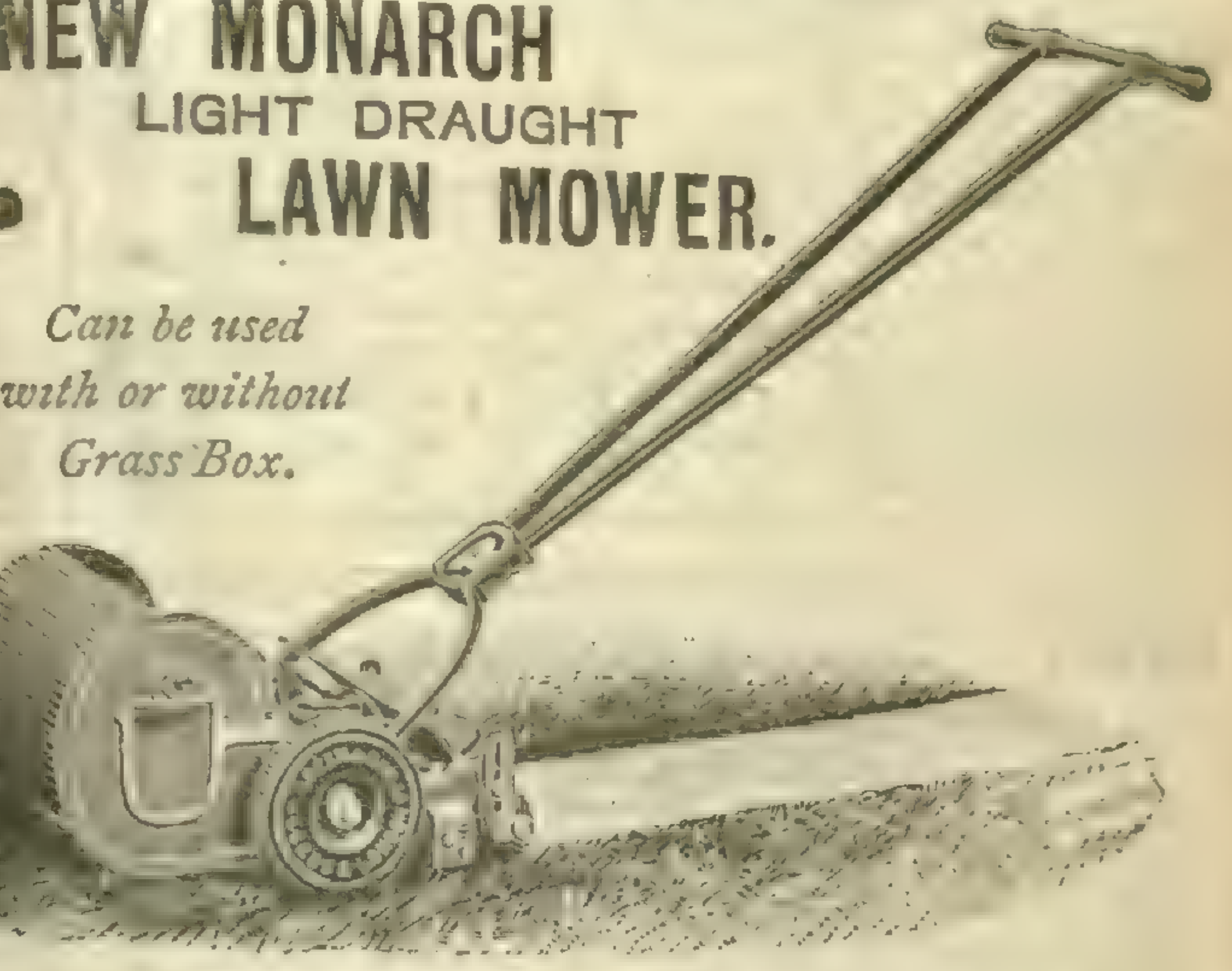

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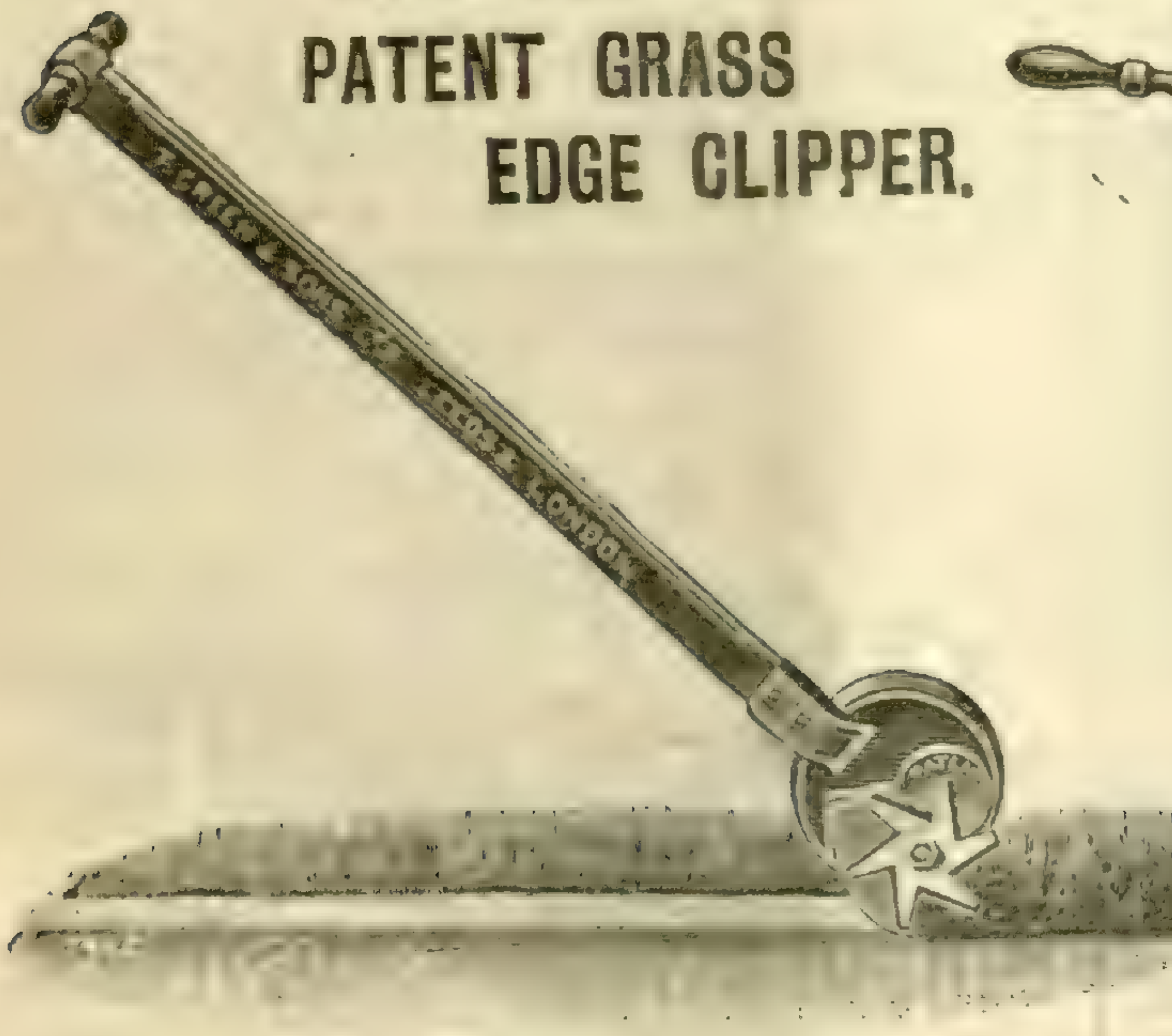

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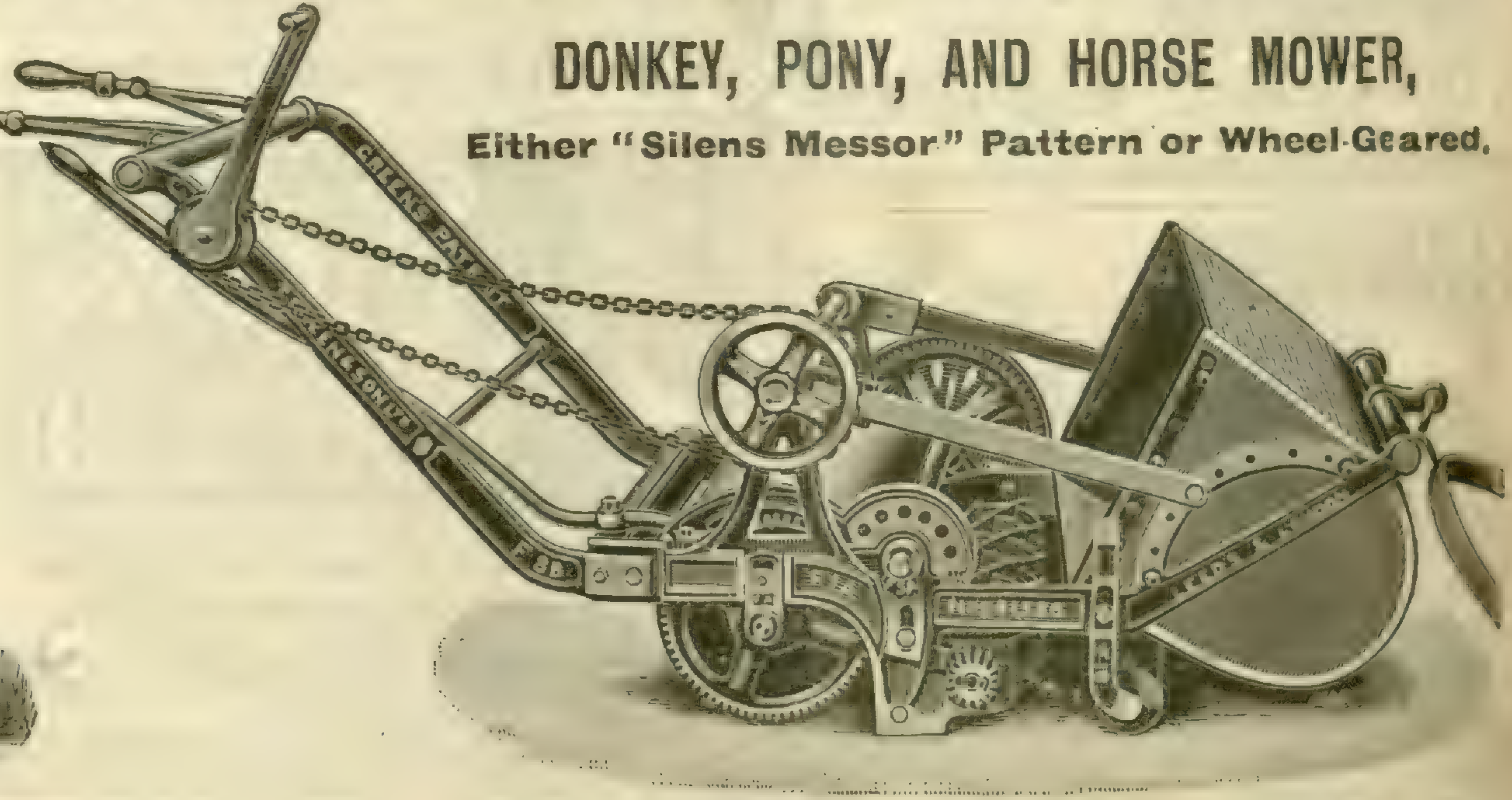

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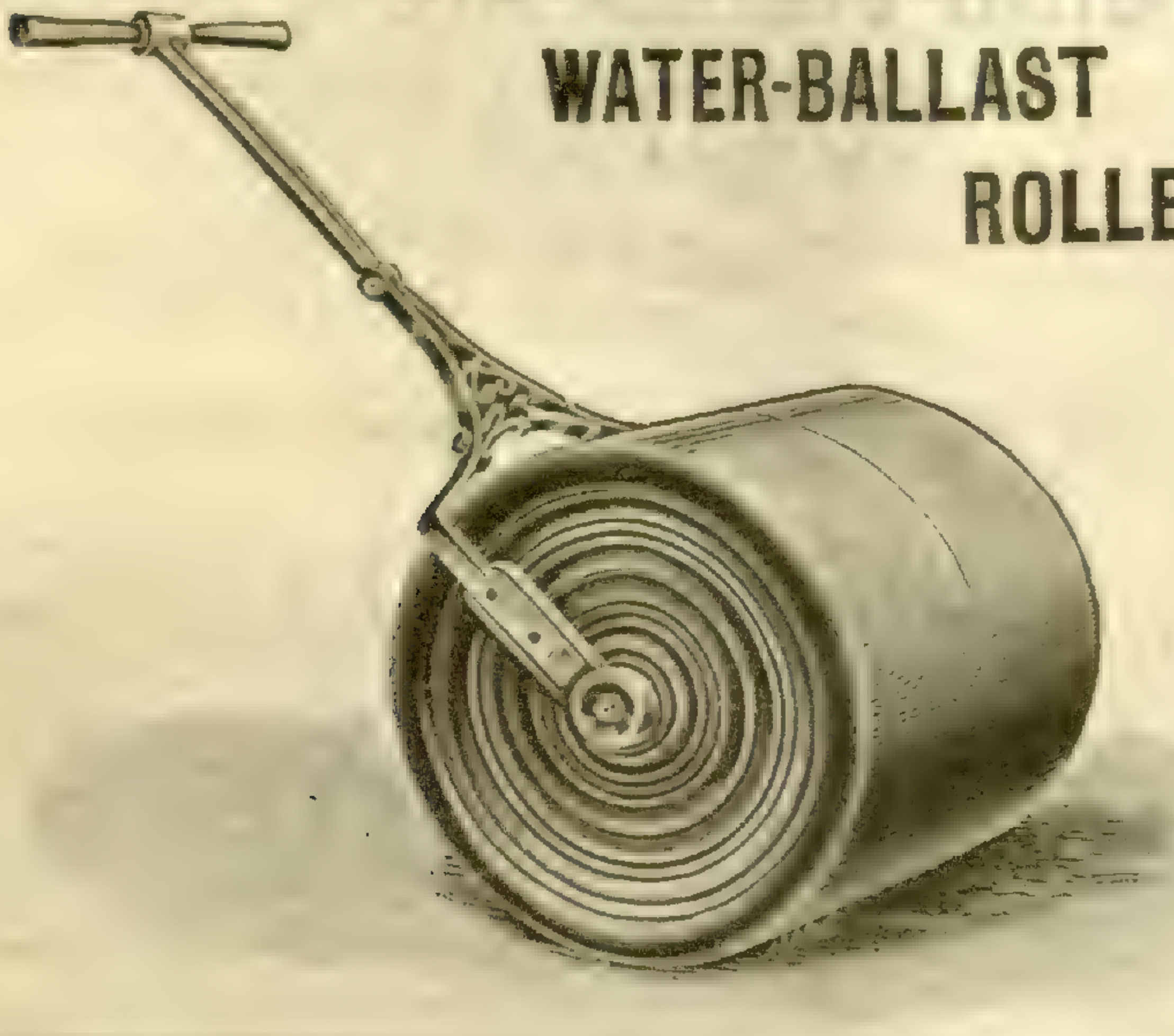

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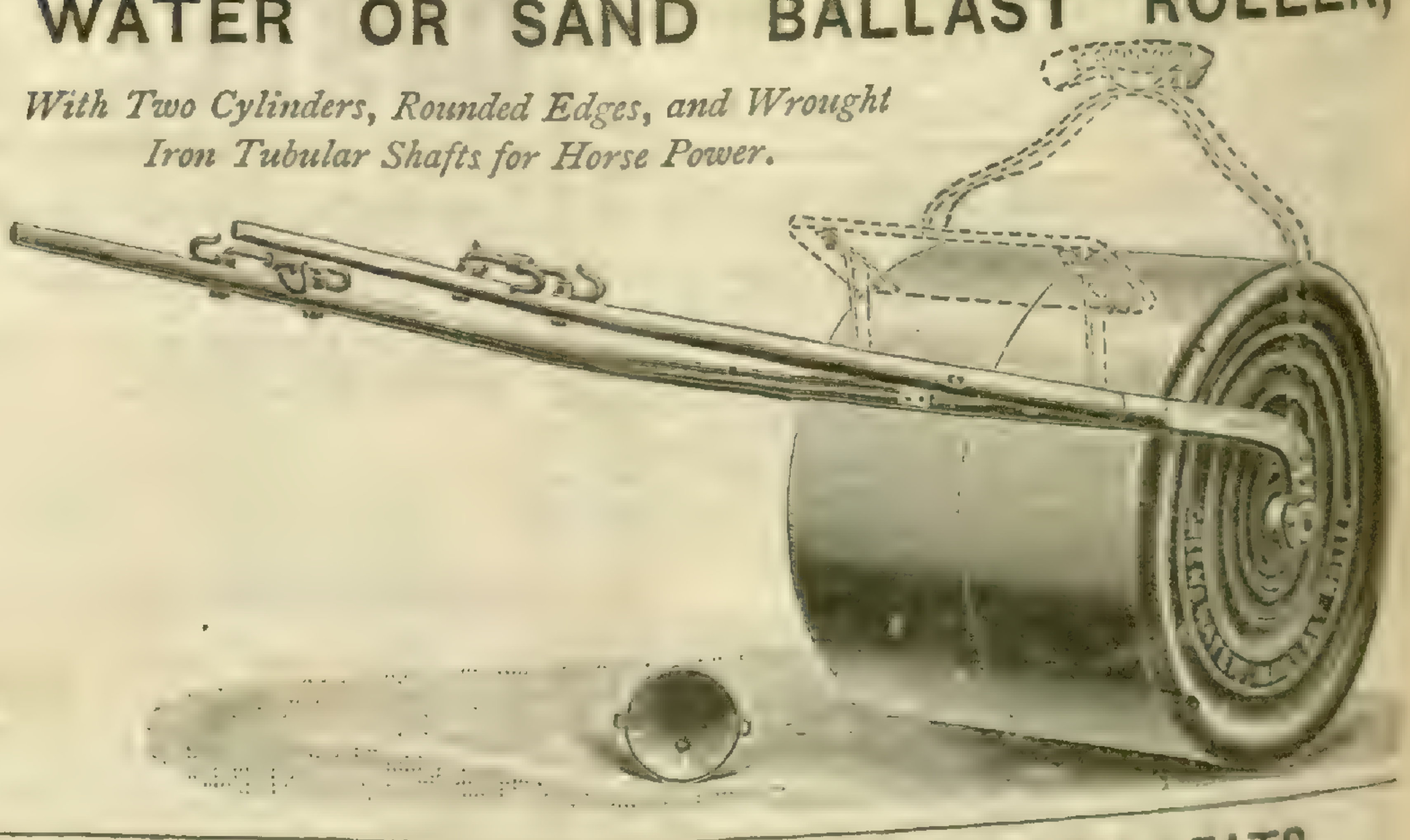

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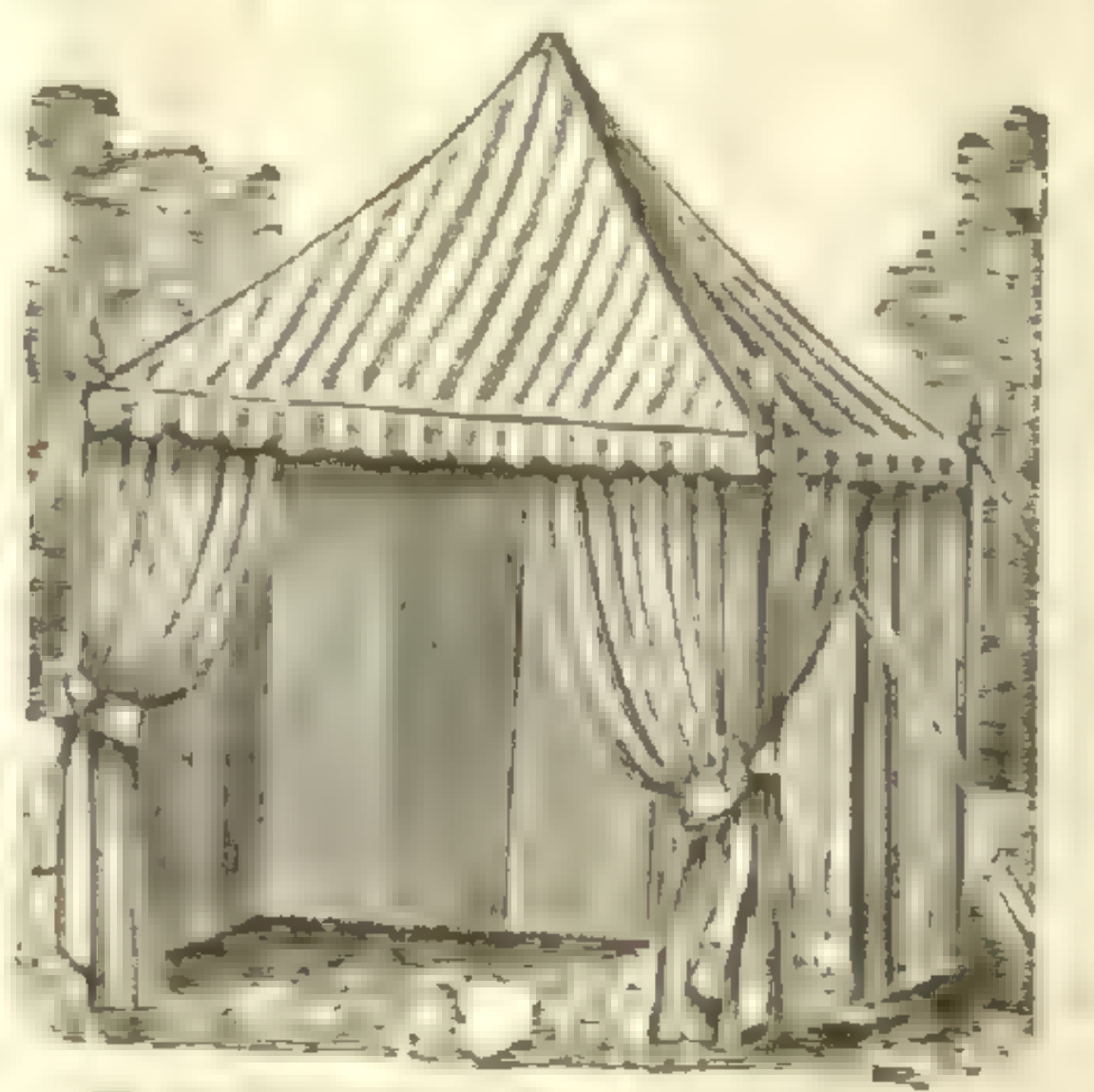

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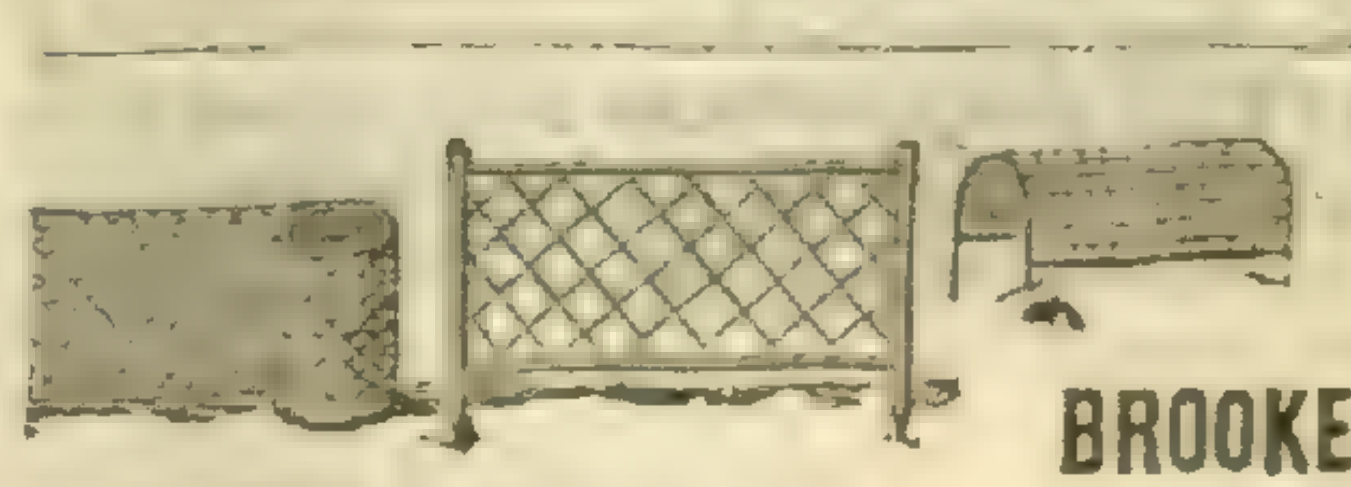

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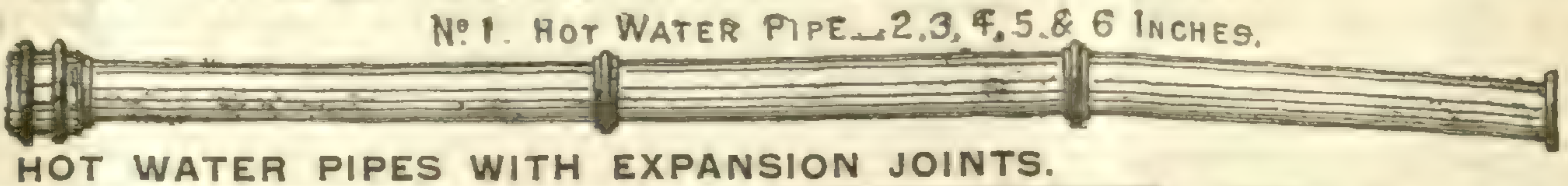

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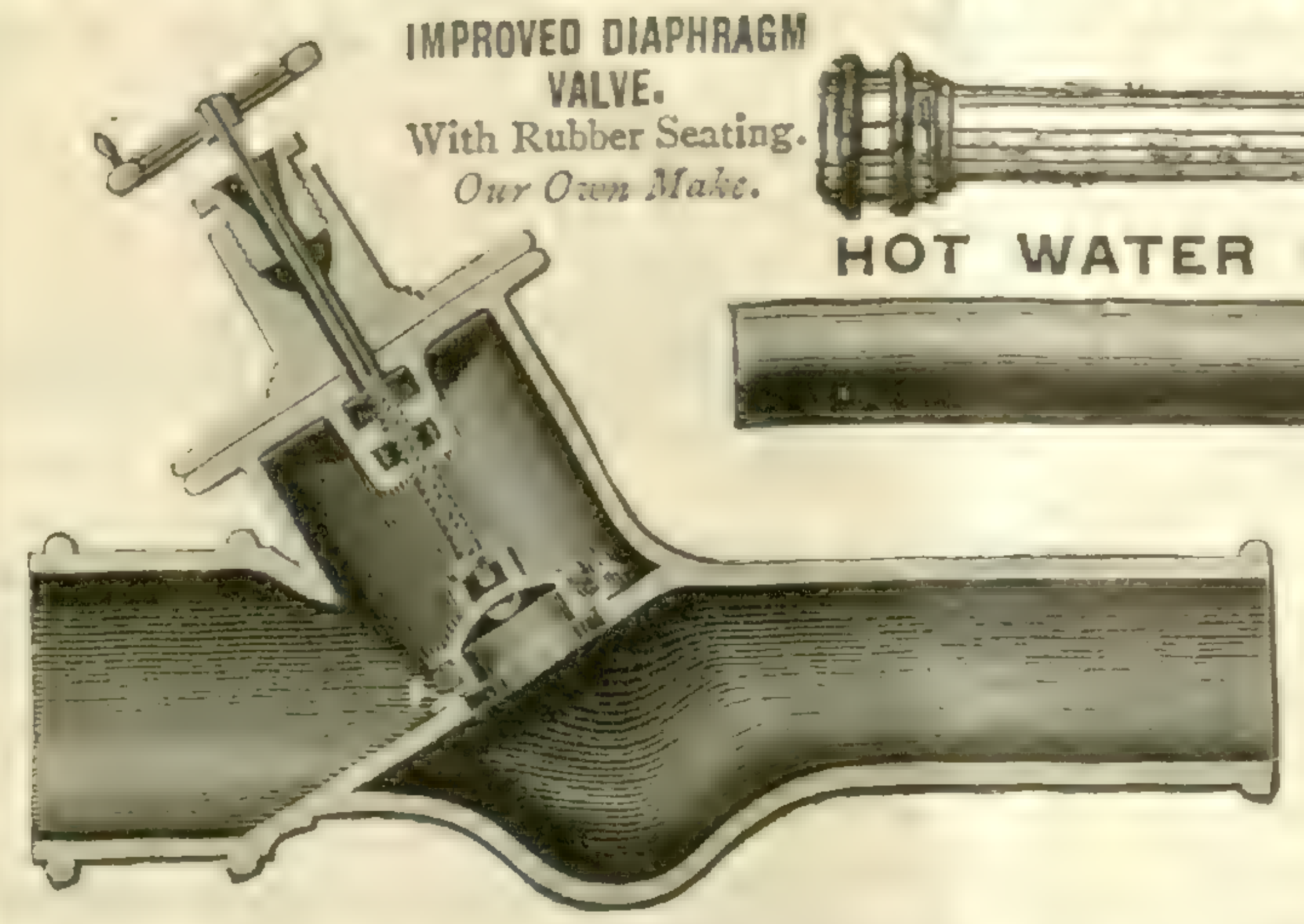

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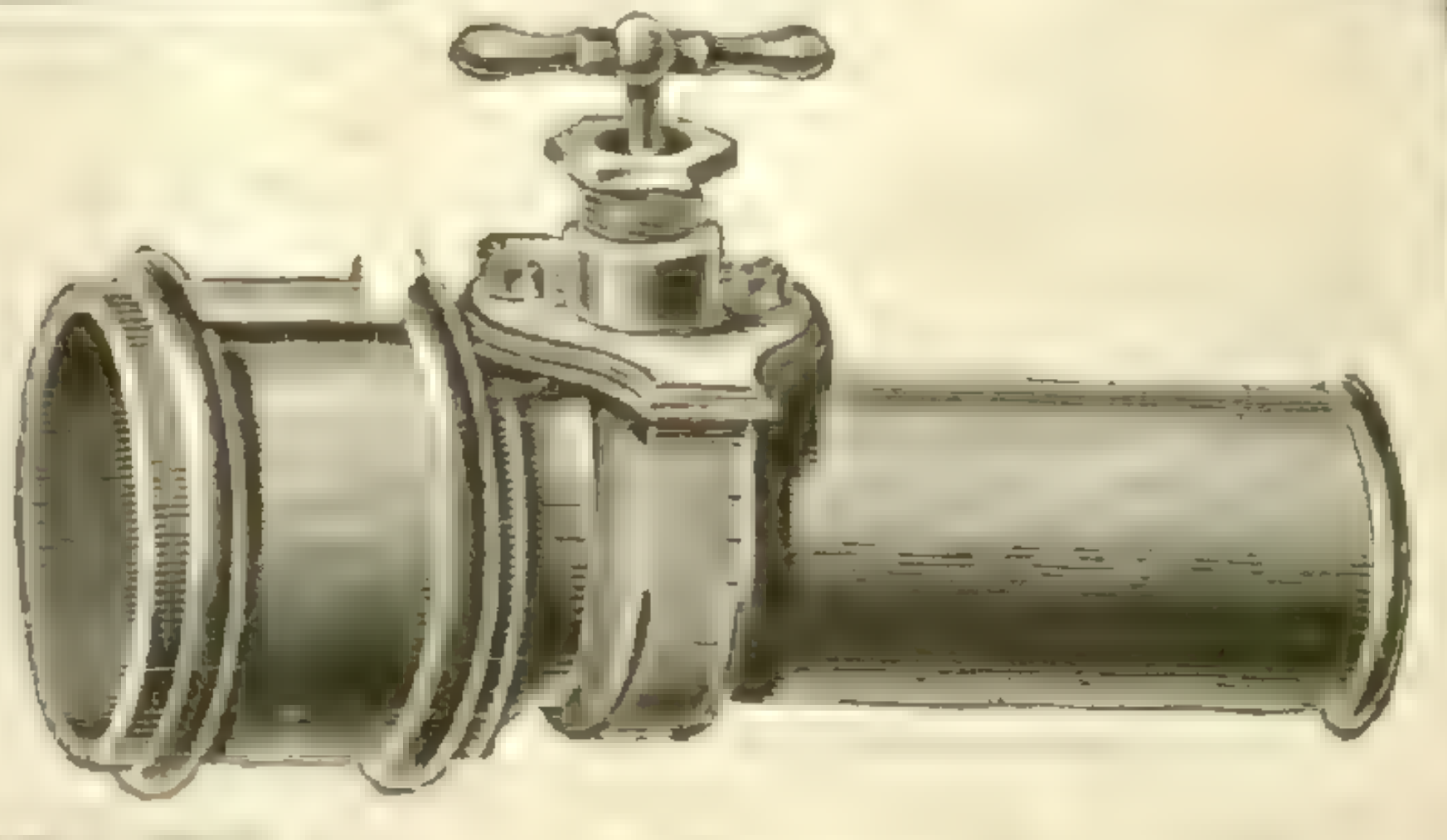

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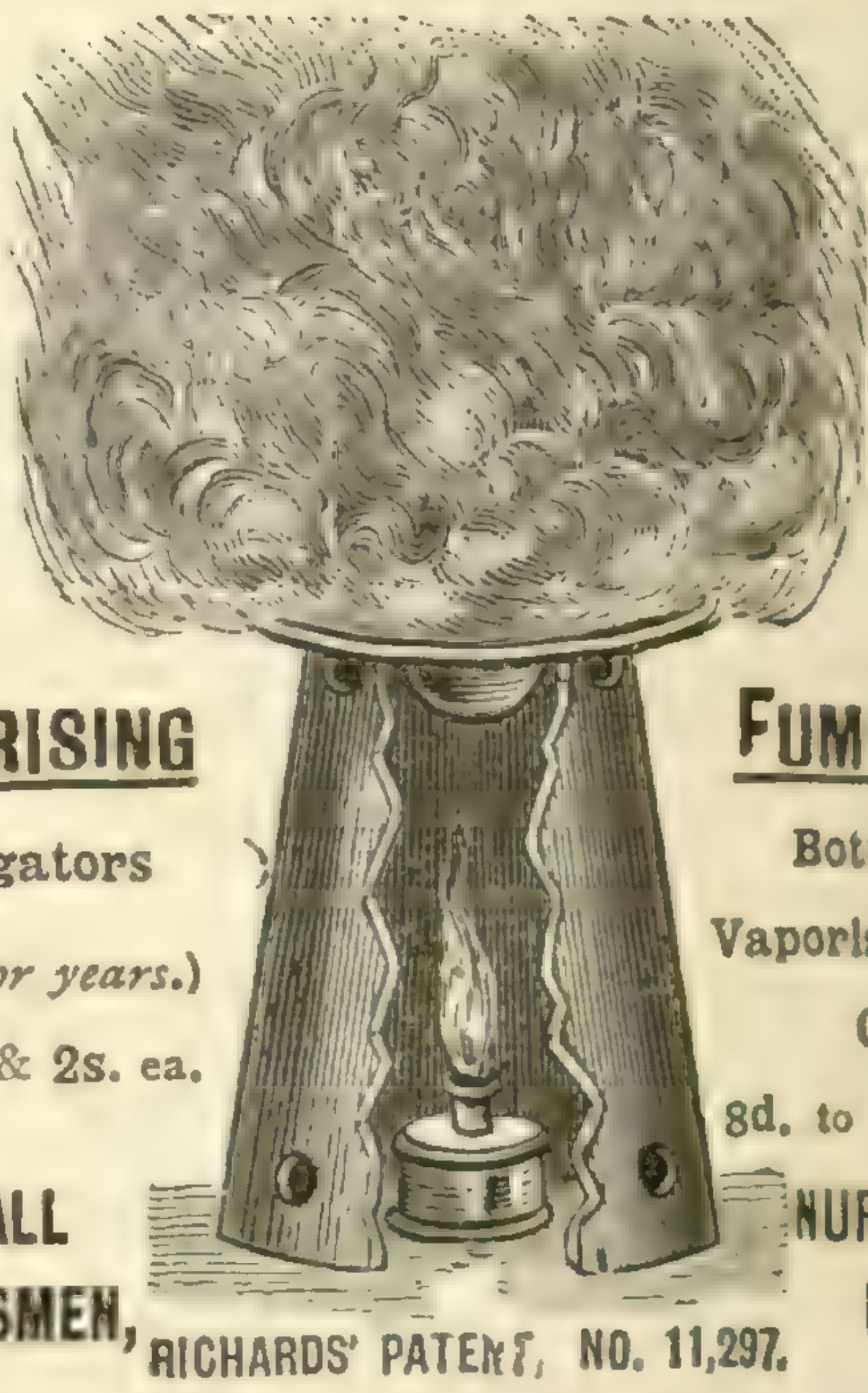

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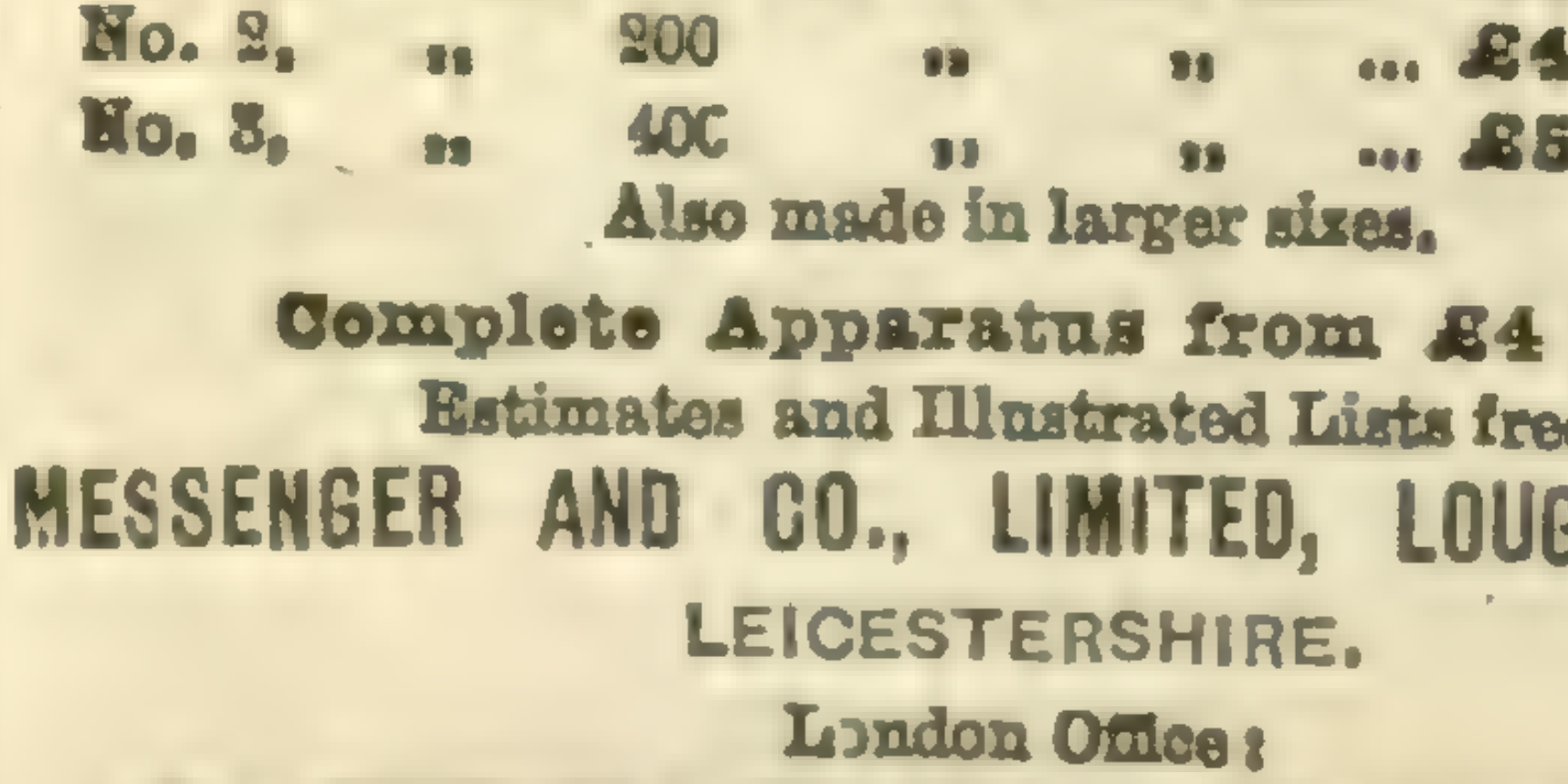

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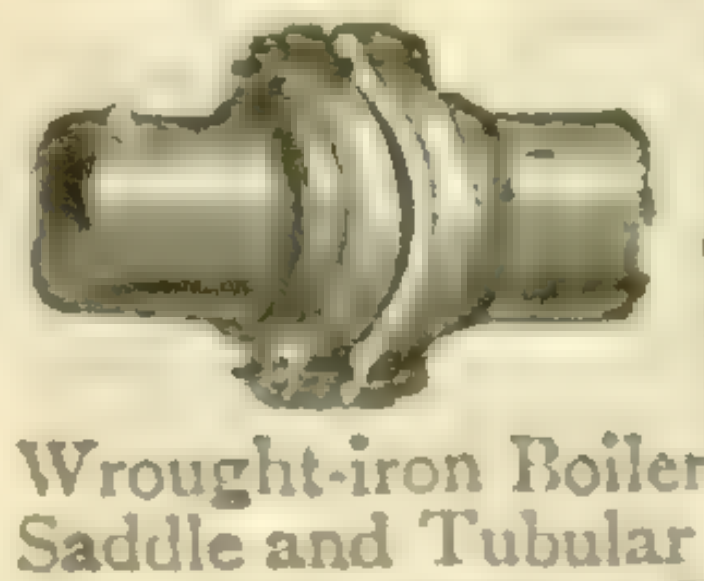

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SATURDAY, JUNE 25, 1898.

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13TH ANNUAL EXHIBITION, 9TH JULY, 1898.
SPECIAL NOTICE TO NURSERYMEN.
The Silver Medal of the Society will be awarded to Exhibits of sufficient merit, also £1 1s, to each Trade Exhibitor towards the cost of Staging a Group.
SPECIAL PRIZES.
Three Special Prizes will be awardrd for 12 SPECIMEN PLANTS.
First Prize, £10 10s.; Second Prize, £6 6s.; Third Prize, £3 3s.
Applications for Space should be made to the Honorary Secretary, before the 2nd July next.
E. J. WICKENDEN, F.R H.S., Heckfield, Clarence Road, Wood Green, N.

WOLVERHAMPTON.

THE TENTH ANNUAL FLORAL FETE will be held in the West Park,
JULY 12, 13, and 14, 1898.
PRIZE MONEY GREATLY INCREASED.
ENTRIES CLOSE, FOR PLANTS, JULY 5th, and for
CUT FLOWERS, FRUIT, VEGETABLES, JULY 8th.
PRIZE SCHEDULES AND ENTRY FORMS from the Secretary,
WILLIAM E. BARNETT, Snowhill, Wolverhampton.

WOKING FLOWER SHOW, TUESDAY and WEDNESDAY, JULY 12 and 13.
—Four Cups; 87 Classes. Schedules on application to
W. I. NEAL, Claremont Avenue, Woking.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

MULCHING.

IN the important paper on weather influences on farm and garden crops which Mr. E. Mawley, the secretary of the Royal Meteorological Society, contributed to the quarterly journal of that body, the author gives some interesting particulars of the droughts that have been experienced during the current century, and of the value of mulching with suitable materials in mitigating their injurious effects upon growing crops. Different crops, it is pointed out, vary considerably as to their powers of enduring a long continuance of dry weather, and this power depends, as a general rule, upon the nature and depth of their roots. For meteorological purposes, Mr. Symons' definition of "absolute" and "partial" droughts have, in Mr. Mawley's opinion, proved most useful, but from a horticultural point of view they are likely to be misleading. When the ground has become dry on the surface and to the depth of several inches, a fall of a tenth of an inch of rain once a week, which would soon bring to an end a partial drought, would prove of no service to vegetation generally beyond temporarily cooling and moistening the air. On certain soils it would do more harm than good by beating down the surface, and thus tending to increase evaporation from it afterwards. In proof of this Mr. Mawley cites the fact that at Rothamsted during the drought of 1870, which extended from April to July, it was found that the mixed herbage of meadow land suffered much more than the crops in arable land, of which the surface between the rows had been stirred one or more times with the hoe. In the garden the crops are less at the mercy of dry weather than on the farm, for even in the case of a porous soil much may be done either by thorough waterings, mulching, or the frequent use of the hoe, to enable them to withstand a long period of dry weather, a liberal mulching being in the majority of cases the most useful. A few years since Mr. Mawley carried out an interesting experiment in order to ascertain the effect of mulching with half-rotted manure upon the moisture and temperature of the soil beneath the covering. Two percolation gauges, each three feet square and three feet deep, were used in conducting the experiment, and these were filled with soil of a light and porous nature. The soil in one gauge was covered to a depth of three inches with half-decayed manure, and the surface of the soil in the other was left uncovered. Once a week the mulching was loosened with a fork, and the soil in the other gauge was hoed to the depth of about an inch. Mr. Mawley has compiled a table showing the effect of the mulching or percolation, evaporation, and temperature, and taking the five months commencing with April and ending with August, when the growth of plants is most active, we learn from this table that the mulched soil remained more uniformly moist than the unmulched; and that it was also more equable in temperature, being slightly warmer at night and decidedly cooler during the daytime. There were sixty-eight days during the five months when no measurable quantity of rain passed through the unmulched soil, but on no occasion did percolation cease in the case of the mulched soil. During the twelve months the percolation in the case of the latter exceeded that of the unmulched by 1·67 inches, while the evaporation was 1.67 inches less. There are, in Mr. Mawley's opinion, two important points to be borne in mind as to the application of mulching, one being, not to put it on in any case earlier than May, as it keep the ground cold at a time when the stimulative effects of warmth are most needed, and the other, that it should not be so deep or close in texture as to exclude the air from the roots of the plants round which it is placed. The investigations that have been made by Mr. Mawley amply confirm the views held by experienced cultivators and are of much interest for the light they throw upon this simple but important detail of garden management.

EVOLUTIONARY JUMPS.

IN looking round our present abundant wealth of floral beauty, both of flowers and foliage, our immense variety of fruits and vegetables, and even our decorative trees and shrubs, we seldom realise the immense debt we owe to Nature in the shape of those sudden inventive freaks which we term "sports." Every individual creation has some peculiarities of its own which distinguish it from its fellows, and, besides the dissimilarity of general external appearance or minor differences of detail, there are a myriad unseen constitutional variations which also play a material part in that "survival of the fittest" which has shaped all living things into their present forms. The selective cultivator, with his keen eye, can do much by picking out, generation after generation, these minor peculiarities, and, by breeding on from them, can add them together to great effect; but, nevertheless, his work would fall far short of the results obtained, both in originality of conception and in extent of effect, did not Nature (by which we mean the underlying creative and shaping power of all life) step in, and at a "jump" present him with altogether new types, as well as with much advanced forms of known ones, and so afford him new starting-points, and inspire fresh ideals for future realisation. In many cases man himself, in these later days, has done much to induce these "jumps" by crossing or hybridising plants which, though of different species, are yet sufficiently akin to combine and form fertile flowers. By doing this a sort of conflict is set up within the combined organism between the diverse, though conformed, parental elements. The result of this is that in the offspring the normal stability of both species is upset, and now one and now the other ancestral form obtains the mastery to a certain extent, the varying degrees of predominance affording all sorts of variant forms, of which the breeder avails himself. In such alliances colour becomes a potent factor, and a remarkable instance to the point was seen in the clematis section of the Temple Show, where the influence of C. coccinea had been infused into other species with larger and more open flowers with delightful effect. In the tuberous begonias we see another grand result of similar work carried much farther, and in the orchids some really marvellous combinations have been effected, the mingled features of the parents' flowers affording a most interesting study to the connoisseur. This sort of sportive instability is, however, somewhat apart from our subject of perfectly natural sports, to which, so far as we can ascertain, no particular inducement exists. In this connection ferns may especially be cited, as a very large number of beautiful sports have been found growing quite wild, and of such widely different types from the common as the selective breeder could not obtain by many generations of culture. In this direction the Temple Show afforded a rare example of a natural sport of this class occurring under culture in the case of Phlebodium Mayi, a beautiful plumose form of P. glaucum. This species has been raised probably by the million for trade purposes, but has hitherto remained perfectly stable; at last, however, precisely as our native species of Polypodium (a near relative) has given us the plumose Welsh form (P. v. cambricum), this exotic jumps at a bound into a form precisely akin, though its greater size and robustness will, of course, give it a far grander character, surpassing even that triumph of hybridism, P. Schneideri, in which the same or a closely-allied fern was mingled with another natural English sport, and so imbued with precisely the same characteristics. Here in P. Mayi the only selection was the picking out of the young plants from the rest of the batch when its merits became obvious, Nature at one "jump" having achieved a perfect form, and left the grower nothing to do but rear his prize with the tender care it merits.

DINNER TABLE DECORATIONS.

In its relation to the decoration of the dinner table with flowers, public taste has undergone many changes during the thirty or forty years that have elapsed since arrangements of cut flowers first obtained recognition at horticultural exhibitions, and within proper limits, a continuous change in methods of arrangement is desirable. No one could wish to sit down to a table daily that is from one end of the year to the other decorated in precisely the same way as far as the flowers available in the respective seasons will permit, and therefore changes become a necessity; but to comply with the canons of taste the modifications must be kept within certain limits and consequently be free from extravagances, both in the matter of quantities and the selection of colours. Unfortunately for the peace of mind of those who are imbued with sufficient artistic perception to be able to fully appreciate taste when displayed in the arrangement of cut flowers, the limits within which changes and modifications may be successfully made are not generally observed. Fashion is proverbially fickle, and nothing without being extravagant; consequently the eye is frequently offended by unpleasant contrasts, or by a superabundance or a poverty of flowers. At one time we see the table so crowded with flowers as to suggest that it existed simply for the purpose of displaying the largest possible number of cut flowers, and to greatly interfere with the comfort of the guests. At another time the table is so sparingly furnished with flowers as to render it somewhat difficult to appreciate the fact that an attempt had been made to decorate it. Some of the most remarkable tables of the latter type that have yet come under our notice were contributed to the exhibition of the Colchester Horticultural Society, at which decorated dinner tables receive, with other floral arrangements, special encouragement. Two classes were provided for dinner tables, and as each one contained a considerable number of entries the tables should have produced a tasteful display, but, arranged on either side of the tent, they appeared to the visitor on entering to be little beyond a spread of white tablecloth. On a close inspection being made, it could be seen that they had flowers upon them, but, with few exceptions, they were so few as to almost reach the vanishing point. We have no sympathy with those who endeavour to convert the dinner table into a parterre, and we have times out of number protested against the use of large receptacles, and excessive crowding in any form. On the other hand, we are strongly of the opinion that sufficient flowers should be used on dress occasions to produce a somewhat rich as well as a decidedly tasteful effect. To strip the garden of flowers each time the table is decorated is as unnecessary as it is undesirable; but something more than a small handful of flowers and foliage is required to justify an eight feet table being regarded as "tastefully arranged."

The Rose Number of the Gardeners' Magazine will be published on July 9, and be rich in matters of interest to rosarians. In its preparation we have been fortunate in obtaining the co-operation of the Rev. J. H. Pemberton, Mr. E. Mawley, Dr. Shackleton, Mr. A. W. Paul, the Rev. G. E. Jeans, Mr. W. F. Cooling, Mr. C. J. Grahame, Mr. G. L. Paul, Mr. J. T. Simpson, Mr. G. Mount, Mr. W. J. Tutcher, Mr. G. H. Mackereth, and other rosarians. The issue will be fully illustrated in black and white, and with it will be presented a finely-executed coloured plate of the beautiful new China rose Queen Mab. As in previous years, there will be no increase in the price of our Rose Number, and those of our readers who desire extra copies should, to avoid disappointment, advise their newsagents well in advance of the date of publication.

Plant Diseases.—At the recent meeting of R.H.S. Scientific Committee, Mr. Worthington G. Smith reported as follows on the specimens that had been submitted to him: From a further specimen of palania disease I have confirmed my previous opinion. The latest specimen sent bore the fructification of a fungus which I hope to have identified. The diseased tissues contain abundant mycelium, and the starting point for attack was from last year's old wood. I shall be glad to communicate further results later. From the material sent by Mr. Caddy it was difficult to say really what was the cause of the begonia disease. One or more fungi were easily developed on the withering leaves, but whether these were saprophytic on the dying tissue or were the cause of trouble, it is not safe to say. Begonias of this class are so liable to wither at the margins (from draughts, &c.), and are so unsuitable for transit to a distance, that accurate observation can only be made on plants in their actual habitat. The plants of biota sent by Messrs. Hillier were attacked by Pestalozzia funerea, Desm., a fungus well known to occur on dying Thuyas and allies. The life-history is, however, imperfect. At the same meeting specimens of the "silver-leaf" disease were received from Mrs. Floyer, Basingstoke. The disease is known to be very common on pomaceous plants, the silvery appearance being due to the raising of the epidermis from the underlying tissue. The disease is very fatal, both indoors and out, and is in all probability attributable to the growth of a fungus, the nature of which has not yet been ascertained. Some apple leaves injured by frost or scald from the effect of the sun shining on a damp surface were also sent.

Guide to Kew Gardens.—The remarkable success achieved by Mrs. Goldney's work on the poetical aspects of the Royal Gardens, Kew, has induced that accomplished lady to edit an illustrated guide to these gardens especially adapted to the requirements of those who are hardly in a position to "appreciate the more learned guide books issued by the authorities." As so well stated in the preface, "Among the thousands who visit the Royal Gardens every year there are many who look upon them as pleasure grounds and nothing more. They admire and delight in their beauty; they enjoy the magnificent flowers; they luxuriate in the fresh air and lovely scenery, but their interest in botany as a science, is no greater than their knowledge of it," and for the assistance of this section of the visitors the guide, which is admirable in every detail, has been compiled. In the preparation of the guide Mrs. Goldney has had the advantage of the assistance of the Rev. S. Goldney, M.A., who has long been a resident at Kew, and devoted special attention to the historical aspects of the village and its world-renowned gardens, and the sketch he has written of the history of the gardens is of special interest. The guide is illustrated by about forty exquisite reproductions chiefly of the more picturesque aspects of the gardens, and these alone are well worth the shilling charged. The publishers are Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C.

The Production of Grapes in Almeria decreased from 1893 to 1896 at the rate of about 100,000 barrels per year, and from the 800,000 to 900,000 barrels produced for market during the years 1890-1-2-3 the quantity was reduced to 562,000 barrels in 1896. In a recent report Vice-Consul Lindsay states that when the season of 1897 commenced it was feared that the decrease would continue, not only on account of the ravages of the phylloxera, but also because during the months of May and June a quantity of the fruit was lost through hailstorms. Fortunately, in spite of these calamities, the production increased by 96,429 barrels over 1896, and it now appears as if the 100,000 barrels lost yearly during the period of diminution will be gained, as vines planted then are now beginning to bear fruit. In the grounds attacked by the phylloxera, the Riperia in its several varieties is producing very good results, and a considerable number of American vines, grafted on the native stock, are yielding fruit. Large sums are yearly expended in acquiring and opening up ground for new plantations, thus providing work for a large number of hands, as quantities of blasting powder are used in demolishing the banks of stone which cover the soil. Exportation to Liverpool, London, Glasgow, Bristol, and Hamburg has increased; on the other hand, New York, Hull, St. Petersburg, and Christiania have been less favoured, doubtless due to the bad condition of the fruit, which in general was wanting in firmness. The early fruit ("uva de Casto") was sold at fair prices, and some varieties, such as Rosadas and Imperiales, have fetched from 16s. to £1 per barrel (55 lbs.), prices hitherto unheard of for this class of fruit. The true shipping grape ("uva de embarque") did not fetch more than from 10s. to £1 5s. as a general rule. There were a few sales at New York at fabulous rates, as much as 14 dol. (U.S.A. currency) having been paid per barrel. The season of 1898 is expected to be a good one, as the meteorological conditions have changed, and there is every reason to expect an abundant and well-conditioned harvest.

Cytisus Adami.—Mr. Herbert E. Brooks sent specimens of the curious Cytisus Adami to the meeting of R.H.S. Scientific Committee, which originated as a "graft hybrid," obtained by Mr. Adams as the result of budding C. purpureus on C. Laburnum in 1825. The purple and yellow flowers are those of the two species, but the brick-red is the hybrid. It was described in the *Gardeners' Chronicle*, 1841, p. 325, 336; 1842, p. 397, and often subsequently. The fullest account is in Braun's "Rejuvenescence," 1851 (English translation, 1853); in Professor Morren's paper in the *Belgique Horticole*, 1871; and a summary of the whole subject is given in Darwin's "Variation of Animals and Plants, vol. i., ed. 2 (1875), p. 413.

Destruction of Crops near Railways.—At the recent annual meeting of the Central and Associated Chambers of Agriculture an animated discussion took place upon the question of crop destruction by sparks from railway engines. Mr. Lipscombe, of Yorkshire, pointed out that formerly a farmer whose crops were injured by sparks from railway engines had a claim against the railway company; now, however, even if all his crops were spoiled by this means he could claim no compensation unless negligence on the part of the engine drivers could be proved. It was decided that the matter should be brought under consideration at the next business meeting.

The Rev. Professor G. Henslow, M.A., V.M.H., will give a lecture at the Drill Hall, Westminster, on Tuesday, June 28, in connexion with the usual fortnightly R.H.S. meeting. The lecture will be rather in the form of a demonstration, and Professor Henslow will deal with some of the most interesting plants exhibited. We may again remind our readers that the R.H.S. Rose Show which was to have been held on June 28, has been postponed until July 12.

A Botanical Station in Mexico would prove most valuable both to botanists and horticulturists. Such a station Professor J. W. Harshberger, of Philadelphia, is doing his best to persuade the authorities to institute. He suggests Las Canoas as a good locality, for it is 3,500 feet above sea level, situated in a beautiful valley, plentifully supplied with pure water, and surrounded by a luxuriant tropical flora that is as varied as it is beautiful. It is suggested that the establishment of such a station would incur no great expense, and the adjacent virgin forest would supply abundant material for botanical work for years to come.

National Chrysanthemum Society.—The annual excursion of the National Chrysanthemum Society will take place on July 25, and the programme so far as arranged comprises a visit to Harwich, travelling there and back by the Great Eastern Railway, and a water trip from Harwich along the picturesque river Orwell to Ipswich and back. Arrangements have been made with the railway company for the conveyance of the members of the party by rail and water, and for providing dinner and tea at the company's hotel at Harwich at a charge of 10s. 6d. to members and of 11s. to non-members. If a guarantee can be given for two hundred and fifty passengers a special train of saloon carriages and a saloon steamboat will be placed at the service of the party; otherwise the party will travel by ordinary trains and steamboats. Several affiliated societies have, we understand, expressed their intention of taking part in the excursion, and it has been arranged that their members shall be supplied with tickets at the same rate as members of the parent society. As it is important the executive should have some idea of the probable number forming the party by July 1, it is desirable those who intend taking part in the excursion should communicate with Mr. R. Dean, Ealing, by that date.

New Public Park at Tipton.—In connection with the proposed public park for Tipton the authorities instituted a competition, offering a first prize of £25 for the best plan for laying out the New Victoria Park. Ten competitors entered, and Messrs. W. Barron and Son, Elvaston Nurseries, Borrowash, Derby, gained the first prize for a plan that allowed for a lake of about three acres, cricket and recreation grounds, lawn tennis courts, bowling greens, band-stand, shelters, &c.; the firm also furnished plans for lodge entrance-gates, and ornamental fencing to surround a large part of the thirty-three acres. Messrs. Barron and Sons' approximate estimate of cost is £3,990. The winner of the second prize in this competition was Mr. J. Perry, architect, Tipton.

The Nursery and Seed Trades have been well represented at the Royal Agricultural Society's show at Birmingham. Messrs. James Carter and Co. exhibited large collections of garden and farm seed, and the produce grown therefrom, the display of annual and other flowers from St. Osyth being especially attractive. Messrs. Sutton and Sons contributed large collections of grasses, seeds, roots, potatos, peas, tomatos, which, arranged on their handsome stand, produced a remarkably good effect. Messrs. Webb and Sons had an attractive stand, on which flowers and vegetables were conspicuous; the new peas, Pioneer and Senator, in pots, attracting much attention. Messrs. Dicksons, Chester, and Messrs. Harrison and Sons, Leicester, with other firms, had interesting and attractive exhibits.

History of Cultivated Vegetables.—The second of the series of lectures now being given by the Rev. G. Henslow at Chiswick was devoted to a sketch of the history of cultivated vegetables. Mr. Henslow passed in rapid review the facts relating to the history of the several groups of esculents now in general cultivation, and directed attention to the conditions under which some of the more important changes had been brought about. There was again a large attendance, presided over by W. Marshall, Esq., who, in thanking Mr. Henslow for his interesting lecture, expressed the satisfaction he, in common with other members of the council of the Royal Horticultural Society, felt in the interest that was being shown in the lectures by the gardeners in the western districts of the metropolis. In consequence of the exhibition of the Richmond Horticultural Society being fixed for Wednesday next, the lecture arranged for the evening of that day has been postponed until the following week.

A Jersey Potato Competition.—With a view to testing the earliness, cropping powers, and general usefulness of the new Fidler's Queen potato in Jersey, Messrs. Fidler and Sons, Reading, instituted a competition among the Jersey growers, offering medals and money prizes for the best and heaviest dozen tubers. This competition took place a few days ago in the Lyric Hall, St. Heliers, with the result that there were thirty-six entries, representing all the varieties of soil found in the island. Dr. Powell, St. Lawrence; Mr. Le Gresley, St. Peter's; and Mr. Le Masurier, St. Peter's, were respectively the winners of gold, silver, and bronze medals; Mr. Laureas, St. Heliers, gaining a special prize. In presenting the prizes, Mr. P. Bailhache stated that those who introduced new varieties of potatos into the island deserved the thanks of the farmers, for doubtless other varieties than the Royal was to be the future potato. To keep pace with the constantly growing competition of other countries, new varieties would have to be introduced. He expressed his thorough satisfaction at seeing such fine specimens of this potato, and said that the Fidler's Queen was a potato that seemed to him to be exactly what was wanted as a seed tuber for the Jersey crops.

Direction of the Wind.—At the monthly meeting of the Royal Meteorological Society a paper was read by Mr. R. C. Mossman, F.R.S.E., in which he gave the results of an analysis of the direction of the surface winds observed during the occurrence of snow, hale, gales, thunderstorms, lightning, fog and aurora. Snow is of most frequent occurrence with north and east winds, and least common with S.W. winds. Hail showers occur most often with W., N.W., and N. winds. Gales are most frequent with W. and S. winds. The greatest number of both summer and winter thunderstorms occur with W. winds, although the values in summer are high with E., S.E., and S. winds. The greatest number of fogs are recorded on calm days closely followed by days on which the wind blew from the east.

An Early Crop of Mushrooms.—As a result of the late heavy rains, Mr. W. Henman, Manor Farm, Islip, Oxford, gathered on June 8th, fully one hundred pounds of fine mushrooms from among his standing grass, some of the specimens being thirteen inches in diameter. The crop was displayed in Mr. H. Smart's fruit shop, in the Oxford Market, and it was regarded as a somewhat unusual exhibit for the time of year.

A New Striped Rose.—Under the designation of Captain Christy panaché, a striped form of the popular hybrid tea Captain Christy, is pourtrayed in colours in *Le Jardin*. As in the case of the majority of the striped roses, it has been obtained as a bud sport and fixed in the usual way. The flowers, as shown in the coloured plate, are pale pink, marked with narrow lines of carmine, and are pleasing in appearance. The sport originated some five or six years ago in the neighbourhood of Caen, and has been introduced by M. M. Letellier et fils, of that city.

Boycotting Potato Growers.—According to a Scottish contemporary the tactics adopted by the butchers in attempting to influence auctioneers and farmers are now being tried in relation to the sale of new potatos. A circular has been sent to auctioneers and Perthshire potato growers by the Trades' Defence Association of Scotland declaring that the members of the potato trade section will not bid at any auction at which the offers of representatives of co-operative societies are accepted, or deal with any farmer who sells his potatos directly or indirectly to such societies. It is to be hoped that neither the auctioneers nor the growers will submit to this attempt to interfere with their business.

Mr. Gladstone's Favourite Flower.—Recently Mr. Ellis Lever made the suggestion that on every 19th of May, the anniversary of Mr. Gladstone's death, the English rose should be worn. On seeing Mr. Lever's suggestion Dean Hole wrote to him: "You will be pleased to read the following extract from a letter dated March 28, 1877, addressed by Mr. Gladstone to myself: 'The rose is in addition to other merits an English flower, almost an English institution, and I am glad you have made it the subject of special study and commemoration.'" We observe that Mr. Christopher Molesworth makes the absurd suggestion that the most suitable flower for commemorating the late statesman is the Monk's-hood (*Aconitum napellus*). In discussing the question he says: "What is wanted is an indigenous flower fully in season about the middle of May, and to be had from a farthing to a penny the bunch or sprig. We have such a flower in the Aconitum napellus, sacred to St. Dunstan, whose day is the 19th of May." Mr. Molesworth is obviously ignorant of the fact that the Monk's-hood does not come into bloom until quite the end of June or early in July, and that the plant is so poisonous that the merest scrap of the root is sufficient to cause the death of an adult in a few hours.

Green Shading.—In discussing the influence of coloured light upon the growth of plants at Chiswick the other day, the Rev. G. Henslow stated, as the result of experiments he had made, that green glass was the least desirable for plant structures. He also pointed out that there was exactly the same objection to green shading materials as to green glass, and he strongly advised his audience to avoid their use.

Cider and Perry were contributed to the Royal Agricultural Society's Show in larger quantities and in finer condition than in any previous year, a fact of interest as showing that these beverages are obtaining more attention as the result of the prominence we have given to orchards and their products. There were twenty-six entries of cider in cask, and the varities of apples from which the first prize cask was made comprise Kingston Black, Horner, French Jersey, Red Jersey, and Cadbury. The second prize cask is the produce of Royal Jersey, White Jersey, Chisel Jersey, and White Close Pippin. The third prize was awarded to the produce of Red Jersey, Nortons' Bitters, and Gins. All the prize casks were of Somerset make. Bottled cider of 1897 was represented by forty-four entries, and the prizes were awarded respectively to the counties of Gloucester, Somerset and Hereford. The first prize lot was made from Cowarne Red, and Fox Whelp; the third prize lot from Styre Wilding and Cowarne Red, and the second prize lot from mixed a eties. Of older bottled cider there were twenty-one entries, and the first prize was awarded to produce of Fox Whelp and Skyrme's Kernel, made in 1895. The second prize was awarded to produce of Kingstone Black, Dabinet, and Chisel Jersey, made in 1896, and the third prize to Norfolk cider made in 1896. There were twenty-one entries of perry, the first prize for which was awarded to produce of mixed fruit made in 1894, the second prize to produce of Oldfields made in 1896, and the third prize to perry of ast year's make.

A New London Garden.—The long disused burial-ground which lies at the back of the Robert Browning Hall, York Street, Walworth, was opened as a public garden the other day. The garden has been laid out under the direction of Miss Wilkinson, the landscape gardener connected with the Metropolitan Gardens Association. The association itself has contributed a portion of the cost, the major portion being given by Mr. John Newberry, of Whyteleafe, and the remainder by the Rev. J. J. Curling, vicar of Hamble.

Carnation Rust.—Some experiments have been conducted at the New York Experiment Station with a view to determine the efficiency of spraying carnations with salt water in checking the rust which in some cases is so destructive to these beautiful flowers. So far as could be ascertained the spraying with salt water did not impose the slighest check upon the disease, but the application of the salt to the soil was found to be decidedly injurious to the plants.

Fossil Forests have special attractions for those who take an interest in the vegetation of prehistoric times, and it is, therefore, not surprising to hear that a party of Swedish scientists are preparing to visit Northern Greenland for the purpose of making investigations in the fossil forest of Atanakerdluk. This wonderful spot is about 70 degress N. latitude, and is considered the most perfect remains of its kind in the world. An earlier report places the date of its origin in the Miocene period, for out of the sixty-six species of plants which have been recognised in it, no less than eigteen belong to that period. Among the trees found there are early representatives of the Sequoia gigantea of the Yosemite Valley. Another tree family flourished in this forest, viz., the Salisburia; the single modern representative of this group is Salisburia adiantifolia, a native of Northern China and widely distributed in Japan, where it is probably an introduced plant. As a fossiliferous exhibit, the forest of Atanakerdluk is unique. Many of the leaves of the trees discovered are so perfectly preserved that fragments of insects are plainly to be detected on their surface.

Pyrethrum roseum is evidently declining in popularity as an insect destroyer, for in 1896 the prices for the flowers in Montenegro, where the plant is largely grown, showed a falling-off of about seventy per cent. The produce for 1897 was only about fifteen tons, of the value of £1,800, and of this quantity ten tons were sent to Great Britain.

NEW PLANTS, FLOWERS, AND VEGETABLES.

LÆLIO-CATTLEYA HIPPOLYTA AURANTIACA.

THIS is an extremely beautiful form of a charming hybrid, one form of which was figured in our last issue. This differs from those variations already known in having the sepals and petals of a beautiful rich shade of orange; the lip is orange yellow at the base, but deepens towards the front, and is veined throughout with deep red brown. A.M., R.H.S., June 14, Messrs. J. Veitch and Sons, Chelsea.

LÆLIO-CATTLEYA CANHAMIANA SUPERBA.

An immense flowered form of a bold hybrid. It differs from the type in having larger flowers than usual, and in the rich purple colouring in the wide lip. The flowers measure nearly eight inches across, and the petals are of great breadth; these segments are of a soft lavender-purple shade. Lip very large, gold at base, with dull purple veins; apex spreading, crimson-purple at base, shading to paler purple at the apex. A.M., R.H.S., June 14. Messrs. J. Veitch and Sons.

LÆLIA PURPURATA ERNESTI.

A distinct variety of this popular orchid. It has white sepals and petals, the former being rather flatter than is generally the case. The lip is creamy white, quite yellowish in the throat; apex pale blush, with a deepening shade of rose toward the distinctly defined yellowish throat. A.M., R.H.S., June 14. Mr. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell.

ODONTOGLOSSUM ELEGANTIUS BARONESS SCHRODER.

A very graceful odontoglossum with branching spikes of light flowers that remind one of O. excellens. The flowers are scarcely three inches broad, segments narrow, pale sulphur yellow, with white shading at the base, and with bars and blotches of deep chocolate. Lip whitish with a large chocolate blotch. A very distinct and graceful orchid. A.M., R.H.S., June 14. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking.

SCUTICARIA HADWENI.

A curious-growing orchid with upright terete foliage. The flowers are borne singly on long peduncles, and are about three inches across, very thick and fleshy. Sepals and petals yellowish-green, with heavy bars and blotches of bright brown. Lip white stained with yellow at the base, deeply hollowed or cupped, and irregularly striped and spotted with bright rose. A.M., R.H.S., June 14. Mr. W. H. Young, orchid grower to Sir Frederick Wigan, Clare Lawn, East Sheen.

CATTLEYA MOSSIÆ MADONNA.

A lovely cattleya with large flowers that have substantial and pure white petals of great breadth; sepals narrow, but pure white. Lip large, side lobes white; throat yellow, with brown and purple veins; down the centre is a broad white band that fades into the pale purple staining that occupies the centre of the front lobe; around the whole of the front lobe is a wide white band having a beautifully frilled and crimped margin. A.M., R.H.S., June 14. Messrs. Stanley-Mobbs and Ashton, Southgate.

BEGONIA MRS. F. SANDER.

A handsome Rex begonia, the large leaves having a dark green centre near the footstalk, this being surrounded by a broad and irregular zone of silvery rose, this again being surrounded by bright green. A.M., R.H.S., June 14. Messrs. F. Sander and Co., St. Albans.

CALADIUM LORD ANNESLEY.

A curious caladium with ovate lanceolate leaves, the apex being extended to a sharp point; the colour is crimson with a rosy suffusion. The centre of the leaf is very bright with a shining surface. A.M., R.H.S., June 14. Messrs. F. Sander and Co., St. Albans.

PÆONY ELLA CHRISTINE KELWAY.

A beautiful double pæony with palest pink guard petals and a full centre of blush-pink petals; a very handsome variety. A.M., R.H.S., June 14. Messrs. Kelway and Son, Langport.

PYRETHRUM LADY KILDARE.

A very pretty double pyrethrum with quilled and fringed flowers; the colour is rich pink, but the yellow tint in the tiny fringes to the florets gives the whole a charming glow. A.M., R.H.S., June 14. Messrs. Kelway and Son, Langport.

GLOXINIA GALATEA.

A handsome and distinct gloxinia, white, creamy white in the throat; the six lobes at the mouth are each surrounded by a band of bluish-purple; this band is made up of irregular spottings and veining. A.M., R.H.S., June 14. Messrs. J. Veitch and Sons, Chelsea.

PHILADELPHUS CORONARIUS MONT BLANC.

A dwarf-growing and bushy plant, eminently suitable for massing, owing to its hardiness and the profusion with which its white flowers are produced. Every little growth carries about five flowers, and as these are over an inch across, the effect of a bush can well be imagined. A.M., R.H.S., June 14. Messrs. J. Veitch and Sons, Chelsea.

MECONOPSIS CAMBRICUM PLENA.

A double form of the Welsh meconopsis, the flowers being very double, graceful, and of a rich yellow colour. A.M., R.H.S., June 14. Messrs. Paul and Son, Cheshunt.

CANNAS.

Mosaic, very broad segments of a golden hue, heavily spotted and shaded with vermilion.

Mrs. W. Marshall, this has four large, clear golden-yellow segments, with a little scarlet basal stain; the other segments are heavily spotted with scarlet. A.M., R.H.S., to each, June 14. Messrs. Paul and Son, Cheshunt.

BEGONIA COMMODORE DEWEY.

A lovely tuberous begonia, camellia-flowered, large and substantial, with broad clean petals. A handsome double form of a brilliant crimson-scarlet shade, and of velvety appearance. A.M., R.H.S., June 14. Messrs. H. Cannell and Sons, Swanley.

PYRETHRUM MONARCH.

A very fine single pyrethrum, with bright rose flowers, measuring three inches and more across; centre, deep orange; stems, tall and wiry. A.M., R.H.S., June 14. Messrs. Collins Brothers, Waterloo Road and Hampton.

CABBAGE BEACONSFIELD.

A pretty cabbage, very tender, early, and of high quality when cooked. The heart is cone-shaped and clear green in colour, firm and full. A.M., R.H.S., June 14. Mr. J. Brouse, Hallbound Gardens, Beaconsfield, Bucks.

CUCUMBER, THE KEEPER.

A handsome cucumber, slightly spiny, and with a fine bloom; of good length, and with scarcely any waste in tip or tail. This is the result of crossing Improved Telegraph with Duke of Edinburgh. A.M., R.H.S., June 14. Mr. S. Mortimer, Rowledge, Farnham.

HERBACEOUS PÆONIES.

Lady Long, a good double pink variety, of fine shape and size.

Dorothy Welsh, a handsome globular flower, of a delicate flesh-pink shade.

Alton Lock. This is a semi-double variety, of an intense marone-crimson shade.

Cardinal Vaughan, a big double form, of fine shape, and of a silvery-rose tint. F.C., R.B.S., to each, June 10. Messrs. Kelway and Son, Langport.

ONONIS ROTUNDIFOLIA.

A dwarf herbaceous plant, of compact growth, with bright green leafage, and a plenitude of pea-like flowers, pink, heavily suffused and shaded with deep carmine. B.C., R.B.S., June 10. Messrs. Kelway and Son.

VERBASCUM PANNOSUM.

This is a showy form, with a tall spike of soft canary-yellow flowers of good size. This looked like a glorified V. thapsus, with very regular spikes. B.C., R.B.S., June 10. Messrs. Kelway and Son.

POPPIES.

Papaver bracteatum Silver Queen, a pretty and large-flowered poppy, with charming silver-pink blooms.

P. bracteatum Princess of Wales, a beautiful form, with huge blooms of graceful shape and delicate rose-pink colour; the blotches at the base of the segments are blackish-purple. F.C., R.B.S., to each, June 10. Messrs. Barr and Son, Covent Garden.

CLEMATIS DUCHESS OF YORK.

One of the new and beautiful coccinea hybrids, with small tubular flowers of a lovely shade of blush-pink. This is one of the latest additions to a charming set of plants, and its flowers are so pale as to be almost white. F.C., R.B.S., June 10. Messrs. G. Jackman and Son, Woking.

PYRETHRUM CASSIOPE.

A fine, large, single flower; very distinct and handsome; soft rosy-crimson, with dull yellow centre. This has larger flowers than the majority of single forms F.C., R.B.S., June 10. Messrs. Kelway and Son.

TREE PÆONIES.

Princess of Wales, a huge bloom, nearly a foot across, and of an exquisite shade of silvery white or blush.

Duchess of Marlborough, semi-double, and somewhat cup shaped; bright salmon shaded with rose towards margin.

Prince of Wales, very bright scarlet, with a shade of red rose towards the margins, and a few striations of palest blush.

James Kelway, rosy-scarlet, with very broad thick segments. A very handsome flower.

Marchioness of Londonderry, a magnificent flower of huge size, and with massive segments of the purest white. F.C., R.B.S. to each, June 10. Messrs. Kelway and Son.

KNIPHOBIA TUCKI.

This is a bold form with dense spikes that carry scarlet flowers at the apex and yellow ones towards the base. B.C., R.B.S., June 10. Messrs. Kelway and Son.

TUBEROUS BEGONIAS.

Countess of Aberdeen, an exquisite begonia with a full flower, having broad waved and crimped petals of large size; the colour is a beautiful shade of salmon with a tinge of scarlet. A lovely flower.

Countess of Dartmouth, one of the finest of double white begonias, having immense broad petals, soft and regular, and of the purest white.

Sir W. Lockhart, a fine and heavily crimped and waved double begonia of good size, and of a deep shade of salmon-scarlet. F.C., R.B.S. to each, June 10. Messrs. J. Laing and Son, Forest Hill.

STOCK SNOWFLAKE.

A handsome Brompton stock, carrying tall spikes of fragrant and pure-white flowers, having just a tinge of green at the bases of the segments. A handsome and useful variety. F.C., R.B.S., June 10. Messrs. A. W. Young and Co., Stevenage.

AMOMUM HEMISPHÆRICUM.

A Japanese plant closely allied to the gingers; it has stems rising ten or twelve feet high bearing distichous oblong-lanceolate leaves a foot or more long by three inches in breadth. The flowers are borne in a dense globose head at the apex of a short peduncle that rises from the root-stock among the stems; they are green save for the lip, which is red-brown with a yellow margin. The bracts are shaded with red-brown, while the underside of the leaves is shaded with claret-brown. A plant was sent to Kew in 1893 by Mr. H. N. Ridley, Director of the Botanic Garden and Forest Department, Straits' Settlements, and this flowered for the first time in June, 1897, when it was a noticeable plant in the tank of the tropical water-lily house. *Bot. Mag.*, t. 7,592.

STEPHANANDRA TANAKÆ.

A hardy Japanese undershrub of slender growth; the leaves are triangular-ovate, three-lobed, bright green, golden-yellow in autumn, margins sharply serrate; the flowers are quite tiny, as in many of the closely allied spiræas, calyx yellow, corolla white; the flowers are borne in terminal pendulous [illegible] about three inches long. There are but four known species of Stephanandra, three from Japan and one from China: S. Tanakæ is from the Hakone Mountains in the Sagami province of Japan, and is a rather graceful shrub though [illegible] attractive enough to become generally popular. *Bot. Mag.*, t. 7,593.

SYMPHYANDRA WANNERI.

This is a pretty biennial, clothed with oblanceolate leaves that have [illegible] and serrate margins, and that has a leafy many-flowered terminal raceme of [illegible] violet-blue campanulate flowers. This species is a native of Transylvania, and one of seven that constitute a genus, which differs only from campanula in its anthers cohering in the tube. Symphyandra Wanneri is just becoming known to cultivators, but it has been grown at Kew for many years past, both in pots and in the open border. In pots it flowers early in the spring, and is useful for greenhouse decoration; in the open border it flowers during June. The plant attains a height of three feet when exceptionally robust, but is usually about two feet high. It is a pretty plant, with red-brown stems, and all its various parts slightly hairy. The flowers are an inch across at the mouth. *Bot Mag.*, t. 7,594.

OXFORDSHIRE ONION AND BEAN GROWERS.

It is generally admitted by those able to judge, that the soil and climate of the neighbourhood of Oxford is admirably adapted to the production of high-class vegetables, the soil being naturally dry, and entirely exempt from bogs, fens, and stagnant waters, corn and grass growing here in abundance. About Oxford the soil is various, portions more or less sandy, other parts deep and rich, and excepting the Chilterns, there are not any hills of considerable height; the remainder being gentle eminences, which vary the landscape without obstructing the tillage. Under such conditions it might reasonably be expected that cultivators, following the teaching of the GARDENERS' MAGAZINE, would be very successful in developing new forms and varieties as the rewards of painstaking cultivation, selection, or hybridisation. If we refer to the onion, we are at once reminded of the number of strains that have originated in the county, and the wonderfully improved size and finish of the White Spanish type in the hands of Mr. Taplin and other growers at Banbury, whose enthusiasm knew no bounds, and who brought onion cultivation within the province of the fine arts, the Banbury type undoubtedly serving as the basis of the under-mentioned forms, viz.: Nuneham Park, sent out by Mr. Stewart, Nuneham Park Gardens; Anglo-Spanish, a strong-growing bulb raised by Mr. G. Neal, Bampton; Rousham Park Hero, sent out by Mr. H. Wingrove, Rousham Park Gardens; Walker's Exhibition, selected by Mr. J. Walker, Thame; Banbury Cross, a sturdy grower, sent out by Mr. H. Boxold, Banbury; not to mention The Lord Keeper, The Wroxton, and other developments raised at the Wroxton Abbey Gardens, which form part of the group known as Deverill's Pedigree Onions.

MR. J. GREEN'S EXCELSIOR RUNNER-BEANS, AT OLD HEADINGTON.

All the foregoing onions have been referred to, time and again, in these pages, but very little has appeared, in recent years, in relation to the many fine forms of runner beans, which of late have nearly doubled their length of pod and number of seeds. All the experts in the county have exhibited their selections at the Royal Oxfordshire Horticultural Society's shows, professionals, amateurs, and cottagers running each other close in size and quality. Of gardeners, the following are and have been growers of runner beans, each of whom follow out much the same course of cultivation, and, as a matter of fact, claims to have his own selected strain. Among these I may name Mr. G. Neal, The Gardens, Bampton; Mr. H. Wingrove, Rousham Park Gardens; Mr. John Baker, Bampton; Mr. Richard Wadham, The Grange Gardens, Steeple Aston; Mr. A. E. Kirtland, Bletchington Rectory Gardens; Mr. A. G. Nichols, recently of Nuneham Park Gardens; and Mr. James Holton, Worcester College Gardens, Oxford. With reference to Mr. Neal, he raised in 1864 Ne Plus Ultra, a standard variety, but did not put it into commerce till 1879, he having secured no less than six certificates of merit, including one at the R.H.S. Vegetable Conference in 1889. Ne Plus Ultra has been largely grown and utilised as the basis of more than one selected strain. Mr. Neal pursues an ordinary method of cultivation; does not thin out the pods for exhibition purposes; prefers medium sized seeds for sowing; and plants twelve inches apart in the rows. His longest pods have been fourteen inches, with eight beans in the pod. A variety known as Piper's Oxonian has been grown in the district for some years, and it developed as follows:—In 1871 Mr. E. R. Piper, tailor, Walton-street, Oxford, purchased of a local seedsman half-a-pint of beans, and among the plants was one that proved attractive, owing to its massive leafage and straight, delicate-looking pods; the colour and texture denoting fine quality and rather suggested that its origin might have been due to the influence of the popular dwarf bean Canadian Wonder. Be that as it may, Mr. Piper only saved one pod for next year's sowing. Of five plants, three were eaten off by slugs (his little back garden was surrounded by buildings), and the other two had to serve as stock producers. Mr. Piper was induced to exhibit at the Oxford and Bicester shows, gaining five firsts in one season in the amateur classes, but he afterwards secured the champion prize at Woodstock Show thirteen years in succession against all comers—a very fair record. About ten years ago he removed into the heart of the city, and, not having a garden, he handed his little store of beans to Mr. Holton, at Worcester College Gardens, who up to that period had no special knowledge of bean culture, but following Mr. Piper's methods, he soon proved himself a worthy and apt pupil. It should be stated that Mr. Piper never once dreamt of working up a stock of seed, four or five pods proving ample for his purpose. He preferred a plump, sausage-shaped bean for sowing, planting them in drills a foot apart, in a well-prepared trench, the latter of much service in keeping liquids from running away from the roots. Mr. Holton has since become an expert, and his wonderful dishes of fifty pods each have secured him any number of first-class prizes (I believe he has never been beaten) at the Oxford shows, and he has secured two firsts each year, for seven seasons past, at the Co-operative Show at the Crystal Palace, being gold medallist in 1895, in the southern section for gardeners. His strain has developed into long, straight, fleshy pods of fine texture, the longest pods having reached fourteen and a-half inches in length, with nine beans in a pod, of splendid colour; and without venturing an assertion, I should say the quality very closely resembles that of Sutton's Best of All. The vines are very strong and prolific bearers, requiring eight feet ash poles firmly laced to support the weight. Mr. Holton plants fourteen inches apart; uses the syringe freely in dry, hot weather to assist in setting the blooms; prefers the earliest pods for seed, as they prove plumper than later growths. He believes in liquid manure, and constant attention in the matter of thinning and selecting.

Among the amateurs (*i.e.*, those who do not grow for sale or employ a gardener), whose skill in runner-bean growing is fairly equal with the above-named, I may mention Mr. George Browning, butler at Jesus College; Mr. Edwin Thorne, butler at Wadham College (also a noted onion grower); Mr. Alfred Cripps, Jesus College; Mr. Thomas Newman, St. John's College; Mr. W. Edwards, Balliol College; and Mr. Joseph Green, carpenter, Old Headington, Oxford, who was gold medallist at the Co-operative Show, Crystal Palace, in 1897; the latter has been the winner of four silver and one bronze medal, and about thirty firsts for runner-beans; his total successes at Oxford and elsewhere amounting to fully five hundred and fifty prizes for horticultural subjects, including a large percentage of chrysanthemums. The photograph from which the accompanying illustration was made was taken after Mr. Green had gathered his special dishes for the Crystal Palace Show, in August, 1897, and an examination of the clusters of pods will reveal the fact that several of them contained nine beans each; a portion of the leafage had been cut away to show up the heavy-laden vines. Mr. Green's mode of treatment is as follows: Prepare a trench as for celery, fifteen inches deep; lay in nine inches of fat manure, and cover with four inches of soil; plant on May 1, fifteen inches apart, and stake at the same time with a stout rod; when the beans begin to grow freely water with liquid manure occasionally; eventually thinning the pods judiciously. He has named his strain Excelsior, and claims that it is a cross between Ne Plus Ultra and Girtford Giant.

With reference to the cottagers (*i.e.*, farm or day labourers), the most successful have been Mr. Barnard West, of Nuneham Courtenay, and Mr. James Simmons, of Kirtlington, the latter having been engaged in growing and selecting a strain for nearly thirty years, his first seed having come from a Mr. Webb, basket maker, of Bicester, a known expert in bean culture. From the above remarks it will be inferred that Oxfordshire is well represented by both onion and runner-bean cultivators; but all the other sections of vegetables are equally well grown, though there has not been quite so much enthusiasm displayed in these as in the two classes named.

Oxford. W. GREENAWAY.

THE CABBAGE.

It is said that in some parts of the country the crops of cabbage are so numerous and heavy, probably owing mainly to the mild winter, that many acres are being ploughed in as manure, because they do not prove sufficiently remunerative to market. And yet, although the cabbage has been described by a high authority as "by far the most precious vegetable we have, eaten young, in the right season, and well cooked;" those who are accustomed to dine in public places find out that in hotels and restaurants "cabbage as served up is frequently a disgusting mess, heavily charged with soda." M. Henri Vilmorin informs us that the best cookery of cabbages may frequently be observed among cottagers and servants brought up in country cottages; and he mentions the case of a duke with one of the finest gardens in England, bringing from London a specimen of some cabbage that he had relished, thinking the attraction was in the variety. And yet there is no lack of good cabbage, and the names of varieties are numerous. One catalogue gives as many as over fifty names, but many of them must be synonyms, as it is well known that a popular type of cabbage, as of some other vegetables, is grown under different names in certain districts of the country. But there are several distinct types, varying so much as to suggest an origin from different species; and yet they are the varied offspring from a common parent in the distant past. Between an ordinary white cabbage and a highly developed cauliflower there appears to be a very wide and almost bridgeless gulf of separation, and yet one is simply a development from the other. M. H. Vilmorin, in the "Vegetable Garden," alludes to the different sections of cabbages as differing perceptibly from one another in the size of the seed, the Borecoles and Kohl Rabi producing the largest seed; next to these the ordinary round-headed varieties, and the swedish turnip; and lastly, the cauliflowers and broccoli, which have the smallest seeds of all.

The importance of the cabbage as a cooked vegetable is shown from the extensive way in which it is cultivated. Time was when at Fulham, Wandsworth, Deptford, and other suburbs of London great areas of cabbage were grown, but the growth of population has operated to drive the cabbage gardens farther and farther afield, and now parts of Essex and Kent are given over to cabbage culture. Cabbages are sown at two seasons of the year—in spring and in late summer and autumn. April is the month for the spring sowings, and the last week in July and the first in October that made in what is known as the autumn. Cultivators tell us that the true character of a cabbage is best shown in the case of plants raised from spring sowings, the contrary being that if there are defects in a stock of a certain variety the act of sowing in the autumn will bring them out in the spring, when the plants are fully developed. Bolting is a freak in cabbages, and most gardeners have had experience of it. It occurs much more in spring than in autumn, the result being that, instead of forming a good, solid heart, the plant throws up an inflorescence, and is thereby prematurely matured. To save seed from such is bad practice, because there is reason to believe the tendency to bolt will be developed in the progeny. Fine and uniform stocks of cabbage can be maintained only by the most rigid selection of perfect plants for the purpose. The several seed firms who possess some very fine selections of cabbages assert that the most painstaking selection has produced stocks which are bolting-proof, and they point to yearly trials of their particular varieties, raised from seed sown both in spring and autumn, as affording abundant proof of the correctness of their contention. The time at which the seeds are sown, and especially so in the case of sowings made in August, has something to do with bolting, and probably the incidence of the season. This tendency can be conquered to a large extent by a careful selection of plants to produce seeds, and that this is being done is shown by the fine stocks of cabbages, and more particularly of early varieties, found in cultivation in the present day.

R. D.

MORNINGTON LODGE, WEST KENSINGTON.

Mornington Lodge is, indeed, a veritable London garden, surrounded as it is with buildings, and almost under the shadow of the "Big Wheel." It is the residence of Colonel Mount Batten, who succeeded to the collection of plants in general, and the orchids in particular, as left by the late Mr. Nalder, an erstwhile enthusiastic orchid amateur, who lent his name to a very fine variety of Cattleya Mossiæ, pronounced by the late Professor Reichenbach as "an astonishing beauty." A full description of this exceptional form is given in the sixth edition of "Williams' Orchid Manual" as having a general colour of a peculiar rose-purple, with a slight greyish hue; the sepals and petals are of a much darker purple, which in the sepals becomes a border, and in the petals is a quite distinct marking. There are two similar dark bands converging before the apex, leaving a purple-rosy disc, and a similar margin at nearly equal distances. Though described so long ago, and the collection has passed through severe vicissitudes, it is gratifying to find that there are three portions of the original plant still in existence here. The orchids here are contained in four divisions, mostly grown in conjunction with other plants, and in particular instances their healthy condition aptly proves the wisdom of such a course of treatment. A small, low structure, which at some more or less remote date was evidently used for the more plebeian cultivation of cucumbers, seems well adapted to the needs of the more popular kinds of dendrobiums, such as D. nobile, D. Wardianum, D. fimbriatum, D. densiflorum, D. Parishi, D. chrysotoxum, particularly fine being some plants of D. aggregatum and D. primulinum and D. giganteum. Here also had been grown, but since removed to a more effective show house, a grand batch of a truly fine form of Thunia Marshalliæ. I counted sixteen large pots with several growths in each, all of which were carrying grand heads of gracefully disposed white and orange-yellow flowers.

The main glass structure is a large span, with a lantern roof running north and south, about one hundred feet long, divided into three compartments. The first contains, besides orchids, a general collection of stove plants, with climbers such as Cissus discolor and Clerodendron Balfouriana on the roof. On the east side stage is the main collection of the ever popular Slipper orchids, those in flower at the time of my visit being the distinct Cypripedium Druryi, several plants of C. Rothschildianum, C. Stonei, C. Lawrenceanum, &c.; also present are good plants of C. Leeanum, C. laevigatum, C. Schlimi, C. sedeni, and a wonderful specimen of C. Sanderianum with half a dozen growths, and evidence of having flowered recently. Suspended overhead are some useful examples of Cattleya aurea and C. gigas. Amongst the stove plants on the central stage are suspended several plants of the Garland Orchid, Cœlogyne Dayanum grandis, each with three or four spikes of their peculiar biscuit-coloured flowers. High up in the roof are some healthy plants of aërides, vandas, and saccolabiums, whose roots drop down almost to the floor. Noteworthy plants are Vanda Denisoniana, with two spikes, V. Cathcarti, V. Sanderiana, Aërides expansum Leone, and Saccolabium Blumei majus. There is also a large plant of Angræcum eburneum, five feet high, and others of this peculiar flowering genus, such as A. sesquipedale. On a shelf are batches of Calanthe Veitchi, and C. vestita, orchids not worth growing near London on account of their extreme susceptibility to the injurious effects of fog. In the middle compartment are grown, on the west side, a varied assortment of Cattleyas and Lælias, a fine, dark, shapely form of C. Mossiæ superba standing out conspicuously from the rest. Special examples are a grand specimen of Lælia elegans, belonging to the "Turneri" section, L. autumnalis alba, Cattleya Eldorado, C. Wallisi, and C. labiata.

Suspended above are good specimens of Odontoglossum citrosmum their long drooping spikes of bloom emitting a delightful odour, and healthy plants of O. hastilabum. Here also are several large specimens of Dendrobium Kingianum album, which is said to be rare, and has longer bulbs than the type. In a corner is a group of the useful winter-flowering Cœlogyne cristata and Lemoniana, now preparing for next season's display. The centre stage of this house is filled with palms, ferns, and specimen Cypripedium barbatum. The stage on the east side is partly taken up with C. insigne, C. villosum, and C. Boxalli, Miltonia vexillaria—in flower, good plants of M. Clowesi, a fine piece of the old Zygopetalum Mackayi, several species of cœlogyne, amongst which is a grand plant of C. Massangiana, that recently carried sixteen spikes of bloom. In flower was the pretty orange-scarlet Cochlioda Noezliana and C. rosea, Lycaste Deppei, L. aromatica var, and Anguloa Clowesi. The third section contains a mixture of camellias, fuchsias, liliums, and orchids. These are on the western side, and comprise a goodly number of Odontoglossum crispum, O. Pescatorei, and others. I noted O. luteo-purpureum, with two spikes, O. cordatum, large plants of Trichopilia fragrans, and several good pans of clean-leaved Pleione lagenaria. The orchids are now in the hands of Mr. T. A. Hooker, who, with his Clare Lawn and Blenheim Palace experience, may be depended upon to maintain the collection in the best possible condition.

Besides orchids, Mr. Hooker has two vineries to think about, and a conservatory to decorate, though the latter, being of the old-fashioned stamp, in which numerous plants, such as palms, tree ferns, rhododendrons, and climbers, find a permanent home, but few flowering plants are needed to give it a gay appearance. Colonel Mount Batten is justly proud of his fine batch of gloxinias, of which there are positively hundreds, numerous examples being in sixteen-sized pots, with dozens of flowers and sturdy green leaves. The pure white variety named Her Majesty is represented also by large specimens. Just out of flower was a fine batch of Gesnera coralina, its brilliant orange-scarlet flowers and large green leaves making a very striking display. The ferns here are also representative, many rare forms of adiantum being grown; a variegated form of A. cuneatum struck me as being particularly unique.

W. H. Young.

NATURE VERSUS CULTURE IN FERN VARIATION.

The following is the text of the paper read by Mr. C. T. Druery, F.L.S., at the meeting of the Horticultural Club on the 14th inst. :—

As a fairly long period had elapsed since I inflicted a paper about our unpopular British ferns upon the members of the club, I ventured timidly to hint to our secretary that a further dose might be administered now without immediate fatal effects, and suggested "Fern Revelations by a Fern Reveller" as a possibly taking title. Mr. D'Ombrain, averse, probably, to snuffing out an old member, and relying upon the lassitude usually accorded to those afflicted with a mania, kindly acquiesced. Upon this encouragement I dropped the jocular title held out as a bait; and determined to spring my ideas upon the club in a severe form, and one more adapted to discussion, because it involved a theory which is open to challenge. "Nature *versus* Culture in Fern Variation" was the first title adopted, a title which I admit at the outset is open to criticism, because Nature is as much at work with plants under culture as with plants which grow wild and altogether independently of man's efforts or doctoring, while the variation, too, should not have been limited to ferns, since the whole tenor of my argument to come is applicable to all plants and not merely to one family, and I consequently claim to cover a wider field than such title justifies.

So much by way of preamble, and now to my object proper, which I propose to demonstrate mainly by submitting the very tangible medium of actual Nature prints, a considerable number of remarkable fern varieties found perfectly wild on these islands. These prints, I may add, were the outcome of much loving labour on the part of the late Colonel A. M. Jones, of Clifton, who made our British fern varieties his study for many years, and to whom and Mr. Lowe, the collection known as the Carbonell collection at Kew is largely due, Mr. Carbonell having caught the fern fever from Colonel Jones, who, furthermore, aided him very materially in the subsequent splendid results. Prior, however, to specially referring to these prints, I should like to point out that this particular hobby of fern hunting, *i.e.* variety hunting had, I believe, no fair parallel in connexion with any other family of plants, so far, at any rate, as concerns its results, and the care with which these results have been recorded, as in the case before us. The nearest to a parallel perhaps exists in the case of orchids, new forms of which are assiduously sought for in their habitats all over the world with well known results, which also go far to strengthen the theory I advance, viz., that plants vary quite as much, and as widely under purely natural conditions as they do under culture—and that the apparent difference is due solely to the following causes:

First, as regards varieties found wild. (1) The wild sports are usually solitary specimens of their kind, and it therefore needs a special and more assiduous search by practised eyes to discover them. (2) They mostly occur in wild and unfrequented places, where chance discovery is reduced to a minimum. (3) They are usually associated and mixed up with enormous numbers of the normal forms, and these, as already stated in No. 1, require the expert's eye to detect them; and (4) very few people indeed have either the extreme patience or persistence the search demands, coupled with the requisite knowledge to enable them to detect new forms. Cultured plants, on the other hand, are grown under precisely opposite conditions, all favourable to discovery of any sports which may occur. Thus: (1) they are sown and grown in trade hands from beginning to end, by men who are practically experts in discrimination, and profit largely by their discoveries. (2) They are raised without admixture with other species in varieties, and in the process of transplanting, re-potting, and bringing on generally, are practically inspected individually many times, so that a difference can hardly escape notice; and finally (3) most important factor of all, cultivated plants are rarely normal ones; they are themselves, with few exceptions, the result of selection, *i.e.*, are the offsprings of sports, and hence, as is universally known, extremely liable to sport still more.

From these facts it is seen that the capacity of plants for sporting or varying might be just as great in their wild state as in their cultivated state, and yet the accumulated results might be practically *nil* in the former case despite their abundance in the latter; the outcome being the belief which generally exists that the variation observed is induced by culture, which leads on to other theories, that it is due to change of environments as well as treatment. For the same reason we find the most eminent botanists classing as "garden varieties" certain ferns of a crested character, like Lastrea pseudo mas cristata, as if they had been arrived at by cultivation, and until quite recently this idea of the artificiality, so to speak, of these abnormal forms led to their utter neglect by scientific botanists, though, as I contend, when they are regarded in their true light as purely natural sports they become a peculiarly fit study for the evolutionist and afford a splendid field for biological research, since it is far more among the vagaries than among the fixed forms of organic life that Nature is apt to reveal her secrets. As soon, indeed, as the abnormal forms begin to be properly studied—and I think I may claim to have induced some research in this particular direction—one of the first results was the discovery that the presumed hard and fast line existing between the two forms of fern life, the prothallus form and that of ferns as we know them, was a myth; since it was found to be broken through very frequently. Thus several varieties of several species are known now to produce prothalli on their fronds, and conversely produce fronds on their prothalli by simple asexual buds, while to cap the climax, Mr. Lang found that spores were actually produced on the prothalli of several species, and although these did not get the length of perfecting in the cases he observed, the possibility was demonstrated of ferns existing from generation to generation as prothalli only, a long step backwards to their cousins the lichens, though these particular spore-bearing prothalli were produced from such highly-developed forms as the Hart's Tongue (Scolopendrium vulgare), and Broad Buckler fern (Lastrea dilatata).

Though seemingly, in making these remarks, I have somewhat diverged from my subject, it is not so really, for all the ferns upon which these discoveries were made were abnormal ones, and wild finds or the true offspring of wild finds [illegible] same characteristics; and this brings me to a comparison in this particular connection of the results obtained where selective culture and assiduous hunting have both contributed their quota to collections.

Mr. E. J. Lowe's little book "British Ferns, and Where Found," published in [illegible], is recognised by all experts as a reliable descriptive catalogue of known varieties of British ferns at that date. The total number described is 1,859, to which must be added a considerable number of independent finds of similar forms, and figuring consequently under the same names. I have been through that list, and, analysing it, I find that without reckoning these repeats there are no less than 1,119 wild finds, as against 740 different forms raised from such finds and distinct enough for separate naming, *i.e.*, a ratio of sixty per cent. wild as compared with forty per cent. cultivated. Another important fact in this connection is that the common forms of the species have been utilised for a long time in gardens by the million, and thus to a certain extent must be ranked with cultivated plants, but only one or two examples are known of varieties being found among such plants, and even in these cases it has transpired that the plants had been brought in indiscriminately from wild habitats, and that even these finds may reasonably be assumed as involuntary importations and not due to cultural care. As you will presently see from the prints, these "sports" are not in any case "incipient breaks" which have to be worked up to become good and distinct varieties; they are often finished productions, and in many cases the best efforts of the selective raiser have failed to better them. On the other hand, in other cases the usual result of improvement by selection has been attained, but always and only from a fair start given by Dame Nature's unaided hand.

We see, therefore, that in ferns, at any rate, the capacity for sporting is by no manner of means dependent upon culture, and, as a fern-hunter with some successes, I cannot agree for one moment that these sports are due, as some scientists think, to any effects of the environment or attempts in the organism to adapt itself thereto. The "finds" grow under precisely similar conditions as the normal forms around them. A thousand seedlings line an earthen dyke faced with rough, unhewn stones; their fronds peep out from every chink, and here, in the very heart of a clump of the common form, is one of the most diverse fashion conceivable. To get it, it has to be literally sorted out of the bunch of fronds and roots of its purely normal companions, and yet it is not only a thoroughbred variety, tasselled, curled, or what not, but every spore it subsequently bears may breed true as a die, and, under quite different and varied environments, will reproduce the type to a nicety generation after generation.

As for fern adaptation to environment, it is quite possible that, had it not been found, it would have been smothered by its fellows, for tasselling, congesting, and dwarfing are always at expense of height, and that means handicapping to a certain extent. In this connection, too, the extreme diversity of the variations should logically imply a great diversity of environment, while, as we have seen, there is none at all. The "sport," too, is, judging by its subsequent true offspring, diverse in character even in the first frond, and hence the sport originated in the very ovum itself, or in the spore which was shed from one of the normal plants around. If the sport existed in the spore, we arrive at a local affection of the mother-frond, which bore millions of spores, one of which, at any rate, was subtly modified so as to produce a new form; and here our environmental difference narrows down to part of one frond out of many on the plant, itself one of thousands all growing together under the same or such similar conditions as could not necessitate so great a change of form as a requisite factor of existence or even as a facility, since, as we have seen, the effect may be adverse instead of favourable. To my mind, this question of variation is an inscrutable one at present, that is, the initial original variation, of which the fern prints I shall show you portray the actual examples. Subsequent variation, to which our selective breeders owe so much, and which represents largely cultural variation, is another matter; since, leaving aside the variation induced by crossing and consequent conflicts between the tendencies of diverse parents, we know that once the normal fetters have been broken, once the little cells have taken, as it were, the initiative of planning, they rarely return to allegiance altogether, and are constantly liable to vary their performance again and again, the watchful eye of the cultivator being ever on the alert to guide them in the wished-for lines by drastic weeding out, or profit by their ingenuity when they strike a perfectly new idea. The original start, however, which can transform plants to the extent which I will now exhibit by pictorial aid, with Nature herself as the artist, is, to all intents and purposes, a "special creation," which the evolutionist leaves, as I think, far too much outside his calculations. (About a hundred Nature prints of wild finds of most of the British species were here exhibited, with elucidatory remarks, many of the types being of extremely advanced character.)

We have now seen what Nature does and is doing in our sylvan nooks and corners where ferns are in their element, and I think you will agree with me that if fern hunting has no other merits, it has, at any rate, led to a very effective study of what wild plants are capable. True it is that among the hunters and finders we cannot rank one true professional scientific botanist. The research began on purely amateur lines, and only amateurs have caught the fever. With these prints and their attached notes before us, however, the evidence becomes acceptable to the veriest scientists, and I submit they go a very long way indeed to prove my theory that variation altogether is due to something other than culture, and that however great a part the environment has played in evolutionary shaping, it is a fallacy to suppose that "sports" can be imputed to attempts at adaptation thereto. The real cause, to my mind, lies deeper, and is one with that which underlies the evolutionary scheme as a whole, and utterly passes the comprehension of man.

Nicotiana affinis.—What a lovely pot plant this makes, and even in 48-sized pots it is a most useful subject. Where evening decoration is required, combined with fragrance, it should be used. The treatment and culture it needs is so very simple that I do not wonder at it being so very popular as a window plant. I have also noticed it grows largely in railway signal-boxes, and no doubt it is prized by the men on night duty. The seed being so very small, some care is needed to ensure its equal distribution. For shady corners, either indoor or out, it proves a most useful plant. In borders it is quite at home, and I find it seeds readily, and sows itself freely, but the self-sown plants never carry such fine foliage as those which are planted out. Grown in 16-sized pots this nicotiana makes a good specimen for porticos, front entrances, &c., and here on dull or rainy days a wealth of bloom expands.—Stephen Castle, R.H.S., *Bottesford Vineries, Notts.*

Messrs. Sutton and Sons' Annual Outing was conducted this year with the usual success, for the firm does all in its power to ensure a good day's enjoyment for its employés. This year Southampton and the Isle of Wight were selected for the excursion, and a special train, containing nearly seven hundred passengers, left Reading at half-past seven a.m., Southampton being reached at the appointed hour, half-past nine. Arrangements had been made for those of the party who had time to inspect the new docks, the warehouses and any of the South Western Railway Company's steamers, also two of the South African liners then in the docks. At a quarter to ten a specially chartered steamer left for Ryde, Sandown, Shanklin, and Ventnor, and back, while at half-past ten a second steamer proceeded to Cowes and Totland Bay. Her Majesty the Queen had graciously consented to permit members of the party to visit Osborne, and as a consequence a large number, including the members of the firm, landed at Trinity Pier, and the party were conducted over the extensive and beautiful grounds by Mr. Slater, agent to the Osborne estates, and Mr. G. Nobbs, the head gardener. The sea was beautifully calm, and consequently the trips were much enjoyed. Among the party were Mr. and Mrs. Martin John Sutton, Mr. Arthur W. Sutton, Mr. Leonard Sutton, Mr. M. F. H. Sutton, Miss Kathleen Sutton, Master Phil Sutton, and Master Arthur P. Sutton.

NOTES ON ORCHIDS.

Cymbidium canaliculatum.

This curious and interesting orchid is a native of north and east Australia, where it has a very wide distribution, though not found in any great quantity in any particular locality. The species was discovered early in the century by Dr. R. Brown, who found it near Cape York. In 1865 Mr. J. G. Veitch re-discovered it at the same place, and introduced it to British gardens. It is not sufficiently showy to merit the attention of the majority of present day orchid growers, but it is a most distinct species, and one that should prove of considerable value to the hybridiser. It has growths that are almost pseudo bulbous, and only a few inches long; the leaves are linear, sometimes twelve inches in length. The inflorescence is a raceme varying in length from one to two feet, and bearing, in the case of the form herewith figured, forty-five flowers. In the type the flowers are brown with green margins, and the lip white with pink markings; in the variety exhibited a few weeks ago by Mr. D. Smith, gardener to J. Sparks, Esq., Heathcote, Ewhurst, Surrey, the flowers are almost black—an intense vinous purple; the lip is small, as shown in the illustration, white, with blackish-brown margins and markings. No varietal name was given to this orchid, but it differs considerably in point of colour from the type. The R.H.S. Orchid Committee considered it worthy an award of merit on April 26 last, and on that day the plant was a source of great interest.—C.

Odontoglossum crispum Luciani.

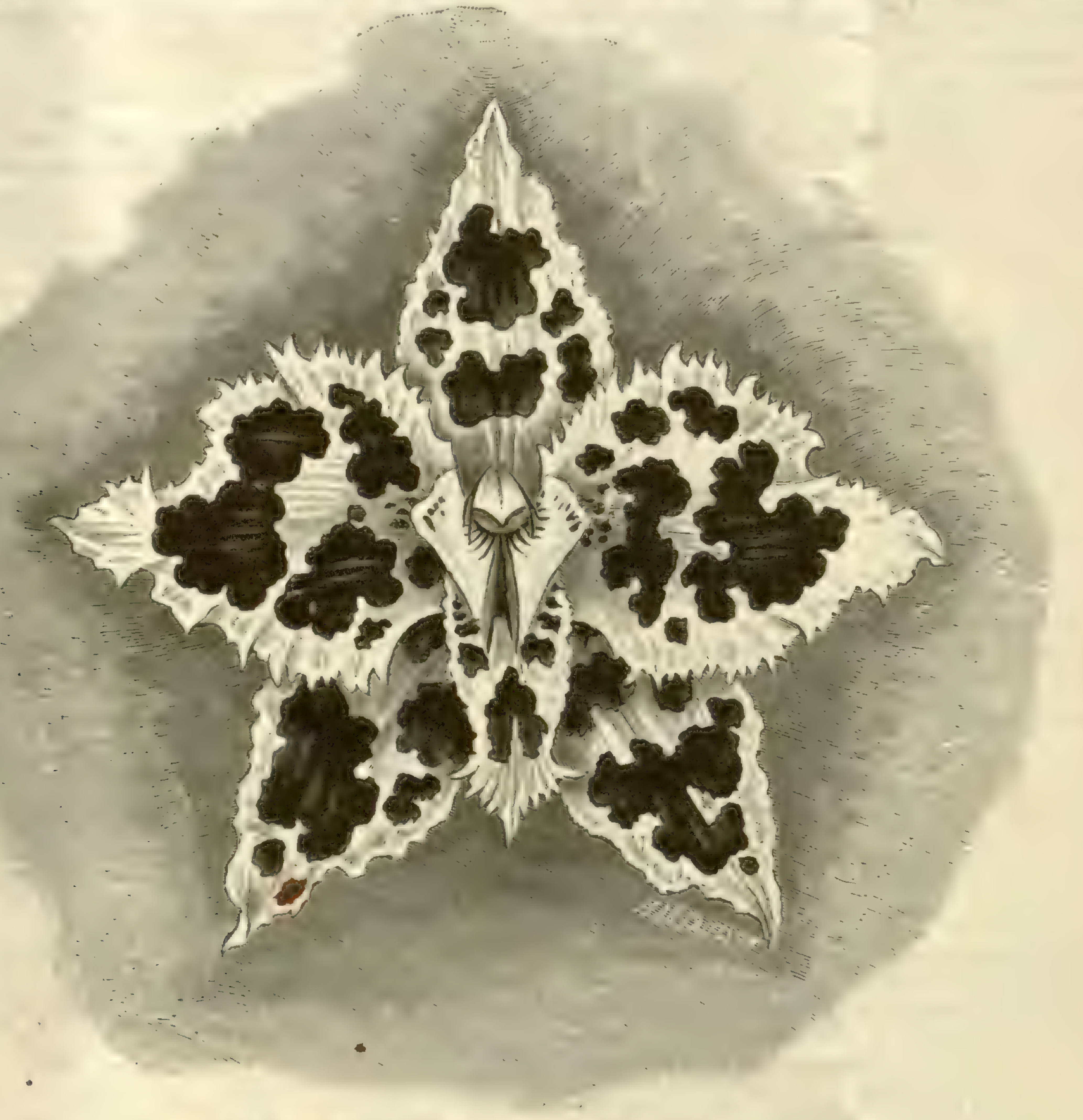
For brilliant colouring, combined with fine form, Odontoglossum crispum Luciani takes foremost rank among the many exquisite varieties of this most popular orchid now in cultivation. It is not unlike O. c. augustum, and even more shapely than it. The flower has a white ground, tinged here and there with rose; on the broad petals are very large and bold red-brown blotches; the sepals are similarly marked, but the markings are somewhat smaller. The somewhat narrow lip has a large red-brown blotch near the apex and smaller ones towards the base. The margins of the petals are denticulate, those of the sepals wavy. We have previously described this fine odontoglossum, and now take the opportunity of figuring it. O. c. Luciana was imported by Messrs. Lucien Linden and Co., Brussels, and bears the name of the head of the firm.

Orchis monophylla.

This is a pretty little Burmese orchid with fleshy oblong leaves, narrowed into a sheathing base, bright green, freely strewn with large red-purple spots. The leaves are very handsome, and so twisted as to present somewhat the appearance, in shape, of a paper bag such as the grocers twist from a square sheet of paper. The peduncle rises from the base of the leaf, and is partially surrounded by it; it is six inches or so in height, and carries a raceme from two to three inches long. The small flowers are a third of an inch long, white, with a faint pink blush; the tiny sepals, however, are greenish. This species was originally named Habenaria monophylla, but more recent examination of living specimens has resulted in the species being placed in the genus Orchis. The discoverer of O. monophylla, which, by the way, has sometimes two leaves, was Colonel Sir H. Collett, K.C.B., F.L.S.; tubers were sent to Kew by Mr. H. H. Hildebrand, Superintendent of the Southern Shan States, in 1896, and the resulting plants flowered last year and again this year. *Bot. Mag.*, t. 7,601.

Eriopsis rutidobulbon.

This novel and not unattractive orchid is now flowering in the warm orchid house at Kew. It is a Columbian plant, and one that was discovered by Purdie and introduced to Kew in 1849. The specimen Purdie brought home was the only one he met with. Latterly the species has been imported frequently, and flowering plants with long racemes of orange-yellow and red-purple flowers have been exhibited at the Drill Hall on several occasions. Mr. Thorne, Sunningdale Park Gardens has shown it in fine condition several times.



ODONTOGLOSSUM CRISPUM LUCIANI.

TOMATOS.

One has to be at some little trouble to have tomatos ready for the open ground by hardening them off before planting out in the open. It is a good plan to let them stand in a sheltered spot for a week or ten days before planting in final quarters, and the way that we treat our plants is to have them well advanced in fruiting pots by May 14 or 16, with one bunch or truss of fruit already set. Then we put them out in pots plunged up to the rims in prepared beds, leaving about two inches of space between each pot. In this way we ripen tomatos in the open annually equal in quality to indoor fruit. When treated in this way they are very handy should wet weather set in, for as they begin to feel the damp and cold they can with very little trouble be taken indoors and ripened off perfectly. For late cropping in the houses I find this mode very convenient, and usually make it a point to have from three hundred to four hundred ready to lift in August, and by so doing prolong the tomato season at least two months. At the last we take cuttings for early crops from the most prolific plants, as by doing so we can depend upon early fruit of the finest quality and perfectly true.

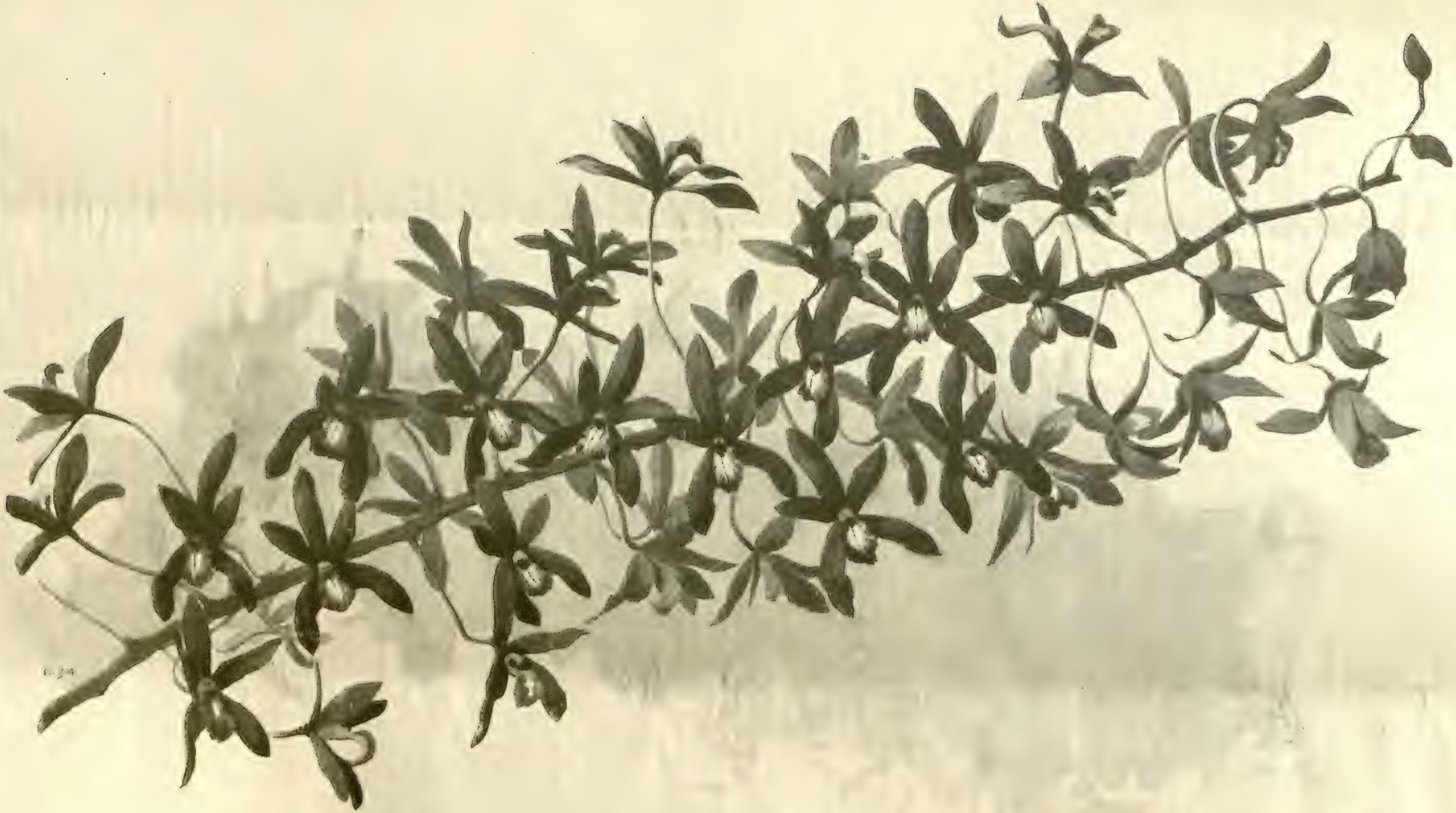
The tomatos I find best for outdoor cropping are Early Ruby and Sutton's Abundance. These bear the best fruit when grown from cuttings, being nearly as prolific as when grown from seed, while the fruits are of a much finer quality. Then also the plants do not suffer from disease of any kind. I would recommend everyone to give Abundance a trial, and once tried, it will be always used. We reduce the foliage of this variety, cutting it back to two leaflets, and find the plants do better so than when left alone. When tomatos are planted out in borders and bad weather sets in, then one sees all labour lost; but in the way mentioned the only trouble is that it gives a little extra labour; that is, however, amply repaid, and there is the satisfaction of knowing that one's efforts will have profitable results.

T. Davies.

Castle Hall Gardens.

An Unlucky Tree.—From ancient times May has been accounted an unlucky month, and it is presumably to the fact that it has given its trivial name to the flower of the thorn that we must look for an explanation of many of the evils which the latter portends to the rustic mind. History tells us that the [illegible] thorn was chosen by Henry VII. for his heraldic device because, after the [illegible] of Bosworth, the crown of Richard III. was found concealed in a neighbouring bush of that description. But this happened in August, and even the [illegible] have nothing to say against the hawthorn when once it has shed its [illegible] flowers. Its crop of bright scarlet "haws" is always welcome, though the humble fruitage gives prophetic occasion to many. It is almost universally regarded [illegible] as the certain presage of a severe winter, a very harmless superstition [illegible] birds might, or might not, approve could it be interpreted to them. There is a rather curious confusion of mind about the forecast, which does not, however, seem to invalidate its claim to very general acceptance. Among ourselves it is chiefly the flower of the whitethorn that is burdened with ominous associations; but [illegible] is by no means particular to a shade of colour, for, according to a writer in the [illegible] it is not long ago that the dangers of red hawthorn actually led to proceedings [illegible] taken in a French law-court. A fine tree in the grounds of a resident in the Department of the Seine-et-Oise was formally charged by the neighbours with [illegible] affecting all the crops within ten miles of it. Deputations waited upon the [illegible] and upon the Mayor and the Municipal Council; and the refusal of the [illegible] cut the tree down led to a great display of local excitement and indignation.

THE GARDENERS' MAGAZINE, JUNE 25, 1898.



CYMBIDIUM CANALICULATUM VAR. (Flowers blackish purple.)

R.H.S. EXAMINATION IN HORTICULTURE.

THE Rev. G. Henslow and Mr. J. Douglas, who were appointed to conduct the Royal Horticultural Society's examination for the current year, report as follows:

The annual examination in the principles and practice of horticulture was held on April 6. One hundred and ninety candidates presented themselves for examination. Of this number 155 were from all parts of England and 11 from Scotland; 19 gave no address on their papers. Three hundred marks were allotted as a maximum, and all candidates who obtained 200 marks and upwards were placed in the first class. The total number was 87, or 45·7 per cent.

Those who received 150 and less than 500 marks were placed in the second class. The number was 61, or 32·6 per cent. Those who obtained 100 and upwards were ranked in the third class. The number was 36, or 19·0 per cent. The highest number of marks was awarded to Miss O. M. Harrisson, of the Horticultural College, Swanley. The great advantage of systematic training is seen in the fact that of the pupils, *e.g.*, of the Swanley College, twenty-four were in the first class and only four in the second. Of those of the Technical School of Stafford, there were 12 in the first and seven in the second class; of the County School of Horticulture, Chelmsford, eight were in the first class and four in the second; while of the Horticultural School, Holmes Chapel, Cheshire, six were in the first class and four in the second.

Comparing the results with those of last year, we find that the number in the first class has slightly decreased, viz., from 89 to 87. In the second class there is an increase from 55 to 61; and also in the third class from 28 to 36. Those not placed have fallen from 12 to five. Comparing the percentages they stand as follows:—

	1897 (184).	1898 (190).
First class	48·3	45·7
Second class	29·8	32·6
Third class	15·2	19·0
Not classed	6·5	2·6

The answers were, on the whole, very satisfactorily given, and the general standard of those dealing with the elementary principles of vegetable physiology were somewhat better than was the case in 1897. There is also a general improvement in the answers to questions referring to practical horticulture. Most of the students have a good general idea of the work, although a limited number only went fully into the minor details of it; but some of these details are essential to a full measure of success, and as far as possible they should be included in the answers.

	FIRST CLASS.	No. of Marks gained.
1.	Miss Olive M. Harrisson, Horticultural College, Swanley	285
2.	Miss Mary Banks, County Technical School, Stafford	280
2.	Mr. O. H. Faulkner, County Technical School, Stafford	280
2.	Mr. C. Lawrence, County Technical School, Stafford	280
2.	Miss Ethel S. Lutley, Horticultural College, Swanley	280
2.	Mr. C. Mann, County Technical School, Stafford	280
2.	Mr. M. Wilson, Horticultural College, Swanley	280
8.	Mr. F. A. Gwilliam, A.R.H.S., Palace Gardens, Gloucester	275
8.	Mr. A. Tanner, School House, Cobham, Surrey	275
8.	Mr. F. Ovenden, County Technical School, Stafford	275
11.	Miss Mary H. Graves, Horticultural College, Swanley	270
11.	Miss Ethel E. Rands, Horticultural College, Swanley	270
13.	Mr. Henry Mitchell, County Technical School, Stafford	265
13.	Miss Jessie H. Price, Horticultural College, Swanley	265
15.	Miss Lilian Deane, Horticultural College, Swanley	260
15.	Mr. Herman Spooner, Technical Laboratories, Chelmsford	260
15.	Mr. Harry H. Thomas, 346, Kew Road, Kew	260
15.	Mr. Geo Underwood, Municipal Technical School, Leicester	260
15.	Miss Eunice Watts, Horticultural College, Swanley	260
20.	Mr. W. H. Brownridge, County Technical School, Stafford	255
20.	Miss Ada C. Bryson, Horticultural College, Swanley	255
20.	Mr. G. Mills, Bayham Gardens, Lamberhurst, Kent	255
23.	Mr. F. Botterill, County Technical School, Stafford	250
23.	Miss Ethel Edmunds, Horticultural College, Swanley	250
23.	Mr. Robert C. Gaut, 3, Gloucester Terrace, Kew, Surrey	250
23	Mr. Jos. Gillibrand, Horticultural School, Holmes Chapel	250
23	Mr. Jos. Hope, The New Gardens, Elveden, Thetford, Norfolk	250
23.	Mr. Arthur Jones, Horticultural School, Holmes Chapel	250
23.	Mr. Harry Miller, Technical Laboratories, Chelmsford	250
30.	Mr. F. E. Boyes, 19, Woodland Grove, Whitegate Lane, Blackpool	245
30.	Mr. E. T. Cole, Technical Laboratories, Chelmsford	245
30.	Mr. J. K. Cureton, County Technical School, Stafford	245
30.	Mr. Geo. Leadbeater, Junr., Horticultural School, Holmes Chapel	245
30.	Mr. A. J. Morland, Syon Gardens, Brentford	245
30.	Mr. R. Newman, Horticultural College, Swanley	245
30.	Mr. W. B. Pinder, County Technical School, Stafford	245
30.	Mr. Wm. Woodward, The Croft, Wallingford	245
38.	Miss Annie Ault, Horticultural College, Swanley	240
38.	Mr. Hy. Broadbent, Park Hall, Evesham	240
38.	Mr. Geo. Butcher, 188, Wellfield Road, Streatham, S.W.	240
38.	Mr. John P. Holt, Horticultural School, Holmes Chapel	240
38.	Mr. F. Lazenby, Botanic Gardens, Cambridge	240
38.	Mr. C. E. Malins, Horticultural College, Swanley	240
38.	Mr. Geo. Ord, Causey Wood, Marley Hill, Newcastle-on-Tyne	240
45	Mr. Isaac Godber, The Vineyards, Bracon Ash, Norwich	235
45.	Mr. W. J. Hurford, 3, Pound Street, Carshalton, Surrey	235
47.	Miss Marion Hawkes, Horticultural College, Swanley	230
47.	Mr. William H. Neild, Horticultural School, Holmes Chapel	230
47.	Miss E. Morland, 7, Gloucester Road, Kew	230
47.	Mr. G. W. Pyman, Technical Laboratories, Chelmsford	230
51.	Mr. John Benson, Liverpool Road, Aughton	225
51.	Mr. H. F. Easton, Pullar Road, West Barnet	225
51.	Miss Katherine M. Gervais, Horticultural College, Swanley	225
51.	Mr. E. F. Jeffrey, Horticultural College, Swanley	225
51.	Mr. A. Manson, Moreton Hall Gardens, Whalley	225
56.	Mr. Arthur Cooper, St. Peter's Street, Wallingford	220
56.	Mr. W. Cranfield, Botanic Gardens, Cambridge	220
56.	Mr. F. J. Crook, 14, St. John's Park Terrace, Winchester	220
56.	Mr. F. H. Harris, Technical Laboratories, Chelmsford	220
56.	Miss Hilda Leese, A.R.H.S., 31, Richborough Road, Cricklewood, N.W.	220
56.	Mr. A. D. Morris, Barrowmore Hall Gardens, near Chester	220
56.	Mr. Arthur Valentine, Laboratories, Chelmsford	220

	FIRST CLASS.—(*continued.*)	No. of Marks gained.
63.	Mr. E. Banks, County Technical School, Stafford	215
63.	Mr. Thos. Bell, 1, Alexandria Place, Paisley	215
63.	Mr. W. Brown, Cullen Gardens, Cullen, Banffshire, N.B.	215
63.	Mr. A. E. Burgess, Technical Laboratories, Chelmsford	215
63.	Mr. Hy. Davis, County Technical School, Stafford	215
63.	Mr. J. Richards, Horticultural School, Holmes Chapel	215
63.	Mr. J. C. Tate, The Villa, Bulmer, Welburn, Yorks	215
63.	Mr. John S. Thompson, Horticultural College, Swanley	215
63.	Miss Annie E. Young, Horticultural College, Swanley	215
72.	Mr. Thomas Benians, Horticultural College, Swanley	210
72	Miss Ada M. Cassidy, Horticultural College, Swanley	210
72.	Miss Elsie G. Callender, Horticultural College, Swanley	210
72.	Miss Frances E. H. Gervais, Horticultural College, Swanley	210
72.	Mr. A. Stirrat, Botanic Gardens, Glasgow	210
72.	Mr. F. W. Pallett, Technical Laboratories, Chelmsford	210
78.	Mr. C. Buckland, 3, Datchet Place, Datchet	205
78.	Mr. F. B. Davis, 4, Adon Terrace, Hendford Hill, Yeovil	205
78.	Mr E. Walker, Dairy Cottage, Wales, near Sheffield	205
78.	Mr. John T. Walker, The Gardens, Fairfield, Cobham	205
78.	Mr. Edward Semper, The Gardens, Scawby Hall, Lincs.	205
83.	Miss E. M. Brace, 62, Lower Sloane Street, S.W.	200
83.	Mr. Geo. W. Brookbank, 62, Queen's Road, Wimbledon	200
83.	Mr. E. J. Pitts, Horticultural College, Swanley	200
83.	Mr. F. Weiste, Horticultural College, Swanley	200
83.	Mr. W. H. White, Technical School, Leicester	200

	SECOND CLASS.	
1.	Mr. Hy. Brotherston, Gosford Gardens, Longniddry, N.B.	195
1.	Mr. J. Burden, Crowmarsh Gardens, Gifford, Wallingford	195
1.	Mr. J. Child, County Technical School, Stafford	195
1.	Mr. A H. Davis, F R.H.S., Albert House, Sutton	195
1.	Mr. W. Grantham, West Tower, Aughton	195
1.	Mr. W. Hamnett, 11, Granville Place, Stone, Staffs.	195
1.	Mr. R. Hudson, The Paddocks, Swaffham, Norfolk	195
1.	Mr. E. Miller, 55, Holly Road, Chiswick, W.	195
1.	Mr. Basil G. Stanley, Bredon's Norton, Tewkesbury	195
1.	Mr. Thos. H. Usher, Hoe Place, Woking, Surrey	195
11.	Mr. A. J. Brabner, Ivelhurst, Yeovil, Somerset	190
11.	Mr. Thomas Carr, Undermount Gardens, Bonchurch	190
11.	Mr. Louis Hales, Horticultural College, Swanley	190
11.	Mr. C. T. Illsley, Amblecote, Cobham, Surrey	190
11.	Mr. J. Jeffery, Moor Court Gardens, Stoke-upon-Trent	190
11.	Mr. J. Jordan, County Technical School, Stafford	190
11.	Mr. J. Lee, Gosford Gardens, Longniddry, N.B.	190
11.	Mr. J. F. Mitchell, Horticultural College, Swanley	190
11.	Mr. A. J. Pye, Technical Laboratories, Chelmsford	190
11.	Mr. W. Sproston, Great Haywood, Stafford	190
21.	Mr. Chas. Fogden, Poplar Villa, South Hayling, Hants	185
21.	Mr. H. R. Judson, The Gardens, Abbotts Worthy House, Winchester	185
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24.	Mr. Hy. Child, County Technical School, Stafford	180
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26.	Mr. E. Dolman, Wychnor Park Gardens, Burton-on-Trent	175
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33.	Mr. W. Burgess, Bredon's Norton, Tewkesbury	170
33.	Mr. J. Clark, Bank Cottage, Waterhouses, Ashbourne	170
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33.	Mr. A. Morton, Horticultural School, Holmes Chapel	170
33.	Mr. Wm. E. O'Hara, Horticultural College, Swanley	170
33.	Mr. H. P. Appleton, Municipal Technical School, Leicester	170
33.	Mr. J. P. Quinton, 3, Ferry Road, Long Ditton	170
33.	Mr. A. Shaw, Staincross, near Barnsley, Yorks.	170
33.	Mr. W. Smith, Bredon's Norton, Tewkesbury	170
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43.	Mr. L R. Baker, Blagdon House, Merton	165
43.	Miss Gertrude Bridger, Primrose Bank, Aughton	165
43.	Mr. G. J. Goodall, The Gardens, Streatley House, Reading	165
43.	Mr. W. Ness, Aberlady, Longniddry, N.B.	165
43.	Mr. E. Pedley, Holywell Green, near Halifax, Yorks	165
43.	Mr. R. Sumner, Liverpool Road, Aughton	165
43.	Mr. R. Y. White, 67, Queen's Street, Cheapside, E.C.	165
50.	Mr. L. Davenport, Horticultural School, Holmes Chapel	160
50.	Mr. Field, Newnham House, Wallingford	160
50.	Mr. E. Russell, Municipal Technical School, Leicester	160
53.	Mr. W. Galloway, Gosforth Gardens, Longniddry, N.B.	155
53.	Mr. J. Humphreys, Hillside, Winchmore Hill, N.	155
53.	Mr. R. Jones, Aughton Springs, Aughton	155
53.	Mr. W. T. Smith, County Technical School, Stafford	155
53.	Mr. P. H. Jones, County Technical School, Stafford	155
53.	Mr. H. Weddell, Haycroft Cottage, Surbiton	155
59.	Mr. H. Holmes, The Gardens, Garvald House, Dolphinton, N.B.	150
59.	Mr. B. Ling, Technical Laboratories, Chelmsford	150
59.	Mr. S. J. Sayer, Technical Laboratories, Chelmsford	150

	THIRD CLASS.	
1.	Mr. F. E. Belcher, Bush Hill Park, Enfield, N.	145
1.	Mr. A. W. Browning, Gosford Gardens, Longniddry, N.B.	145
1.	Mr. Henry Kingham, Laboratories, Chelmsford	145
1.	Mr. E. Powell, Heveningham Hall Gardens, Yoxford, Suffolk	145
5.	Mr. W. Hind, Town Green, Aughton, Ormskirk	140
5.	Mr. Henry Hope, Municipal Technical School, Leicester	140
5.	Mr. P. M. Marshall, Technical Laboratories, Chelmsford	140
8.	Mr. F. South, Horticultural School, Holmes Chapel	135
8.	Mr. H. L. Symes, The Gardens, Milburn, Esher	135
10.	Mrs. J. Chapman, 1, Leopold Road, Wimbledon Park	130
10.	Mr. C. New, Clarence Road, Ventnor	130
10.	Mr. E. H. Kiblett, The Gardens, Los Altos, Sandown	130
10.	Mr. A. McQuaker, 8, Victoria Place, Trinity, Edinburgh	[illegible]

	THIRD CLASS.—(*continued.*)	No. of Marks gained.
10.	Mr. J. F. Sargeant, Horticultural College, Swanley	130
10.	Mr. D. A. Simes, Technical Laboratories, Chelmsford	130
10.	Mr. S. W. Whalley, Streatley, Reading	130
17.	Mr. H. R. Davey, 14, Albion Road, St. Albans	125
17.	Mr. Robt. Perry, Milburn Gardens, Esher	125
17.	Mr. J. Wilson, Castle Street, Wallingford	125
20.	Mr. J. Hubband, The Gardens, Mountfield, Faversham	120
20.	Mr. G. Lintner, 3, East Street, Ventnor, Isle of Wight	120
20.	Mr. J. B. Pratt, Technical Laboratories, Chelmsford	120
20.	Mr. W. G. Taylor, Technical Laboratories, Chelmsford	120
20.	Mr. W. H. Wield, Burches Lodge, Kingston Hill	120
20.	Mr. S. Wren, Technical Laboratories, Chelmsford	120
26.	Mr. John Atkins, Road Cottage, High Street, Caterham	115
26.	Mr. Samuel E. Brown, Oak Road, Caterham	115
26.	Mr. J. Dent, Howberry Park, Wallingford	115
29.	Mr. F. Wichelo, St. Mary's Street, Wallingford	110
30.	Mr. J. H. Brand, Essenden Cottages, Caterham	105
30.	Mr. G. Hunter, Gosford Gardens, Longniddry, N.B.	105
30.	Mr. G. Braddy, Technical Laboratories, Chelmsford	105
30.	Mr. H. G. Chick, Moray Villa, Elm Grove, Caterham	105
34.	Mr. J. Fudge, Horticultural School, Holmes Chapel	100
34.	Mr. C. Rymes, 28, Cottage Grove, Surbiton...	100
34.	Mr. A. Wilkins, Martyr Worthy, near Winchester	100

Questions.

EIGHT QUESTIONS ONLY TO BE ANSWERED: FOUR FROM DIVISION A AND FOUR FROM DIVISION B.

Division] A.—Elementary Principles.

1. Describe the methods of propagation of different weeds; explain why groundsel and chickweed and the large white-flowered convolvulus are particularly troublesome. What are the best means of exterminating these plants?

2. Point out the importance to the plants of a good circulation of air in a hothouse, and the consequences of a stagnant condition of the atmosphere within it.

2. Describe the different functions of leaves, and the best way to secure their due performance.

4. What are the component parts of a flower, and of what use are they respectively to the plant?

5. What external conditions are favourable for inducing variations to appear in cultivated plants; and how would you proceed in order to fix any variation?

6 What parts of the flower are retained and altered in forming the fruit of the peach, melon, mulberry, fir-cone, and pineapple?

7. To what natural orders do the following trees belong:—Tulip tree, maple, apricot, ash, laburnam, guelder-rose, horse-chesnut, horn-beam, thuia, and evergreen oak? Which are natives of this country?

8. Describe the structure of the bulb of the white lily, the corm of gladiolus, the creeping-stem of couch-grass, the rhizome of the flag, and the tuber of the potato; and explain their uses to the plants.

Division B.—Practice.

9. Describe landscape gardening as an art.

10. Describe the formation of a garden lawn, and the details of the work necessary to keep it in condition during the year.

11. What are the preliminary operations necessary to the laying-out of a garden for fruit and vegetable culture? Describe the arrangement of the fruit trees, and the method of planting them.

12. A garden having four walls facing north, south, east, and west, what varieties of fruit trees should be planted on each? Describe their first year's pruning and training

13. Give full details of the propagation and culture of grape vines and fig trees in pots.

14. Describe the culture of seakale, asparagus, and French beans; and the best method of forcing them.

15. What are the best manures for kitchen and fruit gardens? How ought they to be applied, and when?

16. Describe the propagation and culture of roses and carnations intended to be cultivated under glass.

The Adulteration of Dairy Produce is discussed at some length by Mr. R. Hedger Wallace, who has brought together a mass of statistics relative to the quality of the articles which come under the above head. The author's paper was read before the Royal Scottish Society of Arts in Edinburgh, and it constitutes a formidable indictment against the conduct of dairying both at home and abroad. The butter we import is apparently frequently adulterated. The reputed pure Normandy and Brittany butters, we are told, for example, have been found to contain as much as from 30 to 40 per cent. of margarine; and not only is this latter material employed to swell the volume of first-class butter exported to this country from these districts, but butter of inferior quality is imported from Central France, Italy, and even Australia, to be blended and forwarded to us as the best Normandy and Brittany butter. Another plan consists in importing Belgian butter, which enjoys a by no means high reputation, and then shipping it from Calais to England as Normandy butter, whilst Australian butter is also worked up to sell in London under the Isigny mark, a noted brand of Normandy butter. In the space of a little over two years it appears that of the samples of butter taken at port of entry into this country and analysed 10½ per cent. of the Dutch samples were adulterated, 2 per cent. of the Danish, 19 per cent. of the German, 5½ per cent. of the Norwegian, and 7 per cent. of the Russian. Unfortunately such adulteration is not confined to our friends across the Channel, and the practice of working up butters, as it is called, is carried an at home as well. It is clear that such extensive adulteration, as Mr. Wallace assures us goes on in the butter trade, ought to be energetically dealt with by our public authorities. Another important matter discussed by the author is the use of antiseptics or preservatives to milk, technically known as "drugging" the milk. We know that the addition of chemicals to milk as preservatives is prohibited in France on the grounds of unwholesomeness; cannot we induce responsible officials in this country to bring this matter to the notice of the Government, and have such treatment of milk included under the head of adulterants? The New York law on dairy products, passed in 1893, enacts, among other things, "that milk is adulterated to which has been added, or into which has been introduced, any foreign substance whatever." Surely it is time steps were initiated, if not by authorities responsible for the purity of our food supplies, then by the public themselves, to put a stop to so reprehensible a practice.

WORK FOR THE WEEK.

COOL ORCHIDS.

IT will not be an easy matter to keep the atmosphere too moist in the cool department at this time of the year, as the large amount of ventilation that is necessary soon drys it up; therefore the hose-pipe should be used freely damping every available space three or four times daily. There is very little to be done in the cool department during the summer months in the way of repotting, as the majority of the plants will have had new material afforded them by now. All the available spare time will now be taken up in cleaning and rearranging the plants; thrips, aphides, and other pests, which are the frequent cause of so much mischief, are apt to increase rapidly at this season, and it is absolutely necessary to keep them under at all costs, for their ravages prove doubly injurious now when the leaves are so young and tender. If these pests are destroyed before they have time to cripple the young growths, untidy-looking plants with spotted foliage are avoided. Especially is this the case with masdevallias, as the young leaves when once attacked by thrips soon becomes disfigured. The timely and mild use of Richards' XL. All Vaporiser will help to keep the pests in check, and save the orchid grower much trouble. There is one thing worthy of mention here, and that is the position in a house a plant may occupy. Should a plant not take kindly to one position do not hesitate to remove it, say, to the most airy position, near the ventilators, or to the most moist corner of the house; and once the right position is found it will grow away freely, and give much less trouble. The houses should be kept as cool as possible by day, but the night temperature should not be allowed to fall below 55 degrees.

Odontoglossum Rossi, O. aspersum, O. Humeanum, and O. Cervantesi are now commencing to grow, after having their short rest. As soon as the plants begin to emit new roots new material should be afforded to any that require it. These odontoglossums do best when grown in shallow pans or baskets suspended about a foot or eighteen inches from the roof glass, at the coolest end of the house; equal parts of peat and moss will suffice as a compost over good drainage. Care should be taken in the watering of these plants, never allowing them to become sodden at the root, but rather allow the compost to become moderately dry before giving water. Where a number of plants of O. Cervantesi and O. Rossi are grown they may be had in flower from January to June, but to do this some of the plants must be given a longer rest than others, thus causing them to start into growth later in the season. Lælia harpophylla is now beginning to grow, and any plants that require repotting or top-dressing should receive attention. A light position should be given them at the warmest end of the odontoglossum house, water being sparingly afforded them after root disturbance, but a full supply will be needed when root action becomes brisk. Lælia monophylla is a quaint little orchid, and quite distinct from all other lælias, the pretty orange-scarlet flowers being very bright and effective. The plants should be grown in very small pans or baskets, using a compost of equal parts fibrous peat and moss. The odontoglossum house is the best place in which to grow it, and here it should be suspended in the lightest position at command. This species delights in a liberal supply of water while making its growth, but much less will be needed during the winter months. Masdevallias of the Harryana and caudata sections have now passed out of flower, but a plentiful supply of water must still be given, as leaf development and root action are still in a vigorous condition. Masdevallias should be kept as cool and moist as possible during the summer months.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

Palms are now growing freely and must be encouraged by feeding; see that they are not unduly crowded, and also, if they are growing in a house where the light reaches them from one side; turn the plants occasionally, else they will lean to the side from which the light comes. Large palms which have occupied the same pots for several years will have their roots mated thickly in the bottom of the pot; such as these should have the ordinary surface material supplemented by standing their pots half their depth in a tub of water once a week; if there is no objection to the smell of liquid manure a little should be used. Syringe the plants well twice a day and if creepers are grown overhead it will be necessary to sponge the fronds occasionally, for if palms are to thrive it is imperative that the fronds should be kept thoroughly clean. When used for furnishing rooms they should be changed weekly, be careful not to overwater while in the rooms, and when taken back to the palm house thoroughly cleanse the fronds from all dust. If necessary to retain them in the rooms for long periods they should be sponged at least once a week, and the water used for watering them should be lukewarm. Give regular attention to the tying and thinning and regulating of stove climbers, if the syringe is freely and intelligently used upon them twice daily insect pests will have a very precarious footing. Keep the shoots sufficiently thin to allow the free ingress of light to the plants beneath.

Achimenes are now growing freely, and the stock of any particular variety may be increased by means of cuttings. Those growing in pots as the shoots get a few inches long should have light stakes inserted to tie the shoots to as they progress; as the pots become filled with roots resort to feeding, remembering, however, that one overdose may ruin them. Pot on young plants of Sphærogyne latifolia—this is a noble stove-foliage plant—grow in a warm, moist heat, and be careful not to injure the foliage. Pot on young stock of Sanchezia regina, crotons, dracænas, gloxineas, asclepias, and other plants before they become restricted. Afford anthuriums and marantas abundance of water, and see that they are protected from strong sunshine, else the foliage will suffer severely. Eucharis are growing freely, and must be afforded stimulants regularly; do not dry eucharis to induce them to flower, by doing so, one lays them open to injury from the mite. Keep them growing freely, and though the mite be present, it will do them no material injury. Repot any caladiums requiring larger pots, give only a small shift, and be sure the roots are thoroughly moist before the operation. Saintpaulia ionantha which was pricked off a few weeks ago are now ready for potting off singly in a compost of peat, loam, leafsoil, and sand; grow in a warm, moist heat, and they will make rapid headway, and flower during the late autumn. Dipladenias approaching flowering will require liberal feeding if the best results are desired; before the flowers open look them over for insect pests, if these are present they will detract from the beauty of the plants Continue the propagation of poinsettias as cuttings are available, and pot on earlier batches before they suffer from being cramped in the small pots. Propagate fresh batches of tradescantia and panicum, fresh young pots being better for furnishing than older pots. Afford support by means of thin pieces of wire to the fronds of Adiantum farleyense, keep the fronds free from contact with each other as much as possible, if they crowd each other too much damping will follow.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

KITCHEN GARDEN.

At this season of the year, when many of the early vegetable crops are ready for use, or are approaching that stage, it is well to calculate how much of each kind of winter vegetable will be required to keep up a liberal supply during the winter, after making allowance for any mishap. Supposing, for example, that a note were taken of how much of each kind was used the previous year; and if there was a scarcity of any provision should now be made before the season is too far advanced to make up for any deficiency. Some of the green winter crops are not to be depended upon; for this reason it is always well to have others in reserve. Broccoli is one of these, for often in very severe winters many of the early ones get crippled to such an extent that the supply is considerably reduced. Broccoli in many places is a most unsatisfactory crop, but when well grown, and properly looked after, is always useful, as there are but few places where it is not in demand. To keep up a continuous supply from the time cauliflower is finished in the autumn, until that vegetable is again plentiful in spring or early summer, it will be necessary to plant several varieties that will succeed each other. There are the autumn and winter protecting, Snow's Winter White, Christmas White Vanguard, all cf which may be had in perfection during the winter, if a slight protection can be afforded them. There are so many varieties that turn in as soon as more genial weather visits us that it is not necessary to name them, but for late use Continuity, Late Queen, and Standwell are all good. A good breadth of savoys should also be put out, particularly from the late sowings, as these will be found most useful. Perfection is one of the finest of these that I have grown; it is not a large variety, but of most delicate flavour. Borecole should be planted wherever space will allow, as this vegetable is so hardy that the frost seldom injures it, and after a severe season is one of the most profitable vegetables we have. The asparagus varieties, such as Favourite are the best, as they will continue to give a supply of sprouts till Midsummer. Brussels sprouts should on no account be neglected, for it is surprising what a quantity of these may be gathered from a limited space when well grown. A good breadth of celery should also be got out, though for a late supply there will be ample time for this to make its growth if planted during the next month. Winter spinach ought on no account to be neglected, therefore when calculating the winter crops, a goodly portion should be allotted to this. To maintain an abundant supply, two or three sowings should be made. Turnips are also in great request during the winter and spring months, therefore when calculating the amount of space required for each of these crops, due regard must be had for those that are in the greatest demand, and that are likely to suffer the most from inclement weather.

Leeks also demand attention at the present time, for as these take a long season to bring them to perfection, they should be planted out without delay. If extra large roots are required, plant them a foot apart in the row. Parsley ought on no account to be left out of the list that demand attention at the present time. If a sowing be made now, and the plants therefrom transplanted in a sheltered situation when large enough to handle, these will usually withstand the cold of our winters better than plants raised from seed sown in the spring. Watering is one of those details in cultivation which should never be overlooked, for on this much depends whether the crop is a success or failure.—H. C. PRINSEP.

FRUITS UNDER GLASS.

Outdoor strawberries are very backward both in fruiting and in runner production this year and this makes it all the more necessary to lose no time in layering the first formed layers as fast as they become fit. Late seasons like the present accentuate the value of yearling plants put out in single lines solely for the production of runners and divested of their flower stems as the latter appear, as on such plants the runners are much more forward than those on fruiting plants besides being handier to work. I only know of one exception to the rule that early layering is best, and that is in the case of a strawberry which I value highly, viz., Vicomtesse Hericart de Thury; this is best left till mid-season, as early layers are apt to split up by autumn and form three or four small crowns instead of one good one, the ultimate result of this splitting being weak flower stems and very small fruits. There can be no doubt that the best method of layering for forcing plants is to use pots which may vary in size from three-inch to four-inch according to the strength of the particular variety grown. For instance, Vicomtesse Hericart de Thury and La Grosse Sucrée are best suited by three-inch pots, while Royal Sovereign and other strong growers should have a larger sized pot given them. The pots must be filled firmly to within half an inch of the rim with a good loam lightened with a small quantity of finely broken mortar rubbish. The surface soil should be finished off in a slightly conical form. In layering I make a slight groove in the soil with the blade of an old knife, and into this firmly peg the runner so that the embryo plant occupies the centre of the pot. The pegs I use are made from bracken, and I find these very handy as they shrink slightly before the next potting takes place and if not cut off too close above the hook they may then be easily withdrawn. Any kind of peg will answer the purpose, and pegs are preferable to the pebbles that are frequently advised. Each pot should be stood on a bit of slate, so that worms may be prevented from entering the soil. It is advisable to allow something like 10 per cent. over and above the number actually required, as losses or weak plants will occur, and must be reckoned with. At the same time, remember to layer a sufficient number into the soil or in pots to provide young plants for producing next year's runners. In choosing the runners see that they have not already begun to root, as such never make good plants. I like them best at the stage when the roots are just about to push, and layering before this stage is reached is no gain. Some growers layer directly into the fruiting pots, and this saves some labour, but is hardly advisable for general use, as the soil is apt to be soured if the season turns out a wet one; the older method is the safer. As regards varieties chosen for forcing, the advent of Royal Sovereign is likely to reduce the number greatly, as it has most of the attributes of a first-class forcing variety, its only defect being the need for staking, but this is necessary for many others. La Grosse Sucrée has proved good for many years, but I am discarding it this year, not without some reluctance, in favour of the last mentioned.

The time has now come when artificial heat in vineries should be reduced to a minimum or entirely suspended, and dependence be placed on early closing, with sun-heat to keep up the necessary temperature, but, unfortunately, although the season is here, cold nights and dull days have ruled up to the time of writing, so that fires are and will be necessary for houses containing grapes which have not yet taken their final swelling until better atmospheric conditions prevail. Early vines, from which the crop has been cut, should be syringed freely and daily to keep down red spider and other insect pests, and to preserve the foliage as long as possible in a green state. Plenty of air should also be given to the house night and day, and watering should not be neglected, as the vines will assimilate water in plenty in spite of the crop being removed. The above remarks on early vines will also apply to early peaches which have ripened their fruits, as any neglect in the way of syringing and watering will lead to premature ripening of the wood, which is an undoubted cause of bud dropping.—J. C. TALLACK, *Livermere Park Gardens.*

SOILS AND POTTING.

(Concluded from page 393.)

On a gentleman's place there is always a good deal of turf trimming to be done in spring time, grass edges to be neatly cut off around the walks, and borders straightened. By taking a generous slice where I dared, I usually managed to get together enough for the season's use. I am less ambitious now; if I get half a dozen cartloads of turf, I mix with it two loads of my best manure—sheep manure when I can get it. This I put in layers alternately with pure ground bone. The bone meal and sheep manure will start fermentation, and this chemical action is valuable in more ways than one. Soil heated to 120 degrees is fatal to all insect life and weed seeds, and further than this experience has shown that this chemical action is necessary to render bone meal available as a plant food. I have seen it used in a green state, but cannot say that I have been pleased with it; the odour is most disagreeable, and the mouldy condition which it assumes, which is, no doubt, a necessary stage of its transition from a crude into a soluble plant food, is, to say the least, unpleasant to look upon. Bone meal is slow in becoming available, but lasting when it is; it should be worked into the compost long before it is needed, as it is not fit for use until fermentation has subsided. It should never be applied as a top dressing. Before I knew this I thought it would be a good idea to scatter a layer of bone meal on the bottom of flats I was working up for young chrysanthemum plants. I intended they should have a good start and was, I suppose, too liberal, for in all my experience I never saw such a sickly lot of plants. I examined them every day and tried my best, hoping and believing they would come round. I waited almost too long. Finally I potted them in fresh soil, and when taken out of the bone meal compost I could almost have blown them over; how they managed to exist with so few roots is a mystery.

I said a light soil is best for potted plants, but this is only my experience; where a man must, perchance, get along with a heavy soil, and understands its management thoroughly, he may say as much in its favour. Two or three years ago my employer dug out a slough; he wanted mud, and also a place to dump gravel. This slough was found to be a depression in which for untold ages decayed leaves had gathered; the ground was spongy and too wet for general farming purposes. Little did we think to find black soil ten or twelve feet deep. It was piled up and valued only as swamp mud, but when it sweetened and vegetable life got a chance for possession we found that grass and whatever grew on it thrived luxuriantly, showing there was body in it. Though black in colour, it is light in weight and does not pack. I have grown geraniums, cinerarias, chrysanthemums, calceolarias, cytisuses, heaths, and azaleas in it, and all have done well. So it is; much must be gained by experience, and in no other occupation is one so much subject to his environment. All the functions of gardening go hand in hand; if we fail in one, we may fail in all. Injudicious watering of plants would lessen the value of the best compost; the lack of air and the requisite amount of heat and moisture would ruin the best plants.

To pot our plants properly is only part of the work; still "whatever is worth doing is worth doing well." Potting is like cooking a hare—"you must first catch your hare"; that is, see that you have clean pots and, if new, properly deodorised. Let me explain—gardeners know that plants seldom thrive in pots fresh from the kiln; exposure to the weathering influence of a rain-storm will sweeten them, or, lacking this, a good plan is to fill the new pots with moist earth and let it stay in them for a day or two; this earth should not be used. Next in importance to sweet, clean pots is good drainage. Crocks of broken pots are the best material to use. In healthy plants the bulk of the roots will be found among the drainage. Coal ashes are excellent for many plants, but they contain lime, and while this is a necessary ingredient in the food of some plants, it is not needed for all, and to some it is decidedly objectionable.

Plants which do the greater part of their growing during winter time, as well as those which remain a long time without repotting, require the greatest care. All potting thould be done firmly, and this for the most part can be done by the hand; it is seldom necessary to use the potting-stick in order to pack the soil more firmly, and then only for large plants and such as have solid balls of earth, as azaleas, heaths, and other shrubby greenhouse plants of slow growth.

A common practice among amateurs is to put out their window plants for a summer's growth. It is often a surprise and also a pleasure to watch such plants make luxuriant growth in their natural elements—free and unrestricted root area with plenty of air and sunshine. Usually their growth is altogether out of proportion to the space they must occupy for the winter, and it seems as if they would require much larger pots. If, however, as is generally the case, the greater number are of the zonal type of pelargonium, or what we know as geraniums, they will bear considerable hard treatment and may be roughly pruned in and much curtailed in amount of root room, and very likely will do as well as if more liberally treated. The same applies to almost all window plants. The disposition is to be far too generous with pot room. The conditions under which window plants must exist in living rooms are anything but congenial. I should prefer to dispense with my old stock after the summer's growth, having raised young stock in the meantime. The disposition to be generous is natural. It has always been regarded as "more blessed to give than to receive." One question the amateur is sure to ask is, "What fertilizer can I give my plants to start them up?" when all that is needed is better light and air, or more or less heat as the case may be. Artificial manures, no matter how attractively labelled, are sure to do more harm than good to window plants in winter time. If the plants are sick it will be owing to some other cause, and manures would only make them worse; it would be like trying to cure a dyspeptic with a course of high living.

A word or two on the use of artificial manures in the liquid form for potted plants may not be out of place here. It is intended by their use to increase growth and general productiveness whether it be fruits or flowers. More skill is required to continue a crop of flowers or fruits in productiveness after it has exhausted the natural resources of the soil than in bringing it to this condition; this is the mark of success with some men. It is not my intention here to name one [illegible] above another; there are a dozen good ones, only some are safer to use than others. One of the simplest and best is the drainage from the stable-yard. This contains in a highly concentrated form nearly all the constituents of a complete plant food; but even this cannot be used unstintingly. Some experience and good judgment will be required to gauge properly the amount which may be safely used in proportion to clear water. It is well to start with a one-[illegible] strength and increase it as experience dictates. I have used dry Colorado [illegible] manure, at the rate of a peck to fifty gallons, and this is the right to use without fining down. Sulphate of ammonia or nitrate of soda may be used at the rate of one pound to fifty gallons of water; these are really stimulants and not lasting manures. Their action is quick both of benefit as well as injury, and an overdose is a terrible trial for one to experience. These should only be used as alternatives. I am not skilled in mixing manures, but am satisfied to use one at a time. Liquid manures should be used only on plants making healthy growth, and the drainage must always be free.

EXHIBITIONS AND MEETINGS.

NATIONAL ROSE SOCIETY, BATH, June 23.

THE southern provincial exhibition of the N.R.S. was this year held at Bath, in the Sydney Gardens, in connection with the Bath Rose and Begonia Show; and certainly the N.R S committee could not have selected a more beautiful town than Bath for the show, or a nicer place than Sydney Gardens in which to hold it. The only disadvantage is the distance from the railway stations, but this is scarcely a great difficulty to overcome. Considering the lateness of the season and the many difficulties rose-growers have had to overcome, it was a matter of surprise, even to Mr. E. Mawley, the genial hon. secretary of the N.R.S., to see such a good display. Some of the roses were really very fine, and whatever can be urged against the early N.R.S. fixture, the Bath Show of 1898 will not help to displace it. There were entries in all but one or two of the twenty-seven classes, and though the competition was not keen in many, it was very close in others. The roses from Oxford were especially large and beautiful, and Mr. G. Prince had a good innings.

NURSERYMEN.

In the principal class for nurserymen, for forty-eight blooms, distinct, the silver cup offered by the Mayor of Bath, was won by Mr. B. R. Cant, Colchester, with a very fine set for this season, his blooms being fresh and even. In the back row were Ulrich Brunner, Kaiserin Augusta Victoria, Magna Charta, Rubens, Annie Laxton, Corinna, La Fraicheur, and Souvenir de S. A. Prince; middle row, Lady Mary Fitzwilliam, Suzanne Marie Rodocanachi, Souvenir d'un Ami, John Hopper, Jean Ducher, Jean Soupert, Marchioness of Downshire, and General Jacqueminot; front row, Mrs. W. J. Grant, Devoniensis, Marie van Houtte, Catherine Mermet, Madame Delville, Baroness Rothschild, Charles Lefebvre, and Anna Olivier. In the second box the flowers were: Back row, Madame Gabriel Luizet, Violet Bowyer, Margaret Baudet, White Lady, Dr. Andry, Niphetos, Gustave Piganeau, and La France; middle row, Marie Baumann, Madame Hoste, Caroline Testout, Maréchal Niel, Fisher Holmes, Hon. E. Gifford, Alphonse Soupert, and Cleopatra; front row, Dupuy Jamain, Souvenir d'Elise Vardon, Prince Arthur, Margaret Dickson, Madame Cusin, The Bride, Viscountess Folkestone, and Comtesse de Nadaillac. There were three competitors, and second prize was awarded to Messrs. D. Prior and Son, Colchester; Messrs. F. Cant and Co., Braiswick Nursery, Colchester, third.

Mr. George Prince, Oxford, took chief honours for twenty-four blooms, distinct, showing a fine set of flowers that were largely tea-scented varieties. The kinds shown were Lady Mary Fitzwilliam, Souvenir S. A. Prince, La France, Maréchal Niel, Niphetos, Marquis Lita, Medea, and Cleopatra, in the back row; Cornelia Koch, Marchioness of Dufferin, Princess of Wales, Jeannie Dickson, Comtesse de Nadaillac, Viscountess Folkestone, Kaiserin Augusta Victoria, and Bridesmaid, in the middle row; and Ernest Metz, Mons Furtado, La Fraicheur, The Bride, Rubens, Madame Cusin, Madame Hoste, and Lady Alice in the front row. Messrs. J. Burrell and Co., Cambridge, second.

There were but two entries in the class for twenty-four trebles, and in a close competition Messrs. D. Prior and Son, Colchester, succeeded in just beating Messrs. F. Cant and Co., of Colchester. The Messrs. Prior showed fairly good flowers, the varieties being Mrs. Sharman Crawford, Prince Arthur, Tom Wood, Madame Gabriel Luizet, Madame Hoste, Lady Mary Fitzwilliam, La Fraicheur, A. K. Williams, La France, Grace Darling, Fisher Holmes, Rubens, White Lady, Marie Van Houtte, Hon. Edith Gifford, Mrs. J. Laing, Mrs. W. J. Grant, Mrs. Harkness, Souvenir de S. A. Prince, Dupuy Jamain, Prince Camille de Rohan, Caroline Testout, Heinrich Schultheis, and Niphetos.

There were four competitors in the class for a dozen blooms of any rose except a tea or noisette variety, and here Messrs D. Prior and Son, Colchester, won first place with a capital lot of the sweetly fragrant Lady Mary Fitzwilliam; Mr. B. Cant, second, with Madame Gabriel Luizet; and Messrs. F. Cant and Co., third, with Lady Mary Fitzwilliam.

Mr. George Prince, of Oxford, was a good first for twenty-four blooms distinct, teas and noisettes; this was a first-rate stand, and contained good flowers of Princess of Wales, extra fine; Hon. E. Gifford, Souvenir d'un Ami, Alba Rosea, Madame Cusin, Medea, Souvenir de S. A Prince, and a lovely Comtesse de Nadaillac, in the back row; middle row—Niphetos, Rubens, Amazone, Cleopatra, Maréchal Niel, Souvenir d'Elise Vardon, Bridesmaid, and Innocente Pirola; front row—Maman Cochet, Madame Hoste, Catherine Mermet, Jean Ducher, Madame de Watteville, Marie van Houtte, The Bride, and Monsieur Furtado. Messrs. F. Cant and Co., second; and Messrs. D. Prior and Son, third.

The best dozen tea-scented roses came from Messrs. J. Burrell and Co., Cambridge, who showed a charming lot, containing Souvenir d'Elise Vardon, Cleopatra, Princess of Wales, Rubens, Bridesmaid, the Bride, Souvenir d'un Ami, Golden Gate, Madame Hoste, Sylph, Hon. E. Gifford, and Luciole; Mr. J. Mattock, New Headington, second; and Messrs. G. Cooling and Sons, Bath, third.

OPEN CLASSES.

The best set of twelve treble teas and noisettes came from Mr. G. Prince, who put up pretty flowers of Cleopatra, Innocente Pirola, Souvenir d'un Ami, The Bride, Mons. Furtado, Alba Rosea, Madame Cusin, Madame Hoste, Souvenir de S. A. Prince, Comtesse de Nadaillac, Hon. E. Gifford, and Princess of Wales; Mr. B. Cant second, and Messrs. D. Prior and Son third. There were seven boxes of twelve blooms, one variety, and here Mr. G. Prince gained another victory, this time with Maréchal Niel; Mr. B. Cant second, with fine flowers of Cleopatra; and Messrs. D. Prior and Son third, with Souvenir de S. A. Prince.

AMATEURS' CLASSES.

A splendid dozen tea and noisette roses won for Mr. Alexander Hill Gray, Beaulieu, Bath, the premier award—Cooling's silver cup, in open competition; his flowers were Souvenir d'Elise Vardon, Comtesse Nadaillac, Hon. Edith Gifford, Maman Cochet, Anna Olivier, The Bride, Princess of Wales, Maréchal Niel, Catherine Mermet, Marie van Houtte, Princess Beatrice, and Golden Gate; the Rev. J. H. Pemberton, second; and Dr. S. P. Budd, Bath, third.

Mr. Alexander Hill Gray, Beaulieu, Bath, gained first prize for two dozen blooms, distinct, his collection containing good flowers of Marie Van Houtte, Jean Ducher, Madame Hoste, Madame Lambard, Rubens, The Bride, Maman Cochet, and Hon. Edith Gifford. Dr. Budd was second, and Mr. T. H. Catley, Claverton Buildings, Bath, third. Dr. S. P. Budd, Gay Street, Bath, gained a first prize for six trebles, and was the only exhibitor in this class, showing Catherine Mermet, Madame Cusin, Marie Van Houtte, Countess of Pembroke, The Bride, and Princess of Wales.

In the class for a dozen blooms, open to growers of less than a thousand plants, the only exhibitor was the Rev. R. Powley, Upper Scudamore, Warminster, who had very fair blooms of Marquise de Castellane, Niphetos, Souvenir de T. Levet, Kaiserin Augusta Victoria, and Catherine Mermet. Mr. Harcourt P. Landon, Brentwood, Essex, secured first prize for half a dozen blooms, distinct varieties, with fresh examples of Comtesse de Nadaillac, Madame Cusin, Souvenir d'Elise Vardon, Niphetos, Souvenir d'Un Ami, and Catherine Mermet; Mr. L. Parry, Stinsford House, Dorchester, was second.

The only exhibitor in the class for eighteen distinct varieties of teas and noisettes was Mr. A. Hill Gray, whose charming flowers were Maman Cochet, Anna Olivier, Princess of Wales, Souvenir d'un Ami, Caroline Kuster, Souvenir d'Elise Vardon, Innocente Pirola, Comtesse de Nadaillac, Souvenir de S. A. Prince, Cleopatra, Alba Rosea, Medea, Ernest Metz, Marie Van Houtte, The Bride, Souvenir de Therese Levet, Hon E. Gifford, and Maréchal Niel.

In the section for growers of less than five hundred plants, the best twelve blooms were shown by Mr. Conway Jones, who had fair-sized blooms of Golden Gate, Maréchal Niel, Souvenir d'Elise Vardon, Cleopatra, The Bride, Souvenir d'un Ami, Souvenir de S. A. Prince, Niphetos, Marie van Houtte, Hon. Edith Gifford, Catherine Mermet, and Madame Hoste. Mr. Conway Jones secured the Prince Memorial Cup with this set, and the Rev. J. H. Pemberton, Havering, Essex, came second. In the class for growers of less than two hundred plants, Mr. Joseph Smith, East End House, Warminster, won a first prize.

The best six trebles came from Mr. A. Hill Gray, who showed in fine style throughout, and staged elegant blooms of Maréchal Niel, Comtesse de Nadaillac, The Bride, Princess Beatrice, Anna Olivier, and Catherine Mermet; Mr. Conway Jones, Gloucester, second. Mr. Conway Jones came first for six blooms of one variety with Maréchal Niel; Mr. A. Hill Gray, second; and Mr. G. Smith, Warminster, third.

GARDEN ROSES.

The chief award in the class for thirty-six distinct varieties of garden or decorative roses was won by Messrs. G. Cooling and Sons, Bath, who put up a magnificent display of huge bunches. The varieties were Yellow Austrian Briar, Rosa rugosa delicata, W. A. Richardson, unnamed var., Persian Yellow, Bardou Job, Janet's Pride, Cooling's Yellow Noisette, Lucida plena, Claire Jacquier, Papa Gontier, Rugosa fimbriata, Abbe Thomasson, Madame Eugène Resal, Beranger, Purity (a new bourbon), Marquis of Salisbury, Macrantha, Blanche de Courbet, Gustave Regis, Laurette Messimy, Homere, Tuscany, Papillon, Gloire de Rosamanes, Etoile de Mai, Blanche Moreau, Madame A. Carriere, Duchess d'Auerstadt, Crested Moss, Ma Capucine, Hebe's Lip, Harrisoni, Red Provence, Morletti, and Domelie Boccard. Messrs. Paul and Son, Cheshunt, gained the second prize.

Mr. Charles Turner, Slough, secured the first prize for eighteen distinct varieties of garden roses, showing fine sheaves of Janet's Pride, Fimbriata, W. A. Richardson, Cabbage Provence, Anna M. de Montravel, Madame S. Ducher, Mignonette, Blanche Double de Courbet, Blairi No. 2, Bardou Job, Rose Apples, Madame Plantier, De Meaux, Reine Olga de Wurtemburg, Common Moss, Gloire des Polyanthes, Madame G. Bruant, and Pomifera; Messrs. F. Cant and Co., Colchester, second; and Mr. J. Mattock, New Headington, third. Messrs. Paul and Son, Cheshunt, won the chief prize for twelve bunches of single-flowered roses, making a charming display with Ormissa, Rugosa, Rose Bradwardine, R. Nutkænsis, Royal Scarlet, Lady Penzance, Paul's Single White, R. Carolina, Paul's Carmine Pillar, R. macrophylla, Rugosa alba, and Pomifera; Messrs. G. Cooling and Son, Bath, second; Mr. C. Turner, Slough, third.

In the amateurs' section a capital set of eighteen bunches of garden or decorative roses was arranged by the Rev. J. Pemberton, in a class for not less than three trusses of each variety; the group had to be staged on a space six feet by three feet. Mr. Pemberton won first prize, and was the only competitor, but he would have taken a lot of beating. His set comprised fine bunches of White Scotch, R. multiflora grandiflora, Reine Olga de Wurtemberg, Madame George Bruant, Claire Jacquier, R. multiflora simplex, Janet's prize, Paul's Carmine Pillar, W. A Richardson, Madame Alfred Carriere, Cecil Brunner, Rosa macrophylla, R. alba, Gustave Regis, R. pomifera, Marquis of Salisbury, Paul's Single White, and Madame Falcot.

Mr. E. Mawley, Berkhamstead, won first prize for six bunches of garden roses, distinct varieties, showing pretty bunches of Janet's Prize, Carmine Pillar, Madame G. Bruant, Laurette Messimy, Madame Plantier, and William Allan Richardson.

MEDAL ROSES.

Messrs. A. Dickson and Son, Newtownards, co. Down, gained a gold medal for their new hybrid tea rose, named Miss Bessie Brown; this is a large round-petalled, soft, creamy-white variety of beautiful shape and good size; the firm also showed good examples of Daisy, Countess of Caledon, Tom Wood, in fine condition, Ulster also very good, and Mrs. E. Mawley.

The silver medals for best blooms in the show were awarded as follows: Nurserymen—Messrs. Burrell and Co, Cambridge, for H.T. Lady Mary Fitzwilliam; to Mr. G. Prince, Oxford, for T. Comtesse de Nadaillac; to Messrs. Alexander Dickson and Sons, Newtownards, for H.P. Tom Wood. Amateurs—to Mr. A. Hill Gray, for T. Maman Cochet; to Dr. Budd, for H.P. Alphonse Soupert; and to Rev. J. H. Pemberton, for H.T. Caroline Testout.

BATH SHOW CLASSES.

In the local class for a dozen roses distinct, the first prize-winner was the Rev. Yorke Fauset, who was closely followed by Mr. R. B. Cater, Westfield House, Bath. Mr. J. Mattock staged the best basket of roses, a pretty arrangement in pale yellow and cream-coloured rose buds; Mr. C. A. Smith, Bathhurst Hill, Bath, second.

In a local class for a table of roses arranged with a groundwork of ferns and moss there was but one exhibitor, Messrs. Cooling, of Bath, worthily gaining the prize with a charming arrangement of long and elegant growths of the yellow Rosa Harrisoni and various varieties of the Penzance sweetbriars; beneath these were light, but dwarf sprays of popular garden roses, almost all being tea varieties. This table was very pretty, and some such class as this should be instituted at all rose shows.

Mr. W. A. Hick, Batheaston, had the best six bunches of garden roses, while Mrs Stothert, Audley Park Gardens, was second. Mr. J. Hinton, Batheaston, was also a successful local exhibitor. For a dozen rose bouquets, Messrs. E. Cole and Son, Bath, gained the place of honour with a tasteful exhibit. Mr. Allan Smith, Bathurst Hill, was first for six rose bouquets.

There were no less than five groups staged for the substantial prizes offered by the Bath Committee. Each group was to occupy a space of two hundred and fifty square feet, consequently there was scope for artistic effect. Mr. J. Cypher, Cheltenham, won first prize with a pretty arrangement of caladiums, orchids in great variety, crotons, palms, ferns, Rex begonias, &c. The central arch of cork and moss, laden with drooping Cattleya citrina, Odontoglossum crispum, O. citrosmum, and O. Pescatorei, was much admired, as also were the fine forms of Cattleya Mossiæ in the groundwork below. Mr. Tanzer, gardener to R. B. Cater, Esq., Bath, came second with a group in which the blue agapanthus and white francoa were tastefully associated; Messrs. E. S. Cole and Son, Bath, third.

The class for a table of plants is interesting, but it seems to serve no useful purpose, as plants over two feet high are not admitted. Mr. Cypher, Cheltenham, was easily first with an arrangement of cattleyas and odontoglossums, Mr. Tanzer second, and Mr. F. J. Tate, gardener to Mrs. Stothert, third.

There were a number of extremely pretty table decorations, and the first prize was won by Miss N. M. Ellwood, with yellow and white poppies, a very pretty table; Miss A. M. Freeman, second, with a table of blue irises, bluish sweet peas, and marguerites.

NON-COMPETITIVE.

A beautiful bank of cut hardy flowers was put up by Messrs. Barr and Sons, Covent Garden. Not only was the display a large one, but it consisted of very fine bunches of flowers; pæonies were extensively shown, and in wonderful variety. The delphiniums were first-rate, and so were the numerous irises, among which we made special note of the Spanish varieties Thunderbolt, Lemon Queen, Vasco de Gama, Othello, and Blue Beauty. Other charming irises were I. juncea, I. ochroleuca gigantea, I. siberica, and I. s. alba. Philadelphus Lemonei and the varied forms of Papaver bracteatum were specially noticeable and good.

Messrs. R. Veitch and Son, Exeter, had a fine exhibit, consisting of new plants, such as Acalypha Sanderi and A. Godseffiana; they also had a miniature rockery with erigerons, campanulas, hieraceums, prunellas, saxifragas, &c., growing and flowering freely. Bunches of cut hardy flowers were used to flank the rockwork and the display of Marliac's lilies. About twenty varieties of bamboos, including B. Boreana and B. nobilis, were staged, and in the exhibit were examples of such interesting plants as Poinciana Gillesi, hardy in the south of England, and recently flowered in the Isle of Wight; Phyllanthus Crippsi, Senecio Petasites, Cineraria Heritieri, Convolvulus althæoides, and Edwardsia Trapha. The Messrs. Veitch showed a splendid set of photographs of rock gardens and parks laid out by them.

Pæonies in variety, and a few stands of first-rate show and fancy pansies, were staged by Mr. F. Hooper, Widcombe Hill, Bath; some good specimens of violas in pots were also shown by Mr. Hooper. Mr. J. H. White, Worcester, showed an extensive collection of pæonies and other hardy flowers. Mr. W. F. Gould, Bath, had an interesting display of cacti and succulents, showing large opuntias, cereus, mammillarias, echinocacti, echinocereus, &c., many of the species carrying flowers.

COLCHESTER HORTICULTURAL SOCIETY, June 16.

THE annual summer exhibition of this enterprising society was held on the above date under the most favourable climatic conditions, and was in other respects a great success. As in previous years, the exhibition was held in the grounds of East Hill House, the residence of C. E. Egerton-Green, Esq., which are not only exceedingly beautiful but are conveniently situate on the outskirts of the town, and the attendance, we are pleased to say, was a record one, some three thousand visitors having been present. In consequence of the lateness of the season roses were not so numerous as in previous years, but other products were fully up to the average, and the three huge marquees were well filled, and the competing collections generally were of a high order of merit.

ROSES, as will be readily understood by those who appreciate the importance of the rose industry at Colchester, receive prominent attention, and in ordinary seasons they constitute a glorious feature of the society's summer exhibition. This season the date was too early to enable the Colchester rosarians to even indicate their strength, with the result that the premier awards in several of the more important classes were obtained by growers in the more southern parts of England. In competition for the prizes for thirty-six single roses, Mr. George Mount, Canterbury, obtained premier honours with an excellent collection, the blooms well developed and bright in colour. Messrs. D. Prior and Sons, Colchester, followed for second place, and Mr. B. R. Cant, Colchester, was an uncomfortably close third, with blooms, for so late a season, of high quality. The teas and noisettes in the trade class for twelve blooms were remarkably good, and at the head of the several competitors was Mr. George Prince, Oxford, who had a collection of superbly developed blooms, especially noteworthy in the box were: Souvenir d'un Ami, which was selected for the award of the silver medal for the best rose in the trade classes, and Cleopatra, the last-named being the finest bloom of this beautiful variety that has yet come under our notice at a public exhibition. There was a brisk contest for the prizes for twelve garden or decorative roses, and the collections of tastefully-arranged bouquets of flowers produced a beautiful display. Here Messrs. Frank Cant and Co., Colchester, obtained premier honours, and Mr. B. R. Cant, and Messrs. Paul and Son, Cheshunt, were second and third respectively, the whole of the prize winners having good stands, although differing in relative merit.

The amateurs' classes were less satisfactorily filled than were those in which the competition was limited to nurserymen. In the class for eighteen trusses Mr. R. E. West, Reigate, was the only competitor, but the blooms he staged fully justified the premier award that was made in his favour. Chief among the other successful competitors in the amateurs' division were Mr. H. G. Egerton-Green (gardener, Mr. F. Kettle), King's Ford; Mr. John Carter (gardener, Mr. W. Carter), Mill House, Halstead; Mr. L. Daniel Bergholt, Dr. Nicholson, Colchester; Rev. J. H. Pemberton, Mr. A. Cant, Mr. O. G. Orpen, Hon. W. Lowther (gardener, Mr. A. C. Light), Campsea Ash; and the Rev. A. C. Johnson, Capel St. Mary. Mr. H. Egerton-Green was successful in taking both the silver medals offered for the premier blooms in the amateurs' division, the medal tea or noisette being Maréchal Niel, and the medal bloom other than tea or noisette, Alfred Colomb.

CUT FLOWERS, other than roses, constituted a large and highly attractive feature. In competition for the prizes for twenty-four bunches of hardy herbaceous plants there were four or five collections all more or less good. Messrs. J. Burrell and Co., Cambridge, were first with a collection equally remarkable for the high quality of the flowers staged and the taste with which they were arranged. Mr. R. C. Notcutt, Woodbridge, was second with a fine collection two or three points behind, and Mr. C. Jacobi, Ipswich, was a very close third. Messrs. R. Wallace and Co., Colchester, had a noteworthy collection, in which Incarvillea Delavayi and Lilium rubellum were represented. Equally spirited was the competition in the class for twelve bunches of hardy flowers, open to amateurs only, and the first prize was awarded to Mr. H. Egerton-Green; the Hon. W. Lowther was second and Mr. O. G. Orpen, West Bergholt, a close third. Lady Du Cane, who failed to conform to the regulations by staging more than one variety in several of the bunches, was awarded an extra prize. The exhibitor last named occupied the post of honour in the class for a collection of flowers of bulbous plants, and Mrs. A. Cant was first for six bunches of hardy herbaceous plants. Sweet peas were well shown by Dr. Salter; D'Arcy and zonal pelargoniums by J. Round, Esq., M.P. (gardener, H. Bishop), Birch Hall, Mrs. A. Cant, and Mr. G. B. Halls. Irises were especially good, and it was no easy task to determine their relative merits. Lady Du Cane obtained premier honours with an excellent collection arranged somewhat naturally in rather large bowls surfaced with moss; Mr. H. Egerton-Green and Dr. Nicholson were second and third with capital collections.

FLORAL ARRANGEMENTS had a large tent wholly devoted to them, and included numerous vases evincing much taste. The decorated dinner tables were so thinly furnished with flowers as to display but little beyond the table cloth, and, consequently, failed to contribute much to the attractions of this department. The most successful of the exhibitors of dinner tables were Mrs. R. W. Wallace, Miss Moore, Miss A. F. Harwood, and Miss M. Scott. In the classes for vases and epergnes the principal awards were made in favour of Mrs. A. Cant, Miss Leaning, Miss L. Cant, and Miss Beard.

FRUITS AND VEGETABLES were not largely shown, but the quality of the produce was generally high. Lady North (gardener W. J. Trott), Little Glenham Hall, was successful in taking the first prize for black grapes with Black Hamburgh, and in the corresponding class for white grapes, Mr. W. Norton (gardener, H. Cook), Langham Hall, had the premier award made in his favour. The Hon. W. Lowther had the best dish of peaches, the best melon, and the finest flavoured strawberries. The latter were small fruits of British Queen but exceptionally high in flavour. Mr. J. Brittain (gardener Mr. T. Finch), Giffords Hall, Stoke, was second in the class for strawberries for flavour, with handsome fruits of British Queen. In the corresponding class for strawberries for weight, Mr. T. Martin was first with Royal Sovereign.

In the vegetable classes Mr. H. Egerton-Green, Mr. W. Lowther, and Mr. Round, M.P., were the prize takers for collections of eight kinds open to private growers, and in a similar class for market gardeners Mr. A. Burrows, Mr. Frank Chapman, and Mr. W. Goodwin were awarded the prizes in the order of their names. Asparagus was, as usual, staged in large quantities and high quality; and there was a strong competition for the silver challenge vase presented by Mr. G. Munro for three bundles of one hundred heads each was awarded to Mr. W. J. Godfrey for produce that fully justified the high reputation "Colchester grass" enjoys in the markets, as, indeed, did the whole of the produce in competition. For one hundred heads, Mr. D. Stowlger, Mr. R. T. Daniell, and Mr. F. Chapman were first, second, and third respectively with splendid produce.

PLANTS have comparatively few classes provided for them, but they were as usual, contributed in sufficient numbers to form an attractive feature. Groups arranged for effect were a strong feature, and the premier award was made in favour of Mr. H. Egerton-Green, and Messrs. Bunting and Sons and Mr. W. Draper were second and third respectively. Tables of plants were contributed by Mr. H. Egerton Green, Mr. J. Round, M P., and Messrs. Bunting and Sons; and the prizes were awarded in the order in which the names are here placed.

The arrangements were remarkable for their completeness, and much praise is due to Mr. O. G. Orpen, the energetic honorary secretary, and other members of the executive.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

The second meeting of the summer session of the above was held in the club room on Monday evening last, when Mr. Turton, the chairman of the association, presided over a good attendance of members. The subject chosen for the evening was "Vegetables in Season," introduced by Mr. H. Wilson, gardener to Mrs. Bland-Garland, Lower Redlands, Reading. The kinds principally touched upon were asparagus, cabbage, carrots, mushrooms, tomatos, turnips, French beans, vegetable marrow, peas, lettuce, broad beans, cucumbers, and potatos. A most profitable discussion took place, some fifteen to twenty members giving their experience with regard to the various kinds referred to. The exhibits were exceedingly interesting, Mr. Townsend, gardener to Sir William Farrer, Sandhurst Lodge, showing a splendid collection of tropical and hardy nymphæs, amongst which were the following: stellata, Amazonica, lotus, Zanzibariensis, Z. rosea, elegans, pygmæa, helvola, Leydeckeri rosea, tuberosa alba, candida, Marliacea carnea, M. chromatella, odorata gigantea, &c.; Mr. Wilson, considering the backwardness of the season, had some excellent specimens of Sutton's First Crop cauliflower, Snowball turnip, Champion Horn carrot, Commodore Nutt and Tom Thumb cabbage lettuce, black-seeded Bath cos lettuce; Mr. Turton, Maiden Erlegh Gardens, a splendid sample of Sutton's Ringleader potato; Mr. Smith, gardener to Miss Nield, Greenbank, nine bunches of pansies, distinct varieties; Mr. Osborne, jun., a plant of streptocarpus, a cross between Wendlandi and the hybrid strain. A vote of thanks to Mr. Turton and to those who had staged the flowers and vegetables brought an enjoyable evening to a close.

HORTICULTURAL CLUB.

THE last monthly dinner and conversazione for the season took place on Tuesday, June 14. As usual at this time the attendance was not as numerous as it generally is. The chairman of the club, Sir J. D. T. Llewelyn, Bart., M.P., occupied the chair, and a very interesting lecture was given by Mr. C. T. Denery, V.A.H., on "Fern Variation in Nature and Culture." The lecture was illustrated by some remarkably beautiful illustrations of Nature printed ferns by the late Colonel Jones. It gave rise to an animated discussion, and a cordial vote of thanks was accorded to the lecturer. The annual excursion of the club was fixed for July 19, of which members will receive full particulars in due course.

A Queer Potato story comes from Michigan, where, according to a highly imaginative journalist, a market gardener has been cultivating his potatos out of reach of the potato-bug by grafting a poplar tree with potato peelings. So far the matter is only through the trial stage, but the trial was so successful that by the end of April the enterprising grower obtained a fine crop of potatos about the size of small goose eggs; the yield was estimated at three and a-half bushels. The writer's imagination did not held out long enough for him to state whether his potatos were rounds or kidneys; whether he dug the crop, or picked it like fruit; or whether the annual grafting is likely to be necessary. In fact, the report is entirely lacking in those details necessary to render it of value to horticulturists.

American Vines in Sardinia.—The province of Cagliari, which contains the richest and most extensive wine regions of the island of Sardinia, has remained free from the invasion of the phylloxera, but, nevertheless, the wine growers and proprietors of vineyards are still menaced by this dreadful calamity: and, in order to keep off the pest and take all the necessary measures to that effect, the director of the School of Viticulture has commenced to recommend most warmly the introduction and cultivation in Sardinia of the American vines. In order to further his views, some important lectures were recently given at the school, attended by a large number of school teachers from the rural districts, who have been requested to utilise the practical knowledge acquired thereby. The fear of the invasion of Sphæroderma damnosum pre-occupied all agricultural proprietors in Sardinia during 1897, says Consul Pernis, and, though the malady has now been checked, the fear has not entirely ceased.

A JOURNEY TO THE FORESTS OF CENTRAL AFRICA.

MR. JOHN MAHON, who was appointed last year Forester in Zomba, British Central Africa, sends to *Journal* of the Kew Guild the following interesting account of his journey to that Colony :—

The Editor has kindly invited me to write an account of my journey to, and impressions of this remote outpost of the British Empire. I left London in June last *en route* for Durban, Natal, where we were enabled to spend several enjoyable days. With all its dusty storms, I must say "That Durban is a pleasant place to me, who loves to see the sun shine every day, and flowers, not nailed to walls, festooned from tree to tree." The beautiful Botanic Garden, the parks and squares, the town hall, and many other features of interest impressed me much. I left Durban with three other officials (two of whom were doctors), and in process of time we entered Delagoa Bay. Further on came the rising port of Beira, the natural port of Mashonaland, and likely to be a great place in time. Then we called at Inhambane—where the copal comes from—and eventually Quilimane, where it may be said the cocoanuts come from, for there are quantities of the palm about that beautiful, red-tiled, gaily painted river-port. We trans shipped again and sailed south for a day, when we reached Chindé, the port of British Central Africa, on the Chindé river—one of the numerous mouths of the Zambesi, and the gate of a direct waterway to the lakes. The Portuguese own Chindé, but the British Government has a small concession of wharfage on a ninety-nine years' lease. It is a lamentable place, consisting of a sand-pit backed by the raggedest, nastiest bush imaginable. We spent six wretched days there before the African Lakes' steamer came and carried us to the famous broad Zambesi proper, which at this point is very imposing and charming. The banks are lined with a dense and varied forest—trees of the mangrove type predominating. Such tropical features as orchids, climbers, birds, butterflies, and strange animals, may have been there, but none of us saw them. A day's journey disgusted us with the river, for the forest thinned away into the distance and we were left with grass-lined banks (and dead grass at that), and for miles one saw nothing but the river and the glaring sun above, often through reeking smoke, pungent and unpleasant, from the incessant grass-fires, at this season raging all over the south and central regions. The monotony was broken by the vessel lodging every little while on a sandbank, when the nigger crew had to get out and pull her off. At the Portuguese mission-station—Shupanga—we went ashore to visit Mrs. Livingstone's grave. After several days we struck into the Shiré, which wends away amongst hills in a north-easterly direction. Now the banks were clothed with luxuriant verdure, with hills in the background ; the river ran swift and clear, and generally it was a glorious relief after the flat, ugly Zambesi country. The Shiré may justly be called the River of a Thousand Islands. They are thick in it ; beautiful green, flowery spots, for the soil is rich and there is abundance of magnificent land. Cacao, spices, sugar, tobacco, and Liberian coffee should grow well there. As it is, the banks are most interesting to the botanist, for there were many gay flowering plants. A scandent shrub, which bore a wealth of broad, flaky masses of small scarlet flowers, reached up to the highest trees, and, blended with foliage and sky-effects, reminded one of a Japanese picture. Phœnix reclinata was very much *en evidence* and also Hyphæne, of which there are frequently forests, till one wearied of its straight stem and big round head like a gigantic mop. Crocodiles are bigger and more numerous here than on the Zambesi. We counted eight large specimens on a bank one day. We blazed away at the brutes all the time, and I cannot help doubting but that travellers since must have noticed a delta of dead crocodiles at the junction of the Shiré and Zambesi. As for the hippopotami, you fire point blank at their big, soft heads, which bob below momentarily, only to bob up again a few feet off and calmly wink at you. There were flocks of lovely birds, snow-white graceful egrets, fish-eagles, guinea-fowl, &c., and at times a gregarious bird (*Merops natalensis*), the size of a thrush, with all the colours of the rainbow (and I think one or two more) in his coat, that made the high banks, where they nest like martins, a glorious mass of colour.

A smaller steamer brought us in two days to Chikwawa and to the end of our water journey. From thence we were carried in a kind of hammock called a *machila*, slung on poles of the native bamboo (Oxytenanthera abyssinica), to Blantyre, a distance of forty miles. The road at once begins to ascend the hill, and the invigorating feeling as we mounted higher was very delightful after our long lowland travelling. It stretches away to the Lakes, and has many ramifications. The section to Zomba (about one hundred miles) is an excellent one for bicycling. With eight or ten carriers, a day's journey landed us at Blantyre, the commercial capital of the Protectorate, a straggling place amongst the hills. After a day's stay in Blantyre we proceeded *en route* for Zomba, forty miles away, which we did in a four-muled cart.

Zomba is the name of a mountain-chain running east and west for a distance of five miles or so. The highest peak is about six thousand feet altitude. The Government head-quarters, dwellings, &c., occupy a south aspect at the base, on the banks of a lovely, deep mountain stream; about three thousand feet above sea-level. Looking southwards from Zomba, a vast plain stretches before one, dotted with hills of many sizes. The mornings here are always sweet and refreshing, heralded by the Zomba thrush (*Turdus zombensis*), whose short, rippling notes resemble those of our own songster. Every day almost there is a breeze, and in the rains it often gets quite cool. In the dry season Zomba almost to a man goes up on the hills for the "week-end" to camp and shoot buck, wild pig, and a kind of grouse. Your hardier spirits betake themselves to the plain to wage war with eland, kudu, zebra, leopard, and possibly lions.

The native of these regions is a peculiar specimen of the human race. He excels in laziness and indifference to creature comforts, especially cleanliness. If he plunges into a stream at times, it is for a cooler. He has no ambition. He will go a forty-mile journey with a load of fifty pounds on his head, and for food take only two or three cobs of maise, which he toasts on a fire ; water is close by to quench his thirst, and he is quite content.

The climate is responsible for strange incongruities as regards plant-life ; for instance, here in the Residency grounds at Zomba, Allamanda violacea, Plumeria alba, and Lawson's cypress are quite happy side by side. Mangoes flourish exceedingly, but refuse to bear. Bananas and pineapples are quite at home. The Citrus family in the few places they have been grown are only a very partial success, whilst in Natal they thrive wondrously. The essentially tropical West-African forest-tree, Khaya senegalensis, reaches magnificent proportions by stream-sides, whilst the Blue Gum never looks happy. Fighting with tropical grasses, climbers, and what not, you see the dear old "bracken." Beaumontia grandiflora luxuriates, whilst by a streamlet near at hand a buttercup, as near our own meadow flower as need be, is equally happy. A lot of Mauritius hemp is just "poling" ; bougainvilleas are "rampagious" ; Clerodendron Thompsoniæ, Maréchal Niel rose, and Cissus discolor are fighting for priority on a small arch ; and a few paces away an apple tree looks much the same as it does at home, only it will not flower.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forth coming exhibitions and meetings, and are requested to advise us concerning change of dates.

Address.—R. B., Great Yarmouth : The address you need is 1, Danes' Inn, Strand, W.C.

Concrete for Garden Walk.—W. B., Henley : Obtain sufficient quantities of well-screened gravel and clean river sand, and use these in equal proportions ; to five parts of the sand and gravel mixture add one part of Portland cement, then mix with sufficient water, and apply the concrete two inches thick.

Warty Vine Leaves.—S. C. : The peculiar warty excrescences seen on the vine leaf sent are due to a superabundance of sap in the vines. This results from the roots being in a cold border, and to lack of heat and sufficient ventilation in the house. Increase both the temperature and ventilation, and next autumn see what can be done to improve the condition of the border.

Variation in Pansies.—J. H., Somerset : It is by no means an uncommon thing to see two differently coloured flowers upon the same plant of a seedling pansy, but it invariably happens that the arrangement of the markings is the same in both cases, as in the two flowers sent. One flower shows a greater likeness to its parent than the other, and the only real difference is that of complexion, and that not a great one.

To Remove Putty from Garden Lights.—R. A. H., Retford : The glaziers usually remove the putty from glass lights by means of a hammer and hacking-knife. In unskilled or uncareful hands the use of these tools often results in the breakage of a good deal of glass, besides the splintering of the wood bars. A hot iron is very useful to soften hard putty, and if it is shaped somewhat like a soldering-iron but with a long flat side it will be all the better. Do not touch the glass with the hot iron, and if one heating is insufficient, try again, and the putty will then be so soft as to be removable with the fingers.

Mildew on Vines.—R. W., Southants. Cold draughts are the chief causes of mildew, and with the fluctuating temperature produced by the heat of an underground bakehouse, it is most probably that large volumes of cold air have been admitted at times to reduce the heat. Sulphur dusted over the affected parts is the best remedy, but it should be applied freely as soon as there are any signs of the attack. Portions of the wall that become heated considerably should be painted over with a mixture of sulphur and skimmed milk. Give air carefully, and especially when there are cold winds blowing. Give the vine border a dressing of Clay's, Thomson's, or other suitable fertiliser and water it in, an alternative will be a good soaking with fairly strong farmyard liquid.

Coltsfoot and Moss.—H. B., Prescot : Fork out all the coltsfoot you possibly can, but where the present crop will not allow of this being done, use the Dutch hoe freely. No plant can live for long if its foliage is persistently removed, consequently any weed can be kept at bay and subsequently killed by persistent Dutch hoeing during hot or dry weather. With regard to the moss on the walks, there are several remedies ; the weed-killers advertised in our columns will soon effect a clearance and improve the appearance of the paths. Strong brine applied as near the boiling point as possible, or a mixture of oil of vitriol and water, at the rate of one pound of the former to ten quarts of the latter, are other weed-killing mixtures, but they require to be carefully used, especially where there are grass verges to the walks, for what will kill the moss will also kill the grass. Moss on walks and lawns is generally considered evidence of imperfect drainage.

Roses for Market.—J. E. Patricroft : It is not an easy matter to say which are the best roses for market because fashions change frequently, and a rose that sells readily one season may not be much in request the next. Fortunately, roses are not so subject to the fluctuations of fashion in this country as elsewhere, and so we are able to give a general answer to your question. You have omitted to give us any information with regard to position of the house and the heat at command ; presuming these to be favourable, the following will prove to be among the best roses for the supply of good roses : Mrs. J. Laing, La France, Catherine Mermet, Ulrich Brunner, Captain Hayward, The Bride, Niphetos, and Maréchal Niel. You should try the new perpetual-flowering Enchantress, creamy yellow, and if you could succeed with Fortune's Yellow it would yield a wonderful crop of yellow, apricot-shaded blooms. Other roses do well under glass, but those named are among the best, and their flowers are always popular.

Wood-lice or Sow-bugs.—H.W.R., Barnes : Wherever wood-lice have become plentiful they are a great pest, especially in pits and glass-houses. If it is at all practicable boiling water should be used for the destruction of the pests, but where this cannot be used owing to the danger of injury to roots of cucumbers, melons, &c., you will have to exercise a good deal of persistence to get rid of the enemy. Toads and tomtits will help you if you allow them, indeed a little colony of toads will prove invaluable. As traps, use cold potatos, cut, and placed in a small flower-pot ; cover the potato with dry moss, and lay the pot on its side in a quiet corner. Examine these traps at night as at such a time the wood-lice are feeding ; a pail of hot brine will serve to settle them. Little heaps of lettuce leaves, fresh brewers' grains, and young cabbage leaves will also serve as traps, but they must be frequently examined during dusk or dark, otherwise the woodlice will have had a feast and returned to cracks and crevices whence they cannot easily be ousted.

Cauliflowers Going Blind.—J. R. G., Leeds. We cannot say with certainty what is the cause of "blindness" in your cauliflower plants, as we do not know the conditions under which they have been grown. Where the seed has been sown very thick and there has been no thinning out of the plants until planting time, there is always a large percentage of plants that have no growing point. Possibly the planter did not examine the plants, ere planting, with a view to using only those that were likely to make good progress. Where seedlings are allowed to remain thickly in the seed bed, they also need a good deal of water and so probably drought as well as crowding had something to do with blindness. Then again, such plants have little stamina, and so, should unfavourable weather occur about planting time they fail, either by collapsing or going blind.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

J. E. T.: 1, Viburnum plicatum; 2, Elæagnus longipes variegata; 3, Choisya ternata. No. 1 is readily propagated by layering; No. 2 by layering, by cuttings, or seeds; No. 3 by cuttings of ripened wood put in during spring or early summer under a bell glass.

A. T., Bournemouth: 1, Torenia Fournieri; 2, Lychnis diurna; 3, Aquilegia californica; 4, Catalpa bignonioides.

W. R. S., Derby: 1, Erythrina cristi-galli; 2, Iris florentina; 3, Sisymbrium alliaria, a weed; 4, Centaurea cyanea; 5, Clematis montana.

G. R., Kingston: 1, Cornus Späthi; 2, Euonymus radicans variegata; 3, Cænothus thyrsiflorus.

C. D. B., Halifax: 1, Streptocarpus Rexi; 2, Lathyrus splendens; 3, Veronica gentianoides.

H. C., Hants: 1, Retinospora pisifera; 2, a form of R. pisifera; 3, Cupressus Lawsoniana, a seedling form; 4, Taxus baccata aurea; 5, Calycanthus lævigatus; 6, Maxillaria marginata.

F. S., Beechwood: An exceedingly fine iris, and apparently an exceptionally fine form of the garden variety known as Walneri.

E. J. C., Croydon: A moderately good Cattleya Mossiæ, but by no means worthy of a special varietal name.

E. C., West Croydon: T. Trichopilia coccinea, a variable species; Cattleya labiata; Caliphruria subedentata.

S. G. R., Yalding: 1, Leycesteria formosa; 2, not a good specimen, probably Spiræa sorbifolia. Second set:—1, Pyrus Aria, a form very like P. A. scandica; 2, see next week. Please do not pack specimens in cotton wool, for, if unopened for a day or so, they can scarcely be identified.

P. S. T., Sutton-on-Hull: Can you send another specimen, with leaf, also indicate the form of inflorescence. See next week.

LAW.

LIABILITY OF SEEDSMEN.

THE case of HOWCROFT v. LAYCOCK, heard in the Court of Queen's Bench before Mr. Justice Day and Mr. Justice Lawrance, was an appeal from his Honour Mr. Lumley Smith, County Court Judge, raising a question as to the effect of a clause very commonly put at the head of seed merchants' bills. The clause was as follows: "Messrs. —— give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seeds they send out, and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms they are at once to be returned."

The plaintiffs had supplied some seeds to the defendant's order. The order was for a species of cabbage called Couve Tronchuda. The seed sent when it grew up turned out to be Jersey kale, a form of tree cabbage. The action was brought for the price of the seeds; the defendant counter-claimed for damages for breach of contract. The County Court Judge had an unreported case named "Reynolds v. Wrench," in the Court of Appeal, cited to him, and he referred to "Bowes v. Shand" (2 A.C.). He thought that the non-guarantee clause protected the plaintiffs. But for that he would have found for the defendant.

For the appellant, the defendant, Mr. A. T. Lawrence, Q.C., and Mr. G. B. Hamilton appeared, and cited the cases "Jocelyn v. Kingsford" (13 C.B., N.S., 447) and "Nicholl v. Godt" (10 Ex., 191).

Mr. Earle appeared for the plaintiffs, and cited "Allen v. Lake" (18 Q.B., 560) and "Randall v. Roper" (27 *L.J.*, Q.B., 266). He contended that when, in ordinary cases, goods had been accepted the purchaser could only recover for breach of warranty. Here, however, the purchaser had agreed not to raise any question of warranty, and therefore had no remedy. It was an important matter for seed sellers and seed growers all over the country. In this case the seed sellers had bought the seed from some one else, so there was no imputation on their *bonâ fides*. Seed would be very much dearer if the sellers had to guarantee it.

The Court allowed the appeal.

Mr. Justice Day was of opinion that the County Court Judge had been misled by a case which had no bearing on the question. The clause in question could not be construed to mean that no action should be brought. When Couve Tronchuda was ordered the seed sellers were not entitled to deliver something quite different. The custom of a trade might qualify a contract, but it could not destroy it. A rational construction must be put on the words relied upon. The construction desired by the respondents to be established was unreasonable.

Mr. Justice Lawrance concurred.

Leave to appeal was granted if an indemnity as to the costs were given to the plaintiff.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JUNE 28.—Royal Horticultural Society Committees meet at Twelve o'clock; Demonstration on some Plants exhibited by the Rev. Prof. E. Henslow, M.A., V.M.H., at Three p.m. Southampton Horticultural Society; two days.

WEDNESDAY, JUNE 29.—Croydon Horticultural Society. Richmond Horticultural Society. Ancient Society of York Florists; Third Show. Canterbury Rose and Horticultural Society. Sutton Amateur Rose Society.

THURSDAY, JUNE 30.—Royal Horticultural Society of Ireland. Eltham Rose Show. Gloucester Rose Show. Norwich Horticultural Society.

SATURDAY, JULY 2.—National Rose Society's Provincial Exhibition at the Crystal Palace.

ROSE SHOW FIXTURES IN 1898.

June 25 (Saturday).—Windsor.
,, 28 (Tuesday).—*Leeds, †Southampton, and Sutton.
,, 29 (Wednesday).—Brockham, Canterbury, Croydon, and [illegible] (Surrey).
,, 30 (Thursday).—Eltham, Gloucester, and Norwich.
July 2 (Saturday).—Crystal Palace (N.R.S.).
,, 5 (Tuesday).—Diss, Harrow, and Hereford.
,, 6 (Wednesday).—Chelmsford, Ealing, Farningham, †Hanley, [illegible] Redhill (Reigate), and Tunbridge Wells.
,, 7 (Thursday).—Woodbridge.
,, 8 (Friday).—Ulverston.
,, 9 (Saturday).—Manchester.
,, 12 (Tuesday).—*Wolverhampton, and *Westminster (R.H.S.)
,, 13 (Wednesday).—Bedford, Ipswich, Maidstone, and *New[illegible] Tyne.
,, 14 (Thursday).—Halifax (N.R.S.), Brentwood, Canterbury (Hospital Fund), Helensburgh, and Reading.
,, 16 (Saturday).—New Brighton.
,, 21 (Thursday).—Sidcup.
,, 26 (Tuesday).—Tibshelf.
,, 28 (Thursday).—Bedale.

* Shows lasting three days. † Shows lasting two days.

Rosebank, Berkhamsted, Herts.
EDWARD MAWLEY.

MARKETS.

Covent Garden.

THE market is well supplied with green vegetables, and the supply of peas is increasing day by day. Salading is moderately plentiful, and there are increasing supplies of fruits, especially cherries, strawberries, and apricots.

FRUIT.—Tasmanian apples, 8s. to 14s. per case; English grapes, 1s. 6d. to [illegible]; Jersey, 1s. to 1s. 6d. per lb.; pineapples, 2s. 6d. to 4s. 6d. each; bananas, 5s. to 9s. [illegible] bunch; cherries, 4s. to 6s. per half-sieve; strawberries, 1s. 6d. to 2s. 6d. per [illegible] basket; apricots, 6d. to 1s. per box; gooseberries, 3s. to 4s. per bushel; oranges, 16s. to 24s.; lemons, 8s. to 15s. per case; English tomatos, 5d. to 8d.; Jersey, 3d. to 5d. per lb.; Spanish, 1s. to 1s. 4d. per box; green figs, 2s. 6d. to 4s. 6d; peaches, 3s. to 12s. per dozen.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 3s. to 6s.; red roses, 2s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; azaleas, 6d. to 9d.; stephanotis, 2s. to 3s.; lily of the valley, 6d. to 1s.; white gladiolus, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d.; white lilac, 3s. to 4s. per bunch.

VEGETABLES.—Egyptian onions, 5s. 6d. to 6s. 6d. per cwt.; English spring, 1s. 6d. to 2s. 6d. per dozen bunches; asparagus, 9d. to 4s. per bundle; rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; mushrooms, 6s. to 8s. per 12 lbs.; peas, 2s. to 4s. per bushel; French beans, 3d. per lb.; spinach, 1s. 6d. per bushel; new [illegible], 3s. 6d. to 4s.: turnips, 3s. 6d. to 4s. 6d.; parsley, 1s. to 1s. 6d.; mint, 2s. per dozen bunches; endive, 1s. to 1s. 3d.; cauliflowers, 1s. to 2s. per dozen; lettuce, 6d. to 9d. per score; Jersey potatos, 7s. to 8s.; Canary, 6s. 6d. to 7s. 6d.; St. Malo, 6s. to 7s. per cwt.; Lisbon, 3s. to 4s. per box.

Borough Potato Market.

The supply is larger than the demand, though the latter is good. Prices moderate. Belgians and Germans, 4s. 6d. to 5s. 3d. per bag. New—Teneriffe kidneys, 4s. to 4s. 6d.; St. Malo, 5s. 6d.; Jersey Flukes, 7s.; Kidneys, 6s. 6d.; Cherbourg Flukes, 5s. 6d.; kindneys, 5s.; English kidneys, 8s. to 8s. 6d. per cwt.; Lisbon rounds, 2s. 6d. to 3s, per box.

THE WEATHER DURING THE WEEK ENDING JUNE 18, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	73·4	46·7	55·2	12·89	0·01	[illegible]
Croydon	76·5	45·0	53·7	12·06	0·00	[illegible]
Brighton	63·0	46·2	54·0	12·22	0·01	[illegible]
Bristol	69·0	38·0	53·4	11·89	[illegible]	[illegible]
Wolverhampton	73·1	39·2	53·5	11·94	0·16	[illegible]
Norwich	74·4	43·0	52·2	11·22	0·01	[illegible]
Nottingham	72·0	35·0	51·9	11·06	0·00	[illegible]
Liverpool	67·4	46·3	55·0	12·78	0·10	[illegible]
Huddersfield	70·0	38·5	52·2	11·22	0·01	0·03
Bradford	74·2	44·8	57·2	14·00	0·00	0·00
Hull	74·0	37·0	51·4	10·78	0·03	0·08

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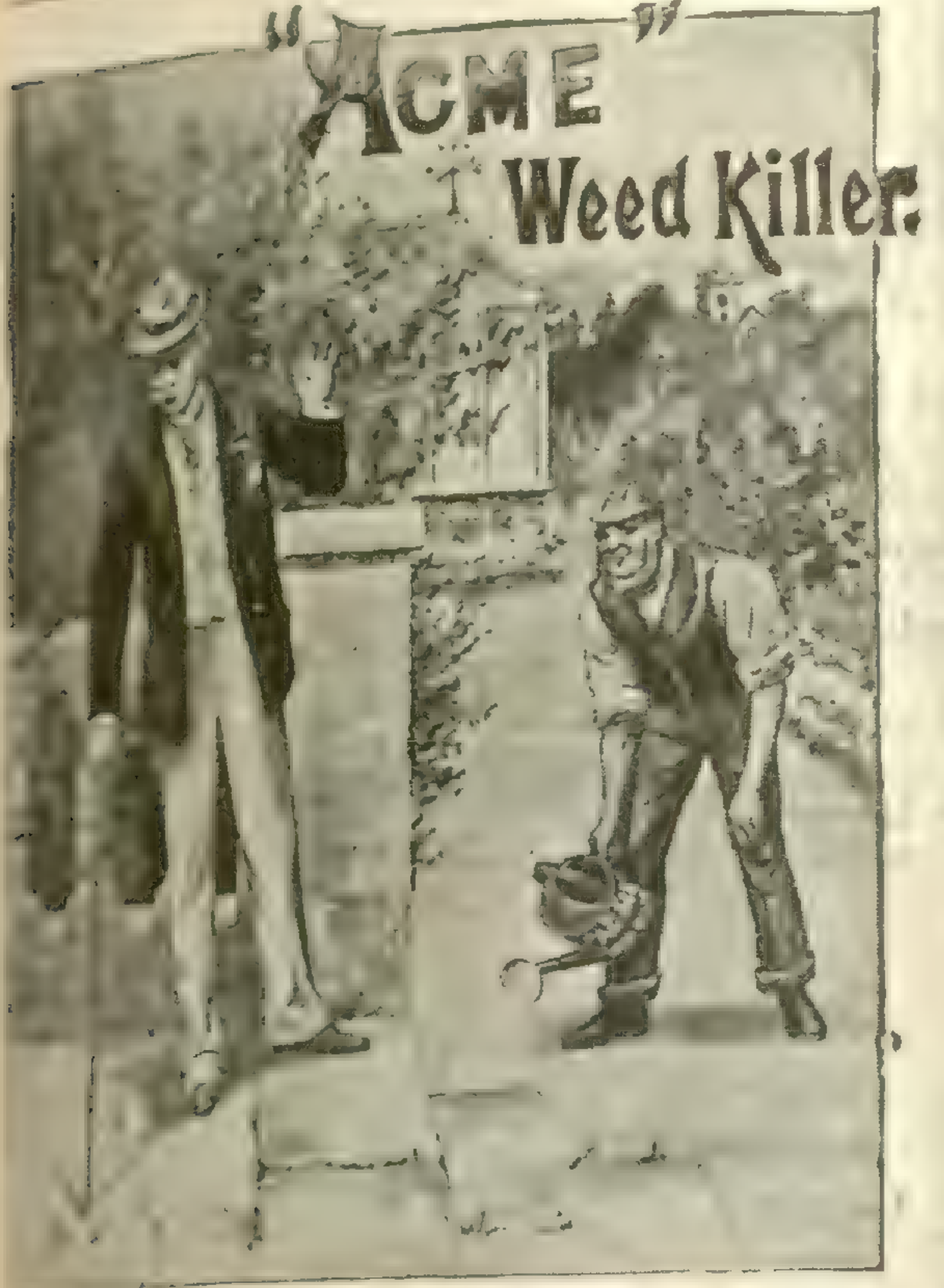

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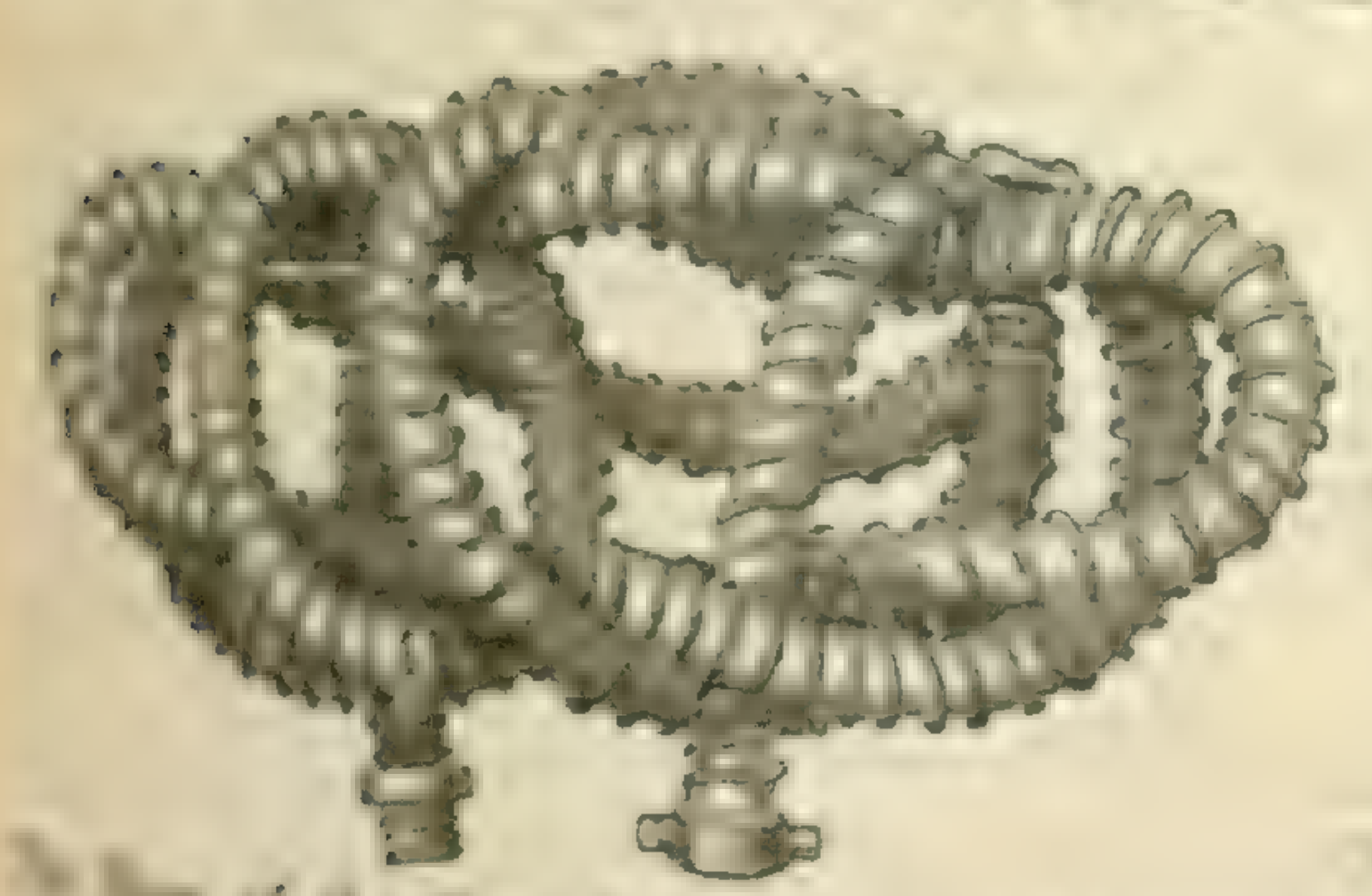

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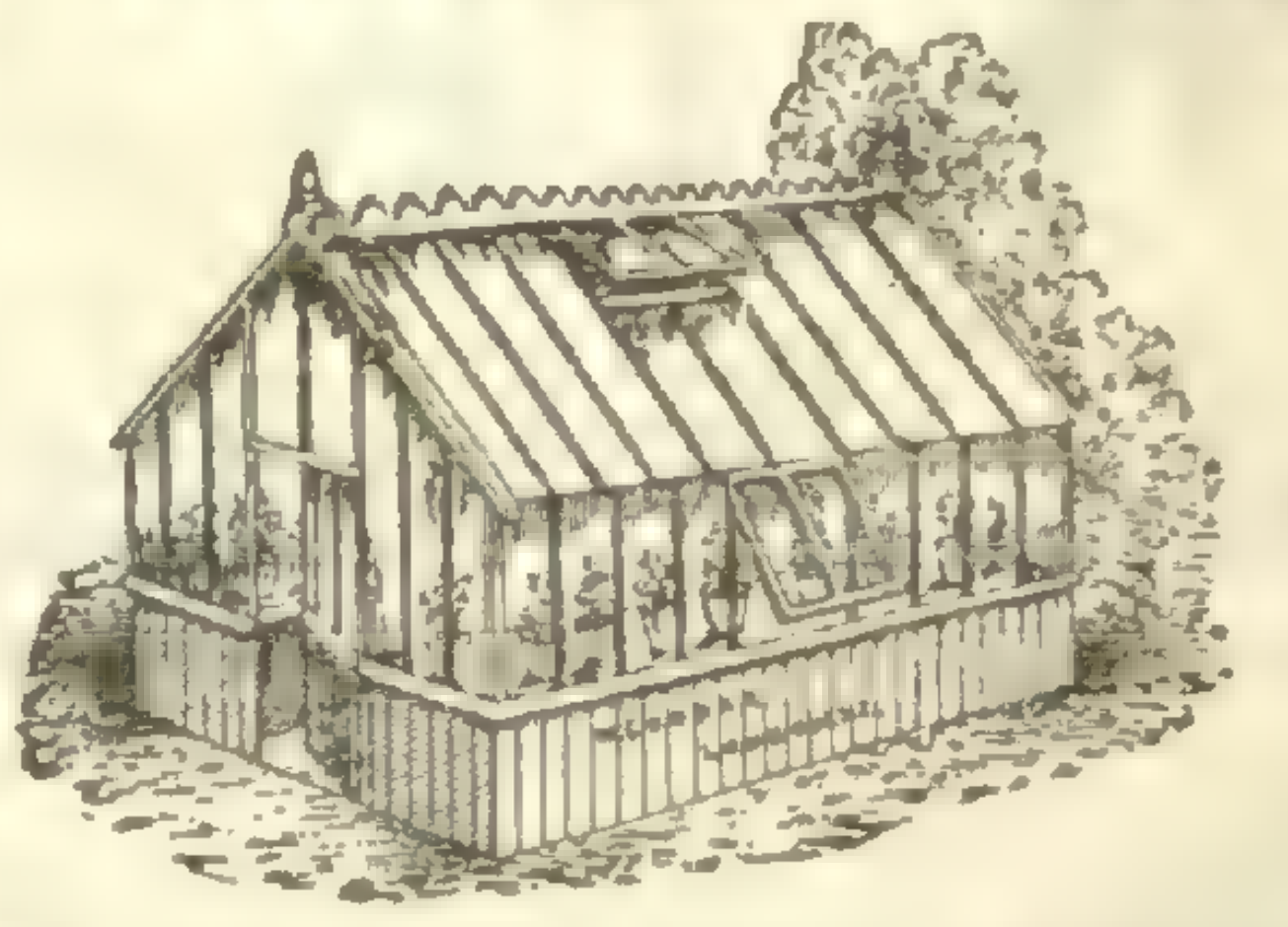

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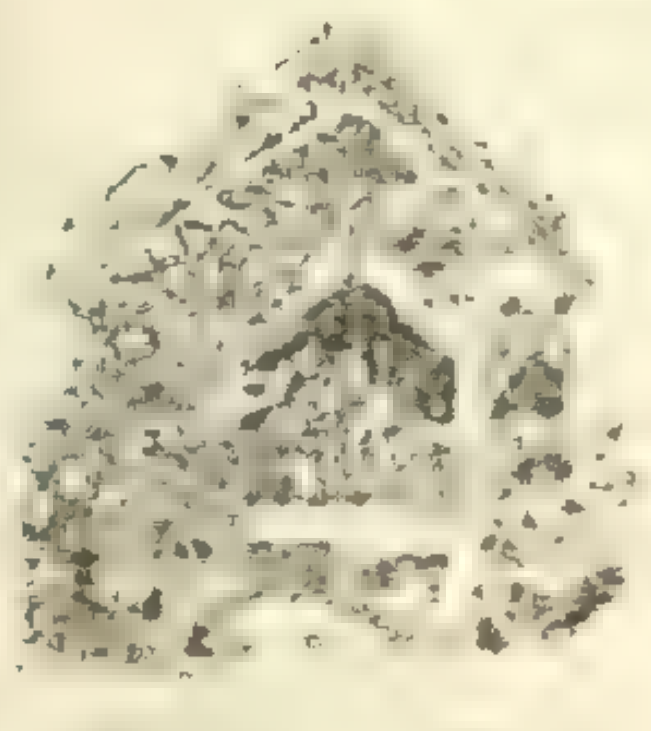

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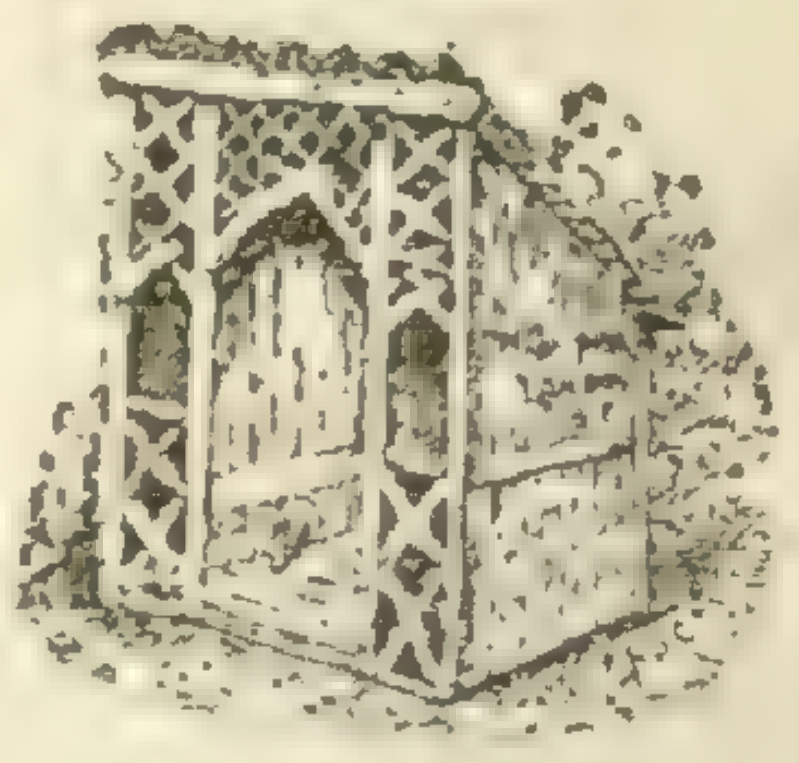

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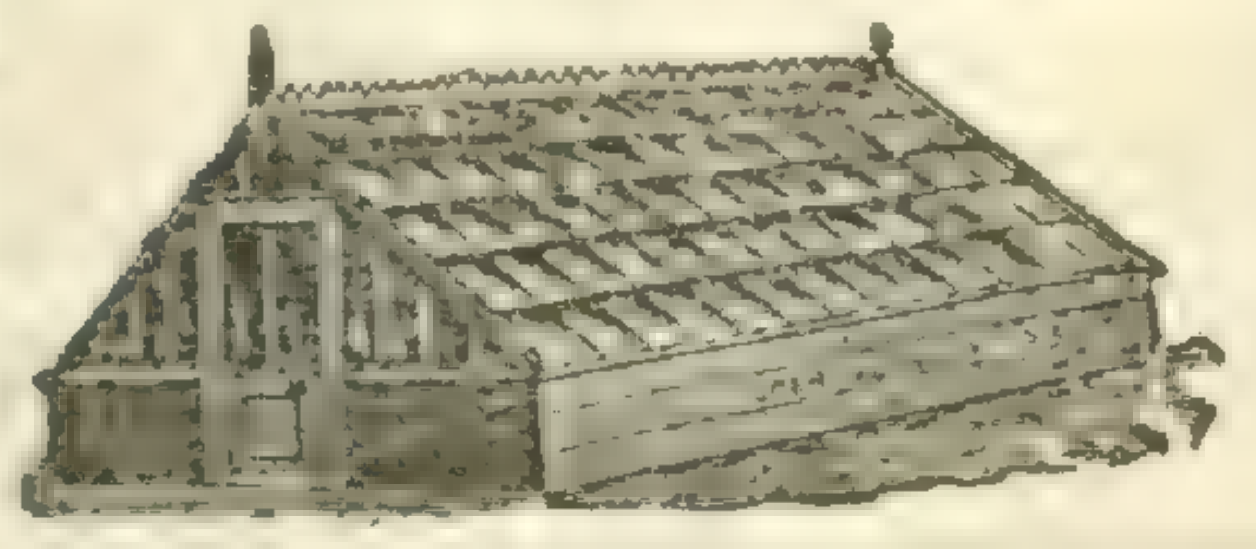

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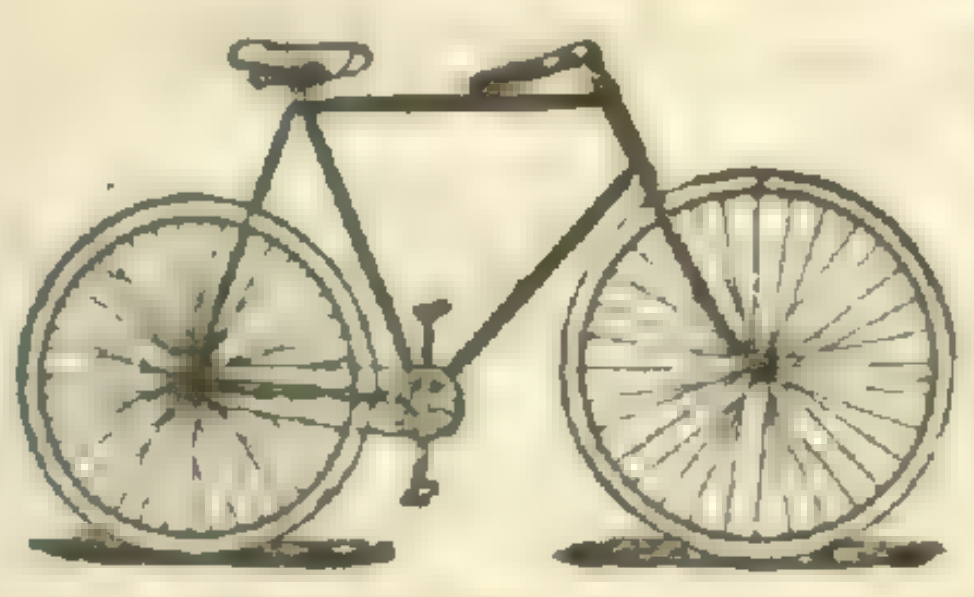

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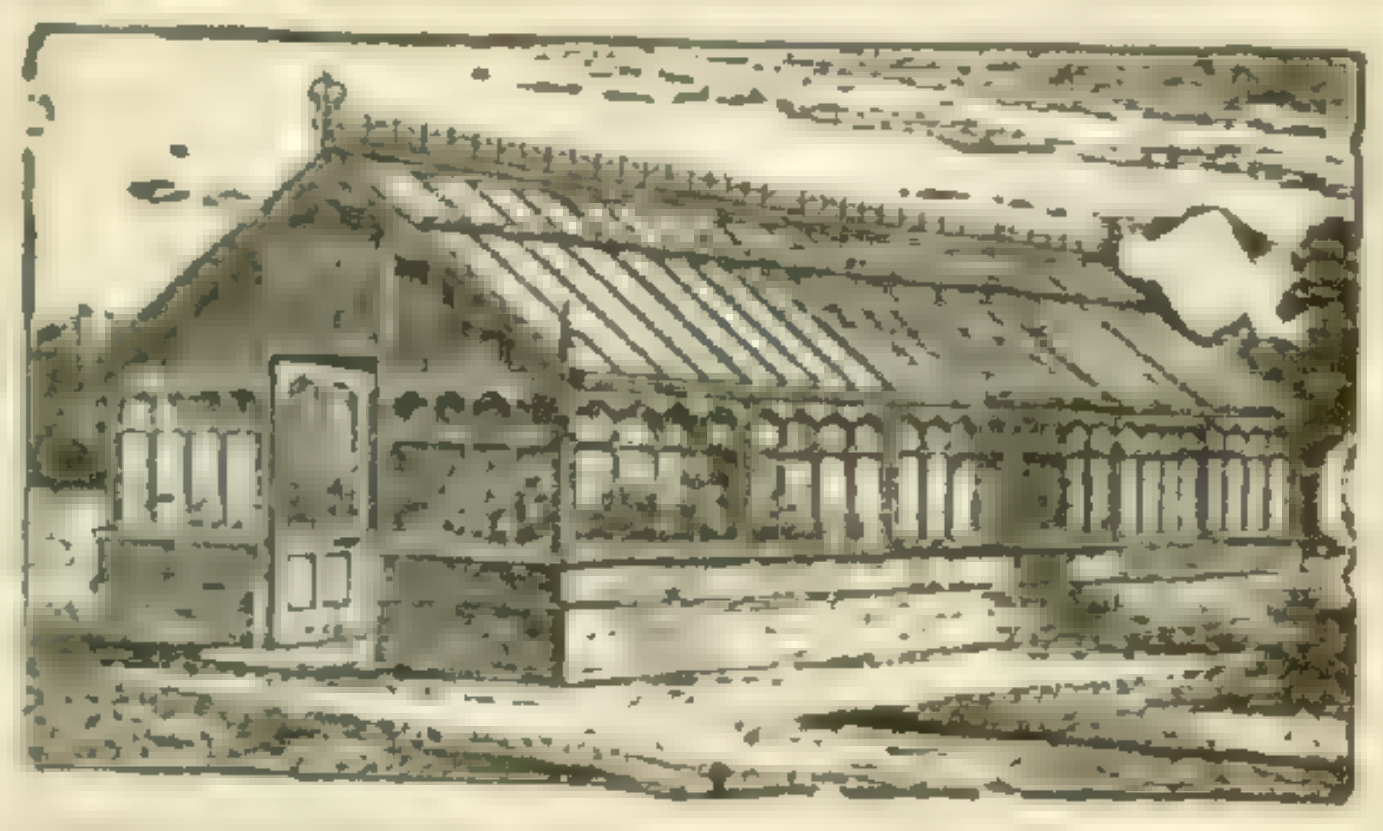

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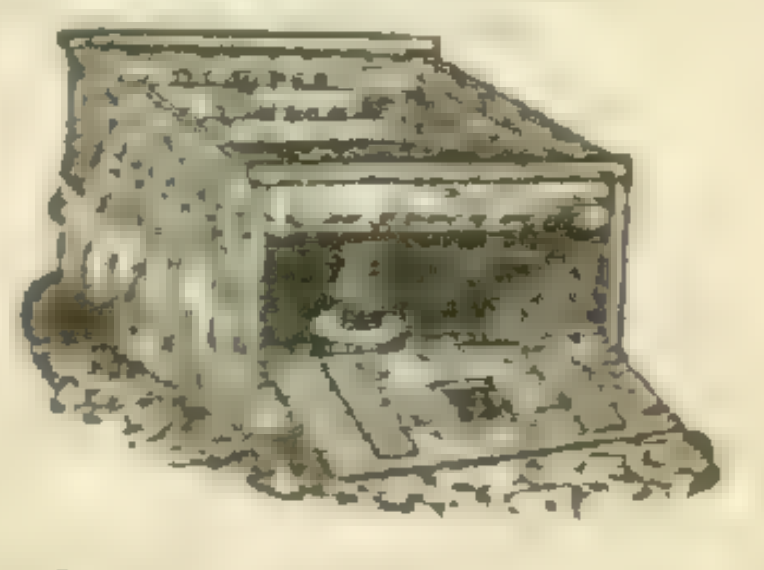

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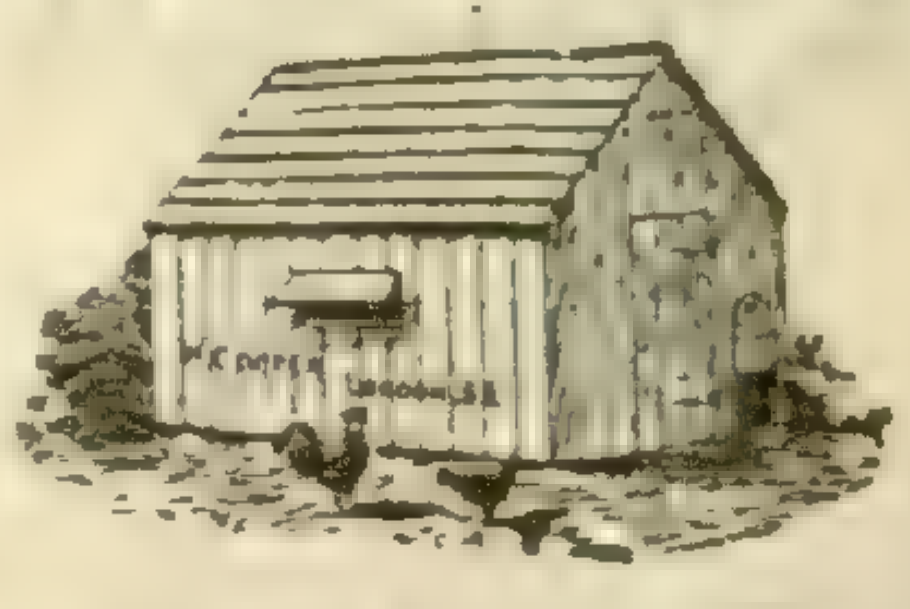

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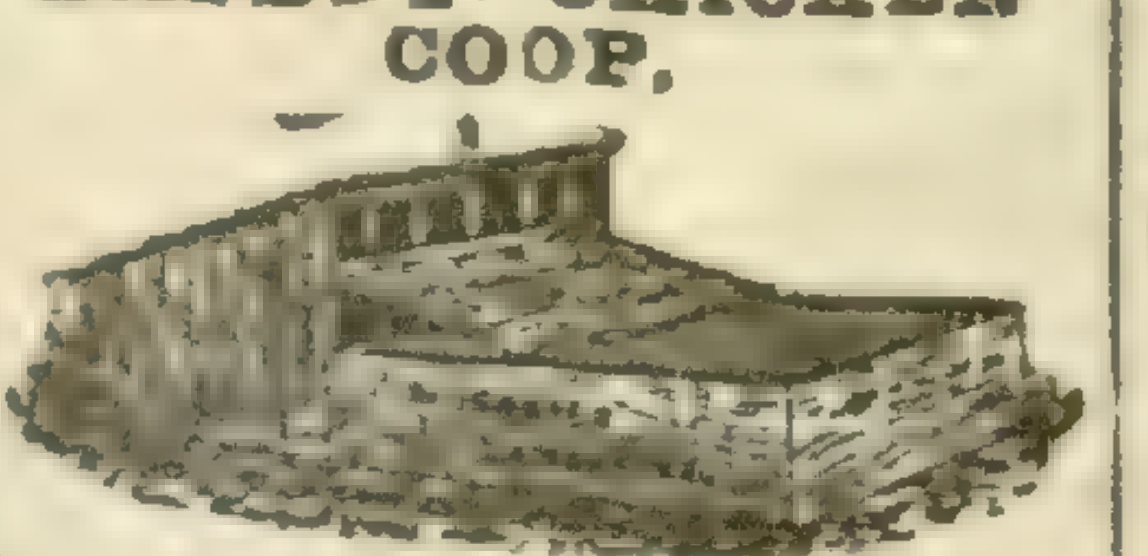

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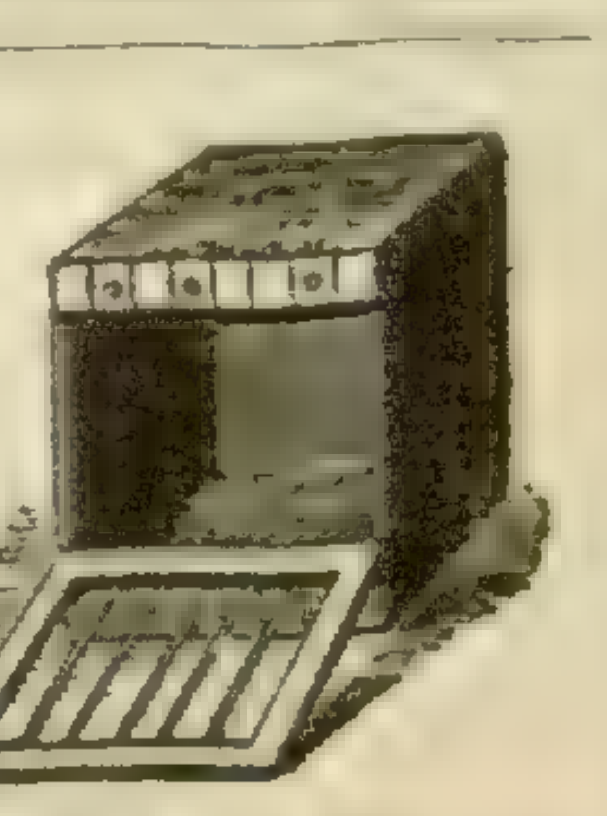

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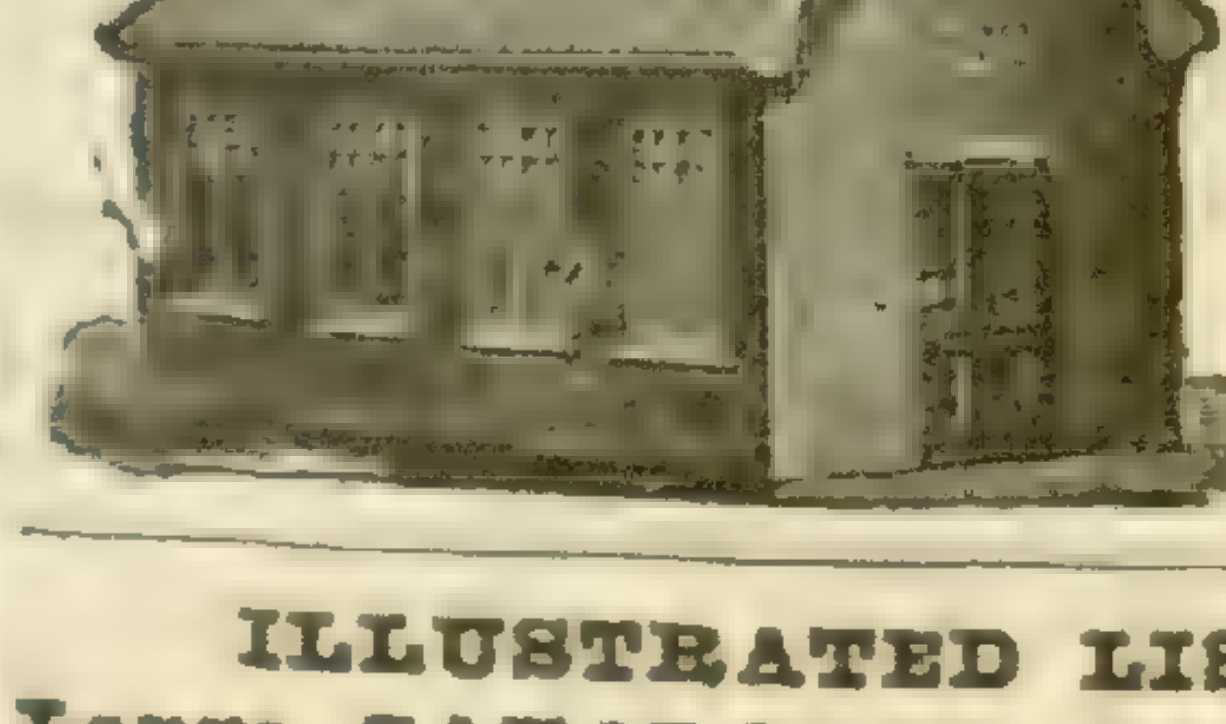

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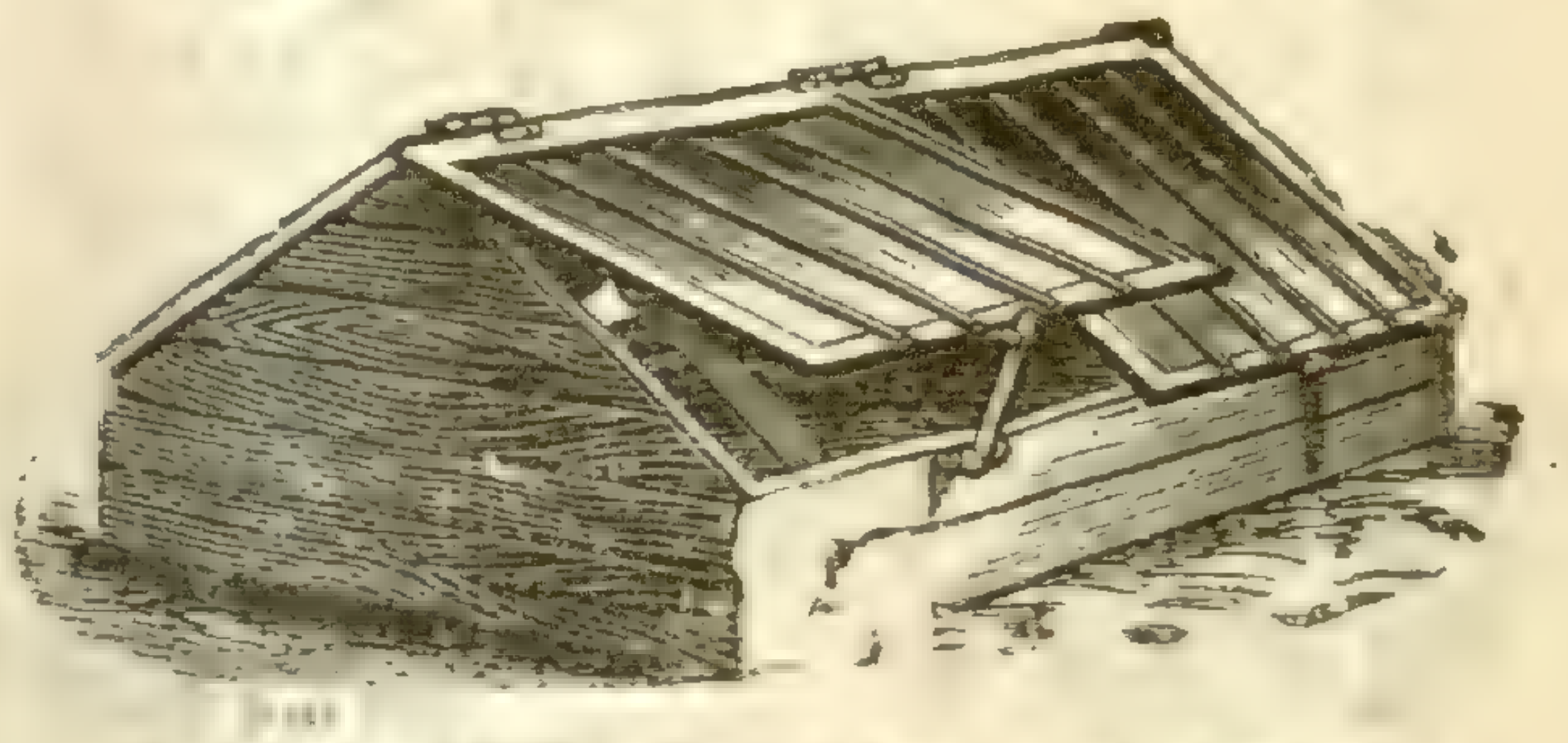

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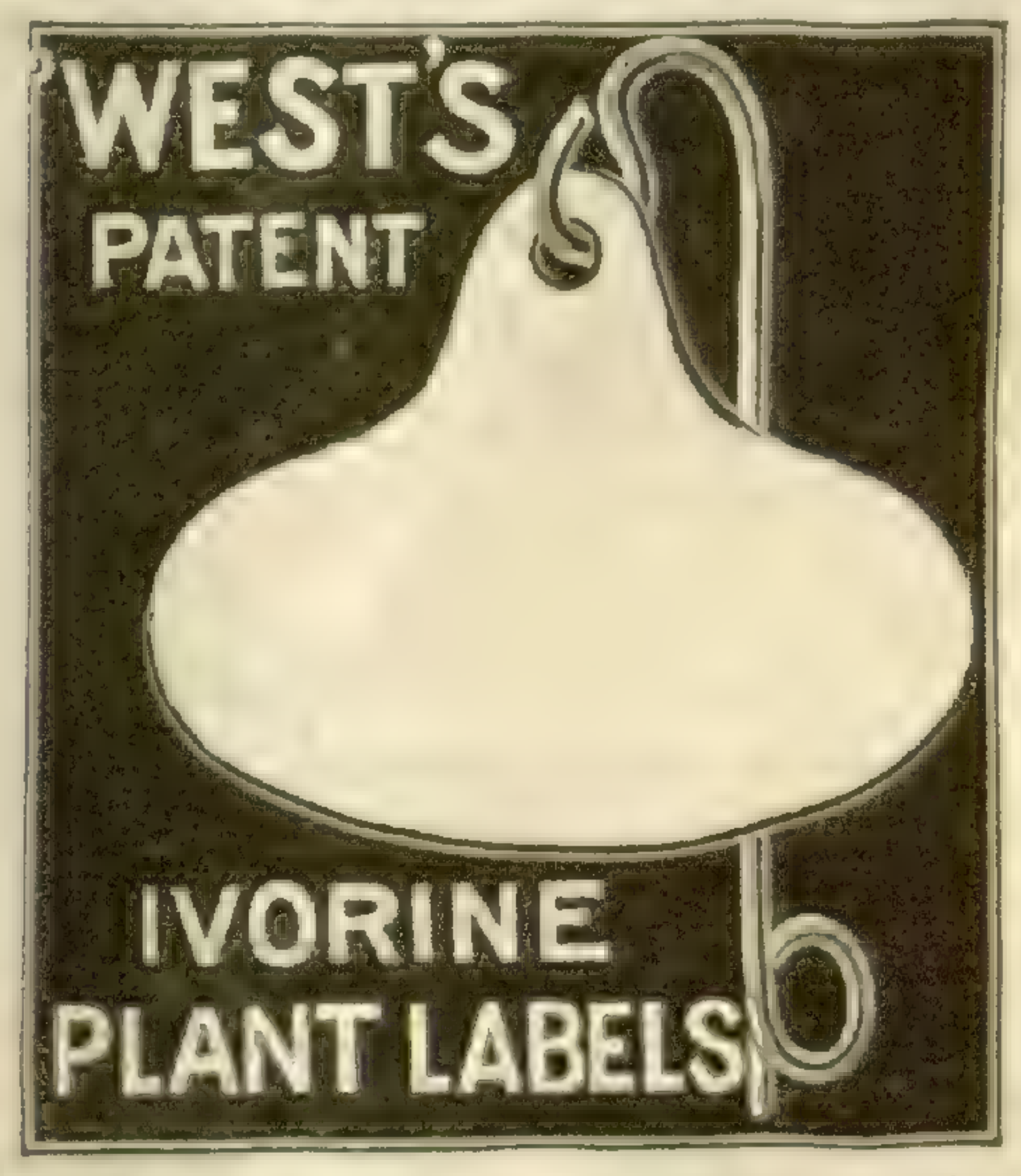

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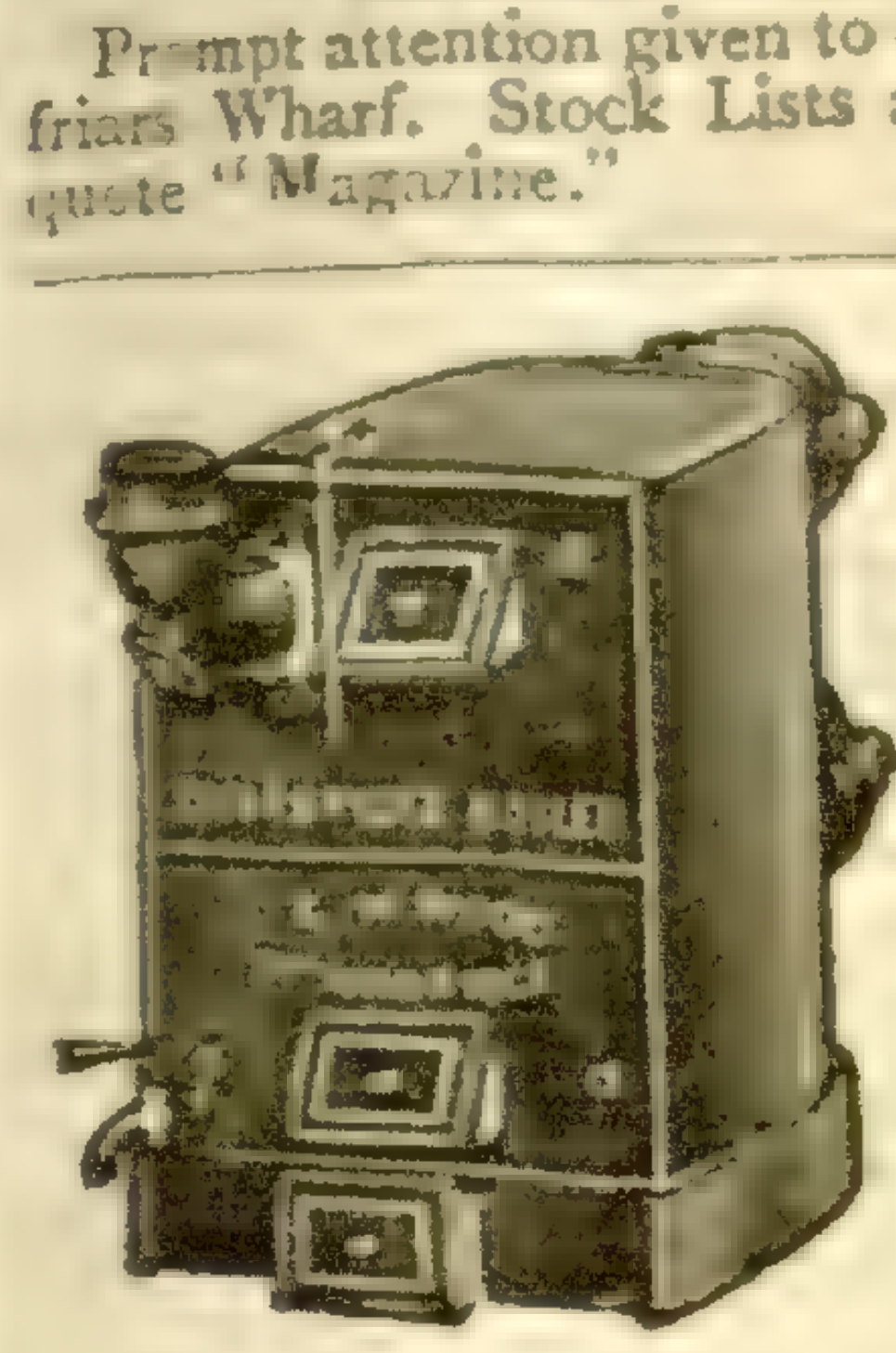

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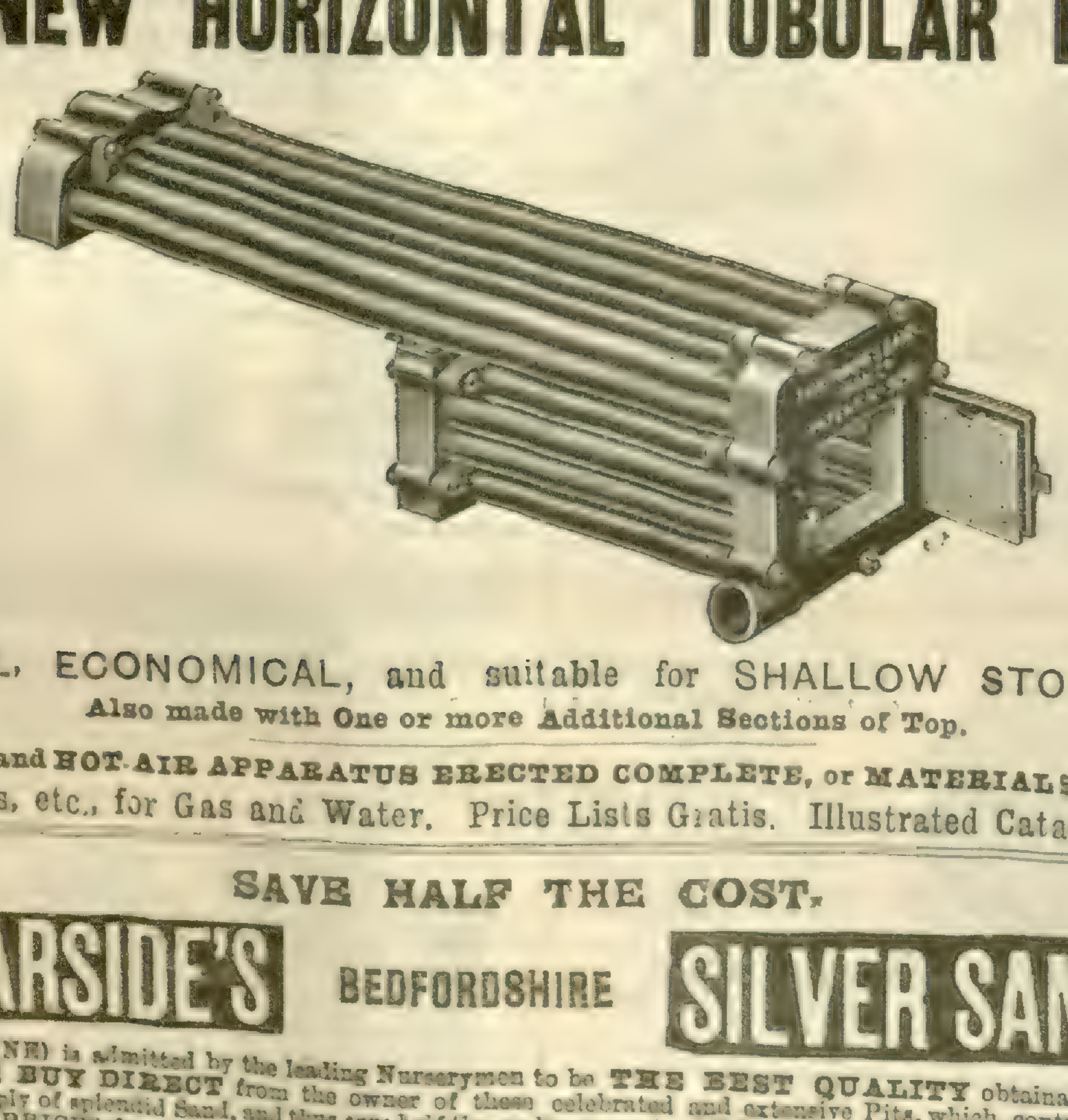

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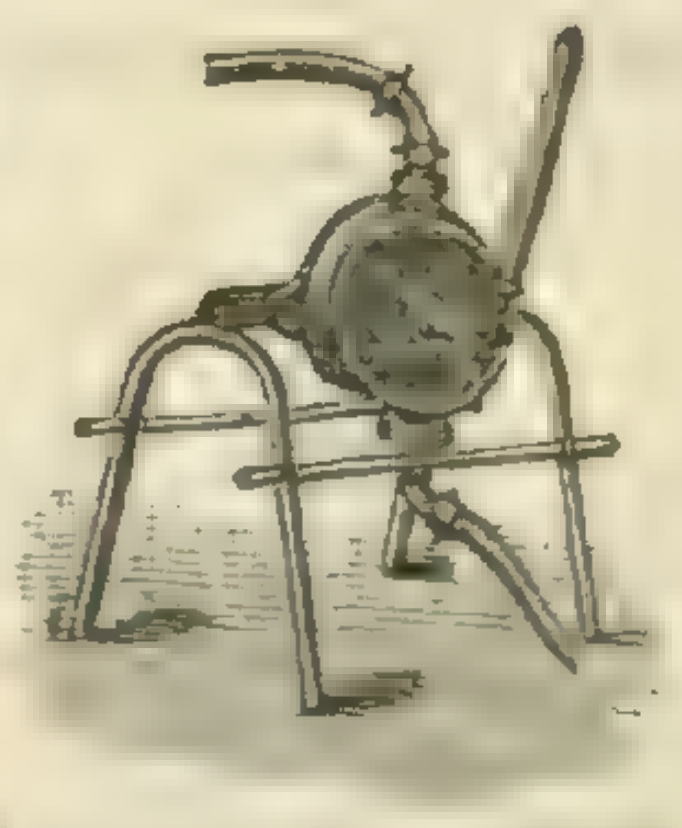

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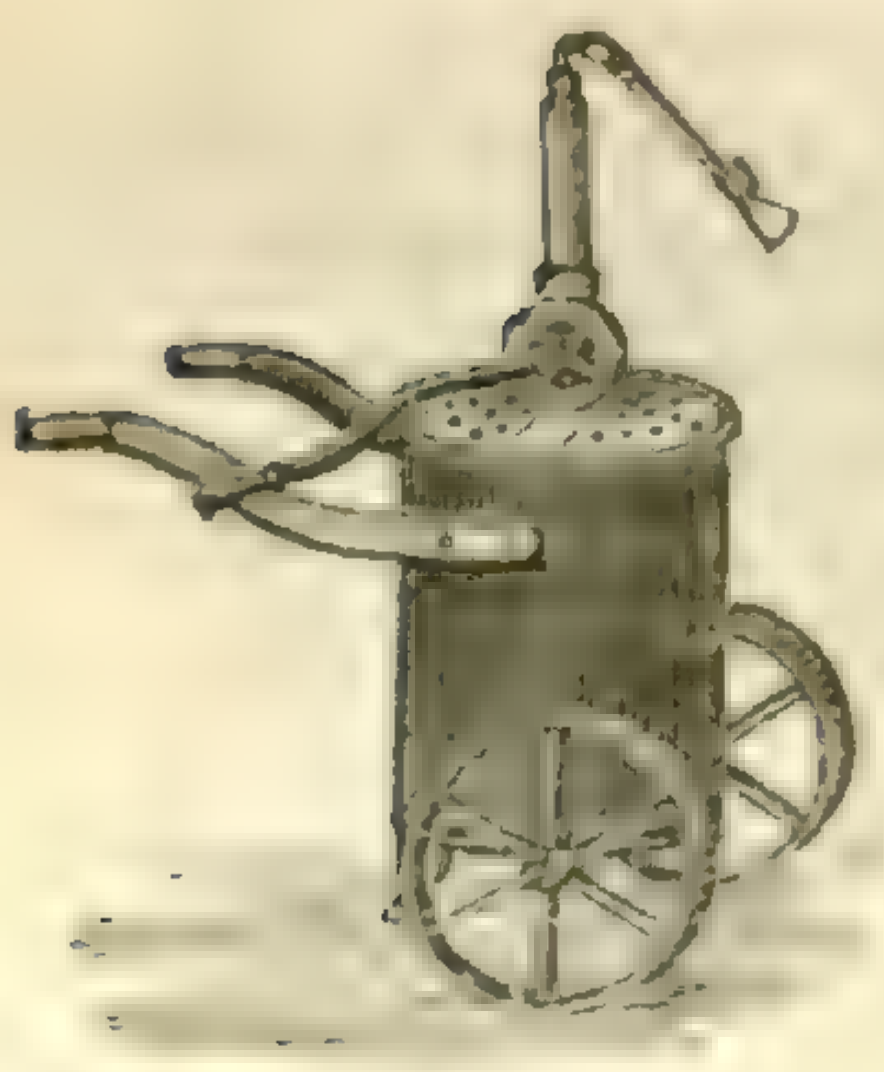

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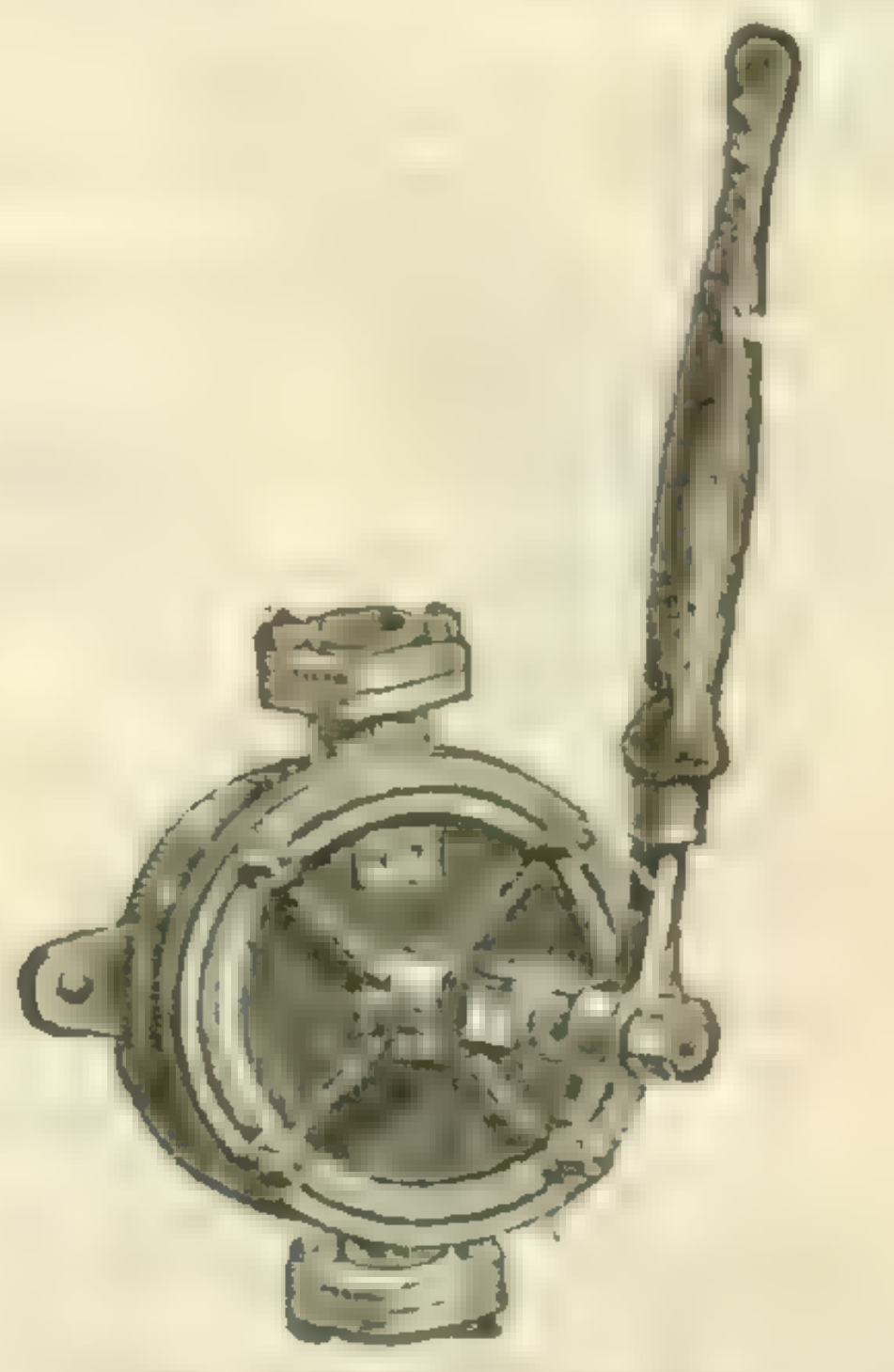

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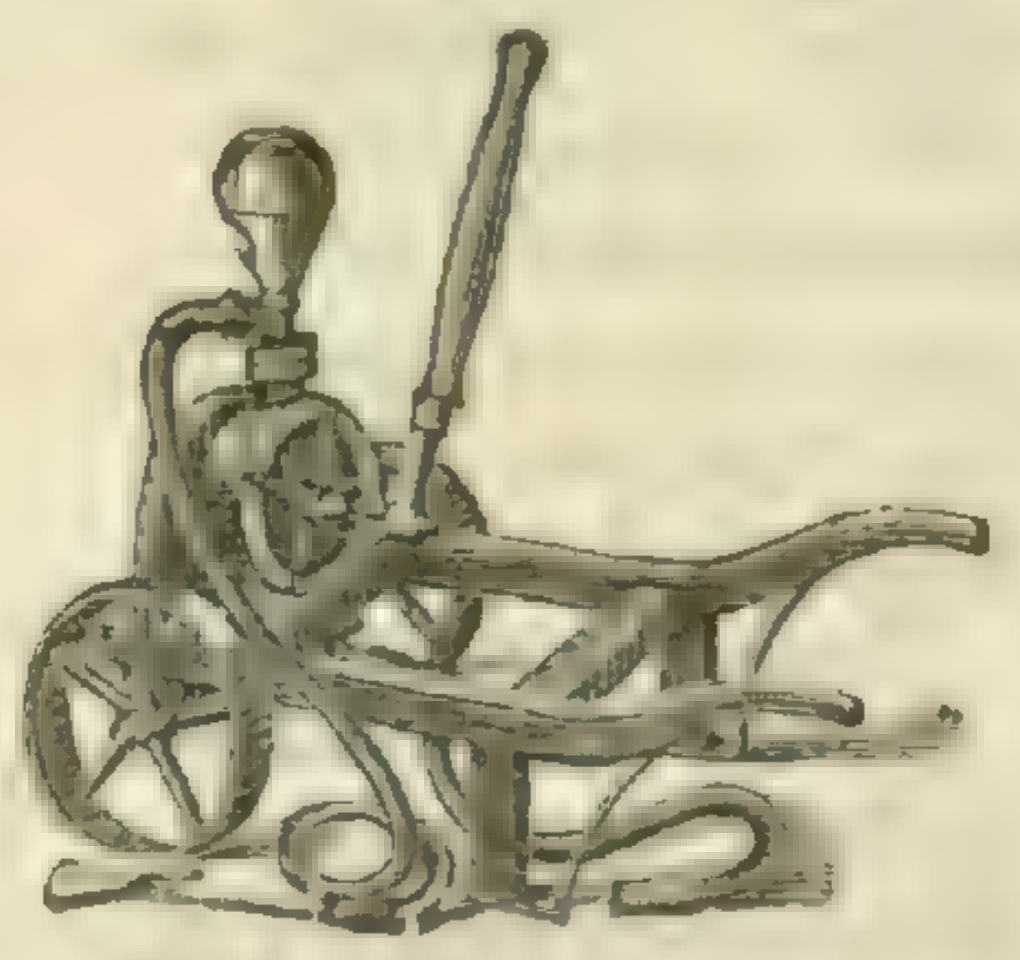

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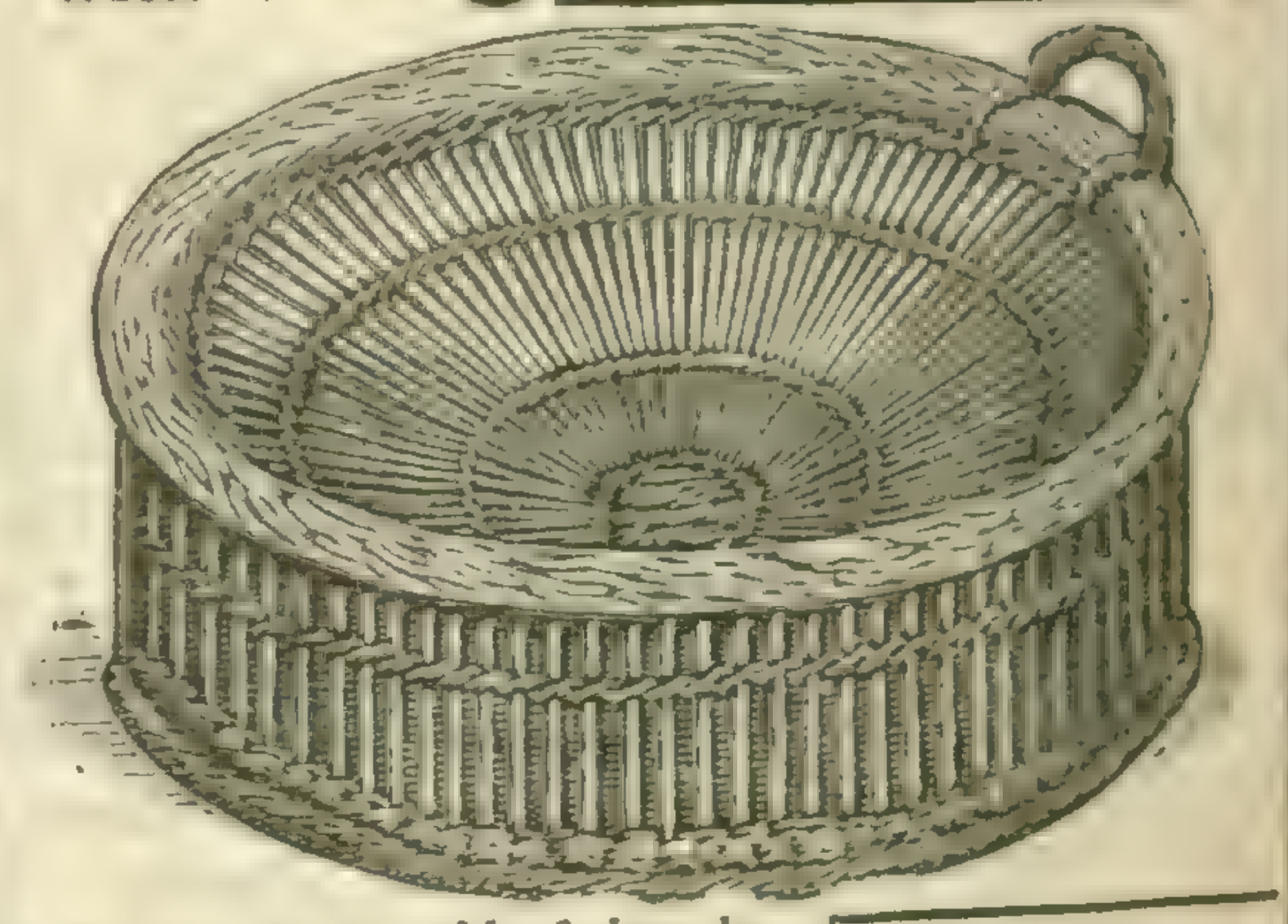

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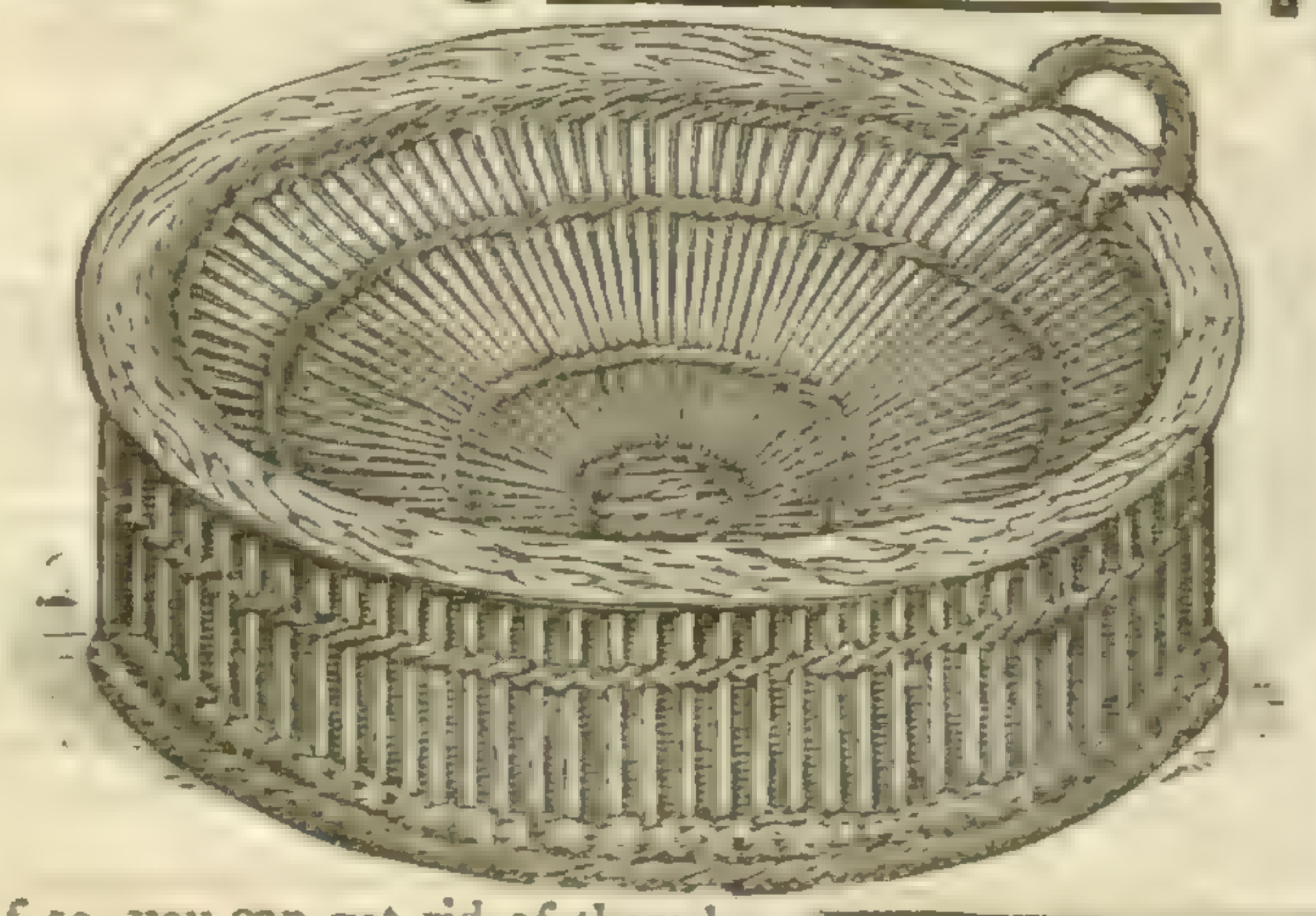

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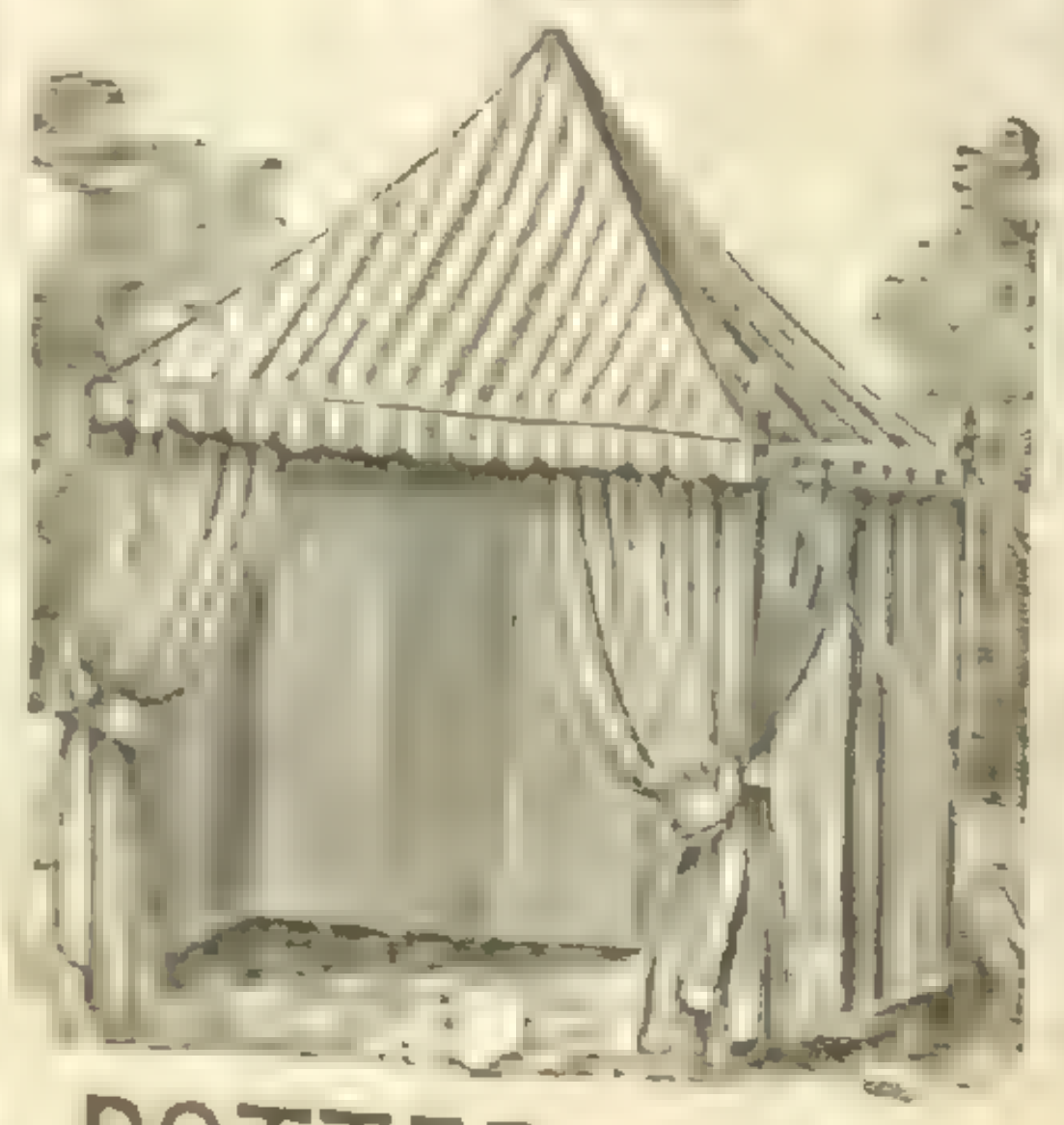

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AS GARDENER (where help is given); well up in fruit trees, growing and forcing seakale, tomatoes, mushrooms, cucumbers, all kitchen garden work, pleasure ground, land stock, poultry if required; 15 years' excellent character from present place; middle age; married, one daughter.—J. SANSOM, Barcote Cottage, Faringdon, Berks.

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FOREMAN (Inside, or good Second); age 25; good knowledge of forcing, early and late vines, peaches, melons, cucumbers, stove and greenhouse plants, &c. Can be highly recommended.—E. S., 18, Western Road, Kew Bridge, Brentford.

GARDENER (Head) where three or four are kept; life experience in all branches; age 40; married, two children; good references.—Address J. DENTON, Up Down Hill, Windlesham, Surrey.

GARDENER (Head, where another is kept), no objection to Good Second, where four or five are kept; 8 years in present situation as Second; 17 years' experience; single.—S. E., The Gardens, Highlands, Bolney, Sussex.

GARDENER (Head or Single-handed).—Gentleman can highly RECOMMEND his late gardener, left through breaking up establishment; life experience, inside and out; age 36; married.—W., 3, Spring Grove Gardens, East Molesey, Surrey.

GARDENER (Head Working or good Single-handed); Scotch; age 30; life experience in vines, peaches, tomatos, cucumbers, melons, stove and greenhouse plants, flower and kitchen garden; satisfactory reasons for leaving; first class references from present employer as to character and ability; total abstainer; married when suited.—C. W., 2,916, "Gardeners' Magazine" Offices, 148 and 149, Aldersgate Street, E.C.

GARDENER (Single Handed, or with help) REQUIRES SITUATION; experienced both inside and out; age 28.—B., 9, Keeley Road, Croydon.

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GARDENER (good Single-handed, or with help); thoroughly experienced both Inside and Out; age 29; three years in last place.—"W. P," 48, Lewisham Road, S.E.

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RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

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UNDER GARDENER in pleasure ground and kitchen garden; six years with Sir Henry Bessemer; death cause of leaving.—Apply J. Y., 285, Camberwell New Road, S.E.

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WANTED, GARDENER (unmarried) to take charge of small kitchen garden, hothouses, &c.; must thoroughly understand all branches.—Address M. D., Chadstowe, Corbett Avenue, Droitwich, stating age and salary. Must have good references.

WANTED, a good GARDEN LABOURER; married preferred, no family or very small; wages 15s. per week, with cottage. Also YOUTH, about 20, to help the gardener inside and out.—Apply to HENRY BOWLES, Gardener, Southover Hall, Burwash, Sussex.

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IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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The choicest roasted nibs (broken-up beans) of the natural Cocoa on being subjected to powerful hydraulic pressure, give forth their excess of oil, leaving for use a finely-flavoured powder—"Cocoaine," a product which, when prepared with boiling water, has the consistence of tea, of which it is now, with many, beneficially taking the place. Its active principle being a gentle nerve stimulant, supplies the needed energy without unduly exciting the system. Sold only in labelled Tins. If unable to obtain it of your tradesman, a tin will be sent post free for 9 stamps.

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PROTECT your Gardens.—Garden Netting for protecting Fruit Trees, Seed and Strawberry Beds, &c. Inch mesh Tanned Waterproof, 100 yds. by 1 yd., 3s.; [illegible] by 2 yds., 50 yds. by 4 yds., or 25 yds. by 8 yds., 6s. [illegible], carriage paid; sent on approval, and compare it with some rubbish advertised. Lawn Tennis Court Boundary Netting, corded top and bottom, 100 yds. by 2 yds., or 50 yds. by 4 yds., 16s. 6d., carriage paid.—ABBOTT, Net Manufacturer, Lowestoft.

NEW TWINE NETTING, 2 yds. wide, 3d. per yd.; 4 yds. wide, 6d. per yd. 1 inch mesh Tanned Netting, 2 yds. wide, 1d. per yd., 8s. 100 yds.; 4 yds. wide, 16s. per 100 yds. Suitable for seed-beds and lawn tennis courts. All kinds of nets made to order. Established 50 years.—W. CULLINGFORD, 177, Markhouse Road, Walthamstow.

NETS.—TANNED WATERPROOF, small mesh, for protecting Strawberry Beds, Fruit Trees, &c. Cheapest and best in the market. 200 X 1 yards 5s. 6d., carriage paid; extra quality 8s. Any width sent. Get list and buy first hand.
SPASHETT and Co.,
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COLOURED PLATES
OF
THREE BEAUTIFUL ROSES
Will be given with
Amateur Gardening

As follows:—
BOURBON ROSE - - - July 2
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HYBRID PERPETUAL ROSE - July 9
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NEW TEA SCENTED ROSE - July 16
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Also a Full and Comprehensive List of all the Best Roses in Cultivation, with Colours, Habits, Position for Growing, When and How to Prune, &c.

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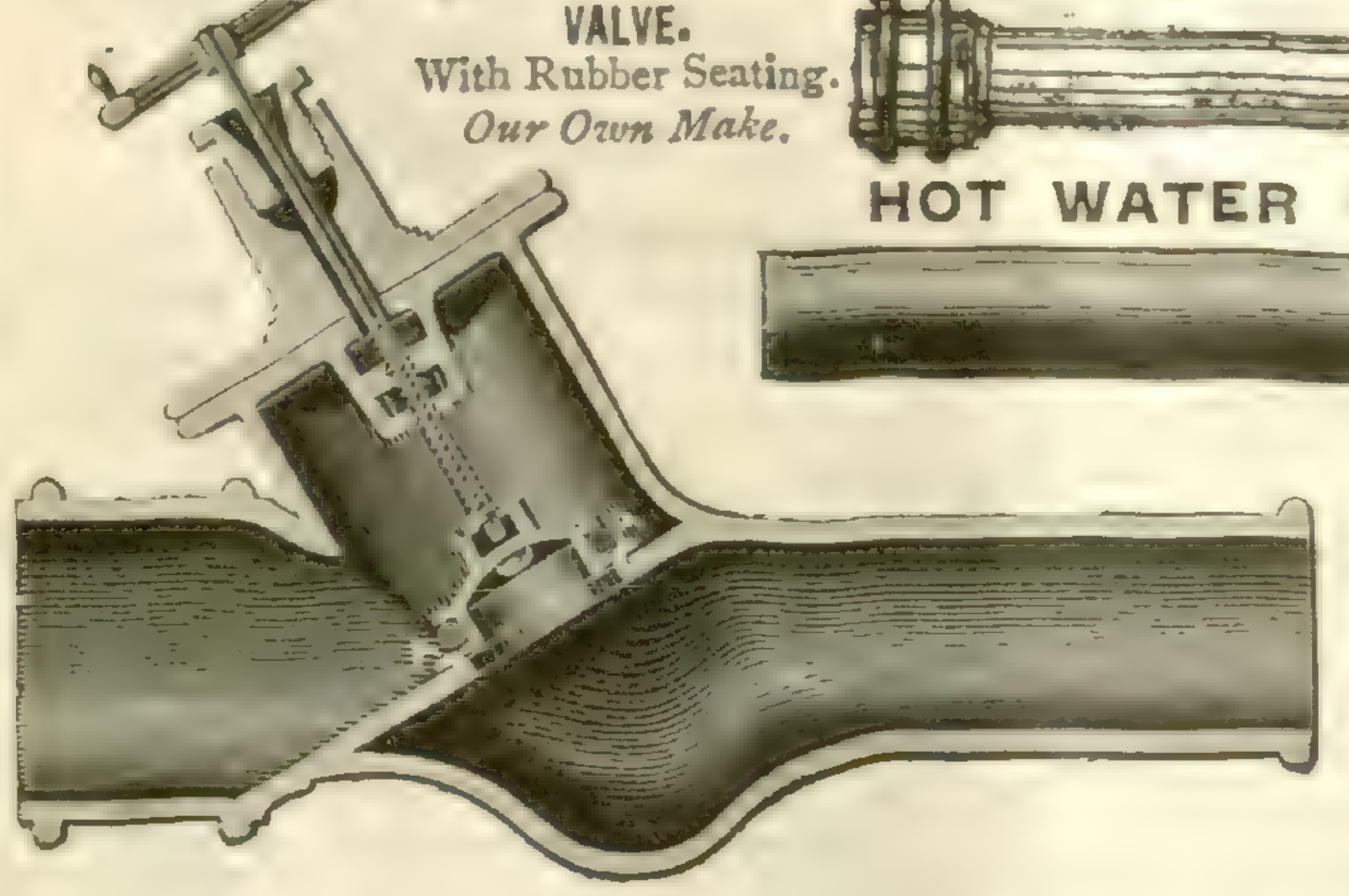

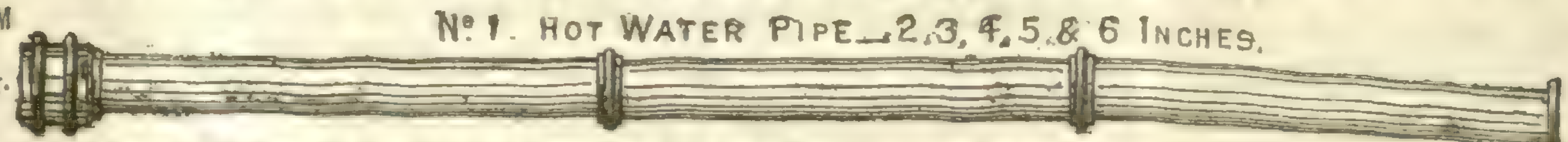
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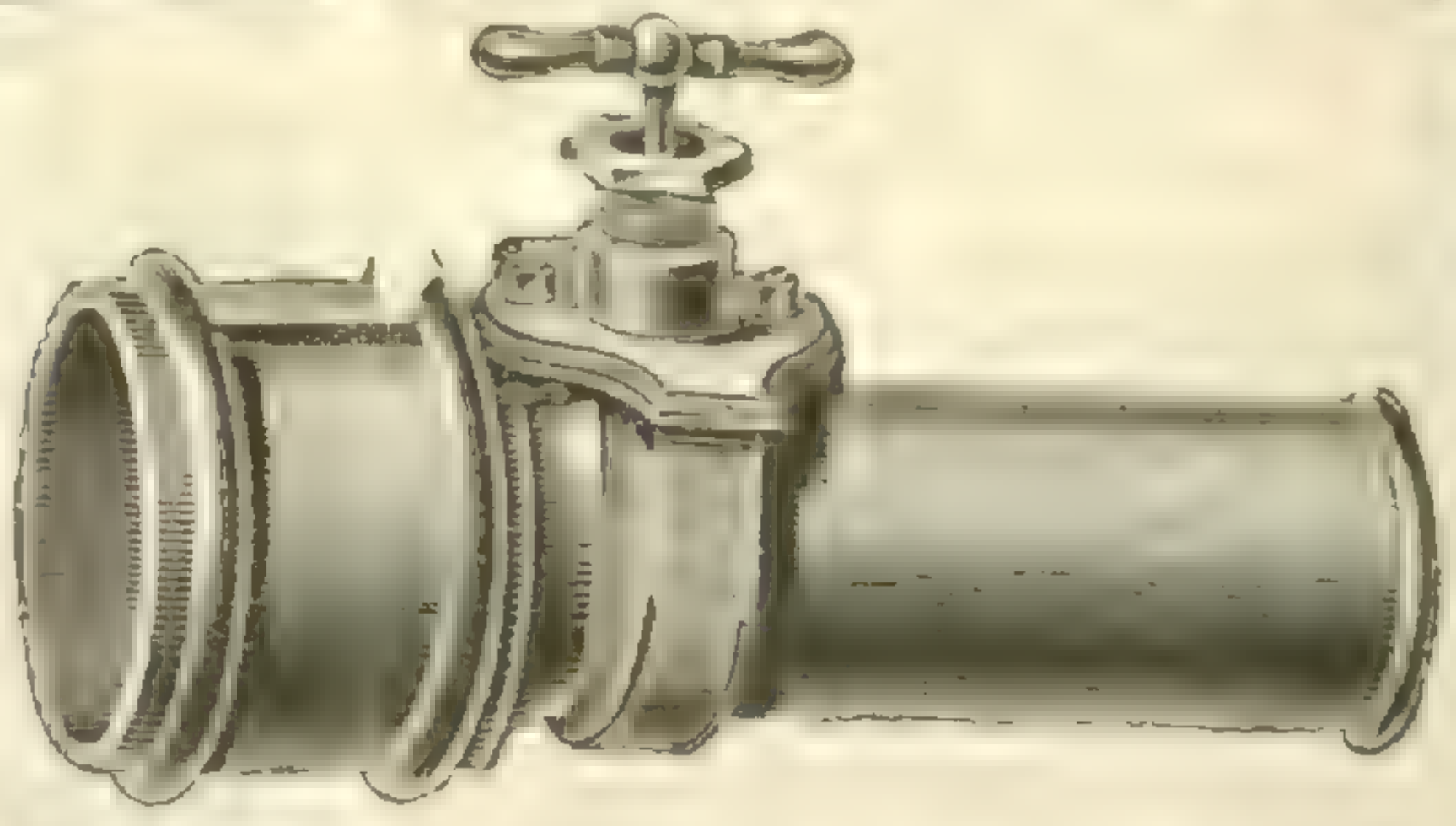
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(*1s., post free, or of Seedsmen, &c.*)
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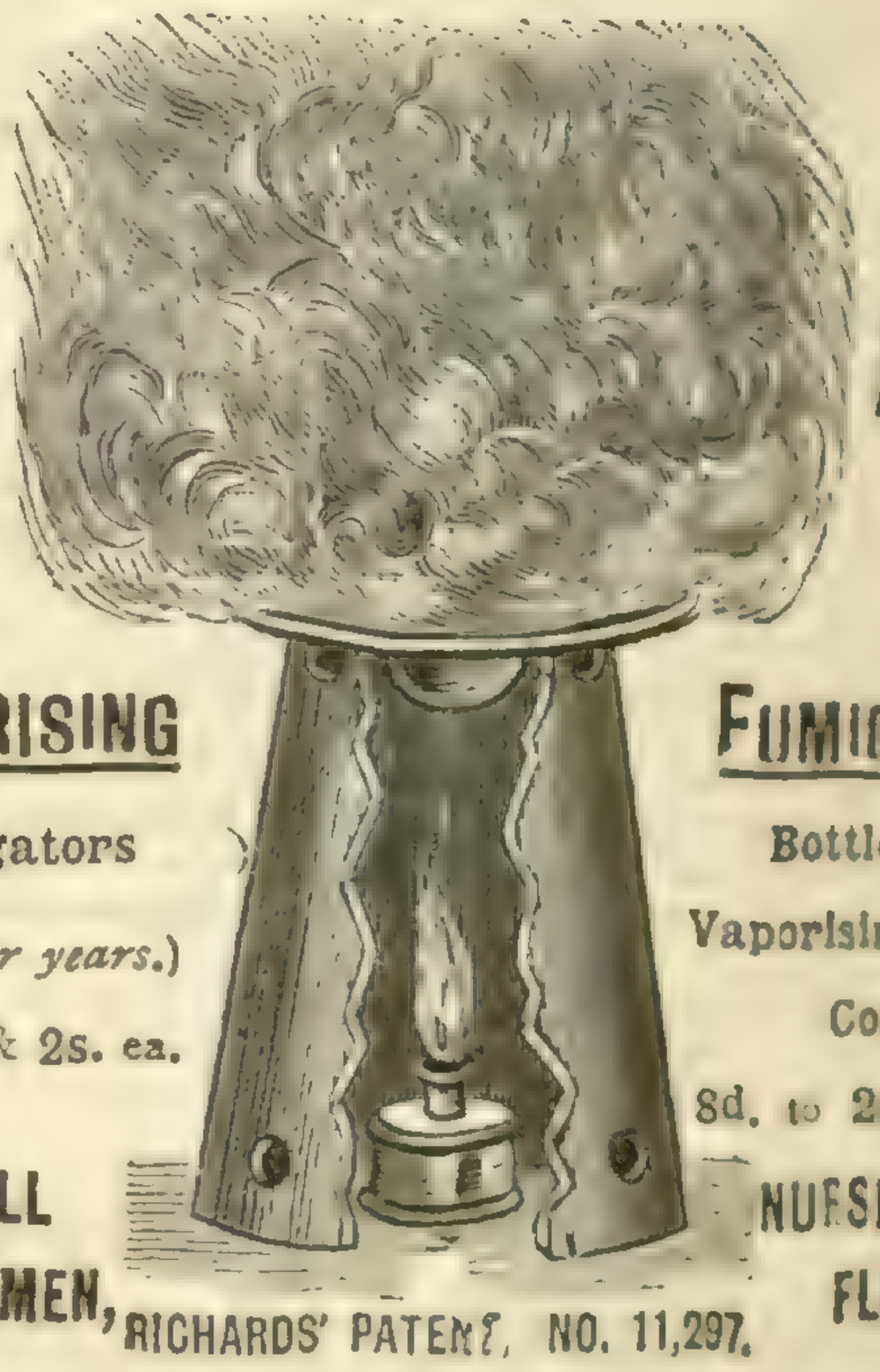
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Messrs. Dicksons, Limited, Chester, write: "The Flower Pots you have so largely supplied us with are light, strong, and well made, and in every respect highly satisfactory."

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Fir Tree Oil INSECTICIDE
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The CHEAPEST and BEST.
Half pints 1/6, pints 2/6, quarts 4/6, half gallons 7/6, gallons 12/6, 5 gallon drums 10/6 per gallon
Carriage Paid.
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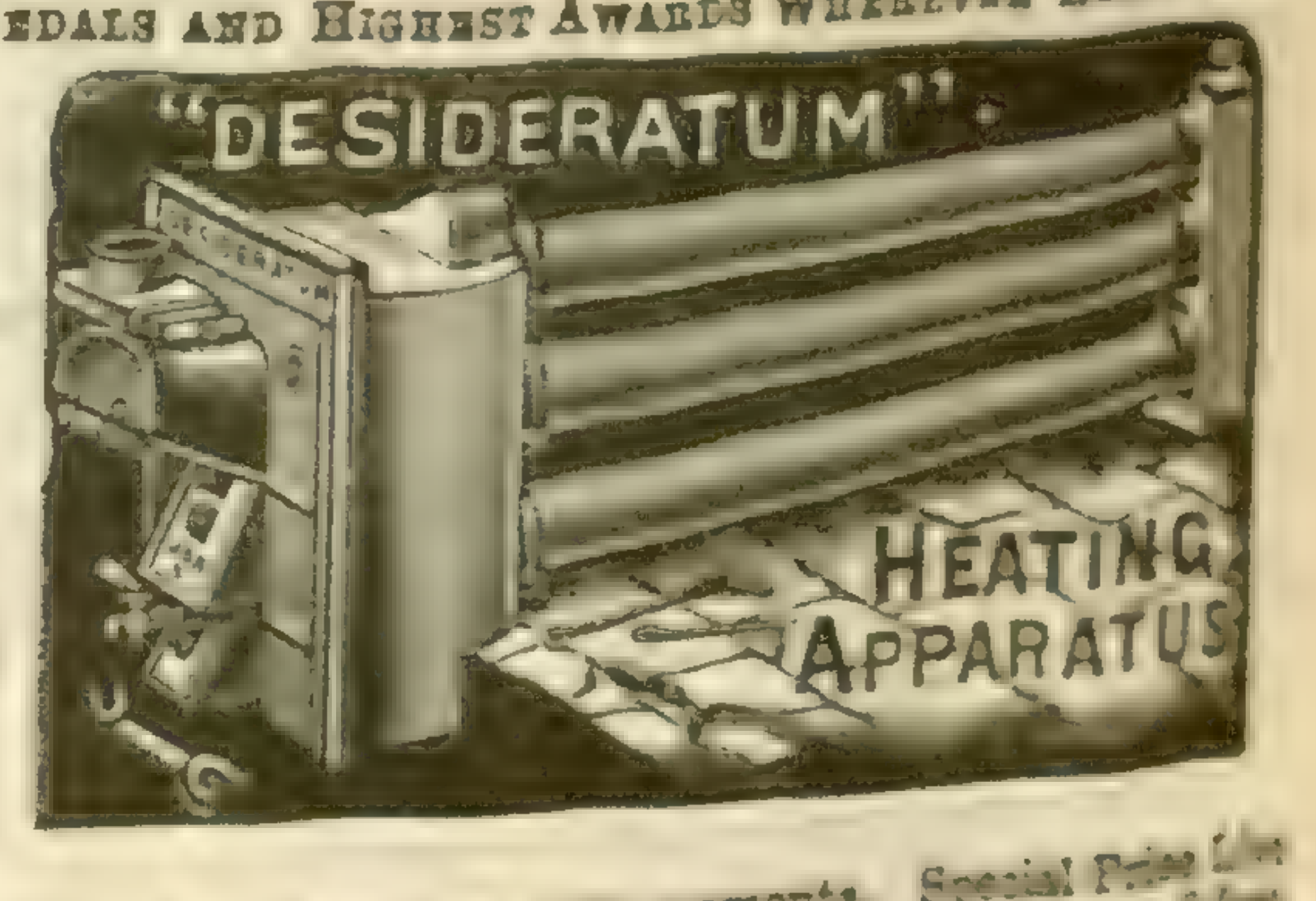

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THE GARDENERS' MAGAZINE.

SATURDAY, JULY 2, 1898.

READING HORTICULTURAL SOCIETY SUMMER SHOW, THURSDAY, JULY 14. Three Challenge Cups. £200 Prizes for Flowers and Vegetables. Entries close July 9th —WM. L. WALKER, Hon. Sec., Bulmershe Road, Reading.

STRATFORD-ON-AVON.—OPEN SHOW.—POULTRY, PIGEONS, RABBITS, CAVIES, CAGE BIRDS and CHRYSANTHEMUMS, on TUESDAY and WEDNESDAY, NOVEMBER 1st and 2nd, 1898. Open Classes for Chrysanthemums. Liberal Prizes. Entries close Monday, October 24th. Schedules now ready.
A. E. H. SMITH and J. G. RANDALL, Jun., Hon Secs., Stratford-on-Avon.

WOOD GREEN AND DISTRICT HORTICULTURAL SOCIETY.
13TH ANNUAL EXHIBITION, 9TH JULY, 1898.
SPECIAL NOTICE TO NURSERYMEN.
The Silver Medal of the Society will be awarded to Exhibits of sufficient merit, also £1 1s. to each Trade Exhibitor towards the cost of Staging a Group.
SPECIAL PRIZES.
Three Special Prizes will be awardrd for 12 SPECIMEN PLANTS.
First Prize, £10 10s.; Second Prize, £6 6s.; Third Prize, £3 3s.
Applications for Space should be made to the Honorary Secretary, before the 2nd July next.
E. J. WICKENDEN, F.R.H.S., Heckfield, Clarence Road, Wood Green, N.

WOKING FLOWER SHOW, TUESDAY and WEDNESDAY, JULY 12 and 13. —Four Cups; 87 Classes. Schedules on application to
W. I. NEAL, Claremont Avenue, Woking.

WOLVERHAMPTON FLORAL FETE, JULY 12, 13, and 14, 1898.
Latest Dates on which Entries can be received :—
For Plants ... ... July 5
For Flowers, Fruit, and Vegetables ... ... July 8
Prize Lists and Entry Forms, from the Secretary,
WILLIAM E. BARNETT.
Snow Hill, Wolverhampton.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

AN EXPERIMENTAL LAWN.

A WELL-KEPT lawn is one of the great charms of British gardens, and the verdant turf, soft and velvety to the tread, which results from high keeping, presents a striking contrast to that usually met with on the Continent, where the climatic conditions are not, speaking generally, favourable to the growth of the finer grasses. The chief points in the management of grass lawns have had full attention given to them in the pages of the GARDENERS' MAGAZINE, for we were the first to fully recognise the fact that the judicious application of fertilisers are not less necessary to the lawn than to the quarters of the kitchen garden. The success achieved in our endeavour to effect an improvement in the management of grass lawns has been sufficient to give us considerable satisfaction; but the thin and otherwise indifferent turf still met with is a proof admitting of no question that the influence of fertilisers upon grasses is not properly appreciated. Hitherto we have directed attention chiefly to the use of manurial agents as a means of maintaining the fertility of the soil; but our object in referring to the matter at the present time is to show the remarkable assistance fertilisers are able to give in the formation of the lawn. Five years ago a gentleman of our acquaintance became the tenant of a house that had been built upon land that had originally been used as a market garden, and had been allowed to lie idle for several years. Left to itself the land quickly had its surface covered with weeds, the grasses predominating. When the tenancy was entered upon the herbage consisted of the coarser grasses, thistles, docks, dandelions and daisies, and some weeds of minor importance. Rather more than a quarter of an acre was marked off for a lawn, and the question necessarily arose as to the best method of obtaining a good turf. We suggested, and properly so, the digging in of the weeds and laying down turf. This advice was not accepted on the ground of expense. As an alternative we recommeded deep digging and seeding with the finer grasses and trefoil; but this recommendation was not acted upon, and had we not been familiar with the immense influence exercised by phosphatic manures upon the growth of grasses we should have regarded the formation of a creditable lawn as hopeless. Happily our friend was amenable to the advice that he should spud out docks, thistles, and dandelions, and have the grass mown at intervals, first with a scythe and then with a machine; also that he should have the ground dressed with suitable artificials. He entered with considerable spirit into carrying out the experiment which we have watched with much interest, and when some mastery had been obtained over the deep rooting weeds, the spud was discarded and all the hollows were filled with fine soil to obtain a level surface. Subsequently the dandelions, the thistles, and the docks, were, in accordance with our advice, kept under by dropping a little petroleum into their centres, and this oil proved so destructive that these weeds disappeared as if by magic. Concurrently with the destruction of the tap rooted weeds the grasses spread over the surface, and with the assistance of liberal applications of bone meal and moderate dressings of sulphate of ammonia, the finer grasses, such as Cynosurus cristatus, Festuca ovina tenuifolia, F. duriuscula, F. rubra, and Poa pratensis, spread with great rapidity, and these and other grasses now form one of the most satisfactory lawns that has yet come under our notice. We do not suggest that the course here briefly described should be followed in making lawns, but we regard the experiment as of immense interest and of some importance, as a proof of the highly beneficial influence exercised by phosphatic manures upon the finer grasses and the indication it gives of their great value as aids in the maintenance of turf in the best possible condition.

HARD-WOODED PLANTS.

IT is not without a feeling of regret that we are compelled to acknowledge the fact that the hard-wooded plants, which include some of the most beautiful of the tender exotics with which our glass structures are embellished, are so little appreciated at the present time as to render it practically impossible to arouse some degree of enthusiasm in them, however successfully they may be cultivated. Within a comparatively short period, a finely flowered specimen of heath or pimelia created much interest at a public gathering, and the cultivator seldom failed to obtain a full measure of praise, but of late years the fashion has so changed that there is a difficulty in awakening an interest in them otherwise than of a very languid character. We had a conclusive proof of the indifference to hard-wooded plants grown for their flowers at the meeting of the Royal Horticultural Society on Tuesday, when plants that were quite unique as examples of high-class cultural skill, failed to obtain recognition from those responsible for making the awards to miscellaneous contributions. Messrs. Balchin and Sons, who have achieved so much success in the cultivation of these plants for decorative purposes, sent from their nurseries at Hassocks ten plants of the surprisingly beautiful Phænocoma prolifera Barnesi, which at one time was seldom absent from collections of stove and greenhouse plants exhibited during the summer months. From it having been so frequently shown in specimen form, it came to be regarded as suitable only for large specimens, but by means of the plants shown on Tuesday, Messrs. Balchin proved to demonstration that when properly grown it possesses much value for decorative purposes. The plants exhibited were grown in six-inch pots with single stems, which were clothed with healthy growths from the base, and surmounted by large heads of flowers, remarkable alike for their size and high colouring. Having regard to their vigour and profusion of flowers, the plants have had no equals. We have not seen any that could approach them, nor can we find any record in the GARDENERS' MAGAZINE of similar examples having been presented to public notice during the sixty-five years that have elapsed since it was founded. Considering these facts, it is unfortunate the group should not have received some award, when other subjects, certainly not more beautiful, but representing far less cultural skill, should have obtained distinction. We would fain hope that they were overlooked, owing to the crowded state of the Drill, and we shall be pleased to hear that this was the case, for under no other circumstances, except the unpopularity of hard-wooded plants, can we understand their failing to obtain recognition.

SHEAVES OF ROSES.

ALTHOUGH but few rose shows have as yet been held, we have received several letters referring to the methods of staging garden roses, and complaining of the excessive number of trusses used in the formation of the bunches. One of our correspondents speaks of these as "huge sheaves of roses," and proceeds to point out the disadvantages under which exhibitors with limited resources are placed under existing conditions. We are not able to agree with our correspondent in his estimate of the size of the bunches in collections of garden roses; but we are in full sympathy with his views with regard to the necessity of imposing some limit to the number of trusses staged of each variety. A reduction is necessary in the interest of good taste, as well as that of the growers of a limited number of plants, for the large crowded bunches produce anything but a pleasing and tasteful display. The varieties belonging to the category of garden roses differ so materially in the size of the individual blooms, and the number of flowers in the spray or truss that it does not appear desirable to compel the exhibitor to stage the same number of trusses of each variety. At the present time the National Rose Society stipulates, in its classes for garden roses, that not less than three trusses of each variety shall be shown; as the necessity of a minimum has been acknowledged, it may be hoped that a maximum number will be fixed at no distant date. Possibly seven would be a suitable number, but there is room for some difference upon this point, and our present object is simply to give expression to the views held by a considerable number as to the desirability of taking such steps as will prevent the staging of the large bunches which some exhibitors consider essential to success at competitive gatherings.

Gardeners' Magazine Rose Number, as we announced in our last issue, will be published on the 9th inst., and the list of contributors given in our advertisement pages is a sufficient proof that the contents will be of exceptional interest to rosarians, and, indeed, to the general body of horticulturists. In addition to the black and white illustrations, we shall present with the issue a coloured plate of the beautiful new rose Queen Mab.

The Rose Season.—The abnormally low temperature that was experienced in May and during the greater part of June has made its mark upon the roses as well as upon the stone fruits, but in a different manner. In the case of the latter the crop has been materially reduced, but with the roses the effect of the unfavourable climatic conditions has been to greatly retard the expansion of the flowers. The development of the buds has, indeed, been so slow that in gardens where roses are largely grown the blooms can only be numbered by dozens, instead of hundreds; and in the case of the commercial establishments, the lateness of the season can hardly fail to make a material difference in the returns, as the demand for cut roses for decoration is necessarily more brisk during the London season than after its close. The early exhibitions, as shown by our reports, have suffered from the comparative scarcity of blooms, and the prospects of the mid-season and late shows are giving rise to considerable speculation on the part of those who take a keen interest in the competitive aspects of rose culture. Especially is much interest evinced at the time of writing in the National Rose Society's metropolitan exhibition at the Crystal Palace on Saturday, the 22nd inst., and its prospects depend wholly upon the climatic conditions that obtain during the two or three days immediately preceding the date. It is extremely difficult to forecast them with any considerable degree of accuracy. Should the weather be sunny and warm, the exhibition has the promise of being of large extent and high quality, for the slowly-swelling buds are remarkable for their size and solidity. On the other hand, should the temperature continue low, some exhibitors from the midland and northern counties may not be able to put in an appearance, while others will be unable to enter in so many classes as they have done in previous years. While there is room for some doubt as to the extent of the Crystal Palace, there is none as to the quality of the blooms that will be staged, for both dark and light varieties have the promise of attaining a high degree of development. Roses should be exceptionally well shown during the following week, and the National Rose Society's northern exhibition on the 13th inst. should be the finest of the northern gatherings of late years.

Cultural Developments in Vegetables.—The conversion of various popular roots of to-day from an utterly useless and annual form into very valuable food roots and biennials by the simple process of selection and cultivation, which were so interestingly pointed out by the Rev. G. Henslow in his recent lecture at Chiswick, is entitled to rank amongst the most remarkable things that have occurred in connection with gardening. No one wishes to depreciate the labours of the florists of the past or present day, but hardly too much praise can be given to those patient cultivators of a past age who eventually evolved for their own and future generations of consumers such splendid roots as carrots, parsnips, beets, turnips, radishes, and others from wild plants that previously had no food value whatever. The carrot, said Mr. Henslow, was originally a mere woody-stemmed annual, now it is a world-wide grown succulent root, and of a biennial nature. Sometimes seedling plants exhibit the original by bolting off to flower the same season, but these are exceptions that prove the rule of conduct. As a biennial, the beet, which was a perennial with a hard woody stem also, now employs all its energies in the production of a massive fleshy root, and cannot produce seed the same season. But with this, as with all other similar roots, this fleshy matter is a store of food for the flower and seed producing stem, and the seed product of the biennial plant far exceeds what it could have produced as an annual. The potato was formerly a free seed-producing plant. Now its energies are devoted to the production of tubers, latent stores of buds of a starchy nature; hence we have to largely depend on these root buds for propagation and perpetuation of this important root. How full of interest is information concerning plants we always grow and yet know so little about.

American Fruit Crops.—At this season of the year there are always demands for authentic information regarding fruit prospects, in America as well as in this country. Western New York is a vast fruit garden, and the crop it produces has much to do with the market supplies. Mr. S. D. Willard, of Ontario County, N.Y., writing to an American contemporary on fruit prospects, says that the outlook for the fruit growers is not satisfactory. Currants promise a light crop except Pres. Wilder. Gooseberries are good, with a tendency to mildew. Lombard, Bradshaw, and some other plums are a failure; Reine Claude and a few other sorts promise a partial crop. As a whole, plums in that region are about one-third last season's product. Bartlett pears are scarcely more than one-third of a setting. Kieffer shows up best of any variety. Cherries are not equal to the crop of 1897, but afford a fair showing. Apples promise well, but it is yet too early to venture an opinion as to the result. The Tent caterpillar, in its ravages, exceeds anything he has ever known. They have for several weeks been engaged in destroying its nests by a systematic weekly effort, and have handled nearly 2,000 of them, while with the masses neglect has been the order of the day, and the result remains to be seen. The curl leaf has worked injury to the peach orchards beyond description, in many instances entirely defoliating the trees, with a probability of greatly reducing the crop.

New Late Peach.—The introduction of a new peach of the highest quality and ripening late in the season is an event of sufficient importance to fully justify the interest created by the remarkably fine variety submitted to the R.H.S. Fruit Committee by Messrs. T. Rivers and Son on Tuesday last. The fruits are of the largest size, pleasing in colour, and richly flavoured. The lateness of the variety is indicated by the fact that pot trees, started in the forcing house in December with Cardinal and Early Rivers nectarines, are now ripening their crop, while the fruit of the two nectarines was gathered in April and May. This handsome peach has been named Thomas Rivers, and has the promise of proving in every way worthy of the distinguished name it bears. It is described as producing good crops, and ripening perfectly in an unheated structure.

A New Hybrid Tea Rose.—The new hybrid tea rose exhibited by Messrs. Paul and Son at Westminster on Tuesday, under the name of Una, is one of the most interesting additions that has yet been made to the group. Mr. George Paul informs us that it was raised from a cross effected between one of the tea roses and the Dog Rose (Rosa canina), the latter being the seed-bearing parent; we did not learn the name of the variety used as the pollen-bearing parent, but from a careful examination of the specimens exhibited we are inclined to the opinion that it was Gloire de Dijon. The variety is of vigorous habit, some of the growths having obtained a length of twenty-five feet, and the flowers are semi-double, about four inches in diameter, and of a rich cream colour with delicate buff tint. Una is deserving of attention for its beauty, and is of much interest in indicating the possibilities of rose hybridisation.

Sicily Fruit Trade.—Fruits form the most important of the foreign export trade in Sicily, which is now in a very depressed condition. The unsatisfactory state of the fruit trade may, in the opinion of the British Vice-Consul at Messina, be attributed principally to three causes, which are likely from their very nature to continue to operate unfavourably in checking the fruit exportation of Sicily unless removed or neutralised by more liberal regulations, new outlets, and sounder principles of trade. They are, first, the recent excessive protective duties decreed by the Government of the United States, against the importation of lemons and oranges from abroad. Secondly, the somewhat sudden stoppage of advances on the price of the fruit on the part of foreign purchasers to Sicilian vendors, a system which, however plausible, became in practice such a fruitful source of dishonest dealing, that, taught by dearly bought experience, the repeatedly victimised British and American firms have at last resolutely declined to deal with other than well-known houses, who neither require nor expect advances. Thirdly, the extension of the orange and lemon plantations of California, Florida, Mexico, and Jamaica, not to mention those of the British colonies of Queensland and Victoria. These facts are more than sufficient to account for the decline of the Sicilian fruit market, and hence the consequent falling-off in the number and cargoes of British shipping at this port during the year 1897.

Culture of the Globe Artichoke is an important and ever-increasing industry in Catania, as farmers find that certain lands in the plain, which are well irrigated by the Limeto Canal, give better returns than if sown with wheat. Some 1,600 acres are put under such cultivation, and produce from 12,000 to to 13,000 artichokes per acre, which fetch from 25s. to 30s. per 1,000, on the spot, December 1 to the end of January. During this period the plants produce about one-fifth of their total production, and these early artichokes are shipped off to the continent of Italy and Austria, whilst the later artichokes are consumed in the island, and naturally fetch lower prices.

Rose Conference at Bath.—The conference held by the National Rose Society in conjunction with its southern exhibition at Bath, of which we gave a full report in our issue of the 25th ult., proved a decided success, and fully justified the new departure by the society. There was a good mixture of rosarians, and the admirable paper by Mr. W. F. Cooling on "Rose Pruning" created much interest. Mr. Cooling suggested that hybrid perpetuals should be pruned according to the vigour of the varieties, the strong growers to be cut back to five or six buds, and the others to the second or third bud. Garden roses, on the other hand, should have but little pruning, and, in Mr. Cooling's opinion, they were at present pruned much too severely. He suggested that, instead of their being pruned in accordance with orthodox methods, the growths should be thinned out at the close of the flowering season to allow room for the young growths to attain their full development and become well ripened. In the autumn or spring the flowering shoots should be bent or pegged down without being shortened or having more than the tops taken off, as when this was done they became wreaths of roses during the season of flowering. Mr. Pemberton expressed an opinion that the pruning of roses was imperfectly understood, and said the knife was used much too freely, more especially in the case of the hybrid teas. Mr. E. Mawley, Mr. W. J. Grant, Mr. A. H. Gray, and Mr. Landon also took part in the discussion, which proceeded briskly and was of exceptional interest.

Potatos in Scotland have been greatly benefited by the recent genial weather. The sales of early potatos in the Ayrshire district have been satisfactory for the growers, and for the most part show an advance on the prices current at the same period last year. A beginning was made about a fortnight ago in the lifting of the early crop, and last week potato digging became general in Ayrshire. The later fields give promise of a good crop, and the stem of the potato is very much stronger than last season. The tonnage of the later crops will, of course, depend on the weather of the next two months. Any growers who had the courage to keep potatos of last year's growth till this time are reaping their reward in higher prices than have been current during the season. The early potato sales were not affected by the potato "boycott," as co-operative bids were not refused. In fact, the potato "boycott" has turned out a miserable fiasco, and even the merchants in favour of the movement at first are now deserting its ranks on seeing where the principles of a "boycott" are likely to lead them.

The Value of Lime in the garden has been frequently referred to in these pages, more particularly for the purpose of sweetening soils that in consequence of the liberal application of stable and farmyard manures have become more or less sour, and for checking the development of fungi injurious to vegetation. In America liberal applications of lime to the soil have been found useful in checking the bacterial disease of the tomato, which annually inflicts heavy losses in the United States, and occasionally does considerable damage to crops grown under glass in this country. The investigations that have been made fully justify the views of those who regard calcareous matter as an essential part of the compost for indoor crops of tomatos.

English-grown Pineapples are now so sparingly represented at public exhibitions that the splendid fruits of The Queen exhibited by Mr. M. Gleeson, of the Warren House gardens, Stanmore, at the Royal Horticultural Society's meeting on Tuesday came as a pleasant surprise. Nine fruits of an average weight of five and a-half pounds were staged, and they were distinguished by their finish and perfect maturation as well as for their weight. In admiring these excellent examples it was impossible to restrain a feeling of regret that public taste had so far become perverted as to prefer Smooth Cayenne of foreign production to the richly-flavoured Queen of home growth. It is no unusual occurrence to be told that the St. Michael's pines are equal to the best grown in England; but almost invariably those who make these assertions have not tasted a home-grown Smooth Cayenne, which, by the way, is decidedly inferior to fruit of The Queen when ripened during the summer season.

Potato Sets.—A recent bulletine of the Louisiana Station gives some interesting reports from the horticultural department, regarding the growth and culture of various vegetables and fruits. With regard to potatos, it is stated that formerly only Eastern potatos were used for seed in the South, but now it is found that the southern second-crop potato is really superior as seed. One trouble in the past has been the difficulty of securing a stand with the second crop, as the dry weather in August prevented an early growth. The following plan has been found to obviate this difficulty: After the first crop of potatos has been thoroughly dried in the shade, they are taken the day before planting and placed in a tub of water, where they remain over night. Then they are cut into pieces and permitted to fall back into the water; removed directly out of this water and planted in a deep furrow, covered heavily with well pulverised earth. After planting they are carefully watched; as soon as they sprout the excess of earth is removed, either with a board or with a hoe. Handled in this way it is said that many farmers are making a great success with second-growth potatos, and not only growing their own seed for the following spring, but supplying a profitable local demand.

Messrs. Lindens' Establishment at Moortebecke was visited by His Majesty, the King of the Belgians, on Thursday, June 23, and under the guidance of Mr. Lucien Linden, he devoted nearly five hours to the inspection of the many objects of interest. His Majesty was especially interested in the large collections of cattleyas and odontoglossums, and more especially in the many fine forms that were then in bloom. In walking through the several houses, the King evinced the warm interest he takes in matters of horticulture, which forms such an important industry in Belgium, and expressed his appreciation of the admirable arrangement and perfect condition of the several departments. On leaving, his Majesty heartily congratulated M. Lucien Linden on the establishment he has created, and maintains in so efficient a manner, observing "C'est un establissement et des cultures modèles."

Application of Insecticides.—In the course of an exhaustive paper on insects injurious to plant life, Professor J. B. Smith gives much useful advice on the methods of applying the various insecticides, and directs special attention to the greater effectiveness of the latter when applied in the form of an invisible spray. With reference to this matter the author says that to understand just how contact poisons work on insects we must consider for an instant their general anatomy, and particularly their mode of breathing. Insects have no closed system of blood circulation such as we find in higher animals. There is only one long tube more or less divided into chambers and this acts as a pump, forcing the blood into the head cavity, and from there it makes its way through the body among the muscles and viscera until it finds its way back into the pump. Neither do insects have lungs, and yet they require air to purify the blood, for life is essentially the same in them as in man. Therefore a modification in structure has occured, and the air is carried in flexible tubes to all parts of the body. These tubes go everywhere where the blood goes, and they open along the sides of the body—never on the head. An insect breathes, then, along the entire length of each side, and there may be as many as twenty openings, although there are usually less. Ordinarily contact poisons act through these spiracles or breathing pores, though sometimes, on soft-bodied slugs we can use caustics. In the greenhouse, however, these caustics would be almost as dangerous to the plants as to the insects, hence the other materials which act through the spiracles must be employed. This leads naturally to another very important point that must be considered, and whose neglect accounts for many failures. Most insects have the bodies either pubescent, very polished, or powdery, or somewhat waxy on the surface, so that they shed water quite readily, and any application of a coarse spray simply rolls off without effect. So also the spiracles or breathing pores are furnished with protecting screens of hair or bristles which serve to keep out foreign material. A large drop of water or watery decoction has not the least chance of penetrating through this protection, and the application is useless as an insecticide. Use the same mixture with an atomizer, and the result will be quite different. The minute globules adhere readily to the insect, because they are not heavy enough to roll off; they penetrate between the protecting screen or under it, and enter the body with the in-breathing. Therefore, when the tobacco or any other watery mixture is to be applied, it should be put on in as fine a spray as can be secured. For cleaning indoor plants of all save scale insects, a tobacco soap-suds when applied with an atomizer is, in the opinion of Professor Smith, almost perfect. Soap-suds have an advantage over more watery mixtures, because they adhere better. The insect surface that will shed a droplet of water will retain and become covered by one of soap-suds—hence a tobacco soap is better than a tobacco tea, though neither is equal to a tobacco smoke or tobacco vapour.

The Queen's Diamond Jubilee Cup for Roses.—Last year Her Majesty the Queen presented a handsome challenge cup to the Windsor Rose Society, in whose affairs she takes much personal interest, to be offered for competition in the class considered most suitable by the executive. In view of its intrinsic value, and the exalted position of the donor, the committee offered the cup as the premier award in the class for forty-eight blooms, and imposed the condition that it should be won twice before becoming the property of the exhibitor. At the society's exhibition in 1897, the competition for the challenge cup was very severe, as becomes its importance, and in the result, Mr. B. R. Cant, of Colchester, was the winner, staging a magnificent collection. At the exhibition for the current year, held on June 25, there was again a brisk contest, and Mr. B. R. Cant was again the winner, and is therefore now able to assign the cup a permanent position amongst his many other rose trophies. The blooms staged were distinguished by their large size, extreme freshness, and high finish, and the varieties of which the collection consisted were A. K. Williams, Susanna M. Rodocanachi, Medea, Annie Laxton, Ulrich Brunner, Madame Cusin, Duchesse de Vallombrosa, Violette Bauyer, Madame Hoste, Duke of Edinburgh, Anna Olivier, Jean Ducher, General Jacqueminot, Catherine Mermet, Cleopatra, Gustave Piganeau, Ethel Brownlow, Golden Gate, Helen Keller, Maréchal Niel, Marie van Houtte, Jean Soupert, Princess of Wales, The Bride, La France, Souvenir d'Elise Vardon, Niphetos, Le Havre, Souvenir de S. A. Prince, White Lady, Madame Delville, Souvenir d'un Ami, Caroline Testout, Madame Gabriel Luizet, Duchess of Albany, Magna Charta, Kaiserin Augusta Victoria, Marguerite Boudet, Lady Mary Fitzwilliam, Marie Baumann, Mrs. W. J. Grant, Marquise de Castellane, Viscountess Folkestone, Mrs. John Laing, Dupuy Jamain, Mrs. Sharman Crawford, Marquise Litta, and Prince Arthur. We give herewith an illustration of the handsome cup, and congratulate Mr. Cant on his success in winning it.

Vanilla Culture in Seychelles has undergone considerable extension of late years, and the growers are obtaining good prices for the pods. Mr. H Cockham Stewart, the Administrator, states in his annual report that the vanilla crop of last year was the largest that has ever been grown in Seychelles—63,000 lb. This large output of vanilla has given a fresh impetus to its cultivation and a very large quantity has been planted during the past year. When the country is opened up by means of roads, as will shortly be the case, many acres of vanilla land will no doubt be taken up which at present are uncultivated, owing to the difficulty of transport. In one district alone, the Mare aux Cochons, there are about five thousand acres of virgin soil well suited to vanilla. The cultivation of vanilla only dates back to about twenty years ago, and is only now beginning to be thoroughly understood. The Mexican system of allowing the vines to grow under trees nearly wild is almost universally adopted at present, and is described as a decided improvement on the old system of training the vine on artificial supports. Most of the land in Seychelles is in the hands of private owners, and it is difficult to estimate its cost. It has been stated that landowners are reluctant to part with their land, but Mr. Stewart does not apprehend much difficulty on this score provided that purchasers are prepared to pay ready money. There is some land belonging to the Government well adapted for vanilla cultivation which can be leased for periods varying from nine to twenty-one years. Seychelles is unfortunately almost a *terra incognita*, and the Administrator is of the opinion that if the scores of young Englishmen who leave the mother country year after year for other lands knew of it, they would give the preference to an English colony which offers advantages not to be met with elsewhere for the investment of small capital, say £1,000.

Florida Pineapples.—The crop of pineapples in Florida, although below the average, is better than was at one time expected, and is estimated at between 150,000 and 160,000 crates. The fruits are of good quality, and the prices have increased sufficiently to compensate for the deficiency in numbers. The fruits are smaller from the Florida Keys, is smaller and not so richly flavoured as that from the Indian River districts, and the market for the latter is being materially inspired by the shippers marking their Keys fruit Indian River.

Flora of Simla.—Since his retirement from active service, Colonel Sir Henry Collett has devoted much of his time to preparing at Kew a Flora of Simla and the adjacent district. Simla itself is situated at an elevation of about 7,000 feet, and the area included gives a range of altitudes from 3,000 feet in the valleys to 10,000 feet, the summit of Huttoo, hence the vegetation is highly diversified. Including ferns and a few other vascular cryptogams, the total number of species is estimated at about 1,500. The work, which is well advanced, is to be illustrated by 200 figures in the text, all uniformly half natural size, reduced from drawings, by Miss M. Smith, of natural size. Sir Henry has, we learn from the *Kew Bulletin*, presented the first portion of the original drawings to Kew.

Esparto Grass to the extent of 8,416 tons was exported from Carthagena in 1897. This is the grass so largely used for making high-class paper, and it is pleasing to note that the whole export came to Great Britain. The 1897 shipments were 1,245 tons in excess of those of 1896. Aguilas exported 21,950 tons of esparto to Great Britain, but the 1897 crop was 10,000 tons below that of 1896, owing to the lack of rain throughout the growing season.

ROYAL HORTICULTURAL SOCIETY.

THERE was a splendid show at the Drill Hall on Tuesday and if one has any regret with regard to it it is that amateur exhibitors were so few. Nearly the whole of the exhibits were from nurserymen, and some were very large. Carnations, pæonies, hardy flowers generally, ferns, roses, and orchids were the chief subjects. Fruit was well shown though not extensively, and the pineapples were exceptionally good.

ORCHID COMMITTEE.

There was a goodly display of orchids, but novelties were not so numerous as usual. Messrs. Hugh Low and Co., Bush Hill Park, Enfield, had a lovely display of cattleyas, mostly beautiful forms of C. Mossiæ and including several exquisite white segmented varieties. Among these were staged good plants of Cypripedium Curtisi, Epidendrum prismatocarpum, Oncidium crispum, O. macranthum, and Lælia grandis tenebrosa. This firm also showed two fine new cypripediums, C. I'Ansoni and C. Mrs. Reginald Young, described elsewhere.

Messrs. B. S. Williams and Son, Holloway, staged a fine lot of orchids, showing excellent forms of Cattleya Mossiæ, and numerous Lælio-cattleyas, including L.-c. Canhamiana, L.-c. Edouard Andre, the latter a hybrid between L. purpurata and C. Mossiæ, a bold purple-lipped orchid of great beauty, Cochlicda Noetzliana, Thunia Marshalliana triloba, Aerides expansum, and odontoglossums were all good: Cattleya Breanteana, rich purple, was an attraction. A small group from Messrs. Stanley-Mobbs, and Ashton, Southgate, contained many interesting orchids, such as Mormodes unicolour, Oncidium Lanceanum, Odontoglossum crispum, Dendrobium Bensoniæ, Lælia tenebrosa, and a good form of Cattleya Mendeli.

The contribution of Messrs. J. Veitch and Sons, Chelsea, was extensive, well-arranged, and contained many beautiful orchids. Especially fine were Lælio-cattleya eximia, L.-c. endora alba, L.-c. Hippolyta, L.-c. Canhamiana alba, Disa Kewensis, the brilliant Epiphronitis Veitchi, a beautiful dark-lipped Lælia purpurata, forms of Cattleya Mossiæ, Dendrobium Dalhouseanum, D. Dearei, and Vanda cristata superba, with many others of note, not forgetting the hybrid Odontoglossum excellens, and Phalænopsis Ludde-violacea.

Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., brought the wonderful creamy and crimson Stanhopea Rodigasiana, a remarkable species; Odontoglossum excellens Sanderæ, a beautiful orchid; Cattleya gigas and Habenaria rhodocheila. Mr. W. H. Young, grower to Sir F. Wigan, East Sheen, sent an exceptionally handsome form of Lælio-cattleya Canhamiana, named Joyce Wigan. Mr. A. Wright, gardener to T. McMeekin, Esq., Falkland Park, Norwood, sent a fine flowering plant of the Falkland Park var of Cypripedium Rothschildeanum. Mr. W. Pope, gardener to J. P. White, Esq., The Willows, Twyford, sent a specimen of Cattleya guttata Leopoldi, a splendid full spike of purple and red-green flowers. Mr. J. Hudson, gardener to L. de Rothschild, Esq., Gunnersbury House, Acton, sent Mormodes unicolor.

FLORAL COMMITTEE.

Liliums in considerable variety were shown by Messrs. R. Wallace and Co., Colchester; the firm staging L. bellruum in quantity, L. auratum L. umbellatum, L. Henryi, L, Dalhansoni, L. Hansoni, L zovitzianum, etc. There were shown quite naturally in baskets and pans, Calochorti, brodiæas, iris of sorts including I. Monieri, one of the pesudo-ocorus group, a fine yellow and a new Japanese pæony, a single form named P. albiflora streala, and apparently of little worth in its present condition. A charming new gladiolus of the Colvillei type was shown by Messrs. Sutton and Sons, Reading. It is named Queen of the Roses, and is of a pleasing and lovely shade of pinkish-rose; the flowers are large and the spikes robust and branched; the strongest grower of its group. The Reading firm also showed a collection of well grown petunias, all exquisitely frilled and fringed double varieties, representing a wide range of colour; many of the freely flowered specimens were but five months old from seed sowing.

Messrs. Kelway and Sons, Langport, Somerset, contributed a magnificent group of their specialities—pæonies, delphiniums, and gaillardias; the creamy-white delphinium, Beauty of Langport, was an attraction, but not nearly so effective as the rich violet Imperial Majesty, and the lighter blue King of the Delphiniums; Oceana is a grand deep violet double flowered delphinium. The gaillardias were superb, and notable varieties were Rose of Torridge, gold; Advance, scarlet, gold edged; Cleopatra, with tubular golden ray florets; Fleur de Lis, a fine combination of crimson-scarlet and gold; Primrose Dame, a descriptively named form. Aquilegias and campanulas also came from Langport. A handsome and effective group of plants, prettily arranged by Mr. E. Beckett, gardener to Lord Aldenham, Aldenham House, Elstree, was ever the centre of admiring visitors. Large arecas towered above stately liliums—L. speciosum and L. Harrisi—tuberoses, crotons brilliantly coloured, dracænas in many graceful varieties, Asparagus plumosus, kalosanthes, gloxinias and odontoglossums, arranged with dwarf ferns as a carpeting, and isolepis as an edging.

Mr. H. B. May, Edmonton, had a first-rate group of maidenhair ferns, the display including not less than ninety species and varieties of adiantum; notable examples that have originated at Edmonton were A. fasciculatum, A. cuneatum grandis, A. elegantissima, A. elegans cristata (a charming plant), A Regina, A. cognatum, an elongated A. scutum, A. plumosum, one of the very best for general use, and A. Hemsleyanum, one of the most graceful of maidenhair ferns and the best of the A. fragrantissimum seedlings. Hardy trees and shrubs from Messrs. J. Veitch and Sons included the lovely Styrax japonica, Robinia hispida, Indigofera decora alba, Hedysarum multijugum, Magnolia Watsoni, and the pretty Philadelphus coronarius erecta. Messrs. Barr and Son, Covent Garden, staged sheaves of fine delphiniums, irises in great variety, various liliums, poppies, pæonies in abundance, Heuchera sanguinea, pinks, veronicas, &c., and a fine form of Inula glandulosa. Messrs. G. Jackman and Son, Woking, showed delphiniums in variety, sweet peas, Eryrigium alpinum, pinks in variety, various lychnis, tritomas, liliums, campanulas, &c.; we noted several large bunches of the deep crimson single pæony Eclat. Campanula mirabilis, with palest blue flowers, is a meritorious hardy plant shown by the Messrs. Jackman.

A very bright and fragrant display of roses was arranged by Messrs. William Paul and Son, Waltham Cross, who had standard specimens of Medea, Enchantress, and other roses, also neat pot plants of Caroline Testout, Belle Siebright, &c The baskets of blooms were very fine, especially the displays of Victor Verdier, Gloire Lyonnaise, Grace Darling, W. A. Richardson, Blanche Double de Courbet, La Fraicheur, Safrano, Madame P. Pernet, Camoens, Enchantress, Empress Alexandra of Russia, Antoine Rivoire, White Lady, Queen Mab, Violette Bouyer, &c.—a glorious display of beautiful roses. Ten remarkably well grown plants of Phænocoma prolifera Barnesi served to show how grandly Messrs. Balchin and Sons, Hassocks, Hove, and Brighton, can manage these and any other plant they take in hand; the heads of the plants were a mass of rich, rosy flowers.

A brilliant bank of begonias came from Messrs. H. Cannell and Sons' Home for Flowers at Swanley, Kent; none but single varieties were staged on this occasion, and all were remarkable for their robust habit, sturdy flowers, and stout stems; the blooms were of great size and substance, especially those of Mrs. Herbert Frazer, salmon; Lady Lonsdale, old gold; The Lady, white; Mrs. Budley Leigh, rose; Brilliant, scarlet; Miss A. Stewart, soft yellow; and King of Begonias, bright orange scarlet. Messrs. Paul and Son, Cheshunt, put up a splendid bank of pæonies, showing all the best varieties, both single and double, in large bunches. Some roses, too, were shown by the Cheshunt firm, including Royal Scarlet, a brilliant single rose; and Rev. Allan Cheales, a fine rose-coloured rose of much sweetness.

A grand lot of pæonies came from Messrs. J. Veitch and Sons, Chelsea, who occupied over half the length of one table with these handsome flowers; Potsi superba, crimson; Maria Kelway, blush; Emile Lemoine, white; Rubens, deep red; and Mons. Deschamps, rose, were notably fine varieties. From the same firm came an extensive display of well-grown campanulas, representing the garden form known as C. medium calycanthemum. There were a fine variety of colours in this group, varying from white to rose and deep blue. A box of the javanico-jasminiflorum rhododendrons was most effective, and contained trusses of Maiden's Blush, Brilliant, Amabilis, President, Princess Frederica, Luteo-roseum, Indian Chief, and other beautiful forms. In competition for the Sherwood Cup, Messrs. J. Veitch and Sons had a large collection of annuals and biennials, staging campanulas. wallflowers, gypsophylla, schizanthus, sweet sultan, sweet peas, rhodanthes, linarias, antirrhinums, &c. They were the only competitors on this date. Sweet peas were largely shown by Mr. F. G Foster, Brockhampton Nursery, Havant, Hants. The bunches were very good for thus early in the season, and the colours were characteristic. Little Dorrit, Cardinal, Meteor, Lady Nina Balfour, Royal Rose, Salopian, Lady Grizel Hamilton, Mrs. Eckford, Mars, and Chancellor were among the best and newest varieties on view. The collection was a good one.

Mr. W. Howe, gardener to Sir H. Tate, Park Hill, Streatham, sent an inflorescence of Chamærops Fortunei, produced out of doors at Park Hill; it was an interesting male inflorescence, with yellowish flowers. Mr. Reid, Beckenham Hill Nurseries, showed small specimens of a number of hardy trees with coloured foliage. Mr. B. R. Davis, Yeovil, showed a splendid lot of tuberous begonias. Both double and single varieties were remarkable for the wonderful size and substance of the blooms; Orion, Miss L. Gott, Mrs. Herbert Fowler, Venus, R. B. Parsons, a lovely rose-pink; Florence Nightingale, white; Thunderer, red; and Miss Stothert, pale yellow, were all magnificent double varieties. Messrs. H. Cannell and Son, Swanley, presented three finely-coloured and large specimens of Lavatera arborea variegata.

Mr. W. Norman, gardener to the Marquis of Salisbury, Hatfield, put up a fine display of Malmaison carnations, small plants, but beautifully grown, and carrying an abundance of rose-pink blooms, large, full, and deliciously fragrant. A splendid bank of carnations was shown by Mr. C. Blick, gardener to Martin Smith, Esq., Hayes, Beckenham. This group contained a superb lot of Malmaison seedlings of fine form and colour. Mrs. Torrens, pink; Lord Welby, red; Lady Guniston, pink and scarlet; Calypso, white; Mrs. de Salgè, scarlet; and Margot, salmon-red were especially fine. A grand yellow carnation was Cecilia, large and full. Many of the varieties gained awards of merit, and are fully described elsewhere. A handsome group of carnations, a small edition of their Temple Show group, was put up by Messrs. W. Cutbush and Sons, Highgate. The principal display was of small specimens of Malmaison carnations, backed by bamboos, but these were relieved by mounds of other kinds, such as Prime Minister, scarlet; Duchess of Fife, blush; The Gift, scarlet; and The Churchwarden, deep scarlet. This was a very fine group. Messrs J. Peed and Sons, Norwood, showed a brilliant lot of carnations, the centre of the group being composed of the deep crimson-scarlet form, named A. H. Measures, this being surrounded by the fine deep rose-coloured variety named Rosamond; a pretty display of freely-flowered plants.

FRUIT AND VEGETABLE COMMITTEE.

The principal exhibit before this committee was that of nine magnificent Queen pines shown by Mr. Gleeson, gardener to A. von Andre, Esq., the Warren House, Stanmore. These fruits were finely finished, and averaged over five and a-half pounds each, consequently these were the heaviest set of this variety ever shown before this committee. It is a pity that these are the last pines Mr. Gleeson is likely to grow at Stanmore, as their cultivation is being discontinued at that establishment. Mr. J. Hudson, gardener to Leopold de Rothschild, Gunnersbury House, Acton, sent a remarkably good collection of tomatos, showing baskets of Sutton's Dessert, Golden Nuggett, Peachblow, Golden Jubilee, Abundance, &c.; Mr. Hudson also sent some extremely large fruit of Bigarreau de Schreken and Early Rivers cherries; these were picked from the open wall and not from pot trees.

Messrs. T. Rivers and Son, Sawbridgeworth, submitted a magnificent new peach named Thomas Rivers; it is a late variety of great size, and a beautiful colour; fruits were gathered from pot trees that were started in a forcing house on December 20, 1897; Cardinal and Early Rivers nectarines started at the same time were gathered in April and May. Cherry Guigne d'Annonay is a new early cherry, earlier than Early Rivers; it has dark, almost black, fruit, and was shown by Messrs. J. Veitch and Sons. Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, showed some enormous fruits of Royal Sovereign strawberry, produced on plants grown as annuals. Mr. J. R. Rolfe, Stanford-le-Hope, Essex, sent a splendid lot of tomatos, the variety being named Rolfe's Challenge, a fine smooth tomato of rich colour.

MEDALS AWARDED.

Silver-gilt Knightian to Mr. Gleeson, gardener to A von André, Esq., Stanmore, for pineapples.

Silver-gilt Flora to Mr. Beckett, gardener to Lord Aldenham, Elstree, for group.

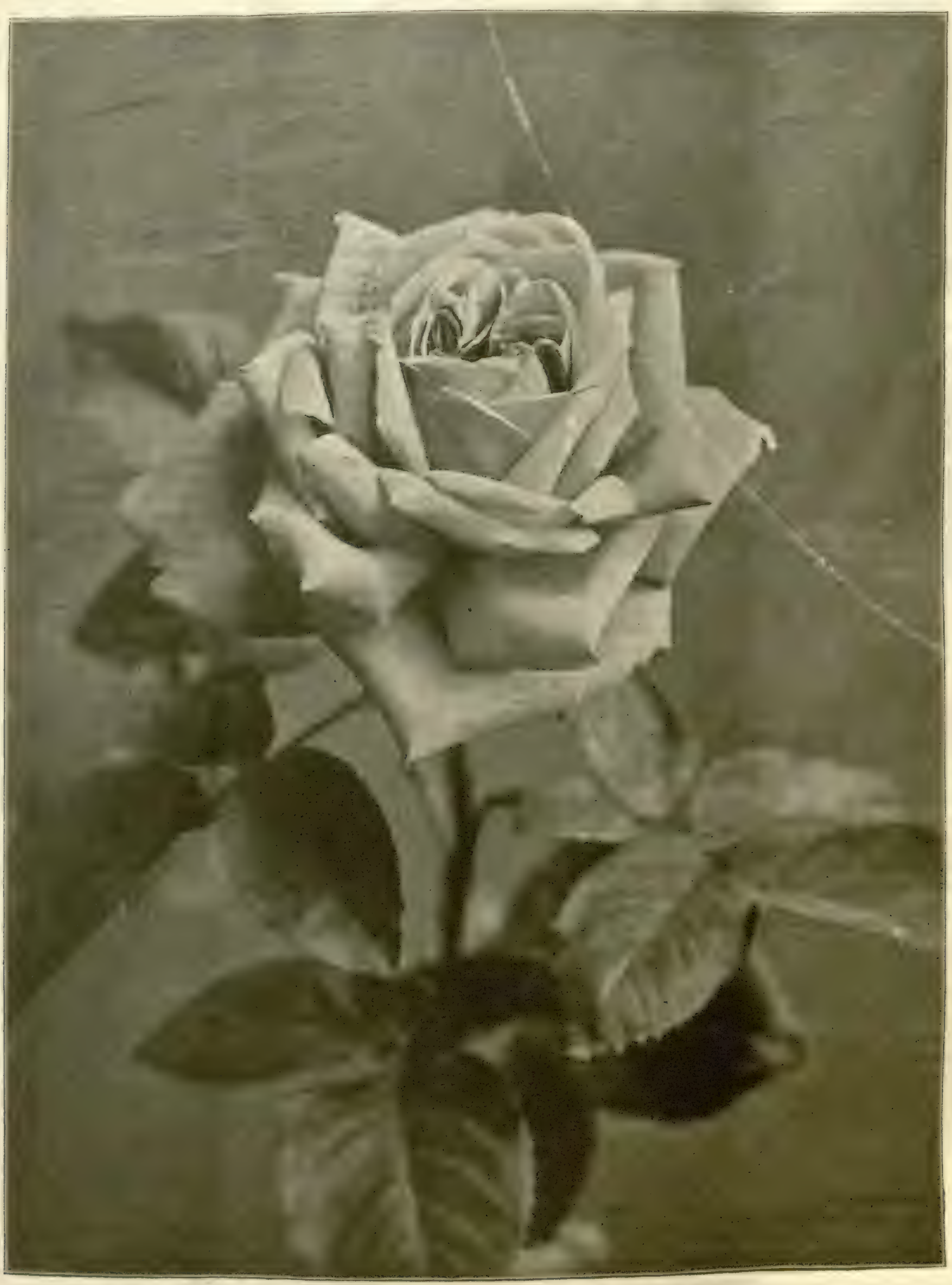
Silver-gilt Banksian to Mr. Hudson, gardener to L. de Rothschild, Esq., Gunnersbury, for cherries and tomatos; Mr. H. B. May, for ferns; and to Mr. C. Blick, gardener to Martin R. Smith, Esq., for carnations.

Silver Flora to Messrs. J. Veitch and Sons, for orchids; to Messrs. H. Low and Co., for orchids; Messrs. Kelway and Son, for pæonies, &c.; Messrs. W. Cutbush and Son, for carnations; Messrs. J. Veitch and Sons, for Canterbury bells; and to Mr. Norman, gardener to the Marquis of Salisbury, for carnations.

Silver Banksian to Messrs. B. S. Williams and Son, for orchids; Messrs. Stanley-Mobbs and Ashton, for orchids; Mr. B. R. Davies, for begonias; Messrs. R. Wallace and Co., for liliums and irises; Messrs. J. Peed and Sons, for carnations; Messrs. Paul and Son, Cheshunt, for pæonies, &c.; Messrs. Barr and Sons, Covent Garden, for hardy flowers; Mr. J. Hudson, gardener to L de Rothschild, Esq , Gunnersbury House, for water-lilies; and to Messrs. W. Paul and Son, Waltham Cross, for roses.

NEW ROSE—R. B. CATER.

At the time of his death, the late Mr. Henry Bennett left a considerable number of unbloomed seedling roses which represented his latest efforts in cross fertilisation, and contained several varieties of exceptional merit. A portion of the stock was purchased by Messrs. George Cooling and Sons, of Bath, and it is evident they were specially fortunate, for they have already been able to select three varieties for distribution which are generally recognised by rosarians as valuable acquisitions in their several lines of colour. They all belong to the hybrid perpetuals, and the varieties previously introduced are known respectively as Laurence Allen and Bladud, and both have been figured in the GARDENERS' MAGAZINE. Through the courtesy of Messrs. Cooling we are now able to present an excellent portrait of the third of the series which is now being distributed, and has the promise of proving not less valuable than are the other two varieties mentioned. This has been dedicated to Mr. R. B. Cater, a distinguished amateur rosarian of Bath, and it has already obtained a considerable share of attention. The flowers are of large size, globular, and of superb form, and the colour is rich magenta carmine. The variety is undoubtedly one of the finest dark hybrid perpetuals introduced of late years, especially for exhibition, and the Messrs. Cooling may be heartily congratulated on their being able to introduce so valuable a novelty.



H.P. ROSE.—R. B. CATER.

NOTES FROM IRELAND.

AMONG the principal hardy flowering shrubs this season Choisya ternata has flowered splendidly, in fact better than I have seen it for years. Cytisus scoparius Andreanus was charming with its mass of bicoloured flowers. Double cherries flowered well, as also have yellow and white broom, lilac, scarlet rhododendrons, laburnums, and hawthorns. A new acquaintance among deciduous flowering shrubs I have made this year is Amygdalus nana Georgica, a beautiful double white daisy-like flower. The shrub is very free flowering throughout the month of May. Cytisus ratesbonensis is another free flowering shrub in season at the same time. This is somewhat after the style of Andreanus, but paler in colour. Dodecatheon Jeffreyanum is doing exceedingly well here, producing splendid heads of red flowers on strong stalks, fully twenty inches high. I saw one of the prettiest sights a short time since that I have seen for a long time, viz., a shrubbery completely covered with a ground work of woodruff (*Asperula odorata*) in full bloom; it was like a bed of snow. Whether it will injure the shrubs or not remains to be seen; but both woodruff and plants were in the midst of health. Among other subjects worthy of notice may be mentioned Asphodelus albus and A. luteus. Another very pretty feature noticed in the same garden as the woodruff was an edging of thrift (*Armeria maritima*); this was a mass of lilac flower, about six inches high. The walk under notice was a very sunny one, and was formerly, I believe, a gravel pit; in any case it appeared to be the very place for the thrift. Lily of the valley flowered very indifferently with me this year. A charming yellow primula which grows here to a height of eighteen inches is P. luteola. Roses on walls are flowering splendidly; all the monthly or China roses are a mass of flower in beds; a few tea varieties are expanding in the open garden, while the hybrid perpetuals promise a good return in due course. Masses of Mrs. Sinkins pink are charming now, filling the air with their delicious perfume. Double rockets, iris in variety, single and double pæonies, day lilies, St. Bernard's and St. Bruno's lilies are making up the bulk of hardy herbaceous subjects yet in flower. Rhododendrons are flowering remarkably well this year. The strawberry crop will be a very heavy one. Apples, too, will be a first-rate crop, judging from present appearances. Raspberries are promising well. Cherries, I regret to add, have dropped practically all their fruit. Potatos have recovered from the damage incurred by the frost experienced during the middle of May, and are looking very well now. Peas and broad beans are producing excellent crops. The splendid weather we are now getting after the heavy rains suits all crops admirably. A terrific thunderstorm, lasting the whole day, passed over this locality on the 12th inst., accompanied by a deluge of rain. Agricultural prospects are exceptionally promising; the hay crop is an enormously heavy one, and is being well saved now during the fine weather. Wheat and oats look remarkably well. Mangolds came up weakly, but since the advent of warmer weather they have made good progress. Swedes, carrots, and parsnips are doing first-rate, and grass is everywhere very abundant.

Cretanstown Gardens. R. WELLER.

SETTING MUSCATS.

SOME idea prevails that Muscats must be very carefully handled during the blooming period, and that they must be brushed over with a camel's-hair pencil, fan or rabbit's tail, the latter being about the best for the purpose where its use is necessary. That young vines set better than old ones, is, I believe, taken for granted. This may or may not be correct, but in the free setting of Muscats none of these artificial devices are of material use if the roots of the vine are not healthy and active, nor is it so necessary to have the temperature of the house so hot and dry as is sometimes recommended, but I believe in not having the border really wet till after setting. At this time, they should have the first good soaking with tepid liquid manure, as this will at once start them with that vigour so necessary in Muscat growing—if the vines are healthy. I find a good and, perhaps, the best way to set them is to gently spray them with soft water from a syringe just before closing time, say, at two p.m. With this carefully done they set like Black Hamburgh. This spraying process may be done several times with distinct advantage, inasmuch as it clears away all rubbish and berries which do not set, and are so troublesome to the thinner. When these grapes fail to set well—and afterwards those left sometimes shank—it is a sure sign something is wrong with the roots or border—or both—and when the vine has lost that robust constitution it had better be rooted out and a new start made.

Vines last much longer on some soils than others. I know a large place, not many miles away, which was at one time noted for famous Muscats—they have not one on the place now, either young or old. Upon cold, badly-drained soils grape vines will not last in full vigour as they will on dry, well-drained soil, and all attempts to arrest them in their backward movement oftentimes prove futile. Of course, in their native countries, where they thrive and grow so well outside, they are chiefly planted upon sunny slopes, which are naturally well drained; in fact, it is well known that in several notable cases of old vines here at home the roots have rambled far away from the cultivator's control, and when they do this roots always always travel a long way in search of suitable food. Take any tree, plant, climber, or otherwise, when it has got beyond the limits of the border or flower how rampant they will grow, with much more freedom than when confined, and yet if the plant was given its freedom in the first place it would be ruined possibly.

Grape growing has of late years made rapid strides in this country, and bids to completely outdo all imports. The imported grapes will not bear comparison with our own home-grown produce, either in size or quality. Grape growing has become an important industry unknown to many gardeners, though many are fast becoming to learn the fact that they must produce grapes cheaper. Some of our wealthy proprietors are already alive to the fact that they can buy cheaper than they can produce; so gardeners must look alive that the market growers do not oust him from his position. On the other hand, the grower for market has large, roomy houses, and spares no expense in providing suitable manures for growing a heavy crop, and do not have to strain the vines by keeping the crop about on the vines as in the case of private growers; neither are the vines expected to last for generations. Grapes that cost 20s. per pound twenty years ago can now be bought at 2s. 6d. What a difference! But is it not so with all commodities of the present time?

Compton Bassett. W. A. COOK.

A Blue Geranium.—The public generally have become so imbued with the belief that the well-known variety of pelargoniums are all geraniums that it is very difficult to disabuse their minds of this notion. It does seem as if the appellation geranium would stick for all time. But there seems largely to be ignorance of what proper geraniums are, and although many may know the pretty Robertianum of the hedges to be a crane's-bill, they do not recognise it as a geranium. What, then, will they say on seeing the above heading. Certainly some will remark, and I know there are readers of the GARDENERS' MAGAZINE who are not professionals, that if there be yet no blue dahlia, or rose, or chrysanthemum, at least we have a blue geranium. That, however, is not a blue pelargonium, which seems to be as far off as the rose or dahlia. I have been led to these reflections when recalling the marvellous mass of colour, a deep rich blue, which I saw a day or two since at Messrs. Cannell and Sons' Eynsford seed farm. Here was a huge mass of some ten rods in area literally a solid body of blue flowers, a veritable spectacle, indeed. This big lot of beautiful, hardy plants, Geranium platypetalum, is not grown to produce seed, nor specially for stock, although that is abundant. The leafage in the autumn becomes very varied in colouration and exceedingly beautiful. This fact attracted the attention of an enterprising dealer, who now purchases the whole of the foliage as it ripens off and sends it to market. Apart from that very interesting feature, however, the plant is, indeed, a superb decorative one. I am sure of this, that could it be widely seen as I saw it the other day, it would be in universal request.—A. D.

FRUIT PRODUCTION.

THE question of flower-bearing in its relation to fruit production, which has often engaged the attention of fruit growers, was again raised by "A. D." (page 398). Of the fact stated that the most profuse blossoming periods is often followed by very moderate crops of fruit practical cultivators are generally agreed. In endeavouring to account for it not a few fruit growers seem to have anticipated Darwin's general theory of the struggle for existence. Granted that only a limited amount of protoplasum, sap, or growing force is available on each fruit tree or bush for conversion into fruit, and that these trees or bushes have each ten times or a hundred times the exact proportion is of little moment. If more flowers are presented than it can feed or satisfy, the excess must be starved, or withered, or blighted off. If, as we see, whether or not we have snap frosts or blighting winds or not, there are too many mouths in the feeding ground, and the weakest fall or go empty away. Nor is this all or the worst in the scramble and rush for food, the whole of the fruit may be starved off.

More mouths than food, hence the advocates of bloom bud and open blossoms thinning to fill with greater plenty the mouths left, and save the embryo fruits from sheer starvation. This theory thus stated seems sound enough, but somehow in practice the thinning of flower buds and blossoms has never become popular. Unless the cultivator's selection of fruit buds or blossom left for growing into mature fruits were identical with Nature's the bud and blossom-thinned trees would have fewer fruits than the unthinned. The cultivators need to know Nature's selections and Nature's favourites before he thins off freely, or otherwise, his redundant bloom buds or blossoms. Besides, modern science and practice has shed much new light on the nature and functions of bloom buds and flowers. During their early stages they are not depleting, but filling agencies of probably equal, perhaps more, subtle and potent force than the green leaves. Now, fruit buds or blossoms are by no means hungry animals, jostling and crushing each other for the first and deepest dip into the trough of vital life and being; but rather the powerful auxiliaries of roots and leaves, light and air, heat and moisture, and other stimulating forces that are constantly adding to and enriching the food supplies of our fruits and fruit trees. These coloured blossom buds and blossom perform through all their earlier stages the feeding and other functions of green leaves. Hence, the more of them the more food, and *vice versâ*, unless, indeed, it be contended, that the mere act of expansion of too many blooms may so strain the strength and waste the vital power of the trees as to cause the whole, or most of the flowers, to drop off. But so far as at present known, the mere expansion or development of buds into full-sized open blossom, puts no greater strain on fruit trees than the unfolding of their myriads of usual buds and leaves. And it would be as reasonable to thin leaves as blossom as a certain means of husbanding the vital energies of fruit trees.

As to the strength and vital force expended in these prodigal developments of fruit buds, this is mainly the gift of the previous season, rather than a drain on the resources of 1898 that the vital force needed to expand fruit buds. We have no proof that more is needed to develope these up to the stage of setting, than would be necessary to develope green leaves and yet we find that the buds or blooms, viz., the coloured leaves fall, while the green ones do not, though the foundation of the colour was well and truly laid by the autumnal sunshine of 1897, and could hardly exhaust the vital force or protoplasm of our fruit trees in the early months of the present year.

Of course I am well aware that not a few attribute the failure of profuse blossoming to ensure full crops of fruit, to previous starvation or overcropping. They do not believe in buds or blooms however numerous, starving or crushing each other off, until few or no fruits are left. But on the other hand almost all practical growers are forced to believe through bitter experience that an excessive crop the year before results in a scant or no crop the following season, and at times for two or three years in succession after the crushing crop. At times this scene of total sterility takes the form of a lack of bloom; at others there is an excess of bloom, too weak or imperfect to set or swell into perfect fruit. It is this last phase of partial or complete barrenness that puzzles cultivators the most. We can quite understand how trees over-fruited for one or more years should call a halt and demand a rest to recruit their health, or save or extend their lives. But why the trees should clothe themselves with sheets of flowers to be merely shed or cast to the earth seems inexplicable. Much of the shedding of fruit flowers originates, however, in overcropping or under-feeding. Fruit trees and bushes are endowed with the power of resenting either or both through the shedding of their fruit buds. To Nature the life and health of plants is of more moment than many crops of fruit, and hence their power of recruiting vital force by a spell of sterility. In these modern days of hurry and rush, the thinning of fruit buds and blossoms is too troublesome and uncertain to be generally practised and the fact established, which it is not, that over thinnings would check the plants in their more thorough proceedings in the same direction.

But the thinning of fruits in their earlier stages, that is at any time between their setting, stoning and swelling, to reasonable proportions is the size and strength of fruit trees and bushes, is the surest road to the reaping of annual crops of fruit of the highest quality. As to commercial value one perfect fruit is worth from three to six small, while the smalls may drain the tree of as much vital force as the fine or perfect fruit.

Fortunately, too, for the pockets and powers of cultivators, fruit trees and bushes suffer far more for the want of water than the lack of food. Drought at the roots shrivels off its thousands of blooms and embryo fruits to the trees starved off for lack of sufficient or suitable food in the soil. Water is food as well as drink to our fruits. Neither can they absorb and assimilate the other foods provided without the aid of its solvent properties and qualities.

D. T. FISH.

Fettes Row, Edinburgh.

FORGET-ME-NOTS.

The Forget-me-nots, or Myosotis, form a genus of either annual, biennial, or perennial plants, consisting of about fifty species, all of which are perfectly hardy in this country, and, with few exceptions, being rather showy and easily managed, are well worth growing, while owing to their adaptability several kinds can be bought in any flower market in quantity, either as plants or cut flowers. Some of the rarer alpine species, although of less easy culture, are, owing to their great beauty, never missing in any of the collections of rock plants. The annual and biennial kinds are increased by seeds, which are either sown as soon as ripe in the open on their respective beds, or in boxes or frames, and the seedlings planted out when the plants are sufficiently strong to bear removal. The perennial kinds are increased by cuttings and seeds, and with good varieties the increase by cuttings is the more preferable method, especially if one wishes to keep a certain large and free-flowering form, these being not always improved by seeding.

Myosotis alpestris, with its hairy, dark green oblong-lanceolate leaves, grows about six to nine inches high. It has sky-blue flowers, with a tiny yellowish eye, and these are usually disposed in terminal cymes. Flowering occurs during the spring and early summer, and some varieties have deep blue and others white flowers. It is a very variable species, from the mountains of Europe and Asia. M. rupicola is often given as synonym with M. alpestris, but it is certainly very distinct, differing in its dwarf habit, the plant being scarcely three inches high, and of very slow and compact growth; its flowers are large and sky-blue. It is a native of Scotland, but very local, and is best treated as a rock plant only. It flowers freely during the spring and early summer, and is a strict perennial.

M. lithospermifolia approaches M. rupicola, but is of slightly taller growth, and its leaves are longer and larger; it makes a beautiful rock and border plant, flowering in May and June. A native of the alps of Switzerland. M. palustris has spathulate, deep green leaves, and stems that are usually creeping, and but seldom over a foot high. Its flowers are bright blue, in long cymes, and produced through the spring and summer. Although a common British plant, being found in ditches and near rivers or lakes, it is well worth cultivating. A handful of flowers cut and placed in bowls in sand and water will keep fresh for weeks. The form M. p. semperflorens has been produced by cultivation, and there is also a very fine Continental garden form called grandiflora; this is a beautiful plant, the flowers being very large, and the stems attaining a height of one and half to two feet. It is certainly the best for cutting purposes. M. sylvatica, closely allied to M. palustris, has oblong-lanceolate leaves, and flowers in long racemes; the latter are deep blue, with yellow throat. Flowering occurs in the early spring, and the species is much used for bedding out and pot culture. There are several forms, and all are best treated as biennials.

M. azorica is a very erect-growing species, with stout stems half to one foot high, and large flowers disposed in close racemes; deep indigo blue. It flowers during the summer. The leaves are somewhat oblong or spathulate, hairy, and deep green. A native of the Azores. Excepting in the southern or western part of England, this species is not always hardy, and is best kept in pots and frames during the winter, and planted out in the spring. The form Imperatrice Elisabeth is less tall and compact, with graceful branching habit and deep blue flowers. This is summer flowering. M. dissitiflora has almost erect stems about a foot high; flowers sky blue. It is a very showy and useful perennial, well adapted for bedding and pot culture. M. dissitiflora grandiflora is a garden form with large flowers. This very popular market plant does not do well near large towns. M. dissitiflora elegantissima is a compact growing form with white margined leaves. M. Rehsteineri (M. cæspititia) has a creeping stem, and forms a dense carpet. For damp positions this charming plant cannot be surpassed by any other. In a private garden in Lower Austria I saw it used with great effect to cover a damp bank in a half shady position. When it was in full bloom I could not remember having seen anything more lovely.

M. cæspitosa is biennial, and a very local plant in the meadows of Lower Austria and Switzerland. The bright blue flowers are produced during the summer. M. nana (*Eritrichium nanum*) has a deep-growing woody root; leaves lanceolate-oblong, with short silky hairs, usually imbricated and forming a rosette. Flowers produced in terminal racemes, bright blue, produced during the summer. High Alpine of the Alps of Austria and Switzerland. This is a lovely, much-coveted plant, but, unfortunately, difficult to manage. In my early rambles on the Alps I often came across large groups of it, and seeing these plants growing, as they do, scarcely half-an-inch high, with their beautiful flowers, I used to take considerable trouble to remove them without much injury to the long, woody root, but even then I rarely had the pleasure of seeing them thrive in our garden. In a pure atmosphere and hilly country, such as Scotland, I have no doubt, with a little care, this plant might succeed, but never as a town plant. M. Traversi is of creeping habit, and has lanceolate-oblong leaves, hairy and scabrous, with a brownish shine; flowers yellow, produced freely in summer.

Nearly all myosotis prefer a fairly moist position in a good loamy soil. M. palustrus and allied kinds do best in bogs and shallow water.

G. Reuthe.

Almeria Fruits.—Besides the cultivation of grapes for market, Almeria is capable of growing many other kinds of fruits, such as bananas, custard apples, and Japan medlars; these are at present only grown in sufficient quantity for local consumption, and Vice-Consul Lindsay regrets that more attention is not paid to them. In 1897 the shipment of Almeria oranges was good, though there was a falling off by 7,000 cases in the export of almonds. Pomegranates and [illegible], however, were more largely produced, and cherries appeared for the first time as an article of exportation.

VEGETABLES FOR EXHIBITION.

Spinach.

Few green vegetables are more easy to obtain or more in request during the whole year than spinach (*Spinacia oleracea*), and in many establishments it is expected almost daily. The great secret in keeping up a constant supply is frequent sowings, and, except in November and December, it may be sown every month in the year. Any rich, well-tilled ground will produce good spinach. The first sowing should be made on a south border early in January, or as soon as the weather will allow, and small quantities of seed should be sown every fortnight till the end of October, in rows about fourteen inches apart. Spinach is frequently spoilt by overcrowding, as it soon becomes drawn and weak, and during the summer months quickly bolts to flower, so that, to produce the best results, it should be thinned to four inches apart. After the first two or three sowings on a warm border, single rows between the peas and runner beans is a capital place to produce it, as during the hot, sunny weather the shade from these crops is just what is required. This is my usual practice, and I can recommend its adoption. It is more difficult to produce good spinach during July and August than any other time in the year, and during June, and up to the middle of July, the seed is best sown on a north border, or some cool, shady part of the garden. The next two sowings should be made on an east border. For the winter supply a good breadth should be sown about the middle of August, and again at the end of the same month. Another may be made about the second week in September in an open position of the garden, after which three more small sowings should be made on a south border, making the last the end of October. The weather has so much influence on the growth of spinach that I have never found it safe to trust to one or two sowings. During the winter of 1897—98 our last sowing, made quite at the end of October, proved to be our best plantation during April and May. Very little attention is required after the crop has been thinned, except to run the Dutch hoe between the rows occasionally.

For exhibition purposes spinach is of little value and should only be included in a collection of vegetables of a stated number, as a last resource, but in a miscellaneous arrangement it might very well appear. The leaves should be large, of a good substance and dark green in colour, and should be arranged standing the ends of the stalks in a shallow vessel of water, as it so quickly flags, and this takes off that fresh appearance so essential in spinach. There are now several distinct varieties, many of these being a distinct improvement on the older. I have never seen any advantage in growing the prickly, or so-called winter spinach, as the round seeded kinds are equally hardy and of better quality. One of the best kinds that has lately come under my notice, is The Carter, a fine variety, distinct and of excellent quality. Victoria Round is also very fine, remaining for a much longer period than the older varieties before running to seed, and Sutton's Longstanding Round is also first-rate.

New Zealand Spinach.

New Zealand spinach (*Tetragonia expansa*) is quite distinct from the ordinary kind of spinach, both in growth and flavour, and during the summer months it often proves of much value. The plant enjoys a light porous soil and a sunny position, and requires abundance of water in dry weather. It is distinctly a summer vegetable and is of no use after the first frost. It may either be raised in heat under glass and planted out, or sown in the open the last week in April. It is a fast growing plant and should be sown in rows three feet apart, thinning the seedlings to two feet six inches. When well grown it is an attractive looking vegetable in the kitchen garden. During July, August and September, it should be included in a mixed collection of vegetables on the exhibition table.

Perpetual Spinach.

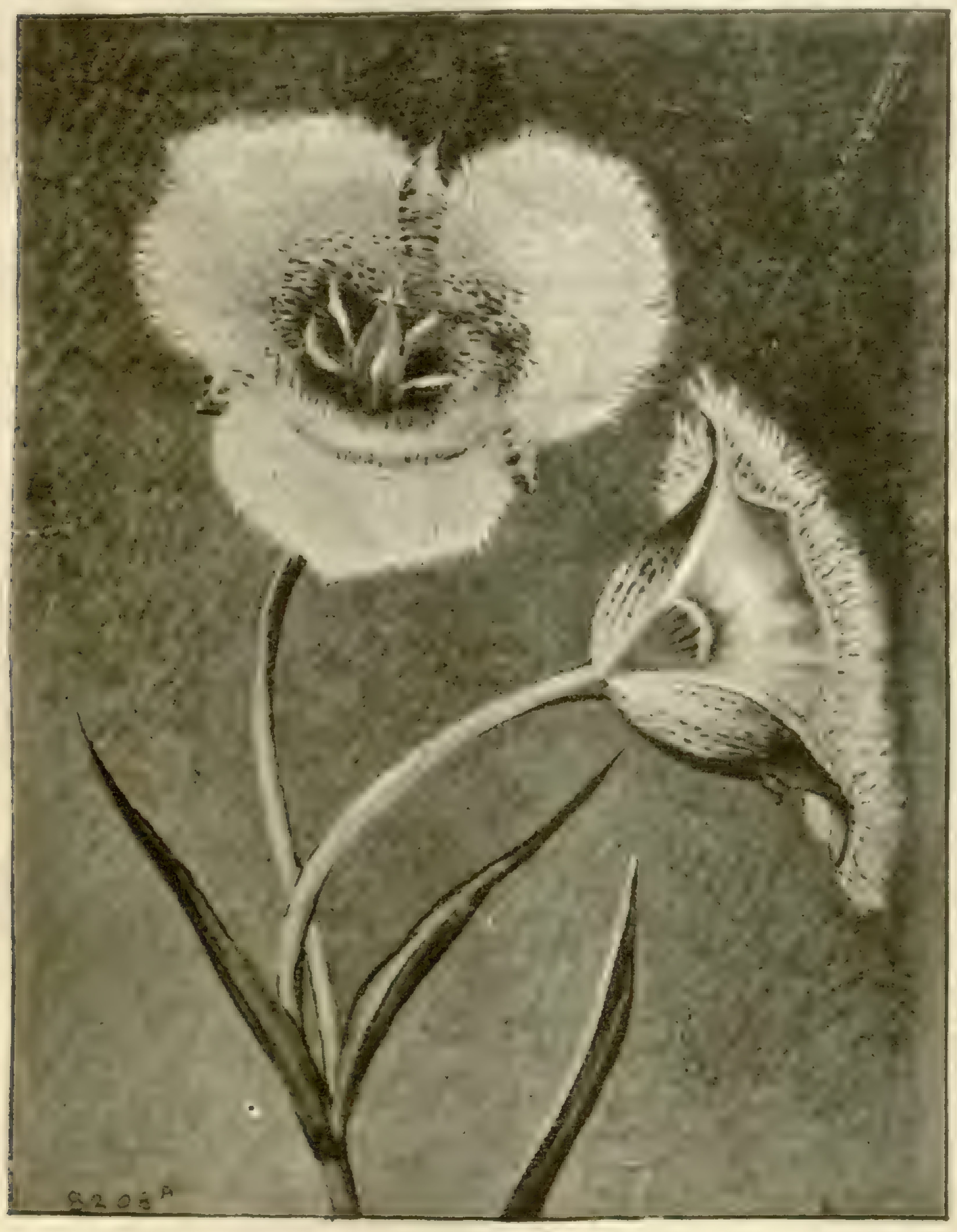
I can never understand why the Perpetual or Spinach Beet (*Beta cicla*) is called spinach at all, as it is distinctly a beet, except that of course the leaves are cooked the same way as spinach. In my opinion it forms but a poor substitute and is scarcely worthy of cultivation, but it requires little trouble to produce it. Two or three sowings should be made during spring and summer (the first in April and the last in August) on good ground at a distance of fifteen inches between the rows. Thin to nine inches between the plants, and make frequent hoeings to encourage a free growth, and keep the crop clean. This is all that is required, and for use, the leaves should be picked quite young.

Aldenham House Gardens, Elstree. Edwin Beckett.

Gloxinias at Swanley.—On my return from a recent lecture at the Swanley Horticultural College, I looked in upon that estimable florist, Mr. H. Cannell, whom regretfully we too seldom meet now at the Drill Hall. But no amount of inappreciation cools the enthusiastic ardour of this veteran and enterprising florist, who will, if not in person at least in produce, be always to the front. Few men have done more for horticulture, and especially amongst flowers, than he has. Of course, he has myriads of beautiful things to show to visitors, but to refer to one only, a house full of gloxinias, of such exceeding beauty that even an old stager such as I am, was surprised and intensely pleased. Here were numerous varieties in large blocks, and it is instructive to note the fine effects obtained from these brilliant flowers in such case. The variety that of all others most took my attention was Petunia, colour lavender-blue. a very striking and lovely colour that cannot be too highly prized. Her Majesty is still the finest white, and Beauty, intense blood crimson, is the richest dark, and wonderfully effective. Very fine and beautiful is Prince of Wales, flowers large, and of rich red colour. Amaryllis has a white throat and clearly defined lip, margin of same with a red ground. Mrs. Avery is similar, but has no margin of white. Amiable is a delicate soft pink, and exceedingly pleasing. Of blue shades, Mrs. M. Allen is a deep rich cobalt, with pure white margin; Maud has deep red spots on a pink ground; and Miss Tudor, a very fine flower, has red spots on a white ground. Of course there are vast numbers of seedlings all very fine, but any varieties propagated and in bulk show up with exceeding brilliance and remarkable effect.—A. D.

CALOCHORTUS PURDEYI.

SOME showier species and varieties of Calochorti than the one figured in the present issue have been introduced to cultivators by Messrs. R. Wallace and Co., Colchester, but none of them are more interesting than Calochortus Purdeyi. It is a strong-growing species, and one that all lovers of dainty hardy flowers should add to their collections; it grows about ten inches or a foot in height, and the growth is furnished with bright green and burnished foliage, linear and varying in size, the lower leaves being much larger than the upper ones. The stem is branched, and carries from six to twelve flowers that do not all expand at once, but continue the display over two or three weeks. The blooms are somewhat over two inches across when fully expanded, white, and covered on the inner surface of the segment with a profusion of silky hairs, these being a quarter of an inch in length. The hairs are white, except at the base of the flower, where they are claret-purple; there is also a large crescent-shaped claret-purple blotch at the base of each of the broad petals. Calochortus Purdeyi is a wonderful little plant, free in flowering, and extremely useful for association with the more brilliant-hued C. clavatus, C. Kennedyi, C. Plummeræ, the varieties of C. venustus, or the magnificent group of natural hybrids known as the Eldorado strain. All these are wondrously beautiful, not difficult to grow, and they are among the very best of flowers for table decoration.



CALOCHORTUS PURDEYI.

Fruit Prospects in Wilts.—I have made a thorough examination of orchard and all outdoor crops of fruit, and find upon the whole that we shall have a good supply, but not an extraordinary crop, as the amount of bloom indicated A very horrible drawback to the growth of the trees is the black and green aphis; I never remember seeing the apple trees so much attacked as the present season. The varieties which look the best are Kerry Pippin, Red Astrachan, Keswick Codlin, Wellington, Redstreak, Besspool, King Apple, Blenheim Pippin, Orange (Cox's) Pippin, Ribston, Cornish Gilliflower, Lord Derby, Hawthornden, Winter Hillier. These varieties look promising, and have set and are swelling a good average crop. Medlars are also promising well. Pears have not set so well as might have been expected, those on west and south-west walls being the best. Marie Louise have set and swelling away on a south well; also good crops are noted on such varieties as Louise Bonne, Cattilac, Pitmaston Duchess, Beurre Duel, Doyenne du Comice, Doyenne de Ete, Beurrè Hardy, B. Superfin, Winter Nelis, Glou Morceau, Ne Plus Meuris, Duchesse de Angoulême. Cherries are a grand crop, and the early varieties ripening well; late varieties look promising, and have set heavy crops. Gooseberries are a heavy crop and promise well. Raspberries are likewise better than for some years past. Strawberries are excellent; on that variety Grove End Scarlet was such a wealth of blossom that it called forth very special admiration, the bed was like a snow-covered plot. All other varieties have set well. Currants, both red, black, and white, are abundant, and if we can manage to keep in check the insect ravages we may rest assured we shall have some fine crops. Peaches, nectarines, and apricots have set well and look promising. Plums are the worst we have this season; these are exceedingly poor, though they produced a wealth of blossom.—W. A. COOK, *Compton Bassett, Wilts.*

TALL BEARDED IRISES.

NO more handsome, effective, and generally useful flowers have been flowering in our gardens during the past few weeks than the various forms of Tall Bearded Irises, which make up the large group popularly known as German Irises. The beauty of these fine hardy perennials is by no means over, and provided the weather is not too brilliant or dry, we may expect the later flowers to develop, and the later varieties to continue the display for another fortnight or so. As town plants these irises are scarcely to be surpassed, as may be readily judged by the success of the common blue flag iris that is ever popular, and where it will flower, practically all other varieties of this group will succeed, whether they be I. amœna, I. aphylla, I. neglecta, I. pallida, I. variegata, or I. squalens varieties. In the smokiest districts it would naturally be advisable to refrain from planting the palest and most delicate hued varieties extensively. A moist and good soil suits these irises best, but they are among the most adaptable plants, and do well almost anywhere and in every season; indeed, we have seen them flourishing quite close to large gas-works, and in the neighbourhood of many factories. A period of drought seems only to shorten the duration and size of the blooms, while they revel in a moist season; about the only weather that injuriously affects these beautiful flowers—for it does not affect the plants—is a driving wind accompanied by bright sunshine; this quickly spoils these and also most other flowers.

Visitors to nurseries and exhibitions will yet have opportunities of seeing for themselves which of these irises are most to their taste, and making notes of the same for autumn or spring planting—autumn if possible. A rigid selection of the best Tall Bearded Irises was given in the GARDENERS' MAGAZINE of June 13, 1896, p. 389, with descriptions made from plants growing in the R.H.S. collection at Chiswick. This collection is still very fine, probably the finest in the country, and if the first flush of beauty is now passed, there are still plenty of flowers to be seen, for the blooms open successively both on the plants and when the spikes are cut and placed in water in big vases. As an indication of the beauty of form and marking seen in these irises, the accompanying illustration of three distinct forms will serve in some measure, though sets of three, equally distinct, could be multiplied very many times. Those represented are Dr. Bernice, a tall, bold form, with ample rich coppery-bronze standards, shaded brown; soft crimson falls and dark golden crests; this is the central variety in the illustration. The variety on the left is that most lovely vigorous and lasting of irises, Walner, or Walneri as it is sometimes named; it has large blooms with broad graceful falls of a beautiful purplish lilac hue, and standards of a fine bluish lavender tint; tints sulphur coloured. The remaining variety is Victorine; this has white standards heavily marked with deep purple-blue; falls rather narrower than in the other forms, these are of an intense violet-purple shade towards the apex, shaded with crimson-purple, and veined at the base with white. These three varieties were especially photographed at Chiswick, from the R.H.S. collection, for the present illustration.

C. K.

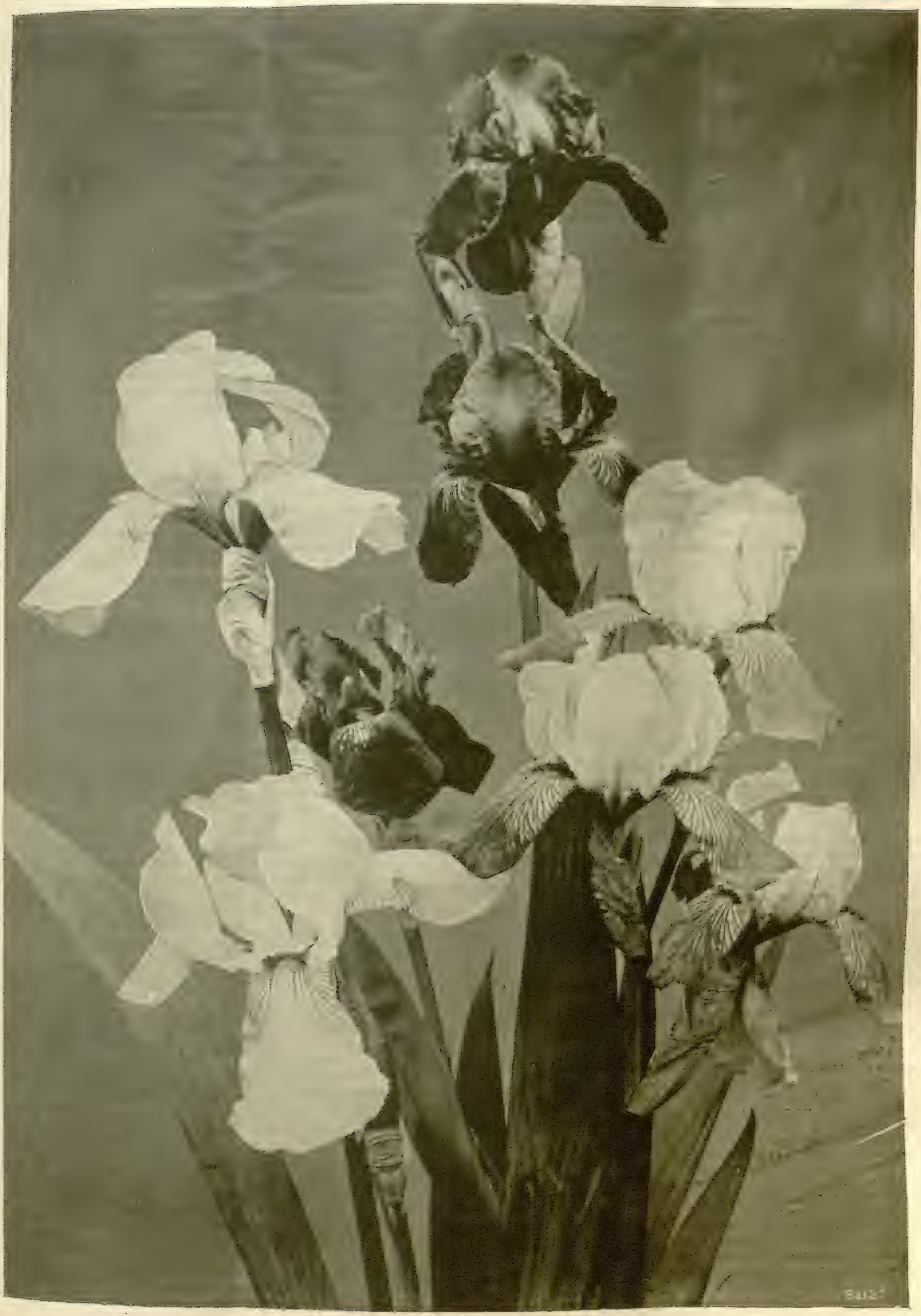
PEACHES IN THE OPEN.

I WAS arrested by some startling remarks by Mr. Cook in a recent issue of the GARDENERS' MAGAZINE, as to covering peach blossoms. If he goes in for moderation he will carry the majority of growers with him. Though it is by no means clear why a single net two feet in front of the trees should prove a more safe or potent protection for peach or other blossom than a thin screen of boughs, of fronds of common bracken, or best of all, perhaps, asparagus tops, cut and dried before they are dead ripe. But Mr. Cook tells us that during the first week of May he cleared away all the fish nets which were hanging in front of the peach trees, and gave his trees a good washing with tepid water and carbolic soap, in the ratio of thirty gallons of water to two ounces of soap, to six trees. The following day the trees were washed again with thirty gallons more water, to which a quart of X L All Insecticide was added. These operations are to be continued at frequent intervals until the trees are completely cleared of aphis.

The point I specially note here is the earliness of the uncovering, though the use of lukewarm washings so early in the season might also be objected to. But uncovering in the first week of May is really like tempting the proverbial capriciousness of May weather to freeze the newly-exposed and tender fruit through their hearts. "Neer cast a clout till May be out." Never was given better advice for security than this during very ungenial May. Surely, then, this sudden uncovering in the first week of May, or the frequent insecticide washes afterwards, [illegible] have placed the newly bared trees at a striking disadvantage in holding their crops in health in the struggle with our erratic climate. But Mr. Cook does not seem to see it in that light, and hence, as he looks [illegible] on his anti-protection crusade, he sees the growing shoots affording far more protection to his peaches than his disunited nets did, which were two feet away, while the buds and shootlets hugged the trees close, [illegible] To which calls out, "This budding must be done as soon as possible." I will briefly answer, these leaves and shootlets, if clean and healthy, can do no harm to the trees for a while, but may, and often do, save peaches and nectarines or other fruits from late snaps of frost in May. Neither should disbudding resolve itself into a single act; but be a patient process performed tentatively, a few buds or shoots at a time.

On other points, such as the posting of young shoots, making selection of varieties, &c., I agree with Mr. Cook. But as not a few have lost their peach crops, or had these greatly crippled, either through non-protection or the premature withdrawal of protective material through this cold, harsh May, I felt compelled to object to Mr. Cook's [illegible] these points.

D. T. F.



TALL BEARDED IRISES.

Walner. Dr. Bernice. Victorine.

WORK FOR THE WEEK.

WARM ORCHIDS.

LÆLIA PURPURATA and its varieties will have mostly finished flowering, and if repotting is necessary the present time is the best in which to do the work. If the compost is reasonably fresh and the drainage in good order, and the plants within reasonable bounds, they are far better left undisturbed until another season. A little fresh sphagnum and small pieces of peat may be placed in the holes to provide a neat appearance, and assist the young roots. Otherwise the plants must be thoroughly washed out, and every particle of the old material dispensed with. The new pots must be three parts filled with crocks, and of a size just large enough to allow for the rhizome to extend for a few years. Large pots which many amateurs use are very objectionable in various ways. They are unsightly, and the compost soon becomes sour, ultimately inducing a fungoid attack upon the tender roots. The compost used must be the best fibrous peat with all the fine dust shaken from it, and picked sphagnum, fixing several pieces of charcoal here and there. A shady place is required after potting, and a slight syringing occasionally all over, but water must be given sparingly until the new roots obtain a fair hold of the fresh material. The warm end of the cattleya house will be found the most suitable place for them. If in a bad state of health caused by old age, or by allowing the plants to flower too freely, year by year, it is advisable to treat them as imported plants, that is, supposing the varieties are worth the time and trouble, as it takes years to grow them into a flowering state again; if only common varieties, then burn them, as fresh stock can be purchased very cheaply, and will be of far more interest. Another orchid, which is of comparatively recent introduction, is Lælia tenebrosa, and it is one well worth cultivating, because of the charming colour of its flowers; its use as a parent will doubtless result in some of the best hybrids, both in colour and constitution. There is no mistake about it being a good seed bearer, and the seeds appear to germinate from this parent more successfully than from any other lælia. This lælia may be grown successfully along with L. purpurata, and the same treatment will suffice.

Some of the dendrobiums of the heterocarpum section, and the hybrids produced therefrom, will in many cases be finishing up their first bulb; if early flowering is desired they must be removed gradually to cooler quarters, and also given less water, in order to well ripen them for their flowering season; if not desired early, and a second growth is preferable, the specimens may stay in their quarters with all the dendrobiums that are growing, and where the syringe is freely used and abundant supplies of water given. More damping will be required now about the stages of the various houses than formerly, and pests must be kept down by fumigation.—THOS. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

FOR many weeks to come foliage plants of different kinds will play an important part in furnishing both the beds and side stages of the conservatory; indeed, in one respect we trust as much to these as flowering plants to keep up a varied display for overlooking the flower garden as most conservatories do where there will now be a blaze of colour. It is a pleasing change to look upon a well-grown batch of palms, ferns in variety, caladiums, coleus, and numerous other things which are admired for their foliage alone. Flowers there should be at all times, but pleasing features may be obtained by dotting these thinly between ferns and dwarf palms. What certainly looks out of place in the conservatory at this season—and they are still used in many gardens—is the common zonal pelargoniums, calceolarias, and lobelias; they make a display, certainly, but it cannot be called a pleasing one when such quantities are to be found growing profusely out of doors at the same time. A pretty group is formed by making a base of ferns and other dwarf plants and then dotting in a few plants of gloxinias, begonias, liliums, kalosanthes, or the summer-flowering heaths. An arrangement of this kind when lightly set up is much more striking than double the quantity of flowering plants crowded together, at the same time reflecting more credit to the grower and incurring much less labour on his part. Liliums as a rule grow and flower freely, but I have known whole batches prove useless owing to the flower buds turning yellow and dying off while in quite a young state. This may be the result of a sudden change of temperature by bringing the plants from a close, humid atmosphere and standing them in a dry, exposed position. Greenfly, too, if allowed to become established in the tips of the shoots either destroy the buds or cause the blooms to come deformed, while allowing the plants to become dry at the roots just as the buds are forming proves a serious error which no after treatment that season can rectify. These plants may be made to give a long display of bloom by gently forcing the most forward lot and retarding others. We have them now in several positions, but all the plants are treated generously as regards surface dressings and applications of liquid manure, while they simply revel in copious syringing after a hot day. This not only keeps the foliage clean, but also of a deep rich colour which shows off the flowers to the best advantage.

Kalosanthes, or crassulas, are now in full beauty and are useful for lasting in rooms, either as pot plants or in a cut state. Where large quantities of flowers have to be sent to the town residence, these are simply invaluable, as they travel so well, last a long time in good condition, while the colour and scent is most pleasing. We increase the stock each year, and yet never find we grow too many. They are easily grown and are certain bloomers if the proper attention is afforded the year previous to their flowering. The plants as they go out of bloom should be stood outside in a sunny position where the growths can be thoroughly matured, even lying the pots on their sides during a spell of dull wet weather to gain the object desired, but the roots should never suffer for the want of water, or the lower leaves fall, causing the plants to have a naked appearance the following season. Well ripened shoots may be taken in August, about six inches in length, free the lower part of the foliage and dibble about five cuttings in 48 size pots filled with rich loam and sharp sand. Plunge the pots in ashes in a cold frame. Keep the lights rather close and shaded for a time until the roots form, when the pots may be stood on a shelf in the greenhouse for the winter. It is a pity we see so few heaths grown now as compared with twenty years ago, especially the hard-wooded section. Where a small house could be devoted to these and these plants receive the right attention it would prove not the least interesting feature in the garden. The soft-wooded winter flowering sections still remains popular as they are so useful for decoration. Plants that were cut back after flowering and subsequently potted will now be the better in shallow pits or frames, standing the pots on a cool, moist base, gradually exposing the plants until in a few weeks the lights may be dispensed with for a time. Epacrises require much the same treatment, but established plants required to bloom early may now be stood in the open, and they commence to set their flower buds at once. The best acacias that are grown in pots for winter flowering, including the useful A. armata, may, where the plants have made a fair amount of growth, be also stood in the open, but before exposing such plants to the full force of the sun arrange them on the north side of a wall or hedge to harden them somewhat, for if this precaution is not taken the leaves are often injured and the plants disfigured.—R. PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

A GENERAL clear up after bedding is necessary, and any work that had to be perforce set aside while this was going on should be attended to without delay. Box edgings, if not yet clipped, should be cut forthwith. Where a mulching has not been applied to flower beds, a stirring of the surface soil with a small hoe will assist in promoting a free growth, and also keep down small weeds. Remove any dead or decaying leaves and flowers. Peg down verbenas, laying out the shoots to cover the allotted space as much as possible. Calceolarias will the better withstand drought if mulched with some old mushroom-bed manure; part of the early flowers should be removed, and an occasional soaking of water be given in dry weather. Dahlias should also be mulched, and a neat stake be placed to each plant, to which the main shoot should be tied as soon as needing support. The young plants in newly-made violet beds are now fairly established, the former dull weather and showers having assisted in this development. A frequent hoeing or hand-weeding has been necessary, and with the advent of hot weather a thin mulch of leaf-mould or old mushroom-bed manure will assist in retaining moisture and encourage a free growth in the plants. This will also check the spread of red spider, which is liable to infest the foliage in dry weather. A syringing with Gishurst Compound or similar insecticide should be given if red spider is present, but with a mulching applied and kept in fairly moist condition this is seldom necessary. Climbers on walls, arches, &c., will need constant attention in tying and training the young growths. Clematis of the Jackmanni type should have the shoots tied or nailed up as often as necessary to prevent their breaking down or becoming an entangled mass. Plants of the early-flowering Clematis montana have mostly passed the flowering stage, and all the pruning that may be necessary should be done now before the new growths that produce the next year's flowers are made. Old neglected plants that have become a dense thicket of growths should be pruned in severely to the old wood, which will break freely, especially if water be applied to the roots and overhead in dry weather. Wistarias, climbing roses, loniceras, and other climbers making free growth should have the shoots tied or secured as required.

The propagation of spring bedding plants to be used for replanting the beds in the autumn for next season's display, by seeds, division, or cuttings as the case may be, should be carried on from the present time as opportunity offers. Pansy and viola seeds may be sown, choosing a shady border for the seed bed, if possible. Several useful subjects may also be easily raised in this way, such as myosotis in variety, Silene pendula, S. p. compacta, and wallflowers in several colours. Cuttings may be inserted of pansies and violas, Alyssum saxatile, aubrietias, Arabis albida, and varieties of double wallflowers, where propagation in this way is desired. These may be readily struck if inserted in moderately light soil, surfaced with a little sand, and covered with handlights or frames. A cool position should be chosen, one near the shade of a north wall or fence being the most suitable, as less shading is here necessary, and roots are formed sooner, especially if the weather be hot and dry. Old plants of violas and pansies laid in temporarily from the flower beds should be lifted and pulled in pieces, and the small young growths with bits of roots attached be selected and planted about six inches apart each way in suitable quarters, such as a north or west border. Press the plants in firmly and give a good watering as often as necessary. Double daisies, forget-me-nots, and aubrietias may be treated in the same way, all to be kept well supplied with water until partially re-established. Seeds of biennials, as Humea elegans, for use in the flower garden next year, should now be sown. Sow in a pan or box of light soil, and place in a cold frame, keeping it close and shaded until the seedlings appear. Canterbury bells in variety may be sown on the open border, and eventually transferred to flowering quarters. The handsome hybrid perennial aquilegias may be raised from seeds which if not already sown should be raised in boxes similarly to the humeas, and pricked off singly in the open border as soon as large enough to handle. Among these columbines are many beautiful combinations of colour, the flowers are light and elegant, and with the glaucous green foliage are very useful for cutting. In the rose garden considerable trouble has been experienced in keeping the attacks of green fly in check, dressing with quassia mixture, and washing with clear water being still necessary. Flowers are in a generally backward state. Standard and half-standard briars reserved for budding should have surplus growths removed, leaving two of the strongest and best placed for budding.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

I HAVE rarely seen the trees so badly infested with blight as they are this season, and the fruit grower will need to be on the alert to prevent the pests destroying the crops, which are none too plentiful in many gardens. The apple and pear crops which promised so grandly are poor indeed, except in the case of a few varieties, such as the codlins or very early apples; but there are other [illegible] cases, and I would advise thinning the fruits of keeping varieties if the trees are bush or pyramid, and especially if young trees, as a medium crop of fine fruit is far more useful than a heavy one of small fruits. We are busy hand-picking our cordon apple trees, as the moth has badly infested the foliage and fruits, and it is well to remove infested fruits and leafage. Plum trees we have been obliged to cleanse, employing a strong insecticide to kill the pest. In our district the plum crop is a very spare one, no matter what position. The wall trees will need timely attention to stopping, laying in new wood wherever possible, as I find unless a goodly portion of new wood is made yearly, and a certain amount of old worn out spurs removed at the winter pruning, the crop is poor. It is full early to advise summer pruning, but much may be done to equalise growth over the trees by pinching and tacking in shoots where there is room. On the other hand, cordon trees are much best pinched frequently, to avoid a too free use of the knife. Peach and nectarine trees will need more attention with warm weather, and the trees are none too clean; both mildew and red spider are present, and some trees of Royal George were so badly attacked by mildew, that dry sulphur was useless, and we were obliged to use a solution to check this pest. With a better growth red spider will soon disappear, especially if the trees are syringed freely at sunset. We find it a good plan to use an insecticide once a week. The trees will be benefited by removal of all wood not fruiting or not needed for extension. Many peach trees on wall are much too thick at the top and thin at the base; [illegible] avoided by giving more room at the upper portion. The final thinning of [illegible] fruits should now take place, as there is no further fear of dropping. The [illegible] varieties are much later than usual this season, especially the Alexandra [illegible] Rivers' Early nectarine. To promote early ripening thinning of wood should not be delayed. We find it advantageous to lay in new wood early in the [illegible] I strongly advocate extension with peaches and nectarines, for it is surprising how well young trees thrive where the knife is used sparingly; let the [illegible] extend, as there will be less canker. It is surprising what large space a peach tree will cover if given ample space to develop.

Bush fruits, such as currants, will soon be approaching the ripening period, and will need netting to preserve them; and it is a great gain to the cultivator when the nets are placed sufficiently high to allow gathering without lifting them; of course, permanent wire protection is a long way the best, and probably quite as cheap in the end. Previous to netting it is advisable to cut back the new main growths to within four or five leaves from the base in the case of red and white currants; many object to this summer pruning, but I consider it does much good by assisting in ripening the fruit, removing insect pests, and rendering the fruit much easier to gather. Of course, black currants need more young wood, and these are best left; but in their case useless spray wood may be removed and more light admitted to the fruit. Cordon gooseberries are often grown on walls; these must be spurred back closer, only leaving three or four eyes; at the same time, it is necessary to train extensions to the wall, and, if necessary, thin the fruit on trees much crowded, especially those needed for late dessert, the thinnings being used at once. Cordon trees trained to stakes in open quarters will need similar attention in the way of pruning, and both these and wall trees will well repay for a good mulch of manure, as they suffer badly from drought and become infested with red spider. Raspberries will greatly benefit by mulching, and on our light soil we find cow manure excellent, and this is equally good for the other bush fruits noted. The later varieties will now need protection, and moisture also on light soils on gravel, as in our own case the plants have already shown the need of such, in spite of the heavy rain-fall early last month; but it should be borne in mind there is a great demand on the roots with the fruits swelling fast. When giving moisture, it is much best to give a thorough soaking than driblets occasionally; liquid manure may be employed if it can be given without touching the fruits, but it should be diluted. Give liquid manure to fruit trees of all kinds; bush or pyramid trees will take copious supplies, and, given a mulch, the soil will retain the moisture. Trees in orchards, with rank grass over the roots, are difficult to feed, but here much may be done with liquid manure, and I find it a good plan to remove the coarse grass near the stems in a two-ft. circle; give a mulch of manure, followed by liquid manure. Newly-grafted trees should be examined, and relieved of the binding material if the unions are complete; but should any doubt exist, it will be best to give support by ties and damp moss for a short time.—G. Wythes, *Syon Gardens*.

JAPANESE DWARFED TREES.

On May 26 and 27 there was a remarkable sale of these curious Japanese productions in New York City. Some five hundred were sold, and realized about 10,000 dols. (= £2,083).

This is the first sale of these curious nananized trees in this city. The north-east of Japan is famous for these arboreal curios, where for centuries it has been the proper thing for private people to have a few of these trees growing around and about their dwellings, forming miniature patches of exquisite landscape. True examples of such were seen at the World's Fair in 1893, in the horticultural building, and since that time there has been an increased desire for introducing these subjects into this country. Several Japanese agencies have opened up and others that were in existence before have launched out considerably, and big efforts on all hands are being made to popularise the trade. Doubtless, this exhibition and sale will give an enormous impetus to the business, but we are informed by Mr. B. Suzuki that the supply of these peculiarly trained conifers, except larch, is very limited, perhaps not more than 2,000 plants all told can now be found in the native home districts, but of the larix, maples, and the curiously trained Davallia bullata, there is an ample supply.

Returning to the sale question, the subjects that composed the bulk, and which commanded the biggest figures, were Thuya obtusa, Podocarpus macrophyllus, Sciadopitys verticillata, Buxus japonica variegata, Larix leptolepis, Rhapis humilis, and trained maples; one of these last, named Acer palmatum, realised 117.50 dols. (= £24 9s. 7d.), and the tree was not forty inches in height.

How the Trees are Dwarfed.

The pines may be considered the most important of all these trees in Japan, and great care is taken of their cultivation and preservation. The most popular ones are Pinus densiflora, Pinus sparsiflora and Pinus Thunbergi. They are generally grown from seed, and great care is taken to select the choicest qualities. In the spring of the second year, when the seedlings are about eight inches in height, they are staked with bamboo canes and tied with rice straw, the plants being bent in different desirable shapes. The next fall they are transplanted to a richer soil and well fertilised. In the following spring the plants are restaked and twisted and tied in fanciful forms. This mode of treatment is given until the seventh year, when the trees will have assumed fairly large proportions, the branches being trained in graceful forms, and the foliage like small clouds of dense green. The plants are now taken up and potted in pots one and one-half feet in diameter, and are kept well watered. Every succeeding year great care must be taken of new shoots, which must be kept pinched back. After another three years of this treatment, the trees are virtually dwarfed, there being no visible growth thereafter.

Grafted Trees.

Dwarfed Thuyas are effected by means of grafting. Let a Thuya seedling grow in the soil for three years, or until it becomes about five feet in length; then, in the middle of spring, cut off all branches, leaving the trunk and top branch; take a one-quarter inch chisel and hammer it into the thickest portion of the trunk, hollow out a one-inch deep hole to every two or three-inch space, so that the trunk can be bent more easily in the desired direction; rice straw is twisted round the trunk, which is bent in many curious forms and fanciful shapes. In spring-time of the second year of this treatment the plants are potted in rich soil; in another two years, when the plants have assumed permanent forms, Thuya obtusa is then grafted on the orientalis (pendula) stem.

The process of grafting is as follows: In early spring two-inch shoots of Thuya obtusa are cut with a slant and inserted one inch or so apart on the trunk of Thuya orientalis. The graft is bound round with rice straw which remains till the union is perfected. The plants to be grafted have already been provided with a frame made of bamboo poles and over these are thrown mats to shade from bright sun; these are removed each night. This makes the method much more simple than some Japanese and others have led us to believe.—*American Gardening*.

The Best Guide to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[Advt.]

INFLUENCE OF TEMPERATURE ON CROPS.

Of all the influences brought to bear on vegetable life by the atmosphere, that of temperature is, Mr. Mawley states in his paper on Weather Influences on Garden and Farm Crops the most powerful and far-reaching. Not only are plants affected by changes of temperature above ground, but its influence upon their roots is in most cases even more clearly to be traced. The fact is, each kind of plant and each function of its growth has its own particular requirements, as regards day and night temperatures, during its growing period; so that if these temperatures be exceeded or fallen short of, it does not thrive as well—too great warmth over-stimulating its growth, and too little checking it. Of course, the wider the departure from these special temperatures, the more will its growth be injuriously affected. Then, again, a certain degree of warmth must be maintained for a sufficient length of time to allow of any plant coming to maturity. For instance, maize can be grown as a fodder crop in this country, but it seldom, if ever, perfects its seed, owing to the shortness of our summers. If we trace the distribution of indigenous species of this and other countries, we shall find that each advances as far, and only as far, into higher latitudes or into elevated regions as it finds the amount of heat required to complete its growth and ripen its seed. From this we learn how important it is that the cultivation of those farm crops alone, which from experience have been found best adapted to our soil and climate, should be attempted. Of course, in gardens where extra care and attention can be given to each kind of plant, this caution may be to a great extent neglected. As a rule, a seasonable amount of heat is best suited in this country to a majority of our farm and garden products. That is to say, a gradual rise in temperature from the middle of January to the middle of July, and as steady a decline until the coldest period is again reached, would best meet their requirements. But, unfortunately, we can seldom count upon such favourable conditions being maintained for more than a few weeks at a time, the general tendency being at any season towards too great or too little warmth. Most of our field crops, with the exception of clovers and grasses, are annuals; whereas most of the plants grown in the garden excepting the kitchen garden are perennials, which require rest at some period of the year, and this, with few exceptions, they obtain during the winter months. Knowing as we do, how the atmosphere receives its warmth, not only from the direct influence of the sun, but from the heat it obtains from the ground, it will be readily understood how greatly the surface soil, particularly uncropped soil, becomes heated above that of the air. It is, however, not only the surface soil which becomes heated, for the warmth thus obtained descends to a considerable depth in the ground. So that the subsoil in this way becomes a storehouse of heat for plants to draw upon during the comparatively sunless period of the year; while it likewise serves by its lower temperature to keep their roots from becoming unduly stimulated during the summer months.

At one foot deep a clay soil—taking the year as a whole—is rather colder than the air, a sandy soil decidedly warmer, while a chalk soil is generally about the same temperature as the air. At four feet deep the ground is in all three cases cooler than the air during the period when most plants are in active growth (April—August), and warmer during the remaining seven months. These differences are greatest with a chalk soil; less with a clay soil; and least with a sandy soil. In fact, the soil last named is at four feet deep but little cooler than the air throughout a great part of the five warm months above mentioned, although decidedly warmer during the rest of the year. The greater the depth below the surface the more slowly are the changes above ground felt. For instance, taking one foot deep as representing the soil and four feet deep the subsoil, the former, like the air, is warmest in July; whereas at the depth of four feet deep the warmest month is August. Again, Mr. Symons has shown that at one foot deep the ground is coldest, as a rule, not during the night, but at nine a.m., and warmest, not at mid-day, but at nine p.m.; whereas at four feet deep the changes take place so gradually that there is no appreciable difference at any hour. It was found by Dr. Buchan, when discussing the temperatures of light and heavy soils, "that light soils are subject to a greater degree of frost near the surface than strong clay soils, but the frosts do not penetrate so far down into light soils as into strong clay soils, the explanation being that light loose soils are worse conductors of heat than strong clayey compact soils."

Investigations on the Continent appear to have shown that the rate of progress made by any crop is governed in a great measure by the duration or rather accumulation of temperature above or below the point at which active growth begins and is maintained. This critical point varies with different plants, but the Meteorological Office in its publications has adoped forty-two degrees as a sufficiently close approximation for most farm crops in these latitudes, and employs the method devised by Sir R. Strachey, F.R.S., by means of which the variations from this base are determined. Following the nomenclature adopted in the case of "foot-pound," General Strachey introduced the term "day-degree," by which is signified the continuance throughout twenty-four hours of an excess or defect of 1 degree from this base temperature of 42 degrees. The calculations are made as follows: Suppose the minimum temperature of the air on any day to be 50 degrees, the maximum 70 degrees, the mean 60 degrees. Since the temperature never fell so low as 42 degrees it is clear that it must have been effective as regards growth throughout the entire day; and since the mean for the twenty-four hours is 60 degrees it is also obvious that, if the base temperature of 42 degrees be deducted from that value, the difference plus 18 degrees will represent the accumulated amount of this effective temperature. On the other hand, had the readings throughout the day been below the base temperature the difference between the mean and forty-two degrees would show a defect of so many day degrees. In cases in which the temperature varies on both sides of the base the accumulated value is obtained by using a small factor. A table placed at Mr. Mawley's disposal by Sir Henry Gilbert, F.R.S., and reproduced in his paper, gives a very good idea as to how far such accumulated temperatures may be relied upon to furnish approximately correct results in this country. Those given in the lower part of the table are derived from the mean of the Meteorological Office estimates of daily excess at all the stations in England East and in the midland counties. In the first column the calculations date as in the *Weekly Weather Reports* from January 1; in the second from February 1; in the third from March 1; in the fourth from April 1; in the fifth from the period when the crop appears above ground; and in the sixth from the same period, but omitting those days which are too cold to allow of any progress being made. It will be noticed that, however calculated, the difference between the least and the greatest amount of accumulated heat required at Rothamsted in any year to complete the growth of wheat and ripen the grain was in all cases about 300 degrees, or about one-sixth of the total mean value for the eighteen years. This appears to Mr. Mawley a very large range indeed, and shows that such calculations can only be regarded as rough approximations, at all events as far as the leading cereal crop in this country is concerned.

NOTES OF OBSERVATION.

Parsnips.—Although Mr. Henslow recently stated that the Student parsnip, put into commerce some forty years ago, was raised by Professor Buckman, then of Cirencester Agricultural College, by constant and patient selection from the wild parsnip, I had always understood that it originated by crossing the wild parsnip with a garden variety. Without doubt, when first put into commerce it had special food excellence, in being whiter and of more solid or marrowy texture, than was the Hollow Crown or Jersey varieties. I am not sure that such distinction now exists. One Student may have developed the ordinary characteristics of others, whilst the others may have, by dint of selection, approached nearer to the excellence the Student originally borrowed. To secure fine roots it is hard to excel a good stock of the Hollow Crown; but the new Tender and True, which Messrs. Sutton and Sons have put into commerce, is better and whiter, and, if less large, is a more solid fleshed variety, and is becoming popular. A true stock of the Student, whilst having rather long, tapering roots, should have quite high or rounded shoulders, differing in this respect materially from the Hollow Crown. The coarse stocks known as Maltese and Jersey are not best fitted for garden culture. Elcombe's Improved, a stock that has long had high reputation, is but a good selection of the Hollow Crown. As with other roots so with parsnips, very much can be done to keep stocks up to a high degree of excellence by constantly selecting for seed production the most perfect roots for this purpose, not the largest; but those of medium size, solid, white, handsome, well shouldered, and not too long, make the best stock. Our seedsmen merit all possible credit for what they have done to improve vegetables in this way.—A. D.

Bougainvillea Cypheri.—This new form is likely to become one of the most popular of the bougainvilleas, as, though B. glabra is a favourite, the newer B. Cypheri is equally floriferous, and of a much brighter colour. I recently had an opportunity of seeing a large quantity of the new plant at Messrs. Cypher's nursery, Cheltenham, and was so much pleased with the splendid bracts that I consider it cannot be too generally known. In the colour of its bracts it is intermediate between B. glabra and B. speciosa; but it blooms more freely than the latter, and the bracts are of a brighter colour, and the foliage less spiny, not unlike B. glabra in the latter respect. It is invaluable for room decoration, as some bracts cut and placed in water remained in good condition for several days, without loss of colour or dropping. I note that it received a first-class certificate at the York Gala, and it is certainly worthy of award, as I never saw a plant with more bloom for the size, as small examples bloom freely, like the older B. glabra; it needs much the same treatment as the latter, and, given attention, will bloom a long time.—G. WYTHES.

The Royal Horticultural Society's Examination.—Now that the lists of successful candidates in the three classes of this annual examination has been published, I should like to publicly suggest that for the benefit of the Fellows of the Royal Horticultural Society, who may naturally wish to know whether the money expended over these examinations is beneficially applied or not, that the Council authorise the publication in an early number of the journal of the society of the papers sent in by the two leading candidates in each of the classes. As may be seen from the questions published that some, probably one half, are of a botanical or physiological nature, and somewhat outside of practical horticulture. In what are called "practice" questions the one relating to landscape gardening as an art is somewhat absurd in such an examination, as no one could give anything like an adequate reply, even if a practical one, in less than a long essay. With respect to the rest no fault can be found, as they all need in their answers undoubted practical knowledge. What I would like to learn is something of the nature of the replies given in the respective divisions, principles and practice, and in which section most weight of marks is given. Of course, the candidates well coached up in practice and theory make the biggest show, and that naturally leads to the inference that a higher number of marks was given to answers in that division than to those in the division of practice. Possibly such an assumption is wrong. If so, nothing would so much tend to disabuse persons of that assumption as the publication of the papers referred to with the number of marks given to each answer. I should have imagined that the council would have hastened to do what is suggested earlier. However, it is not too late to act upon it this year.—A. D.

Grape Growing.—Growers will, in the majority of cases, have good cause to remember the month of May and the early part of June for cold nights and want of sun, and damp atmosphere, each and all were against them. The only apparent gain has been in using the spare time in grape thinning which would in ordinary times have been occupied in waterings, &c. About once a week was the only time we could water, and, as a rule, before one house could be done the promise of a fine day had gone. Night firing has been a heavy item, more particularly as, owing to the Welsh strike, the usual supply of coal could not be obtained. In several cases mildew, both on foliage and berries set in, consequently painting the pipes with sulphur mixed with boiled linseed oil, was the order, followed by sharp firing for the night. With the extra night firing vine growth has been very rapid, and the weekly stoppings have been scarcely enough. June 7 was the first day of bright sunshine, but there is now a promise of continuous bright weather. Growers have much to contend with, for the conditions which prevent and cure mildew are likely to attract red-spider.—STEPHEN CASTLE, F.R.H.S, *Bottesford Vineries, Notts.*

Primula Sieboldi.—I have often thought when I have seen the large flat pan exhibits of the diverse varieties of this beautiful primrose, occasionally staged in London and elsewhere, that such methods of exhibiting them was calculated to detract materially from their popularity as greenhouse flowers. Clumps in six-inch pots, neatly grown and blooming well, very easy to obtain, dotted about amongst other plants in a house are really very charming, and many of the varied colours are highly meritorious. The best are the whites, roses, and reds, whether smooth-edged or lacinated. The reds, especially outdoors on rockwork, and where sheltered from cutting winds, make lovely objects. These primulas have had to give way to the sickly wild obconica, chiefly because it is so very easy to grow. My plan to secure good pot clumps was to stand those which had bloomed outdoors in a shady place, or in a frame facing north for the summer, keeping up strong leaf growth as long as possible. Then when the foliage had died away in the autumn, turning the clumps out of the pots, pulling the crowns apart, selecting the strongest, and putting them in the proportion of about nine into other six-inch pots, using, of course, fresh soil, and placing the smaller crowns rather more thickly into the pots. The former would bloom finely the following spring, the latter would grow into strong crowns, any bloom showing being picked out. In that way a fine show could always be obtained. If thus early potted clumps were placed in very gentle heat near the glass they would bloom quite early, others coming on in a cold frame making an admirable succession. So grown there is no element of flatness or monotony—quite the reverse.—A. D.

EXHIBITIONS AND MEETINGS.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY, June 21.

THE midsummer exhibition of this society was held in the gardens of W[illegible] College, which has been placed at the service of the committee by the warden and fellows. Favourable weather prevailed during the afternoon and evening, and the attendance of visitors proved fully 50 per cent. more than last year. During the whole period of the society's existence its June shows have formed one of the events of the Commemoration Week, the attendance of visitors being always encouraging. In the past two or three seasons, however, since the eights week has occurred in May, the attendance has not corresponded with the increased expenses and [illegible] prizes offered with a view to make the shows attractive. Oxford gardens, with their lawns of velvet, are admirably adapted for flower shows, and [illegible] Wadham rank high as possessing a large number of specimen ornamental and timber trees. In the college portion are some remarkably fine cedars, c[illegible] beech (one of whose heaviest limbs is held in position by a natural union), [illegible] green oak, lindens, &c.; while in the warden's private garden (where the [illegible] are fixed) there are several evergreen oaks, a noble tulip tree, a Judas tree, English oak, beeches, weeping ash, a number of crimson thorns, guelder rose, deutzias, weigelas, and a fine pyramidal bush of cockspur thorn, now in full flower. N[illegible] the main walk are placed a trio of giant agaves, and the whole place reflects much credit on the gardener, Mr. Fortescue, who has charge of the ancient orchard, whose apple, pear, and walnut trees are of undeterminable age.

With reference to the show, it may be stated at the outset that very high quality prevailed, although the entries were not quite equal to an average, the [illegible] weeks of cold north-easterly winds and sharp night frosts having deterred the development of all out-door subjects.

OPEN CLASSES.—The schedule of prizes included classes open to all England, and in that, for an artistically arranged group of plants covering two hundred and twenty feet superficial, produced by two competitors, the first prize was awarded to Mr. James Cypher, Cheltenham, who harmoniously arranged a large number of choice subjects, including Bermuda lilies, richly coloured crotons, ixoras, small palms, ferns, and delicately veined, marbled and pencilled caladiums, mixed with orchids including cattleyas, cypripediums, thunias, vandas, oncidiums, dendrobiums, odontoglossums, and epidendrums, etc.; graceful bamboos. Hi[illegible] primroses, and other dwarf plants. The second prize was awarded to Mr. W. Vause, Leamington, whose design, though wonderfully effective and well arranged, was a trifle less elegant than the premier group. The central points formed a series of square headed arches resting on five pillars clothed in cork bark, the central column supporting a large specimen palm, the outer pillars being surmounted by neat feathery cocos; around and among these were distributed small examples of pandanus, coleus, crotons, caladiums, ferns, cannas, carnations, Acalypha musiaca, cattleyas, mixed with fuchsias, Humea elegans, Asparagus plumosus, all the pots were enshrouded in bark, and in every cranny and crevice bits of trailing and flowering plants depended; each specimen plant forming a moss-covered mound. The class for groups of tuberous begonias, included two very fine banks of scarlet, pink, white, salmon, crimson, and yellow forms of this popular flower, the ninety-six feet space allotted to each being a mass of colour intersected by adiantums and tiny palms, Mr. Johnson, Garsington Nurseries, taking the first. Mr. W. T. Mattock, Blenheim Nursery, Headington, second, his group being of excellent quality of bloom.

The class for a group of orchids covering seventy-two feet superficial was entirely in the hands of Mr. Cypher, who had lovely examples of Angulo[illegible] Clowesi, Brassia verrucosa, Cattleya citrina, C. labiata, C. lobata, C. Mendeli, C. Mossiæ, and C. Warneri; Cypripediums barbatum, C. nigrum, Elliottianum, C. hirsutissimum, C. Lawrenceanum, and C. Rothschildianum; Dendrobium Bensoniæ and B. Dalliousieanum, Epidendrums prismatocarpum and E. vitellinum majus, Lælia purpurata, Masdevallia Harryana, Odontoglossum [illegible], O. citrosmum, O. cordatum, O. Halli, O. hystrix, O. luteo-[illegible], [illegible] maculatum, and O. Pescatorei; Oncidium sphacelatum, T[illegible] Marshalli; Vanda suavis and V. tricolor; a most lovely collection, [illegible] first prize was awarded.

There were five exhibitors in the class for a display of roses, and Mr. W[illegible], gardener to the Duke of Marlborough, Blenheim Palace, securing the [illegible] award with a very tastily displayed arrangement of blooms covering seventy-two feet superficial; Mr. G. Prince second, and Mr. Walker, Thame, third. Mr. J. Mattock lost his chance of winning with a nice lot owing to having [illegible] palms and ferns as a background.

Tables decorated and laid as for dinner formed a good feature; [illegible] and Mr. W. T. Mattock secured the premier award with a very showy arrangement, the centrepiece being a pretty cocos embedded in a mound of blooms of Cattleya Mossiæ, slender spikes of Oncidium flexuosum, quaking and other grasses, the small goblets at the angles being filled with sprays of Odontoglossum citrosmum, white tea roses, and grasses. The second prize table, by Mrs. H. W. Morris, Thame, was a very airy arrangement of white, yellow, scarlet, and orange Iceland poppies, ferns, and grasses; the third prize, from Mr. W. Vause, Leamington, was somewhat too heavy.

MEMBERS' CLASSES.—There was only one group of plants for effect on space of one hundered and twenty feet, Mr. Johnson taking the card for a very excellent pyramid of healthy flowering and foliage plants, the centre of the design being a nice kentia. The show, decorative, and zonal pelargoniums, with the single and double blooms, were all very dwarf grown and freely bloomed, Mr. Walker [illegible]ing the premier in the three classes. Fuchsias were but few; Mr. Mattock [illegible] for six tallish pyramids; Mr. Joseph Bates, sen., second with smaller plants; but the three shown by Miss Greswell, Woodstock Road, Oxford, in the amateur division, were certainly the best bloomed specimens. Exotic ferns from Mr. John[illegible]son comprised specimens of large and fresh examples, Nephrolepis exaltata, Asplenium nidus avis being especially good; equally excellent were the [illegible] specimens of British ferns exhibited by Mr. W. F. Cross, C[illegible], Oxford. The single specimen classes contained a number of ch[illegible] premier stove plant from Mr. Mattock (Anthurium Scherzerianum) [illegible] developed spathes of brilliant cardinal scarlet; the second card bei[illegible] nice fresh example of Balfour's clerodendron; while for the third pri[illegible] nobile secured the card. For a greenhouse specimen the first card [illegible] Cymbidium Lowi from New Hincksey Rectory garden; Mr. J[illegible] second, with a well-flowered example of Statice profusa; a [illegible] fuchsia being awarded third. The premier foliaged specimen was C[illegible] Rothschild, exhibited by Mr. A. Ball, gardener to Mrs. H[illegible] Oxford. There were two very nice groups of six orchids, Mr. J[illegible] W. D. B. Curry, New Hincksey Vicarage, Oxford, dividing the [illegible] entrance to the tent were two large groups of carnations, [illegible] from the Blenheim Gardens, the blooms of the Mal[illegible] able for their size and depth of colour; the second prize set from Mr. Johnson comprising a larger number of varieties, but somewhat smaller flowers. The prizes in this class were given by Mr. Aubrey Harcourt, president of the society. In the amateurs' section, beyond the fuchsias above referred to, we noted a fine specimen of the New Zealand Flax (Phormium tenax), exhibited by Mr. W. F. Cross.

Among the cut flowers the bouquets appeared to arrest attention. That from Blenheim Gardens composed of roses well deserved the post of honour; Mr. Walker, Thyme, taking the second prize. In this class the Duke of Marlborough's gardener (Mr. Whillans) staged a beautiful posy of Princess Beatrice. Ladies' sprays were likewise very choice specimens of the florist's art, and a wonderful show of colour was produced by the collection of iris, pyrethrums, and the many herbaceous perennials. A few stands of pansies were presented of fair quality for the district, but the roses seemed to prove centres of attraction. Mr. Prince was awarded premier for twenty-four varieties and for eighteen tea-scented forms, the principal varieties being The Bride, white; Souvenir d'un Ami, pale rose; Souvenir d'Elise Vardon, creamy white edged rose; Madame C. Kuster, bright lemon yellow; Cleopatra, very pale pink edged rose; Comtesse Nadaillac, pale flesh coppery rose; Madame E. Lambert, flesh pink, shading white; Madame Hoste, pale yellow; Maman Cochet, soft rosy salmon; Maréchal Niel, golden yellow; Souvenir de S. A. Prince, a lovely white form; Innocente Pirola, pure white, fawn shaded; Ernest Metz, soft carmine; and Hon. Edith Gifford, white tinted salmon pink; each bloom of full size end fresh.

FRUIT constituted a small feature, but was on the whole very good. The grapes were Foster's Seedling, and Black Hamburgh; the melons were Hero of Lockinge; the strawberries were Royal Sovereign; the peaches were Bellegarde, Royal George, and Grosse Mignonne; the cherries May Duke; and the nectarines Milton and Lord Napier.

VEGETABLES, owing to the season, were only half an average number, although the cauliflowers, carrots, potatos, tomatos, and cucumbers left but little to desire, high quality ruling, especially in the classes provided by Messrs. Sutton and Sons, and Messrs. Webb and Sons. Mr. T. Lockie, Diddington Hall Gardens, secured Messrs. Sutton's premier; and Mr. C. Brook, gardener to Dr. Batt, The Hill, Witney, was awarded first prize in Messrs. Webbs' class, who offered prizes for nine and six dishes respectively. Mr. Lockie was also first for cucumbers with Royal Windsor, and for tomatos with Perfection. Amateurs and cottagers were well to the front, their products being altogether good; peas and beans were the exception on this occasion.

Among the extra productions exhibited may be mentioned a floral harp of white blooms from the Banbury Nurseries. Mr. Deverill, Banbury, also put up a long run of cut flowers. Mr. Montague Wootten staged a very fine double begonia, large spherical bloom of white, edged rose, and received a first-class certificate—a well-merited honour.

CROYDON, June 29.

THE Croydon Horticultural Society held its thirty-first summer show on the above date in the grounds of Brickwood House, Addiscombe Road, by kind permission of Percy T. Reid, Esq. It was a fairly good show though we have seen better at Croydon. The roses in the amateur classes were very poor as a whole, but fairly good for the men in the trade and open classes. The competition throughout was by no means keen. The arrangements were good, as usual in the hands of Mr. A. C. [illegible]y.

GROUPS AND PLANTS.

There were three large groups arranged on a space not exceeding eighteen feet by fourteen feet, and here the first prize was awarded to Mr. J. Harris, gardener to P. Crowley Esq., Waddon House, Croydon; this was a good exhibit and contained a bright lot of cattleyas, odontoglossums, masdevallias, gloxinias, caladiums, cannas, &c., tastefully disposed amid ferns, palms, crotons, caladiums, &c.; the white lilium were most effective. Mr. C. Lane, gardener to C. H. Coles, Esq., [illegible]wood, Upper Caterham, came second; one or two early chrysanthemums were rather novel in this group. Mr. J. W. Hicks, gardener to D. Lord Esq., [illegible] Cresent, Sydenham Hill, third. Mr. Harris gained a first prize for half a dozen dracænas with specimens of Gladstoni, Vivicans, Majestica, Regalis, [illegible], and Amabilis, all well grown and coloured. Mr. J. W. Hicks was first for half a dozen caladiums, and Mr. G. West, gardener to T. F. Lynch, Esq., South Norwood, second. Mr. J. Harris scored for a specimen ornamental foliage plant with a handsome example of Cycas reaoluta. For a specimen flowering plant Mr. C. Lane was first with Bougainvillea glabra and Mr. Harris second with Rhyncospermum jasminoides. Mr. G. Prebble, gardener to M. Hodgson, Esq., Shirley, staged the best half-dozen coleus in close competition, with Mr. T. F. Lynch, second. Zonal pelargoniums were bright and free flowered though not very large plants; Mr. C. Lane scored for six single varieties and also for six ivy leaved varieties. Mr. C. Perrett, gardener to Mrs. Fuller, Duppas Hall, showed the best six fuchsias, strongly grown specimens.

Mr. J. Harris, gardener to P. Crowley, Esq., was awarded a first prize for six exotic ferns, the large specimens being Davallia polyantha, D. Mooreana, D. fijiensis, D. fijiensis elegans, Adiantum fragrantissinum, and A. gracillimum. For a small group the prizes in order were awarded to Mr. A. Dyer, gardener to T. Peacock, Esq., Chichester Road, Croydon; and Mr. G. Earles, gardener to J. Glaishert, Esq., Heathfield Road, Croydon. Mr. W. Sparshott, gardener to Mrs. Hall, Stanton House, Park Hill Rise, was easily first for nine tuberous begonias with handsome and well-grown plants; Mr. C. Perrett, second. For nine ferns in six inch pots Mr. J. Harris scored with well-grown adiantums, pteris, gymnogrammas, and nephiolepsis. Gloxinias were very good, Mr. W. Sparshott leading with dwarf and freely-flowered specimens; Mr. G. Lewry, second; and Mr. T. [illegible], Brickwood House Gardens, third.

Table plants were best shown by Mr. Eales. Mr. J. Slater, gardener to F. [illegible], Esq., H[illegible]dale, Park Hill, Croydon, had the best table group, but such [illegible] as here understood are by no means useful or attractive. Mr. W. Gladwell, gardener to S. Smith, Esq., Werndee Hall, South Norwood, staged the best table of gloxinias arranged with foliage plants; Mr. A. Dyer, gardener to T. Peacock, Esq., Croydon, second.

CUT FLOWERS.

Mr C. J. Salter, gardener to T. B. Haywood, Esq., Woodhatch, Reigate, was the only exhibitor of twenty-four bunches of stove and greenhouse flowers with a splendid collection of cypripediums, cattleyas, odontoglossums, gloxinias, phalænopsis, masdevallias, gloxinias, &c. Table decoration were light and pretty, [illegible] exceptional excellence; Mrs. A. C. Robinson, Wallington, coming first; [illegible] Mrs. Ralph Thrale, Coombe Road, Croydon, second.

ROSES.

The amateurs' challenge cup, valued at twenty-five guineas, was secured by Mr. A. Slaughter, Jarvis Villa, Steyning, who was the only exhibitor of thirty-six [illegible]. The specimens were not very good, but the best varieties were Mrs. Sharman Crawford, Dr. Andre, Marie Cointet, Eugene Furst, Violette Bouyer, A. K. Williams, Captain Christy, Dupuy Jamain, General Jacquiminot, Anna Olivier, and S. M. Rodocanachi. Mr. Slaughter also gained the first prize for twenty-four roses, Charles Lefebvre, General Jacquiminot, Fisher Holmes, Anna Olivier, Mrs. Sharman Crawford, and Marie Van Houtte were the best examples. The first prize for twelve roses of one variety was won by Mr. E. M. Bethune, Denne Park, Horsham, who showed very fair examples of A. K. Williams. Mr. P. G. Burnand, Hill Grange, Reigate, won first prize for a dozen roses distinct with moderately good specimens of Duke of Edinburgh, La France, Gustave Piganeau, Catherine Mermet, Pride of Waltham, A. K. Williams, Roseriste Jacobs, Dupuy Jamain, Horace Vernet, General Jacquiminot, La France No. 2, and Prince Camille de Rehan; Mr. Bethune came second; and Mr. E. Mawley, Rosebank, Berkhamstead, third, with a set that contained eleven tea-scented roses. Mr. Bethune scored for a dozen tea or noisette roses with neat blooms of Comtesse de Nadaillac, Marie Van Houtte, Souvenir d'un Ami, Niphetos, Madame de Tartas, Madame Hippolyte Jamain, Hon. E. Gifford, Anna Olivier, Medea, Catherine Mermet, Madame Bravy, and Perle des Jardens; Mr. E. Mawley, second. In a class for four trebles open only to growers of less than two thousand plants, Mr. P. G. Burnand led the way with nice flowers of Caroline Testout, Gustave Regis, Comtesse de Nadaillac, and A. K. Williams; Mr. E. Mawley second with Marie Hoste, Souvenir de la Malmaison, La France, and The Bride; Mr. Bethune second. The first prize was apparently withheld in the class for nine roses, but Mr. D. W. Freshwater, Reigate, and Mr. F. W. Amsden, Croydon, gained second and third respectively. Mr. Freshfield was also awarded a second prize for nine tea or noisette roses, and Mr. Amsden a third, the section being for growers of less than a thousand plants. Among growers of less than five hundred rose plants, Mr. W. D. Freshfield, The Wilderness, Reigate, gained first place for six blooms with fair specimens of Grace Darling, Magna Charta, Kaiserin, Augusta Victoria, Violet Bowyer, Gustave Regis, and Jeannie Dickson; Mr. Keppel S. Gifford Edenson, Sutton, second. Mr. Freshfield scored for six tea or noisette roses with Maréchal Niel, Marie Van Houtte, Rubens, Anna Olivier, Bouquet d'Or, and Niphetos.

The local challenge cup for the best twelve roses, distinct, brought three competitors, but Mr. A. C. Gifford, Cornwalls, South Norwood, had no difficulty in winning with good specimens of Gustave Piganeau, Alphonse Soupert, Charles Lefebvre, Caroline Testout, E. Y. Teas, Madame Gabriel Luizet, Captain Christy, Prince Camille de Rohan, A. K. Williams, Dr. Andry, Jeannie Dickson, and Grace Darling; Mr. M. Hodgson, Shirley Cottage, Shirley, second; and Mr. Amsden third. Messrs. Hodgson, A. C. Gifford, and F. Amsden were awarded prizes in the order of their names for half a dozen blooms in a local class. Mr. Hodgson had the best six tea or noisette roses, and Mr. Amsden came second.

In the open section Messrs. F. Cant and Co., Colchester, beat Messrs. Prior and Son, Colchester, for forty-eight roses, with a very even set of blooms, the varieties being: Back row—Dupuy Jamain, Princess Beatrice, Duke of Wellington, Cleopatra, Duke of Bedford, Jeannie Dickson, Helen Keller, Caroline Testout, A. K. Williams, Mrs. Frank Cant, Camille Bermardin, Madame G. Luizet, Victor Hugo, Marchioness of Dufferin, Marquise Litta, and Mrs. W. J. Grant; middle row—Marchioness of Downshire, Duke of Albany, Ethel Brownlow, Captain Hayward, Marguerite de St. Amand, Medea, Devoniensis, Crown Prince, Mrs. S. Crawford, Auguste Rigotard, Ernest Metz, Beauty of Waltham, Rubens, Alfred Colomb, Prince of Wales, and Francois Michelon; front row—Niphetos, La France, Abel Carriere, Comtesse de Nadaillac, Dr. Andry, Catherine Mermet, Reynolds Hole, Souvenir d'un Ami, Prince Arthur, Maréchal Niel, Duke of Teck, Jules Finger, Madame Cusin, Maman Cochet, Dr. Sewell, and Suzanne Marie Rodocanachi. For twenty-four roses distinct, three blooms of each, there were but two competitors, Messrs. Frank Cant and Co., Braiswick Nurseries, Colchester, came first with good flowers of Mrs. W. J. Grant, Duke of Wellington, Viscountess Folkestone, Duke of Connaught, Beauty of Waltham, Marchioness of Downshire, Clara Watson, Prince Arthur, Maurice Bernardin, Lady Mary Fitzwilliam, Crown Prince, Rubens, Fisher Holmes, Maréchal Niel, Souvenir d'un Ami, Cleopatra, Captain Hayward, Mrs. Sharman Crawford, General Jacquiminot, Souvenir d'Elise Vardon, Dr. Andry, La France, Mrs. Frank Cant, and Duke of Teck; Messrs D. Prior and Son, Colchester, second.

Mr. J. R. Box, Croydon, won the leading award for twenty-four roses distinct, with a fair set that consisted of Magna Charta, Margaret Dickson, Horace Vernet, Spenser, Senateur Vaisse, Lady Mary Fitzwilliam, Duke of Edinburgh, Maman Cochet, Mr. Sharman Crawford, Villaret de Joyense, Souvenir d'un Ami, Fisher Holmes, Kaiserin Augusta Victoria, Comtesse de Ludy, Violet Bouyer, General Jacquiminot, Souvenir de Dr. Gaimain, Elie Morel, Beauty of Waltham, Blairi No. 2, Miss Ethel Brownlow, Dr. Sewell, Madame Gabriel Luizet, and Abel Carriere; Mr. A. G. Green, Great Horkesley, Colchester, second; and Mr. T. Butcher, Shirley, third. Messrs. D. Prior and Son, won the first prize for two dozen tea and noisette roses with pretty box that contained Caroline Testout, Madame Cusin, Ernest Metz, Souvenir de S. A. Prince, Inncente Pirola, Devonienses, Souvenir d'Elise Vardon, Marie Van Houtte, Hon. E. Gifford, Souvenir d'un Ami, Madame Hoste, Cleopatra, Maman Cochet, The Bride, Amazone, Madame Bravy, Rubens, and Anna Olivier; Messrs. F. Cant and Co., second. For a dozen roses of one variety, Messrs. D. Prior and Son won with fine flowers of Mrs. W. J. Grant. The best dozen blooms of any one tea or noisette rose came from Mr. A. G. Green, Colchester, and were a good set of Souvenir d'Elise Vardon; Messrs. D. Prior and Son, second, with Souvenir de S. A. Prince.

FRUIT AND VEGETABLES.

For strawberries, Mr. C. Blurton, gardener to H. Cosmo Bonsor, Esq., M.P., Kingswood Warren, was first with a good dish of Royal Sovereign; Mr. G. Prebble second, and Mr. O. Jeal third with the same variety. Mr. O. Jeal, gardener to Miss Waterall, Waddon Lodge, Croydon, had the best pair of cucumbers; Mr. G. Eales, gardener to J. Glaisher, Esq., Croydon, second. Mr. D. Osman, Ottershaw Park, was the first for a melon.

Mr. J. Friend, The Rooks Nest, Godstone, showed the best three bunches of white grapes, showing Foster's Seedling; Mr. W. Lintott, Marden Park, second; and Mr. Bethune third. For black grapes Mr. C. Blurton was easily first with nicely finished Black Hamburgh; Mr. Osman second, and Mr. J. Friend third.

Mr. J. Johnson, gardener to Mrs. Crawley, Bramley Hill, Croydon, had the best collection of vegetables, showning good tomatos, cabbages, peas, onions, and turnips. For a collection of six varieties only Mr. C. Perrett scored with a good exhibit. Mr. C. Lewry was also a successful exhibitor of vegetables.

TRADE EXHIBITS.

Hardy flowers in quantity were shown by Messrs. Barr and Son, Covent Garden, their group including a collection of pæonies and the new and beautiful Philadelphus Lemoinei. A group of well-grown double and single begonias was exhibited by Messrs. J. Laing and Sons; the varieties were most effective, especially the pink Lady Giffen. Messrs. H. Cannell and Sons, Swanley, made an effective display of tuberous begonias, staging the handsome group of first-rate double sorts in lovely colours. Hardy cut flowers were well and extensively shown by Messrs. J. Cheal and Sons, Crawley; the Spanish irises and the violas were especially attractive, and the latter afforded a most agreeable fragrance. Tuberous begonias from Mr. H. J. Jones, Ryecroft Nursery, Lewisham, consisted of stocky, free-flowered, and young plants of both single and double varieties representing a first-rate strain; there were some very distinct bicolor forms, having pink inner segments and scarlet outer ones, others with large white centre and scarlet border; the pink varieties, both single and double, were especially good. Mr. J. R. Box, West Wickham, showed well-developed hardy flowers, and a splendid group of begonias, tastefully arranged around a centre of tall and graceful palms and dracænas. Mr. T. Butcher sent floral decorations, and Mr. G. Cooper staged specimen pelargoniums.

RICHMOND, June 29.

THIS successful suburban society held its twenty-fourth annual show in the spacious grounds of the old Deer Park at Richmond. It was a first-rate show, and being in a fashionable centre the tradesman were well represented, and their exhibits assisted largely to make the display so fine. Roses were good, much better than at Croydon.

ROSES.

The class for forty-eight trebles at Richmond is possibly the only one of its kind in the country; there were several competitors, and Mr. B. R. Cant, Colchester, secured the fine silver cup offered as first prize by Mr. and Mrs. A. Chancellor, the Mayor and Mayoress of Richmond. His varieties were Ulrich Brunner, Mrs. Sharman Crawford, Gustave Piganeau, Cleopatra, Clara Watson, A. K. Williams, Madame de Watteville, Dupuy Jamain, Henrich Schultheis, Kaiserin Augusta Victoria, Victor Hugo, Duchesse de Vallambrosa, Madame Gabriel Luizet, Duke of Edinburgh, Annie Laxton, White Lady, Mrs. W. J. Grant, Souvenir de S. A. Prince, Niphetos, Madame Cusin, Captain Hayward, Anna Olivier, Prince Arthur, Lady Mary Fitzwilliam, Dr. Andry, Antoine Renoire, Comte Reàmband, Souvenir d'Elise Vardon, The Bride, Marie Verdier, Suzanne Marie Rodoconachi, Souvenir d'un Ami, Duke of Wellington, Rubens, Marie Baumann, Margaret Dickson, Crown Prince, Maréchal Niel, Violette Bouyer, La France, General Jacquiminot, Marie Van Houtte, La Fraicheur, Caroline Testout, Souvenir de la Malmaison, Helen Keller, Mrs. J. Laing, Marquise Litta; Messrs. F. Cant and Co. a close second, and Messrs. D. Prior and Son third. The best twenty-four roses, distinct, three blooms of each, were staged by Messrs. D. Prior and Son, Colchester, who won with charming blooms of Marie Van Houtte, Prince Camille de Rohan, Marchioness of Devonshire, Fisher Holmes, Caroline Testout, Tom Wood, Prince Arthur, Rubens, A. K. Williams, Souvenir d'un Ami, Marchioness of Dufferin, Dupuy Jamain, Duke of Edinburgh, Mrs. W. J. Grant, Souvenir d'Elise Vardon, Mrs. S. Crawford, Violette Bouyer, Helen Keller, Lady Mary Fitzwilliam, La France, Mrs. J. Laing, Souvenir de S. A. Prince, and Ulrich Brunner, all good flowers; Messrs. F. Cant and Co. second. In an amateurs' class for a dozen blooms the winner of the first prize was Mr. W. Romanes, Old Windsor, who showed very fair specimens of Captain Hayward, Madame Lambard, Hon. E. Gifford, Maman Cochet, The Bride, and Charles Lefebvre; Mr. P. Kitchen second, and Mr. West third.

Mr. R. E. West, Reigate, was first in a special class for a dozen tea and noisette roses, with a pretty set; Mr. J. B. Marsh, Claygate, second. Mr. West was also first in a special class for twenty-four roses, showing fine flowers of Madame Gabriel Luizet and Baroness Rothschild. The best twelve tea roses of one variety were lovely blooms of Rubens, staged by Messrs. F. Cant and Co., Colchester; Messrs. D. Prior and Son, Colchester, second, with Souvenir de S. A. Prince. The best twelve blooms of a H.P. rose were brilliant examples of Duke of Edinburgh, shown by Mr. B. Cant, Colchester; Messrs. F. Cant and Co., second, with Mrs. W. J. Grant; and Mrs. Messrs. Paul and Son, Cheshunt, third, with Rev. Allan Cheales. Mr. Charles Turner, Royal Nurseries, Slough, was a good first for a dozen treble trusses, showing very fresh flowers of Gustave Piganeau, Caroline Testout, Duke of Teck, Mrs. S. Crawford, Souvenir de P. Carnot, Duke of Edinburgh, La France, Duke of Wellington, Marie Baumann, Mrs. J. Laing, Marchioness of Downshire, and Ulrich Brunner; Messrs. D. Prior and Son, second, and Messrs. F. Cant and Co., third. In the local amateur classes for roses, first prizes were scarce, but seconds were awarded to Mr. W. Jones, gardener to J. Wigan, Esq., Mortlake, in two classes.

GROUPS AND PLANTS.

A charming group of Malmaison carnations won for Mr. Farr, gardener to A. Pears, Esq., the first prize in its class; the young plants shown were well grown, and carried fine full blooms, deliciously fragrant. Mr. C. Want, gardener to Sir F. Wigan, Bart., J.P., Close Lawn, East Sheen, won the chief honours for a group of flowers arranged for effect, putting up a pretty display, in which odontoglossums, Gladiolus The Bride, crotons, and gypsophylla figured freely. Mr. G. Watts, gardener to H. Little, Esq., Baronshalt, Twickenham, won first place for half-a-dozen specimens of zonal pelargoniums, showing very fine examples of J. Miller, S. Birkin, and several seedlings. The first-prize group of tuberous begonias was staged in a half-circle by Mr. Johnson, gardener to D. H. Scott, Esq., Old Palace, Richmond; the blooms were of fair size and very bright, Mr. C. Turner, Slough, gained first prizes for six show pelargoniums, and for the same number of fancy forms, showing lovely specimens, all one mass of flowers. Mr. J. Wiggins, gardener to W. Stacy, Esq., West Drayton, was second for show pelargoniums, with well-grown specimens. The chief honours for six exotic ferns were won by Mr. Farr, gardener to A. Pears, Esq., Isleworth, who staged Asplenium bulbiferum, Dicksonia antarctica, Davallia fijiensis, Phlebodium aureum, Nephrolepis exaltata, and Davallia bullata. Mr. Gibson, gardener to A. H. Watts, Esq., Devonhurst, Chiswick. The best half-dozen specimen foliage plants were sent by Mr. Vause, Leamington, who showed Croton Andreanum, C. Warreni, Phœnix dactylifera, Kentia Belmoreana, K. Fosteriana, anti Latania borbonica. Mr. Vause was the only exhibitor of large specimen stove and greenhouse flowering plants, and the set of six that secured him the chief prize were were freely-flowered examples of Bougainvillia glabra Sanderiana, Statice profusa, Aphelexis macrantha rosea, Stephanotis floribunda, Dipladenia boliviensis, and Erica ventricosa grandiflora.

Mr. H. E. Fordham, the Nurseries, Twickenham, arranged a charming group planof ts on a space not exceeding one hundred square feet. It was a full semicircular arrangement of crotons, cattleyas, carnations, and gloxinias, set in a bed of maidenhair fern, over these were arranged graceful panicles of gypsophylla, and this had a most charming effect; a few graceful palms, tuberoses, and liliums rose amid and above the other subjects, and the whole produced an exceedingly pleasing effect; Mr. M. Vause, Leamington, second; Mr. J. Russell, third. The first prize for six orchids was won by Mr. A. Howard, gardener to H. Little, Esq., Baronshalt, Twickenham, who staged fine examples of Cattleya Warneri (with fourteen flowers), C. gigas, C. Mendeli, C. Mossiæ, Lælia tenebrosa grandis, and Cypripedium Veitchi; Mr. W. H. Young, orchid grower to Sir F. Wigan, Bart., Clare Lawn, East Sheen, came second with Lælia tenebrosa, Cattleya Mendeli, Cypripedium Rothschildeanum, Cattleya Mossiæ, C. Warneri, and Ærides Fieldingi. Mr. R. Johnson led in the class for a dozen tuberous begonias, and Mr. A. Meaton, gardener to J. B. Hilditch, Esq., Asgill House, Richmond, scored for half a dozen coleus, with finely coloured specimens. Mr. Ellis, Hounslow, had the finest nine gloxinias, a good set; while Messrs. J. Allsop and C. Want took first and second prizes respectively for caladiums. Mr. Allsop, gardener to W. Cunard, Esq., Orleans House, Twickenham, had the best half dozen palms, Mr. Farr coming second; Mr. Farr scored, however, for a single specimen foliage plant with Asparagus plumosus, and for a palm with Cocs plumosus.

Messrs. Barr and Son, Covent Garden, staged the best two dozen bunches of hardy flowers, setting up good masses of Inula glandulosa, Iris orientalis maxima, Eryngium alpinum, Potentilla Rollisoni, Linaria macedonica, Erigeron glabellus, delphiniums, Spanish iris, English iris, pæonies, poppies, Phlomis Russelliana, Heuchera sanguinea, Cypripedium spectabilis, &c.; Messrs. Paul and Son second; and Messrs. A. W. Young and Co. third.

VEGETABLES AND FRUIT.

In the class for a collection of vegetables, provided by Messrs. Sutton and Sons, Reading, Mr. C. J. Waite won first prize with fine Supreme potatos, Early Gem carrots, Perfection tomatos, Sutton's Magnum Bonum cauliflowers, White Leviathan onion, and Duke of Albany peas, all grand produce; Mr. J. Gibson, gardener to A. H. Watts, Esq., Demonhurst, Chiswick, second; and Mr. Foulkes, gardener to C. E. Strachan, Goddesden Place, Hemel Hempstead, third. Mr. C. J. Waite was also first for a collection of nine dishes of vegetables, a popular class provided by Messrs. J. Carter and Co., Holborn; his Early Morn peas and Mont Blanc cauliflowers were first-rate; Mr. J. Gibson second; and Mr. A. Bastile, gardener to the Rev. O. Powell, Weybridge, third. In the society's class for twelve dishes of vegetables the first prize was won by Mr. C. J. Waite with a fine group of produce; Mr. Bastile second; and Mr. J. Gibson third. Mr. J. Osman, Ottershaw Park, Chertsey, had the best collection of fruit, showing Buckland Sweetwater and Black Hamburgh grapes, Hero of Lockinge melon, Brown Turkey figs, Royal George nectarines, and Violette Hâtive peaches; Mr. Ellis, Hounslow, second. Mr. Blake, Clandon Park Gardens, Guildford, was first for black grapes with Madresfield Court. Mr. Osman first for white grapes with Buckland Sweetwater. In other fruit classes Mr. Meaton gained firsts for black and for white grapes; Mr. J. Gibson was first for two dishes of strawberries, with President and Royal Sovereign in fine condition; Mr. Farr scored for a single dish of strawberries, with good fruits of President; Mr. Bolton led for peaches with Stirling Castle, and Mr. Allsop for nectarines with Early Rivers; and Messrs. Sallows and Ellis scored respectively with cucumbers and tomatos.

MISCELLANEOUS EXHIBITS.

One of the finest of trade displays came from Mr. J. Russell, Richmond, who showed a tasteful group of well-grown and finely-coloured hardy plants of value, by reason of their bright or variegated foliage; cornus, Japanese maples, enonymus, ivies, golden oaks, &c., were most pleasingly associated. Messrs. F. Sander and Co. staged new plants in abundance. Mr. W. Thomson, Sheen Nurseries, Richmond, put up large groups of Hydrangea paniculata, spiræas, and bamboos. A bright group of orchids came from Messrs. B. S. Williams and Son, Holloway, and contained good specimens of Cypripedium Lebandyanum, Lælia purpurata, Aerides Fieldingi, &c. Messrs. R. Wallace and Co. staged liliums, calochorti, and irises in plenty, and made a pretty display. Mr. Foster, Brockhampton Nurseries, Havant, sent a large collection of fragrant and bright sweet peas; and Messrs. A. W. Young and Co., Stevenage, showed gloxinias, a miniature rockery, filled with alpine and other small hardy plants in flower, and backed by dwarf and rare conifers. Mr. A. Perry, of Winchmore Hill, sent a grand lot of hardy flowers, his forms of Inula glandulosa being especially noteworthy. A handsome group of well grown pot roses, backed by tall bamboos and standards of the useful Hydrangea paniculata, was an effective exhibit contributed by Messrs. J. Veitch and Sons, Chelsea. Japanese maples, and also a group of stove plants, were well set up by Messrs. Fromow and Sons, Chiswick.

Messrs. T. Rivers and Sons, Sawbridgeworth, made many mouths water with their wonderfully fine peaches, nectarines, 1897 and 1898 apples, cherries, etc. The new Thomas Rivers peach was a great attraction. A most gorgeous exhibit of cannas came from Messrs. H. Cannell and Sons, Swanley, and was probably the finest this firm has ever shown; every plant was a perfect specimen with a grand spike, and each grown in a 48 sized pot. Hardy flowers were contributed by Messrs. J. Jackman and Son; Woking; roses by Mr. Spooner, Woking. Carnations were admirably shown both by Messrs. J. Peed and Son, Norwood, and Messrs. W. Cutbush and Son, Highgate, the latter sending Malmaison varieties.

Mr. H. Howard, gardener to H. Little, Esq., Twickenham, put up a beautiful lot of orchids not for competition; fine examples of odontoglossum, citrosmum, cattleya gigas, C. Mendeli, C. Mossiæ, Lælia grandis tenebrosa, Cymbidium Lowianum, and cypripediums in variety; this was a splendid amateur non-competitive display.

SHIRLEY GARDENERS' ASSOCIATION.

AT the monthy meeting of this society, held at the Parish Room, Shirley Southampton, there was a fair attendance, the President, Mr. F. G. Spranger, presiding. The lecture, "Some Asiatic Plants Noticed During Travels in Japan, China, and Ceylon," was given by Mr. W. Frank Perkins, M.R.A.C., and being most profusely illustrated by lantern views, gave an admirable idea of the gigantic proportions attained by tropical vegetation. His remarks on the tea and coffee plantations of Ceylon were especially interesting, and also his description of the methods of cultivation adopted there in reference to these crops. Much attention was also given to the palms, bananas, and spice trees, views of all being thrown on the screen with many other plants. At the close of the lecture a very hearty vote of thanks was accorded to Mr. Perkins, and gracefully acknowledged.

There was a good display of roses from Mr. W. H. Rogers, Mr. W. Knapp, Mr. J. Hallett, and Mr. G. Verdon. Mr. W. Knapp gained a certificate for twelve plants of caladiums, and Mr. B. Ladhams, F.R.H.S., one for a new seedling white pink, and he also showed a good lot of hardy herbaceous cut blooms. Mr. E. J. Wilcox prints of tropical plants.

COMING EVENTS.

BITTON AND OLDLAND HORTICULTURAL ASSOCIATION, August 20
CHELMSFORD CHRYSANTHEMUM SHOW, November 16 and 17.
HARTLEPOOL CHRYSANTHEMUM SHOW, November 15 and 16.
KENILWORTH HORTICULTURAL SOCIETY, July 14.
LOUGHBOROUGH HORTICULTURAL SOCIETY, July 20.
ROMSEY AND DISTRICT HORTICULTURAL SOCIETY, August 1.
THE DITTONS HORTICULTURAL SOCIETY, July 13.
WOKING CHRYSANTHEMUM SHOW, November 2 and 3.

New Plants, Flowers, and Fruit.

Stanhopea Rodigasianum.

A wonderful orchid with a huge flower that measures eight inches across and hangs at the end of a very long peduncle; the upper sepal is concave, creamy white, tinged with green on the inside and heavily spotted with crimson on the back; the lower sepals are of a similar colour, but on the inner surface have towards the centre an aggregation of large and intense blackish crimson spots of considerable size. The petals stand out straight, and are wholly of a creamy colour. The lip is large, and has a dark crimson base and whitish centre; the large wings and apical tip are shining and creamy, the whole of their surfaces being freely dotted with crimson. The column has a long curved base streaked with crimson, the apex being spotted with crimson on a rosy ground. The column curves over and almost meets the upturned lip. F.C.C., R.H.S., June 28. Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking.

Cattleya Adela.

This is a handsome hybrid cattleya with soft purplish sepals and petals and a fine lip that has a purple apex and orange-stained throat. The bloom measures about six inches across, and the margins of the petals are so reflexed as to touch each other behind. The lip has a frilled margin and is very broad, crimson-purple, shaded with rose-purple; there are streakings of orange or gold at the throat; this is the result of crossing C. Percivaliana with C. Trianæ. A.M., R.H.S., June 28. Messrs. J. Veitch and Sons, Chelsea.

Lælio-cattleya Canhamiana var Joyce Wigan.

A beautiful variety, with handsome broad sepals and petals, that are of a soft lilac colour, tinged with rosy-purple at the margins. The lip is very large, the elongated tube being white at the base, but otherwise of a rich purple hue, tinged with crimson at the mouth of the broad labellum; the base of the throat is lined with dark gold. The margin of the lip is waved and crisped very prettily. A.M., R.H.S., June 28. Mr. W. H. Young, orchid grower to Sir F. Wigan, Clare Lawn, East Sheen.

Cypripedium I'Ansoni.

A splendid new hybrid cypripedium, with very large flowers that have long drooping petals, palest green, with numerous claret-purple spots; the margins are also slightly hairy; the sepals are aboul equal, pale shining rose, with curved lines of intense blackish-purple, the lines being composed of contiguous spots, and half the lines longer than the others. Lip very full, deep reddish-rose, with pale rose base. A fine and attractive hybrid, obtained by crossing C. Morganiæ with C. Rothschildeanum. It is named after Mr. I'Anson, orchid foreman to Messrs. H. Low and Co. F.C.C., R.H.S., June 28. Messrs. Hugh Low and Co., Bush Hill Park, Enfield.

Nasturtium Queen of Tom Thumbs.

A pretty dwarf form, compact in habit, and having rich crimson-scarlet flowers. The leading difference in this and other forms of the Tom Thumb nasturtium is having the small leaves heavily splashed and variegated with creamy white and whitish green. A.M., R.H.S., June 28. Messrs. Watkins and Simpson, Neal Street, Long Acre, W.C.

Gaillardia W. B Childs.

A handsome and bold gaillardia, with large flowers that have very broad, deep yellow ray florets, that are tinged with scarlet at the base. A fine and useful garden plant. A.M., R.H.S., June 28. Messrs. Kelway and Son, Langport.

Digitalis purpurea grandiflora.

This is a marvellously fine form of the popular foxglove, producing huge spikes of large, full flowers, varying in colour in different plants, and mostly having very pretty spots in the throat. This is rather a strain of foxgloves than any one particular plant. A.M., R.H.S., June 28. Messrs. J. Veitch and Sons, Chelsea.

Begonias.

Florence Nightingale is a fine double white tuberous begonia, broad in petal, and very substantial.

Thunderer, a beautiful soft scarlet tuberous begonia, very double, of large size, with the outer petals much notched, and the inner ones less so. A.M., R.H.S.. June 28. Mr. B. R. Davis, Yeovil, Somerset.

Malmaison Carnations.

Mrs. de Satge, a huge flower of a rich but soft rosy-scarlet hue; very fragrant.

Lord Welby, very handsome, and with broad segments; soft rosy-scarlet, more rosy than Mrs. de Satge.

Margot, a pretty and broad-petalled form of a deep red hue.

Baldwin has flowers of immense size, and of a most pleasing and deep pink shade. A.M., R.H.S., to each, June 28. Mr. C. Blick, gardener to Martin R. Smith, Esq., The Hayes, Kent.

Campanula mirabilis.

A distinct campanula, with rounded or somewhat cordate leaves that are rigid and deep shining green. The flower stem is blanched from quite at the base, and bears large broadly campanulate flowers of a very pale blue tint, almost white at the base, inside; the five lobes at the mouth of the corolla have a deeper shade of blue on either side of the central whitish band. A hardy perennial that flowers throughout the summer. F.C.C., R.H.S., June 28. Messrs. G. Jackman and Son, Woking.

Roses.

Rev. Allan Cheales.—This is a charming h.p. rose, very full and double; the colour is deep rose shaded with carmine. The petals are very broad and rounded, turning back prettily at the margin. The flowers are but slightly scented. A full-page illustration of this fine rose was given in the Gardeners' Magazine, July 8, 1897.

Una is a distinct and new rose obtained by crossing Rosa canina with a garden variety of R. indica It has a climbing or rambling habit, with neat shining foliage, and an abundance of semi-double flowers of a soft creamy colour, deeper in the centre and lighter at the apices of the segments. The fragrance is exactly that of the wild dog rose. A fine garden rose. A.M., R.H.S., to each, June 28 Messrs. Paul and Son, Cheshunt.

Iris juncea numidica.

A pretty iris of slender and elegant growth, bearing graceful flowers of a very rich golden yellow; the standards are small and droop slightly; the falls are very fine, and the base is feathered with scarlet veins. A.M., R.H.S. June 28. Messrs. R. Wallace and Co., Colchester.

Lupinus polyphyllus.

A very pretty lupin, not over tall and with a bushy habit, bearing long full spikes of flowers that are of a pretty soft yellow shade. This should prove a fine hardy plant if amenable to general cultivation. A.M., R.H.S., June 28. Messr Kelway and Son, Langport, Somerset.

Philadelphus Lemoinei.

An exceedingly graceful hybrid form of the ever-popular "Syringa." It has flowers smaller than those of P. coronaria, and leaves of less size also; the growths are slender but covered with tiny branchlets of soft creamy-white flowers that are extremely beautiful. A.M., R.H.S., June 28. Messrs. Barr and Sons, Covent Garden and Long Ditton.

Peach Thomas Rivers.

This is one of the largest of peaches, quite a new variety, and one that is likely to prove useful for late supplies. The fruits are of the largest size and of a pretty peach-fawn hue on the shaded side, with rich but soft scarlet shading and streakings on the sunny side. When started with Early Rivers and Cardinal nectarines it does not ripen until four to six weeks later. It is stated to be also a good coolhouse peach. F.C.C., R.H.S., June 28. Messrs. T. Rivers and Son, Sawbridgeworth, Herts.

Rose Show Fixtures in 1898.

July 2 (Saturday).—Crystal Palace (N.R.S.).
,, 5 (Tuesday).—Diss, Harrow, and Hereford.
,, 6 (Wednesday).—Chelmsford, Ealing, Farningham, †Hanley, Hitchin, Redhill (Reigate), and Tunbridge Wells.
,, 7 (Thursday).—Woodbridge.
,, 8 (Friday).—Ulverston.
,, 9 (Saturday).—Manchester.
,, 12 (Tuesday).—*Wolverhampton, and Westminster (R.H.S.)
,, 13 (Wednesday).—Bedford, Ipswich, Maidstone, and *Newcastle-on-Tyne.
,, 14 (Thursday).—Halifax (N.R.S.), Brentwood, Canterbury (Hospital Fund), Eltham, Helensburgh, and Reading.
,, 16 (Saturday).—New Brighton.
,, 20 (Wednesday).—†Cardiff
,, 21 (Thursday).—Sidcup.
,, 26 (Tuesday).—Tibshelf.
August 4 (Thursday).—Bedale.

* Shows lasting three days. † Shows lasting two days.

Rosebank, Berkhamsted, Herts. Edward Mawley.

The West Patent Pottery and Machine Company (Limited) has been formed to acquire the existing patents in pottery manufacture invented by Mr. West, of Roundhay, Leeds, and for their development for practical purposes. According to the prospectus the patents to be secured were issued between 1889 and 1896, and the terms of their acquisition include all British rights, together with the land, occupying an area of some eight acres, situated at Higham Hill, Walthamstow, with sundry erections and kilns thereupon, together with a limited number of machines at present in operation. The purchase comprises the rights to manufacture and supply the machinery for working such patents and all improvements therein for the production of flower-pots, telegraphic insulators, plumbago crucibles, electrical and medical jars, and domestic ware made of plastic materials, as well as the granting of licences upon royalties and the promotion of subsidiary companies. Upon a recent visit to Walthamstow the process of manufacture was exhibited. The material used in production is first formed by a mechanical contrivance into a lump of desired size, and this is then placed in the moulding machine, when a plunger presses the clay into a mould of the required shape, and subsequently two or three revolutions of the trimming wheel suffice to remove superfluous material from the edges, and a pressure from a piercing appliance simultaneously applied, gives the perforation in the bottom of the pot. Thus it is claimed that the time occupied in producing pots by this process effects a considerable saving by comparison with the old method, while the shape is improved, and with regard to porosity, it is stated that the utensils made by these machines are sufficiently porous. The capital of the company is £100,000, of which the vendors take £55,000 in shares, and £25,000 in cash, leaving a working capital available of £20,000. The amount in shares already disposed of thus leaves only £45,000 actually available for public subscription.

Coming of Age Festivities at Stourbridge.—The coming of age of Mr. E. Stanley Webb, eldest son of Mr. Edward Webb, was celebrated on Saturday, the 25th ult., Mr. and Mrs. Webb having invited the staff of Messrs. Webb and Sons to their beautiful residence at Studley Court, Stourbridge. There were about four hundred present, including the staff from Wordsley and the hands employed at the Kinver Seed Farms, also the managers from the chemical works at Chester. Fine weather prevailed and the visitors were enabled to spend a very pleasant time. A variety of games was provided for their amusement, whilst many availed themselves of boating on the lake, a fine sheet of water four acres in extent. The house and grounds were both open, and in the early part of the proceedings, afternoon tea was served, after which the whole party was photographed on the terrace. The band of the 2nd Battalion Bedfordshire Regiment gave great pleasure by their performances. Dinner was served in a large marquee, after which Mr. W. W. Wyld, on behalf of the staff, presented Mr. Stanley Webb with an illuminated address, together with several handsome articles, including a travelling-bag, dressing-case, hunting-crop, sandwich case, &c. Mr. Wyld testified to Mr. Stanley Webb's popularity with the staff. Mr. Stanley Webb, in responding, said he could not sufficiently thank them for the kindly feeling towards him as expressed in the address, and he also acknowledged his indebtedness to them for the assistance they had given them since his connection with the business. "Success to the Firm" was proposed by Mr. J. W. Berrington, who referred to the great abilities and untiring energies of the firm—Colonel Webb and Mr. Edward Webb. They always kept the business abreast with the times. Every year saw some new development, either the extension of the warehouses at Wordsley, the acquisition and enlargement of the works at Chester, or, as it had been during the past year, the purchase of an additional estate adjoining their seed farms at Kinver; and also the erection of more plant houses at Wordsley for the growth of certain flowers and other special experiments. Colonel Webb, in replying, said, great as the business was, wonderful as the growth had been, he confidently looked forward to even greater progress in the future. Mr. T. R. Marshall proposed the health of Mr. and Mrs. Edward Webb, who were so highly esteemed in the district no less for their liberality to public institutions than for their unassuming benefactions in private life. Mr. Edward Webb responded. He said the event was one of the greatest in his life, and he hoped his son would uphold the traditions of the firm, and maintain the high position it occupied.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Cockscombs, Celosias, and Love-lies-bleeding.—A. T. J., Harrow: You are wrong in stating that cockscombs, celosias, and love-lies-bleeding all belong to the same genera. They all belong to the same natural order, viz., Amaranthaceæ. The cockscomb is Celosia cristata, and from this species the garden forms now so popular in many establishments have been developed. The plants commonly known in gardens as celosias are cultivated forms of Celosia pyramidalis. Love-lies-bleeding is Amaranthus caudatus, and the closely allied Prince's Feather is A. hypochondriacus.

Scalding of Madresfield Court Grapes.—J. C., Glastonbury: The berries sent are not affected with any disease in the general acceptance of that term, but have suffered very severely from scalding. The remedy is better ventilation. Sometimes a certain vine in a house is year by year the only one upon which grapes are scalded, and this being so, careful observation should be made, and it will be probably found that ventilation does not properly affect this vine, while the sun has considerable influence upon it. Bad glass is sometimes answerable for scalding, but insufficient or improper ventilation, sometimes caused by the construction of the ventilators, is the general cause. Scalding is due to the action of strong sunlight upon berries that are more or less covered with condensed moisture.

Loss of Branches on Pear and Apple Trees.—E. G., Deal: In the absence of any particulars as to soil, subsoil, age of trees, &c., we cannot say with certainty what is the cause of shoots and branches of both pears and apples succumbing as in the case of the specimens sent. It is highly probable that canker has set in as a result of the roots having recently entered a cold, heavy subsoil, and had their growing points killed. If the decay was less general than your letter suggests, it is, we should be inclined to consider, due to the ravages of some borer at a point lower down the branch than the shoots sent. Carefully examine the trees, and if no trace of boring can be found then canker is the cause. The remedy can be provided by bringing the roots nearer the surface, both by surface feeding now and lifting in the autumn.

Forsythias.—J. F., Cardiff: These pretty yellow-flowered shrubs are easily propagated either by layering or by cuttings. The latter should be taken about August, and inserted in light soil; they will root freely if placed under a hand-light in a pit or greenhouse, or even in a cold frame if kept close for awhile. The two commonly cultivated species are F. suspensa and F. viridissima, both early flowering, and producing yellow flowers along their graceful growths. F. suspensa has fewer flowers than F. viridissima, but these are of a rich canary yellow colour, and rather fuller than in the latter species. F. viridissima was introduced by the celebrated traveller and collector, Mr. Fortune, who sent it to Chiswick in 1845. It was at first treated as a greenhouse plant, but as soon as stock was obtained experiments were made, with the result that the species was found to be quite hardy. There is a hybrid between the two species alluded to, and it is named F. intermedia; it has the habit of F. viridissima, but the flowers more closely resemble those of F. suspensa. All three are useful plants for spring flowering, are easily cultivated, and may be grown in pots, forced slightly, and used for conservatory decoration.

Arpophyllum giganteum.—P. S. T., Sutton-on-Hull: This is a by no means commonly grown orchid, but it is nevertheless a very useful one, especially where there are large orchid houses. There are some half-dozen species of Arpophyllum, all natives of Mexico and Central America, but A. gigantea is the boldest of them all. Even when not flowering it is a handsome plant by reason of its somewhat drooping, dark green, ensiform leaves, one of which surmounts each growth. The flower spikes are usually produced during April and May; they rise from the top of the growth, are from eight inches to a foot long, bearing a large number of small but beautiful blossoms of a dark purple and rose colour. In a cool house the flowers last in perfection for about three weeks. Being a Mexican plant, it requires rather warmer treatment than is generally accorded the cool odontoglossums; the intermediate house will suit it if a position at coolest but light end is given it. Failing such a house, place the plant in the warmest corner of the cool house. The plants require potting much in the same way as cattleyas, but with rather more compost, though a large amount of drainage material must be provided. A liberal supply of water is needed during the growing season, but considerably less during the period of rest, though anything approaching the condition known as "drying off" must be avoided. This orchid loves an abundance of light, and like many other Mexican orchids, needs shade only during the brightest part of a hot day.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

R. F. J., Anglesey: Anthericum Liliago, Anthericum Liliastrum has a larger flower.

G. A. R., Lincoln: 1, Nicotiana affinis minor; 2, Maurandya Barclayana.

C. F., Hereford: 1, Rosa rugosa; 2, Piptanthus nepalensis; 3, a leaf of Polygonum Chaillueana; 4, Odontoglossum Cervantesi.

P. J. G., Oxford: 1, Franco aramosa; 2, Lilium umbellatum.

OBITUARY.

PROFESSOR ANTON KERNER, RITTER VON MARILAUN, the eminent [illegible] died, we regret to record, a few days since at Vienna, in his [illegible] Professor Kerner was educated for a doctor, and served for [illegible] medical staff of the General Hospital at Vienna, but he soon [illegible] study of medicine for botany, in which he achieved so much fame. He wrote a considerable number of works on botanical subjects, but that by which [illegible] known in this country is his "Natural History of Plants," of which an [illegible] English edition was published by Messrs. Blackie and Son a few years [illegible] In 1872 Professor Kerner was made a member of the Vienna Academy [illegible] Sciences, andfour years later on received the honour of Knighthood.

MARKETS.

Covent Garden.

BOTH fruit and vegetables are now plentiful, and the supplies are good. The [illegible] is brisk, and prices moderate. New potatos, peas, strawberries, cherries, and [illegible] berries have cheapened considerably.

FRUIT.—Tasmanian apples, 10s. to 20s. per case; strawberries, 4s. to 12s. [illegible] dozen punnets, 2s. to 3s. 6d. per gallon basket; cherries, 3s. 6d. to 7s. 6d. per [illegible] sieve; English grapes, 1s. 6d. to 2s. 6d.; Jersey, 1s. to 1s. 6d. per lb.; goose[illegible] 1s. 6d. to 2s. per half-sieve; lemons, 8s. to 16s. per case; bananas, 5s. to 9[illegible] bunch; pineapples, 2s. to 4s. 6d. each; green figs, 2s. to 4s.; peaches, 3s. to [illegible] dozen; melons, 1s. to 2s. each.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. [illegible] gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; [illegible] 2s. to 4s.; red roses, 1s. to 2s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, [illegible] to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; stephanotis, 2s. to 3s.; lily of the valley, 6d. to 1s.; white gladiolus, 6d. to 9d.; and pelargoniums, 4d. to 6d. per dozen sprays; bouvardias, 6d. to 8d. per bunch.

VEGETABLES.—English tomatos, 5d. to 6d.; Jersey, 4d. per lb; Canary, 9d. to 1s. per tray, 3s. to 3s. 6d. per case; Egyptian onions, 5s. to 6s. per bag; [illegible] 1s. 6d. to 2s. 6d. per dozen bunches; asparagus, 9d. to 3s. 6d. per bundle; new carrots, 4s. to 5s.; turnips, 4s. to 5s.; parsley, 1s. to 1s. 6d.; mint, 1s. 6d. to 2s. per dozen bunches; lettuce, 6d. to 9d. per score; cos, 1s. 6d. to 1s. 9d. per dozen; mushrooms, 5s. to 6s. per 12 lbs.; endive, 1s. 3d. to 1s. 6d.; cauliflowers, 1s. 6d. to 2s. 6d.; cucumbers, 1s. to 3s. 6d. per dozen; spring cabbages, 1s. 6d. to 2s. 6d. per tally; French beans, 2d. to 3d. per lb.; peas, 2s. to 4s. per bushel; vegetable marrows, 4s. to 6s. per dozen; spinach, 1s. 6d. per bushel; broad beans, 3s. 6d. to 4s. 6d. per bushel; rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; Jersey potatos, [illegible] to 7s. 6d.; Cherbourg, 6s. to 7s.; Canary, 5s. to 6s.; St. Malo, 6s. to 7s. per cwt.; Lisbon, 3s. per box.

Borough Potato Market.

Supplies of new potatos are now very heavy, but trade is good at moderate prices. Teneriffe kidneys, 2s. 6d.; St. Malo, 5s.; Jersey Flukes, 6s.; Kidneys, 5s. 6d.; Cherbourg Flukes, 4s.; kindneys, 3s. 6d. per cwt.; Lisbon rounds, 2s. per box.

THE WEATHER DURING THE WEEK ENDING JUNE 25, 1898

STATIONS.	TEMPERATURE OF THE AIR.				[illegible]	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	[illegible]
London	77·7	48·0	60·5	15·93	[illegible]	[illegible]
Croydon	77·0	47·0	60·2	15·67	[illegible]	[illegible]
Brighton	67·2	49·0	57·1	13·94	[illegible]	[illegible]
Bristol	68·0	46·0	56·7	13·72	[illegible]	[illegible]
Wolverhampton	73·2	43·5	56·8	13·78	[illegible]	[illegible]
Norwich	72·4	44·0	58·6	14·7[illegible]	[illegible]	[illegible]
Nottingham	74·0	45·0	57·9	14·39	[illegible]	[illegible]
Liverpool	70·2	48·9	55·5	13·06	[illegible]	[illegible]
Huddersfield	67·5	46·8	55·2	12·89	[illegible]	[illegible]
Bradford	69·8	50·0	58·7	14·83	[illegible]	[illegible]
Hull	—	—	—		—	

The mean reading of the Barometer during the week at Greenwich was 29·63 **inches, and** [illegible] **of the Thermometer** 60°·5, **the latter being** 0°·1 **below the week's average in the** [illegible] **1841—90. The direction of the wind was south-westerly, the horizontal movement of the** [illegible] **·34 per cent. above the week's average in the 16 years 1860—75. The duration of** [illegible] **sunshine in the week was** 39·3 **hours. The measured rainfall amounted to** 0·47 **of an** [illegible]

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JULY 5.—Scottish Horticultural Association. Hereford Horticultural Society. [illegible] Horticultural Society. Diss Rose Show.

WEDNESDAY, JULY 6.—Borough of Hanley Floral Fête; Three days. [illegible] Lewisham Summer Show; two days. Chelmsford and Essex [illegible] Ealing Summer Show. Farningham Rose and Horticultural Society. [illegible] Society. Reigate Rose Show. Tunbridge Wells Horticultural Society.

THURSDAY, JULY 7.—Norfolk and Norwich Rose Show. [illegible]

FRIDAY, JULY 8.—Ulverston Rose Show.

SATURDAY, JULY 9.—Royal Botanic Society: General Meeting. [illegible] Manchester Rose Show. National Amateur Gardeners' Association. [illegible] Royal Botanic Society's Gardens, Regent's Park. Wood Green [illegible]

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Setting Muscats ... ... [illegible]
Tall Bearded Irises ... ... [illegible]
The Weather ... ... [illegible]
Vegetables for Exhibition ... ... [illegible]
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Calochortus Purdeyi ... [illegible]
Tall Beaded Irises ... [illegible]

"THE BOY STOOD ON THE BURNING DECK." [illegible] declared that his reason for so doing was that it was too hot [illegible] reason was that the gallant boy would not desert his [illegible] father's commands he stayed upon the burning ship, and went to a [illegible] the last minute young Casabianca had been saved, what then? He w[illegible] very much burned, and the best thing for him would have been an [illegible] Holloway's famous Ointment, a certain remedy in all cases of burns, [illegible] tism, lumbago, sciatica, bronchitis, asthma, sore throat, and the like.—[illegible]

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" 3.	" 100 "	6/- "

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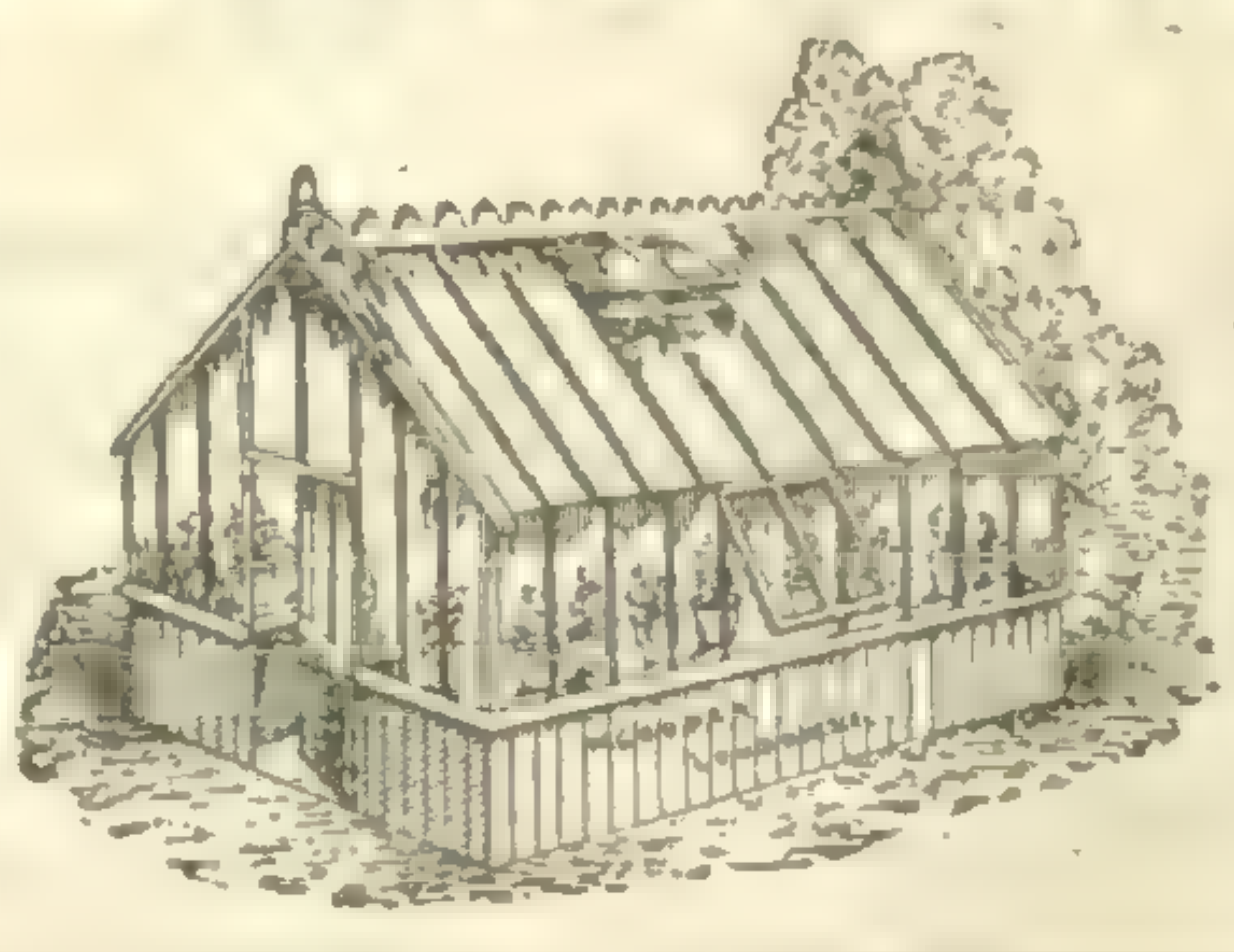

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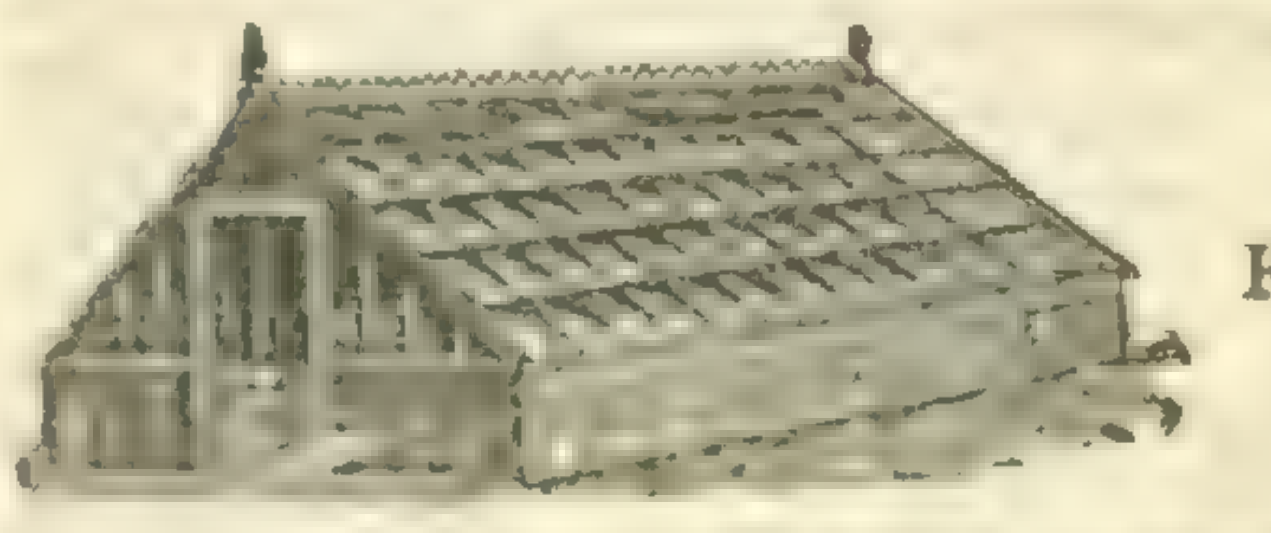

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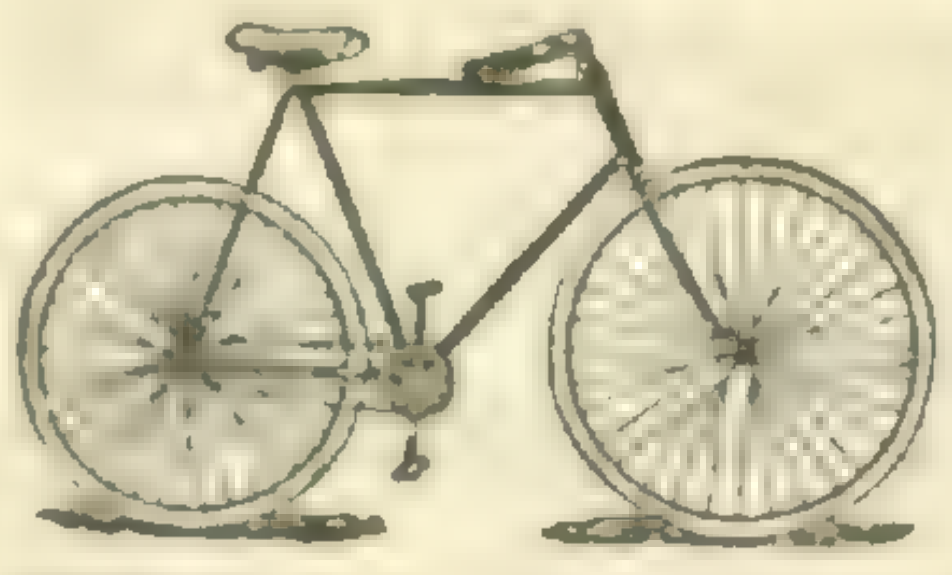

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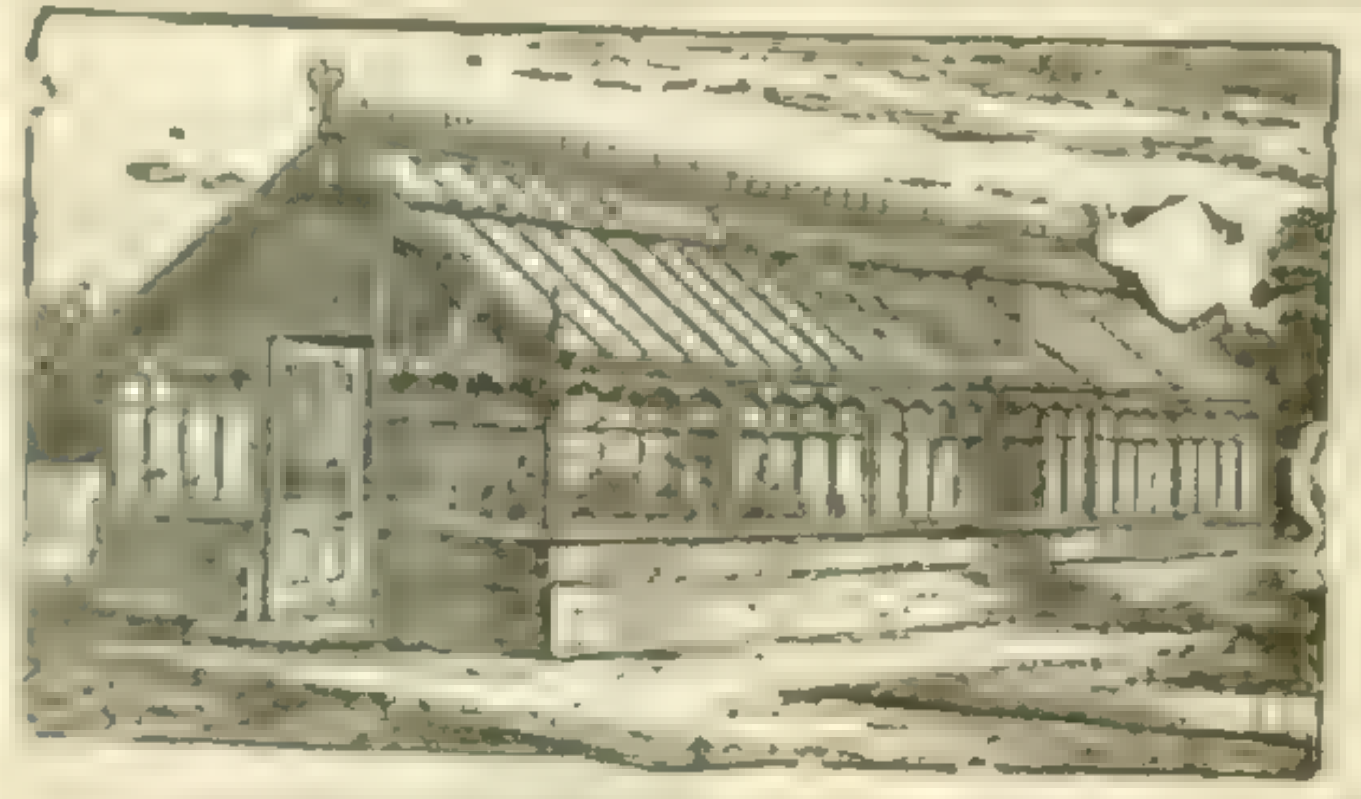

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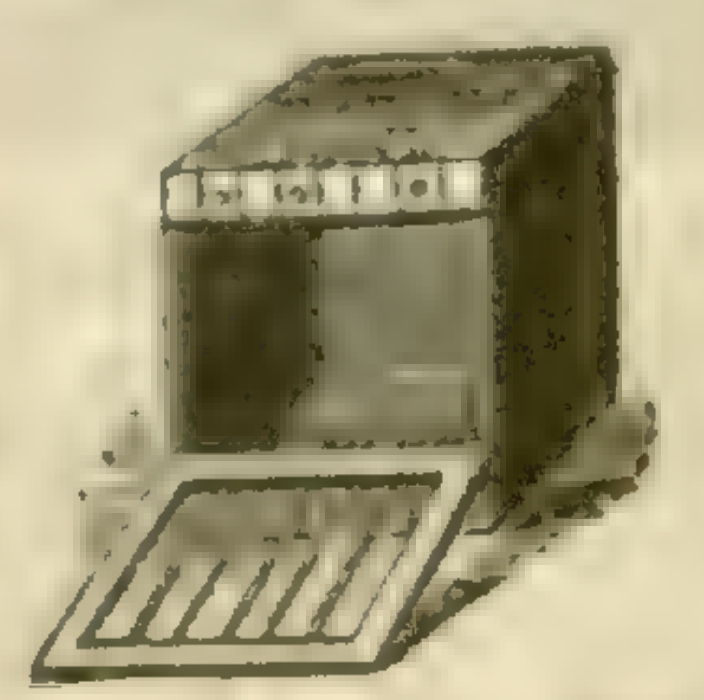

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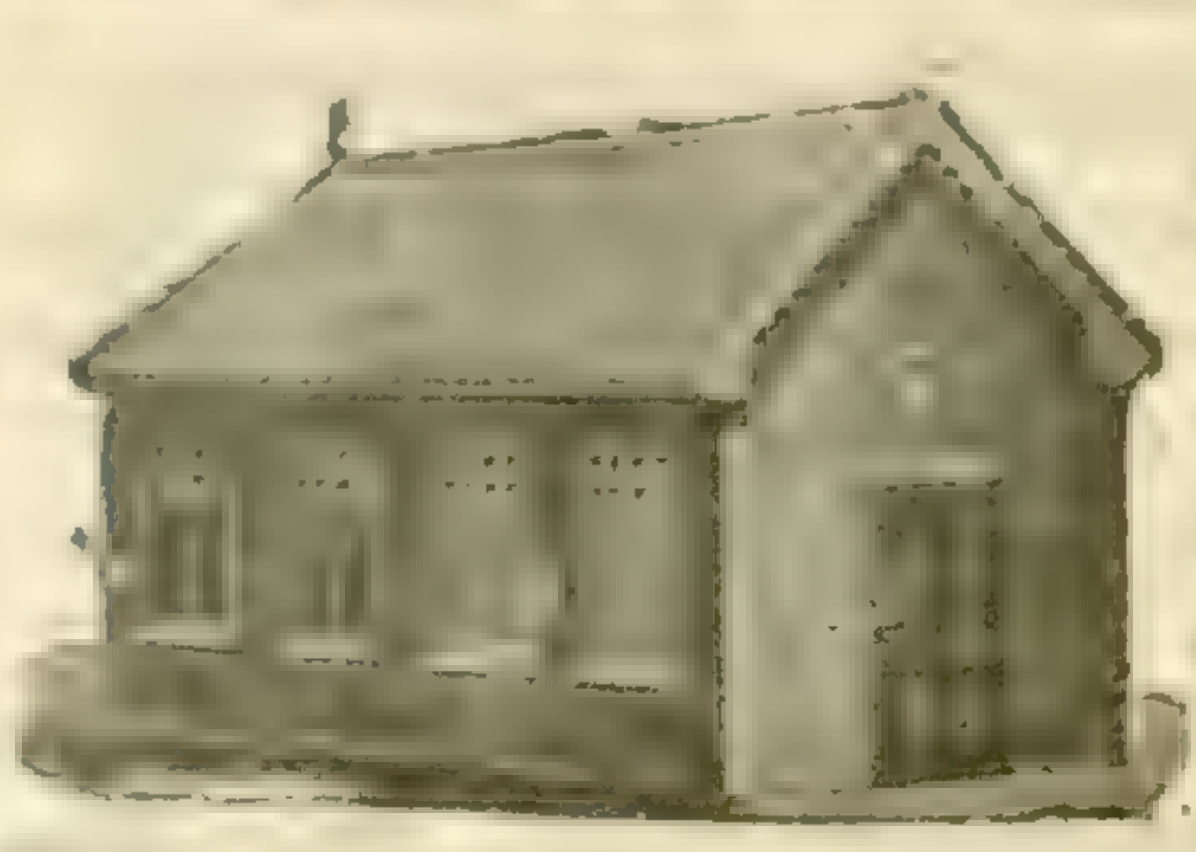

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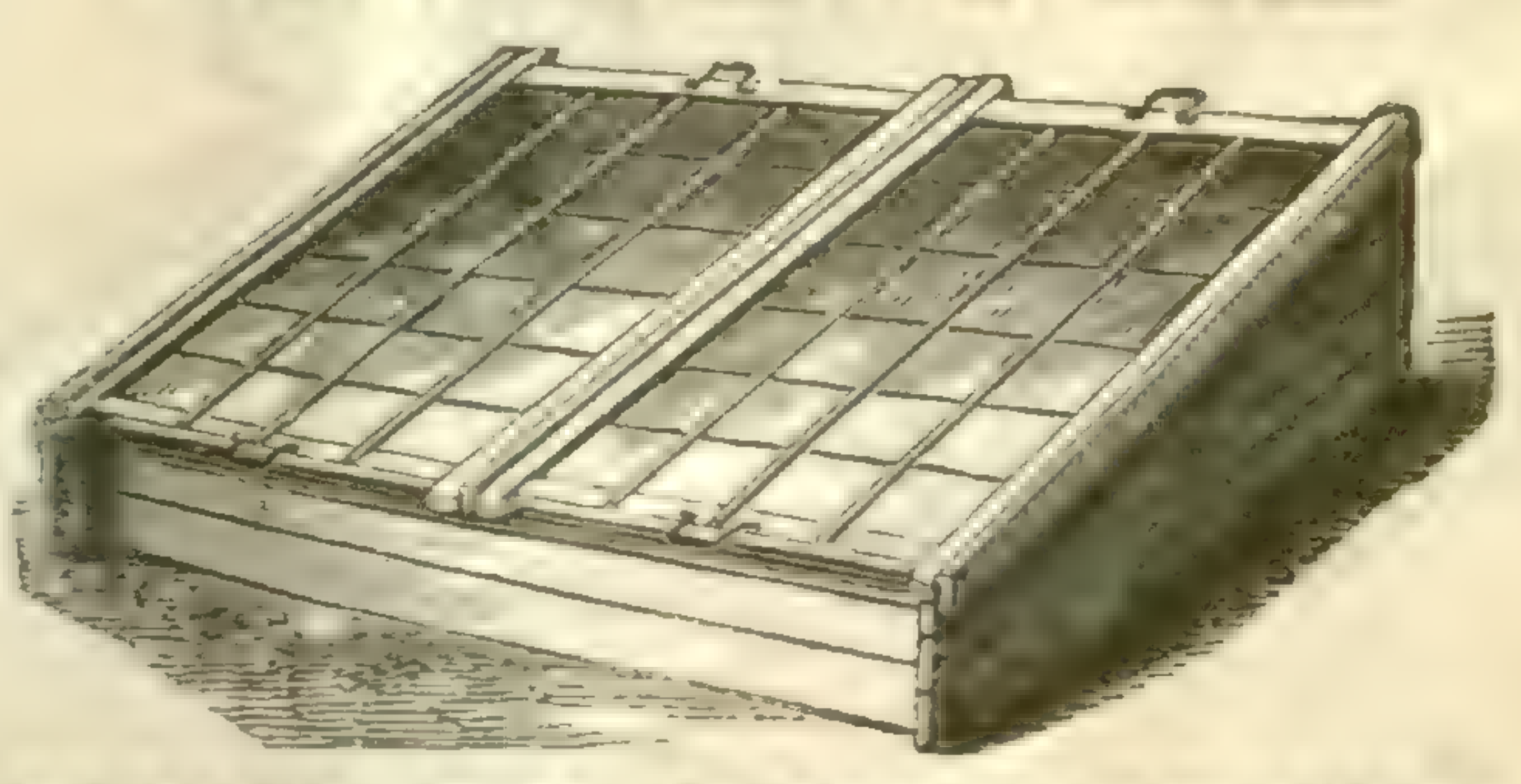

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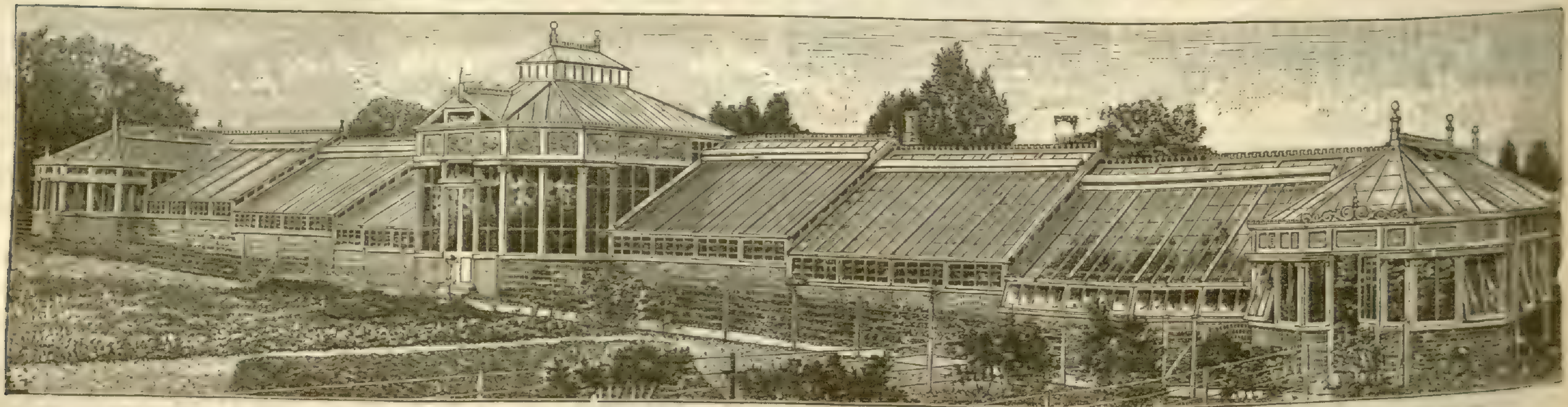

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PROSPECTUS.

OBJECTS OF THE COMPANY.

This Company has been formed to acquire the Patents, hereinafter referred to, and the Land, Plant, Machinery, to work such Patents and all improvements thereto, to build machines, to manufacture and deal in Flower Pots, Telegraph Insulators, Plumbago Crucibles, Jam Pots, Electric Battery Jars, Medical Jars, Basins, and all kinds of domestic ware made of any plastic material, glass, &c., to grant licenses on royalty, or to let on hire or on royalty, or to sell outright, the patent machines, and to form or promote subsidiary companies, and for the other objects set out in the Memorandum of Association.

The inventions (the British rights for which have been secured by the Company) are not simply improvemements on the machines now in use in the trade, but to introduce a machine built on entirely new and distinct principles, and the great improvement in the quality of the work produced, and the much lower cost, combined with the rapidity of production, will, it is confidently believed, completely revolutionize the important trade in articles such as those above mentioned.

The Patents are as follows:—

United Kingdom,	No. 16,264,	dated	Oct. 16th, 1889,	granted to W. West.
,,	6,704	,,	May 1st, 1890,	ditto
,,	7,406	,,	May 13th, 1890,	ditto
,,	23,640	,,	Dec. 22nd, 1892,	ditto
,,	10,471	,,	May 15th, 1896,	ditto

Messrs. Abel and Imray, the Patent Agents, have made a search as to any prior British Patents affecting the Patents already granted, and their report has been laid before Mr. Bousfield, Q.C., M.P., whose opinion is given below.

FIRST REPORT.

Mr. John Imray, of the firm of Messrs. Abel and Imray, after an inspection of the machine in work, has reported thereon as follows:—

WEST'S PATENTS

Are directed to the manufacture of Clay or earthenware articles such as flower pots, saucers, or, indeed, anything that can be moulded by pressure between a mould and core.

The machinery described in some of these patents, with certain improvements to which a subsequent patent application, No. 23,640 of 1892 relates, operates in a most satisfactory manner. I HAVE WATCHED THE MOULDING MACHINE TURNING OUT 16 FLOWER POTS PER MINUTE, MUCH MORE TRUE AND SOUND, AND FAR STRONGER THAN THE HAND-MADE POTS, OF WHICH NOT MORE THAN 1 PER MINUTE COULD BE MADE. Each pot as it is moulded is in condition for being taken direct to the kiln, without requiring to be dried for several weeks, as is the case with hand-made pots. This results from the fact that the clay employed in the West Moulding Machine is very little moistened, and that in the act of moulding it is subjected to very great pressure between a steam heated mould and a steam-heated core.

By this treatment another great advantage is secured—total absence of air-bubbles in the moulded article, and consequent freedom from that which, in the case of hand-moulded pots, causes the breakage of 25 to 30 per cent. in baking.

The machine-made pots being all true to shape, as determined by mould and core, can be packed together for transport without risk of the fractures that occur when hand-made pots are packed together. However carefully the potter may form a pot by hand from wet clay, the drying and baking are sure to cause irregularities of shape, which, when one pot is inserted in another, often act with the power of wedges to crack the outer pot. When, on the other hand, the pot is moulded under great pressure from clay which is almost dry, and which is thus consolidated, its form remains quite regular after baking, and it is so strong that even if irregularity did occur, there is little or no liability to breakage when such pots are packed together.

(Signed) JOHN IMRAY,
Jan. 23rd, 1893. Memb. Inst. C. E., and Memb. Inst. Min. E.

OPINION—RE WEST PATENTS.

OPINION.

I have carefully perused the Specifications 6,704 of 1890, 7,406 of 1890, 23,640 of 1892, in conjunction with the prior Specification 16,264 of 1889.

It appears to me that these three Specifications are in conformity with the respective Provisional Specification, and that the claims afford good subject matter upon the face of them, and sufficiently distinguish that which is intended to be claimed.

As regards the sufficiency of the Specification from a practical point of view, I think they should be submitted to an expert, who should report whether they are sufficient to enable a competent workman to manufacture the apparatus described.

Assuming that this report is favourable and assuming that the subject matter of all the claims is new and useful, I see no reason to doubt the validity of these Patents.

16th March, 1896. (Signed) W. R. BOUSFIELD, Q.C., M.P., Inner Temple.

SECOND REPORT.

28, Southampton Buildings, Chancery Lane, London, W.C., 20th March, 1896.

I am ready to express my opinion as an Engineer that the Specifications referred to in Mr. Bousfield's opinion are sufficient to enable a competent workman to manufacture the apparatus described.

I can also say that as far as I know the inventions claimed were new at the dates of the respective patents and that I believe them to be useful.

Yours faithfully, (Signed) JOHN IMRAY.

FINAL REPORT.

Since writing my Reports dated respectively January 23rd, 1893, and March 20th, 1896, I have examined the United States Patent which corresponds with West's Patent No. 23,640 of 1892, also the German Patent No. [illegible], which corresponds with West's British Patent No. 6,704 of 1890. As these Patents were not granted until after the usual strict investigation as to novelty little doubt can be entertained that the inventions covered by those Patents were new at that date. IT IS REMARKABLE THAT IN THE INVESTIGATION AS TO NOVELTY CARRIED ON BY THE UNITED STATES PATENT OFFICE, NOT A SINGLE ANTICIPATION WAS FOUND. I have had a search made among all British specifications lodged since March, 1893, when the above-mentioned U.S. patent was applied for, in order to ascertain whether West's Patent No. 10,471 of 1896 has been anticipated. No anticipation has been found. As the specifications Nos. 6,704/90, 23,640/92, and 10,471/96 are sufficient, AND THE INVENTIONS CLAIMED ARE USEFUL AS WELL AS NOVEL, I CONSIDER THESE PATENTS VALID.

(Signed) JOHN IMRAY,
[illegible] Chambers, Southampton Buildings, London, W.C.

ADVANTAGES.

From the above reports it will be gathered that the chief advantages claimed for machines constructed under the above Patents are:—

1. The [illegible] rapidity of production as compared with the old hand process, coupled with truer shape and stronger make.

2. The great saving in drying space, the article moulded being practically in a condition to be taken direct to the kiln, without requiring to be dried for several weeks.

3. A saving of breakages in burning, of at least 25 per cent. over hand-made articles owing to the absence of air bubbles, which exist in the latter.

4. The saving of fuel, in consequence of the dryness of the articles to be burnt.

5. The saving of breakage in transit, owing to the machine-made articles being true to shape, and being thus capable of being packed together for transport without risk of fracture.

6. It is estimated that there will be a large saving in the cost of production, viz.:—From 4d. to 6d. per cast over the hand method.

ASSETS OF THE COMPANY.

The property and assets to be acquired by the Company are:—

1st. The Patents above mentioned.

2nd. The freehold estate of about eight acres, at Higham Hill, Walthamstow (underlying which there is practically an inexhaustible bed of suitable clay, tested to over fifty feet from surface), together with the plant, machinery, kilns, and drying sheds.

3rd. The royalties to be obtained from the hirers of the presses.

The machines are working at the Company's works at Walthamstow, and at their licencees, Messrs. Turner's (Limited), Portobello, N.B.

THE TRADE IN GREAT BRITAIN.

The annual trade in Great Britain in flower pots alone is believed to be at least 500,000,000, or 12,500,000 casts (taking the average of 40 pots to the cast), valued at £625,000, of which about £156,000 represents profit.

Each set of presses can (at an average cost of 6d. per cast) turn out 108 casts of flower pots per day, which, even if sold only at 10d. per cast (the present cost of manufacture by hand), would still show a handsome profit.

PROFITS.

It is proposed to increase the presses working at Walthamstow to 12 sets, which, working at half their capacity and selling at the present London price of 1/3 per cast, would make a profit per annum	£6,561
Minimum Royalties and Rentals on Contracts already entered into. (It is estimated that these royalties will amount to over £2,000 per annum)	£650
Estimated Profit from Rental and Royalties on 50 sets of presses working at half their capacity	£9,112
Net Profit	£16,323

DIVIDEND.

This amount of profit (£16,323 as estimated above) does not include the profit that will be derived from the manufacture of the other articles which the machines are capable of turning out, but will be more than sufficient to pay a dividend of over 12½ per cent. on the total capital, and allow nearly £1,000 a year for reserve and administration expenses.

PURCHASE PRICE.

The purchase price for the patent rights for the United Kingdom, together with the freehold land, plant, machinery, kilns, &c., at Walthamstow, has been fixed by the vendors, Messrs. Ellisson and Co. (who are the promoters, and who are selling at a profit) at £80,000, payable as to £25,000 in cash and £55,000 in shares, leaving the balance for working capital, which is considered more than ample.

The Vendors pay all expenses of whatsoever kind, up to and including the first general allotment of shares, excepting Registration fees.

Mr. H. L. Beresford and Mr. John Richardson, being interested in the profits arising from the sale, will join the board after allotment.

CONTRACT, &c.

The following contract has been entered into:—An Agreement, dated 25th day of April, 1898, made between West's Patents Syndicate, Limited, of the one part, and Messrs. Ellisson and Co. of the other part.

Contracts have also been entered into by the Vendors in connexion with the acquisition of the Patents and during the formation of the Company, including arrangements relating to the subscriptions of a portion of the capital, and some or all of these may technically be contracts within the meaning of Section 38 of the Companies Act of 1867, but the Company is not a party to any of them and applicants for shares will be deemed to have waived all rights to be supplied with particulars thereof whether under the above mentioned section or otherwise, and allotments will only be made on this express condition.

Application for shares should be made on the form accompanying the Prospectus, and sent to the Company's Bankers, their Branches or Agents, with the amount payable on application.

If no allotment is made, the deposit will be returned in full, and where the number of shares allotted is less than the number applied for, the balance will be applied towards the instalment due on allotment.

Copies of the Memorandum and Articles of Association and the Contract above mentioned; the report of Mr. John Imray, of Messrs. Abel and Imray, and the case for and the opinion of Mr. Bousfield, Q.C., M.P., can be inspected at the office of the Company's Solicitors.

Prospectuses and forms of application for Shares can be obtained at the offices of the Company, or from its Brokers, Solicitors, Bankers, and their Agents.

London, June 27th, 1898.

THIS FORM MAY BE USED.

WEST'S PATENT POTTERY AND MACHINE COMPANY (Limited).

SHARE CAPITAL £100,000,

DIVIDED INTO 100,000 SHARES OF £1 EACH.

Payable 2s. 6d. on Application, 2s. 6d. on Allotment, and the Balance by instalments of 2s. 6d. as and when required in periods of not less than two months.

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Gentlemen,—I request you to allot me ....Shares of £1 each in the above-named Company, and I agree to accept the same, or any smaller number that may be allotted to me, subject to the Memorandum and Articles of Association, and upon the terms of the Prospectus issued by you, dated the....................day of .... 1898, and I authorize you to place my name upon the Register of Members in respect of Shares so allotted to me; and I agree to pay the further instalments upon such allotted Shares as the same shall become due; and I agree with the Company, as Trustee for the Directors and other persons liable, to waive any claims I may have against them for not more fully complying in the said Prospectus with the requirements of Sec. 38 of the Companies' Act, 1867.

I enclose a Cheque for.............being the deposit of 2s. 6d. per share payable on application.

Name in full (Mr., Mrs., or Miss)...
Ordinary Signature...
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London: Published at the "Gardeners' Magazine" Office, 4, Ave Maria Lane, E.C., Saturday, July 2, 1898; and may be had of every Newsagent and Bookseller.
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THE

GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

EVERY SATURDAY, TWOPENCE.

REGISTERED AT THE POST OFFICE AS A NEWSPAPER.

No. 2,332

SATURDAY, JULY 9, 1898.

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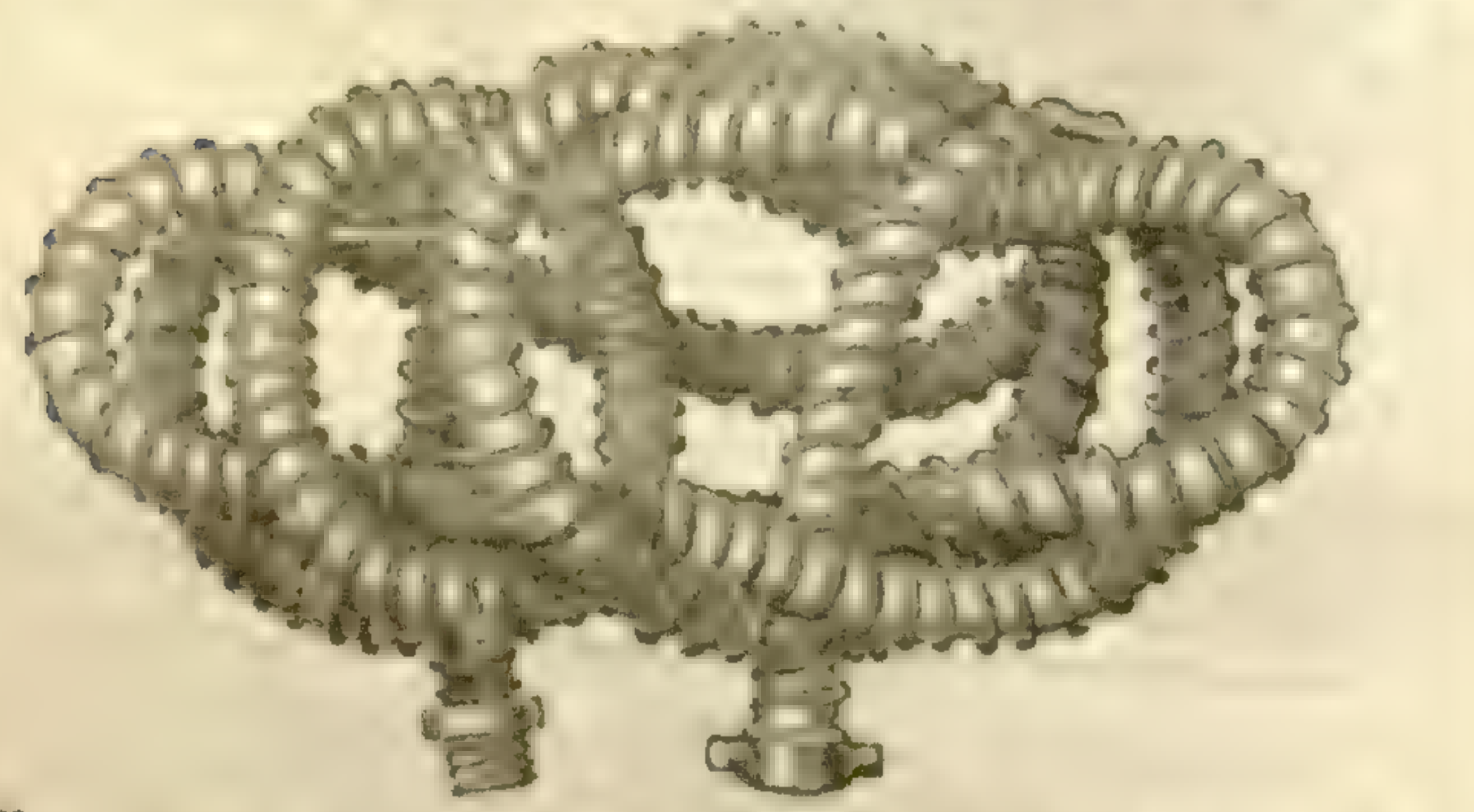

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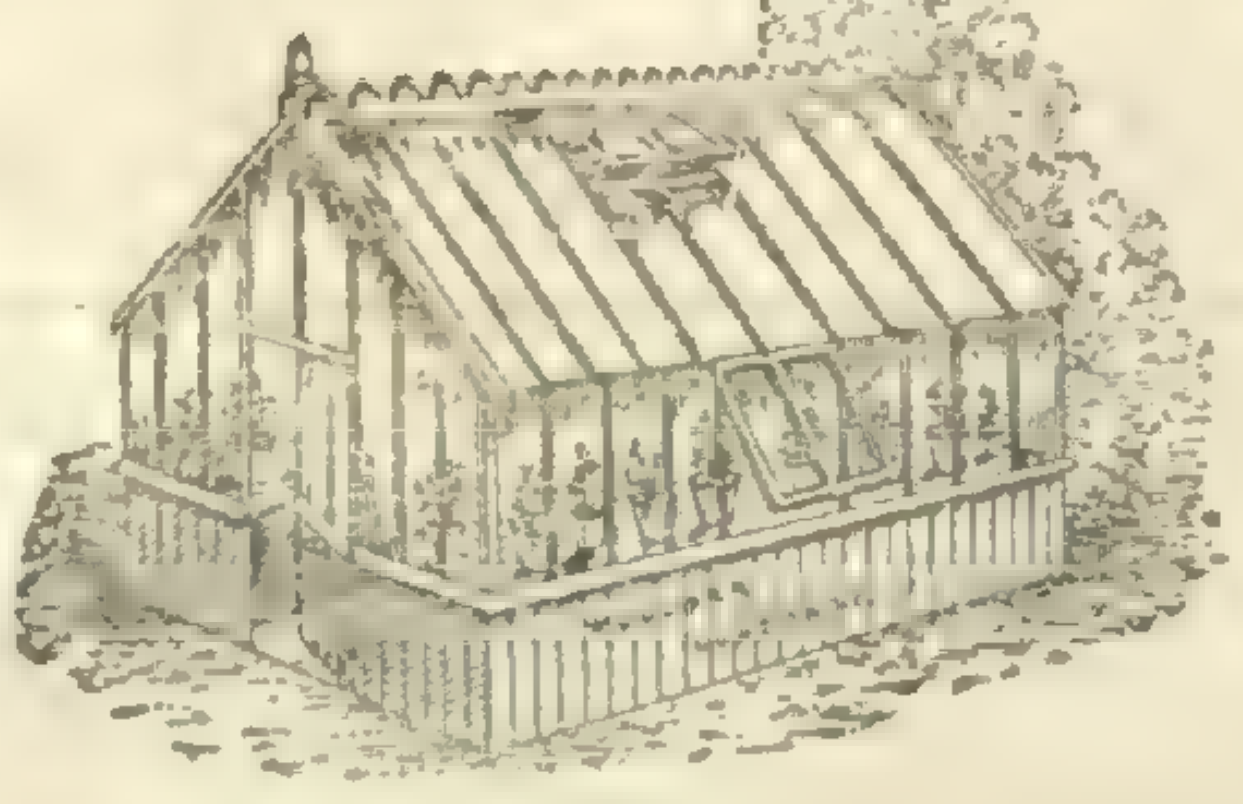

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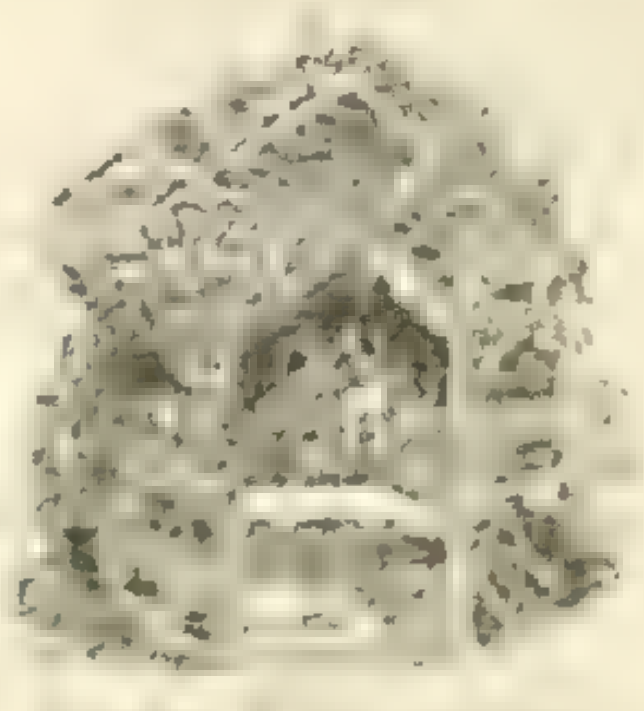

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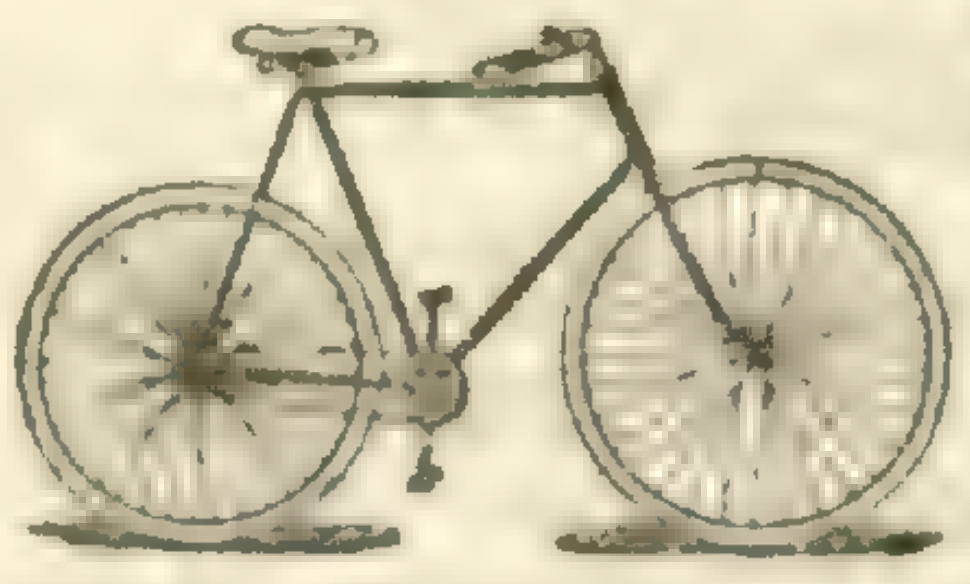

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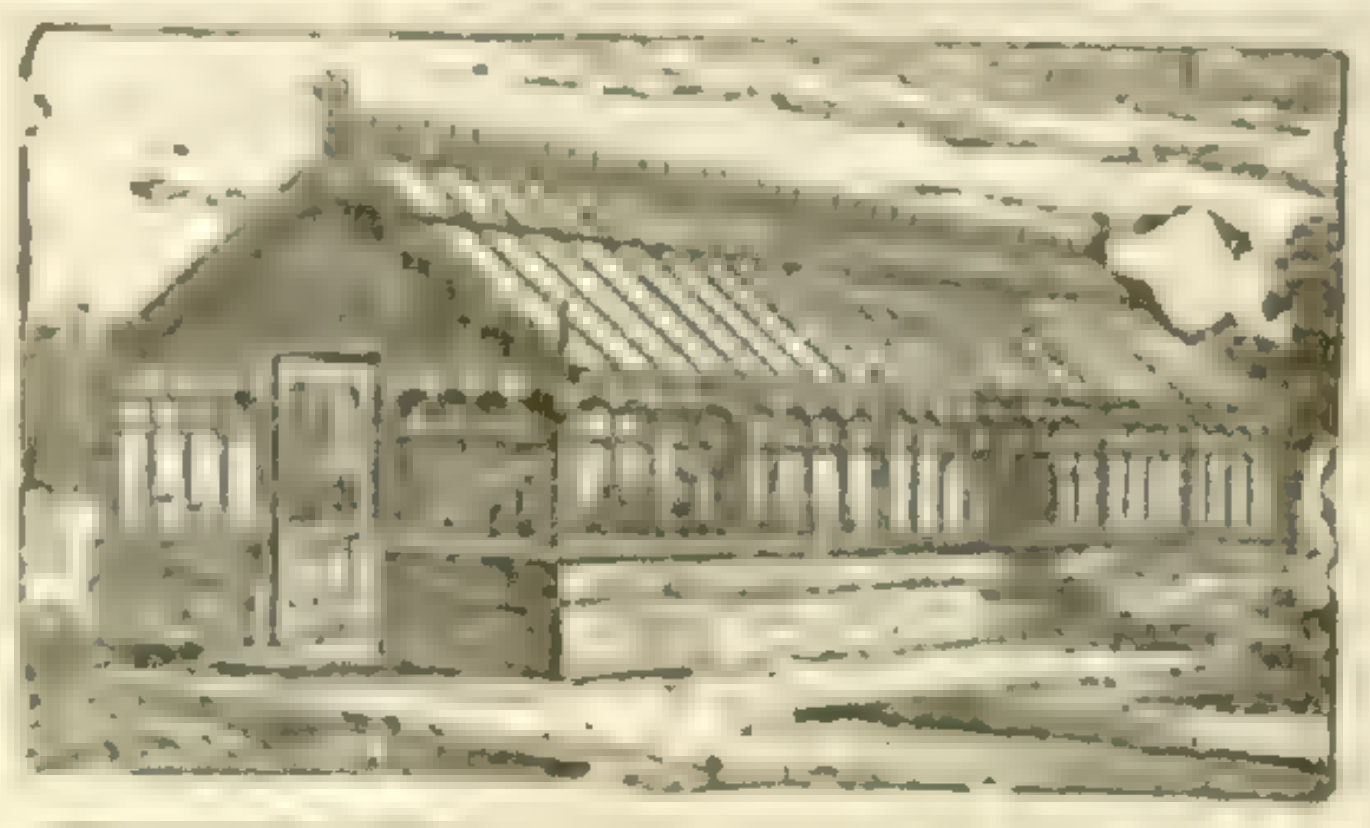

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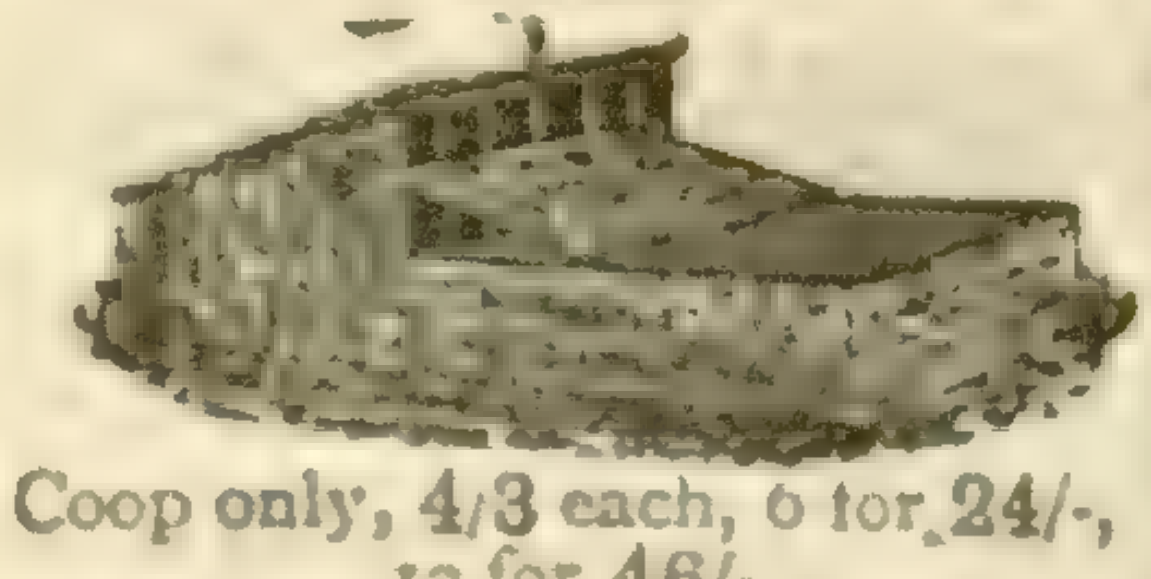

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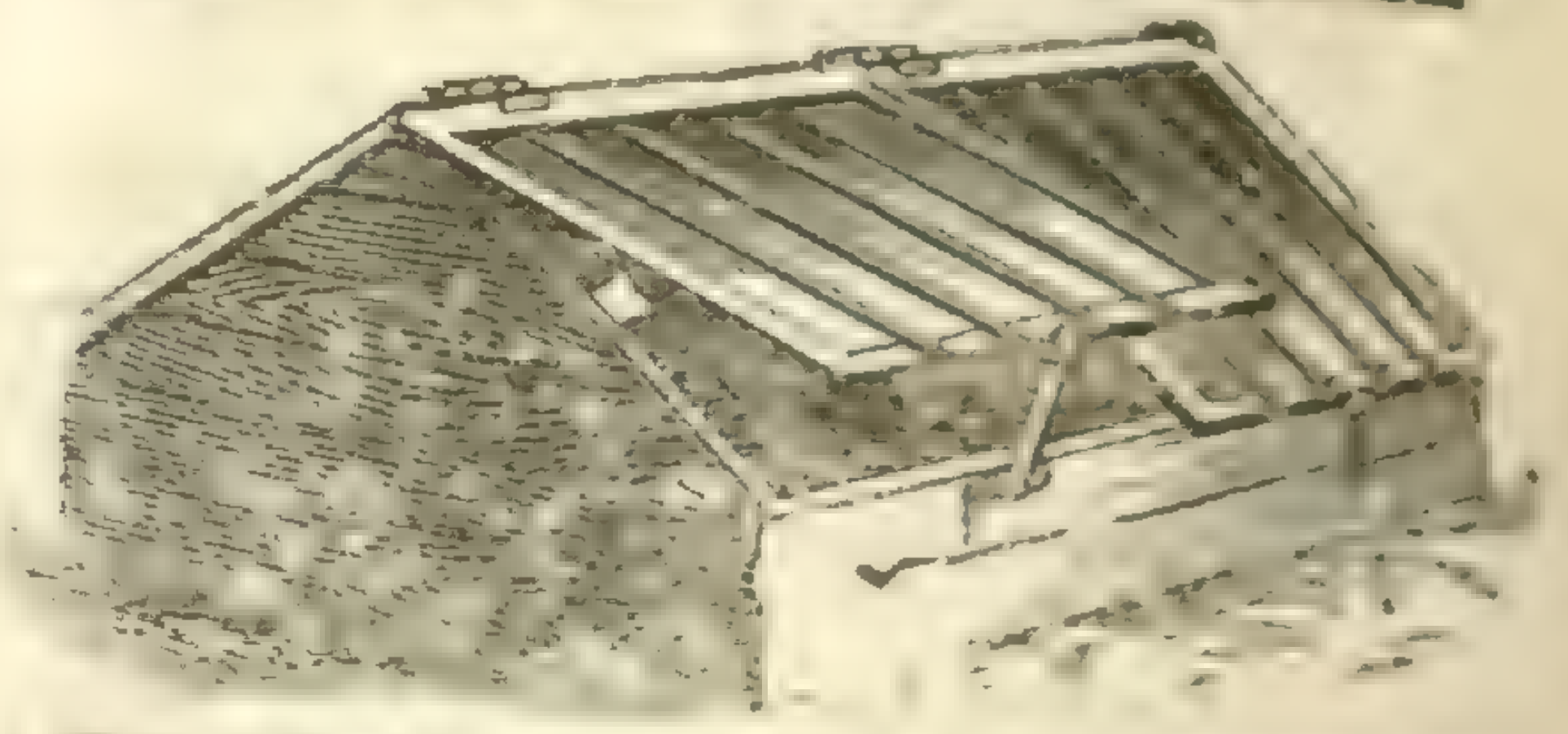

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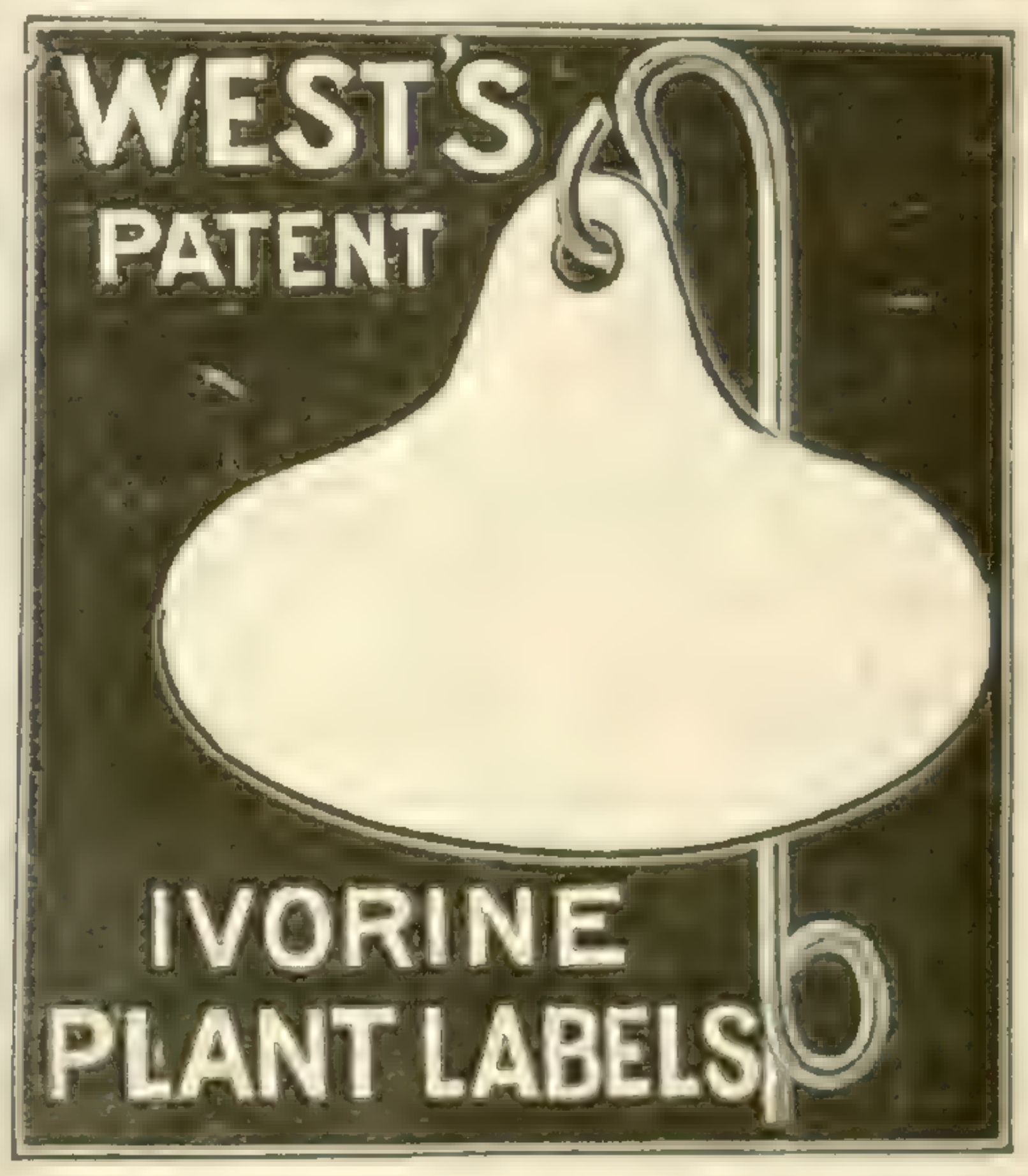

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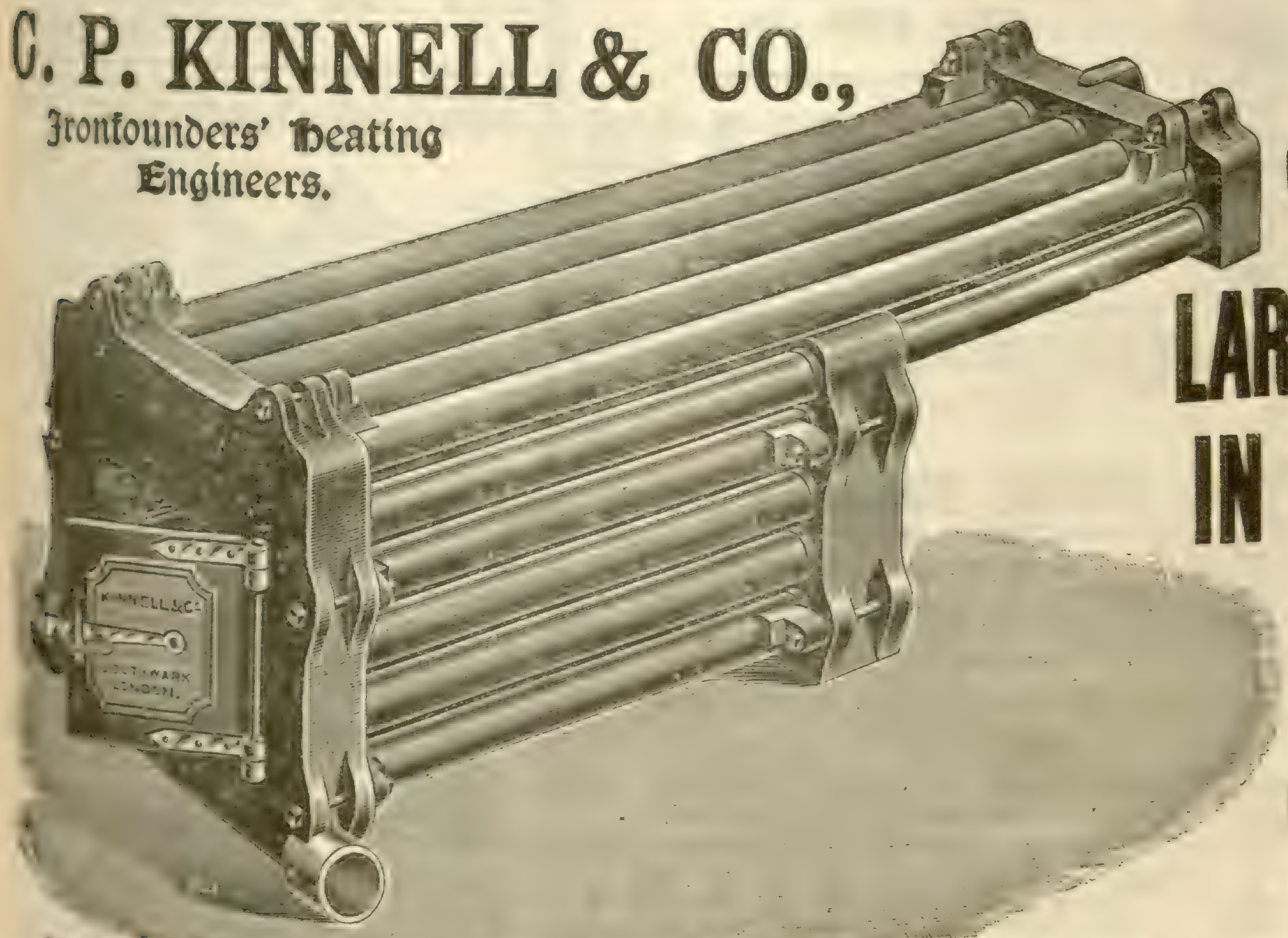

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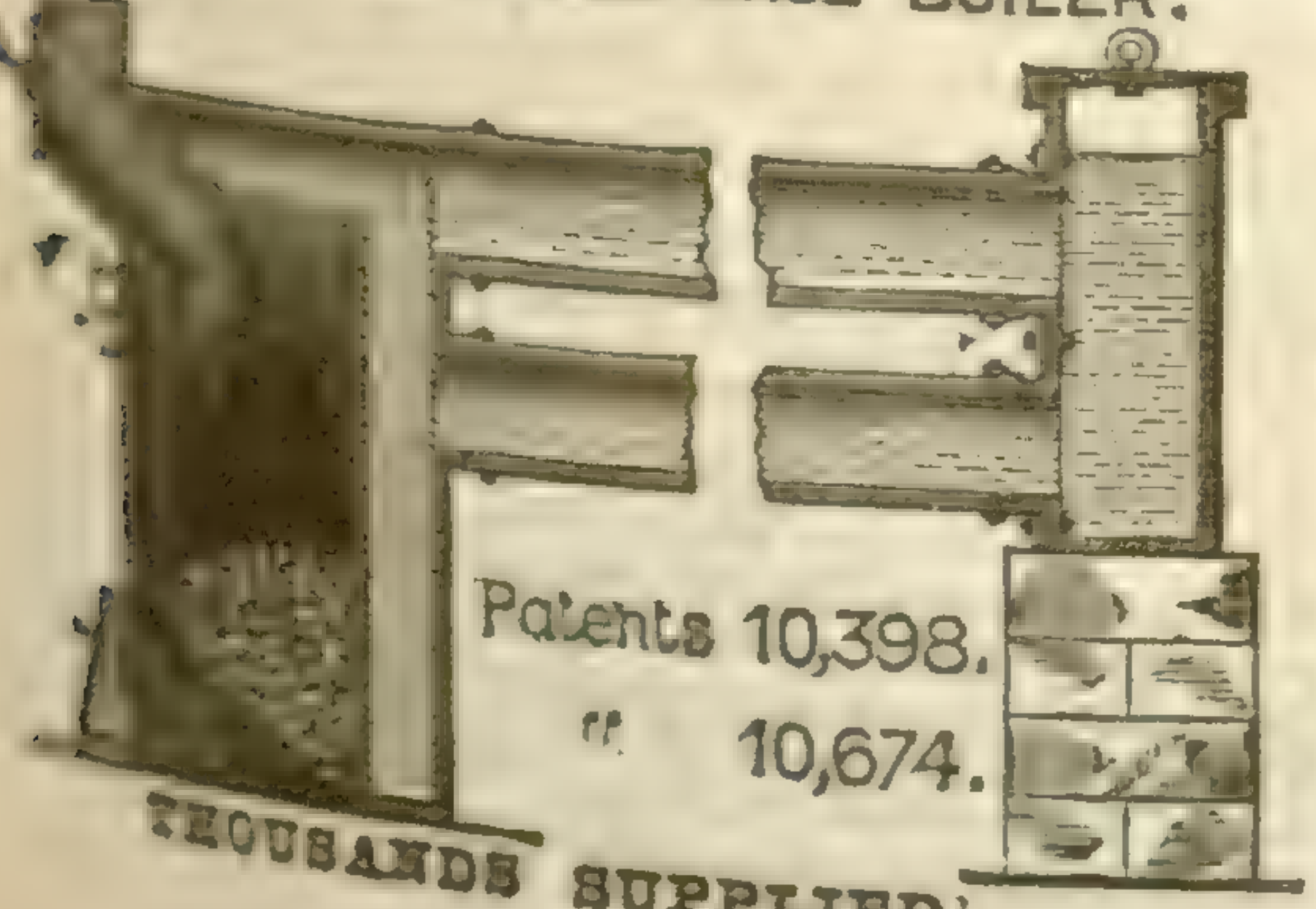

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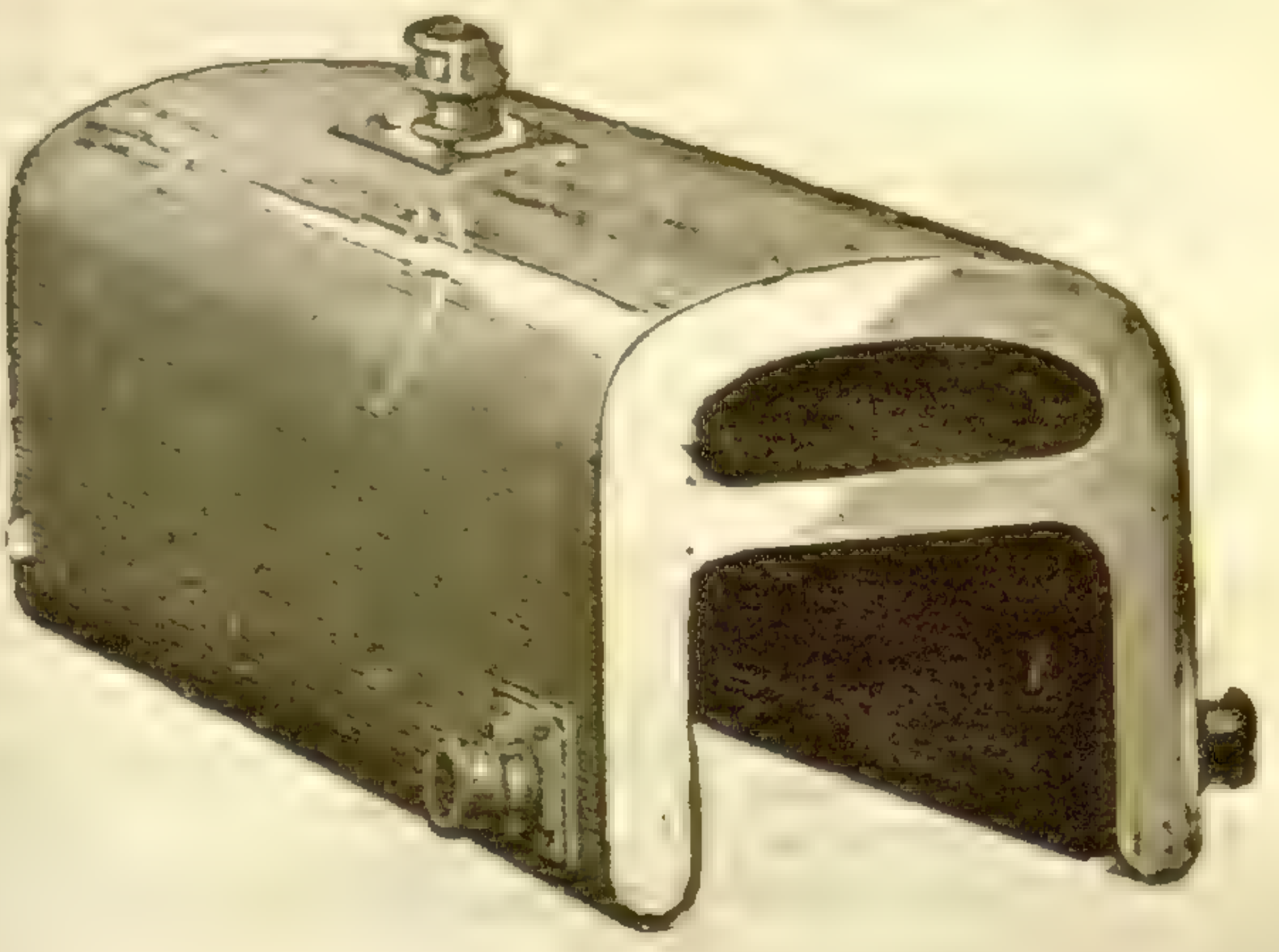

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"I have grown Webbs' Emperor Cabbage for nine years, and find it to be the best I have ever grown for cropping, quality, and also for hardiness in winter."

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Grand Stuff, 1s. bushel, 3 for 2s. 9d.; bag 2d. extra.
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THE BEST FOR ALL OUTSIDE WORK.
Greenhouses, Garden Lights, &c., &c
Does not Peel or Blister.
One cwt. of Powder and Oil Mixture Free to all Stations.
LIQUID PAINT, NON-POISONOUS.
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SPASHETT and Co.,
Net Manufacturers, Lowestoft.

For Sale.

FREEHOLD LAND, £20 per acre, suitable for market gardens or poultry farms; seven miles from Cambridge, and three miles from station; free deeds; instalments; advances arranged for purchasers wishing to build.—Mr. BRAKE, 18, Northumberland Grove, Tottenham, N.

PAUL and SON'S
CHESHUNT ROSES.

The Single, Garden, and Show Roses are now finely in bloom, rendering the Old Nursery well worth a visit.

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Fruit Trees, Roses, Vines, Figs, Oranges, and Orchard House Trees.

A LARGE AND SELECT STOCK ALWAYS ON VIEW.

ILLUSTRATED and DESCRIPTIVE CATALOGUE,
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GEORGE BUNYARD & CO.
Are now BOOKING ORDERS for Early Delivery of the very best NEW and OLD
STRAWBERRIES
For Crop 1899, or for Forcing.
They offer the Largest Stock and the Best Plants in the trade.
CHANGE OF STOCK PAYS.
CATALOGUES OF STRAWBERRIES AND SUMMER FRUITS NOW READY.

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IF YOU HAVE NOT RECEIVED our Illustrated Supplement with particulars of Important Horticultural Improvements and Hints by Specialists upon Successful **CARNATION CULTURE,** please send post card for same.

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TERRIFIC HAILSTORM,
24th JUNE, 1897.
60 NURSERIES SEVERELY DAMAGED.
30 CLAIMS PAID IN SIX DAYS
(ONE CLAIM amounted to £886 1s.)
BY THE
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HAILSTORM INSURANCE
CORPORATION (Limited),
1 & 2, King Street, Covent Garden, London, W.C.
Chairman: HARRY J. VEITCH. Manager: ALEX. JAMES MUNRO.
Telegrams—"Forewarned, London."
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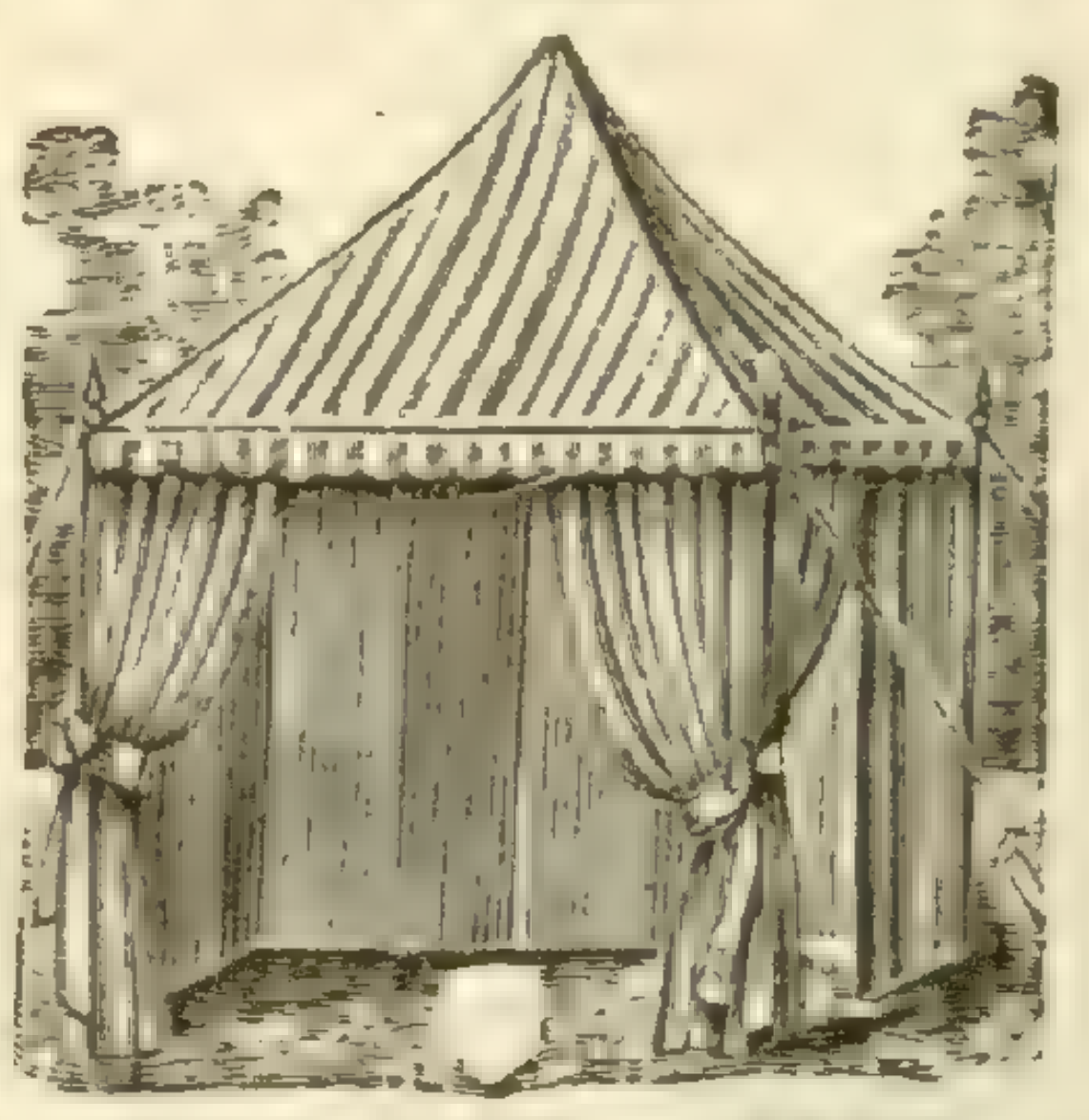

For gardens, lawns, tennis and cricket grounds. Made from artistic striped tent canvas. NO CENTRE POLE, allowing whole of interior to be used.
Complete with frame-work, lines, pegs, mallet, and bag, **£1 17s. 6d. each.**
Carriage paid to purchaser's residence.
If made with awning, 10 ft. extra.
Lists, testimonials, and samples free.

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Maker to the Queen and Prince of Wales.

ONE APPLICATION of
"CLIMAX" WEED KILLER
POWDER or LIQUID.
Will keep your Drives, Paths, Stonework, &c., BRIGHT and free from all vegetation for a whole Season.

Send a Post Card for a Catalogue containing Testimonials and particulars of price, &c., to THE
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THE ARCHES, LUTON ST., LIVERPOOL.

PROTECT your Gardens.—Garden Netting, for protecting Fruit Trees, Seed and Strawberry [illegible] &c. Inch mesh Tanned Waterproof, 100 yds. by 1 [illegible] 100 yds. by 2 yds., 50 yds. by 4 yds., or 25 yds. by 8 yds., [illegible] each, carriage paid; sent on approval, and compare it with some rubbish advertised. Lawn Tennis Court [illegible] corded top and bottom, 100 yds. by 2 yds., or [illegible] 16s. 6d., carriage paid.—ABBOTT, Net Manufacturer, [illegible]

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JAMES VEITCH and SONS, Ltd.,

Can offer a very large General Collection of Standard, Half-Standard, and Bush Roses, which includes all the best and newest varieties. Catalogues post free on application.

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All the leading kinds in Pots or Prepared Runners. List on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA.

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We have sorts suitable for all soils.

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STANDARDS from 18/- dozen. DWARFS from 7/- dozen.

ROSES IN POTS—An immense quantity of fine Plants.

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THE ROYAL NURSERIES, MAIDSTONE, KENT.

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ARE NOW BOOKING ORDERS FOR EARLY DELIVERY OF THE VERY BEST

NEW and OLD STRAWBERRIES,

IN POTS FOR FORCING, OR RUNNERS FOR OPEN CULTURE.

THEY OFFER THE LARGEST STOCK AND THE BEST PLANTS IN THE TRADE.

CATALOGUES of STRAWBERRIES and SUMMER FRUITS NOW READY.

SANKEYS' famous GARDEN POTS

Bulwell Potteries, Nottingham.

Messrs. Dicksons, Limited, Chester, write; "The Flower Pots you have so largely supplied us with are light, [illegible] and well made, and in every respect highly satisfactory."

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GREEN FLY

and all kinds of APHIS, on all plants.

AMERICAN BLIGHT or Woolly Aphis,

on Apple Trees, &c., can be destroyed by using

"ABOL" INSECTICIDE.

"ABOL" ABOLISHES APHIS.

The Cheapest and most useful Plant Wash.

ONE PINT MAKES 100 PINTS.

PRICES—Pint 1/6 : Quart 2/6 ; Half-Gall. 4/-; Gall. 7/6

OF ALL SEEDSMEN AND FLORISTS.

or post free on receipt of remittance from the

SOLE MANUFACTURERS—**E. A. WHITE,** Limited,
Hop and Fruit Growers, **PADDOCK WOOD, KENT:**

Write for full particulars, and name this paper.

WM. PAUL AND SON,

ROSE GROWERS BY APPOINTMENT TO HER MAJESTY THE QUEEN,

TREE, PLANT, BULB, AND SEED MERCHANTS,

RESPECTFULLY invite attention to their **STOCK OF ROSES** in all forms, which they believe to be unequalled in quality, variety, and extent. The plants are now finely in bloom, and will continue in greater or less perfection until the beginning of October, affording a favourable opportunity for intending purchasers to select the best kinds from the plants in flower, and to have their orders registered for Autumn delivery. The South Entrance to the Nurseries is four minutes' walk from Waltham Cross Station, and the West Entrance three minutes' walk from Theobald's Grove Station, both on the Great Eastern Railway, about twelve miles from London. Frequent trains from and to Liverpool Street.

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Plants in pots, with buds for working, now ready.

	Each.
Aurora (H.T.) ... ... Award of Merit at Temple Flower Show, 1898.	10/6
M. Ada Carmody (Tea)	10/6
Empress Alexandra of Russia (Tea) ... First-class Certificate and Award of Merit.	3/6 to 7/6
Waltham Standard (H.P.)	3/6 to 7/6
Enchantress (Tea) ... ... per doz., 24s. Silver Banksian Medal and Award of Merit.	2/6 to 5/-
Queen Mab (China) ... ... Two first-class certificates and Award of Merit.	2/- to 3/6

NEW ENGLISH & FOREIGN ROSES of 1897 and 1898.

A Selection of the best varieties, 24/- to 42/- per doz.

Priced Descriptive Catalogue of New Roses post free on application.

ROSES IN POTS.

WM. PAUL and SON'S plants have received this season the **PREMIER AWARDS** (Gold Medals) at the Temple Show of the Royal Horticultural Society and the Royal Fête of the Royal Botanic Society.

Ready for delivery at any time—Dwarfs and Climbers for Greenhouse and Pot Culture, 10/6 to 18/- per dozen; 75/- to £6 per 100; extra-sized plants, 24/- to 42/- per dozen.

Plants for Outdoor Planting at the same rates.

ROSES FROM THE OPEN GROUND,

For Autumn Delivery.

The stock exceeds 500,000 plants, comprising Standards, Half Standards, Dwarf Standards, Dwarfs or Bushes, Climbers, Pillar Roses, and Weeping Roses.

The New Catalogue will be issued in September.

Orders for Plants are now booked for execution as soon as ready for removal.

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BY WM. PAUL, F.L.S.

THE ROSE GARDEN.

9th edition, with Supplement bringing New Roses up to Spring, 1898. Royal 4to, 20 coloured plates and 16 full-page engravings and numerous woodcuts, 20/- nett. The same, Imperial 8vo., woodcuts only, 8/9 nett.

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7th edition, Illustrated, post free, 2/-

ROSES AND ROSE CULTURE.

8th edition, Illustrated, post free, 1/-

CUT ROSE BLOOMS

Of good quality, in Mixed Colours, 10/6 per 100; 84/- per 1,000. Packing included.
Delivery by special messenger, if required, at cost price.

WM. PAUL AND SON devote special attention to the laying out and planting of **New Rose Gardens,** and can furnish Plans and Designs suitable for plots of ground of any shape and size. They also grow in extra large quantities the kinds at present specially in favour for planting in masses, and are always prepared to quote special and reduced rates for large quantities of plants. In addition to Roses, the Nurseries contain large and complete collections of Fruit Trees, Hardy Evergreen and Ornamental Trees and Shrubs, and Forest Trees. Herbaceous Plants, Hyacinths, and other Bulbs, Camellias, and Hardy and Greenhouse Climbing Plants are also objects of special culture. **Catalogues post free on application. Estimates at all times cheerfully given.**

IMPORTANT.—Observe the Christian Name and Address—

WM. PAUL AND SON, WALTHAM CROSS, HERTS.

CANT'S ROSES

Are Grown in Every Climate and Renowned ALL THE WORLD OVER.

WON THE "QUEEN'S DIAMOND JUBILEE CUP," JUNE 26, 1897, AND JUNE 25, 1898, BECOMING THE OWNER.

THE BEST 50 YEARS AGO

AND THE BEST TO-DAY.

500,000 PLANTS GROWN ANNUALLY

In STANDARDS and HALF-STANDARDS.
In DWARF or BUSH.
In CLIMBERS.
In POTS.
In NEW and NOVEL GARDEN and SINGLE VARIETIES.

FULL DESCRIPTIVE CATALOGUE POST FREE ON APPLICATION TO

B. R. CANT, Rose Grower, COLCHESTER.

THE GARDENERS' MAGAZINE.

SATURDAY, JULY 9, 1898.

CARDIFF and COUNTY HORTICULTURAL SOCIETY. TENTH ANNUAL SHOW, JULY 20th and 21st. £300 in prizes. Mayor's Cup (open) for Cut Flowers. Entries close July 14th.
H. GILLETT, Secretary.
66, Woodville Road, Cardiff.

READING HORTICULTURAL SOCIETY SUMMER SHOW, THURSDAY, JULY 14. Three Challenge Cups. £200 Prizes for Flowers and Vegetables. Entries close July 9th.—WM. L. WALKER, Hon. Sec., Bulmershe Road, Reading.

WOKING FLOWER SHOW, TUESDAY and WEDNESDAY, JULY 12 and 13. —Four Cups; 87 Classes. Schedules on application to
W. I. NEAL, Claremont Avenue, Woking.

WOLVERHAMPTON FLORAL FETE.—THE TENTH GREAT ANNUAL HORTICULTURAL EXHIBITION will be held in the WEST PARK, NEXT WEEK, JULY 12, 13, and 14, 1898.
WILLIAM E. BARNETT, Secretary.
Snow Hill, Wolverhampton.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

A COLOURED PLATE of

CHINA ROSE, QUEEN MAB

Is presented with this Number.

Subscribers should see that their Newsagents deliver the Coloured Plate with each copy.

NOTES OF THE WEEK.

NATIONAL ROSE SOCIETY'S EXHIBITION.

IN few years has the metropolitan exhibition of the National Rose Society been anticipated with a greater degree of interest than was that held at the Crystal Palace on the 2nd inst., for not until the eve of the show was it possible to forecast with any degree of accuracy whether it would be successful or otherwise. Notwithstanding the easterly winds, the late spring frosts, and the plague of aphis with which roses had to contend previous to the season of flowering, they made a vigorous growth and produced buds that gave the promise of large and otherwise well developed blooms. But owing to the low temperature, more especially at night, that prevailed during the greater part of June, the larger proportion of the buds on reaching a somewhat advanced stage came to a standstill and hardened, instead of unfolding their petals to delight the cultivator with their beauty. The process of development was, indeed, so slow that a week in advance of the date of exhibition not even the most experienced rosarian could be induced to give a definite opinion as to its prospects. They were in full accord with the opinion to which we gave expression in our last issue, which was to the effect that, with a continuance of the cold weather experienced at the beginning of the week, the show would be below the average both in the numbers and the quality of the flowers; and that with a few days of warm weather the display would be a good one. Happily, there was a few days previous a change for the better in the climatic conditions, and, in consequence, we have to record one of the best metropolitan gatherings the society has held. It was by no means a record, but there was a sufficiently keen competition to tax to the utmost the judgment of the thirty or forty judges engaged in making the awards, and the quality of the competing collections was very good. On the whole, the trade collections were much superior to those from amateurs, which is all the more remarkable from the fact that the garden plants which in most seasons give the professionals so great an advantage were not sufficiently advanced to give any considerable number of blooms, and the cutbacks had to be almost wholly depended upon for the supplies. Two of the three important challenge trophies found a new home for the next twelve months, and with reference to the transfer of the tea trophy from East Anglia to Bath, it may be said that the warm terraces which Mr. Hill Gray has constructed at so great an expense stood him in good stead this season, for his collection was undoubtedly at its best. Garden roses were again largely shown, and, arranged in large bouquets, they produced a rich effect, and fully justified the prominent position assigned them in the schedule. Some day, we hope, the garden roses may have two challenge trophies provided for them, one for competition amongst amateurs and the other amongst trade growers, and we have no doubt the society would readily add these trophies to their other awards were it in a position to do so; but the holding of three exhibitions in one season imposes too heavy a strain upon the funds to admit of large sums being expended in the purchase of trophies. These roses are now so well shown under existing conditions, and constitute so charming a feature that we may depend upon the executive which is distinguished for its breadth of view, giving them the fullest possible encouragement. With the whole of the two naves at their command, the honorary secretaries, the Rev. H. H. D'Ombrain and Mr. E. Mawley, arranged the exhibition with due regard to tasteful effect and the convenience of visitors, and obtained as their reward much praise.

FLORAL VARIETY.

IN going the round of one of the public floral displays, such as we get periodically at the Drill Hall at Westminster, and especially such collections as are brought together there at this the most redundant season of the year, the observant mind can scarcely fail to be struck by the manifold and multiform ways in which the simple life history of a plant can manifest itself. That history, briefly told, is the germination of a seed, the production of leaves and flowers, and finally the reproduction of seed by fertilisation, and the subsequent ripening and dissemination prior to beginning the same life cycle anew. This is the history not merely of all flowering plants, but also of all ferns, and even mosses, though in these the flowers are quite microscopic, forming, as compared, say, with the gigantic blossom of the Rafflesia, extreme instances of divergence in size. Some flowers are so constituted that the whole of this process is carried through by the individual without cross-fertilisation by pollen conveyed from the blossoms of another plant, and it is beyond a doubt that were this the case throughout the vegetable kingdom, we should either have no flower shows at all, or have to be contented with an exceedingly poor display, since, wonderful to relate, just as the affections elevate mankind by emulation, so has the need of one flower for the aid of another, and the resulting necessity of attracting the messengers of love by conspicuous form and colour elevated our flowers from the level of insignificant weeds to the sovereign dignities of rose and tulip, and all their charming companions in Flora's fair domain. In these later days, of course, man himself has stepped in as Cupid's envoy in many cases, and thus brought about combinations and results which bee or moth, or the thousand and one other insects which do this duty normally, could never have effected. For these the flower may fashion and provision its nectary, paint itself with gorgeous tints, contrive cunning traps and lines, and in so doing split genera into species, and widen the range of normal beauty which existed long before man took part in the operations; but for our finest blooms, as a rule, much more must be done, and a very different plan of selection adopted than Nature herself carries on. Hence an immense majority of the blooms we behold on the occasions cited are the elaborated outcome of man's peculiar tastes, and are, indeed, often unnatural, in the sense that the original simple end and aim of the plant and flower, viz., reproduction, is arrived at with greater and greater difficulty as the flowers approach man's ideal of perfection. The vigour which should produce the seed is diverted into other channels, or it may be that the potencies of mixed parentage become so complicately intermixed that the plant is quite incapable of reproducing itself, even when seed is yielded, the outcome of the struggle within it for pre-eminence among the varied influences being more or less reversion to ancestral types, though now and again they crown the cultivator with success by contriving some brilliant combination on unexpected lines. Nevertheless, though, as we have said, the majority of the flowers exhibited owe their beauty largely to man's selection, the occult influences of Nature herself, working, typically speaking, through bee and bloom alone, have fashioned some of the very fairest flowers extant. Our stateliest lilies, to wit, owe but little to man's aid, and though of late most marvellous orchids have been raised and blended with great success as regards the production of new varieties, it is to the lover of the orchids at home in their tropical bowers, and the instincts of the insect world which attend upon them there, that the loveliest forms and tints are due, as well as the immense diversity in character and colour.

Our Coloured Plate.—The extremely beautiful rose, Queen Mab, so admirably depicted in the coloured plate presented with this issue, is an important addition to the China section, and of much value for the garden and the supply of cut flowers. Queen Mab is one of the many fine roses raised by Messrs. W. Paul and Son, of Waltham Cross, and, having regard to its freedom and continuity of flowering, the exquisite hues of the blooms, and the distinct colouring of the foliage, we have no doubt as to the variety becoming highly popular and being considered one of the most valuable of the roses that have originated in the Waltham Cross Nurseries.

Despoiling the Country.—We are much gratified to find that the views to which expression has been so frequently given in the GARDENERS' MAGAZINE with regard to the necessity of protecting ferns and some other of our wild plants from the vandals are meeting with support in the pages of the general Press. A contemporary, in referring to the question, observes: "Much has been done by legislation for the protection of wild birds, and it looks as if the day may come when it will be necessary to do the same for wild flowers, especially for ferns. The fondness for ferns grows apace. Those in towns and cities pent are year by year, in ever-increasing numbers, making or renewing acquaintance with rural scenes and the charms of wood and water. A glimpse of the delicate fronds of a fern, just peering forth above withered leaves and grass, excites a desire to take the whole plant home. It is taken up so unskilfully that it is carried back to the town only to wither and die. Every season thousands of ferns are thus taken (only to be sacrificed) from the wooded banks of the Blyth, Wansbeck, and Couquet. To meet the demand for ferns, some persons carry on a regular traffic in them. Living in the locality, they know the habitats of the different kinds, take them up by the score, establish them in small pots, and whip them off to a neighbouring market. The rarer sorts are in danger of being exterminated. Many districts in Cornwall are in this way being robbed of their finest ferns. It has been suggested that the Parish Councils should at least take measures to save those that grow in the wayside hedgerows. The authorities of the Austrian Tyrol have followed those of Switzerland in making regulations to prevent the Alps being stripped of the edelweiss; County Councils should be empowered to extend protection to certain wild flowers, as they at present do to specified wild birds and their eggs. Only thus will some of Nature's rarest floral beauties be saved from extirpation."

The Fruit Crop.—Writing from Kirkby-in-Furness, Mr. Alfred Darbey observes: "As a subscriber to the GARDENERS' MAGAZINE for twenty years, I have derived much pleasure and assistance, as a fruit grower, from the sound teaching contained in the articles during that time. I am particularly interested in an article from your correspondent A. D., in reference to his note on 'Fruit Blooms and Fruit Prospects,' and as he invites opinions as to the cause of the disparity, may I venture to express my opinions on the chief cause of disparity to which he refers. My opinion is that the cause was the very low temperature during May, accompanied here with the coldest east wind experienced for the past seven years, the foliage on four pyramids of Beurré d'Amanlis pear having been completely blackened. Here we have no plums worth mentioning; pears are worse, for even the Hessel has failed in some places. I find Rivers Fertility very hardy. Apples are producing a moderate crop, some as Lord Grosvenor, Grenadier, Bramley, are set too thickly, but the most disappointing of all is the Ecklinville Seedling. I believe this is the third year the results have been nil, and unfortunately I have forty trees of it. I should like to say more but my letter is too long already. I grow sixty varieties and have tried all the leading sorts within half a mile of the sea shore, and perhaps my experience might have been helpful." We shall be pleased to publish the experience of our esteemed correspondent as it cannot fail to be otherwise than interesting and useful to a large section of our readers.

The Leeds Flower Show, held a few days ago, proved a financial failure, and we much regret to hear that the committee is left with a deficit of about £150. This unlooked for result is unaccountable, as the weather was fine and the display good. On the first day half-a-crown was charged until six p.m., and only £15 was taken up to that hour; later, 2,800 people passed into the show upon payment of one shilling. On the second day there were 3,800 visitors; but on the closing day, although only sixpence was charged after four p.m., only 1,200 passed the turnstiles. The lack of half-a-crown admissions seems to have done more than anything else to bring about so large a deficit. It is proposed to appeal to the influential residents of the city for help.

Failure of Black Currants.—An interesting case of the failure of bushes of the black currant to produce fruit for several years is reported upon in the Highland Society's transactions. It appears that Mr. John Speir, of Newton, Glasgow, called the attention of the society's Scientific Committee to a plantation of bushes which, although apparently healthy, had failed to produce crops for four years. He stated that shortly after flowering the blossoms became sickly and dropped off, although for some years after the bushes were planted they bore well. Mr. Speir suspected some injurious constituent in the soil, though it is not clear why he should have entertained such a suspicion, seeing that the bushes had been fruitful. The Science Committee considered the subject worth investigation, and directed their chemist, Dr. Aitken to analyse the soil. He found that there was a deficiency of lime and potash, but does not consider that this accounts for the failure of the bushes to fruit. He found nothing injurious in the soil, and suggests that an examination of the air might throw light upon the subject. Mr. Speir would, no doubt, have detected the presence of the black currant mite if the bushes had been infested with that pest, but nothing is said about their freedom from it.

Lyons International Horticultural Exhibition.—The programme of the international exhibition to be held in the city of Lyons in September next is now published, and the exhibition has the promise, the president informs us, of being of exceptional importance. It is expected that both exhibitors and visitors will be numerous, and that the city will for the time being be the rendezvous of European horticulturists. Programmes may be obtained on application to M. Antoine Rivoire, President of the Organizing Committee, 16, Rue d'Algerie, Lyons, France.

⁂ In consequence of the great pressure on our space we are compelled to leave over the articles on "Austrian Briars," "Tea-Roses for Market," and "Roses in Decorations."

HOW WE MADE OUR ROSE SHOW SUCCESSFUL.

UNTIL the eve of April 23, 1884, roses in North Lonsdale were virtually unknown, except as roses. As to H.P.'s, teas, &c., they were almost mysteries, except that tea leaves were the proper food for tea roses. Certainly we had a few enthusiasts in our midst, but that tea roses could be grown out of doors in our northern climate, there was but one idea, and that was, it could not be done. Our horticultural meeting that night resolved itself into a Rose Show Committee, and much as it is to be regretted, the flower show has been abandoned for lack of energy. Of the original committee of seventeen only four remain, not that death has been very rife, but perhaps enterprise has shaken the lackadaisical ones out of office.

Our first show was held on July 11, 1884, and the same date was fixed in 1890 and 1894. At our first show a lady handed the doorkeeper a ten shilling piece, and great was our gratitude, as the total receipts amounted to £6 4s. 6d. We commenced with nothing, as the North Lonsdale Rose Society was a daughter society of the local Horticultural Society's, hence we were not allowed to solicit subscriptions, and this was rigidly adhered to, as the same hon. secretary worked both societies, and about this time had some correspondence with the Coniston sage, John Ruskin, whose kindness of thought and finance was highly appreciated, and one regret of the writer is that this great critic has never visited our show, though every proper means has been used to gain his presence. The struggle was great; in fact our initial balance was chiefly composed of prize money returned, and discount deducted for cash payments. Cash payments have greatly helped the popularity of the society, and it has generally been our proud position to be free of all debts within a fortnight of show day.

Our first show was held in a charming new auction room; we had two German roller canaries and a musical box for music, and two large cucumbers as extras. The second show was held in the same room, which was greatly beautified, as the walls were covered with exquisite pictures, value £11,000, which were there on sale, and the owner generously presented a special prize, and refused admittance to two old skinflints who wanted to see the pictures, as an excuse to gain free admittance, though they were retired individuals. Unfortunately on this show day the Sunday school anniversary was held, so that a general exodus from town was the order of affairs, though the few loyal visitors were warmly welcomed, but by a little persuasion the genial vicar, Canon C. W. Bardsley, M.A. (a brother of the Bishop of Carlisle) allowed the procession to be dismissed in the square opposite our rose show, somewhat to the discomfort of a few old maids who had anticipated singing "God Save the Queen," out of a shop window, instead of dutifully and loyally paying their respects to "Our Queen."

One jovial genius with a giggling girl on each arm looked fair quarry at the station on arrival of the train for enterprise, so that the chance to burst upon him the glorious news that a rose show was in their midst was not to be lost, but all the return was a vacant stare and—"Is there?" This mode of advertising was never adopted again; ink and paper, whether writing or printing, has been our main sheet. Again, an alteration had to be made so that no clashing or general exoduses took place on our date. To this end every clergyman in the town was advised of our future dates, and asked to make a note of it, and now we can thankfully say our date is respected. Our third show was held in the same room, but by dint of pen, ink, and paper some two hundred ladies were written to to lend their presence and they turned out in grand numbers.

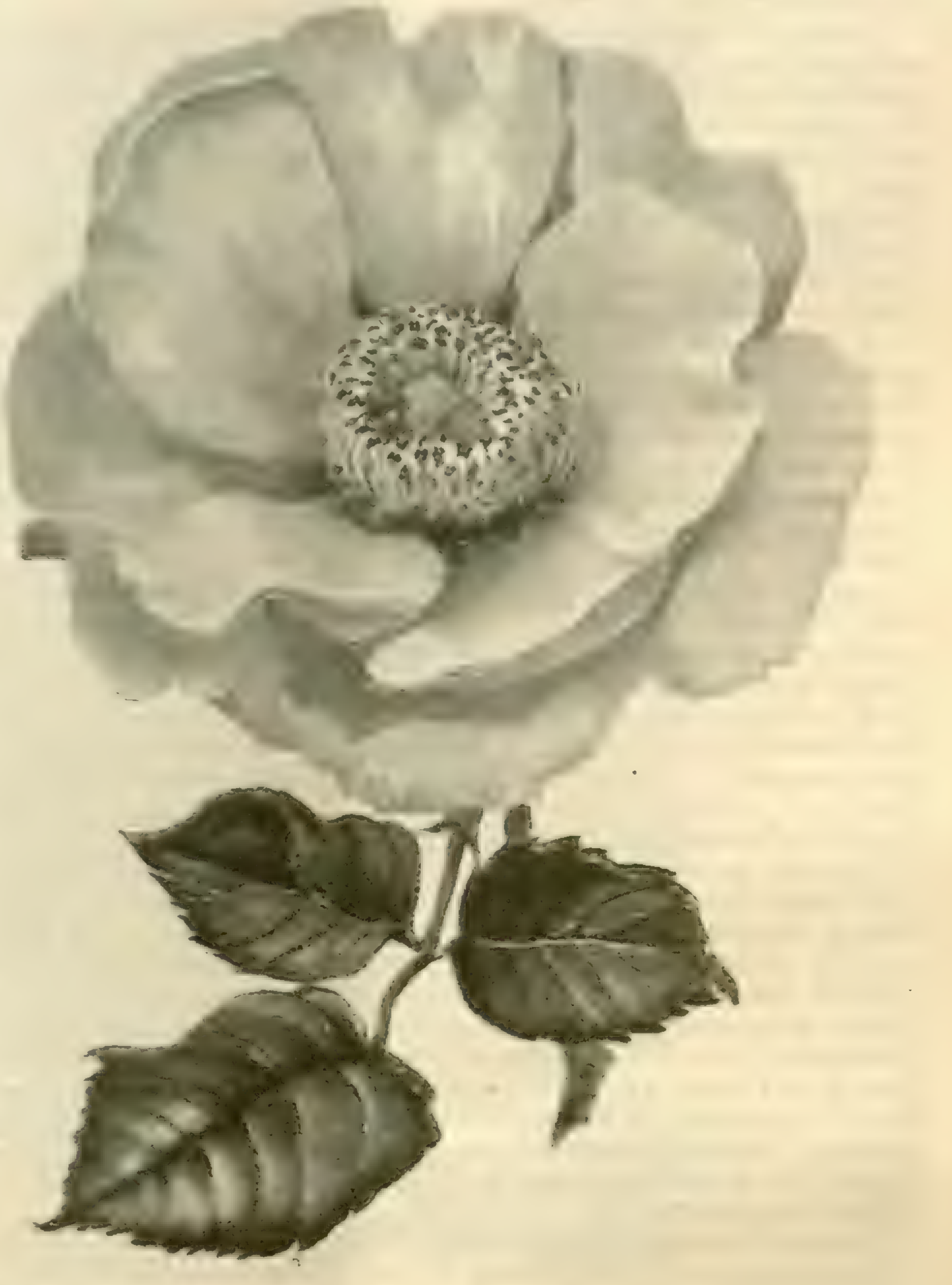
From this date we credited ourselves as being the fashionable gathering of the district, or, as our circulars to-day say, "The Queen of Flowers holds a reception on —— in ——, and *commands* the honour of your patronage and presence." Perhaps not a little of our success was due to the presence of that veteran but enterprising rosarian the late Rev. F. H. Gall, who, be it understood, was duly announced "as coming" in all the papers. We lost no points of this kind, and his reverence was a very Triton amongst the minnows and a regular lady's man. He offered a prize value 16s. 6d., which did the secretary's heart good. Would there were more like this genial soul, but, alas! no longer with us. Of him it is written in our then weekly paper: "It is plucky of an old veteran at rose-showing, the Rev. F. H. Gall, to come some two hundred miles or more to show Ulverston folks how prizes could be won. He must have been a regular teazer, as he carried all before him in the tea rose line"; and amongst our original exhibitors none have forgotten him. It was through him our society became affiliated to the N.R.S., which was one of the best day's work the society ever did. In 1887 we added nurserymen's classes, increasing, as we did, our prize money from £13 to £48 16s. 6d., though we only had a balance of £15 14s. 7d. The show was held in a marquee. Of course, it was Jubilee year No. 1, so we had to break out somewhere. Our railway company were interviewed by our to-day's chairman, and they magnanimously granted us the exceptional privilege of return tickets for single fare over a certain area, which was the first time ever granted. Admitting enthusiasm usually ends in success, getting the right man to be the ambassador is a potent factor in any scheme. Always keep the newspapers fed with the rosiest truths; it greatly helps attendance. This year (1887) T. B. Hall, Esq., Dr. Budd, Rev. F. H. Gall, Messrs. Harkness, Dicksons (Newtownards and Chester) put in an appearance, and we felt our feet, and we knew what roses were. Our local men had a sorry time, and our balance reduced to £3 5s.

Then it dawned upon us that the society could not keep itself going, so that a concert was decided upon. The concert eventually was the entertainment of the season; as a matter of fact in 1892 the concert expenses were £63 11s. 4d., and our balance increased to £41 19s. 2d., which all meant very hard work, with careful expenditure and attention to detail, such as having the genial vicar at the show to greet the visitors, which he did cordially. A judicious circular works wonders, but above all let the printing and paper be of the best. This society has never pandered to the "cheap and nasty" in any detail. Do not be afraid of telling your patrons the truth; they are but flesh like yourself. When in July, 1891, our circular stated: "The Emperor of Germany will not be present, but the under-mentioned are expected: Her Majesty Queen of Queens, Prince Arthur, Duke of Edinburgh, Earl Dufferin, Lady Helen Stewart, General Jacqueminot, and a number of famed beauties in all their glory." We in no wise over-stated the truth. In 1889 Mr. George Dickson, jun., said, you should come to our Newtownards Flower Show in September, and see the "horse jumping." "See the what?" was naturally the first impulse, as it certainly sounded a peculiar combination; but acting on the advice and seeing the success, a mental note was made, but for fear of ruining our local agricultural show, the Rose Show Committee were not asked to run a leaping competition, though entries were promised, as also entries for a ladies' bicycle race were promised if a race were put on the day's programme, and sure enough both would pay handsomely if well worked. As a horticultural society in Ireland (in a small town much the same as Ulverston, with its 11,000 inhabitants, and situated on the sea coast, except that Newtownards has the pull of us by having a large centre like Belfast within a few miles) could have a balance of £500 and some £200 in marquees and fittings, why on earth should not our society make an extraneous effort? Here was the chance. Messrs. A. Dickson and Sons had heaps of seedling roses. Is not the public everlastingly on the outlook for anything new, from a new hat to a photo of the North Pole? Hence, in preparing for our next show a special line of our circular was "Messrs. A. Dickson and Sons will make a unique display of new roses, virtually roses the public has never gazed on," and it was at our show that splendid rose Mrs. W. J. Grant first saw publicity. Such a draw as this was proved to be could not be kept quiet, and when a few of the executive of the N.R.S. proposed to debar exhibits of seedling roses you were kind enough to publish a letter of the writer's at the time. To crown all, when extraordinary efforts had to be made to create a balance, to invite the Northern Provincial National in 1895 to honour us, we had a rose christening, but the original matter on the circular then issued speaks for itself. "The seedling rose christening is indeed a unique and interesting ceremony. Apart from the rose being handed down to posterity, there is the presentation at Court for the medal, the highest honour a rose can gain, hence local interest ought indeed to be keen, and all should witness the Royal Chistening." "Programme of proceedings: At 3.30 p.m. the Rev. J. C. Wright, M.A., will introduce Baroness Halkett, who will present the five medals, after which John Fell, Esq. J.P., will introduce Lady Moyra Beauclerc (Lady Moyra Cavendish), who will select the seedling rose which Mrs. Myles Kennedy, as sponsor, will present to Lady Edward Cavendish to be christened, Myles Woodburne, Esq. (president), and James Hodgson, Esq. (vice-president) returning thanks on behalf of the society."

In 1888 both Mr. B. R. Cant and Mr. F. Cant exhibited, so that there were five nurserymen present, hence our prestige was fully established, and the following years it was our mainstay. In 1891 we had the local volunteer band discoursing sweet music under their correct title, the 1st Vol. Batt. K O. Royal Lancaster Regiment, and they did not belie their name. In 1895 the annual concert was abandoned, as it entailed too much anxiety and labour, and our balance dropped to £1 4s. 4d. The exceptionally hot season, the Royal Wedding (general holiday) on the previous day virtually ruined the receipts, and feeling we were always at the mercy of the weather, a wet day would swamp us in more ways than one, so that a meeting was called to decide on the advisability of winding the society up whilst solvent, on account of lack of funds. Instead of this course being adopted, the society's new president (the late Myles Woodlume, Esq.) proposed the National Rose Society be asked to hold their Northern Provincial Show at Ulverston, which we believe is the furthest north the Provincial has yet been held. Certainly, Mr. Mawley kindly wrote, you cannot afford it; but ways and means were devised, and, as a matter of fact, sufficient money was in the bank to pay off every debt incurred the night before the show. Granted extraneous efforts had to be made, but a guarantee fund was soon formed for £200, and it may be gathered the work entailed when it is known the actual expenditure of this society was £266 5s. 1d. This, of course, does not include the prize money—some £150—given by the N. R. S. The thanks of the society are due to H. V. Machin, Esq., who has so readily and generously helped us. Twenty-four shillings and fourpence was not much of a balance for such an undertaking. Bold or foolish, the visit of the National put this society on its feet, and left it with a balance of £130, although the season of 1896 was one of the worst on record. The Northern Provincial had no doubt the best blooms of the season staged at it. Numerous were the surprises for the exhibitors, who thought they were coming to a colliery district where no one but colliers would be in attendance, whereas Mr. Mawley said it was the best dressed attendance the society had ever been honoured with at a provincial show; and he (Mr. Mawley) and a few others stayed to visit our lovely lake land, our station being the centre for tours for Windermere. There is no scenery in the world to equal our lovely locality, although there may be grander and wilder, but not so charmingly combined as ours, and if it only be to open up to a few the charms of this district our society has not lived in vain, but with our energetic and magnetic new manager, Alfred Aslett, Esq., the Furness Railway may be looked up to as having risen to the occasion. Although native as I am, I never tire of a day trip, notwithstanding that to-day I might have been revelling in Switzerland, and expense free, but give me my native land with an enterprising scenery caterer at my elbow, and a few rose shows annually, and in scenery hunting will not range far.

Excuse the digression, but our scenery is a great adjunct to our success, as the numerous visitors to the district swell our gathering. In 1896 we advertised the chance of a lifetime to see three queens in one day, viz., the Queen of flowers, the Queen of the Lakes, and what the third queen was has slipped memory. For our 1896 (Provincial National) we spent £25 in having a coloured poster, consisting of three roses. The expense was great, but was warranted. We had cheap trips from Sheffield, Leeds, Bradford, Manchester, Liverpool, Carlisle, and Penrith. We engaged the Black Dike Band at great expense, and we had the same band last year, and we offered a gold cup, value £15, for competition. To come up to date, we have a balance of over £100, which we are prepared to sink. If the day (July 8) be wet, we bow to the inevitable. Last year the rain certainly reduced us £20. We have the Kingston Mills Band engaged, and, as a novelty, we have an archery tournament, at which we are giving £20 in prizes. Tickets are sixpence each. We have not a chaplain to pray for us, but do our own praying. Certain it is, we have a grand show, a lovely district, every railway facility. At the National we had seven railway vehicles to meet the exhibitors, which was surprise No. 1, at a quarter-past five a.m., and when they all found themselves at the station again at a quarter-past eight p.m. we were thanked. Yes, there was whiskey and coffee for them too! To run an exhibition successfully means never to lose a point, and virtually always to be hard at it. A man must love his work, as at Derby the writer remembers lugging a four-wheeled barrow to the infirmary grounds, as no other vehicle could be got, and eventually the only man who had a ticket to let any individual in was the hon. secretary from North Lonsdale, but here it was that his mind was set at ease by finding such splendid marquees (Messrs. Banks and Co.'s). The last two years we have had the large 210 feet Derby marquee, which is delivered in Ulverston and rigged up for £15, but have little Hale with it, as, if an exacting secretary wants a flag putting straight on the top of the marquee, he says "Roight, sir; that un," and away he goes like a monkey. Above all things, and could there be a happier conclusion, for an excellent cup of tea and a few nice cakes are provided. Perhaps the most gratifying feature of our show is the lady's committee formed last year to provide tea *à la* bazaar, and they provided such a tea that they have again been prevailed upon to add one more charm to our little fête. Messrs. Alex. Dickson and Sons have promised to make a special display of their new Rose Meta, to the writer's mind one of the most charming teas in existence, with its saffron-yellow suffused with vermilion, its great peculiarity being five distinct coloured blooms have been noted on the same plant. Be it known we sell the flowers at the end of the show by auction, so that we run a few honorary auctioneers.

Ulverston. G. H. Mackereth.



Rose Una.

Hybrid Rose Una.—We give above a characteristic illustration of the new rose raised by Messrs. Paul and Son from the Dog Rose fertilised with the pollen of a tea-scented variety The variety was fully described in our issue of the 2nd inst., and it is not now necessary to do more than state that it was exhibited at the Crystal Palace on Saturday last, and the judges entrusted with making the awards to new roses expressed a wish to see it again.

ROSE GROWING IN TOWN GARDENS.

To anyone who has lived a great part of his life in the pure air and healthy surroundings of a country home, it is a painful experience at first to move his Lares and Penates citywards, and to settle down in the midst of bricks and mortar, and to have to listen to the everlasting traffic in the streets, instead of the song of lark and nightingale; but to no one does the change come home with more powerful effect than to one who has hitherto watched his roses thrive in the untainted country air, and now, instead of seeing them bathed with the pure dews of heaven, has to behold them soot-begrimed and stunted by City fogs, so that he might almost despair of growing roses at all. But the true lover of the rose must have roses, even though they be not grown without infinite care and trouble, and even then cannot touch the standard of those reared in more favoured localities.

And so it came about that the writer has struggled for more than twelve years, more or less successfully, in a suburban garden, "within the eight mile radius from Charing Cross," hemmed in by walls and fences, and trees, to cultivate roses which will give at least fair blooms for four months in the year, and sometimes longer. Of course here the preparation of the soil and much of the after-cultivation are the same as required in other positions, but there are a few little matters of importance to the suburban grower, which tend to give better results if carefully noted and properly followed out.

Firstly, the position of our rose beds should always be in the highest and most central position of the garden, to secure all the light and air possible where the supply of these necessary commodities is so limited. Of course, the fences and walls may be clothed with climbing roses, of which more anon, but the main body of rose trees should stand alone, and away from the shade of overhanging trees, and the scorching and cramping effect of walls and fences. And here we may remark that standards are often to be preferred to dwarfs, as they lift the roses up where more air circulates; certainly the teas and hybrid teas thrive far better as standards, even if the briar stem be but a foot or two in length.

Another point is to get thoroughly healthy trees or bushes from some good nurseryman, and to plant in autumn. November is the best month—of this I am certain—for plants put in during spring often experience a harsh drying wind, and the persistence of north-easterly winds in spring in the neighbourhood of London is most notable, and to this district these notes chiefly refer. By having a supply of dry material at hand, we are enabled to plant at once, even though there may have been some recent rain, and this may be accomplished by getting a few loads of road scrapings, especially during the fall of the leaf, thrown down at our gates and wheeled to some spare corner, where they can be mixed with other material from old hotbeds or seed boxes or frames, and turned over a couple of times before being used. A dressing of bone meal or quarter-inch bones may with benefit be added to top spit when turning it in over the manure, which should have been dug in in the usual way as the beds were trenched. These beds, if made in the grass about five feet wide, allow us to attend to the trees, only placing one foot on the soil, and the roots can ramble at their own sweet will under the grassy paths.

Another great advantage in early planting is that seldom do the rose trees need watering, as do those planted in spring; and to the town grower watering is a heavy item. Most suburban amateurs are away in the City all day, and by the time they return the water has been turned off from the mains, leaving no pressure for a hose to work; and the labour of carrying cans about is so great, that the beds are apt to get a poor supply, which is worse than none. In our gardens, too, which are always in view of the house, mulching is unsightly, to say nothing of the way it is scattered by the birds, which soon find therein a happy hunting-ground. Besides, we cannot use the hoe, and all through the growing season this useful implement will, if not neglected, keep a mulch of fine soil on the surface.

Another point to be attended to is the time for pruning. March is usually given as the time in rose books, but I believe April is quite early enough, finishing off with the teas, and, as a general rule, hard pruning should be practised, except, of course, for those free-growing kinds, whose names and requirements may be learnt from any good catalogue.

In a large collection of roses, grubs and caterpillars may, to a certain extent, be ignored, as they merely thin out some buds; but as our trees are generally very limited in number, we must diligently search for the marauders immediately after growth has begun. I use a narrow spring forceps, which is inserted carefully into a rolled leaf, or between two leaves which are found adhering, and if it is allowed to open gently, you find the enemy lying at your mercy and the point of the forceps. The green-fly, like the poor, is always with us; some years, as the present, in great abundance; and I have found nothing answer better for getting rid of it than to get a solution of quassia chips, mixed in a can with soft soap, and to brush each shoot upwards, holding the other hand against it, with a soft "damping brush," such as is used for copying-books or paste.

It is wonderful how quickly a lot can be done, and if syringed with pure water some hours after, the dead aphides will be cleared away. As these notes are not for exhibitors, there will not be need to recommend severe disbudding, or thinning of shoots, but in any case we should keep the centres of our trees open, and some roses do need "chickening" badly, as for instance, S. M. Rodoconachi. But, after all, the chief point to urge on suburban growers is to select those kinds only which open their blossoms freely, and are least subject to mildew. As examples of sinners in the latter respect, Her Majesty and Madame Moreau may be cited; and for difficulty of opening, especially in damp weather, we may note Jean Ducher and Madame Lacharme.

Before giving a list of varieties which have proved satisfactory in this district, I would suggest that the teas and hybrid teas should predominate in any collection, as they are so much more truly perpetual than the so-called Hybrid Perpetuals. The Hon. Edith Gifford, for instance, has, with me, three successive crops of bloom almost every season. By-the-way, this, with us, almost the best tea, is not universally so free. When looking over the roses lately, of a distinguished amateur grower in the country, who has won no end of trophies and cups for tea roses, he informed me that he cannot grow it satisfactorily. Most lovers of the rose have their special favourite, and if I had to make a definite choice, I should select Viscountess Folkestone. It is free-growing, blooms two or three times each season, is deliciously-scented, and, while charming in the bud, is lovely even when full-blown; hanging on the tree like a big pearly shell. It opens freely, perhaps a little too freely for the exhibitor's taste, though it often figures in prize stands early in the season.

The following list will be found useful to select from. The colours are given in any good catalogue, and each grower can select according to his taste. One great drawback we have in town gardens is that the glorious Maréchal Niel will not do in the open, and as these notes are only intended to refer to outdoor roses, he must be excluded from our list. For general purposes: Viscountess Folkestone, Caroline Testout, La France, Hon. E. Gifford, Anna Olivier, Mrs. J. Laing, Duke of Wellington, A. K. Williams, Dr. Andry, Victor Verdier, Baroness Rothschild, Merville de Lyon, John Hopper, Madame Isaac Pereire, Souvenir de la Malmaison, Suzanne Maria Rodoconachi, Marie Baumann, Ulrich Brunner, Dupuy Jamain, Prince Camille de Rohan, Fisher Holmes, Charles Lefebvre, Madame Hoste, Madame Victor Verdier, Captain Christy, Jeannie Dickson, Margaret Dickson, Mrs. Sharman Crawford, Henri Schultheis, Augustine Guinoisseau, and Gustave Regis. For fences—Gloire de Dijon, Bouquet d'Or, Madame Bérard, Reve d'Or, Amy Vibert, and Flora, as well as the Penzance Briers, though the latter are, perhaps, more suitable for pillars. For small roses, suitable for button-holes, &c.—Laurette Messimy, Perle d'Or, Madame Falcot, Madame Chedane Guinoisseau, Madame Capucine, William Allen Richardson, Allester Stella Gray, and the Austrian Briars. The Japanese roses, Rugosa alba and rubra, have the advantage of doing well almost anywhere, even in partial shade, and have handsome foliage. Lastly, the China roses, pink and crimson, help to brighten odd spots in the garden for several months in the year.

Sydenham. H. SHACKLETON, M.D.

RELATIVE VALUE OF TEA ROSES.

VERY many people who are interested in roses, but who know very little about their culture, are frequently deterred from growing tea roses because of their delicacy. Those who grow only a few plants do not like the risk of losing their whole stock, or a large proportion thereof, by frosts in a severe winter; but with moderate precaution by protection given early in the winter the risk is practically reduced to a minimum, except in the most abnormally severe weather, which rarely comes oftener than once in a decade. In the winter of 1880-1, for instance, and the less severe winter of 1894-5, the loss of tea rose plants was great, but since 1895 the winters have not been severe, and few people have lost many plants. Those who fear to grow tea roses, and therefore have not experienced the advantages to be gained by their autumnal flowering properties, should not delay to try them experimentally, even if it necessitates the elimination of some other varieties. I know many amateurs who are gradually eliminating hybrid perpetuals from their rose gardens and planting teas, because they find that although hybrid perpetuals are usually hardier, and of great value for their floral gifts in early summer, many varieties hardly furnish the house with a rose after July (the delightful rose Gabriel Luizet being a notable sinner in this respect), whereas the tea rose flowers both early and late, beginning in June and giving us good roses up to October.

The exhibitor knows the importance of tea roses from a decorative point of view, as in a box set apart for exhibition they are of great value; but their decorative and staying powers for use in drawing-rooms and about one's house are of far more importance, as they last for many days, and in this respect they rank far before hybrid perpetuals. The scent of many tea roses may not in most cases be equal to the sweetest of the hybrid perpetuals (the most delightful and best known in this material advantage being Maréchal Niel, Madame de Watteville, Madame Cusin, and a few others), but with hardly any exception teas have some scent, whereas many hybrid perpetuals have none, these scented varieties being frequently roses of great decorative and some exhibition value, notably Suzanne Rodocanachi, some of the varieties raised at Newtownards, and Her Majesty, Captain Christy, and some others. Captain Christy is one of the few hybrid teas which has no value as a scented variety, and it is not of high value as an exhibition flower, but it is of wide-world reputation. Most of the hybrid teas are delightfully scented, notably La France, Viscountess Folkestone, Augustine Guinoisseau, Kaiserin Augusta Victoria, and others, and they, also with the teas, have the valuable property of perpetual flowering power.

Those who only grow what we call H.P.s seldom can look forward to enjoying their rose gardens in the autumn, but the rosarian who grows only teas can look forward to roses, not only during what some call the rose season, *i.e.*, June and July, but also right up to the time of hard frosts, as teas are the true perpetual flowerers.

In concluding these few remarks I would advise those who cannot rely on their own experience and judgment, to consult some amateur or professional who has grown all kinds of roses, and ask their friend to make a selection of those roses which flower nearly all the year round. By avoiding the very delicate teas and only growing the perpetual flowering hybrids and hybrid teas, they will find that they can in most years depend on an ample supply of roses from mid-June to October, with little risk of loss in the winter.

CHARLES J. GRAHAME.

AUTUMN ROSES.

THOSE of us growing any number of roses must have arrived at the conclusion that the real perpetual bloomers are the tea scented varieties, whether pure teas, hybrid teas, or Chinas. No one could admire well-grown hybrid perpetuals more than I do, but I am convinced a larger amount of pleasure would be derived by the average cultivator of roses if more of the former were planted. "Autumn" was the subject our worthy Editor asked me to deal with, and I propose to add a list of those varieties which I have found to give the best late crops of blooms.

Friends, when looking at my roses late in the season, have very frequently asked if the blooms then on the plants were the second crop, but I have had to confess I could not say to which crop they belonged. The tea-scented roses are nearly the first to bloom, and with care and good cultivation many varieties continue producing flowers in the greatest profusion till absolutely stopped by frost. Therefore it is nearly impossible to say when one crop is over and another begins. I consider some special cultivation is necessary to ensure plenty of late flowers, as, distinct from early ones, the best preparation I know of being a good first crop on well thinned, healthy plants.

Taking it for granted the plants have been properly pruned, and are in a healthy state, care must be taken to thin out the weakly growths, and the earlier this is done the better. Some really good shoots, too, come anywhere but where one wants them to furnish a good plant, and these must, if possible, be dispensed with. Many may say they want a quantity of flowers and are not so particular as to the quality. Well, even then, judicious thinning must be resorted to. There are always several pieces of spindly growth which, if left, would never produce a flower, much less a decent one, while they would take a certain amount of sap, and obstruct the sun and air. Care should be taken to examine the plants and remove any deformed or damaged buds, and cut these shoots back a little. Time, and the energy of the plant, are both gained by not allowing these useless buds to grow on to maturity. If the first blooms are cut with moderately long stalks, the plants are sure to break well, the two top buds left on each shoot frequently running out, so that where one had, say, only six shoots, there would be nearly twice that number for the second crop.

To obtain blooms of any appreciable size on a second or subsequent growth, it is absolutely necessary to thin the buds, which, by some varieties, are produced in large trusses. I am not writing these few notes as an exhibitor of roses, nor for rosarians who take part in competitive gatherings, but as a grower of them for garden decoration and for [illegible], and I am certain the late blooms will be small and unsatisfactory if some little trouble be not expended on them. I do not think it advisable to give the rose plants any stimulant after the first crop of bloom has been gathered, for while in some few instances it might improve the later blooms, in most cases it would only excite strong growth, which would not ripen, and would make the plants most ready subjects for a bad attack of mildew. A good soaking with water and the frequent use of the Dutch hoe are all that are necessary to maintain a good growth but if mildew puts in an appearance—and some varieties are very subject to it—on the tender second growth, sulphur must be freely used. It may be thought by some that the cutting of fairly long stalks with the first blooms is apt to force buds into growth which should have been left dormant for the next year, but I have not found it so, and am convinced with many varieties we do not prune sufficiently hard, especially in a year like the present, when the mild winter left every shoot perfectly sound and uninjured.

The following thirty-six varieties, I consider, produce the best late crops of blooms, and to be the most useful to the average cultivator:

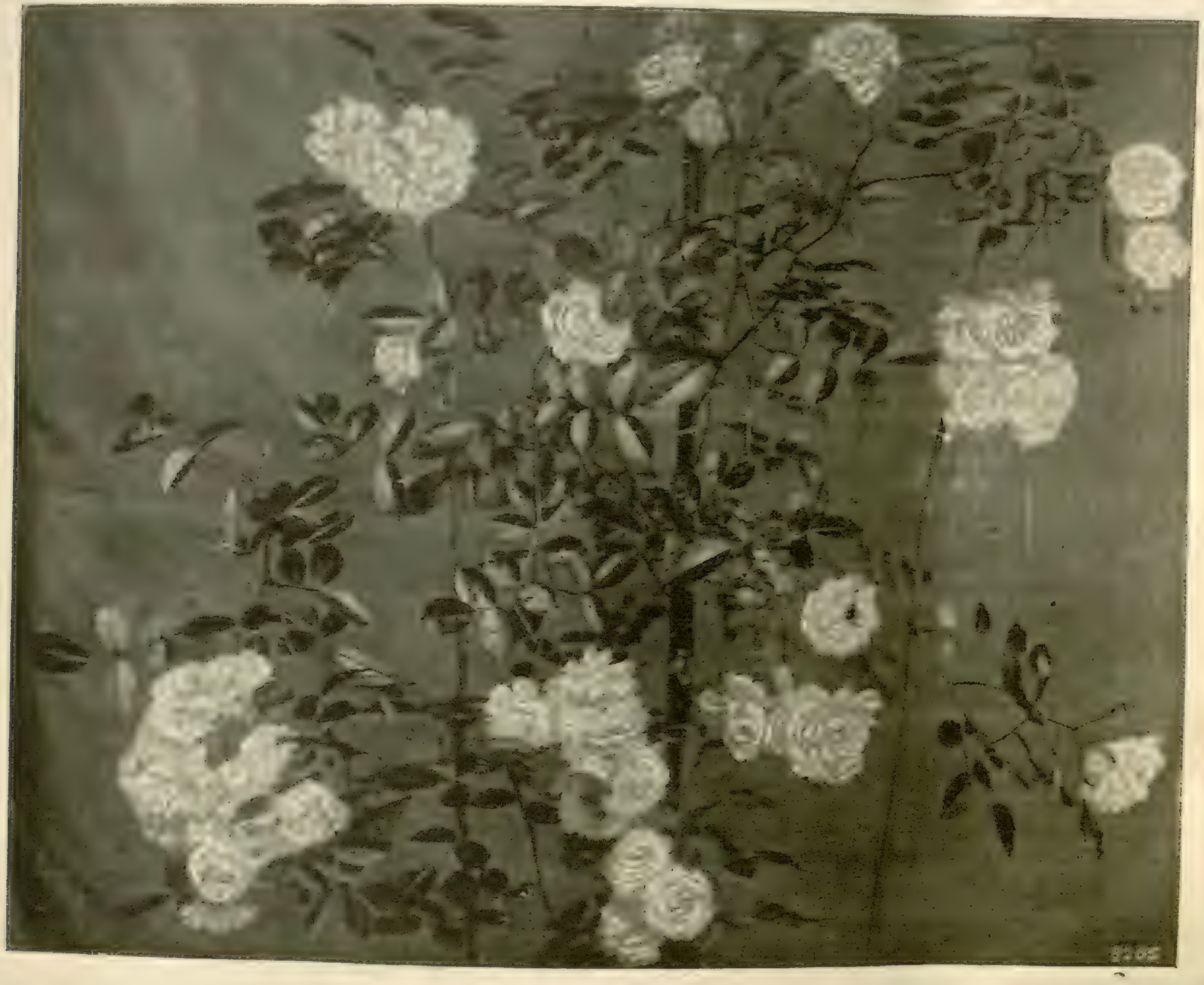
TEAS.—Adelina V. Morel, one of the best of the late small roses; Anna Olivier, Catherine Mermet, Corinna, Enchantress, Francisca Kruger, Hon. Edith Gifford, Innocente Pirola, L'Ideal, Ma Capucine, Madame Chedane Guinoisseau, Madame Cusin, Madame de Watteville, Madame Hoste, Madame Lambard, Madame Pierre Cochet, Maman Cochet, Marie van Houtte, Niphetos, Rubens, Souvenir de S. A. Prince, Souvenir d'un Ami, Sylph, The Bride, W. A. Richardson.

CHINA ROSES.—Fabvier, Laurette Messimy, Mrs. Bosanquet.

HYBRID TEAS.—Augustine Guinoisseau, Bordou Job, Caroline Testout, Gustave Regis, Kaiserin Augusta Victoria, La France, Mrs. W. J. Grant, Viscountess Folkestone.

With the majority of the teas and the hybrid teas I have had by far the best results from short standards, and Laurette Messimy does finely in that form. As I said before, these notes are not intended for those who grow roses well and in large numbers, but that they may be of some slight assistance to those that at present hardly consider themselves skilled rosarians.

West Bergholt. OSMOND G. ORPEN.



ROSA LUCIÆ MANDA'S TRIUMPH.

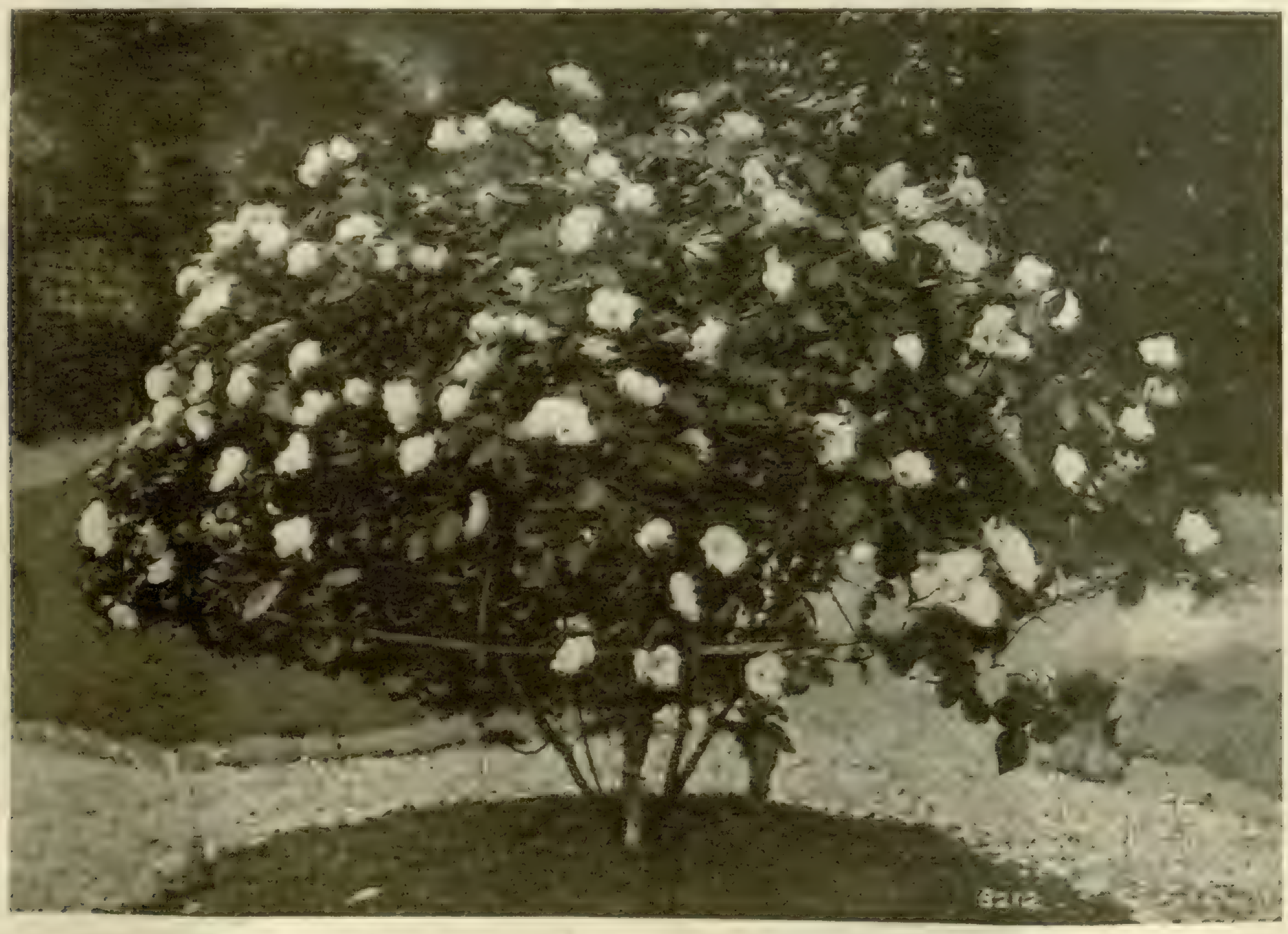
ROSA LUCIÆ VAR. MANDA'S TRIUMPH.

NOT very long ago a pretty Japanese rose was introduced to British gardens, chiefly through American horticulturists, and at once attracted attention by reason of its quaint and vigorous prostrate growth and white flowers. It was first made known under the name of Rosa Wichuraiana, and probably that name will stick to it for a long time, notwithstanding the authority of the *Bot. Mag.* at t. 7421 for the title of Rosa Luciæ. The story of the introduction of this species is given, together with an illustration, in the GARDENERS' MAGAZINE of August 17th, 1895, p. 508. The accompanying illustration represents one of the several charming hybrids of Rosa Luciæ produced by Mr. W. A. Manda, of New Jersey, U.S.A.; it is a distinct novelty, inasmuch as its flowers are double and white. As trailing plants for rockeries and rooteries, R. Luciæ and its several hybrids are eminently satisfactory, as here they show themselves off to the best advantage. As pot plants they are not a great success, owing to the length of the growths, but when allowed to assume their natural prostrate habit, few roses are prettier or more interesting. The variety figured is named Manda's Triumph, and was exhibited by Messrs. J. Veitch and Sons, Chelsea, at the Temple Show of May last.

SINGLE ROSES.

THOSE rose growers who have not tied themselves down exclusively to the culture of over-sized hybrid perpetuals, find that the presence of single roses gives a pleasing variety to the rose garden; and it is therefore not surprising that real lovers of the rose often prefer the simpler forms; consequently the culture of single roses has very much increased in recent years.

Much has been done, by the selection from the numerous species and their hybrids, of the finest and most useful kinds; improved forms and new colours have been added to the list of roses worthy of culture. But much remains to be done. When single roses regained the public fancy, the kinds which first came into notice were, of those with white flowers, Rosa macrantha, R. Biggiriana, R. rugosa alba, R. moschata alba, R. multiflora (*Polyantha simplex*), all fine forms; R. lævigata (*R. sinica*), the camellia rose, is too shy in this country to have here maintained the reputation won in kindlier climes. Paul's Single White, of which so fine an illustration is given herewith, proved a real advance. It is perpetual in flowering, in colour pure, in habit graceful, and is probably as yet the finest single white rose. It is a hybrid noisette. R. altaica, a large lemon-white Scotch, and R. pulverulenta, are the two earliest single roses.



SPECIMEN OF PAUL'S SINGLE WHITE ROSE, AT ENYS.

Most of the single roses with pink and rose-coloured flowers are too small and insignificant for garden purposes. The best of these are Rosa macrophylla, a tall, almost tree-like climbing variety; R. rugosa, the true large flowered form, and its variety R. America, more pendant in habit, and with black crimson ovate fruits; R. pomifera, pale blush pink with fine fruit, and the single Gallicas. The Indicas, free-flowering and perpetual, are almost the only others, but R. rubrifolia and R. lucida are much grown for their foliage, and deservedly so. Mr. Jackson Dawson, of the Arnold Arboretum, U.S.A., tells me that R. setigera, and its hybrids, aremuch used as climbers in America. Rosa canina, the dog rose, is always beautiful, and its varieties, Andersoni, deep rose-pink, and, I think, Omissa, very large blush-white, are very showy indeed. R. sancta, with bunches of large china-pink flowers and woolly leaves, has been lately introduced from Abyssinia, has proved identical with flowers found in the wreaths of the Egyptian mummies, and evidently no novelty. A new hybrid of R. sinica and R. canina—R. anemone, has blooms for all the world like the Japanese anemone, and is a singularly attractive climber with shiny-green foliage.

Lord Penzance's hybrids have proved the value of the sweetbriar. Of the single yellows, the Austrian briars and the single Scotch are really good, and remarkably attractive during their flowering season, and have given us our richest coloured doubles, but R. berberifolia (*simplicifolia*) and its hybrid Hardi are merely fascinating curiosities, and Ecæ flowers very rarely, only favouring distinguished amateur growers like the Rev. V. H. Pemberton with its blooms.

That mystery amongst roses, Gigantea, was long known to us solely by the dried flowers in the Kew herbarium, but has at last been flowered at Cannes by Lord Brougham, who, kindly sending flowers to us, describes it as follows:—"It made growths last summer of from thirty-five to forty feet, only one flower on the top of each growth; five leaves of a golden white, yellow centre, an unusual quantity of pollen. The largest we have yet gathered are just six inches in diameter. From the appearance of some of the buds which have yet to open, I think, we shall have blooms of considerably greater size; in form and size it much resembles a clematis." The introduction of such a strain into our hybrids might materially affect the character of our future climbing roses. The toughness of petal and great breadth of flower are particularly noticeable.

Turning to the high coloured singles, it must be said that Carmine Pillar, Royal Scarlet, and Cooling's Crimson Bedder are the only single bright red roses we have, and are all quite recent introductions—seedlings from double kinds, and thus partial reversions to type. The first-named has not retained the perpetual character, but the other two possesses it in a marked degree. Carmine Pillar and Royal Scarlet produce their flowers in large bunches, each bloom opening in succession, and the duration of the time of flowering is materially increased. In the case of Royal Scarlet, this property and the perpetual character have produced a continuous blooming variety, the first blooms of the new growth almost immediately following the first bunches.

In addition to their great usefulness for garden decoration, single roses possess an indirect value, inasmuch as they lend themselves readily to hybridization; and it is evident that the introduction of new species must modify extensively the characteristics and habits of roses, and may produce novelties of a kind yet undreamt of—only care must be taken to retain the hardiness and vigour of our present kinds.

Cheshunt. GEORGE LAING PAUL.

ROSE GROWERS' DIFFICULTIES.

THERE is, I should imagine, scarcely any other plant generally grown which is so beset with enemies of all kinds as the rose. From the time it unfolds its first leaf until the foliage disappears at the approach of winter, it is seldom free from troubles of one sort or another. But, although the enemies of our Floral Queen are so numerous, they can nearly all be traced back to one common origin—the weather. In fact, if only our roses could have the climatic conditions they most delight in at each season of the year as it came round, the difficulties of the rosarian would disappear almost entirely.

The fact is, our cultivated roses are so extremely sensitive to weather changes of all kinds, as to be greatly at the mercy of the seasons. I refer, of course, to the choicer specimens of the race, the hybrid perpetuals, the hybrid teas, and the teas and noisettes. Indeed, I had such roses in my mind when I said just now that, were it not for unfavourable atmospheric conditions, rose growing would be sheared of all, or very nearly all, its anxieties and troubles. For were our attention directed solely to the cultivation of our native roses, or of such garden varieties as Bennett's Seedling, and similar sorts which are of strictly vigorous constitution and perfectly hardy, we might snap our fingers at the weather and its vagaries, and year by year, with the most meagre attention, look forward with certainty to a short, but abundant, harvest of bloom.

But, to proceed from generalities to more detailed illustrations, suppose, for instance, a young rosarian, smitten with the beauty of the flowers he has seen at a rose show, determines to try and raise specimens as fine in his own garden. He selects, as he has been advised, an open situation for this his first rose-bed. The ground is carefully prepared, and at last the long-looked-for plants arrive from the nursery. Thus far there has been nothing but pleasurable anticipation; but from the moment the straw bundle containing the selected varieties is opened his troubles may be said to begin. For either the ground may at that particular period be frozen hard, or the surface so saturated with wet as to render any idea of getting the plants into the bed impracticable. After a time the weather moderates, and if this ardent rosarian is not in too great a hurry the important operation of planting is carried out under as favourable circumstances as could be wished. Should a mild winter follow, his new plants will be greatly benefited, but should it prove unusually severe, some of the more delicate sorts may never live to the next summer's sun, while the rest can only be expected to start bly into growth in the spring.

But there is no reason at all to draw upon our imagination, besides which, all the ills that the rose is heir to do not come upon it during a single rose year, so we will take as an example the past winter, one of the most favourable in recent years for the establishment of young plants in their new quarters. We can therefore picture the plants of our young enthusiast at the end of the winter season as having made satisfactory growth. So far so good. Still, keeping to the experiences of the present year, we find that towards the end of March or beginning of April the young shoots were shortened. For with young plants, such early pruning as is recommended for established roses is not advisable. In due time the young leaves made their appearance, and with them innumerable grubs and caterpillars.

After the destruction of these insect pests all went well with the plants for a time, but not so with the young rosarian himself, who must have often gone to bed in fear and trembling whenever a night frost threatened, knowing what havoc such spring frosts, when unusually severe, make in a rose garden; and as the season advances the greater becomes the dread of such frosts, because the more permanent are the injuries inflicted likely to be. Fortunately, most rose gardens escaped serious damage this year from cold during the spring months, although the easterly winds were for a time very trying.

There, however, occurred two cold periods in June, the first of which checked the growth of the plants and hardened the more forward flower buds. Added to which, it brought with it one of the worst and most persistent attacks of green-fly known for some years. There was one peculiarity of growth which must also be attributed either to this check or to the cold weather in the latter half of May, and that was a tendency for certain varieties to send up long tapering shoots showing signs of a flower bud until a foot high. With the second cold period came a worse enemy even than aphis, and that was a visitation of mildew.

The above recital indicates sufficiently clearly some of the worries of the present rose season, but of course, to those rosarians who are also exhibitors, the greatest worry of all has been the backwardness of a season when all the early rose shows had to be held without roses, or at all events, with blooms which the exhibitors were in most cases ashamed to set up, so far short did they fall of their ordinary exhibition form.

It may at first sight appear difficult to understand in what consists the charm and fascination experienced by the votaries of the rose. I suppose the fact is we all take pleasure in contending against adverse circumstances, and in this way rose-growing becomes a species of sport. I have given a sketch of the drawbacks of a single rose season, but these may only be taken as being to a certain extent representative. For no two rose years are alike, each having its own peculiar drawbacks and advantages.

However, be the trials and disappointments what they may, and I have tried not to exaggerate them, the fact remains that the hobby of rose growing is one of the most delightful and fascinating recreations in life, and like all hobbies of the first order, the interest in it increases the longer it is indulged in. I have dwelt, as in duty bound, upon the trials of the present rose year, but there is a bright as well as a gloomy view to be taken of it. No doubt it is a very late season, and has certainly proved a most provoking one, but where the plants have received their due measure of attention, there appears every prospect that when the main crop of flowers does appear, be it during July, or, as some northern growers have predicted, "somewhere about Christmas," the blooms are likely to be unusually fine.

Rosebank, Great Berkhamsted.

EDWARD MAWLEY.

THE YELLOW ABYSSINIAN ROSE

(Rosa ecæ or Rosa xanthina).

A FEW notes on this charming deep yellow coloured rose species are herewith offered as a contribution to the Rose Number of the GARDENERS' MAGAZINE, with the hope that they may prove to be of interest to lovers of decorative roses, especially so, as in consequence of the difficulty hitherto experienced in getting it to flower, it is but little known.

Some hips of this species were brought from Abyssinia by Dr. Aitchinson a few years ago, and plants from this seed were raised at Kew. The authorities there have only one plant of it, and this plant can be seen growing on the rockery. It was, when I saw it on June 13 of this year, just off flower, and upon inquiry was told that it had had some five or six blooms. Last year it did not flower, but in 1896 it bloomed profusely. This species, named by Dr. Aitchinson Rosa ecæ, is thought to be identical with Rosa xanthina, a native of Afghanistan and Persia, described by Lindley and in Hookers "Icones Plantarum." It bears the latter name on the Kew rockery.

The plant in the illustration came from Mr. George Paul, of Cheshunt, who describes it in his catalogue under the section of botanical varieties as "Rosa ecæ, the yellow Abyssinian rose." Mr. Paul obtained his first plant from Kew. We have had the plant about six years. It was very small, and in a pot, but we ventured to plant it out under a south wall in light sandy soil, and kept it dry. For three or four years, until it became established and had made fair growth, it was protected during the depth of winter by a handlight, but it has had no protection for the last two years, having in the meantime grown to between four and five feet high, and wide in proportion. After throwing up some strong shoots in the spring of 1897, which became well ripened in the summer, it has bloomed this year for the first time, and has borne between fifty and sixty flowers, which began to open on May 19. The flowers were single, about three-quarters of an inch in diameter, a deep yellow in colour, inclining to orange, like the marsh marigold or kingcup; petals and stamens of an even shade, very sweet scented. I was given to understand that, except at Kew in 1896, it had not blossomed in England, and therefore upon its coming into flower with us here we thought it would be worth photographing. We are indebted to Mr. Arthur Cornell, of Romford, for the photograph, taken in our garden as the rose came into flower. It was not at its best then, but we were afraid to wait, because of the unsettled weather. A few days later it was more fully out, with better developed blooms, each shoot bearing on the laterals a row of golden flowers gleaming in the sunshine, the effect of which was very charming.

ROSA ECÆ.

I would recommend rosarians who may possess a plant of this species not to discard it because it does not happen to come into flower for the first few years, but to wait until the plant attains to a certain age and size, and their patience will probably be amply rewarded.

Havering.

JOSEPH H. PEMBERTON.

Messrs. James Backhouse and Son, Limited.—This company has been registered with a capital of £60,000, in £10 shares (of which 3,000 are preference). The objects of the company are to acquire and take over as a going concern the business now carried on under the style of Messrs. James Backhouse and Son at the Nurseries, York, and elsewhere, to enter into an agreement with Mr. James Backhouse, and to carry on the business of nurserymen, seedsmen, landscape gardeners, dealers in garden and other implements and appliances, and all materials for use in connection with gardening and laying out grounds, and contractors for the making of artificial rockwork, and for making, keeping and maintaining gardens, parks, and grounds. The first directors are: Mr. James Backhouse, Mr. James B. Crosfield, Mr. Samuel Doncaster, and Mr. Joseph S. Gray.

ROSES FOR COTTAGE WALLS.

I SUPPOSE that our omniscient Editor has selected me to deal with this subject, because I live in a part—the Isle of Wight—where roses on cottage walls are more abundant than in most parts of the kingdom, though the more favoured parts of Devon and Cornwall are quite as well suited to bear them, and, so far as I remember, do so as freely. However, at any rate here, thank heaven, we do not see very much—though far too much—of that accursed destroying parasite, the ivy, which in more northerly counties people plant on their cottages to save themselves trouble. And what a pity it is to think that one-tenth of the trouble that will have to be taken to keep the ivy down and repair the serious damage that it does, let alone the certain insects and probable rats that it harbours, would have sufficed to cover the walls with the exquisitely refined Ampelossis Veitchi, and with any number of different coloured roses, provided they were wisely chosen, and decently tended!

My own village of Shorwell is, I think, on the whole, the rosiest village in the island, but several others are much like it in this respect, and I fancy (from hasty inspection) that you will see more roses on walls in the outer streets and lanes of Ryde, particularly in the Swanmore part, than you will in any of the villages. One or two roses, however, were, it seemed to me, thought quite enough for each cottage, and the choice was apparently quite at random, and without any reference to the particular aspect, or to the habit of the particular rose and its economy of space. The front wall of a cottage, facing south, when all covered with Reine Marie Henriette, for example, looks very nice from a coach-top in June, but this rose will probably not give one really good bloom, while there might have been two first-class roses of different colours.

The roses which I find in most general use in the cottages here are Gloire de Dijon (of course), Devoniensis (almost a speciality of ourselves and Devonians), General Jacqueminot, Reine Marie Henriette, Maréchal Niel (only possible in the milder climates), Jules Margottin (not the modern climbing variety, but simply climbing by its own vigour), the old pink China rose, and an old red rose of which I am not sure, possibly Edouard Morren. On the whole this is not a bad selection, though it might be improved. There are, of course, specimens here and there of many others, including the only one I ever saw of Madame Levet, an almost forgotten seedling of Gloire de Dijon, of a deeper shade of yellow than its parent; Solfaterre, Marie Leonida, Lamarque, and a few others, if we make an accurate census. The Banksians, both yellow and white, grow profusely over my own vicarage, and I have the grandest tree I have ever seen of William Allen Richardson, which, not finding enough scope in two stories, is now trying its effect on the roof. To these I have added several by gifts in the village, as of Cloth of Gold (which we ought to grow, if anybody can), William Allen Richardson, and Crimson Rambler; while a beautiful Madame de Watteville, budded from mine on a lady's single-storied wall, under thatch, was formerly a sight for the gods to envy. I am informed that, according to the Talmud, roses are grown in Paradise, so that we may look forward hereafter to the post of assistant-gardeners, if we qualify by diligence here.

I think, then, that the most helpful thing I can do is, first, to discuss a few general principles needed to be borne in mind, epecially for choosing roses for walls; and, secondly, to name and criticise a few leading varieties most likely to be used, or most suited for carrying out these principles.

1. For a high wall (say of two stories) a real rampant or climbing rose is needed. Many times I have seen a good rose on a wall, expected to do its twelve or fourteen feet, when six feet was an effort for it.

2. For a low wall (single story) it is probably better here (I speak without sufficient knowledge of more northerly climates, as far as regards rose growing) to take a vigorous rose which is not ordinarily described as a climber. I have, for example, on a small piece of east wall, a Maman Cochet, which covers its seven feet, and gives early blooms of show quality. Some people would have put a Gloire de Dijon here, if anything, and wasted the space.

3. Always consider the aspect and the standing of every little scrap of wall you possess (I have only a few scraps), and do not put in Gloire de Dijon everywhere, simply because it is the only rose whose name one can remember, or because a small local nurseryman has hardly anything else in stock. You can get a good plant of any sort from one of the great nurserymen safely by post, or a bundle by rail, and the good and great nurseryman will do his best to suit you, even for a tiny order—such is the true rose spirit—if you will only say exactly what you really want, and leave it to him to choose for you. If you have more walls than one, put a really good rose on your south or west wall. Here, at any rate, and in any tolerably favourable place, you ought to be able on a south wall to grow a Maréchal Niel, or Rubens, or Niphetos, and have lovely blooms from them to stand in specimen glasses on your table, or, perhaps, to be the boast of the local show, instead of a heap of shapeless roses.

4. All roses on walls are terribly subject to blight of various kinds, more than those in the open ground, chiefly the aphis, or green-fly. It will not do to leave them to chance, if you want your wall to look beautiful. You must syringe them as much as ever you can. There are many insecticides. One of the simplest is four ounces of quassia chips, to be had from any chemist, boiled in a gallon of soft water, and mixed with four ounces of soft soap.

5. Roses on walls, probably, have not got good soil immediately under them, while owing to their large growth they need good food. Give them all the food you can, for they well deserve it—road scrapings, stable manure (always to be well diluted), any blood you can get at, sour milk, anything. The rose has heavenly gratitude for it all.

6. Roses running up to any height on a wall tend to become bare on the lower parts, and be rather unsightly thereby. But if they are sufficiently widely spaced, you can put non-climbing, low-growing roses of a different colour, between them, and cover up all your wall. Only you must, of course, remember that this exhausts more of the ground, and you must, therefore, proportionately feed it, or the big rose with long tap-roots, and shoots towering above, will eat up all the food in the soil before the little rose can get at it at all.

7. Never plant a mere summer rose, like Charles Lawson. Some roses will bloom for more months than the others will for weeks.

I will now run through a few of the different sorts most likely or most advisable to be used as climbers, with a few notes on each.

We naturally begin with the universal maid-of-all-work, the Gloire de Dijon, and its descendants. It has, as everybody knows, many excellent qualities. It is very hardy, does not much mind where it is put, is very early and very sweet, and some of its shades of colour are pretty in sufficient masses. But it is about the most utterly shapeless rose that exists, and what is more curious, the exceedingly rare blooms of tolerable shape seem just as likely to come in a wind-swept situation as on a sheltered south wall, so that it is clearly a pity to waste on it the favoured spot which might have had a Maréchal Niel. Madame Berard, a daughter of the Gloire, is far better in shape, and deeper and more uniform in colour. It is not quite so hardy, but hardy enough, and rather more ambitious in climbing. Bouquet d'Or also greatly resembles both its mother and sister, but is of a brighter colour, and very pretty in bud.

Reine Marie Henriette, often called "the Red Glory," a daughter of Madame Berard and General Jacqueminot, is of a bright cherry colour when it comes out, but fades very rapidly. It is most annoying in shape, an immense proportion of blooms being tightly doubled in.

Waltham Climber No. 1 is said to be from the Gloire crossed with a red rose. The colour fades very quickly, and the shape is generally poor. It is a strong grower and very early, but I do not recommend it. Cheshunt Hybrid is of a charming colour in bud, but opens out into the most ghastly lilac-red. It is strong, early, and one of the sweetest of roses, but of little use for cutting owing to its tendency to fade quickly.

Maréchal Niel, though raised thirty-four years ago, is thought by many good judges to be still the most beautiful of all roses. More blooms of it and Niphetos are raised for sale to florists than of any other. It should have the very best situation that can possibly be given to it, and on a south wall, with protecting eaves overhead, it will give far richer-coloured blooms than in a greenhouse.

Of the climbing variety of Niphetos very much the same may be said as of Maréchal Niel. It is too delicate for any but very favoured situations, such as a sheltered south brick wall, with eaves over it, and it is too shy about flowering unless it is thoroughly satisfied. But a perfect Niphetos is the loveliest thing imaginable, and even quite second-rate blooms will always sell readily at the florists. I may mention here another white rose, not nearly so widely used as it deserves to be, but very different from Niphetos, viz, Madame Alfred Carrière. This is one of the most rampant of all growers, and does not seem to mind where it is put, so that it may be used quite as freely as the Gloire. It has a powerful scent, which the catalogues call "deliciously fragrant," but which I have heard called "horrid." It would be a decidedly pleasant change from the eternal Gloire to see a cottage covered with its light green foliage, studded with large showy white blossoms.

One of the most useful acquisitions of late years has been Turner's Crimson Rambler. I believe that this grand polyantha does better on arches, or pillars of a verandah, or in a hedge, than on walls, which would discount it for our present purpose. But if it can be found a situation which suits it, the enormous masses of blossom all coming together into divided clumps like great swarms of crimson bees, are well worth trying to secure. And we, at least, find the plant so rampant and so hardy that it gives no trouble anywhere. Paul's Carmine Pillar is an exceedingly effective single rose in colour, but I do not know what its peculiarities may be in regard to walls. I should think it would be too much of a summer rose to advise; and the same would apply to all Lord Penzance's hybrid sweet briars. William Allen Richardson is of such a beautiful and uncommon colour that it is popular everywhere, and grows readily in the more northerly counties. Madame Carnot, a seedling from it, is more beautiful in colour, but it seems to be too delicate for general use.

It will be noticed that in these numerous varieties I have touched upon there are no dark roses at all, which is a serious gap. Any raiser who succeeds in producing a really rampant dark rose has a great chance before him. The climbing sports advertised from time to time of well-known roses need some years to test them, and, generally, have soon dropped out. Here, as I said above, General Jacqueminot is mostly used for that purpose, though it is not even considered a half-climber. But I think that any of the stronger dark roses, such as Baron de Bonstetten or Crown Prince, both giving beautiful show blooms, would cover perfectly well a single-storied piece of wall. One very good variety, not so well known as it deserves to be, is Glory of Cheshunt, a rather small, but very rich-coloured variety, which does well with me on a wire arch. It is said to be a seedling of Charles Lefebvre, but I find it hard to believe this.

Lastly, if the rougher places of the wall are thought or found to be too rough even for Gloire de Dijon or Madame Alfred Carrière, we can fall back on the closely akin Ayrshire and Sempervirens (Evergreen) roses, which will do anywhere, but seldom get even the worst piece of wall. Mine all climb round the trunks of big trees, and form a great feature in the garden. There is no great variety in them, either of colour or growth; the Dundee Rambler, Ruga, Flora, and Félicité-Perpetue are, perhaps, the best known.

Let us hear the conclusion of the whole matter. If the cottage walls be already covered with roses, let them stay till they fail. They cannot be expected to go on for ever, as some people seem to expect, even if they are well fed, which is rarely the case. When one begins to fail from age have it out—it is kinder to the rose as well as to yourself—and put in, say from the list, one which will be in contrast of colour to the others still there. If the walls be new you have a fine chance. Consider your breadth and height of walls, and their comparative shelter and sunniness, and select for each place accordingly.

G. E. JEANS.

Shorwell Vicarage, Isle of Wight.

WILD ROSES.

The hedgerows are now bespangled with the delicately tinted flowers of the dog rose, or, to give the shrub its scientific appellation, Rosa canina, and the effect produced by the long flower-laden branches, swayed by the passing breeze, is so surprisingly beautiful that in visiting country districts where this charming wilding is placed under conditions favourable to its full development, we readily acknowledge with Wordsworth—

> "How sweet it is when mother Fancy rocks
> The wayward brain, to saunter through a wood!
> An old place, full of many a lowly brood,
> Tall trees, green arbours, and grand flowers in flocks,
> And wild rose tiptoe on hawthorn stocks,
> Like to a bonny lass, who plays her pranks
> At wakes and fairs with wandering mountebanks—
> When she stands cresting the clown's head, and mocks
> The crowd beneath her."

There are several other roses indigenous to this country, but this has the strongest claims to be regarded as the wild rose of England. It is common in all parts of the country, and its deep pink and blush-coloured flowers, and bright rose-tinted buds, interspersed with the fresh green elegant leafage, add immensely to the charms of country lane and woodland walk at this season of the year, these in their turn to be succeeded by the bright red hips which present such an attractive appearance during the autumn. It is not alone in the hedgerow that the dog rose appears to advantage, for on railway banks, waste spaces by the roadside, and in meadows where a few bushes away from the boundaries are not regarded as objectionable, it may be seen displaying a wealth of floral beauty that specimens associated with other forms of arborescent vegetation strive in vain to emulate. In positions such as those mentioned, we may see the dog roses forming bushes ten or twelve feet through, and of a pro[illegible]tion height; and apart from their charms when every shoot is a garland of flowers, they are of especial interest as suggesting to cultivators of roses the desirability of allowing the roses on which they lavish their care more latitude of growth. In the garden the roses are pruned annually with so great a severity that they increase but little in size, whereas the wildings, free from the ever active pruning knife, extend on all sides, and annually produce immense numbers of flowers. In the production of blooms of the hybrid perpetuals and some other classes with which to win honours at exhibitions, rather hard cutting back is no doubt necessary, but in the case of the free growing kinds collectively known as garden roses, very little pruning indeed is required. This has long been the teaching of the GARDENERS' MAGAZINE, and its Editor must be highly gratified to know that the most successful of the amateur and professional rosarians now recognize this view as the correct one. The dog rose teaches us the importance of allowing the [illegible] kinds to follow their bent, and make plenty of wood as the foundation of a profusion of flowers. This teaching has only been recently accepted as sound by any considerable proportion of rosarians, and there are still so large a number who have not taken advantage of it that it would be well to plant one or two specimens of the dog rose in the pleasure grounds of country residences where they could run riot and demonstrate the possibilities of roses in flower production when the pruning is limited to the removal of the weakly shoots. Were this to be done we should find many owners of gardens, who have not as yet fully recognized the charms of wild roses, saying

> "Yes, lovely flower, I find in thee
> Wild sweetness which no words express,
> And charms in thy simplicity
> That dwell not in the pride of dress."

The dog rose is hardly less interesting than beautiful, for there are many traditions relating to it, and it may be regarded as the progenitor of many of the beautiful of the roses that have found a home in English gardens. "Wild roses!" exclaims Sir Edwin Arnold. "That leads us back to yonder splendid and sumptuous white Devon Queens of the garden, hanging their scented heads in garlands of beauty round these windows. If we could only do as much by education for the races of man as the gardeners since Adam have done with the common dog rose, what would not be the progress of humanity by now? All the wonderful varieties of the rose—the thousand graces and glories which she wears in doubled and trebled blossoms of crimson and claret, saffron and scarlet, palest pink and deep glowing gold, milky or pearly and creamy shades, or else Imperial purple, lemon-yellow, sulphur or salmon, or snowy-white, with her own special and self-named 'rose-colour'—these all are offshoots of the humble hedge bramble, which was Nature's first draught plan of the Royal flower that has filled literature, inspired the poetry of 3,000 years, taught colour and form to painters, and their moonlight music to the nightingales of Shiraz." It may not be absolutely correct to state that "all the wonderful varieties" of roses that grace our gardens have descended from the "common dog rose," but there can be no question as to the varieties which constitute the chief splendour of the rose garden having descended from it. Rosa canina has a very wide distribution, and is in consequence a very variable plant, being, like many others, greatly influenced by different conditions of soil and climate. Bearing the fact in mind that the most important of the cultivated roses belong to the caninæ group, it is somewhat remarkable that among the many varieties of the common dog rose none have acquired renown as garden roses. But hitherto rosarians have not bestowed a thought on the possible value of its pollen, though for ever absorbed in admiration of the actual value of its hungry roots. Its possibilities as a pollen and seed-bearing plant are evidently now being recognised, for one of our rose growing firms has presented to public notice a variety obtained by fertilising the flowers of the dog rose with pollen from either a tea-scented or noisette. As shown at the National Rose Society's exhibition, the flowers are sufficiently beautiful to justify it in obtaining prominence, and to encourage further experiments in the same direction. It is reasonable to assume that by hybridising some of the twenty-five or twenty-six recognised varieties of R. canina with the best of the garden roses, a race of varieties distinguished by their vigour and hardiness, and of a high degree of utility for the wild garden and woodland walks, would be obtained.

"THE SWEET WILD ROSE
STARRING EACH BUSH IN LANES AND GLADES."

At some period in the far distant past this beautiful wilding was not regarded with particular favour, and had the term canker rose applied to it, presumably as an expression of contempt; and in this contempt the poets of three centuries ago have shared, as is evident from Shakespeare's fifty-fourth sonnet, in which he says:—

> "The rose looks fair, but fairer we it deem
> For that sweet odour that doth in it live.
> The canker-blooms have full as deep a dye
> As the perfumed tincture of the roses,
> Hang on such thorns and play as wantonly
> When summer's breath their marked buds discloses;
> But, for their virtue only is their show,
> They live unwoo'd, and unrespected fade;
> Die to themselves—sweet roses do not so;
> Of their sweet deaths are sweetest odours made."

Another species that should have prominence in reference to wild roses is the Sweetbriar (Rosa rubiginosa), which has long been held in high estimation, and was a favourite with the older poets, Chaucer writes: "Suddenly I felt so sweet an air of eglentere."

Shakespeare regarded its leafage as representing the highest type of fragrance, "The leaf of eglantine, whom not to slander, out-sweetened not thy breath." Spencer observes, "Sweet is the eglantine." Keats describes the shrub as "Dew-sweet eglantine" and as "Rain-scented eglantine." Wordsworth speaks of it as "Thou one fair shrub," and with a view to the extension of the shrub, Scott suggests that we "Leave untrained the eglantine." The shrub is well deserving of the highest praise that has been bestowed upon it, and there can be no question that when its progeny, which we owe to Lord Penzance, becomes fully known, it will have representatives in every garden that is large enough to afford room for free-growing shrubs. The results that have been obtained in the hybridisation of the sweetbriar with the garden roses have been more than sufficient to encourage the hybridiser to take the dogrose in hand with a view to the creation of new types. In the hybrid or Penzance briars we have not only large and effectively coloured flowers in association with the delightfully fragrant foliage, but a vigour far surpassing that of either of the parents.

Two other of the native roses accepted by Mr. Baker as true species, are the Scotch rose (Rosa spinosissima) and the Ayrshire rose (R. arvensis). In the first half of the present century some attention was given to the raising of varieties from these two species, and with much success; but during the second half but little or anything has been done to extend or improve the two sections. The Scotch roses form handsome bushes, and are useful for low hedges; while the varieties of R. arvensis comprise some of the very finest of our summer climbers, the best known being perhaps Bennett's Seedling, Dundee Rambler, and Ruga.

AMATEUR ROSARIAN.

The R.H.S. Social at Chiswick.—Probably arising out of the date of the Newcastle Show, where the R.H.S. council will attend as a deputation on the 13th inst., it had been found advisable to hold the now annual social gathering of the committees at Chiswick on Tuesday last. This is a very much earlier date than last year. Happily the gathering is this time held on a Tuesday. Last year, because of the numerous flower shows held on Wednesday, not a few of the most regular attendants at the committee meetings were shut out from the function. Probably the gathering was thus early fixed also in the hope of finding strawberries well in fruit. Strawberries, in spite of a grand bloom everywhere, seem to be unusually late this season, the fruits being very slow in swelling. This is particularly the case in the Kentish fields, but of course they are much earlier at Chiswick. But there the soil soon dries up, and unless ample water can be supplied there is reason to fear that a great crop may not after all result.—A. D.

THE CHINESE OR BENGAL ROSE.

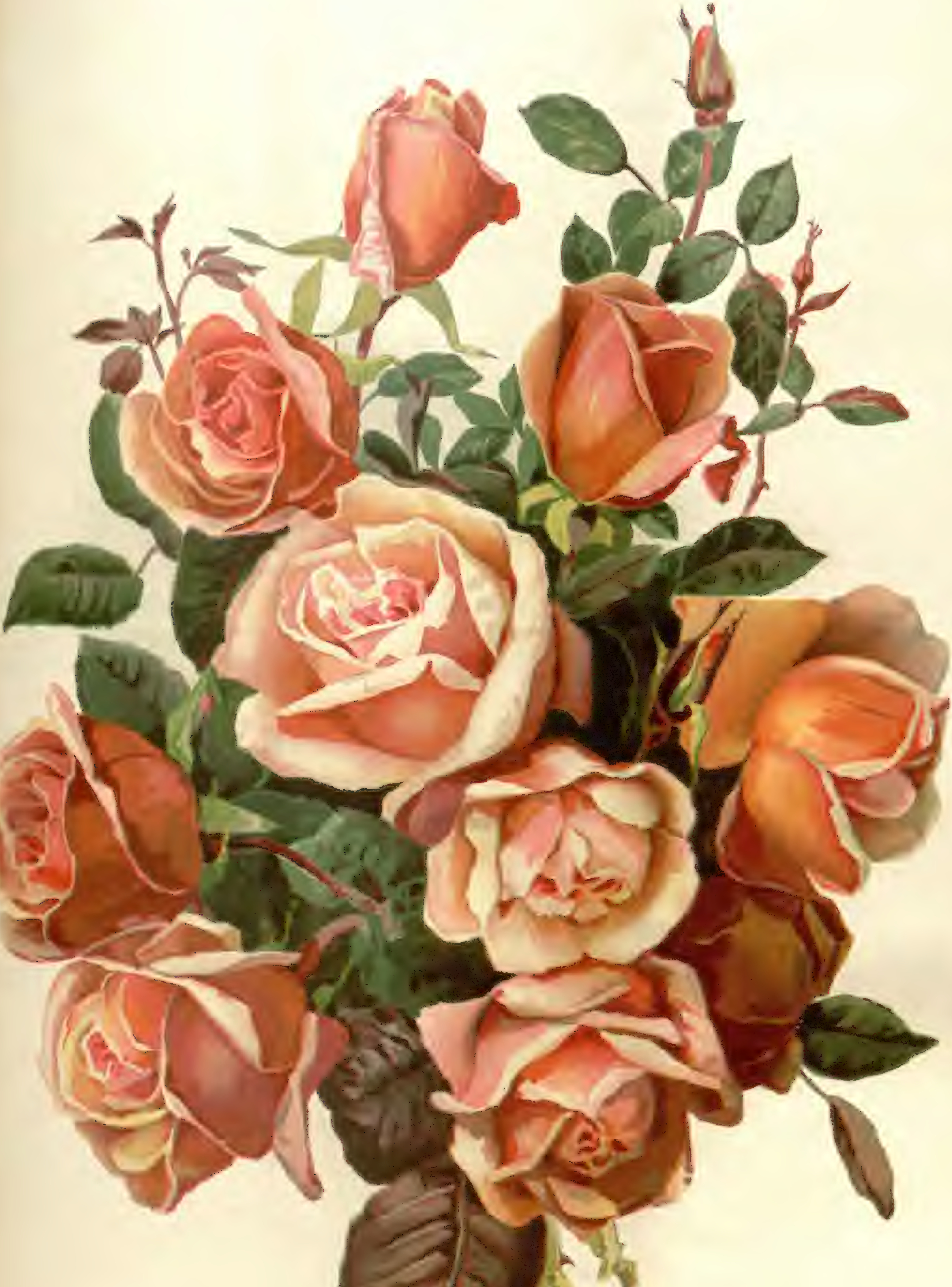
THE China rose may be said to form the central group of the species generally known botanically as *Rosa indica*. On the one side of it we have the summer-flowering kinds, which have originated by crossing it with the Gallica and other summer-flowering roses, a very popular class in former days, and of which there still remains in general cultivation, the delicate-hued Blairi No. 2, the rich and glowing crimson Chenedolé, and Vibert's pink and white Indica major, which is largely used as a stock in the South of Europe, and is still grown there for ornamental purposes, luxuriant hedges of it being commonly met with. On the other side we have the rich and magnificent autumnal-flowering classes known as the Tea-scented, Noisette, and Bourbon roses, which also owe their origin either wholly or in part to the China rose and its varieties. To botanists the species presents some difficulties, the first China roses introduced into this country having arrived towards the close of the last century in the form of garden varieties bearing double or semi-double flowers. Mr. Crépin, the eminent Belgian botanist, who has made a special study of the genus *Rosa*, states in one of his works that "the section of the *indicæ* is composed of forms whose specific delimitation is still very obscure, this being due to their all having been described in a primitive manner from plants which have been cultivated, and more or less profoundly modified, by long culture, not only in European gardens, but in those of China and Japan." Single-flowered China roses are in cultivation, but they appear to be of more recent origin, and, in common with single-flowered tea roses, I fear they cannot be generally cultivated, as they lack the first essential of a single rose, namely, absolute hardiness. At this nursery many seedlings have been thrown away on this account, although most attractive in the size and colours of the petals of the flowers.

ROSES IN THE HONG KONG BOTANIC GARDENS.

But whatever difficulties the China roses may present to the botanist, to the amateur horticulturist they are a source of unalloyed pleasure and delight, no other class of roses furnishing such a feast of flowers from early until late in the season, and from the humblest cottage garden to the noblest pleasure grounds in the country no roses are more in evidence.

The varieties of the China rose fall naturally into three divisions or groups, viz., the freer-growing section represented by the common blush China, the dwarf growing crimson China roses and their allied varieties, and the miniature or fairy roses named Lawrenceana roses, after an authoress who wrote on roses at the close of the last century. A very large number of varieties of China roses were extant in former years, but

THE GARDENERS' MAGAZINE, JULY 9TH, 1898.



NEW CHINA ROSE—QUEEN MAB.

from want of distinctness and hardiness, many of these have now disappeared from cultivation, and I shall content myself with mentioning a selection of the best kinds only which are now in fashion.

In the freer-growing section, the common blush China is still the most commonly met with, being valued for the profusion and persistency with which it produces its lovely pink blossoms from early summer until late in autumn. As a bedding rose it is unexcelled in its colour, and it is equally suited for forming small hedges, for planting against walls and buildings, and for introducing amongst mixed borders and shrubberies; In fact, it seems nowhere out of place in the garden. The colour of the cut blooms shows up well under electric or gas light, and in many large gardens this rose is being grown in large quantities expressly for cutting for dinner table decoration. Of recent years some new shades of colour have been introduced into this section by hybridising with the tea-scented varieties, and the subject of the coloured plate presented to the readers of the present issue, Queen Mab, is one of these, producing rich, rosy apricot flower, shaded with orange and violet. Mr. Guillot, of Lyons, has also given us two very beautiful kinds, viz., Madame Laurette Messimy, rose shaded with yellow; and Madame Eugène Resal, rich coppery rose, while a fourth variety, which like Queen Mab, originated at Waltham Cross, is Duke of York, which has been figured in the GARDENERS' MAGAZINE, producing variable flowers of rosy-red and white. All four of these roses when in full bloom, constitute a picture of loveliness. Queen Mab is especially fine in late summer and early autumn, when the cool and lengthening nights intensify the colour of the flowers. As light-coloured companions to these we may mention the white-flowered Ducher and the beautiful flesh-coloured Mrs. Bosanquet, the last-named a hybrid between a China and a Bourbon, and thus often classed with the Bourbon varieties. Other good kinds are Archduke Charles, rose changing to crimson; Madame Breon, rosy; Maria Sage, rose shaded flesh; and Napoleon, bright pink. The green-flowered rose (Viridiflora) also belong to this section, having probably originated in a sport from the common blush China. The so-called yellow China rose belongs to the tea-scented roses, and requires a greenhouse for its successful cultivation.

In the second division, comprising the crimson China roses and their allied variety, the richest shades of velvety crimson are to be found in Cramoisie Superieure, and the brightest tints in Fabvier. These are both fine bedding roses, and are two of the most beautiful gems of the rose garden, especially in autumn, when the warm tints of their manifold blossoms are conspicuous among the departing glories of the flower gardens. The old crimson china (Sanguinea) is also very rich in colour, but requires the protection of a wall or building to develop its full beauty. Fabvier forms a capital covering for the low front of a greenhouse wall with a southern aspect, and of Cramoisie Superieure there is a strong growing variety (James Sprunt) which will cover a considerable wall space in a favourable aspect. Other good varieties in this section are Abbé Merland (reddish-purple streaked with white); Alba (the white China rose, delicate), Eugène Beauharnais (amaranth, hardy and free), Louis Philippe (dark crimson, with paler edges), and Prince Charles (cherry colour).

The Fairy or Lawrenceana roses, which form the third division of the China roses, are a small but interesting group. The best of them is the Gloire de Lawrencias, with rosy-crimson flowers. They are beautiful pot plants for the greenhouse, but are not sufficiently hardy for general cultivation out of doors, and since the introduction of the dwarf-growing Polyantha roses, the Lawrenceana roses have gone out of fashion. Two other miniature China roses may be mentioned here, namely, Little Pet and Red Pet, producing respectively white and red flowers, and suitable for either outdoor or greenhouse cultivation.

The cultivation of the China roses presents no difficulties. They luxuriate in a rich soil of moderate consistency, light rather than heavy, but will grow in almost any soil. In pruning, also, they are equally accommodating, and may either be closely pruned or left almost untouched at the pleasure of their owner. The shortening of the shoots, however, improves the quality of the flowers, and as all the varieties are more or less susceptible to frost, there is generally some damaged wood to be cut away after the winter. At the advent of severe weather it is advisable to protect the heart of the plants. This is easily done by drawing some of the surrounding soil around them. If, then, the upper part of the plant be injured, it will break again in spring from the lower eyes. The smaller growing kinds of the crimson-flowered section are more delicate than the freer-growing class, and require more care in the event of the winter proving a sharp one. For pot culture the China roses are admirable, plants on their own roots growing and flowering well in small pots five and six inches in diameter. If the flower buds are pinched off during the summer months, and the plants kept growing under glass, they will produce a profusion of flowers during October, November, and December, the period of the year when it is most difficult to obtain roses, and when they are sure to be highly appreciated.

ARTHUR WILLIAM PAUL.

Paul's Royal Nurseries, Waltham Cross.

Cauliflowers and Broccolis.—I cannot endorse the opinion Mr. Henslow expressed recently at Chiswick that these two very important sections of the brassica family are practically identical, but owe their habits of heading in such diverse seasons as the summer and winter to the accident that one had been mainly produced in a climate that was warm during our winter and the other in a climate that was the reverse. I cannot hold, however pleasing as a theory, that such an opinion is in accord with practical experience. Vegetation or plant life is so much influenced by its environment that any variations found resulting from growth in diverse climates or seasons would disappear absolutely when grown in the same climate and country constantly. Gardeners recognise that the cauliflower is tender and an annual, for it will head in flower and seed the same season. No broccoli does that; indeed, every variety is a perennial, and, as compared with the cauliflowers, hardy. The nearest approximation of the two is found in Veitch's Self Protecting.—A. D.

ROSES IN HONG KONG.

THE Botanic Gardens, Hong Kong, are situated on the side of a hill three or four hundred feet above sea level, from whence splendid views of the harbour and the mainland of China may be had. The gardens are laid out in terraces and slopes, and the accompanying photograph illustrates a part of the rose terrace with the roses in flower. It was taken in February of the present year, as at that time the plants are at their best. After many trials it has been found that there is one variety which is more useful and flowers much better than any other. This particular variety is the Safrano, a charming tea, well known in England, and the majority of the plants shown in the illustration belong to it. Several attempts have been made to grow hybrid perpetuals, but with indifferent success as regards flowers. They grow well enough, and make good strong shoots, but seldom, if ever, flower. China monthlies do splendidly, and furnish an abundance of bloom during the winter months. The Banksian grows and flowers very freely, and so does also a little pink cluster rose, the name of which I do not know, but something after the style of Crimson Rambler. We have it trained against wire fences, and when in flower it is one mass of bloom. Gloire de Dijon, although a free bloomer in England, and easy to grow as well, is very different with us. It makes plenty of wood, but produces few flowers. Souvenir d'un Ami is a first-rate variety for pots if kept out of the summer rains; it grows well and flowers freely. When planted out, however, it is scarcely worth growing.

Our summer is the principal cause of roses doing badly, as the heat, rain, and typhoons are more than the plants can fight against. From May until October it is one long struggle for the plants to keep alive, and it is surprising that we have not more losses among them than we have. The temperature during this period varies from 85 degrees F. to 94 degrees F. in the shade during the day, and from 80 degrees F. to 85 degrees F. at night. Most of the rainfall occurs during this season, too, the average amount per annum being over ninety inches. I have seen as much as twelve inches fall in one day, and twenty-four inches in four consecutive days. Circular storms, or typhoons, as they are called in the Far East, are one of the greatest drawbacks to horticulture and arboriculture in the colony. Rose bushes, shrubs, and trees are uprooted by the hundred when we get the full force of one of these storms. During my residence of six years in Hong Kong two of these storms of exceptional severity swept over the island, besides many others of less force. The two to which I refer were, one in October, 1894, and the other in July, 1896. In the photograph may be seen a tree of Heteropanax fragrans on the far left hand corner of the rose square. There were three of these standing near the rose beds previous to the typhoon of October, 1894, but only one remained, and that one badly damaged, after the storm was over. The two araucarias on the far side, which may be easily recognised, as they are taller than any of the other trees, had nearly all their branches stripped off at the same time, and in the photograph show the new branches made since.

We make up new beds of roses in the autumn, so that the plants may have the benefit of the whole cool season. If they were planted in the spring I do not suppose that one out of a hundred would live through the summer, as they would not have time to become established before the warm weather set in. I should have mentioned that all our young stuff is grown in pots and on their own roots. By this method we can keep them more under control during the rainy season better than if they were grown in the open ground. We increase our stock by layering and cuttings. The layering is done in the autumn and cuttings put in in December or January. The soil in the Botanic Gardens is very poor except where the beds have been made up from soil obtained from the hills. Most of the soil, in fact, is nothing but decomposed granite, and were it not for the fact that we can get plenty of stable manure rose growing, and, for the matter of that, horticulture in general, would be very uphill work in Hong Kong. As it is, we generally manage to have a very good show of roses and other things in their season, on the "barren rock," as some geographers are pleased to term the island. Rose pruning is done in the autumn, and a good dressing of manure given to the plants annually. Insects trouble us very little; we get an attack of green-fly sometimes, but nothing very serious so far as the roses are concerned.

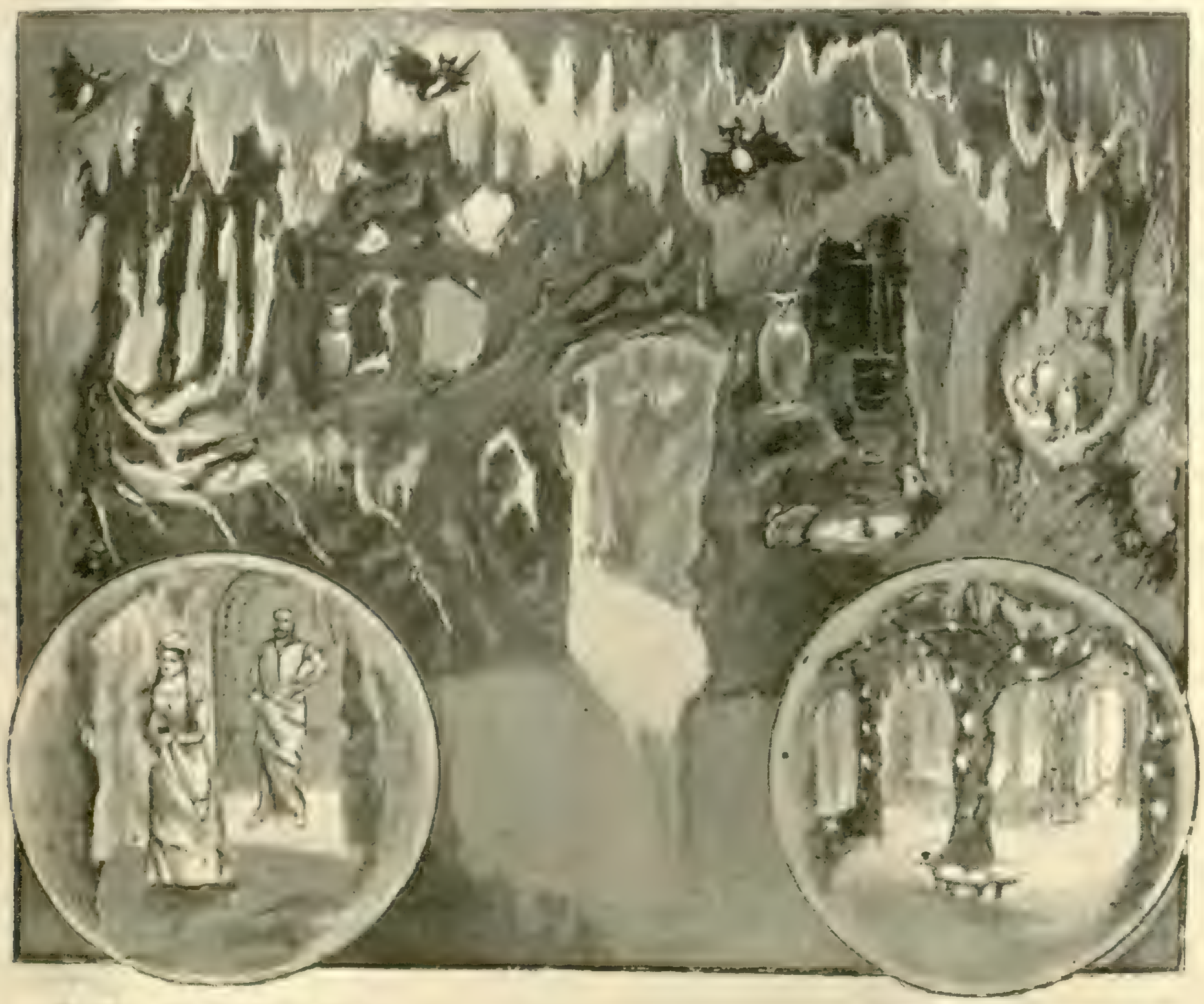
The winter season being the dry season, necessitates a considerable amount of watering on our part. Formerly this was a serious consideration, as our service was connected with the town supply, and often we could not get a drop of water. A year or two ago this was remedied, and now we have our own supply, independent of the town and everything else, so that we have sufficient for all our requirements. The Chinese market gardeners are great rose growers. Large quantities are brought into the market every day during the season to meet the demand of the Europeans. The variety they grow principally is the same as the one grown by us, viz., Saffrano. Most of them are grown on the mainland, in British Kowloon, where there are several large rose gardens. As launches are running constantly between Hong Kong and Kowloon, and *vice versa*, the growers have no difficulty in getting their flowers into the market.

Before drawing my remarks to a close, I should like to say a word about an indigenous species, Rosa sinica. This is a magnificent thing, with white flowers three to four inches in diameter, of a rambling habit, and a first-rate thing for a trellis or for trailing over huge rockwork. When I was at Lantao, an island a few miles from Hong Kong, two or three years ago, I saw hundreds of these plants with thousands of blooms open on them, and it was the finest show of roses that I had ever beheld.

Botanic Gardens, Hong Kong. W. J. TUTCHER.

FRIAR PARK, HENLEY-ON-THAMES.

THE varied and beautiful surroundings of Henley-on-Thames have been so frequently and fully described, especially in connexion with the annual aquatic pageant, and have also been enjoyed by such large numbers of people, that no attempt to detail the charms of wooded hills, limpid water, broad meadows, pretty boat houses, and lovely gardens, extending to the water's edge, need here be made. Those who know Henley, whether as visitor, by residence, or by reputation, will readily understand that any establishment at this prettily-situated Oxfordshire market town must, as a matter of course, possess a large amount of beauty and interest by reason of its environment. Friar Park, Henley, the country residence of Frank Crisp, Esq., has all that one could wish for in the matter of beautiful surroundings, and, in addition, the estate has been laid out in a most artistic manner by Mr. H. Milner, and is now fast developing into one of the most enjoyable, interesting, and wonderful of gardens. The entrance to Friar Park is a little over half a mile from Henley railway station, and just inside the entrance gates is the house of Mr. P. O. Knowles, who is both steward and gardener to Mr. Crisp. A broad drive sweeps round and upward to the imposing mansion, which is a handsome building of stone and brick, finely decorated with carved stone. Monks or friars of all ages are represented in stone on many parts of the building; one scans the heavens through a telescope, another, over the kitchen door, is busy provisioning, while a third reminds one of the comfortable "Friar of Orders Grey." The style of the mansion may well be described as light ecclesiastical. Along the extended east front of the mansion is a broad terrace, and from here a most beautiful view is obtained, extending to the Quarry Woods and distant Chiltern Hills on the left, and to Marsh Lock low down on the right just beyond a pretty sweep of the silvery, winding Thames. Nearer home the course of the river is indicated by the sloping banks of trees, into which the lower part of the estate merges in a most natural manner. In the foreground is a lake surrounded by spreading greensward that reaches right up to the formal Dutch garden just below the terrace. Small wonder, with such a garden and charming surroundings, that seem part and parcel of the estate, Mr. Crisp loves his country home, and is ever making such alterations and additions as shall render it ever more interesting and beautiful.



Faust and Marguerite. Vine Chamber.

WISHING WELL CAVE AT FRIAR PARK, HENLEY.

The establishment is comparatively a new one, for is but eleven years old, consequently very many of the trees are still youthful, though this is not too apparent, because where effect was wanted a large number of trees were planted together on rising ground. Very noticeable are the large and healthy masses of the best rhododendrons seen on either side of the drive, and also the large groups of evergreen trees and shrubs, chiefly conifers, that are placed informally at suitable points. Golden yews, indeed brightly-coloured trees and shrubs of all kinds are extensively grown, and nowhere could they be in better condition considering their age; the colour of the golden yews, retinosporas, and Juniperus canadensis aurea—a grand specimen, is now most brilliant and effective. As a foil to the brighter colours there are plenty of spruce and Scotch fir, Cedrus Deodara, C. atlantica, Abies Douglasi, A. Nordmanniana, and Lawson's and other cypresses, all in good condition and making the best use of their time. All being well, Friar Park will be much more beautiful in from five to ten years' time, when the trees and shrubs have increased in size and produced in a more marked degree than now those effects for which they were planted. From boundary to boundary every part of Friar Park is full of interest, and scarcely another establishment of sixty acres contains so many attractions. The Rock Garden is one of the finest in the British Isles; the caves and caverns, with their many wonders, are remarkable constructions; the Pinetum needs only a course of years to bring it into prominence; the Old English Garden, with its clipped trees is quaint and curious; the maze is well planned; the combined herbaceous and rose garden is ample, and contains the best of everything; the kitchen garden is broad and well cropped; and the glass department of twenty houses contains abundance of choice fruits and flowers.

To a hilly or mountainous country, caves and caverns form a natural accompaniment, and so at Friar Park, the series of subterranean caverns constructed under a part of the rockery and extending right up to the mansion, form one of the most interesting features. Two entrances to the caverns are from the rock; one of these is where mountain passes lead you unconsciously to a dark recess, under what is a clever imitation of a natural bridge, with rustic railing. A sliding iron door that is scarcely distinguishable from the rockwork, admits one to what are probably the most wonderful underground chambers that have yet been produced artificially. The first cave is known as the Vine Cave, for over the root clambers a clever representation of a vine worked out, so far as the stem and branches are concerned, in some wonderful composition of cement and iron; the leaves are very truthful, while the bunches of fruit are represented by clusters of berries made of glass, the bunches varying in colour. Inside each bunch is an electric light, and when the lights are turned on the effect of the cool colours upon the stalactite and stalagmite formations produced largely in tufa, is one that is not easily described. Passing along the passages, under arches and round columns that have the most natural appearance possible, another broad chamber opens out and is supported by big, irregular masses of tufa put together in such close imitation of what one might expect in some of the Derbyshire caves, that one is bound to appreciate the cleverness of Mr. T. B. Harpham, of Church Street, Edgware Road, who planned, designed, and carried out the whole series of underground chambers for which Friar Park is becoming famous. The accompanying illustration represents a part of the Wishing Well cave, and is one of the most skilful bits that Mr. Harpham has executed. Mirrors set at various angles reflect one's image in a most alarming manner, and also afford you an opportunity of seeing round the corner without the trouble of going there. These mirrors are so set that you are deceived at all points, and though the caves are very extensive their extent is apparently quadrupled, and without a guide it would be a most difficult matter to find one's way out from either of the large chambers. In the Wishing Well you may have a glance at the face of your future wife or husband as the case may be, and how Mr. Harpham ingeniously does the business it would be scarcely fair to say. The light in this chamber is provided by electricity—indeed, this is the lighting power throughout—

and the bodies of finely-executed hammered-copper bats serve to hold the light-giving coil, so that a most grotesque effect is produced; owls and [illegible], toads and elfs add to the grotesqueness of the scene and increase your wonderment. The West Chamber contains some optical illusions: a bowl of gold fishes suddenly appears in a glass you had imagined was a queer sort of mirror, and then sometimes quickly and sometimes slowly a monkey is substituted for the fishes, or, perhaps, your guide's head appears, and you wonder where his body has disappeared; the illusion is simple; it consists of the objects you saw, some mirrors, and electric lights, not forgetting Mr. Harpham. In one small recess is a clever representation of Marguerite nearing the church door, with Faust following admiringly a short distance behind. The figure—for it is but one—is three-quarter life size; Marquerite faces you, but the back of the figure is moulded as Faust, and faces a mirror cleverly set, so that the illusion is most complete. From close to the drawing-room there is an entrance to the caves, and besides the entrance on the rockery there is another close to the greenhouses. The subterranean passages and chambers are heated by hot water when necessary, but at this season of the year they provide a deliciously cool and well ventilated retreat whenever the sun condescends to remind us that this is summer time.

THE LAKE AT FRIAR PARK, HENLEY.

Already the lake has been referred to, and it is certainly a most delightful piece of water, [illegible] in outline, prettily planted about at various points, and with a little island that is exactly in the right place. It is difficult to imagine the grounds of Friar Park without the lake, and yet it has been produced artificially where once was a small private house and [illegible] meadow. The house was pulled down, and Messrs. Pulham and Son, of Finsbury Square and Broxbourne, were called in, with the result that these magicians in all that pertains to water scenery combined with rockwork, transformed the face of the land, made a waterfall of the wonderful Pulhamite, and conducted the water into a lake that looks as if it had existed here since the [illegible] ancient of days. Prehistoric times, did I say? Well, why not? Look at these sand stones that form a natural path across the end of the lake: they tell quite a little tale. Perhaps the time was when our ancestors had to kill and skin the bear to obtain clothing. Father, mother, and two bairns were crossing the lake, homeward bound from the woods above, when suddenly an [illegible] and hungry Bruin follows hard after them. Mother and bairns scurry off over the stones, jumping briskly from one to the other over the water, but Pa turns about and faces the bear, and, to use a common phrase, makes him "sit up," for on the then (?) soft sandstone are the now hardened marks of Bruin's hind feet and haunches, where he drew up for the fight. If this is not a sermon in stone it is certainly a story.

Trees of various kinds suitable for water margins have been planted [illegible] around the lake; bamboos will soon be things of beauty, as the ones in the little bog garden now are. A group of eucalypti in a warm spot have passed the winter unharmed, and close by Mr. Knowles has planted a pretty collection of choice hardy ferns among the Pulhamite rockwork that extends below the waterfall.

The rock garden is situated on the north side of the mansion, and is in every respect a fine piece of work. It is constructed in a most natural manner having a central valley with two small pools of water, surrounded by mountains of various heights, the highest being probably forty feet above the lowest point in the garden. This garden was not all constructed at one period, but the part nearest the mansion is the oldest, and represents the skilful manner in which Messrs. Backhouse and Son, of York, design and lay out such gardens; this is of considerable extent, and planted with popular alpines, and also a large number of extremely choice subjects. A most natural effect is produced by the suggestion of a pass along one of the higher portions, and also by the tiny green lawn which, together with an elongated pool, make up the little valley. All around are fine patches of the purple Thymus serpyllus, blue Campanula garganica, and lovely golden areas of sedum, with saxifragas of varied form and hue clustering in rocky crevices, or perching perkily at the top of some boulder. Throughout the whole of this magnificent rock garden the saxifragas and sedums are very evident, both as regards their happy condition and the number of species, varieties, and hybrids. Campanulas are plentiful, and many are just now in perfection, while ramondias, edelweiss, hardy orchids, rock-loving ferns, tiny pines, abies, and junipers occupy positions such as they love, and are now large enough to give these miniature alps a clothed and natural appearance. It is frequently a fault in rock gardens that the spaces or pockets left for the plants are most inadequate, and do not hold sufficient soil to properly support them; such a state of affairs does not, however, exist at the Friar Park Alps, and everything that has become established is flowering, has flowered, or promises to flower with the utmost freedom, while the more recently planted subjects are encouraged by the prevailing conditions to make themselves at home as soon as possible. Gentiana acaulis, a sweetly pretty plant when in flower, but one that refuses to grow satisfactorily in many gardens, is here—like G. verna—represented by a mass of several square yards, which must have been a grand sight when covered with intense blue blossoms. Quite a casual look round reveals the fact that here is a grand collection of rock plants, and in many cases these are represented by immense masses. Primulas, androsaces, Antennaria tomentosa, dwarf spiræas, Daphne Cneorum, aubrietias in all the best species and varieties, herbaceous phloxes, achilleas, anemones—such as A. Robinsoniana, A. sylvestris, A. vernalis and A. montana, Arnebia echioides, Aster alpinus in several varieties, Atragene alpina, Cypripedium spectabile, C. calceolus, hepaticas, yellow, gold and white brooms, drabas, dianthuses, veronicas, &c., &c., were a few of the subjects noted as being exceptionally good

VIEW IN THE ROCK GARDEN AT FRIAR PARK, HENLEY.

In years to come there will be a first-rate example of the old English garden, with its fancifully-clipped trees, at Friar Park, and already there are numerous beds in this curiously-designed parterre. The standard retenosporas worked on thick stems of Cupressus Lawsoniana are fine specimens. There are peacocks and pyramids, ovals, columns, and many other shapes in yews, cypress, and thuias, but as yet the specimens are young, and the garden is not completely planted. Golden privets are also to be prominent here, and in many shapes. The rhododendron dell is situated on one side of a deep hollow, and along this slope a path winds backward and forward, falling at each turn until the bottom of the hollow is reached. The rhododendrons are planted on either side of the walk, so that a continuous scene is presented to the pedestrian, and he can examine any one of the fine bushes at leisure, or a fine view of the whole garden as a mass can be obtained from above or below.

One might continue writing for a long time without exhausting the interest of Friar Park, but already I have exceeded the limits of space prescribed, and so conclude this notice by stating that the ample kitchen garden is well cropped, and the young fruit trees are everywhere looking well. The twenty or so of glasshouses erected by Messrs. Crompton and Fawkes, Chelmsford, contain large supplies of grapes, peaches, nectarines and figs, all in first-rate condition, and testifying to the care and skill of Mr. Knowles. There are also gorgeous displays of calceolarias, every plant a picture, and gloxinias of the very best forms, some specimens —now past their best—measuring two feet across. Other flowering plants and foliage subjects for decorating are equally well managed, and there are the foundations of good collections of both orchids and cacti.

Friar Park has a great future as a famous horticultural establishment, and it is earnestly hoped that the present proprietor, F. Crisp, Esq., will long live to enjoy his country home, and that his able steward, Mr. Knowles, may long continue to enjoy the support and goodwill of his present generous employer. One word more; Friar Park is open to the public one day a week; admission sixpence. Half the proceeds go to the Gardeners' Royal Benevolent Institution, and the other half to the Mayor of Henley to be distributed among the various local charities.

C. H. CURTIS.

ROSES IN THE NORTH OF SCOTLAND.

IN Scotland this year the rose growers have had a rather peculiar experience, in so far as the season promises to be a late one, notwithstanding the fact that the first four months of the year were much warmer than the average. In May, though we had here a low temperature, we never experienced more than four degrees of frost, and not so much as that in June. The May rains have, in connection with the previous warmth, induced such a strong, vigorous growth that it rendered us quite unable to compete at any show during the week of the National Rose Society's Crystal Palace Exhibition. I feel sure the blooms will be magnificent after the middle of July, and I append a list of the dates of first blooms here, to show the effects of this season, as compared with others:—

1893	Maiden plants	June 7	Distinction.
1893	Cutbacks	May 30	Rubens.
1894	Maiden plants	June 15	Marie Van Houtte.
1894	Cutbacks	June 6	Rubens.
1895	Maiden plants	June 4	Grace Darling.
1895	Cutbacks	June 10	Rubens.
1896	Maiden plants	June 1	Gloire de Dijon.
1896	Cutbacks	May 26	Grace Darling.
1897	Maiden plants	June 25	Grace Darling.
1897	Cutbacks	June 9	Bardou Job.
1898	Maiden plants	June 15	Bardou Job.
1898	Cutbacks	June 7	Bardou Job.

It will be noticed from the varieties that are named above that teas and hybrid teas are invariably the earliest to flower, and, I may add, also the latest. We find that they are quite as hardy as the hybrid perpetuals, and much freer in blooming, and are the favourite class in this district. Some seasons we have had twelve degrees of frost during the third week in May, and in some winters the thermometer registers below zero, and though entirely unprotected, still these roses live and subsequently grow and flower abundantly. This year they are exceptionally strong, many of our dwarf teas having on June 28 shoots over two feet long, and all with strong flower buds, which checked the shoot growth weeks ago.

We rather like a cool season here, as it suits hybrid perpetuals so much better than a hot one. Taking 1897 as an example, we had here what we considered the finest quality of roses we had ever seen, with such a wonderful substance in the petals, accompanied with richness of colour as will linger long in the memory of all who saw them. From the middle of July until the middle of August was the time of their greatest beauty, and this year we are looking forward to an equal if not a greater feast of beauty. The teas are stronger and more robust than usual, though, owing to the perversities of the month of May, we will not be able to compete until the second week in July, whereas two years ago we could show strongly on June 24. In 1897 we gained sixty-six first prizes, frequently beating most of the large growers in the United Kingdom. This fact will give your readers a better idea of the quality of roses produced in the north of Scotland than any other arguments I could bring forward.

JAMES SIMPSON (Messrs. D. and W. Croll).
Dalhousie Nursery, Broughty Ferry, N.B.

AMONG THE COLCHESTER ROSES.

ALTHOUGH Colchester is regarded by a considerable proportion of those who are acquainted with East Anglia as simply a flourishing commercial town, it is rich in interest apart altogether from its business aspect, and has strong claims upon the student of history or archæology, and upon those whose taste has been sufficiently educated to fully appreciate the delicate flavour of the succulent bivalve which is reared with so much success in the Colne. It was on the site of the present borough that the Emperor Claudius, in the year 44, established the first Roman colony founded in Great Britain, and we have other evidence of the historical importance of the town in the Norman keep of the once famous castle, considered to be the finest Norman keep in the United Kingdom, and in the ruins of St. Botolph's Priory and St. John's Abbey, and in the many objects of interest in the Museum, that remind us of the important events in the history of the borough, and of the many changes that have taken place in the habits of the burgesses since the great Roman Emperor made his triumphant entry eighteen and a half centuries ago. Colchester still possesses further interest, more especially for horticulturists, for it has become what has been aptly described as the metropolis of rose growing, and the great industry that has been created within and on the boundary of the borough has probably done more to make its name a household word throughout the United Kingdom than the stirring events in its history.

It was certainly not for the purpose of studying its history or archæological features or for becoming acquainted with the details of oyster culture which is carried on with so much success, that with the aid of the splendid service of trains provided by the Great Eastern Railway I made a flying visit to Colchester. Rather was it to have a run through, not for the first time, the rose gardens from which are obtained so large a proportion of the winning collections contributed to the principal competitive gatherings. On this occasion I had the advantage of the company of that distinguished amateur rosarian, O. G. Orpen, Esq., who, in extending a hearty invitation, undertook not only to show me what he is doing with so much success at West Bergholt, but kindly offered to act as guide in visiting the trade establishment wholly devoted to the production of roses and rose plants. That the offer of guidance was gladly accepted goes without saying, for in the first place the pleasure of the drive through the rose-growing district is greatly enhanced by having the company of a kindred spirit, and in the second a knowledge of the topography rendered it possible to cover more ground in the time at my disposal than would otherwise have been possible. Moreover, with the assistance of a rosarian so observant and skilful, it was possible to obtain a clearer conception of the conditions affecting rose culture that obtain in the district than would otherwise have been possible, and I readily acknowledge the value of the service so kindly rendered. In the course of my experience of rose exhibitions, I have heard many conjectures as to the cause of the success achieved by the Colchester roses. Some have attributed the success wholly to the soil, others to the climate, while a third section of rosarians have regarded skill as the chief factor. I have not been disposed to accept either the soil, the climate, or skill as the sole cause, for I have long known that there has been more than one, and with the fuller knowledge I now possess, I have no doubt that the splendid development of the flowers is the result of high-class cultural skill being combined with a splendid soil, and an eminently favourable climate. Mr. Orpen's garden and the several rose nurseries are situate on the high ground some distance to the north of the railway station, and as the district is within the influence of the strong air of the North Sea, the atmosphere is pure and the air decidedly bracing. The climatic conditions are indeed highly favourable to the production of stout, short-jointed, and well ripened wood, which may be described as the foundation of finely developed blooms. The soil is somewhat variable, but everywhere more or less favourable to the growth of roses. The soil of Mr. Orpen's garden is decidedly light, and while it enables him to devote his leisure with so much success in the development of the potentialities of tea roses, it is not strong enough to admit of his growing the hybrid perpetuals to the highest degree of perfection. The soil of the nurseries of Messrs. B. R. Cant, Messrs. Frank Cant and Co., and Messrs. D. Prior and Son appear to vary somewhat, but as proved to demonstration, it is throughout sufficiently substantial to insure, with the aid of moderate applications of manure, a vigorous growth and flowers of high quality. It has also the advantage of being friable and well drained, two conditions eminently favourable to the production of an abundance of fibrous roots, so essential to the success of the plants when transferred to the gardens in which they find a permanent home.

Mr. Orpen's Garden.

Mr. Orpen's residence is situated on the high ground at West Bergholt, some two miles to the north of the railway station, and commands one of the most beautiful prospects in the eastern counties. It might indeed be said of the site of the house and garden that "the beauty of the surrounding scenery, its gentle declivities, its luxuriant meadows, sprinkled with flocks and herds, its well-cultivated uplands, its woods and rivers, with numerous scattered villages and churches, farms and picturesque cottages, impart to this particular spot an amenity and elegance hardly anywhere else to be found." We have an indication of the taste Mr. and Mrs. Orpen have for roses in the border which [illegible] the carriage drive, and in the huge specimen of Fortune's Yellow which spreads over a considerable amount of wall space [illegible] their residence to the height of some twenty feet, and produces its attractively-coloured flowers in due season. These plants are of interest as a foretaste of the feast of roses grown elsewhere, and it may be of interest to mention that, although Mr. Orpen has specially distinguished himself in the cultivation of the tea-scented varieties, he does not limit his enjoyment to their charms, but grows [illegible]

THE GOOD DIE YOUNG.—Unlike most popular sayings, this has very little truth in it. Experience every day proves that some at least of the good are spared to make the world brighter and better, and a more pleasant place to live in. In fact, our experience is that good people, and good things generally, live the longest. For example, consider the thousands of articles which have been widely advertised and are now forgotten. Why? Because they were bad. On the other hand, we have Holloway's Pills and Ointment, which have proved the faithful friend of poor humanity for fifty years and more. Why? Because they are good. Of a truth, that which is good does not die, but lives for all time.—[ADVT.]

representative collection, and fully appreciates the distinctive beauty of each of the sections. Although my visit was made a few days previous to the competition for the National Rose Society's tea trophy, which Mr. Orpen has held during the three past years, he did not proceed direct to the quarters devoted to the teas, but made a detour to show me the enclosure set apart to the free-growing varieties popularly known as garden roses. In these Mr. Orpen takes much interest, and it is not surprising he should do so, for the majority are represented by specimens so large that it would be difficult to convey an adequate idea of their dimensions without giving their measurements, which is not now practicable. I made special note of two specimens that pleased me immensely, one a densely-flowered bush of Blance Double de Courbet, one of the most beautiful of the rugosas, fully five feet in diameter, and a standard of Gustave Regis, with a head four feet through. Very fine also were the examples of Rainbow, especially good in standard form; Harrisoni, Macrantha, Hebe's Lip, L'Ideal, Paul's Single White, and Moschata alba. Here also were great masses of the strong-growing Penzance briars, such as Amy Robsart, Brenda, and Lucy Ashton, rising to a height of ten feet, producing a profusion of flowers, and filling the air with their delicate perfume. The garden roses have as a boundary on one side a rose arch, over which various climbers spread luxuriantly, and produce a profusion of flowers. Chief among these are Crimson Rambler, Dundee Rambler, and Clair Jacquier, the specimen of the last-named having no equal. The growth covers a space of twenty feet by ten feet, and when I saw it it was bearing thousands of trusses of its pleasing flowers. The Garland was promising a not less attractive display, for, spreading over a boundary fence, it was furnished with an enormous number of trusses, some consisting of upwards of two hundred buds.

The show roses for the production of exhibition blooms are grown in the kitchen garden, and the teas and noisettes are grown almost exclusively as standards and half standards, these giving much better blooms with Mr. Orpen than dwarfs. There are about five hundred of these, and in walking through the lines special note was made of Cleopatra, Souvenir d'un Ami, Madame Cusin, Souvenir de S. A. Prince, Enchantress, one of the fine teas recently introduced by Messrs. William Paul and Son, and held in high estimation at West Bergholt, more especially for its continuity and profusion of flowering; Sylph, Maman Cochet, Marie Van Houtte, Caroline Kuster, Madame Hoste, Corinna, considered one of the best of the teas for the garden; and Anna Olivier. Mr. Orpen holds the hybrid teas in high estimation, and mentioned Caroline Testout, Viscountess Folkestone, Kaiserin Augusta Victoria, which makes magnificent standards; Madame Pierre Cochet, Marquis Litta, and Mrs. W. J. Grant.

A lover of flowers might linger long in this delightful garden, but after leaving the roses it was not possible to do more than take a cursory glance at the other features. It, however, could be seen that Mr. Orpen has an excellent collection of hardy plants, and that he takes an active interest in hardy fruits, which are cultivated with exceptional success.

Mr. B. R. Cant's Nurseries.

This important establishment has so much that is of interest to rosarians associated with it that I might devote ten times the space I have now available to it without any risk of tiring my readers. But for the present it must suffice to indicate rather than to speak in detail of the culture which has obtained for this veteran rosarian renown wherever roses are grown and appreciated, and has accomplished so much in the development of the rose-growing industry which has brought so much fame to Colchester. Unhappily, Mr. B. R. Cant's health has not for some time past enabled him to take an active part in the management of the business; but the regret one naturally feels in missing this veteran from the exhibitions and meetings, where for many years he has been a prominent figure, is mitigated by the knowledge that his two sons, Messrs. Cecil and E. Cant, have inherited their father's love for the rose, and possess those other attributes which have brought him so much honour and respect. We have some evidence of the success with which roses continue to be grown in the record of the metropolitan exhibition of the National Rose Society on the 2nd, when the challenge trophy in the great class for seventy-two, and the first prize in the not less difficult class for forty trebles, were awarded to Mr. B. R. Cant. But a much better idea is obtained by a walk, however brisk, through the fields in which the roses are grown. In an exceedingly pleasant spot on the high road running due north from the town, Mr. B. R. Cant has a farm of sufficient area to enable him to take several agricultural crops between each crop of roses, and the advantages of his being able to do this is sufficiently manifest in the splendid condition of the whole of the tens of thousands of plants. Altogether there are upwards of twenty acres under roses, and as a well devised system of rotation gives each batch of stocks practically new ground, the best possible growth is obtained without the excessive use of manure, or the aid of rich top dressings. The eight acre field of maiden roses presents such a glorious appearance, as to produce an impression upon the mind that will not be readily erased. Arranged in unserried ranks are the thousands of dwarfs and standards, chiefly the latter, and making so excellent a growth that the characteristics of the varied leafage is so fully developed that the novice in a surprisingly short space of time would be able to recognize each of the numerous varieties from the foliage alone. This field is laid out in large blocks, with wide spaces between them and the roses are planted in rows about three feet apart across them, the rows being continuous from one side of the field to the other, with the [illegible] that with the aid of a horse-hoe and smart cob, the surface soil can be readily maintained in a loose state throughout the season. One might have lingered long in the field, making notes of the peculiarities of the varieties of the several sections represented, but time flies and the acres of "cut backs" and of stocks had to be seen. In admiring the great breaks of standards, Mr. Cecil Cant said they were as popular as ever, and expressed the opinion that they would still further increase in popularity if planters would select none but those varieties which, by reason of their vigorous habit, are well adapted for that form of tree. Nearly all the hybrid teas are, he considers, well suited for culture as standard teas, but some of the finest of the hybrid perpetuals make splendid standards, and before the planting season again comes round I must ask him to give the readers of the GARDENERS' MAGAZINE the advantage of his unique experience.

The greatest wealth of flowers was to be found in the quarters devoted to cutbacks, and it would be safe to hazard a guess that the greater portion of the flowers with which Mr. Cant has obtained his honours this season have been cut from these. The maidens when I saw them were, in consequence of the lateness of the season, not sufficiently advanced to yield many blooms, or to afford an opportunity of seeing the new varieties at their best, for the latter are necessarily chiefly found amongst these; but they will yield their harvest in good time, and there should be a plentiful profusion of roses until quite late in the season. A few of the novelties were producing good blooms, and amongst them were Ferdinand Batel and Madame Cadeau-Ramey, of which cultivators should make note as valuable additions to the list of hybrid teas. An immensely attractive feature of these nurseries is the rose hedges, of which I shall have something to say at no distant date, but visitors should not forget to see them whilst in the full flush of their wondrous beauty.

Messrs. Frank Cant and Co.'s Nurseries.

These nurseries are situate in one of the most pleasant spots around Colchester, in the direction of Braiswick, and the rate at which they are extending suggests the idea that the firm is engaged in the endeavour to convert the district into one large rose garden. However that may be, we have evidence that the integrity, the energy, and the skill displayed by Mr. Frank Cant since he established himself at Braiswick, are meeting with their due reward in the form of a continuous increase in business. It is now some five years since I last had the pleasure of a walk through the fields of roses at Braiswick, and although I have been fully acquainted with the fact that the firm has been steadily increasing in popularity, I was not a little surprised to find how remarkable had been the augmentation in the resources of the establishment. At Braiswick a farm of I know not how many acres is devoted to roses which take their place in the rotation of crops, and thus have the advantage of land that has not been occupied by roses for several years previous. The benefit to the roses is made manifest in the splendid growth of both dwarfs and standards, and the superb development of the blooms. In walking through the breaks one is struck with the firm, short-jointed growth that is being produced, a point of some interest, as indicating conditions favourable to the production of fibrous roots, chief among these being a substantial yet friable soil, and good cultivation, the latter including a constant use of hand and horse hoe.

Mental note was made of a goodly number of varieties in walking through the several fields, but I cannot do now more than briefly refer to two novelties that have had their origin at Braiswick. The first is Mrs. Frank Cant, a beautiful hybrid perpetual, introduced a year or two since, and now becoming generally known and highly appreciated. This has finely formed flowers of a bright pink hue, and is remarkably free, as evidenced by the fact that in a quarter of cut-backs containing nine rows there were no less than two thousand five hundred blooms in various stages of development, and all of high quality, the average number on each plant being six. The other novelty is Muriel, a brilliant carmine-pink sport from Suzanne Marie Rodoconachi, which, by reason of its fine form and effective colour, has, unless I am much mistaken, a great future before it.

Garden roses receive the attention that becomes their importance, and amonst these the Penzance briars occupy a prominent position. The hedges of those in the nurseries admirably illustrate their value in the formation of boundaries, and the hedge which has been formed round a large pond is especially attractive, and affords an object lesson which those who have an opportunity of seeing should not be slow to take advantage of.

Messrs. D. Prior and Son's Nurseries.

The establishment of this enterprising firm is the most recent of the nurseries devoted to rose culture at Colchester, and, as in the case of the two others to which I have briefly referred, contains much that is of interest to rosarians. Situate within a comparatively short distance of the railway station, the nurseries occupy a position amid charming surroundings, and afford a great diversity of soils and aspects more or less favourable to roses, as evidenced by the splendid growth that is being made by the plants, and the high quality of the flowers. The firm has been long established, but it is only within a comparatively short period that they have devoted special attention to the cultivation of roses, and the new departure has been fully justified by the large number of prizes that have been obtained at the National Rose Society's exhibitions and other important gatherings, and the extension of business. Since roses have been made a special feature of the Myland Nurseries, field after field has been added until the nurseries have assumed the proportions of a farm of large area, and afforded facilities for growing roses of all classes to the highest possible state of development.

In putting the finishing touch to this hasty sketch of a day among the Colchester roses, I must acknowledge that the pleasure was greatly enhanced by the friendly feeling that exists amongst the several rosarians. They, of course, enter into a keen competition with each other, but it is with the most friendly spirit, and they are jealous only of the reputation the town enjoys as a great centre of rose culture. G. G.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book," containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. "Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

WORK FOR THE WEEK.

COOL ORCHIDS.

CYPRIPEDIUMS are not, properly speaking, cool house orchids, yet there are many varieties that may be cultivated with a fair amount of success in this department. Cypripedium villosum, C. Boxalli, C. insigne, C. Exul, all thrive fairly well in the odontoglossum house; a moist and shady position in one corner of the house is what they enjoy. There are also C. caudatum, C. Charlesworthi, C. purpuratum, C. Spicerianum, and the pretty hybrid C. Arthurianum, having C. insigne as one of its parents. All grow well in the warmest of the cool houses, and many other hybrids having C. insigne, C. Boxalli, or C. villosum as one of their parents will be found to grow satisfactorily in this house. Of course, in good establishments, where orchids are made a speciality, better accommodation can be afforded them, the intermediate house being the best place for them. Consequently more satisfactory results are obtained, but those not having this accommodation need not be afraid to give them a trial in the cool department. All are now growing freely, and enjoy a plentiful supply of water at the roots, and in bright weather moderate shade. C. insigne comes in most useful for supplying cut flowers during the winter months, as this old species of the Lady Slipper is a great favourite, and is found in almost every collection of plants. This is not surprising, as it can be grown by anyone having a greenhouse in which to winter it, as during the summer months a cool frame in a shady position is all that it requires. As they are growing freely an abundant supply of water should be given, and any plants that have filled their pots with roots should receive occasional supplies of weak liquid manure; plenty of air should be kept on the frame at all times.

Maxillaria Harrisoniæ is an old and undeservedly neglected species. It is a native of Brazil, and was introduced in 1828. It is now flowering, and lasts a long time in good condition, the flowers emitting a most exquisite perfume. It is most valuable for cutting, as the flowers last an immense time in perfection in a sitting-room. Repotting should not take place unless really necessary, as the large roots are so easily damaged by disturbance, and consequently the compost should be free and open. The odontoglossum house will be found the most suitable place in which to grow it, choosing the shadiest part, as it is easily injured by sunshine. Red spider sometimes attacks the leaves, and a sharp look-out should be kept for them, holding them in check by sponging the leaves with soft water. Maxillaria grandiflora, M. venusta, and all others of this section will require a plentiful supply of water now they are growing freely. Miltonia vexillaria will now be passing out of flower, and nothing should be done to induce growth. The plants should be afforded a light position, and treated to an abundance of air day and night; sufficient water must be given to keep the compost in a nice moist condition, so as to maintain the foliage and pseudo-bulbs in a plump and healthy condition till such time as the new growths make their appearance. The late-flowering varieties of Miltonia vexillaria as M. v. rubella, M. v. Leopoldi, and M. v. superba are now coming into bloom and still rooting freely, consequently they should be afforded liberal supplies of water until they have passed out of flower.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

Plants in these structures have grown freely, yet as there has been such a small amount of sunlight their growths are of rather a soft nature and not able to bear up during a very hot day, especially if there is a breeze blowing also. Under these circumstances care will be necessary to prevent undue flagging, which entails a severe check to the plant; upon such a day commence to ventilate at an earlier hour than usual; by so doing the temperature may be kept from reaching too high a point, with a smaller opening of the ventilators than would be the case were the temperature allowed to rise before opening them. The paths and walls will require to be frequently damped; also syringe amongst the pots on the beds and stages; also see that the blinds are let down early in the day. In lean-to houses, upon which permanent shading is used, it may be found necessary to supplement this by throwing a piece of tiffany, or mats, over those subjects which it can be seen are most affected by the strong rays of the sun, or a newspaper may be placed over small plants during the hottest hours of the day. Young plants of Plumbago rosea and P. coccinea superba that are well established in three-inch pots may now be potted on into six-inch pots, using a compost of loam, leafsoil, well decayed manure, and sand. If they can be afforded a position along with the poinsettias it will suit them admirably. Plants of ixoras which flowered early, and have had a week or two's rest may now be slightly pruned and started into growth again. If they are liberally treated, freely syringed, and afforded a brisk heat they will make a good growth, and flower freely during the autumn. The flowers of ixoras are always appreciated, and cannot come amiss at any season. Autumn-struck cuttings of gardenias, which are now bushy plants in six-inch pots, may be transferred into eight-inch pots. Pot firmly; do not grow them in too high a temperature; pinch occasionally to keep the plants shapely—the object is to obtain large shapely plants with well-ripened wood, which will afford an abundance of flower early in the coming year. It will be necessary to attend to plants of thyrsacanthus regularly, and remove any scale there may be upon them; if followed up closely, and the scale removed while soft, it will not be difficult to clean them. Keep the suckers removed regularly from Pandanus Veitchi if shapely decorative plants are required; if the suckers are allowed to grow unchecked the plants become too heavy and massive from a decorative point of view. To ensure distinct variegation the soil must not be too rich, neither must the plants be highly fed. Bougainvillea glabra is now flowering freely as a roof climber in the intermediate house; any flowering shoots standing up towards the glass should be drawn carefully down so that they may display their full beauty from below; feed liberally, and on no account allow it to become dry at the root, else the floral display will be of short duration. It will be necessary to daily examine the plants beneath, removing the fallen bracts and leaves before they cause any injury.

Hibiscus that are growing and flowering freely must be liberally treated, as they require an abundance of moisture. Gloriosa superba is now flowering, and must not be allowed to suffer from dryness at the roots, and if treated well its flowering season extends much longer than is the case where a careless system of watering is followed. All the stove flowering plants as they come into bloom should be removed to a cooler structure until their beauty is past, the high temperature and moist atmosphere of the stove causing the flowers to soon fade away. In effecting this change of quarters see that they do not receive a check, also that they are not exposed to draughts. Afford all plants in the stove and intermediate house a thorough syringing twice daily in hot weather, and be sure the water reaches the under side of the leaves—this is where the insect pests mostly lurk—the object of such frequent syringings is as much for cleansing purposes as for refreshing the subjects operated upon. Keep the night temperature of the stove about 75 degrees, and the day temperature about 80 degrees; the intermediate house may range about eight degrees lower.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

KITCHEN GARDEN.

AFTER the refreshing showers of last week weeds of all kinds will grow apace, and to keep them under in showery weather is no light task, especially amongst growing crops. Every endeavour, however, should be made to free the land of them, otherwise it will be impossible for any plants to do well. In many places where ground is limited heavy cropping has to be resorted to, and before one can be cleared another is waiting to be planted. Strawberries being late this season make it difficult to clear the old plants off in time for broccoli to be planted. To overcome this difficulty the plants should be pricked out and there allowed to remain until such time as the ground can be got ready. The same remarks apply to borecole and savoys. Tomatos growing against walls and in the open ground will now be making rapid growth; every care must be taken to get a set as soon as possible, and when a sufficient number of trusses have formed, take out the points of the plants that all the strength may be concentrated in the fruit. No watering will be necessary unless the weather is very dry, in which case give sufficient to reach the roots. Cucumbers on ridges, if proper attention has been afforded them, will now be fruiting freely. It is not often that these plants require watering. In dry weather a little may be given, but not sufficient to lower the temperature of the soil. Vegetable marrows have done badly this year owing to the cold nights, so that they are late in fruiting. With more genial weather the fruit will swell apace, so that it will be necessary to give them more water. Peas may still be sown in warm, sheltered places, choosing the second early kinds, as these, being more hardy, are not likely to mildew. Dwarf beans should also be sown to keep up the supply. It is not often that runners do much sown after this date, but in sheltered situations not subject to early autumn frosts they sometimes well pay for any extra labour needed to grow them. In the more southern counties a sowing of cabbage seed should now be made of such varieties as Ellam's Early, Flower of Spring, and such dwarf varieties as Gem. The seed should be sown thinly in an open spot. Colewort of the Early London type may also be sown now. The main sowing of carrots for drawing during the winter ought to be sown during the second week of the month, particularly in the north. The ground should be rendered as fine as possible before sowing, and kept moist until the seed germinates. In the more northern parts of the kingdom, winter spinach may be sown, but in the south this should be deferred till August. Endive for an early supply should be sown on well-manured ground, and the plants encouraged to grow as rapidly as possible by liberal waterings. Celery must be planted as the trenches can be prepared, and liberally water that which has already taken hold of the soil. Plant out leeks for a late supply, also lettuce and parsley. A sowing of the latter may now be made for winter and spring use.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

FIG trees cleared of their first crop in May will now have the second crop in an advanced stage, and, if the weather continues as it is at present, a little fire-heat at night will be necessary to assist swelling of the fruits and ripening the wood. I hardly remember such a cold, wet, and sunless June as we have passed through, and such wet weather at a time when we expect a maximum of sunlight is bound to leave its mark on such sun-loving things as fig trees. Should the trees have produced a heavy second crop, it will be advisable to thin down to a reasonable number, as there is no need to strain the trees at this time of the year when successional trees will be producing their first crop. My experience is that heavy second crops reduce the prospects of good first crops the next year when the fruits would be more valuable. See that the trees do not lack for water at the roots, and continue the use of manure water at each watering in the case of planted out trees, and at alternate waterings with pot trees. Do not slacken the efforts to keep down red spider by frequent syringings with clear soft water. The interval between the crops gives an excellent opportunity to clean the trees which must not be lost. The points of leading shoots on trees trained near the roof have a tendency to turn upwards towards the glass, and often become crippled by contact with it. This should be avoided by tying them down at frequent intervals, this being not only good for the leads dealt with, but it also allows a maximum of light to the shoots and leaves which they overhang. Ventilate the house freely whenever the weather is fitting, and leave a little air on all night.

In vineries the current work will be reduced to the routine of ventilating, stopping, and watering, details of which have already been given in earlier notes, and need not be repeated, except to emphasise the fact that swelling grapes will absorb a considerable amount of water, and on a sufficient supply being given, tempered with plenty of liquid manure, the ultimate size of berry reached will depend. It may still be necessary to go over the late vines with a view to a final thinning, for late grapes for keeping must be allowed plenty of room to develop their berries, which should be so thinned that they do not press much on each other or allow of condensed moisture settling between them, as this would be sure to lead to damping during spells of wet weather. Shouldering up the bunches will relieve some of the pressure, and by this means we may avoid cutting away too many berries and spoiling the proportions of what should be good weighty bunches. Overhead syringing will soon be unsafe, so other measures—such as sulphuring the pipes and frequent damping down—must be resorted to to keep down red spider. Where it is necessary to keep back ripe Hamburghs, or any other early black grapes, the colour and bloom may be preserved by shading the roof and keeping the house as cool as possible; in this way they will hang for a long time after ripening, providing the house is kept dry, without decaying, turning red, or shrivelling. For Muscats, even where started early, fire-heat is still necessary; indeed, I begin to doubt whether we shall be able to do without it at all this year, as in my case it is necessary to get the crop well forward so that it may be cut and bottled before the end of September. Late Lady Downes will still be liable to scaldings, and the house should not be entirely closed except perhaps for an hour or two in the afternoon, putting on a little again at six p.m., and increasing it next morning.

Melons, especially those in frames, are having a very bad time of it through the dull and cold weather, and they need great care in ventilating and in keeping up the requisite heat. Should dull weather continue, syringing should be entirely suspended for the time being. Where plants are in flower, or about to be so, there must be, in addition, care taken not to spill much water about the frame or to overwater the roots. Air sufficient to render the atmosphere buoyant and to dry the pollen must be given to such plants, as the fruits will not set without it. Fertilise the blossoms between eleven a.m. and one p.m., whenever the plants are driest, and miss no chance with any flowers which open, so that a good set may be assured. Renew the outside linings piecemeal and frequently, so that a steady bottom-heat is kept up, as a drop in the temperature may be fatal to the well-doing of the plants and productive of canker at the stem. Sow more seeds if late fruits are needed, and continue sowing at fortnightly intervals until mid-August if necessary. Continue strawberry layering as fast as the runners are ready, and see that the early layered ones are given water when they want it; also suppress any further tendency towards running beyond the plant layered.—J. C. TALLACK, *Livermere Park Gardens.*

EXHIBITIONS AND MEETINGS.

NATIONAL ROSE SOCIETY, July 2.

The Metropolitan exhibition of the National Rose Society was held on the above date at the Crystal Palace, Sydenham, and was a much finer display than had been anticipated. The effects of the season were noticeable, not so much in the lack of competitors as in the larger classes, where one could observe here and there a faulty bloom among an otherwise grand lot of flowers, thus proving that it was by no means easy for the competitor to bring together the necessary specimens. Altogether it was a great show, and the competition was very keen in the principal classes. The show was arranged right down the length of the Crystal Palace, and so there was ample light for the exhibits. Under the able direction of the Rev. H. H. D'Ombrain and Mr. E. Mawley, the hon. secretaries, the judges got to work soon after eleven o'clock, and completed their duties in about an hour and a quarter. The garden roses made an especially grand display.

NURSERYMEN.

Six of the leading rose-growing nurserymen competed for the Championship Trophy, and the post of honour was won by Mr. B. R. Cant, Colchester, who staged a magnificent lot of blooms; the varieties in the back row were Ulrich Brunner, Cleopatra, Alfred Colomb, Marie Finger, Marquise Litta, Madame Jules Finger, Gustave Piganeau, Caroline Testout, Heinrich Schultheis, La France, Duke of Edinburgh, White Lady, Comtesse de Ludre, Catherine Mermet, Dr. Andry, Mrs. J. Laing, Horace Vermet, Madame G. Luizet, Thos. Mills, Mrs. Sharman Crawford, Marie Baumann, Lady Mary Fitzwilliam, Comte Raimbaud, and Mrs. W. J. Grant; the middle row contained specimens of Souvenir de la Malmaison, Magna Charta, Maréchal Niel, Mons. Noman, Madame Victor Verdier, Madame Cusin, Kaiserin Augusta Victoria, Captain Hayward, Mrs. Paul, Charles Lefebvre, Hon. E. Gifford, Senateur Vaisse, Marchioness of Dufferin, Le Havre, Ernest Metz, Helen Keller, Innocente Pirola, Dupuy Jamain, Souvenir d'Elise Vardon, General Jacqueminot, Medea, Suzanne Marie Rodoconachi, The Bride, and Crown Prince; the front row consisted of blooms of Salamander, Marchioness of Downshire, Auguste Rigotaud, Souvenir d'un Ami, Marie Verdier, Golden Gate, Earl of Dufferin, Muriel Grahame, Abel Carriere, Bridesmaid, Alice Laxton, Maman Cochet, Edouard Andre, Madame de Watteville, Prince Arthur, Margaret Dickson, A. K. Williams, Madame Cadeau Ramey, Madame Delville, Madame Bravy, Etienne Levet, Merveille de Lyon, Dr. Sewell, and Souvenir de S. A. Prince. Messrs. Frank Cant and Co., Colchester, were second, with a splendidly bright set of well-balanced flowers; Messrs. Harkness and Sons, Bedale, Yorks, coming third.

There were five competitors in the class for forty trebles, and in this fine competition Mr. B. R. Cant again came first with a beautiful lot of flowers, the varieties being La France, A. K. Williams, Gustave Piganeau, Souvenir de S. A. Prince, Marquise Litta, Mrs. J. Laing, Medea, Dupuy Jamain, Margaret Dickson, Duke of Teck, Madame G. Luizet, Prince Arthur, Dr. Andry, Souvenir d'Elise Vardon, General Jacqueminot, La Fraicheur, Maréchal Niel, Charles Lefebvre, Golden Gate, Suzanne Marie Rodocanachi, Alfred Colomb, Mrs. Sharman Crawford, Comte Raimbaud, The Bride, Fisher Holmes, Mrs. W. J. Grant, Souvenir d'un Ami, Captain Hayward, Duke of Edinburgh, White Lady, Marchioness of Downshire, Le Havre, Kaiserin Augusta Victoria, Marie Baumann, Helen Keller, Catherine Mermet, Crown Prince, Caroline Testout, Ulrich Brunner, and Lady Mary Fitzwilliam. The second prize in this large class was worthily won by Messrs. A. Dickson and Sons, Newtownards, county Down.

Messrs. Prior and Son, Colchester, secured first place in the class for forty-eight roses, distinct, showing a very even set of flowers, the varieties being Prince Arthur, Caroline Testout, Ulrich Brunner, Margaret Dickson, Marquise Litta, Marchioness of Dufferin, Helen Keller, Mrs. Sharman Crawford, Gustave Piganeau, White Lady, Dupuy Jamain, Mrs. W. J. Grant, Charles Darwin, Mrs. J. Laing, Duke of Edinburgh, and La France in the back row; Kaiserin Augusta Victoria, Abel Carriere, The Bride, Etienne Levet, Madame Gabriel Luizet, Comte Raimbaud, Souvenir de S. A. Prince, A. K. Williams, Magna Charta, Dr. Andry, Caroline Kuster, Prosper Languier, Alba Rosea, Prince Camille de Rohan, Rubens, and Marie Baumann in the middle row; Fisher Holmes, Marie Verdier, Alfred Colomb, Souvenir d'un Ami, Duke of Fife, Margaret Dickson, [illegible] Andry, Marchioness of Downshire, Beauty of Waltham, Souvenir d'Elise Vardon, Horace Vernet, Cleopatra, Duke of Wellington, Marie Van Houtte, E. Y. Teas, and Lady Mary Fitzwilliam in the front row. There were four competitors, and Messrs. Townsend and Son, Worcester, came second, with Messrs. Burrell and Co., Cambridge, third. The were seven entries in the class for two dozen blooms, distinct, and the first prize fell to Mr. C. Turner, Slough, for a very even set: General Jacqueminot, Ulrich Brunner, and Horace Vernet were splendid blooms. The second prize was awarded to Mr. G. Prince, Oxford, and the third to Mr. J. Mattock, Old Headington, Oxford.

For the best dozen blooms of varieties sent out by Messrs. A. Dickson and Sons, Newtownards, co. Down, the Messrs. A. Dickson and Sons were winners of the first prize with very fair blooms of Mrs. Sharman Crawford, Helen Keller, Mrs. W. J. Grant, Tom Wood, Robert Duncan, Jeannie Dickson, Countess of Caledon, Marchioness of Dufferin, Killarney, Ard's Rover, Muriel Grahame, and Daisy: Messrs. F. Cant and Co. secured the second prize; and Mr. B. R. Cant, Colchester, third. The Messrs. Dickson have thus won their own cup. A very beautiful exhibit of twelve bunches of roses, to include not more than six tea or noisette varieties, came from Mr. J. Mattock, Old Headington, and secured the chief place in its class; only seven trusses were allowed per bunch, but Mr. Mattock staged his blooms admirably with foliage, and made a pretty display; Messrs. Paul and Son, Cheshunt, second; and Mr. G. Prince, Oxford, third.

NURSERYMEN'S TEA ROSES.

Four competitors entered in the nurserymen's class for twenty-four blooms, distinct, of tea and noisette varieties, Mr. G. Prince, Oxford, securing the leading award with a fine set of blooms that consisted of Comtesse de Nadaillac, Souvenir de S. A. Prince, Madame De Watteville, Innocente Pirola, Maréchal Niel, Rubens, Mrs. Pierrepont Morgan, and Cleopatra in the back row; Hon. E. Gifford, Princess of Wales, Marie Van Houtte, Maman Cochet, The Bride, Francisca Kruger, Ernest Metz, and Anna Olivier in the middle row; with Amazone, Madame Hoste, Catherine Mermet, Mons. Furtado, Souvenir d'un Ami, Muriel Grahame, Princess Beatrice, and Golden Gate in the front row; Messrs. Prior and Son, Colchester, followed second; and Mr. B. R. Cant, third. Mr. J. Mattock scored for a dozen tea and noisette roses, his best blooms being The Bride, Souvenir d'Elise Vardon, and Rubens; Messrs. Burrell and Co., Cambridge, second; and Messrs. Townsend and Sons, Worcester, third. For eighteen teas and noisettes, three blooms of each, Mr. G. Prince, Oxford, won first place with a set in which there were some grand roses, notably Comtesse de Nadaillac, Innocente Pirola, Madame Cusin, Bridesmaid, and Ernest Metz; Messrs. Prior and Son, Colchester, second; and Messrs. F. Cant and Co., Colchester, third.

OPEN CLASSES.

Mr. B. R. Cant, Colchester, won the first prize in the class for a dozen blooms of distinct hybrid teas, showing good flowers of La France, Lady Mary Fitzwilliam, Souvenir de Pres. Carnot, La Fraicheur, Duchess of Albany, White Lady, Mrs. W. J. Grant, Antoine Rivoire, Clara Watson, Marquise Litta, Caroline Testout, and Kaiserin Augusta Victoria; Messrs. Prior and Son, Colchester, second; and Messrs. F. Cant and Co. third. Seven dozens were staged in the class for any yellow rose, and here Messrs. Prior and Son took chief place with Marie Van Houtte in fine condition; Mr. G. Prince second with Maréchal Niel, and Messrs. A. Dickson and Sons third with Marie Van Houtte. For twelve blooms of any white rose, Mr. Prince was the foremost competitor, winning from ten other exhibitors, and staging lovely flowers of Souvenir de S. A. Prince; Mr. B. R. Cant came second with Margaret Dickson; and Mr. A. Hill Gray, Beaulieu, Bath, third with The Bride.

There were ten boxes of any light or dark crimson rose, and the best twelve blooms were an even set of Ulrich Brunner, sent by Mr. C. Turner, Slough; Messrs. Townsend and Son, Worcester, second with Gustave Piganeau, and Messrs. Harkness and Sons, Bedale, third with Horace Vernet. With lovely flowers of Mrs. W. J. Grant, Mr. B. R. Cant led in the class for twelve blooms of any light pink or rose-coloured rose; there were thirteen competitors, and Messrs. A. Dickson and Sons were close second also with Mrs. W. J. Grant; Mr. C. Turner, Slough, third with Mrs. John Laing. No less than eleven boxes of blooms were put up in the class for a dozen blooms of any one variety of a tea or noisette rose, and here Mr. G. Prince, Oxford, took first prize with such fine blooms of Comtesse de Nadaillac as he only can show; Messrs. Townsend and Sons, Worcester, second with beautiful blooms of Rubens, and Messrs. Prior and Son third with the same variety.

The best dozen blooms of any new rose were examples of the lovely Mrs. W. J. Grant, put up by Mr. B. R. Cant; Messrs. A. Dickson and Sons, second, with Ulster; and Messrs. Paul and Son, Cheshunt, third, with the Rev. Alan Cheales. There were three sets of a dozen new roses, distinct varieties, and here Mr. B. R. Cant scored with Mavourneen, Beauté Lyonnaise, Mrs. W. J. Grant, Mrs. Rumsey, Madame Cadeau Ramey, Empress Alexandra of Russia, Souvenir de President Carnot, Helen Keller, Tom Wood, Antoine Reviore, Marguerite Appert, and Souvenir de Jeannie Caband; Messrs. A. Dickson and Sons, Newtownards, second; and Messrs. Paul and Son third. Mr. G. Prince won in the class for nine bunches of roses suitable for buttonholes, with very pretty vases, each carrying seven blooms; Mr. J. Mattock second. Mrs. O. G. Orpen showed the best three sprays of roses, putting up neat buds in an elegant manner with maidenhair fern; Mr. G. Prince second.

AMATEURS.

The amateur champion trophy was closely and keenly competed for by six exhibitors, and the result was that Mr. E. B. Lindsell, Bearton, Hitchin, secured it once again, with a very handsome set of flowers; his varieties were Captain Hayward, Gustave Piganeau, Charles Lefebvre, Duchess de Vallombrosa, Beauty of Waltham, Mrs. J. Laing, Ulrich Brunner, White Lady, M. Bernardin, Marchioness of Dufferin, Dupuy Jamain, and Mrs. S. Crawford, in the back row; Mrs. W. J. Grant, Horace Vernet, Maman Cochet, Duke of Edinburgh, Madame Cusin, Comte Raimbaud, Marie Van Houtte, Souvenir d'Elise Vardon, and A. K. Williams, in the second row; with Madame Hausmann, Caroline Testout, Earl Dufferin, Helen Keller, Marie Baumann, Heinrich Schultheis, Duke of Wellington, Suzanne Marie Rodocanachi, Senateur Vaisse, Madame de Watteville, Xavier Olibo, and The Bride, in the front row. The Rev. J. H. Pemberton, Havering-atte-Bower, Essex, came second; and Dr. S. P. Budd, Bath, third. Seven competitors entered in the class for two dozen roses distinct, and here the chief honours were taken by Mr. F. H. Flight, Turnstiles, Twyford, who had lovely blooms of Le Havre, Captain Hayward, A. K. Williams, and Margaret Dickson; Mr. R. E. West, Reigate, a good second, and Mr. Mease, gardener to A. Tate, Esq., Downside, Leatherhead, third. There were only four competitors in the class for a dozen trebles, but Mr. Lindsell showed a grand lot of blooms in his first prize set; the varieties were Duke of Wellington, Charles Lefebvre, Souvenir d' Elise Vardon, Ernest Metz, Captain Hayward, Suzanne Marie Rodoconachi, Beauty of Waltham, Helen Keller, Duchess de Vallambrosa, Dr. Sewell, Gustave Piganeau, and A. K. Williams. Mr. C. Salter, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, second; and Colonel J. H. Pitt, Turkey Court, Maidstone, third. Mr. Chas. J. Grahame, Wrydelands, Leatherhead, won easily in the class for twelve blooms of any but a tea or noisette rose, showing immense flowers of White Lady; Mr. E. B. Lindsell, second, with Horace Vernet; and Dr. Budd third, with Caroline Testout; there were four competitors in this class.

The best eighteen blooms distinct in the section open only to growers of less than 2,000 plants, came from Mr. Conway Jones, Hucclecote, Gloucester, who showed very fair flowers of Charles Lefebvre, Kaiserin Augusta Victoria, Victor Hugo, La France, Horace Vernet, Marèchal Niel, Gustave Piganeau, Chas. Darwin, the Bride, Comte Raimbaud, Mrs. Laing, A. K. Williams, Roseriste Jacob, Mrs. W. J. Grant, Tom Wood, Suzanne Marie Rodoconachi, Comtesse Ludre, and Jeamie Dickson; Mr. E. M. Bethune, Denne Park, Horsham, second; and Mr. R. E. West, third, out of eleven stands. The class for eight trebles was a popular one, and here Mr. R. E West was first with fine flowers; Mr. P. G. Burnand, Reigate, second, and W. C. Romaine, Esq., Windsor, third. For nine blooms of any rose, save a tea or noisette, the winner was Mr. E M. Bethune, with Kaiserin Augusta Victoria; Rev. H. A. Berners, Harkstead Rectory, second, with Margaret Dickson, and Mrs. P. Bernand, third, with Duke of Wellington. Mr. E. Moules, Hitchen, was first for a dozen bloom in the smaller classes, securing the piece of plate offered to growers of less than a thousand plants. The leading prize winners in the section for growers of less than five hundred plants were Mr. J .C. Trueman, Oaklands, Swanley; Mr. H. Foster, Ashford; Mr. G. A. Hammond, Burgess Hill; and Mr. R. Cook, Stonebridge Park.

The challenge cup, open to small growers, and presented by Mr. C. J. Grahame for the best twelve roses, was won by Mr. G. Moules, Hitchin, with neat examples of A. K. Williams, Madame Hoste, Captain Hayward, Anna Olivier, Dr. Sewell, Rubens, Fisher Holmes, Hon. E. Gifford. Exposition de Brie, La France, Roseriste Jacobs, and Horace Vernet; Mr. L. Parry, Dorchester, second; and Mr. E. Wilkins, Sidcup, third. For four trebles, the prizes were taken by Mr. E. Wilkins, Mr. M. Hodgson, and Mr. J. H. Scott-Tucker, Oxford, in the order given. The best half-dozen blooms of one variety were specimens of the handsome Mrs. W. J. Grant, shown by Mr. G. H. Cook, The Briars, North Finchley.

The Ramsey Cup, offered as a first prize for twelve blooms, and open to all amateurs was won by Mr. O. G. Orpen, Colchester, who staged first-rate flowers of Marquise Litta, Kaiserin Augusta Victoria, Mrs. W. J. Grant, Souvenir d'Elise Vardon, Catherine Mermet, Horace Vernet, Rubens, Marèchal Niel, Captain Hayward, Lady Mary Fitzwilliam, A. K. Williams, and Margaret Dickson; Rev. J. H. Pemberton, second; and Mr. P. Burnand, third; there were thirteen competitors. The Rev. J. H. Pemberton was first for nine varieties of roses, seven trusses to a bunch of each; he showed A. K. Williams, Comtesse de Nadaillac, La France, Ulrich Brunner, Caroline Testout, Mrs. W. J. Grant, Marie Van Houtte, Prince Arthur, and Souvenir d'un Ami. Out of fourteen competitors, Mr. J. Carter, Mill House, Halstead, won the piece of plate offered by Messrs. Prior and Son for amateurs who have never previously won a N.R S. prize; the competition was for six blooms. For six blooms shown by new members of the N.R.S., Mr. J. Hinton, Batheaston, was easily first. The Rev. J. Moor, Arundel, was also a first prize winner, with six blooms.

Mr. Conway Jones scored with six new roses, showing Helen Keller, Princess de Venosa, Marjorie, Mrs. W. J. Grant, Sylph, and Tom Wood. The best half-dozen blooms grown within eight miles of Charing Cross were examples of Margaret Dickson, Ulrich Brunner, Captain Hayward, Magna Charta, Madame Lambard, Hon. E. Gifford, shown by the Rev. G. Moor, Lyminster Vicarage, Arundel. The second prize was won by Mr. J. B. Marsh, Claygate, Surrey.

Amateurs' Tea Roses.

The amateur tea rose trophy, together with a replica, was won this year by Mr. A. Hill Gray, Beaulieu, Bath, who showed splendid specimens of the following eighteen roses: Souvenir d'un Ami, Maman Cochet, Ernest Metz, Jules Finger, Alba Rosea, Princess Beatrice, Souvenir d'Elise Vardon, Comtesse Panisse, Bridesmaid, Comtesse Nadaillac, Medea, Souvenir de S. A. Prince, Hon. Edith Gifford, Marie Van Houtte, Cleopatra, Catherine Mermet, Maréchal Niel, and The Bride. Mr. Conway Jones, Hucclecote, Gloucester, won the second prize, and Mr. O. G. Orpen, of Colchester. the third. The best twelve teas and noisettes were shown by Mr. A. Hill Gray, Beaulieu, Bath, who had lovely flowers of Bridesmaid, Maréchal Niel, Souvenir d'Elise Vardon, Ernest Metz, the Bride, Maman Cochet, Souvenir de S. A. Prince, Catherine Mermet, Alba Rosea, Comtesse de Nadaillac, Anna Olivier, and Souvenir d'un Ami. Mr. Mease, gardener to A. Tate, Esq., Leatherhead, second; and Mr. E. M. Bethune, third.

Mr. A. Hill Gray was also successful in the class for eight trebles, teas, or noisettes; his examples were charming blooms of The Bride, Princess of Wales, Madame Hoste, Comtesse de Nadaillac, Maréchal Niel, Catherine Mermet, Souvenir de S. A. Prince, and Ernest Metz. Dr. Budd second, and Colonel Pitt third. In the class for nine blooms of any tea or noisette, Mr. A. H. Gray again proved invincible, scoring with exquisite flowers of Catherine Mermet; Dr. Budd second with Madame Hoste; and Mr. Bethune third with Comtesse de Nadaillac. Mr. O. G. Orpen set up some very pretty roses in the class for six distinct tea or noisette varieties, seven trusses of each, showing Enchantress, Hon. E. Gifford, Marie Van Houtte, Anna Olivier, Souvenir d'un Ami, and Comtesse Panisse; Mr. A. Evans, Oxford, second.

In the smaller amateurs' classes for teas and noisettes the leading prizewinners were: Mr. Conway Jones, who showed especially well; Mr. R. F. Hobbs, Worcester; Mr. J. T. Strange, Aldermaston; Mr. E. Mawley, Berkhamsted; Mr. M. Whittle, Leicester; Mr. A. Munt, Slough; the Rev. G. E. Jeans, Isle of Wight; Mr. J. Trueman, Swanley; Mr. R. E. West, Reigate; and Mr. L. Parry, Leicester.

The vases of roses were tastefully arranged, and the winning vase was filled with lovely flowers by Mrs. O. G. Orpen, Colchester; Mrs. E. Mawley second.

Garden Roses.

The two displays of thirty-six bunches of garden roses made up a splendid show, and in a close competition Messrs. Paul and Son, Cheshunt, took first place with splendid bunches of Madame Worth, Madame G. Bruant, Rose Apples, Blanche Moreau, Camoens, W. A. Richardson, Dawn, Gustave Regis, Amy Robsart, Tuscany, Madame Falcot, Souvenir de C. Cochet, Blanche Double de Courbet, Allister Stella Gray, Alba, Marquis of Salisbury, Maman Cochet, Laurette Messimy, Madame C. Guinoisseau, L'Ideal, Ma Paquerette, Royal Scarlet, Madame P. Ducher, R. rugos fimbriata, Morletta, A. M. de Montravel, Madame Pernet, Madame E. Risal, Crimson Rambler, Una, Green Mantle, Rosa Mundi, Claire Jacquier, James Veitch, Janet's Pride, and Perle d'Or; Messrs. G. Cooling and Son, Northgate Street, Bath, came a good second. Mr. J. Mattock won the premier award for eighteen bunches of garden roses, his bunches of Marquis of Salisbury, Madame P. Ducher, and Ma Capucin being especially good; Mr. C. Turner, Slough, second.

The silver cup for the best twelve bunches of garden roses, not less than three trusses to a bunch, was won by Mr. Mease, gardener to A. Tate, Esq., of Leatherhead, with bunches of Marquis of Salisbury, Perle d'Or, Gloire de Rosemanes, Safrano, Rosea Mundi, Anna Maria Montravel, Red Damask, W. A. Richardson, Reine Olga de Wurtemburg, Hebe's Lip, Bardou Job, Gustave Regis. The second prize was won by the Rev. J. H. Pemberton, Havering; the third by Mr. O. G. Orpen, Colchester. Mrs. A. F. Perkins, Oakdene, Holmwood, was first for nine bunches of garden roses, her huge sheaf of Marquise de Salisbury being especially fine; Miss Dorothy Nesfield, Speldhurst, Kent, second.

The exhibits of Penzance Sweet Briars were very pretty, and Mr. Orpen's first prize set of twelve bunches was a fine display; the varieties were Lady Penzance, Lord Penzance, Jeannie Deans, Lucy Ashton, Lady Bertram, Brenda, Anne of Gierstein, and Amy Robsart; Mr. F. W. Campion, Reigate, second.

Medal Roses.

A gold medal was awarded to Messrs. Cooling and Sons, Bath, for their pretty new hybrid bourbon rose named Purity.

The best blooms in the show, gaining silver medals, were as follows: Best tea or noisette, nurserymen, Comtesse de Nadaillac, shown by Mr. G. Prince, Oxford; Gustave Piganeau was the best H.P., and it was shown by Messrs. J. Townsend and Son, Worcester. In the amateurs' classes Mr. A. Hill Gray, Bath, had the best tea rose in Comtesse de Nadaillac, and Mr. Lindsell the best H.P., with a superb bloom of Mrs. John Laing.

Trade Displays.

A first-rate exhibit of hardy flowers was staged by Messrs. Barr and Sons, Covent Garden, who showed beautiful bunches of irises, pæonies, and delphiniums, together with Eryngium alpinum, Campanula latifolia macrantha alba, Hemerocallis fulva, H. f. variegata, Aconitum lycoctonum, Heuchera sanguinea, Iris Kæmpferi, Philadelphus Lemoinei, and many other charming subjects. A bank of roses in pots was arranged in front of the orchestra by Messrs. J. Veitch and Sons, Chelsea; this was a fine exhibit, but the plants were rather too closely staged for elegant effect. Bamboos, Hydrangea paniculata, and Cocos plumosus made a first rate background with skimmias and euryas as an edging; a most fragrant exhibit. Liliums and calochorti from Messrs. R. Wallace and Co., Colchester, made up a pretty exhibit, and one that was greatly admired, for roses and lilies seem always to associate well; L. auratum Whittyi and L. Washingtoniana were especially noteworthy. A gorgeous display of well grown cannas with superb spikes, produced in forty-eight sized pots was the contribution of Messrs. H. Cannell and Sons, Swanley; there can be no question as to the value of cannas when grown as at Swanley.

Messrs. J. Laing and Sons, Forest Hill, showed tasteful bouquets and other floral arrangements, and also put up a most effective group of plants that consisted largely of their celebrated tuberous begonias associated with gloxinias, ferns, bright crotons, elegant palms, orchids, and liliums. Messrs. Laxton Brothers, Bedford, sent baskets of their newer strawberries—Royal Sovereign, Mentmore, and Leader, the latter a heavy cropping variety and of good size. Messrs. G. Jackman and Sons, Woking, contributed hardy flowers, and made an extensive and bright display with garden roses, sweet peas, pæonies, delphiniums, &c., &c. Sweet peas from Mr. F. E. Foster, Brockhampton Nurseries, Havant, were bright and fragrant, and shown in considerable variety. Messrs. Dobbie and Co., Rothesay, had a most attractive exhibit of violas and sweet peas, around which the lady visitors were thickly clustered during the whole of the afternoon. The lovely Malmaison carnations were well shown and tastefully displayed by Messrs. W. Cutbush and Son, Highgate. Roses in abundance, both specimen blooms and bunches of garden roses were staged in fine condition by Messrs. G. Bunyard and Co., Maidstone. Hardy flowers, representing the popular herbaceous plants, were staged by Messrs. J. Cheal and Son, Crawley, Sussex, who also sent violas and gloxinias.

SOUTHAMPTON ROSE SHOW, June 28 and 29.

The Royal Horticultural Society of Southampton has for many years been celebrated for its excellent exhibitions of garden produce, and the two days' show held on the above dates may be written down as in every way satisfactory. It is some years since a show of roses was held in Southampton, and the happy idea of arranging one on the Royal Pier was amply justified. The cool and spacious pavilion is quite an ideal place for cut blooms on a hot summer's day, the temperature being quite ten degrees cooler in this building than in the large tent erected near by for the accommodation of other exhibits. The taking of the show to the people, as it were, in such a delightful position has doubtless proved successful financially, if one may form an opinion from the large number of visitors on the opening day.

Though it was nominally a rose show, the schedule was very comprehensive, and included valuable prizes for plants, fruit, and vegetables, all of which were well shown, and, generally speaking, good competitions were the rule. The entries in the rose classes were limited, owing chiefly to the lateness of the season, but in the first prize stands excellent quality was found. In the open classes Mr.

CAUTION!

M. L. LINDEN, Brussels, regrets very much to be obliged to reply to the "CAUTION" published by M. Florent Claes in "GARDENERS' CHRONICLE" of the 2nd of July last, but he is compelled to do so in the interest of truth, and he maintains that, contrary to several advertisements of M. Claes, **not a single grand form of Odontoglossum crispum** has flowered from M. Claes' importations since 1891. In addition, M. Linden makes publicly known the following:—

I.—Till to-day (6th of July), M. Linden has not received any notice of the threatening steps taken against him.

II.—What proves the published letter of the late M. J. Linden? Only that a "GOOD MANY VERY EXCEPTIONALLY LARGE PLANTS" arrived. But on flowering they turned out to be very poor varieties.

III.—The letter of M. Lucien Linden, Nov. 7th, 1894, says that he has received "DRIED FLOWERS AND DRAWINGS"! But how were the living plants in flower? Not one turned out as represented in the drawings. One of the drawings represented as a NEW ODONTOGLOSSUM (Nouveauté superbe) was only BATEMANIA Lalindei!

IV.—It must be added that in the same year of 1894, M. Claes sent a large consignment of a "NEW WHITE CATTLEYA," of which the same M. Claes wrote: "IT WILL NOT DISPLEASE ME SHOULD THIS SPECIES BE NAMED AFTER ME, IT WILL REVENGE ME SOMEWHAT FOR CATTLEYA ALEXANDRÆ, and I could LAUGH IN MY TURN WITH MESSRS. THE ENGLISHMEN WHO TRIED TO SPOIL THAT PLANT." On the unpacking of the large consignment of that NEW WHITE CATTLEYA, they were only EPIDENDRUM CILIARE!! This gives an idea of what M. Claes calls grand varieties!!

V.—M. Lucien Linden again repeats, that not a SINGLE PLANT coming from the importations of M. Claes are or have been in cultivation in the Establishment at Moortebeek, only built in 1895.

VI.—It might be necessary to add that ODONTOGLOSSUM ALDENARDENENSE, which M. Claes describes now as "THE GRANDEST AND MOST WONDERFUL VARIETY KNOWN UP-TO-DATE, FLOWERED IN AN IMPORTATION THIS YEAR," is only known in Europe till now by a DRAWING AND DRIED FLOWER! It is to be hoped that it will turn out better than the plants M. Claes sent to M. Linden in 1894.

This is the final answer M. Linden will give to the ridiculous pretensions of M. Claes, of which it was necessary to inform the public. For the rest M. Linden awaits with confidence the decision of the Law Courts of Belgium.

M. CLAES HAS NO RIGHT WHATEVER IN USING M. LINDEN'S NAME IN OFFERING AND SELLING HIS OWN IMPORTATIONS OF ODONTOGLOSSUMS.

George Prince, of Oxford, showed splendid flowers, winning easily in three classes. Messrs. Prior and Son, Colchester, secured first honours in the classes for three blooms each of eighteen varieties, and also for six blooms of any dark coloured rose. In the amateurs' division Mr. F. W. Flight took chief honours in each class for very nice flowers, though by no means equal to the fine blooms from Oxford in the open division. Apart from the roses, one of the most attractive features of the exhibition was the pretty effect produced by the bright and nicely-arranged groups of miscellaneous plants which were set up in the centre of the pavilion. Mr. Carr, gardener to W. A. Gillett, Esq., who included a number of choice orchids in his arrangement, secured the first prize; Mr. Wills, of Shirley, being second with a very pretty group. Mr. Carr also staged a lovely collection of orchids, which included many choice species, the gem of the lot being a well-flowered specimen of a very richly-coloured Cattleya gigas Sanderiana; Lælia purpurata and L. tenebrosa were also in fine form.

Of miscellaneous exhibits special mention must be made of the beautiful group of Malmaison carnations from Messrs. Cutbush, Highgate Nurseries, which was deservedly awarded a silver medal. The plants were in robust health, and carrying large flowers. Mr. Ladhams, of Shirley, put up a gorgeous bank of hardy flowers, which the firm make a speciality; these were a source of great attraction, and were highly commended. A pretty group of sweet peas in pots was sent by J. Key Allen, Esq., and was much admired; this also was highly commended by the judges. Some very fine strawberries were sent by the society's president, Sir Samuel Montague, M.P., and these received a cultural certificate, the variety being Royal Sovereign. The Messrs. Webb contributed from their Stourbridge Nurseries a fine lot of cut flowers, including some very good stocks. Other growers, including Messrs. Jarman and Co., Chard; Messrs. Hillier, Winchester; Messrs. Longster, Bassett; and Mr. W. Roberts, Southampton, sent collections of various cut flowers; Mr. Wills, Shirley, sent plants, and Mr. Lickfold, of Southampton, a lovely display of floral designs, bouquets, &c., all of whom received complimentary acknowledgments of their excellent exhibits.

The show throughout was, as is usual at Southampton, admirably arranged and very interesting. It will fully warrant an annual recurrence and a still better and more extended patronage.

The varieties in Mr. G. Prince's first prize stand of thirty-six roses were Viscountess Folkestone, Duke of Edinburgh, Comtesse de Nadaillac, Salamander, Souvenir de S. A. Prince, Mrs. Grant, Maréchal Neil, Ulrich Brunner, Madame Hoste, Mrs. Crawford, Xavier Olibo, Mrs. J. Laing, Princess Beatrice, Duke of Wellington, Augustine Guinoisseau, Her Majesty, Prince Arthur, Alba Rosea, Amazone, Golden Gate, Caroline Testout, Rubens, Ethel Brownlow, and Cleopatra. For eighteen roses, three blooms each, Messrs. Prior were first, Messrs. Frank Cant and Co. second, and Messrs. Jarman third. Fine blooms of A. K. Williams, Prince Arthur, Helen Keller, Mrs. Grant, and Mrs. Sharman Crawford were amongst those in the first prize stand.

Mr. Prince came first for a dozen tea or noisette roses, with excellent flowers of Cleopatra, Maman Cochet, Comtesse de Nadaillac, Souvenir de S. A. Prince, Souvenir d'un Ami, Maréchal Niel, Catherine Mermet, Princess of Wales, Alba Rosea, Madame de Watteville, The Bride, and Souvenir d'Elise Vardon; Messrs. Prior and Son second. For six blooms of any light-coloured rose, Mr. Prince was first, with good blooms of Comtesse de Nadaillac; while the Messrs. Prior were first for a dark rose, with A. K. Williams.

In the amateur division for eighteen blooms distinct, Mr. Flight was first; Dr. Seaton second; and Mr. West third. For twelve blooms distinct, Mr. Flight was first; Mr. West second; and Captain Ramsay third. Messrs. Flight, West, and Newman won the prizes for a dozen blooms, teas or noisettes.

For a conservatory group of miscellaneous plants, Mr. Carr was first; Mr. Wills second; and Mr. Peel, gardener to Miss Todd, Shirley, third. Mr. Ladhams made a good exhibit of twelve bunches of hardy flowers, and was easily first. Mr. Hall staged a good collection of fruit for first prize, and was also first in the class for grapes.

In the vegetable classes valuable prizes were offered by Messrs. Sutton and Sons, Messrs. Toogood, and Messrs. Webb and Sons, the first prize in each class being taken by Mr. Wilkins, gardener to Lady Theodora Guest, Inwood House, Blandford, with excellent produce, distinctly ahead of the other competitors. Various classes were also provided for amateurs and cottagers. and in cut flower arrangements for ladies, which were well contested.

Mr. Fuidge, who has served the society as secretary for so many years, manages everything, with the committee, in the best possible manner, judges and exhibitors being unanimous in their praise of the working of the exhibition.

MARKETS.

Covent Garden.

SUPPLIES of fruit are daily increasing, while vegetables are plentiful and good. There is a brisk demand throughout, and a clearance is usually effected at reasonable rates. Strawberries and cherries find a quick sale.

FRUIT.—Tasmanian apples, 8s. to 16s. per case; English grapes, 1s. 6d. to 2s. 6d.; Jersey, 1s. to 2s. per lb.; pineapples, 2s. to 4s. 6d. each; bananas, 5s. to 10s. per bunch; cherries, 3s. 6d. to 8s. per half-sieve; strawberries, 2s. to 9s. per dozen punnets, 2s. to 3s. 6d. per peck; gooseberries, 2s. 6d. to 3s. 6d. per bushel; apricots, 6d. to 1s. per box; peaches, 2s. 6d. to 10s. per dozen; French, 10d. to 1s. 2d. per box; English tomatos, 4d. to 5d.; Jersey, 3d. to 4d. per lb.; Spanish, 1s. to 1s. 3d. per box; green figs, 2s. 6d. to 4s. 6d. per dozen; lemons, 6s. to 15s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s. gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 1s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.: marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; stephanotis, 1s. 6d. to 3s.; lily of the valley, 6d. to 1s.; white gladiolus, 6d. to 9d. and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Egyptian onions, 4s. to 5s. per cwt.; English spring, 1s. 6d. to 2s. 6d. per dozen bunches; endive, 1s. 3d to 1s. 6d.; cucumbers, 1s. 6d. to 3s. 6d.; cauliflowers, 1s. to 2s. 6d. per dozen; mushrooms, 6s. to 8s. per 12 lbs.; new carrots, 3s. to 4s.; turnips, 3s. 6d. to 5s.; parsley, 1s. to 1s. 6d.; mint, 2s. per dozen bunches; peas, 1s. 6d. to 4s. per bushel, 2s to 4s. 6d. per sack; French beans, 3d. per lb.; spinach, 1s. 6d. per bushel; cabbage lettuce, 6d. to 10d. per score; cos, 1s. 4d. to 1s. 6d. per dozen; marrows. 3s. to 4s. 6d. per dozen; Jersey potatos, 6s. to 7s.; St. Malo, 4s. 6d. to 5s.; Cherbourg, 4s. 6d. to 5s.; Malta, 4s. to 5s. per cwt.

Borough Potato Market.

Very large supplies are now being received, but there is a good demand at fair prices, English kidneys and White Beauties, 6s. 6d.; St. Malo, 5s.; Jersey Flukes, 6s.; kidneys, 5s. 6d.; Cherbourg Flukes, 5s.; kidneys, 4s. 6d. to 5s. per cwt.

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ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Ashleaf Potatos.—W. S., South Wales: The tubers sent are fine handsome ones for this early date, and large as well. They do not represent any form of the Ashleaf Kidney with which we are acquainted, and are much too robust to belong to that variety. What the variety is we cannot tell at present, as the tubers are not mature, and there are no opportunities for proper comparison at this season. The variety is worth taking care of as an early sort for your district, whatever it may be elsewhere.

Black Spot on Tomatos.—J. R., Wigan: The attack is a rather bad one of the dreaded Black Spot, a fungus known as Cladosporium lycopersici. The fungus attacks the pistil, sometimes as soon as the young fruit has set, and from this it radiates, forming a black flat patch over the apex of the fruit. Often the attack is not sufficient to absolutely spoil the whole fruit for culinary purposes, but it always renders it useless for sale. If allowed to ripen such fruits as you have sent will be useless for food, while they will be serving to spread a troublesome fungus. The best plan will be to remove and burn all the affected fruits, and any that subsequently appear with a black spot. Ventilate freely, and in every way do all possible to maintain a buoyant atmosphere in the house; a little artificial heat will probably be necessary, as the nights are by no means warm as a rule this summer. There is no remedy known to be effective without destroying the plants, and we know of no preventive. Even in the best grown collections of tomatos Black Spot sometimes appears, but affected fruits are removed as soon as seen.

Losses in Bedding Pelargoniums.—A. C. R., Faversham: There is something radically wrong in the soil to make the pelargoniums die away as in the specimens sent, and as the plants have only been affected in a few places along the extensive border, it would almost appear as if foul play were the cause. An excessive application of some chemical manure would produce a similar result, especially if given in a liquid state, as it would burn up the roots and the stem below the ground line. This, of course, might happen by accident in the case of a badly-mixed liquid, where the last poured from the can would be immensely stronger than the first. We have seen an escape of both coal and sewer gas do similar injury, but in such cases the damage occurred in a restricted area, and almost in a straight line. We trust these remarks may help you to fix upon the cause of the mischief, and we suggest, by way of experiment, that in some cases you remove the soil at the points where plants died, replace it with new material, and plant again; in others do not remove the soil, but plant again as before. Let us know the result if you make the experiment.

Names of Plants.—H. C., Southall: A form of Adiantum scutum.

Amblecote, Surrey: Lathyrus latifolius and L. l. albus.

A. L., Lovat: Probably Buddleia globosa; send a specimen when the shrub is flowering, if you can.

We have received one parcel of specimens that contained no card or letter to show whence it came; it also contained a half-grown peach and a peach stone. While we recognise the careful economy of the sender in first eating the peach and then sending the stone to us for identification, we must express our regret at being unable to name the variety on such evidence. With regard to the plants, Nos. 1 and 4 should be sent when in flower; 2 is Eleagnus longipes; 3, Inula glandulosa.

THE WEATHER DURING THE WEEK ENDING JULY 2, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	75·3	46·9	59·3	15·17	0·84	2·13
Croydon	72·5	45·5	57·8	14·33	0·91	2·31
Brighton	73·4	50·0	58·0	14·44	0·23	0·58
Bristol	68·0	45·0	55·4	13·00	0·63	1·60
Wolverhampton	69·7	41·3	55·2	12·89	0·86	2·18
Norwich	72·0	45·2	56·8	13·78	1·16	2·95
Nottingham	72·0	43·0	55·8	13·22	1·10	2·79
Liverpool	65·8	50·4	55·8	13·22	0·54	1·37
Huddersfield	69·2	42·3	54·0	12·22	0·93	2·36
Bradford	66·0	47·2	55·0	12·78	0·73	1·85
Hull	75·0	43·0	55·1	12·83	0·51	1·30

The mean reading of the Barometer during the week at Greenwich was 29·80 inches, and that of the Thermometer 59°·3, the latter being 2°·0 below the week's average in the 50 years 1841—90. The direction of the wind was westerly, the horizontal movement of the air being 2 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 45·6 hours. The measured rainfall amounted to 0·84 of an inch.

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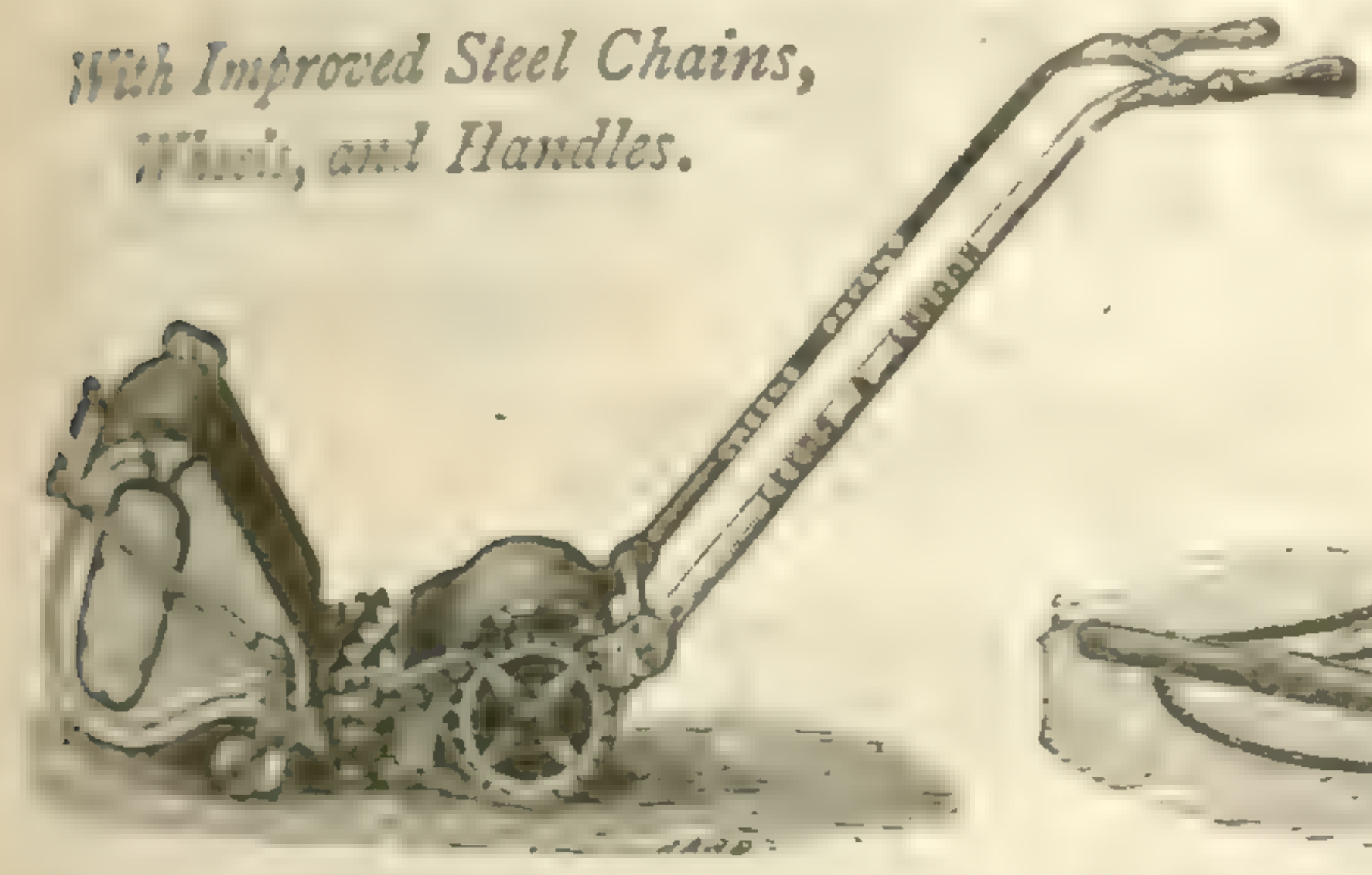

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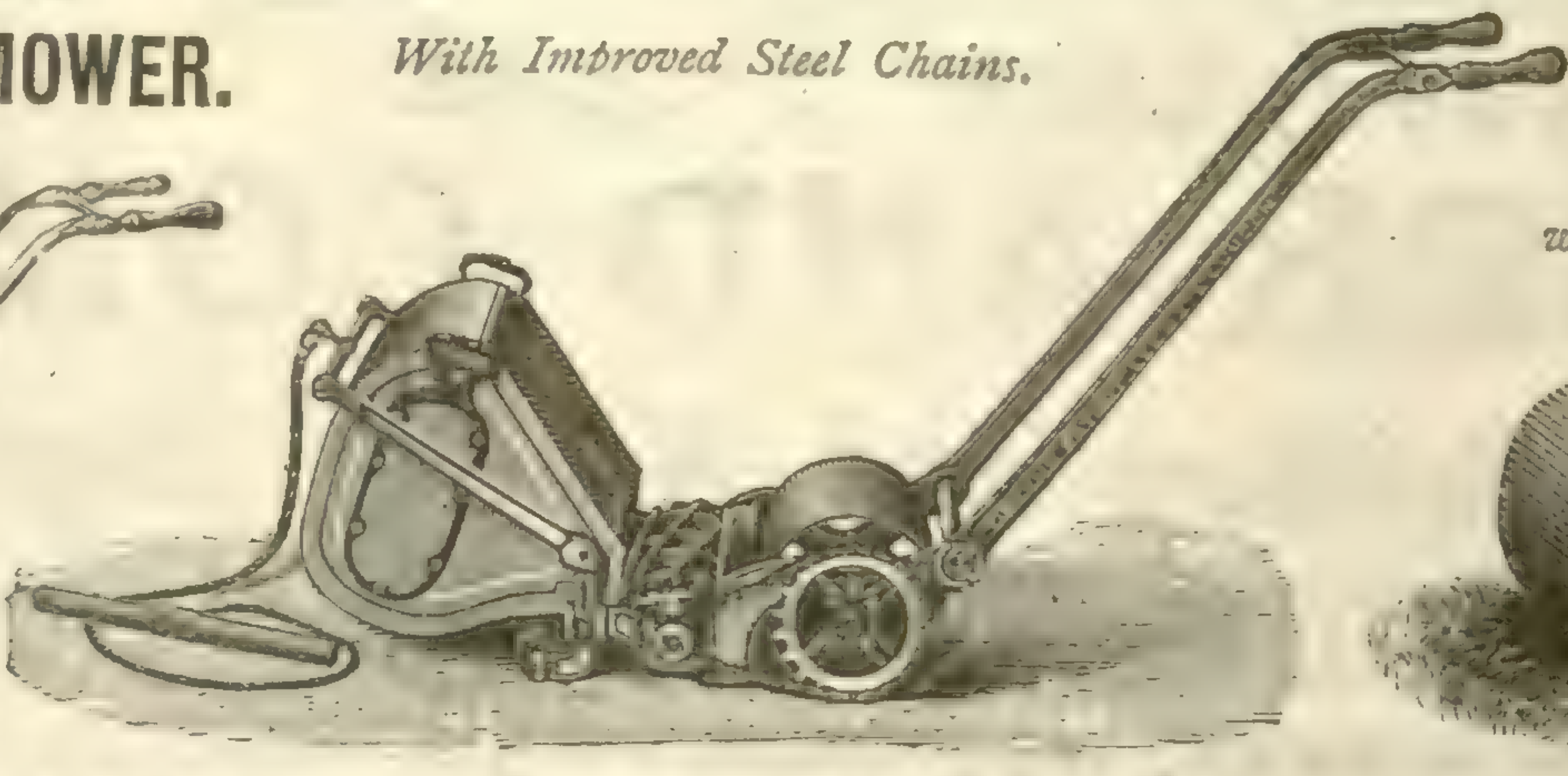

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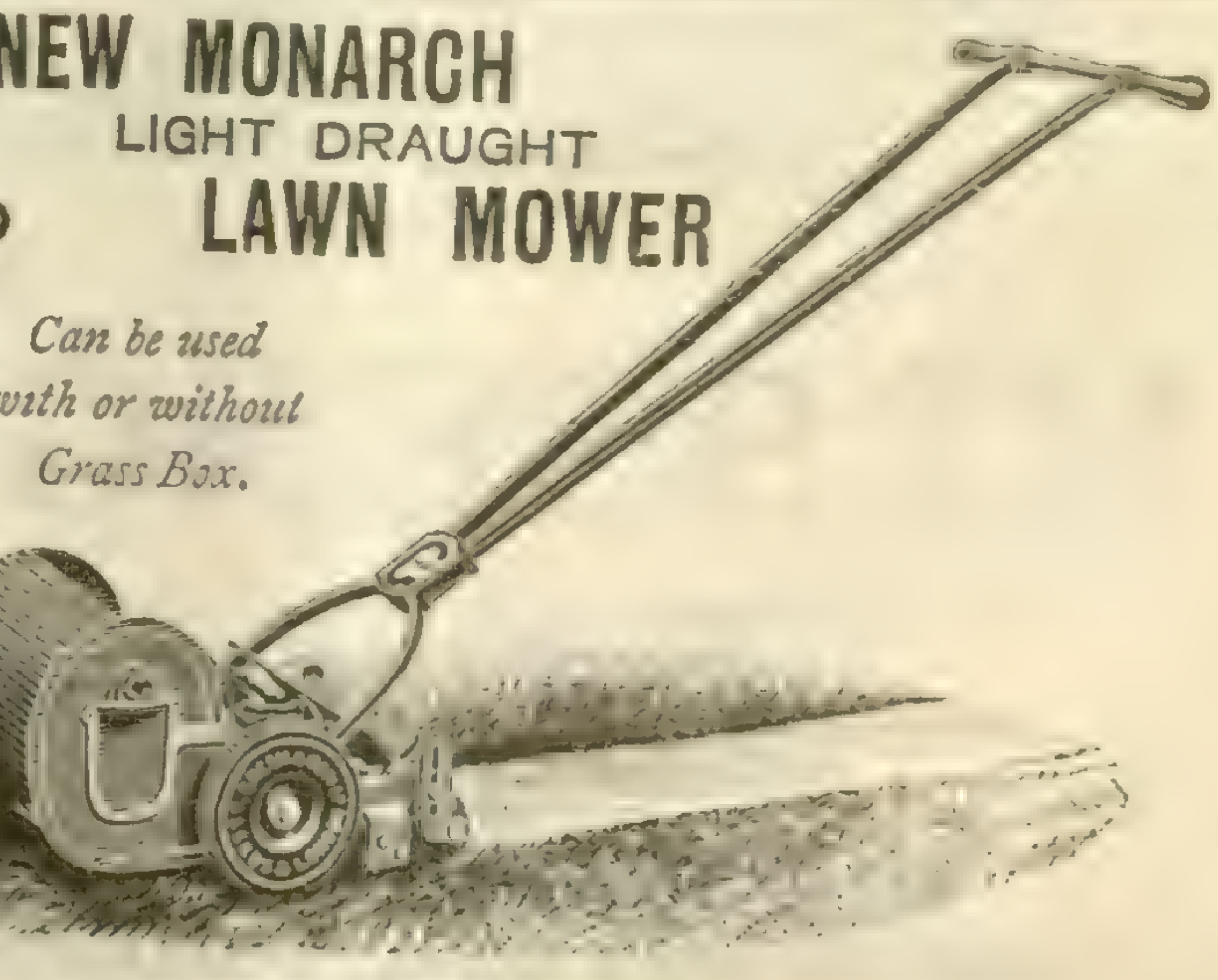

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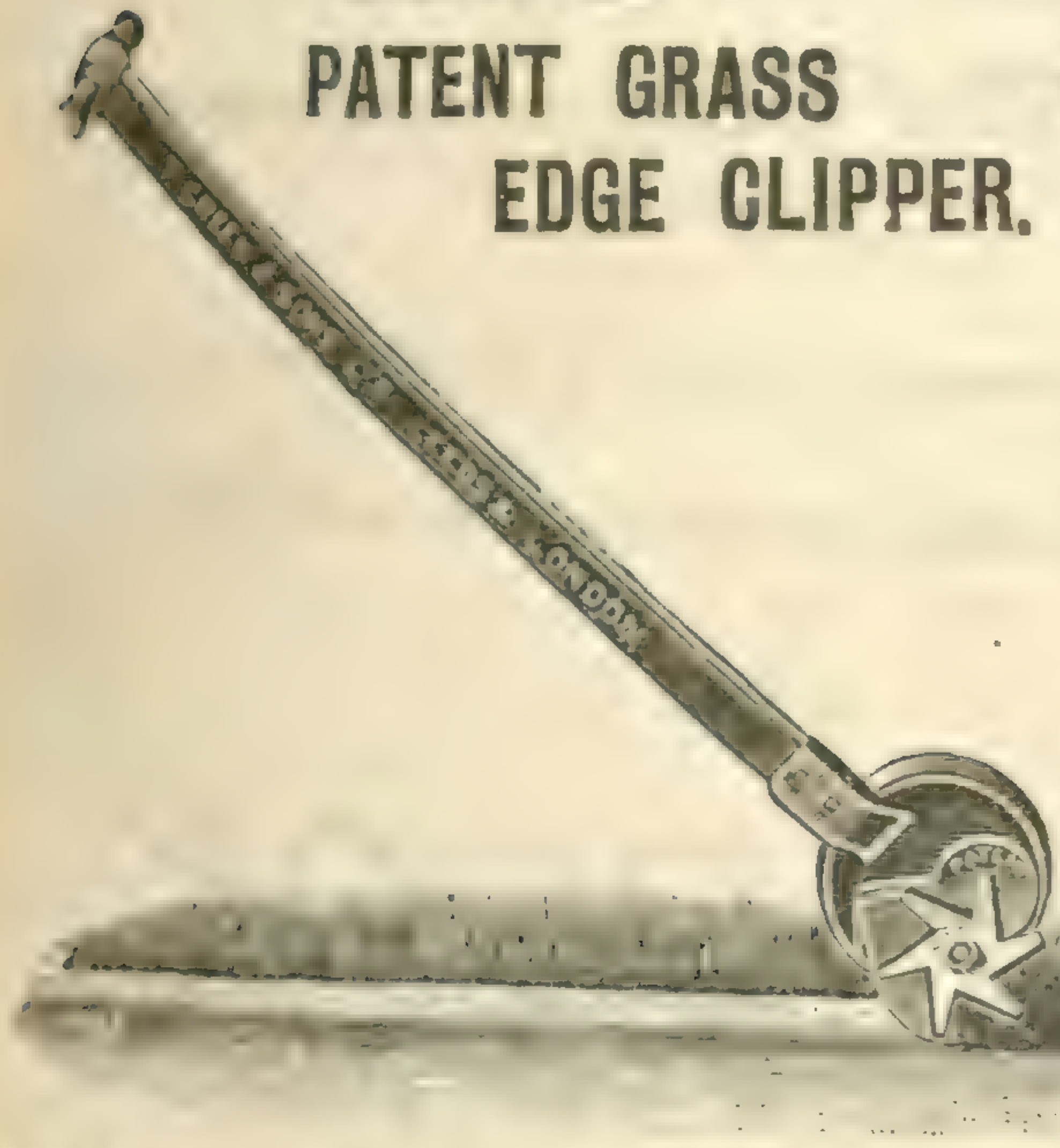

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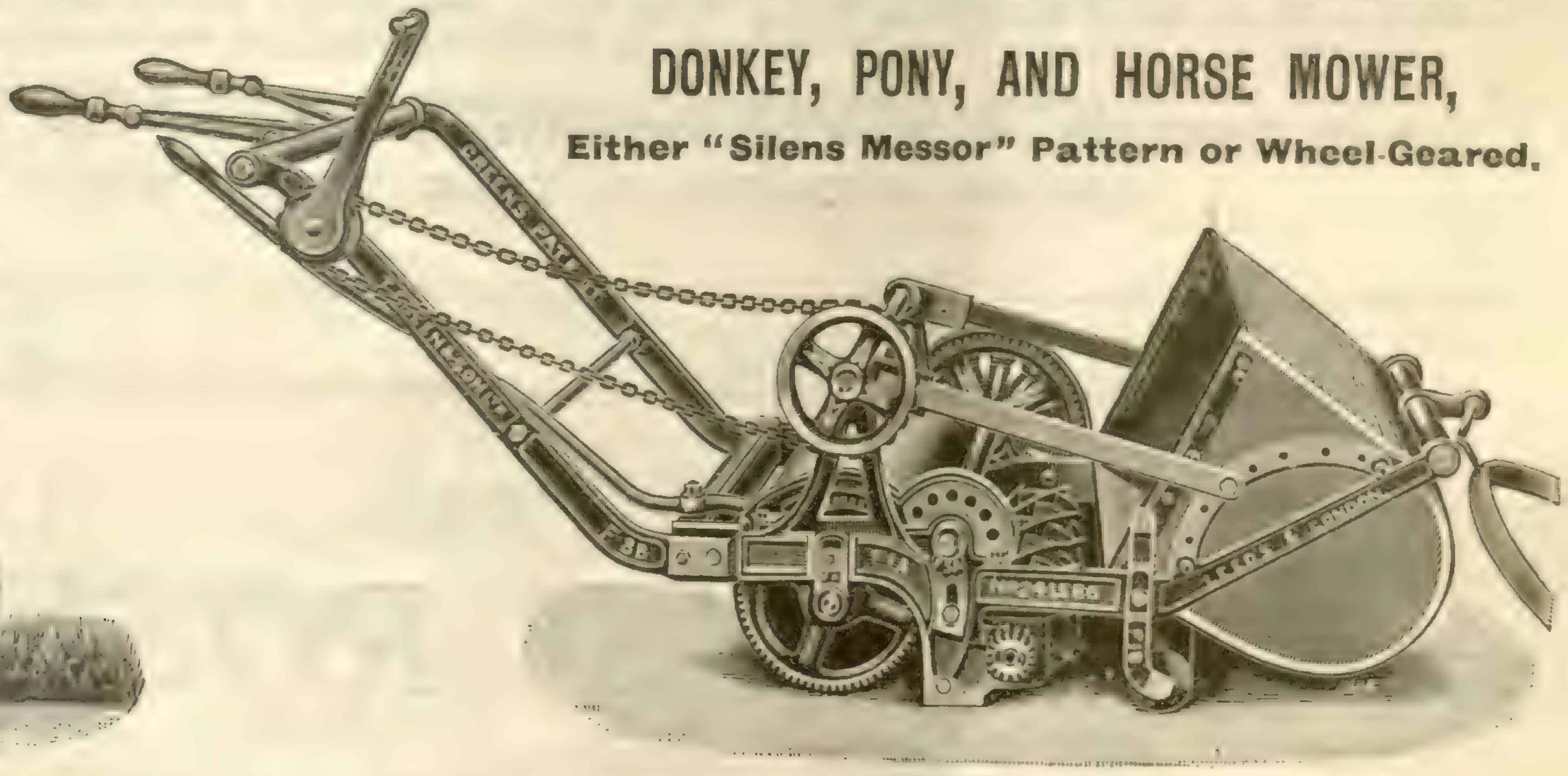

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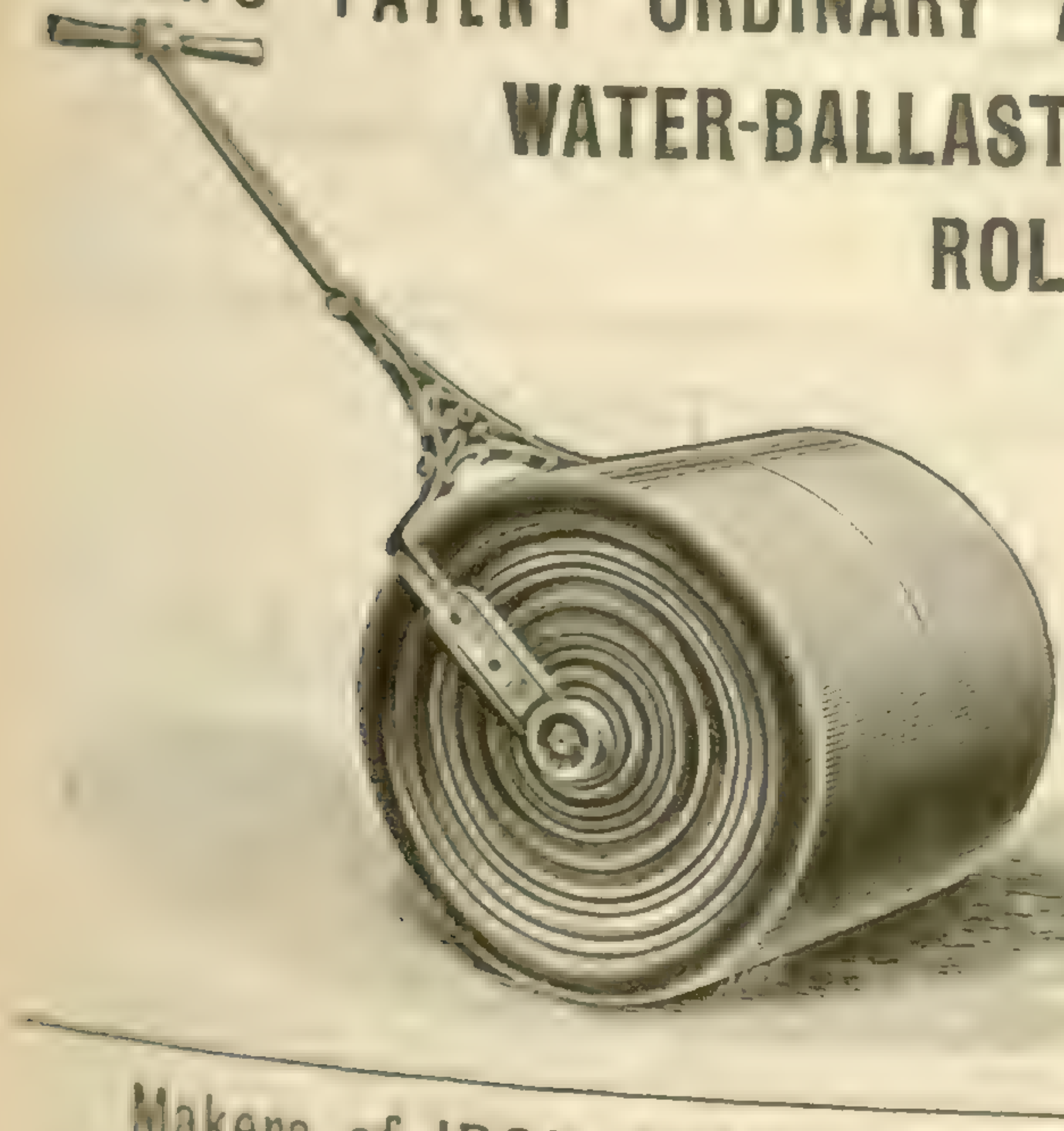

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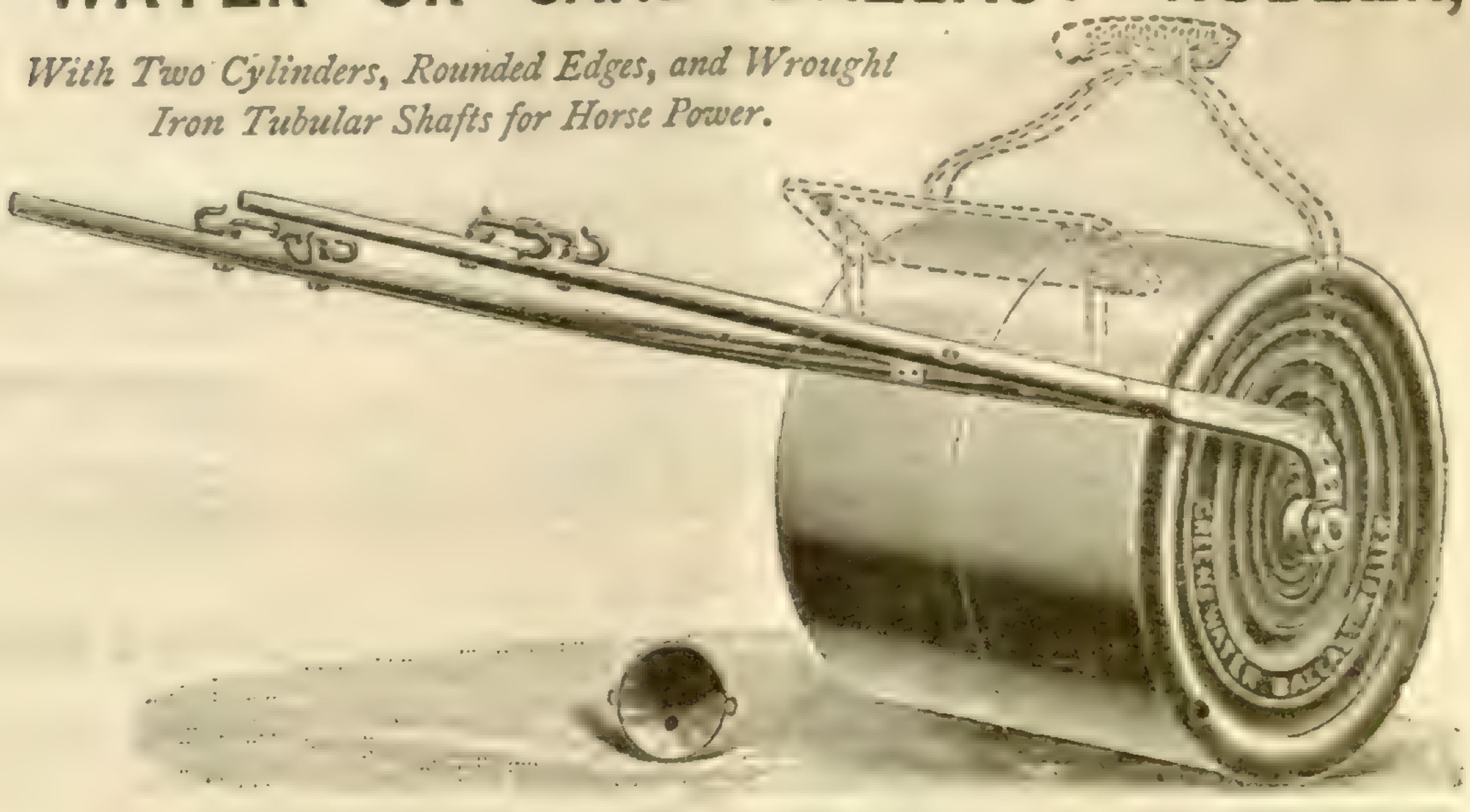

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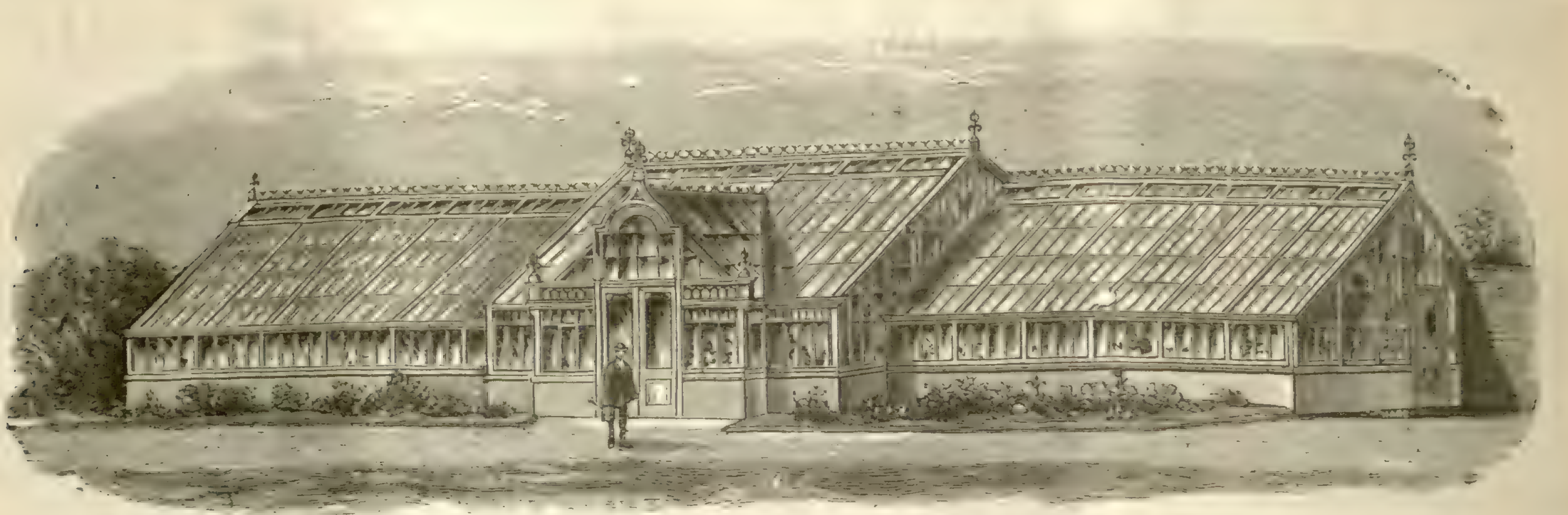

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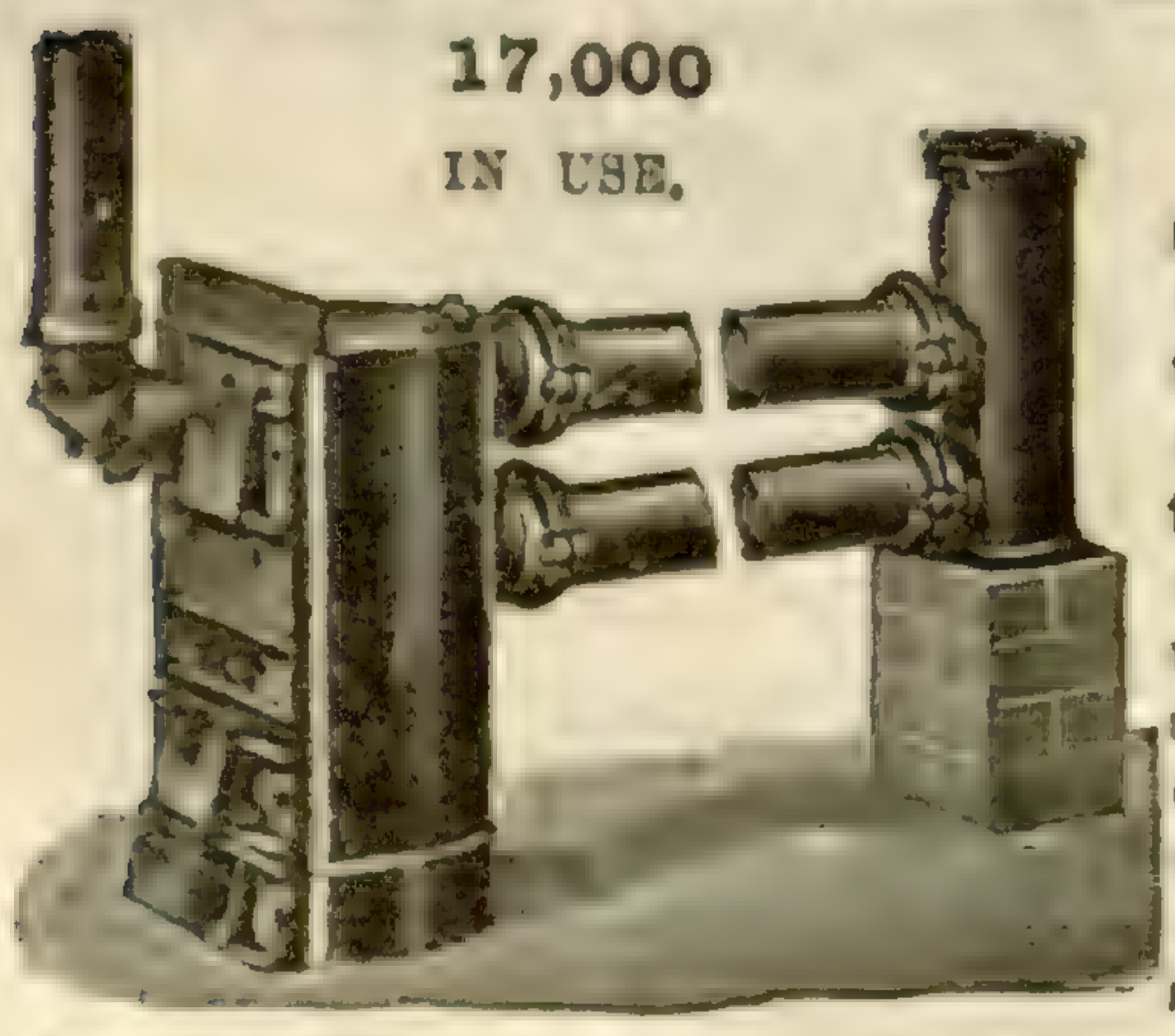

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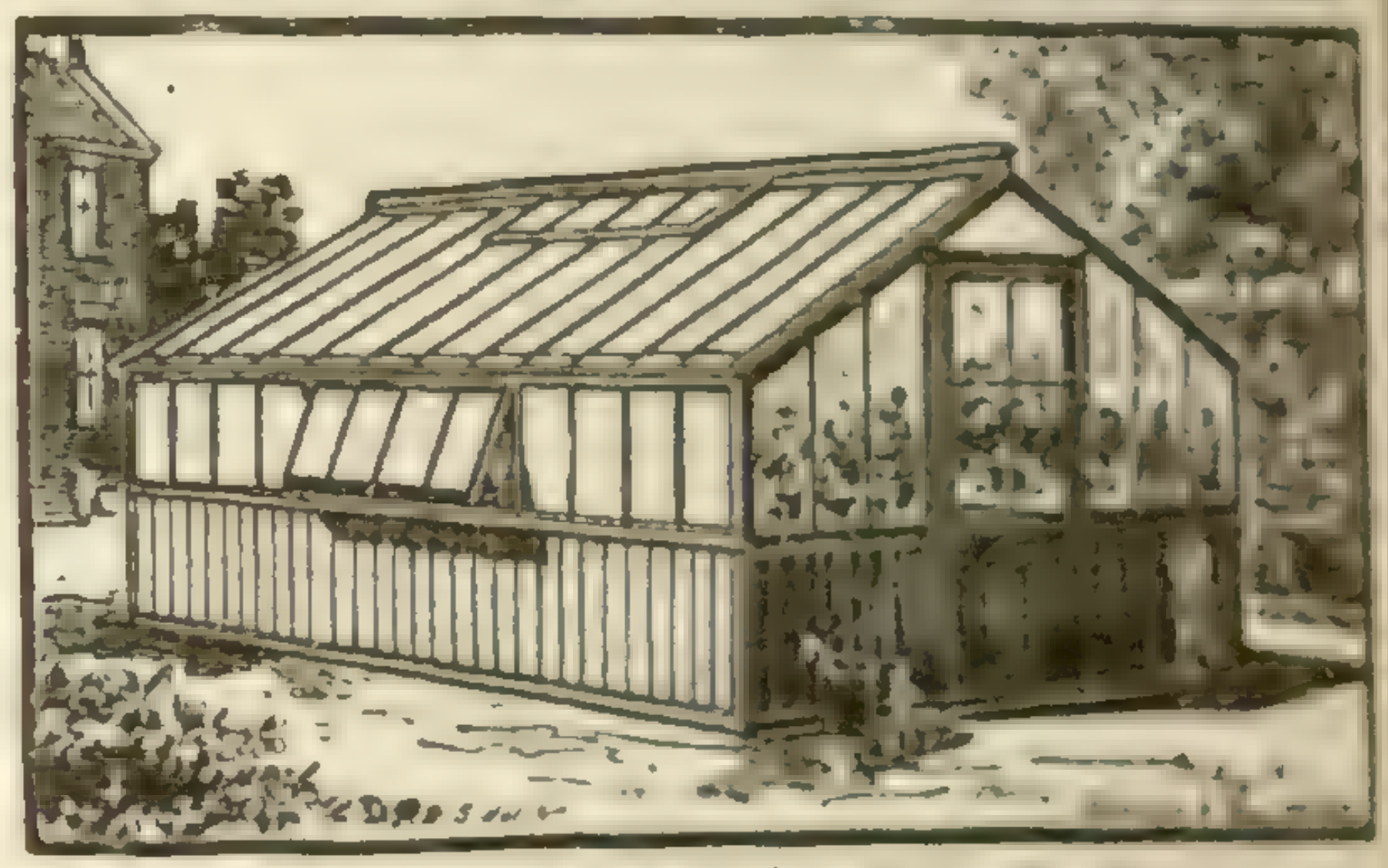

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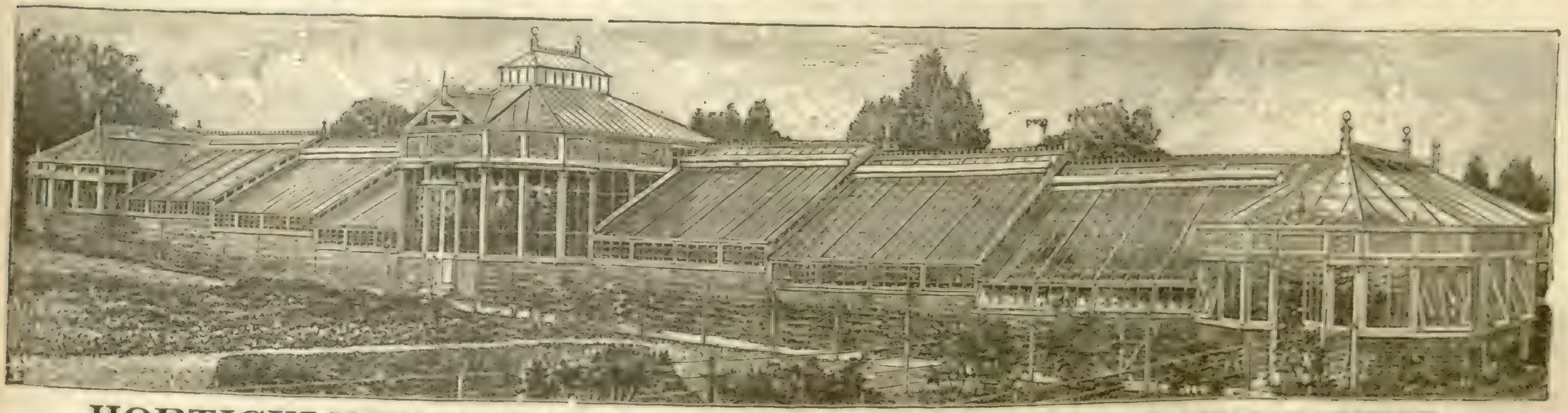

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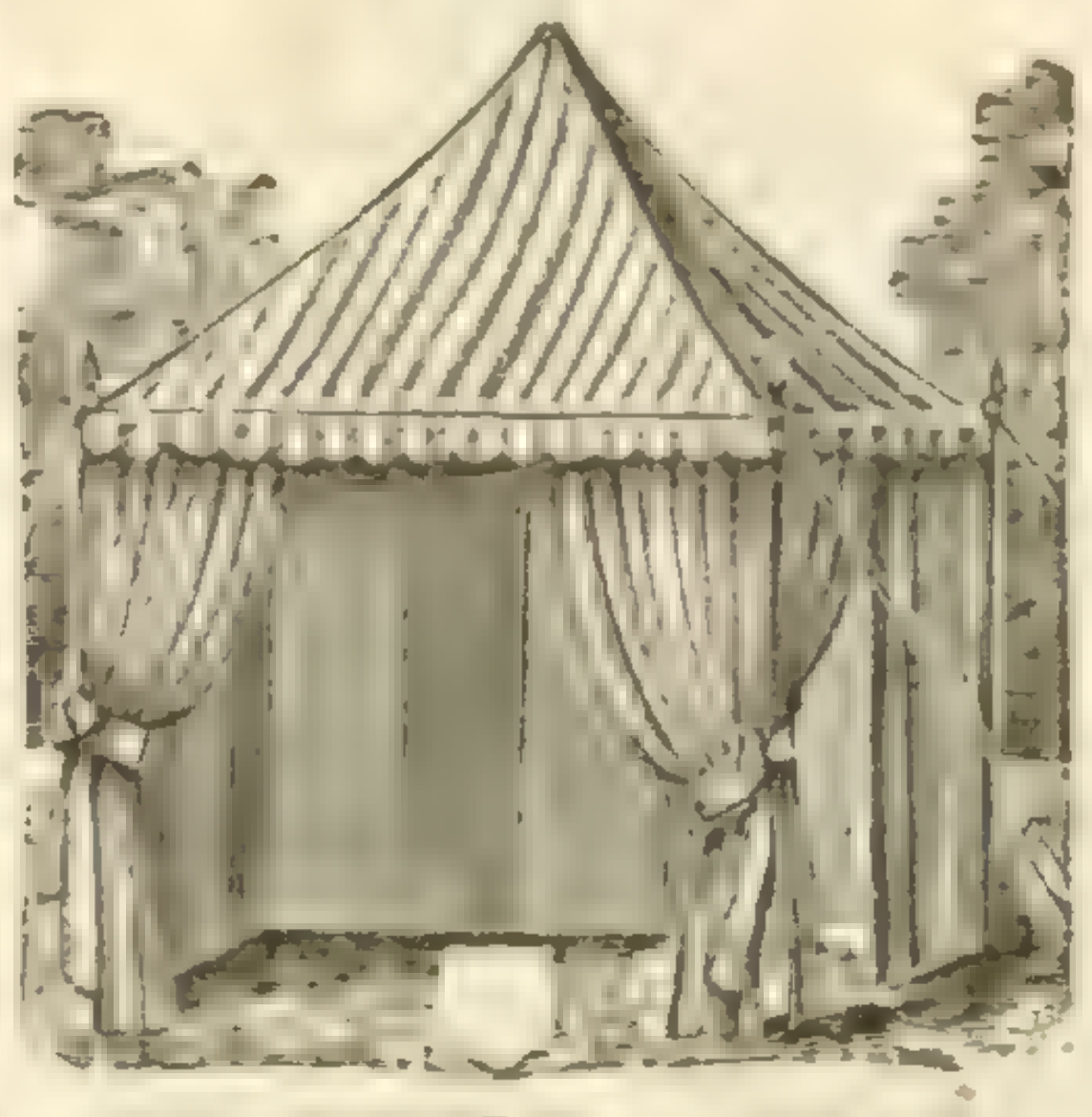

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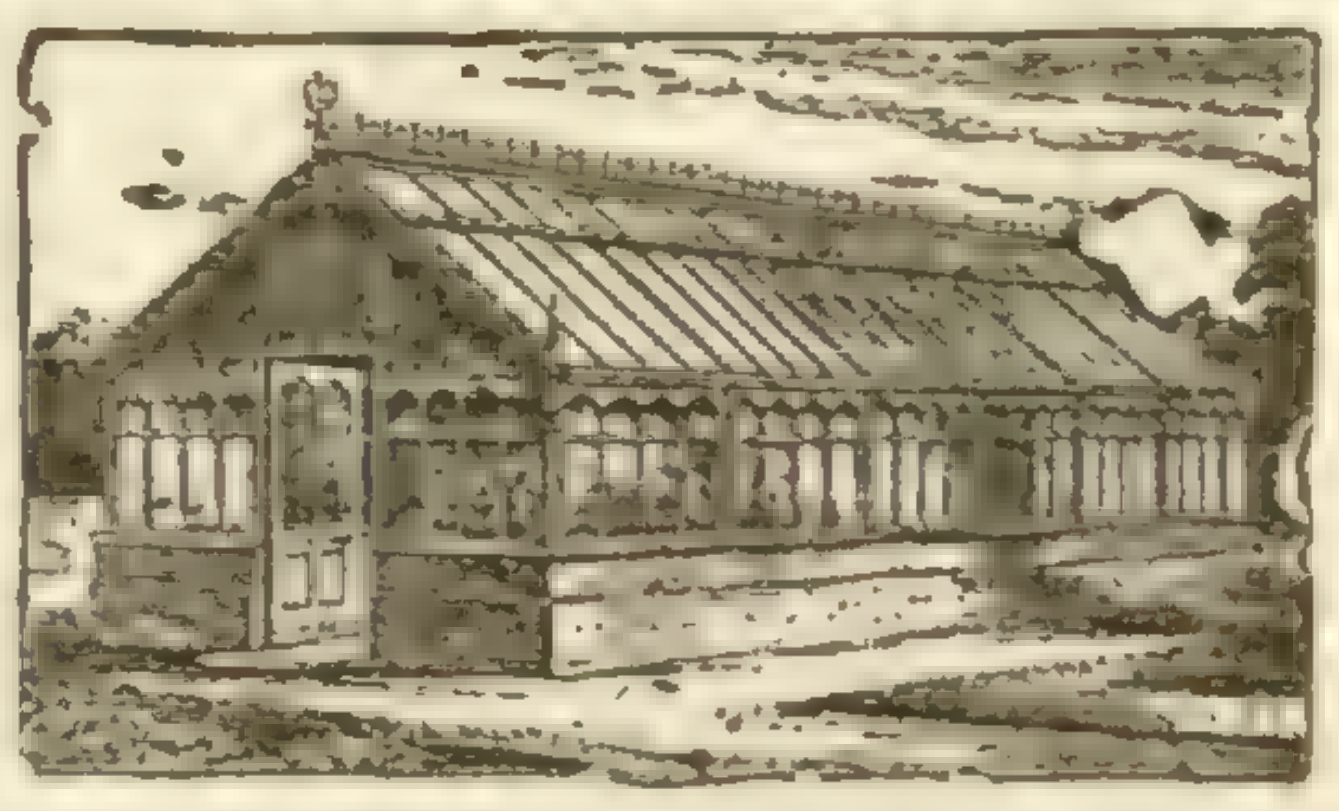

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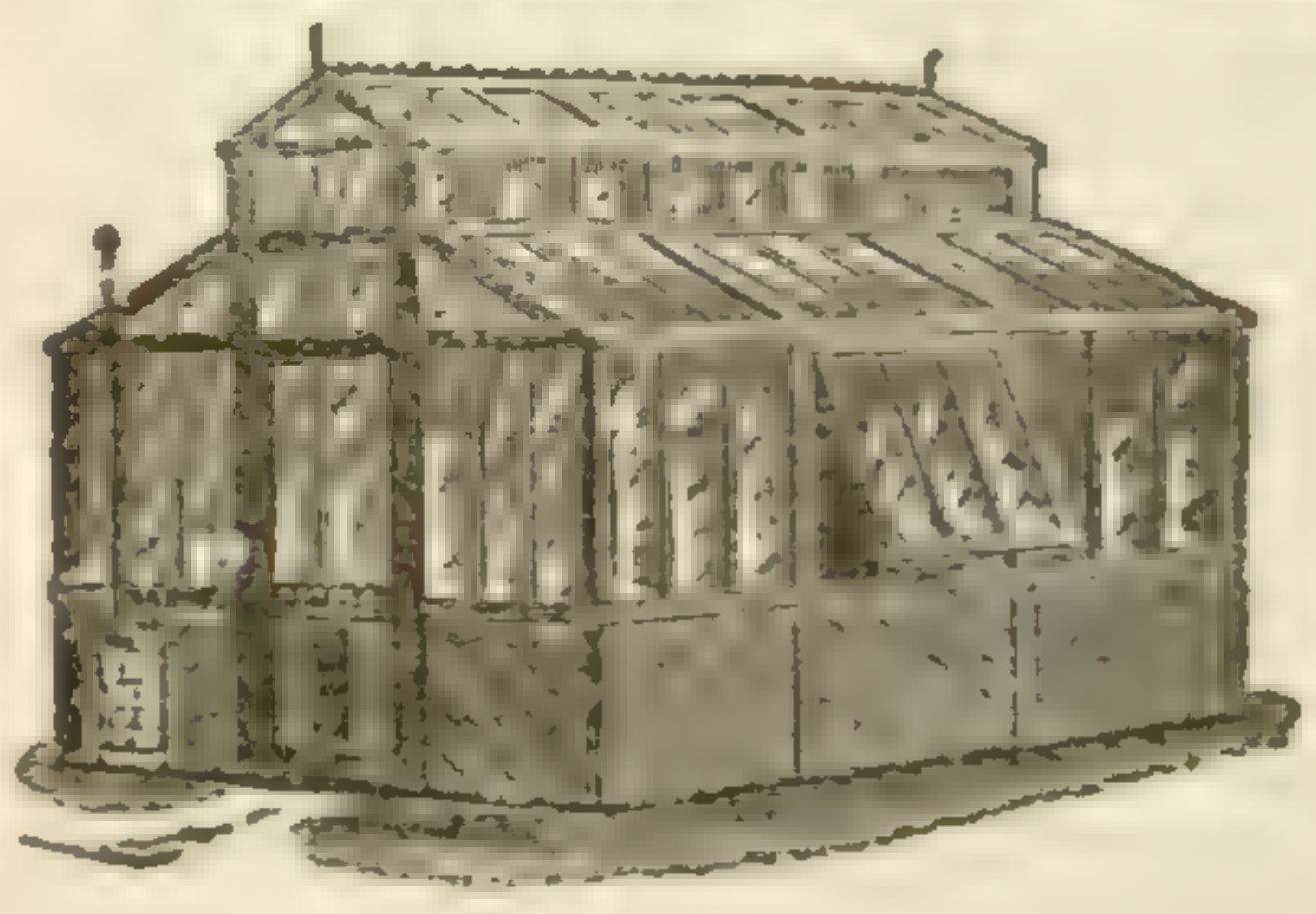

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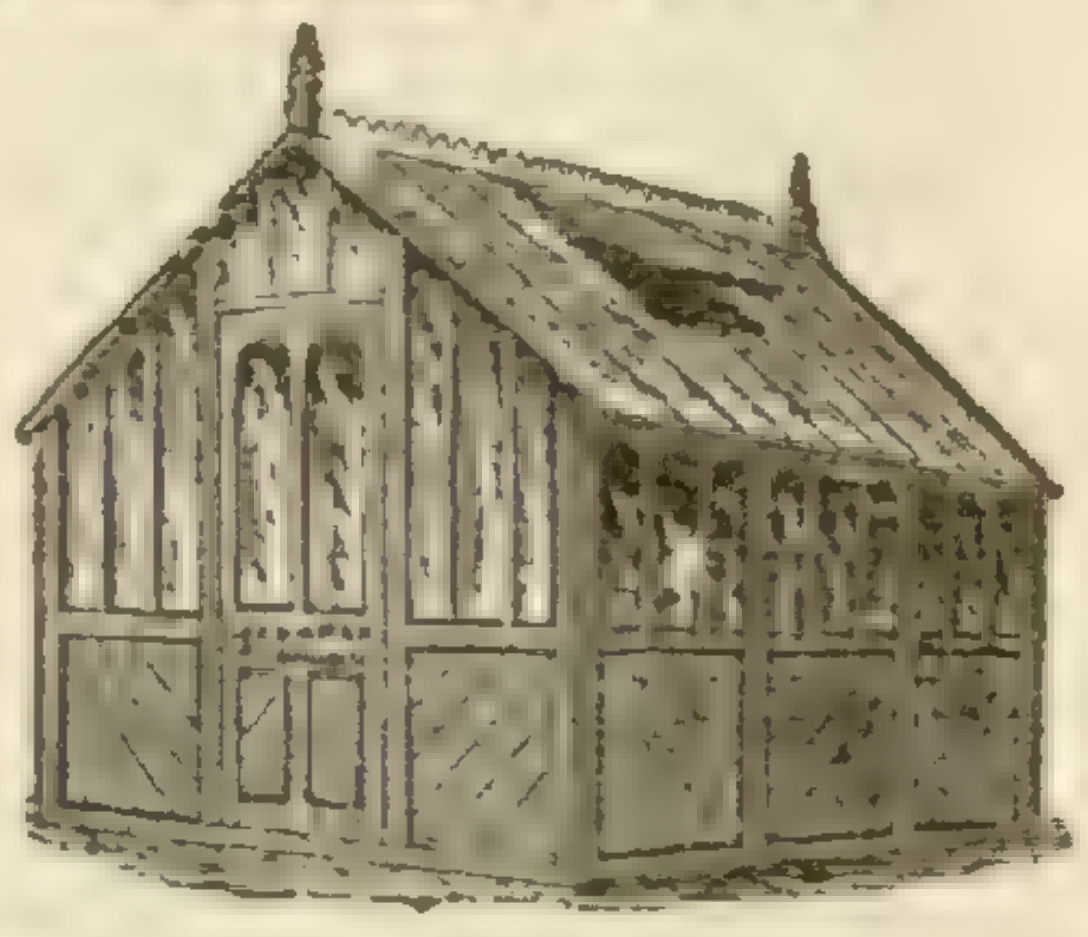

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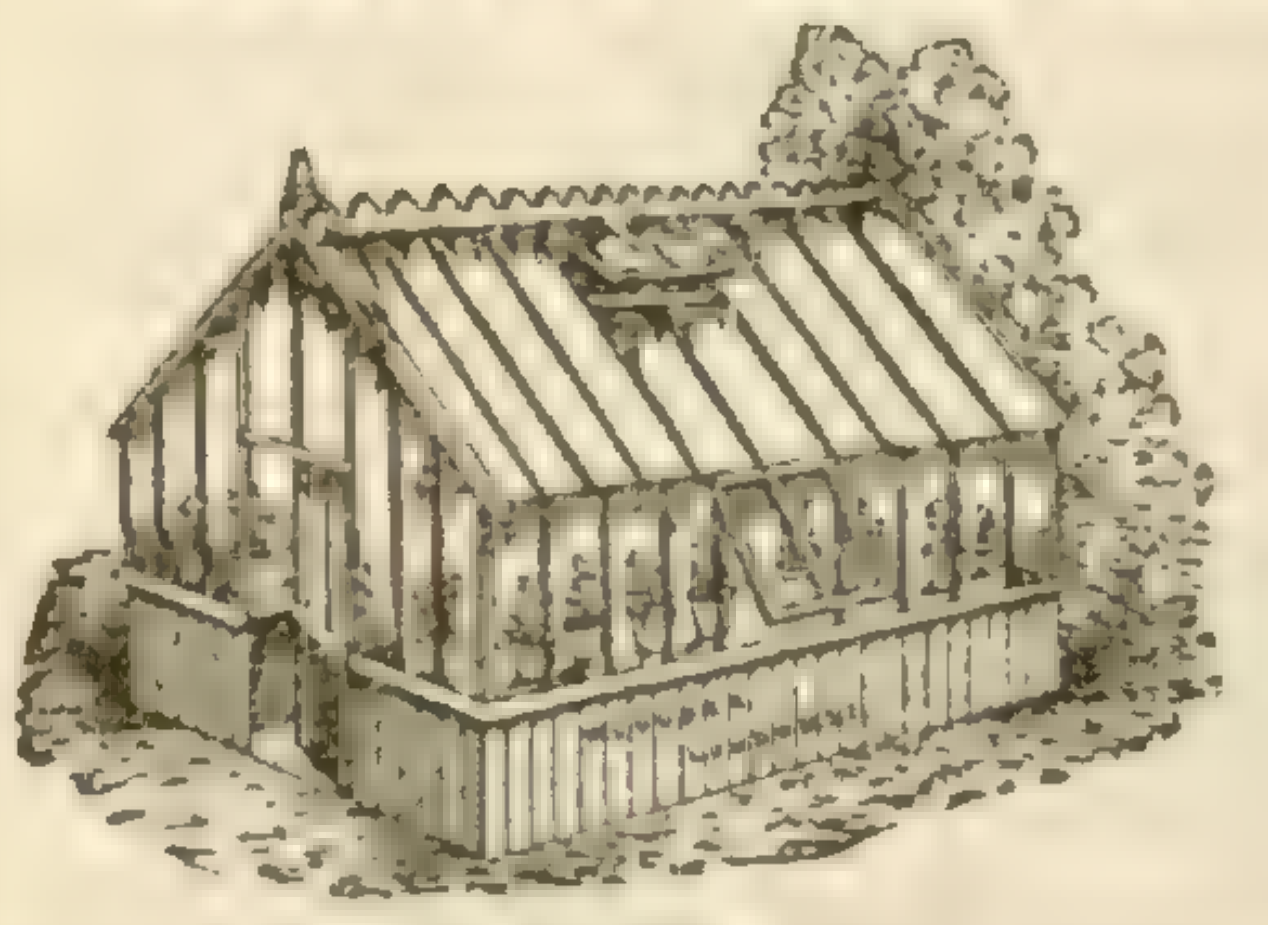

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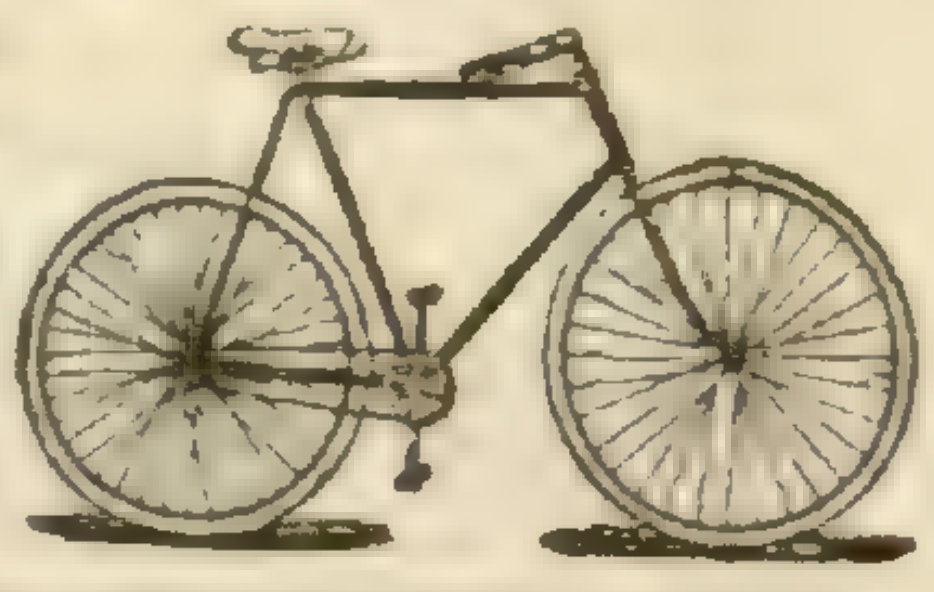

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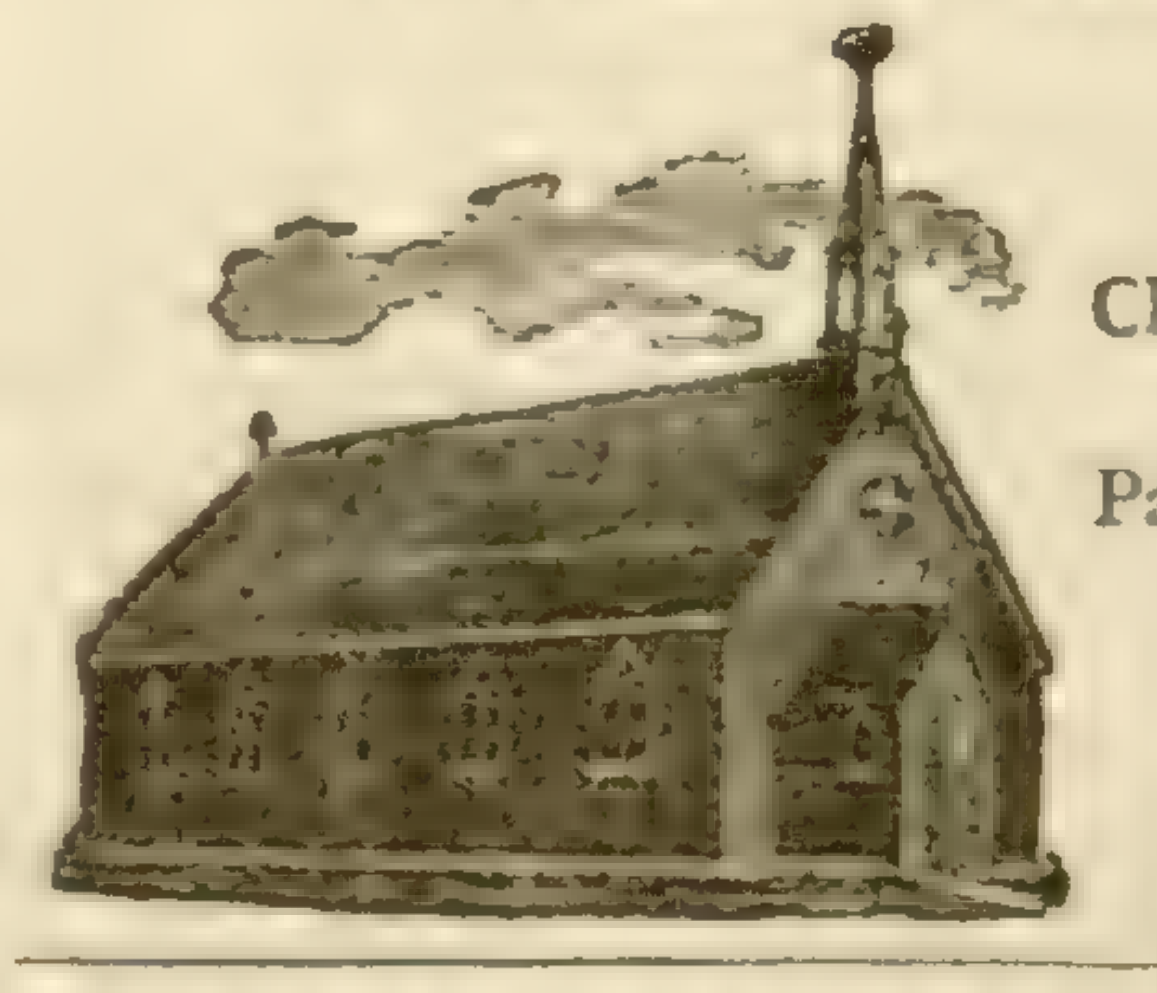

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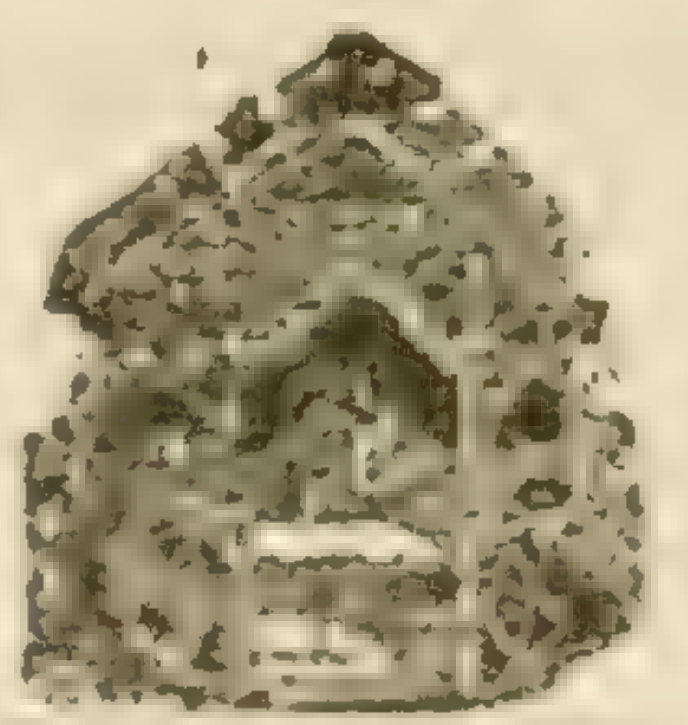

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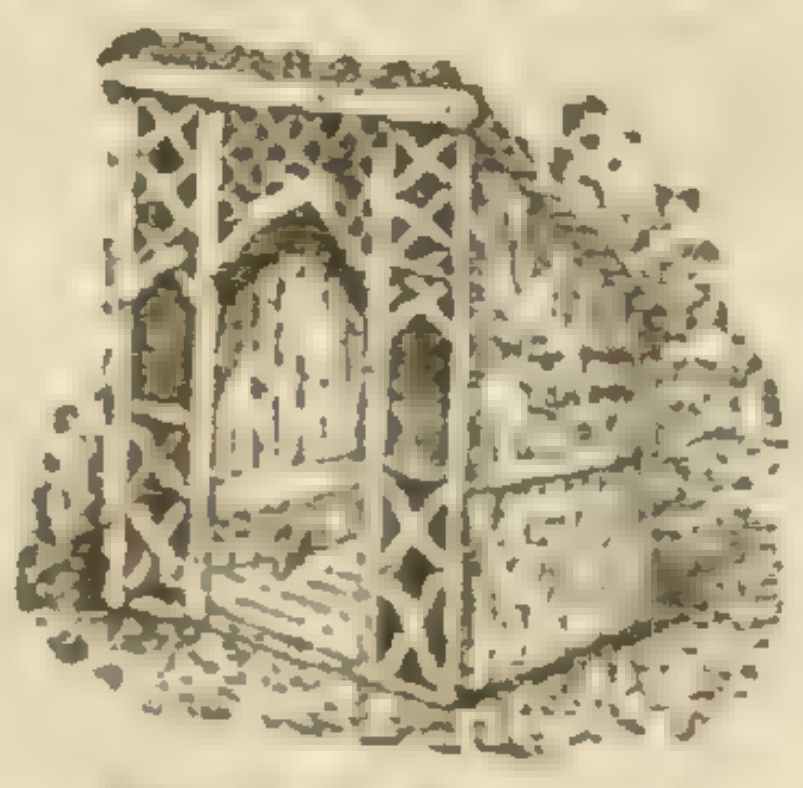

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THE GARDENERS' MAGAZINE.

SATURDAY, JULY 16, 1898.

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The Exhibition will open at Two p.m., and close at Seven p.m. Admission, One Shilling.
Schedules and further particulars may be obtained from the
HON. SECRETARY, Argyll House, Woolston.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

GRASS ORCHARDS.

ACCORDING to the most recent returns, there are 224,000 acres of orchards in Great Britain, and of this area all but three per cent. is situate in England, a fact in no way surprising, considering the more favourable conditions of soil and climate that obtain within its boundaries. Of the English acreage there are nearly 100,000 acres in the four counties of Devon, Hereford, Somerset and Worcester, and in the first three of these the orchards consist chiefly of grass land planted with fruit trees. In Worcestershire the largest proportion of the orchards are under grass, although there is a considerable area of cultivated land devoted to fruit culture, as at Evesham, and some places on the borders of the Severn. In Kent, Gloucestershire, and Shropshire, there is also a large percentage of grass land planted with standard fruit trees, and it is estimated that of the 218,000 acres of orchards in England, 170,000 acres are of this description. In discussing the present condition of English orchards, the *Journal* of the Board of Agriculture directs special attention to the state of orchards in grass, and it is a matter of much interest that the views so fully set forth in the series of articles published in the GARDENERS' MAGAZINE, under the title of "The Wasted Orchards of England," and reprinted in separate form, are amply confirmed. We are told in the opening remarks that "from the appearance of these grass orchards it is evident, even to those who know but little of fruit culture, that a large proportion of them is not producing half as much fruit as it should, and that a great deal of the fruit yielded is of a common kind and of poor quality. Even in counties where general fruit cultivation is carried out intelligently and well, as in Kent, Gloucester, and Shropshire, there are grass apple orchards in nearly as bad a condition as those of the western counties." It is further pointed out that many of the owners consider it quite unnecessary to manure grass land on which fruit trees are planted. In the greater part of these orchards the grass has been regularly mown or fed off by lean stock without corn or cake, and without the application of any compensating fertilising materials, in the mistaken belief that standard apple and pear trees require nothing to help them to produce continuous crops of fruit beyond that which they obtain at some distance below the surface and from the atmosphere. It is also generally assumed that grass growing between fruit trees requires nothing and takes nothing out of the soil, whereas it absorbs the available plant food from it as far as the roots extend, and materially interferes with the proper aeration of the soil so important in the earlier years of the life of the trees. These facts are fully stated in "Wasted Orchards," but they will bear reiteration, more especially as their importance is now recognised by one of the great departments of the Government, and their appearance in the present form is the best possible proof of the great care that was shown in conducting our investigations. There can be no question as to the advantage of cultivating the spaces between the trees of apple, pear, and plum orchards, but if the soil is naturally fertile excellent results may be obtained from grass orchards when the trees receive proper attention, and the grass is fed off by sheep or cattle. The trees suffer most from the grass during the three or four years after they are planted, as shown by the experiments conducted at the Woburn experimental fruit farm. In the course of these it was demonstrated that the grass reduced the size of the leaves of apple trees two years after planting by 41 per cent., and the growth by 74 per cent. The results of the Woburn experiments, coupled with the condition of orchards that are met with on all sides, should be sufficient to convince the most sceptical that if we are to compete successfully with American and Canadian apples we must follow the example of the growers in these countries and cultivate our orchards.

GARDENERS' EXCURSIONS.

THE excursion of the National Chrysanthemum Society on Monday to one of the seaside resorts in East Anglia, which the enterprise of the Great Eastern Railway Company has done so much to popularise, and the visit of the Horticultural Club to Slough and Stoke Pogis on Tuesday is sufficient evidence that the holiday spirit is abroad, and that the horticulturists in the metropolitan district have been brought within its influence. These excursions have been so admirably planned that nothing but fine weather is wanting to ensure abundant enjoyment to those who are so fortunate as to be able to take part in them, and we, therefore, trust the elements will on each occasion be favourable. We have nothing to urge against day trips to places of interest, but it appears to us that the time has come when an endeavour should be made to arrange excursions extending over two or three days to enable horticulturists to visit gardens and parks in distant parts of the country and at a cost well within the means of the average gardener. There can hardly be anything more beneficial to practical horticulturists from all points of view than to visit establishments far enough away for the work to be carried out under conditions different to those which obtain at home, and to derive the full advantage from such visits some amount of co-operation is essential. This is necessary not only for the purpose of enhancing the pleasure and the educational value of the excursion, but for the purpose of effecting a material reduction in both railway and hotel expenses. To make a long railway journey individually involves a larger expenditure than the majority of gardeners can well afford, but, owing to the enterprise that is now being shown by the railway companies, there would be no difficulty in obtaining for parties of thirty or forty greatly reduced rates for travelling, and it should be possible to obtain favourable terms from the hotels. There are many centres from which several gardens of importance could be visited in two days from London, and, as an example, we would mention "the Dukeries," which include three or four first class gardens of different character that could be visited without any undue tax upon the strength in two days, including a railway journey of about one hundred and fifty miles in either direction. It would be possible to go a farther distance, but there are many good centres within a radius of a hundred miles from London, and, indeed, of Manchester, Liverpool, Leeds, Exeter, Southampton, and other of the great provincial towns; and we would strongly advise that centres be selected just far enough for their horticultural features to be investigated without undue hurry in the time at disposal, that the members of the party may be able not only to thoroughly enjoy the visit, but derive some practical advantage from it. We know that some gardeners' associations succeed in covering two or three hundred miles, and visiting three or four gardens, in the course of some fifteen or sixteen hours; but such excursions are of but little benefit either physically or mentally to those who take part in them.

IMPORTS OF FRUIT AND VEGETABLES.

THE Board of Trade returns for June are, we are pleased to state more satisfactory than they have been for several months past, and there is a material increase in both the exports and imports. In the case of the exports of both British and Irish produce and manufactures, there is an increase in each section, with the exception of that for textile fabrics, in which there was a material drop in values. In the section devoted to fruits the decreases predominate, the most important drops being in the imports of apples and oranges. Of apples we received 17,241 bushels only, against 66,669 bushels in the corresponding month of last year, the values being £9,373 and £26,868 respectively. The imports of these fruits for the six months ending June 30 were 914,828 bushels, of the value of £341,471, as compared with 2,049,406 bushels, of the value of £566,443 in 1897. Cherries were received in increased quantities, the imports amounting to 166,017 bushels, of the value of £117,399, or an increase in quantity of 7,956 bushels, and in value of £19,311; but on the six months there is a small drop both in quantity and value. Grapes also show an increase, the imports amounting to 5,018 bushels, against 4,469 bushels last year; but with an increase of 549 bushels, there is a decrease in value of £1,033. But few pears are imported in June, and last month the imports nearly reached the vanishing point, for four bushels only, of the value of £2, were received, which is the lowest price per bushel recorded for some years past. Plums also show a decrease of 5,230 bushels, the quantities received having been 9,543 bushels, against 14,773 bushels last year, and the respective values are returned at £10,503 and £18,639. Unenumerated fruits were received in much larger quantities than in the two corresponding months of the preceding years, and the increase in value as compared with June, 1897, is £30,640. Potatos again show a material increase, the imports amounting to 1,533,374 cwt., of the value of £669,947, and of this quantity we received 72,039 cwt. from Germany, 443,272 cwt. from France, 870,235 cwt. from the Channel Islands, and 147,838 cwt. from other countries. Our imports of potatos for the six months were 5,683,953 cwt., of the value of £1,664,349. The increase in the imports of onions was considerable, the quantities received having been 388,746 bushels, of the value of £56,426 in June, and 2,432,849 bushels, of the value of £376,395 in the six months.

"Gardeners' Magazine" Rose Number.—It gives us much pleasure to acknowledge the hearty congratulations received from our readers in all parts of the United Kingdom on the success achieved by our Rose Number, published on the 9th inst. In discharging this agreeable duty we would assure our correspondents that their expressions of approval are immensely gratifying to us, inasmuch as they afford additional evidence that our efforts in the cause of rose culture, as of all other aspects of floriculture and horticulture, are highly appreciated. We fully agree with the opinion expressed by a large proportion of our correspondents that the superb coloured plate is worth more than the small sum charged for the issue, and we have no hesitation in stating that in no other form has so much that is of interest and useful to those engaged in rose culture been published at the price of the issue. In reply to numerous inquiries, we have to add that the publisher is still able to supply copies.

National Rose Society's Exhibition at Halifax.—The Northern Exhibition of the National Rose Society at Halifax on Thursday last was a splendid success and the best of the series. There was a strong competition throughout, and the blooms were of high quality. Messrs. Harkness and Sons, of Bedale and Hitchin, were in splendid form, and won the provincial trophy and the premier awards in the classes for seventy-two and thirty-six. Mr. E. B. Lindsell, Hitchen, was successful in winning the amateurs' trophy, and Mr. O. G. Orpen and Mr. H. V. Machin specially distinguished themselves, and Mr. G. Prince, of Oxford, was strong in the tea classes. Two gold medals were awarded to Messrs. A. Dickson and Sons, of Newtownards, for new roses, the varieties being Mrs. Edward Mawley and Mildred Grant, and one to Messrs. James Cocker and Sons for a variety named Mrs. James Cocker. The weather was fine, and the attendance of visitors large.

The Walnut-leaved Rhus (*Rhus juglandifolia*) is usually a tree of moderate size, native of Western America, ranging from Mexico to Peru, and inhabiting mountainous districts, up to at least 3,500 feet above the level of the sea. Galeotti describes it as a beautiful shrub, having pale yellow, fragrant flowers, growing in woods in the Cordillera of Vera Cruz, at an elevation of 3,000 feet. Birschel designates it a large tree, growing at an altitude of 3,500 feet, near Guarenas, in the province of Caracas, and bearing the name of "Manzanillo Bovo." Purdie, who collected it in New Grenada, states that it is "the celebrated Palo Petro-Fernandez"; and on another label he describes it as a large forest tree. According to the *Kew Bulletin* there are specimens in the Herbarium from several other collectors and localities, but they are unaccompanied by any remarks. Ernst enumerates Rhus iuglandifolia among woods and timbers, under the vernacular name of "Manzanillo de Cerro." Not one of the foregoing Spanish names is given in Seemann's "Die Volksnamen der Amerikanischen Pflanzen," and we have found no published account of its possessing poisonous properties, which, from its popular name "Manzanillo" (Manchineel) might have been expected. But some months ago Mr. J. V. Sigvald Muller, of Guayaquil, sent to Kew fruiting branches of Rhus juglandifolia; one parcel named "Aluvilla blanca," and another "Aluvilla negra." There were slight differences in the foliage, but we could find nothing to distinguish them specifically. Mr. Muller, however, is of opinion that they are distinct, and states that both have the reputation of being exceedingly venomous. So far as we understand, his information was all derived from hear-say, and is merely traditional. Indeed he states that he had met none except Indians who even knew the name "Aluvilla." There may be a grain of truth in the tradition, though it is almost certain that Rhus juglandifolia is not harmful to Europeans.

Diseased Cherry Leaves were received by R.H.S. Scientific Committee from Mr. B. G. Berry, F.R.H.S., Scarbutts Manor, Broughton, Faversham, and submitted to Dr. W. G. Smith, who reports as follows: "I cannot make up my mind whether the fungus on cherry leaves you sent last week is Cylindrosporium padi, *Karst*, or Claderosporium amygdalearum, *Pass*. Both are given as causing spots on foliage similar to that sent. The spores are different, but I get both forms (or something very like them) present. In any case the fungus is the cause of trouble. The disease is common in the United States, though I have no definite record of its occurrence here. It is not considered serious and yields easily to spraying remedies. I am afraid at present the crop is too far advanced to allow of immediate treatment, but as soon as the fruit is plucked Bordeaux mixture should be sprayed on the foliage. Next year the spraying should be continued as soon as the foliage is strong enough to allow it. It should not be used towards the season of ripe fruit, as it stains the cherries, but applied before and after is reliable."

Flavour in Strawberries.—We were pleased to observe that in the collection of strawberries exhibited by Messrs. James Veitch and Sons at the meeting of the Royal Horticultural Society on Tuesday, varieties remarkable for high flavour were well represented. One of the most important of these was Veitch's Prolific, a distinct variety raised by the firm from a cross effected between Empress of India and Royal Sovereign. The fruits are large and handsome, bright in colour, and richly flavoured, and, as suggested by the name, they are produced in great abundance. Especially worthy of note also was Exquisite, a distinct variety, raised from Lord Suffield, possibly fertilised with pollen from Waterloo. This has somewhat conical, wedge-shaped fruits, of a dark crimson colour and with bright red flesh; the flavour is surprisingly rich, in the latter respect quite surpassing the British Queen, which has long been regarded as the standard variety for flavour. This is a good cropper, and the strawberry for those who have a higher appreciation for flavour than for mere bulk in these fruits, for no more richly-flavoured strawberry has yet been introduced.

The Apple Sucker (*Psylla mali*) is reported to have been very plentiful in orchards this season, and to have done considerable damage in some districts. In many cases much injury was done to the trees attacked before the cause of the mischief was recognised, owing to the small size of the pest. Spraying with soft soap and quassia extract in solution is one of the best means of holding the apple sucker in check. Very beneficial also is spraying with Paris green; but owing to the habit of the pest in making its way between the innermost folds of the blossom there is a difficulty in subjecting it to the full effects of washes used to poison its food or make it unpalatable.

Gold Medal Garden Rose.—The award of a gold medal to a garden rose by the National Rose Society at the Crystal Palace, on the 2nd inst., is not without precedent, for Turner's Crimson Rambler obtained that distinction on its introduction, but it is nevertheless of interest as a proof that the society is prepared to recognise new varieties of merit to whatever section they may belong. The conferring of this coveted distinction upon Messrs. Cooling's Bourbon Purity, has to us additional interest, from the fact that the large body of eminent rosarians—on whom the duty devolved of making awards to novelties—confirmed the high opinion we expressed of its merits when it first came under our notice rather more than a year since. In referring in the GARDENERS' MAGAZINE of June 12 to some of the objects of interest in Messrs. Cooling's nurseries, we observe: "We must refer, however, to a grand open air new seedling white rose, of which we are certain to hear more in due course. It has the neat foliage of a Bourbon, and is rampant in growth, and the long bent-over shoots produce at every joint a medium-sized blossom, which is nearest in colour to *Devoniensis*, but is beautifully reflexed like *Madame Bravy*. The petals are of good substance, and it was the only good double rose out at the time in the nurseries on June 7th. This habit of early bloom, freedom of growth, and pureness of colour, with the stout footstalks and erect H.P.-like pose of the flowers, mark it out as the coming white or flesh-white florists' rose." For decorative purposes in a cut state Purity has much to recommend it, and it has the promise of becoming a popular rose for market.

Jean Linden Memorial.—Soon after the death of the late M. J. Linden, several friends joined in the project to perpetuate the memory of the celebrated explorer and learned botanist, whose loss is deplored by the horticultural world, his innumerable discoveries having enriched our gardens and houses with so many beautiful plants. The idea of erecting a monument to his memory has emanated and received a large adherence, the same to be erected at Brussels, where M. Linden passed the greater part of his life. To realise this object, which is the wish of all those who have known the great part taken by him in the development of modern horticulture, a committee has been formed under the presidency of Count O. de Kerchove de Denterghem, President of the Royal Botanic and Agricultural Society of Ghent, and comprises the Count de Bousies, Orchidophile, Mons; M. de Middeleer, President of the Royal Society Linnéenne of Brussels; M. Dutrieu de Terdonk, Secretary of the Royal Horticultural Society of Malines; M. Kegeljan, President of the Royal Horticultural Society of Namur; M. Lubbers, Secretary of the Royal Floral Society of Brussels; M. Massange de Louvrex President of the Royal Horticultural Society of Liége; Baron Osy de Zegwart, President of the Royal Horticultural Society of Antwerp; and M. Warocqué President of the "L'Orchidénne," Brussels. M. Kegeljan has kindly accepted the function as treasurer, and M. Lubbers those of secretary. It has been decided to address an appeal to botanists, amateurs, and nurserymen, [illegible] public establishments and societies, in Belgium and abroad, to give this [illegible] an international character. Subscriptions will be received by M. F. [illegible], Banker, Namur, Belgium.

Cost of Daffodil Culture.—Some idea of the cost of growing the narcissus may be formed from rough estimates given verbally by Mr. White, of Spalding, to Mr. W. E. Bear, and recorded by him in the current issue of the Royal Agricultural Society's *Journal*. Supposing, he says, 200,000 bulbs of moderate size to be planted on an acre, costing £4 per 1,000, and allowing £40 an acre as the cost of manuring, cultivating the land, planting, weeding, picking, and marketing, the total would be £840 per acre. Probably rent, rates, and taxes are included in the £40. Some varieties of bulbs cost a great deal less, and some a great deal more, than £4 per 1,000, and Mr. White makes the total expenses per acre range from £400 to £1,000. But these amounts apply only to the first year, even to growers who have to buy their bulbs, as the bulbs [illegible] from two to three years, the extremes being one to four years on the [illegible] question. Therefore the average annual expenses would be very [illegible] the amounts given. Again, growers would not find a market for all the [illegible] grow, and, therefore, when they produce their own bulbs for planting, these [illegible] not be valued at the selling price in reckoning the actual cost of production. If a grower bought 200,000 bulbs at £4 per 1,000, the cost might be spread over three years, making it about £266 per annum, while the cost of planting could be similarly treated. Whatever the precise amount per annum might be, however, it clear that the annual returns from flowers and those obtained from bulbs at the end of three years would need to be very large to cover expenses and afford a profit. At the present time Mr. White has in growth 1,500,000 bulbs of Ornatus, between 400,000 and 500,000 each of Sir Watkin and of Horsfieldi, 750,000 of common double daffodils (Telamonius plenus), 1,000,000 Double Whites, 100,000 each of Emperor and Grandee, 40,000 of Empress, and a number of other varieties. He usually begins to pick forced flowers in the first week of January, and finishes at about the end of February or early in March, when the open-air flowers are ready. To show the difference of time between the flowering in Scilly and in Lincolnshire, it may be pointed out that whereas Mr. White began to pick Emperor and Empress only on April 7 or 8, the whole of the former and about half of the latter had been marketed from Tresco by March 14.

Apple and Peach Crops in America.—The condition ot apples in America, in all the New England States except Rhode Island, is considerably above the average for this season. In New York it is five points above the ten-year-average, in North Carolina eight points above, in Michigan seventeen points, in Wisconsin thirty-one points, in Iowa eight points, and in Nebraska thirteen points. On the other hand the present early indications are less favourable than usual in the following states and to the extent indicated: Rhode Island five points, New Jersey four points, Maryland eight points, Virginia four points, Georgia three points, Alabama three points, Arkansas thirteen points, Tennesse eleven points, West Virginia thirty points, Kentucky twelve points, Ohio seven points, Indiana fifteen points, Illinois six points, Missouri eleven points, Kansas one point. Excepting in New Jersey, Delaware, Maryland, Kentucky, Tennesse, Mississippi, and Arkansas, the season has been highly favourable for peaches throughout the entire eastern half of the country. In Georgia, probably the greatest peach-growing state in the Union, the condition is one hundred and five, against an average June condition for the last ten years of sixty-one.

Hybrid Tea Medal Roses.—By an inadvertance we omitted to give in our report of the National Rose Society's exhibition, at the Crystal Palace, the names of the blooms of the hybrid teas selected for the medals offered for the best blooms of varieties belonging to the second class. We now supply the omission, by stating that the medal in the amateurs' division was awarded to Mr. C. J. Grahame for a magnificent bloom of White Lady, and the medal in the nurserymen's division was awarded to Messrs. Paul and Son for a finely developed bloom of Mr. W. J. Grant.

The Rainfall in Wiltshire, as recorded at the Compton Bassett Gardens by our coadjutor, Mr. W. A. Cook, during the past half-year, was as follows:—In January rain fell on ten days, and the total amount was 45 inches; February, seventeen days, 1·74 inches; March, twelve days, ·79 inches; April, thirteen days, 2·02 inches; May, twenty-three days, 2·50 inches; June, eleven days, 2·07 inches.

Intending Emigrants are informed, on the authority of the Emigrants' Information Office, Broadway, Westminster, S.W., that there is a good opening for experienced farm hands in Canada at this season of the year. There is no great demand for labour in New South Wales, notwithstanding the total acreage under cultivation this year is considerably more than it was in 1897. In Victoria the general demand for labour has ceased, but there are excellent openings for men who understand fruit-growing. In the sugar-growing districts of Queensland there is a good demand for farm labourers during the crushing season, which lasts from June to December. Farm labourers are wanted in Western Australia, but not in Tasmania; New Zealand affords opportunities to experienced farmers with capital, while in Cape Colony marked progress is being made in developing the important industry of fruit growing.

Investigation of Respiration in Plants.—It has long been known that methylene blue is capable of being decolorised by reducing agents, but botanists appear not to have recognised the possibilities latent in the methods, perhaps because some ten years ago Pfeffer stated that though fermenting yeast would decolorise the blue solution, green plants would not do so. Doubtless this was true under the conditions of Pfeffer's experiments, but nevertheless, many green plants are, as a matter of fact, found to give admirable results. Mr. J. B. Farmer states in a communication to *Nature* that if germinating seedlings of barley or peas be placed in test tubes filled with a 0·0005 per cent. solution of methylene blue, which has been boiled in order to expel air, it will be found that in the course of a few hours the liquid around them will have lost its colour. The most striking way of performing the experiment is to suspend the peas in the solution, then a decolorised zone is formed between the upper and lower parts of the liquid, each of which still retains its blue colour. Gradually the clear zone extends until the entire mass of the liquid, except just at the surface where it is in contact with the air, becomes decolorised. At first the radicles of the seedlings are strongly stained, they finally again become white. If some of the decolorised liquid be drawn off by means of a pipette, and shaken up with air, the blue tint speedily returns. If some of the seedlings be removed from the now colourless liquid, and be rinsed in boiled water and then exposed to the air, they soon become blue, and the stain gradually extends into the internal tissues as these become gradually aërated. The "development" of the blue can readily be seen in sections, quickly made, under the microscope. Cress seedlings are far more active than either barley or peas, just as would have been expected from the relations which they exhibit towards oxygen. The most remarkable results are, Mr. Farmer observes, those obtained from a plant like Chara. This alga is suspected to possess peculiar properties in regard to its connection with oxygen, and it has been ascertained in several ways that the plant is nearly as greedy for oxygen as are many seedlings. A branch of Chara placed in the methylene blue and put in the dark, will decolorise the surrounding liquid in a few hours; but if the tube containing it be exposed to the action of bright daylight the colour soon returns when the plant is alive, owing to the evolution of oxygen consequent on its splitting up the carbon dioxide which has been evolved by it, and which has been accumulating in the water, during the plant's stay in darkness. Many other plants fail to give such quick results; thus Elodea requires about two days in darkness to obtain the reaction. All the plants experimented on give a result much more quickly if they have previously been starved of oxygen. And this indicates that the oxygen is not directly utilised either by the protoplasm, or some of the normal combustible bodies present in the cell, but by some dissociation product formed during metabolic activity of the protoplasm. Of course, decoloration of the blue does not occur when the plants are exposed to the action of free oxygen; this element can then be obtained more cheaply than by reducing the aniline dye. These facts have been arrived at during an investigation by Mr. Farmer, which is still proceeding, into the respiratory processes of plants. The method here detailed is, however, so simple, and seems likely to prove useful to teachers and others as a demonstration-experiment, that it is important to make it generally known.

Black Currant Shoots Falling.—Mr. E. Ballard submitted specimens to R.H.S. Scientific Committee, from a large plantation, which break off at a slight touch or by the wind. Mr. W. G. Smith, who has examined them, reports upon them as follows: "The currant leaves bore a mildew, but other fungi were also present when I examined the material. The characteristic mode of attack pointed to a Peronospora species. I have raised good crops of one on fresh portions of the leaves, and am following up the clue. If it be really a species of this family it is new to Britain, although one (Plasmopora ribicola) has been reported from U.S. America. I have observed the emission of motile swarm spores from the sporangia (so-called spores) of fresh material, and otherwise feel sure of the Peronosporeæ nature of this fungus. As to remedy, I should recommend a spraying of Bordeaux mixture or allied copper mixture. To a black currant plantation this could be done by a knapsack sprayer, which are readily obtainable."

New Early Pea.—Mr. E. Beckett writes: "The new early pea, Thomas Laxton, is one of the very best early peas that has come under my notice. It is said to be a cross between Gradus and Earliest of All, but in appearance it much resembles Ne Plus Ultra, except that the pods are double the size; the latter are of a deep green colour and well filled, and the flavour is excellent. With us it proved to be earlier than Gradus, and only a few days behind Earliest of All. In my opinion, it will become a great favourite with exhibitors of vegetables; also for market and home use in general. I can fully endorse the good opinion formed by the Fruit and Vegetable Committee, last week, at Chiswick. I am enclosing a few pods for your inspection." The pods sent by our able coadjutor are large and handsome, and the peas, of which there are eight or nine in each pod, are of a fine deep green colour, and of high flavour when cooked.

Metropolitan Parks and Gardens.—The report presented to the monthly meeting of the Metropolitan Public Gardens Association evinced, as usual, a considerable amount of activity on the part of the governing body. It was reported that since the last meeting the garden which the association laid out in York Street, Walworth, and the Central Park and drinking fountain, East Ham, had been formerly opened to the public. It was agreed to undertake the laying-out of a disused burial ground in Hoxton, the enclosure at Portland Place, New Kent Road, and some small City churchyards, provided that proper arrangements were made in each case for maintenance. In response to the appeal of the association, a reply was received from the Rev. Harry Jones, the rector, to the effect that so far as he was able he had, in giving up a strip of the churchyard of St. Peter Cheap for the widening of Wood Street, safeguarded the existence of the fine plane tree at the corner of Cheapside and Wood Street. It was agreed to communicate with the Corporation asking that body to take care to do nothing which would injure the roots of this unique tree.

Children's Geranium Club.—Amongst the many organisations of which Cambridge House Settlement, Camberwell Road, is the centre, there is a children's geranium club, embracing some seven hundred members. In the early part of the year a geranium cutting was handed to each member, proper care being taken to prevent cheating, and each child was invited to cultivate the plant and exhibit it at the show. That the interest of the children was thoroughly aroused is shown by the fact that the seven hundred cuttings were represented at the show held on Monday by six hundred and seventy grown plants. The geraniums were used in the floral decoration of the large hall, which was also embellished by many choice plants kindly supplied by Messrs. Segar and Wills, of South Kensington. The show was opened by the Duchess of Devonshire, who also distributed the prizes to the successful competitors.

Messrs. J. Laing and Sons, Forest Hill, specially distinguished themselves on the occasion of the recent visit of H.R.H. the Duchess of Albany to Camden Park, Chislehurst, in aid of the Royal Deptford Fund. In the floral tent the firm arranged a magnificent trophy of palms and flowering plants, with hanging baskets of ferns, &c. Carnations, orchids, streptocarpuses, and begonias made fine displays elsewhere, as also did a collection of bouquets and fancy floral designs. The Messrs. Laing placed large standard bays and giant dracænas as an approach to this tent; they also decorated the duchess's tent with myrsiphyllum and white flowers and made the presentation bouquet. Her Royal Highness expressed her admiration of all the productions of the Forest Hill firm.

The Potato Crop in the United Kingdom is on the whole somewhat more satisfactory than at the corresponding period of last year. In England the crop is about equal to that of last year, in Wales it is hardly so good, while in Scotland it is decidedly better.

The Co-operative Flower Show will be opened at the Crystal Palace on August 19, when Earl Grey will deliver an address to a gathering of workers in the co-operative movement. The exhibition will as usual extend over two days.

NEW PLANTS, FLOWERS, FRUIT, AND VEGETABLES.

VIOLAS.

THE trial of violas at Chiswick was examined by the Floral Committee on the 5th inst., when the following varieties received three marks (× × ×), which may be regarded as equivalent to an award of merit :—

Miniature Wragment, a dwarf growing and free flowering rayless viola; flowers palest cream colour, well formed and very fragrant; a rather large miniature form.

Diuna, very dwarf but robust; flowers large, bright rosy-lilac; lower segments shaded with white at the base, and having a few violet rays.

Jackanapes.—This is a popular viola in many gardens by reason of its freedom of flowering, dwarf habit, and bright blooms; the latter have the two upper petals rich crimson, and the others yellow.

J. B. Riding, a handsome viola as long as it keeps true; dwarf in habit and free flowering; flowers of good shape, rosy-plum colour, very effective.

Sir Robert Pullar, a splendid bedding variety of robust habit, and producing plenty of large purplish-blue flowers that are carried well above the foliage. The foregoing were received from Mr. Forbes, Hawick, N.B.

Countess of Hopetoun, one of the best of the white violas for bedding purposes, good constitution; flowers abundant and of good shape.

Bullion, a very dwarf and compact habited viola producing an abundance of medium sized deep golden-yellow flowers, rayed with very dark crimson.

Marchioness is a beautiful viola with soft white flowers that have a yellow eye; the habit is good, the flowers large and freely borne on long stalks; a grand bedder.

Mrs. H. Bellamy, a handsome form with rounded flowers; three lower segments deep violet; two upper ones violet at the base, but with a very pale blue border.

Iona, an effective viola, dwarf and free, upper segments blue with darker veins; side segments blue with violet basal blotches; lower segment violet with a central blue segment.

Mrs. C. F. Gordon.—This is coloured much as is Iona, save that the blue is very pale, almost lilac in some flowers.

Duchess of Fife, a free flowering fancy viola, upper segments creamy, bordered with blue, three lower segments yellow, with a very irregular blue border; very showy.

Hamish, a pretty viola with rounded flowers; the three lower segments are deep rosy-purple, the upper segments much paler.

Princess Louise, a dwarf grower, but producing a profusion of soft canary yellow flowers that are mostly rayless; flowers rather small.

Blue Gown, a splendid bedding viola of very dwarf habit, fine for carpeting. Flowers soft blue, freely borne just above the foliage. The foregoing ten were received from Messrs. Dobbie and Co., Rothesay.

LETTUCE CRYSTAL PALACE.

A large and early cabbage lettuce of the Drumhead type, but a fortnight earlier than that form. It produces fine solid hearts, crisp and tender, and of good flavour. Colour pale green, leaves with crenate margins. A.M., R.H.S., July 5. Messrs. Watkins and Simpson, Neal Street, Long Acre.

STRAWBERRY REWARD.

A second early strawberry of moderate growth, producing, this season, a moderate crop of medium-sized oblong fruits that are bright scarlet both outside and in. The flavour is very fine, reminding one of the pine. A.M., R.H.S., July 5. Messrs. Laxton Brothers, Bedford.

PEAS.

Thos. Laxton.—This is a straight-podded variety with well-filled pods of wrinkled deep green and very sweet peas. It is a good cropper, early, and grows about three and a-half feet high; haulm strong. A.M., R.H.S., July 5. Messrs. Laxton Brothers.

Drummond's New Pea.—A heavy cropping early pea, bearing pods in pairs; peas bright green, sweet, and highly flavoured. Moderate in growth; about four and a-half feet in height. A.M., R.H.S., July 5. Messrs. W. Drummond and Sons, Dawson Street, Dublin.

Veitch's Acme.—This grows about three feet high, and has produced a very heavy crop at Chiswick; the pods are in pairs and well filled with large deep green peas of excellent flavour. The variety was produced by crossing Stratagem and Veitch's Extra Early. A.M., R.H.S, July 5. Messrs. J. Veitch and Sons, Chelsea.

STRAWBERRY VEITCH'S PROLIFIC.

A good mid-season strawberry, vivid scarlet in colour, wedge-shaped, and of large size. It is a grand cropper, and produces luscious, highly-flavoured, white-fleshed fruits. The variety is the result of crossing British Queen with Empress of India. F.C.C., R.H.S., July 12. Messrs. J. Veitch and Sons, Chelsea.

SENSATION CUCUMBER.

A fine cucumber, much fleshed, of good size, and blunt ended; previously described in these columns. F.C.C., R.H.S., July 12. Mr. S. Mortimer Rowledge, Farnham.

ROSE EDITH TURNER.

A beautiful h.-p. rose, with large, slightly-pointed flowers of a delicate blush colour, and deliciously scented. The petals are very broad and full, margins rounded. A.M., R.H.S., July 12. Mr. C. Turner, Slough.

ROSE PERLE DES ROUGES.

This is a beautiful polyantha rose, exceedingly free-flowering and producing much-branched clusters of rich crimson flowers, the bases of the segments being shaded with deep rose. A.M., R.H.S., July 12. Messrs. W. Paul and Son, Waltham Cross.

ASPLENIUM ORNATUM.

A very handsome dwarf-growing spleen wort, with very deep bronzy-green fronds, that have the pinnæ deeply laciniated; this is a fine form for use as a table plant, and its appearance suggests that it will last well. F.C.C., R.H.S,, July 12. Mr. H. B. May, Edmonton.

SWEET PEAS.

Aurora, a very bright pink variety, with large bold standard, veined and streaked with red.

Golden Gate, a pretty hooded form, with several shades of blue in the standard and wings; keel tipped with pale greenish-yellow. A.M., R.H.S. to each, July 12. Mr. F. S. Foster, Havant.

ABIES PUNGENS GLAUCA PENDULA.

This is a graceful drooping form of the now fairly well-known glaucous variety of Parry's abies or Abies pungens. The glaucous hue is finely developed, and altogether the plant is a most beautiful one, and a variety that should become deservedly popular. F.C.C., R.H.S., July 12. Messrs. Koster and Co., Hollandia Nurseries, Boskoop, Holland.

CARNATIONS.

Sundridge, a lovely soft crimson-scarlet variety with flattish flowers composed of broad and rounded petals. A.M., R.H.S., July 12. Mr. F. Tapper, Sundridge Park.

Nell Gwynne, a fine and full white carnation, free in habit, and with crinkled edges to the petals. A.M., R.H.S., July 12. Mr. J. Douglas, Great Bookham, Surrey.

Mrs. Martin Smith, a magnificent malmaison carnation with huge silvery rose flowers that have broad petals of the finest substance. The habit of the plant is good, both strong and free.

Calypso is another of the Hayes seedlings, a malmaison carnation of the finest quality having fine big white flowers with the petals delicately veined and marked with deep red. A.M., R.H.S., to each. Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, Kent.

KALANCHŒ FLAMMEA.

This new succulent has been referred to in our columns (G. M., August 14, 1897, p. 497), in connection with its flowering for the first time at Kew. The species was discovered by Mrs. Lort Phillips and Miss Edith Cole in Somaliland, and they sent seeds to Kew in May, 1895. The plant is dwarf, as compared with some other species, growing only about a foot high; the stems and the obovate leaves are pale-greyish green, the latter being about three inches long by nearly two inches across. The inflorescence is a terminal corymbose cyme, four to five inches in length and breadth, bearing a large number of flowers, each half an inch long by three-quarters of an inch across; tube pale yellow; spreading, four-lobed mouth, vivid orange-red. Kalanchœ flammea appears likely to make a more popular plant, horticulturally, than any of the other species cultivated. *Bot Mag.*, 7,595.

AUSTRIAN BRIARS.

AMONGST all the real old-fashioned summer flowering roses, none are so beautiful and distinct as the Austrian Briars, and although they may claim to be amongst the earliest roses cultivated in our English gardens, yet even to-day we have no varieties that excel them in the beauty of the colouring of their flowers. Some twenty years ago these briar roses had almost gone out of cultivation, and were only occasionally found in old gardens and seldom seen quoted in rose catalogues; indeed, the writer well remembers a bunch of the Copper variety being exhibited at one of the Royal Horticultural Society's meetings, when at least one well-known rosarian acknowledged that he had not seen it before. Now, thanks to the growing taste for garden and old-fashioned roses, which has been helped by the classes introduced, and the exhibits at the National Rose and other shows, and these and many other beautiful old varieties, which had almost been forgotten, are again being fairly distributed amongst rose collection.

Of the Austrian Briars, as generally known, there are four varieties —two single and two double forms. The single varieties being Rosa lutea, the Yellow Austrian Briar, and Rosa punicea, the Copper Austrian Briar. These two varieties have been known in England for upwards of three hundred years, and are also found growing wild in some parts of Europe. Rosa lutea is of a beautiful clear, rich shade of yellow, quite distinct in shade to any other single or double variety. R. punicea, the copper-coloured variety, is of a coppery orange-scarlet in colour, with shaded under petals, the tints running one into the other, so much so that it is difficult to describe the gorgeous blending of those rich colours which make this one of the most distinct roses known. Both of these single varieties flower very early, sometimes soon after the middle of May, and when grown in quantity are most useful for supplying cut flowers, the unique shades of colour rendering them most popular with ladies for vases and table decorations.

The double varieties are Harrisoni and Persian Yellow. Although known as Austrian Briars, neither of these varieties originated in Europe. The first named was raised in America, and is said to be a cross between Rosa lutea and a Scotch Briar. It was introduced in 1830. In colour it is of a fine clear golden-yellow. The Persian Yellow was sent to England from Persia by Sir Harry Willock in 1837. It is deeper in colour than Harrisoni, not quite so large, but more double.

The Austrian briars are extremely hardy, and do remarkably well with proper treatment, in the most exposed positions. They may, perhaps, prefer a dry soil. One occasionally hears complaints of their not flowering, and this in most instances is to be traced to want of care in pruning. These varieties, like many other summer-flowering roses, should not be pruned at all in the spring; it must always be borne in mind that they bloom entirely upon the growth made the preceding season, and even to top the shoots is to cut away the flower. Immediately after flowering is the time to prune, the old shoots should then be shortened, some of them cut away altogether, and fresh growth encouraged to form the flowering shoots for the following season's bloom.

All the Austrian briars are very effective for grouping and bedding where rich effect in early summer is desired. Clumps of three or four of a variety planted together, and the long shoots pegged down, will flower from every joint, and are most showy in the rose border. Tall standards of all the varieties, with the shoots tied to wires to form weeping roses, are very novel and striking; and even as pot plants for late spring flowering in the conservatory, if suitable plants with long shoots are selected in the autumn and potted, the shoots being bent and tied round small stakes, beautiful little specimens, which will be covered with flower, may be had in March and April.

Bath. W. F. COOLING.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

It is not often that I indulge myself in a course of preliminary pen-biting and thumb-twiddling when I sit down to write, but on the present occasion I find myself labouring under as severe an attack of that juvenile malady as ever I had in my novitiate. The reason of this, if you please, is nothing more nor less than a pull-devil, pull-baker contest as to whether I shall or shall not touch on roses at this particular season. His satanic majesty suggests that everybody must by this time be heartily sick of roses, while the floury one stoutly contends that as the season is yet far from through, rosarians have only got their appetites nicely whetted. Between the two of them I am at a standstill.

On the whole, I am inclined to let the specialists have their innings. If they cannot write about roses ever so much better than people who are not specialists they think they can, which comes to about the same thing. And this reminds me what a humourous study is the attitude of the specialist towards the non-specialist when the latter ventures on the sacred preserves. Sometimes it takes the form of jocular scepticism, sometimes of good-natured toleration, sometimes of genial indulgence, sometimes of tremendous sarcasm, but never of serious attention. It is not so long ago that I had a great rosarian in my garden, and to him I ventured—greatly daring—to address a few comments on rose practice which are not in the rose books. He listened with a bland and beaming abstraction, said "Dear me!" at the end, and immediately afterwards began to talk with great animation to a young solicitor who had won a fourth prize at a local show, and was, therefore, one of the elect. And what do you think was the burden of their eager converse? Whether my pet A. K. Williams would rank as a one or a two point flower! This about a bloom which I honestly believe would have won the medal at the National was too much.

Perhaps, however, this sort of thing is only a just Nemesis. Outsiders always say that horticulturists look down upon them from a higher plane of being. Therefore, when the camp sub-divides and one section looks down on another, the same principle is being applied to the sinners themselves. It is capital sport to beguile a rose specialist, who has been lording it over you, into a carnation or chrysanthemum show, introduce him to an enthusiast, and leave him to his fate. If he be an all-commanding floricultural genius—an F. D. Horner, let us say—he may come through the ordeal triumphantly. But F. D. Horners are few and far between, and as a rule he has a bad quarter of an-hour before the hollowness of his pretensions are exposed.

Let me hasten, however, to something practical, lest trouble befall me. Some time ago, after venturing on a few brief reflections, which hadn't any particularly practical end, I was admonished by a post-card, which was somewhat to the following effect: "Look here! If you are 'Lux' stop that fancy jaw and give us something sensible." The young recipient was not the time-worn Lux, but he contrived to get this painful thrust passed on until it reached the right party, who, happening to have taken professional pride in the matter thus contemptuously derided, was badly mauled. My first practical point is about strawberries. I have said so many good things about Royal Sovereign that I cannot be said to have a bias against it in giving utterance to a bad one. It is not altogether pleasing many of the chief market men, and this because it matures so rapidly that unless they can tackle it all at once it is gone. Paxton's develop more gradually, and are therefore more convenient for gathering and marketing. It looks from this as though the process of displacement which was going on between the two great rivals may be checked. Any way, large growers may thank me for the hint to proceed with caution in extending one at the expense of the other.

The Editor deals with the delicate subject of lawns in a recent note. I choose the adjective purposely. Trimness is not everything in a lawn. You may shave some lawns as rigorously as you do your own chin of a morning, and they never possess that indescribable fineness and delicacy which a perfect lawn exhibits. The perversity of people on this subject is very remarkable. I could not help wondering, as I read of the gentleman who objected to freshly turf or seed his plot on the score of expense, but fell readily in with the reserve plan of mending it piecemeal, how much he was in pocket when the grass was at last put into respectable condition. This lawn-patching is doubtful economy. It is not so much the odd bits of seed nor the odd bits of soil which cost money, as the time consumed in the fetching, carrying, and applying. However, his refusal to do the thing thoroughly had an advantage for the public if not for himself, for it enabled an instructive experiment to be made. The mention of phosphates reminds me of a wonderful crop of hay just garnered by a friend who adopted a suggestion of mine to dress with steamed bone flour. It is, indeed, a remarkable crop, even in what is recognised as a good hay year. The Editor mentions "bone meal." Perhaps that would be better still as containing rather more nitrogen.

Mr. D. T. Fish writes, in his usual interesting way on the subject of "fruit production." I got along capitally with him (as I nearly always do, by the way, either in the press or in person), until I came to the last paragraph, and then I began to sniff powder. Fruit trees, says Mr. Fish, suffer more from want of water than want of food, and then he proceeds to say that drought at the roots shrivels off thousands of blooms and embryo fruits. Wrestling with a slight ambiguity of expression, I came at last to the inevitable assumption that drought is suggested as a leading cause of imperfect setting and swelling. But I ask, When has fruit gone off as it has done this year? And when have we had a more saturating spring? It must be many a year since the two things have run in a more significant double harness. In all my experience I have never known a more disastrous sweep of all classes of orchard fruit as 1898 has presented us with. How, therefore, anyone can advance drought as the cause passes the comprehension of ordinary mortals, and even transcends the massive intellect of that heaven-sent genius, Peter.

Peter, let it be known, has a theory of his own. You remember the story of the journalist who determined to thwart the cunning scheme of the policeman who desired to keep midnight skulkers off the seats in the square. Robert soused the seats with water, but when he saw a respectable newspaper man there he was obliged to hold his hand. However, he routed the interloper with the whispered warning "insecks." Similarly, when I asked Peter to give his views on the question of fruit loss in or just after the blossoming stage, he responded—"insecks, sir." Peter points to the excess of blight this year, and expounds his theory with such unbounded conviction that I know it is useless to argue with him. I weakly imagined I had presented him with a poser when I pointed out that the imperfect bloom was there before the insects, but he shattered this by asserting that the flowers would have stiffened up right enough if the blamed varmint would have let 'em; he'd known 'em do it many a time. What can I say to this?

It no doubt pleases "A.D." to ask for the papers of the "senior wranglers" in horticulture, whose names have been recently published; but it would have been more to the point if he had suggested that there should be an examination in practical work. I shall not recapitulate former arguments in favour of this cause. Suffice it to say that such arguments have been advanced and never refuted. I do not know that I should refer to the matter at all, well aware though I am that I have a strong mass of opinion behind me, were it not that some people construe my attitude into one of hostility to the principle of theoretical study root and branch. Rubbish! What I contend for is a happy harmony of practical skill and intelligent scientific aptitude. It may be difficult of attainment, but it is certainly not impossible. Now, with a mere paper examination you can never be sure you are turning out the right material. A skilful crammer may upset all your calculations. On the other hand, while an examiner is putting a series of candidates through a practical test, he can ask for reasons for each task, and so test theory at the same time.

LUX.

ROSES IN DECORATIONS.

As far back as we have any history of the rose, it has been one of the most popular of flowers, and one used most extensively to decorate the festive board and hall at the principal public and private gatherings of those nations in whose lands it grew freely. The rose has ever been admired by those who loved beauty of form and colour, and delicious fragrance, consequently we find that at the present time roses enter more largely into the composition of floral designs than they ever did. This is not to be wondered at when we consider how rapidly the taste in floral designs and decorations has advanced and improved during recent years; then, of course an additional incentive to the popularising of the rose for bouquets, baskets, table decoration and personal adornment, has been the continual increase in the number of delicately-tinted roses possessing fragrance. Indeed so wide is the colour range we now possess in roses, so numerous the charming half-shades, and so exquisitely beautiful the combinations of colour seen in many of the noisette tea-scented and hybrid tea roses, that there can scarcely be anyone who cannot be supplied with a rose, or roses, suitable for association with any colour that may be presented by vase or basket, furniture or dress.

Roses were never more popular than now, especially for bridesmaids' bouquets, and for presentation baskets. What could be more effective than a combination of yellow roses with those that have a brownish shade, providing they are tastefully disposed amid bronzy foliage. It would also be difficult to imagine a prettier combination than that of the lovely pink Catherine Mermet with the rich crimson Duke of Wellington. Such combinations as these suggested are more generally admired than are baskets or bouquets of any handsome self-coloured rose, such as Mrs. J. Laing, Captain Hayward, Caroline Testout, Ulrich Brunner, A. K. Williams, Viscountess Folkestone, or Her Majesty, to enumerate only a few of those that are eminently suitable for floral decorations without the assistance of other varieties. Some of the self-coloured roses make charming displays when associated with white variegated, pale green, or bronzy foliage, according to their colour; thus pink roses and white variegated foliage go well together.

The greatest difficulty floral designers have to contend with in the use of roses is the lack of substance and rigidity in the stems. It is a great pity that so many of our most beautiful roses have such weakly stems and need to be wired, this process somewhat affecting their charm. Niphetos, Maréchal Niel, Safrano, and L'Ideal are sinners in this respect, and florists would be grateful to those who would raise varieties similar in colour, but producing flowers on long stiff growths. We want, for floral decorations, more roses of the class so ably represented by The Bride, Catherine Mermet, Bridesmaid, Captain Hayward, &c., for not only would such prove a great help to decorators, but they would prove much more effective when cut, and used unmounted, with long stalks, than those with limp stems, and which have to be wired into position.

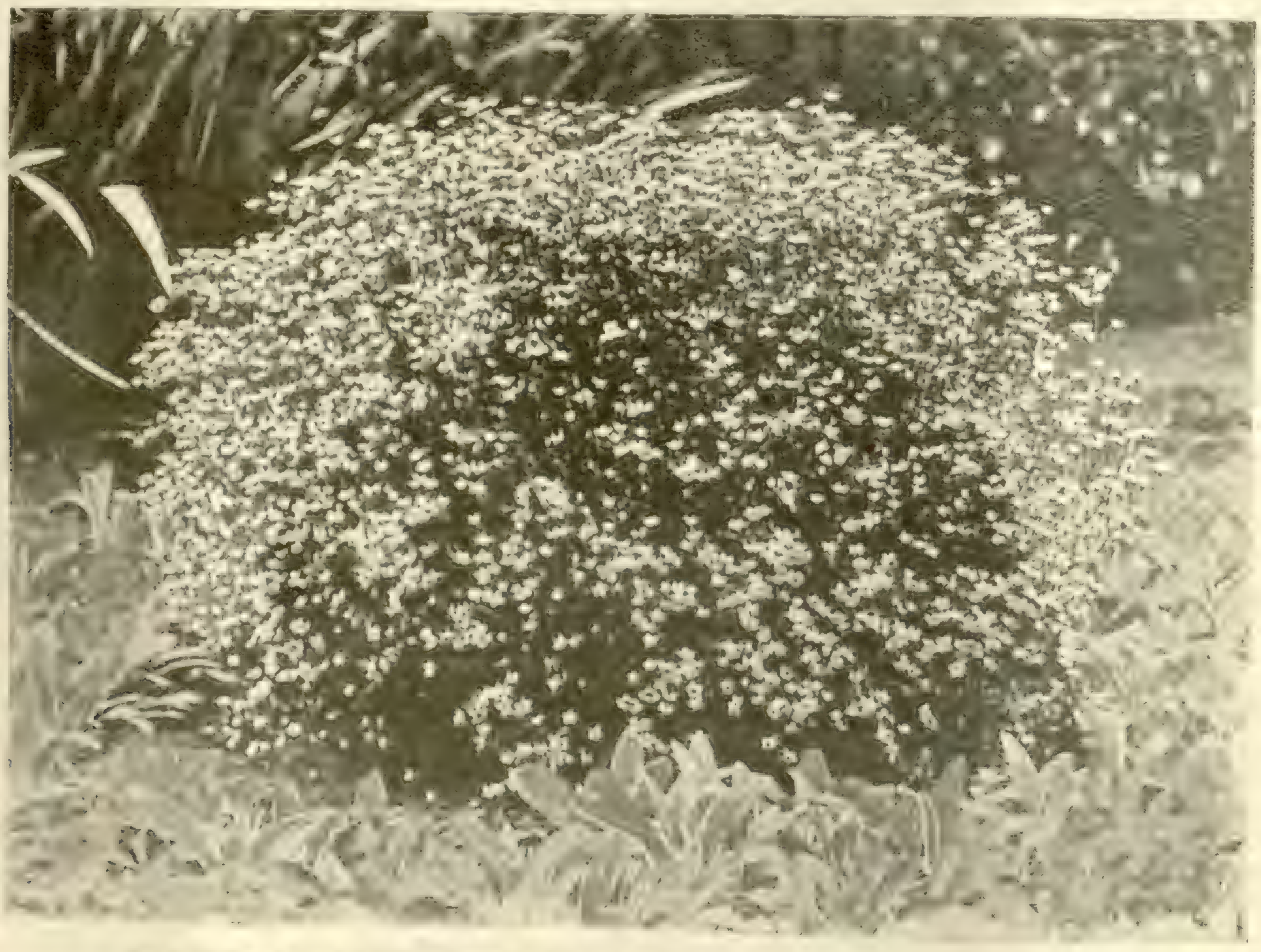
That comprehensive section known as garden or decorative roses, contains many varieties that are of the greatest possible use in making up bouquets, corsage and hair sprays, buttonholes, &c., for in the bud state they are surpassingly beautiful and easily manipulated. A few of the best include W. A. Richardson, L'Ideal, Homere, Madame Chedane Guinoisseau, Ma Capucine, Safrano, Laurette Messimy, and Coupe d'Hebe.

Coventry.

H. A. PERKINS.

SAXIFRAGA HYPNOIDES.

One of the prettiest and most easily grown of the mossy saxifragas is the British species S. hypnoides, known as the Dovedale Moss, or Eve's Cushion. It is a very variable species, so much so that some of its forms have at times been described as species. Sir J. Hooker, in his "Students' Flora of the British Isles," writes: "I have repeatedly studied the forms of S. hypnoides and its allies, and always with the result that the passage from hypnoides proper to cæspitosa is undefinable." In the higher hills and mountains of Somerset this saxifraga is fairly common, but it is more abundant in the highlands of Scotland. Apart from its effectiveness when in flower, S. hypnoides is a most useful rock plant because of the dense mossy growth it produces, which is of a lively green hue throughout the winter. In country gardens one may often see the species used to cover the front of a low rockery, especially in cottage and villa gardens. It is not at all particular as to position, but it prefers an exposed, or at least a half-shaded, position, whether grown in a rock garden proper or in a butter tub, as shown in the illustration. The specimen figured is the pride of a good lady whose villa garden in the Canterbury Road, Croydon, contains many homely plants well grown. It is planted in a butter tub, and has flourished so well that the tub is completely hidden by the overhanging mass of mossy growth. When in full flower during June and July there is a mass of white blossoms that draws the attention of every passer-by, and probably the majority never for one moment think that the plant that delights their eyes is a native of our own land.



SAXIFRAGA HYPNOIDES IN A BUTTER TUB, AT CROYDON.

SHEAVES OF ROSES.

The question of exhibiting garden roses should prove a popular and useful subject for discussion in your columns, if room can be spared. That mass is might to win prizes seems to have caused the piling up of not a few sheaves of garden roses. When these classes were introduced not a few expected a great and decided development in the display of roses with artistic effect. These brilliant ideals have been doomed to serious disappointment. A few very creditable exhibits of garden roses have been made, but on the whole the last efforts of showing roses artistically have been worse than the first. When showing rose blooms singly the beauty, merits, or faults of single flowers not only could, but must, be seen by every open eye; but by showing garden or other roses in sheaves individual merit is hid, and no one can see the natural grace, form, or artistic beauty of the trusses because of their numbers. The more trusses in a bunch or sheaf of roses the less can each assert or show its individual graces or charms. As you point out in your recent editorial note, the National Rose Society stipulates that not less than three trusses of one variety shall be shown in a bunch of garden roses. It would be just as easy to add that not more than five trusses of any one variety shall be shown in a bunch. I prefer five to seven or any larger number of trusses, for the reasons already stated.

But the mere number determined upon is of less account than the fact that a definite minimum and maximum number of trusses should be insisted on throughout the entire class. Thus, so far as possible, placing all growers and exhibitors on a level of justice and opportunity. According to present rules, or lack of rules, the biggest growers have the prizes very much in their hands, and even this is a far less evil than this lumping on the show tables of garden roses through crowding ponderous sheaves of unlimited numbers of trusses. There are yet two other possible methods of checking this evil, worthy of consideration. One is to make the minimum limit of number of trusses of garden roses the absolute limit—three perfect trusses of a garden or other rose, would reveal its habit, character, and beauty, just as well as five, as if all were limited to three, there could be no hardship to any. The larger grower would still have his legitimate advantage in his wider field of choice for his best trusses.

There might also very properly be a class for single trusses of garden roses. Just because these roses differ so materially in size of truss and individual blooms, such a class would prove of great interest and educational value to the public at large. As I have said, over and over again, our present systems of showing hides individual merits and demerits under the blinding shelter of mere mass. This may give telling blazes of colour, or masses of verdure, but often leads intending planters widely astray as to the individual merits of species or varieties of roses. But exhibit each rose in single sprays or trusses of sufficient length, and place them sufficiently far apart for each to be seen clearly, and he who runs, or walks through the show tents, may read off their merits at a glance. Thus our best shows of roses would not degenerate into mere spectacular displays of colour for an hour or a day, but become schools of learning.

Edinburgh. D. T. Fish.

PEACHES OUTDOORS.

I feel compelled to respond to the remarks of "D. T. F.," given on page 422 of the Gardeners' Magazine, where he comments upon my methods of procedure in peach growing. I am very pleased to tell "D. T. F." that in spite of my unorthodox style (as he terms it), I have a lovely lot of fruit, the trees are the picture of good health, and I shall be pleased for him or anyone else to see them. The trees do not look as though they had been treated very badly, or on any "erratic" system. I must point out that in my letter of May 14, I did not write two ounces of carbolic soap, but two pounds, that is just thirty ounces different; and also add that my practice of cleansing at the start is quite justified by results. The reason I use warm water is that it is one hundred per cent. more effectual upon insects than cold; I thought most practical gardeners knew that; rose growers do. We start washing the trees early in the morning, say, at ten o'clock, so that they are nicely dry before nightfall. Nothing at all is gained here by leaving any protection over the trees after May has come in; in fact, it does more harm than good. What is the covering put over for but to protect the blossom? So, after that is safe, the less coddling the trees receive the better. It is at this stage that the trees become badly crippled, and are almost certain to be infested with aphis, which must be eradicated before the trees will start into growth. I have this season seen trees badly crippled through this cause.

On several occasions I have expressed in these columns my opinions and experience with reference to disbudding, but I do not remember ever stating that this operation should be performed in one act, quite the reverse. I have said that disbudding should be commenced very early, as soon as the shoots can be handled, and I adhere to that system, for from my own experience it is the most advantageous, as it certainly gives a better chance to those shoots left, to say nothing about the fruit. I have been wondering what the trees would look like after having been covered up with bracken, asparagus tops, or other thick material, and this close on the tree; and how is it possible for trees to be healthy under such conditions? I consider a fish net a much more effective method, and put two feet away from the wall, one can walk under and examine the trees. This is not much covering, but it is effectual, and further proof is not necessary. I have grown peaches here for ten years, and have never yet had a failure either in or out-of-door crops. When I took charge I was informed that peaches would not do here, but I was allowed to make a fresh start, and the results have been gratifying to all concerned.

Combton Bassett, Calne, Wiltshire. W. A. Cook.

THE QUEST OF THE BLUE ROSE.

THE rose has been justly described as one of the grand prodigalities of Nature; and the poetry and romance of Europe and the Orient have awarded it the first place in the world's wide garden. In his own manner, Herrick tells us that it was in a floral parliament—sitting, no doubt, in "the month of roses"—that the rose was voted the Queen of Flowers. Man has ungrudgingly accepted her sovereignty, but for ages seems to have been haunted by the idea of changing the contour and colour of her diadem. Following in the footsteps of Baptista Porta he seeks to add yet another shade to the damask beauty whose natural graces are deemed inadequate for exhibition and prize purposes. It goes for little that we have had a "black damask" rose for so many years that it is quite out of date; or that we have many varieties whose splendid depth of colour seems to shade into blackness. A Russian rose-grower has, as all the world has just been assured, succeeded at last in producing a black rose. The news may stand for what it is worth; and, leaving this particular flower of Erebus to the care of its cultivator, it is, a writer in the *Globe* so well states, more interesting to turn to the line of the true quest—the aspiration for the rose that shall be "darkly, deeply, beautifully blue."

Now, the rose-grower is subject to so many natural disquietudes that it would seem to be a sheer act of folly gratuitously to add to them. In some seasons the "green fly" alone is enough to deprive him of his natural rest. Then there are the recondite points of arbitrary excellence to which—if he aspires to fame—his blooms must strictly conform. Finally, he falls under the potent spell of the colour mania, in regard to which he realises the truth of the axiom that "Man never is, but always to be blest." Though there is no authentic record of the "issue" of a blue rose, it is not for want of the most strenuous and long-sustained efforts on the part of the seekers. Considering that the quest dates at least from the time of the Moorish dominion in Spain, and that the experimentalists are still busy, few will grudge them the solace of hope. Moreover, the search may be said to be animated by the impulse of perpetual youth, which manfully takes up the running as the elders drop wearied by the way—

> "Youth, a breeze mid blossoms straying,
> Where hope clings feeding, like a bee."

The bee is admittedly the florist's greatest natural ally: but even his active industry has not yet availed in hastening the era of the blue rose. Scientific men, indeed, declare that the bee has an instinctive preference for blue flowers; though he is too busy and practical an insect to attempt their production on his own account. If any comfort is to be found in didactic quotation the rose-grower may experience it in the assurance that "all things come to those who wait." But, alas! it is not always the things waited for that come. A blue orchid has been discovered, and a blue dahlia has long been an object of desire. But the blue rose is admittedly the highest aim of the floral discolourist, simply because it seems to be the most difficult of attainment.

Probably the quest has been pursued with the greatest assiduity in France. Already our neighbours claim the "invention" of innumerable charming varieties, including the striped and the so-called black or purple rose; and paragraphs not unfrequently appear in their newspapers announcing the advent of "a natural rose of blue colour." But though the tint of a particular bloom may momentarily flatter the fond idea, the plant itself has hitherto declined to conform to the wishes of its cultivators. Not long since an eminent French florist offered a prize of 30,000 francs to anyone who could produce a plant on which blue roses would bloom. The terms of this offer were obviously intended to eliminate the mere "fakers" of flowers, who, by means of chemical agencies, often temporarily influence the colour of a particular bloom, or the tendency of a single plant to produce flowers of that shade. We know too well how easily the ingenious purveyor is enabled to modify the natural colour of milk. "Sky blue" is attained by a method of such rare and patriarchal simplicity, that it is impossible now to give the palm to its great originator. But the cow that shall voluntarily produce blue milk is yet to be discovered. So it is, happily, with the rose tree; and the prize offered by the discriminating Frenchman is still unawarded. Science so far declares that the quest is a vain one, and that florists are destined to "table" a blue rose only on the occasion when the Zoological Society exhibit their first phœnix. Nevertheless, the enthusiastic rose-grower will not take "no" for an answer. Flower crazes of all kinds are said to develop a well-marked kind of "ferocity" in the bosoms of their votaries; and we are assured that the amateurs of tulips have in their time been the most ferocious of all. But no mania has persisted for so long a period as that displayed in the quest of the blue rose. Nor is it "little men" only whom it has infected. Under the date of September 18, 1840, a book of French reminiscences says: "We had Balsac to dinner. He is quite mad. He has discovered the blue rose for which the Horticultural Societies of London and Belgian offer 500,000 fr. reward, and he will sell the seeds at 5 fr. each." Happily, Balsac had something better to do, and left the roses to their untutored ways.

If the Darwinian theory is correct, all flowers were originally green; and having through the vicissitudes of time, soil, and climate gradually whitened, have progressed through yellow into red. Comparatively few have achieved the final greatness of blue, and fewer still have allowed it to be "thrust" upon them. But "nil desperandum" is especially the motto of the florist, who still regards the blue rose as in some sort the "blue riband" of the floral world. It is many a year since Dr. Lindley told the student how a blue flower will change to white or red, though not to yellow; and that a bright yellow flower will become white or red, but never blue. Nature is, in fact, parsimonious in blue, which is probably the main reason why the enthusiast is so desirous of imposing it. But though the blue rose has not yet arrived, green roses have been exhibited on several occasions. Of these, however, beyond being a nine days' wonder, nothing seems to have come; and they are probably a sign of floral degeneracy rather than advance. And if by any possibility the blue rose were obtained, it would seem more likely to revert to an early stage of its colour development than that the imposed shade should become fixed and inherent in its descendants. Gerard, the herbalist, records some of the attempts of a friend in this direction; but he soon comes to a pause with the significant remark that "to recount his experiments were to roll Sisyphus' stone, or number the sands."

The old-world gardeners used sometimes to plant rue, or other ill-smelling plants, near the rose, under the belief that they imparted to it a sweeter perfume. But the scientific floriculturist who seeks to influence the colour of flowers works by much more recondite means. Instead of a potting-shed he requires a laboratory. His "stimulative agents" include several of the salts of iron and zinc, arsenic, ammonia, sulphuric ether, picric acid, and some of the aniline series of dyes. Alum and iron filings are frequently employed, and by some of these, or by other means, he has given us primroses of "slaty blue," and has even succeeded in bestowing a "blueish" tint upon other flowers which only too plainly resent the treatment. A native rose found in the Philippines is said to be pure white from dawn to about ten, when it begins to turn pink, until by five o'clock it is of a perfect rose colour. It seems a pity that it cannot change to blue by sundown. Then the "blue rose man" would be freed from the incubus of his quest, and might in time learn to say with the poet—

> "I'll take the showers as they fall,
> I will not vex my bosom;
> Enough, if at the end of all,
> A little garden blossom."

BUTTON-HOLE ROSES.

IN the year 1885 the committee of the N.R.S., at their metropolitan show, introduced a class for buches of roses suitable for button-holes. No doubt my having had an unbroken record of success as an exhibitor in this class from that time accounts for our esteemed Editor's request for a few notes on the subject of "Button-hole" Roses. It is a pity that other societies have not followed the N.R.S. schedule, for as with garden roses, the lovely bunches of these pointed buds, gracefully arranged, make a charming addition to a show, and take off the stiffness created by long rows of cut blooms.

It must be admitted by all lovers of flowers that the rose is the universal favourite button-hole flower. Of all classes of roses the tea family, in my opinion, take the lead for this purpose, and for many reasons. They are almost the first to bloom, and are certainly the last to leave us. Again, it having been proved of late years that their constitutions are almost as hardy as many of the H.P.'s, they can be grown in any garden where the soil is warm and dry without being coddled in winter blankets, as was once thought necessary. Their many varied and delicate tints of colour and long, pointed buds also commend them. In giving a list of the varieties most suitable for button-holes I will not weary readers with a description of each variety. That can be easily obtained from any rose catalogue.

The following varieties are the best in the tea class: Amazone, Anna Olivier, Corinna, Isabella Sprunt, L'Ideale, Ma Capucine—this is probably the most beautiful of all the fancy coloured tea roses; the colour is very difficult to describe, being a bronzy yellow and orange-scarlet; very free-flowering, but a moderate grower—Madame Charles, Madame Chedane Guinoisseau, Madame Falcot, Madame Hoste, Madame Lambard, Madame de Watteville, Marie Van Houtte, Niphetos, the best white for growing under glass, but very few succeed with it outside; Papa Gontier, Rubens, probably the best of its colour, with exquisite long pointed buds, flowering and growing very freely with us; Safrano, Sunset, and W. A. Richardson (noisette), which is by no means to be despised.

The hybrid teas form a class that is rapidly coming to the front among roses generally, and certainly containing a few varieties very suitable for buttonholes, the following being the best: Camoens, Gustave Regis, Madame Pernet Ducher, and W. F. Bennett. The latter variety is very little known, but is a most reliable and early-flowering rose with us. Among the polyanthas we have two of our most exquisite miniature varieties, viz., Cecile Brunner and Perle d'Or. In the Chinas is found one of the best varieties in Laurette Messimy.

Coming to the H.P.'s, although this class cannot boast such a variety in form and colour as do the teas, still we cannot afford to despise them, as it is to this class we must go for those deep velvety-crimson kinds so much admired, and among which the following are the best: General Jacqueminot, Fisher Holmes, Victor Hugo, Prince Arthur, and Prince Camille de Rohan.

In growing buttonhole roses, no particular care is required in their culture; one thing should, however, be remembered, and that is, do not prune too hard, particularly such varieties as Marie Van Houtte, Madame Hoste, Madame Lambard, &c., these being exhibition kinds. To those who are not at all familiar with the growth and habit of any of the above varieties, and who intend planting during the coming season, I would recommend the following dozen as being very good, and certain to give good results: General Jacqueminot, Fisher Holmes, Papa Gontier, Laurette Messimy, Madame Lambard, Anna Olivier, Gustave Regis, Madame Chedane Guinoisseau, Madame Falcot, Madame Hoste, Rubens, and Marie Van Houtte.

Oxford. J. R. MATTOCK.

THE QUEEN'S DIAMOND JUBILEE CUP FOR ROSES.

ALL the rosarians who read the GARDENERS' MAGAZINE, and they are legion, will thank you for your representation of this handsome cup, which honours her gracious Majesty the Queen as well as the winner. After a severe contest Mr. Benjamin R. Cant has won the cup for two years in succession, and is now able to place it for good in the chief place of honour amid his marshalled hosts of these trophies that so richly adorn his beautiful home, environed on all sides with tens of thousands of roses. As an old friend and neighbour of Mr. Cant's for many years in East Anglia, who has noted with intense interest and pleasure his rise, progress, and brilliant success, will you kindly permit me thus publicly to congratulate him on this crowning victory of his great career. Most rosarians were disappointed to find the honoured name of the veteran B. R. Cant omitted from the Jubilee medallists. To hold the Queen's Jubilee Cup by his own merit is, however, a higher honour, and all his rose comrades and friends will join in wishing him long life and better health to enjoy his last and highest as well as his many other well-merited honours. In looking through the list of roses on page 417 one is delighted to find that the Queen's Cup, in the main, was won by old and well-established varieties, seasoned here and there with such novelties as Medea, Golden Gate, Helen Keller, Mrs. W. J. Grant, &c., and that among the older varieties, with a history of twenty three years, was Prince Arthur, one of the several fine roses introduced by Mr. Benjamin Cant, who always grew this, his favourite seedling, as he did so many other roses, better than anyone else.

12, *Leiter Row, Edinburgh.* D. T. FISH.

NEW HYBRID CYPRIPEDIUMS.

SINCE the discovery by amateur orchid growers that cypripediums could be cross-fertilised almost as readily as cucumbers, and be followed by seed almost as surely, there has been a tremendous lot of cypripediums raised. Unfortunately, during later years, very many of these orchids have been in no degree better than those previously raised, and there has been too general a use of the same species or varieties; the natural result has been that the variations have, broadly speaking, been slight, and a casual observer would think cypripedium hybrids and crosses of any distinction could not in future be obtained. Occasionally, however, a new and distinct cypripedium, artificially produced, makes its appearance, and proves that there are combinations not hitherto effected, while a study of the genus affords still further proof.

Two very distinct hybrid cypripediums were exhibited by Messrs. Hugh Low and Co., Bush Hill Park, Enfield, on June 28 last, and both received the award of a first-class certificate at the hands of the Orchid Committee of the Royal Horticultural Society. C. Mrs. Reginald Young is a remarkable production, obtained by crossing C. Lowi with the pollen of C. Sanderiana; it has a pale yellow dorsal sepal veined with rich brown. The petals stand out from the flower for a couple of inches before drooping, this making a wide arch; these are narrow, whitish at the base, blotched and spotted with purple that fades towards the apices into deep purple-brown. The short labellum is wide and full, rich burnished brown in front, shading to purplish rose behind. It should be added that the petals are nearly eight inches long and slightly twisted.

C. I'Ansoni is a splendid new cypripedium, with large bold flowers that betray their parentage. C. Morganiæ, itself a hybrid between C. Stonei and C. superbiens, was the seed parent of C. I'Ansoni, C. Rothschildianum being the pollen parent. The oblong-ovate dorsal sepal has a shining, whitish ground, tinted with rose, and on this are curving lines of blackish purple, composed of contiguous spots; the lines on either side of, and next to, the medium one are shorter than it by one half, the next beyond are longer, and so the lines alternate in length to the margin. The ventral sepal is about the same size, and almost as finely coloured as the dorsal one. The petals, drooping gracefully, are very attractive, they are fairly broad at the base, but narrow gradually towards the apex; the ground colour is palest green, with a suspicion of yellow, and on this are numerous claret-purple spots, some of them inclining to purple-brown. As already stated in these columns, C. I'Ansoni bears the name of a well-known orchid foreman at Messrs. H. Low and Co.'s nurseries. Both these new cypripediums are decided acquisitions, as a glance at the accompanying illustration will prove.

FRUIT PROSPECTS IN THE NORTH.

THE most notable crop of fruit in this district of Northumberland for trade purposes is the strawberry, and it promises to be more than an average crop. We have had some timely showers since the month of May, but no severe frost when the plants were in bloom. Yet the weather has been very changeable, with a low temperature. The strawberries are very healthy and in a vigorous condition, the earliest kinds ripening some fine fruits. Royal Sovereign has proved itself to be the earliest, and best that we know of. It is some days earlier than John Ruskin, and altogether finer, with a heavier crop. Last year we had an extra lot of plants layered in pots, and we planted them out a foot or so apart. These are now producing a splendid crop.

Of apples there are not large quantities grown for market, and the crop is irregular; some few kinds have heavy crops, others very light. It is rather early yet to say decidedly what the crop may be, as much small and imperfectly set fruit drops at the end of this month. Among codlins, Domino is specially good; Warner's King and Grenadier are good, but Lane's Prince Albert, usually producing a full crop, has this year a rather light one. Lady Sudeley promises to be an exceptionally useful dessert kind, planted in the open. Plums on walls have been attacked with green-fly more severely than we have ever seen before, and there was that curling of the leaf which makes it so difficult to destroy the pest while the fruit is tender. We apply insecticides moderately as soon after setting as we think it safe; and when not too cold, water from the hose is, we find, one of the best methods to destroy fly, followed by picking off the worst curled leaves. Vigorous, healthy well-fed trees are likely to outgrow this extraordinary attack, but those who have heavy crops set on badly-attacked trees should thin the fruit severely. We shall be obliged to thin our Victoria plums very much. After many years of varied experience, I am thoroughly convinced that heavy crops should be well thinned, as then the trees do not become exhausted in any one year, and one can obtain a good, useful crop annually. When extraordinary crops are left on, feed the trees as you may, half the crop is scarcely of any use. A moderate crop results in fine fleshy fruits, with a brisk flavour, which are acceptable for dessert in the northern counties. Jefferson is again very fine, but Kirk's Gage is not well cropped.

Some of the apricots have needed much thinning, and for a general crop we find there is nothing so fruitful here as Moor Park. Peaches on open walls have been setting queerly. The fly has been a plague on peaches also, but, after some care and trouble, the trees are growing away clean. Gooseberries are not so heavy a crop as we occasionally have. Whitesmith has a much heavier crop than Whinham's Industry this season. Sulphur Yellow, Glanton Green, and Red Warrington are all fairly good. The gooseberry caterpillar has just made an attack, and we are dusting with hellebore powder, which will be washed off by means of a syringe before the fruit is fit to use, as it is a poison. We dust it through a muslin bag. Of black currants we have certainly one of the finest crops we have ever seen. Hammond's Victoria is a very fine variety. Raspberries promise extra fine crops. Superlative is excellent on canes planted from three to five years ago. The May Duke cherry is fairly good, as usual, but the Morello is lightly cropped.

Alnwick Castle Gardens.

GEORGE HARRIS.

"VIOLETS DIM."

I VENTURE to submit the subject of violas to your readers with trust alone in their sweet associations. Our book lovers I know will love them for the poet's sake, our artists for their pleasing shades and gentle grace, our scientists for the truths they so simply tell, and all I think for their just being violets dim, pansies freaked, thought tokens from childhood onwards.

Shakespeare must have loved the violet. Canon Ellacombe, in his "Plant Lore of Shakespeare," has eighteen references to the flower. The poet notes it as "of virtuous season, forward, not permanent; sweet, not lasting the perfume and suppliance of a minute, no more," in addition to being nodding dim and blue. He makes it an emblem of the untimely death of youth in Pericles and Hamlet; he uses it for the measure of a king in Henry V., where the monarch says of himself "the violet smells to him as it doth to me," but shows its limitations in his sonnets, when he speaks of secrets—

> "These blue veined violets whereon we lean,
> Never can blab, nor know not what we mean."

Milton, telling of the blissful bower in Paradise, writes how the violet with crocus and hyacinth underfoot, "in rich inlay broidered the ground, more coloured than with stone of costliest emblem." Sir W. Scott crowns it as queen of wild flowers, and by all the poets, for beauty or for sweetness, the violet seems to be noticed, as the printer makes Canon Ellacombe say, "with affectation."

It is strange that whether Queen or "lowly down," as some would have it, the violet has no English name. Violet is borrowed from the Greek ion, through the Latin viola. The old vocabularies give the viola translated as Banwyrt, Clœfre, "violé apple leaf," wyolet, vyolytte, violetta, a violet, from the eleventh to the fifteenth century. In the tenth century is the unkindest cut of all, where the herb Viola purpurea is spoken of as useful "for new wounds and eke for old, for hardness of maw." In Charles II. time it was a cure for consumption. Its medicinal uses are still respected, and the chemist finds in it a delicate and useful test. Some violets of the old writers were not violets at all; the early writers on natural history following Pliny called any early flowering plant they fancied a violet; even in 1693 Gilbert writes of "the lesser early bulbous violet a common flower, yet not to be wasted, because when none other appears that does, though in the snow, whence called snowflower or snowdrop," as the only violet. In all Eastern countries it is a favourite flower. The legend goes that Mahomet said "The excellence of the extract of violet, above all other extracts, is as the excellence of me above all the rest of creation! It is cold in summer and hot in winter." The sherbert of the Grand Seigneur is flavoured with its blossoms. In classic times the Athenian crowned with violets was a most honourable distinction; the Romans cultivated it in their gardens; the troubadours received a golden violet as a prize in their floral games. Later in France it became the badge of the Imperial party, and was identified with the Buonopartists during Napoleon's exile at Elba. His farewell promise was to return with the violet. Byron has it—

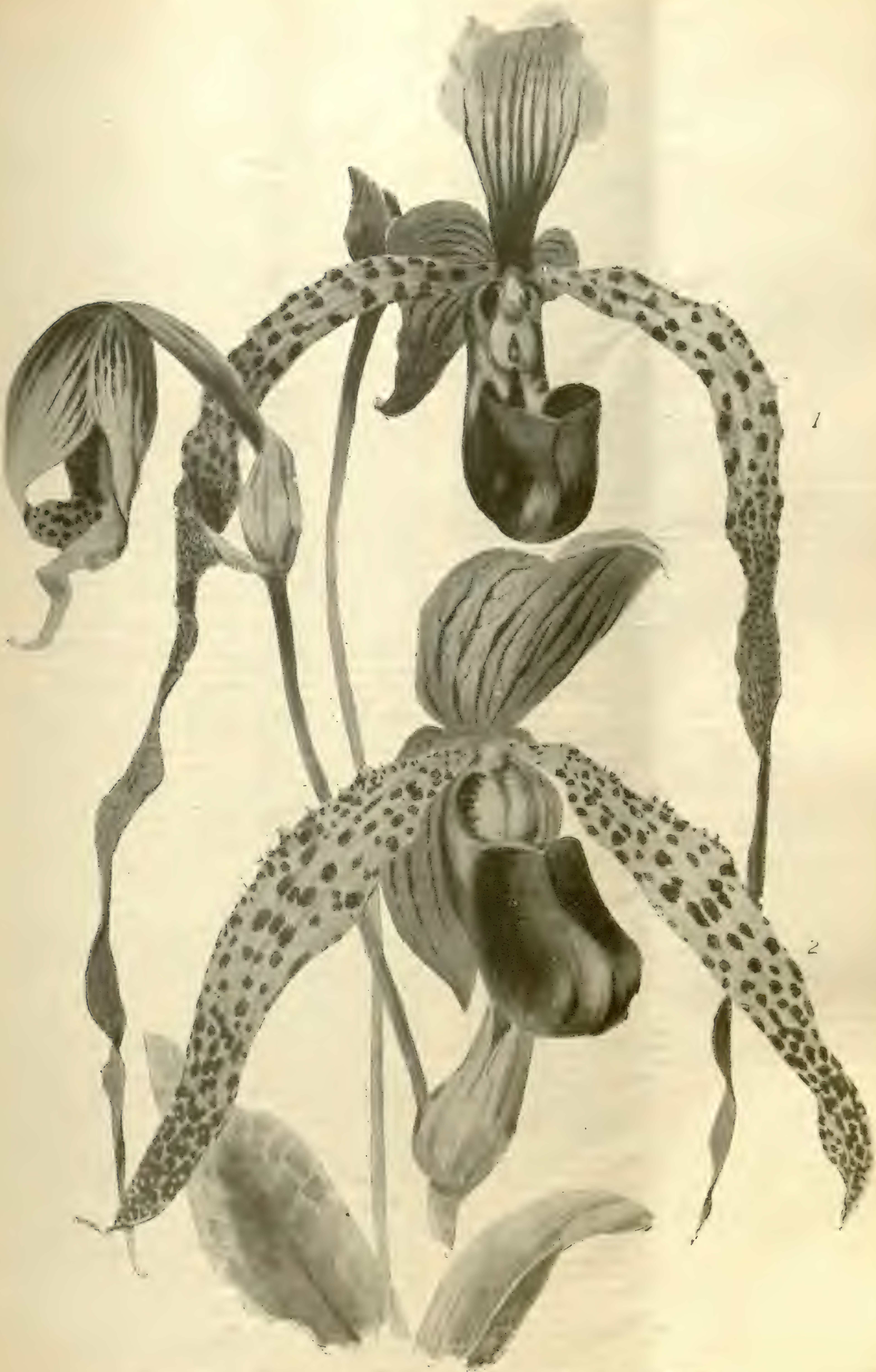
> "Farewell to thee, France, but when Liberty rallies
> Once more in thy regions, remember me then;
> The violet grows in the depths of thy valleys,
> Though withered, thy tears will unfold it again."

His health in exile was toasted as "Caporal Violette, the flower that returns with the spring."

Mdlle. Mars was hissed by the body guard of Louis for wearing violets. The Empress Eugenie silently accepted Napoleon III. by wearing violets in her hair. Afterwards the flowers were the chief tributes on his tomb.

Many other interesting violet associations may be found in Folkard's Plant Lore." Canon Ellacombe, whose "Plant Lore of Shakespeare" I have already quoted, writes further of violets in a letter to myself. "I send you a spray of a pretty little shrub which, unless you are a consummate botanist, you will scarcely recognise as a violet, nor is it exactly a viola; but it belongs to the family of the Violaceæ. It is a New Zealand shrub, quite hardy, and its name is Hymenanthera crassifolia." With this suggestion as to the cosmopolitan character and variety of the order in stem and leaf and fruit, I would bring the subject nearer home. It would be presumption on my part to describe the three hundred species of the Violaceæ, few of which I have been fortunate enough to see but in Britain; instead of fifteen smaller divisions or genera of Violaceæ we have only one, that of viola represented, and in place of the two hundred species contained in it we have but six, on the authority of the "British Flora" of Bentham and Hooker, and of these three are nodding acquaintances with us all. V. odorata, the sweet violet; V. canina, the dog violet; and V. tricolor, the wild pansy or heartsease. So also are the other three, as far as their retiring disposition will permit. I allude to V. palustris, the marsh violet; V. arenaria, the sand violet; and V. hirta, the hairy one. These are all the native species of the genus viola.

Even these I cannot pretend to describe in any detail, but only the two which horticulturally are most interesting. I refer to the sweet violet and the wild pansy. These two are distinct in little matters of form and habit, such as the upper petals of the sweet violet are bent forward to form a hood, while those of the pansy are upright and give the flower a flat, face-like appearance. Again, the stipules, or outgrowths at the base of the leaves are small in the violet and relatively large in the pansy, doing much of the work of leaves, and last, the flowers of the violet in spring, sweet as they are, do not often seed, but leave the work for smaller buds, "cleistogamous flowers," that have their stamens so placed above the ovary that the pollen may send its tubes directly down and fertilise the ovules without any insect aid at all in its deposit. The older botanists were so struck by the discovery that they named one plant "the wonderful violet," to express their admiration for its economy.



NEW HYBRID CYPRIPEDIUMS (No. 1, C. Mrs. Reginald Young; 2, C. I'Ansoni).

Darwin took great pains to investigate these minute flowers. On opening them he found the petals rudimentary or absent, the pollen grains actually growing in the anthers, the pistil small, and the stigma, or pollen deposit point, much reduced. Fertilisation so conducted was a sure and speedy process, and but few pollen grains, only one hundred, were needed to effect it in the flower. As the violet produces seeds chiefly from these self-fertilised flowers, it is somewhat difficult to explain the use of the showy ones. Their persistence can only be accounted for by the use such flowers are in securing an occasional cross by insect visits. The blue colour is said to be specially attractive to bees, as shown by Sir John Lubbock in his book, "British Wild Flowers in Relation to Insects."

This point is disputed by recent papers of Professor Plateau, who, from personal observation, concludes that insects are but little affected by colour; what they seek is pollen or nectar, and to these they are guided with certainty by the sense of smell rather than that of sight. Sir John Lubbock replied to these memoirs at a meeting of the Linnæan Society, refuting the conclusions of Professor Plateau by the record of experiments of his own, and maintaining that the conclusions of Sprengel and Darwin are in no wise weakened by these new observations. To the unconscious selection of insects he still considered we were indebted for the beauty of our gardens and the sweetness of our fields. In the violet, the nodding flower, the dry pollen, the thin, curved style, and the overlapping stamen ends seem all adapted for such a purpose. Such was the opinion of Sprengel after his study of the violets of his day, an opinion which was set aside for seventy years and then brought out again to demonstrate with Darwin "how actual forces were operating before our eyes to modify living forms."

A letter I have received from the curator of the Cambridge Botanic Gardens states the matter well. "The genus viola is one of great botanical interest. It gives us the opportunity of showing that evolution takes place under our very eyes." To return to the question of colour. The blue shade is due to a substance known as anthocyanin. It is remarkable for its constancy in the violet and pansy, none of the cultivated varieties as yet being without a trace in the spur. Anthocyanin appears to be necessary for the protection of plant food substances from the action of light. If a root of violet be placed in water it develops a violet tinge in the light. The reddish-violet tints of sprouting shoots in spring, and the autumn tints of leaves are also caused by the same agent when performing its useful function of protecting certain foods in transit.

With regard to the evolution of colour in violets, Müller states, "that facts go to show they were originally yellow." The smallest and most short spurred is V. biflora. It is visited by flies and short-lipped bees, and its flowers are yellow. The smallest form of V. tricolor has whitish-yellow flowers. Many alpine violas show all stages from yellow to blue, some are yellow throughout; in others the flowers are yellow when open and change gradually to blue as they fade; in others the change is a quicker one. The most highly specialised form is V. calcarata. This is almost always blue, but reverts occasionally to the ancestral yellow. It is fertilised only by lepidoptera; one, a quick worker, has been seen to visit one hundred and ninety-four flowers in six and three-quarter minutes.

The perfume of violets is also found in the wallflower, stock, hesperis, gentian, daphne, and blue water lily. The effect of the colour and odour is seen in the fact that the large, brightly-coloured but scentless pansy is much less visited than the small, blue, sweet-scented violet. V. cornuta is adapted for night fertilisation by moths by its long spur and evening perfume.

Much of the perfume sold as that of the violet, until recently, was obtained from the Florentine iris. The discovery of ionone, the artificial essence of violets, is both a scientific and commercial success. The dispersal of the violet seeds is caused by the action of the capsule after drying. It consists when open of three boat-shaped valves, each containing a double row of seeds. These valves in curling exert such pressure upon the seeds as to shoot them out to a considerable distance.

The cultivation of the violet is a most important business, winter blooming violets being grown in the open, and then lifted for protection in frames by thousands. The use of runners, helping the violet to form new plants at a distance from the parent, but affecting considerably its flowering capacity, is an important detail in this connection. The finest of the sweet violets or violas are mostly of French origin. Princess of Wales is one of the finest of these, having very large blue single flowers, strongly scented, and long, thick stalks. A few American violets, such as California, have been sent out, and are among the newest and finest additions. Easy as it is to find the common violets at this season, the large and beautiful new-fashioned violets which made such a sensation at our autumn show, may fairly now be difficult to obtain. One large firm of growers write from Devon: "Your date, April 6th, is far too late for violet blooms to be characteristic, or fit to be seen." Good advice I received was "keep the violets as cool as possible." I certainly kept them cool, but not collected.

I have to thank Messrs. Barr for beautiful specimens of Princess of Wales and Viola pedata. The others, I was assured by one alpine specialist, could only be obtained by an enthusiast. Viola biflora, V. lutea, V. calcarata, V. striata, V. Munbyana, and V. cornuta, were supplied by Messrs. Backhouse. "Why have I said nothing concerning violets?" asks the Poet Laureate, in "The Garden that I Love," "I have been asked more than once. It was a grave omission, but silence arose not from their scarcity, but from their profusion. They are everywhere, nestling where you will, and everywhere at home. White ones are growing round the very doorstep, and when they have done flowering, their strong green leaves keep the roots of the clambering roses cool all through the heat of summer." Let the poet come from the land where the boys call "Mammole! Mammole!" In the classic streets, he will find no lack of them in the garden that he too loves.

Norwich.

EDWARD PEAKE.

WORK FOR THE WEEK.

WARM ORCHIDS.

CATTLEYA MOSSIÆ will have finished flowering, so the potting must also conclude, and the plants be placed in their growing quarters; a little more shade will be necessary, and a slight watering until active growth takes place, except in cases where plants have been repotted earlier in the season. The root action of imported plants of this cattleya will be fairly brisk by this, so the crocks must be removed, and the plants placed in rough peat and sphagnum. Cattleya [illegible] will have finished its flowering, and young roots will be forming at the base of the bulbous stem; fresh material will be beneficial, and in some cases it may be necessary to shake out the plants, give them new material in pans or baskets; the species thrives well in flat pans suspended from the roof in the cattleya house. C. Schilleriana may be treated exactly in the same manner. C. Eldorado and varieties may also require attention in this direction, and a shady place in the cattlea house is suitable for it at all times. C. Gaskelliana will now be making a nice display in the cattleya houses, filling up a blank between the summer and the autumn and winter flowerings. The flowers are very susceptible to damp, and become spotted unless kept in a dry place. C. superba will now be producing its beautiful flowers; it is, unfortunately, a very difficult subject to manage, flourishing well for a few years only, and then gradually deteriorating as many of the other orchids do. The best place for it is the dendrobium house, placing it in pans or baskets suspended from the roof. Epidendrum bicornutum is another difficult plant to grow successfully, but the present is a good time to rebasket or top-dress it as necessary. Many growers find the dendrobium house a very suitable place for this species while growing; others find the cattleya house suitable, and whichever way is found to be the most successful it should certainly be continued.

The new leaves on Phalænopsis will be growing freely, so it will be well to avoid a stagnant atmosphere; keep the bottom ventilators open at all times, unless cold winds are blowing; pay strict attention to shading. Dendrobium Wardianum and D. crassinode will be now well advanced in growth, so a little stimulant, such as guano, used alternately with liquid cow manure, should be given in a very weak state for a beginning, increasing it gradually as the growths finish. The evergreen dendrobiums will mostly be growing vigorously, so plenty of water will be required, and the syringe must be used pretty freely; fumigating must be done occasionally to keep down red spider or thrips. Selenepediums will require to be carefully watered, and do not allow water to lodge in the axils of the leaves; a slight syringing is, however, necessary at this time of the year. Cypripediums in the warm house will require plenty of water and a good moist atmosphere; fumigation at the present season is most important among this class, for yellow thrips attacks them, and is a great enemy. If it has obtained a footing in any collection, it is a good plan to dust the leaves where attacked with tobacco powder, leaving the same on until the thrips are thoroughly eradicated, after which give them a good sponging with soapy water or fir-tree oil insecticide used a little weaker than the directions given on the bottle.—T. STAFFORD, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

AT last we appear likely to have a continuation of summer weather, and the plantsman's labour will increase, for not only will he have to take care that plants growing in small pots do not suffer for even a short period for the want of water at the roots; but syringing, which perhaps has only been necessary once a day, must be performed twice and copiously. Moreover, there will be many winter-flowering plants, including those used for forcing, such as thorns, roses, lilacs, and many other things which require most generous treatment through the heat of summer, if they are to flower freely during the short dull days of winter, when their blossoms are so valued. It is not uncommon to find these standing about in odd corners, and what watering is afforded is done in a rough way and at long intervals sometimes, causing them to lose their foliage prematurely. It is much better to arrange all such plants in a group, standing the tallest in the centre in such a way that watering is done easily. If the pots can be plunged in a bed of ashes so much the better, or, failing this, a few inches of decayed straw or leaves placed between them will assist to keep the roots cool and active during a period of drought. A free syringing overhead after a hot day will also prove beneficial to these and other plants whose roots are restricted. Those who grow a large collection of chrysanthemums know the extra labour incurred in watering and syringing when the weather remains continuously hot and dry for several weeks, and yet on no account can such important details be put off an hour if the plants are to produce the finest blooms or make perfect specimens. It is often on Sundays that there is a danger of the plants suffering. The plants may be examined in the morning with a view to that watering lasting until the following day, but after midday the soil in many of the pots has become dust dry, the foliage flags, and then a serious check results. Again, potting is often deferred too long, and the roots become so matted together that they do not strike quickly into the new compost when they are potted. It is when plants are allowed to get into this unsatisfactory condition that they cannot stand the force of the sun, and the roots are starved and baked by its power on the sides of the pots where they are chiefly located. I do not recommend plunging the pots up to their rims, but where labour or water is scarce it would be found beneficial and save labour to partially do so in a bed of ashes, or the pots may be shielded from the full force of the sun by standing nine inch boards on edge against them. A cool, moist bed is necessary for all pot plants to stand on during dry weather; but means should be employed to prevent the roots coming through the drainage and becoming established in the ashes beneath, as this may cause the formation of sappy growth, besides which the plants receive a check in the autumn when these outside roots are disturbed and cut off.

Portable frames are most useful to the plant grower, as their position can be altered to suit the seasons and occupants. Some plant houses are too airy during the heat of summer for many things, such as seedling ferns, ferns for cutting, young palms and the like, which delight in a moist shady position. Spare frames may be used with advantage for these, giving them an east or west aspect. If suitable blinds are not available to give the necessary shade, common whitening, mixed with milk, may be used for smearing the glass over. In this way a genial atmosphere may be maintained if the lights are only slightly tilted at the back, and not in such a way as to cause a draught. Provision should be made for sowing herbaceous calceolarias and cyclamens, so as to have good strong plants before autumn. Broad, shallow pans, filled with rich sandy compost, will make suitable seed beds. Sow the seed thinly, cover slightly with fine soil or sand, and place a pane of glass over until germination takes place. Shade and moisture is most important to raise the young plants, and when this is secured we prefer it to raising them in a high temperature, as they come up weakly, and much after care is necessary to properly harden them and produce a sturdy habit.—RICHARD PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

THE rearrangement and replanting of daffodil borders should be taken in hand, where this has become necessary through overcrowding, as soon as the leaves have ripened off, which is now generally the case in our borders. For ordinary garden where it is not necessary to lift these bulbs annually, about every three or four years being often enough, unless it is wished to increase the stock of any special variety. In the latter case it is desirable to lift the bulbs and select all those of flowering size for planting by themselves, all the smaller ones to be planted in the reserve garden to grow on into the flowering size. We have already lifted quantities of Sir Watkin, the early N. poeticus ornatus and some others, selecting the largest bulbs, which are used for pots, forcing in boxes, &c., and the smaller ones will be replanted in the reserve quarter to grow on for next year's use. The bulbs, after lifting, should be laid out thinly in a cool shed for cleaning and selection where they may remain a short time, although replanting, where convenient, may be done at once, and in any case the bulbs should be in the ground either during this or early in the coming month. Tulips and other bulbs removed from the flower beds and laid in temporarily until ripened off should be lifted and laid out in a shed to dry, to be afterwards cleaned and stored as soon as opportunity offers, such as a wet day when outside work is necessarily at a standstill.

Although roses are somewhat later than usual in flowering this year, yet by the time this note appears many blooms will have passed, and where propagation of roses from cuttings is desired, the present is the most suitable time for quickly working up a stock of own root roses, as they strike readily now and make plants large enough for planting out in winter or early spring. In many cases it is desirable to shorten the growths of standard and dwarf H.P. roses after the first flowering, thereby inducing the lower buds to break for the second or autumn blooming, and the operation assists in forming a more symmetrical head, especially in the case of standard roses. These shoots being just in the right condition to strike freely may, where own root roses are appreciated, be utilised for cuttings. The readiest method of obtaining a good stock is by the means of a mild hotbed, on which a frame may be placed, surfacing the bed to a depth of three or four inches with cocoa-nut fibre refuse or sawdust, into which the pots may be plunged. The frame should be placed in a north or west aspect, where less shading will be necessary, and in this position the cuttings form roots the more readily. Small 60-sized pots, with a little rough leaf-mould for drainage and filled with sandy loam pressed down firmly, should be prepared for striking the cuttings in. The latter should be made from shoots with two or three buds, the lower leaf being removed entirely, and the wood cut clean through just below a node. One cutting should be inserted in the centre of each pot and a little silver sand allowed to run in around each cutting. Give one good soaking of water, and plunge the pots to the rim in the hotbed, which should be a mild one, and keep them close and shaded from bright sunshine. In this medium they form roots in about a fortnight, when air may be admitted gradually, and in a few weeks they will have filled the pots with roots. They should then be potted on into large 60's or 45-sized pots, and by this time they may be placed in a cold frame stood on a hard ash floor. All sections of roses, including teas, climbers, &c., may be propagated in the same way. Where briar stocks have made sufficient young growth, budding may be carried on from this time, the showery weather having promoted a free growth, and rendering the lifting of the rind comparatively easy and safe. Soft cotton as sold for this purpose forms the best binding material, and the buds should be inserted as close to the base of the shoot as possible.

In the pleasure ground seed pods should be removed from choice hybrid rhododendrons, especially from small plants and those recently planted; the latter should also be supplied with water when necessary to encourage a free growth in the plants, without which little flower may be expected the next season.—C. HERRIN, *Dropmore Gardens*.

HARDY FRUITS.

THE strawberry crop this year has been later than usual, and those who rely upon runners from plants that have borne fruit will be late, but of course, with attention to details, the plants will soon be ready for their permanent quarters if the parents are healthy and not crowded. In previous numbers of the GARDENERS' MAGAZINE I have dwelt upon the importance of young plants for the production of early fruits, and this year have I found them more valuable than ever, as the fruits do not decay so quickly as on plants with a large amount of leafage. As the results are so satisfactory, it may not be out of place to give brief cultural details as to this method, especially as now is the season for the work. By growing plants purely for runner production, much earlier runners will be secured than from fruiting plants. The flowers are picked out of these, and the runners layered into small pots as early as possible. The cultivator can layer his runners in the way he likes best, but there should be no delay in planting out as soon as these are rooted. This is a great point in the production of early fruits, and we go farther, only taking a single crop of fruits, as by doing so, we get much finer fruits, earlier, and at no great cost. I must admit the land needs more cultivation than usual, but it is not lost labour. After the strawberry crop the plot is in capital condition for green crops, such as broccoli, borecoles, and others; it is useless to take half measures. The most important work in connection with strawberry culture, no matter what system is followed, is thorough cultivation of the soil previous to planting, and now is a good time to prepare land for new plantations. In light soils strawberries have much to contend with, and it is advisable to add heavy materials such as clay or marl, for this, incorporated with the surface soil, will be of great assistance; on the other hand, if the plants are not left longer than for one crop it is not necessary to make the soil so suitable, for they have ample food for the one year, and this is one reason why I advocate the culture of the strawberry for a much shorter period than is usually the case. All varieties, however, are not alike suitable for this annual culture; thus the Pine section and British Queen are better the second year than the first, as is also that excellent variety, Laxton's Latest of All. Royal Sovereign is a splendid variety to grow as advised, and it bears so freely from one season's growth that it is our most profitable variety. In most gardens a long strawberry season is valued. For our early supplies Laxton's Earliest of All is first to mature, but I am not so fond of it as others, for it lacks size, and is only a little in advance of the excellent Royal Sovereign. For preserving, it is difficult to beat Vicomtesse H. de Thury; its fruit is not large, but especially good when preserved. La Grosse Sueree is still a favourite with us, but our best mid-season strawberry this year is Laxton's Leader, a very fine variety which will doubtless become a standard kind; it does grandly in light soil, is a closer grower than Royal Sovereign, and of first-rate flavour. I do not intend to dwell upon varieties, as in different soils and localities results differ, so that it is well to give any variety a good trial before planting it largely.—G. WYTHES, *Syon House Gardens*.

THE BEST GUIDE to the garden for the whole year is the "Gardening Year Book, containing practical articles on the cultivation of Flowers, Fruit, Vegetables, &c. Price 1s. 'Gardeners' Magazine" Office, 4, Ave Maria Lane, London.—[ADVT.]

EXHIBITIONS AND MEETINGS.

NATIONAL VIOLA SOCIETY, July 2.

THIS society held its annual display at the Crystal Palace on the above date, and were wise in fixing the exhibition on the same day as the great rose show under the same roof. The numerous visitors to the display of the "national" flower, therefore, had the additional attraction provided by the interesting, if less pretentious, display of the viola and pansy, and that advantage was taken of this there was ample proof by the visitors carefully scrutinising the exhibits staged in competition from the time the exhibition was opened until its close. There was evidence of weakness here and there in the different classes, showing that the enthusiastic admirers of the flower had been passing through an exceptionally trying season, and it is, therefore, all the more pleasing to record that there was not wanting illustrations of cultural skill from the gardens of growers in the North, as well as the South. This was quite as much noticeable in the exhibits of amateurs as in those of the trade exhibits, and proves conclusively how keen is the interest now taken in these flowers.

Violas, as usual, predominated, and in the arrangement of them a new departure was taken. Several classes in which they were arranged in sprays were, as usual, provided; but to some, who tired of this manner of exhibiting them, provision was made to display the flowers and foliage in saucers and specimen glasses. This appeared to be a simpler method of arrangement, and was fully appreciated by the competitors. It must be acknowledged that the effect by the new method of staging was not so striking, yet it showed the practical value of the flower for decorative uses.

Fancy pansies came from Scotland and Bristol, and each made a brave show; and much was to be gained by listening to the varied comments of the visitors upon the rival claims of the pansy and the viola.

OPEN DIVISION FOR VIOLAS.

The leading class for violas was for forty-eight sprays distinct, each spray to contain nine blooms, and arranged with viola foliage. There were two competitors in this class, premier honours resting with the fine exhibit of Mr. William Sydenham, Tamworth, who had a grand exhibit of large, fresh, and well-coloured flowers, neatly set up, and each carefully named. Of the older varieties in commerce and in good form were Lemon Queen, Countess of Kintore, Accushla, Kitty Hay, Acme (very bright), Councillor W. Walter, Sylvia, Duchess of Fife, Mary Scott (exceptionally fine), and Formidable; and of the newer introductions we noticed William Tell (creamy white), Althea (a pretty blue-edged variety), Masterpiece (very white), J. Quarton (mauve blue), Queenie (blue-edged and shaded), Cottage Maid (violet, blue, and lavender), Ophelia (heliotrope-blue), Florizel (blush lilac), Magnificent (good blue), Pembroke (rayless yellow), Devonshire Cream (cream), and Blanche (grand pure white). This exhibit secured the gold medal. Second prize was awarded to Messrs. Isaac House and Son, Bristol, who also had a grand lot of flowers, which kept wonderfully fresh throughout the day. Specially good were their sprays of Duchess of Albany, Craigie, Sheelah, Countess of Hopetoun, Princess Ida, and Stobhill Gem. The class for twenty-four sprays distinct, secured a good entry, first prize being awarded to Mr. M. Campbell, High Blantyre, near Glasgow, with a good exhibit, though containing too many of the older and coarser kind of blooms. His best sprays were Butterfly, Dr. Stokes (a striped variety), Liz Barron, Magic, Florizel, Dorothy, Princess Ida, Kitty Bell, Border Witch, Nellie (a good white rayless flower), Ulidid, Duchess of York (a rayed white self), A. J. Rowberry (a rich yellow rayless self), Lord Salisbury (a coarse-rayed primrose), and Lizzie Paul. Second prize fell to the lot of Messrs. J. Cheal and Son, with smaller, but an even lot of flowers. Norah May, William Niel, Florizel, Sweet Lavender were the best in this stand. Mr. W. Baxter, Woking Village, Surrey, was a close third, Endymion (a new pale yellow), Stobhill Gem, and Duchess of Fife being his best sprays. For twelve sprays rayless varieties, distinct, six blooms in each spray, Mr. D. B. Crane, 4, Woodview Terrace, Archway Road, Highgate, N., was an easy first, staging a beautifully even and fresh lot of flowers. His varieties were Florizel, Britannia (a splendid deep blue), a clear, rich yellow seedling variety Nellie, White Empress (large pure white), Rosen Pallida (blush-rose), Pembroke, Mary Scott, Sir Robert Peel (a good lemon-yellow), Devonshire Cream (a splendid cream), Christiana, and a deep rich yellow seedling from A. J. Rowberry. Second prize was won by Messrs. Isaac House and Son, with smaller but pretty neat flowers. Princess Louise, Cooper O'Fogo (blue), Blush Queen, White Empress, and A. J. Rowberry were good in this stand. A stand of large flowers by Mr. M. Campbell was disqualified, as it contained several rayed flowers. For twelve saucers of distinct varieties, arranged in moss and not wired, brought out two nice lots. First prize was secured by Mr. M. Campbell, who arranged his saucers very prettily; Cissy Mellows, Lavender King, Lez Barron, Lord Salisbury, Stobhill Gem, Butterfly, Iona, A. J. Rowberry were the best. Messrs. I. House and Son were second with flowers of a much smaller size, and evenly arranged. For the twenty-four varieties, arranged in specimen glasses, each glass to contain nine blooms, there were two excellent exhibits. Messrs. I. House and Son were placed first with a pleasing assortment of colours and in good form. Mrs. C. Lowe, Ryhall, Stamford, was a good second, her exhibit being rather overdone with foliage. Her flowers, however, are pleasingly disposed. A special prize offered by Mr. B. G. Sinclair for six vases of violas distinct, arranged with any foliage, brought out a spirited competition. Mr. D. B. Crane was a good first, using pretty light green and bronze-tinted fronds of adiatum in conjunction with some pleasing shades of colour in his flowers. This system of showing is worthy of encouragement. Messrs. I. House and Son were second with prettily-arranged vases, and Mrs. C. Lowe was a good third, each showing prettily-arranged exhibits.

AMATEURS' DIVISION FOR VIOLAS.

In this section the competition was not so good as usual, the competition in some classes being represented by individual exhibits. The principal class was one for twelve spray violas distinct, six blooms in each spray. In this class the only exhibitor was Mr. D. B. Crane, who showed some handsome sprays of these flowers, which would have stood him in good stead in keen competition. His flowers were large, of good colour, beautifully fresh, and neatly arranged. His varieties were: White Empress, Mrs. C. F. Gordon (very fine), Florizel (grand colour), Magic Duchess of Teck (the latest sport from the Duchess of Fife family), Mrs. Scott, Stobhill Gem (a grand flower), Pembroke, Endymion, Duchess of Fife, Iva Fergusson (one of the darkest flowers), and a pretty yellow seedling. First prize was awarded this exhibit. For six sprays distinct, Mr. Leonard Brown, The Cottage, Seven Arches, Brentwood, showed well, first prize being awarded for a neat stand of blooms, Goldfinch, Mrs. C. F. Gordon, Magnificent (a good blue), Stephen, Mrs. William Greenwood, and Duchess of Teck being the varieties submitted. Mr. Brown was also first for six sprays rayless varieties distinct, A. J. Rowberry, William Tell, Florizel, Blanche, Lucy Franklin, and

Pembroke being seen to advantage. Mr. D. B. Crane closely followed for second prize place, his White Empress, Mary Scott, and a yellow seedling being in fine form. Mr. Brown was the only competitor for six sprays miniature varieties, and secured premier honours with pretty little flowers of Violetta, Blue Bell, Canary Bird, Old Gold, Mabel, and Bessie, each quite representative of the type. A novices' class for six sprays, each to contain three blooms, brought an exhibit from Major-General Gillespie, who staged a meritorious lot of blooms for a beginner, and secured first prize. Violas arranged in saucers were staged by Mr. B. G. Sinclair, Highgate Road, N.W., who arranged his blooms, which were fresh and clean, in a pleasing way. Mrs. C. F. Gordon, Lady Isabel, and Norah May were his best flowers. Dr. Shackleton, West Hill, Sydenham, staged nine varieties in vases, and set them up in nice artistic manner. New Duchess, Border Witch, Mary Scott, Duchess of Fife, White Duchess, and Christiana were his best, and secured first prize. Mr. B. G. Sinclair followed with smaller but neatly arranged specimens.

FANCY PANSIES.

The open class for forty-eight sprays, pansies, distinct, brought a good exhibit which secured the gold medal for Messrs. Isaac House and Son, Bristol. The blooms were large, fresh, and of good colour, and embraced both new and old standard varieties. Conspicuous among them were Colonel M. R. Buchanan, The Baron, W. H. Clark (splendid flowers), James J. Irvine, Beauty (grand), B. Doulton, Annie Ross, James Stewart, Mrs. W. Steele, Betsy Kelly, John Jackson, D. G. McKay, and D. Russell. In the class for twenty-four fancy pansies, distinct, Mr. M. Campbell was a good first with a splendid stand of blooms, and in the pink of condition. The best varieties were W. H. Clark, Annie Ross, J. Menzies, Sir J. Watson, Mrs. R. Stewart, Marmion, Mrs. Niel McKay, and D. G. McKay. The class for twelve fancy pansies, distinct, again found Mr. Campbell in the foremost position with a capital stand of blooms. Colonel M. R. Buchanan, Bernard Doulton, Mrs. A. Steele, and Mrs. R. Stewart being staged in excellent condition. Messrs. I. House and Son were placed second with neat specimens.

WIMBLEDON, July 6.

A very pretty exhibition of fruits, flowers, and vegetables was held on the above date in the spacious grounds of Canizaro House, lent for the purposes of the show by Colonel Mitchell, V.D. The groups and the fireplace decorations formed an attractive feature, while the cottagers' exhibits were most interesting and good.

Mr. A. Mewell, gardener to Sir E. Saunders, Fairlawn, Wimbledon, took first prize (special class) for a group of miscellaneous plants, arranging bright crotons, pandanus, gloxinias, begonias, &c., over a groundwork of the popular gypsophilla; Mr. W. Thornton, gardener to W. J. Crocker, Esq., Draxmont, Wimbledon Hill, second. In the class for single-handed gardeners, the best group arranged on a space of fifty square feet came from Mr. F. Kleigl, gardener to R. T. Buyne, Esq., Glenmara, Wimbledon Park; Lilium speciosum, Canterbury bells, begonias, and petunias were used most tastefully and effectively; Mr. F. Chandler, gardener to Canon Haygarth, The Vicarage, was placed second; Francoa ramosa, cannas, and semperflorens begonias were used here to advantage. In the special class for a drawing-room fireplace and mantel decorated with plants, Mr. J. Hutton was awarded first place for a nice exhibit consisting of caladiums, crotons, ferns, and liliums; Mr. Newell was placed second, but, owing to its lightness, caused by the use of gladiolus The Bride and gypsophilla, we liked his exhibit the best of the two.

For exotic ferns, Mr. J. Hutton, gardener to G. E. Frere, Esq., The Camels, Wimbledon Park, was the leading exhibitor. Mr. Hutton also scored for four stove and greenhouse plants, his set containing a finely-flowered ixora. Mr. G. Hutton led the way for six stove and greenhouse plants, his Gloriosa superba and Cattleya Mossiæ being good; Mr. Methven, gardener to D. W. Keiller, Esq., Fernwood, Wimbledon Park, second. The best fuchsias, tall, well-flowered examples, came from Mr. Thornton. Mr. Chandler, the vicar's gardener, scored for six distinct zonal pelargoniums with neat specimens. Mr. A. Skeggs, gardener to Mrs. Dann, Copse Hill, Wimbledon, had much the best set begonias, his double forms being very well managed. Mr. Kleigl had the best coleuses, a fair set. Mr. Mills, gardener to G. D. Carver, Esq., Edge Hill, showed the finest gloxinias. A pretty set of table plants enabled Mr. McGregor to take first place in a close competition; Mr. T. H. Bolton, gardener to Lord Tankerville, Kingston Hill, second.

The stand of roses put up by Mr. W. Taylor, Hampton, Middlesex, gained first prize, and contained a fresh set of blooms, the varieties being Heinrich Schultheis, Margaret Dickson, Ulrich Brunner, La France, Suzanne Marie Rodoconachi, Lady Mary Fitzwilliam, Gustave Piganeau, and Pride of Waltham; second row—Caroline Testout, Duke of Fife, Mrs. J. Laing, Xavier Oliba, Mrs. S. Crawford, Mrs. G. Dickson, Viscomtess Folkestone, and Captain Hayward; front row—Louis Van Houtte, Madame G. Luizet, Maurice Bernardin, Innocente Pirola, A. K. Williams, Kaiserin Augusta Victoria, Abel Carriere, and Jeannie Dickson; Mrs. J. Laing in this set was a very good flower; Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, Morden, second. Mr. Gibson led the way for twelve roses; Mr. McGregor, second. In another class for twelve roses, Mr. F. Staples, gardener to W. B. Faulkner, Esq., Fairholme, Worple Road, was first; and Mr. C. Pullen, gardener to P. B. Fowes, Esq., Raynes Park, second. Mr. Chandler and Mr. J. Wright were also winners of prizes for roses.

Mr. Newell, Fairlawn Gardens, showed the best collection of hardy herbaceous perennials, three sprays of each, eighteen distinct sorts; Mr. J. P. McGregor, gardener to the Dowager Lady Hay, North House, Putney, was second. For twelve bunches of hardy flowers, Mr. Newell was again first, but seems to have strained the schedule arrangements severely, for he used asparagus, berberis, and other foliage to show off the flowers of sweet sultan, pinks, and carnations. Mr. Newell had the best three button hole boquets and three ladies' sprays, using carnations, buff rose buds, and tuberoses most effectively. Mr. Newell also had the best epergne, using W. A. Richardson roses with gypsophilla and asparagus.

Mr. C. Gibson, Morden Park Gardens, secured first prize for three bunches of black grapes; Mr. J. Hutton second; both showing well-coloured Black Hamburgh. The best three bunches of white grapes came from Mr. Gibson, and were remarkable for the size and colour of their berries; Mr. Methven second, with Foster's Seedling; and Mr. J. Hutton third. For peaches, Mr. D. Gibson, gardener to J. B. Johnstone, Esq., Coombe Cottage, showed the best peaches, Barrington being the variety. Mr. Newell had the finest melon—Countess. Strawberries were good, though not plentiful, Mr. Hutton leading for one dish with the ever popular Royal Sovereign.

In the society's class for half-a-dozen sorts of vegetables, Mr. Kleigl was first, his tomatos and peas being excellent; Mr. T. Chandler second. Mr. Kleigl was also first in another class for six distinct kinds of vegetables, Mr. Chandler scored for cucumbers. In the Sutton class for a collection of vegetables, Mr. D. Gibson took chief honours with Magnum Bonum cauliflower, Giant Rocca onion, Supreme potato, Eclipse tomato, Early Snowball turnip, and Duke of Albany pea; Mr. Laker, gardener to Mrs. Wingfield, Belvedere House, second. In the class provided by Messrs. D. S. Thomson and Sons, Wimbledon, Mr. D. Gibson was again first, his cucumbers, peas, tomatos, and cauliflowers being very handsome; Mr. J. French, gardener to Mrs. Barclay, Ambleside, Wimbledon Park, second; and Mr. H. Mills, gardener to E. D. Carver, Esq., [illegible] Edge Hill, third.

Messrs. D. S. Thomson and Sons, Wimbledon, put a large non-competitive display, the Acer negundo variegata, gladiolus The Bride, dendrobiums, gloxinias, hydrangeas, gloxinias, odontoglots, &c., being effectively staged. This firm also arranged a capital show of bouquets, notably harps and other floral designs, all made up in a most skilful and artistic manner. Mr. Will Tayler, Hampton, made a charming display with cut specimen roses and fine bunches of popular garden roses.

ISLE OF WIGHT ROSE SOCIETY.

The Isle of Wight Rose Society held its annual exhibition of roses in the picturesque grounds of Carisbrooke Castle on Coronation Day. The day was beautifully fine, and the attendance, through exertions of the hon. secretaries, Rev. G. E. Jeans and Mr. E. V. Matthews, was very good. During the past six years the above society has been most fortunate in having their exhibitions in grounds renowned for beauty and picturesque surroundings and extensive landscape views, which undoubtedly have greatly assisted to ensure its success.

The principal prize-winners on the above occasion were, in the open classes, Mr. B. R. Cant and Messrs. F. Cant and Co. Mr. B. R. Cant secured the silver medal for the best rose of any sort in the show with Mrs. John Laing. In the Isle of Wight classes Miss Croft-Murray secured, for twenty-four distinct roses, the Isle of Wight silver challenge cup. Major O. Moulton-Barrett secured the Queen's gold medal for twelve distinct roses, and Miss Murray the silver gilt medal for twelve distinct teas. In the divisional classes Mr. J. O. Brook was first for eighteen distinct roses, and Mr. G. Williams, second, whilst for four distinct, three trusses each, Miss Murray was first, and Mr. J. O. Brook second. In the class open to growers of less than three hundred plants Miss Carter was first for twelve distinct roses, and also for three distinct, three trusses of each. Among growers of less than one hundred and fifty plants the Rev. R. L. Morris was first for twelve roses, any number of varieties; Lady Gordon, second; and Lady Daly, third. For six distinct Rev. C. W. Heald was first; Lady Daly, second; and Lady Gordon, third.

The silver medal for the best rose of any sort shown from the island was won by Miss Croft-Murray. For twenty-four roses of any kind and any number of varieties, open to the island, Miss Croft-Murray was first, and Mr. J O. Brook second In the competition among ladies residing in the island, Mrs. Lee-White secured premier award for table decoration, roses of any sort to form the principal feature. Miss Bull was first for an epergne or basket of roses with any foliage, and also for a vase or bowl of roses. Among Isle of Wight gardeners only Mr. N. G. Jolliffe was first for twelve roses, any number of varieties; Mr. J. Athill, second; and Mr. H. Wavell, third. The cottagers' prizes were secured by Mr. G. Leek, sen.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.

On Thursday, June 30, the members of the Isle of Wight Horticultural Improvement Association, accompanied by the chairman, Dr. Groves, paid a visit to the nurseries of Messrs. Sutton and Sons, Reading. On their arrival they were met by Mr. M. H. Sutton, Mr. L. Sutton, and Mr. H. Sutton, who most courteously received them and conducted them through the offices, seed rooms, and store rooms of this far-famed house. The management of every department is unique. The foreign department was an eye-opener to many of the members who for the first time visited a trade growers' establishment. After lunch, which was presided over by Mr. L. Sutton, the party visited the trial grounds, spending much time amongst the various crops, under the guidance of Mr. H. Sutton. During the luncheon Mr. Sutton, sen., came into the Abbey Hall to welcome the party and was hailed with rounds of applause.

The greenhouses were next visited and the gorgeous display of begonias and gloxinas is indescribable; the colours and forms of the most highly developed types far exceeding anything found in illustrations. The calceolarias which had done duty at Manchester and other shows were of high cultural merit, though the flowers were practically over, yet one could see what they had been. The curious flowers of Clianthus Dampieri were inquisitively examined. After visiting the Abbey Ruins and Forbury Gardens, tea was enjoyed in the Abbey Hall.

Before departing for the Garden Isle a unanimous vote of thanks was accorded Messrs. Sutton and Sons for their kind hospitality and for affording the members of the Isle of Wight Horticuitural Improvement Association the privilege of inspecting their establishment. It was a most enjoyable outing, and a red letter day in the history of the assocation.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Sandown on Saturday last. Mr. T. Gibbs, C.C., was unanimously voted to the chair in the absence of Dr. Groves, chairman of the association. Mr. J. H. Perkin obtained from the following exhibitors a miscellaneous collection of exhibits which were thrown open for inspection to the public free of charge during the afternoon. Mr. A. Plumbley, Aspenleigh, Sandown, staged a collection of penstemons, stocks, foxgloves, and Canterbury bells; Mr. J. Nicholas, Kintore, Sandown, staged a stand of roses and a stand of [illegible] dahlias; Mr. W. Downer, Shanklin, staged a dish of Polgate tomatos; Mr. W. Gibson, Sandown, staged a basket of Comet tomatos; Mr. A. Cole, of [illegible]lands, Sandown, arranged a miscellaneous group of foliage and flowering plants; and Mr. J. H. Perkin, Loo Altos, Sandown, contributed a group of stove [illegible] and flowering plants and a stand of roses. Messrs. Perkin and Cole each received a certificate for their excellent groups which were effectively arranged.

In the evening Mr. W. C. Moseley, of Banchurch, read an excellent paper on "Meteorology in relation to Gardening," which contained many useful hints on the management, uses, and structure of thermometers, barometers, rain gauges, and sunshine recorders. A hearty vote of thanks was accorded the lecturer and exhibitors on the motion of the secretary (Mr. S. Heaton) and seconded by the Rev. F. A. Bamford. Several new members were elected at the close of the meeting.

ROYAL HORTICULTURAL SOCIETY, July 12.

ONCE again we have to record a first-rate fortnightly exhibition at the Drill Hall, Westminster, coupled this time with an excellent rose show, so that visitors who paid for admission had good value for money. Fruit was well shown; sweet peas and other hardy flowers were grand; orchids were good, though not so [illegible] as usual.

FLORAL COMMITTEE.

Mr. C. Smith, gardener to Martin R. Smith, Esq., Hayes, Kent, put up a superb group of Malmaison carnations, the varieties, Mrs. Martin Smith, Calypso, King Oscar, and Mrs. Trelawney being especially good, the former making up the bulk of a very handsome group, that did great credit to Mr. Blick. Messrs. J. Carter and Co., High Holborn, had a pretty exhibit of delphiniums, showing grand spikes of blue varieties in many pleasing shades; the bowls of sweet peas with the flowers set in moss, and accompanied with Asparagus plumosus, made a very pleasing feature of an extensive display. Sweet peas were shown by Messrs. H. Cannell and Sons, Swanley, the firm making a good groundwork of bracken to set off the blooms to advantage. All the sorts were well grown, but Countess of Shrewsbury, Blanche Burpee, Primrose, Prince Edward of York, Ovid, Duke of York, Mars, and Lonely were those we most admired in a fine set. Bronze [illegible] and other good pansies were shown by Mr. Eckford. The ever-popular sweet peas were also shown by Mr. F. G. Foster, Brockhampton Nurseries, Havant, who had a beautiful lot of flowers, but in not a few cases put too many in a bunch; Stella Morse (yellowish), Earliest of All, Mars, Black Knight, Cardinal, Oriental, and Celestial were attractive sorts well staged.

Mr. Whillans, gardener to the Duke of Marlborough, sent several fine carnations, Oxford Yeoman being a fine crimson scarlet. Messrs. Koster and Co., Boskoop, Holland, sent a fine specimen of Abies pungens glauca pendula, a beautiful plant. Messrs. W. Paul and Son, Waltham Cross, Herts., showed a splendid lot of roses, all varieties raised by the firm; Exquisite (H.T.), Wordsworth (H.T. and China), Waltham Standard (H.P.), and Milton, a lovely rosy crimson H.P., were especially good; Tennyson is also a lovely creamy-white H.T. Mr. N. N. Sherwood, Dunedin, Streatham Hill, showed an interesting set of varieties of the Cupid sweet pea; these made good pot plants. Mr. J. Douglas was to the front with carnations, putting up a large number of new seedlings. Mr. H. B. May, Edmonton, showed a most interesting group of aspleniums, [illegible] not less than sixty-five species and varieties, these including A. flabellifolium, A. præmorsum, A. Nidus-Avis, A. caudatum, the bold A. marginatum, A. divaricatum, and A. fragrans; Mr. May also showed finely cultivated specimens of Golden Fleece abutilon, and Swainsonia galegifolia. Mr. Simpson, gardener to W. Marshall, Esq., Auchinraith, Bexley, showed a handsome plant of Polystichum angulare × P. aculeatum. Mr. Baines, gardener to Sir Trevor Lawrence, Bart., Dorking, showed a splendidly-flowered plant of the deep blue Exacum macranthum. Besides their new roses already referred to, Messrs. W. Paul and Son put up a fine display of cut blooms and standard and bush plants in pots, all grandly flowered; foremost varieties were Waltham Standard, White Lady, Ella Gordon, Empress Alexandria of Russia, Enchantress, and Madame Charles. A first-rate display of ferns was made by Messrs. J. Hill and Son, Edmonton.

Mr. T. Young, gardener to Daniel Cooper, Esq., Warren Tower, Newmarket, showed Malmaison carnations in fine condition, the flowers being large and the plants clean and healthy. From Messrs. R. Wallace and Co., Colchester, came an interesting display of liliums, calochorti, and iris. Lilium pardalinum californicum, L. Browni, L. speciosum album, and L. Parryi were fine, as also was the lovely Hemerocallis aurantiaca major. Garden roses were beautifully shown by Mr. J. Pitt, gardener to F. W. Campion, Esq., Colley Manor, Reigate; the roses were lovely and the bunches large, though too closely packed in some instances. L'Ideal, W. A. Richardson, Crimson Rambler, Longworth Rambler, and Macrantha were especially noteworthy. A grand exhibit of garden roses was also contributed by Mr. C. Turner, Royal Nurseries, Slough, who had big bunches of Crimson Rambler, Fimbriata, Blanche Moreau, Alister Stella Gray, Olga de Wurtemburg, and The Pet, besides several new seedlings. Messrs. Paul and Son, Cheshunt, staged garden roses in light bunches, besides Japanese iris, Orchis foliosa, Spiræa palmata, and S. aruncus; Madame Pierre Cochet, Narcissus, A. S. [illegible], Gustave Regis, Royal Scarlet, Madame Pernet Ducher, and Madame [illegible] Guinoisseau were among the best of the roses.

Mr. Baskett, gardener to Lord Penzance, Eashing Park, Godalming, showed [illegible] boxes of garden roses all obtained by hybridising; they were a fragrant lot of [illegible], especially the newer sweet briar hybrids. Mr. H. Eckford, Wem, Salop, put up a grand exhibit of sweet peas staged in tall glass vases; this was a most attractive exhibit and contained several new varieties in addition to all the leading [illegible] productions; Lady Skelmersdale, Mrs. Dugdale, deep rose; Fascination, [illegible]; Othello, deepest crimson; and Sadie Burpee, creamy white, were especially fine new forms that are likely to well sustain Mr. Eckford's reputation. Messrs. Barr and Sons, Covent Garden, put a pretty exhibit of Iris Kæmpferi in a variety of colours; all grand flowers and mostly named. The lovely golden Eremurus Bungei was also well shown by the Messrs. Barr.

Messrs. J. Veitch and Sons were again the only competitors for the Sherwood Cup, and they staged a pleasing exhibit of annuals and biennials in great variety, [illegible] demonstrating the utility of such flowers for garden and home decoration.

ORCHID COMMITTEE.

A good display came before this committee. Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., Dorking, showed Vanda Miss Joaquim, carrying a [illegible] spike of fourteen flowers and buds, and Oncidium albo-verrucosum, a [illegible] yellow oncid. Mr. W. H. Young, grower to Sir F. Wigan, Bart., East [illegible], sent a grand flower of Cattleya gigas, which lacked the usual "eye." Messrs. [illegible] Low and Co., Bush Hill Park, Enfield, exhibited a fine form of Cypripedium [illegible] and some charming forms of Cattleya Gaskelliana alba, Bulbophyllum Lobbi, &c. Mr. Bristow, gardener to J. W. Temple, Esq., Leyswood, Groombridge, put up a grand group of Cattleya gigas, the numerous, well-grown, [illegible] large specimens representing handsome varieties, highly cultivated. Mr. J. [illegible], gardener to H. Hicks, Esq., Branwoods, Great Baddow, Chelmsford, [illegible] a magnificent specimen of Dedrobium Dearei, carrying eleven spikes of [illegible] flowers, and others to follow. A cultural commendation and silver [illegible] medal were awarded. Mr. Ballantine, gardener to Baron Schroder, The [illegible], sent a curious form of Odontoglossum crispum.

FRUIT COMMITTEE.

Messrs. J. Veitch and Sons, Chelsea, showed a grand lot of fruit, chiefly [illegible] and cherries; the cherries in pots, quite dwarf trees, laden with [illegible], were great attractions; the sprays of Black Hawk were specially good. [illegible] the picked cherries Governor Wood, Guigue d'Annonay, Elton, Black [illegible], Cleveland Bigarreau, Frogmore Early Bigarreau, and Bigarreau de [illegible] were the finest, and had all been grown in the open on pyramid trees. [illegible] the strawberries we made special note of Sensation, The Countess, Lord [illegible], Gunton Park, Waterloo, British Queen, Leader, Cardinal, Elton Pine, Royal Sovereign, and the new Veitch's Prolific, a fine variety obtained by crossing British Queen with Empress of India.

Mr. O. Thomas, gardener to Her Majesty the Queen, Windsor, staged a grand lot of fruit, putting up thirty dishes of strawberries which included splendid dishes of Sensation, Bicton Pine, James Veitch, Waterloo, Leader, A. Barron, The Countess, and Aronatic; Gross Mignonne, Walburton Admirable, Violette Hâtive peaches were good, so also were the several nectarines and melons, while the cherries should have been seen to be fully appreciated; their size, quality, and colour being first-rate. Several new melons were staged, but none gained awards. Messrs. Laxton Brothers showed baskets of their grand strawberries Leader, the new Mentmore and a cross between Royal Sovereign and Commander. Royal Charlotte peaches were shown by Mr. Bain, gardener to Sir Trevor Lawrence, Bart., Dorking.

Mr. H. Eckford, Wem, Salop, showed some splendid culinary peas, Ideal, Precocity, The Prior, and Wem Giant being the best. Messrs. H. Cannell and Son, Swanley, also showed an excellent set of peas, among which Matchless, Lord Mayor, Talisman, Gradus, Epicure were very good. Mr. G. Lane, gardener to Miss Ridge, Highfield, Staines, sent half-a-dozen bunches of finely berried Black Hamburgh grapes. Mr. C. Maries, F.L.S., State garden-superintendent to the Maharajah Gwalior, exhibited some dried cabbage, cauliflower, and carrots prepared by him, and as used during the rainy season in India when vegetables are scarce. Messrs. J. Carter and Co.'s exhibit of culinary peas attracted much attention. The pods were fine, and well filled with large peas in every instance. Fifty varieties were shown, and among those Supreme, Lightning, Alderman, Early Morn, Daisy, Gradus, and Prince of Wales were first-rate.

MEDALS.

Silver-gilt Knightian to Mr. Owen Thomas, Frogmore Gardens, Windsor.

Silver-gilt Flora to Mr. Bristow, gardener to J. W. Temple, Esq., Groombridge.

Silver-gilt Banksians to Mr. H. B. May, Edmonton; to Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, Kent.

Silver Knightian Medal to Messrs. J. Veitch and Sons, Chelsea, for strawberries and cherries.

Silver Flora Medals to D. Cooper, Esq., Newmarket; Mr. F. G. Foster, Havant; Mr. C. Turner, Slough; Mr. Baskett, gardener to Lord Penzance, Eashing Park.

Silver Banksian Medals to Messrs. J. Hill and Son, Edmonton; Messrs. Barr and Sons, Covent Garden; Messrs. H. Cannell and Sons, Swanley; Messrs. Paul and Son, Cheshunt; Messrs. J. Carter and Co., Holborn; Mr. F. W. Campion, Colley Manor; Messrs. F. Cant and Co., Colchester; Mr. H. Eckford, Wem.

Bronze Banksian Medals to Messrs. R. Wallace and Co., Colchester; and to Miss Ridge, Staines.

ROSE SHOW.

A SPLENDID rose show was held at the Drill Hall, Westminster, on the above date, and it proved conclusively that the Council was right in postponing the show from June till now. The competition was very keen. Ten in a class was the usual number of exhibitors, and in one case there were seventeen competitors. The roses were good.

AMATEURS.

In the class for eighteen trusses, distinct, the first prize was won by Mr. O. G. Orpen, West Bergholt, Colchester, with superb blooms of Mrs. J. Laing, Madame Cochet, Gustave Piganeau, Caroline Testout, Ulrich Brunner, Mrs. W. J. Grant, Cleopatra, Francois Michelon, Mrs. Sharman Crawford, A. K. Williams, Souvenir de S. A. Prince, Marquise Litta, Suzanne Marie Rodocanachi, Madame Hoste, Helen Keller, La France, Earl of Dufferin, and Kaiserin Augusta Victoria; Mr. Salter, gardener to T. B. Haywood, Esq., Woodhatch, Reigate, second; and Mr. C. J. Grahame, Wrydelands, Leatherhead, third. The best dozen roses were fine blooms of Etienne Levet, Caroline Testout, S. M. Rodocanachi, Mrs. Paul, Mrs. W. J. Grant, Ulrich Brunner, Mrs. J. Laing, Beauty of Waltham, White Lady, Francois Michelon, Marquise Litta, and La France, shown by Mr. E. Mawley, Berkhampsted; Mr. Mease, gardener to A. Tate, Esq., Leatherhead, second; and the Rev. J. Foster Melliar, Sproughton Vicarage, third.

The best half-dozen roses were shown by Mr. G. W. Cook, North Finchley, who staged Mrs. J. Laing, Francois Michelon, Etienne Levet, Mrs. W. J. Grant, Mrs. S. Crawford, and Earl of Dufferin; Mr. J. S. Thompson, Bounds Green, second; and Mr. P. G. Burnand, Reigate, third. Mr. Salter was first for nine blooms of one variety with Mrs. J. Laing; Mr. C. J. Grahame, second, with the same variety; and Mr. O. G. Orpen, third, with Kaiserin Augusta Victoria. For six blooms of one variety, Mr. G. W. Cook scored with fine specimens of Mrs. J. Laing; there were seventeen competitors, Mr. Mease coming second with Mrs. J. Laing; and Mr. E. M. Bethune, Deune Park, Horsham, third, with the same variety.

In the class for eighteen tea or noisette roses there was a very keen competition, but Mr. O. G. Orpen scored with a pretty stand that contained Cleopatra, Madame Cusin, Souvenir de Elise Vardon, Maman Cochet, Catherine Mermet, Innocente Pirola, Caroline Kuster, Corinna, Souvenir de S. A. Prince, Medea, Bridesmaid, Madame Hoste, and Comtesse de Nadaillac; the specification was for not less than twelve varieties. Mr. E. M. Bethune, second; and Rev. A. Foster Melliar, third. For a dozen blooms, teas or noisettes, in not less than twelve varieties, the Rev. W. H. Jackson, Stagden Vicarage, Bedford, was a good first, with Mr. J. T. Strange, Reading, second; and Mr. E. Mawley, third. Miss Langton, Hendon, led the way for half a dozen tea and noisette roses; Mr. R. W. Bowyer, Hertford, second; and Mr. J. Thompson, third. Mr. Orpen had the best dozen blooms of any tea or noisette rose, showing Souvenir de S. A. Prince in fine condition; Mr. C. J. Graham second, and Mr. R. W. Jackson third. For six blooms of one variety Mr. Bethune scored with The Bride; Rev. A. Foster Melliar second, with Souvenir d'Elise Vardon; and Mr. F. W. Flight third, with Madame Cochet.

OPEN.

For eighteen roses distinct, Messrs. D. Prior and Son, Colchester, was first with superb blooms of Lady Mary Fitzwilliam, Suzanne Marie Rodocanachi, Her Majesty, Helen Keller, Marchioness of Londonderry, Gustave Piganeau, Horace Vernet, Mrs. J. Laing, Comtesse de Ludre, Mrs. W. J. Grant, Alfred Colomb, Maman Cochet, La France, Marie Verdier, Marguerite Boudet, Duke of Fife, Caroline Testout, and Camille Bernardin; Messrs. F. Cant and Co., Colchester, second; and Messrs. Paul and Son, third. In the open class for eighteen tea roses, distinct, Messrs. D. Prior and Son, Colchester, secured first prize with Madame Watteville, Catharine Mermet, Innocente Pirola, Maman Cochet, Caroline Kuster, Ernest Metz, Jean Ducher, Souv. de un Ami, Maréchal Niel, Souvenir de S. A. Prince, Madame Hoste (a grand flower), Comtesse de Nadaillac, Ethel Brownlow, The Bride, Media, Bridesmaid, Corinna, and Madame Cusin; Mr. G. Prince, Oxford. second; and Messrs. Paul and Son, third.

NEWCASTLE HORTICULTURAL SOCIETY, July 13, 14, and 15.

THE exhibition held at Newcastle on the above dates was a fine one, the exhibits being both numerous and good. The whole display was under one enormous canvas erection that would make the largest marquee at the Temple Show look small beside it. Sixty-five classes were provided, and the majority were open. With regard to quality, the fruit was very good, the cut hardy flowers especially fine; indeed, we have never at any show seen such a grand display of first-rate subjects. There was a good competition in the group and decorated fire-place classes, but the exhibits were by no means first-class, and we have seen some of the competitors do much better previously. The floral decorations were splendid, as may be expected when the Messrs. Perkins, of Coventry, show largely. Non-competitive displays were a feature, and especial praise is due to Messrs. J. Veitch and Sons, Mr. Forbes, of Hawick, Messrs. William Paul and Son, and Messrs. Backhouse and Co., of York, for their groups.

GROUPS AND PLANTS.

In the class for a group of miscellaneous plants, arranged to produce artistic effect, the first prize of £10, together with the R.H.S. silver Banksian medal, was won by Mr. J. McIntyre, gardener to Mrs. Gurney Pease, Darlington, with a tasteful production that needed, to our mind, a few more bright flowers to make it first class. The group was composed of a series of mounds of varying height, arranged over a ground-work of moss and mirrors (to represent water); crotons, dracænas, coleuses, alocasias, cypripediums, and caladiums were dotted about, and a few small oncidiums graced the larger mounds with their spikes. We have seen better groups arranged by Mr. McIntyre. Mr. J. Farquharson, gardener to R. O. Lamb, Esq., West Denton, Scotswood, was second, but he had lumped his plants too much; Mrs. B. Jennings, Haymarket, Newcastle, third; and Mr. Edmondson, Green Market, Newcastle, fourth.

Mr. F. Nicholas, gardener to the Earl of Zetland, Upleatham, had the best half-dozen specimen flowering plants, his Stephanotis floribunda and Erica ventricosa Bothwelliana being very well finished. Mr. Nicholas was also first for four plants in bloom with Anthurium Scherzerianum, Dipladenia bolivensis, Aphelexis rosea, and Erica depressa. Mr. T. Wilkinson, Croydon Road, Newcastle, was a leading exhibitor of fuchsias, &c., in the amateurs' division; and Mr. Park was also successful for coleus, &c. Mr. J. Morris, Felling, was second for six flowering plants. Mr. J. McIntyre had the best six foliage plants, showing large examples of popular palms, Cycas siamense, and some handsome crotons; Mr. Nicholas second; and Mrs. B. Jennings third. Mr. McIntyre and Mr. Morris gained first and second places respectively for three specimen crotons.

Mr. T. Battensby, Hagg Hall, Blagdon, had the best decorated fireplace and mantel, using coleus, irises, and variegated rubus sprays to advantage; Mrs. Jennings second, and Mr. McIntyre third. Five fireplaces were decorated, but the art displayed was not of the highest order.

ROSES.

Messrs. Perkins and Sons, Coventry, secured the first prize for a collection of roses arranged for effect, and with the prize went a bronze medal. There were wreaths of specimen roses, chiefly pink and red and rose forms; baskets of yellow and crimson roses, epergnes of pink and white roses; bouquets of crimson, white, yellow, and red roses, and hanging baskets of delightful sprays of Penzance briars—a pretty and sweetly fragrant display. The second prize fell to Messrs. D. and W. Croll, Dundee, who staged beautiful baskets of tea roses over bunches and boxes of excellent blooms; Messrs. Harkness and Sons, Bedale, Yorks, third. The competition was keen.

For seventy-two roses not less than twenty-four varieties, to be shown in triplets, Messrs. Harkness and Sons, Bedale, were well first with an even and fresh set of blooms; Suzanne Marie Rodocanachi was very fine. The Messrs. Croll, of Dundee, came second, and Messrs. G. and W. Burch, Peterborough, third.

Messrs. Harkness and Sons won the first prize for four dozen roses, distinct with fresh flowers of Mrs. J. Laing, Suzanne Marie Rodocanachi, Heinrich Schultheis, Horace Vernet, Francois Michelon, Marie Baumann, Mrs. Harkness, Duchesse de Morny, Her Majesty, Gustave Piganeau, Marchioness of Dufferin, Ulrich Brunner, Marchioness of Londonderry, Marie Verdier, Helen Keller, and Duke of Edinburgh, in the back row; Alfred Colomb, Kaiserin Augusta Victoria, General Jacqueminot, Niphetos, Duke of Fife, Madame Cusin, Etienne Levet, La France, Marquise Litta, Caroline Testout, Fisher Holmes, Madame Hoste, Comtesse de Ludre, Souvenir d'Elise Vardon, Mons. A. Dumesnil, and Lady Mary Fitzwilliam, in the middle row; Souvenir de S. A. Prince, Earl of Dufferin, White Lady, Crown Prince, Danmark, Anna Olivier, Duke of Wellington, Margaret Dickson, Duchesse de Vallambrosa, Madame Delville, Madame Gabriel Luizet, Prince Arthur, Souvenir d'un Ami, Captain Hayward, Marchioness of Devonshire, and Star of Waltham, in the front row; there were four competitors, Messrs. R. Mack and Son, Catterick, coming second and Messrs. D. and W. Croll, Dundee, third. In the class for three dozen blooms, Messrs. Harkness and Sons were again first, Messrs. D. and W. Croll second, and Messrs. G. and W. Burch, Peterborough, third.

Messrs. Harkness and Sons also secured the chief award for twelve roses, showing grand specimens of Mrs. J. Laing, Ulrich Brunner, Her Majesty, Francois Michelon, Mrs. S. Crawford, Marchioness of Londonderry, Duke of Teck, Caroline Testout, Madame Gabriel Luizet, Captain Hayward, Baroness Rothschild, and La France; Messrs. R. Mack and Son second; and Messrs. G. and W. Burch third. The first prize for twelve blooms of one variety was won by Messrs. Harkness and Sons with Mrs. J. Laing, a fine dozen; Messrs. D. and W. Croll second, with Lady Mary Fitzwilliam; and Messrs. G. and W. Burch third, with Her Majesty. In the division open to gardeners, the first prize three dozen roses in triplets, Mr. R. Park, Bedale, was first, and he also scored for a dozen blooms distinct, besides winning first for twelve flowers in the amateurs' division.

HARDY FLOWERS.

The class for twenty-four bunches of hardy herbaceous or border flowers, roses excluded, resulted in a most dazzling display of beautiful blooms, and as the view included other classes for hardy flowers, the effect can be better imagined than described. Messrs. J. Cocker and Sons, Aberdeen, took leading honours with magnificent and tastefully-arranged bunches of Delphinium Argus, Figaro, and a seedling; Dictamnus fraxinella alba, Pæonies Triumphans, Henry Demay, and Festiva, Centranthus ruber, Lilium martagon album, L. longiflorum giganteum, Thalictrum angustifolium, Gladioli Colvillei The Bride, G. delicatissima, Eryngium alpinum, Iris Leander, I. Blue Emperor, I. Snowball, I. Belle Chinoise, Inula glandulosa, Aquilegia cærulea, Geum coccineum fl.-pl., Gaillardia Penelope, Heuchera sanguinea, and Helenium Balanderi; Messrs. Harkness and Sons, Bedale, second; and Mr. F. Edmondson, Green Market, Newcastle, third.

There were five exhibitors in the class for eighteen bunches of hardy flowers, and here Messrs. J. Cocker and Sons again proved themselves the foremost competitors; Messrs. Harkness and Sons came second, and Mr. Edmondson third. In the amateurs' division, Mr. W. Hutchinson, Kirkby Moorside, had the best half-dozen bunches of hardy flowers; Mr. T. Battensby, Hagg Hall, Blagdon, second. For a dozen bunches Mr. Hutchinson was also first, his set including a splendid bunch of Campanula grandiflora.

FLORAL DESIGNS.

Messrs. Perkins and Sons, Coventry, were to the fore in this division, gaining first prize for a bridal bouquet in which orchids were to be used; Mr. T. Battensby second. The Messrs. Perkins were first for a bridal bouquet, arranging a lovely design in odontoglossum and lily of the valley; Mrs. B. Jennings, Haymarket, Newcastle, third. The Coventry firm showed the best basket of flowers—orchids excluded—having a charming design in crimson carnations and dipladenias and roses; Mr. T. Battensby second. For a drawing-room epergne Mr. Edmondson was a good first with a bright and elegant design in cattleyas, liliums, gladiolus, and grasses; Mr. G. Webster, Sunderland, second, and Mr. T. Battensby third. Messrs. Perkins and Sons again scored a first in the class for a hand bouquet, arranging ixoras, roses, and stephanotis tastefully. The same firm led the way for a twelve-inch basket of cut flowers, showing masdevallias and odontoglossums finely; they were also first for a hand bouquet of orchids with a costly and gorgeous design.

FRUIT.

The fruit display was an extremely good one. In the principal class for a collection of eight dishes, Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, won the first prize with Cannon Hall Muscat and Black Hamburgh grapes, finely berried; Queen pineapple, Barrington peaches, Countess Melon, Lord Napier nectarines, Brown Turkey figs, and lovely Astrachan apples; a very fine set of fruit. Mr. J. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., Hutton Hall, Guiseborough, was second, showing Chasselas Napoleon grapes, Clapp's Favourite pears, and Yorkshire Beauty melon in fine condition. Mr. J. Tullett, gardener to the Right Hon. Lord Barnard, Raby Castle, Staindrop, third. There were five exhibitors. The best four dishes of fruit were staged by Mr. Goodacre, who this time showed Black Hamburgh grapes, Pineapple nectarines, Hero of Lockinge melon, and Bellegarde peaches; Mr. J. McIndoe, second; and Mr. G. Lonsdale, gardener to R. H. Appleton, Esq., Woodside Hall, Eaglescliffe, third. Mr. Goodacre again led the way, and gained a silver Banksian medal for four bunches of grapes, with braces of Muscat Hamburgh and Madresfield Court; Mr. McIndoe second, with Madresfield Court and Chasselas Napoleon, the latter well finished; Mr. J. Tullett third. Mr. R. Strickland, gardener to F. W. Backhouse, Esq., Sunderland, had the best white grapes, with White Frontignian; Mr. McIndoe second, with Muscat of Alexandria; and Mr. G. Lonsdale third, with the same variety.

Messrs. Tullett, Goodacre, and McIndoe shared the leading awards for melons; Mr. Goodacre had the best peaches, beautifully finished examples of Royal George; Mr. F. Nicholas, gardener to the Earl of Zetland, Upleatham, second with Dymond. For nectarines Mr. Goodacre led with Lord Napier; Mr. Tullett second with the same; and Mr. McIndoe third with Byron. Messrs. McIndoe, Goodacre, and Lonsdale took the prizes for cherries with grand dishes of fruit.

Mr. McIndoe scored for a pair of bunches of any white grape, exclusive of Muscat of Alexandria, showing Duke of Buccleuch; Mr. Goodacre second with Foster's Seedling. Mr. Goodacre showed the best brace of bunches of Black Hamburgh grapes, and Mr. Lonsdale was a good second. For any other black grape, Mr. McIndoe scored with Madresfield Court, and Mr. Goodacre came second with handsome clusters of Gros Maroc. Royal Sovereign strawberries from Mr. Blackwood, gardener to Lord Decies, Belsay, won first prize; Mr. G. Macfarlane, Alnwick, second; and Mr. Goodacre third. For six dishes of strawberries Mr. Macfarlane was first, showing John Ruskin, Sir J. Paxton, Royal Sovereign, Noble, Sharpless, and Scarlet Queen.

VEGETABLES.

Mr. J. McIndoe took first prize in the class for a collection of vegetables, prizes offered by Messrs. Webb and Sons, Stourbridge; the same competitors also took the first place in a class for a collection of vegetables, provided by Messrs. Sutton and Sons, Reading. In both displays Mr. McIndoe had fine celery, peas, French beans, and tomatos. He was the only exhibitor. Mr. Lonsdale showed the best tomatos, Sutton's Perfection.

NON-COMPETITIVE DISPLAYS.

Messrs. J. Veitch and Sons put up a magnificent exhibit of plants occupying about five hundred square feet, graceful palms and bamboos, with splendid caladiums and heliconias made a most effective background for mounds of brilliant Javanico-jasminiflorum rhododendron hybrids, lily of the valley, cannas, Kalosanthes coccinea (grandly grown), gorgeous crotons, heaths, nidulariums, gymnogrammas, streptocarpuses, &c. In the central portion, near the front, were a few fine orchids, such as Cattleya eudora, C. gigas, Cypripedium superbiens, Epidendrum vitellinum majus, Mormodes grandinum, Lælia purpurata, Lælio-cattleya Canhamiana alba, and the pretty Sophronitis Veitchi. This was a first-rate exhibit, though a little more finish along the front line would have improved its effectiveness. Messrs. H. Cannell and Sons, Swanley, put up a gorgeous display of cannas grown in the usual fine style that one expects from the Home of Flowers. All the best varieties were staged, including the Austria and Italia group.

An extensive, fragrant, and beautiful display of roses was arranged by Messrs. Wm. Paul and Son, Waltham Cross, who staged big baskets of flowers of new varieties. To name a few that were especially attractive—Spencer, Caroline Testout, Madame J. Grolez, Louis Von Houtte, Her Majesty, Captain Christy, Belle Siebright, Helen Keller, The Bride, Ethel Brownlow, Maman Cochet, and Vicountess Folkestone. There was also a box of Waltham Cross Seedlings. The whole display consisted of fourteen "two-dozen" boxes, and two dozen baskets each holding about fifty flowers of a variety. A few more plants among the baskets and boxes would have improved the exhibit vastly; the roses, however, were grand. Messrs. J. Backhouse and Son, York, had a charming show of hardy flowers, putting them up on a miniature rockery of elegant design. Campanulas, Orchis foliosa, Cypripedium spectabile, Romneyi Coulteri, Adiantum pedatum, were well shown. Water lilies were not well enough in flower to be properly effective. Stove plants were staged in fine condition, and the group of orchids and new plants came in for a large share of admiration.

Mr. J. Forbes, Hawick, showed a splendid set of phloxes and pentstemons, staging such glorious spikes of big blooms that are seldom seen in the drier southern counties. A spike of Pentstemon Fivelich was twenty-three inches long. Delphiniums were equally grand, and we have to regret that limits of space prevent us naming a few sorts; half-a-dozen fine pentstemons were Jean Mace, Legende, Alfred Hamband, Charles Dickens, George Groves, and Cigale. Messrs. Little and Ballantine, Carlisle, put up a handsome group of palms, crotons, caladiums, &c., interspersed with Cupid sweet peas; the firm also showed their new variegated holly, Golden King. Messrs. R. Wallace and Co., Colchester, surpassed themselves with a charming display of liliums in wonderful variety; the calochorti proved a great attraction, and certainly they were splendid; Hemerocallis aurantiaca major naturally occupied a prominent position, and there were fine bunches of Gladiolus Colvillei in variety, Iris gigantea, Iris Kæmpferi, and alstrœmerias. Messrs. Edwards and Sons, Nottingham, showed fancy fern and flower stands. Messrs. W. Fell and Co., Hexham, put up a charming lot of garden roses in large bunches. Mr. S. Pye, Caterall, Garstang, showed pansies and violas in splendid condition; the violas were in bunches of twelve [illegible], and such sorts as A. J. Rowberry, Mrs. Crane, Lucy Bertram, Pembroke, Marchioness, Magic, Ardwell Gem, and Isa Fergusson were especially effective. The Messrs. W. Fell and Co., Hexham, contributed a beautiful group of specimen conifers arranged in a groundwork of palms, hydrangeas, ferns, cannas, &c. Retinospora plumosa aurea is a grand conifer and grandly shown by this firm. Messrs. J. Robson and Sons, Hexham, were also extensive exhibitors of conifers, [illegible], euonymuses, Hydrangea paniculata, Acer negundo variegata, &c., all edged with variegated vincas and making up a showy display near the entrance. Messrs. Laing and Mather, Kelso, showed a pretty little group of carnations, both Malmaison and other varieties. Malmaison carnations shown by Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, were grouped effectively, and made a bright exhibit that was a centre of attraction. Violas and pansies from Mr. A. Lister, Rothesay, were notably bright, large and fresh, and deserved all the admiration they received.

Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, showed a superb lot of water lilies almost entirely of Nymphæa Marliacea. All the flowers were cut from the lake at Gunnersbury, and with the exception of the blue N. zanzibarensis, none had been afforded protection during the winter, but this one grows in warm water. N. Marliacea chromatella, N. M. rosea, and N. M. albida were gloriously beautiful. The water lilies were one of the leading features of a fine show. Mr. James Douglas staged carnations finely; Trumpeter, red; Elfin, white; Nell Gwynne, white; and Lady Grimston, rose and scarlet, were especially fine. A charming group of Spanish and English irises was put up by Messrs. J. Cocker and Sons, Aberdeen; the bunches were large and the flowers first-rate; about six dozen bunches were staged, and the effect was splendid. To those from the South this late display of irises was a great treat.

AWARDS OF THE ROYAL HORTICULTURAL SOCIETY.

A deputation of the Royal Horticultural Society consisting of the President, Sir Trevor Lawrence, Bart.; the Treasurer, P. Crowley, Esq., F.L.S.; the Secretary, Rev. W. Wilks, M.A.; and Messrs. C. Shea, A. Pearson, G. Paul, G. [illegible] Yeld, J. Wright, A. Turner, and J. O'Brien, made a tour of the exhibition in the morning, and made the following awards: *First Class Certificate* to the Hodgkin Holly Golden King from Messrs. Little and Ballantine, Carlisle. *Gold Medal* to Messrs. J. Veitch and Sons, Chelsea, for group of plants. *Silver-gilt Flora* medals to Messrs. Wm. Paul and Son, Waltham Cross, for roses; Messrs. J. Backhouse and Co., York, for hardy plants and orchids; and to Mr. J. Forbes, Hawick, N.B., for pentstemons, phloxes, and delphiniums. *Silver-gilt Banksian* medal to Messrs. R. Wallace and Co., Colchester, for lilies and calochorti. *Silver Flora* medals to Messrs. J. Cocker and Sons, Aberdeen, for cut hardy flowers (first prize set); to the same firm for Spanish irises; Messrs. H. Cannell and Sons, Swanley, for cannas; Messrs. Perkins and Sons, Coventry, for first-prize display of roses. *Silver Banksian* medals to Mr. J. Hudson, gardener to L. de Rothschild, Esq., Gunnersbury House, Acton, for water lilies; Mr. A. Lister, Rothesay, for stands of violas and pansies; Messrs. Harkness and Sons, for twelve blooms of Mrs. J. Laing rose; Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, for his first-prize collection of fruit; Mr. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., Guisborough, for second-prize collection of fruit; Mr. J. McIntyre, gardener to Mrs. G. Pease, Darlington, for groups of plants; and to Mr. S. Pye, Garstang, for violas. *Bronze Flora* medal to Messrs. Harkness and Sons, Bedale, for hardy flowers.

LUNCHEON.

At the conclusion of the judging and making awards the Newcastle Society entertained the R.H.S. deputation, the judges, the committee, and the pressmen at lunch at the Grand Hotel. The President, Riley Lord, Esq., J.P., of Highfield Hall, Gosforth, presided, and was supported by Sir Trevor Lawrence and Alderman J. Baxter Ellis, J.P. After a well-served luncheon the usual loyal toasts were given and received. Then the President rose to propose "Continued Success to the Royal Horticultural Society." He commenced by remarking that the show of that day was larger and better than usual, and the reason, he considered, was that it had become well-known that the R.H.S. would send a deputation to Newcastle with a view to encouraging horticulture. He was happy to find the weather so pleasant, and he hoped that the success financially would be as great as it had been in other directions. The Newcastle Society was doing the right work in the North of England, and he felt sure that the Royal Horticultural Society was doing right in coming to them and recognizing the Newcastle display as one of the best in the provinces. There would naturally follow an exchange of ideas upon such an [illegible] and he thought that both societies would be greatly benefited. Briefly alluding to the age of the R.H.S., Mr. Lord referred to the enthusiasm and perseverance that had belonged to horticulturists of all times as shown by the position of the parent and many other societies. He was delighted, as they all were, to welcome the deputation to Newcastle, and they felt it a great honour to have among them so many influential horticulturists who had willingly given their time and travel so many miles to pay Newcastle a visit. He thanked the deputation on behalf of his society, and in proposing the toast coupled with it the name of Sir Trevor Lawrence, Bart.

Sir Trevor, who was most enthusiastically received, returned thanks on behalf of the deputation for the reception accorded them, and for the kindness and hospitality so freely extended to all the members. This was the fourth year that the Royal Horticultural Society had sent deputations into the country to visit the [illegible] provincial exhibitions, and wherever these had gone they found much to [illegible], interest, and instruct, so that the idea had proved most successful. He was glad to learn that the Newcastle Society was only twenty years younger than the R.H.S., and that it had always been consistent, holding a horticultural exhibition each year of its existence. His opinion of the show was that it was a good one, and in some departments, especially hardy flowers and roses, it was exceptionally good, scarcely too much could be said in praise of the hardy flowers staged in such grand bunches. The deputation also thought Mr. Forbes' pentstemons, phloxes, and delphiniums extremely good. Sir Trevor then advised the Newcastle Society to keep to its own business, for only by so doing could they hope to be successful. He instanced the reverses of the R.H.S. when it departed from the strict line of duty, and showed how it had, during late years, fulfilled its proper functions, and increased both membership and reserve fund. The fortnightly meetings were now extremely good and popular; it was often difficult to find exhibitors all the space they wished for, while the attendance was fashionable and large. The reserve fund was now about £7,000. Stick to horticulture was the text of Sir Trevor's speech, and in his concluding remarks he pointed out the influence horticulture had upon the masses, illustrating his point by stating that in the country it was pretty safe to expect a clean, well-kept interior to a cottage which had a well-kept garden attached, and *vice versa*.

"Success to the Newcastle Society" was the toast ably proposed by Mr. Charles E. Shea, who said that the deputation had not come out to make speeches but as practical horticulturalists. It seemed quite unnecessary to wish health and success to a society that was so vigorous and healthy as that of Newcastle, as evidenced by the show they had just left. With regard to the exhibition, he had certainly never seen a grander display of hardy flowers than the show held, and some of the flowers he had never seen better represented, notably Heuchera sanguinea. Referring to Sir Trevor's remarks, anent the wide spread influence of horticulture, Mr. Shea alluded to the good work being done in the East end of London by the People's Palace Horticultural Society, and spoke highly in favour of any movement that would increase the love of flowers and plants in the hearts of the poorest of people and so enlighten the m and brighten their lives and homes. Mr. Shea concluded by thanking the society for the hearty reception of the R.H.S. deputation, and hoped all the success deserved might attend the present show. This toast was ably responded to by Alderman J. B. Ellis, J.P., who expressed the indebtedness the Newcastle Society felt to the R.H.S. in being honoured by so influential a deputation as they had had the pleasure of receiving. He spoke of the reverses his society had undergone and referred in high terms to the grand way in which the wealthy folk of the Newcastle district had always rallied round them on such occasions. The toast of "The Mayor and Corporation" concluded the pleasant proceedings.

LEE AND BLACKHEATH HORTICULTURAL SOCIETY,

July 6 and 7.

THE annual exhibition of this admirably managed society was held in the grounds of Cedar House, the residence of Mrs. Penn, and, as usual, was so thoroughly good in its leading features as to indicate horticultural skill of a high order in the district. Plants, groups, and cut flowers were of great excellence, fruit was somewhat below the high average of previous years, but vegetables were staged in immense quantities and excellent condition.

GROUPS OF PLANTS were more tastefully arranged than at any of the previous exhibitions of the society, and, as the entries were numerous, they constituted a very pleasing feature. Mr. F. Fox obtained premier honours for a surprisingly beautiful arrangement, and Mr. J. Lambert and Mr. C. Nunn, who were second and third, with groups of which they had good cause to be proud. Tables of plants were not less satisfactory than the groups, and in the class for these Mr. F. Fox was again first, having an elegantly arranged table; Mr. J. Amey and Mr. E. Dove were second and third with good tables, although the plants were rather crowded. Collections of twenty-four plants in pots not exceeding eight inches in diameter formed, as usual, a strong class, and the numerous collections produced an effective display. The successful competitors were Messrs. W. Payne, F. Fox, T. Aley and C. Birch, to whom the prizes were awarded in the order of their names.

STOVE AND GREENHOUSE PLANTS continue to receive the attention in the district they so well merit, and numerous well-grown collections were staged in the several classes. There were four competitors for the prizes offered for twelve flowering and foliage plants, and the awards were made in favour of Mr. C. Nunn, Mr. F. Fox, and Mr. C. Saville, all of whom had finely-grown specimens. The best six specimens were contributed by Mr. C. Birch, Mr. F. Fox, and Mr. T. Aley; and the successful competitors in the class for four were Mr. C. Nunn, who had a finely-flowered example of Stephanotis floribunda, and Mr. C. Birch. Ornamental-leaved plants, were superbly shown; and the prize takers in the class for six were Mr. J. Lambert, who had two richly-coloured crotons, Mr. C. Nunn, and Mr. W. Payne. The finest single specimen in bloom was a large example of Ixora Williamsi, contributed by Mr. C. Birch, and selected for the award of the silver medal offered for the exhibit evincing the highest cultural skill. Mr. C. Nunn contributed to the class a densely-flowered example of Clerodendron Balfourianum. Mr. Lambert obtained premier honours for a specimen fine foliage plant, and also for six dracænas, the latter being well coloured, especially good also were the four dracænas from Mr. T. Aley, who was awarded the first prize. Caladiums were represented by several collections, each consisting of large splendidly-coloured specimens. The finest examples were contributed to the class for six, in which the prizes were awarded to Mr. C. Nunn, Mr. W. Payne, and Mr. F. Fox. Mr. H. Horton obtained premier honours for six gloxinias, and for the same number of tuberous begonias, with excellent examples. There were numerous other classes, and the chief prize winners were the exhibitors whose names have been already given.

FERNS were staged in considerable numbers, and the several collections were of a high order of merit. There was a strong competition in the class for six exotics, and in the result Mr. C. Birch, Mr. W. Payne, and C. Nunn were awarded the prizes in the order of their names. For four, Mr. J. Lambert and Mr. A. W. Lower were first and second, and the first prize for six hardy kinds was awarded to Mr. C. Saville, who had medium-sized and well-finished examples of excellent forms.

CUT FLOWERS were strongly represented, and chief among them were the roses for which several open classes were provided. Two rose classes were for nurserymen, one for forty-eight and one for twenty-four, and in each of these Messrs. G. and W. H. Burch were first with blooms remarkable for their freshness and finish. Mr. J. R. Box was second in the two classes with excellent blooms, and Messrs. B. Muller and Son were third in each class. In the division open only to gardeners and amateurs Mr. G. W. Cook was first for twenty-four, twelve, and six distinct, for six blooms of one variety; and in a special class, in which the prizes were offered by Messrs. Burch, he obtained premier honours. Mr. J. Browning was second for twenty-four distinct, six blooms of one variety, and first for twelve teas; and Mr. J. Bateman was second for twelve and six distinct. Mr. J. Lambert was successful in taking premier honours for three stands for the dinner table and one epergne with tasteful arrangements. Mr. Saville had the best stand of cut flowers, and Mr. Judge the best button holes.

FRUIT was, on the whole, below the average, and does not call for detailed notice. The chief awards in the several classes were made in favour of Mr. E. Dove, Mr. J. Arney, Mr. E. Longley, and Mr. Weller.

VEGETABLES were of a high degree of excellence, and it would be difficult to speak too highly of the collections. There were two classes for these, and in that for a collection without limit as to the number of kinds Mr. E. Dove occupied the first place, Mr. F. Fox and Mr. C. Nunn the third; and in the class for six kinds, in which the prizes were provided by Messrs. Sutton and Sons, Messrs. Dove and Fox were first and second respectively.

The arrangements were, as usual, remarkable for their completeness, and did much credit to Mr. C. Helmer, who has occupied the position of secretary upwards of twenty years.

CHERTSEY, WALTON, AND WEYBRIDGE, July 7.

The thirty-third annual summer exhibition was held in the grounds of Oatlands Lodge, Weybridge, on the date named, and was in every way a success. The competition was keen, and the exhibits were well up to the average in point of quality, a commendable display being made. The arrangements were, as usual, well carried out by Mr. T. J. Rawlings, who has since the inception of the society held the reins of office of secretary. The exhibits were arranged in three tents, one being occupied with the groups of miscellaneous plants arranged for effect, a larger one containing the specimen plants, while another was required for fruit, vegetables, and cut flowers.

The Groups were an interesting feature. In the principal class there were three entries, but these produced a good display. Mr. J. Lock, gardener to Mr. C. Swinfen Eady, Q.C., easily secured the leading award with a charming arrangement of suitable plants set up in semi-circular style with the usual accompaniment of cork, water, and arches, the whole producing a harmonious display. Mr. C. J. Cook, gardener to J. G. Sassoon, Esq., Walton-on-Thames, took second position with a bright, yet more formal, arrangement. Mr. J. Ashdown, gardener to Major Collis Brown, Broad Oak, Byfleet, was third. In a minor group there were three exhibitors also. Mr. H. Prothero, gardener to Miss Green, Weybridge, secured the leading award for a bright, yet rather too stiffly-arranged, group of suitable plants. Mr. W. C. Pagram, gardener to J. Courtenay, Esq., The Whin, Weybridge, second; while Mr. A. Millican, third.

Stove and Greenhouse Plants were freely staged, some difficulty being experienced in accommodating properly all that were sent. For eight miscellaneous plants, not less than four to be in flower, Mr. J. Lock secured the leading award with specimens showing high cultivation. Mr. Lock also won for four specimens in flower. In the class for six foliage plants, Mr. T. Osman, gardener to J. L. Baker, Esq., Ottershaw Park, Chertsey, was premier prize-taker with healthy examples of Cycas cincivalis and Kentia Fosteriana. Mr. Lock followed closely for second prize. These two exhibitors won first and second prize in the order here placed for one specimen flowering plant, Mr. Osman staging a well-flowered Anthurium Scherzerianum.

Ferns were creditable to the exhibitors concerned, the plants numerous, while the general health and quality of the exhibits left little to be desired. Mr. Lock won premier award for six, staging good plants of pleasing variety of rude health. Mr. Osman followed with specimens, but little inferior. Hardy ferns were grandly staged by Mr. Millican, who had a superb specimen of Adiantum pædatum.

Soft-Wooded Plants.—Gloxinias were staged in large numbers, and of extra fine quality. Mr. Stedman, gardener to H. F. Burke, Esq., Weybridge, secured first prize with grandly flowered specimens, such as is seldom seen; Mr. E. Watford, gardener to A. J. Rhodes, Esq., Weybridge, second. For six fuchsias, Mr. J. Dabona, gardener to Mrs. Cobbett, Weybridge Heath, won for freely flowered examples not too formally trained. Mr. Osman secured the leading award for four coleus with pyramidal trained specimens, bright in colour. Begonias were numerous, bright, and good. Mr. Stedman won for six single, and for six double flowered also, Mr. Millican winning for four plants. Mr. Osman contributed the prize-winning caladiums in four varieties, really good examples, showing much cultural skill. Streptocarpus made an interesting exhibit, so numerous were they, and so good in quality. Mr. J. Buxton, gardener to J. A. Forster, Esq., Fernlands, Chertsey, secured the leading award.

Cut Flowers were an attractive feature of the show. Roses were numerous and good. Mr. Will Taylor, Hampton, Middlesex, won for twenty-four distinct, with bright coloured examples of popular varieties. Mr. J. Tomlin, gardener to Mrs. Goldringham, second. Mr. Prothero secured the leading award for twelve trebles, with fresh examples, if somewhat small. Herbaceous flowers were an interesting feature of the show. Mr. Jinks, gardener to E. Druce, Esq., The Beeches, Walton, won with a representative collection of twelve varieties.

Fruit made an interesting feature. Black grapes were numerous and good in quality. For two bunches Mr. Sadler, gardener to Mrs. Tulk, Cowley House, Chertsey, won premier position with huge clusters of Black Hamburgh, good in every respect. Mr. I. Osman second, with neat examples. For two bunches any white grape Mr. Lock, with very fine specimens of Foster's Seedling, secured the premier position. Mr. Osman, with medium-sized Buckland Sweetwater, was second. Mr. Jinks, with Goshawk, won premier position for one dish peaches. Mr. Lock secured a similar place for nectarines with well coloured fruit of Dryden. The last-named, with Royal Sovereign, won premier place for one dish of strawberries. Melons were well shown, Mr. Prothero being first with Empress.

Vegetables were thoroughly well represented. Mr. A. Basile, gardener to C. L. Powell, Esq., Woburn Park, Weybridge, won the leading place for eight varieties with a faultless collection. Mr. Osman second.

Non-competitive Exhibits were interesting and appreciated. Mr. W. Baxter, Woking, staged two dozen violas, well representing this popular flower in its best character. Messrs. Barr and Son sent a thoroughly representative collection of herbaceous flowers; it is needless to say these were much admired, and proved a capital object lesson to the numerous visitors and admirers. Mr. Will Taylor sent a collection of roses, embracing H.P. and garden varieties in quantity. Messrs. J. Laing and Son, Forest Hill Nurseries, arranged a representative collection of stove and greenhouse plants at the entrance to the principal tent. Messrs. Jackman, Woking, contributed roses and herbaceous flowers numerously and well. Messrs. Fletcher showed roses and herbaceous flowers.

HIGHGATE HORTICULTURAL SOCIETY, July 8.

The thirty-ninth annual exhibition of this society was held on the above date in the prettily-situated grounds of Northwood, Hornsey Lane, and appears to have taken a new lease of life, judging from the pleasing display on this occasion. The larger tent was well filled with exhibits from the trade and the professional element of the neighbourhood, the smaller one displaying the products of the amateur and cottage members of the society. In each case there was evidence of good culture, showing that growers in the northern heights are able still to make a show worthy of such an old-established society.

Groups, as usual here, were the strongest feature of the display, and in a great degree were successful in making a very pretty show. For a group of flowering and foliage plants, arranged for effect on a space nine feet by six feet, a beautiful combination secured first prize for Mr. H. Eason, gardener to Mr. B. Noakes, North Hill, Highgate. This was neatly and effectively set up, and the flowering and foliaged plants well balanced. Second prize was secured by Mr. E. H. Chitty, gardener to Mr. S. Hardy, Cholmely Lodge, Highgate, for a meritorious arrangement. Only one competitor was forthcoming in a class for a group of exotic ferns, caladiums, and coleus, and the first prize was deservedly awarded to Mr. J. Brooks, gardener to Mr. Walter Reynolds, J.P., The Grove, Highgate. A spirited competition resulted in the mixed group open to single-handed gardeners, and a brave show was made. Mr. T. L. Tark, gardener to Mr. T. Laney, Southwood House, was a good first with a fine, bold arrangement, in which taste and artistic merit in the disposition of the plants were displayed; second prize was gained by Mr. J. Adams, gardener to Mr. E. H. Smithett, Hillside, Fitzroy Park, who had a nice group, and third prize was won by Mr. G. Sanders, gardener to Mr. W. Hayes, Gloucester House, Highgate, with a less bright display than the others. A really fine show was made in the group of flowering plants, and the exhibit which secured the leading position for Mr. J. Brooks, was of a high order of merit. Mr. T. Turk also had a handsome group, for which second prize was awarded. For six exotic ferns, Mr. Brooks was a good first, showing capital individual specimens; Mr. Eason, second; and Mr. Adams, third. Gloxinias were in magnificent form, and in a class for six plants, Mr. Turk was first with specimens freely flowered, of large size, and of good colour; Mr. H. Eason was an uncomfortably close second with somewhat dwarfer plants; Mr. J. Sandford, gardener to G. W. Wright-Ingle, Wood House, North Finchley, also had a grand lot of plants for third prize. Tuberous begonias were freely shown in each division, the principal class for six plants resulted in Mr. Sandford being placed first, Mr. J. Brooks following, and Mr. Saunders, third. A class for six foliage plants found Mr. Eason in the premier position with worthy specimens, and Mr. Brooks was placed in the second position, also with a fairly good lot of plants.

Cut flowers at Highgate are generally strongly represented, and the present occasion was no exception to the rule. The leading class was one for a collection of hardy cut flowers, and in this a grand lot of flowers were staged. Mr. T. Parkins, Highgate, was placed first with a thoroughly representative display, and neatly set up, the collection securing second prize being much larger, but not well staged. Many of the subjects were so intermixed that really excellent flowers were hidden. Mr. G. W. Cook, The Briars, North Finchley, won first prize for twelve cut roses distinct, with remarkably fine blooms. These were large handsome flowers of good colour and splendid form and substance, and were a long way ahead of the second prize, won by Mr. Cope; Mr. Cope was placed third. Violas were also well shown, the stand of twelve sprays as shown by Mr. D. B. Crane, Woodview Terrace, Highgate, being splendid examples of cultural skill; Mr. J. M. Dixon, Fitzroy Park, was second; and Mr. Saunders, third.

Among the miscellaneous exhibits, Messrs. B. S. Williams and Sons, Upper Holloway, staged a pretty and interesting group of plants. Mr. W. P. Bodkin, J.P., West Hill, Highgate, sent a fine sample of his extensive collection of cacti, which created considerable interest. Groups of plants came from Mr. W. Ravenhill, Hampstead, and Mr. John Russell, Richmond.

WOLVERHAMPTON FLORAL FETE, July 12, 13, and 14.

In cool but pleasant weather Wolverhampton celebrated its tenth annual floral fête. There were cloudy skies but no rain fell, and towards the middle of the afternoon the sun broke through and lit up the greensward, tree, and shrub of the fine West Park with radiant beauty. Mr. Webster, the superintendent of the park, has this season used the viola with great effect in his bedding arrangements, and at every point the eye is attracted by patches and lines of various colours, all of which are highly effective. As is usual, there were six large tents arranged in line, and so great was the number of exhibits that but very few vacant spaces could be noticed.

Specimen Stove and Greenhouse Plants always occupy a prominent place, and Mr. James Cypher, Cheltenham, had an easy win with sixteen examples, of which not less than one-half had to be in flower. He had as a background huge specimens of Latania borbonica, Kentias Forsteriana and Belmoreana, two grand crotons, Phænocoma prolifera Barnesi, Ixora salicifolia, Allamanda nobilis, Bouganvillea glabra, Statice profusa, &c., a well-balanced lot. Mr. W. Finch, Coventry, was second, having large specimen foliage and very good flowering plants. Mr. W. Vause, Leamington, was third. Mr. Cypher was first with six fine palms, having kentias Thrinax elegans, Phœnix rupicola, and Latania borbonica; Mr. G. H. Kendrick, Birmingham, was second. With six plants in flower, Mr. Cypher was triumphant, having a fine Erica ventricosa Bothwelleana, Ixora Williamsi, Allamandra nobilis, Statice profusa, &c.; Mr. Finch came second, and Mr. Vause third.

In the gentlemen's garden division, the best six stove and greenhouse plants came from Mr. H. Tewkes, gardener to T. Clayton, Esq., but as it is not the practice at Wolverhampton to fill in the addresses of exhibitors, we cannot give them. Mr. A. Cryer, gardener to G. H. Kendrick, Esq., Birmingham, was second. With six exotic ferns, represented by well-grown samples, Mr. Tewkes was first, and Mr. R. Sharpe second. Some good specimen caladiums were shown, and there were numerous plants of tuberous begonias.

Orchids.—The only exhibitor of eight exotic orchids was Mr. J. Cypher; the specimens nicely staged with a ground-work of ferns. There were fine examples of Cattleyas Gaskelliana and Mossiæ, Lælia purpurata, Sobralia macrantha, Oncidium macranthum, &c.

Groups arranged for effect, shown in several classes, were so numerous as to fill the greater portions of two tents. It was said of Mr. Cypher's group of four hundred and fifty feet that it was the best he had ever staged, and it was clearly in advance of anything else. It was in the form of a square, but broken up by the method now followed—every portion a rare object lesson in artistic manipulation. Mr. J. E. Knight, Willenhall, was second, and Mr. Vause third. Both these arranged upon the same general lines as Mr. Cypher's. In the class for the gardeners' large group of three hundred and fifty feet, Mr. Cryer was first with an elaborate arrangement, which represented high artistic work, and Mr. R. Sharpe, gardener to H. Lovatt, Esq., was second.

Cut Flowers.—Good and varied as are the cut flowers shown at Wolverhampton, the roses form the leading attraction, and they occupied a considerable space of tabling. The best seventy-two came from Mr. B. R. Cant, Colchester. Even, fresh, bright, and well-arranged, a few of the leading blooms were Gustave Piganeau, Madame de Watteville, Auguste Rigotard, Prince Arthur, Charles Lefebvre, Mrs. Paul, La Fraicheur, Ernest Metz, Mrs. W. J. Grant, Countess of Caledon, General Jacqueminot, Golden Gate, Catherine Mermet, Helen Keller, Mrs. James Cocker, Alfred Colomb, Caroline Testout, Dr. Andry, Souvenir de S. A. Prince, &c. Messrs. Harkness and Son, Bedale, were second; and Mr. Frank Cant, third. Messrs. Harkness and Son were first with forty-eight blooms, chief among them being Caroline Kuster, White Lady, Mrs. J. Laing, Duke of Wellington, Madame Cusin, Niphetos, La France, Ernest Metz, The Bride, Margaret Dickson, Comtesse de Ludre, Souvenir de Elise, The Bride, &c.; second, Mr. F. Cant; third, Mr. B. R. Cant. The best eight varieties three trusses of each came from Mr. B R. Cant, particularly good were Mrs. J. Laing, Ulrich Brunner, Marchioness of Londonderry, and Helen Keller. Messrs. Harkness and Son were second, having in fine character General Jacqueminot, Madame Cusin, and Mrs. J. Laing; Mr. F. Cant was third. Messrs. J. Townsend and Son, Coventry, had the best twenty-four varieties; Mr. J. Mattock, Oxford, was second; and Mr. H. Merryweather, Southwell, third. The best twelve new varieties of the last three years came from Mr. F. Cant, who had in capital condition Helen Keller, Ellen Drew, Countess of Caledon, Ethel Richardson, Lawrence Allen, of a charming soft colour, and Muriel Grahame. Messrs. A. Dickson and Sons, Newtonards, County Down, were second; they had Countess of Caledon, Muriel Grahame, Mrs. W. J. Grant, and Souvenir de President Carnot; Mr. B. R. Cant, third. Messrs. J. Townsend and Son had the best twelve blooms of a dark rose, staging Gustave Piganeau; Mr. F. Cant was second with Horace Vernet; and Mr. B. R. Cant third, with Ulrich Brunner. The latter had the best twelve of any light rose, staging very fine Mrs. J. Laing; Messrs. A. Dickson and Sons came second with Bessie Brown, a very promising ivory-white variety; and Messrs. Townsend and Son third, with Marchioness of Londonderry. The best twelve teas came from Mr. J. Mattock.

An artistic arrangement in roses, covering a table space of sixty feet, proved a very interesting feature, the best coming from Messrs. Perkins and Sons, Coventry. Bouquets, stands of bloom, posies, &c., of charming roses in considerable variety, and of good quality, were prominent, and in the back ground a disc of Lord Penzance's sweet briars; Mr. J. Mattock was second; and Messrs. W. F. Gunn and Co., Birmingham, third. Several rose classes were set apart for gentlemen's gardeners and amateurs, the Rev. J. H. Pemberton, Havering, taking the leading prizes, he, as is usual, staging very fine blooms.

Boxes of twelve bunches of stove and greenhouse cut flowers were a fine feature, and here Mr. J. Cypher was placed first with a superb exhibit, staging large bunches of various orchids, cattleyas, odontoglossum, lælia, and masdevallia, gloriosa superba, ixoras, &c. There were several classes for bouquets, sprays, &c, the leading prize-takers being Messrs. Perkins and Son and M. Jenkinson and Co. Some arrangements in hardy border flowers were a good feature, Messrs. W. F. Gunn and Co. taking the first prize. There was also an arrangement in sweet peas for effect, and the awarding of the prizes showed great diversity of opinion among the judges. Eventually Messrs. W. F. Gunn and Co. were placed first; Mr. W. Goodacre, Elvaston, second; and Messrs. Jones Bros. third.

Fruit was in good character; the best collection of nine dishes came from Mr. J. H. Goodacre, Elvaston Castle Gardens, and consisted of Black Hamburgh and Muscat of Alexandria grapes, the former finely finished. Very fine Noblesse and Bellegrede peaches, Lord Napier nectarine, Lady Sudeley apple, Perfect melon, and strawberries; Mr. T. Bannerman, gardener to Lord Bagot, was a good second. Mr. Goodacre had the best four bunches of grapes, staging Gros Maroc, Black Hamburgh, Muscat Hamburgh, and Madresfield Court, all finely finished; Mr. J. Read, gardener to Lord Carnarvon, was second—he had Black Hamburgh, Madresfield Court, Buckland Sweetwater, and Muscat of Alexandria. The best two bunches of white grapes were Muscat of Alexandria from Mr. T. Jordan, Impney Hall; Mr. Bremmett, gardener to H. H. F. Mayhurst, Esq., was second with the same. Mr. Goodacre came in first with two bunches of black, staging superb Black Hamburgh; Mr. Barnes, Eaton Hall Gardens, was second with Black Hamburgh. Mr. Bannerman was first with a splendid dish of Royal George peaches; Mr. Wilkes was second with the same. Mr. Barnes came in first with a finely finished dish of Elruge's nectarines; Mr. Jordan second with Pitmaston Orange.

Messrs. Dickson, Limited, Chester, won the Hawley silver challenge cup for a display of plants and floral arrangements of a highly elaborate character; Mr. J. H. White, Worcester, was second. Certainly Wolverhampton maintains its high character, and the executive deserve high praise for excellent arrangements.

A RECORD OF PROGRESS.

It is of much interest, as affording an illustration of the stimulus given within recent years to commercial enterprises that have come to the front, owing to the increased interest in horticultural pursuits, and the consequent demand for gardening appliances, to refer to the development of the firm of Messrs. C. P. Kinnell and Co., of Southwark, who, from premises of restricted area upon the river front at Bankside, have extended their warehouses, until the extensive range of buildings in Southwark Street is rendered absolutely necessary for carrying on the immense business they have succeeded in building up. How much of the success of this firm is due to the business capacity and alertness of the founder and head of the firm, Mr. C. P. Kinnell, it would be difficult to estimate, for, from the day of small things until now, he has bent every faculty to the development of the firm; but, subsequently the direction was strengthened by the addition of other partners —Mr. John Kinnell, Mr. W. J. Tricker, and Mr. B. Daniel—each of whom had previously occupied positions of trust, and who have since fully justified the principal's choice. Consequently there is every prospect of the future prosperity fully exceeding the progress of the past, remarkable as this has been. The special introductions of the firm have included their famous "Rochford" boilers, for heating extensive ranges of hothouses and conservatories of large areas, the adaptability of which has long been fully assured; the no less successful "Silver Medal Horse-Shoe" boiler for amateurs' houses; as well as numerous ingenious contrivances indispensable in hot-water apparatus, either for perfecting water-pipe connections, or for fixing. There is quite a variety of patented appliances, as, for instance, their "New Pattern Diaphram Valve," an invaluable improvement. This possesses an arrangement which is at once effective and simple. An indiarubber ring of special quality is introduced upon the disc of the valve, which, brought into close contact with the gun-metal seating, makes a perfect joint, and therefore completely water tight. This is but one amongst a whole catalogue of appliances and conservatory fittings. We are informed that, amongst other new things Messrs. Kinnell anticipate bringing out in the near future, is a ventilating apparatus of novel design that has the promise of arousing considerable interest, and of coming largely into use.

Blanching Plants.—To the discovery of the process of blanching certain vegetables do we owe the possession of much valuable food. We find celery, but astringent, and quite unfit for food as a salad or stewed in an unblanched condition. Ordinarily to exclude light from plants is to exclude the most important element to health and strength. But whilst celery in the process of blanching is not materially weakened, having still ample leafage exposed to enable the plant to perform its various functions, yet the chlorophyll in the leaves does not penetrate to the earthed-up stems because light and air, the potent force in the production of colour, are absent. Physiologically blanching is an unhealthy, weakening, and improper process as applied to plants. Practically it is productive to consumers of plants for food of the best results. Matter that was in a state of rude health obnoxious, is by blanching converted into delicious food, we change worthless seakale into a most delightful and useful vegetable by its aid, so we do lettuce, and [illegible], and endive, and leekes and cardoons, and various other things. Doubtless originally discovered through some accident, blanching is now one of the most [illegible] elements in garden practice.—A. D.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Vegetable Cultivation.—G. F. Walsall: No book of the kind to which you refer has yet been published. We have, however, reason to believe that the articles you allude to will be published in book form.

Blind Broccoli.—J. R., Leeds: We can add nothing to our previous reply, as the specimens throw no further light upon the matter. In future pay careful attention to the seed-bed and the young seedlings, and in the first place obtain seed from a firm that has a high reputation to maintain.

Chrysanthemum Leaves.—J. S., Slough: The box of leaves you refer to must have miscarried. Send us another set to the Kew address, as above, and also as full particulars as possible. Send at once, so that the matter may be dealt with in the next issue.

Double Pelargoniums.—M. L., Northampton: So far as we are aware there is no double form of the variety you mention; you might endeavour to fix the sport and raise stock if you think the variety is worthy of perpetuation. With respect to the rosebuds dropping, there must be some purely local cause with which we are not acquainted. Excessive drought at the roots would be more likely to cause the buds to shrivel than to fall.

Long-handled Shears.—H., Sussex: We have only seen long-handled, or edging, shears used in one way, viz., by holding the straight handle in the left hand and the inclined one in the right hand, and walking towards the work; that is, towards the left. The set of the blades favours this method, but if a man can use the shears "left-handed," as you term it, there is no reason why he should not be allowed to do so, provided he does the work properly.

Failure with Tomatos.—H. W., Pickering: We do not understand how it is your tomatos have failed to set their fruits, unless it be that the house was kept very moist during the time of flowering. We take it for granted that the plants are not diseased in any way. The soil, according to the sample sent, is very poor and too light for tomatos to do thoroughly well in. Obtain new material, and start afresh with sturdy plants of some such prolific variety as Polegate, Duke of York, Chemin Rouge, &c. After the first truss has set and the fruits are swelling nicely give occasional supplies of liquid farmyard manure. We should have been better able to answer your question had we more information respecting variety, position, how planted, and any other particulars likely to affect the plants.

Liquid Manures.—W. T., Bradford: Houseslops vary so much in strength that considerable care is needed in their use as liquid manure. In the usual way the liquid will require to be diluted with three or four times its bulk of pure water. The best plan is to collect the urine into an underground tank until stale or commencing to putrify, as then it is most valuable. For use in houses this is a most objectionable liquid manure on account of its obnoxious odour. The sulphate of iron is of little or no use to you; a little may be given if the plants have extremely pale leaves, but not if they are healthy. Liquid farmyard manure is the best for general use; guano dissolved in soft water is also a fine stimulant, but must not be used strong—enough to just colour the water will suffice for most plants.

American Blight on Apple Trees.—F. M. E., Taunton: The specimen sent is badly infested with American Blight or Wooly Aphis (*Schizoneura lanigera*). This is one of the most troublesome pests of the apple tree, one that does serious injury if allowed to establish itself, and at the same time one of the worst to eradicate. American blight is rendered conspicuous by the white woolly growth on the insects, which gives a colony the appearance of a tuft of cotton wool. A lodgment is usually effected in the crevices of the bark, but the pest does not confine itself to these, for when a tree is much infested it spreads over the whole of the branches, and may be found clustering round the buds on the growth of the current season. As the result of an attack of American blight a diseased growth is produced, which affords shelter, and at the same time enables the insects to more readily obtain food. At the present time it is not an easy matter to apply insecticides of sufficient strength to kill the pest without doing some injury to the tree, but separate colonies can be easily destroyed by brushing them over with a rather strong solution of some good insecticide. An emulsion formed with soft soap and paraffin judiciously applied will speedily dislodge them. Spraying the trees during the season of growth with the emulsion sufficiently reduced in strength that it will not injure the leaves will be useful in checking the pest. The chief attack on American blight should be made during the winter, when the whole of the stem and branches should be washed with hot brine, and be dressed with a suitable preparation, care being taken to work it well into the crevices in the bark and the junctions of the branches. The preparation used as a winter dressing may, of course, be much stronger than for summer spraying, but care must be taken not to employ it of too great a strength. The following wash will be useful: Four ounces of hard soap is put into one quart of water, and this is heated until the soap is dissolved. One pint of paraffin oil is added, and the whole agitated until a permanent mixture or emulsion is formed. Water is then added in sufficient quantities for the paraffin to be in the proportion of one to fifteen. A mixture consisting of a quarter of a peck of unslaked lime, four ounces of sulphur, and two ounces of lamp black is also an excellent remedy for the pest.

Blistered Peach Leaves.—W. G., Maidstone: The leaves sent are as badly blistered as any we have ever seen, and we feel sure that the attack is due to a very bad state of affairs at the roots of the trees. No doubt the subsoil is very cold and wet, so that growth is late, and does not ripen properly in the autumn. Then, probably, the position of the trees is such that cold winds reach the leaves when young and tender, sufficient in itself to cause blister, especially when accompanied by a dull, wet spring, such as we have experienced. Pick off the damaged leaves, or at any rate the worst of them, and keep those remaining clear of green fly or other insect attack. To assist the trees give them a light top dressing with bone meal, lightly forking this in and leaving the surface loose and unmulched. In the autumn, as soon as the leaves turn yellow, lift the trees and place them so that the roots are near the surface; drain the borders if this appears necessary, and mix plenty of lime rubble with the soil that is placed about the roots. It will scarcely be necessary or prudent to stop the growths this season, but the subsequent behaviour of the trees must guide you in this matter.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

G. S., Guildford: 1, insufficient for identification; 2, Retinospora plumosa; the other specimen is Monarda didyma. When sending conifers for naming a characteristic specimen of good size should be sent, and, if possible, a piece carrying cones.

G. F., Walsall: 1, Eupatorium riparium; 2, Eulalia zebrina; 3, Anthericum variegatum; 4, Cyperus alternifolius; 5, specimen missing; 6, Vinca minor variegata.

G. R., Wellingborough: 1, Lilium Thunbergianum; 2, Campanula persicifolia; 3, a garden variety of Iris xiphium; 4, not recognised; 5, a seedling scabious.

A. A., Angmering: 1, Vanda teres; 2, Epidendrum variegatum; 3, Maxillaria tenuifolia; 4, Aerides odoratum; 5, Adiantum peruvianum; 6, Gymnogramme japonica variegata.

PROPOSED STATE FOREST FOR SCOTLAND.

THE strong appeal addressed to the Minister for Agriculture by the Royal Arboricultural Society, will (writes a Scottish correspondent) command general sympathy, and the object in view will be recognised as one highly important in itself, and eminently practical in its character. It is of a two-fold character. What is aimed at is to provide the means for efficient instruction in the science and art of forestry for foresters, land agents, and others, and to supply to Scottish landowners, and more especially those who have waste or mountain land in their possession, a stimulus to improvement in the way of afforestation. There are already classes in Edinburgh in connection with the University of the Royal Botanic Gardens, and the Heriot-Watt College, at which instruction in forestry is given, and what is desired is that the Government should supply funds—it is thought that £40,000 would be sufficient—for the acquisition of some 1,500 or 2,000 acres of land within easy reach of Edinburgh, more or less under wood, for the purpose of a forest, in connection with which instruction in the practical side of their business would be afforded to students, and work of an experimental character carried on. The proposal is a very modest one, so modest that there ought to be no great difficulty in obtaining the necessary funds even from private sources if the Government do not see their way to supply them. In view of the importance of the matter to the proprietors of land in Scotland, it were not too much, one would think, to expect that they would come forward and supply what is needed in the way of funds. But here we at once come upon what forms the great difficulty of the situation. If our proprietors as a class were alive to their interests, not to speak of their duty, in this matter of forestry, it would not be necessary at this time of day for any such body as the Royal Scottish Arboricultural Society to be pleading for some practical attention to the science of forestry, as developed and cultivated in France, Germany, and other countries, including our own Dependency of India. The average proprietor of land in Scotland shows no practical interest in what ought to be one of the things in which he mainly concerned himself. He is too impecunious to do much, if anything, in the way of planting, seeing that there is no immediate return to be looked for. In the Highlands and adjoining regions again, where there is so much scope for the afforestation of the land, sport is the all-absorbing subject of interest, and the ready-money rent paid by the tenant of the grouse moor or deer forest is so much more tempting than the postponed returns from the woods which take a lifetime or more to be worth cutting down. Thus it is that the landowners of Scotland neglect what ought to be a main part of their business—the cultivation of trees and the production of timber. And of course, neglecting it as they do, they are not likely to come to the assistance of the Royal Arboricultural Society in its appeal for money to establish a model forest. As to the location of the proposed forest, it is natural that the society should think of the neighbourhood of Edinburgh, but a more advantageous arrangement as regards practical results would seem to be to have it established in some suitable part of the Highlands. It is in the Highlands of Scotland that anything of consequence in the way of the afforestation of the waste lands of Scotland can alone be effected, just as it is in the Highlands that any considerable forests are already in existence. It is in the Highlands therefore, that the climatic and other conditions exist which it is most important for those interested in sylviculture to understand, and where any experiments in the growing of trees, the management of woods, and in the production of timber can be most advantageously carried out. Some locality, say near the base of the Eastern Grampians, would therefore seem to be a more suitable site for the proposed model forest than the rich Lothians. In their statement the R.A.S. acknowledge that Scotch grown timber is as a rule greatly inferior to that imported from Norway and elsewhere. This is a circumstance which it would be folly not to take into account in anything that may be undertaken for the development of forestry in Scotland. The timber of the ordinary Scots fir is a poor article compared with the pine woods from the Baltic and North America, and the question is if it can be so improved in quality by improved conditions of growth as to be capable of being brought into competition as an article of commerce with the foreign product. But as it is known at present, with but little skill or attention bestowed upon them, woods can be made to yield a revenue, acre for acre, hardly less than that obtained from ordinary farming land, there ought to be and no doubt is, ample scope in Scotland for the profitable development of sylviculture as a national industry.

MARKETS.

Covent Garden.

NOTWITHSTANDING the large supplies of fruit and vegetables a clearance is generally readily effected at fair prices, owing to the steady demand. Strawberries are rather dear, but cherries are fairly plentiful. Grapes and tomatos are cheap.

FRUIT.—English grapes, 1s. 3d. to 2s.; Belgium, 9d; Jersey, 10d. to 1s. 6d. per lb.; strawberries, 2s. 6d. to 4s. per peck; 1s. to 1s. 9d. per handle basket; cherries, 3s. 6d. to 8s 6d per half-sieve; lemons, 6s. to 16s. per case; English tomatos, 4d. to 6d.; Jersey, 3d, to 4d. per lb.; Spanish, 1s. to 1s. 4d. per box; gooseberries, 2s. 9d to 4s. per bushel; green figs, 2s. 6d. to 3s. 6d. per dozen; French apricots, 5s. to 7s. per dozen boxes; French peaches, 1s. to 2s. per box; English, 2s. to 8s. per dozen; Tasmanian apples, 8s. to 15s. per case; pineapples, 2s. 6d. to 4s. 6d. each; bananas, 5s. to 9s. per bunch; French greengages, 1s. to 1s. 6d. per box; oranges, 15s. to 20s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 1s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s.; stephanotis, 1s. 6d. to 2s.; lily of the valley, 6d. to 1s.; white gladiolas, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Endive, 1s. to 1s. 3d; cucumbers, 1s. 6d. to 3s.; cauliflowers, 1s to 2s. per dozen; broad beans, 2s. to 2s. 6d. per bushel; marrows, 3s to 3s. 6d. per dozen; peas, 2s. to 4s. per bushel, 2s 6d. to 4s. 6d. per bag; French beans, 3d. per lb.; parsley, 1s. to 1s. 6d.; mint, 2s. to 2s. 6d.; carrots, 3s. to 4s.; turnips, 3s to 4s. per dozen bunches; lettuce, 8d to 10d. per score; cos, 1s. 3d to 1s. 6d. per dozen; mushrooms, 5s. to 8s.; eschallots, 1s. 6d. to 2s. 6d. per 12 lbs.; English onions, 1s. 6d. to 2s. 6d. per dozen bunches; Egyptian, 4s. 6d. to 5s. 6d. per bag; spinach, 1s. 6d. to 2s. per bushel; Jersey potatos, 6s. to 6s. 6d; St. Malo, 5s. to 5s. 6d.; Kent, 6s. to 7s. per cwt.

Borough Potato Market.

Heavy supplies continue to arrive, but trade is good without any appreciable alteration in prices. English kidneys and White Beauties, 5s, to 5s. 6d.; St. Malo, 4s. 6d. to 5s.; Jersey Flukes, 5s.; kidneys, 4s. 6d.; Cherbourg Flukes, 4s. 6d.; kidneys, 4s.

THE WEATHER DURING THE WEEK ENDING JULY 9, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	76·2	47·0	60·0	15·56	0·00	0·00
Croydon	76·0	47·0	59·5	15·28	0·00	0·00
Brighton	77·4	47·0	59·4	15·22	0·00	0·00
Bristol	71·0	44·0	57·0	13·89	0·00	0·00
Wolverhampton	68·4	42·0	55·1	12·83	0·00	0·00
Norwich	70·6	48·4	55·9	13·28	0·04	0·10
Nottingham	71·9	41·3	56·2	13·44	0·09	0·23
Liverpool	67·6	49·4	55·6	13·11	0·00	0·00
Huddersfield	69·3	44·5	54·9	12·72	0·04	0·10
Bradford	71·2	48·0	59·2	15·11	0·03	0·08
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 30·03 inches, and that of the Thermometer 60°·0, the latter being 2°·0 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 5 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 40·4 hours. No rain was measured during the week.

CATALOGUES RECEIVED.

WILLIAM BULL, F.L.S., 536, KING'S ROAD, CHELSEA.—New Plants and Orchids.
RIVOIRE AND SON, 16, RUE D'ALGERIE, LYONS.—Seeds for Autumn Sowing.
W. DUNCAN TUCKER, LAWRENCE ROAD, TOTTENHAM, N.—Horticultural Buildings.
ALEX. DICKSON AND SONS, NEWTOWNARDS, CO. DOWN.—New Pedigree Roses.
FISHER, SON, AND SIBRAY, LTD., HANDSWORTH, SHEFFIELD.—Border Plants, &c.
J. TELKAMP, HILLEGOM, HOLLAND.—Dutch Bulbs.
KELWAY AND SON, LANGPORT, SOMERSET.—Plants, Trees, and Shrubs.
DAMMANN AND CO., SAN GIOVANNI A TEDUCCIO, NAPLES.—Bulbs, Roots, and Orchids.
H. HENKEL, DARMSTADT.—Water Plants, &c.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, JULY 18.—Annual Outing of the National Chrysanthemum Society; trip to Ipswich.
TUESDAY, JULY 19.—Horticultural Club Excursion to the residence of Henry J. Veitch, Esq., Burnham Beeches and Stoke Pogis.
WEDNESDAY, JULY 20.—Cardiff Horticultural Society, Two days. Loughborough Horticultural Society.
THURSDAY, JULY 21.—Sidcup Rose Show. Prescott and District Horticultural Society.
SATURDAY, JULY 23.—Royal Botanic Society; General Meeting.

AUCTIONS.

WEDNESDAY, JULY 20.—Stove and Greenhouse Plants, Oak-leaf Geraniums, Bouvar[illegible], Solanums, Lilium Candidum Bulbs, Pancratium fragans, &c., Protheroe and Morris's R[illegible].

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"HOW TO BE HAPPY, THOUGH MARRIED."—That is a secret which [illegible] like to possess. And yet it is so far out of our reach! After all, health is the [illegible] a happy married life, and with sound health on both sides it will be mainly [illegible] happiness does not ensue. Then, husbands and wives, purify your blood, invigorate [illegible] promote the healthy action of your liver, cure your headaches, restore your [illegible] flatulency, indigestion, and low spirits, by the use of the world-famed Holloway's [illegible] time you suffer from gout, rheumatism, bronchitis, asthma, or sore throat, use freely H[illegible] Ointment. It has cured millions; it will cure you.—[ADVT.]

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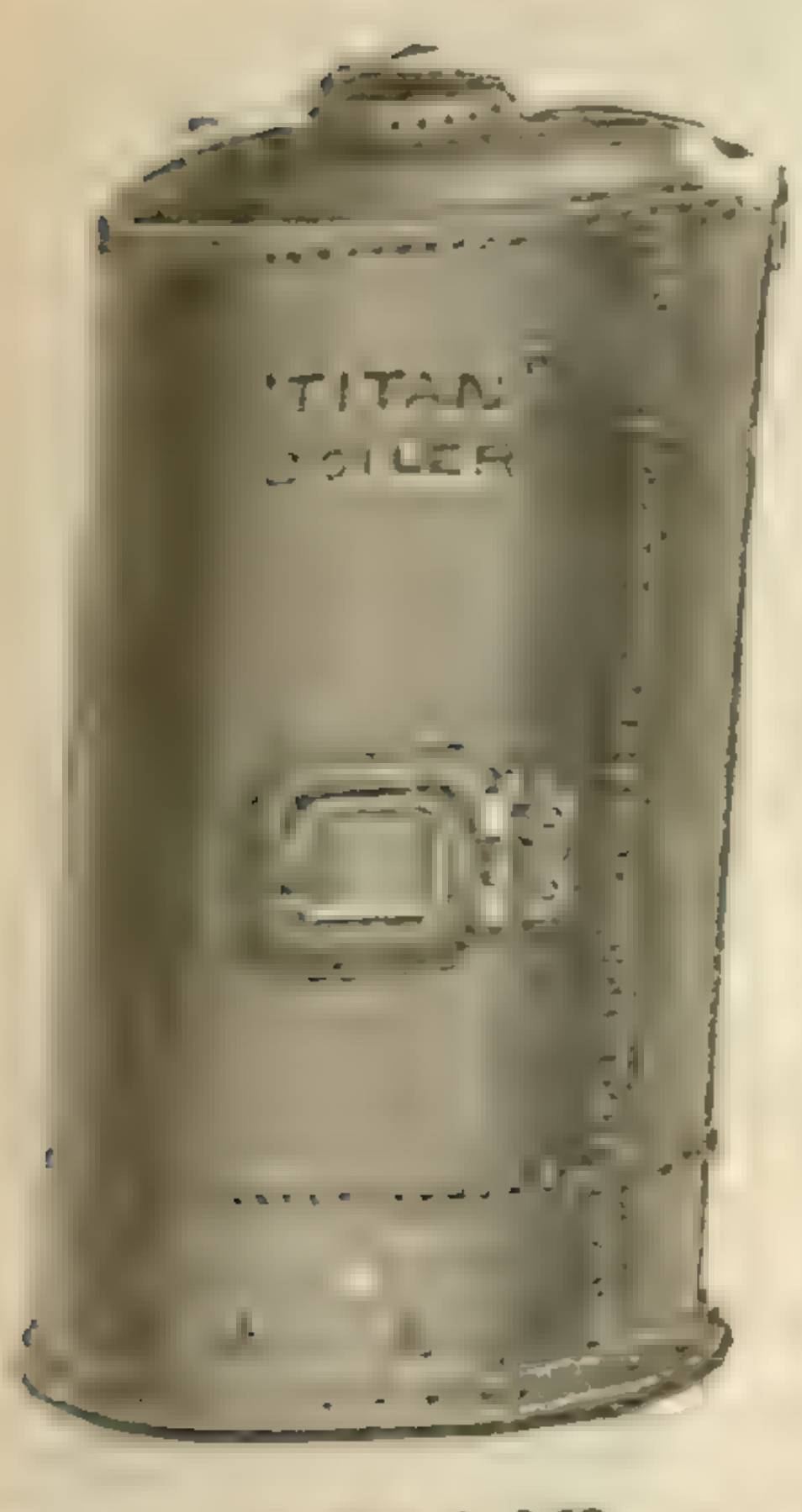

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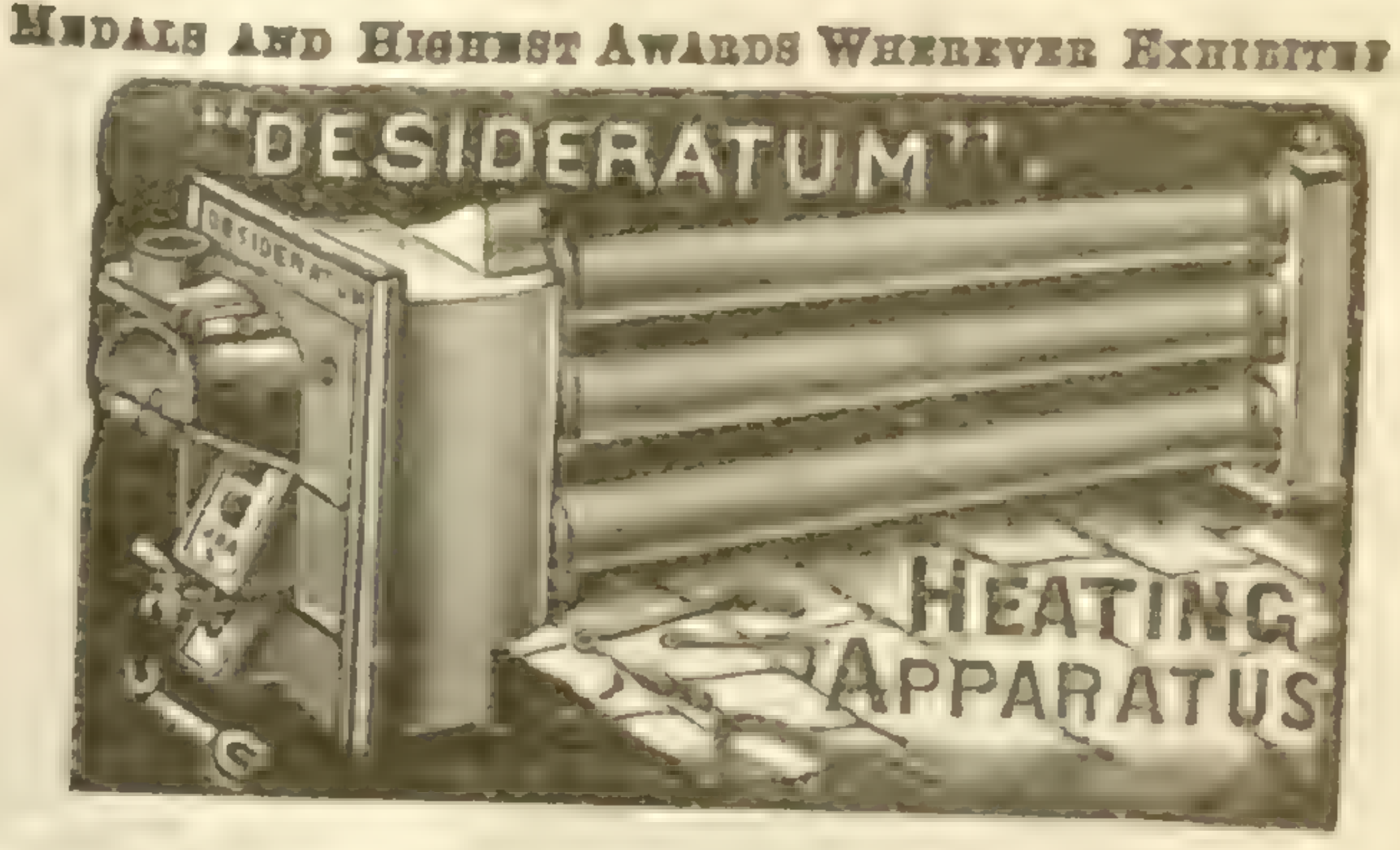

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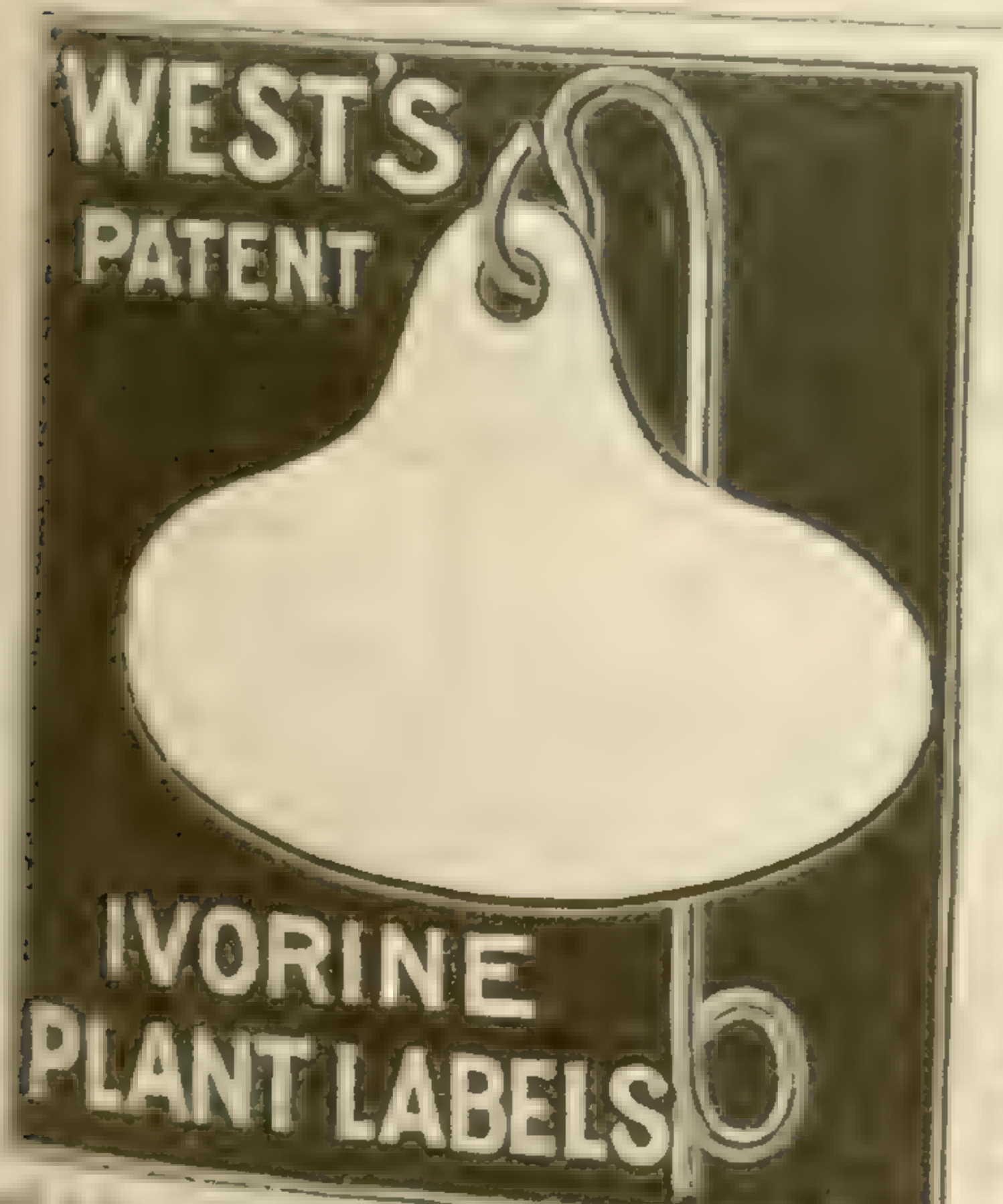

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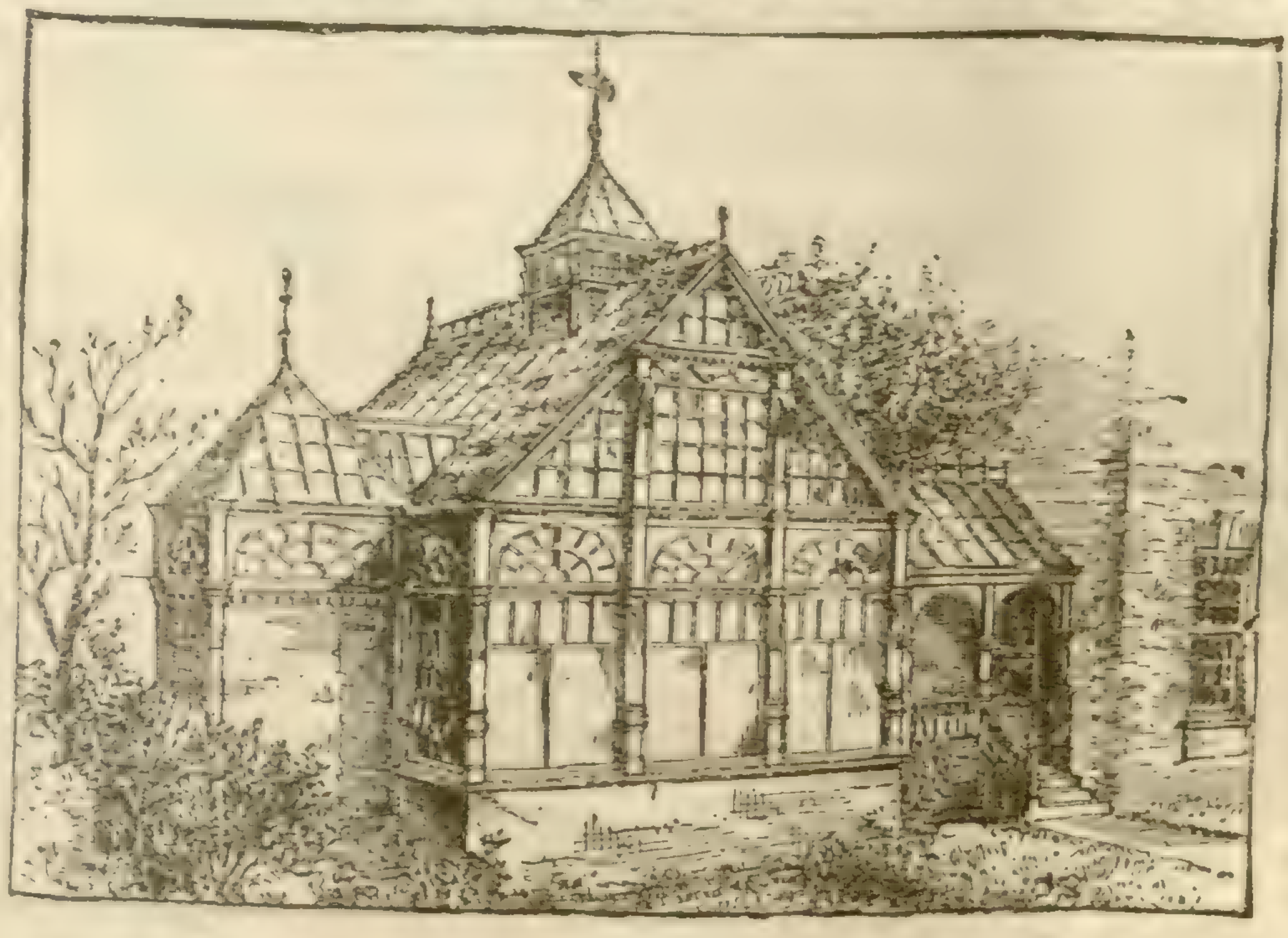

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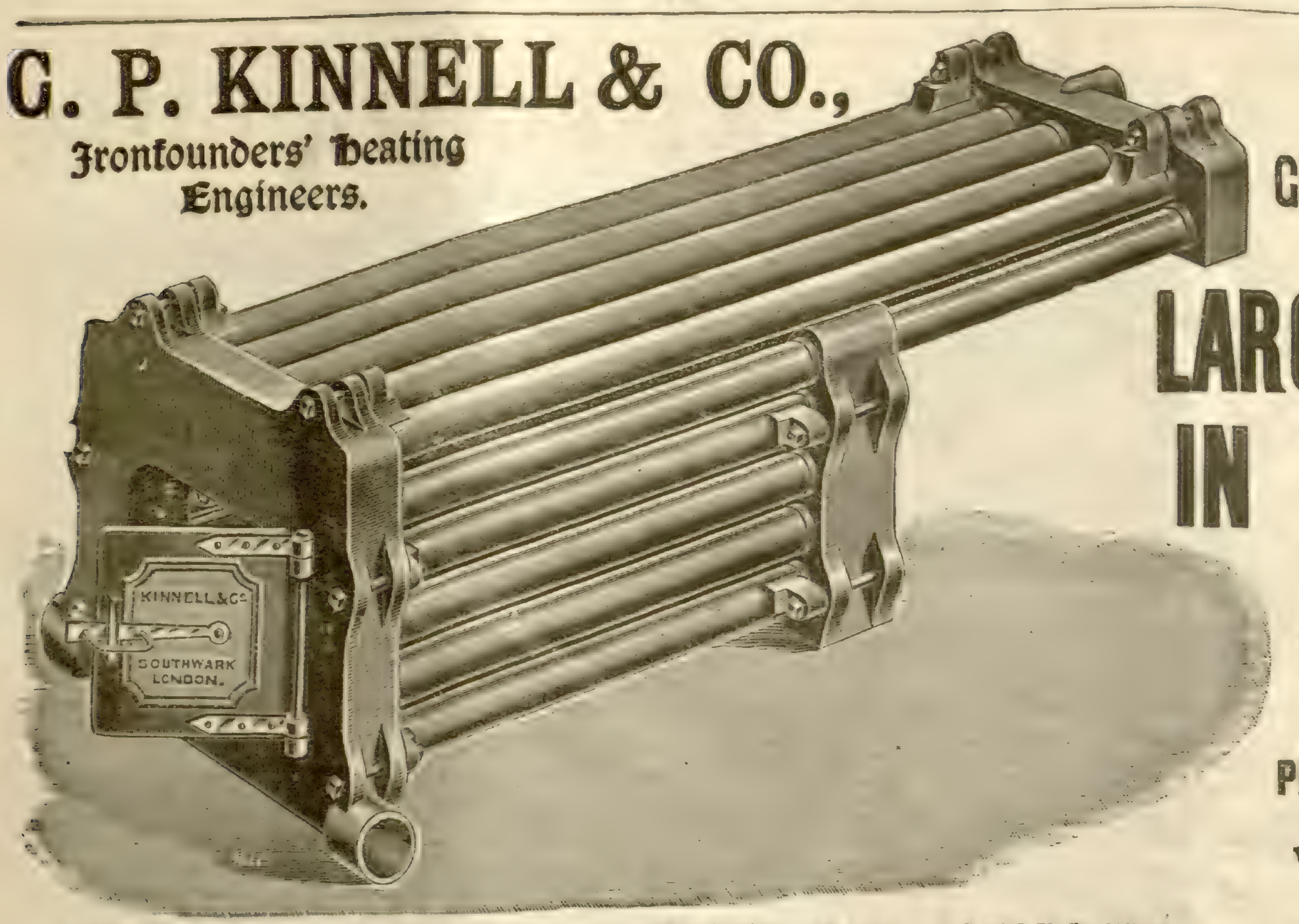

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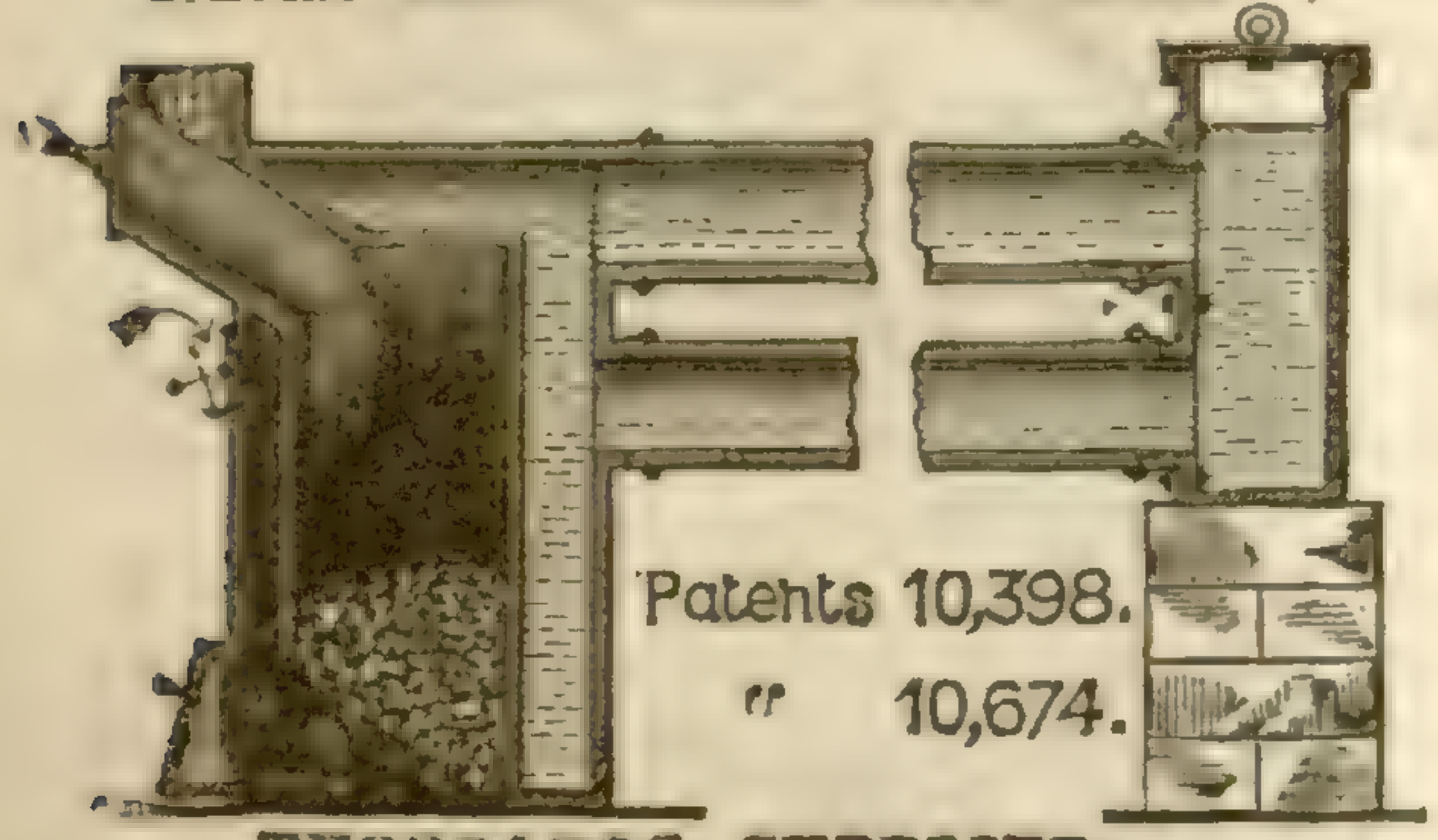

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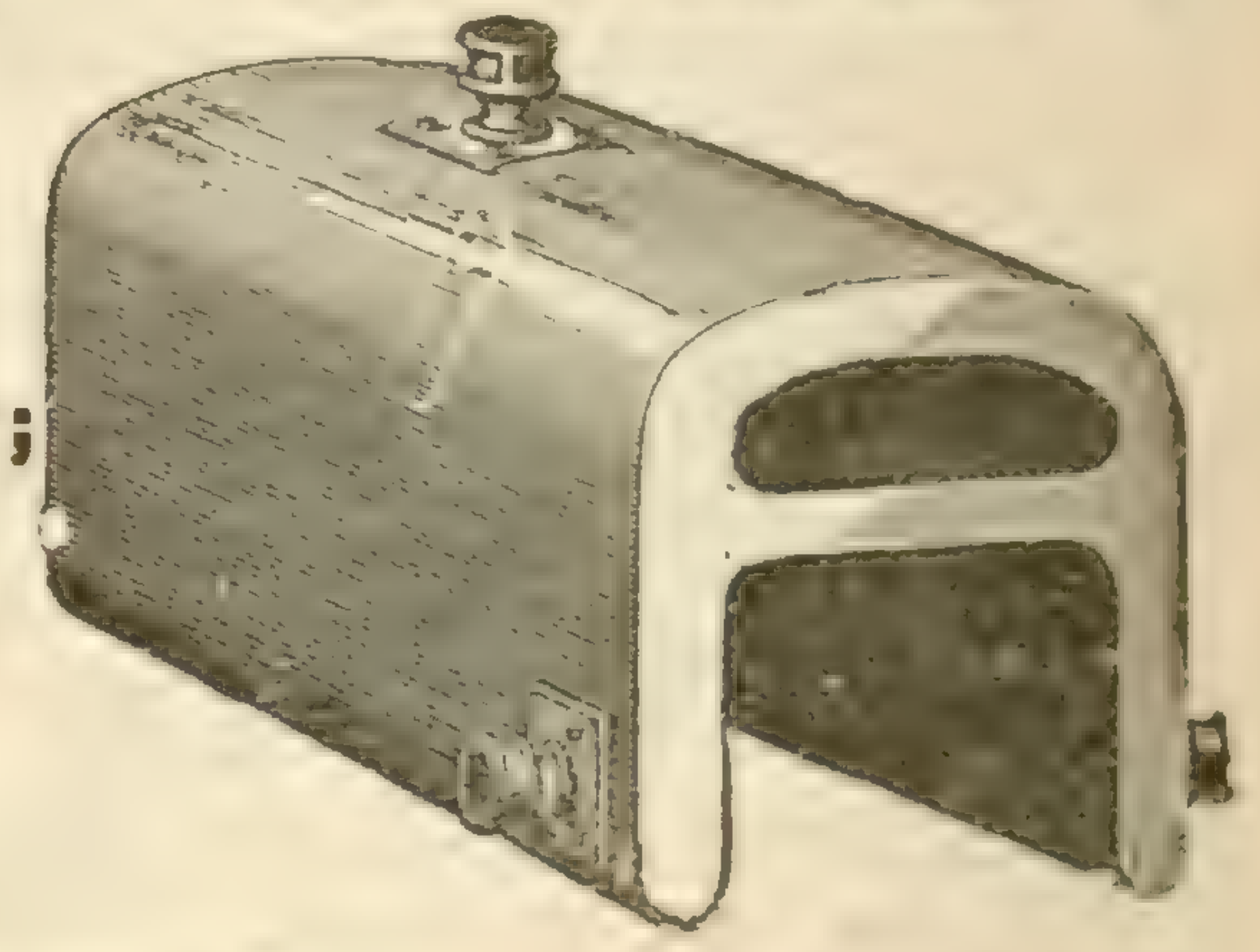

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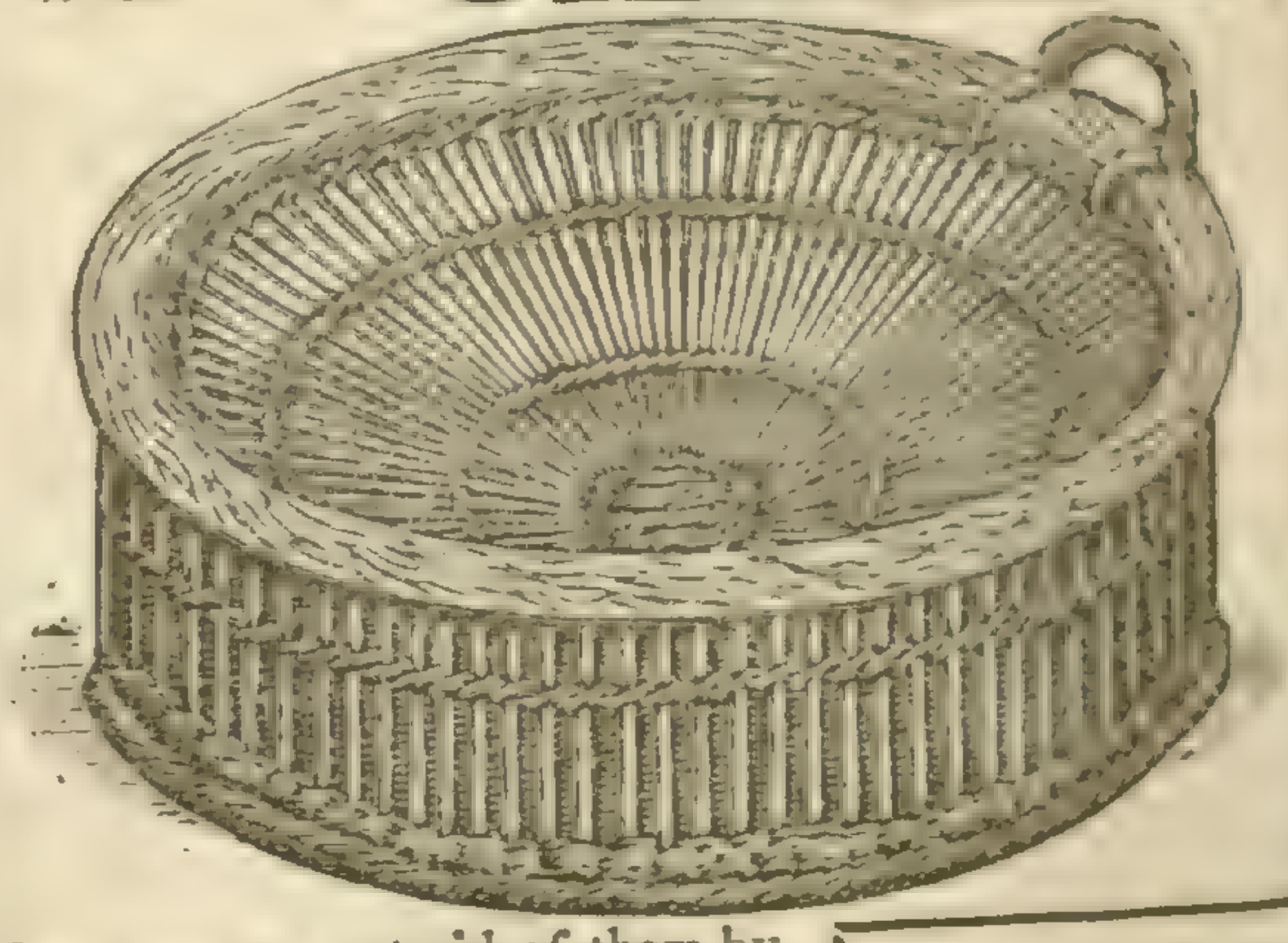

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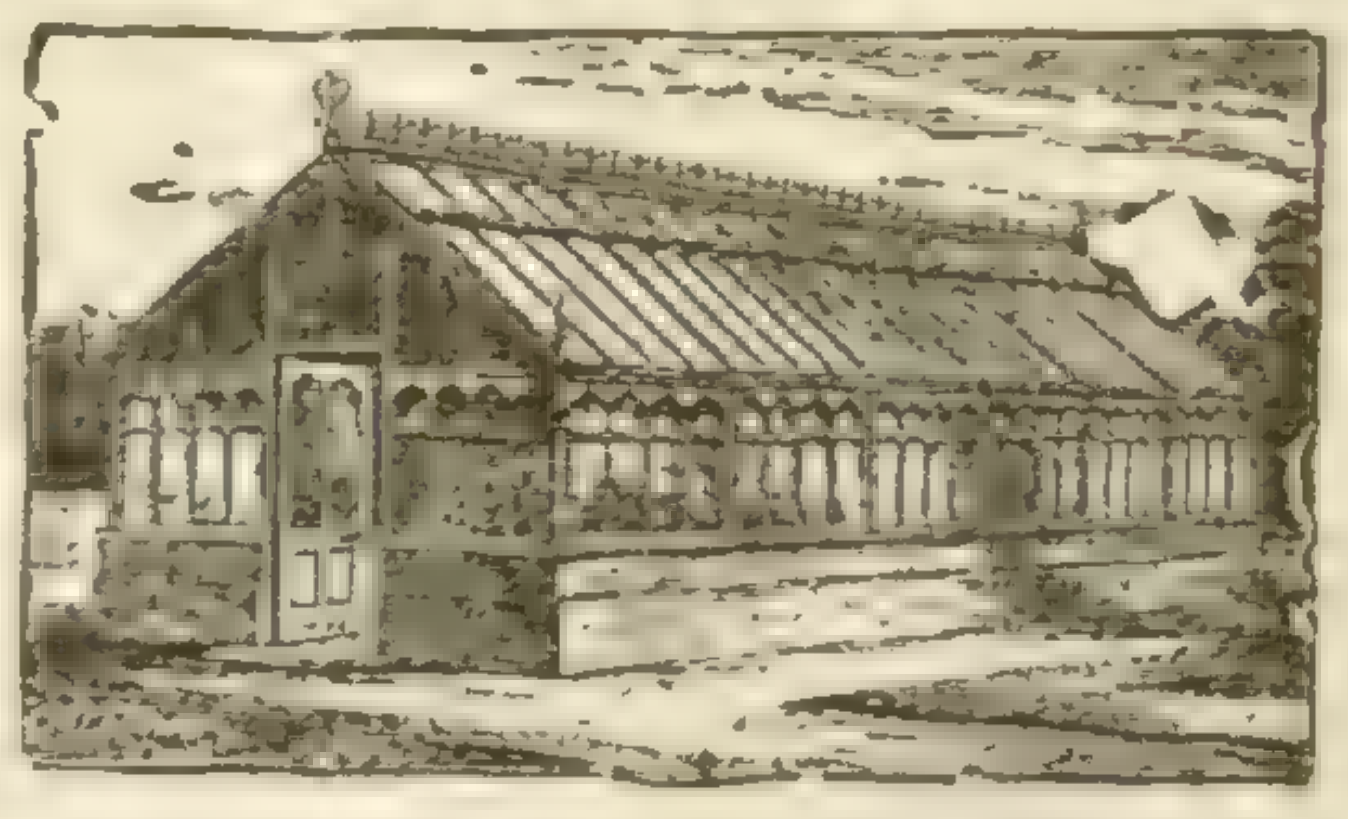

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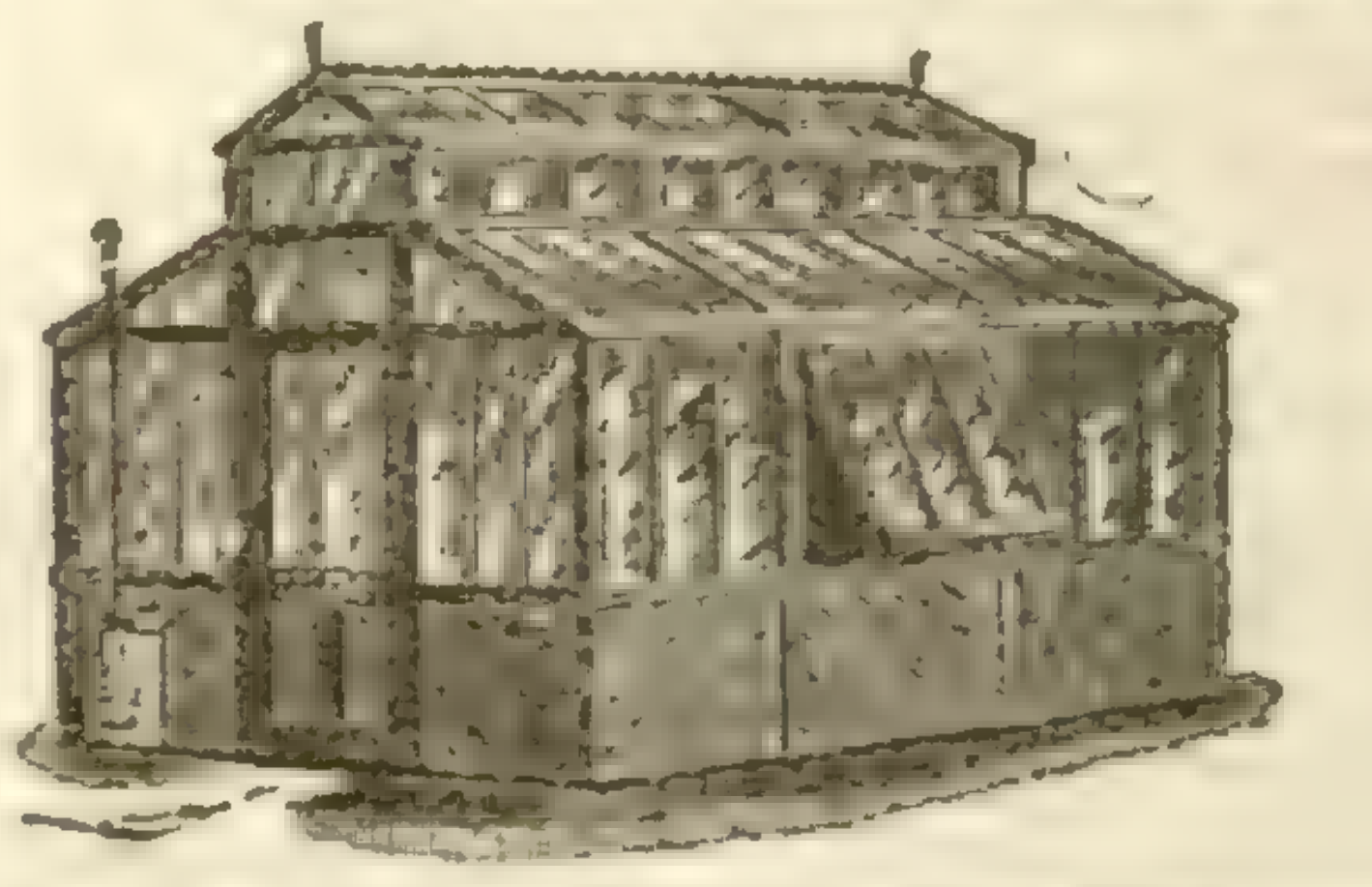

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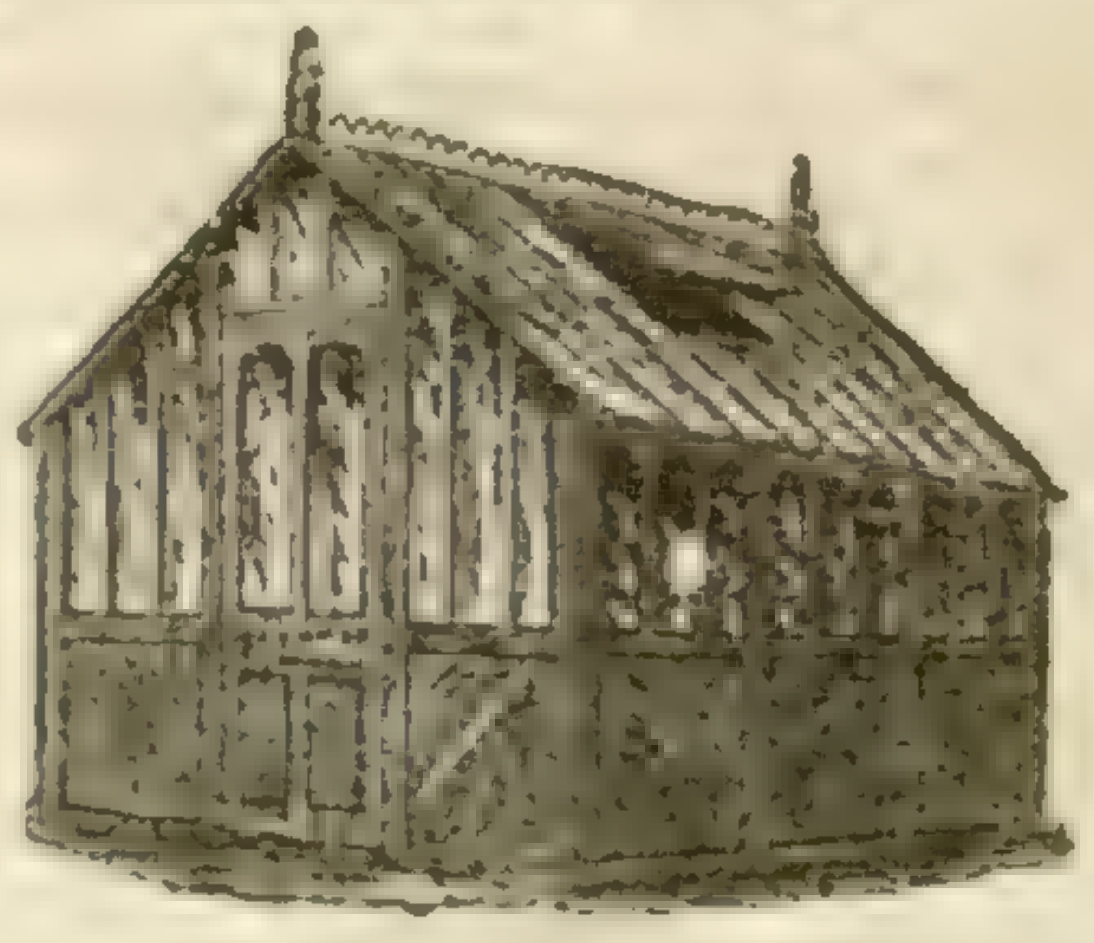

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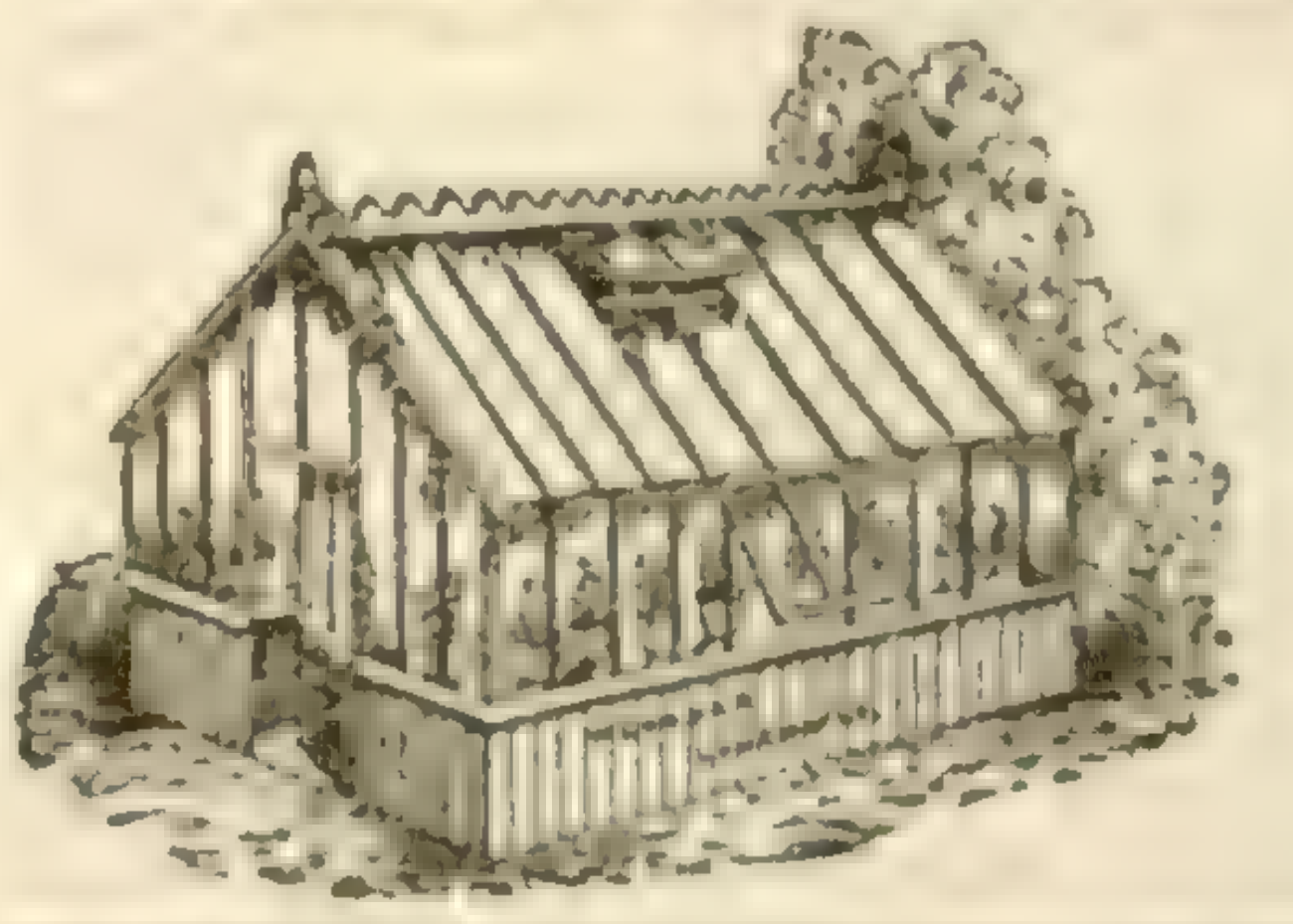

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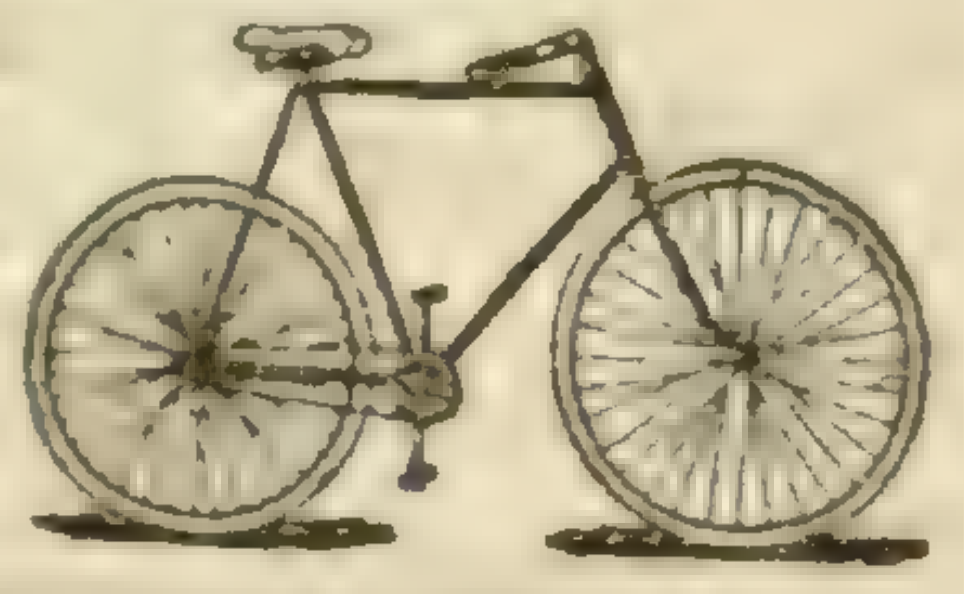

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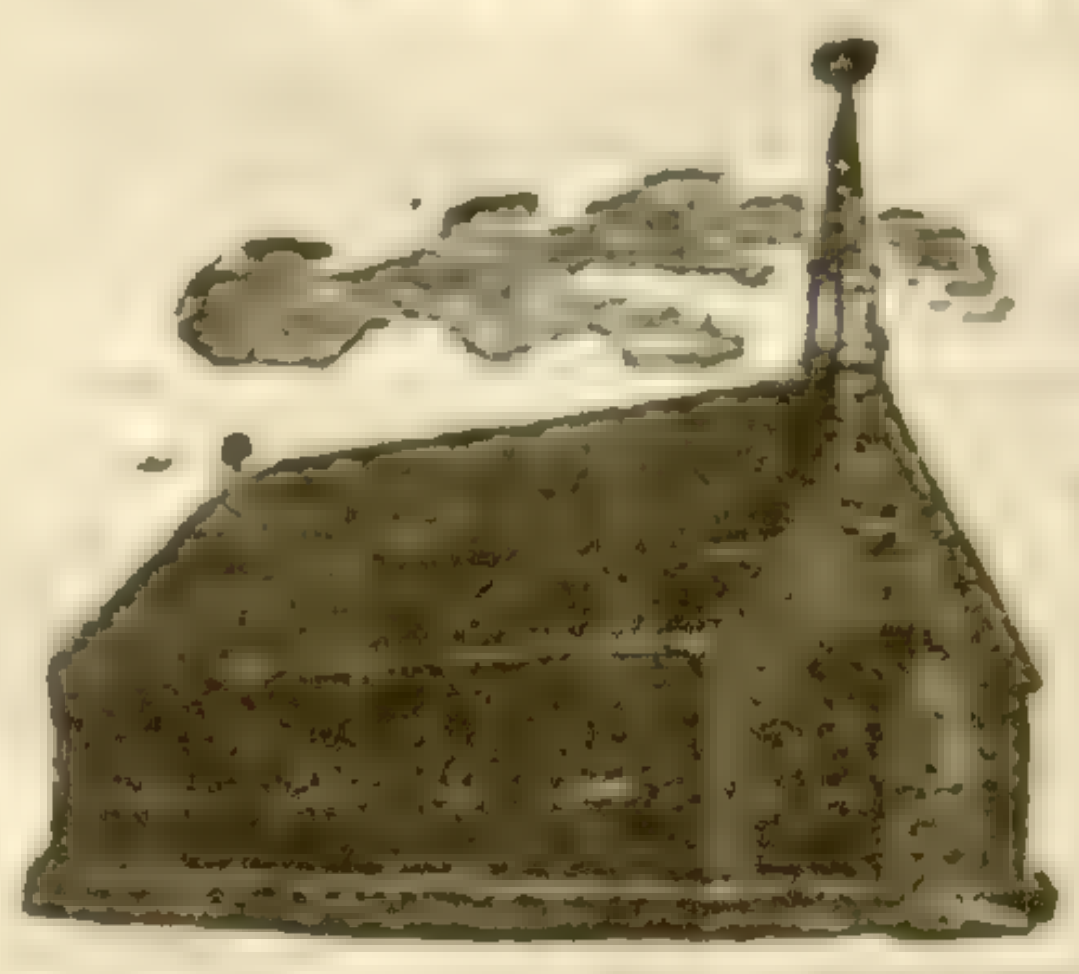

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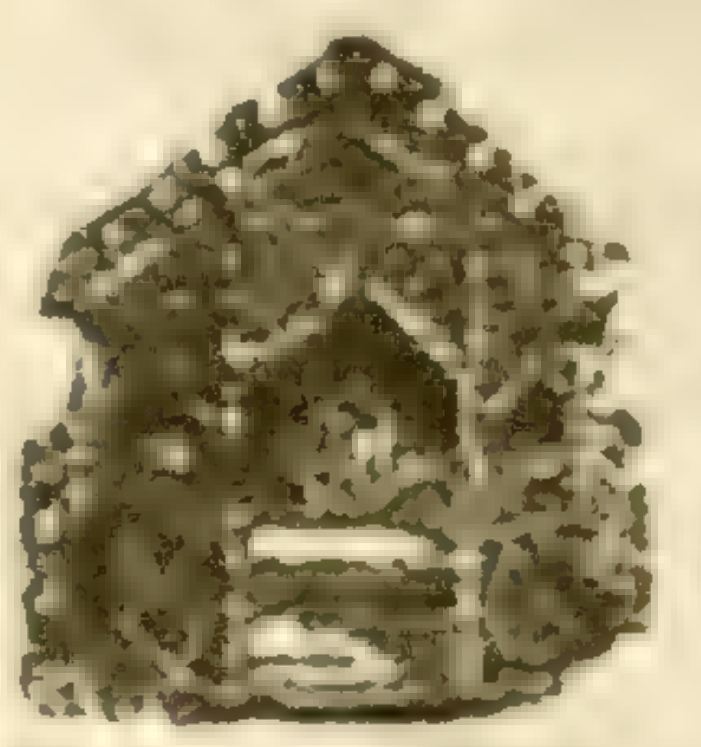

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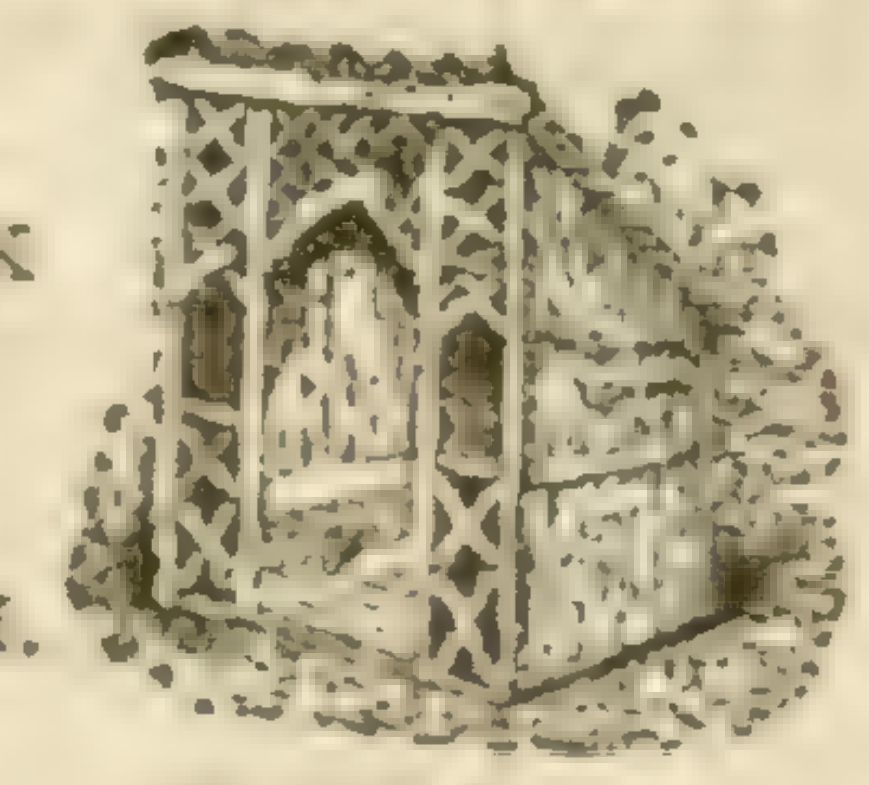

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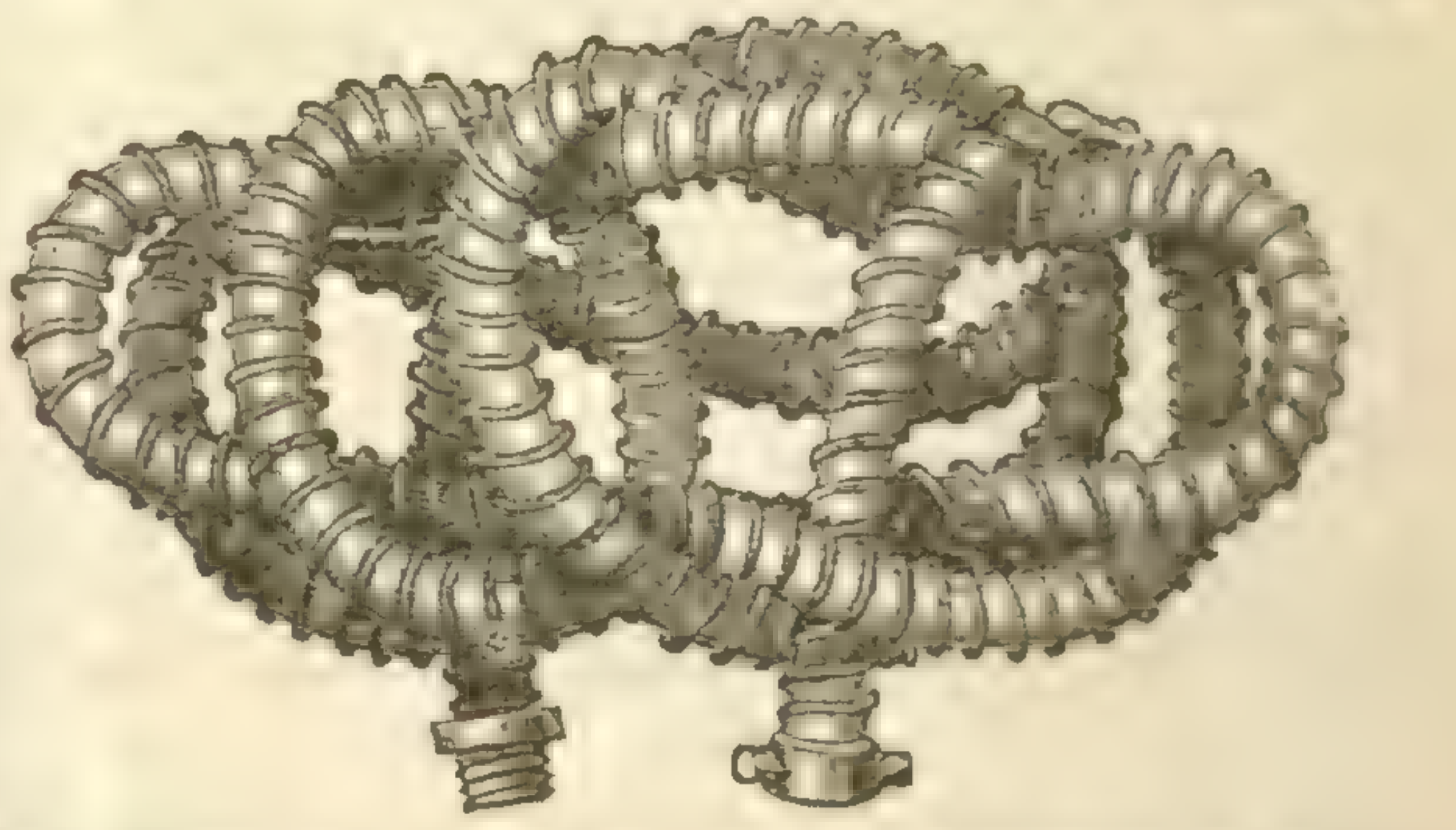

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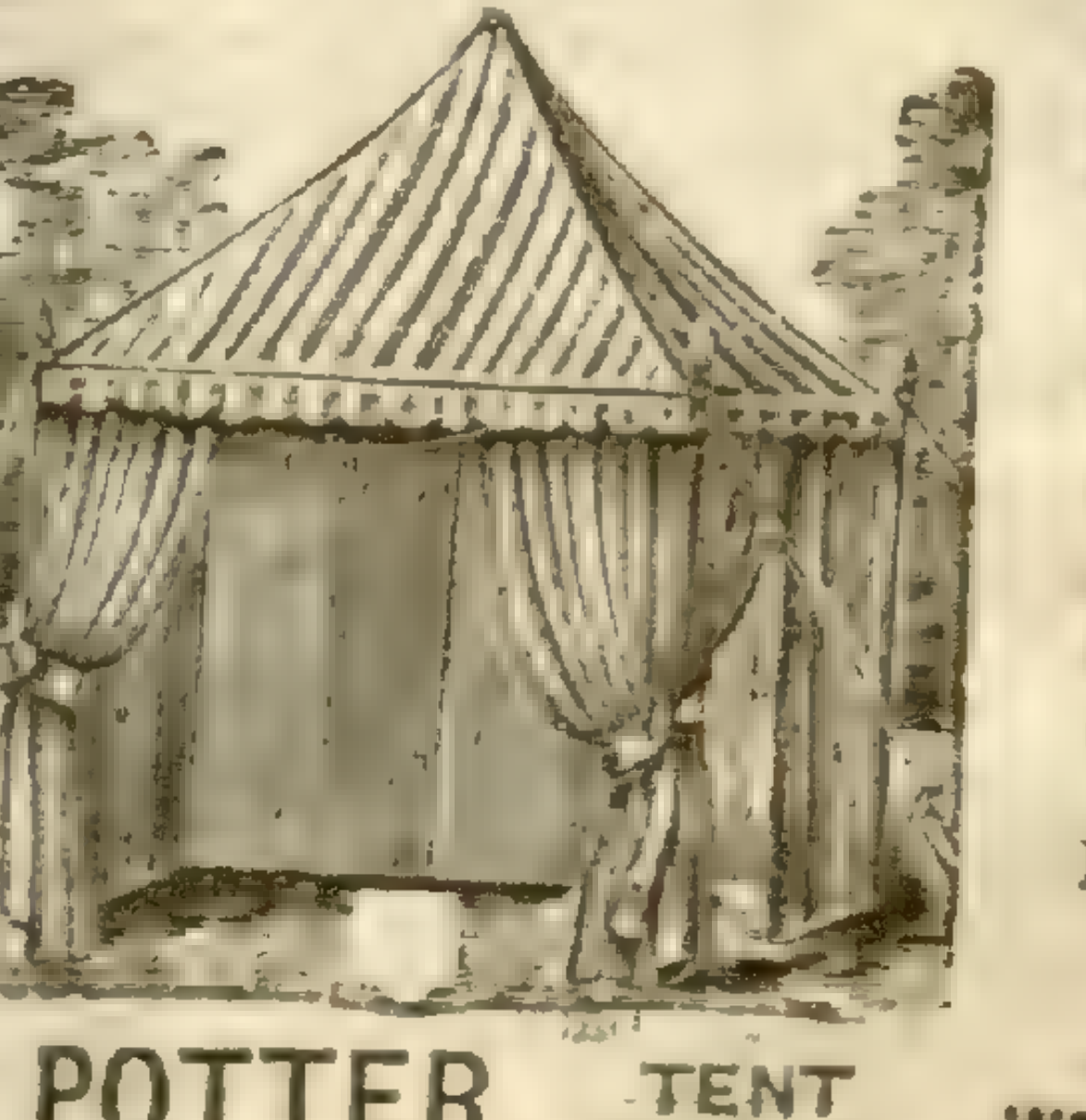

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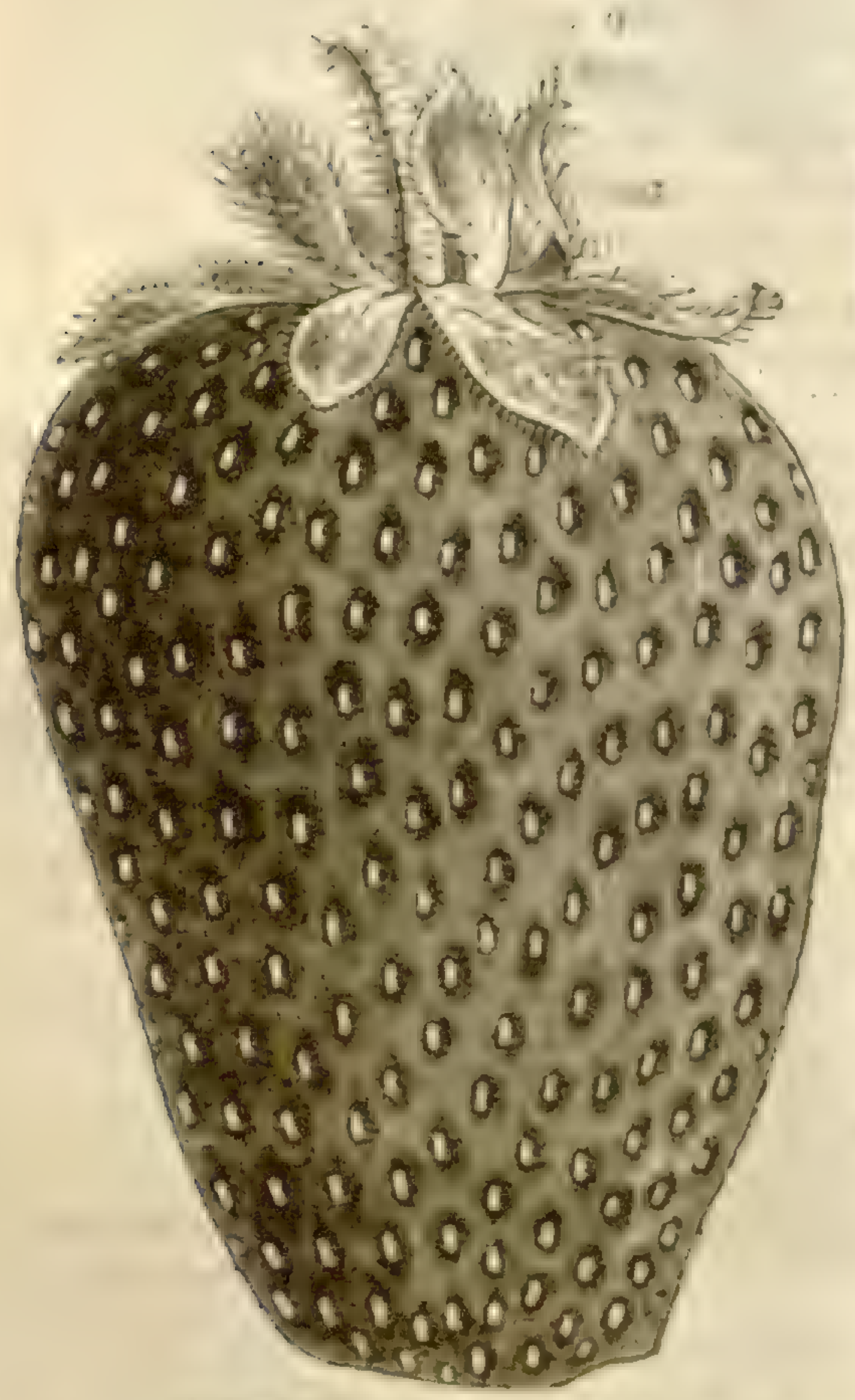

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THE GARDENERS' MAGAZINE.

SATURDAY, JULY 23, 1898.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

EXHIBITING ROSES.

WITH the magnificent display at Halifax on the 14th inst., the exhibition season of the National Rose Society for the current year was brought to a close, and notwithstanding the fact that the lateness of the season somewhat adversely affected the southern sh ow, there can be no question as to the season having been one of the most successful the society has yet had to record. The exhibitions, regarded as a whole, have in no previous year been more extensive, interesting, or attractive, while the average quality of the thousands of blooms staged has been eminently satisfactory. This year the two provincial exhibitions have been supplemented by conferences, which have so greatly enhanced their interest and educational value, as to justify the hope that the experiment of affording rosarians an opportunity of assembling in council will be repeated next year. At Bath the all important question of pruning was discussed, and as the result, we trust clearer views will obtain on the principle and practice of pruning roses. Not less satisfactory was the conference at Halifax, when Mr. George Paul opened a discussion on exhibiting roses, and the rosarians present had an opportunity of expressing their views on the tying and dressing of exhibition blooms and the staging of garden roses. Mr. Paul expressed himself as strongly opposed to the practice now so general of tying blooms for the purpose of keeping the centres together, and he based his opposition on the loss of colour resulting from the practice. It was, however, shown that there are two sides to this question, and Mr. A. Dickson, Mr. O. G. Orpen, and Mr. E. B. Lindsell stated it would be practically impossible to convey exhibition roses long distances without giving them the support a strand of cotton wool affords. Tying the blooms is a small matter as compared with subjecting them to the manipulation know as dressing, and with reference to the latter practice, we fully agree with Mr. Paul that "To transform a flower from its natural shape is a fraud, and distinctly injures the flower eventually in public esteem." In not a few instances the blooms are so manipulated as to deprive them of the exquisite form they naturally possess, and give them much the appearance of the cabbages and lettuces that figure in catalogues, with their outer leaves broken down to show their centres. There can be no great objection to the removal of a damaged petal or even to a slight arrangement of a petal here and there; but there is the gravest objection to the systematic dressing which finds favour with some exhibitors, and we are glad to say that not a word was said in its defence. The National Rose Society has steadily set its face against dressing, but it is difficult to impose an efficient check upon the practice. The present method of staging garden roses was defended by Mr. Paul, who appears to have missed the point at issue between those who regard a limit to the number of trusses in a bunch as desirable and those who consider that no such limit should be imposed. We, and those who hold the same views as ourselves, believe that the collections of garden roses would have higher educational value if the number of trusses were limited, as visitors would be able to see at a glance the relative size of the trusses of the varieties staged. Mr. Paul contends that "a bunch of, say, six or eight trusses of Polyantha Perle d'Or would be useless to show that sort," but from our point of view such a number would be ample, for the visitor would then have ocular demonstration of the fact that the variety produces trusses of small size. Mr. Machin was fully in accord with Mr. Paul, while Mr. Pemberton and Mr. Frank Cant expressed themselves in favour of a limit. The question is of considerable interest, and its discussion with [illegible] of the other points raised was so pleasant and useful as to leave an agreeable impression upon the audience.

THE POCKET LENS.

ALTHOUGH there is an immense amount of pleasure to be derived from a simple walk around a well-stocked garden, or, better still, through such a wonder-filled rockery dell as that at Kew, that inner world of marvellous beauty revealed in every flower and leaf by a simple little pocket lens is mainly enjoyed by the botanist. The outside loveliness of form and colour constituting the popular attractions of flowers bears much the same relation to this inner loveliness as does a broad and picturesque landscape to the myriad beauties of hill and dale, green lane, and secluded glen, &c., which nearer inspection reveals, and the tiniest flower we can pick, or a leaf plucked even from the nearest weed will, when brought into the focus of our little glass, expand in the one case into a tissue of marvellous structure, and in the other display to the delighted eye fully as much beauty of corolla, and petal, and stamens, and pollen as the stateliest blooms display to vision unaided. A little hairy, or woolly, or bristly leaf or stem is seen to be decked with thousands of neatly, and often complexly built-up outgrowths, as different from the ordinary notions of hairs as can possibly be, some being arranged even in star fashion, but in every case on some special and symmetrical plan which, in itself, is a wonder of contrivance. The stem, too, may be plain, or ridged, or fluted, or jointed, or varied in manifold and multiform ways, and cuts across by a sharp knife will display beautiful sections. In the flowers and leaves viewed generally, little or none of these special characters are seen, but under the little triple lens a transformation scene takes place, and even the smooth petal of the rose not only glows with added brilliancy of colour under its keen scrutiny, but the lovely cells which built it up display a texture our unaided eyes can never detect. The pollen alone is an endless study of variety from the comparatively huge, dark crimson grains of the lily tribe to the minute dust-like atoms which in the common stinging nettle may be seen to be puffed out from its exploding blossoms like mimic microscopic gun batteries. Not merely flowers, leaves, stems, and pollen, but the resulting seed and seed vessels are one and all things of beauty viewed through the lens. Every seed is built on a plan of its own. Some are smooth, some rugged, and many are very beautifully decorated. We see this in the larger seeds without the lens, and the same applies even to the smaller, for Nature laughs at size, and can put as much ornate decoration on a pin's point as the deftest artist could delineate on an acre of canvas. With the lens, too, the other marvels of the garden, its insect as well as its floral tenants, display a myriad wonders, and if led on, by the exhibition it affords, to try higher powers and aspire to a microscope proper, we shall find that the smallest are often the most beautiful, and that every step of magnification reveals more and more intricacy of charm and design in a thousand things which to the eye alone are mere moving dots devoid of interest altogether. This being so, it is really astonishing in these days of progressive knowledge, to find how few people, even ardent gardeners, carry or use a pocket lens, though in many cases, apart from its aid in detecting the underlying beauties of nature, a little practice in its use would often enable the cultivator to detect his insect and fungoid foes long before their presence is betrayed by the destruction they cause, and thus to be beforehand with his remedies.

ROOTS.

ROOTS, as a rule, are of such a modest, retiring nature that, as compared with the aerial growth of plants, the stem, branches and leaves, and it may be gorgeous flowers, they rarely receive the attention they merit as vital essentials. Their extremely diverse character, too, is largely hidden, although in a general way we know that they vary in size from huge woody masses over which we may stumble in the forest, down to tiny branches of threads in the cases of diminutive plants. In addition, however, to mere difference in dimensions, they also vary enormously in character; but here, probably, the popular notion goes beyond the mark since carrots, turnips, and fleshy growths of that kind are not really roots as usually considered, but mere stores of nourishment elaborated by the joint action of roots proper, and the leaves, the said roots proper, being those slender fibres proceeding from the carrots, turnips, or what not, near their lower terminations. Bulbs, too, such as lilies, tulips, &c., are not roots, but really gigantic buds, which produce roots in some way from their bases. The active portions of roots, indeed, are usually very much alike in all tribes of plants; these consist of threads of cellular growth, the tips of which penetrate the soil and spread in all directions, absorbing as they proceed the necessary salts and moisture required for the formative work going on above ground with the aid of materials derived from the air, and the vital force imparted by the light of the sun. Naturally as these primary rootlets proceed, branching as they go, the conduits to the upper air, which they also constitute, must be enlarged to accommodate the increasing contributions, hence thickening goes on as well as lengthening under the ground, precisely as it does in the network of branches and twigs above it. Doubtless very often were it possible to get out a huge tree intact with all its roots and rootlets, the difference in spread and ramifications between the upper and lower portions would be found to be very small. When, indeed, we regard a huge oak, elm, or other gigantic tree in full foliage, and consider that on a hot day every one of those millions of leaves is freely transpiring the water derived from the soil beneath, it becomes clear enough that an immense system of supply must be at work to replace the loss. There is probably, indeed, a direct ratio maintained between the transpiring surfaces and the feeding roots, since in thick, fleshy plants, such as cacti, sediums, &c., the tenants of dry soils and thirsty deserts, the roots are relatively scanty; and in the orchid tribe, where, on the other hand, constant moisture in the air checks transpiration, and thick pseudo bulbs and leathery leaves are the rule, we find the roots are thick and few, and mainly serve as attachments to the site of growth. Water weeds will grow without any roots to speak of, and afford another illustration of the rule. In watching the development of seeds, one of the most marvellous and striking things is the first differentiation of roots and leaves, the self same primary cell splitting up into two, one of which then manufactures a root which shuns the light and plunges into the soil, while the other does exactly the opposite, and shoots upward to greet the sun and form the leaves. Despite this difference of habit, however, the sympathetic action between the two is perfect; it is a true partnership on intelligent lines; each seeks an independent source of profit, and both work to the same end—the creation of a flower, the perfection of the seed, and through this the perpetuation of the race.

A Special Exhibition of Bamboos will be provided at the next meeting of the Royal Horticultural Society, to be held in the Drill Hall, St. James's Street, on Tuesday, July 26, by A. B. Freeman-Mitford, Esq., C,B., of Batsford Park, Moreton-in-the-Marsh, Gloucestershire. Mr. Freeman-Mitford has probably the finest existing collection of bamboos, and no one has a better knowledge of these elegant plants than he, consequently, a special opportunity for gaining information will be afforded on the date mentioned, for in addition to the exhibit there will be a lecture at three p.m. on the "Economic Uses of Bamboos," given by this accomplished gentleman.

Hampstead Heath Extension.—The Tree and Open Spaces Committee of the Hampstead Vestry recommend the vestry to contribute £10,000 to the Hampstead Heath Extension Fund for securing the Golder's Hill Estate, of over thirty-six acres, as an addition to Hampstead Heath. About £40,000 is required for the purpose, towards which about £12,000 has already been secured by private subscriptions. Should this charming estate after all fall into the builders' hands, one of the most beautiful landscape views in England, and one that is at present enjoyed by the many thousands visiting Hampstead Heath, would be absolutely spoilt. A garden party in aid of the extension scheme was held in the grounds of Golder's Hill on Thursday, the 21st inst.

The Berlin Sewage Farm.—The Berlin sewer system transports annually from 60,000,000 to 70,000,000 cubic metres of sewage for distribution over the broad acres lying seven to fifteen miles from the city. The area of the fields irrigated is more than 20,000 acres, or greater than the present area of the city, which is twenty-five miles. We understand that the total cost of the drainage system is about £5,208,333, and it is estimated that it will take £1,041,666 more to complete it. Yet, owing to the enormous yield of the irrigated land, it will soon return a revenue on first cost, and pay for the investment besides. As many as five crops of hay are cut in a single year, and several crops of vegetables are obtained each season.

Laxton's Trafalgar Strawberry is a new late variety, raised by the Messrs. Laxton Brothers, of Bedford, by crossing Waterloo with Elton Pine. A few fruits submitted for our inspection travelled remarkably well; they were large specimens, bluntly conical in shape, but with a very slight tendency towards the wedge-shape. In flavour the variety is rich, juicy, and sweet, with a pleasant touch of acidity that is most refreshing. The strawberries are of a handsome dark scarlet hue, and the flesh is light scarlet. Provided it is a good cropper—and the Laxton strawberries are good croppers—Trafalgar should have a great future as a late variety, for we are informed that it ripens several days later than Waterloo.

Our Best Dessert Apples.—The conditions under which the "Veitch Prizes for Flavour" have been competed for at the various meetings of the Royal Horticultural Society during the two years commencing July 14, 1896, and ending in June, 1898, are now well known to our readers. The aim was to form a definite list of the best flavoured apples and pears for dessert at all seasons; six fruits of a variety had to be shown, and no exhibitor was allowed to compete a second time in one year with a variety that had already gained him a first prize; neither could one person obtain more than one second prize with the same variety. The tabulated statement of results is published in the current issue of the R.H.S. *Journal*, and from it we find that Cox's Orange Pippin takes the lead among apples, having been the best on twelve occasions and second twice; it was not beaten during October, November, and December, 1896, and January, 1897, and it was to the front in October, 1897, the first meeting in December of that year, and again in February and March, 1898. On two occasions Cox's Orange was beaten, once by Ribston Pippin, September 30, 1897, and once by Cockle's Pippin on November 23, 1897. Ribston Pippin ranks next, for although only first once as noted above, it came second only to Cox's Orange Pippin on five occasions. Blenheim Pippin was first on February 9, 1897, and second only to Cox's Orange on December 15, 1896, and January 12, 1897. As an early apple Irish Peach was a success, coming first at one meeting in August, 1896, and one in August, 1897; Worcester Pearmain led the way on August 25, 1896, and was second on September 8, 1896. Cockle's Pippin was the best flavoured apple of March 9, and of November 23, 1897, and second best on November 9, and December 14 of the same year. Sturmer Pippin could not be beaten on April 27, 1897, and April 12, 1898, but was second on April 13, and June 15, 1897, and March 22, 1898. Allen's Everlasting secured first prize for flavour on two occasions, viz. March 23, 1897, and April 26, 1898; Adams' Pearmain, though only second at both the March meetings of 1897, was first in December, 1898; Lady Sudeley could only reach second place, and that on August 10 and 24, 1897. Court Pendu Plat was first on May 11, 1897, but could only reach second place on April 12, 1898; Herefordshire Pearmain was second on April 26, 1898, but rose to first place at the following meeting. Other varieties with which first prizes were gained for flavour are Benoni, September 8, 1896; Lord Burghley, April 13, 1897; French Crab, June 15, 1897; Kerry Pippin, September 7, 1897; Margil, January 11, 1898; and Lamb Abbey Pearmain, March 22, 1898. Apples that never reached higher than second place, and that only once during the two years, are Red Astrachan, Duchess Favourite, De Niege, Scarlet Nonpareil, Brandy Apple, Golden Reinette, Gravenstein, American Mother, Claygate Pearmain, Calville Blanche, Bess Pool, and Calville Rouge. The leading competitors have been Mr. C. Herrin, Dropmore Gardens, who secured six firsts and seven seconds; Mr. J. Powell, four firsts and three seconds; Mr. G. Woodward, Maidstone, three firsts and seven seconds; Mr. G. Wythes, Syon Gardens, and Mr. J. C. Tallack, Livermere Park Gardens, with three firsts and three seconds each; Mr. Prinsep, Buxted, two firsts; Mr. Divers, Belvoir Castle Gardens, two firsts and one second, and Mr. Bullock ditto.

The Ground-Nut (*Arachis hypogæa*) is largely exported from India to England and France for oil-making and other purposes. The cultivation of the Ground-nut was carried on extensively in Pondicherry, and the industry was so profitable that it soon became the only important one; this state of affairs was sure sooner or later to end in disaster, and, according to Captain Nepean, in a report to the Foreign Office, 1897 was a very bad year, and the harvest was scarcely sufficient to supply the local oil mills; unfavourable atmospheric conditions are given as a reason for the scarcity. The Governor of the French establishment in India, in a speech given on November 16, 1897, at Pondicherry, very clearly pointed out the inadvisability of putting all one's eggs in one basket. He stated "the commerce and industry of the colony has declined greatly; our exporting firms pay dearly for their over-estimated confidence in the cultivation of Ground-nuts. During the last two years the output has failed completely. All business has been stopped, and the traffic of the port has diminished in a proportion surpassing the most pessimistic predictions. The disasters which have followed are difficult to repair. A movement has become apparent in favour of the plurality of cultivation, which should be encouraged. This new distribution of products will assure to our colony a more staple position. There will be in it a chance of improvement, but all efforts made to this end would be themselves irremediably compromised if the oleaginous seeds embarked in our ports became liable to duty when imported into France." It would appear that the necessity of plurality of cultivation must be learned by experience, both by individuals and colonies, ere it is fully appreciated.

Highly Flavoured Pears.—In the course of the two years during which the Veitch prizes for flavour have been competed for at the Drill Hall, Westminster, there have been about a hundred and thirty-three dishes of pears staged, representing a large number of varieties; from these, however, only twenty-nine sorts were considered sufficiently well flavoured to merit a prize, and these were as follows: Winter Nelis, Nov.-Jan., three firsts and one second; Doyenne du Comice, October, three firsts; Thompsons, October, two firsts and one second; Jargonelle, July-August, two firsts: Passe Crassane, February, two firsts; and Bergamot d'Esperen, Feb.-March, one first and two seconds. Williams bon Chretien, Aug-Sept.; Souvenir de Congres, September; and Emile d'Heyst, Oct.-Nov., each gained a first and a second prize. The prizes were won on one occasion only with Beurré de l'Assomption, August; Beurrê d'Anjou, November; Beurré du Buisson, November; Beurré Rance, March; Louise Bonne of Jersey, September; President Barabe, December; and Josephine de Malines, January. Second prizes were won on two occasions with Beurré Brettoneau, Feb.-May; Knight's Monarch, November; Glou Morceau, November; and Nec Plus Meuris, Jan.-March. On one occasion only have the following varieties merited the second prize, and in the months indicated: Citron des Carmes, July; Beurré d'Amanlis, September; Beurré Hardy, October; Beurré Superfin, October; Marie Guise, March; Autumn Nelis, September; Fondante d'Automne, September; Marie Louise, October; and Nouvelle Fulvie, November. The most successful competitors were Mr. G. Woodward and Mr. C. Herrin, the former winning six first and two second prizes, and the latter five firsts and one second, with the exception of Mr. J. Powell no other competitors gained more than one first prize, but he obtained three firsts and a second. Messrs. G. Wythes, W. Cotterell, G. Osborne, O. Thomas, W. H. Divers, C. Ross, W. Allan, J. Crook, F. Harris, W. King, R. Maher, and G. Norman, divided the remaining nine first and nineteen second prizes between them.

Preservation of Scenery.—The desirability of preserving scenes of beauty is at last being recognized by some portion of the community, and the other day a conference was held in one of the committee rooms of the House of Commons, with Mr. Bryce, M.P., in the chair. There was a somewhat lengthy discussion, in the course of which the several aspects of the question were touched upon, and, at the close, a resolution, moved by the Duke of Westminster and seconded by Sir William Vincet, was unanimously passed, declaring it to be desirable to make some permanent arrangement for concerted action between members of Parliament in both Houses on questions relating to (a) the protection of rural scenes and landscapes and town prospects from such disfigurement and impairment as is not justified by considerations of public utility; (b) the provision and maintenance of commons, open spaces, public parks, and gardens; (c) the preservation of buildings and places which are of peculiar interest by age, beauty, or association, whether historical or literary; (d) the conservation of wild animals and plants; and generally for asserting the importance, on [illegible] grounds of public policy, of maintaining beauty, simplicity, dignity, and interest in the aspect of out-of-doors Britain. Resolutions were passed appointing a committee to undertake the duty of circulating information, and of inviting con[illegible] and common action when it appeared that steps might usefully be taken in Parliament.

Railway Companies and the R.H.S.—Early in March last the Council of the Royal Horticultural Society proposed to the various railway companies that Fellows of the society should be permitted, upon presentation of their cards of fellowship at any station, to obtain a return ticket to London, at single fare, upon show-days, and especially on the occasion of the Temple Show. It was pointed out, in the circular letter sent by the Rev. W. Wilks, that such a privilege was granted to the Bath and West of England Agricultural Society, Royal Counties' Agricultural Society, and other bodies, to the advantage both of the societies and the railway companies. In reply, the companies intimated that the matter was discussed at a meeting of the Associated Railway Companies and the proposal declined.

Convenient Flowers.—A writer in an American contemporary points out that flowers are very convenient. Suppose, he says, it is desirable at the last moment to break a dinner engagement from choice or necessity. If the note which explains your sudden call out of town is accompanied by a box of roses the lady feels less sting, and you miss much of her displeasure. Or suppose the girl you admire is going abroad, and you are diffident about suggesting a correspondence. Flowers sent to the steamer will arrange the whole thing for you. The recipient must acknowledge them, you answer the note she posts from the first port at which the steamer stops, and the desired correspondence is established. Then there is the birthday for which you forget to purchase a gift, or the social debt you owe. Some handsome flowers will take the place of these things, and give you the reputation of being a man of taste.

Messrs. S. Chivers and Sons, of Histon, Cambridge, have just celebrated the twenty-fifth anniversary of the opening of the first fruit farm factory in England. This firm started in a small way, and by careful attention to growing fruit, packing, preserving, jam making, &c., has grown rapidly, until now it has six hundred acres under cultivation, and employs eight hundred persons.

Some New Hoes have been on trial for some time past at the Chiswick Gardens of the Royal Horticultural Society, where their usefulness for various purposes has been proved. The Sproughton Hoe, an invention by the Rev. Foster-Melliar, of rose-growing fame, is a double-edged Dutch hoe, that cuts through the soil readily, cutting up weeds whether pushed from or pulled towards the user; a point at one end of the hoe is a valuable aid in the eradication of deep-rooted weeds. The Chiswick report gives the Sproughton implement as "a most useful hoe." Mr. G. Abbey, Eltham, sent a heart-shaped hoe that is valuable for drilling, but unsuitable for other use. The third hoe is more curious than either of the foregoing, and no doubt some of our readers will remember a specimen shown at the Drill Hall a short time ago by Mr. Wythes. It is composed of several strong prongs that revolve on an axle, and is an admirable instrument for light and loose soils, in which it can be worked much as the hand cultivators are. It is easily worked in light soils, and penetrates deeply enough to root up all but the deepest of weeds. On hard soils it would not be valuable. This pronged hoe was sent to Chiswick by Mr. Shailer, Avenue Road, Brentford.

The Botanical Magazine for the current month contains illustrations and descriptions of Coelogyne Swaniana, a pretty species from the Phillipine Islands, and resembling C. Dayana; Callianthemum rutæfolium var anemonoides, a native of the European and Asiatic Alps; Iris Grant-Duffi, a yellow-flowered species from Palestine, closely allied to I. tenax; Eria latibracteata, a Bornean orchid with dull yellowish flowers; and Calochortus clavatus, a bright yellow species lately introduced to cultivation by Mr. Carl Purdy.

A Novel Find of Gypsum.—In a communication to *Nature*, Mr. T. Mellard Reade states that a very large boulder of gypsum has been uncovered by the excavations in the brickworks of Mr. Ed. Peters, Cooks Lane, Great Crosby, near Liverpool. It is embedded in and completely surrounded by a thick bed of brown boulder clay, the bottom of the boulder being about seventeen feet below the surface of the ground. The boulder measures eleven feet by six feet extreme dimensions, and weighs about thirteen tons. Small pieces of gypsum and plates of selenite are not uncommon in our boulder clays; but this individual boulder not only far surpasses in size any drift fragments of gypsum hitherto found, but is actually the largest boulder of any sort that Mr. Reade has seen taken out of the boulder clay, or recorded from it in the neighbourhood of Liverpool.

The American Strawberry Crop has been a good one this season as regards quantity, but as all the fruit seemed to ripen at once the market fell, and good fruits sold at ten boxes for a shilling and a half-penny. The *Rural New Yorker* states that in San Francisco some idiot started a poison scare, claiming that growers were spraying their strawberries with some poisonous material. The result was that many people stopped eating strawberries, and this added to the other troubles of the strawberry grower. The earlier fruits seem to have made the money this year, although the very late ones brought fair returns.

A Curious Chinese Prescription.—Mr. J. R. Burtt Davy, formerly a member of the Kew staff, now attached to the University of California, Berkeley, U.S.A., has presented to the Kew Museum the ingredients of a Chinese prescription purchased by him at China Town, San Francisco. As is well known, the Chinese use a very large and varied assortment of products in the preparation of their medicines, and Mr. Davy says that, in the drug stores of China Town, one can usually obtain a panacea for all ills, varying in the number of ingredients according to the price paid (25, 35, or 50 cents). Such a prescription usually contains a few slices of the root of Glycyrrhiza, dried flower heads of a composite plant, dried [illegible], dried cockchafers, and the skin, head and tail of a lizard stretched on thin sticks; an extra five cents will secure a dried "Sea horse"; and yet another five cents a dried fish of peculiarly narrow shape, and about four inches in length. All these are boiled together, and the decoction drunk as a remedy for heartburn, toothache, cough, dimness of sight, and almost any other ailment. It is difficult to identify most of the vegetable ingredients in consequence of their being cut or broken up into small fragments, but the following occur amongst those brought to Kew. Fruit heads of an Eriocaulon, apparently E. cantoniense. This plant has a reputation in China for various diseases, such as ophthalmia, especially in children, as a styptic in nose bleeding, and in affections of the kidney. Another ingredient capable of identification, consists of the spiney hooks from the stems of the Gambier plant (Uncaria Gambier, Roxb.), which have astringient properities, and are mostly used in infantile complaints. Some very thin transverse sections of the stem of Akebia quinata, a climbing berberidaceous plant, also occur in small quantities, as well as the bark of Eucommia ulmoides, known as the "Tu Chung." Tonic and invigorating properties are ascribed to it, and it is said to be valued at as much as 4s. to 8s. per pound. Though the bark is very thin, it is abundantly sharged with elastic gum, which can be drawn out in silvery threads when it is broken apart. Among other ingredients which have not been identified are crushed flower heads of a composite plant. and slices of a slender, twig-like stem, probably a willow.

The Vineyards of France do not appear to be in a very flourishing condition at present, owing to the low temperature that has for so long prevailed. In almost all parts of the country much warmer weather is needed, both for the vines and sugar beet. In the south-eastern districts the vine growers are complaining of the premature falling of grapes, while in other districts the excessive humidity of the season has resulted in an unusual development of fungoid pests. The grape harvest is certain to be late, and it will be a small one unless more congenial weather ensues.

Paraguay Tea or Mate can be obtained from more than one species of plants, as notes on the botany of those yielding it were published in the *Kew Bulletin* of 1892, pp. 132-137, will show. In 1893 seeds of what was believed to be true Ilex paraguensis were received at Kew through the kindness of Senor Glaziou, Director de Passeio Publico, Rio de Janeiro. After retaining a few the others were distributed to various botanical institutions in the Colonies. Unfortunately none of the seeds sown at Kew germinated. The following interesting information respecting the tea made from the leaves, so largely used in South America, is taken from a report issued by the Foreign Office in 1897: Yerba-maté, or Paraguayan tea, is the most valuable article of export. There are two classes sold, but it is only in the manner of preparation that they differ. The kind known as "Mborovirè" is merely dried over a furnace, and then beaten into small pieces with sticks. The "Molida" goes through the same process, but it is afterwards ground in a mill. The export duty on the former was increased in 1895 from 30c. paper to 10c. gold, and on the latter from 25c. paper to 9c. gold per 10 kilos. The revenue derived from this source in 1895 amounted to 471,668 dollars (equal to £16,845). The Yerba forests, called Yerbales, were formerly the property of the State, but most of them have been sold, and are now in the hands of a few capitalists and companies. The Industrial Paraguaya Company, which owns about half of the Yerbales known to exist in the country, exports annually about 400,000 arrobas (4,512 tons). The total quantity of Yerba exported during the past year is estimated at about 9,024 tons, and the average price per arroba (25 lbs.) was 11 dollars 50 cents paper (equal to 7s. 8d.). Paraguay tea is now advertised for sale in this country, and appears to be in moderate demand; possibly as a curiosity more than as a regular article of food.

State Aid for Horticulture.—At the distribution of prizes and diplomas to successful students at the Horticultural College, Swanley, on Wednesday last, Sir Trevor Lawrence stated as a remarkable circumstance that, although we in this country were more distinctly a flower-loving people than the inhabitants of any other country that he knew of, the State did nothing in the direction of systematic horticultural education. In Belgium, Holland, France, and Germany the State undertook to establish a satisfactory system of horticultural education, whereas we in this country had to rely on individual effort. He did not say that ours was a wrong course, but at the same time it was perfectly clear that it was much more difficult to establish a satisfactory system of education by private effort and energy than it would be if we had the resources of the State at our command.

The Palm Oil Trade conducted between this and numerous tropical countries is very large, and a study of the business, even superficially, would prove most interesting. In Paraguay the Agricultural Bank has for some time past been encouraging the palm oil business by importing crushing machines and selling them at cost price; it has also purchased quantities of palm nuts and demonstrated the profitableness of home crushing as against the direct export of nuts to Liverpool. Mr. Consul Holmes states, in his report for 1897, that some two thousand sacks of the kernels were sent by the bank to Liverpool, and sold there for £1,091 16s. 1d. The expenses, freights, commissions, insurance, etc., amounted to £155 18s. 4d., so that the net amount realised was £935 17s. 9d. In currency the cost per arroba (twenty-five pounds) delivered in Liverpool amounted to 3 dols. 30 c., and the profit on each arroba to 43 c. The price of the African palm nut (*Elæis guineensis*) in London in July last varied from £9 10s. to £10 per ton. Whereas the Paraguayan nut, owing to its yielding more oil, fetched from £11 5s. to £11 10s. per ton. Since this experiment was made, the bank has received orders for large quantities from London and Naples, the latter being for 10,000 tons at £11 per ton. But though the cocoa-palm grows like a weed in most parts of the country, it is extremely doubtful whether these orders can be executed owing to the difficulty of collecting the nuts. And for this the peasant is to blame, as it is said he finds the task of collecting and crushing the nuts too laborious and not sufficiently remunerative to suit his usually desultory and happy-go-lucky methods of earning a living.

Lichens and Mosses.

It may not be out of place if we give here some few particulars relating to these two peculiar forms of vegetation which form the heading to this article. Taking lichens first, I find that the word is derived from the Greek λειχην, and in the botanical world it is the name for an extensive division of cyptogamic plants, constituting a genus in the order of algæ, in the Linnæan system, but now forming a distinct natural order known as Lichenaceæ. They appear in the form of thin, flat crusts, covering rocks and the bark of trees, or growing upon the ground, or in foliaceous expansions, or branched like a shrub in miniature, or sometimes only as a gelatinous mass or a powdery substance. They are respectively commonly known as rock moss and tree moss, and some of the liverworts are of this order. They also include the Iceland moss and reindeer moss, but they are entirely distinct from the true mosses. Lichens abound in the cold and temperate parts of the world. The greater number are of no known use, except in preparing the surface of the earth for the reception of larger growing vegetation; but some are used as tonic medicines, such as Variolaria fuginae and Iceland moss. Cetraria islandica, when deprived of its bitterness by boiling, becomes a diet recommended for invalids. Their principal use is to furnish the dyer with brilliant colours, orchil, cudbear, and several others being thus employed.

Having thus briefly summarised the uses of lichens, I will now proceed to touch upon the subjects from the botanical point of view. We are all familiar with the ordinary appearance of a lichen. It is a dry membraneous-looking object, whose external aspect scarcely invites attention, but if examined closely many wonders reveal themselves. A mass of cells, a number of little tubes of membranes, containings porules of an oval form, both outer and inner layers, are disclosed on microscopic examination. The colour and appearance of the plants are wonderfully diversified. They may be seen drooping from the branches of trees in thick beard-like bunches or tufts, and are called in this form Old Man's Beard, which in their aspect and hue they positively resemble. They are found growing on the walls of old castles or ruined churches, with curious-looking patches of brown or yellow. They glitter in golden colours, and paint a bare rock with strange devices sometimes in the richest, but oftener in the gloomiest of colours, and at times form miniature goblets in grey with crimson edges. They are really nearly ubiquitous, few places coming amiss to them. They cover weather-beaten rocks, and subsist equally on the sea-shore, and are scattered from the equator to the poles, from the depth of deserted mines to the height of everlasting snow. England is rich in lichens, but cannot compare in that respect with the moist equatorial regions, which greatly favour their development. The most curious lichens in this country are those called "Lungs of the Oak," from their remarkable resemblance to the human lungs; the hair lichen, which covers trees with a shaggy mantle; the crab's eye, common upon stones; and the goblet, which ornaments so many of our heaths. How lichens appear in many places is a great mystery, and experiments made to solve the matter result in engendering increased perplexity. Meyer found that decomposed vegetable and some inorganic matter will assume an organisation under the influence of water and light, and that the pulverulent matter of lichens is thus propagated, but species could only be propagated by spirules of the same species. D'Unville tells us pulserulent lichens are the first plants which appear on bare rocks of newly-formed islands. This is the first garment at the hands of Nature.

Lichens from a commercial point of view are of value. For more than half a century numbers of the population in the Highlands of Scotland have earned a fair living by collecting the Lecauora tartara, or cudbear, scraping it off the rocks on which it grows so abundantly in those parts. Loudon states that when large quantities were collected it was then sent to Glasgow, where it was employed for dying wool purple. It is not so good though as that sent to us from the Canary Islands. The orchal or orchil which is, procured from the volcanic rocks there, is used here in large quantities, the value imported being over £100,000 annually. The well-known chemical test called Litmus is produced from the colouring matter of orchil. Other lichens give us yellow, blue, and red (the primary colours) dyes.

Coming now to the mosses, it may be mentioned that these form one of the families or classes into which all vegetables are divided by Linnæus in the "Philosophia Botanica." In Ray's method the mosses form the third class, and in Tournefort's they constitute a single genus. In the sexual system they are the second order of the class Cryptogamia, which contains all the plants in which the parts of the flower or fruit are wanting or are not conspicuous. They form a natural order of small plants, with leafy stems and narrow simple leaves. Their flowers are monæcian or diœcian, and their spores are contained in a capsule covered with a calyptra or hood. A pretty moss clothes the sides of St. Winifred's Well, at Holywell, North Wales, which seems stained with blood, the legend being to the effect that St. Winifred was beheaded and thrown down the well, and that her blood has ever since tinged the moss-covered sides. The moss family has in many other instances lent itself to tradition. It is, of course, under the microscope that the mosses afford most wonder. The mosses, like the lichens, are cosmopolists. The split mosses luxuriate in the bleakest spots, and are among the last vegetation found in the Alps at the everlasting snow limit. Some of the urn mosses are to be found at a height of 7,000 to 8,000 feet. From the heights downwards, and from the tropics to the poles, certain mosses are to be found. They are not so useful though to man as the lichens. In Lapland they make beds of them, and also use them as candlewicks; reindeer, too, eke out their sparse provisions with them, but really little else can be written.

Wm. Norman Brown.

CHRYSANTHEMUMS.

MANURES AND FEEDING.

The occasion for complaining about the weather might almost be considered the special prerogative of gardeners generally, and especially those who plunge deeply into the cultivation of specimen chrysanthemums, judging from the chorus of perennial grumbles with which one is greeted amongst brothers in the craft. This present season, with its abnormally low temperatures and lack of sunshine, bears the same evil reputation as most of its predecessors, and yet one may safely predict that November will bring its wealth of lovely flowers and keen competitions, as it always has done. We are like a certain farmer who, when complimented on his fine crop of wheat, complained "that there was a dreadful lot of smut if you looked into it." Chrysanthemum "smuts" are various and persistent in their attacks on the plants, but they cannot withstand the watchful care of the earnest cultivator. Some of these troubles, however, are the result of our own misguided kindness to the plants, and there is no more prolific source of evil than errors in the application of manures. It is a pardonable error with beginners that they should be too liberal with special fertilizers, even to the extent of destroying some roots when, without much experience, they are trying to steer their own ship, and to some extent also that they should rejoice (during the growing season) in the large fleshy leaves and bamboo-like stems which result from early and constant doses of stimulating manures. In talking with people who persist in this style of growing their plants, it is most amusing to note the pains they take to assure you "that scarcely any manure has been given," that "there is nothing but a dusting of bone meal in the soil, &c.," the veracity of which statements can only be admitted on the assumption that they do not measure their quantities by our standard. Not long since I saw, amongst a collection of large stemmed plants, one of Madame Carnot, with the main growth divided right through the centre, showing quite a hollow stem, surely a condition which cannot result satisfactorily. It has been frequently urged upon those readers who have still this lesson to learn, that fine blooms are produced on solid, sturdy, well-matured growth, and that gross, succulent plants will not yield nearly such good flowers as those with comparatively small but sound shoots.

Other evils consequent on too high feeding, also, are "damping" of the blooms, a predisposition to the attacks of mildew and of the new fungus or leaf rust which will establish its spores much more readily on soft, fleshy foliage than on leaves of hard texture. A robust, healthy growth is, of course, necessary to enable the plants to develop high-class flowers, and considerable use of manure is requisite to obtain this, but caution against extremes is very important. Plants which were potted early in June will, by this time, have freely occupied the soil with roots, and are in condition to receive weak supplies of liquid manures. As we do not use soot in the soil for potting, a light dusting of the surface will prove a simple means of affording this stimulant now, or otherwise it may be supplied in water, a bag of soot being plunged into the tank from which supplies are taken. The former method answers well during showery weather. Give this once all round to the plants, then a weak watering of liquid cow manure may follow after clear water has been used for a day or two. As the season advances and the extra growth demands more support owing to the partial exhaustion of the soil the supplies of liquid manure may be more frequent and varied. Drainage from stables or farm yard, diluted to a safe condition, is a good manure, usually one of the strongest. Manure from horses or poultry may be also used in the same way as the soot by placing a quantity in a coarse hemp bag and plunging in a tank of water. It is well to bear in mind that of the animal manures, that from cows is the weakest and from poultry the richest, the latter consequently requiring more dilution. The sediment which would collect on the surface soil if the manure were stirred loose in the tank, is avoided by using the hemp bags, and very properly so, because it is very essential to keep the soil perfectly free and porous to the constant supplies of water which the plants require. At a later period a light dusting of either of the special manures, may be given with advantage, as a change, always following with clear water for a few days. Plants require less manure during rainy weather, and this must especially be taken into consideration later in the season.

The leaf mining grub has been more troublesome than usual this year, handpicking is the remedy, and though the attacks of the insects will cease by the end of July, it is important to destroy as many as possible to prevent injury to the lower leaves and ultimate increase of the fly which, through its eggs, produces the grub. Attention in tying the shoots is extremely important with such very brittle varieties as Snowdon, Mary Molyneux (a very free growing sort), Joseph Brooks, and Australie, heavy rains being usually as destructive to the tops of such varieties as rough winds. The side shoots must be kept carefully removed, and little services of this kind must be regularly carried out to keep the plants in proper trim, and to confine their energies to building up sound growths and future buds. A caution, too, may be given, against the "taking" of buds too early. Very few, indeed, should be retained until the middle of August. Mrs. Weeks must not be allowed to grow on again if the bud shows during the first week of next month, or the succeeding flower bud will be much too late, so also with John Neville and several others. Generally speaking, all buds which show during July must be passed, and those from the middle to the end of August secured.

Trent Park Gardens.

W. H. Lees.

THE ALPINE AURICULA.

I NEED not go into the history of the auricula, nor speculate from what original source this charming hardy garden flower has sprung; as the supposed original parent was cultivated in our gardens three hundred years ago, it stands to reason that the variation from so many generations of seedlings must be very great, but it is also true that the Alpine auricula (so called, for they are all Alpine) never was taken up by the fanciers as the edged auricula has been. When the silk weavers were expelled from the low countries and settled in Spitalfields, they brought the edged auricula, but not the Alpine. The hand-loom weavers about Manchester could not find room for it in their gardens, nor have I ever seen a plant of it in the gardens of those two famous cultivators, Mr. Ben Simonite and the Rev. F. D. Horner.

It is a matter of taste, or it may be a matter of convenience; my own opinion is that the Alpine auricula is a lovely flower, charming in its rich and varied colours, in the delicate perfume of the blooms, and its easy culture. Plant a group of, say, a dozen Alpine auriculas, all one variety; mix different varieties in the group, it does not matter. I put out a dozen plants of a choice variety, Gorton's Diadem, and the second season I counted one hundred trusses of beautiful blooms, and they grew well and flowered well without removal for ten years. Seedlings are also charming out of doors. Hear what a celebrated florist says in a letter to me: "I have one of the grandest shows of auricula seedlings I have ever seen. They constitute three beds, raised from seed, and are masses of gorgeous bloom. . . . The luxuriance of growth, the delicious scent which fills the air, and the bizarre combination of colours is perfectly entrancing. And what colours they are! Every shade and combination of the older imperial colours of purple and gold, down to the softest violet and primrose, and some yellow. Just now they constitute the glory of the garden, and I am delighted with them." This is surely a very favourable testimonial for the culture of this charming alpine in the open air in England. Give it good, deep soil, and plenty of decayed manure; but see that the manure is placed six inches below the surface, so as not to come into immediate contact with the roots.

It is easy to raise a good stock of auriculas from seed. The seed should be sown in July, as soon as it can be obtained, as auricula seed does not keep well. Cover the seed very lightly, and place in a garden frame, in a greenhouse, or hothouse. I put my auricula seed-pans in the cattleya or intermediate orchid house this year. The moist, warm atmosphere, with a minimum temperature of 60 degrees, seemed to suit them admirably, and the plants appeared above ground in about two weeks. They have now been pricked out in pots or boxes, and are doing well. I advise sowing in seed pans, flower pots, or boxes, and prick the plants out in boxes as soon as they are large enough, and when they are [illegible] to the open air plant them where they are to flower. The [illegible] varieties may be planted out in the same way. A good time to transplant and divide up the plants is in July and August, after the [illegible] has been gathered. This class of plant likes good, deep, rich, clayey loam; it does well on my chalky soil, where primroses and cowslips grow naturally. On light, sandy soil it is better to add some clayey loam, and when transplanting let the plants be set deep into the ground; all bare stems should be covered with soil, for auriculas and primulas have a tendency to throw out roots at the base of the leaves. It [illegible] hardy garden plant than the Alpine auricula can be recommended. As a choice plant for growing in pots this sweetly-scented favourite is [illegible] greatly esteemed, and cultivated thus it is an endless source of pure enjoyment to those who have studied its characteristics.

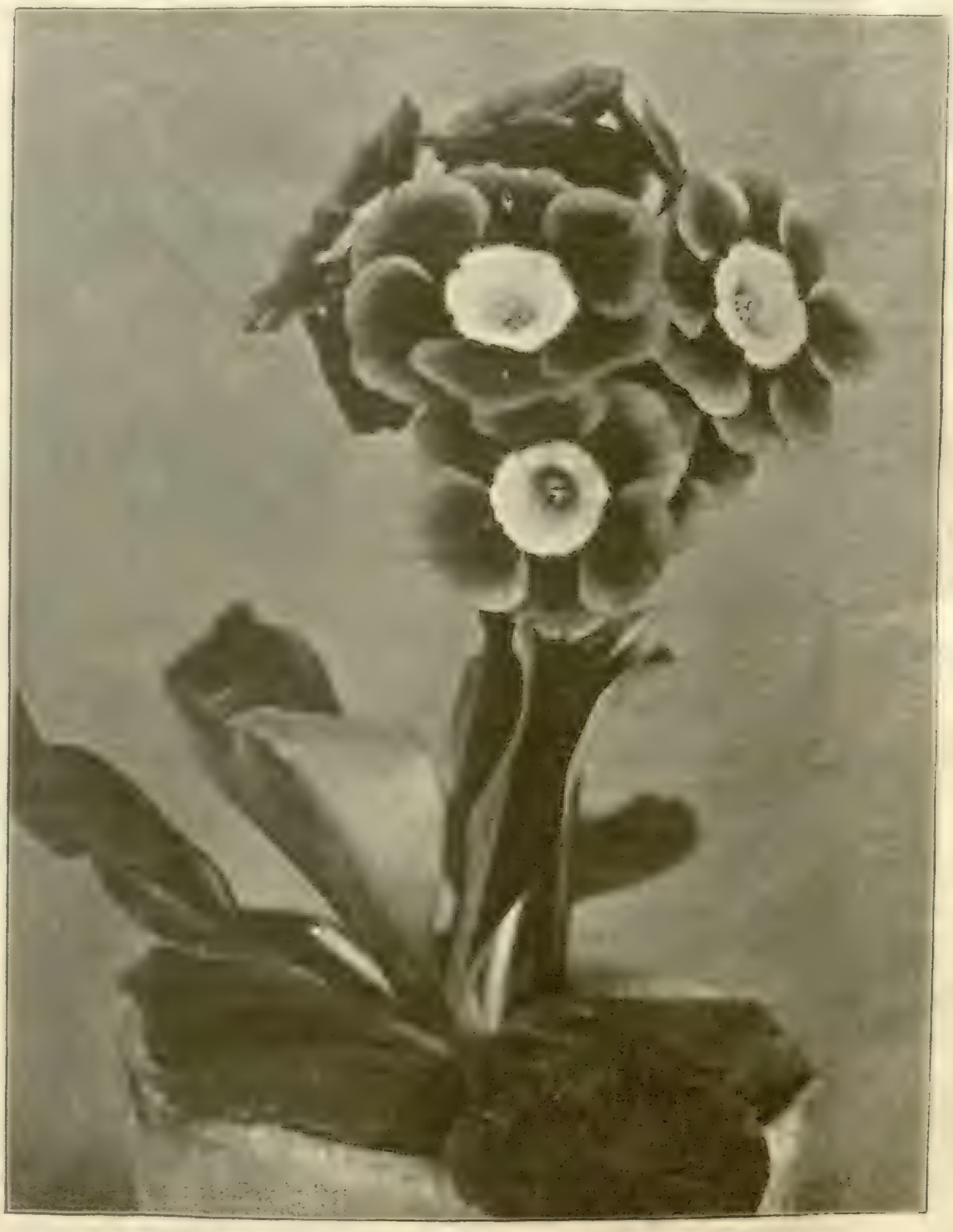
Alpine auriculas are easier to manage than the so-called show section, and the plants grow more freely, and will come into bloom sooner; but it takes about eighteen months to grow a plant from seed into a full-sized [illegible] specimen, and a small offset will take very nearly as long. After "full" plants, as the fanciers term them, have been obtained, no plant is easier to cultivate; place the plants in an ordinary garden frame if possible on the north side of a high wall or building, and in such a position they will not require further shading, nor do they need very much water at the roots; the plants are re-potted once a year, in May, using a compost of three or four parts good loam, one part decayed manure, and one of leaf-mould; but the latter is not essential. I have used the loam and manure only, with no other addition, and with unqualified success. The flower pots used vary in size according to the vigour of the plants; the largest used are four-and-a-half inches in diameter, and the smallest three inches inside measure for flowering plants; the offsets are planted in thumb pots, and it takes two to three months for an offset to become established in one of these; they are potted on as they require it, using rather finer loam. When the plants are established, they require plenty of air.

They are not liable to be attacked by insect pests or fungoid diseases, excepting the woolly aphis (*Trama auriculæ*), which clusters around the roots at the neck of the plants, as well as below ground, for even the drainage may become a moving mass of white fluff. The insect does not seem to do much harm, at least, the plants do not show that they suffer in any way. One amateur made the remark that the woolly aphis lodged but did not board on the Auricula roots. Green fly is sometimes troublesome with plants grown under glass; fumigate, if the frames can be made close, or dust with tobacco powder. I think I have now given all needful instruction to amateurs wishing to take up the culture of this choice favourite of our gardens.

The variety, Apollo, of which an illustration is given herewith, is one of the novelties I had the pleasure of exhibiting at Westminster during the past spring; it has already been described in these columns.

J. DOUGLAS.

Edenside, Great Bookham



NEW ALPINE AURICULA APOLLO (DOUGLAS).

NEW STRAWBERRIES.

BY the invitation of Messrs. Laxton Brothers, I had an opportunity a short time since of inspecting their extensive collection of seedling and other strawberries in the vicinity of Bedford. In addition to the large number of sorts already in commerce, I found upwards of two thousand lots of seedlings, many of which are of great promise, and bid well to supersede those already known to the horticultural world.

The early sorts only were sufficiently advanced to enable me to give a decided opinion about them. These were then in full fruit, and the tasting was quite a task with so many; the whole set occupying no less than fourteen acres of ground. I found "Monarch" and "Leader" in grand form, both of which are in commerce at the present time. Amongst the unnamed seedlings several varieties seemed certain to surpass those already introduced for size, earliness, colour, and quality.

The Messrs. Laxton Brothers seem determined not to introduce any unless they are really good in these respects, and as their Royal Sovereign has given such great satisfaction, and is now being grown by nearly all large growers, besides being in nearly all large gardens, it appears as if every confidence may be placed in their future introductions. As these are not yet named, I can only refer to them by their parentage. But I have noted the tally numbers for future reference, and hope in any subsequent inspection to prove that I formed correct opinions of their good qualities, which I hope to report upon another season. I have omitted to mention one which is an excellent variety, the fruit being wonderfully bright red, large, and solid. This has been named "Mentmore" and is the principal novelty in Messrs. Laxton Brothers' new list of strawberries.

The most effective crosses which have been secured, with fine handsome fruit and solid flesh, are from Sir Joseph Paxton and Noble, Sir Joseph Paxton and Royal Sovereign, Commander and Royal Sovereign, Vicomtesse Hericart de Thury and James Veitch, Monarch and Scarlet Queen, British Queen and Royal Sovereign. The later sorts are the result of crossing Latest of All and Royal Sovereign, Latest of All and Noble.

Aylestone, Leicester. JOHN HARRISON, F.R.H.S.

SOME ROCK PLANTS FLOWERING IN JUNE.

IF asked what has been my most beautiful rock plant this season, I should reply without hesitation Æthionema grandiflorum (Boissier). This year I had ten or twelve large plants, a foot and a half high and two feet across, presenting a surface of flowers, of a most vivid and clear pink, ornamenting different parts of my many stone heaps during June. The plant belongs to the order Cruciferæ, and is a shrub in the same sense as a wallflower is a shrub, the stem and twigs increasing in hardness and in the number of their shoots until, at about three years old, the circulation of sap seems to become difficult, and the plant succumbs to winter, or dies off after flowering. Those I am now celebrating, thanks to last mild winter, are mostly in their fourth year, but I do not expect any to survive till another spring. I find in the Kew authorities Persia given as the native country, but E. Boissier, whose botanical researches include Persia, mentions only one place where it occurs, and that is in the centre of the Caucasus, on one of the lower slopes of Mount Elbruz. I do not find its cultivation easy, though it may be raised from cuttings, and in favourable seasons ripens a good deal of fertile seed. But when the cuttings are struck and the seed raised, and the plants nursed in a frame to flowering size, they are not always easy to establish in their flowering place. Under an overhanging stone on the rockery side, facing south, they are most likely to succeed, and no pains are thrown away which result in keeping up a stock. Some of the plants die after flowering once, and few survive a second flowering, so the display this spring has been exceptional.

Another success in this garden is Lithospermum Gastoni, discovered fifty years ago on the High Pyrenees, near Eaux Bonnes, by the botanist whose name it bears. It is closely allied to the native L. purpureo-cœruleum, but is less than half the height, being only six inches, and has larger flowers, and does not spread like that species does by turning over the stem to the ground, and rooting from the terminal tuft. In fact, it increases very slowly; plants which have been growing healthily in the same spot for ten years are not making more than ten close-growing flowering-stalks. Hence, though very hardy and easy to cultivate amongst stones in strong soil, it remains a scarce plant. The next plant I am going to praise is common enough, growing on nearly all chalk or limestone downs from the Isle of Wight to Llandudno, including Epsom Racecourse; and yet few plants make a better show all through June and later on a heap of rock. It is Hippocrepis comosa, the Horseshoe Vetch. It must be planted where it can have a good breadth to spread on, for though as a wild plant it is generally strictly herbaceous, in cultivation it behaves like a trailing shrub, and in two years will cover a square yard. The flowers resemble in colour and appearance those of the common bird's-foot trefoil, a plant which becomes coarse and difficult to eradicate if cultivated. But the horseshoe vetch may be cut into any shape, and restrained in any direction, as it roots very sparingly, if at all, as it runs. The flowering is very dense and very fragrant, perfuming the air for some distance on sunny days.

June is the best month for the rock pinks. The best one of them, however, flowers in May; it is sold at the York nurseries by the name of Dianthus glacialis. I first had it by that name from the late Robert Parker, of Tooting nurseries, who grew it admirably. It is the dwarfest of its class, not more than two or three inches high, and the flowers are large and abundant. The original plant I bought nearly twenty years ago still lives where it was planted, and is not more than four inches across. It is certainly not D. glacialis, but the best Alpine botanist I have consulted about it thinks it is a hybrid of D. alpinus. I have never known it ripen a seed, though I have searched for one every year. It may be increased very sparingly and with skill from cuttings. D. alpinus does not succeed very well as a rock plant, and seems to prefer well-drained level ground, but D. neglectus is invaluable in its way. This, too, when well-placed is long-lived. The first plant of it I ever had—probably fifteen years old—still flourishes, being perhaps seven or eight inches square, and has at least a hundred flowers on it every June, so crowded as to overlap. It is on the summit of a rockery in deep, very well drained loam mixed with stone. It seeds freely every year, and the seeds if sown as soon as ripe come up at once and grow easily to a certain age; but however closely I imitate the conditions under which the original plant grows, not one seedling in ten survives the second winter. If they pass that, there is a good chance of their reaching old age, but not one can boast that it is better, or as good as its parent. Other useful rock pinks are D. cæsius, very tufty and vigorous; D. sylvestris, with larger flowers, and delighting to grow in a depression between two meeting stones; and D. viscidus, very deep crimson, but short-lived, and tending to pass, by crossing, into D. deltoides. These are tolerably well defined species, but there are many other names for which nondescript hybrids are apt to pass. Nearly all these small pinks cross freely, and the results are fertile, so that seed saved in the garden cannot be depended upon, and every generation produces a more confused tribe, few of which would pass muster for species in a genuine herbarium. An exquisite little columbine, Aquilegia pyrenaica, is later than most others, and belongs to the rockery. It is not more than six inches high, with pretty dwarf foliage and large blue flowers. It is almost the only columbine which comes true from seed in my garden, being a month later than most other columbines, so that it is less liable to be hybridised. The best of rock geraniums is G. argenteum, very dwarf, with leaves of shining silver, and flowers of pink or white, doing best in the driest chinks amongst the stones of the summit. A good ripening of seed is a rare boon, and is always made the most of here; the plants never admit of being divided, but last for several years. Some of the seedlings seem to pass into G. cinereum, a coarser kind, with less silvery leaves, so that selection should be made. Another very good geranium is G. lancastriense, held by some to be a variety of G. sanguineum, but for dwarf growth and free flowering very superior to it; its flowers are pale pink, and the height not more than three or four inches.

Two sedums in June deserve especial commendation, S. kamtschaticum, growing of moderate breadth, and not running at the roots, with conspicuous orange-coloured flowers, and continuing ornamental till seed is ripe; and S. spathulæfolium, with very close-growing silvery grey rosettes and large bunches of very bright yellow flowers on dwarf stalks. It a native of North-west Canada, and has not been long in cultivation, but will take kindly to any spot assigned to it without ever becoming obstructive or untidy. The many varieties of Veronica teucrium are now in flower, including V. prostrata, often treated as a species, and known in nurseries as V. rupestris. This is common, and apt to be weedy, but a pure white variety of it which I found ten years ago near Gavornie, in the Pyrenees, is rare and choice. It is, however, far more shy in its growth than its blue type, though the flowering is very abundant. The bushy or upright forms of V. teucrium, from nine inches to two feet high, are amongst the purest and brightest of blue flowers for the month during which they last. By growing a large number of seedlings in a spare corner an advantage will be gained by the chance of selection, for few species afford greater variety of habit, and as the best plants admit of endless division, there ought to be no room for inferior forms. Oxalis enneaphylla, from the Falkland Islands, has proved hardy with me for three winters, and is very distinct and pretty both in leaf and flower—that is when the sun condescends to shine upon it—but it makes no increase. It seems to do well at Kew, growing amongst the stones where the cross walk cuts into the middle of the rock garden from the east. It should be looked for in catalogues, but is at present scarce. I first saw it in the rockery of Mr. George Paul at Broxbourne, where it had survived a very severe winter. Of several varieties of Aster alpinus, the most easily grown is that called var. superbus, which flowers freely and grows vigorously, even on a flat border. The type is more dwarf and perhaps better as a rock plant, but is very capricious, and is difficult in many gardens to persuade to do well, especially where slugs abound, which eat the eyes out of the flowering shoots during winter. The white variety I have found unaccommodating. It wants vigour, and most of the flowers come deformed, and it is seldom seen in really good form. Lychnis Lagascæ, from the Spanish side of the Pyrenees, is a choice little June rock plant. Being evergreen, its frail stalks are little suited for the British alternations of snow and rain, frost and thaw, but I find it does admirably on the side of a brick wall, where snow cannot lodge against it. There it clings to the mortar without any visible holdfast, and makes large tufts, covered for a month with bright crimson flowers, growing mixed with erinus and similar dwarfs.

Edge Hall, Malpas. C. WOLLEY DOD.

HIBBERTIAS.

THE members of the genus Hibbertia are nearly all natives of Australia, and are among the most easily cultivated plants. Many are of a climbing habit, and form very pretty subjects for training under the rafters of a cool greenhouse, or for pillars; they have been grown outside upon a wall in favoured localities, which shows their hardy nature. As they are evergreen they are extremely useful where a roof covering is necessary all the year round, and such species as the quick growing H. volubilis soon fills up a large space if so required. Large plants are not particular as to compost, provided it is not very heavy, so a large amount of coarse sand and broken potsherds is conducive to good growth. With such species as H. Readi, allied kinds, and young plants, a mixture of sandy peat and loam is best suited to their requirements.

The number of species in cultivation is not large. The flowers are yellow, and produced over a long period. Those in most general cultivation are H. dentata, a native of Australia, introduced early in the century, and easily distinguished by its wiry stems, oblong leaves of a purplish colour beneath and light green above. This plant always displays itself to the best advantage if its growths are allowed to depend from the roof, while at the same time it presents quite a natural appearance. H. volubilis is, perhaps, better adapted for pillars or walls on account of its more stiff habit of growth; the foliage is deep green, and the flowers, which appear at the ends of short axillary branches, are about two inches across and of a bright yellow shade. When old the plant may be well spurred back, as this induces a large number of lateral growths, and, consequently, a more floriferous specimen. For pot culture we have several species which form compact plants when well grown. In H. perfoliata, also an Australian species, we have a showy plant, growing a foot or more in height, and forming quite a desirable stage plant when well grown. The flowers are produced in the axils of the perfoliate leaves, upon small side branches near the apex of the stems, six or more upon each branch. The glaucous foliage is also ornamental even when the plant is out of bloom. H. Readi, whose habitat is unknown, has small linear foliage, and forms quite a compact plant. It is very floriferous, as the blooms are borne thickly upon the small twiggy branches, the flowers appearing to nestle up to the foliage while in bud. The bright yellow colouring makes it a conspicuous object among other plants.

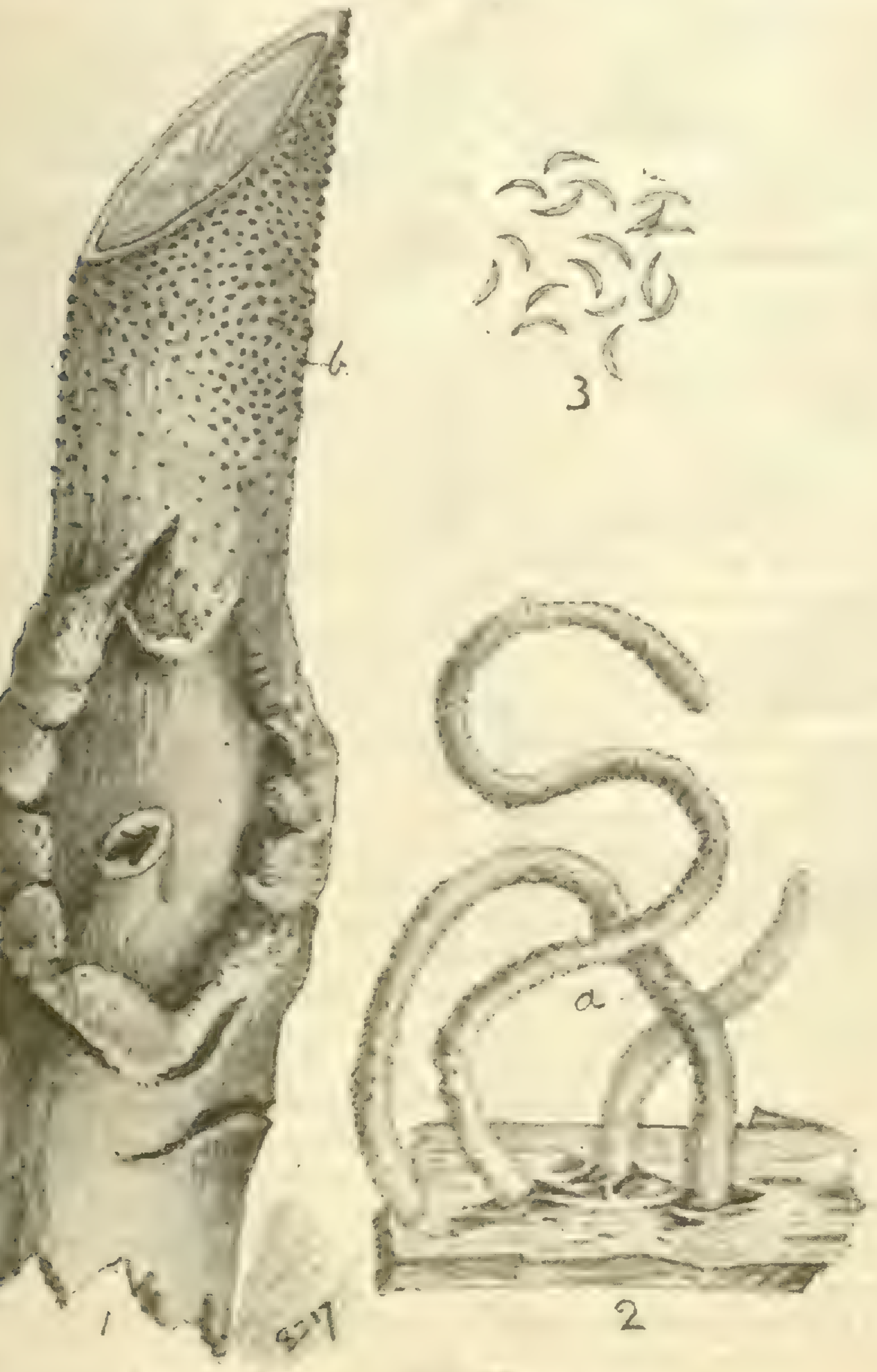
In the *Bot. Mag.*, t. 6,053, we have a figure of an exceptionally showy species—H. Baudouini, a native of New Caledonia. This was flowered at Glasnevin by Dr. Moore, who received seeds from his brother at the Sydney Botanic Garden. It is described as a glabrous shrub, with the leaves crowded towards the apex, and with racemes of flowers a foot in length. This species, it is to be hoped, may become more common in our gardens. Several other species have been in cultivation and figured at various times, though the foregoing are those best known and of value as decorative plants.

Edinburgh. R. L. HARROW.

A FIG TREE DISEASE.

A DISEASE, presumably of old standing, has of late years proved very injurious to fig trees, and one remarkable feature in connection with this disease is the fact that it is most prevalent and destructive in those cases where the trees have received the greatest amount of attention, pruning more especially favouring its extension. The most usual symptoms of its presence are a cankered or ulcerated appearance of the bark, which frequently becomes eaten away in large patches, or variously cracked. In the majority of cases it is very evident that the canker first starts at a point where a branch has been cut away or accidentally broken off, and in all instances it appears that a broken surface of the bark is absolutely necessary to enable the fungus causing the disease to gain a foothold. The mycelium of the fungus spreads rapidly at first in the cambium, or actively growing zone just within the bark, the result being that the bark, as already stated, becomes variously cracked, and eventually entirely disappears, leaving patches of naked wood. During the first stage of the attack the mycelium of the parasite devotes all its energies to destroying the bark, and does not form fruit so long as it remains as a parasite in the living tissues of the branch. This condition of things appears in some instances to be continued for several years, in fact, until the branch is more or less completely girdled, and often presenting a very rugged and cankered appearance.

The destruction of the bark caused the death of the branch above the first point of attack, and when this has taken place, the mycelium follows the dead branch, and produces results of a very different nature to what it did in the living tissues during its first period of attack. The dead bark, replete with mycelium, remains at first perfectly smooth and unbroken, somewhat polished, and of a brown colour. Finally, the fruit of the fungus, which is formed in minute pustules below the dead epidermis, bursts through to the surface, the exceedingly minute spores, only about 1-3,000th of an inch in length, oozing out through minute cracks in the epidermis under the form of very slender, white, gelatinous threads or tendrils, giving to the surface of the dead branch the appearance of being more or less thickly covered with curly white hairs. These minute, white, hair-like bodies are composed entirely of the minute spores mentioned above, and are held together by a viscid substance, which becomes rigid and brittle in dry weather, and are thus easily broken off and scattered by birds or insects, and dispersed. On the other hand, the threads are completely dissolved by dew or rain, and washed down the branches or carried by the feet of birds, insects, &c., to other parts of the tree, and those that happen to be deposited on a wounded surface, germinate, enter the tissues through the wound, and produce a new canker spot.



DISEASED BRANCH OF FIG TREE.

FIG. 1.—Portion of a fig branch attacked by the *Libertella.* The disease entered at the end of the cut branch, near *a*, round which the bark has been completely destroyed. At *b*, the fungus is shown in fruit, natural size.

FIG. 2.—A portion of the surface of the bark from *b* in Fig. 1 magnified; *a* shows four curled threads consisting of myriads of spores stuck together: × 50.

FIG. 3.—Free spores: × 500.

Experiments conducted on healthy young fig trees show that the spores of the fungus—a species of Libertella—will not cause the disease when placed on the unbroken surface or even very young branches, whereas, when the spores are placed on the end of a cut branch or on injured bark, inocculation always followed, and the mycelium was found in abundance at the expiration of ten days. In one experiment, a badly diseased branch, showing numerous threads of spores, was cut through; immediately afterwards the same knife was used for making an incision in the bark of a branch of a healthy young plant of Ficus religiosa. At the expiration of ten days the wound showed undoubted symptoms of disease and at the end of five weeks the white threads of spores were formed. This experiment proves that the disease may be imparted to healthy plants by using a knife that had previously been used for pruning diseased plants, and an examination of various diseased plants suggests the idea that this method of spreading the disease is not an unusual one.

With regard to preventive measures, there is no evidence to show that the mycelium of the fungus extends backwards below the point of infection; hence, when a canker spot appears, the removal of the branch below the diseased spot should be effected at once, as the upper portion of the branch is certain to be killed by the fungus. Every cut surface should be painted at once with a solution of sulphate of copper dissolved in water, and afterwards with tar. It would be wise, when cutting diseased plants, to dip the knife in a solution of sulphate of copper after each cut, remembering that the minute spores adhere to the knife. Burn all diseased branches. When the canker appears on thick branches which it is not desirable to remove, cut away the diseased patches down to the wood, paint the wound with sulphate of copper solution, and afterwards with tar.

It is highly probable that if every cut surface is instantly protected as suggested, the disease would be held in check. Out of the many diseased fig trees examined, no method of prevention appears to have been tried.

GEORGE MASSEE.

TEA ROSES FOR MARKET.

THERE is no question but that tea and hybrid tea roses, together with some of the noisettes, are yearly becoming more popular among buyers and consequently more extensively grown for supplying the market than formerly. Fine form, fragrance, good size and substance, and long stems, are now the chief desiderata, so we have to provide flowers accordingly, indeed I have long since found that it pays best to grow and market only roses of the highest quality, this again proving, in a marked manner, how much the public taste and appreciation of what is good in horticulture has increased. With regard to the cultivation of tea roses for market, little, if anything, further can be added to what I have already stated in these columns. The secret, or secrets of success, are no secrets in these days; to be successful one must do everything that is necessary to the promotion of clean vigorous growth, and full, substantial blooms. Experience has long since shown that cleanliness is a great point in the successful cultivation of good market roses, and tea or noisette roses especially. The houses, either span or lean-to, the former for preference, should be kept clean, not merely the paths, so as to present a tidy appearance when the door is opened, but the stages, walls, glass, and the pots also, for such strict cleanliness tends very considerably to reduce the possibility of insect and other attacks, which the rose grower dreads. Use eight-inch pots, as the general size, allowing a slight increase or decrease for certain varieties, according as they prove more or less vigorous with the grower. Good loam always pays. In the matter of watering, great care is necessary for some little time after potting, but when thoroughly well rooted considerable quantities of water, and regular supplies of liquid manure later, will be necessary. As a fertiliser we use liquid manure made from sheep droppings, alternating this with clear soot water and an occasional dose of either Clay's or Thomson's chemical manures.

However careful one may be, there are almost sure to be some attacks upon the roses either by insects or fungi pests, and when these do occur the attacks must be repelled at once and no quarter allowed. By maintaining a constant and careful watch, green fly or mildew are noticed directly they appear, and as soon as noticed measures are taken to oust them, in the former case by syringing with the handiest good insecticide, and in the latter by painting the hot water pipes with sulphur. Fumigation is frequent and regular, so that we have little difficulty in turning out unwelcome guests. Individual plants are dusted with sulphur or syringed with insecticide as the case needs, and so we reduce the possibility of anything like a bad attack to a minimum. Of course, with the earlier batches of roses for market, the utmost care is necessary in the matter of ventilation, for nothing produces mildew so quickly and badly as cold draughts. In this connection it is also desirable to remember that old or faulty houses often afford opportunities for mildew attack, consequently, during the summer, when there are no market roses growing under glass, it pays to examine the structures, execute any necessary repairs, or remedy any faults as regards position and construction of ventilators, doors, etc.

Now as to varieties; taking them in alphabetical order, it is found that the best tea-scented roses for market are Anna Olivier, Bridesmaid, Catherine Mermet, Climbing Niphetos, Climbing Perle des Jardins, Hon. E. Gifford, Mdme. Chedane Guinoisseau, Mdme. Charles, Mdme. Perney, Mdme. Falcot, Mdme. Hoste, Niphetos, Rubens, Safrano, Souvenir d'un Ami, Souvenir de S. A. Prince, and The Bride. For the purpose of this note hybrid teas may well be included; the best of these are Caroline Testout, Lady Mary Fitzwilliam, La France, Mrs. W. J. Grant, and Vicomtesse Folkestone. We also find that three of the climbing noisette roses are eminently suitable for marketing in first-rate condition, and these are the floriferous sulphur white Lamarque; the bright golden Maréchal Niel; and the ever-charming orange-tinted William Allen Richardson.

GEORGE MOUNT.

Canterbury.

LILIUM RUBELLUM.

YET once again Japan has been drawn upon for a new plant, and that a hardy one of great beauty; this is Lilium rubellum, a distinct and new species recently brought prominently before the public by Messrs. R. Wallace and Co., Colchester. This fine new lily more closely resembles L. japonicum (L. Krameri) than any other we know; it grows about eighteen inches high, is slender in habit, though robust enough in constitution, as has been proved during the past two years at the Messrs. Wallace's nurseries at Kilnfield, Colchester. The leafage is deep green, and each stem carries about a score of lanceolate or linear-lanceolate leaves, each about three inches long. The flowers are broadly funnel shaped, about three inches wide at the mouth, and three inches long in the tube; the colour, or rather the shade, varies somewhat, for some blooms are pale pink or rosy blush, and others quite a deep rose shade, with flushes of red. The lilium is an extremely handsome one, and very small bulbs will produce a flower, while those of larger size and greater age carry from two to four elegant blooms. The species was imported from Japan by Messrs. Bunting and Son, of Colchester, but the stock was secured by Messrs. R. Wallace and Co., who are now offering it to the public, and have exhibited some hundreds of spikes this year at the Temple, Drill Hall, and several provincial exhibitions, where it has always been greatly admired. The horticultural hall mark has been attached to this new lily, for at the R.H.S. exhibition held at the Inner Temple Gardens in May last a first-class certificate was awarded it.

HARDY NYMPHÆAS.

IN the small lake on the lawn in front of Gunnersbury House some fine specimens of these useful plants may now be seen in flower, and an inspection will readily give one some idea of their usefulness. The great beauty of the flowers for table and house decoration is also evident. In reply to my query Mr. Hudson informed me that blooms cut from these plants will remain fresh and presentable for two and three days in a London mansion, and as that is the full limit of good condition for most flowers that are used for such purposes, and even longer than can be depended upon with many, it will be conceded that in these lovely water lilies we have beauty, distinctness, and durability. It is often the case that house decoration in one establishment is very much of a repetition, consequently any distinct departure is much appreciated, and doubly welcome. If, however, hardy water lilies are just grown to add interest to the garden, in making the lakes and ponds ornamental and beautiful, they will have served a good purpose.

When in Gunnersbury House gardens a few days ago I made a note of several hardy nymphæas, some of recent introduction, and as yet seldom seen, whilst others were of much older date, and not by any means rare. Before passing on to the lake my attention was arrested by a small tank outside one of the houses, in which the hot water pipes, just a flow and return, were fixed, so that the water might be a little warmed; there was no covering over the tank, but this slight heating made the water just sufficiently warm for one species that certainly responded to this liberal treatment. This was N. stellata, a species that pushes up flowers of a bright blue colour that stand nearly a foot above the surface of the water. To have succeeded in finding out just the treatment this one requires, and to find the plant respond so freely and vigorously to the culture, is surely cause for satisfaction, and inducement to still further experiments. In the larger piece of water there were grand clumps, some of which had been in their present position for many years, others but just a year or two. When during intense frost the surface of the lake is covered with thick, bearing ice, Mr. Hudson cuts down some of the rushes adjoining and scatters the stems and leaves over the nymphæas, so that the intensity of the frost may not strike too deeply and affect the roots or stems. This is a simple means, and well worthy of adoption where choice aquatics are grown.

Noting the plants as we passed them, the first was N. Laydekeri lilacea, pale carmine, with stamens of bright orange; N. alba, large masses of the old well-known species; N. alba rosea, the very rare variety of the preceding, and of a rosy-pink colour; N. lucida, soft vermilion-red, clear, and very large; N. Marliacea chromatella, beautiful clear yellow, with bright orange stamens, very sweetly scented, and a continuous bloomer, having large flowers; and N. Marliacea, rubro-punctata mauve-purple spotted with carmine, also a large flower. N. sanguinea has intensely dark carmine flowers, very distinct; N. odorata rubra, flowers of a dark rosy-pink, sweetly scented, as its name implies; N. Marliacea albida, pearly white flowers, very large and fragrant, a strong grower; N. gloriosa, rich carmine purple; N. odorata sulphurea, very large yellow flowers nine inches across, fragrant; N. o. exquisita, cup-shaped flowers, broad petals, which are of a deep rose-carmine; N. Marliacea rosea, deep flush pink; N. Marliacea carnea, with delicate pink flowers of great size and sweetly scented; N. pygmæa helveola, small flowers of a bright sulphur yellow; and N. pygmæa, pure white, small flowers, and very fragrant. Yet another I noticed, N. Seignourette, bright yellow tinted with carmine.

Such lovely additions to the gardens will, I trust, commend themselves to all who have the place to grow them, and then even ponds and lakes will have an interest, and afford a pleasure equal to parts of the garden specially cultivated. Let the water be but from two to three feet deep, if just slightly moving so much the better, the plants put in baskets or pots and stood in the water; or, if by any means good heaps of soil could be made just inside the margin of the water, and the plants put on them, they will soon become established and grow freely, and once established little further than protection during the coldest season will be necessary. Plants even now may be planted, though the months of May and June are the best for this operation.

W. SWAN.

EXPERIMENTS WITH POTATOS.

THE Department of Agriculture of the Province of Ontario has carried out many very elaborate and useful experiments with potatos during the past seven years, from which the following has been selected. A total of 195 varieties have been experimented with.

DIFFERENT DEPTHS OF PLANTING SEED POTATOS.—For six years in succession potatos have been planted one, three, five, and seven inches deep. There has been no less than eighteen separate tests, and seventy-two plots used in this experiment

Depth of planting.	Average yield per acre. Six years.
One inch...	192·7 bushels.
Three inches	198·4 ,,
Five inches	203·7 ,,
Seven inches	190·4 ,,

It will be observed that the greatest yield has been obtained at a depth of five inches, and those planted three inches deep stand second in the yield per acre. In seasons of drought it has been found that potatos planted near the surface suffer severely from lack of moisture. It is also of interest to note that the crop of tubers produced from the deepest planting was nearly five inches under the surface of the soil when the crop was matured, while those produced from the seed of the shallowest planting was less than two inches below the surface. While it is objectionable to grow potatos too deep in the soil, and thus cause greater labour at the time of harvesting, it is not desirable to grow them too near the surface, as many of them are liable to be injured by exposure to the direct rays of the sun. The planting of five inches below the surface has given very satisfactory results throughout.

DIFFERENT METHODS OF PREPARING SEED.—An experiment has been conducted for five years in succession by preparing seed potatos for planting in different ways, in order to find out which methods will give the best satisfaction. The quantity of seed per acre varied according to the manner of preparing the seed. The rows of potatos in each case were about twenty-seven inches apart.

Preparation of Seed.	Average Yield per Acre, Five years.	Per cent of Marketable Potatos.
Large, whole, one foot apart ...	336·7 bushels	79·9
Large, whole, two feet apart ...	247·4 ,,	84·6
Large, whole, three feet apart...	199·6 ,,	87·2
Medium, whole, one foot apart	271·0 ,,	83·0
Medium, whole, two feet apart	210·9 ,,	88·4
Small, whole, one foot apart ...	197·6 ,,	88·5
Medium, cut in two, one foot apart ...	198·5 ,,	84·1
Medium, two eyes in a piece, without seed ends, one foot apart ...	143·9 ,,	91·5
Medium, one eye in a piece, without seed ends, one foot apart ...	91·7 ,,	92·3
Medium, seed ends, one foot apart ...	95·6 ,,	87·3

These results furnish some important data in reference to the preparation of potatos for planting. It will be observed that decidedly the best yield per acre has been produced by large potatos, one foot apart; and the second largest yield from medium-sized whole potatos one foot apart. In the percentage of marketable potatos it will be seen that the pieces of tubers containing two eyes each, obtained from medium-sized potatos, gave the best satisfaction in this respect. The largest amount of small potatos was produced from the large whole tubers, which were planted one foot apart.

INFLUENCE OF GYPSUM AND LIME WHEN SPRINKLED ON FRESHLY-CUT POTATOS.—In order to obtain data which would form a serviceable guide in regard to sprinkling freshly-cut pieces of potato for seed before planting, an experiment was started in 1894, and was conducted for three years in succession, in which freshly-cut potatos have been sprinkled with gypsum or with lime, or have been left untreated before planting.

To get as accurate a result as possible, two varieties of potato were used for each experiment each year:

Preparation of Sets.	Average yield per acre, three years.
Potatos sprinkled with gypsum	251·4 bushels.
,, ,, ,, lime ...	243 4 ,,
,, not sprinkled ...	208·6 ,,

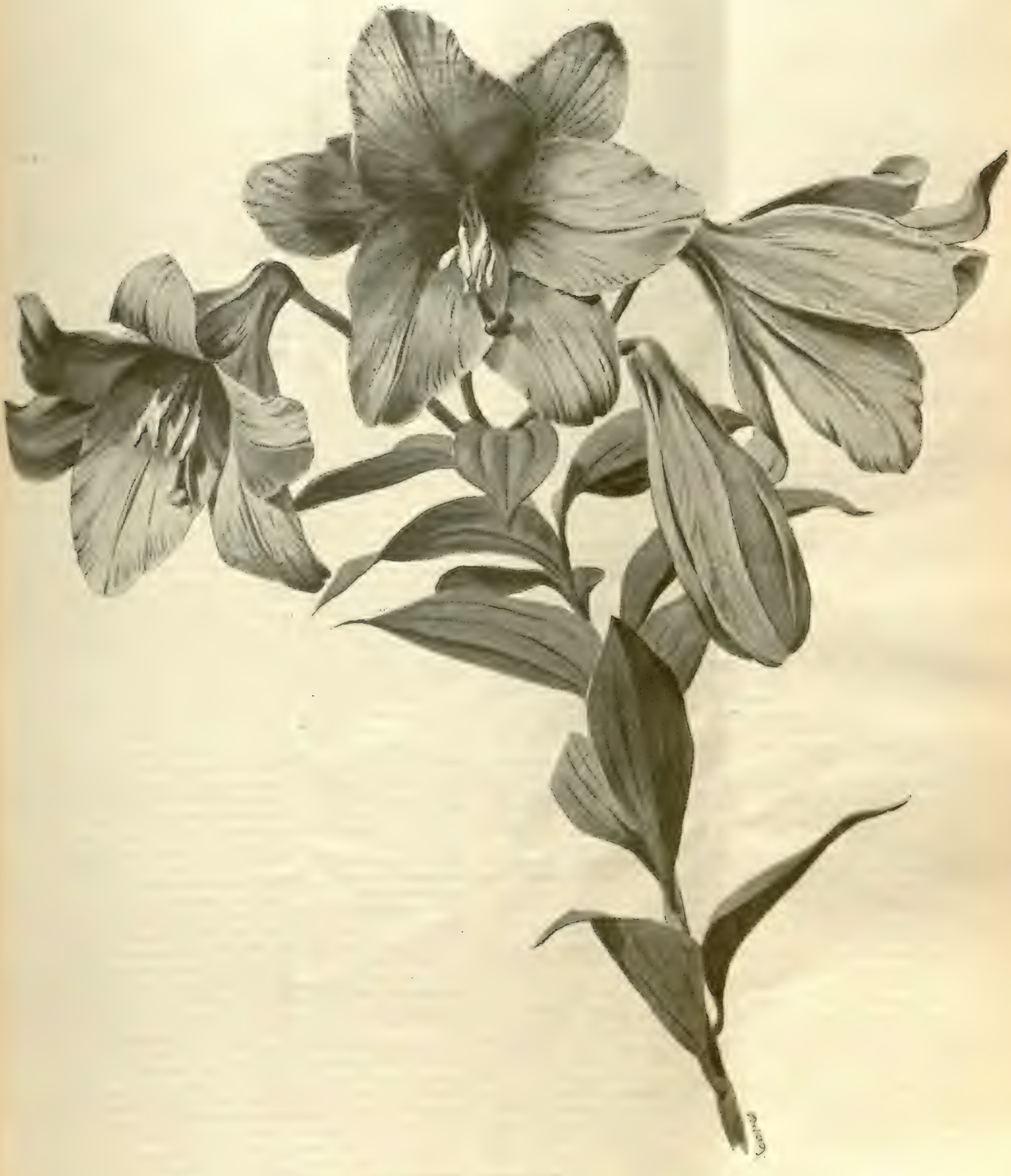
The yield per acre was quite uniform in the three years of the experiment.

The potatos sprinkled with gypsum (plaster of Paris) gave the best results, and those sprinkled with lime gave the second highest yield. It will be observed that, in the average yield of potatos per acre, the seed dressed with gypsum gave about 43 bushels per acre, and the seed dressed with lime about 35 bushels per acre more than the seed which was untreated.

Seed potatos treated in this way are less liable to be attacked by injurious insects in the soil, than those having a freshly-cut surface exposed.

Harpenden. J. J. WILLIS.

Watering Vines and Ventilation.—After a cold, wet, dull May, the first few bright days of June were very trying to the vines. The foliage often suffers under such conditions, and, if so, it is the precursor of red spider; so a good soaking of the border, with early air-giving, is very necessary. Scalding of berries cannot well be avoided with young vines, because the sunshine reaches the berries direct between the scanty foliage. It has been difficult to give the necessary root-waterings, because of the changeable weather, as with large vineries having saturated borders at a time when there are low night temperatures, mildew is bound to follow. Bright continuous sunshine will work marvels, but we must be satisfied that vine borders, especially inside ones, are well watered. In extreme cases of foliage being distressed by hot weather following cold, give a thorough drenching of the foliage, as the grapes, if green, will be none the worse for clean water.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*



LILIUM RUBELLUM.

WORK FOR THE WEEK.

COOL ORCHIDS.

ONCIDIUM PHALÆNOPSIS, O. cucullatum, O. nubigenum, O. cristatum, O. dasytyle, and O. concolor will now require a little fresh material about their roots, the usual peat and sphagnum compost sufficing over good drainage. The first three species are best grown in pots stood upon a stage in the most shady position, while the others grow much better in pans or baskets suspended close up to the roof glass. O. metallicum should also have a little fresh material, as it will soon be emitting new roots from the base of the young growths; the long rambling flower spikes make their appearance in the partially-developed growths, and should be trained round some neat stakes or on a wire just below the roof. All these plants will need a plentiful supply of water during their season of growth. Any plants of Maxillaria Sanderiana or M. Turneri that require repotting or resurfacing should now be attended to, using a compost of three parts sphagnum to one of peat; the former species is best grown in teak wood baskets, using no crocks for drainage, as it frequently thrusts its flower spikes through the soil in a downward direction. M. Turneri will grow well in an ordinary flower pot or pan three parts filled with drainage, and should be potted firmly. Care should be taken in the watering of the newly-potted plants, giving only sufficient to keep the moss alive until the new roots obtain a good hold of the compost. One of the best-known species of maxillarias is M. tenuifolia, which first flowered in this country as long ago as 1839; it may be grown successfully if fixed to pieces of tree fern and stood in an upright position in a flower pot; the plants will need a liberal supply of water during the growing season.

The sweet-scented Cattleya citrina is totally unlike any other species of cattleya in growth and habit, the pseudo-bulbs, foliage, and flowers always drooping towards the ground. Unfortunately, it is a species that deteriorates after a few years' existence in our glasshouses, although some growers manage to keep it in a good condition for a longer time than others. The best method to grow these plants is on blocks of wood or teakwood rafts, with a little sphagnum moss pricked in about the roots to help hold the moisture; the cool house will be found the most suitable place for the specimens, suspending them close up to the roof glass in a light position. After a good rest, following flowering, root-action and new growth are now commencing, therefore a more liberal supply of water will be needed, the block and plant being frequently immersed in the water-tank, and, if the weather is very dry and hot, this should be done every evening. Disa grandiflora has its flower-spikes now well advanced, and, as these are liable to be infested with green-fly, steps must be taken to destroy the aphis as soon as they are detected by means of the brush and sponge, afterwards syringing the plants with soft water till quite clean, otherwise much harm will be done. Water must still be freely given till the plants pass out of flower, when the quantity must be gradually reduced.—E. SHILL, *New Hall Hey Gardens.*

STOVE PLANTS.

THE present is a suitable time for inserting cuttings of ixoras and gardenias; choose moderately firm short-jointed shoots and insert singly into two and a half-inch pots, and place where they will have the assistance of a bottom heat of about 80 degrees; keep the soil uniformly moist with plenty of moisture in the atmosphere, and they will soon form roots; after rooting, stand in the body of the house for a week or so, when they may be put into five-inch pots. Before inserting the cuttings examine them carefully to see they are perfectly free from insect pests. Late-struck plants of justicias in three-inch pots should be transferred to others six-inch in diameter; keep close until they have established themselves in their pots, when they may be grown cool; treat liberally, and encourage them to form huge heads of flower. Plants of Clerodendron Balfourianum, as they go out of flower, should have the old flower trusses removed and receive any pruning necessary, and be afterwards encouraged to make a free growth, as next season's supply of flowers depends upon the growth made this year and on having this well ripened. Train the shoots up strings, and keep them from interlacing; feed the plants liberally. Any requiring larger pots may be repotted when the new growths have made about three inches of growth. Pot on young plants of crotons, acalypha, dracænas, and other things. Shift any it is desired to grow to a large size before the roots become too matted in the pots; this is the main secret in growing plants to a large size in a short time. The winter-flowering begonias are growing freely; they should receive liberal treatment, shade from strong sunlight, and afford abundance of air both day and night; by this treatment they will be found to give better returns than under a more coddling system of growth. Well-ripened shoots of Cissus discolor may now be propagated; cut the shoots into lengths consisting of two joints; do not keep the cuttings too close, or damping may occur. Ferns will require abundance of water, and must on no account be allowed to suffer for the want of it, else the beauty of the plants will be soon marred; should green fly make its appearance amongst them, fumigate lightly two or three nights in succession with X L All fumigating compounds. With all fumigating compounds little and often is better than one strong dose, which is liable to injure the plants besides destroying the insect pests. Be careful in watering all basket plants that the whole body of the soil is thoroughly moistened; failure with these can often be traced to lack of the above precaution.

The plants in the stove should be periodically rearranged, some grow so much more freely than others that parts of the house present a crowded overgrown appearance, unless an occasional rearrangement is resorted to. Nor is this the only reason to be offered in support of the plea for rearranging now and again, but the very fact of the same plants standing in the same position all the season through has a tendency to make the house monotonous to those who pass through it daily. Ladies have a happy habit of changing the appearance of their boudoir or drawing-room by altering the position of the furniture—so gardeners also may make their houses more interesting by occasionally altering the arrangement. Plants of Urceolina pendula aurea having now completed their growth may be removed to a cooler and more airy structure to ripen off. Do not withhold water until the leaves are quite matured and then do so gradually. Wage a constant war upon all insect pests; plants, like human beings, thrive better when thoroughly clean. When sponging leaves of anthuriums, eucharis, &c., be careful not to break them, as leaves with a broken midrib have a rather unsightly appearance. Keep the atmosphere of the house thoroughly moist, with a little warmth in the pipes, even in the hottest weather.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

KITCHEN GARDEN.

ALTHOUGH cucumbers are not so much in demand during the winter as during the warm weather, still in most places a few are required, and to have the plants in good condition for carrying a crop they must be brought on gradually. The seed should therefore now be sown, and when the seedlings appear they should be kept near the glass to prevent them becoming drawn, for unless sturdy when planted there is little hope of success afterwards. Most gardeners have fancies of their own as to varieties, but it is generally admitted that the small-growing kinds of the Telegraph section are the best. Preparations should also be made for a supply of mint and tarragon for forcing. Cuttings of these are inserted in boxes, which should afterwards be stood in a cold frame and shaded from the sun till roots have formed, after which they may be exposed. Plants so raised may stand in the boxes until required for placing in the forcing-house, and will be found to give a greater supply of young growths than those lifted from the open ground. Vegetables of various kinds are very plentiful this season. Globe artichokes have seldom been so good, and those who have taken the precaution to make a young plantation as advised in the spring will have an abundance of fine heads for some time to come. It is the custom with some to cut down the old flower stalks and blanch the leaf stems in the same manner as cardoons. Those who contemplate doing so should tie the foliage together and exclude the light, but while there are so many choice vegetables to select from we scarcely think there is necessity for this. Peas from the last sowing will now require staking, and they should not by any means be neglected in the way of watering, for if mildew once shows itself there is little hope of getting a full crop. French beans for late use should now be sown in a cold frame, but the lights should not be put on until there is danger of frost. The plants ought to be allowed ample space or they will not fruit satisfactorily during dull weather later on. Some seasons the autumns are mild, and beans may be gathered from the open ground till quite late in the autumn, but this is not always the case, therefore preparations should be made accordingly. Mushrooms may now be gathered from beds in the open, and a supply from these may be continued till late in the season if care be taken to have beds made so as to follow each other in succession, but to obtain the finest results there must be no neglect in the way of keeping the beds dry till wanted. Onions intended for exhibition will require frequent watering during dry weather, and should there be any signs of mildew dust the plants when damp with newly slacked lime, as it is of the utmost importance that the foliage be kept clean. Attend to the watering of all newly planted seeds, not simply sprinkling the surface, but give it in sufficient quantity to thoroughly moisten the ground. Asparagus beds will be greatly benefited now by an application of liquid manure to assist them in completing their growth, or failing this, a liberal dressing of artificial manure. The same remarks apply to such plants as celery, cauliflowers, French beans, &c.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

ORCHARD-HOUSE pot trees should be repotted, if thought necessary, as soon as they are cleared of fruit; but frequent pottings of these trees is a mistake, as they will continue to produce good fruits for several years in the same pots, provided they are supplied with a good staple to begin with and have had the usual routine of rich top dressings and liquid manure to assist in promoting fat fruit buds and good foliage; still, a time comes when potting must be done, and, as is the case with planting outdoor trees, it is best to repot early enough to enable the roots to penetrate the new soil before winter sets in. Small shifts are the best, and the drainage must be carefully arranged so that it does its work well without being too ample, or taking up too much valuable space. The soil used should be the turfy layer from heavy pasture land, and should be in a semi-decayed state, so that it may be pulled to pieces without much assistance from the chopper. About one-sixth of lime rubble will provide for sufficient lime, and will at the same time keep the soil sufficiently open; in addition to this, a slight sprinkling of bone meal will add a necessary food element. Pot firmly, and allow no crevices between the layers of soil, also see that the ball of soil is kept at the right height so that there will be room left for watering; and, on the other hand, see that the collar of the tree is not too deeply buried. Where the original soil is at all sour or stagnant, it will be necessary to remove some of it from around the ball, but not to the extent of damaging living roots; in other cases, with plenty of living roots throughout the ball, no disturbance should take place, simply keeping the balls of soil intact. After potting, keep the trees under glass for a few days, or until flagging ceases, reducing the ventilation slightly and syringing freely two or three times a day, but giving no water to the roots for a time. When the trees will bear it, these and all others cleared of fruits, but not repotted, should be stood outside in a sunny spot, the pots surrounded, and covered with a mulching of litter, and here they may remain to perfect and ripen their growth, all the further attention they will require being to keep the roots in good condition as to watering, and syringing the trees thoroughly daily.

Young pot vines which have been grown on for early supplies next year will also be well suited from now onward with a position outside; but in their case it will be necessary to afford all possible ripening influences by fastening them securely to a sunny wall where they may also enjoy sufficient shelter to preserve the main leaves intact as long as possible. Various pests, in addition to the ordinary run of injurious insects, will soon be troublesome. Wasps as yet are not much in evidence, but it is well to be on the alert for them, and I find nothing for use indoors so satisfactory as Davis's or Scott's Wasp Destroyer, either of which are quite effective. Muddling up the ventilators with hexagon netting, or enclosing bunches of grapes, &c., in muslin bags, are clumsy and unnecessary practices while we have such good preventives as those named above. For destruction of the nests cyanide of potassium, poured on pieces of linen rag and pushed well into the nests (being careful to push them out of sight and reach, as the cyanide is a deadly poison), is most effective and less trouble than any other material used for the purpose. Field mice and the short-tailed field vole are very destructive to stone fruits at times, and are difficult to bait for while other food more to their taste awaits them, but they may be trapped by putting down lengths of three-inch draining tiles on the surface in their runs or in other likely places, and setting ordinary small bird gins at one end just outside the tile. Natural inquisitiveness or something else tempts them through the tiles and into the trap which they would avoid but for the tiles leading up to them. Ants seem very plentiful this year, but may be circumvented by pouring hot water, in which a little petroleum has been mixed, down the runs, repeating the dose at frequent intervals until they are stopped. Weevils attacking vines or peaches should be sought for at night after having spread large sheets of white paper under the trees during the day. Go to the house after dark with a lantern, which should be kept dark until the trees are reached, and then turned fully on to the spots which have been the points of attack. The weevils will fall and lie still for a while, and may be easily secured. Paper is better than sheeting for putting under the trees, as the insects can be heard when they drop on it.—J. C. TALLACK, *Livermere Park Gardens.*

Q. WHAT is the only canine horticultural equivalent to the dog-rose? *A.* The colley-flower!—*Punch.*

FLOWER CULTURE IN THE SCILLY ISLES.

Mr. W. E. Bear has been engaged in investigating the flower-growing districts of England, and he has contributed the result of his inquiries to the current issue of the Royal Agricultural Society's Journal. As the report is based upon personal observation, it is of much interest, and we make a few extracts from the section devoted to the production of flowers for market in the Scilly Isles. After describing the situation of the island, and dealing with the statistics relating to the population, Mr. Bear proceeds to state that encircled as the islands are by the Gulf Stream, their climate is remarkably mild and equable, protection to tender crops even in winter being needed only against the frequent gales of wind to which they are subject. Frost rarely occurs, while snow seldom falls, and hardly ever lies on the ground more than twenty-four hours when it comes The rainfall is moderate; and the islanders would be glad of more rain than they get in the spring and summer. The mean daily range of temperature in twenty years is given by Dr. Macklin at 6·8 degrees. October has the lowest range, or 5.9 degrees; April the highest, or 8 degrees. The mean maximum range was 11·5 degrees, November being lowest with 2 degrees, and April highest with 15 degrees. The mean range for the whole year during the twenty years was 15·1 degrees—*i.e.*, the difference between the mean temperatures of the warmest and the coldest month. Taking the six winter months alone, the mean range was only 3·7 degrees. For the six summer months the mean temperature was 57 degrees, and for the six winter months 47 degrees, showing a difference of only 10 degrees. These figures indicate not only a mild, but also a remarkably equable, climate. Dr. Macklin further states that the mean temperature of the Scilly Isles is 1 degree warmer than that of either the West of Cornwall or the Channel Islands.

With respect to sunshine, recorded only during the last ten years, some comparative figures are given for the ten months ending with December 1, 1894, during which 1,551·1 hours' bright sunshine were registered in Scilly, or 155 per month, or 5 per day. The total was exceeded only by Jersey, Guernsey, Newquay, and Falmouth among places in the United Kingdom for which statistics were given. Hastings, Westbourne, Eastbourne, Torquay, places higher on the list, stood lower than Scilly. Ocular demonstration of the mildness of the Scilly climate is to be found in the tropical vegetation which flourishes in the islands.

When the late Mr. Augustus Smith, in 1834, became, mainly from humanitarian motives, Lord Proprietor of the islands (a title given to the lessees holding under the Duchy of Cornwall), they were over-populated, and the people, who mostly lived by smuggling, were in a distressed condition. The sub-division of holdings had been carried on to a disastrous extent, and very many of them consisted of scattered plots of land. Mr. Augustus Smith set himself to the reform of the abuses which he found prevalent. He stopped smuggling, made education compulsory, enlarged and consolidated the small holdings, and allowed only one child in a family to succeed to his father's farm, practically forcing the rest of the youths to migrate to the mainland, to emigrate to the colonies, or to go to sea. Never was a benevolent despotism better justified by results, though it was some years before the islanders became generally prosperous. Steadily, however, Mr. Smith, who spent all the rental of these islands for many years in improvements, trained the people in habits of industry and ultimately of enterprise, until, from being among the poorest small farmers in the United Kingdom, they became the most generally prosperous.

The extent to which the sub-division of holdings had been carried before Mr. Augustus Smith's time may be imagined when it is mentioned that, long after the consolidation had been in progress—namely, in 1870—the sizes of farms in St. Mary's were reported by Messrs. Scott and Rivington to range from five to 15 acres, with the exception of one of 30 acres, which included a large proportion of untilled land. On the other islands, the same writers stated, the farms were still smaller, many covering only three acres, while the largest farm on St. Agnes was [illegible] acres in extent. At the present time the smallest farm in St. Mary's is 10 acres, and the largest is 80 acres, exclusive of some rough grazing land; while the extreme areas are about five to 20 acres in St. Martin's, five to 12 acres in Bryher, and four to 15 acres in St. Agnes, not counting the downs, which the tenants on the last three islands have in common. Bearing in mind the greatly increased returns of the land since 1870, the enlargement of the holdings is significant.

The ordinary farming of the period, chiefly consisting in the growth of small areas of corn and a few potatos, and the keeping of stock on the grass land, was not very profitable; and the first extensively advantageous change which the Lord Proprietor induced the farmers to make was gradually to convert their farms into market gardens for the production of early potatos, asparagus, seakale, and other crops. The earliness of these products rendered them exceptionally profitable, and for many years the Scillonians were prosperous market gardeners of the old kind as producers of culinary vegetables.

In 1870, or a year earlier or later (strangely enough the date of the important event has not been precisely recorded), the father of Mr. Allen, the present steward, packed for the late Mr. Augustus Smith, then Lord Proprietor, a box of narcissi, and sent it to Covent Garden, receiving £1 in return. When this became known, a few of the farmers began quietly to collect bulbs wherever they could find them growing in the fields or hedgerows, and to cultivate them so as to increase stocks, getting a few flowers for market in the meantime.

In 1875, when Mr. Dorrien-Smith took up his residence in Tresco, the demand for flowers was still small, and prices were not tempting enough to induce the Scillonians to grow them upon a large scale. It was not until 1880, about ten years after the few pioneers commenced operations, that the industry became thoroughly remunerative, and even then the production was small.

In 1883 Mr. Dorrien-Smith went to Belgium, Holland, and the Channel Islands to obtain information as to the cultivation of the narcissus. In the Channel Islands he found the people devoted chiefly to the production of grapes, potatos, and other vegetables, and growing very few flowers; while in Belgium and Holland narcissi were a month later in flowering than in Scilly. Hence he concluded that it would be safe to extend the cultivation of these flowers, and he bought bulbs extensively for himself and his tenants. From that time the cultivation of the narcissus rapidly extended, and many new varieties were introduced, very high prices being paid for some of them.

In 1885 the Bulb and Flower Association was founded by Mr. Dorrien-Smith, to promote the growth of the flowers by holding annual shows and otherwise. By that time the exports of flowers from the Scilly Isles had become considerable, amounting to 65 tons in the year, and the quantity increased to 85 tons in 1886, to 100 tons in 1887, to 188 tons in 1888, and to 198 tons in 1889. Exports steadily increased up to 1893, when they reached 448 tons, after which there was a falling-off, but the climax was reached in 1896, when 514 tons were exported.

It is worth while to pause for a moment to consider what 514 tons of flowers represent. The steamship owners roughly allow eight boxes to the cwt., or 160 to the ton, the weight of the boxes being included. According to this calculation, 82,240 boxes of flowers, which in the case of narcissi contained 21 to 51 bunches (of twelve flowers) per box, and in that of anemones 72 bunches, were sent out of the Scilly Isles in 1896. One grower, who appears to have larger boxes than those referred to above, says that he packs 36 to 100 bunches in a box; but the precise accounts kept at Tresco have enabled Mr. T. G. Brown, farm manager to Mr. Dorrien-Smith, to favour me with the statement that the number of bunches of flowers of all kinds averages about 7,000 to the ton of flowers and boxes, and 514 tons would therefore be equivalent to about 3,598,000 bunches.

The extent to which flowers are grown is about 400 acres in St. Mary's, 43 acres in Tresco, 30 in St. Martin's, 15 in St. Agnes, and 15 in Bryher, making about 503 acres altogether, almost all devoted to the narcissi.

A few years ago large quantities of wallflowers and stocks were grown in St. Mary's, the former flowering in February or March, and the latter a little later. But now the quantities of these flowers produced in the Scilly Isles are small. The several varieties of the narcissus make up the bulk of the market flowers, the only others of importance being gladioli, anemones, marguerites, and arum lilies, though a few freesias, Spanish irises, and white pinks, as well as the small quantities of wallflowers and stocks already mentioned, are also grown.

Bulbs have not been exported to any great extent from the Scilly Isles. The newer varieties have been for the most part kept to increase the extent of their cultivation, while the common sorts are worth only 15s. to 30s. a thousand, the buyers, I believe, paying the freight to the various destinations. There is no considerable demand for the bulbs of some of the varieties most extensively grown in the Scilly Isles, and notably the polyanthus varieties, as they are not cultivated for market at all commonly on the mainland.

Mr. G. T. Brown has kindly prepared for me the following list of varieties of the narcissus grown in the Scilly Isles, distinguishing the daffodil and the polyanthus varieties from the others:—

DAFFODILS.

Telamonius (the old double daffodil).
Emperor.
Empress.
Grandis.
Rugilobus.
Princeps.
Obvallaris.

POLYANTHUS VARIETIES.

Scilly White.
Grand Monarque.
Soleil d'Or.
Gloriosus.
Jaune Suprême.
Mozart Orientalis.

OTHER VARIETIES.

Sir Watkin.
Incomparabilis (single).
" (double).
Cynosure.
Stella.
Leedsii varieties.
Frank Miles.
Odorus Major (Campernelli).
Orange Phœnix,
Sulphur Kroon.
Barri Conspicuus.
C. J. Backhouse.
Ornatus (*Poeticus ornatus*).
Poetarum.
Poeticus Plenus (double Pheasant-eye).

The violence of the frequent gales of wind renders shelter for the flowers necessary, and this is provided by fences usually consisting of veronica, escallonia, or euonymus, all three of which flourish in the islands.

Scilly growers have at least three great advantages in the production of bulbous flowers. The first and greatest is earliness of production; the second is suitability of soil and abundance of sunshine for bringing the flowers to a perfection of size and colour; and the third is suitability of soil and climate for promoting a good increase of bulbs. That these natural advantages are partially counteracted by careless cultivation on the part of some of the growers does not, of course, disprove their existence. On the other hand, the growers have two disadvantages—the heavy cost incurred and long time occupied in conveying the flowers to market. The freight from St. Mary's to London is 8s per cwt., and from St. Martin's (and presumably from the other outlying islands) it costs those who do not carry their own produce 1s. 6d. per cwt. extra to convey it to the quay at St. Mary's. Half the freight from St. Mary's to London is swallowed up in steamer freight, quay dues at starting and on reaching Penzance, and cartage to Penzance Station. Bearing in mind the fact that about one-third of the weight on which the freight is paid consists of boxes, it will be seen that this is no slight tax upon the returns; and, in addition, there is a commission of 10 per cent. on the prices realised to pay the salesmen (or 5 per cent. if growers find their own boxes), with other charges, including the cost of returning empties, which are debited to the growers by the salesmen. As to the time occupied in conveyance to market, the steamers run to Penzance only three times a week in the height of the flower season. This by itself is a disadvantage in periods of sunshine, when flowers expand quickly; but it is not all. Flowers loaded on the steamer at St. Mary's on one morning are not in Covent Garden until the next day, when they reach Paddington at 4 a.m. Consequently varieties of flowers which do not travel very well are sometimes in a deteriorated condition when exposed for sale. Nothing, however, entirely counteracts the advantage of early production.

The supply of narcissi from the Scilly Isles begins with a few forced flowers at or before Christmas, while the earliest open-air varieties are usually ready at the beginning of January, occasionally in December, or in very backward seasons at the end of January, and successive varieties are sent to market up to about the end of May. Marguerites flower in the open all the year round; anemones (*Anemone fulgens*) from December to March; wallflowers, as already stated, in February and March; arums, which withstand the winter in the open in Scilly, begin in April or May usually, but this year started in March; scarlet ixias, in May; gladiolus and iris in June, with which month the flower season ends.

While most of the growers who produce any considerable quantity of flowers possess one small unheated glass-house, in which they keep their flowers for a day or two before packing them, the area of hot-houses in the Scilly Isles is not large. Mr. Dorrien-Smith, in Tresco, has by the far the greatest extent, namely, 28,800 square feet covered with glass. In St. Mary's only five farmers have any considerable extent of hot-houses; in St. Martin's only three have even a small extent; in St. Agnes only one; and in Bryher, none.

As the narcissi are picked as far as possible before the blossoms have expanded, a small glass-house is necessary for the proper preparation of the flowers for market. On being brought in from the fields, they are placed in whole-bottomed flower pots containing water, in which they expand, and in some cases the water is warmed. The flowers expand better than they would in the fields, and travel better for being kept in water a short time, though this process is often overdone. Most of the hot-houses are used for forcing narcissi first, and for tomatos afterwards. The extent to which tomatos are produced in Scilly will be referred to in a subsequent division of this report. The narcissus is the only flower forced, I believe, and the quantity thus treated cannot be very great. The varieties used for forcing by Mr. Dorrien-Smith are Soleil d'Or, Scilly White, Telamonius, Obvallaris, Gloriosus, Rugilobus, Grand Monarque, Princeps, Cynosure, Incomparabilis plenus, Orange Phœnix, and Ornatus. All kinds will force, Mr. Brown says, but some much better than others.

(To be continued.)

EXHIBITIONS AND MEETINGS.

NATIONAL ROSE SOCIETY, July 14.

THE northern provincial exhibition of the National Rose Society was this year held in the grounds surrounding Spring Hall at Halifax in connection with the Salterhebble and District Rose Society. The grounds form a most suitable place for a rose show, as they are situate on the southern slope of a deep valley, and quite out of the bustle of Halifax town. The show was an especially fine one as regards competition for all the prizes in the thirty-five classes provided. The quality of the blooms was also good throughout, though little above that seen at the R.H.S. Rose Show held at the Drill Hall on Tuesday, July 12. Altogether this show was the best of the National Society's for 1898.

NURSERYMEN.

In the Jubilee Trophy class for the best thirty-six blooms distinct, Messrs. Harkness and Sons secured the first prize with a splendid lot of flowers, the varieties being Ulrich Brunner, Caroline Testout, Gustave Piganeau, La France, E. Y. Teas, Innocente Pirola, A. M. Rodocanachi, Lady Mary Fitzwilliam, General Jacquiminot, White Lady, Marquise Litta, and Her Majesty, in the back row; Kaiserin Augusta Victoria, Duke of Edinburgh, Maréchal Niel, J. S. Mills, Niphetos, Mrs. J. Laing, Marchioness of Londonderry, Comte Raimbaud, Souvenir d'Elise Vardon, Earl Dufferin, Comtesse de Nadaillac, and Comtesse de Ludre, in the middle row; Ernest Metz, Merveille de Lyon, Helen Keller, The Bride, Madame Cusin, Souvenir de S. A. Prince, Madame Delville, Madame Hoste, Marie Verdier, Catherine Mermet, Alfred Colomb, and Marchioness of Downshire in the front row; Mr. B. R. Cant, second; and Messrs. F. Cant and Co., third. There were five competitors.

Four competitors entered in the class for seventy-two blooms distinct, and here Messrs. Harkness and Sons were again first, showing handsome, bright and fresh flowers of Mrs. J. Laing, Ulrich Brunner, Madame Montet, Marie Baumann, Caroline Testout, Helen Keller, Captain Christy, Gustave Piganeau, Her Majesty, Auguste Rigotarde, Lady Mary Fitzwilliam, A. K. Williams, White Lady, Duchess of Bedford, Jeannie Dickson, Captain Hayward, Mrs. W. J. Grant, Marquise Litta, Baroness Rothschild, François Michelon, Innocente Pirola, Duchess de Morny, Marchioness of Londonderry, and Magna Charta, in the back row; Marie Verdier, Jean Ducher, Horace Vernet, Bridesmaid, Duke of Edinburgh, Muriel Grahame, Camille Bernardin, Cleopatra, The Bride, Madame Cusin, Earl of Dufferin, Maman Cochet, E. Y. Teas, Marchioness of Downshire, Marie Rady, Comtesse de Nadaillac, A. Colomb, Madame Hoste, Duke of Teck, Souvenir de Elise Vardon, S. M. Rodocanachi, Catherine Mermet, General Jacqueminot, Heinrich Schultheis, in the middle row; Margaret Dickson, Beauty of Waltham, Niphetos, Charles Darwin, Marie van Houtte, Madame Gabriel Luizet, Souvenir de S. A. Prince, Ethel Brownlow, Marchioness of Dufferin, Grand Mogul, Caroline Kuster, Star of Waltham, Dean of Rochester, Dr. Andry, Merveille de Lyon, Danmark, Kaiserin Augusta Victoria, Souvenir d'un Ami, Maréchal Niel, Dupuy Jamain, La France, Prince Arthur, Silver Queen, and Duc d'Orleans, in the front row. Mr. B. R. Cant, Colchester, came second, and Messrs. F. Cant and Co., third.

For three dozen trebles, Messrs. Harkness and Sons, Bedale, came again to the front with lovely flowers of Lady Mary Fitzwilliam, François Michelon, La France, Madame de Watteville, Madame Hoste, Madame Cusin, Captain Hayward, Margaret Dickson, Alfred Colomb, Marchioness of Downshire, Gustave Piganeau, Niphetos, Duchess of Leeds, Jeannie Dickson, Marquise Litta, Souvenir d'Elise Vardon, Earl of Dufferin, Francisca Kruger, Duke of Fife, White Lady, Fisher Holmes, Marchioness of Londonderry, Catherine Mermet, General Jacqueminot, Mrs. J. Laing, Kaiserin Augusta Victoria, E. Y. Teas, The Bride, Maman Cochet, Helen Keller, Mrs. S. Crawford, Innocente Pirola, Bridesmaid, Merveille de Lyon, Ulrich Brunner, and Souvenir de S. A. Prince; Messrs. A. Dickson and Sons, Newtownards, Co. Down, second, and Mr B. R. Cant third. Seven competitors put up stands of thirty-six blooms, distinct, and in this collection there was a grand lot of flowers staged. The winning stand came from Messrs. J. Townsend and Sons, Worcester, who showed Marchioness of Londonderry, Gustave Piganeau, Caroline Testout, Victor Verdier, White Lady, Maréchal Niel, Duke of Wellington, Madame Gabriel Luizet, Mrs. S. Crawford, and Madame de Watteville in fine condition; Messrs. J. Burrell and Co., Cambridge, second, and Mr. H. Norton, Louth, third.

The five competitors in the class for eighteen trebles made a splendid show, and, in a keen competition, Messrs. J. Townsend and Sons, Worcester, gained the first prize for very full blooms of Gustave Piganeau, Caroline Testout, Alfred Colomb, Marchioness of Londonderry, Victor Verdier, Mrs. J. Laing, Ulrich Brunner, La France, Marquise Litta, Merveille de Lyon, Louis van Houtte, Madame de Watteville, A. K. Williams, Pride of Waltham, Marie Baumann, Heinrich Schultheis, Earl of Dufferin, and Madame Gabriel Luizet; the second prize was secured by Messrs. G. Cooling and Sons, Bath; the third falling to Messrs. J. R. Pearson and Sons, Nottingham.

NURSERYMEN'S TEAS.

Only two competitors came forward in the class for eighteen tea or noisette roses, distinct, and here Mr. G. Prince, Oxford, managed to beat Mr. B. R. Cant, of Colchester, with fresh and full flowers of Comtesse de Nadaillac, Souvenir de S. A. Prince, Maman Cochet, Innocente Pirola, Bridesmaid, Souvenir d'Elise Vardon, The Bride, Souvenir d'un Ami, Princess of Wales, Madame Cusin, Etoile de Lyon, Catherine Mermet, Madame de Watteville, La Boule d'Or, Niphetos, Mons. Furtado, Miss Ethel Brownlow, and Madame Hoste. For twelve blooms, distinct, the first prize was won by Mr. J. Mattock, Headington, Oxford, with brightly coloured flowers of Innocente Pirola, Comtesse de Nadaillac, Souvenir d'Elise Vardon, Catherine Mermet, Souvenir d'un Ami, The Bride, Amazone, Souvenir de S. A. Prince, Caroline Kuster, Madame Cusin, Medea, and Ethel Brownlow; Messrs. J. Burrell and Co., Cambridge, second; and Messrs. Paul and Son, Cheshunt, third. There were seven competitors.

OPEN CLASSES.

Messrs. A. Dickson and Sons, Newtownard, took leading honours for twelve new roses, showing beautiful blooms of Ulster, Bessie Brown, Mrs. Conway Jones, Alice Grahame, Countess of Caledon, Nell Watson, Duchess of Portland, Lady Moyra Beauclerk, Mrs. Edward Mawley, Helen Keller, Mildred Grant, and Ards Rover; Messrs. F. Cant and Co., second. With lovely flowers of Kaiserin Augusta Victoria, Mr. G. Prince took first prize for a dozen blooms of any white rose; Mr. B. R. Cant, second, with Marchioness of Londonderry; and Messrs. Harkness and Sons, Bedale, third, with Marchioness of Londonderry. The best dozen blooms of any yellow rose were splendid examples of Comtesse de Nadaillac, shown by Mr. G. Prince, Oxford; Mr. J. Mattock, second; and Mr. A. Hill Gray, Bath, third, both showing the same variety. For a dozen flowers of any light pink or rose-coloured rose, Messrs. Harkness and Son came first with Mrs. J. Laing; Messrs. J. Townsend and Son, Worcester, second, with the same variety; and Messrs. A. Dickson and Sons, Newtownards, third, with the new Lady Moyra Beauclerck. Crimson roses were finely shown, and out of nine stands of a dozen blooms Messrs. J. Townsend and Sons scored with Gustave Piganeau; Mr. B. R. Cant, second, with Ulrich Brunner; and Messrs. F. Cant and Co., third, with Captain Hayward.

For twelve treble teas, open class, Mr. G. Prince, Oxford, was a good first, showing lovely blooms of Bridesmaid, Innocente Pirola, Souvenir d'un Ami, Boule d'Or, Souvenir de S. A. Prince, Catherine Mermet, Souvenir d'Elise Vardon, Maman Cochet, Comtesse de Nadaillac, The Bride, Madame Cusin, and Cleopatra; Mr. J. Mattock, second; and Messrs. F. Cant and Co., third, out of seven sets.

AMATEURS.

Out of six competitors Mr. E. B. Lindsell won the amateur trophy for two dozen blooms distinct, with exceedingly fine blooms of Helen Keller, Mr. J. Laing, Gustave Piganeau, Marchioness of Londonderry, Ulrich Brunner, François Michelon, Beauty of Waltham, Madame E. Verdier, Her Majesty, Dupuy Jamain, The Bride, A. K. Williams, Catherine Mermet, Horace Vernet, Innocente Pirola, Earl of Dufferin, Captain Hayward, Muriel Grahame, Alfred Colomb, Maman Cochet, Madame Hausmann, Souvenir d'Elise Vardon, Duke of Wellington, and S. M. Rodocanachi; the second prize was won by Rev. J. H. Pemberton, Havering, who had a fine S. M. Rodocanachi; and Mr. H. V. Machin, third.

Mr. Lindsell was also first in the class for three dozen blooms, distinct varieties, open amateurs' class, with handsome flowers of Ulrich Brunner, Her Majesty, F. Michelon, Marchioness of Londonderry, Gustave Piganeau, La France, Earl Dufferin, Kaiserin A. Victoria, Marie Baumann, Helen Keller, S. M. Rodocanachi, and Mrs. J. Laing, in the back row; Merveille de Lyon, Duchess of Bedford, Maman Cochet, A. K. Williams, Madame de Watteville, Duke of Edinburgh, The Bride, Duc d'Orleans, Catherine Mermet, Mrs. Hausmann, Muriel Grahame, and Dupuy Jamain, in the middle row; Le Havre, Mrs. S. Crawford, Comte Raimbaud, Souvenir d'Elise Vardon, Beauty of Waltham, Duchesse de Vallambrosa, Captain Hayward, Ernest Metz, Horace Vernet, Madame Hoste, Dr. Andre, and Marie Finger, in the front row. Mr. Machin, second; and Mr. R. Park, Bedale, third. Mr. E. B. Lindsell showed the best eight trebles, staging fine flowers of Mrs. J. Laing, Ulrich Brunner, Marchioness of Londonderry, Alfred Colomb, La France, Comtesse de Nadaillac, François Michelon, and Her Majesty; Rev. J. H. Pemberton, second; and Mr. H. V. Machin, third. Mr. H. V. Machin, Worksop, won first place for nine flowers of any one variety, teas and noisettes excluded, with Ulrich Brunner; Mr. E. B. Lindsell second, with Her Majesty; and Rev. J. H. Pemberton, third, with Mrs J. Laing.

Mr. O. G. Orpen took the first place for eighteen blooms, his La France, Madame de Watteville, and K. A. Victoria being very good; Mr. J. Bergen, Knebworth, second; and Mr. E. Mawley, Berkhamsted, third. Mr. O. G. Orpen showed the best half-dozen trebles with Mrs. J. Laing, K. A. Victoria, Souvenir d'un Ami, S. M. Rodocanachi, Catherine Mermet, and Madame Cusin; Mr. Mawley, second; and Mr. S. Bergen, third. Mr. Orpen had the best six blooms of any rose other than a tea or noisette, showing Kaiserin A Victoria; Mr. Conway Jones, second, with Alfred Colomb. These three classes were open only to growers of less than two thousand plants.

Mr. G. Moules, Hitchin, had the best twelve blooms in the division open to amateur growers of a thousand plants, and showed handsome blooms of Her Majesty, A. K. Williams, Baroness Rothschild, and Alfred Colomb; Mr. R. Hobbs, Worcester, second; Mr. J. Marsden, Carnforth, third. There were nine competitors. In the extra classes for amateurs, Mr. Whittle, Leicester, scored a first for four trebles, being closely followed by Mr. J. Marsden, Carnforth, and Mr. Moules, Hitchin. Mr. R. Hobbs, Worcester, won first prize for six blooms of any rose, save a tea or noisette, with Mrs. J. Laing; Mr. J. Edwards, Derby, followed with the same variety, and Mr. J. Bateman, Highgate, third, with Marchioness of Londonderry. In the extra open class for amateurs, for six blooms of new and distinct roses, the competition was good, and here the Rev. J. H. Pemberton took chief honours with Mrs. W. J. Grant, Madame Cadeau Ramy, Marjorie, Tom Wood, Souvenir de Madame E. Verdier, and another.

AMATEURS' TEA ROSES.

There were five competitors in the open amateur class for a dozen teas or noisettes, and here the first prize was awarded to Mr. A. Hill Gray, Beaulieu, Bath, for pretty blooms of The Bride, Maman Cochet, Comtesse de Nadaillac, Souvenir d'Elise Vardon, Catherine Mermet, Maréchal Niel, Souvenir d'un Ami, Medea, Alba Rosea, Bridesmaid, Innocente Pirola, and Cleopatra; Mr. O. G. Orpen, Colchester, second; and Mr. E. B. Lindsell, Hitchin, third. Mr. O. G. Orpen scored a first in the open amateur class for nine teas or noisettes, one variety, showing Souvenir de S. A. Prince; Mr. E. B. Lindsell, second, with Caroline Kuster; and Mr. A. Hill Gray, third, with The Bride.

For nine blooms, distinct, open to growers of less than 500 blooms, the Rev. J. H. Pemberton, Havering-atte-Bower, led the way with good blooms of Souvenir d'Elise Vardon, Maman Cochet, Madame Hoste, Empress Alexandra of Russia, Marie Bravy, Madame Cusin, Comtesse de Nadaillac, Bridesmaid, and The Bride; Mr. R. Hobbs, second; and the Rev. R. Powley, Warminster, third.

Mr. M. Whittle and Mr. Moules were first and second respectively for six teas or noisettes, distinct, in a class for growers of less than 200 plants. For half a dozen trebles, teas or noisettes, Mr. A. Hill Gray, Bath, scored with pretty flowers of The Bride, Maman Cochet, Maréchal Niel, Cleopatra, Medea, and Comtesse de Nadaillac; Mr. Conway Jones, Gloucester, second; and Mr. O. G. Orpen, third. With Souvenir d'un Ami, Mr. Moules won first prize for six blooms of any tea or noisette, the class being open only to divisions three and four; Mr. Conway Jones, second, with Maréchal Niel; and Mr. R. Hobbs, third, with Catherine Mermet.

In the local section, Mr. H. V. Machin won first prize for two dozen blooms; Mr. J. Marsden, second, and Mr. Mallinder, gardener to Miss Mellish, Hodsock Priory, third. Mr. H. Steward scored for a dozen blooms, and Mr. Mallinder took the lead for six blooms, distinct. Mr. Conway, Halifax, won prizes for charming rose boquets, so also did Mr. T. Farrar; Messrs. J. and R. Callander, Halifax, took leading awards for tasteful shower bouquets, for twenty-four roses, and also won in other classes. Mr. Midgely, Syke, was also a successful competitor.

GARDEN ROSES AND DISPLAYS.

Messrs. Paul and Son, Cheshunt, showed the best set of eighteen distinct varieties of garden roses, their best bunches being of Bardou Job, Celine Forestier, L' Ideal, A. S. Gray, W. A. Richardson, and Laurette Messimy. Mr. H. V. Machin, Worksop, second, and Messrs. Cooling and Sons, Bath, third. The best stand of a dozen bunches of garden roses, amateur division, was arranged by Mr. H. V. Machin, Worksop, who had bunches of splendid flowers, but the [illegible] rather too close together; the varieties were Bardou Job, Madame Pernet Ducher, Rosa Mundi, Perle d'Or, Crimson Rambler, Macrantha, Grand Duc de Luxembourg, Mignonette, W. A. Richardson, Anna Maria de Montravel, Gloire des Polyantha, and Gustave Regis; Rev. J. H. Pemberton, second, and Miss Mellish, Hodsock Priory, third.

The best display of roses arranged on a space of not more than twelve feet by [illegible] feet was arranged by Mr. G. Prince, Oxford, who had a lovely central set of Comtesse de Nadaillac surrounded by light bunches of garden roses, all charmingly set up. Messrs. J. Townsend and Sons, Worcester, second.

Medal Roses.

Gold Medals were awarded to two new roses from Messrs. A. Dickson and Sons, Newtownards, co. Down; these were Mrs. Edward Mawley, a beautiful tea rose shaped somewhat like Mrs. W. J. Grant; the colour being a peculiar combination of rosy flesh and soft fawn or buff. The other variety is named Mildred Grant and is a H.T. with immense petals of great substance; pale flesh colour; a very fine rose. A gold medal was also awarded to Messrs J. Cocker and Sons, Aberdeen, for a charming new H.P. rose named Mrs. J. Cocker.

The six *Silver Medal* blooms at Halifax were Mrs. Laing, shown by Mr. B. R. Cant; and Her Majesty, shown by Mr. M. Whittle, among H.P.s. The best amateurs' H.T. was Lady Mary Fitzwilliam, shown by Mr. Boyes, of Derby; the best nurserymen's H.T. was Bessie Brown, shown by Messrs. A. Dickson and Sons, Newtownards. Mr. E. B. Lindsell scored for the best tea or noisette in the amateurs' division with a lovely Catherine Mermet, while Mr. G. Prince secured a silver medal in the nurserymen's division with a superb Comtesse de Nadaillac.

Conference.

Immediately after luncheon, a very large number of those interested in roses adjourned to another tent to hear Mr. George Paul, V.M.H., read a paper on "Exhibiting Roses." The gathering was presided over by Archdeacon Brook, who introduced Mr. Paul. About forty were present when the conference commenced, and the number increased to a little over fifty during the reading of the paper. Mr. Paul stated that since 1860 he had been present at most of the leading rose shows; he well remembered the Chiswick shows in the fifties, and at that time the flowers were staged in boxes, much as now, though usually in triplets. The varieties were a few of the H. Ps., Hybrid Chinas and Gallicas, most of which have passed out of cultivation now. About 1860, and for many years later, the flower stems were placed low in the tubes, and the tubes sunk in the moss which the boxes were surfaced with, so that the blooms rested on the moss. Thanks to Foster's tube and support, and longer stemmed flowers, some improvement on the old plan had been made during later years. Advice as to cutting and carrying flowers to shows Mr. Paul considered to be almost useless, as experience could only bring the necessary knowledge. The speaker thoroughly disagreed with the present system of tying roses, maintaining that the practice resulted in an even set of sober-coloured flowers, whereas without it there would be more individuality and more of those beautiful salmon and other tints for which certain roses were noted, but which were seldom now seen at exhibitions. He conceded, however, that tying seemed a necessity to meet the requirements of present-day judges.

Having cut your roses, Mr. Paul advised that they be kept in the shade, duly wired and placed in water as quickly as possible. In taking them to a show he advised that either the exhibitor or some responsible assistant should accompany them to prevent accidents. In arranging a stand of blooms the proper method would be to place the largest flowers at the back and the smallest and best shaped ones to the front; have the most perfect flowers at the ends of the rows and keep maroons and yellows toward the centre of the stand. Mr. Paul stoutly objected to dressing of any kind, considering it fraudulent to transform a flower from its natural shape; removal of an injured petal and opening a bloom slightly were all he would permit.

With respect to garden roses Mr. Paul advised that the bunches for exhibition should be made up at home, making allowance for opening buds; he opposed any change in the present methods of staging and considered it most undesirable to limit the number of trusses per bunch. He maintained it would spoil the class to do so, as to limit the trusses to seven would result in too small a bunch of Perle d'Or, and too large a one of Crimson Rambler. The space limit and definite number of bunches was all that was necessary. The speaker thought something might be done in the way of exhibiting large round baskets of roses of one variety to produce good effects at shows. The displays of roses had not been a success, but he was persuaded, after seeing what Messrs. Perkins and Son had done at Newcastle, that classes for displays might be made of great value to an exhibition, if only more artistic ability were displayed and more time given to arrangement. In conclusion, Mr. Paul submitted that if exhibiting is to help on rose culture, if it is to add members to the N.R.S., it must move with the times; new classes must be instituted, all artificialism not only restrained but suppressed, and the Society and its exhibitors strive ever to be the leaders of rose culture and display in the kingdom.

Archdeacon Brook moved a vote of thanks to Mr. Paul, remarking that nothing would show so much their appreciation of what had been said as a good discussion; he hoped the spirit of controversy would prevail. He had enjoyed hearing the papers, although, as he humorously put it, his position in rose culture was that of impartial ignorance. Mr. E. Mawley seconded the vote of thanks, stating that the conferences had been instituted to encourage rose growing, and to encourage growing they had to encourage exhibiting, as only in this way could people be persuaded to take a keen delight in roses, and influence their friends. His greatest objection to tying was that it was difficult to get the exhibitors to remove the ties at the hour appointed for judging; however, a tied rose was penalised if left tied at judging time, so also was over-dressing. They wanted flowers as natural as possible, and anything tending to make the blooms unnatural must be discouraged. Mr. Mawley expressed sorrow at the absence of the Messrs. Perkins, of Coventry, from the present show, as they wanted to see the display classes better filled.

The Rev. J. A. Pemberton followed, and considered it impossible for an exhibitor to present his roses in the best phase of their possible beauty without dressing them somewhat. Over-dressing was an evil and one that the judges had it in their power to remedy. Given equal quality of flowers the stand that was dressed—not overdressed—would beat the one containing flowers that had not been assisted. He maintained that the N.R.S. encouraged dressing up to a certain point. He also pointed out that great alterations would have to be made if roses were to be shown quite naturally; at present the selection of growth, disbudding, wiring, and dressing were all tending to an artificial production of roses. Tying did not spoil colour to any appreciable extent. Roses should be judged according to their variety, and not all by one standard. Referring again to wiring as part of the system of dressing, Mr. Pemberton raised a laugh by pointing out that a grand lot of garden roses in the show were arranged in fine bunches, each bloom standing clear of its neighbour, and each bunch showing a face towards the visitor. The stand referred to had gained first prize, deservedly, but it had come from the gentlemen who had just been lecturing them upon the evils of dressing and artificiality in exhibiting. Personally he thought a limit should be placed upon the number of trusses a bunch of garden roses should contain. Mr. Cooling favoured Mr. Paul's views, and thought that in the matter of garden roses the number of bunches and the space to be filled should alone provide the limits.

Mr. Frank Cant contended that where roses had to be brought a long distance it was absolutely necessary to tie them to preserve them in anything like good condition. He agreed with Mr. Pemberton as to limiting the sprays a bunch of garden roses should contain, as only by that means could the public gain any sort of an idea of the habit of floriferousness of a variety; he saw no reason why a stand should not contain seven sprays of Crimson Rambler at the back, and seven of the pretty little Perle d'Or in front. Under the present conditions the prizes went largely to those who could cut the most flowers. Mr. Alex. Dickson also contended that tying was a necessity when roses had to travel considerable distances. Dressing should be allowed, if done naturally, but penalised when a flower had its shape altered. He thought exhibition roses could scarcely be staged better than now. Mr. H. V. Machin sided with Mr. Paul in the matter of garden roses, considering it a great mistake to limit the number of sprays per bunch. Mr. E. B. Lindsell urged that for long journeys tying was a necessity to preserve the flowers; without tying had been largely done the Halifax Show would have been not nearly so fine as it was. He regretted that tying caused some of the exquisite tints to vanish, but the evil of tying was slight. Mr. Paul had not drawn the line between dressing and over dressing; it was the latter that they all had to guard against. Mr. O. G. Orpen endorsed Mr. Lindsell's remarks, and drew a vivid picture of the journey his own roses had undergone from Colchester to Halifax; without tying he scarcely dared think in what state his blooms would have arrived. Regarding over-dressing, the judges had the remedy in their hands, and for his part he treated over-dressing as it deserved.

The vote of thanks was then put and carried, M. Paul thanking the company for their criticisms, and the brisk discussion. A vote of thanks to Archdeacon Brook for presiding concluded the proceedings.

AYLESBURY FLORAL AND HORTICULTURAL SOCIETY.

July 7.

The seventy-sixth summer show of this society was held in the Corn Exchange and Butchers' Market adjoining, and proved generally successful, the quality of the exhibits being up to the average. The weather was bright and somewhat sultry in the Corn Exchange, but outside, in the recreation ground, where the pastoral and children's entertainment and band were located, there was a refreshing breeze. To assist the display Lord Rothschild, Waddesdon Manor, and Lady de Rothschild, Aston Clinton, each sent a fine bank of foliage and flowering plants; Mr. J. Walker, Thame, sent a collection of sweet peas, very fine being the bunches of Emily Eckford, Grand Blue, Her Majesty, and Princess May; and Mr. H. Deverill, Banbury, staged a very showy collection of herbaceous perennials.

In the competition for groups of decorative plants the premier award fell to Colonel Hornsby Drake, Wootton House; Messrs. Ingram, Whitfield, and Co., second; this same firm leading in the class for flowering plants, with Mr. R. Hopkins, second, both bright exhibits, and comprising neat specimens of greenhouse subjects. In the class for a group of plants in bloom, Mr. John Walker made a lovely show with a large collection of the best forms of zonal pelargoniums, edged with Carter's hybrid streptocarpus; Mr. W. Tipler, gardener to Miss Smith-Dorrien, the Vicarage, Mr. J. Walker, and Mr. J. Morton, gardener to Mrs. H. A. P. Cooper, shared the awards in the classes for half-a-dozen each of double, scarlet, and rose or light coloured pelargoniums, with dwarf-grown densely-bloomed plants in variety. The groups of six varieties of stove and greenhouse plants from Mr. W. Tipler and Messrs. Ingram and Co. were fresh and fairly well bloomed. Single begonias in sixes were good, Mr. E. T. Mackrill leading, the double class being altogether poor. The class for ferns was well filled, Colonel Drake, Messrs. Ingram, and Mr. C. Pigott sharing the awards for full-sized specimens. Gloxinias from the Vicarage Gardens were exceedingly bright, as was the only collection of achimenes from Mr. W. Robins, gardener to Colonel Dyke Lee, Hartwell Park. Fuchsias, as graceful pyramids, occupied the centre of the fruit and cut flower staging, Mr. J. Morton scoring first for six and Mr. R. Hopkins for three varieties. Coleus were a small display, Mr. C. Pigott leading for six young plants. The collection of mosses from Mrs. H. Gurney was lovely; Mr. J. Walker presented the most attractive arrangement of a basket of bedding plants, his double and single pelargoniums telling in the way of colour. The premier specimen flowering plant was a grand fuchsia from Mr. J. Morton.

In the section for cut flowers the roses occupied a fair length of table space. For thirty-six single trusses Mr. J. Walker presented a nice fresh lot of developing blooms of A. K. Williams, Gustave Piganeau, Horace Vernet, Comtesse d' Oxford, Lady Mary Fitzwilliam, Baroness Rothschild, Charles Lefebvre, Heinrich Schultheis, Jeannie Dickson, Louis Van Houtte, La France, Captain Hayward, Duke of Edinburgh, Duke of Teck, Earl of Dufferin, Duke of Wellington, Marquise Litta, Mrs. Sharman Crawford, Mrs. John Laing, Merveille de Lyon, Caroline Testout, Ulrich Brunner, W. F. Bennett, Madame Gabriel Luizet, Margaret Dickson, Marie Finger, Marguerite de St. Amand, Catherine Mermet, Hon. E. Gifford, Anna Olivier, Souvenir de S. A. Prince, Madame Hoste, Souvenir d'un Ami, and Maréchal Niel; Mr. H. Warren, gardener to Lady A. de Rothschild, second, with a very excellent lot of blooms; he also securing the premier award in the amateur division for twenty-four varieties; Mr. T. Gurney, second; and Mr. W. Robins, third; while in the class for twelve single trusses Mr. H. W. G. Morris, chemist, Thame, secured the first award for a nice fresh lot, including several teas, also for a dozen varieties in the amateur section. Herbaceous perennials, as staged by Mr. Walker in the class for two dozen varieties, cut blooms, were even more showy than the roses, the handsome bouquets being attractively posed, very striking being the cannas in variety, phloxes Centaurea macrocephala, Coreopsis grandiflora, delphiniums, Dictamnus fraxinella, Gaillardia grandiflora, Polemonium alba, Heuchera sanguinea, Lychnis chalcedonica, pink Snowflake, viola Waverley Blue, Spiræa filipendula fl. pl., Lychnis Verveana splendens, Stenactis speciosa, and Spiræa aruncus; Messrs. Ingram, second. Mr. Walker was placed first for a vase of flowers; the premier hand bouquet being arranged by Mr. H. W. G. Morris. In the section for ladies Mrs. Morris was awarded firsts for three vases for dinner table, a bouquet of wild flowers, and a design of wild flowers, winning with very tasty arrangements.

Fruit was fairly well represented for the season, and for a collection of eight dishes Mr. H. Warren was first with Black Hamburgh and Foster's Seedling grapes, Stirling Castle peaches, Lord Napier nectarines, Brown Turkey figs, Black Tartarian cherries, President strawberries, gooseberries; Mr. W. Robins, second, with Black Hamburgh and Foster's Seedling grapes, Sutton's A1 melon, Lord Napier nectarines, peaches, figs, white raspberries, and John Ruskin strawberries, the last-named perfect in shape and grandly coloured. Mr. Robins was first in both grape classes with the afore-named varieties, and first for peaches with some grand fruits of Barrington; Mr. H. Warren, second in the classes for black grapes and peaches. Some large gooseberries were on view, Mr. Earl, first, with a dozen scaling nine ounces; Mr. H. Warren second, weight one quarter ounce less. Some very fine nectarines, named Precose de Croncels, were staged by Mr. E. T. Mackrill, and secured an award. Strawberries, cherries, gooseberries, and the three forms of currants were presented in fair numbers, but the red currants from Wootton House attracted much notice.

Vegetables were good for the season, specially so the cauliflowers, carrots, potatos, and peas. Colonel Drake led with a collection of twelve dishes, cauliflowers and winter onions; Mr. Warren for tomatos, carrots, and turnips; Mr. T. Gurney, in the potato classes; Mr. R. Hopkins, for cucumbers; Mr. E. W. A. Brooking, for peas; and Mr. Tipler, for basket of salad. Mr. Warren secured Messrs. Sutton and Sons' premier prize for six dishes, and Mr. J. Morton won Messrs. E. Webb and Son's for a similar collection. In the amateur section Mr. H. W. G. Morris secured firsts for strawberries, collection of hardy fruit, red currants, white currants, and cos lettuce; Mr. A. T. West led in the classes for a collection of six dishes, kidney and round potatos, and carrots; Mr. L. N. Simons came first for cucumbers, tomatos, and peas. About two dozen classes were provided for cottagers, and the whole of the one hundred prizes awarded were keenly contested and awarded for splendid allotment produce.

WOOD GREEN, July 9.

A LARGE exhibition was held in the Town Hall Grounds, Wood Green, on Saturday, the 9th inst. The display was somewhat crowded into a huge marquee, and was very largely of purely local interest, the classes for cottagers and amateurs being well filled with excellent exhibits throughout.

The best twelve roses in not less than nine varieties were shown by Mr. C. H. Martin, gardener to Mrs. Langton, Hendon, who showed fine flowers of Helen Keller, Caroline Testout, Gustave Regis, Mrs. J. Laing, Victor Hugo, A. K. Williams, La France, Duke of Fife, Captain Hayward, and Marquise Litta; Mr. Cragg, gardener to W. C. Walker, Esq., Winchmore Hill, second; Mr. Courteney Page, Enfield, third. Mr. Martin was again first in a class for twelve blooms in not less than six varieties, his best flowers being Helen Keller, Madame G. Luizet, Mrs. J. Laing, Kaiserin Augusta Victoria, and La France; Mr. Cragg, second; and Mr. J. Armstrong, third. Mr. J. Canham, gardener to C. H. Feiling, Esq., Southgate House, Southgate, was first for a dozen bunches of flowers, his gloxinias, begonias, roses, and sweet peas being good; Mr. Thomson, gardener to Miss Brown, Southgate, second. Mr. Cragg was first for six bunches, and Mr. Thomson second; both lots were very bright, but Mr. Cragg scored with orchids. Mr. G. W. Cook, North Finchley, scored for a dozen roses, distinct in the amateurs' section, showing Mrs. J. Laing, Francois Michelon, Caroline Testout, Captain Hayward, La France, Madame G. Luizet, Marie Baumann, Beauty of Waltham, S. M. Rodocanachi, and Dupuy Jamain. Mr. Cook was also first for nine roses; Mr. Thompson, Bounds Green, second. Mr. Thompson scored for six roses; Mr. Brewer, second. For half-a-dozen teas or noisettes, Mr. G. W. Cook led with Innocente Pirola, Ernest Metz, Rubens, and Anna Olivier; Mr. Thompson, second. The competition was fairly good throughout. In the amateurs' division for a dozen bunches of cut flowers the first prize was won by Mr. F. Haynes, Ash Cottage, Wood Green, with a good set of Plumbago capensis, Diplacus glutinosus, lantanas, begonias, fuchsias, Torenia Fournieri, calceolarias, stocks, balsams, roses, and zonal pelargoniums.

The best half-dozen stove and greenhouse plants were shown by Mr. H. Tilbury, gardener to C. Young, Esq., Southgate; they were large plants of Pandanus utilis, a fuchsia, Latania borbonica, Dracæna Baptisti, Adiantum formosum, and A. cuneatum; Mr. C. Canham second. Mr. W. Smith, gardener to S. Roberts, Esq., Winchmore Hill, had the best tuberous begonias, and the same competitor led the way for half-a-dozen gloxinias, showing splendidly grown and flowered plants; he also had the best six zonal pelargoniums, a creditable set. Mr. Cragg was first for six table plants, a graceful lot; Mr. Canham a very close second. Mr. Cragg won the chief award for six orchids, showing fair examples of Cattleya Harrisoniæ, Epidendrum vitellinum majus, Cypripedium Curtisi, Vanda cærulea, Cattleya Mossiæ, and Odontoglossum cordata. For a small group of plants, amateurs, Mr. J. E. Smith, Canning Crescent, was easily first. Some pretty little groups of ferns were staged by amateurs, and Mr. C. Le Riche, White Hart Lane, put up the best, using Platycerium alcicorne as a centrepiece; Mrs. N. P. Hodgson, Wood Green, second. Mr. G. Cragg was easily first for a large group, his cattleyas, Brassovola Digbyana, cannas, odontoglossums, &c., being pleasingly associated with ferns, palms, and caladiums; Mr. F. Canham second, and Mr. Tilbury, gardener to A. Young, Esq., Southgate, third.

The best floral display for a dinner table was a charming arrangement in white and yellow forms of Papaver nudicaule associated with fern fronds and gypsophilla; this was put up by Mrs. Wheaton, Muswell Hill; Miss Weston, Queen's Avenue, Muswell Hill, second, with pink sweet peas. Mrs. Driscoll, of Palmers Green, showed the best basket of flowers, pink and red roses.

Mr. Thompson showed a splendid lot of salading—cucumbers, radishes, tomatos, beet, mustard, cress, lettuce, and onions being admirably represented. The same exhibitor led the way in the open class for eight kinds of vegetables, showing a first-rate lot of tomatos, peas, broad beans, carrots, vegetable marrows, cauliflowers, and turnips; Mr. H. Tilbury, second.

A beautiful lot of liliums, Hemerocallis aurantiaca major, English irises, calochorti in variety, Gladiolus Colvillei in several forms, including the pretty Ruby Gem, came from Messrs. R. Wallace and Co., Colchester, and made up a very bright exhibit. Herbaceous flowers in a cut state were shown extensively by Messrs. A. Young and Co., Stevenage; delphiniums, poppies, pinks, and geums being very bright. Mr. H. G. Bourne, New Southgate, sent a small but most interesting exhibit of cacti that proved a centre of attraction. Mr. A. Perry, Winchmore Hill, staged a fine lot of hardy flowers, arranging a fine assortment of popular and useful subjects; liliums were good, so also were Heuchera sanguinea, Heliopsis scabra, Erigeron speciosum, Hemerocallis fulva, garden roses, delphiniums, Genista tinctoria plena, irises, &c. Messrs. R. and G. Cuthbert, New Southgate, put up a group of stove and greenhouse plants, liliums, cannas, and carnations figuring largely. Mr. T. Royle, Bounds Green, contributed succulents, his group including several good opuntias. Hardy flowers in abundance came from Mr. T. S. Ware, Tottenham; this was a bright exhibit and contained the brilliant Gladiolus Watsonianus, Hemerocallis aurantiaca major, Ixia longiflora, Lilium Grayi, Alstrœmeria pelegrina alba, Linum arboreum, &c. Sweet peas from Mr. F. G. Foster, Brockhampton Nurseries, made a charming and fragrant exhibit; the bunches were large and the flowers good. A few especially fine varieties noted were Scarlet Invincible, Meteor, Countess of Powys, Little Dorrit, Lovely, Mrs. Eckford, Salopian, Captain of the Blues, Royal Rose, Queen Victoria, and Emily Henderson.

A very handsome group of plants was put up at the end of the tent by Messrs. Hugh Low and Co., Bush Hill Park, Enfield; the crotons were finely coloured and well grown, Asparagus plumosus, Rex begonias, Cattleya Mossiæ, C. Mendeli, Lælia tenebrosa, Cypripedium Curtisi, associated with elegant aralias, ferns in variety, dracænas, dieffenbachias, &c. This firm also put up a splendid lot of roses. A bright group of orchids was arranged by Messrs. Stanley-Mobbs and Ashton, Southgate; cattleyas were very much in evidence, especially good forms of C. Mendeli and C. Mossiæ; Mormodes unicolor, Epidendrum aurantiacum major, Cœlogyne Dayana, Oncidium Lanceanum, and odontoglossums were also staged well by this firm. Messrs. J. Hill and Son, Lower Edmonton, put up a fine group of ferns, all well grown and artistically arranged; platyceriums, hanging baskets of davallias, aspleniums in variety, white and golden gymnogrammes, adiantums in variety, including a splendid basket of lovely tinted plants of A. scutum roseum, and some handsome examples of A. Farleyense, altogether a first-rate display. Mr. W. Rumsey, Waltham Cross, staged a large collection of cut roses, including bunches of garden forms and a box of Penzance briars. Messrs. Paul and Son, Cheshunt, displayed large bunches of hardy flowers, these making a good show with the several boxes of finely-developed roses.

NATIONAL AMATEUR GARDENERS' ASSOCIATION, July 9.

LAST year this flourishing society held its annual exhibition in the gardens of the Royal Botanic Society, and the experiment proved so successful that it was repeated this season, and, we are pleased to state, with still greater success. On this occasion the competitive collections were arranged in the corridor leading from the north entrance to the conservatory, instead of the tent, and the change was decidedly for the better, as the various products could be seen to greater advantage. The arrangements were, with but one exception, aptly planned and carried out by Mr. T. W. Sanders, the president, and Mr. L. Brown, the secretary; and, favoured by delightful weather, the visitors, who numbered between two and three thousand, appeared to thoroughly enjoy the excellent display of plants, cut flowers, fruits, and vegetables provided for their entertainment. The exception, to which it is our duty to refer, was the admission of exhibitors and visitors to the exhibition during the time the awards were being made, which not only delayed the work of judging, but greatly hampered those engaged in determining the relative merits of the competing collections. The practice of allowing the visitors to crowd about the tables during the time the judging is in progress appears to have become general in the metropolis, and should be checked.

The principal features of this interesting and successful gathering were formed by the roses, violas, and hardy flowers, while both fruits and vegetables were satisfactory. There was a keen contest for the first place in the class for a collection of six distinct kinds of hardy flowers, and in the result, Mr. A. Lewis, Beckenham, and Mr. A. Taylor, Finchley, were first and second with only half a point between them. Mr. Taylor staged in his collection a vase of superb blooms of Margaret Dickson rose. In the collection of six kinds grown out of doors, Mr. Needs, who was awarded the Dobbie Challenge Cup, had iris, delphiniums, roses, and sweet peas. Mr. Lance Gray, and Mrs. Marsh, Claygate, exhibited remarkably well in the class for four bunches of hardy flowers.

In the class for twelve roses, in which a challenge cup, presented by Messrs. F. Cant and Co., was offered as the first prize, Mr. G. W. Cook was first with a magnificent stand, and Mr. J. Bateman followed closely for second place with finely-developed blooms. For nine roses in six varieties Mr. E. R. Smith was first, Mr. J. Bateman second, and Mr. A. Taylor third, each staging excellent blooms. Mr. J. W. Jones, Woking, contributed a remarkably fine collection to the class for garden roses, and Mr. E. R. Smith, Muswell Hill, had a superb stand of twelve teas. There were five or six entries in the class for a vase of roses, in which the premier prize was presented by Mr. George Gordon, and this award was made in favour of Mrs. Morris, Thame, who had a vase of finely-developed blooms of Mrs. John Laing. Mr. G. W. Cook had a vase of fine blooms of La France, and Dr. Shackleton contributed a very tastefully arranged vase containing mixed varieties. Mr. G. W. Cook staged eighteen blooms of Mrs. John Laing, in a high state of development, as an extra, and was awarded the silver medal. Mr. Cook was first of seven competitors in the class for six roses with superb blooms of Mrs. J. Laing, La France, Caroline Testout, Ulrich Brunner, Mrs. Sharman Crawford, and Marie Baumann; Mr. J. Thompson, Bond's Green, second. In a second class for a vase of roses and for a bowl of tea roses, Mr. G. W. Cook was first.

Violas were staged in large numbers and superb condition, and the competition was very keen for the Pye Championship, and in the result Mr. D. B. Crane was adjudged the champion, and Mr. Leonard Brown and Mr. W. G. Reeve were second and third. Mr. Crane was first also for six bunches, with Mr. Reeve second. Mr. Leonard Brown had the award of the first prize made in his favour in a class for six sprays of violas, while for six sprays of rayless violas Mr. Sinclair was first.

In the class for a collection of fruit Mrs. Morris was first, and in that for a collection of vegetables Mr. F. M. Vokes occupied the first place, while Mr. J[illegible] had the best strawberries.

HANLEY FLORAL FETE.

ALTHOUGH only in its second year the Hanley Floral Fête has become already a most famous provincial horticultural display, and the exhibition which opened on July 6 was an unqualified success. The competition throughout was keen, and the attendance enormous. This success has been achieved largely by the ability and energy of the secretary, Mr. J. Kent. The classes this year were about twenty-five more than in 1897, and the entries rose from three hundred and fifty to over fifteen hundred, these representing about eight hundred and fifty competitors.

There was a keen competition in the group classes, and Mr. James Cypher secured the chief award with a cleverly executed design; besides the large money prize there was a handsome vase presented with the first prize; Mr. P. Blair, gardener to the Duke of Sutherland, second. For a group of orchids, Mr. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, Staffs, was first with fine specimens; Mr. Cypher, second. Mr. Cypher was second for eight specimen orchids, but scored first for a dozen specimen stove and greenhouse plants, six foliage and six in flower; he also staged the best set of palms. Mr. Vause, Leamington Spa, was another successful competitor in the group and plant classes, following Mr. Cypher closely. Floral decorations proved a great success, Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, securing first prize for the best decorated dinner table. Mr. Goodacre also won first prizes for a pair of bunches of black grapes, for half-a-dozen dishes of fruit, and for strawberries.

In the rose classes Messrs. A. Dickson and Sons, Newtownards, co. Down, were almost invincible, taking firsts for forty-eight roses, for two dozen roses, for twelve blooms, for a new rose, and second for thirty-six roses. Messrs. M.

[illegible] and Sons, Newcastle, won a number of first prizes, especially for dis- [illegible] of roses and sweet peas; they also closely followed Messrs. Perkins and [illegible] Coventry, in the classes for hand and ball bouquets, baskets of [illegible], &c. Mr. Blair led the way for a dozen carnations, and to his other prizes [illegible] for eight orchids, nectarines, cherries, table plants, turnips, and [illegible] beans. Mr. J. Read, gardener to the Earl of Carnarvon, Bretby Park, [illegible] the best tomatos, melons, and round potatos, and also took several second [illegible] for grapes. Other especially successful competitors were Mr. McKnight, gardener to T. Bolton, Esq., Oakamoor; Mr. S. Mountford, Congleton; Messrs. Prior and Sons, Colchester; Messrs. Townsend and Sons, Worcester; Mr. J. McIndoe; Mr. C. Wilkins; Mr. J. C. Waterhouse, Preston; and Lord Bagot, Blithefield.

Non-competitive displays were both numerous and good, and they added considerably to the effectiveness of the exhibition. The Corporation of Hanley, to express their indebtedness to the non-competing exhibitors, awarded quite a number of gold and silver medals, as follows: Large gold medals to Messrs. J. [illegible] and Co., Holborn, for miscellaneous plants and flowers; Messrs. Charles- [illegible] and Co., Bradford, for orchids; Messrs. W. and J. Birkenhead, Sale, for [illegible]; Mr. B. R. Davies, Yeovil, for begonias; Messrs. Dicksons, Chester, for [illegible] flowers; and to Miss Hodgkins, Manchester, for skeletonised leaves, [illegible], and fruits. Gold medals to Mr. Goodacre for carnations; Messrs. Sander and Co., St. Albans, for new plants; Mr. J. H. White, Worcester, for hardy flowers; and the Icthemic Guano Company, Ipswich. Silver medals to Mr. H. [illegible], Wem, for sweet peas; Messrs. J. Peed and Son, Norwood, for caladiums; Mr. F. Walton, Birmingham, for cacti; Mr. Edwards, Sherwood, for ferns in [illegible]; Mr. Hartland, Cork, for tuberous begonias; Messrs. M. Jenkinson and [illegible], Newcastle, for floral decorations; Mr. R. Sydenham, Tamworth, violas; [illegible] Jarman and Co., Chard, cut flowers; Mr. Leighton, Newcastle, cut [illegible]; and Messrs. Webb and Sons, Stourbridge, for sweet peas.

NOTTINGHAM.

THE Nottingham Horticultural Society held a fine exhibition in the Arboretum on the 13th inst. There were about two hundred exhibits, and the average of quality was high. The most tasteful group was that staged by Mr. J. Ward, gardener to T. H. Oakes, Esq., Riddings House, who used palms, ferns, moss, orchids, &c., to great advantage; Mr. A. Wagg, gardener to Mr. S. Chealer, Ossington Hall, was a good second, Humea elegans being skilfully used in his group. Mr. R. J. Walters, gardener to Mrs. J. W. Leavers, The Park, [illegible] the best circular group, orchids being especially good; Mr. J. Taylor, gardener to R. Halford, Esq., J.P., second. Mr. Walters showed the best six stove and greenhouse plants, Mr. Ward the best crotons, and Mr. Forman the best stove-flowering plant; these were the leading plant exhibitors. Mr. Wagg scored in close competition in the class for a collection of fruit arranged on a table six feet by four feet; he showed fine peaches, nectarines, figs, grapes, melons, and pineapples; Mr. J. Read, gardener to the Earl of Carnarvon, second; and Mr. A. J. Elphinstone, gardener to E. Parry, Esq., Woodthorpe Grange, third. Mr. Oakes showed the best Black Hamburgh grapes, and Mr. Chambers the best Muscat of Alexandria. For hardy fruit, Mr. J. Baker, Basford, was first, and Mr. E. Wadsworth, Newton, second. Royal Sovereign secured for the City Asylum Committee, Mapperley, first prize for strawberries. Mr. Chambers and Mr. J. Read were first and second respectively for tomatos. The collections of vegetables were excellent, the first prize in the class for twelve varieties being won by Mr. J. Read, the cauliflowers and tomatos being especially fine; the City Asylum Committee, Mapperley, gained second place, several splendid sticks of celery and a quantity of well-cultivated mushrooms constituting noticeable features; Mr. J. Baker was third, and Mr. E. Wadsworth fourth. The collections of vegetables, six varieties, attracted a good number of entries; Mr. T. H. Oakes, however, was by far the best, and won the first prize, the second being awarded to Mr. W. Corah, and the third to Mr. C. Hill, Cyprus Road. Cucumbers were hardly up to the average, Mr. Read occupying the premier position, Mr. W. Corah and Mr. W. F. Mills meriting and gaining second and third respectively. The peas exhibited by Mr. G. Taylor, Robin Hood Chase, were placed first; Mr. J. Baker second, and the City Asylum Committee third. Messrs. Baker, Read, and Wadsworth scored in the order given for white kidney potatos; Messrs. Baker and Corah for coloured kidneys; Messrs. Read, Baker, and Corah for white round varieties; and Messrs. Baker and Wadsworth for coloured rounds.

Late Strawberries should, in my opinion, have more attention, as they do not suffer from frost like earlier ones, and the crop rarely fails; on the other hand, the plants are not so robust and need good culture. Such kinds as Frogmore Late and Elton Pine are very good for this purpose, but no garden of any size should be without Latest of All; unfortunately it is not the latest, but it is late, and its splendid quality makes it worth a place in all gardens. Oxonian and Waterloo are the latest. The last is not suitable for all soils, as at times it fails to fruit freely, but Oxonian will grow freely though it is not a highly-flavoured fruit. It is valuable for its late cropping, and this variety we grow two years, so that by planting a quarter every year we always have young plants to bear fine fruit. When the plants do not occupy the soil for a long period they may be placed much closer; we plant two feet apart between the rows, and eighteen inches between the [illegible]; if room is plentiful Royal Sovereign may be given two feet each way, as this [illegible] of hoeing and cleaning. As regards culture, I advise double digging, placing [illegible] portion of manure under the first spit, and in land at all infested with wire [illegible] give a thorough dressing of lime; we use gas lime, and it is one of the best [illegible] combating this pest. By taking runners when ready, placing them when [illegible] in nursery beds, and planting out early next spring in their permanent [illegible] they do well; of course, such plants cannot be expected to fruit the season they are planted, neither is it advisable to allow them to do so, but they will give a very heavy crop the following season, and in light land will well repay a surface dressing of manure the second winter. As the strawberry so soon loses vigour in unsuitable soil, it is necessary to obtain new stock at times to realise full results; the plants can be procured at such a reasonable rate now, and in small pots ready to plant, that cost is not a great item; then also there should be a trial of new kinds, carefully noticing the results for future guidance.—G. WYTHES, *Syon Gardens.*

"HE OUGHT TO BE PROSECUTED."—The indignant words fell from the lips of a [illegible] helplessly watching a drunken cabman brutally lashing his horse. It is, [illegible] to think how much cruelty goes unpunished in this world. Why are there so [illegible] in all grades of society? The explanation is simple. The blame lies with [illegible] and selfishness of parents. While men and women neglect their health they [illegible] expect to have strong and robust children. Fathers and mothers, be warned in time. [illegible] your systems of [illegible], indigestion, nervousness, and the like; restore your vigour and [illegible] by taking Holloway's Pills, the best and safest of family medicines.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Rhubarb.—J. S., Sandwich: Rhubarb is quite admissable in an unlimited collection of vegetables, but unless in very good condition it does not win many points at this season of the year. The edible part of rhubarb is the leaf-stalk, and the fact that this is utilised early in the year for tart making, and later on for preserves or wine, does not make it in any sense a fruit.

Sphagnum Moss.—H. C., Hants: The moss sent is true sphagnum moss, but it contains a larger percentage of the small headed wiry form than most orchid growers prefer. It is, however, a very clean sample quite suitable for orchids or for packing plants and fruit in. For fruit packing it should first be washed and then dried—preferably in the sun.

Scalded Grapes.—Grape: The grapes are badly scalded, and those berries affected will have to be removed. Faulty ventilation is the chief cause of scalding, but there are other causes, as you will see by reference to the "Answers" column in our issue of July 2 last. Neither name nor address were sent with the communication. If sending again, please give such information, not necessarily for publication.

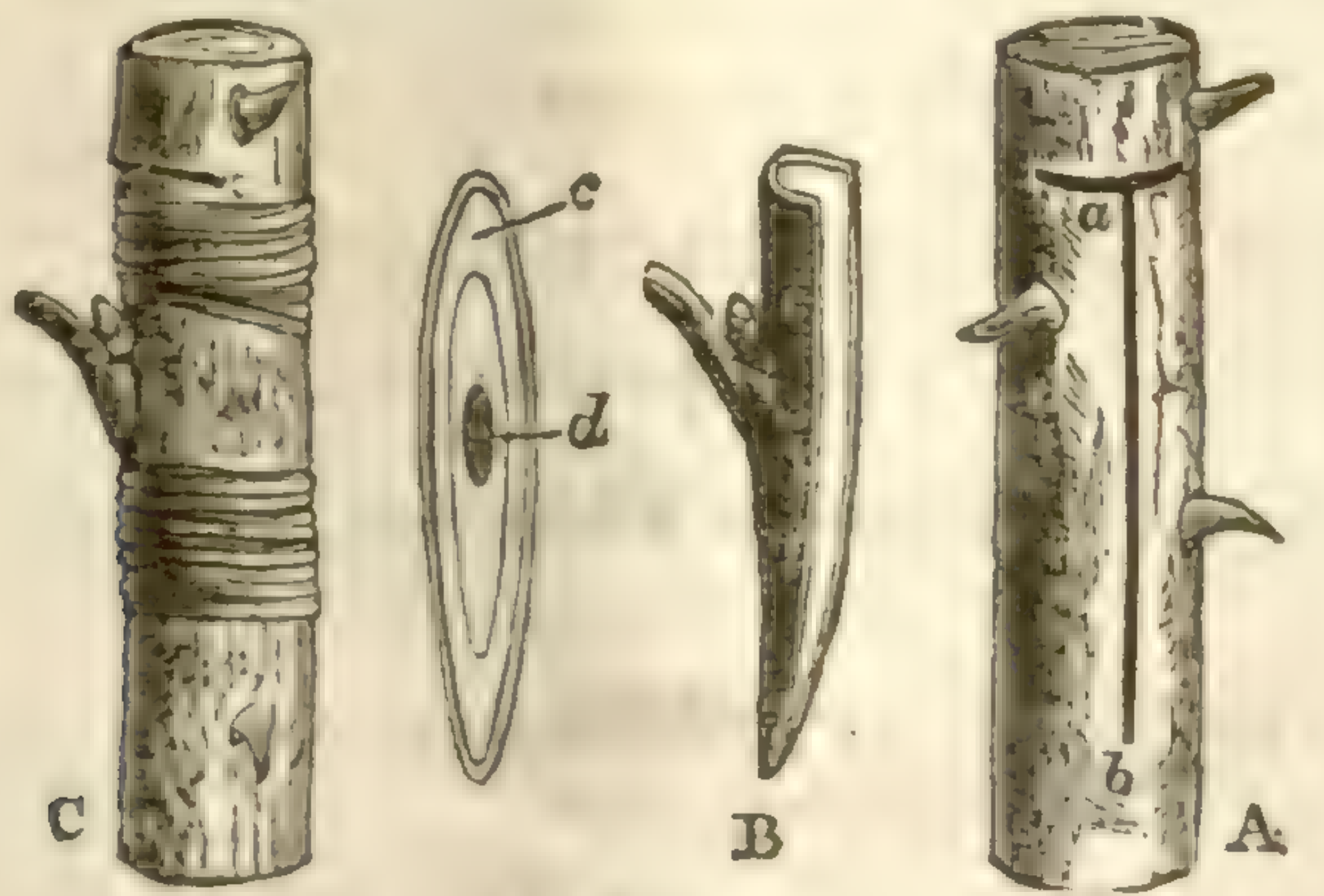
Exhibiting Hardy Flowers.—A. N., Wimbledon: It is not a usual thing to allow bunches of hardy flowers to be associated with any other but their own foliage at flower shows. In the case mentioned you were, however, within the terms of the schedule, but as it was a special class among so large a number of special classes, and, also, because of the absence of any class number upon the card attached to the exhibit, our representative had no ready means of discovering the unusual conditions, hence the criticism. Thanks for letter.

Cutting the Leaves of Tomatos.—W. C., North Berwick: We do not advise such extensive shortening of the foliage of tomatos as is carried out in some establishments. Shortening a leaf here and there to allow more light to reach the fruit is, of course, allowable, and serves a useful purpose. When tomatos are planted a reasonable distance apart and all lateral growth suppressed there should be little need for the removal of leafage. With outdoor tomatos the case is somewhat different, for in the autumn such plants often carry a large number of unripened fruits. Under any circumstances such fruit cannot long remain unprotected, consequently almost all the foliage may be cut off at the end of the season, so that the remaining fruit may be ripened, as far as possible, ere cold nights compel the grower to cut them, and place them in a pit or greenhouse to finish. Spraying the flowers of tomatos would assist fertilisation, but such a practice is unnecessary and not good for the plants. A rabbit's tail is a useful article for transferring the pollen from anther to stigma in cases where a difficulty is experienced in obtaining a good set of fruit.

Diseased Leaves on Mdme. Carnot Chrysanthemums.—J. S., Slough: The leaves are suffering from a weakness peculiar to the variety and from which it seldom escapes entirely in any collection. Mr. W. H. Lees writes that the cause is not easily defined, and though attributed variously during the past few seasons subsequent experience has proved that we have not yet hit upon the exact cause. For about eighteen inches up the stem we lose no leaves, then, like your correspondent's samples, our leaves go yellow here and there, in some cases whole leaves have to be removed, in others only part of the leaf. The trouble commenced this year about June 20 and ceased about July 10, and we do not anticipate losing any more leaves, in fact, those partially affected have regained a healthy tone. Half our plants are quite sound and we have given a little weak liquid cow manure and soot to stimulate those affected. Late propagated plants escape the disease best but I do not recommend this practice if large blooms are desired. The whole family of sports have suffered more or less, but previous years' experience is, as above stated, that the trouble does not last long and has not appeared to effect the ultimate results. Feed the plants gently if they have plenty of roots, and once a week a very weak solution of sulphate of iron will help, but extreme care must be taken that the dose is not more than half an ounce to one gallon of water.

Paraffin Emulsion for Caterpillars.—G. P., Tewkesbury: The American prescription for a paraffin emulsion to be used for the destruction of catterpillars and other fruit tree pests is as follows: Use one-fourth of a pound of hard soap, preferably whale-oil soap, and one quart of water. This is heated till the soap is dissolved, when one pint of kerosine oil is added, and the whole agitated till a perfect mixture of emulsion is formed. The agitation is easily secured by use of a force pump pumping the liquid with force back into the vessel holding it. Water is then added so that there shall be kerosene in the proportion of one to fifteen; or, kerosene, one pint; common laundry soap, half-ounce; rain water, half pint. The soap is boiled in the water till all is dissolved, then the boiling soap-suds are poured into a watering pot containing the kerosene, and churned with a garden syringe until the emulsion is complete. This generally takes about five minutes, sometimes longer. When this emulsion is made, it can be bottled up for future use. When using it, either as a wash for sponging trees or for spraying, it must be diluted with nine times its quantity of water. Should the oil in the emulsion after a time separate, it is well to warm it, and by violently shaking the bottle it will again become fit for use. In diluting the emulsion use warm water. Soft soap and paraffin oil makes a capital wash for hops, and is a desirable mixture to apply to the bark of fruit trees. The proportions for large quantities are—soft soap twelve pounds, and paraffin oil, half-gallon, to one hundred gallons of hot water. The nearer to boiling the water is used, the better the paraffin mixes. This mixture should be stirred well together and used when cool.

Budding Roses.—R. S. C., Tunbridge Wells: To bud roses is in itself a very simple matter, and by careful attention to the few necessary details, an amateur may obtain a large measure of success after a little practice. Whether the stock be the hedgerow, or cutting brier or the mannetti, it should be clean and nicely furnished with roots. Cutting briers and mannetis usually have sufficient roots, but briers from the hedgerow are frequently indifferently furnished with them. Briers should always be planted in soil prepared precisely the same as for roses, and the budding done at the end of June, or as early in July as the bark parts readily from the wood. Remove nearly, if not all but the two shoots to be budded early in June, and in budding them, make an incision in the upper side from *a* to *b*, as shown at A. Then from a shoot of the variety with which the stock is to be budded, take off a shield-shaped portion as at B. When first removed, the bud will be of the shape shown at *d*, and in its preparation cut off the top at *c*, and remove the portion of wood; if there is a hole at *d*, the bud will have been removed with the wood, and the shield rendered worthless. The bud being ready, lift the bark on either side of the incision with the handle of the budding knife, slip the bud in, and make it secure by binding it with cotton or bast, as in C.



BUDDING ROSES.

A, shoot with cross-cut *a* to *b*; B, bud; C, shoot with bud inserted and bound with bast; *d*, back of bud.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

J. T., Birkenhead: 1 and 6, see next week; 2, Quercus Ilex; 3, Galium verum; 4, Trifolium arvense; 5, Allium scorzonerifolium.

H. C., Hants: 1, Veronica incisa; 2, send when in flower; 3, Alstrœmeria aurantiaca; 4, Agrostemma coronaria; 5, Oncidium pulvinatum.

F. A. R., Royston: Lathyrus sativus; quite a common plant.

A F. T., London, N.: 1, Hemerocallis fulva; 2, Pyrethrum Parthenium fl.-pl.

H. B., Ipswich: 1, Poa cæsia; 2, a scirpus, not recognisable without flowers; 3 and 4, send again when flowering.

J. W. W., South Ealing: Ligustrum japonicum.

H. C. B., Battle: Dictamnus albus var. purpureus.

J. M., no address sent: Inula britannica.

F. H., Sudbury: Two varieties of the pallida section of German irises. We do not undertake to name florists' varieties, such as these irises, but would probably have supplied the names but that the varieties are over in the South of London, and there is no ready means of identification.

W. J., Brentwood: 1, Maranta zebrina; 2, Sedum arboreum variegatum; 3, Kleinia pugioniformis; 4, Lippia citriodora; 5 and 6, Gasteria and Mesembryanthemum respectively; send when in flower; 7, Symphoricarpus racemosus.

C. W., Knebworth: 1, Philadelphus coronarius; 2, Erigeron speciosum; 3, Hieracum aurantiacum; 4, Lagurus ovatus; 5, Lavatera arborea; 6, Galega officinalis.

S. T., Durham: 1, Empetrum nigrum; 2, Calochortus pulchellus; 3, Sedum deltoideum; 4, Nephrodium molle corymbiferum; 5, Cassia florida.

H. C. H., Ringwood: 1, Cotoneaster microphylla; 2, Lilium Martagon purpureum.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

A. G., Frome: The specimen was rather too ripe when sent, and was badly split upon receipt. It appears, however, to be a large example of Lord Napier nectarine.

Fruit Trees and Drought.—"Lux," in a recent Morning Mixture, comments on Mr. Fish's remarks respecting the effect of drought on fruit trees, and he makes the astonishing inquiry, When have we had a more saturating spring than this year? Evidently "Lux" must reside in a much moister neighbourhood than some of us at South Bucks. I could easily prove to him that in this district at least it has been the dryest winter and spring that has been known during the past forty years, and that ponds and wells never before known to fail are now quite dry. In my opinion both fruit and coniferous trees are suffering from insufficient moisture at the roots, and have been for some time past, and this, combined with the cold spring, has been responsible for the "disastrous sweep of all classes of orchard fruit" this year.—SOUTH BUCKS.

OBITUARY.

MR. EDWIN THORNE died, we regret to learn, at his residence, Chalfont Kingston Road, Oxford, on Sunday evening, July 17, after an illness nine weeks, traceable to a strain produced while thinning grapes. Deceased, who was in his sixty-fourth year, was an enthusiastic amateur horticulturalist, having received more premier prizes than any other exhibitor in the section at the Oxford shows for roses, fuchsias, zonal geraniums, and He was the son of a farmer at Bloxham, near Banbury, and, as a youth, was in the town clerk's office, Banbury, being afterwards elected to the position of butler at Wadham College, Oxford, which office he creditably sustained up to the period of his death. For several years he was on the committee of the Royal Oxfordshire Horticultural Society, and had been vice-chairman of the society during the past four or five years. While at Banbury he became an onion grower, and his specimens at the Oxford shows were always finely finished bulbs. He was also a clever cultivator of celery, carrots, parsnips, and potatos. He leaves a widow, five daughters, and three sons.

MARKETS.

Covent Garden.

THE market is now well supplied with a large variety of good fruit and There is a steady business in all departments, and prices are moderate, strawberries, which are rather dear.

FRUIT.—Strawberries, 2s. to 4s. 6d. per peck; 3s. to 6s. per dozen raspberries, 4s. to 5s. per dozen punnets; cherries, 3s. 6d. to 8s. 6d.; black 5s. to 6s. 6d.; red, 3s. 6d. to 4s. 6d.; gooseberries, 2s. to 3s. per half-sieve; grapes, 1s. to 2s.; Jersey, 10d. to 1s. 6d. per lb.; English tomatos, 4d. to 6d.; 3d. to 4d. per lb.; Spanish, 10d to 1s. 4d. per box; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 4s. 6d. each; lemons, 6s. to 16s. per case; French apricots, 5s. to 8s. per dozen boxes; French peaches, 1s. to 2s. per box; English, 2s. to 8s. per dozen; green figs, 2s. to 4s. per dozen; French greengages, 1s. to 1s. 6d. per box.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 1s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; (scarlet), 4s. to 6s.; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; gladiolus, 6d. to 9d; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—English onions, 2s. to 3s. per dozen bunches; ports, per case; peas, 1s. 6d. to 2s. 6d. per bushel, 2s. 6d. to 4s. per bag; per bushel; French beans, 2d. to 3d. per lb.; 2s. to 3s. per flat; to 8s.; garlic, 3s. to 3s. 6d. per 12 lb.; turnips, 3s to 4s.; carrots, 3s. to 1s. to 1s. 6d.; mint, 1s. 6d. to 2s. per dozen bunches; endive, 1s. cucumbers, 1s. to 3s. 6d.; cauliflowers, 1s. to 2s. per dozen; beetroots, cabbages, 3s. to 4s. per tally; Jersey potatos, 4s. 6d. to 5s. 6d.; St. Malo, 5s.; Cherbourg, 4s. 6d. to 5s. 6d.; Kent, 5s. 6d. to 6s. 6d. per cwt.

Borough Potato Market.

The demand continues good, but supplies are daily becoming heavier. Prices are moderate. English kidneys and White Beauties, 5s, to 5s. 6d.; St. Malo, 4s.; Jersey Flukes, 4s. 6d. to 5s.; kidneys, 3s. 6d. to 4s.; Cherbourg Flukes, 4s.; kidneys, 3s. 6d. per cwt.

THE WEATHER DURING THE WEEK ENDING JULY 16, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.		In Inches.	In C
	Fahrenheit.		Fahrenheit.	Centigrade.		
London	82·0	46·5	61·9	16·61	0·02	[illegible]
Croydon	80·5	41·5	59·6	15·33	0·00	[illegible]
Brighton	76·2	46·8	59·3	15·17	0·02	[illegible]
Bristol	76·0	45·0	59·5	15·28	0·00	[illegible]
Wolverhampton	76·0	41·8	57·8	14·33	0·00	[illegible]
Norwich	75·8	41·2	57·0	13·89	0·11	[illegible]
Nottingham	78·0	42·5	58·0	14·44	0·00	[illegible]
Liverpool	67·4	49·6	57·3	14·06	0·00	[illegible]
Huddersfield	74·2	47·0	58·0	14·44	0·00	[illegible]
Bradford	81·2	50·1	61·2	16·22	[illegible]	—
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·98 inches, and that **of the Thermometer** 61°·9, the latter being 0°·8 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 1 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright **sunshine in the week was** 52·0 **hours.** The measured rainfall amounted to 0·02 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JULY 26.—Royal Horticultural Society: Committees meet at 12 o'clock; 3 p.m. on "Economic Uses of Bamboos," by A. B. Freeman-Mitford, Esq., C.B.
National Cactus Society: Exhibition to be held at the Drill Hall, St. James's Street, Westminster, in connection with the R.H.S.
Tibshelf Horticultural Society.
WEDNESDAY, JULY 27.—Brightstone (I. of W.) Flower Show.
Highclere Horticultural Society.
Beckenham Horticultural Society.
THURSDAY, JULY 28.—Leigh and Bransford Horticultural Society.
Bedale Rose Show.

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  Roots
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Tea Roses for Market
The Alpine Auricula
Weather
Work for the Week

ILLUSTRATIONS.

Diseased Branch of Fig Tree
Lilium Rubellum
New Alpine Auricula Apollo (Douglas)

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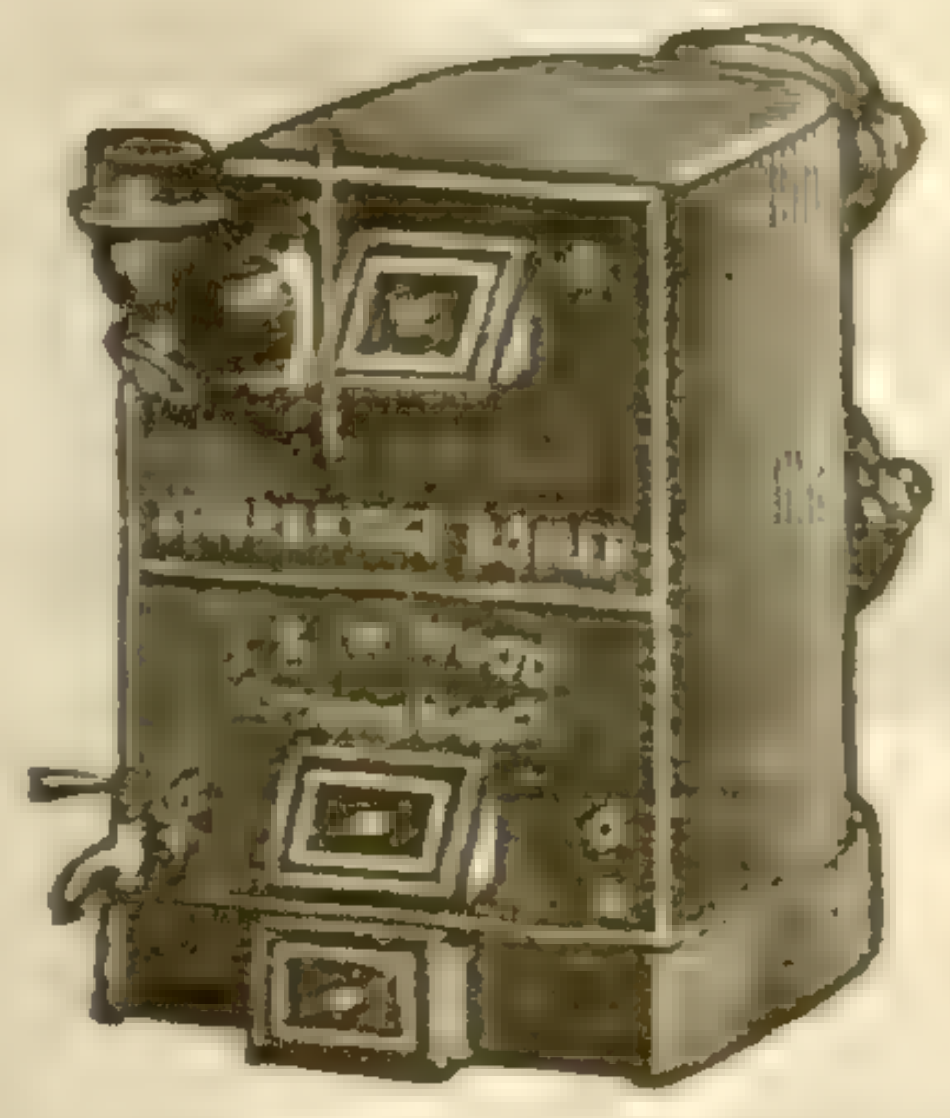

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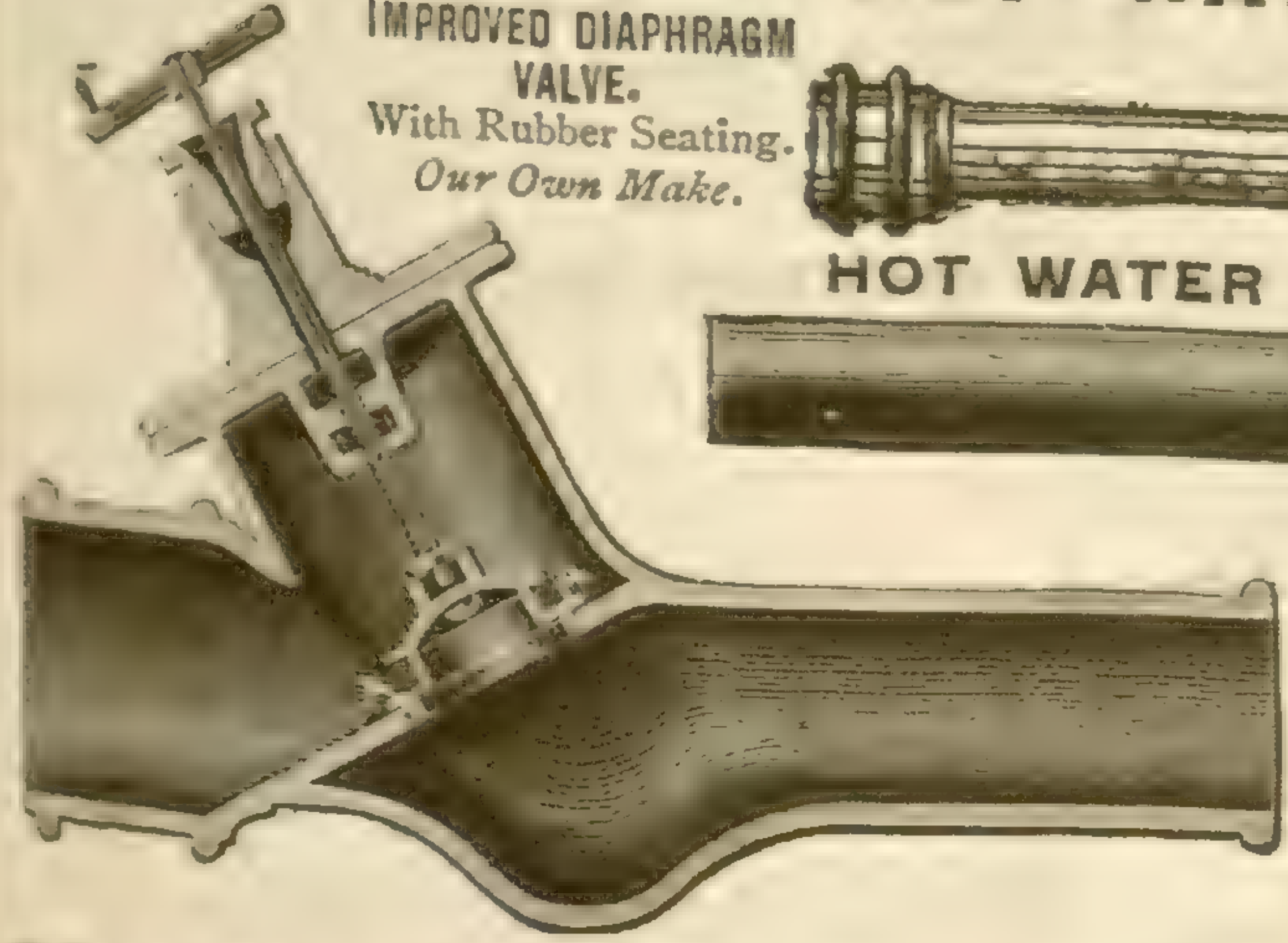

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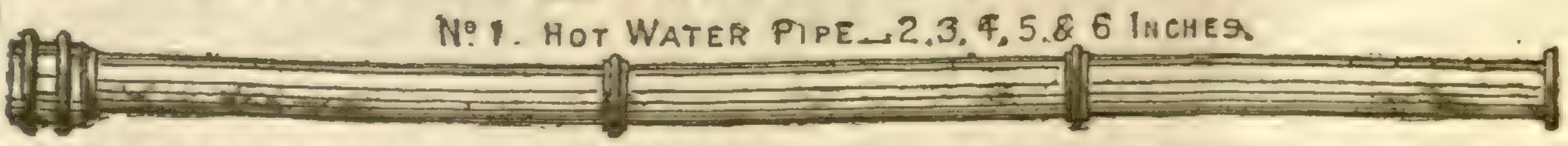

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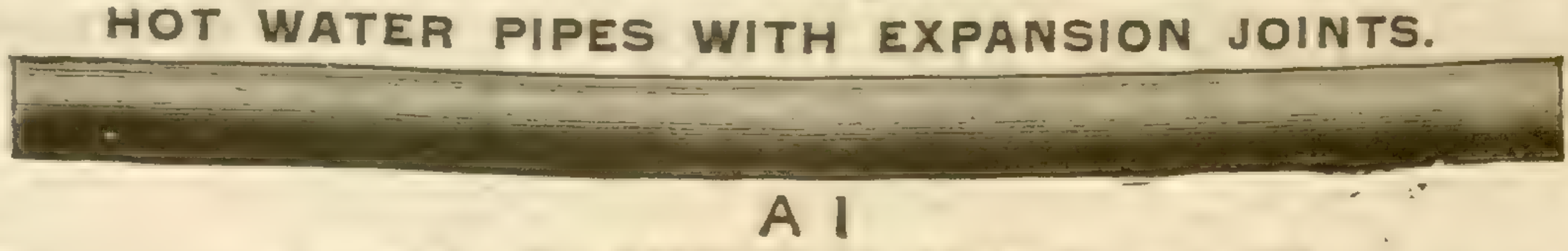

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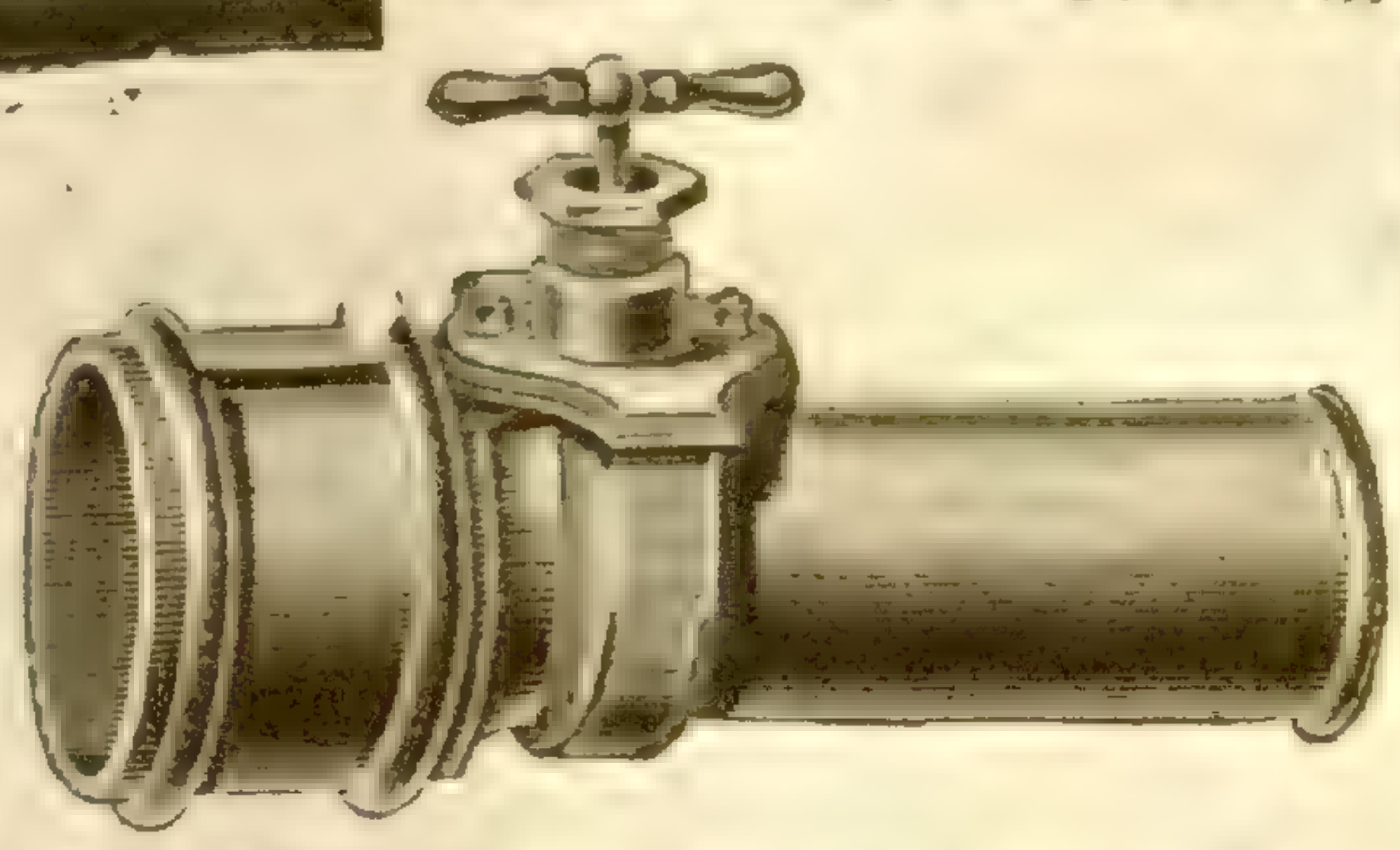

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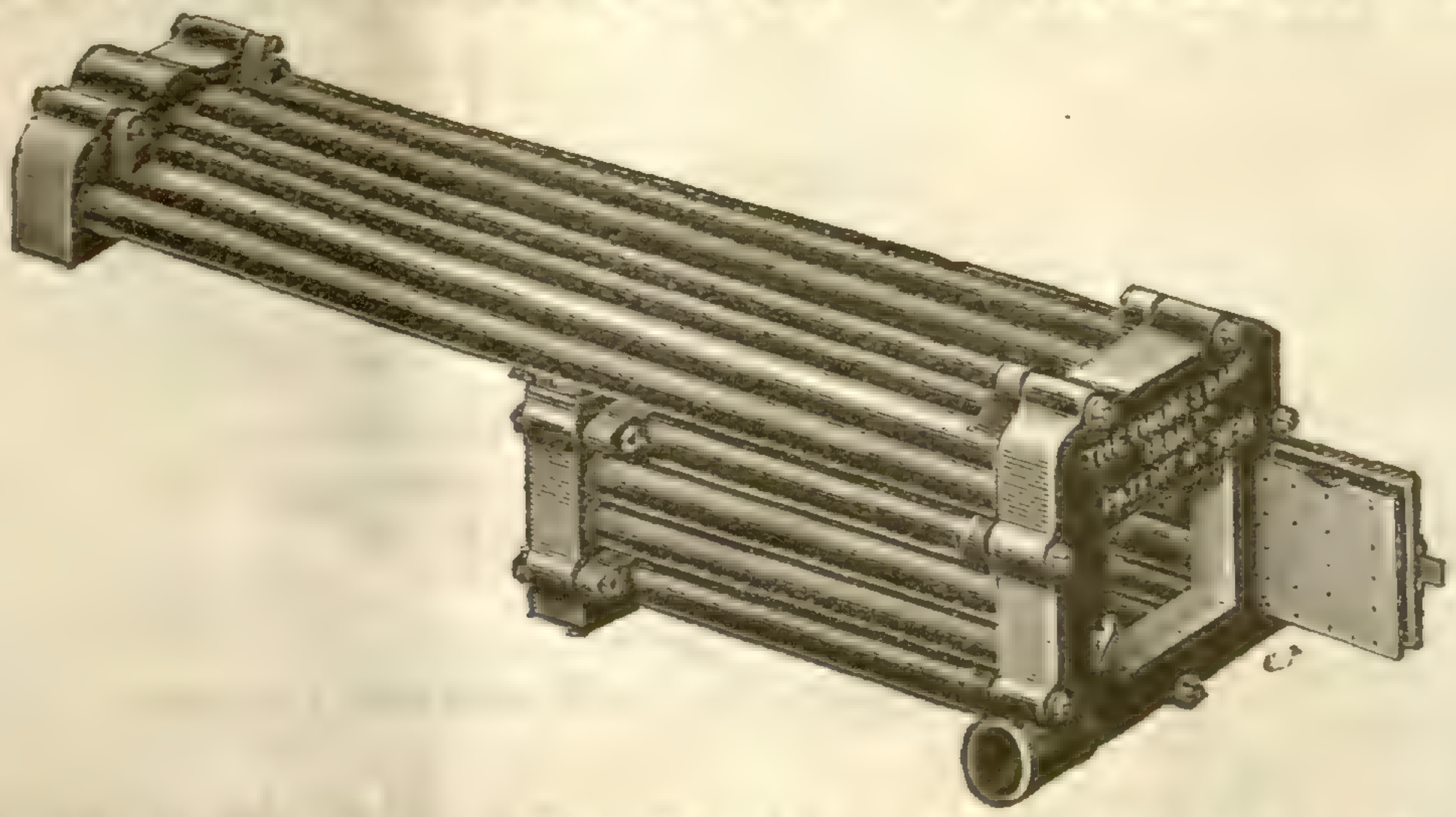

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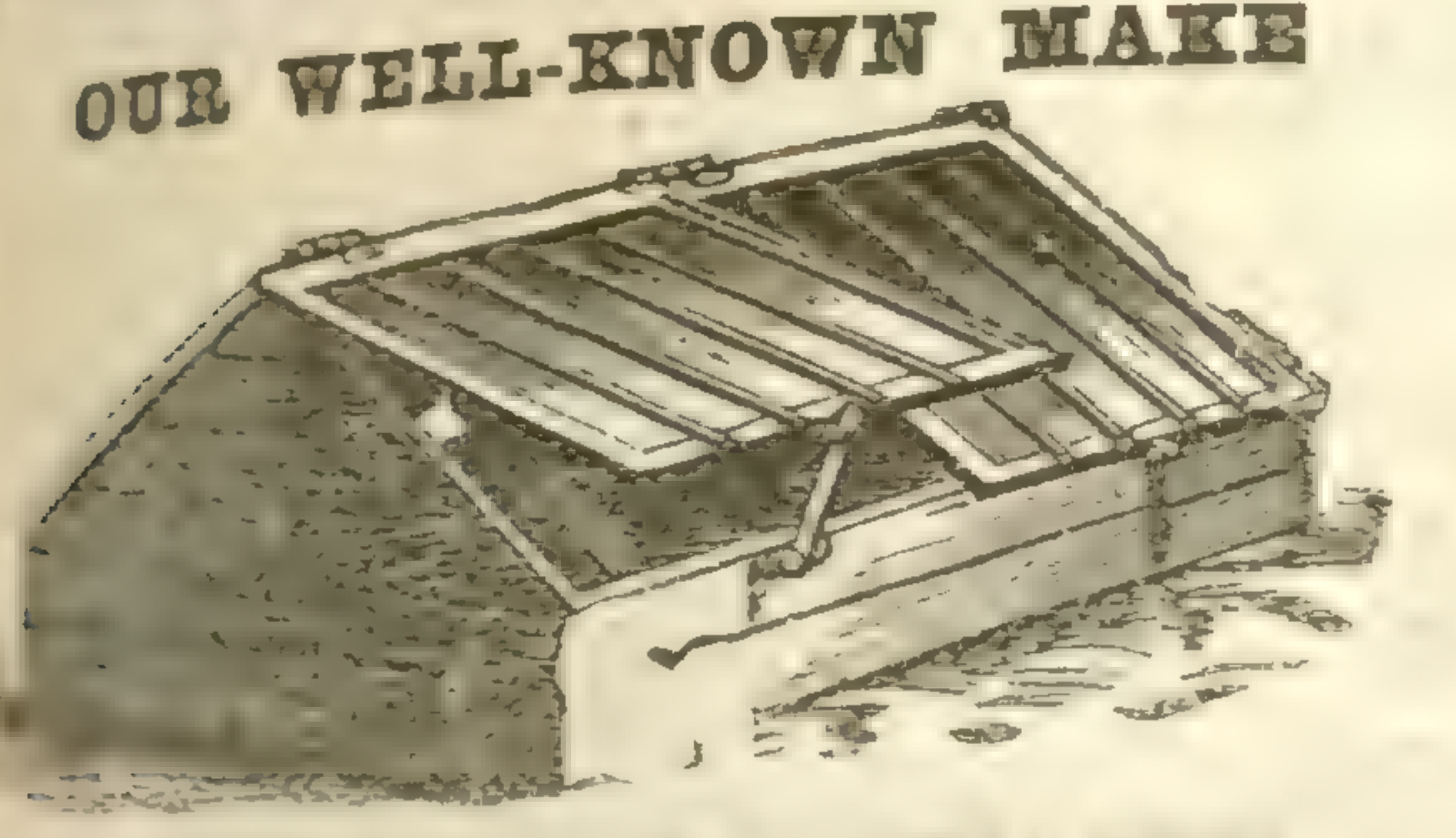

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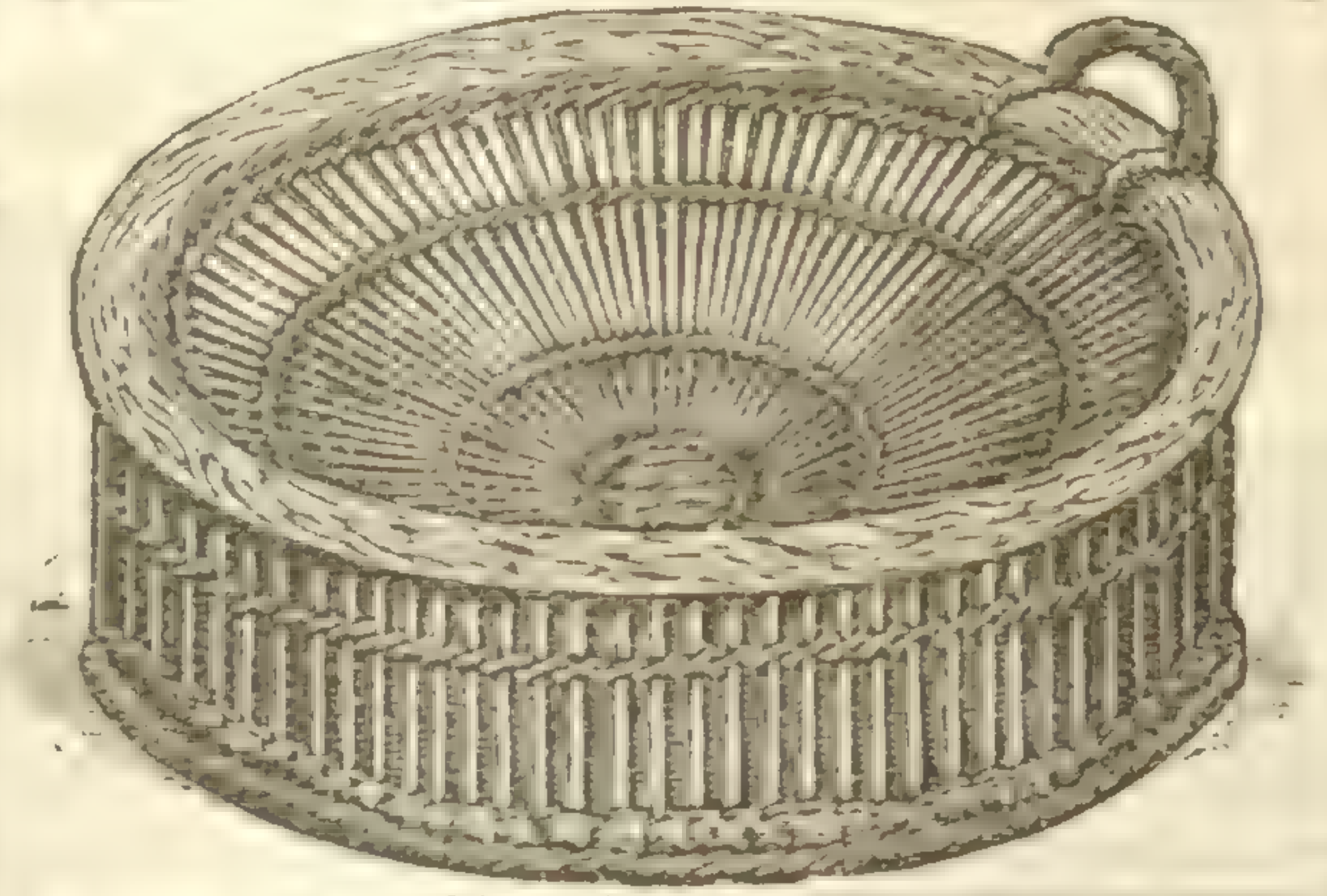

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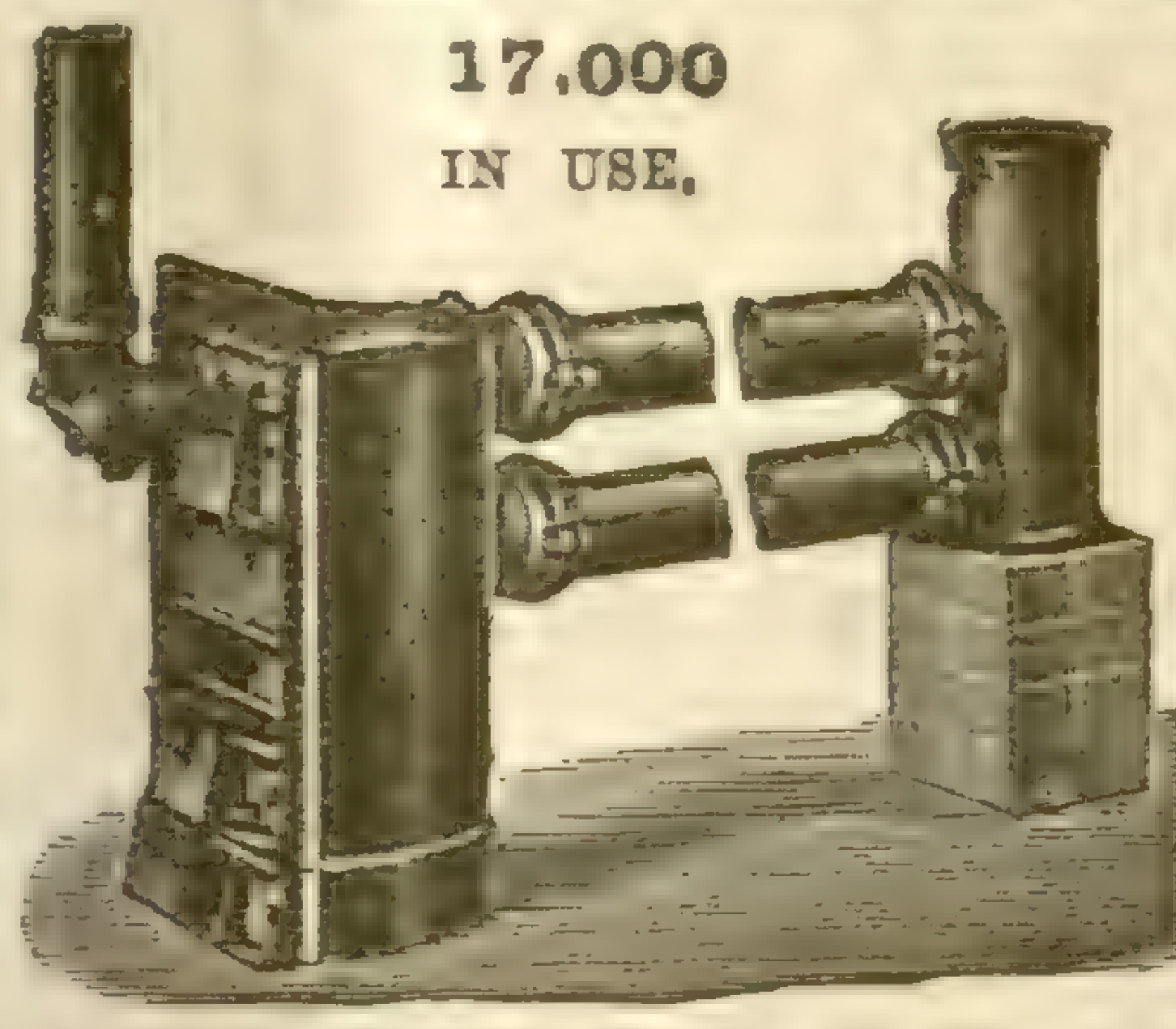

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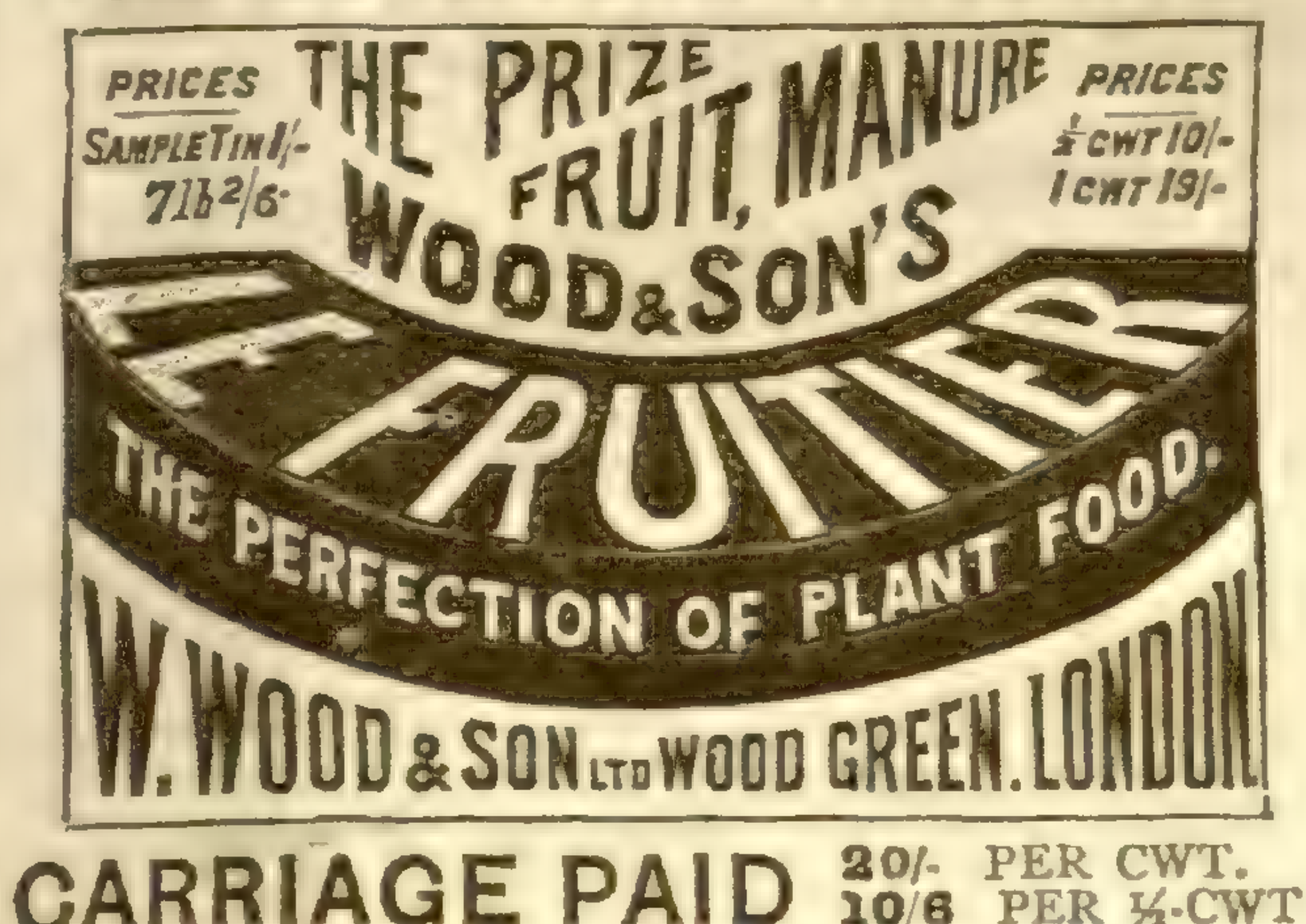

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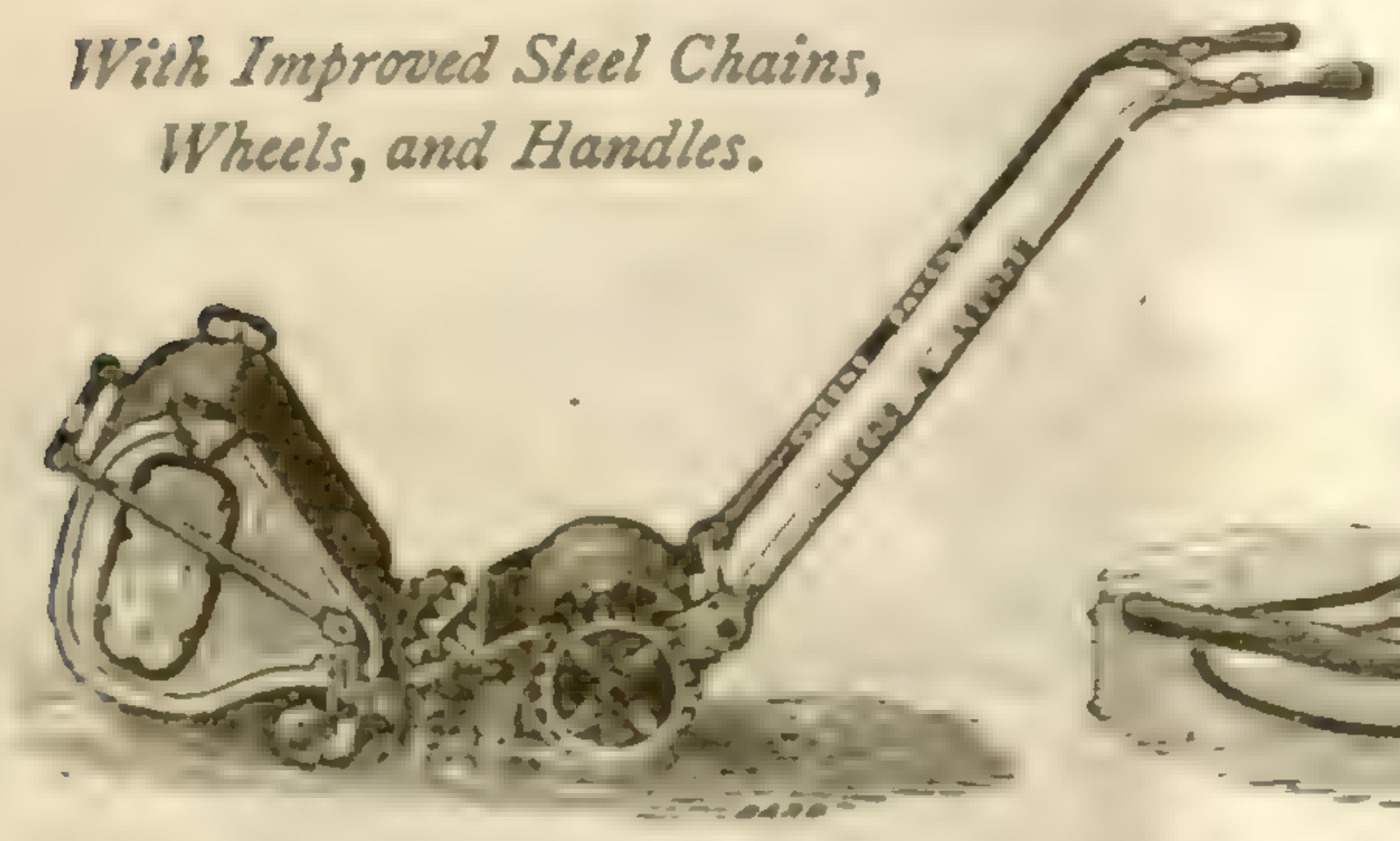

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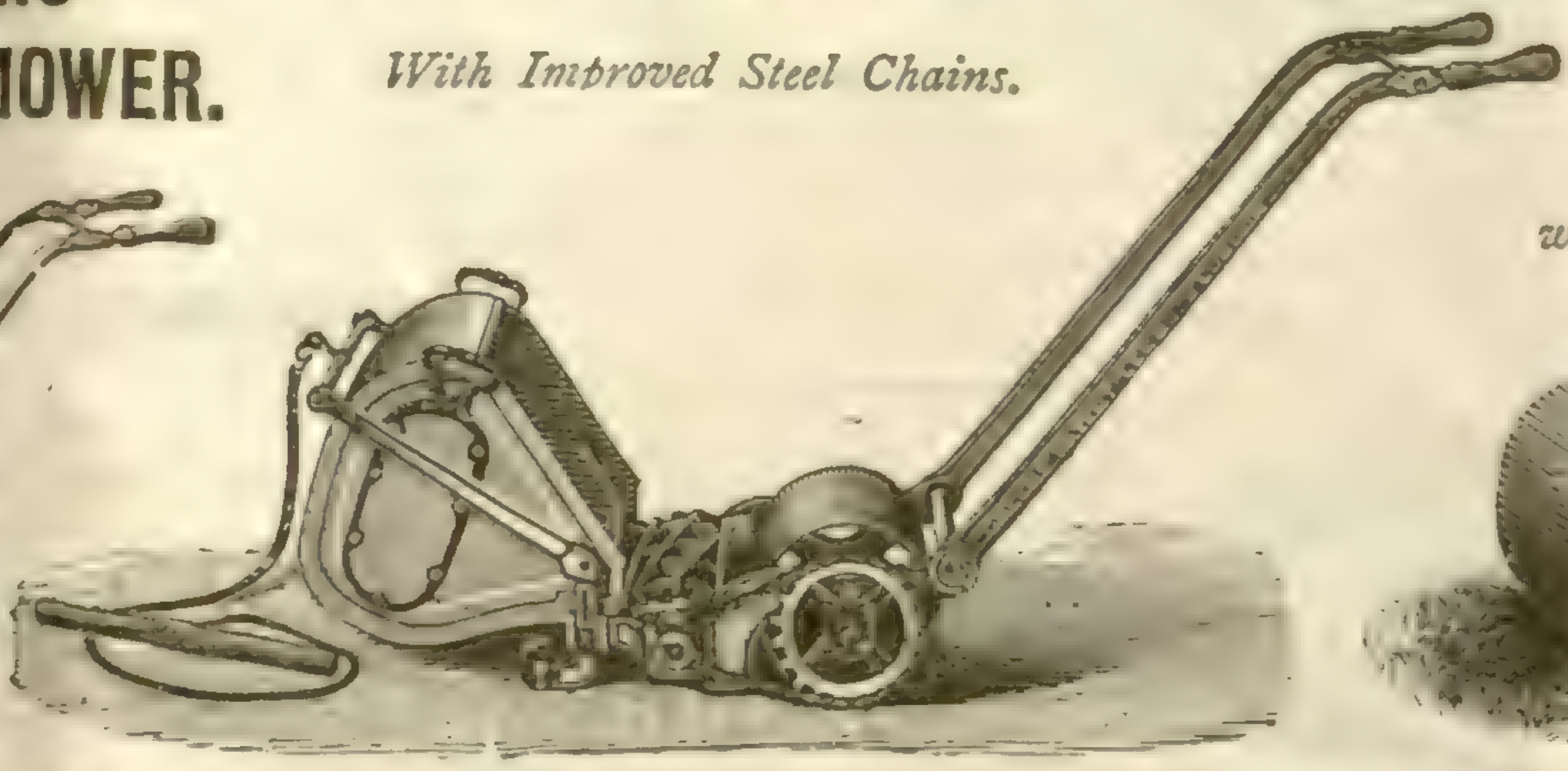

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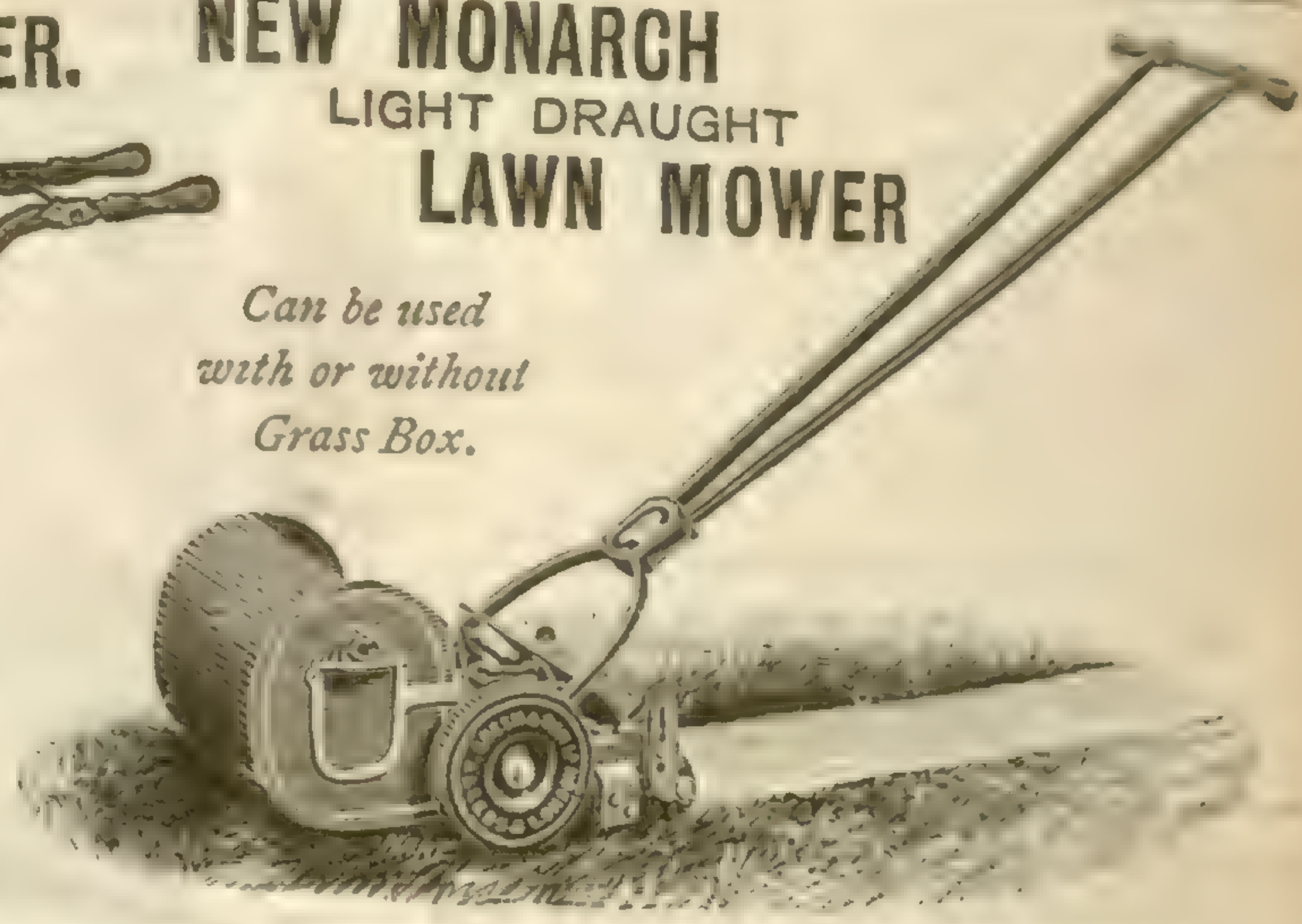

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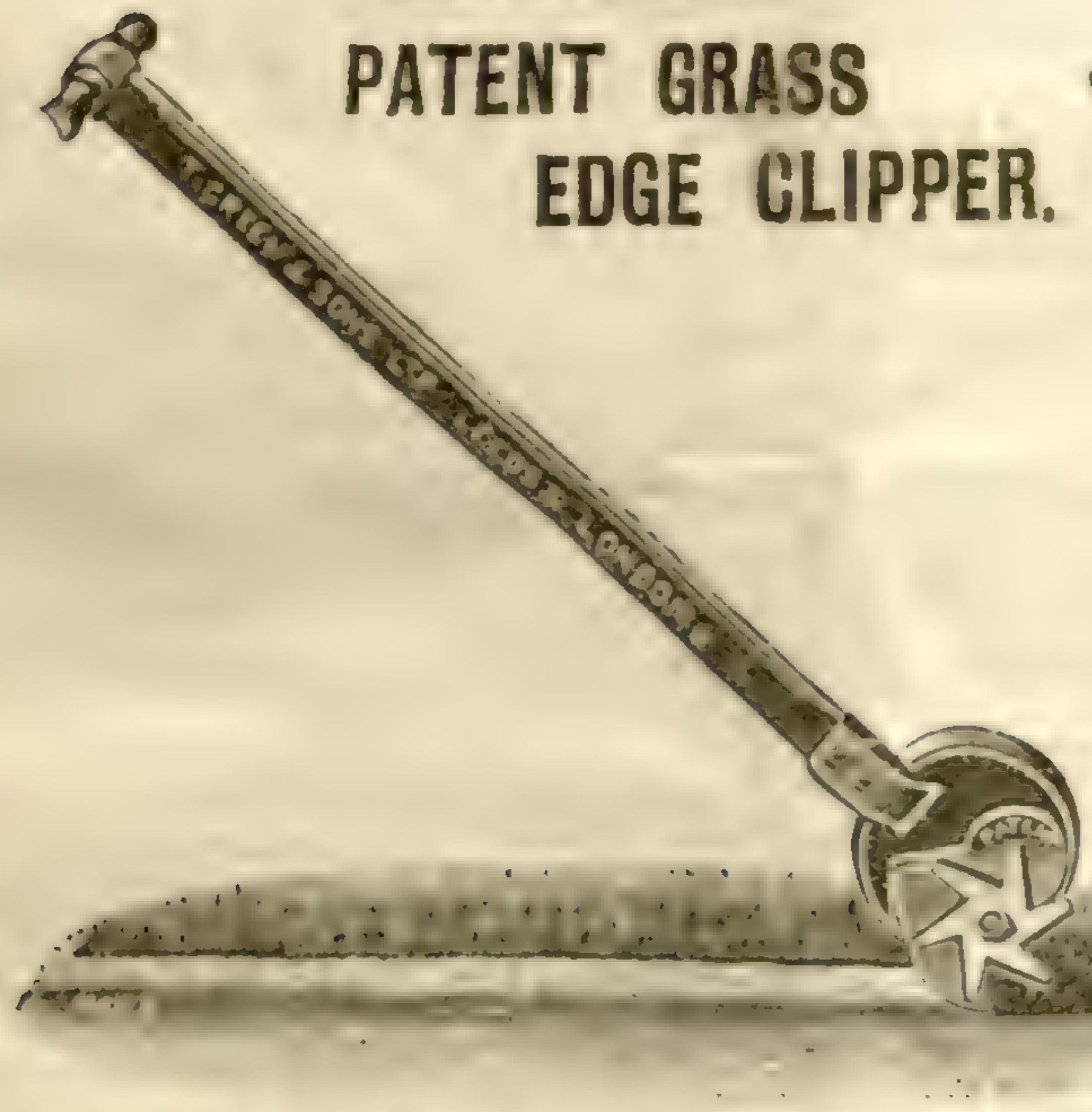

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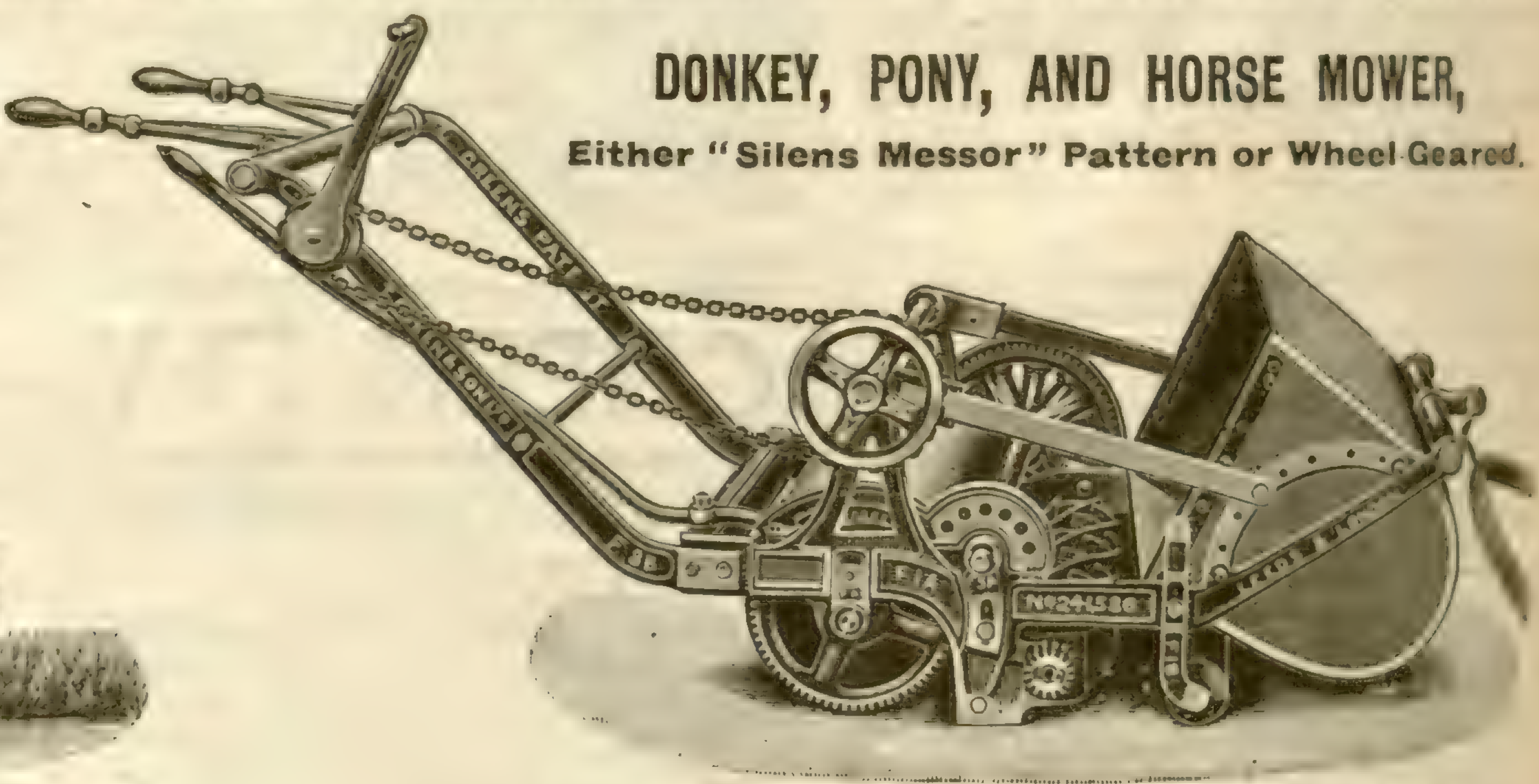

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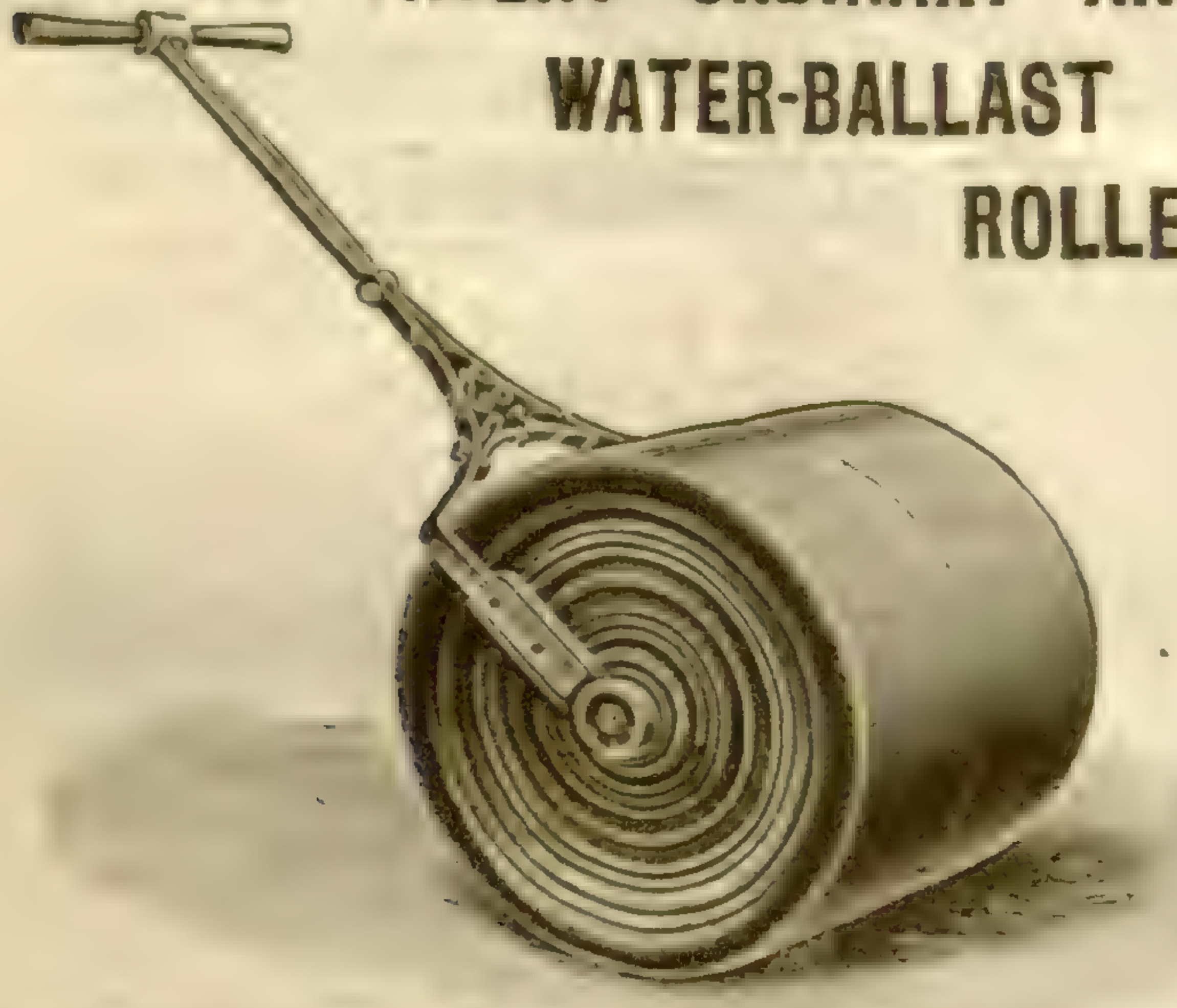

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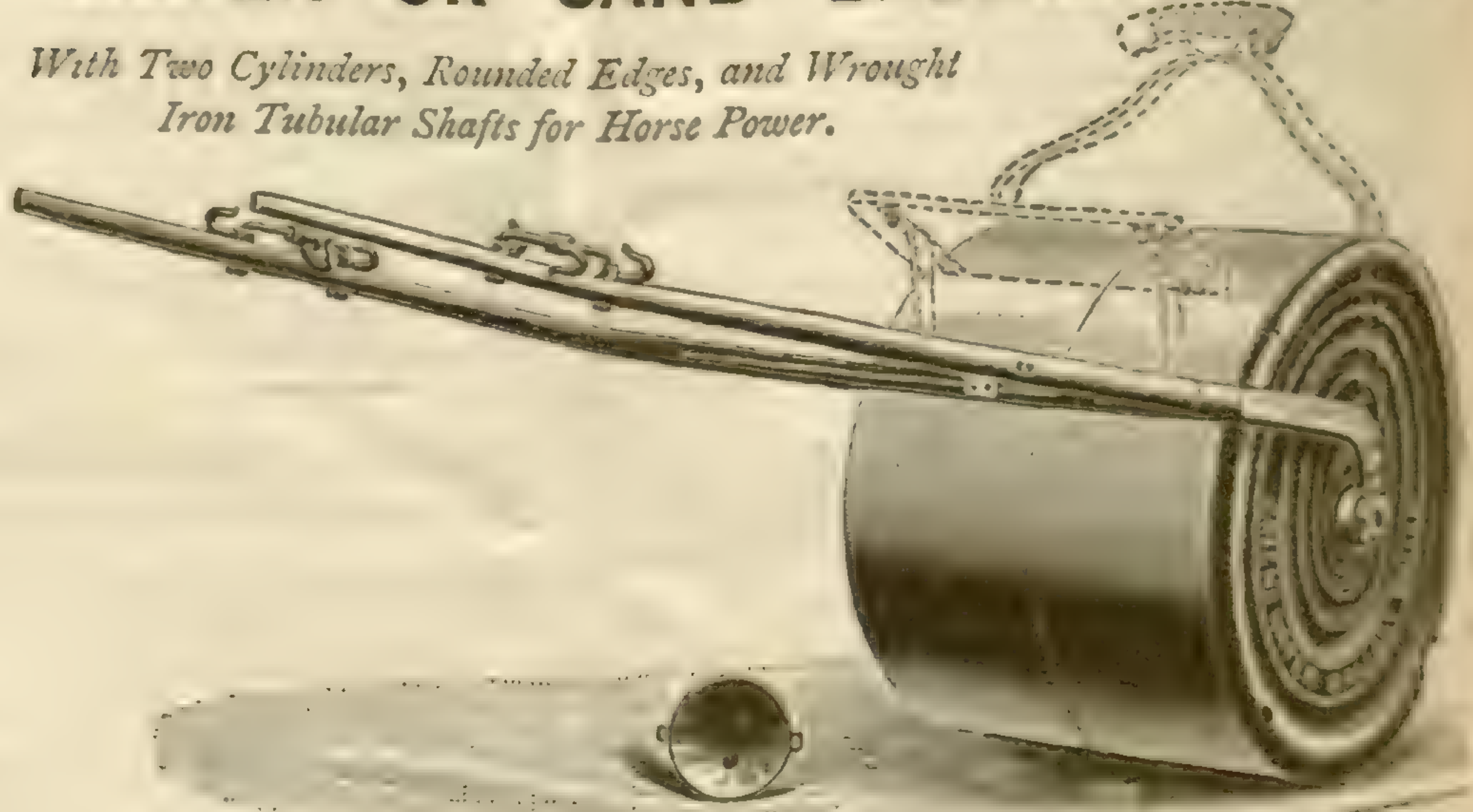

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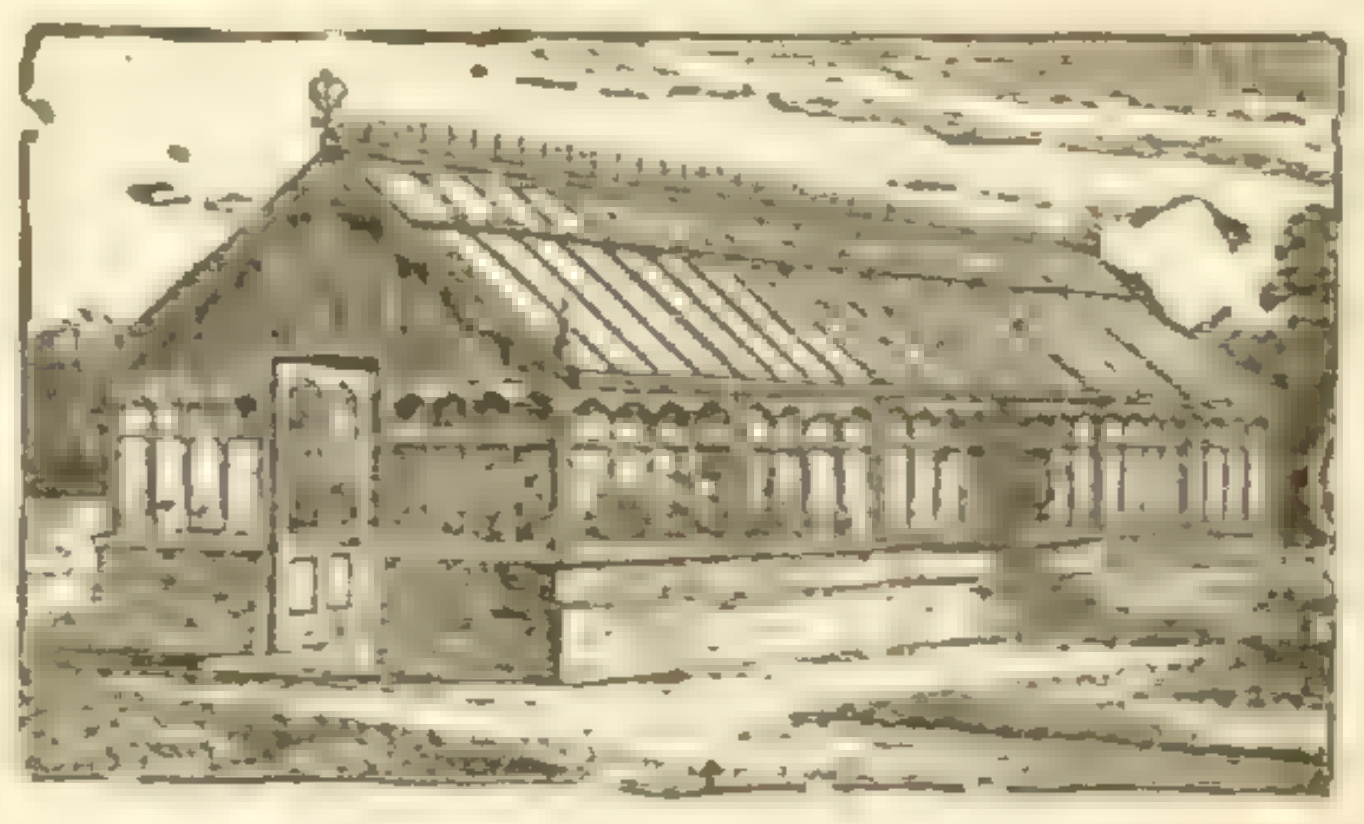

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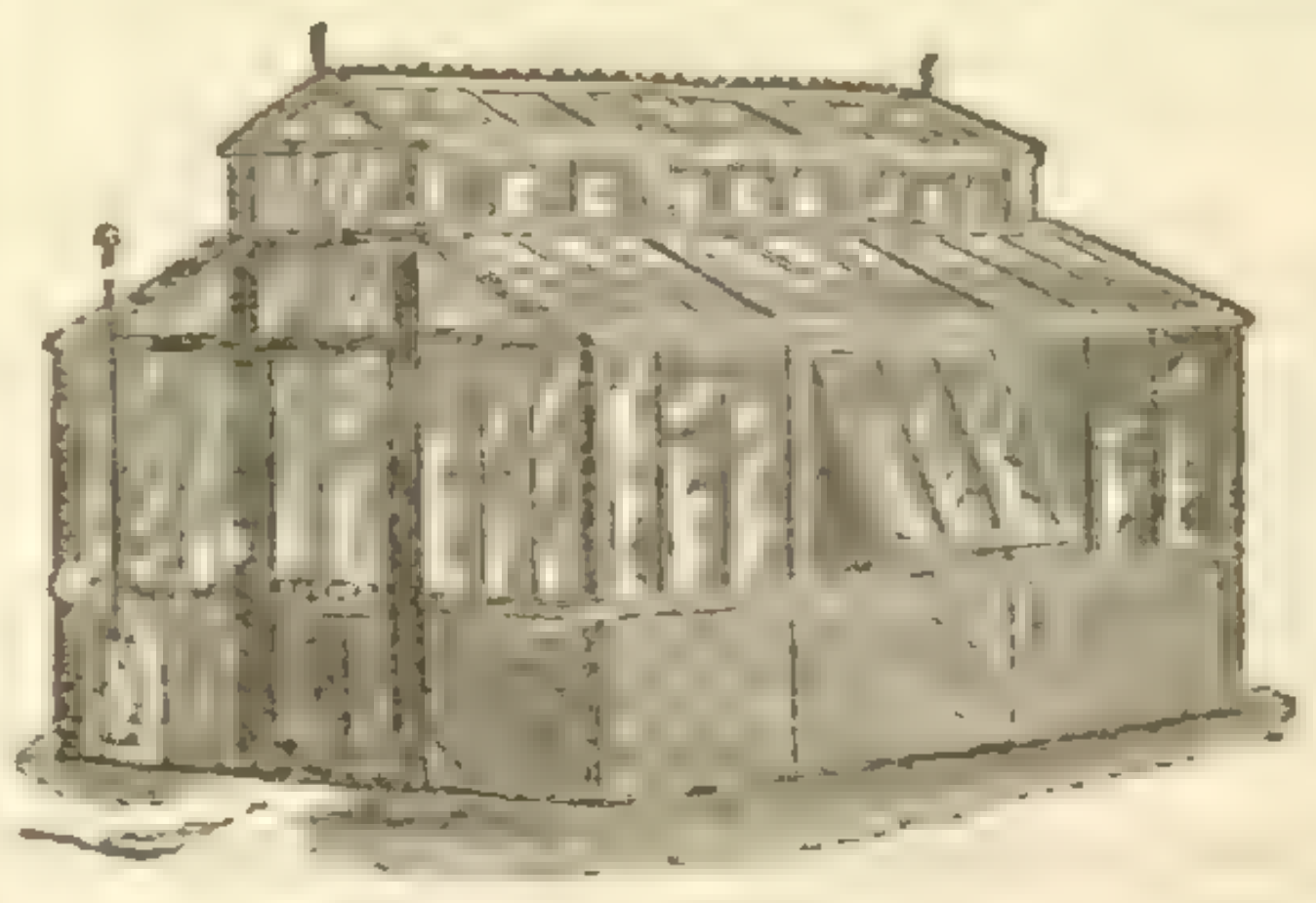

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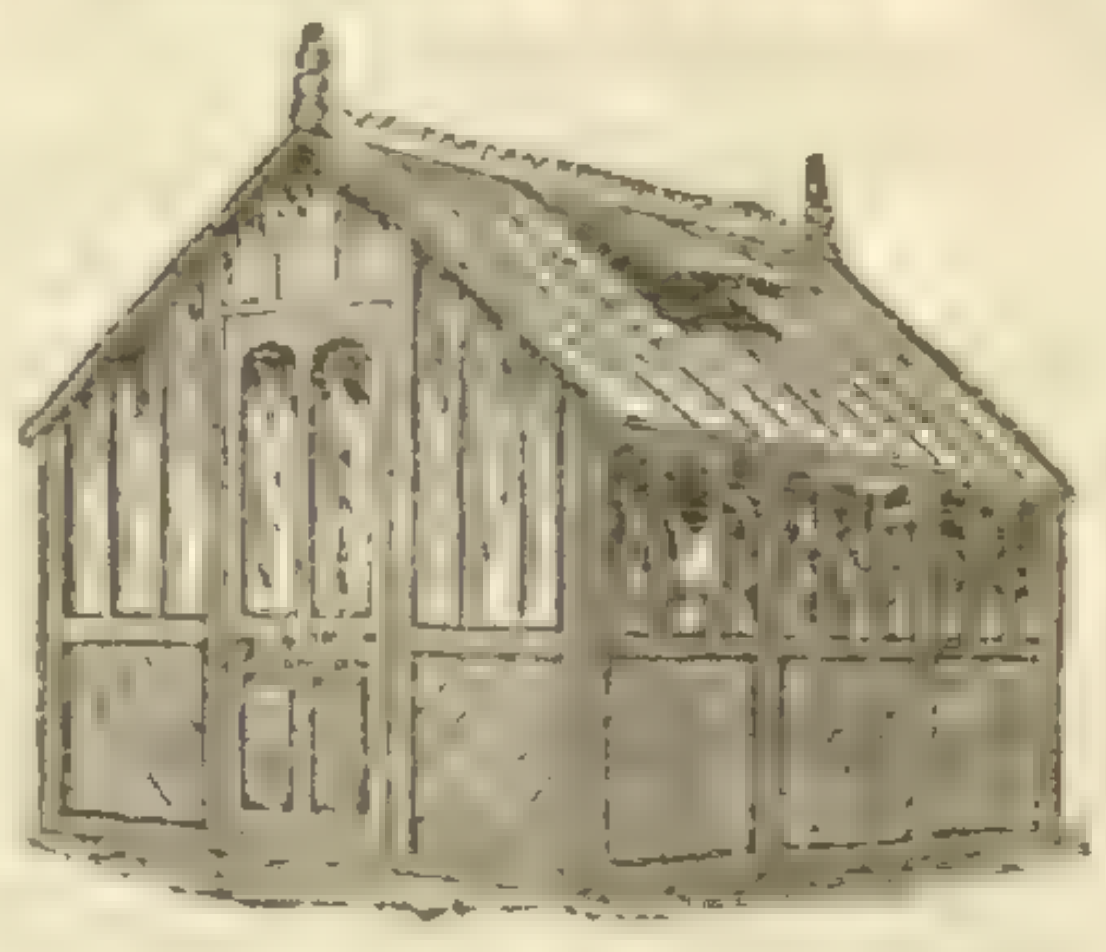

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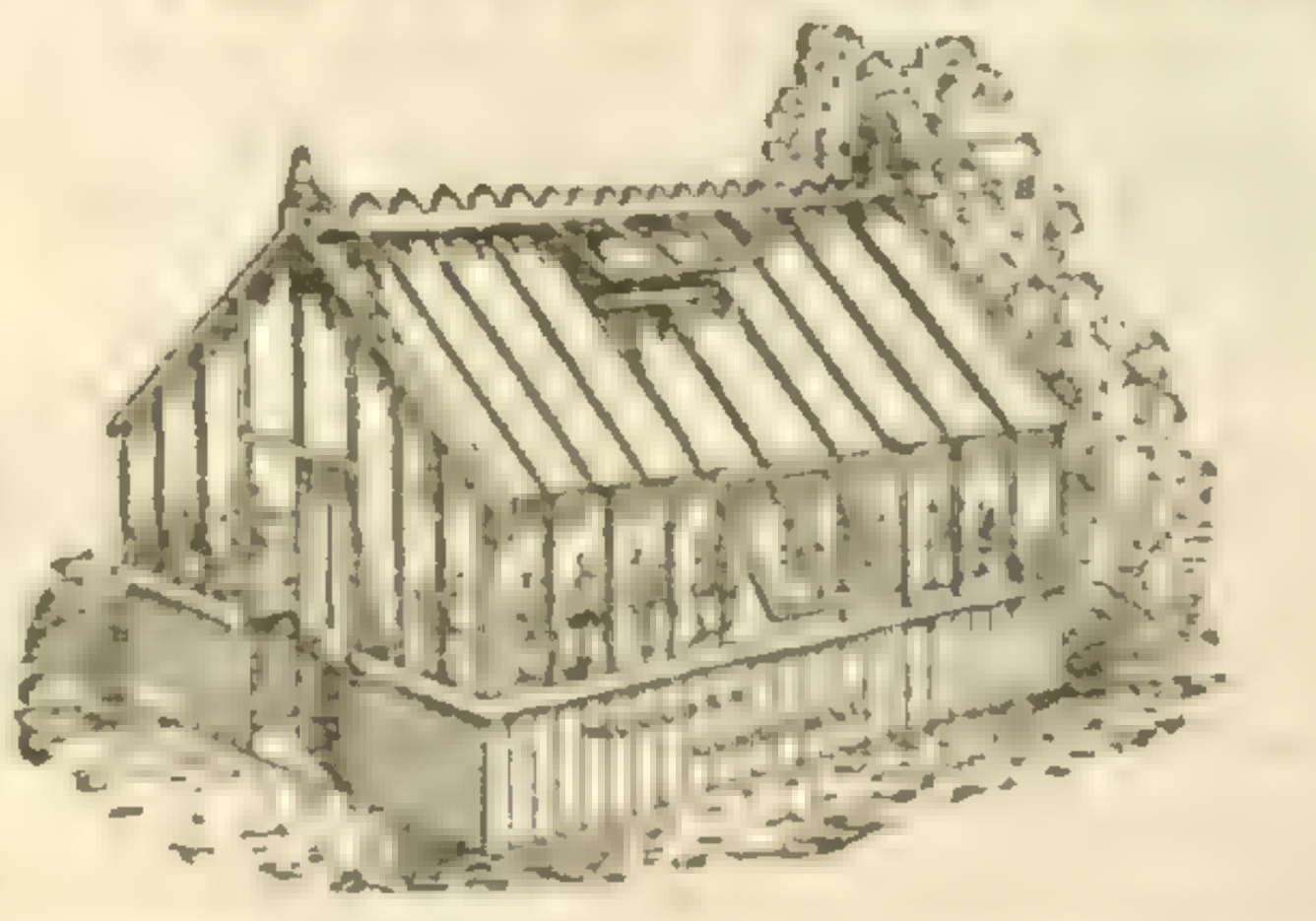

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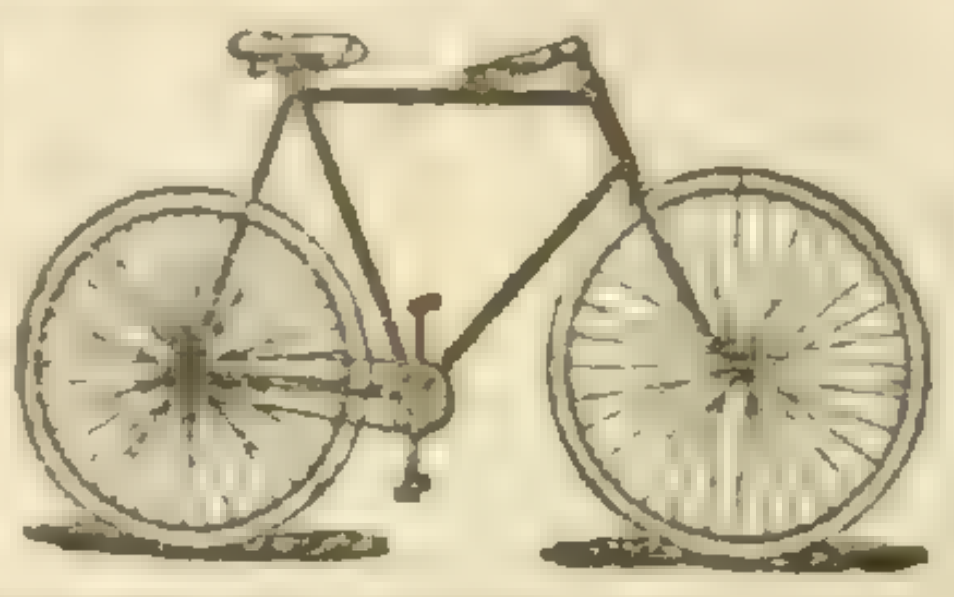

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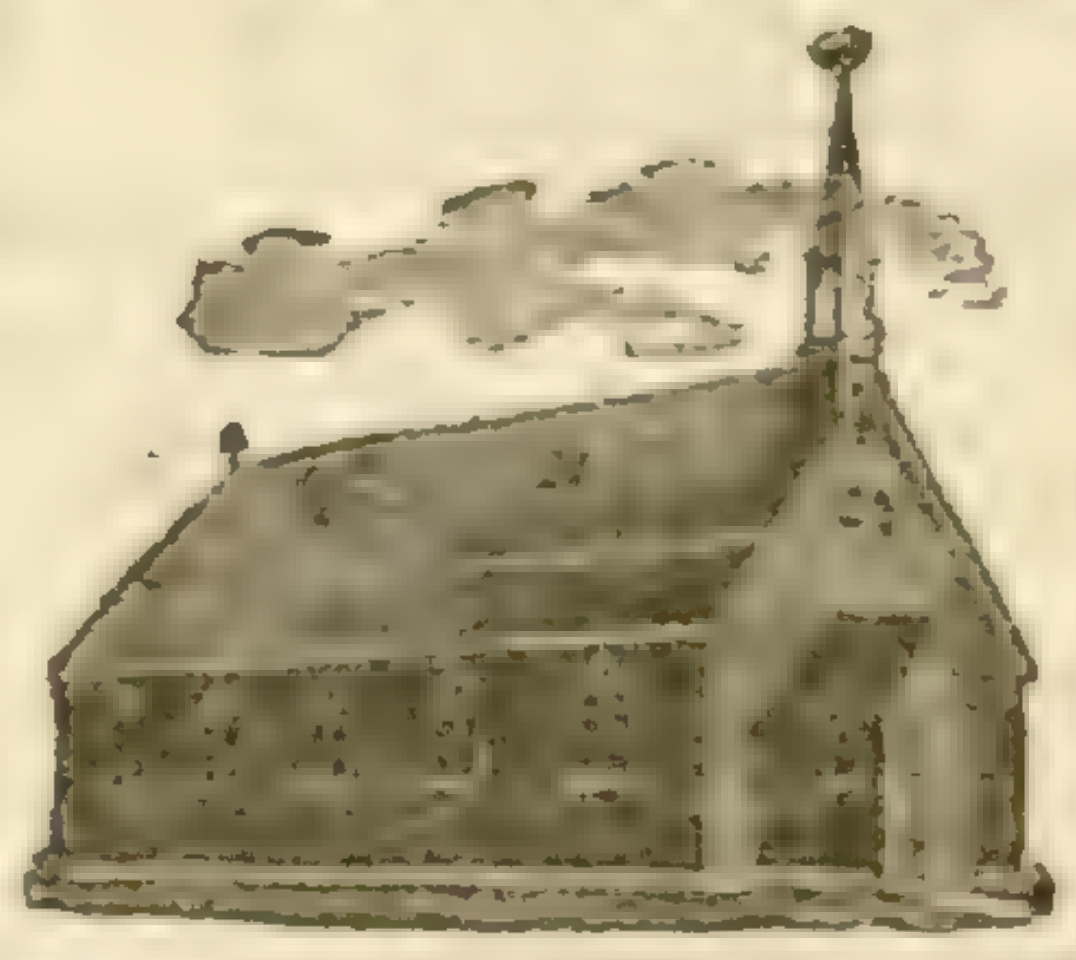

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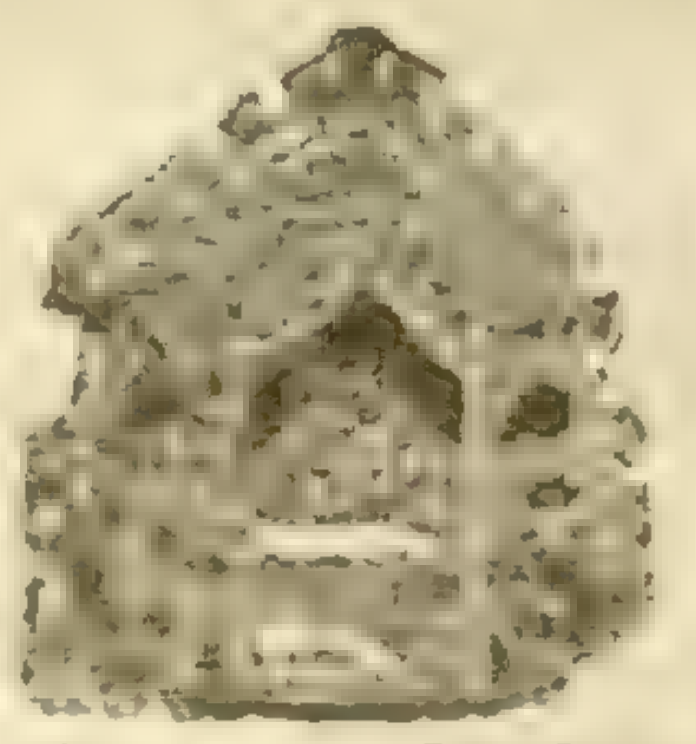

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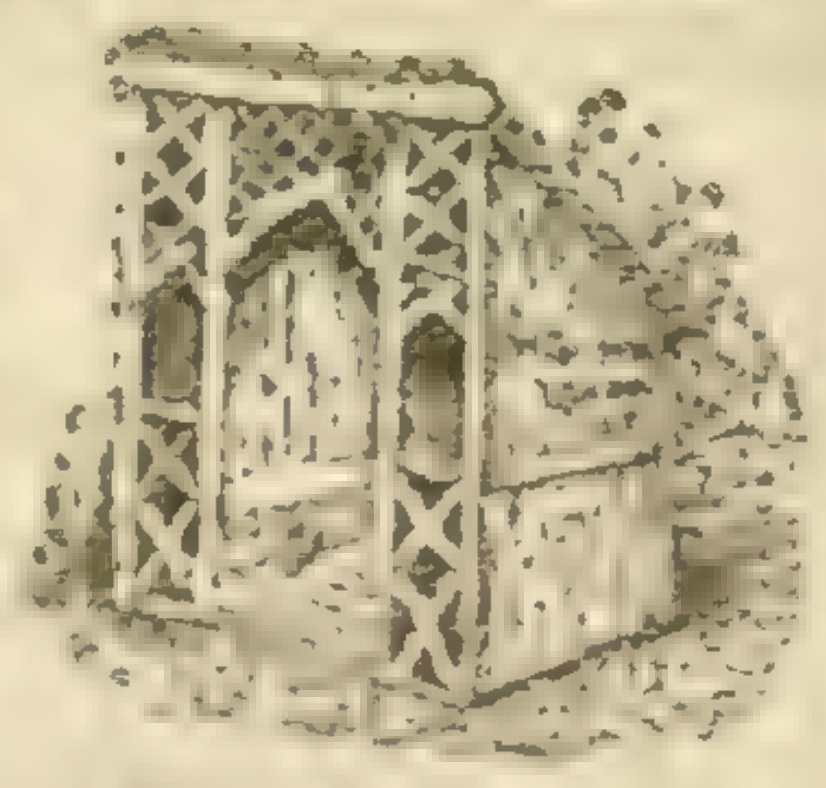

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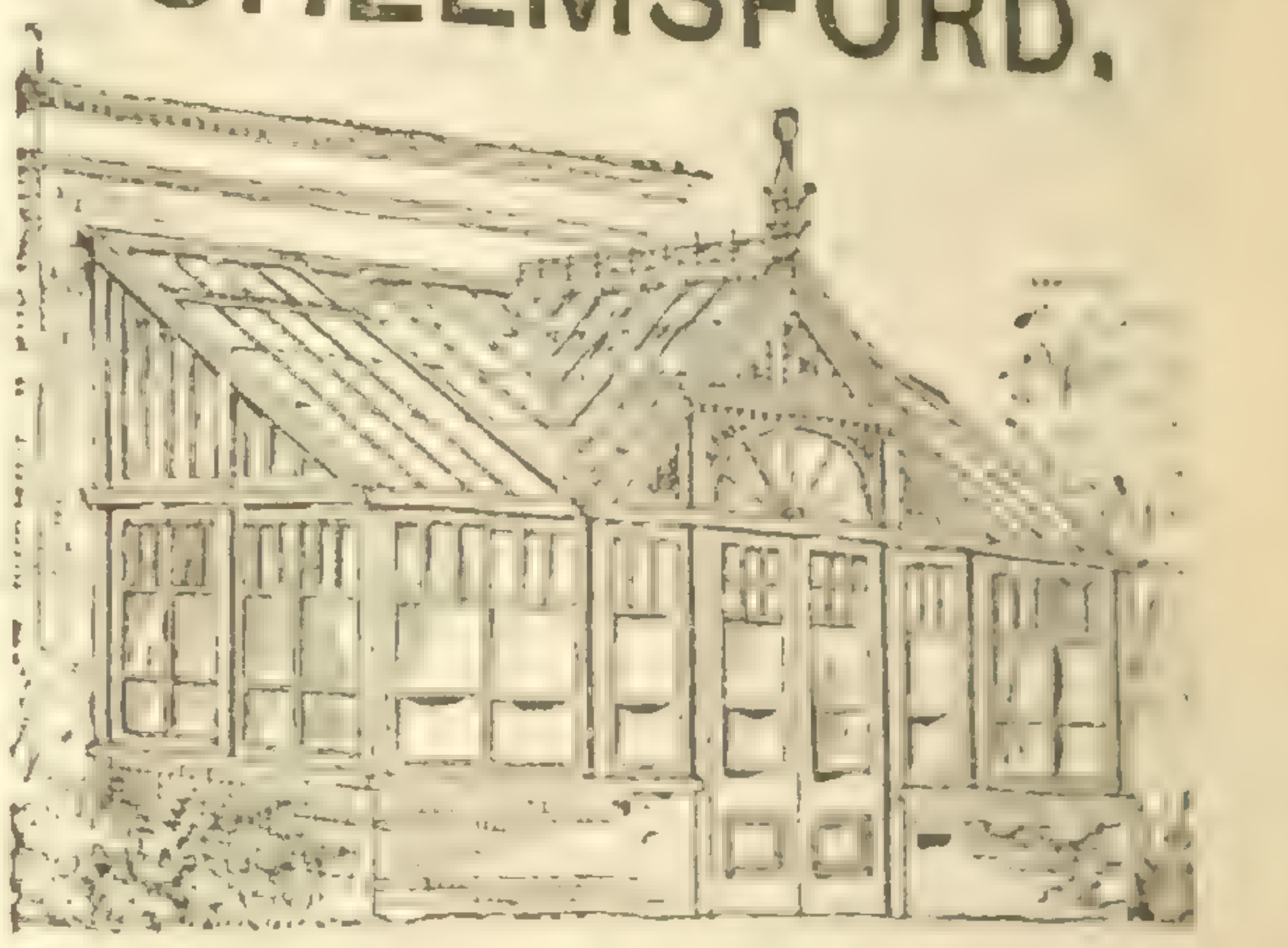

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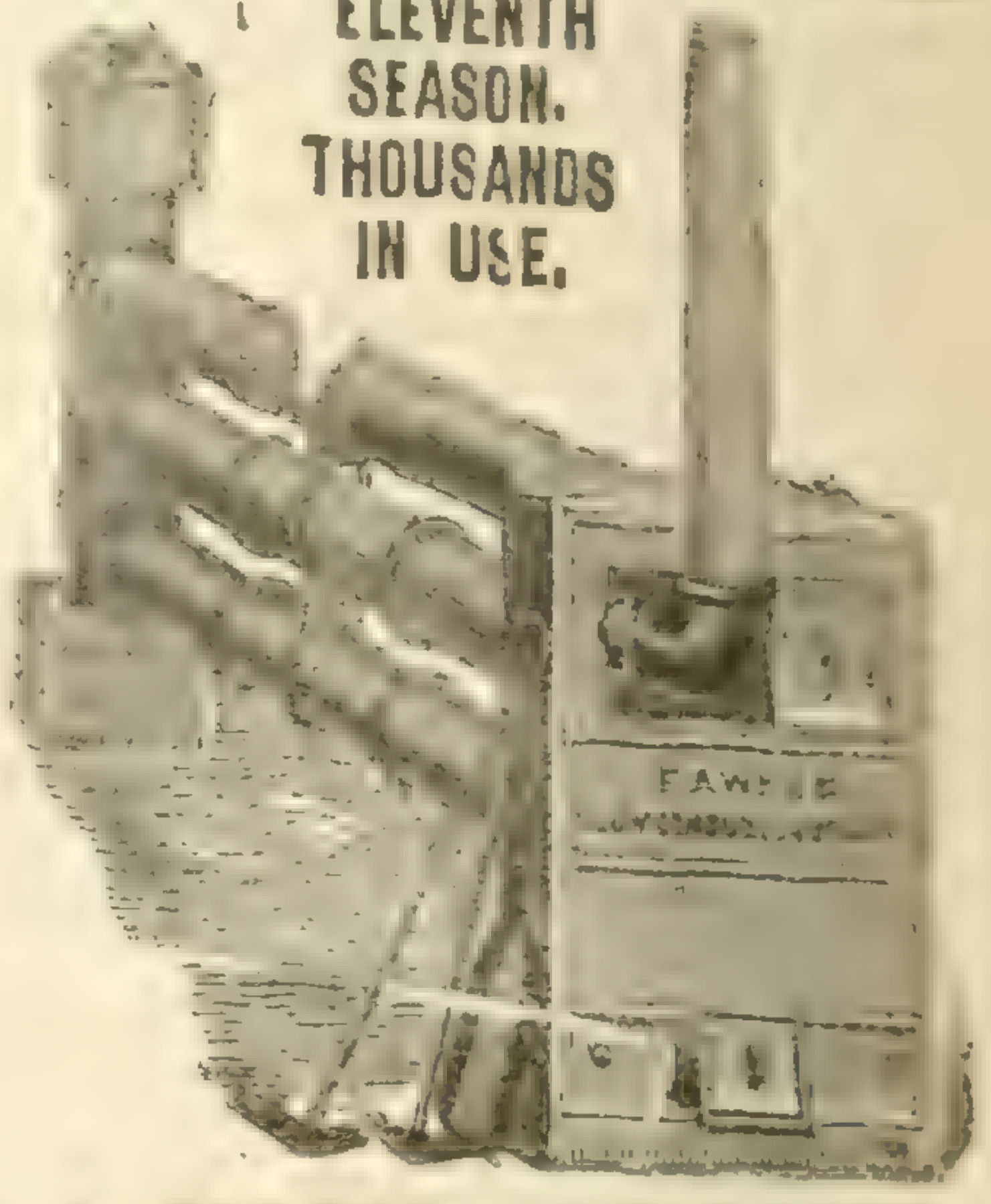

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THE GARDENERS' MAGAZINE.

SATURDAY, JULY 30, 1898.

BISHOP'S STORTFORD FLOWER SHOW, WEDNESDAY, AUGUST 10.
W. SMITH,
Hon. Secretary.

WEST OF ENGLAND CHRYSANTHEMUM SOCIETY.
NOTICE.
The ANNUAL SHOW will this year be held on THURSDAY and FRIDAY, Nov. instead of Nov. 1 and 2 as previously announced.
CHAS. WILSON, Hon. Sec.
North Hill, Plymouth.

TO SECRETARIES OF FRUIT SHOWS, &c.—JUDGING OF FRUITS, FLOWERS and VEGETABLES, by STEPHEN CASTLE. F.R.H.S., Consulting Horticulturist, Bottesford Vineries, Notts.
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HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

EARLIER OPENING OF KEW GARDENS.

DURING the agitation in favour of the opening of the Royal Gardens, Kew, at an earlier hour than noon, we were assured both by speakers at the meetings and writers in the local Press, that the gates were beseiged by visitors anxious to gain admittance long before they were thrown open, and that there was a strong desire on the part of business and professional men and the working classes to enjoy the beauties of the gardens before mid-day. It mattered not that the gardens remained open until so late an hour in the evening during the summer, that both the business men and the working classes could visit them without neglect of business on the one hand, and loss of time and wages on the other, the forenoon was the only period in which their full enjoyment was possible. Our opinion of these absurd assertions was expressed in no hesitative manner; but the agitators were persistent, and the First Commissioner yielded to the pressure, and arrangements were made for opening the gardens on week-days at ten a.m. The gardens have been opened during the past two months at the earlier hour, and the results have been in exact accordance with our anticipations, and the local Press are beginning to give expression to their sense of disappointment that the business man has not deserted his counting-house, and the labourer left his work, to enjoy a morning stroll in the gardens. The *Richmond and Twickenham Times*, which was the most zealous of the advocates of the change which has been made, says: "So far the early opening of Kew Gardens has not attracted a great number of visitors. We believe we are correct in stating that the average attendance before noon is under two hundred. A large proportion are children, and we have heard complaints of the presence of loafers—the chronic 'out of work' men, such as one is apt to see on the Thames Embankment. These, of course, are just the people that require a good deal of looking after, and if they are present during the morning hours, when ordinary visitors are few and far between, they will want all the more watching, and so the expense for constables will be increased. Of course it is very delightful to be in the Gardens when visitors are few, but what is wanted is a fairly numerous sprinkling of people, for all the mischief is done when there are only a handful of visitors in the Gardens. The public are their own police when there are plenty of them. At the same time it would not be fair, at this early date, to draw deductions from the facts we have mentioned as to the success or failure of the early opening experiment. The public generally have not yet got it into their heads that the Gardens are open to them during the morning hours. This is a new idea, and it is astonishing to see how long it takes to get rid of an old idea and plant a new one in the mind of the great British public. The people will come in time." Will they? We very much doubt there being any material increase in the number of visitors, which we believe from our observations to be much smaller than stated by our contemporary. As the case stands, according to the showing of one of the strongest advocates of the change that has been made, the proper work of a great scientific establishment has been greatly hindered for no other purpose than providing a playground for a few children and a lounging-place for loafers during the forenoon.

ACIDITY OF ROOT SAP.

IT is well understood that the power of plants to take up plant food from the soil is intimately connected with, if not directly dependent upon, the acids contained in the sap of their roots, which being exuded by diffusive exchange so as to act upon the soil particles, will, according to its nature and strength, be capable of dissolving a greater or less amount of mineral substances for the use of the plant. The root-sap acidity of a large number of plants has been determined by Dr. Bernard Dyer, who has also compared the results obtained by the action of a solution of citric acid of corresponding strength upon the soils of the Rothamsted experiment station. He has thus shown, in accordance with Professor Maerker's previous statements, that there is a close correspondence of the cultural results obtained from the soils with the amounts of soil ingredients extracted by the weak citric acid; so that, so far as the mineral plant food ingredients are concerned, the manurial requirements and needs of the soils can be foreseen or deduced from such determinations. We are told by Professor E. W. Hilgard, that at the University of California, numerous corresponding determinations made at that station with cultivated as well as with virgin soils, have corroborated to a remarkable degree Dr. Dyer's results; so that we appear to have in this method, varied according to the nature of the soils and crops, a means of determining the cultural condition of our fields and gardens. It seemed especially desirable to test, with a view of such determinations, the root sap of citrus trees, the fertilisation of which is practised more extensively at the Californian station than that of any other one crop, while a great deal of money is doubtless spent uselessly upon the purchase of ingredients not needed as yet. The results obtained show that there exist not inconsiderable differences between the acidity of the roots from different localities, and especially between the large and small roots. The latter being the ones actually active in the absorption of plant food, of course are the more reliable index of the solvent power actually brought to bear upon the soil particles. But the comparative analyses of the bark and wood of one and the same root, also show that the acidity resides pre-eminently in the bark. The data thus far gathered give as the average acidity of the root sap of citrus trees the figure of 0·83 per cent. Dr. Dyer found that plants belonging to the Rosaceæ and Plumbagineæ orders gave the highest strength of root sap acidity, ranging from two to five and a-half per cent. The general average taken from twenty different natural orders being about one per cent., but it was found that the variations in amount of acidity were wide even in plants of the same order, and even of the same species.

PURE AIR.

WHEN we consider that despite all the pains which we bestow upon the preparation of soils and their enrichment with manure or manurial salts, it is to the unpalpable air around us that we must look for the chief food for our plants, we can easily appreciate that the quality of this food is a very important factor in successful culture. Curiously enough, though the one essential element in the air is precisely that carbonic acid gas which is thrown off by every animal in the act of breathing, and by every fire in the act of burning, the extra supply in the vicinity of towns exercises no appreciable effect as a stimulus to growth, and it is in the pure air of the hills that vegetation is most rampant. The actual addition of this gas to town air is, however, practically a very small one indeed, air at the top of Ben Nevis containing 327 gallons of it to the million, as compared with 380 gallons per million in London streets. This small difference is due to the rapid diffusion of gases, and the fact that big as London looks to man's eyes, and great as is the multitude of exhalers which people it, and the number of fires which burn in it, it is but a small patch upon the bottom of the great aerial ocean which sweeps over it, and to which its quota of contributed carbonic acid is consequently extremely minute. Town air, morever, is laden with many other matters than an extra supply of this gas; coal in burning gives off, unfortunately for plants, another gas, sulphurous acid, which is a deadly poison, and in large manufacturing districts the contributions to aerial muddiness are multifarious in the extreme, and mostly detrimental. The unfortunate plants subjected to this mixed diet, and opening their myriad of leaf pores to imbibe the one essential, are consequently very apt to find that essential gas allied with its poisonous companion, and in any case they speedily become choked with accompanying soot and dust, and thus are starved in the midst of plenty, even if they escape the poisoning process. It is, indeed, seen to be a very marvellous thing, considering the very small propertion of carbonic acid in the air, that it should suffice not only to build up the enormous annual leafage, seed, and timber growth of the world year after year, and century after century, without any appreciable diminution of the aerial store. True it is that animal life, as we have seen, does something to restore the balance, but this only affects the small proportion consumed as food, to which may be added the proportion consumed by fire, plus a contribution from the forests of old, now represented by coal. When, however, we regard the gigantic forests of the world, and the immense amount of wild vegetation generally distributed, and always draining upon the store, and laying up as it were in Earth's bosom, as leaf-mould and peat, the incipient coal beds of the future, we are puzzled to conceive how the equilibrium is really maintained, and an adequate supply kept up.

IS THE CULTURE OF SMALL FRUITS DECREASING?

NOTWITHSTANDING the fact that the agricultural returns for 1897 have been so considerably amplified as to form a somewhat portly volume, the information relating to bush and orchard fruits has been greatly reduced, and the tables giving the acreage of market gardens have been discontinued. These changes appear to us undesirable, and having regard to the importance of market gardening and fruit culture, we trust that in subsequent returns these industries will obtain fuller recognition. We have no longer the tables showing at a glance the acreage of small fruits grown in orchards and in open quarters. The two systems are lumped together, and as the acreage in 1897 only is given, we have to search through the tables containing the whole of the crops grown in the several countries to ascertain whether there has been an increase or decrease as compared with the preceding year in the acreage of small fruits. In examining these tables, we were not a little surprised to find an apparently substantial decline in nearly the whole of the counties of Great Britain, the aggregate being 6,453 acres. We find for example that according to the returns there were decreases of about two hundred acres in Berks, Chester, Dorset, Essex, Gloucester and Notts; of about three hundred acres in Norfolk and the West Riding of York; of four hundred acres in Lancaster; of four hundred and fifty acres in Hereford on nearly one half the area of the preceding year; and of nearly six hundred acres in Kent. As there has been a continuous increase in the acreage during the past ten years, and planters were apparently as active in the planting season of 1896-97 as in preceding years, we turned to the introduction with some degree of interest for the purpose of obtaining some explanation of this remarkable change. Here we found the reduction in the figures was not due to a diminution in the area, but to the use of a new schedule, which it is believed ensures more correct returns. Major Graigie states: "The use of the new schedule has brought to light in somewhat numerous instances, cases where the older entries necessitated a careful inquiry, which showed that there had been in some places in former years a failure by the occupiers to distingush the classes of fruit properly included under this head, and errors were found in many counties in the measurement of the small fruit areas lying within orchards and gardens, but occupied at the same time by fruit-bearing bushes." It follows, therefore, that the apparent total reduction of upwards of six thousand acres is made up of revisions and corrections, and it is surprising steps should not have been taken to obtain a greater degree of accuracy in previous years than appears to have been the case. It is stated that there are instances in the collectors' reports where the discontinuance of fruit growing is noted, and the contraction of area is ascribed to the competition of fruit imports from the Channel Islands, and elsewhere. We have no doubt there has been a contraction in some districts, but there has been an increase in others, and we are fully persuaded that the imports of soft fruits have not had the effect of diminishing the area by a single acre in Great Britain, and that the increase in the actual area was as large in 1897 as in the preceding year. There has of late years been a material increase in the imports of gooseberries and currants from the continent, but they have not been sufficient to appreciably reduce the prices, and it may be assumed that a substantial reduction in values would alone bring about a material contraction of area. The imports of soft fruits from the Channel Islands that can be grown in the open, are so small that they certainly have not influenced prices or the area devoted to them.

New Strawberries formed a remarkably interesting feature of the meeting of the Royal Horticultural Society on Tuesday, and it was satisfactory to have such conclusive evidence of continued efforts in the improvement of the strawberry. Messrs. Laxton Brothers exhibited a large basket of fruit of their new variety, Trafalgar, to which we directed attention in our issue of the 23rd inst. This variety has a strong constitution, is a heavy cropper, and the fruits are large, handsome, and richly flavoured. It has also the merit of being very late, and is, therefore, of much value for maintaining the supply until quite the end of July. Although much has been accomplished by Messrs. Laxton in lengthening the strawberry season, it is yet too short, and it is very desirable that it should be extended by the multiplication of late varieties. Mr. William Allan submitted to the Fruit Committee his new strawberry, Lady Suffield, and that body confirmed the high opinion we expressed with regard to its merits last year. We had an opportunity of seeing the strawberries at Gunton Park a short time since, and, as was the case in 1897, Lady Suffield was bearing a heavy crop. Last year the Fruit Committee were somewhat afraid that the last-named variety was too much like Lord Suffield, but on Tuesday Mr. Allan submitted plants and fruits of both varieties, and the committee was thus able to fully recognize the chief points of difference between them. There is a family likeness, but the two strawberries are perfectly distinct both in habit of growth and in the shape and appearance of the fruit, and they ripen at different periods, Lady Suffield attaining maturity ten days or so in advance of the other variety. They agree in being exceptionally rich in flavour, and Lady Suffield will commend itself to those who regard high quality as the most important characteristic of a strawberry. Lord Suffield is one of the most robust of the highly-flavoured strawberries grown at Gunton Park, and as it is a heavy cropper and rather late it is regarded as of special value. Mr. Allan had just commenced gathering from it when we were at Gunton Park on the 22nd inst., and it will be succeeded by Laxton's Latest of All, of which Mr. Allan has a high opinion.

Weedkiller Poisoning.—In recording a short time since the death of a labouring man from the effects of drinking weedkiller, we stated that it appeared to us almost incredible that anyone should drink liquid from casks met with in the garden. If it was well-nigh incredable in the case of an illiterate working man it appears still more so in the case of a man who has graduated at one of the principal universities in Scotland, and who is described as having been "keenly interested in science. It appears that a few days since the Rev. J. Thomson, minister of the parish church, Arbroath, visited, with his wife, Drummond Castle, for the purpose of seeing the historic castle and the famous gardens, and being very thirsty he drank of the contents of a barrel that he met with in the course of his tour of inspection. It is stated that the barrel containing the weedkiller was placed near the stair leading to the armoury, and that attached to it was an old rusty tap and spigot, while on each end of the barrel was printed the word poison. Notwithstanding these facts Mr. Thomson drank a quantity of the liquid, and in a very short time was seized by violent pains, and suffered intense agony until his death, which occurred on the following day. We cannot understand anyone being so unwise as to drink liquid from a barrel without first ascertaining its character, but seeing that it is done, a point should be made of not only labelling the casks containing weedkiller, but of keeping them, with the vessels used in applying the liquid to the walks, under lock and key.

London Parks and Gardens.—In the course of the annual address on the work of the Council during 1897-8, Mr. T. McKinnon Wood, Chairman of the London County Council, said that the last year had not witnessed the addition of any large park within the county to the possessions of the people, but the committee were able to report that it had secured seven small open spaces and playgrounds in the poorer and more densely-populated parts of the metropolis, amounting to ninety and a half acres in all. The value of these playgrounds for the children of the poor was not to be estimated by their acreage. The Council had, however, assisted in the acquisition of one large and beautiful open space—Churchyard-bottom Wood, Highgate, in future to be known as the Queen's Wood—which, though just outside the county boundary, would doubtless be largely used by the dense population in the north-west of the county, to whom it was easily accessible.

Recent Flora of Great Britain.—The investigation of the geological history of the recent flora of Great Britain has engaged the attention of Mr. Clement Reid for many years past, and the results he has obtained are of much interest. From the recent report on his investigations it is evident that much new information has been obtained during the past ten years. In the table showing the geological range of the various species of British plants which have been found in a fossil state, about one-seventh of our flowering plants are recorded. The orders most strongly represented are mainly those which possess hard fruits or seeds specially adapted for dispersal, and those with deciduous leaves. Mr. Reid remarks that it is doubtful whether a single one of our flowering plants is, strictly speaking, a native of Britain. The whole flora has originated probably in other and various parts of the world. We find many of the species were merely stranded by successive waves of migration, which have brought together a variety of continental forms, some Arctic, some Southern, a few even American. These migrations were, in Mr. Reid's opinion, mainly compelled by climatic changes, though other agencies have played an important part. He thinks it probable that a far larger proportion of our plants was introduced by human agency than is generally believed to have been the case.

Potato Spraying.—The Bill promoted with the object of providing the Irish farmers with machines and materials with which to spray their potatos was read a second time in the House of Commons on Wednesday. In the course of the discussion Colonel Lockwood complained that the Essex farmers had not yet enjoyed similar privileges, and expressed the hope that in the next session the necessary steps would be taken by the Government to provide the farmers with spraying machines. The gallant colonel received the assurance of support from some other Members, and we would suggest that he should go several steps further, and introduce a Bill by which his farmer friends would not only be supplied with spraying machines, but have their potatos planted, cultivated, lifted, and marketed at the expense of the State.

Early Peaches have had a full share of attention given them in the GARDENERS' MAGAZINE, for we have from the first recognized the importance of prolonging the season of these delicious fruits by the introduction of varieties attaining maturity early in the summer. At no time are peaches and nectarines more thoroughly enjoyed than during hot weather, and the fruit of varieties that ripen in July, if not equal in size and flavour to that of the best of those in season in August, is invariably highly appreciated. Our esteemed coadjutor, Mr. W. A. Cook, of Compton Bassett, has reminded us of the value of the early peaches, by sending us two fruits each of Amsden June and Waterloo, which, if not equal in size and flavour to Bellegarde or Noblesse, are large enough to form an attractive dish and sufficiently luscious to satisfy the epicure. Mr. Cook states that he gathered the first dish from the outdoor trees on July 21, and that he finds peaches from the open walls exceedingly useful thus early in the season. This we can readily believe, as they commence to ripen when strawberries are becoming scarce, and in advance of the finest of the dessert plums and the early pears, and are thus available when high-class fruit is comparatively scarce in gardens, where the accommodation for fruit culture under glass is comparatively limited. First samples of the two peaches sent by Mr. Ward have not come under our notice, a point of some interest from the fact that the trees from which the fruits were gathered have produced a crop of about twenty dozen each.

Presentation to Mr. N. N. Sherwood.—At the invitation of Sir William Farmer, the Master, the members of the Gardeners' Company and their friends visited Ascot Place, Winkfield, on Tuesday. Luncheon was served on the arrival of the guests, and on the conclusion of this function the Master expressed the pleasure that it gave him to welcome the members of the company. He then, in a few words, presented Past-Master Sherwood with an illuminated address, as follows: "The Court of Assistants of the Worshipful Company of Gardeners in presenting a past-master's badge to Nathaniel Newman Sherwood, Esq., desire to place on record their high appreciation of his services as Master of the company for the two years 1896-7, 1897-8. His willingness to promote the interests of the company, combined with the genial but firm occupancy of the chair and extended hospitality, has endeared him to his colleagues, who, on his retirement from the mastership, wish him long life and continued prosperity." Mr. Sherwood replied in an equally brief speech, and testified to the pleasure it had given him to preside over so important a company as the Gardeners for two years in succession.

Meadow Saffron (*Colchicum autumnale*), which is much appreciated in gardens for the beauty of its flowers, and forms so delightful a feature of the less highly-dressed parts of the pleasure grounds when planted in the grass, is, by reason of its poisonous properties, highly objectionable as a constituent of pastures. Recently several complaints have reached the Board of Agriculture of the injury done to cattle by it. In one case several bullocks were seriously injured, but recovered when they were removed from the meadow in which it was plentiful. The poisonous properties of the plant has long been known, and in France it bears the popular name of Tue bœuf, or kill-ox. The most dangerous period is from the end of April to the end of May, when the seed capsules have been sent up from the corms or bulbs, and the leaves are in full vigour; and at this season, when animals are first turned out, grass is sometimes very short, and they are most eager for green food, and are more likely to eat the meadow saffron. From the middle of September to the end of October, when the flowers are formed, there is also considerable danger to grazing animals, as at this time the grass is thick and the flowers might be taken up with the grass. This weed, however, has an acrid taste, and it is not very likely that animals would eat it except in eager haste to get green food, or if keep were very scarce, or again if taken up accidentally among thick grass. The bulbs have an unpleasant odour as well as an acrid taste, and would probably be rejected by animals, except, perhaps, hungry pigs. The greatest danger from this weed seems to be from the leaves and seed capsules getting into hay, as in this form its acrid flavour would be modified by the heating process, and if it were present in considerable quantities it might produce serious consequences. The plant should, as far as practicable, be eradicated from pastures, which can be best accomplished by digging up the bulbs, whose situation is easily seen by the flowers without leaves in the autumn, or by the large green leaves and peculiar seed capsules in the spring. An excellent tool is used in France for extracting the bulbs. It consists simply of a rod of iron, enlarged at the end and sharply pointed; about ten inches from the end a moveable claw with three prongs is fastened so that it may fold upwards, and allow the tool pitcher to be thrust into the earth. When the claw is below the bulb the tool is drawn up, when the claw extends and brings the bulb with it.

Chillies and Capsicums.—Pod peppers or capsicums, the fruits of Capsicum annuum and allied species, are a well-known spice and condiment. They are an indispensable ingredient in curries and are largely consumed in the fresh and dried state and in pickles. Some forms of capsicums known as bell peppers are entirely free from the acrid and burning pungency so characteristic of these fruits, and may be eaten cooked as a vegetable or in salads. Chillies, Bird or Guinea Peppers, the fruits of the shrubby Capsicum minimum (usually much smaller than the preceding), grow generally in tropical countries. These are in chief demand in commerce. When thoroughly dried and pounded, and afterwards passed through a hand mill and sifter, they are the principal sources of the well-known cayenne pepper. According to the *Kew Bulletin* it is estimated that about one hundred tons of dried chillies are annually received in this country from the West Indies and the East and West Coasts of Africa. The price at which they are sold appears to be liable to considerable fluctuation. In May, 1898, "fifty bags dull Zanzibar sold without reserve at 29s. to 29s. 6d.: while fifty-eight bags good Japan sold at 39s. to 41s. per cwt." A sample of capsicums grown at St. Lucia in the West Indies, dull and uneven in colour, were valued (in February last), in limited demand, at 20s. per cwt. What is evidently required is an article bright in colour, even in quality, and possessing great pungency.

Strawberry Ground Beetles.—A considerable proportion of our readers are fully acquainted with the mischief which has been caused of late years to the ripe and ripening strawberries by the ravages of what are known as "ground beetles." There are four kinds of these beetles, very much alike in appearance, as they are all of a brownish or blackish colour, with long legs and horns, but varying in size from about half-an-inch, or less, in length, to a good deal over that [illegible]. The commonest, as well as the most objectionable kind, on account of the possession (and also willing use) of ample and strong wings, is the species scientifically known as the Harpalus ruficornis. The injury is caused by the beetles eating out pits of greater or less size in the fruit, also spoiling the surface of the fruit in patches, by the action of their jaws, and by removing the seeds, which may be found lying in quantities on the ground beneath the attacked fruit. Various methods of getting rid of the pests, including a moderately successful plan of trapping by placing pieces of flesh (these beetles being also carnivorous) in the beds and clearing these baits daily, have been tried, but some more generally available method of dealing with the attack was greatly needed, and the following note of successful treatment with which Miss Ormerod states she has been favoured by Messrs. Laxton Bros., of Bedford, appears to me to be such a great advance, that she has requested, and been kindly favoured, by their permission to make it public. Messrs. Laxton wrote on the 19th inst. as follows: "We are pleased to be able to report that we have almost entirely destroyed the beetle pest, which played such havoc with our strawberry crop last season. We purchased a large quantity of cheap pudding basins early this spring. These we let into the ground level with the surface at distances of a few yards apart, and kept them baited with pieces of lights and sugar water. When the weather was dry, we often caught half a basinful of a night, until the number gradually diminished to two or three, and now none at all. It is a laborious process, but well worth the trouble, as we have lost no fruit this season." Another plan of treatment which has succeeded well on the much smaller scale of private garden culture has been communicated to Miss Ormerod by her friend and neighbour the Rev. J. A. Cruikshank, of Sandridge, near St. Alban's. The ground amongst the strawberries was (as is customary) covered with straw, which has been noticed as much approved of by the beetles as a shelter to their haunts beneath. The plan adopted by the gardener was to put the straw aside over a piece of the bed, and then trowel in hand turn over the surface of the earth from which the straw had been temporarily removed, and secure the sheltering beetles, and then replace the straw. Thus gradually, in this way, going over the bed the beetles were captured by hundreds, and whereas the first part of the crop was ruined, afterwards, when this plan had been carried out, the fruit was saved from further ravage. "This beetle pest has become such a serious trouble to strawberry growers," observes Miss Ormerod, "that I have much pleasure in submitting the above methods of prevention, in the hope of doing something towards checking its ravages."

Hampstead Heath Extension.—It is gratifying to learn that the fund for the acquisition of the Golder's Hill Estate now stands at £37,000. About £4,000 is still required, but the committee in charge of the scheme are confident they will be able to hand the park over to the County Council in August.

An Earl on Gardening.—The recent Kenilworth Flower show was opened by the Earl of Clarenden in the grounds of Kenilworth Castle, and at the ceremony the noble Earl remarked that he could remember the time when not only the peasant in his cottage, but the monarch in his palace, were absolutely satisfied with the rose and the tulip, intermixed perhaps here and there with a few geraniums and a little verbena. Now-a-days nobody was satisfied, at all events, the monarch in his palace was not satisfied, unless he had a carnation the size of a soup-plate and roses all the year round. He thought that all this was a good sign, as refinement of cultivation and appreciation of the beautiful in Nature led to refinement in other things. He felt confident that the association with, and the cultivation of, what was lovely and loveable in Nature not only softened the character, but also produced its influence in every profession, pursuit, pleasure, or form of business which they might take up in life. It was gratifying to find how great an increase there had been in the cultivation of vegetables during the last twenty-five years. When they remembered the thousands of tons of vegetables that were imported from foreign countries, it seemed a pity that labouring men could not grow vegetable products to a much greater extent in their own gardens and allotments. If fruit and vegetables were to be grown for sale, however, they must be made to look attractive. As it was, fruit was often picked in an immature state, and was carelessly packed, so that it was delivered into the market in an unsound condition.

A New Treatment of Sewage.—Acting on the belief that the complete destruction of pathogenic microbes cannot be insured by their natural enemies in sewage, Mr. P. S. Hyslop, M.Inst.C.E., Walmer, has devised a means of effecting this aim by the addition of calorific sterilization to bacteriological treatment of sewage. He has also modified the usual system. The settling tanks are subdivided into cells, which again have baffle-plates so arranged that the sewage must pass down a restricted passage, near the foot of which it meets with an upward current of air emitted under pressure from a pipe suspended from the top, so that aeration is under direct control. A supply tank is fitted so that, with the usual variations in the strength of the sewage, the air supply may be increased easily. The sewage passes under the baffle into the larger division of the cell, rises and flows through a restricted passage into the next cell, and thus successively through the several tanks, the solid matter being deposited in pockets formed for its reception. It is suitably drained, removed, dried, and burned. The next and distinctive treatment in the process is the passing of the liquid, after the usual admixture of alkali, through heat exchangers, in which it cools and is itself heated by liquid previously operated upon. The heat exchangers communicate with disinfectors or sterilisers of the vertical cylindrical form, having a helical partition. The liquid enters at the bottom of the vessel, and by the actuation of steam jets is heated and propelled through the helical passage to a vessel at the top fitted with a pressure-regulating valve. The liquid finally passes through passages under a sludge-drying platform into a settling tank, and thence through filters. According to *Engineering*, Mr. Hyslop dispenses with circular pipes in the heat exchangers, so as to minimise the hydraulic mean depth, and keep the particles of liquid as close to the wetted surface as possible. The heated liquid from the exchangers is used for drying the sludge. The ammonia and other gases expelled from the liquid during sterilisation are collected and led through a saturator, in which the ammonia is absorbed by dilute sulphuric acid, the residual gases being passed into the foul gas conduit. The saturated sulphuric acid is conveyed to an evaporating chamber and suitably treated. Mr. Hyslop estimates the coal expenditure at £50 per day for the treatment of 4,800,000 gallons of sewage, with fuel at 12s. per ton. A plant for dealing with 200,000 gallons of sewage per hour, delivered to the station in a low-level sewer, from which it has to be pumped up fifteen feet into the treating tank, is estimated to cost £35,000, exclusive of land, of which about one acre might suffice.

NEW PLANTS, FLOWERS, AND FRUIT.

LÆLIO-CATTLEYA INGRAMI GIGANTEA.

THIS is a glorified form of an already popular hybrid orchid, obtained by crossing Lælia pumila with the beautiful Cattleya Dowiana. Though the plant seems no stronger than is the type the flower is of larger proportions, and of a lovely rose-purple colour with crimson-purple lip. F.C.C., R.H.S., July 26. Messrs. J. Veitch and Sons, Chelsea.

LÆLIO-CATTLEYA SCHILLERIANA, CAMBRIDGE LODGE VAR.

This is a handsome form of a distinct section of the variable Lælio-cattleya elegans. The sepals have reflexed margins, and are very pale rose; petals broader, palest rose, with violet veins. Lip very rounded and beautiful, richest purple, suffused with violet; throat almost pure white. A charming and distinct form. A.M., R.H.S., July 26. Mr. J. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell.

MASDEVALLIA IMOGEN.

A curious little orchid, yellow on the outside of the somewhat small flowers; deep crimson and scarlet inside, with an abundance of tiny purplish dots that produce a most pleasing colour; tails orange-coloured. This orchid is the result of crossing M. Schlimi with M. Veitchi. A.M., R.H.S., July 26. Messrs. J. Veitch and Sons, Chelsea.

ARUNDINARIA ARISTATA.

A tall slender growing bamboo, loosely branched and carrying an abundance of beautiful light green leaves; the branchlets are whitish-green and the young foliage is covered with a kind of bloom that makes it very handsome. About seven to eight feet high, F.C.C., R.H.S., July 26. Mr. J. Garrett, gardener to A. B. Freeman Mitford, Esq., C.B., Batsford Park, Moreton-in-the-Marsh.

PHYLLOSTACHYS FULVA.

Very slender in growth and with its branches divided into by branchlets that bear three or four leaves each. The latter are narrow, acute, and of a lovely deep green hue. A very handsome bamboo. F.C.C., R.H.S., July 26. A. B. Freeman Mitford, Esq., C.B.

ARUNDINARIA METALLICA.

A dwarf growing bamboo with stout canes that carry about half-a-dozen leaves towards the apex; these spread out, are deep green, with very pale mid-rib, an inch and a half across, and six to nine inches long, acutely pointed. A sturdy new Japanese plant. F.C.C., R.H.S. A. B. Freeman Mitford, Esq., C.B., Batsford Park.

ARUNDINARIA NITIDA.

This is a beautiful bamboo and one of the most graceful and shapely; it has tall, very slender growths, the stems being black and the small and narrow leaves a bright green, the growths being much branched and heavily clothed with foliage, so that they bend gracefully. A most handsome plant for any purpose. F.C.C., R.H.S., July 26. Messrs. J. Veitch and Sons, Chelsea.

ARUNDINARIA VEITCHI.

This is a fine hardy bamboo somewhat intermediate between A metallica and A. palmata, dwarf in habit, with broad foliage that is glaucous on the reverse side. F.C.C., R.H.S., July 26, Messrs. J. Veitch and Sons, Chelsea.

CARNATIONS.

Isinglass, a grand carnation of large size and with very broad rounded petals of a rich and deep scarlet hue; one of the finest of carnations either for pots or open-air culture. A.M., R.H.S., July 26. Mr. C. Salter, gardener to T. B. Haywood, Esq., Reigate.

Lady Sophie, a pretty carnation with large bold flowers of a pleasing salmon-red hue tinged with rose. A.M., R.H.S., July 26. Mr. Tapper, Sundridge Park, Kent.

ROSES.

Souvenir de Madame Levet is a beautiful semi-double, deep yellow tea rose, very free, beautiful in the bud, dwarf in growth, and deliciously fragrant.

Charlotte Guillimot is a soft whitish, hybrid tea rose with imbricating broad petals that have reflexed upper edges. A.M., R.H.S. to each, July 26. Messrs. W. Paul and Son, Waltham Cross.

NYMPHÆAS.

N. odorata rosacea.—A lovely soft rose-pink variety, with rather narrow petals, and a rich yellow centre of large stamens.

N. gloriosa is a magnificent water lily of a very bright hue and large size; the flowers are bold and full, the petals being of a beautiful crimson shade suffused with rose. F.C.C., R.H.S. to each, July 26. Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton.

BUDDLEIA VARIABILIS.

A distinct species and quite hardy, bearing long narrow spikes of lilac flowers; the latter are small, and have an orange eye, and look much like tiny verbena flowers. The spikes are about eighteen inches long. A.M., R.H.S., July 26. Messrs. W. Paul and Son, Waltham Cross, Herts.

PELARGONIUM ACHIEVEMENT.

A novel and useful pelargonium, and one that, considering the distinctness between ivy-leaved and zonal varieties, might almost be called a hybrid. It has brilliant salmon-red flowers of large size, borne in shapely and full trusses on sturdy plants. It is the result of crossing a single white, seedling zonal variety with the well-known ivy-leaved pelargonium, Souvenir de Charles Turner, and is in every way an achievement. It makes a fine bedding variety. A.M., R.H.S., July 26. Mr. H. J. Jones, Ryecroft Nursery, Lewisham.

RIVERS' EARLY TRANSPARENT GAGE.

A beautiful plum and as finely flavoured as beautiful. It is of good size, transparent yellow in colour, tinged with orange and dotted with brown specks on one side. A lovely bloom covers the whole fruit; roundish in shape. F.C.C., R.H.S., July 27. Messrs. T. Rivers and Sons, Sawbridgeworth, Herts.

EARLY RIVERS' CHERRY.

A monster fruit as shown by its raisers, fleshy, sweet, and a famous dessert variety either for indoor or outdoor culture. It is a handsome, lustrous, black cherry. F.C.C., R.H.S., July 26. Messrs. T. Rivers and Sons, Sawbridgeworth.

RASPBERRY GOLDEN QUEEN.

A fine, large-fruited, pale yellow raspberry with elongated fruits, solid, sweet, and of pleasant flavour. This is a good cropping variety, and keeps and carries better than most. A.M., R.H.S., July 26. Messrs. J. Veitch and Sons, Chelsea.

THE ROSE SEASON OF 1898.

THE difficulties with which the path of the rose grower are beset have seldom been as numerous or so keenly felt as during the past two months. The plants passed uninjured through the winter, and the shoots when cut back in March were all that could be wished, being sturdy and well-ripened; and owing to the cold spell at pruning time there was no bleeding. These March frosts, however, did a good deal of damage to the young growths of many of the so-called "garden roses."

In due course the usual number of grubs and caterpillars made their appearance. Then came such persistent attacks of green-fly as we, rosarians, have seldom had to contend with; then mildew, then drought and drying winds, which are far more hurtful than any rain, bringing with them, among other things, thrips, to disfigure the delicate blooms of the teas. But the distinguishing feature of the rose season of 1898, and the cause of most of the above-named troubles has, no doubt, been the unusual number of cold nights. For instance, during the first three weeks of the present month, usually the warmest of the year, my thermometer exposed on the lawn has on five nights registered temperatures within four and six degrees of the freezing point.

Notwithstanding all these drawbacks, roses have been this season, on the whole, good, especially the light coloured H.-P.'s. The fact is, the plants began the year with grand blooms, as it were, in them, but the adverse weather conditions would only allow of their producing flowers of rather more than average quality, and that only for a short period.

A great deal has been said about the lateness of the season, but I do not think myself it will be found on examination to have been as exceptionally late as generally supposed. In the first place, our ideas have, no doubt, been upset by the previous series of early rose seasons, while the long shoots which many of the crimson H.-P.'s threw up this year have also served to make the present one appear later than it really was. At the time of writing (23rd inst.) my plants of Marie Baumann and A. K. Williams are not even yet in full flower. That the season has been unusually late is evidenced by the three exhibitions of the National Rose Society. Their first show, which was held at Bath, on June 24th, proved the smallest southern exhibition yet held by the society. The total number of blooms in the classes for hybrid perpetuals, hybrid teas, and teas and noisettes, was only 1,180, or less than half the usual number. The Metropolitan Show, which took place at the Crystal Palace, on July 2nd, was a decided improvement, the aggregate record amounting to 5,790 blooms, or about the average number for this exhibition, taking the five previous years. The Northern Show was held at Halifax on July 14th, and was undoubtedly, all things considered, the finest rose show of the year. There the number of blooms amounted to 4,100, making it, with the exception of Birmingham in 1890, which was slightly more extensive, the largest exhibition ever held by the society in the north. No fewer than 20,000 persons are said to have visited this show. The attendance of visitors, both at the Crystal Palace and at Bath, was also unusually large. Throughout the season, the trade exhibits have been, in many instances, remarkably fine, while those contributed by the amateurs, with certain exceptions, fell, I should say, somewhat short of their ordinary standard.

The character of the season is also shown in other ways by these three exhibitions. For example, a noteworthy feature of the Bath show was the presence of only one exhibitor, Mr. Burrell, from Cambridge, hailing from any locality farther north than Oxford. Then at the Crystal Palace one could not help noticing the large proportion of early flowering varieties in almost every stand. While at Halifax, notwithstanding its great distance from London, there was an unusual number of exhibits from the southern, eastern, and south-midland counties of England. New seedling roses were also a striking feature of that show, whether we consider their number, high quality, or the condition in which they were staged. Indeed, I cannot call to mind any previous occasion when they have been as well represented.

EDWARD MAWLEY.

Berkhamsted.

DICTAMNUS.

THE genus Dictamnus is among the most showy of hardy perennials, and whether in or out of flower, is most decorative. It is not adapted for cutting, however, owing to the sticky nature of the stem, and strong smell of the plant. As Dictamnus are very slow growing, and do not like to be moved except when still small; it is best to give them as nearly as possible a permanent place, either in the herbaceous border, on the top of a rockery, margin of shrubbery, or as specimens on the lawn. The best time for planting is early spring or during the winter; a sunny, well-drained, loamy or chalky soil being the most preferable rooting mediums.

D. Fraxinella, when fully grown, usually attains a height of two feet; the leaves are pinnate with ovate-lanceolate leaflets slightly serrated and slightly glandular, the stalks and stem being sticky. The flowers are in erect racemes, the five petals being of a pale rosy-colour veined red or purple, produced in May, June and July; the species is from northern Europe, but nowhere commonly found. D. Fraxinella var albus is a form with milky white flowers; this is more often seen under cultivation than in its native haunts, although it is quite as prolific and vigorous, and usually comes true from seed. D. Fraxinella var caucasicus is the best of the set, and differs from the typical D. Fraxinella in having much larger, deep green leaves; the stem attains under favourable conditions a height of four to five feet. The flowers are also much larger and of a deeper colour, expanding a week or two later than D. Fraxinella. The curious fact about this form is that while the plant from the more western part of the Caucasus is identical with that of northern and central Europe, the larger form is very local in the eastern Caucasus. There is also said to be a white flowering form of this Caucasian variety.

G. REUTHE.

MY FERNS.

As the persevering raiser of plants on systematic lines is fairly sure, in course of time, to be rewarded by something new which he can call his "very own," as it were, I am bold enough to hope to touch a few sympathetic chords among the readers of the GARDENERS' MAGAZINE by striking a purely egotistical note, and detailing my own particular successes in the British fern way. The British fernist, however, has one great advantage over the selective grower or collector of plants generally, inasmuch as his efforts are not confined to the improvement of types already existing in cultivation, since, as a successful fern-hunter, he may find new types for himself among the wild and common forms, and thus swell his collection in two distinct and interesting ways. Clearly the original finds rank first in interest, since in these we have the raw material already fashioned by Dame Nature's hand into some novel, beautiful, or curious type, through some inscrutable creative influence which so far baffles all theory. These in all cases form the cultivator's starting-point. With flowers—to take, say, the cyclamen as a typical case—the wild form of an exotic species, beautiful enough in itself to repay culture, is introduced, and propagated for years in its normal form. Then the alert grower perceives a better form in a seedling, and, starting from this "break," little improvements are accumulated until a small reflexed bloom is transformed into a huge one. Then the form itself "breaks," and at length large flat flowers with fimbriated petals four inches across, or varieties with crested surfaces, are arrived at. With our native ferns, however, in the midst of a clump of the absolutely normal type the hunter may find a plant which at one step, so far as he can tell, has varied quite as much from the common as the best cyclamen has in scores of selected generations, and no authenticated instance is recorded where an abnormal type of British fern has originated from sowings of common spores. In this particular direction, then, the fernist, strolling round his pets and taking stock, as I now propose to do, works hand in hand with Nature's sylvan forces, and counts among his "gems" not only those of, maybe, more delicate cutting due to selection, but also the spontaneous miracles embodied in the original finds themselves.

Taking my finds, then, as they come, the first that strikes my eye is Athyrium f.-f. cristatum Kilrush, pinnæ and frond tips divided over and over again into long ornate stiff tassels; a thoroughbred. This carries me away to Shannon shore in Co. Clare, and I see myself threading my way along a dry drain cut through a plantation, its sides lined with Blechnum spicants, while overhead a tangle of the common bracken all but bars my progress, to say nothing of intrusive brambles. I am now blechnum hunting, but a half-heard remark from a youngster, who is my guide on this occasion, induces me to push the bracken aside to hear the better, and, lo! in the very gap thus created is my find, a tiny crested plant, but tasselled all over. A thorough search all about fails, as usual, to result in a duplicate. This was in the first half-hour of my hunting in that locality, but a subsequent search failed to match the find. Close by, in my fernery, I perceive another acquisition from this district, Lastrea f.-m. cristata Kilrush. A drenching Sunday relentlessly imprisoned me the whole day, but in the evening I strolled down the road into the [illegible], a road lined with a low wall of mud and stones and devoid, apparently, of any vegetation whatever. A solitary ragged fern frond in a chink of the stonework strikes me as curious; it is only a seedling, but the tips are curly, as if they would close if they could. A few yards further on, a clump deep in a crevice has a few tattered fronds, and these are unmistakably tasselled, and are bagged accordingly. Beyond these two plants there was not a fern in the dyke. L. dilatata polydactyla Clovelly transports me to Devonshire—scene, the Hobby Drive; stern injunctions against fern vandals bristle all around. Below, through a gap in the trees, my wife and I are watching the steamer come in, and behold half way down the fern-clad slope at our feet my eye detects a tassel, and Lastrea dilatata polydactyla is found as a beautiful full-sized specimen. Here is a quandary for an enthusiastic fernist, a rare find—for L. dilatata sports but little—and a veto! Solution: the spores are ripe, a pinna picked and carefully consigned to my purse, and subsequent patience gives me my find at home, and in capital form. Close to this is another souvenir of the west from Exmoor's wilds; a long and fruitless hunt through a long and glorious day, crowned at the last moment by B. spicant concinum Drueryi, found in a chink in a stone dyke at Simonsbath, the centre of the moor. On the very point of returning, a native sitting on the corner of the inn parlour, and hearing of our non-success, remarks, "There's a zoight of ferns in a dyke up yon," and one of them was this little gem, each frond a string of emerald and scallop shells. An inch-long tip protruding from a bunch of common seedlings, traced to its source, reveals six true and typical fronds, and these, carefully disentangled from the ruck, prove to emanate from one centre, establishing the integrity of the frond.

Yonder is another finely crested male fern, Lastreat f.-m. polydactyla Druery. Three miles out east of Kilmarnock town, a spare hour snatched before starting for the further north led me to a roadside copse, in which, among hundreds of common ones, was found the parent of this—a gem of first water being Col. Jones' verdict when he saw it. Next season [illegible] of first water fitted it better, for it went all to pieces and has never recovered its form. One seedling, however, after repeated sowings, yielded me the constant type exactly as found, so here we have had to aid Dame Nature by selection to perfect an imperfectly established "sport." Now we come to Scol. v. corymbiferum Lidford, found in a hedge there by the main road side, and then bearing a bunchy moss-like crest, which led to its name, though now its tassels are broad and flat and beautifully [illegible]. Near it is one of my literally biggest finds, a part of the huge plant of the tasselled lemon-scented fern I found on Dartmoor (Lastrea m. [illegible] gracile Druery), a plant so large I had to charter two men and a horse and cart to get it to my lodgings. Fronds and pinnæ slender, and having delicately cut tassels, stamp this as one of the best as well as one of the biggest. Scotland comes again to the fore with my curious A. f.-f. revolvens, frond and pinnæ curled ringlet fashion. Another stroke of luck; all but confined to the house with a sprained ankle, acquired on a holly fern expedition, I just manage to hobble a few yards up an adjacent glen, and find this beauty at a place I had passed a score of times on my way to fernier and more distant fields. Its neighbour was also a curly lady fern, but had enormously long stalks, and three-cornered fronds (Athyrium f.-f. deltoideum). This, too, is Scotch, and curiously enough was found within half a mile of the last. Scotland, indeed, has been kind to me, for here is another lady, A. f.-f. mediodeficiens, but rather a "curio" than a beauty, since the middle of frond and pinnæ is like the Irishman's old coat, chiefly made of fresh air.

Ireland, as we have seen, has conferred some gems, and amongst them I count a little confluent blechnum not yet named as one of the "flukiest" finds of all. A party of us passing through the Gap of Dunloe at Killarney become separated, the majority getting far ahead. I and another make a bold short cut in a bee line down the hillside at full speed, and yet this blechnum catches my eye in the midst of the race. I get it home, it dies, and bitter lamentations result. Two years after, calling on a friend at the Lakes, I see a similar plant in fine form, resulted from a division sent to him by me at the time, but forgotten, a fact which embraces a moral. Here in a pot is a charming little plant of the common bracken, but built ringlet fashion like A. f.-f. revolvens and named accordingly. This is raised from spores from Windermere, where this lovely fern lines the road on both sides for a hundred yards and more on the route to Boness, but still a find of mine, since nobody had remarked its special beauty. Here a tasselled hartstongue carries me to Guernsey, and there two polypodies bring Minehead and Killarney back to mind, the first a bipinnate form, and the second with long attenuate pinnæ. The above list embraces the best of my personal finds, but looking round I see a dozen or more distinct things enough, each of which has its pleasant memory attached to it. Leaving the "finds" proper and coming to "selected" offspring, I am, of course, confronted mainly by that beautiful strain of plumosums yielded from the Axminster Lady Fern and culminating in A. f.-f. plumosum Drueryi and A. f.-f. superbum percustatum, but as I have already dealt with these *in extenso* in these columns I will spare my readers a further infliction. I must, however, mention two successful crosses, one of A. f.-f. percustatum Cousens with the Kalothrix plumosum, and the other, my latest acquisition, A. f.-f. p. Cousens with my own Scotch find of A. f.-f. revolvens, involving a charming combination of tasselled ringlets, and constituting quite a new fashion for the ladies of the fern persuasion. I conclude with a renewed apology for the egotism, a little more accentuated than usual, perhaps, which pervades this paper. There is inevitably a good deal of individuality in a "hobby," and my object has simply been to emphasize how much purely personal pleasure and reward may result from the particular hobby of the British fernist. CHAS. T. DRUERY, F.L.S., V.M.H.

THE APPLE CROP.

ACCORDING to reports which I have been favoured with from various sources the apple crop is not such a generally good one as was at one time anticipated. This is much to be regretted, as the prospects were of the most promising description, and people were not slow to prophesy that apples would again be very abundant, and had such hopes been realised there is no doubt that the crop would have been one of the heaviest on record. Taking the country right through it is to be feared that the crop will not be more than half of what it should be, and if districts were to be taken individually doubtless there are many in which a great scarcity of this popular fruit will be felt this season. So far as this immediate locality is concerned there is but little room for complaint, the exceptions being a few orchards here and there in which the crop will be but a partial one. Vintage fruits will, I think, be plentiful, especially the Hereford Seedlings, which are better known under the name of Normans, with the prefix red, strawberry, &c. This is a vigorous, hardy race, and it is but seldom that they miss bearing, while the majority make excellent cider.

Among table fruits King of the Pippins appear to be plentiful, as I have seen a number of heavily laden trees quite recently, and trees of Blenheim Orange are also bearing much better this year than last. I have also seen standard trees of Warner's King, Ecklinville Seedling, Cox's Pomona, Worcester Pearmain, Lord Suffield, and other sorts, carrying excellent crops of fruit, and looking as healthy and vigorous as one could wish. In these gardens the crop is most satisfactory, and the aggregate yield will be a heavy one. To give a list of all the sorts in bearing would take up too much valuable space, but among them may be mentioned Seek No Further, King of the Pippins, Cox's Orange Pippin, London Pippin, Ribston Pippin, Old Pippin, and Franklin's Golden Pippin, Worcester, Hereford, and Lamb Abbey Pearmains, Nonpareils in variety, Duchess of Oldenburgh, Maltster, Cox's Pomona, Annie Elizabeth, Warner's King, Stirling Castle, Ecklinville, and Pott's Seedling, Land's Prince Albert, Cellini, Tower of Glamis, Wellington, Greenings in variety, &c.

The fruit is clean, and under the influence of the recent hot weather is growing apace. The trees have also made excellent growth, and have just been summer pruned. Insects have given but little trouble, and with the exception of American blight, which is unusually persistent on a few trees, they are quite free of pests. A good rain would do an infinite amount of good, as the ground has become exceedingly dry. If rain does not soon fall moisture will have to be supplied artificially, and this is a heavy undertaking. So far the drought is not of such a serious character as it was at the same period in the past and previous years, nevertheless, the fact remains that not only garden, but also farm crops, stand sorely in need of a steady, soaking rain.

Stoke Edith Gardens. A. WARD.

MORE ABOUT LICHENS AND MOSSES.

As food plants mosses and lichens are also of importance. All are familiar with the fact that the reindeer live altogether on the moss of that name during the long northern winters. The vast herds which depend exclusively upon this humble plant for support give us an exalted idea of the importance of the smallest plant in nature. Linnæus says nothing flourishes so luxuriantly as this in the pine forests of Lapland, the surface of the soil being carpeted with it in places for many miles in extent. If by any accident the forests are burnt to the ground, in a very short time the lichens reappear with renewed vigour. The Laplanders, and many of the Norwegians, make a kind of bread with the lichens, upon which they subsist in the winter; and the Icelanders beat up the cetraria, or Iceland moss, sold in this country in a medicinal form, into a cake, and eat it with milk, thus, as they say, "making bread from the stones." A lichen called "Tripe de Roche" is much esteemed by the Hudson's Bay hunters, and it is mentioned that the deserts of Asia produce lichens in large quantities, upon which the Nomadic tribes at times depend wholly for support. Lichens were formerly of very great importance in medicine.

Together lichens and mosses are the pioneers of vegetation. Is a rugged, barren rock to be clothed? The pulverulent lichen goes first, fastens on the sterile surface, gives it its first coat, then the foliaceous lichen appear, then the liverworts, and in succession the mosses. These then decay, are torn, perchance, by a mountain torrent, or a shower of rain, from their site, and, mixing with the other detritus borne down, a nucleus of soil is formed. Now let wind-carried or water-borne seed be intercepted or fall here, the second step is taken, and thence the progress continues till, in due course, the place is decked with flowers and adorned with trees. Time brings fresh arrivals, every tempest new plants, soon zoological immigrants arrive, and eventually man—the once barren rock has now become a fertile and inhabited island. "The lichens," says Sir J. Hooker in the "Botany of the Antarctic Voyage," "form a large portion of the vegetation of Keynalen's Island to an altitude of 1,500 feet; the rocks are apparently painted with them. At the tops of the hills they assume the appearance of miniature forests, some of them being like little oak trees." Scoresby, in his travels, says he found lichens in abundance on the wildest rocks. St. Vincent found them luxuriating on the volcanic rocks of the Isle of Bourbon, and Darwin states that at Iquique, in Peru, he saw nothing else for fourteen leagues but yellow lichens. The first green crust on the cinders of Ascension consisted of minute mosses; they form more than a quarter of the flora of Melville Island, and the lifeless soil of New South Shetland is covered with specks of mosses struggling for existence. Club mosses entered into the coal strata; Brogniart says mosses formerly reached eighty feet high with proportionate trunks. They have now dwindled down to a few inches. This is a curious fact, due, perhaps, to climatic changes through many ages. In the economy of man perhaps lichens and mosses may appear to play but an insignificant part, but in the economy of nature how great and vast an end is theirs! WM. NORMAN BROWN.

LILIUM HARRISI IN AUTUMN AND WINTER.

THIS lily is so valuable to those who have much furnishing and for the decoration of plant houses that I need not dwell upon its usefulness, as the great numbers that are grown prove that this is appreciated. On the other hand, the value of the flowers in the autumn months is not so well known. I use the term autumn-flowering bulbs in a wide sense, as there is no difficulty in keeping flowers for Christmas. At least, such is my experience of the bulbs. The plants, when in growth, can be retarded at the start, but by autumn the flowers may be had in quantity in September, October, and November by growing the bulbs specially for the season named. I have heard objections raised to autumn-flowering plants of Lilium Harrisi on the ground of the flowers being smaller than the earlier flowers of the same variety, and I admit such is the case, but the smallness or shortened tube of the flower, in my idea, is a gain rather than a loss, as the flowers of the autumn bulbs are more symmetrical and quite large enough for all purposes. Indeed, for wreaths or crosses for church decoration I prefer the shortened flower tube, and the petals are, in my opinion, shorter, so that they last longer, but this latter may be owing to the different season in which the plant blooms and the difference in the shape and growth of the African-grown bulbs.

The Bermuda or early flowering variety, is recommended for Easter decorations, but, as is well known, to obtain flowers in quantity at that date the bulbs must be forced, and there must be no delay at starting. I mean the earliest imported bulbs must be secured, and as these are made a speciality of, they are readily obtained. I prefer the bulbs grown with as little forcing as possible, as I find them most useful for cool house decoration. Having a good space for these flowers, they are most valuable mixed with Canterbury bells in pots in June, and in July with campanulas. The delicate tints of these latter flowers harmonize well with those of the lily. On the other hand few flowers are more useful for corridor or room decoration mixed with palms and ferns, their purity being seen to great advantage. With summer flowering bulbs there is one great drawback; few plants are more subject to the attacks of green fly, and even in cool houses it is well to keep a sharp look out to prevent the insect injuring the flowers. On the other hand autumn flowering plants are less subject to the attacks of the pest named if they are grown as cool as possible, and for latest supplies we do not start under glass, but grow in the open from the commencement.

Now is a good time to secure African grown bulbs for autumn and early winter flowering. The purchaser who buys for the first time must not be disappointed if the bulbs are much less in size than the Bermuda bulbs, as they are naturally smaller, but it is surprising what a fine spike of bloom such small bulbs will produce, and we usually pot three bulbs in a seven-inch pot. For decoration it will be well to put up the bulbs singly in five-inch pots for special purposes. In potting, I would add, it is advisable to press the soil as firm as possible, and as the time in which the plants make their roots is short, good compost is needed. We use a good loam, adding dry cow manure, which is passed through a coarse sieve, and a liberal quantity of bone meal. Such aids as leaf soil, spent mushroom manure, may be employed to advantage. As regards the time of potting, so much depends when the flowers are needed and what they are like when received. We have kept bulbs for weeks in a cool shed previous to potting up if growth was not active, but it is not well to retard by keeping them out of the soil after they are growing as it would be better to retard later when in growth, as this can be done by keeping them cool and shaded when they are showing their flowers. For September blooms we pot up at this date, that is, as soon as the bulbs are received, and plunge in fine coal ashes, and place quite six inches of ashes over the pots; this keeps the bulbs cool till roots become active, and to avoid heavy rains we place in frames, so that the sashes may be removed in fine weather.

The plants are ready to remove from the ashes in six weeks' time, and may be grown in the frames merely protected from storms, but syringed overhead twice daily to keep clean, and to have good colour in the leaves. The culture need not be dwelt upon, it is so simple, but for later bulbs we pot up and plunge under a north wall, giving plenty of plunging material, and grown thus the flowers will be later, and by keeping as cool as possible it is a simple matter to have flowering bulbs in November and at Christmas; for these later dates our plants are placed in frames, just free of frost, late in September, and given air on all favourable occasions. It may be that a large percentage of the bulbs may turn in before the last-named date, but by careful management we found no difficulty in getting late flowers, but even in October and November these useful flowers are of great assistance for cutting or decoration, and the bulbs are not costly.

Syon Gardens. G. WYTHES.

THE DROPPING OF FRUIT BLOSSOMS FROM DROUGHT.

"LUX" is such a genial opponent that it is almost more pleasure to differ with him than to agree with less amiably moulded folk. I also owe him a double debt from keeping me so far clear of Peter's sledge hammer blows. But this week I feel specially tender to Peter, as his style so vividly reminds me of an old faithful servant, a friend of my own. The "blamed varmint," &c., is very redolent of East Anglia, but Peter's answer is likely to prove a poser to others as well as "Lux." I claim the pleasure of repeating it, not in malice, nor for exact endorsement, but because it would seem rude to flatly contradict Peter on a matter of solid fact when he boldly affirms that the drooping flower or fruit blossoms would have stiffened up all right if the "blamed varmint" would have let them. He'd known them do it many a time.

As to the saturating spring that "Lux" writes so vividly about, that you can almost hear the rain rushing in torrents through the flooded root runs, "Lux" will no doubt be surprised to hear that we have had all too little rain in the North. In fact, until Sunday and Monday, July 17 and 18, we have been living for months in fear of a water famine, and with many of our mains full only for a short time, while our rainfalls is still lagging behind the average. Hence "Lux's" facts do not fit here. But I respect "Lux" too much to put him aside with this answer, though it is a sufficient reply to the case as he stated it. It is, however, by no means as certain that, had he had a dry summer or spring, he would have admitted that the drought at the roots shed his blossoms. But no one knows better that drought at the roots may arise from other causes than a deficient rainfall. It is equally true that even heavy rains do not always reach the roots. More than this, the rains that sink to the roots do not always stay long enough to supply their wants. Excessive drainage, or porousness of strata; too restricted areas; over-cropping; hard, unclothed, unmulched, and bare surfaces, may all lead to dryness, or its equivalent, exhaustion, at the roots. Whatever favours these produces weakness of vital force and function, and enables fruit trees and other plants to lighten their loads through throwing off a part or the whole of their current year's crop. It is here that Peter's theory about the varmints comes in. These not only arrest the vital functions of the leaves, but suck the blossom dry of sap, and either bodily devour the blooms or embryo fruits, or starve them off. Hence the flowers have small chance of stiffening up or righting themselves in their contest with the aphis.

The vital importance of this question must be my excuse for one sentence more. Extreme dryness at the root is the normal condition in not a few places. The ground is not seldom so dry and hard as to prove almost impervious to ordinary rains. Dryness at the roots is the normal, and a moist root run the abnormal, state. These conditions need promptly reversing, in the interest of continuous and fairly regular supplies. We cannot control rainfall in exceptional districts, nor do we gain or lose by these so much as "Lux" and others may imagine. The rain that helps the fruit blossoms to hang on or stiffens up the embryo fruits have often done their work of binding or loosing vital connections months before the flowers were shed off. Even now July 23, there are probably thousands of fruit trees North and South whose roots have hardly tasted water since the middle of May. One of the greatest surprises among growers of fruit trees of considerable age and size has been the extreme dry state of their roots.

D. T. FISH.

THE VEGETATION OF ASHANTI.

On the recommendation of the Kew authorities, Surgeon-Captain H. A. Cummins was appointed a member of the medical staff that accompanied the military expedition to Ashanti in 1895-6. He travelled from Cape Coast Castle to the Moinsi Hills, 150 miles inland; and, being stationed for three weeks at Assin Yan Kumassi, 58 miles from the coast, was enabled to collect specimens of the flora and obtain information about the country. The collection of 200 species has been worked out almost entirely by Surgeon-Captain Cummins, at Kew, since his return, and with the result that nine new species and one new genus have been discovered.

In an interesting communication appearing in a recent *Kew Bulletin*, Surgeon-Captain Cummins gives much information anent the geography of the country, climate, and vegetation. He states that there are two well-marked seasons—the wet, lasting from April to November, with an intermission in August and September; and the dry season, from December to March. The forest region, however, is excessively damp during the whole year, for an immense amount of watery vapour is exhaled from the leaves of the large forest trees during the bright sunshine, and soon after sunset this becomes condensed, owing to the fall of the temperature, into a thick mist, which extends over the whole forest region, and where "clearings" have been made reaches to the ground and becomes dispersed only when the sun is again high in the heavens.

With regard to the vegetation, Surgeon-Captain Cummins says that two very distinct regions exist which merge into each other: (1) the so-called "bush;" (2) the forest region.

The "bush" forms a belt along the coast for many miles, varying in width from three to twenty-five miles. It consists of a dense undergrowth of erect, scandent and twining shrubs with comparatively few grasses, sedges, and other herbaceous plants, the whole being matted together into an impenetrable thicket. Small trees occur at intervals, and a few miles from the coast huge Cotton Trees (Bombax buonopozense) appear. At Akeoful, fifteen miles inland, forest trees become fairly numerous, increasing up to Mansu, forty-two miles inland, where the dense forest region commences. Clumps of bamboos grow to a great size and in large numbers wherever the ground is swampy. Villages are very numerous as far as Mansu, and each possesses a tract of cultivated land. The natives plant umbrageous trees, commonly figs, in and around every village for the benefit of the shade afforded by them. By the roadside hedges of Jatropha Curcas, which possesses a copious white milky juice, are frequent. Strophanthus gratus and S. sarmentosus are common climbers with handsome flowers, as are also Ipomœa palmata and I. involucrata, the former having conspicuous purple flowers. Passiflora fœtida, Cassia alata, Amaranthus spinosus, and the prickly climber, Acacia pinnata, also occur. Myrianthus arborescens, a tree which possesses very large leaves, each of the six leaflets being over a foot long, is of not infrequent occurence near Dunquah. Sedges and grasses are to be seen in small numbers. Many plants which are in abundance in the forest first make their appearance at Dunquah. The ponds from which drinking water is procured are frequently covered by Pistia Stratiotes; this plant is said to have a purifying effect on the water.

The forest region commences about Mansu and is said to extend to the Kong mountains. The trees are of great height (one hundred to two hundred feet). Amongst them the cotton trees (*Bombax*) are remarkable and very numerous; each has its smooth clean trunk from epiphytes and climbers, which here find no foothold, and radiating from the base large buttress-roots. Far above the tops of the other trees the branches begin to come off and carry in the full sunshine the spreading foliage. The buttress-roots deserve further description; there are generally five or six to each tree, and the part above ground varies in length from three to twelve feet; in thickness they vary from a quarter to four inches at the borders, and when cut to the required size are used by the natives as doors for houses. Other trees of the forest belong to the following genera: Cola, Sterculia, Carapa, Eriodendron, Monodora, Acacia, Albizia, Pentaclethra, Lonchocarpus, Kickxia, Ficus, Musanga, Macaranga, and Diospyros.

The leaves of the trees form an almost uninterrupted layer of foliage which intercepts the sun's rays and causes a perpetual gloom beneath. The majority of the high trees are deciduous, forming a marked contrast to the shrubs composing the undergrowth, which are all evergreen. The undergrowth consists of various kinds of shrubs and scitamineous plants, aroids, and melastomaceous climbers. Vines and prickly scandent palms, forming lianes, in thickness from a thread to several inches, wind round each other in their struggle upwards towards the sun. To the north of the Prah the tree are more closely set, branching as a rule within twenty feet of the ground, and are covered by creepers which do not seem to impair their vitality. Epiphytic shrubs, ferns, and orchids are to be seen near the tops of the highest trees. Dracænas and palms are comparatively common in the undergrowth.

When travelling through the forest many interesting and beautiful plants are seen. Crinum Sanderianum is one—a very handsome species, the flowers of which are white and fully four inches long. Hæmanthus multiflorus has a head of bright red flowers, and is very frequent. The small flower heads of Thonningia sanguinea appear above the ground like small red stars. Vanilla crenulata, with purple and white flowers, hangs its long stems from the trees. Monodora tenuifolia has very peculiar flowers, coloured white and yellow, flecked with purple, resembling a large spider; these flowers, although three inches in diameter and very numerous, are seen with difficulty owing to their resemblance to the surrounding foliage. In many places the ground may be covered with the fallen flowers of Eriodendron anfractuosum, which is a very lofty tree. A species of [illegible] is a common climber, and it seems strange that it should not have been earlier noticed. Cephaelis peduncularis is a very common undershrub. Amongst other plants forming the undergrowth may be mentioned species of Oxyanthus, Mussænda, also Paullinia pinnata, Leea sambucina, Ancistrophyllum opacum, Dracæna arborea, Gouania longipetala, Selaginella scandens, Cardiospermum [illegible], Heisteria sp., Haronga paniculata, Oncoba echinata, species of Cyathula, Achyranthes and Aerua, Piper umbeliatum, Dioscorea sp., and many others.

Scitamineous plants are numerous. Species of Costus are frequent, and have large yellow or white flowers in a dense spike. Species of Phrynium, Amomum, Canna, Calathea, &c., occur. A few grasses were found, Panicum ovalifolium, Paspalum conjugatum, Centotheca lappacea, &c. Scleria Barteri is an extensively climbing, very scabrous sedge. Ferns and mosses are fairly frequent. Among the ferns are Nephrolepis acuta, Pteris spinulifera, &c. The orchids were few and had inconspicuous flowers. The following may be mentioned: Megaclinium falcatum, Polystachya ramulosa, Polystachya affinis, Listrostachys sp., &c. Several commelinaceous plants occurred, *e.g.*, Aneilema sp., Palisota [illegible], a plant eight feet high, with purple flowers; Pollia condensata is to be found from Mansu inland. The berries of this plant are of an intense metallic blue colour.

The system of agriculture employed by the natives in the forest region is simple. The trees are cut down in the area selected for the "clearing" and the trunks removed, if not too large and heavy, otherwise they are left to rot on the ground. All the undergrowth is then cleared away. The moist condition of the ground and foliage prevents the use of fire for this purpose. When the clearing has been satisfactorily accomplished, the soil is lightly turned up, and tubers, seeds, &c., are planted. The following are generally found in cultivation: Plantains, Indian corn, pineapples, sugar cane, yams, beans, ochros (*Abelmoschus esculentus*), papaws, cassava, chillies, castor oil, egg apples, cotton, cocoanuts, and oil palms. A distinction has been made locally between plantains and bananas; the former never become soft when ripe, and require cooking, while the latter can be eaten raw. Very little trouble is taken to keep the land clear of weeds, consequently numbers of small herbaceous plants spring up and cover the surface of the ground. Growth is extremely rapid. Ginger plants grew eighteen inches in three weeks in the "clearing" at Assin Yan Kumassi.

Plantains are largely grown, and form the principal food of the inhabitants. Indian corn is extensively cultivated and freely grown. Sugar cane is grown in many of the villages. Pine apples are found all over the country in such a way as to lead persons who have travelled far inland to believe them indigenous. Cola, rubber, and gum trees grow plentifully in the forest region, and are reported to be more numerous in the districts around Kumassi. Palms producing "wine" and oil are to be found in most "clearings;" the "wine" is obtained after the tree has been felled by applying heat to the summit, the heat causing it to exude from wounds made near the base. Oil is obtained from the fruits. The cocoa-nut grows as far north as Assin Yan Kumassi, and the bread-fruit tree at Prahsu. The Indian Mango tree (*Mangifera indica*) is cultivated, but does not appear to ripen fruit. The leaves, flowers, and young branches are usually injured by ants and other insects. The cola nuts in the region of Assin Yan Kumassi are obtained from Cola acuminata, R. Br. These trees are plentiful. The natives of this region obtain rubber from Kickxia africana. Spiral grooves are cut in the bark of the tree from which the rubber flows. This tree has a widespread reputation for yielding excellent rubber. Tabernæmontana crassa yields, on incision of the bark or fruit, a copious supply of milky juice which gives good rubber; it also grows at Assin Yan Kumassi. Gum exudes from the bark of many leguminous trees when wounded, and soon hardens on exposure to the air.

Trees producing valuable wood are in quantity; amongst them is Carapa guyanensis, which is probably the "Danta" of the natives; the wood is hard and dark. The so-called "Aman" has a white, close-grained wood; the "Ceda," probably a species of Albizzia, has a red wood. A tree yielding wood called "Quanta" is also utilised. The "Odoom" (*Chlorophora excelsa*) is said to be plentiful, and its value is well known. The Cotton Tree (*Bombax*) has a soft, white wood, and is employed by the native carpenters for making canoes, stools, &c.; its brittle "cotton" is used for stuffing pillows and mattresses. The long offshoots of several palms make excellent canes, and are much used for binding when making huts. Bamboos grow as far inland as Fumsoo; the African is not so skilful in utilising this grass for his needs as the East Indian. Native carriers take all the merchandise to the coast except timber, which is, I believe, floated down the Prah river during the rainy season. The former method is very unsatisfactory, being uncertain and expensive. A railway is urgently required for trade purposes.

The great prevalence of malarial fevers renders the forest region quite unfit for European residence; the intensity of these diseases is increased tenfold when the soil is turned up. The portion of the main road extending from Mansu to Kumasi becomes obstructed in many places by trunks and branches of trees after a tornado. The force of the wind is most felt at the edge of a clearing or near the road, where support, from the natural surroundings has been partly removed. The unhealthiness of the country is a great hindrance to the employment of European agents, but if a railway penetrated the forest zone, establishing a rapid means of communication with the healthy mountainous interior, as has been done in India, it is most probable that a great diminution in the death rate among Europeans would be the result. Trade in the vegetable and mineral products of the country could be carried on without present limitations, and the friendly commercial intercourse thus established with the natives of the interior of this wealthy land would have an advantageous influence on the neighbouring native States, and thus benefit the Colony.

MYOSOTIS DISSITIFLORA.

In your answers to correspondents (page 397) you say truly enough that the best time to sow seed of this forget-me-not is as soon as it is quite ripe. Then follows good instructions as to cutting, drying, sowing the seeds, culture of the young plants, &c., which need not be repeated. But, unfortunately, this best and most beautiful of all the forget-me-nots ripens its seed one or so at a time, from the base of the flowering stem upwards, and not in the manner of the wood forget-me-not, Myosotis sylvatica, and others *en masse*. Hence the almost insuperable difficulty of knowing when to cut and dry the flower stems of Myosotis dissitiflora in order to reap a profitable harvest of seed. So very real and great were these difficulties in practice that when I propagated this forget-me-not in thousands every year I was forced to give up raising the plants from seed to any great extent, though the ripe pods were picked off as soon as ripe, leaving the later blooms and perfect seeds in succession for several weeks or months.

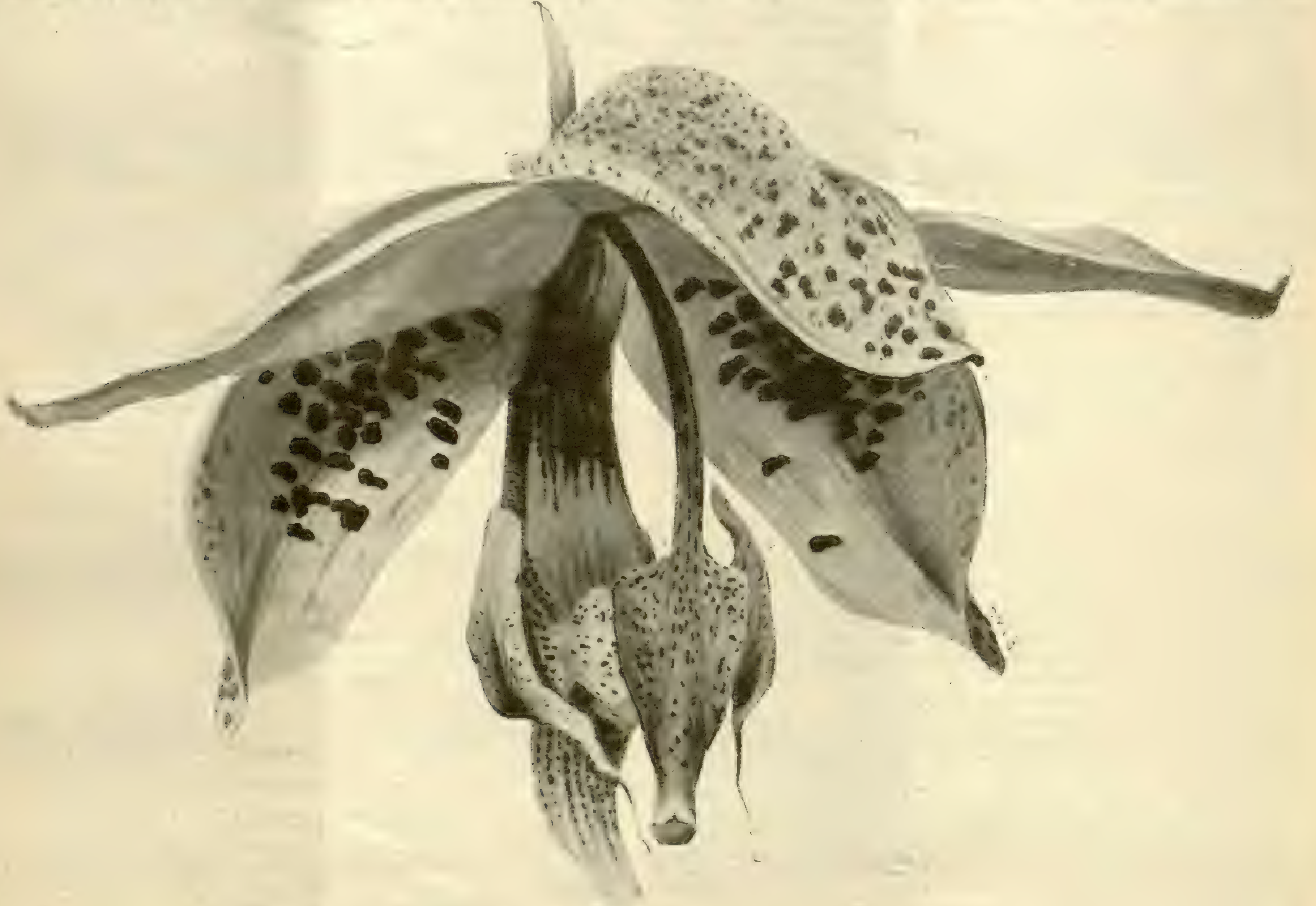
Your other plan is safer and surer than cutting off the flower stems. Carefully lift and transplant the forget-me-nots on a rich shady border, watering home to re-establish them, with as slight a check as possible. Leave nine inches or a foot between the patches, and run a hoe occasionally through the plants to preserve a loose clean seed bed for the seeds as they ripen and sow themselves. This plan will result in far more seedlings than cuttings to dry the flower or seed stalks all at once.

One more caution about this beautiful forget-me-not. Never purchase the seed without a warranty of genuineness from the seller. I have purchased it from many quarters, and never once received it true, the most common substitute being Myosotis sylvatica. The latter is one of our freest bloomers and seeders, while M. dissitiflora, from its perpetual blooming and slow ripening of seeds, yields a slow and uncertain harvest. And yet these and other sorts are often offered at about the same prices. Through the sparse seeding and our very profuse use of M. dissitiflora, we were compelled to propagate our thousands by cuttings and stool divisions, while grateful to seeds to add thus hundreds of seedlings, the latter, however, being severely rogued before being added to our general stock. After blooming, all the stools that produced increase by cuttings or through division were removed from decorative sites, and planted in good soil, some nine inches apart, in rows, with eighteen-inch spaces between them. The fresh growths were rooted as cuttings when from three to five inches long, or the stools were lifted, divided into single-rooted stems, or patches of three stems, and replanted at the same distances, to be removed to their flowering quarters in October. D. T. F.

NOTES ON ORCHIDS.

STANHOPEA RODIGASIANA.

THIS curious and wonderful orchid is remarkable for its size, curious markings, and for the fact that the species illustrates quite a new section of this quaint genus of Central and South American orchids. The honour of first flowering Stanhopea Rodigasiana in this country belongs to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, whose extensive collection of rare orchids is so ably managed by Mr. W. H. White. An expanded flower recently exhibited measured about eight inches across from tip to tip of the outstretched petals, these segments being slightly concave, and wholly of a creamy colour. The upper sepal is narrower than the two lateral ones, concave, creamy white, heavily speckled and spotted with rose and crimson on the upper surface, and tinged with green inside. The two lower sepals are also concave, broad, also creamy white, but each having an aggregation of large and blackish crimson-purple spots towards the centre. The lip is exceptionally interesting, and, as in all stanhopeas, consists of three parts, known to botanists as the hypochile, mesochile, and epichile. The hypochile, or base of the lip, is thick and fleshy, but somewhat narrow, dark crimson-purple, with a white blotch in front. The middle portion or mesochile consists of a thickened waxy centre with a large triangular blade or wing-like process on either side; in each case the forward angle is prolonged into a kind of bristle or hair, as will be seen in the illustration; the colour is creamy white, tinged with pink, shining, and speckled with crimson. The extreme front or apex of the lip is known as the epichile; this is a thick tongue-like body in S. Rodigasiana, whitish, and spotted with crimson. The column is very long and narrow, streaked with crimson, winged at the apex, where there are numerous crimson spots on a rosy ground colour. It may be added that the flowers are produced on a pendant spike, and each on a long foot stalk. The plant exhibited carried one flower and one bud, and merited a first-class certificate from the Royal Horticultural Society.



STANHOPEA RODIGASIANA.

COELOGYNE SWANIANA.

A pretty orchid that is closely allied to the well-known C. Dayana, but which differs from it in being smaller and not having reflexed margins to the sepals and petals. It has leaves six to eight inches long, petiolate, elliptic-lanceolate, and bright green. The loose, pendulous racemes are a foot or so long, and carry from a dozen to twenty flowers; each flower is two inches across, and has white sepals and petals, the latter being narrower than the former, but all about an inch long. The lip is three-lobed, the side lobes extending two-thirds of the length of the whole organ; yellowish-brown in colour, with darker brown margins and tips to the lobes; the disk is composed of crested ridges; column yellow. C. Swaniana was discovered by Mr. W. Micholitz in the Philippine Islands, and sent by him to Messrs. F. Sander and Co., St. Albans, as notified on p. 810 of the GARDENER'S MAGAZINE for December 29, 1894. A double page illustration of this pretty orchid is given in the *Botanical Magazine*, t. 7,602.

ERIA LATIBRACTEATA.

This curious Bornean orchid has short fusiform pseudo bulbs, and thick oblong-lanceolate, recurved leaves, two to four inches long. The racemes droop somewhat, are about four inches long, and carry six to ten flowers, each about half an inch across, and of a dull yellowish colour; the lip is yellow, with red side lobes. A distinct feature of this species are the broadly oblong, yellowish-green bracts, each half an inch long. This eria is of more value horticulturally than most of the hundred or so of species that constitute the genus, It was imported from Borneo, by Messrs. F. Sander and Co., St. Albans, about 1894; a specimen flowered at Kew in July, 1897, and is figured in the *Botanical Magazine*, t. 7,605.

AMBLESIDE, WIMBLEDON.

CHRYSANTHEMUM growers in and around Wimbledon and Putney have during the past few years had cause to remember that Mrs. Barclay has a well-kept garden at Ambleside, and that Mr. French, her gardener, is a capable grower of the popular autumn flower, so capable that he he has not been beaten many times of late, and last year secured ten first and two second prizes in a close competition.

Ambleside is not an extensive establishment, for the whole of the grounds do not exceed three acres. The gardens are situated upon the south-eastern slope of the hill that has Wimbledon Common as its highest elevation; at the foot of this slope is the large lake in Wimbledon Park, and so neatly have the lower fence and still lower road been concealed from the windows of the house that the extensive park seems part and parcel of the establishment. The view is a charming one, either from the terrace walk above the lawns, or the more elevated verandah in front of the drawing room windows; Sydenham and its Crystal Palace are plainly seen, while Mr. French says that on a clear day he can see the tall trees of High Beeches at Sevenoaks, twenty-six miles away. In such a position as this the garden has a very large amount of all the sunshine that is going, and, owing to the lack of rainfall, Mr. French finds it difficult, in spite of heavy watering, to keep such crops as peas long in good condition. However, the usual kitchen-garden crops are looking well, and several prizes have already been taken this season with various produce.

Down through the lower lawn a path runs under an avenue of apple trees that vary somewhat in age and size, but appear to have fair crops of fruit throughout. There are fruit trees in many other parts of this pleasant little garden; gooseberries, raspberries, and strawberries occupy the lowest point; cherries, currants, and many other kinds occupy positions against the fences, so that all the available space is utilised. The Logan-berry is on trial, and ripening some immense fruits; this is its first year at Ambleside, but it has done so well that it will be retained. Melons and cucumbers, vegetable marrows, ornamental gourds, all these find a place, and in all cases fruit freely. A small and low lean-to house, quite close to the residence, contains a grand crop of tomatos, and the fruits are solid, handsome, and finely flavoured; the variety is Connell's King, and one that Mr. French is thoroughly satisfied with. A large greenhouse rises above and behind the tomato house, and is used as a secondary conservatory, for it adjoins the conservatory proper, and is lower than it. This structure is at present gay with large specimen fuschias, fully flowered, zonal pelargoniums of the finest varieties, gloxinias, streptocarpus, Harrison's musk, tuberous begonias, &c. It is in this house that a large proportion of the collection of chrysanthemums is housed and come into flower. Up a few iron steps the conservatory is reached; this is a large, almost square house, and with the exception of a few plants on a small stage opposite the glass door of the drawing-room, is occupied by permanently planted ferns, Rex begonias, &c. One half of the house is illustrated in the present issue, and shows how well

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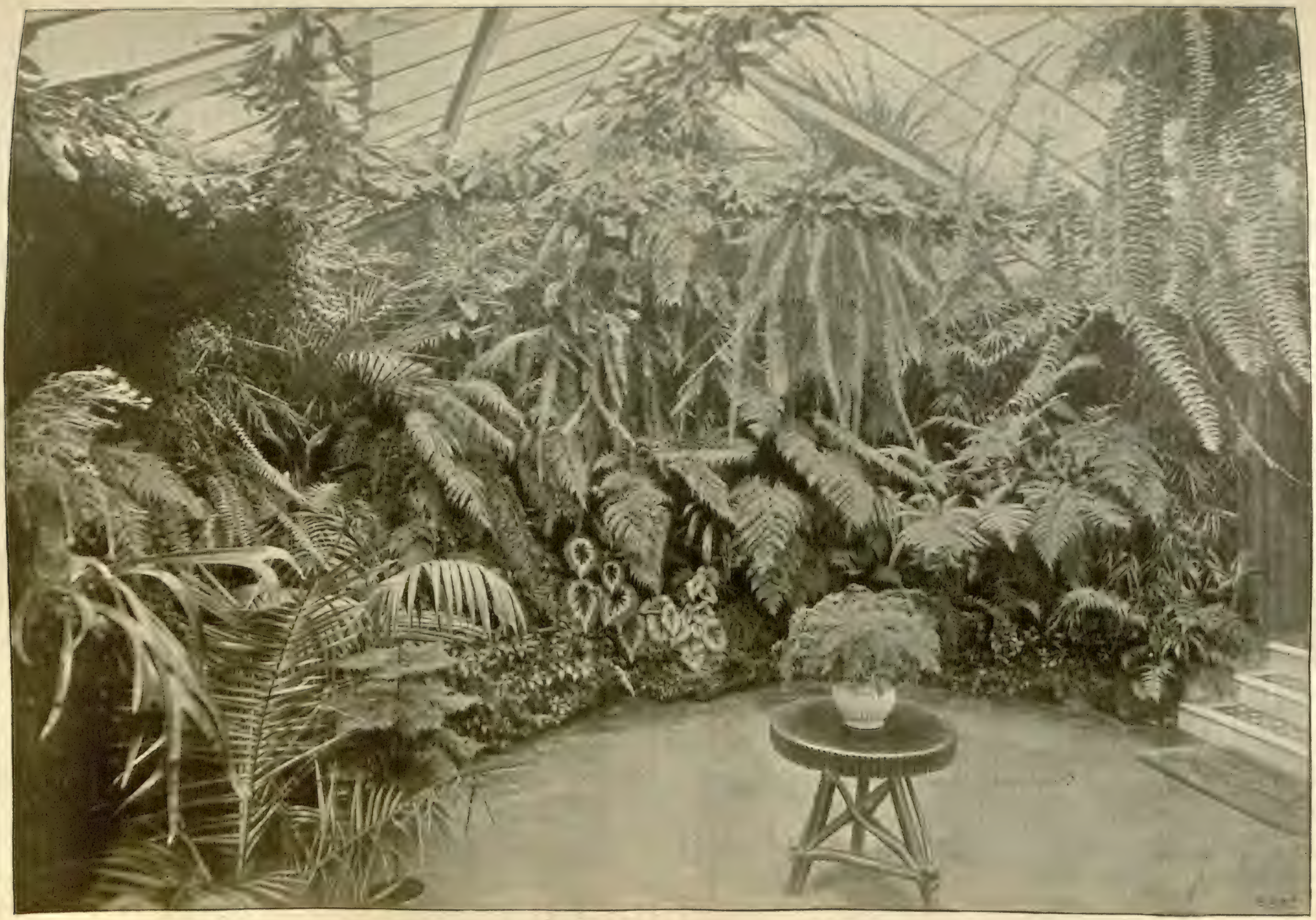

VIEW IN CONSERVATORY AT AMBLESIDE, WIMBLEDON.

Woodwardia radicans, Platycerium alcicorne, Nephrolepis pectinata, N exaltata, Pteris serrulata, Maidenhair ferns, tradescantias, and the handsome Rex begonias succeed, planted in large spaces in the rockery and on the wall. The opposite end has the rockwork quite low, and made in a semi-circle; this is similarly planted, though woodwardias are not grown here. Palms of many kinds are placed among the ferns, so that their pots are hidden. Ficus repens clothes the walls; Asparagus plumosus climbs the rafters, and until recently a passiflora was trained along the iron supports, but it has been removed. The front of the conservatory is occupied by chrysanthemums during autumn and early winter, and thus at that season there are two houses of handsome and bright flowers to be seen without the inconvenience of going out of doors at all.

At present the chrysanthemums are in rows, on an ash bed, at the lowest part of the garden; they are looking first-rate, and will doubtless give as good blooms as Mr. French has ever yet produced. There are five hundred plants in two hundred varieties, the collection containing a large number of the newest incurved and Japanese varieties. Last year Mr. French grew about nine hundred plants in 32-sized pots, but this year he has returned to the usual twenty-four or sixteen sizes, though a few are grown in small pots for grouping and cutting from. There are many visitors to Ambleside during November, and for the information of those who purpose measuring their skill in chrysanthemum growing with that of Mr. J. French, we may add that Mrs. Barclay's pretty garden is only three minutes' walk from Southfields station, District Railway, or half an hour from Putney. C. H. C.

CURE FOR THE LILY DISEASE.

IN common with many other amateur horticulturists, I have long been troubled with that widely prevailing pest known as the lily disease, and the yearly disappointment of seeing my lilies come up merely to blacken and wither away before they reach the stage of bloom, has led me to investigate the matter with a view to the eradication, or at least the mitigation, of the evil.

Some few years since I took up the whole of my bulbs of Lilium candidum to the extent of about two bushels; for I thought that by a judicious selection of the strongest among them, and by replanting in the most favourable positions, I might be able to improve the then gradually degenerating blossoms. In spite of this the disease made rapid headway, so that of late I have had but a few poor sickly stems in the whole of my garden.

I consulted the County Council lecturers of this district, both of them Fellows of the Royal Horticultural Society, only to receive the discouraging information that this mysterious disease had defied all research and all efforts for its cure, and I have read a recent article in the *Standard* to the same effect. The several attempts made to procure a healthier stock by the importation of fresh bulbs from Holland have not met with the success they deserved, for the new arrivals have been quickly reduced to the state of the old apparently worn-out bulbs by the ravages of the same disease. Hence this strange visitation has practically been stated to be an incurable disease.

I have given the subject some thought for a considerable time past, and, from what is exemplified at the present time in my own garden, I believe I may state that I have discovered a cure for this persistent evil, which is remarkable at once for its simplicity and its effectiveness. My final experiment dates back to the autumn of 1896, and was confined to three groups of the bulbs. Last season they showed a marked improvement in the blossom heads, which appeared to be entirely free from the disease, though still evidently somewhat weak from its effects in previous years. This summer I have the pleasure of seeing them perfectly healthy and well grown, with fine green stems and leaves, and the promise of large heads of bloom. Other groups in my garden, which have not been treated, have not a single blossom stem, and some of them are so far diseased that they have almost disappeared. Disease and health could not be more clearly exemplified than here, and I shall be pleased for anyone to see and compare them.

And now for the remedy, which anyone may try—I hope with the same pleasing success which has attended my own efforts. In the autumn of 1896 I removed the bulbs from the ground, and, after they had dried somewhat, I put them into a large brown paper bag in which was a supply of flowers of sulphur. They were then well shaken up, until the sulphur had been worked thoroughly into the crevices. After this, and while still well smothered with the powder, they were planted straight away, with the result which I have described.

From the nature of the disease I felt sure it must emanate from the bulb, for the bulb leaves are the first to be attacked, and it then proceeds upward through the stem to the flower, which is the last to be affected. This season I propose to treat more in the same way, and I shall be pleased to hear that others whose plants are affected with the disease have also tried this simple remedy with success.

HORACE BYATT, M.A.

The Grammar School, Midhurst, Sussex.

Cucumber, Veitch's Challenger.—This is a model cucumber, handsome and well proportioned; the fruits grow from eighteen to twenty inches in length, there being but little or no waste either at the tip or shank, and are covered with a beautiful bloom over the smooth, dark-green skin. The fruits are almost spineless, and when cut open it is at once seen that the seed space is exceedingly small; the flavour is first-rate. To these recommendations may be added that of its being a vigorous grower and continuous cropper. For general purposes it is a first-rate sort, and I am as pleased with it this, the second year of growing it as I was last season.

A. W.

FLOWER CULTURE IN THE SCILLY ISLES.

(Concluded from page 479.)

As the great advantage of the Scillonians consists in being able to produce flowers cheaply in the open air as early as they can be obtained by forcing on the mainland generally, it is questionable whether there would be much or any [illegible] in the extension of hot-houses. I am disposed to think that unheated glass houses, such as are common in Guernsey, would be more economically advantageous. As this question is to some extent connected with the conditions under which land is held in the islands, it will not be out of place to write a few lines upon that subject.

The tenure under which the farms of the Scilly Isles are held is practically hereditary, and in some cases holdings have been in the hands of the same families for two or three hundred years. Although the agreements are yearly, and in most cases, I believe, verbal, evictions are almost unknown. Security for improvements rests mainly upon confidence in the permanence of the hereditary custom, though Mr. Dorrien-Smith invites his tenants to make known their desires as to improvements, with a view to arrangements as to compensation. Apparently the tenants are well contented with the friendly arrangements made between themselves and their landlord. As a farm almost invariably descends to a relative of a deceased or retired tenant, there is no competition as to rents, which range from 2s. 6d. per acre for rough grazing land to £3 for land suitable for flowers and in favourable positions. Although, instead of falling, as in most parts of the country, rents have risen in the Scilly Isles, they appear to be moderate under all the circumstances, including heavy and continuous expenditure on the part of the landlord for the advantage of the people. Rates are moderate, and there are no licences in Scilly. In this connection it may mentioned that the general prosperity of the people is indicated by almost entire absence of pauperism. Each island supports its own poor, and there are now only five paupers in St. Mary's, one in Tresco, one in St. Martin's, and none in St. Agnes or Bryher.

The cultivation of the narcissus is comparatively simple, when once it has been ascertained whether any specified variety will flourish in a particular soil or climate. In Scilly the bulbs are usually planted in October, the small sorts about four inches by two and a-half or three inches apart, and large bulbs about six inches by four inches to six inches. In some cases the land is carefully weeded up to the time of flowering, while in others it is left untouched during the growing season, so that it becomes covered with weeds. The manure most extensively used is a compost of seaweed, farmyard manure, earth, and road-scrapings, nitrate of soda or guano and bones being also used by some growers. Mr. Dorrien-Smith and other careful growers manure heavily for the preceding crop—usually potatos—and then, as they do not allow their bulbs to stand more than two or three years, no direct manuring of the flowers is necessary as a rule, though artificial manure is applied if they seem to need it. This plan is considered preferable to the direct manuring of the flower crop. But the majority of the growers allow at least some varieties of their bulbs to stand six or seven years, or even longer, and in such cases the crops may require supplementary manuring, though they do not always get it. The Scilly growers have been censured for allowing their bulbs to stand so long, and there is no doubt that the crops become overcrowded under such circumstances, with deterioration in the sizes of bulbs and flowers alike as the result. But the saving of the expense of digging up and replanting is a great consideration, and the polyanthus varieties, which are usually left standing longest, are said to deteriorate less on that account than the [illegible] or some other varieties of the narcissus. Still the best growers maintain that no variety should be allowed to stand longer than three years, because, apart from the deterioration caused by the overcrowding of the increasing bulbs, a frequent change of soil is needed for the narcissus as much as for other crops. The different varieties of flowers are picked, as already stated, from the beginning of January, or occasionally a little earlier or later, until June, expanded in glasshouses, tied in bunches of twelve, packed in boxes, and shipped to the great markets of England and Scotland. The leaves, when they have died off, are removed, and sometimes used as food for cattle. If the crop is to stand, the soil over the bulbs is cultivated during the summer in order to kill the weeds. For transplanting or marketing the bulbs are taken up in June.

Picking is mostly done by men, and bunching by women and girls, assisted by men in their overtime when work is in full swing. Men's wages are 15s. a week; but they earn a great deal extra by bunching and packing by the piece in their overtime. Their regular hours are from eight a.m. to five p.m. in the winter half of the year, with an hour for dinner, and from six a.m. to six p.m. in the summer half, withtime for breakfast as well as for dinner.

The expense of growing narcissi is one of the questions as to which growers are naturally reticent, and inquiries upon that point could not fairly be pressed, though growers are occasionally invited to disclose even more delicate particulars of their private affairs—as, for example, in the case of a leading Scillonian who recently received a letter from a lady, unknown to him, asking him how much his income was. The expense of cultivation varies greatly with the time during which crops stand, and with the cost of bulbs, some of which are purchased at very high prices, whilst others are simply the increase of crops grown in the islands, and worth very little to sell, if they can be sold at all. If a statement made by a grower on the mainland may be accepted as accurate, to the effect that 240,000 of small varieties of bulbs are required to plant an acre, or about half as many of the largest, it may be readily imagined that the cost of planting even home-grown bulbs is by no means small, and that it is very heavy when varieties by no means the newest are purchased at £3 to £10 per thousand. With respect to new hybrids there is, of course, no question of planting by the acre, as they frequently command £5 to £10 per bulb, and I have seen one for which fifty guineas was refused. In the past very high prices were paid by enterprising Scilly growers for varieties now comparatively common, such as Emperor, Empress, and Sir Watkin. One grower informed me that he had paid £50 to £80 per 1,000 for such varieties a few years ago, while another said that he had bought Sir Watkin at £30 earlier than the neighbour who said he had paid £80. This discrepancy I am not able to clear up; but when Scilly growers bought bulbs at even £30 per thousand, it is to be presumed that they planted only a few rods of land with them, and extended the area as the bulbs increased. The expenses of manuring, cultivation when properly done, picking, raising and collecting bulbs, packing, freight, and marketing bring the cost of growing narcissi up to a large sum per acre.

With respect to the returns, they vary enormously with crops and prices. A high authority informed me that a good crop of a particularly free-flowering variety at 1s. 6d. per dozen bunches would give a gross return of £100 per acre; and probably choicer and less productive kinds, sold at higher prices, make [illegible] good returns. But prices fell alarmingly in 1897, and, although they were much better in the early portion of the present season, they have been extremely low at times since the end of March. Some details as to the fall in prices will be given presently in the evidence obtained from growers.

Mr. Dorrien-Smith's home farm, apart from his extensive growing ground and the private gardens and shrubberies, is about one hundred acres in extent, and, with the hothouses for market produce, is under the management of Mr. T. G. Brown, to whom I am indebted for a great deal of information. About forty acres are under flowers, and thirty acres under potatos. The narcissus is admirably cultivated on Mr. Dorrien-Smith's farm, as the bulbs are not allowed to stand more than two or three years, heavily-manured potatos being grown as an intervening crop, while the flower-beds are carefully weeded during the period of growth. The average weight of flowers exported by Mr. Dorrien-Smith from 1894 to 1897 was 37½ tons per annum.

It remains to present a few illustrations of the fall in the prices of flowers more precise than those which are based on off-hand statements. Accounts are so strictly kept at Tresco that the average price of each description of narcissus in each season is shown for years past. In the first place it is to be observed that no variety had been sold from Tresco up to the middle of March this season at less than 1s. 6d. per dozen bunches, while 4s. had been made of Emperor, and 5s. to 5s. 6d. of the earliest Ornatus. The records show that while the comparatively new varieties have fallen greatly in price, the old kinds, and especially the polyanthus varieties, have suffered much less depreciation. Scilly White, indeed, seems to have kept up its price well, as its averages for the eight years, 1890-97, were respectively, per single bunch, in pennies and fractions, 1·44, 1·57, 1·60, 1·29, 1·30, 1·85, 0·97, and 1.51. Here we find the highest average for 1895, while even in 1897, notably a year of extremely low prices for narcissi generally, the average was 1·51d. per bunch, against 1·44d. for 1890. Grand Monarque fell from 3.44d per bunch in 1890 to 2d. in 1897, and Soleil d'Or from 2·18d. to 1·57d., while the old double daffodil was 3·99d per bunch in 1890, 2·6d. in the following year, 1·8d. in 1895, and 1·77d. in 1897. Taking the case of the giant of the daffodil division among varieties at all extensively grown at present, the splendid Emperor, there is a great drop to be noticed, as its average was 5·88d. per bunch in 1890 and 6·54 in 1891, as compared with 2·52d. in 1895 and 2·22d. in 1897. Ornatus, again, a great favourite, and now very extensively cultivated on the mainland, has lost heavily in value, at least so far as Scilly growers are concerned. When it comes into flower with them abundant supplies of other varieties from the mainland are in the markets, so that it does not fully share the advantage which gives a temporary monopoly to Scilly for earlier varieties of open-air narcissi. It is to be observed that these are the average prices of open-air flowers only, those of forced flowers, of course, being higher.

Mr. Brown is of opinion that the polyanthus varieties will be the mainstay of Scilly growers, because, he says, these varieties do not flourish on the mainland or in the Channel Islands. Mr. Martin John Sutton informs me, however, that they are produced to a considerable extent in the Channel Islands; but, while they are also grown to a limited extent on the mainland of England, I have not seen or heard of their cultivation for market anywhere but in Cornwall, and it appears that, although they can be grown elsewhere, the bulbs do not increase, so that it would not be profitable to grow them on a large scale for market.

In spite of the keen and growing competition in the production of the narcissi, it appears to me that the Scilly growers, if they make the most of their opportunities, instead of relying too much, as some of them do, upon their natural advantages, will be able to hold their own; and although they may find that their profits in the future will be smaller than those of the past, there seems to be no danger of flower-growing in the climate-favoured little islands ceasing to be fairly remunerative.

Tomatos.—Good home grown fruits are selling in the shops and markets, retail, at 7d. and 8d. per lb.; that is a good price and should satisfy growers in the month of July. But when it is remembered how many thousands of persons are engaged growing tomatos under glass, and what extensive ranges of houses are devoted to them, may it not be a matter for surprise that fruits should yet be so relatively scarce and dear. We see a great quantity of the unripe pale red imported fruits retailed at from 3d. to 5d. per lb., and no doubt great quantities are sold. But this fact serves to show that home enterprise in the production of early supplies, entirely fails to keep pace with the demand, and probably always will. It is so improbable that every home-grower will be able to produce early under glass at a cheaper rate than they do at present, that although imported tomatos are poor substitutes for home-grown ones, yet the million must be content with these up to a late period in the year or go without. When it is said, as is so often said, that we spend twenty million sterling annually for produce that should be grown at home, we are apt to overlook, or shall I say nonpractical critics are apt to overlook, the fact that a great quantity of this produce comes to us in seasons when we are unable, through adverse climatic conditions, to supply it. Too often also it is forgotten that a large portion of our foreign trade is reciprocal, and that in return for the twenty millions thus spent, probably twenty millions of our own productions or manufactures are exported. All the same we do most heartily desire to see a far greater quantity of fruit and vegetables produced at home than is now raised by growers.—A. D.

Some Old Roses.—It was most interesting and surprising to me the other day at the Richmond Show to see in several collections of roses some very fine blooms of the old Souvenir de la Malmaison, and the hardy but ancient General Jacqueminot. If the latter has been in commerce some forty-five years, surely the former has been so for more than half a-century. When, therefore, it is remembered what a wonderful advance has been made in rose development during the intervening period, it does indeed seem remarkable that such ancient varieties should still be found good enough to be placed in really good collections at the close of the nineteenth century. Contemporaneous with these two varieties in the middle of the century was the crimson Geant des Battailes, the huge Baronne Prevost, that lovely globular pink Coupe d'Hebe, and a few others which I have forgotten, but one scarcely now exists with the exception of the two first named. Souvenir de la Malmaison is yet grown very largely in gardens for bedding, and in bush form, and also trained, not too tightly, against walls. We have so few of the old Bourbon section of roses now in commerce that this old variety, which I observe Mr. F. Cant mentions as being sent out in 1843, is well worth preserving. General Jacqueminot, sent out just ten years later, the same year that saw the introduction of the famous Gloire de Dijon, is yet one of our richest crimsons, and is still one of the best of H.P.'s. It is very largely grown for market purposes, as in the expanding bud stage it is a first-rate variety for bunching. Cloth of Gold is another 1843 rose, but it has nearly disappeared from general cultivation, and Devoniensis, sent out five years earlier, a popular rose during the fifties, has had to give place to others of more recent introduction. Niphetos was less known in the fifties than was the preceding, though put into commerce in 1844. That is still one of our most widely grown and popular teas. What a most interesting competition could be created out of a class which would include three varieties sent out in each of the six decades of 1840 to 1899. That would be eighteen trebles, and would illustrate in a striking fashion the progress of the rose for a period of some sixty years.—A. D.

WORK FOR THE WEEK.

WARM ORCHIDS.

Cattleya Bowringiana, one of the most useful cattleyas we have, flowering as it does at a time when orchid flowers are scarce, will now be growing vigorously and the roots will be fairly at work, therefore copious waterings will be required, although not sufficient to cause the soil to become sodden, for if this occurs the bulbs go black and the rot gradually works its way through the rhizome; plenty of fresh air will be necessary and this afforded every satisfaction may be expected at the flowering season. This is an invaluable species where large quantities of cut flowers are required; it is also valuable to the hybridiser. C. Mantini and C. Wendlandi, which are both results of hybridisation from the above, are fine orchids and ought to be grown in every choice collection, Some plants of C. labiata autumnalis will have made up their growths and formed flower sheaths; such must not become dry at the roots, nor must water be given to excess, or the spikes will die off in the sheath; those that have not completed growth must have more water and be kept at the warm end of the cattleya house. Cattleya Warneri, after flowering and a rest, will be commencing to make new roots; this cattleya grows very satisfactorily if suspended from the roof in the cattleya house either in pans or baskets. If the compost is in any way sour fresh material must be afforded at the present time to give the new roots the full benefit of it, and enable them to become fairly established before the end of the year; the plants, however, require to be treated individually as such a quantity of cattleyas of different kinds have been imported of late years that it is rather difficult to mention any proper or exact time for certain work to be done until such have become acclimatized.

Oncidium Lanceanum is a very beautiful orchid which flowers about this time of the year, but like many other favourites its life is comparatively short, although if proper care and attention can be bestowed upon it we may expect it to last a good while. Spot is a very great enemy to this charming orchid. The hottest part of the stove is the best place to grow this species, plenty of sun being allowed and the syringe used freely while the plant is growing; oblong rafts well crooked and filled with rough fibrous peat and a little moss, the plants being firmly wired down to it, and suspended from the roof, afford conditions that answer well. Oncidium Jonesianum is also another very difficult subject to grow satisfactorily, hence its scarceness, though so many have been imported; this also requires hot treatment and to be fastened with copper wires to pieces of cork bark and hung close to the roof. Cœlogyne pandurata must also be classed as another bad grower. It flourishes for a time, except in very few cases; curiously enough it is sometimes met with growing well in the hands of someone who does not profess to be an orchid grower. This species also requires hot treatment and a shady position, but no water from the syringe must come into contact with the foliage.

Calanthes of the deciduous section will be growing strong, consequently a little stimulant gradually increased in strength as the bulbs develop will prove very beneficial, and encourage strong sturdy spikes. C. veratrifolia, of the evergreen section, may require repotting after flowering; this may be done now, in a compost consisting of substantial loam, leaf mould, peat, and a little silver sand, then place it at the warm end of the cattleya house, very little water being afforded until root action is fairly active. Dendrobium Deari will at the present time be flowering in many collections; the syringe must be used freely to keep down thrips, &c.; brown, hard scale is a great pest, as it lodges in the axils of the leaves; mealy-bug also attacks the young, tender leaves, so the sponge and brush must be used often and carefully. Vandas, saccolabiums, and aerides must not become dry at the roots, and the latter must be protected from attacks of beetles, &c.—T. Stafford, *Tyntesfield Gardens.*

CONSERVATORY AND GREENHOUSE.

The work connected with the different kinds of winter-flowering plants will increase each week, as potting, staking, and stopping the shoots that require it are details that should receive attention at the proper season. Cinerarias and primulas may be classed together, as the same treatment and soil practically suits both. It must now be decided what season these plants are likely to prove most useful for home decoration; if to flower before Christmas the final potting may now be given which will allow of the pots becoming filled with roots by the end of summer, and so induce early flowering. For general purposes five-inch pots are the most convenient for filling vases, &c., in dwelling rooms, a point that is never overlooked by those who have much decoration to see to, and though plants are often turned out of their pots to be used for different receptacles, there is a danger of giving the plants a check which, together with the dry atmosphere of the rooms, tends to shorten their beauty and life. Younger stock of primulas and cinerarias must be potted on as the roots require more room; use compost of a rich porous nature, and be sure the pots are well-drained. As the bed of ashes in the cold frames is kept constantly moist by syringing between the pots, there is always the danger of such a condition inducing the visits of slugs, which will make the young tender leaves their feeding ground if measures are not taken to prevent them. Soot or lime dusted round the sides of the frames will ward them off. To keep the plants growing strong, and to secure large clean foliage, moisture at the roots and in the atmosphere is imperative. The lights may be well tilted at the highest point during the day, and well shaded where not facing the north; but we find it a good plan to remove them in the evening as the plants never make more rapid progress than when the foliage is found beaded with dew in the morning. Bouvardias will now be growing freely, whether planted in the open, in frames, or treated as pot plants. When it is seen that a few shoots are taking the lead the points should be pinched out, so as to make all growths equal. Undoubtedly, those planted out make stronger growth than when the roots are restricted in pots, still fine plants may be so raised under careful treatment. A lack of water at the roots, or when water is given too freely, often causes the plants to look sickly, as bouvardias are rather delicate rooted plants; when well-established, however, and growth is being made freely, generous treatment is necessary, such as frequent watering with weak soot water or liquid manure, together with copious syringing after a hot day.

Zonal pelargoniums are most useful for giving a bright display during the dull months, but require special treatment to induce them to flower freely at that season. I recommended in the spring that a suitable number of cuttings be rooted in small pots. These will now be sturdy plants and ready for placing in their flowering pots; fairly good loam, with a little leaf mould, forms a good staple, and by the addition of a few crushed bones placed over the crocks, and a sprinkling of the same in the compost, all that is necessary in the way of manure will be afforded. After potting arrange the plants in a partially shaded position for a few days; when they have got over the check of potting select a sunny spot, and plunge the pots about one quarter their depth in fine ashes, allowing plenty of room. Treated in this way they will make grand stuff by September, when on being removed to the greenhouse, and given weak liquid manure, they will commence to flower. With Arum lilies growers differ as to their summer treatment, some favour dividing the roots and planting in the open, others keep to pot culture the year round. I have tried both ways many times, and find that the plants perhaps bloom earlier when not planted out, otherwise the results are much the same. One thing we do not advocate, and that is allowing the plants to be laid on their sides with the full force of the sun striking on the pots, as this process cannot have any other than a weakening influence on the plants. Where the plants have been placed on one side since flowering, the main part of the foliage will have died off; now is a good time to divide them. The largest should be potted firmly in six inch pots, or three or more can be placed in larger ones. After potting, arrange them in a bed of ashes, away from midday sun, and syringe them over occasionally. Some stand them out in the open, but this causes the soil to dry quickly, and incurs more labour in watering, but treated as advised, root action will be going on slowly, and very little attention is necessary. If it is necessary to increase the stock the off-sets may be dibbled out on rich ground, and lifted in the autumn, placing them close together in boxes.—R. PARKER, *Goodwood Gardens.*

THE FLOWER GARDEN.

WHERE herbaceous borders are extensive considerable attention will be required to keep them in a clean and tidy condition. Dead flowers should be removed as soon as possible from pæonies, delphiniums, &c. Tying and staking will also need attention, and at this season the borders should be bright and gay. The dry weather has been favourable for hoeing and cleaning, and if the surface soil be kept in a loose crumbly condition loss of moisture through evaporation will, to a certain extent, be arrested. Mulching with old mushroom bed or other short manure is of great assistance where it is possible to carry out these operations, as then with a good watering the plants are preserved in a moist and growing condition for some time. In our light soil many subjects are now showing signs of distress from the continued drought, and a really good rainfall would be very acceptable. Watering where possible will be needful to preserve phloxes, heleniums, galegas, rudbeckias, campanulas, helianthus, and similar plants from becoming unsightly through loss of foliage should the present hot and dry weather continue. Several subjects in these borders may be lifted for propagation when the weather permits. Heuchera sanguinea is a useful front row plant, and generally requires annual division if good young flowering plants are desired. The old woody portions of the stem should be rejected, as young outside shoots soon form strong plants. It is also easily raised from seeds, which should be sown as soon as ripe, and when raised in this way some variations in colour are often obtained. Varieties of Iris germanica may also be lifted and divided, or the size of the clumps reduced if necessary. Those lifted and divided now become well established before the winter, and the flowering of next year is not impaired. A slightly shaded border may be devoted to the growth of German iris which, while in bloom, are handsome and at other seasons the foliage is pleasing. Any surplus plants may be set out near the margins of lakes, or vacant spots in the semi-wild garden or shrubbery border, while in masses in a bold position on the rockery these irises are also effective.

Garden pinks having mostly passed the flowering season, pipings may be struck now if any increase of the stock is desirable. With these it is advisable to propagate some plants annually, that the older and worn out ones may be renewed, as those from one to three years old produce the finest blooms; although pinks strike fairly well in a cold frame or handlight if kept close, roots are formed more quickly and with greater certainty if a mild hot-bed be used, and this in most places may be easily spared now that the bedding-out season is over. A hot-bed that has been used for striking bedding plants will suffice if the surface be slightly freshened up, and on this place the frame or handlights, and in these about three inches of sandy soil, that has been passed through a half-inch sieve. Press this down firmly, and over the surface scatter a little silver sand, and it will be ready for the cuttings. The latter should be about three inches in length, and cut through under a joint, strip off the bottom leaves for the space of an inch, nip off the extreme points, and the cuttings are ready for insertion. Holes should be made with a small dibber to the required depth, about two inches apart, making sure that the base of the cutting rests on the bottom of the hole. Press the soil firmly round each with thumb and finger, afterwards giving a thorough watering to well settle the soil about them; keep moderately close, and shaded from bright sunshine until rooted. Two of the finest and most useful pinks are Mrs. Sinkins and Ernest Ladhams, the latter flowering rather late, and both varieties furnish a few useful blooms throughout the autumn. The Old White is also still acceptable, and those who like pinks will also grow the laced and other forms which are all of equally easy culture, and may be increased in a similar manner. Seedpods on such subjects as sweet peas and violas should be removed as soon as possible after the flowers fade, otherwise they soon exhaust the plants, and flowering ceases. Verbenas and other trailing plants should be kept pegged down until the beds are nearly covered, and carpet beds will need frequent watering after hot days.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

IN most parts of the country it will be found necessary to protect bush fruits from birds. Red and white currants hang a long time if netted over, and though I have advised cutting back gross top growths before netting, it is not wise to expose the fruits too much, as they shrivel much in hot, dry weather. In reducing the new growth at the upper portion of the trees netting is facilitated, and with old trees the wood is not needed, while the fruit buds for next year will ripen up. Black currants are not treated thus, but even in their case I have found it an excellent plan to cut out old, useless wood or branches, and give the newly-made wood more room to develop. It may read strange to many to advise pruning black currants at the end of July, but with old trees it is a great gain to do this work if the trees are large and at all thick in the quarters; by summer pruning much better fruits will be secured the next season. All our bush fruits are later this season than usual, and the same remarks apply to strawberries and raspberries. After the crop of raspberries is gathered the young canes or suckers will need all the support the plants can afford them if the season is dry, and when cutting away the old ones it may be well to reduce the new growths; I find three, or five at the most, ample if the plants are vigorous. This is a better plan than the old one of leaving all canes growing until the fall of the leaf. Strawberry plants layered a few weeks ago should now be in condition to plant; old fruiters may be destroyed, and we find it a good plan to burn the refuse on the spot, spreading the ashes on the surface previous to planting green crops. In this district we have of late suffered much from drought, and fruit growers have a busy time in providing the necessary moisture for the various plants and trees needing the same. In many cases it will have been necessary to mulch the surface, and especially in the case of newly planted trees. Cherries soon suffer if at all dry at the roots, and in wet seasons the fruits crack badly, so that the fruit grower must ever be on the alert. I never remember a season when black fly has been so troublesome, and even now unless regular washings are given it is a difficult matter to keep young shoots free of the pest. As soon as the fruits are cleared a strong insecticide may be used, and any useless wood cut away, and main shoots tacked in; the trees are then more readily kept clean. Morello cherries may now have attention, and though I am adverse to much cutting back with the knife, yet a good deal depends upon the soil as to what new wood the trees can carry. The finest tree I ever saw was regularly summer pruned and the fruit produced on spurs. It is well to do any pruning necessary now, as with strong trees it is impossible for them to carry all the wood made and the new wood needed in most cases will now be strong enough to lay in. Cherries cleared of fruits should now have liquid manure, as few trees need more moisture if against a warm wall and with sloping border. These trees root near the surface and soon feel the effects of drought, and if the crop has been at all heavy there has been a great demand on the roots.

Apricots swelling up their fruit also need assistance, and with trees on a south aspect, I have found it a great gain to syringe the foliage in the evening, as few trees feel the drought like apricots; though the fruits of early varieties may now be cleared, the trees will be perfecting their growth for another year. With trees ripening food cannot be given, but once the crop is cleared it is well to give food liberally, and in our light soil we often find it necessary to give additional mulching material. Any old wood or large spurs may be removed to give the new wood room, and encourage new shoots close to the wall; young shoots near the base of the trees should be laid in, for the apricot is so uncertain that new shoots will be a welcome addition in case of losses. Pears on walls, grown as cordons, will need liberal feeding, and here liquid manure may be used to advantage, and in poor soils it will be well to mulch also, as the mulch will help retain the moisture. Stopping will be needed, and with cordon trees it is much the best to do this work regularly, so as to build up fruit spurs for another year. Apples grown in the same way are inclined to be gross, and if not checked there will be few fruits; trees that do not crop well should be noted for root pruning early next autumn. Peaches and nectarines will need attention, and though in the southern parts of the country the wood will ere this have been attended to, yet in later districts the work is still to be done, and here I would urge the importance of thin training, as thick trees cannot properly ripen their wood; every shoot should have room to develop. I am not in favour of hard cutting back, but would freely extend the trees, though by having ample spaces between the branches there will be finer fruit and less fear of failure. The trees will need supplies of food, especially later varieties, to enable them to swell up the crops; nitrate of soda or guano will do much good. Mulching must not be neglected; syringe or hose the trees freely in hot weather just as the sun declines, and any varieties that are subject to mildew must be dusted freely with sulphur. —G. WYTHES, *Syon Gardens.*

NOTES OF OBSERVATION.

Wild Roses.—Of all the single varieties or kinds of the rose family now in cultivation, few seem more beautiful than is what I conclude to be Rosa arvensis. It is curious to note how this species flourishes in some localities, and Rosa canina, with its beautiful pink flowers, is rarely seen. But whilst the latter towers up in the hedgerows and forms on them singularly beautiful objects, Rosa arvensis grows lone and spreading. It is naturally bushy. I find it most plentiful on stiff clay soils. Has it been used materially as a breeder? It is less spiny than is canina, and does not send up those coarse stems we call suckers. Rosa arvensis seems to be specially suited for fronting the margins of woods, as its low branching habit keeps it near the ground. Its flowers are pure white, and produced very profusely. In many respects it is preferable to some of the coarse-flowered varieties that have been put into commerce. It is assumed that there are several distinct rose species in Britain. Certainly with canina, arvensis, and rubiginosa, the sweet briar we are most familiar. Why do not rose raisers try to produce a new breed from Rosa arvensis?—A. D.

Vine Feeding.—Admitting that water pure and simple is food, we must also admit that at certain stages of vine growth other or richer food is a necessity. What is the best time to feed vines is always a debateable question. On the one hand no doubt the vine will use at some time or other all or the greater portion of whatever food we give it. From the practical side of the question, however, we want so to apply fertilisers that the vine with its fruit shall receive the full benefit at once. So long as berries remain quiescent during the storing, very soon after the second or final thinning, wait, but immediately there is the least signs of the last swellings then watering and feeding should be done. I put watering first, having in my mind the extra dose given them in order to prepare for the feeding. Liquid manure is an easy method of quick feeding, either from farmyard manure or made from soot; but no doubt the best results are attained by the free use of chemical or prepared manures. Should there be the least question of any excess of ammonia, the escape of which would endanger the foliage on a bright day, give extra ventilation. Most of the chemical or prepared manure, if mixed with equal portions of loam or garden soil, can be safely given even on the hottest days. If borders will admit it, lightly prick over after heavily watering before applying the manure.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*

Peaches in the Open.—We are all only too glad to hear of the success of Mr. Cook or other good growers of peaches in the open air. The question of spring protection may or may not be associated with the successful culture of peaches, nectarines, apricots, plums, pears, &c. Good crops have been grown with and without protection, as also by many different methods, but locality is a potential factor in such matters. Nothing in Wiltshire, says Mr. Cook, is gained by having any protection over the trees after May. Good, then uncover as he does as a sensible man. But other growers have their blossoms or embryo blossoms blighted through May or even into June. Then they should protect until the danger is over or not at all. I am glad that Mr. Cook also approves of tentative disbudding, the earlier perhaps the better in Wiltshire, but certainly not the safer for the young fruits in many other places. Another sentence or two deserve a passing notice. I have been wondering, writes Mr. Cook, what the trees would look like after being covered with bracken, asparagus haulm, or other thick material, and this close on the tree; and how is it possible for the trees to be healthy under such conditions. In this sentence Mr. Cook uses the word thick instead of thin flimsy material, which makes all the difference in the world in the sense. Peter will welcome Mr. Cook with open arms as a warm advocate of the varmint theory, and I will hasten to keep out of hot water on other points just now, though I was one of the first practical gardeners in England to burn my fingers badly syringing the "varmints," that is the aphis, with water at 140 Fahrenheit. The fruit trees, roses, &c., soon showed their resentment at this high temperature, which had to be reduced 10 degrees, and then finished the "varmints" without scalding or turning a leaf.—D. T. F.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, July 26.

THERE was a splendid and varied display of fruits and flowers at the Drill Hall, on the above date. Orchids were not numerous, but graceful bamboos were plentiful. Hardy flowers of all kinds were splendid, especially the sweet peas and roses. Fruit was good, the trained gooseberries and currants from Messrs. J. Veitch and Sons forming a most interesting display.

FLORAL COMMITTEE.

The bulk of the exhibits came before this body, and the members had a busy time making the various awards and allotting medals to meritorious displays.

Messrs. Dobbie and Co., Rothesay, had an extensive display of hardy flowers, sweet peas and violas; particularly good were the bunches of Godetia Gloriosa, crimson and rose; yellow sweet sultan, marguerite carnations, white sweet sultan, and the sweet peas named Meteor, Salopian, Queen Victoria, and Duchess of York. Liliums and irises in quantity were tastefully displayed by Messrs. R. Wallace and Co., Colchester; Lilium speciosum album, L. odorum, L. Browni, L. Humboldti, and L. auratum were very handsome. Hemerocallis aurantiaca major was first-rate, and other interesting subjects in the display were calochorti, brodiæas, Kæmpfer, irises, carnations, and Michauxia campanuloides, a noble biennial with white flowers. Mr. M. Prichard, Christchurch, Hants, showed a splendid lot of bunches of hardy flowers, and among the good things staged we noted Platycodon grandiflorum pollidum, Menziesia palifolia alba, Spiræa palmata, Heliopsis scabra major, Gentiana thibetica, Liatris spicata, Stipa gigantea—an elegant grass, Lathyrus latifolius albus, &c.; Mr. Prichard also showed a handsome example of Campanula mirabilis, carrying a fine lot of palest blue flowers. Messrs. A. W. Young and Co., Stevenage, showed a group of annuals and other hardy flowers; sweet williams, carnations, coreopsis, &c., were largely staged.

Mr. H. B. May, Edmonton, showed finely-flowered plants of Bouvardia jasminoides and B. Queen of Roses; he also put up a handsome collection of pterises, consisting of one hundred species and varieties; P. ludens, P. Reginæ, P. gracilis multiceps, P. tremula Smithiana, P. tripartita, P. falcata Doniana, and P. sagittifolia were all fine. Mr. J. Fitt, gardener to T. W. Campion, Esq., Reigate, showed a magnificent lot of sprays of the lovely Crimson Rambler rose, all the flowers being finely developed. Mr. Tomlinson, gardener to B. Hoffman, Esq., Thornton Lodge, West Dulwich, showed a pretty group of caladiums, all the plants being well coloured, fresh, and nicely associated with maidenhair fern; Mons. Leon Say, Fred Moore, Louis Van Houtte, &c., were all charmingly coloured, and represented, as all were, by neat, well grown specimens. Hardy flowers in quantity were exhibited by Messrs. Barr and Sons, Covent Garden. Gaillardias were very good; phloxes, lychnis, Kæmpfer irises, Inula glandulosa, Lathyrus latifolius albus, coreopsis, and eryngiums were especially good. Messrs. J. Carter and Co., High Holborn, exhibited a large number of varieties of sweet peas, staging them in small, tight bunches, with a spray or two of asparagus plumosus. What might have been a fine exhibit was spoiled by inartistic display. Messrs. J. Veitch and Sons, Chelsea, showed three large stands of finely-developed carnations and picotees, and among them the yellow and yellow ground fancies were especially fine, such as Pandelli Ralli, Lady Cook, Wanderer, Voltaire, and Duke of Orleans.

Mr. H. Eckford, Wem., Salop, showed a dozen new varieties of sweet peas, all charming forms; Mrs. Dugdale, bright rose and white; Duchess of Westminster, bright pink, orange shaded; Coccinea, lovely scarlet; Sadie Burpee, pure white and hooded; Fascination, blue and lavender; Duke of Westminster, deep blue and purple; and Othello, the darkest variety yet produced, intense purple crimson, were those we most admired. All were fine flowers, and three flowers on a stem were very frequent. Mr. T. S. Ware, Hale Farm, Tottenham, exhibited a bright collection of border carnations, hardy herbaceous flowers, and a central bank of liliums that included a specimen of L. nepalense. From Messrs. W. Cutbush and Son, Highgate, came a big group of large bunches of hardy flowers, the liliums, eryngiums, erigerons, sweet peas, phloxes, and carnations making up a fine display on either side of a small group of handsome Malmaison carnations. A most attractive exhibit was that of new plants arranged by Messrs. F. Sander and Co., St. Albans; it consisted largely of Acalypha Sanderiana with its pendant crimson tassels, the variegated A. Godseffianum, and Hæmanthus multiflorus superba.

Roses in abundance and mostly staged in round baskets containing one variety were well shown by Messrs. W. Paul and Son, Waltham Cross; a few of the finest varieties represented were the pretty polyantha Mignonette, Madame Germaino Rand, Madame Jules Grolez, Belle Siebrecht, Enchantress, Souvenir de C. Guillot, Marquise de Salisbury, Souvenir de Lady Ashburton, Milton, Louis van Houtte, Caroline Testout, Crimson Rambler, Captain Christy, and the new Souvenir de Madame Levet, a rich yellow dwarf tea rose. Cacti and various succulent plants were largely and well shown by Messrs. H. Cannell and Sons, Swanley, Kent. The collection was a comprehensive one, and showed the remarkable diversity this family contains; Cereus senilis, Opuntia microdasys, Pilocereus Forsteri, Mamillaria recurvens, Echinocactus Grusoni, and Euphorbia grandicornis were all striking examples.

A large collection of bamboos was arranged through the length of the hall by Mr. J. Garrett, gardener to A. B. Freeman Mitford, Esq., C.B., Batsford Park, Moreton-in-the-Marsh, Gloucester. The group represented a large number of species and varieties, all in large pots. The grace and beauty of well-grown bamboos is generally recognised, and among the most graceful and elegant are Arundinaria aristata, a species not before exhibited; A. racemosa, Bambusa Fortunei, Phyllostachys nigra, a new plant from Japan; P. Quilloi, P. mitis, Bambusa tessellata; Arundinaria Falconeri, a lovely graceful form that is not, however, hardy at Batsford; Phyllostachys Henonis, Arundinaria pygmæa, A. metallica, and A. chrysantha, the last four being very dwarf and handsome. A seedling plant of Arundinaria Laydekeri, produced from seed that had been ripened in the open air at Batsford, was very interesting as probably the first raised in this country. Messrs. J. Veitch and Sons, Chelsea, showed a handsome group of bamboos, their group containing splendid bushy specimens of Arundinaria auricoma, Bambusa Fortunei, B. palmata, Arundinaria nitida, A. japonica, Phyllostachys Kumasasa, &c. These were all splendid plants in fine condition. The Chelsea firm also showed a pretty new single hollyhock, named Primrose Queen, very full and handsome. Mr. Amos Perry showed a few fine gaillardias, Inula ensifolia, heleniums, and fine herbaceous chrysanthemums. Some beautiful waterlilies were shown by Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, and among the finest were Nymphæa odorata rosea, a fine colour; N. tuberosa, a lovely pink shade; and N. sanguinea, deep red. Mr. T. S. Ware showed bamboos, associating them with a few bold and brilliant cannas; B. pumila, B. Quilloi, and B. tesselata were well shown.

C. J. Grahame, Esq., Wrydelands, Leatherhead, gained a silver Banksian medal for a beautiful lot of cut roses, about eight dozen handsome blooms, among which Marchioness of Londonderry, Comtesse de Nadaillac, Ethel Brownlow, A. K. Williams, and Maman Cochet were especially good. This was a good cut of flowers even for so enthusiastic and successful an amateur as is Mr. Grahame. Mr. F. Tapper, Sunbridge Park, Kent, showed a fine soft salmon-red carnation, named Lady Sophie; and Mr. C. Salter, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, sent a magnificent broad petalled, deep scarlet variety, named Isinglass.

Messrs. J. Veitch and Sons were once again the only exhibitors of annuals and biennials in competition for the Sherwood Cup, and it appears as though this firm is to be allowed a walk over. Godelias, linums, stocks, tagetes, sweet peas, gypsophila, and clarkias were especially fine and bright.

The Floral Committee made the following awards. *Gold Medal* to Mr. J. Garrett, gardener to A. B. Freeman Mitford, Esq., Batsford Park, for bamboos. *Silver-Gilt Flora* medal to Messrs. J. Veitch and Son, for bamboos. *Silver Gilt Banksian* medals to Mr. H. B. May, for ferns; and Messrs. R. Wallace and Co. for liliums, &c. *Silver Flora* medals to Messrs. Dobbie and Co for sweet peas; Mr. R. Hyffman, for caladiums; Messrs. W. Paul and Son, Waltham Cross, for roses; and Messrs. H. Cannell and Sons, for cacti. *Silver Banksian* medals to Messrs. J. Veitch, for carnations; Messrs. Cutbush and Sons, for hardy flowers; Messrs. Barr and Sons, for hardy flowers; Mr. T. S. Ware for bamboos and hardy flowers; Mr. Gauntlett, Redruth, for bamboos; Mr. C. J. Grahame, for cut roses; and M. Prichard, for hardy flowers.

ORCHID COMMITTEE.

There were but comparatively few orchids on view at this meeting, but among those exhibited was a magnificent specimen of Odontoglossum coronarium, shown by Mr. Robert Shand, gardener to W. G. Groves, Esq., Holehird, Windermere; the specimen occupied a raft about three feet by over two feet, and carried two enormous spikes, each carrying about three dozen beautiful flowers of immense size; it was probably the finest specimen of O. coronarium ever exhibited; the orchid committee were so delighted with it that they awarded it a silver Flora medal. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell, showed Lælio-cattleya Schilleriana, Cambridge Lodge var., a fine form with a brilliant purple lip. Mr. E. Shill, gardener to G. W. Law Schofield, Esq., New Hall Hey, Rawtenstall, showed a lovely form of Cattleya Hardyana, named New Hall Hey variety; the lip was large, and of a wonderfully fine hue, with golden blotches in the throat. Mr. W. Murray, gardener to Norman Cookson, Esq., Oakwood, Wylam-on-Tyne, showed a beautiful cattleya, C. Lord Rothschild, with two handsome rosy-segmented flowers, with a golden-stained throat to the soft rose-tinted lip.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, sent a few good orchids, notably some pure white forms of cattleyas; good forms of C. gigas and Vanda cærulea were also well shown; silver Banksian medal. Mr. de Barri Crawshay, Sevenoaks, brought a handsome form of Cattleya Gaskelliana named Crawshayana; it has light rose sepals and petals, and an orange stained lip. Messrs. F. Sander and Co., St. Albans, sent Cypripedium Orion, a cross between C. selligerum majus and C. Rothschildianum, a bold form with dark purple stripes and spots. Mr. Jones, gardener to W. C. Clarke, Esq., Orleans House, Sefton Park, Liverpool, showed Cypripedium Mrs. Walter Clark, a bold hybrid obtained by crossing C. Ashburtoniæ expansum with C. Stonei; this has drooping, greenish, and black-purple spotted sepals; a very pale lip with green lines, and a big dark rose coloured lip. Messrs. J. Veitch and Sons, Chelsea, showed Lælio cattleya calistoglossa ignescens, L.-c. Zephyra, a pretty buff-coloured hybrid between Cattleya Mendeli and L. xanthina; L.-c. Lucilia, L.-c. Amesiana, L.-c. Ingrami gigantea, very fine; and Masdevallia Imogen, obtained by crossing M. Schlimi with M. Veitchi.

FRUIT COMMITTEE.

A large display of trained gooseberries and currants was put up by Messrs. J. Veitch and Sons, Chelsea, and many of the visitors were highly astonished at the wonderful crops carried on comparatively small standard, goblet-shaped, fan-shaped, and cordon-trained specimens. About fifty varieties of gooseberries were on view, and about the best croppers were Coiner, yellow; Broomgirl, yellow; Whitesmith, Forester, red; Whinham's Industry, Langley Beauty, and Langley Gage. Dessert currants of good growth and crop are Red Champagne and White Crystal. The firm also showed some well-grown nectarines in pots, the variety being Precoce de Croncels, these carrying fine fruits ripened without heat; silver Knightian medal. Mr. W. Allan, Gunton Park Gardens, sent two-year plants of Lord Suffield strawberry to show its value as a late variety, a value fully recognised. Lettuce and turnips from Chiswick Gardens were shown, and some awards made at the gardens were confirmed. Mr. W. H. Divers, gardener to the Duke of Rutland, sent boxes of splendid fruits of Waterloo, Gunton Park, and Dr. Hogg strawberries. The Messrs. Laxton Brothers, Bedford, showed a basket of the fine Trafalgar strawberry referred to in our last issue; they also sent two fruiting plants of the new Fillbasket strawberry, a most prolific variety raised by crossing Latest of All and Royal Sovereign; a white-fleshed highly-flavoured mid-season variety. Mr. W. Carmichael, Edinburgh, sent a number of strawberries bearing somewhat small fruits, but evidently of high flavour, judging from the rate at which they disappeared. Messrs. Wright Brothers, Mansfield, showed a fine new pea named Mansfield Show, a fine cropper. Mr. H. Eckford, Wem, Salop, showed finely-cropped haulms of Rex, Wem, and Monarch, culinary peas, all splendid stocks.

Mr. W. Johnson and Son, Boston, Lincoln, sent about fifty dishes of finely developed culinary peas, and among them we noted especially fine examples of Duke of Albany, Prince Edward, Satisfaction, Wem, Captain Cuttle, Telephone, Rex, John Howard, Sturdy, and Heroine; silver Banksian medal. Messrs. T. Rivers and Son, Sawbridgeworth, Herts, showed some magnificent cherries, the fruits of Bigarreau Napoleon, Bigarreau de Schreken, Early Rivers, White Bigarreau, and Large Black Bigarreau being very large; Belgian Purple and Rivers' Early Transparent plums were also wonderfully fine, and were greatly admired; silver Banksian medal, Messrs. J. Veitch and Sons sent a collection of strawberries and cherries, picked fruits, in addition to their bushes and trees; also a new raspberry named Golden Queen. Mr. O. Thomas, Frogmore Gardens, sent nine huge, pale green-fleshed melons, the variety being named Lord Edward Cavendish.

NATIONAL CARNATION AND PICOTEE SOCIETY, July 27.

THE annual exhibition of this society was held at the Crystal Palace on Wednesday, the 27th inst., instead of on July 20 as originally arranged. There were forty classes provided, open only to members of the society, and the value of the prizes offered was estimated at upwards of £200. The season is a very late one for carnations, for even Mr. Martin Smith in his warm Kentish garden at Beckenham had not more than five per cent. of his seedlings in flower at the date of exhibition. The show, however, was a good one, notwithstanding the seasonal difficulties growers have had to contend with. The classes were fairly well filled and the prizes keenly contested in most of them. The table decorations of carnations were not numerous, but rather better than on most previous occasions.

BIZARRES AND FLAKES.

The first prize for two dozen blooms, bizzares and flakes only, and not less than a dozen dissimilar varieties, was won by Mr. Martin Rowan with clear, handsome blooms of J. S. Hedderley, R. Lord, Wm. Skirving, Robt. Houlgrave, G. Melville, Merton, Gordon Lewis, Constance Grahame, Admiral Curzon, Sarah Payne, J. Buxton, Master Fred, Martin Rowan, and Sportsman; the second prize fell to Mr. James Douglas, Edenside, Great Bookham, and the third to Mr. C. Turner, Slough. There were four entries. Messrs. Thomson and Co., Birmingham, secured the chief award in the class for a dozen dissimilar bizarres and flakes, winning with clear examples of Merton, J. S. Hedderley, Gordon Lewis, Guardsman, Master Fred, Vulcan, Sportsman, Lord Salisbury, Magpie, J. D. Hextall, Robt. Houlgrave, and Mrs. May; F. A. Wellesley, Esq., Woking, second; Mr. C. Phillips, Bracknell, third; and Mr. J. Walker, Thame, fourth. There were half-a-dozen entries.

Nine competed for the prizes in the class for six distinct bizarres and flakes, Mr. A. R. Brown, Handsworth, Birmingham, winning with good blooms of Merton, Robert Lord, Evan Edwards, Rob Roy, J. S. Hedderley, and Sportsman; Mr. F. Hooper, Bath, second; Mr. G. Chauncy, Oxford, third; and Mr. J. Loneder, Bristol, fourth. The best six self carnations, one variety, were large specimens of Cecilia shown by Mr. Martin R. Smith; Mr. J. Douglas second with Mrs. Eric Hambro; Mr. C. Phillips third with Regina; Mr. R. C. Cartwright fourth with Niphetos; and Mr. C. Harden fifth with Mrs. Eric Hambro. There were seventeen competitors.

Mr. R. Sydenham, Birmingham, scored for a scarlet bizarre with a fine bloom of Richard Monk; Mr. A. Chater second with R. Houlgrave; Mr. C. Turner third with R. Houlgrave; and Mr. Sydenham fourth with R. Lord. For a crimson bizarre Mr. R. Sydenham led with Master Fred, and was second with the same variety; Mr. Phillips third with J. S. Hedderley, and fourth with the same variety. The best pink bizarre was William Skirving, shown by Mr. R. Sydenham; Mr. Martin Rowan second and third with the same variety; and Mr. Sydenham fourth, also with W. Skirving. Mr. R. Sydenham was first and second for a scarlet flake with J. Wormald, and Mr. A. R. Brown third with the same variety; Mr. C. Phillips fourth with Sportsman. Mr. Martin Rowan led for a purple flake with Gordon Lewis, and was second with George Melville; Mr. R. Sydenham third with Magpie, and also second with that variety. The best rose flake was Merton, shown by Mr. A. R. Brown, who gained second prize with the same variety; Mr. R. Rowan third with Mrs. Rowan; and Messrs. Thomson and Co. fourth with a seedling.

SELF CARNATIONS.

The first prize for two dozen self carnations in not less than a dozen varieties was won by Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, from among five competitors; there were a magnificent lot of blooms, in which there were only five varieties duplicated, viz., Falcon, Exile, Cecilia, Kelpie, and Mr. Gray Buchanan; the other varieties were Helmsman, Mrs. Archie, Norman, Hildegarde, Sir Bevys, Firebrand, Purity, Miss Judith, Harbord, Bomba, Sir Francis Drake, Euchansis, Exile, Cordelia, Joan of Arc, Forfrida, and Friar Tuck; Mr. James Douglas won second prize with handsome unnamed blooms; Mr. C. Turner, Slough, third; Mr. Martin Rowan, fourth; and Mr. A. Smith Downley, fifth. There were seven stands in the class for one dozen dissimilar self carnations, and, in a close competition, Messrs. Thomson and Co., Sparkhill, Birmingham, won first place with lovely and large flowers of Her Grace, Exile, Mrs. Eric Hambro, Seedling, Percy, Seagull, Ruby, Germania, Lady Mary, Nabob, Britannia, and James Douglas; Mr. C. Phillips, second; Mr. A. J. Rowberry, South Woodford, third; Mr. F. A. Wellesley, Woking, fourth; and Mr. H. W. Weguelin, Torquay, fifth. No less than twenty sets of six self carnations were staged, and in this competition Mr. A. R. Brown gained first place with good examples of Royalty, Mrs. Eric Hambro, Miss A. Campbell, Mrs. J. Douglas, Negress, and a white seedling; Mr. W. Garton, jun., Woolston, second, with a good set; Mr. R. C. Cartwright, Birmingham, third; Mr. A. Chartarin, Edgbaston, fourth; and Mr. C. Harden, Dover, fifth.

Mr. R. Sydenham led for a white self with Mrs. Eric Hambro; Mr. J. Douglas second and fourth, with The Briton; Mr. R. Sydenham third, with Cristobel. The best rose or pink self was Exile, shown by Mr. R. Sydenham; Mr. A. R. Brown second, with Royalty; Mr. Weguelin third and fourth, with Perfection. Among scarlet selfs, Mr. Weguelin was first with Mrs. J. Douglas, and third with Lady Hindlip; Mr Douglas third, with Cadiz; and Mr. A. R. Brown fourth, with Mrs. J. Douglas. The best marone and purple carnation was Uncle Tom, shown by Mr. A. R. Brown, who also was second with Mancunian; Mr. J. Douglas third, with Lablay; and Mr. Foulkes fourth, with Mephisto. For a yellow self Mr. A. R. Brown scored with Miss A. Campbell; Mr. J. Douglas second, with Miss Wilmott; Mr. C. Phillips third, with Regina; and Mr. J. Douglas fourth, with Miss Wilmott. For a buff carnation Mr. C. Turner scored with Mrs. R. Hole; Mr. A. Spurling second, with The Dyak; Mr. Douglas, third and fourth, with Midas.

PICOTEES.

Four stands of two dozen white ground picotees, in not less than a dozen varieties were put up, and the first prize fell to Mr. C. Turner, Slough, who staged clear large blooms of Acme, Favourite (2), Mary, Seedling (7), Brunette (2), Little Phil, Mrs. Gorton (2), Clio (2), Mrs. Payne (2), Madame Richer (2), Mary, and Duchess of York; Mr. James Douglas, second; and Mr. Martin Rowan, third. Messrs. Thomson and Co. secured first prize for twelve picotees distinct, with handsome and very clear flowers of Brunette, Favourite, Medhurst's Seedling, Somerhill, Mrs. Payne, Mrs. Gorton, Mrs. Sharp, Mrs. Openshaw, Miriam, Lady Louisa, Thomas William, and Isabel Laken; Mr. F. A. Wellesley, second; Mr. W. A. Weguelin, third. A dozen stands of six picotees were put up, and from this lot Mr. A. R. Brown won first place with Medhurst's Seedling, Mrs. Beswick, Amy, Harry Kenyon, Amelia, and Mrs. A. Brown; Mr. A. C. Cartwright, second; Mr. C. Phillips, third; and Mr. G. Chauncy, Oxford, fifth.

Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, won first prize for a dozen yellow ground picotees with a magnificent exhibit of blooms of Lily of Duchess, Badminton, Hygeia, Lady Bristol, Dinorah, His Excellency, Wanderer, Duke of Alva, Volage, Vampire, Edith, and Fashion; Mr. C. Turner, Slough, second; Mr. J. Douglas, third; Mr. F. A. Wellesley, fourth; and Mr. Weguelin, fifth. Mr. G. Chauncy, Oxford, had the best six yellow ground picotees; Messrs. Thomson and Co., second; and Mr. S. A. Went, third, out of nine competitors.

Mr. A. Chatwin had the best red-edged piccotee in Isabel Laken; Messrs. Thomson and Co. the best light-red edge in Mrs. Gorton; Mr. R. Sydenham, the best heavy purple edge in Medhurst's Seedling; Mr. A. R. Brown, the best light purple edge in Harry Kenyon; Mr. R. Sydenham, the best heavy rose edge with Madeline; Messrs. Thomson and Co., the best heavy scarlet edge with Mrs. Sharp; and Mr. R. Sydenham, the best light-red edge with Favourite. The best yellow ground was Wanderer, but there was no name to show by whom exhibited. In the maiden class for six carnations and piccotees Mr. J. King, gardener to H. J. Lloyd, Esq., Crondall, was first; and Mr. A. G. Cook, Croydon, second.

FANCIES.

The best dozen fancy carnations came from Mr. A. J. Rowberry, who won from four competitors with examples of Cardinal Wolseley, Ovestes, Seedlings (3), Monarch, Sport, Ceres, Dervish, Ladas, and Phœbus; Mr. C. Phillips, second; Mr. J. Walker, third; and Mr. H. W. Wegeulin, fourth. Four stands of two dozen fancy carnations were staged, and Mr. Martin R. Smith secured the chief prize with grand blooms of Aglaia, Muleteer, St. Gatien, Goldielocks (2), Me Cid, Merry Duchess, Elaine, Renegade, Maid of Honour (2), Zingara, Alexandra, Electra (2), Eothne, Allegra, Hidalgo, Don Carlos, Lord Lieutenant, Guinivere (2), Persimmon, and Fairy; Mr. Charles Turner, Slough, second; Mr. J. Douglas, third; and Mr. A. Smith, Downley, fourth.

Fifteen competitors entered in the class for six fancy carnations, Messrs. Thomson and Co. winning with big blooms of Cardinal Wolsey, Voltaire, Golden Eagle, Monarch, Miss Maud Hill, and Socrates; Mr. F. W. Foulkes, Chester, second; Mr. S. A. Went, Thames Ditton, third; Mr. F. Hooper, fourth; and Mr. W. Garton, jun., fifth. The first prize for six blooms of any one fancy carnation was won by Mr. C. Smith, gardener to Martin R. Smith, Esq., with Hidalgo; Mr. A. W. Jones, Handsworth, second, with Golden Eagle; Mr. J. Douglas, third; and Mr. A. C. Cartwright, fourth. The best single specimen of a fancy carnation was Voltaire, sent by Messrs. Thomson and Co.; Monarch gained second prize for Mr. R. Chatwin; and Eldorado the third for Mr. A. R. Brown.

FLOWERS WITHOUT CARDS OR DRESSING.

Mr. Gorton, jun., won first place for six bizarre and flake carnations, arranged with a spray of foliage with each flower; Mr. J. Loveder, Bristol, second; there were seven competitors. For a dozen selfs and fancies, similarly arranged, Mr. Foulkes, Chester, was first; Mr. Carrington, Chislehurst, second; and Mr. S. A. Went, third, out of thirteen stands. For six selfs or fancies, similarly staged, Messrs. Solley, Walker, and Gillespie secured the awards from twelve stands. For six picotees, arranged with foliage, Mr. F. V. Charrington, Edenbridge, was first, and Mr. Loveder, Bristol, second. For yellow-ground fancies, arranged with own foliage, Messrs. Went, Euston, and Spurling were first, second, and third respectively.

The first prize for a seedling carnation was won by Mr. Charrington with a handsome smooth-petalled, scarlet form named Scarlet Seedling; the same exhibitor was second with Crimson Seedling; Mr. W. Hadley third with a rosy self.

MARTIN SMITH PRIZES.

The best six varieties of self-coloured border carnations, six trusses of each, were shown by Mr. J. Euston, gardener to Mrs. Whitbourne, Great Gearies, Ilford; Mr. G. S. Goble, Ryde, Isle of Wight, second; and Mr. Wegeulin, third. For nine bunches of flake, bizarre, or fancy carnations, Mr. Wegeulin won first prize with strong trusses of bold and fancy-coloured flowers; Mr. Euston second; Mr. J. Walker, Thame, third. The best border variety of self-coloured carnation was Jim Smythe, a handsome, free, scarlet form shown by Mr. H. G. Smythe, Bloomsbury; Mr. J. Collins, second, with Miss Audry Campbell; and Mr. G. Goble, Ryde, Isle of Wight, third, with Duchess of Fife. In connection with these prizes we may remind our readers that competitors have to certify that all the flowers shown have been cut from plants wintered without protection in the open flower border, and they also have to be staged without any kind of dressing.

PREMIER BLOOMS.

The premier blooms on this occasion were as follows: Carnations—bizarre, Admiral Curzon, shown by Mr. Martin Rowan; flake, Flamingo, shown by Mr. J. Douglas; self, Cecilia, shown by Mr. Martin R. Smith; fancy, Hidalgo, also shown by Mr. Martin R. Smith. Picotees—Heavy edge, Clio, shown by Mr. C. Turner; light edge, Sumerhill, shown by Messrs. Thomson and Co.; yellow ground, Mrs. Douglas, shown by Mr. C. Turner.

FLORAL DISPLAYS.

The first prize for a vase of carnations and picotees was won by Mr. S. A. Went, Thames Ditton, with a bold display of mixed colours; Mr. H. Rogers, Woodbridge, second; and Mr. C. Harden, Dover, third. For ladies' sprays there was a keen competition, Mr. C. Smith winning with handsome arrangements; Mr. Rogers, second; and Mr. A. J. Rowberry, third. Mr. Blick also scored for six gents' buttonholes, showing specimen flowers of high quality; Mr. Rogers, second; and Mr. A. J. Rowberry third.

Mr. H. Rogers, Kendlesham, Woodbridge, had the best table decoration in carnations, showing a tasteful arrangement of pale blush carnations, medium-sized blooms, associated with asparagus frondage and myrsiphyllum; Messrs. Motter, Westow Hill, Norwood, second, with a rather too heavy display of crimson and pink flowers.

PLANTS.

The principal award for a group of carnations arranged on a space of [illegible] square feet was won by Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, Beckenham, with a first-rate exhibit of well-grown and freely-flowered plants; Blondin, yellow; Grand Duke, scarlet; Oberon, rose and buff; Queen [illegible], pure white; Saladin, yellow ground, fancy; His Excellency, yellow ground picotee; Goldielocks, yellow fancy; and Boreas, crimson, were among the best in a very handsome collection. Mr. C. Blick also succeeded in winning first prize for a dozen carnations in pots, not exceeding eight and a half inches diameter, showing fine specimens of Saladin, Cordelia, Chieftain, Goldielocks, Golden Eagle, Duke of Alva, Mrs. A. Gilbey, Venus, Endymion, Vesuvius, Sir Bevys, and Her Grace. Mr. J. Douglas, second. For a single specimen Mr. Blick was first, with Golden Eagle; Mr. Douglas, second, with Saul; and Mr. Hadley, third.

Mr. J. Douglas, Bookham, easily won the chief award for a group of carnations arranged on a space of thirty square feet; the plants were splendidly grown, especially the specimens of Saul, Nautch Girl, The Briton, Trojan, and Mrs. J. Douglas.

MISCELLANEOUS DISPLAYS.

Mr. Henry Eckford, of Wem, Salop, showed a grand lot of sweet peas, staging about fifty vases of beautiful and fragrant flowers. Out of this collection we made note of a dozen distinct varieties that are recommendable for all purposes: [illegible] Salopian, rich scarlet; Prince Edward of York, rose and scarlet; [illegible] rose and pink; Captain of the Blues, rich blue; Lady Grisel Hamilton, [illegible] heliotrope; Mrs. Eckford, pale yellow; Prima Donna, lovely rose pink; Countess of Powis, orange-cerise and rose; Little Dorritt, rosy-scarlet and white; [illegible]

Burpee, white; Lemon Queen, soft lemon standard and pale-tinted wings; and Othello, the new and intensely dark variety, deep crimson-purple. Several lovely new forms were shown, such as Duke of Westminster, deep purple-blue; Duchess of Westminster, salmon; and Mrs. Fitzgerald, cream-coloured.

Messrs. W. Cutbush and Sons, Highgate, made a bold display of large bunches of hardy flowers, showing popular varieties. Carnations of sorts were staged rather close down on moss, and in the middle of the group were a fine lot of Malmaison carnations, both plants and cut flowers. Mr. T. G. Foster, Brockhampton Nurseries, Havant, Hants, arrived somewhat late with a fine lot of fresh and fragrant sweet peas, that made up a most charming exhibit; the bunches were large, and the flowers of great substance and brilliance. Mr. J. Douglas, Edenside, Great Bookham, showed a large number of new carnations, selfs, and fancies, some of them being particularly fine in colour and form.

THE PEOPLE'S PALACE HORTICULTURAL SOCIETY.

THIS was the second flower show of the season, and there was a highly creditable display in the Queen's Hall of the Palace, every available spot being occupied. It was decidedly the best summer show yet held, the improvement in culture observed all round was very encouraging. The area of the ground covered by the society, which is somewhat extensive, is divided into two districts, one embracing the more open spots, which are regarded as being better adapted to the culture of plants, and the more densely populated districts where factories abound and the streets are narrower and darker and the gardens smaller. These are known as congested disticts, and although many of those who exhibit cultivate under conditions decidedly unfavourable to successful plant culture, there could yet be observed a steady improvement in the quality of the exhibits.

Groups of plants, which came from the small homely-constructed greenhouses erected by the exhibitors, were arranged on the ground and on tables, the former covering a space of thirty-six feet, and next to the general good quality of the subjects shown was their variety, which the East End gardener evidently appreciates, and he has of flowering plants pelargoniums of various types, fuchsias in variety, nicotiana, lilies, begonias, gloxinias, Marguerites, plumbago, campanula, and others. He has ferns in considerable variety; araucaria, ficus, aspidistra, coleus, an occasional croton, palms, greenleaved dacænas, &c. His dwarf plants on tables are varied also, and cacti can be seen among them; one table group was made up entirely of cacti. The exhibitors grow good specimen plants, both foliage and flowering; the most imposing of the former are Araucaria excelsa, ficus, and aspidistra. Fuchsias and pelargoniums are his leading flowering plants; the quality of the bloom seen on some of the latter, both show and zonal varieties, was remarkably good.

Cut flowers are exhibited in bunches of garden varieties. There were sweet peas, pansies, and violas, and a few baskets of vegetables. There were some very pretty epergnes for table decorations by Mrs. Vince, of Leyton, the different-coloured Iceland poppies being employed with excellent effect, and they stood remarkably well up to the close of the third day.

Some miscellaneous exhibits greatly helped the display. Foremost among them was a large table of beautiful cut roses in considerable variety. Messrs. Barr and Son contributed bunches of cut flowers; from the Duke of Westminster, Eaton Hall, came a very fine lot of Malmaison carnations, set up in Jasper vases, which were greatly admired; Mr. F. C. Hills exhibited from Monkhams an imposing ground group of plants, and M. Ludwig Monk did the same; the Duke of Fife, the president of the society, sent a large group of plants, which filled a table of considerable size; Mrs. Holmes, of the Hampton Park Nursery, a large group of palms, &c.; and Mr. Pritchard, of Forest Gate, a remarkable collection of cacti. All these, being not for competition, were highly commended.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE first Scottish Horticultural Association summer show was held in the Albert Hall, Edinburgh, on July 20. It was so far successful in the number and high quality of its exhibits, and the interest and pleasure of its visitors, that it may prove the beginning of a series of rose or summer shows as successful as the chrysanthemum shows of the association, which have now become the most popular fêtes of the year at Edinburgh. The show this year took the form of an exhibition of roses, strawberries, dinner-table decorations, with the usual liberal contributions by nurserymen and florists, without which no show at any season of the year would be complete. This show had other unique features. No prizes were offered; no charge made for admission, the public being freely invited through the press, and by means of circulars, by post, or hand. A piano discoursed excellent music, a collection being taken in a retiring box, tastefully decorated and placed on a small table, the surplus to be devoted to the garden charities.

Nor does this list exhaust the merits of the show, so skilfully conceived and ably carried through by Mr. Todd, the president, Mr. Lai d, the secretary, and the committee. When the rose show closed a special meeting of the association met to taste and try, and utterly demolish, the feast of strawberries, aided and abetted by cream, so liberally furnished by the growers. Such pleasant meetings can hardly fail to become hardy annuals, or safer still perennial, in Edinburgh and other places, though it may prove useful to remember that there was a rose show in the summer in the Waverley Market, in connection with the Royal Caledonian Horticultural Society, which drooped, languished, and died for lack of financial support. But with rose shows, springing up like mushrooms in all directions, and several Scotch and Irish growers having reached the high level of the Colchester standard, it seems to me that the capital of Scotland should either invite the National Rose Society to visit Edinburgh, or that the Horticultural Association or some other society should organise an annual rose show in the Waverley Market that should at once satisfy the public, and meet the wants and satisfy the legitimate ambition of rose growers. So much for the future. To come to the present show, it has already been said that no money prizes were offered, but the following certificates were awarded for novelty, cultural, or other merit: To Messrs. Thomas Smith and Sons, Stranraer, for a fine display of roses, and a first-class certificate for rose Fair Helen, virtually a white Mrs. John Laing; to Messrs. R. B. Laird and Sons, Edinburgh, for a specially rich and varied display on the platform; to Mr. John Downie, Edinburgh, for a fine display on the centre table of choice flowering and foliage plants; to Messrs. Cocker, Aberdeen, for a fine display of roses, irises, and herbaceous plants; to Messrs. Todd and Co., Edinburgh, for a chastely decorated table, furnished with epergnes and small vases, filled lightly with General Jacqueminot and a few pink rosebuds, and Gypsophila; Messrs. Laing and Mather, first class for a crimson variety of Souvenir de la Malmaison carnation; Messrs. Dickson and Co., certificate for Carnation Purple Prince and a new pink James Dinnca; Mr. John Dobbie, Rothesay, for a choice display of forty-eight bunches of sweet peas; Mr. W. Johnstone, for a table bouquet, with a drooping fringe, of twelve distinct varieties of fuchsias; Messrs. [illegible] and Co., for a rich display of ornamental glass vases—the latter [illegible] tastefully filled with Iceland poppies in endless varieties of tints and [illegible] intensified and multiplied many fold by the diverse hued glass vases. A well-merited certificate was also given to Mr. Scarlet, of Inveresk, for a fine example of Duke of York peas, intact in leaf and pod as grown backed up against the wall. The Daisy pea was likewise displayed in the same perfect way, as well as shown in bulk of pods. Messrs. Dickson and Co., Silverton, made a brilliant show of border pinks, tufted pansies, violas, polyanthus, roses, a ruby-coloured veronica, a free-flowering shrub, Hedysarium multiflorum, and the smallest of all the St. John's worts, Hypericum densiflora, also an improved golden elder with cut leaves. Messrs James Grieve and Sons, of Redbraes, had a good display of violas and tufted pansies—pandanus—palms, ferns. Mr. Cuthbertson, Rothesay, had a capital stand of herbaceous plants, including a new double golden evening primrose, a new plant from Oregon—Sidalcea oregona, with tall spikes and pretty pink flowers, and a black martagon lily. Mr. John Downie showed nice plants of the two novelties that caused such a sensation at Ghent—Acalyphia Sanderi, and the curiously-spotted Dracena Godseffiana; also a fine seeding begonia, some six inches across, and a new free-flowering geranium Achievement.

Excellent collections of roses were shown from Aberdeen, Stranraer, Belfast, Broughty Ferry, Helensburgh, and Trinity Grove, with a fine base of Niphetos, and a dozen good hybrid perpetuals. Messrs. Cocker, of Aberdeen, made a fine display in bunches of from three to five and single flowers.

There was a capital show of strawberries, the exhibitors including such good growers as Mr. Dunn of Dalkeith, Mr. Smith of Hopetown, Mr. McIntyre of The Glen, Mr. Smith of Oxenford, Mr. J. Kirk, of Norward, Alloa, Mr. J. Napier, Dunkeld; Mr. M. Temple, Carron House, Carron; Mr. Matheson, Corrie Hill; Mr. Comfort, Broomfield; Mr. Mackenzie, the Grove; Mr. George Wood, Oswald House; Mr. M. Thinley, Inveresk, with twelve fine dishes of Royal Sovereign from Blackford Park. The Royal Sovereign to a large extent dominated the show, though other old and new varieties were shown in fine condition. The berries most admired were probably the Royal Sovereign and Scarlet Queen, from Dalkeith Palace, the Duke of Edinburgh, from Corrie Hill, and Glen Diamonds, from the Glen. Other growers already named, notably Mr. Temple of Carron, Mr. Kirk, of Alloa, Mr. Mackenzie showed the following sorts remarkably well: President, Duke of Edinburgh, Latest of All, Bicton White Pine, Garibaldi, Noble, Princess of Wales, Queen of Denmark, Royal Sovereign, James Veitch, etc. To give an idea of the interest taken in this the second strawberry exhibition of the Scottish Horticultural Association, it may be mentioned that Mr. Dunn, Dalkeith, contributed the following varieties in eighteen baskets of fruit—the Idle Boy, said to be a Monarch local seedling; three dishes of James Veitch, Royal Sovereign two, Scarlet Queen two, Garibaldi two, British Queen four, Queen of Denmark, Richard Gilbert, Princess of Wales, then three Carmichaels, Duchess Perfection, white and red Alpines.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual outing of the members and friends of the above society took place on the 25th inst., a large party leaving Liverpool Street by the twenty minutes past ten a.m. train for Harwich, where they received an accession of friends from Colchester, Ipswich, &c. At one o'clock the party, numbering about one hundred and seventy, sat down to dinner in a spacious tent erected in the rear of the Great Eastern Railway Hotel, Mr. T. W. Sanders, the chairman of the committee, presiding, a substantial and well served meal being heartily enjoyed. After dinner the party went on board one of the company's saloon steamships, and having rounded the Belle Buoy, proceeded up the River Orwell, the richly wooded scenery on the Essex and Suffolk sides being seen at its very best. A landing was made for one hour at Ipswich, a considerable portion of the company taking advantage of the opportunity to inspect the extensive works of Mr. William Colchester on the banks of the river, where they were most hospitably entertained, ample refreshments being provided. Soon after five p.m., the return journey by water to Harwich was made, where an ample meat tea was served at the tent, the interval between tea and the departure of the train to London being occupied in a perambulation of the town. Liverpool Street was reached between eleven and twelve o'clock, and all appeared to have thoroughly enjoyed one of the most successful and enjoyable outings yet undertaken. Great credit is due to the manager of the Great Eastern Railway Hotel and his staff for their excellent arrangements throughout. The weather was agreeable, a pleasant breeze from the sea tempering the summer heat, the sky being overcast during the hottest part of the day.

HORTICULTURAL CLUB.

THE annual excursion of the members and their friends took place this year under the most favourable circumstances, and its success was mainly owing to the exertions and kindness of Mr. Harry J. Veitch. A large party assembled at the Great Western Station at Paddington at ten o'clock, on the 19th inst., and were conveyed in a saloon carriage to Slough, where brakes awaited them, and were driven first to Stoke Pogis, in the churchyard of which village the poet Gray lies buried, and where he wrote his "Elegy." The church is prettily situated in Stoke Park, and the members, through the kindness of Mrs. Bryant, had an opportunity of viewing the mansion and its contents. They afterwards drove to East Burnham Park, the residence of Mr. Harry J. Veitch, who had kindly invited the party to luncheon. Sir J. T. D. Llewellyn, Bart., M.P., the chairman of the club, thanked Mr. Veitch for his hospitality, and expressed his regret at the unavoidable absence of their secretary. The party then drove to Dropmore, where a sight of the grand conifers was much enjoyed. The return was made through Burnham Beeches, where some time was spent in viewing some of the finest trees, and then, after a stroll through the grounds occupied by these fine old trees, comprising about four hundred acres, the party returned to Mr. Veitch's, where tea was kindly provided for them all, and they left for town at a quarter to seven. It should be added that not only did Mr. Veitch receive them "right royally," as one of the members expressed it, but he took upon himself the whole arrangements, and so well that not a single hitch occurred, so that this, one of the most pleasant and enjoyable outings the club has ever had, will be long remembered by all those who had the pleasure of sharing in it.

MR. JAMES GIBSON, who for several years has been head gardener to A. H. Watts, Esq., Devonhurst, Chiswick, has been engaged as head gardener to W. R. Hudson, Esq., Danesfield, Great Marlow, Bucks. Mr. Gibson has acquired a high reputation as an able gardener, and especially as a vegetable grower and exhibitor. He enters upon his new duties on August 1, and the good wishes of all who know him will go with him.

"CRUEL ONLY TO BE KIND."—Much unnecessary suffering is inflicted under the above excuse. If one is not very well, feels out of sorts, has a touch of the bile, and experiences an unpleasant giddiness, one is immediately told to take some disagreeable medicine. It is kindness in the guise of cruelty we are told. As a matter of fact disagreeable medicines are no longer necessary. Holloway's Pills and Ointment—the world-famed remedies—will soon put one right, and, moreover, they are pleasant and agreeable restoratives to health. Thousands can attest this, thousands have attested it. For disorders of the stomach and liver, take the Pills; and use the Ointment for gout, lumbago, rheumatism, &c.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Southern Counties Carnation Society.—W. G.: We are obliged by the newspaper containing the report of the exhibition of this society, and pleased to learn that the gathering was successful. Had we received the usual intimation we would have made arrangements for reporting the gathering.

Wallflowers from Cuttings.—F. B., Elland: Propagation may be effected by means of cuttings placed in a cold frame or under a handlight until rooted. When rooted plant out in well-prepared ground as soon as possible, so that the plants become established before the winter. The seed should yield you a large percentage of plants true to the parent, but all that differ from it should be destroyed, so that the strain may be properly fixed.

Cyrtopodiums.—W. F., Newcastle: To be successful in the cultivation of cyrtopodiums a high temperature, abundant moisture, and rich compost are necessary. Being stout rooted and strong growing orchids they also require plenty of room, and should be placed in large, well-drained pots, in a compost consisting of good fibrous loam, dried cow manure, and sand. During the period of vigorous growth scarcely too much water can be afforded healthy plants, but after growth is complete a long period of rest is necessary; during this period very little water should be given, but the specimens should be still kept in the East Indian house. We have seen cyrtopodiums flourish during the growing season with the pots placed one-third of their depth in the warm water of a tropical water-lily tank. Cyrtopodium punctatum is the most floriferous and easily-managed of the several species cultivated.

Sulphate of Ammonia.—W. C. A., Chichester: Sulphate of ammonia is a most valuable manure, and its chief source is the gas works, for there it is obtained as a bye-product in the manufacture of gas. Other sources of sulphate of ammonia are iron, shale, coke, and carbonising works. Nitrogen to the extent of from one-half to one and a-half per cent. is found in coal, and during dry distillation at the gasworks this is mostly converted into ammonia, subsequently being passed out in the gas-liquor after the gas has been purified. From this liquor the sulphate of ammonia is distilled. A pure sample should contain 25·75 per cent. of ammonia, but 24·5 per cent. gives a very useful manure. It will thus be seen that so far as fertilisers now in general use are concerned sulphate of ammonia is the most concentrated of those valued for their nitrogen. From one hundred to one hundred and twenty-five pounds per acre is quite sufficient for a dressing, and the larger amount should not be exceeded. As a manure sulphate of ammonia is best applied some little time before it is needed by the crop it is to benefit, to allow the conversion into nitrates. When applied alone sulphate of ammonia should be used a month earlier than one would apply nitrate of soda to produce good results.

Trees with Highly-coloured Foliage.—P. G., Slough: There are a large number of trees with richly-coloured foliage suitable for garden decoration, but as not many are required in any one garden of the extent of your own, we shall mention only those of exceptional merit. These you should make a point of seeing, at any well-appointed garden or nursery, for many are now of a most beautiful colour. In selecting from those with bronze, purple, or crimson leafage, and taking the trees in alphabetical order, the first to obtain attention will be Acer palmatum atropurpureum, a small-growing tree with rich crimson leafage; Waterer's Scarlet Oak; and then will follow the Purple Birch (Betula alba purpurea), Purple Beech (Fagus sylvatica purpurea), one of the best known of the purple-leaved trees, and of strong growth—the weeping form of this beech is also a beautiful lawn tree; Purple Cherry Plum (Prunus Pissardi), a handsome tree of small growth; and the Purple Elm (Ulmus montana purpurea). The trees with golden leafage that can be specially recommended are the Golden Poplar (Populus Canadeusis nova), Golden Oak (Quercus robur concordia), the finest of all the golden trees, Golden Acacia (Robina pseud-acacia aurea), and Golden Elms (Ulmus campestris Louis Van Houtte and U. Dampieri aurea), both of which are so good as to closely approach the Golden Oak in merit.

Plants for Indoors.—G. B., Enfield: As you have a small greenhouse and conservatory, you will be able to manage a considerable number of plants suitable for home decoration by keeping them indoors for only a week or two at a time. Especially desirable are Corypha australis, Cocos Weddelliana, Kentia Belmoreana, Latania borbonica, and Rhapis flabelliformis, which comprise the best of the palms for decorative purposes generally; Araucaria excelsa, one of the most elegant and accommodating of greenhouse plants when in a small state; Dracæna australis and D. congesta, two handsome green-leaved forms, India-rubber plant (Ficus elasticus) and Aspidistra lurida, and its variegated variety. These latter are two of the most accommodating plants we have, and are easy to grow and difficult to kill. The best ferns for growing indoors are Asplenium bulbiferum, A. diversifolium, A. flaccidum, Pteris cretica, and P. tremula. The chief points in the management of plants in dwelling-rooms are to give them as much light as possible, to keep the foliage clean by sponging or syringing, and to supply moderately with water. It is essential also to their growth that no water be allowed to accumulate in the vases containing the pots. Several Bamboos, Japanese Maples, the Arundos, Eulalias, and Phormium tenax also are excellent plants for house decoration when at their best.

Names of Plants.—J. L. P., Diss.: Elæagnus longipes.

G. R. I., Chesterfield: Send another and larger specimen; place it in damp (not wet) moss, and in a tin box. Direct it to the Editor, GARDENERS' MAGAZINE, Endsleigh, Priory Park, Kew. See head of column.

M. G., Wimbledon: 1, Leptosiphon luteus; 2, Clarkia elegans; 3, Lepidium sativum.

L. R. J., Norwich: 1, Jasminum Sambae; 2, Clerodendron fallax; 3, Tradescantia zebrina; 4, Panicum plicatum.

A. M., Wanstead: 1, Lilium Browni; 2, L. Martagon; 3, Ligustrum ovalifolium aureum; 4, Lespedezia glomerata; 5, Populus nigra; 6, Nepeta hederacea variegata.

H. C. C., York: 1, Nepenthes Hookeriana; 2, N. Morganiæ; 3, N. Mastersiana.

M. C. Y., Manchester: 1, Melilotus arborea; 2, Robinia hispida; 3, Ruta graveoleus; 4, Semele androgyne; 5, Tropæolum peregrina; 6, Echium vulgare.

R. H., Broxbourne: 1, Sparmannia africana; 2, Schizanthus pinnatus; 3, Gypsophila tenella.

MARKETS.

Covent Garden.

THERE is an abundance of fruit at reasonable rates, while large supplies of green vegetables meet a brisk demand. Salading and potatos also sell well just now.

FRUIT.—English grapes, 1s. to 2s.; Channel Island, 9d. to 1s.; Belgium, 6d. to 9d per lb.; strawberries, 2s. to 4s. per peck; 3s. to 5s. per dozen punnets; cherries, 3s. to 7s. 6d. per half-sieve; pineapples, 2s. to 4s. 6d. each; bananas, 5s. to 10s. per bunch; lemons, 8s. to 15s. per case; French greengages, 10d. to 1s. 3d. per box; 3s. to 3s. 6d. per pad; gooseberries, 3s. to 4s. per bushel; French peaches, 10d. [illegible] 1s. 3d. per box; English, 2s. to 8s. per dozen; green figs, 1s. to 2s. per dozen; raspberries, 3s. to 5s. per dozen punnets; English tomatos, 4d. to 5d.; Jersey, 3d. per lb.; Spanish, 1s. to 1s. 3d. per box; red currants, 3s. to 5s.; black, 5s. to 6s. per half-sieve; Spanish melons, 9s. to 12s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 1s. to 4s.; cattleyas, 6s. to 9s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 3s. to 5s.; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; [illegible] gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Lettuce, 6d. to 9d. per doz.; cos, 1s. to 1s. 6d. per score; [illegible] onions, 1s. 6d. to 2s. 6d. per dozen bunches; ports, 5s. to 6s. per case; marrows, 2s. 6d. to 4s. per dozen; peas, 1s. to 1s. 6d. per bushel; 2s. to 3s. per bag; French beans, 3s. to 4s. per flat; broad beans, 1s. to 1s. 6d. per bushel; parsley, 1s. 6d. to 1s. 9d.; mint, 1s. 6d. to 2s.; carrots, 3s. to 4s.; turnips, 3s. 6d. to 4s. 6d. per dozen bunches; endive, 1s. to 1s. 6d.; cauliflowers, 1s. to 2s.; cucumbers, 1s. to 3s. per dozen; mushrooms, 6s. to 8s. per 12 lb.; potatos, 4s. to 7s. per cwt.

Borough Potato Market.

Supplies continue to arrive in bulk, and as the demand is somewhat slow there is a tendency towards lower prices. English Beauties and kidneys, 3s. 6d. to 4s. 6d.; Snowdrops, 4s. 6d. to 5s. per cwt.

THE WEATHER DURING THE WEEK ENDING JULY 23, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.		In Inches.	In Centimetres.
	Fahrenheit.		Fahrenheit.	Centigrade.		
London	81·0	44·6	62·8	17·11	0·45	1·14
Croydon	80·0	46·0	62·4	16·89	0·29	0·74
Brighton	76·2	47·2	61·6	16·44	0·13	[illegible]
Bristol	73·0	49·0	59·4	15·22	0·39	[illegible]
Wolverhampton	74·7	47·3	59·4	15·22	0·26	[illegible]
Norwich	—	—	—	—	—	—
Nottingham	76·5	46·5	59·9	15·50	0·36	[illegible]
Liverpool	69·6	51·3	58·8	14·89	0·08	[illegible]
Huddersfield	73·0	44·5	57·2	14·00	0·77	[illegible]
Bradford	75·3	49·8	61·7	16·50	0·47	[illegible]
Hull	74·0	40·0	58·2	14·56	0·11	[illegible]

The mean reading of the Barometer during the week at Greenwich was 29·82 inches, and that of the Thermometer 62°·8, the latter being 0°·1 below the week's average in the [illegible] years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 12 per cent. above the week's average in the 16 years 1860—75. The duration of registered sunshine in the week was 36·1 hours. The measured rainfall amounted to 0·45 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, AUGUST 1.—Droitwich Summer Show.
Beddington and Carshalton Summer Show.
Northampton Floral Fete; Two days.
Headington Horticultural Society.
Newbury Horticultural Society.
Romsey and District Horticultural Society.
TUESDAY, AUGUST 2.—Scottish Horticultural Association.
WEDNESDAY, AUGUST 3.—York Florists Carnation Show.
Newport Pagnell Horticultural Society.
THURSDAY, AUGUST 4.—Bridgwater Horticultural Society.
Lechlade Horticultural Society.

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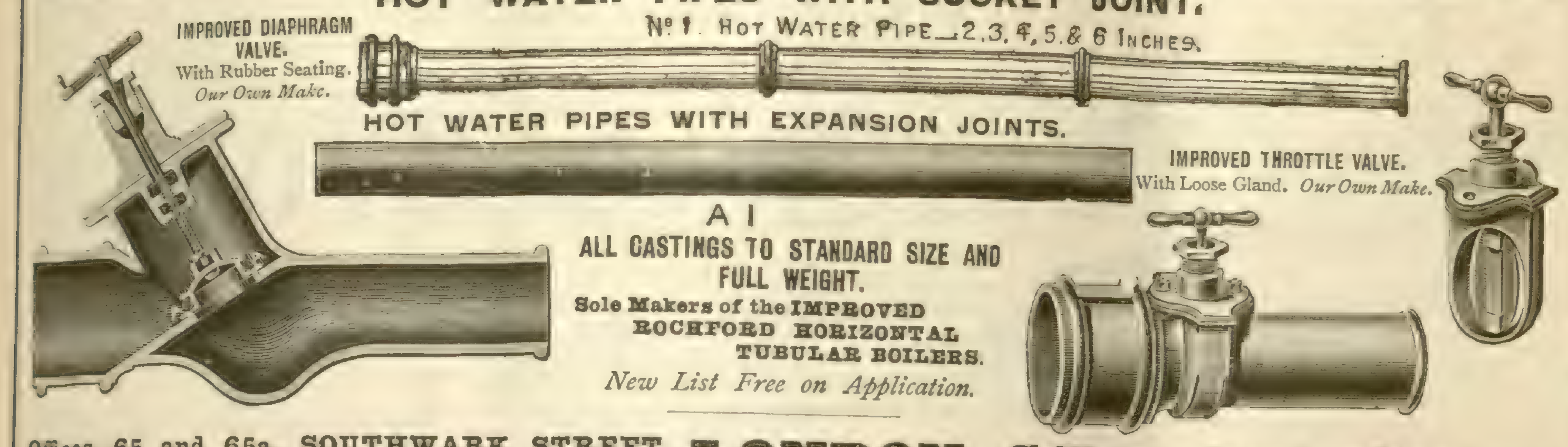
HOT WATER PIPES WITH SOCKET JOINT.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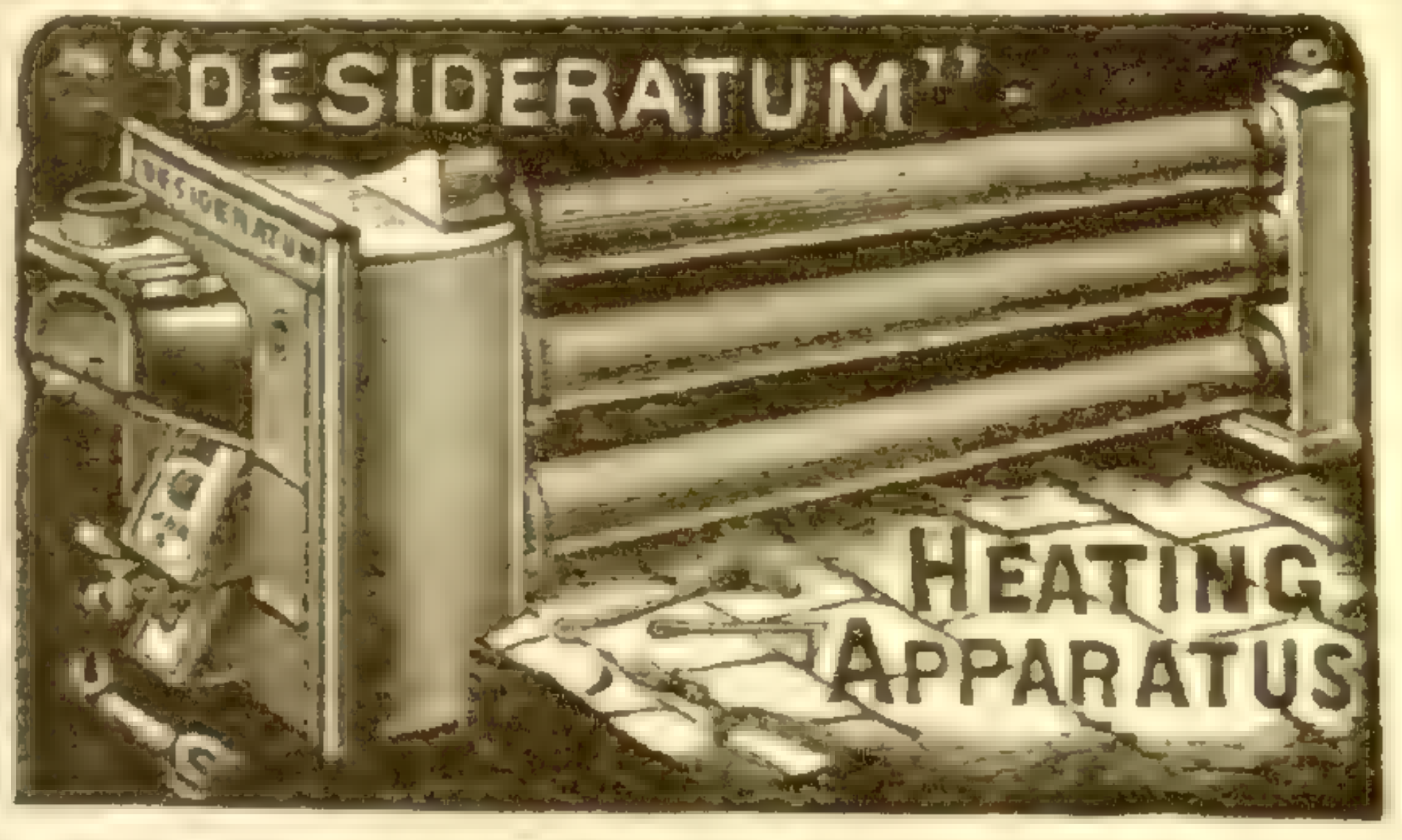

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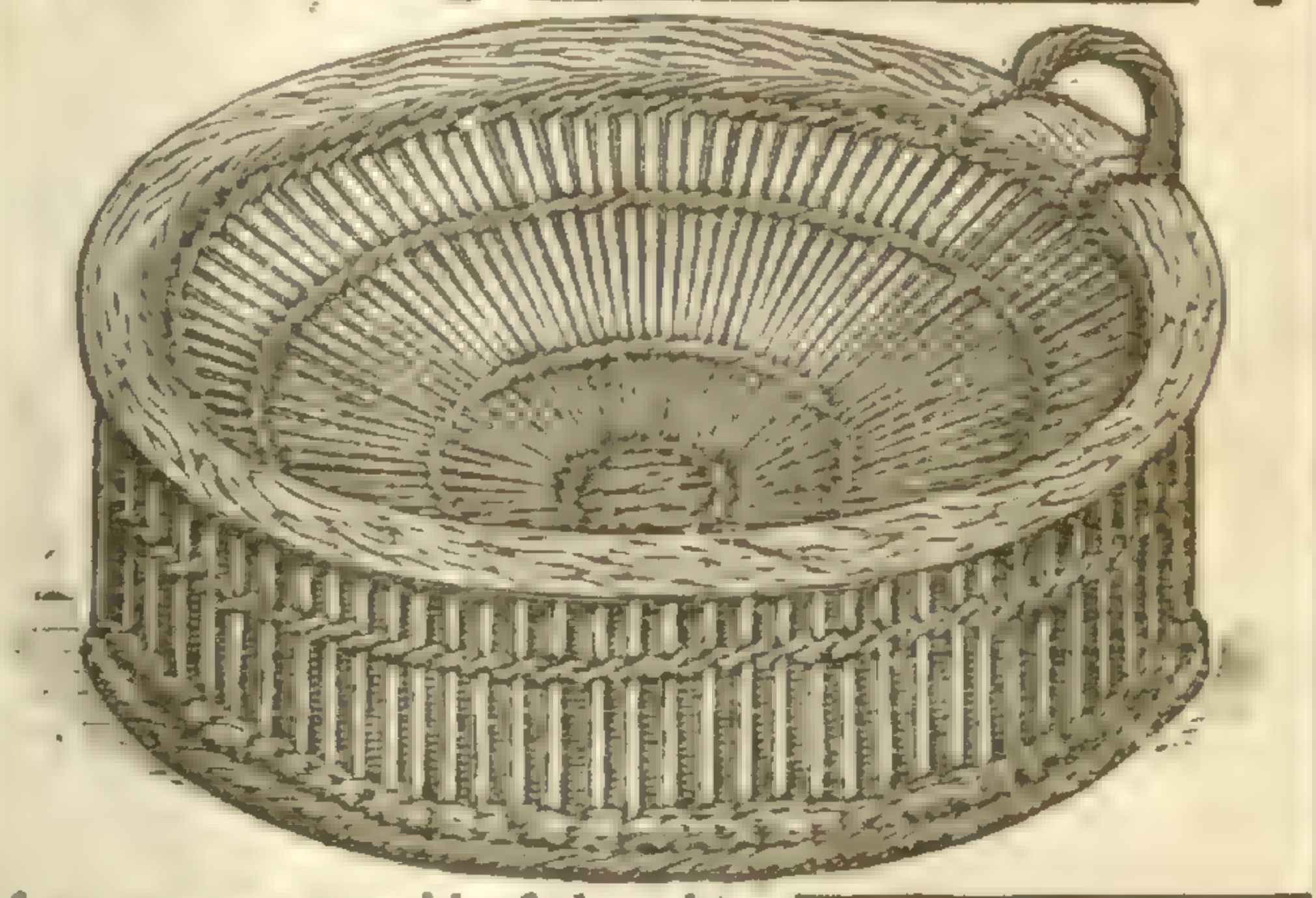

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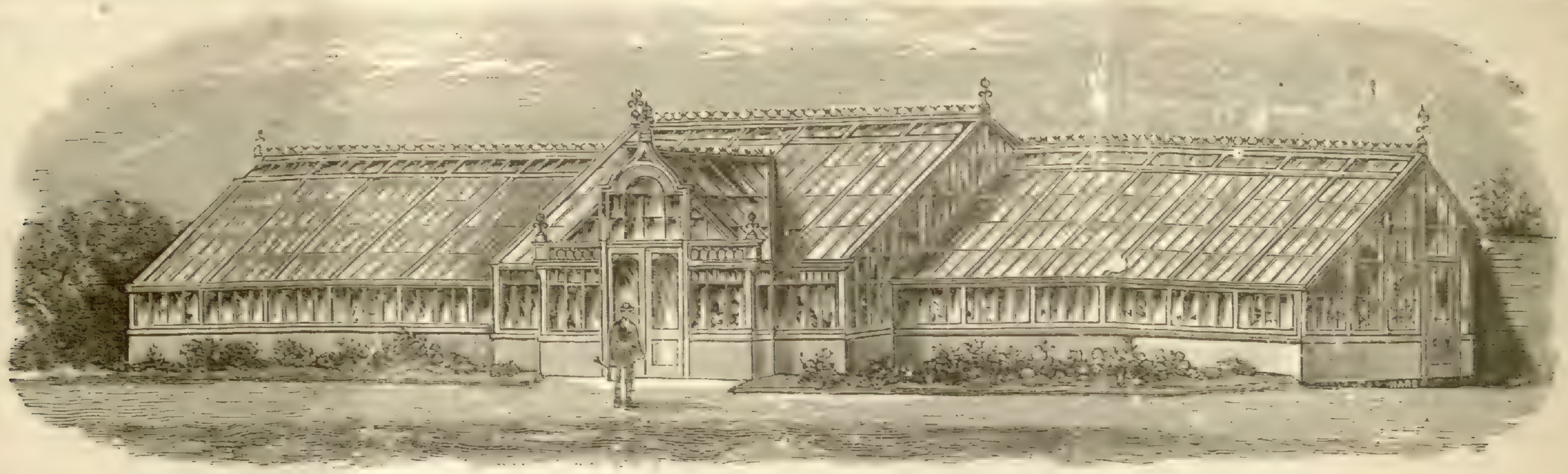

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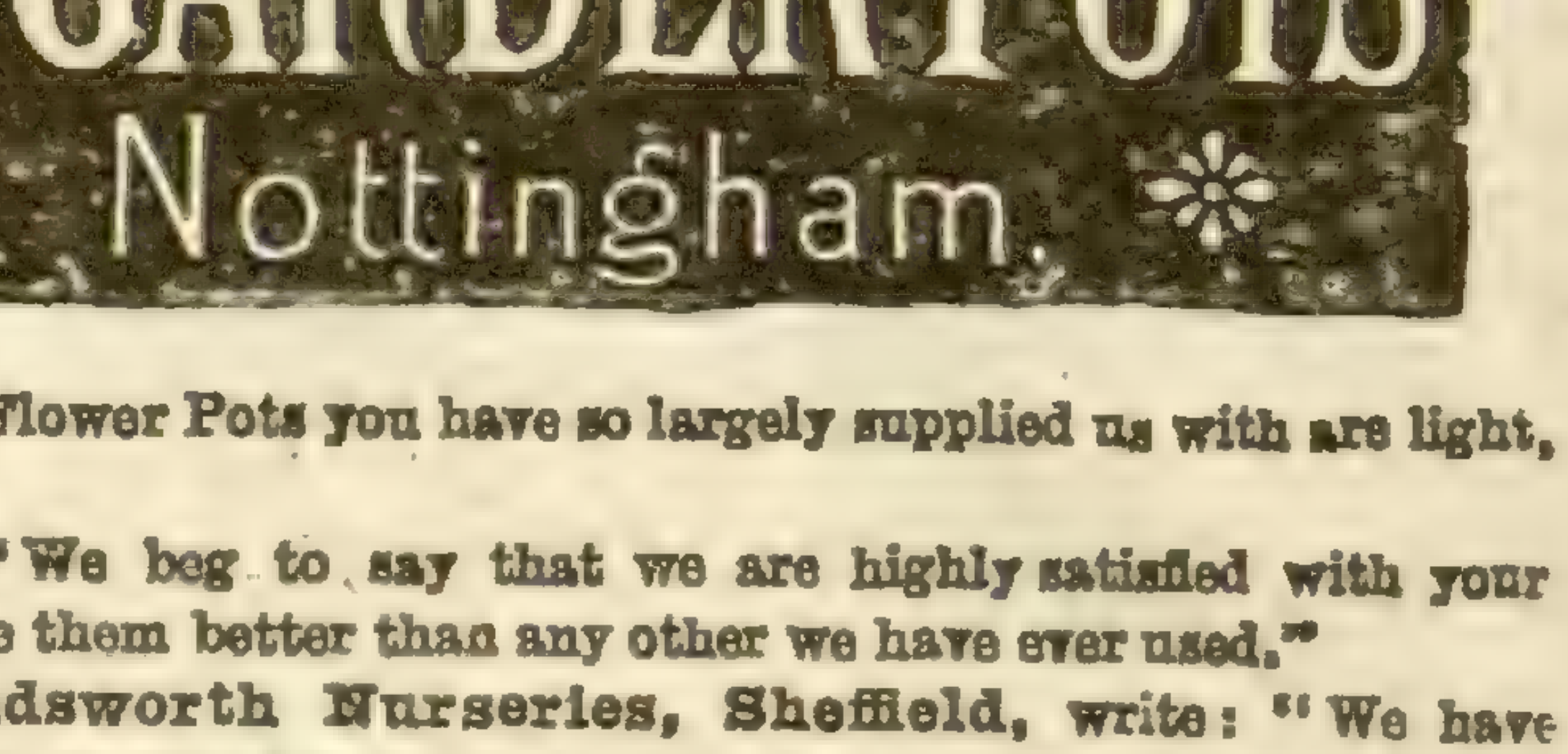

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THE GARDENERS' MAGAZINE.

SATURDAY, AUGUST 6, 1898.

BISHOP'S STORTFORD FLOWER SHOW,
WEDNESDAY, AUGUST 10.
W. SMITH,
Hon. Secretary.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—
GRAND SUMMER SHOW, AUGUST 23 and 24.
Entries close Wednesday, 17th August.
Schedules of SECRETARY, 37, Preston Road, Brighton.

SANDY, BEDFORDSHIRE.—THIRTIETH ANNUAL SHOW, THURSDAY, AUGUST 25th, 1898. Plants, Flowers, Fruits, Vegetables, Corn, Roots, Dogs, Poultry, Pigeons, Rabbits, &c.; Honey, Butter, &c. Prizes £440, including Prizes of £12, £9, £6, and £3, for Ten Stove and Greenhouse Plants.
Entries for Dead Stock close August 18th, 1898.
Her Majesty's Grenadier Guards' Band, and Reynolds' Anglo-American Minstrels.
Secretary, E. T. LEEDS SMITH, Sandy. Assistant Secretary, EDWARD SILLS, Sandy.

SHREWSBURY GREAT FLORAL FETE,
AUGUST 17 and 18, 1898.
The Prizes in the Schedule amount to £950, with Gold and Silver Medals, &c.
Schedules post free on application to the Hon. Secs.,
Messrs ADNITT. and NAUNTON, The Square, Shrewsbury.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being **Five Shillings.** **Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.**

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

REFORM OF THE ROYAL BOTANIC SOCIETY.

NOTWITHSTANDING the fact that the results of the movement originated by Mr. J. S. Rubinstein for the purpose of effecting changes in the administration of the Royal Botanic Society which he regards as desirable, have not been very encouraging, that gentleman is evidently steadily following the course he marked out. On Wednesday next the society will hold its annual meeting, when Mr. Rubenstein will take advantage of the opportunity thus afforded for submitting to the Fellows proposals for giving effect to his views. We do not for a moment regard as probable the acceptance by the Fellows of the resolutions of which he has given notice, and although we believe that some changes might be made with advantage to the society, we do not consider it advisable that questions of so much importance should be decided by the small number of Fellows usually present at the annual gatherings. A more unsuitable date, or more inconvenient hour, for the annual meeting could not well have been selected, for a very large proportion of the Fellows have left town by August 10 for the moors, the seaside, or the quietude of their gardens in the country, and the majority of those remaining in town evidently have an objection to attend a meeting at an hour when they usually sit down to luncheon. The charter is, we believe, responsible both for the date and hour, and to make changes in the charter is both troublesome and costly. In the first place, Mr. Rubenstein will recommend that "the present system of electing the members of the council, whereby they are practically elected and re-elected year after year by the council itself, be brought to an end, and that the necessary alterations be made in the bye-laws to give the Fellows a real voice in the nomination and election of members." This question is one on which much might be said on either side, but as the result of wide observation, we are strongly in favour of giving Fellows of societies an opportunity of nominating and electing the members of the governing body. The formation of scientific and administrative branches, with a manager for each, in accordance with another proposal that will be made by Mr. Rubenstein, would probably prove advantageous to the society, but it is doubtful whether a change involving a largely increased expenditure would be expedient at the present time. The formation of classes for the study of botany may or may not be desirable, but before the council acts upon Mr. Rubinstein's suggestion they will do well, in view of the numerous classes already held in the metropolis, to consider whether there is a sufficient demand for further facilities for studying the science to justify the establishment of botanical classes at the gardens. Still greater care will be necessary in considering Mr. Rubenstein's proposal for the erection of a floral hall of adequate size to serve as a winter garden, wherein flower shows, receptions, and musical promenades can be held at all seasons, because the erection of a structure of the character indicated would involve a heavy expenditure, and thereby add greatly to the financial responsibilities of the society, a step which would hardly be regarded as wise at the present time.

HOBBIES.

THE pursuit of a hobby, especially if it be connected with some particular branch of Nature's handiwork, is like working in an inexhaustible mine of precious materials, in which there is the constant chance of something especially precious turning up. Our gardens are the riding grounds of many hobbies, for the general one of gardening for the mere pleasure of growing one's own buttonholes splits itself up into innumerable special hobbies as particular plants absorb the attention and render the grower a fancier. *De gustibus non est disputandum* is especially applicable to hobbies, and every hobby-rider finds far too little enthusiasm evoked by his treasures amongst the majority of his friends. Even the rabid rosarian in leading his enraptured lady friends through his collection of gems often misses the true ring of fine appreciation in the general chorus of "Oh! how lovely!" which greets alike his latest and finest acquisition, and others of which he thinks but little. The fern maniac at, shall we say, the other end of the scale, is also but little elated when his choicest forms of cresting evoke the inevitable reference to parsley, the "Oh! how lovely!" notwithstanding. How often, too, do we see at the special shows of particular plants—cacti, carnations, dahlias, and even chrysanthemums—that the particular differences and delicacies, or it may be, curiosities of the exhibits, are completely ignored except by a small coterie of the hobbyists themselves, the general public contenting themselves with an extra stare at the groups to which prizes have been accorded, and uttering the customary laudatory ejaculations aforesaid, under such guidance only. Yet it is to the hobby-rider that the world owes much of the beauty it enjoys as well as other blessings. It is the man who makes a hobby of a thing who gets below the surface, and by his special study and attention develops the possibilities as well as the actualities. Any man can buy a packet of seed of a good thing, sow it, and with reasonable care deck his garden or his table with the results; but it needed the hobby rider to raise the strain whence the seed resulted, and a hundred generations of growers would do nothing to improve it, unless someone made a hobby of it, studied it crop by crop, picking out the best, profiting by every "break," and so enriching the floral, vegetable, or fruit world with better and better products. It is the same in all branches, the inventor rides his hobby, and in ten thousand different ways adds to the facilities and enjoyments of existence; the physiological student strikes a hobby, potters about, to his friends' disgust, with ridiculous microscopic matters, and succeeds in tracking the fell disease to its origin in tiny black dots of ten thousand to the inch, studies the habits of these little wretches, and knowing these, circumvents them, and down goes the mortality rate with great rapidity as another result of hobby-riding. There are, of course, hobbies and hobbies, and many are purely useless, but this can only be said of mere purposeless collections of odd and incongruous things, and does not apply to the studies of natural phenomena in any of their departments, living or not. Each is replete with Nature's secrets, and it is the hobbyist who finds them out and gives his fellow-men the benefit of his discoveries.

WATER LILIES.

THE meeting of the Royal Horticultural Society on Tuesday should prove of exceptional interest, for the Fellows and other visitors are promised a paper on water lilies by M. Latour-Marliac, who, as the result of his continued and well-devised efforts, has given us a class of these fascinating aquatics in which the brilliant colouring of the exotic species is combined with the robust and hardy constitution of the chaste white flowered species indigenous to the United Kingdom. We do not know whether M. Latour-Marliac will be present to read his paper, but we hope he may be, and should he undertake the long journey that will be necessary to enable him to be present, we trust he will have an audience that will show in some degree how heartily the horticulturists of this country appreciate his efforts in providing material for enhancing the charms of our water scenes. Twenty years ago the hardy nymphæas were limited to six or seven species and varieties, of which one half had white flowers, and the other half flowers coloured yellow, rose or pink; and now, thanks to M. Latour-Marliac, we have a large number, of which a considerable proportion bear flowers rivalling in effectiveness of colour some of the species that are natives of the tropics, and require the protection of glass, and the assistance of a liberal degree of artificial heat for their successful cultivation in this country. M. Latour-Marliac has long taken great interest in the various forms of aquatic vegetation, and recognising the possibilities of the nymphæas, he commenced the work of hybridisation in 1879, but as he crossed the hardy with heat-loving species, th results were not satisfactory. Subsequently he effected a cross between Nymphæa pygmæa and N. indica rubra, and obtained as the result a hybrid bearing bright red flowers, but unfortunately it failed to produce either seeds or offsets, and had to be abandoned. The next cross of which there is record, was effected between our common white water lily, N. alba, and N. flava, an American species with pale yellow flowers, and this resulted in the beautiful hybrid introduced under the designation of N. Marliacea chromatella, and now in general cultivation. This hybrid was followed by N. Marliacea carnea and N. Marliacea rosea, which were raised from N. alba fertilised by the pollen of N. odorata rosea, a handsome form with richly coloured flowers, introduced from Cape Cod, North America. These also are well known and highly appreciated by cultivators of water lilies, and it may be mentioned as a matter of some interest at the present time that the honours which these and other forms brought the raiser at the Paris Exhibition in 1889 encouraged him to proceed with the work in which he had been engaged with so much success. As the result of his later efforts M. Latour-Marliac has been able to give us such magnificent forms as N. Aurora, N. gloriosa, N. ignea, N. Marliacea flammea, N. Robinsoniana, N. Seignoureti, and N. sanguinea, all of which have highly-coloured flowers. As the GARDENERS' MAGAZINE has accomplished so much in extending and improving the cultivation of hardy aquatics, we have much satisfaction in directing attention to the splendid results that have been obtained by M. Latour-Marliac in the hybridisation of the water lilies and the opportunity that will be afforded on Tuesday for obtaining first hand some particulars of the course of procedure by which he has achieved so large a measure of success.

A Botanical Department for the West Indies.—The Government has decided to pay off the deficiency that for some time has been weighing upon several of the West Indian colonies chiefly as a result of depression in the sugar industry. With a view to improving the condition of the West Indian islands that have suffered so much the Government intends to adopt the recommendations made by the recent Royal Commission that investigated the sugar question. It is proposed to establish peasant proprietors by settling the labourers on the land. The partial substitution of other industries for that of sugar was suggested, and in this connection the Government intends to establish a botanical department which shall deal with all questions relating to agriculture, horticulture, and botanic education in these islands. This department is to be placed under the direction of Dr. Morris, assistant director of the Royal Gardens, Kew, and certainly the Government could not have selected a more competent director for the department as none have a wider knowledge of tropical plants of economic value than he, while his former residential experience in Jamaica as head of the botanical department there renders him particularly fit to organise and direct the West Indian Botanical Department. In order to carry out this scheme the Government obtained a vote of £4,500 for this year, the Colonial Secretary stating on the 2nd inst. that in future years a grant of £17,000 would be required. A sum of £5,000 was also voted for a better system of communication between the distressed islands and their markets. The good wishes of all who have the privilege of knowing him will go with Dr. Morris when he leaves Kew, as he shortly will do, to take charge of the West Indian Department; he has already done so much for the Colonies that we are sure he will both deserve and obtain success in his new undertaking.

Prizes for Preserved Fruits and Vegetables are offered by the Royal Agricultural Society in connection with the show to be held at Maidstone next year. Two prizes of £5 and £3 are offered in each of five classes for preserved fruits and vegetables—(1) collection of dried or evaporated fruits; (2) collection of dried or evaporated vegetables; (3) collection of bottled fruits (whole fruit) to be shown in clear glass bottles; (4) collection of preserved fruits for dessert purposes, in boxes or other suitable receptacles; (5) collection of jams, to be shown in 1 lb. clear glass jars. Three prizes of £5, £3, and £2 respectively are offered in each of four classes of cider and perry—(1) cask of cider, not less than 18 and not more than 30 gallons, made in the autumn of 1898; (2) one dozen cider made in the autumn of 1898; (3) one dozen cider made in any year before 1898; (4) one dozen perry. The society also offers a prize of £20 for a machine for the evaporation of fruit and vegetables; and two prizes of £5 for the best system of packing jams and fruit for travelling—(*a*) for soft fruit, (*b*) for hard fruit. Entries for jams and preserved fruit and vegetables close on May 15, 1899; those for evaporators and packing close on April 1, 1899.

Acreage of Market Gardens.—An important change in the form of the returns issued by the Board of Agriculture has been made by the discontinuance of the attempt to give a separate enumeration of the area described as under "Market Gardens." Various facts coming to the notice of the Department had made it evident that for some time much uncertainty was attached to the nominal extent of surface so classified, and no uniform interpretation of the term seemed to be followed. The much greater attention which, in certain neighbourhoods especially, would appear to have been recently devoted to the production of vegetables and miscellaneous crops has led to many of these crops being grown on land which could not be distinguished as technically a garden, and which was often part of the recognised area of the ordinary agricultural holding. Notwithstanding the extension of acreage under this head in recent years, the term "market garden" in its older meaning has been becoming more or less obsolete, and the separation of such areas from less highly-farmed surfaces under the same occupation was often practically impossible. The change has had the advantage of getting rid of some of the difficulties encountered in filling up the schedule as it formerly stood, and, the areas carrying the crops known as market garden produce were always required to be, and are now, separately accounted for under their proper headings, as far as annually distinguished.

A Biological Station at Lake Bologoye, on the Valdai plateau, has been opened about a year or so by the St. Petersburg Society of Naturalists. The lake is shallow, but is quite close to the much deeper Lake Glubokoye. The aquatic vegetation is very rich, while the flora of the district is also rich. In the lakes Najas minor (*Caulinia fragilis*) and N. flexilis (*Caulinia flexilis*) have been found, while on the land such rare plants as Viola umbrosa, Luzula albida, and Botrychium virginianum are fairly plentiful. Four botanists worked at the station during last summer, and the results of their labours have proved most gratifying. The station was established chiefly through the generosity of M. Voronin.

Aster Disease in Kent.—Mr. W. P. Wright, of Fairview, Willesborough, Ashford, Kent, recently sent some specimens of diseased asters to the R.H.S. Scientific Committee, observing that growers of asters in East Kent, especially in the Dover district, are in trouble over an aster disease, which destroys thousands of plants. Some go off directly they are put out, others at a later stage. He found small white grubs in the lower part of the stems, and did not feel any doubt that they were the cause of the mischief. The committee stated that in the *Naturalist*, the organ of the Yorkshire Naturalists' Union, there is a paper by the Rev. Hilderic Friend on this subject. The worms in question are of the family of Enchytræidæ, a group of annelids. Mr. Friend discovered a presumably new form in China asters, and named it E. parvulus on account of its minuteness. A full description of the worm is given in Mr. Friend's paper. There is nothing to be done but consign the plants attacked to the flames.

The Asparagus Rust (*Puccinia asparagi*), which has long been known in Europe, made its appearance in asparagus plantations a few years since, and has spread in North America so rapidly that last year it did a considerable amount of damage to crops in the eastern states. In a badly-infested crop the general appearance is that of an unusually early maturing of the growth. Instead of the healthy green colour there exists a brown hue, as if insects had sucked the plants of their juice or frost had killed them. When examined closely the rusted plants are seen to have the skin of the stems lifted, as if blistered, and within the ruptures of the epidermis a brownish colour, due to multitudes of spores, is noticeable. Like the allied fungi, this species passes through an æcidial or cup stage, and it is important to understand the relation of the cluster-cup to the asparagus rust proper. Experiments carried out at the New Jersey experiment station have shown that spraying the infested plants with Bordeaux mixture has the effect of reducing the amount of rust by about one-fourth. Burning the rusted brush in autumn, as is sometimes done in England and other European countries, was found effective. Even with this precaution, however, many spores must get scattered upon the soil, so that it is well to sprinkle a thin coat of lime upon the ground and leave it there through the winter. By following this up with a turning under of the surface soil in the spring the spores that might still be living are buried and so rendered harmless. The Palmetto variety appears to be less susceptible to attack than other kinds of cultivated asparagus. It fortunately happens that the asparagus rust has a natural enemy in the fungus Darluca filum, which has the reputation of preying upon the rusts generally. This organism imparts to the rusted asparagus a mouldy appearance, the light gray colour being due to the multitudes of fine curved threads that spread out from the more deeply-seated portion of the fungus. Accepting the Darluca as a friend of the asparagus-grower, the latter finds himself in a difficulty, lest in spraying against the asparagus fungus he should, at the same time, destroy his ally. It might, indeed, be a disadvantage to spray asparagus plants that are already enshrouded in a mould by the spores of the Darluca, but this is a point that can only be settled by further experiment.

East Cowes.—On July 20, Mr. S. Heaton, Horticultural Instructor to the Isle of Wight County Council, gave the last of a series of lectures before the members of East Cowes Horticultural Improvement Society. Mr. S. [illegible], J.P., C.C., presided over a good attendance, and briefly introduced the lecturer to deal with "The cultivation of Tuberous, Fibrous rooted, and Rex begonias." The history and general cultivation of the respective kinds of begonias were dealt with in a clear and concise manner. The reasons for the various operations, etc., being fully explained. At the close the Chairman moved a vote of thanks to Mr. Heaton for the course of lectures which he said had been most interesting and instructive.

West of England Chrysanthemum Society has altered the dates of its annual exhibition at Plymouth, from November 1 and 2 to November 3 and 4.

An Agricultural Department at Zanzibar has been established and placed under the superintendence of an English horticulturist, whose duties are to experiment upon and introduce improved methods of cultivation for staple products, and also to introduce plants likely to be of value to the State, to experiment with them, and eventually propagate and distribute such as are found suitable for the climate. Already many trials have been made, and though camphor, [illegible], sarsaparilla, and safflower have failed, there is a promise of good results from cocoa, kola, vanilla, rubber plants, anatto, coffee, and eucalyptus.

The New Water Lilies, raised by Mons. Latour-Marliac, are now fairly well-known to visitors at the Drill Hall and the leading provincial summer shows, where they have been exhibited by some nurserymen, but more extensively by Mr. J. Hudson, gardener to L. de Rothschild, Esq., Gunnersbury House, Acton. By reason of their somewhat high price, these new and hardy water lilies are not yet generally cultivated; but, as they are generally admired, and [illegible] gardeners are anxious to try them, it may be predicted that there will be a large attendance at the meeting of the Royal Horticultural Society, to be held on Tuesday next, August 9, when M. Latour-Marliac is to read a paper on "Water Lilies," a subject with which none are more conversant than he.

The Prune Orchards of Oregon are estimated to occupy about 40,000 acres, about half of them being in bearing. Fifteen thousand acres are situated in the Willamette Valley, a similar area in Rogue River Valley, and six and a-half thousand acres in Umpqua Valley. The good work of the Oregon State Board of Agriculture in respect to insect pests is seen in the general cleanliness and good order of the trees. There was a heavy yield in 1897, but those who carefully handled their produce did very well. Potatos grow well in Oregon, for the 1897 crop was about four and a-half million bushels; the average price paid to farmers was 2s. per cental. It is stated that Oregon farmers can make a profit on potatos at 1s. 2d. per cental.

Messrs. Charles Sharpe and Co., Sleaford, recently took all the men employed in their various establishments to see the Lincoln Agricultural Show; the firm paid all expenses, and the men had a most enjoyable day. On the 21st ult., the Messrs. Sharpe treated their two hundred women and girl employés in a similarly kind manner, but this outing was to Skegness, where the firm made ample provision for the entertainment of this large party. Such outings as these do much to bind employers and employed, creating a sympathy that does not soon fade.

Agriculture and Forestry in Bulgaria are being encouraged by the Government. In the first place, much is being done to introduce a more reasonable system of cultivation, by showing the peasants the advantages to be gained by fertilising the soil, and by the use of machinery of the simpler kinds. Two agricultural schools are maintained at the expense of the Government, one at Sadovo and the other near Roustchouk. Another school intended especially for instruction in fruit cultivation will, writes Vice-Consul Jones, be established during the present year at Kustendil. The wasteful destruction of the forests is now a punishable offence, and the steps taken by the authorities to preserve what remains of the forests have been attended by beneficial results. The peasantry, at first inclined to resist the curtailment of a liberty they had enjoyed under the careless administration of their former rulers, have begun to appreciate the advantages of the new system. The State owns forty per cent. of the forest lands, fifty per cent. being communal property, and the remainder owned by individual proprietors. Nursery gardens belonging, some to the State and some to the various communes, have been established since 1889; they now number more than a thousand. Amongst the trees there cultivated appear the oak, elm, ash, pine, larch, fir, and the mulberry, the latter for distribution among sericulturists. About two million mulberry trees were recently planted in the State nursery-gardens, and, in 1897, twenty-five thousand ounces of mulberry seed were sown.

Artificial India Rubber is being produced both in France and Germany. In the former country resinoline is mixed with zinc, oxide of manganese, and methylated spirit, the whole being kneaded and then compressed. In Germany the process is simpler, jute refuse, or similar textile refuse being prepared and added to oxidized linseed oil, this making a vegetable product that can be put to many of the uses for which the true rubber is in demand.

Mr. Hendon, of Tottenham Park Gardens, met with a serious accident last week when endeavouring to capture a horse belonging to Dr. Hutton. The animal kicked Mr. Hendon in the face, breaking his jaw and otherwise injuring him. Mr. Hendon was unconscious for several days, but is now mending, and it is to be hoped that his recovery will be speedy.

Potatos in many parts of the country are ripening too quickly in consequence of the continued absence of rain, coupled wlth the recent hot weather. On stiff [illegible] potatos are difficult to lift, and the pressure of the baked earth upon the [illegible] somewhat spoils their appearance. So far, the potato disease has not been [illegible] except in one or two of the very moist districts of Devonshire.

Melon Seeds Germinating Inside the Fruits are not exactly rare, [illegible] the occurrence is by no means common. Mr. A. McKellar, gardener to H.R.H. the Prince of Wales, recently sent a melon to Marlborough House, which was subsequently found to be full of young melon plants, quite green, plunging their roots into the flesh of the melon and feeding upon it. Similar growths have also been seen in lemons and oranges, as well as cucumbers, pumpkins, papaws, and other fleshy fruits. The cause appears to be that the fruit has been kept some time in a warm atmosphere.

A Destructive Pea Pest.—The Board of Agriculture has recently issued a leaflet on that destructive pest, the Pea Thrips (*Thrips pisworal*). Many complaints had been heard during the seasons of 1896 and 1897 about damage done to [illegible] by some insect or other. In some cases the damage was found to have been caused by the pea weevil, but in some Kent specimens sent the evil was caused by the presence of thrips. The flowers were dried up and withered, and few perfect pods were found, although the haulm, in these cases, was fully developed. The larvæ had completely arrested the fructification of the flower. The size of the thrip is about a twelfth of an inch when fully grown, and it possesses seven-jointed [illegible] The insect is greyish in colour, the eyes being red, and the mouth [illegible] with a short, fleshy sucking apparatus. The female lays microscopic [illegible] in the midribs of the leaves from which the larvæ come in seven or eight [illegible] at once begin to suck up the juices of the plant. There are many [illegible] during the summer. The following are the remedies recommended: [illegible] of this insect, peas should not be sown in the following year near [illegible] spot. In gardens where peas are trained upon pea sticks it would [illegible] to spray the plants by means of a knapsack machine, but in fields [illegible] are not used, and the foliage grows densely, this would be almost impracticable. The best mixture for spraying would be five pounds of soft soap and the extract of five pounds or six pounds of quassia chips to one hundred gallons of water.

Flower Culture on the Riviera.—At San Remo the flower industry continues to increase, and more and more olives are cut down each year to make way for carnations, roses, and to some extent, vines, especially where ground i available within reach of the high road, so that water for irrigation can be obtained from the mains of the water company. But the flower cultivators complained that owing to the warm summer and continued fine weather of 1897, many of the flowers were ready in advance of the market, and that, therefore, the prices realised were too low to be thoroughly remunerative. At Bordighera the flower trade suffered from enormous over-production, which was specially marked in the autumn of 1897, when the continuous warm weather brought on the flowers very rapidly. The record quantity of flowers sent away from Bordighera in one day was on December 20, 1897, when 1,426 kilos. were despatched. Prices ruled high in the winter, owing to the scarcity of roses caused by the trees being exhausted by the excessive flowering in the autumn. Carnations continue to be planted in large quantities.

Self-Irrigation in Plants is a matter more or less known to all observant horticulturists and agriculturists, but not all have had opportunities of noting the methods by which self-irrigation is ensured over a large series of both native and exotic plants. In an interesting article on the subject in *Knowledge*, the Rev. A. S. Wilson, M.A., observes that many must have noticed how on a wet day in winter the rain runs down the leafless branches and descends the trunks of trees; the bark, in consequence of being kept constantly moist, assumes a green tint from the development of mosses and lichens. During summer, on the contrary, the surface of the trunks and branches of most of our trees is quite free from moisture, and the ground underneath the branches is dry. The foliage, in fact, forms a kind of thatch; the leaves slope outwards and overlap like tiles on a roof, so that the water drips from the outer extremities of the branches, producing a moist zone on the ground around the tree. Now, as the roots commonly extend in a horizontal direction as far as the branches, it is quite obvious they must benefit by this arrangement; and on extending our observations we find this principle to be of very general application. The relative positions of the foliage leaves and absorbent roots are in most cases such as to secure to a greater or less degree the benefits of self-irrigation. The drainage of the foliage may be either centripetal or centrifugal. As examples of the latter, where the slope of the foliage is outwards, may be mentioned the lime, birch, apple, pear, plane, maple, ash, horse-chestnut, poplar, and alder. The needle-like leaves of the pine and larch are also so arranged that nearly all the rain is conducted outwards, the ground underneath the branches remaining in consequence remarkably dry. The drooping or weeping habit of many trees admits of a similar explanation. Palms, bananas, tree-ferns; bulbous monocotyledons like the tulip and hyacinth; the turnip and beetroot, and most plants with tufted foliage, have the drainage centripetal. The radical leaves of the rhubarb, plantain, dandelion, thistle, and many others, are arranged like a rosette, and the rain flows dowh towards the central root-stock. In these cases the stem is either prolonged downwards into a tap-root, or the roots form a central mass of no great horizontal extent. With centripetal drainage several secondary adaptations usually appear. Where the inclination of the foliage is outwards, as a rule the leaf-stalk is not channelled; in plants, on the other hand, which have central roots, there is usually a very conspicuous groove on the upper surface of the petiole. The common cow-parsnip is an exceedingly good example of this; its long petiole has a deep groove above. The raised edges of the groove almost close over it, and practically convert the leaf-stalk of heracleum into a pipe down which the rain flows towards the stem. An instructive contrast is seen on comparing an aroid, such as calocasia or caladium, which has widely-spreading roots and leaves sloping outwards, with the rhubarb, which has a central root-stock, grooved petioles, and inward-sloping leaves.

The Destruction of Charlock.—The destruction of charlock otherwise than by the hoe has been the subject of experiment by the Essex Technical Instruction Committee. A solution of sulphate of copper was used, and in a selected piece of barley, in which an abundance of charlock was making its appearance, the committee last April sprayed it in strips—under various weather conditions and in different stages of growth in order to note the effect—with 1, 2, 4, and 6 per cent. solution of sulphate of copper in quantities varying from 10 to 100 gallons per acre. The weakest solution was found too weak, and the strongest slightly damaged the barley; while 10 gallons were found too little to wet all the charlock, and 100 gallons more than was necessary. A 2 per cent. solution (2 lb. of sulphate of copper to 100 lb., or 10 gallons, of water), applied at the rate of 25 to 50 gallons per acre in dry weather and at an early period in the growth of the charlock, was found completely successful in destroying the weed without injuring the barley. When the report was written the sprayed strips were entirely free from charlock, while the rest of the field was yellow with it; and the barley was flourishing better where the weed had been destroyed than where it was left untouched, thus showing that the solution had in no way injured the cereal.

Messrs. J. Peed and Sons, Norwood, have this season been exhibiting caladiums in especially fine condition at the leading London and provincial shows, and have in the course of the summer gained many high awards that prove how extensive, well developed, and highly coloured the various collections have been. As our columns have testified, the Messrs. Peed have shown many new varieties of merit, both their own and continental productions. At the Hanley Show, held last month, the firm was awarded a gold medal for their caladium group, and not a silver one as inadvertently stated in the report.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

THE sting of the issue of the GARDENERS' MAGAZINE of July 23 lies in the tail, for tucked away on the last page is a note commenting on my "astonishing" reference to a wet spring. *Apropos* of the said sting in the tail, I have so often observed critical paragraphs relating to my humble self cheek by jowl with the market memoranda, that I have grave suspicions of something more than printer's fill-up paragraphs. I am beginning to think it is all a piece of genial humour at my expense on the part of the Editor, who allows me to sail serenely through the pages with a comfortable conviction that all is peace, and then brings me up with a round turn just at the moment when I feel perfectly secure.

But to the criticism. It appears quite evident that I cannot possibly get out of the dilemma into which "South Bucks" has flung me without owning up to where I live. I therefore beg to say that I live in the county of Loamshire. Everybody who has the slightest literary leaning knows that Loamshire has been immortalised by one of our most famous writers. Delightful pictures of the beautiful county have been given. It is a county of great gardens and of distinguished gardeners. (Needless to say, the most distinguished of the latter at the present time is Peter.) We are all proud of Loamshire and the magnificent examples of horticultural produce it sends forth. And now, having obliged "South Bucks," I hope he will oblige me. I want him to send along that "easy proof" of my utter wrongness which he alludes to. His records, however, must not deal with winter. I said spring.

Will that estimable gentleman from the west, Mr. Henry Eckford, accept my respectful congratulations? Agreed. He bows an acknowledgment, and perhaps begs to know what it is all about. Just this. With a shadow of that sly humour which pops little digs at me on the last page, I told a friend who is wildly enthusiastic about the Eckford Sweet Peas, and has a garden full of them, including every procurable variety, that I had an Eckford pea unmentioned by him which would beat the lot of them. He came post-haste to see the radiant floral wonder, and found the pea in the form of a dish of Shropshire Hero smoking hot on the table. His disgust was limitless and profound, but I observed that it did not impair his appetite. May the shadow of Mr. Henry Eckford never grow less! May he go on raising sweet peas as beautiful as Countess of Radnor, and culinary peas as good as Shropshire Hero.

Talking of sweet peas reminds me of another little triumph which Peter and I have enjoyed. After the friend before referred to had finished his dinner he condescended to go into the kitchen garden to look at the peas. His manner betrayed that it was a carnal lapse indulged in to satisfy my gross appetite, but still he did it. On the way he passed a bed brilliant with begonias, and surrounded by a band a foot wide of a certain dwarf plant covered with snow-white flowers. "Oh!" said he, grudgingly, "you can flower that, can you?" I mildly responded that there was an ocular proof of the fact. "That," I must tell the reader, was the White Cupid sweet pea, anent the non-blooming of which so much has been said. He surveyed it with a singular blending of emotions, but would not own that we base culinary cultivators had beaten him.

The credit of the achievement is Peter's, not mine. I drew his attention to the complaints about the plant some time ago, and he read the various paragraphs with great contempt. It was "them paper chaps" again. What could anybody expect from the likes of them? These remarks he delivered with the unspeakable disdain which characterised his attitude a short time ago, when an audacious correspondent likened him to a crested fern. About four months ago he proceeded to action. He procured half-a-dozen cocoa boxes, fitted turves to them, sowed his seed on the reversed turves, and so started the plants. In April he planted them out—of course, without disturbing them in the least—and behold! they are blooming profusely. It is a lesson to observe the air of Peter when his eye falls on this border. The concentrated wisdom of the Bodleian Library could not express one-half as much. Whether there is anything in the practice, or the whole thing is an amazing fluke, I do not know. The border, however, is really beautiful.

I have this week been the recipient of a very flattering compliment indeed. A market grower belonging to another county came here this week, sent by someone who had seen our black currants. He was shown the plantation, and, after taking careful stock of it, said, "Well, if you can grow blacks like that in these days, you're worth thirty shillings a week and a 'ouse to me." He eyed me at this, and observing that I did not jump at it eagerly, added "and coals." Even this magnificent suggestion was unavailing, and his seductive offer fell flat. I afterwards understood that, misled by my very homely garden attire, he had mistaken me for my good henchman. I told him what I have told others, and that is this: If you want healthy black currants you must keep your bushes growing. I used to be frightened of big bud; I am not now. If by surface culture, manuring, and the suppression of old wood, black currants can be kept moving freely they will never be destroyed by mite. I am perfectly well aware that experts declare the healthiest bushes are attacked. I must, however, say that the most virulent attacks which I have seen are in plantations where the culture is not continuous.

The experiment season has commenced. Mr. J. J. Willis sets the ball rolling by introducing the Ontario potato tests to us. We should have been better pleased with the Ontario Department if it had been good enough to tell us what it means by large, medium, and small. I refer, of course, to the "whole set" trials. A large set might mean three ounces, a medium two, and a small one. Or a large set might mean three-quarters of a pound. Apart from this plain fact there is the consideration, truly pointed out by Mr. Prinsep some time ago, that the "medium" set of some sorts is the "large" of others. Experimentalists in Canada seem to have the same unhappy knack as many of the same genus at home—they leave out an essential item, and vitiate the whole thing thereby. More vital to us at the present time is the threatening disease. Have your knapsacks ready, gentlemen, and never grumble about the weight. If Uncle Sam's brave fellows can carry their cwt. per man (see daily papers) under the broiling Cuban sun, and beat the Spaniards, to boot, surely we can tackle Don Phytophthora.

I liked the recent article of "H" on "True Gardeners," in a recent issue, because it breathed a large spirit of human sympathy. It is open to doubt whether the writer wishes to claim that the fewer limbs a follower of the pleasant art possesses the stronger his claims to be a true gardener are. If this were so, we might organise a sort of sliding scale of merit, beginning with the man who has lost a finger or a toe, and ending triumphantly with the one who has nothing left but teeth. On this system of adjudicating claims, I am not sure that I could not give your correspondent a beating, for I know of a humble workman who had lost both legs and one arm in an accident, yet who proved such a terror at gardening that there was not a man in the village who could vie with him. The delight of the one-limbed champion when he showed me his system of planting potatos, namely, by working along his line and making holes for the sets with the stumps which served him in lieu of legs, was good to see. He was enormously proud of it, as well as of many another device by the medium of which he prosecuted his labour of love. Think, good friends, of the magnitude of the alleviation of a terrible lot given by gardening to this maimed hero.

LUX.

NATURAL SOURCES OF NITROGEN.

IT is very important to ask, from an economical point of view, what are the natural sources of nitrogen which are available to plants in Nature, as this element is by far the most expensive ingredient to purchase in artificial manures. We know that the air we breathe is composed mainly of two gases, these are nitrogen and oxygen. Nitrogen is by far the most abundant and forms about 79 per cent. of the whole, that is to say, more than three quarters of the air surrounding every plant is composed of this substance, nitrogen, in a free and uncombined condition. Its importance is shown from the fact that it forms part of every plant that grows, from the tiny bit of moss or algæ, to the magnificent and stately oak. It will be found on analysis to enter into the composition of every plant-organ—the roots, stems, leaves, flowers, fruit, and seed. It is present in every fertile soil, and, in fact, no soil can be productive without an abundant supply of nitrogen.

Ammonia is present in the air, but in very small quantities, and varies in amount in different parts of the earth's surface. It occurs most in the vicinity of large towns, and amidst damp tropical forests. Ammonia gas is given off during the decay of organic matters; it however, does not long remain in that condition, but combines with the nitric and nitrous acids forming nitrate of ammonia; if any portion escapes combination with the nitrates, in combines with carbonic acid and forms carbonate of ammonia; this is especially the case in the vicinity of tropical forests, where the evolution of the carbonic acid from the decaying *débris* is exceedingly large. The nitrogenous food of orchids is believed to be derived from this source.

With regard to the use that plants make of the free and uncombined nitrogen of the air, the conclusions that Lawes and Gilbert have arrived at, after fifty years of research, are that our agricultural and horticultural plants do not themselves directly assimilate the free nitrogen of the air by their leaves; but it would seem that in the growth of leguminous or podded plants, such as the clovers, peas, beans, lupins, &c., at any rate some of the large amount of nitrogen which they contain in their composition, and the great quantity which they frequently leave as nitrogenous residue in the soil for the growth of future crops, may be due to atmospheric nitrogen brought into combination with substances already in the soil under the influence of micro-organisms, or other low forms of plant life that exist in the soil, or in symbiosis—that is, joined with a higher form—thus serving indirectly as a source of nitrogen to higher plants.

For the majority of plants, therefore, the whole of the nitrogenous food assimilated by them in their growth is derived from the soil as nitric acid. The inert nitrogen compounds obtained from the decaying vegetable and animal matters in the soil are practically useless to plants until they have been chemically changed and altered by the process of nitrification, and finally reach the condition of nitric nitrogen, or in other words, nitric acid, which, as before mentioned, is the form most preferred by plants. And not only is the vegetable matter (humus) of the soil thus worked over for the use of future plants, but manure, guano, fish manure, seaweed, shoddy, dried blood, and the various materials used for fertilising purposes, including even ammonia salts, are transformed by nature in that wonderful laboratory which we call the soil, and converted into the compounds best fitted to supply nourishment to crops and individual plants in the open garden, orchard, and conservatory.

In order to show how dependent orchard trees are upon this element of nitrogen, Professor Roberts has computed from analysis that an acre of apple trees (the trees thirty-five feet apart) in twenty years, counting in ten crops of fruit, will require for the growth of leaves and fruit alone 1,337 pounds of nitrogen. To restore this amount of nitrogen would require sixteen tons per acre of a commercial fertilizer containing five per cent. of nitrogen. The depletion of the land by fruit trees is, therefore, more serious than by annual crops, from the fact that plant foods are locked up for many years in the trunks and branches of the trees. On the other hand, it should be said that the roots of trees have a larger foraging area than the roots of smaller plants, so that the exhaustion of the soil is not so quickly shown as when annual crops are grown.

J. J. WILLIS.

Harpenden.

OUT-DOOR PEACH CULTURE.

Under good management, and in a dry situation, there is no tangible reason why excellent crops of peaches should not be obtained in the majority of years from trees grown out of doors, against a south, south-west, or south-east wall. Of course some plants will do fairly well, even though a certain amount of neglect should be meted out to them, but to secure anything like creditable results in the cultivation of peaches out of doors every essential as to their requirements must be understood and put in practice, and knowledge and discriminating powers lie within the compass of the grower. The most important thing to be considered by anyone about to embark on the cultivation of this delicious fruit is a suitable soil for the roots of the trees. The soil should vary according to the aspect and situation. For a dry locality and a wall facing due south a loam of a fairly strong character should be selected. In other aspects, or when the locality is inclined to be moist, a more sandy medium is desirable. In all cases good drainage is indispensable to success, for few plants are more impatient of saturated soil around their roots than peaches. The borders should be thoroughly prepared in autumn or early winter by trenching them to the depth of two feet, and ridging the soil. While the work is in progress old plaster, basic slag, wood ashes, or, if that cannot be had, sulphate of potash should be mixed with the surface portion of the border. Where the staple of the border is a good loam, no farmyard manure should be incoporated with it, as this class of fertiliser has a tendency to promote succulent and unfruitful growths. Very sandy soils, however, will benefit by its presence by making them more retentive of moisture and plant food materials, but the amount employed must, nevertheless, be limited, or more harm than good will result from its use.

Provided the borders have been well prepared in early autumn or winter they should be in a capital condition to receive the trees in spring. The first chance of finding them dry should be taken advantage of to level down the ridges and fork over and break up the soil to the depth of a foot. Small trees are most desirable if they have to be obtained from a nursery, as they receive less of a check from the lifting, packing, and travelling than larger ones do. Thoroughly examine the roots before committing them to their permanent quarters, and dress all those that are mutilated by cutting them in a slanting direction from the under-side towards the surface. By cutting the roots in this manner the young rootlets, which will afterwards follow, will originate on the top—a decided advantage so far as the healthy and fruitful growths of the trees are concerned. The distance between the trees should be determined by the height and length of the wall to be covered. From fifteen to eighteen feet is the usual distance to have the trees apart. Allow a space of three inches between the stems and the wall in order that the stems of the peaches may not come in contact with the latter in after years, and be damaged. The borders in front of wall are invariably utilized for the production of early vegetables, no matter what fruits they have to support to cover the walls, and this necessitates their being manured and dug. This digging destroys all the surface and most valuable roots of the wall trees, and compels them to seek for food in lower and less fertile layers. It will therefore be seen that if well-grown peach trees and good crops are aimed at, this practice must not be put in force.

All the border need not necessarily be given up to the peach trees, as their roots will not occupy it for some years. The better plan, perhaps, would be to be guided by the development of the trees themselves, and when they cover, say, eight feet, vertically, of the wall, leave six feet of the border from their roots undisturbed. The after-management of the soil around the roots of the peaches should be influenced by the health of the plants. When they manifest signs of weakness bone meal and sulphate of ammonia may be applied to the border occupied by their roots during the dormant season of the plants. Wood ash, too, will be found useful when the soil is naturally deficient in potash. As a stimulant when the fruits are stoning, nothing excels equal proportions of sulphate of ammonia and nitrate of soda, applied to the soil at the rate of one and a-half ounce to the square yard, and washed in with warm water. This stimulant will not only aid the trees in finishing heavy crops, but will also enable them to lay up a store of food for the succeeding year. Liquid farmyard manure can likewise be successfully employed to enrich the soil when there is a call for more food, but this essence of plant food is best put on in winter, for then the roots are inactive, and the root hairs dead. One good soaking should be sufficient for loamy soils, but for sandy ones two might be given, leaving a couple of months to pass between the times of application. As farmyard liquid manure will promote organic acid formation in soil [illegible] in lime, a light dressing of it may be necessary twice a year—[illegible], and again about the beginning of June. Although peaches are [illegible] of moisture at their roots, yet they should under no circumstances be allowed to become dry, and to keep the soil in a favourable [illegible] artificial watering may be necessary after a spell of hot, dry weather.

For cultivation in a dry situation in the North Riding of Yorkshire, I have found the following varieties do well, viz., Royal George, Hale's Early, Bellegarde, Dr. Hogg, Early Alexander, Condor, Red Magdalen, and Stirling Castle. In warmer parts of the country, varieties that take [illegible] to mature their crops and growth might be successfully cultivated, [illegible] parts, like some neighbourhoods of Yorkshire, they would be [illegible]. Various are the methods in force for protecting peach and [illegible] early-flowering fruits from frosts and cold, and cutting winds, but [illegible] I like best is that of poles and spruce branches. The poles are [illegible] length to reach from the sloping of the wall to the border [illegible] feet from its base. They are fastened at the top immediately under the coping by hooks, and at the base are tied to posts driven into the border, thus leaving space for the grower. The poles are placed about two feet apart, and on these are tied long spruce branches, well furnished with leaves. The branches are allowed to remain until all possibility of frost is gone, thereby affording protection from any inclement weather from the time they are put on. The leaves of the spruce branches will remain all through the colder months, and when they do fall will do so gradually, and inure the fruit and foliage of the peach trees to light and the natural temperature by degrees. With movable shading the work and care of a year may be lost in a day or night, for, with changeable weather, the promise of a warm, sunny day or mild night may turn into a very cold one, and the shading having been taken off, and not replaced, the growth and crop is crippled. The same amount of disbudding, tying, and the stopping of gross shoots are as essential to good results with outdoor peaches as those under glass, and should be judiciously performed. Disbudding should occupy something like seven days, and be performed in three operations, allowing two or three days to elapse between each time. Remove about one-third of the buds to start with, selecting one at the base of each shoot and the terminal buds to remain. Where there are blanks to fill either among the younger wood or older stems, eyes, suitably placed, should be left to do so. In cases of latent eyes pushing from old stems the growths should be stopped when they are four inches long. By this stopping three or four growths will push from the current year's shoot, and these will be of a much more fruitful character than would have been obtained had the one from the latent eye been allowed to extend unchecked. Lateral growths sometimes push from the young shoots. These should be laid in to fill space when they are required, and not cut away, as is sometimes done, for their presence exhibits too much nitrogen in the soil, and in retaining them a balance between root and branch is secured. In case of a damp, sunless autumn, it is advisable to stop all the stronger growths at the end of August, *i.e.*, if they are still extending, in order that they may ripen.

The chief enemies to peaches and nectarines, among insect pests, are green and black fly, red spider, and thrip. If the branches have a couple of dressings during the winter months of such an insecticide as spidacide, none of them are likely to become troublesome. The time they are most at the mercy of insects is during the flowering period. Nothing can be done to check them at that time, and it is then they do the mischief. It would, therefore, be well to see that none were present just before the peaches came into bloom, and if so, apply a dressing of extract of quassia chips. In the event of red spider showing itself on the trees when in foliage, spidacide and a garden engine or good syringe will exterminate it. It might be desirable to use clean water after an application of this insecticide, not that the insecticide would do harm, but as its action is instantaneous, and what remained on the leaves would not prove any prevention for succeeding attacks. Two doses in one week should effect perfect immunity from insects for a time. Blister is a troublesome pest in some localities, and should be kept as much under as possible. When plants have been affected by this fungoid disease, a good plan is to give them and the walls a good coating with sublimed sulphur and lime through a garden engine. For every pound of sulphur add a quarter of a pound of lime; well mix in water, and make it of the consistency of whitewash. This put on in the winter months, and with some force, to get into all the crevices, will prove of a preventive character. In spring a keen eye will be necessary to detect any leaves attacked, and when found should be at once removed and burned. When the fruit on the peach trees begins to take on colour and approaches ripeness, some fish net should take the place previously occupied by the spruce branches, to keep birds off, for where these are plentiful a crop can soon be ruined through their picking propensities. By following the foregoing items of peach culture out of doors, growers may count on good yields four years out of every five.

J. Riddell.

DISEASED BEDDING PELARGONIUMS.

In your issue of July 9 I observe a reply to A. C. R. Faversham under the above heading. The losses were attributed to "something wrong in the soil," "the application of chemical manures," or foul play. It occurs to me to suggest that the losses may possibly have been caused by the pelargonium disease, which exists in various parts of the country, and often unsuspected. The symptoms of the disease are a gradual withering and shrivelling up of the leaves of the plant. The roots when examined are usually dead; the stem becomes decayed and black below the ground line and for some distance above. After the disease has been at work for some time the plant, if slightly pulled, comes away in the hand, the stem being black and decayed, and roots absent. The disease usually begins to be destructive (when present) shortly after the plants are bedded out, and continues to be a plague till the middle or end of August.

The pelargonium disease is caused, and is spread by the spores of a fungus which attacks the stems of the plant, and which at certain stages may be observed in the form of small blisters like specks on the stem. The best cure I know of is to burn the diseased plants carefully as they are noticed. If the disease has obtained a good hold, it may be necessary to burn the stock of the variety affected, and to put some other kind of plant in the border for a season or two. Some years ago the disease made its appearance here among some plants of Vesuvius I had sent me from a distance. It infected all the stock of Vesuvius, and spread to Henry Jacoby, both of which varieties I did away with, burning the stock and planting different kind of plants altogether where the disease had been for a season or two. I am glad to say we are now clear of the pelargonium disease, but we only got rid of it by drastic measures, and by taking care to burn any plants afterwards which showed any signs of infection. Perhaps my experience may be of use to your correspondent in determining what is the matter with his plants.

Dunrobin, N.B. D. Melville

A GARDEN OF BEAUTY AND BATTLE.

A SHORT time ago the horizon of horticulture was illumined by a new star. In other and more prosaic language, Mr. T. Robinson, head gardener to William Laurence, Esq., Elsfield House, Maidstone, girded himself for battle, went tooth and nail for our leading exhibitors, and, to their consternation and amazement, laid them low. One of the defeated gardeners mopped his brow (and well he might, considering the defeat and the atmosphere), button-holed the present writer, and said, in an injured and aggrieved tone, "I say! Who is this Robinson?" His manner as he propounded the query plainly denoted that he considered it rather cool of a new man to trip him up in that unexpected way, and that he was strongly tempted to give the presumptuous Robinson a piece of his mind. When, however, I informed him that the conqueror's prowess had long been known to a select few, and that, so far from being a new man, he had won hundreds upon hundreds of prizes, the listener drooped his jaw and departed.

There was mirth in the neighbourhood of Hollingbourne when it was known that certain proud exhibitors had mistaken Mr. Robinson for a raw novice. It does, however, sometimes happen that, for various reasons, a man of the highest ability remains comparatively unknown in what are euphemistically called "the leading circles." Like Brer Rabbit, he lies low. The particular moment comes, however, and he emerges from his obscurity, with disastrous results to the unhappy exhibitors who had marked down a certain prize for their own. It is, perhaps, not well known—and, if not, it ought to be—that when this genial Kentish gardener lays himself out for battle the hardest of hard knocks will be given. Whatever he decides to show fight with, from chrysanthemums to onions, will need all the beating the best men can give it.

The first glimpse of the Elsfield Gardens prepossesses the visitor. He bears to the left at the entrance lodge, and before he has gone a hundred yards comes full upon a beautiful border of roses, so that he begins to shake hands with himself at once. The odds are that he will cease that process swiftly in order to finger the roses, for they are splendidly grown and bear thousands of fine blooms. This foretaste of floral charm outside the garden walls is supported within them, for the rule is followed of having all the vegetable quarters fronted with flower borders. Of course, this is not particularly unusual; the same plan obtains in many gardens. But you would have to travel far and visit hundreds of places to see the system carried to such perfection as at Elsfield. Frequently the attempt to floralise the kitchen garden becomes a sort of compromise, taking the modest form of a row of dwarf nasturtium or Virginian stock. But Mr. Robinson has elevated it to a fine art. His borders are six feet or more broad. They are laid out with as much care and kept as clean as though they faced the drawing-room windows. A magnificent display of Sutton's double stocks is a delightful feature of them, and an idea richly worthy of imitation is the establishment of clumps of sweet peas alternately with dahlias. The sweet pea clumps were about a yard through, and—to quote the GARDENERS' MAGAZINE rose phrase—sheaves of beauty.

A good many of the worthy gardener's triumphs have been secured through the medium of this same kitchen garden. His onions are a real picture. I was particularly interested in a grand bed of Cranston's Excelsior, each bulb rapidly approaching the "pounder" stage. The seed was sown at the middle of September, and a finer bed of autumn onions no one need wish to possess. Cranston's is not a first-class keeper, even when spring sown, and it is probable that making an autumn sort of it is the wisest course, for with autumn sown onions, early use and not keeping qualities is the principal end in view. Anyway, there it was, a superb crop. Close beside it was a bed of spring sown, proportionately fine, of other sorts. The size of the bulbs warranted a suggestion of box sowing, but this was denied. Trenching two spits deep and the insertion of two layers of manure form the basis of the practice. The result reminded me of that secured by a cottager, whom I know. He took off his top spit, dug a dressing of fowl manure into the bottom spit, replaced his top layer, and rejoiced in a remarkable bed of onions.

Our Elsfield hero has a significant fact to point out in connection with asparagus. I remarked on the fine appearance of the beds and was informed that they not only looked handsome, but had acted handsomely, by giving the finest cutting for many years. "The only difference in the treatment," remarked Mr. Robinson, "is that for the first time since I have had charge of them the beds have not been salted." Here, gentlemen is a bone of contention for you. Is the time-honoured practice of applying salt to asparagus overdone? Many people think it is. A sound old Kentish gardener of my acquaintance, Mr. G. Tutt, of Ashford, will not hear of salt, and there are not many men who have a better basis of practice behind them than he.

It is too early to talk about chrysanthemums, but not too early to admire a collection of many hundreds of plants, carrying magnificent leafage and glistening with health. It is safe to say that a true gardener will have an open heart for them at every stage of their growth, even before they have their first shift. Along all the beautiful kitchen garden borders at Elsfield, the plants stand in serried ranks, as healthy as thistles in a waste, but telling a very different story. It is easy to see by the glistening eye and loving touch of the grower, how absorbed he is in them. Nay, he must needs shake one out, showing a root system as hearty as that of a well-grown hyacinth, and—what is that above the drainage? So, soot indeed! The happy man smiles complacently. Yes, he has been trying a dash of soot on the crocks, and he is pleased with the result, that is plain to see. If any exhibitor reading these notes has his eye on a certain prize at a London show in November, I beg him not to build his hopes too high. The Robinsonian plants mean business.

It is doubtful if there is a finer lot of peaches in the south of England than those in the Elsfield houses. They are models. The first tree, and one of the finest, is Early York, and not far behind it in merit is Early Louise. I do not know that it would be particularly interesting to give a string of names, but what I feel sure will arrest attention is an idea of Mr. Robinson's with respect to feeding. Be it remarked, in passing, that feeding is feeding in this fine garden. There is, happily, an unlimited supply of water, which is pumped up to a gigantic tank in the middle of the vegetable department. But before the fluid reaches the plants it takes up a dash of something stronger, and assumes an odour which it did not possess before. Well, the idea is to restrict the area of feeding to about three feet from the main stem. I imagine a head-shaking of dissent immediately, and if the head-shaking develops into pen-shaking, I do not suppose the Editor will say "no." Mr. Robinson agrees that the principal feeding roots are not near the stem, but further away. He holds, however, that gross wood follows the feeding of these hungry roots, and that smaller, better-ripened growth is secured by stem feeding.

This hero of a hundred fights shows his master-hand in every department. His grapes are grand, and he shows Black Hamburghs with berries three and a-half inches in circumference. And, as an instance of his versatility, the stages at the front of the vineries are graced with a splendid batch of coleus, magnificently coloured. To see plants of this year's raising two feet high and eighteen inches through in forty-eight sized pots, perfect in health and colour, is to admire unstintingly. In the beautiful conservatory is one of the finest pieces of platycerium in the country. In the bulk it is four feet through, measuring to the tips it is six feet.

Elsfield House is an easy walk from Hollingbourne Station, and a pleasant drive from Maidstone. The generous and respected owner is never averse to anyone with horticultural interests seeing his beautiful garden, and a genial welcome from the head gardener is a certainty.

W. P. W.

PEAS.

THE pea crop, up to the present, has been remarkably good. Though the season being somewhat late, not a few varieties have followed rather too close together. We were quite a fortnight later in gathering than last season. Our first was Chelsea Gem, and it is unsurpassed in point of earliness and flavour. I have given several varieties a good trial this season, but not one was ready nearly so soon as Chelsea Gem. Carter's Early Forcing came next, and this is a very dwarf pea, but with nice pods. That fine pea, Early Morn, was especially good, and well maintained the reputation it gained last last year; another variety sent out by the Messrs. Carter, called Interest, has been especially fine and interesting, for it has grown eight feet with us and has borne a very fine crop of nice-shaped and beautiful green pods and peas; and it is also one of the best flavoured peas of the season. Another variety tried for the first time, is Delicatesse, a fine pea about three feet high, bearing a profusion of large pods and peas of a rich flavour, the pods being extra well filled. The variety, Carter's Seedling has borne the largest pods of any we have had; it is a wonderful cropper, and of a very robust nature, with very stout haulm and a large well filled pod of most delicious green peas; invaluable for table or exhibition.

Exonian has been one of the best second earlies, and is a useful pea that bears a full pod. Duke of Albany is good, but requires change of seed, or, I think, it loses its vigorous nature, and produces pods that are not always full, and then the crop is deceptive. Model Telephone is good, and produces pods of the finest type; Criterion has been good, as also has Veitch's Marrow, containing wonderfully large, highly-flavoured peas. Veitch's Perfection we are now using, and it is very good; Dickson's Marrowfat is a splendid pea of high quality, carrying large, well-shaped pods, and peas of a large size. That old favourite, William I., has done well this season, as also have Champion of England, Ne Pus Ultra, British Queen, Autocrat, Veitch's Sturdy, and Chelsonian. Carter's Michaelmas Pea is looking well, the last sowing being made on July 16, and from this we hope to have good gatherings about Old Michaelmas time. We have now to sow a few rows of Chelsea Gem, and they will about end the pea season.

We have never had better or finer peas than this season has produced, and the varieties mentioned constitute the best of those grown. All our latest peas are sown in trenches, with a good supply of decayed manure beneath, and are well watered at short intervals; but I am much afraid our water supply will give out unless we soon have some rain. The forest trees and shrubs are becoming very much [illegible] and a good, steady rain for twelve hours would benefit everything.

W. A. COOK.

Compton Bassett.

Myosotis dissitiflora.—I was surprised to read in a recent [illegible] of the MAGAZINE that an old and experienced gardener admitted he had been deceived in respect of seed of Myosotis dissitiflora, having had that of M. sylvatica [illegible] instead. Now, anyone familiar with the seeds of these respective species [illegible] at a glance one from the other. Seeds of the former are smaller, and always have prominent white bases, that is the point where originally attached to the calyx. The larger seeds of M. sylvatica have no such prominent marks. I have found seeds of M. dissitiflora to be very cheap and plentiful recently, doubtless due to the fact that the plants when in bloom have escaped injury from frosts. That is the greatest harm which can very well befall this beautiful spring flower. Thus in a garden in which there are plants enough in the spring, were ordinary care taken in saving, a couple of pounds of seed could be saved, and that is a fine [illegible] Still, the cheapness seems due to absence of demand. People go on growing the late sylvatica which blooms in May, when they could have dissitiflora in luxuriant bloom in March and April. Seed is not at all difficult to save, but as the [illegible] lie near the soil a good deal of sandy grit is attached to the flower stems, and the seed is difficult to clean. That is, however, of no moment when saved for home sowing. The best time for this is the middle of August. It is natural [illegible] the plants too early, and that is often the case when self-sown plants are [illegible] as the seed ripens in May and early June. Propagation by cuttings [illegible] ever unsatisfactory, as such raised plants never do so well or bloom so freely as those raised from seed.—A. D.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

"A WAIL OF THE SEASON."

"THE country's full of vermin, and that's the truth," said a hard-working, irritated gardener the other day, folding his arms as he spoke and looking as resigned as he could at a plum tree before him that seemed to be in the sole possession of a legion of aphis. "It's all very well," he went on, "for people to make a fuss about mild winters, saying how pleasant they are and all the rest of it, so they may be in a sense, but my opinion is they're not natural, and the result is that grubs and insects of all descriptions have lived through it instead of being killed, and are now letting us know all about it. There's never been such a season for slugs in my recollection, and it's a fair puzzle to keep them at bay. It's heartrending to see one's plants eaten up as soon as they are put out, and as for the usual preventives, why there's such a host of the pests that they simply laugh at them."

Gardeners, as a rule, are not confirmed grumblers, and when you hear such a wail as the foregoing, with plenty more in reserve, you may depend upon it that the man who utters it is either in a bad temper or else he has a real grievance, and in either case it is well to approach the sore point with caution. Had I not known that the temper of the gardener in question was as good as the majority of his fellows I might have hesitated before opening the conversation, but I, too, was suffering from the effects of patchy vegetable quarters, seeds that refused to germinate, or, having germinated, provided food for some diminutive foe, and fruit trees infested with vermin. To suffer alone and in silence may be fortitude, but it isn't part of the human nature of gardeners, who, when in trouble, prefer to go forth and see how others fare, finding some solace in the sympathy mutual to a pair of fellow craftsmen.

"How have your small seeds come this year?" I asked; this being one of the matters of anxiety. "Come and look," was the reply, and the injured one led the way across the kitchen garden and stopped opposite a carrot bed, where an intermittant growth showed where the rows should have been. "Late, aren't they?" I suggested. "Well, rather; but, bear in mind, it's the third sowing. The first lot never came at all, the second went as soon as they got through the ground, and these are nothing to boast about. I never had such trouble with carrots before, but I hear most people's are the same, if there's any satisfaction in that. Parsnips, too, came up very badly, and as for beetroot, well, I've nearly given that up as a bad job, I've sowed till I'm nearly tired of it." The patchy appearance of the beds was evidence of the truth of the assertion, and from complaints received from different quarters other gardeners could testify to the partial failure of these important crops. Such failures belong to the minor matters that worry gardeners. It does not seem much that a bed of carrots, parsnips, or beetroot should fail, but it means something to the man who has a kitchen to supply, and when these vegetables are demanded he has to own that they are not forthcoming. He may blame the seeds, weather, insects, birds, or whatever he likes, but that does not relieve him of responsibility in the eyes of those who know nothing of the caprices of seasons, and have never had to do battle with the gardeners' enemies. "I never knew what gardeners had to contend with till I took to it myself," said a gentleman to me the other day, who has recently retired from business, and pursues the gentle art as a hobby.

A LITTLE further on was a bed of struggling turnips, tiny dwindling things, trying to look as cheerful as they could, considering that every leaf was in a complete state of perforation. The gardener uttered never a word. He had perhaps got tired of the mention of the name of turnip flea, or else he was too disgusted to refer to the subject again. We looked at the mutilated crop and then at each other. "Mine are just the same," I remarked, and, human to the backbone, he smiled. There was some solace in knowing that he was not the only injured one, and mutual misfortune brought mutual sympathy. "What have you done to prevent it?" I asked. "Everything I can think of," was the emphatic reply, "but they're smothered almost before they get through the ground. If anyone could give us a certain cure for turnip flea they'd be conferring a real benefit on gardeners, for this season it seems to have been almost useless trying to grow them. I've sowed again since we had rain, and they seem a little better now. It seems to me that it's no good people recommending this, that, or the other to prevent flea; you may check it a little if you've got the time to spare, which most gardeners haven't; but I say it's the season, and we must make the best of it;" and having relieved himself of this bit of logic the gardener turned his heel on the turnips. "Peas have done well," he continued a little later, inviting me to run my eye along a well-podded row. "We had a job with the slugs and sparrows to begin with, and between them they spoilt several rows. As I said before, slugs have been a [illegible] pest this season, and I have never known so many. It's been a man's work to watch runner and French beans after they came up, or we should have lost every one. They're pretty safe now. I'm expecting every day that the hawfinches will begin at the peas, as they're fairly numerous about here."

PERHAPS no birds are more destructive among peas than these short-beaked members of the bullfinch tribe, and the rapidity with which they will destroy a row of peas by extracting them from the pods is remarkable. In gardens surrounded by woods they are frequently destructive, and my friend had every reason to fear an attack from the marauders. No doubt there are other gardeners who could say a word about the slug pest. Recently there appeared an article on the subject, and probably the late mild winters have had something to do with the [illegible] of slugs and snails which this season are a nuisance in many gardens. Ever since crops began to grow there has been a general scattering of soot and lime; and, judging from the quantity of devoured plants and mutilated foliage, these old-time remedies have only been partially successful.

I WAS hoping the wail of woe had ended, for I was fully satisfied that I was not the most ill-used person in the world, when I perceived my guide coming towards me with an onion in one hand, and the top of a broad bean stem in the other. "I thought my onions had escaped," he said, "but there's one here gone"; and, pressing the bulb between his thumb and finger, he extracted a maggot. "Broad beans have got it again," he muttered, holding up the other [illegible]. "I must have the tips off at once; that's the best and simplest remedy I know. I thought my onions were safe, though I hear there are a good many about that are spoiled with the maggot. They talk about onions raised under glass and pricked out never getting maggot, but I've seen a bed spoiled with it this season. I tell you it's a regular season for vermin of all sorts; and if anyone has an excuse for grumbling a bit more than usual it's a gardener."

THE subject was changed a little from the vegetable section by the presence of a woolly-backed caterpillar which fell from an overhanging apple tree. Under the ordinary course of nature the creature would have developed into a lucky moth, had it not had the misfortune to drop in close proximity to the gardener's ponderous heel and was crushed to a jelly, while a malicious look passed over the man's face. "Fruit trees are alive with vermin," he went on; "look up there," and at the tips of many of the shoots were masses of web, in which hundreds of wriggling larvæ of the small ermine moth were full of life and vigour. In other places brown and seared tips, with leaves eaten to shreds, showed where the work of destruction had been going on, and the marauders had passed the web state of their existence and escaped. A close look round found the caterpillars crawling about on the ground beneath before changing into their next state. "There was a grand show for fruit, but I think it will be thin now," said my informant. "Pears are nearly all gone, apples are scarce, and I am afraid most of them will be spoiled by the codlin moth. There appears to be a good crop of plums and damsons, but the trees are in a filthy condition." A glance at the trees confirmed this statement, as the leaves were all distorted and wrinkled by the masses of aphis infesting them, though a fairly good set of fruit was apparent. Many weakly-looking apple trees were badly attacked by American blight, and stronger specimens near at hand appeared to be quite free, which seems to point to the fact that this pest either makes it a rule to attack weakly trees or else has the effect of making unhealthy those on which it locates. "You have dressed them, of course?" I suggested. "Several times," was the reply; "but I shan't get fruit enough to pay me for my time and trouble." And this appears to be an argument raised by many fruit growers in respect to washing trees.

MY wail of the season must end here. It has been a grumble from the beginning, but a justifiable one, as it is a true state of affairs in many gardens this season. We have now passed the meridian of summer, and the longest day is behind us, therefore we may review the months of sowing and growing, blooming and setting, that have passed, and hope for the ripening and gathering in. The spring and early summer have been anxious times for gardeners, and it would be interesting to know how that mysterious philosopher, "Peter," has passed through the ordeal. With his quaint knowledge of things in general he has doubtless used that stump of lead pencil in making notes about the enemies against which he wages war.

H.

THE ROSE SEASON OF 1898.

THE remarks made by Mr. Mawley in your issue of last week, page 488, will, I am sure, interest many more than myself, as his experience, which agrees with my own, is no doubt identical with that of many others. To judge from the exhibits of some rosarians, milder climates or sheltered (natural or artificial) situations, have acted favourably to their plants and roses, as they evidently did not suffer so much as I and others, from the north winds, to whose cold blast my garden is greatly exposed. Although Mr. Mawley seems doubtful on the point, the season has most undoubtedly been a late one. In one part of his letter Mr. Mawley says, "I do not think myself that the season has been as exceptionally late as generally supposed," but later on he satisfactorily proves that it has been late by his showing that the exhibits improved in number as the season advanced.

To show how the cold winds and nights affected me, I may say that my standard teas did not begin to bloom until about the 10th of July, and I had no good exhibition flowers off them until about the 15th of the month, having to show at the Crystal Palace and Royal Horticultural Society's show from dwarfs off which I never get good blooms. My best boxes of teas were shown on the 20th and 21st at Leatherhead and Ashstead, where there are no classes for rose competition. I could cut no good dark red roses earlier than I did the standard teas, and my experience of Horace Vernet, A. K. Williams, C. Lefebvre, Earl of Dufferin, and the other first-rate dark reds is that they are infinitely finer in very hot and early seasons than in late ones.

Until this year I thought that a late season might suit my garden, but I am now convinced that if it be accompanied by winds from the north and cold nights, it is fatal to the chance of my plants throwing good bloom. I also think that an early season has the advantage of giving everyone a chance, as in recent years we have had good flowers from the Midlands at the Crystal Palace shows, whereas this year Mr. Machin and others were unable to show a flower.

My view of the exhibits agrees with Mr. Mawley's; the professional growers have shown remarkably well, and the amateurs indifferently. We always expect, and I may say are never disappointed in the exhibits of Mr. Lindsell and Mr. Orpen, although their good fortune in having typical rose soils, and in Mr. Orpen's case a good climate, this year may have materially helped them, but with the exception of their exhibits and those of Mr. Hill Gray's (whom I am delighted to see so well to the front again), I do not think the amateurs were at all in good form this year. However, this was their misfortune, and not their fault, as, like myself, they doubtless could not blame themselves for any want of attention or care for their plants. The experience of other rose growers would be interesting.

Leatherhead. CHARLES J. GRAHAME.

Weeds.—Whilst having the profoundest sympathy with those who would strive to check that wholesale despoiling the rural districts of beautiful wild plants such as it should be our delight to preserve from the greed of the plant poachers, I do all the same wish that our parish councils were armed with compulsory powers to enable them to destroy the coarse noxious seeding weeds which are just now seen in such frightful abundance beside lanes and roads almost everywhere in the country. These weeds become intoleaable nuisances to all who cultivate the land, and they greatly disfigure the roadsides that otherwise would be so delightful. Then I should like to go even further, and see these local authorities armed with powers to compel lazy, negligent farmers or others to have all such weeds in their fields or other land cut down ere they can seed. We are such a stupid people to thus allow as we do this description of weed dissemination to go on all over the kingdom. Very often may be seen on groups of allotments one or two plots covered with seeding weeds doing infinite harm. Weeds should be as ruthlessly rohibited as is the diffusion of animal epidemics.—A. D.

ROCKY MOUNTAINS BRAMBLE.

ALTHOUGH one of the most elegant of the hardy shrubs grown for the beauty of their flowers, the Rocky Mountains Bramble (*Rubus deliciosus*) has not obtained much favour with planters, and, in consequence, it is not met with in gardens except at comparatively rare intervals. This want of popularity is somewhat difficult to understand, for the shrub has a graceful habit, and when allowed to extend freely, as in the case of the fine specimen of which an illustration is given herewith, the large pure white flowers are produced in great abundance, and present a charming appearance throughout the season of flowering. Less robust than some of the shrubs commonly met with in British gardens, this bramble is sufficiently hardy to be successfully grown over a wide area in the United Kingdom, the most essential conditions being a moderate amount of shelter and a friable well drained soil. In the neighbourhood of London and throughout the southern and western counties of England it grows freely and blooms abundantly in fully exposed positions, but in the northern counties the shelter of a wall, fence, or bank is an advantage, as with a little shelter there is no risk of the tender shoots being injured in spring, or of the season's growth failing to ripen satisfactorily. The shrub will thrive in any ordinary garden soil, but one that is rather light is preferable, and where the staple is decidedly heavy it should be improved by a liberal application of coarse grit, such as the sweepings of walks, and leafmould or partly decayed manure. Whether grown in the shrubbery border or against a wall or fence, a considerable latitude should be allowed the growth, and the pruning be limited to the removal in the course of the winter of shoots that have become exhausted. Strong shoots that push from the base should be allowed to remain their whole length, except where they have failed to become well ripened at the tips, and then a small portion only should be removed at the winter pruning. Under the conditions indicated the plants will annually produce a wealth of flowers, and be objects of great interest and beauty throughout the greater part of May. Our illustration represents a specimen growing in the grass department of Messrs. J. Veitch and Sons' nurseries at Coombe Wood, where it is allowed to spread over the outer wall and part of the roof of one of the plant houses.

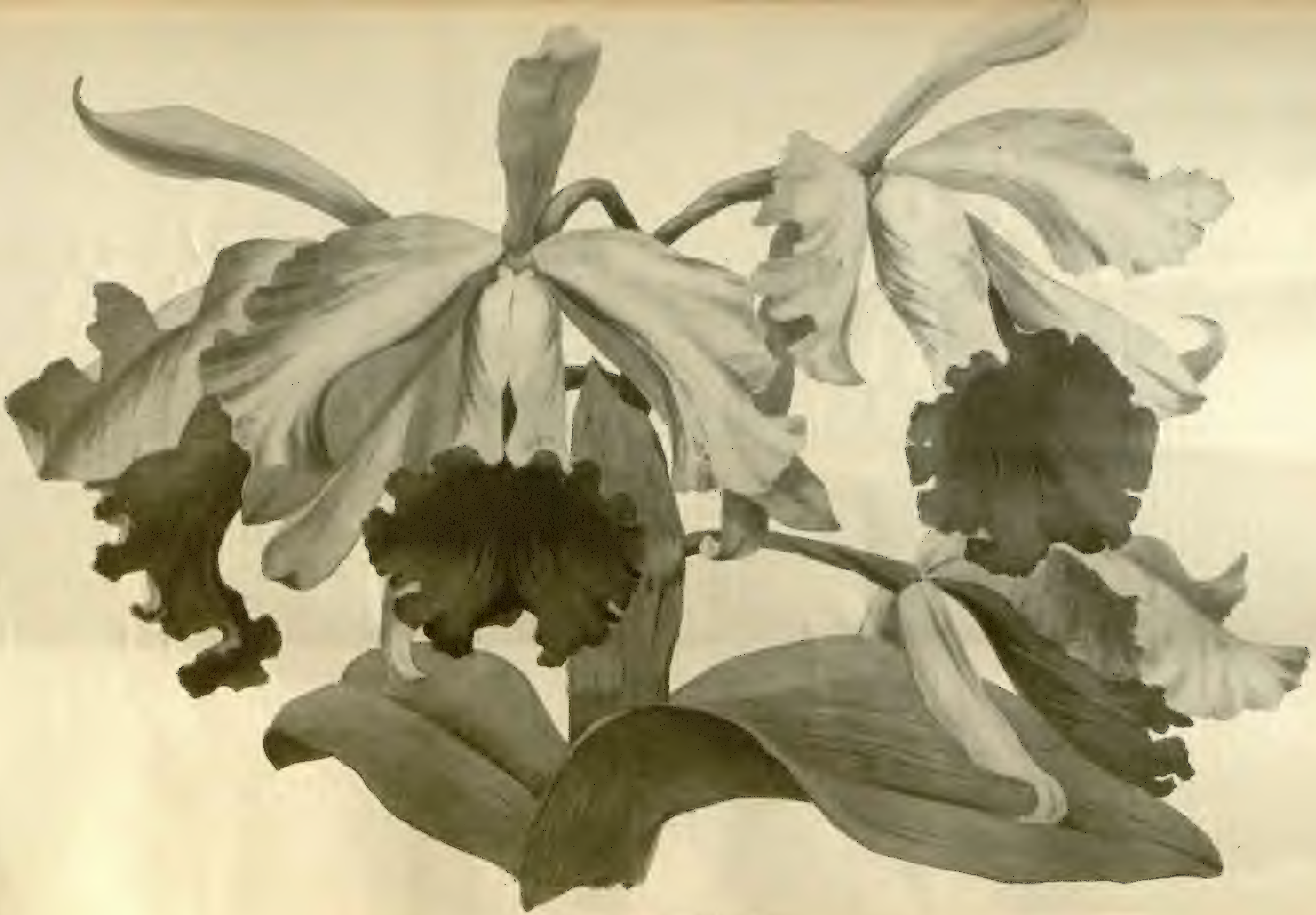
RUBUS DELICIOSUS. (Flowers pure white.)

Rubus deliciosus is by no means a new shrub, for it has been known to science more than three-quarters of a century, and has been in cultivation in this country upwards of thirty years. Early in the present century an expedition was sent to the Rocky Mountains under the command of Major Long, and on its return in 1821 the botanist, Dr. James, brought with him dried specimens of this bramble, which he described as bearing large and delicious fruit. Why the fruits should have been so described it is difficult to understand, except on the assumption that Dr. James did not meet with any other fruits fit to eat, for although they are edible they are not particularly palatable. Dr. Torrey, however, finding that it was a new species, and having Dr. James's note on the size and flavour of the fruit before him, named it Rubus deliciosus. Between the discovery of this bramble and its introduction into this country a period of about forty years elapsed, and for several years after it had become known some doubt existed among horticulturists as to whom belonged the credit of introducing it to cultivation here. It was for some time a matter of common belief that the late Mr. Isaac Anderson-Henry first introduced it, but this was not the case, for Mr. W. Thompson, of Ipswich, had previously obtained seeds from the Rocky Mountains and offered them for sale. The history of the introduction of the shrub is briefly stated as follows: Mr. Anderson-Henry received from an American friend, towards the end of the summer of 1866, seeds that had been gathered from plants growing in the Rocky Mountains in lat. 41; the sowing was made September 29 of the same year, and the young plants began to make their appearance in the March following. Some of the plants bloomed in May, 1870, and the handsome pure white flowers created so much interest amongst the friends of the raiser, who had an opportunity of seeing them, that public attention was soon drawn to the merits of the plant. It was figured and described in the *Bot. Mag.* (*t.* 6062) from specimens supplied by Mr. Anderson-Henry, and there was consequently justification for the belief that the honour of introducing the plant belonged to him. This honour belongs to Mr. W. Thompson, for he offered seed in his catalogue in 1863, and in 1866, the year in which Mr. Anderson-Henry's correspondent sent him seed, he was in a position to supply seed ripened by plants growing in his seed grounds.

At Kew the Rocky Mountains Bramble is grown in beds, and very beautiful is the effect produced when the plants are thus arranged in masses, but in private gardens it appears to the best advantage when planted along the front of the shrubbery, or allowed to spread over a wall or fence. G. G.

LÆLIO-CATTLEYA ADMIRAL DEWEY.

THIS is a particularly robust hybrid orchid, and one that [illegible] freedom of flowering and great beauty with its vigorous habit. The parents of L.-c. Admiral Dewey are a very fine form of the bold Cattleya Warneri and Lælio-cattleya elegans Mastersi. A glance at the accompanying illustration will prove, however, that Lælia [illegible] exercised considerable influence on this, one of its grandchildren. The lip has been glorified and the petals broadened by the influence [illegible] Cattleya Warneri, and the flowers have an erect poise that is [illegible] due to it. The plant was a great attraction at the Temple Show [illegible] last, and made a splendid centrepiece to the group of beautiful orchids staged by Messrs. Charlesworth and Co., Heaton, Bradford, a firm that has raised and introduced a number of charming hybrid [illegible] Already a description of Lælio-cattleya Admiral Dewey has appeared in [illegible] these columns (June 4., page 356), but it may well be repeated in connection with the illustration published now. The sepals and petals [illegible] of a beautiful shade of light purplish rose, the sepals [illegible] and lighter in colour than the wavy petals. The tube of the [illegible] broad, bright rose-purple, with darker veins; inside there [illegible] creamy patches on either side of a central band of royal [illegible] mouth of the lip is fully two and a-quarter inches across, [illegible] waved and crisped margin, and of a grand rich red purple [illegible] though with a lighter wire edge. Four flowers were borne [illegible] shown, and each bloom was over six inches across without [illegible] the segments. The hybrid thoroughly merited the first [illegible] awarded it by the Orchid Committee of the Royal Horticultural [illegible]



LÆLIO-CATTLEYA ADMIRAL DEWEY.

THE FLORA OF AUSTRALIA.

I HAVE often tried to imagine, writes Mr. G. N. Adcock, F.L.S., F.R.H.S., in a most interesting contribution to the *Journal* of the Royal Horticultural Society, what must have been the feelings of Mr. (after Sir Joseph) Banks and his companion, Dr. Solander, as they—the first scientific investigators of living Australian plants—gazed on the enchanting beauty and rich floral profusion which aptly suggested the name "Botany Bay." Fancy an enthusiastic botanist in the present day finding himself in a new land with a flora so unlike that of any other. In attempting even a sketch of our splendid flora, it is with the consciousness that the subject requires an abler pen than mine to do it anything like the justice to which it is entitled. In the "Second Systematic Census of Australian Plants," published in 1889, my esteemed friend the late Baron von Mueller included among the Vasculares 8,839 indigenous species. Of these he gives 7,501 as endemic to continental Australia and Tasmania; so that in round numbers 85 per cent. of our plants are exclusively Australian. The area is, roughly speaking, about 3,000,000 square miles, much of it presenting almost insuperable difficulties to the work of collecting. All zones of plant life are here represented, from the Alpine vegetation to the luxuriant and varied flora of the tropics; and it is a record of which we who have made Australia our adopted home may be reasonably proud that so many species, totally different in so many respects from those included in other and better-known floras, have been so closely observed and so carefully and accurately described. When we consider that there are countries—each with a history going back far beyond the commencement of the Christian era, each the birthplace of generations of eminent scientific men—that have never yet had their floras described as systematically as ours, we cannot but feel the deepest admiration for the scientific genius, perseverance, and research by means of which such splendid results have been achieved. Australian botanical science presents an illustrious roll of indefatigable workers.

It is a matter of great regret that so many of the names bestowed on native plants and animals by the pioneer settlers are singularly inappropriate. Thus "Gum-tree" is the colonial name for all species of Eucalypts. The Banksias are known as "Honeysuckles." Our native "Fuchsia" is a Correa belonging to the Rutaceæ. Exocarpus cupressiformis is the native "Cherry." "She Oak" is the name given to some of the Casuarinas, whose cone-like fruits are called "Oak-apples." Australian "Tea-trees" are members of the order Myrtaceæ, and include plants belonging to the genera Melaleuca and Leptospermum, while "Native Hops" represent various species of Dodonæa and Goodenia, or maybe Daviesia latifolia. And so this list might be almost indefinitely extended. The flora of Australia presents many peculiarities, of which much capital has often been made. Thus our trees are, many of them, peculiar in giving but little shade. Some are leafless. Our Cherry is stated to grow its stone outside the fruit—really on a succulent fruit stalk—while our Pear (*Xylomelum pyriforme*), one of the Proteads, is not only wooden but reversed on its stalk, and our Nettle assumes the proportions of a fair-sized tree up to one hundred feet in height, and so we might go on. The first thing that will probably strike a botanical observer in Australia is the great extent and wide distribution of its forests, composed chiefly of Eucalypts, which form the principal timber vegetation of the continent with perhaps the exeception of some limited areas in the north and north-east. Of these remarkable trees we have over one hundred and fifty distinct species. It is remarkable that none of them are indigenous to the romantic and adjacent islands of New Zealand, nor, indeed, are any of our larger trees also native there. Hence the Eucalypts are typical Australian trees, and like many others in our flora are relics probably of the Eocene age.

In this brief sketch no more than a passing mention can be made of the many species deserving much closer attention for their utilitarian or horticultural value. Individuals of some species grow to be gigantic trees. Eucalyptus amygdalina is said to equal, if not to surpass in height any other tree in the world, not excepting Sequoia (Wellingtonia) gigantea. The latter, however, much exceeds the Eucalypt in the size of its massive trunk. While we must admit that the heights of Eucalypts have been frequently much exaggerated by travellers who have trusted to their imagination rather than to scientific observation, yet reliable measurements have been taken by authentic observers of great heights up to and even considerably exceeding four hundred feet. The Western Australian Karri, (*E. diversicolor*) is another species remarkable for its towering height. But while some are noted for their lofty growth and stately habit, especially in humid forest glens, yet many species are gnarled and dwarf and almost shrubby. The Eucalypts are locally and popularly known under an almost endless variety of names, *e.g.*, blue, white, red, and spotted gum, stringy or ironbark, peppermint, apple-scented, or manna gum, and mallee. It should be remarked that the same popular name sometimes represents a totally different species in a different locality. Bushmen and splitters tell the varieties by the appearance of the bark, which in some cases is shed in long strips, while in others it is persistent, and may be stringy and soft, or hard and rugged, or furrowed. The leaves of some varieties grow to a large size, and are liberally provided with stomata. The majority of species produce leaves tough in texture, full of oil glands, and are suspended on their petioles, so that the edges are vertical—these provisions being doubtless Nature's devices to protect the blade of the leaf from the scorching Australian sun. As aids in the classification of these interesting plants, we may cite the character of the bark as already referred to, the presence or absence of sterile stamens, the arrangement, structure, and dehiscence of anthers, peculiarities of fruit, sections of petioles, and uniformity or otherwise of the number of stomata on the upper and under surfaces of the leaf.

The "Blue-gum" (*E. globulus*) is a lofty tree, remarkable for the quickness of its growth. In some parts of Europe it is popularly called the "Fever-tree" on account of its value in malarial regions. It rapidly absorbs the excessive moisture in marshy places, and freely exhales its valuable antiseptic oil. Its timber is of a very durable character, and as it is of exceptionally rapid growth it has been largely planted abroad. It owes its popular name to the bluish tinge of the waxy bloom that covers the calyces and the foliage of young plants. The "Red-gum" (*E. rostrata*) prefers low lying situations, and may usually be seen near the watercourses in almost every part of the continent. It takes its vernacular name from the colour of the timber, which for its durability in such places as are usually favourable to the rapid decay of timbers has probably only one rival in the Jarrah (*E. marginata*) of Western Australia. The gem of the genus from a horticultural standpoint is unquestionably E. ficifolia. Its strikingly handsome dark green foliage, to which it owes its specific name, forms a fitting contrast to the gorgeous crimson flowers which this magnificent species bears in such profusion. Other brilliantly coloured species are E. miniata and E. phœnicea, both of which yield flowers of a bright scarlet colour. The "Sugar-gum" (*E. corynocalyx*) produces sweetish foliage, which affords food for stock in seasons of drought. Time and space would fail even to refer to the many other meritorious species. In addition to the useful timber, many yield large quantities of the Eucalyptus oil, which is largely and increasingly used in medical practice. The result of a series of elaborate experiments seems to prove that E. amygdalina is far richer in oil than any other species. The Eucalypts claimed our first attention owing to their wide distribution and the immense areas they cover, as well as for their towering height, their economic value, and, in some cases at least, for the unsurpassed beauty of their blossoms. However, in point of numbers the Legminosæ come far ahead, and represent [illegible] 12 per cent. of the flora.

The acacias, numbering some three hundred odd species, make up by far the largest Australian genus. The golden and delicately fragrant blossoms of many of these species are amongst the first to proclaim the advent of spring. They are represented almost everywhere in the continent. Some line the banks, and the graceful pendulous branches of some varieties droop over the waters of many of our inland streams. They clothe the mountain-side, adorn the pastures, grow in the poorest or in the most fertile soil, while some species revel in sandy tracts either inland or littoral. In some of our dense southern forests they form a large proportion of the undergrowth. Even in the arid and desolate interior they are represented, and form in some cases an almost impenetrable scrub that well nigh baffles the hardy and daring explorer in his toilsome advance through those dreary and inhospitable solitudes. From this circumstance some have earned the names of "deadfinish" and "wait-a-while." These local names have been doubtless bestowed on them by travellers who have experienced a disappointing repulse in their onward march by an impassable barrier of the dense growth. Strictly speaking, many species have no true leaves, but are amply provided with phyllodia. Acacias are not without utilitarian value. Several yield a bark exceedingly rich in tannin, *e.g.*, A. decurrens, A. mollissima, while the "golden wattle" (*A. pycnantha*), besides being so attractive to the senses of sight and smell, yields one of the richest barks for tanning purposes in the world. The gum, which is very copiously exuded by several kinds, is used for the same purposes as gum arabic. The delicate perfume of the blossoms has been extracted, and furnishes an agreeable scent. Several species, as A. parvissima, A. cultriformis, and others, possess considerable horticultural merit, and are extensively planted. The timber of the "blackwood" or "lightwood" (*A. melanoxylon*) is one of our most valuable, and is used in cabinet work, railway carriage fittings, and for similar purposes. A. acuminata produces wood whose scent resembles that of raspberries, while the timber of A. homalophylla is violet-scented. Both these species are known as "myall." The parts of the flowers that are conspicuous in our eucalypts and acacias are the parts that are more or less concealed in many of our cultivated blossoms. Included in the same order is a gigantic bean (*Entada scandens*) whose pods are sometimes six feet to eight feet in length. The individual seeds are often hollowed, mounted with silver, and convered into fancy match-boxes. Very many of the papilionaceous section of the Leguminosæ produce handsome flowers, such as Indigofera, Dillwynias, Pultenæas, and Swainsonias. Many of the latter are remarkable for spiral or curved lower petals and beautiful blossoms, but are frequently deleterious. Besides these there are others equally attractive in almost endless variety. But probably none are more charming than Clianthus Dampieri, Stuart's Desert Pea, whose silver-green foliage and large, bright, gorgeous blossoms render it peculiarly conspicuous and attractive.

Next in importance, when we consider the number of species, are the Proteads, than which, perhaps, no order of indigenous plants has greater interest either for the gardener or the botanist. The name bestowed on this order (from the South African Protea of Linnæus) is singularly appropriate, for these plants exhibit a variability which excels even the mutable characteristic for which the mythical sea-god was so remarkable. Probably the commonest and most widely distributed Proteads are the native honeysuckles (Banksia spp.) They owe their singular popular name probably to the fact that they, in common with many other proteaceous plants, yield a copious supply of nectar. While the aborigines greedily suck the flowers to obtain this sweet fluid, yet with Europeans its use is frequently attended with feelings of nausea and headache. Dryandra plumosa is often cultivated for the sake of its large cylindrical flower-clusters and its deeply-serrated and peculiar foliage. Both flowers and foliage of this unique plant will keep almost indefinitely. Of grevilleas there are probably over 160 varieties, but as yet [illegible] about half-a dozen species are in cultivation. These include the stately G. robusta, or silky oak, as it is popularly called. Its immense comb-shaped trusses of large orange flowers render the tree a strikingly conspicuous object in the landscape. These blossoms have sometimes been fancifully compared to flame, and have earned for this species the popular name of "flame tree," a title it shares with the vermilion-flowered Brachychiton acerifolium of the order Sterculiaceæ. In addition to its stately habit and massive flower-clusters the Grevillea possesses attractive foliage. The timber, too, is useful, and furnishes staves of excellent quality, and is used (as is also that of some Banksias) in making picture-frames. It may be remarked here that the wood of all our Proteads is of a very distinctive character. Very closely allied to the Grevilleas are the Hakeas—the main difference being in the position and character of the inflorescence, texture of seed-vessel, and wing of seed. Hakea is (as far as is known) a distinctly Australian genus, embracing about a hundred species. Already gardens are embellished with several varieties. H. laurina, syn. H. eucalyptoides, is one of the best known representatives, and well worthy is it with its showy flowers and distinctive foliage to represent this unique family. More gorgeous still is the superb H. grammatophylla, a variety of H. multilineata, which deserves rank as a distinct species. This rare but meritorious plant I described at length in the *Scientific Australia* for June, 1897, I also had the honour of sending the Royal Horticultural Society photographs and seeds of this stately shrub. The magnificent Waratah (*Telopea speciosissima*) is sometimes regarded as the national Australian flower. It requires a warm sub-tropical climate to bring its superb blossoms to perfection. Its generic name aptly indicates its attractiveness, which [illegible] plant to be readily seen from afar. Many other plants among the [illegible] deserving of careful attention, but cannot now be referred to in a superficial [illegible] like this.

Distributed throughout the entire length and breadth of the continent may be found charming representatives of the large order Compositæ. Moist [illegible] valleys in the southern parts produce abundantly the native musk (*Aster* [illegible] *argophyllus*). It has large handsome leaves lined beneath with a silky [illegible] coloured down, and emits the musk-like odour from which it derives its [illegible] name. Timber cut from its gnarled roots forms a handsome veneer [illegible] birds-eye maple, which it somewhat resembles. Aster argophyllus and [illegible] Bedfordi attain with us the proportions of trees, which is not common in [illegible] order. Included among the Compositæ are very many beautiful everlastings which here, as elsewhere, are of wide distribution. Western Australia is [illegible] in exquisite examples of these deservedly popular flowers. The genus Helichrysum contains some three score species, many of them of more than ordinary beauty. The allied genus Helipterum includes about forty species. Asters—many of them strong-growing shrubs—are rather more numerous than any other genus in the [illegible], which, though one of the most extensive in the world, is fourth with us as regards the number of species. The native daisies (*Brachycome spp.*) have representatives all over the colonies, including New Zealand; but the genus does not seem to extend beyond these limits. Among its two score species are many dainty, attractive, and meritorious plants.

Grasses are represented by a goodly number of species, though exceeded by the Cyperaceæ. Extensive areas in the uninhabited interior produce little else but a so-called "Spinifex" (*Triodia irritans*), which is spiny and utterly useless as fodder. Its sharp spines caused considerable irritation to the legs of the unfortunate beasts of burdens in all the exploring expeditions that crossed any extent of it. It affords shelter to a few native animals and reptiles which form the scanty food of the few nomadic and indolent natives who traverse occasionally these dreary regions. They burn the grass, and thus drive out their intended prey. The "Kangaroo Grass" (*Anthistiria ciliata*), or, as it should be called by priority, Themeda triandra, is a splendid fodder plant. It resists the drought to which the continent is subject, and springs up into growth immediately after rain. "Grass-trees" are common in many parts. The leaves are long and wiry, and the white bases of the young inner leaves are edible and of a nut-like flavour. The flower [illegible] that surmount the tufts of leaves are frequently several feet in height. [illegible] trees (*Xanthorrhœa spp.*) are not grasses, but are allied to the lilies, and were included among the Liliaceæ by our late distinguished Government botanist. Of liliaceous plants we have many varieties. A number are small but none the less beautiful. Grass-lilies of brilliant hues adorn the pastures. The "Fringe-lilies" (*Thysanotus spp.*) speedily arrest the attention of even the most casual observer [illegible] their exquisite beauty. It is difficult to say which is the more admirable, their delicate tints or the fairy-like fringe from which these plants derive their generic and popular names. The "Queensland or Spear-lilies (*Doryanthes spp.*) are strictly amaryllidaceous plants of huge size. They produce an excellent fibre. The Rutaceæ are represented by about two hundred species. The native fuchsias (*Correa spp.*) are handsome flowering shrubs. Eriostemon and Boronia are the largest genera, each possessing many horticultural desiderata. Boronia megastigma from Western Australia produces copiously its sombre-looking but exquisitely [illegible] blossoms. Dried specimens in the herbarium will continue for years to emit this delicious perfume. Several other plants of this genus are of rich beauty. Ficus macrophylla, the "Moreton Bay Fig," may be chosen to represent the genus Ficus, which includes some twoscore native species. It grows into a stately tree, and produces large, handsome, glossy leaves. Another representative of the order Urticaceæ, the "Tree-nettle" (*Laportea gigas*), has already been referred to. The sting of this nettle causes such severe pain as to actually drive cattle mad when they inadvertently brush against the branches.

[illegible]rids of delicate and almost inconceivable beauty cover immense areas. They are locally known as "Native Heaths." They are allied to the true Heaths (*Ericaceæ*), which outwardly they somewhat resemble, but differ in structure and dehiscence of anthers. A by no means uncommon, but never-to-be forgotten, sight is an extensive tract, called a "heathbed," covered with these [illegible] plants in full bloom and exhibiting the richest as well as the most [illegible] tints. The genus Styphelia is the richest in species. Several plants of this order (*Epacrideæ*) possess more than ordinary horticultural merit, but many of them seem averse to artificial culture—a characteristic which they share with many other desirable native plants. Epacris impressa is a striking feature among our indigenous vegetation. Its brilliant and copiously borne blossoms and the vast numbers of individual plants render it exceedingly noticeable and attractive in many an Australian scene. It exhibits great variation in colour, from purest white to brilliant red, with every conceivable tint between. Of palms we have but few examples, but many of them are of imposing appearance. These are chiefly confined to the eastern colonies. Even in the desert interior, however, travellers have occasionally come across stately species which mark out veritable [illegible].

Of orchids we possess hardly three hundred species, many of them exhibiting the grotesque but nevertheless superb beauty which characterises this order. We have about half a hundred genera, many of which, however, are here represented by a single species. Of these exquisitely beautiful plants the genera possessing most species are Dendrobium, Prasophyllum, Caladenia, Pterostylis (often with sensitive labellum and greenish flowers), Thelymitra, Sarcochilus, and Diuris, the pretty little "double-tailed orchids." Many of these are small but of rare and delicate beauty and rich perfume. Of ferns we can boast not only a number of species, but large areas in our enchanting "fern-gullies," profusely covered with the exuberant growth of many handsome and stately as well as delicate varieties. [illegible] of graceful palm-like habit grow in great profusion in humid forest [illegible], and represent the genera Alsophila, Dicksonia, and Cyathea, while the dwarf but massive trunk of our Osmunda (Todea) barbara, endemic to the southern part of the eastern hemisphere, has frequently been known to attain a [illegible] considerably over a ton. The lofty stems of some of our fern-trees are [illegible] with a living mass of verdure, consisting of filmy and other tender ferns, [illegible] the genera Trichomanes and Hymenophyllum, amongst which the [illegible] Hymenophyllum Tunbridgense may frequently be seen. Draping [illegible] spongy trunks of these graceful tree-ferns are exquisite examples of the [illegible] Polypodium, Aspidium, Gleichenia, and others. In my "Census of [illegible] of the Cape Otway Forest" I have recorded from that romantic region [illegible]ree species of these interesting and shade-loving plants, all of which are [illegible] of cultivation. An Australian fern-gully presents a truly magnificent [illegible] the tops of gigantic eucalypts form an interlaced canopy and filter [illegible] the summer sun. Beneath these the undergrowth forms another and [illegible]. This shelters the majestic palm-like tree ferns, whose graceful [illegible] form again a grateful shade for humbler and more tender [illegible]. Every shade of green is here seen. The unfailing stream babbles musi[illegible] below. Spanning its fern-shaded waters here and there are natural bridges [illegible] trunks of prostrate forest giants. These, like the Fern-[illegible], are daintily draped with tender ferns and delicate mosses which here [illegible] in richest profusion. Mint-trees, (*Prostanthera spp.*) laden with their [illegible] blossoms add a new aspect to the scene, which forms an ideal earthly [illegible], and entirely baffles description.

[illegible] (*[illegible] Gregori*) is found in Northern, or more strictly in [illegible] Australia, while the bottle trees of the genus Brachychiton [illegible], are remarkable for their gouty trunks. B. Delabechei, F. v. M. [illegible], L.), the Queensland bottle tree, is of a most quaint appearance. [illegible], the "flame trees," presents a gorgeous appearance when [illegible]. Its brilliant blossoms are borne in great abundance, and the [illegible] of the vermilion hue of the flowers. At the same time the [illegible] by the shedding of the large and glossy leaves. Of food [illegible] hardly any. The few edible fruits are for the most [illegible] insignificant. A few yield also a few edible leaves or roots, but [illegible] poor in plants suitable for human food. Timber-produc[illegible]. Many of the seasoned native woods possess a specific gravity greater than that of water, and are remarkable for durability. Medicinal plants are not particularly well represented, or, at any rate, their medicinal qualities are not known. The eucalypts yield the well-known and widely used antiseptic oil; the Alstonias spp. yield a tonic bitter, useful as a febrifuge; Euphorbia pilulifera is commonly known as the "asthma herb," from its use in that ailment; the Gentianeæ and many others possess valuable tonic properties. While there are others deserving notice, yet many indigenious plants enjoy a quite unearned reputation for medicinal or curative virtues.

Interesting examples of insectivorous plants are included in the genera Nepenthes (three species), Cephalotus follicularis, Drosera spp., and Utricularia, which I have fully dealt with in my lecture, "Insect Traps," *Geelong Naturalist*, vol. v. No. 4. In a superficial and rambling way I have noted a few of what I thought were the most striking points in our flora, chiefly such as possessed interest from a horticultural or utilitarian standpoint. The topic, however, is so great that all we could possibly do would be to glean a few ears of corn from a field white with harvest.

STRAWBERRIES

The Strawberry Crop.

With the exception of the latest kinds, the strawberry season will soon be over, but, so far as this neighbourhood is concerned, it has been one of the best on record. There was an abundant yield last year, but this season's crop has surpassed it both in point of quantity and quality. One thing greatly in favour of the present season is the absence of the great heat and drought that strawberries had to contend with last year, which naturally tended to shorten the supply. With the exception of the past week, when the weather became very hot, the plants have had nothing to distress them previously, and this has enabled the fruit to mature more slowly and ripen up more naturally. It must be admitted that such a successful issue was scarcely anticipated in April last when the plants had to withstand such a succession of cold winds that growth was for the time being almost entirely suspended. Towards the end of the month more genial weather prevailed, followed by a good rain the first week in May, which soon brought the early kinds into full bloom. Then occurred another spell of cold, and the result was that instead of the fruit on the early varieties being ripe as usual the last week in May it was June 17 before gathering in quantity could be begun. Since then all has gone well, and although the season has been late it has been a most successful one. In addition to the yield being so abundant, it should be noticed that the individual fruits have been particularly fine in size, especially those of Royal Sovereign, which were magnificent. Colour has also been all that could be desired, and flavour, if not first-rate at the outset, improved as the season advanced, and has of late been all that one could wish. The finest fruits, it may be remarked, were gathered from last year's runners, and the heaviest crops from two and three year old plants. The runners were layered in small pots and planted as soon as well rooted, early in August, consequently they quickly became established and made fine plants ere winter set in. I find this the best method to pursue to ensure the production of fine fruit for despatching to a distance for dessert, and annually plant several hundreds with that end in view.

Stoke Edith Gardens, Hereford. A. Ward.

Strawberries in Scotland.

The healthy appearance of the plants, and the abundant bloom earlier in the season, gave rise to hopes that the strawberry crop would be a heavy one. These anticipations are now, however, dispelled, for with the main crop ripe and late varieties far enough advanced for the quality and weight of crop to be pretty accurately estimated, it is evident that the crop generally is much below the average. Late varieties appear to be the worst in this respect, and as these probably form the bulk of the crop grown in northern gardens, the deficiency is the more severely felt. My own experience in these gardens may be stated as follows:—Early varieties very good and heavy crops. Successional and main-crop varieties only moderate, while later ones, comprising such well-known sorts as Elton Pine, Filbert Pine, Latest of All, and some others which usually crop so well, carry not more than half a crop, many plants in an otherwise healthy plantation being fruitless. It is difficult to account for this failure, as the bloom was very good and plentiful, and appeared so late in the season, that frosts could not have acted as a factor for evil in their case.

These remarks are intended to apply specially to Wigtownshire, as I have had no opportunity of ascertaining the condition of the crops in the great strawberry growing districts of the Clyde valley, and places further north, but as varieties that have proved specially suitable for the different soils and climate for northern parts are cultivated, though little known elsewhere, the crops may be more satisfactory than they are in this part. During the past fortnight I have visited several of the leading gardens in this county, some of which are noted for fruit culture, and strawberries in particular, but not an instance of a full crop has been pointed out, and in some cases the deficiency is so great that not even a moderate supply was to be expected.

Galloway House, Garlieslown, N.B. James Day.

Pea, Veitch's Masterpiece.—This is a grand cropping pea somewhat similar in appearance to the variety named Main Crop, raised, and sent out by the same firm, and is quite equal to it in quality. It is a dwarf grower, the haulm being about three feet high, and it produces its long slightly curved pods in great profusion. Each pod is filled with from nine to ten large peas, which are of delicious flavour when cooked. It is a fine pea to grow for general crop, and being so productive and of dwarf habit it should commend itself to amateurs and private gardeners, who are hindered from growing the taller kinds through the difficulty experienced in obtaining the necessary stakes for their support.—A. W.

Decorative Plant Groups. Originality of design in the effective or attractive arrangemet of plant groups at flower shows seems to be singularly lacking in gardeners. Just now and then we meet with a "Cypher," or some distant but commendable imitator. Generally these groups are the same in form and character from year to year, and at shows all over the kingdom. They quite fail to attract now; indeed, visitors are satiated with them. I saw a small and most commendable effort made to break away from a stereotyped form at the Henley (Surrey) show recently held. Mr. Bannerman, gardener to a local gentleman, put up, not in competition, a very pleasing and an original arrangement made to resemble a villa fore-court garden. There was a modulated bank at the back, and the sides and front were formed of narrow margins of plants set in moss, an open space in the front being left for entrance. On the little lawn enclosed were three small round beds of plants. The effect was a charming one, and the group was greatly admired.—A. D.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE hot weather that we are now experiencing is very trying to the inmates of the cool houses, and everything possible should be done to keep the temperature a few degrees lower than outside. Our cool houses are lean-to, facing south-west, and thus have the full power of the sun's rays, from eight o'clock in the morning, until eight in the evening; but still it is an easy matter to keep a nice, cool, moist atmosphere within, as they are much below the ground level, and reached by four steps; they are also well supplied with ventilators. About half-past eight in the morning, the house receives a thorough damping with a hose-pipe, then again at three in the afternoon, and if the weather be very hot, another good damping is given at six in the evening; we also dew the plants overhead, morning and evening. The bottom ventilators are kept wide open the day through until evening, when the air is reduced, and the top ventilators opened a little, these remaining open all night when the thermometer usually drops to about 55 degrees. I am much in favour of these low pit-like houses, as it is such an easy matter to keep the atmosphere cool in them, and the moisture does not dry up half so quickly as in more exposed houses. Houses that are in an exposed situation become much drier than those more favourably situated, so during brilliant sunshine heavy shading should be used, and then by damping the shading material two or three times a day, and also occasionally damping the immediate surroundings, a suitably moist atmosphere is obtained.

Cœlogyne Schilleriana, C. ocellata, are two very pretty little cool house orchids, the former having been in flower for the past month; it produces its flowers and foliage simultaneously, while the spikes of C. ocellata appear with the young growths, but the flowers are not produced till the bulbs are made up in the autumn. These two species may be grown together at the warmest end of the cool house, suspended from the roof, and are best grown fixed on pieces of tile or teakwood rafts, with a little sphagnum moss placed between the plant and the rafts. They are now rooting freely, therefore a plentiful supply of water is needed. After the bulbs are made the plants should be watered very sparsely, especially during the winter months. C. cristata and its varieties are now growing and rooting freely, and plants that were not repotted will require unlimited supplies of water at the root, and occasional doses of weak liquid manure. Newly-potted plants will not need such a liberal supply of water, as too frequent an application will sour the soil. Cœlogynes delight in a good syringing overhead on bright days. Dendrobium infundibulum and its variety Jamesianum are not often found in a flourishing condition, being often grown in too high a temperature. The cool house is the proper place for them during the hot summer weather, but about the end of September, when the night are cold, they should be removed to the coolest end of the intermediate house to finish and ripen their growths. They are now growing freely, and require to be kept thoroughly moist at the root; but during the winter they should never be allowed to become dry enough for the pseudo-bulbs to shrivel.—E. SHILL, *New Hall Hey Gardens.*

GREENHOUSE AND CONSERVATORY.

MANY different kinds of spiræas, Solomon's seal, Dielytra spectabilis, and other things that might be mentioned, prove very valuable to the plantsman in producing a display in spring, as these force so freely. The roots can be bought very cheaply in the autumn, and as the growers make a speciality of them they are generally stronger and better adapted for forcing than those prepared in private gardens. It is not in all gardens, however, that the desired number of new roots can be bought in each year; therefore a stock in the reserve garden proves very useful for lifting to follow the bought-in lot. To have these as strong as possible they should be so planted out after having been forced that three sets of plants are available, which will allow two years' growth before they are lifted again. Those intended for potting-up in the autumn would be greatly assisted by soakings of liquid manure, or decayed manure spread between the plants and then well watered in. Spiræas in particular soon feel the effects of dry weather, and instead of making good plump crowns the foliage withers up prematurely and the plants are greatly weakened. We force a large quantity of Solomon's seal, as we find the foliage lasts a long time in a cut state, and proves very useful in spring for mixing with different flowers when fern and other greenery is scarce.

Pot roses that will be required for forcing during the winter should be encouraged in every way. Standing in a sunny position, extra care must be taken that they do not become dry at the roots. Continue to feed the latter so as to support the new growth and keep the foliage strong. There is a danger of mildew attacking the tips of young shoots, but do not wait until these are crippled before measures are taken to check the evil. It is a good plan to syringe them once or twice a week with a solution of softsoap and sulphur, the latter added in sufficient quantities to allow of a little of it remaining on the leaves. The object should be to induce the plants to make a suitable number of strong shoots; therefore, all thin and puny wood should be cut out at once, thus diverting the strength to those required to produce flowers. Roses planted out under glass are somewhat difficult to keep clean during the heat of summer, as red spider, greenfly, and mildew soon put in an appearance where the proper cultural details are wanting. Syringe freely with quassia water, or fumigate, to check the two first pests, and, as before mentioned, sulphur is the best means of stopping the spread of mildew. Where it is intended to pot up a batch of border carnations for early flowering no time must be lost in selecting and layering the desired number of shoots. We find Duchess of Fife very useful for this purpose; the colour of the flowers is pleasing, they are highly scented, and do not split their calyces. By rooting the layers so that they can be potted up at the end of August they become well established in their flowering pots, and there is no trouble in inducing them to flower by Easter by means of an ordinary greenhouse. Gloire de Nancy is another good variety to be treated in this way; the flowers being white, they are much appreciated at the season named. A sowing of mignonette (Machet) might now be made in pots for flowering during the winter. Fill a number of five-inch pots with rich compost and scatter a pinch of seed very thinly in each; cover with fine soil, and water them in. Arrange the pots in a cool, moist frame until the seedlings appear, and, before standing them in a more sunny position, reduce the number of plants in each pot to about five, for when allowed to remain crowded one starves the other, and only spindly spikes of bloom are obtained.—R. PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THE small amount of rain during the last month has made the soil so parched that growth in many places almost came to a standstill, and watering was one of the chief items of labour. Newly planted vegetables would not make the least move unless well supplied with moisture, and those which had already taken hold of the soil made but little progress. This extra labour in many places threw other work behind to a considerable extent, and this should be made up while there is yet time. Late celery should now be planted, otherwise there will not be sufficient time for it to complete its growth before the days are short. The forward crops should be liberally supplied with water to keep them growing, and where early supplies are needed blanching ought now to be effected. Turnips may now be sown in larger quantities, as they will not be so liable to run to seed, and the roots will remain for a longer time in good condition. Where the ground is fertile it will, however, be better to defer sowing the last lot till towards the middle or end of the month, according to the district, for during mild autumns the roots make rapid progress during the month of October and the early part of November. Red Globe is one of the best for sowing at this time of the year, the roots are sweet and tender, and remain in good condition for a longer period than most others. In the southern counties the last sowing of cabbage seed should now be made. There are so many good varieties that it would be difficult to select the best, Veitch's Main Crop, Sutton's Flower of Spring, and Ellam's Early are all good and will be sure to give general satisfaction. The earlier sowings should be pricked out as soon as they are large enough to handle, and kept growing by liberal supplies of water. As soon as carrots sown in the last month are large enough to handle this should be thinned to a distance of two or three inches in the row. It will not be necessary to give these late sowings so much space as the early ones as the roots will not grow so large. If the soil becomes dry watering must be resorted to or they will receive a check.

The present is usually one of the most difficult months in the whole year in which to obtain good peas, for the hot, dry weather of July usually parches the soil to such an extent that mildew sets in before the pods are formed. To guard against this do not allow the ground to become dry for a distance of at least eighteen inches on each side of the rows. Watering must be repeated almost daily when the weather is very hot. Late sowings should also receive attention in this way, for unless the plants have a sturdy start it is impossible for them to do well. Runner beans should now be plentiful, and the pods ought to be picked as they become large enough for use, for when allowed to form seed the growth of the plants is seriously checked. Watering must have special attention, as the more robust the plants grow the better the results. Dwarf varieties may still be sown in sheltered situations, or where protection can be given in the case of frost. The latest sowings of broccoli and savoys should now be planted, taking care to keep them growing till such time as the soil becomes well moistened by rains. Shallots ought now to be taken up, and after being dried for a few days stored away in a cool place. Endive for a winter supply should now be sown. Plants large enough for transplanting ought to be put out before they become crowded. Make a sowing of Brown Cos and Hicks' Hardy White for winter use. Those who prefer the cabbage varieties may sow Tom Thumb or any of the other small hardy kinds. Tripoli onions should now be sown. We have found none so good for an early supply as the Queen, and these followed by the Rocca, will give a supply from the end of April until the spring-sown ones are ready for use.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

BY this time the bulk of strawberry plants for next year's forcing should be ready for potting. Where they have not yet been cut away from the old plants this should be done at once, and the pots stood for two or three days in a shady place, not under trees, where they will soon recover from the slight check they receive. A slight dewing over with the syringe now and then will assist in preventing flagging, and, as soon as the runners show signs of being self-supporting, potting should be commenced, as they take to the soil much better when not quite pot-bound. Of course, in judging as to their fitness for removal, the lateness of the layering season and the backwardness of the layers should be taken into consideration, as nothing is gained by potting before the roots have filled the soil fairly. The welfare of the plants after potting depends largely on the state of the soil into which they are put, and it ought to be moist enough to keep the plants going without heavy waterings until the roots are moving in the new soil, and, on the other hand, it must not be wet enough to become pasty. Soil which crumbles too freely should have some of the finer particles removed, as the more fibrous the loam the better it will suit the plants. I do not advise the use of much manure with the potting loam; indeed, I rarely add any but a little broken up material from a mushroom bed with a very slight sprinkling of soot. Lime I use rather [illegible] and am not very particular as to the form in which it is used, provided it is not so fresh as to burn the roots. The pots used should be clean, dry, and well crocked.

As to size of pots, this should be governed not only by the habit of the variety, but also the time the fruits are wanted; for instance, if Vicomtesse H. de Thury and La Grosse Sucrée are wanted for very early work, five-inch pots will be big enough, but if wanted from March onwards, I prefer six-inch pots, and for the best layered and biggest plants of Royal Sovereign I propose using a size larger [illegible]. Have sufficient of the roughest soil placed level and well rammed over the crocks to such a height that when the young plant is placed in position the collar comes only slightly below the level of the pot rim; fill in gradually, and well ram each layer of soil, finishing off with a firm surface, and allowing room for plenty of water, as filling the pots too full of soil leads to the plants suffering for want of water, or to the disagreeable necessity of going over the batch a second time [illegible] watering. After potting, set the plants again for a few days in the shade, [illegible] not let them remain long before setting them on a bed of ashes in their [illegible] quarters, as every glimpse of sunshine after they are able to bear it will be of service in ripening up the crowns. See that the plants never suffer for want of water at the root, and syringe them overhead with weak and clear soot water towards the evenings of hot parching days. Should mildew have attacked the [illegible] plants, they should be dipped in a mixture of flowers of sulphur [illegible] between the time of cutting them away from the old plants and [illegible] they are easy to handle while in the small pots, and this renders dipping [illegible]ing easier. If dusting with dry sulphur is preferred, the under sides of the [illegible] should be damped first, and the sulphur powder distributed evenly and [illegible] over them.—J. C. TALLACK, *Livermere Park Gardens.*

Root and Stems.—Why does the root or radicle of an infant plant when it breaks from the seed casing always strike earthwards? was a question asked by a distinguished lecturer the other day, and by him not answered. While there seemed to be nothing marvellous in the undoubted fact that the stem or [illegible] which also and simultaneously breaks from the seed always ascends from the [illegible] because it is understood that light is a potent, attractive force to vegetable [illegible] reason also the root invariably turned from the light was not at all so [illegible]. We have thus raised a very interesting point in plant physiology, one that it would be well if the scientists would clearly elucidate. Have the roots some property [illegible] that renders light to them repulsive? Have they some instinct which [illegible] compels them to turn earthwards to find food in precisely the same way that [illegible] and leaves come into the light to find oxygen and chlorophyll, [illegible] elements to existence, and practically as much plant food in the air as [illegible] potash, and nitrogen are for the roots in the soil. The [illegible] interest.—A. D.

EXHIBITIONS AND MEETINGS.

THE ABBEY PARK FLOWER SHOW, LEICESTER,

August 1 and 2.

The committee of this show this season made their opening day August Bank Holiday instead of the following day, Tuesday, as heretofore, with the result that the exhibition suffered somewhat in consequence. One of the leading features is the cut flowers, and especially roses, and some of the leading exhibitors were absent owing to the difficulty of getting through with flowers on Sunday, and especially on the Sunday immediately preceding a Bank Holiday. Other departments of the show suffered also from the same cause, and it is probable the committee will have to consider the expediency of reverting to their former date. The weather was beautifully fine, the show was opened by the Mayor, and a large number of persons visited it during the afternoon. Rain is badly wanted in Leicester, the park grounds show the effects of long drought, though the bedding-out arrangements, which are of an extensive and elaborate character, are excellent and very gay, while the splendid piece of new subtropical gardening, designed and executed by Mr. J. Burn, is a remarkably fine feature of which the municipality can be justly proud. A large piece of what was hitherto little better than waste land has been converted into a magnificent garden in which can be seen many subjects seldom met with in ordinary gardens.

Specimen plants are generally a somewhat weak feature at Leicester, and in the class for six stove and greenhouse, three are judged for foliage; Mr. Blakeway, The Gardens, Dunsmore, Rugby, was first, and Mr. H. Rogers, nurseryman, Leicester, was second. Some good palms were staged—Allamanda Hendersoni, Bougainvillea Sanderiana, and Statice profusa were the best flowering plants. Mr. Blakeway had the six best exotic ferns—Dicksonia antarctica, Platycerium alcicorne, Davallia canariensis, and three good adiantums. Mr. Rogers was second. There were but two sixes of tuberous-rooted begonias. Mr. James Wright, nurseryman, Leicester, was first with well-grown and bloomed plants of good quality, and Mr. H. Rogers second. Popular as the begonia is, no double varieties were forthcoming. Coleus were in the form of well-grown and coloured bushes, Mr. H. Rogers taking the first prize. Mr. G. Perkins, a local nurseryman, had rather better grown plants, but they lacked colour. Fuchsias were not large, but in the form of well-grown bushes, full of bloom; Mr. H. Rogers first, and Mr. Wright second. Zonal pelargoniums, single and double, made bright patches of colour; Mr. Wright was first with six single, and Mr. H. Rogers second with double forms. The best plant in bloom was Stephanotis floribunda, from Mr. G. Harrison, Belgrave, Leicester. Mr. Rogers was second with Allamanda Hendersoni, and Mr. G. Perkins third with a charming example of Begonia corallina.

Two groups of 150 superficial feet were staged, the ground plan in both cases being the square one, with one central and eight or so side mounds. Mr. H. Rogers, Leicester, was first with an arrangement that was well executed throughout; foliaged and flowering plants, all in excellent character, were grouped in a most effective manner. Mr. Blakeway was second, having a very artistic group, arranged on the same pattern. They were said to be two of the best arranged groups seen at Leicester. There were also a few plant classes, open only to amateurs. Limits of space forbid further particulars.

Some good roses were staged, though, for the reason set forth above, they were not so numerously shown as usual. The best thirty-six came from Messrs. Harkness and Sons, nurserymen, Bedale and Hitchen, which contained a very fine bloom of Her Majesty, selected as the best rose of the show; Madame Eug. Verdier, Comte Raimbaud, Marie Verdier, Madame Hoste, Madame Delville, Helen Keller, Ulrich Brunner, Etienne Levet, A. K. Williams, Harrison Weir, Marquise de Nadaillac, Souvenir d'Elise, François Michelon, &c. An extra prize was awarded to Mr. A. G. Green, Colchester, who staged thirty-six blooms, but which were not according to schedule. Messrs. Harkness and Son also had the best twenty-four, their leading blooms being Mrs. J. Laing, Her Majesty, Etienne Levet, Fisher Holmes, Alfred Colomb, Madame Eugene Verdier, &c.; Mr. A. G. Green, second. Messrs. Harkness and Sons were also first with twelve teas and noisettes, having in good character Maman Cochet, Comtesse de Nadaillac, Souvenir d' Elise, Innocente Pirola, Marie Van Houtte, and Niphetos; Messrs. J. Cocker and Sons, Aberdeen, were second, their best blooms being Cleopatra, Ethel Brownlow, Souvenir d'Elise, Souvenir de S. A. Prince, and Souvenir d'un Ami. Messrs. Harkness and Sons had the best twelve roses of any one variety, having Mrs. J. Laing in fine character; Mr. A. G. Green was second with the same variety. The best twelve blooms of a tea rose also came from Messrs. Harkness and Sons, they having Maman Cochet; the Rev. F. Jackson, Stagsden Vicarage, was second with Catherine Mermet.

In the amateur's division, the Rev. J. H. Pemberton, Havering, Romford, was first with twenty-four varieties, having in fine character Victor Hugo, Horace Vernet, Her Majesty, Comte Raimbaud, Ellen Drew, Marie Baumann, &c.; Mr. W. Boyce, Derby, second. The same exhibitors were respectively first and second with eighteen and twelve varieties. The Rev. F. Jackson had the best six teas; the Rev. J. H. Pemberton had the best six roses of any one variety, having A. K. Williams; Mr. Boyes was second with Her Majesty. Messrs. Whittle, [illegible] and Upton, carried off the leading prizes for roses, confined to amateurs residing in Leicestershire.

Blooms of tuberous-rooted begonias were somewhat poor, and the same can be said of pansies. Carnations and picotees are always a good feature at Leicester. Messrs. Thomson and Co., Birmingham, were first with twelve carnations, flakes or bizarres. The same exhibitors were first and second with twelve yellow grounds, selfs, or fancies; some very good blooms being staged; and also with twelve picotees. Single blooms were also shown in several classes, and bunches were also exhibited.

But one collection of twelve bunches of hardy annuals was staged; a very good lot from Mr. W. F. Gunn, Olton. Chief among them were varieties of annual chrysanthemums, the white and yellow sweet Sultans, sweet peas, Coreopsis Drummondii, &c. But the great feature in the way of cut flowers was the class for hardy herbaceous and bulbous plants to fill a space of fifteen feet by five feet. The three collections staged made a superb bank, large and striking bunches being staged. Messrs. James Cocker and Sons were first; Mr. W. F. Gunn, Olton, second; and Messrs. Harkness and Son, third. The competition was all the more interesting because duplicates were not allowed. Lilies, delphiniums, [illegible] of the Ramosus and Lemoinei types, gaillardias, everlasting peas, [illegible], and others were most effective.

There were many minor classes in which cut flowers were shown by amateurs and cottagers, but the hot weather appeared to have affected the quality of some of them.

Some good fruit was staged, though the aggregate was less than is usual at Leicester. The best eight dishes, three varieties of grapes being admissible, came from Mr. J. H. Goodacre, The Gardens, Elvaston, Derbyshire, who had good Muscat Hamburgh, Muscat of Alexandria, and Black Hamburgh grapes, Queen Pine, Royal George peaches, Pineapple nectarine, very fine Lady Sudely apples, and melon. Second, Mr. McCullock, The Gardens, Newstead Abbey, Notts., who had Black Hamburgh, Madresfield Court, and Muscat of Alexandria grapes, Goshawk peaches, Pitmaston Orange, and Lord Napier nectarines, &c. The next class was for eight distinct kinds, two varieties of grapes being allowed; the first prize, the Veitch Memorial Medal and £5. The award of the judges led to some difference of opinion, as overlooking the fact that the wording of the class drew a distinction between kinds and varieties. They awarded the prizes to Mr. McCullock, who had two dishes of peaches and two of nectarines. Mr. Goodacre, who adhered strictly to the schedule, was placed second. The Abbey Flower Show is affiliated to the Royal Horticultural Society, and therefore under their rules for judging. A protest having been properly entered, the Committee will have to deal with the matter.

Mr. Goodacre staged a fine Queen Pine in the class for a pineapple, the only one shown. Mr. McCullock had the best four varieties of grapes, two bunches of each, staging good Madresfield Court, Muscat Hamburgh, Gros Maroc, and Muscat of Alexandria, all well finished; Mr. Goodacre was second, having Alnwick Seedling and Black Hamburgh in the place of Madresfield Court and Gros Maroc. Mr. Goodacre had the best two bunches of Black Hamburgh, finely finished. Mr. J. H. Elphinstone, Woodthorpe Hall Gardens, was second. Mr. Goodacre also came first with Muscat of Alexandria, and Mr. Knowles, The Gardens, Buckmister Park, was second. The best two bunches of black grapes, other than Hamburgh, were Muscat Hamburgh, from Mr. McCullock. Mr. Goodacre was second with the same. The best two bunches of white, other than Muscat, was Duke of Buccleugh from Mr. McCullock; Mr. Elphinstone was second with Buckland Sweetwater.

The best dish of peaches was Royal George from Mr. Blakeway; Mr. Goodacre second with Grosse Mignonne. Mr. Goodacre came first with nectarines, having Pitmaston Orange; Mr. McCullock taking the second prize with the same. Melons, figs, and cherries were also shown. The best dish of dessert plums was Jefferson's from Mr. Goodacre, and he was the only exhibitor of a dish of dessert apples, having exquisite Lady Sudely. The best dish of strawberries was Waterloo, and there were fine currants, black, red, and white, and very fine tomatos.

Some very good vegetables were shown. The best collection of twelve varieties came from Mr. R. Shaw, of Garrendon, a noted grower; Mr. W. Lord was second. Mr. Shaw had the best six dishes of potatos; excellent, clean samples of Ideal, Reliance, and Mr. Bresee, kidneys; Windsor Castle, Lord Tennyson, and Reading Russet, round; Mr. W. Lord was second. Messrs. Sutton and Sons' special prizes for vegetables brought several competitors. Mr. W. Lord, Esher, was first with a capital collection, and Mr. R. Shaw second. Mr. Warner's first special prize was won by Mr. R. Hoe, Mr. J. Green taking the second. Messrs. Harrison and Sons' special prizes for ten varieties brought a good competition also, Mr. J. Green taking the first, and Mr. R. Hoe the second. Mr. J. Wright and others also offered special prizes. In the cottagers' department capital vegetables were shown.

In the way of miscellaneous exhibits Mr. Goodacre staged a very fine lot of Malmaison carnations and bunches of sweet peas. Mr. Henry Eckford, Wem, also had a unique collection of sweet peas, including several beautiful new varieties. Messrs. W. and J. Birkenhead, Sale, had a table of delightful ferns, which was a great source of attraction. Messrs. W. Cutbush and Sons, Highgate Nurseries, London, staged a large group of plants and cut flowers, most artistically arranged, and which included examples of the new Acalypha Sanderi. Messrs. Harrison had a good arrangement in cut flowers and vegetables; Mr. C. Weston, The Gardens, Quacksick House, Leicester, bunches of charming violas; Mr. J. Wright, cut flowers; Mr. H. Deverill, Banbury, a fine bank of hardy flowers of the best quality; Mrs. Hodgkins, Didsbury, Skelston, leaves and flowers; and the Ichthemic Guano Company, Ipswich, had a highly ornamental stand of their manures, profusely decorated with plants and flowers. Awards were made to all the foregoing.

REDHILL, REIGATE, AND DISTRICT CARNATION AND PICOTEE SOCIETY.

The first show of the above society was held in the grounds of Caberleigh, Redhill, on Friday, July 29, and, judging by the number of competitors and the high quality of the blooms staged, the show could only be pronounced an unqualified success; nor could this be otherwise, represented as it was by such giants of the carnation world as Mr. Martin Smith, of Hayes (whose blooms were, as usual, splendidly staged by Mr. Charles Blick); Mr. James Douglas, of Great Bookham; Mr. Harry Turner, of Slough; and Mr. Robert Sydenham, of Birmingham, together with most of the leading amateur growers in the South. It is much to be regretted that the day was very cold, and although the threatening rain did not descend, it was more like March than July, and the attendance was, therefore, not so good as it might have been.

In the class for twenty-four blooms selfs, fancies, bizarres, or flakes, Mr. Martin R. Smith was a good first with a splendid stand of Purity, Don Carlos, Mrs. Grey Buchanan, Cecilia, Bomba, Helmsman, Jefon, Nora Creina, Alexandra, also a sport from the latter, Blondin, Olga, The Comet, Hidalgo, The Naiad, Goldy-Locks, Orion, St. Albans, Seedling, Gordon Lewis, Rheims, Rob Roy, Autocrat, and Geo. Neville; Mr. James Douglas was second; and Mr. Harry Turner, third; and Mr. Charles Phillips, of Bracknell, fourth. In the class for twelve picotee blooms, white or yellow ground, Mr. Martin Smith was again well to the front with superb blooms of Lily Duchess, Badminton, Duke of Alva, Lady Bristol, Dinorah, Hesperia, Heather Bell, Hygeia, Edith Volage, His Excellency, and Fashion; Mr. James Douglas being second; and Mr. Harry Turner, third.

For twelve carnation blooms, Mr. A. J. Rowberry, of South Woodford, was first with Orestes, Mrs. Sidney H. Diver, Dick Donovan, Cardinal Wolsey, Geo. Cruickshank, Mrs. Eric Hambro, Endymion, Ceres, Mrs. Prinsep, The Czar, Monarch, and Miss Audrey Campbell, Mr. S. A. Went, of Thames Ditton, being second, and Mr. E. Charrington, of Chislehurst, third. For twelve picotees, white or yellow ground, Mr. S. A. Went turned the tables on Mr. Rowberry, beating him with a capital stand of Badminton, Dervish, The Gift, Alice Mills, Voltaire, Golden Eagle, Seedling, Florrie Henwood, Favourite, Jessie, Mrs. Sharpe, and Thomas Williams. In the class for six carnation blooms Mr. Aubrey Spurling, of Blackheath, was first; Mr. St. B. Staden, of Reigate, second; and Mr. E. G. Snudden, of Loughborough, third. For six picotees Mr. M. Charrington, of Hever, was first; Mr. E. Snudden, second; and Mr. St. B. Staden, third. In the classes for three carnations and three picotees respectively, Mr. R. B. M. Morris, of Merstham (the hon. secretary to the society), carried off all the principal honours.

Mr. Robert Sydenham brought (as an experiment) most of the blooms with which he had taken the leading prizes in the single bloom classes at the Crystal

Palace on the preceding Wednesday, his idea being, that through the cold, the blooms had more slowly developed, and would, consequently, last longer when cut. The theory was borne out by the result, for he nearly cleared the board with them in the corresponding classes here. For a vase of carnation blooms, &c., Mr. S. A. Went was to the front with a splendid exhibit; Mr. M. V. Charrington being second; and Mrs. Hadley, third. For three sprays of carnations Mr. A. J. Rowberry was first; Mr. St. B. Staden, second; and Mr. M. V. Charrington, third.

Mr. Aubrey Spurling carried off the Challenge Cup for twelve varieties of carnations, three trusses of each. The special prizes offered by Mr. R. Killick for twelve carnations cut from the open border and staged without dressing, were taken by Mr. M. V. Charrington, Dr. Hadley, and Mr. A. J. Rowberry. For the best table decoration Mr. St. B. Staden was first; Mrs. Hadley, of Reigate, second; and Mrs. W. Morrison, of Reigate, third.

Mr. Cutbush, of Highgate, staged a large collection of sweet peas and carnations; Mr. F. G. Foster, of Havant, a magnificent stand of sweet peas; Mr. H. Cannell, of Swanley, cannas, sweet peas, and carnations; Mr. James Douglas, a fine exhibit of new carnations. Last, but not least by any means, was a lovely group, set up by permission of Lily, Duchess of Marlborough, Dorking, consisting of Malmaison carnations, foliage plants, and ferns.

WINSLOW FLORAL AND HORTICULTURAL SOCIETY, July 21.

THE twenty-fourth annual exhibition was held in the paddock of T. P. Willis, Esq., The Elms, Winslow, and proved a great success, being associated with a programme of athletic sports. The weather was most suitable, and a large attendance resulted. The show was a decided advance on those of the past two seasons, and although entries were seventy more, still there was a falling off in the amateurs' classes for blooms, and the cottagers' for vegetables. A very large group of greenhouse and decorative plants was sent by H. S. Leon, Esq., Bletchley Park, as an extra, and as arranged by Mr. Hislop, his gardener, contributed to swell the attractions of the amateurs' tent.

The schedule provided just over fifty classes, one being "open to all England" for twenty-four varieties of roses. There were three competitors, Mr. John Mattock, Oxford, being an easy first; his best blooms being Maman Cochet, Comtesse de Nadaillac, Marie Baumann, Captain Hayward, Innocente Pirola, Gustave Piganeau, Charles Lefebvre, and Madame de Watteville; the second award falling to smaller flowers from Mr. E. J. Ridge, baker, Thornborough; the third prize going to Mr. W. J. Ridge, farmer, Thornborough. In the ordinary members' class for a dozen blooms, the cards went to J. F. Vaisey, Esq., Nordean, Winslow, and Mr. W. Deacon, gardener to Mrs. Lambton, Redfield, Winslow.

PLANTS in competition were generally nice-sized, fresh specimens; the first prize for six, stove or greenhouse, going to Mr. Deacon, who put up Chamærops humilis, Phœnix reclinata, Latania borbonica, Agapanthus umbellatus, Acalypha macrophylla, and Pandanus Veitchi; the second and third prizes going to G. R. Greaves, Esq., Western House, and T. P. Willis, Esq. For six ferns, Mr. Deacon was again to the front, his fresh, full-sized specimens being Adiantum gracillimum, A. cuneatum, and a seedling, Lastrea felix mas, gymnogramma, and a nice form of polypodium. For half-a-dozen table plants he put up graceful plants of Pandanus Veitchi, Carex marginata variegata, Croton variegatum, Dracænas Lindeni and Cooperi, and Aralia Veitchi gracillimum; Mr. Willis, taking second awards in both classes. Tuberous begonias were very showy, the best six coming from Mr. A. Hedderwick, gardener to R. Mather, Esq., Claydon Camp, who had double forms named Robert Browning, pink; Primrose Dame, yellow; Duchess of Fife, salmon flesh; Alice Crouse, salmon; Rev. E. Lascelles, yellow, shaded orange; and W. B. Millar, apricot. Mr. Deacon had the premier group of coleus; and some pretty petunias came from Western House.

CUT FLOWERS, other than the roses above referred to, included some very nice collections of bunches, the most varied coming from Mr. Deacon, who put up large handfuls of lysimachia, delphiniums, cannas, philadelphus, clematis, roses, liliums, aquilegias, antirrhinums, Alpine poppies, clarkia, sweet peas, carnations, begonias, pelargoniums, gaillardias, and streptocarpus; Mr. E. Ridge, second. Marigolds, stocks, and zinnas were fairly good, but the most artistically-arranged basket, vase or epergne, and bouquet came from Miss L. Bonham, who secured each first card, as well as for the best six buttonholes.

FRUIT made a very interesting feature, high quality ruling throughout. For a collection, Mr. G. F. Ash, gardener to Lord Cottesloe, Swanbourne Park, secured the premier award for a big lot, including dual clusters of Duke of Buccleuch and Black Hamburgh grapes, Countess melon, May Duke, Bigarreau, and Early Red Bigarreau cherries, Black Naples, Red Grape, and White Dutch currants, Red Highlander, Yellow Champagne, Greengage, Whitesmith, and two other dishes of gooseberries, Early Rivers plum, Fastolf raspberries, Elton Pine, and President strawberries, and Irish Peach apple; Mr. Deacon, second, his collection included Buckland Sweetwater and Hamburgh grapes, Prince of Wales peach, Reid's Jubilee melon, President strawberries, gooseberries, and three forms of currants. In the grape classes Mr. Hedderwick was first for black and white with Black Hamburgh and Buckland Sweetwater; the second card, for white, going to Mr. Ash, for Duke of Buccleugh; Mr. Deacon, second in the black class with Hamburgh, and leading in the peach class with Prince of Wales; Mr. Willis, second, with Royal George. Bush fruits were largely represented, the exhibits being fully worthy of the awards, Mr. E. Ridge leading with gooseberries; Mr. W. J. Ridge for red currants; Mr. G. D. E. Wigley, The Walk, with white currants; and Mr. G. R. Greaves for black currants. The best dish of cherries (May Duke) came from Swanbourne Park, and the prizes for strawberries (President) went to Mr. W. S. Neal and Mr. Ash, the premier melon being The Countess, from the last named.

VEGETABLES were, on the whole, very good; the best collection coming from Mr. Hedderwick, who put up Wheeler's Imperial cabbage, Early London cauliflowers, Fillbasket peas, Magnum Bonum French bean, Green Windsor beans, Moore's Cream marrows, Matchless White Kidney potatos, Excelsior onions, Model turnip, and Early Gem carrot.

THE SCOTTISH ARBORICULTURAL SOCIETY.

THE general meeting was held on August 2, 1898, in the society's rooms, 5, St. Andrew's Square, Edinburgh, Colonel Baily, the president, occupying the chair. It was the morning of the start of the society for their three days' excursion to the Forest of Dean in the South, and the proposed State forest or school of forestry for Scotland, so fairly and fully stated in the GARDENERS' MAGAZINE of July 16, also gave great additional interest to this meeting. They, however, must have been specially sanguine who really expected a definite reply or any answer from the Board of Agriculture so soon. To the official application for a grant of £40,000, and an income of £500 a year, for the establishment and support of a school of forestry near Edinburgh, the answer was the stereotyped official one of "received with thanks," and not one word more.

And then the dispatch of business by express began, as a numerous party, some eighty members, had to start at noon to the South. Thus, though the meeting met promptly at ten a.m., it did not leave much time to get through the business. Hence the minutes of the last meeting were taken as read, twenty-one new members were elected, and about the same number to be finally elected at the next meeting. The president's address on Canada, with limelight illustrations, was put off to a more convenient season. The report of the judges and the awards for prize essays was announced as follows: "On the Spring Growth of Forest Trees," by Mr. A. C. Forbes, Bowood, Calne, Wilts, bronze medal; "On the Thinning of High Forest Plantations for Profit," by Mr. Hampton C. Lock, Lyndoch, Perth, bronze medal; "On Planting and Propagating Trees," by Mr. James Gillespie, Lochton Lodge, Inchture, bronze medal. There were other essays and inventions of merit.

After a few remarks on the excursion to the Forest of Dean, to which most present seemed so anxious to start, the excursion—or excursions—for 1899 was brought forward, but remitted to the council with the very sensible suggestion that woods and plantations should be chosen within a day's journey of Edinburgh, and, to give as many members as possible the opportunity of going to one or more of these outings in the woods, these excursions should take place in May, June, and July, 1899. In 1900 the proposition is to visit the Paris Exhibition and some of the forests of France, and that arrangements should be left to the council. Early notice should be given by all members who intend to take part in the 1900 excursion.

Motions by the council and others were speedily withdrawn or disposed of. The most important of these were that every nomination for membership be made in writing, must be signed by the proposer and at least one seconder, and then lie on the table at the next meeting of the council, &c., surely hardly necessary in a society of this sort. Most of our learned societies are glad enough to receive members on easy terms, but at several recent meetings of the Scottish Arboricultural Society some seem bent on keeping them out. One motion withdrawn, in the name of Mr. John Clark, forester, Haddo House, Aberdeen, might prove useful in still further popularising and extending the usefulness of the Arboricultural Society, "that this society establishes at least four branches for the benefit of its members; one at Inverness, one at Aberdeen, one at Perth, and one at Glasgow." No other notices of motions were made, and the business proper concluded with a hearty vote to the chairman, moved by Professor J. Pomerville, of Durham.

The President then, with few minutes left him, gave a brief review of the working plan of the Forest of Dean and the High Meadow Estate, Gloucestershire, whither they were bound. There they would see Mr. Hill's (Conservator of Forests) system of working in getting the woods into a system of rotation, and so keeping up a regular supply of saleable timber. Were State management established, more confidence would be inspired in the minds of all who had to do with estates, and there would be less liability of gluts and scarcities of timber than at present. They wanted to deal with wood as with other commodities grown for profit, and aim at constant supplies of uniform quality. He also pointed out that where forests were planted, other important industries, such as clog and shoe making, firewood, and charcoal burning, &c., sprung up. No doubt this is true. Few intelligent Scotsmen or Englishmen can have visited the Continent often without noticing how much more broadly woods and forests spread out into the national work, life and character than they do at home.

BEDDINGTON, CARSHALTON, AND WALLINGTON, August 1.

THE annual exhibition of this enterprising society was held on August 1 in Beddington Park, and, as usual, afforded abundant entertainment to the thousands of visitors who crowded the place of exhibition throughout the afternoon. As is customary at the annual gatherings of the society, products of the garden were supplemented by a poultry show and bee tent, and in addition an excellent programme of sports was arranged, so that all classes of visitors found plenty to interest them. Upwards of one hundred classes were provided in the schedule of the flower show, and as the competition was, with but few exceptions, keen throughout, the display was remarkable for its extent and high quality.

One of the most interesting of the large number of classes provided is that for a collection of vegetables comprising nine kinds to be arranged on a four-feet space of the show table. In this class the orthodox method of procedure of offering first, second, and third prizes is departed from, and instead six prizes, amounting to £5 in the aggregate, divided proportionately with the points of merit, are awarded to the collections. Under these conditions the exhibitors receive an amount of money more in accordance with the quality of their collections than under the usual conditions; but this fact does not appear to apply an additional stimulus to competition, and the judging necessarily occupies much time. There were six or seven entries, and the premier award was made to Mr. J. H. Stevens, gardener to A. C. Coles, Esq., The Lodge, Wallington, who obtained an aggregate of fifty-six points. His collection comprised excellent Snowdrop potatos, Dobbie's Model turnips, Wheeler's Imperial cabbage, Long White marrows, Pragnell's Exhibition beet, good peas, cucumbers, and onions. Mr. H. Shoebridge, gardener to Mrs. Beddington, The Limes, Carshalton, was second, his collection receiving forty-eight points, and containing exceptionally good Canadian Wonder French beans and Moore's Vegetable Cream marrows. Mr. Harry Hopkins, Carshalton, who invariably obtains much distinction in the cottagers' division, was third, receiving forty-seven points. Mr. Sell, gardener to J. Wallis, Esq., Wallington, was fourth, with forty-six points, and Mr. J. Cripps and Mr. McRae, who were fifth and sixth, were adjudged forty-three and thirty-seven points for their respective collections. With an aggregate of two hundred and seventy-seven points the value of each point is about fourpence half-penny, and while the difference in the value of the first and second is less than three shillings, there is a difference of fourpence half-penny only in the value of the second and third, and the third and fourth prizes. There were two other classes for collections, in which the classes were awarded in accordance with orthodox practice, and in these also the produce was highly meritorious. In one of these Mr. Hopkins was first, and in the other premier honours were obtained by Mr. W. Ames.

The contributions to the whole of the plant classes were more or less numerous, and in competition for prizes offered for groups of plants open to gardeners with limited assistance, Mr. Etheridge, Wallington, was a capital first, with a tasteful arrangement, in which caladiums, gloxinias, panicums, lilies, and bamboos were employed. Mr. Gates, Sutton, was a capital second. For a large group, open to all members, Mr. Stevens was first, with an arrangement remarkable for its light appearance and effectiveness. A class was on this occasion provided for tables of plants, and Mr. Lewry occupied the post of honour with a table so beautiful as to attract much attention. In the other plant classes the most successful competitors were Mr. Etheridge, Mr. Shoebridge, Mr. Lewry, and Mr. Gates. Mr. J. [illegible] Box, Croydon, contributed a fine collection of roses and sweet peas. The principal exhibitors in the fruit classes were Messrs. Stevens, Osman, and Shoebridge. The arrangements were admirably carried out by Mr. Toogood.

CARNATIONS.

At Edenside.

Tuesday, August 2, was a glorious day—a delightful one for a trip out into the breezy mid-Surrey district where Mr. James Douglas has established his now world-famed Edenside Nursery; and so, taking an early train by the L. and S. W. Railway to the station of Bookham and Effingham, we were right out in the midst of a healthful country within one hour from London. It is some years ago now, about seven, that Mr. Douglas commenced operations close to the Bookham station, and established the Edenside Nursery. More recently he and his family have taken up residence there, much glass has been built, and the cultivation of land considerably extended to keep pace with the steadily increasing demand for carnations, picotees, auriculas, polyanthuses, and cinerarias. Whatever Mr. Douglas has taken in hand he has done well, and whether it be the raising and cultivation of carnations as a business, flower gardening for pleasure around his pretty house, raising seedling orchids as a hobby, or collecting horticultural books as a pastime, one cannot but admire the earnestness of purpose that, combined with skill and keen business ability, has always characterised the actions of this, the foremost florist of our times.

Our visit was made expressly for the purpose of seeing the carnations and picotees, which occupy a very large amount of space and are now in large light and airy greenhouses where seeding and layering go on apace. Somewhere about three hundred varieties are cultivated, but Mr. Douglas endeavours to keep down the multiplication of slight varieties as far as possible, and as soon as one variety is fairly outclassed it is discarded and so ever the fittest survive. Besides these named varieties already in commerce, or just about to be put on the market, there are a quantity of new seedlings, among which are not a few that Mr. Douglas expects great things from; another year or two will, of course, decide whether they are catalogued or consigned to oblivion Walking through the houses at Edenside one is struck with the vigour of the plants; the strength of the flower stems, and the wonderful number of first-rate blooms that even the unthinned trusses will carry. The beauty of the flowers next claims our admiration, and it is most difficult to decide whether one admires selfs or fancies most; the conclusion is that both are lovely, both have their uses, and, fortunately, there are in both classes an abundance of varieties that are suitable alike for the garden border or for special cultivation for exhibition; the blooms are shapely and bright, while for quantity no flower can surpass them in their season. At Edenside one has fine opportunities of comparing varieties and of gauging their freedom.

Taking the selfs first, the difficulty is of reducing the number of varieties so as to make the list valuable to those who have not the space to cultivate carnations extensively. Those noted are mostly new or almost new varieties. For a beautiful rich rose pink, which has a suspicion of scarlet, it would be difficult to surpass Ashphodel, and why the catalogue description should say, "best flowers are produced on two-year-old plants," we cannot tell, for the year-old plants are producing splendid blooms in quantity. Mrs. Gascoigne is another splendid rose-pink, but quite distinct from Ashphodel. Do you want pure and broad-petalled white varieties, then try The Briton, very free, and a non-burster; Helmsman is a grand large-flowered white variety; while Nautch Girl is a lovely Douglas' seedling, that is palest silvery blush when first expanded, but becomes pure white quickly. Turning from whites to dark hues, the merits of Sir Henry Irving as a grand crimson carnation are forcibly brought to mind, for the colour is most handsome, as the crimson is lit up with an undertone of scarlet; Lady Hindlip is a fine companion to the former, being a beautiful crimson-scarlet self of great beauty. The darkest form seen was Nox, a velvety, blackish crimson flower, of good shape, and most effective. King Arthur still holds its own as a scarlet flower, producing large blooms with very broad petals. Few varieties have prettier blooms than the new Holwood, that is intense marone-crimson in colour, and very free; the Cali, too, is magnificent, producing vivid scarlet flowers with the utmost profusion, and of such good form that it is valuable alike for the garden and the exhibition board. The rosy scarlet Boadicea is beautiful both in form and colour, and has such stout, wiry stems that it is one of the finest of border carnations. There are many lovely pink carnations, and among the very best are Endymion, a grand salmon-pink, with soft, broad petals; May Yohe, rich red-pink, exceptionally vigorous, and with pleasingly fragrant blooms; Queen of Scots, a delightful shade of rose-pink, a good grower, and of fine shape.

Yellow carnations are now as plentiful as any carnation lover could wish, but their abundance is not an unmixed blessing, especially for the small amateur. It seems to us that ere long the National Carnation Society will have to institute trials of yellows, if not of other selfs, and then give their supporters a list of selected varieties. Fortunately Mr. Douglas does a vast amount of "weeding" at Edenside, and so the difficulty of selection is reduced. The brightest of new yellows is, no doubt, Pandelli Ralli, a grand border carnation, good in habit, and a persistent non-burster; Queen of Sheba has deep buff-yellow flowers of large size and good shape; Sir Isaac is also a very fine yellow self, rich and free; Dr. Johnson is a handsome deep buff form; Diana gives us a lemon-yellow; while Andromeda is a deep yellow, carrying an abundance of splendid flowers on erect [illegible] stalks. Of late another and distinct shade of colour has been produced in carnations, and is a sort of mixture of yellow and brown. One of the brightest forms is seen in Hampden, a large and finely-formed carnation of a deep buff hue; Mrs. Colby Sharpin is a variety that shows the new shade well, it is bright yellowish-cinnamon, fine for border or show board; Calipha is another of the section, a tawny, with soft reddish-cinnamon flowers—a first-rate border carnation. Mrs. [illegible] Buchanan gives us a pretty apricot tinge. Two good rosy-carmine varieties are Francis Wellesley and Mrs. J. Douglas, the former having rather the richer colouring. A pair of very distinct selfs comprise Haidee, a curious and deep [illegible]-lavender shade, with mauve shading, and Bendigo, by far the finest blue-purple yet raised.

Yellow ground fancies and picotees are most fashionable just now and certainly they are most effective. They form a numerous class, and being very free of flowering, brightly marked, and good growers they have quickly become popular. Some few are "bursters," but these will be left severely alone by all but exhibitors. His Excellency is a fine new yellow ground picotee with a narrow margin of soft scarlet; Mrs. Tremayne is light yellow, heavily edged and marked with the most brilliant scarlet; Mohican, with rich yellow ground, edged and [illegible] scarlet, is very handsome; Hygeia, yellow, edged with rose; Harlequin, [illegible], marked with rose and crimson; Mr. Nigel, clear yellow, heavily edged [illegible] scarlet; Miss Violet, rich yellow, heavily edged and marked with rich [illegible] is a splendid new picotee; and Dervish, yellow, edged rosy-lilac; these [illegible] good among the new picotees. The fancies are numerous, but a short selection will include Miss Mackenzie, soft yellow, marked with rose, a non-burster; Czarina, yellow, most brilliantly marked with intense scarlet; Zingara, in the way of Hidalgo, deep yellow, heavily marked with scarlet and crimson Perseus, rich yellow, marked with orange and scarlet; and Brodick, deep yellow, marked with rosy-scarlet. Other fancy carnations are Pelegia, especially handsome, pink, flaked with pale lavender; Delightful, well named, white, with a few light splashes of soft scarlet, a splendid flower in size and substance; Artemis, scarlet ground, marked with dark silvery rose or lavender; and Miss Florence, white, ligthly marked with reddish rose.

Malmaison carnations, all in the rudest health, are to be seen in large quantities at Edenside, but few are now flowering. Mr. Douglas has a splendid stock of Lady Grimston, Churchwarden, Nell Gwynne, and other of the splendid Martin-Smith productions. He has also some splendid additions to the true white ground picotees, Fortrose and Charlotte Brontë being an especially fine pair, the former a light rose edge, the latter a heavy red edge variety, and both having beautiful broad petals. The Edenside collections teem with interest, and, in spite of hot weather, there will be lots of flowers to be seen for some time to come on the many thousands of healthy, vigorous plants that fill the several spacious houses.

At Chelsea.

It has been frequently remarked that the carnation is a townsman's flower, and when we remember what the Birmingham amateurs can show in the way of fine carnation blooms, and also know what Mr. Martin Rowan does, then we are compelled to believe that statement. If further confirmation is necessary, then a visit to the Chelsea nurseries of Messrs. J. Veitch and Sons during carnation time will dispel all doubts as to the value of both carnations and picotees for town gardens. At the Brompton end of the Chelsea nurseries there are thirty beds, each about twenty-two feet by three feet, planted with a large number of the best varieties; selfs are most largely represented, and in some instances a whole bed is devoted to a variety, this being so in the case of such free flowering and dwarf-growing sorts as the white Mrs. Frank Watts and the scarlet Joe Willet. Altogether, the Veitchian display comprises nearly three thousand plants out of doors, besides a very large number in pots, in cold greenhouses, where they can be examined, should a visitor arrive on a wet day. Besides the selfs, there are a large number of fancies and yellow ground picotees, a class (for it is difficult to draw the line between them), that is becoming increasingly popular year by year. Judging from the number of plants grown, it would seem that flakes, bizarres, and pure picotees are not nearly so much in demand as formerly, but, on the other hand, there is a growing interest in those selfs and fancies that are grouped under the head of border carnations.

One of the most distinct selfs of recent introduction is Bendigo, a free flowering bluish-purple variety that is most effective in a mass; Knight Errant is a fine dark scarlet self, while Sweet Briar is equally good, but of a paler colour. Other scarlet varieties of great merit are Boadicea, which has a rosy suffusion, and is a handsome flower; Hayes Scarlet, wonderfully free and bright; Ness, a strong grower with exceedingly brilliant blooms; Cantab, one of the older varieties, but still good; Edward Marshall, a finely-formed scarlet flower; Mrs. Macrae, a decided improvement on Hayes Scarlet; King Arthur, a magnificent crimson scarlet with big, broad, and smooth petals; Little John and W. J. Fish, the latter a very bright scarlet. Passing to crimson selfs, Sir John Falstaff is noticeable both by reason of its rich colour and large flowers; John Hare is also a fine crimson self, while for freedom and fragrance the Old Clove is still worthy of cultivation, and does well at Chelsea. Mephisto and Uncle Tom are deep hued varieties, the latter also having a slight shading of deepest scarlet. Lady Hindlip, about half-way between scarlet and crimson, is a splendid variety that is bound to become very popular. Of yellow carnations there are innumerable hosts, and all save the specialist are bewildered with so many names where all the varieties seem so nearly alike. There are, however, differences of growth, habit, shade of colour, and shape of flower. There are now numerous beautiful yellow selfs as free as the tall Miss Audry Campbell and Duke of Orleans, but dwarfer in habit; Mrs. Harry Escombe is a fine hardy yellow in the way of Germania; Mopsa does well outside at Chelsea, and is apricot-yellow with broad petals; Pandelli Ralli is a lovely bright yellow flower with perfect calyx and good alike outdoors and under cover; Mrs. Patrick Campbell has flowers of a pretty primrose hue, while for those who desire a deeper colour there is Nabob, orange-buff and very large. Britannia is good, so also are Corunna and Pride of Penshurst, the former being rather better than the latter. Among buffs, Mrs. Reynolds Hole still takes a prominent place; then there is Cinnamon, a curious shade of colour, but now likely to be superseded by the handsome and new Mrs. Colby Sharpin that has flowers with quite a brownish tint.

White self carnations are plentiful, and among the very best we have to place Mrs. Eric Hambro, a variety that needs no praise; Sir Wilfred Laurier is very free, and has smooth petals such as will recommend it to exhibitors. For freedom and fine petals few can exceed Edith Ladenham, while the flowers are very pure white; Princess Charles of Denmark is also a fine white, and other white selfs of great merit are Miss Ellen Terry, Snowdon, and Waterwitch. For general usefulness and beauty few carnations surpass the blush-tinted Seagull, while it can hold its own for vigorous and floriferous habit. Mrs. J. Douglas provides us with a beautiful rose carmine self, to which the delicate flesh-tinted Cassandra is a good companion; Exile, deep rose; Her Grace, pale blush; May Morris, rose; Rose Celestial, bright rose; Braw Lass, Eudoxia, Ketton Rose, Sadek, and Duchess of York are all lovely and good carnations of various shades of rose and pink. Lady Nina Balfour must not be omitted from the list, for it is a free-flowering soft blush self of great merit. Yellow ground picotees and fancies deserve notice by reason of their gay colouring, bold habit, and large blooms; Figaro, Cardinal Wolseley, Mr. Nigel, the Czar, Don Juan, Voltaire, the Gift, the Dey, Eldorado, Dervish, Wanderer, very fine; Miss Alice Mills and Hygeia are all first-rate, and make a glorious display, with or without protection. One other fancy, and that a white ground, deserving of mention, is C. W. Townley, a bold form heavily splashed with deepest crimson. These, of course, are but a few of the carnations we saw at Chelsea, but they are among the very best, and selected for their abundance of flowers as grown out of doors.

Sweet Peas.—Thanks are due to our careful sweet pea raisers in not only giving us such a choice of colours, but also for increase of fragrance. A very skilful grower was the other day compelled to admit there was a gain of fragrance, and I am persuaded some of the newer varieties are far more fragrant than others. Sweet pea culture is simple in the extreme, any ordinary soil will grow them, and if three feet high, they will give an abundant and continuous bloom, especially if the seed pods are kept down. I give my selection of six varieties, out of two dozen, though all are good: Blanche Burpee, white; Monarch, bronze crimson; Duke of York, rosy-pink; Stanley, marone; Mars, crimson; and Celestial, light blue.—Stephen Castle, F.R.H.S., *Bottesford Vineries, Notts.*

NEW BOOKS.

The English Flower Garden. By W. ROBINSON, F.L.S. (John Murray, 50A, Albemarle Street, London.) 15s.—The issue of the sixth edition of this important work is a matter of considerable interest to horticulturists, inasmuch as it indicates a continued increase in the popularity of hardy flowers, and proves to demonstration that the book which has done so much to influence public taste in its relation to the flower garden is held in high estimation by those who are more or less interested in the ornamental aspects of gardening. So well devised was the work in the first instance that it has not undergone any material alteration in plan since the publication of the first edition in 1883, and the change that has been made in the several editions has consisted chiefly of an amplification of details, and a consequent increase in the number of plants described, and in the illustrations; and a fuller treatment of the principles of design and arrangement. The present edition has been increased by six new chapters in the first of the two parts of the book, and as these deal with details with which those engaged in flower garden management should be familiar, they add materially to its value.

Both in the preface and the body of the work we have ample evidence that the author has lost none of his love for hardy plants or his distaste for the excessive use of plants which, if not sufficiently hardy to bear the rigours of our winter, can be successfully cultivated in the open during the summer months. In his "Forewords" to the new edition, the author gives a brief sketch of his endeavour during the past thirty years or so to create an interest in, and promote the cultivation of, hardy plants, and to those who did not become so wedded to the "bedding system" as to be unable to appreciate the beauty of plants not suitable for massing, this sketch can hardly fail to be interesting reading. We fully agree that when the author commenced his crusade "The flower garden planting was made up of a few kinds of flowers which people were proud to put out in thousands and tens of thousands, and with these patterns more or less elaborate were carried out in every garden, save the poorest cottage garden." But is must not be forgotten, in discussing this question, that the bedding system, with its many objectionable features, was the result of a re-action from the dull and weedy appearance presented by borders of hardy flowers during a considerable period of the summer. Much of the unattractiveness of the borders was undoubtedly due to a want of appreciation of the charms of some of the plants then available, and to an imperfect acquaintance with the cultural requirements of some of the best kinds. This much we readily admit; but, in doing so, we must direct attention to the fact that a considerable number of our most beautiful hardy plants have been introduced within a comparatively recent period, and that of the hardy plants in cultivation previous to the origination of the practice of massing tender plants a considerable proportion were not readily obtainable. With a distinct recollection of the miserable appearance presented in summer by not a few herbaceous borders that existed long after the bedding system had become popular, we can fully sympathize with those who desired more colour in their gardens; but, like the author, we have no sympathy with the practice of those who gave up the whole of their gardens to summer bedders and produced brilliant displays of colour, in which yellow, blue, and scarlet predominated. Happily, a better state of things now obtains, and those who are desirous of producing a series of effects in the garden over the longest possible period are careful to employ hardy and tender plants in combination, and we trust this practice may long continue, particularly in small gardens, in which it is difficult to maintain a continuous succession of flowers throughout the summer from hardy plants alone.

We are pleased to see that the author condemns the practice, much too general, of slavish imitation in garden design, and we agree with him that "the aim should be to make the garden a reflex of the great garden of the world itself, and to prove that the true way to happiest design is not to have any stereotyped style for all flower gardens, but that the best kind of garden should arise out of its site and conditions as happily as a primrose out of a cool bank." We require more originality in garden design, and were those entrusted with the formation of gardens to more carefully consult the genius of the place and adapt their plans to the situation and the configuration of the ground and its surroundings instead of adapting the area to preconceived plans we should have a closer approach to true art in our gardens and a greater diversity both in their design and their occupants than is possible under the conditions governing the methods of procedure in so many instances. In the chapter on "Art in Relation to Flower Gardening," the author discusses this question at some length, and although we may not be prepared to attach the same value to cottage gardens as illustrating the importance of simplicity in garden design as is given them by the author, we are in full agreement with the views he so forcibly expresses with regard to the necessity of improvement and the means by which it might be effected. This chapter and the two immediately following contain so much that is of importance on the question of taste that they should have the most careful consideration of those who are desirous of obtaining a clear conception of art in relation to the garden. The value of the work is by no means limited to the information contained in the three chapters to which reference is made; but we have directed special attention to them because of the desirability of a more intimate acquaintance with the first principles by all who are in any way concerned in the formation and management of the flower garden. There are twenty-eight other chapters—all more or less satisfactory—in the first part of the book, and the second part is devoted to an enumeration of the most beautiful hardy and half hardy plants, and hardy trees and shrubs suitable for British gardens, with ample cultural information. The book is fully illustrated with excellent woodcuts, the illustrations comprising examples of beautiful gardens and portraits of the majority of the plants mentioned in the second part.

Home Gardening. By W. D. DRURY, F.R.H.S. (L. Upcott Gill, 170, Strand, W.C.) Price 1s.—The author states that in the preparation of this manual his object has been to assist amateurs who are turning their attention to the delightful pursuit of gardening, and in his endeavour to accomplish this laudable object he has achieved so high a degree of success as to deserve the heartiest congratulations. The manual comprises 130 pages and is divided into seven chapters. Excellent advice is given on the formation and management of flower, fruit, and kitchen gardens, the stocking and management of the greenhouse and pit, window gardening, room decoration, the embellishment of walls and trellises and other cogent subjects.

Flower Favourites. By LIZZIE DEAS. (George Allen, 156, Charing Cross Road, London.) Price 3s. 6d.—A dainty book in which the authoress discusses with singular freshness and ability the legends and symbolism of about fifty of the more popular flowers grown in British gardens. A work of greater interest to those who desire to know something of the plants on which they lavish their care, beyond their cultural requirements it is difficult to conceive, and the authoress and publisher have rendered valuable service in thus placing within the reach of all plant lovers in so readily accessible and pleasant a form such an immense amount of information relating to the legendary associations of the majority of our popular garden flowers.

ANSWERS TO
CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS MAGAZINE, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates

Caterpillars.—E. C. K., Douglas: We were not able to recognise the species of caterpillar sent us, but one poor specimen remained, and it had evidently turned cannibal and eaten large portions of the others imprisoned. If you can eventually send us a moth we will endeavour to indentify it.

Twin Dahlia.—C. S., New Barnet: The specimen sent is an example of fusion, almost of fasciation. It is not very often that such fusion is seen in the flower stems, but it frequently occurs in the growths. The specimen is a freak, for which no proper cause can be assigned; probably the compression in the bud stage overcame the tendency of the peduncles to separate, and so the two stalks became permanently united.

Spikes of Stocks.—N., Kettering: The stock has an inflorescence that may be called a branched spike, and provided the plant has not branched previous to the time when it shows flowers or buds, then the whole of the inflorescence would form one spike for the purposes of exhibition. The ambiguity of some schedules is remarkable, and yet, with a little care, the committee could make class definitions that it would be impossible to misunderstand. The strict botanical definition of a spike is "an inflorescence in which the flowers are sessile along a simple undivided axis or rachis"; there are, however, varieties of spikes.

Dahlias Failing.—E. E. P., Ware: A grub of some kind (too shrivelled for identification) has attacked the dahlia stems from below and done all the damage. Pull up the plants and burn them; also remove the soil that immediately surrounded the plants attacked, and either burn or gas-lime it. Tie out the other plants so as to fill up the gaps, and supply them with fairly strong liquid manure. Keep a sharp look out for further attacks and set traps, such as the hollowed halves of freshly-cut potatos, under the surface of the soil, examining these every day or so and killing any grubs caught. It may be necessary to gas-lime the plot after the dahlias have been lifted, but this may be judged by the prevalence or absence of the pest during the rest of the season.

Gooseberry and Currant Cuttings.—J. C. T., Billinghurst: There is no great advantage to be gained from taking gooseberry and currant cuttings at this early date; in fact, with a continuation of dry weather, there will be some disadvantage by reason of the difficulty in keeping the soil moist. The general practice is to take cuttings in October, as soon as the leaves have fallen, using straight and well-formed shoots of the current year. These should be inserted at once in fairly rich soil in a shady position, placing about six inches of the [illegible] in the ground. All the buds or eyes in the inserted portion should be rem[illegible], so as to prevent the formation of suckers at a later date. Also remove the upper part of the cutting, leaving six or eight inches out of the ground. Set the cuttings six inches apart in rows a foot apart. If you have the time and convenience, there is, however, no good reason why cuttings should not be inserted this month, for such will root freely if shaded and kept moist.

Judging Vegetables.—Anxious, Long Eaton, writes to ask "if, in judging a collection of vegetables, six or eight distinct varieties, it was found that an exhibit contained two sorts of potatos, one white and one coloured, would the[illegible] two be counted as one vegetable or judged as two varieties? Such an instance [illegible] occurred, and opinions as to what is right and wrong differ considerably." [illegible] presume that the whole question hangs upon the wording of the schedule, [illegible] wish our correspondent had sent us the class definition. If the regulation [illegible] "Collection of six or eight distinct varieties," then if anyone showed [illegible] ber of distinct varieties of potatos, or of cabbages, or of onions, or indeed [illegible] other vegetable would be admissible, and could not legally be disqualified. The two varieties of potatoes should be counted as two in a collection of six or eight and not as one. The schedule would be more precise and understandable if "kinds" instead of "varieties" were used in the wording, for no doubt the committee intended such a meaning to be implied. Kinds of vegetables are potatos, cabbages, cauliflowers, peas, turnips, etc., while varieties would be the variously named seedlings or sports of these; thus the Windsor Castle, Ashleaf, or Syon House Prolific are varieties of potatos, and potatos are [illegible] vegetable.

Names of Plants.—Under this heading we can only undertake to [illegible] species and specific varieties of plants, and not florists' flowers. Specimens [illegible] be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

A. C. L.: 1, Polygonum cuspidatum; 3, Pentstemon Cobæa; [illegible] f.f. cristata grandiceps; 5, Hypericum Moserianum; 6, S[illegible] Nepeta glechoma variegata; 8, a Leptosiphon.

H. E., Nottingham: 1, Begonia maculata; 2, Maranta [illegible] floribunda; 4, not recognised; 5, Sedum aizoideum variegatum; [illegible] in flower.

J. F., Yorks: 1, Selaginella Kraussiana; 2, S. Gale[illegible] specimen, but probably Leycesteria formosa; 5, Santolina [illegible] incana.

Names of Fruits.—W. A., Bexhill: Devonshire Quarrenden.

BOTANICAL GARDENS.

ONCE a year, if not more frequently, attention is drawn to the Royal Botanical Gardens in the Regent's Park by the public discussions of the council. The financial position of this old-world property is notoriously anything but satisfactory. The ground was originally a market garden kept by a man named Johnson, which flourished in the days of the Regency. When the Prince Regent became George IV., and Nash, the architect, was commissioned to build Regent Street and design the Regent's Park, the "first gentleman in Europe" thought he should like to have a semi-rural palace at the end of a vista, which was to begin where the asparagus and cabbages were growing, and end where Carlton House then stood, and Carlton House terrace now stands. This, however, was not to be, and when the park was laid out, the well-wooded ground in question—about twenty acres, more or less—was handed over to the Royal Botanical Society, at something like a peppercorn rent, which obtained a charter, elected fellows, and proceeded to cultivate plants and flowers. Other portions of the new park were given by the Controlling Department, the "Woods and Forests," to the Zoological Society, the Toxophilite Society, the East End Charity of St. Katharine, whose almshouses and buildings were wanted for the St. Katharine Docks, and a few private favourites of the Court. The St. Katharine's transmigration was the most wonderful of all—quite as wonderful as the creation of St. Thomas's Hospital, opposite the Houses of Parliament, by the determination of the South-Eastern Railway to reach Cannon Street and Charing Cross. The Reverend Principal of the charity found himself transplanted from Ratcliffe Highway to a *rus in urbe* lodge and enclosure worth more than £1,000 a year, and the East End cottagers soon found a very profitable summer market for their new almshouses by letting lodgings.

The management of the Botanical Gardens was then in harmony with the age—the age of Colosseums, cycloramas, Miss Linwood, the "Invisible Girl," the "Earthquake at Lisbon," and panoramas of London and Paris. That management, the malcontents aver, has never been practically changed, and the policy of 1838 is being continued in 1898. The reformers have been ably and energetically led for some time by Mr. J. S. Rubenstein, the eminent solicitor, and at the annual meeting, to be held in the Gardens on August 10, at one p.m., he intends to recommend that the system of electing the members of the council, whereby they are practically elected and re-elected year after year by the council itself, should be brought to an end, and further that the scientific and administrative branches of the society's work should be divided, and that each branch should be supervised by a competent manager. He will also propose the establishment of classes for the study of botany, to be open to all students; the reorganization of the refreshment department and the acquirement of a licence for the restaurant, newly built in the Gardens. Mr. Rubenstein will also suggest the erection of a large floral hall, to serve as a winter-garden, where exhibitions, flower shows, receptions, and musical promenades can be held in all seasons. There is nothing very revolutionary in these propositions—nothing beyond an "up-to-date" policy, which should have the effect of relieving the society from its financial troubles. An extension of the lease (almost expired) for another term of twenty-one years has been granted by the "Woods and Forests," still at what is undoubtedly a nominal rent for such extensive and secluded sylvan grounds within a mile of Piccadilly Circus. If the old Physic Garden at Chelsea are really to be removed, here is a place quite as accessible for all the rare and valuable plants, and a management quite as liberal as the management of the Zoological Society will add another civilized outdoor attraction to the few existing in London.

JOHN HOLLINGSHEAD.

NEW INVENTION.

A New Hop Washing Plant.—The old and expensive system of washing hops by means of hand pumps is likely soon to become a thing of the past. Mr. R. W. Thomas, of Rodmersham, Sittingbourne, has just invested in a steam plant, made by Messrs. Merryweather, of London, under Merryweather and Curlings' patent, which in efficiency and economy of working is superior to the older inventions. It consists of a light portable steam pump, supplying from twelve to twenty-four spray jets through portable iron pipes with flexible joints and rubber hoses. The whole of the pipes can be laid down ready for use in half an hour, and the pipes shifted by a few men to various parts of the garden as required. The first cost is about one-tenth of a fixed plant, and the cost of working is about half that of hand apparatus, while the steam plant is also applicable for spraying fruit, corn, and vegetable crops.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, AUGUST 9.—Royal Horticultural Society; Committees meet at 12 o'clock; Lecture at 3 p.m., on "Water Lilies," by Mons. Latour Marliac.
WEDNESDAY, AUGUST 10.—Bishop's Stortford Summer Show.
Hastings and St Leonard's Horticultural Society.
Chippenham and Calne Horticultural Society.
Sevenoaks Summer Show.
Ladywell and Lewisham Cottagers' Show; Two days.
Ashbourne Horticultural Society.
King's Somberne Horticultural Society.
THURSDAY, AUGUST 11.—Taunton Deane Horticultural Society.
Alderley Edge and Wilmslow Flower Show; Two days.
SATURDAY, AUGUST 13.—Royal Botanic Society, General Meeting.
Heaton Mersey Floral Society.

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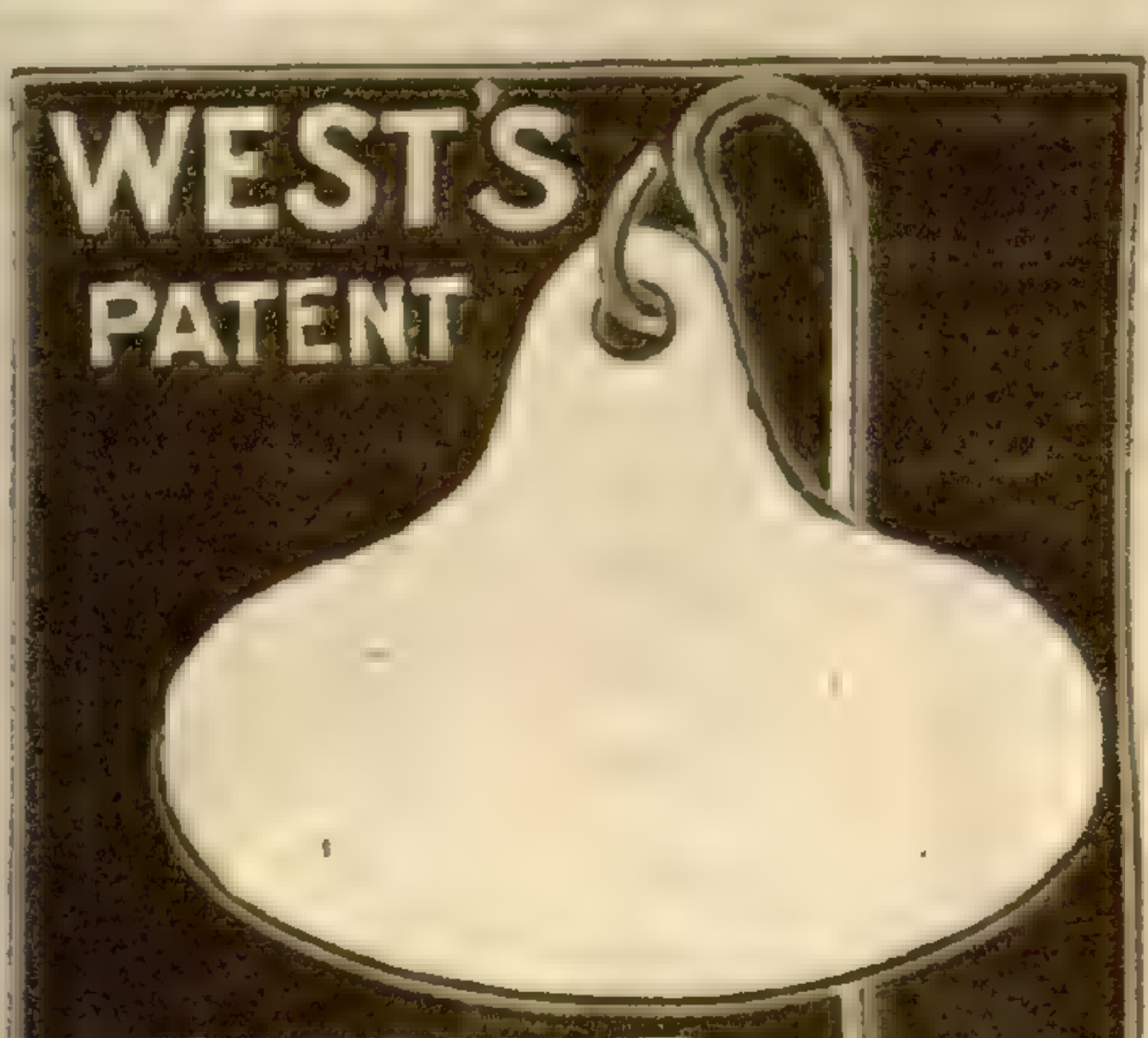

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MARKETS.

Covent Garden.

As usual, trade is somewhat quiet after the holidays, so supplies have been shortened a little. Prices are moderate. Cut flower trade dull.

FRUIT.—English grapes, 1s. 3d. to 2s.; Jersey, 9d. to 1s. 3d.; Belgian, 8d. to 10d. per lb.; cherries, 4s. 6d. to 8s. 6d. per half-sieve; gooseberries, 3s. to 4s. 6d. per bushel; raspberries, 3s. to 5s. per dozen punnets; 28s. to 32s. per cwt. in tubs; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 4s. each; French peaches, 10d. to 1s. 4d. per box; English, 2s. to 6s. per dozen; red currants, 4s. to 5s.; black, 5s. to 6s. per half-sieve; apricots, 5s. to 6s. per half-sieve; figs, 1s. to 1s. 6d. per dozen; greengages, 4s. to 5s, per basket; 9d. to 1s. per box; melons, 9d. to 1s. 3d. each; Spanish, 9s. to 12s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 6d. to 2s.; cattleyas, 6s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 3s. to 5s.; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—English tomatos, 4d. to 5d.; Jersey, 3d. to 4d. per lb.; Spanish, 1s. to 1s. 4d. per box; English onions, 2s. to 3s. per dozen bunches; ports, 5s. to 6s. per case; peas, 1s. 3d. to 2s. 6d. per bushel; 3s. to 5s. per sack; French beans, 2s. to 3s. per flat; broad beans, 1s. to 1s. 6d. per bushel; endive, 1s. to 1s. 3d.; cucumbers, 1s. to 3s.; cauliflowers, 1s. 3d. to 2s. 6d. per dozen; mushrooms, 6s. to 8s.; eschalots, 1s. 6d. per 12 lb.; cabbages, 3s. to 4s. 6d.; beetroots, 2s. 6d. to 3s, per tally; lettuce, 9d. to 1s. per score; vegetable marrows, 2s. to 3s. per dozen; mint, 1s. 6d. to 2s.; parsley, 1s. 6d. to 2s.; carrots, 2s. 6d. to 3s. 6d.; turnips, 3s. to 4s.; celery, 12s. to 18s. per dozen bundles; potatos, 3s. 6d. to 6s. 6d. per cwt.

Borough Potato Market.

There is a fair demand at recent prices, but supplies are not large. English Snowdrops, White Beauties, and Early Puritan, 3s. 6d. to 4s.; Beauty of Hebron, 4s. per cwt.

"WE'LL BACK YOU EVERY TIME." A flush of pride suffused the face of the young jockey as he read the telegram. "Let us know each race you start in, and we'll back you every time." The message came from his old-time comrades in far-away Yorkshire. They knew he rode square—rode to win—and their telegram was a testimonial to his integrity and worth. Hundreds and thousands of testimonials to the worth of Holloway's Pills and Ointment as family medicines are in our possession. Many a poor sufferer has been restored to health by these world-famed remedies, and has gratefully written to tell us so. Human friends come and go, but these medicines—the friends of mankind—are always with us in the hour of need.—[ADVT.]

THE WEATHER DURING THE WEEK ENDING JULY 30, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	79·0	49·3	61·0	16·11	0·72	[illegible]
Croydon	78·0	50·0	60·6	15·89	[illegible]	[illegible]
Brighton	73·6	50·0	60·5	15·83	[illegible]	[illegible]
Bristol	74·0	49·0	59·9	15·50	0·13	0·33
Wolverhampton	71·1	40·2	55·8	13·22	0·48	1·22
Norwich	—	—	—	—	—	—
Nottingham	74·8	44·0	58·1	14·50	[illegible]	[illegible]
Liverpool	64·6	50·3	56·0	13·33	0·04	[illegible]
Huddersfield	70·0	41·8	55·6	13·11	[illegible]	[illegible]
Bradford	71·2	45·0	59·8	15·44	0·08	0·20
Hull	68·0	45·0	56·1	13·39	0·06	[illegible]

The mean reading of the Barometer during the week at Greenwich was 29·90 inches, and that of the Thermometer 61°·0, the latter being 1°·3 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 15 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 25·6 hours. The measured rainfall amounted to 0·72 of an inch.

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ILLUSTRATIONS.

Lælio-cattleya Admiral Dewey ... ...
Rubus deliciosus ... ...

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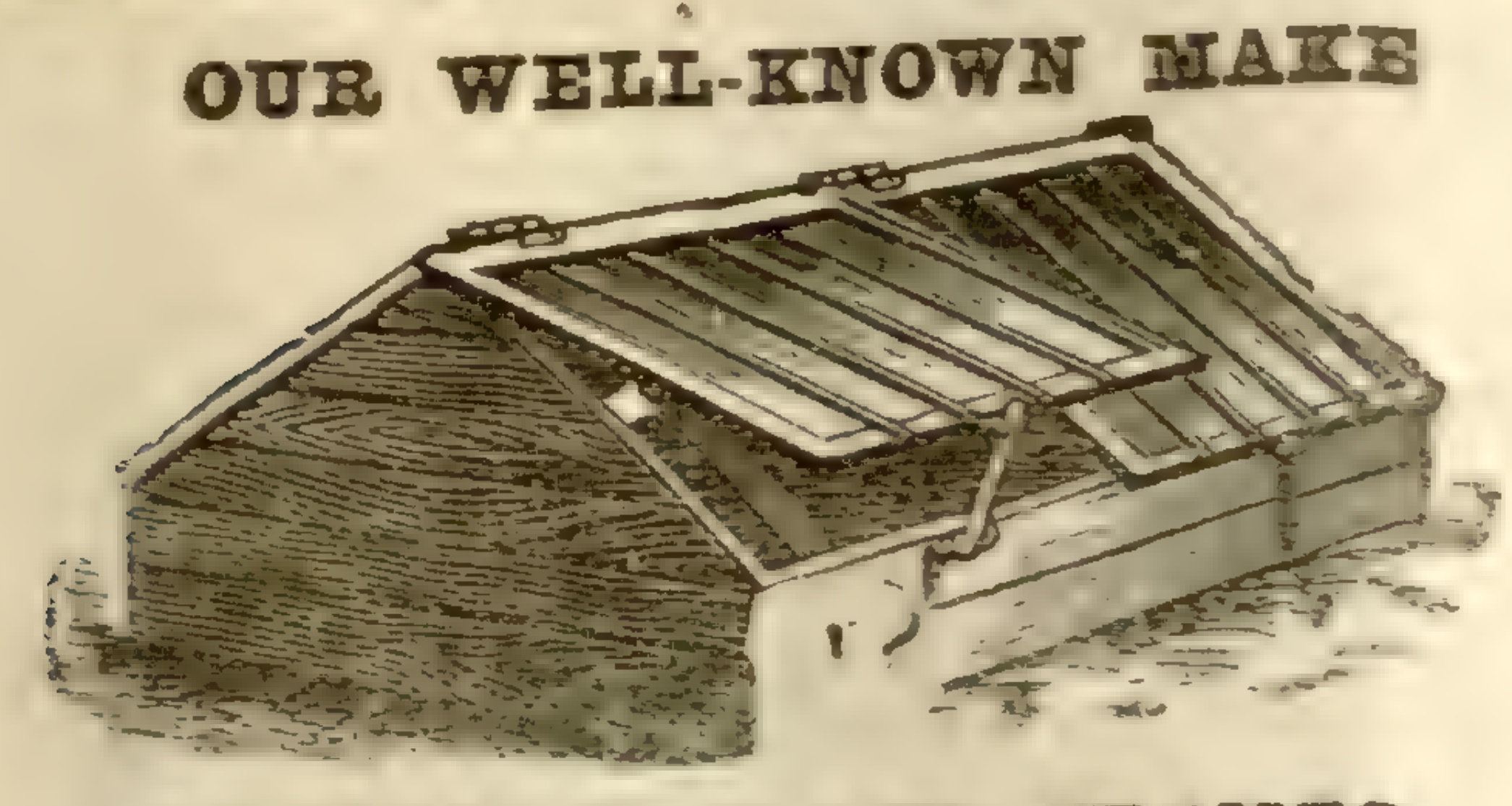

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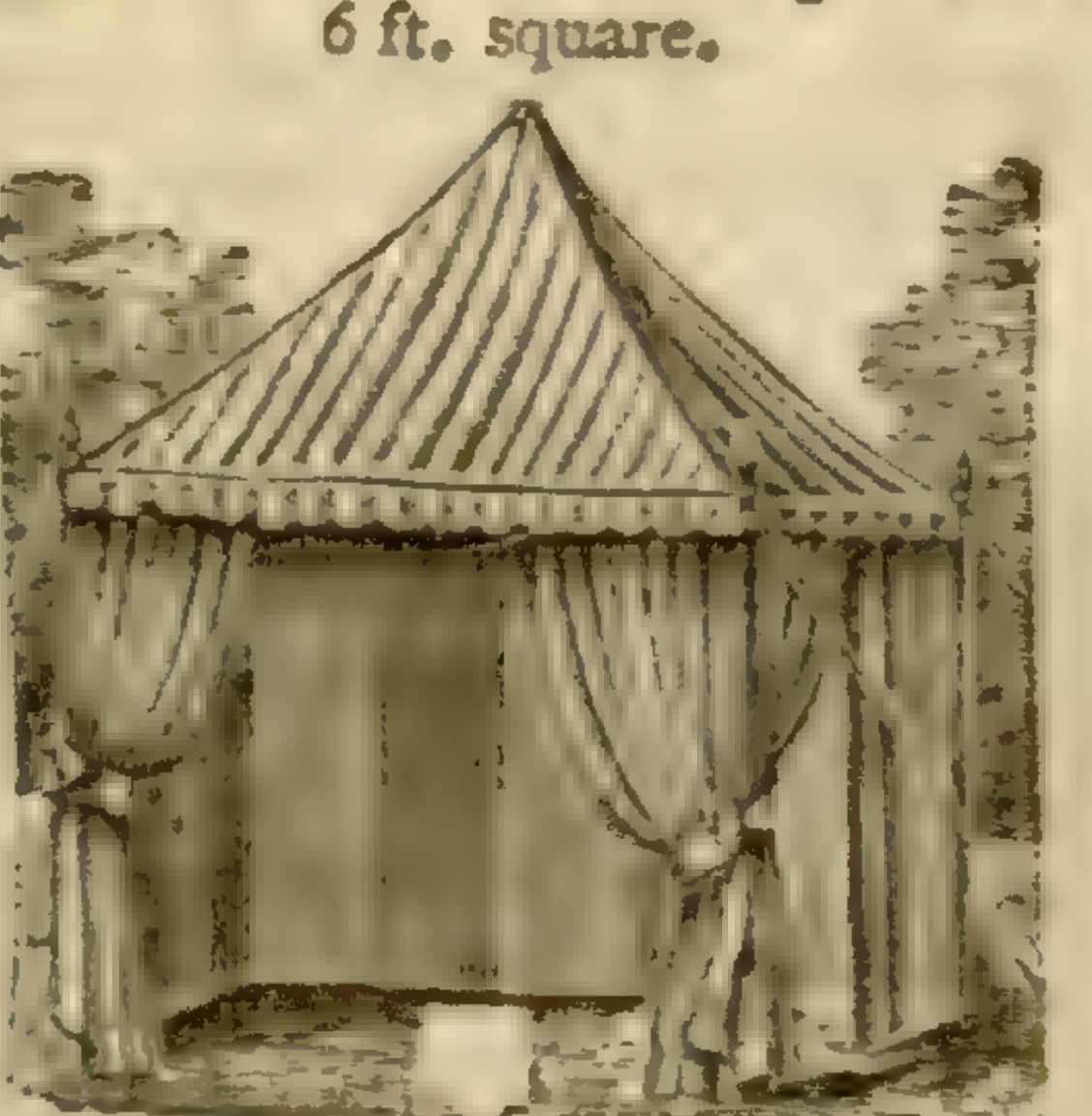

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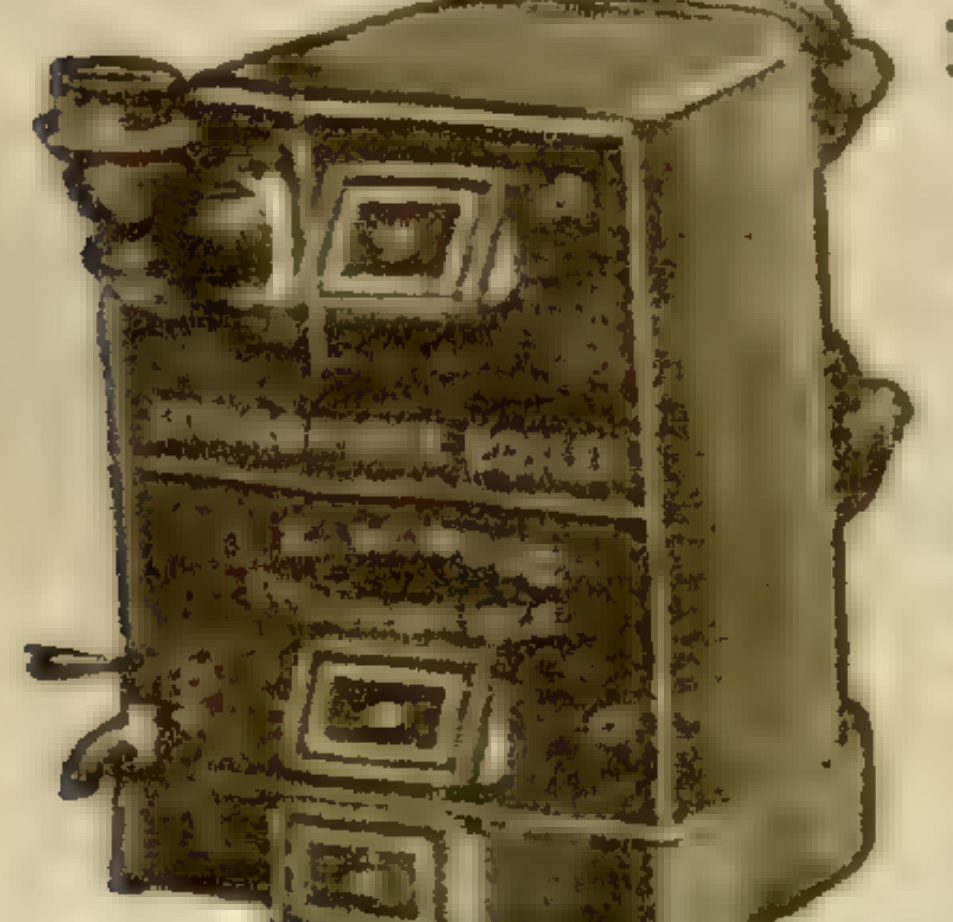

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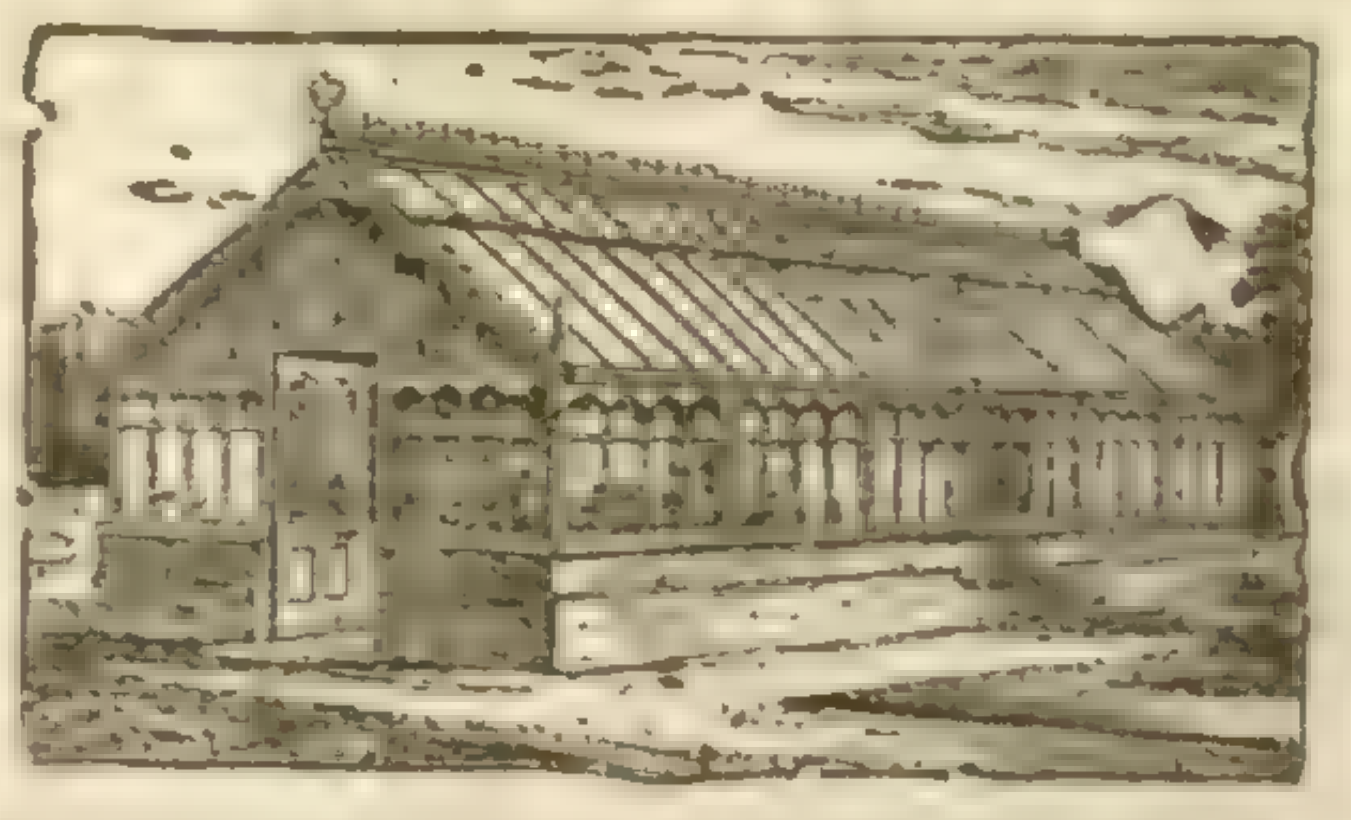

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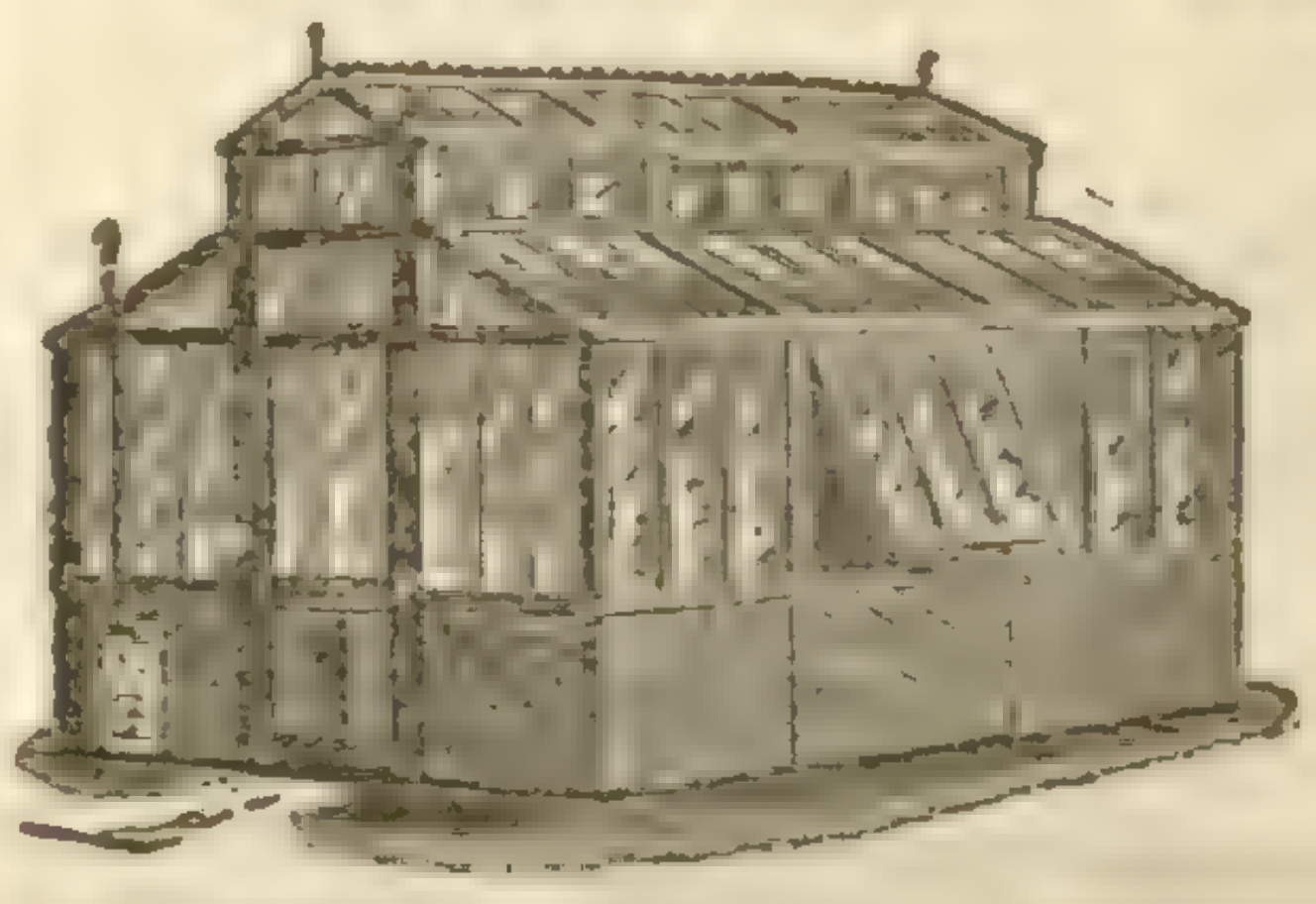

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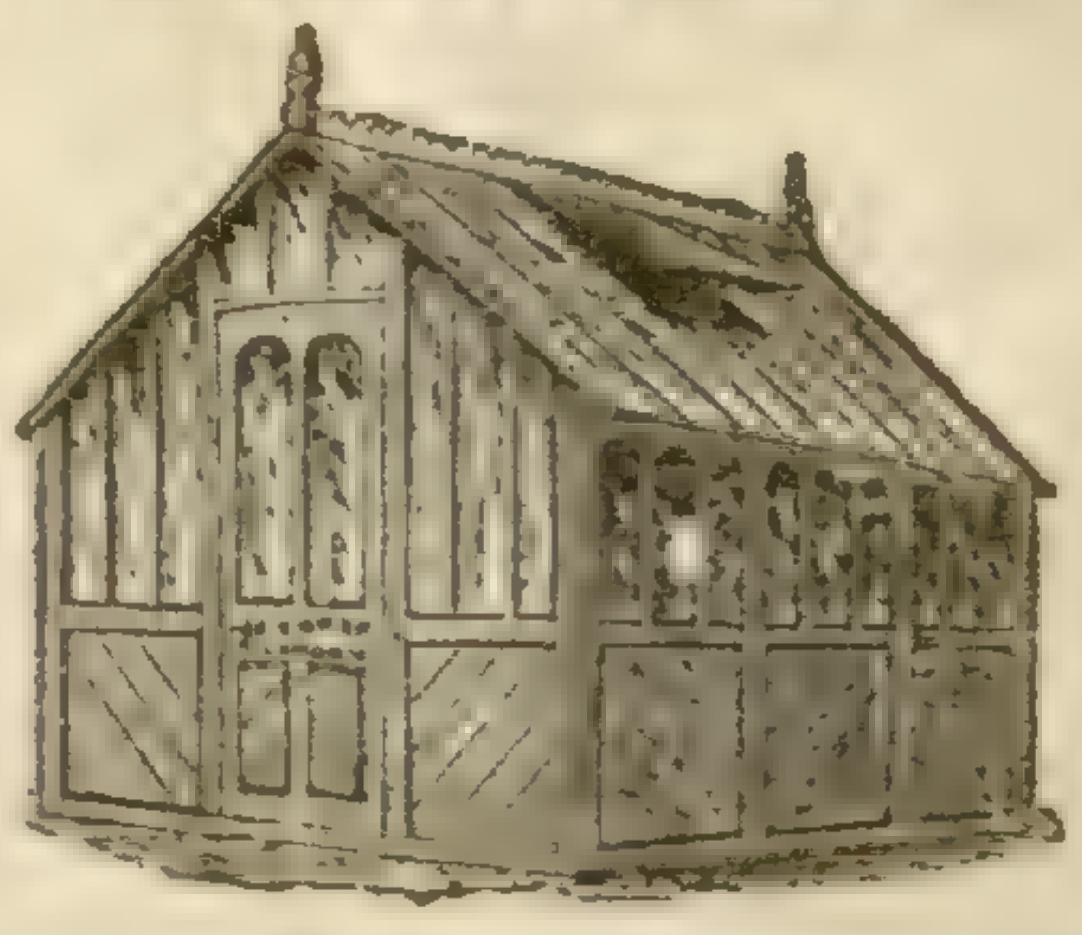

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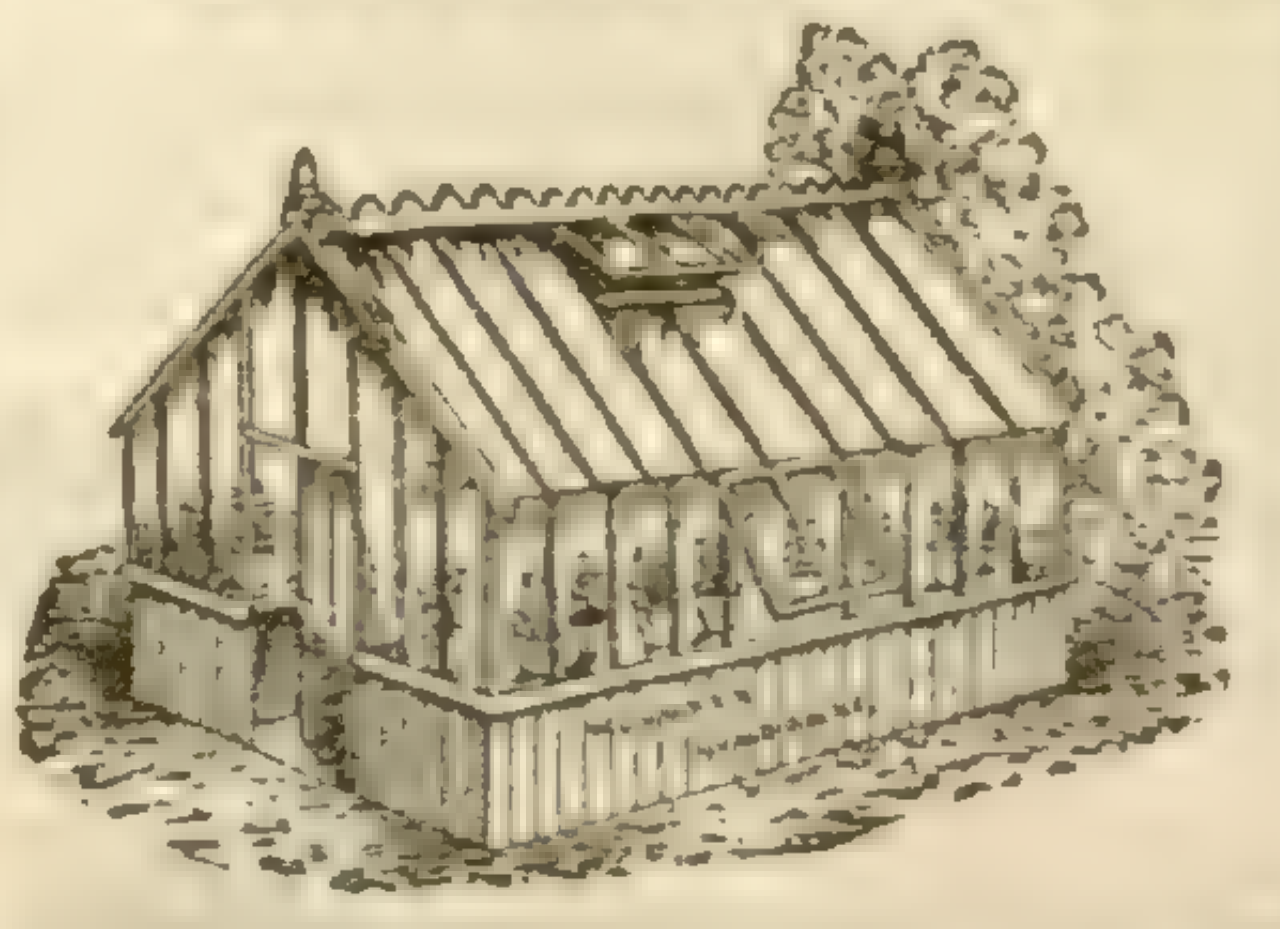

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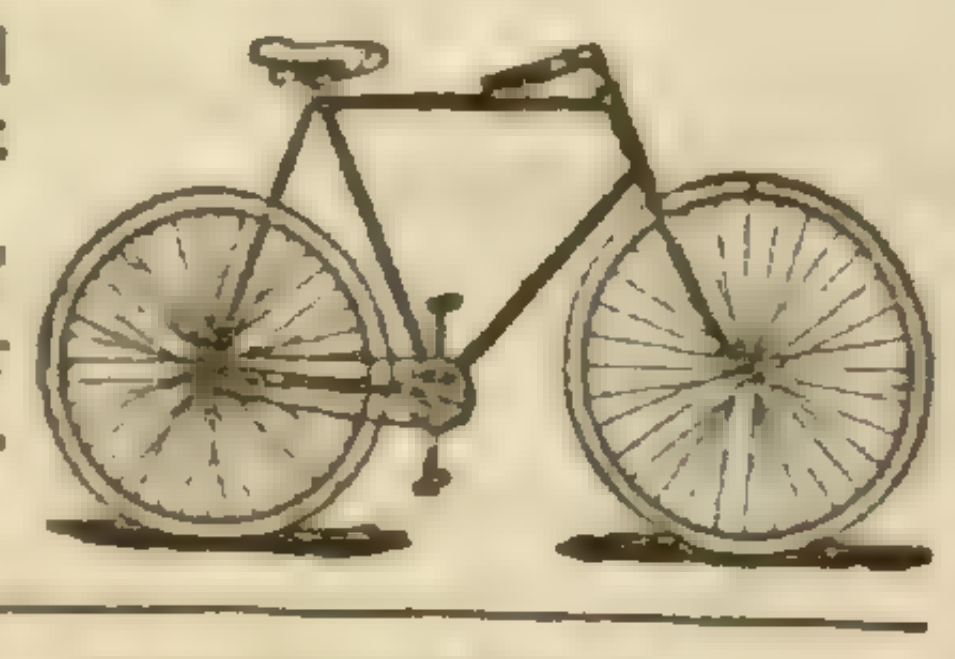

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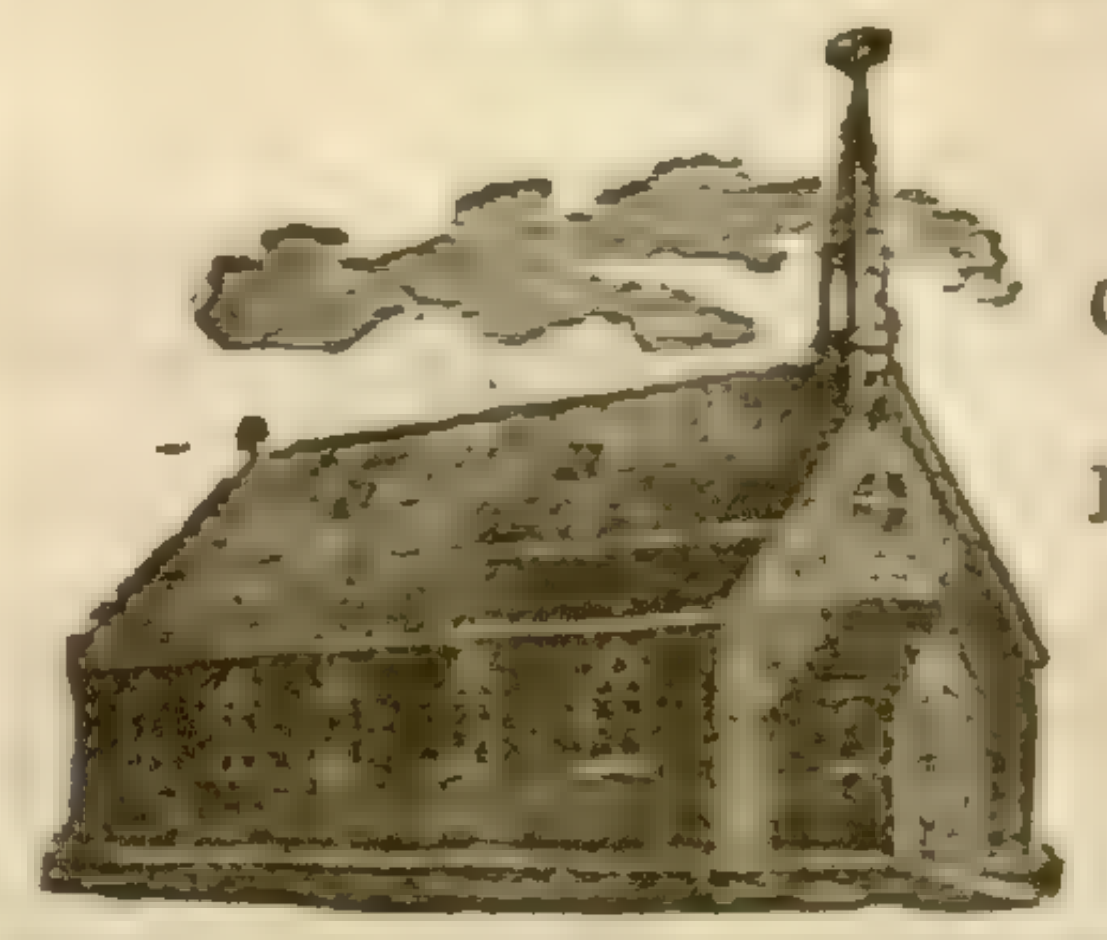

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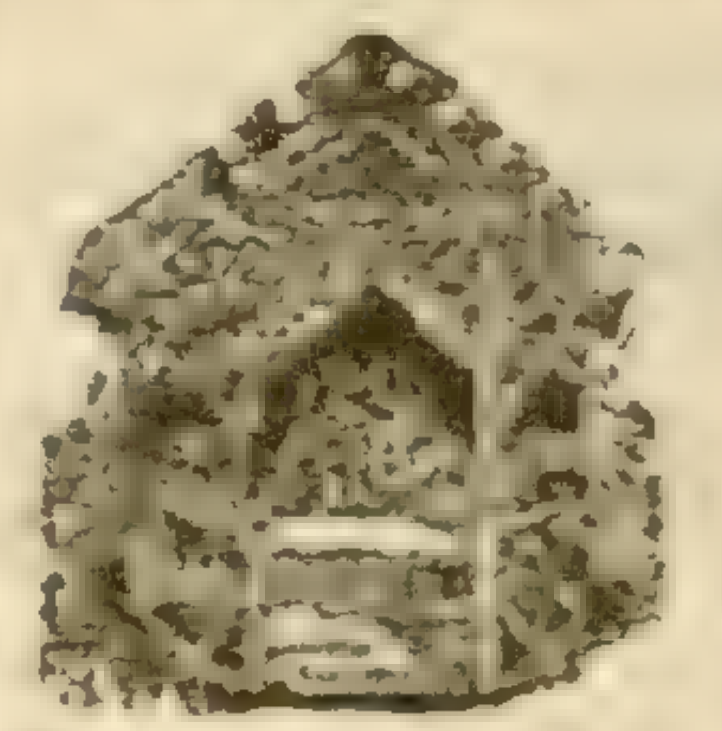

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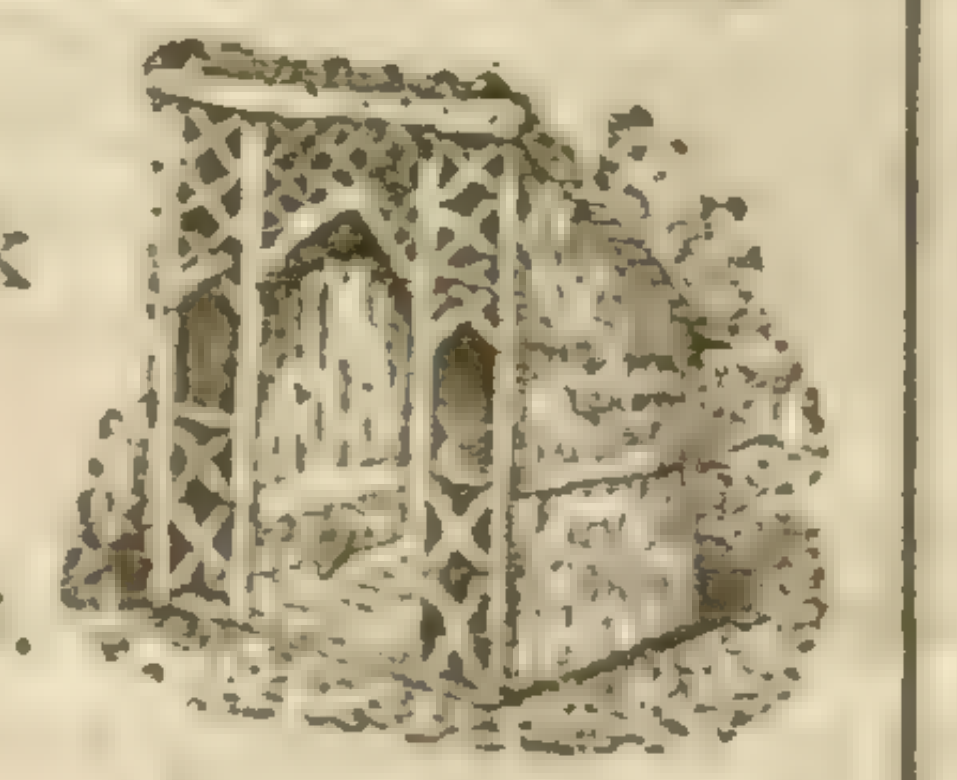

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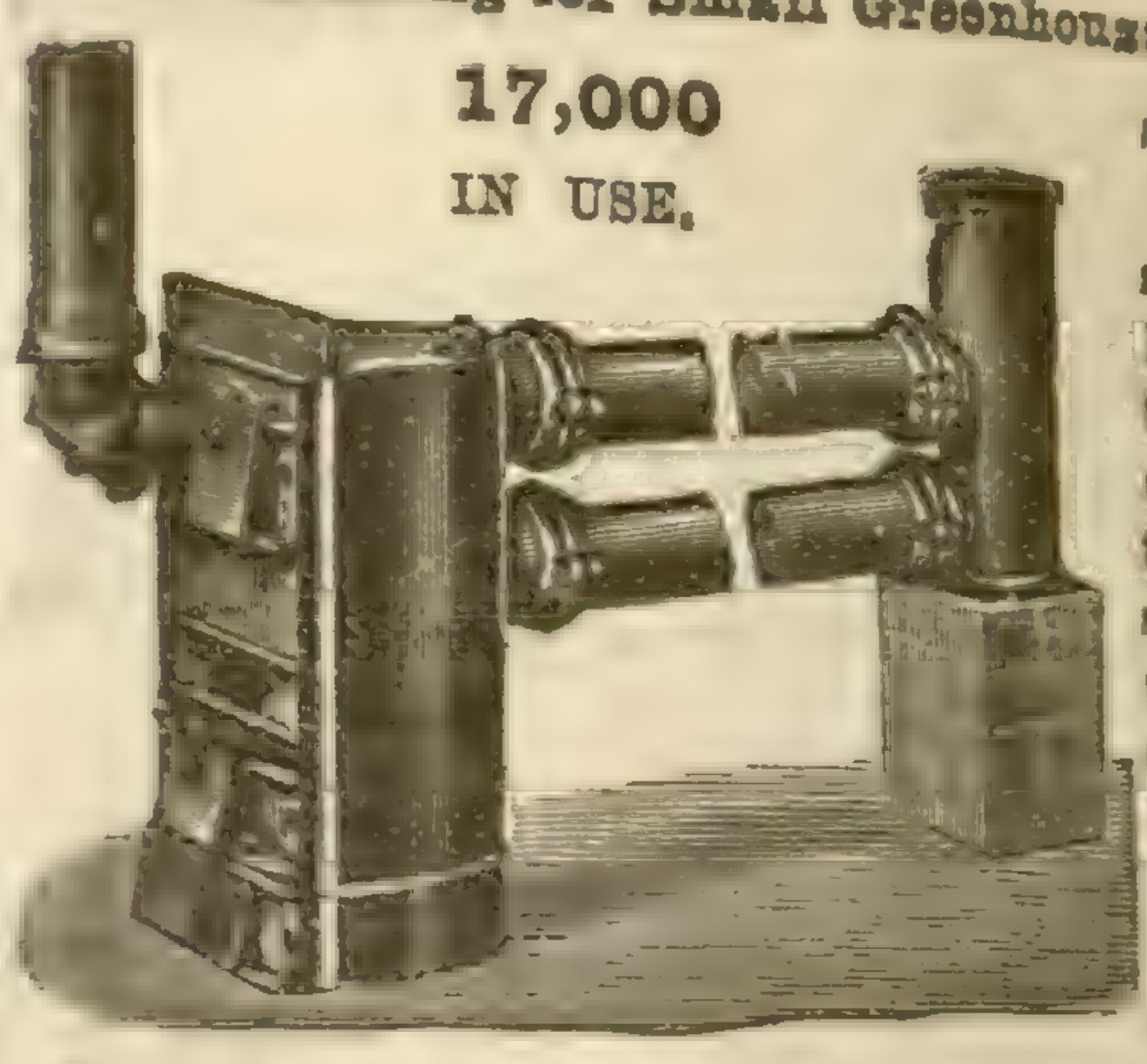

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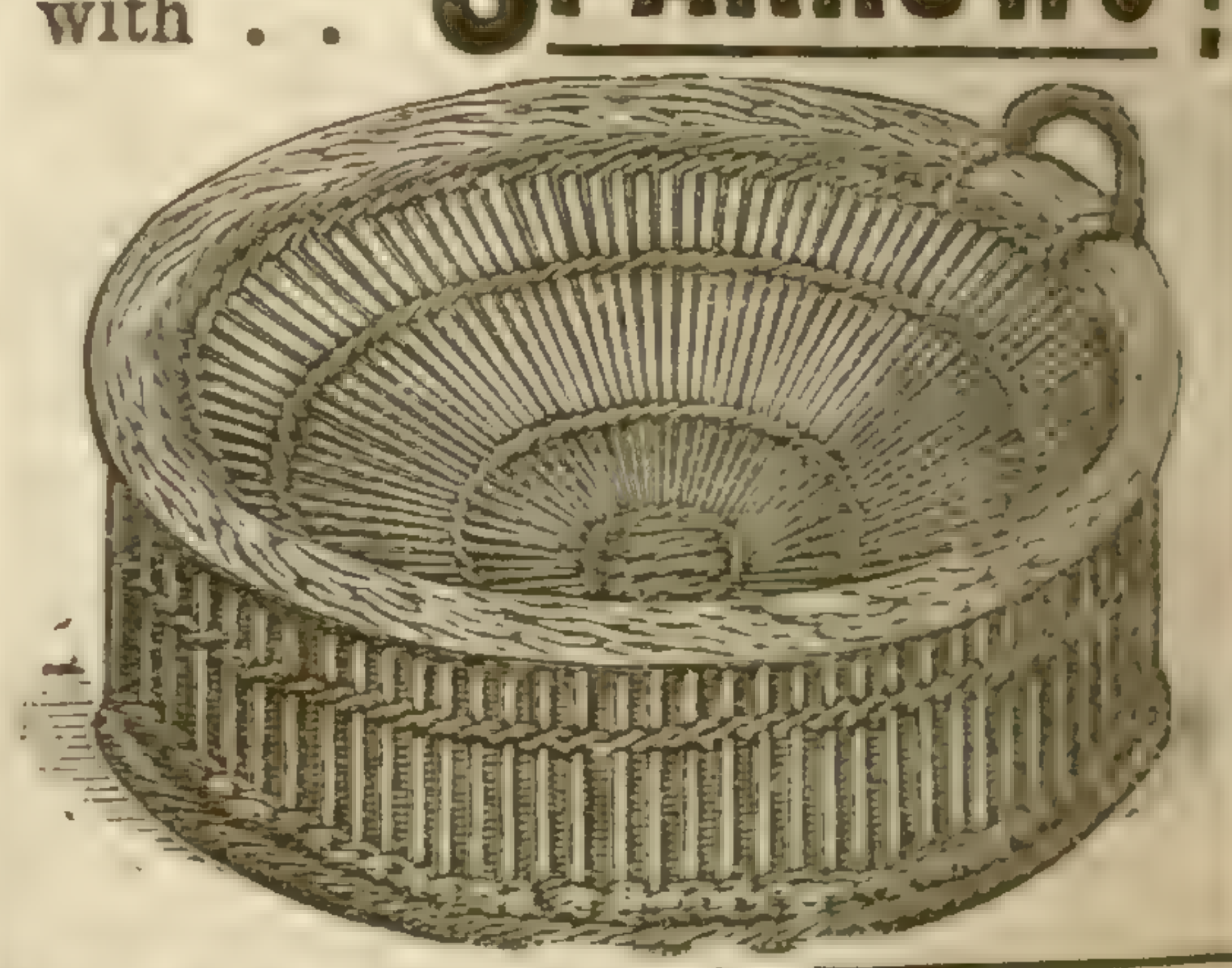

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THE GARDENERS' MAGAZINE.

SATURDAY, AUGUST 13, 1898.

BATH AUTUMN SHOW, WEDNESDAY and THURSDAY, AUGUST [illegible] and SEPTEMBER 1.—Amongst the prizes offered are for : 12 Foliage and 6 Stove or Greenhouse Plants, 1st £3, 2nd £2, 3rd £1 ; [illegible] 1st £9, 2nd £7, 3rd £4 ; 6 Stove or Greenhouse Plants, 1st £3, 2nd £2, 3rd £1 ; Group of Plants not less than 100 square feet, 1st £5, 2nd £3 10s, 3rd [illegible] 1st £2, 2nd £1 ; Collection of Fruit (8 dishes), 1st £2 10s., 2nd £1 10s., [illegible] 1st £5, 2nd £4, 3rd £2 ; and 5 other classes for Grapes [illegible] bunches of Grapes (4 varieties), 1st £4, 2nd £3, 3rd £2 ; and 5 other classes for Grapes. Prizes in proportion. Entries close Friday, August 26. For Schedules, &c., [illegible]

B. R. F. PEARSON and W. JEFFERY, Secretaries.

[illegible] Northumberland Buildings, Bath.

KINGSWOOD, ST. GEORGE, AND WEST GLOUCESTERSHIRE HORTICULTURAL SOCIETY.—ANNUAL SHOW on WEDNESDAY, 24th AUGUST, 1898, at KINGSWOOD. Over £200 in Prizes, in addition to Four Silver Cups for Open Amateur Competition.

F. H. JULLION } Hon. Secs.
A. W. COTTLE }

Saint George and Kingswood, Bristol.

MAIDENHEAD HORTICULTURAL SOCIETY. — The ANNUAL SHOW will be held in KIDWELL'S PARK, on THURSDAY, SEPTEMBER 1, 1898. Schedules may be obtained from CHAS. A. VARDY, Hon. Sec.

SANDY, BEDFORDSHIRE.—THIRTIETH ANNUAL SHOW, THURSDAY, AUGUST 25th, 1898. Plants, Flowers, Fruits, Vegetables, Corn, Roots, Poultry, Pigeons, Rabbits, &c. ; Honey, Butter, &c. Prizes £440, including Prizes of £12, £[illegible], £4, and £3, for Ten Stove and Greenhouse Plants.
Entries for Dead Stock close August 18th, 1898.
Her Majesty's Grenadier Guards' Band, and Reynolds' Anglo-American Minstrels.
Secretary, E. T. LEEDS SMITH, Sandy. Assistant Secretary, EDWARD SILLS, Sandy.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

HYBRID FRUITS.

CONSIDERING how great has been the success achieved by the hybridist in the domain of floriculture, it is not surprising there should have been a desire on the part of raisers of fruit to create new types by the hybridisation of allied species, and a wish by a section of the community to obtain fruits differing materially from those in cultivation. Such remarkable triumphs have been achieved in the orchid house in the blending of the lælia and cattleya, and other distinct, although related, forms, that we fully sympathise with those who have been anxious to give the world hybrids between the gooseberry and currant, the raspberry and strawberry, and the raspberry and blackberry, and heartily wish they may ultimately achieve a degree of success far surpassing their anticipation. Gooseberries with their fruits arranged in clusters, or red and white currants with fruits largely increased in size, and combining with the piquancy of the currant the richness of the [illegible] finely-flavoured gooseberries, would be valuable additions to our [illegible] fruits. Again, what could be more desirable than a race of [illegible]ries with their fruits borne on stout stems of sufficient height to [illegible] stooping unnecessary in gathering the crop, or to have brambles [illegible] fruits equal in appearance and flavour to the finest of the rasp[illegible]. New types such as these would be of interest, as illustrating the power of man over Nature, and they would be of value to the community in rendering the fruit supplies more varied. But it is evident we shall have to exercise much patience before we possess types such [illegible] of a high order of merit, for as yet but little success has been [illegible] in the hybridisation, as distinguished from cross-fertilisation, of [illegible]. Plants and fruits of the Blackberry-raspberry and Raspberry-[illegible] were exhibited at the meeting of the Royal Horticultural [illegible] on Tuesday, and it would have given us much pleasure to record [illegible] marked distinct advances in the direction indicated. The [illegible] raspberry is described as having been obtained from a cross between the two fruits, which form its name and the appear[illegible] the growth and fruit, fully justify the statement as to its origin. [illegible] the blending of these two fruits has not been so satisfactory [illegible] have wished, for the fruits, which are larger than those of [illegible] blackberry, lack both the piquancy of the latter and the [illegible] the raspberry, and they are so firmly attached to the [illegible] as to render it extremely difficult to separate them. The [illegible] improve in quality in the course of the season, and if we have [illegible] this we shall be pleased to place it before our readers. The [illegible]berry is a species of Rubus of Japanese origin, and bears [illegible] edible, and of so bright a red as to present an attractive [illegible] but, judging from the specimens shown, they possess so [illegible] that the plant will probably only be grown for the interest as[illegible]. The species attains a height of ten or twelve inches, [illegible] bright green leaves, and the fruits are produced singly on [illegible] the apex of the shoots, and have a pleasin appearance.

It appears that the Loganberry, which was raised in America from a cross between the blackberry and raspberry, is not realising expectations in the eastern States, and *American Gardening* describes the flavour as "a combination of the bad qualities of its parents, the raspberry and the blackberry, without the positive good flavour of either."

HYBRID NYMPHÆAS.

THE paper contributed by M. Latour-Marliac to the meeting of the Royal Horticultural Society on Tuesday gave but little information, beyond what we have already published, relating to the crosses by which he has obtained such successful results in the hybridisation of the nymphæas, but contained much useful advice on the culture of the new race of hybrids. In his opening remarks, M. Latour-Marliac directed attention to the fact that but a few years since the water lilies which could be grown without the aid of glass in European gardens were practically limited to the white nymphæas and the yellow nuphars ; and he pointed out that, by the hybridisation of the hardy and tropical nymphæas a wide range of colours had been obtained. The species used in obtaining the Marliac hybrids were N. alba, N. flava, N. odorata, N. rubra, N. Devoniensis, and N. mexicana, and the hybrids had obtained their hardiness from the seed parents, and their beautiful shades of colour from the pollen parents. M. Latour-Marliac has now, he stated, thirty-four distinct varieties, and he believes that forms still finer than those in cultivation will be introduced in due course. Nothing, M. Latour-Marliac observed, could be more beautiful than a group of these hybrid nymphæas, with the dragon flies flitting about their finely developed blooms, and gold fish darting here and there beneath their handsome leafage. Their culture was described as of the simplest, and it was suggested that the climate of England is especially favourable to their full development, as under our cloudy skies the flowers retain their freshness and beauty much longer than when exposed to uninterrupted sunlight throughout the day. To achieve success some knowledge of the peculiarity of the growth of the several forms is necessary, and it is especially desirable to keep a close watch upon those having a spreading growth to prevent them exceeding their allotted space and crowding out those with a more compact habit. As one means of imposing a check upon the vigorous growing and free spreading hybrids, M. Latour-Marliac recommends dividing artificial pools and fountain basins into sections, and having cement divisions about three-quarters the depth of water. He also suggested that the ponds and basins should have sloping sides to prevent the roots having to bear the whole weight of the ice during the winter. Two feet were mentioned as the most suitable depth for the water, and that from running streams was described as the best. Rapid streams were not advised, as water lilies flourish most luxuriantly in comparatively still water, and therefore sufficient additional water to maintain the requisite depth was alone required. The planting may be done in spring and summer, but the month of April was suggested as the best time, as the plants then have an opportunity of becoming established before the season of flowering is far advanced. A bed of soil six inches in thickness was recommended, and in its formation the use of substantial loam, to which a small proportion of well-rotted manure had been added, was advised. All attempts to cross the beautiful blue N. cyanea with the hardy species had failed, but handsome hybrids had been obtained from crosses between N. zanzibariensis and the hardy kinds, but they were not hardy enough to be grown outside in the ordinary way. M. Latour-Marliac had, however, grown them in his nurseries with much success in water in which a current sufficiently sharp to prevent freezing is maintained during the winter months ; but in the cultivation of the tender hybrids he is no doubt greatly assisted by the water from the warm springs which we understand exist in his nurseries.

IMPORTS OF FRUITS AND VEGETABLES.

THE Board of Trade returns for July are in some respects less satisfactory than were those for the preceding month, both imports and exports evincing a decrease as compared with the corresponding month of last year. The diminution is, however, partly due to the fact that there were five Sundays in July this year, as compared with four in the corresponding month of 1897. In the imports the decrease in value was equivalent to 0·6 per cent., and the exports of British and Irish produce and manufactures the decrease was equal to 6·5 per cent. The imports of the products of the garden and orchard show, with the exception of those of cherries, unenumerated fruits and potatos, material decreases both in quantities and values. Apples were received in much smaller quantities than in the two preceding years, the aggregate imports having been 30,739 bushels, of the value of £9,861, or a drop in quantity of 37,725 bushels, and in value of £8,157. Grapes were received in smaller quantities than in July, 1897, the imports amounting to 51,509 bushels, of the value of £27,276, against 167,529 bushels, of the value of £66,245 last year. It is of some interest to observe that in the seven months ending with July the imports of grapes were 65,459 bushels, consequently only 14,000 bushels were received in the first half of the current year. Pears show a remarkable drop, the total imports amounting to 13,621 bushels only, against 114,107 bushels, the values for the two years being £6,082 and £44,995. The imports of plums decreased in quantity by 116,601 bushels, and in value by £103,639, the actual quantities received having been 67,715 bushels, of the declared value of £61,626. Notwithstanding this immense falling off in foreign supplies, and the substantial prices obtained for home-grown fruit, the market growers are grumbling about the competition of the foreign plum orchards with which they have to contend. There is, of course, some justification for grumbling from the growers' standpoint, for were we wholly dependent upon the produce from our own orchards, plums would probably be worth a guinea a bushel in the market, and consequently be beyond the reach of a large proportion of the community. As a set-off to these large decreases mentioned, we have an increase in the imports of cherries of 98,000 bushels, of the value of £57,388, the agregate imports for the month being 190,878 bushels, of the value of £89,546. Unenumerated fruits were also more largely imported, the quantities being 455,159 bushels, against 398,156 bushels last year, of the value of £183,366 and £141,487 respectively. Potatos again show an increase, the imports amounting to 588,969 cwt., and of this immense quantity we received 290,952 cwt. from France, 223,577 cwt. from the Channel Islands, and 73,895 cwt. from countries not specified. The value of the potatos imported during the month was £164,185, and of the imports of potatos in the six months £1,828,534, or nearly £1,000,000 in excess of the sum paid for potatos from abroad in the corresponding period in each of the two preceding years. On the other hand, the imports of onions show a material decrease, the aggregate being 367,133 bushels, against 415,677 bushels last year, but in the seven months nearly 3,000,000 bushels, of the value of £417,780, were imported, which is by no means an inconsiderable quantity of a vegetable that can be cultivated with success in this country.

Changes at Kew.—Several changes have been made at the Royal Gardens, Kew, of late, one of the most important being the removal of the Curator's office. For many years this has been attached to Mr. Nicholson's house, just outside the Curator's Gate, but it has been pulled down, and a more commodious office made at Descanso Lodge, a large house, close to the fire station and at the junction of the Mortlake and Richmond Roads. This house is Crown property, but has hitherto been leased privately; now, however, it has been very largely altered inside, and contains the new Curator's office, the Garden Library for the young gardeners—removed from over the Director's office—and also affords excellent accommodation for the Assistant Curator, Mr. W. Watson, who has moved from his residence by Kew Green, where he has been succeeded by Mr. F. Garrett, foreman of the Greenhouse and Ornamental Department. The old entrance to the Melon Yard, for workmen only, has been closed and built up for some time past, a new gate between Descanso House and the fire station having been opened. With the exception of Mr. W. Irving, foreman of the Herbaceous Department, all the departmental overseers now live practically in the gardens.

Tomato Up-to-Date.—Mr. W. Allan, the able head of the Gunton Park Gardens, who is not less successful in the cultivation of tomatos than of grapes, pears, and other of our principal fruits, regards Up-to-Date tomato with much favour. He has full justification for the high opinion he has of the variety in the remarkably heavy crops in the several houses that are devoted to tomato culture at Gunton. The plants are grown as single cordons, and when we were at Gunton a short time since the plants that were just coming into bearing were regularly furnished with fruit from within a few inches of the base to the apex, and the total weight of fruit that will be produced by them will be simply prodigious. The fruits of Up-to-Date are smooth, brilliant red, and produced in clusters of from six to nine each, the weight of the individual fruits ranging from four to five ounces each, and are consequently of the size so much appreciated on the table. The variety has a hardy constitution, as proved by the fact that last autumn the plants that were grown in an unheated structure with other varieties were in no way injured by a severe attack of disease which did much damage to the plants of the whole of the other varieties. Up-to-Date originated in the neighbourhood of Norwich a few years since, and has been grown at Gunton somewhat largely from the first, consequently Mr. Allan has had plenty of time in which to formulate the high opinion he has of the variety.

Reserve Food of Plants in Winter.—A most interesting study has been made of the winter condition of the reserve food substances in the stems of certain deciduous trees by Mr. E. M. Wilcox, and the results given in the American *Journal of Science*. Specimens of liriodendron collected in October were found to have an abundance of starch in the cells of the cortex, but none in the cells of the medullary sheath, and but few grains in the cells of the wood parenchyma and medullary rays. The cells immediately below the growing point of the stem contained no starch at this time. November and December showed a gradual increase in the amount of the starch in the medullary sheath, but a marked decrease in the amount present in the cortex. At the end of February starch began to appear again in the cortex, but more especially in the cells immediately below the growing point.

Forcing Foxgloves.—We are so accustomed to seeing the foxglove beautifying our woodlands and the less highly dressed parts of the pleasure grounds, that many of our readers will probably learn with surprise that in the south of France they are forced for indoor decoration early in the year. According to our esteemed contemporary *Le Jardin*, the practice of forcing the varieties of Digitalis purpurea originated with M. Jules Van der Daele, chief of the Casino Gardens at Monte Carlo, and that as the result of the practice he was able to exhibit at the flower show held in Nice in March last a collection of admirably flowered plants, which produced a very beautiful effect, and were much admired by visitors. It appears that the foxgloves are potted up in September or October in six-inch pots, three plants in each, and a very rich soil is used. After the potting the plants are placed in some convenient position, and in November they are removed to a glass structure, in which they can have the assistance of a temperature ranging from 55 to 60 degrees Fahr. When the plants begin to make new growth care is taken to place them near the glass, if they were in the first instance some distance from it, to ensure a short, firm growth and well-furnished spikes of flowers, the latter making their appearance in from twenty to twenty-five days. Our contemporary suggests that forced foxgloves are deserving of the attention of the growers for market, and expresses the opinion that well-flowered examples would find a ready sale at a good price.

Bishop's Park, Fulham, would cost, it was estimated, £35,245 to acquire and lay out. Towards that cost the London County Council gave £5,000, and promised a further £7,500 toward the extension and completion of the park. The Parks and Open Spaces Committee recently proposed, and the Council agreed, to add £5,000 to the already promised amount, thus making a total of £17,500 paid to the Fulham Vestry for the provision of this open space.

The Jersey Potato Crop has this year fallen below the average of the past ten years, both as regards quantity and price. A statement made by Mr. Philip Barbier, Notary Public of St. Heliers, shows that the total output was 56,227 tons, realizing £338,269, or an average of £6 0s. 4d. per ton. The highest prices were naturally obtained for the earliest shipment—thus, the 160 tons shipped during the week ending May 7 realized £24 9s. 6d. per ton; during the week ending May 28, 3,667 tons were dispatched from S. Heliers, and these fetched £12 6s. per ton; the 550 tons sent away during the week ending July [illegible] only realized £2 17s. 6d. per ton. The largest output for one week was 11[illegible] tons, shipped from July 11 to July 18. The shipments commenced later than usual, for those of 1897 began on April 19, and in 1896 on April 3. The lateness affected the starting price, as the Scilly Isles and the coast of Cornwall were ahead of Jersey to a considerable extent this season. They are ahead in the majority of years for outdoor potatos; but when they are sending large quantities of tubers to market at the time of the start in Jersey, prices begin comparatively badly for Jersey growers, and fall quickly. The earliest price was only a few shillings per ton lower than it was in 1897, but in 1896 it was £32 a ton, and in 1895 it was £45. The average price per ton in recent years was £7 10s. 3d. in 1897, £[illegible] 14s. 9d. in 1896, £6 12s. 7d. in 1895, and £7 12s. 9d. in 1894. The Jersey potato crop of 1897 was grown on 8,076 acres, and if the area was about the same this year, the quantity shipped was nearly seven tons per acre, and the return [illegible] £41; besides which there was the home consumption in the island for food and seed. But in 1897 the return from shipments averaged nearly £50 an acre, and in 1896 over £58. Many Jersey growers have to pay £10 per acre for land for early potatos, and labour and manure brings up the cost to about £30 per acre. In many instances, however, forage crop is obtained in the same year after the potatos.

Presentation to a Distinguished Scotch Gardener.—A few days since Mr. William Henderson, the able gardener at Balbirnie, Markinch, Fife, was presented by the officials of the Markinch Cottage Gardening Society with a beautiful gold keyless stop watch and albert, for himself, and an elegant [illegible] cake-basket for Mrs. Henderson. This presentation was made by the wish of all classes in acknowledgment of his services to the society during the last twenty-[illegible] years, and such is the assistance given that, whereas in 1873 the takings on show days only amounted to about twenty-five shillings, the society is now able to expend in prizes and management the sum of £200, and this in a village of 1,[illegible] inhabitants and a thinly populated adjacent neighbourhood. The [illegible] (Provost Dixon), in making the presentation, alluded in eulogistic terms to Mr. Henderson's ability, more especially as a superintendent in the ex[illegible] and those who have been associated with him fully endorsed the [illegible] remarks. In expressing his thanks, Mr. Henderson said his services were always at their command, and, while thanking them for the magnificent gifts, which he was justly proud of, he more highly appreciated their confidence and [illegible]

The Cultivation of Beet in Denmark both for sugar [illegible] increased wonderfully of late years, until now the area under [illegible] 161,601 tonder, a tonder being equal to 1·363 English acres. It is estimated [illegible] for sugar production an area of about 34,000 acres is under [illegible] increase has led to the establishment of a sugar factory at Maribo. [illegible] area under beet cultivation in Denmark has increased by 68 per cent. since [illegible] During the past ten years or so woodlands have increased [illegible] trees, principally in Jutland, the area has risen from 74,000 to [illegible] Like Holland, Denmark has done a good deal of reclaiming during [illegible] and during that period has probably increased its cultivatable [illegible] tonder. Most of the land reclaimed from the sea is attached to the [illegible] and is now producing grain and grass.

The Ceylon Botanic Gardens at Peradeniya have been [illegible] useful during the past year, under the directorship of Mr. J. C. Willis. [illegible] number of experimental plots of economic plants have been planted. [illegible] for seeds of the Para rubber (*Hevea brasiliensis*) was enormous during [illegible] from a total crop in the gardens of 100,000 seeds some 88,500 were [illegible] planters. Circulars on horticultural, agricultural, and botanical subjects have been issued from time to time with a view of bringing the public more into touch with the department; two of these dealt with a disease that attacks the Cocoa tree (*Theobroma cacao*). This disease is caused by a fungus not yet determined, but which produces canker both in the stems and roots of the cacao. Camphor trees grow well in Ceylon, for plants distributed in 1895 to the Hakgala and Galle districts have respectively attained heights of nine and twelve feet.

Honours for Horticulturists.—On the occasion of the distribution of prizes to the members "de l'Union francaise de la jeunesse" M. Alphonse Gourlot, administrator of *Le Jardin* and professor of horticulture to the union, and M. A. Morgand, professor of agricultural chemistry, received the decoration of Chevalier of the Merit Agricole. By a decree dated July 25 fifteen gentlemen were appointed to the grade of Officer and sixty-eight to the grade of Chevalier of the same order. The majority of the gentlemen appointed to each grade were horticulturists.

Bulgarian Tobacco.—Agriculture is the chief industry of the Bulgarian Principality, affording occupation to not less than 70 per cent. of the people. About 23 per cent. of the land is occupied by cultivated gardens, vineyards, and farms, while a further 73 per cent. is composed of meadow and pasture lands and forests. Next to cereals the chief production of Bulgaria is tobacco, chiefly grown in the districts of Haskovo, Phillippopolis, Kustendil, and Silistria. It resembles the well-known quality of Turkish tobacco known under the name of Yénijé. The peasants are free to cultivate the plant, but the preparation and sale of tobacco are controlled by the State, which, however, with the view of encouraging exportation, returns all dues paid on tobacco which is afterwards exported. An opportunity of testing Bulgarian tobacco was afforded us at the Antwerp Exhibition of 1894, and we pronounced it good. In cereals, tobacco, and otto of roses Bulgaria has three profitable industries, and the Government is doing its duty to the best of its ability in encouraging and fostering them.

Management of Epping Forest.—The cost of the maintenance of Epping Forest is very clearly shown in the accounts relating to Epping Forest for the year 1897, which have recently been published by the Corporation. The receipts amounted to £6,832, including a contribution of £4,650 from the Corporation out of the Grain Duty Fund. Rents brought in £506; licences and tolls, £456; marking cattle, £89; sale of wood thinnings, £643; contributions by residents and Leyton District Council towards improvements at the Hollow Pond, Leytonstone, £431. The disbursements were in all £7,069. Rents, rates, &c., absorbed £337; salaries to superintendent, keepers, reeves, and staff, £2,011; police services, £58; cost of improvements at the Hollow Pond, £1,228; artificers' work, £699; and cost of wood thinning, £685.

July Rainfall.—July has long been considered one of the wettest months of the year, no one regarding a fall of an inch of rain during a single good electrical disturbance as anything very extraordinary. The present summer, however, has departed from the usual course, and that instead of being a thundery, wet month, July proved quiet and dry; indeed, seldom has it been so universally dry, for the returns show that in no locality within the bounds of the United Kingdom has the rainfall amounted to the average. Taking the country as a whole, July ought to produce about three inches of rain, while last month yielded barely an inch. Eighteen out of thirty representative stations had less than an inch, the total quantity measured on Belfast Lough and the Mersey, and on the coasts of Devon and Kent, being under half an inch, and the Scilly Islands had to do the best they could with just a quarter of an inch, which is only ten per cent. of the usual allowance for these islands. There were several other districts with less than twenty-five per cent., the Hebrides, lying in the path of all the rain-bearing disturbances from the Atlantic, alone boasting of as much as eighty per cent. of the normal. Over the greater part of the country rain was experienced on only from three to ten days. The heavy deficiency thus indicated for the month increased the loss which had been shown for the first half of the year, the west of Scotland and the southern half of England being from four to five inches in arrears. Most other regions were at the end of July from two to four inches short, but the north-west of England has had the average amount, and the north of Scotland an excess of six inches. In London we had rain on seven days last month, but the quantity of water deposited did not aggregate three quarters of an inch, the average being two and a-half inches. During the seven months ending with July the metropolis had only eighty-seven rainy days, and the total fall of eight inches and a-quarter has to be compared with the usual average of over thirteen inches, so that we are at the present moment nearly five inches below the average. The heavy rains experienced over a wide area on August 6 and the two following days have done something towards restoring the balance, and assisting fruit trees and the various garden and farm crops in need of increased moisture at the roots.

Mr. Peter Barr, founder of the firm of Barr and Sons, Covent Garden and Long Ditton, is touring round the world, as our readers have already been informed. He was recently at Quaker City, and is described by a writer in an American contemporary as a hale and hearty gentleman who, although he has passed the seventy-third milestone, thinks he is young enough to begin a tour of the globe, which he expects to complete at the Paris Exposition of 1900, and that unaccompanied. This is unnecessary, as his genial face will obtain him an "open sesame" wherever he goes, excepting Spain, for I am afraid she may have heard how he has so favourably expressed himself towards Uncle Sam. It is many years since the worthy gentleman climbed the mountains of Spain in search of the golden daffodil which, among the many other well-known bulbous plants, has made him famous. The writer well remembers visits paid to the store in Covent Garden when Mr. Barr was the Queen Bee of the hive, and congratulates him that he is now able to enjoy the honey gathered there.

Window Gardens.—Writing in advocacy of extending and improving window gardening in the metropolis, Sir H. Maxwell, Bart., M.P., observes: Nothing less than the precession of the equinoxes can ever render London an open-air city. That "Queen's weather," which made the Jubilee summers of 1887 and 1897 memorable among decades of fitful or adverse seasons, would enable us, could we count on it, to give ourselves al fresco airs, to line our pavements with café chairs, to dine and sup under the stars, and use our houses only for work or sleep; but, as things are, we have to pay the penalty of disregarding the obvious lesson of Nature, so long as we persist in swarming into London when it is least habitable, instead of putting off our work and amusement there till winter, when coal fires make the town comfortable. Ebbene! if we can't end it we might surely mend it, by importing summer finery in more liberal measure into our streets. Window-boxes—why are they so few? Partly because people who take a house for a few weeks or months often grudge the expense of furnishing them. The mode prescribes table decoration on a liberal and costly scale; many a dinner table is decorated at a price that would fill every window of the street front with flowers; flowers, too, that would give pleasure, not for a couple of hours to a score of indifferent guests, who care more for the plats than the parterre, but to every dweller in the house and every passer-by in the street; flowers that would not wither in a night, and add to the morning's mass of decaying refuse, but living flowers that would flourish till the autumn frosts, each green leaf doing its work in sweetening the atmosphere for a million pairs of lungs. Be it far from any one to discourage the flower trade; may it long flourish, pretty and prosperous! Only, if there is money to spend on it, shall it all be on flowers for a night, and not part of it on flowers for a season? From my writing table I have across my flowerless sill a view of twenty-four houses over the way, in some of which I have partaken of liberal hospitality at tables. But only two out of these four-and-twenty houses display growing flowers in the windows. Fashion is conveniently impersonal; let us lay the blame on her, and reflect if we could not get more lasting enjoyment out of our flower bills—for ourselves and, less selfishly, for the man in the street.

Professor E. Ray Lankester has been appointed successor to Sir William Flower as director of the Natural History Museum at South Kensington.

Scarcity of Summer Insects.—One effect of the prolonged cold of this year's ungenial spring is to be seen in the remarkable scarcity of many of the familiar summer insects. Wasps are less plentiful this season than they have been for many years, and the absence of butterflies is not less remarkable. One may spend day after day in remote country places, where the summer air is generally dancing with them, without seeing more than a very occasional specimen, even of the most common varieties. The gorgeous autumn butterflies may yet come out in their usual numbers, but the more familiar browns and exquisite little blues and coppers, without which the midsummer meadows and hedgerows look curiously lifeless, have been greatly diminished in number.

Plant Exchanges.—The authorities of the Museum d'Histoire Naturelle de Paris have issued a list of the hardy and greenhouse plants they offer to botanic gardens in exchange for plants which are required in the establishment.

Italian Importation of Manures.—Through Genoa, its principal port, Italy imported fifteen thousand tons of manure during 1897, this consisting chiefly of phosphates and guano. Of this quantity America sent 7,735 tons, Germany 4,307 tons, and Austria 2,826 tons. The total importation was valued at £95,738, as against £101,024 for 15,785 tons in 1896.

A Cure for Corn Smut.—Mr. T. L. Jensen, of Copenhagen, has for a considerable time carried out experiments with a view to effectively combating the attacks of the various "smuts" or "rusts" that attack corn crops, and he now claims to have discovered a suitable medium which is called "Ceres Powder." Both grub and smut are combated successfully, the crop is increased, and weeds decreased by its use. Notwithstanding that Mr. Jensen had made numerous experiments during former years upon crops raised from seed prepared with this powder, he thought it would be best to have a large number of systematically planned experiments carried out by practical farmers without his direct co-operation. These experiments, to the number of fifty-seven, were duly carried out, each taking an average of four hundred and twenty English square yards, and the results obtained are comprised in the following main points: 1. The number of smutted ears of corn was decreased to nearly one-fifth through the steeping of oats and barley. 2. The weeds were decreased by about three hundred kilos. per hectare (=2·47 acres). 3. The value of the crop was increased through the steeping of oats and barley by, on an average, of 23s. per hectare. It is therefore computed, says Consul Boyle, that if the whole of the seed sown in Denmark, amounting to about 844,400 hectares of oats, barley, and matured meslin were steeped in Ceres, it would increase the net revenue from Danish agriculture by nearly £1,000,000 sterling. The Ceres powder can also be used with advantage against diseases which attack all roots, and materially increases weight. Ceres powder is not sufficiently effective against smut in wheat and rye, but to these another material, called "Ceres Steep," is applied.

The Manufacture of Sugar from Beet goes on apace in the United States. In the Portland district of Oregon, it having been proved that the soil and climate are suitable for the cultivation of sugar beets, arrangements have been made to erect a refinery at La Grande, in Union County, by Utah capitalists interested in the refinery at Los Alimetos, California, and it will be a duplicate of that factory, to cost £80,000. It is estimated to consume 350 tons of beets, and to turn out 35 tons of granulated sugar per day with a season of 100 days. Professor Shaw says the average for sugar beets is two per cent. more sugar in juice than in California. The factory has contracted with farmers to grow annually for five years 3,000 acres at four dollars (16s.) per ton. This business might be worthy of consideration by English capitalists, and is capable of great extension.

New Plants, Flowers, and Fruit.

On July 27 the Floral Committee of the Royal Horticultural Society met at the Chiswick Gardens to examine the extensive trial of annuals there conducted, and also to make such awards as seemed necessary to meritorious annuals, cannas, sweet peas, carnations, and violas. A large amount of work was done, and the committee awarded three marks to quite a number of subjects. The carnations were all seedling forms, raised from seed sent by Mr. J. Douglas, and now flowering for the second time at Chiswick; the names were given by the committee. Judging from the amount of layering that is being done now, we presume the Council intends to place carnations upon the next distribution list.

Cannas.

La France.—This has immense flowers, nearly six inches across, with broad, drooping segments; the colour is deep carmine, heavily veined and shaded with crimson scarlet; the foliage is dark purple. × × × at Chiswick, July 27. Messrs. J. Veitch and Sons, Chelsea.

Reichskanzler Furst Hohenlohe.—A handsome large-petalled variety, with pale lemon-yellow ground colour, freely shaded and streaked with golden yellow; the small segments in the centre are speckled with vivid scarlet. × × × July 27. Messrs. J. Veitch and Sons.

Hofgartendirector Wendland.—A most brilliant crimson-scarlet flower, with golden margins to the segments; fine truss and bold flowers. × × × July 27. Mr. Pfitzer, Stuttgart.

Chiswick King.—This is a very handsome and large-flowered canna, raised at Chiswick by Mr. S. T. Wright, the society's superintendent. It has very broad petals that are of a very rich and deep orange-scarlet colour suffused with crimson. Segments bold and substantial. × × × July 27. Royal Horticultural Society.

Antirrhinums.

Dwarf Yellow is a fine strain, the plants making bushy specimens, growing about twelve or fourteen inches high, and bearing sturdy spikes of large and deep yellow flowers. × × × July 27. Messrs. J. Veitch and Sons.

The Moor is a dwarf-growing antirrhinum bearing long spikes of very deep and dark crimson flowers. This and the above provide a strong contrast. × × × July 27. Mr. W. Marshall, Bexley.

Violas.

Marchioness.—A lovely white bedding variety with small, yellow eye. The flowers are almost entirely rayless; fragrant and free. A.M., R.H.S., July 27. Messrs. Dobbie and Co., Rothesay, and Mr. J. Forbes, Hawick.

The Mearns.—This is a well-known variety, with the three lower petals rich violet-purple, and the upper two soft lilac shaded with violet. × × × July 27. Mr. Forbes, Hawick.

Bridegroom.—A very pretty viola, lilac with deeper veins, rayless, yellow eye, very free and dwarf. × × × July 27. Mr. J. Forbes.

Gipsy Queen.—A curiously streaked variety, having irregular bluish markings on a white or pale bluish ground. A variable form. × × × July 27. Messrs. Dobbie and Co.

Border Carnations.

Firefly, rich rosy-scarlet, a soft shade; very fine and vigorous.

Rosy Morn, a pretty flower, fringed petals, deep rose, with a distinct red suffusion.

Cygnet is pure white with a silvery hue; very fragrant and free, and a non-burster.

Black Douglas is an intense marone-crimson flower, fringed edges, and a non-burster.

Goletta is very distinct and effective, broad petals, white, heavily flaked and streaked with deep rose and soft red.

Lady Primrose is well named, the flowers being of a pretty primrose-yellow shade; very free and strong. × × × to each, at Chiswick, July 27. Mr. James Douglas, Great Bookham.

Candytuft Rose Cardinal.

This grows about twelve inches high, and makes pretty bushy plants that carry an abundance of deep rose-coloured flowers on stout trusses. × × × July 27. Messrs. Watkins and Simpson.

Eschscholtzia Mandarin.

A brilliant annual, growing about fifteen inches high and carrying a wonderful crop of deep orange-yellow flowers. × × × July 27. Messrs. Watkins and Simpson.

Gypsophila elegans.

This is pure white form, producing its stellate flowers on graceful and light growths. × × × July 27. Messrs. Watkins and Simpson.

Papaver Danebrog.

A large-flowered poppy, with the base of the flower white and the upper part deep scarlet; very effective; about two-and-a-half feet high. × × × July 27. Messrs. Watkins and Simpson.

Poppies.

Cardinal has big double scarlet flowers lightly striped with white; the prominent petals are laciniate. This grows about one and a-half feet high. × × × July 27. Messrs. Watkins and Simpson.

White Swan, very handsome, double, and with immense full and pure white blooms; two and a-half feet high. × × × July 27. Messrs. Watkins and Simpson.

Leptosiphon roseus.

This is a pretty dwarf annual with pretty and narrow leafage, and bearing a profusion of small but brilliant rose-coloured flowers. The plants form dense specimens about four inches high, and these are admirably suited for bedding or carpeting. A.M., R.H.S., July 27, at Chiswick. Messrs. J. Veitch and Sons, Chelsea.

Clarkia elegans rosea.

A handsome double-flowered annual, producing masses of brilliant rose-coloured flowers. It grows about eighteen inches high, and is altogether a first-rate plant. × × × at Chiswick, July 27. Messrs. J. Veitch and Sons, Chelsea.

Godetias.

Rosea alba, a fine form growing about eighteen inches high, and bearing a profusion of flowers that are of a delicate and soft rose hue save for a dark rose zone round the eye. × × × at Chiswick, July 27. Messrs. J. Veitch and Sons.

Gloriosa is a dwarf form, not exceeding a foot in height; flowers large, dark crimson with central purple shading. × × × Messrs. J. Veitch and Sons.

La Belle is less than a foot high and carries a profusion of dark, red-purple flowers shaded with rose. × × × July 27. Messrs. J. Veitch and Sons.

Butterfly is a lovely white variety with crimson blotches. × × × July 27. Messrs. J. Veitch and Sons.

Whitneyi grows about fifteen inches high, and has dull crimson flowers, tinged in the centre with rose. × × × July 27. Messrs. J. Veitch and Sons.

Brilliant has deep and bright crimson flowers, each having a white eye. This grows about ten inches high. × × × July 27. Messrs. Watkins and Simpson.

Fairy Queen produces its white flowers, blotched with red, in great profusion. It is a very dwarf variety of great merit. × × × July 27. Messrs. Watkins and Simpson.

Duchess of Albany has delicate rosy-blush flowers when first expounded, but these soon turn white; a very free form. × × × July 27. Messrs. Watkins and Simpson.

Viscaria cardinalis fulgens.

This is a very pretty annual that deserves more extended cultivation. The blooms are of a deep and handsome crimson scarlet hue and produced with the utmost freedom. × × × July 27. Messrs. Watkins and Simpson.

Alyssum maritimum minimum.

A very dwarf annual, about four inches high, spreading habit, and covered with white flowers. × × × July 27. Messrs. R. Veitch and Sons, Exeter.

Cypripedium Olivia.

A pretty hybrid with pink petals that are lightly dotted with purple and veined with deep rosy-red. The broad dorsal sepal is white at the apex and sides, has a greenish central tinge, and upright lines of reddish-rose. The full lip is almost white, the upper surface being flushed and veined with rose; the infolding lobes are heavily speckled with red. The plant is the result of crossing C. tonsum with C. concolor, the former being the seed parent. A.M., R.H.S., August 9. Messrs. H. Low and Co., Enfield.

Sobralia Sanderiana.

A very fine sobralia with soft lilac sepals and deep purplish rose petals. The lip is large, having an intense orange throat surrounded by a fine broad border of deepest rose, suffused with rich rosy-crimson. A.M., R.H.S., August 9. Mr. Ballantine, gardener to Baron Schröder, Esq., The Dell, Egham.

Vanda Batemanni.

This stately plant is not often seen in flower; it has a long, erect scape that will carry as many as twenty flowers, these expanding in succession from the base upward. The flowers are about two and a-half inches across; the petals are thick, rather narrow, fleshy, falcate, yellow, spotted with crimson, but purplish at the back. The sepals are similar in shape and colour. Lip triangular, purplish-crimson with a ridged and incurving front lobe. The flowers continue in good condition for a very long time. A.M., R.H.S., August 9. Mr. C. Salter, gardener to T. B. Haywood, Esq., Woodhatch, Reigate.

Carnation Nox.

A very fine self or border variety, with large shapely blooms of the most intense blackbird-crimson colour, a shade that suggested the name of the variety. A.M., R.H.S., August 9. Mr. James Douglas, Edenside, Great Bookham, Surrey.

Nelumbium nuciferum speciosum.

This has huge double flowers of a soft creamy-white colour. The outer row of segments are very broad, but the numerous petaloid stamens are much smaller and less shapely, but make up a full flower. The leafage is very large and bold. F.C.C., R.H.S., August 9. Mr. O. Thomas, Royal Gardens, Windsor.

Gladioli.

W. B. Child—A handsome form, with rich, rosy-scarlet flowers, the lower segments having very decided scarlet shading, while the lip has a creamy base. A.M., R.H.S., August 9. Messrs. Kelway and Son, Langport.

Lemoinei Vesuvius.—A very sturdy and showy form, with broad and rounded segments of a rich blood-red hue, shaded at the base with yellowish-orange.

Lemoinei Baron J. Hulot.—A most distinct form, with violet-blue flowers; the lower segments are heavily suffused with intense purple blue. A.M., R.H.S., August 9, to each of the last two. Mr. M. Prichard, Christchurch.

Furcræa Watsoniana.

A handsome plant with leaves nearly two feet long and three inches broad. The centre of the leaf is greyish-green, with a border of creamy-white on each side; then comes a bright green area and other longitudinal stripes of creamy-white. The plant is vigorous, very distinct, and most handsomely marked. F.C.C., R.H.S., August 9. Messrs. F. Sander and Co., St. Albans.

Nymphæa ignea.

One of the darkest or deepest coloured varieties of the new race of hardy water lilies. It has fairly large flowers that are of a deep and handsome crimson colour when fully expanded; the outer segments are very dark rose tinted with crimson, the inner and smaller ones being the most finely coloured. A.M., R.H.S., August 9. Mr. J. Garrett, gardener to A. B. Freeman-Mitford, Esq., Batsford, Moreton-in-the-Marsh, Gloucester.

Cypripedium Mrs. Reginald Young.

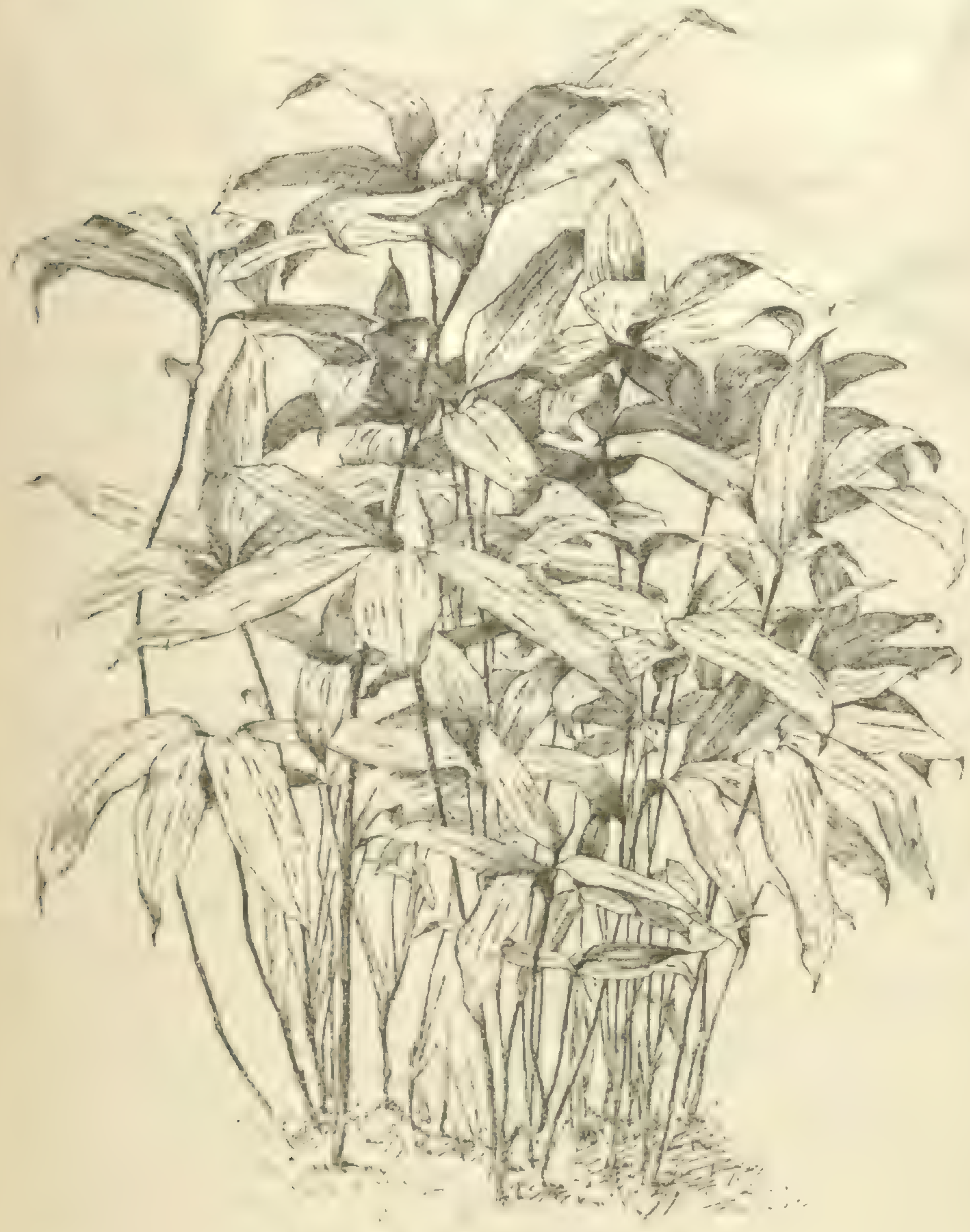
An extremely quaint and yet handsome cypripedium, obtained by crossing C. Lowi with C. Sanderiana. Two flowers were borne on the one long spike, and their long drooping petals were great attractions. The petals are about half an inch broad and eight or nine inches long, curving outwards, and then drooping down, slightly twisted; greenish white at the base, but rosy-crimson for the rest of its length; marked throughout with deep crimson. Petals bright green, with longitudinal bands of deep claret purple. The short but broad and [illegible] coloured with rather bright brown upon the face, but this colour fades into rose below and behind; column green and hirsute; a very wonderful hybrid. F.C.C., R.H.S., June 28. Messrs. H. Low and Co., Bush Hill Park, Enfield.

Armeria cæspitosa.

This is a curious and pretty little Spanish thrift, a densely-tufted perennial about four inches high, producing its heads of rose-coloured flowers very freely during April. Though described by Ortega in 1762, the species does not appear to be very widely known even now, and yet it is a charming little rockery plant. The narrow, recurving leaves are plentifully produced, and are about two-thirds of an inch long, ending in a sharp white tip. The individual flowers are fairly showy and large, being half an inch broad; the five petals are obovate-spathulate, two-lobed at the broad apex, and of a pretty pale rose shade. *Bot. Mag.*, t. 75[illegible].

ARUNDINARIA METALLICA.

INCLUDED in the comprehensive and admirably grown collection of bamboos contributed by A. B. Freeman-Mitford, Esq., C.B., to the meeting of the Royal Horticultural Society, held on July 26th, were several new and rare species which deservedly obtained recognition from the Floral Committee. These new forms are enumerated and described in the GARDENERS' MAGAZINE of July 30th, and we give herewith a characteristic figure of Arundinaria metallica, a dwarf growing and handsome species, remarkable for its hardiness, which received an award of merit. As so well shown in our illustration, it is somewhat similar in character to A. palmata and A. Veitchi; and it has stout culms, with dark grass-green leaves, about an inch and a-half in breadth, from eight to nine inches in length and acutely-pointed. The most important characteristic of this form is perhaps its hardy constitution, and in proof of its adaptability for cultivation in districts where the climatic conditions are not specially favourable to bamboos, Mr. Freeman-Mitford informs us that in the gardens of his residence—Batsford Park, Moreton-in-the-Marsh, the leaves do not become browned during the winter, as in the case of the majority of the species, and that [illegible]hes in the northern islands of Japan, where the two closely allied forms, A. palmata and A. Veitchi, are unable to exist in consequence of the severe weather experienced at certain seasons of the year.



ARUNDINARIA METALLICA.

Protection of Birds.—The Committee of the Society for the Protection of Birds has issued a circular letter urging landowners, shooting tenants, and farmers to use their authority with their keepers and others to prevent the free destruction of birds on their land, and to give instructions as to what birds only may be destroyed, which, in the words of the circular, "should properly be only those birds that, from their abundance in any particular district, may do real harm."

Onions for Seed Production.—In planting a dozen bulbs of nearly as many assumed diverse varieties, flat, round, oval, and crimson, all in a lump, just to enable insects to work their will with them in the labour of inter-crossing, I may have done a wrong thing; but I am not at all certain that any good results from the increase of names, called variation, that goes on yearly. Any one variety of [illegible] brown or yellow onion, round or globe shaped, will always give two or [illegible] forms that may be termed distinct, yet all from the same stock. What, then, is the good of names? I may get from out of my mixture of varieties some interesting combinations, but it would be absurd to name them in any case, as [illegible] and variation would go on for years. Also, if from such a mixture a [illegible] raises all sorts of forms and colours, he is much more likely to obtain from [illegible] intermingling bulbs that would give him round ones over a long season than would be the case where they are all one variety. But, all the same, I have [illegible] the finest bulbs of the various forms I could get. It is now fully recognised that the larger the bulb the finer will be the stock its seed will produce. That is [illegible], apart from modern exhibition requirements, why large bulbs are now so widely and so splendidly grown; whilst, as a rule, the larger roots of any [illegible] forms also become, the greater the proportion of water they relatively contain. That may be so to some extent with onions, but no doubt recent [illegible] has led to the production in these large bulbs of greater solidity than formerly was found. That is no doubt to some extent due to the planting for seed [illegible] the hardiest and, of course, the best keeping bulbs.—A D.

FERN HUNTING IN SCOTLAND.

A RECENT spell of fern hunting in the Highlands and elsewhere in Scotland, and its results, merits, I venture to think, a brief descriptive article. Making Aberfeldy my first stopping place, I found, as I had previously done, that I was in the centre of a grand hunting district, though the range of species was more limited than in our south-western counties of England, the Hartstongue and Polystichum angulare being nonexistent, or, at any rate, so rare as to be undiscoverable, which is probably a safer conclusion to arrive at. Lastreas filix-mas, pseudo-mas, montana, and dilatata were in profusion; Athyrium filix fœmina held her own amongst the male ferns as doughtily as any new woman among mankind. Polypodiums, vulgare, dryopteris, and phegopteris, were also well to the fore, Cystopteris fragilis peeped out from many a stone dyke or rocky crevice. Asplenium trichomanes and A. adiantum nigrum occasionally were plentiful, and A. viride lurked in damp nooks in the rocky walls of out-of-the-way glens, as well as high up on the hills in the open. Polystichum aculeatum was not plentiful, but cropped up unexpectedly as fine solitary specimens here and there, and in some of the glens made a fair show, hanging down from crevices in the precipitous rock walls, with great bunches of old and dead fronds pendulous beneath them. P. lonchitis, the holly fern, is rarely obtained *in situ* without a climb of between two thousand and three thousand feet, but I was conducted by a friend, under a vow of discretion, to a populous habitat of this fine fern, situated certainly below one thousand four hundred feet above sea level, and growing there in profusion, and to the full size of eighteen inches or more in height, its bright green fronds sticking up boldly through the heather, so that at a distance I took them for robust fertile fronds of Blechnum spicant, which, by the way, is also one of the plentiful ferns of the district.

Hunting, of course, for varieties, I came across a curiously-partial congested form, all the fronds having most of the pinnæ pinched as it were together. By the roadside, close to this habitat, Botrychium lunaria, or the moonwort, was found as tiny plants, under an inch high, growing in dry soil among short grass, where my conductor informed me he had known it to exist for thirty years. On my return from this trip a visitor showed me a plant he had just gathered close to the Tay Bridge at Aberfeldy, but on searching for another I failed to hit upon one, and got instead a remarkably pretty plant of one of the plantain weeds, each leaf margined with pure white. As the trip to the aforesaid holly domain involved some miles of road, fringed more or less all the way with ferns, I need hardly say that a four-mile speed was not maintained, especially since no less than three promising finds rewarded my investigations, viz., a congested form of Lastrea montana, a variegated form of L. pseudo-mas, and a crispate specimen of the same species; both these last in the same stone dyke. The day previous, wandering by the Moness water, I found, and took home in my handkerchief, a remarkably fine specimen of the Prickly Shield fern, the fine points of which were much appreciated when I handed the bundle over for inspection, and a hedgehog rolled out upon the carpet, after being dropped like a hot potato on account of the points in question. L. montana truncata, with its square and thorny tips, fell twice to my lot at Aberfeldy, and twice again at Strathblane, my next stopping place. A very large plant of this variety I installed in my host's garden at Aberfeldy, and named it Auld Hornie, as a fitting and descriptive local cognomen. On the Kenmore road I found L. filix-mas. mediodeficiens, a form with all the central pinnæ reduced to knobs. Considering, however, that I assiduously hunted for more than a week I came again to the conclusion, as I had done on previous occasions, that the ferns are not very sportive in the district, my "bag" being confined to the finds already cited. At Strathblane, where in previous years Athyrium filix-fœmina revolvens, deltrideum, and medio-deficiens had fallen to my lot, I was more fortunate, two very handsome forms of Lastrea filix-mas rewarding my search, one extremely folious and perfectly barren, and the other with lanceolate pinnæ. These, a ramose and a serrate Blechnum, a very folious Lastrea montana, and a curious form of the same species, with some fronds splashed with yellow, and other fronds entirely lemon-coloured, constituted no bad reward for my pains.

While staying here I profited by my nearness to the spot where that wonderful lady fern A. f.-f. Victoriæ was found to drive over to view it, and after seeing two grand specimens of the original find at Buchanan Castle, Mr. Crosbie, gardener to the Duke of Montrose, accompanied us to the spot. Fortune favoured me, for though thirty-five years have elapsed since the discovery, Mr. Buchanan, a farmer residing close by, who was present when it was dug up, was still to the fore, and joining our party, led us to the identical place. It originated on a grassy bank by the road side, and when found was a fair sized specimen with several crowns. Mr. Cosh, a student from Edinburgh, was getting over the stone dyke, when he suddenly found the fern at his feet. He then went to Mr. Buchanan, who was cutting the grass in the vicinity, and asked him to take care and not cut down the fern, and, contrary to tradition, which states that it remained there two years before it was removed, only a day or two elapsed, its rarity being fully appreciated at the outset. One division went to the Bridge of Allan, and another to Buchanan Castle. Some enterprising nurseryman expressed in the autumn a strong wish to have an "impression" of a frond of so unique a plant, and sent some gummed paper for the purpose, and his wish being unsuspectingly gratified, the adherent spores were not long in forming a marketable stock. This is the history I obtained direct from headquarters, and on the very spot itself, and is, I think, sufficiently circumstantial to merit chronicling.

I may add that at present there is no lady fern near the site of the find; a clump of L. pseudo-mas fringes the dyke foot, and on the other side of the dyke the ferns of the district are fairly plentiful. If variety be induced by environment, there must have been something peculiarly subtle here to lead to such a sport, for, as is obvious, no specially peculiar conditions are visible at all to the eye.

CHAS. T. DRUERY, F.L.S., V.M.H.

CHRYSANTHEMUMS.

VARIOUS HINTS AND OBSERVATIONS.

If I were asked to which class of devotees of the "golden flower" belongs the greatest credit for their productions, I should unhesitatingly reply, the amateurs. Because, amongst this section of growers, one meets with men who have every unfavourable circumstance to overcome, and who are at all possible inconvenience in the cultivation of their plants, and yet, in spite of these drawbacks, the keenest enthusiasm and great thoroughness in details of cultivation appear. The true nature of Englishmen is seen in this persistence in the face of difficulties, and the ultimate success which attends such application is productive of so much the greater satisfaction. One is proud to have made friends amongst such men, and the "same touch of nature" which gives gardeners such an easy introduction to each other is invariably productive of mutual good. The many enquiries and siftings as to the causes of this or that failure or peculiarity, and frequent comparing of notes, is certain to give a stimulus to gardening by making the methods of cultivation more intelligible and simple. Chrysanthemums have done a great deal through the enthusiasm created by their beautiful blossoms to stimulate a general love of flowers, and the energy and devotion which is now applied to this recreation for spare hours by business men will do something towards the fulfilment of Dean Hole's lately expressed wish for "more beautiful gardens."

The month of August should find pots well filled with roots and top growth rapidly progressing. Following previous advice with regard to feeding, we may now give the plants a top-dressing of rich compost to encourage further root action on the surface, and so strengthen and assist the building up of the buds, which are now appearing in various stages. A soil mixed as for potting, but with the addition of about one-twentieth part of the bulk of one of the several excellent artificial manures is very suitable. It may be applied after the surface has been just lightly stirred over, and be pressed on firmly with the hands. Sufficient space must be allowed to ensure a proper quantity of water being given; that is, not less than one inch clear below the rim of the pot. If this is disregarded, and the pots are overfilled, the consequence will probably be that the lower roots will suffer from an insufficient supply of moisture, especially so if the pots do not stand level. In about ten days roots will be freely running through the new soil, and during this time no liquid manure will be required, and all water should be given through a fine rose to prevent washing away the surface before it becomes consolidated. The removal of suckers from the base and all lateral shoots as they appear on the stems will need attention; the prompt pinching away of these all tends to promote a more satisfactory development of the main stems.

The "taking" of flower buds will prove the most interesting occupation during the remainder of this month. It is too late now to allow growth to go on again from any bud showing in the points, but notes taken carefully of the dates at which these buds appear, and supplemented later on with their successful development or otherwise, will prove most useful data for future seasons in the management of the plants. Very forward buds may be retarded a few days by leaving the surrounding young shoots until they are two inches long. If one or two of these growths are left some few inches below the bud they serve as a kind of safety valve for the energies of the plant, and thus prevent, to a certain extent, the early buds from being forced into a coarse, abnormal size, from which good blooms rarely result. It is the too early taking of buds on Madame Carnot which has frequently led to disappointment. August 20 is quite early enough for this, and from thence onward to the end of the month is the best time. Those who have been anxious about the leaves of this variety turning yellow below the "break" shoots will, ere now, have found that the trouble soon ends. I have not met with a grower whose plants have entirely escaped this peculiarity, hence there is some consolation in the fact that we are all "in the same boat." Later growth has never suffered with us, and blooms of first-rate merit are produced on plants which have lost foliage in the early part of summer through this weakness.

Buds of incurved varieties are equally troublesome, if not more so, to secure just at the proper time. Many of the old sorts, such as Queen of England and its sports; Princess Teck with its several offsprings; Lord Wolesley, Prince Alfred, and others, must be timed for the last week of the month. Others of the newer introductions require to be taken by the middle of August, as also do those of sports from Princess of Wales. Many of those introduced during the past few years have much of the Japanese habit of growth about them, and if allowed to go on to a late bud are likely to come very thin and small; Mrs. R. C. Kingston, Duchess of Fife, and J. Agate are instances. The pink sport from Madame Carnot has a slightly different habit in growth from its parent, but is very free, and has exhibited no tendency to disease so far. It is much to be hoped this may prove as fine in form as its parent, and Mr. Jones is assured of its distinctness of colour. The stock is in the hands of this well-known grower, who is giving it a good trial, and will, doubtless, prove its merits by November, and be enabled to give growers an opportunity to judge for themselves.

Amongst the season's novelties are several of exceptionally sturdy and dwarf habit. Chatsworth, Surpasse Admiral, Belle of Castlewood, Georgina Pitcher, Madame Ferlat, and Souvenir de Madame E. Rosette are very noteworthy. The excellent Mary Molyneux is quite a tall grower, but this will not prevent its being largely grown, so good are the blossoms.

Earwigs are becoming troublesome, and the caution to destroy these pests is only necessary to new cultivators. Where bamboo stakes are used the tops should either be cut off at a joint, or the end filled with putty, otherwise, if a hollow space is left it forms a hiding place for the insects. Occasionally green caterpillars and a pale green fly, rather larger than a full grown aphis, will be found; the latter is very mischievous in its attacks on the tender growths, and must be caught by hand. Mildew will doubtless make its appearance during this month on the under sides of the foliage of certain varieties. Those with heavy, drooping leaves are most susceptible, and should be examined frequently, so that the least attack may be checked by dusting on flowers of sulphur. This is a certain remedy, and may also be dusted amongst the plants lightly, as a preventive. Those sorts which make extra large leaves may have a very few removed from the parts of the stem most crowded, this will admit of better maturity of the stem, and help ward off attacks of mildew.

Trent Park Gardens. W. H. Lees.

STRAWBERRIES AT MAIDSTONE.

Through the kindness of Mr. George Bunyard, I have recently had the great pleasure of inspecting and comparing the firm's very large collection of strawberries, comprising several acres in splendid condition and culture. We all know this firm to be second to none as regards fruit tree culture, but perhaps it is not generally known that Mr. Bunyard has one or two hundred acres of land on the opposite side of Maidstone to the fruit-tree nursery, devoted principally to the growth of runner strawberries, an immense quantity of all the best peas for seed (all sticked), beans, and one quarter of sixty thousand Superlative raspberries. Bearing in mind that it is not every gardener, and others interested in strawberries, who can spare the time to make such examination, I have thought that a few notes jotted down at the time might possibly be of service and interest to your numerous readers.

To see the many varieties growing side by side, and note their various characteristics is most interesting. "What a grand grower and cropper that one is," was my first exclamation on entering the grounds. "Yes, that's Royal Sovereign. We have been gathering from these plants for the last fortnight," was the reply, and to judge from the crop of half-ripe and green fruits swelling, it struck me that another fortnight would not exhaust the crop. Of course, I had to taste it, and although not quite equal to such varieties as Dr. Hogg and The Countess, still I have no hesitation in saying that I should consider it the best all round strawberry grown. Thousands of runners of this variety are layered into small pots annually for forcing and general purposes, as customers find that these plants, grown at such a high elevation, and open to all points of the compass, are so sturdy, and thus better able to stand the rigours of a severe winter. La Grosse Sucree was good; this, from my own personal experience, I find one of the best for forcing, but Edward Lefort struck me as being an improvement upon it. This latter has received a first-class certificate R.H.S. Latest of All is a misnomer as regards name; this was raised from British Queen—large, fine appearance, good flavour. To prolong the season this should be tried under a north wall; a very desirable sort.

Waterloo is one of the best late sorts; large and good; a most useful and desirable kind, planted on an east border; we have some grand fruit left. Its colour, I hear, is against it for market purposes, as it gives one the idea when gathered as being stale, but when it is well known I think it will be in great demand. Wonderful.—Enormous cropper, excellent flavour, very much like Vicomtesse H. de Thury, but struck me as being paller. Trollope's Victoria.—Mr. Bunyard recommends to be planted where others do not succeed, such as in or near towns; it is a good grower and cropper. Louis Gauthier is an enormous cropper, blush or pale pink, of excellent flavour, and makes a very pretty dish. Leader was carrying a good crop, and does better than most varieties in dry weather; I cannot say much for its flavour. Monarch was grand, very large, good appearance, and are worth growing, although the flavour is only second-rate.

Wallruff is new, an enormous cropper, and of excellent flavour. La France bears a good crop, is very handsome, bright, and one of the best. Stephens' Wonder is very poor, both in appearance and flavour. King of the Earlies is very juicy, and of excellent flavour, one well worth cultivating. Sensation is properly named when one sees the crop it carries; good appearance, but poor flavour. Countess and Dr. Hogg were in grand condition, the flavour of both being superb; the former should be planted one foot apart in the rows and eighteen inches between the rows; these two were the very best flavoured sorts that I tasted. Auguste Boisselot is of good flavour and an enormous bearer; on one plant I counted twenty-five trusses of fruit; runners difficult to obtain. Saint Joseph is a perpetual alpine, perhaps the best of its class.

Of course, a great many other sorts are grown, but those names struck me as being amongst the best, and certainly a trial should be given them. Thirty to forty thousand thumb pots are used annually for layering. A thorough examination takes place several times during the fruiting seasons, and all rogues and weakly plants are destroyed; thus the stock is kept vigorous and true to name. This process of selection is an important point with the firm. Our examination had taken us near upon two hours, and altogether I had tasted something like one hundred varieties, when at last my guide invited me to tea, which, unfortunately, I was unable to do justice to.

Badham Court Gardens, Maidstone. G. W[illegible]

English Gardens.—It is stated by Fitzstephen that in the time of Henry II. the citizens of London had large and beautiful gardens attached to their [illegible]. In the reign of Edward I. it may be collected from Hollinshed's "Chronicle" that the cultivation of the garden was extended to the more curious and [illegible] productions; but the wars of York and Lancaster destroyed all these [illegible] and gardens in general ceased to be more than pleasure-grounds or [illegible] gardens of the rudest kind until the time of Queen Elizabeth. King James I. of Scotland describes the garden at Windsor Castle, where he was [illegible] Henry V., as a place set thick with trees and alleys of hawthorn, [illegible] in each corner. Much later, in the year 1512, the great Earl of Northumberland, whose household consisted of 160 persons, "had but one gardener, who [illegible] hourly in the garden for setting of erbis, and clipping of knottes, and [illegible] the said garden clean." In the gardens of Nonsuch, the palace of Henry VIII., constructed about the year 1540, we hear of shady walks, columns and [illegible] of marble, "fountains that spout water one round the other like a [illegible] which are perched small birds that stream water out of their bills," and [illegible] objects, but nothing of the more essential part of a garden—its plants. [illegible] grounds of this description, indeed, have existed in England ever [illegible] Conquest.

VEGETABLES FOR EXHIBITION.

THE TOMATO.

It seems but a few years that the tomato (*Lycopersicum esculentum*) was scarcely known or grown in this country except by the wealthy and owners of large gardens, and then only to very limited extent, being grown on a south wall in the open. But now what a change; hundreds of acres of glass are devoted to their culture at home and hundreds of tons are imported annually to supply the ever-increasing demand. The difference between a well-grown and nicely-ripened tomato and a poor one is most apparent, and to have fruits in perfection they should be ripened on the plant and under glass. The hybridizers have kept pace with the times, and no doubt the introduction of so many first-class varieties has had much to popularise tomatos. Where plenty of glass is at command and good varieties are selected, there is no reason why fresh tomatos should not be had every day in the year.

I will first treat upon cultivation under glass. The first sowing should be made the first week in January in a light sandy compost in heat, and as soon as the young seedlings appear above the soil place them on a shelf quite near the glass, and just before they come into the rough leaf pot off singly into thumb-pots, using three parts leaf soil, one part loam, and a fair amount of coarse silver sand, which should be warmed to the same temperature as the house in which the seedlings are growing. The soil should be pressed moderately firm about them, and right up to the seed leaf. Water in with warm water, as no check must be given them at this season of the year, and excess of moisture both at the roots and overhead must be avoided. The next shift should be into large sixty pots, and as soon as sufficient roots are made pot again into thirty-two's, after which they should be transferred to the fruiting pots, which should be eight or ten-inch size. The aim all along should be to encourage a strong, sturdy growth, and though some plant them out, I much prefer pot culture, especially for winter and early supplies. The plants may be grown tied to stout stakes in an upright position or trained to a trellis near the glass always affording them as much light as possible. The single stem system I have found to answer best, removing all lateral growth as fast as it appears. The soil for the final potting should be three parts good fibrous loam and one part well decayed leaf soil, with some coarse sand added. The pots should be well drained, and it will be well to examine the early flowers daily, and with a camel's hair brush dust the flowers to ensure a free set, or, failing this, smartly tap the stems in the middle of the day. A stagnant atmosphere should always be guarded against, or the dreaded fungus on the leaf will be almost certain to make its appearance, but I have never found it to make any serious headway when a dry buoyant atmosphere is maintained. Manure should not be applied in any form till the plants are well set with fruit, after which it may be given freely every other watering. I prefer the drainings from the farmyard, properly diluted, to all other aids. Towards the end of April, if the plants have been properly cared for, ripe fruit may be expected. During summer and early autumn nearly any kind of house, pit, or even cold frame will produce excellent results. I have seen splendid exhibition fruit grown and ripened in a cold frame by simply digging out the ground to the required depth, and placing the pots in the front, running up the growth on rods a suitable distance from the glass. The lights should be pulled off on bright, warm days, and replaced on cold nights and wet weather. The same applies to heated brick pits, and we generally grow our autumn supplies in this way. To keep up a constant supply, a small pinch of seed should be sown once a month during spring and summer.

From December to April will be found the most difficult months for producing good ripe fruit, and unless one has means at command it is be better not to make the attempt. Well-heated, light, lean-to houses are best adapted for this purpose, and the seed should be sown early in August, and again in September, as it is absolutely necessary that the plants should be in a strong, healthy condition before placing them in their final quarters for the winter. Eight-inch pots, well drained, should be used for this purpose, and all surplus growth kept cut away. The flowers should be fertilised in the morning each day, and a fairly dry atmosphere should be maintained, admitting a little air whenever the weather will allow. The most suitable temperature for winter tomatos is [illegible] degrees as a minimum, and 65 degrees as a maximum. The fruit should always be cut immediately it is coloured, and if kept in a dry, warm room will keep well for weeks.

Except in a few favoured parts of this country, I do not advise outside cultivation to any large extent, as it is a very precarious crop, and only in hot, dry summers can it be made to pay. Besides, it is absolutely necessary, as far as my experience goes, to sow early, and bring the plants forward under glass before planting. The seed ought not to be sown later than the first week in March, and every encouragement afforded the plants by repotting when necessary, giving them a light, airy position under glass, so that they are in a stout, well-hardened condition when planted, which should be done the last week in May or the first week in June. The larger the plants the better, providing they have been properly treated. Carefully harden before planting, and, should the weather be cold and unfavourable, some protection should be given for a short time. It is useless to attempt outside cultivation unless a suitable site can be given, and without question the best position is a south wall or building. This being secured, in favourable seasons good tomatos may be obtained. Plant at a distance of about twenty inches apart, and have but one stem, removing all surplus growth as fast as it makes its appearance. In dull cold weather the plants may be partly denuded of their foliage, exposing the fruits as much as possible. After a good set of fruit is assured a thorough mulching of half-decayed horse manure should be given, and the roots kept well supplied with water. In hot, dry weather syringe the plants in the early afternoon with tepid water. Failing a south wall, the plants may be grown on a sheltered south border, or a light open sunny position, and trained upright to stout stakes, but a good distance must be allowed between the plants. Four feet from plant to plant, and five feet between the rows, should always be given. As soon as the fruit is partially coloured it may be picked and finished off under glass, and the little extra warmth will improve the flavour considerably. On the first signs of frost in the autumn all the green fruit should be gathered in and hung up in bunches to ripen in a fairly warm temperature. They will be useful for cooking purposes, will make excellent sauce, and may be kept some time for this purpose. In cold, wet, sunless seasons the outside crop is invariably attacked by the tomato disease, which often completely ruins the entire crop. I know of no remedy except to take off and burn the affected leaves as fast as the disease makes its appearance. Under glass, however, it can be dealt with, and stamped out by raising the temperature with fire-heat and keeping a dryer atmosphere. The same applies to the black spot often seen in the green fruit, but I have found but little difficulty in stamping this out by the removal of the affected fruit. A small white fly, which increases at a great rate unless checked in the early stages, often gives much trouble under glass, but persistent fumigating every night and morning for three or four days should free the plants of these. One or two applications is of no avail, as they simply fall down stupefied and make their reappearance in a day or two.

Tomatos are indispensable to vegetable exhibitors at all seasons of the year, as they form one of the most pleasing and important dishes in a collection of vegetables of any number, and if presented in good condition are bound to arrest the attention of the judges. One of the most important points to study is the selection of varieties, as it is useless to exhibit the older varieties, especially in close competion. The selection of the fruit should be made directly after they are set, leaving not more than two on a bunch, and the plants ought not to be over taxed, especially when the roots are confined in pots or boxes. Occasional doses of artificial manure should be applied, a dessert spoonful will be ample to an eight-inch pot; use also liquid manure frequently, and do not allow the plants to suffer from dryness at the roots. The fruits should be carefully cut and laid on some soft material in a dry, warm room after they are well coloured, or many will probably crack. They will keep for some days in good condition, and enable the remainder to be finished off properly on the plants. I consider that tomatos for exhibition can hardly be too large, providing, of course, they are perfect in other ways. The chief points to be aimed at are size, freshness, shape, colour, smoothness of skin, small eye, and evenness of fruit throughout; the fruits look best arranged on clean white cotton wool.

There are now numberless varieties for exhibition, but the Perfection type cannot be beaten. Among the very best selections that have come under my notice are Cutbush's Polegate, hard to surpass when at its best; Carter's Duke of York, a fine coloured variety; Sutton's Best of All, of perfect shape; and Webb's Sensation, also excellent. The above are all red skinned and large varieties. Two very fine yellow kinds for show purposes are Veitches' Golden Jubilee and Sutton's Golden Perfection, but preference ought always to be given to the red skinned kinds. Some of the small and medium fruiting kinds of both colours are of delicious flavour, and in showing a collection of tomatos and ornamental displays of vegetables some of them ought to be included; these should be put up in bunches, if possible. Sutton's Dessert, Sutton's Miniature Pear-shaped, Sutton's A 1 and Peachblow in reds; and Carter's Greengage, Sutton's Golden Nugget, Sutton's Sunbeam, and Sutton's Prince of Wales among other colours. For market and general use Hackwood Park Prolific and Chemin Rouge are among the best. For winter use Earliest of All is a great favourite, though not so pleasing in shape as many others. It is of good colour, fine flavour, and sets most freely. For outside cultivation I can very strongly recommend Carter's Outdoor; it is most distinct from any other variety I am acquainted with, and the quickest to ripen. This should become a general favourite for outdoor cultivation.

Aldenham House Gardens. E. Beckett.

Fertilisation of the Foxglove.—It must never be supposed, writes Sir Edwin Arnold in the *Daily Telegraph*, that the spring-time plunderer of rose bushes is called "humble bee" by naturalists or by other bees in any deprecating or stuck up sense. Beyond doubt "bumble" or "humming" bee is the proper name, and the handsome insect which wears it is really far more useful to the world of flowers than hive bees, or perhaps any other of its kind. Certain sorts of clover and the familiar scarlet-runner, as well as the foxglove, and other plants can only be fertilised by visits of the humble bees. There are many of that species in Nicaragua, but for want of the proper bee Belt tells us that the phaseolus, the French bean, has never produced a single pod in that country. In the same way the vanilla plant, introduced into India from tropical America, grows well, and flowers there, indeed, but has never once fruited for want of its own proper insect. The accomplished and charming naturalist just mentioned had the honour to assist Darwin himself in understanding how the humble bee is indispensable to the foxglove (Digitalis purpurea). He says: "The racemes of purple bells held up by the foxglove are methodically visited by it, commencing at the bottom flower, and ascending step by step to the highest. The four stamens and the pistil of the foxglove are laid closely against the upper side of the flower. First a stamen on one side opens its anthers and exposes its pollen. The humble bee, as it bustles in and out, brushes this off. Then another stamen exposes its pollen on the other side; then another and another; but not till all the pollen has been brushed off does the cleft end of the pistil open and expose its viscid stigma. The humble bee brushes off the pollen on to its hairy coat from the upper flowers of one raceme, and carries it direct to the lowest flowers of another, where the viscid stigmas are open and ready to receive it. If the humble bee went first to the upper flowers of the spike, and proceeded downwards, the whole of the economy of this plant to procure cross-fertilisation would be upset. The open flower of the foxglove hangs downwards. The lower part, or dilated opening of the tube, is turned outwards, and has scattered stiff hairs distributed over its inner surface; above these the inside of the flower hangs almost perpendicularly, and is smooth and pearly. The large humble bee bustles in with the greatest ease, and uses these hairs as footholds whilst he is sucking the honey; but the smaller honey bees (who would be unserviceable) are impeded by them, and when, having at last struggled through them, they reach the pearly, slippery precipice above, they are completely baffled." So intimately is the floral world linked with that of the insects.

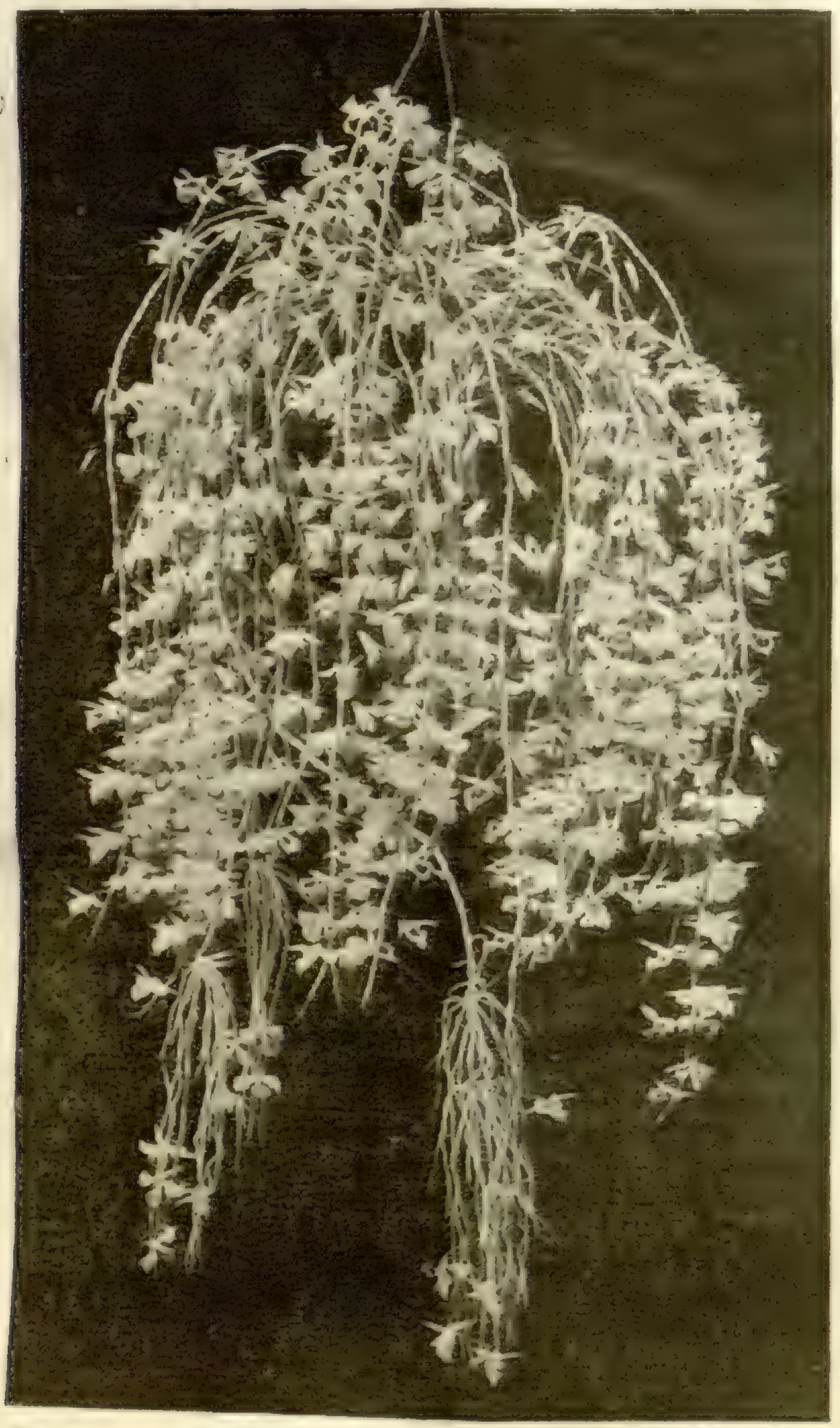
NOTES ON ORCHIDS.

ORCHID SEEDLINGS.

SEEDLING cypripediums that were repotted in spring will again require attention in the same direction, for much heat and moisture has caused the small amount of compost in the tiny pots to perish, so that fresh compost is very important; allow plenty of fresh green sphagnum, broken crocks, and charcoal. The seedlings require every care and attention, especially frequent pottings when in a growing state. The same may be said of cattleya seedlings. Dendrobium seedlings must not be interfered with unless the first small bulb is made, then they can be repotted into larger pots. All seedlings ought to be kept growing at a good pace, otherwise the rate of progression is exceptionally slow. A watchful eye must be kept for pests. Cattleya seedlings, growing on surface soil in the pots where they were sown, are now forming small leaves, and will require close watching as regards watering; keep them in a moderately moist state. These must be well shaded, otherwise the sun will destroy them and dry up the moisture they require.—T. STAFFORD, *Tyntesfield Gardens.*

DENDROBIUM PIERARDI.

This is a most interesting and beautiful dendrobium, its great interest being in its being probably the first species of a now well-known genus of orchids to be introduced to cultivation in Europe. It flowered at Liverpool in 1821, and was probably in cultivation at Kew even earlier than that. The species has a wide distribution, and is common throughout North-East India and southwards to British Burmah. It is a plant that is found at home in the mangrove swamps, and, according to Sir Joseph Hooker, it clothes the fallen trees in the hot moist valleys of the lower Sikkim Himalayas. With such a wide distribution, it is only natural that the species should vary somewhat, and such variation is seen mostly in the shape of the petals. Almost everyone is acquainted with this popular orchid, and recognises its long pendulous growths, clothed two-thirds of their lengths with pale rosy-mauve flowers, borne in pairs, and each having pale primrose lip, streaked at the base with purple. Although not a difficult orchid to manage, it is seldom that such a fine specimen of D. Pierardi is seen as that figured in the present issue, and grown from a tiny plant by Mr. M. E. Mills, gardener to Frank Lloyd, Esq., Coombe House, Croydon. When photographed the plant carried over seven hundred flowers on growths varying from two to four feet in length. It is a very fine variety, both in colour and shape.—C. C.



DENDROBIUM PIERARDI AT COOMBE HOUSE, CROYDON.

ODONTOGLOSSUM CRISPUM LEEMANNI.

This is one of the many handsome spotted varieties of O. crispum that have flowered with Messrs. L. Linden and Co., at Moortebeek, Brussels, of late. It has large flowers with broad segments, white, with a faint suffusion of rose here and there, and with a few very large and irregular blood-red spots on sepals, petals, and lip. The lip has a large yellow disk lightly marked with bright crimson. The variety is dedicated to Mr. J. Leemann, an enthusiastic amateur residing in the Manchester district. *Lindenia* t. 609.

LÆLIO-CATTLEYA HRUBYANA.

A handsome hybrid that will have to take its place as one of the beautiful and varied forms of Lælio-cattleya elegans. It has fine, large flowers with sepals and petals of a bright rose-purple colour. The large and broad lip is intense purple, very handsome and effective; throat yellowish, side lobes purple. *Lindenia* 610.

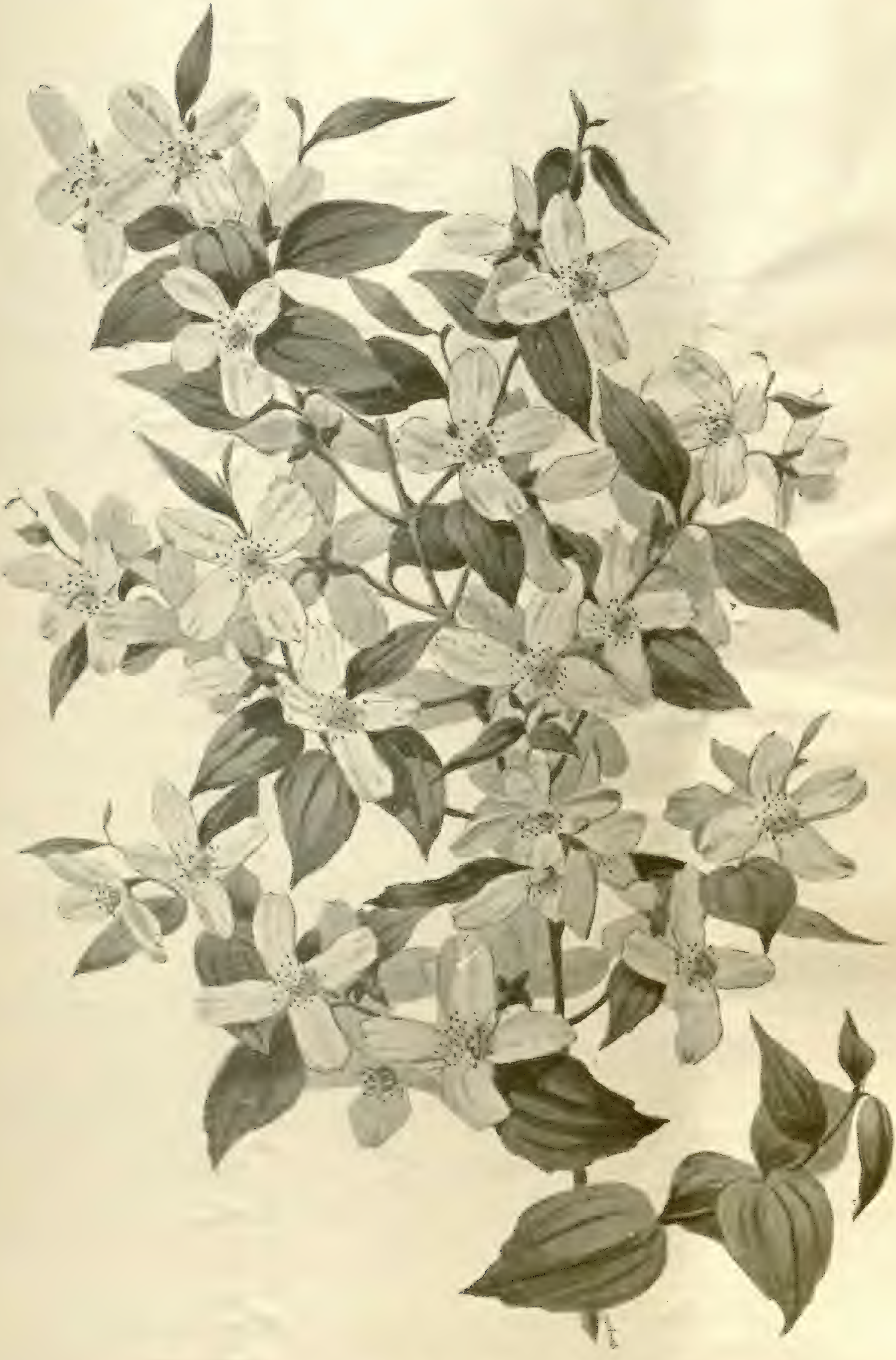
NEW PHILADELPHUS.

UNTIL the introduction of the comparatively small growing and exceedingly elegant Philadelphus microphyllus from Mexico in 1883, the potentialities of the mock oranges do not appear to have been recognised by the hybridist, and the only garden forms in cultivation were varieties that evidently originated as chance seedlings or sports. Nor is this surprising, for prior to the year 1883 the species and varieties in cultivation differed so little in their principal characteristics as to afford but little scope for the creation of distinct forms. With the introduction of the small-leaved mock orange the hybridist had at his command a quite new type, and Mons. Lemoine, who has done so much to enrich our garden flora, was not slow to take advantage of the opportunity thus afforded for the display of his ripe judgment and rare skill. He almost immediately commenced the hybridisation of the Mexican species with one of the finest garden forms of P. coronarius, and the result was the beautiful hybrid P. Lemoinei, in which the characteristics of the two types are admirably blended. In this form we have the elegant habit, the star-like flowers, and the floral profusion of P. microphyllus, with a more robust habit and larger leaves, and flowers indicating the influence of the stronger growing P. coronarius. This fine hybrid quickly obtained recognition from those who appreciate hardy shrubs with beautiful flowers, and it has been largely planted in British gardens. More recently an erect growing form has been introduced under the name of P. Lemoinei erectus, and this is so free in blooming as to justify the anticipation that it will become immensely popular both for the shrubbery border, and the conservatory, its neat habit rendering it of much value for pot culture. This was well shown by Messrs. Barr and Sons at the first of the two meetings held by the Royal Horticultural Society in July last.

Having obtained such an excellent result from the first cross M. Lemoine proceeded to intercross P. Lemoinei with various forms of P. coronarius, and achieved a degree of success not less gratifying. By the fertilisation of the former with the pollen of the latter, M. Lemoine obtained, among others, Gerbe de Neige and Boule d'Argent, which have single and double flowers respectively, these in each case being pure white, and pleasantly fragrant. Each of these varieties more closely approach in general character the pollen parents than did P. Lemoinei, but the influence of its pollen is seen in the smaller leafage and in the more elegant poising of the flowers on the slender growths. Both were figured in the GARDENERS' MAGAZINE of August 24, 1895, with an accompanying note by Mr. George Nicholson, in which some interesting particulars of their origin are given. Since their introduction to our gardens another surprisingly beautiful hybrid has been presented to public notice under the designation of P. coronarius Mont Blanc, and of this we give a characteristic full page illustration herewith. This was raised from P. coronarius fertilised with the pollen of P. Lemoinei or one of its descendants; and there can be no doubt as to its being one of the most valuable of the several garden forms that have originated with Mons. Lemoine. Mont Blanc is wondrously free in blooming, and the flowers are remarkable for their purity, in this respect closely resembling the snow that forms the perpetual covering of the mighty mountain to which it has been dedicated by the raiser.

Our illustration has been prepared from a specimen kindly supplied by Messrs. James Veitch and Sons, of Chelsea, by whom the variety was admirably exhibited at the second of the two meetings held by the Royal Horticultural Society in June last, when it attracted much attention.
G. G.

Insect Enemies.—Greater enemies to man than either birds and mammals are the swarms of insects that, from time to time, commit such havoc upon human food. Perhaps the most historic of these marauders is the locust, a creature that still does its full share of damage. In South Africa the larvæ of the locust pass over portions of the country in a broad torrent. Nothing impedes, observes a writer in the *Standard*, their march, for they will fill up canals and streams, and even the deep trenches that are sometimes dug in their way. A thunderstorm, however, seems to deprive them of their vitality. The vanguard ceases to progress; and those behind come up to it, and are too weak to crawl over their companions, so that at last a continuous bank of the dead grubs, some four feet in height, is formed across the country. America, with its usual ill fortune in such cases, has suffered very severely from insect pests, the Hessian fly and the Colorado beetle being amongst them. The Hessian fly was brought over to the Continent, during the American War of Independence, by some German soldiers of King George. Being cavalry, they carried a freight of forage with them in which larvæ of the fly were present. Ten years after, it was well established, and from then till now has done incalculable harm. The Colorado potato beetle, like the kea, was once an inoffensive creature, feeding upon a plant something like our deadly nightshade, till, in 1859, it acquired the potato habit, and throve upon its new food miraculously. From that year it began a steady march eastwards, going to beyond Omaha, a distance of five hundred miles, in the first twelve months. By 1865 it had crossed the Mississippi River into Illinois; by [illegible] it was in Ohio; in 1871 it reached New York. Considering the number of its enemies the Colorado beetle must have multiplied wonderfully, for it was acceptable food to a bird, several spiders, three wasps, several lady-birds, [illegible] ground-beetles and tiger-beetles, many of the soldier-bugs, a Tachina fly, and [illegible] fly. Another great American pest is the famous gipsy moth, which could, if unmolested, devour the entire vegetation of the United States in less than [illegible] years. This insect, however, is only rampant in the State of Massachusetts, having been "presented," so to speak, by a French naturalist, who was experimenting on silkworms, in 1869. A few specimens escaped from his study, and [illegible] breed; but not for twenty years was it noticed to what an extent. When the [illegible] began to be realised, it covered over two hundred and twenty square miles of country, entirely defoliating the woods that it attacked. It has now been driven back into less than a hundred miles of forest; and, eventually [illegible]. A familiar friend of our own, the white cabbage butterfly, at one time [illegible] in America to an alarming extent, having crossed the St. Lawrence, [illegible] Canada, in 1865; but it either found enemies, or the climate did not suit it, and now gives no serious trouble.



PHILADELPHUS · CORONARIUS MONT BLANC. (Flowers pure white.)

WORK FOR THE WEEK.

WARM ORCHIDS.

IN almost every collection of orchids, whether large or small, the owner and grower continually weed out their inferior varieties and replace them with superior ones; hybrid dendrobiums are prized generally, and so are cattleyas and cypripediums; but calanthes, vandas, phaius, &c., are not generally sought after so much as the three former, although there are gems amongst them. A great many of the hybrids, in my opinion, are a long way behind the parents, for, to obtain a good cross, a great amount of consideration is required. There is no doubt about the work being very fascinating, but the long, anxious waiting is against it. At the present time we find several hybrids in flower, Cattleya calumata and C. c. superba, the result of a cross between C. Acklandiæ and C. amethystoglossa, being certainly a gain on the former parent, having a stronger constitution and an intermediate colour; a good variety of the latter is, however, worth growing. Cattleya Schofieldiana is another of the same section, while C. Forbesi, C. guttata, and C. g. Leopoldiana all come into flower when flowers are scarce, with the exception of a few C. gigas. All the cattleyas in flower at this time of the year are best kept by themselves, for the amount of moisture used in the cattleya houses will cause the blooms to damp and the colour to fade. Miltonia Roezli and M. Roezli alba will be now making new roots. This is a species that requires special attention if repotting is required. This may be done at the present time, and a good plan is to thoroughly wash out all the roots with clean water, thoroughly strip the bulbs of any old leaves, and immerse them, roots and all, in a weak solution of fir tree oil insecticide, washing them in clean water before repotting. This is done in order to eradicate the yellow thrip that they are often infested with. This Miltonia must be grown in a hothouse where it can have plenty of moisture and be syringed often; in fact, a good plan is to keep the syringe close to where the plants are grown, and every time you come near use it. Allow the plants a damp bedding of sphagnum or anything that keeps moist.

Dendrobium formosum will be now throwing up spikes, and the plants must not become dry at the roots; use the syringe when the weather is favourable, and sponge the plants with soft soap water occasionally, as bug often infests the top leaves and gets among the buds. Dendrobium Phalænopsis Schröderianum will also be throwing up its flower spikes, and such must be placed at the warm end of the dendrobium house, and be treated in the same manner as the earlier dendrobiums. D. Falconeri will just about have finished flowering, it is a gem in its class, but a difficult one to grow and flower successfully; plants have been known to grow well and flower abundantly kept altogether in an ordinary plant stove, allowing only a few weeks' rest in the winter months, and in the summer allowing abundance of water, and syringing three or four times a day. Some grow them with other dendrobiums, and allow them a long rest, which is preferable, as they must be allowed to finish their growth, and be gradually brought to rest. Dendrobium Falconeri giganteum, a supposed natural hybrid between D. Wardianum and D. Falconeri, requires plenty of heat while growing, and must be kept clean; in fact, cleanliness is the greater part of the battle in growing orchids successfully. Lælia elegans will be coming into flower in many collections; only just sufficient water must be given to allow for the preservation of the flowers, and in order to keep the bulbs in proper form.

During this month we are often troubled with cold nights, and I noticed a few evenings ago the thermometer registered only six degrees above freezing point, so care must be taken not to do any damping on such nights, though many growers are in the habit of damping as late as nine or ten o'clock. The shading will require to be carefully managed, and so will airing.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

THE later successional batches of poinsettias should be potted up at once, and encouraged to make a free growth. The earlier batches are looking well, and should be established in their flowering pots; give them all the light possible except during the middle of hot days. Shut them up and afford them a good syringing about a quarter to three, opening the ventilators about an inch at six p.m., and leaving them open all night. When watering be sure the whole ball is wetted through, if the pots are full of roots. Poinsettias will take plenty of water, and they must not be allowed to suffer for the want of it from the time they are established in their flowering pots until their bracts are fully expanded; if the watering is carefully attended to, and the plants do not receive a check from any other cause, they will retain their leaves to the base, and this should be the object of the cultivator, as without plenty of good healthy foliage it is useless to look for large bracts. Young plants of panax in three-inch pots may be potted into five-inch, in which they will make useful specimens for furnishing Cuttings of acalypha may be had in abundance now; propagate these singly in two and a-half and three-inch pots, in which sizes they are useful for table decoration. Put in a few more suckers (small) of pandanus; these will root on a dry shelf; small plants of three to four inches high, in thumb pots, are useful to associate with scarlet and white flowers on a dinner table; also for placing in the miniature vases ladies are so fond of introducing into the boudoir. Pot on cuttings and seedlings of Asparagus tenuissimus, A. Sprengeri, A. plumosus, &c.; five-inch pots are a suitable size for these for decorating. Young stock raised in the spring make useful plants by the autumn. Put in a few pots of cuttings of fittonias and Pilea muscosa for winter use. Young stock of gloxinias established in five-inch pots must receive every encouragement, so that they may make a good display during September. Remove older plants coming into flower to a cooler and drier house. Achimenes as they come into flower remove to the conservatory, removing batches of these and gloxinias as they pass out of flower to a pit where they may receive plenty of sun and air; give water regularly until the foliage is well advanced in ripening. The thorough maturation of the tubers simplifies their successful keeping over winter. Keep a sharp lookout upon reinwardtias, that red spider does not gain a footing, else many of their leaves will fall, and thus detract greatly from their beauty at the flowering season.

Young plants of Rivina humilis that are now flowering should be afforded a position in a moderately warm, airy house to enable them to set a good crop of their lovely coloured berries; well berried plants of this and Callicarpa purpuria associate well for autumn decoration. Ardisias also are useful, but it is seldom one sees them well done. All strong growing plants should be afforded stimulants two or three times a week, in fact, all plants with pots full of roots will be benefited thereby, while in no case affording strong applications, the more robust growing plants will take the stimulant stronger than those of weaker growth. Where plants are growing under climbers, such as Allamanda, it will be necessary to examine them once every day and remove fallen flowers, for if allowed to remain long they are apt to seriously disfigure the foliage of the plants beneath. Eucharis are growing freely and will need feeding, unless for any special purpose I should not recommend removal to other houses to cause them to throw up their flowers later; if mite is present in the soil it will make such headway while the plants are undergoing the enforced rest that they will be some time before they recover. During the prevalence of dull weather do not try to excite the occupants of the stove by excessive heat in the pipes, rather allow the temperature to fall a degree or two and keep the house a little less moist; by treating so the plants will stand the strong sun better when it appears. Also during a long dull period feed the plants less liberally than during brighter weather.—J. TUNNINGTON, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

NOTWITHSTANDING the dry weather which has prevailed since the planting out of dahlias, a free growth has been made where a mulching of manure was applied, but the extreme heat of the past few weeks has induced an early flowering almost before these somewhat autumnal flowers are desired. Where blooms are required for exhibition three stakes should be placed triangularly to each plant, about fifteen inches or so apart at the base, and spreading outwards toward the top. To these the three main shoots should be secured, keeping the laterals pinched out. For the decoration of the garden and the house, however, this pinching of shoots is not necessary, as an abundance of flowers, and those of moderate size, are the more generally useful. Earwigs are often especially troublesome in dry seasons, and devour the dahlia blooms in a young state. These may be trapped in short lengths of dry bean haulm or small pots with a little dry hay or moss in them placed in an inverted position on the top of the stakes, or if thought unsightly, on shorter ones placed out of sight among the plants. Where exhibition flowers are desired, watering will be necessary if the weather continues dry, giving also an occasional soaking of liquid manure while the flower buds are swelling. Shrubby calceolarias have been a mass of flowers; as soon as fading they should be removed and a fresh growth and further blossoms be encouraged by affording moisture to the roots. Tuberous begonias also are seen to a disadvantage in seasons like the present, unless a mulching be applied and water in abundance given occasionally. The same remarks will apply to violas, fuchsias, and sub-tropical bedding plants generally, although the warm weather has, up to the present, been conducive to a free growth among the last mentioned plants. Bedding pelargoniums have flowered abundantly, the warm weather suiting their requirements. Spent blossoms should be promptly removed.

Among herbaceous subjects that may now be increased by division and cuttings, as soon as weather permits, are the double and single pyrethrums, and the old double-flowered white rocket, both extremely useful plants. The pyrethrums should be lifted, pulled into medium-sized pieces, with a portion of roots attached, and potted up into four or five-inch pots, using a rather sandy loam with a little leaf-soil. Give one good watering and stand them in a cold frame, keeping it rather close and shaded until root growth recommences, when shading may be gradually discontinued, and full exposure afforded. If a frame is not available they may stand under a north wall, or other shady spot, and be sprinkled overhead occasionally. When potted up in this way good plants are quickly formed, and they may be planted out in the autumn or early spring. To grow the double rocket well the clumps should be lifted annually, as, when allowed to remain longer, the plants dwindle away and throw but poor spikes, and in dry [illegible] die out entirely. If the flower spikes have been cut down as they have gone out of bloom, young growths will have started from the base, which afford a ready means of increasing the plant. These, if lifted and pulled off separately and replanted, will grow away and make strong plants for another season. It will be advisable to wait until rain falls, and a change of ground should be given, if possible, when replanting. A portion should be grown in the reserve garden, where propagation may be carried out, and the change from here to the [illegible] borders is of service in maintaining a healthy stock of plants. Afford water in sufficient quantity to well settle the soil about the roots, and sprinkle overhead in dry weather until the plants are established.

An important operation at this season is the layering of the border carnations. At the time of writing these are in full bloom, the season being a late one, but the plants should be taken in hand as soon as possible, otherwise the layers do not make strong plants before cold weather sets in. Previous to beginning to layer, slightly loosen the surface soil round the plants with a fork, make a sufficient number of hooks from birch, bracken stems, or such like, to peg the layers down with, about five inches in length, and prepare a quantity of moderately light, sifted soil to place around the layers to encourage the formation of roots quickly. The sifted refuse from the potting bench, mixed with a little fresh loam and leaf soil, forms a suitable mixture. Where the shoots on a plant are numerous, five or six of the outer and more conveniently-placed ones will be sufficient to layer from one plant. From these strip off the bottom leaves for a space of two or three inches, and with a sharp knife cut half way through the lower side of the shoot, passing the blade upwards through a couple of joints. Open the tongue [illegible] and press the stem into the soil, keeping the parts separated, fixing the [illegible] erect position, with a hook pressed down firmly on to the stem. The prepared soil should be placed round the plants in a saucer-like depression to facilitate watering, and the tips of each shoot layered should be snipped off as the work proceeds. If the beds are dry a thorough soaking of water should be given before commencing operations, and after layering a moderately moist condition should be maintained.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUIT.

OF late years little attention has been paid to vines on walls, but [illegible] be secured from these, for last year we had very fair grapes on an eastern [illegible] so that a more favourable wall should give better results. Now is a good [illegible] stop lateral growth, and this is important, for unless the vine has full [illegible] sun, the crop will be poor. Feeding may now be done on a liberal scale, and [illegible] liquid manure from cowsheds or stables is one of the best fertilisers, and [illegible] weekly will build up a crop; failing liquid manure, such aids as guano or [illegible] may be given, but here it is better to give several weak doses in preference to [illegible] strong one. Where the bunches of grapes are get-atable, it well repays to [illegible] few of the best, as this hastens ripening, and the berries are nearly [illegible] size and of superior quality. Figs are not always grown so well as they [illegible] barrenness is often due to faulty culture, for figs will come to a large size, [illegible] plenty of them, if timely attention is paid to stopping and training of shoots. [illegible] some counties, of course, the fig will not thrive without shelter; but, still, [illegible] many places, luscious fruits can be grown. Now is the time to stop the [illegible] next season's fruiting, as it is well known these trees often grow [illegible] attended to weekly, and the wood robs the present fruits and prevents the [illegible]tion of next season's crop also. Young growths should now be tacked to the [illegible] but avoid overcrowding, as it is fatal to good cropping. One may often [illegible] season cut out a portion of the old wood and lay in new, but, at the same time, [illegible] portion of old, healthy wood, with spurs, should be retained, as upon [illegible] borne the earliest fruits. Keep the spur growths stopped at the fourth leaf, and cut out weak ones to give those left more room. Old trees that have failed [illegible] fruit freely may have a number of the old branches removed, and new ones [illegible] in; early next spring such trees may be root pruned, as this will induce [illegible]

[illegible] and mature. Trees in full bearing will benefit greatly by copious supplies of liquid manure, and to obtain fine specimens it will be necesssary to reduce crowded fruits on the younger branches.

The fruits of most kinds of dessert cherries have now been cleared, but the trees should not be neglected. I am aware, with so many other things needing attention, it is a difficult matter to provide food or moisture to trees that have borne a crop, but the roots of few trees dry more quickly than the cherry, and such kinds as Governor Wood, one of our best croppers, and a never-failing fruiter, soon flags and needs more moisture than trees which have deeper roots. Mulching should not be neglected, as, if given earlier in the season, it will be spent ere this, and another one needed to conserve the moisture given, as it is important to build up strong buds for the ensuing season. Such a season as we are now experiencing shows the value of giving fruit trees a free root run—that is, not cropping the border within at least four feet of the wall, as then a mulch, if only litter, will furnish the roots with the shade and moisture needed, and prevent "flagging," which is often the case in shallow soils. Newly-planted fruit trees of any kind are beginning to feel the effects of heat and drought, and any allowed to bear fruits should have the crop reduced if at all thick. With a thin soil or gravel we are obliged to mulch liberally, and find cow manure that has been laid up in heaps for a time the best mulch, as it retains moisture longer than most things. Apple and pear trees, bushes or pyramids, planted on grass are feeling the drought badly, and in places where the grass is coarse it will be best to cleanse the surface for a space of two or three feet, and give a mulch to encourage surface roots, and when liquid manure can be spared, it may be given with advantage. Late strawberries on north borders will now be over, and it will be well to make new plantations. Unfortunately, most of our best late varieties make few runners and a small growth, so that in planting this should be borne in mind, and the plants placed closer together; as these kinds usually remain for two years, it is important to give good soil. The new Lady Suffield strawberry promises to be a grand late fruiter, and will be a good companion to Latest of All, as it appears to come in with that variety. I wish Mr. Allan would give us a new and still later fruiter; we have Oxonion, but the quality is poor, though it is useful for its late cropping. Raspberries, owing to heat and drought, have had a short season, but those who prune for autumn fruiting will reap the advantage, as the plants are making fine growths. The summer fruiters should now have their old fruiting canes cut out, as this will allow the light to reach the new canes, maturing them for next season; the old canes are none too clean in light soils, red spider having spread freely of late, so that by removal it will in a measure destroy the pest also. Autumn fruiters should have their growths supported, and any weak growths may be cut away. These plants will well repay a liberal mulch or supplies of liquid manure. Gooseberry trees on walls or trellises for late fruit, should have the new foreright and side shoots closely spurred in, and it may be necessary to shade if on a warm wall, I prefer the north wall for these fruits. Young trees intended for cordon growing should be shaped and the leaders encouraged to extend. Bush trees that have not borne a heavy crop are making much growth, so we are reducing the lower shoots somewhat of those kinds that have a tendency to grow close to the soil.—G. WYTHES, *Syon Gardens.*

AMELIORATION OF FRUITS.

ALL our fruits, without exception, have, observed the President of the Irish Gardeners' Association at a recent meeting of that body, been so much improved by one circumstance or another that they no longer bear any resemblance, in respect of quality, to their original types. Who, for instance, would recognise the wild parent of the Victoria, the Coe's Golden Drop, or Greengage plum in the savage sloe, or that of the Ribston and Golden Pippin apples in the worthless, acid crab? or what resemblance can now be traced between the delicious Beurre pears, whose flesh is so succulent, rich, and melting, and that hard, stony, astringent fruit which even birds refuse to eat? yet these are undoubted cases of improvement, resulting from time and skill, patiently and persistently set in action. The constant dropping of water will not more surely wear away the hardest stone than will the [illegible] of the man in time compel all Nature to become subservient to his wants or his wishes; but it would be of little service to mankind that the quality of any fruit should be improved unless we found some efficient and certain mode of multiplying the individual varieties when obtained. Hence there are two great considerations to which it is above all things necessary that the attention of the cultivator should be directed, namely, amelioration and propagation.

Amelioration consists either in acquiring new and improved varieties of fruit or increasing their good qualities when acquired. It will be as well to consider these two subjects separately. By what means the first tendency to change their nature was given to domesticated plants we are entirely ignorant. It is probable that it was originally due to accident, and also that it was still mere chance which continued to operate down to modern times. There is in all beings a disposition to deviate from their original character when cultivated, or even in a wild state; but this disposition is so strong in some as to render them particularly adapted to become subject to domestication. Without, then, vainly endeavouring to discover the first cause of this disposition to form varieties, we may take it as a fact that such disposition exists. Cultivators increase this disposition chiefly in two ways—either by constantly selecting the finest existing varieties for seed, or by intermixing the pollen and stigma of two varieties for the purpose of securing something of an intermediate nature. The power of obtaining hybrids or cross-bred varieties at pleasure has only existed since the discovery of sexes in plants; but as it exerts a most extensive influence over alterations in the vegetable kingdom, it may be considered the most important controlling power that we possess.

In sowing seeds for the purpose of procuring improved varieties, care should be taken not only that the seeds should be taken from the finest existing kinds, but also that the most handsome, the largest, and the most perfectly ripened specimens should be those that supply the seed, a seedling plant always partaking more or less of the character of its parents. Now, if the general qualities of a given variety are concentrated in the embryo under any circumstances, it is reasonable to suppose that they will be most especially concentrated in a seed taken from that part of a tree in which its peculiar good qualities reside in the highest degree. For instance, in the fruit of an apple growing upon a north wall there is a smaller formation of sugar than in the same variety growing upon a south wall, and it can be easily understood that the seed of that fruit which is itself least capable of forming saccharine secretions will acquire from its parent a less power of the same nature than if it had been formed within a fruit in which the saccharine principle was abundant. It should, therefore, be always an object with a gardener in selecting a variety to become the parent of a new sort to stimulate that variety by every means in his power to produce the largest and most fully-ripened fruit that is capable of bearing. The importance of doing this is well known in regard to [illegible] and cucumbers, and also in preserving fugitive varieties of flowers. Mr. J. [illegible] stated, in conclusion, that this matter should be attentively considered by every gardener who wishes to excel in raising valuable varieties of fruit.

THE TUDOR GARDEN.

IT was not until the days of "the high and magnificent princes" of the Tudor line that gardens in our sense of the word were general throughout the realm. When in perfection they were equally stately and beautiful, and, in their natural variety, far superior to the commonplace blazes of colour in geometrical shapes which make up the modern garden, wherein all individuality seems sacrificed to conventionalism.

The Tudor garden at its best—as it served for the retiring-place of the learned and accomplished men who marked the era—is described in the noble essay of Bacon which is an English classic. In an age when *fin de siècle* self-conceit and shallowness finds all literature not "up to date" obsolete, and asserts that Scott, Dickens, and Thackeray (not to mention many another name) are "too long-winded," it may not be needless to quote some of those immortal phrases.

"God Almighty," says the statesman, lawyer, philosopher, and wit—whose intellect in its many-sidedness still stands unrivalled in the glory-roll of Britain—"first planted a garden; and, indeed, it is the purest of humane pleasures. It is the greatest refreshment to the spirits of man. . . . . I doe hold it, that in the royall ordering of gardens, there ought to be gardens, for all the moneths in the yeare; in which severally things of beautie may be then in season." Perhaps the nearest approach on a miniature scale to the Tudor garden is to be found in the delightful old-world cottage, one in such of the counties as lie "far from the madding crowd," in remote counties where the wheels of life move slowly, where the sight and smell are gratified as the wayfarer leans over the wicket which opens between the thick edges of whitethorn, and which is odorous on either side from the ample bush of sweetbriar always prominent in such gardens.

Whether the garden in the Tudor days lay stately behind the noble's castle or the less imposing but sufficiently substantial manor-house of the small landowner, or on a smaller scale ornamented the homestead of the flourishing and sturdy yeoman whose ancestors had dwelt for generations in the same place, there was a similarity in the flowers and fruits, the contour and proportions which marked it. As time went on the science of gardening improved, and thus during the Tudor reigns successively the system grew in beauty, until becoming that idealised by Bacon.

Before the reign of Henry VII. gardening as a general thing was little known in England. The monasteries had always encouraged cultivation; amid all the wars and woes of centuries the peaceful art of horticulture had been among the other benefits they conferred on a community torn by wars and feudal oppressions.

With the settled despotism of Henry VII. and his tyrant successor there was in things social that calm which, however deceptive, characterises the rule of an iron hand. And the spread of gardening on a much more elaborate scale was one of its accompaniments. Quaint and formal to our ideas these stately gardens, and yet with a wealth of delightful English blossoms, some of whose very names are poetry, and amid which fair maidens indulged in the high-flown language of euphuism, and the elaborate play on words which marked the conversation of fashionable youth of the period.

To the square garden with its fruit and flowers was usually added a smooth-mown bowling-green, and very often a fish-pond. Often in such ancient demesnes can the situation of the vanished fish-pond now grassed over be marked by the circular depression in the area of the turf. The red roses of the House of Lancaster were of course in the ascendant among flowers. Roses of various kinds, and that which, as Bacon says, comes later, "the musk"—the out of fashion, delightful, ancient rose which every rose lover of the genuine as distinct from the conventional class prizes wherever he finds it. Violets, daffodils, anemones, wall-flowers, double white violets, gillyflowers, pinks, sweetbriar, lilies, tulips, peonies, marigolds, periwinkles—white, purple, and blue—great favourites these, as will later be shown—hollyhocks, musk, crocuses, and hyacinths—these were the most esteemed flowers in the Tudor garden, as Bacon's fragrant list shows. But there were also according to "Euphues and his England" (black letter, 1605), which is a description of a visit in Elizabeth's reign to English country houses, "Sops in Wine" and "Sweet Johns." The hero of the story, who has arrived from Naples, remarks to some of the beauties who invite him with much word fervency, to choose a posy, "Here are so many in one plot as I shall never find more in all Italie."

No garden of the period probably surpassed that attached to the "fair house at Chelsea," where dwelt during his prosperous days Sir Thomas More. Statesman, orator, scholar, and wit, he was unsurpassed if equalled in Europe, and to the qualities which make up this description he added those of a gentle piety which never failed him in his after calamities, and a serene and high-tempered courage which enabled him to lay his head on the block with an innocent jest on his lips. At the time when his garden was in its greatest beauty, however, he was in high favour with Henry VIII. "The King," says Erasmus, More's great admirer, "would scarcely ever suffer the philosopher to quit him; for if serious affairs were to be considered, who could give more prudent counsel? Or if the King's mind was to be relaxed by cheerful conversation, who could there be a more facetious companion?"

Throughout the winding walks of that garden, bright and odorous with the flowers already named, the silver Thames flowing musically close by, Henry would walk in converse with More, his arm round his favourite's neck. Even then, however, amid the flowers and sunshine typical of the temporary sunshine of the capricious monarch's favour, the keen insight into human character which More possessed enabled him to see the shifting nature of that favour. Walking in that garden with his son-in-law, Roper, husband of that favourite daughter, Margaret, whose filial piety at "that last memorable scene" of More's life has immortalised her name, More was congratulated by his son-in-law on the King's favour and familiarity.

"I thank our Lord, son," said the calm philosopher, "I find his Grace my very good lord indeed, and I believe he doth as singularly favour me as any other subject within this realm; howbeit, son Roper, I may tell thee, I have no cause to be proud thereof; for if my head would win him a castle in France, when there was war between us, it should not fail to go." July 6, 1535, when "before nine o'clock of the morning" (by the despot's special order) More placidly laid his head on the block, verified his prescient words.

Trees of odorous blossom are among the charms of the Tudor garden as described by Bacon in words which make us perceive their waving boughs and multitudinous fragrance. The Victorian garden does not regard such bloom as among that which makes up the charm of petals. So much the worse for the modern garden and the limited ideas which define it. Above the old-world blossoms which loaded the air with fragrance from the borders were ample varieties of those which courted the higher airs three hundred years ago. First let us, however, recur to the periwinkle, always conspicuous in border and by shrubbery. It was sung as "pervinckle" by Chaucer five hundred years ago. It had in France and thence in England occult associations, and was supposed to be medicinal for various things—cramp especially. But particularly was the periwinkle, as the English rendering of the original name has it, popular from its long duration of blossom, and the trailing beauty of its foliage in contrast with the blossoms. So it is now with all who love the old ways in gardening and abhor the mere "bedding out" of a blaze of colour for a brief period of the year. To such as desire a feast for the eye most dear is the place where the

"periwinkle's bloom
Like carpet of Damascus loom,
Pranks with bright blue the tissue wove
Of verdant foliage."

The deep green of the leaves is one of the most refreshing sights to the eye in contrast with the deep blue of the blossoms—this being now the commonest variety, though as already mentioned showing popularity in the Tudor day with the white and lighter blue. Perhaps this flower, so neglected by the mere imitative fashionable gardener to-day, is so valued by those who can appreciate it from the fact of its being among the few blossoms which, in the days we describe as in the present ones, cheer the bleak aspect of the garden in November.

Of the flowering of trees our Tudor predecessors had a warm appreciation, and reckoned such blossoms as among the indispensable adjuncts of a garden. Nor were they wrong. In one of his letters to a correspondent, Lord Beaconsfield remarked that woodland scenery was that which unlike mountains and lakes never tired the observer. So of trees. No one who has any tincture of imagination in him can ever grow weary of watching the continual delights of a tree, even a solitary one in a London back garden. Some, of course, there are who, like the Lord Carnarvon of Pepys's time, think that trees "are only excrescences of Nature provided for the purpose of paying debts." But such are in the minority.

The favourite trees which added to the delights of a Tudor garden were varied. The pear trees in blossom were chief among them. And what lovelier sight does spring offer than apple, pear, and plum trees in bloom? The two former present to the eye

"One boundless blush, one white-empurpled shower
Of mingled blossoms."

As for the plum, its snow-white bloom stands alone. But for this tint and amplest luxuriance the flowers which robe

Of virgin whiteness, like the snow,
The clustered cherry,

are most opulent, because the cherry is so laden in every branch with its white blossom that not a leaf or stem is visible except where three or four leaves appear at the extremity of each branch. Well, then, instead of regarding the blossoms of these trees as mere preliminaries to fruit, as do our moderns, the Tudor garden lovers believed in those things of beauty, and ranked them among the most prized spring blossoms.

By the way, it would seem that the cherry-tree, though introduced into England in the Roman days, was first in fashion and excellence in Henry VIII.'s time. His fruiterer, Richard Haines, who seems to have been one of the fortunate members of his humbler *entourage* who preserved his favour—the loftier ones mostly found their way ultimately to Tower Hill—introduced new sorts from Flanders, and these were planted in Kent, whence grew the fame of Kentish cherries still flourishing. There is an account of a cherry-orchard in Kent in 1540 of thirty-two acres which produced fruit that sold in those early days for £1,000, an enormous sum, as land at that time let at a shilling per acre.

The blossoms of the mezereon with glossy green leaves and red but deadly berries, of the almond tree in crowded pinkness, of the "cornelian," of the hawthorn, the mayblossom always prized—though with that quaint country superstition (defied by London excursionists in the spring who load themselves with boughs) that "bringing it into house means death"—were also ornaments of the garden. There were other indispensable adjuncts—the rosemary and the lavender bushes, rivals in popular affection with the sweetbriar.

As for the evergreens, a glance at Bacon's essay shows us how our ancestors loved the winter beauties of the garden. "Such things," says he, "as are greene all winter" (speaking of November, December, and January), "holly, ivy, bayes, juniper, cipresse-trees, eugh, pineapple-trees, firre-trees." The mournful associations of modern life with yew and cypress seem unknown to the healthier mind of an era when there were no nerve "problems" or introspective novels.

Grass made a leading feature. Ample areas of well-mowed evergreen grass which should delight the eye. Not the scrimpy "lawn," with its limited space cut up into octagonal and other beds of verbenas and calceolarias. But space and verge enough to feast the eye and afford room for a bowling-green. The game was as popular then as golf is now. Whether the splendid imperturbability of Drake in finishing his game when the Spanish Armada was in sight would find its parallel now in any modern general or admiral playing golf when the enemy's battleships' smoke was clear on the horizon we will not say.

Of all the Tudor gardens the most thorough perhaps, and probably not nearly so delightful to its occupants as many humbler ones, were those of Kenilworth. The magnificent favourite whose memory is darkened with the mysterious and tragic story of poor Amy Robsart was successful in making his garden as himself—conspicuous among his contemporaries. Laneham has left a full description, albeit he seems, like a modern reporter, to have been obliged to observe it surreptitiously. To the north of the castle it lay a terrace ten feet high and twelve feet in breadth, even under foot, and fresh with evenly-mown greenest grass running parallel with the castle wall; obelisks and spheres were its ornaments, interspersed with stone effigies of the heraldic cognisance of Leicester, the white bear "on goodly bases." At each end stood a fine arbour redolent with trees, sweet of blossom, and various flowers. "Fair alleys of turf" marked the paths; others were paved in contrast with smoothest sea sand. The garden itself was divided into four even quarters. In the middle of each stood on a base two feet square a porphyry square pilaster with a pyramidical pinnacle fifteen feet high, pierced and hollowed and surmounted by an orb. All around these were the most fragrant flowers and herbs—showing the combination of the *utile* and *dulce* peculiar to the age—and mingled with these were fruit trees of all kinds. In the midst of the garden—an assimilation to more modern tastes—there was erected a square aviary twenty feet high, thirteen long, and fourteen broad, with large windows—two being in front, two at either end, and each five feet wide. These windows were arched and separated by flat pilasters, which supported a cornice. The roof of this aviary was made of wire-net, the meshes an inch wide. The cornice was gilded and painted in imitation of precious stones. With due attention to the habits of birds, eaves in the wall were added to the aviary, for shelter from sun and wind and for building. At either end stood "fair holly trees" for the birds to perch in. These comprised English, French, and Spanish ones, and probably here were some of the earliest canaries—literally from the Canary Islands.

In the middle of the garden was a fountain with an octagonal basin rising four feet high, two figures of athletes in the midst, standing back to back, and in their hands upholding "a fair marble bowl," from whence various pipes distilled continual streams of water into the reservoir. This latter contained carp, tench, perch, bream, and eels. On the top of all the ragged staff, the cognisance of the house, was displayed, while, with the usual taste for allegory which then prevailed, on one side Neptune drove his sea-horses with his trident, on the other stood Thetis with her dolphins.

Triton, Proteus, the Nereids, were "engraven with exquisite device and skill," surrounded by whales, sturgeons, tunnies, and conch shells. And characteristic of that love of practical joking which could and did exist simultaneously with wide and extensive classic learning and love of euphuism, and which some of the highest personages occasionally indulged in, there was a tap, by the turning of which any unwary spectator could be drenched at the pleasure of anyone knowing its effects, and who admired that sort of humorous performance.

Glancing at the humbler contents—the vegetables—of the Tudor garden, we do not find at the earlier part of the era such variety as in flowers. Indeed, according to Hume, there were not till the termination of Henry VIII.'s reign either salads, carrots, turnips, or other edible roots produced in England. He adds that such of these vegetables—a small proportion, and only by the wealthy—as were used were imported from Holland and Flanders, and that Queen Catherine, when she wanted a salad, could only get one by despatching a messenger thither on purpose. Hops were first introduced from Flanders in this reign, and also artichokes. Apples and pears, however, though indifferent in quality up to this era, had for centuries been acclimatised, and strawberries and gooseberries plentiful. As to salads, however, Hume's remark must be construed with some modification, for in a homely sense salads had always been procurable in England. Winter and watercresses abounded; the people had also "common alexanders" eaten as celery is; rampion, rocket, borage, and goose foot, or "Good Henry," are mentioned among herbs, while sprout kales served for greens, which, indeed, must have been much in request, seeing the quantity of salt meat eaten perennially. On the whole, however, until in Henry VIII.'s reign the Flanders gardeners exported their vegetables, the kitchen garden in England—save in the case of the monasteries—was very limited. The reign of the second Tudor saw many novelties, and so the art of gardening and variety of flowers and vegetables improved and increased, till culminating in the long reign of Elizabeth. Pippins seem to have been introduced in 1525, and the damask rose in 1522 had been brought to England by Linacre, the King's physician. Currants were brought from Zante and planted in England in 1533; and in the same year Cromwell, Earl of Essex, introduced the musk rose and several sorts of plums from Italy, while apricots are contemporaneous with cherries in 1540. So that by the time Bacon wrote his famous essay, both the Tudor flower and kitchen garden were well stocked with beauties and dainties. Undoubtedly the first general improvement in gardening is due to Holland about 1509, and the Dutch experts found apt pupils enough in garden-loving Englishmen of various ranks.

The main characteristic of the elaborated Tudor garden would seem to be its stately, simple, and ample scope and verge, within which it was the aim of the owner to cherish a succession of trees and flowers, so that from the beginning to the end of the year there might be always something to delight the eye. This might give a hint to some very ambitious modern gardens, which for a longer or shorter period look desolate, indeed, after having for a space blazed out into a brilliant array of colours. Some of the trees and flowers of the ancient days are neglected now by modern taste, but to the mind which can appreciate the full beauty of the idea there is a perennial charm in such a garden as Bacon sketches, which in varying degree and aspect was and would be now from January to December "a thing of beauty" and a "joy for ever."

F. G. WALTERS, in the *Gentleman's Magazine.*

Watering Vegetables.—A very erroneous idea prevails that, if watering is commenced, it must be carried out often, and many will not water crops, thinking they have not the time to continue. If necessity compels watering, better do this than sacrifice the crop, and after a thorough watering has been effected give a good thick mulch. There is no doubt some truth in the saying of not watering unless it can be kept up, because when watering is done it must be done thoroughly, or not at all, or else the roots are enticed to the surface or, any how, in an upward direction, and, unless mulching is effected, watering must be continued. But in very dry weather both mulching and watering are necessary for the production of high-class vegetables, which should always be fresh and tender, and the more percentage of water the vegetable contains, the more water will be required in comparison. It is very surprising what a good soaking of water will do to a crop, and in a little time. For instance, put a hose on to an onion bed for an hour or two, and you will see the difference to an inch where the water has gone and where it has not. Take another instance of a bed of lettuce. Those that are well supplied with water will be nice and crisp, and will break to pieces in your hand, whereas the one without water will be more like leather. Peas will soon give up unless watered in very dry weather, whereas those that are plentifully supplied with water will continue in good condition weeks longer.—W. A. COOK.

Vegetable Crops in Surrey.—During the past month I have had to judge literally hundreds of cottage gardens and allotments, sometimes from [illegible] per day, and over wide areas in all parts of the county of Surrey. Generally, [illegible] such gardens and allotments, because cultivated by the best cottagers and gardeners in each district, very admirable cultivation and cropping is found; yet [illegible] indeed, we see culture and crops that will excel those found in far more pretentious gardens. In every direction, on clay, sand, loam, chalk, or gravel—and we have great diversity of soil in the county—I have found the carrot crop to be a very bad one; probably it is the worst known within the memory of the oldest gardener. For one fair crop fifty are bad. The evil seems less that of an attack of maggot than of aphis, which seems to have smothered the foliage and fairly sucked it dry. Where the soil has been deeply cultivated and the bed liberally supplied with liquid soot or manure there the crop has been fairly saved. How few, it is feared, in spite of repeated adjurations to do so, sowed early varieties or intermediate varieties in July for winter pulling, as such sowings would have escaped harm. Parsnips are generally good, and the fly has done little harm after all. Beets are good, but too many stocks are coarse and unfit for garden culture. Onions are generally very good, especially [illegible] Tripoli's. But the finest I saw was on an allotment at Epsom. These were unmistakably Ailsa Craig, and grand bulbs they were, too. Potatoes are fairly good, but on shallow soils earlies are ripening off fast; no complaint of disease [illegible] Cabbages plentiful, but both white and reds far too coarse. Peas have been fair, though late ones have been rather blighted. Runner beans and dwarfs late, but good now; and broad beans have been excellent and plentiful. Altogether there is good prospect of being able to record a good vegetable season [illegible] —A. D.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, August 9.

The holiday season had a slight effect upon the meeting of the above date as the Drill Hall was scarcely so crowded with exhibits or visitors as on some recent occasions. There was, however, a good display, water lilies, hollyhocks, dahlias, phloxes, stove plants, and gooseberries being the leading subjects on view.

FLORAL COMMITTEE.

As usual the bulk of the exhibits came under the adjudication of this committee, and most of the novelties gaining awards passed before them. Besides subjects already referred to there were good carnations, campanulas, some hardy shrubs, and nepenthes.

Mr. Owen Thomas, gardener to H.M. the Queen, Windsor, showed a collection of well-grown nepenthes, staging them on stands over a bed of maidenhair fern; a few especially good specimens were N. Curtisi superba, N. Rafflesiana, N. Morganiæ, N. Northiana, N. Mastersi, N. mixta, N. Dicksoniana, and N. Hookeriana. Sprays of asparagus were twined around the stand stems, and a few plants of Acalypha Sanderi were placed under the central tall stands; a fine exhibit; silver-gilt Flora medal. Messrs. J. Veitch and Sons, Chelsea, showed hardy plants, including a basket of the beautiful Eucryphia pinnatifolia, Cornus macrophyllus, Coprosma acerosa, with berries like pale blue glass beads, and Pavia macrostachys, with plumes of small creamy-white flowers. Dahlias were shown well by Mr. S. Mortimer, Rowledge, Farnham, who staged nine boxes of fresh and bright show and cactus varieties; among the latter we noted Starfish, vivid scarlet; Britannia, salmon; Matchless, deep crimson; Lady Penzance, yellow; Mrs. Nelson Noble, salmon and rose; and Major Hosskins, crimson scarlet, as particularly good; silver Banksian medal. Mr. J. Walker, Thame, Oxon, sent eight stands of show, cactus, and pompon dahlias, all fresh and bright flowers, if not over large; good pompon varieties were Sunny Daybreak, orange; Darkness, crimson; Dr. Jim, rose and crimson; Fairy Tales, pale primrose-[illegible]; and Bacchus, scarlet; silver Banksian medal. Messrs. Webb and [illegible], Saffron Waldon, showed a collection of named varieties of double-flowered hollyhocks on bright green boards; the flowers were very good, but needed presenting in some better style; Crimson Queen, Waverley, Rose Queen, Sunset, pretty pink; Primrose Gem, and Heliotrope were fine; bronze Flora medal.

Mr. J. Garrett, gardener to A. B. Freeman-Mitford, Esq., Batsford Manor, Moreton-in-the-Marsh, showed a lot of beautiful water lilies, almost all being M. Marliac's productions; flowers and leaves were arranged in two large [illegible] baths, and constituted a feature of the meeting. N. Marliacea albida, N. M. rosea, N. flammea, N. Marliacea chromatella, N. lucida, N. gloriosa, and N. ignea were in fine condition; a dozen varieties were shown and a silver Flora medal awarded. Mr. Allan, gardener to Lord Hillingdon, Hillingdon Court, Uxbridge, showed a charming lot of border carnations in bunches of a variety, all the leading sorts, and not a few new selfs and fancies were on view; Ketton Rose was especially good; bronze Banksian medal. A handsome group of campanulas was staged by Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford; the plants had pyramidal spikes from three feet to four feet nine inches high clothed with pure white or several shades of blue flowers. This is a fine strain that Mr. Wythes cultivates so well. The arrangement with Cocos [illegible] and maidenhair fern was very good; a silver Banksian medal was awarded.

From Messrs. W. Cutbush and Sons, Highgate, came an interesting group of hardy flowers, carnations, and sweet peas. Some good bunches of Pantheon, W. Robertson, Madame Antoine Denis, Jean Bart, and Charlemagne phloxes were most attractive, as also were Coreopsis grandiflora, Bocconia cordata, and Lobelia cardinalis; bronze Banksian medal. Mr. M. Prichard, Christchurch, contributed a select set of hardy flowers, showing, among other beautiful subjects, fine bunches of Asclepias tuberosa, Aconitum Napellus, Rudbeckia laciniata, Montbretia Pottsi grandiflora, Echinops sphærocephalus, Helenium grandicephalum striatum, Podophyllum Emodi, in fruit; Tigridia Pavonia, and Lathyrus latifolius roseus; silver Banksian medal. Messrs. Kelway and Son, Langport, Somerset, occupied the whole side of one table with a display of gladiolus and other subjects. Michauxia campanuloides, Yucca filamentosa, Achillea Eupatorium, and Eryngium alpinum were well represented; so also were the Kelway gaillardias. Among the gladioli we noted Mr. Fowler, red and cream; Duke of Buccleuch, pink and crimson; Lewcole, orange; Orme, lilac and rose; Numa, blush and cream; Gallia, rosy-heliotrope; and Vigilante, purple, as having especially fine and handsome flowers. A good idea of the display can be obtained when we state that [illegible] dozen spikes were staged, all strong and well furnished; silver Flora medal. A pretty display was made by Messrs. R. Wallace and Co., Colchester, and consisted of a large central group of Lilium auratum in several handsome varieties, flanked by sheaves of tritomas, montbretias, gaillardias, border carnations, and two pans of the bright golden Sternbergia macrantha; silver Banksian medal. A pan of water lilies, together with photographs of nymphæas as growing in a lake, were shown by W. Robinson, Esq., Lincoln's Inn Fields; not many of the flowers were expanded, but the leading Marliacea forms were present; bronze Flora medal. Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, also sent water lilies, showing two dozen sorts, together with [illegible] foliage, all taken from a lake in the open; Nymphæa lucida, N. [illegible] rosea, N. alba, N. Marliacea chromatella, N. M. carnea, N. M. rosea, and N. [illegible] were especially fine. Fine flowers of the lovely blue Nymphæa [illegible], a species that needs the water slightly warmed to grow in, were also shown by Mr. Hudson; this produces its flowers on long stalks that lift the blooms well out of the water; silver Banksian medal.

Mr. Kelf, gardener to Miss Abbot, South Villa, Regent's Park, put up a first-rate group of plants, chiefly palms, caladiums, crotons, dracænas, pandanus, [illegible], ferns, dieffenbachias, cannas, liliums, and asparagus. The group was a large one, well set up, and the plants were clean and well developed; silver-gilt Banksian medal. On this occasion Mr. H. B. May, Edmonton, set up a group of some two dozen species and varieties of nephrolepis, these making a handsome exhibit. Some of the plants were large and lovely specimens, notably N. exaltata [illegible], N. rufescens tripinnatifida, N. exaltata furcans, N. c. plumosus, and N. [illegible] Bausei; silver-gilt Banksian medal. Messrs. Wm. Paul and Son, Waltham Cross, staged quite a bank of the elegant spikes of Yucca flaccida, they also sent a splendid lot of double hollyhocks from seed, magnificent blooms on stout, well-[illegible] stems. Phloxes from Waltham Cross were splendid in size and colour; [illegible], Mons. Thibaut, Oriental, Oscar Beyer, Etna, Purity, Lord Rayleigh, [illegible] Bechner, and Roxelaine were all varieties splendidly represented; silver [illegible]. Messrs. Sander and Co. showed some new hybrid begonias and [illegible] Watsoniana, a handsomely variegated plant with long leafage. Carnations were shown by Mr. R. Sisley, Ockford, Godalming, but there was nothing of special merit in the display. Messrs. J. Veitch and Sons exhibited their new border carnation, George Maquay, a pure white variety, of good form and habit. The Chelsea firm showed an interesting plant, a hybrid between Rochea falcata and Kalosanthes coccinea; it was named Kalo-rochea Langleyensis; the Kalosanthes was the seed parent; the plant is intermediate between the two parents. The Chelsea firm had also a splendid collection of annual flowers. Mr. J. Crook, Forde Abbey, Chard, sent a box of blooms of the curious Gloriosa superba. A goodly display of carnations was made by Mr. James Douglas, Edenside, Great Bookham; some of the newer selfs, like Queen of Scots, Mrs. Colby Sharpin and Mrs. Grey, Buchanan, and Nox, deepest crimson, were all beautiful; the fancy forms were also good.

ORCHID COMMITTEE.

Orchids were almost conspicuous by their absence, but on a corner of one table there were seven plants and a spike or two. Mr. J. Douglas, Great Bookham, exhibited a fine form of Denbrobium formosum giganteum with immensely broad petals. Messrs. Hugh Low and Co., Clapton, showed a few cattleyas, a handsome variety of Oncidium papilio, and a plant of Cypripedium Olivia carrying one large and handsome flower. A tall spike of Vanda Batemanni, carrying twenty flowers and buds, was shown by Mr. C. Salter, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate. Mr. G. Shill, gardener to G. Law Shofield, Esq., New Hall Hey, Manchester, sent a very small plant of Odontoglossum crispum Lehmanni, Schoefield's var., a very prettily-marked form that will improve with age.

FRUIT COMMITTEE.

A magnificent exhibit of gooseberries from Messrs. J. Veitch and Sons, Chelsea, was also an extensive one, and merited a gold medal. There were no less than a hundred and six varieties staged, but, of course, this number is largely reducible for small gardens. The best red varieties for dessert were Forester, Champagne, Keen's Seedling, and Warrington. The best green and yellowish varieties were Langley Beauty, Whitesmith, Transparent, Pretty Boy, Broom Girl, Coiner, Early Sulphur, Legerdemain, Keepsake, Langley Gage, Yellowsmith, and Golden Drop. The Chelsea firm also displayed some splendidly-fruited white and red currant growths, and also staged trays of fruit, the trays of La Versaillaise and Cherry currants being first-rate; the firm also showed some late cherries. The raspberry-blackberry hybrid raised by Mr. Seden was shown, and is a remarkable fruit of large size, and precisely intermediate between the two parents, both in growth, size of fruit, and flavour; a decided acquisition to succeed the raspberries, if only the fruits parted readily from the stem.

Mr. Kelf, gardener to Mrs. Abbott, South Villa, Regent's Park, set up a fine collection of fruits showing plums on pot trees, dishes of plums and gages, Bellegarde, Royal George, and Barrington peaches, finely developed; Buckland Sweetwater, Black Hamburgh, and Muscat of Alexandria grapes, and good melons; all this fruit was grown within two miles of Charing Cross, and the able gardener thoroughly merited the silver-gilt Knightian medal awarded. Messrs. Harrison and Sons, Leicester, staged a very comprehensive collection of broad beans, showing a remarkable difference in the size of pods from the immense John Harrison to the small Beck's Gem; Longpod, Harlem Windsor, Invicta, &c., were all represented. Messrs. T. Rivers and Sons, Sawbridgworth, staged a beautiful lot of cherries, plums, and gages finely developed, highly coloured, covered with bloom, and well arranged. Especially grand was the basket of Early Rivers nectarine, grown in a cold orchard house on pot trees. Silver Banksian medal. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, had an exhibit of well-grown peaches, plums, gages, melons, &c., all shown in that excellent condition that invariably characterises Mr. Miller's produce; silver Knightian medal. Mr. Carmichael, Edinburgh, sent strawberry Britannia, a pleasantly flavoured late variety. Messrs. Kelway and Sons, Langport, Somerset, showed the new strawberry-raspberry in good condition. Mr. A. Dean, Richmond Road, Kingston, showed a dish of Snowball turnips in fine form.

HEADINGTON HORTICULTURAL SOCIETY, August 1.

The eighteenth exhibition was held in the grounds of the Manor House, Old Headington, and proved quite a success financially and otherwise. Some three thousand persons passed through the tents during the afternoon, including the whole of the school children in the district, and the wives and children of the non-commissioned officers at the military barracks at Cowley, the colonel's lady (Hon. Mrs. Kingscote, The Beeches) having provided the tickets of admission. Entries were more numerous than for the past two seasons, and a fair standard of quality was maintained in nearly all the classes. The non-competitive exhibits included a fine bank of tuberous begonias very effectively arranged by Mr. J. Stringer, gardener to Thomas Arnall, Esq., Brookside, Headington Hill; the plants numbered nearly forty full-sized specimens, and were a batch of seedlings of a most excellent strain, and were single and double. One other exhibit also made a mass of colour; no less than forty-two bunches of tea-scented rosebuds, in vases and mounted on black velvet; these formed a background to three dozen blooms of hybrid perpetual roses of full exhibition merit, Mr. J. Mattock being the exhibitor. From Mr. George Chaundy, jun., New Marston, came two dozen specimen carnations of high quality, some of the yellow-ground being simply lovely.

PLANTS.—In division three, prizes were offered for groups for effect on a space eight by four feet. Three competed, the premier arrangement was a most graceful semi-circular cone-shaped pyramid, having a feathery Grevillea robusta as the centre, around which were posed cannas, Lilium lancifolium album and rubrum, cocos palms, dracænas, clove carnations, fuchsias, streptocarpus, celsias, Trachelium cæruleum, and edged by blue lobelia and variegated forms of panicum and sedum; this secured the first card to Mr. W. Clarke, flower gardener to Mrs. S. Wootten-Wootten, Headington House; the second prize going to Mr. W. T. Mattock, Blenheim Nursery, Barton, who had masses of very showy tuberous begonias, cocos palms, Acalypha muscaica, coleus, pancratiums, zonal geraniums, Lilium auratum, the centre being a number of spikes of Ornithogalum pyramidale, the ground line being edged blue lobelia; Mr. J. Green, Church Lane, third, with very useful bits of greenhouse subjects. The best three plants in the amateurs' section came from Mr. Green; they were neat fuchsias, but the varieties were not named. There was a lot of pretty plants suitable for table decoration, Mr. W. T. Mattock leading in the class for six; Mrs. Wootten-Wootten second. The cottagers' fuchsias and geraniums were dwarf grown and well flowered, the prizes for a window plant going first to a depending mass of the blue Campanula carpatica; second to fuchsia Lucy Finnis; and the third to fuchsia Charming.

CUT FLOWERS made a very pretty feature. For twenty-four roses Mr. J. Mattock (who was in fine form) took first prize, his premier blooms being Marshal P. Wilder, Maréchal Niel, Marchioness of Londonderry, Marie Baumann, Her Majesty, A. K. Williams, Mrs. J. Laing, Horace Vernet, Comtesse de Nadaillac, Comte Raimband, Marie Verdier, Alfred Colomb, Madame S. M. Rodocanachi, General Jacqueminot, Dupuy Jamain, and White Lady; Mr. W. T.

Mattock, second, his best forms being Marie Baumann, La France, Ernest Metz, Earl of Dufferin, and Elise Vardon. For a dozen varieties, Rev. J. H. Scott-Tucker, Headington Vicarage, led with very fine forms of Horace Vernet, Marchioness of Londonderry, Comtesse de Nadaillac, Alfred Colomb (premier bloom in the show), The Bride, Pierre Notting, Ernest Metz, Marie Baumann, and Catherine Mermet; he was likewise first for six, having a nice development of Merveille d'Lyon, besides others previously mentioned. Mr. J. Green was the only exhibitor of nine varieties. Cut zonals was another excellent class, Mrs. Wootten-Wootten taking the card for six triplet trusses (very nicely posed) of Phrynne, Mons. Calvat, Lady Chesterfield, Radha, Sherlock Holmes and Mary Clarke; Rev. J. H. Scott-Tucker, second. Herbaceous perennials were staged as bold gatherings calculated to display the habit of growth; Mrs Wootten-Wootten, first for six varieties, puttting up Achillea millefolia, A. serratifolia, Harpalium rigidum, Statice latifolia, Lilium testaceum, and Lathyrus latifolius alba; Mr. W. F. Cross, Iffley Row, Oxford, second, with some of the above, and phloxes, Chrysanthemum maximum, and the scarlet Martagon lily; Mr. W. T. Mattock, third. The bouquets in groups of nine each were specimens of artistic floral arrangement, Mr. W. T. Mattock, and F. Gurden, Headington Quarry, taking the cards; the best collection of annuals coming from Mr. A. Whitehead, gardener to Dr. Niel, Warneford Asylum, Headington.

FRUIT was very fine, it being all of outdoor growth. For six dishes Mr. W. Coppock, The Yews, Headington Quarry (whose garden is in a deep disused stone pit), was placed first for fully-ripened Large Early apricots, Juneating apples, London gooseberries, Prolific plums, Bigarreau Napoleon cherries, and Magnum Bonum red currants; these last named were a wonderful exhibit; Mrs. Wootten-Wootten, second, with Large Early apricots, Prolific plums, Baumforth Seedling raspberry (a large form of this delicious fruit), Morello cherries, White Dutch and Magnum Bonum currants; Mr. A. Louch, postman, Headington Quarry, third, his very beautifully-finished varieties being Eleanor strawberries, Juneating apples, Doyenne d'Ete pears, Glory of Old Port gooseberries, Early Favourite plums, and Bigarreau cherries. For three dishes, the first card went to Mr. C. Bodimeade, gardener to Sir W. Markby, Headington Hill, who staged Rivers' apricots, Morello cherries, and Lord Derby gooseberries; Mr. W. Mattock, second, with Royal George peaches, strawberries, and gooseberries; while for one dish (amateurs), Fastolf raspberries, Morello cherries, and Kerry Pippin apples took the cards; the cottagers being wonderfully good in the way of big gooseberries, currants of sorts, raspberries, &c., the best dessert apples being Juneating and Quarrenden; the culinary varieties were Warner's King and Blenheim Pippin.

VEGETABLES were a somewhat extensive feature, Mr. G. Silvester, gardener to Mrs. Wootten-Wootten, was first in Messrs. Sutton and Sons' class for six dishes; Mr. Bodimeade, second; and Mr. J. Green, third. The competition for potatos in three varieties each of kidney and round forms was in the hands of the same exhibitors, while Mr. Green proved the only competitor for similar products in the amateur classes. The cottagers were strong in the way of all the bean classes, while among the winning dishes of potatos the following were named: Puritan, Reading Ruby, Cole's Favourite, Chancellor, Satisfaction, White Hebron, Mr. Bresee, Snowdrop, King of the Russets, Reading Russet, Windsor Castle, and Renown. Short carrots are always well shown here, Mr. F. Morris leading with very well-grown specimens. Autumn onions were of large size and approaching ripeness, the spring-sown forms evidently have some growth yet to make ere they touch the exhibition size. One of the cottagers had some very nice tomatos, he possessing a glass structure. A great portion of the soil in the district is sandy, so the bulk was perhaps less than in a showery season.

THE MIDLAND COUNTIES CARNATION AND PICOTEE SOCIETY, August 5 and 6.

MR. R. SYDENHAM and the committee of the above society may be heartily congratulated upon the exhibition held in the Botanical Gardens, Edgbaston, on the above dates. It was a superb display of the carnation; the bizarres, flakes, yellow grounds, selfs, and fancies were represented in the finest character, and it was somewhat remarkable that not a northern exhibitor scarcely staged flowers; the district cultivators made the show, assisted largely by Mr. Martin R. Smith, Mr. James Douglas, and Mr. J. A. Rowberry from the south. The classes were all well filled; the quality of the bloom was high throughout; the show house of the Botanical Gardens was filled to overflowing, and the weather being fine there was a large attendance. It appears to be pretty certain that the carnation exhibition at Birmingham will be almost invariably the most extensive of the three shows held during the year. It may be added that the Botanical Gardens can now be seen at their best, and the plant houses are exceedingly gay.

SELF CARNATIONS had the place of honour assigned them in the schedule. There were ten stands of blooms, and most of them were very fine. It is not to be wondered at that the visitors at a carnation show are attracted by these brilliant blooms. They do not understand the technical differences set up by the florist, and lacking anything like conception of the properties of the refined bizarres and flakes, they turn to the selfs, and see in them much to gratify. It is so with the splendid yellow grounds and the fine fancies. The best twelve self carnations were staged by Mr. C. Blick, gardener to Martin R. Smith, Esq., Hayes, Kent. They were Cecilia, yellow; The Maid and Helmsman, white; Etna, scarlet; Ensign, white; Midas, orange; Purity, white; Gadabout, yellow; Joan of Arc, rose; Benbow, salmon; Conqueror, rose; and Comet, crimson; second, Mr. R. Sydenham, Birmingham, with Sea Gull, blush; Little John, carmine; Germania and Regina, yellow; Mrs. E. Hambro, white; Mrs. Colby Sharpin, apricot; Uncle Tom, &c.; third, Messrs. Thomson and Co., Birmingham; fourth, Mr. James Douglas. There were seventeen entries of six selfs. Mr. A. W. Jones, Handsworth, Birmingham, was first, with Exile, Mrs. Eric Hambro, Sea Gull, Miss A. Campbell, Mrs. C. Sharpin, and Mancunian, the last one of the darkest grown; second, Mr. R. C. Cartwright, Birmingham, with Mrs. Eric Hambro, Exile, Regina, Her Grace, Sea Swallow, and Ruby; third, Mr. C. F. Thurstan, Wolverhampton.

YELLOW GROUND PICOTEES.—There were seven stands of twelve yellow ground picotees, Mr. C. Blick taking the first prize with a splendid lot of blooms; he had Lady Bristol, Hesperus, Gadabout, in this case having a picotee edge of rose, Badminton, Professor, Empress Eugenie, Aglaia, Hygeia, Mrs. Jordan, Busybody, Gazelle, and Voltaire. Mr. J. Douglas, Great Bookham, was second, also with very fine blooms, having Heather Bell, Dervish, Voltaire, Mohican, Wanderer, His Excellency, Mr. Nigel, Hygeia, and others; third, Mr. R. Sydenham; Messrs. Thomson and Co. being fourth. There were sixteen entries of six yellow grounds, and here Mr. R. C. Cartwright was first, with very fine blooms indeed of Voltaire, May Queen, Golden Eagle, Mr. Nigel, Countess of Jersey, and Eldorado; Mr. A. R. Brown, Handsworth, was second, having in fine character The Gift, May Queen, Golden Eagle, Voltaire, Eldorado, and Mr. Nigel; third, Mr. W. Bellamy, Penkridge. Twenty-one competitors entered for the class for six fancy carnations, Mr. C. Blick taking the first prize with very fine blooms indeed of Mercar, Queen Bess (very novel), Alexandra, Goldylocks, Perseus, and Hidalgo, every one of them good enough for a premier award; second, Mr. R. Sydenham, who had Monarch, George Cruickshank, Perseus, Little [illegible], The Czar, and Phœbus; third, Mr. J. Douglas, who had highly promising blooms of The Czar, Czarina, and Zingari.

WHITE GROUND PICOTEES.—These followed in the order of the schedule, six stands of twelve varieties competing, Mr. R. Sydenham taking the first prize with a superb lot of blooms consisting of H. Red E., Ganymede; H.P.E., Mrs. Openshaw, Miriam, and Muriel; L.P.E., Jessie and Ann Lord; H. Rose E., Lady Louisa and Little Phil; L. Rose E., Fortrose; H. Scarlet E., Mrs. Sharp; L. Scarlet E., Favourite and Dolly Dimple. Second, Mr. A. R. Brown, Handsworth, who had Brunette, Mrs. A. R. Brown (H. Rose E.), Miss Anderson (H.P.E.), Little Phil, Grace Ward (L. Rose E.), Ganymede, and Harry Kenyon as his leading blooms. Messrs. Thomson and Co. were third. There were nineteen entries of six picotees, Mr. A. W. Jones, Handsworth, taking the first prizes with highly refined blooms of Thomas William (L. Red E.), Mrs. Openshaw and Amy Robsart (H.P.E.), Mrs. Payne, Little Phil, and Mrs. A. R. Brown (H. Rose E.) Mr. R. C. Cartwright was second, having Ganymede, Amy Robsart, Little Phil, Mrs. Sharp, Pride of Leyton (L.P.E.), and Mrs. Payne. Mr. W. Bellamy, Penkridge, was third.

SHOW CARNATIONS.—In the class for twelve carnations there were eight entries, Mr. R. Sydenham being again first with very fine blooms, having scarlet bizarres, R. Monk and Edward Adams; crimson bizarres, Mrs. J. Burgess, Master Fred, and J. S. Hedderly; pink and purple bizarres, Sarah Payne; purple flakes, George Melville and Gordon Lewis; scarlet flakes, John Wormald and Sportsman; rose flakes, Mrs. Rowan and Thalia. Second, Messrs. Thomson and Co., whose best flowers were: S.F., Sportsman; S.B., Robert Houlgrave; R.F., Mrs. Moy, Thalia, and Cristi-galli; C.B., J. D. Hextall and Master Fred; P.F., Gordon Lewis. Third, Mr. R. A. Brown. There were eleven entries of six carnations, Mr. C. F. Thurston, Wolverhampton, taking the first prize with S.B., Edward Adams; C.B., J. S. Hedderly; P.P.B., Arline; P.F., George Melville; S.F., Sportsman; R.F., Mrs. Moy. Mr. F. W. Goodfellow was second, and Mr. G. Faulkner third. There was a class for six carnations for maiden growers, any types. Mr. T. F. Dranfield was first, setting up all fancies, including Voltaire, May Queen, Monarch, and Eldorado. Mr. W. H. Twist, Birmingham, was second, he having all white ground picotees.

VASES OF CARNATIONS AND PICOTEES.—Then followed a series of classes for undressed blooms in vases with foliage, but without wires and as "little dressing" as possible. What amount of dressing is permissible under the term "little" appears to be left to the cultivator, but that most of the blooms had undergone some touching up with the tweezers there can be no doubt. Out of six competitors Mr. R. Sydenham staged the best twelve selfs, Mr. M. R. Smith was second, and Messrs. Thomson and Co. third. In the class for six selfs there were numerous exhibitors, Mr. W. Bellamy was first; Mr. R. C. Cartwright, second; and Mr. C. F. Thurstan, third. Mr. M. R. Smith had the best twelve fancies or yellow grounds; Mr. J. Douglas was second; and Mr. R. Sydenham, third. There were seventeen entries of six blooms of fancies, Mr. Cartwright was first; Mr. Thurstan, second; and Mr. G. Chaundy, third. There were but three entries of twelve white ground picotees, Mr. R. Sydenham was first; Mr. A. R. Brown, second; and Messrs. Thomson and Co., third. There were fourteen entries with six white ground picotees, Mr. C. F. Thurstan was first; Mr. Cartwright, second; and Mr. W. Bellamy, third. There were fifteen entries of six blooms of any type, Mr. Cartwright taking the first prize; Messrs. Thomson and Co. were second; and Mr. M. A. Smith, third. But very few of the blooms were named, and it is just possible that two sets of judges might be found to differ widely in making the awards in the foregoing classes.

SPECIMEN BLOOMS.—The classes for single blooms formed quite an exhibition of themselves, as they covered a large space of table, and were finer in quality than is generally seen in these classes. Taking the carnations first, the scarlet bizarres were placed in the following order: Admiral Curzon, though distributed more than fifty years ago, taking the first prize; Robert Houlgrave, which is regarded as a seedling from the Admiral, was second, third, fourth, and fifth. The leading crimson bizarre was Master Fred; followed by J. S. Hedderly, second and fourth; Master Fred being third and fifth. The best pink and purple bizarre was William Skirving, which was also second; Sarah Payne was third; George Rudd, fourth; Cooper, fifth. Sportsman, Scarlet flake, a sport from Admiral Curzon, which originated some forty-eight years ago, took all five prizes in the class. Thalia was the best Rose flake, and it took the second and fourth prizes also; Merton was third; and Mrs. Moy, fourth.

Of single blooms of picotees there were also many. In the red edged section Ganymede was first, second, third, and fourth, and Brunette fifth. Thomas William was first, second, and fifth in the light red edged class; Mrs. Gorton, third and fourth. Muriel was the best heavy purple edge; it was also third and [illegible]; Mrs. Openshaw taking the second and fifth prizes. The best light purple edge was Harry Kenyon; Ann Lord was second and third; and Pride of Leyton fourth and fifth. Mrs. Payne took the first and second prizes as a heavy red edge; Little Phil was second; and Lady Louisa, fourth and fifth. The best light [illegible] edge was Favourite, and it was third and fifth; Fortrose was second; and Mrs. Payne, with a wire edge of colours, fourth.

A large number of selfs were staged, and the value of Mr. Martin R. Smith's Mrs. Eric Hambro as a white self was shown by the whole of the five prizes being awarded to it. The best yellow buff or terra-cotta self was Benbow (Smith), a distinct and attractive salmon-buff variety. Regina, a yellow self, was [illegible], third, and fifth, and Cecelia fourth. The best rose-pink or salmon self was [illegible] rose, and it was placed second also; Royalty, rose, was third; Ada fourth, and Mrs. Felecity fifth, both of rose shades. The best scarlet self was Etna. [illegible] Parkinson was second, and Grandeur fourth; two seedlings were third and [illegible]. The best dark self was Uncle Tom, Sir Berrys took the second prize; Mancunian was third and fourth, and Negress fifth.

Wire edged yellow picotee Mrs. Douglas was first, Seraph second, Mohican third and fourth, and Ladas fifth. The best medium or heavy-edged [illegible] was Voltaire, which was second also; Wanderer was third and fifth; and [illegible] fourth. The best fancy carnation was Lady Ardilaun; Cardinal Wolsey was second; Monarch third and fourth; and Ossian fifth.

PREMIER PRIZES.—The premier bizarre carnation was a very fine bloom of Master Fred, C.B., shown by Messrs. Thomson and Co.; the best flake, [illegible] Gordon Lewis, shown by Mr. R. Sydenham. The best heavy-edged picotee, [illegible] Rose, Mrs. Payne; the best light edged, L. Red, Thomas William, [illegible] Mr. A. W. Jones. The premier self, Mr. Martin R. Smith's Benbow, a [illegible] which did not appear to give general satisfaction; the premier yellow ground [illegible] picotee Hygeia, also from Mr. Smith; the premier fancy Queen Bess, from the same raiser, a novel and distinct though somewhat dull-looking flower of [illegible] quality.

BORDER CARNATIONS were not so fully represented as might have been expected. Mr. Martin R. Smith secured the first prizes for twelve varieties of [illegible] flowers, and also for the same number of yellow grounds and fancies, and though the only exhibitor, fine and promising varieties were staged. In the classes for six bunches, Mr. Weguelin, Teignmouth, was first; and Mr. A. J. Rowberry, South Woodford, second. None of the varieties were named.

Plants in Pots were represented by two half-dozen specimens. Messrs. Thomson and Co. were first, having principally yellow grounds and fancies; and Mr. R. Sydenham second, whose leading varieties were selfs. The prizes offered by Mr. Ernest Benary, Erfurt, for six pots of his varieties brought no competition.

Floral Decorations with carnations appeared as tables prepared for dinner, the first prize going to Miss Monk, who had a light arrangement of white and yellow carnations and appropriate foliage; Mrs. Lovatt was second, but, to our taste, employed too much scarlet; and Miss Swinden was third. Some pretty shower bouquets of carnations were staged; Captain Shawles was first, a pretty salmon-pink carnation and appropriate foliage being employed; Mr. M. R. Smith was second, and Messrs. Thomson and Co. third. Sprays and buttonholes were also staged.

Special Prizes were offered for the other exhibits. One class was for nine bunches of sweet peas, which brought several charming collections. Mr. W. Bellamy was first; Mr. A. Bessell, second; and Mrs. Lovatt, third. Eckford's varieties were employed. Epergnes of sweet peas were also invited, most of them very good. Mr. E. Romolo, who employed mixed varieties, was first; Mrs. Lovatt was second, who employed carmine, pink, and blue; and Mr. A. Bessell, third. Mr. Eckford also offered special prizes for twelve varieties of sweet peas, and several charming collections were set up; Mr. V. B. Johnston was placed first; and Mr. A. Bessell, second. Mr. Lovatt had the best twelve bunches of herbaceous and perennial blooms, competing for special prizes offered by Mr. W. B. Child; Mr. L. W. Lees, Tettenhall, was second.

The Sydenham Amateur Challenge Cup was awarded to Mr. C. Blick; the Midland Counties' Challenge Cup to Messrs. Thomson and Co.; Mr. R. Sydenham won the Birmingham Botanical Society's silver medal, and Messrs. Thomson and Co. their bronze medal.

No certificates of merit were awarded to new varieties, though a fair number were staged.

Miscellaneous Exhibits included a magnificent group of begonias from Mr. B. R. Davis, nurseryman, Yeovil, which was awarded a silver-gilt medal. Collections of hardy plants from Mr. W. F. Gunn, Olton, and Messrs. Hewitt and Co., Solihull, awarded silver medals; also one from Mr. J. H. White, Worcester, awarded a bronze medal; while a silver medal was awarded to Mr. Henry Eckford, Wem, for a superb collection of sweet peas. Mr. R. Sydenham also had pretty floral decorations, and Mr. James Douglas and Mr. Charles Phillips, Bracknell, new carnations.

On the evening of the opening day of the show Mr. R. Sydenham entertained the exhibitors, judges, &c., at supper in the luncheon tent, when various suggestions were thrown out with a view to the improvement of the exhibition.

THE BRITISH PTERIDOLOGICAL SOCIETY.

As usual on the August Bank Holiday, the members of this society met at Bowness, Windermere, for their annual conference, which was fairly well attended, but not at all on the scale it merits as the sole representative body of British fern lovers. It seems next to an impossibility to bring home to the minds of the British people or British lovers of plants that our native ferns, few as they are in species, far and away eclipse in their lovely varietal forms those produced by the entire outside world. Some of the tropical and sub-tropical islands, as well as those of New Zealand, ranging from sub-tropical to temperate, boast their hundreds of species, many of them of great beauty. Whether it is the fault of the botanist or foreign or colonial fern lovers, or whether Great Britain is peculiarly favoured with "sports," we know not; but the fact remains, that for such sports, curious or beautiful, our islands have yielded their thousands.

In the lake district and thereabouts a large number of people are aware of the merits of these varieties as decorative plants, and in the windows and gardens of many of the cottages pretty and well-grown specimens are seen, while fine collections are by no means rare. One result of this was the formation some years ago of a purely local society in Kendal called the Northern British Pteridological Society, and consisting of a coterie of ardent fern fanciers, who not only cultivated these ferns, but sought for and found new ones in the fern-clad hills and vales of lakeland. Then their ranks were swelled by other fern lovers from far and near, and the "Northern" was dropped, so as to embrace all who cared to join. Once a year the members meet, bringing plants and fronds of new or old varieties for naming or identification, thus forming a legitimate centre for the cults, and affording an opportunity for improved nomenclature and accordance of that confusion worse confounded, induced by incompetent judges, who name without the requisite knowledge. Encouragement is also thus given to improvement of types on regular lines, and we are confident that, had such a committee existed in the days when British ferns were fashionable, and any irregular or unsymmetrical monstrosity fetched its price if new, such a weeding out would have taken place as would have obviated the surfeit to which indiscriminate culture eventually led. The subscription of 5s. per annum is practically nominal, and is devoted to the publication of a pamphlet, giving several papers by experts, and embodying much interesting information. The secretary, Mr. Whitwell, Serpentine Cottage, Kendal, is one of the old school of enthusiasts, one of the keenest hunters and most successful finders living, and has a wonderful collection.

The President (Dr. Stansfield) occupied the chair, and in opening the proceedings, referred to the loss the society had sustained during the year by the death of three of its members, namely, Messrs. Pease (Darlington), Tyldsley (Worsley), and [illegible] (Sheffield). He also referred to the improvement of Bolton's A. f.-f. clarissima in the hands of Mr. C. T Druery, by the elimination of the tendency to produce coarse and imperfect fronds, and also gave a short account of his own experiments in the introduction of apospory in a barren fern, A. f.-f. unconglomeratum, and in the attempt to perpetuate, by aposporous reproduction, Moly's variegated form of Polys. angulare pulcherrimmum. The secretary's and treasurer's reports were read, the former showing that the numbers of the society had been maintained, and the latter showing that the funds were in a satisfactory and healthy condition. At the election of officers the outgoing president strongly urged that a change should be made in the holder of this office, and consequently Mr. C. T. Druery, F.L.S., was elected as the new president. Some changes were also made in the constitution of the committee. A paper was read by Mr. Atkinson, of Batley, on fern growing in the manufacturing towns of Yorkshire and Lancashire. The reader, after alluding feelingly to the difficulties with which the fern grower in these towns had to contend, such as fogs, smoke, and poisonous fumes from chemical works, &c., said that as a matter of course the ferns must be grown under glass. He recommended low houses with cool earthen floors and a north-western aspect, the latter being advisable in order to give a little sunshine at the close of the day. He advised a single row of hot-water pipes for the purpose of keeping out severe frost, but for no other purpose. A valuable paper was read by Mr. W. H. Phillips, of Belfast, on "Polystichum angulare proliferum, Past, Present, and Future." Mr. Phillips dealt with the history of the section, commencing from the finding of the first "proliferum" by Choule, probably somewhere in the thirties, going on to the addition of other forms by Wollaston and others, and the gradual evolution of "proliferum" into acutilobum, conspicuilobum, multilobum, divisilobum, and finally plumoso-divisolobum—the details of the origin of the last most beautiful subsection, in the hands of the late Colonel Jones and Mr. E. F. Fox, from spores given to the former by Mr. James Moly and taken from his decomposition splendens, being carefully and accurately given. Mr. Phillips illustrated his paper by about a hundred well-grown fronds from his own collection of beautiful varieties, many of them having been found wild by himself, and all accurately labelled. A paper by Mr. C. T. Druery on "Ferns as Pet Plants" was read, in the absence of the writer, by Dr. Stansfield. Mr. Druery insisted upon the importance of ferns being grown so as to display their full beauty as far as possible, and contrasted the appearance of ferns to which justice had been done with the miserable specimens often seen.

An exceedingly distinct and beautiful new form of Athyrium was exhibited by Mr. J. Edwards, of Blackley, and duly named and registered as A. f.-f. ramulosum lineare. A number of well-grown and beautiful cut fronds were exhibited by Mr. Troughton (Preston), Mr. Smithies (Manchester), and Mr. Lovelady (Haslingden). A motion made by Mr. J. Gott, of Kendal, that new ferns, named and registered by the society, should in future be figured, and prints issued to the members, gave rise to considerable discussion. The idea was generally approved in principle, and it was ultimately resolved that the committee be instructed to make inquiries as to the best methods of illustration, and to submit specimens of various processes to the next meeting.

LAW.

DAMAGE TO IMPORTED ORCHIDS.

At the Leeds Assizes, on August 5, before Mr. Justice Day and a special jury, the case of Moore v. The Great Eastern Railway Company was heard. This was an action brought to recover damages for the loss of a number of orchids alleged to have been caused by the negligence of the defendants' servants. Mr. Shepherd appeared for the plaintiff, John William Moore, a nurseryman and orchid importer of Bradford, the defendant company being represented by Mr. E. Tindal Atkinson, Q.C., and Mr. H. T. Kemp.

On November 6, 1897, thirty six boxes of orchids, which had just been landed in London from Rangoon, were delivered to the defendants for the purpose of being carried to the plaintiff at Bradford, instructions being given that the plants were to be conveyed in a box truck and despatched as soon as possible. There not being sufficient time to provide a box truck before the next goods train left Bishopsgate for Doncaster the plants were despatched in an open truck packed in straw and covered with a tarpaulin. The boxes reached Bradford about eight a.m. on Sunday, November 7, and the truck in which they were was left standing in an open yard until eight a.m. on November 8, when they were taken to the plaintiff's premises. Rain fell very heavily in Bradford on November 7, the result being that ten out of the thirty-six boxes were saturated with rain owing to the faulty condition of the tarpaulin by which they had been covered. When the ten boxes were unpacked it was discovered that all the plants in them, 2,473 in number, consisting of the species known as Cypripedium Charlesworthi and Vanda Kimballiana, were destroyed. The plants in the other twenty-six boxes were delivered generally in good condition. The plaintiff estimated his loss at 1s. per plant, or £123 13s. in all, and it was not disputed that if Mr. Moore was entitled to recover at all this sum represented the amount for which the company would be liable. The only question which the jury had to decide was whether or not the condition of the plants on delivery was due to the rain to which they had been subjected, and upon this point expert evidence was given on both sides. For the plaintiff it was said that the rain had killed the plants; for the defendants, that such a result was impossible, and that the rotten condition in which the plants were when Mr. Moore received them clearly showed that they had been damaged before reaching England. The jury found a verdict for the plaintiff for the amount claimed, and judgment was given accordingly, the learned Judge certifying for a special jury.

OBITUARY.

Mr. Adam Forsyth, who for some years, previous to his leaving England for the purpose of taking up his residence in New Zealand, occupied a foremost position amongst chrysanthemum specialists, died, we regret to learn, on June 10 from Bright's disease, in his sixty-eighth year. Under date of July 5, Mr. James Mitchell, of Oamaru, Otago, New Zealand, writes: "It is my painful duty to convey to you, and, through the Gardeners' Magazine, to the many horticulturists to whom he was known, the news of the death of Mr. Adam Forsyth, who passed away peacefully on June 10. Poor Forsyth had been failing for some time, and had really never been the same man since the death of his wife some three years ago. But none of us—that is, intimate friends—had any thought that his death was so near at hand. His condition, however, grew rapidly worse towards the end, as you may readily imagine, when I mention that he was out and about up to within a few days of his death, though really unable to do anything. He was suffering from an acute form of Bright's disease, and was fully aware that recovery was hopeless, and that death might supervene at any time. We laid his mortul remains in their last resting place on Sunday, June 12, in the pretty little Oamaru Cemetery, and that he was held in high esteem amongst the gardening fraternity was shown by the fact that everyone connected with horticulture, however remotely, was present at the funeral. I enclose you a paragraph from the *Oamaru Mail* reporting a meeting of the committee of the North Otago Horticultural Society, at which a resolution on the subject was passed. Mr. George Brownlee (seedsman) and myself are the executors under his will, but I do not think our duties will be very onerous." Mr. Adam Forsyth, who was a native of Kelso, at an early age devoted himself to horticulture. After serving his apprenticeship, and filling positions as under gardener in some of the best gardens in Scotland, he came to England, and in due course obtained a position as head gardener, in which he specially distinguished himself. He eventually engaged in business as a nurseryman in Shacklewell Lane, and on the land being required for the purposes of a new railway, he founded the Brunswick Nursery at Stoke Newington. Here Mr. Forsyth specially distinguished himself as a cultivator of specimen chrysanthemums, and was successful in introducing several valuable incurved varieties. In 1874 he left England for New Zealand, and after being with Messrs. Law, Somner, and Co., Dunedin, he was appointed head gardener to the Hon. M. Holmes, at Awamoa, where, to quote from the *Oamaru Mail*, "he did a great deal to create a taste for floriculture."

ANSWERS TO CORRESPONDENTS

Chrysanthemums.—J. A. B., Tipton: We are afraid that after such a severe check as your plants have experienced, due to their becoming tightly root-bound ere potted into the flowering pots, you have seriously affected your chances of producing large exhibition blooms. However, you must do the best you can, and, as regards feeding and the use of manures, we must refer you to Mr. Lee's article on the subject published in our issue of July 23, p. 472. You should "take" the buds that now appear, otherwise the flowers will be too late for exhibition purposes.

Broad Windsor Beans.—A. F., Wallingford: We should like to know the reason the exhibitor you refer to had for stating that a good exhibition pod of Broad Windsor bean should contain but two beans. We have always understood that broad beans were cultivated for the sake of the seeds or beans rather than for the pod; consequently we should certainly give the preference to the specimens containing the largest number of seeds, size and quality being equal. We agree with the judge, for if horticultural exhibitions and flower shows do not tend to improve our fruits, flowers, and vegetables by selection and culture there is no really good reason for their existence.

Seedling Carnations.—F. M. K., Bridgewater: The small collection of seedling carnation blooms sent contains several very handsome fancy varieties of merit and worthy of perpetuation, providing they are free and vigorous. Not many of them appear to be of any great value for exhibition purposes, as the larger blooms are short in the calyx. The "bursters" should be discarded as soon as a good border variety of similar colour is obtained. The majority of the flowers have plenty of petals, and doubtless finer blooms could be produced by judicious thinning of the buds. Not more than five per cent. of single flowers represents a very fine strain of seed. You should make further experiments in hybridizing and the raising of seedlings now that so much success has already attended your efforts.

Failure with Strawberries.—Novice, Notts: No doubt your plants are the result of runners from unfertile plants, and this accounts for the failure. There is apparently no just reason why strawberries sometimes cease to be fertile, but it is nevertheless a fact that they do, and also that plants propagated from them do not bear fruit. Your land is not the best for strawberry culture, but, of course, much may be done to improve it by manuring; farmyard and stable manure are the best if obtainable; pig manure is very strong. Clear out all the unfruitful plants and burn them, and do not take any layers from them before so doing. Procure rooted layers as early as possible from some nurseryman or grower who has a high reputation that he will be careful to sustain, and plant these as quickly as you can, watering and tending the plants carefully till established. By this plan you will not lose a season's crop, and it will be cheaper to obtain rooted layers than plants in pots at a later date. Shade may be necessary for a few days after planting, but as your beds are narrow a few hurdles would provide this.

Names af Plants.—J. T., Birkenhead: 1, Cratægus nigra; 6, send again.

W. W., Farnworth: No, at least not the Irish Shamrock, which is Trifolium repens. The specimen sent is Oxalis acetosella, often passing in England as the Shamrock.

L. B., Bedford: Acanthus longifolius, perennial.

H. W., Pontefract: 1, Anthemis Biebersteiniana; 2, Veronica virginica.

A. R., Feltham: 1, Erigeron speciosum; 2, Œnothera Whitneyi; 3, Spiræa Bumalda.

R. Y. F., Bristol: 1, Pavia macrostachya; 2, Amorpha canescens; 3, Olearia Haasti.

C. G., Brentwood: 1, Montbretia crocosmæflora; 2, Zygadenus bracteatus; 3, Rhodochiton volubile; 4, Rochea falcata; 5, Rhodanthe Manglesi.

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MARKETS.

Covent Garden.

There are fair supplies of fruit and vegetables and the demand is brisk. Green vegetables are good and sell readily; peas are rather dear, but since the rain there has been a better demand for potatos. The cut flower trade is moderate. Home-grown tomatos are now plentiful.

Fruit.—Cherries, 4s. 6d. to 10s. 6d. per half-sieve; English grapes, 1s. to 2s.; Jersey, 9d. to 1s. 6d. per lb.; black currants, 5s. to 6s. 6d.; red, 4s. to 5s.; gooseberries, 2s. to 3s. per half-sieve; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 4s. 6d. each; English peaches, 1s. to 5s.; green figs, 9d. to 1s. 6d. per dozen; greengages, 9d. to 1s. per box, 4s. to 6s. per half-sieve; French plums, 1s. 6d. to 3s. per case, 2s. 6d. to 3s. 6d. per half-sieve; French pears, 3s. to 5s. per case; Spanish melons, 8s. to 12s. per case; raspberries, 3s. 6d. to 6s. per dozen punnets.

Flowers.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 2s. to 5s.; red roses, 6d. to 1s.; cattleyas, 5s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; Pansies, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

Vegetables.—English tomatos, 4d. to 5d.; Jersey, 3d. per lb.; Spanish, 9d. to 1s. 2d. per box; mushrooms, 6s. to 9s. per 12 lbs.; celery, 12s. to 18s. per dozen rolls; endive, 1s. to 1s. 4d.; cauliflowers, 1s. 6d. to 2s. 6d.; cucumbers, 1s. to 3s. 6d. per dozen; cabbages, 3s. 6d. to 4s. 6d.; beetroots, 2s. 6d. to 3s. per tally; mint, 1s. 9d. to 2s. 3d.; parsley, 2s. to 2s. 6d.; carrots, 3s. to 3s. 6d.; turnips, 3s. 6d. to 4s. per dozen bunches; English onions, 2s. to 3s. per dozen bunches; ports, 5s. 6d. to 6s. 6d. per case; peas, 1s. 6d. to 2s. 6d. per bushel, 2s. 6d. to 4s. 6d. per bag; French beans, 3s. 6d. to 4s. 6d. per half-sieve, 2s. 6d. to 3s. 6d. per flat; leeks, 1s. 6d. to 2s. per dozen bunches; potatos, 60s. to 120s. per ton.

Borough Potato Market.

Supplies are not quite so heavy after the rain, and this, coupled with a better demand has had a tendency to raise prices. English Snowdrops, White Beauties, and Early Puritan, 3s. 6d. to 4s.; Beauty of Hebron, 3s.; and Sutton's Early Regent, 3s. 6d. to 4s. 6d. per cwt.

THE WEATHER DURING THE WEEK ENDING AUGUST 6, 1898.

Stations.	Temperature of the Air.				Rainfa	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	79·4	47·4	63·8	17·67	0·06	0·15
Croydon	78·2	43·5	61·2	16·22	0·01	0·03
Brighton	73·0	46·0	60·4	15·78	0·23	[illegible]
Bristol	71·2	48·0	59·7	15·39	0·69	1·75
Wolverhampton	73·0	41·4	58·2	14·56	0·99	2·51
Norwich	76·8	43.0	60·2	15·67	0·14	0·36
Nottingham	75·8	45·0	60·1	15·61	0·21	0·53
Liverpool	71·0	50·6	57·7	14·28	1·46	3·71
Huddersfield	72·5	50·0	58·6	14·78	1·79	4·55
Bradford	73·2	50·0	60·4	15·78	1·24	3·15
Hull	75·0	44·0	59·1	15·06	1·94	4·93

The mean reading of the Barometer during the week at Greenwich was 29·816 inches, and that of the Thermometer 63°·8, the latter being 1°·5 above the week's average in the 50 years 1841—90. The direction of the wind was westerly, the horizontal movement of the air being 37 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 58·4 hours. The measured rainfall amounted to 0·06 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Wednesday, August 17.—Shrewsbury Floral Fete; Two days.
Shanklin (I. of W.) Summer Show.
Newton Stewart Floral Fete.
Cuckfield Summer Show.
Pembroke Dock Horticultural Society.
Dover Flower Show; Two days.
Thursday, August 18.—Jersey Horticultural Society.
Niton (I. of W.) Flower Show.
Abingdon Horticultural Society.
Grandpont and South Oxford Summer Show.
Friday, August 19.—Devon and Exeter Horticultural Society.
Saturday, August 20.—Co-operative Societies' Flower Show at Crystal Palace.
Sir J. Stirling Maxwell Horticultural Society, Pollokshaw.
Bicton and Oldland Horticultural Association.

AUCTION.

Wednesday, August 17.—Imported Bulbs, Me. J. C. Stevens, King Street, Co[illegible].

MAN'S INGRATITUDE.—We have it on Shakespeare's authority that the [illegible] not more unkind than man's ingratitude. In many cases this is unfortunately [illegible]. There are times, however, when the benefit received is so great that ingratitude [illegible] sible. When life is rendered a burden to us by sickness, and someone comes and restores [illegible] health, we should be base indeed to feel ungrateful. Thus, millions are to-day grateful to Holloway's Pills and Ointment, which have cured them of all stomach and liver troubles, banished [illegible] headache, flatulency, indigestion and low spirits, and cleared their systems of [illegible] sciatica, and all similar ailments.—[Advt.]

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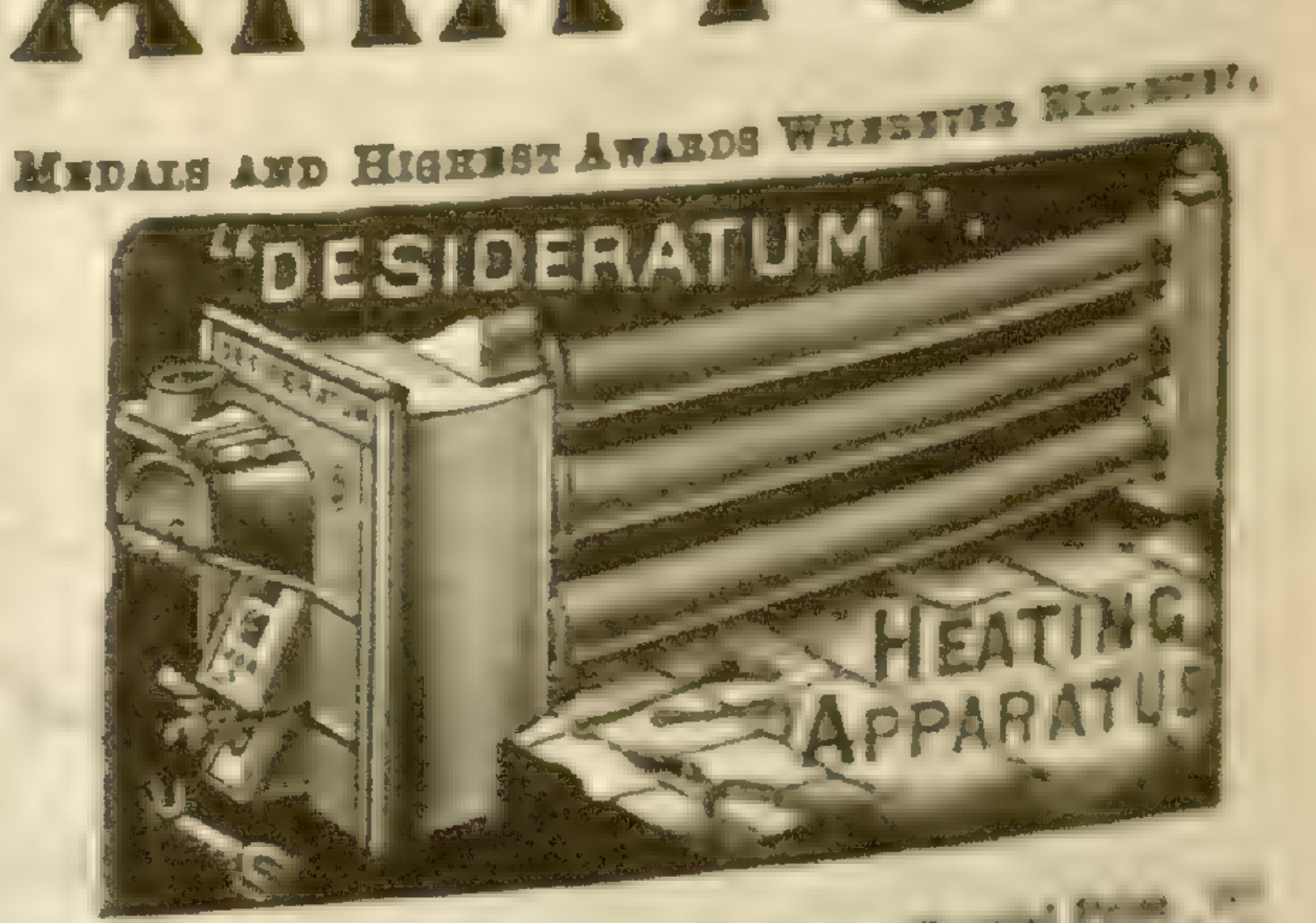

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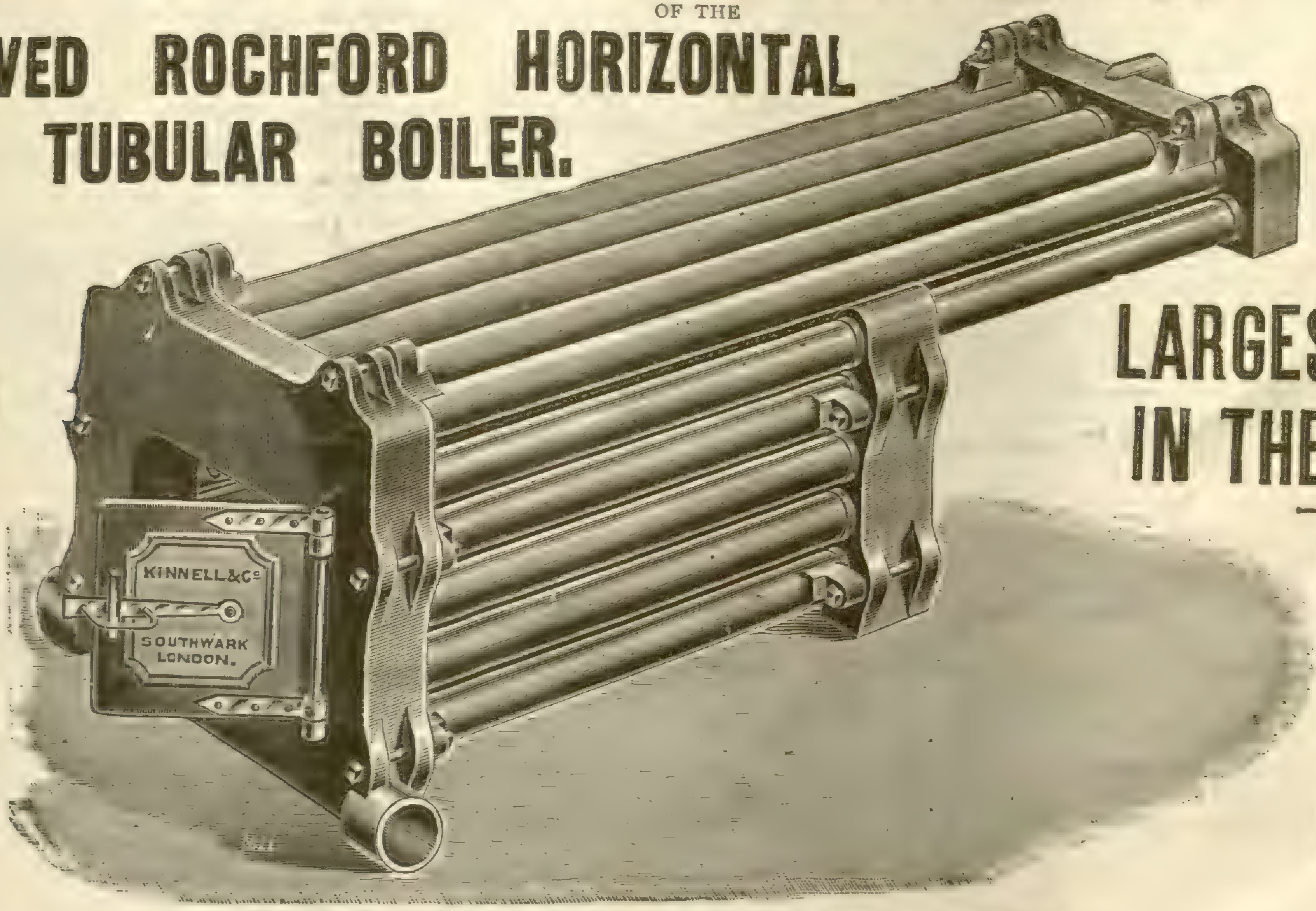

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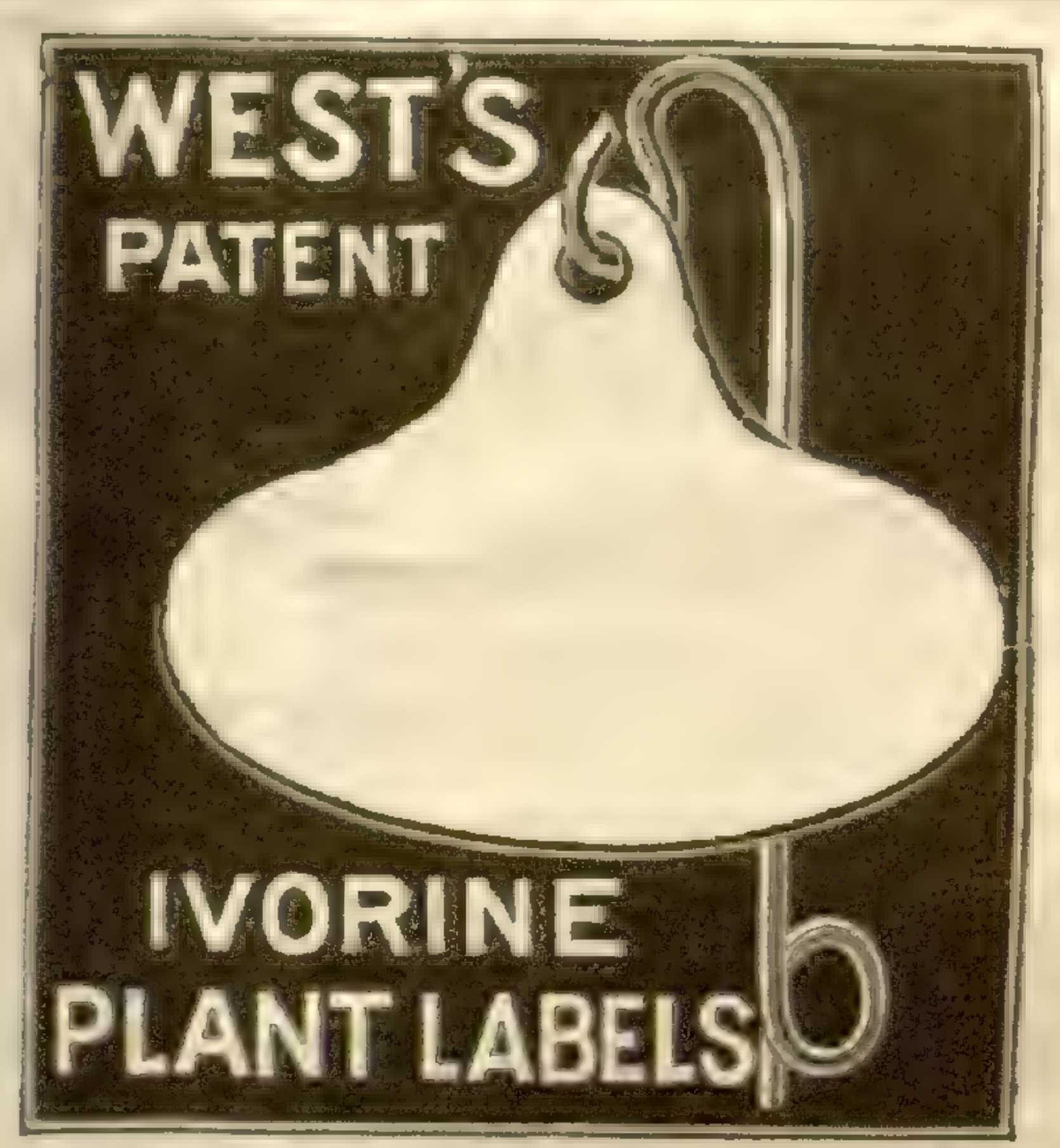

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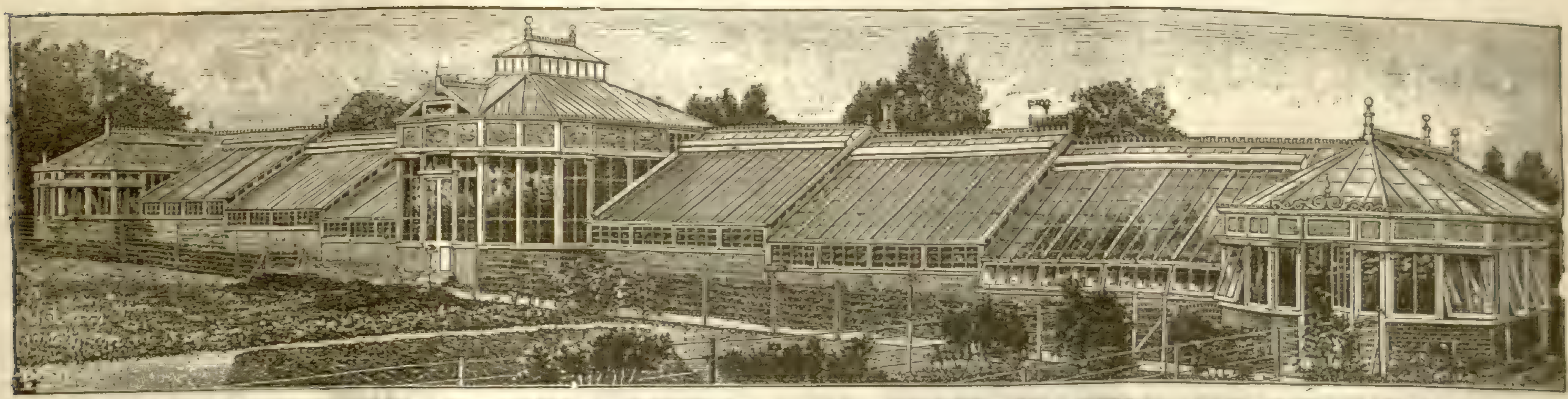

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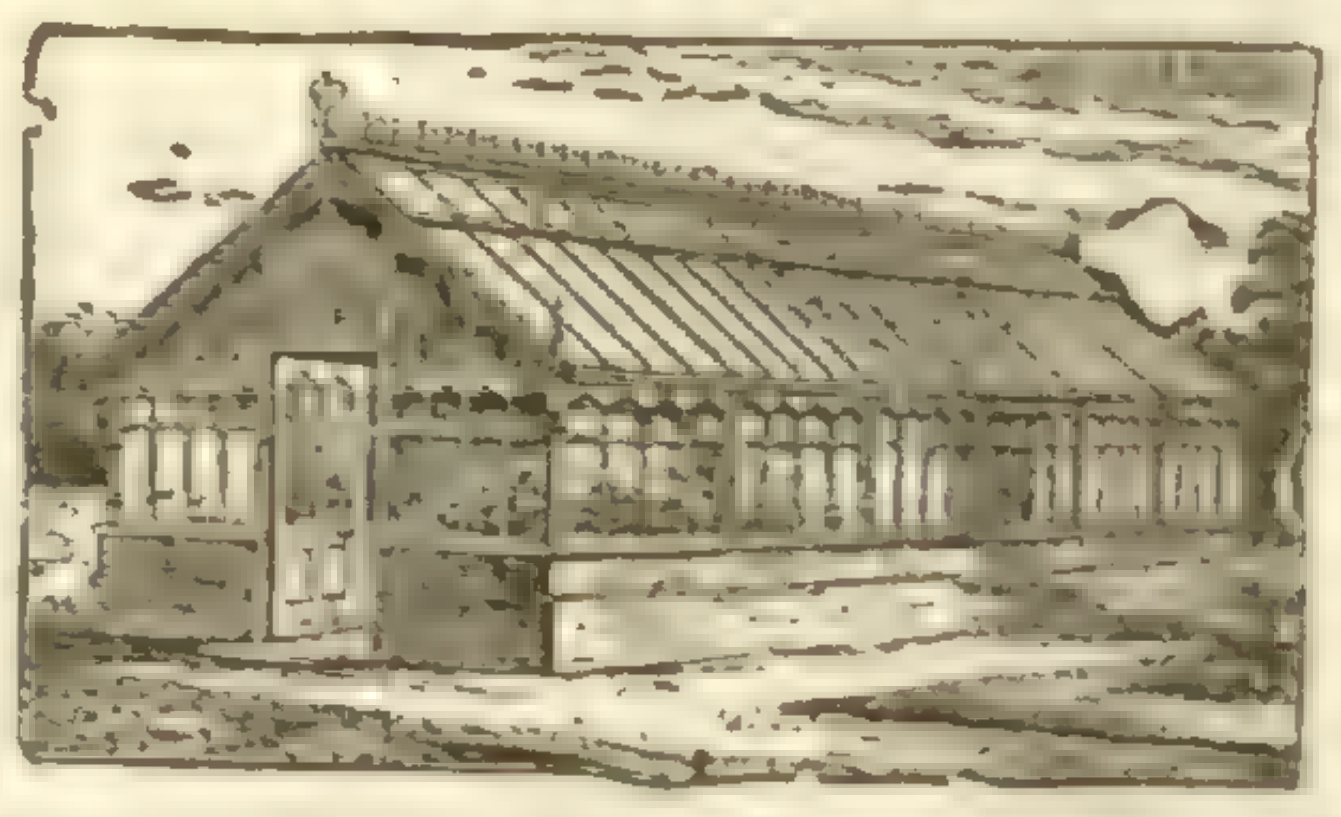

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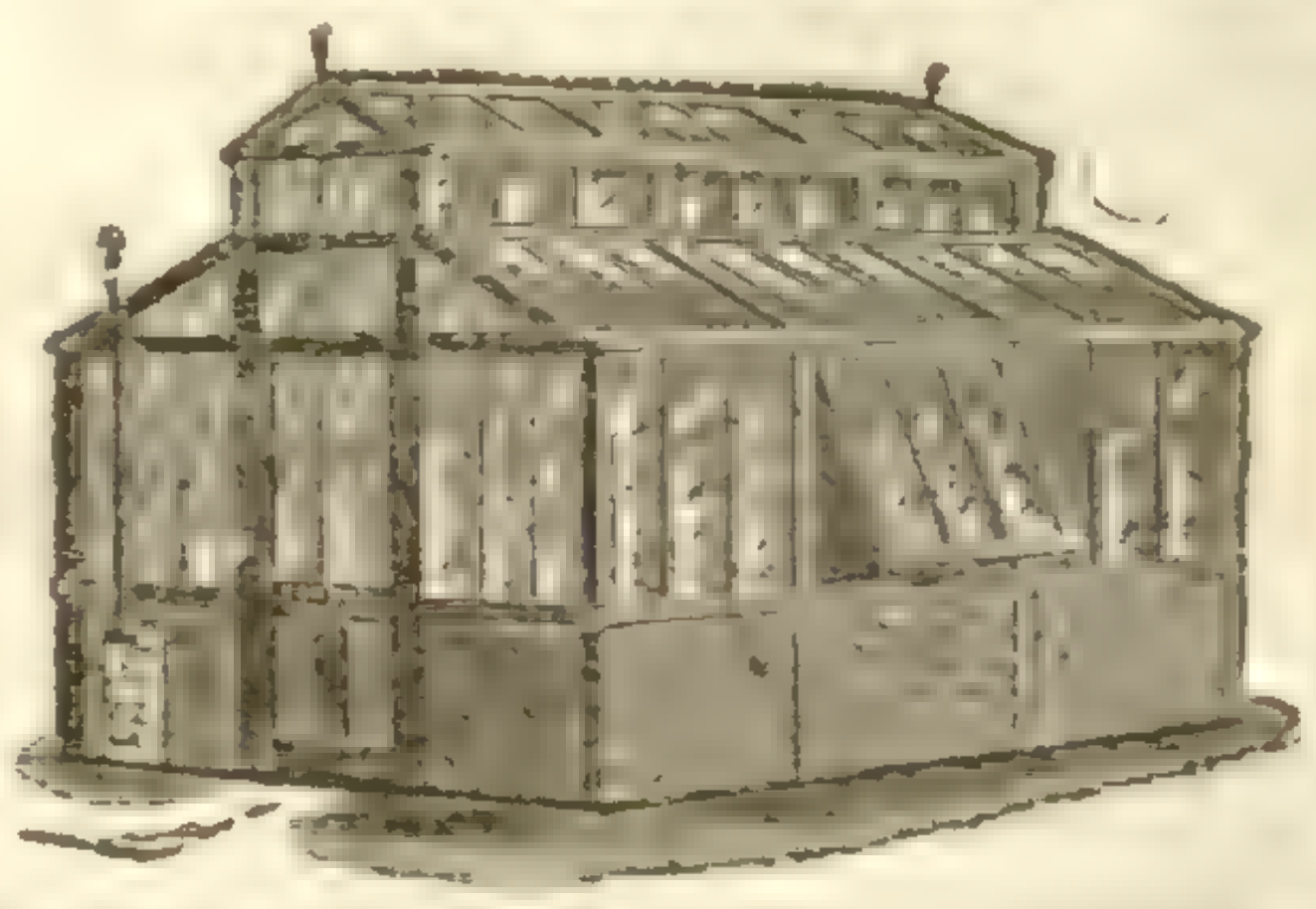

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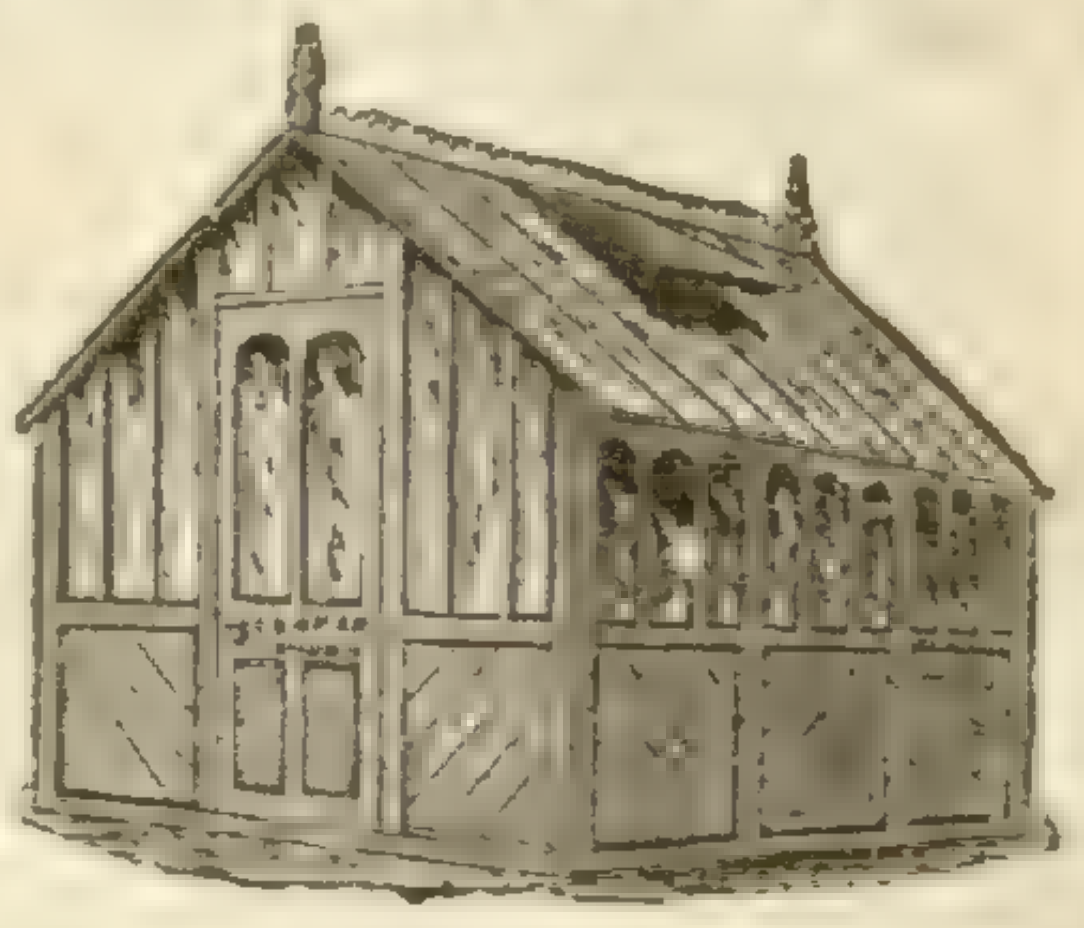

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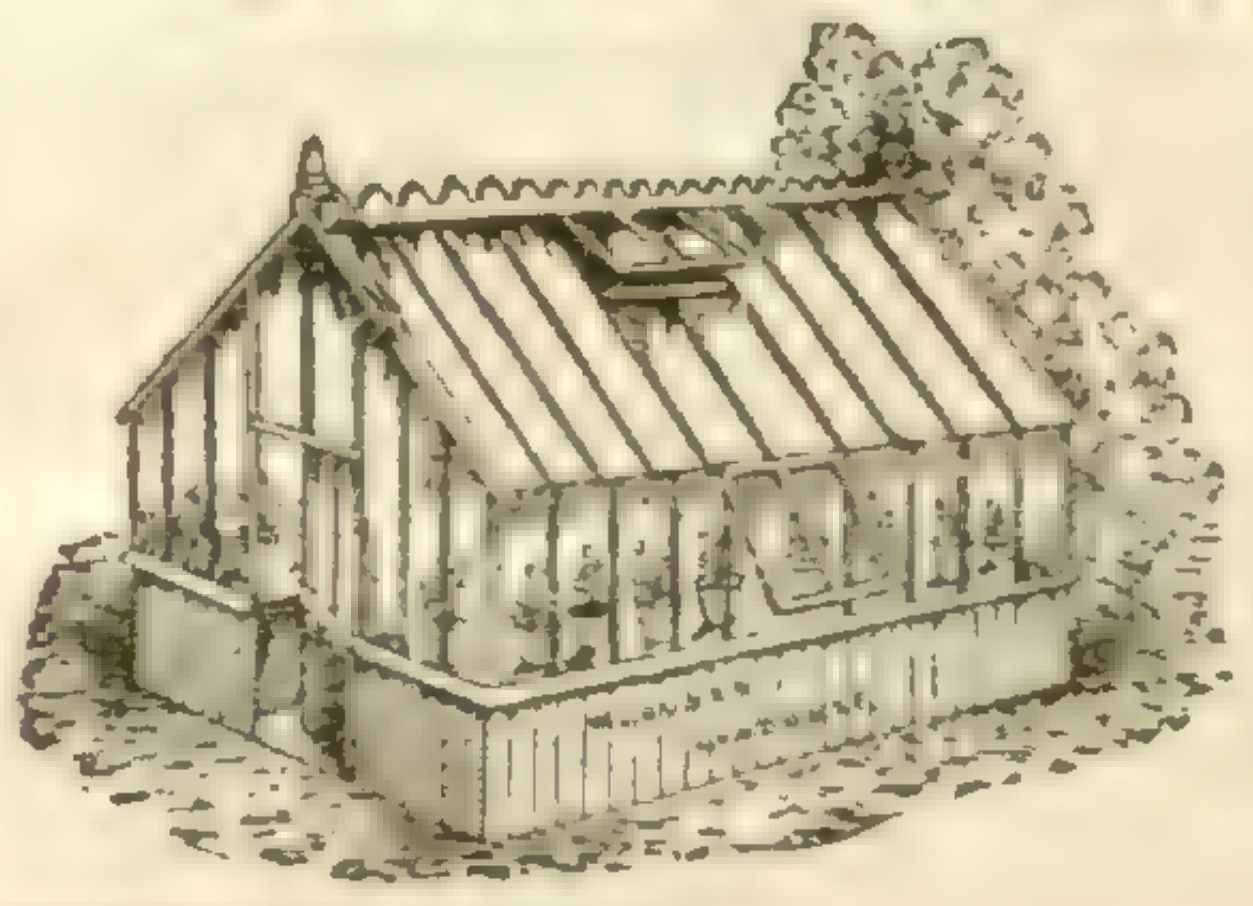

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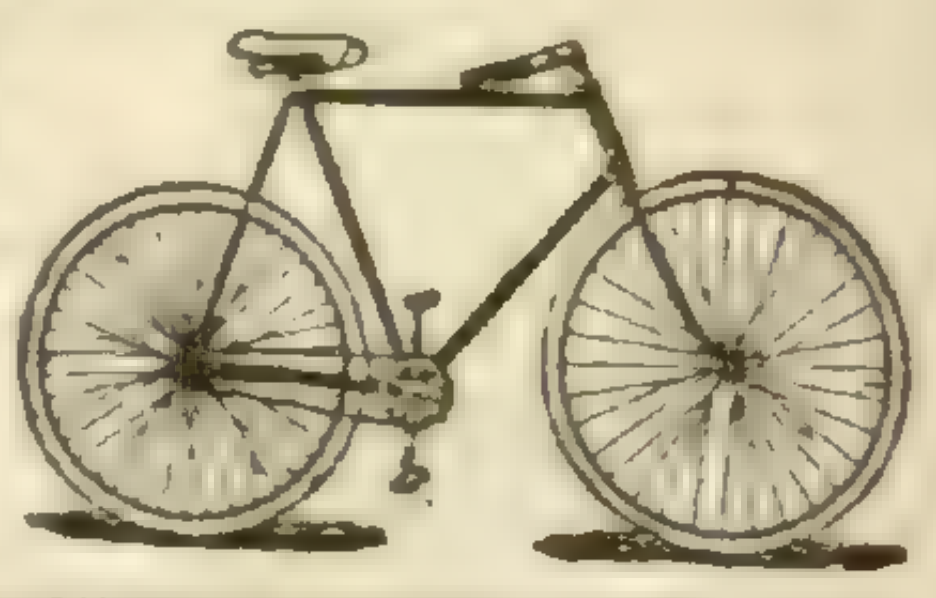

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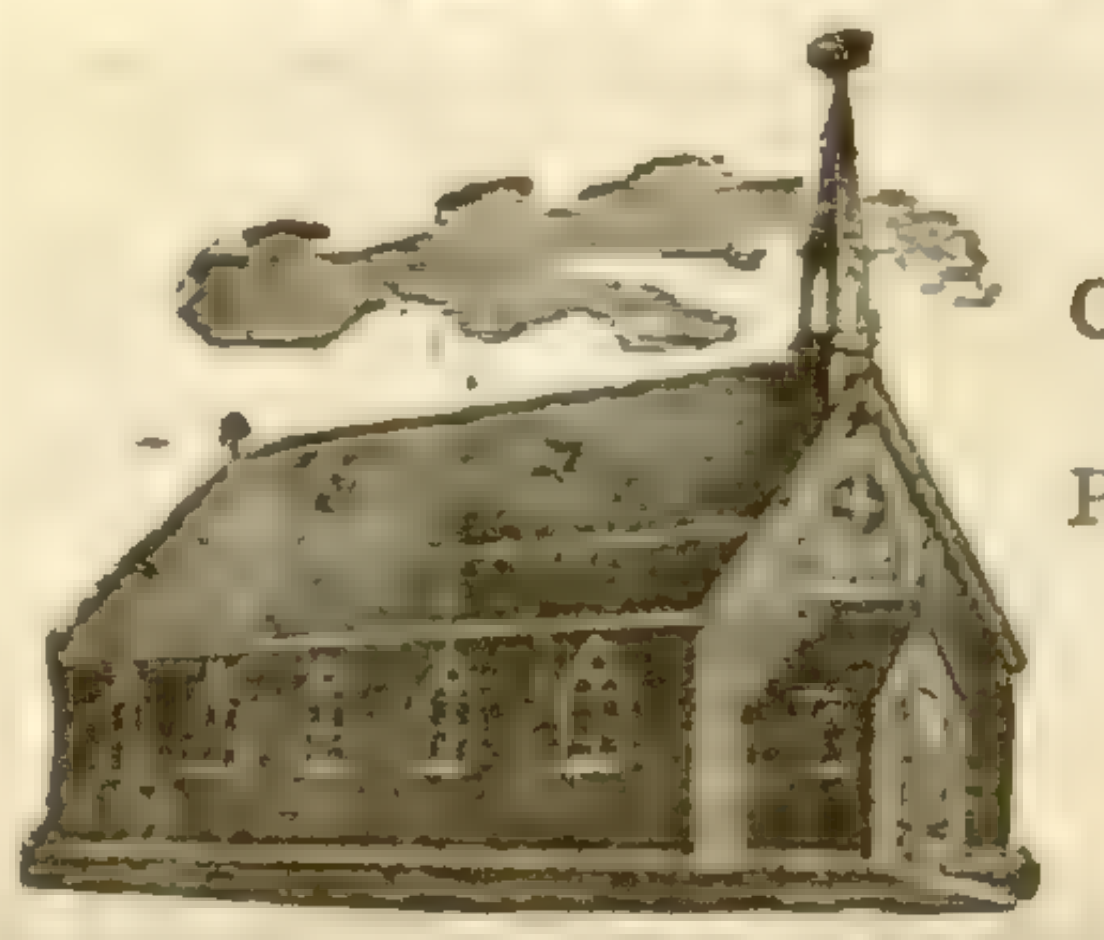

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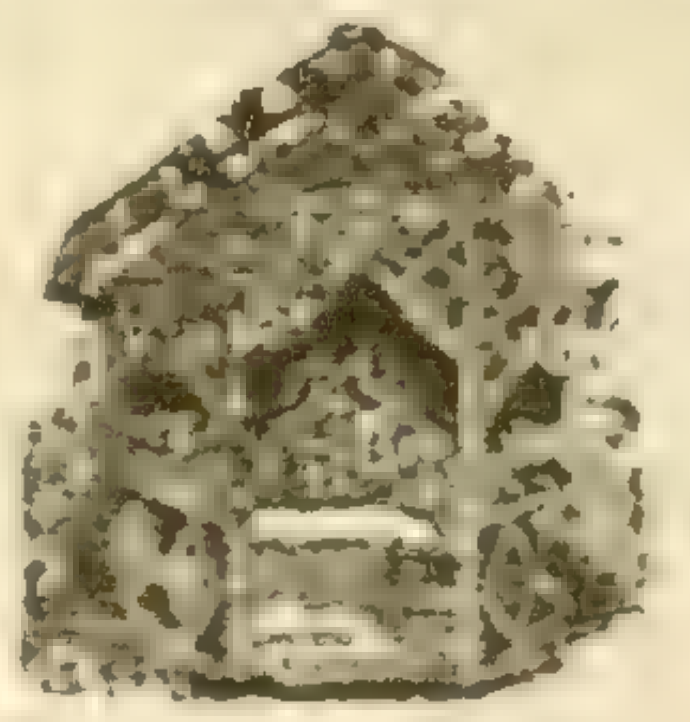

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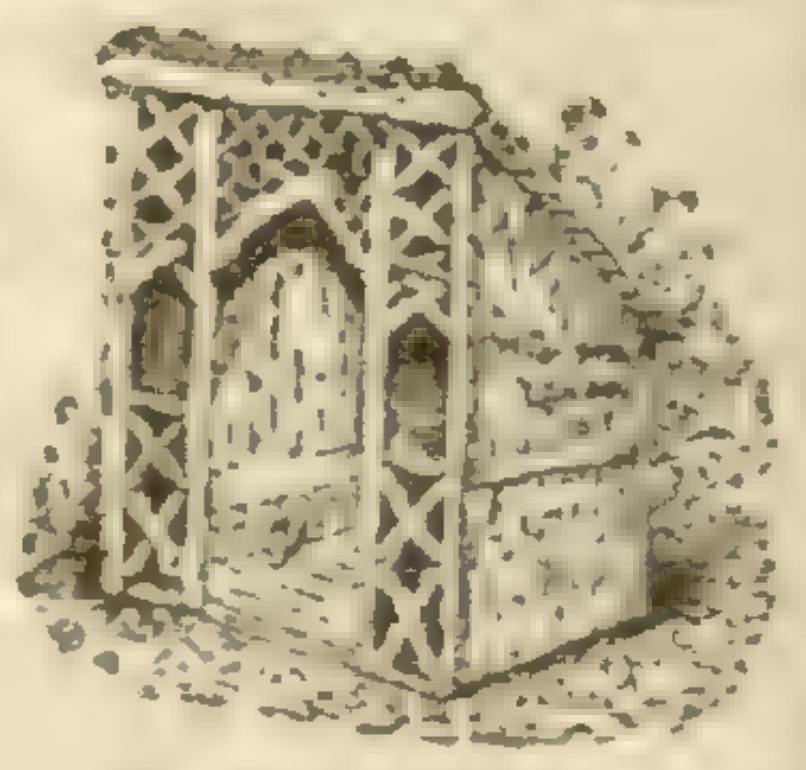

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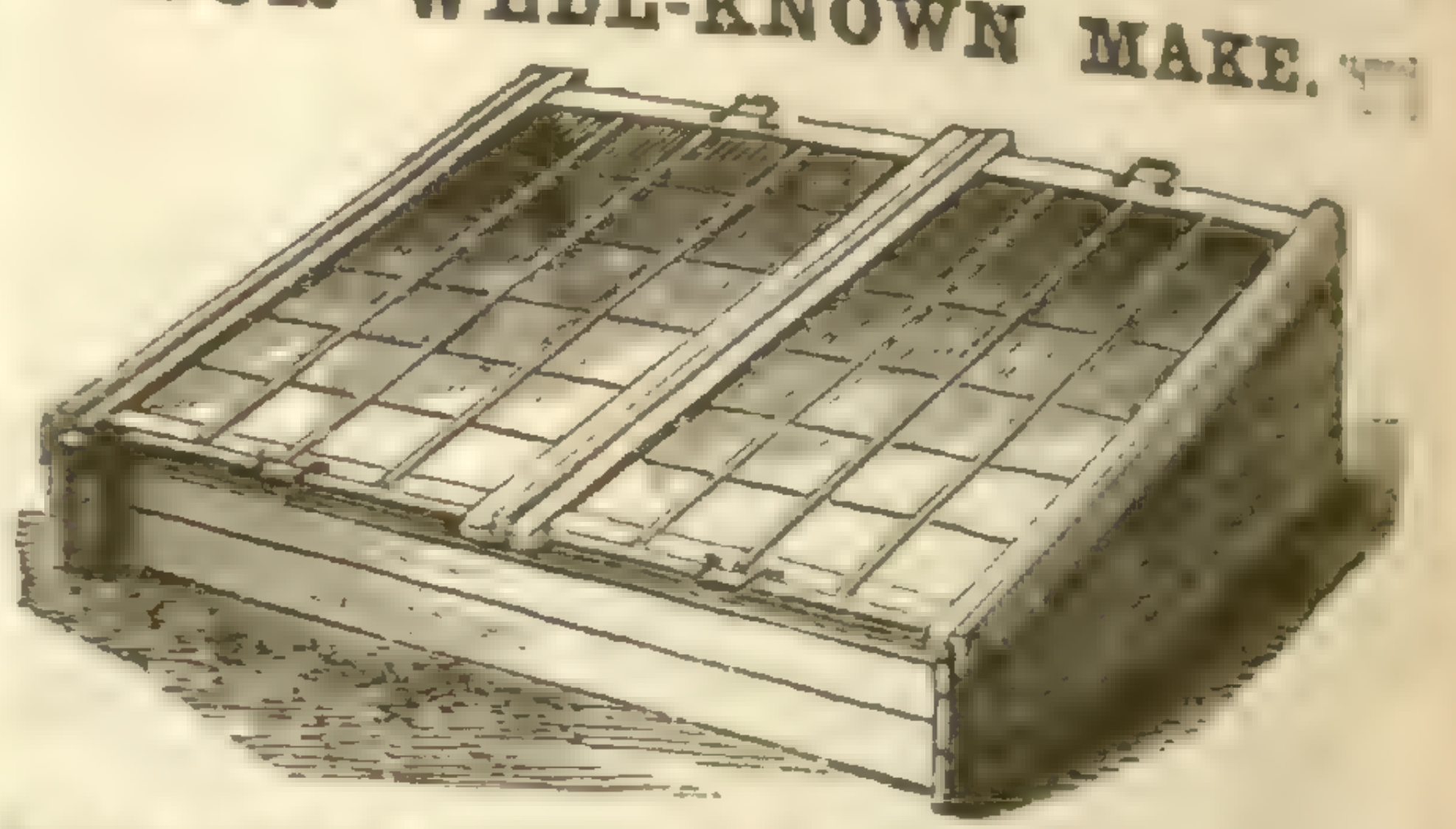

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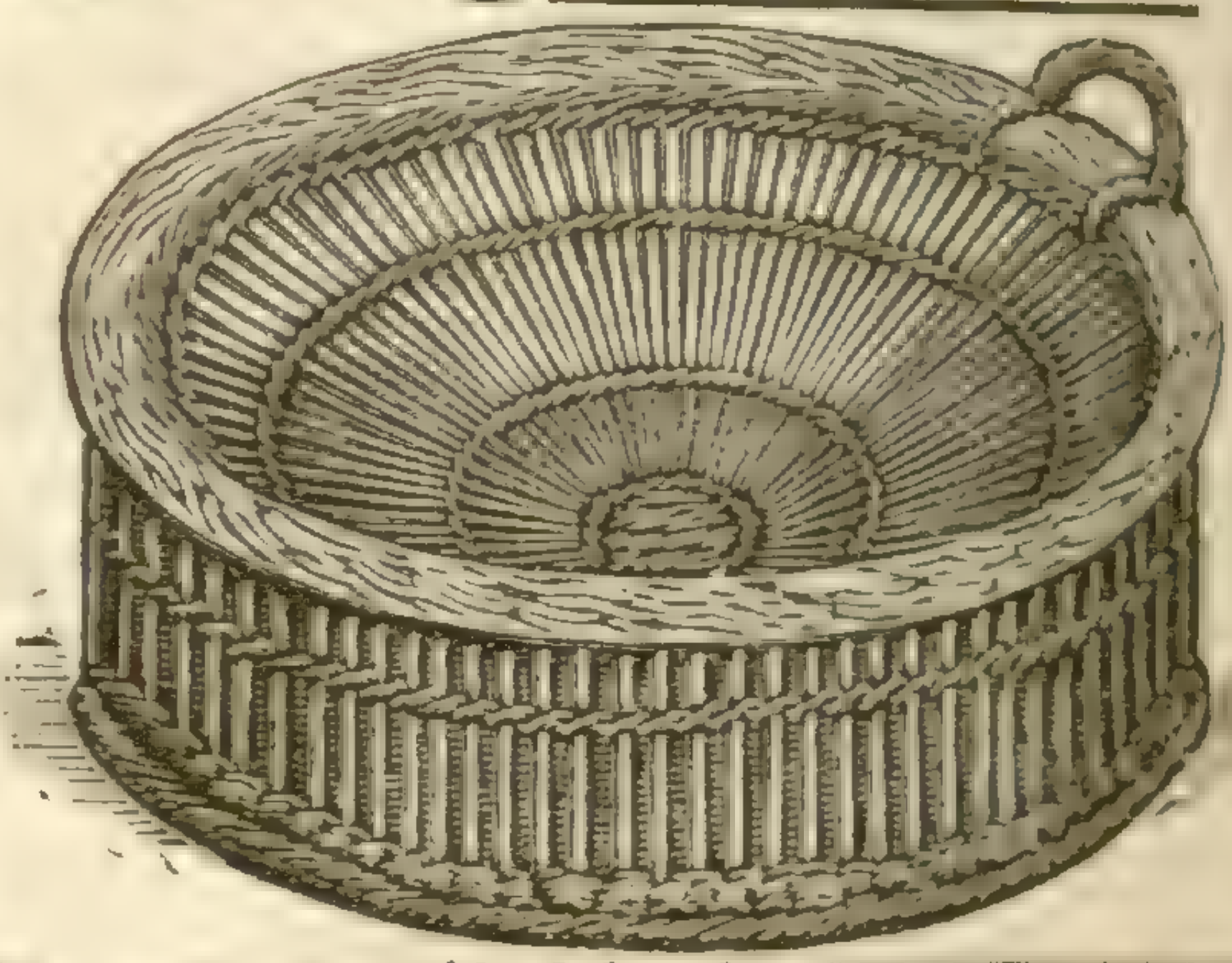

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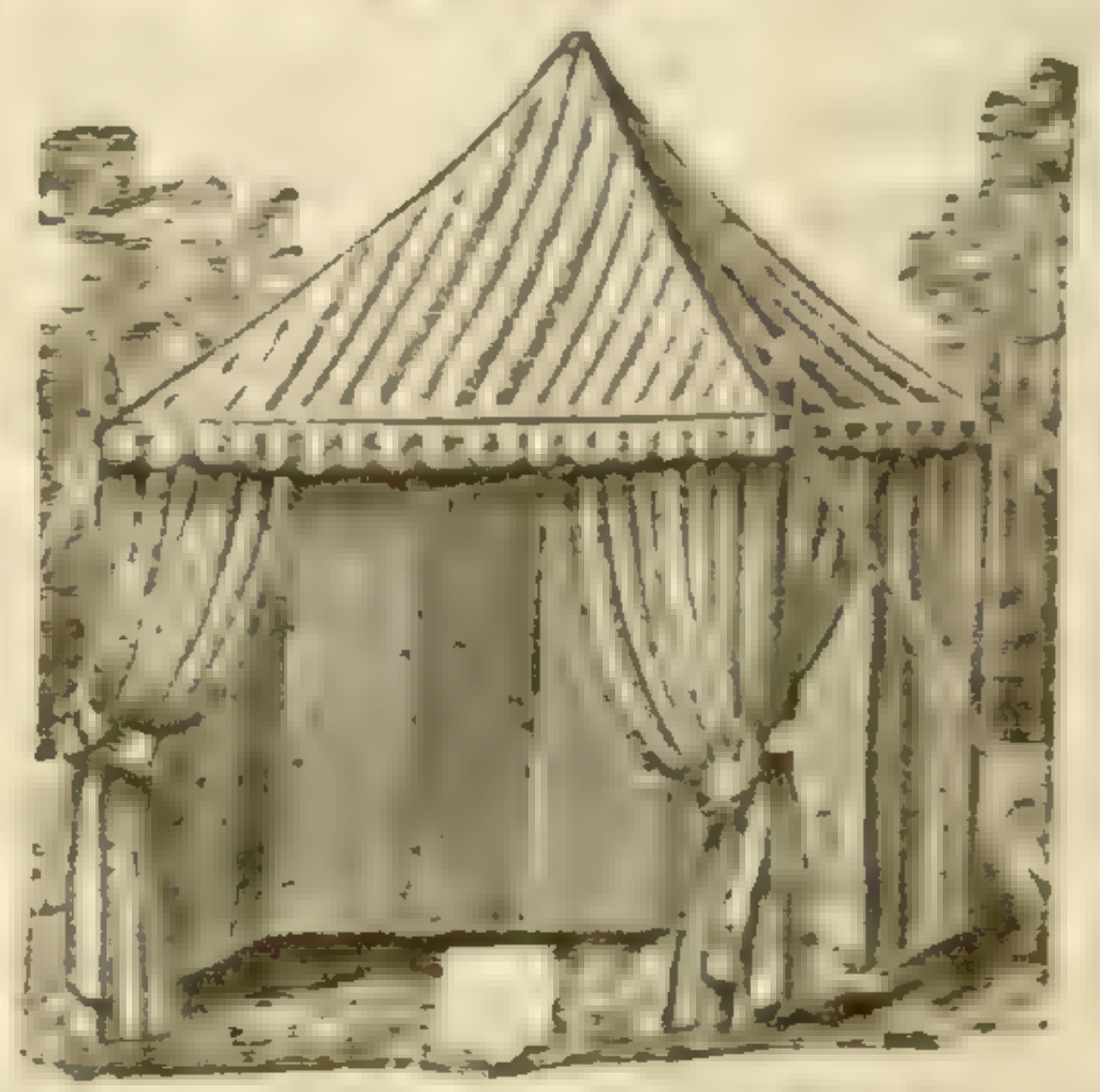

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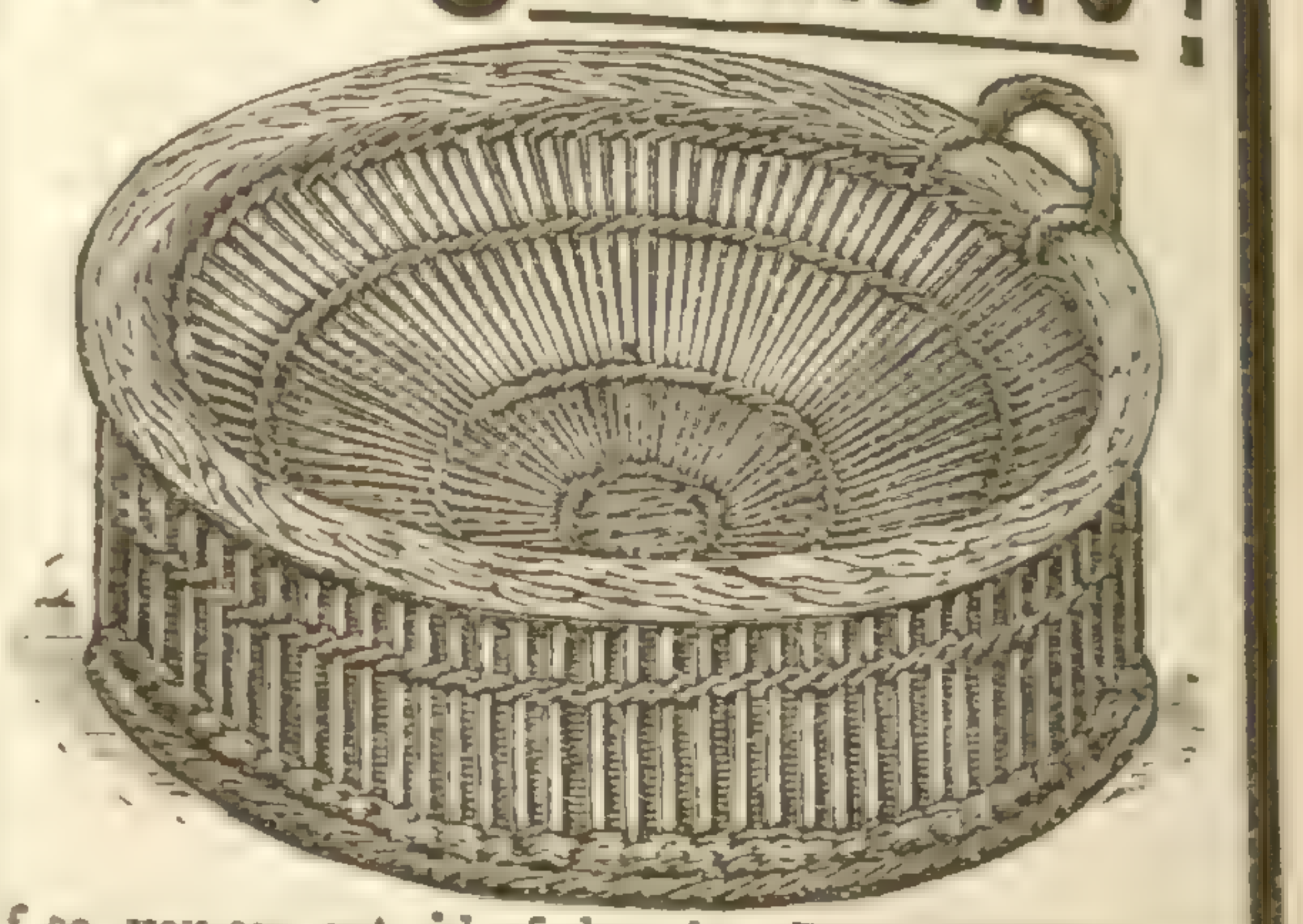

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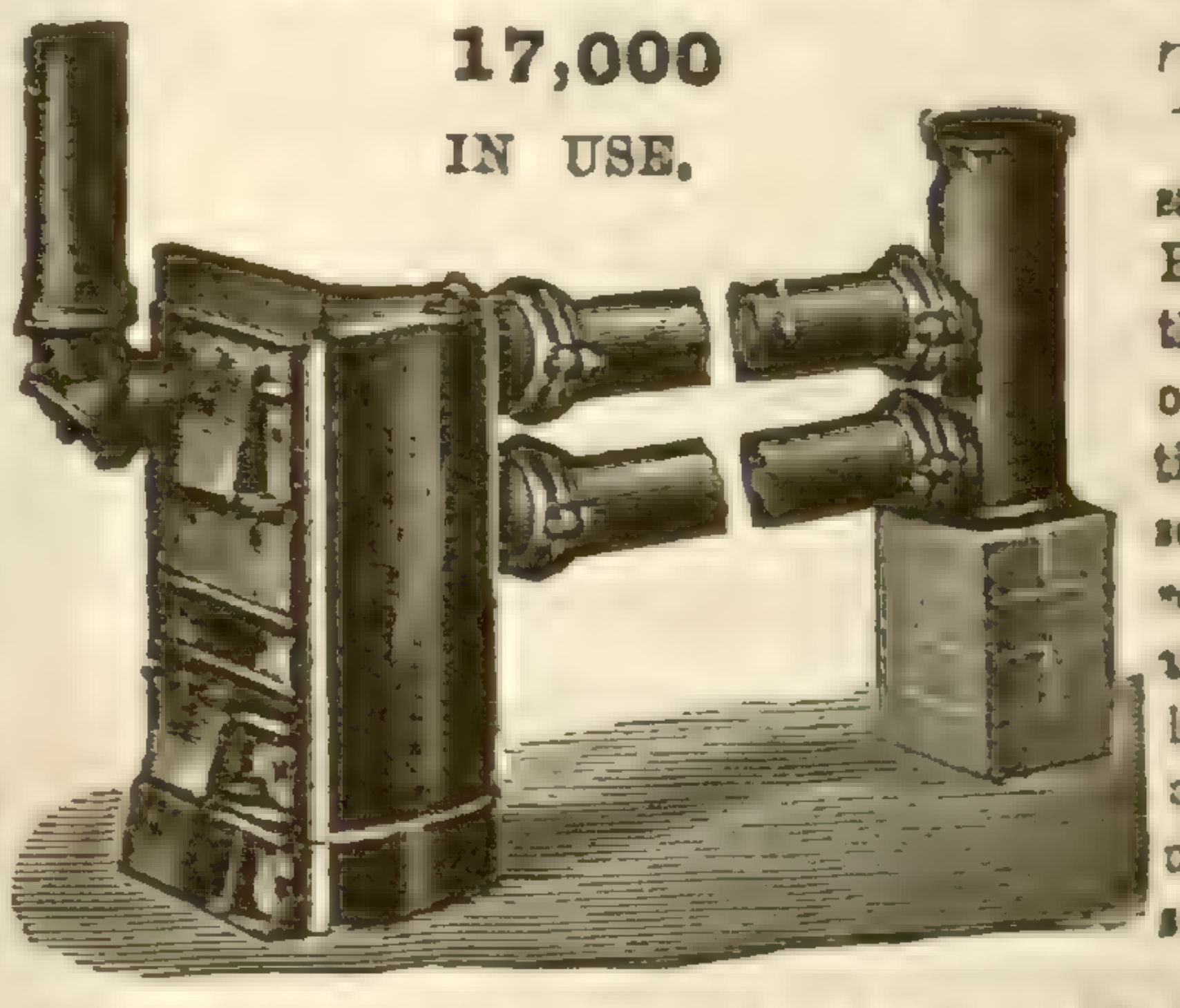

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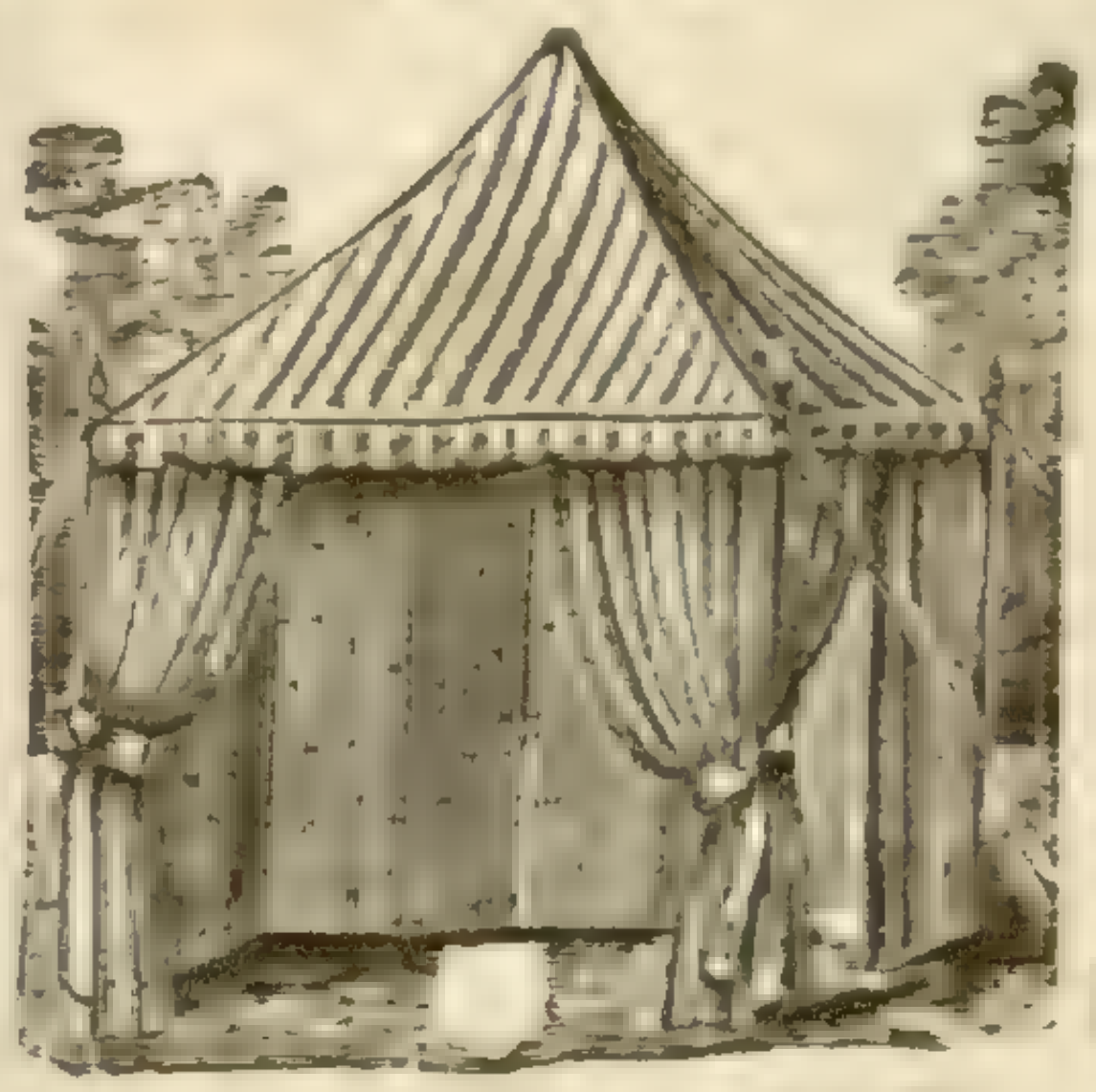

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GARDENER (Head Working, or good Second where three or four are kept); life experience; age 30; married, no family; lodge preferred.—GEO. E. COLLINS, 3, Freelands Road, Bromley, Kent.

GARDENER (Head Working); age 32; married, no family; life experience in all kinds of flowers, fruits, vegetables, early and late forcing; excellent testimonials.—F. CLARKE, West View Terrace, Mount Pleasant, Wilmslow, Cheshire.

GARDENER (Head-Working); age 33; 16 years' practical experience; inside and out; excellent references from present and past employers.—STRICKLAND, [illegible], Newark, Notts.

GARDENER (Head-Working, where three or more are kept); age 32; life experienee in all branches; married; no family; good references.—WILLIAM STONEY, Fownhope, Hereford.

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HEAD Working GARDENER, where two or more are kept; thorough knowledge of stove and greenhouse plants, vines, peaches, vegetables, &c.; married, two children; age 39.—Address F. WHITE, 5, St. David terrace, Llandaff, Cardiff.

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RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

SITUATION as Second, where three or four are kept, or Single-handed; five years present place; excellent character; age 26.—G. EUSTON, Shrubb Hill, Sunningdale, Ascot, Berks.

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WANTED, SITUATION as Second Gardener.—Apply C. BRANDRICK, Six Cottages, Whitley Common, Coventry.

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A List of Gardeners on the Register will be supplied upon application to the Publishers **if a stamped envelope is forwarded,** addressed 148 and 149, Aldersgate Street, London, E.C.

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	Per 100	1,000
Single Anemones, in fine mixture		
Crocus, II. size, in fine mixture	1 2	[illegible]
Crocus, I. size, in fine mixture	0 8	[illegible]
Hyacinths, mixed, for bedding or forcing	1 4	[illegible]
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection	9 3	[illegible]
	17 6	—
Iris Kæmpferi (Japan Iris), in fine mixture	5 0	[illegible]
Iris Germanica (Flag Iris), in fine mixture	7 0	[illegible]
Iris Sibirica, in fine mixture	[illegible] 0	[illegible]
Iris Spanish, in the finest mixture	0 7	[illegible]
Lilium Candidum, single, pure white	[illegible] 0	—
Montbretia croscosmiæflora, orange scarlet	1 6	[illegible]
Narcissus campernel Jonquil, yellow	1 2	[illegible]
Narcissus, double, Incomparable, primrose	1 6	[illegible]
Narcissus van Sion, single, yellow trumpet	2 6	[illegible]
Narcissus Stella, white, yellow cup	1 4	[illegible]
Gladiolus Marie Lemoine, fine	2 0	[illegible]
Gladiolus Brenchlyensis, deep scarlet	2 6	[illegible]
Scilla Sibirica præcox, intense blue	1 2	[illegible]
Tulips, single early, in the finest mixture	1 2	[illegible]
Tulips, double early, in the finest mixture	1 6	[illegible]
Duc van Thol Tulips, single, excellent for early forcing	2 6	[illegible]
Grape Hyacinths, blue	0 7	[illegible]
Anemone japonica, rose	5 0	—
Hemerocallis (Day Lily), mixed	8 0	[illegible]
Pyrethrum, fine double, pure white	15 0	[illegible]
Tritoma uvaria (Red Hot Poker)	14 6	[illegible]
Sparaxis, in fine mixture	0 8	[illegible]
Funkias, in fine mixture	10 0	[illegible]
Gladiolus Colvilli, white	1 2	[illegible]
Hyacinthus candicans, white	5 0	[illegible]
Iris pumila, mixed	4 0	[illegible]
Lilium umbellatum, red	10 0	[illegible]
Snowdrops, Elwesi	[illegible]	[illegible]

250 Bulbs of the same kind will be charged at the 1,000 rate; 25 at the price per 100; 6 at the price per doz.

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BEG respectfully to call attention to their large and varied Stock of the above, which are unsurpassed in quality, and will be found most reasonable in price. White Roman Hyacinths, Early Narcissus, Freesias, and other early Bulbs can be delivered at once, and the general collection will be ready very shortly. [illegible] descriptive Catalogue post free on application.

☞ Wm. Paul and Son's Exhibition of Hyacinths in pots in March last received the Highest Awards of the day at the Spring Show of the Royal Botanic Society, and at the second March meeting of the Royal Horticultural Society.

The *Gardeners' Magazine* of 2nd April, 1898, in describing them, says: "A big regiment of stalwart hyacinths from Messrs. W. Paul and Son, Waltham Cross, secured a large share of the general admiration. The specimens staged were equally remarkable for their short, stout foliage and massive spikes." And other Press notices, too numerous to mention, are equally favourable.

PAUL'S ROYAL NURSERIES AND SEED WAREHOUSE,
WALTHAM CROSS, HERTS.

THE GARDENERS' MAGAZINE.

SATURDAY, AUGUST 20, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY, Royal Aquarium, Westminster.—EARLY CHRYSANTHEMUMS, DAHLIAS. GLADIOLI, &c., September 6, 7, and 8, 1898.
Schedules of Prizes on application to Richard Dean, V.M.H., Secretary, Ranelagh Road, Ealing, W.

DERBYSHIRE AGRICULTURAL AND HORTICULTURAL SOCIETY.
ANNUAL SHOW, DERBY, September 7 and 8.
UPWARDS OF £220 IN PRIZES FOR HORTICULTURE.
Open to all England.
GROUPS, £65; DECORATIVE DESSERT TABLE, £19.
Entries positively close Wednesday, August 31.
Schedules and all particulars of
Canal Office, Derby. Sidney Burton, Secretary.

KINGSWOOD, ST. GEORGE, AND WEST GLOUCESTERSHIRE HORTICULTURAL SOCIETY.—ANNUAL SHOW on WEDNESDAY, 24th August, 1898, at Kingswood. Over £200 in Prizes, in addition to Four Silver Cups for Open Amateur Competition.
Saint George and Kingswood, Bristol. F. H. Jullion, A. W. Cottle } Hon. Secs.

MAIDENHEAD HORTICULTURAL SOCIETY. — The ANNUAL SHOW will be held in Kidwell's Park, on THURSDAY, September 1, 1898.
Schedules may be obtained from Chas. A. Vardy, Hon. Sec.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being **Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.**

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

WATERING FRUIT TREES.

WITH so small a rainfall as that recorded during the past six or seven weeks there can be no doubt that fruit trees trained to walls have in some parts of England suffered somewhat from an insufficiency of moisture at the roots at a period when a great strain is imposed upon them in providing the nutrient matter required in building up the new growth and the development of the fruits. We have had many seasons in which fruit trees growing under the conditions mentioned have been subjected to a greater degree of suffering from drought than has been the case this season, for not only have we had droughts extending over a longer period, but the trees have in some dry seasons been more heavily laden with fruit. There is not the slightest necessity for alarm as to the ultimate results of the conditions that have obtained; but in numerous instances that have come under our notice the trees have evinced signs of distress, and this appears an opportune time for considering whether something might not be done to assist the trees to pass through comparatively short periods of dry weather without an appreciable check. Wall trees growing in gardens of which the soil is naturally light have, as will be readily understood, suffered the most, and the trees we now have in mind are those which by reason of the lightness of the soil feel the effects of drought the most quickly. Where the trees have appreciably suffered from the cause in question they would derive substantial assistance at the present time from a liberal watering. To supply any considerable number of trees at one time with enough water to moisten the soil to a sufficient depth is an arduous undertaking when the fluid has to be carried long distances. Because of this it must not be assumed that no help can be given, for by watering a few each day all the more important peach and nectarine trees can receive assistance within a short time, and without the garden staff being unduly taxed. This aid should be forthcoming whether the crop has been gathered or not, for the additional moisture placed within reach of the roots will greatly aid the trees in completing their season's growth, and thus lay the foundation of a good crop for next year. Reliance must not be wholly placed upon waterings, and it would be an enormous advantage were mulchings of short stable manure more generally used in the cultivation of wall fruits on sandy and other soils that rapidly part with moisture. To over estimate their value would be extremely difficult, for when the borders are covered in May with a layer of stable manure from four to six inches in depth evaporation is materially checked during the summer, and as the manure decays and becomes, through the agency of earthworms, incorporated with the soil, the capacity of the latter for retaining moisture is greatly increased. Stable manure has great hygroscopic power, as proved by the fact that when in a dry state it will absorb from the atmosphere and retain moisture equal to forty per cent. of its weight. Discretion is, of course, necessary, and it should be borne in mind that while the liberal use of stable manure to strong, retentive soils may promote excessive luxuriance, yet, in soils deficient in humus, its use in the form suggested will be highly beneficial.

THE ROYAL BOTANIC SOCIETY'S PROSPECTS.

IN one important respect the proceedings at the annual meeting of the Royal Botanic Society were hardly so satisfactory as could have been desired, inasmuch as but little was said with reference to the prospects of the society or the steps it is proposed to take with a view to place it in a position to carry on its work in a vigorous manner. It is pleasant to learn that there had been an increase in the number of Fellows and in the income from subscriptions; and also that there was a small balance at the close of the financial year in favour of the society. There are now 2,050 Fellows on the books, and of this number 167 joined during the year, or 36 in excess of the previous year, and 83 above the average of the past ten years. These figures are of interest as indicating the vitality of the society, and its possibilities under vigorous management carefully adapted to present day requirements. With an income of nearly £3,000 and so substantial a list of Fellows there should be no great difficulty in preparing a programme for next year that would result in the society accomplishing much useful work and obtaining still larger accessions of new Fellows. The School of Practical Gardening has, it was stated, been successful, and this so far is satisfactory; but we do not look to this school or to the holding of dog shows in the gardens as the means of restoring the society to prosperity. We, indeed, fail to see how, under existing conditions, the students attending the school can be thoroughly grounded in the practical details of the culture of hardy fruits and vegetables, and we are unable to recognise a very close relationship between botanical science and pet dogs. There was one matter which we regard with some pleasure, and that was the statement by Mr. C. Brinsley Marlay, who presided at the meeting, to the effect that he should like to see relations existing between the society and the kindred association at Westminster, which would permit of the latter's fortnightly meetings being held in the Regent's Park garden. It is something to have this admission of the desirability of these two great societies working together, and it is especially gratifying to us as a proof that our suggestions as to the advantages that would result from the combination of the forces of the two bodies is slowly but surely bearing fruit. It would, of course, be an advantage to the visitors were the magnificent and interesting collections that are sent to the Drill Hall to be arrayed in the spacious conservatory of the Regent's Park gardens; but it is not to be expected that the Royal Horticultural Society will do anything so unwise as to take steps that will result in its most important work being partly obscured. A much closer relationship than was suggested by Mr. Brinsley Marlay is, in the interest of botany and horticulture, required; and we consider the complete fusion of these societies essential to horticulture attaining to a position commensurate with its importance in the metropolis. The great need at the present time in London is one powerful general society with a spacious and attractive garden, which would admit of the several special societies holding their annual gatherings in it with advantage to all concerned, and be regarded both at home and abroad as the head-quarters of practical and scientific horticulture in the United Kingdom.

A CURIOUS HART'S-TONGUE.

AT the meeting of the Royal Horticultural Society's Scientific Committee on the 9th inst., Mr. W. Marshall exhibited a very curious example of multiform variation in a plant of Scolopendrium vulgare; no less than three distinct and widely divergent forms presented themselves as originating from one and the same axis of growth. The history of the plant involved also great peculiarities, since in the first place it originated from a ramo-cristate variety, in which the fronds ramify repeatedly into a fanshaped arrangement of very narrow segments, which are profusely fertile, often on both surfaces. A frond of this when layered developed five bulbils on the edges, and the plant in question was developed from one of them, so that no question of crossing comes in at this stage to justify any reference to multiple parentage as conducive to a multiform result. The plant was at first of the parental form, but subsequently reverted to the normal in appearance, though obviously retaining in its blood or sap equivalent a great capacity for sporting since in the form it has assumed now one frond is absolutely normal, that is, flat, strap-shaped and bluntly pointed, with a heart-shaped base. Three other fronds start with normal bases, but bear foliose branching crests, while still another frond is of a true crispum or frilled form, with a digitate tip. None of the fronds, therefore, are of the parental narrow ramo-cristate type, and though the crested ones and the normal one may be regarded in some measure as legitimate reversions, the occurrence of the plumose or crispum frond in such a connexion is one of the very last things the experienced fernist would expect. Its departure from the original type is really an extreme case, seeing that a narrow, much divided, very fertile frond is replaced by a broad, frilled, barren one, belonging to a different section altogether. The occurrence of such a multiform plant independently of a cross, is another proof of the versatility of species in themselves, and undermines materially the evidence which has been adduced of multiple parentage in multiform plants of a similar class. As the hart's-tongue is easy to raise from the frond bases, it would form a very interesting experiment to mark these diverse fronds, and take cuttings from them to ascertain whether such a start being once initiated by the frond itself as it were, its base would reproduce its own particular type to the exclusion of the other. Some well marked and constant varieties of ferns have been so intimately associated with normal plants when found as to indicate the possibility of their resulting from bud sports instead of spores, and we know of one case of a heavily crested, frilled hart's-tongue originating as an undoubted offset from a plain frilled one, from which it could only be separated by cutting. Any evidence, therefore, of such potency in local partial sports to become fixed as established varieties is well worthy of collection, our knowledge in this direction being of the most meagre description.

FRUIT HYBRIDIZING.

THE unsatisfactory results so far attained by the attempts to cross fruits of different species are not much to be wondered at when we consider the far greater complexity involved in a successful fruit cross than there is in a merely floral combination. The bigeneric orchids recently produced, and cited as exemplifying possibilities in this direction, have resulted from crosses between plants which even if of varietal forms, are practically wild finds, and hence have fairly pure blood in each parental form to start with, and, moreover, the external appearance of the bi-typical flowers, if they present new forms or new tints, is held to justify all the trouble taken. With fruits, however, there is the far more subtle question of flavour to be considered in addition to the second material point that the parental forms of raspberry or strawberry, gooseberry or currant, are the outcome of long-continued selective culture, so that, as opposed to the case of orchids, whose seed would presumably give fairly true progeny, the seeds of these fruits are of such variable potencies that little or no dependence can be placed upon them as reliable reproductive agents. The results of this is that the fruit hybridist has really no fair start, and when we consider what an exceedingly delicate matter flavour is, especially in our finer fruits, and how it requires a connoisseur to fully appreciate their niceties, grading not merely from the pleasantly acid to the intensely sweet, but all grades mingled with the specially characteristic taste and aroma of the variety concerned, it becomes clear that any combination is almost bound to spoil rather than to improve, and the connoisseur shudders at the mixture precisely as the judge of wine would do at a mingling in one glass of his choicest vintages. In crossing and hybridizing, however, it occasionally happens that the influence of one parent is peculiarly limited, only one feature out of the many being transmitted, and in this fact lies, in our opinion, the greatest encouragement for the hybridizer of fruits, since among a multitude of failures due to mixed, and therefore unpalatable, flavours, he may here and there arrive at a type worth having, say, bunch gooseberries with the true gooseberry flavour, or currants immensely enlarged by the gooseberry influence, but with their characteristic taste unimpaired. This type of combination is well worth trying for, and though we predict that the successes will be numerically few, we heartily hope that the efforts to reap them will not be relaxed on account of preliminary difficulties, especially as Nature has a peculiar knack of introducing surprises in the varietal line by way of bonus to the assiduous cultivator over and above the legitimate prizes arrived at and won by judicious unions.

Checkmating the Black Currant Mite.—As yet but little has been accomplished in obtaining a more thorough knowledge of the life history of the Black Currant Mite (*Phytoptus ribi*), or in devising an effectual means of checking its ravages. As the result of the several scientific bodies leaving the pest severely alone, and the failure of the growers to combine for the purpose of conducting a series of experiments with a view to devising some means of warding off attacks, the mite continues to extend and inflict heavy losses upon cultivators. So far we have not passed far beyond picking off infested buds and cutting away branches of which the greater number of buds indicate the presence of the mite; but both methods of procedure are tedious and involve a considerable expenditure in labour, and there is no good reason why the efforts made for the purpose of repelling the attacks should be limited to them. In the large plantations of black currants grown for fruit production by Messrs. T. Rivers and Son at Sawbridgeworth, the mite has been effectually checkmated by the simple process of cutting the branches back to within a few inches of the base every second year. The first year after they have been thus severely pruned they produce stout growths ranging from eighteen to thirty inches in length, and in the second season they produce heavy crops of fruit of high quality. These branches are cut down during the winter following the production of fruit, and every scrap of wood is gathered up and burnt. Under this course of procedure, one crop only is obtained from each plantation in two years; but by cutting back one-half the bushes each year, a continuous supply of fruit is obtained. The question, therefore, which the grower has to consider is whether half an acre of healthy bushes will be more profitable than an acre of bushes in a more or less unsatisfactory condition from mite infestation. Mr. T. F. Rivers, the head of the Sawbridgeworth firm, who is one of our highest authorities on the culture of fruit for market, as well as on fruits for the garden, is strongly of the opinion that the smaller area of perfectly healthy bushes give the best results, and that he has the courage of his opinion is evidenced by his practice. It would be interesting to know the exact difference annually in the weight of fruit obtained from the two areas mentioned, and we commend the matter to the attention of those who have an experimental turn of mind; but we do not suggest that the mite should be introduced to the plantations for experimental purposes.

Hybrid Nymphæas.—Dr. Masters exhibited several kinds of nymphæas at the recent meeting of the Scientific Committee, with the purpose of calling attention to the different arrangements and number of the lacunæ in the stems and the flowers and in the petioles. He observed that the species could be grouped by means of them, and proposed to make a further examination of the hybrids for the purpose of ascertaining whether they could also be arranged into groups by the aid of the lacunæ.

Violas at Chiswick.—The trial of violas in the Chiswick gardens of the Royal Horticultural Society has, notwithstanding the somewhat unfavourable climatic conditions that have obtained during the summer, brought into prominence the varieties specially suitable for garden decoration. The large collection has been examined on several occasions during the season, and three marks or awards of merit given to the finest of the varieties in the several hues of colour. These have been fully reported upon in the GARDENERS' MAGAZINE, and it is of interest to know that the varieties selected for distinction at the earlier meetings of the Floral Committee still maintain a leading position. At the inspection of the collection on Tuesday it could readily be seen that had the awards been made on that day they would not have differed materially from those made earlier in the season. One variety only was selected for the award of three marks, and this was Bronze Queen, which has dark, red-bronze flowers, and appears to be well able to resist the effects of drought when growing in light soils. It is fairly free in flowering.

Function of Iron in Plant Life.—At a recent meeting of the Paris Academy of Science, M. Jules Stoklasa submitted his views on the physiological function of iron in the vegetable organism, which created considerable interest. It has long been recognised that iron is necessary for vegetable life, and microscopic observations have led to the supposition that the metal exists in organic combination in the nucleus of the cell. It is not present in chlorophyll. M. Stoklasa has extracted from onions and from peas a substance containing 1·68 per cent. of iron, which closely resembles, in composition and properties, the hermatogen obtained by Bunge from yolk of egg. This compound is also contained in non-chlorophyllaceous plants, as was proved by its being obtained from moulds (*Mucor mucedo*) and fungi (*Boletus edulis*).

Blind Strawberry Plants.—Some plants of Royal Sovereign strawberry were received at the meeting of R.H.S. Scientific Committee from Mr. J. Lyne, of the Gardens, Foxbury, Chislehurst, in which the crowns were generally blind. Mr. Lyne writes: "Last autumn we planted a bed of last season's runners, with the object of getting early runners this year. They grew well, and made a fine lot of early runners. All trusses of bloom were picked off the parent plants as soon as they appeared. The runners were layered four in a six-inch pot, and all rooted well; but last week, when transferring them into single pots, we found about half were blind, the crowns being brown within. A healthy plant would be often growing in the same pot with defective ones." Perhaps some growers of strawberries may have had a similar experience, and can throw some light on the mystery. Sections of the crown buds revealed no visible fungi nor insects, but the scales were turning brown from the exterior part inwards, apparently suggestive of an external source of the mischief.

Royal Botanic Society's Garden.—Mr. C. Brinsley Marlay writes: At the annual meeting of the Royal Botanic Society, at which I took the chair, there was one aspect of the society I could not dwell on as I should have wished, and yet it is one of some importance. When the gardens of the society were first formed, not only were they intended to promote horticulture and the study of botany, but also to protect a spot in the centre of London where some of the [illegible] features of Nature might remain untouched, plants common in the country, but rare in London, might still find a home, and birds nest there undisturbed. To many, too, the sense of quiet and repose which the gardens gave was delightful—a feeling of rest which only the country can give. It was for these reasons that the Fellows reserved to themselves the right not to admit the public indiscriminately; that, like the squares, a character of privacy was maintained, though it was never difficult for quiet people to obtain admission, or any serious student of Nature. This spirit of exclusiveness is not now maintained, and the gardens are as much open to the general public as is possible, if they do not altogether lose the original intention with which they were formed, and the natural beauty, which they still possess, does not disappear. To turn them into an inferior Ranelagh, or a bad imitation of the Palmen Garten in Frankfurt, would probably [illegible] failure, and take away one of the few places where the tired man of business, the invalid, and the old may find a few moments of repose, a few [illegible] of quiet, away from the noise of the crowded street, the cyclist, and the omnibus.

who like crowds have every opportunity of enjoying themselves in London, but those who would fain be a moment at rest hardly know where to go. Burke says "Conversation enriches the mind, but solitude is the school of genius." Every day, before the ruthless builder, tranquil spots and relics of the past disappear. The few which it is possible to preserve become every day of greater value. Let not a spirit of expediency or the greed of money be able to annihilate all "places of historic interest or of natural beauty."

Tomatos with Supernumerary Carpels were submitted by Dr. Bonavia to R.H.S. Scientific Committee. Two specimens were sent—one, consisting of four carpels, which, instead of being coherent to form a single fruit, were only united at the base, and therefore nearly apocarpous. The other had several extra carpels issuing out of the centre above. These formed a whorl of carpels, in addition to the normal series. It resembled the Mellarose Orange in this respect.

Dwarf Snapdragons.—It is evident, from what may be seen by those who have opportunities for making observations in any considerable number of gardens, that a section of the horticultural community regard dwarfness in ornamental plants as great merit. Hence we have strains of antirrhinums so dwarf that the flower spikes have a difficulty in rising an inch or so above the leafage which forms a carpet on the surface of the ground an inch or two in thickness. In like manner we have strains of asters so dwarf that the flowers almost rest upon the soil, and suggest the idea that they had been dibbled into the bed. What the advantages of this excessive dwarfing are we have yet to learn, and, failing to recognise them, we cannot understand minds so constituted as to show an appreciation of plants devoid of a single atom of grace or beauty. We can, of course, appreciate the value of dwarf forms of tall-growing plants in which their general characteristics are retained, although necessarily in a lessened degree; but we fail to recognise any in plants from which every characteristic feature has been completely obliterated. This season collections of the dwarf-growing snapdragons have been grown for trial in the gardens of the Royal Horticultural Society at Chiswick and we are pleased to know that excessive dwarfing did not obtain much encouragement from the members of the Floral Committee, by whom they were examined on Tuesday last.

Vegetation of Lord Howe Island.—Mr. J. H. Maiden visited Lord Howe Island in H.M.C.S. "Thetis" in March and April last, spending nine days on the island. Hemsley's Flora of the island (*Annals of Botany*, x. p. 221, June, 1896) records two hundred and six plants and three introduced ones, total two hundred and nine. Mr. Maiden has added sixteen species and one named variety to the indigenous flora, and seventeen species of introduced plants, while he has removed five species of supposed indigenous plants from Hemsley's list. So that, according to Mr. Maiden, the flora of Lord Howe Island stands at present at two hundred and seventeen indigenous species (being a net addition of eleven), and ten introduced ones.

Tomato with Red and Yellow Fruit.—Mr. J. McLean, Luttrellstown, Clonsilla, co. Dublin, sent to R.H.S. Scientific Committee some golden yellow fruit, with the following observations: "The plant which produced them is one out of one hundred and forty-five Frogmore (red) Selected. The first cluster produced the true red sort, but on the same plant three trusses consisted of yellow fruit, as sent." Professor Bailey observed that he had raised yellow-fruited tomatos from the seed of red-fruited plants, but had not seen a case resembling the present one, in America, though he had known a cutting of a red-fruited sort to bear yellow fruit; and Mr. George Gordon remarked that he had frequently seen red fruits striped with yellow.

Crassulaceous Hybrid.—Mr. Veitch submitted to R.H.S. Scientific Committee trusses of flowers of a new hybrid, raised by Mr. Seden, between Kalosanthes coccinea (female) and Rochea falcata (male). The flowers of the hybrid were small, as in the female parent, but the colour approached that of the male. In many points it was intermediate between the two parents.

The National Co-operative Festival held at the Crystal Palace, Sydenham, during the present week was opened successfully on Tuesday, August 16, when a large and influential gathering of co-operators met to consider educational and labour questions. To us and our readers one of the most interesting features in connection with this wonderful festival is the flower show of two days' duration held on Friday and Saturday, August 19 and 20. We are informed, as we go to press, that the exhibits from professional gardeners are [illegible] more numerous than usual while the quality is likely to be as high as ever in spite of an untoward season. Of the amateurs' and cottagers' displays of fruit, flowers, and vegetables we cannot say more now than that the entries are so numerous they will tax all Mr. Waugh's resources for the provision of ample space. In this section of the exhibition the competitors do not stage their exhibits until Saturday morning. In our next issue we hope to note the principal features of the Co-operative flower show.

Use of Vegetables in Bacteriological Investigations.—The culture of bacteria has been successfully accomplished on almost all vegetables, but the potato and the carrot are those chiefly used. Mr. Roger has, however, reported to the Paris Society of Biology that, in his opinion, the Globe artichoke possesses several advantageous qualities in this respect. Nothing is more simple than to prepare it for the purpose. After having stripped off the [illegible] the thick part is cut up into little cubes, care being taken to preserve the [illegible] (*skin*). The pieces are placed in tubes plugged with damp wadding, the [illegible] being uppermost, so that the culture medium is represented by a fleshy [illegible] surmounted by a sort of tuft. When the wadding is inserted, the whole is [illegible] in an oven to 115 degrees C. for a quarter of an hour. In making the inoculation, the germs must be deposited at the point of insertion of the fibres.

The Common Pampas Grass known in gardens as Gynerium argenteum has, as our readers are already aware, been re-christened Cortaderia argentea by Dr. Stapf, of Kew, and it is stated to be a native of the Cordillera and not of the Pampas. An allied species named C. jubata, from the Andes of Ecuador is figured in the the current issue of the *Bot. Mag.* t. 7607; it flowered in Mr. Gumbleton's garden at Belgrove, Co. Cork in 1895 and is described as even more beautiful than C. argentea and having a pale lavender tinted plume; it is not hardy at Belgrove. In the same issue an illustration of Tchihatchewia isatidea, a dwarf, rosy flowered crucifer from Armenia; Buddleia variabilis, described in the Gardeners' Magazine on page 488; Ledum glandulosum, a Californian shrub with spiciform racemes of pure white flowers; and Ribes villosum, a bright yellow flowered shrub from Chili, perfectly hardy at Kew and retaining its foliage during ordinary winters.

Admixture of Artificial Manures.—The risks attendant upon the admixture of certain combinations of the fertilising elements—nitrogen and potash—are strikingly exemplified by the results of some experiments carried out by Professor Goessmann, and referred to by Dr. Aikman in the *Agricultural Gazette.* In the course of these experiments it was found that mixtures of the two manurial ingredients, nitrogen and potash, in the form of muriate of potash and sulphate of ammonia, invariably gave much lower results than mixtures containing sulphate of potash and sulphate of ammonia. Since the experiments were carried out under exactly similar conditions, as to character of soil and general mode of cultivation, it was concluded by the investigator that the mixture of muriate of potash and sulphate of ammonia suffered some unfavourable change when incorporated with the soil. To ascertain, if possible, the explanation of this unfavourable action of the mixture some of the dry mixture of muriate of potash and sulphate of ammonia was dissolved in water, when it was found that the muriate of potash was converted into sulphate of potash; while the sulphate of ammonia was changed into chloride (or muriate) of ammonia (sal ammoniac). Sal ammoniac, it is well known, exercises a most unfavourable action on growing plants. It is well to bear in mind, therefore, that on no account should these two substances be mixed together in a manure.

Fertilisers for Grass Lands.—Some experiments in the use of artificial and natural manures have been carried out by Mr. J. McCreath on behalf of the Cornwall County Council, and the report on the results is of much interest. In the experiments on grass land basic slag gave excellent results, as in the preceding seasons, yielding the largest profits. Bone meal applied in equal quantity, namely, three hundredweight per acre, produced a better bottom growth, but at greater cost. Superphosphate of lime used by itself improved the quality of the pasture and left a small profit, but the results were better when used in combination with one hundredweight of nitrate of soda. Kainit gave unsatisfactory results, and sulphate of ammonia and nitrate of soda used alone, injured the quality of the herbage, except where the pasture was grazed. Twenty loads per acre of fresh farmyard manure produced the heaviest crops, while rotted manure gave only half as much produce.

New Public Park, Widnes.—The first prize of thirty-five guineas in the public competition for the best design for laying out the Appleton House estate as a public park has been awarded to Messrs. W. Barron and Sons, Elvaston Nurseries, Borrowash. The area of the park is about thirty-six acres, and in addition to the general plan of the park, which contains a lake, cricket and recreation grounds, lawn tennis grounds, bowling green, gymnasiums, &c., they also furnish three alternative plans for dealing with Appleton House and premises, also designs for entrance gates, band stands, shelter, fountain, &c.

Poppy-head, with Pistillody of the Stamens.—At the recent meeting of the Royal Horticultural Society's Scientific Committee, Herr J. K. Budde exhibited a fruit of Papaver somniferum, with a complete whorl of miniature heads around the base; these being metamorphosed stamens. This peculiarity is well known; but it is interesting to hear that Professor de Vries has succeeded in fixing it by selection, so that this monstrosity now comes true from seed. A similar phenomenon is common among wallflowers. With reference to hereditary monstrosities, Professor Bailey observed that a species of echinops, with a fasciated and twisted stem, as also the spirally twisted variety of the Fuller's Teazle, can be now perpetuated by seed. Mr. Henslow inquired if the weeping ash was known to be perpetuated by seed, as of thousands of seedlings in his garden at Ealing, none ever showed any inclination to weep; though the late Professor J. S. Henslow found a slight tendency to weep to exist for two or three years in his experiments at Hitcham; but the plants grew erect afterwards. Mr. Wilks observed, on the other hand, that a young tree a few years old in his garden at Shirley had begun to show a tendency to weep.

Hardy Nymphæas at Gunnersbury House. — Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, sends us a list of the beautiful hardy water lilies growing in the pretty lake at that establishment. This will prove interesting now that water gardening is becoming popular. The kinds are: N. Aurora, N. tuberosa, N. alba, N. Ellisiana, N. albo-rosea, N. gloriosa, N. pygmæa helveola, N. Seignouretti, N. lucida, N. Robinsoni, N. odorata, N. o. roseacea, N. o. rubra, N. o. sulphurea grandiflora, N. Leydekeri fulgens, N. Leydekeri rosea, N. Marliacea chromatella, N. M. carnea, N. M. rosea, N. M. albida, and N. M. rubro-punctata.

Mr. Thomas Humphreys, well known to a large circle of horticulturists as Assistant Superintendent of the Royal Horticultural Society's Gardens, at Chiswick, a position he has creditably held during the past five and a-half years, has now quite recovered from a painful illness resulting from an accident on the cricket field. He resumed his duties at Chiswick last week and was at his usual post of secretary to the Royal Horticultural Society Floral Committe, at the Drill Hall on Tuesday, the 9th inst. Many old Kewites and distant friends of Mr. Humphreys will be glad to hear of his complete restoration to health and strength.

EXHIBITIONS AND MEETINGS.

SHREWSBURY FLORAL FETE.

THE twenty-fourth annual floral fête held at Shrewsbury took place in the famous Quarry Grounds on August 17 and 18, and was, from a horticultural point of view, a decided success. The quality of the exhibits throughout was good, and there was even an advance in the grape classes, which were more keenly contested than ever. Six large tents, two of these being monstrous canvas erections, only just sufficed to hold the largely increased number of exhibits—we were informed that there were four hundred more entries than last year, enough itself to make a large show. The groups and plants came in for a full share of admiration, but perhaps the floral decorations gained the fullest meed of praise, for they were exceedingly beautiful, especially the baskets and bouquets. The "dessert table" and the "garden produce" classes were great attractions, and if the latter possesses no special educational value, it, at any rate, adds another to the many attractions of the fête. All the arrangements were of the best, under the able superintendence of Messrs. Adnitt and Naunton, the co-hon. secretaries. Judging commenced at twenty minutes past ten, and soon after that time the weather became extremely hot and bright, so that by twelve o'clock, when the rank and fashion of Salop came to the show, there was a gay scene, for the ladies had all donned their lightest and brightest of summer costumes. Cottagers' exhibits were both extensive and of high quality; there were splendid onions, cabbages, lettuce, currants, and gooseberries, twenty-six collections of vegetables, asters, stocks, marigolds, dahlias, potatos, and marrows, and stands and bouquets of wild flowers. These exhibits filled one large tent.

GROUPS.

The chief award for a group of miscellaneous plants arranged to produce the best effect upon a space of three hundred square feet was secured by Mr. James Cypher, who once again put up a grand exhibit; at the back was a representation of rockwork, a rustic bridge over a pool of water in which were water lilies, and into which water dripped from the bridge; bamboos, caladiums, palms, and tall ferns were used in the background, and on either side were tall graceful specimens of Humea elegans; small mounds towards the front were composed of bright crotons, dendrobiums, Cattleya gigas, Lilium speciosum, cypripediums, oncidiums, ixoras, and Francoa ramosa; on the ground was very dark moss, with small Rex begonias dotted about it; a grand exhibit. Mr. W. Finch, Coventry, was placed second; his group contained a grand lot of liliums, Humea elegans, and Francoa ramosa; Mr. C. Roberts, gardener to Miss Wright, Helston Hall, Coventry, third, his group containing handsome and well-grown crotons, Rex begonias, Lilium auratum, &c.; the virgin cork was rather too prominent, however, to be pleasing.

Mr. J. Edmonds, gardener to the Duke of St. Albans, Notts, secured the £25 offered as first prize for a group of ornamental foliage plants, palms, ferns, &c., arranged to produce the best display on an area of three hundred square feet. The largest mound of this fine display was placed as far back as possible, and was topped by a fine kentia, with acalyphas, crotons, fittonias, alocasias, &c., surrounding its base; smaller mounds towards the front were mostly tall well-grown crotons, surrounded at the base with Rex begonias, bamboos with a base of ferns, palms with bromeliads at the base, &c.; the groundwork was of moss in two shades of green, dotted with Acalypha Macafeeana, grandly grown; Mr. J. Cypher, Cheltenham, had to be content with second place, but he had a grand exhibit, in which ferns were used with wonderful effect and taste.

In the class for a group of miscellaneous plants to occupy a space of one hundred and fifty square feet, and to contain no orchids, the president, T. F. Kynnersley, Esq., gave the first prize. The result of the competition was that Mr. T. Tugwood, gardener to the president himself, at Leighton Hall, Ironbridge, won the first prize with a bold group consisting of a central mound of palms, liliums, tuberoses, and ferns, with spans of virgin cork extending to the similarly constructed corner mounds; Mr. C. Roberts, gardener to Miss Wright, Halston Hall, Oswestry, came second; and Mr. J. Bremmell, third.

PLANTS.

A grand display of twenty stove and greenhouse plants was put up by Mr. James Cypher, Cheltenham, who, as usual, won the first prize, a silver cup valued at £25. Some of the finest specimens were Phœnocoma prolifera Barnesi, Statice profusa, Croton montifortiensis, C. Her Majesty, Allamanda nobilis, Clerodendron Balfouri, Bougainvillea Glabra, Ixora Westi, Croton Warreni, Kentia Belmoreana, and Livistonia rotundifolia. Mr. Finch, of Coventry, also competed, and the two sets made up a really marvellous display of plant culture; Mr. Finch secured a valuable special prize. Mr. T. Lambert, gardener to Lord Harlech, gained first prize for thirty stove and greenhouse plants, orchids excluded, with medium-sized and finely-grown examples of Ixora Prince of Orange, I. Williamsi, Phrynium variegatum, Heliconia illustre, Eucharis amazonica, Dracæna Reginæ, D. Baptisti, Dipladenia amabilis, Pancratium fragrans, &c. Mr. R. C. Townsend, gardener to Colonel Lloyd, came first for a collection of thirty plants, and among his set were nice plants of Cattleya gigas, Cypripedium Rothschildeanum, and some oncidiums; Mr. J. Birch, second. Mr. Myers had the best three specimen fuchsias, but was closely followed by Mr. A. Bateman, Forgate.

Exotic ferns made a good show in one of the smaller tents, but we have seen better plants than were on view; Mr. E. Jones, gardener to A. M. Barber, Esq., Wellington, had the best set of six, showing big specimens of Adiantum Farleyense, A. formosum, and other maidenhair ferns, Pteris serrulata cristata, and a large Davallia hirta cristata; Mr. T. Stevenson, Wellington, was second; and Mr. A. Jones, third. The first prize for six stove and greenhouse plants was well won by Mr. T. Lambert, gardener to Lord Harlech, Oswestry, who staged very fine specimens of Dipladenia amabilis, Ixora coccinea, I. Pilgrimi, Croton Warreni, a splendid example; Allamanda Hendersoni, and Kentia Belmoreana. In a second class for six stove and greenhouse plants, the awards were secured by Mr. A. Jones, Oaklands; Mr. Tugwood, Leighton Hall Gardens; and Mr. H. Cliffe, in the order of their names, all showing good produce.

For a dozen table plants the chief award was secured by Mr. J. Edmonds, who showed light and elegant crotons, dracænas, and pandanus; Mr. A. H. Hall, gardener to J. C. Waterhouse, Esq., Prestbury, Macclesfield, second. Mr. R. C. Townsend, gardener to Colonel R. Lloyd, had the best half-dozen orchids, showing Cattleya gigas and C. Mossiæ, in two varieties each; Cypripedium barbatum, and another Lady's Slipper. The best half-dozen tuberous begonias were neat, well-flowered plants of good double varieties, shown by Mr. B. R. Davies, Yeovil; Mr. Jones, gardener to A. M. Barber, Esq., Wellington, second; and Mr. H. Cliffe, gardener to R. Taylor, Esq., Abbey Foregate, third, with huge plants. Pyramidal coleuses were good, being well furnished and highly coloured; Mr. A. Myers was first for four plants, about five feet high; Mr. J. H. Slaney, second; and Mr. J. Barker, third. Gloxinias were fairly good, but rather past their best in some cases; Mr. J. Parson Smith, Abbotsmead, secured first prize with splendid plants carrying large, shapely, and bright flowers; Mr. H. Cliffe, second; and Mr. R. C. Townsend, Oswestry, third. Zonal pelargoniums made a lovely display, and in the class for half-a-dozen specimens Mr. A. Myers, Shrewsbury, secured first prize with magnificent plants, carrying grand trusses that were not formally tied down to the foliage; Mr. A. Bateman, second; and Mr. H. Cliffe, third.

FLORAL ARRANGEMENTS.

The floral arrangements were most beautiful throughout, and though the Messrs. Perkins and Sons, of Coventry, gained a good many of the leading awards, they were not always first, and this alone will serve to illustrate the high quality of flowers and designs. A class for six bouquets and six baskets of cut flowers, brought out a lovely display, in which Messrs. Perkins and Sons, Coventry, secured the chief award, together with silver cup, with a lovely collection of floral designs; the baskets were especially lovely, even for the Messrs. Perkins. One consisted of white pancratiums over maidenhair fern, with spikes of the pure white Francoa ramosa rising gracefully above the whole. Another was a rich and gorgeous design of odontoglossums, Cattleya gigas, Lælia crispa, Dendrobium Phalænopsis, and Oncidium flexnosum; a basket of Cypripedium Lawrencianum, asparagus, and yellow oncidiums was also good. Messrs. Jones and Sons, Shrewsbury, came second, with a choice group of handsome arrangements; Messrs. Jenkinson and Son, Newcastle, Staffs, third. Messrs. Perkins and Sons had the best ball and bridal bouquet, a handsome pair of designs, the ball bouquet being a gorgeous affair in gold, purple, and white orchids; Messrs. Pope and Sons, second; and Messrs. Jenkinson and Sons, third, out of four sets.

For ball and bridal bouquets, orchids excluded, Messrs. Jones and Sons, Shrewsbury, were first with arrangements of roses, stephanotis, carnations, and lapagerias. Mr. W. Tresider, Cardiff, had the best shower bouquet of cactus dahlias, a fine lot of gold and buff blooms and croton leaves. For a sweet pea bouquet Messrs. Pope and Sons were first, using rose and white flowers; there were seven sweet pea bouquets staged, Messrs. Perkins and Sons coming second, and Mrs. Lovatt, Chetwynd Grove, third. For six each of ladies' sprays and gents' buttonholes, Messrs. Perkins and Sons, Coventry, were easily first with tasteful and light productions of orchids and roses; Messrs. Jenkinson and Sons, second; and Messrs. Jones and Son, third. There were eight collections. Mrs. Lovatt, Chetwynd Grove, had the best stand of cut flowers, showing sweet peas, pale blue, yellow, and rose flowers, amid maidenhair fern and plumes of Agrostis nebulosa.

CUT FLOWERS.

Only one exhibitor exhibited thirty-six bunches of sweet peas in as many varieties in competition for the Eckford Challenge Cup. This exhibitor was Dr. Sankey, Boreatton Park, who had a goodly set nicely staged. This ten-guinea cup must be won three times before it becomes the property of any competitor. The first prize for eighteen varieties of sweet peas was won by Mr. A. Bessell, High Street, Ludlow, who staged his flowers with gypsophila; he had splendidly fresh blooms of Lottie Eckford, Little Doritt, Lemon Queen, Prince Edward of York, Countess of Powis, Mrs. J. Chamberlain, Mars, Senators, Mrs. Eckford, Countess of Radnor, Lovely, Meteor, Venus, Salopian, Gaiety, Boreatton, Blanch Burpee, and Lady Mary Currie; Mr. C. Barnett, gardener to H. Aldersey, Esq., Chester, second; and Mr. T. Aldersey, third.

Mr. A. Myers, Shrewsbury, scored a first for six trusses each of double and single varieties of zonal pelargoniums, with splendid trusses of substantial and bright flowers that, unfortunately, were not named; Mr. H. Huxter, second; and Mr. T. Maddock, third. For asters, Mr. J. Davis, gardener to W. G. King King, Esq., Roderham Manor, was first; but asters were not shown so extensively as usual at Shrewsbury. The best dozen carnations, selfs, fancies, or yellow grounds, were beautiful and highly-developed flowers, chiefly of yellow grounds, shown by Mr. A. W. Jones, Handsworth, Birmingham. Messrs. Thomson and Co., Birmingham, staged the best set of twelve picotees, three flowers of each. Mr. Myers, a most successful pelargonium grower, of Shrewsbury, offered prizes for the best six trusses of zonal pelargoniums, single and double; there was a good competition among the Salopian gardeners, and Messrs. Huxter and Cliffe were placed first and second respectively, both showing handsome, bright, and well-developed blooms. Gaillardias made a brilliant show, and the Messrs. Harkness were the most successful exhibitors of these gorgeous flowers, staged in bunches of six blooms.

Roses were poor, as one might expect at so late a date and after so dry a season. For two dozen blooms, Messrs. D. and W. Croll, Dundee, secured the first prize, their best flowers being Mrs. J. Laing, Charles Lefebvre, Her Majesty, Earl of Dufferin, and Gustave Piganeau; Messrs. Harkness and Sons came second, and Messrs. Perkins and Sons, Coventry, third; the roses suffered intensely from the heat. The best eighteen spikes of gladiolus, distinct sorts, were staged by Messrs. Harkness and Sons, Bedale, who had massive flowers and spikes of the Gandavensis section; Mr. R. Morrow, Leominster, second; and Mr. R. C. Townsend, third. Messrs. Keynes, Williams, and Co., Salisbury, secured the first prize for pompon dahlias, putting up a pleasing set of Little Jack, Lady Blanche, Emily Hopper, Arthur West, Bacchus, Phœbe, Agate, Midnight, Whisper, Nerissa, Lilian, and Elegant; Mr. R. Campbell, High Blantyre, second. For half a-dozen bunches of cactus dahlias, Mr. J. Davies, was the most successful competitor. Mr. R. Campbell, High Blantyre, secured first prize for show dahlia blooms, showing charming flowers of J. Walker, Mrs. Saunders, Colonist, Norma, The Reverend, Ethel Britten, Eclipse, Mrs. Chamberlain, and Muriel; Mr. S. Mortimer, Farnham, was a good second, these sets making a rich display. Mr. B. Cromwell won first prize for a dozen bunches of cut flowers, with Dipladenia, Brearleyana, Gloriosa superba, Stephanotis, Anthurium Scherzerianum, Ixora coccinea, Bougainvillea glabra, and lovely clusters of red and white lapagerias; Mr. J. MacDonald, second; and Mr. J. Lambert, third.

COLLECTIONS OF CUT BLOOMS.

The classes for displays or collections of cut blooms arranged on a certain space always result in a magnificent display in the large marquee at Shrewsbury, for as a rule both quality and artistic arrangement are good.

Five collections of dahlias were shown there, making a beautiful display as one looked along the whole bank. Mr. W. Tresider, Cardiff, was placed first with a collection put up in the orthodox style, on boards and in bunches of ten blooms; the single and cactus varieties were beautifully fresh and finely coloured, the pompons were also extremely pretty; Mr. M. Campbell, High Blantyre, came second, but Messrs. Keynes, Williams, and Co., Salisbury, third, showed by far the most artistic display, though perhaps a little more finish was necessary to make it first-class. Mr. R. B. Davies, Yeovil, easily won first prize for a collection of begonias, cut flowers and plants in this case, putting up neat plants carrying magnificent flowers in all bright shades of colour; Stella was a large double salmon-pink form, and Thunderer a grand double scarlet. Messrs. Jones and Son, Shrewsbury, set up the finest display of cactus dahlias, showing [illegible]

(Continued on page 547).

LEAVES FROM A RAMBLER'S NOTE-BOOK.

HARVEST IN FRUITLAND.

FOR a seemingly long time the train remained at a standstill in a little station on one of the lines that wind their way through hop gardens and fruit orchards in the county of Kent. No one noticed the delay for a while, and then one after the other the passengers rose, and with head and shoulders protruding through the window asked all kinds of sarcastic questions, such as: "Are we going to stop here all day?" "Has the engine fire gone out?" and so on. One portly gentleman, who, from his well groomed appearance and important air, might have been either a commercial traveller or a member of the Stock Exchange, rose from his corner, threw down his paper, and hurled uncomplimentary epithets at railway companies in general and this one in particular. "It's a beastly shame," he said, "that all the passenger trains should be kept waiting through the fruit traffic. Why can't they send their strawberries and things by goods train, or else run specials for them, instead of stopping every train in this provoking manner?" No one seemed to know exactly why the railway company did not act according to the important gentleman's suggestion, and therefore kept discreetly silent, with exception of one passenger, who had a distinctly agricultural Kentish look about him, and hitherto had not offered any remark. "It's quite certain you a'int a grower, sir," he said dryly, and then sucked at his pipe with a resignation which suggested that he was quite contented to wait till the train was ready to start. At length the last basket of strawberries had been put in, and, after backing into a siding and hooking on several vans laden with fruit, the guard blew his whistle, the train started, and the important gentleman in the corner retired once more behind his newspaper.

This sort of thing is quite common during the fruit season, and perhaps it never occurs to those who buy their fresh strawberries, gooseberries, cherries, and so forth, every day, where they all come from and how they are transferred from the producer to the consumer. At every station along the route there was the same delay, but after the timely rebuke recorded above, the portly gentleman kept his own counsel, probably calling the fact in mind that he was not the only person who had an interest in the services of the railway. In the goods yards and on the platforms were mountains of round sieves and tubs, some empty and others full, reminding one somewhat of the piles of barrels in the sidings at Burton-on-Trent. Waggons piled high with baskets, tier upon tier, filled with fruit, stood in the sidings, and impatient growers worried the already harassed officials, with enquiries about empties. Two important items seem to concern Kentish growers during the busy season, and in both of these he may regard himself as somewhat helpless. The first and most important is the "returns" or "prices," and here he is in the hands of the salesman, and must contentedly pocket what that individual sends, be it much or little. Not that the grower is, as a rule, antagonistic to the middleman, but on the other hand he has a fair amount of confidence in him, and knows that when the market is full of fruit, prices must necessarily fall. The second item is "empties," and here the grower is at the mercy of the railway company unless he lives near enough to the market to take his produce up by road. When fruit is spoiling for the want of picking, and there are no baskets to put it in, the grower worries himself, and no wonder. He worries the carriers in vain, and yet I do not think he has succeeded in fully convincing them that the quick transit of empty sieves to the fruit plantation is quite as important as delivering them full into the market.

It would appear then that all the ordinary uninterested individual knows about the Kentish fruit industry is either gathered whilst travelling by train, or else when he purchases his ripe fruit from the tradesman who supplies it. But the fruit harvest affects a wide community. Men, women, and children all take their share, and if you ramble along the highway in a fruit district towards evening you meet them, strings of women and children, each family accompanied by the inevitable perambulator which contains the youngest olive branch, who alone has the dignity of a conveyance, and sundry other articles necessary to a day in the fields. These pickers belong to the local population, and in Kent female labour brings a good deal of grist to the mill. Hop-tying and gathering, fruit picking, and other work on the farm, keeps the women employed, and judging from the chubby appearance of the youngsters, life in the fields is conducive to the healthy rearing of a family. There is another picking fraternity quite distinct from the foregoing. It is the London element, who make a sort of holiday of the fruiting season, and they present a marked contrast to the sun-browned Kentish folk, who treat them with suspicion, and never get on intimate terms with them. Natural instinct seems to tell them when the season has begun, and from squalid courts and alleys emerge equally squalid types of humanity, who swarm along the highways leading to the strawberry and raspberry fields to take part in the harvest. For the most part ragged in appearance, vulgar in conversation, and uncouth in laughter, comparison with the native pickers is by no means favourable to the results of training amid the contaminating influences of town life. The brief contact with Nature, however, does them good. Old and young lose their wan, pinched looks, and return looking brown and healthy. What effect the country holiday has on their morals I am not in a position to say, but if not beneficial, it is because the fruit harvest is not long enough.

The London picker is not an expert, and, though skilled labour is not absolutely necessary for fruit gathering, growers prefer local pickers when they can be got. Particularly is this so in the cherry harvest; and the way in which some of the females perform acrobatic feats on the tall ladders among the branches suggests that, with a little professional training, they would have made their mark on the trapeze or the tight rope. Cherry picking is to all intents and purposes only a commonplace occupation, but long practice makes perfect, and the agility with which experienced pickers of both sexes scale the ladders, and with baskets strapped on their backs gather with both hands, as though posed in the branches of a cherry tree were the safest place in the world, is remarkable. A cherry orchard at gathering time is a busy place. The bright red fruit glittering among the leaves in the sunshine is a picture in itself, and an element of tragedy is introduced in the person of the boy who, with important mien, meanders about under the shade of the trees armed with a gun to keep off the thieving birds. He keeps up a brisk fire, sometimes to the danger of the pickers in the branches, and one cannot help admiring the unassumed impudence of any birds that will essay to steal cherries amid such a babel of laughter and conversation. At one corner of the orchard is a small marquee, the headquarters of the pickers, and round about are piled the heaps of full and empty sieves. Deftly must the ladders be manipulated, so as not to break branches, as a cherry tree is a valuable piece of property, and quickly one after the other the trees are stripped of their luscious burdens. The man who has charge of the packing arrangements transfers the fruit to the sieves, which are lined and covered with paper, and in succession the waggoner, railway man, market porter, and salesman play their part in the harvest, and eventually also does the costermonger, who cries "Cherry ripe" from door to door.

Naturally, fine weather has an important bearing on the Kentish fruit harvest, particularly so with soft fruit. This season has been a fortunate one, as little rain fell during July, and fruit was marketed in a splendid condition. There have been, and still are, some complaints about crops, but the mutterings generally begin when prices are discussed. Questions applied to different growers anent the crops have elicited the answer "that they mustn't grumble," and when a Kentish fruit farmer goes thus far you may depend that he is more than half satisfied with the result. Get on the subject of returns, and he changes his tune. It has been a season of surprises and sudden drops. First consignments sold well, beyond the growers' expectation, and in consequence he dispatched heavily the next day. In many cases the returns fell to half the former price, and with this elevating and dashing of hopes the fruit season drags itself along. At the beginning, some people prophesied a glut, others failure, but both were wrong. Generally speaking, bush and berry fruit crops have been fairly heavy, though it seems difficult to prove to many growers that good crops and low prices amount to about the same thing as half the weight of fruit and double the returns. Harvest time with most cultivators of land is not of long duration, but among Kentish fruit plantations it begins when the first tiny green gooseberries are stripped from the bushes and continues till the last of the apples and pears have been dispatched. Though much of the traffic is carried on by special trains, at times of pressure the ordinary service is affected, and if my portly friend is a constant traveller I hope there will always be someone present to chide his grumblings by reminding him that he is not a grower. How circumstances alter cases! H.

SOME INTERESTING NEW FRUITS.

The Logan-berry.

IN the spring of 1897 we planted a few examples of the logan-berry on a low south wall, making special preparation for the roots before planting. The plants were rather weak, having come direct from America, but the canes grew from five to six feet high during the summer and ripened well. This year nearly every eye on the blackberry-like canes has produced a raceme of fruit. The fruit is much larger than the largest raspberry that I have ever seen, and somewhat resembles a mulberry in its dark colour and long shape. There is two much acidity in the ripe fruits for them to be largely eaten in a raw state; had they possessed more sweetness, doubtless the logan-berry would have become a popular fruit for dessert, but now I should think few people would make use of it in that way. It will produce fruit about the same time as the raspberry in the open garden, where it will readily succeed, so that it can be mixed with that fruit for tarts. Last week I had a tart made of logan-berries and raspberries mixed; after adding extra sugar it is very acceptable. The plant is vigorous, making canes like the Crimson Rambler rose, and fruiting nearly the whole length. The fruiting canes should be taken out in the autumn, so as to give room for the young canes; these should be secured to either wall, trellis, or stake. It is also vigorous rooting, and repays for mulching and watering. I should think it will grow in any sheltered corner further south, but here we grow it in the open on a trellis.

Strawberry-Raspberry.

This was introduced at the same time as the logan-berry, and planted against the same wall; it is a distinct plant, producing suckers like the raspberry, but these only grow about eighteen inches high, and flower on the current year's canes. It is questionable whether this plant will produce and mature crops of useful fruit in the north, even in front of a south wall. Messrs. Childs, of New York, advise growing it in pots under glass, and I have no doubt it will, thus treated, prove an interesting plant. The fruit is very handsome, not large, but I cannot speak of the flavour yet. I may lift a plant and grow it under glass, and should it prove useful, I will send a note of it in the autumn.

The Golden May-berry.

This is not so hardy as the above, for plants placed in the open have died, while those planted against a south wall have barely come through the winter alive. One of them has made a shoot three feet long this summer, and that is about the extent of our experience with it.

Alnwick Castle Gardens. GEORGE HARRIS.

NEW PLANTS, FLOWERS, FRUIT, AND VEGETABLES.

CORTADERIA JUBATA.

A HANDSOME and strong-growing grass, closely allied to the well-known Pampas grass. It produces large plumose panicles one to two feet long, pale straw-coloured, with a rosy-purple suffusion. Unfortunately this beautiful grass is not perfectly hardy in the British Isles, for, at Belgrove, co. Cork, Mr. Gumbleton's garden, it succumbed to 29 degrees of frost during the winter of 1896. According to the *Bot. Mag.*, t. 7,607, Cortaderia jubata was discovered by Colonel Hall, near Quila, in Ecuador, at an altitude of 10,000 ft. It was found in 1830, and subsequently introduced to European cultivation by Mons. Lemoine, who obtained seeds from Chimborazo.

TCHIHATCHEWIA ISATIDEA.

This is a dwarf-growing crucifer, less than a foot in height, clothed with stout, hairy leaves, and producing a branching head of bright rose-coloured flowers. It is apparently a quite hardy perennial, as, according to the *Bot. Mag.* t 7,608, it flowered in the open at Kew, in 1898, on plants raised from seed sent from St. Petersburg Botanic Gardens in 1896. The plant has a sturdy stem that branches towards the top; the leaves are abundant, generally sessile, linear-oblong, obtuse, from one and a-half to two and a-half inches long, recurved, greyish-green, and hairy on both surfaces. The flowering branches together form a semi-circular corymb, four inches across, crowded with small but bright reddish-rose flowers. Tchihatchewia isatidea is a native of Armenia, and was discovered by the late Count Paul de Tchihatchef, at an elevation of five to six thousand feet near Eryinham in the province of Erzeroum.

BUDDLEIA VARIABILIS.

This is a quite new plant, differing very largely in general appearance from the well-known Buddleia globosa. It is an ornamental shrub that will probably need protection in most parts of the country; under favourable conditions it will grow eight feet high and flower during July and August. The foliage is variable, the leaves being opposite, joined at the base, and from four inches to a foot long; the shape varies from oblong-lanceolate and obtuse, to linear lanceolate and cardate acuminate; they are always entire, crenate, or coarsely serrate, dark green above and paler below. The rosy-lilac flowers have a tube half an inch long, and a four-lobed limb; these are produced from the axils of the upper leaves and bracts in crowded globose heads that are shortly peduncled, the end of a flowering growth having the appearance of a dense spike, until closely examined. This Chinese plant was discovered by Dr. Henry, in Hupeh and Ichang, and by Faber and Potani in the Tibetan province of Kam. There is a large plant at the Jardin des Plantes, Paris, and one sent from thence to Kew flowered against a wall in July, 1897; as inflorescence is figured in the *Bot. Mag.* t 7,609. Messrs. W. Paul and Son, Waltham Cross, exhibited specimens at a recent R.H.S. meeting, and gained an award of merit, as stated in these columns.

LEDUM GLANDULOSUM.

Ledum glandulosum is an erect-growing evergreen shrub that has proved hardy at Kew. Its dark brown bark is conspicuous. The leaves vary from one to two inches in length, are elliptic, dark green above and silvery beneath. The simple racemes of white flowers are borne in terminal corymbose clusters. There are five concave petals to each flower, and these are ciliate above the middle. Ledum glandulosum was originally discovered by Douglas in 1826; it was found also by Sir J. Hooker and Dr. Gray in the Silver Mount Pass of the Sierra Nevada, California, in 1877. It has, however, a wide distribution in Western North America at a considerable elevation. *Bot. Mag.*, t. 7,610.

RIBES VILLOSUM.

A perfectly hardy Chilian shrub and one that retains its foliage during ordinary winters. A specimen has been growing in the Kew Arboretum for the past fifty years, where it flowers every year in June, producing an abundance of short racemes of deep golden yellow flowers. All parts of the shrub are sub-glandular-tomentose. The growth is erect; leaves orbicular-ovate, often broadly three lobed beyond the middle, slightly convex above, crenately toothed, bright green above and pale green below. The racemes are about an inch and a-half long, and densely flowered; the fruits are pea shaped, violet-black, and hairy. *Bot. Mag.*, t. 7,611.

CRINUM WOODROWI.

A fine bulbous plant from Central India, producing a stout peduncle a foot or so in height, which carries an umbel of six or seven flowers, each fully three inches long and composed of six lanceolate segments that are white. The filaments are bright red, and anthers dark yellow. The bulb is globose and has no neck; about four inches in diameter. Few leaves are produced, these being a foot long, and three or four inches broad. The species was discovered by Mr. G. M. Woodrow, of the Poona College of Science, and bulbs sent to Kew in 1897 flowered well under stove treatment. *Bot. Mag. t.* 7,597.

MORISIA HYPOGÆA.

A pretty little early-flowering plant, now largely grown in rock gardens; it is dwarf and stemless, with pinnatifid or pinnatisect and bright green leaves, amid which the numerous golden flowers appear on slender peduncles. It is a quaint little monotypic crucifer from Corsica and Sardenia, and has the curious habit of deflexing the scape after flowering, thus burying the ripening fruit in the soil. *Bot. Mag. t.* 7,598.

CELASTRUS ARTICULATUS.

This interesting shrub comes from Eastern Asia, where it has a wide distribution from Japan to Formosa, and from the North of Peking to Ichang and Amoy. It is a strong grower, rambling and twining, and thrives near the sea, salt spray not injuring it. The green obovate or oval leaves have crenate-serrate margins. The insignificant dull green flowers are produced in small cymes, but are followed by a capsule that is most brilliant after the foliage has fallen. This is pisiform, brown, and three valved, the valves being yellow on the inside; as the capsule ripens the valves reflex showing their yellow surfaces and revealing the seeds enclosed in a bright scarlet aril. Seeds sent to Kew in 1891 produced plants that flowered in June, 1897, and fruited in November of that year. *Bot. Mag. t.* 7,599.

PHILADELPHUS MEXICANUS.

This spreading or drooping shrub produces very large, fragrant, and solitary flowers of a creamy hue. It is not quite hardy at Kew; and Sir J. D. Hooker states in the *Bot. Mag.*, t. 7,600, that he finds no character whereby it is distinguishable from a solitary flowered specimen of P. grandiflorus, save that of fragrance. It is a common Mexican plant, but is likely to be of little value in this country save to the hybridist.

CALLIANTHEMUM RUTÆFOLIUM, VAR. ANEMONOIDES.

Sir J. Hooker considers the five published species of callianthus are reducible to forms of one. The variety anemonoides is an European alpine form, having triangular leaves five inches across, and composed of numerous three or five lobed leaflets. The flowers are an inch and a half across and have ten to fifteen petals, white or pale and rose coloured. This variety is a native of Styria. *Bot. Mag.*, t. 7,603.

IRIS GRANT DUFFI.

Mr. B. T. Lowne collected this fine yellow iris on the banks of the River Kishon, Palestine, in 1864; but some years later Sir M. E. Grant-Duff found it at Esdraclon, and, recognising it as a distinct species, introduced it to cultivation. It is allied to I. tenax and to I. Douglasiana, both North American species. The rhizome is creeping, but the base of the stem is swollen, and enclosed in a brown sheath; the linear, white margined leaves grow to a height of about two feet. The flowers are wholly yellow, save for the lower halves of the falls, which are streaked and veined with red-brown. *Bot. Mag.*, t. 7,604.

CALOCHORTUS CLAVATUS.

This pretty Mariposa lily grows about eighteen inches high, and has a forked, sparingly leaved stem. Its large flowers are composed of three small yellow sepals and three very broad, cuneate, yellow petals, sometimes as much as two inches wide; the bases of the petals are hairy. C. clavatus was recently introduced to cultivation by Mr. Carl Purdy, of Ukiah; the species are Californian. *Bot. Mag.*, t. 7,606.

PHYLLOSTACHYS CASTILLONIS.

This is a large-growing and extremely handsome bamboo, very graceful, and clothed with lanceolate leaves about six inches long, light green, striped with creamy-white. A.M., R.H.S., July 26. Messrs. J. Veitch and Sons, Chelsea.

STRAWBERRY LADY SUFFIELD.

A highly-flavoured strawberry bearing medium-sized fruits of a bluntly-conical shape, some of them being inclined to wedge-shape. The colour is dark crimson, flesh deep red and firm. A.M., R.H.S., July 26. Mr. Allan, Gunton Park Gardens, Norwich.

CULINARY PEAS.

The Fruit and Vegetable Committee of the Royal Horticultural Society visited Chiswick Gardens on July 22, and selected seven varieties of peas for awards. Three marks were awarded on that date, and the A.M. recommended and confirmed at the Drill Hall on July 26.

The Bruce, a stout-growing mid-season variety; a marrow pea, growing 5 ft. high; the pods are large, square-ended, in pairs, and well filled with sweet peas. × × × July 22; A.M., R.H.S., July 26. Mr. H. Eckford, Wem, Salop.

Prior, a splendid second early pea, 5 ft. high, producing an abundance of large deep green pods of splendidly-flavoured peas. × × × July 22; A.M., R.H.S., July 26. Mr. H. Eckford, Wem, Salop.

Continuity, a late variety, carrying its deep green pods in pairs; a fine marrow pea, and apparently a good dry-weather variety. × × × July 22; A.M., R.H.S., July 26. Messrs. Sutton and Sons, Reading.

Saccharine, a very sweetly-flavoured pea, free, about 4 ft. high; a heavy cropper. × × × July 22; A.M., R.H.S., July 26. Mr. Sims, Fyvie, Aberdeen.

Honeydew, a very dwarf marrowfat pea, growing 2 ft. high; a mid-season variety, strong grower, and most prolific; pods contain seven or eight fine peas. × × × July 22; A.M., R.H.S., July 26. Mr. Sims, Aberdeen.

Mansfield Show, a splendid variety, only 3 ft. in height, and carrying an enormous crop of well-filled pods; a maincrop pea. × × × July 22; A.M., R.H.S., July 26. Messrs. Wright Brothers, Mansfield, Notts.

Hartford's Success, a strong-growing mid-season pea, growing about 3 ft. high, and producing a good crop of deep green marrow peas in medium-sized but well-filled pods. × × × July 22; A.M., R.H.S., July 26.

NOTES FROM CHILLINGHAM CASTLE.

A FEW days since I had a pleasant drive by way of Chillingham Castle to Wooler and back; and, resting a couple of hours at Chillingham, advantage was taken of the opportunity for making a hasty survey of the many good things in the gardens and about the castle. Amongst the wall fruits some good crops of plums and apricots were seen, but my attention was specially attracted by an extraordinary tree of Bigarreau Napoleon cherry, which when measured was found to be fifty-seven feet long. I have not seen the equal in size of this tree, and it was bearing an extraordinary crop of fine light-coloured fruit. This tree is probably [illegible] years old, and it is planted on a wall facing west in a fine strong loam, in which apples finish well, and asparagus thrives for a great many years with very little special care. We have a tree of this variety in light soil facing east, but it crops indifferently. On a low wall facing east, we noted the blackberry, Wilson Junior, in the most robust, thriving condition, where it fruits abundantly, and is highly appreciated after the raspberries are all gathered. If liberally treated at the roots and all old fruiting canes cut out and the new ones nailed in during the winter, the new canes break at every matured joint and fruit abundantly. The Royal Sovereign strawberry produces a splendid crop of large, fine-shaped, bright-coloured, good flavoured fruit. We find this strawberry is now considered the finest strawberry ever seen in this district. M'Mahon is still the best late kind. We shall gather some nice fruit up to the 18th. Bush fruit does exceptionally well in Chillingham Gardens. The condition of the place reflects the highest credit on its able gardener, Mr. Henderson.

Chillingham is famous for the herd of the pure-bred wild cattle that roamed through the forests of Britain centuries ago. On our way to Wooler, we pass the village of Chetton; rounding a hill, we obtain the first view of Wooler, situated at the foot of the most northern heights of the Cheviot Hills; and when we climb the heights beyond the town and look northwards, there is a fine view of the Lammermoor Hills north of the Tweed, and a little to the west, only a few miles from Wooler, we see the battlefield of Flodden and the beautiful Eshendale. Turning to the south we see, seven or eight miles distant, the highest peaks of the Cheviot range, truly a beautiful district in which to spend a few days, for here a person should be able to forget some of his troubles, if afflicted with any, and gain mental and physical benefit from the beautiful scenery and the clear bracing air.

GEORGE HARRIS.

Alnwick Castle Gardens.

BRITISH-RAISED ROSES.

THE list of roses of British origin which have achieved the greatest eminence is now a very comprehensive one. Of late years we have been especially indebted to such firms as the Pauls, of Waltham and Cheshunt, and the Dicksons, of Newtownards. Lord Penzance has given us some valuable hybrid briars, of which, perhaps, the most attractive are Jeannie Deans, Amy Robsart, and Lady Penzance, which, however beautiful, have this serious limitation, that they are even more evanescent than the Austrian briars, which I have elsewhere described as "dreams of beauty too bright to last." The Messrs. Cocker, of Aberdeen, have been the raisers of several roses of the greatest attractiveness, of which the latest introduction, Mrs. James Cocker, is an interesting cross between Mrs. John Laing and Mabel Morrison, and partakes to some appreciable extent of the attributes of both; though I do not hesitate to say that I prefer it, in some respects, to either of these. Through a special kindness of the Messrs. Cocker, I have it at present in bloom in my garden, and admire it greatly; much more, indeed, than Duke and Duchess of Fife, or Duchess of York, and that is saying much.

Of the numerous roses raised by Mr. William Paul some of the finest are Pride of Waltham, valuable for exhibition; Crown Prince, which has always been very popular with the great French rosarians; Beauty of Waltham, a rose of much sweetness, which still retains its olden popularity; Clio, a worthy rival of Margaret Dickson; Duke of York and Queen Mab, the two last named China roses of much fascination, which, however, have not succeeded well with me either in a shady or sunny situation; also Corinna, Medea, Enchantress, and Empress Alexandria of Russia, tea roses of great beauty.

From Messrs. Paul and Son, of Cheshunt, have come several very useful garden roses; also such brilliant varieties as Duke of Teck, Charles Gater, with its exquisite shading of marone, the lustrous Cheshunt Scarlet, and Sultan of Zanzibar; also that grandest of all the Bourbons, Mrs. Paul, a remarkable derivation from Madame Isaac Pereire, a rose of richest fragrance and imposing dimensions.

The varieties which were raised by the late Mr. Henry Bennett were so very numerous that not a few of them, such as Purity and Laurence Allen, have only quite recently been for the first time introduced. Of the older and more familiar roses of his raising are Mrs. John Laing, an immense favourite with exhibitors, by reason, probably, of its reliability; for I cannot help thinking that in colour it has already been surpassed, though in size and in form it could not easily be improved; while it is also very prolific. Viscountess Folkestone, one of the most precious, for colour and perfume, of the hybrid teas; Grace Darling, Lady Mary, Fitzwilliam, which were also notable acquisitions to this important section; and those beautiful tea roses, both of them unfortunately somewhat difficult of culture, by reason chiefly of their incapability of vigorous growth; Princess Beatrice and Princess of Wales. The great majority, however, of Mr. Bennett's roses are splendid growers, and exceedingly productive in the floral direction, giving but little trouble to the earnest cultivator.

Of very similar characteristics are the Newtownards roses; especially the many famous hybrid perpetuals and hybrid teas which have emanated from that region. It would be difficult to discover a better variety for garden culture than Margaret Dickson, or a grander specimen for effective exhibition than Marchioness of Londonderry. I find that while the former is comparatively indifferent to atmospheric influences, the latter is very easily affected by the influence of rain; from which, therefore, previous to exhibition it requires protection. It has considerably less fragrance than Margaret Dickson, and its colour is not so fine; but, on the other hand, it is a much fuller and more majestic rose. Mrs. Sharman Crawford is a variety which may be placed in the same category, and also it seems to me, on the same high level, with Mrs. John Laing, to which it is at least equal in form (though not in size) and superior in complexion. Mrs. W. J. Grant is a very beautiful rose, especially in its earlier stages of development. Hitherto I have regarded it as being somewhat deficient in central petals, and therefore not entirely satisfactory when full bloom, but I am gratified to learn from the Rev. H. Foster-Milliar that it has been exhibited in the most perfect form at the Woodbridge show. It has also been finer in my own garden than formerly this year; probably because I gave it more than usual attention. Other meritorious roses raised by the Messrs. Dickson are Lady Helen Stewart, Mrs. James Wilson, a tea rose, after the form of Catherine Mermet, though widely different in colour, and even more difficult of floral expansion; Helen Keller, Earl of Dufferin (which the Dean of [illegible] would probably describe as "a bright, dark rose"); Marchioness of Dufferin, which, like Her Majesty, has been somewhat over-estimated; [illegible], which, on the other hand, has not yet received, perhaps by reason of its somewhat dwarf growth, that recognition which its fragrance and beauty deserve; Jeannie Dickson, Ethel Brownlow, Ulster (not yet [illegible]), Ethel Richardson, and Countess of Caledon. Most of these [illegible] have distinctive characteristics.

Of other roses raised by British rosarians the most important are Prince Arthur, a native of Colchester, for which we are indebted to Mr. Benjamin R. Cant; Sir Garnet Wolseley, and the Crimson Bedder, valuable chiefly for garden culture, which have come to us from Hereford; and Mrs. Harry Turner, whose name is suggestive of the place of its birth.

Since writing the above I have been gratified to learn that the new Scottish rose, Mrs. James Cocker, for which I had previously predicted a successful future, has gained the gold medal of the National Rose Society. Besides being a highly fragrant variety, it is fascinating alike in form and colour, and is certain to prove a most valuable acquisition.

DAVID R. WILLIAMSON.

[illegible] Manse, Wigtonshire, N.B.

EARLY TOMATOS.

IT may at first sight seem out of place to write about early tomatos at a season of the year when the fruits are plentiful, but to secure early fruits next year one must be on the alert now, and make preparations accordingly. Many growers sow in November or December to obtain early supplies, but if sown at the earlier date, with bad weather intervening, growth is slow, the progress made is poor, and the crop cannot be termed a very early one, as May will be in before fruits are ripe. My observations do not refer to market culture of tomatos, but simply to a limited number of plants for home supply; and to meet the demand we raised plants in August.

For some years I relied on plants raised from cuttings struck in the autumn, but this was only a partial success, as the cuttings did not grow free enough from November to January, and in the latter month many of the plants became smaller, instead of larger, and so we had to look for another and a more suitable system. Fog is one of the worst enemies the tomato has to contend with in mid-winter, for as they need light and air they soon show signs of distress after a few days' fog, and we found cuttings could not stand extremes of any kind like plants raised from seed. Many may think by giving warmth the evil effects complained of could be counteracted, but this only adds to the evil, for the cooler the plants are kept from November to January the better in every way for them, as they then start away freely into growth, and when given more warmth as the days lengthen they respond quickly.

Some varieties are more difficult than others to winter, and those of the Perfection type, though our most shapely fruits are not so suitable for winter or early spring fruiting; on the other hand, I am disposed to think that any kind which grows rank should be omitted, though one may do much by pot culture, and to curb the roots and cause free setting. My best winter variety for years was Horsford's Prelude, but the fruits came very small. Conqueror was tried, and this comes much corrugated, but many of our best kinds come so more or less when grown under adverse conditions. The last few seasons we have grown a selection of the Old Red, and this is reliable, not a smooth fruit by any means, but one must not be too particular with fruits at the season named. Last year Frogmore Selected proved a reliable setter early in the year, and I hope to grow it in greater quantity this season. Still, most readers will admit we have not yet secured a tomato that will set fruits in winter, I mean from November to January. Fruits set previous to the earlier date are valuable if they can be retained, as these will swell and ripen in February and March.

Culture is simple; we sow early in August and grow the plants as hardily as possible from the start, sowing in cold frames and potting the seedlings when large enough, still keeping the plants near the glass, and when the plants are strong enough we leave the sashes off at night to ensure a sturdy habit. By October the plants have filled a six or seven-inch pot, and they are wintered in these in a cool house, or shelves near the glass, just keeping them from frost. Water is given very sparingly from November onwards, but if any fruits are set at the lower part of the plant, a little fertiliser is given, to keep them moving. We pot up in poor soil and as firm as possible from the first shift, as growth is not so much needed after November; if heat is used, air is always given by the top ventilators. In January the plants are started by being placed in small pits, and either potted into nine-inch pots, or planted out in beds. We prefer pots, and these are placed on a warm bed with a couple of hot water pipes beneath, the house being kept at sixty degrees by day, and five to ten degrees lower by night. Those planted out have no bottom heat; indeed, those in pots have very little, for there is a thick layer of ashes over a slate bed under which the pipes run. If the plants need shifting in November we treat them accordingly in preference to keeping them in small pots, but the moisture supply needs more care. Flowers show readily in February; these are fertilised, and the plants have weak supplies of liquid manure. Useless growth is removed, and each plant is kept to one stem; a dry atmosphere is maintained by giving heat and air, and by careful watering early in the day. Plants not grown in pots are only given a very narrow border, and this is rammed as firm as possible at planting, with a liberal quantity of wood ashes or old mortar rubble mixed in the soil; these fruit freely, giving ripe fruits by the middle of April, and they will fruit for months if fed and given surface dressings. I have given seedlings raised in the early winter every attention, but failed to have fruit as early as from plants raised now; on the other hand, plants that are very large winter badly, and much better results are obtained from plants grown as hardy as possible from the start, as these respond better to the warmer treatment early in the year.

G. WYTHES.

Syon Gardens.

Salvia patens.—Undoubtedly the Salvia patens is the best blue bedding out plant we have for large beds, and yet it is much neglected I have a large bed of it edged with the white-leaved pelargonium Flowers of Spring, and this makes a grand and effective combination. Salvia patens was first introduced in 1838 from Mexico; it grows two and a-half feet high, with most beautiful spikes of blue flowers, and these continue to expand till frost comes. This good old plant should be in every garden, as it is easily increased by seed sown during March in sandy soil and placed in heat. As soon as the seedlings are large enough, prick them off into pans or pots, planting them out in the beds about the middle of May; they flower well the same season. Cuttings strike freely in sandy soil in heat. At the end of October I take the old roots up, and store them away for the winter, planting them in sand under the greenhouse stage till the end of March, when they are potted off and put in pits or greenhouse. When the growths are about six inches long they strike readily. When using Salvia patens for small beds, I always peg the growths down, and they then flower remarkably well, while only growing from twelve to fourteen inches high.—W. SMYTHE, *Basing Park Gardens, Alton.*

CYMBIDIUM LOWIANUM AT CLARE LAWN.

FEW East Indian orchids of such decided merit deserve to be classified as "cool" as the subject of this note, and few of the whole natural order give such profitable and continual good results under a cool treatment. Cymbidium Lowianum was sent home by Mr. Boxall, V.M.H., to the Messrs. Low, of Clapton (now of Enfield), in 1877, he having collected it in Burmah. Thus, it will be seen, it has just attained its majority as a resident in our glass houses. Like most other tropical orchids, or, rather, those coming from a tropical country, it was naturally assumed to be a lover of a high temperature, little information regarding the altitude at which it was found, climatic and other conditions, being given. Therefore, it was left to experiment or accident to determine its proper position in our orchid houses. In our case success is due to experiment, a large plant being placed in the house the whole batch now occupy fully a year before the others were removed to it. That they are at home may be seen by referring to the accompanying illustration, reproduced from a photograph. When our ten plants were in bloom, in 1897, there were one thousand and sixty flowers. This season they were much better, the same plants producing one hundred spikes, bearing in the aggregate one thousand six hundred and twenty-eight flowers. One plant—the central one in the picture—had twenty-seven spikes, averaging sixteen flowers each. Another plant carried seven large spikes, one of which had thirty-six large, well-developed flowers, and most of the others thirty and thirty-two. The house in which they are growing is what might be termed a cool fernery; here, in the gardens of Sir F. Wigan, Bart., it is called the Rock House, owing to the majority of the ferns being planted in or growing on artificial rockwork. The cymbidiums are in pots or deep pans, dropped into pockets formed by other pots or pans bedded in and surrounded by the artificial rock or tufa.

CYMBIDIUM LOWIANUM, AT CLARE LAWN, EAST SHEEN.

The cultural details followed by us have been previously given in the pages of the GARDENERS' MAGAZINE, but as success with this grand and useful orchid is a thing very much to be desired, there will be no harm in setting them before its readers again. In the first place, I may as well state that they are permanent residents in this cool house, where the temperature drops within a few degrees of freezing point in severe winters; but this low degree appears to suit them rather than otherwise. Any potting or topdressing necessary is performed during the latter part of May. Receptacles rather large in proportion to the size of the plants are used, as they produce such enormous quantities of thick fleshy roots, which in a small pot would neither find room or a sufficient quantity of plant food for their development. The pots are about one-third filled with drainage material, on which some of the rougher portions of the potting material is placed to keep it free. The compost consists of equal parts of lumpy peat and fibrous loam, about a sixth part of well-rotted farmyard manure, and sufficient coarse silver sand or broken crocks to keep the mass porous. Very little watering is done until it may be safely assumed that the roots have taken hold of the new material, when the supply should be gradually increased as the season advances. At no time should the water be withheld for long, though, owing to the cool and moist atmosphere in which they are grown, the soil will remain moist for a long period. Plants that have not been repotted this season should be supplied with weak liquid manure, especially when the bulbs are forming. Shading is always used from the end of March until the end of September, whenever the sun shines on the house in a direct manner. Air in abundance is always given, excepting for about six weeks after the plants have been disturbed at the roots, then the top ventilators are closed about five, and remain so until about eight next morning. On all bright days the plants are syringed overhead twice daily, from the time the flowers are over until October comes in, and, owing no doubt to the abundance of air, no harm happens to the young growths through water lodging in them.

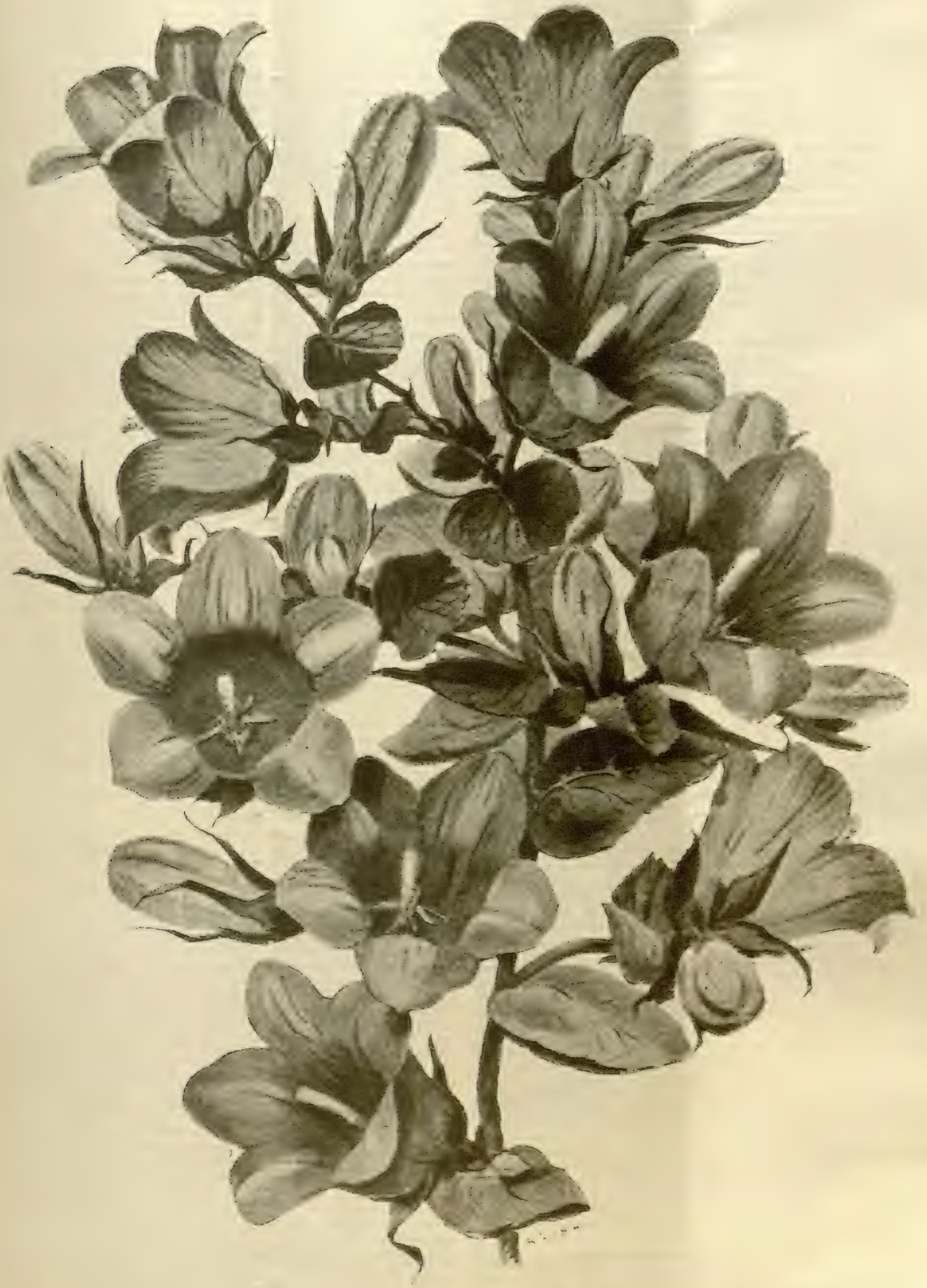
As will be seen from the foregoing remarks, the chief points to remember in the cultivation of Cymbidium Lowianum are, a cool temperature, a moist and airy atmosphere, combined with shade and good living. Under these conditions insect pests never attack our plants, excepting that in the spring, when the spikes are young, green-fly sometimes tries to secure a foothold, but is easily removed with a damp brush.

East Sheen. W. H. YOUNG.

CAMPANULA MIRABILIS.

A NEW species of campanula, and one of undoubted horticultural value, is certainly very much of a novelty nowadays when nurserymen begin to despair of obtaining new plants of merit other than by hybridising. This week, however, we figure a very distinct species, that has been brought forward by Messrs. G. Jackman and Sons, Woking; this is Campanula mirabilis, for which the firm recently gained a first-class certificate from the Royal Horticultural Society (see *G. M.*, p. 429, July 2). C. mirabilis was discovered in the Caucasus by Mons. Alboff; it is a perennial, quite hardy at Woking, and making a very handsome pot plant. Before the pyramidal flower spikes are produced the plant consists of a dense flattish rosette of orbicular or ovate-cordate leaves, shining green, and with toothed margins. The panicle or spike is erect, and branched quite from the base; the flowers are numerous and handsome, of large size, and broadly bell-shaped. The colour is very pale blue in the tube, but of a brighter shade at the spreading five-lobed mouth. A few hairs are found on the sepals, corolla lobes, and on the stems of the plant. We understand that very small plants will flower, consequently we may expect finer inflorescences than have yet been seen in this country, when strong plants are well established.

Perpetual Strawberries will form the subject for discussion at the meeting of the Royal Horticultural Society to be held at the Drill Hall, St. James' Street, S.W., on Tuesday next, August 23. A paper will be read by Mons. H. de Vilmorin, one of the leaders of horticulture in France, and a gentleman well known this side of the Channel both for his wide knowledge and [illegible] disposition.



CAMPANULA MIRABILIS.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE season has now arrived for the general examination of odontoglossums, consequently any plants of O. Pescatorei, O. triumphans, O. tripudians, O. Halli, O. luteo-purpureum, O. elegans, O. excellens, O. maculatum, and O. cordatum that require a shift should be attended to. Plants that are in good material, and in receptacles large enough for the development of the next season's growth, should not be disturbed in any way, as only those plants that have overgrown their receptacles, or are in sour material will need to be repotted. These latter should be turned out and all the old material possible shaken off without injury to the living roots; cut away all decayed roots. Pots of a suitable size for the development of two season's growth should be used, and if these are new from the pottery they should be put into a tub of water to soak before use; afford drainage to within two inches of the surface, using clean crocks, and over this put a thin layer of clean sphagnum moss; the compost should consist of equal parts of peat and moss, and if the moss be long it should be chopped up, these should be well mixed together with some finely broken crocks, charcoal, and a sprinkling of coarse silver sand. The plants should be raised a little above the rim of the pot, and be potted moderately firm, a few living heads of sphagnum being pricked in over the surface and kept occasionally sprayed over to encourage it to grow, as this greatly improves the appearance of the specimens. The watering of the newly potted subjects is of the greatest importance, and should receive careful attention, for if overdosed with water failure is sure to follow; dew the plants over head once or twice daily if the weather be fine and bright.

At this season the heating apparatus in the cool houses should be examined and put into good working order, ready for the winter; any loose joints in the hot water pipes must be made good, and valves and air taps be oiled, so that all will be in readiness when wanted. It is of the greatest importance that sufficient pipes be provided to supply the necessary temperature when the water is moderately warm, for when only a few pipes are supplied they have to be kept excessively hot, especially in hard weather, and this is one of the greatest evils in cool orchid culture, and often causes the plants to quickly deteriorate.

Lælia præstans is now growing and rooting freely, and will require a liberal supply of moisture, but the compost should always be allowed to become moderately dry before giving water. The same remarks apply to Oncidium ornithorhynchum, as this species is now growing and producing its flower spikes freely. Odontoglossum cirrhosum is also growing freely, and will enjoy a large supply of water; a position should be found for these three species at the warmest end of the cool house.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

THE demand for carnations in a cut state appears to be ever on the increase, and in many gardens large stocks of pot plants have to be grown for the production of bloom during the winter months. With suitable houses, and a good collection of plants that have been properly cultivated during the summer, there is no great difficulty in meeting the demand, and it would be difficult to point to any class of plant that is so much service to gardeners who have large quantities of cut flowers to provide. One chief thing is to see that there is always a young stock of plants coming on. With the best of treatment and skill the plants cannot always be depended upon to come into bloom exactly at the same time each season. To make sure of the flowers at the time they are most wanted it is necessary to have them in different stages of growth at the close of summer. It is now too late to alter the conditions of the stock this season, but not to make provision for another year. Cuttings with a heel will strike readily now if a gentle hotbed is provided. Suitable cuttings will be found on the stems of those which have been flowering during the summer. Select those about four inches long, and, as mentioned before, with a heel. Fill a number of four-inch pots with rich sandy soil and insert the cuttings about half their length, keeping them by the side of the pots. Give a thorough soaking, and then plunge the pots up to their rims in cocoa nut fibre refuse, which has been placed over the fermenting material. Ventilate the frame carefully so as not to cause a draught, and see that the sun does not reach the cuttings until roots have formed. When it is seen that roots have formed give more ventilation, and eventually remove them to a cold frame, but arrange the pots well up to the glass to ensure a sturdy habit. The points may be pinched out, and directly side shoots commence to form divide the plants carefully and pot up singly. This will give a good batch of plants to be wintered in small pots, and the following spring they may be repotted and grown on during the summer, making large plants before autumn. If another batch of cuttings are put in next spring these will form a good succession. Carnations that were put out in the open last spring, and that are intended to flower during the winter, must soon be lifted and potted.

Double primulas, especially the white varieties, are also valuable for winter flowering, as they are so continuous. It is time now they received their final potting. Any bloom that is showing should be pinched out for the next few weeks to encourage leaf and root growth. Give good rich friable soil, affording free drainage, as the plants are likely to go off suddenly at the collar during a spell of bad weather if the compost becomes at all water-logged. In potting, sink the ball well down, so that the lower leaves are on a level with the soil, without which the plants would become top heavy and fall over on one side. The habit these plants have of going off suddenly may be prevented to a great extent by giving more warmth and affording water carefully. Keep the plants close and shaded after each potting, a cold current of air through the house or frame, in which the plants are arrayed, causes the foliage to turn yellow, and care is required afterwards to bring them into a free-growing state again. Weak soot water once or twice a week may be given to large plants which have filled their pots with roots, or they may have a sprinkling of Clay's fertiliser occasionally. The different kinds of winter-flowering plants that succeed under the planting-out system during summer, such as salvias, veronicas, salanums, bouvardias, and others of a similar description, should now have their roots cut in by a sharp spade. If the longest roots are severed in this way at once, new rootlets will form near the stems of the plants, and little or no check is given when they are lifted.—R. PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THE importance of sowing things at the proper time at this season of the year cannot be too well understood, for a few days makes all the difference to a crop. The weather, too, plays an important part, for when the ground is parched young plants cannot make satisfactory progress. On the other hand, when cold, wet weather prevails many small things suffer seriously. Preparation should, however, be made for planting spring cabbages as soon as the ground can be cleared of its summer crop. The cabbage in many gardens is considered to be one of the prime crops, and many gardeners pride themselves of being able to cut very early in the season. It is usual in many places to plant after onions, the ground being in a fair condition as to fertility. There is, however, much difference in soils, for in some places it is so light and sandy as to need a liberal dressing of manure for every crop, while in others it partakes of the nature of clay. If of the former nature, a dressing of manure should be given as soon as the crop is taken off; this being dug in the soil should be made firm again by treading, as the roots cannot take hold of loose soil. If left thus for a week or two, the autumn rains will usually make the ground sufficiently solid for planting. In exposed situations it is a good plan to draw shallow drills, as by planting in these shelter is afforded during rough weather in winter, particularly when the drills are drawn north and south, as during cold easterly winds, the ridges afford some protection. The distance allowed between the rows and plants must, in a measure, depend on the quality of the soil, but for any of the early kinds eighteen inches each way will be ample. In dealing with land that is stiff, far more care is needed, for unless dug at the proper time, and planted when in fair condition, it will prevent the water passing away freely, and thus instead of there being early cabbage, a good portion of the spring will have elapsed before growth commences. It is not well to make land of this description too fine on the surface, as both heavy rains and frosts cause the particles of soil to run together until the water has much difficulty in penetrating, the consequence being plants suffer much in winter. Where those from the first sowing are large enough to handle, these ought to be picked out to prevent their becoming drawn. They should be freely watered in dry weather, so that there be no check.

The late sowings of carrots ought now to be thinned, but this must be done with discretion, according to the variety, from two to three inches being ample. Endive should be planted, where the situation is low and damp, on the driest portion of the garden, otherwise the plants will suffer should there be a quantity of rain fall during the autumn. For the late sowings choose a south border, and allow sufficient space between the plants that the air may get among the foliage to prevent the leaves from rotting. Make a sowing of hardy cos lettuce, such as Hicks' or Brown cos. Those from former sowing should be transplanted as soon as large enough. Cuttings of lemon and other thyme should be inserted in a cold frame, likewise such herbs as sage and others of a shrubby nature. The lifting and storing of potatos will now form an important item in this department, as many of the second early kinds are quite ripe. When the ground is cleared of the crop, it should be forked over and made ready for turnips. This latter being one of the most important of our winter root crops, should on no account be neglected; a goodly breadth ought always to be put in, as crisp, sweet, roots are always in demand. The thinning of former sowings should be commenced as soon as the plants have made two or three rough leaves that they may be kept sturdy. Continue to make small sowings of radishes and other salads, as these are still much in request. Use every means to keep down weeds, which always grow apace at this season of the year, and if neglected soon form seed which is scattered over the garden.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

Pot figs for early forcing will require a season of rest before they are again started. Excitement of any kind will start them again into growth, or, at all events, cause them to cast their crops later on; and, on the other hand, exposure of the pots to the drying influences of sun and air outside will result in shrivelling of the wood. The best method of treatment is to put the plants outside, and mulch over and around the pots with long litter, so that the roots may be cool while the tops are fully exposed. The mulching will obviate the necessity of frequent waterings, but the roots must by no means be allowed to dry, and it is advisable to syringe the trees overhead every afternoon, after hot days, as this will keep both the wood and the embryo fruits plump. Any weakly wood that is not required should be removed, if this was not done some weeks back when recommended, as such wood is only a nuisance, and will not carry fruits. I advised, too, a while ago, that any trees needing repotting should be attended to then, so that they could become somewhat re-established before being put outdoors, but it may still be done if necessary, only means must be taken to prevent souring of the soil afterwards, and it may be necessary to keep them for a time under cover. Planted out trees will go on fruiting and ripening second-crop fruits for some weeks longer if allowed to do so, and in the case of well-established trees I see no objection to their doing this, for there is no difference in next year's first crop through the little extra strain, and the fruits come in now most conveniently where there are no successional trees.

Late melons are required in many establishments, but they are frequently poor things when they ripen under dull skies, and when the sun heat is reduced; a melon house to supply late fruits cannot be too light or clean, and must have a good supply of artificial heat. This must be borne in mind just now, and though the exact aspect or heating power of the house may be beyond the control of the grower he can at least insist on cleanliness. The glass should be well scrubbed inside and out, as also should be all stagings, and a liberal supply of whitewash applied to all walls and other parts of the interior. If the house has been already occupied with cucumbers or melons it is advisable to clear out all living plants, and then set light to a pan or two of sulphur, shutting the house up closely in the meanwhile, and leaving it so for several hours. This will eradicate all insect life, and prepare the way for a clean start. Late melon plants are best grown in pots, and these should not be over-large, neither is it advisable to attempt big crops from the plants. Great care should be taken not to bruise, or cause other damage to the stems and main leaves, as canker follows such injuries, and is especially fatal to the plants later in the year. Melons in manure-heated pits have had a struggle this year, but they have done remarkably well with me, probably from the extra attention given to the linings necessitated by the dull, cold weather. From now onward the frames should be matted up every night, and every effort made to conserve what sun heat we may get, as the nights are becoming long, and by the morning the drop in temperature will be considerable unless the glass is covered with some warm material.

The present is an excellent time to carry out any lifting and replanting operations that may be necessary in the early peach and nectarine house. When trees from any other cause than old age are not satisfactory, the secret of their ill-doing is generally to be found at the root, and as trees may be lifted and again planted without any fear of interfering with next year's crop, provided the work is done carefully and the after treatment is right, the cause should be sought for and rectified. Space will not permit me here giving details as to the carrying out of the work, but I may say that with fairly young trees I never trouble about lifting with a ball of soil provided I can get the roots almost intact, and I believe injuries often accrue from attempting too much in that way. If the tree is well lifted and the fresh soil well worked in among the roots without bruising them, and then given a good soaking of water no harm will come to it. It may be that the glass will need shading for a few days, and that syringing the foliage will be helpful in keeping the wood plump, but these things combined make up a much easier matter than lifting extension-trained trees with balls of soil big enough to help them, and more than answers the same purpose. See that the drainage [illegible] right, the soil good for the roots, and above all, that there is no deficiency [illegible]—J. C. TALLACK, *Livermere Park Gardens.*

THE FORTINGALL YEW.

Fortingall, the Perthshire parish which is as large as a German Duchy, is one of the most interesting districts in Scotland, alike to the naturalist, the botanist, the antiquary, and the lover of fine scenery. In what corresponding space of country, asks a correspondent of the *Dundee Advertiser*, will you find as much of varied interest as here, where Druidical remains compete for notice with early Christian monuments, and where a Roman camp stands as an outpost to a chain of Caledonian torts of unknown antiquity? Where, too, such variety of scenery, from stern Loch Rannoch and Schiehallion, white as a "maiden's breast," in the north, to the smiling shores of Lock Tay in the south, from the green and fertile haugh which lies before Fortingall village, encompassed by the Lyon like a silver bow, to the long and crooked and narrow glen which winds between high hills for thirty miles, which opens at the picturesque Pass of Glen-Lyon and ends in Argyllshire? One hardly knows which phase of interest to note first—the beautiful or the ancient, the curious or the merely pleasing. But perhaps the antiquarian relics of the place are the most valuable, and so we begin with the oldest memorial of the past in the parish—the venerable yew, which has the credit of being, if not the oldest tree in Europe, yet one of the patriarchs of European vegetation.

Says Sir Robert Christison in the inquiry which he devotes to determine the age of this venerable tree: "De Candolle, with the particulars at his command in 1831, estimates its age at 2,500 or 2,600 years in 1770; and alluding to it and a few other yews in England—among which, however, he mentioned only one vying with it in antiquity, he adds—'I venture to indicate these trees to botanists and foresters that they may authenticate them, and establish, if possible, their law of increment, for it is probable that they are

The Veterans of European Vegetation.'"

The other trees mentioned by the French naturalist have all succumbed to Vandalism or natural decay. The Fortingall Yew alone, thanks perhaps to its isolated position ramparted by the Grampians, survives to tell to a wondering Twentieth century the story of its long descent What that story is, however, is largely conjectural. One wishes for the nonce that the "tongues in trees" which the Duke speaks about were a reality, for half an hour's "crack" with the Fortingall Yew would be worth all the cogitations of all the learned societies put together! I think it is in one of Kipling's stories that there is a man who is a mere commonplace City clerk, but who has a vision of his former incarnations, who has rowed in a Roman galley on the Mediterranean, and so on, and who, under certain conditions, has a curious blurred consciousness of the past. Could we lay our ear to the vocal trunk of this old tree what might we not hear? The murmur of the primeval forest and the wood cries of innumerable wild things; the crash of the rocky barrier rent by some wild convulsion of Nature, which set free the imprisoned waters of the lake, which up to that time had filled the valley of Glen-Lyon; the sound of the Druids' hymn and the shrieks of the victims as they bled beneath the knife to fill the stony cups of those ancient altars with a red [illegible]; the cries of Pictish warriors ere ever there were Celts in the land; the steady tramp of Roman legions coming to encamp on the "heath-field" close by, where yet their trench and mound stand for a memorial of them;

The War Cry of the Fionne

as they descended from their castles to fight, to plunder, and to ravage; the blithe shouts of Scotland's monarchs and their merry men as they went to the hunting; the view-halloo that set the bloodhounds on the track of Wallace and Bruce; the savage onslaught on the landless and proscribed Gregarach—these are some of the memories that the yew might whisper of—and it would. But it remains silent, and gazing on the "sullen tree" we are, like the Laureate, "sick for thy stubborn hardihood." In all seriousness, however, the yew is the oldest object, next to the everlasting hills themselves, that the eye meets at Fortingall. It was probably the earliest temple for men's worship in the valley, and itself the altar and the deity. For the Druids, as we all know, worshipped trees, and though the oak was the supreme object of their devotion it is perfectly reasonable to suggest that they may have devoted a portion of their worship to this immortelle of slow growth and dateless age—the yew. The tree is associated from time immemorial with churchyards and the dead:—

> "Old yew, which graspest at the stones
> That name the under-lying dead,
> Thy fibres met the dreamless head,
> Thy roots are wrapped about the bones."

But may it not be that this was the survival of the feeling of an earlier age, and that the dead came to be buried near the sacred yew, until at length the yew with its pillared gloom came to be associated with the departed? The thought is worthy of consideration at any rate. Some people have sought to account for the Fortingall Yew by an allusion to an ancient Act of Parliament that ordered yews to be planted in graveyards for the sake of their tough wood for making bows. But such an attempt is absurd in face of the great age of the tree. Why, the yew was a sturdy sapling when Solomon was building his temple or Isaiah singing his inspired songs, or Daniel reading on the wall the doom of Babylon. Why,

The 7th Century Church

[illegible] it is a thing of yesterday compared to the countless winters of the hoary [illegible]. It stands in the ancient graveyard which surrounds the church, at the east [illegible] of the village of Fortingall. Pennant in his tour mentions having seen it in [illegible], when it was fifty-six feet in circumference. Village Vandalism, however, [illegible] the curio-hunting visitor have greatly interfered with its appearance. At one [illegible] the village boys used to kindle their beltane fires at its roots—a custom which [illegible] the thoughts back in an unbroken line to the Druids and their rites, and [illegible]mongers cut down the branches and turned them into cups and boxes and [illegible] curiosities for sale. In a short time there would have been nothing left of the venerable giant had not a wall been erected round it in the end of last century by the direction of the factor on the Garth estate—a gentleman, it may be mentioned, who was a relation of the late parish minister of Fortingall, the Rev. David Campbell, who took such a scholarly interest in the tree. This still stands, but it has been pierced by two openings protected by railings, which allow more air and [illegible] to visit the tree, the beneficial result of this being apparent in its fresh growth and general appearance of health. Although

> "No branding summer suns avail
> To touch its thousand years of gloom,"

[illegible] still puts forth its fresh green shots as if its roots were not planted deep [illegible] dust of innumerable generations. The huge trunk is now a mere hollow shell, [illegible] apparently three separate trees growing out from it. There is another yew [illegible] growing outside the churchyard wall in a line with the old [illegible] was for some time supposed to have sprung from the spreading roots of the present tree; but it seems that the yew does not shoot up in this way, so the young tree—a mere infant of eighty years old or thereabouts—is most likely a seedling from its soil. What a multitude of thoughts arise in the imaginative visitor as he looks at this ancient yew! How the mutability of human life is borne in upon him, the permanence of nature, the transitoriness of man! whose

> " . . . deepest lays are dumb
> Before the mouldering of a yew."

The yew has always suggested such images to the poet. It seems a sylvan growth which belongs less to the upper world of light and sunshine than to the lower shades.

THE CLOVE TRADE OF ZANZIBAR.

The most important export trade of Zanzibar, from an economical point of view, is that of Cloves (*Caryophyllus aromaticus*), for upon it the revenues of the Sultanate chiefly depend.

The figures which appear in the following table, prepared by Mr. Consul Cave, represent the actual quantities of cloves brought into the town of Zanzibar from the "shambas" or plantations of this and Pemba Islands during the last eight years. The actual clove season, that is, the period during which the produce of the trees ripens and is picked, dried, and brought to market, extends from September to March, and is at its height in January, but for the purposes of this report the year is reckoned in the usual way from January 1 to December 31. 1 frasila=35 lbs.

	Quantity.		
Year.	Zanzibar. Frasilas.	Pemba. Frasilas.	Total. Frasilas.
1890	124,929	384,933	509,862
1891	69,388	324,252	393,640
1892	121,398	236,211	357,609
1893	108,090	259,367	367,457
1894	138,691	372,999	511,690
1895	146,397	391,460	537,857
1896	119,791	237,090	356,881
1897	90,676	240,954	331,630

From this table it will be seen that the yield of cloves during 1897 was less by 883,785 lbs. than in the year immediately preceding, and was, in fact, the lowest recorded throughout the series. The reason for this is twofold. It was due, in the first place, to the unusually dry weather which prevailed during the beginning of the clove season of 1897-98, the total rainfall being only 18·51 inches as compared with a previous five years' average of 24·32 inches, a difference which is quite sufficient to account for a considerable reduction in the yield, and, in the second place, to the important and difficult question of labour.

The clove-tree is one which requires a good deal of care and attention, and which well repays the labour bestowed upon it; it is of course important that the roots should be kept clear of weeds and tangled undergrowth which in this more than in other climates so rapidly grow and spread amongst them, but it is in the picking season especially that the scarcity of labour is felt. Experiments have shown that the buds should be picked when the calyx tubes or stems are of a pink colour; if they are left until the stems become red the latter will be brittle, and the flowers apt to open during the process of drying, with the result that many of the heads, which are composed of the imbricated petals, will drop off and the sample deteriorate in value. If picked too green, on the other hand, the dried cloves will be shrivelled. The buds grow on the trees in bunches, and in each bunch there may be buds in various stages of ripeness; to obtain a good and uniform sample the trees should be carefully watched, and the buds picked as each reaches the certain condition in which experience has shown that it can best be submitted to the subsequent process of drying. To properly carry out this method, however, would require a far larger number of labourers than either the Arab landower is able to employ or the country to supply, indeed, the reduction of the number of slaves by natural causes, gradual at first but more rapid as time goes on, and the effectual suppression of all the methods by which a fresh supply used in former times to be obtained, has had such a serious result for the clove-planter, that he not only finds it impossible to attempt to carry out any of the methods by which he is now well aware that his crop may be improved and his income increased, but is often only too glad if, by mutual arrangement with his neighbours or by some other means, he can engage a sufficient number of hands to ensure his trees being cleared, in whatever condition the buds may be, and to prevent the cloves being left to rot and fall off for want of sufficient labour to pick them. The decree which was published last year abolishing the legal statutes of slavery, has made the planter's position a still more difficult one, and as Indian coolies, if their emigration to Zanzibar is permitted, will only be available for service under the immediate supervision of Government officials, it does not seem likely that the output of cloves from Zanzibar, so long as its cultivation remains in the hands of the Arab, can ever again reach the high figures to which it attained in previous years. Whether this would be altogether a matter for regret, or whether by reducing the stocks of cloves at home, it would not rather tend to improve the price of the commodity in proportion as its production decreased, and so act as an incentive to those who still cultivated it to produce an article of a higher commercial value, is a question on which different opinions may be held, but it is not proposed to discuss it here, or to do more than account to the extent to which this has already been done for the reduction in the quantities which have been put on the home markets during the year under review.

Prices during the first three quarters of the year remained fairly steady at 1 dol. 94 c. for Zanzibar and 1 dol. 76 c. for Pemba cloves, which were the average quotations for 1896, but in the last quarter, at the commencement of the new crop, the prices rose considerably, reaching at one time as high as 2 dol. 80 c. for Zanzibar cloves and 2 dol. 65 c. for the Pemba sample, and bringing the average for the twelve months up to 2 dol. 14c. and 2. dol. 7c. respectively, and it is probable that even higher prices would have been offered if there had not been a very appreciable reduction in the usual demand from Bombay in consequence of the plague. The price which the Zanzibar clove commands in the home markets is never so high as that of the Penang and Amboyna varieties, chiefly, it is supposed, because sufficient attention is not paid to the important process of drying, and the cloves being, in the majority of cases, exposed for too long a time in a tropical sun, much of the oil is evaporated. Experiments which have been and are still being carried on in this respect tend to show that, with proper care, as good a sample can be produced in Zanzibar as in any other part of the world, and it is hoped that, if the Arab cultivator can be induced to adopt the methods which are found to be most successful, the price which he will be able to obtain for his improved produce may ultimately compensate him for the number of trees which, for reasons already alluded to, he is allowing to pass out of cultivation.

THE SEASON'S FRUIT CROPS.

AMPLE evidence has been obtained, were such evidence rendered necessary, that the tree fruit crops of the year generally are somewhat unsatisfactory. Slips between cups and lips are proverbial, and the promise of the spring bloom, a cup literally overflowing, has met with a serious slip, for that promise is very far from being in process of realisation. Oddly enough, we have had a splendid crop of bush fruits, and strawberries. Seldom has there been better, and that fact naturally leads to the conclusion that something other than the cold spring and long spell of low temperature prevalent in April and May had to do with the general tree fruit crop failure. But in relation to tree crops there has been the undoubted fact that if others are thin cherries have been pretty abundant, the crop of these stone fruits having been a very good one. Do, therefore, the atmospheric or root conditions, which seem detrimental to apples, pears, and plums, favour cherries? That is a nut for the clever ones to crack. Who will try to do so? Now the cause of the poor fruit set on trees generally, in spite of such a grand bloom, is very commonly ascribed to the coldness of the spring. Is that rightly ascribed? If it be so, why were cherries so good and bush fruits so very abundant, because these are fruit trees that bloom in the spring, and early, too. Then it is noticeable this year that some trees here and there, amongst others, of apples, pears, and plums are carrying very good crops. Now, I have but just seen out of some fifty young half-standards of Yorkshire Beauty apple, for instance, just a few fruiting well. But last year the bulk of the trees fruited freely; a few did not, It is these few that are fruiting this year, although all the trees bloomed profusely. The moral of that fact is that non-fruitful trees of last year possessed ample stamina to produce pollen in abundance for purposes of fertility, and that all those trees that were fruitful last year did not. But it sometimes happens that trees will bear two crops well in successive years. That being so, why did they not do so this as well as last year? The obvious reason seems to be found in the general dryness of the subsoil, and the incapacity of trees for that reason to recuperate and produce fertile flower buds because of the comparative lack of moisture at the roots. That evil has not applied to bush fruits and strawberries, because these root closer to the surface, and they found ample moisture in that upper soil that got so fairly moistened in the spring. It may be said, why should cherries be an exception amongst the tree fruits? Possibly because these trees have produced very light crops for the previous two or three years. Without doubt, the singular nature of our fruit crop this year, following upon one of the greatest of flower-times ever seen, does present an interesting problem which the suggestion as to the spring's low temperature seems not fitly or fully to solve. If the dry soil suggestion be at all correct, then our prospect of a good tree-fruit crop next year is far from promising. At present the soil is drier than ever, and a perfect flood of water is needed to saturate it. If we do not get that during the winter, we can hardly hope to get it at all; and, although a wet winter is a wretched season, yet such a winter seems very needful. As evidence of the dryness of the soil, we have on every hand statements as to the deficiency of the water supplies in urban districts, and the great need there is for economy in the use of that element. Wells, springs, streams, and rivers are all getting low, because the rainfall for many months has been so much below the average. We have great need that that average should be supplied to enable our trees to carry abundant fruit crops. Even now, where there are but moderate, indeed quite thin crops on trees, the very small size of the fruit is marked. Only where there happens to be specially retentive soil, or water is artificially supplied, are fruits of fair size. When would-be patriots later, as they assuredly will do, quote statistics relating to the immense imports into this country of foreign fruit—probably not largely gooseberries, currants, raspberries, or strawberries—they will tell us that we should plant more trees and grow more fruit. Well, that is excellent lecturing; but did our trees this year but give to us the produce the spring bloom foreshadowed, we should have had truly an immense crop, and vast quantities of the inferior would have been spoiled. If we do not have such fruit produce as we could wish or look for, let the reason be looked for elsewhere than in cultural neglect.

A. D.

HORTICULTURE IN NEW SOUTH WALES.

PERHAPS no portion of the world, of the same area, is better favoured than New South Wales, with its varied climates and soils, for the production of fruits, vegetables, and flowers. It is really surprising how great a variety of plants can be grown to perfection and at a minimum expenditure of labour. Exotics from cold, temperate, and even tropical countries thrive equally well within the limits of this comparatively small area; and still more remarkable is the fact that so many of these plants from different climates will grow side by side in many favoured localities.

With all these advantages it seems strange that comparatively little attention should be devoted to the raising of vegetables for home use, or to the cultivation of flowering and ornamental plants for the adornment of the home of the settlers in the country districts. Occasionally one may meet with a well cared-for, beautiful garden, like an oasis in a wilderness, but, as a rule, few attempts are made even to grow the commonest vegetables for family requirements; and dependence for supplies is placed on Chinese gardeners, whose gardens are generally to be found dotted about the country, especially in the more largely populated districts. The raising of vegetables, the selling of fruit, and the hawking of goods would seem to be almost entirely in the hands of the Chinaman, the Italian, the Syrian, and the Indian; despite the fact that a considerable proportion of the white colonial population consists of unemployed men tramping through the country in search of work, and dependent on the hospitality of the settlers. Considering the little difficulty there is, in most seasons, in producing a sufficiency of fruits and vegetables for a family's requirements in most parts of the colony, it is incomprehensible that the settlers or farmers do not grow everything they need. Instances have been known where vegetables were brought hundreds of miles to localities in which the same kind of vegetable could be grown to perfection with but little trouble. In some places Chinamen will travel from forty to fifty miles carting vegetables to settlers who have soil sufficiently rich to grow all they need, if they took the trouble to devote but an hour or two each day to the work.

In the neighbourhood of Sydney flower-gardening has been made a remunerative occupation by reason of the growing demand for bouquets, wreaths, and floral ornaments, but the continual expansion of the metropolitan suburbs is driving the older nurseries farther afield. A considerable business is done by nurserymen and florists in palms of various kinds, especially that known as Kentia Belmoreana, which is indigenous to Lord Howe Island, and succeeds admirably in gardens about Sydney, and when planted with tree-ferns grows freely and quickly, and is wonderfully effective. The bush-house is one of the most useful of structures in connection with the garden in all the warm parts of New South Wales. In it a multitude of plants can be grown which would be liable to perish in the hot sun. It can be, and is, constructed of all sorts of material, sometimes tea-tree brush, laths, bamboo blinds, and indeed anything that will break the rays of the sun without altogether obstructing them. In numerous gardens about the metropolis and large towns there are glass buildings where tender exotics of climates warmer than that of New South Wales, are grown as successfully as in any part of the world. Everything indicates that the colonial taste for floriculture is improving rapidly, and will continue to improve, a result due in some measure to the fact that there are many excellent gardeners, professional and amateur, in the colony.

A large proportion of the potato and other vegetables consumed in New South Wales is imported from Victoria, where market-gardening is more largely in the hands of white men than in the older colony. The vegetable products of Chinese gardens are mostly of poor quality, insipid and watery, owing to the peculiar method of over-watering and over-manuring adopted. Although these vegetables are of such an inferior character, they are absolute blessings in many places where the colonists either will not or cannot grow those they need. Vegetables of excellent quality can be produced, even in dry districts, with but little irrigation, if they be properly managed; but unless a Chinaman has a superabundance of water he is lost. With a fair supply of water and experienced labour, almost every description of vegetable known in Europe or America can be grown with ease, generally yielding abundant crops.

Sydney. JOHN PLUMMER.

APPLE GROWING IN NEW ZEALAND.

WHILE the Tasmanian grows apples in fifty acre blocks, and gets his neighbours to do the same, the New Zealand fruit grower has generally planted out but a few acres, and those in a large number of varieties, ripening at different times. This fact accounts largely for the higher commercial standing of Tasmania as an exporting colony. But New Zealanders are beginning to realise the disadvantages of their system. A recent offer of their Agricultural Department to send a shipment of apples to England, and give the growers a guarantee of a penny a pound clear, disclosed the weakness of the situation very clearly. Although the Canterbury growers succeeded in completing a shipment in March last, a similar effort in the Auckland province to raise 50,000 bushel cases had to be abandoned owing, principally, to the impossibility of getting contributions in quantities worth handling.

New Zealand apples are probably the best in the world, but the men who grow them are mostly small settlers, who have neither the means nor the experience necessary to develop the industry. The Government pomologists have lately been urging the growers to adopt a different system. The energetic Mr. Blackmore has this season been visiting the orchards of both islands, and his advice may be summarised in a few words: "Plant late apples; nothing but late marketable apples. Plant acres and acres of them. Plant only a few varieties, and get your neighbours to plant the same varieties. Then it will be worth while for a dealer to come into your district and buy the crop, instead of being confronted with never more than thirty or forty cases of a sort at any time during the season."

Mr. Blackmore, being a vigorous advocate of spraying, is not dismayed at the codlin moth. In dealing with this pest a Californian pump called the Bean is coming into great favour. It was first sent to New Zealand by Professor Wickson after whom the latest and best of all Burbank's wonderful Japanese plums is named. Its cost is £7 10s. Its good points are its enormous pressure per square inch—on which the force and fineness of the spray depend—and the fact that it can be worked single-handed, the operator being free to hold the nozzle until the compressed air cistern needs refilling. The codlin moth lays her 200 eggs in the eyes of 200 apples, and the progeny's chance for life depends on his getting through the skin of the apple at a spot where the spray has not fallen. The liquid used is diluted Paris Green. If the grub which hatches from the egg should get through the apple skin without tasting the Paris Green, he makes a bee line for the pips, without which he cannot develop. Having sampled these and filled the core with excrement, he eats a way out through the side of the apple, and makes a cocoon in a crack in the bark of the tree or some other sheltered place, where, if it is not near winter, he becomes a moth in about a fortnight, and the business is repeated. Leading growers, in addition to spraying, tack a narrow strip of sacking round the stem of the trees. These attract the grubs, and about every ten days they are examined and the grubs are killed.

In pruning orchard apple trees and pear trees, the twelve-branch or Tasmanian system is considered the best. The result of the system is to make the tree [illegible] in shape and productive of heavy crops, good fruit, and fruit that can be easily reached. For shaping on this method, yearling trees are planted. Three shoots are grown during the first season. These are pruned back to three or four buds in the winter, and two shoots from each are grown in the next season. The following year the process is repeated, and then there are twelve branches. The tree is then complete. Future pruning has the object of confining all the fruit to these branches, and summer pruning effects this purpose. Just before the crop is gathered, the shoots, which grow out all along the twelve branches, with any other laterals, are shortened to four or five buds. These short stumps do not grow again, but become fruit spurs. The terminal shoots of the twelve branches, however, are always allowed to grow unchecked till the winter. They are then shortened, to induce a new bud to push into growth at the end with renewed vigour next spring. Trees of a spreading habit are cut to an upper bud, and those of an upright growth to an outer bud. The Tasmanian orchards, pruned on this system or a modification of it, present a very effective sight, with the long rows of trees each throwing out its twelve long arms of fruit. The fruit pickers greatly appreciate this style of pruning, too; and it is also found that the more the fruit is borne on the main branches—as it is bound to be by this plan—the better it always is. And it will weather much heavier winds.—*The Field.*

Winter Onions.—I have seen many hundreds of bushels of these autumn sown onions in gardens and on allotments this summer. Rarely have they been seen finer, though perhaps a little later than usual. It is evident the season has suited them. But almost without exception the varieties grown have been Tripolis and Roccas, and I have wondered how many of these fine bulbs have really been utilised properly, and how many have become soft and worthless, and wasted ere they could be used. Spring sown onions, though rather late, have been so far very good. A failure has been rare, and mildew only here and there prevalent. The very finest of all the autumn sown onions I saw in all the county of Surrey was on an allotment, and they were evidently Ailsa Craig. How strange it is that gardeners and cottagers alike cannot be induced to sow in the autumn the hard keeping varieties, rather than the soft Tripolis, as the former would keep well and grow very fine.—A. D.

(Continued from page 538.)

various colours and stands of excellent blooms; Mr. M. Campbell, High Blantyre, second, with a very fresh and bright collection; Messrs. Keynes, Williams, and Co., Salisbury, third, with bunches in the usual show style.

The nurserymen's class for a collection of hardy flowers, annuals and shrubs excluded, was well filled, there being four large groups, all tastefully arranged; Messrs. Harkness and Sons won premier honours, putting up splendid bunches of choice gladioli, liliums, gaillardias, perennial sunflowers, pyrethrums, carnations, &c., every flower finely developed; Mr. W. F. Gunn, Olton, Birmingham, second; Messrs. Barr and Son, Covent Garden, third; and Messrs. Dickson, Chester, a special prize. There were five collections of displays of carnations and picotees staged, and the best set came from Messrs. Laing and Mather, Kelso, N.B., who had beautifully fresh and bright flowers in great variety; easels of Uriah Pike, Miss Muir, Kelso Abbey, Duchess of Fife, and Brilliant were especially good—Duchess of Fife is a lovely carnation; Mr. M. Campbell, High Blantyre, was second, staging huge sheaves of Adele Hamilton, Jim Highgate, Snowball, and Miss A. Campbell; Messrs. Thomson and Co., Sparkhill, third.

The best collection of gladioli, staged on a space of twelve feet by five feet, was staged by Messrs. Harkness and Sons, Bedale, who put up beautifully-developed spikes of variously-coloured blooms, making a fine display; Messrs. R. Wallace and Co., Colchester, second, with a splendid assortment of Lemoinei forms and other charming sorts; Mr. W. F. Gunn, Birmingham, third. Messrs. D. and W. Croll, Dundee, secured first prize for a display of roses, and though the blooms were fresh and fragrant, no great amount of artistic ability was evidenced in the arrangement; T. and H.T. roses were good, so also was Crimson Rambler; Messrs. Pope and Sons, King's Norton, second.

DECORATIVE CLASSES.

One of the principal attractions in the show was found in the class for a large dessert table decorated with plants in pots not exceeding 5 inch, cut flowers and foliage—table 10 feet by 4½ feet. Only sixteen dishes of fruit selected from a given list were allowed; plate, silver, and cut glass excluded. The fruits were to be judged according to the R.H.S. Code, and the maximum number of points for flowers and foliage to be 8, for harmonius blending of colours 10, for general arrangement for effect 10. The sum of £45 was offered in five prizes, in exact accordance with the point value of each collection as awarded by the judges under R.H.S. Code. Three competitors entered for this, with the result that Mr. J. McIndoe secured the chief award with a beautiful table, his decoration consisting of carnations, odontoglossums, and montbretias. Mr. McIndoe's fruit consisted of the following: Spencer and Pineapple nectarines, Stirling Castle and Violette Hative peaches, Margaret Marillat and Souv. de Congres pears; Muscat of Alexandria, Chasselas Napoleon, Black Duke, and Madresfield Court grapes; Yorkshire Beauty and McIndoe's Best of All melons; Gascoyne's Scarlet and Washington apples; Moorpark apricots; and Brown Turkey figs. The marks awarded were: Apples, 7 and 6; apricots 5½; figs, 5; black grapes, 8½ and 8; white grapes, 7 and 8; melons, 5 and 5; nectarines, 8 and 5½ (Spencer gained full marks); peaches, 7 and 6; pears, 6½ and 6; beauty of flowers and foliage, 5; harmonious blending of colour, 7; general arrangement for effect, 8½; total, 124½; prize, £12 9s., or two shillings per point. Mr. Goodacre came second with 119 marks—£11 18s.; Mr. J. Edmonds, Bestwood, third with 100 points—£10.

The Garden Produce class was a novelty, and as such attracted a good deal of attention; it was for six dishes of fruit, six dishes of vegetables, and table plants and cut flowers, the whole arranged for effective display. Five prizes were awarded according to the point value of the exhibit, £25 being disbursed. The object of the class is to enable cultivators of gardens to show what they consider the best examples of varied products, such as are required in high-class gardens—this object was obtained in a measure. Mr. Goodacre, Elvaston Castle, came first, and in his collection were huge bunches of Barbarossa and Muscat grapes, Golden Eagle peaches, and cauliflowers; neat crotons, smilax sprays, carnations, and a few light orchids forming the decorating material. The points were allotted as follows: Black grapes, 8½; white grapes, 7 and 6½; peaches, 6½; nectarines, 5; apples, 6½; melon, 7; table plants, 7; cut flowers and foliage, 8½; tasteful arrangement, 8½; potatos, 6; tomatos, 4½; cauliflowers, 5; cucumbers, 4; peas, 6; and runner beans, 5½; total, 102 points, and this, at one shilling and fourpence per point, amounted to £6 16s. Mr. J. McIndoe came second, gaining 40 points for fruit, 33½ for vegetables, 5 for plants, 7½ for cut flowers and foliage, and 7½ for arrangement; total 96½, valued at £6 8s. 8d. Mr. Wilkins, Henstridge, third, with 38½ points for fruit, 36 for vegetables, 6 for plants, 5 for flowers and foliage, and 5 for arrangement; total, 90½, valued at £6 1s. 4d. Mr. Bremmell, gardener to T. France Hayhurst, Esq., fourth, with 83 points=£5 10s. 8d.

FRUIT.

There were three entries in the class for a collection of fifteen dishes of fruit, in fifteen varieties, and not less than ten kinds. Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston, Derby, gained the first prize of £15, with finely finished bunches of Muscat of Alexandria, Cannon Hall Muscat, Gros Maroc, and Alnwick Seedling grapes, William's Bon Chretien pears, Moor Park apricots, Royal George peaches, Lord Napier nectarines, very fine; Brown Turkey figs, Lady Sudeley apples, Hero of Lockinge, and Duchess of York melons, and Cayenne and Queen pines; Mr. J. McIndoe, gardener to Sir J. W. Pease, Bart., Guisboro, Yorks, was second; and Mr. J. Edmonds, gardener to the Duke of St. Albans, Bestwood, Notts, third. In the class for a collection of nine dishes of fruit in as many varieties, there were five competitors, and Mr. J. Jones, gardener to Mrs. F. Need, York House, Malvern, secured first prize, with fair Madresfield Court and Muscat of Alexandria grapes, Violette Hative and Grosse Mignonne peaches, Moor Park apricots, Brown Turkey figs, Spencer and [illegible] Elruge nectarines, and Ne Plus Ultra melon; Mr. Bannerman, gardener to Lord Bagot, Blithefield, Rugeley, second; and Mr. A. MacCulloch, gardener to W. S. Webb, Esq., Newstead Abbey, Notts, third, his set containing [illegible] Pineapple nectarines. Mr. Grindrod secured the first prize for a collection of fruit produced with the aid of Icthemic guano, and offered of the Ipswich firm; peaches, nectarines, white and black grapes, and melons were all in fine condition: Mr. Huxter, second.

The best collection of nine dishes of fruit grown in the county of Shropshire was shown by Mr. C. Roberts, gardener to Miss Wright, Halston Hall, Oswestry, who had fine Sweetwater and Gros Maroc grapes, peaches, nectarines, figs, [illegible], pears, and a melon; there were six collections. Mr. J. Langley, gardener to the Rev. F. M. Bulkeley Owen, Tedsmore Hall, Felton, second; and Mr. T. Bremmell, gardener to H. H. France Hayhurst, Esq., Oberley, Wellington, third.

For plums, Mr. J. McIndoe was first with Early Transparent Gage; Mr. J. Langley, second; and Mr. J. Howard, third. Out of two dozen dishes of apricots, the best dish came from Mr. R. Grindrod, gardener to G. T. Bates, Esq., [illegible], who had splendid fruits of Early Red; Mr. J. Howard, gardener to Sir R. Sutton, Newbury, second; and Mr. C. Crooks, gardener to the Dowager Lady Hindlip, Droitwich, third. Mr. J. Howard had the best dish of nectarines, Pineapple, in first-rate condition; there were thirteen dishes. For a dish of peaches, Mr. J. Bowerman, Hackwood Park, was first with Barrington; Mr. W. Iggulden, Frome, Somerset, second, with Sea Eagle; and Mr. Goodacre, third. Mr. Goodacre scored for cherries, and Mr. Bennett, Market Drayton, for cooking apples; Mr. Dawes, gardener to Lord Trevor, Brynkniatt, was first for dessert apples with Beauty of Bath. For a collection of the hardiest of fruits, Mr. H. Huxter, gardener to T. B. Wood, Esq., Ludlow, was first, showing splendid gooseberries, currants, raspberries, cherries, &c.

GRAPES.

There were something like four hundred entries in the large number of grape classes provided. Not all these fulfilled their entry, but there was such a display of grapes as is probably not seen elsewhere in the United Kingdom. The best four bunches of black grapes were exquisitely finished, and large clusters of Black Hamburgh, and Madresfield Court, shown by Mr. J. Campbell, gardener to C. E. Newton, Esq., Mickleover Manor, Derby; there were eight entries, all good; Mr. J. Langley scoring a second with Black Hamburgh and massive bunches of Gros Maroc; Mr. G. Davies, gardener to the Rev. F. Alderston, Welsh Frankton, third. For four bunches of white grapes, two varieties, there were seven entries of splendid fruit, and Mr. J. Campbell, gardener to C. E. Newton, Esq., Mickleover Manor, was first with lovely bunches of Canon Hall and Muscat of Alexandria grapes, finely berried, and grandly coloured; Mr. T. Lambert, gardener to Lord Harlech, Brogynhyn, second, his Foster's Seedling being good; Mr. A. Kirk, gardener to J. T. Paton, Esq., Alloa, third.

There were fourteen sets of Black Hamburgh grapes, the best pair coming from Mr. J. Campbell, fine bunches with large berries; Mr. D. Airdrie, gardener to J. H. N. Graham, Esq., Stirlingshire, second; and Mr. J. Jones, Malvern, third. Mr. J. Jones, Malvern, secured first prize for a pair of bunches of Madresfield Court grapes, medium sized, but large berried bunches; Mr. J. Campbell second; and Mr. L. Barlow, gardener to F. R. Fremlow, Esq., Market Drayton, third. For a brace of bunches of Gros Maroc Mr. J. Campbell was again first, and Mr. A. Kirk second. The best pair of bunches of Muscat of Alexandria grapes were shown by Mr. W. Pilgrim, gardener to Sir G. Meyrick, Bart., Badorgan, beautifully coloured; Mr. J. Campbell second; and Mr. J. Skitt, gardener to Mrs. H. Bright, Liverpool, third.

VEGETABLES.

Vegetables were splendid, notwithstanding the long deferred rain, and they also were plentiful, filling a large tent. No less than nine competitors entered for Messrs. Sutton and Sons' prizes, offered for a collection of vegetables, and the first prize was grandly won by Mr. W. Pope, the Earl of Carnarvon's gardener at Highclere Castle, his magnificent collection consisted of Solid White celery, Magnum Bonum cauliflowers, Prizetaker leeks, Supreme potatos, Perfection tomatos, Best of All runner beans, Duke of Albany peas, Ailsa Craig onions, and Sutton's New Red carrots; Mr. R. Lye, gardener to Mrs. Kingsmill, Sydmonton Court, was a splendid second, the Ailsa Craig onions being grand; Mr. J. Bowerman, Hackwood Park, third; and Mr. T. Wilkins, gardener to Lady T. Guest, Inwood House, Henstridge, Blandford, fourth.

Five competed for Messrs. Webb and Sons' prizes for a collection of vegetables, and the chief winner was Mr. J. Bowerman, gardener to C. H. Hoare, Esq., Hackwood Park, Basingstoke, who showed splendid Ailsa Craig onions, Regina tomatos, Early Mammoth cauliflowers, Enterprise peas, Prizewinner carrots, Eclipse runner beans, Satisfaction potatos, and Webb's Giant celery; Mr. Pope, second; and Mr. R. Lye, Sydmonton Court, third. Messrs. Jones and Sons, Shrewsbury, also offered prizes for a collection of vegetables, and in a strong competition Mr. J. Birch, Shrewsbury, came first, and Mr. R. C. Townsend, second. The first prize, offered by the Icthemic Guano Company, Colchester, for a collection of vegetables, was won by Mr. H. Huxter.

Six exhibitors competed for the prizes offered by Messrs. Carter and Co., Holborn, for a collection of vegetables, and the first prize winner was Mr. W. Pope, gardener to the Earl of Carnarvon, Highclere Castle, who showed Jersey Lily turnips, Perfection beet, Holborn Reliance potatos, Duke of York tomatos, Elephant runner beans, Model Telegraph peas, Early Autumn Giant cauliflower, Bearer celery, Holborn Model leeks, Holborn onions, Model cucumbers, and Scarlet Perfection carrots. Mr. C. J. Waite, gardener to Sir P. Talbot, Esher, was a good second, his Satisfaction potatos and Perfection tomatos being especially fine. Messrs. Pritchard and Sons' prize for a dozen dishes of potatos was won by Mr. J. Darnell, gardener to R. L. Kenyon, Esq., Pradoe, Oswestry, his best examples being Come to Stay, Up-to-Date, Early White Don, Her Laddie, and Cole's Favourite; Mr. G. Davis, West Felton, second. For nine autumn onions, Mr. G. Risbrow, gardener to Colonel Kenyon, Slaney, was first; and Mr. B. Ashton, gardener to the Duke of Lathom, second. For spring-sown onions, Mr. R. Lye was first.

Mr. Wilkins had the best carrots, Sutton's New Red; Mr. R. Lye the best parsnips, Tender and True; Mr. J. Abbott the best celery; and Mr. J. Birch the best cauliflowers, Carter's Giant. There were thirteen dishes of runner beans, the best being a fine straight lot from Mr. J. Durnell; Mr. G. Risbrow second. Of French beans there were also thirteen dishes, Mr. R. C. Townsend coming first with selected Canadian Wonder; Mr. R. Lawley second, with the same variety. Peas were moderately good, Mr. B. Ashton, gardener to the Earl of Lathom, Ormskirk, coming first; and Mr. W. Pope, gardener to the Earl of Carnarvon, coming second. Out of fifteen brace of cucumbers Mr. Lawley's Peerless was selected as the best, and they were a splendid pair; Mr. Pope second, with Prizewinner. Tomatos were best shown by Mr. A. Hall and Mr. Stevenson. Mr. C. J. Waite, gardener to Sir P. Talbot, Glenhurst, Esher, was first for a dish of potatos, showing beautifully clean and handsome tubers of Windsor Castle; Mr. Lye second, with Satisfaction. The best collection of three varieties of potatos came from Mr. J. J. Brewin, Birkenhead, who had Mrs. Bresee, Cigarette, and International. For a collection of six varieties of potatos Mr. B. Ashton was first; and Mr. H. Forder, gardener to Colonel W. Cornwallis West, second, with splendid lots of clean and smooth potatos.

In the classes provided by Mr. R. Sydenham, Birmingham, the chief prizewinners were: Mr. R. Lye, for celery; Mr. Pope, for tomatos; Mr. Cruckney, Whitchurch, for peas; Mr. Durnell, for carrots; and Mr. Dawes, for onions. The whole of Mr. Sydenham's classes provided a capital display, but we have not space to detail them; the fine silver cup awarded to the competitor winning the most points goes to Mr. Pope this year. In Mr. Murrell's class the chief prizewinners for a collection of vegetables were Mr. R. C. Townsend; Mr. J. Birch, Shotton Hall; and Mr. J. Robinson, Brampton Brian. In another of the classes provided by Mr. Murrell, of Shrewsbury, Messrs. Abbot, Swain, and Chaunt gained prizes in the order given.

MISCELLANEOUS EXHIBITS.

Messrs. W. and J. Birkenhead, Sale, Manchester, put up a splendid lot of ferns, all pretty specimens in small pots; choice hardy ferns were conspicuous, and some especially good forms of Polypodium cambricum attracted attention. Warmth-loving exotics were also largely represented, davallias, gymnogrammas, aspleniums, and adiantums being especially plentiful. Mr. Deverill, Banbury, put up splendid bunches of hardy herbaceous flowers, including a very fine coreopsis that is even more graceful than C. grandiflora. Mr. J. Forbes, Hawick, sent some beautiful pentstemons and bunches of herbaceous flowers, also a brilliant set of cactus and show dahlias, and carnations, including a fine group of the popular Yuletide. Messrs. Dickson, Chester, had a large display, consisting of handsome trusses of zonal pelargoniums, highly-coloured dracænas and crotons, some choice conifers, bouquets, &c., all tastefully disposed in a long bank. Messrs. E. Webb and Sons, Stourbridge, had a huge show of good tuberous begonias, representing a fine strain; a collection of sweet peas, a few bunches of hardy flowers, and a splendid lot of gloxinias, selfs, shaded, and spotted forms of high quality. Mr. S. Mortimer, Farnham, Surrey, set up nine stands of dahlias, show and cactus varieties, all fine blooms, large and bright. Mr. Edwin Murrell, Shrewsbury, showed a fragrant and bright collection of cut roses, Mrs. J. Laing, Marchioness of Londonderry, and Prince Camille de Rohan being especially good; cannas and palms made a fine background.

Messrs. F. Sander and Co., St. Albans, showed a goodly lot of Dracæna Sanderiana, the quaint Acalypha Sanderi, Dendrobium biggibum, Rex begonia, and some of their new sonerilas and caladiums. Messrs. Pritchard and Sons, Shrewsbury, staged an extensive and interesting collection of cacti and succulent plants of various kinds, also liliums, gladioli, &c. From Worcester, Messrs. R. Smith and Sons showed a handsome group of plants, tastefully arranging fine specimens of campanulas, coprosma, liliums, choice conifers, &c.; a very bright exhibit. Mr. J. H. White, Worcester, had a bright group of gladioli, hedychiums, cannas, crotons, hardy flowers, &c. Tuberous begonias were extensively displayed by Mr. B. R. Davies, Yeovil, who had freely-flowered specimens of choice single and double varieties. Mr. Edwards, of Sherwood, staged fancy fern baskets. Mr. Hartland, Cork, had a large display of wonderfully fine begonia blooms, arranged flatly on moss, in boxes, an arrangement necessitated, perhaps, by the distance they have to travel, but nevertheless not a nice method. Mr. H. Eckford, Wem, Salop, put up a beautiful collection of sweet peas, the fine, handsome, and fragrant blooms on long stalks being lightly and tastefully displayed in tall, clear glass vases. Mr. Pattison, Shrewsbury, made a good show with violas. Broad beans of various kinds and sizes were staged by Messrs. Harrison and Sons, Leicester. Mr. W. Sydenham, Tamworth, showed violas in good condition, the deep yellow Pembroke being finely represented. Messrs. Jarman and Co., Chard, had a miscellaneous display of plants and flowers.

Messrs. H. Cannell and Sons had one of the most attractive of non-competing exhibits, this consisting of finely-grown cannas in small pots, all carrying splendid spikes of magnificent flowers; L. E. Bally, Queen Charlotte, Aurora, and Beauté Poitevin were grandly coloured. The Jadoo Company, Exeter, had a large group of plants—very many kinds—that had been grown in the jadoo fibre. Gladiolus in great beauty and variety came from Colchester, shown by Messrs. R. Wallace and Co.; this firm also staged liliums and fifteen varieties of montbretias.

MEDALS.

Gold Medals were awarded to Messrs. W. and J. Birkenhead, The Jadoo Company, Messrs. Pritchard and Sons, Mr. Murrell, Messrs. Wallace and Co., Messrs. F. Sander and Co., Mr. M. Campbell, Messrs. Webb and Sons, Messrs. Hartland and Sons, and Mr. H. Eckford.

Silver Medals to Messrs. R. Smith and Co., Mr. Myers, Messrs. Dicksons, Chester; Mr. J. H. White, Mr. Deverill, Messrs. Jarman and Co., and Mr. B. R. Davies.

Bronze Medals to Mr. S. Mortimer, Messrs. Jones and Sons, Mr. W. Sydenham, Mr. Pattison, Messrs. Harkness and Sons, and Mr. J. Forbes, Hawick.

First-class Certificates were awarded to Messrs. Dicksons, Chester, for Dracæna Crippsi; and to Mr. P. Blair, Trentham, for Carnation Trentham Rose, a glorified Ketton Rose, and a good border variety.

TAUNTON HORTICULTURAL SOCIETY, August 11.

TAUNTON was favoured with a splendid day when it made holiday on the occasion of its annual flower show. The weather was magnificent, the Vivary Park in the best condition, and the spacious white tents, six or seven in number, formed a huge camp upon the green grass. With the exception of fruit and vegetables and some of the cut flower classes, the entries were very heavy, and some of the plants—the fuchsias in particular—had to be placed in the open air. The cottagers' tent, in which the vegetable classes were staged, was a remarkable sight. In the whole of the twenty classes the entries ran into double figures; most of them ran into the thirties, and one reached over forty. The judges said that the vegetables produced by cottagers were equal to those shown by the gardeners who are among the leading growers and exhibitors of high-class vegetables. There was an enormous throng of visitors; the streets of Taunton, as well as the show ground, were crowded with human beings.

SPECIMEN PLANTS.—It is rarely there is an entry of five collections of stove and greenhouse plants in flower, but it was so in the Somersetshire town. Mr. James Cypher, nurseryman, Cheltenham, was first with a grand lot, large, even specimens, finely grown and bloomed. He had Statice profusa and intermedia; Ericas Austiniana, Turnbulli, Fairieana, and Aitoniana, all superb examples; Ixora Duffi, Allamanda nobilis, Stephanotis floribunda, Bougainvillea glabra, with two others. Mr. W. Finch, Coventry, was second, with a very good selection; his chief specimens were Allamanda grandiflora, Statice profusa, Rondeletia speciosa major, a fine Erica ampullacea, and others in proportion. Mr. A. Rowland, gardener to W. W. Brock, Esq., Exeter, was third. With six specimens Mr. Cypher again took the lead; he had grand examples of Ericas Austiniana and æmula Statice intermedia, Stephanotis floribundi, Bougainvillea Sanderiana, and Ixora salicifolia. It is sometimes said there are no large specimen plants to be found in the country, but they could be seen at Taunton.

In the amateurs' division, Mr. Thomas, gardener to W. G. Marshall, Esq., Taunton, was first with good specimens, such as those already named; Mr. Rowland was second; and Mr. Peel third; but, in the class for six plants, Mr. Rowlands took the first prize, and Mr. Thomas was second. The best newly-introduced plant was Acalypha Sanderi; Mr. Cypher was second with the same. The best specimen stove plant was Clerodendron Balfourianum, a good plant from C. E. I. Esdaile, Esq., Cothelstone (Mr. T. Essex, gardener); Mr. T. Tidbury was second with Stephanotis floribunda. Mr. S. Kidley, gardener to W. A. Sandford, Esq., Wellington, had the best specimen greenhouse plant, a fine piece of Dasylirion acrotrichum; Mr. W. Finch was second with a nice plant of Erica Marnockiana. Mr. Essex had the best fern, a fine example of Adiantum fragrantissimum; Mr. W. Day, gardener to E. W. Hill, Esq., Wembden, was second with Alsophila australis. Specimen lycopodiums and fuchsias were also shown, of the former a fine piece of densa carried off the first prize. It came from the Rev. J. D. Pring. Mr. Thomas staged the best four orchids. He had a fine specimen of Epidendrum prismatocarpum, Cypripedium Rothschildeanum and Cattleyas gigas and Rex, a very good quartette for this season of the year; Mr. J. Cypher was second. He had Cattleyas gigas and Gaskelliana, Lælia crispum, and Vanda cærulea.

SOFT-WOODED PLANTS.—Begonias in eight specimens were shown in the best condition by Mr. Thomas; Mr. H. Godding was second. There were some well-grown zonal pelargoniums in two classes, and also single specimens, and these classes were repeated in the amateurs' division. Fuchsias were in the form of fairly well-grown and flowered bushes, but some way removed from the Trowbridge form.

GROUPS OF PLANTS, arranged for effect, had a tent allotted to them, and they were seen to much better effect than heretofore, while greater scope for artistic effect was secured. In the open class Mr. Rowland was first with a very effective arrangement, bright foliage plants and flowers, with ferns, &c., being well grouped; Mr. W. Finch was second; and Mr. Peel third. In the amateurs' division, with a smaller group, Mr. Rowland was again first, and Mr. Thomas second. Gloxinias and achimenes made bright patches of colour in the amateurs' tent, Mr. Thomas taking the first prize with gloxinias, and Mr. T. Essex with achimenes. There were classes also for balsams, petunias, and cock's-combs.

FINE FOLIAGE PLANTS AND FERNS.—In the open class for eight fine foliage plants some splendid specimens were staged, Mr. James Cypher taking the first prize with Kentias Forsteriana, Belmoreana, and australis; Latania borbonica; and crotons Queen Victoria, augustifolium, Chelsoni, and Flambeau; Mr. Finch was second, his leading plants being a fine Cycas revoluta, Latania borbonica, and croton Queen Victoria; Mr. W. Vause, Leamington, was third. In the amateurs' division Mr. Peel was first, with six fine foliage plants, as he was also with four stove and greenhouse plants in flower; Mr. Rowland taking the second prize in both instances.

CUT FLOWERS are always a strong feature at Taunton, but owing to the lateness of the season there was a very poor display of asters, which are generally very finely shown; roses also were not so numerous as usual. The best thirty-six roses in the open division came from Mr. J. Mattock, Oxford, who had excellent blooms of Alfred Colomb, Mrs. J. Laing, Dupuy Jamain, Duke of Teck, Maréchal Niel, Medea, A. K. Williams, Ulrich Brunner, Charles Lefebvre, Her Majesty, L'Eclair, Marie Baumann, Beauty of Waltham, Niphetos, &c.; second, Mr. Thomas Hobbs, Bristol. With eighteen varieties Mr. Mattock was again first, his leading blooms L'Eclair, Laurence Allen, a desirable new variety; Marchioness of Londonderry, Horace Vernet, Mrs. W. J. Grant, Comte Raimbaud, and Maréchal Niel; Messrs. Jarman and Co., Chard, were second. Mr. Mattock also had the best box of eighteen teas, chief among them excellent blooms of Maman Cochet, Maréchal Niel, Ernest Metz, The Bride, Medea, Madame Cusin, Innocente Pirola, Souvenir de S. A. Prince, and Catherine Mermet; Dr. Budd, Bath, was second. In the amateurs' division for twenty-four and twelve varieties of roses, and also for twelve teas, Dr. Budd was first in each of these classes, and Mr. T. Hobbs second.

Dahlias showed the lateness of the season. The best stand of twenty-four show varieties came from Mr. G. Humphries, Chippenham; Messrs. Jarman and Co. were second. The former took the first prize for twelve fancy varieties, and also for six cactus varieties. Mr. J. Burgess, Kingswood, had the best six bunches of single dahlias. Mr. Humphries was also first with nine bunches of pompon dahlias; the Rev. M. Branckner was second. Mr. T. Hobbs was first for show and fancy varieties in the amateurs' division, and Mr. Burgess for singles. Mr. McAllister was first for cactus varieties.

FRUIT was scarcely up to the Taunton standard on this occasion either in quality or quantity. There were two collections of eight dishes. Mr. W. Strugnell, The Gardens, Rood Ashton, was first with Alnwick Seedling and Foster's Seedling grapes, Alexander Noblesse peach, Stanwick Elruge nectarine, Negro Largo fig, Moor Park apricot, and Governor Wood cherry; Mr. Crossman, gardener to J. Brunton, Esq., Yeovil, was second with Madresfield Court and Buckland Sweetwater grapes, Dymond peach, Pine Apple nectarine, and others. Mr. Mitchell, gardener to J. W. Fleming, Esq., Romsey, was first with four dishes, having Madresfield Court grapes, Dymond peach, Pine Apple nectarine, and a melon; Mr. Crossman was second. Mr. Mitchell had the best three bunches of Black Hamburgh grapes, large and well-finished; Mr. Wilkinson, gardener to T. W. Greaves, Esq., Bristol, was second; and Mr. W. A. Todd, third. Mr. Mitchell had the best three bunches of any other black, staging good Madresfield Court; Mr. W. McAdam Smith (Mr. C. Cooper, gardener) was second with Alicante. The best two bunches of White Muscats also came from Mr. Mitchell; the Rev. T. Greaves was second. The first prize three bunches of any other white were Buckland Sweetwater from Mr. W. A. Todd; the Rev. T. Greaves was second with Buckland Sweetwater. Melons were fairly well shown. The best peach was Sea Eagle, very fine fruit, coming from the Frome Fruit and Flower Company; Mr. Mitchell was second with the same. Some very good apricots were shown for the season, chiefly Moor Park. Mr. F. M. Newton took the first prize, and Mr. R. C. Trevillian the second. The best dish of nectarines was Pine Apple from Mr. S. Kidley; Mr. J. Webber, gardener to G. F. Luttrell, Esq., Dunster Castle, was second with Lord Napier.

VEGETABLES were in great quantities, especially in the cottagers' tent, where there was a remarkable display of high quality produce. The first of Messrs. Sutton and Sons' special prizes was won by Mr. T. Wilkins, The Gardens, Henstridge, with a very fine collection. Major Aldworth was second, and Mr. W. A. Sandford third. Major Aldworth took the first prizes offered by Messrs. Webb and Sons. The Mayor of Taunton also offered prizes for a collection. Mr. J. Priscott, Selworthy, was first, and Mr. J. Jones, Dunster, second.

Many fine miscellaneous displays were staged.

SEVENOAKS HORTICULTURAL SOCIETY, August 10.

THE thirty-first exhibition of this society was held in Knole Park, near the town, the gardens also, by the permission of the Right Hon. Lord Sackville, being thrown open to the visitors. The park is noted for its extent and delightful undulations, and its magnificent trees, oak and beech in particular being of great size and splendid development. The day was scarcely favourable, for a blustering south-west wind, which occasionally freshened to a gale, severely tested the stability of the tents. Happily the rain held off, and there was a good company.

One long tent accommodated the main of the plants. One leading class was for six exotic flowering plants. Mr. A. Gibson, gardener to T. Barnaby Atkins, Esq., Halstead Place, was placed first, having very finely developed plants of Dipladenias insignis and Brearleyana, Clerodendron Balfourianum, Ixora Dixiana, I. Fraseri, and Anthurium Scherzerianum. Mr. A. Hutton, gardener to Mrs. Swanzy, Quarry, was second, having Allamandes Schotti and noblils, Gloriosa superba and Ixora Fraseri as his best specimens. Mr. Hutton came first with ornamental-foliaged plants, having Latania borbonica, [illegible] salicifolia, Cibotium princeps, Alocasia Thibautiana, Anthurium Veitchianum, and A. crystallinum. Mr. Gibson was second, palms and crotons being his leading subjects. The best specimen stove plant was a splendid grown and bloomed plant of Dipladenia boliviensis, from Mr. C. Sutton, gardener to Earl Stanhope, Chevening; Mr. Gibson taking the second place with Anthurium Scherzerianum. The best foliage plant was a very fine example of Alocasia Thibautiana, from Mr. Hutton; Mr. Gibson was second with Cycas revoluta. Fuchsias were in the form of nice bush specimens. The best six came from Mr. G. Cooper, gardener to H. Foster, Esq., Heppingham; Mr. H. Heath, gardener to Mrs. Petley, Riverhead, was second. There were some fair specimens of begonias. Mr. J. Talmage, gardener to Mrs. Hodgson, Hereward, had the best four; Mr. C. Noble, gardener to Miss Austen, Sevenoaks, was second. There were specimen zonal pelargoniums, and the best six came from Mr. Heath.

Groups of plants arranged for effect and also of ferns, in each case filling a space of 54 ft., were arranged alternately on one side of the principal plant tent, and produced an excellent effect. The best one of mixed plants came from Mr. C. Sutton, who had a background of palms and Gloriosa superba, with Campanula pyramidalis, Begonia corallina, carnations, crotons, &c., in the foreground; Mr. G. Fennell was second; and Mr. Hatton third. The best group of ferns was set up by Mr. Hatton, a most effective arrangement of good stuff; Mr. W. Hough, gardener to Mrs. Lambarde, Beechmont, was second; and Mr. Heath third. A few plant classes were also set apart for single-handed gardeners and amateurs.

The cut flower classes brought fine roses, Mr. Sutton having the best twelve, while Mrs. Seale, The Vine Nurseries, contributed the best twenty-four. Dahlias: Mr. A. Parks, Ivy Hatch, had the best twelve. Cactus and single dahlias were also staged; the best twelve blooms of Jaurezi came from Mr. A. Hoadly; Mr. E. Turner, Kippington, had the best twelve in six varieties. It seems quite time inferior decorative dahlias were banished from the exhibition table. Phloxes, gladioli, and asters were shown, but generally of poor quality, owing to the season.

Mr. Gibson had the best twelve bunches of cut flowers, orchids prevailing; Mr. W. Hough was second. There was also a class for twelve bunches of herbaceous subjects. Mr. Noble was first; and Mr. Fennell second. Mr. E. Hodgson, gardener to Miss Morphew, Sevenoaks, was first with six bunches of border carnations; and Mr. R. Edwards second.

Floral decorations consisted of tables, the best coming from Mr. S. Cook, the Gardens, Rosefield, a light and elegant piece of work; Mr. Fennell was second; Mr. W. A. Searing had the best centre piece; and Mrs. Searle the best basket of flowers. Buttonholes and dress sprays were also exhibited.

Our notes of the fruit classes are somewhat imperfect owing to the absence of the exhibitors' names. There was a class for six varieties of fruit in which good produce was staged; and also classes for black and white grapes. Mr. Osman, The Gardens, Ottershaw Park, had the best collection of three varieties, staging Alicante, Chasselas Napoleon, and Black Hamburgh grapes; Mr. W. Hough second with Muscat of Alexandria, Bowood Muscat, and Black Hamburgh. Barrington was the best peach, and Elruge the best nectarine. Plums, apples, and pears were weak.

Very fine groups of plants were contributed by Messrs. James Veitch and Son and J. Peed and Sons, both of the highest merit, and Mrs. Seale set up a collection of cut flowers, plants, &c., of equal merit. Mr. H. Cannell had a rare group of cannas; Messrs. W. Cutbush and Son a large group of plants; Mr. J. R. Box had sweet peas; and other contributions of lesser value were also exhibited.

BISHOPS STORTFORD, August 10.

THIS long-established and enterprising society held its annual exhibition on the above date, in the grounds of The Grange, the residence of John Barker, Esq., and proved, as usual, a splendid success in every respect. The Bishops Stortford Horticultural Society was founded in the year 1838, and it is evident its founders were not wanting in intelligence, for in the earliest of the schedules issued the executive stipulated that the fruit staged in competition for the prizes should become the property of the society, and form the dessert of the dinner arranged to take place in the evening at the close of the show. No more suitable place for the holding of a flower show could well be found within some miles of the town than the Grange gardens, for they are spacious, highly picturesque, and well kept, and from the higher parts widely extended views are obtained of the Stort valley. Some five or six huge marquees were provided for the accommodation of the products in competition for the prizes, and each one was filled to repletion with contributions that reflected much credit upon the taste and skill of the exhibitors. The two great features were formed by the table decorations and the begonias, and the former were so numerous and good that the spacious tent set apart for them might with justice be described as a veritable fairy land. It has been our good fortune to see many beautiful displays of table decoration, but in no instance have we seen one to equal that which formed such an attractive part of this exhibition.

GROUPS OF PLANTS constituted an important and highly attractive feature, and in the principal class there were seven entries, all of which were more or less meritorious. Mr. G. Barker, gardener to H. A. Blythe, Esq., Grinstead House, obtained premier honours with a superb arrangement which was broken up into a series of mounds by the tasteful disposition of richly coloured crotons and dracænas, feathery palms, and delicate tinted flowering plants, these mounds being carpeted by ferns and dwarf foliage plants. Mr. J. Richardson, gardener to Sir J. Blythe, Blythewood, Glanstead, was second with a group evincing much taste, in which the brilliantly coloured Clerodendron fallax was employed with good effect. Mr. W. Clarke and Mr. T. Lodge were awarded equal thirds, and deservedly so, for collections in which the white and blue forms of Campanula pyramidalis were conspicuous.

COLLECTIONS OF PLANTS included stove and greenhouse plants grown for their flowers or remarkable for the beauty of their foliage: begonias, pelargoniums, gloxinias, and a host of other things. The begonias constituted the chief feature of this section of the exhibition, the collections in the several classes being exceptionally well grown and sufficient to fill one side of an immense tent. W. Smith, Esq., the hon. secretary, was the principal exhibitor of these flowers, and occupied the post of honour in the class for a collection comprising about one hundred superbly grown plants, distinguished by the high quality of the flowers. Mr. E. Harris was second with a remarkably good collection. No finer baskets of begonias have yet been presented to public notice than those exhibited by Mr. Smith, who was awarded the first prize in the class for six baskets filled with choice varieties. Mr. Harris was successful in occupying the first place in one of the classes for six plants, having the whole of his plants splendidly flowered. Mr. Brown was first for three singles, and Mr. Parker obtained a similar honour for three doubles, and in each case the specimens were admirably grown, as were those from other exhibitors. Mr. P. Griggs occupied the post of honour in the class for six fuchsias with superbly-flowered bushes. Mr. Lodge was at the head of the competitors for the prizes for six stove and greenhouse plants in bloom of well known kinds. In the corresponding class for fine foliage plants, Mr. G. Barker was first. This exhibitor had also a grand collection of ivy leaved pelargoniums, the specimens trained in the form of pyramids about six feet high, and densely flowered. The finest of the several collections of six ferns were contributed by Mr. B. Calvert, gardener to Colonel Houblon, Mr. W. Clarke, and Mr. G. Beech, gardener to J. Barker, Esq., The Grange. Mr. G. Bowtell was successful in taking first prize for six single and for six double begonias, and had examples representing high-class cultural skill.

FLORAL DECORATIONS were contributed in sufficient numbers to form a large and highly attractive exhibition, and were throughout characterised by much taste. Miss Skeet and Mrs. F. Knight were first and second in the class for decorated dinner tables, and on which delicate sweet peas and the foliage of Acer Negundo variegata were arrayed with much taste. Decorated fireplaces formed a very attractive and interesting feature, and in the ladies' class Mrs. Joscelyn was first; and in that for gardeners Mr. Lodge obtained premier honours. Baskets of cut flowers and vases were also numerous and tasteful.

CUT FLOWERS were plentiful, and formed a large and attractive section, the cut flowers of hardy herbaceous plants being particularly noteworthy. For twenty-four kinds of hardy perennials Messrs. Paul and Son, Cheshunt, were first, with a magnificent collection, in which Acanthus longifolius, Echinops ruthenica, Coreopsis lanceolata, Centaurea macrocephala, a rudbeckia, Scabiosa caucasica, and other good things were represented; Mr. H. Bruce was second, with a capital collection. For twelve bunches Mr. Beech was first; and Mr. Watts second.

FRUITS AND VEGETABLES were plentiful and good. The best collection of eight dishes of fruit was that contributed by Mr. A. Handicomb, who had exceptionally good peaches and grapes; Mr. B. Calvert was second, also having a capital collection. Mr. Harris and Mr. Beech were the most successful of the exhibitors in the class for a collection of vegetables consisting of eight kinds. Vegetables were shown in enormous quantities by cottagers, and in a condition deserving of the highest praise.

MISCELLANEOUS CONTRIBUTIONS included a magnificent collection of roses and other objects from Messrs. W. Paul and Son, Waltham Cross, and a collection of roses from Messrs. Paul and Son, Cheshunt.

The arrangements were admirably carried out under the direction of Mr. W. Smith, who has occupied the position of honorary secretary during the past twenty-seven years.

THE WORKING MEN'S FLOWER SHOW.

THE thirty-fourth annual exhibition of plants belonging to the working classes of Edinburgh, grown in windows or small gardens, plots, back greens, and area gardens, took place at the Corn Exchange, Grass Market, Edinburgh, on Saturday. This society has had a long and useful career, working slowly and surely, more like the tortoise than the comet. It has succeeded in strengthening and extending the tone of horticulture among the crowded masses where its light and leading are so urgently needed, and where the plant or its flowers are almost the only thing of beauty that can be seen or felt amid this dreary, semi-hopelessness of their environments. In this age of children's gardens and examinations in horticulture in Board and other schools, with the establishment of geranium clubs with seven hundred members, all honour to this workmen's society of Edinburgh for providing special classes for children ranging from six to fourteen years of age. Unfortunately, the quantity and quality of the plants shown in some of the classes have seriously declined in recent years. Perhaps some special effort may be made before another show to offer some additional stimulus in such forms as the gift of seeds, plants, roots, and bulbs to the poorer classes and the young people from six to fourteen, who are specially invited to compete with each other in this show. Fuchsias, scented geraniums, ferns, mosses, succulents, and musks are perhaps the more popular plants. By some means, interest in these classes must be revived, as in not a few of these tenements—one can hardly call them homes—the bunch of flowers or living plants prove the most sanitary and ennobling agencies.

This working men's show, outside of these two classes, was a decided advance on that of last year. Some four hundred prizes were offered, for which a vigorous competition took place, especially in the classes for hardy ferns, window plants, window boxes, plants grown under glass, viz., outside dwelling houses, in plant cases. In the special class, open to all, of twenty aspidistras, the entries were rather limited. Aquatic or water plants are so rare at flower shows that it is interesting to note that a class was provided for them. Amid the few things shown not for competition was the fine collection of hardy violas, pansies, and other plants from Messrs. James Grieve and Sons, Redbraes Nurseries; with some beautiful object lessons in cultured taste in a striking exhibit of wreaths and crosses by Mrs. Cartright, Cannongate. There was a good attendance, and at three o'clock, in the unavoidable absence of the Lord Provost of Edinburgh, Professor Geddes took the chair to distribute the chief prizes in the presence of a large gathering. The Chairman, after heartily congratulating those present on the success of the show, referred to the larger places and greater power of horticulture in education in France, Germany, and other countries than among us. He then heartily congratulated the prize winners, and encouraged those who lost to try and win next time.

D. T. F.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THE usual monthly meeting of this popular society was held at their rooms, 5, St. Andrew's Street, Edinburgh, on August 2, at half-past seven p.m. The Royal Arboricultural Society met on the morning of the same day in the same place at ten a.m., and some eighty members left for the Forest of Dean on their annual excursion at twelve p.m. As several are members of both societies some feared a thin attendance at night, but it almost seemed as if the more there were away the more came, and there was a large attendance, with the genial president, Mr. M. Todd, in the chair. Among a number of interesting exhibits was a nice dish of Richard Gilbert strawberry, raised and grown by Mr. Wm. Carmichael, Edinburgh, which excited much interest. Certificates of merit were awarded to Messrs. James Grieve and Sons for Britannia carnation, a very handsome rosy-pink border variety, and to Messrs. Dickson and Co. for their new yellow viola, Walter Welch. The paper for the evening was communicated by Mr. W. Boyd, late of The Glen, now of the Royal Gardens, Bellisle Age. It was on the general cultivation of orchids for cut flowers, dealing principally with such species as are of a decorative character, and the blooming season of which was during late autumn, winter, and spring. The paper was of a thoroughly practical character, showing Mr. Boyd to have a very comprehensive grasp of his subject, and revealing a minute knowledge of the cultural necessities of the various kinds brought under his view. A most interesting discussion ensued on the reading of the paper by the assistant secretary, and general pleasure was expressed that such a talented communication should have been given to the association by so young a man as this. Opinion was confidently expressed that Mr. Boyd, who has recently gone to his maiden situation as a head gardener, might soon take a place in the first rank. A very enthusiastic vote of thanks was awarded to the president for the successful manner in which he had planned and carried out the recent *bijou* rose show and strawberry festival. Fifteen more new members were proposed.

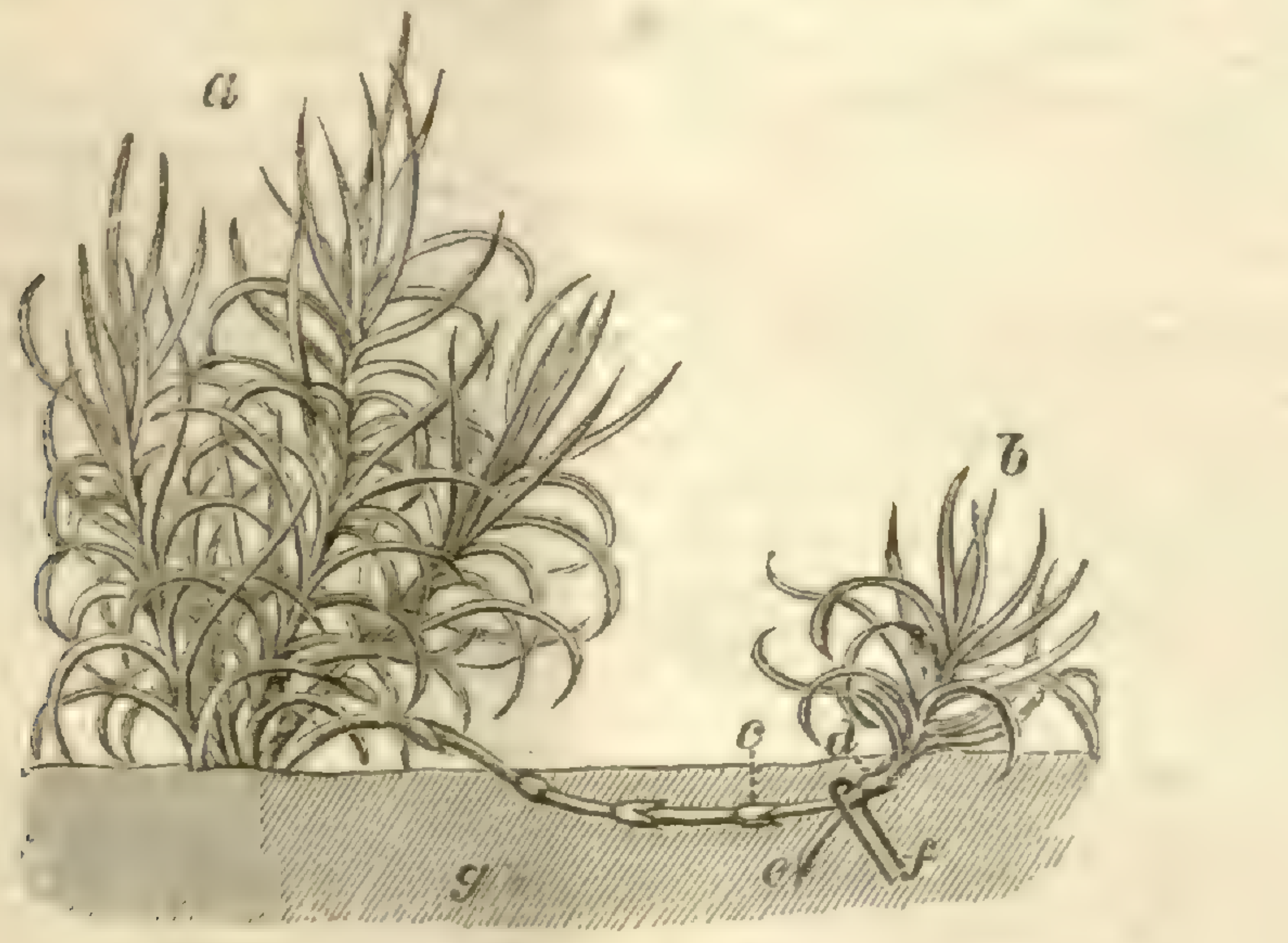
ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Seedling Dahlia.—E. W. B., Dulwich: The flower sent is a very good show variety, but whether it is distinct enough from the numerous existing varieties to prove valuable commercially is a matter not easy to decide, and certainly not to be decided upon one flower. The best means of ascertaining the distinctness of the variety will be to send or take a bloom to some nursery where dahlias are made a speciality, and institute a comparison between it and others of a similar colour. The names of the majority of dahlia specialists appear frequently in our advertising columns and in connection with Royal Horticultural Society and Royal Aquarium Shows. With regard to naming a florist's flower, that is a matter entirely in your own hands; you are at liberty to give it any name you please, but it is desirable not to give a name like any that already exist, consequently a comprehensive dahlia catalogue should be secured; Dulwich Hero or your own name might be given. Another way of quickly ascertaining the merit of this or any other florist's flower is to send three well-developed blooms, named, to a meeting of the Royal Horticultural Society, previously intimating your intention of exhibiting for an Award of Merit to Mr. S. T. Wright, superintendent R.H.S. Gardens, Chiswick, W. Unless you have some first-rate blooms to show it will be best to defer staging flowers till next year, so as to afford yourself an opportunity of specially cultivating the plants. If you gain an Award of Merit for the variety there will not be much difficulty in disposing of the stock to some nurserymen.

Layering Carnations.—E. K., Lincoln: There should be no delay in layering carnations, for in the majority of gardens the work has already been performed. If layers are not taken or made early, the young plants do not become properly rooted in time for their severance from the parent and planting out in their permanent quarters, so as to become established ere cold weather sets in. Layering is a simple operation, and, after a little practice, can be done very quickly; an expert can set a thousand layers a day. A sharp knife, some pegs or layering pins, and some light, fairly good and finely-sifted soil are the requisites for the work. Unless already moist, give the plants to be layered a good soaking overnight; loosen the surface soil with a hand-fork before commencing to layer.



Mode of Layering Carnations.

Strip the lower leaves from the base of the growth to be layered, and then insert the blade of the knife (as at *c* on the accompanying cut), from below, half way through them, and then cut lengthways and upward just into the next joint at (*d*). Keep the tongue (*e*) open, and then press the pin or peg (*f*) so as to fairly fix the layer, and bring the leafy growth (*b*) into an upright position. The next thing to do is to place some of the prepared soil around the layer so as to completely cover the cut portion of the stem. Press this firmly, and give water, if necessary. Instead of pressing the layer right into the bed (*g*) as in the cut, it is best to place it on the surface and then place the new soil about it in the form of a mound depressed at the top so as not to throw off all the moisture given.

Fruit Canning in California.—G. M. C., Plymouth: The most recent advices give the returns for 1897, and from these we gather that the exports of fruit and vegetables show a decline as compared with 1896. Prices were very low at the opening of the season, and stocks had run down to a minimum. Owing to the general revival of business and a partial failure of the fruit crop in the Eastern States, a heavy demand sprang up suddenly, and in July and August the sales of California canned fruit exceeded those made in any corresponding period. Prices advanced rapidly, and were well maintained to the end of the year. There were thirty-eight canneries in operation in California last year, and the following is an estimate of the output, given in cases: Tomatos, 348,000; asparagus, 81,500; peas, 30,000; beans and other vegetables, 8,500; pie fruit, 30,000; jams and jellies, 8,000; table fruits, 1,920,000; total, 2,426,000 cases. In the last five or six years the cost of the production of canned fruit has declined about one-third, owing to the fall in the price of most of the commodities used in its manufacture. Except in seasons of great scarcity of fruit these reduced prices are likely to be maintained, and this fact will no doubt be welcome in Great Britain.

Mr. Pulham, Sen., head of the firm of Messrs. Pulham and Sons, Broxbourne, died, we regret to state, on the 11th inst. Mr. Pulham was 78 years of age. The business will, we are informed, be continued under the old title.

MARKETS.

Covent Garden.

Fruit supplies are large, and the demand is steady throughout. Vegetables are plentiful and fairly cheap.

Fruit.—English apples, 4s. to 8s. per bushel; Dutch pears, 2s. to 3s. per molly; French, 3s. 6d. to 7s. 6d. per case; plums, 2s. to 3s. 6d. per case, 4s. to 5s. 6d. per half-sieve; greengages, 9d. to 1s. 3d. per box, 3s. 6d. to 7s, 6d. per half-sieve; English grapes, 1s. to 2s.; Jersey, 9d. to 1s. 6d. per lb.; Valencia, 6s. 6d. to 10s. 6d. per barrel; lemons, 10s. to 20s. per case; gooseberries, 1s. 6d. to 2s. 6d. per half-sieve; Spanish melons, 8s. to 12s. per case; French, 1s. to 2s. per crate; black currants, 5s. to 7s.; red, 4s. to 5s. per half-sieve; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 5s. each; peaches, 1s. to 6s. per dozen; French, 9d. to 1s. 3d. per box; green figs, 1s. to 2s. per dozen.

Flowers.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 2s.; red roses, 6d. to 1s.; cattleyas, 5s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; Pansies, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

Vegetables.—English tomatos, 3d. to 5d.; Jersey, 2½d. to 4d. per lb.; Spanish, 10d. to 1s. 3d. per box; cauliflowers, 1s. 6d. to 2s. 6d.; cucumbers, 1s. 6d. to 3s.; endive, 1s. to 1s. 6d.; marrows, 1s. 6d. to 3s. per dozen; lettuce, 8d. to 10d. per score; French beans, 2s. 6d. to 3s. 6d. per half-sieve; broad beans, 1s. to 1s. 6d.; peas, 2s. to 3s. per bushel; English onions, 2s. to 3s. 6d. per dozen bunches; Ports, 5s. to 6s.; Valencia, 5s. to 6s. per case; turnips, 3s. to 3s. 6d.; carrots, 2s. 6d. to 3s.; parsley, 2s. to 2s. 6d.; mint, 2s. to 2s. 6d. per dozen bunches; cabbages, 4s. to 4s. 6d. per tally; mushrooms, 6s. to 8s. per 12 lbs.; potatos, 60s. to 100s. per ton.

Borough Potato Market.

There are moderate supplies of potatos, and though prices have a downward tendency they have not quotably altered. English Snowdrop and Early Puritan, 3s. 6d. to 4s.; Beauty of Hebron, 3s.; and Sutton's Early Regent, 3s. 6d. to 4s. per cwt.

THE WEATHER DURING THE WEEK ENDING AUGUST 13, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	87·5	48·0	61·9	16 61	0·56	1·42
Croydon	84·4	45·0	59·9	15·50	0·58	1·47
Brighton	76·8	49·8	59·8	15·44	0·57	1·45
Bristol	80·0	46·0	59·0	15·00	1·84	4·67
Wolverhampton	79·7	43·2	56·2	13·44	0·11	0·28
Norwich	86·0	47.0	59·8	15·44	1·19	3·02
Nottingham	83·1	45·2	57·6	14·22	0·94	2·39
Liverpool	79·9	51·0	60·6	15·89	0·52	1·32
Huddersfield	81·2	46·0	58·6	14·78	0·58	1·47
Bradford	81·2	50·3	61·3	16·28	1·09	2·77
Hull	81·0	44·0	58·7	14·83	0·45	1·14

The mean reading of the Barometer during the week at Greenwich was 29·83 inches, and that of the Thermometer 61°·9, the latter being 0°·6 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 2 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 35·6 hours. The measured rainfall amounted to 0·56 of an inch.

CATALOGUES RECEIVED.

Herb and Wulle, Naples, Italy.—Bulbous Plants.
Laxton Brothers, Bedford.—Strawberries.
Cooper, Faber and Co., Ltd., 90, 92, Southwark Street, S.E.—Bulbs, Wholesale.
Mr. J. Douglas, Great Bookham.—Carnations.
Ant. Roozen and Son, Overveen, Holland.—Bulbs.
Sutton and Sons, Reading.—Bulb Catalogue.
Michael Rains and Co., 34, Mansell Street, Aldgate.—Bulbs

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Tuesday, August 23.—Royal Horticultural Society: Committees meet at 12 o'clock; Lecture at 3 p.m., on Perpetual Strawberries, by Mons. Henri de Vilmorin.
  Royal Oxfordshire Horticultural Society.
  Brighton Horticultural Society; Two days.
Wednesday, August 24.—Bute Horticultural Society, at Rothesay; Two days.
  Harpenden Horticultural Society.
Thursday, August 25.—Ellesmere Horticultural Society.
  Crudwell Horticultural Society.
  Swansea Flower Show.
Friday, August 26.—Royal Horticultural Society of Ireland.
Saturday, August 27.—Worsley Flower Show.
  Falkirk Summer Show.

AUCTIONS.

Monday, Thursday, and Friday, August 22, 25, and 26.—Dutch Bulbs, Orchids, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.
Wednesday, August 24.—Hyacinths. Tulips, &c., Mr. J. C. Stevens, King St., C[illegible]

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THE END OF THE CENTURY draws near, and somehow the fact impresses one and makes one think. On the threshold, as it were, of the twentieth century, we pause and take a glance back over the years that are gone. How much has happened during this [illegible] century! What wonders have been given to the world! The power and use of [illegible] telegraph—these and many others are the discoveries of the nineteenth century [illegible] will cause the closing century to stand out above all that have gone before and a [illegible] is the fact that in its earlier half was discovered a priceless blessing to mankind—[illegible] remedies—Holloway's Pills and Ointment.—[Advt.]

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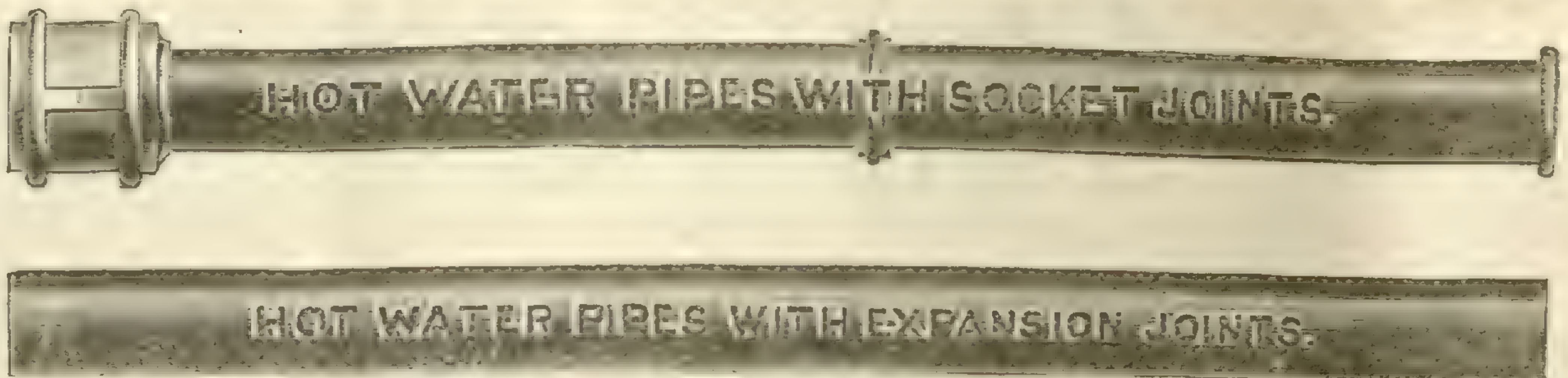
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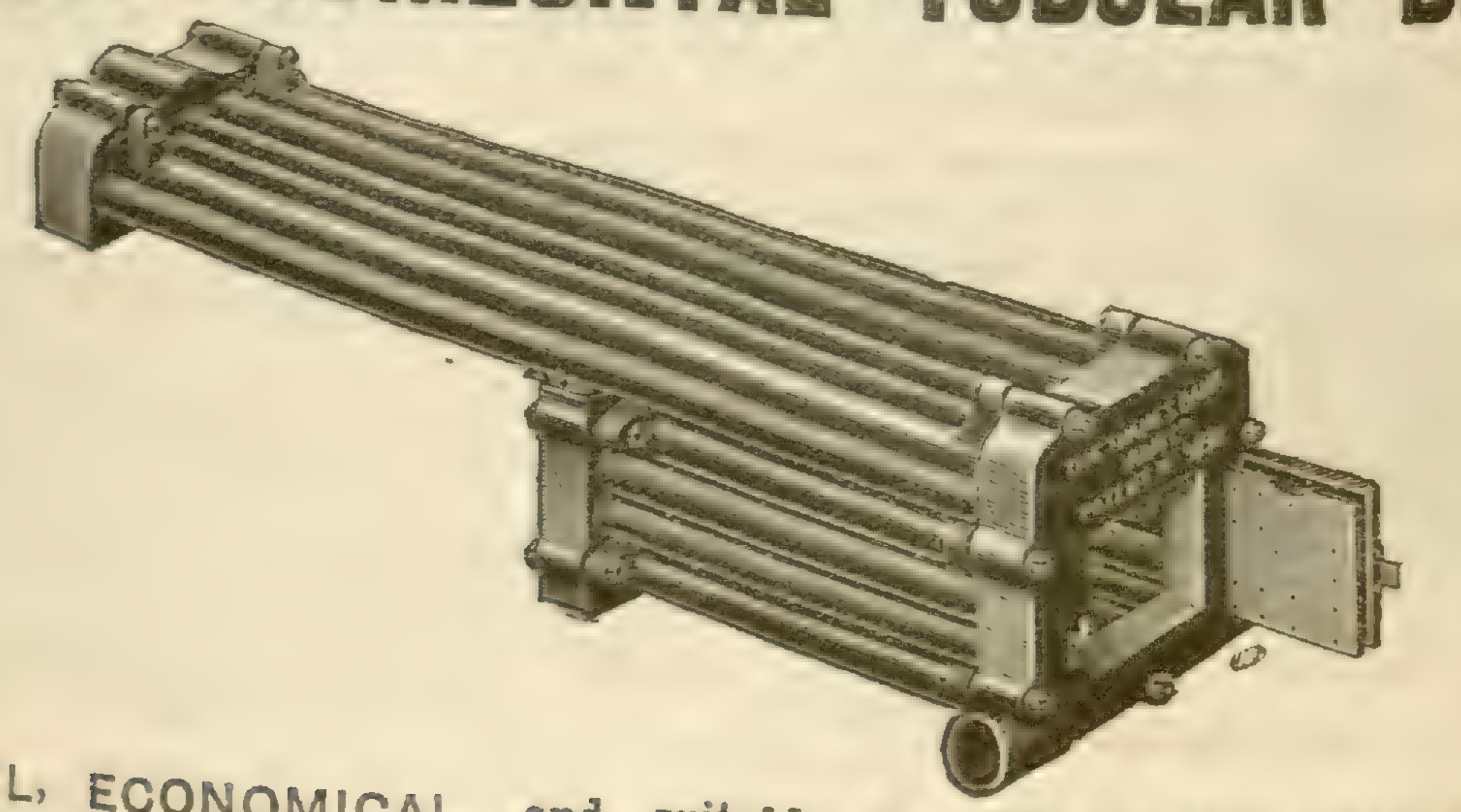

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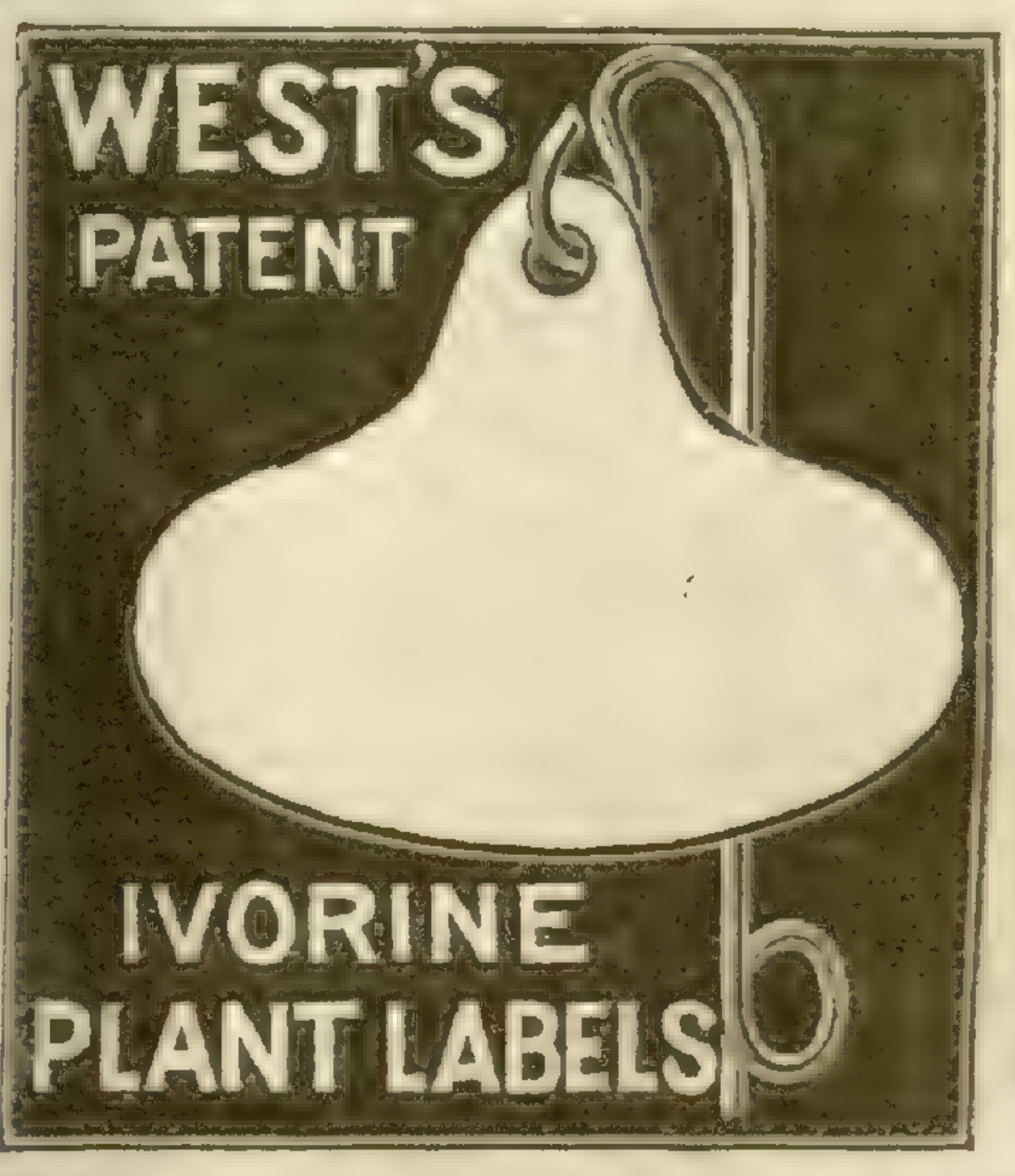

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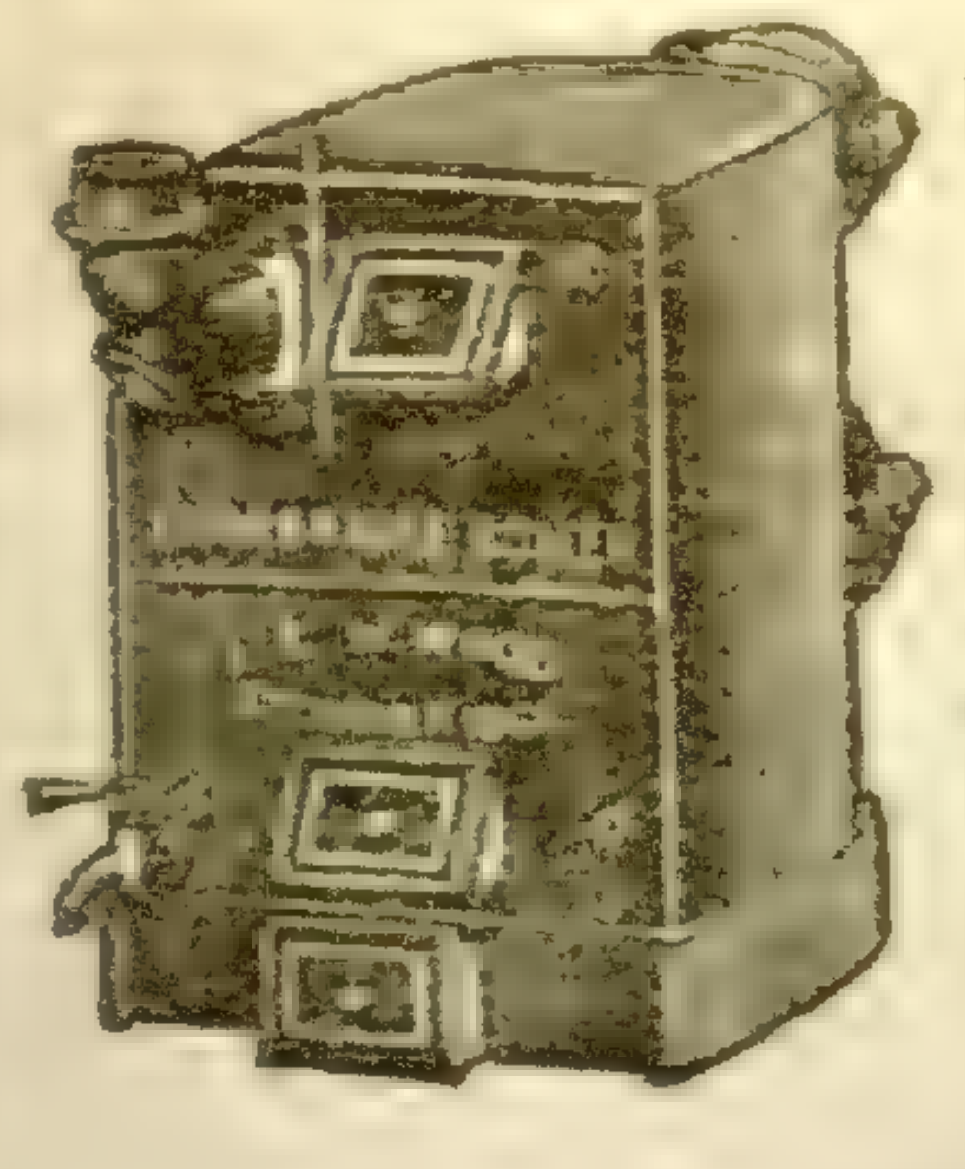

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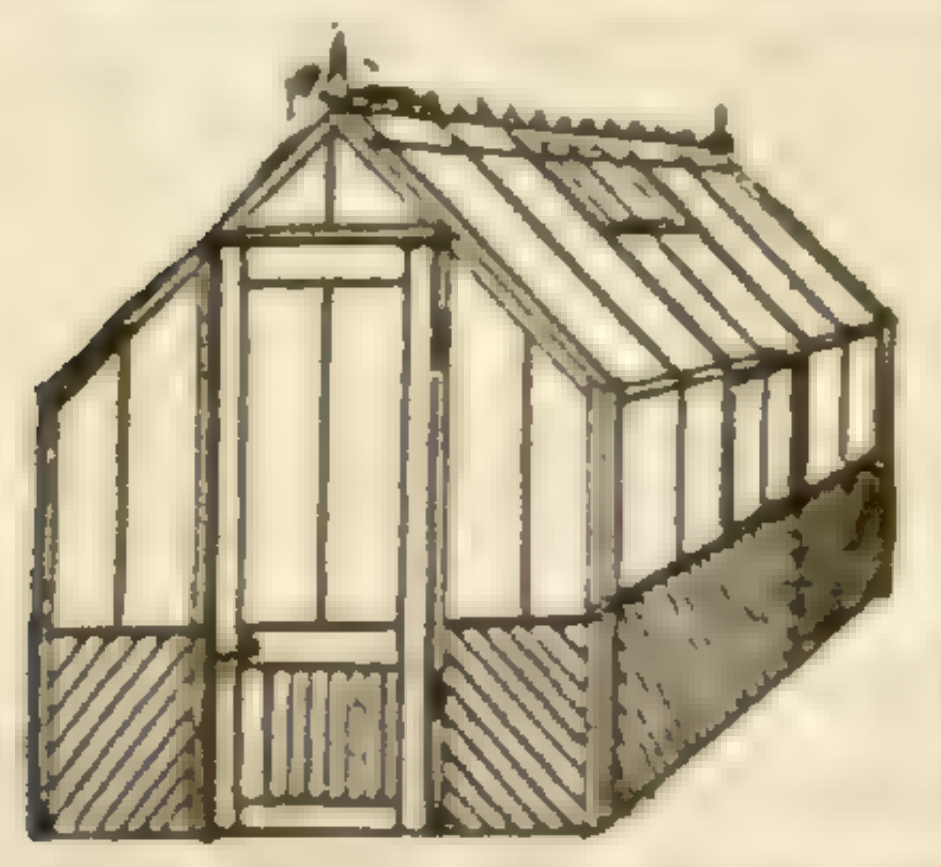
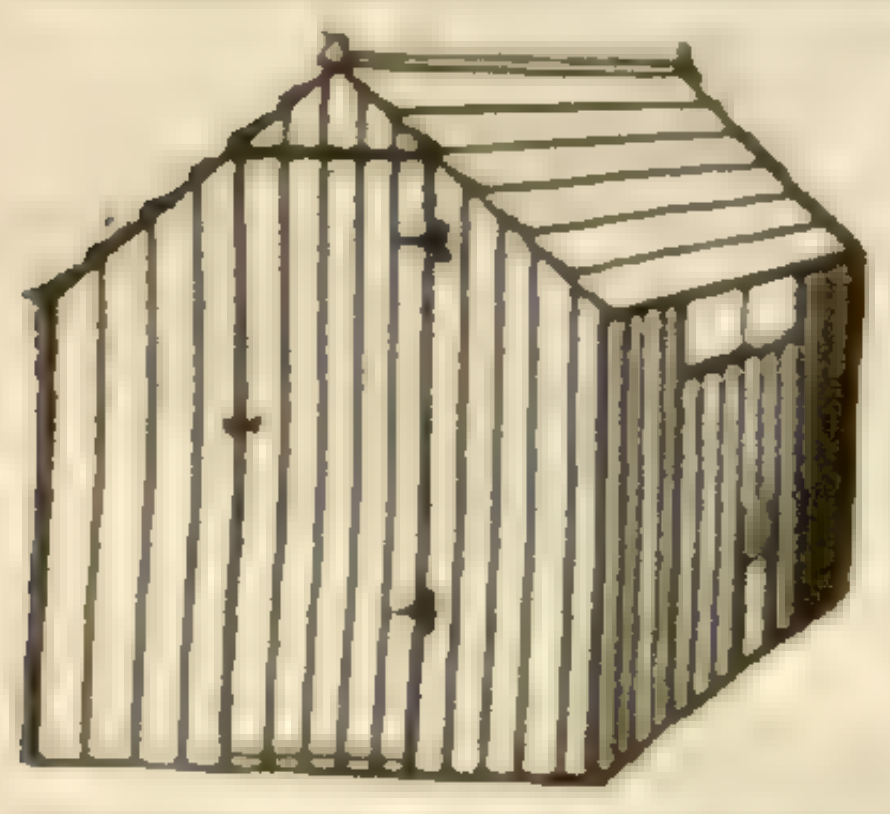


Size.	Lean-to.	Span.
8 X 5	36/-	48/6
10 X 5	48/6	58/6
14 X 6	58/6	78/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
14 X 10	95/-	£5/7/6
20 X 10	£5/17/6	£6/17/6

All 7 ft. high, and 4 ft. sides (a few 5 ft. sides, trifle more). Ironwork, staging, and one coat paint included.

A comparison:—
£3/10/0 buys elsewhere 8 X 5 lightest possible make.
£3 12/6 buys from us 10 X 8 extra substantial make.
All sizes are in proportion. Need we say more.

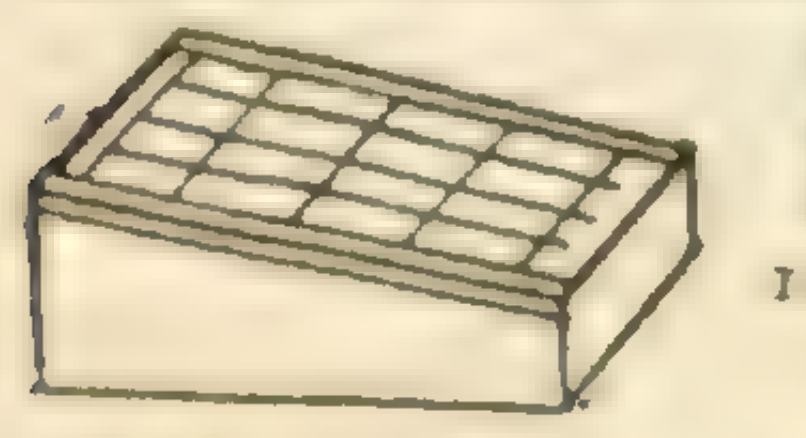
Speculate in a sample end, and set your doubts at rest.



To hold.	Size.	Lean-to	Span.
Ten	4 X 3	10/9	12/9
Twenty	5 X 4	12/9	16/6
Forty	7 X 5	17/6	22/6
Hundred	12 X 7	—	33/-

(Also a few cheaper ones left.)

Usually made from half inch wood, these are one-third thicker, and felt cover to roof.



4 X 3	8/9
6 X 4	14/6
8 X 6	22 6
12 X 6	33/-

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	200 ft.		at 16/6	
8X10		**4ths 21-oz.**		
8X12	100 ft.	stock sizes as stated in margin, 8X12 to 12X12.	at 9/6	12X24
9X12	200 ft.		at 18/-	13X17
9X13	100 ft.	stock sizes as stated in margin, 12X14 to 16X20	at 12/-	13X20
9X14	200 ft.		at 23/-	14X16
10X12	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at 14/-	14X18
10X14	200 ft.		at 26/-	14X20
12X12		**3rds 21 oz.**		14X24
12X13	100 ft.	stock sizes as stated in margin, 8X12 to 12X12	at 10/-	15X20
12X14	200 ft.		at 19/-	16X18
12X16	100 ft.	stock sizes as stated in margin, 12X14 to 16X20	at 13/-	16X20
12X18	200 ft.		at 24/-	16X24
12X20	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at 15/-	18X20
	200 ft.		at 28/	18X24

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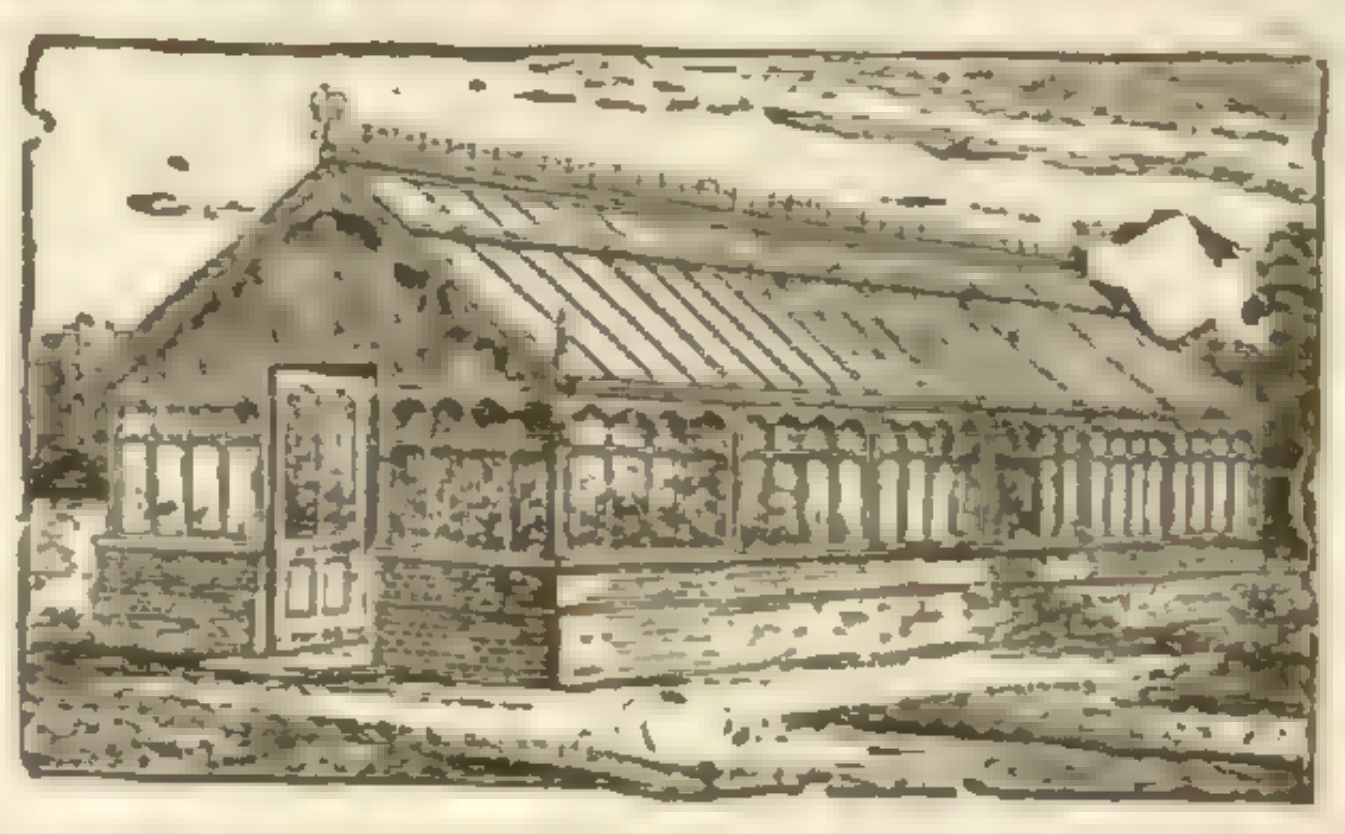

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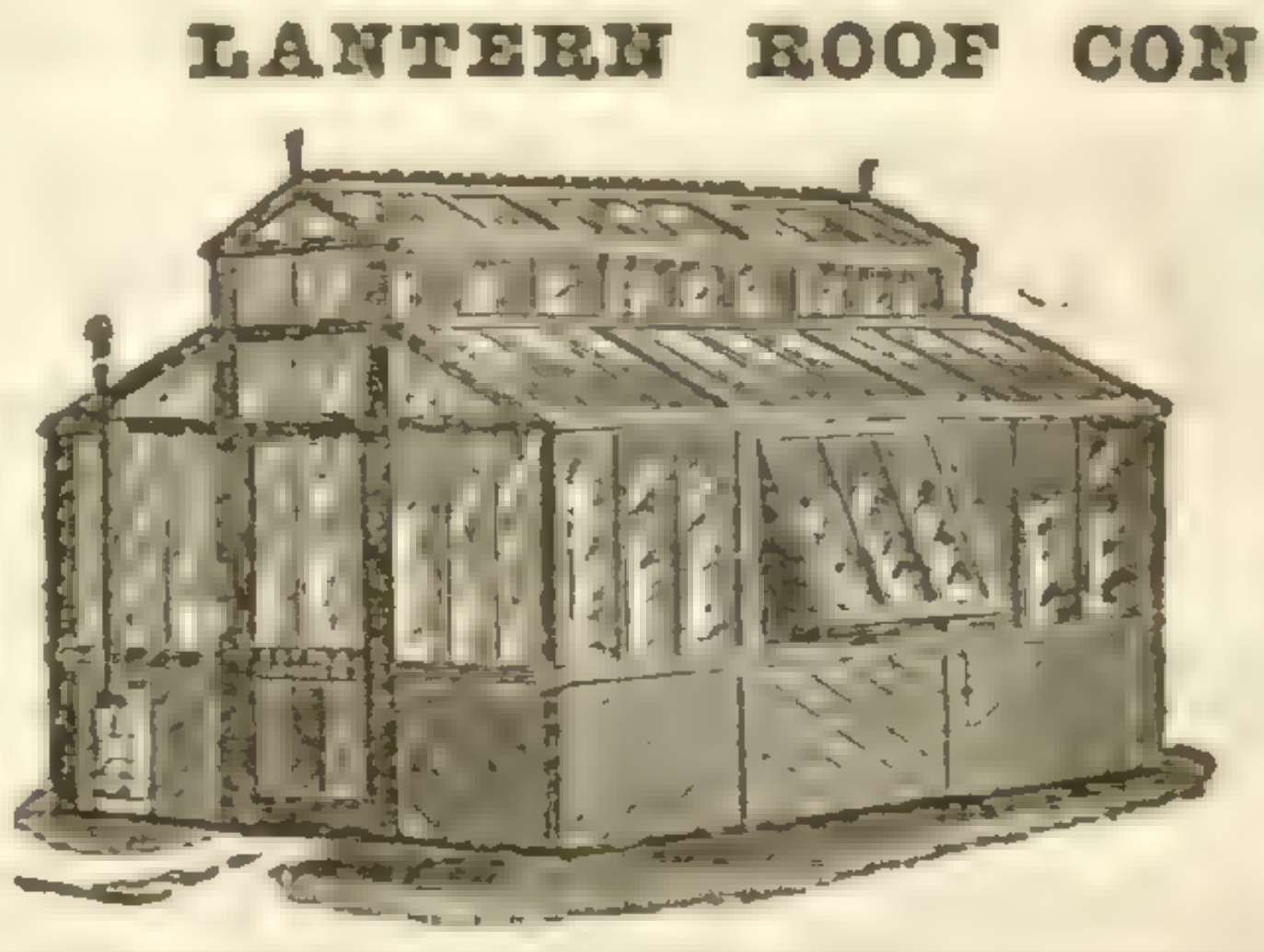

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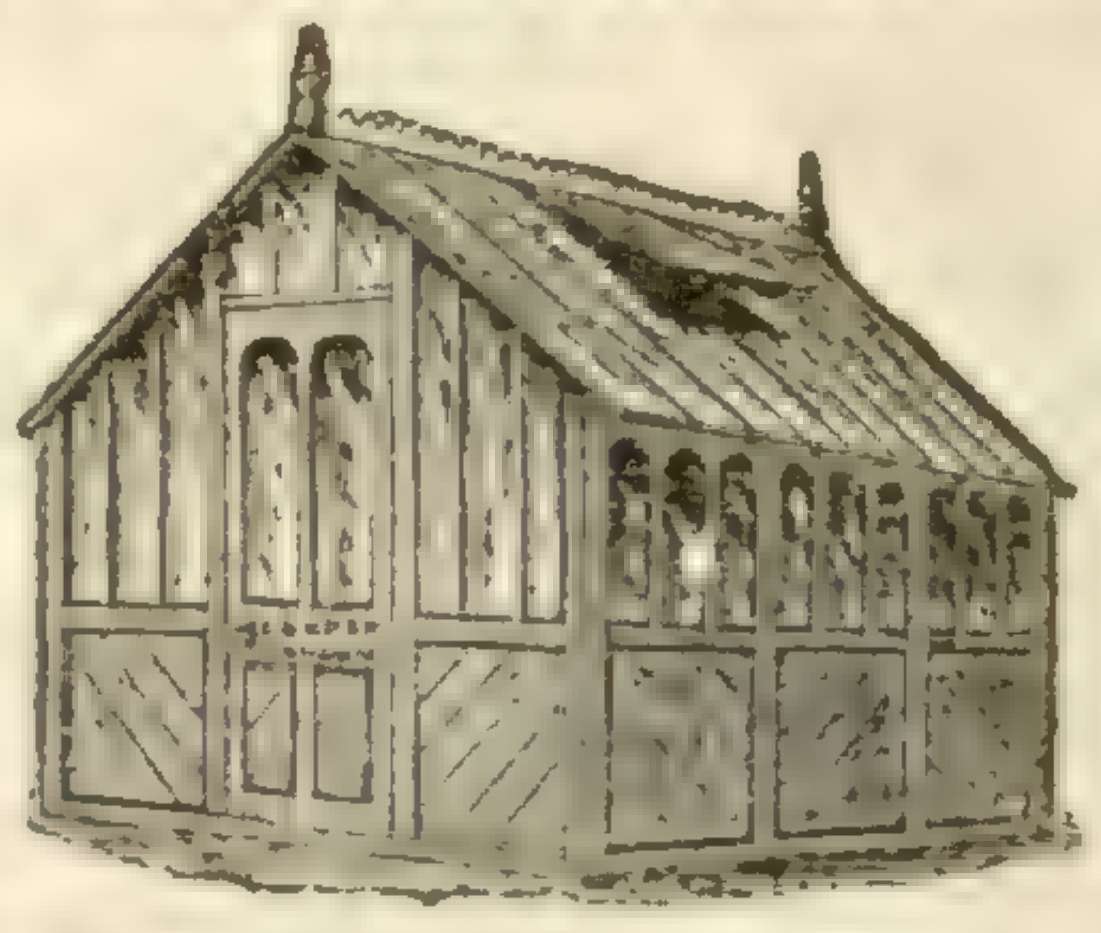

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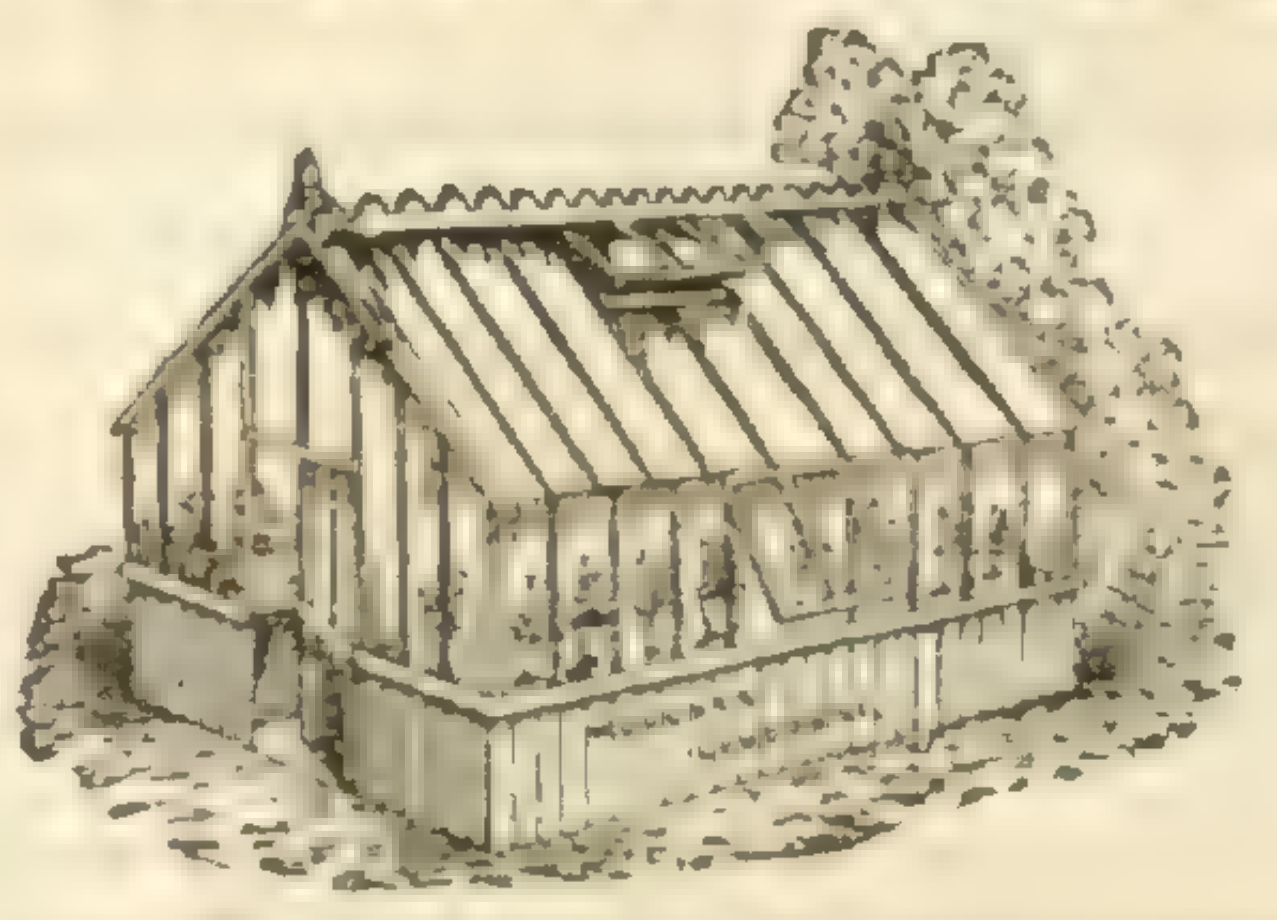

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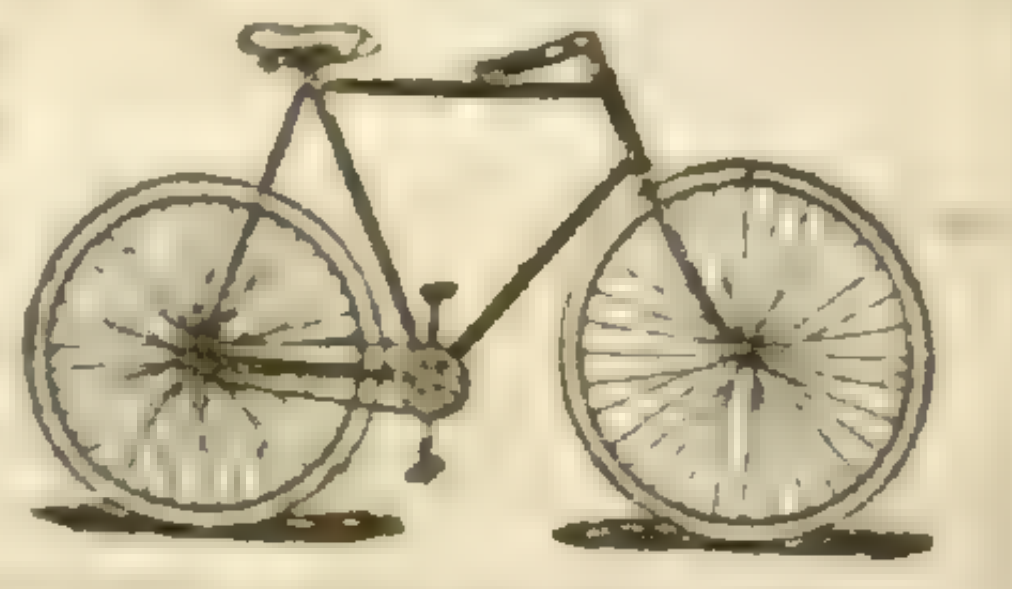

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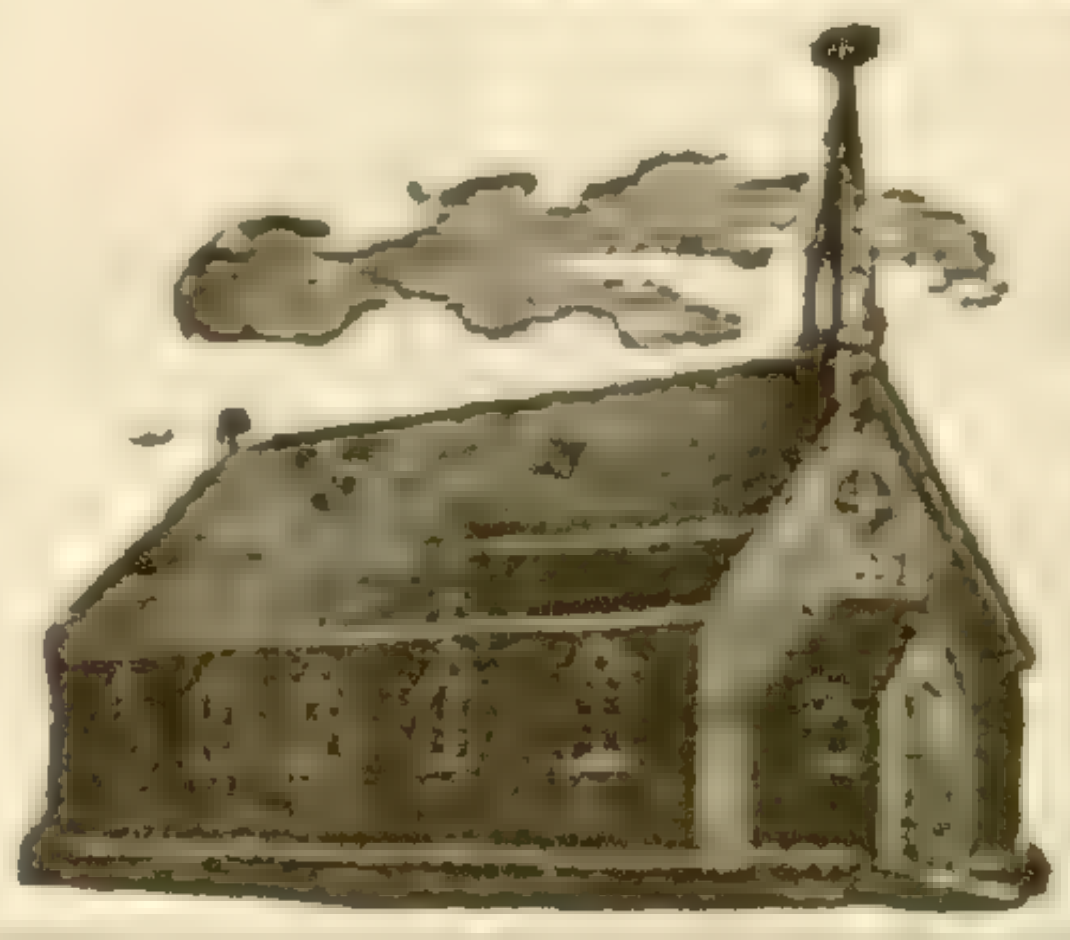

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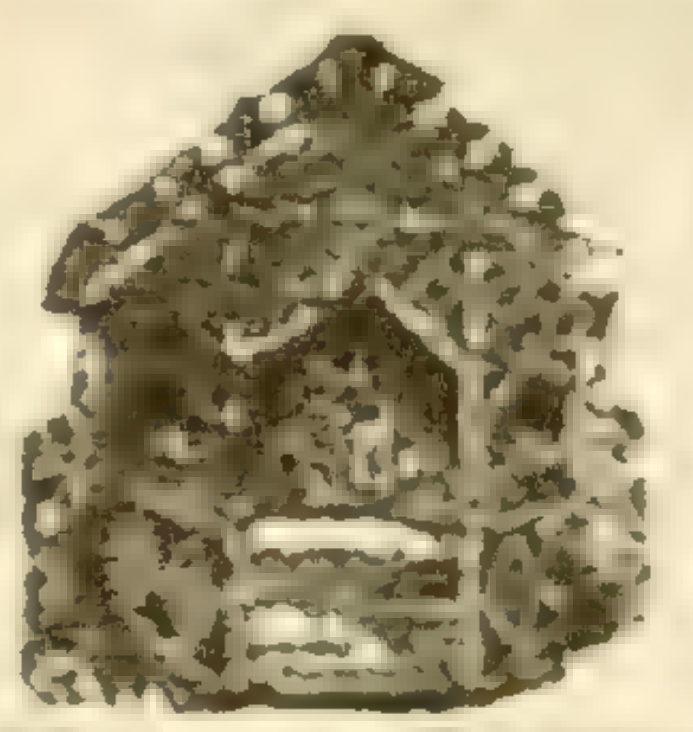

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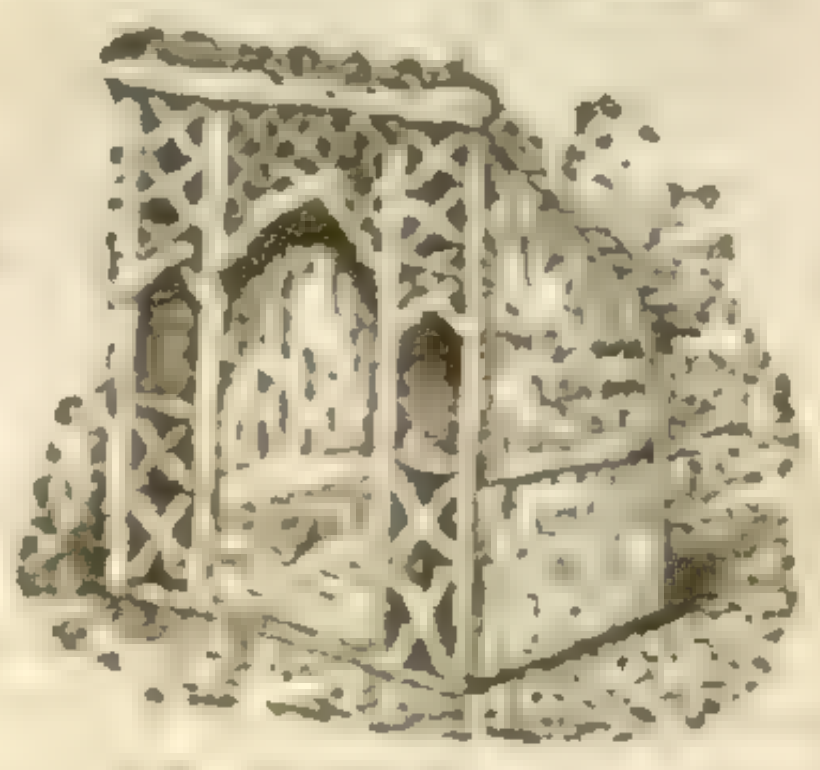

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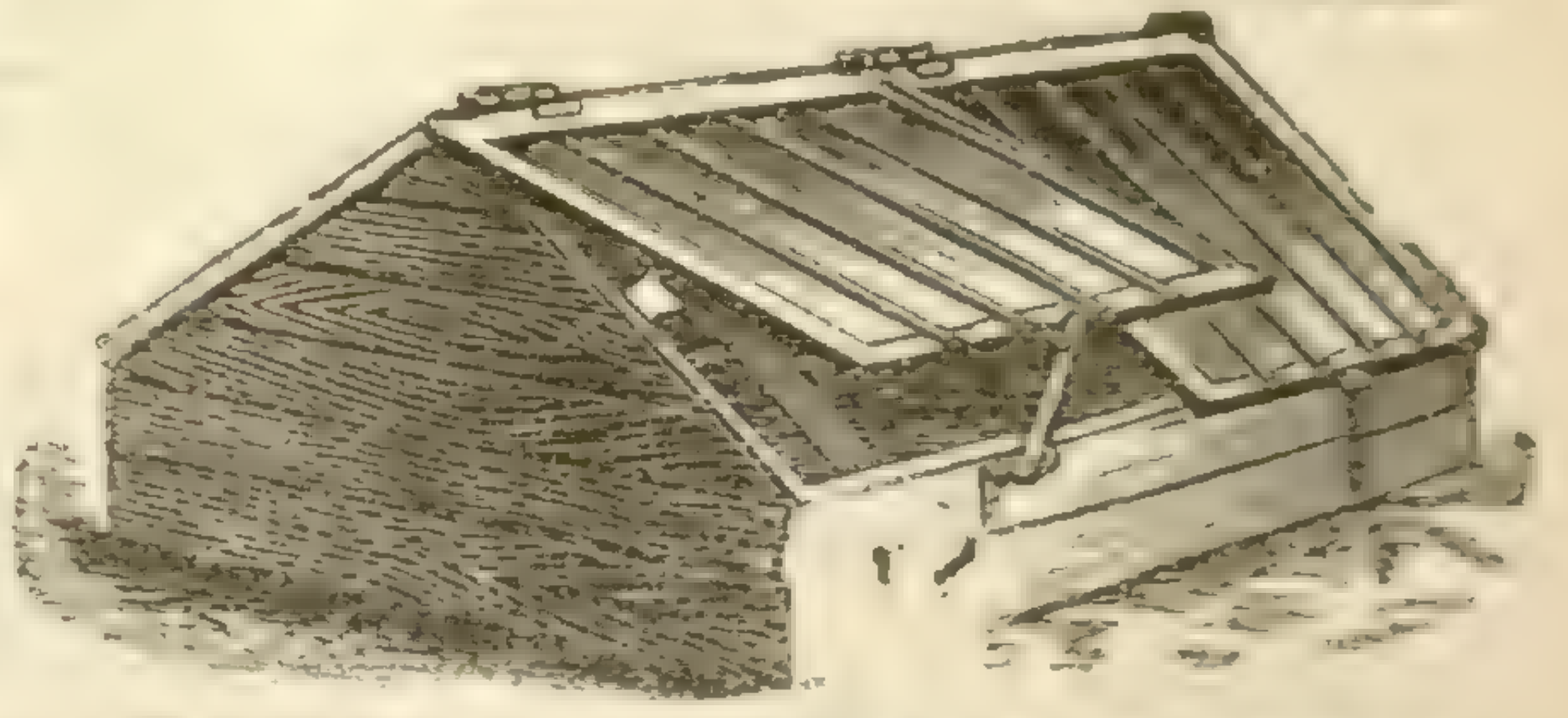

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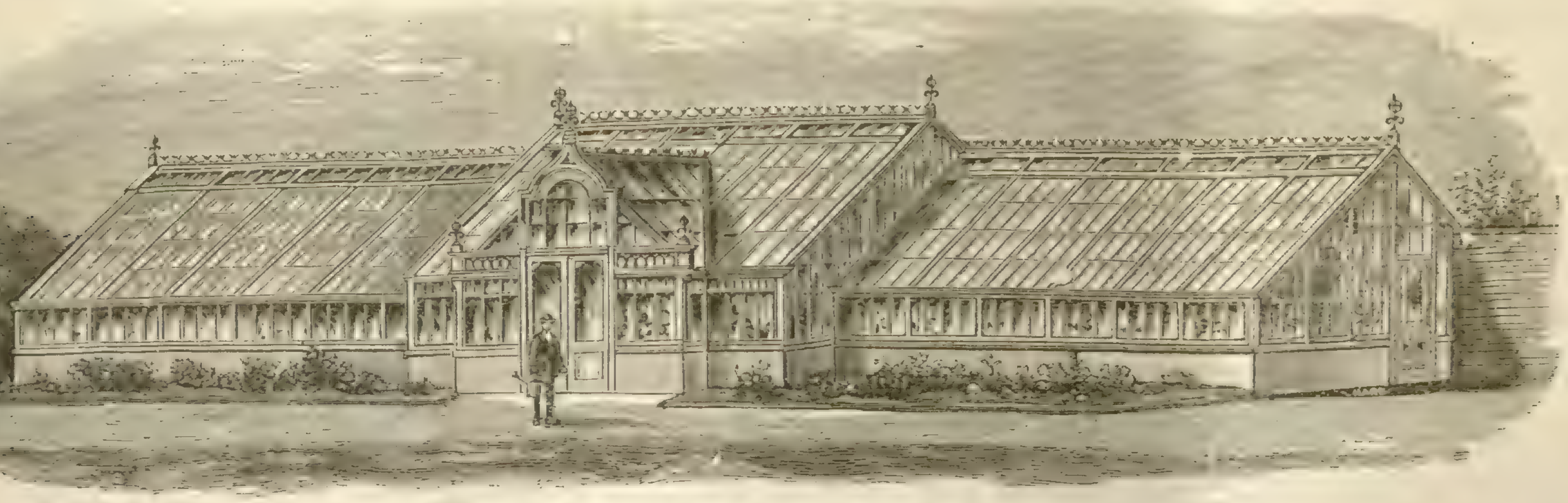

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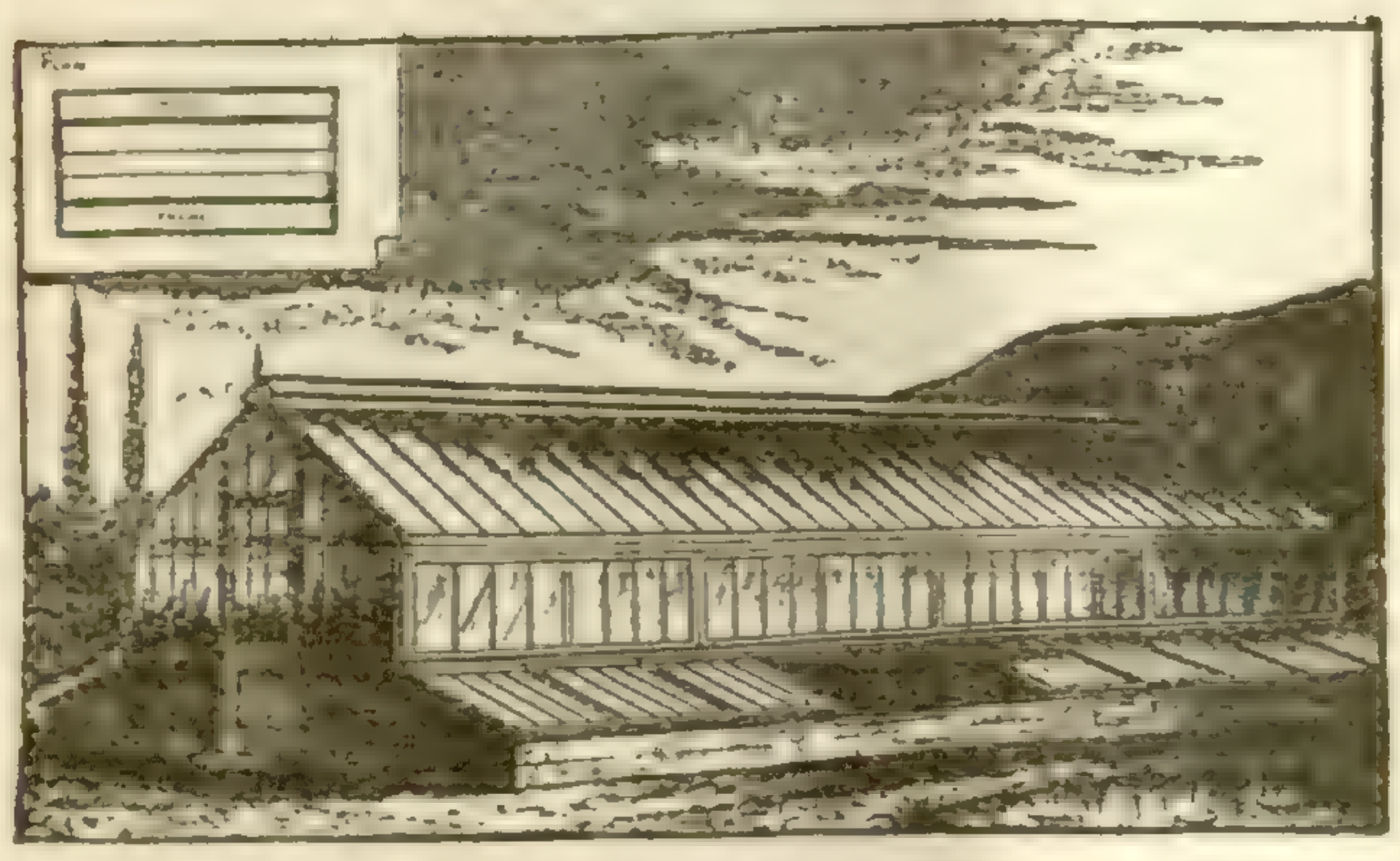

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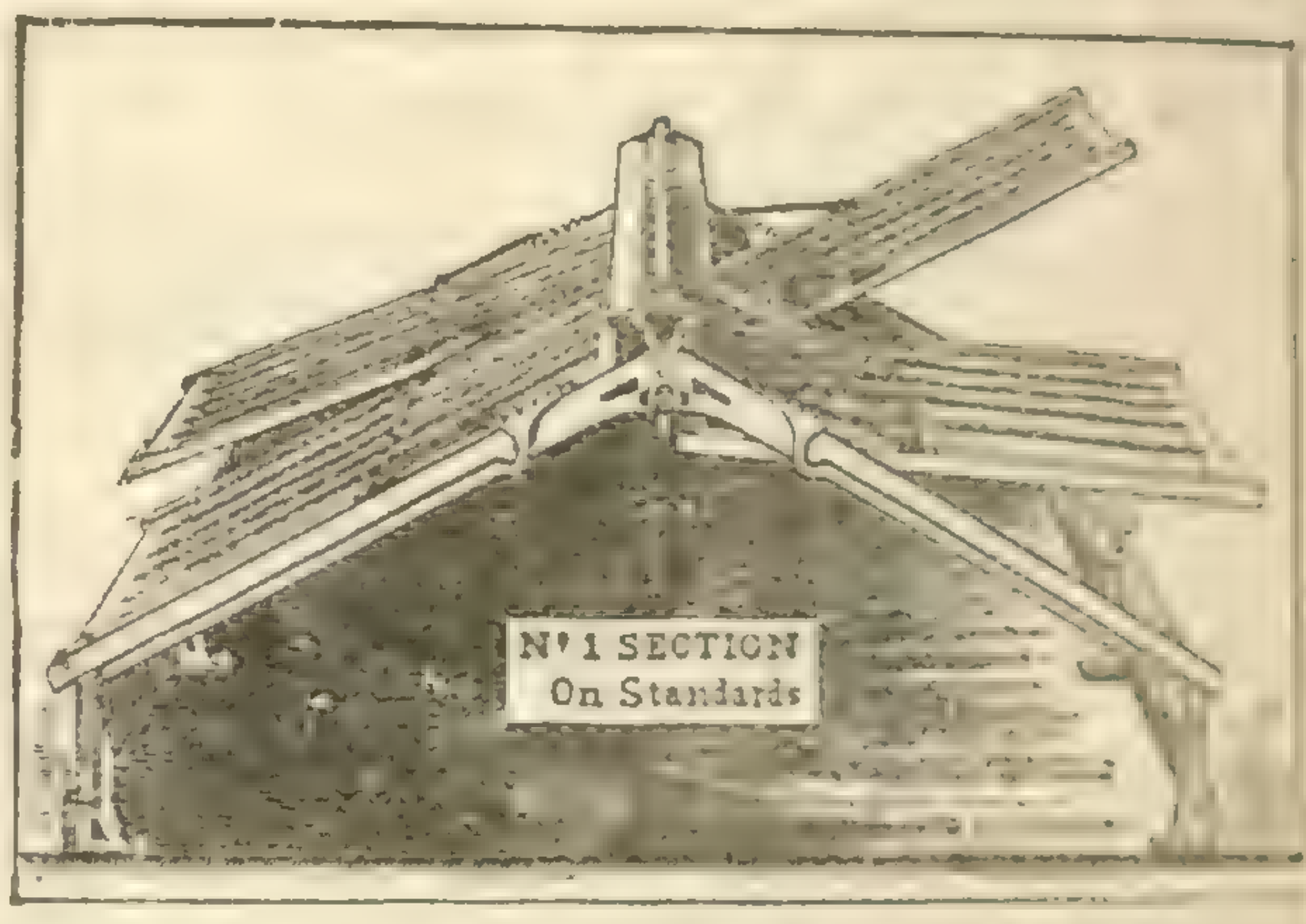

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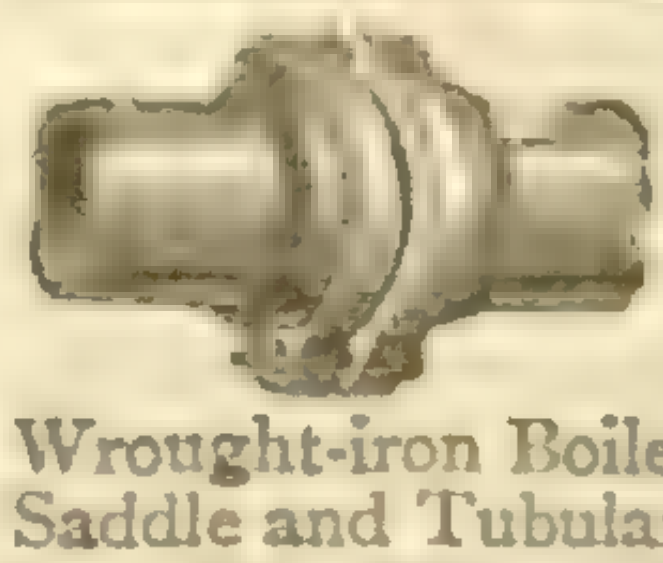

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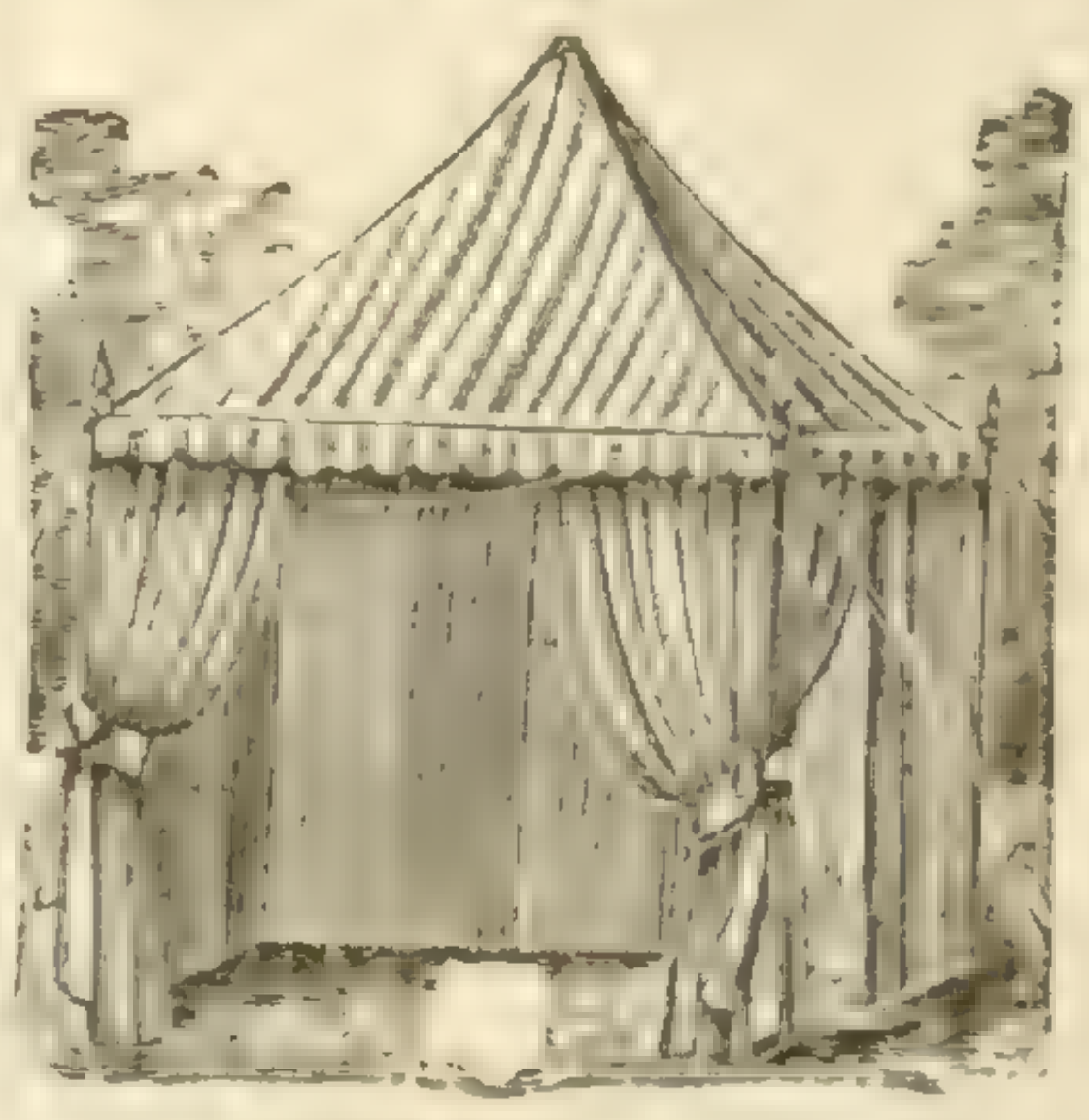

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GARDENER (Head-Working); married; age 37; experience in orchids, vines, houses, and kitchen gardens, &c.; leaving through death.—STEVENS, The Gardens, Dar-el-Saleem, Abbey Wood, Kent.

GARDENER (Head-Working); age 44; married, no family; life experience in good gardens, and sixteen years head gardener to the late J. L. Baldwin, Esq.—Address, G. BURGESS, 17, Eversleigh-road, Lavender Hill, London, S.W.

GARDENER (good Single-Handed); 15 years' experience; 4½ years in last situation; married; age 30.—J., 111, Wellington Terrace, Wellington Street, Slough.

GARDENER (Single-handed or One Under); age 27; married; understands vines, chrysanthemums, flower and kitchen garden; 2½ years' excellent character from present situation, 11 years' previous.—J. M., Studlands, Hersham, Walton-on-Thames.

GARDENER (Single-handed or Flower Gardener); age 32; single; four years in present place; well recommended; six previous.—A. WALLIS, Osterley Park, Isleworth, Middlesex.

GARDENER (Single-handed or otherwise); age 40; single; good experience in private gardens and nursery work; over ten years' good character; would take place in a nursery.—J. PASSEY, 8, Mount Ash Road, Upper Sydenham, London.

GARDENER wants a Permanent Single-handed PLACE; age 23; single; strong and willing; very respectable; excellent references; thoroughly experienced in all branches.—Apply W. F., Shooter's Way Lodge, Berkhamsted.

GARDENER (Second or Single handed); age 24; in a Gentleman's Garden; understands glass and kitchen garden; can have good character.—STANDEN, Highlands, Mereworth, Maidstone, Kent.

GARDENER (Second, Inside and Out, where five or six are kept); good experience and references; state wages; age 24.—HAND, Altonia Cottage, Forty Hill, Enfield.

GARDENER, with excellent references as to ability in all branches from first-class places, seeks situation; age 32; married; abstainer.—GARDENER, 123, Wellington Road, Forest Gate, E.

GARDENER.—SITUATION WANTED by married man, aged 30, under Head Gardener; experienced in glass, vines, greenhouse plants, kitchen garden; four years' good character from present place; leaving through death.—W. H. PIPER, near the School, Combe Martin, N. Devon.

HEAD Working GARDENER, where two or more are kept; thorough knowledge of stove and greenhouse plants, vines, peaches, vegetables, &c.; married, two children; age 39.—Address F. WHITE, 5, St. David-terrace, Llandaff, Cardiff.

LADY strongly RECOMMENDS her late Head Working GARDENER (where three or more are kept), who has been in her service eleven years; thoroughly competent in all branches; disengaged through place being sold. —B., 29, Nightingale Lane, Bromley, Kent.

MAN, married, no family, requires situation as COWMAN.—Experienced; understands Pigs and Poultry; wife good butter maker; good references; age 42. —A. B., Rushmore Cottages, Frensham, Farnham.

RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

SITUATION as Second, where three or four are kept, or Single-handed; five years present place; excellent character; age 26.—G. EUSTON, Shrubb Hill, Sunningdale, Ascot, Berks.

UNDER-GARDENER, age 22, where several are kept; seven years' practical experience inside and out; bothy preferred.—T. POWELL, The Gardens, Trewyn, Abergavenny, Mon.

WANTED, SITUATION as Second Gardener.—Apply C. BRANDRICK, Six Cottages, Whitley Common, Coventry.

WANTED by a thoroughly experienced Man a SITUATION as Horticultural Architect and Landscape Gardener in first-class business. Experience in England and on the Continent in large nurseries. Thorough knowledge of carpet bedding, and also of all departments; good references.—Apply, ARCHITECT, 4,895, GARDENERS' MAGAZINE Office, 148-149, Aldersgate Street, London, E.C.

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WANTED, a good, general, Outside Working FOREMAN; total abstainer; good references essential; married; age 30 to 40; to live in lodge.—Apply, stating wages, to R. SMITH, The Gardens, Brickendonbury, Hertford.

WANTED, GARDENER, must understand flowers, vegetables, and a small orchid house; no vinery or forcing; must be willing to make himself generally useful; required Sept. 5; married; an abstainer preferred; comfortable lodge; boy kept; wages £1.—Apply Mr. JOHN HALSEY, Womersley House, Crouch Hill, London, N.

IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

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Descriptions, with Popular and Technical Names of Plants, Date of Introduction into this country, Number of Species in Cultivation, How Propagated, Suitable Soil, Proper Temperature, Time of Planting, &c., &c.

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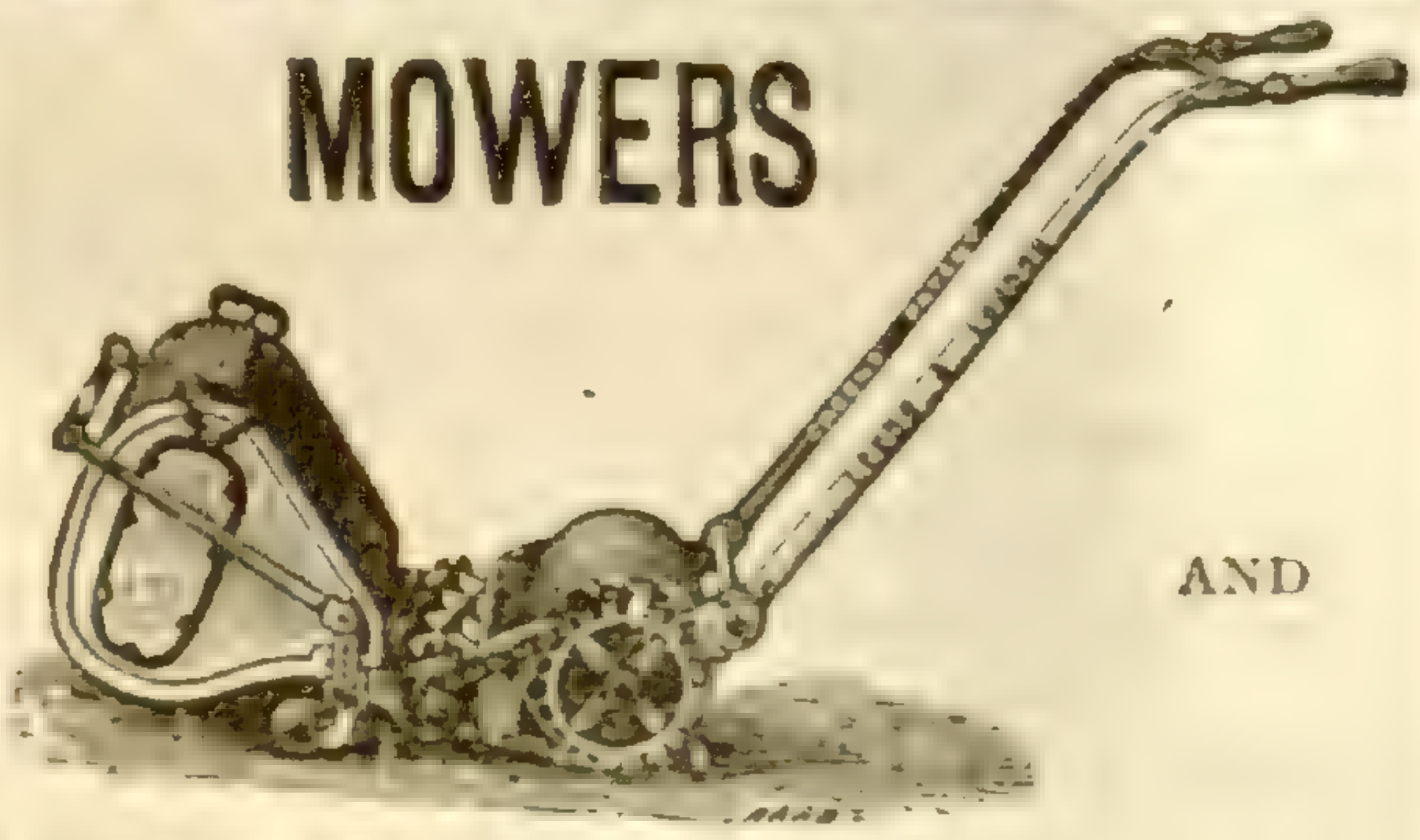

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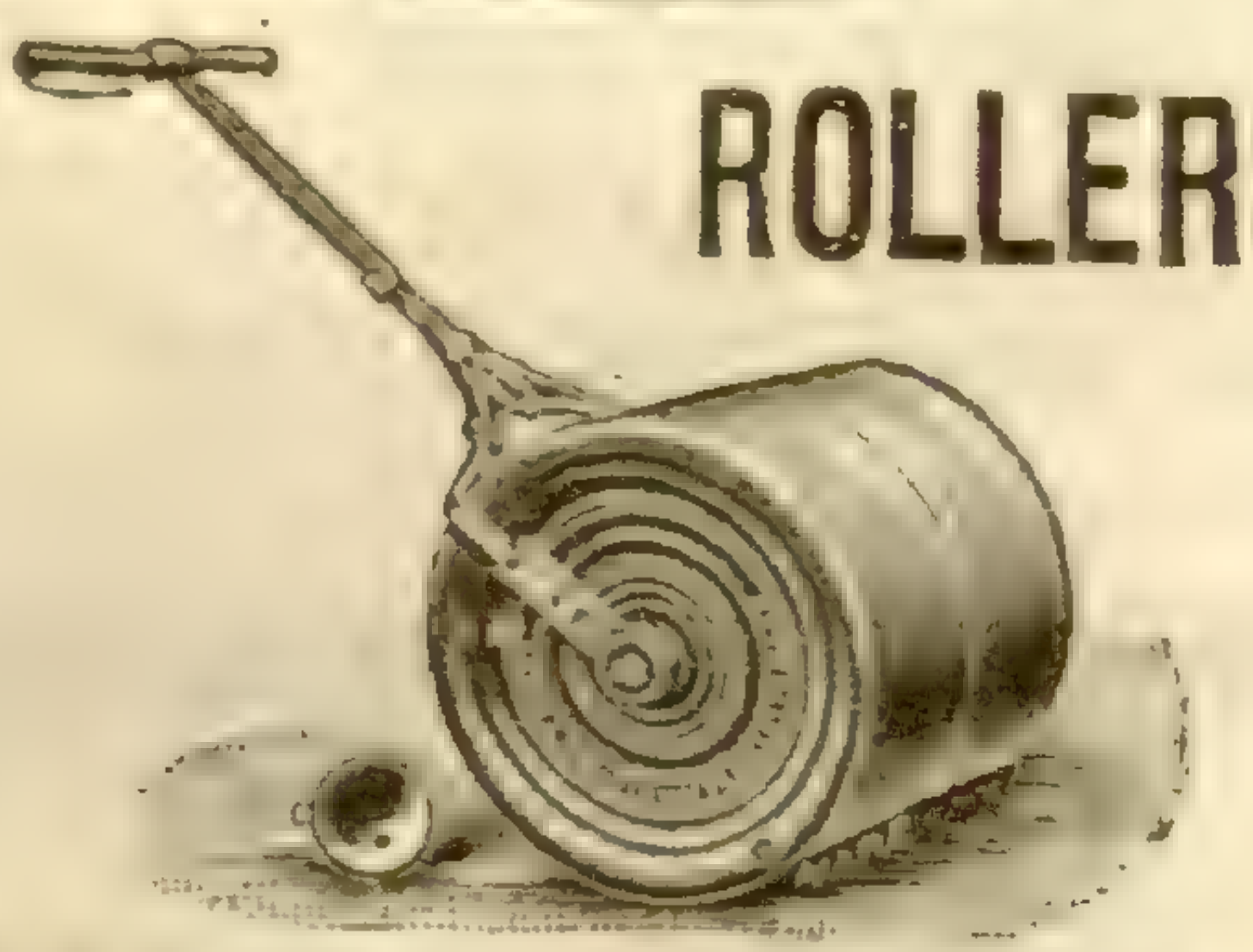

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Beg to announce they have received their Annual Supply of

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HAS the honour to inform readers that his Illustrated Bulb and Plant Price List, at lowest prices, in English, August 1898, will be sent post free on application. No charges for packing. Orders of 10s. and above entirely free to destination in England, Scotland, and Ireland.

SOME SORTS OF BULBS NOTED OUT PRICE LIST.

	Per 100	1,000
Single Anemones, in fine mixture	1 2	[illegible]
Crocus, II. size, in fine mixture	0 8	6 3
Crocus, I. size, in fine mixture	1 4	[illegible]
Hyacinths, mixed, for bedding or forcing ...	9 8	[illegible]
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection ...	17 6	—
Iris Kæmpferi (Japan Iris), in fine mixture ...	5 [illegible]	[illegible]
Iris Germanica (Flag Iris), in fine mixture ...	7 [illegible]	6[illegible]
Iris Sibirica, in fine mixture	[illegible]	4[illegible]
Iris Spanish, in the finest mixture	[illegible] 7	[illegible]
Lilium Candidum, single, pure white	1[illegible] [illegible]	—
Montbretia croscosmiæflora, orange scarlet ...	1 6	[illegible]
Narcissus campernel Jonquil, yellow	[illegible] 2	[illegible]
Narcissus, double, Incomparable, primrose ...	1 6	[illegible]
Narcissus van Sion, single, yellow trumpet ...	2 6	[illegible]
Narcissus Stella, white, yellow cup	1 4	[illegible]
Gladiolus Marie Lemoine, fine	2 0	[illegible]
Gladiolus Brenchlyensis, deep scarlet	2 6	[illegible]
Scilla Sibirica præcox, intense blue ...	[illegible] 2	[illegible]
Tulips, single early, in the finest mixture ...	1 2	[illegible]
Tulips, double early, in the finest mixture ...	1 6	[illegible]
Duc van Thol Tulips, single, excellent for early forcing	2 6	[illegible]
	[illegible] 7	5 [illegible]
Grape Hyacinths, blue	[illegible] 0	—
Anemone japonica, rose	[illegible] 0	—
Hemerocallis (Day Lily), mixed	1[illegible] 0	—
Pyrethrum, fine double, pure white	14 6	—
Tritoma uvaria (Red Hot Poker)	[illegible] 8	5[illegible]
Sparaxis, in fine mixture...	10 0	—
Funkias, in fine mixture	1 2	12 [illegible]
Gladiolus Colvilli, white	5 0	4[illegible]
Hyacinthus cardicans, white	4 0	[illegible]
Iris pumila, mixed	10 0	[illegible]
Lilium umbellatum, red	2 0	[illegible]
Snowdrops, Elwesi		

250 Bulbs of the same kind will be charged at the 1,000 rate, 25 at the price per 100; 6 at the price per doz.

COLLECTION D.—For Spring Gardening, containing 1,[illegible] Bulbs, £1 1s. Half this for 11s.

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Are now BOOKING ORDERS for Early
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CHANGE OF STOCK PAYS.
CATALOGUES OF STRAWBERRIES AND SUMMER FRUITS NOW READY.

THE GARDENERS' MAGAZINE.

SATURDAY, AUGUST 27, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY, ROYAL AQUARIUM, WESTMINSTER.—EARLY CHRYSANTHEMUMS, DAHLIAS. GLADIOLI, &c., SEPTEMBER 6, 7, AND 8, 1898.
Schedules of Prizes on application to RICHARD DEAN, V.M.H., Secretary, Ranelagh Road, Ealing, W.

BIRMINGHAM GREAT CHRYSANTHEMUM EXHIBITION, BINGLEY HALL, NOVEMBER 8, 9, and 10, 1898.—£400 in Prizes. 32,000 attended the last Exhibition. Schedules of Prizes, plans and particulars of space to be let to Stallholders, to be had post free on application to the Secretaries,
J. HUGHES, 140, High Street, Harborne.
F. W. SIMPSON, Victoria Road, Harborne.

DERBYSHIRE AGRICULTURAL
AND
HORTICULTURAL SOCIETY.
ANNUAL SHOW, DERBY, SEPTEMBER 7 AND 8.
UPWARDS OF £200 IN PRIZES FOR HORTICULTURE.
Open to all England.
GROUPS, £65; DECORATIVE DESSERT TABLE, £19.
Entries positively close Wednesday, August 31.
Schedules and all particulars of
Canal Office, Derby. SIDNEY BURTON, Secretary.

MAIDENHEAD HORTICULTURAL SOCIETY. — The ANNUAL SHOW will be held in KIDWELL'S PARK, on THURSDAY, SEPTEMBER 1, 1898.
Schedules may be obtained from CHAS. A. VARDY, Hon. Sec.

TO SECRETARIES OF FRUIT SHOWS, &c.—JUDGING OF FRUITS, FLOWERS and VEGETABLES, by STEPHEN CASTLE. F.R.H.S., Consulting Horticulturist, Bottesford Vineries, Notts.
Terms on application. Telegrams, "GRAPES," BOTTESFORD.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

CACTUS DAHLIAS.

AT no period in the history of horticulture in this country have the raisers of new plants, fruits, and vegetables shown so great a degree of activity as during the second half of the century now drawing to a close, and we should search in vain for any similar period in which the advances have been more marked, or in which the results of hybridization and cross fertilization have been so far-reaching in their importance. We might give a considerable number of instances in proof of this assertion, but the tuberous begonias, culinary and sweet peas, and strawberries, with several other occupants of our plant and fruit houses, and gardens will at once suggest themselves to our readers. They will also readily call to mind the cactus dahlias, with their elegantly formed and richly coloured blooms, which contribute so much to the attractions of the garden and exhibition tent from the month of July until they fall victims to the icy breath of the frosts, which act as the heralds of the approach of autumn. Not a few of our readers who may institute comparisons between the more important achievements of the art of the hybridizer and cross fertilizer, will perhaps be inclined to regard the creation of the cactus dahlias as one of the greatest triumphs of the half century. If we do not feel justified in giving the cactus dahlias so high a position as some of our friends consider they should have, we highly appreciate their beauty and value, and we are filled with admiration of the manipulative skill, sound judgment, and exemplary patience of those to whom belong the honour of having obtained such splendid results. We need not discuss the utility of this important section of dahlias for the embellishment of the flower garden or for the supply of blooms for decorative purposes, for this is generally recognized. But it appears desirable to urge raisers to make the most strenuous efforts to lengthen the flower stalks, with a view to increase their effectiveness in the garden; to advise cultivators to use less manure in the preparation of the beds and borders for their reception; and to suggest to committees of societies holding their exhibitions during the dahlia season the advisability of giving greater encouragement to the artistic display of the blooms. In the matter of staging cactus varieties at exhibitions the dahlia growers have set an example which the exhibitors of Japanese chrysanthemums might in some cases follow with advantage. They recognised at a very early period in the history of the section that dumping the blooms down on a flat board was not the best way of presenting them to public notice, and quickly devised a means of exhibiting them in elegant, if somewhat formal bouquets. Arranged in bouquets of six blooms each they produce a rich effect, as was so admirably exemplified at Brighton during the past week. Admirable as is the effect now produced by stands of blooms arranged in accordance with the practice that now generally obtains, we are strongly of the opinion that the time has come for encouraging arrangements suitable for indoor apartments. A commencement might be made by providing a few classes for vases containing from nine to twelve blooms, as may be considered the most advisable, in association with suitable foliage. Vases of blooms, either in mixture or in separate colours, present a charming appearance, and as a good competition may be ensured by offering moderate prizes a new and useful feature may be added to exhibitions without a heavy outlay.

FRUITS.

AMONG the innumerable artifices evolved in the struggle for existence, for the purpose of enabling plants to become disseminated far and away from the parental sources, succulent edible fruits of all classes must certainly be ranked as the cunningest of all. The thistle-down floating in the breeze o'er hill and dale represents one mode of dissemination, the explosive seed-vessels of the balsam sending their contents yards away, is another and less efficacious one, the burr hooking itself on to the coats of man or beast, and so borne, involuntarily, far afield, before being detached, is another type, but none of these is so complexly clever as the seed which, clothing itself with delicate lines, cries, as it were, "Come, eat me," and being eaten, parts with its luscious coating only, and uses its devourer as transmission agents by defying digestion. The grape, the currant, strawberry, gooseberry, raspberry, blackberry, indeed, most of the berry tribe, if not all, have adopted this dodge, and man, with his usual selfishness, induces all these to pile up their savoury stores for his benefit, and then cooly nets all the profits by netting or otherwise protecting his plants, so that the birds are denied their toll, and the chief aim of the plants is defeated. The stone fruits, plums, cherries, peaches, apricots, &c., are hardly so clever; their lures incite to robbery also, but though the precious seed be carried away with the tempting fruit, its journey is more limited, and the bulk rarely travel beyond the foot of the tree, which they would reach without any lure at all in the ordinary course. The pip fruits, such as oranges and lemons, apples and pears, also seem to give a great deal of small service, since under natural conditions they are hardly likely to travel far when plucked by predatory beasts or birds, unless it be in climes where the monkey comes in in lieu of the schoolboy, and uses the fruit as missiles as well as food. It is, however, possible that many large fruits may be helped in the struggle for existence by the manurial stimulas the external portion may impart to the seeds which germinate where the fruit has lain and decayed, the seeds thus deriving nourishment from the parental plant indirectly to supplement the albuminous store always provided in the seed itself. The recorded cases of melon and other seeds sprouting and growing within the fruit strengthen this possibility, especially since it is only reasonable to assume that the fruit would contain precisely those elements which would aid the development of the seed it envelopes. If this view be accepted, then we have another ingenious contrivance to further reproduction, the end and aim of all fruitage. With our cultivated fruits, however, their present forms are so much to man's tastes and selective care that the original use of the fruit is altogether subordinated to his requirements, and the reproductive energies of the plants concerned are so ignored in the process of selection as often to be quite eliminated. The seeds are not wanted, only the attendant lusciousness, and given time enough, selection on these lines yields the fruit, minus the seed, or bearing merely the rudiments, while propagation becomes only practicable by means of buds and cuttings. Even here, however, the finest fruit is the most widely disseminated, so after all the cleverness of the plants comes in, enlisting as it does the service of man himself by its attractions, and securing its continued existence, seed or no seed.

HABITATS.

IF we travel about the earth's surface and keep our eyes open as regards the vegetation which clothes the major part of it in innumerable forms, from the incipient ones of arctic lichen and moss to the dense jungle or forest of the tropics, we cannot fail to notice that some species of plants are extremely local in their occurrence, cropping up quite suddenly in profusion, and as suddenly ceasing to be seen very shortly afterwards as we proceed. If we examine these plants we shall find that this limited area is not due to any particular lack of disseminating power as regards their seed, and the limitation must therefore be due to some other cause. On further investigation we may find them to be water or bog loving plants, and their flourishing character is seen to be due to a local spring and a retentive soil, which affords at this precise spot, and there only, the particular conditions indispensable to growth, in the large majority of cases. However, the reason is by no means clear, and we are driven to impute the restriction to local soil constituents which favour a development of this particular species, and may be check that of others. The diversity of soils is indeed immense, especially in rocky regions, where different formations crop up, and by their weathering down create each a different sort of *débris*, which mixed with the decaying and special vegetation which it has particularly favoured, becomes eventually a very peculiar kind of compost indeed, both the original elements of the rock and the subsequent humus or leaf mould differing from those in the vicinity. In travelling through the south of England we may see two extremes of this class; in Kent the softly swelling outlines of the chalk hills are flanked by whitish grey fields, liberally strewed with flints, a short stunted and very peculiar lime loving flora clothing the soil wherever it is uncultivated. Steering west, however, and reaching Devon, we come upon the red sandstone, with hills also of rounded couture, but covered with rich red, brown, and chocolate-coloured fields, as bright in tint as a painter's palette could make them, and with a rich vegetation of intense verdure and vigour, forming a fitting foil in the landscape with its complementary tints. These are but two leaves of the great book of Nature beneath our feet, each page of which is a stratum of rock which once represented a surface, and no two of which are identical in their composition or history. In some parts where these lie parallel with the present surface we have an evenly distributed vegetation due to similarity of conditions; but in others, where slow crumpling or the volcanic catastrophes of the past have turned the leaves edgewise, there naturally we may expect to find, and do find, that the varied habitats mean varied tenants, and while the number of species is immensely increased, their limits are inevitably more or less sharply defined. Other conditions of environment, of course, come in as factors, but these more or less invisible soil complications are certainly the main ones in determining the local prevalence of plants, and their restriction to certain spots. The mere mechanical texture of a soil must often determine the start in life, or extinction of it, in a seed. It is in these delicate, incipient stages that small favourable or unfavourable points become of vital importance; the rapid or slow germination of the seeds themselves is another factor which would interact with the rapid or slow drying of a soil, and tend in many cases to determine that only a particular class of soil would permit the seed to grow, which means a rigid limitation to the area occupied by the parental form as its habitat.

Hunnemannia fumariæfolia is an extremely pretty half-hardy perennial introduced from Mexico by a Mr. Barclay, of Bury Hill, in 1827. Both in foliage and flowers it is very much like Eschscholtzia californica, the full poppy-shaped bloom being brilliant golden yellow, tinted with orange. This plant may be cultivated as a biennial, and if kept in a cool greenhouse or pit during the first winter it will flower freely during the following summer, especially if the season is a bright and warm one. The genus Hunnemannia is monotypic, and the title was given by Sweet, in compliment to Mr. John Hunneman, who was a well-known botanical agent and introducer of new and rare seeds and plants early in the present century. Although generally treated as a biennial on account of its tenderness, Hunnemannia fumariæfolia is a true perennial, and consequently should not have been included by Messrs. J. Veitch and Sons in their display for the Sherwood Cup on Tuesday last.

Fruit Sales.—Numerous sales of growing crops of fruit have been held in Kent during the past fortnight, and the prices realised have on the whole been satisfactory to growers. On Friday, the 19th, a sale was held at Paddock Wood by Mr. Tompsett of the crops of about five hundred acres, consisting of apples, pears, plums, and damsons, and the prices obtained for the more important crops were as follows: Hale Street Farm, apples only, 5a. 2r., £45. Tanners and Church Farms, apples only, 4a. 2r., £40. The Grange Farm, apples, plums, and damsons, 6a., £200; damsons, pears, and apples, 2a., £10; apples, 25a., £210. Badsell Farm, apples, 10a. 3r., £155. Hadlow Place—Damson plantation, 1a. 2r., £34; young plantation, apples and plums, 3a. 2r., £60; apples, pears, and plums, 3a. 0r. 28p., £54; Gold-hill Farm, apples, pears, and walnuts, 3a. 2r., £37. Cronk's Farm, apples, 4a. 2r., £105. Bainden, damsons and apples, 18a.; apples, plums, and damsons, 19a.; and apples, 2a. 2r., £455. Brenchley, apples and damsons, 8a., £125. Matfield, 2a. 1r. 15p., £22.

Chelsea Botanic Garden.—The Charity Commissioners have agreed to take over the trust of the Physic Garden, Chelsea, and maintain it for the purposes of botanical study. It is situated at the east end of Cheyne Walk, covers more than three acres, and was originally leased from Lord Cheyne by the Apothecaries' Company in 1673 for a barge and boat house. In 1721 Sir Hans Sloane, who had purchased Chelsea manor from the second and last Lord Cheyne, presented it to the Apothecaries' Company in trust upon the express condition that "it should at all times be continued as a physic garden for the manifestation of the power, and wisdom, and goodness of God in creation, and that the apprentices might learn to distinguish good and useful plants from hurtful ones." Sir Hans also stipulated that fifty specimens of plants reared therein should be sent annually to the Royal Society until two thousand were delivered. The presentations continued to be made at intervals until the year 1793. In 1853 the herbarium was given to the British Museum. The garden contains a fine old cedar—one of four presented by Sir Joseph Banks, who studied botany in this old garden. It is supposed that these four cedars were the first to be successfuly planted in London. One of the set was destroyed by storm, two others died from natural causes, and the remaining specimen will not last many more years. A large limb of one of the trees was made into four chairs for the use of the wardens at the Apothecaries' Hall.

Sugar-cane Cultivation in Spain.—The cultivation of the sugar cane is the main resource of the Motril region of Southern Spain, the fertility of the soil being in great measure due to the alluvial deposits brought down by the mountain torrents in their course to join the River Guadalfeo, which runs through the Vega. An abundant crop is looked forward to this coming season, and its value will fully compensate growers for the sacrifices and delay in growing. Prices are expected to rule remuneratively, as there are seven cane-crushing establishments in the neighbourhood, and there will be brisk competition in buying. The crop of cane from Motril, Lobreno, and Salobreño, is calculated at about 10,500,000 arrobas (an arroba equals 25 lb.) To this may be added some 80,000 arrobas from Castel de Ferro for crushing, and, besides, Almuñecar produces 1,200,000 arrobas for supply of the crushing mills established there.

British Association.—The arrangements for the meeting of the British Association at Bristol are now approaching completion. The real work of the association is done at the various sectional meetings, and some of those which will be held at Bristol appear to be of a particularly interesting character. The President of the Botanical Section is Professor F. O. Bower, F.R.S., whose address will probably be devoted to discussing our present views as to the classification of the members of plants. There will also be a discussion, which is expected to be of a very interesting character, on alternation of generations, which will be opened by Dr. W. H. Lowe. One of the afternoons will be given up to a popular lecture on a physiological subject by Mr. Blackman. The President of the Geological Section is Mr. W. H. Hudleston, F.R.S., and in his presidential address he is expected to deal mainly with certain points in the geology of the south-west of England east of Dartmoor. It will be an address devoted principally to the local geology. Keeping Bath as the centre, Mr. Hudleston will probably draw attention to the great variety of geological formation within a radius of fifty miles—a variety which is hardly matched anywhere in the country in an equal area.

Australian Oranges.—Large consignments of oranges have been dispatched to London of late from Australia and the experiment of exporting oranges to this country is being watched with much interest by the growers in New South Wales and Victoria. It is anticipated that should this year's shipments prove successful a considerable trade will be done in these fruits between the two colonies and England. Mr. W. N. White says that last May, when he believed that the coming fruit crops in this country were likely to prove a failure he cabled his firm's agent at Hobart, Tasmania, to at once proceed to Sydney and see if he could get in touch with the Government in connexion with the shipment of oranges to this country. The upshot of this was that their agent induced one prominent dealer to guarantee a certain quantity if he would advance so much money against them, and after that he approached three or four of the local fruit associations, who at once circularised the whole of their members, stating that an advance could be made which would be more than sufficient to pay for the fruit, packing, and cases, and that the freight would be paid to England if they would guarantee a certain amount on consignment. That guarantee the agent obtained. These goods have all been shipped in the cool chamber, as experiments have previously proved that it is useless to attempt to send them as ordinary cargo. In the cool chamber the risk of their arriving in bad condition is infinitesimal, but shippers have to contract to pay for the space whether filled or not, and a sufficient quantity must be contracted for to induce the steamship owners to put their refrigerating machinery in order. Messrs. W. N. White and Co. expect this season to receive between 20,000 and 50,000 boxes from New South Wales by way of a beginning, and if the season's trading proves successful they think that future shipments from the Australasian colonies to this country will total 100,000 boxes yearly. The first consignment of these oranges arrived in London on Monday last by S.S. "Ormuz"; there were 8,000 cases containing an aggregate of about a million and a half oranges. Unfortunately, during the voyage, the refrigerating machinery broke down, with the result that at least two thirds of the cargo were found to be spoilt. This is a great loss and disappointment, but better shipments are expected later, as, so far, only about a quarter of the anticipated supply has arrived.

Cheap Transit of Garden Produce.—It is highly satisfactory to know that remarkable success continues to attend the enterprise of the Great Eastern Railway Company, which carries farm and garden produce, such as cheese, butter, cream, eggs, fruit, fowls, and flowers at special cheap rates from the country districts to London and the large towns on its system and provides boxes in which to pack the produce, at merely nominal rates. The scheme under which garden produce and the minor products of the farm are conveyed over the company's system direct to the consumer from the producer was put into operation about ten years since, and last year the number of packages was 112,000, and in the first six months of this year a total of 71,300 packages was reached. The value of these boxes is averaged at 7s. 6d. each, so that the G.E.R. scheme means £50,000 per annum flowing into the East Anglian district for produce for which there was practically no outlet at remunerative rates.

Women and Rural Industries.—An experiment not without some interest is about to be made by the Countess of Warwick, with the object of training women in gardening and farming. According to Miss [illegible], Lady Warwick's original idea was to form settlements in different parts of the country where women—principally the daughters of professional men—could [illegible] their very small incomes, or make their living by the products of their own large cottage gardens. Builders were to be persuaded to put up sets of small cottages each suitable for two women, who would cultivate or utilise the plot of land attached to each. About six or eight of the cottages were to form a settlement. Then there was to be a market centre for each settlement, and some authorised person who would manage the sale of the products for these individual workers. But it was "discovered" that before women could be expected to make gardening, farming, or poultry keeping pay they must thoroughly understand the subject. When or how the discovery was made we are not told, but we were under the impression that it had long been known to all who had an elementary knowledge of rural industries that it was no more possible to achieve success in the production of fruit, vegetables, butter, and eggs without an intimate acquaintance with the details, than to successfully engage in an ordinary trade without having had some previous training. Recognizing the necessity of proper training Lady Warwick made arrangements with the authorities of the University Extension College at Reading to provide the necessary course of instruction, and thus prepare the women for the settlements later on. The hostel, which Lady Warwick hopes to open in October in connection with Reading College, will be an institution where the necessary training may be obtained. It will be founded for the definite purpose of enabling women over the age of sixteen to obtain a thorough training (theoretical and practical) in the lighter branches of agriculture, viz.: Flower and fruit growing, and packing for market, especially bush fruits, tomatos, mushrooms, &c., bee and poultry keeping, and dairy work. The council of Reading College have consented to provide the necessary courses of instruction, and to recognize the Countess of Warwick's Hostel as a place of residence for women students. The grounds of the hostel will afford room for practical work. The full course of instruction will extend over two years, but students who wish to do so may join the short courses and special classes. It is hoped by Lady Warwick that the inclusive fees for instruction and board will not exceed £50 a year. This, it is believed, will bring the training within the means of the particular class of women whom it is proposed to assist by the scheme—the one which has, perhaps, the greatest difficulty in finding a remunerative occupation—namely, the daughters of professional men, left with, or likely to be the possessors of, incomes varying from £30 to £100 a year. The sum of £2,000 will be required for capital, and towards this amount some has already been promised. The instruction it is proposed to give under the scheme should be useful to a large number of women, such as the daughters of farmers and small landowners, who have a taste for rural pursuits, and anticipate marrying farmers and others engaged in the management of land. We shall watch the development of the scheme with much interest, and trust that under it the object in view may be accomplished.

Cannas at Chiswick have never succeeded so well as during the present season; the collection is extensive, occupying both divisions of the Paxton House, and affords a splendid opportunity for any one interested in these handsome plants to make comparisons and selections. There is a wide difference in the height and habit of the varieties, the shape and colour of the leafage, freedom of flowering, length of spike and colour and size of the blooms. On the occasion of a recent visit to the gardens by the R.H.S. Floral Committee four varieties were selected as worthy of the Award of Merit, these being named Stradrath Heidenreict, Partenope, Comtesse de Vartoux Florence, and William Marshall. The latter does not appear to be so distinct from previously named varieties as we could wish, especially considering the name it bears; it is presumably one of a batch of seedlings raised by Mr. S. T. Wright at the gardens. The committee also made awards to two Indian pinks, forms of Dianthus chinensis, and to Bronze Queen viola.

American Apple Exports.—From August 7, 1897, to June 11, 1898, the United States and Canada exported 913,996 barrels of apples. This is only a third of the business of the previous season, when 2,919,846 barrels were exported, but constitutes a fair average for recent years. Of the sum first named, Liverpool received the greatest proportion, 490,000 barrels; followed by London, 198,000; Glasgow, 124,000; Hamburgh, 89,000 barrels. Of the ports of export, New York led with 362,000 barrels, against 570,000 the previous season; Boston [illegible] only 176,000, compared with over 1,000,000 in 1896-7.

Olive Tree Disease.—For some years past the olive trees in Italy have been affected by a yearly recurring disease, so that the olive harvest has been excessively meagre, and supplies have had to be imported from Tunis, Spain, and Southern France for Italian consumption. The disease first appeared in Italy in 1889; since 1891 it has also affected the olives of the South of France; those in Spain and Tunis are said to be still untouched. The small round spot on the fruit which indicates the presence of the disease is called by the peasantry "the peacock's eye." A minute fungus *(Cycloconium oleagium)* is the cause of the disease, and may be kept in subjection by the proper use of a suitable fungicide.

A Distinct Hybrid Pea has been obtained by Mr. Henry Eckford at his nurseries, near Salop, being the result of a natural cross between a culinary pea and a sweet pea. The newcomer is thus a bi-gener, for the culinary pea has been selected from Pisum sativum, and the sweet pea from Lathyrus odoratus. In growth the new plant is robust, but does not possess the stout stems and leafage of Mr. Eckford's new culinary peas; it is much branched, has white flowers, and [illegible] small, full pods of round peas that are pale, buff-coloured, and of a waxy appearance. The peas are very sweet to the taste when raw, but we have not tried them cooked. The crop is a very heavy one. Whether this new pea will ever be of any commercial value is at present an open question, but the plant is very interesting, both horticulturally and botanically. The wonder is that the hybrid has been so slow in coming, especially when we consider the very many scores of both culinary and sweet peas that Mr. Eckford grows side by side at Wem, in Shropshire.

Stoneless Cherries are produced in France, says a contemporary, by the following method: In the spring, before the circulation of the sap, a young seedling cherry tree is split from the upper extremity down to the fork of its roots; then, by mean of a piece of wood in the form of a spatula, the pith is carefully removed from the tree in such a manner as to avoid any excoriation, or other injury; a knife is used only for commencing the split. Afterwards the two sections are brought together and tied with wool, care being taken to close hermetically with clay the whole length of the cleft. The sap soon reunites the separated portions of the tree, and two years afterwards cherries are produced of the usual appearance, but instead of stones there will only be small soft pellicles.

The Plymouth Strawberry.—A specimen of this strawberry was received through Dr. Masters by R.H.S. Scientific Commitee, from Mr. J. Arrowsmith, of Bank Road, Glazebrook, Manchester. It is a monstrous condition of the ordinary fruit, in which some of the achenes are replaced by leaves, as in the well-koown Alpine strawberry, of which the present case is a variety. It was described by Ray, who gave the name, having received it from Plymouth. It resembles the Green Rose, in thus having its floral organs more or less in a state of reversion to leaves.

Sevenoaks Flower Show was, we are pleased to learn, highly successful from a financial point of view. The attendance was far larger than at any previous gatherings, and the takings at the gate amounted to £113 12s. 6d. After five o'clock, when the charge for admission was lowered to sixpence, an additional entrance to the show ground was opened, and at this the sum of £27 15s. was taken in sixpences.

Californian Fruits.—The recent report of the California State Board of Agriculture shows that this favoured state produced orchard fruits in 1897 to the value of £4,257,909. This total was divided as follows: Citrus fruits, £770,000; prunes, £580,000; dried fruits other than prunes, £520,000; raisins, £457,000; deciduous fruits, £400,000; nuts, £120,000; canned fruits, £1,410,909.

A Pleasant Holiday.—The members of the Lee and Blackheath Horticultural Society had a holiday on the 18th inst., and visited Messrs. Sutton and Sons establishment. They were much interested in what they saw in the offices, ware houses, and trial grounds, and returned home highly gratified with the instructive and pleasant holiday they had enjoyed.

Small Fruit and Poultry Farms.—Whatever may have been the advantages of large holdings in the past, there can be no doubt that under the conditions at present obtaining *petite culture* is steadily increasing in importance. Accepting this view of the case, the potentialities of a sixty-acre farm present themselves, in the opinion of the *Land Magazine*, in a far more auspicious light than was possible some years ago. With a holding of those dimensions, a tenant will require £600 to start with, for £10 per acre is none too much to spend if he is desirous of making a sure foundation, and of being in a position to avail himself of falling markets by buying food stuffs and stock at a great advantage. Twenty-five acres should be set aside for pasture, and thirty-five for arable land. The object, of course, is to keep the largest amount of stock without overcrowding. To make this farm pay, however, after giving sufficient attention to ordinary farm stock, the greatly neglected minor sections of agriculture—poultry, rabbits, and fruit growing—must be adequately represented. In this department the tenant, and if he is married, his family, will find ample scope for a remunerative occupation. Rabbit-keeping is, in the opinion of our contemporary, of great commercial value, and it is stated that with some fifty breeding does the owner should have annually one thousand five hundred young rabbits at his disposal. These at fourteen weeks or so will realise 1s. 6d., of which 6d. at least should be net profit. This represents £37, or more than half the rent of the holding. Of course, every attention must be paid to the animals. Regular and wholesome food, plenty of room, scrupulous cleanliness, and a genial temperature are essential for success. But of all the sections of small holdings, commercial poultry-keeping occupies the foremost rank. Having in view the need of economising time and labour, the production of eggs is to be preferred to that of table fowls. It is, however, to egg production on a considerable scale that the farm of sixty acres specially lends itself, and with the double advantage of combining with this industry the important addition of fruit-growing. For this purpose five acres of land should be set apart, sheltered as far as possible from north and east winds. The whole of the five acres will be enclosed with six-feet wire netting, and sub-divided into half-acres running parallel. This will give ten runs, the whole being planted with selected half-standard apple trees, of cooking varieties for preference. Planted at twenty feet apart each way, one hundred and eight trees will be required per acre, or allowing for the fowl houses, one hundred. Good six-year-old trees can be purchased of any reliable grower at 2s. each, making a total of £50. Each run will carry a flock of fifty hens, for which suitable houses must be erected, having a southern aspect. The flock of hens should, it is assumed, give, after deducting £117 for food—a liberal allowance—eggs to the value of £123 7s. per annum. For the first few years this important sum would be subject to a reduction, representing the cost of the houses and enclosing and the cost of the trees. The annual value for five years of the fruit from the five hundred apple trees, at the low average of 1s. 3d. a tree, would amount to £31 10s. per annum, or a total of £157 10s. to provide for the cost of trees, houses, and material for enclosure of runs. At the expiration of the five years the value of the fruit, which would by that time have greatly improved, must be added to the yearly profit on the eggs. The figures will serve to show the extreme value of this system of combined fruit and poultry farming to prove the satisfactory results which a careful adoption of such minor industries as rabbits, poultry, and fruit is capable of producing.

The Hampton Court Vine carries about twelve hundred bunches of grapes this year, and these are now almost ripe. This famous vine is now a hundred and thirty years old.

ROYAL HORTICULTURAL SOCIETY.

COMPARED with its predecessors, the show of August 23 at the Drill Hall was a small one, and it was quite a treat to see flowers and plants arranged without that excessive crowding that so often obtains. It was an interesting display, the early fruit being very good.

FLORAL COMMITTEE.

Gladiolus and hardy herbaceous subjects were plentiful, but dahlias were not so plentiful as was expected. Bouvardias were first-rate, so were the annuals, especially salpiglossis and scabious.

Gladiolus were well shown by Messrs. R. Wallace and Co., Colchester, who arranged handsome bunches of the leading Lemoinei varieties, together with a few gandavensis forms. Liliums were represented by large spikes of L. auratum, L. a. platyphyllum, L. Henryi, L. Batemanniæ, and L. speciosum. The same firm made a splendid show of montbretias and tritonias, making a fine exhibit of the former in a dozen or so varieties, of which the best were Rayon d'Or; Aurea, tall and bright; Eldorado, dwarf, yellow; Feu d'Artifice, deep scarlet; Pottsi grandiflora, scarlet and yellow; Solfaterre, new, bright yellow; Gerbe d'Or, Elegans, and Chrysis, a fine bold form with golden flowers. A silver-gilt Banksian medal was awarded. A magnificent display of gladioli came from Messrs. Kelway and Son, Langport, who staged a hundred and sixty-eight large spikes of substantial and richly-coloured blooms; a goodly number were unnamed seedlings, and among these we noted a splendid intense crimson form, and another with yellow flowers marked with red in the throat. Some especially handsome named varieties were Frank Myles, salmon; Clough, salmon and rose; Shahzada, crimson; Lady Wimborne, blush and rose; Charterhouse, pink, splashed with red; Colossal, crimson scarlet; Duchess of York, blush; W. G. Grace, rose, cream and crimsom; and R. Palairet, soft salmon-scarlet. Silver-gilt Banksian medal.

Messrs. Barr and Son, Covent Garden, had an extensive display of hardy flowers occupying one side of a long table with large bunches of bright subjects, such as Lilium tigrinum, Cæonothus azureas, phloxes, gladiolus, gaillardias, Hemerocallis Kwanso, fl. pl., Scabiosa lutea, echinops, delphiniums, Anemone japonica, &c.; silver flora medal. Scabiosas and salpiglossis were grandly shown by Messrs. H. Cannell and Sons, Swanley; the former were shown in large bunches of a variety, and seeing these gorgeous displays one wonders why the salpiglossis are so seldom grown in gardens. Atrosanguinea, rosea, azurea, albolutea, lutea, and coccinea are varietal descriptive names given to well-selected varieties by the Swanley firm. The white, red, crimson-purple, lavender, and rose-coloured double scabious were as beautiful as the salpiglossis. The Messrs. H. Cannell and Sons also showed some splendid cockscombs in a variety of colours; silver Banksian medal. Messrs. J. Veitch and Sons, Chelsea, staged an exhibit of annuals in competition for the Sherwood cup, and again were the only exhibitors; salpiglossis, sweet sultans, scabious, phloxes, asters, nasturtiums, dianthus, godetias, sunflowers, schizanthus, annual chrysanthemums, senecio, lavatera, and Brachycome iberidifolia were among the most attractive kinds on view, the whole making a pretty display.

Mr. W. Bain, gardener to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, made quite a fine display of gladioli, largely Nancianus and Lemoinei hybrids; the Lemoinei form named Peterhof is very attractive, having rounded flowers coloured crimson and blue; Paul Lemoine, yellow and red, was also good; while the deep rosy-crimson Gambetta was distinct from either. Large white spathes of anthuriums and the pink Dr. Lawrence were also shown, and proved most attractive, while the peculiar crested begonias also came in for a large share of attention; silver Flora medal. Mr. Purnell Purnell, Woodlands, Streatham Hill, an enthusiastic amateur, put up a large group of plants, the liliums, plumbagos, begonias, fuchsias, &c., combining well with various ferns, palms, caladiums, asparagus, &c.; silver Banksian medal. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, put up a brilliant display of dahlias, liliums, &c.; the pompon and cactus dahlias were good, but much too crowded to be effective. A few of the choicest pompons were Ariel, Thomas Moore, Fashion, Eurydice, Salmon Queen, Hector, Admiration, Fairy Tales, Captain Boyton, Whisper, and Crimson King. A background was formed of tritomas, liliums, bamboos, veronicas, &c.; silver Banksian medal.

A display of handsome and finely-grown bouvardias from Mr. H. B. May, Edmonton, occupied a large space, and under the plants was a bed of various maidenhair ferns; the bouvardias shown were the large-flowered Humboldti grandiflora, H. corymbifera, President Cleveland, Vulcan, Jasminoides, Reine des Roses, President Garfield, Priory Beauty, Alfred Neuner, Maiden's Blush, Albo odorata jasminiflora, Dazzler, and Hogarth, fl. pl.; this was by far the best lot of bouvardias we have seen at the Drill Hall; silver Flora medal. Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, sent flowers of some lovely hardy water lilies—N. odorata exquisita, bright rose; N. o. rosacea, N. o. sulphurea grandiflora, and N. Marliacea chromatella, a grand variety with very broad segments. Mr. J. Evans, Darley Dale, Bath, showed Winnie Webb carnation, a curious heliotrope shade. Mr. Barnett, gardener to Miss Aldersey, Chester, showed a seedling cactus dahlia, and new cactus forms also came from Mr. G. Gusney, Southall. Mr. J. Green, Norfolk Nurseries, Dereham, sent a fine form of Lathyrus grandiflora alba, and some single hollyhocks.

ORCHID COMMITTEE.

Very few exhibits came before this body, but among the plants exhibited there were a few of special interest.

Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, staged a charming specimen of Platyclinis filiformis, carrying over one hundred of its pendant golden spikes; he also showed a flowering specimen of Saccolabium Hendersoni. Messrs. J. Veitch and Sons, Chelsea, staged Epidendrum radicante—Stamfordianum, a hybrid between the species that form its name; Masdevallia Circe, Disa Clio, a pretty hybrid between D. Veitchi and D. grandiflora; also Cyprepedium Rothschildiano-villosum. Mr. T. Hogg, Woodside Gardens, Paisley, N.B., showed Cypripedium Lawrebellum, another addition to the bellatulum hybrids.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, showed a few good orchids, notably a good plant of Cypripedium bellatulum album, C. Charlesworthi, C. Curtisi, C. Lawrenceanum Hyeanum, Phalænopsis amabilis, Sobralia xantholeuca, Cattleya bicolor Wrigleyana, Lælio-cattleya Aurora, Oncidium Lanceanum and some fine forms of Lælio-cattleya elegans, notably L-c. e. Enfieldiensis, a brilliantly coloured form. Messrs. F. Sander and Co., St. Albans, showed Odontoglossum Bictonense album, Cattleya Leopoldi, Oncidium ornithorhynchum album, Cattleya velutina, C. Gaskelliana, the curious and wonderful Bulbophyllum grandiflorum, and the quaint and sensitive B. barbigerum, that afforded amusement to the visitors by reason of the queer jerking movement of the flowers; the Messrs. Sander staged their orchids amid Acalypha Sanderi and Dracæna Godseffiana.

Mr. W. Cobb, Tunbridge Wells, showed Cattleya intermedia crossed with [illegible], a pretty hybrid with white sepals and petals, and rosy lips. Mr. Norman Cookson, Wylam-on-Tyne, sent a magnificent variety of Cattleya Hardyana named Oakwood var., and Mr. G. F. Moore, Bourton-on-the-Water, sent a flowering plant of the yellow ground form of Cypripedium Godefroyæ leucochilum. Mr. F. Moore, Glasnevin Botanic Gardens, staged Acineta colossa, with fleshy, cream-coloured flowers, and Sir H. Fairfax, Ravenswood, Melrose, N.B., sent a fine spike of Odontoglossum Harryanum, a deep-coloured form with large blooms.

FRUIT COMMITTEE.

Some beautiful fruit was shown by Messrs. T. Rivers and Son, Sawbridgeworth; the eight specimens of Peasgood's Nonsuch apple were magnificent in size and colour; Dryden nectarines, Early Silver peaches, McLaughlin's gage, Late Transparent and Oullin's Golden Gage plums were all splendid; silver Banksian medal. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, exhibited fine dishes of Brown Turkey figs, Grosse Mignonne and Alexandra and Alexander Noblesse peaches. Messrs. J. Veitch and Sons, Chelsea, brought a large fruiting specimen of Rubus phœnicolasius, the Japanese wine berry. This was about nine feet high, and carried large numbers of sprays of bright crimson fruits.

From Maidstone Messrs. G. Bunyard and Co. brought an extensive exhibit of apples, pears, plums, peaches, &c.; among the numerous fruits staged we noted dishes of the American Burbank plum, Dr. Hogg peaches, Worcester Pearmain, White Transparent, Yorkshire Beauty, Mr. Gladstone, Okera, Beauty of Bath, Lady Sudeley, Red Quarenden, and Williams' Favourite apples, and Williams' Bon Chretien and Beurre d'Amanlis pears; silver-gilt Knightian medal. Messrs. Cannell and Sons, Swanley, sent examples of the perpetual strawberry, St. Joseph. Mr. J. Hudson sent Alpine strawberries from Gunnersbury House Gardens; these were Quatre Saissons, Rouge Ameliore, Belle de Meaux, and Improved Red, the fruits being taken from plants raised as seedlings in April, 1897; Mr. Hudson also sent Royal Sovereign strawberries gathered from plants that had previously borne a crop when forced. Mr. Kelf, gardener to Mrs. Abbott, Regent's Park, sent some good Sea Eagle peaches. Laxton's Perpetual strawberry, shown by the Laxton Brothers, Bedford, is remarkable in producing a truss of fruit from each runner; the same firm showed the new St. Joseph strawberry and fruiting sprays of the so-called strawberry-raspberry.

A choice collection of fruit was exhibited by Mr. Rickwood, gardener to the Dowager Lady Freake, Twickenham; this comprised Black Hamburgh grapes, Morello cherries, Beauty of Syon and Syon Perfection melons; St. John's figs, Princess of Wales, Prince of Wales, Teton de Venus, Dr. Hogg, Early Louise, Alexander Noblesse, Hale's Early, and Goshawk peaches; white and red currants, Jargonelle pears, Lord Napier nectarines, plums, and apples in variety; silver Banksian medal. Mr. A. T. M. Pipon, Farningham, showed tomatos; and from the R. H. S. Gardens, Mr. S. T. Wright sent the currant tomato in fine condition. Langley Pippin is a good new dessert apple, shown by Messrs. J. Veitch and Sons, Chelsea, and is a cross between Cox's Orange Pippin and Mr. Gladstone. Mr. C. Springham, Chepstow, sent a red seedling apple for name, and Messrs. Harrison and Sons, Leicester, sent fruiting growths of the strawberry-raspberry.

NEW PLANTS, FLOWERS, AND FRUIT.

NYMPHÆA ODORATA SULPHUREA GRANDIFLORA.

THIS is a charming hardy water lily, having large flowers of a bright creamy colour on the outer segments, but having deep yellow central petals and golden stamens. The flowers are of large size, and the segments are much more pointed than in N. Marliacea chromatella. The leaves are bright shining green, spotted underneath with purple. A.M., R.H.S., August 23. Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton.

HUNNEMANNIA FUMARIÆFOLIA.

An old but most interesting and beautiful perennial with large flowers that partake in appearance both of Eschscholtzia californica and an Iceland poppy. The blooms are rich golden-yellow with faint shadings of orange-yellow. The leafage is elegant, much divided, and of a slightly glaucous green shade. An extremely pretty plant, and lasts well in a cut state. A.M., R.H.S., August 23. Messrs. J. Veitch and Sons, Chelsea.

GLADIOLUS MADAME DESBORDES LAMORE.

A grand variety of the Lemoinei section, with broad and bright pink upper segments, the lower three being creamy-pink, and each with a large central scarlet blotch and crimson stripe. A.M., R.H.S., August 23. Messrs. Barr and Son, Covent Garden.

DISA CLIO.

This is a variable hybrid, or secondary hybrid, obtained by crossing Disa grandiflora with D. Veitchi; in some of the flowers the rosy-carmine hue is very bright, while in others the colour is almost scarlet, and yet again in others is of a soft rose colour. The flowers are of large size, and three or four flowers are borne upon a dwarf spike. The lip ranges from palest rose to rich scarlet. A.M., R.H.S., August 23. Messrs. J. Veitch and Sons, Chelsea.

LATHYRUS GRANDIFLORA ALBA.

This is a beautiful large-flowered and strong-growing form of the old perennial lathyrus; it has large spikes of big, pure white flowers that are most effective for any floral decoration and for garden use. The variety is extremely floriferous, and well worth cultivating everywhere. A.M., R.H.S., August 23. Mr. J. Green, Norfolk Nurseries, Dering.

LANGLEY PIPPIN APPLE.

This is a pretty apple of medium size, well flavoured, and early. It is the result of crossing Cox's Orange Pippin with Mr. Gladstone, and the fruit has a good deal of the appearance of the former variety, but is not so yellow and more conical. The eye is open, and has long segments set in a shallow and plaited depression; stalk short and fleshy, obliquely inserted in a shallow cavity, skin pale greenish-yellow, brighter on the sunny side, where there is a bright cheek composed of bright scarlet stripes and crimson mottlings. A.M., R.H.S., August 23, Messrs. J. Veitch and Sons, Chelsea.

THE CURRANT TOMATO.

Both for dessert and for its decorative value this is a most valuable tomato; its fruits are as large as small cherries, and borne in long pendant racemes like gigantic red currants, only lacking transparency, and having a vivid scarlet skin. The flavour is good and sweet. A.M., R.H.S., August 23rd. Mr. S. T. Wright, R.H.S. Gardens, Chiswick.

GARDENIA CULTURE.

The lovely and sweetly scented flowers of the gardenias are always welcome, and now that they are in season, a few words on their culture may be welcome to some would-be growers. Gardenias delight in plenty of heat, abundance of moisture and rich feeding, in fact, the gardenia and eucharis grow well together, the requirements of the one being exactly similar to the other. To begin with, I do not like old plants, as the flowers are never so fine after the second year, though they are fairly good up to five years; the plants, however, attain such an enormous size that it is a very difficult task to keep the foliage clean—not so much from insect pests as from the deposits from the water. In spite of this, a specimen with about one hundred blooms is a feature in a stove. Cuttings are best rooted in the spring, the young shoots being selected; these should be put in six-inch pots just within the rim, using plenty of sand and fine peat or leaf-soil; they will strike in a temperature of 65 to 70 degrees as easily as alternantheras. Keep them well syringed, and after they are rooted pot off singly using three-inch pots, this time giving them a compost of peat, loam, cow manure, and sand in nearly equal proportions; put the plants back again into a close pit, and as soon as they start into growth pinch the tops out, in order that they may break at the first joint. When these pots are filled with roots shift the specimens into five-inch pots, using compost as before; press the soil very firm when potting, and see that there are no insects to check the plants. They may be returned to the pit or house again with a temperature of not less than 70 degrees. Keep them well stopped, and do not neglect to syringe heavily at least twice daily, not merely wetting the foliage above, but also underneath, in order that the plants shall be kept clean which can be done by effective syringing. Another shift will compete the potting process for the first year, and in this case have the pots well drained, as the plants will remain in these pots some considerable time, and the longer the plant is to stop in the pots the better should the drainage be.

After this final potting for the season, and as soon as the pots have become full of roots, the plants should have a rest, which means a little less heat and a reduction in the moisture at the roots, but not less syringing. The specimens now should be capable of producing from three to four dozen flowers, and if flowers are wanted as early as they can be obtained, then, after a rest of a couple of months, give a few plants a top dressing of Standen's manure, and put them into a warm stove, and not far from the glass; if they can be stood on a fibre bed so much the better. Turn the plants round occasionally in order that the syringing may be directed immediately upon all the young branches, for cleanliness is the most important factor in growing gardenias perfectly. I have never yet seen an unhealthy plant that had been kept clean. After the flowers have all been cut the plants may be afforded one shift, but do not cut back; if too tall, then tie them down; or if large plants are not required throw them away. A two-year old plant is, I consider, the best when one has plenty of room for their development. All through the growing season the greatest care should be taken to keep them clean, for it is when the plants have completed growth that they are frequently allowed to become dirty, and then put on one side uncared for. This is the fatal mistake, for the gardenia needs plenty of attention always, and cannot at any time be profitably neglected. Gardenias should under no consideration be allowed to become dry, so that the leaves flag. To maintain a healthy stock we propagate a set every year, and throw away the oldest plants every season, immediately they have flowered.

Compton Bassett.

W. A. Cook.

NARCISSI.

These flowers, of which bulbs should be planted during the next week or two, are the peculiar glories of the spring. Early summer, also, owes to their later flowering forms much of its attractiveness. Their period of bloom is of considerable duration, extending through March, April, and May. As soon as spring has begun to assume its supremacy, after a long struggle with the forces of winter, and the all-creating warmth of sunlight reappears. The daffodils come to us with that tenderly graceful beauty, which filled the great heart of Wordsworth with rapture, and made Herrick weep that they hasted away so soon; because even their ineffable loveliness was, like all things beautiful, predestined to decay. I shall never forget the delight of Matthew Arnold, perhaps the nearest in spirit and in poetry of all modern singers to the "High Priest of Nature," when, as I walked with him on a day that will ever be radiant in my memory, through the woods of Surrey, we suddenly came upon an exquisite clump of that sweetest of the narcissi, the fragrant Poeticus, which is, perhaps, of all flowers of early summer, the most deeply beloved.

Such is the present popularity of the daffodil, that the cultivation of its fairest forms is almost universal. This ought to be a subject of self-congratulation to the earnest advocates of its beauty, and the successful hybridists. To Mr. Peter Barr we are indebted for some of the most graceful ornaments of our vernal gardens: notably the uniquely formed Triandus albus, or "Angel's Tears," with the tender, drooping grace of a cyclamen; and Narcissus Johnstoni Queen of Spain. We also owe to him that finest of all hybrids of its special class, entitled Narcissus Barri conspicuus, well worthy of being permanently associated with his name.

Of the trumpet section some of the grandest are Bicolor Empress, in size, form, and colour a near approximation to absolute perfection; Horsfieldi, raised by a Lancashire handloom weaver of that name, a variety of great substance and most impressive beauty; Bicolor grandis, worthy of its dignified name, perhaps the latest of this section to bloom; Emperor, one of the noblest of daffodils, with golden-yellow trumpet and perianth of a tender primrose hue; J. B. M. Camm, a very handsome [illegible] and Golden Spur, whose aspect is grace itself; John Nelson and Maximus, accounted the largest of them all. Very impressive, and exceedingly expensive, are Glory of Leiden and Madame de Graaf, whose prices, unless to the affluent among daffodil enthusiasts, are absolutely prohibitive; a description even more expressive of Weardale Perfection, advertised in the catalogue of the leading British cultivators of the narcissi at £12 12s. per bulb. Among those that may be called intermediate trumpets stand prominently Sir Watkin, of enormous size; Princess Mary, whose crown is yellow, while the beautiful perianth is silvery white; the single Incomparabilis, or "Peerless Narcissus"; C. J. Backhouse, a highly distinctive flower; Barri conspicuus, already eulogised; Duchess of Westminster; the Leedsi varieties, of graceful aspect; the late-flowering Nelsoni major; and the richly fragrant and prolific Narcissus odorus, sometimes called "the Great Jonquil," one of the brighest and best hybrids in garden cultivation. Small Trumpet narcissi are well represented by the exquisite N. poeticus, and is the predecessor of N. ornatus; N. grandiflorus præcox, the largest of this fragrant family; N. poeticus plenus, the "Sardinia" narcissus, which I find somewhat unreliable; and the handsome "Burbidgei" forms, which seldom fail to succeed. Without the odorous jonquils and the classical Polyanthus narcissi, of Grecian extraction, no garden would be complete.

The culture of daffodils is not very exacting, otherwise such splendid varieties as Emperor, Empress, Ard-Righ, Maximus, and Horsfieldi would not have such a wide distribution. In favourable situations these grow almost as freely as the Orange Phœnix, or the venerable Telamonius plenus, with much grander results. The more vigorous forms are very beautiful, and also highly picturesque when grown in woodlands and on lawns; the finer hybrids require a sandy, porous, somewhat fertile soil. Early planting and adequate drainage are of the utmost importance; also periodical prevention of that inevitable tendency of all narcissi—too crowded an accumulation of superfluous bulbs, decrease in flowering capability, and ultimate decay.

David R. Williamson.

POTATO EXPERIMENTS.

Our esteemed friend and critic "Lux" regrets that the Ontario Agricultural Department did not give in our recent report on potato experiments (see Gardeners' Magazine, July 23rd, page 476) the weight of the sets employed.

This part of the enquiry has, however, not been neglected. In 1895 and in 1896 an experiment was conducted in which potato sets one-sixteenth, one-eighth, one quarter, one half, one ounce, and also two ounces in size were planted side by side. No piece contained more than one eye. The object of this experiment was to ascertain the influence of the size of the potato sets on the crop produced. The varieties used in 1896 were the Empire State, and the Pearl of Savoy, which were planted on May 27, in rows four rods long and twenty-six inches apart. The potato sets were planted to a depth of about four inches, and flat cultivation was used throughout. The following is the result:—

(One eye in each set.)		Percentage of whole crop marketable Per cwt.	Yield of Potatoes per acre. Bushels.
Each set containing	1·16 oz.	87·5	60
,, ,,	1·8 oz.	94·6	105
,, ,,	1·4 oz.	94·6	138
,, ,,	1·2 oz.	94·0	145
,, ,,	1·0 oz.	92·0	165
,, ,,	2 0 oz.	89·3	182

The results in the above table are very interesting, and show the great influence which the size of the potato sets have upon the amount of the crop produced. The smallest-sized pieces produced decidedly the smallest yield, and there was a gradual increase according to the increase in the size of the seed tubers. The two ounce sets gave the largest yield per acre, although the percentage of marketable potatos was somewhat reduced in this experiment.

An experiment has been conducted for two years in succession, to obtain some information in regard to the influence of the number of eyes on pieces of potatos as affecting the succeeding crop. Potato sets of one ounce in size were used throughout the experiment, and on number one plot the sets contained one eye in each piece; on number two plot, two eyes; on number three plot, three eyes; on number four plot, four eyes; on number five plot, five eyes. The Empire, State, and Pearl of Savoy varieties were used in the experiment. The land was similar in character, and the cultivation was of the same nature as for the previous investigations.

The potatos were planted on May 27th, and the following is the result:—

	Average yield of Potatos from each Set. Acres.	Average yield of Potatos from each Eye. Acres.	Yield of Potatos per acre. Bushels.
Each potato set containing:—			
1 oz. and 1 eye	7·28	7·28	158
1 ,, 2 ,,	8·00	4·00	176
1 ,, 3 ,,	7·88	2.64	182
1 ,, 4 ,,	7·74	1.72	186
1 ,, 5 ,,	8·63	1.75	198

In the foregoing table it will be observed, in the first column of figures to the left, that the average amount of potatos from large seed was fairly uniform, regardless of the number of eyes in each set. It will be seen that the results of this experiment and those of the preceding experiments, point very strongly to the conclusion that much more depends upon the comparative size of the potato sets which are planted than upon the comparative number of eyes on the sets. The results are quite regular throughout, the largest yields being produced from the largest potatos, and the smallest yields from the smallest potatos which were planted.

I have an experiment with potatos in my own garden at Harpenden this year, which confirms, most strikingly the results obtained at the Ontario experiment section.

Harpenden.

J. T. Willis.

VEGETABLES FOR EXHIBITION.

VEGETABLE MARROW.

THE vegetable marrow (*Cucurbita Pepo ovifera*) constitutes one of our favourite summer vegetables, and few are more quickly or easily grown; then almost any out of the way corner, unsightly rubbish or manure heaps may be utilized for the purpose, producing at the same time a very pleasing effect. They also make admirable screens when trained up trellis work, fences, or even old buildings, and with plenty of convenience, marrows may be had from the beginning of April until the frost puts an end to their growth. Selection of varieties, either for home consumption, market, or exhibition is of the utmost importance; there is a large number, many of which are almost worthless (judged either by their flavour, productiveness, or appearance) compared with the newer or best selected sorts. The vegetable marrow is a moisture and heat-loving plant, and during spells of hot dry weather too much water either at the roots or overhead can hardly be given. If allowed to suffer from drought mildew—one of the most deadly enemies of the marrow—will quickly make its appearance and greatly damage the crop.

When means are at hand, a few plants should be cultivated under glass, in houses, heated pits, or frames placed on hotbeds. For this purpose seeds should be sown singly in pots two and a half inches in diameter the first week in February and again in the middle and end of the same month in bottom heat. Encourage a sturdy growth by placing them near the glass as soon as the seed-leaves are above the soil; pot on when ready into thirty-two sized pots in a light porous soil, and support each plant with a stake. For the first cutting a few plants should be grown and fruited in ten-inch pots, training them up in the lightest position available in the forcing house. Too much heat must be avoided, or much growth and few fruits will be the result. A safe temperature will be from 55 degrees as a minimum to 70 degrees as a maximum with sun heat; very little bottom-heat, if any, will be required. The principal growths should be stopped, and the fruit fertilised in the same way as advised for melons. Early marrows are always appreciated, and deserve to be more extensively forced than they are. For a succession a few lights of pits or frames may be profitably employed. I much prefer a mild hot-bed for frames, and this should be made principally of leaves, as such may be easily lined with manure to create more warmth, if required. Abundance of air should be given on all favourable occasions, but avoid cold cutting winds. Later on, as the days lengthen and the weather is safer, the frames may be removed altogether (of course, hardening the plants gradually as much as possible beforehand) and used for other purposes. Some temporary protection must be afforded the plants in case of frost, but later on they may be allowed to ramble at their own sweet will, and then large quantities of early marrows may be looked for weeks before they can be obtained when grown in the ordinary way. If kept well supplied with water, and now and then treated with some mild fertilizer they will continue to bear till late in the autumn.

For the general crop the seed should be sown the second week in April in heat, and for the latest supplies, when no heat is available, the first week in May. It will not be safe to plant them out in the open before May 20, unless some means are at hand for protecting them. I know of nothing better than ordinary handlights, as they not only give the plants a good start but are just a sufficient protection against hard weather. Remove the covers by day, and replace as required, taking them off altogether when safe to do so. But even handlights are not within the reach of all who cultivate the marrow, so that some other means must be employed. A capital plan—which we often adopt—is to drive three stakes, draw and tie the tops together about three feet above the plants, when mats or any other protecting material may be placed over them and made secure. There are many modes of preparing and growing vegetable marrows, most of which produce more or less good results. Many practice taking out wide trenches and filling them three parts full with manure, placing the soil on the top. This is a very good plan, especially on very dry and exposed sites, and where water is not plentiful; but I much prefer just the opposite method of making up ridges about three feet in height and four feet in width, and for this purpose anything and everything in the way of rubbish, such as old hot beds, &c., may be utilised. We make it a rule to clear up rubbish and soil yards for the purpose, forming them in the most convenient spot vacant. We allow a distance of three feet from plant to plant, giving each two or three shovelfuls of loam and leaf soil to afford them a start. The plants will require stopping and pegging down for a week or two; then, with the exception of giving them plenty of water, no other attention will be required. Any unsightly heaps may be treated in the same way, and not only will they yield profitable returns, but give a pleasing and refreshing effect. Some people, to avoid trouble, sow the seed where they intend the plants to grow; this is a poor method, and not to be recommended. Far better to sow in pots, even if the cultivator has no glass, as one has much better control over them, and few plants are more delicate and less able to take care of themselves in a young state.

Vegetable marrows for shows held during May, June, and the early part of July, form an invaluable dish in a collection of vegetables, but after this time only in very large collections should they be included; still in many shows prizes are offered for single dishes, and generally speaking very fine display is produced. Frequently among amateurs and cottagers large and coarse varieties seem to be the first consideration, but this ought not to be encouraged, as quality should be the principal aim. Marrows are generally exhibited in pairs, and like cucumbers the two should be as near alike as possible. They should be looked after and watched as soon as the fruits are formed, great care being taken not to scratch or damage them in any way, either during the time they are swelling, or when cutting, otherwise their appearance will be spoiled. Should one be outgrowing the other, it will be perfectly safe to cut it two or three days earlier, carefully placing the stalk in about half-an-inch of water, and keeping it in the cellar, or some cool place. The fruit should be of medium size, according to the variety, as near alike as possible, fresh looking, and the rind quite tender near the stalk, so that the thumb-nail may easily pierce it; they must be of good shape and free from all marks or scratches, and, if possible, shown with the remains of the flower on them. White skinned kinds are generally preferred to green ones, but I see no reason why this should be, though where possible, prizes should be offered for each. For an ornamental arrangement several kinds should be included, and I prefer to stage them on a medium-sized dish, nicely garnished with bright green parsley. The varieties I recommend are, for forcing, Moore's Cream, a free setting medium sized variety, of nice appearance, and of excellent quality, but it must not be allowed to remain on the plants too long, as much of the fresh appearance will be lost; Prince Albert is a splendid green kind for forcing, and of fine quality. These varieties are equally good for general cultivation. A good selection of Long White and Carter's Long Green are fine for exhibition purposes, during summer and autumn, as also for any purpose. The best flavoured variety, however, that I know, is Pen-y-byd, and it deserves a place in every garden, but, as a rule, it is not looked upon favourably by the judges. The old Custard, when room can be found, should also find a place, as it is very attractive and ornamental, especially so when ripe.

Aldenham House Gardens. E. BECKETT.

FRESH HOMAGE TO THE GOLDEN FLOWER.

WE have already briefly alluded to the recent formation of the Italian National Chrysanthemum Society, and have now received the first number of its journal, which is, indeed, a very creditable and well-printed publication. The proper title is "Società Nazionale Italiano del Chrisantemo," and its headquarters are at Milan. On the title page appears a list of the officers and committee, among whom we note several well-known names. Then follow the rules and constitution of he society, from which we gather that the work and scope of the society is based upon somewhat similar lines to those of the French N.C.S.

The list of members amounts to about one hundred and sixty—not a bad start for a new society, whose first exhibition is to be held next autumn at Milan, after which we may reasonably hope to see a considerable increase. That the society is deserving of sympathetic consideration at the hands of growers other than of Italian nationality may be found in the fact that its members already consist of well-known chrysanthemum men in England, France, and Switzerland, the most familiar to our readers being such names as Messrs. Briscoe-Ironside, Calvat, Cordonnier, Owen, Harman Payne, Rozain-Boucharlat, and W. Wells.

In Belgium, M. O. de Meulenaere is still busy cataloguing and classifying the novelties year by year, and he has just issued his third supplement of novelties from every source for the years 1896-98, thus bringing his previous labours close up to date. Mr. de Meulenaere's work runs into thirty-six pages, and is a handy, well printed little brochure, similar in every respect to previous editions.

The papers read at the Orleans Conference last November held by the French N.C.S. have recently been reprinted and issued in separate form. The subjects dealt with are diseases and parasites, fertilisation and manures, and composts.

The last number of the same society's journal, "Le Chrysanthème," contains an announcement to the effect that the Swiss growers are determined to have their N.C.S. too. Arrangements have been made to hold a show at Geneva next autumn, and a schedule has been prepared and circulated, together with the rules of the new society. M. Louis Verreard is the secretary.

With regard to the Paris Chrysanthemum Committee, the last number of its journal contains rules and schedule for the show in November. Also articles on early chrysanthemums, the large flowered chrysanthemum, a report of a visit to M. Molin, of Lyons, and a list of the members composing the committee, which, as most of our readers are no doubt aware, has been constituted by the National Horticultural Society of France.

C. HARMAN PAYNE.

Coleus as Pot Plants.—The introduction of the tuberous begonia did very much to help kill the taste for coleus, once so strong. No doubt it was so because these plants were rather done to death, especially in the form of trained pyramids and bushes at exhibitions. But seed stocks give great variety, and many beautiful things that are really charming as greenhouse plants. I saw recently in a show at Reigate two or three plants, each about sixteen inches in height, raised from seed, that had superb leafage, wonderfully coloured, which could have created a sensation a few years back. Myriads of foliage plants have been sold at half-a-guinea each that were not nearly so beautiful as these coleus. Plants bloom freely and seed freely. Those who do not care to save seed can purchase, and if the seed be sown in warmth in February, numerous plants result.—A. D.

The Birch for Avenues.—The White Birch (*Betula alba*) is, without doubt, one of the most beautiful objects in the British landscape, and it is a pity it is not more frequently seen employed either in the pleasure grounds or to form avenues in the park. Where it succeeds the white birch grows into a large tree, and with its drooping habit, tufted growths, and white trunk, it is both ornamental and interesting. At Broxton, or rather between Broxton and Bickerton, Cheshire, there are some of the finest specimens in the hedge rows by the roadside that I have seen. Near Harthill there is one tree about seventy-five feet in height, with a trunk three feet in diameter seven feet from the ground. The trunk is free from branches to a height of eighteen feet, and then throws out several trunks or strong branches forming a head covering a space of over twenty yards in diameter. The pendulous habit of the birch is shown off effectively in such a specimen as this. The geological formation is red sandstone, forming a sandy loam of a very fertile character and well suited to the growth of all our forest trees. In this soil larch, oak, sycamore, Scotch fir, and beech, as well as the birch, grow luxuriantly. On soils of this nature the birch is sure to succeed, and would form a most effective avenue —CESTRIAN

IMPROVING STRAWBERRIES.

IMPROVEMENT is the order of the day, and in the horticultural world the demand for novelties that show an advance on varieties previously grown is constantly increasing as the knowledge of, and interest in, gardening extends. Commercial horticulturists fully recognize this, and have been practically compelled to render selection, cross-breeding, and hybridising, an important department in all the largest businesses. It is a most expensive department too, for though some prizes are secured, the blanks are numerous, and it is only where the work is carried out systematically and extensively that anything like an adequate return can be secured. Even when something valuable is obtained, it often has to be put in the market so early that sufficient stock cannot be raised to bring the return that the skill, labour, patience, and expense required should command. The public reap the advantage, and that is probably shared by rival tradesmen, for when once a plant is "sent out," if it admits of ready propagation, the raiser's prior claim is lost. It is a fact familiar to many readers of the GARDENERS' MAGAZINE that hundreds of plants have been put into commerce, which might have yielded their raisers a handsome fortune had they been retained until the stock was sufficiently large. But novelties of sterling merit have an unpleasant way of "leaking out," as it were; sometimes, too, they are strangely duplicated in other parts of the country, and these risks render nurserymen shy at keeping their productions long enough in hand to reap a full reward for their efforts. When, however, surprise is expressed at the prices charged for novelties, it is due to a defective knowledge of the outlay requisite to produce the results, and it is only necessary to raise the scene on the field of the hybridist's labours to convince any impartial person that the real surprise is that prices are not much higher.

Especially do these remarks apply to the work devoted to raising new strawberries in comparatively recent years. The late Mr. Thomas Laxton was without question one of the most skilful and successful hybridists of the present century. A close student, with a keen interest in his work, methodical and far seeing, he added many valuable plants to our gardens that have well maintained their place against a host of rivals. It seems a quite long period since I paid my first visit to his experimental gardens, at least the sons who now carry on the business were small lads; but it was then that I had the first knowledge of what he had attempted and accomplished amongst strawberries. The rows of seedlings from crosses between the best known varieties, always made with some definite object in view, were a source of the greatest interest, and the careful records kept of the parentage, the reversing of the crosses, together with the testing of the results by repeated comparison with other varieties, proved that a good deal more than the mere seeking for commercial returns was the guiding power in such an undertaking. In the course of some thirty or forty years, Mr. Laxton claimed to have raised ten thousand seedling strawberries by cross-breeding, only nine of which were sent out; yet up to 1885 the most remarkable variety obtained was Noble, a chance seedling between Forman's Excelsior (itself a seedling from James Veitch) and Sharpless. Well might Mr. Laxton remark that "such results are not altogether satisfactory, or, I may feelingly add, profitable." Yet had this chance seedling been increased [illegible] a large stock had been at command, a fortune might have been realised by its [illegible], though it is now surpassed by later acquisition. One of the best known varieties raised by the founder of the firm was Captain, which resulted from a cross between Crown Prince and the seed parent of Noble, *i.e.*, Forman's Excelsior, [illegible] now this is a favourite with many, its good shape, bright colour, and [illegible] being well-marked qualities, though usually it does not crop so freely as [illegible] desired.

The work so well begun by the father has been carried on with the keenest intelligent interest by the sons, Messrs. Edward and William Laxton, and a recent visit to the extensive seedling and trial grounds at Bedford showed in a convincing manner that they have taken full advantage of the long experience at their [illegible]. Whereas, in the early days, a small area sufficed to contain the [illegible], we now find a field of several acres devoted to the testing of the [illegible] from hundreds of distinct crosses. Amongst these are many which [illegible] of the greatest promise, either for the size, colour, flavour, earliness, or cropping qualities, but they are subjected to a most rigorous trial before the verdict is given that they may be submitted to the public. After a careful examination, one would be inclined to the decision that a large proportion are worthy of distribution, and the task of selection becomes much more difficult when the seedlings are of such nearly equal though varied merits. By long-continued intercrossing of the best types, a very fine strain or race has been formed, but it is strange to note the range of variation shown in many cases by the seedlings from one parentage. Mr. W. Laxton thinks that, as a rule, the pollen parent exerts the greatest influence on the progeny, but it is not uncommon to find amongst the seedlings more marked characters as regards size, colour, flavour, and season, than are possessed by either of the parents. From my experience and observation, It seems very difficult to even guess at what may result from a certain cross amongst strawberries, for they seem so thoroughly disturbed in constitution that the seedlings play the strangest vagaries in their variations and reversions. When a race like that at Bedford is obtained, selection is quite as important as crossing, and constant watching for distinct acquisitions is needed to detect the advances. Fortunately, however, when the seedling is obtained it does not itself vary; a year or two may be needed to prove it thoroughly, but then the propagation by runners form suitable plants, and good cultivation ensures its constancy. Speaking from a knowledge, nearly all the varieties in cultivation, I can say that few have altered materially in character by prolonged cultivation, except it can be traced to neglect in cultivation or propagation.

Another department of this interesting strawberry business is that where runners are raised for forcing or planting, and great attention is paid to this because something like one hundred thousand are required every year in pots. An area of fourteen acres is occupied with plants for runners—fine open, breezy fields—where young, vigorous, but fertile plants are solely employed to furnish the supply. This is quite as important, as in the case of other plants, starting with sturdy cuttings or well developed ripened seeds; but it is not always recognised in private cultivation, and many a failure, both with forced and outdoor plants, is traceable to want of due care at the runner stage, rather than to after-cultivation. This is understood thoroughly at Bedford, and provision is made accordingly to guard against the chief evils.

To enumerate the varieties which have made the name of Laxton familiar wherever strawberries are grown would be a long and needless task, but there are three of the newer sorts that deserve a word or two. One of these is Monarch, which, besides possessing large and handsome fruits and good cropping qualities, has an excellent constitution, which can be fully appreciated where mildew is a source of trouble. The beds of this variety at Bedford have a grand appearance, and as a well-flavoured main crop out-of-door strawberry it is certain to take a high place. Similarly Mentmore seems destined to become a favourite for forcing, as the influence of one of the parents, British Queen, is found in its fine flavour, though the colour is better—a rich crimson—apparently derived from Noble. The last of the trio is a still more recent novelty, and has been appropriately named Fillbasket. It is extremely prolific, and as it is derived from Royal Sovereign and Latest of All it ought to be, as it undoubtedly is, a variety of sterling merit. It is a useful late midseason strawberry, and will find a welcome place in many gardens.

FRAGARIA.

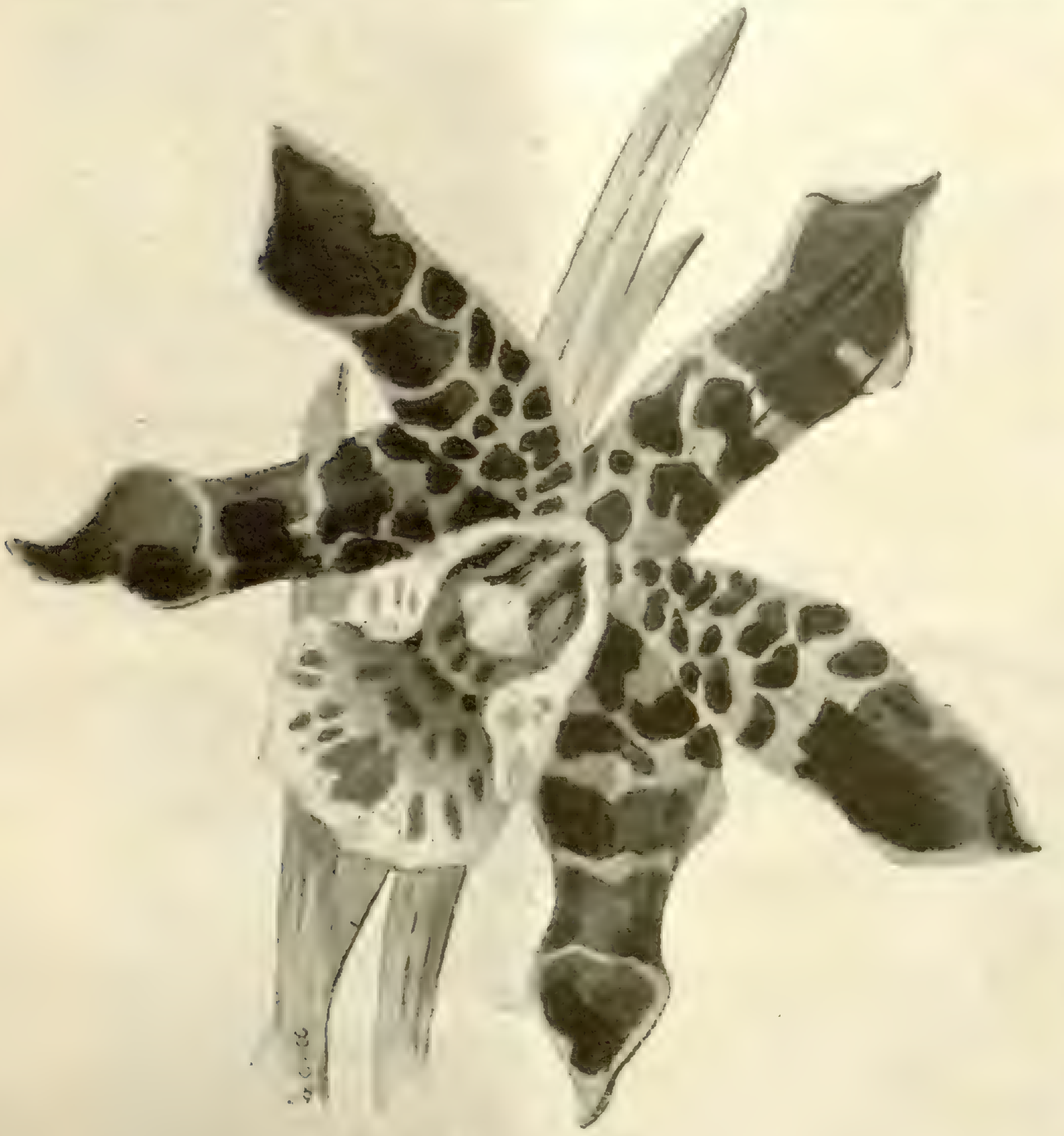
A PLANTATION OF HYBRIDISED SEEDLING STRAWBERRIES IN MESSRS. LAXTON'S TRIAL GROUNDS

Godetias.—How wonderfully these beautiful hardy annuals have been improved since they first became generally grown. Such varieties as Lady Albemarle, Duchess of Albany, Satin Rose, Apple Blossom, and others furnish remarkable masses of exceeding beauty when thinly sown or planted out from the seed bed. Last year a superbly coloured dwarf and remarkably free-flowering variety, named Gloriosa, received a reward of merit at the Drill Hall, though but two or three plants were shown. I saw a large bed of this beautiful form at Messrs. Sutton and Sons', seed growers, Reading, recently, and was pleased to find how remarkably true to character the stock was. This is a deep rich crimson, and the broad dwarf plants when in full bloom produce most striking effects. It makes a grand companion plant to the dwarf Duchess of Albany.—A. D.

NOTES ON ORCHIDS.

SCUTICARIA HADWENI.

THIS remarkable orchid was introduced about 1850 by Mr. Hadwen, of Liverpool, who obtained it from Rio de Janeiro and succeeded in flowering it in 1851. Not long afterwards a south London grower, Mr. Miers, of Hammersmith, secured plants from Southern Brazil. and since then the species has frequently been imported with Brazilian orchids, though seldom in any great quantity. It was originally named Bifrenaria Hadweni, and, by reason of its stipitate pollina, it is closely allied to that genus. The peculiar habit of the plant places it, however, in the genus scuticaria, though its habitat is far removed from that of its companion species, S. Steeli. The leaves are fleshy and texete, nine to eighteen inches long. The flowers vary from two to three inches across, greenish-yellow, heavily blotched and barred with chestnut-brown; the lip is creamy-yellow, white at the apex, and spotted with brown and rose. Scuticaria Hadweni is not a difficult orchid to grow; it requires plenty of sunshine, abundance of water when growing, a block to grow on, little material about the roots, and an intermediate temperature. Mr. Young, orchid grower to Sir F. Wigan, Bart., Clare Lawn, East Sheen, manages this orchid finely and from a specimen that recently flowered under his care our present illustration was made.



SCUTICARIA HADWENI.

ODONTOGLOSSUM WILCKEANUM LINDENI.

This handsome odontoglot came to light among the importations of Messrs. L. Linden and Co, at Moortebeek, and was exhibited, when in flower, at London and Manchester in April last, receiving a first-class certificate from the Manchester Orchid Society. The flowers are of large size, elegantly fringed and waved; the segments are creamy white with very large irregular blotches of red-brown or purple-brown; the long lip has a yellow centre and white margin with vivid red brown spots of various sizes. *Lindenia*, t. 617.

PHAIUS NORMAN.

A beautiful orchid is Phaius Norman, obtained by crossing P Sanderianus with P. tuberculosus, the hybridist being Mr. Norman Cookson, Wylam-on-Tyne. As already stated in our columns, the stock passed into the hands of Messrs. Charlesworth and Co., Bradford. In our issue of March 12 last we described this phaius, which is named Phaius Norman and not P. Normani, as given in the *Lindenia*, t. 618. In our issue of March 19, 1898, we gave a full-page illustration of P. Norman, but the editor of *Lindenia* has entirely omitted to include this in his list of references. The plate in our Belgian contemporary is a good one, the crimson and gold in the lip and the rose-tinted sepals and petals lending themselves well to lithography. We may add that in several instances this orchid has been described as P. Normani, but it was certificated as P. Norman and referred to as such in the latest issue of the R.H.S. journal.

ACANTHEPHIPPIUM CURTISI ALBIDUM.

As a rule the members of the genus acanthephippium are not loved by horticulturists; they are interesting orchids but not showy or floriferous enough for inclusion in the majority of orchid collections. Acanthephippium Curtisi albidum is from the Malay archipelago; the species flowered at Chelsea in 1881, and the present variety at Brussels in April last. The latter has stout pseudo-bulbs surmounted by large, plicate, light green leaves, not unlike those of calanthes. The flowers are thick and fleshy, the lateral sepals joining to form a large pouch-like organ; the colour is white with a creamy tint, and on the inner surface of the segments are numerous small dots of bright rose and rose-purple. The spike, bracts, and pedicel-like ovaries are all deep and bright purple. *Lindenia*, t. 619.

CATASETUM SPLENDENS LANSBERGEANUM.

This is another of the splendid natural hybrids from Catasetum Bungerothi that now make quite a series under the title of C. splendens. The series was introduced by Messrs. Linden and Co., L'Horticulture Internationale, Brussels, and several of the leading forms have been figured in our columns. The form named C. splendens Lansbergeanum has large white petals freely marked with small rose spots and tipped with reddish-rose. The sepals are creamy-white, while the large concave lip is deep yellow, shaded with bright brown along the upper border and base. It is apparently a most vigorous orchid, for the illustration in the *Lindenia* t. 611, represents a spike with eight large flowers. This variety is named after the president of L'Horticulture Internationale.

A COMMON PLANT OF THE SEASHORE.

ALL visitors to the seaside are familiar with the *Fucus vesiculosus*, or common bladder wrack, daily left on the beach at low tide, but few are aware of the novel and beautiful phenomena constantly taking place in connection with it under their very eyes. It furnishes a beautiful example of the nature of the process of reproduction in the lower class of plants, being indeed a member of a tribe which stands at the very threshold of the vegetable kingdom, the Cryptogamia. When examined through an ordinary microscope in winter time, the greenish-black fronds of the bladder wrack are seen to be studded at their extremities by little egg-shaped hard prominences, consisting of nearly spherical cavities under the epidermis, or skin, opening at the surface by a minute pore. These are receptacles. Those containing the antheridia are on separate plants from those containing the oogonia. The latter are the same colour as the frond, the former yellowish-brown. They must not be confounded with the air cells, which also cover the tips of the fronds.

If a vertical section be cut through a male receptacle, and examined by means of a high magnifying power, the cavity will be seen to be nearly filled with branched jointed hairs, bearing numerous little ovoid cells, of an orange colour, each containing a number of minute bodies, with an orange speck or granule in the centre. These are the antherozoids, and the cells in which they are deposited correspond to the anthers in flowers, hence their name of antheridia. When fully formed these cells burst, discharging their antherozoids, which swim rapidly in water by the motion of a pair of long cilia, or hairs, attached to one extremity. If a female conceptacle be prepared in the same way, and examined, it will be found to have a similar lining of jointed hairs, among which are several large ovoid olive-coloured bodies, attached by a short pedicle to the wall of the cavity. These are the germ cells, or sporangia. When completely developed, each consists of a transparent coat formed of two thin membranes, and a central opaque olive-brown body, presenting marks of division into eight parts, hence called an octospore. When ripe, the oogonia burst and set free the oospheres, which are expelled like the antheridia, and collect these into jelly-like green masses round the orifice of the receptacle.

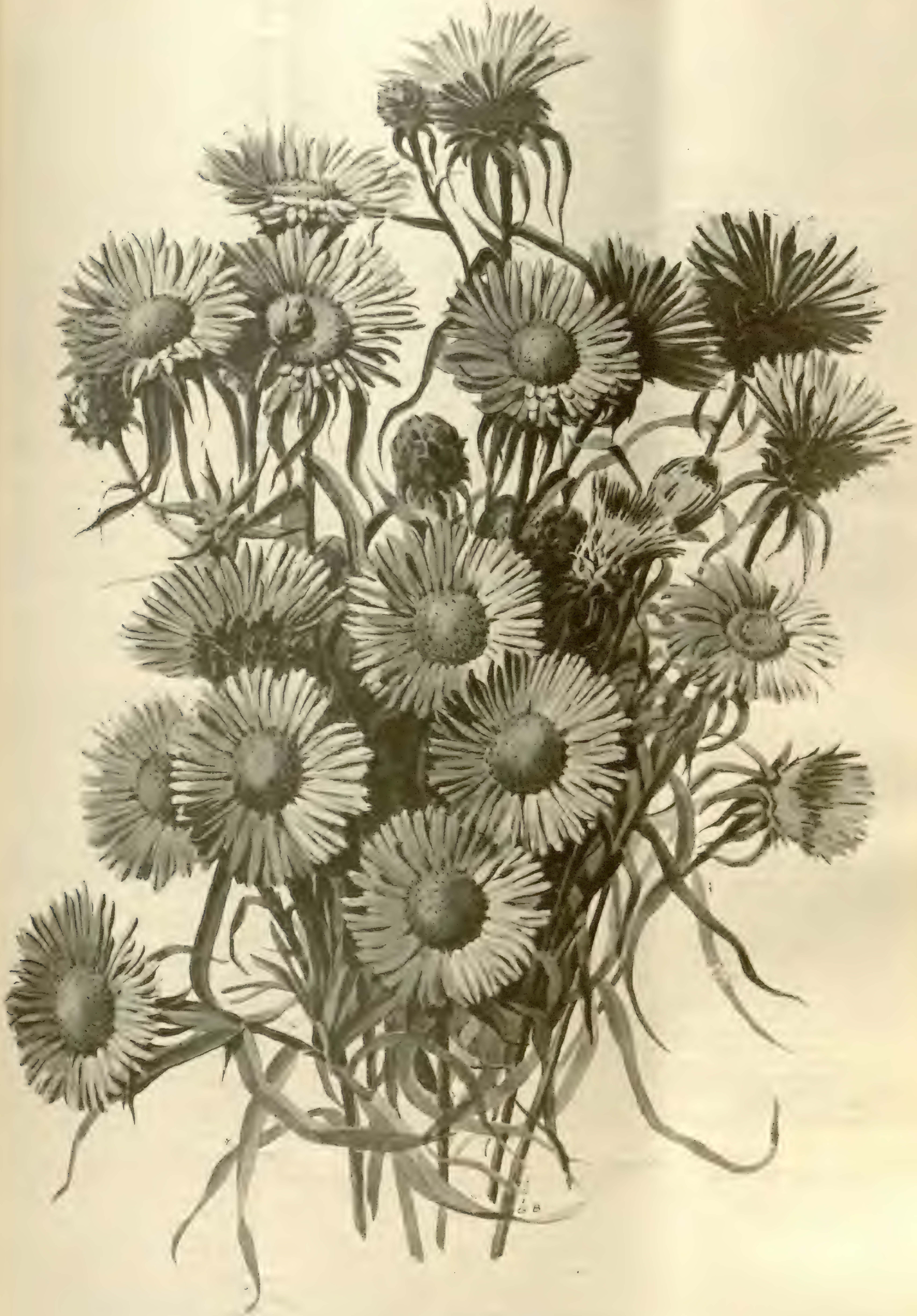
If a small portion of this green jelly be held on a needle and placed in a little sea water, it will be seen under microscopic examination that the spores in each oosphere will become spherical, and in about half-an-hour the membrane will burst. The spores, however, still remain in a very delicate transparent bag, which was not visible before, and this is attached to the ruptured outer coat at a point which resembles the hilum of a seed—the spot at which a seed is attached to the fruit. In a few minutes this envelope gives way, and the naked oospheres then float about freely in the water. Now, let a minute portion of the orange-coloured jelly from the male receptacle be introduced into the water where the spores are, and a very singular phenomenon immediately takes place. The antheridia almost directly burst and discharge their contents; the liberated antherozoids swim with their arms or cilia, and are soon seen to settle on the oospheres in great numbers. The next day the oosphere will be found split into hemispheres by a transverse division, and a little rootlet will be found to have already begun to sprout at right angles to the division. Again, the day following, the oosphere will have become elongated and several more transverse and vertical divisions will have made their appearance. The little bud will now have developed into a long transparent rootlet. Watching the curious young plant daily, it will be seen that it continues to elongate by multiplication of its cell contents, putting out more rootlets, and a few days later a bundle of transparent, hair-like sprouts will shoot from its summits. The whole plant then presents the ordinary appearance of one of the young plants we are familiar with, and find on rocks and stones where seaweeds grow, and to which they attach themselves. If one of these is placed in a glass of sea-water it will continue to vegetate for some months, or if removed to a vivarium it will grow and thrive.

Other *fuci* found on the coasts present the same phenomena as the one we have related. In some kinds both male and female receptacles are found on the same plant, and in *Fucus plutycarpus* both male cells and germ cells are in the same receptacle. In fact, throughout the whole of the cryptogamic class of plants a mode of reproduction as perfect in its type as this is found, though varying infinitely in its forms, and this, as we ascend the scale, increases in resemblance to ordinary inflorescence.

WM. NORMAN BROWN.

INULA ENSIFOLIA.

NOT very many species of the genus Inula are cultivated to any great extent except the well known I. glandulosa, I. Helenium, I. Hookeri, and I. oculis-Christi. To these, however, the dwarf-growing I. ensifolia might well be added wherever perennial hardy plants are admired and yellow flowers are in demand. It has a most compact habit, the flower stems being much branched, erect, and wiry, so that no staking is necessary to uphold the brilliant yellow composite blooms that are produced with wonderful freedom. I. ensifolia, also known sometimes as [illegible] nana, seldom grows more than a foot high, and is by no means particular as to soil, but, like most other hardy herbaceous plants, it succeeds better under a little kindly treatment, its blooms then being larger than usual. The foliage is also of a neat character, quite distinct from that of I. Helenium or I. glandulosa, as a glance at the accompanying illustration will show. The blooms figured were supplied by Mr. Amos Perry, Winchmore Hill, N., who exhibited a well-selected form at a recent R.H.S. meeting. I. ensifolia is a South European plant, and though seldom seen in gardens, was introduced from Austria over a hundred years ago, the date being given as 1793.



INULA ENSIFOLIA.

RARE HARDY PLANTS.

Among rare hardy plants in flower now is Camassia esculenta alba. This is furnished with linear leaves from one to two feet long, and deeply grooved; it bears a loose raceme of large star-shaped flowers, each segment being oblong, a quarter of an inch broad, and about one inch to one inch and a-half long, and of the purest white. C. esculenta lactea or C. e. Leichtlini is another very stout-growing form, with leaves from two to two and a-half feet long, and of a light glaucous green, and racemes of large creamy white flowers. C. e. rosea differs in habit little from C. alba, but the flowers are of pretty pink or violet-rose hue; this originated here at the Hale Farm Nurseries in a batch of seedlings, and flowered for the first time this year. Camassias are so very hardy that I have never seen them injured by frost; they can be successfully grown in any garden, and will flower during May and June.

Tulipa linifolia is one of the prettiest of tulips, its linear leaves being slightly undulated, and setting off one small crimson flower that is produced on a scape about six inches high. It flowers in May and June, and is a very rare plant. Tulipa Batalini is, as far as habit is concerned, almost identical with T. linifolia, but the leaves are more glaucous, and the flower is pale yellow; it is also a very rare plant, and flowers in May and June. Both species are quite hardy and easily grown, but evidently not easily increased, which would account for their scarcity. Tulipa Sprengeri is one of the most charming of tulip species I know. It grows and flowers so late, being only now in bloom (June), that no frost would ever hurt it. The leaves are linear, about a foot long; scape about a foot high; flowers deep crimson, the exterior segments being tinged with buff. Although comparatively new it is fairly plentiful now, and should therefore be in every collection of hardy plants.

Eremurus robustus var. Elwesianus has a semi-tuberous root, and stout leaves from two to three feet long by two inches broad, light green and glabrous, often ciliated. The naked scape is from four to eight feet high, bearing a raceme three to six feet long of very showy flowers which are star-shaped, bright pink, rosy salmon or peach coloured, and sweetly scented. This differs from the type in its broader and longer leaves, larger flowers, and by being also a month earlier to bloom. This variety is less easily propagated than the type, not being a free seed bearer, and seedlings usually becoming six years old before flowering. The cut raceme so well shown by Mr. Ware, of Tottenham, at the recent Temple Show, was from a plant twelve years old that has only now reached perfection. This fine form should be planted in a sheltered corner, near a shrubbery, but in a fairly sunny position, and the soil should be well drained, no matter what its composition. A bed of Eremuri in flower is a fine sight, with plenty of long column-like racemes and bright or glaucous green leaves. Owing to late frosts, only few are this year in perfection and I have seldom seen more miserable racemes of E. himalascus, the white flowered eremurus. Nor are E. robustus and var. Elwesianus up to the mark. The kinds worth growing are E. robustus and var. Elwesianus, E. himalaicus, E. Olgæ, E. Bungei, E. persicus, and E. Aitchinsoni; most of the other species are of less value than the common asphodel.

After cultivation and trial during several years Incarvillea Delavayi has proved to be perfectly hardy and of the easiest culture. The plant is deciduous, with a strong fleshy root; the leaves appear during April and May, and attain in a strong well developed specimen to a length of from two to three feet, resembling somewhat those of Acanthus; they are pinnate, of a light glaucous green, dentate or serrate, the petiole being somewhat scabrous, and at times hirsute. The foliage is very ornamental, and on this account alone the plant would be worth growing. The scape rises well above the foliage and bears a terminal raceme of several flowers of a bright rose, rosy purple, or rosy violet colour, with orange yellow tints. The tube of the flower is about two inches long and the corolla about one to one and a quarter inches across. Those who have seen or possess a good specimen, will admit that this is one of the most strangely beautiful hardy plants ever introduced. In April, when the somewhat late foliage appears, it is of a deep purple, the petioles tinged a deeper hue, but assuming latter on a better colouring, and what appears to be at first a kind of Acanthus with ornamental foliage turns out to be one of the most showy of hardy plants. The finest specimen I have had the pleasure of seeing was in the garden of Monsieur Micheli at the Château du Crest, near Geneva, growing side by side with the beautiful and rare campanula Ostrowskia magnifica, a specimen about three to four feet in height and at least five feet across. Fortunately plants can be as well grown in the less favourable climate of London, and there are now several specimens blooming at Tottenham, one of which ripened seeds last year.

There are two varieties of this incarvillea, one, the Museum variety of the City of Paris, from whence it was distributed, having been at first collected by the Abbé Delavay; the other is the ordinary form, differing little except in time of flowering. The best time for planting is the autumn.

G. Reuthe.

Outdoor Tomatos.—The season so far has not been a very favourable one for these tender fruits. Plants have grown very well, but they are very late, probably a couple or even three weeks, and that is a long time in the short lives of tomatos outdoors. I have during the past few weeks seen in Surrey literally hundreds of cottage gardens and allotments, and have observed with pleasure in some, with pain in others, the efforts made to grow tomato fruit. Where the pleasure was found was in those gardens or allotments where some special effort had been made to give the plants shelter. Thus in the gardens warm walls or fences would be utilised, and in both gardens and allotments in several cases lengths of corrugated iron were secured by means of stout stakes as a background for the plants, with very admirable results. The pain was found where the plants were put out tied roughly to sticks, hardly pinched, and left very much to their own courses with a very poor fruit prospect.—A. D.

GARDENING REMINISCENCES.

As briefly as I can I will record some of my experience in connection with my calling as a gardener, which extends now as far back as the year 1848. It will be readily understood that during the half-century which has elapsed I have seen many changes. One of the most striking is the improvement of the education of the gardener; another is in the opportunities young men now have of pushing on their education after they have left school. The first gardener I was under could neither read or write; nor was the steward on the same estate nor the butler indoors much of scholars, yet everything went on smoothly. The proprietor was, what we should say now, one of the old-fashioned gentlemen, and I imagine that head gardeners of the present day would open their eyes if the owner came and addressed him as Jack or Joe, as the case may be. That, however, was the rule at the time of which I am writing. Many a time has the proprietor come and asked me where Will (referring to the gardener) could be found. Every upper servant on the estate was addressed in the same familiar way by members of the family. The steward was always called by them in his Christian name as George, and the butler Daniel. All the upper servants and many of the others had grown old in the family, and those who were past work retired on a comfortable pension. In many cases all this is changed now.

Referring more particularly to the management of the garden half-a-century ago, I must mention that the gardener had particular days in the year for sowing and planting his important crops. The first sowing of peas was always made on Lord Mayor's Day, and Ashleaf potatos were planted on south borders on the 20th of the same month, and they were always dug in, *i.e.*, planted six inches deep in the trenches, as the digging proceeded. Tomatos were grown at that time on open walls and not under glass. I well remember they fruited as well then as now, but not a tenth part of the fruit was ever used. I have thrown many a large basketful of fine ripe fruit on the rubbish heap. With regard to fruit trees, I have lived to see a wonderful improvement in the pruning of peach trees. The gardener under whom I served so severely pruned all kinds of trees, and peaches particularly, that it would take him ten years to cover a wall twelve feet high. At the time of planting every shoot was cut back to within six inches of the base, and nearly as much the next, and this was the practice followed generally. I may also mention that at that time cast-iron wall nails were not invented; the nails were made of wrought iron, and many a half-day in bad weather have I spent in straightening out nails, as they all had to be used the second time, and sometimes more.

The only way of growing cucumbers and melons was in frames placed on hotbeds, and the usual time for cutting fruit of the first mentioned was the middle of March, and the middle of June for melons. If there is one thing fixed in my mind more than another it is the turning out in early morning to keep the lawns in order by the use of scythes, lawn mowers were unknown, and for a good part of the summer all hands had to rise at four o'clock in the morning to mow the grass cut before the dew dried up. Many a time in early spring and autumn have my fingers been so cold that I could hardly hold the scythe, while with a knife I have scraped the ice off the blade before it could be sharpened. So rigid was the rules, that nothing less than a heavy downpour of rain, or a snowstorm, was accepted as an excuse on the days appointed for the lawns to be mown. It must be remembered that we were not paid a farthing, or received any other kind of consideration, for rising so early in the morning. The ordinary work was carried on until six p.m. just as if we only started at six o'clock in the morning. One day's holiday in three years was all the relaxation I had in that situation, and one Sunday out of two off duty.

Comparatively few bedding plants were then grown, but there was no scarcity of flowers notwithstanding. There used to be separate beds of choice pinks, carnations, alpine auriculas, tulips, ranunculus, &c. Dahlias were as well grown then as now, the only difference being, so far as I can see, in the dwarfer growth of the plants. There has been a marked improvement in the form and size of hyacinth flowers since then, as at that time they were grown with greater care than they are now. Pots were specially made for them, about five inches in diameter, and considerably deeper than the ordinary pot. The same form of pot is known as Long Toms at the present day. Speaking of pots reminds me that new ones were always used for the pineapple plants when they were large enough to be placed in the pots in which they were to fruit. I must return to the hyacinths, because I omitted to say they were potted in sand, no description of soil whatever being used, and I well remember what a lot of water they required in bright weather in March. Considerable numbers of cacti were also cultivated. Some of the forms made a brilliant display, while it was quite an event to sit up half the night to see the first flower open on what is known as the night-flowering cactus. Much larger numbers of annual flowers were used in the beds and borders than is the case now, and every gardener was expected to save the seed he required, and he was very often glad to exchange with a gardener several miles distant of any sorts of which he may not have been successful in saving seed. Let the reader just fancy what would be thought of a present day gardener if he sent a man, as I have been sent, several miles to beg or exchange a bit of seed of Venus's Looking-glass or candytuft. To appreciate the difference we must understand that it was not because the owners of gardens objected to purchase the seed, but because the same facilities did not exist for obtaining it then as now. The postal authorities had not thought it worth their while to trouble about distributing seeds, and very few seedsmen printed catalogues to let their customers know they had them for sale. Now all flower seeds can be obtained through the post at a cheap rate. My young friends will admit that this is a change for the better; at any rate, it will show them that their opportunities for learning and improvement are vastly greater than was the case fifty years ago.

It must, of course, be remembered that if the ordinary boy received his education at a National School that was all he could expect. Things are very different now, for, with continuation schools and technical education classes, education has been brought within the reach of all. In the early part of my career there was a greater number of Scotch gardeners holding positions in this country than there is now, and, although an Englishman myself, I am bound to say that as a young learner I received nothing but kindness from my Scotch masters; as a matter of fact, they took a greater interest in their young men than did some of our own countrymen; and, looking back after so many years, it is agreeable to be able to say that in my many visits to different gardens which have been described in past volumes of the Gardeners' Magazine, the same kindly feelings have been sustained. I can call to mind many hours of pleasant intercourse that has proved both instructive and agreeable. I was asked by a young friend not long ago, if the position of a head-gardener had improved during my time, and I unhesitatingly answered "no, not financially or socially." In only a few instances has the salary increased in proportion to the responsibilities, which have increased in very many cases to a far greater extent than many [illegible]. I have incidently referred to the increase of opportunities young gardeners have at the present time of improving themselves; at the time of which I am writing there was no Gardeners' Magazine to interest and instruct one. They will hardly realise my feelings, however, when I first saw it announced that a weekly gardening paper was about to be published at twopence per week. I quickly gave the order to have a weekly copy. To my regret, the fourth week was a double number, for which fourpence was charged. This was a damper to a young fellow with small means, but I continued to subscribe to it, although I was not sorry when the double number died a natural death, which it did at the end of a few months.

My next change was to a district where good gardens were not so far apart, and in which a gardeners' mutual improvement society had already been formed, but to which no under-gardeners were admitted. This I and several other young men felt to be unfair, so we drew up a statement of what we considered our wrongs, and laid it before the committee of management, with the result that the rule was relaxed and we were admitted to all the privileges of the society on the same terms, which was 6d. per month; the meetings being held during the winter months on the Thursday evening next before the full moon. This arrangement was for the purpose of making it more pleasant for members to have the benefit of the moonlight to go to and from the meetings. With the money so subscribed a good stock of gardening books was provided, and one or two monthlies. The latter each member was allowed to keep three days, and then to hand it over to another. This, in some cases, meant a walk of two or three miles. I well remember with what avidity I devoured the contents of all Loudon's works, especially that on trees and shrubs. "Paxton's Botanical Dictionary" was published about that time, and my delight was great when it came to my turn to be its possessor for a month. Young men at that time had a good deal of opposition to contend with. The older men in the garden regarded books or papers as useless aids to gardening, as many of them could neither read nor write; yet to show the capacity and retentive memory of some such men, I would mention that I worked for two years with one who had acted as parish clerk for many years, yet he could not read or write his own name. At the beginning his wife read out to him the Church Service, and that was all the tuition he had, yet I never knew him to make a mistake.

T. C. Clarke.

THE AMERICAN BLIGHT.

Many good receipes for clearing apple trees of the American blight have been given from time to time by cultivators. These consist of quicklime, sulphur, lamp-black, soap, and paraffin. I venture, however, to recommend at this season, when the blight is prevalent, a swifter and more sure means of cure, which I mainly relied on for many years. This consists of a hard scrubbing brush and a hot lime or other wash. The American blight has many faults, but from the cultivator's point of view as a pest to be destroyed it has one special virtue—it is soft, flimsy, and easily squashed. Hence, though I recommend a hard brush for reaching the nasty blight in the deepest crevices of the wood or bark, the slightest touch of the brush suffices to kill this virulent pest. Some even contend that it is not needful to crush nor bruise the insect in order to cripple or destroy it; the mere displacement of its filamentaceous embellishments checks its power of mischief, should it not end its life. Be that, however, as it may, a very slight pressure under a hard brush makes a speedy end to its mischievous life. Until the fall of the leaf the difficulties of reaching all the blight with the brush are well-nigh insurmountable; but with the fall of the leaf comes free access to the insects, singly or in masses. To facilitate this the more readily crowded spurs or branches may be then thinned, the brush alone, if diligently and skilfully used, soon making an end of the blight after a few operations. To make security doubly sure a wash of caustic lime-water should be scrubbed into every nook and cranny of the tree. This kills or cripples the stragglers, or forces them to retire. Some add to the pungency of the lime or other washes with soap, sulphur, paraffin, methylated spirits, &c. But these are more costly, and hardly more efficient than the hard brush and caustic lime wash.

Not a few fail to destroy American blight, through failure to clean the roots, as well as to scrub or paint the branches, and yet perhaps the most fertile breeding ground for this pest is found in the border land around the boles of the trees, and in its larger, more knotted, and gnarled roots. It is of little use cleaning the tops of the trees while the roots are covered and blighted with vermin. Of course the boles on the main roots must be cleared before the scrubbing brush or the lime wash can be brought to bear on the blight. But for the encouragement of growers it may be stated that the underground blight is, if possible, more readily destroyed than that on the tops of apple trees. But the point of most moment is that the pest on the roots must be destroyed if the trees are to be cleaned. A hot bath of soapsuds or sewage, at a temperature of 130 Fahr., rubbed into the clusters has in many cases hastened the process of cleaning. Grease bands round the boles an inch or two under the surface soil have also formed distasteful barriers to the passage of blight. A more potent dry barrier consists of placing a handful or two of dry soot and caustic lime round the stems. A few may pass through, but the majority are pickled.

But my reliance is on the scrubbing brush and the whitewash, and their persistent use until neither white speck or thread appears. These will disappear all the sooner if every grower would carry a small phial of methylated spirits, or alcohol, which is equally effectual, but much dearer, in his pocket, with a small camel hair pencil. The moment a speck or thread of blight appears, very lightly moisten the brush in the spirit and touch the insect. Death is instantaneous, and if the process is done skilfully, not a leaf, twig, or fruit need be injured, while not an insect touched will escape.

D. T. Fish.

Dry Weather and the Fruit Crops.—The simplest answer I can give to "Lea," is that the rainfall for the months of March, April, and May of the present year was nearly half an inch less than for the corresponding period of last year, and if the two preceding months of January and February be included in each case, the deficiency nearly reaches to four inches less this year. Added to this, ocular demonstration stands for something. When we find ponds, wells, &c., dried up that have not been in this condition for many years, we are certain that the soil is in a much drier condition than usual, and I am sure in our case fruit trees, where not watered artificially, have suffered from the continued drought.—South

"SWEET LAVENDER."

At the first blush, so to speak—though surely such a precise plant as the lavender never had any need to blush—it would, observes a writer in the *Globe*, seem that this delicate little herb of fragrance must, beyond all question, be a native of our soil. Its habits are so simple and unobtrusive, and its uses so homely and pervading, that it is difficult to think of the sober-tinted bush as originally a foreigner. Some exotics never look naturalised; while the lavender seems never to have been an exotic. A certain shrinking modesty hangs about it which makes it the very paragon of domestic life. For one thing, lavender is obviously of too Quakerish a habit to flaunt it with its gaudier floral sisters in the competition for public favour. Whoever encountered the pretty puritan at a flower show? Its very hue is suggestive of everything that is humble and retiring, while its form is slight, and by no means beautiful. But then the violet has lost its lovely odour in the course of its development into the pansy. And it is not an unpleasant reflection, in these days of advanced floriculture, to know that there remains at least one modest garden blossom which has not had "greatness thrust upon it."

In the time of Queen Elizabeth, some half-dozen varieties of the lavender plant were to be found in our better-cultivated gardens. Shakespeare speaks familiarly of it, though it was scarcely known in England before the sixteenth century. It is doubtful to whom we specifically owe its introduction; but, at all events, the lavender speedily made itself at home with us, and throve equally in the affections of the country folk who favoured it. In a few years it had entered into the very heart of our purely domestic observances. The lady of the manor and the "mother" of the hamlet set equal store upon it. It yielded washes, scents, ointments, and medicine. At a later period it was used to mitigate the austere contents of the snuff-box; while a drop of its essential oil was regarded as "sovereign for the vapours." A herb possessing so many merits was naturally welcomed on all sides. It was so exquisitely clean, fragrant, and refreshing that it took all the housewives' chests and store-closets by storm. Izaak Walton completes his picture of an ideal chamber in a rustic inn by the recommendation of "lavender in the windows," while his pupil "Venator" is attracted to the same house by the fact that "the linen looks white and smells of lavender." The phrase, "laid up in lavender," is emphatic of the prevalence of this wholesome and delightful custom. And, in many of our country districts, lavender for the linen presses of a house is still deemed quite as necessary as honeysuckle for the adornment of its porch.

The lavender is indigenous to several countries of Northern Africa and Central Asia, and is thought by some learned commentators to have entered into the composition of the famous "spikenard" ointment of the East. It was much used by the ancients for scenting the waters of their manifold baths, and the Latin derivation of the word is sufficiently obvious. Our term "lavender water" may thus be a survival; for though in English practice the essential oil of the plant is obtained by distillation with water, its perfume is afterwards imparted to highly rectified spirit. Our country custom of making lavender bags and placing the dried flowers among linen is also derived from antiquity. There are records of this practice older than the discovery of distillation, and it says much for the natural efficacy of the lavender that its homely virtues are to this day so highly prized. To breathe the fragrance of the sad-coloured spears after the penetrating perfumes in which our ancestors delighted, must have been as delightful as the savour of sea air. And yet the lines long continued to be true which thus apostrophised the over-scented fop of the period:

"Bring, oh bring, thy essence pot,
Amber, musk, and bergamot;
Eau de chipre, eau de luce,
Sanspereil, and citron juice."

There must be something in the English soil and climate peculiarly acceptable to the habits of this plant, for it attains here to a perfection unequalled by the growths of most other countries. No doubt an immense impetus was originally given to its cultivation by the practice of home distillation. At all events, the fame of our English lavender-water is world-wide, a fact generally admitted by foreign perfumers themselves. Of course, the industry is a most important one in the South of France, where the lavender harvest enlists a large part of the peasant population. The operations attending it are simple, but not devoid of interest. As among ourselves, the flowers are reaped with a kind of sickle, and being tied into bundles, are at once conveyed to the adjacent distillery. But the French manufacturer insists on putting both stalks and leaves into his still, and on adding to its product some other kinds of essential oil, and various coarser compounds. Preferring quality to quantity, our own leading makers confine their operations to the blossom itself, with a result best appreciated by those who have once compared the home and foreign forms of the perfume. The distinctly refreshing nature of the best home-made scent is in strong contrast with the heavy, clinging quality of that which comes from abroad. Upon the whole, good English lavender-water is the perfume most generally acceptable in a sick chamber. It is refreshing long after other essences have palled; and thus, to the end, the lavender holds its own in its unpretentious and almost prosaic way.

No doubt the famous "attar" of the rose of Cashmere still ranks as the highest ideal of the perfumer's fastidious art. But there is a simplicity, almost as grateful as its fragrance, about our old-fashioned English lavender-water which endears it to many. The modern builder has seriously encroached upon the once famous lavender fields of Surrey and Middlesex, but Mitcham lavender has still a reputation which commands for it the highest prices in the market. But, as in other and more important commodities, Greater Britain is quickly coming into the competition. For some time past the settlers of South Australia have been annoyed by a "nuisance" in the form of a persistent plant which their cattle refused to eat. It proved to be lavender, with which a considerable area has since been planted. And now Australia is distilling her own lavender-water, which, let us hope, may not be very inferior to that produced by the mother country.

NEW INVENTION.

Celluloid Auto-Labels.—These labels are small strips of celluloid, with one end treated and curled so as to form a spring-like clip, and thus enable the label to be affixed to stem or stake without tying. The patentees claim for their invention that it requires no tying; is always white and clean; uninjured by heat, damp, or time; clip expands with growth of stalk; and it can be fixed in a second with one hand. No preparation is needed, a soft black leadpencil only being required for writing. The label, when fixed, stands out horizontally from the stalk. We are in doubt as to how the action of water would affect the writing, and fear the legibility would not long remain if the label were used out of doors, as writing both by pen and pencil appears to be readily washed off; then also while the clip end will expand it cannot readily be contracted to fit a more slender stem. The labels are to be obtained from Allport's Patents, 108, Queen Victoria Street, E.C.

Work for the Week.

WARM ORCHIDS.

We are at the present time experiencing some peculiar weather, very heavy rains following spells of hot sunshine; such experiences are rather trying to orchid growers, in certain departments, with respect to shading and airing. Lælia purpurata is a commonly grown orchid, and very often at this season too much water is afforded at the roots; if an overdose is given it is very likely to rot the pseudo-bulbs. Lælia crispa, in most collections, will now be making a fair display, and only sufficient water must be allowed to keep the bulbs in a plump condition, at the same time removing the plants to a drier atmosphere, otherwise the damp will condense on the flowers and cause small spots to appear, leaving the blooms useless in every way. Some of the cattleyas will be growing, others flowering, and some resting; it would be well to remove all that are growing to the warmest end of the house if a separate structure is not at hand for them. Cattleya Gaskelliana that has finished flowering ought to be put at the cool end with other occupants of the same condition. The roller blinds on the cattleya house ought to be pulled up a little earlier in the afternoon now in order to gradually ripen up and harden the pseudo bulbs before the winter months; plenty of fresh air, both at top and bottom, must be given on all favourable occasions, and if this is done in conjunction with extra light the results will be satisfactory. Many amateurs are in the habit of using the hose-pipe indiscriminately over and among all their plants and whatever section they belong to; this plan is good so far as economising labour goes, but absurd for growing successfully the old-established plants. It is certainly good to damp well in between the pots, and all about the house, under the stages, &c., to obtain a growing atmosphere, but not to drench the plants with cold water every morning whether they require it or not. The plants may not show immediate ill-effects, but will ultimately do so.

Thunias must now be removed to a cooler and drier atmosphere, and be placed close to the glass, in order to well ripen the growths; a shelf in the vinery is a suitable place for them. The ends of the leaves, as they die off, may be cut away to prevent an unsightly appearance. Cypripedium bellatulum and C. niveum may now be repotted if they require it. These are difficult plants to grow successfully year by year, as they require to be treated much the same as succulents; their foliage is very largely composed of water, and if overfed, the plants cannot breathe freely. The best compost to use is loam, limestone broken up small, and a little peat, well mixed together; the pots or pans must be well crocked, in order to have good drainage at all times. If convenient, a shelf will be found a suitable place for them. The temperature in the houses will be difficult to regulate, owing to the fluctuations of outside conditions, but it is not necessary to be exact at this season.—Thomas Stafford, *Tyntesfield Gardens.*

THE FLOWER GARDEN.

Speaking generally, the flower garden should now be at its best for the present season, for although continued dry weather has somewhat checked the growth of some subjects where the application of water was not practicable, the extra warmth has, however, produced a wealth of bloom on most flowering plants. The present will, therefore, be a suitable time for noting any alterations or improvements it may be desirable to carry out another year, that propagation may be proceeded with accordingly. As soon as this has been determined a start in propagation should be made forthwith with pelargoniums and such like, cutting over the beds carefully, as thinning now will be to the advantage of the plants, and the cuttings not being over sappy should strike freely. These may be inserted in any open border and potted up into small pots in the autumn, or placed direct into store pots or boxes filled with sandy loam, with the addition of a little leaf-soil, and stood in any open, sunny position. The latter is the more usual practice, and if boxes of one size, and not too large, are used, the more convenient they will be found for storing through the winter. The tender varieties, such as tricolors and variegated kinds generally, should be inserted first, which will allow them to become well established early, and thus pass the more safely through the winter months. These should also be struck principally in pots, and if pits are at liberty they may be stood in them, and in the event of wet weather occuring the lights can be placed in position, allowing plenty of air.

Wallflowers raised from seed recently should be ready for pricking off from the seed bed into nursery quarters at six or eight inches apart each way. A thorough soaking of water should be given to settle the soil about the roots. The preparation of plants to furnish the beds for spring flowering should be carried on in earnest now. Old plants of myosotis should be pulled to pieces and dibbled in about six inches apart each way; whether with or without roots, they soon make nice plants if watered occasionally if dry, and will be ready for going out in early autumn. Seedlings should also be pricked off the same distance apart. Pansies and violas should be well supplied with water while the weather remains dry; if a shaded border can be found for them, or cooler weather with rain set in, they may now be pulled in pieces, selecting all the young growths to be dibbled in, in nursery rows six inches asunder, and kept watered as often as the state of the weather necessitates. Other subjects may be similarly treated, including Alyssum saxatile, aubrietias, arabis, daisies, primroses, and polyanthuses. For the same purpose seeds may be sown of such annuals as Nemophila insignis, Saponaria calabrica, silenes in variety, Limnanthes Douglasi, Collinsia bicolor, and godetias. Intermediate and Brompton stocks, if not already in, should be sown forthwith in shallow drills, moistened to ensure a quick germination. These may be potted up later on, and kept in frames through the winter and planted out in spring.

The present is a suitable time for giving new and similar hedges their annual clipping. If cut now after the principal growth is made, they require little further attention during the year.—C. Herrin, *Dropmore Gardens.*

STOVE PLANTS.

The season is now advancing, and the object of the cultivator should be to mature the growths of plants in the stove, so that they may stand our long, dull winters without injury. With this end in view do not force growth now, but admit rather more air—of course, using judgment and care—the aim being to have the shoots of the present season hardened, so that they may pass through the winter without becoming naked through the loss of leaves. How often does one see, in going through the stove in early spring, crotons and other things that are skeletons through the loss of leaves during the winter; this is frequently attributable to encouraging a free growth late in the autumn months, which does not become matured. Then if a long, severe spell of hard weather occurs, with perhaps weeks of dull, leaden sky, the leaves are shed at an alarming rate, the result being unsightly plants, and a severe check to those subjects' future progress. When I say admit air more freely, I do not mean to open the ventilators wide early in the day all at once; but, commencing early in the day, gradually increase the amount until the maximum is reached; in the afternoon follow the same process in gradually reducing up to the time of closing the house and affording the afternoon syringing. It will be necessary still to keep the atmosphere moist by damping floors and stages, yet not to the extent carried on during the hotter and longer days of summer. Pancratiums that have just flowered will be throwing up their new leaves, and any needing repotting should be attended to at once; any other things requiring repotting attend to directly. Every week now the days are getting shorter, and greater reliance will have to be placed upon the heating apparatus, under which conditions the water-pot has to be called into requisition more frequently for newly-potted plants than is good for them.

Gloxinias that have stood in the conservatory for the flowering season, and are now over, should be transferred to the stove; afford water and stimulants so long as the foliage keeps fresh; when showing signs of ripening gradually withhold water until, when the leaves and shoots are fully matured, it may be withheld altogether, and the pots laid on their sides in the bed of the stove for the winter. Seedling plants of gloxinias established in four and a-half and five-inch pots and showing their flowers should be encouraged by means of application of some good artificial fertilizer. The plants of gloxinias raised from leaves this season encourage to grow as long as possible to obtain large tubers for next season's flowering. Gesnerias for late autumn decorations that are established in their flowering pots must be afforded stimulants; later batches pot on as ready. Plants of stephanotis and allamanda that have finished growth and flowering may be removed to a cooler house to rest; still afford water, but in reduced quantities. Saintpaulia ionantha is now flowering, and will be best placed in the intermediate house. Rogeria gratissima is now flowering in the latter house, and is well worthy of extended cultivation, its pinkish cymes of flowers are more appreciated by many people than are bouvardias. As plants of dipladineas have finished flowering, remove them to a cooler house and expose them to full sunshine to ripen the shoots. Afford stimulants regularly to plants of Clerodendron fallax that are flowering or approaching that stage.

Wage a constant war upon all insect pests—in ratio to the way these flourish the plants infested suffer. If all the plants in the stove are examined at short intervals it is not a great matter to keep them clean. Less shading will be necessary now, yet care must be taken that scorching does not occur. Put in a few cuttings occasionally of such things as coleus, acalyphas, fittonias, crotons, and other things to replace any that have suffered through being used for furnishing in the house. Keep an eye on ferns, to remove all decaying fronds; good specimens may soon be spoiled by neglect of this. Gomphrenas are now well in flower, and may with advantage be removed to the conservatory; yet they will not stand cold draughts, if exposed to such they will in a few days become very shabby subjects.—J. Tunnington, *Ripley Castle Gardens, York.*

HARDY FRUITS.

The genial rain that has fallen in most parts of the country was much needed, but owing to the parched condition of the soil it was soon used up, and did not reach the deeper roots, so that it will be necessary to mulch and give moisture on light soil to newly-planted trees or those bearing a heavy crop. The apricots should receive copious supplies of water after the fruits are cleared, as it is important to build up a strong growth; trees that make little wood are the first to fail. Peaches and nectarines as soon as cleared of fruits may have a goodly portion of the old fruiting wood cut out. This does not always add to the appearance of the trees, but the wood needed for next season's fruit is well matured, and rarely suffers in the worst of winters. By removal of fruiting wood, I mean the wood that has just borne the crop, and, of course, with peaches and nectarines this is small wood of last year's growth. Such will not fruit again, so it is not needed, and must give place to the wood of the current year. With young trees that are inclined to make gross growth, and that have borne little fruit, more attention must be paid to the leaders; these should not be crowded. Foreright shoots should be cut clean away, and the side ones tacked in to extend the trees. There is no need to use the knife severely with young trees, as if given plenty of room to extend it is much better to cover the space in a short time. Few trees more liberally respond to good culture, and seeing how quickly a maiden tree can be grown into a fruiting condition, my advice is to encourage good wood, give it ample space to mature, and merely remove useless growths. Many growers will consider by this method there will be gross wood, and in some cases there may be, but it can be remedied by lifting in the early autumn just as the leaves are commencing to turn colour, and if there is care exercised there will be no loss of fruit, and the trees make splendid fruiting wood the next few seasons. At this season any unsatisfactory trees should be marked for removal, for though it is hard to part with old favourites, there is no gain in keeping worn-out trees of any kind.

Newly-planted strawberries will need water freely to enable them to root into the soil, and the plants will benefit greatly if the water is given overhead as the sun declines. I find that growth will be much stronger if treated thus, as the plants delight in the cool night moisture, while in soil of a thin nature it prevents the plants becoming a prey to red spider. Old beds just cleared of fruits and to be retained for a future crop should now have all runner growths cut close away unless runners have been layered and pegged in the soil for new beds. These in most cases will now be ready, and should be removed, for if placed under a north wall or in a cool place it is not necessary to keep them attached to the parent plant until they have filled their pots with roots; water is also more readily given, and the old quarters can be cleared up. I am not an advocate of mowing over the old foliage, as is sometimes done. Useless leaf-growth may be cut away and the plant may with advantage be given food now. I advise liquid manure if it can be spared and the labour to apply it; failing this, a good dressing of a good fertilizer hoed in will assist in building up strong crowns for next season's fruiting. Many persons like the small alpine strawberry; these are readily raised from seed sown in the spring, and will give a good return the following year. Space does not permit to enter at length into their culture, but I believe seedlings may now be secured from leading growers for autumn planting at a small cost, and the fruits of the large red and white are delicious for late supplies. Strawberries that were forced in the spring and then planted out for a late crop should have their flower trusses thinned and receive ample supplies of food and moisture. Now is a good time to lightly thin the wood of gooseberries that touch the soil; for many of our best gooseberries are low growers and inclined to make their growth too close to the soil. Early apples such as Lady Sudeley, Mr. Gladstone, and other kinds are maturing much earlier than usual with us, and it will be advisable to examine the trees every other day and clear fruits just ready, for the flavour of these early kinds is not improved if the fruits are left to mature on the trees. The same remark applies to early pears, as Jargonelle and Williams' Bon Chretien; the first named, on walls, matures very early, and if stored for a few days its flavour improves, but a cool store is desirable, and the fruits must be placed thinly, care being taken in gathering.—G. Wythes, *Syon Gardens.*

EXHIBITIONS AND MEETINGS.

NATIONAL CO-OPERATIVE FLOWER SHOW.

THE thirteenth annual flower show in connection with the Co-operative festival was held on Friday and Saturday, August 19 and 20. The whole of the centre of the Crystal Palace was devoted to the tremendous display, which consisted of about 5,000 exhibits from all parts of the country. In the open or professional gardeners' classes there were 455 entries for vegetables, 407 for cut flowers, 166 for pot plants, and a few other exhibits.

In the industrial or working men's section there was a display that can only be described as marvellous when one considers the short time at the disposal of many exhibitors and the lack of glass many must experience for the furthering of their favourites, which in many instances require artificial warmth in their earlier stages. As regards this section there was again a notable increase in the extent and variety of the exhibits. These exceed the entries of professional growers by four to one, and embrace every kind of vegetable garden produce. The contrast in respect of variety of exhibits is remarkable between the present show and the earlier ones of ten to twelve years ago, when potatos, cabbages, and a few other leading vegetables represented all the kinds shown by workmen. This year in the industrial section potatos certainly led with entries of 239 dishes, but there were also 146 entries of different kinds of beans, 107 entries of vegetable marrows, 86 of onions, 83 of garden turnips, 79 of peas, 79 also of beet, 60 of shallots, 56 of garden carrots, 53 of lettuces, 38 of parsley, 35 of celery, 31 of cabbages, 24 of cauliflowers, 15 of radishes, and 11 of leeks. It is remarkable that there were no less than 43 entries of cucumbers in this section and 28 of tomatos.

In flowers also the workmen's section showed wonderful development. There were 27 baskets and collections of roses, eight baskets and 37 collections or bouquets of annuals, 10 entries of table decorations, 63 bouquets, vases, and epergnes by the wives and daughters of members, and 44 by their children. The separate exhibits of cut flowers from workmen's gardens numbered 504, and comprised carnations, chrysanthemums, dahlias, everlasting flowers, Indian pinks, mignonette, pansies, petunias, phloxes, sweet peas, antirrhinums, asters, stocks, salpiglossis, marigolds, zinnias, liliums, and gladioli. Pot plants shown by working people numbered 257 entries, and included not only all kinds of annuals which can conveniently be grown as window plants, but begonias, Lilium auratum, pelargoniums, fuchsias, petunias, and many others. The workmen's fruit entries numbered 159. They included apples both for cooking and dessert, cherries, currants, gooseberries, pears, plums, and varieties of other open-air fruit. It is notable, also, that there were four entries by working people of bunches of grapes.

Five collections of six varieties of fruit were staged in the professional class. Mr. C. J. Waite, gardener to Sir P. Talbot, Esher, won first prize with black and white grapes, peaches, apricots, nectarines, and a melon, nothing whatever being [illegible], an omission one does not expect from so old an exhibitor; Mr. Osman second. For a collection of five dishes of fruit grown in the open air Mr. Osman scored with Golden Gage plums, Hales Early peaches, Brown Turkey figs, Moor Park apricots, and Elruge nectarines; Mr. R. Chamberlain second. Mr. Wadham showed the best apricots, and Mr. Chapman the best Morello cherries. Currants and goosebeerries were plentiful and good, Mr. Bugby, Desborough, being a successful competitor.

Mr. Osman's pair of bunches of Black Hamburg grapes gained a first prize; Mr. W. Taylor, gardener to H. C. Bayer, Esq., Forest Hill, coming second; and Mr. Waite, third. Mr. Tayler scored for white grapes showing good Muscat of Alexandria; Mr. Osman second with Buckland Sweetwater; Mr. Waite third. Mr. G. Cheal, gardener to Sir W. Farquahar, Bart, Dorking, staged the finest nectarines, and Mr. Chapman the best dish of peaches. Mr. Waite led for pears, Mr. Tayler for cooking plums, Mr. Waite for dessert plums, and Mr. Tunbridge for a melon.

Mr. S. Chapman, gardener to Sir E. Walter, K.C.B., showed the best three dishes of apples, Peasgood's Nonsuch, Bramley's Seedling, and Lady Henniker; Mr. E. Merton, second, out of fifteen sets. Eleven competitors staged three dishes of dessert apples, Mr. R. Fellon, St. Mary Cray, leading with brightly-coloured Red Juneating, Devonshire Quarrenden, and Mr. Gladstone; Mr. Woodham, second.

There were seven competitors in the class for a collection of vegetables, com[illegible] open to the Southern district, comprising Essex, Herts, Bucks, Oxford, Berks, Wilts, Hants, Middlesex, Kent, Surrey, Beds, and Isle of Wight. The first [illegible] set was shown by Mr. C. J. White, gardener to Sir P. Talbot, Esher, who had remarkably fine dishes of Satisfaction potatos, Best of All runner beans, Ailsa Craig onions, Solid White celery, Perfection tomatos, Intermediate carrots, Autumn Giant cauliflowers, Blood-red beet, Autocrat peas, and Lyons leeks. Mr. J. Holton, a famous Oxford vegetable grower, secured second place; with Mr. R. Wadham, South Aston, third; and Mr. J. Dann, St. Mary Cray, fourth. There was but one competitor from the Midland district, Mr. J. Nowell, who gained a well-deserved first prize.

Runner beans were splendidly shown, Mr. Holton scoring a first for Giant Scarlet, and also in the class for any variety, showing straight even pods of Champion; Mr. Wadham was second in both cases. Mr. W. Emerton, of Buckingham, led for French beans, out of fourteen competitors. Mr. A. Tunbridge, gardener to the Rev. W. Trimmer, Chelmsford, had the finest Longpod broad beans, while Mr. Emerton showed tho best dish of broad Windsor. For long red beets, Mr. Emerton was again successful, but Mr. Waite led the way for round beets. Carrots were splendid for the season, Mr. Holton leading for Inter[illegible], and Mr. Emerton for Long Surrey; these two classes brought two dozen exhibits. Mr. Waite led for cauliflowers, with lovely specimens of Early Dwarf. Mr. Holton showed the best red celery, and Mr. O. Basile, gardener to the Rev. O. S. Powell, Wexbridge, had the best white. Mr. Wadham scored for cucumbers with a brace of Improved Telegraph, and Mr. Holton for leeks. Onions were plentiful, Mr. Emerton winning for spring-sown produce; Mr. R. Chamberlain, gardener to F. M. Lonergan, Esq., Reading, first for white Spanish; Mr. Holton first for any new spring-sown onion; and Mr. Wadham first for Tripoli or Giant Rocca. Exhibition Marrow was the pea that secured a first prize for Mr. Emerton.

[illegible] were a splendid display, Mr. C. J. Waite winning for six dishes of [illegible] with splendid tubers of International, Windsor Castle, and Satis[illegible]; Mr. R. Holton, second; and Mr. O. Basile, third. Mr. Waite also [illegible] a dish of white kidney potatos, with International; Mr. Holton, [illegible] For coloured potatos Mr. Holton scored with Mr. Briscoe, the same [illegible] gaining second place for Mr. R. Wadham. The best round white potato [illegible] Castle, shown by Mr. C. J. Waite; Mr. Holton coming second, [illegible] Chamberlain third. For coloured round potatos Mr. Emerton came [illegible] Lord Tennyson. and Mr. Holton second. Several good collections of [illegible] were shown, Mr. Waite taking premier honours with cucumbers, [illegible], beets, radishes, lettuce, and celery; Mr. Wadham, second; and Mr. Basile, third. Mr. Emerton scored for shallots. Tomatos made a brilliant show, first prizes falling to Mr. Basile for Perfection and for three dishes. Mr. Emerton scored for green, and Mr. Waite for long white marrows.

Annual flowers were very bright, and made a fine show. The sets from Mr. Kleigh, Wimbledon, and Mr. F. Veale, Oxford, being especially good. Mr. T. Osman, gardener to L. J. Baker, Esq., Chertsey, had the best bouquet of annual and biennial flowers, using scabious and sweet peas. The carnations were poor as a whole, though Mr. Wood, of Reigate, showed fairly well; dahlias were also poor. Mr. Holton had the best dozen asters, and though the competition was keen, we have seen better flowers on previous occasions. Mr. Chamberlain scored for sweet peas, and Mr. Hawkins, Oxford, for mignonette, three bunches. African marigolds were popular, chief honours falling to Mr. Emerton, who was most successful also for French marigolds. Mr. G. T. Wood, Reigate, beat all comers for six bunches of pompon dahlias, but Mr. R. Robertson, Bromley, scored for cactus dahlias. Mr. Wood led the way for hardy herbaceous flowers, his phloxes, gypsophila, and solidago being especially good. Mr. Ede showed the best violas. Mr. F. Batt, of Norwood, led for asters in pots, and also for a lobelia, a first-rate specimen densely flowered. Mr. C. Moody, Penge, is a capital musk grower, winning both for the common and Harrison's variety; the same gentleman showed the best petunias, well-flowered double sorts, and he also beat all comers for Phlox Drummondi in pots and for stocks.

The chief honours for table decoration were easily won by Mr. W. Smith, Harrow, who had a simple but beautiful design in smilax, blue cornflowers, Iceland poppies, and gypsophila; Mrs. F. B. Williams, Blackheath, second. Mr. Wood, Reigate, had the best decorated epergne, carnations being chiefly used; Mr. R. Robertson, second.

The exhibition was held under the auspices of the Agricultural and Horticultural Association, Ltd., and the whole of the extensive arrangements were carried out in a most able manner under the management of Mr. E. Owen Greening, and the superintendence of Mr. George Waugh.

TROWBRIDGE HORTICULTURAL SOCIETY.

TROWBRIDGE gloriously maintained its old traditions on the 17th inst. In respect of its popularity as a horticultural exhibition as well as for its extent and general high quality, it is to the West of England what Shrewsbury is to the North Midlands. Despite the season there was scarcely a weak feature, and as a late rose show it was superb. The weather was very fine, the arrangements good, and there was an enormous throng of visitors. This was the forty-ninth consecutive exhibition, next year will be the jubilee of the society, and steps are already being taken to celebrate it in a fitting manner. Fuchsias always occupy a prominent place in the schedule, and Trowbridge is famous for the superb specimens it produces. The best six and the best four specimens came from Mr. G. Tucker, Hilperton Marsh, for many years gardener to the late Major W. P. Clark, of Trowbridge. As is usual, he had finely grown and bloomed tall, cone-shaped specimens, so well flowered that scarcely any foliage could be seen. His six plants consisted of Diamond Jubilee, Mrs. Bright, Charming, Doel's Favourite, Arabella, aud Western Beauty, the last a very fine light variety. Mr. G. Bridgeman, gardener to E. R. Trotman, Esq., Frome, was second; and Mr. H. Pocock, third. These three exhibitors occupied the same positions with four specimens, Mr. Tucker's first prize lot consisted of Final and Charming, darks; Surprise and Mrs. Roberts, light.

STOVE AND GREENHOUSE PLANTS were remarkably good. Some of the best we have ever seen at Trowbridge. The best nine were staged by that rising young cultivator, Mr. H. Matthews, gardener to Sir W. R. Brown, Bart., Trowbridge. He had splendid examples of Dipladenias Brearleyana and amabilis; a fine piece of Erica Eweriana elegans; E. Turnbulli; a splendid bush of Ixora coccinea, well flowered; Bougainvillea glabra, Stephanotis floribunda, Allamanda nobilis, and Anthurium Scherzerianum. Mr. G. Pymm, gardener to Mr. Gouldsmith, Trowbridge, was a remarkably good second. He had Bougainvillea glabra, a very fine specimen of Plumbago capensis, Erica ampullacea Barnesi, Clerodendron Balfourianum, &c. Mr. G. Tucker was a very creditable third. With six plants Mr. Tucker was first, having very fine examples of Bougainvillea Sanderiana, Clerodendron Balfourianum, Dipladenia Brearleyana, Allamanda nobilis, Statice Gilberti, and Ixora Morsei. Mr. H. Matthews was second; his best plants were Bougainvillea Sanderiana, Allamanda Williamsi, Dipladenia amabilis, and Erica Eweriana elegans. Mr. Tucker also had the best three, very good examples of Bougainvillea glabra, Dipladenia Brearleyana, and Ixora Tuckeri, a seedling of his own. Mr. S. Ager, gardener to Mrs. Mackay, Trowbridge, was second, the trio included a fine plant of Rondeletia speciosa major. The best specimen plant was a really splendid example of Erica McNabiana rosea from Mr. G. Tucker; Mr. Pymm was second with a small but well grown example of Erica Æmula; an extra prize being awarded to Messrs. E. S. Cole and Son, Bath, for a well grown and flowered Schubertia grandiflora.

Heaths were poor; they are a declining feature even in the West of England. Some very good gloxinias were staged for the season; Mr. G. Tucker was first, and Mr. S. Ager second. Begonias, single and double, very good; Mr. G. Tucker taking the first prizes in both classes with six finely grown and flowered specimens; Mr. G. Pymm was second with six single, and Messrs. W. J. Stokes and Sons, Hilperton Marsh, with six doubles.

Mr. H. Matthews was the only exhibitor of four orchids, taking the first prize with Phalænopsis Sanderiana, Dendrobium Schroederi, Ærides odorata, and Cattleya gigas. The best new or rare plant was a very good example of the white variegated Abutilon Swaitzi from Mr. Pymm.

Foliage plants were a good feature shown in collections of nine. Mr. H. Matthews was first; his chief plants were Kentia australis, Crotons Reidi, Weismanni, and Baron J. Rothschild, Theophrasta imperialis, &c. Messrs. E. Cole and Sons were second, having in their contribution a few fine palms. Ferns and mosses were shown in collections of fifteen, and there was a remarkably good competition, as many as five groups were staged. Mr. G. Tucker was first, Messrs. W. J. Stokes and Son second, and Mr. A. P. Stancomb third. It may be said the specimens were all good generally, though comprising nothing calling for special notice; Mr. Matthews had the best six caladiums, showing finely developed plants of leading varieties; Mr. G. Pymm had a close second. Coleus took the form of well-grown pyramids; Mr. Matthews was first, and Mr. Kiff, gardener to J. Kemp, Esq., Trowbridge, a very close second.

GROUPS OF PLANTS were a good feature, but to do them justice they should have a tent to themselves. Mr. Pymm was first, and Messrs. E. Cole and Sons second. Mr. Pymm made a bold group, having at the back palms, very fine Campanula pyramidalis, suitable foliage and flowering plants; Messrs. Cole and Sons also had a bright arrangement of cut flowers.

CUT FLOWERS.—Roses took a decided lead, Mr. J. Mattock, of Oxford, showing in very fine character, and it is long since we saw such very good roses staged at so advanced a period of the season. Mr. Mattock had the best twelve varieties, three trusses of each, having brilliant blooms of Madame Victor Verdier, Charles Lefebvre, Maréchal Niel, very fine in colour; Maman Cochet, Marie Van Houtte, Grand Mogul, Mrs. J. Laing, and Ernest Metz; Dr. Budd, Bath, was second, his leading blooms were Madame Hoste, Medea, Maman Cochet, Madame Victor Verdier, &c.; third, Mr. A. A. Walters, Bath. With thirty-six distinct varieties Mr. Mattock was again first, having fine examples of Her Majesty, Alfred Colomb, Mrs. J. Laing, Horace Vernet, H. Schultheis, Marchioness of Londonderry, Great Mogul, Fisher Holmes, Duchess of Bedford, L'Eclair, Madame Hoste, Princess of Wales, Kaiserin Aug. Victoria, &c.; second, Mr. Thomas Hobbs, Easton, Bristol. Mr. Mattock was also first with the best twenty-four and the best twelve blooms, chief among his blooms were Annie Wood, Mrs. J. Laing, Horace Vernet, Maman Cochet, L'Eclair, Maréchal Niel, Marie Van Houtte, &c.; Mr. A. A. Walters was second with twenty-four: and Dr. Budd third; Dr. Budd was second with twelve; and Mr. A. H. Grey, Bath, third. Mr. Mattock came in first with twenty-four teas, not less than twelve varieties, having in very fine character Maréchal Niel, Catherine Mermet, Anna Olivier, Madame Hoste, Princess of Wales, Maman Cochet, Luciola, &c.; second, Mr. C. T. Mattock, Headington; and Mr. A. H. Gray third. With twelve blooms also Mr. Mattock was first, and Dr. Budd second. With twenty-four dahlias, Mr. G. Humphries, Langley, Chippenham, was first; and Mr. J. Walker, Thame, second, though the latter, in our opinion, deserved the first prize, as his blooms were the freshest, brightest, and most perfect, an opinion in which both exhibitors coincided. Mr. Walker had finely-finished, though not quite full-sized blooms of S. Mortimer, Buttercup, Mr. J. Greaves, Florence Tranter, Nubian, Miss Cannell, George Wyatt, Arthur Rawlings, R. T. Rawlings, John Standish, &c. Messrs. J. Cray and Son, Frome, were first, and Mr. J. Lindsay, Frome, second, with twelve varieties. Mr. G. Humphries had the best twelve fancies, chief among them Hercules, Mrs. Saunders, Frank Pearce, Rev. J. B. M. Camm, Mabel, Dazzler, Comedian, Lottie Eckford, &c.; Mr. J. Walker was second. Mr. J. Burgess, Kingswood, was first with twelve bunches of single varieties, and Mr. Thos Carr second. With twelve bunches of pompons, Mr. J. Walker was first, and Messrs. Cray and Son second. Mr. George Humphries had the best twelve bunches of cactus varieties; Messrs. Cray and Sons were second.

Asters, though decidedly better than at Taunton, were not up to their usual mark, the Comet varieties being in the best character. Some very good hollyhocks were shown by Mr. Smith, of Kingswood. There were verbenas also, but they were very poor; sweet peas also, cut zonal pelargoniums, and very good carnations and picotees for the season. Mr. F. Hooper, Bath, was first in both classes. Cut flowers in twenty-four bunches were represented by stove and greenhouse plants of good character; Mr. H. Matthews was first, and Messrs. Stokes and Co., second. Gladioli were good, Mr. F. Hooper having the best twenty-four spikes, and for the dry season there were very good fancy pansies, Mr. F. Hooper also taking the first prize.

FRUIT.—The best collection of ten dishes of fruit came from Mr. W. Strugnell, The Gardens, Rood Ashton, and consisted of very good Alnwick Seedling and Muscat of Alexandria grapes, peaches, nectarines, plums, figs, &c. With six varieties Mr. Pymm was first; he had Black Hamburgh and Muscat of Alexandria grapes, peaches, nectarines, apples, and melons; Mr. Strugnell was second. A good smooth Cayenne pine won the first prize for Mr. C. Bull, Crediton. The best two bunches of black grapes were from Mr. A. Young, gardener to the Earl of Cork, Frome; Mr. J. Dole, Bristol, was second; in each case Gros Maroc was well shown. Mr. F. Smith, gardener to the Bishop of Salisbury, had the best two bunches of white grapes, other than Muscats, showing very good Buckland Sweet Water; Mr. J. Dole was second with the same. Mr. Smith had the best two bunches of Black Muscat, and Mr. Strugnell was second, both with Madresfield Court. Mr. Young was the only exhibitor of white Muscats, taking the first prize with two good bunches.

Melons were fully represented, and there were some good apricots, Moor Park predominating. Plums appeared to be generally wanting in ripeness. Cherries were represented by fine Morellos. The best dish of peaches was Violette Hative, from Mr. H. Clack, gardener to C. E. Colston, Esq., M.P., Roundway Park; Mr. A. J. Haynes being second with Barrington. Mr. Pymm had the best dish of nectarines, showing very fine Pineapple; Mr. Clack a close second with the same variety. Mr. Young had the best two dishes of dessert apples, having Beauty of Bath and Red Astrachan in excellent character; Mr. E. Fisher came second with Beauty of Bath and Irish Peach. Mr. G. Gerrish, Broughton Giffard, was first with two dishes of culinary apples, having very fine Emperor Alexander and Eclinville; Mr. E. Hall was second with Lord Suffield and Warner's King. Mr. Smith had the best two dishes of dessert pears, staging Souvenir de Congres and Bon Chretien; Mr. W. L. Mead was second with Jargonelle and another.

A very fine collection of bunches of garden roses was shown by Messrs. G. Cooling and Sons, of Bath; a thoroughly representative and highly meritorious exhibit.

ABINGDON HORTICULTURAL SOCIETY, August 18.

AFTER a lapse of a season, through lack of funds, this society held its twelfth show in the grounds of the Abbey House, the residence of E. J. Trendell, Esq., As far back as 1839 a floral society existed here, but after a chequered course it fell through. The present society was started as a cottagers' society, its earliest exhibitions being a kind of a political reunion, the funds for prizes and expenses being provided. The site of the show forms a portion of the once famed Abbey of Abingdon, and near the house may be seen what is termed "The Ruins," but which, in fact, is a representation of the old chapel which stood in another portion of the grounds, the stones which are much fretted and worn, having been brought to their present position. The chapel is roofless, and under one of the windows is a massive stone coffin, said to have held the remains of the founder.

The gardens were wonderfully bright, seventeen beds in geometric pattern being filled with pelargoniums, such as Henri Jacoby, Madame Crouse, and Souvenir d'Charles Turner, relieved by alternantheras in variety, Sedum glauca, and Echeveria glauca, mesembryanthemum, &c., with central plants of the variegated agave, blue gum, &c., the many vases of the walls being filled with Hydrangea hortensis, specimen fuchsias, petunias, and pelargoniums; the paths edged by blue tiles in cable pattern. Mr. J. Horsley is the gardener, and hot summers just suit him, as the land lies moist.

The schedule contained five divisions, with three classes open to all England; but the amount offered as prizes failed to attract more than two competitors for the three classes. For a dozen H.P. roses, in pairs, Mr. John Mattock took premier award for superior forms of Her Majesty, Charles Lefebvre, Marchioness of Londonderry, Eclair, A. K. Williams, Mrs. J. Laing, Grand Mogul, Ulrich Brunner, Abel Carriere, Madame S. M. Rodocanachi, Mrs. R. G. S. Crawford, and Horace Vernet, he being also premier for a dozen triplet teas, with grand blooms of Ernest Metz, Innocente Pirola, Madame Hoste, Catherine Mermet, Maréchal Niel (fine), The Bride, Marie Van Houtte, Souvenir de S. A. Prince, Princess of Wales, Miss Ethel Brownlow, and Anna Olivier; and as an extra he staged thirty bouquets in a dozen trusses each of tea-scented buttonhole roses, very tastefully mounted on black velvet. The first prize for two dozen dahlias was won by Mr. J. R. Tranter, Henley-on-Thames, who had some grand fancy forms and very bright colours, his selection being Mrs. Saunders, Plutarch, James Cocker, J. C. Read, Clara, Duchess of Albany, Crimson Globe, John Walker, Willie Garrett, Earl of Ravensworth, Hon. Mrs. P. Wyndham, R. T. Rawlings, Mrs. Gladstone, Mrs. J. Downie, Rebecca, James Vick, Shirley Hibberd, Matthew Campbell, John Henshaw, Pleasure, Florence Tranter, Dazzler, and Sunbeam.

The class for six plants was well filled, Mr. Aldworth, who secured the first prize with full-sized specimens of Brugmansia (Datura) Knighti, well flowered; Begonia Rex and B. metallica, Selaginella Mertensi, and a maidenhair fern; Mr. E. J. Trendell, was second, staging specimens of Dracæna indivisa, Acalypha muriaca, Lutania bor bonica, and a good Asplenium bulbiferum: Mr. Fawdry, gardener to G. Saxby, Esq., Northcourt House, occupied third place. In this section Miss Dodson, Lacie Court, and Hon. F. L. and Lady Mary Wood, The Abbey, staged a number of finely-bloomed fuchsias, agapanthus, ferns, &c., not for competition. For a pair of plants the Hon. F. L. Wood led with a large variegated agave and an agapanthus; Mr. Knight, gardener to A. E. Preston, Esq., Piccadilly, second, for Lilium auratum. The class for coleus was one of the best in the show, the plants dwarf-grown, fresh and bright, with a convex outline, G. Saxby, Esq., Mr. Ward, gardener to Mrs. E. Harris, Albert Park, and Mr. Knobes, gardener to Rev. W. Watson, The Vicarage, dividing the honours. Ferns contained no new forms, nephrolepsis, asplenium, davallia, pteris, and adiantum being generally staged. For six, Mr. J. Horsley led; and Mr. J. B. King was second for three; this last named had a good example of Todea superba. Begonias were not up to the mark, but fuchsias were above the average. Mr. F. Payton, Lombard Street, was first for three fuchsias, having good examples of Doel's Favourite, Mrs. Marshall, and Gustave Dorè.

A goodly collection of epergnes, &c., were arranged in the ladies' section. For an epergne for a dinner table Miss A. Humphreys led, with sweet peas, fern fronds, and panicles of gypsophila; Miss S. M. King second, with harpaliums, white sweet pea, begonias, &c., mixed with variegated ivy and vinca sprays. For a trio of vases Miss M. G. King took the award for arrangements of carnations, rose buds, Madame Crouse pelargoniums, and gypsophila; the best set of buttonholes were of pretty tea roses by Mrs. S. Holifield, Appleton. Mr. Payton led with show dahlias, medium size, but of spherical outline. Mr. A. G. Morris, gardener to F. C. Swindell, Kingston House, was premier for cactus forms; Mr. Knight second. Asters were generally under-sized, the best stand in the show being a dozen Comets; these were out of the running owing to the curious wording of the schedule Why quilled asters should be "German" and the remainder of the types "French" may become solved some day; the better wording of the two sections would be "quilled" "reflexed or incurved." A collection of eighteen varieties of scabious were staged by T. Tatham, Esq., which were much admired for their handsome development. Roses as shown by Mr. S. Holifield were popular kinds, only lacking a better style of mounting. There were some fine double zinnias, but the colours were limited; the bright eyed verbenas appeared to still command notice. Carnations of the yellow ground type were presented in numbers.

Fruit was excellent, and for a collection Mr. A. G. Morris was first with Alicante (wonderfully good for the period) and Foster's Seedling grapes, Sutton's Scarlet melon, July Gage plums, Moorpark apricots, and Royal George peaches; G. Saxby, Esq., second, with Beauty of Wordsley melon, Morello cherries, Moorpark apricots, Black Hamburgh and Foster's Seedling grapes and Alexandria Noblesse peaches; Mr. J. Horsley, third with a melon, apricots, Muscat of Alexandria and Black Hamburgh grapes, Alexandra Noblesse peaches and Humboldt nectarines. White grapes were generally Foster's Seedling, the awards going to Messrs. A. G. Morris and E. Aldworth; in the black grape class the order was reversed. Mr. Horsely, was first for peaches with fully ripe Alexandra Noblesse; Mr. J. Winter, gardener to E. L. Shepherd, Esq., Albert Park, second, with Royal George; Mr. Horsley, presenting the only fit dish of nectarines, Humboldt. The best melon was Hero of Lockinge, from Mr. Winter; the pears were Windsor and Jargonelle, the dessert apples being Irish Peach and Red Quarrenden. A very choice dish of red currants (Raby Castle), came from Mr. T. S. Simpson, the stalks of great length and berries large and brilliant. Plums were generally Orleans and River's Early Prolific.

Vegetables were a good feature though the number of exhibits were few. For four dishes of potatos in the members' class, Mr. A. G. Morris led with clean, large tubers of Chancellor, Satisfaction, Mr. Bresee, and Vicar of Laleham; while the best half dozen dishes in the cottagers' section came from Barnard West, Nuneham, who put up medium tubers but very shapely and bright: the varieties being Chancellor, Sutton's Seedling, Reading Russet, Edgecote Purple, Satisfaction, and Mr. Bresee. In the single dish classes, Mr. S. Abel, Bury Street, took several first prizes, his examples of Sutton's Satisfaction, and Chancellor being altogether good. The peas were generally Autocrat, and runner beans Ne Plus Ultra types. Autumn sown onions of the Tripoli and Giant Rocca class were generally weighty and well ripened, and the big forms of spring onions gave strong indications of belonging to the Ailsa Craig type. Short carrots are good, but the intermediate types appear to incline too much to the longer section. For Sutton and Sons' special class Mr. A. G. Morris led, putting up Sutton's New Red carrots, Satisfaction potatos, Ne Plus Ultra beans, Perfection tomatos, Ailsa Craig onions, and Autumn Mammoth cauliflowers; Messrs. Winter and Knobes, second and third.

BRIGHTON HORTICULTURAL SOCIETY, August 23 and 24.

THIS vigorous and admirably-managed society held its annual summer exhibition on the above dates under the most favourable climatic conditions. The exhibition was, as usual, held under the Dome and in the Corn Exchange, and in tents upon the lawn, and was fully equal to the average of the [illegible] exhibitions that have obtained for Brighton the reputation it enjoys as one of the principal centres of horticultural activity. The classes for specimen plants were not so satisfactorily filled as they have been on some previous occasions, but the falling off in this department was more than counterbalanced in other sections, more especially in those for cut flowers. The contributions to the leading classes for cut flowers were accommodated under the Dome, and the dahlias arranged along the front of the orchestra produced a brilliant effect, and afforded an excellent object lesson in the value of the cactus, single, and pompon varieties, for decorations on a large scale. Fruits, soft wooded plants, floral arrangements, and the miscellaneous cut flowers had a place in the spacious Corn Exchange, and the stove and greenhouse plants, groups, and vegetables were arranged in two large tents on the lawn. The arrangements were remarkable for their completeness, and reflected much credit upon the administrative abilities of the chairman, Mr. W. Balchin, and the secretary, Mr. J. Lewis.

SPECIMEN PLANTS were less numerous than at the exhibitions held during the past two or three years, but those contributed were fairly good. The premier award for six plants in bloom was made in favour of Mr. Offer, gardener to J. Warren, Esq., Handcross Park, Crawley, who had excellent examples of Lapageria rosea splendens, Allamanda Hendersoni, and Bougainvillea Sanderiana; Mr. E. Meachen was a capital second, his most noteworthy specimens being those of Allamanda Hendersoni and Stephanotis floribunda. Mr. Offer had a large and superbly-coloured example of Croton Weismanni in the class for a single specimen foliage plant, and obtained premier honours. Mr. Offer was first also for six exotic ferns, contributing specimens of large size and superbly finished, the most noteworthy being that of Davallia polyantha.

CUT FLOWERS were contributed in immense numbers, and constituted a feature at once interesting and attractive. Dahlias constituted an important part of the section devoted to cut flowers, and arranged along the front of the orchestra produced a brilliant effect. There were four entries in the great class for forty-eight show or fancy varieties, and the post of honour was occupied by Mr. S. Mortimer, Farnham, with superbly-developed blooms of Flag of Truce, J. T. West, Hercules, Henry Bond, Glow Worm, Kathleen, Henry Keith, Diadem, W. H. Williams, Mrs. Saunders, Mrs. Gladstone, Thomas Goodwin, Willie Garratt, Goldfinch, Duke of York, and other good varieties; Mr. F. W. Seale, Sevenoaks, was a good second with excellent blooms; Messrs. J. Cheal and Sons, Crawley, were third with blooms rather below the average in size, but exceedingly well finished; Mr. W. Peters, gardener to J. C. Hare, Esq., Holmhurst, St. Leonards, was fourth with well-developed blooms, which suffered somewhat from being staged on a light green stand. In competition for the prizes for twelve blooms of show and fancy varieties, Mr. T. J. Mitchell, gardener to Sir James Colquhoun, Bart., Hastings, Mr. H. J. Stenning, Tunbridge Wells, and Mr. T. Burtenshaw were awarded the prizes in the order of their names for blooms differing but little in relative merit. There were six competitors in the class for twelve varieties of cactus dahlias, six blooms of each, and the several collections produced a glorious display of colour. Mr. S. Mortimer was successful in obtaining premier honours, his blooms being large, fresh, finely-coloured, and effectively staged; Mr. J. Stredwick, St. Leonards, was a capital second with fairly-developed blooms, these including a new variety shown under the name of Magnificent, and having finely-formed flowers of a soft shade of light red; this had a first-class certificate conferred upon it by the judges; Mr. H. Shoesmith, Woking, was a close third with blooms of high quality. The successful exhibitors in the class for six varieties of cactus dahlias were Mr. Stenning, Mr. T. J. Mitchell, and Mr. J. Harper, Preston, all of whom had excellent collections. Pompon dahlias were admirably represented, and in the class for twelve varieties, ten blooms of each, Messrs. J. Cheal and Sons, Crawley, obtained premier honours with a collection of splendidly-finished blooms; Mr. J. Stredwick was second; and Mr. Seale third. Single dahlias were not less satisfactorily staged than were the blooms in the other sections, and in the principal class—that for twelve varieties, ten blooms of each—the post of honour was occupied by Messrs. J. Cheal and Sons, with blooms distinguished by their freshness and finish; Mr. Seale was a good second.

Collections of cut flowers of stove and greenhouse plants were, as is customary at Brighton, numerous and of a high order of merit. Mr. W. Archer, gardener to Mrs. Gibson, Hill House, Saffron Walden, obtained premier honours for twenty-four kinds with superb bouquets of Lapageria alba, Browallia elata, Euchris amazonica, Ixora Williamsi, Erica cerinthoides coronata, Allamanda grandiflora, and other good things. Mr. J. Davis, Cuckfield, was a capital second. Roses were well represented for so late in the season. Mr. W. Tayler, Hampton, and Mr. J. R. Box were first and second in the class for twenty-four varieties with medium-sized and fresh blooms, and Mr. G. W. Pipon, Uckfield, was a very close third with excellent blooms. For twelve teas, Mr. H. Harris, Horsham, Mr. G. W. Piper, and Mr. J. R. Box, Croydon, were the prizetakers in the order of their names with good blooms for the season. Gladioli were rather below the average of those staged at Brighton in past years, and it will suffice to say that Mr. J. Stenning and Mr. Peters were first and second respectively with neat spikes. Cut flowers of hardy perennials constituted a delightful and highly interesting feature. Mr. J. Charlton, Tunbridge Wells, was first with magnificent bouquets of Scabiosa caucasica, Helenium Biglowi, Crinum Powelli, Lilium auratum, L. speciosum, Rudbeckia Neumanni, Lathyrus latifolius albus, and other well-known hardy plants. Mr. W. Manton, Cuckfield, was second, and had a remarkably good collection. In the smaller class for twelve bunches, Mr. Mitchell was first with an admirable collection, and Mr. W. G. Anderson, Brighton, and Mr. Rapley, Withdeane, were second and third.

FRUIT.—The fruit classes were, as usual, well filled, and the majority of the entries in the numerous classes represented cultural skill of the highest order. Mr. Duncan, gardener to C. J. Lucas, Esq., Warnham Court, Horsham, was first in the class for three bunches of Muscat of Alexandria, with large shapely clusters, remarkable for the size and rich colour of the berries; Mr. W. Mitchell was second with clusters of medium size and superbly finished; Mr. W. Taylor, Tewkesbury Lodge, Forest Hill, was third with excellent bunches. For three bunches of white grapes other than Muscats, Mr. W. Taylor was first with magnificent examples of Buckland Sweetwater, Mr. W. Cheater was second, and Mr. T. Osman third. Two classes were provided for black grapes, and in that for Black Hamburgh Mr. W. Mitchell was first with splendidly coloured clusters, Mr. T. Osman was second, and Mr. J. Allan third. For black varieties other than Hamburghs Mr. W. Mitchell occupied the post of honour with superb examples of Gros Maroc, Mr. W. Taylor was a close second with Madresfield Court, and Mr. T. Osman third with Alicante. There was a keen contest for the prizes for melons, and for a pair Mr. F. W. Thomas, Polegate, was first with Hero of Lockinge and The Countess.

Peaches and nectarines were admirably shown, and for two dishes of peaches the Brighton Florists' Stores were first with Barrington and Violette Hâtive; Mr. G. Duncan, second, with Teton de Venus and Dymond. Mr. Mitchell staged remarkably fine fruit of Sea Eagle in the class for one dish of peaches, and was awarded the first prize. Nectarines were especially good, and splendidly finished examples of Downton secured the premier award for Mr. A. [illegible], Sevenoaks, in the class for a single dish. For two dishes Mr. F. Chatfield was first with excellent fruit of Pineapple and Elruge. Plums were well shown, and Mr. Dedman had the best four dishes, the varieties being Black Diamond, Washington, Victoria, and Purple Gage; Mr. Thomas, second.

The collections of fruit arranged with plants and cut flowers formed a very [illegible] feature, and the handsome silver cup presented by Mr. Councillor Stafford, [illegible] the first prize, was awarded to Mr. D. Gibson, Kingston-on-Thames.

DECORATIVE PLANTS.—The classes for these were mostly well filled, and in competition for the prizes for dracænas Mr. H. Garnett, Preston, obtained premier honours with well-finished and richly-coloured examples; Mr. J. Warren, Handcross, second. Crotons, grown in eight-inch pots, were highly meritorious, and Mr. H. Garnett was first with brightly-coloured examples, closely followed by Mr. Warren for second place. Gloxinias were considerably above the average, the collections from Mr. Boyling, Hurstpierpoint, and Mr. T. Fairs, Hassocks, who were first and second, were of great excellence. Zonal pelargoniums produced a bright display of colour. For four double varieties Mr. Meachen, Withdeane, was first with superbly-developed specimens: Mr. G. Miles, Brighton, second. Begonias made a bright display, and the first prize was awarded to Mr. E. Boyling.

GROUPS.—In the class for groups arranged in a semicircle occupying a space of 200 feet. Mr. G. Miles, Victoria Nurseries, Brighton, was first with a beautiful arrangement of crotons, caladiums, aralias, palms, &c. This group would have been perfect had it not been for the background being a little heavy. The second prize was awarded to Mr. Meachen, of Woodside, Withdeane, for a charming light arrangement. For a smaller group Mr. Turner took first with a pretty light arrangement; Mr. Sims being second. Groups of ferns were well shown, Mr. Adams, of Hornsey, near Lewes, coming in first.

VEGETABLES were well shown, especially potatos, carrots, and onions. The first prize for a collection of nine varieties was awarded to Mr. Gibson, of Kingston-on-Thames; Mr. H. Knight being a close second. For a collection of potatos Mr. Draycot, of Buxshall, Lingfield, was first; and Mr. Friend, of Rooks Nest, Godstone, was second. For a single dish of kidney potatos Mr. Burtenshaw was first, and Mr. H. Knight second, both with Duke of York. In the corresponding class for rounds, Mr. Mitchel, of Romsey, Hants, took first. Both dwarf and runner beans were well shown, in the former Magnum Bonum was prominent, in the latter, Best of All.

MISCELLANEOUS CONTRIBUTIONS were of much interest; Messrs. J. Veitch and Sons, of Chelsea, exhibited a large collection of flowering and ornamental-leaved plants and orchids, including many novelties. Mr. G. W. Piper, Uckfield, staged a large and tastefully arranged collection of tea roses; Messrs. H. Cannell and Sons, Swanley, presented a brilliant group of cannas; Mr. J. Charlton staged a fine collection of pompon and cactus dahlias. Messrs. Balchin and Son, Brighton and Hassocks, contributed a handsome collection of plants and cut-flowers. From Messrs. J. Cheal and Sons came an attractive table of plants, and Mr. J. Hudson exhibited a collection of new hybrid water lilies.

NATIONAL CARNATION AND PICOTEE SOCIETY (NORTHERN SECTION).

THE annual exhibition of this society was held at the Botanical Gardens, Manchester, on Saturday, August 13. Notwithstanding the somewhat unfavourable season, there was a good variety of bloom exhibited, although the exhibitors from the northern counties were not so well represented as usual, the bulk of the prizes going to the Midland growers. Some capital blooms were shown, the strongest sections being bizarres and flakes and picotees, while there was also a creditable collection of self colours and yellow grounds.

The arrangements for the show were carried out by a committee, of which Mr. T. Lord is secretary, and during the afternoon and evening there was a large attendance of the public.

In competition for the prizes for twelve carnations, bizarres and flakes, all dissimilar, Mr. R. Sydenham was first with George Melville, William Skirving, Seedlings (two) Master Fred, Rob Roy, J. S. Hedderley, Gordon Lewis, John Wormald, George Rudd, Seedling, and Mrs. Rowan. Mr. T. Lord occupied the second place with Bruce Findlay, Robert Houlgrave, Arline, Thaddeus, George, Mrs. T. Lord, Dan Godfrey, Robert Lord, Mrs. Shaw, Magpie, J. S. Hedderley, and Mrs. May.

The class for twelve picotees, white grounds, all dissimilar, was a good one. First, Mr. T. Lord, with seedling (four) Favourite, Thomas William, Mrs. Rodgers, Lena, John Smith, Brunette, Mrs. Gorton, and Mrs. Sharpe. Mr. R. Sydenham was second with Amy Robsart, Ganymede, Mrs. Gorton, Mrs. Payne, Mrs. Kingstone, Favourite, Muriel, Somerhill, Brunette, Mrs. Openshaw, Pride of Leyton, and Mrs. Beswick. For six carnations, Bizarres and Flakes, dissimilar, Mr. F. W. Goodfellow, Walsall, occupied the first place with a stand comprising Thaddeu, Charles Henwood, Martin Rowan, Sportsman, Robert Houlgrave, and Edward Rowan. Mr. A. R. Brown was a capital second with Robert Lord, Mrs. William Steele, Merton, Gordon Lewis, Medhurst's Seedling, and J. P. Sharp. Mr. F. W. Goodfellow obtained premier honours for six white ground picotees with Ganymede, Little Phil, Esther, Mrs. Gorton, Thomas William, and Brunette. Mr. C. Head, Hebden Bridge, second.

There was a good competition for the prizes for six selfs, and Mr. C.F. Thurston had the premier award made in his favour, his varieties being Duke of Orleans, Seagull, Miss A. Campbell (2), Sweetbriar, Mrs. E. Hambro (2), Exile (2), Mrs. James Douglas, and Emir. Mr. A. W. Jones, second, with Britannia (2), Seagull (2), Mrs. J. Douglas, Mrs. Mac Rae, Germania (2), Mrs. Colby Sharpin (2), Lady Hindley, and Gilda. Six selfs only.—Mr C. Head, first, with Exile (2), Miss A. Campbell, Nabob, Niphetos, and Mancunian; Mr. A. R. Brown, second, with Her Grace. Sweetbriar, Topsy, Regina, Germania, and Sadek. Twelve fancy or yellow ground carnations and picotees were admirably represented, and Mr. A. W. Jones, Birmingham, obtained premier honours with Voltaire (2), The Gift (2), Monark, Sport, The Wish, Eldorado (2), George Cruikshank, Wanderer, and May Queen. Messrs. Thomsons, Birmingham, were second, staging Voltair (2), Mr. Nigel, Golden Eagel, Monarch, Yellow Hammer, Perseus, The Gift, Mrs. Douglas, Xerxes, May Queen, and Ladas. For six fancy or yellow ground carnations and picotees, Mr. C. F. Thurstan was at the head of the competitors, staging The Gift, Voltaire, Golden Eagle, Mr. Nigel, Eldorado, and Yellow Hammer; Mr. H. G. Owen, second.

There was a strong competition in the classes for single blooms, and the awards were made as follows: Scarlet bizarres—Mr. R. Sydenham, first, with Robert Lord; Mr. T. Lord, second, with Robert Houlgrave. Crimson bizarres—Mr. T. Lord, first, with Bruce Findlay; Mr. R. Sydenham, second, with Master Fred. Pink and purple bizarres—Mr. R. Sydenham, first, with Sarah Payne; Mr. T. Lord, second, with Wm. Skirving. Scarlet flakes—Mr. W. Pemberton, first, with Sportsman; Mr. T. Lord, second, with Sportsman. Rose flakes—Messrs. Thomsons, first, with Mrs. Rowan; Mr. T. Lord, second, with Mrs. T. Lord. Purple flakes—Mr. Sydenham, first, with Gordon Lewis; Messrs. Thomsons, second, with Gordon Lewis. Heavy red picotees—Mr. T. Lord, first, with Brunette; Mr. A. R. Brown, second, with Ganymede. Light red picotees—Mr. T. Lord, first, with Thomas William; Mr. F. W. Goodfellow, second, with Thomas William. Heavy purple picotees—Mr. A. R. Brown, first, with Mrs. Openshaw; Mr. R. Sydenham, second, with Mrs. Openshaw. Light purple picotees—Mr. A. W. Jones, first and second, with Somerhill. Heavy rose, scarlet, or salmon picotees—Mr. C. F. Thurston, first, with Lady Louisa; Mr. R. Sydenham, second, with Mrs. Payne. Light rose, scarlet, or salmon picotees—Mr. T. Lord, first and second, with Favourite.

The premier prize for the best carnation in the whole exhibition was won by Mr. T. Lord, with Mrs. May, rose flake; and the premier prize for the best picotee was won by Mr. F. W. Goodfellow, with Mrs. Gorton, light-red picotee.

ANSWERS TO CORRESPONDENTS

Oil Stove for Greenhouse.—Colby, Harrogate: We do not advise oil stoves for heating, except in the case of small greenhouses and conservatories; but, unfortunately, you did not state the dimensions of your structure. We do not in this column recommend tradesmen of any kind, and, so, for a suitable oil stove, we must refer you to those makers who advertise in our columns. When writing to them, state the height, length, and width of your house; whether span, hip-roofed, or lean-to, and position; state also that you only require to have frost excluded, and whether the house has brick walls or wooden sides.

Nectarines Shrivelling.—W. R. C., Thelwall: Judging from the evidence you have afforded us, we should say that the shrivelling is due to dryness at the roots, while the mildew on the fruits is partially a result of the peculiar shrivelling of the skin and partially caused by the "muggy" atmospheric conditions to which you refer. See that the roots are well supplied with moisture, and take care that (especially as the fruits commence to ripen) abundance of air is allowed, and all plants below are removed so as to prevent a damp atmosphere. The water passing from the pot plants may not be sufficient to thoroughly moisten the border, but enough to moisten the atmosphere when no heat and little air are afforded.

Black Spot on Tomatos.—G.P., Thame, writes: "Mr. E. Beckett deserves our thanks for his article upon tomatos, published in a recent issue, but I should like some further information from him or any other large grower anent Black Spot on the fruit. In a house heated during spring and early summer I have tomatos planted out and badly affected with the spot, while in an unheated house two yards away, planted with tomatos, I have not had a single fruit diseased. Last year I picked the damaged fruit, as suggested by Mr. Beckett, but this season they have been left to ripen and then used for cooking, after a removal of the black area. I do not find the least difference in leaving diseased fruits on the plants; in fact, I have but comparatively few diseased fruits this year." We shall be glad to hear what others have to say concerning the infectious character of Black Spot.

Gerard on Potatos.—F. W. A., Bath: The full quotation you wish for from Gerard's "Herbal," of 1597, is as follows: "It groweth naturally in America where it was first discovered, as reporteth C. Clusius, since which time I have received rootes hereof from Virginia, otherwise called Norembega, which growe and prosper in my garden, as in their owne native countrie. The leaves thrust foorth of the ground in the beginning of May, the flowers bud foorth in August. The fruit is ripe in September. The Indians call this plant papus (meaning the rootes), by which name also the common potatoes [referring to the sweet potato] are called in those countries. We have the name proper unto it, mentioned in the title [*i.e.*, of Potatos of Virginia.] Because it hath not onely the shape and proportion of potatoes, but also the pleasant taste and vertues of the same, we may call it in English potatos of America, or Virginia. The temperature and vertues are referred to the common [sweet] potatoes; being likewise a foode, as also a meal, for pleasure, equall in goodnesse and wholesomnesse unto the same, being either rosted in the embers, or boiled and eaten with oile, vineger and pepper, or dressed any other way by the hand of some cunning in cookerie."

Selection of Tulips.—S. S. W., Bournemouth: The bulb catalogues are fast coming in now, so that it will be an easy matter for you to ascertain and compare prices, for almost all firms will post you a copy of their list on application. Bulbs of many kinds often fail to give the satisfaction they should, because they are not planted sufficiently early. Early-flowering tulips are of great value in the flower garden during the spring months. They will thrive in any well-drained soil, and the only points to which it is necessary to direct special attention are to plant early in the autumn, October being perhaps the best month, and to place the bulbs about five inches apart. In growing them for the conservatory, use five-inch pots, and put three bulbs in each. Van Thols may be forced in boxes or frames, and be potted up when coming into bloom. The best for forcing are Brilliant, red; Chrysolora, yellow; Duc Van Thol, scarlet, yellow, rose, and white; Joost van Vondel, crimson and white; Kaizer Kroon, scarlet and yellow; Ophir d'Or, gold; Pottebakker, scarlet; Proserpine, bright rose; Vermilion Brilliant, scarlet; and White Pottebakker. The best for the flower garden are: *Single.*—Artus, dark scarlet; Couronne Pourpre, purple; Crimson King, crimson; Duchess of York, cherry red and white; Tabiola, carnation flaked; Kaizer Kroon, La Reine, white and rose; Thomas Moore, orange; Vermilion Brilliant, and Yellow Prince. *Double.*—Couronne des Roses, carmine; Imperator rubrorum, bright scarlet; La Candeur, white; Rex rubrorum, scarlet; Tournesol, red; and Yellow Tournesol. *Parrot.*—Admiral de Constantinople, red and yellow; Large Yellow, Mark Graaf, yellow and scarlet; Monstre Rouge, rich crimson; the mixed selections are very effective. *Species.*—T. Clusiana, white and red; T. elegans, crimson; T. fulgens, violet crimson; T. Gesneriana, scarlet; T. Greigi, dark orange and black; T. macrospeila, red, black, and yellow; T. oculis solis, scarlet and violet; T. persica, yellow and crimson; T. retroflexa, red and yellow; and T. vitellina, yellow.

Names of Plants.—W. Y., Rugby: 1, Phlebodium aureum; 2, Asplenium Fabianum; 3, a Cratægus, and 4, an Anchusa—send in flower and fruit respectively.

G. G., Wandsworth: So far we have been unable to identify the oncidium you sent us. We shall be glad to have another specimen and also a leaf, if possible.

H. C., Hants: 1, Solidago canadensis; 2, Choisya ternata; 3, Kerria japonica fl. pl.; 4, Chrysanthemum maximum.

E. M., Hull: 1, An annual Linaria, florists' variety; 2, Diplopappus chrysophyllus.

W. R., Wimbledon: 1, Montbretia crocosmiæflora; 2, Diplopappus chrysophyllus; 3, Cladrastis amurensis.

S. M. C., Rutland: Yucca aloifolia.

C. P., Exeter: Veronica amplexicaulis.

F. R. J., Fulwell: 1, Erigeron speciosum; 2, Lilium tigrinum; 3, Solidago grandiflora; 4, Liatris spicata; 5, Kniphofia Tucki.

C. P. S., Retford: 1, Eulalia zebrina; 2, Campanula Mariesi; 3, Eryngium maritimum; 4, Epigæa repens.

OBITUARY.

MR. JOHN KNIGHT, for a considerable period superintendent of the private gardens at Hampton Court, died at his residence a few days since in his ninety-first year. Mr. Knight was appointed foreman of Frogmore Pleasure Grounds nearly seventy-three years ago, and for twenty years he was head gardener to the late Duchess of Kent. In 1861 he was transferred, by order of her Majesty and Prince Consort, from Frogmore to Hampton Court Palace, and until [illegible], when he retired upon a pension, he was superintendent of the Royal private gardens attached to the palace.

MRS. TAYLOR, the widow of the late George Taylor, of Stoke Newington, died, we regret to announce, at her residence at South Hampstead, on the 22nd inst., in her 84th year.

MARKETS.

Covent Garden.

THERE is a brisk demand for the ample supplies of fruit, while green vegetables are plentiful, good, and cheap. English apples, grapes, and tomatos find a ready sale at fair rates.

FRUIT.—English apples, 4s. to 8s. 6d. per bushel; Ports, 4s. to 6s. per case; pears, 3s. 6d. to 7s. per case; Dutch, 2s. to 2s. 6d. per molly; English grapes, 9d. to 1s. 6d.; Jersey, 8d. to 1s. per lb.; Denia, 5s. to 9s. per barrel; Spanish melons, 3s. 6d. to 7s. per case; green walnuts, 3s. to 4s. per bushel; lemons, 10s. to 18s. per case; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 5s. each; peaches, 1s. to 5s.; green figs, 9d. to 1s. 6d. per dozen; greengages, 9d. to 1s. 3d. per box, 4s. to 6s. 6d. per half-sieve; French plums, 3s. to 3s. 6d. per case, 3s. to 4s. 6d. per half-sieve; English tomatos, 3d. to 4½d.; Jersey, 2½d. to 3d. per lb.; Spanish, 9d. to 1s. per box; black currants, 5s. to 7s. per half-sieve; cobnuts, 3s. to 4s. per 12 lbs.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pansies, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 2s.; lily of the valley, 6d. to 1s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—French beans and scarlet runners, 3s. to 4s. per bushel; peas, 1s. 6d. to 3s. per bushel; beetroots, 2s. 6d. to 4s.; cabbages, 3s. 6d. to 5s. per tally; mushrooms, 6s. to 8s. per 12 lbs.; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s.; parsley, 1s. 6d. to 2s.; leeks, 1s. 6d. to 2s.; mint, 2s. to 2s. 6d. per dozen bunches; cucumbers, 1s. 6d. to 3s.; endive, 1s. to 1s. 6d.; cauliflowers, 1s. to 2s. per dozen; celery, 12s. to 18s. per dozen rolls; lettuce, 9d. to 1s. per score; eschallots, 12s. per cwt.; vegetable marrows, 4s. to 5s. per tally; potatos, 60s. to 90s. per ton.

Borough Potato Market.

There are medium supplies and a moderate demand. Prices are not quotably altered. English Snowdrops, Early Puritans, and Beauty of Hebron, 3s. 6d. to 4s.; Sutton's Regents and Reading Giants, 3s. 6d. per cwt.

THE WEATHER DURING THE WEEK ENDING AUGUST 20, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	87·9	55·8	69·5	20·83	0·03	[illegible]
Croydon	85·0	55·5	68·3	20·17	0·05	0·13
Brighton	—	—	—	—	—	—
Bristol	73·0	52·0	63·2	17·33	0·76	1·93
Wolverhampton	76·6	49·2	62·7	17·06	1·06	2·69
Norwich	—	—	—	—	—	—
Nottingham	79·0	53·0	63·5	17·50	0·28	0·71
Liverpool	71·2	52·3	61·2	16·22	0·25	0·63
Huddersfield	—	—	—	—	—	—
Bradford	80·0	52·6	64·8	18·22	0·03	0·08
Hull	77·0	53·0	59·8	15·44	0·05	0·13

The mean reading of the Barometer during the week at Greenwich was 29 88 inches, and that of the Thermometer 69°·5, the latter being 7°·7 above the week's average in the 50 years 1841–90. The direction of the wind was variable, the horizontal movement of the air being 1 per cent. above the week's average in the 16 years 1860–75. The duration of registered bright sunshine in the week was 61 hours. The measured rainfall amounted to 0·03 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

WEDNESDAY, AUGUST 31.—Bath Autumn Show; Two days.

THURSDAY, SEPTEMBER 1.—Stirling Horticultural Society; Two days. Maidenhead Horticultural Society.

FRIDAY, SEPTEMBER 2.—National Dahlia Society's Exhibition at Crystal Palace; Two days.

SATURDAY, SEPTEMBER 3.—Royal Botanic Society of Manchester; Amateurs' and Cottagers' Show.

AUCTIONS.

MONDAY, TUESDAY, AND WEDNESDAY, AUGUST 29, 30, AND 31, THURSDAY AND FRIDAY, SEPTEMBER 1 AND 2.—Dutch Bulbs, Orchids, &c.; Greenhouses, Hot Water Piping, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, AUGUST 31.—Hyacinths. Tulips, &c., Mr. J. C. Stevens King St., Covent Garden.

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The American Blight ... ...
Vegetables for Exhibition ... ...
Weather ... ...
Work for the Week ... ...

ILLUSTRATIONS.

A Plantation of Hybridised Strawberries in Messrs. Laxton's Trial Grounds ... ...
Inula ensifolia ... ...
Scuticaria Hadweni

A POLICE SPY who had the hardihood to make his way into a [illegible] in one of the worst districts of South London was somewhat roughly handled a [illegible]. It appears he happened to be known to one of the *habitues* of the place, and the [illegible] narrowly escaped with his life. Still more recently a man in South London [illegible] indigestion. Headache, loss of appetite, and low spirits, all joined in the attack, [illegible] fellow thought he could not escape with his life, when some true friend [illegible] recommended him to take Holloway's Pills. He took the advice and the [illegible] that he is now a happy and a healthy man.—[ADVT.]

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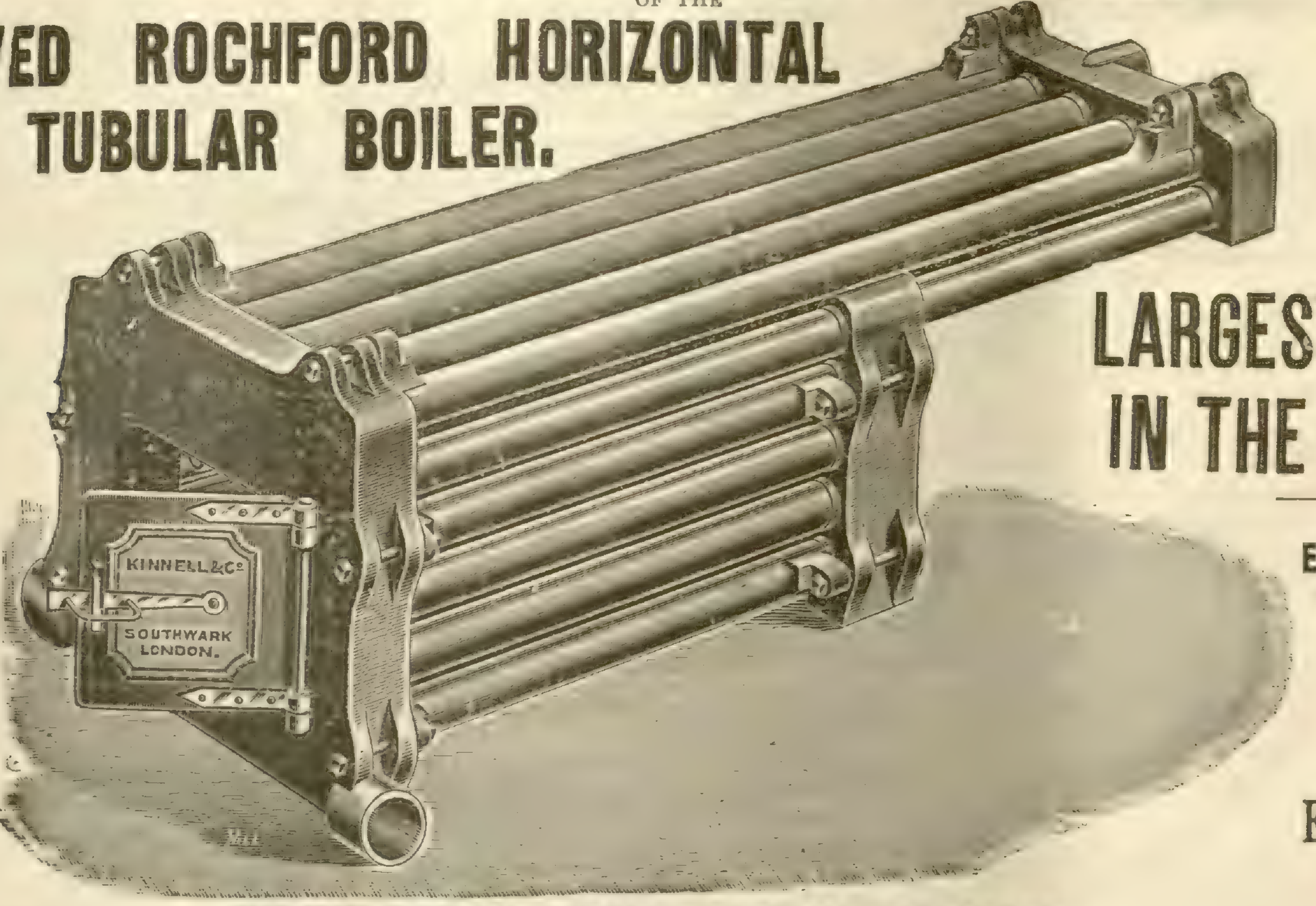

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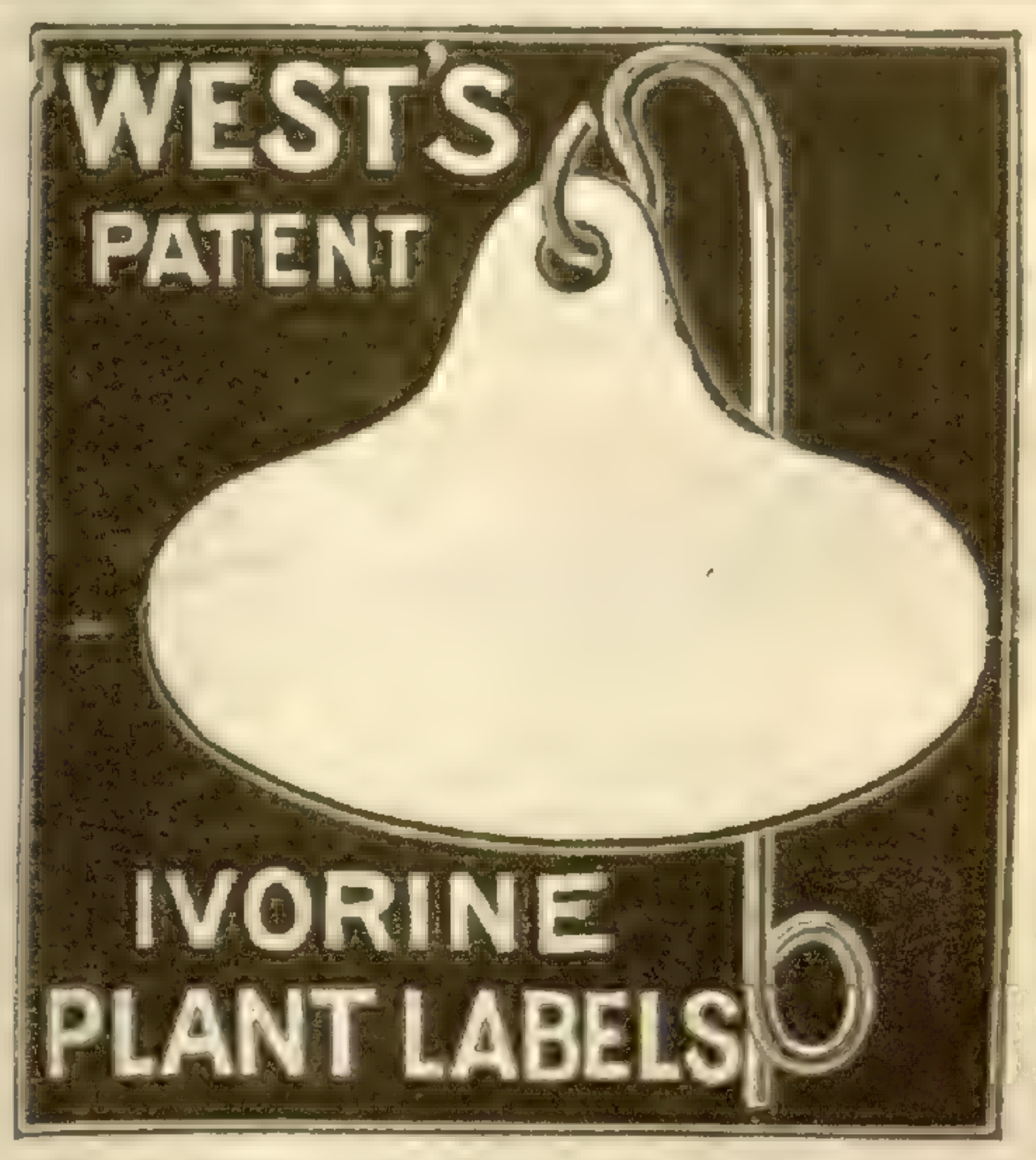

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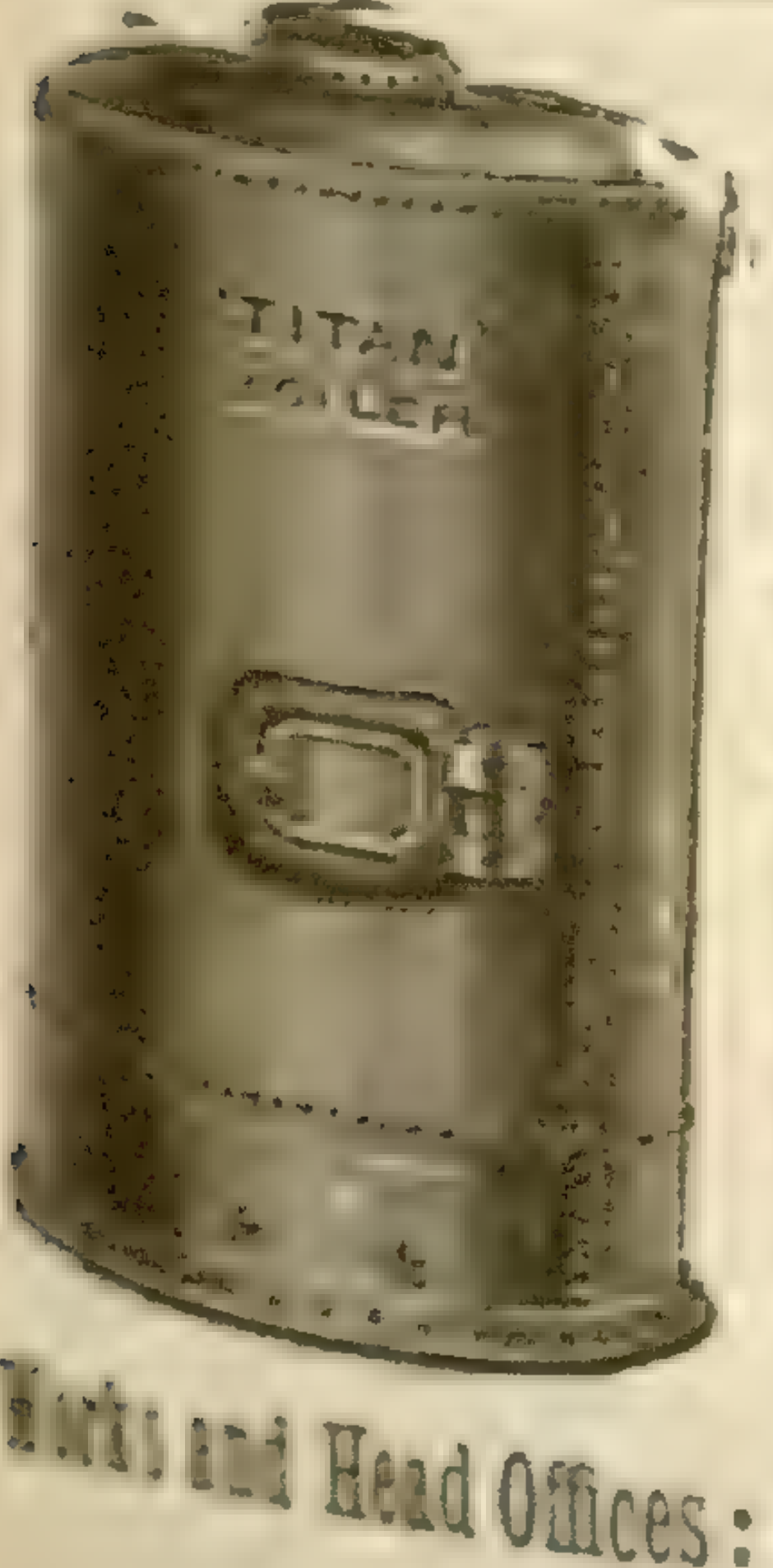

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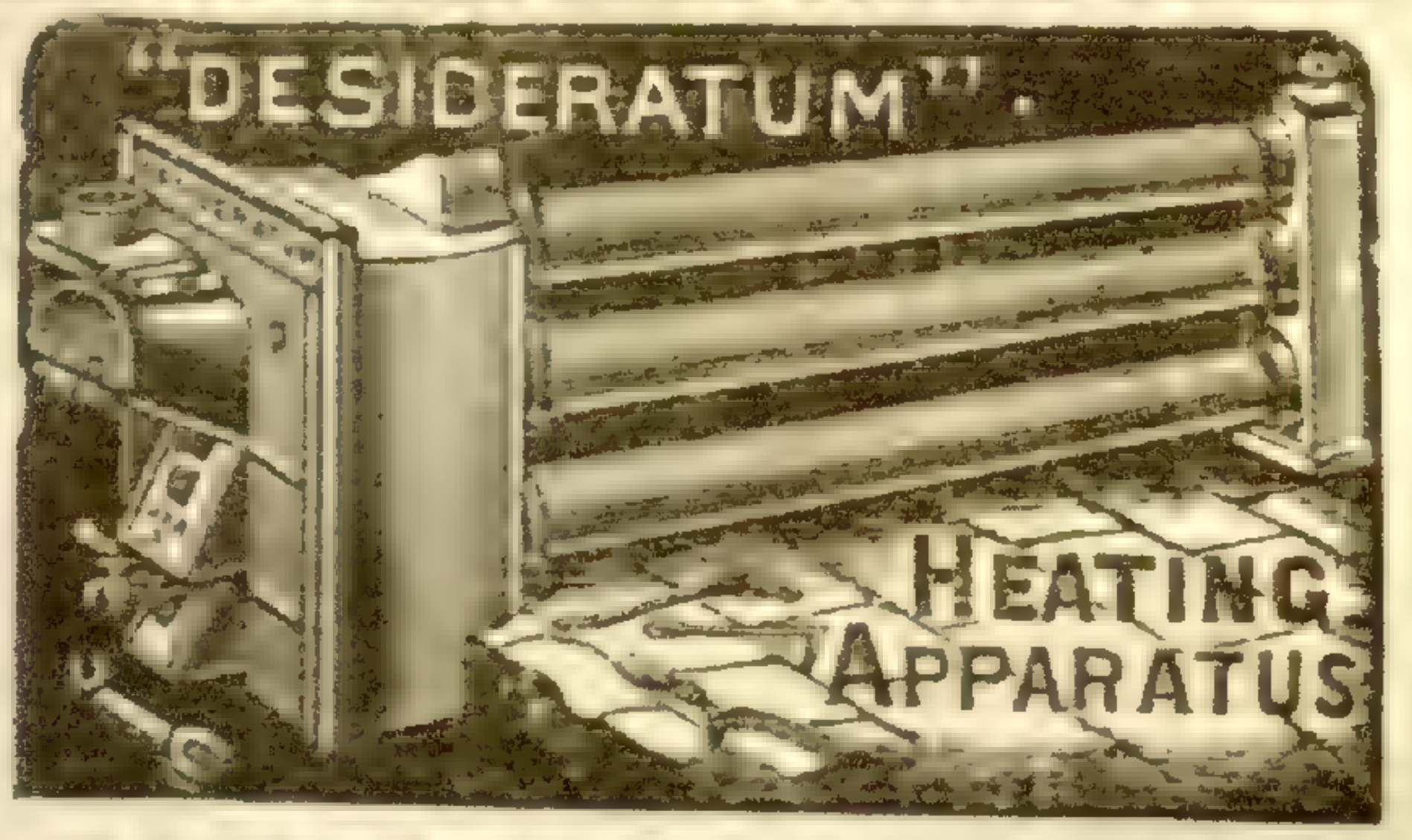

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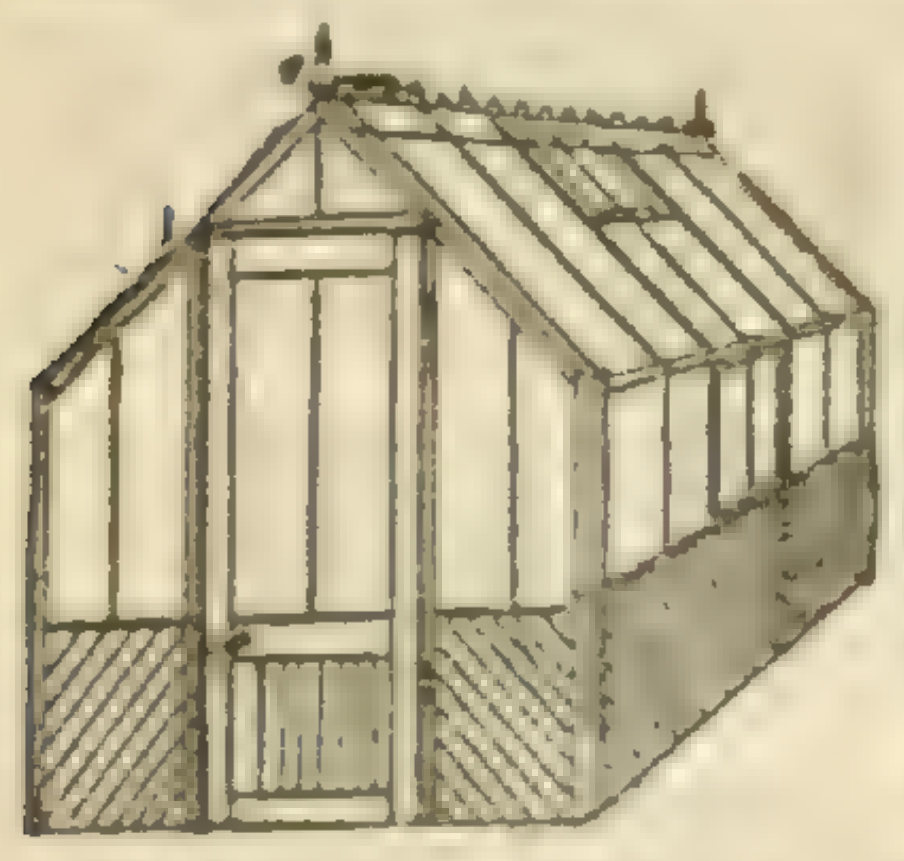

Size.	Lean-to.	Span.
8 X 5	36/-	48/6
10 X 5	48/6	58/6
14 X 6	58/6	78/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
14 X 10	95/-	£5/7/6
20 X 10	£5/17/6	£6/17/6

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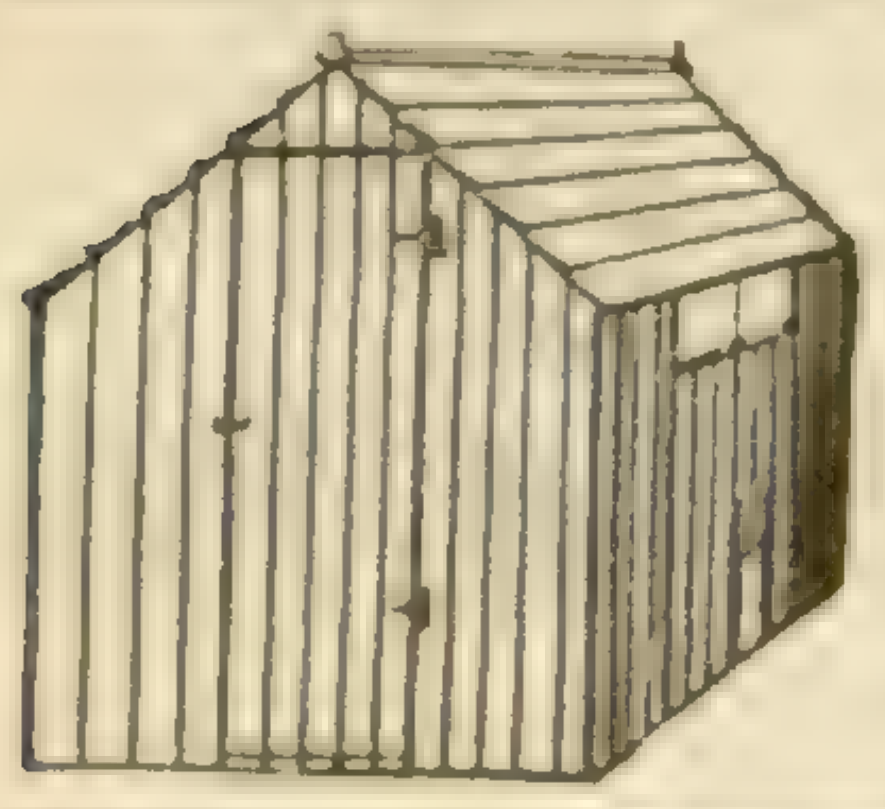

To hold.	Size.	Lean-to	Span.
Ten	4 X 3	10/9	12/9
Twenty	5 X 4	12/9	16/6
Forty	7 X 5	17/6	22/6
Hundred	12 X 7	—	33/-

(Also a few cheaper ones left.)

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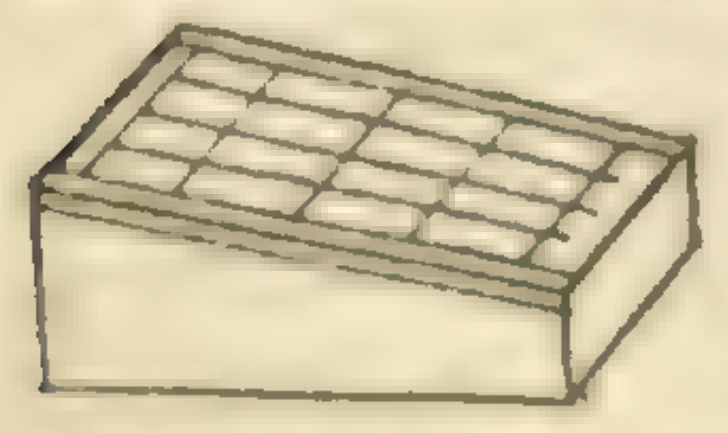

4 X 3	8/9	21-oz. glass,
6 X 4	14/6	strong lights
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12X13	100 ft.	stock sizes as stated in margin,	at 10/-	15X20
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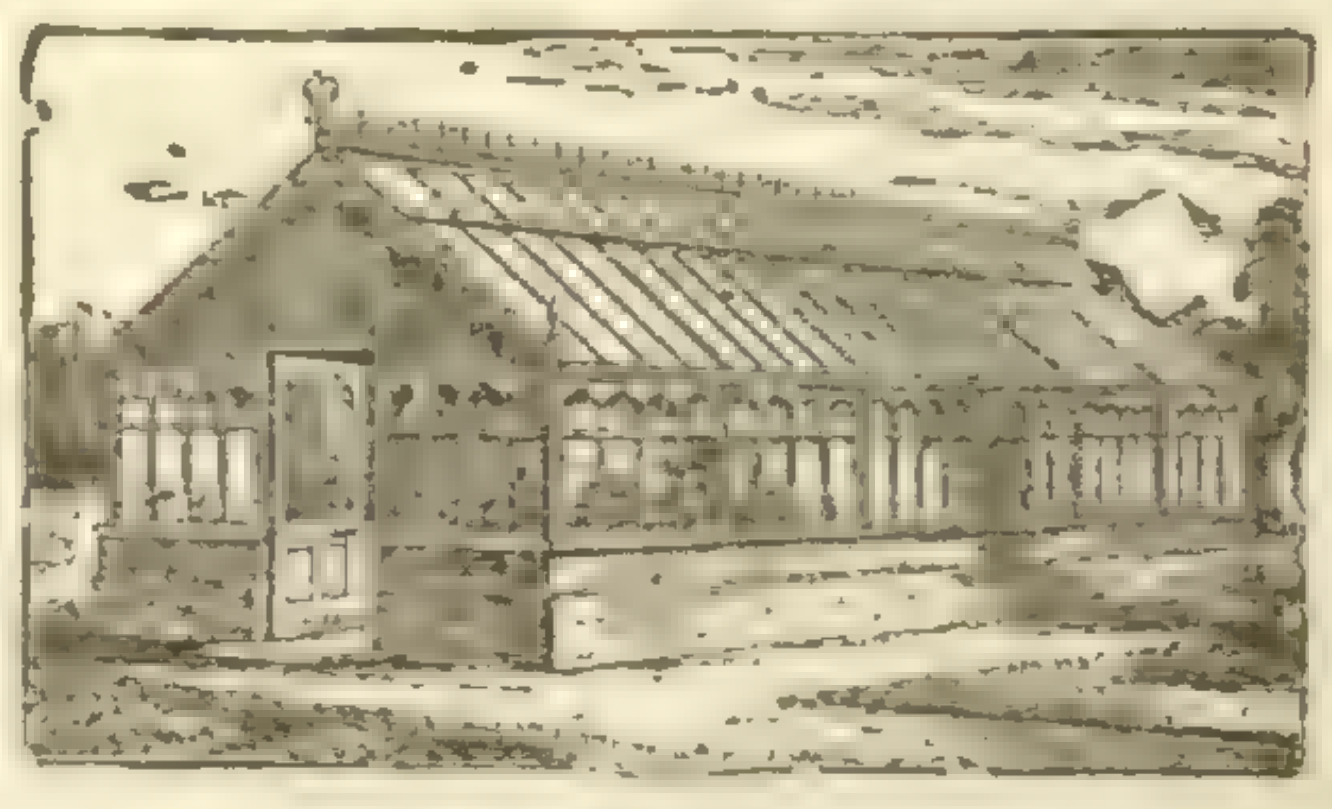

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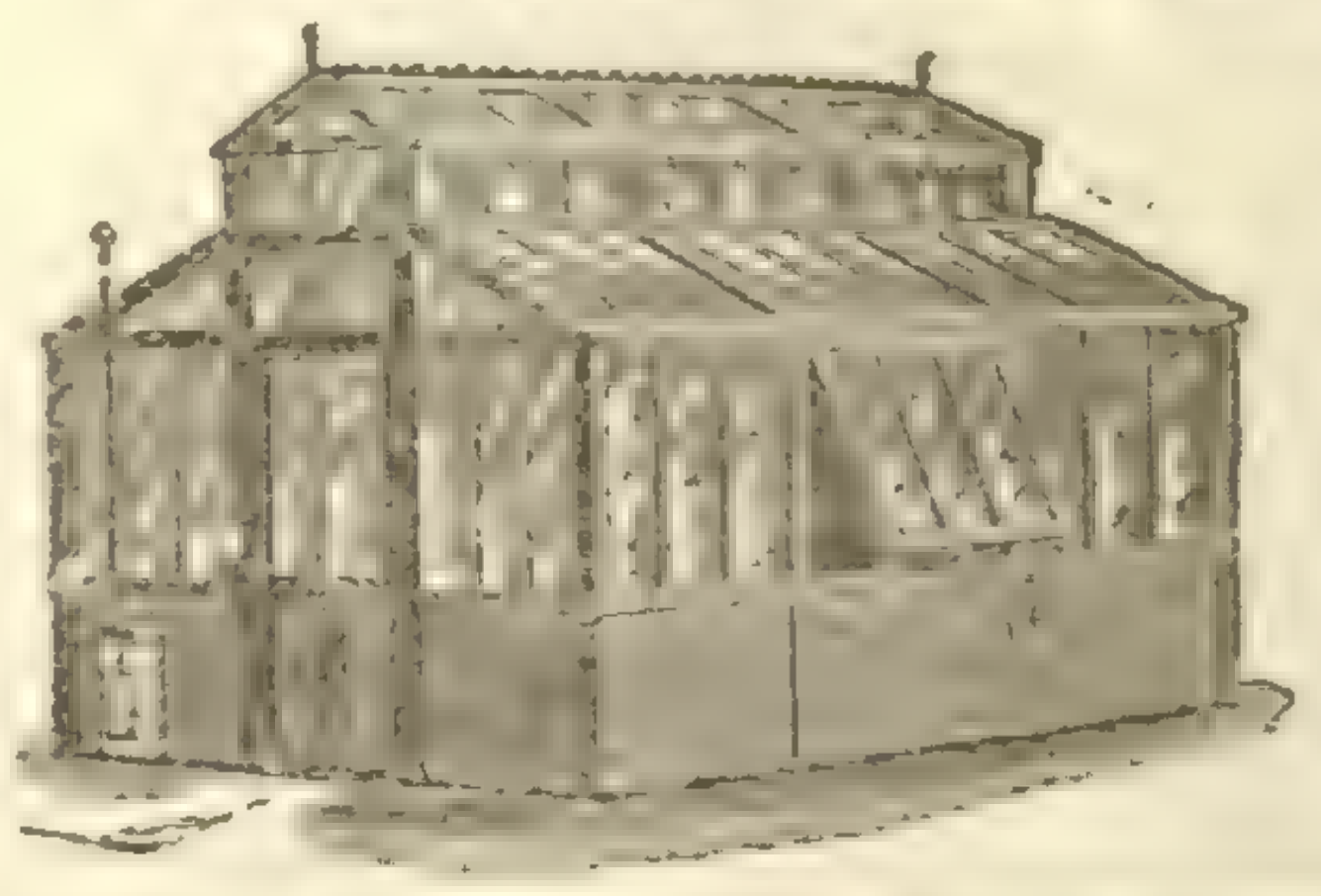

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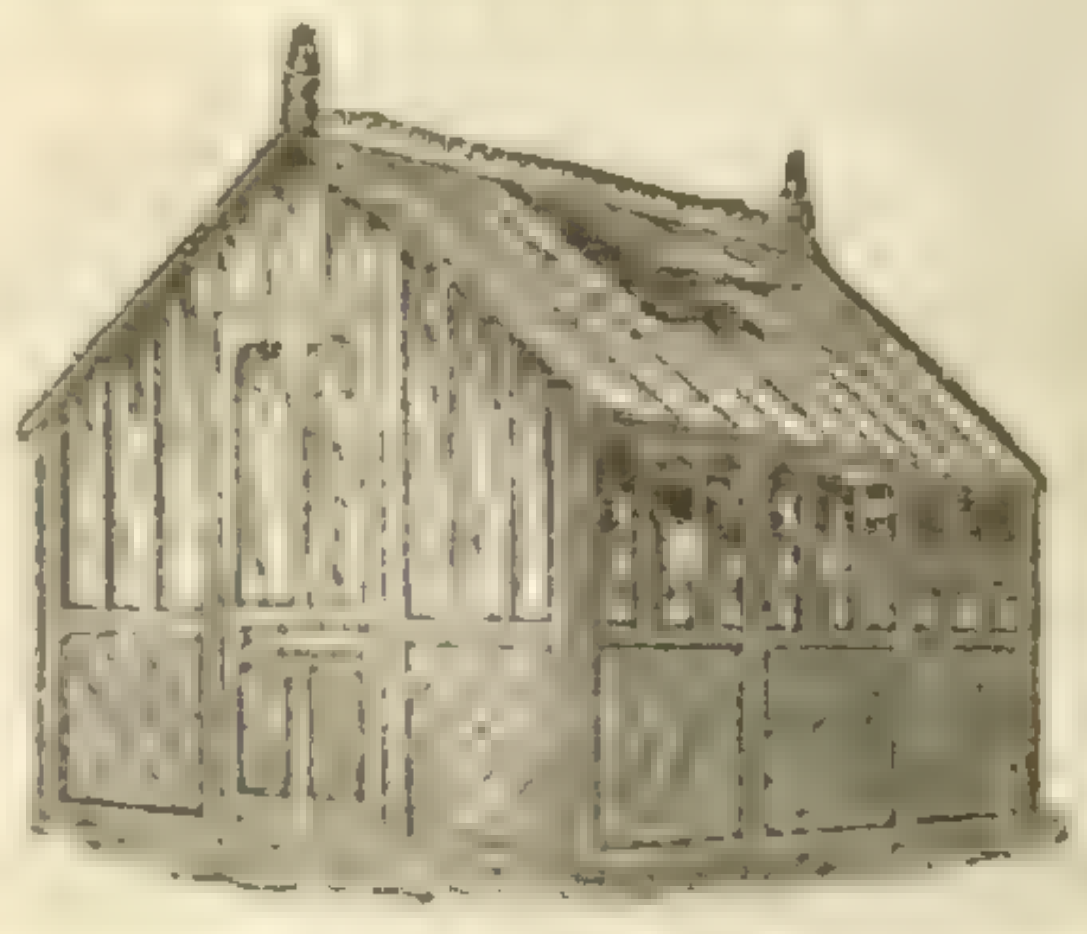

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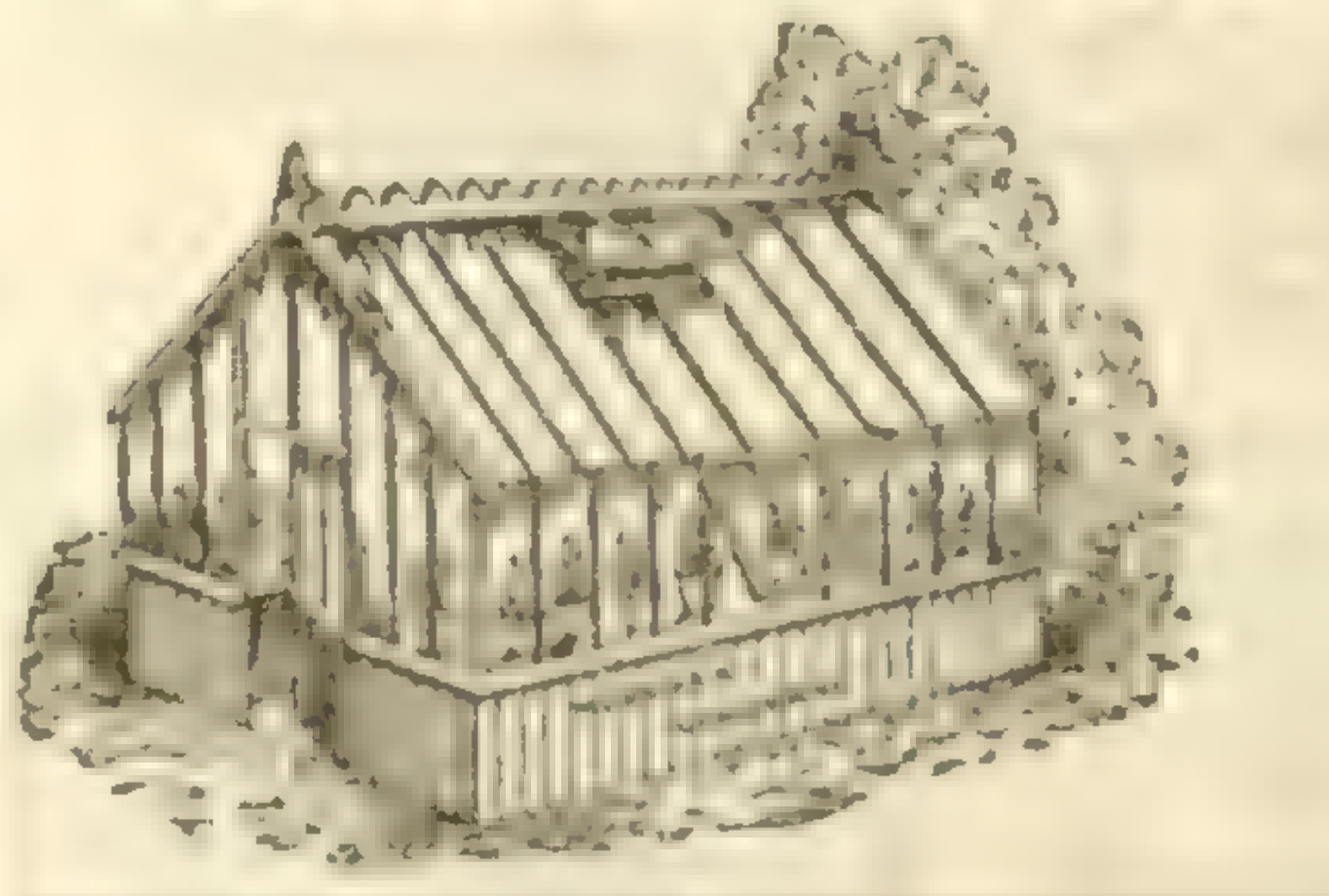

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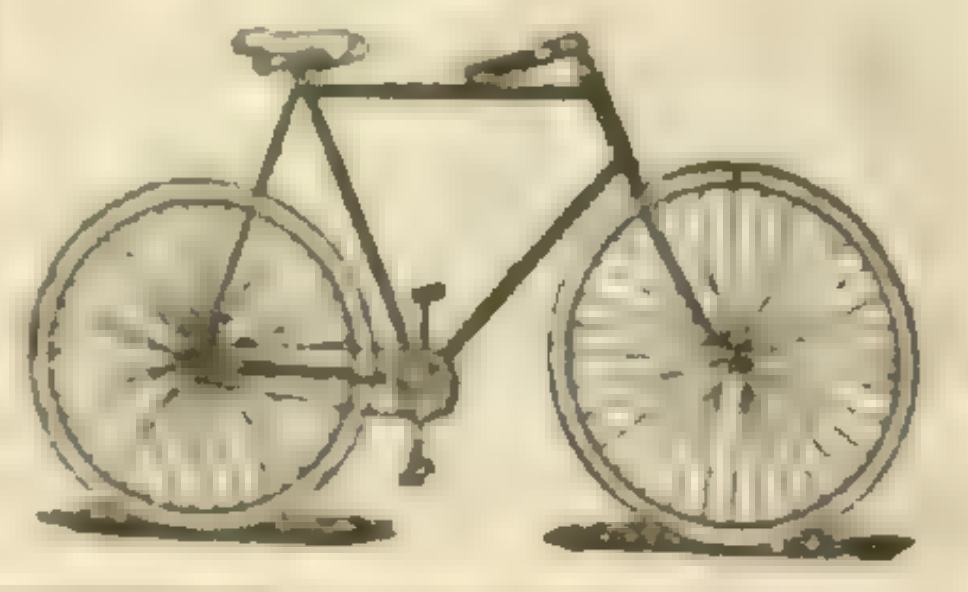

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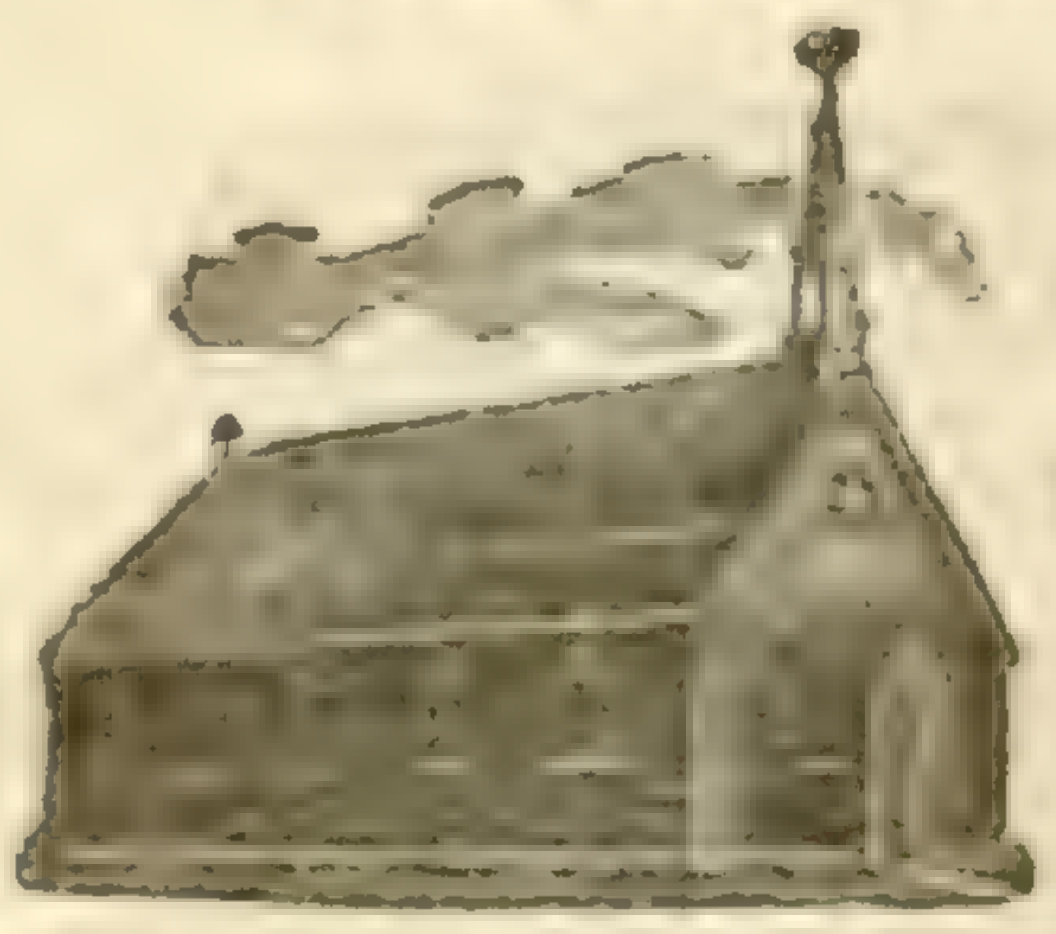

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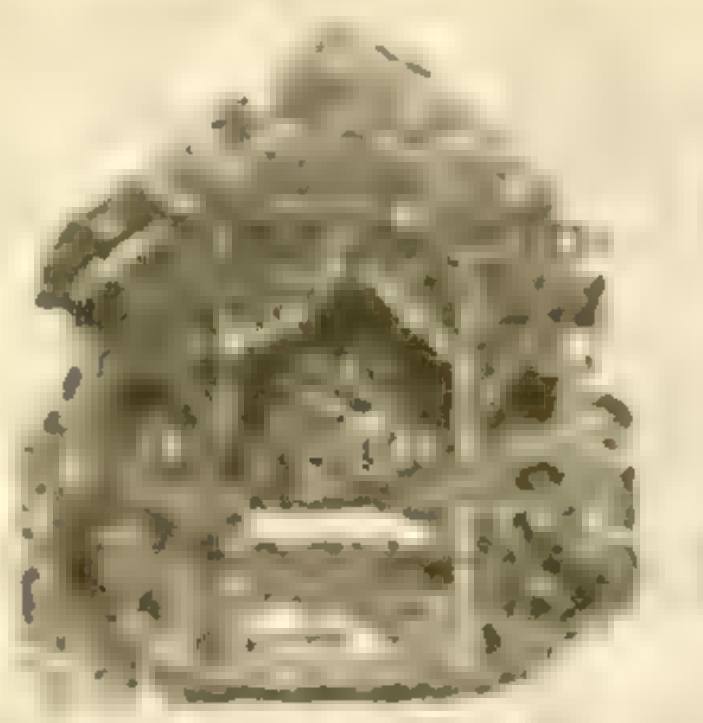

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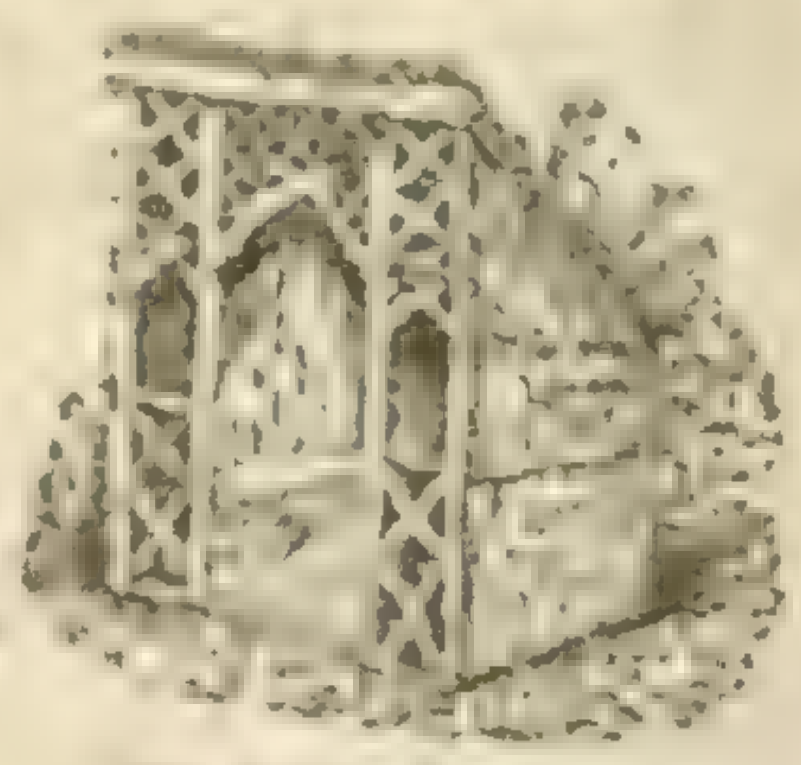

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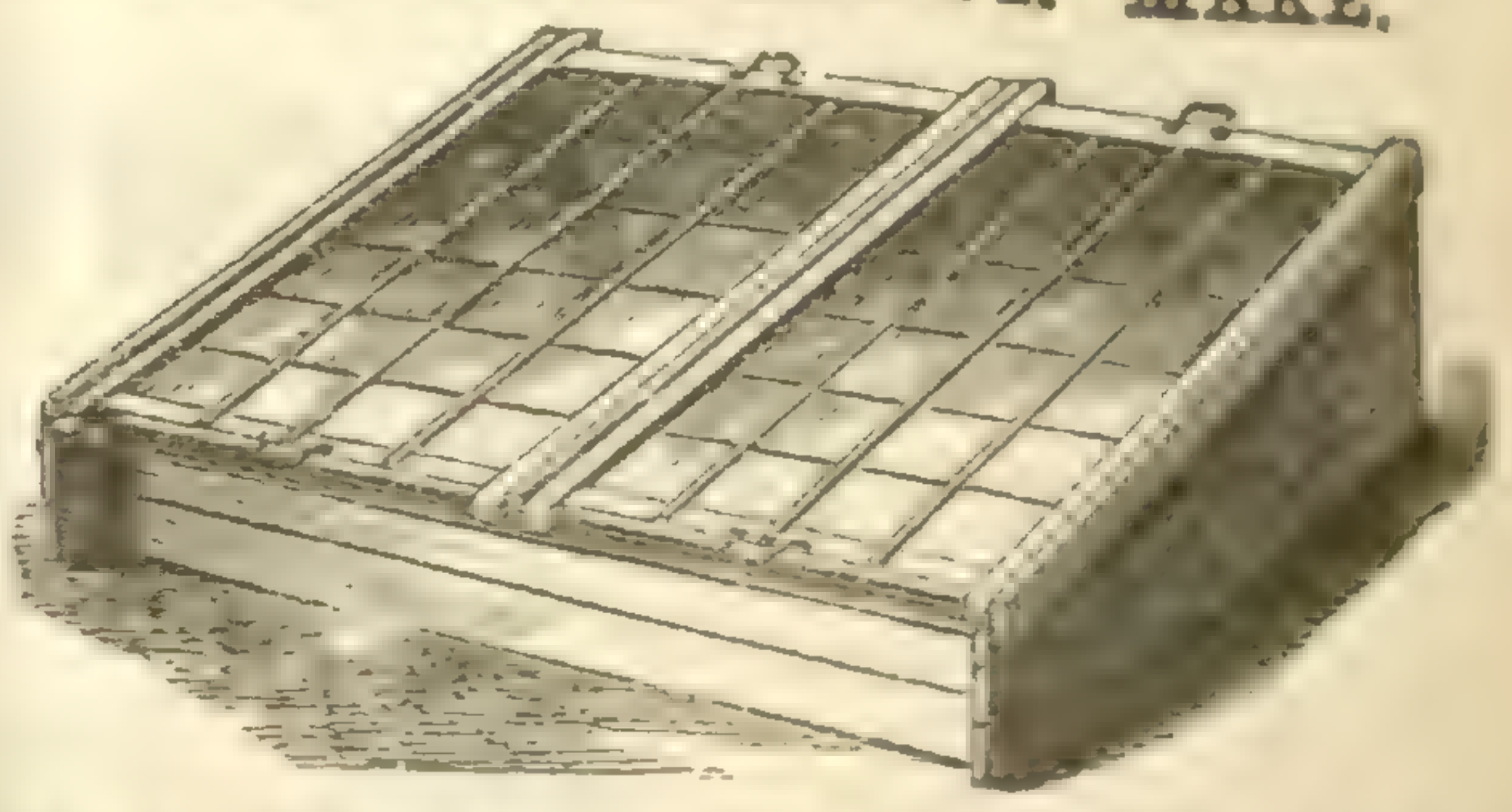

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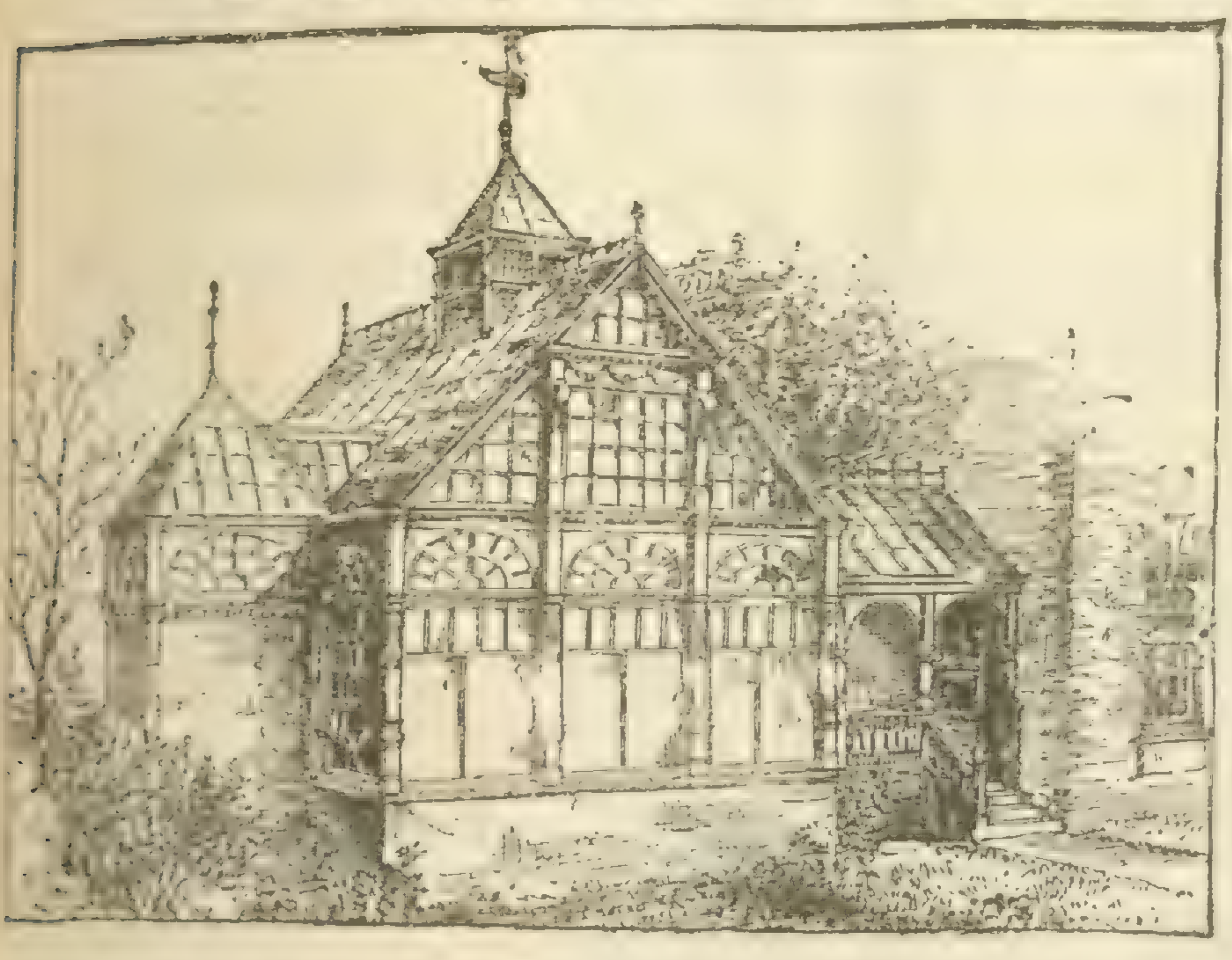

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The Auctioneers will be pleased to enter the names of intending purchasers on their Lists, who may desire a regular supply of Catalogues for their Autumn Sales.

On view mornings of Sale, and Catalogues had:

Bush Hill Park, Middlesex.

IMPORTANT SALE OF ORCHIDS, MONDAY, SEPT. 5, 1898, and GENERAL STOCK, TUESDAY, SEPT. 6, 1898.

MESSRS. PROTHEROE and MORRIS beg to announce that they have received instructions from Messrs. HUGH LOW and Co to SELL BY AUCTION at their PRINCIPAL NURSERIES, BUSH HILL PARK (near the Bush Hill Park Station of the G.E. Ry., Enfield Branch).

On MONDAY Next, SEPTEMBER 5th, a very important lot of some five or six thousand ORCHIDS.

On TUESDAY Next, SEPTEMBER 6th, an extensive stock of PALMS, STOVE and GREENHOUSE PLANTS, ROSES, &c.

The sale, which is made necessary by the near approaching termination of the lease of the Clapton Nursery, will commence each day at Eleven o'clock precisely. Catalogues free by post of the Auctioneers, 67 and 68, Cheapside, E.C.

Sidcup, Kent, S.E.

SEVENTEENTH GREAT ANNUAL TRADE SALE of WINTER-BLOOMING HEATHS, particularly well-grown, and beautifully set with flowers. Also CLIMBING ROSES, including some good pieces of Turner's Crimson Rambler, forming together one of the largest and best collections of plants ever offered by auction.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, THE LONGLANDS NURSERY, S.E., about 10 minutes' walk from the New Eltham (late Pope Street) Station, S.E.R., on WEDNESDAY next, SEPTEMBER 7th, at Eleven o'clock, by order of Messrs. GREGORY and EVANS, an enormous quantity of unusually well-grown plants, comprising:—

80,000	Winter-flowering Heaths.
10,000	Roses.
8,000	Solanums, well-berried.
4,000	Genistas.
6,000	Bouvardias.
1,000	Ficus.
3,000	Aspleniums, in 32's and 48's.
8,000	Pteris major, in 32's and 48's
5,000	Pteris Wimsetti and cristata.
2,000	Adiantum cuneatum, in 32's and 48's.
2,000	Adiantum decorum, in 48's.
1,000	Crotons.
1,000	Polypodium aurea, in 48's.
3,000	Kentias, in 60's.
1,000	Selaginellas, in 48's.
1,000	Double Primulas, in 48's.

Also an Immense Stock of Small Ferns and other Plants.

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The Second Sale will take place on the Premises as usual on the FRIDAY in the Great Annual Trade Sale Week, viz., Friday, September 16th.

Dyson's Lane Nurseries, Upper Edmonton.

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GREAT ANNUAL UNRESERVED

TRADE SALE OF POT PLANTS.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. H. B. MAY to SELL BY AUCTION, on the PREMISES, as above, on MONDAY, SEPTEMBER 12, at Eleven o'clock punctually, upwards of 1,700 Lots of exceptionally well-grown PLANTS. The whole of the stock offered is in unusually fine condition, and to meet the growing demand larger quantities are offered, including a great number of novelties of sterling merit. The increasing patronage of the past few years is a sufficient guarantee that the Trade appreciate this Annual Sale. Special attention is called to:—

ROSES, which include large quantities of the best climbing sorts, with long, well-ripened growths; bush varieties include a grand lot of Bridesmaid, Belle Siebrecht, President Carnot, and others. Also TURNER'S CRIMSON RAMBLER.

BEGONIA GLOIRE DE LORRAINE in quantity, extra fine plants.

FERNS, including immense quantities of all the leading sorts, and many choice novelties.

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Crotons
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Erica hyemalis
Cyclamen
Ivies
Genistas
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New Chrysanthemums
Clematis
Araucarias
Dracæmas
Aralias
Bamboos
Gardenias
Euphorbias
Poinsettias
Begonias
Fuchsias
Geraniums
Hydrangeas
Ampelopsis

And a great variety of other useful Flowering and Foliage Plants; also small Genistas, Heaths, &c., for growing on.

May be viewed. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Sales by Auction.

The Mill Lane Nursery, Cheshunt, Herts.

THIRD ANNUAL TRADE SALE of well-grown ERICAS, ROSES, &c., by order of Mr. E. ROCHFORD.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, as above (fifteen minutes' walk from Cheshunt Station, G.E.R.), on THURSDAY next, SEPTEMBER 8th, at Half-past Eleven o'clock precisely,

20,000	Erica hyemalis
3,000	Ericas gracilis
1,000	Erica Cavendishi
10,000	Erica Wilmoreana
	All well set with bloom bud.
1,000	Boronias
2,000	Genistas
3,000	Bouvardias
2,000	Adiantum elegans
3,000	Solanums, well berried
2,000	Ampelopsis
3,000	Clematis
1,000	Cyclamen
3,000	Pteris of sorts

4,000 Climbing and Dwarf Roses, in 24 and 32 pots, amongst them a fine lot of M. Niel, Gloire de Dijon, Fortune's Yellow, and Belle Siebrecht.

Thousands of small Heaths and Genistas for growing on. Hydrangeas, Marguerites, &c Splendid lot of Eucharis amazonica, in all 1,600 Lots.

Catalogues on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next, September 9th.

IMPORTED AND ESTABLISHED ORCHIDS, by order of Messrs. F. SANDER and Co., St Albans.

MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., on FRIDAY Next, SEPTEMBER 9th, at Half-past Twelve o'clock.

On view Morning of Sale, and Catalogues had.

Monday and Wednesday Next.—Dutch and French Bulbs.

MR. J. C. STEVENS will SELL BY AUCTION at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, as above, at Half-past Twelve precisely, enormous importations of DUTCH and FRENCH BULBS, for early spring flowering. Specially made into large and small Lots for the trade and private buyers. Azaleas from Ghent, Lilies, &c.

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AS GARDENER; age 24; married; Single-Handed; well up in flower and kitchen garden; horse or cow not objected to; wife good laundress; four years' character from present employer; well recommended. — Apply H. GATEHOUSE, Woodlands, Stoke Pogis, Bucks.

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FOREMAN. — Joseph Forsey, Stanford Hall, Loughborough, would be pleased to highly recommend a young man, aged 27, to any Gardener requiring the service of an energetic and practical man of fourteen years' experience in leading gardens.

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GARDENER (Head-Working), age 34; married, two children; twenty years' experience in first-class establishment; well up in all branches; excellent testimonials.—E. B., 155, Chapter Road, Willesden Green.

GARDENER (Head-Working, or good Single-Handed); age 29; married, one child; fourteen years' experience, Inside and Out; thoroughly understands fruit, flowers, and vegetables; good references.—R. PELLETT, 3, Tweed Road, Brockham, Surrey.

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Montbretia croscosmiæflora, orange scarlet ...	1	6	—	
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Narcissus van Sion, single, yellow trumpet ...	2	6	23	4
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Anemone japonica, rose	5	0	—	
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Tritoma uvaria (Red Hot Poker)	14	6	—	
Sparaxis, in fine mixture...	0	8	6	0
Funkias, in fine mixture	10	0	—	
Gladiolus Colvilli, white	1	2	10	10
Hyacinthus candicans, white	5	0	45	10
Iris pumila, mixed	4	0	—	
Lilium umbellatum, red	10	0	—	
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THE GARDENERS' MAGAZINE.

SATURDAY, SEPTEMBER 3, 1898.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

LOSS OF SOIL NITROGEN.

NITROGEN, even at the comparatively low prices that now rule for nitrate of soda and sulphate of ammonia, which are its two principal sources, is so costly a constituent of plant food that it is of primary importance cultivators should be fully acquainted not only with the methods of application and the effects upon crops, but with the losses that annually occur through the freedom with which nitrates are carried away by drainage water. The extreme solubility of nitrates, which are constantly being formed in the soil, has long been recognised by those who have devoted any considerable share of their attention to the scientific aspects of manuring, and cultivators who have been wise enough to combine science with practice are careful to so arrange their system of cropping as to prevent as far as possible the loss of soil nitrogen. How heavy these losses are under the ordinary conditions of soil management is very clearly shown in the records of the Rothamsted experiments. For upwards of half a century the rainfall at Rothamsted has been carefully recorded, and for nearly thirty years the drainage waters have been periodically measured and analysed, and the results obtained are of great practical importance. For the measurement of the latter three gauges, each with an area equal to one-thousandth of an acre, were provided, and these contain twenty, forty, and sixty inches depth of soil respectively. The soil has not been manured or cropped, but has been allowed to settle down naturally. The results of the analyses prove to demonstration the fact that water, in passing through the soil, carries with it an appreciable quantity of nitrogen. During the twenty years ending with [illegible] there was at Rothamsted an average annual loss per acre of [illegible] lb. through sixty inches, 30·83 lb. through forty inches, and 35·07 lb. through twenty inches of soil. The average of the three gauges is, therefore, 33 lb. per acre, a quantity equivalent to the amount of nitrogen contained in two cwt. of nitrate of soda. The results obtained in the four quinquennial periods of the past twenty years are of interest as showing that the average annual loss of nitrogen in the first quinqennial considerably exceeded the annual average for the twenty years, and that in the second and third quinquennials it was considerably less, and in the fourth quinquennial rather above the average. This is in some degree explained by the varying climatic conditions, for, as will be readily understood, the losses are much greater with an excess of rain and consequent increase in the flow of drainage waters. To wholly prevent the loss of soil nitrogen is, of course, impossible, but that much might be done to reduce it there can be no doubt. Where the land carries a crop through the winter, a considerable proportion of the nitrogen that in the case of unoccupied land would escape in the drainage water and be lost, is intercepted by the [illegible] utilized in plant nutrition. Hence the great value of catch [illegible] which find so much favour with farmers on light land. In the [illegible] is necessary to consider whether the advantages resulting from [illegible] pulverization of the land during the winter by frosts and [illegible] counterbalance or otherwise the loss of nitrogen, and this can [illegible] satisfactorily determined by those who have a full knowledge of [illegible] of the soil. It may, however, be stated that as a rule [illegible] soils should be dug over during the autumn or early in [illegible] more fully expose them to the action of the weather, while [illegible] from which the crop is taken towards the end of the summer [illegible] be sown with turnips or some other quick growing vegetables, to be [illegible] in towards the end of winter or early in the spring. The [illegible] and retain much of the nitrogen, and when buried [illegible] the soil and also add to the amount of humus, thus [illegible] the fertility of the land.

HEAT WAVES

[illegible] has been a great deal said and written lately about heat waves [illegible] with the unusually long spell of hot, dry weather under [illegible] the horticultural community especially, have been suffering. [illegible] however, can scarcely be justified, since, although the [illegible] may legitimately be applied to the infinitesimally small [illegible] part of the solar ray which conveys heat from its source [illegible] earth, it is misplaced in connexion with meteorological conditions conducive to abnormally hot weather. We might just as well talk of a rain wave or a fog wave when wet or foggy weather prevails, the fact being that spells of heat and cold, rain or fog, are all determined mainly by persistent aerial currents or their absence, and not to waves as popularly recognised. At this time of the year, given fair weather and southerly winds for any length of time, the earth's crust inevitably absorbs a vast amount of sun heat. The next result is a general drying of the surface, from which consequently much of the sunshine is reflected back into the air, warming it still more. Meanwhile in our insular climate the southerly breezes laden with water evaporated from the ocean, are not condensed on reaching the land as they would be under cooler conditions. Hence the rainfall is checked, and so, alas! are our capacities for perspiration, the air, hot as it is, being by no means so dry as it feels. This being so, the heat becomes oppressive, and man feels parched and dry, for the simple reason that his skin is not able to keep down the temperature by transpiration. In a Turkish bath we can stay for sometime with impunity in air heated above boiling point, but only so long as that air is dry, and so capable of taking up the copious evaporation from our bodies, which keeps our internal heat cooled down to 90 deg. Saturate that heated air with water and we should be in an atmosphere of steam which would parboil us immediately. Under Continental conditions of climate, where the air is drier, a much greater heat is easily borne with comparative comfort, and hence we see that, instead of a heat wave, if it were a wave at all, we should call it a wave of saturation. Let the wind shift to a dry quarter, and we may still register 129 deg. in the sun, and keep endurably cool. This is how it is that a shower on a hot day, welcome as it may be to vegetation, affords no relief to man, but, on the contrary, makes him feel the greater oppression, and this is how it is that when we do perspire our skins are clammy and moist, and even trickling, while under drier conditions of the air the moisture would evaporate immediately and insensibly, and thus, as in the Turkish bath, afford relief, though to all appearance it was non-existent. As regards vegetation, this condition of affairs is not so trying as to man, and accounts for the fact that despite the intense surface heat and long continued lack of rain, we have only to penetrate a few inches into the soil to find it moist and cool, so that all established plants, except very superficial rooters, are enabled to maintain existence, though naturally checked in development to a greater or less extent when the sun heat becomes excessive.

EXHIBITION SCHEDULES.

ONE of the most remarkable facts in connection with horticultural societies is the want of appreciation on the part of many of those responsible for their management, of the importance of clearness of expression in framing the conditions under which their prizes are offered for competition. This is no new thing, and we are unable to call to mind any season during the past thirty years in which our advice has not been sought on the all important question of the interpretation of exhibition regulations. The difficulties which annually arise through the ambiguity of the schedules became so great that a few years since the Council of the Royal Horticultural Society wisely undertook to prepare a code of judging with a view to remove some at least of them, and, as the result of the co-operation of the leading exhibitors and judges, a code was prepared of which it would be difficult to speak too highly. A large number of societies have taken advantage of the suggestions made, with the result that the annually recurring unpleasantness at exhibitions has been greatly reduced. But many societies continue in the course they have long followed, and from competitors at their exhibitions we receive complaints of their being deprived of prizes owing to the judges interpreting the regulations differently to themselves. In many instances we have, in reply, to say that the judges were right and the exhibitor wrong, but the latter is by no means invariably wrong. With a view to keep both exhibitor and judge in the proper course, we suggest that the statement as to numbers and kinds in each class should be so clear that they cannot be mistaken by those not skilled in solving difficult problems. The other day we had a case stated for our opinion, to this effect: "We offered prizes for twelve herbaceous plants grown in pots, and the judges awarded the first prize to a collection containing a caladium, a gloriosa, and a tuberous begonia. As the class was intended for hardy plants, the committee consider the collection should have been disqualified." We unhesitatingly replied that the judges were perfectly right in admitting the collection, and that they would have committed an act of injustice had they disqualified it. Caladiums, gloriosas a begonias are unquestionably herbaceous, inasmuch as their growth di down annually, and were, therefore, admissible. Judges have nothing do with the intentions of framers of schedules, except so far as they are expressed in the schedule, and in this case, if the committee had intended the class for hardy plants they should have said so ; and in all schedules exactly what is required should be stated. Many difficulties arise from the want of exactitude in the use of the terms "species" and "varieties, and these may be overcome by the use of the term "kind" in its proper sense. An interesting case occurred at Aberdeen the other day in which the exhibitor was disqualified, although we have no doubt he exhibited in strict accordance with the intentions of the framers of the schedule. The class was for "nine distinct varieties, but not more than two dishes of any species or kind of fruit," and as one exhibitor staged more than two dishes of peaches and nectarines his collection was disqualified, as peaches and nectarines are simply varieties of the same species, namely, Amygdalus persica. Had the term "kind" been used in its proper sense, no disqualification would, so far as we understand the case, have followed, representing as it does a race of fruits rather than any one species, and the peaches and nectarines, although varieties of the same species, form two races sufficiently distinct for exhibition purposes.

The Arctic Flora.—What we call the Arctic fauna and flora of to-day is apparently only the remnant of an assemblage of species varying in hardiness, which once extended from the Arctic circle almost to the Mediterranean. If climate and soil alone entered into the question, it is likely that the so-called Arctic flora might still maintain itself in many parts of Central Europe. This Arctic (or ancient European) flora includes many plants which are capable of withstanding extreme physical conditions. Some thrive both on peat and on sand, in bogs, and on loose gravel. They may range from sea-level to a height of several thousand feet. They can endure a summer glare which blisters the skin, and also the sharpest cold known upon this planet. Some can subsist on soil which contains no ordinary ingredient of plant food in appreciable quantity. Such plants survive in particular places, even in Britain, less because of peculiarly appropriate surroundings, or of anything which the microscope reveals, than because they can live where other plants perish. Ling, crowberry, and the rest are like the Eskimo, who dwell in the far north, not because they choose cold and hunger and gloom, but because there only can they escape the competition of more gifted races. The last defences of the old flora are now being broken down ; it is slowly giving way to the social grasses, the weeds of commerce, and the broad-leaved herbs of the meadow, pasture, and hedge-row. The scale has been turned, and this, Professor Miall, F.R.S., believes, has been accomplished not so much by climatic or geographical changes, as by the acts of man. Every lover of the moors would be glad to know that they bid fair to be handed down to our children and our children's children without diminution or impoverishment. The reclaiming of the moors is now checked, though not arrested, and some large tracts are reserved as open spaces. But the impoverishment of the moors goes on apace. A botanical exchange club has lately exterminated the yellow Gagea. Whenever a kingfisher shows itself, young men come from the towns eager to slay it in the name of science. No knowledge worth having is brought to us by such naturalists as these ; their collecting means mere destruction, or at most the compilation of some dismal list. If the selfish love of possessing takes hold of any man, let him gratify it by collecting postage stamps, and not make hay of our plants and mummies of our animals. The naturalist should aspire to study live Nature, and should make it his boast that he leaves as much behind him as he found.

Olearia Haasti.—Mr. J. Moore, the able head gardener at Ockenden, Cuckfield, sends us a fine spray of this beautiful New Zealand shrub, which he informs us was taken from a bush now about eight feet high and with a diameter equal to the height. The specimen in question occupies a prominent position at the end of a long herbaceous border, and for a period of nearly a month it was so densely flowered that hardly a leaf was visible. Mr. Moore believes, and we agree with him, that so beautiful a shrub should be more generally planted in gardens in which New Zealand plants are found to thrive than is at present the case.

Glover's Island, Richmond, is for sale, and the inhabitants of the fashionable borough are in great distress for fear that this pretty half-acre, situate in mid-stream a little beyond the Petersham Meadows, should be purchased by some advertising agency or for a soap works or other business, which would spoil the fine view now obtainable from Richmond Hill. The island is to be sold by auction on the 21st inst., and the Mayor of Richmond, Alderman Chancellor, is the auctioneer. Mr. Glover has offered the town the option of purchase until the 20th inst. at the reserve price of £4,000. It is possible that the town may purchase the island ; or, failing a grant from the Corporation, the townsfolk may subscribe the necessary amount. We think £4,000 an extravagant price for this half-acre lot, and regret that Mr. Glover, whose business as a boat builder owed much of its success to the beauty of the neighbourhood, should have placed a reserve of £4,000 upon a plot that he has now no further use for, owing to retirement, and which originally cost him about £100. It is a pity that corporations and county councils have not the legal authority to purchase, when for sale at a reasonable price, any land that it is necessary to preserve for the benefit of the general public.

Artificial Flower Odours.—A chemical industry, which has considerable interest for the horticulturist, was referred to by Dr. Symes at the Pharmaceutical Conference ; it is the production of synthetic ethers and odorous substances closely related to the odours of flowers, plants, and animal substances. With artificial musk and vanillin, pharmacists have been long familiar, as also with the amyl, butyl, and ethyl compounds resembling fruit flavours, but of more recent date they have heliotropine (heliotrope), ionine and iraldine (violet), cumarine (new-mown hay), terpineol (lilac), bergamiol or linaloyl acetate (bergamotte), nerolin (neroly), jasmin oil, anisic aldehyde (hawthorn), geranol (rose geranium), carvol (caraway oil), safrol (oil of sassafras), &c. So much has this industry grown, that not only are these products used for toilet soaps, but they also enter largely into the composition of the essences named after the flowers. They are more persistent than the natural odours, and it is said that the very popular essence of "Parma Violets" is, as a rule, quite innocent of the flowers, and is prepared from ionine mellowed down with small quantities of other extracts ; and this the public really prefer. To those, however, who are accustomed to handle delicate perfumes, there is not so much difficulty in distinguishing between the artificial and the real, and it still taxes the skill of the chemist and the art of the perfumer to obtain that subtle delicacy of fragrance manufactured and elaborated in Nature's own laboratory.

The Duke of Argyll's Friendship Trees, planted in the spacious grounds of Inverary Castle, are mementoes of distinguished visitors, consequently the garden is as interesting as the castle. There is a fine Cedar of Lebanon, commemorating a visit of Her Majesty ; Sir John Lawrence planted a Spanish chestnut in 1860 ; Dr. Guthrie one in 1863 ; Dr. Livingstone, in 1864 ; and Mr. Gladstone's Spanish chestnut was planted in 1865. The late Emperor Frederick of Germany planted a Wellingtonia (*Sequoia gigantea*) in 1863, and his consort a cypress. Earl Russell chose an oak tree to commemorate his visit. Lord Tennyson planted a Spanish chestnut and a cedar in 1857, and James Russell Lowell, on the occasion of his visit in 1880, planted a silver fir.

The Golden Wedding of Sir Edwin and Lady Saunders was celebrated on Wednesday last, and the event has created much interest in horticultural and medical circles, in both of which the venerable president of the National Chrysanthemum Society and Lady Saunders are so well known and highly esteemed.

Oak-gall Flies.—In speaking the other day at Cambridge on the surprises that await us in studying the life history of our commonest species, Sir John Lubbock referred to the cynips causing the galls as a proof of the correctness of his views upon this point. He said : "I will take one other case—the fly of the King Charles oak apple so familiar to every schoolboy. In this case the females are very common ; the eggs were known. But no one had ever seen a male. Hartig in 1843 knew twenty-eight species of cynips, but in twenty-eight years' collecting had never seen a male of any of them. Adler, however, made the remarkable discovery that the galls produced by these females are quite unlike the galls from which they were themselves reared, that these galls produced flies which had been referred to a distinct genus, and of which both males and females were known. Thus the gall flies from the King Charles oak apple (which are all females) creep down and produce galls on the root of the oak from which quite a dissimilar insect is produced, of which both sexes occur, and the female of which again produces the King Charles oak apple."

Rose Hybridisation continues, we are pleased to learn, to occupy the attention of Mr. Jackson Dawson, of the Arnold Arboretum, who gave us the Dawson rose. In referring to Mr. Dawson's work as a raiser of roses, an American contemporary observes : "The idea that hybrid roses could be made hardy by grafting on a hardy stock has been abandoned. Mr. Dawson now considers a new type necessary. This he is working for, and showing what cross breeding and selection will do, we need only look at Mr. Manda's hybrids and Mr. Dawson's with R. Wichuraiana. In choosing R. Wichuraiana and General Jacqueminot, two very distinct roses are brought together. Only an innate love for experiment could suggest such a proceeding. Some curious breaks, and some valuable ones, have come from these crosses. The indications are plain that, by following them up, infusing hybrid blood, and reverting occasionally for vigour, we shall have hybrids hardy enough to remain uninjured by any ordinary frost. There is a host to work with. Probably Crimson Rambler, in which we have remarkable colour and constitution, will help us to a new type of trellis roses. Some of Mr. Dawson's hybrids are already well known, and a few sent to England have been enthusiastically commented upon. The Dawson Wichuraiana-Jacqueminot, a climbing cluster rose with semi-double pink flowers, is a better trellis rose than the Crimson Rambler, though not equal to it in colour. Wichuraiana-rugosa is a delicate single rose with trailing habit—a splendid cover plant. Rugosa-Jacqueminot makes a fine bush with deep crimson flowers. Wichuraiana-Jacqueminot has produced two good double varieties almost equal to a hybrid in build of flower ; one is a delicate peach, the other deep pink ; both are of vigorous constitution. Numerous crosses were made this season, and some interesting information was gathered as to the manner of making them. If the flowers were left on the plants, the bees would get all the pollen before the operator, so they were brought under glass and ripened. A brush is considered wasteful, so the point of a knife is employed in collecting and applying the pollen. Boston Belle, an old rose of good constitution, was extensively used this season amongst these hybrids. Seedlings of Wichuraiana crossed by China roses will be watched with interest ; they are making pretty plants, all more or less creeping after the habit of the seed parent, but showing much variety in foliage, some being dark like the pollen parent.

The Queen's Tenantry at Osborne celebrated their Harvest Home on Saturday last, when Her Majesty entertained a party of about three hundred. Mr. Andrew Slater, the land steward, presided, and referred to the smooth and satisfactory way in which estate matters had proceeded during the past year, expressing pleasure at the presence of Her Majesty among them again. The toast of "The Queen" was honoured with enthusiasm, but that to the memory of the late Prince Consort was, as usual, received in silence. The healths of the Prince and Princess of Wales and the rest of the Royal Family followed. A p gramme of sports was subsequently carried out, and Her Majesty presented prizes, consisting of useful articles, to the successful competitors.

The Fruit Harvest in Cambridgeshire is not by any means so fine as the blossom of spring promised. Especially is the falling off of quantity seen in the Green Gage and other plum orchards, for where, in good years, ten tons of fruit were gathered, this season scarcely one ton can be obtained. The higher price obtained does not compensate for the loss of those advantages a plentiful year brings. Apples are a variable crop in the county, but bush fruits were good.

The Crowberry (*Empetrum nigrum*) is an interesting member of our moorland flora, and, as pointed out by Professor L. C. Miall, F.R.S., in his lecture at the London Institution, may be said to mimic the heaths, as a euphorbia mimics a cactus, or sarracenia a nepenthes. Similarity of habit has brought about similarity of structure. The crowberry, which is so like a true heath in its foliage and manner of growth, that even the botanists, who did not fail to remark that the flowers are altogether different, long tried to bring the crowberry and the heaths as near together in their systems as they could. The crowberry has the long, dry, wiry stems, the small, narrow, rolled, clustered, evergreen leaves of a true heath. The leaf-margins are turned back till they almost meet, and the narrow cleft between them is obstructed by close-set hairs, so that the transpiring surface is effectually sheltered. The crowberry is a peat-loving shrub, and is often found with ling and other heaths in the heart of the moor. The berries are a favourite food of birds, which help to disseminate the species. The crowberry has a wide distribution in the Arctic and Alpine regions of both the Old and the New World, and in Greenland the Eskimo use the berries as food and extract a spirit from them. The crowberry, in common with some other peat-loving shrubs or trees, has a peculiar root structure. The usual root hairs are wanting, and in their place we find a peculiar fungus growth, which invades the living tissues of the root, sometimes penetrating the cells. There is often a dense mycelial mantle of interwoven filaments, which covers all the finer roots. This looks like parisitism, but the fungus is apparently not a mere parasite, for the tree or shrub shows no sign of injury, but thrives all the better when the fungus is plentiful, and may refuse to grow at all if the fungus is removed. Rhododendron, ling, most heaths, bilberry, crowberry, broom, spurge-laurel, beech, and birch are among the plants which have a mycelial mantle. If the native soil which clings to the roots of any of these is completely removed, if the fine roots with the mycelial mantle are torn off in transplanting, or if peaty matter is witheld, the plant dies, or struggles on with great difficulty until the mycelial mantle is renewed. Such plants cannot, as a rule, be propagated by cuttings, unless special precautions are taken. Frank maintains that the mycelial mantle is the chief means of absorption from the peaty soil, and that the tree or shrub has come to depend upon it. The known facts render this interpretation probable, but thorough investigation is still required. In some cases at least, the plant can be gradually inured to the absence of a mycelial mantle. Professor Miall states that he has repeatedly planted the crowberry in a soil devoid of peat. It generally succumbs, but when it survives the first year, it maintains itself and slowly spreads. Microscopic examination shows that the roots of crowberry grown without peat contain no mycelial filaments, or very few. The special function of the fungus may be to reduce the peat to a form capable of absorption as food by green plants, and there can be no doubt that the fungus gains protection or some other distinct advantage from the partnership.

A Good Crop of Grapes.—From Mr. H. Godden, gardener to Mrs. Walker, Hillside House, Hythe, Kent, we have received a photograph of the interior of the Black Hamburgh house in the gardens under his charge. The photo graph is considerably above the average of those of vineries submitted to us, and very clearly shows that the vines are in the best possible condition and bearing a heavy crop of fruit, and also that the crop consists of finely-formed bunches remarkable for the large size of the berries.

The Hitchin Lavender Harvest of 1898 has been the best, both in quantity and quality, experienced for many seasons. In the winter of 1894-5 much damage was done to the plantations, but, with the assistance of more kindly winters of late, the damage was made good, and now the area under lavender is greater than ever. During the period of harvesting and distillation the town of Hitchin is deliciously scented with the pleasing odour produced by and from Lavendula vera.

Orange Blossoms cannot, according to Mr. U. Dammer, be obtained in Germany during the winter months in sufficient quantities for wedding decorations, and to meet the demand Staphylea colchica is forced as a substitute, providing abundance of white flowers which in appearance and fragrance so closely resemble the genuine article that the general public do not recognize the difference. It is said, also, that the flowers of Prunus chinensis are made to do duty for those of the myrtle. Staphylea colchica thrives very well in the open air, and blooms during May, some time before S. pinnata, the flowers of which are much like those of the lily of the valley.

Attar of Roses.—The production of attar of roses in Bulgaria during the [illegible] year amounts to 500,000 miskal, as compared with 600,000 miskal in 1897, and [illegible],000 miskal in 1896. In the latter year considerable difficulty was experienced by the distillers in disposing of their odorous product, which is now worth from three to four shillings per miskal.

The Irish Potato Crop shows a material diminution as compared with last year's crop, the decrease in the area being 12,304 acres.

Monsieur Cor, the French Consul at Hamburg, has received the decoration of an Officer of the Order Mérite Agricole in recognition of the services rendered to [illegible] at the Hamburg Exhibition in 1897. We have exceptional [illegible] in recording the honour conferred upon M. Cor, if only for the purpose of [illegible] the kindness received from him at the opening ceremony of that great gathering.

The Potato Crop.—According to the official returns the area under potatos in Great Britain is this year 524,591 acres. This is a material increase upon last year's area, but considerably less than the area under potatos in 1896 and 1895, and in fact of the whole of the years in the past decade with the exception of 1897 and 1894. The increase this year as compared with 1897 is 19,677 acres, and this extension of the area is no doubt due to the large increase in our imports of potatos since last harvest and the high prices that ruled until the lifting of this year's crop commenced. The largest area of potatos in Great Britain within the last thirty years was 627,691 acres in 1871, and the smallest, 502,719 acres, in 1876, the difference being 124,972 acres.

Florida Velvet Bean.—Under this name a leguminous plant has been prominently recommended in American journals as a forage plant and as admirably adapted for green crop manuring. Recently the beans have been offered for sale in this country; and, as frequent references have been made to Kew, it has been considered desirable to record in the current issue of the *Kew Bulletin* what is known of the plant and its capabilities. From the first it was conjectured that the seeds belonged to a plant very near the common purple-flowered Cowhage or Cow-itch plant of the tropics, Mucuna pruriens. The difficulty, in the absence of adequate specimens, in identifying it with this was the fact that in the Cow-itch plant the pods are densely covered with stinging hairs of a brownish colour. A plant so formidably armed, it was thought, could not safely be recommended for general cultivation. The name first given, Dolichos multiflorus (Dioclea Boykinii), was clearly wrong. In these circumstances we are glad to find that the plant has flowered and fruited in Queensland, and that Mr. F. M. Bailey, F.L.S., the Colonial Botanist, has identified it as Mucuna pruriens, var. utilis. In this variety of the Cow-itch plant the pods are apparently devoid of stinging hairs. It is probably M. utilis of Wall., described in the "Flora of British India" (vol. ii., p. 187), as "a cultivated variety" with velvety, not hairy, pods. This is figured in Wight's "Icones" (vol. i., t. 280). According to Watt's "Dictionary of the Economic Products of India," "the young tender pods are cooked and eaten as a vegetable." What may also prove to be the same plant, with jet black seeds, is cultivated as a rotation crop on sugar estates in Mauritius, under the name of "Pois Mascate." The accounts given by interested parties in America respecting the agricultural value of the Florida velvet bean must be received with caution. It is undoubtedly a rapid grower, and affords a large yield of nutritious forage. It bears an abundant crop of seed, and is, therefore, readily propagated. It may also, in common with many other leguminous plants, possess the power of obtaining its nitrogen from the atmosphere, and thus be admirably adapted for green crop manuring. How far it may be found superior in these respects to other plants it is impossible to say. As it is now being carefully tested in various parts of the tropics, it would be well to await reports which will, no doubt, be shortly issued on the subject.

Carthagena Oranges, with a very small proportion of lemons, were exported from Carthagena in 1897 to the extent of 6,083 tons, or 78,962 full-sized boxes; of this quantity, 5,913 tons came to Great Britain and 170 tons to France. This trade is largely on the increase, and Carthagena promises to become an important shipping port for this class of fruit from inland districts, unless the producers again find cheap transport to the Paris market. Carthagena also shipped about 200,000 kilos. of almonds, principally to France, in 1897.

The Flower of the Gods.—Disa grandiflora has of late been flowering freely and vigorously in the cool orchid house at the Royal Gardens, Kew. It is a beautiful orchid from the Table Mountains, but one that is not always cultivated with success. On many occasions we have published in these columns descriptions of the methods of cultivation that have proved successful in Edinburgh, in Kent, and elsewhere, and also interesting matter supplied by our Cape correspondent, Mr. W. Matthews, anent its habitat, together with accounts of several other beautiful members of the genus. On Tuesday next a paper is to be read upon the genus Disa by Mr. T. W. Birkinshaw, before the Royal Horticultural Society, at the Drill Hall, St. James' Street, Westminster. The lecture commences at three p.m.

The English Hop Crop.—The area devoted to the cultivation of hops in England continues to decrease, and this year 49,735 acres are devoted to hop cultivation, as compared with 59,535 acres in 1894. This is the fourth consecutive year in which a contraction of area has been recorded, though the diminution to the extent of 1,128 acres this year is less than that of 3,354 acres last year, or of 4,723 acres in 1896. The county losses include decreases of 720 acres in Kent, 345 acres in Sussex, 103 acres in Surrey, 43 acres in Hants, 24 acres in Worcester, and three acres in Salop; against these have to be placed gains of 109 acres in Hereford and one acre in Suffolk. The estimated yield for the current year is 8·08 cwt. per acre, this being the lowest since 1893, when the yield was 7·21 cwt. per acre. Accepting this estimate as correct this year's crop of hops will be the smallest that has been harvested since 1890.

Horticulture at the French Exhibition, 1900.—The buildings of the great exhibition to be held in Paris in 1900 will include a horticultural palace of large proportions and handsome elevation, from designs by M. Ch. Albert Gauthier, who will also have charge of the construction.

Lilium auratum, the Golden rayed Lily of Japan, is remarkably well managed by Mr. Wm. Jones, gardener to P. J. Bargs, Esq., Ellesmere Lodge, Snaresbrook, who has sent us a photograph of a specimen that has been in cultivation for six years and has improved each year. This year the bulbs produced eight growths, and an aggregate of forty-nine blooms, the strongest spike carrying fourteen flowers. Mr. Jones states that, after flowering, the specimen is gradually dried off, and then placed under a stage in a vinery; all the old soil is removed previous to repotting in November, and to the compost of loam, leaf-mould, peat, and sand, a little bone meal is added.

APPLES IN NORTHUMBERLAND.

THE season has again come round when we naturally consider the pros and cons of the several systems of growing fruit. Where there are large demands for fruit, one is compelled to adopt methods which are most productive. This trying season has again shown the advantage of growing the apple on the Paradise stock in this district. A large number of the dwarf bush trees are in the most perfect health that we could desire after this very dry season; many of them are bearing such splendid crops that we have been obliged to place stakes for their support. The fruit is holding on better than we expected five weeks since, when Nature usually thins the crop. This season has shown that the dwarf open bush form of tree is about the best to grow. Three years ago, when a frost on May 20th did so much damage to the apple blossom, the flowers on the orchard standard trees were largely destroyed, but we had eventually a splendid crop set on most of the dwarf bushes. We have now had bush trees at Alnwick for sixteen years, and are quite satisfied that it is the best style of tree for providing a crop in the worst of seasons. This I would especially emphasise is for gardens. Orchards should have trees on the free stock where there is plenty of room, but even in orchards the dwarfs could be planted between the standards to produce fruit the first ten years, while the bigger trees were becoming established.

The site for planting any and every fruit tree should be carefully prepared. Trees are a failure very frequently because this is not done. No one description can explain how this should be done, because of the variety of soils to be dealt with. The subsoil should be in a sweet condition, not sour through lack of drainage, for if it should be the trees will be injured by canker. We find that where there is a fairly dry clay under about fifteen inches of soil, the trees should be planted fairly high, with a little mound around them. In our dry, light, sandy soil, we are obliged to mix a compost of any good soil that can be spared with the staple, and we place a layer of clay three inches thick, twenty-two inches or so deep, and over the bottom of the hole, mixing some of it through the compost. This mixture has kept our trees in good bearing condition through a number of years. The roots fill this healthy compost, to which lime rubbish and hotbed manure are added, with a mass of roots that need much water and plant food to sustain the trees in fruit-bearing condition. Our practice has been to give 7 lbs. to the perch of a good artificial manure, rich in phosphates, potash, and nitrogen. This is done once only during the spring, when a light dressing of old hotbed manure is also dug in the borders. The exceptionally healthy condition of our trees this season is no doubt partly due to there being plenty of plant food for the roots, and partly to the effect of the application of that very fine insecticide, ½ lb. caustic soda and the same quantity of pearl ash to every five gallons of water, dissolved by pouring hot water on each separately, mixing, and then thoroughly syringing the trees with it during March before the buds begin to open. This strength is not for trees in leaf. One hears so many complaints of the destruction of the leaves by red spider and fly. This remedy for spider should be tested by anyone anxious to secure healthy trees. The trees noted as being so healthy were not so a few years ago, but were badly affected with red spider. They were syringed two or three years in succession, but being so clean they were not dressed last spring, and yet are exceptionally clean and healthy. The best specimens of our bush trees are trained low by cutting out the centre shoot when the trees are young, and training the branches as regularly as can be, and allowing the leading shoots about a foot or fifteen inches increase every year. We spur back all the side shoots at the winter pruning, and keep the branches wide apart, so that the sun and air may ripen the buds for the following season. Unless this is done crops of high class fruit cannot be grown year after year.

After all, a great point for success is to plant free-fruiting kinds. We have tried a large number of varieties, and some have not proved sufficiently constant in bearing. We also have many on trial of which we hope to speak another season. In private gardens a goodly number of varieties are useful, as all kinds do not crop well every year, but still several varieties are almost regular croppers. The earliest kitchen apple we gather is Red Calville, a red apple, and on either stock, a real good cropper, always safe to plant for early gathering. Of the Keswick Codlin type, Domino is the most constant heavy cropper that we have; during the last few years it has been heavily cropped, and is so now. Lord Grosvenor is another heavy cropper in orchard or garden; Grenadier is good, and Ecklenville Seedling, which I have often said should not be freely planted, is splendid this season. I would leave out Lord Suffield, as its constitution is not good in many places, but where it does succeed there is no apple that we can name superior to it, both in quality and crop, to be used from the middle of August to the middle of November. Duchess of Oldenburg is a small but useful variety. Royal Jubilee promises to be a first-rate early, though it is exceptionally late in flowering, the buds expanding when the most injurious frosts are usually past. None of the previous mentioned kinds are of use beyond the middle of November.

For use from that time to Christmas Stirling Castle is one of the most certain to crop, but does not make much wood even on the free stock; the fruits, however, hang like ropes of onions sometimes. Northern Dumpling is large and free, one of the most popular in Scotland and good here. Warner's King is fine for Christmas, but does not fruit so soon after planting as many kinds do, but when it comes of age it is splendid. Gascoyne's Scarlet is fine, so also is Bismarck.

For late use Lane's Prince Albert is one of the most certain croppers, and Bramley's Seedling one of the latest keepers, bearing heavy bunches of fruit. Newton's Wonder takes some five years to make a start, but after that is a regular cropper. New Northern Greening, Loddington, Dumelow's Seedling, and Alfriston, are all good and late kinds. This list may be trusted by those who have not sufficient experience to guide them, for the varieties are selected as a result of careful observation during many years. There are many other kinds doing well in this county, but the above are worthy of cultivation, even in a large way, with a certainty of success if good trees are carefully planted.

We cannot speak with the same emphasis respecting dessert fruits as with the kitchen sorts, but we are far more hopeful now than some years since that there are many kinds of apples which will bear freely on the Paradise stock here, and are useful for dessert even when grown without the protection of a wall. Irish Peach, Lady Sudeley, Worcester Pearman, and Red Astrachan are good; Schoolmaster is also said to be good. It is cropping well here, but we have not tasted the fruit yet. Scipton Shield is a free cropper, and we are assured that James Grieve is free and good. Mr. Gladstone crops freely, but is not of the highest flavour. In the northern counties the protection of a wall is needed for dessert apples. In the third week in August we gathered Beauty of Bath, nice fruit, and in the last week we had Lady Sudeley, beautiful from a south wall, finely coloured and large fruit. Worcester Pearmain will soon follow. Then we have Cox's Orange Pippin, the richest flavoured of apples, but not so heavy to crop as the Ribston, which is again splendid.

Alnwick Castle Gardens. GEORGE HARRIS.

ANTHERICUMS.

ALTHOUGH a fairly large genus, only a few species of anthericum, fortunately the most showy and hardy, are in culture, and constituting some of our most useful of perennials, being equally well adapted for beds, borders, for rockwork, or pot culture. To ensure success it is most important that all anthericums should be planted at a time when they are at rest, or seemingly so, this being soon after they have died down, and in the early part of autumn. They are not very particular either to soil or situation so far as most species are concerned, but such small-growing kinds as A. serotinum are best planted on the rockery only.

A. liliago (St. Bernard's Lily) has a fleshy root stock, whorl-shaped, similar to that of the asphodel and eremurus; the leaves are narrow, linear, and channelled, glaucous green, about a foot long. Stem about two feet high; flowers racemose, star-shaped, pure white, flowering in May and June. The plant is common in Central Europe, on dry hillsides usually, and in sunny positions.

A. liliago major (*Phalangium algeriense*) has leaves about eighteen inches long and half an inch in width, light glaucous green. Flowers large, star-shaped, pure white, stem wiry, two to three feet high; flowers produced in May. This is a very pretty Mediterranean plant, locally common in Algeria, where it is found among low-growing shrubs. It is perfectly hardy here, but not before it is thoroughly acclimatized after importation. Fortunately it is easily increased by division, so that there is always a good supply without resorting to importation. A. graminifolium (*A. ramosum*) has linear, grass-like leaves six to nine inches long and glaucous green; stem two feet high, much branched; flowers small and pure white, produced in July, and continuing often till November. Found growing on hillsides among low growing shrubs and grass in Central Europe.

A. liliastrum (Paradise lily) is also known under the name of *Paradisia liliastrum.* Its rootstock is fleshy and whorl-shaped; stem simple, eighteen inches high; flowers racemose, campanulate, large, and lily-like, pure white, and sweetly scented. The leaves are linear, a foot long, and about three-quarters of an inch in width; light green. A noble plant for gardens, and easily grown. A native of the Alps of Switzerland. A. liliastrum major is a taller growing, larger flowering form, from the Pyrenees. At one time this plant was fairly plentiful, but owing to collectors not only taking too many plants, but often destroying what they could not take away, in order, I suppose to defy competition, it is now not common. This form, like the type, is, however, easily increased, and I have never known of a failure, unless it were due to transplanting at the wrong time of the year. Plants should only be moved during the autumn, or early part of winter, unless grown in pots. Mr. Ware, of Tottenham, was the first to introduce this plant to cultivation.

A. Hookeri (*Chrysobactron Hookeri*) has a fleshy, whorl-shaped rootstock, of a brownish or bronze-yellow colour; leaves linear, fleshy, or succulent, one inch broad, and six to twelve inches long. Stem naked, three to five feet high; flowers racemose, bright golden yellow, star shaped, about half to one inch across. This does best in good rich soil, fairly moist, and half shady. It is from the Alps of New Zealand, and when well grown is a very showy and distinct plant. A. Rossi is not known to me, and is, I believe, not in culture at the present time.

A. serotinum (*Lloydia serotina*) is a very interesting and pretty but tiny plant, consisting of a semi-bulbous rootstock and a few linear, grassy-like radical leaves, which are usually six inches long; the cauline leaves are lanceolate, short, the upper bract-like. Flowers pure white, terminal, segments oval or elongated. This truly Arctic plant is, in the temperate part of Europe, only found where the northern flora still exists. It is said to be found on Snowdon, in Wales, and I have several times found it on the high Alps, also on the Brocken and the Giant Mountains, growing among grass in stony soil.

G. REUTHE.

White Cos Lettuce.—After having seen so many thousands of lettuces this season, partly owing to the drought and partly to bad strains, running off to flower prematurely, and bringing disappointment to the growers in all directions, it was a treat to see such grand heads or hearts as I saw a few days since in the gardens of Maiden Erleigh, Reading. Mr. Turton, who spoke in high praise of the variety, said that it was better than Superb White. I could but wish that our Surrey cottagers and allotment holders could obtain such a stock as that, as then they would have good lettuces to exhibit rather than rubbish, such as we have seen so generally this year. The variety is of the Paris White stock, and reminded me of one known as the Alexandra cos that was such a fine hearter and long-stander some twenty years since. It is of great service to know that during hot, dry summers, with good cultivation, such splendid long-standing lettuces may be had in plenty.—A. D.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

ONE thousand pounds a-year! Where is the man who still says there are no openings in our profession? Is the sum indicated a mere bagatelle in these days? I venture to prophecy that the appointment of Dr. Morris by the Colonial Secretary, to the superintendence of the botanical investigations in the West Indies, will have a result not anticipated by either of the two gentlemen. Hundreds of fathers, harassed by the old problem —"What shall we do with our boys?"—will read the paragraph with watering mouths, and straightway devote young Verdant to gardening. And then they will wait expectantly for another important colony, or set of colonies to get into difficulties, so that Verdant, now doctor or professor, may help them out.

IT may be a long time before another plum drops as juicy and well-flavoured as this. When it does, may there be another man ready to catch it, who is as earnest and competent as the Kew second in command. I have had some little intercourse with Dr. Morris, and I have observed in him, quiet self-command, sound mental equipment, and obvious sincerity of purpose. He is not a showy man, perhaps not even a brilliant one, but he is an excellent botanist and a sensible man of the world. £1,000 a-year is a good deal of money, but he is worth it.

IT is pleasant to find such swift corroboration of my recent remarks on the black currant mite. It is equally pleasant to be in such good company as that of Mr. T. F. Rivers. I daresay someone will be coming along very soon to declare that we are both wrong, but I beg to give the gentleman who does so fair warning in advance that he has a third party to reckon with in the fight. The bridge of culture will be held by no less a trio than Horatius Rivers, Herminius Lux, and Lartius Peter. (Being somewhat proud of this classical simile, I mentioned it to Peter, who remarked that, for his part, he'd rather handle a bit of blackthorn in a shindy than larch.) We do not believe any grand remedy for the evil is called for, either in the way of stocks or vaccination. We believe the bushes want growing. And even in the case of black currants perfectly free from the mite, feeding and knifing are beneficial.

Peas are an important garden crop, and we are all very much obliged to the Board of Agriculture for issuing a leaflet about them and their particular enemy, the thrips. If the Board could tell us how to have abundant crops in August and September, as we have them in June and July, it would be doing a national service. But the Board does not do this; it limits itself to telling us to spray our peas with soft soap and quassia if we can, and not to sow on the same spot the following year. So much for the estimable Board. But I believe I can mention something quite as efficacious against thrips as the spraying, and immeasurably better for the general health of the plants. Water at the roots. If by trench-sowing, mulching, and watering late peas can be kept moving freely they will succeed. If they can only make poor, pinched growth, owing to root dryness, they will fail, spraying or no spraying.

When Peter and I set out to prepare our ground for late peas it is understood on all hands that things are going to hum. We trench with no common trenching; we manure with no common manuring. This is how we go to work: Two spits are taken off and a dressing of manure is forked into the third; a coating is likewise laid on the top of it. The second spit is placed back, and likewise surmounted with a layer of manure. The top spit is left rough, and on two or three separate occasions in the winter is tumbled about and peppered with soot and burnt garden rubbish. House slops are poured on as opportunity offers. In February spinach and early turnips are sown. So thoroughly is the ground impregnated with fertile salts, that it will support quick growing crops like these without suffering exhaustion. When the peas are to be sown, shallow trenches are drawn, and a little decayed manure forked in. A man who cannot grow peas on this system cannot grow them at all. It gives wonderful results, not the least surprising being the fact that admittedly late sorts may be sown where in the ordinary way only earlies could be tried. For instance, none of our June-sown peas do better than Veitch's Perfection.

Peach culture is having a fair share of attention just now. What with Mr. Fish and Mr. Cook laying it on to each other vigorously, and Mr. Riddell giving us a solid article on general culture, we are having a gay time. I observe that the last-named indulges in a fling at the practice of growing vegetables on peach borders, the ground of his objection being injury to the surface roots. I wonder if he has ever seen Mr. Rivers' merry men at work repotting? They perpetrate atrocities on the roots which are calculated to make the casual visitor's hair rise as stout and stiff as the quills upon the fretful hedgehog which fell out of Mr. C. T. Druery's hands. And at every ejaculation of horror the reflective "T. F." quietly smiles. The surface roots are raked off in clusters. It looks barbarous, but it comes out all right. I think it quite likely that if more vegetables were grown on peach borders there would be fewer complaints of failure, for they would get stimulants which they do not receive now.

Fruit trees of various kinds will stand an immense amount of supposed maltreatment at the roots if they receive compensation in the form of food. Market men use the plough between raspberries regularly and get heavy crops, although many people contend that surface culture is fatal to the roots. For three years past we have taken a crop of early celery off one of our vine borders, and the vines are better than they ever were. They may suffer a little through the cultural operations employed in connection with the celery, but that is more than balanced by the benefit they derive from the various fluids which are applied to the other crop. Theoretically, no doubt, we are wrong, but if we get good celery and good grapes we are not without compensation.

I fear our respected friend "A. D." is a little put out. However, the subject is onions, and we expect a little warmth, even briny tears, in connection with this esculent. So acute are Mr. D.'s feelings about Ailsa Craig on the Surrey allotments that he is constrained to tell us about it twice in successive weeks in the MAGAZINE and once in another quarter. I hope he is now feeling better. Ailsa Craig is a very fine onion, and so is Cranston's Excelsior; but has anyone yet proved them to be good keepers when autumn-sown? It would be good news if they had. My experience is rather in the other direction, and I prefer Sutton's A 1 to either, although that even is not absolutely reliable. If "A. D." really wants to see the culture of Tripolis and Roccas abandoned by cottagers and growers generally let him persuade show committees to knock them out of schedules. Or let him induce judges to give up their preference for a ripe Rocca to an unripe Ailsa Craig in July or August. Most judges regard ripeness and "finish" as all-important with autumn-sown onions, and while they hold these views it is no use getting angry with the poor cottager.

LUX.

NOTES FROM EDINBURGH.

Calceolaria alba.

THIS is an old plant introduced from Chili more than fifty years ago, but almost lost to cultivation when lately re-introduced by Herr Max Leichtlin. It is a pretty perennial bush, with slender wiry stems and narrow linear leaves, that are two or more inches long, of a light green colour. The terminal erect panicles are about a foot long, the flowers being almost round and pure white. As a greenhouse decorative plant it is well adapted if due atttention is paid to pinching and a sturdy habit obtained. At Kew, this plant is said to grow to a height of five feet upon a wall, and if sufficiently hardy to withstand our climate, would form a most welcome addition to our shrubby herbaceous plants.

Episcia erythropus.

A plant of this is now in full flower here in the cool stove, associated with such plants as begonias. In habit it is dwarf, with long, arching, bright green leaves, the veins upon the under-surface being reddish in colour. The flowers are produced in great numbers in the axils of the leaves, the peduncles being about two inches long; the corolla is a pretty combination of pink and white, with yellow spots in the throat. This native of New Grenada thrives well in a compost of a light character, such as is usually in use for the order Gesneraceæ. It was introduced by the Messrs. Veitch a few years since.

Eucomis.

The members of this genus will be found most useful where a supply of plants for decorative purposes are in requisition. They are natives of the Cape and are said to be hardy in sheltered positions in the warmer parts of the kingdom; if planted rather deeply, and if in a rich soil, they grow very strong. For pot culture they are well adapted, throwing up from a rosette of long, spotted or striped foliage, tall spikes of flowers, from a foot to eighteen inches high. These are surmounted by a crown of small leaves, in the manner usual to pine-apples. The flowers are rather large, and of a greenish-white or yellow colour, and with purplish ovaries. Of the few species in cultivation, E. punctata, E. undulata, and E. regia, are perhaps the best known. Others are but seldom seen; all require a similar treatment, the principal factor of which is a very liberal amount of water during the growing period, and a season of rest during winter. They are all natives of South Africa, and are easily grown in a greenhouse from which frost is excluded.

Edinburgh. R. L. HARROW.

The Yellow Picotee.—The necessity for a more correct classification of the yellow-ground picotees was mentioned at the recent Midland Counties Exhibition. Mr. James Douglas made reasonable complaints that in the class for wire-edged yellow picotees flowers were awarded prizes which had streaky petals, and were not, therefore, wire-edged picotees; and he further stated that the time has come when some better classification should be taken in hand. Time was when there was a distinct section of wire-edged yellow-ground picotees, but they were, unhappily, so weak in constitution that it was with the greatest difficulty they could be induced to grow and bloom. They disappeared entirely, to be succeeded in later years by a new race of much stronger growth, and the group is multiplying with rapidity. But so many of the yellow picotees have small flakes and lines of colour along the petals that they cannot be classed as wire-edged picotees. Hence, then, the necessity for commencing a section of yellow-ground wire-edged picotees which shall bring them into line with the white-ground type. At the Midland Counties Carnation Show at Birmingham, there were classes for light wire-edge and heavy wire-edge picotees, but not a few of the blooms staged left something to be desired in the way of a greater concentration of colour on the petal edge only. The following were selected in the order of merit: Mrs. Douglas, Seraph, Mohican, and Ladas. To these may be added, as coming nearest to the type, Mrs. R. Sydenham, Mrs. Gooden, and Florrie Henwood. The heavy-edged varieties were Voltaire, Wanderer, and Eldorado. Taking the foregoing as illustrating the type, there is enough of material to commence with, and the sooner the attempt is made the better. If the committee of the National Carnation and Picotee Society hesitate to take this step, then the council of the Midland Society, which unites the northern and southern growers, may probably do so. The properties of the white-ground picotees should be required in the case of the yellow-grounds, excepting, of course, the tint of colour; and were this done, it would impart a great impetus to the production of new varieties. I hope that carnation exhibitors will ventilate the matter, especially as the Midland Society have originated distinct classes for light and heavy edge yellow picotees; and the contention of some at Birmingham was that flowers were admitted as edged yellow picotees which were not so in fact. The best time to discuss such a matter is immediately the carnation shows are over, and when the subject is likely to receive the greatest attention.—R. DEAN.

THE FRENCH TRUFFLE INDUSTRY.

THE truffle is such a curious plant that there is nothing extraordinary in its being enveloped in legends. It is simply a mushroom, developing in land at a depth varying from six to eight inches, and of a volume limited to the size of an ordinary apple or orange. Its origin has exercised the ingenuity of the ancient as well as of the modern worlds. Nicander alleged that truffles were formed from mud, modified by the earth's central heat, while Plutarch affirmed that their formation depended upon thunder. Phorphyry ranked them as children of the gods. Theophrastus laid down that the truffle was a vegetable raised from seed like other vegetables, while M. de Valsenes of our own days—two thousand years later—protests against that opinion. But no one denies the comestible value of the truffle, its delicate, almost strawberry perfume, and of its power—as Brillat-Savarin observed—to make ladies tender-hearted, and gentlemen amiable. In point of flavour, and delicacy of fragrance, the French Périgord truffle has no equal. It is really the queen of truffles, and made its first appearance in Paris towards the end of the fifteenth century. Its botanical name is Tuber melanosporum. Other parts of France cultivate truffles, and of different varieties; Italy raises many, and England not a few.

The truffle prefers a light soil, above all a calcareous one, and desires to be in proximity to oak or nut trees—it can also put up with beech and birch—and develops within the range of their rootlets. It does not like a too humid situation, nor a rich soil, nor a greater altitude than six hundred yards above the sea; a northern aspect is objectionable. A humid spring, followed by a warm, stormy, and dry summer, constitutes its ideal. No ailimentary substance suffers more readily from atmospheric variations than do truffles. The truffle heats or freezes quickly, and hence decomposes. It is also eccentric, for it delights to develop slowly away from other plants. In spring it is but the size of a small cherry, soft, and devoid of fragrance; in summer the tissue becomes more firm, grey veins set in, and the aroma arrives; by November or December, it possesses all its most valuable perfume. Towards the end of winter it turns black, parts with all its qualities, and decomposes. Heat also causes the truffle to lose its aroma and consistence. The Périgord truffle can be recognised by its brownish black or violet flesh, traversed by several white veins, shining and bordered with red; and its delicate perfume and agreeable flavour.

There are pigs and dogs that are employed to discover and unearth truffles; the pig—a sow especially, because much more intelligible—is preferred, it can also dig down deeper into the hardest soil, while a dog soon becomes tired of scratching the soil and bringing nothing to light, so leaves the work for the master to finish. Both dogs and pigs are carefully trained for truffle hunting in France. The peasant—a man or a young woman—sets off in the morning with the animal, which soon finds out the truffle bed by the perfume emitted. The peasant has a bag into which the truffles are dropped, and this has a side pocket containing small pieces of chese, bread, or glands, with which to reward the dog or pig as soon as a "black diamond" is discovered. Often squirrels are about the spot, for they also like the dainty esculent.

The peasant has a staff tipped with iron to dig out the exposed find. The sow being more docile, and possessing a finer nose or snout, can scent a concealed truffle forty yards away. Scenting the esculent, it makes direct for it, inserts her snout into the ground, and soon uncovers the prize. That done, the animal awaits its reward, generally an acorn or a piece of cheese. The pig commences to hunt for truffles when two years old, is in its prime at four years, and can continue that natural calling till aged twenty-five. A good pig has been known to indicate 40 lbs. weight of truffles in a rooting day, however, 12 lbs. weight forms the average of a good day's work. The kind of dog preferred to hunt up truffles as its game, is of small breed; it barks with delight whenever a fine truffle is laid bare and feels sad if the day is not lucrative. It occasionally happens that a "nugget truffle" is discovered weighing eight to sixteen ounces. The truffles are next sorted out into three sizes by being passed through osier sieves; often the classification is merely made by hand. The town of Apt, in the department of the Vancluse, is the great French market for truffles; the peasants bring there every Saturday morning during the season—which commences in November—a week's gathering, never in baskets, but in sacks or rolled up in cloths. The wholesale dealers in preserves arrive—from Carpentras especially—to purchase supplies and take away the produce in carts. After the local industries have been supplied, the exportation of truffles commences. Vancluse sells annually over four million francs' worth. A good deal of adulteration is practised in the industry, independent of mixings from the twenty varieties cultivated or sold. For instance, they are coated with earth to appear large, again, small and big ones are often pinned together. Frozen truffles are thawed, coated with earth, and bits of lead or stone included to add to their weight. Tubers are sold made of parings of true truffles, after being mixed with earth and moulded. Occasionally potatos are utilized, mere scraps of truffles added, and the mass covered over with brown earth.

The alimentary value of the truffle is very great, though doctors differ respecting its digestibility, but the latter can vary with individual temperament. Gouty persons ought to avoid truffles. During the cholera plague in Paris, in 1849, the physicians utilised decoctions and solutions of truffles. They were even made into snuff to combat retchings and diarrhœa. Analysis shows that there is much kinship in the composition of bed mushrooms and truffles. The latter contain seventy per cent. of water, cellulose, odoriferous principle, some volatile oil likely, acids, and salts; the truffle is rich in nitrogen, and contains phosphorous, potash, lime, iron, and sulphur. The percentage of these ingredients is high, even when their presence in the soil is very rare. The average wholesale price of truffles is 6 fr. to 13 fr. the kilogramme (2¼ lb.), but trays of first quality truffles have fetched 20 fr. a pound, and were sold without any difficulty. These are only the variety known as Tuber melanosporum, and raised in Dordogne. The total annual produce of truffles in France is estimated at 17,000 tons, representing a value of 21 million francs, and nine-tenths of the Périgord output are consumed in France, either in the fresh or preserved state; England and Belgium take the remainder. France imports a large quantity of truffles from Italy—which are the best after her own—and prepares them extensively for the English market.

Can truffières, or artificial truffle beds, be created? is a question of some interest. The answer is yes, and such exist in many places. The Agricultural Society of the Department of the Lot awards prizes at its shows to truffle growers. In the Vancluse, where the cultivation is extensive, 450 tons are annually exported. Waste and neglected lands have been successfully utilised in the cultivation of truffles, and the price of such land is now 4,000 fr. per acre. The Departments of the Lower Alps and the Lot produce 350 tons; Dordogne and the Drôme, 300 tons. Indeed, fifty-one out of the eighty-nine Departments now raise truffles. Of course, the quality varies with locality, so truffles are divided into three commercial categories; the first from Périgord, Angoumois, and Piedmont, the last from Normandy and the Seine.

In Dordogne and Ladouze, the Mayor, M. Maligne, lost the vines on his estate of two hundred acres from the phylloxera. He converted his land into a truffiere, and with great success. The average net profit of an acre of tubers is said to be 450 fr. The beds last for twenty-five or thirty years, or for ever, if attention be paid to the oaks; the culture exacts no manure, no labour. Truffles kill off all vegetation; when the latter shows it is a sure sign that the truffle bed is worn out. In the Vancluse, the two year old oaks—the white variety is the best—are planted one hundred and twenty inches asunder, and double that distance between the rows; or, the acorns can be sown in spring and the plants thinned out later. The truffle grows at the roots of several species of trees, but chiefly the white and green oak. The soil ought to be calcareous, somewhat sandy, porous, rich in humus, resting on a shallow permeable subsoil of stones and humus. Five years after the oaks are planted, the truffles will appear, and be recognized by the disappearance of all vegetation or weeds; they first show close to the trunks, and then extend laterally, so as to be always in touch with the range of the outspreading roots. The oaks ought to be pruned to resemble an inverted sugar loaf, for truffles must have plenty of air as well as light. Spores which fall on the soil produces the mycelium, or white threads known as spawn, and growers in addition scatter some earth from existing truffle grounds over the new beds; parings of truffles are also strewn. Truffles are gathered at various periods; for instance, the Perigord, from October to April; the summer varieties, from May till July; and the others from October to December.

EDWARD CONNER.

NEW TRAILING ROSES.

ROSA LUCIÆ—R. Wichuraiana of American gardens—is already becoming popular in this country for covering ground, for rooteries, &c., and some of the hybrids of which it has been one parent have been exhibited in London, one, Manda's Triumph, having been figured in our columns. Mr. W. A. Manda, who resides in South Orange, New Jersey, U.S.A., has been working with the popular very hardy trailing or climbing R. Wichuraiana as a seed parent since he started for himself at South Orange, and his set of hybrids sent out two years ago have had a deserved and wide popularity, but, says a correspondent to *Gardening* (Chicago), it is pre-eminently under the raiser's care that the merits of these beautiful creations can best be seen. He has tested them in every conceivable way, on dry hill sides, in the shade, their roots exposed to the winter, and Mr. Robert M. Gray forced a set of them at Julius Roehrs', and found them as free flowering as Crimson Rambler. With their fast multiplying colours and extreme floriferousness, their ease of propagation and consequent greater cheapness, it seems to me this class of roses are likely to run the azalea a hard race for the first place as florists' Easter flowers.

The new evergreen set are even more vigorous, but will not probably be in the hands of the trade before next year. Many of you may, however, wish to know what they are like. They are R. Wichuraiana crossed with Perle des Jardins, Meteor, American Beauty, and other forcing roses. To Mr. Manda's surprise, I daresay, they retained their foliage outdoors last winter. They are most luxuriant growers, evidently hardy, and worthy of the most extended trial wherever covering plants are desired. To my mind the most beautiful are two crosses of the Perle, Gardenæflora, with beautiful yellow buds, and expanded flowers like Gardenia Fortunei, and Jersey Beauty, a single white flower expanding to three inches across, with big clusters of golden yellow stamens studded over beautiful masses of rich and shining green foliage; it will take the place of the Cherokee rose northward. Evergreen Gem is another dense grower of this set, and besides these are several as yet unnamed, such as a cross of Meteor with fine, full, double, light pink flowers. The Beauty crosses had scarcely arrived at a condition for me to talk about, but I would say to florists that they should watch these roses, for I believe they will prove to be among the most useful acquisitions for a wide section of country that we have seen in recent years, and for the class of customers who desire roses for training on walls, or covering bare ground, they should prove of great value.

Parsnips.—In a large competition with these roots at the Shrewsbury show recently, Mr. R. Tye seemed to be the only exhibitor of that new selection, and evidently a very excellent one, known as Sutton's Tender and True. Generally in all the classes in the show the roots were far too long, and not relatively clothed with flesh. The ideal parsnip with so many persons seems to be found in plenty of bone, but very little marrow. In the parsnip, however, the marrow is looked for outside, rather than within the bone. Many roots ranged from two feet to two and a-half feet in length, and but about nine inches of the whole were edible. The Tender and True, however, is less long and relatively much more fleshed. The roots staged were very handsome, smooth and white, had shoulders almost as rounded and tapering to stoutness lower down, as beets usually show. That is not at all a characteristic of the old Hollow Crown variety, which is the one usually grown for exhibition. Mr. Fyfe, of Lockinge Park, showed Tender and True last year and easily took first place with it.—A. D.

ECONOMIC PLANTS OF CENTRAL AFRICA.

THE annual report on the British Central Africa Protectorate just issued by the Foreign Office, contains some interesting notes on the exotic economic trees and shrubs cultivated in the Residency Ground, Zomba, by the Government Botanist (Mr. J. Mabon), who says: The collection of exotic plants grown at Zomba possessing economic value is not at present very extensive, but it is being steadily added to. The Coffee-disease Regulations in force prevent plants or seeds being imported from several tropical centres where we could obtain many valuable things, and the long journey from England hinders us from obtaining plants in Wardian cases from the Kew establishment or any of the large nurseries, except the consignment is taken in hand by some officer of the Protectorate, or the like, who is making the voyage out and sees it safely through. The authorities at Kew, having such unusual opportunities for distributing seeds, frequently forward valuable material to us, and many of the items mentioned in the accompanying list emanated from Kew, either as seeds or plants. The list as it stands forms an interesting record of the cultural possibilities in the climate of the Shiré Highlands. There are but few countries where one can see such an essentially cool and northern type of vegetation as Lawson's cypress (which bears seeds in enormous quantities) growing alongside such an essentially tropical type as the gutta percha of Malaya (*Dichopsis gutta*). Although it is true the latter does not reach its proper degree of development, yet it is perfectly healthy, and it points to the fact that in the lower and warmer region on the Shiré River it would be a valuable culture.

Many of the items mentioned are only represented by one plant, and many of them are not old enough to have reached the fruiting period. Some of the introductions grow with surprising vigour. For instance, eucalyptus, the seeds of which were sown about six years ago, are now over sixty feet high, and would yield very capable timber if required. The well-known blue gum (*Eucalyptus globulus*) is not, however, a success here, but it seldom is in these latitudes below the 5,000 feet level. Still there remains numerous equally good, and even better, members of this useful genus which we can cultivate with success. Mauritius hemp (*Furcræa gigantea*) and sisal hemp (*Agave rigida var. sisalana*) grow with great freedom, and while it would scarcely pay to cultivate these valuable fibres at present for the European market, yet if any textile industries arise locally there can soon be plenty of raw material at hand to supply them. Seeds of the celebrated China grass (*Boehmeria nivea*), a fibre very much in demand now, have been ordered, and it is intended to demontrate that it is a profitable culture that might be grown in Nyassaland with the object of exportation to the European markets. Arnatto (*Bixa orellana*) fruits with great profusion; the seeds are used in the arts as a dye and as colouring agent for butter; the supply at present, however, from colonies like the West African, exceeds the demand.

Fruits are of a very important culture in all tropical countries, and the indications point to the Shire Highlands being suitable for raising the fruits of many diverse countries. The mango (Mangifera indica) grows with much luxuriance, but as all the existing plants at Zomba have been introduced recently they have not yet reached the fruiting stage. One tree is expected to yield some fruit this year. The same applies to oranges, avocado pear, and guavas, although at present one tree of the latter is maturing fruits. (On the Buchanan Estate, close to the residency, oranges bear with great profusion, and up till recently peaches were a great success there.) The granadilla (Passiflora quadrangularis) fruits freely, and the fig (Fircus Carica) seems quite at home. The grape vine grows well, and is a recent introduction; we expect to see it fruiting next year. Bananas, it need hardly be remarked, bear with great abundance. Up to the present this is practically the only fruit the native grows.

Exotic timber trees are very promising. The red cedar (*Juniperus virginiana*) and West India cedar (*Cedrela odorata*) do extremely well, and are important in view of the expected development of the tobacco industry, as they supply material from which first-rate cigar boxes can be manufactnred. Kauri pine (*Dammara australis*), a timber of great value and utility, promises to become a great success here, for seedlings planted a year ago have reached over three feet in height. Mahogany does very well. The good offices of Kew have been requested in obtaining for us a large quantity of seeds in order that we can grow it on a considerable scale and distribute it over the Protectorate. The splendid Mlanje cedar (*Widdringtonia Whytei*) grows with unexampled vigour at Zomba, which is at least 3,000 feet lower than its native habitat. It is very interesting to find it doing so well here, and points to the fact that in time the hills of Nyassaland above the 3,000 feet level can be successfully forested with this excellent timber. Seeds from the trees at Mlanje have been widely distributed among Government officers, missionaries, and planters in the Protectorate, as well as to various parts of Southern Africa.

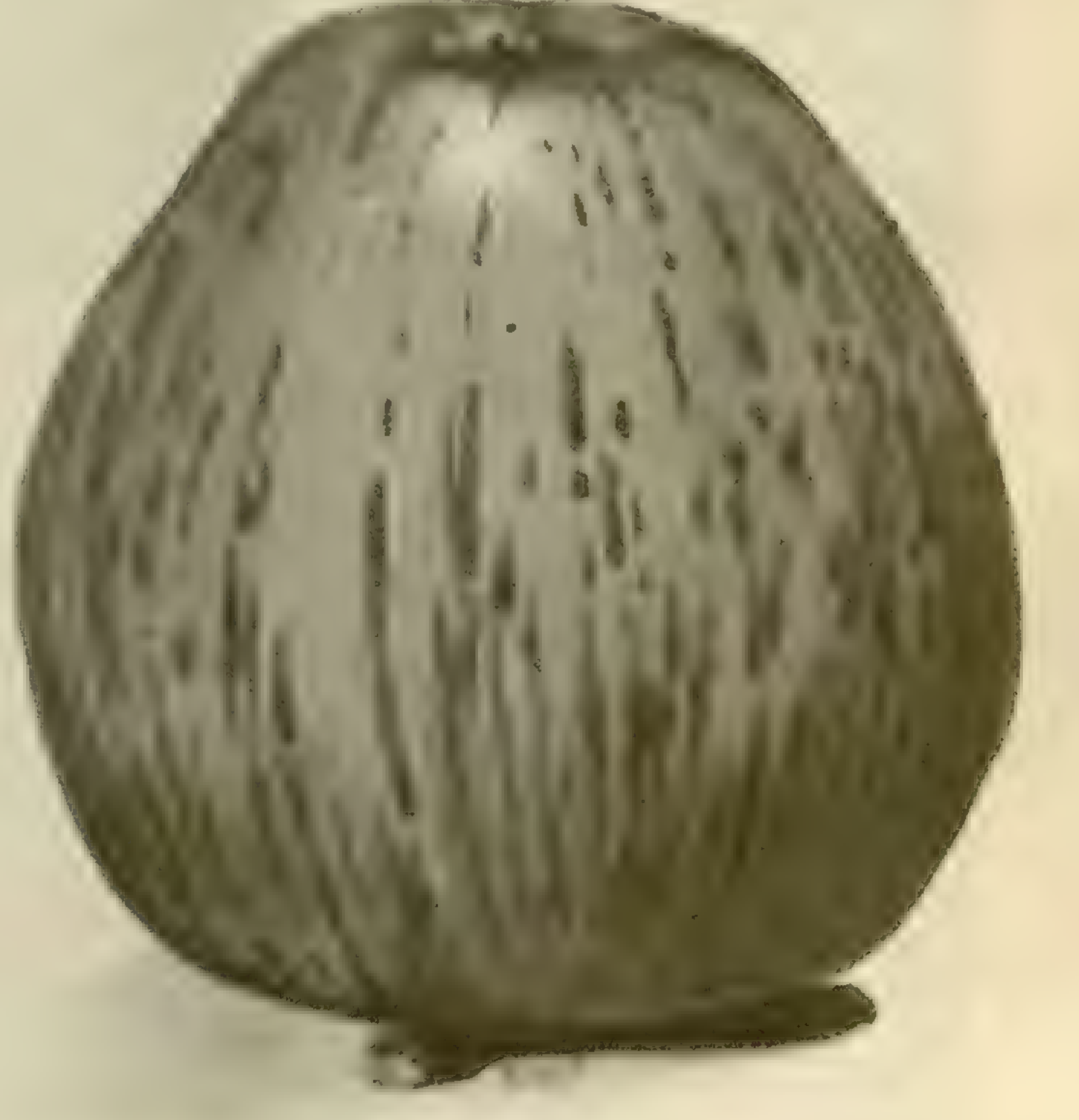
NOTES FROM THE CAPE.

In a letter, dated the end of July, just received from a correspondent who is travelling at the Cape for the benefit of his health, the following remarks, which will be of interest to horticulturists, occur: "The scenery of Durban and the locality is magnificent, and I can imagine none more beautiful in the world. The flora, too, is grand. The begonias average five feet in height and the bougainvilleas twenty feet, and in bloom all the year round, the latter being one glorious mass of purple. Coleus and many extraordinary foliage plants and ferns exist in apparently endless variety. The common canna is a weed, and all the latest florists' varieties flourish and are very popular here. Then just now (the end of July) the citrus family is in full fruit, and at early morning time the air is sweet with the scent of ripe oranges, to be replaced shortly by the orange blossoms. Oranges are now falling off the trees in thousands and rotting on the ground. Then there are the sweet lemons, naartjes, limes, and lemons. The sweet lemon is unknown in England. It is somewhat larger than the ordinary lemon—the same shape, but the colour is orange, and the flavour that of a lemon with all the sourness eliminated. The naartje is the Tangerine orange. The mango is in flower, and the glowing blossoms of the hibiscus are to be seen in every garden. Roses, too, are plentiful, and if one wishes to make a bouquet one has but to walk a few yards, and Asparagus plumosus nanus can be found growing wild. Pine-apples are almost as cheap as oranges in England, and bananas are ten a penny. Altogether it is a beautiful country for flowers and fruit, but the terrible humid heat tells on all with weak chests unmercifully. Though a little tco hot in the day, it is cool at night, and it is not desirable to be out after five o'clock, by which hour it is pitch dark. Yet in the early morning you will see people with blue noses rubbing their hands to keep them warm."

WM. NORMAN BROWN, F.R.H.S.

NEW DESSERT APPLE, LANGLEY PIPPIN.

DESSERT apples are so highly appreciated by a large section of the community towards the end of the summer that varieties ripening during August and September are of special value, and any important addition to the somewhat meagre list of early apples is assured a hearty welcome. Therefore it is not surprising the fine variety presented to public notice by Messrs. J. Veitch and Sons at the second of the two August meetings of the Royal Horticultural Society under the name of Langley Pippin should have created much interest and obtained recognition from the Fruit Committee. This vatiety, as recorded in the issue of the GARDENERS' MAGAZINE of the 27th ult., originated from a cross between Cox's Orange Pippin and Mr. Gladstone, and it is of interest to add to the information given on page 554 that the former was the pollen and the latter the seed-parent, and, further, that the influence of the pollen-parent is strikingly manifest. The fruit is of medium size, as indicated by the accompanying illustration, roundish, inclining to conical, the skin pale yellow, brighter on the side next the sun, where there is a highly-coloured cheek composed of scarlet streaks and crimson mottlings; the eye is open, with long segments set in a shallow and slightly plaited depression; the stalk short and fleshy and obliquely inserted in a slight cavity. The flesh is whitish, tender, and with a pleasant crisp flavour



APPLE, LANGLEY PIPPIN.

The fruit has probably ripened this year under the influence of the recent hot weather, rather earlier than it otherwise would have done; but whether this be the case or not the variety is unquestionably a valuable addition to the early dessert apples, for it combines productiveness with its other good qualities.

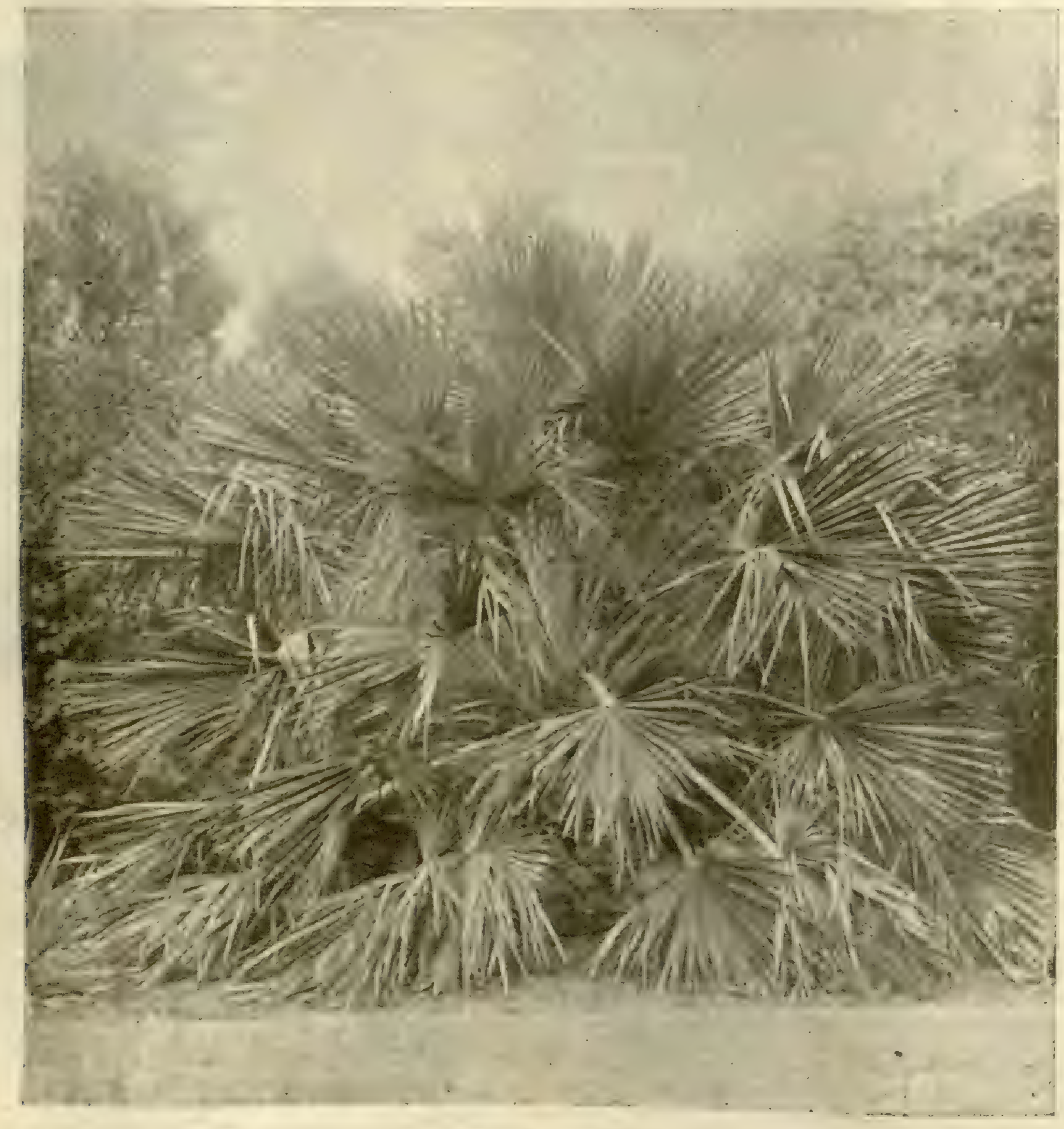
Cross Fertilisation of Fruits.—Cross fertilisation is effected, as every gardener knows, by the action of the pollen of one plant upon the stigma of another. The nature of this action is, said Mr. J. Cranmer, in an address to the Irish Gardeners' Association, highly curious. Pollen consists of minute hollow balls or bodies; their cavity is filled with fluid, in which swim particles of a figure varying from spherical to oblong and having an apparently spontaneous motion. The stigma is composed of a very lax tissue, the intercellular passage of which has a greater diameter than the moving particles of the pollen. When a grain of pollen comes in contact with the stigma it bursts and discharges its contents among the lax tissue upon which it has fallen. The moving particles descend through the tissue of the style until one or more of them finds its way, by routes specially designed by Nature for this service, unto a little opening in the integuments of the ovulum, or young seed. Once deposited there the particles swell, increase gradually in size, separate into radical and cotyledons, and finally become the embryo, that part which is to give birth, when the seed is sown, to a new individual. Such being the mode in which the pollen influences the stigma, and subsequently the seed, a practical consequence of greater importance necessarily follows, viz., that in all cases of cross fertilisation the new variety will take chiefly after its pollen or male parent, and that at the same time it will acquire some of the peculiarities of the seed parent; thus, in Coe's Golden Drop plum, the pollen parent was the yellow Magnum Bonum, the seed parent the Greengage. The limits within which experiments of this kind must be confined are, however, narrow. It seems that cross fertilisation will not at all, or very rarely, occur between different species, unless these species are nearly related to each other. We have no hybrids raised between the apple and the pear, or the quince and the pear, or the plum and cherry, or the gooseberry and currant. On the other hand, new varieties, obtained by the intermixture of two pre-existing varieties, are not less prolific, but, on the contrary, often more so than either. It is, therefore, to the combination of the most valuable existing varieties of fruit that gardeners should trust for the improvement of their stock. By this operation the pears that are ripe in spring have been rendered as delicious and as fertile as those of the autumn. There is no kind of fruit, however delicious, that may not be deteriorated, or however worthless that may not be ameliorated, by particular modes of management; so that, after a given variety shall have been created, its merits may still be either elicited or destroyed by the cultivator.

ERYTHEA EDULIS.

Among the numerous handsome fan-leaved palms, the members of the genus Erythea take a foremost place for their beauty; only one species, however, is at all frequently met with under cultivation in European gardens, viz., Erythea edulis, also known as Brahea edulis. The genus is confined to Southern California, and the species figured in the present issue is a native of the island of Guadalupe. In this country E. edulis can be successfully cultivated in a greenhouse or warm conservatory, and when it has attained some size the large, plicate, filiferous leaves are especially handsome and greatly admired. The sheaths, and also the inflorescence are peculiarly and distinctly tomentose. Under the influence of the genial South Californian climate, this palm attains a height of fully thirty feet, with an elegant trunk from a foot to eighteen inches in diameter. When a specimen has attained a flowering size, it blooms regularly each year towards the end of March, the somewhat insignificant flowers being scattered along the branches of a large drooping panicle. Clusters of ripe fruit have been known to weigh fifty pounds.

The generic title is a fanciful one, and adapted from Grecian mythology, for Erythea was one of the Hesperides who guarded the garden of golden apples in the west. The application was, however, a good one, for California is always associated in one's mind with gold, and during later years it has, indeed, become a garden of golden fruit—oranges, lemons and apples. The specific title refers to the edible character of the fruit. This palm has now become quite acclimatized in the south of France and all along the Riviera. Our illustration represents a specimen in the garden of M. Hippolyte Dellor, at Hyères; it stands about twelve feet high, and has a trunk over thirty inches in diameter at the base. The largest fronds stand out horizontally from the trunk, and are some three-and-a-half to four feet long, and about a yard across. This specimen was planted out in 1886.

Wild Flowers and their Colouring.—Taking the natural order of the Compositæ, it will be found that out of forty-five different species twenty-five are yellow, nine are purple, six are white, and two are blue, of our wild flowers, these last being the chicory and cornflower. In the next largest order, the Umbelliferæ, out of thirty-six species twenty-four are white, three are yellow, one is blue, and the remainder are greenish or pinky-white. In the Cruciferæ, out of twenty-six species fourteen are white, seven are yellow, one is yellow, and one white and yellow. Dyer's Wood, now very seldom found, is yellow. In the Labiatæ the colours vary very much—white Dead Nettle, yellow Archangel, lilac mints, purple thyme and betony, rose Hemp Nettle, blue Skull-cap, and violet Prunella or Self-heal. In the Rosaceæ will be found white, yellow, pink, rose, red, purple, and green—only one, the Isnardia, having this last colour. In the Leguminosæ there is considerable variety, including yellow, purple, white, rose, and pink. Summing up, it might be said that spring paints the fields and hedgerows with yellow, blue, and white; summer, with yellow and pink; and autumn, with purple, scarlet, and gold.—W. N. B.



ERYTHEA EDULIS.

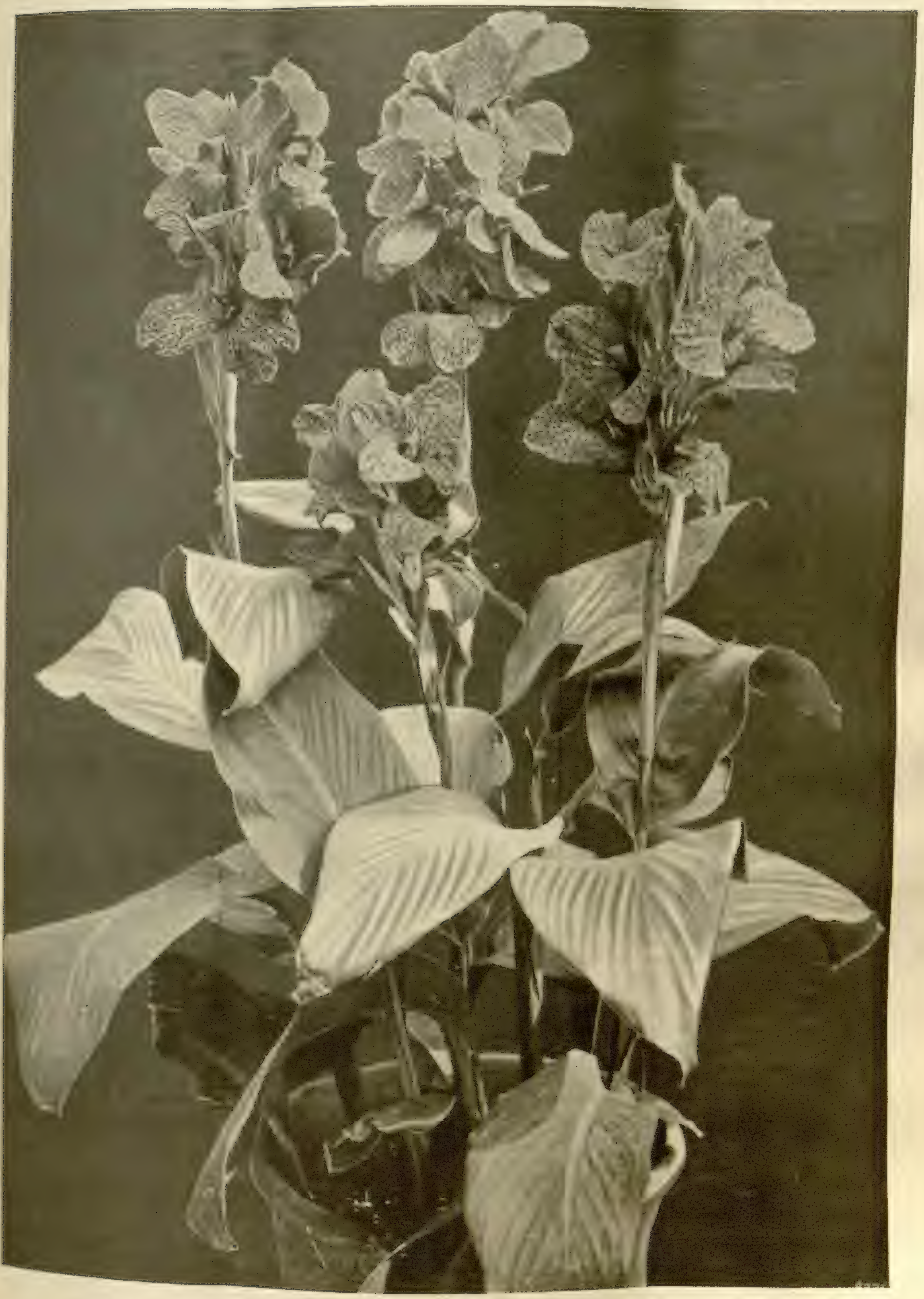
CANNAS AT CHISWICK.

The large flowering cannas have now thoroughly taken up a position in the round of subjects that a horticulturist of any pretensions cultivates for the decoration of the home, the conservatory, or the greenhouse. The large number of varieties that have of late been raised and introduced can readily be divided into two groups, one remarkable for dwarf habit, compact spikes and brilliant flowers, and known as the Crozy cannas; and the other set conspicuous for their strong growth, bold, handsome foliage, and long spikes of exceptionally large flowers that have a vivid colouring, very broad rounded segments—reminding one of the Kæmpfer iris—but rather more fugitive than the dwarfer set. This set is now recognised as the Italia group, as Italia was the first of the series sent out by Messrs. Dammann and Co., Naples.

Those who contemplate adding a few more varieties to those they already possess, or who intend to commence the cultivation of cannas at the earliest opportunity, should, if possible, view the collection in the gardens of the Royal Horticultural Society at Chiswick. Here there are about ninety varieties, besides a goodly number of unnamed seedlings raised in the establishment; almost all the named sorts are represented by two specimens carrying from three to eight or ten growths each, so that there is a fine display, which does credit to the superintendent, Mr. S. T. Wright, and his able assistants. These large specimens are mostly growing in ten or twelve inch pots, and it is noteworthy that they have been potted low, with ample space between the surface of the soil and the top of the pot to allow of an abundant supply of water, stimulants, or top-dressing, as necessary. The structure is an airy greenhouse, but, of course, the plants are kept warmer and the atmosphere more moist when growth commences than now. All varieties are subjected to precisely the same treatment, and there is no coddling, consequently the differences of height and habit are easily recognised, as also are the colours of flowers and foliage. The leafage is very diverse when a little close inspection is made; some leaves are almost erect and pointed, others are rounder, broader, and more horizontal. Some are deep purple in colour, others are purple with green stripes; some are dull green, and others pale green or glaucous green; then, also, there is a distinct margin to the leaves of some sorts, this being whitish-green in some instances and dark purple in others. The height also varies, from two and a-half feet up to six feet, so that there is plenty of variety to suit all tastes. A good selection is as follows:

Mrs. Fairman Rogers is a beautiful variety, dwarf in habit, and with medium-sized green leaves. The spike is most compact, and composed of handsome, broad-segmented flowers, four segments being almost equally developed, so that a quite rounded flower is produced. The colour is rich rosy-scarlet, heavily shaded and suffused with bright scarlet. There is a picotee edge of gold and yellow markings at the base.

Stadtrath Heinrich has very large purplish stems and foliage; the



CANNA COMTESSE DE VARTOUX FLORENCE. (Flowers bright yellow, spotted with scarlet.)

spikes are much branched, and the broad-segmented, full flowers are of a rich crimson-scarlet colour.

Koningen Charlotte cannot be omitted, for it is very dwarf in habit, and produces substantial spikes of exceedingly brilliant flowers that have a large, irregular, vivid blood-red central area to its yellow segments. Very many persons consider this variety to be too crudely coloured, and certainly the combination is more brilliant than beautiful.

Madame Crozy continues to be one of the best of cannas, both by reason of its dwarf habit and its vivid blood-red flowers. Sometimes this colour extends over the whole of the broad and rounded segments, but sometimes there is a wire-edge of bright yellow, while the base of the segment is shaded or spotted with yellow.

L. E. Bally is particularly telling; it has pale green leafage, and grows about three and a-half feet high. The spike is good, and the flowers stand out well upon it; the segments are moderately broad, clear, and soft golden yellow, profusely spotted with dull scarlet. A very fine canna.

Hofgartendirector Lauche is a bold variety with shorter and broader foliage than most; it is from three to three and a-half feet high, and has fine sturdy spikes of orange-scarlet flowers, these segments being margined with yellow and spotted at the base with yellow; the latter colour extending to the extreme base of the segment.

Hofgartendirector Wendland is a somewhat small-leaved, green foliaged variety, very free, and of medium height; the spikes are large, and as the centre spike fades, side ones push out so that a display is continued over a long period. The blooms are nearly five inches across, fairly substantial, of a brilliant vermilion-scarlet hue with an irregular golden margin, and golden markings at the bases of the segments.

Tuevia grows about four feet high, and has clear green foliage. The flowering stem is tall, and carries very large blooms, with drooping and somewhat flimsy segments, the outer and longer ones being soft primrose-yellow, and the inner ones bright yellow.

Franz Buchner is very gay; dwarf, and of good habit. Spikes full of flowers, more substantial than in many varieties; the segments are broad and rounded, rich apricot margined with yellow, yellow at the base, and spotted faintly all over with soft scarlet.

Antoine Barton is very handsome, its habit of growth being good, while the soft green leaves are margined with very pale green. The spikes are very sturdy, and secondary side spikes are plentiful. The flowers appear quite close together, and are about four inches across; the segments round and broad, pale yellow at the base, shading to gold at the apex, and freely and regularly marked all over with vermilion. The fourth and elongated segment has larger and deeper spots.

Comtesse de Vartoux Florence has an especially good habit, growing about two and a-half feet above the pot; the compact spikes are large, and carry an abundance of very bright and attractive blooms. The ground colour is golden-yellow, but somewhat paler at the base; the whole area of the segments is very freely spotted with vermilion-scarlet, the small spots often touching each other. This beautiful variety is figured in the present issue, the reproduction being from a photograph of one of the Chiswick plants, taken specially for the GARDENERS' MAGAZINE. Four large spikes were in flower together.

Egandale has handsome purple foliage with darker purple veins. It grows about three to three and a-half feet high, and bears large branched spikes of rich rosy-crimson flowers that are extremely effective in the bench, though not over fine individually.

Souv. de President Carnot is rather too tall a grower to become really popular, as it rises to a height of five feet. The leafage is large, dull green, with prominent purple ribs and margin. The spike is good, and [illegible] flowers of good size and fairly substantial for a canna; in colour they are of a lovely soft orange-scarlet shade all over.

Doyen Jean Liabaud is dwarf and compact, with full spikes of large blooms. The segments are broad and rounded, pale yellow at base and centre, but brighter elsewhere; the whole surface is marked with irregular spots of orange that produce a curious blurry effect.

T. D. Eisele is of medium height, and has dark green foliage margined with purple. The flowers are very compact, and more rounded than any others we have seen. With the exception of a little dull yellow shading at the base of the fourth and smallest segment, the flower is self-coloured and of a rich soft crimson-scarlet shade. The segments recurve slightly and prettily at the apex.

Alphonse Bouvier is a moderate grower with neat green foliage and [illegible] stems. The flowers are of medium size and fairly substantial; a [illegible] variety, coloured rich crimson-scarlet.

Comte de Bouchard is after the style of Comtesse de Vartoux Florence, but taller, and the yellow ground colour is scarcely so bright.

Garteninspector Massias is a very gay variety, dwarf in habit, but with somewhat small flowers; the segments are intense and vivid vermilion shaded with deep scarlet and bordered with gold; in some [illegible] the richer colour is divided by a band of gold. The reverse of the segments is also very brilliant.

Mr. Francis Gos, dwarf in habit, and with broad green leafage; flowers of good size, and of soft but distinct shade of orange-scarlet that [illegible] apparent.

[illegible] has purple stems and foliage, surmounted by branching [illegible] of large apricot coloured flowers.

Edward Mieg is a very dwarf habited canna, with a full spike of [illegible] self-coloured flowers; the shade is best described as very [illegible] scarlet with a rosy suffusion.

[illegible] is a tall, bold grower, with the broad handsome and somewhat [illegible] flowers that characterise its set. Some of the large outer segments are nearly three inches broad, and these have a large irregular [illegible] area of bright rosy-scarlet surrounded by a broad yellow margin. The two central segments are vivid scarlet, edged and marked with golden yellow. It is a pity these fine flowers are so fleeting.

Italia is a wonderful canna of bold habit and rather tall, and it has [illegible] blooms, in which five segments show a remarkable development in breadth and length. Each bloom measures about six inches across, the segments being fully two inches across. The three longer segments are pale yellow, heavily suffused and veined with golden-yellow, and marked in the centre with blood-red. The smaller segments are almost wholly covered with vermilion or blood-red.

Pandora is a strong grower, and has rich purple foliage and stems. The spike is large, and the flowers are from five to six inches across, deep rosy-scarlet, with a heavy suffusion of orange-scarlet, this being brightest at the margins. The small central segments are marked with dull yellow.

Bavaria is a tall grower, the topmost flower on a spike being about five feet above the ground. The habit of the plant is very close and erect, leaves and stems pale green. The spike is of fair size, but the flowers are immense, measuring four to five inches across, with fine, well-developed, broad and rounded segments of a rich canary-yellow, heavily marked over the basal half with scarlet. The front segment is heavily marked all over with scarlet.

Heria is another tall grower of the Italia section. Its blooms are very large, and the outer segments are rich yellow, with the base and centre covered with scarlet and blood-red, the colour looking as though splashed on. The inner and smaller pair of segments are almost wholly of a vivid blood-red colour.

CANTERBURY BELLS IN POTS.

To produce handsome flowering plants of Canterbury Bells in June and July, one must prepare the previous season, otherwise few plants are grown more simply and look more charming for house or conservatory decoration. Many lovers of hardy plants may not agree with my recommending Canterbury Bells as pot plants, but of late years there have been some splendid additions both in colour and form to the sections; the Calycanthema section is a beautiful one, and well worth pot culture, as few subjects are more showy in their season. For years I have paid special attention to the simple belled forms of Campanula pyramidalis, and these are equally beautiful, and probably more useful, as they last longer than the Canterbury Bells; but we have room for both for furnishing. I find Canterbury Bells are much admired at the season named, and those who saw the fine group at the Royal Horticultural Society's July meeting, sent by Messrs. J. Veitch and Sons, know what can be done to make the Canterbury Bells useful as pot plants. Of course, these plants can readily be grown and flowered in one year; we have done it in less by sowing under glass, but I would advise sowing in April or May for next season's flowering. Many do not grow the specimens in pots until they are a fair size, lifting them from open borders. By this method it is well to give more time, and I have seen specimens grown in the open for two seasons to obtain branching plants before they flowered. Pot culture, however, is more suitable for decorations, and by this method one may obtain more shapely examples.

We sow seed in May or June to produce flowering plants the next year, but those sown in the open and potted up, say, in August or September, will make shapely plants by next March, and may then be given a shift. Some may ask, why not sow in the open and allow the plants to remain till spring, then lift and pot up? This is an excellent mode of culture where labour is scarce, and a large pot is not objected too, for, in lifting at the season named, unless there is a good ball of soil, the plants will lose all their lower leaves, and at times will fail to flower freely. I like pot culture from the start for various reasons, the chief being that we then have compact plants that will stand a good deal of knocking about and flowers earlier, the latter being a gain, as Canterbury Bells when a mass of flower early in the summer are valuable for house decoration. Raised from seed sown in boxes in May, and placed in frames, the plants will be ready to prick out in a few weeks, and it is well to sow thinly, for the seedlings have a tendency to damp badly when sown thickly or given too much moisture. It is also advisable to keep the seedlings near the glass, and to prick off in a small stage; we place the seedlings in boxes, when large enough to handle, about two inches apart; they then lift nicely for potting into forty-eight pots at the early part of August, and are then stood close together on a hard coal ash base to keep out worms, and housed in a cold frame, or plunged up to the rims in ashes through the winter; the frames are best, as the plants do not like much moisture. In April we shift them into seven-inch pots for flowering, and stand them in rows, affording ample space to prevent the loss of bottom leaves. Given these attentions they make a compact pyramidal growth, and as soon as they have filled the pots with roots they may be given liquid manure freely. At this stage they take large quantities of water, and it saves labour if the plants are plunged after the final potting, but greater care is needed in the watering for a short time at the start. We have, when needing many plants, potted up from open borders, but prefer the pot culture from the initial stage.

In October, when housed in cold frames, the plants are placed in their distinct colours, this being noted at sowing time. Many beautiful shades of colour may be obtained by hybridizing; we have some of a pretty rose colour, which have a large cup-and-saucer-like corolla; this formation is also common in the blue and purple types; the mauve forms are very beautiful, as are also the pure whites. In the older section there are excellent double-flowered varieties, with the same colours as noted above. I find the rose and mauve varieties are the most tender when in a young state, the blue kinds being the strongest of all; but every colour may be obtained readily if given attention in the seedling stage. As regards soil, we pot in a firm manner in loam, with a portion of bone meal at the spring potting, and some fine old mortar at the autumn shift, the latter acting in two ways, as it gives better drainage in winter and assists in building up a sturdy growth for the summer flowering.

G. WYTHES.

Syon Gardens.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE occupants of the cool houses enjoy the cool, dewy nights that usually prevail during this season, and at no time during the year do cool orchids grow more freely than at the present; to give the plants every opportunity of deriving benefit from the cool night air the ventilators should be left wide open. Should cold, cutting winds occur, such as we experience here occasionally, more care must be exercised with regard to ventilation. Slugs are usually a nuisance at this period, being very fond of eating the tender roots and flower spikes; they should be carefully sought for at night, and also trapped with lettuce leaves. Odontoglossum ramosissimum, O. Edwardi, O. Uro Skinneri, Oncidium undulatum, and O. macranthum are now pushing up their flower spikes, so a little cotton wool, placed around the base of the spikes, will help to protect them from slugs, as the pests find a great difficulty in crossing the woolly surface. The pretty and distinct Oncidium incurvum is now in flower, and it lasts a long time in perfection, but the spike should only be allowed to remain on the plants a reasonable length of time; after flowering, the plants should be kept fairly dry for some time, but not allowed to shrivel. Any plants of Odontoglossum Œrstedi that are in need of new receptacles should now be attended to, as root action is about to commence; well-drained shallow pans should be used, and a compost of equal parts of peat and moss will suffice for rooting material. It must be remembered that this odontoglossum thrives much better under a drier treatment than most species.

Plants of the charming Miltonia vexillaria will now be in a sufficiently advanced state of growth to admit of any being repotted or top-dressed that require it; but before this operation is commenced the plants should be carefully examined to make sure they are perfectly free from insects, as the little yellow thrips often conceal themselves right down in the interior of the young growths, and it is almost impossible to eradicate these pests with brush or sponge; the best method, we find, of destroying these insects is to dip or wash the young growths in some safe insecticide, afterwards rinsing them well in some tepid soft water. X L. All liquid insecticide is very effective, at the rate of one part to twenty parts of water. Repotting should only be done in cases where they have overgrown their receptacles, or the material is in a sour condition; these should be carefully taken out and all the old material possible removed, without injury to the living roots, and all decayed roots cut away. Pots or pans of a suitable size should be filled to about three quarters of their depth with clean drainage, upon which should be placed a layer of clean moss, the old living roots should then be carefully laid over the drainage, and a compost of equal parts peat and moss, with a small quantity of finely-broken crocks and charcoal intermixed, should be worked in amongst them, mounding the plants up somewhat from the edge of the pot. After potting water must be sparingly afforded through a fine rose; when the new growths commence to root freely and have a good hold on the compost, the water must be gradually increased, but during the winter months the plants should be kept rather dry; the temperature of the cool house will suit them until the nights become chilly, when they should be removed to the intermediate house.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

BULBS of various kinds play a most important part in affording both cut bloom and plants for decorative purposes, from November until late spring. Few are more useful than the Roman hyacinth, especially as they force so freely, and with ordinary care their pure white, sweet-scented spikes may be obtained before midwinter. The great secret, however, in forcing these and other bulbs successfully is to have them well rooted before they are placed into heat. No time must now be lost in securing all the early kinds at least, and have them either potted or planted in shallow boxes. About five bulbs of Roman hyacinths, or any of the early tulips, placed in forty-eight sized pots come in useful for furnishing baskets, vases, and side stages of the conservatory; but when they are grown chiefly to be used for cutting, a saving of room and labour will be found in growing them in shallow boxes. These should be about thirty inches long, nine inches broad, and three inches deep, so that they can be arranged on shelves near the glass to give substance to the flowers as they unfold during the sunless days of November. Ordinary rich, light soil will grow most bulbs satisfactorily, though a more carefully prepared compost should be used for later kinds, especially hyacinths and other things intended for exhibition. It is best to prepare a good heap of compost at once, as the same will be found suitable for all kinds. The staple should be good rich loam, to which add one fourth partially decayed leaves or spent mushroom-bed manure, a six-inch potful of crushed bones, and half that amount of soot to each barrowful, together with a good sprinkling of sharp sand. If this can be got together in an open shed, turned over several times, and kept covered with mats to retain moisture, the right material will be in readiness whenever it is required to pot up the different sections. Unless it be some of the large growing narcissi or liliums, pots six inches in diameter will be found the most convenient size, as these generally fit into the vases used in dwelling rooms, and allow for the surface being mossed over neatly. Supposing all the early section is potted up at once a suitable position must be selected to plunge them until they are sufficiently rooted for placing in the forcing pit. It is a mistake to select a cold, damp spot, such as the foot of a north wall, as here root action is retarded; far better arrange the pots, or boxes, on a hard bed of ashes, in a warm, sunny corner, where, with the soil kept in a suitable condition, the formation of roots is greatly assisted. If there is a danger of worms working through the drainage into the pots, sprinkle the site well with soot, before the pots are arranged. The pots themselves may be plunged in fine ashes, but we do not recommend covering them with the same material, and would rather use cocoanut fibre, fine sand, or sifted leaf mould. Neither of these should be used too thickly to ward off the warmth from the sun, the covering is merely used to retain a uniform moisture in the compost the bulbs are placed in, and for the most part they will be removed to cold frames before severe frosts set in. If there is a danger of rats or mice getting to the bulbs fine meshed wire netting should be used to keep them at bay.

The sooner the whole stock of bulbs required for winter and spring use can be obtained the better, as they lose their plumpness, after being exposed too long. Lilium Harrisi bulbs promise to be very fine this season, and care should be taken that they are not damaged in unpacking, or in potting them up. These should not be allowed to remain in the packing case a day longer than is necessary, as they are apt to become heated. Only last season a case of bulbs was delayed in transit, and owing to the fibre they were packed in being moist, they had become quite warm in the centre, and roots and top growth had become matted together, which resulted not only in unnecessary trouble in unpacking, but the bulbs themselves were considerably weakened, and after they were potted, had to be kept rather close and shaded until the blanched growth had gained both strength and colour. I mention this as a hint to those who may be unfortunate enough to receive bulbs in such a condition this autumn. A good stock of freesias should be grown wherever there is a demand for sweet scented flowers. The bulbs are cheap and are easily forced. Place them rather thickly in medium size pots, but like other bulbs, make no attempt to force them until they have made plenty of roots, and a couple of inches of top growth in a cold frame, they are then in a safe condition for placing on shelves near the glass in a warm pit when each bulb will throw up a strong spike. The season is with us when pelargoniums of the fancy section will need attention. The plants having been thoroughly ripened off in a sunny spot, may be pruned hard back. Some of the tops may be made into cuttings and rooted in a cold frame if it is required to increase the stock. The plants may be arranged close together in a cold frame; withhold water at the roots for a time, but moisten them overhead, and close the lights before the sun has passed off each afternoon. The old stems will then produce numerous shoots, which may be thinned out, when about an inch long. The plants too, will then be in a suitable condition for shaking out, cutting back some of the straggling roots and repotting into smaller pots.—R. PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

IN the southern districts most of the late potatos will by this time be ready for lifting, therefore this work should be taken in hand without delay, for after such a long spell of hot, dry weather we may expect a quantity of rain when a change takes place, and should this be so many of the tubers would no doubt become diseased if allowed to remain in the ground. It is not yet too late to make a sowing of turnips for pulling in spring, but the sooner the seed is got into the ground the more chances there are of a crop. The quick-growing varieties should be chosen as these are usually the most hardy. Winter spinach, too, should now be sown. That which is put into the ground now will usually give a supply late in spring as it is not so liable to run to seed should there be dry weather during March and April. Winter spinach is rather a trying crop in some districts, particularly when sown too soon, as a rapid growth is made during the mild weather in autumn, which proves too sappy to withstand the early frost, the consequence being total failure at the time when most required. Young plants should be thinned to a distance of about six inches, and when sufficient growth has been made to permit of them being used every other plant should be drawn for the kitchen so as to give the others more room to develop.

The unusual hot, dry weather has been very trying for late peas, so much so in the south-east that unless watering has been attended to they will be a total failure. With us the sun-heat during the past fortnight has on most days been recorded on the thermometer as 118 or 120 degrees, while in the shade it has been from 85 to 92 degrees; with such weather, there is little wonder at the difficulty experienced in persuading plants to grow, particularly such moisture-loving subjects as peas. Where due consideration was given to the selection of varieties and attention paid to watering, the plants have made a good growth, and are now showing bloom; to enable them to fill the pods copious waterings must be afforded, and the foliage moistened of an evening to prevent mildew. All of the brassicas will need an abundance of moisture to keep them growing, therefore do not fail to pay particular attention to this or failure will be the result. With such hot weather one is apt to forget that the autumn is fast approaching, and that we may in the course of a few weeks have sufficient frost to cut down tender plants, when a stop will be put to many of our tender vegetables. Peas and dwarf beans should be sown in pits where protection can be afforded, as by so doing the supply will be prolonged. Continue to plant out lettuce and endive, and make another sowing towards the middle of the month of onions, cauliflower, lettuce, and other salads. —H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

Except in those gardens where the glass accommodation is quite equal to the requirements, and there is no need to utilise vineries for plant growing, the great aim during the present month will be to ripen up the late-keeping grapes so that they may be ready for cutting by the end of the month, when chrysanthemums, and the many other things grown for winter decoration, will have to be brought under cover. Unless grapes are well finished on the vines before the end of September they will hardly be found satisfactory to the consumer when their time comes for consumption. This applies more particularly to white Muscats, and to bring these up thoroughly fire heat in the autumn is generally found necessary. The grower should not rest satisfied until his grapes have assumed the deep amber tint so gratifying to connoisseurs; unless this stage is reached the flesh will be watery and insipid later on. The necessary fire-heat should be carefully applied, letting it range fairly high during the daytime, and reducing it towards evening and through the night. Late black grapes are also greatly improved in flavour by the judicious application of fire-heat, under the genial influence of which such grapes as Gros Colman lose the muddy flavour which they acquire under cooler treatment, and become quite passable grapes in quality. Another matter which will require consideration in finishing-up grapes is the condition of the border as to moisture, many growers fearing to give sufficient water to their inside borders in the autumn from a wholesome dread of decayed berries; but when the watering is carried out early on a fine day the surface becomes sufficiently dry before night to prevent any undue amount of evaporation. Dry borders not only lead to shrivelled berries, but they are really bad for the vines themselves. The dry state of our inside borders during the autumn and winter is totally opposed to the natural conditions of things, and much to be deprecated.

Careful firing to keep up temperatures in the pine-houses or pits will now be necessary, as it is unwise to depend much on the heat produced by the plunging materials and linings now that the nights grow longer and cooler. Close up the houses quite early in the afternoon, while there is sufficient sun heat to raise the temperature, and mat up the pits at night. These little attentions will appreciably reduce the coal bill. Ripening fruits should be kept warm, rather dry at the roots, and in a very light position close to the glass. If possible, they should be grouped by themselves. To plants carrying fruits in an advanced stage of swelling, liquid manure should be given as frequently as it becomes necessary to water them, so that they may swell away quickly, and attain size before the supply of liquid of any kind will need to be greatly curtailed, as it will be ere many weeks have passed. Bananas showing fruits or growing strongly will enjoy liberal supplies of water, and, in the case of the former, it should take the form of liquid manure applied at a fairly high temperature. Give the plants the nearest possible approach to tropical treatment all round, then there need be no fear that sooner or later good bunches of fruits will be produced, and that they will not perish in their incipient stages. Strawberries potted off and stood thickly in batches some weeks ago should now be thinned to a convenient distance apart, and if stood in square blocks, a row should be left out here and there to allow room for walking between them, so that each plant may be easily examined as to its need for water. They should now take water freely, and never be allowed to become dry, as this, and the subsequent watering to bring them round again, tends to break up the crowns. On the other hand, over-watering does much harm, indeed, newly-potted plants rarely recover from an overdose of water, and may just be thrown away if such a thing occurs.—J. C. TALLACK, *Livermere Park Gardens.*

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.

Annual Show.

The annual show of this society was held in the Duthie Park, Aberdeen, and the weather during the whole three days was simply ideal. A word of praise is due to Mr. Harper, the custodian of the park, for the beautiful spectacle he provided for the numerous visitors. The arrangements made by Mr. J. B. Rennet, secretary of the society, were of the most perfect order. Three large marquees were devoted to the various exhibits, one being for pot plants, another for cut flowers and fruit, and a third for vegetables. The exhibition showed an improvement on that of last year, but there was a slight falling off in vegetables. On the other hand, there was an increase both in numbers and quality of the entries for fruit and cut flowers.

Cut Flowers.

Here there was a splendid display, especially in herbaceous plants. Dahlias, however, were disappointing, which the backwardness of the season easily accounts for. A most creditable display was witnessed in carnations, asters, and marigolds. The professionals, as was to be expected, were a long way ahead of the other classes of exhibitors. This position of matters was especially noticeable in roses. where Messrs. D. and W. Croll, Dundee, had first for H.P.'s, and won second prize for teas. Messrs. Adam and Craigmile, Rubislaw, Aberdeen, were first for teas and second for H.P.'s. There is not the slightest doubt that had the latter firm shown their H.P.'s in a fresher condition, the Messrs. Croll would have had to take a less honourable place. The blooms they showed were exceedingly fine, but decidedly marred through being too long cut. Mr. John Smellie, Busby, was first with a fine show of cactus dahlias. The bouquets shown were of very fair quality, Mr. John Robertson, Ferryhill House, taking premier honours with a mixed bouquet; while Mr. Robert Kiloh, Woodlands, Cults, was first for sprays and also for buttonhole bouquets. We have seen much better model gardens at this show in previous years, but Mr. James Lennie, The Lodge, Bannermill, had certainly the best. Sweet peas were specially represented, and very fine in quality, Mr. Alexander Grigor, Fairfield, being first. In the professional class for stocks, Mr. Robert Kiloh, Woodlands, was first, for twelve spikes, with a splendid display; while Mr. A. Reid, Durris, was first, with a very fine turnout of six bunches of stove and greenhouse flowering plants. The entries for cut geranium trusses were few, but Mr. William Ogg, Morken, deservedly carried first honours with a splendid lot; while Mr. James McDonald, Balgownie Lodge, was first for twenty bunches of cut flowers from the hardy flower garden. Pompon dahlias were good, but there were few entries for show dahlias, Mr. Robert Kiloh, Woodlands, being first for the former, and Mr. George Milne, Cluny Castle, for the last-named. There was a good average display in the professional class for roses, although teas and H.P.'s. were not so big. Mr. George McLennon, Fetteresso Castle, was first for twenty-four roses, while Mr. William Coutts, Ellon, was first for twelve. Mr. G. Roy, Dalhebity, carried off the chief honours for six teas.

Pot Plants.

These formed a very strong section, both professionals and amateurs being represented by some magnificent specimens. The blue ribbon of the show for the group of plants arranged for effect on the ground in a circle of ten feet diameter, went to Mr. John Proctor, Devanha House, Aberdeen, for a magnificent collection most artistically arranged, consisting of crotons, dracænas, palms, screw pines, amaryllis, colosias, clerodendrons, begonias, orange trees, and orchids. Mr. Proctor's was the only entry, but the verdict of competent judges was that this group was the finest ever seen in Aberdeen. The first prize for the best six specimen stove or greenhouse plants, distinct, three flowering, three foliage, not otherwise provided for in the schedule, went to the same gentleman. The entry was composed of Anthurium Veitchi, Dasylirion acrotrichum, Eucharis amazonica, Hæmanthus Lindeni, and Ixora Williamsi. We must congratulate Sir William Henderson, of Devanha, for the splendid displays made by his gardener, Mr. Proctor. For the best specimen plant in flower, Mr. A. Howie, Drumtochty Castle Gardens, won the Society's silver medal for a grand specimen of Disa grandiflora superba, an orchid for which he was offered £15; and the same competitor was also first for two orchids, distinct, with Cattleya Harrisoniæ, and Disa grandiflora superba. There was only one entry for the best specimen foliage plant, but it was a grand one, and Mr. James McDonald, Balgownie Lodge, thoroughly merited the first prize. In all the other sections of the same division there was a grand show. Pelargoniums, both tricolor and bronze, were very fine, while hardy chrysanthemums, though few, were also a splendid display, as were specimen geraniums in pots from amateurs and professionals. Petunias were also a strong class, and ferns fairly good; while pelargoniums, considering it was late in the season, were very good. Begonias were a splendid class, Mr. Ogg, gardener at Morken House, taking premier honours in both classes for doubles and singles. Liliums were also very good; and among a good show of gloxinias Mr. Ogg again came to the front. Among other gardeners who distinguished themselves in this section were Mr. Alex. Grigor, Fairfield; Mr. Alex. Robb, [illegible] Park; Mr. G. Leslie, Bonnymuir; and Mr. G. Maitland, Woodside.

Fruit.

In this department the entries were more numerous than last year, and the quality was distinctly better. The leading honour in this section—the teapot for the best collection, nine dishes, distinct varieties, but not more than two dishes of any species or kind of fruit—went to Mr. Andrew Reid, Durris House, for a splendid collection, consisting of melons, grapes, peaches, nectarines, cherries, and figs. The judges were inclined to the collection sent in by Mr. Hutton, Usan House, Montrose, but it was held that nectarines and peaches were of the same species, and he was accordingly disqualified. For the collection of hardy fruit, six dishes, Mr. Alexander Milne, Queen's Road, Aberdeen, was first with a splendid display. This gentleman was also first for the collection of strawberries. Mr. Harper, Perth, was first for cherries, while Mr. A. Hutton, Usan House, secured premier honours for raspberries. The last-named gentleman was also deservedly awarded chief honours for peaches and apples; while Mr. Reid, Durris House, took a similar place for melons. Mr. A. Howie, Drumtochty House, was to the front with splendid collections of nectarines, pears, and tomatos; while Mr. Grant, Crimonmogate, was also first for one dish of pears. There was splendid competition among the grapes, Mr. A. Hutton being first for four bunches, distinct; Mr. Reid being a good second. For two bunches, distinct, Mr. [illegible] M. Stuart, Eden, Banff, was first, Mr. Reid again taking second honours; and the same gentlemen retained these positions for one bunch of white.

Vegetables.

This was the poorest section of the show. Potatos were weaker than they have been at Aberdeen for some years. For the best collection of vegetables, arranged in a box four feet by three feet, outside measurements, and comprising eight varieties—namely, peas, cabbage, cauliflower, potato, turnip, carrot, onion, and parsley—open to gentlemen's gardeners only, Mr. James Grant, Rothienorman, was first; while Mr. Thomas Middleton, Monymusk House, was a capital second. For the collection open to gardeners only, Mr. A. Paterson, Ruthrieston, was first. Among the other prizewinners worthy of mention in this section were: Mr. A. Middleton, Woodside; Mr. A. Howie, Fordoun; Mr. W. Harper, Perth; Mr. W. Milne, Midmar; Mr. T. Gall, Hobshill; Mr. W. Milne, Corsindae House, Midmar; Mr. Frank Kinnaird, Broomhill; Mr. John Brown, Delgaty Castle; and Mr. W. Lawson, Oakbank School.

Non-Competitive.

There were some magnificent entries, for exhibition only, made by nurserymen and seedsmen. Messrs. Ben Reid and Co. exhibited a beautiful collection of plants and flowers, including ornamental conifers in pots, herbaceous flowers, gladioli, and carnations. Messrs. James Cocker and Sons, Aberdeen, had a grand lot of herbaceous flowers, roses, pot plants, bulbs, &c., beautifully grouped in a spacious marquee. Messrs. W. Smith and Son, nurserymen and seedsmen, Aberdeen, had also a prominent display in the marquee in which the plants were exhibited. The floral work displayed was very artistic, the table on which the designs were shown being flanked with handsome mirrors, tastefully draped with velvet and plush. The Ichthemic Guano Company, Ipswich, exhibited their large octagon stand, and around its base was a beautiful collection of fifty different varieties of sweet peas, sent by Mr. H. Eckford, of Wem, Shropshire.

SANDY AND DISTRICT HORTICULTURAL SOCIETY.

There is no diminution whatever in the popular appreciation of the Sandy Flower Show, for the thirtieth annual exhibition appeared to be more fully attended than ever. The day was brilliantly fine, the throng of visitors enormous for so small a place and so scattered a district. It is probably the most comprehensive schedule of prizes offered. There are two hundred and thirty-eight classes in what is known as the horticultural departments, but they include a few for needlework. There is one for stuffed animals, birds, or fishes; two for examples of home carving; sixteen for honey, butter, eggs, loaves of bread, and trussed poultry; and there are one hundred and forty-six further classes for dogs, poultry, pigeons, rabbits, cats, and cage birds. There is something of almost everything to interest the country people, and a large number of tents are required to house the various exhibits.

Some large specimen plants are indispensable to Sandy, and so are good cut flowers, therefore certain classes in which good prizes are offered are open to all comers. Mr. James Cypher is always an exhibitor at Sandy, and on this occasion he was an easy first with ten stove and greenhouse plants in flower, having fine examples of Clerodendron Balfourianum, Phenæcoma prolifera Barnesi, Allamanda Hendersoni, Ixora Duffi, a fine example carrying excellent trusses, Bougainvillea Sanderiana in capital condition, with Ericas Austiniana, Marnockiana, Aitoniana, and Irbyana. Mr. W. Finch, Coventry, was second, his leading plants being Ixora Williamsi and I. Fraseri, Allamanda grandiflora, and Ericas Marnockiana and Aitoniana. Mr. Redman, St. Neot's, was third. In the class for twelve zonal pelargoniums, Mr. T. Lockie, The Gardens, Diddington Hall, St. Neot's, was first with well-grown and flowered bright specimens. Then there was an open class for table plants, and also for a group of plants arranged in a space not exceeding fifty square feet; Mr. Empson, gardener to Mrs. Wingfield, Ampthill, was first with a very pleasing arrangement, palms, crotons, orchids, pitcher plants, abutilons, nerines, &c., being well disposed in a finished group. Mrs. Axtell, Woodbury Hall, was second; and Mr. W. Finch, third.

In the amateurs' division Mr. Empson was first with six fine foliage plants having in excellent condition Kentia Belmoreana, Dracæna Sanderiana (a fine piece), and D. australis variegata, Croton Weismanni, Heliconia illustris, and one other; Mrs. Axtell was second. There were classes for six stove and greenhouse plants. Coleus, represented by good coloured and well-grown bushes; begonias, achimenes, balsams, &c., with specimen foliage and flowering plants. The four cockscombs shown by Mr. T. Lockie were marvels of good culture. They were uniform in size and appearance, and measured from end to end nearly two feet, and in width fifteen inches. They were of the purple-tinted type. Mrs. Axtell came second, also with very good specimens.

Some excellent cut flowers were shown in the open classes. Messrs. Harkness and Sons, Hitchin, had the best forty-eight cut roses, staging some very good blooms indeed for the season of the year, viz., Mrs. J. Laing, Charles Lefebvre, Maréchal Niel, John S. Mill, Madame J. Cointet, Ulrich Brunner, Star of Waltham, Horace Vernet, Madame J. Litre, Maman Cochet, &c.; second, Mr. J. Mattock, Headington, Oxford; third, Messrs. G. and W. Burch, Peterborough. With eighteen tea-scented roses, Mr. J. Mattock was first, having a very creditable lot of blooms, chief among them being Maman Cochet, Maréchal Niel, Catherine Mermet, Souvenir d'Elise Vardon, Comtesse de Nadaillac, &c.; Messrs. Harkness and Son were second with good examples of the same varieties.

Messrs. Harkness and Son were first with twenty-four spikes of gladioli, a fine lot including some highly promising seedlings of their own raising; Mr. C. Bright, Huntingdon, was second; and Mr. W. Bowise, Cambridge, third. Some very good dahlias were shown. Messrs. Keynes, Williams, and Co., Salisbury, were first with twenty-four varieties, having in fine character Dr. Keynes (a model in form), Buttercup, John Walker, Mrs. Glasscock, W. Keith, J. Hickling, Arthur Ocock, &c.; Mr. John Walker was second; and Mr. S. Mortimer, third, both with very good flowers, but the latter's blooms were a little undersized. Messrs. Keynes and Co. had the best twelve fancy dahlias, very good even blooms; chief among them Emin Pasha, Gaiety, Duchess of Albany, Mrs. Saunders, Geo. Barnes, Peacock, Mrs. John Downie, &c.; Mr. George Humphries was second with smaller but neat blooms; and Mr. J. Walker, third. Mr. C. Bright was first with twelve pompon varieties of dahlias in bunches; and Mr. G. Humphries was second. The first prizes should have gone to this collection, as they were small, even, and bright, Mr. Bright's flowers being over large and uneven. Mr. J. Walker, who was third, should have been second.

A rare box of twelve bunches of cactus dahlias came from Messrs. Keynes and Co., and formed one of the most attractive features of the show; it also included some highly promising new varieties. The leading bunches were Wallace, Viscountess Sherbrooke, Countess of Lonsdale, Keynes' White, the best bunch of this variety we had yet seen; Stella, Harmony, Charles Woodbridge, and Night; Mr. C. Bright was second; and Mr. J. Walker, third. With twelve bunches of single varieties, Mr. T. W. Girdlestone, Sunningdale, was first, with a perfect stand of small-sized even flowers that served to set up a standard of what single dahlias should be. The leading varieties were Puck, Violet Forbes, Princess Pepilo, Ruy Blas, Ganem, Naomi Tighe, Folly, and others; Mr. J. Walker, second. Mr. Girdlestone obtained three certificates of merit.

A remarkable feature was the open class for twenty-four bunches of herbaceous and bulbous flowers; and it brought two very fine exhibits, one from Messrs.

Harkness and Sons, who were placed first, and the other from Messrs. Laxton Bros., Bedford, who were placed second. The latter somewhat discounted the value of an imposing collection by staging seven bunches of herbaceous phloxes. Gaillardias, lilies, Iceland poppies, Chrysanthemum latifolium, helianthus, coreopsis, Scabiosa caucasica, Asclepias tuberosa, Anemone japonica alba, montbretias, &c., made up the collections. In the amateurs' classes some very creditable bunches were also staged.

In the amateurs' division Mr. R. Burgin, of St. Neot's, was the principal prize-winner with dahlias. There were many classes for cut flowers; too many to be particularized. A tent devoted to table decorations was an attractive one for the fair sex, the principal feature being arranged dinner tables. There was a large number of entries, and generally they were executed in excellent taste. Miss Ethel Pearson, Sandy, was first, the flowers employed, annual xeranthemums and Scabiosa caucasica; a simple but highly tasteful arrangement. Mr. Maddison, St. Neot's, was second, and Miss Logsden, Hitchin, third.

The only collection of fruit in eight kinds came from Mr. Empson, who had Alicante and Foster's Seedling grapes, Bellegarde peaches, Hardwicke nectarines, pears, etc. Mr. T. Lockie had the best six dishes of fruit; Mr. R. Carter, grower to Mrs. Axtell, was second. There were classes for grapes, peaches, nectarines, cherries, apples, and pears; good fruit on the whole being staged.

Vegetables were very fine, as might be expected in the very heart of such a market gardening district.

A remarkably attractive collection of charming garden roses in bunches from Mr. Mattock was a good feature, and a fine collection of plants from Messrs. W. Cutbush and Sons, Highgate, was staged. The pretty pink Chironia baccifera was included.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY,

August 23.

On Tuesday, by permission of the Radcliffe Observer (Dr. Rambaut), the Royal Oxfordshire Horticultural Society held its second show for the year at the Observatory, and thus completed its sixty-ninth year. The grounds are spacious, well enclosed, and possess a number of ornamental trees which afford shelter and shade. Two tents, seventy feet by forty feet, sufficed to stage the plants, blooms, and fruit, the bulk of the vegetables being staged on tables in the shady walk adjoining the Infirmary. Entries were not equal to the average of an August exhibition, but any lack in quantity was balanced by general good quality in the bulk of the classes.

The display was augmented by the following extra productions, viz.: A very large collection of herbaceous perennials, &c., from Mr. H. Deverill, Banbury, whose showy exhibit secured a very high commendation. Mr. Perry, Banbury, also put up some novelties in the way of garden flowers and also an Irish harp of choice blooms, the strings being the white heads of Achillea millefolia. Mr. H. M. Turner put up a dozen bottles of run honey; and Mr. J. Baker, Aston Street, exhibited a basket of ripe blackberries, demonstrating how the size and colour of the wild bramble may be improved by garden culture.

In the plant classes there were any number of good things, and, if we except some non-placed fuchsias, the quality was decidedly good. For six stove and greenhouse varieties Mr. Jacob, Witney, was the only exhibitor, his three foliage plants being palms and a cycad, the flowering specimens were Bougainvillea Sanderiana, Statice profusa, and Anthurium Scherzerianum. The single specimens were generally full-sized; for a stove plant, Mr. Mattock put up an orchid, Lælia purpurata, and Mr. Anstiss a well-flowered Hoya carnosa; for foliage, Mr. Jacob was first for a towering, spreading Kentia Forsteriana; Mrs. Hartley second with an immense bush of the highly-coloured croton, Baroness Rothschild. For greenhouse, Mr. Mattock had a columnal pyramid of fuchsia, Doel's Favourite, scarlet tube and petals, purple corolla, a very fine plant densely bloomed; Mr Jacob second, with Statice profusa. The best amateur's plant was a giant Phormium tenax (New Zealand flax), exhibited by Mr. Cross, who was also first with a large blue African lily (*Agapanthus umbellatus*); the best greenhouse plant came from Miss Greswell, who put up a very fine bush of fuchsia, Lady Haytesbury, waxy white tube and sepals, rosy-purple corolla. The premier hardy plant in flower was a large piece of Statice incana, and a very large bush of the pale blue Plumbago capensis came from the representatives of the late Mr. E. Thorne. Coleus with their high coloured foliage were nice plants all through; and the groups of begonias were very showy amid a setting of small ferns. The hardy ferns in twelve varieties were a nice distinct collection; and the very large specimen greenhouse ferns of Mr. Johnson's were well worthy of the post of honour conferred. Fuchsias, as exhibited by Mr. J. Bates, sen., and Miss Greswell, were nicely grown and well-flowered, and zonal geraniums, though a limited competition, were excellent. Cut flowers occupied a considerable range of tabling; the show dahlias, though fewer than usual, were very attractive. Mr. Walker, Thame, was the only exhibitor of 24 varieties; his stand containing a well balanced collection of blooms. Mr. Walker was also first for a dozen triplets of single dahlias, and also cactus forms; the best dozen sets of pompon dahlias came from Cross Ways garden, the individual blooms like so many rosettes from white to darkest maroon. Double zinnias were generally large flowers of bright colours, but the asters scarcely touched the high water mark of quality usual at the Oxford August show. Roses from Headington were equal to mid-season blooms, all bright, clean, and shapely. Herbaceous phloxes have seemed to enjoy the warm temperature of late, and the annual variety known as P. Drummondi was exhibited in many pretty forms. Hardy perennials always make a fine show, and when well posed, as at these shows, prove wonderfully attractive; Mr. Johnson's premier collection contained phlox, rudbeckia, helianthus, scabiosa, everlasting pea, montbretia, gaillardia, coreopsis, and carnations.

Fruit was tempting, but some of the out-door varieties were not ripe, notably the plums. The grapes were very nicely finished, the white forms being Muscat of Alexandria and Buckland Sweetwater, Black Hamburgh and Alicante, some of the latter being very fine; peaches were Grose Mignonne, Princess Royal, and Alexandra Noblesse; nectarines Lord Napier and Pine Apple; dessert plums Jefferson's and July Gage; pears Windsor and Jargonelle; culinary plums Magnum Bonum, Victoria, and Orleans; dessert apples Irish Peach, Red Astrachan, and Quarrenden; cooking apples Warner's King, Ecklinville Seeding, and Grenadier.

Vegetables numbered nearly 400 exhibits, nearly one half being the contribution of cottagers. As a whole roots were larger than could have been expected; cauliflowers were present in three tiny heads, celery was fair, but peas and beans had reached a goodly size; with the latter Mr. Holton headed the list in the gardeners' class, Mr. Newman in the amateurs', and James Simmons in the cottagers' for runner beans of great length. Potatos were represented by about 1,100 tubers, all fairly clean and shapely, the following varieties being principal winners: Sutton's Satisfaction, Snowdrop, Coles' Favourite, Mr. Bresee, Vicar of Laleham, and Reading Giant.

THE KINGSWOOD HORTICULTURAL SOCIETY, August 24.

This is also known as the West Gloucestershire Horticultural Society, and is probably the principal exhibition of the kind held in the Bristol district. Many of the miners, shoemakers, and other artisans who inhabit this portion of the county are keen florists, and grow very good things, having a keen appreciation of what constitutes quality.

As is usual in such societies, a number of classes are thrown open to all comers, with the result that a fine display is secured. Handsome prizes are offered for sixteen specimen plants, ten in flower and six in foliage. Mr. James Cypher brought a very fine lot, and took the first prize with Kentia Forsteriana, K. Belmoreana, and K. australis, Latania borbonica, and two fine crotons forming the background; in front of these such fine flowering subjects as Bougainvillea Sanderiana, Statice profusa, Ixora Duffi, Erica Austiniana, and Aitoniana Barnesi, Statice intermedia, Allamanda nobilis, &c.; second, Mr. W. Vause, Leamington, who had fine pieces of Cycas circinalis, Latania borbonica, good crotons, and flowering specimens, chief among them Allamanda nobilis and Erica Austiniana. The best group of plants filling a space of one hundred feet also came from Mr. Cypher, and the second prize went to Mr. W. Vause.

Some good tuberous-rooted begonias were staged. The best eight single varieties came from Mr. J. Rogers, a local grower, and they were well done; Mr. G. Tucker, Hilperton, Trowbridge, was a good second. With four varieties of singles the first prize was also awarded to Mr. J. Rogers. The double varieties were equally good. Mr. C. Cornish, gardener to F. J. Farr, Esq., was first; and Mr. R. Denton, gardener to the Rev. R. Fawsett, second, both showing in good form. The best six specimen zonal pelargoniums came from Mr. W. J. Mould, Bath, and Mr. E. W. Towell, gardener to Mrs. G. Coles, was second. Mr. G. Tucker had the best eight exotic ferns, staging some good adiantums and others; Messrs. R. Pulman and Son, Bristol, were second.

Kingswood may be said to be largely a cut-flower show. Roses were a good feature, Dr. Budd, of Bath, showing in fine character. He was first with twenty-four varieties, three blooms of each, a somewhat heavy demand at this season of the year. He had good representatives of Comtesse de Nadaillac, Caroline Testout, The Bride, Perle des Jardins, Maman Cochet, Hon. Edith Gifford, Maréchal Niel, Mrs. J. Laing, Marie Van Houtte, &c.; second, Mr. A. A. Walters, Kensington Nurseries, Bath. With twelve varieties, (three blooms of each, Mr. Thomas Hobbs, St. Mark's Road, Bristol, was first, with clean, bright blooms of Mrs. J. Laing, Comte de Raimbaud, Horace Vernet, Charles Lefebvre, Duchess of Bedford, and others; Dr. Budd was second.

The best twenty-four dahlias came from Mr. W. J. Treseder, nurseryman, Cardiff, with some good blooms, chief among them being Dr. Keynes, Prince Bismarck, J. Hickling, Earl of Ravensworth, Colonist, John Ashby, Willie Garratt, Mrs. J. Downie, &c.; second, Mr. G. Humphries, nurseryman, Chippenham. With twelve fancy dahlias Mr. Humphries was first with a good stand, having in character Mrs. Saunders, Comedian, George Barnes, Frank Pearce, Dazzler, Lottie Eckford, &c.; Mr. W. Treseder second. Mr. J. Burgess had the best twelve bunches of single varieties, a little large in size, but fresh and well-balanced; Mr. Treseder was second. The latter was first with six bunches of cactus, showing this type in finished character; Mr. Humphries second.

The best twenty-four blooms of quilled asters—a heavy quantity to supply in such a season—came from Mr. C. H. Vickery, Bath, and they were much better in quality than could have been expected; and first also with twenty-four of the flat-petalled type. Mr. F. Hooper was second, with quilled; and Mr. G. Humphries second, with flat-petalled. Phlox Drummondi, shown in twelve bunches, were very pretty indeed, and they have quite driven the verbenas out of the field. Mr. Smith, Kingswood, had the best twelve spikes of herbaceous phloxes; Mr. F. Hooper was second.

Cut blooms of begonias, both double and single, were shown in good character, Mr. J. Rogers taking the first prizes with twelve double and also with twelve single. Hardy flowers in bunches of twelve were a leading feature, Mr. W. Smith taking the first prize with bold examples of Harpalium regidum, Senecio pulcher (very fine), White Everlasting pea (a very fine large-flowered variety), Campanula pyramidalis, &c.; Messrs. J. Stokes and Son, Frome, were second.

In the amateurs' division for six stove and greenhouse plants, Mr. W. Rye, was first with a good collection. Chief among the specimens were Bougainvillea glabra, Ixora regina, Allamanda nobilis, and Statice profusa; second, Mrs. G. Coles, with similar subjects. Captain Belford also had the best six exotic ferns, which included Davallia Fijiensis, Todeas superba, and pellucida, &c; Mrs. R. Palmer was second. Captain Belford was first with six foliaged plants, having good crotons and palms; Mrs. G. Coles coming second.

The show of fruit was a good one. The best eight dishes came from Mr. W. Strugnell, The Gardens, Rood Ashton, Trowbridge, who had Madresfield Court and Muscat of Alexandria grapes, Sea Eagle peaches, Pineapple nectarines, apricots, plums, &c.; second, Mr. W. Allan, gardener to W. Marsh, Esq., who had Gros Maroc and Muscat of Alexandria grapes, peaches, nectarines, &c. The best two bunches of black grapes were Hamburghs, from Mr. T. Williams, gardener to the Rev. T. Greaves; Mr. J. Trewhill, gardener to G. C. Tudway, Esq., was second, with the same. The best two bunches of white grapes were Buckland Sweetwater, from Mr. J. Marshall, gardener to J. Dole, Esq.; the Rev. T. Greaves was second, with Muscat of Alexandria. The best dish of culinary apples was Peasgood's Nonsuch, from Messrs. R. Palmer and Son; Mr. E. Hall came second, with Lord Suffield. Mr. George Garroway had the best dish of dessert apples, showing Irish Peach; Mr. Hall was second, with Red Quarrenden. The best dessert pear was Jargonelle; the second best, Doyenne Boussouch. A silver cup, offered for eight dishes of fruit, was also won by Mr. Strugnell; second, Mr. Wallen, with a good collection.

Vegetables were numerously shown in the open and amateur classes, clean and bright. The competition was very keen in some of them.

THAME FLOWER SHOW, August 25.

It is very probable that scarcely any one of the founders of the Thame Horticultural Society was present on Thursday to inspect the fiftieth exhibition held in the spacious pleasure field attached to Howard House School. The society was formed in 1848.

To aid the display, Mr. John Walker staged a very showy bank of hydrangeas, liliums, cactus and pompon dahlias, mixed with zonal geraniums and ferns. Mr. H. Pearce staged some nice orchids, including Cattleya Mendeli, C. Gaskelliana, Oncidium sphacelatum, Odontoglossum crispum, and Cypripedium Lawrencianum. The only other "extra" was three dozen tomatos from Mr. W. Smith, Crown Garden, Crendon, each fruit weighing from sixteen to twenty ounces; and it was stated that the vines from which these leviathans had been cut had each produced eight pounds of equally well-coloured fruit.

In the competition Mr. Johnson, Garsington Nurseries, was a large and successful exhibitor, his group for effect, single and double zonals, exotic and hardy [illegible] well merited the premier cards bestowed on them. The single specimens were—for greenhouse Mr. Johnson exhibited an immense specimen of the West Indian fern Nephrolepsis exaltata; Mr. Anstiss second with Hoya carnosa; while in the amateurs' section, a cream and green coleus was first, and an asparagus second. In the cut flower section, the dinner-table vases were very tasty, the first award going to a dwarf centre-piece and two side glasses filled with carnations and grasses; the second to taller pieces in which coreopsis, carnations, montbretia, plumbago, and gypsophila were deftly posed; the next best being an arrangement of sweet peas and gypsophila. The groups of six bouquets were good, the premier set being the work of a floral artist. The show of dahlias represented the cream of popular forms; Mr. Anstiss's first prize twenty-four were a well-balanced collection, his best being Thomas Anstiss, Mrs. Morgan, Grand Sultan, Colonist, Duke of Fife, Goldsmith, Hon. P. Wyndham, Henry Walton, James Crocker, Rev. J. B. M. Camm, David Saunders, Muriel Hobbs, Mrs. Anstiss, Gwendoline, Mrs. Foreman, T. J. Saltmarsh, Majestic, and Prince of Denmark; in the second prize collection there were several fine back-row blooms. Mr. Anstiss's twelve fancy dahlias contained some charming specimens.

Devices in flowers or vegetable substance have always been a feature at Thame show, and some of those who were experts in ancient days have passed away; still, the premier design on this occasion lacked nothing in artistic finish. The first prize subject chosen was "Where are you going, my pretty maid?"; the representation being a picture of Swiss scenery, with the hills and a cottage; oak bark slightly coloured with dark green mosses filling the hollows. The milkmaid, with her pail and stool, defiant and much annoyed, is in the act of making way for the impertinent squire to pass along the edge of a rush-fringed brook. The dresses were of George III. period, and formed of the petals of simple garden flowers, laid on plastic clay, the features needing the aid of ochreous tints. The milkmaid's dress was of white phlox with pink spots, the short overskirt, formed of blue clematis edged with double white geraniums, being gracefully lifted on one side to allow the squire to pass; around her shoulders was a white crossover of convolvulus, while a tiny rosebud (Homere) was fastened as a brooch. The squire's scarlet coat (nasturtium) had large pocket lappels and cuffs, his vest being of yellow sunflowers, and neckcloth of blue clematis; his cocked hat of purple maroon hollyhocks, stockings of the same; with breeches of the silvery foliage of Stachys lanata, whose silky tomentum would pass for plush. Mrs. Lightfoot secured the award for this design.

The show of fruit was not large, but there were a few choice exhibits in competition. There was only one collection of six dishes, which comprised a nice melon, peaches, apricots, gooseberries, red currants, and white grapes. The best peaches were Hales' Early and Alexandra Noblesse. Vegetables were a good all-round lot, the roots having attained a remarkable size for such a dry season. The carrot classes appear difficult to determine, as some good short kinds appear too much like intermediate, and the intermediate run close on the heels of the long forms. Onions were large and well ripened, the heaviest being those of Ailsa Craig type. Potatos were good, some of the kidney forms being of a wonderful size and handsome.

SHIRLEY GARDENERS' ASSOCIATION.

THE recent monthly meeting of this society was held at the Parish Room, Shirley, Southampton, when Mr. W. F. Mayoss presided over a rather small attendance of the members. J. H. Aldridge, Esq., M.D., gave a very useful and interesting lecture on "Farm and Garden Insects and Their Relation to Flowers and Fruit." The lecture was illustrated with lantern slides representing each insect dealt with, and added very much to the interest taken by the members, as it enabled them to trace out the life history of some of the most injurious pests. Mr. R. Beck assisted the lecturer with a number of beetles representing a stage of some of the above insects dealt with, and in a few remarks he made he contrasted the difference in the conduct of the American Bureau of Agriculture and our own Government Agricultural Department. A hearty vote of thanks was accorded the doctor at the close of the lecture, and votes of thanks were also given to the exhibitors and to the chairman.

MARKETS.

Covent Garden.

THERE are moderate supplies of fruit and a steady demand throughout. Vegetables continue to be plentiful, though peas and other kinds have shortened, owing to the dry weather.

FRUIT.—English apples, 3s. 6d. to 8s. 6d. per bushel; Ports, 4s. to 6s. per case; English grapes, 10d. to 2s. 6d. per lb.; Jersey, 9d. to 1s. 3d.; Belgium, 6d. per lb.; Denia, 5s. 6d to 8s. 6d. per barrel; plums, 2s. 6d. to 5s. per half-sieve; lemons, 10s. to 20s. per case; English melons, 9d. to 1s. 3d. each; Spanish, 4s. to 7s. per case; bananas, 5s. to 9s. per bunch; pineapples, 1s. 6d to 5s. each; French pears, 3s. 6d. to 7s. 6d. per case; Dutch, 2s. to 2s. 6d. per molly; greengages, 9d. to 1s. per box, 4s. to 7s. per half-sieve; green figs, 9d. to 1s. 6d.; peaches, 1s. to 6s.; nectarines, 2s. to 6s. per dozen; pickling walnuts, 4s. per bushel; cobnuts, 2s. 6d. to 3s. per 12 lbs.; English tomatos, 3d. to 4d.; Jersey, 2d. to 2½d. per lb.; French, 2s. to 3s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pansies, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 2s.; lily of the valley, 1s. to 1s. 6d.; white gladiolus, 6d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Mushrooms, 4s. to 5s.; garlic, 3s. to 4s. per 12 lbs.; English onions, 2s. to 3s. per dozen bunches; Valencia, 4s. 6d. to 6s.; Ports, 5s. to 6d. per case; eschallots, 10s. to 12s. per cwt.; celery, 10s. to 15s. per dozen rolls; turnips, 2s. to 3s.; carrots, 2s. to 2s. 6d.; mint, 2s. to 2s. 6d.; parsley, 1s. 6d. to 2s.; leeks, 1s. 6d. to 2s. per dozen bunches; endive, 1s. to 1s. 4d.; cucumbers, 1s. to 3s. 6d; cauliflowers, 1s. 6d. to 2s. 6d. per dozen; lettuce, 9d. to 1s. per score; cabbages, 4s. to [illegible]; beetroots, 2s. to 3s.; vegetable marrows, 3s. to 5s. per tally; peas, 2s. to 3s.; French beans, 3s. to 4s.; scarlet runners, 2s. 6d. to 3s. 6d. per bushel; potatos, [illegible] per ton.

Borough Potato Market.

Harvesting has been the cause of short supplies of potatos, but the present is a dull season and prices have not altered much. Beauty of Hebron, and Snowdrops, 4s. to 4s. 6d.; White Hebrons, Early Puritans, Sutton's Early Regents, Reading Giants, and Imperators, 3s. 6d. to 4s.; Black Lands, 3s. to 3s. 3d.

EAT, DRINK, AND BE MERRY.—That is all very well, and no doubt, in moderation, [illegible] and merriment are very good things. But can any one of us—even the best of [illegible] to be invariably moderate? No, indeed! We are all apt at times to go just a [illegible], and then come headaches and regrets. At such times we can appreciate a [illegible] who will stand by us and put us right; and such a friend we invariably find in [illegible]. They did not fail our fathers at similar crises, and they do not fail us. It is no [illegible] fact, that Holloway's Pills are a certain cure for headaches, biliousness, [illegible] trouble. [Advt.]

NEW BOOKS.

Practical Forestry. By CHARLES E. CURTIS, F.S.I. (Crosby Lockwood and Son, Stationers' Hall Court, London.) Price 3s. 6d.—The publication of the second edition of this excellent manual is the best possible proof that while the question of improved methods of forestry has not made any great advance since the first edition made its appearance, it is obtaining increased attention both from land owners and the governing bodies of agricultural colleges, and that the sound teaching of the author is highly appreciated. As indicated by its title the work is essentially practical, and in less than one hundred and fifty pages Mr. Curtis has succeeded in giving concise directions for the selection of soils and sites, laying out of land for plantations, preparation of the soil, for planting, drainage, the distribution of trees in plantations, the management of plantations, including thinning and pruning, and the several methods of sale. In justification of the views he holds with regard to the importance of forestry as a source of profit to the landowner the author directs attention, in his prefactory remarks, to the fact that our woods and plantations are not such a source of income as they might, and, indeed, should be. He further submits that if the same enterprise bestowed upon agricultural land in the expenditure of landlords' capital had been manifested in the expenditure of capital upon woodlands there would have been that proverbial second string when found. But few landlords, unhappily, have been able to meet these periods of depression by drawing upon their woods without injuring more or less the interests of their successors. And yet, as the author so well shows, where forestry has been carried out on proper lines the land has been capable of yielding an annual return equal, if not superior, to arable or pastoral land of somewhat similar quality, and with the advantage that the yield is available when wanted without a large annual expenditure, and without the risk arising from fluctuations and seasons. It has frequently happened that woodlands are drawn upon too heavily, with the result that the cutting down of too large a proportion of the trees to meet pressing demands has greatly reduced the beauty and wealth of the woods. What is necessary at the present time is the judicious planting of new areas and the preservation and improvement of those already in existence. To effect these highly desirable objects the aid of skilled foresters is necessary, and to obtain men who have been efficiently trained in the formation and management of woods and plantations must be the mainspring from which future success will arise. As so forcibly put by the author "Until the idea is exploded that any fool can plant a tree, there can be little hope of success." Probably of the several branches of culture arboriculture is the one that needs the most culture in the individual. He is not, as Mr. Curtis states, called upon to sow a crop which he will reap the following season, but to sow, tend, and judiciously thin a crop which is to stand through future generations. He must be acquainted with the principles of plant life, understand the nature of soils and their preparation for tree life, and be well acquainted with the various timber trees, that no difficulty may arise in selecting trees well adapted to the conditions of soil and climate that obtain in the district in which they are to be planted. Seeing how important it is that woods, like other parts of the estate, should be placed under the charge of men who are fully equipped for the duties they have to perform, it is regrettable to be told by the author that "a really sound forester or woodman is but occasionally found." There are, of course, many good men who have obtained the knowledge they possess by practice, but they are not the men to whom we must look for leaders in carrying out the improvements so essential to profitable results in arboriculture. There must be a combination of science and practice, and it is satisfactory to know that the principles and practice of forestry are more generally taught at agricultural colleges, and that in other directions encouragement is given to those who purpose engaging in the management of land as a source of income to acquire a theoretical and practical knowledge of arboriculture. Hence the interest in forestry is steadily but surely increasing, and it is, therefore, satisfactory that those who are engaged in the study of this branch of estate management should have at their command such an admirable text-book, and the satisfaction we feel is greatly enhanced by the knowledge that it is being taken full advantage of.

Tourist Guide to the Continent. Edited by PERCY LINDLEY. (G.E.R., 30, Fleet Street, E.C., and 2, Cockspur Street, W.) Price 6d.—Although this is the nineteenth edition of the handy and inexpensive guide book published by authority of the Great Eastern Railway, the accomplished editor, Mr. Percy Lindley, has been eminently successful in maintaining its freshness, as well as greatly enhancing its usefulness to the thousands who annually turn to it for information. This has been accomplished by the addition of new features and the embodiment of fresh information in the existing sections, and we accordingly have a guide book that is not only fresh and interesting, but thoroughly up to date. We have in these somewhat frequent editions a trustworthy indication of the ever-increasing popularity of the Hook of Holland and Antwerp routes for reaching the Continent, as the result of the remarkable enterprise shown by the Great Eastern Railway Company in the development of their Continental traffic. In the second half of the eighteenth century it was the fashion to travel viâ Harwich and Holland, and in this and some other fashions history is repeating itself, for the fashion in travel is again setting towards Holland. Nor is this at all surprising to those who have had much experience in travelling between this country and the Continent, for the company has a fleet of splendid steamers, and on either side the train connections have been so devised that the traveller is able to accomplish his journey with comfort and without loss of time. By this route travellers can dine in town, have a night's rest in the comfortably-fitted cabins, breakfast at the Hook, and reach towns four or five hundred miles distant in the course of the day. Mr. Lindley not only gives ample advice for the guidance of travellers, but he discourses pleasantly on the many objects of interest passed in journeying by rail through the countries reached by way of Harwich and the Hook of Holland, and the historical associations of the cities and towns visited. The "Tourist Guide" is indispensable to the traveller, and will be found exceedingly useful to those who may be desirous of learning something about North and South Germany, Norway, Denmark, Sweden, and Switzerland, beyond the information given in the various geographical and historical text-books.

Toogood's Calendar. By E. KEMP TOOGOOD. (Toogood and Sons, Southampton.) Price 6d.—This brochure is devoted to lists of plants and crops that may be planted and sown in each month of the year. Each monthly list is prefaced by hints as to the more important operations to be performed during each month. The tables and preparatory remarks may prove useful to the amateur as reminders of what he has to sow and plant.

Sutton's Dwarf Defiance Pea.—This fine culinary pea did remarkably well with us this season. From two rows sown on March 15 we picked the first lot on July 9, and continued gathering at intervals until the end of that month. The haulm grows about two feet high, and is covered from base to top with fair-sized pods full of deliciously flavoured peas. As some of your readers may not have grown this variety I venture to recommend a trial of it for 1899 as a second early variety.—THOMAS CUMMINGS, *Banbury*.

ANSWERS TO CORRESPONDENTS

Lilium auratum.—J. D., Skipton: See GARDENERS' MAGAZINE for July 30, 1898, p. 494; article entitled "Cure for the Lily Disease."

Failure with Grapes.—W. H., Middlesex: We are investigating the matter, and hope to reply next week; meanwhile, if you can send particulars as to general treatment, border, &c., we shall be glad if you will do so.

Columbines.—T. H. C., Hinckley: There is no reason why columbines should prove a nuisance when planted out in a garden. They do not spread or run like perennial sunflowers, but if allowed to ripen seed, and the seed is allowed to fall, then seedlings in some quantity may appear, but they can be easily removed by the hand or hoed down if not required.

Diseased Melon Roots.—Z. Y., Lymington: Your melons are succumbing to a very bad attack of eel-worm, and nothing can be done to cure or save them. See that the house or pit is thoroughly well cleansed, using paraffin and hot limewash freely during the process. Clear out all the soil and burn it, and next season see that the soil for melons or cucumbers is obtained from a new source.

Invention for Supporting Chrysanthemum Blooms.—G. P., Parkstone: So far as we can gather from the description and rough drawing sent us we do not think your invention possesses any value for the purpose indicated. We cannot, however, form a decided opinion as to its merits or demerits until we have seen one of the supports. If you send us a specimen of your invention it shall be dealt with in the usual way—it will be quite safe in our hands.

House for Tomatos.—H. G. S., Axminster: A span roofed house would be better than a lean-to. Choose the the S.E. aspect both because of its lighter and brighter position and its dryer situation than the other available site. Provided you have a good market for such subjects you could scarcely do better than utilise the house during the late months of the year for late chrysanthemums, as these in almost any colour sell at good prices; white and yellow varieties are generally most in demand. If you have good command of heat other subjects might be tried instead, such as Roman hyacinths, &c.

Grapes Shanking.—R. E. T., Milborne: The trouble with your grapes may be due to several causes, and is known as shanking. It may be that the vines have been overcropped for their strength; the roots may have penetrated a cold subsoil, or the border may be sour owing to bad drainage, or timely stopping may have been neglected, and then a wholesale removal of foliage and growth indulged in. These are the chief causes of disaster, and in all probability the border is the source of trouble. Make a thorough examination of this, and we will do our best to assist you on receiving full particulars.

Failure with Culinary Peas.—K. G., Hull: Very many have, like yourself, failed this season to bring their late crops of peas to perfection. The failure has been due chiefly to the long continued dry weather which invariably induces simultaneous attacks of thrips and mildew, and these between them soon cripple growth, cause the young pods to curl and fail, and spoil the appearance and fullness of more advanced pods. The remedy is heavy manuring previous to sowing, sowing in trenches, suitable varieties, plenty of water and liquid manure at the roots, and forcible syringings or washings with clean water—a little quassia extract may be added if necessary—towards the evenings of hot days.

Cinerarias Flagging.—E. S., Forest Hill: Probably the plants have been kept too close and moist instead of being supplied with abundance of cool, fresh air, and with water as necessary. The bases of the leaf stalks have quite damped in some cases, and as a result of the decay some tiny grubs are at work around the "collar" of the plant. Grow the plants less luxuriantly, affording them a cool, shady place with all the air possible. Remove a little of the soil away from the collar or stem, and search for the tiny whitish and worm like grubs; destroy these, and then rub and dust the affected part with flowers of sulphur. The sulphur should be applied after a watering, so that it may remain as long as possible to dry up and heal the wound.

Seedling Bedding Pelargonium.—T. N., Norwich: The trusses of flowers sent were very fine, and the individual blooms both large and shapely. The colour is good, very bright, and telling. If the seedling has a first-rate habit and is free flowering it should prove a most useful bedding variety. The best method of testing it is to stage a number of plants in first-rate condition at a meeting of the Royal Horticultural Society, also showing a plant of the variety that approaches it most nearly in colour, for comparison. Name the variety before exhibiting it, and if an award of merit is gained, no doubt some of the leading nurserymen will make you an offer for the stock. You might, of course, bring it to the notice of a nurseryman at once and save yourself further trouble by selling cheap.

Worms Among Chrysanthemum Roots.—A. M., Invernesshire: In the case of small worms that are not easily caught by turning the plant out of the pot, there are two good remedies to follow. One is to plunge the pot to rather more than half its depth in water heated to a temperature of 123 degrees Fahr.; this will send all the worms to the surface, where they may be caught and killed. Another method is to pour two gallons of water upon a pound of lime, stir well, and then let the mixture stand for a day and night to clear; stop the hole at the bottom of the pot with clay, and then apply the clear lime water until it rises almost to the surface of the soil; this will cause the worms to rise, when they may be captured. Do not remove the clay for a few hours, so as to make sure of an effectual clearance; afterwards remove the clay, and see that the drainage is perfectly clear.

Moss Curled Foliage on Chrysanthemums.—A. S., Lincoln: The peculiar curling and crisping of the foliage as shown in the specimens of Chrysanthemum Princess Victoria sent us is caused originally by excessive feeding with nitrogenous manures. Unfortunately this peculiarity is not confined to the variety in question, but may appear in any variety, though, judging from your letter, Princess Victoria is especially liable to produce stunted growth and moss curled leaves. It is a form of disease, brought about by the disorganisation of the plant tissues, following too abundant a supply of sulphate of ammonia or similar fertilizer. A most wonderful fact in connexion with "moss curling" is that the plague assumes the character of a variety, the peculiarities being continued for at least several generations, so that it is desirable not to propagate from affected plants. Not only do the internodes become shortened, the leaves curled, rolled, and crisped, and the buds advanced into tiny mossy branchlets, but no flowers are produced, or at most very miserable aborted ones. Several of our leading exhibitors have also come to the conclusion that the actual cause of disease is, as we have stated, over feeding. This bears out what we have for so many years contended, viz., that to prevent loss of, or weakened constitution in, varieties of chrysanthemums grown at high pressure for exhibition or market, it is necessary to propagate from naturally grown plants, if not every year, at least every second year. Many large growers and nurserymen now raise their stocks of chrysanthemums from plants that have been growing naturally, planted out in the open all the season, and not fed in any way. Of course in the case of new and high priced varieties this system cannot well be followed the first year, but as quickly as possible a naturally grown reserve stock should be created, as cuttings from these are vigorous, clean, and sturdy, while they subsequently respond more readily to high cultivation without collapsing. We shall be obliged by your sending us further specimens in as fresh a state as possible to the Kew address of the Editor.

Names of Plants.—F. H. M., Auchterarder: 2, Stenotaphrum americanum variegatum; 3, Physalis Alkekengi; 4, Helianthus rigidus; 5, Heliopsis scabra. See next week for others.

W. B., Folkestone: 1, Polygonum cuspidatum; 2, Rhus cotinus.

R. E. T., Milborne: Greenup's Pippin, known also as Yorkshire Beauty and Red Hawthornden.

Z. Y., Lymington: 1, Davallia Tyermanni; 2, Polypodium aureum; 3, probably a seedling form of Adiantum fragrantissimum; 4, a Pteris—send fertile frond; 5, Onychium japonicum.

G. S., Guildford: 1, Juniperus chinensis; 2, Retinospora plumosa; 3, Thuia gigantea (Lobbi); 4, a form of Cupressus Lawsoniana; 5, Hibiscus syriacus (Althæa frutex).

E. S., Forest Hill: Woodwardia radicans.

E. J. S., Chislehurst: 1, Biota aurea; 2, Biota orientalis; 3, Cupressus Lawsoniana; 4, C. Lawsoniana pendula; 5, Cyrtomium falcatum; 6, Polypodium aureum. The stocks were first-rate.

THE WEATHER DURING THE WEEK ENDING AUGUST 27, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	90·0	50·0	65·4	18·56	0·14	0·36
Croydon	87·5	47·5	64·3	17·94	0·00	0·00
Brighton	85·0	50·4	64·5	18·06	0·13	0·33
Bristol	82·0	48·0	61·0	16·11	0·40	1·02
Wolverhampton	78·8	46·7	60·3	15·72	0·70	1·78
Norwich	83·0	46·8	62·1	16·72	0·12	0·30
Nottingham	82·6	47·8	60·9	16·06	0·54	1·37
Liverpool	77·1	52·2	60·8	16·00	1·31	3·33
Huddersfield	80·5	46·0	60·2	15·67	1·04	2·64
Bradford	80·8	50·4	64·2	17·89	0·32	0·81
Hull	79·0	45·0	59·3	15·17	0·99	2·51

The mean reading of the Barometer during the week at Greenwich was 29·89 inches, and that of the Thermometer 65°·4, the latter being 4°·5 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 8 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 45.1 hours. The measured rainfall amounted to 0·14 of an inch.

CATALOGUES RECEIVED.

DICKSON AND ROBINSON, MANCHESTER.—Bulbs and Roses.
WM. CLIBRAN AND SON, MARKET STREET, MANCHESTER.—Bulbs.
WM. BULL, 536, KING'S ROAD, CHELSEA, S.W.—Bulbs.
R. SYDENHAM, TENBY STREET, BIRMINGHAM.—Bulbs.
J. VEITCH AND SONS, CHELSEA, S.W.—Bulbs—Strawberries—Carnations.
J. R. PEARSON AND SONS, CHILWELL NURSERIES, NOTTS.—Bulbs.
WM. PAUL AND SON, WALTHAM CROSS.—Bulbs and Winter Flowers.
H. CANNELL AND SONS, SWANLEY, KENT.—Cacti and Succulent Plants.
DOBBIE AND MASON, OAK STREET, MANCHESTER.—Bulbs.
FISHER, SON, AND SIBRAY, LTD., HANDSWORTH, SHEFFIELD.—Bulbs and Roots.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, SEPTEMBER 6.—Royal Horticultural Society. Committees meet at 12 o'clock. Lecture at 3 p.m. by Mr. T. W. Birkenshaw on "Disa grandiflora."
Chrysanthemum and Dahlia Show at the Royal Aquarium, Westminster.
Durham Floral Society.
Scottish Horticultural Association.
WEDNESDAY, SEPTEMBER 7.—York Florists' Dahlia Show.
Derbyshire Horticultural Society; Two days.
THURSDAY, SEPTEMBER 8.—Kirkby Stephen Horticultural Society.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER 5, 6, 7, 8, AND 9.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris' Rooms, Cheapside, E.C.
WEDNESDAY, SEPTEMBER 7.—Winter blooming Heaths, Climbing Roses, &c., Messrs. Protheroe and Morris, on the premises, The Longlands Nursery, Sidcup, Kent, S.E.
THURSDAY, SEPTEMBER, 8.—Ericas, Roses, Heaths, Genistas, Hydrangeas, [illegible] Messrs. Protheroe and Morris, on the premises, The Mill Lane, Nursery, [illegible]
MONDAY AND TUESDAY, SEPTEMBER 5 AND 5.—Orchids, Palms, Stove and Greenhouse [illegible] Roses, &c., Messrs. Protheroe and Morris, at the Nurseries, Bush Hill Park, Middlesex.
FRIDAY, SEPTEMBER 9.—Imported and Established Orchids, Messrs. Protheroe and [illegible] Rooms, Cheapside, E.C.
MONDAY AND WEDNESDAY, SEPTEMBER 5 AND 7.—Dutch and French Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

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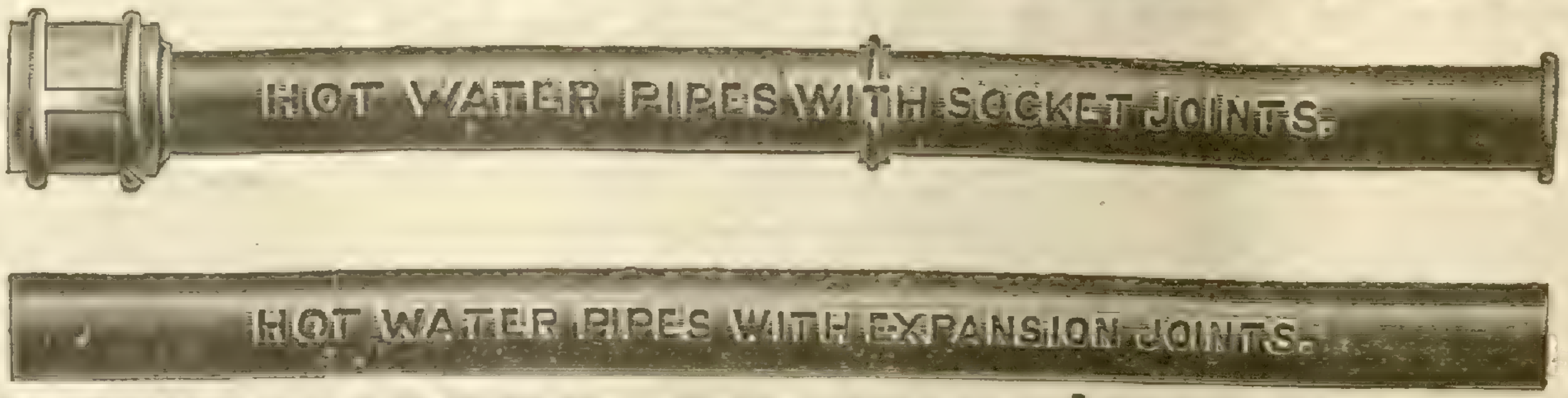
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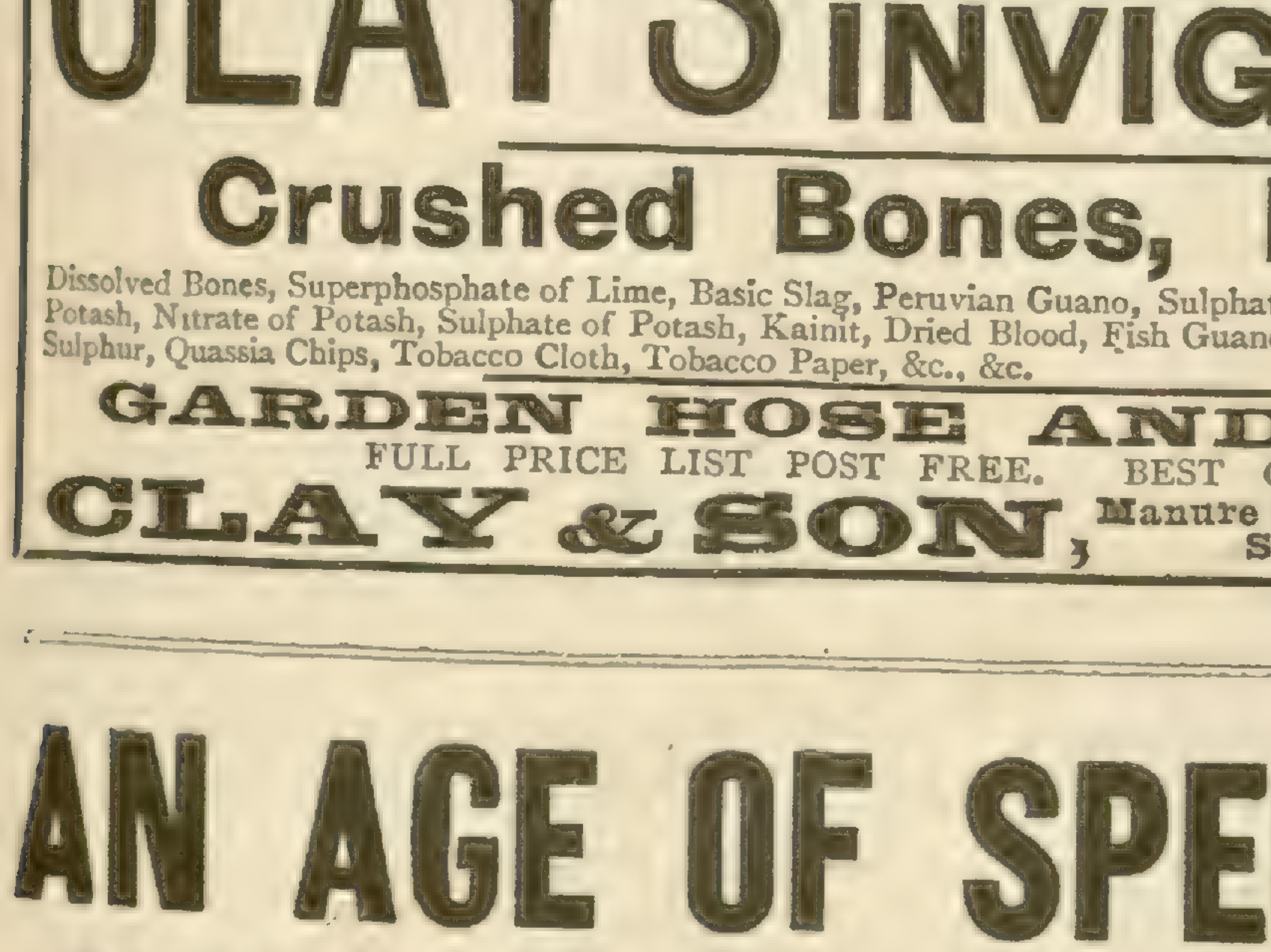

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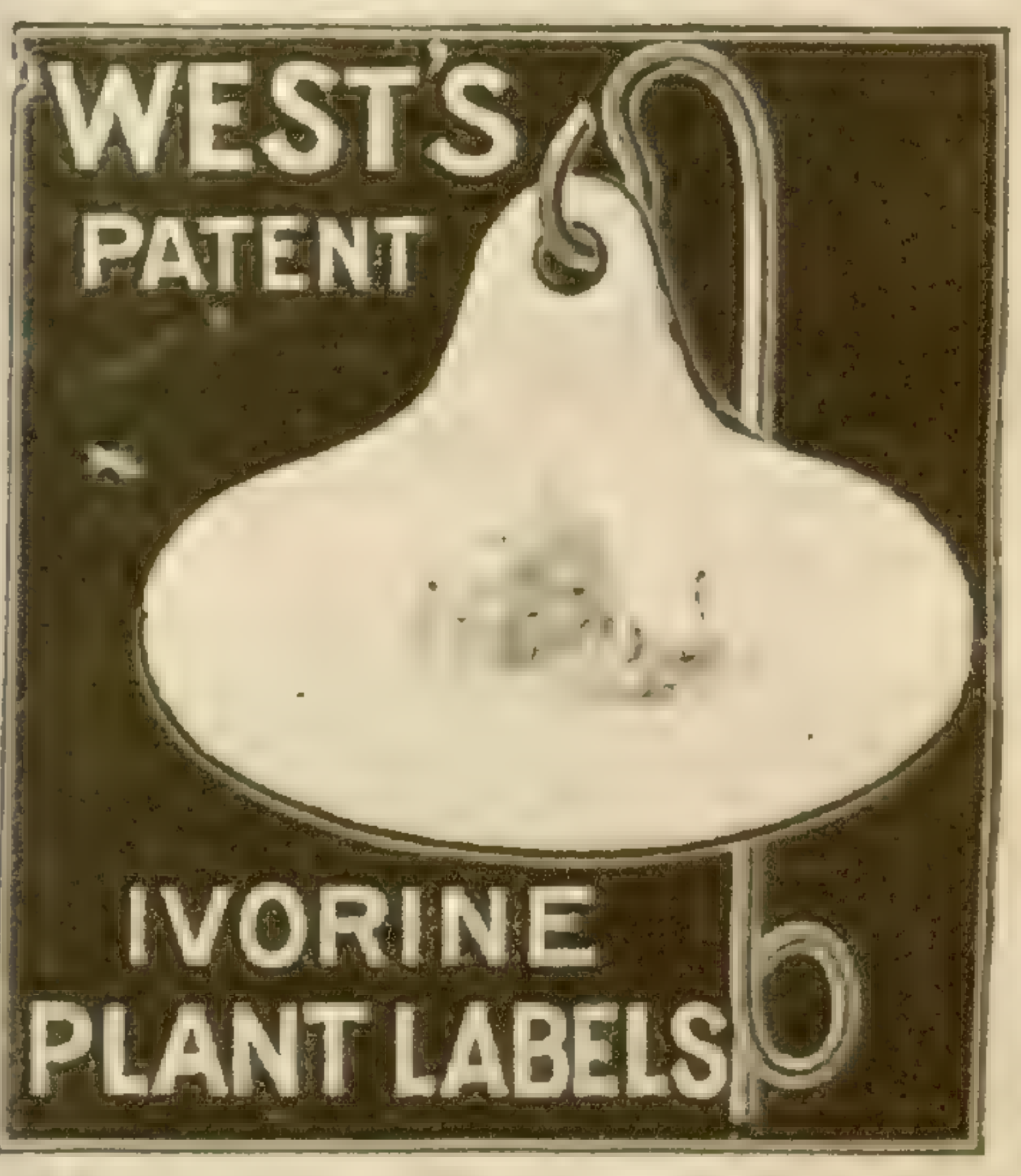

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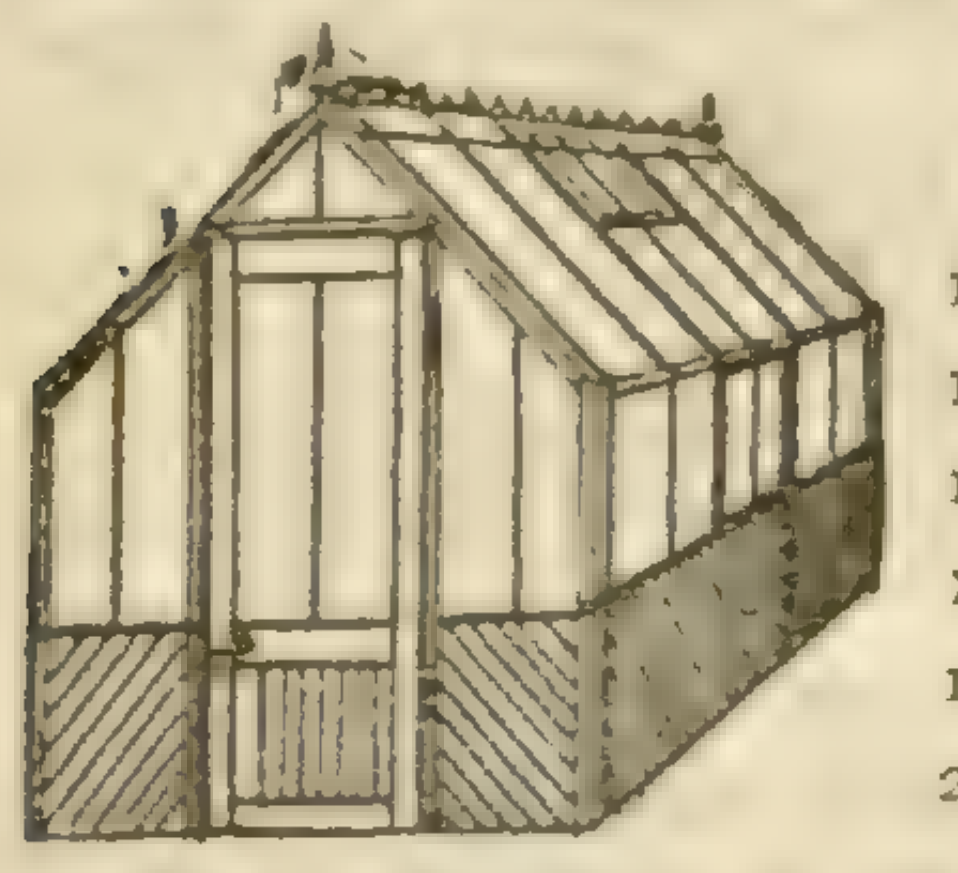

Size.	Lean-to.	Span.
8 X 5	36/-	48/6
10 X 5	48/6	58/6
14 X 6	58/6	78/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
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All 7 ft. high, and 4 ft. sides (a few 5 ft. sides, trifle more). Ironwork, staging, and one coat paint included.

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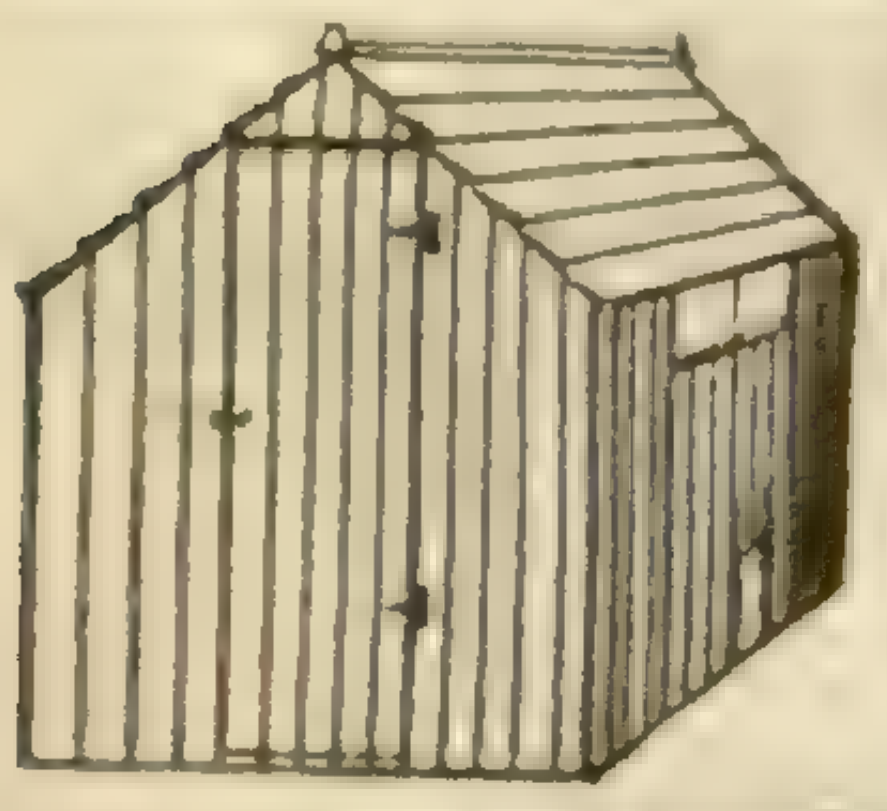
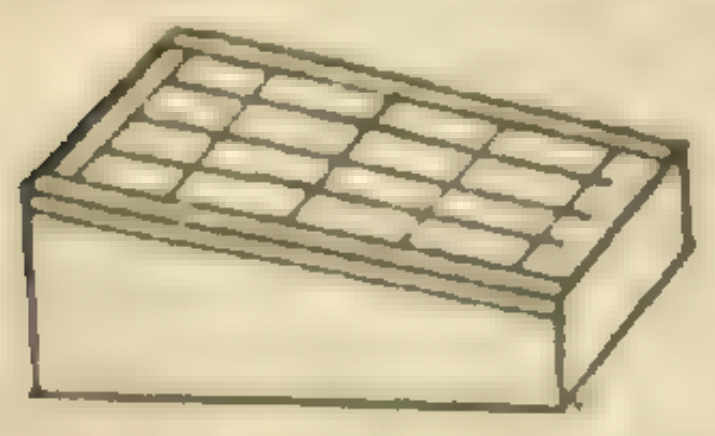


To hold.	Size.	Lean-to	Span.
Ten	4 X 3	10/9	12/9
Twenty	5 X 4	12/9	16/6
Forty	7 X 5	17/6	22/6
Hundred	12 X 7	—	33/-

(Also a few cheaper ones left.)

Usually made from half inch wood, these are one-third thicker, and felt cover to roof.



4 X 3	8/9
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8 X 6	22/6
12 X 6	33/-

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10X14	200 ft.	16X24 to 18X24	at 26/-	14X20
12X12		3rds 21 oz.		14X24
12X13	100 ft.	stock sizes as stated in margin,	at 10/-	15X20
12X14	200 ft.	8X12 to 12X12	at 19/-	16X18
12X16	100 ft.	stock sizes as stated in margin,	at 13/-	16X20
12X18	200 ft.	12X14 to 16X20	at 24/-	16X24
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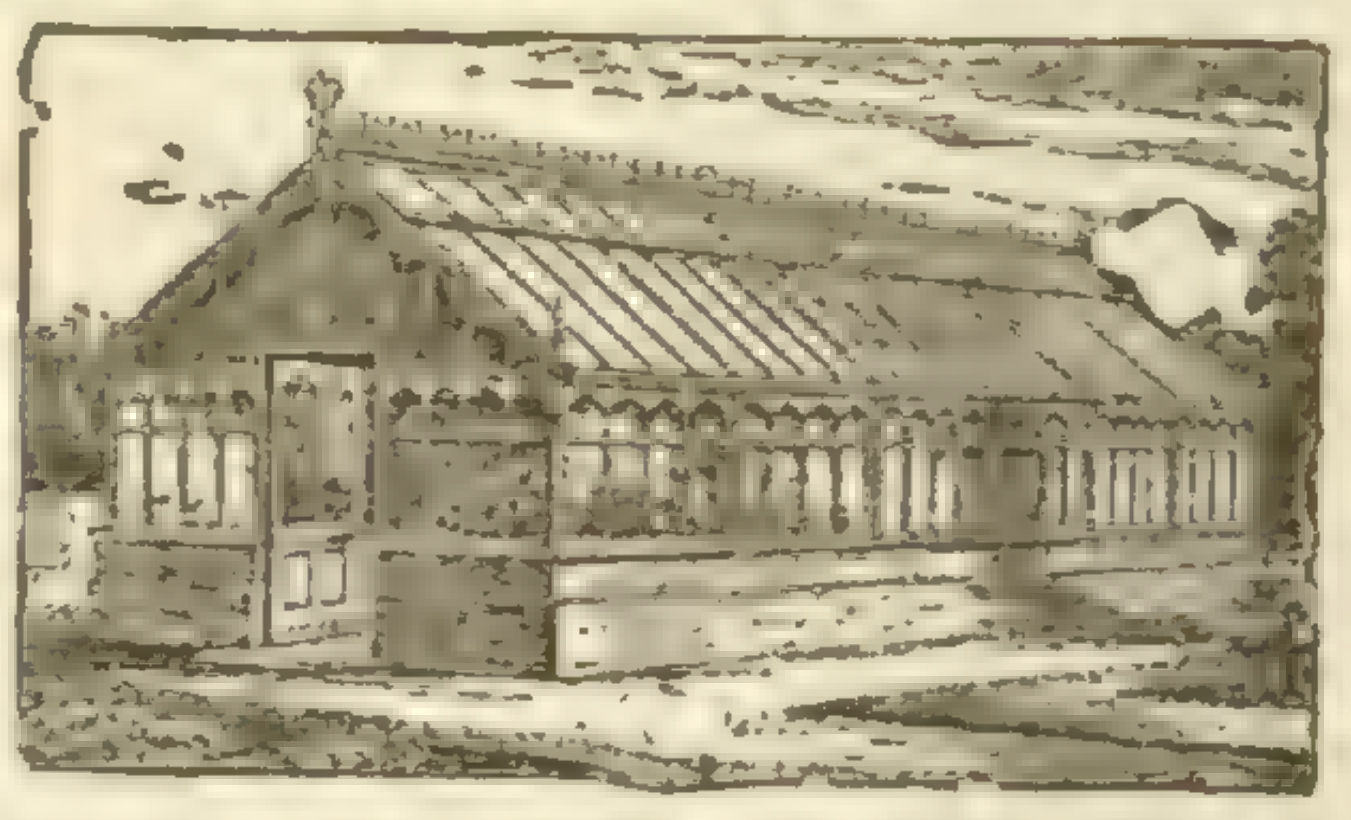

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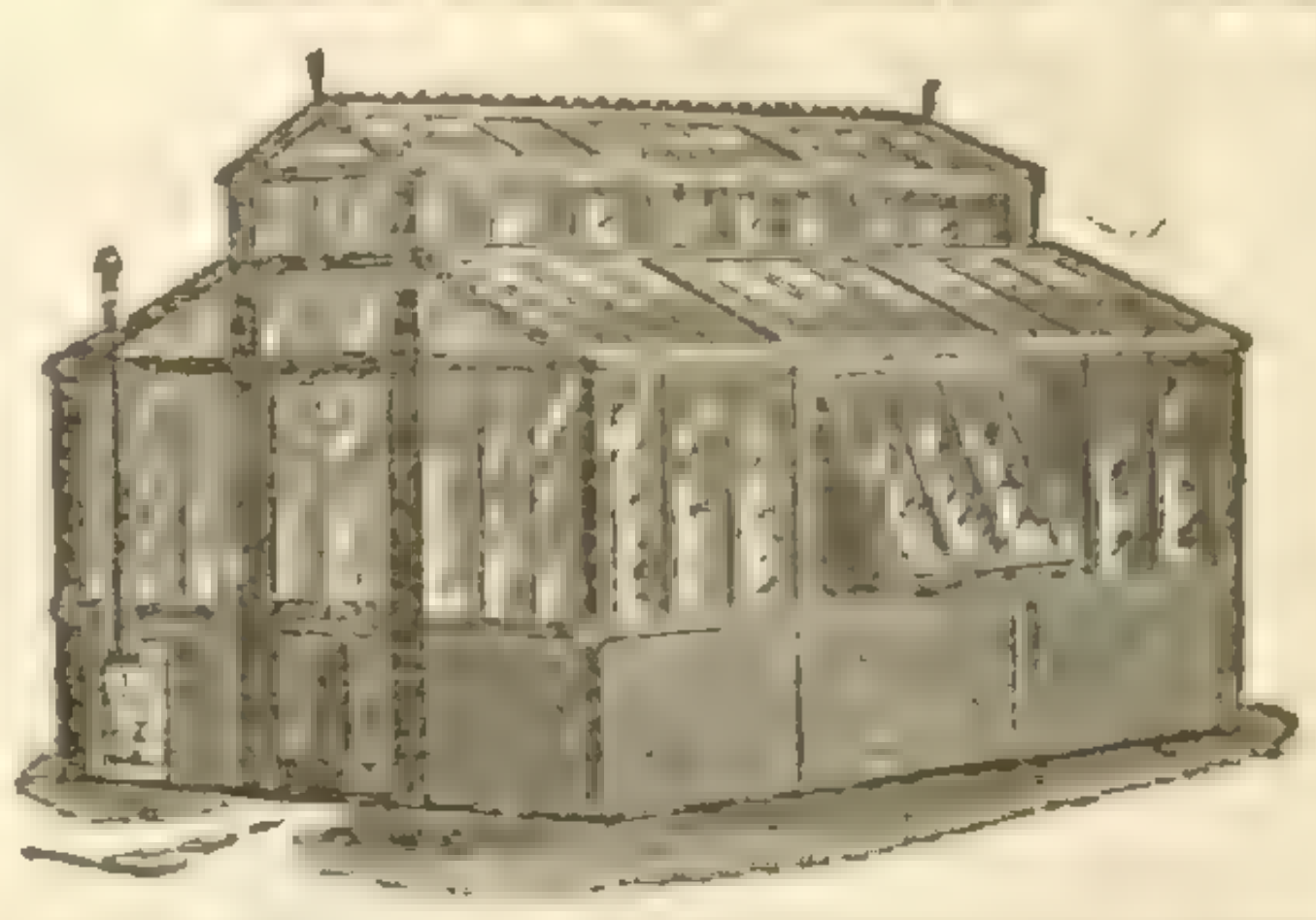

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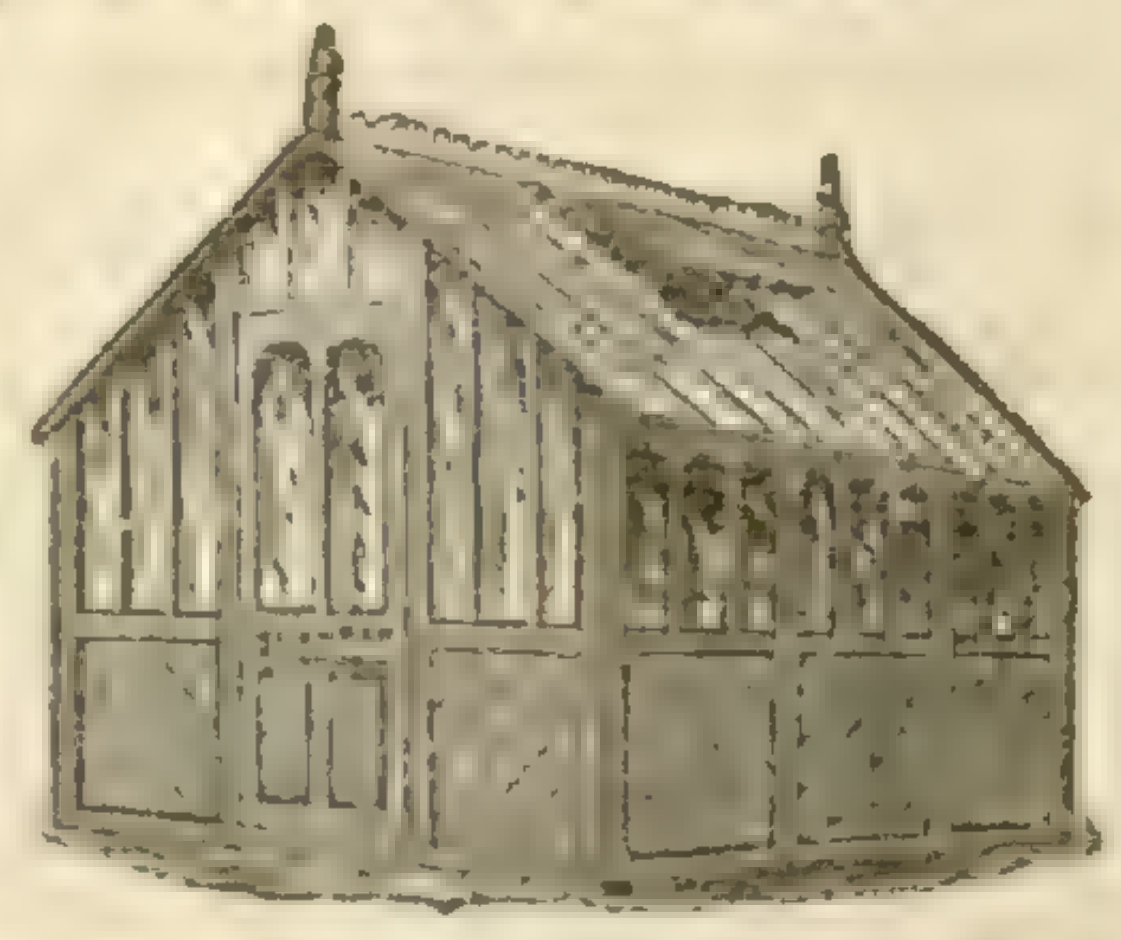

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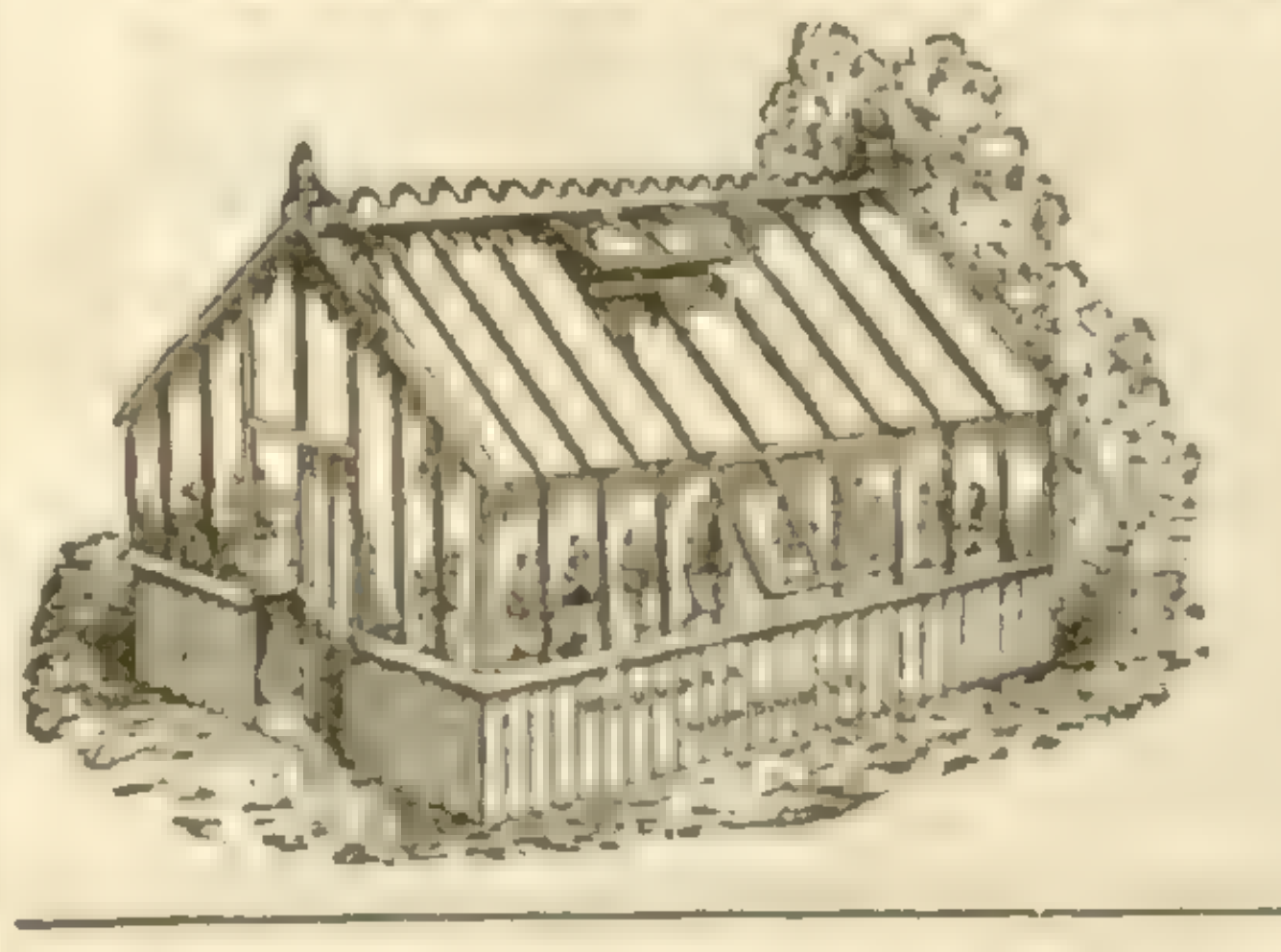

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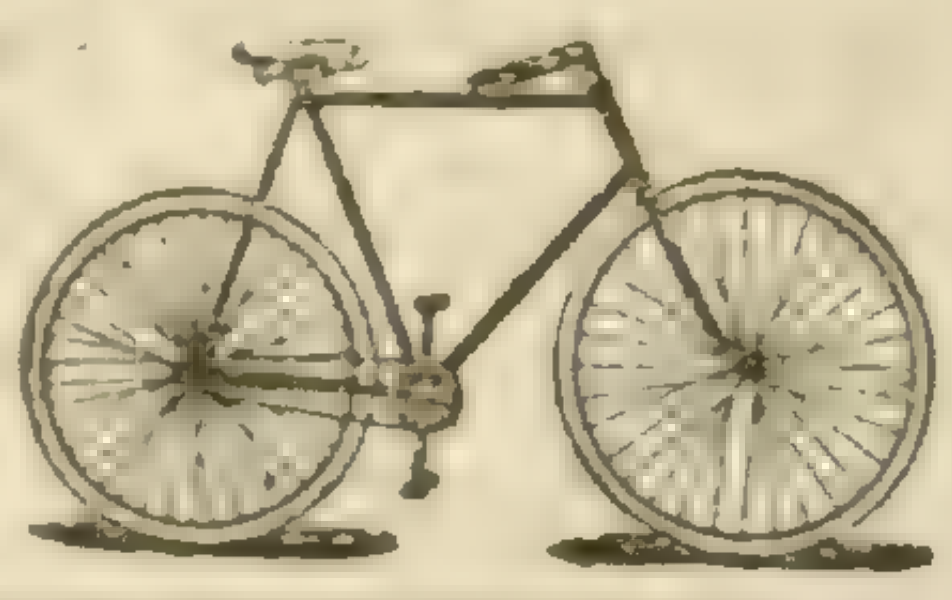

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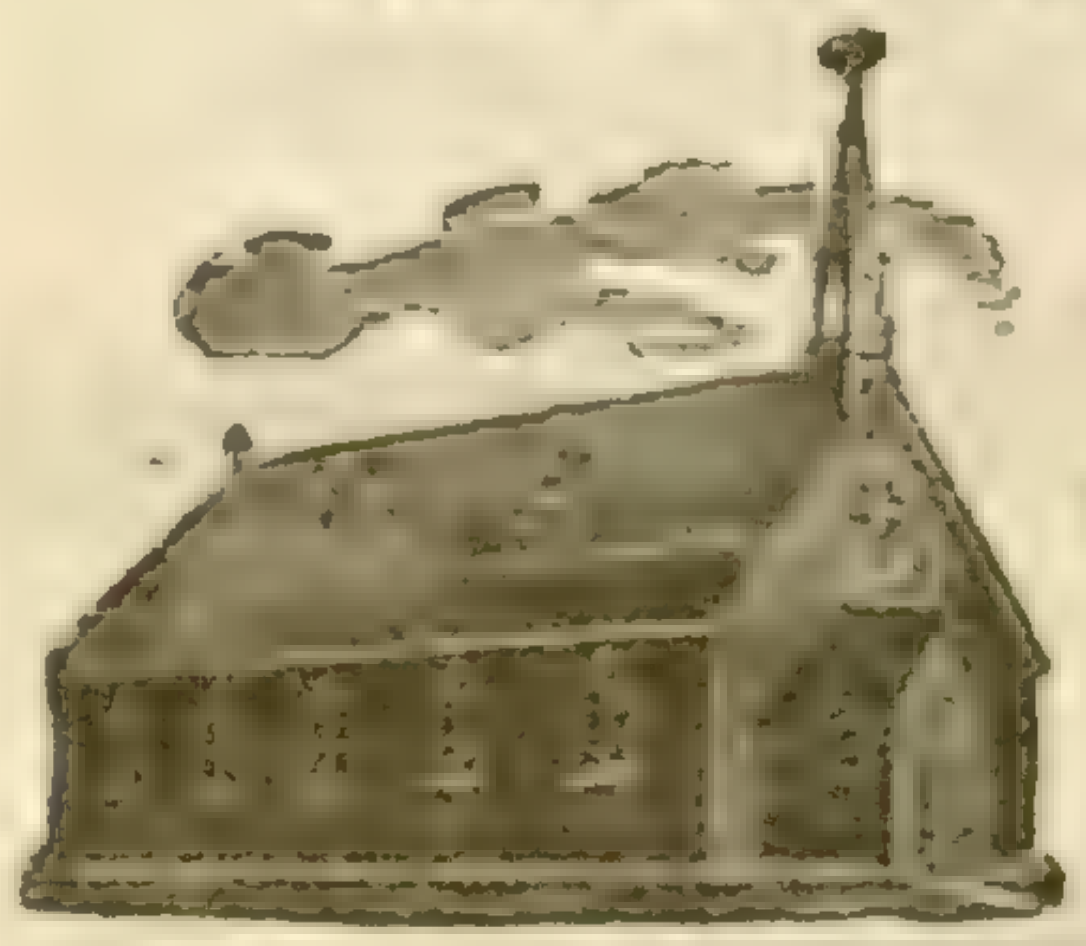

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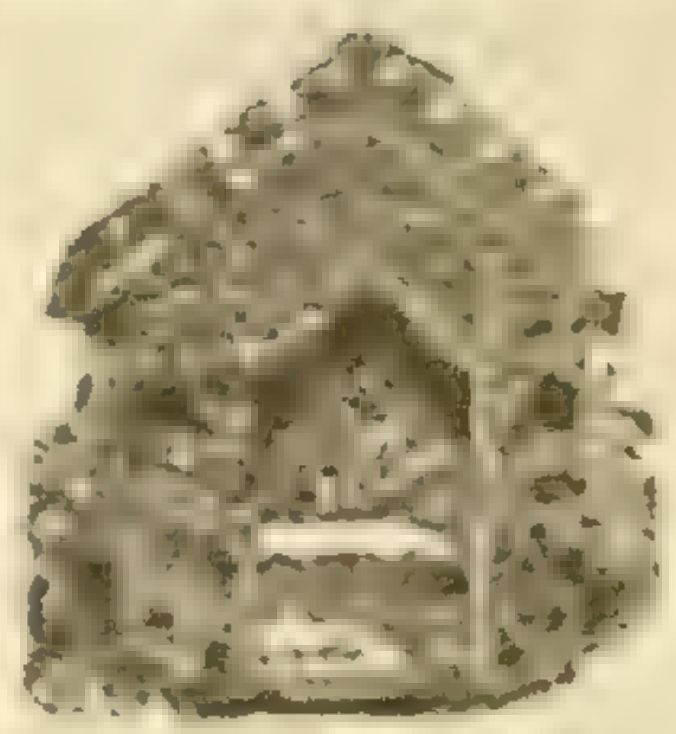

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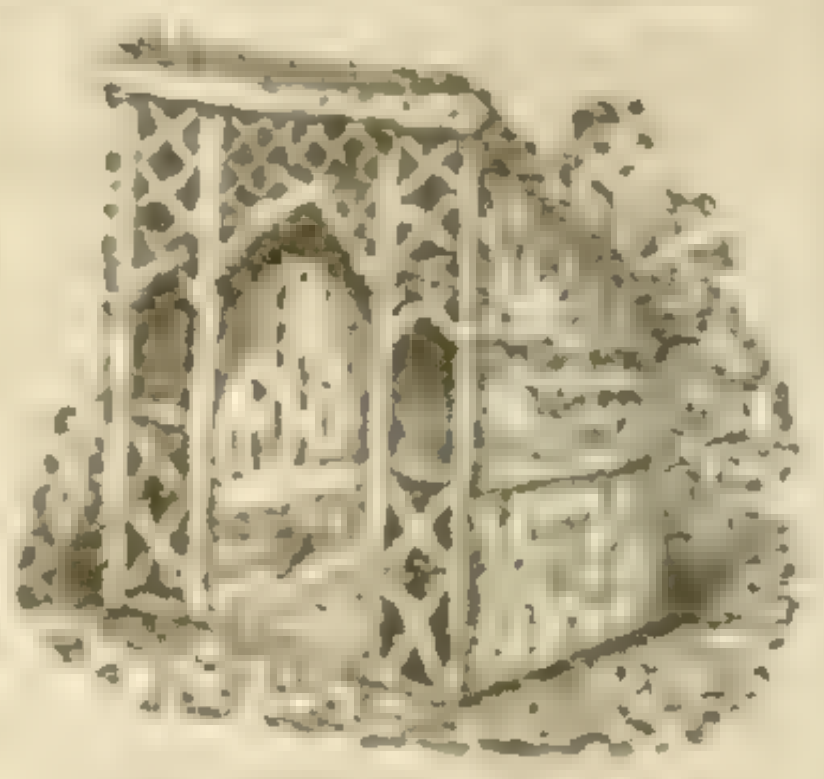

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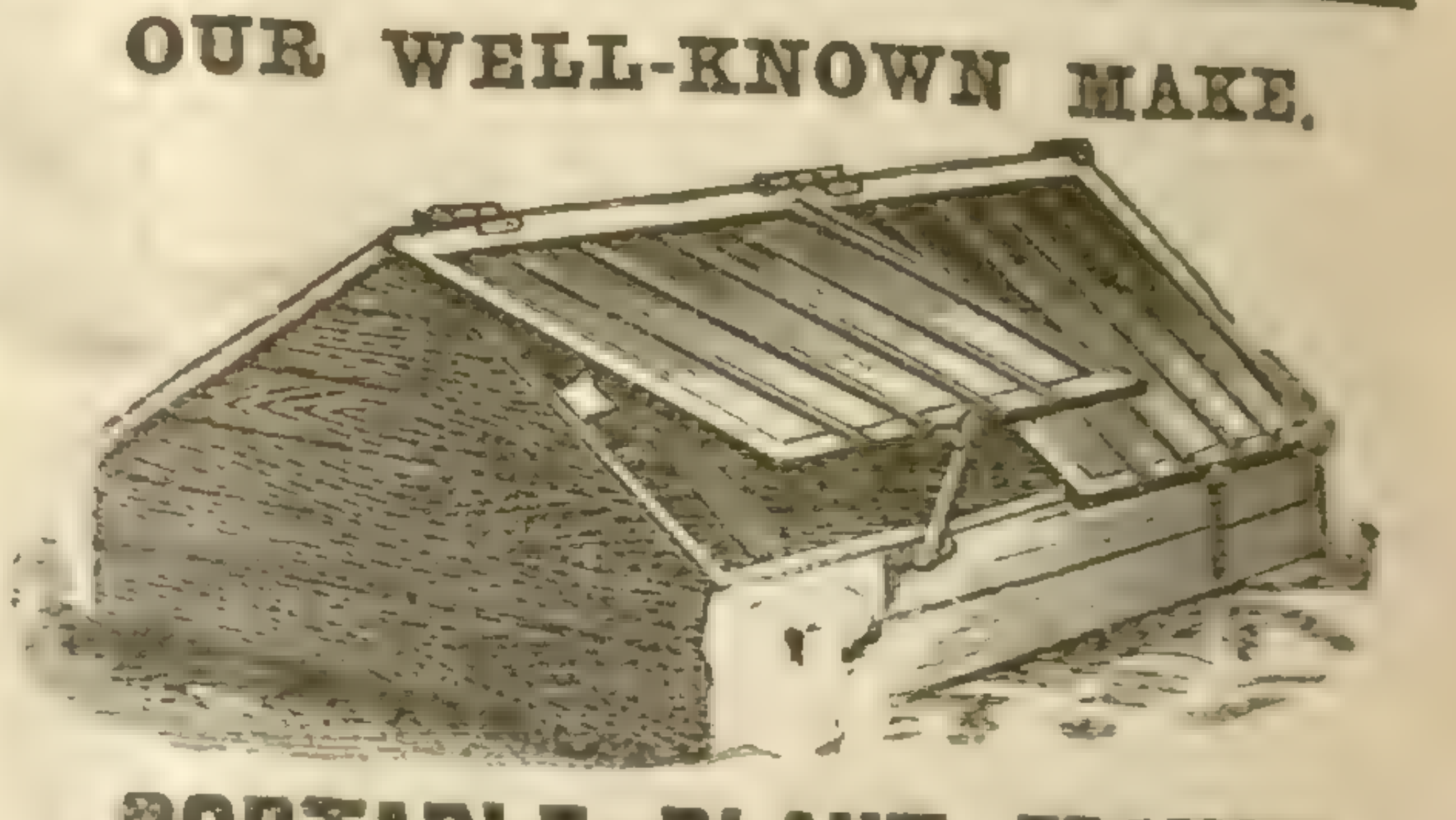

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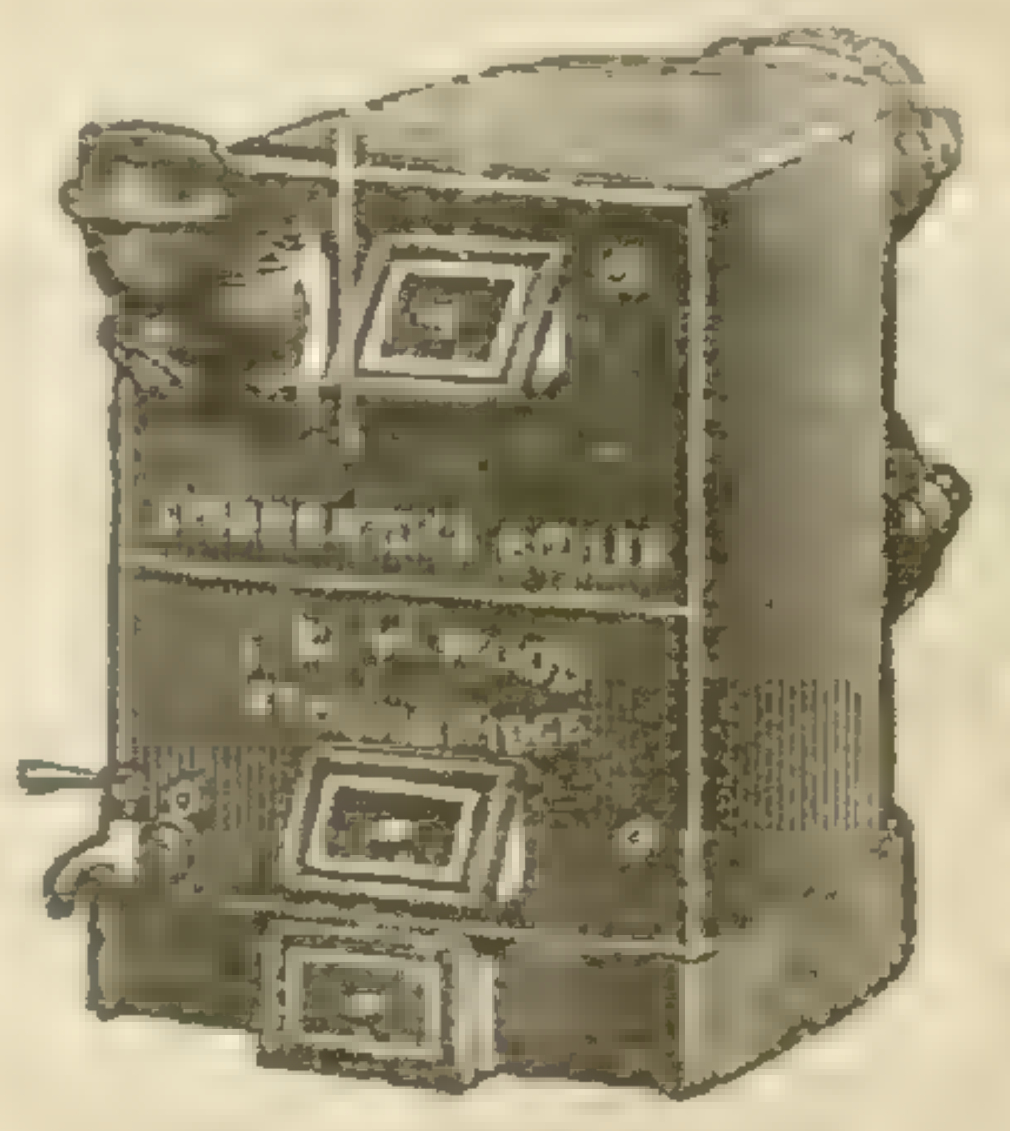

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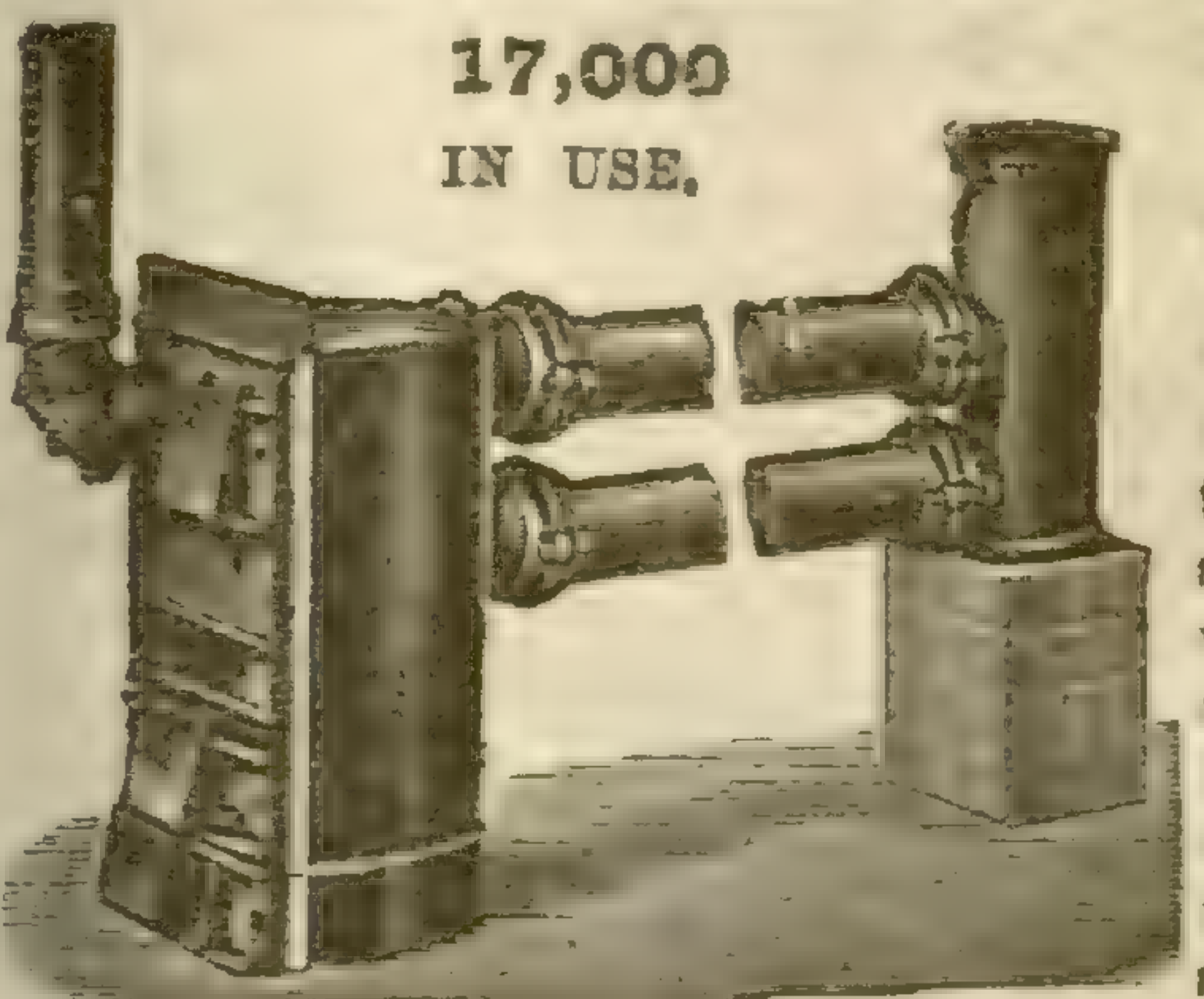

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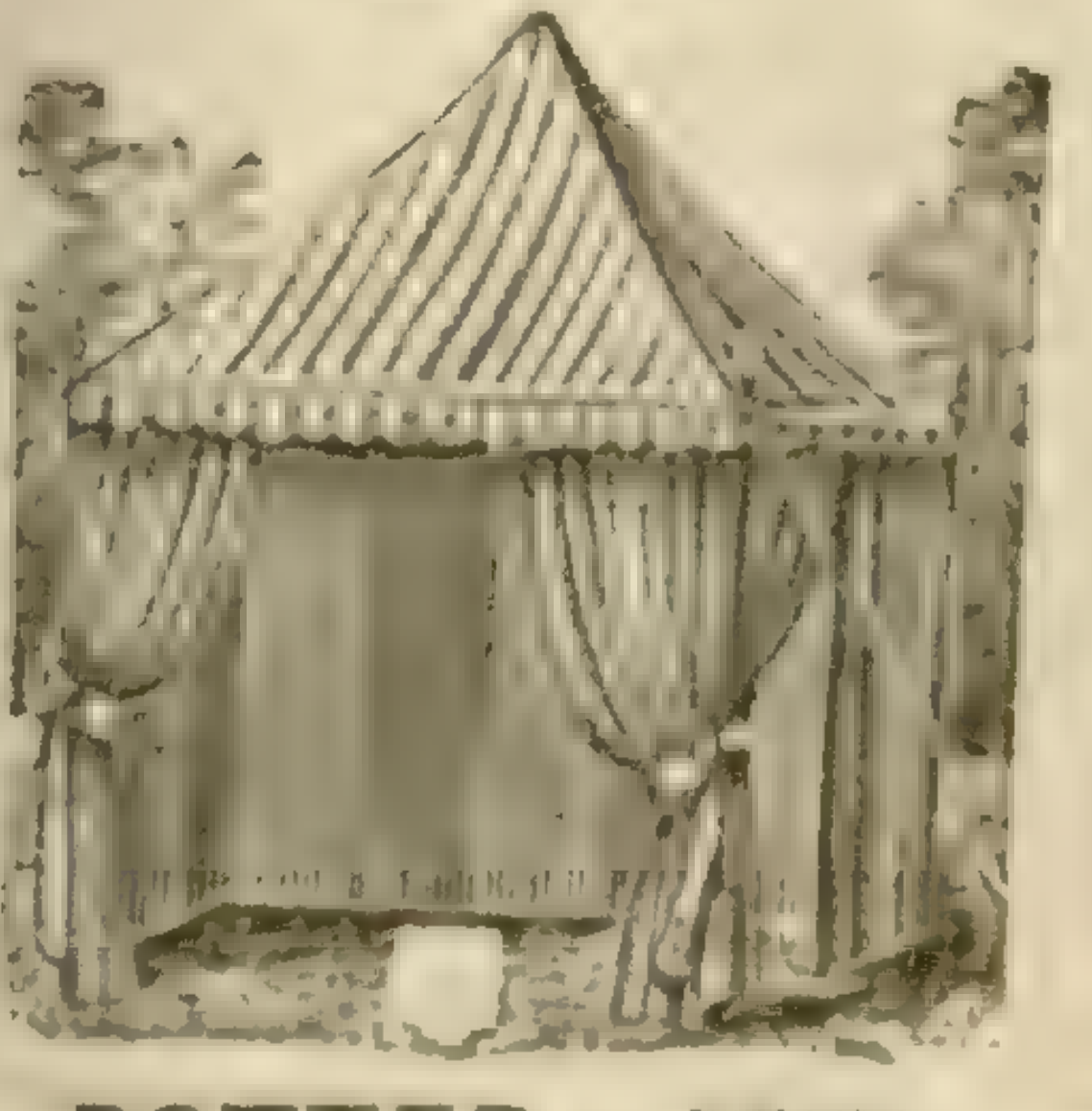

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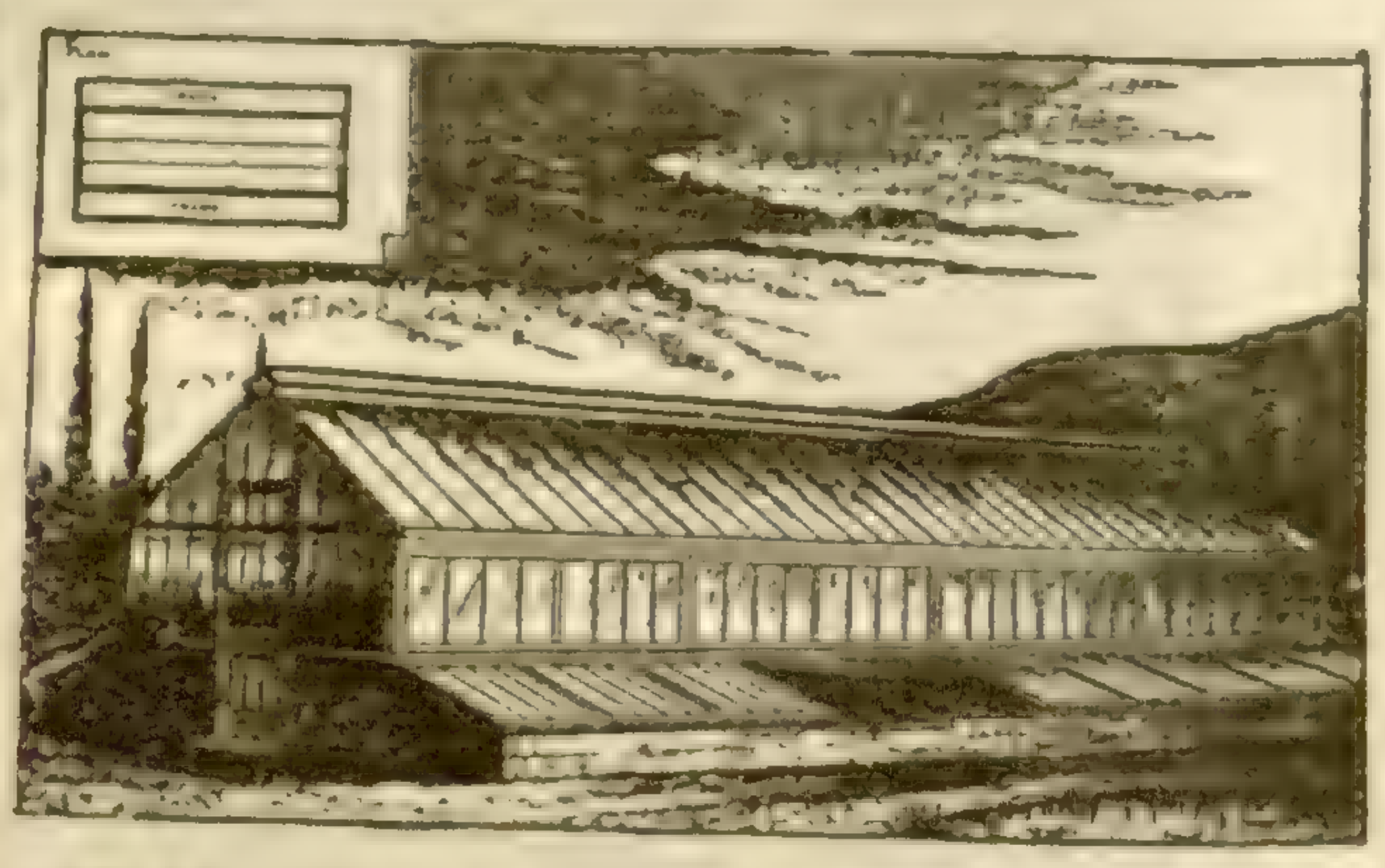

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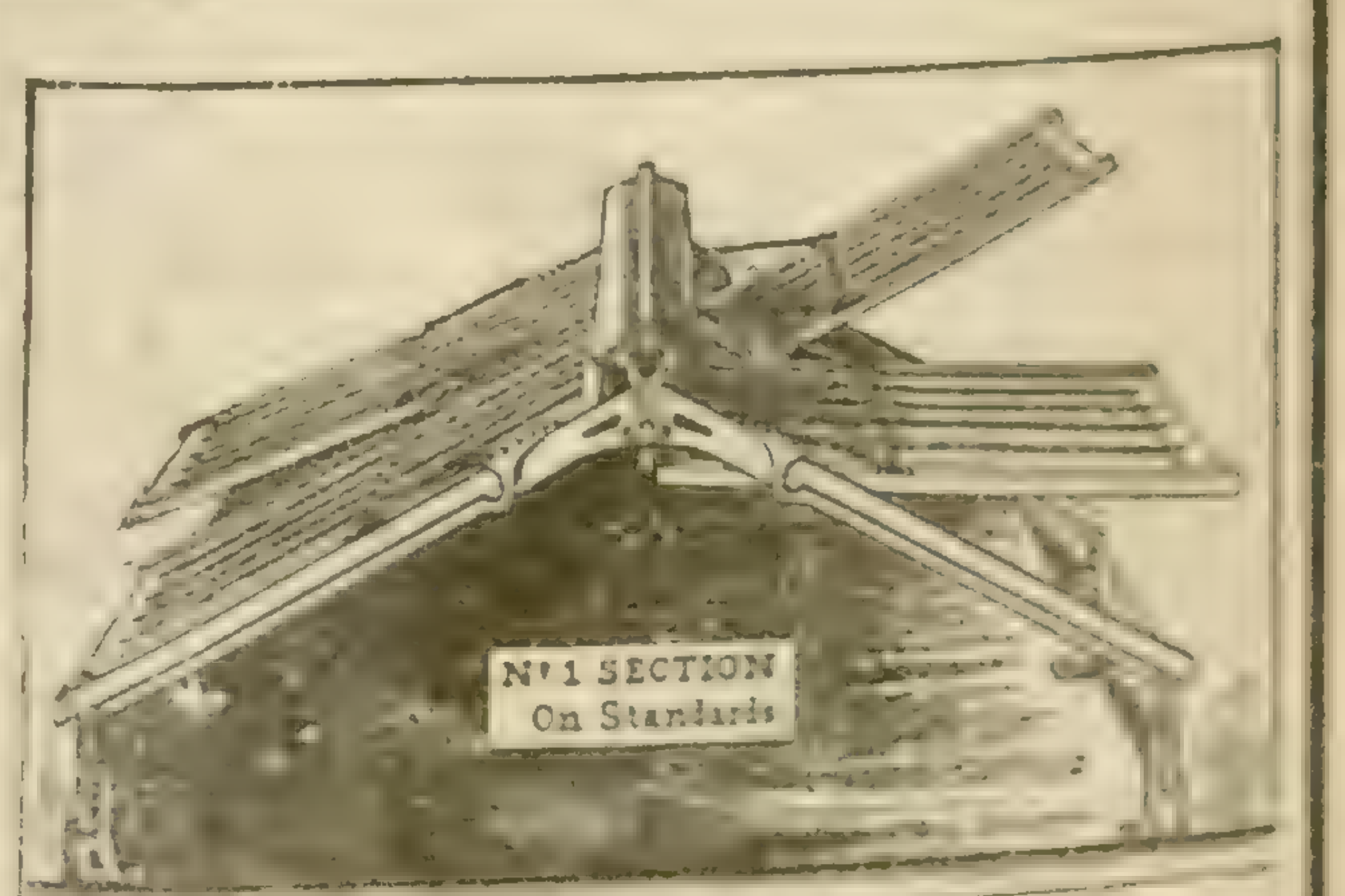

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THE GARDENERS' MAGAZINE

FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

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WEDNESDAY Next, SEPTEMBER 14TH.—At THE NURSERIES, SOUTH WOODFORD, by order of Mr. J. FRASER.

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Friday Next, September 16th

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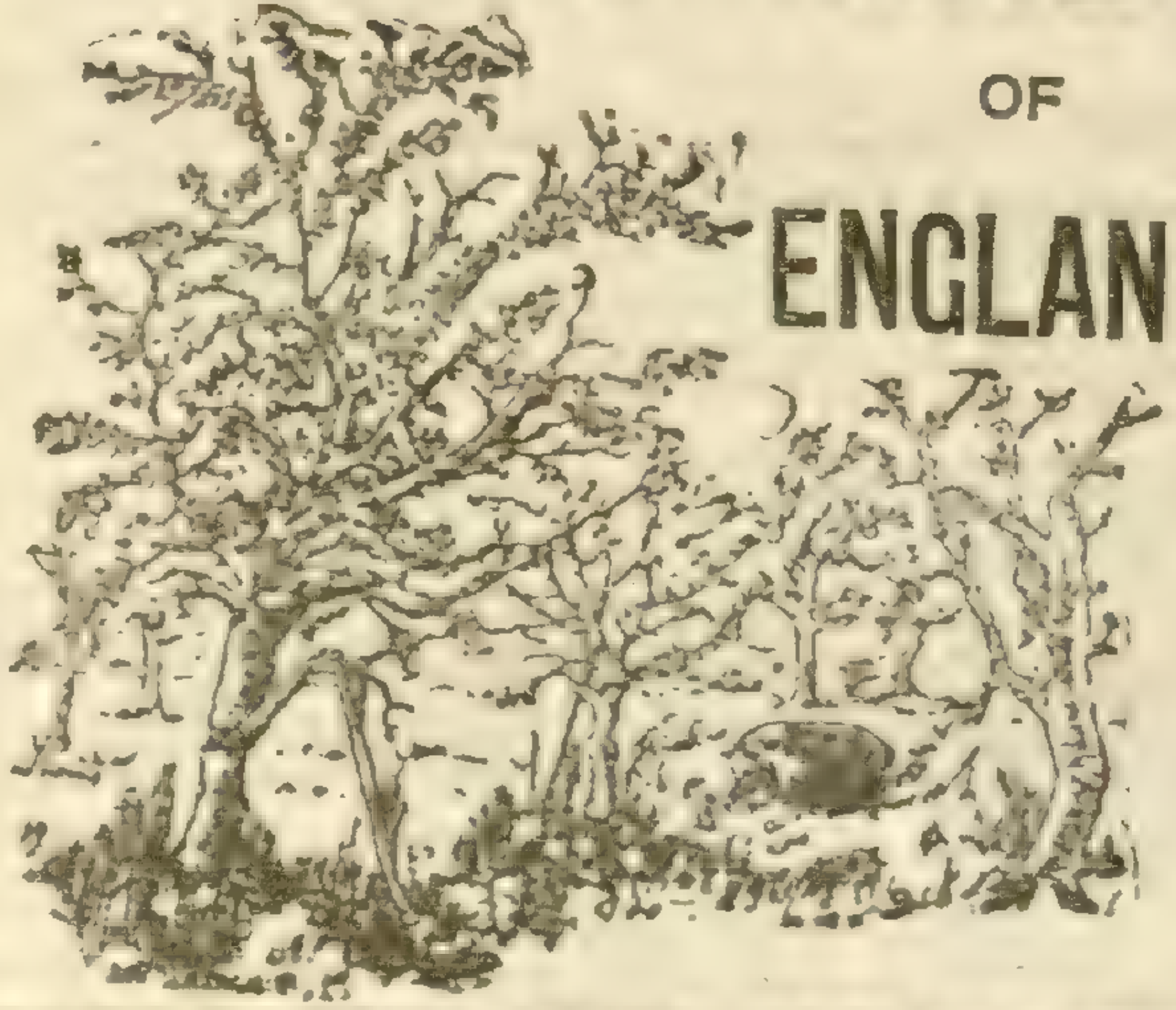

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FOREMAN. — Joseph Forsey, Stanford Hall, Loughborough, would be pleased to highly recommend a young man, aged 27, to any Gardener requiring the service of an energetic and practical man of fourteen years' experience in leading gardens.

FOREMAN.—George Picker, The Gardens, Hesslewood, near Hull, would be pleased to RECOMMEND his Foreman, George Sage, to any gardener requiring the services of a reliable young man; age 27; the cause of leaving, the breaking up of the establishment

GARDENER (Head), where one or two are kept, or Single-handed; age 31; single; life experience in all branches; abstainer; good references.—GARDENER, 9, Myrtle Terrace, Crawley Road, Horsham, Sussex.

GARDENER (Head); thoroughly practical; life experience in all branches; also the laying out of grounds, land and stock if required; age 45; wife charge of house, dairy or gate.—A. B., Mr. Woodger, Fore Street, Upper Edmonton, N.

GARDENER (Head - Working), age 34; married, two children; twenty years' experience in first-class establishment; well up in all branches; excellent testimonials.—E. B., 155, Chapter Road, Willesden Green.

GARDENER (Head - Working, or good Single-Handed); age 29; married, one child; fourteen [illegible] experience, Inside and Out; thoroughly understands [illegible] flowers, and vegetables; good references.—R. PELLETT, Tweed Road, Brockham, Surrey.

GARDENER (Head Working); age 33; married.—A Gentleman wishes to RECOMMEND G. STRICKLAND, who has been with him two and a half years as general foreman; eighteen years' experience in all branches of gardening, two years previous as foreman.—G. STRICKLAND, Elston, Newark-on-Trent.

GARDENER (Head Working or good Single handed); thorough knowlege of stove and greenhouse, kitchen garden, vines, peaches, melons, tomatos; age 34; married; small family, youngest seven; four and a half years' character from last place.—W. DAVIS, Chingford Road, Walthamstow, Essex.

GARDENER (Head Working); thoroughly practical in all branches, including orchids; four years seven months' good character, leaving through family going away; age 40 years; married; no family.—J. S., The Gardens, [illegible], near St. Albans.

GARDENER (Head-Working); married; age 37; experience in orchids, vines, houses, and kitchen gardens, &c.; leaving through death.—STEVENS, The Gardens, Darel-Saleem, Abbey Wood, Kent.

GARDENER (Head Working), age 30; thoroughly practical in all branches; six years' excellent character as General Foreman here, two and five previous.—ALFRED PARKER, Gilston Gardens, Harlow, Essex.

GARDENER (good Single-handed).—Age 35; thoroughly understands flowers, fruit, and vegetables; over seven years' good character from present situation.—J. LUNNON, The Friary, Friern Lane, Whetstone, N.

GARDENER (good Single-handed), or where help is given; good references; thoroughly understands flowers, fruit and vegetables; age 25; married.—H. HIGGS, Updown Hill, Windlesham, Surrey.

GARDENER. — Young Man, aged 27, SEEKS SITUATION; Single-handed; life experience in stove and greenhouse plants, fruit trees, and kitchen garden. —Apply JAMES WRIGHT, Poona House, Cosham, Hants.

GARDENER (Single-handed or Flower Gardener); age 32; single; four years in present place; well recommended; six previous.—A. WALLIS, Osterley Park, Isleworth, Middlesex.

GARDENER (Single-handed or otherwise); age 40; single; good experience in private gardens and nursery work; over ten years' good character; would take place in a nursery.—J. PASSEY, 8, Mount Ash Road, Upper Sydenham, London.

GARDENER (Single-handed or One Under); age 27; married; understands vines, chrysanthemums, flower and kitchen garden; 2½ years' excellent character from present situation, 11 years' previous.—J. M., Hersham, Walton-on-Thames.

GARDENER wants a Permanent Single-handed PLACE; age 23; single; strong and willing; very respectable; excellent references; thoroughly experienced in all branches.—Apply W. F., Shooter's Way Lodge, Berkhamsted.

GARDENER. — SITUATION WANTED by married man, aged 30, under Head Gardener; experienced in glass, vines, greenhouse plants, kitchen garden; four years' good character from present place; leaving through death.—W. H. PIPER, near the School, Combe Martin, N. Devon.

HEAD Working GARDENER, where two or more are kept; thorough knowledge of stove and greenhouse plants, vines, peaches, vegetables, &c.; married, two children; age 39.—Address F. WHITE, 5, St. David-terrace, Llandaff, Cardiff.

JOURNEYMAN (Inside).—Age 21; seven years' experience in plants and fruit in good gardens; excellent references.—Address F. LUCAS, Elsham House, Grantham, Lincolnshire.

LADY strongly RECOMMENDS her late Head Working GARDENER (where three or more are kept), who has been in her service eleven years; thoroughly competent in all branches; disengaged through place being sold. —B., 29, Nightingale Lane, Bromley, Kent

RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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SITUATION WANTED as good Single-handed Gardener; thorough experience in vines, melons, cucumbers, tomatos, and kitchen garden; excellent character from past situations; single.—Apply J. WOODS, Covers Road, Claygate, Surrey.

TO GARDENERS and FRUIT GROWERS. —WANTED, LODGING with Board for a few weeks for a young man recovering from illness, with opportunity of working in garden or fruit plantation, within fifty miles of London preferred.—Address, by letter only, wihh terms, to "GARDENER," care of Messrs. Charles Barker and Sons, 8, Birchin Lane, London, E.C.

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YOUNG MAN, age 23, SEEKS SITUATION as Second, where three or four are kept; six years' excellent character; abstainer.—Apply F. G., care of Mrs. J. Gray, Salisbury Street, Mere, Wilts.

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AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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Figured in the *Gardeners' Chronicle* of July 30.

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LANGLEY BEAUTY.—A cross between YELLOW CHAMPAGNE and Railway. The berries are very large, of buff-yellow colour, somewhat hairy, and of delicious flavour. It combines the size of RAILWAY with the fine flavour and upright growth of YELLOW CHAMPAGNE.

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Our Descriptive CATALOGUE of the above, containing FULL CULTURAL DIRECTIONS, and particulars as to FREE DELIVERY, will be sent post free on application to our Offices, at OVERVEEN, near HAARLEM, HOLLAND, or to our General Agents,

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THE best MARKET KINDS of Emperor William, Louis Gauthier, Monarch, and Leader, 4s. per 100; Latest of All, Prince and Princess of Wales, 3s. per 100; Royal Sovereign, Paxton's, and Noble, 1s. per 100. All others equally cheap.

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WANTED, GERANIUM CUTTINGS.—Gibbons, Jacobi, Brighton Gem, Queen of Belgium, or any other good bedding sorts, same colours. Price per 100 or 1,000 to R. RUSSELL, Manor Nursery, Weston-super-Mare.

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SOME SORTS OF BULBS NOTED OUT PRICE LIST.

	Per 100		1,000	
Single Anemones, in fine mixture	1	2	11	0
Crocus, II. size, in fine mixture	0	8	6	3
Crocus, I. size, in fine mixture	1	4	10	2
Hyacinths, mixed, for bedding or forcing	9	8	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection	17	6	—	
Iris Kæmpferi (Japan Iris), in fine mixture	5	0	40	0
Iris Germanica (Flag Iris), in fine mixture	7	0	65	8
Iris Sibirica, in fine mixture	5	0	40	0
Iris Spanish, in the finest mixture	0	7	5	0
Lilium Candidum, single, pure white	10	0	—	
Montbretia croscosmiæflora, orange scarlet	1	6	—	
Narcissus campernel Jonquil, yellow	1	2	10	0
Narcissus, double, Incomparable, primrose	1	6	14	0
Narcissus van Sion, single, yellow trumpet	2	6	23	4
Narcissus Stella, white, yellow cup	1	4	12	6
Gladiolus Marie Lemoine, fine	2	0	19	2
Gladiolus Brenchlyensis, deep scarlet	2	6	20	0
Scilla Sibirica præcox, intense blue	1	2	10	0
Tulips, single early, in the finest mixture	1	2	10	0
Tulips, double early, in the finest mixture	1	6	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	20	0
Grape Hyacinths, blue	0	7	5	4
Anemone japonica, rose	5	0	—	
Hemerocallis (Day Lily), mixed	8	0	—	
Pyrethrum, fine double, pure white	15	0	—	
Tritoma uvaria (Red Hot Poker)	14	6	—	
Sparaxis, in fine mixture	0	8	6	0
Funkias, in fine mixture	10	0	—	
Gladiolus Colvilli, white	1	2	10	10
Hyacinthus cardicans, white	5	0	45	10
Iris pumila, mixed	4	0	—	
Lilium umbellatum, red	10	0	—	
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POLYANTHUS NARCISSUS.

DOUBLE ROMAN	1s. per doz.,	7s. per 100.
PAPER WHITE	1s. per doz.,	7s. per 100.
Do. large flowering	1s. 6d. per doz.,	10s. per 100.

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SINGLE, scarlet	6d. per doz.,	2s. per 100
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Hyacinths.—Dwarf White Roman. Per 100, **12/6** and **16/6** ; per doz., **1/9** and **2/3**.

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Princeps.—Perianth sulphur-white, trumpet yellow. Per 1,000, **30/-** ; per 100, **3/6**.

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THE GARDENERS' MAGAZINE.

SATURDAY, SEPTEMBER 10, 1898.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

ASSOCIATED PARK SUPERINTENDENTS.

THE greater appreciation on the part of the public of parks and gardens to which they can have free access, and the more enlightened views held by municipal authorities, have had the gratifying result of greatly increasing the number of open spaces in populous centres. How numerous are the parks and gardens belonging to the Government and local authorities is well shown in the list given in the *Gardening Year Book*, which is compiled and published in association with the GARDENERS' MAGAZINE, and its length can hardly fail to surprise those who have not, like ourselves, the opportunities of making observations in different parts of the United Kingdom. In the preparation of the list our chief objects were to give greater prominence to this important aspect of horticulture, and to facilitate correspondence between park and garden superintendents. To know that our objects have been attained, and that the directory has been the means of bringing superintendents in widely separated districts into close relationship with mutual advantage, is to us a source of great pleasure; for we have in no way changed in our views as to the importance of those engaged in the same pursuits taking counsel with each other. The directory has indeed surpassed our expectations, for it has not only proved useful in enabling superintendents to freely communicate with each other, but it has given rise to a desire for a still closer relationship, or, in other words, a desire for the formation of an association of park and garden superintendents. We are strongly opposed to the unnecessary multiplication of horticultural societies, but in this case the association would cover wholly new ground, and as it could not fail to possess a high degree of utility, it would have our warmest support. There has for many years past been an association of this description in America, and having regard to the support received, we may assume that it is highly appreciated by those in whose interest it was founded. The object of the association would be the dissemination of information to the members that is now difficult to obtain, and to enable the superintendents to meet together once a year at least. In America an annual congress is held, and by selecting a different centre each year the interest is maintained and a good attendance ensured. Here we have so many cities and towns with several parks that a long period would elapse before the list of important centres would be exhausted. At the annual conference there would necessarily be a meeting for the discussion of subjects of interest, visits to the parks and gardens in the districts, and various social functions, but as the cost of these would be borne by those attending the conference, a comparatively small annual subscription would suffice to meet the office expenses. How far it would be desirable to admit to membership horticulturists not engaged in park management is a matter that can be determined after it has been decided to form the society, but superintendents of cemeteries should, as a matter of course, have the right of enrolling their names on the list of members. These are matters of detail, and we would suggest that those interested should first determine whether an association of park superintendents is desirable or otherwise.

SEEDS.

WHEN we come to think of it, a seed is one of the greatest, though one of the most familiar marvels of Nature. We may purchase a packet of seed of some valuable flower, say, the auricula, and though, even with a lens, we shall find them all practically alike in appearance, yet as a result of sowing, we may get a batch of plants, the flowers of which will present the greatest diversity of form and colour, and even the leaves will probably have strong individual differences. All these differences are latent, but predetermined, not in the whole body of the seed, for that, small as it is, consists mainly of a store of nourishment, but in the embryo plant, which exists as a few microscopic cells at a definite point within the husk. In these cells, or rather in one of them, there has been a mingling of varied elements, derived not merely from two parents, but of a long ancestry. Many generations crossed and recrossed, have contributed their quota of influences to that tiny microscopic bag, and in some inscrutable fashion this mixed community has determined the eventual form and colour of flower and leaves, and also the constitution of the future plant. Each seed in a pod may vary in result if pollination has been left to insect agency, and it is not the least marvellous point in this connexion, that despite so much mixture, a *modus vivendi* is almost arrived at, though the cultivator may not approve of it when the prearranged flower appears. On the other hand he may be delighted to find that the little germinules have contrived a pleasing surprise for him in the shape of a novel and beautiful combination of which he then becomes as proud a possessor as if he had "worked the oracle" himself. There is, however, another wonderful aspect of seeds. We may take two of these vital grains, very similar in appearance, sow them side by side in the same pot and soil and give them identical treatment. Both consist merely of a husk, a store of intestive matter, and a microscopic embryo. No sooner, however, do these embryos begin to develop, than two widely different results ensue, the one becoming a deadly poison, each cell within it furnishing its quota of venom, while the other, from precisely the same materials, forms a nutritious food, and yet both shall belong to one family of plants, and their very flowers and fruits shall resemble each other. Thus the deadly nightshade breeds its belladonna, and its sisters, as the tomato and potato, it matters not which, become our table delicacies. What subtle chemistry must this be that can transform the same trifle of earthy salts and aerial gas into such opposite products as these. So much, or rather so little, for the wonders are infinite, for the inward potencies of seeds; then look at their diversity of form and fashion, their tricks for securing distribution, their varied receptacles, their range of size, from the microscopic seed of the tiny weed, to the huge double coker-nuts. Consider, then, the economical uses of seeds, our bread, beer, and very whiskey, are all dependent upon the supply of cereals, which, in some parts, are the sole food of millions. The theme, however, like Nature's store, is inexhaustible, and as space is limited, at any rate, in these columns, we must leave the rest to the imagination.

DECORATIVE ASPECT OF THE DAHLIA.

NOTWITHSTANDING the fact that the dahlia has been severely condemned at different periods of its history, on the ground of its being wanting in almost every attribute of beauty, by those unable to appreciate the charms of its shapely blooms, the flower has maintained its firm hold upon the affections of the flower-loving public, and at the present time, as so well exemplified by the two metropolitan exhibitions, enjoys a high degree of popularity. The dahlia has had its periods of depression, as well as times of jubilant progress; but throughout the hundred and odd years that have elapsed since the parent of the principal sections was introduced it has been held in the highest estimation by an important section of the community. This is all the more remarkable from the fact that the dahlia does not possess the attribute of fragrance, which is so highly appreciated in all classes of flowers, and that but little has been done by those responsible for the organisation of exhibitions to develop the decorative aspect of the several sections. The tendency of the competitive gatherings in the past has been rather to encourage a course of procedure which had the result of producing plants that certainly did not contribute to the attractions of the flower garden, and blooms useless for the adornment of the house. The majority of the committees of dahlia shows, and not a few writers, appear to have regarded the blooms of the dahlia as only suitable for the formation of long lines of colour, instead of being, as they unquestionably might be, of the highest value for enhancing the beauty of the garden and house; and we are impressed with the conviction that, with the wealth of material they now afford, strenuous efforts should be made to break from the traditions of the past. The National Dahlia Society has done something in this direction, but it has not as yet gone far enough, and although the competition in the decorative classes at the annual exhibition was, on the whole, somewhat unsatisfactory, we trust the executive will not be unduly discouraged thereby. The object in offering prizes should be to demonstrate the possibility of producing artistic effects in the garden and house, and not the encouragement of the cultivation of plants that can hardly be described otherwise than as unsightly, and the production of blooms so obese as to be unfitted for decorations. We greatly need improvements in methods of staging, more especially in the classes for show and fancy varieties, and it is especially desirable that some serious attempt should be made to break up the long lines that now characterise exhibitions of which these two sections form an important part. We are anxious to see a somewhat liberal use of vases in the staging of all the sections, and we are fully persuaded that exhibits consisting of from six to twelve vases, each containing a given number of blooms of one variety, would greatly enhance the attractions of exhibitions. Five or six blooms would suffice in the case of the show, fancy, and cactus varieties, while double that number would not be too many of the pompons and singles. As mentioned in our recent reference to the cactus varieties, the exhibitors of dahlias have, by staging blooms of several sections with a portion of the stem, effected a considerable improvement in dahlia displays, but something more artistic than these triangular arrangements is required. In commending this matter to those specially interested in these flowers we would assure them that the more tastefully the flowers are presented to public notice the greater will be the popularity enjoyed by their favourities.

Naming Fruits.—The immensely increased circulation of the GARDENERS' MAGAZINE has brought with it a proportionate increase in the number of fruits submitted for naming with the result that this part of our work has become very heavy during the autumn and winter. We therefore ask our readers to carefully observe the few conditions imposed upon those sending specimens, and this we do as much in their interest as in ours. In the first place we wish it to be distinctly understood that we are pleased to name fruits for our readers, and in return for services freely rendered without charge we would suggest that they send specimens that will admit of the identification of the varieties without special difficulty. It should be obvious that the specimens sent should be typical as to size, shape, and colour, and yet we annually receive hundreds of specimens that are either misshapen, imperfect, or in an advanced state of decay. A considerable number of the senders of fruit consider that fruits unfit for use are suitable for naming, thereby adding materially to our work of identifying them, or, in extreme cases, wasting their time and the cost of transmission through the post. What we wish to impress upon those who send apples and pears for naming is that they be of average size, with eye and stalk uninjured, and that both these fruits be sent when they are approaching maturity, as at this stage the skin will be of the colour characteristic of the variety. It is also important to place the name and address of the sender in the package, for if these are sent in a letter there is, when a dozen or so packages reach us by the same post, considerable difficulty in determining the senders of packages. We are also desirous it should be understood that although we deal as promptly as possible with specimens we cannot undertake to give the names in the issue of the same week as they are received. Therefore it is necessary senders should remember their nom de plume or initials and when they do not find the names in the current week's issue look for them in subsequent issues, instead of writing long letters, as is sometimes done, pointing out that the fruits they sent have not been named. We shall not for the present make any reduction in the number of specimens that may be sent at one time, and as we are desirous of assisting our readers to the fullest possible extent we hope they will carefully act upon the suggestions made, and thus render it unnecessary to make any change in the number.

Dr. D. Morris, C.M.G., lately assistant director of the Royal Gardens at Kew, has taken up as from the 1st inst. the position of Commissioner of Agriculture for the West Indies, to which he was appointed some time ago. He will preside over the new botanical department which has been constituted as a charge on the Imperial fund in accordance with the recommendation of the West Indian Royal Commission and the recent vote of the House of Commons. He leaves for Barbados on the 21st inst.

St. Petersburg International Horticultural Exhibition.—The Imperial Horticultural Society of Russia will celebrate its fortieth anniversary by holding an International Horticultural Exhibition at St. Petersburg in May next, and the programme has been issued. The schedule contains two hundred and ten classes, and these are arranged in seven groups, namely, new plants, with eleven classes; ornamental plants, with nineteen classes; plants for apartments, with thirteen classes; familes of plants, genera and species, to which one hundred and twenty-five classes are devoted; bouquets and floral arrangements, which have only three classes set apart for them; fruits and vegetables, with twenty-four classes, to be grown by the exhibitors; and technical objects, for which there are fifteen classes. The prizes offered in the several sections comprise objects of art, diplomas of honour, gold, silver, and bronze medals, and letters of thanks. Arrangements have been made by the Imperial Horticultural Society with the Russian railway and steamboat companies for the conveyance of objects to and from the exhibition at reduced rates. Mr. James H. Veitch has been appointed commissioner for Great Britain, and schedules and information generally may be obtained from him on application at the Royal Exotic Nursery, Chelsea.

Prospects of the Potato Crop.—Potato disease has made its appearance in the United Kingdom, but in few instances only has any material damage been done. This attack is in no way surprising, for the heavy rains that fell at intervals during August accompanied by much electrical disturbance of the atmosphere and an excessively high temperature have been favourable to the development of the fungus (*Phytophthora infestans*) by which the disease is caused. According to the reports received from our correspondents the disease has been the most destructive in Cornwall, Devon, Kent, Lincoln, and Norfolk, but in neither of these counties does the loss inflicted appear to be heavy. Other counties in which evidence of the attack of the disease has been found include Beds, Berks, Cambs, Chester, Cumberland, Essex, Gloucester, Hants, Hereford, Herts, Hunts, Lancaster, Leicester, Notts, Oxford, Somerset, Suffolk, Warwick, Westmorland, Worcester, and York. The attack has been very slight in Scotland, and the only counties from which we have received intimation of the presence of the disease are Aberdeen, Argyll, Ayr, Dumbarton, Forfar, Haddington, Lanark, Kirkcudbright, Renfew, Ross, and Sutherland. In Wales the crops in Anglesea, Brecon, Cardigan, Carnarvon, Denbigh, and Merioneth have been attacked, but without any material damage having been done. It will thus be seen that the possibilities of a general outbreak of disease exist; but at present there is no cause for grave apprehensions upon this point, as the dry weather accompanied by an easterly wind that is now being experienced over the greater part of Great Britain supply conditions unfavourable to the germination of the spores of the fungus and the consequent spread of the disease. In many districts the crop of potatos will be comparatively light in consequence of the growth being checked by the dry weather; but in the midland and northern counties of England and in Scotland, where the rainfall has been more abundant, there is promise of a heavy yield of potatos of high quality. Considering the great deficiency in the potato crop of last year it is highly gratifying to know that there is full justification for the growers anticipating this season a liberal return for their expenditure of time and money. It cannot be too generally known that potatos lifted when the skin has become set will keep satisfactorily for as long a period as will those remaining undug until the haulm has died down, and that in consequence the crop may be lifted on indications of an attack of disease. This, however, must be done carefully, and, if the weather is showery, with as little exposure of the tubers as possible, for if newly-dug tubers are allowed to lay on the surface for any length of time when the atmosphere is loaded with spores of the fungus a considerable proportion will be destroyed by the disease, as they readily germinate on the surface of the tuber and the mycelium quickly penetrates its tissues.

High Propagation of Potatos.—A reader of your magazine, Mr. Forbes, The Gardens, Regent House, Surbiton, very recently invited me to look in, writes Mr. A. Dean, and see a row of Carter's Snowball potatos he had raised from single eyes, taken from a couple of pounds of tubers (twelve potatos) received in the spring. Each eye was taken out ere it sprouted, with just a very small portion of flesh attached. There were seventy-six eyes in all. These were planted in a row of ninety feet length, near a greenhouse. The ground was dug deeply, and moderately manured, then a shallow drill was dug, and the sets planted being carefully covered up. Every one grew well, as I saw when looking along the rows. I have since heard from Mr. Forbes that my estimate of three bushels was materially exceeded by there being just two hundred and twenty pounds from the two pounds of seed, a very good result indeed. Of course, in this case there was none of that artificial propagation that characterised Mr. Forbes's practice in the famous Hooper competition.

Sobralia Cattleya, an orchid that has for long defied the persuasiveness of orchid growers, has just flowered in the Burford Lodge collection belonging to Sir Trevor Lawrence, Bart., and managed by Mr. W. H. White. One bloom appeared a few days ago, and was produced by a side growth and not at the apex of the tall reedy stems. It was a small flower, not so large as an example of S. virginalis; the colour was palest rose. So far as one can at present judge, Sobralia Cattleya is a poor plant, and has proved disappointing after so many years of patient waiting. In addition to the Burford Lodge plant there is a large specimen of this species at Kew, where it shows no inclination to flower as yet.

Approaching Marriage of Mr. James H. Veitch.—Considering how cordial are the relations existing between Messrs. James Veitch and Sons and their employés, it is in no way surprising the firm should have entertained the members of their large staff, in view of the approaching marriage of Mr. James H. Veitch, and thus have given them an opportunity of participating in the festivities associated with this interesting event. The other evening the staff was entertained at dinner at the Criterion Restaurant, and the guests, who included a few horticulturists, personal friends of members of the firm, numbered nearly one hundred. Mr. Harry J. Veitch presided, and it is hardly necessary to say that the wishes expressed by Mr. N. N. Sherwood that the forthcoming marriage would be a happy and prosperous one, were very heartily endorsed by the company. In acknowledging the toast of "Success to the firm of Veitch and Sons," Mr. J. H. Veitch gave expression to his gratitude for the gift of the silver tea and coffee service, presented to him by the gardeners of Great Britain and Ireland, and his appreciation of the handsome silver service he had received from the employés of the firm. Mr. A. Weeks, in proposing the health of the Chairman, spoke in warm terms of his personal qualities, and Mr. Veitch, in reply, said that he had every reason to be exceedingly proud of the firm's record. The best relations had always existed between the firm, the staff, and the men; and in proof of the assertion he stated that one good servant had been in their employ forty-three years; ten had served periods between thirty and forty years; and [illegible] between twenty and thirty years. Mr. Veitch submitted the health of the staff, and this was acknowledged by Messrs. Sedan, Heal, and Archer.

Artistic Grouping of Daffodils.—In the course of a lecture given before the National Amateur Gardeners' Association, Mr. W. J. Barr gave some excellent advice on planting daffodils with a view to produce an artistic effect. He suggested that in planting narcissi in the borders or naturalizing in woods, parks, &c, that straight lines and circular or symmetrical clumps should be avoided, the finest effect being always obtained by imitating Nature and massing together in irregular groups, and the arrangement of the stars in the heavens, he said, might well give us an object lesson of how to mass daffodils. It is always as well when massing to keep the various sections separate, and not mixed, the star narcissi or short cupped sections with the giant trumpeters. The simplest and most effectual method of planting in grass is to use a stout wooden dibber with a strong tread, make the hole in the ground about six or seven inches deep, fill up with a good mixture of prepared soil, consisting of old potting soil or two-thirds loam and one-third old leaf soil, and then press the bulb into this, covering the hole with some compost; this will give the bulbs a fair start, and success is sure to follow. In planting under large trees avoid places where the drip from the leaves, etc., is greatest, also where the main roots come close to the surface. Never plant when the ground is close and saturated with excessive rains, but wait until it is in a good friable condition; better far to plant later in ground which is in a proper condition than to plant earlier in ground which is in a bad condition. After freshly digging or trenching ground it should be left at least a week or ten days to subside before attempting to plant, or with the settling of the soil the bulbs will be carried below their proper depth, and failure may ensue.

Edinburgh Fruit Show.—The great autumn fruit show of the Royal Caledonian Horticultural Society to be held at Waverley Market, Edinburgh, on Wednesday and Thursday next, is expected to be better than usual; and Mr. Thomas, the Queen's gardener, has received Her Majesty's gracious permission to exhibit the Royal fruit at Edinburgh. It will be observed that the show is a week later than last year, and this is in favour of its greater success, as the season generally and its products in most places are fully a fortnight later than usual. The prizes for fruit, plants, flowers, and vegetables at this show amount to £366, the chief prizes being those contributed by the Lord Provost and Corporation of Edinburgh, for the best a most tastefully decorated table of dessert fruit ten feet long by four feet six inches wide.

The British Association.—The meeting of the British Association now being held at Bristol has the promise of proving one of the most successful of the annual gatherings of this important body, and the presidential address, in dealing fully with the question of the wheat supply and the maintenance of the fertility of the land, has rendered it more than usually interesting to those concerned with the affairs of the garden and farm. The formal inauguration of the meeting took place on Wednesday evening last at the People's Palace at eight o'clock, at which upwards of two thousand members were present. Sir John Evans having introduced Sir W. Crookes, that gentleman took the presidential chair, and proceeded to deliver his address.. In the first place the President discussed the question of food supply, pointing out that at present the United Kingdom grew only twenty-five per cent., and imported seventy-five per cent. of its annual consumption of wheat, and that two successive failures of the world's harvests, or a hostile combination of European nations might expose the population to imminent danger of starvation, while the constant increase in the number of bread-eaters and in the rate of consumption rendered it now almost impossible to secure any accumulations. After reviewing the sources of the present and possible wheat supply, and arguing that on the most favourable calculation they could not keep pace with the world's requirements beyond 1931, Sir W. Crookes said starvation might be averted through the laboratory. Wheat pre-eminently demanded as its "dominant" manure nitrogen in the form of ammonia or nitric acid. There were several available sources of fixed nitrogen, the chief of which—the treasure locked up in the sewage and drainage of towns—was at present to a great extent wasted. He estimated that fixed nitrogen to the value of £16,000,000 per annum was sent through our drains and water courses into the sea. The store of nitrogen in the atmosphere was practically unlimited, but it was fixed and rendered assimilable by plants only by cosmic processes of extreme slowness. The only available compound containing sufficient fixed nitrogen to be used on a world-wide scale as a nitrogenous manure was nitrate of soda, or Chile saltpetre. By increasing the present average wheat crop per acre from 12·7 to 20 bushels the supply would keep pace with the demand, and that could easily be done by dressing the soil with nitrate of soda. But the Chile supply, though great, was not inexhaustible, and the problem of the fixation of the unlimited supply of nitrogen contained in the atmosphere had not yet been solved. It was one of the great discoveries awaiting the ingenuity of chemists. He expressed the opinion that the solution might be found in the burning of the nitrogen in the air by means of a powerful electric current. At Niagara fixed nitrogen might in this way be produced at a cost of £5 per ton; the artificial production of nitrate was clearly within view, and by its aid the production of wheat might be brought up to thirty bushels per acre. In future generations, moreover, instead of trusting mainly to wheat, they would probably trust more and more to the exuberant foodstuffs of the tropics. Sir W. Crookes proceeded to review certain recent developments of science—low temperature researches, new gasses, wireless telegraphy, and Röntgen and allied rays, and his own investigation in spectroscopy, and in certain psychic phenomena, with regard to which he said he adhered to his already published statements, and might add much thereto.

Bush Hill Park Chrysanthemum Growers are evidently bestirring themselves on behalf of the flower in which they take special interest. Early in the year they formed a society, which has now fifty members, and the other evening they held a meeting to hear an address from Mr. W. H. Lees and bring together as many as possible of those interested in the promotion of the show to be held during the first week of November. Mr. Lees had a large audience, and in the course of his interesting address, referred to the good work done by the National Chrysanthemem Society in fostering and encouraging a more general cultivation of the chrysanthemum. He gave several useful hints which he thought might be of value to amateurs. He pointed out that it was unwise to feed plants too much, and advocated a regular and constant change in the material used for that purpose. Mr. Lees also said an excessive application of manure tended to poison the roots. Three days' consecutive use of one manure was, he considered, quite sufficient, and at the end of that time another kind should be tried. Lime water had been found very beneficial to the plants, especially at this time of the year.

The Pear Blister Mite has of late years spread so rapidly in some districts as to do considerable damage to the trees. The presence of the pest is indicated by blisters on the leaves, which were formerly attributed to some unknown fungus. It is hardly necessary to say the mites seriously diminish the vitality of the trees which they attack, and it will be readily understood that they often prevent them bearing a crop or diminish the size of the fruit. Mr. H. V. Theobald, of the Wye Agricultural College, has devoted a considerable share of attention to an [illegible] of the pest, and in the current issue of the College journal he [illegible] of his investigations. Mr. Theobald states in the course of his [illegible] the mite is taken in hand when it first appears, picking off the galled [illegible] back the trees well in winter, and burning the refuse, it may be [illegible]. But when once it obtains a strong hold, these measures are not sufficient, and then the spraying of the trees in winter with a dressing that will kill the mites in the buds, in which they hybernate, is the only effectual remedy. Three or four solutions are named as useful; but the mixture said to completely destroy the mites is prepared as follows: Boil 5 lb. of unslaked lime, 5 lb. liver of sulphur, and 5 gallons of water in an iron vessel for an hour. Dissolve in water 15 lb. of slaked lime, adding 5 lb. of common salt, and mixing these ingredients well. Then add the mixture to the lime and sulphur first mentioned, letting the whole boil for half an hour, adding 25 gallons of water with 2 lb. of soft soap dissolved in it. This mixture is sprayed through a coarse nozzle on to the trees, taking care to keep it well stirred during the process.

Changes in the Moorland Flora.—Central Europe, before man appeared within its borders, or while men were still few, little resembled the Europe which we know. Much of it was covered with woods, morasses or wastes, and inhabited by animals and plants, of which some ranged into the Arctic circle, others to the Mediterranean, Africa, and India. The worst lands of all—cold, wet, and wind-swept—had doubtless then, as now, the greatest proportion of Arctic species. But Professor Miall, F.R.S., in discussing the aspects of a Yorkshire moor, expressed the opinion that it is likely the passage from the bleak hills to the more fertile valleys and plains was not then so abrupt as at present. All was alike undrained and unenclosed; and what we know of the distribution of life in Pleistocene Europe shows us that a large proportion of our European plants are not restricted by Nature within narrow limits of latitude or climate. Species which are now isolated, at least in Central Europe, occupying moors or other special tracts, and surrounded by a population with which they have little in common, were formerly continuous over vast areas. In the early days of man in Europe, many plants which are now almost exclusively Arctic may well have ranged over nearly the whole of Europe. As men gradually rooted themselves in what are now the most populous countries of the world, the flora underwent sweeping changes. The forests were cleared, and trees of imported species planted here and there. The land was drained and fenced and tilled. During the long attack of man upon wild Nature, many plants are known to have perished altogether. Others have probably disappeared without notice. Useful plants have been introduced from ancient centres of civilisation, and common farm-weeds have managed to come in along with them. Many species of both kinds are southern, many eastern, none are Arctic. In our day the cultivated lands of Europe are largely occupied by southern or eastern forms, and the wastes appear by contrast with the imported population more Arctic than they really are. Even the wastes are shrinking visibly. The fens are nearly gone, and we shall soon have only a few scattered moors left to show what sort of vegetation covered a great part of Europe in the days of choked rivers and unfenced land. The moors themselves cannot resist the determined attack of civilised man, and thousands of acres which used to grow heather are now pastures or meadows.

Lily of the Valley Culture in Germany.—As the result of the ever increasing popularity of the flowers of the lily of the valley, the production of roots in Germany for forcing or retarding, according to the requirements of the cultivator, has undergone material extension of late years. The city of Hamburg has now become the most important centre of the lily of the valley culture in Germany, as for some purposes the roots are preferred to those produced in the environs of Berlin. The production of these roots appears to have been commenced in the vicinity of Berlin and Hamburg in the year 1856, and the industry proved so successful that in four years the annual output of roots at Hamburg was sixty thousand, and at Berlin, sixty-two thousand. In 1870 the lily of the valley had about one hundred and twenty acres devoted to it in the neighbourhood of Hamburg, and about one hundred acres near Berlin. At the present time it is estimated by Mr. W. Rund, of Wansbeck, near Hamburg, that the annual production of roots near that city amounts to between fifty and sixty millions annually, of an average value of twenty-four shillings per thousand.

Messrs. Wills and Segar's Plant Group.—The surpassingly beautiful group of flowering and ornamental leaved plants exhibited by Messrs. Wills and Segar, of Onslow Crescent, South Kensington, at the recent flower show at Brighton, not only received from the visitors much attention, but obtained for the firm the exceptional honour of a gold medal, which was awarded by the committee. This was the only medal of its class awarded on this occasion, and once only has a gold medal been given by the society since its foundation.

German Flower Industry.—The importations of cut flowers into Germany from Italy and the south of France have of late years assumed such large proportions that the German growers have become apprehensive as to their effect upon their trade. They accordingly asked the Government to impose a tax upon all cut flowers imported from abroad. But the interests of the growers and florists are not exactly the same, for while the former are anxious to obtain the highest possible prices for their flowers the latter are desirous of obtaining their supplies at a low rate. Consequently the floral decorators in the west of Germany had a meeting at Mayence a few days since, and decided by a large majority to protest against the imposition of a duty. It appears that in 1897 Germany imported from France five hundred and thirty-four tons of flowers of the value of £80,000, and from Italy the imports of flowers amounted to one thousand and two tons, of the value of £60,000.

Horticultural Excursion.—About fifty members of the Isle of Wight Horticultural Association will visit the Crawley district to-day (Saturday). The party will arrive at Three Bridges at fifty minutes past ten a.m., and proceed to Worth Park, the residence of Mrs. Montefiore, and after inspecting the gardens the members will be entertained at luncheon by Mrs. Montefiore. From Worth Park the party will drive to the Lowfield Nurseries, and after devoting two or three hours to an inspection of the many objects of interest in the establishment, Messrs. Cheal and Sons will entertain the party at tea. This will complete the programme, and the party will return from Crawley at six o'clock.

NEW PLANTS AND FLOWERS.

DAHLIAS.

Snowflake, a rather large flowered pompon, pure white, borne on stiff stems and of good form, F.C.C., N.D.S., September 2; F.C.C., N.C.S., September 6, Mr. F. W. Seale, Sevenoaks.

Claribel, a curious fancy pompon with creamy-white ground, shaded and edged with dark rose, F.C.C., N.D.S., September 2, Mr. C. Turner, Slough.

The Clown, a large flowered cactus form in the way of Arachne, having broad florets, soft scarlet, tipped white, F.C.C., N.D.S., September 2; F.C.C., N.C.S., September 6, Messrs. Keynes, Williams, and Co.

Countess of Londsdale, deep and rich salmon, suffused with rose; a good cactus form, F.C.C., N.D.S., September 2; F.C.C., N.C.S., September 6, Messrs. Keynes, Williams, and Co.

Antelope, one of the Fantasy cactus class with incurving tips to the florets; the colour is soft scarlet, tinged with rose, F.C.C., N.D.S., September 2, Messrs. Keynes, Williams, and Co.

Lucius is a large and handsome cactus form with clear and soft orange-coloured blooms, F.C.C., N.D.S., September 2; F.C.C., N.C.S., September 6, Messrs J. Burrell and Co., Cambridge.

Magnificent is a cactus variety with pale orange buff flowers suffused with rose; F.C.C., N.D.S., September 2; F.C.C., N.C.S., September 6, Mr. J. Stredwick.

Mrs. Holford is a very small flowered cactus variety, soft scarlet, shading to salmon rose at the tips of back florets; this has been designated a pompon-cactus, and will be useful for many purposes, F.C.C., N.D.S., September 2, Messrs. J. Cheal and Sons, Crawley.

Leslie Seale is a single variety with crimson centre and with the segments tipped with rosy lilac, F.C.C., N.D.S., September 2, Mr. F. V. Seale.

Eric is a very dwarf growing single dahlia with flowers of a curious old gold shade, tipped with a rosy suffusion and having a basal tinge of crimson, F.C.C., N.D.S., September 2, Mr. T. W. Girdlestone.

Daniel Johnson is a fine show variety with rich fawn-coloured flowers, the rosy reverse of the florets showing through; a quite new colour, F.C.C., N.D.S., September 2, Mr. G. Humphries.

Watchman is a bright fancy form with a yellow ground, heavily flaked and striped with blood red, F.C.C., N.D.S., September 2, Messrs. Keynes, Williams, and Co.

Tommy is a showy fancy single dahlia, golden, heavily flaked, and splashed and spotted with vivid scarlet, F.C.C., N.C.S., September 6, Mr. F. W. Girdlestone.

Royal Purple, a beautitiful cactus dahlia, of a rich and dark crimson purple shade, good form, F.C.C., N.C.S., September 6, Mr. G. Humphries, Chippenham.

Distinction, a deep rosy-purple pompon variety of good shape, F.C.C., N.C.S., September 6, Mr. F. W. Seale, Sevenoaks.

Demon, a bright crimson pompon variety; a distinct self, F.C.C., N.C.S., September 6, Mr. F. W. Seale.

Vicountess Sherbrooke, a large cactus variety; rich rosy orange, F.C.C., N.C.S., September 6, Messrs. Keynes, Williams, and Co., Salisbury.

The Duke, a neat pompon dahlia, deep and rich crimson, F.C.C., N.C.S., September 6, Messrs. Keynes, Williams, and Co.

Madeleine, a fancy pompon, yellow ground, with deep red-rose margins to the florets, F.C.C., N.C.S., September 6, Mr. C. Turner.

Columbine, a single variety with orange-yellow centre and rosy-orange apices. A.M., R.H.S., September 6; F.C.C., N.C.S., September 6. Mr. T. W. Girdlestone, Berkhamsted.

Puck, a bright and deep orange single variety, with crimson bases to the segments. A.M., R.H.S., September 6. Mr. T. W. Girdlestone.

Lorelie, a charming cactus dahlia with beautiful soft and yet bright rose outer segments, and with very pale and almost white central florets. A.M., R.H.S., September 6. Messrs. J. Cheal and Sons, Crawley.

Louisette, a pretty fancy single dahlia with rich rosy-crimson borders to the segments, almost surrounding the central rosy-blush area. F.C.C., N.C.S., September 6. Mr. T. W. Girdlestone.

Lady Rogers, a useful pompon variety, rather large but neat, and pure white. A.M., R.H.S., September 6. Mr. Leggett, gardener to Sir R. Hargreave Rogers, Bexley.

Mrs. Finlay Campbell, a very handsome orange-scarlet cactus variety of fine form and very neat. A.M., R.H.S., September 6. Messrs. J. Cheal and Sons, Crawley.

PERISTERIA ELATA.

A well-known orchid, and curiously enough, one that is seldom seen in perfection in what are known as orchid collections. It was introduced from Central America, and is a noble plant, having leaves three to four feet long and six or eight inches across at their widest part. The sturdy scapes and erect raceme reach a height of about five feet, and each carries from one to three dozen flowers that continue to expand over a period of two or three months. The blooms are very fleshy, rounded, all the sepals and petals being concave; the fleshy lip and broadly winged column provide a very fair representation of a dove, and this has given the plant the popular name of the Dove orchids. The flowers are waxy white, and powerfully scented, as in the case of an acineta. F.C.C., R.H.S., September 6, and silver Flora medal. Mr. Owen Thomas, gardener to Her Majesty the Queen, Windsor.

CATTLEYA ELLA.

A showy orchid, obtained by crossing C. Warscewiczi with C. bicolor. The growths are erect, and surmounted by a pair of thick recurving leaves. The flower is four and a quarter inches broad, and about the same length. The sepals are three quarters of an inch broad, and of a soft rosy hue; petals broader and waved, deeper and brighter rose, tinged with purple. Lip large, side lobes almost suppressed, and of a light purple shade; central lobe with a narrow neck and broad bi-lobed apex; colour rich royal purple, with a narrow rose purple margin. A.M., R.H.S., September 6. Messrs. J. Veitch and Sons, Chelsea.

DRACÆNA DUCHESS OF YORK.

An elegant narrow-leaved dracæna, admirably suited for use as a table plant. The lower leaves are deep bronzy green, and the younger ones pale green, with creamy-white margins and shadings, and also with rosy lines. A.M., R.H.S., September 6. Messrs. J. Veitch and Sons, Chelsea.

ACER NEGUNDO ELEGANS.

A splendid and handsome tree, with beautiful and elegant leafage, that in its younger state is coloured with a decidedly yellowish green in the shape of an irregular broad margin around a bright green centre. In the older leaves the yellow fades out and leaves a creamy-white hue. The growth is strong, and the stems are glaucous green. F.C.C., R.H.S, September 6. Messrs. Paul and Son, Cheshunt.

LOBELIA RIVIORE.

A handsome form of the cardinalis section, very strong in growth, and producing an abundance of very pale pink or blush coloured flowers that are of large size. A.M., R.H.S., September 6. Mr. Baines, gardener to Sir Trevor Lawrence, Bart., Dorking.

DENDROBIUM SANGUINEUM.

A curious species with slender growth that is prolonged from the apex of a slender and curious pseudo-bulb. The leaves are about three inches long, almost linear. The flowers are borne sparingly at the apex of growth, and are an inch and a-half across; the sepals and petals equal and spreading; deep Venetian red with pale creamy bases. Lip very small, front lobe slender, pointed, and deep red; side lobes small, pointed, and greenish. A.M., R.H.S., September 6. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart.

MELON BRITISH QUEEN.

A splendid melon of rather large size; very pale buff skin, with delicate creamy netting. It is a white fleshed variety of delicious flavour, and the result of crossing Hero of Lockinge with Royal Ascot. F.C.C., R.H.S., September 6. Mr. Owen Thomas, gardener to her Majesty the Queen, Frogmore, Windsor.

CHRYSANTHEMUMS.

May Mansa is a new early flowered seedling Japanese variety of good habit, flowering early in September on the natural break. Flowers about six inches across, creamy-white, turning to pure white. F.C.C., N.C.S., September 6th, Mr. H. J. Jones, Ryecroft Nursery, Lewisham.

Louis Lemaire is a sport from M. Gustave Grunerwald, and as free and distinct as that form. The flowers are of a curious rosy-orange shade, though in some flowers there is more yellow than in others, very free and useful. F.C.C., N.C.S, September 6th, Mr. W. Wells, Earlswood Nurseries, Redhill.

TOMATO THE CHAMPION.

A very handsome, smooth, and rounded tomato; rich red in colour, very solid, and a free fruiter. F.C.C., N.C.S., September 6th. Mr. H. J. Jones, Ryecroft Nursery, Lewisham.

WENTWORTH HOUSE.

THIS beautiful house is the seat of the Right Honourable Earl Fitzwilliam, K.G. It is situated some eight miles eastwards of Sheffield, and the gardens being about two miles distant from the Midland Railway Station of Wentworth, and Tankersley Station. This two miles is a most pleasant walk on a fine day, especially when the hay harvest is being gathered. The small village of Wentworth is a very clean one, considering there are several coal pits just round about it, and in working order.

On entering the park through one of the lodge gates, and proceeding by a winding drive, the entrance to the gardens is reached. Mr. Hughes ably presides over this large establishment, which has an extensive glass department, chiefly devoted to growing plants for home decoration. In the stoves there are some finely-coloured crotons and dracænas, with stephanotis trained under the roof, flowering most profusely. Fragrant flowers are quite a speciality, pancratiums and Eucharis amazonica being in splendid health, the former pushing up grand spikes of bloom at the time of my visit. Leaving the warmer houses for the conservatory, this structure is found to be quite gay with such things as cannas, hydrangeas, pelargoniums, and petunias, the latter being represented by a very striking form named Mrs. Sanders, bearing flowers of a bright rose colour, very free, and exquisitely scented. Other cool houses are filled with the popular Malmaison carnations, numbering some six or seven hundred plants, in six and eight inch pots, carrying immense blooms, the foliage quite free from that dreaded pest, the rust. Mr. Hughes uses a potting compost of turfy loam, leaf soil, and coarse sand, and keeps the plants somewhat dry during the winter months. There are several new varieties here, and one worthy of special mention is Lord Rosebery, dark rose-coloured petals, smooth, the flower being beautifully cupped and very sweet scented. The vines and peach trees carried good crops of fruit, especially the latter, which in one lean-to made a perfect show. Nectarines and figs were also doing very well. The second crop of melons, just ripening, bore large, handsomely-netted fruit, the most conspicuous variety among them being a seedling raised by Mr. Hughes many years ago.

The pleasure grounds at Wentworth are of gigantic proportions. The flower garden is laid out in the Italian style, bedded with geraniums and violas, altogether looking exceedingly gay. The carnation garden contains some three thousand plants, planted out in square beds. The greater portion of them are seedlings raised at Wentworth, and some are extremely strong and healthy. The palm stove contains some gigantic specimens of Seaforthia elegans, Kentia Balmoreana, and Areca lutescens, all in splendid health; these are used for the decoration of the State apartments; close by is a camellia house, where the specimens are planted out, most of them from thirty to forty feet [?] high and several yards through. In the same house there is a fine specimen of Dicksonia antarctica planted out, with a stem about fifteen feet high, the fronds covering a large amount of space. This house leads on to the terrace, which is a-quarter of a mile long, overlooking the splendid park, which is well timbered with oak, ash, and chestnuts. From the terrace the house is soon reached, and it is a most imposing structure, with a frontage of some six hundred yards. Coming from the house into a long avenue one soon reaches the Botanical Garden, where the plants are all arranged in their proper order, with a neatly written label to each one. This interesting garden has been renovated since Mr. Hughes took charge of the gardens some five or six years ago. The kitchen garden is on a very large scale, and every quarter is cropped to the best advantage; peas, runner and dwarf beans, and the Brassica family, all are in the most flourishing condition. Hardy fruits will be a fair crop. The aphis has been very troublesome on the wall trees. In one of the wall-fruit tree cases was a charming sweet pea, pure white, only two feet in height, and covered with large blooms, raised at Wentworth, and well worthy of a name.

T. W. H.

Leaves From A Rambler's Note-Book.

"THE TROUBLES OF A CONSERVATORY."

There are times when a man feels proud that he is a gardener, not altogether because it is an honourable calling, but rather for the reason that he is in a position to be of assistance to his fellow-men. Somehow you feel a sense of your own importance when an inexperienced acquaintance suddenly acquires a taste for the gentle art in an amateur sort of a way, and comes to you for advice and assistance. You give it him, of course, and, try how you will, it is almost against human nature to keep back the air of patronage that will assert itself. He is an exceptional type of human nature who at such moments does not experience a feeling of superiority in the possession of knowledge above that of those around him. If by any favourable stroke of fortune the seeker of information has more than a spasmodic taste for gardening, and turns the knowledge gained to good account, modest indeed is the man who in his heart of hearts does not take a share of the credit unto himself for the information given. Unfortunately, however, it is not always a matter of satisfaction to the receiver and honour to the donor of information relative to gardening matters, the success of which must be ruled to a great extent by circumstances and conditions. The advice may be sound, but the conditions unfavourable, and the inexperienced amateur who has placed implicit faith in his gardening friend, and is satisfied that he has followed his instructions to the letter, loses faith in his teacher, becomes disgusted with his own efforts, and eventually gives up the whole thing as a failure. Instances of this kind are most numerous in cases where men are unfortunate enough to become possessors of an ornamental conservatory.

I say unfortunate, and qualify the expression by adding that to the amateur gardener a conservatory attached to his dwelling is either a source of pleasure to him, or else a disappointment, and eventually a nuisance—very often the latter. A little glasshouse adornment attached to a suburban residence carries with it a charm and attraction to would-be tenants, and has been the means of letting many a residence. Much as your town dweller prizes the bit of garden that does much to induce him to take the house, he has even a greater weakness for the little conservatory, which he sees in his mind's eye aglow with bright flowers. Alas for human hopes! The inexperienced individual fancies that, once in possession of the greenhouse, all is plain sailing, and never for a moment considers whether the structure is suitable for the welfare of plants, or otherwise. That is either a matter he knows nothing about, or else it is only a detail, and subsequent experience has to teach its lesson. Everyone knows the amount of pleasure that is derived by many from the little conservatory, but it is only so in cases where the architect knew something of horticulture, or else, by an extraordinary stroke of good fortune, the conservatory was fixed in a favourable position to catch the light and sunshine without anyone being in the least degree aware of it. The idea of the architect is, of course, to make the outline of his building as attractive as possible. The conservatory is, no doubt, an acquisition towards adornment, but it never for a moment occurs to the man of lines and angles that the most important use of the structure is to grow plants in, and, therefore, this should be the first consideration. Elegance in outline, with a display of ornamental ironwork, is all very well, so far as it goes, and does credit to the builder; but if householders are to have conservatories, let them have such structures that are suitable for plants.

Perhaps in no hobby have so many petty worries and difficulties to be overcome as in gardening. They may be, and are, mastered by many, but others faint by the way, and become discouraged by force of adverse circumstances. There is something sublimely innocent about the pride in which the townsman views the smart conservatory attached to his modern suburban residence. It does a great deal to hide the defects of the speculative builder perhaps, and whether it has a position under the shade of the surrounding walls, where sunshine is unknown, or whether placed in the glare of every ray that presents itself, matters little at the outset. The new occupier is proud of it, and lays his plans as to what he shall grow in it; his wife is perhaps prouder still, as a residence with a conservatory attached is distinctly genteel, and no doubt the proudest members of the family are his daughters, who consider that the combination of glass and timber opening out from the drawing-room will materially elevate their social position, and besides, it will be so nice to be always able to have your own plants for the table, and go out and cut your own flowers for the rooms. If the building is of the right sort, and the advice of the gardening friend is sound, well and good, and like the good people in the story books, all are happy ever after. But if, on the other hand, the conservatory is of the common villa residence order, there will be trouble in store for that family. The florist supplies sturdy plants, which in a few weeks are leafless and spindling, the professional adviser is called in, but can do nothing, as he cannot make light and sunshine. In winter there is trouble with the heating apparatus, sometimes the structure and half the dwelling-house is full of smoke, and the mercury in the thermometer rises to 80 degrees, and then falls below freezing point in the most erratic manner. Conservatory bills become appalling, but there is an end to human patience, and eventually the very mention of that glass house becomes a thorn in the side of the once enthusiastic householder.

I am going a step further; from the conservatory of the suburban residence to that attached to the more pretentious mansion where the gardens are in charge of a staff of experienced hands, and yet where the conservatory is the offending thorn. I do not know whether one is justified in laying the whole blame at the door of the architect, but it is nevertheless a fact that many conservatories attached to mansions are entirely unsuitable for the welfare of plants, and the gardener's greatest difficulty is that of keeping the conspicuous structure gay with flowers, and his greatest trouble is that every plant he puts there in robust health is conducted from thence to the rubbish heap, or else has to undergo a period of hospital treatment before it is again presentable. Through experience I know something of conservatory troubles, gained in the gardens of a princely establishment where the mansion is supposed to be a masterpiece of architectural skill. The same may be said of the conservatory, looking at it entirely from an architect's point of view, but seen through the orbs of a gardener, knowing the requirements of plant life, it sinks into an ocean of adverse criticism. The conservatory referred to is a handsome structure, with a framework of iron and ridges highly ornamented. Its cost must have been enormous, but I fancy the first consideration at the time of building was to form a connecting link between the rooms on either side of the mansion. This resulted in its being closed in, and to make it effective plants had to be staged in a sloping manner towards the tiled pathway running through the centre. Being crowded together and a long way from the glass, all chances of sturdy growth were done away with, and plants after adorning the conservatory for a short time presented a pitiable appearance. The quantity taken regularly for the purpose was a continual strain on the rest of the glass department, and results were altogether unsatisfactory.

Many gardeners suffer from conservatory troubles where the conditions are similar to the instance quoted. The place is a source of worry, and how to keep it bright and attractive is an ever-perplexing question. It is heartrending to a good gardener to see plants that have taken time and care come back from the conservatory in a sickly, unhealthy condition, and the question that naturally occurs to him is, What shall he grow for the purpose? The answer is nearly as obvious, viz., something that may be dispensed with after flowering. At the fall of the year there comes the indispensable chrysanthemum, that fills so many offices at a time when flowers are scarce. In the spring the gardener has to rely principally on the inmates of the forcing-houses, and for the summer there is a host of useful flowering plants warranted to make bright the dullest conservatory ever erected. The other day I was in a conservatory of the non-growing order, and was struck with the happy combination of plants that filled it. On every available bit of ironwork on the roof, and so trained as to obscure the light as little as possible, rambled Cobæa scandens, and conspicuous among the plants staged on either side of the walk were Humea elegans, Campanula pyramidalis (blue and white), Lilium auratum, tall fuchsias, and Valotta purpurea. The humea is a fine plant for conservatory decoration in the summer and autumn, and, when well grown (it is rather a difficult plant to succeed with), its drooping, feathery plumes lend themselves admirably to effective arrangement, and they form a pleasing contrast to the plants associated with it. It is questionable whether the spiked campanula is grown as a pot plant as much as its qualifications merit. No plant is cultivated more easily or flowers more freely, and I know of no more telling specimen for conservatory adornment than blue and white campanulas each throwing up three or four tall spikes, and clothed with bell-shaped flowers. The varieties grown by Mr. Wythes at Syon House are a decided improvement on the older forms. Little need be said of the liliums and Scarborough lilies, and the specimen fuchsias require no great skill in cultivation. "My aim is," said the gardener, "to keep up a succession of plants that practically finish their career when they have done flowering. This conservatory is warranted to spoil anything of a tender character, but there are plants sufficient to keep it bright that are either done with or go to rest after flowering." Surely this is the right course to pursue where the house-attached conservatory is concerned.

H.

Horticulture in the Isle of Wight.

It may be interesting to many of your readers to know that amateur and cottage gardening is developing with great rapidity in the Garden Isle. It is undoubtedly conclusively proved, by the keen and friendly rivalry which is conspicuous at the Island village shows, that to develop cottage gardening the more local these exhibitions the better; for the inhabitants take a greater pride in defeating one another than in defeating an exhibitor they do not know, and who comes from a village or town ten or twenty miles away. Large exhibitions like Shrewsbury, York, &c., may meet the wants of professional gardeners, and form a standard of excellence for all gardeners to aim at, and therefore should be supported liberally. But for the improvement of rural districts, the larger the number of village shows the greater the stimulus to the people. In the Garden Isle, with a population of about eighty thousand, in round figures, there are twenty flower shows, which are spread over all parts of the Island. The average number of classes is about sixty-five, the average number of entries three hundred, and the average number of exhibitors about fifty, which means there are a thousand people directly interested in the Island shows, and the majority of these are amateurs and cottagers.

The Whippingham Cottage Garden Society held its first exhibition on August 9. The entries were numerous, and the exhibits of first-rate quality. The show was held in the Rectory grounds, and was favoured by the presence of the Royal Lady of the Manor—Her Majesty the Queen—also Princess Henry of Battenberg (Governor of the Island), Princess Victoria of Schleswig-Holstein, and the Duke and Duchess of Connaught. The show was a great success, and augurs well for the development of gardening in the Royal parish. With great success school gardening is taught at Whippingham schools under the head mistress (Miss Thomas). The principal prize winners were Messrs. H. Flux, C. Cook, W. Snow, G. Snow, F. Russell, H. Kellaway, A. Flux, C. Street, H. Cooper, G. Butcher, F. Miles, J. E. Harvey, J. Wheeler, H. Hunt, J. Roach, and L. Smith; the principal lady exhibitors were Miss Thomas, Mrs. Wooldridge, Miss Stevens, Miss White, and Miss Roach. The judges were Messrs. C. Orchard, F.R.H.S., and W. Hills, of East Cowes Castle.

S. H.

CHRYSANTHEMUMS.

PECULIARITIES OF CERTAIN VARIETIES.

THERE is, to most of us, a certain sense of consolation in the knowledge that the various weaknesses and peculiarities of many chrysanthemums are common to almost all cultivators. We are apt sometimes to fancy that we have found a special trouble amongst our plants that will be pretty sure to upset our chances of success, but on finding that other people experience precisely the same difficulties, our hopes revive and new interest is awakened in overcoming, as far as possible, whatever may be amiss.

One of the most perplexing weaknesses is that to which Madame Carnot and its sports are subject, viz., that of losing some of their leaves immediately below the "break," at the period when new shoots are just getting away. One might advance several theories as to the probable cause, all of which would appear reasonable enough, but as far as our observation takes us, we are not able to offer with confidence any one of these as the sole agent of the evil. Apparently the trouble is a constitutional peculiarity arising from some cause or weakness inherent in the plants, and over which it seems impossible to exercise control. Generally speaking, the after consequences are not so disastrous as might be expected, many leaves which become pale in colour regain their normal green in a marked degree where the plants are well cared for. It is remarkable that when the bud which is "taken" about the third week in August appears no loss of leaves occurs as in the previous cases of the break buds forming. This may suggest that the young shoots which are selected to grow on the early breaks absorb such a large quantity of sap that the leaves immediately below suffer in consequence, and that the reason no loss occurs when the flower bud is taken, is because this bud does not make such a demand on the energies of the plant as does the young growth.

The only other variety which is at all affected in this way is Madame Ad Chatin; this sort occasionally loses one or two leaves below the break. However, the fact remains, that highly manured plants suffer as well as those grown moderately, and as I have before remarked, we all are liable to the same experience, so the worry is less, and the chances of overcoming the weakness so much the greater.

Australian Gold is very subject to the "scorching" of the points of its shoots during July. I have seen plants in several places during the season injured in this way, and sometimes so badly that the plant has been rendered useless, but usually only the edges of the young leaves suffer, and the flower bud comes on in due course. The reason is most probably found in having the shoots moistened during hot sunshine. A. H. Wood and Eva Knowles sometimes lose their foliage in a curious manner, and never recover a healthy growth. We have had plants of these apparently in perfect health suddenly commence losing leaves, the extremities shrivelling and dying back. The first named loses its leaves after the three shoots have been selected, commencing above the break, but with Eva Knowles the loss commences on the main stem and continues upwards as growth proceeds.

The pale colour of the foliage of plants of Dorothy Shea need cause no alarm; it never has very dark leaves, though if very pale it shows a lack of feeding; the plant is a free rooter, and will require ample support. Many growers have a difficulty in growing E. Molyneux satisfactorily, in consequence of its leaves curling and refusing to develop. This generally arises from mistaken attentions in the early part of the summer, and when once plants assume this condition it is impossible to induce them to make a satisfactory growth. The variety is impatient of much water until it has become well rooted, nor should manure be very liberally employed in the soil. Any check imposed in this way contributes to the collapse of the plant, and once a faulty root action is engendered the case is hopeless. Charles Shrimpton and one or two others are sometimes affected in a similar manner, but if grown carefully they are very robust.

A weakness which will be observed as autumn advances in Simplicity, Ella Curtis, Chenon de Lêche, and perhaps one or two more, is the decaying of foliage here and there, usually in large spots near the extremity of the leaf. This arises through too much moisture in the atmosphere, and is aggravated by a too moist condition of the roots. Blindness in some varieties is caused through over strong growing. Jeanne d'Arc, Brookleigh Gem, J. Agate. and Mdlle. Therese Rey often fail to produce proper flower buds when grown in large pots and freely manured. The remedy is obvious, though with the tendency inherent we cannot escape entirely and ensure every shoot producing its proper flower. President Borel usually becomes pale in leaf at this time of the year; it is a free-rooting variety, but is easily over-watered. Thomas Wilkins also is often ruined in the same way; it is an excellent grower, but once give it a check at the root and the plant seldom recovers.

I may caution growers once more against over manuring their plants. To keep feeding moderately and in accordance with the condition of the plants is all very well, but beware of over dosing, or damping will be one of the inevitable results. Colonel Smith, William Seward, Mrs. F. A. Bevan, G. C. Schwabe, and Mdlle. Therese Rey are very susceptible to this, and require very moderate supplies of manure at the present time.

The various forms of Queen of England have a peculiar habit of forming an abnormal cluster of sucker growths round the base of the stem. It is not always wise to remove this, as in doing so many roots are likely to be broken. If, however, the growths can be removed without any serious damage to the roots, by all means break them out, as they certainly impose a slight check on top growth, as do all the basal shoots.

Trent Park Gardens.

W. H. LEES.

SETTING AND COLOURING OF MUSCAT OF ALEXANDRIA GRAPE.

THE Muscat of Alexandria grape is, without doubt, the best white variety in cultivation, and yet, in spite of its being so, we very rarely indeed see what might be honestly termed a really fine crop, comparing it with other varieties. In truth, what is looked upon as a good crop of this variety would, in the case of others, be considered a very meagre one. Good crops, however, of this muscat have been grown, and they prove that such a thing is possible; therefore, no grower should feel satisfied until he has triumphed in producing a yield equal in every respect to those of his Black Hamburgh, Gros Colman, and Alicante. Strong healthy shoots, with dark-green foliage of good substance, are sure indications that the roots of the vine are in the right soil, and that the treatment, so far, is correct. It is when the flowers open and fail to set satisfactorily that the first intimation of a something wrong is apparent. A high temperature and dry atmosphere seem to have no effect in averting the misfortune. If the vines happen to be vigorous, large bunches—from fifteen to eighteen inches long—will only set a few berries. The worst sets, too, will be found where the bunches are most exposed to the sun.

Had gardeners been familiar with structural botany years ago, and brought the knowledge it imparts to bear on the cultivation of this grape, they might have been able earlier to understand the bad setting peculiarity of the vine. A knowledge of the cause would have enabled them to direct attention in the most likely channel to find a remedy. If we examine the flowers of this muscat grape minutely every day from the time they open, it will be observed that immediately the anthers part company they are ready to drop, and a very little disturbance of the canes will effect their release. It will also be noticed that, although there is any amount of pollen, yet only a very limited number of the grains attach to the stigma and grow. Being conversant with these facts should induce us to avoid shaking the canes roughly in an attempt to distribute the pollen. It will also be observed that many of the stigmas are coated with the grains, and still a set is not effected. Now, this is where botany comes to our aid, and points out that the stigmas are not ripe, and that the flowers are protandrous, *i.e.*, the anthers are ripe before the stigmas. Having made this discovery some years ago, I employed foreign pollen for the purpose of fertilizing the Muscat, and with every success, but as my supply was limited, I determined to try and effect the same results by other easier and simpler means. Some might say, why not run the hand over the bunches of other varieties rich in pollen and throw over the Muscats? To this remark I would answer that the method is too crude a one to be recommended, for even supposing it possible to transfer the pollen in this manner, any grains which may have become attached are likely to be knocked off the next time the hand passes over the bunch. So far as the supplying of foreign pollen is concerned, the better plan will be found in cutting off the superfluous bunches of Alicantes, carrying them carefully, and then shaking them over the Muscats. It is advisable in the first instance, however, to reduce the Muscat bunches to one to a lateral, or even to what would be required to form a crop. The easier and simpler method of attaining good sets is by shading. Some years ago I had two bunches of about equal size growing on the same vine, and on laterals of apparently the same strength. One of these bunches I shaded with tissue paper, and well exposed the other to the sun. The shaded one set like a Black Hamburgh, whereas the one exposed only set about a dozen berries. Since then I have continued to coat the outside of the glass with thin lime wash just before the vines come into flower, and have never had the least difficulty in securing sets equal to those of any free-setting variety. Besides putting on the shading, I soak the vine border at the same time with water containing a small percentage of nitrate of soda, and at a temperature of 90 degrees. The lime wash is gradually removed by rains, so that by the time the colouring period is reached it is practically all gone.

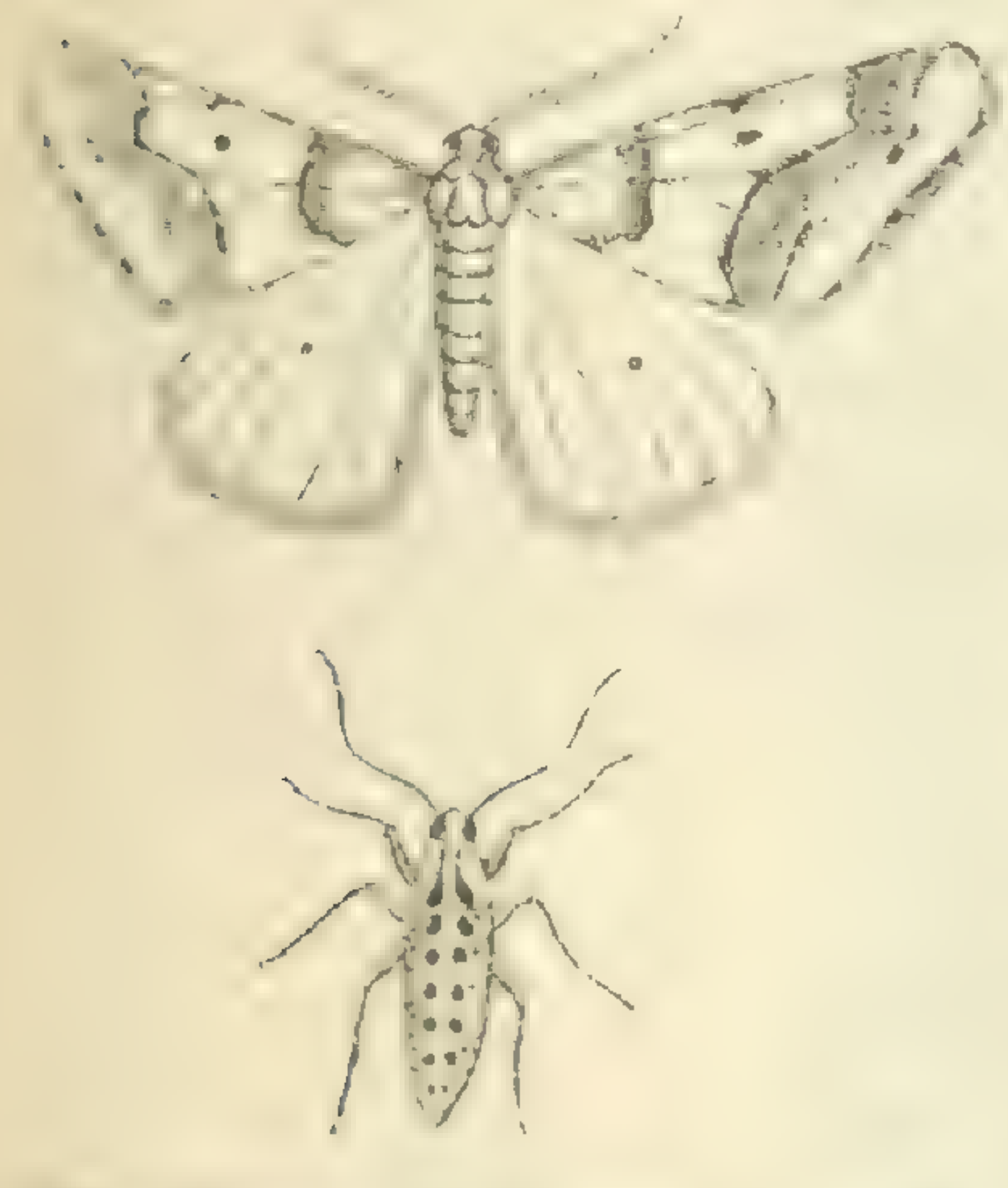
The next difficulty to be met with in connection with the growth of this grape is in colouring it. During the last sixteen years I have tried many things recommended, but one and all with the same indifferent success. In warm, dry weather some berries, occasionally even a bunch, would finish well, but, generally, they retained their greenish hue. In practice abundance of air is advised after the fruit shows signs of colouring, but remembering the exceptionally fine finished muscats where I once lived, and the conditions under which they grew, induced me to alter my course of treatment during the colouring period. In order to bring it into harmony with the one which obtained when the Muscats coloured well, I had to close the ventilators at the usual time in the afternoon, and otherwise treat them as if they were simply swelling their fruits. They were supplied with warm water at their roots, the same as when they commenced flowering. Under this treatment every berry in the house took on a beautiful amber colour, and this, too, in much less time than that usually given to trying to colour them. The success which attended my efforts in finishing Muscat of Alexandria grapes in this manner induced me to continue the practice, and, after three years' unvaried results I would now strongly recommend its adoption to those readers of the MAGAZINE who are interested in the successful growth and finish of this grape.

Of course, such treatment—the shutting-up process, I mean—as above recommended for Muscats would be detrimental to the finishing of black varieties, therefore, White Muscats associated with other white varieties only should be treated in the manner described. In the case of houses containing both black and white grapes, where the white varieties have all been kept to one end and the black to the other, the ventilators might be shut for the whites and remain open for the blacks. A little ingenuity in matters of this kind often contributes largely to the success which follows in the walk of intelligent enterprise.

J. RIDDELL.

ALLIES OF THE WINTER MOTH.

The caterpillars of several other moths, besides those of the Winter Moth, cause harm to apple trees in the spring, when the leaves and blossoms are forming. In some seasons, when there is a bad attack, as many as four distinct species of caterpillars have been found devouring the foliage and bloom, in company with those of Cheimatobia brumata. These last are considerably smaller than the other species found with them, and differ in colour from them, except perhaps in the case of the caterpillars of Anisopteryx æscularia, though the green colour of these is more vivid than that of the Winter Moth caterpillars, and they are, besides, easily distinguished by their greater size and different shape. The four species found in the company of the Winter Moth are the Mottled Umber or Great Winter Moth (*Hybernia defoliaria*), the Scarce Umber (*Hybernia aurantiaria*), the Pale Brindled Beauty (*Phygalia pilosaria*), and the March Moth (*Anisopteryx æscularia*). According to the Board of Agriculture, in its journal, there are two other moths whose caterpillars have been seen on apple trees in the spring, the Belted Beauty (*Nyssia zonaria*) and the Small Brindled Beauty (*Nyssia hispidaria*), but these are comparatively rare, and need not be described. The males of all these species of moth are winged, and are bright and attractive in colour, while the females are dull coloured and wingless, or have mere rudimentary wings. The females crawl up fruit trees and other trees, and fruit bushes, and deposit eggs on the bark or twigs, from which caterpillars come in the early spring, just as the leaves shoot and the blossoms form.


Great Winter or Mottled Umber Moth.
(Winged Male and Wingless Female)

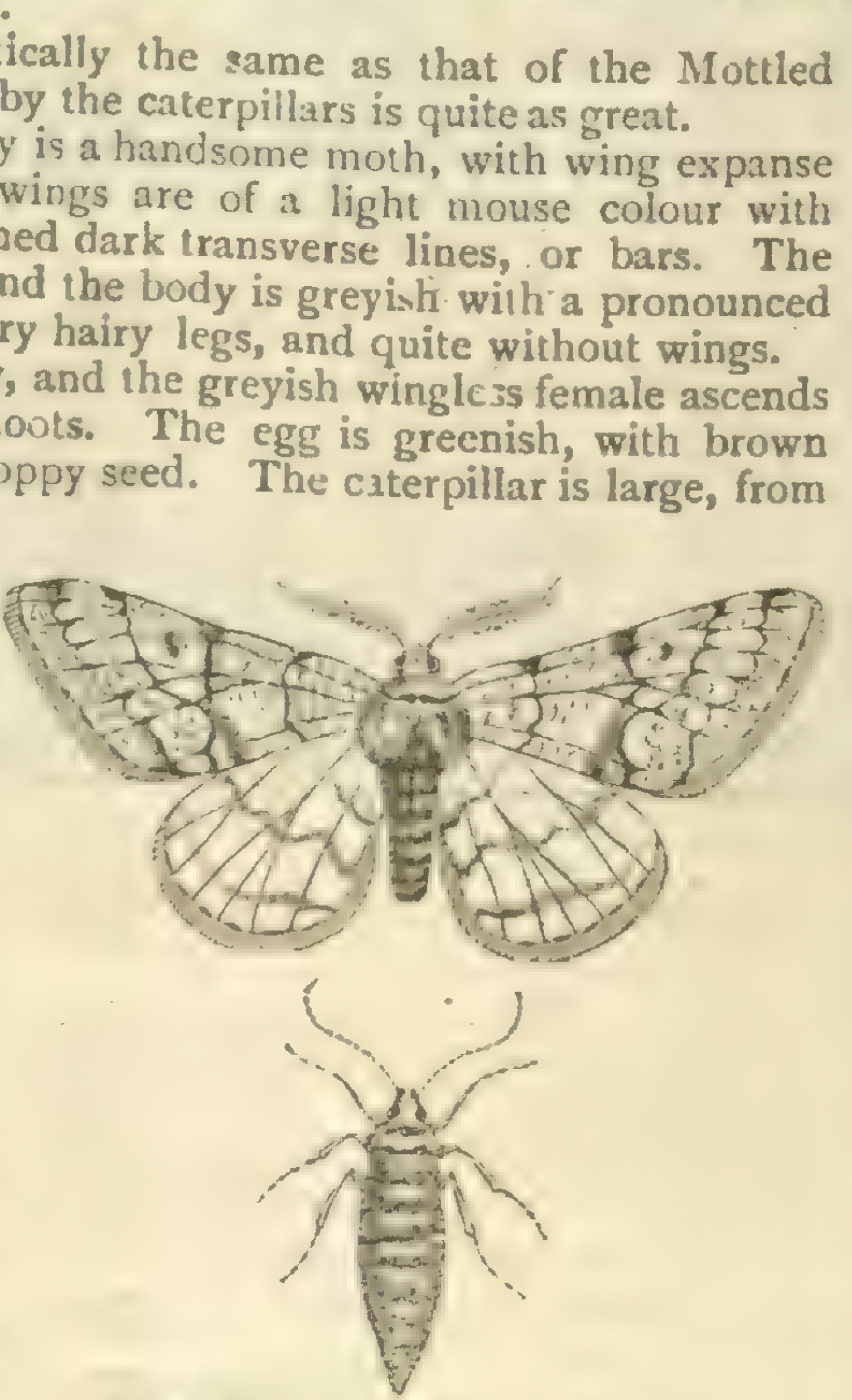
The commonest of these is the Great Winter Moth, or Mottled Umber (*Hybernia defoliaria*), also called the Leaf Stripper. The male moth is large, having a wide expanse of over one and a half to one and three-quarter inches. Its fore-wings are yellowish, or light orange, dusted with dark brown, and have two thick dark wavy patches on each. The hind-wings are a duller yellow, with a very small central spot, and are dusted with light brown. The female has no signs of wings, and is ochreous, thickly covered with black spots. The winged male moths may be first seen in the twilight towards the end of October, flying round apple and other trees, and if careful search is made the wingless females can be found upon the ground under the trees, and upon their trunks. The date of the first appearance of these moths depends upon the weather, and in some seasons they may be noticed as late as December. The females, which can run quickly, go up the trees after pairing, and deposit long yellowish-white eggs, which become darker later, singly upon the shoots and twigs near the buds. A female will lay as many as three hundred eggs. In the spring, as the buds begin to swell, the caterpillars are hatched, and immediately creep into them, feeding upon the leaves and blossoms as they form. The ten-footed caterpillars are slender, about an inch and a quarter long, and of a yellowish ground colour with chestnut-brown markings. There is a succession of caterpillars up to the end of June. When fully fed the caterpillars go into the earth and change to red-brown pupæ, from which the moths come in October.

The Scarce Umber is by no means a scarce moth, judging from its numerous caterpillars found in some seasons on apple and other fruit trees. The wings of the male are from one to one and three-quarter inches across. It has yellowish-brown fore-wings with a golden tinge, and dark transverse lines. The hind wings are yellowish-grey, and the body gold coloured. The female is greyish-brown, nearly half an inch long, with rudimentary winglets of a light grey colour, flecked with brown. It is more hairy than the female of the Mottled Umber. These moths appear towards the end of October, and may be seen as late as January if the winter is open. Greenish eggs, becoming darker in time, are laid upon the fruit spurs by the females, which run up the trees The caterpillars are hatched when the buds swell, and commence feeding at once upon them. They are just over an inch long, slender in form, and of a purple-brown colour, while the sides and under part of the body are yellowish.

The life history of this moth is practically the same as that of the Mottled Umber moth, and the injury occasioned by the caterpillars is quite as great.

The male of the Pale Brindled Beauty is a handsome moth, with wing expanse about one and a half inches. The fore-wings are of a light mouse colour with greenish shadings, and somewhat undefined dark transverse lines, or bars. The under wings are of a rather paler hue, and the body is greyish with a pronounced anal brush. The female is grey with very hairy legs, and quite without wings.

The perfect insect appears in January, and the greyish wingless female ascends the trees and lays eggs singly on the shoots. The egg is greenish, with brown spots, elliptical, and about the size of a poppy seed. The caterpillar is large, from 1½ to 1¾ inches long, cylindrical, very stout, and of a rich-brown colour, with knobs and warts on several of the segments (those on the sixth and seventh segments are particularly large), and black bristly hairs. It pupates in the ground. There is a great resemblance between the caterpillar of this moth and that of the Small Brindled Beauty. The distinction between them consists in the warts of the latter being larger and the colouring mottled with [illegible].


Pale Brindled Beauty Moth.
Male and Female.

The March Moth is frequently abundant, and does much harm to fruit trees and bushes of many kinds, and to filbert and cob-nut bushes. The female is wingless, brown in colour, with a conspicuous brush or tuft of hairs at the lower extremity of the body. The legs are very long. The male moth is about the size of the Winter Moth, with brown forewings streaked with a pale transverse zig zag line on the outer edges and a light fascia. The hind wings are somewhat lighter. The moths are first seen in March, and the female crawls up the trees and lays shining olive-brown, barrel-shaped eggs in series of rings round the small twigs, as shown in Fig. 2. When the buds swell the caterpillars are ready to attack them. They are pale-green in colour, with yellowish-green lines down the back, and greenish spots here and there about 1⅛ inches long, and not unlike the Winter Moth caterpillars, but they are longer, of a more decided green, and not so thick as these. Like the caterpillars of the other moths described above, they pupate in the ground, but the pupæ are enclosed in long oval earthen cocoons lined with silk. The pupa is brilliant-brown with a green shade.

Prevention and Remedies.

The same methods of prevention as recommended for adoption against the Winter Moth must be adopted with regard to the four moths that have been described and figured above.

The most important of these is banding the trees with sticky substances to entrap the crawling wingless female moths and to prevent them from going up the trees to lay eggs upon them; or by putting an apparatus made of wood and tin or other materials to keep them back. Cart-grease put thickly on bands of grease-proof paper, like that used by grocers, is the best substance for this purpose. It should have no tar in it, as this injures the trees. In the case of old trees with thick bark, the roughest part of the bark must be scraped off to allow the bands of paper to be fitted close to the trees. Bands, made of old oilcake—or manure—bags, smeared with sticky compositions, may be employed, but they must be fastened close round the stems or the moths will crawl under them. Hay bands can also be used, but there is nothing so effectual as the smeared grease-proof paper.

The band-straps or guards must be in working order by the middle of October, and they must be watched constantly, and grease applied where it has become dry or been rubbed off. It seems that this banding should be continued throughout the winter, and far on into the spring, as it has been shown that there is a succession of eggs laid by the various moths enumerated above from October up to the end of March. The moths, which lay eggs in spring, are not so numerous as the winter moth, but a few of them are sufficient to produce swarms of caterpillars, which might cause serious injuries to fruit crops. To keep bands in order from October to April is an expensive process, but some fruit growers do it and find that it answers. The guard employed by growers in the United States and Canada might be usefully adopted in this country, and though the initial cost would be greater than that of banding, the subsequent expense would be inconsiderable. This guard consists of a girdle of tin fastened so as to hang three or four inches out from the trunk of the tree, held there by a circle of fine sacking, or linen, and fixed by a cord, to which the sacking is sewn. The tin is smeared all round inside with an offensive substance applied by the means of a small brush, which causes the insects to drop to the ground as soon as they come in contact with it.

Spraying the trees when the caterpillars are at work is most necessary. A few growers begin to spray directly the caterpillars are noticed. A still smaller number spray before caterpillars are seen, with Paris green solution, consisting of 1 lb. of Paris green to 220 gallons of water. This poisons the foliage and kills the tiny delicate caterpillars, which at first are mere threads, hardly distinguishable without a glass.

Spraying with Paris green may also be done later on, and until the apples are formed or have become any size, but it would be unsafe to run the risk of the poison adhering to the fruit. In America Paris green is regularly and most advantageously used, even when the apples are of some size.

Quassia and soft soap solutions may be used at any time, not being poisonous. These do not poison the caterpillars, they merely make their food bitter and distasteful. They are put on usually in the proportion of 7 lbs. of quassia chips and 6 lbs. of soft soap to 100 gallons of water. Some growers use a much stronger quassia wash than this.

Spraying is the only really useful remedy for these caterpillars, and it must be repeated from time to time.

SWISS NATIONAL CHRYSANTHEMUM SOCIETY.

Since writing my last notes, in which a brief allusion was made to the founding of the above society, I have received the rules and also a copy of the schedule of the first exhibition of the above society, which will take place next November at Geneva, and of which it is announced 50 per cent. of the profits are to be devoted to some charitable objects. Foreign exhibits are requested, but only in the class for new seedlings not already in commerce. The aim and objects of the society are briefly set forth thus: To encourage and develop the culture of the flower by organising shows, awarding medals or subsidies, awarding certificates of merit to deserving novelties, arranging conferences, offering advice to other societies desirous of holding shows and preparing schedules, supplying information to members on all points concerning the chrysanthemum at home and abroad, and finally assisting amateurs to make suitable selections of the best novelties to grow.

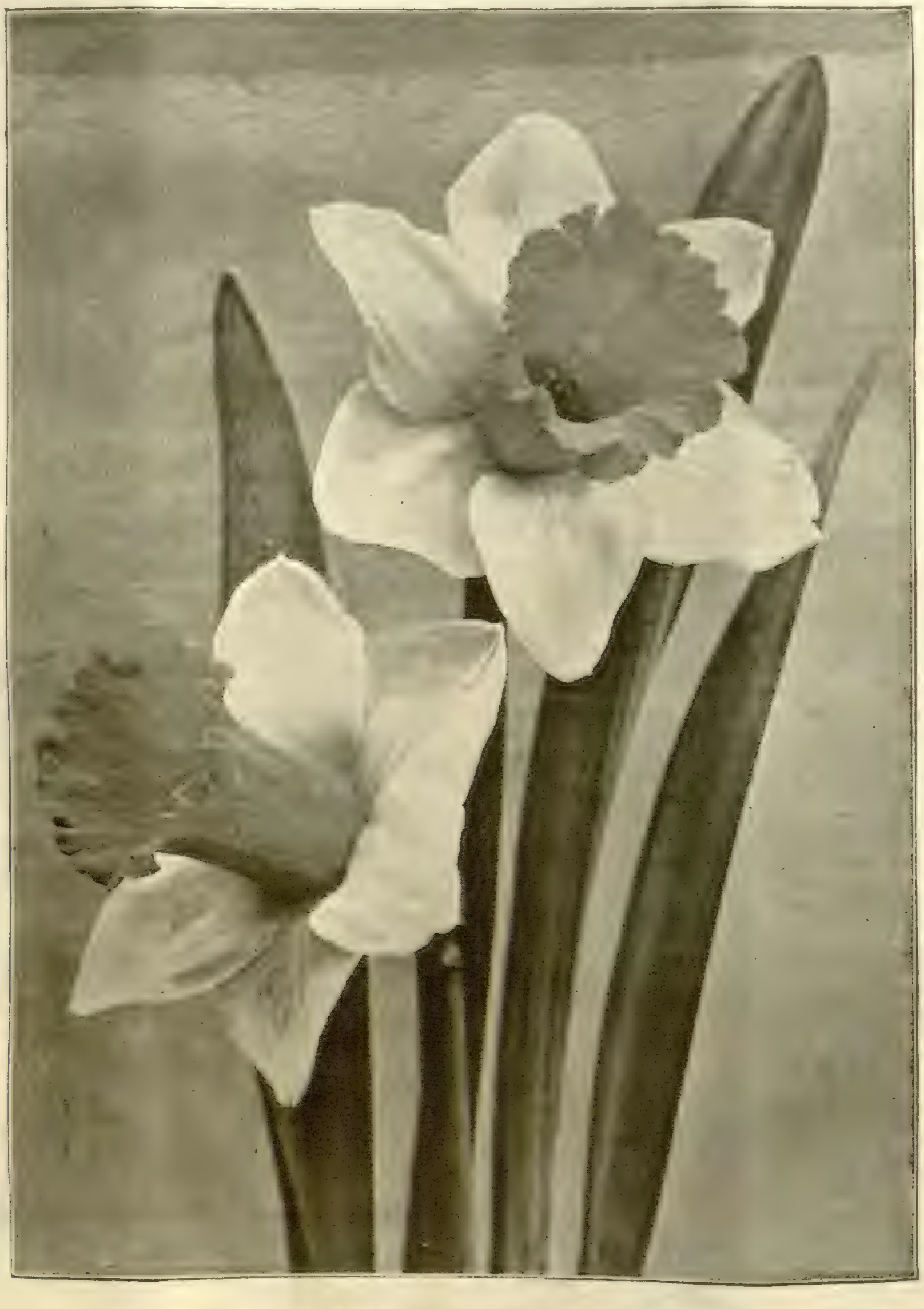
There are three grades of members, viz., active, honorary and corresponding.

Early in the year the society will issue a journal containing the official report, balance-sheet, a catalogue of the best varieties shown during the autumn, and a series of articles dealing with the flower and its culture. C. H. P.

Cactus Dahlias.—When Mr. Burrell first exhibited that curious and interesting cactus dahlia Fantasy, with its crab's-leg-like petals and quaint form, there was a not unnatural impression that a new and distinct race was foreshadowed. So far there has been no special product seen of the nature indicated, but there is yet ample time, as only two years have elapsed since Fantasy was first exhibited. I believe Mr. Burrell has some very novel seedling flowers in hand to show at the Crystal Palace on the second inst., but of these more may be written after they have been seen. But Mr. Burrell holds that the cactus dahlia as a flower form or section is yet in its infancy, and that there is no telling what beautiful things may in time be produced. As evidence of that, Messrs. Keynes, Williams, and Co., of Salisbury, a firm closely associated with the dahlia for many years in all its divers forms, had, in a stand of special blooms at the Shrewsbury show, a flower of so interesting a character that the firm had named it Progenitor, a very suitable name, as, without doubt, in their hands it will ultimately produce some novel successors. This flower, of a rich reddish colour, had the usual cactus form and petals, but the tips of these latter, instead of being pointed, were so far deeply divided that they bore the appearance of miniature stag's-horns. It may be a question with florists as to whether the variety can be admitted into the ranks of true cactus forms, and I venture to suggest that in a competition it may be unwise to present it. But if it should become the progenitor of a distinct race of stag's-horn petalled flowers that still possess the cactus form, then we may hope to see the present popularity of the dahlia largely extended. A. D.

A BEAUTIFUL NEW DAFFODIL.

As the season of bulb planting is at hand, we venture once again to remind our readers to order early and to plant early. There is scarcely need nowadays to remind horticulturists of the beauty and usefulness of the widely different species and varieties of narcissi, for their value is well known even to those who do not grow them. In our present issue we give an illustration of a splendid new bicolor, large trumpetted daffodil, introduced last year by its raisers, Messrs. Barr and Sons, Covent Garden and Long Ditton. It is a real beauty, as the illustration, from a photograph taken in the spring of the present year at Long Ditton, will show; it is also a strong grower, and, for a new variety, is by no means high priced. To those who have not yet tested it, we can state that it is also a good forcing variety. Since its first appearance in public we have repeatedly drawn attention to the variety, and have nothing now to add to or detract from the opinion already expressed upon it in these columns. On p. 199, 1897, we referred to it as "the new bicolor form named Victoria, a splendid flower with whitish perianth and golden trumpet"; and on the succeeding page it is described as "a handsome bicolor variety of large size; the whitish perianth shows up the bright golden trumpet, and the latter is frilled at the apex." The variety gained a first class certificate from the Royal Botanic Society and an award of merit from the Royal Horticultural Society on March 31 and April 27, 1897, respectively. On p. 279 of the present year, in "Daffodils at Ditton," this new comer was referred to as follows: "Victoria, the Messrs. Barr's 1897 introduction, is a lovely bicolor, with creamy-white perianth and golden trumpet, the latter finely frilled at the mouth; Victoria has a splendid constitution, and grows freely.

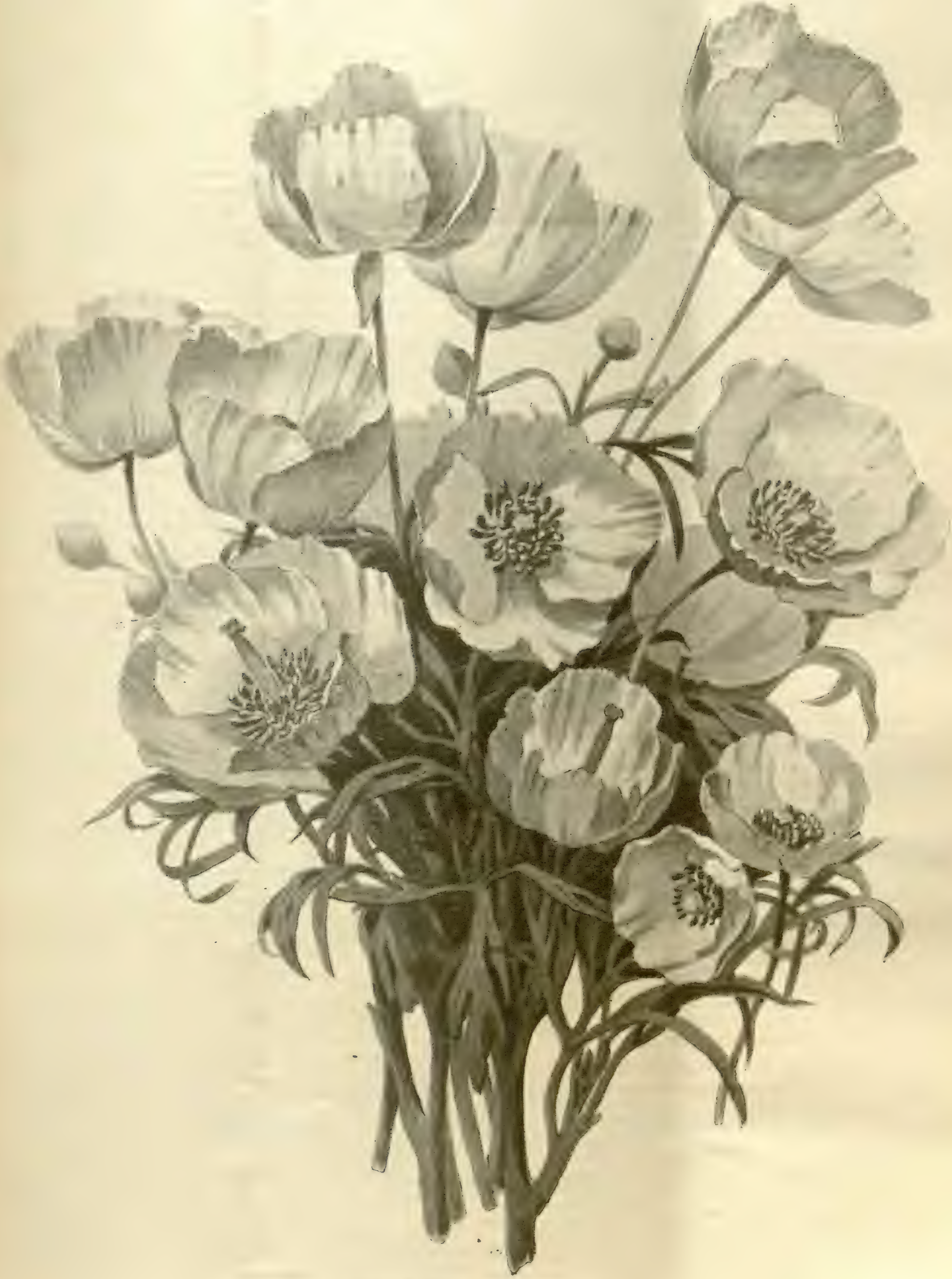


NARCISSUS VICTORIA.

HUNNEMANNIA FUMARIÆFOLIA.

It is a great misfortune that this beautiful old Mexican plant is not perfectly hardy, even in the warmer parts of this country, for not only does it produce graceful, shapely and bright-hued blooms that do not soon fade, but it possesses also an elegance and beauty of foliage decidedly its own, notwithstanding that it is sufficiently like that of some fumitories to have warranted Sweet in giving it the specific title of fumariæfolia. The leaves are tri-ternately divided, that is to say, each leaf divides into three when about an inch or so from the stem, and each of these divisions again soon divides into three parts, which are further split into three divisions. The final division is worthy of note, for as a rule the central lobe has three equal leaflets spreading from its apex, while the two side lobes are like a long leaflet, with two leaflets springing from its side, and spreading to right or left according as they are on the right or left of the centre. Thus one leaf is composed, usually, of twenty-seven linear, blunt-ended leaflets, all of a pale, glaucous tint; sometimes there is an additional leaflet, and at others one is suppressed.

The genus Hunnemannia is monotypic, and was founded by Sweet, who named it in honour of Mr. J. Hunneman, a zealous botanist and botanical agent, who did much to facilitate intercourse between British and Continental botanists, and, after a long and busy life, died in London in 1837. The one species, H. fumariæfolia, figured in the present issue, was introduced in 1827. It is a very charming and showy perennial, but only half hardy. In the drier, sheltered parts of Southern England it may be wintered out of doors if carefully protected. but perhaps the best method of cultivating it is to treat it as a biennial. The flowers are terminal and solitary, but as numerous growths are



HUNNEMANNIA FUMARIÆFOLIA.

produced, a fine effect is made, for the large yellow, orange-tinted flowers are most effective, and borne well above the foliage on wiry stems. In shape and colour the flowers are much like those of Eschseholtzia californica, but they also remind one of poppies, indeed, the genus belongs to the order Papaveraceæ, and is closely allied to the Meconopsis. When cut, the blooms of Hunnemannia fumariæfolia are eminently suitable for vases, table decoration, &c., as they are not in any way heavy; they are elegant without being flimsy, bright without being gaudy, and they last a long time, both in water and on the plant. As a general rule the Hunnemania grows from two to three feet high; it has not been grown much of late years, owing doubtless to its failure as a hardy plant, but now that it has been brought before the public at a recent meeting of the Royal Horticultural Society, its cultivation will be again freely attempted by those who have room in frames and pits to protect it from our damp, cold winters. Our illustration was made from flowers supplied by Messrs. J. Veitch and Sons, Chelsea, and which induced the R.H.S. to grant the plant an award of merit.

THE RETURN OF THE HOLLYHOCK.

THE hollyhock has been coming back for some time, partly, some say, by favour of the hollyhock fungus (Puccinia malvacearum), which has ravaged and scourged the hollyhock for the last quarter of a century. Like other more or less inscrutable diseases of similar sort, this has its resting and active spells. Now ravaging and destroying its victims in the most wholesale way, and anon touching them gently or not at all, as if nursing them for future destruction. Some assert that we have lately been passing through a resting period of unusual duration in the history of this virulent pest. What is certain is that hollyhocks are in better health, and that their culture is advancing by leaps and bounds to the ennobling and enriching of our gardens. No one who has had time to look in at the Botanic Gardens, Regent's Park, this year, can for a moment doubt the immense advance made in hollyhock culture in the last decade. About that period back it had perhaps reached its lowest ebb. Now we see them constantly cropping up in the most unexpected quarters. But in Regent's Park we see them in their hundreds and thousands, mostly singles, it is true, and perhaps all the safer in the future, and the more striking and stately beautiful in the present on that account.

I have a theory that cultivators, through running too exclusively on doubling lines, brought much, perhaps the major portion, of the fungoid pest on themselves. Anyhow, doubling does little or nothing to help hollyhocks, or any other plants, out of fungoid or other pests or diseases. How much it may have done to predispose them to such maladies we shall probably never know. What we do see, and fully know to-day, is this: that the majority of single hollyhocks that come under our notice are pictures of robust health and models of picturesque beauty. By massing these single hollyhocks in scores, fifties, hundreds, we enormously raise their place and power in the park or landscape. So much is this the case that I have no hesitation in stating that among all the masses of charming flowers and foliage marshalled in the park this August, nothing excels nor matches in stately dignity or glowing colour the bold masses of single hollyhocks. They also seem pictures of health and free from disease.

How far this hieing back to single forms should be credited with this return to better health and new vigour might be a disputed point; for I am quite willing to admit that double flowering hollyhocks, free from disease, are becoming less rare day by day. Still, single hollyhocks seem cleaner, have more vigour, and are taller in stature than double ones. Artists also prefer them for picturesque effect, and here, I admit, I agree with the artist. Neither am I sure that the double hollyhocks give the most colour in a landscape. For much of their colour is hid in themselves and each neighbouring double bloom, whereas single blooms, from their peculiar shape and colour, give light, that is colour, to all within sight or range of the landscape they at once ennoble and adorn. They also give rich and striking colouring at a height from the ground that few other plants could reach. This was especially manifest in the Regent's Park. With the single exception of a magnificent group of standard fuschias many years old, smothered in bloom, the single hollyhocks towered high above the other flowering plants, and furnished a novel sky-line with new grandeur and beauty. Their unique and striking height, giving brightness at an elevation above the ground where monotony and dullness too often prevail, ensures a large place in our gardens and landscapes of the future for single hollyhocks. D. T. FISH.

AN ISLE OF WIGHT GARDEN.

ONE of the most popular and best kept gardens in the Isle of Wight is that belonging to Sir Barrington Simeon, Bart., M.P., Swainston, Newport. The park is very extensive and well wooded with trees of remarkable size, whilst the garden is admirably kept under the charge of Mr. J. Gash. At the time of my visit I found the men busy lifting potatos to save them from the virulent disease, which is very bad in this part of the island. The variety was Windsor Castle, and the crop very good indeed, considering the season. With the exception of apples, the fruit crop is considerably below average here. The borders on each side of a wide grass path, which runs the whole length through the middle of an extensive kitchen garden, are gay with salpiglossis, calliopsis, godetias, mignonette, asters, stocks, marigolds, &c.

There is one of the best crops of onions in these gardens that I have had the pleasure of seeing this season. Mr. Gash, who is a prominent and successful grower and exhibitor of chrysanthemums, has a collection of about three hundred plants which promise well for future success. Since my last visit most of the houses have been rebuilt, and contain at present a miscellaneous assortment of flowering and foliage, stove and greenhouse plants, a good crop of grapes, including some fine bunches of Muscat of Alexandria, also melons and cucumbers. The gardens speak well of the abilities of the genial gardener, Mr. J. Gash.

S. HEATON.

WORK FOR THE WEEK.

WARM ORCHIDS.

DENDROBIUMS of the following kinds will now be fast completing their season's growth: D. Finlayanum, D. Cybele, D. C. nobilius, D. splendidissimum, and its several vars., D. nobile and its vars., and seedlings of the above unless in a small state. When they have fully made up their growth they should be removed from the dendrobium house to quarters about five degrees cooler, prior to removal into their annual resting quarters. Gradually decrease the water supply but gradually increase the supply of air, taking every care that this is done so that it does not come in direct contact with the plants, which would be a great check and would certainly have a great tendency to encourage the propagation of the enemy which baffles many growers—black spot—and which often eats its way throughout the whole plant. Every effort should be exercised to prevent this disease from gaining a foothold, for generally the best varieties are affected, no doubt because they are coddled somewhat. Odontoglossum citrosmum that has been given intermediate treatment has perhaps in many cases not grown satisfactorily owing to the weather we have had; it is as well to examine the plants, and if not growing well remove them to a house a few degrees warmer in order to give them time to make up a good bulb so that they can obtain a good rest.

Sobralia macrantha and its variety alba, Sobralia Kienastiana, S. Veitchi, S. Lucasiana, S. xantholeuca, and S. leucoxantha are all showy orchids; many growers are in the habit of giving them stove treatment, which is, I think, a great mistake. I always find the intermediate house the best, and have grown them in it for a long period. The new roots will be commencing to grow, so that if a larger pot is required it would be a good time to afford it now. A good compost for sobralias is a mixture of rough peat and some good loam with a little leaf mould and silver sand; pot them moderately firm (not hard) and keep them rather dry for a time, otherwise the roots will rot away. Cattleya Hardyana will now be flowering, and is a grand orchid, though found rather difficult to manage by many growers. The worst time for it appears to be after the flowering season; in many cases it is given too much shade, others allow too much water. It is best to keep it rather dry while in flower and for a considerable time afterwards, in fact until next spring, and if a spot, however small, is noticed less water still should be given, at the same time allowing plenty of light and plenty of fresh air. If the leaves are slightly yellowish, such is not a bad sign unless an unreasonable yellow tint is seen, for the greeny yellow hue is natural to the plant. This orchid thrives well in baskets suspended from the roof at the warm end of the cattleya house. Lælia (Brassavola) Digbyana will have finished flowering and must be allowed plenty of light and given a thorough rest; place as close as convenient to the glass and keep dry, but not so as to shrivel the pseudo bulbs.

The present condition of the weather will allow good atmospheric conditions inside the house; the roller blinds will not be required except when the sun is very strong, as plenty of light on all occasions must be afforded; give air freely but carefully, and afford less water at the roots all round. Quiet nights must be chosen for fumigating, and the heating apparatus must be kept well in hand.—T. STAFFORD, *Tyntesfield Gardens*.

STOVE PLANTS.

As the days are now shortening and the sun losing power, less shade will be necessary, so that the plants may receive the benefit of sun and light to thoroughly mature their growths before the winter comes upon us. Where permanent shading is used, such as summer cloud, lime and milk, &c., it will be necessary to wash off part of it, the remainder to be removed in the course of a week; choose a dull day for the operation, it being easier to remove on such a day, and the plants likely to suffer less. In the case of blinds it will only be necessary to lower them during the middle part of very hot days. In structures where creepers are extensively grown on the roof, these should be freely thinned, not at the same time that the shading is reduced, but during the course of a few days. Allamandas will continue to flower for some time yet, and must receive aid in the way of stimulants. Gradually bring stephanotis to a state of rest by reducing the water supply, and when possible, removing the plants to a cooler house. Stand plants of vinca where they receive the maximum amount of light to mature their growths. As the specimen caladiums pass their best encourage them to go to rest, reduce the supply of water to the roots, and eventually lay the pots on their sides in the bed of the stove. Clerodendrons that are still growing should be fed, affording the shoots all the light possible, as next season's success with these and similar subjects depends upon the thorough maturation of the present season's shoots, and in keeping the foliage healthy and clean until it naturally ripens and falls away. Euphorbia jacquinæflora may now be introduced into the stove, keeping the plants to the front of the house where the shoots may be looped to the wires, as in such a position they will do far better than if dotted promiscuously amongst the plants in the body of the house.

It will be necessary to remove poinsettias from the cold frames, placing them in a house where they can be afforded artificial heat and plenty of light. Dispose the plants thinly. Be careful, when moving them, that they are not bent or injured in any way. When they have become used to their new quarters, afford each plant a topdressing of loam, leaf-soil, and sand, amongst which is mixed a little of some good fertilizer; before applying the topdressing, see that each ball of soil is thoroughly moist. Afford them a good syringing twice a day, and a temperature of 60 to 65 degrees by day and 55 to 60 degrees at night. If space will admit, the bulk of winter-flowering begonias may be stood in the same house, and any of the latter which have not yet been placed in their flowering-pots should be potted without delay. Eranthemums and sericographis also should be removed from cold frames to a warmer structure, but on no account remove any plants directly from cold frames to the stove. Shrubby clerodendrons, such as C. fallax and C. fragrans, that are flowering now, will repay for liberal treatment, and will need constant attention to keep them free from mealy-bug and scale. Anthuriums are still growing freely, and should receive applications of weak liquid manure two or three times a week. If there is any scale in the house where these are growing, it will be necessary to sponge them over occasionally to prevent them becoming infested. Plants of plumeria that have completed their growth should be afforded a very light position, but rather less water than hitherto. Continue, however, to afford liquid manure at every other watering for a week or two yet. In lean-to houses attend regularly to turning the plants, for, unless this is done frequently, the leaves all incline towards the light on one side, making the plants useless from a decorative point of view. In the palm house, one good syringing a day will now be sufficient. Admit air freely on all favourable occasions to have the fronds well hardened to pass well through the winter. —J. TUNNINGTON, *Ripley Castle Gardens, Yorks*.

THE FLOWER GARDEN.

THE propagation of the various bedding subjects required for next season should be pushed forward as far as the supply of cuttings can be obtained. Pelar-

[illegible]niums not having made a strong growth this summer, the cuttings of some varieties are somewhat scarce, and with these a few should be inserted as often as obtainable without spoiling the effect of the beds. Cuttings of fuchsias, iresines, lobelias, coleus, alternantheras, &c., should now be inserted in pots of sandy soil and sifted leaf-mould. The best place to strike these is in a frame on a moderately warm hotbed. If any difficulty is experienced in obtaining cuttings of alternanthera, owing to flowering shoots being abundant, a portion should be cut over, and these may be potted up later on. With most of the above subjects sufficient only need be propagated now to afford a stock for spring increase. An unnecessary surplus which must be afforded house room through the winter should be avoided, therefore the requirements of each should be estimated, and the work proceed accordingly. Any changes desirable in the bedding arrangements should also be decided upon, and effective combinations noted for repetition, perhaps in other suitable situations. A simple and effective mixture is the old Manglesi variegated pelargonium and the similarly old Verbena venosa, the pelargonium being allowed to retain its profusion of small pink flowers; Lady Plymouth pelargonium and viola Archie Grant is another pleasing mixture. Some large oblong beds planted with a few five to six feet standard heliotropes in the centre, with dark-leaved cannas, fuchsias, variegated abutilons, and Lobelia cardinalis of rather lesser height scattered thinly over the bed, the latter edged with a band of Coleus Verschaffelti, and the remainder of the ground work covered with Dactylis glomerata variegata, forms a telling combination. This hardy silvery-leaved cocksfoot grass is a most useful plant, and especially as it requires no housing in winter. With the continued drought those plants may also be noted that are best in resisting the dry weather and giving a good display of bloom. Pelargoniums have been very good, and others are zinnias, gaillardias, verbenas, antirrhinums, ageratums, and petunias. The old-fashioned Nierembergia gracilis, with lilac and white flowers, now not often seen, is one of the most effective trailers for hanging a foot or more over the sides of vases or boxes, and I never saw it blooming more profusely than it is this season. Pentstemons have also flowered well through the dry weather. Where propagation by means of cuttings is practised, the young growths now just starting from the base may be shortly used for this purpose. The cuttings should be inserted in small pots or boxes, if a quantity is desired, and stood in a close frame. It is not, however, necessary to propagate in this way, excepting in the case of very choice seedlings or named varieties, as a fine selection of colours may now be certainly raised from seeds of a good strain, and if sown now or quite early in the spring strong plants, flowering the first year, are easily raised. A great improvement in the bright crimson and scarlet colours of these has been attained during the past few years.

With the advent of a good rain, much work already mentioned in previous notes, and which the dry weather has kept at a standstill, should be put in hand without delay. Violas, where required for spring bedding, should receive early attention; myosotis and other subjects may be pulled in pieces and treated similarly. The larger-flowered doronicums as D. excelsum are very useful spring-blooming plants, and may be utilised for filling beds where plants three to four feet high are desirable. If the clumps are lifted now and pulled in pieces, and each young growth planted separately five or six inches apart they will make strong plants for lifting and replanting into flower beds in October. As a substitute for box edgings in the flower garden aubrietias of the close growing forms, as græca, deltoidea, and Campbelli, are very useful. Such an edging has advantages over the commonly used box, for during a portion of the year it is a mass of bloom, and it is also of less trouble to establish and keep in order afterwards. The present time is a suitable one for planting new and for cutting into shape established edgings of this class. The trimmings from the latter make excellent material for the establishment of new borders. The ground should be prepared somewhat similarly as for box laying, treading the soil flat and firm, and planting with a line. The soil edge should be chopped down squarely about two inches nearer the path than the line of plants are planted, and this the aubrietias will soon cover, and form a compact and pleasing edging that may be easily kept [illegible] condition for many years with very little trouble.

Seed vessels on bedding plants of all kinds should be promptly removed, as well at yellow or decaying foliage. Herbaceous borders have suffered from the continued drought, but nevertheless helianthus and some others keep up a bright [illegible]. One of the earliest flowering Michaelmas daisies—Aster amellus [illegible]—is now in flower. It is perhaps the best variety to withstand dry [illegible], and is quite fresh and green in leafage, even where no water has been [illegible]. Some of the taller growers will need tying now they are just coming [illegible] bloom, or previous ties made secure against autumn gales.—C. HERRIN, [illegible] *Gardens.*

HARDY FRUITS.

[illegible] will now be ripening freely, and many of the earlier kinds are already [illegible]. Rivers' Early Prolific this season was our best early cropping variety, [illegible] walls the newer Stint, one of the Messrs. Rivers' seedlings, never fails to [illegible], even in the most adverse seasons, and this year, when plums are much [illegible] an average crop, any new kind that is prolific is worth special notice. [illegible] lack of fruit the plum trees are making a gross growth, and as such [illegible] is not fruitful the cultivator will do well to check it as much as possible. [illegible] trees and with leading shoots there is a difficulty, and in many cases [illegible] be met by lifting the trees in the autumn, as to cut hard either the [illegible] tops will frequently result in gumming and canker. I would call attention to the necessity of laying in side wood wherever possible, as I find if there is [illegible] percentage of young wood there is a much better return. Many rely [illegible] on spurs for fruit, but if some fruiting wood also, in the shape of young [illegible], can be secured there will be better results. We have some cordon plums [illegible] were closely spurred annually and yet never bore a crop, but when we [illegible] free extension of side shoots we obtained a fair crop. In the case of old [illegible] it is much better to have the spurs close to the wall and not in a [illegible], at the same time laying in new wood in vacant spaces, as some [illegible] do not fruit freely on the old wood. I recently advised the importance of [illegible] healthy growths from old fig trees in preference to wood that rarely produced a crop; since then we have had grand weather to ripen up the new wood [illegible] is for extension, and now we must induce the growths to harden as much as possible by clearing away small useless spray growth and stopping shoots rather [illegible] that are needed for next season fruiting. The figs bear on this young wood [illegible] points, and if stopped at the fifth or sixth leaf from the base will then form the embryo fruits for next season. Of course new main leaders will not need [illegible] unless they have reached their allotted space. Old trees cropping freely [illegible] by a mulch of strawy material over the roots, and the trees will take [illegible] supplies of water and liquid manure. I would point out the advantages of figs in pots, as they are certain croppers, and though they give more labour in the [illegible] the crop well repays for the same. Now is a good time to secure [illegible] and any variety does well, but especially those that cannot be planted out in many parts of the country, such as Nebian, Negro Largo, and Bourjasotte Grise, dark-fleshed kinds of delicious flavour; these trees, housed in winter and plunged in open borders in the summer, give a good return; they do not make gross growth, but fruit late in the autumn, and make sturdy, fruitful growth yearly.

Peach and nectarine trees will need examination every day to secure the fruits, and these gathered just before they are quite ripe will remain good a long time if stored in a cool room; later kinds should have any leaves or shoots removed that cover the fruits so as to obtain the high colour so desirable. Any trees recently cleared of fruits, may, with advantage, have any shoots overlooked in previous thinnings removed and those shoots that may have become loose given support so that there is no twisting or breaking in rough weather. In training the leader do not crowd in any way, and if possible place it so that it does not cross others and is as straight as possible. Morello cherries on north walls that have had the crop cleared may receive attention. I am in favour of giving these trees more space than is often allowed, but I fail to see the necessity of laying in every young shoot, so many of the weaker ones and spray growths may be cut hard back, for the best of these will make spurs and leave the stronger shoots more space to develop. The trees carrying fruit for late keeping will now need close netting and even then close watching, as squirrels are very fond of these fruit for their stones, and they soon clear a tree. In our case it has been necessary to water Morellas owing to drought, and mulch also to prevent the fruits shrivelling. I fear many fruit trees will suffer next season unless moisture be given liberally now to assist in swelling up the buds for next season's crops. We have had but little rain during the summer, and in light soils trees soon suffer. Watering after a slight rainfall should not be relaxed, indeed may be increased with advantage. Many growers who lift trees in the autumn often find the roots dust dry at a depth of two feet, and in many cases copious supplies of water or liquid manure with a mulch would prevent failures another season. Owing to the heat and drought American blight on certain kinds of apple trees is spreading badly, and this is one of the worst pests the grower has to contend with. We are syringing our trees with soluble pretroleum mixed with soft water, as this does not injure the fruit if not used too strongly; we use one pint of petroleum to ten gallons of water, and in the winter much stronger doses are applied when the branches are bare. Red spider is bad this season owing to lack of moisture, but here strong measures are not needed as this pest can soon be got rid of.—G WYTHES, *Syon Gardens.*

NOTES ON ORCHIDS

LÆLIA MAJALIS.

THIS Mexican species is amongst the most lovely or the genus, and when in bloom is an ornament to any collection of orchids. The flowers are large and of a most delicate rose colour in the sepals and petals, the lip purplish lilac and white. Unfortunately it is a difficult plant to flower, although the growth is free; by some growers it is annually placed out of doors during the summer months. Here at Edinburgh it is grown in the cattleya house, hung under the ventilators, where it receives a full amount of air and light. Very little compost is necessary about the roots, and water must be almost entirely withheld during winter.

R. L. H.

ACINETA COLOSSA.

When in flower this is an attractive plant, bearing strong inflorescences of creamy-white flowers, the labellum being marked with purplish spots. As with the rest of this genus the flowers last but a short time—a few days at most—the spikes pushing through the bottom or sides of the basket with considerable vigour. This species is among the strongest in growth, producing stout foliage eighteen inches or more in length. Being a strong grower and free in rooting, a fibrous loam and peat compost suits it, while a wholesale supply of water is required while growing, yet at no time entirely withholding the supply. R. L. H.

Royal Botanic Gardens, Edinburgh.

PLEUROTHALLIS RUFA.

A small growing Mexican species with linear-oblong leaves and short racemes. The flowers are wholly of a dull brown-red colour, save the lip, which is brown. This little orchid flowered with Messrs. Seeger and Trop, at East Dulwich, in June, 1890. *Kew Bull.*, p. 192, 1897.

PLATYCLINIS RUFA.

This is a very distinct species of a genus, popularly known as the chain orchids. The small, ovoid pseudo-bulbs are surmounted by a single, narrow leaf, while the long, drooping, and slender scape carries a short raceme of tiny reddish-brown flowers. This first flowered at Glasnevin in February, 1894. *K. B.*, p. 192, 1897.

DENDROBIUM CYMBIFORME.

A curious and remarkable Sumatran dendrobium with pseudo-bulbs from six inches to a foot long, clothed with oblong-lanceolate leafage. The flowers are of medium size, and borne in axilary, bi-flowered racemes. The colour is straw-yellow, the petals being almost white; both petals and sepals have each five purple stripes, and there are five purple lines at the apex of the ungniculate lip. This species flowered in the collection of Mr. Kienart, Zurich, in April, 1896. *K. B.*, p. 193, 1897.

DENDROBIUM HIRTULUM.

This has elongated, terete growths, and linear oblong leafage. The short racemes are laterally produced and carry three to five bright yellow flowers that are streaked with red-brown on the sides of the lip. It is probably a Burmese orchid, as it is reported to have been imported with Dendrobium infundibulum. It flowered with Mr. H. Grose-Smith, at the Priory, Isle of Wight, in March, 1898. *K. B.*, p. 193, 1898.

BULBOPHYLLUM SPECTABILE.

A creeping species, with dark, small, and ovoid pseudo-bulbs, each carrying a single, leathery and elliptic leaf. The scape is very short, and bears but one flower of a pale green hue, with numerous lines of deep brown spots. B. spectabile flowered at Glasnevin in May, 1896. *K. B.*, p. 193, 1898.

ERIA LATIBRACTEATA.

This curious little eria has pale yellow flowers; it is a Bornean plant, and was described in a recent issue, in connexion with a figure in the *Bot. Mag.*, t. 7,605. A detailed botanical description is given in the *K. B.*, 194, 1898.

CŒLOGYNE PULCHELLA.

The pseudo-bulbs of this species are ovoid-oblong and surmounted by a pair of rather thick, oblong-lanceolate leaves that are very shortly petioled. The terminal slender scape carry several flowers that are pure white with a brown blotch on the disk of the lip and a smaller one at the base of the lip. The species is from tropical Asia, is closely allied to the yellow-flowered Cœlogyne longipes, and was introduced by Mr. J. W. Moore, Eldon Place Nursery, Bradford, with whom it flowered in March of the present year. *K. B.*, 194, 1898.

EXHIBITIONS AND MEETINGS.

NATIONAL DAHLIA SOCIETY.

THE National Dahlia Society held a remarkably fine exhibition at the Crysta Palace on September 2 and 3. On the whole there was an excellent competition if we exclude the classes for single varieties. The artistic value of the dahlia was not shown in the manner this autumn flower deserves, except by Mr. Treseder, of Cardift, who had a charming bouquet; and Mr. E. Mawley, who staged a handsome vase.

SHOW AND FANCY DAHLIAS.

In the nurserymen's class there were three competitors, all of whom showed flowers both in size and colour. Mr. J. Walker, Thame, gained first prize with a very brilliant set that consisted of William Powell, Rev. J. Goodday, Sydney Humphries, Arthur Rawlings, S. Mortimer, Florence Tranter, Daniel Cornish, Chieftain, Arthur Ocock, Shotesham Hero, Purple Prince, Golden Gem, Rebecca (self), Perfection, James Cocker, Buttercup, Mrs. Keith, Hercules, Dandy (self), and Kathleen in the back row; J. T. West, Miss Cannell, Duke of Fife, J. C. Vaughan, Mr. Glasscock, J. Standish, Virginale, Dorothy (self), Harrison Weir, Dorothy, Maud Fellowes, Harry Keith, Eclipse, Shirley Hibberd, Herbert Turner, Hero (self), Muriel Hobbs, Grand Sultan, Matthew Campbell, and Harry Turner, in the middle row; Mrs. Every, Nubian, Mrs. Gladstone, Mrs. Rawlings, Buffalo Bill, R. T. Rawlings, Duchess of York, G. C. Reid, Buffalo Bill (self), J. Walker, Mrs. J. Greaves, Royal Queen, Fred Smith, James Stevens, Mrs. G. R. Jefford, Victor, Mrs. Mortimer, Imperial, and Mrs. Langtry, in the front row; Mr. Walker's flower of William Powell was grand for depth and colour. The second prize was secured by Mr. Charles Turner, Slough, with fresh blooms; Mr. S. Mortimer, Farnham, third.

There were six competitors in the class for four dozen blooms and these two gross of blooms made a brilliant show. Mr. C. Turner, Slough, won premier honours with a very handsome set remarkable for their freshness. The back row contained J. Cocker, Harrison Weir, H Walton, Mrs. W. Slack, Imperial, Grand Sultan, G. Rawlings, Constancy, Miss Cannell, Dante, Goldfish, Statesman, Hon. Mrs. Wyndham, Prince Bismarck, Earl of Ravensworth, Shirley Hibberd, William Powell, Elsie Britton, Duchess of York, Matthew Campbell, Goldfinder, John Forbes, J. Hickley, J. Walker, John Standish, Maud Fellowes, Major Bartlett, Victor, Rev. J. B. M. Camm, Alice Emily, J. T. West, William Keith, Mrs. David Saunders, Prince of Denmark, Gloire de Lyon, John Bennett, Crimson King, Clara, Duke of Fife, Mrs. Gladstone, Arthur Ocock, R. T. Rawlings, Arthur Rawlings, Mrs. Saunders, Hope, Colonist, Flag of Truce, and Sunbeam; Mr. J. Walker, second; and Messrs. Keynes, Williams, and Co., third.

Out of five competitors Mr. W. Treseder, Cardiff, gained first prize for three dozen show and fancy dahlias with handsome shapely blooms of Arthur Ocock, J. T. Saltmarsh, J. Cocker, Colonist Henrietta, Agnes, Harry Keith, Emin Pasha, Rebecca, Mrs. P. McKenzie, W. Rawlings, William Powell, Prince Henry, J. T. West, Mrs. Gladstone, J. Vick, J. Cooper, Diadem, Lottie Eckford, Perfection, Muriel, Victor, Sunbeam, Peacock, Mrs. Langtry, T. S. Ware, Earl of Radnor, Goldfinder, Nellie Garrett, Florence Tranter, R. T. Rawlings, Duchess of York, Rev. J. Goodday, Maud Fellowes, Warrior, and Dr. Keynes; Mr. G. Humphries Kings Langley, Chippenham, second; and Messrs. Kimberley and Son, near Coventry, third. Mr. G. Humphries gained first prize for two dozen show and fancy dahlias, Miss Ethel Brittain, Goldfinder, Reliance, and Majestic being the best blooms; Messrs. Kimberley and Son, second; and Mr. M. V. Seale, Sevenoaks, third. There were four entries.

Mr. Stredwick scored for a dozen blooms, showing Daybreak, I. T. Saltmarsh and Professor Fawcett finely; Mr. J. R. Tranter, Henley-on-Thames, second; and Mr. W. Baxter, Woking, third The best dozen fancy blooms were shown by Mr. J. Walker, Thame, who had good examples of Rebecca, Mrs. Mortimer, S. Mortimer, Duchess of Albany, Buffalo Bill, Hercules, Professor Fawcett, Chorister, Mrs. Saunders, Dorothy, and Rev. J. B. M. Camm; Messrs. Keynes, Williams, and Co., Salisbury, second; and Mr. G. Humphries, third.

In the amateurs' division Mr. R. Burgin, St. Neot's, Hunts, secured the chief award for his dozen show and fancy dahlias, his collection containing fine flowers of Arthur Rawlings (premier show bloom), James Stephen, H. Eckford, and R. T. Rawlings; Mr. T. Anstiss, Brill, second; and Mr. T. Hobbs, Bristol, third; there were four entries. In the clase for eighteen show or fancy dahlias Mr. R. C. West, Northlands, Salisbury, came first, showing H. Walton, Duchess of Albany, and T. W. Girdlestone, in good condition; Mr. W. Mist, Igtham, second. Mr. S. Cooper, Chippenham, gained first prize for a dozen blooms, and Mr. C. F. Keep, Sunny Hill, Streatham, had the best six blooms, show and fancy varieties; Mr. E. West, jun., coming second. Mr. Burgin staged the best dozen fancy dahlias, and secured the award for premier blooms with a very fine example of Frank Pierce; Mr. S. Cooper, second. For six fancies Mr. R. C. West and Mr. E. Jefferies, Chippenham, divided the honours.

In the classes for six blooms of one variety, the best show dark dahlia was Rev. J. Goodday, shown by Mr. J. Walker; Mr. G. Humphries second with A. Rawlings. For a light dahlia Mr. R. C. West scored with Mrs. Gladstone, and Mr. J. R. Tranter second with the same variety. The best yellow variety was John Hickling, shown by Mr. J. Walker, Mr. Mortimer coming second with R. T. Rawlings. Mr. Mortimer was first for a red dahlia with James Stephen, and Mr. R. C. West second with Duke of Fife. Mr. Mortimer also had the best white dahlia with John Walker. Mr. J. Walker second with the same variety. Mr. Veale scored in the "any colour" class with Duchess of York. For a fancy dahlia Mr. J. Walker led with Comedian. Mr. J. Walker led with a striped dahlia, showing Rebecca grandly.

CACTUS DAHLIAS.

The class for eighteen bunches of cactus dahlias is always a most attractive one, and on this occasion five competed for the prizes, and Messrs. Burrell and Co., Cambridge, secured the chief award with a beautiful bright lot of fresh but medium sized flowers. The varieties were Regulus, Mimosa, Mary Service, Arachne, Mrs. Peart, Cinderella, Island Queen, Fantasy, Starfish, Britannia, Night, Keynes White, Harmony, Charles Woodbridge, Lucius, Cycle, and Fusilier. Messrs. Keynes, Williams and Co., Salisbury, secured second place, Keynes White and several new and interesting seedlings, notably The Clown and Captain Broad, being in the set; Messrs. J. Cheal and Sons, Crawley, third; and Mr. J. Stredwick, St. Leonards, fourth.

The chief honours for a dozen bunches of cactus dahlias, in distinct varieties, six blooms of each, were won by Mr. S. Mortimer, Farnham, with a wonderfully handsome set that consisted of Mary Service, Fusilier, Harry Stredwick, Miss A. Nightingale, Starfish, Night, Lady Penzance, Fantasy, Britannia, Charles Woodbridge, and Alfred Vasey. Mr. M. V. Seale, Sevenoaks, second; and Mr. G. Humphreys, King's Langley, third. The class for two dozen cactus dahlias, distinct, brought out nine competitors, and Messrs. Burrell and Co., Cambridge, came first with very fresh and bright specimens of Charles Woodbridge, Mrs. Peart, Zampa, Britannia, Regulus, Fusilier Improved, Cinderella, and Auburn in the back row; Harmony, Night, Presto, Oberon, Keynes White, Ajax, Lady Penzance, and Orient in the middle row; Acis, Lucius, Island Queen, Casilda, Antelope, Arachne, Madge Wildfire, and Mary Service in front; the second prize fell to Messrs. Keynes, Williams and Co.; while Messrs. J. Cheal and Sons, Crawley, came third, their set having a suitable accompanyment of dahlia foliage.

In the amateurs' division Mr. R. Keble, gardener to S. W. Sharpe, Esq., Twyford, won the first prize offered for a dozen bunches of cactus dahlias, distinct varieties, showing Matchless, Mary Service, Cycle, Mrs. Montifiore, J. E. Frewer, Mrs. G. Sloane, Starfish, Harmony, Mrs. A. Beck, Beatrice, Miss A. Jones, and Harry Stredwick; Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, second; and Mr. Mist, third. There were ten competitors in the class for six bunches of cactus dahlias, three flowers in each; Mr. A. Needs, Horsell, Woking, coming first with fine examples of Starfish, Charles Woodbridge, Gloriosa, Matchless, Mrs. Wilson Noble, and Mrs. Barnes; Mr. R. C. West, second; and Mr. E. Mawley, Berkhamsted, third. There was also an excellent competition in the classes for nine varieties of cactus dahlias in bunches of three blooms, Mr. H. A. Needs winning with a wonderfully handsome stand, in which Keynes White and Lady Penzance were grand; Mr. Keble, second; and Mr. J. Hudson, third.

SINGLE DAHLIAS.

Two splendid collections of two dozen varieties of single dahlias were staged, each variety represented by ten blooms in a bunch or spray. Messrs. J. Cheal and Sons, Crawley, gained the chief award with fine flowers of Mrs. Comminck, Jack Shephard, Amos Perry, Duke of York, W. C. Harvey, The Bride, Donna Cassilda, Duchess of Fife, Cleopatra, Miss Roberts, Beauty's Eyes, Demon, Yellow Satin, Alba Perfecta, Miss Linaker, Miss Henshaw, Aurora, Duchess of Marlborough, Naomi Tighe, Miss Morland, Miss Glasscock, Polly Eccles, Formosa, and Marion Hood. Mr. M. V. Seale, second. Mr. T. W. Girdlestone showed the best set of six bunches of single dahlias, winning with Naomi Tighe, Titania, Puck, Eric, Polly Eccles, and Donna cassidda; Mr. J. Hudson, second; and Mr. W. Mist, third; the competition for single dahlias showed a great falling off this year. In another class for single varieties, Mr. E. Mawley and Mr. J. Peters, Horley Station, were first and second respectively.

In the open class for eighteen varieties of fancy single dahlias in bunches of ten blooms each, Mr. T. W. Girdlestone won the chief award with Aladdin, Ruy Blas, Louisette, Suzette. Splosh, Phyllis, Folly, Creole, Trilby, Princess Petula, Tommy, Jeanette, Bal Masque, Jack Sheppard, Tommy Tucker, Violet Forbes, Ganem, and Nan; Mr. M. V. Seale, second; and Messrs. J. Cheal and Sons, Crawley, third.

POMPON DAHLIAS.

A grand display was made in the class for two dozen bunches of pompon dahlias as there were four exhibitors. The premier set was that from Mr. M. V. Seale, Sevenoaks, who showed beautiful blooms of Hypatia, Bacchus, Nellie Bromhead, Dr. Jim, Sunny Daybreak, Eva, Emily Hopper, Rosebud, Whisper, Tommy Keith, May Kirk, Phœbe, Lilian, Red Indian, Little Sweetheart, Douglas, Jessica, Ernest Harper, Ganymede, Distinction, Snowflake, Adrienne, Amber Queen, and Nerissa; Messrs. J. Cheal and Son, Crawley, second; and Mr. C. Turner third. For twelve bunches of pompon varieties, distinct, Messrs. J. Burrell and Co., Cambridge, led the way with Bacchus, Eurydice, Douglas, Whisper, George Brinchmann, Nerissa, Emily Hopper, Isabel, Tommy Keith, Arthur West, Janet, and E. F. Jungker; Mr. G. Humphries, second; and Mr. J. Stredwick, third.

The best set of six bunches of pompon dahlias in the amateurs' division came from Mr. G. Wyatt, gardener to G. Hilditch, Esq., Twickenham, and consisted of Bacchus, Nerissa, Dr. Jim, Little Sweetheart, Phœbe, and Tommy Keith; Mr. J. Hudson, second; and Mr. W. C. Pagram, Weybridge, third. For six bunches of six blooms each Mr. R. C. West was first; and Mr. C. F. Wood, Reigate, third.

DECORATIVE EXHIBITS.

The best vase of a dozen dahlia blooms was a handsome lot of scarlet flowers set up by Mr. G. Mawley; Mr. J. F. Hudson, Gunnersley House, second. For an epergne of dahlias Mr. J. F. Hudson was first, yellow single and cactus forms being extensively used; Mr. E. Mawley second. One dahlia bouquet was good, Mr. W. Treseder, Cardiff, winning with a charming arrangement, the variety Mabel Keith being used with croton and asparagus foliage; Mr. Seale, second. For three vases of dahlias Mr. R. Edwards, Sevenoaks, was awarded first prize.

NON-COMPETITIVE DISPLAYS.

Mr. T. S. Ware, Hale Farm, Tottenham, put up a large and effective display consisting of a large central mound of varied cactus varieties, flanked by [illegible] of pompon varieties of good form and colour. Mrs. Peart, Cycle, Night, Beatrice, Fusilier, and Mrs. Wilson Noble were foremost cactus forms among a good collection. From Messrs. J. Peed and Sons, Roupell Park, Norwood, came a pretty display of hardy flowers and foliage, and dahlias, the latter being represented by cactus, show, and pompon varieties. The statice and phloxes were good. Messrs. Carter, Page, and Co., London Wall, showed an extensive and bright collection of cactus dahlias, making a sloping bank, the flowers being arranged in vertical lines of one variety. This is a most inartistic method of display, but it contained fine sets of Octopus, Britannia, Beatrice, Lady Penzance, Charles Woodbridge, Night, Fusilier, Standard, &c.

From Messrs. Dobbie and Co., Rothesay, came a very fine display of cactus and pompon dahlias, the former put up in sprays of nine or twelve flowers. This big mass of colour was relieved by grass plumes, statice, &c. Some of the very best cactus dahlias, representing the pick of a very extensive collection, were Mary Service, Britannia, Lady Penzance, Beatrice, Starfish, Fusilier, Matchless, Night, Standard, Mrs. Fell, Miss Webster, Mrs. Peart, Mrs. Wilson Noble, Darkness, Fantasy, &c. Good pompon varieties shown were Bacchus, Whisper, [illegible] Little Dorritt, Lockett, Admiration, Agate, Hypatia, &c. Mr. J. R. Box, Croydon, and West Wickham, showed tuberous begonias, all this year's seedlings, staged in bunches amid maidenhair fern; all the blooms had been cut from the open ground, and were extremely fine for so dry a season as we have experienced. The variety of colours was specially good, from white to intense crimson. Mr. J. Green, Norfolk Nurseries, Dereham, put up a large display of pompon and cactus varieties, grouping them in sprays, boxes, bunches, &c.; Red [illegible], a new seedling represented by one flower, was an immense crimson scarlet [illegible] form over eight inches across.

ROYAL HORTICULTURAL SOCIETY, September 6.

A small meeting was held at the Drill Hall on the above date, and the attendance was somewhat small also. A grand specimen of that old and highly-fragrant orchid, Peristeria elata, shown from Her Majesty's gardens at Frogmore, Windsor, was one of the chief attractions of the show.

Floral Committee.

There was but a moderate display of plants and flowers, and novelties, except in dahlias, were by no means numerous or particularly striking.

Down the centre of the hall Mr. H. B. May had a tasteful exhibit of finely-grown Salvia splendens associated with Bouvardia Humboldti grandiflora, the white flowered Swainsonia galegifolia, and dwarf ferns beneath. At either end of the central group were smaller lozenge-shaped groups, one of Winter Cheer, Mrs. Leopold de Rothschild, Countess of Warwick, and Miss Joliffe carnations; and the other of a pretty double-white fuchsia, named Ballet Girl; silver Banksian medal. Messrs. J. Cheal and Sons, Crawley, put up a group of cut sprays of hardy shrubs, both foliage and flowering kinds; a few of the leading subjects were Hydrangea paniculata, Acacia neo-mexicana, Tamarix parviflora, Salix annularis, Rubus phœnicolasius, Sambucus argentea variegata, Diplopappus chrysophyllus, Spiræa callosa rosea, Ligustrum macrophyllum, Cæonothus Gloire de Versailles, Symphoricarpus folius aureus, Cornus siberica variegata, &c. Dahlias from Messrs. J. Cheal and Sons made a very bright and attractive display. Among the single sorts, Formosa, Mrs. L. Conninck, Amos Perry, The Bride, Naomi Tighe, Miss Roberts, and Miss Morland were very fine. Cactus sorts were also very beautiful, and especially pleasing forms were Austin Cannell, Arachne, King of Siam, Alfred Vasey, Chas. Woodbridge, Mrs. J. Goddard, and Fantasy. The pompon varieties were also very handsome, fresh, and bright. The whole display merited a silver-gilt Banksian medal. Mr. A. Pentney, gardener to A. J. Howard, Esq., Worton Hall, Isleworth, showed a group of freely-flowered streptocarpus, backed by several dozen spikes of brilliantly-flowered cannas. Ferns of sorts were used to set off the brilliant colours; silver Banksian medal.

Messrs. J. Veitch and Sons, Chelsea, showed three pretty forms of Hibiscus syriacus, viz., H. coelestis, H. monstrosus, white and red; and H. totus albus, pure white; they also exhibited a number of hardy nymphæas in small tanks of water; N. Laydekeri fulgens, N. L. lilacea, N. Marliacea chromatella, very fine; N. alba, N. Marliacea carnea, and N. M. alba were the best. The collection of annuals displayed by Messrs. J. Veitch and Sons, in competition for the Sherwood cups, was not such a bright group as staged at former meetings. The dry and hot weather of late has been against the prolonged flowering of many annuals. Sweet sultans, asters, scabious, phloxes, dianthus, salpiglossis, Cosmos bipinnata, and various sunflowers were the chief subjects on view. The Chelsea firm exhibited a small group of gladiolus, all Childsi hybrids, and carrying large, [illegible]-mouthed flowers of the greatest brilliance; silver Banksian medal. A group of fragrant roses, shown by Mr. W. R. Rumsey, Joynings Nursery, Waltham Cross, consisted wholly of blooms in various stages of development of the new bright rose-pink rose Mrs. Rumsey; this free-flowering bedding rose we have on many occasions already alluded to; bronze Banksian medal.

Ferns in great variety were staged by Messrs. J. Hill and Son, Edmonton, and in the large group we noted fine examples of Lastrea lepida, Gymnogramma Parsonsi, Asplenium caudatum, Pteris tremula Smithiana, Osmunda palustris, Woodwardia radicans, Nephrolepis rufescens tripinnatifida, and Cheilanthes elegans; silver Flora medal. From Messrs. F. Sander and Co., St. Albans, came a few small but well grown specimens of Acalypha Sanderi, A. Godseffiana, Dracæna Sanderiana, and a number of flowering examples of the brilliant and handsome Hæmanthus multiflorus superbum, a useful bulbous plant not nearly enough grown. Acalypha Novelty is the name given to a novel seedling acalypha raised by Mr. J. Wells, gardener to Mrs. Ravenshill, Woodside, Windsor Forest; it has creamy or yellowish leafage blotched with various shades of green; flowers, pale crimson. Mr. Baines, gardener to Sir Trevor Lawrence, Bart., Barford Lodge, Dorking, showed some fine pentstemons, and a tall-growing helenium named H. autumnale superbum.

Orchid Committee.

Messrs. James Veitch and Sons, Chelsea, contributed a large group of excellent orchids that made a most interesting display. Lælio-cattleya callistoglossa ignescens, L.-c. Nysa, L.-c. Eudora, Cattleya Warscewiczi, C. Eldorado, C. Euphrasia, and C. Harrisoniæ, were first-rate, as also were Disa Clio, Rodriguezia venusta, Dendrobium Endocharis, Renanthera matutina, Cypripedium Clinkaberryanum and Angræcum articulatum. This firm also sent a new Cattleya hybrid named C. Ella, a cross between C. Warscewiczi and C. [illegible]; a fine, rich, rosy flower, with deep purple lip; silver Flora medal. Mr. F. S. Stevens, gardener to Sir F. G. Freake, Bart., Warfleet House, Dartmouth, showed an almost pure white Dendrobium Phalænopsis, named Warfleet variety; it had a highly-coloured lip. Cypripedium Mrs. F. L. Ames was staged by Mr. Rodgers, gardener to O. O. Wrigley, Esq., Bridge Hall, Bury. Lælio-cattleya splendens, with rich, violet-purple lip, was shown by Mr. Bond, gardener to C. L. N. Ingram, Esq., Godalming.

Messrs. F. Sander and Co. showed Cypripedium Mrs. Edgar Cohen, a cross between C. callosum and C. niveum; this firm also sent C. William Trelease, a bold hybrid between C. Rothschildeanum and C. Parishi; the influence of the [illegible] parent was very notable in every segment. Mr. A. Vast, gardener to [illegible] Cohen, Esq., St. John's Wood, showed Lælio-cattleya elegans Cohen's var., an extremely strong-growing form with violet and purple apex to the large labellum; the spike carried seven or eight splendid flowers.

The most interesting orchid exhibited was a huge and splendidly-grown specimen of Peristeria elata, the Dove or Holy Ghost orchid, shown by Mr. Owen Thomas, gardener to Her Majesty the Queen; this carried eight strong spikes five feet high, and carrying an aggregate of nearly three hundred flowers and buds. A first class certificate was awarded for this old orchid, an award that scarcely seems justified, but the silver Flora medal awarded was thoroughly well merited, for not in recent times has such a fine example of high cultivation in this orchid been exhibited; it was a plant worthy of Her Majesty's establishment and her able gardener.

Fruit and Vegetable Committee.

Exhibits of fruit become more numerous and extensive at each meeting now, but it would be as well if exhibitors would remember that unripe fruits, or at least those out of character, are of no value at such gatherings as these.

A large and interesting collection of fruit was shown by Messrs. James Veitch and Sons, Chelsea; it consisted of some eighteen dishes of early dessert apples, [illegible] a dozen of pears, and nearly two dozen sorts of culinary apples. Long [illegible] of the John Downie crab, in fruit, were very handsome, while the pot [illegible] were most attractive, such sorts as White Marseilles, Negro Largo, and Bour-[illegible] Grise being well fruited. Peaches, figs, and plums were also well represented. A silver Knightian medal was awarded. Mr. J. Day, Galloway House, Gardens, Garliestown, sent Lord Napier nectarines and Early Grosse Mignonne peaches, the latter meriting a cultural commendation. Mr. J. Cole, Highly Manor Gardens, Balcome, showed some splendid Morello cherries. A fine new white-fleshed melon, named British Queen, was shown by Mr. Owen Thomas, gardener to Her Majesty at Frogmore.

Mr. C. Last, gardener to H. O. O'Hagan, Esq., River House, Hampton Court, showed magnificent Exquisite peaches, Pine Apple and River's Orange nectarines; a cultural commendation was awarded. Potatos came from the Chiswick Gardens, and several gained awards as noted elsewhere; some good onions also came from Chiswick, drawn from the trials made there. Mr. S. Robinsón, Ellesfield Gardens, Hollingbourne, showed large Sea Eagle, Lord Palmerston, and Princess of Wales peaches. Mr. J. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, sent three dishes of first-rate peaches. Messrs. S. Spooner and Sons, Hounslow, Middlesex, were awarded a bronze Banksian medal for a collection of apples, comprising about forty varieties.

Messrs. T. Rivers and Son, Sawbridgeworth, Herts, showed some splendidly-fruited plum trees in pots, the varieties being Jefferson, Burbank, Archduke, Victoria, Belgian Purple, Coe's Golden Drop, Pond's Seedling, and a seedling. Bunches of Buckland Sweetwater and Gradiska grapes were admired for their colour. This firm showed twenty grand examples of Peasgood's Nonsuch apple, wonderful for size and even shape. A silver Knightian medal was awarded. The Messrs. Rivers also sent a bunch of Centennial, a huge-berried, white, Australian grape of poor quality.

BATH FLORAL FETE, August 31 and September 1.

Established forty-three years ago, the authorities have held flower shows in Bath for the delectation of visitors ever since, the delightful Stanley Gardens being available for the purpose. The committee have had to contend with many vicissitudes; wet days have almost ruined their prospects at times, but they have held on—though their yearly shows have been reduced in number—holding the banner aloft through sunshine and storm. The late summer show is always an attractive one; it was especially so on this occasion, for it was one of the best ever held, and the day being brilliantly fine, a large company assembled and soon filled the various tents.

Fuchsias always take the leading place in the schedule of prizes. Bath and district has always been famous for specimen fuchsias, and on this occasion they were both finely and numerously produced. Mr. G. Tucker, Helperton, Trowbridge, who may now be regarded as the champion fuchsia grower of the West, had nine very fine specimens, of darks, Diamond Jubilee, a singularly bright variety of his own raising; Final, Bountiful, Dock Favourite, and Charming; and of light varieties, Western Beauty (Lye), very fine; Mrs. Bright, Arabella, and one other. J. H. Walters, Esq., Bath, was second, he had fine freely grown and bloomed bushes of Bountiful, Thomas King, Charming, Western Beauty, Beauty of Wilts, &c. Mr. A. Young, gardener to Lady Pitman, Bath, had the best six, the finest being Bountiful, Arabella, Charming, Letty Lye, &c.; second, Mr. H. Pocock, Trowbridge; third, Mr. W. A. Burford, Weston. Mr. G. Podger, Bath, had the best four; Mr. J. Lord, Batheaston, was second. Specimen dark and light varieties were also good.

Groups of plants, filling a space of one hundred feet, were a good feature ranged along the centre of one of the tents. Mr. James Cypher, Cheltenham, with some of those touches of artistic skill he puts into such works, came first; Mr. Tauser, gardener to W. R. B. Cater, Esq., Bath, was a good second; and Messrs. E. S. Cole and Son, Bath, third.

Cheltenham produced the best stove and greenhouse plants in pots, a very fine lot indeed; twelve were ornamental foliage and six in flower. Magnificent palms, brilliant crotons, &c., were staged in the best condition by Mr. Cypher; Messrs. E. S. Cole and Son were second; and Messrs. J. B. Woods and Son, Chipping Sodbury, third. Mr. Cypher had the best six in bloom, but was run very close by Mr. G. Tucker. The former had Phœnicoma prolifera Barnesi, Allamanda nobilis, Bougainvillea glabra, Statice profusa, and Ericas Austiniana and obbata purpurea. Mr. Tucker had fine specimens of Bougainvillea Sanderiana, Clerodendron Balfourianum, Ixoras Morsei and Fraseri, Allamanda nobilis, and a splendid Dipladenia Brearleyana. The best greenhouse plant was Statice Gilberti, from Mr. Tucker; Mr. Cypher coming second with S. intermedia. Mr. Cypher had the best stove plant in a fine example of Ixora Duffi; Mr. Tucker was second with another fine Dipladenia Brearleyana. Mr. H. Pocock had the best three plants, chief among them being Stephanotis floribunda.

Mr. Cypher had the best six orchids in Dendrobium formosum, Cattleya gigas, Lælia elegans, L.-cattleya Cypheri, Dendrobium phalœnopsis Schrœderi, and Cattleya Eldorado. He also had the best six heaths, and the finest specimen in Erica Marnockiana. The best new plant was Croton Nestor, from Mr. Cypher; Mr. G. Pymin, gardener to Mrs. Gouldsmith, Trowbridge, was second, with a bright seedling croton.

Zonal pelargoniums, cannas, liliums, gloxinias, cockscombs, and petunias were also shown; but, while good on the whole, they did not call for special remark. Tuberous-rooted begonias were represented by good specimens. Mr. H. Chisler, gardener to E. T. D. Foxcroft, Esq., Bath, had the best six doubles, and Mr. G. Tucker, the best six singles.

The display of cut flowers was numerous and fine. The best thirty-six spikes of gladioli, a very fine lot came from Mr. S. Bird, gardener to F. H. Fox, Esq., Wellington; Mr. J. Mattock, Headington, Bath, was second. Mr. F. Hooper, Bath, had the best twelve, run close by Mr. George Humphries, of Chippenham. Mr. Humphries had the best twenty-four dahlias, having in fine character the Rev. J. Godday, Earl of Ravensworth, Mr. Gladstone, Rebecca, Duchess of Albany (both sports), Reliance, Dr. Keynes, J. Wyatt, W. Rawlings, Vice-President, John Walker, James Vick, &c.; second, Messrs. Keynes, Williams, and Co., Salisbury; third, Mr. W. Treseder, Cardiff. Messrs. J. Cray and Son, Frome, had the best twelve, having good blooms of Excellent, Mr. W. Slack, Prince of Denmark, Duchess of York, Dr. Keynes, John Walker, Florence Tranter, &c; Mr. F. Lindsay, Frome, was second. With twelve fancies, Mr. G. Humphries gained the first prize, having capital blooms of Duchess of Albany, Sailor Prince, Dorothy, Mabel, Sunset, Mr. Saunders, Lottie Eckford, George Barnes, &c.; second, Mr. T. Hoskins, Kingswood. Mr. J. Burgess, Kingswood, had the best twelve bunches, clean, bright, but large—larger than we see them in London. Mr. T. Truckle, gardener to T. Carr, Esq., Tiverton, was second. Strange to say, neither the brilliant cactus varieties, nor the neat pompons find a place in the schedule. Roses were a very good feature. The best twenty-four came from Mr. J. Mattock, who had in fine character Her Majesty, Charles Darwin, Marchioness of Londonderry, Mrs. J. Laing, Charles Lefebvre, Horace Vernet, A. K. Williams, Madame Hoste, Duchess of Bedford, Duke of Teck, Maman Cochet, &c.; Messrs. Perkins and Son, Coventry, was second; and Dr. Budd, Bath, third. Mr. George Garraway, Bath, had the best twelve, his leading blooms were Mrs. J. Laing, Marie Verdier, A. K. Williams, Alfred Colomb, The Bride, Maman Cochet, &c.; second, Mr. A. A. Walters, Kensington Nurseries, Bath. Mr. Mattock also had the best twelve teas and noisettes, having in good character Maman Cochet, Madame Hoste, The Bride, Maréchal Niel, Madame Cusin, Comtesse de Nadaillac, &c.; second, Dr. Budd.

A very fine collection of twenty-four bunches of cut flowers of zonal pelargoniums was staged by Messrs. G. Cooling and Sons, Bath, remarkable for the novelties found in it; Mr. W. J. Mould was second. Asters were numerously shown, quilled, flat-petalled, and the Comet types being in much better character than was expected.

Mr. George Hallett, Bath, had the best twenty-four bunches of cut stove and greenhouse cut flowers, the usual subjects; Mr. G. Tucker was second. Mr. A. A. Walters had the best twelve bunches of hardy perennials, having in fine character Dracocephalum virgineum, Tritoma uvaria, lilies, montbretias, helianthus, lathyrus, &c.; Mr. W. Treseder was second; and Messrs. W. J. Stokes and Co. third. Mr. George Garraway had the best twenty-four bunches of hardy annuals; Mr. W. L. Jay was second. These represented some of the most showy subjects among annuals, and were much admired. Phlox Drummondi, German stocks, African marigolds, double zinnias, &c., were all shown in good condition.

The best dinner table decoration, soft and pleasing, was set up by Messrs. E. S. Cole and Co.; Mr. A. H. Freeman, Bath, was second. Mr. Cypher was first, with one of his delightful epergnes; and Mr. E. T. Hill, second. Messrs. Perkins and Son, Coventry, carried off the first prize for a hand bouquet, orchids largely composing it; and Mr. W. Treseder was second. Flowers in bowls, sprays, buttonholes, &c., were also shown.

Some good fruit was staged, Mr. W. Strugnell, gardener to Colonel Drexel Rood Ashton, Trowbridge, taking the first prize with eight dishes, having Muscat of Alexandria and Alicante grapes, Sea Eagle peaches, Pine Apple nectarine, Hemskirk apricot, plums, melon, and cherries; Mr. G. Pymm was second, having grapes, peaches, nectarines, &c.; Mr. T. Wilkins was third. The best eight bunches of grapes came from Mr. W. Taylor, gardener to C. Bayer, Esq., Forest Hill, who had in finely finished character Black Hamburgh, Madresfield Court, Gros Maroc, and Muscat of Alexandria; Mr. W. Allen, gardener to W. Marshall, Esq., Taunton, was second, with the same varieties. The best three bunches of Black Hamburgh came from Mr. R. E. Taylor, Bath, fine in bunch, but lacking colour; Mr. R. B. Malvern was second. With two bunches of Muscat of Alexandria A. R. Bailey, Esq., Frome, was first, with very good examples; and Mr. Taylor, Forest Hill, was second. The best two bunches of any other white was fine Buckland Sweet Water, from Mr. Marshall, gardener to J. Dole, Esq., Bristol; Mr. G. Sutton was second with the same. The best two bunches of any other black were Madresfield Court, from Mr. Taylor, Forest Hill; Mr. C. C. Tudway, Bath, was second, with Gros Maroc.

Melons were shown in two classes. The best dish of nine peaches was Barrington, from Mr. A. Cross; Mr. W. Powell, Bath, was second, with Barrington. The best dish of six was Exquisite. The best nine nectarines were Lord Napier, from Mr. J. Stevens; the best six, Pine Apple, from Mr. Strugnell. Greengage, dessert, and culinary plums were shown, also figs, cherries, nuts, and filberts. The best three dishes of pears were Beurre Clairgeau, Pitmaston Duchess, and Souvenir du Congrés, from Mr. W. Fisher, Batheaston. The best single dish, Pitmaston Duchess, from Mr. E. Hall. Mr. G. Garraway had the best three dishes of dessert apples in Worcester Pearman, Duchess of Oldenburgh, and Lady Sudely. The best dish was Lady Sudely, from Mr. E. D. Bourdillon. Mr. Garraway was first with three dishes of culinary apples, having Peasgood's Nonesuch, Ecklinville, and Emperor Alexander, very fine. The best single dish was Peasgood's Nonesuch, from the Rev. Y. Fawsett.

Vegetables were numerously shown, and finely, especially in the society's class for 12 varieties and in those in which Messrs. Sutton and Sons and Messrs Webb and Sons offered special prizes. Good potatos were shown in collections.

Miscellaneous exhibits filled a considerable space. Messrs G. Cooling and Sons had a large table of plants and cut flowers, also of apples and pears. Messrs. Jarman and Co., Chard, had cactus dahlias, lilies, including L. Nepalense, and other flowers. The Devon Chrysanthemum Nursery Company had dahlias and other cut flowers. Mr. J. R. Blackmore, Bath, had cut blooms of fine strains of double and single begonias. Messrs. J. Cray and Co., Frome, had a good collection of cut flowers of various kinds, and Messrs. E. Webb and Sons, Stourbridge the same. Mr. A. A. Walters also had collections of cut flowers, and Mr. J. Mattock some charming bunches of garden roses.

ROYAL AQUARIUM, September 6, 7, 8.

THERE was a very fair show at the Royal Aquarium on the above dates; dahlias and gladioli were first-rate, but chrysanthemums in the competitive classes were poor with but one or two exceptions.

Mr. Norman Davis, Framfield, had a very handsome collection of chrysanthemum blooms arranged in vases of various sizes and heights; the Desgrange varieties, Mdlle. Marie Masse, M. G. Grunerwalde, and Harvest Home were the leading sorts; Mr. Davis gained first prize and thoroughly earned it. For twelve blooms of Mdme. Desgrange, Mr. W. Perrin, gardener to C. W. Richardson, Esq., Sawbridgeworth, secured first prize with fine specimens; Mr. C. Crookes, Droitwich, second. Mr. Such scored for six bunches of early chrysanthemums. Miss Debenham, St. Albans, led for twelve trebles of early flowering chrysanthemums, showing California, Madame Gabus, and Piercy's Seedling in fine condition; Mr. E. Such, second; and Mr. G. J. Cook, Hendon, third. Mr. J. Rose, Plumstead, staged the best six blooms of any chrysanthemum, Madame Desgrange, showing them in a vase. Mr. W. C. Vince, Leyton, had the best epergne of chrysanthemums, Mr. J. Rose coming second, and Mr. A. Taylor, East Finchley, third.

Mr. J. Walker was almost invincible with show and fancy dahlias, winning the chief award for four dozen blooms, his set containing fine flowers of Goldsmith, W. Keith, Daniel Cornish, J. Downie, and J. T. West; Mr. Charles Turner, second; and Mr. Mortimer, third, out of five competitors. There was a fair competition in the class for three dozen show and fancy dahlias, and here Mr. J. Walker, Thame, just managed to beat Mr. S. Mortimer, Farnham; W. Keith, Prince of Denmark, Goldsmith, Hercules, and Glowworm were fine in the winning stand; Mr. C. Turner, third. Mr. Humphries, Chippenham, led for two dozen blooms; with Mr. J. R. Tranter, Henley-on-Thames, second. Mr. Tranter scored, however, for a dozen blooms, followed by Mr. G. Humphries and Mr. W. Baxter, Woking, in the order given. Mr. S. Cooper, Chippenham, led for twelve show dahlias; with Mr. E. Jefferies, second; and Mr. F. King, Romford, third. For six blooms Mr. C. F. Keep, Streatham, was first; and Mr. S. Cooper, second. In the class devoted exclusively to amateurs Mr. Jefferies scored for six show and fancy dahlias; Mr. Anstiss, Brill, second; and Mr. Cooper, third. Mr. Anstiss was the leading competitor in the class for eighteen show and fancy blooms, his J. Walker, Chieftain, and J. Cocker being very good.

Mr. S. Mortimer scored for a dozen bunches of cactus dahlias in the open class his best bunches being E. J. Deal, Britannia, Night, and Starfish; Mr. H. Shoesmith came second and Mr. J. Stredwick, third. For eighteen bunches, Messrs. J. Burrell and Co., Cambridge, made a splendid display, gaining first prize readily with a beautiful and fresh set. Messrs. Keynes, Williams, and Co., Salisbury, coming second. Mr. J. Hudson, Gunnersbury House, Acton, led with six bunches of cactus dahlias, open class; Mr. G. Wyatt, gardener to G. Hilditch, Esq., Waldegrave Park, Twickenham, second.

Mr. Charles Turner, Slough, obtained premier place for two dozen bunches of pompon dahlias, making a fine exhibit; Mr. F. W. Seale, Sevenoaks, second; and Messrs. Keynes, Williams, and Co., third. Messrs. Burrell, Mr. G. Humphries, and Mr. J. Walker were the prize winners in order for a dozen bunches of pompon dahlias.

Mr. J. Hudson, Gunnersbury House Gardens, scored for six bunches of pompon dahlias with Ganymede, Nerissa, Captain Boyton, Orpheus, Whisper, and Eric; Mr. G. Wyatt, second; and Mr. W. C. Pagram, gardener to J. Courtenay, Esq., Weybridge, third. Messrs Stredwick and Hudson were first and second respectively for six bunches of pompons.

Mr. T. W. Girdlestone was first for twelve bunches of single dahlias; Mr. J. Hudson, second; and Mr. R. Mist, Ightham, third. Mr. F. W. Seale scored for two dozen bunches of single dahlias.

A beautiful lot of gladiolus came from Messrs. Burrell and Co., Cambridge, who gained first prize with a collection of about seventeen dozen spikes, chiefly gardavensis forms, of great beauty and brilliance. Messrs. Harkness and Sons, Hitchen, second.

Mr. J. H. Witty, Nunhead Cemetery, Plumstead, had a very attractive circular group of chrysanthemums and ferns, gaining a silver-gilt medal. A silver medal was awarded to Mr. T. W. Seale, Sevenoaks, for a collection of show and cactus dahlias. Mr. J. Mattock gained a silver-gilt medal for a choice and fragrant collection of tea roses in bunches staged amid maidenhair fern. Mr. F. G. Foster, Havant, Hants, showed sweet peas in variety. Mr. T. S. Ware, Tottenham, put up a fine display of cactus and pompon dahlias, making an extensive group that attracted much attention; small gold medal.

Mr. H. J. Jones, Ryecroft Nursery, Lewisham, showed a large group of chrysanthemums, liliums, begonias, caladiums, &c., gaining a small gold medal. May Manser was a fine early Japanese chrysanthemum of a creamy-white hue, large and free. Mr. Jones also sent a good tomato named the Champion, a handsome, heavy, and smooth fruit. Mr. J. Green, Dereham, had an extensive display of dahlias, representing all sections; a silver-gilt medal. Messrs. H. Cannell and Sons, Swanley, gained a silver medal for a table of early flowering chrysanthemums; Harvest Home and Mrs. Pitcher were fine. Mr. J. R. Chard, Stoke Newington, was awarded a silver medal for a light arrangement of early chrysanthemums and berberis. Mr J Williams, Ealing, gained a bronze medal for table decoration. Mr. W. Wells, Earlswood Nurseries, Redhill, had a pretty table of early flowering chrysanthemums; Harvest Home, Arthur Crepy, and Mytchell White being prominent varieties; small silver medal. Messrs. Lawes and Co., had a stand of chemical manures; so also had the Icthemic Guano Company.

PEOPLE'S PALACE HORTICULTURAL SOCIETY,

September 1, 2, and 3.

THIS society includes a dahlia show as one of the four exhibitions it holds every year, and despite the dry weather some good blooms were staged. As a matter of course, the flowers which came from the more open parts, such as Leyton, Forest Gate, Walthamstow, and neighbouring places were larger and brighter than grown in the more crowded neighbourhoods, but the latter were highly creditable, and their quality showed what can be done in the face of trying, opposing forces. Some of the plants are grown in pots in order to have them under better control. As a rule, the show flowers were in many instances hard-eyed, owing to lack of moisture, and especially so was this the case in those districts in which there is a water famine. The cactus varieties appear to do better in crowded neighbourhoods than the show varieties, and it was seen that here the true cactus type was gradually elbowing out the broad petalled decorative varieties. Notwithstanding the dry season, there was to be seen an undoubted advance on the quality of last year, and this is a pleasing fact in connection with this society. Good specimens of lilies of the auratum and speciosum sections were shown; also asters in pots, and pretty bunches of garden flowers. The children contributed many plants of various kinds which they have to cultivate themselves. In the miscellaneous class, Mr. J. Ransom, Church Street, Bethnal Green, contributed a group of flowering and foliaged plants, which gained for him the award of the silver medal of the society. Among the friends of the society who contributed honorary collections, Mr. J. B. Riding, nurseryman, Chingford, set up a table of bunches of cactus and other dahlias which were very highly commended. It is gratifying to know these shows are well patronised by the residents in the locality.

SUTTON COLDFIELD GARDENERS' MUTUAL IMPROVEMENT SOCIETY.

THE annual excursion of members and friends of this flourishing society took place on Monday, the 29th ult., and Kenilworth and Stoneleigh Abbey Gardens were the places visited. Starting from the Town Hall, Sutton, at eight a.m., the party proceeded by brake to Stone Bridge Hotel, where a stop of half an hour was made to inspect the noted Stonebridge begonias, the beds of begonias being very much admired. Leaving Stonebridge the party proceeded to Kenilworth, where a substantial dinner was served at the Railway Dining Rooms. Here fresh brakes were obtained in which to drive to Stoneleigh Abbey Gardens, where the members of the society were met by Mr. Martin, the head gardener, who conducted the party over the grounds, including flower garden and well-kept and cropped kitchen gardens. In the latter department, the members were much interested in a fine bed of onions, viz,, Ailsa Craig and Lord Keeper, some of the bulbs measuring seventeen inches in circumference. Mr. Martin was liberally questioned as to when he sowed and how he treated to get such fine bulbs, and these questions it is hardly necessary to say he freely answered. After looking through the twenty-three glass houses, a return was made to the brakes, and the drive through the well-stocked and well-wooded deer park, which is specially rich in fine hardy trees, was much enjoyed. Arriving at Kenilworth, tea was partaken of, and at half-past six a start was made for Sutton in a steady downpour of rain. As the party consisted of gardeners, the weather did not damp their spirits, for they all acknowledged that they had spent an enjoyable time, and considered it the best excursion the society had made. On reaching Sutton the members expressed thanks to Messrs. Jenkins and Grover, the hairman and secretary, for the admirable arrangements they had made.

NEW BOOKS.

Work on a Kentish Fruit Farm. By A PRACTICAL MAN. (George Bunyard and Co., the Royal Nurseries, Maidstone.) Price 1s.—The name of the author of this brochure is not given, but Messrs. G. Bunyard and Co. state in the preface that the articles were contributed week by week to the *South Eastern Gazette* during 1897, and recognizing their merit they acquired the copyright for the purpose of publishing them in a separate form, and thus place the information they contain at the command of a larger number of cultivators of fruit and vegetables. The work may be described as a diary of commercial horticulture for the year, and as the author is fully conversant with the cultivation of both fruit and vegetables, and well acquainted with the metropolitan and other markets he has given much information of immense value to the cultivator of these crops for market. As indicating the character of the work, we make a few extracts which relate to seasonable subjects.

Writing under date of August 31, the author says:—

"This has been a week of rather bad weather for gathering and marketing. Although we have not had any extensive rainfall, the general conditions have been wet enough to hinder picking operations considerably. The careful fruit grower will never gather his produce when wet, and when we get frequent showers almost every day it will be readily understood how trying is the position. A good soaking wet day and fine weather afterwards is much preferable. The fruit has been gathered, as, of course, it must when ready, but the trouble of getting it must have been considerably increased.

"Apples and plums are the chief interest just now. It is the season for pears, but this year they are conspicuous by their absence. Apples and plums are coming to hand more plentifully than we have had them all the year, apples especially. The markets have been quite full enough during the last few days for the good of the trade. A great many growers are anxious to pick all the fruit possible before hop-picking commences, and no doubt this is the prime cause of the excessive sendings. This week will see most people busy with hops, and I shall then look for prices to improve. There have been several days of high winds to blow apples down. This is also a very common cause of a cheap day or two. After a wind everyone has more or less fruit that must be picked up and sold immediately.

"Plums and damsons are maintaining their prices well. The Victoria plum, one of the best and also one of the most popular among growers, is now in full season. The demand is very good, and the bulk of the fruit is of excellent quality. The thin crop has enabled the plums to grow out beyond their usual size. A few lots one sees—probably from some poor farm or from trees that have been heavily laden—are, however, of poor size and blighted appearance. The hot weather must have been very trying for trees carrying a big load. A good plan with this variety, and one practised by some of the largest growers, is to make two samples when packing, just as is done with apples. The best are then worth from 6d. to 1s. more than ordinary samples, and the seconds almost as much, as they are generally sold to jam makers, to whom size is not of importance.

"Damsons are undergoing a unique experience; they have jumped from being, a year ago, quite the outcasts of the trade, to probably the most sought after of any of our home-grown fruit of the season. The excitement to buy black currants early in the year was somewhat similar, but just at present I think the attention bestowed upon damsons is keener. The imports of foreign plums generally affect damsons very much, and so far this year the foreigners have not sent any appreciable quantity. There is plenty of time yet, the month of September being their fullest time, but I do not anticipate that damson growers have anything to fear as regards the price falling now. There are a great many contracts out for the fruit at good prices, and I rather think the contracts exceed the crop.

"The lesson growers ought all to learn from this season's prices is to make a big effort to get a crop next year. No doubt bad prices will come again, and possibly next year for some fruits, but the prospect for jam-makers' stuff is good; in fact, it could not be better. For fruits that are mainly sold for the retail trade, of course, the actual supply at the time rules the price, but the jam manufacturers must finish the season of 1897 a great deal short of what they could have done with, and will in consequence be good buyers another year, let the crop be ever so big.

"Cob-nuts and filberts have suffered a reverse during the week. The supply is very large indeed, and I suppose the same cause applies to them as to apples. Growers are anxious to get a certain percentage of them off before getting busy in their hop-fields. It is very difficult to keep cob-nuts from the petty thief, and therefore all exposed pieces, outsides, &c., have to be gathered before the pickers come down from London. This may be the cause of the glut in the markets. The nuts are really scarcely fit to offer for sale even yet, although so many have been sold. A good sample should have brown tips to the husks, or, better still, brown husks altogether, but those coming at present have no suspicion of the desired colour, and they heat if left a few days in the packages. A great many [illegible] growers pack too many into a basket. I have even seen a man treading them in with his foot. Of course this pressure bruises them terribly, and the tighter they are the more they heat. Nuts packed in this way come out like wet, warm rags, and then growers wonder the trade for them is bad. When cob-nuts get the desired brown tinge to them, and growers are busy hop-picking so that they cannot get them quite so fast, I shall look for the price to harden, not very much perhaps, but certainly a little. The prospects for selling them are extremely good this season, and when they will keep a little time I feel confident the northern markets will want them in considerably increased quantities. Prices for the day are: Best cooking apples, 4s. 6d. per bushel; seconds, 2s. 6d. to 3s. 6d.; best dessert, 4s. to 5s. per half; others, 1s. 3d. to 2s. Best pears, 5s.; common [illegible], 1s. 6d. Plums, best sorts, 5s. 6d. to 7s. Damsons, 5s. Gages, 7s. to [illegible] 6d. per half. Filberts, 2½d.; cobs, 3d. per lb. Potatos, 3s. 6d. to 4s. 6d. [illegible] cwt."

With regard to the gathering and marketing of cobs and filberts, the following useful advice is given: "Growers are now beginning to send filberts in a green state to market. It is full early to do so yet. The kernels are not uniformly developed, one nut on a bunch being quite forward, while his neighbour has nothing worth eating in it. This operates against the trade, as buyers will not give long prices for nuts not fit to eat. The big crop of cob nuts that we undoubtedly have is making growers too eager to be at them. I would remind my readers that this district has to grow cob nuts for all the rest of the world, and that every year new outlets for disposing of them increase much faster than the plant. Last year we saw cobs rise in price from thirty to sixty shillings. This year we shall have them selling at twenty five shillings all through the early part of the harvest, but I venture to prophesy that they will go to forty before Christmas, in spite of the big yield. Cob nut growers, as a rule, do their utmost to spoil the sale of their produce by the way they send it to market. I said a good deal last year on this subject, and I think it will bear repeating. The thing I have chiefly in mind is that of sending big consignments by jerks and jumps. A grower hears nuts are selling a little better than they have been; he and his fellow growers promptly get a few hands together and send a ton to market, when, as a natural result, markets are flooded for a time and prices go down.

"A few words will show how badly this rising and falling operates on the general trade. As soon as our friend has sent his ton of cobs and the price is down, say, to 3d., he stops sending till things improve! This is a very wise policy, no doubt, but how about the buyer? He has been buying at the reduced price, has been doing rather well out of them, and comes to market quite prepared to buy as many or possibly more than he did before. But he finds the reduced supply has forced the price up to 4d. (a penny is a big rise). This completely upsets his calculations as to the quantity he can sell, so he buys a few only. Meantime the grower again has heard of the rise, and sends another big load; result, another glut and fall in values, even to a point lower than before. This is no overdrawn picture, but is actually how the trade has gone every season for some time. If growers would send regularly, say, three times a week, just about as many as the size of their growths warrant, it would vastly improve trade, steady prices, and ultimately redound to the permanent good of everyone interested."

The gathering and storing of fruits receives, as a matter of course, a full share of attention, and with reference to the first of these two operations, the following suggestions are made:—

"It will soon be time to think about and make preparations for the ingathering of the keeping kinds of apples and pears. This part of the fruit-grower's business appears to me to be quite one of the most important operations in the yearly round, and yet it is one that is oftentimes, I may say generally, done in a most slip-shod way. Good fruit that has been allowed to hang on the trees and become well coloured and ripened will not stand being gathered in sack-pockets—the usual method—and ruthlessly shot into a heap. I have often written about this matter of gathering storage fruit, and I propose devoting a portion of my next letter to the subject. My advice will then come at the precise time when this work is going on. King Pippins in exposed or forward situations may be gathered now. I think the majority of them will be left another week or ten days, but it is by no means a bad plan to secure a portion of one year's growth of this particular kind, lay them fairly thick to induce rapid ripening, and thus get them sent to market before the general run of the Kings are ready. There is always a good opening for coloury samples of this apple in October. An open lodge, or any temporary protection in the orchard, serves as well for this purpose as a good building, as the fruit must all be sold before there is any risk of harm from frosts. It is not necessary to take such elaborate care of King Pippins gathered in this way for a rapid colouring as should be meted out to Wellingtons and Blenheims. They will take no harm from the gathering sack process, and they can be laid in a heap straight from the trees without being examined for maggoty and diseased specimens. They should be laid thickly, say, three or four feet in the centre, have no covering immediately on the top in order to allow the heat plenty of room to evaporate, have good roof protection so that no rain can come on them, and not too much air. In this way the apples will soon set up a rapid heat, and in about three weeks from the time of laying down will be ready for market, and will probably realise quite as much money per bushel as the later and more carefully-handled gatherings. It should be quite understood that I do not advocate the foregoing method if the fruit is meant to be stored any length of time.

"Good apples this year promise to sell at values that will pay for extra trouble, no matter how costly it may appear on the face of it. As I said in my last letter, the gathering flap pocket so generally used should be discarded when gathering the best fruit, and a small basket, such as is used for cherry picking, substituted; one holding from three to four gallons will be found the most handy size. The basket must be lined with a piece of old sacking or some similar soft substance, and have a hook attached with which to hang it on to the steps of the ladder, or possibly a limb of the tree. The first few fruits picked should be very carefully placed in the basket, not dropped in, and throughout the whole operation the picker should take care his basket is never violently jolted about, or, in fact, anything done to make the fruits jolt over one another. When full the small baskets should be emptied into bushel or half-bushel sieves, the same care being used. The apples should be placed, and carefully run through the hands, not shot, in the sieves. With Wellingtons especially every apple should be separately handled in transferring them."

On the all-important question of storage the author observes: "For conveying fruit to the store a spring van only should be used. A good bed of wheat straw—none other is good enough for the purpose—should be made to store apples in, care being taken to put an extra thickness wherever there is the least sign of a draught that would admit frost later on. Everything depends upon the next step. Seldom is enough pains taken to lay the fruit down properly. The prevailing practice is to bring the basket straight into the store and tip the apples as gently as may be into a heap on the bed. This treatment is not good enough. The proper way is to have women at the heap; the baskets should be brought to them and the fruit handled out, every apple being examined. The sound ones should be put in the main heap, and all diseased or faulty ones in a separate heap. This may seem a rather extravagant proceeding, but it will be found that it can be done for considerably under a penny a bushel, which best fruit will repay in shillings. Treated in this way the minimum of waste is incurred, and the heap of sound fruit will keep much longer than if mixed as gathered.

"A dark place is best for storing apples, the ground floor being preferable to one raised, although much excellent fruit has been laid upon the oast-house floors so common in the county, and has done well there. For keeping a long time the fruit should not be laid too thickly, two feet to two and a-half feet being ample. The thicker the heap the sooner the stage of sweating is reached, and if laid very thick apples will not survive this process very long. For this reason it is good to lay fruit for rapid colouring and early marketing as thickly as possible. On no account should the fruit be covered till one is compelled to do so to protect it from frost. Wellington apples are about the most liable of any of our sorts to take harm from careless handling, and at the same time they are one of the most valuable varieties. I would specially caution growers who have any crop of this sort to take great pains with them. Prospects for the selling of such apples are probably better than we have known for very many years."

In addition to the fifty-two articles dealing with cultural matters and market affairs, selections of the best market fruits are given, and, representing as they do the combined knowledge of the author and Messrs. Bunyard and Co., they are to the planter for profit worth at least twenty times the cost of the whole work.

MR. ROBERT CUBBON, head gardener to R. Alston, Esq., Harold Hall, Bedford, has been appointed head gardener to Thomas Hughes, Esq., Dudlow Grange, Wavertree, Liverpool.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Roses.—A. H., Barton: Eugénie Verdier and Marie Finger are now considered so much alike as to be regarded as synonymous, where exhibitors are concerned. With regard to the temperature of water for destroying green-fly, there is no doubt that 150 degrees in the work mentioned is a misprint, as tender rose shoots would not stand that heat; 120 degrees is sufficient to kill the fly, while it does not damage the plant.

R.H.S. Committees.—J. J. B., Battle: The next R.H.S. meeting takes place on Tuesday, September 20th. Your melon should be addressed to Mr. S. T. Wright, Superintendent, Royal Horticultural Society, Drill Hall, St. James's Street, Victoria Street, S.W. It should be securely packed, carriage paid, and timed to arrive at the Drill Hall before 12 o'clock on the 20th inst. Send the Secretary, R.H.S., 117, Victoria Street, S.W., a notification of your intention to exhibit.

Thrips on Ferns.—F. J., Norwood: Syringe the ferns with tobacco liquor in which a little soft soap has been dissolved, as this will make it more adhesive. Take care to syringe well under as well as over the fronds. If possible do the syringing in the evening, and then by ventilating early in the morning the odour will pass from the conservatory. Continue with the tobacco mixture on several successive evenings, and then give a thorough syringing with clean water. Frequent syringings will be necessary to prevent a repetition of the attack.

Garden and Greenhouse.—Ajax, Whitby: Two good works that should suit you are "The Amateurs' Flower Garden" and "The Amateurs' Greenhouse and Conservatory," 3s. 6d. each, Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, E.C. The whole of the information you desire is not contained in any one book of small size or price. If a handbook of kitchen garden work and fruit culture is needed "The Amateurs' Kitchen Garden" may be added; same price and publishers.

Grapes Shanking.—W. H., Middlesex: It is a bad case of shanking, and due, no doubt, to a moist and close atmosphere. The disease was aggravated by the sulphuring and syringing. It is also probable, judging from the main stem, that the roots have been, or are, much too dry; this, of course, you will be best able to judge, and rectify the evil if it exists. Nothing can be done to save the crop if all the bunches are as bad as the one sent. Give more air, and leave some on all night; when applying water to the borders commence early on a warm, bright day, so that when the air is reduced at night there will not be a danger of much atmospheric moisture.

Protecting Carnations.—S. C., Ashtead: The carnations should have been layered, as the woody central growth is very apt to split or canker during winter. Peg down the leading shoots so that the wind may not break them, and then, at the approach of severe weather, cover the woody stock with finely-sifted soil, ashes, or cocoanut-fibre refuse. In the case of young plants, if they were layered early, well rooted, and planted out as soon as possible, there should be but few casualties during the winter. Keep a few plants in pots in a cold frame, so as to fill any gaps that may appear in spring. Niphetos is a good white-flowered zonal pelargonium for bedding.

Carnations and Roses.—Heligoland, Wellingborough: A dozen good garden carnations are Raby Castle, Ketton Rose, Joe Willett, King of Scarlets, Duchess of Fife, Seagull, Duke of Orleans, Mephisto, Germania, Niphetos, Mr. Reynolds Hole, and Bendigo. See recent articles in these columns for newer varieties. Your query anent roses is so put that we fail to understand your needs beyond a selection of button-hole and tea and hybrid tea varieties. Six good button-hole roses are—W. A. Richardson, Madame Chedane Guinoisseau, Ma Capucine, Isabella Sprunt, Duke of York, and Homere. Six good tea-scented roses—Souvenir de S. A. Prince, Catherine Mermet, Madame Cusin, Comtesse de Nadaillac, The Bride, and Madame de Watteville. Six good hybrid tea roses are—Caroline Testout, La France, Vicountess Folkestone, Lady Mary Fitzwilliam, Grace Darling, and Kaiserin Augusta Victoria or Augustine Guinoisseau.

Japanese Chrysanthemums at the Aquarium.—P. F.: The forty-eight Japanese chrysanthemums shown by Mr. W. Mease at the N.C.S. exhibition of 1897 were all distinct, and the varieties, as recorded in the GARDENERS' MAGAZINE of November 13, p. 717, were as follows: Back row—Madame Carnot, Etoile de Lyon, Mrs. W. H. Lees, M. M. de Rochetierre, Baronne A. Rothschild, J. Brookes, Mrs. C. H. Payne, Viviand Morel, Mons. Panckoucke, Eva Knowles, Pride of Exmouth, A. H. Wood, Lady Hanham, Simplicity, Australie, and Yellow Madame Carnot; middle row—Phœbus, Mrs. Dewar, Julie Scaramanga, Mutual Friend, Mrs. G. Carpenter, Madame H. Hoste, Charles Davis, Mrs. Blick, Chenon de Leché, Australian Gold, E. Molyneux, Mrs. J. Lewis, M. Gruyere, Edith Tabor, Madame Hoste, and Lady Ridgeway; front row—Mrs. C. Weeks, Mons. C. Molin, Colonel Chase, Sunstone, Madame M. A. de Galbert, Modesto, Madame R. Ricaud, Baron Fait, Niveus, Mrs. Briscoe-Ironsides, Madame Gustave Henry, N.C.S. Jubilee, Elsie Teichman, Robert Powell, Robert Owen, and Viscountess Hambledon.

Names of Plants.—H. S. W., Kilburn: 1, Hibiscus syraicus; 2, Asplenium bulbiferum; 3, Pteris tremula.

G. G., Wandsworth: Your orchid is Oncidium barbatum, a somewhat variable species, especially as regards the size of the flowers.

W. D., Nobblethorpe: 1, Taxodium distichum; 2, Ginko biloba (Salisburia adiantifolia), the Maidenhair tree; 3, Lysimachia lanceolata.

Names of Fruits.—E. C. K., Douglas, I. of M.: The pear is Belle Julie, and the apple apparently a deformed Ecklinville.

A. S., Maldon: 1, Red Astrachan; 2, Newtown Pippin; 3, not in condition; 4, Lord Grosvenor; 5, Cardinal; 6, Mère de Menage.

MARKETS.

Covent Garden.

THERE is a fair supply of fruit, both home grown and imported, and the demand is good; grapes and greengages sell well. Vegetable supplies are moderate and good.

FRUIT.—English apples, 3s. to 10s. per bushel; English grapes, 1s. to 2s.; Channel Islands, 6d. to 1s. per lb.; Denia, 5s. to 9s. per barrel; French pears, 3s. to 6s. per case; Dutch, 2s. to 2s. 6d. per molly; English, 4s. to 6s. 6d. per bushel; plums (Victorias), 3s. to 5s.; Orleans, 2s. 6d. to 4s. per half-sieve; French, 2s. to 3s. per case; French greengages, 9d. to 1s. 3d. per box; English, 3s. to 5s. per half-sieve; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 5s. each: green figs, 9d. to 1s. 3d.; peaches, 1s. to 6s.; nectarines, 2s. to 8s. per dozen; English melons, 9d. to 1s. 6d. each; Spanish, 4s. to 6s. 6d. per case; lemons, 10s. to 20s. per case; English tomatos, 3d. to 4d.; Channel Islands, 2d. to 3d. per lb.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 8s.; Odontoglossum crispum, 1s. 6d. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 12s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pansies, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 2s.; lily of the valley, 1s. to 1s. 6d.; white gladiolus, 8d. to 1s.: and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Valencia onions and Ports, 5s. to 6s. per case; English, 2s. to 2s. 6d. per dozen bunches; peas, 2s. to 3s.; French beans, 3s. to 4s.; scarlet runners, 2s. 6d. to 3s. 6d. per bushel; mushrooms, 3s. to 6s.; eschallots, 1s. to 2s. per 12 lb.; parsley, 2s. to 2s. 6d.; mint, 1s. 6d. to 2s.; carrots, 2s. to 2s. 6d; turnips, 2s. to 3s. per dozen bunches; celery, 12s. to 15s. per dozen rolls; cabbages, 4s. to 5s.; marrows, 3s. 6d. to 5s.; beetroots, 2s. to 3s. per tally; lettuce, 9d. to 1s. per score; cucumbers, 1s. 6d. to 3s. 6d.; cauliflowers, 1s. to 2s.; endive, 1s. to 1s. 4d. per dozen; potatos, 60s. to 100s. per ton.

Borough Potato Market.

Fruit picking and other farm operations tend to keep the market supplies of potatos down, but there is not a very keen demand, so prices practically remain the same as last week. Beauty of Hebron, and Snowdrops, 4s. to 4s. 6d.; White Hebrons, Early Puritans, Sutton's Early Regents, Reading Giants, and Imperators 4s.; Black Lands, 3s. to 3s. 6d.

THE WEATHER DURING THE WEEK ENDING SEPTEMBER 3, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	82·9	44·0	61·1	16·17	0·08	0·20
Croydon	81·0	40·7	59·0	15·00	0·28	0·71
Brighton	73·0	44·4	59·6	15·33	0·14	0·36
Bristol	73·0	44·0	57·3	14·06	0·21	0·53
Wolverhampton	68·9	43·2	54·7	12·61	0·41	1·04
Norwich	79·0	43·8	58·4	14·67	0·23	0·58
Nottingham	69·6	45·3	56·4	13·56	0·54	1·37
Liverpool	63·9	50·3	56·9	13·83	0·31	0·79
Huddersfield	66·0	46·2	55·0	12·78	0·35	0·89
Bradford	69·4	49·8	57·7	14·28	0·44	1·12
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·98 inches, and that of the Thermometer 61°·1, the latter being 1°·1 above the week's average in the 50 years 1841—90. The direction of the wind was westerly, the horizontal movement of the air being 30 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 60·7 hours. The measured rainfall amounted to 0·08 of an inch.

CATALOGUES RECEIVED.

B. S. WILLIAMS AND SON, UPPER HOLLOWAY.—Bulbs, Roses, &c.
JOHN PEED AND SONS, ROUPELL PARK, NORWOOD, S.E.—Bulbs, &c.
W. BAYLOR HARTLAND, CORK.—Tulips, Daffodils, &c.
W. LOVEL AND SONS, DRIFFIELD.—Strawberries.
E. H. KRELAGE AND SON, HAARLEM, HOLLAND.—Dutch and Cape Bulbs.
H. CANNELL AND SON, SWANLEY.—Shrubs, Vines, Strawberries, &c.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, SEPTEMBER 12.—United Horticultural Benefit and Provident Society. Committee meeting.

WEDNESDAY, SEPTEMBER 14.—Royal Caledonian Horticultural Society; Three days.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER 12, 13, 14, 15, AND 16.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY, SEPTEMBER 12.—Pot Plants, Messrs. Protheroe and Morris, on the premises, Dyson's Lane Nurseries, Upper Edmonton.

MONDAY AND WEDNESDAY, SEPTEMBER 12 AND 14.—Dutch and French Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER 13, 14, 15, AND 16.—Winter-blooming Heaths and Greenhouse Plants, Messrs. Protheroe and Morris.

FRIDAY, SEPTEMBER 16.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

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Narcissus Victoria ... ...
Pale Brindled Beauty Moth ... ...

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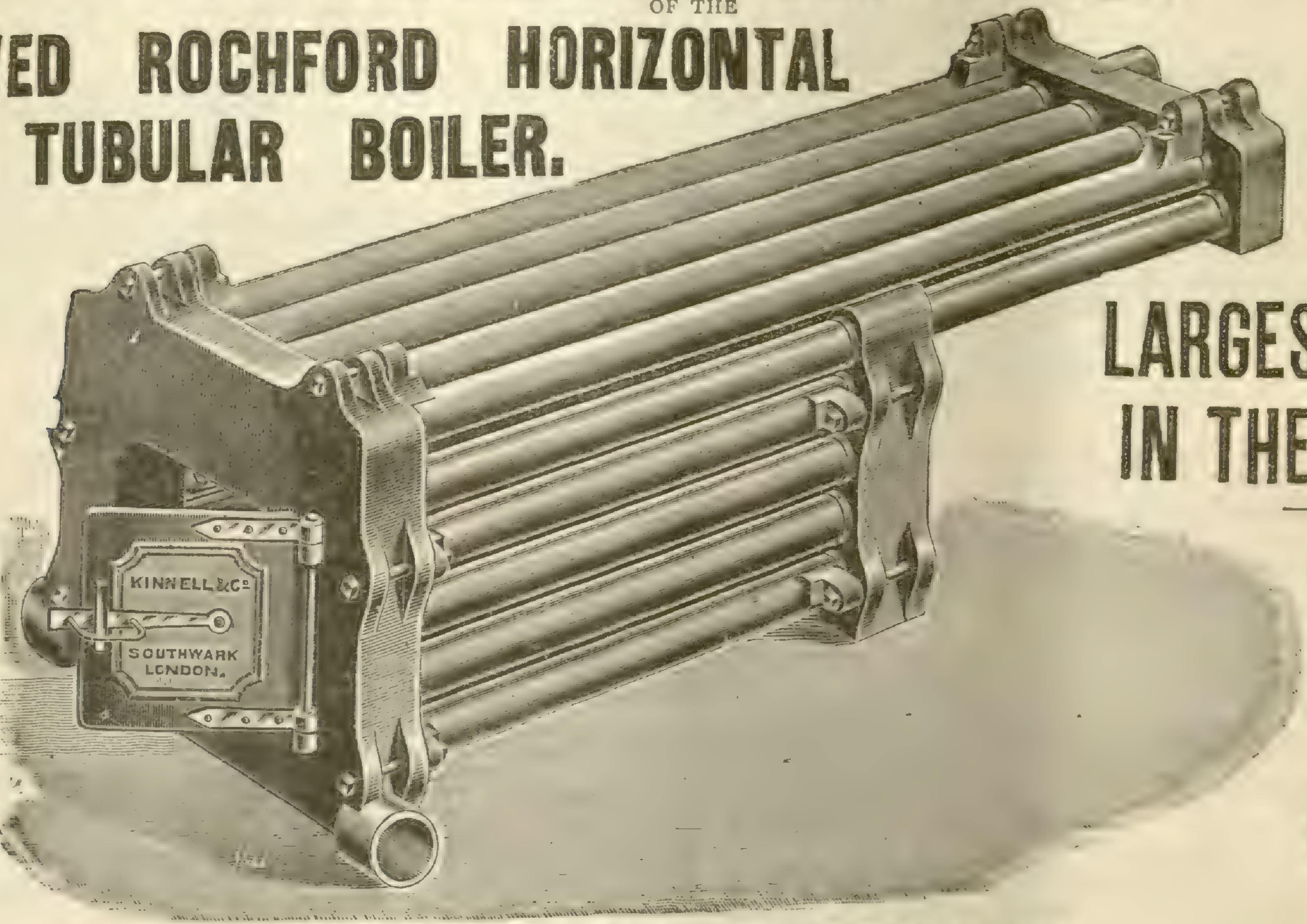

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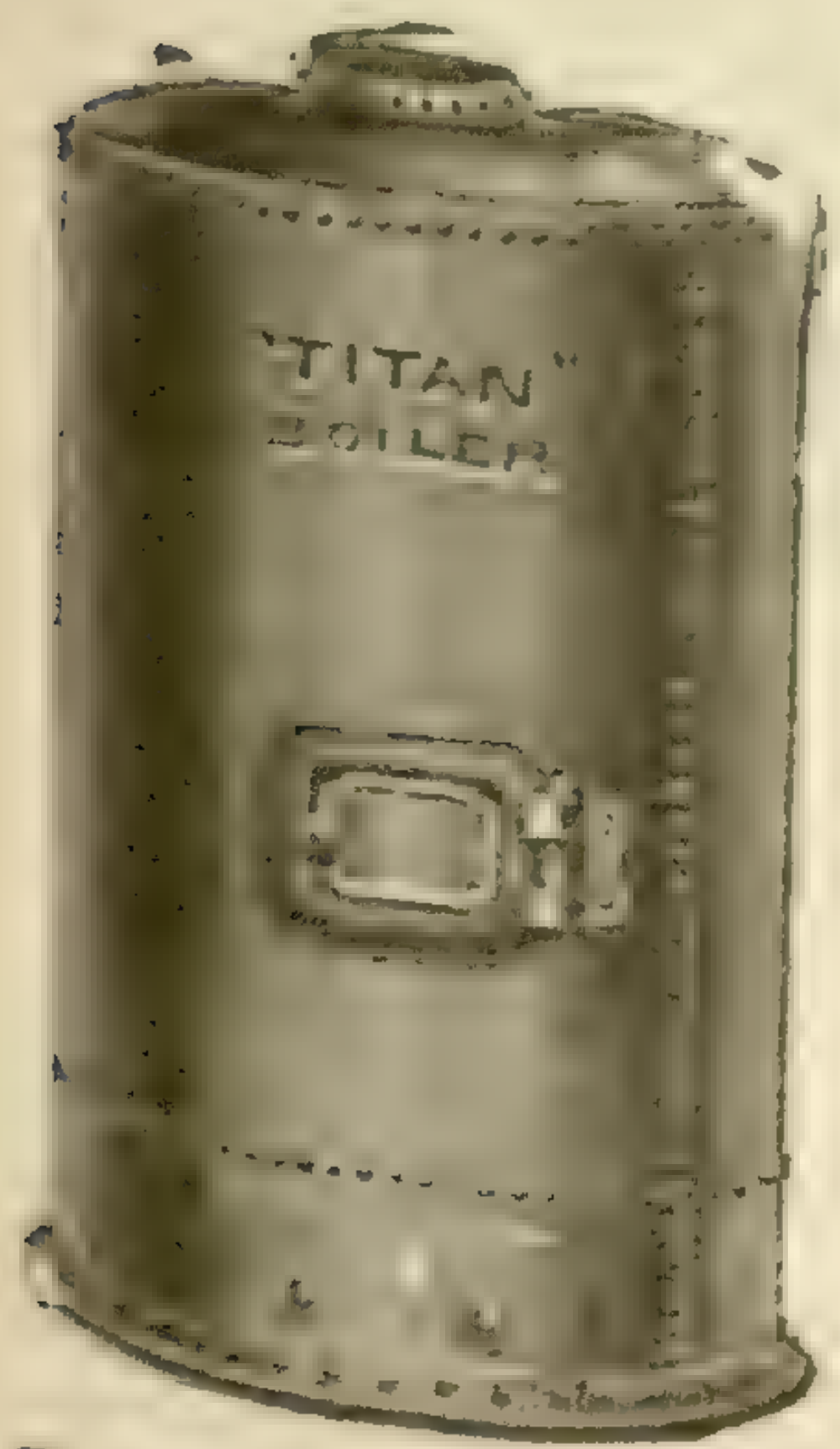

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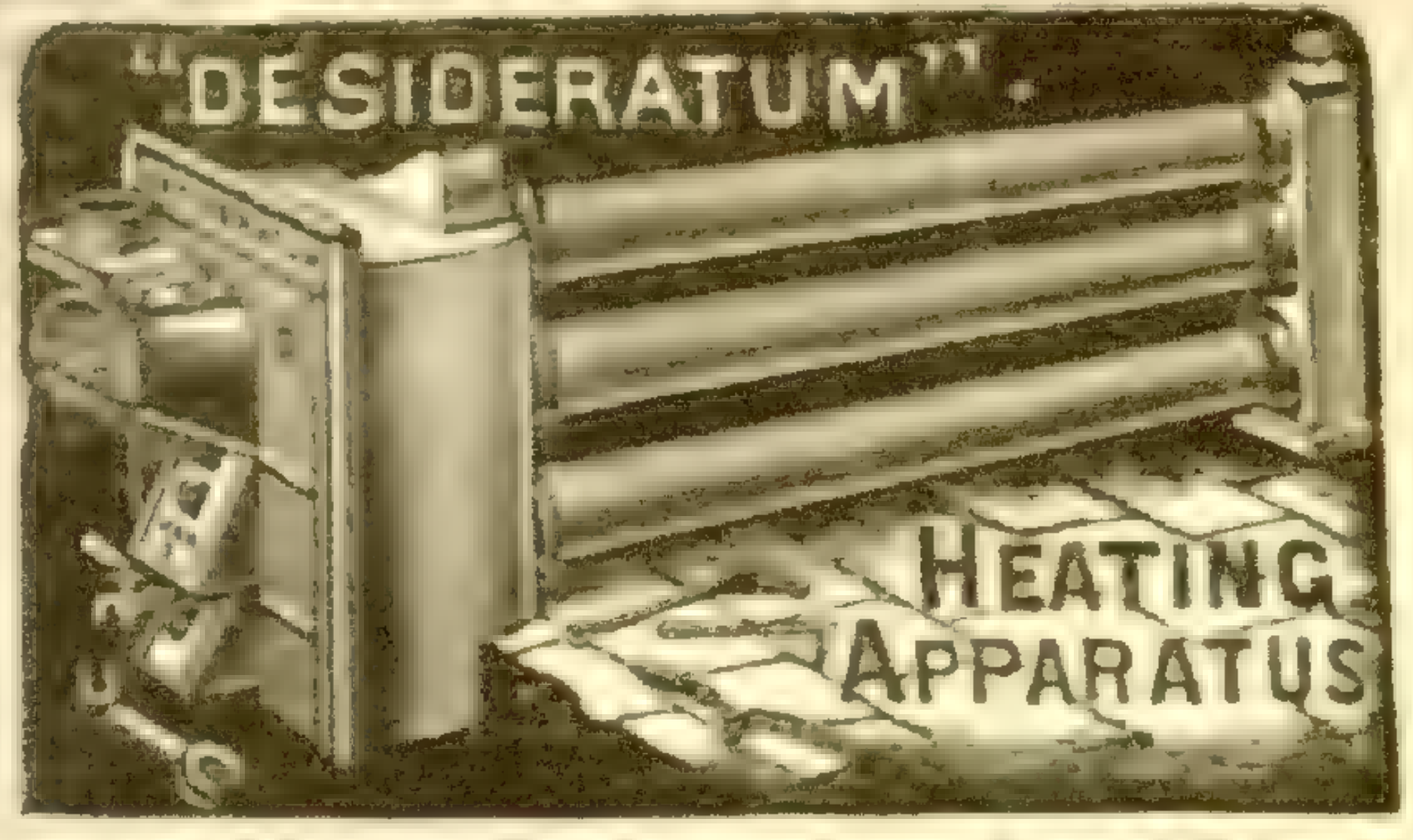

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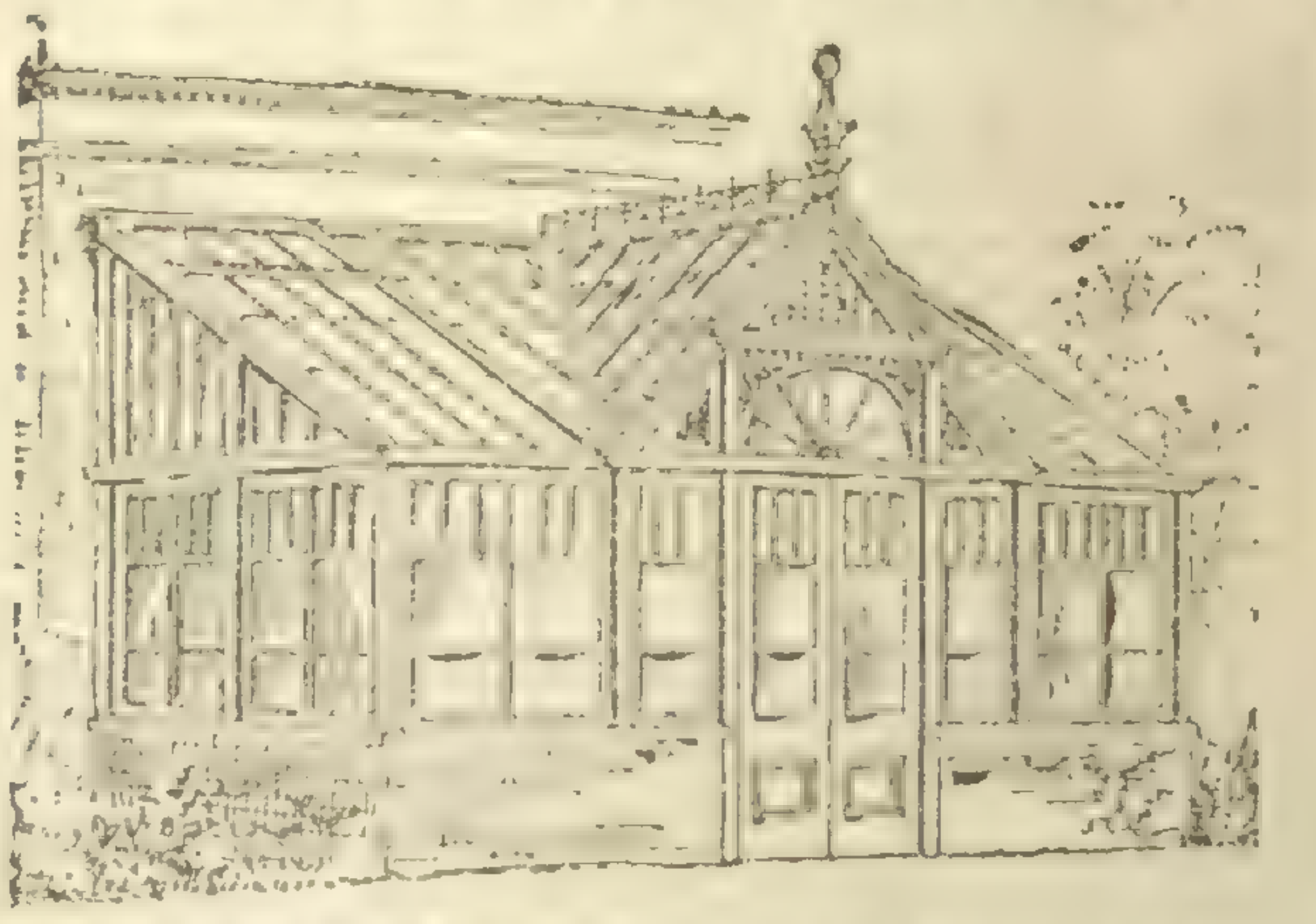

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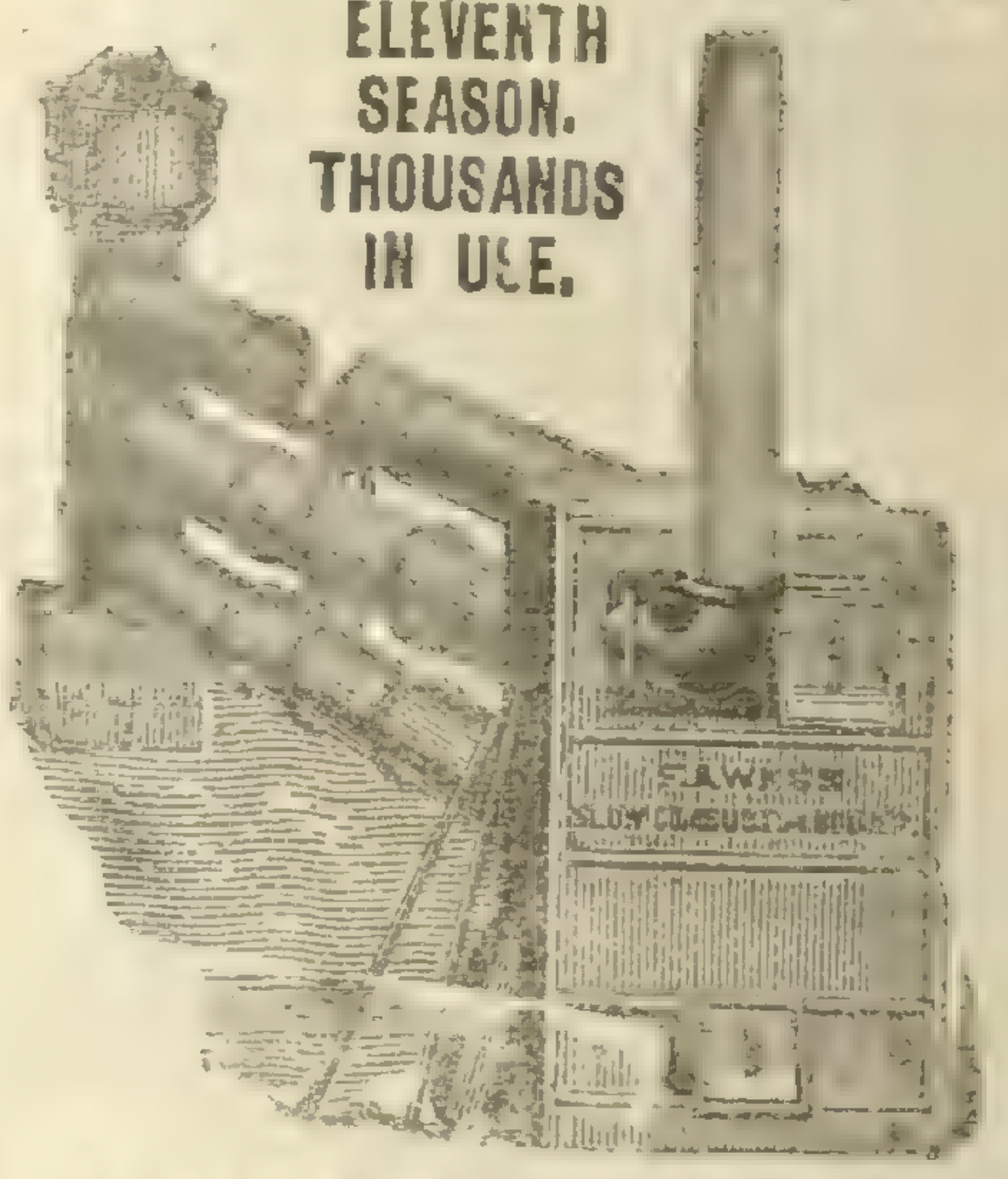

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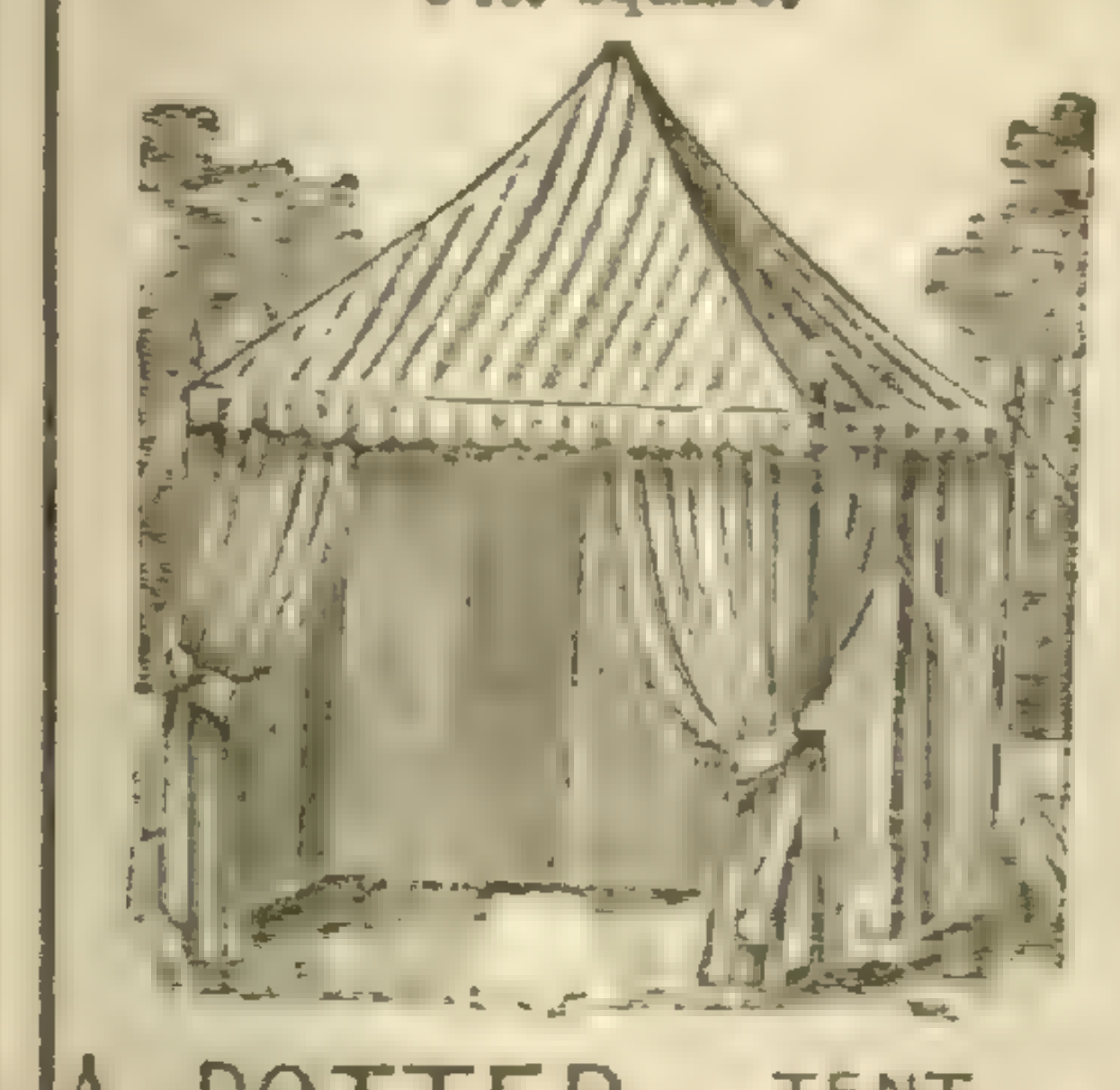

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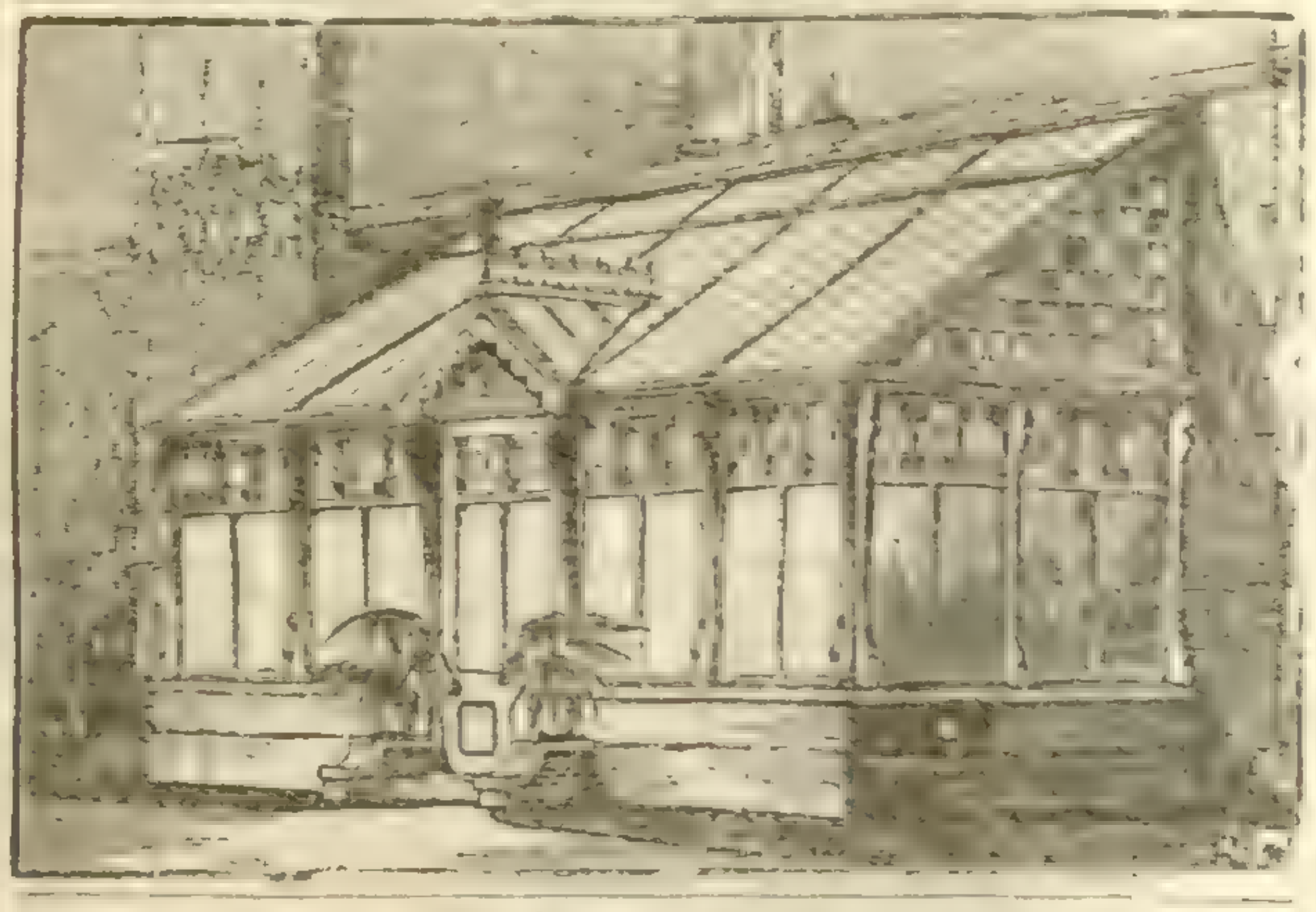

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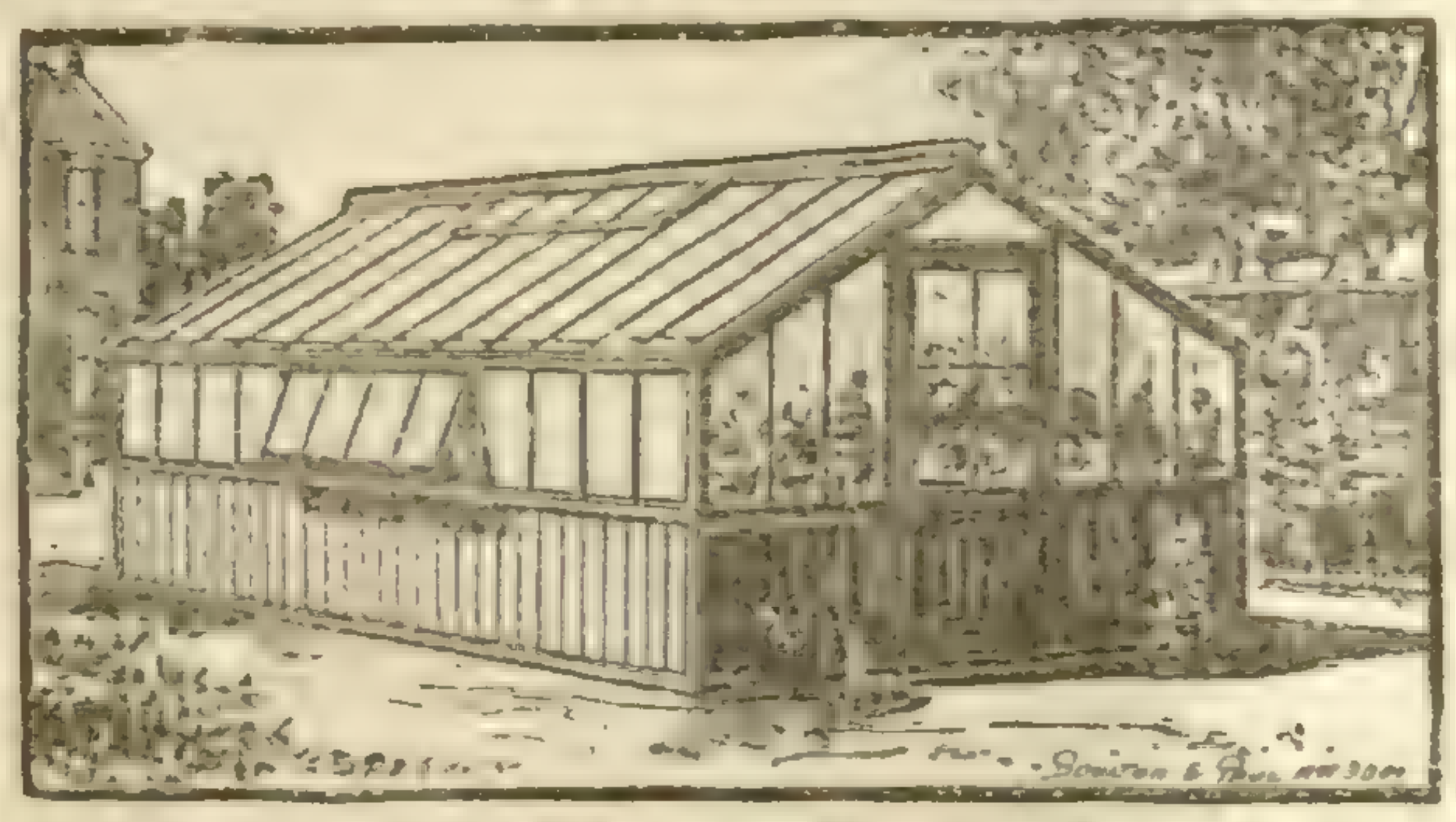

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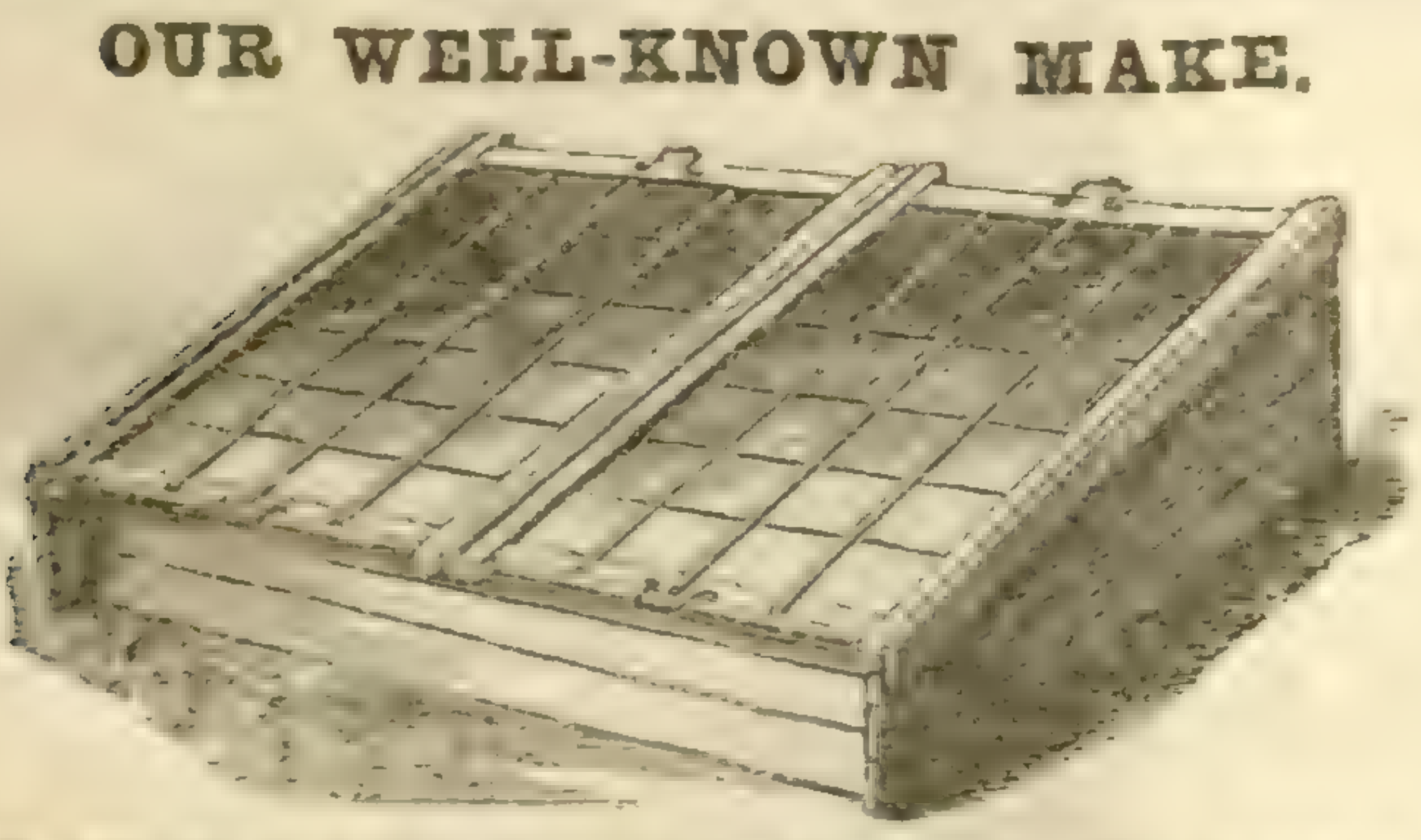

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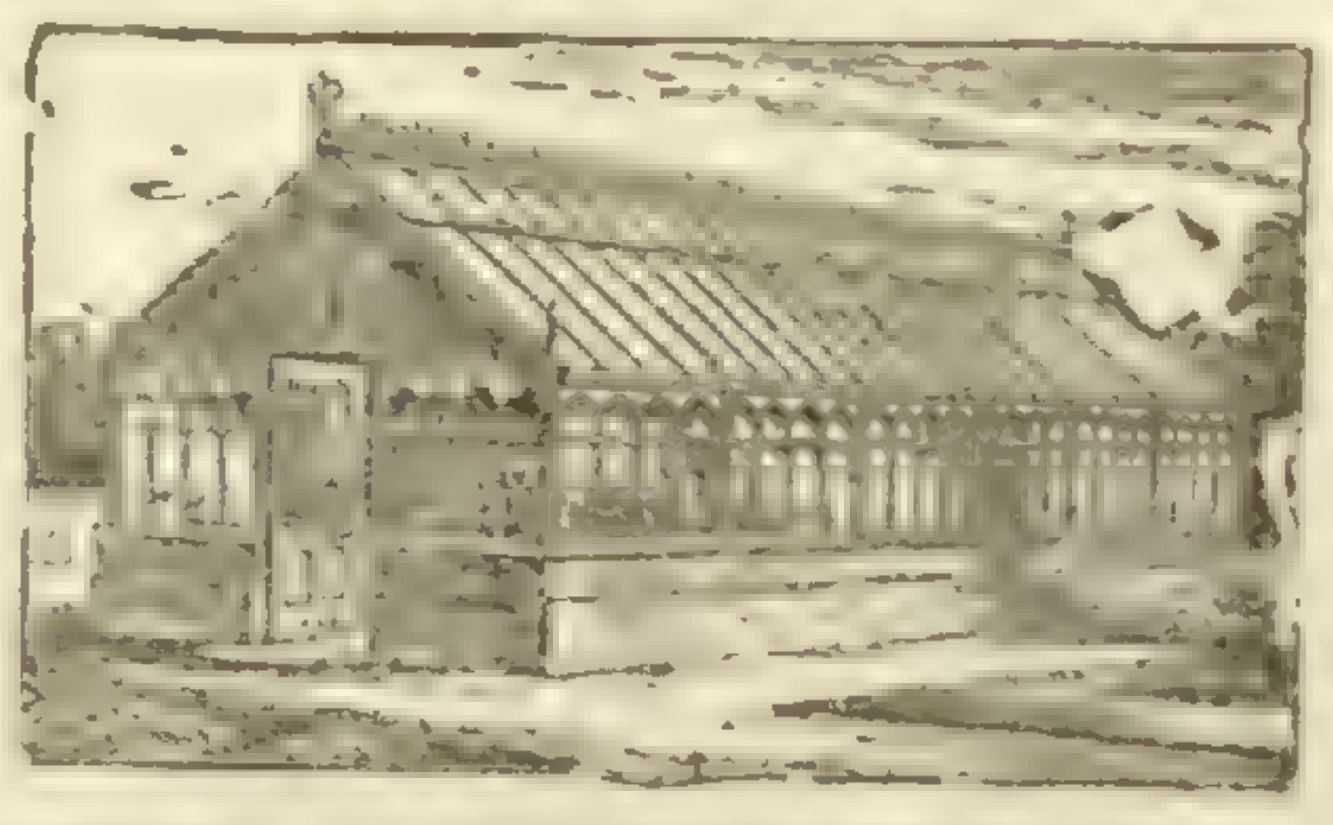

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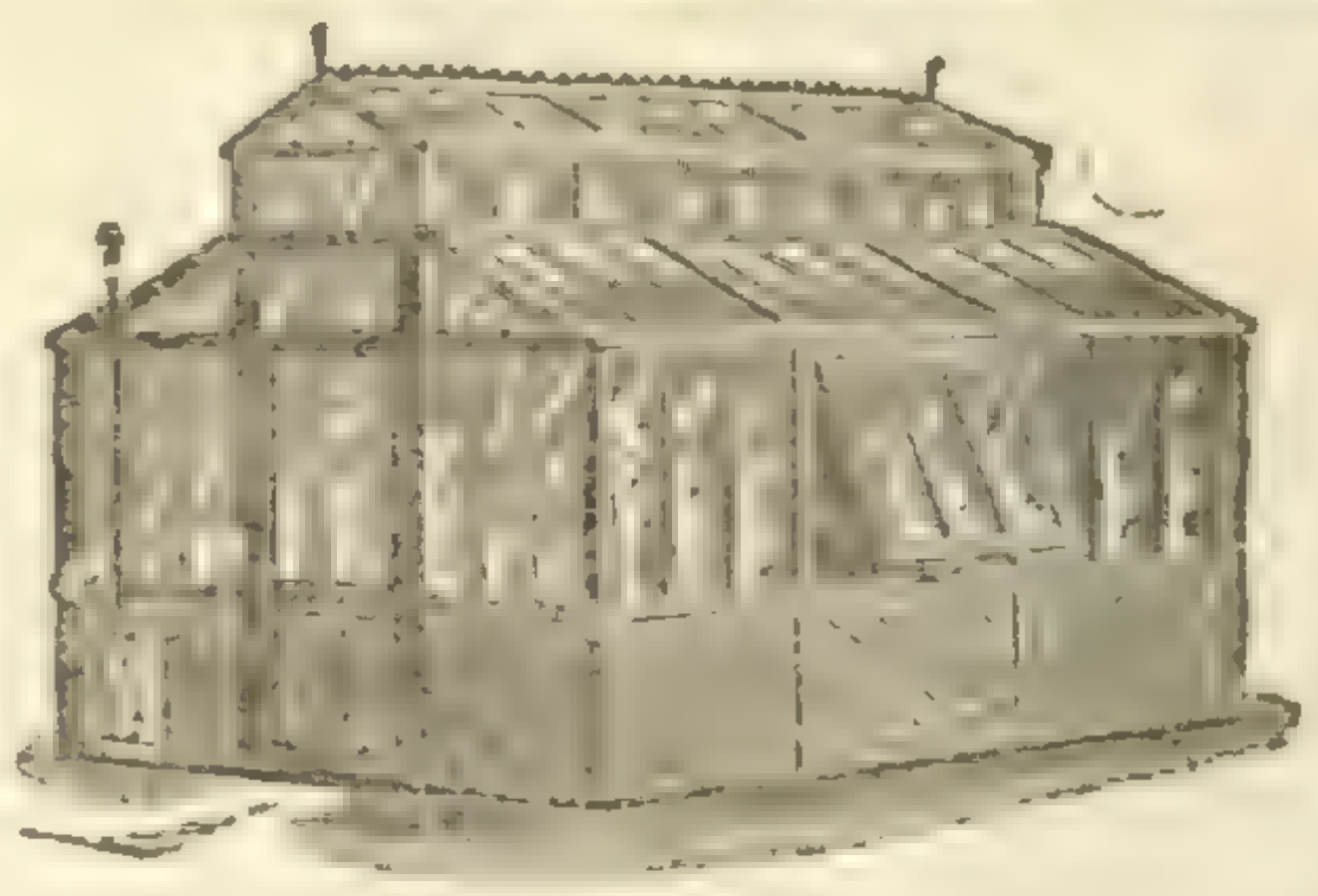

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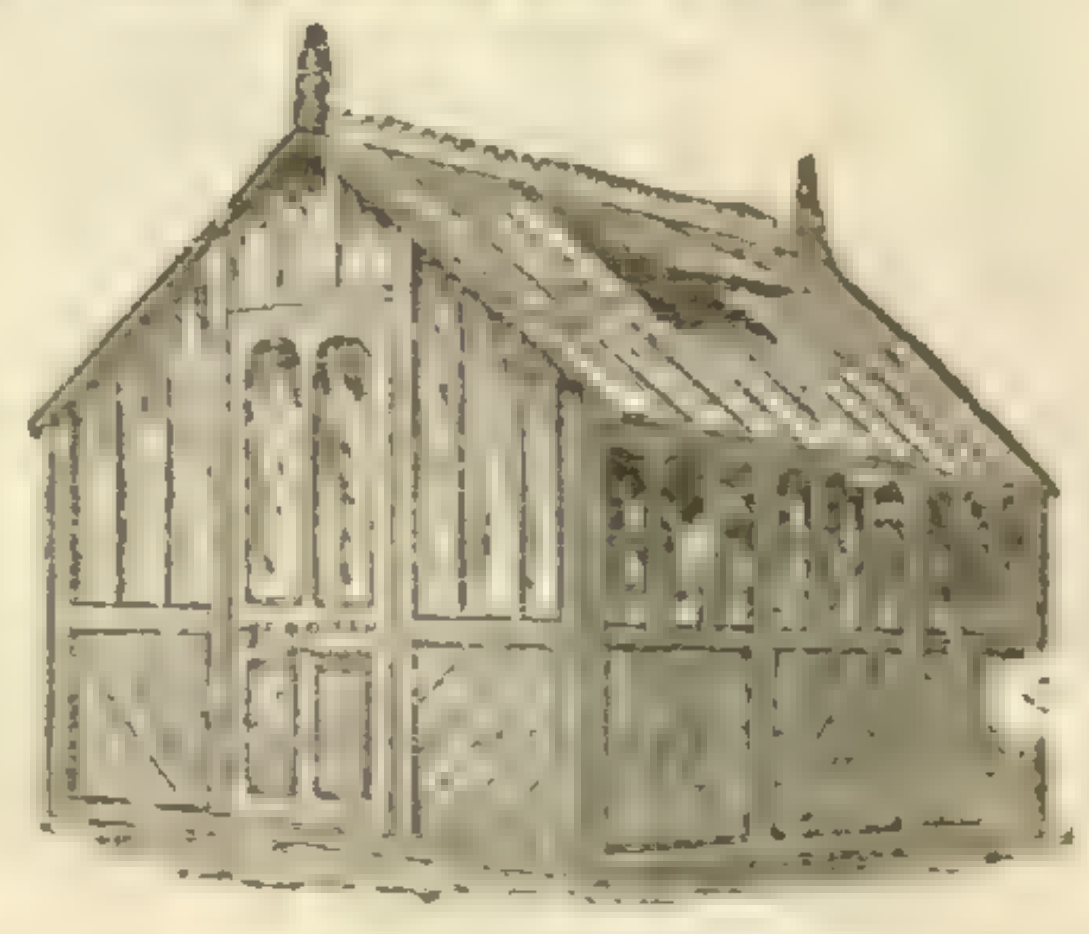

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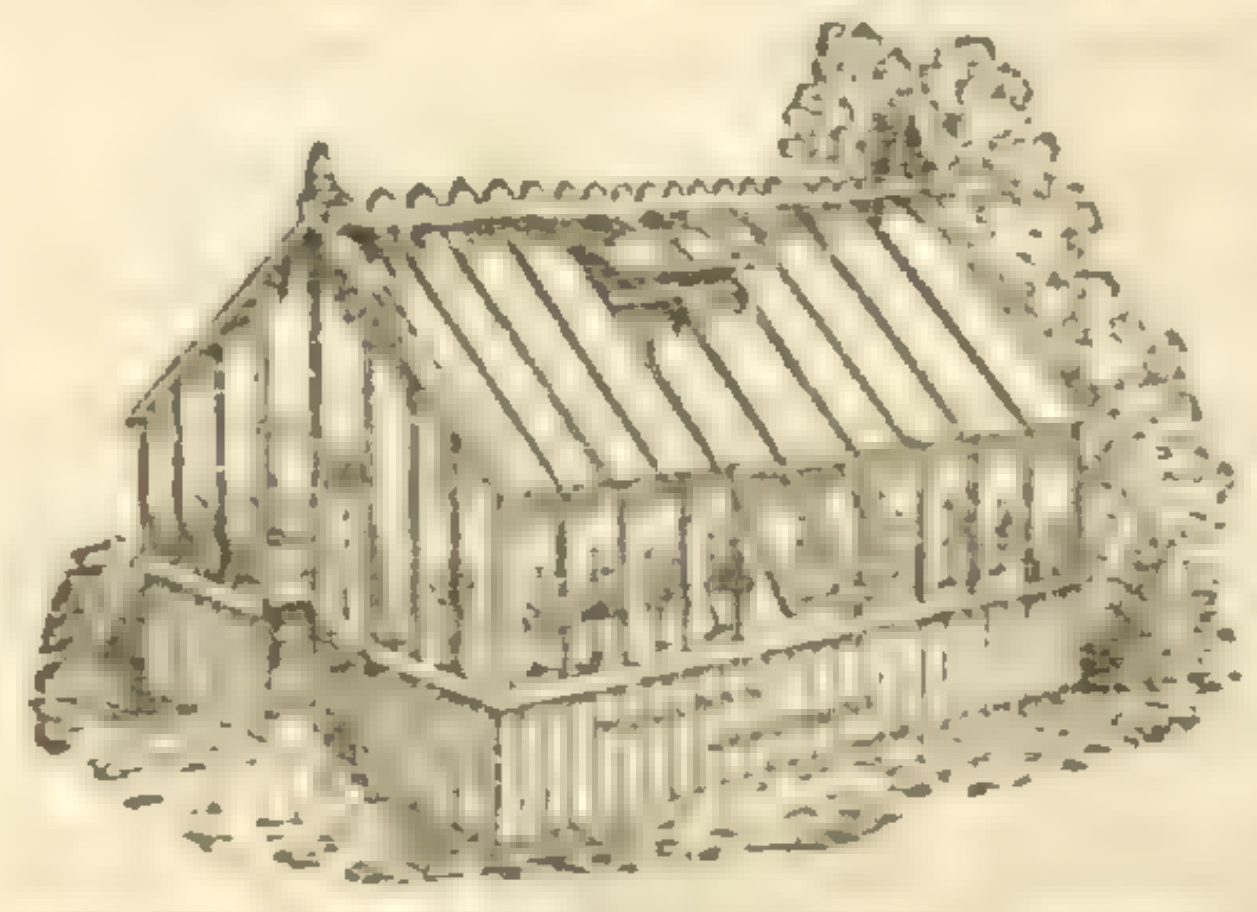

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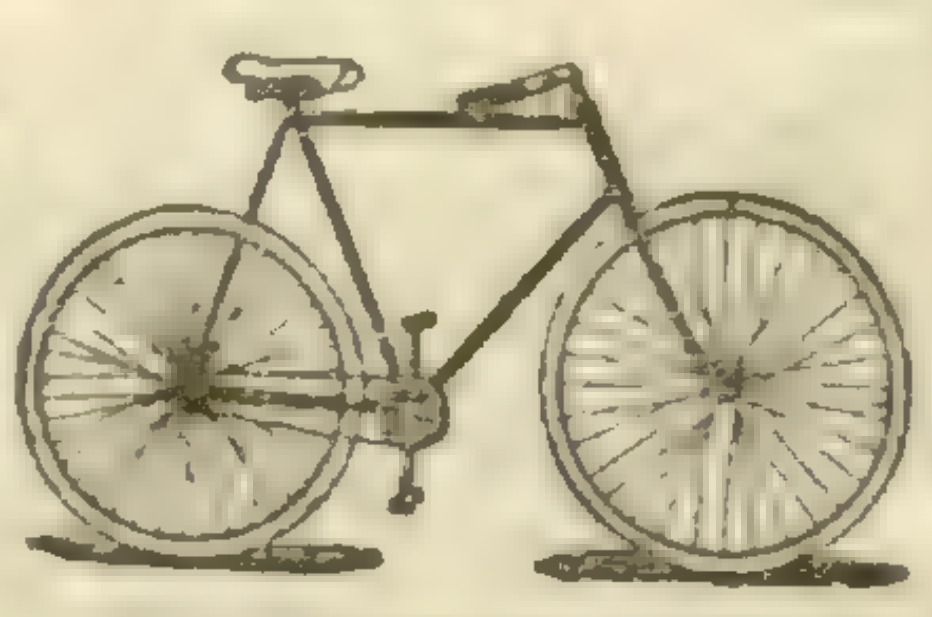

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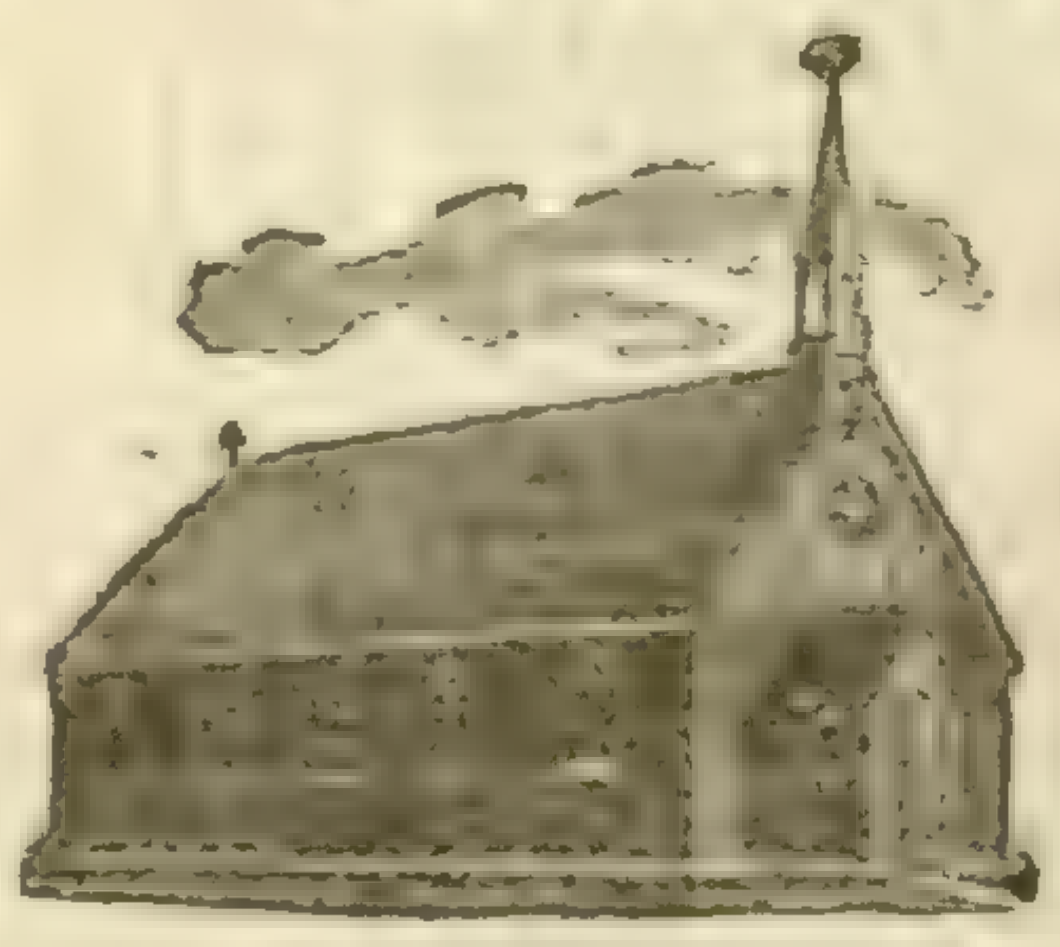

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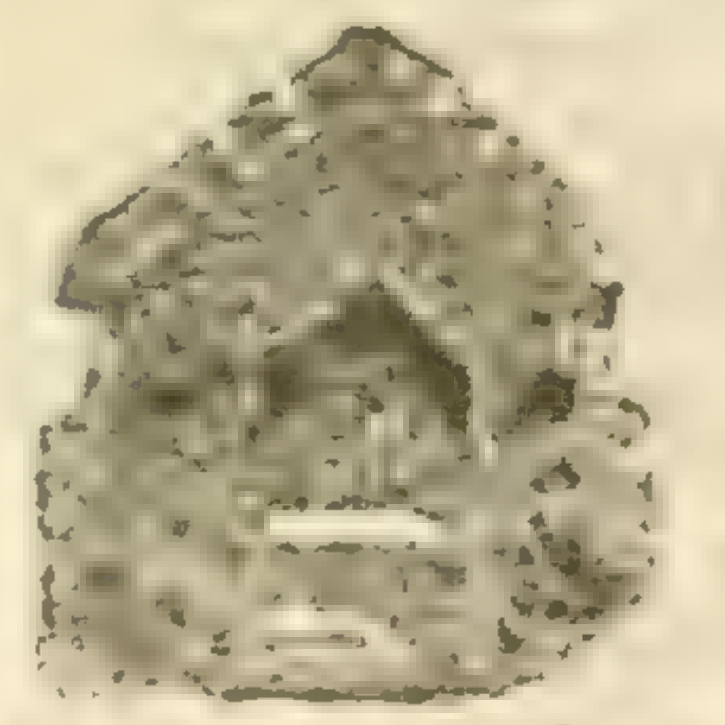

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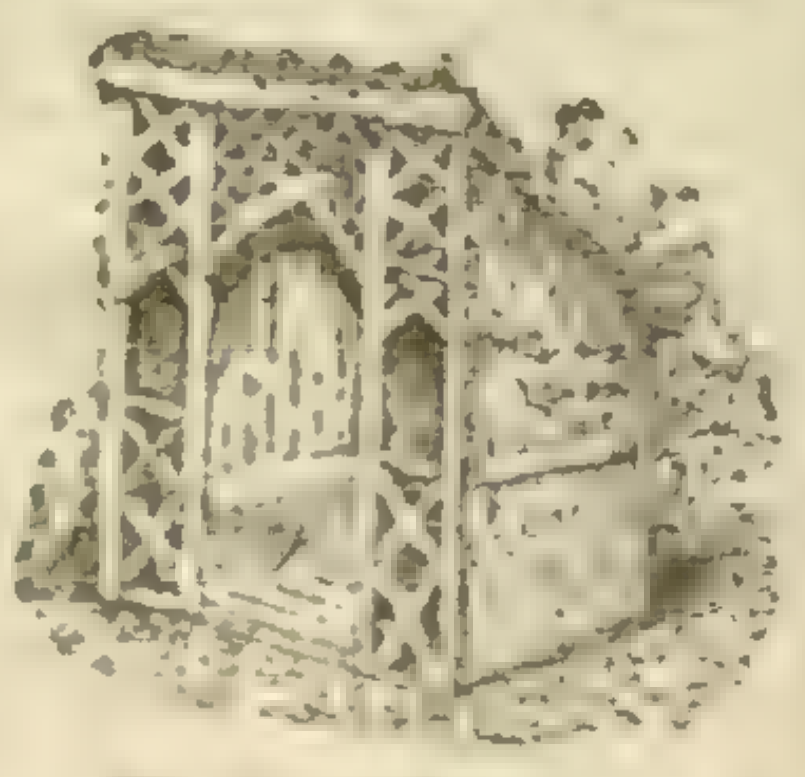

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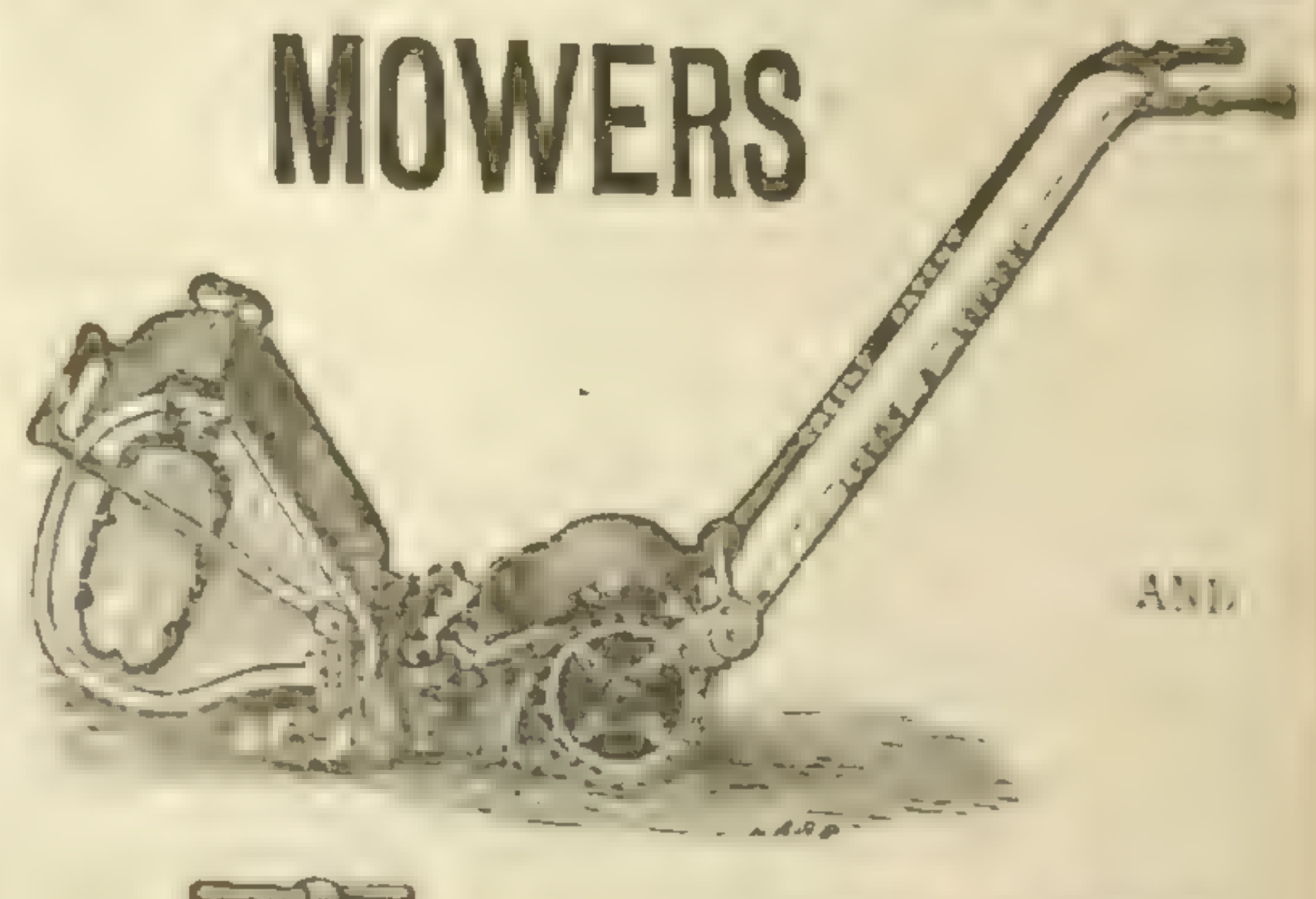

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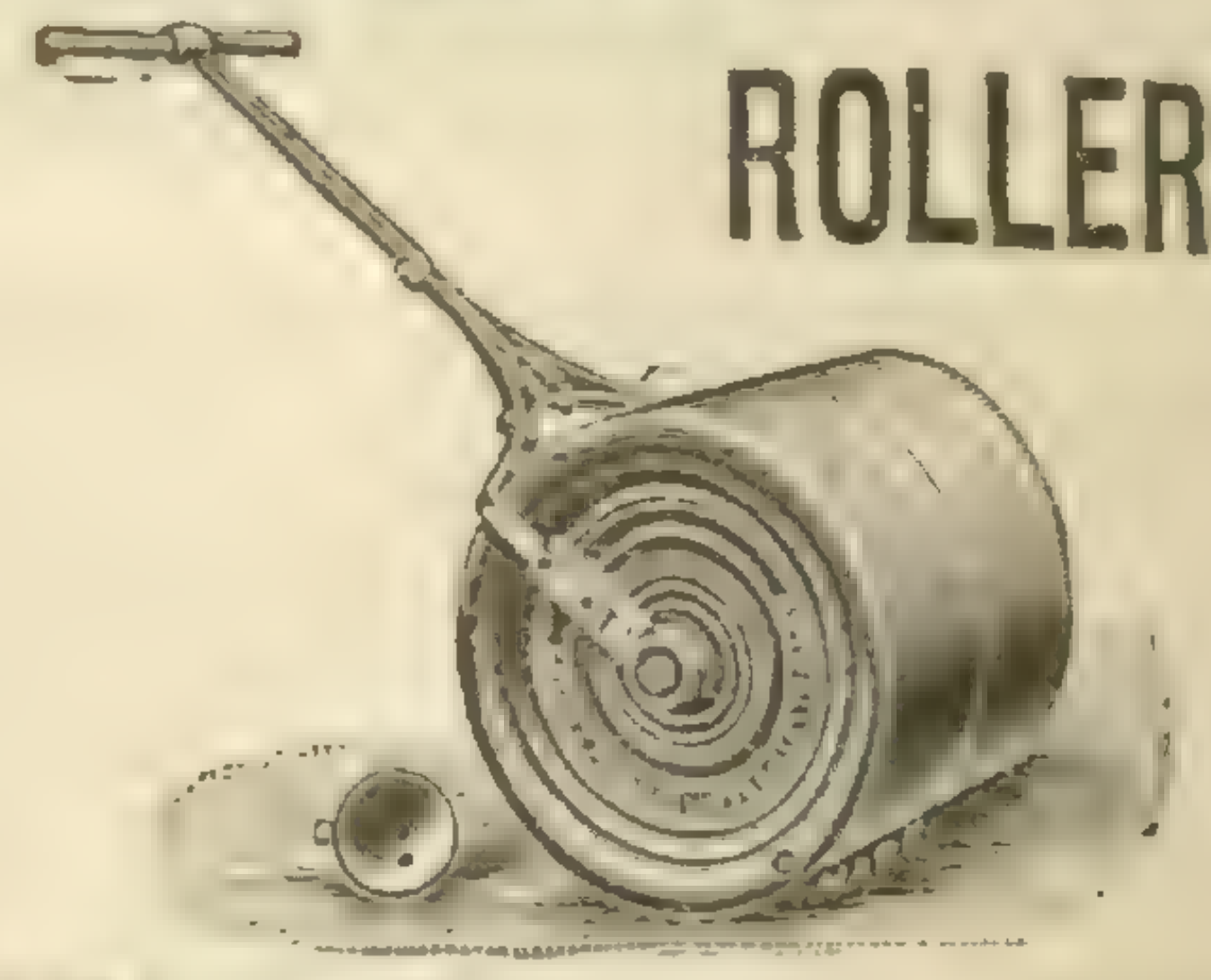

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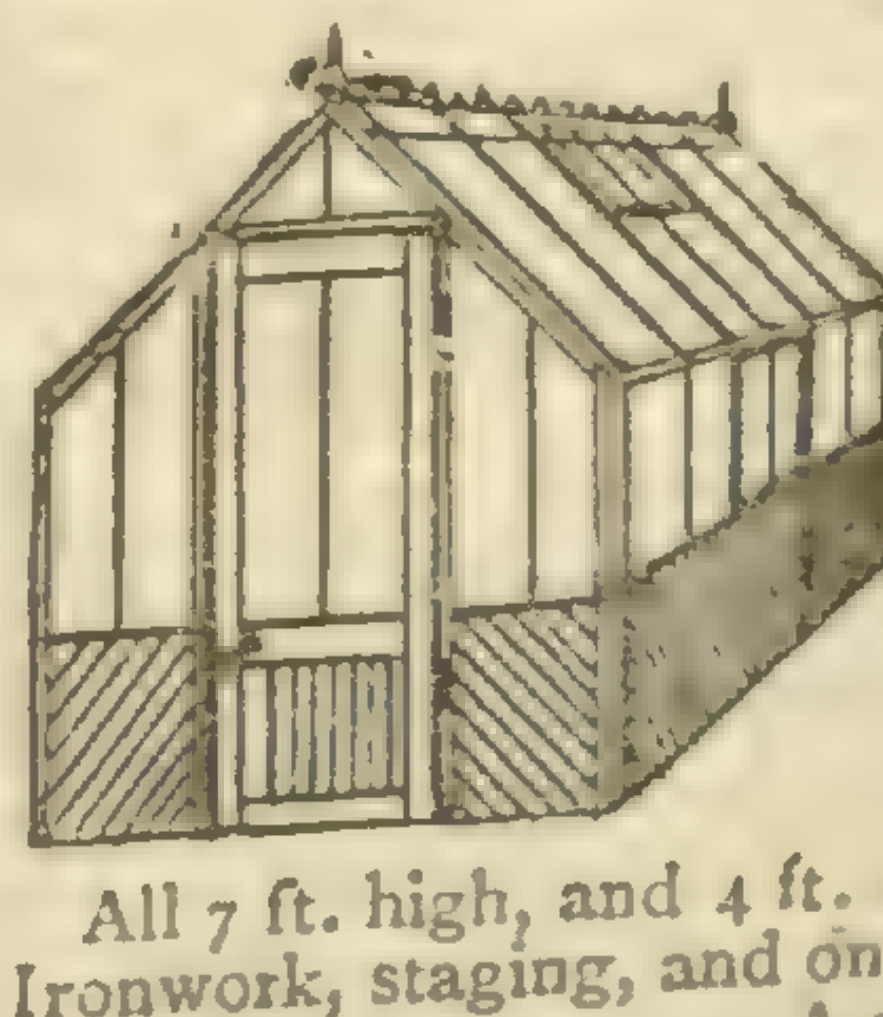

Size.	Lean-to.	[illegible]
8 X 5 ...	[illegible]	[illegible]
10 X 5 ...	[illegible]	[illegible]
14 X 6 ...	[illegible]	[illegible]
10 X 8 ...	[illegible]	[illegible]
14 X 8 ...	[illegible]	[illegible]
14 X 10 ...	[illegible]	[illegible]
20 X 10 ...	[illegible]	[illegible]

All 7 ft. high, and 4 ft. sides (a few 5 ft. [illegible]). Ironwork, staging, and one coat paint included.
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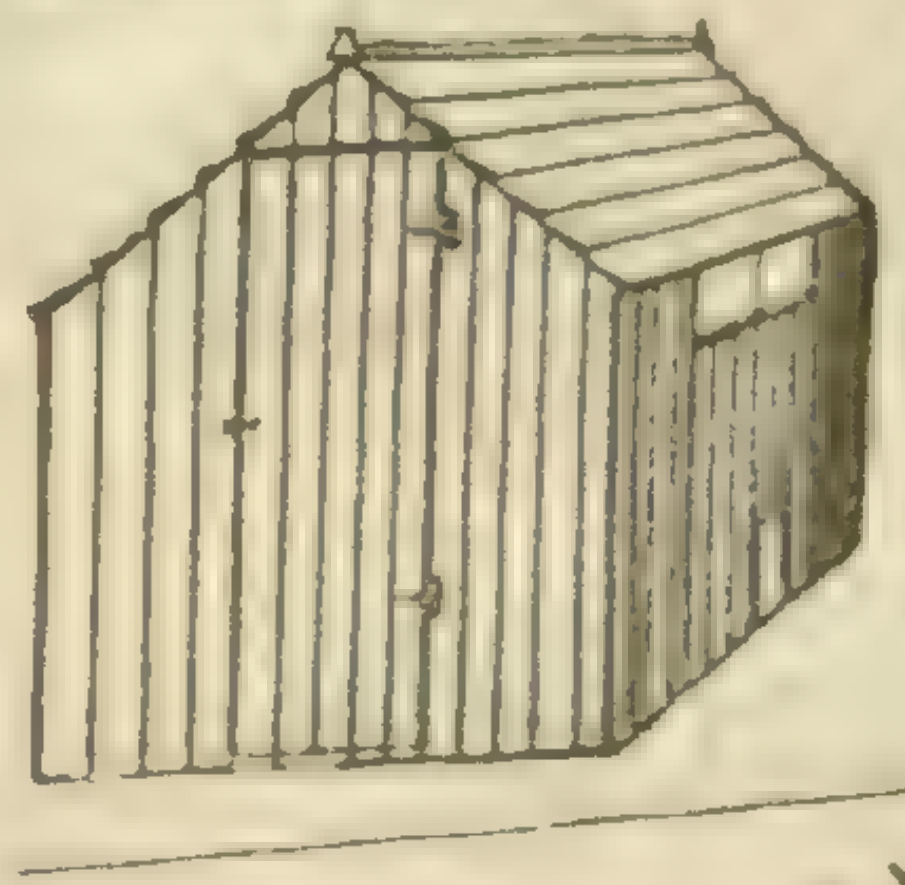
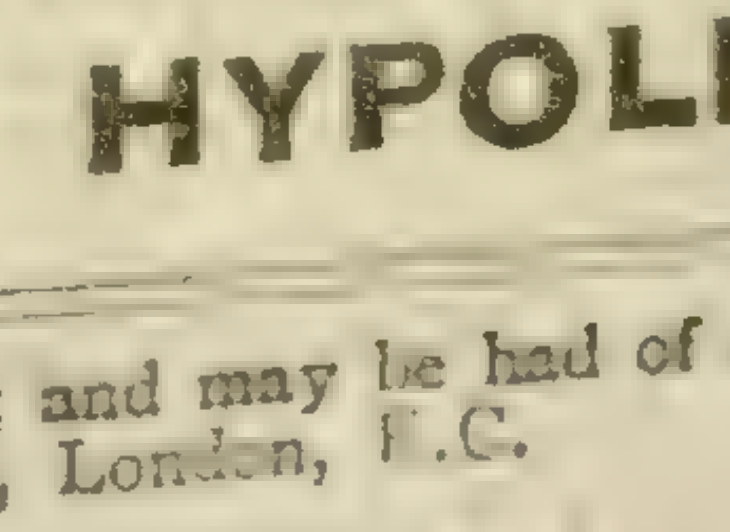


To hold.	Size.	[illegible]
Ten ...	[illegible] X [illegible]	[illegible]
Twenty ...	[illegible] X [illegible]	[illegible]
Forty ...	[illegible] X [illegible]	[illegible]
Hundred ...	[illegible] X [illegible]	[illegible]

(Also a few [illegible])
Usually made [illegible] those are [illegible]



4 X 3 ...	[illegible]	
6 X 4 ...	14/6	(a few cheaper,
8 X 6 ...	22/6	4 X 3 & 6 X 4 [illegible])
12 X 6 ...	33/-	

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	Per 100		1,000	
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Crocus, II. size, in fine mixture	0	8	6	3
Crocus, I. size, in fine mixture	1	4	10	2
Hyacinths, mixed, for bedding or forcing	9	8	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection	17	6	—	
Iris Kæmpferi (Japan Iris), in fine mixture	5	0	40	0
Iris Germanica (Flag Iris), in fine mixture	7	0	65	8
Iris Sibirica, in fine mixture	5	0	40	0
Iris Spanish, in the finest mixture	0	7	5	0
Lilium Candidum, single, pure white	10	0	—	
Montbretia croscosmiæflora, orange scarlet	1	6	—	
Narcissus campernel Jonquil, yellow	1	2	10	0
Narcissus, double, Incomparable, primrose	1	6	14	0
Narcissus van Sion, single, yellow trumpet	2	6	23	4
Narcissus Stella, white, yellow cup	1	4	12	6
Gladiolus Marie Lemoine, fine	2	0	19	2
Gladiolus Brenchlyensis, deep scarlet	2	6	20	0
Scilla Sibirica præcox, intense blue	1	2	10	0
Tulips, single early, in the finest mixture	1	2	10	0
Tulips, double early, in the finest mixture	1	6	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	20	0
Grape Hyacinths, blue	0	7	5	4
Anemone japonica, rose	5	0	—	
Hemerocallis (Day Lily), mixed	8	0	—	
Pyrethrum, fine double, pure white	15	0	—	
Tritoma uvaria (Red Hot Poker)	14	6	—	
Sparaxis, in fine mixture	0	8	6	0
Funkias, in fine mixture	10	0	—	
Gladiolus Colvilli, white	1	2	10	10
Hyacinthus candicans, white	5	0	45	10
Iris pumila, mixed	4	0	—	
Lilium umbellatum, red	10	0	—	
Snowdrops, Elwesi	2	0	18	4

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AS UNDER-GARDENER (Inside) in good establishment; has had experience with vines, melons, stove, and general plant work; age 24; fourteen months in present place, six years previous; bothy preferred.—W. PINE, Winslade Gardens, near Exeter.

AS SECOND (where four or more are kept, or small place where help is given); understands glass, fruit, flowers, and vegetables; six years in last place; age 30; single; good references.—ABBOTT, Wetherden, Stowmarket, [illegible]

AS GARDENER (Single-handed); experienced; Inside and out; good reference; three years present place; age 23; abstainer.—Apply J. G. C., 8, Warners' Lane, Church Gate, Loughborough.

AS GARDENER (Single-handed or otherwise); good experience; married; age 31; one child, seven years' good character.—B., 2, Chislehurst Road, Orpington, Kent.

FOREMAN in medium establishment; age 25; nine years' practical experience; bothy preferred.—SAMUEL A. BASSIL, The Old Pond, Turners' Hill, Cheshunt, Herts.

FOREMAN. — Joseph Forsey, Stanford Hall, Loughborough, would be pleased to highly recommend a young man, aged 27, to any Gardener requiring the service of an energetic and practical man of fourteen years' experience in leading gardens.

FOREMAN.—George Picker, The Gardens, Hesslewood, near Hull, would be pleased to RECOMMEND his Foreman, George Sage, to any gardener requiring the services of a reliable young man; age 27; the cause of leaving, the breaking up of the establishment.

GARDENER.—Admiral Sir W. G. Luard wishes to RECOMMEND his Gardener as HEAD, where two or more are kept; thorough practical man inside and out; ten years' reference; age 30; married, one child.—R. S., Lodge Cottage, Witham, Essex.

GARDENER (Head-Working, or good Single-Handed); age 29; married, one child; fourteen years' experience, Inside and Out; thoroughly understands fruit, flowers, and vegetables; good references.—R. PELLETT, 8, Tweed Road, Brockham, Surrey.

GARDENER (Head Working); age 33; married.—A Gentleman wishes to RECOMMEND G. STRICKLAND, who has been with him two and a half years as general foreman; eighteen years' experience in all branches of gardening, two years previous as foreman.—G. STRICKLAND, Elston, Newark-on-Trent.

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GARDENER (Head Working), age 30; thoroughly practical in all branches; six years' excellent character as General Foreman here, two and five previous.—ALFRED PARKER, Gilston Gardens, Harlow, Essex.

GARDENER (Head-Working); thoroughly experienced in all branches of the profession; married, no family; wife would take charge or help in house; good references.—R., 2, Mabel Cottages, Anyards Road, Cobham, Surrey.

GARDENER (Head-Working, or good Single-Handed); age 24; nine years' practical experience; Inside and Out; abstainer; well recommended; good character.—F. HAWKINS, Littlebourne, Dover, Kent.

GARDENER (Head-Working); thorough knowledge of outdoor fruit, kitchen, flower garden, stove, greenhouse, vines, melons, &c.; married; good references; total abstainer; excellent character; nearly twenty years' experience.—A. HARTLEY, Portchester, Hants.

GARDENER (Single-Handed, or where help is given); eight years' practical experience in the cultivation of fruit, flowers, vegetables; pony not objected to; age 22; height 5 ft. 8 in.; wages not under 22s.—W. MARTINGELL, Grange Wood Cott, South Norwood.

GARDENER (Single-handed or Second), where three or four are kept; nine years' experience; age 25; first-class references.—B., Fortismere Cottage, Fortis Green Road, East Finchley, N.

GARDENER (good Single-handed), or where help is given; good references; thoroughly understands flowers, fruit and vegetables; age 25; married.—H. HIGGS, Updown Hill, Windlesham, Surrey.

GARDENER (Second, or Single-Handed); ten years' experience; Inside and Out; age 23; good testimonials.—G. G., 39, Evelyn Street, Deptford, S.E.

GARDENER.—SITUATION WANTED by married man, aged 30, under Head Gardener; experienced in glass, vines, greenhouse plants, kitchen garden; four years' good character from present place; leaving through death.—W. H. PIPER, near the School, Combe Martin, N. Devon.

GARDENER (Under) age 23, WANTS SITUATION; well up in flower, kitchen, and fruit garden; eighteen months' good character from last place.—OTTAWAY, 2, Victoria Cottages, Cosham, Hants. No circulars.

JOURNEYMAN (Inside).—Age 21; seven years' experience in plants and fruit in good gardens; excellent references.—Address F. LUCAS, Elsham House, Grantham, Lincolnshire.

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UNDER GARDENER, Inside and Out; life experience; good character from present employer; age 22; single; state wages.—E. STRACEY, Shrubs Hill Sunningdale, Berks.

YOUNG MAN, age 21, SEEKS SITUATION as under; inside, or inside and out; good references.—R. TAYLOR, Home Farm, Chalgrove, near Wallingford.

YOUNG MAN, single, strong and willing, SEEKS SITUATION under good man, either in large or smaller place; leaving through no fault; Churchman.—H. C., Monkton, Taunton, Somerset.

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THE GARDENERS' MAGAZINE.

SATURDAY, SEPTEMBER 17, 1898.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

LEAVES AND FRONDS.

LEAVES and fronds appear so generally similar in character that we are apt to lose sight of the fundamental differences between them. Leaves, versatile as they are in the production of diverse methods of cutting, or veining, or colouring, twisting or twirling, or bunching, or branching, are but auxiliaries in the one great function of the plant, that of reproduction by seed. To arrive at this, evolution has managed as a rule utterly to transform the leaves proper, under favourable circumstances, into the altogether dissimilar, and usually much more beautiful reproductive apparatus which we know as flowers. So thorough, indeed, is the metamorphosis, that it is mainly the scientific botanist who grasps the real facts, though here and there, as in the callas, we see the relationship of leaf and flower plants clear enough, and floral abnormalities like green roses, and the brilliantly coloured bracts of poinsettias display the same thing in different fashions. In the fern, however, we seek in vain for similar transformation, and although we get here and there apparent attempts at it, such as in the royal or so-called flowering fern, the aneimias, the lunarias, and others, the resemblance disappears on close investigation, since no trace is discernible of the marvellous arrangement of petal, stamens, stigma, pollen and ovary, which go to constitute a flower. All we find in these is a contraction of the frond into a mass or masses of spore capsules, and examining the backs of fronds of other ferns not so differentiated, we find still these spore capsules in heaps, or lines, or dots, or generally spread over the surface according to the specific character of the fructification. Never a flower, and yet if we study the evolution of flowering plants, we shall find far away in a dim and distant past these flowerless ferns must have been their progenitors; and further we are confronted with the fact that ferns having managed to exist ever since that distant period, there must be some efficacious reproductive scheme to keep them going. Here comes in the wonder; we drop one of the millions of spores on a piece of damp clay, and watch it. In a week or two it has developed a tiny emerald green heartlet, like a herring scale, and about the same size. Pick this prothallus up, and put it under a strong lens, and, behold, the flowers of the fern are there; there lies the embryo seed; thither comes the fertilizing brood of antherozoids, and presently the seed generates, up comes a tiny frond, down dips a tiny root, and a fern is born to all intents and purposes in precisely the same fashion as a flower. The leaf, therefore, differs from the frond in one great essential; it bears no reproductive bodies, hence flowering plants proper differ from ferns, since they produce no spores, which form independent flowering plants on a microscopic scale, but bear themselves the incipient seeds which are fertilized in a thousand and one fashions by wind or insect agency. One result of this difference has been an entirely different mode of natural selection; the conspicuous flower once started attracted insects by virtue of its visibility. Hence, increased in size and brilliancy, and varied in type as well, the inconspicuous microscopic fern flower, however, has stood still, and is almost identical in every species and genus, despite the wonderful diversity of size and cutting which has been evolved in other ways.

WATER SUPPLY FOR GARDENS.

THE long-continued dry and excessively hot weather which has been experienced over the greater part of the United Kingdom has greatly emphasised the importance of the water question in relation to the garden, and brought into strong relief the necessity for a serious attempt being made to materially improve the supplies of water in the majority of gardens in country districts. We need not now insist upon the desirability of keeping growing crops of all descriptions well supplied with moisture, the value of overhead washings of fruit trees, or the necessity of frequent waterings of lawns and tennis courts in dry weather, for all these things are well known to those who have had any [illegible] experience. There is no want of appreciation of the value of water as an aid to good culture by those responsible for the management of country gardens; but it appears to be extremely difficult to [illegible] the owners of these establishments that a liberal supply of [illegible] essential to the full development of their resources. Still more [illegible] to persuade them that the supply should be so readily available as to admit of it being being efficiently and economically used. Were it otherwise, we should not so frequently see men engaged in drawing the water from great depths by means of force pumps, and using it without the slightest exposure to atmospheric influences. On the contrary, we should find owners taking full advantage of natural forces, or, in other words, they would provide the machinery by which wind in lieu of highly-paid labour, would raise ample supplies at an infinitesimal cost. We have on several occasions directed attention to the great value of wind engines as the motive power for force pumps, and we have shown how Messrs. Bunyard and Co. obtain abundant supplies for their Allington nurseries by means of a wind engine erected on the higher ground. We have also referred to the fact that upon Lord Spencer's estate in Northamptonshire two villages are regularly supplied with water by the agency of wind engines. The subject is, in fact, one to which we have devoted a considerable share of attention, and we now refer to it for the purpose of showing the enormous quantity of water a fairly powerful engine will raise in the course of twelve months. We have before us the carefully-kept record of the year's work of a sixteen-foot geared wind engine, which has its axis eighty-two feet above the ground. The engine is of steel, and its work is done through one or more of four pumps (*a*) a reciprocating pump with fourteen-inch piston; (*b*) a bucket pump with a normal capacity of one hundred and twenty gallons per minute; and (*c* and *d*) two centrifugal pumps, which were not found satisfactory with wind as the motive power. The second pump required the least power to work it, and was used with light winds. With a stronger wind the reciprocating pump was used, and with a very strong wind the two pumps were run together. The water was pumped into a self-emptying and self-registering tank, and the total quantity raised, neglecting decimals, was 2,345,053 cubic feet, or sufficient to cover seventy-nine acres to a depth of twelve inches, and as one inch of water is equivalent to one hundred tons per acre, there will be no difficulty in ascertaining the weight of the water raised. The variation in the velocity of the wind renders it necessary to provide storage for the water pumped to ensure a supply for irrigation when needed; but apart from the cost of the tanks this is an advantage, for with an open reservoir the water becomes aerated, and during the summer months warmed also. The tank should, of course, be placed at a sufficient height for the water to flow over the whole of the garden, and with sufficient force to be used for washing wall and other fruit trees. To show how the variation in the velocity of the wind would affect the supply for irrigation, the year's work of the mill was divided into periods of ten days each, and the smallest quantity raised in any one period was sufficient to cover nearly ten acres to a depth of one inch. It will therefore be seen that while the wind engine works only when the wind is sufficiently strong, it can be depended upon, with storage accommodation, to produce large supplies in proportion to its power, and thus materially reduce the cost of watering.

IMPORTS OF FRUIT AND VEGETABLES.

THE returns of the Board of Trade for August are more satisfactory than were those for the three preceding months, for there are increases in both the imports and exports, and evidence of an augmentation of our trade with the United States. The imports show an increase of £3,845,142, equal to 11·5 per cent., and in the exports of British and Ireland produce and manufactures, there is an increase of £1,412,019, equal to 7·5 per cent. With the large increase in the imports of general commodities it is interesting to observe that there is an exact balance between the increases and decreases of the imports of fruit and vegetables. Apples were received in smaller quantities than for several years past, the imports amounting to 116,860 bushels, of the value of £34,083, a decrease in quantity of 65,887, and in value of £16,144. During the eight months ending August 31 we imported 1,062,427 bushels, of the value of £385,415, against 2,300,617 bushels, of the value of £634,688, in the same period of 1897. Cherries, on the other hand, evince an increase in quantity of 28,958 bushels, and in value of £11,175, the imports amounting to 34,535 bushels, of the value of £13,001. For the eight months there is an increase of nearly 100,000 bushels as compared with 1897, and of almost double the quantity as compared with 1896. The increase in the imports of grapes is also large the quantities received having been 236,641 bushels, valued at £98,780 Notwithstanding an increase of 126,988 bushels in August, the imports of grapes for the eight months do not differ materially from those of similar periods in the two preceding years. There was a considerable shrinkage in the imports of lemons, oranges, and nuts used as food, and a large decrease in the receipts of pears. In August, 1897, we imported 450,616 bushels of pears, of the value of £154,638; but last month the imports were 128,854 bushels only, of the value of £56,705, a difference in quantity of 321,762 bushels, and in value of £97,933. Plums, on the other hand, show an increase, the quantities imported having been 491,633 bushels, against 471,073 bushels in the corresponding month of last year. The values for the respective quantities are £246,556 and £206,714. Unenumerated fruits continue to advance, and the value of the imports of these in August is given as £117,026. Potatos again show an increase both for August and the eight months. The monthly imports were 90,939 cwt., and of this quantity France sent us 84,718, and the total for the the eight months is 6,363,861 cwt., of the value of £1,843,345, the latter being as near as may be double the value of the foreign supplies in the same period of 1897. Unenumerated vegetables continue to increase in importance, as indicated by the fact that their value for the month is returned at £207,716, and for the eight months as £1,161,161. This is a goodly sum to pay for supplies of miscellaneous vegetables, and it should be worth the while of cultivators for market to enquire how far it might be possible to meet the demand with home-grown produce.

The British Association Meeting was brought to a close on Wednesday, and the general opinion is that the gathering was one of the best that has yet taken place under the auspices of the body. The papers have throughout been of exceptional interest, and the address by Professor F. O. Bower, F.R.S., at the opening meeting of the botanical section, is very properly considered one of the most important contributions that has been made to the literature of botany for some years past. The 1899 meeting will be held at Dover, and of this Professor Michael Foster, F.R.S., is the president-elect, and in the following year Bradford will be the place of meeting.

Diffusion and Absorption of Odours.—The laws of the production and propagation of smells have hitherto received but little attention from physicists, hence the address by Professor Ayrton, F.R.S., at Bristol the other day, in which they were fully discussed, was of special interest. Referring to the diffusion of the odours of flowers and some other natural products, Professor Ayrton said that when liquids like ammoniated lavender, smelling salts, solution of musk, and amyl acetate were employed, and various devices were used for introducing the liquid, and preventing its splashing when it boiled on exhausting the air, it was found that the time that it was necessary to leave the two limbs of a U tube connected for a smell to be just observable was reduced from a few minutes or seconds when the tube was filled with air to less than half a second for a good vacuum; with solid camphor it was reduced from twenty minutes to one second, and when moist rose leaves were used, from fifty minutes to two seconds. But with solid particles of musk the time was not reduced below twenty minutes by taking away the air, while with dried lavender flowers and dried woodruff leaves no smell could be detected after the two limbs had been connected for many hours, and a good vacuum maintained. These experiments are, of course, somewhat complicated by variations in the amount of odourous surface exposed, but they seem to indicate that with these particular dried substances either the rate of evolution of the scent, or its rate of propagation, or both, are very slow even in a good vacuum. Some tests on the power of different substances to absorb various scents from the air have also been carried out. Lard, it is well known, is used to absorb the perfume from flowers in the commercial manufacture of scents, perhaps because it has little odour of its own, and because the scent can be easily distilled from it. But when lard, wool, linen, blotting-paper, silk, &c., were shut up for some hours in a box at equal distances from jasmine flowers, dried woodruff leaves, or from a solution of ammonia, it was found that it is not the lard, but the blotting-paper, that smells most strongly when the articles are removed from the box. On the other hand, when solid natural musk is employed, it is the wool that alone acquires much smell, even after the box has been shut up for days. Another noteworthy fact is the comparatively rapid rate at which grains of natural musk are found to lose their fragrance when exposed to the air. The popular statement, therefore, that a grain of musk will scent a room for years supplies but another example of the contrast between text-book information and laboratory experience.

Richmond Scenery.—The question of the purchase of Glover's Island, Richmond, by the Corporation has been disposed of, that body, as might have been expected, declining to make the purchase. At a meeting of the Richmond Town Council on Tuesday, the Mayor presiding, the Amenities Committee reported, with regard to the option of the purchase for £4,000 of the island, in the Thames beneath Richmond Hill, which the Mayor, acting as agent for the vendor, had secured for the town, the committee reported that only £50 had as yet been secured in public subscriptions towards the scheme. In view of the fact that the assessment of the island was at the yearly value of £18 only, that it had been purchased twenty-four years ago for £72, that it was extremely unlikely to be bought for the purposes of an advertisement station or for any of the other objectionable purposes mentioned in the advertisement, they recommended the council not to accept the offer. The committee further declared that they felt that public opinion would condemn in the strongest manner any proposal to injure the world-renowned view of which Glover's Island formed a part. The recommendation of the committee was unanimously accepted.

Town Trees in America.—The importance of trees in streets is evidently fully recognised in some of the cities in the United States, and ample provisions are made for their planting and maintenance. The Board of Park Commissioners of Minneapolis has authority under the Park Act to plant trees on any street and assess the cost of the same on abutting property. This authority, as a rule, is not exercised except when petitioned to do so by a majority of the residents of the street. The cost of planting and caring for the trees for three years is about twenty shillings, but this sum is undoubtedly under, rather than over, the actual expense. The city being underlaid with gravel, it is necessary to remove at least five yards of the material, which is replaced with the same quantity of rich loam in which the tree is planted. It would be a paying investment for the owner of the property if double the amount of loam were furnished and charged for. Each tree is protected by a guard, which serves the double purpose of protecting the bark from the rays of the sun and from the teeth of the horses. Many of the streets have been improved with uniform rows of trees, and the number of petitions for the improving thoroughfares increases each year. Some of the older trees which were planted before the care of this work was assumed by the Board of Park Commissioners show the usual haphazard way in which planting was done when each owner of a forty-foot lot exercised his own will. Some planted four or five trees, each of a different variety, and never cared for them. Others did not plant any, and a few set and cared for trees which have grown to be fine specimens of their kind. Up to the time the park commission became the custodian of the street trees, more had been planted and had died, either through ignorance in planting, or through neglect, than were then growing. The loss since that time has been less than two per cent. A commission having charge of the trees in the city of Washington has absolute control and care of them. It is decided to use a certain variety on a street, that variety is planted and there is no appeal from its decision. As a result, there is no city having so many unbroken rows of healthy trees. Other cities in America have undertaken the control of street ornamentation with great success, and it is to be hoped that all will follow their example.

Messrs. Linden's Nurseries.—With reference to the notice of Messrs. Linden's establishments at Brussels, it will be of interest to mention that in addition to the large establishments, L'Horticulture Internationale, in the fashionable Quartier Leopold, and M.M. Lucien Linden et Cie. at Moortebeek, in the western suburbs of the city, M. Lucien Linden is forming a still more important nursery in the rising eastern suburb of Brussels. Visitors to the International Exhibition held in Brussels last year may remember the splendid new avenue commencing at the back of same, and extending for a length of over ten miles, connecting the city with the magnificent Royal Park of Teroueren. A new avenue, "Jean Linden," is being laid out to the left, at the back of the exhibition, dedicated in memory of the late Jean Linden, and it is here that M. Lucien Linden is creating the large establishment for the culture of commercial plants on an extensive scale. The space occupied by the nursery when completed will be over three hectares (one hectare = 2·471143 acres).

Wood-Destroying Fungi were discussed in the botanical section of the British Association, the discussion being opened by Professor Marshall Ward with a paper on "Penicillium as a Wood-Destroying Fungus," in the course of which he said that spores from pure cultures of penicillium sown on sterilized blocks of spruce-wood, cut in March, were found to grow freely and develop large crops of spores on normal conidiophores. Sections of the infected wood showed that the hyphæ of the mould entered the starch-bearing cells of the medullary rays of the sap wood, and consumed the whole of the starch. The resin was untouched. In culture three months old the hyphæ were to be seen deep in the substance of the wood passing from tracheide to tracheide *via* the bordered pits. Control sections, not infected and kept side by side with the above, contained abundance of starch, and no trace of hyphæ could be detected in them. The observation appeared of interest in several connections. Penicillium is one of the commonest moulds, and undoubtedly played a part in the reduction of plant débris to its constituents; how far it could itself initiate the destruction of true wood, or how far it merely followed on the ravages of other fungi, bacteria, &c., was unknown. There were strong grounds for believing that it destroyed the oak of casks, &c., but since these were impregnated with food materials that was not very surprising. It appeared as if penicillium might be a much more active organism in initiating and carrying on the destruction of wood than had hitherto been supposed, and that it was not merely a hanger-on or follower of more powerful wood-destroying fungi.

Wasp and Bee Stings.—As several persons have died this season from the effect of being stung in the mouth by wasps, when eating fruit, the importance of an effective remedy easily applied, cannot be over-estimated. In a letter to *Nature*, Sir J. F. D. Donnelly states that he has found cocaine an efficient remedy for wasp or bee stings. It is said to act apparently not only as a temporary local anæsthetic, but seems also to have the power of destroying the poison of the sting. Sir J. F. D. Donnelly happened to have some one-sixth grain cocaine tabloids for hypodermic injection when a lady was badly stung by a wasp a year or two ago. Such stings have a great effect on her, not only producing a very large and painful swelling, but making her feel more or less unwell for two or three days. One tabloid dissolved in a few drops of water, and applied with the finger at once, almost removed the pain; a second, applied an hour or two after, completed the cure. A few days later the cocaine was found equally effective in the case of a young girl who had been severely stung. Since then he has kept a small bottle of a strong solution of cocaine ready for use, and it has always proved effective. It should, of course, be applied as soon as possible, but a few days ago it was found to give great relief seven or eight hours after the sting. It is of some importance to know whether it would be safe, in case a person were stung on the tongue and no doctor could be secured at once, to give a hypodermic injection in the tongue of one-sixth grain cocaine, or whether it would be better to apply the tabloid or a solution externally to the place. Possibly some of our medical friends may be able to advise us upon this point.

Preservation of Open Spaces.—Dr. Robert Hunter pays a well deserved tribute to the services rendered by the late Sir Henry Peek in launching the movement for the preservation of open spaces. That movement, he writes, may be said to have first assumed a definite direction at Wimbledon in connexion with the proposal of Lord Spencer to convert the common into a park. Sir Henry Peek, as the principal resident and the owner of Wimbledon House, put himself at the head of the committee formed for the protection of the common and the public, and, it is unnecessary to say, contributed largely to the funds required to finance the Parliamentary proceedings and the litigation which became inevitable. When Lord Spencer subsequently offered to transfer his rights in the common to a body of conservators, representing both local and general interests, Sir Henry Peek became chairman of that body, and his hospitable house was for many years the place of meeting of the board. Sir Henry's interest, however, extended beyond the common at his doors. He stimulated a movement, attended with like happy results, for the preservation of Wandsworth Common. He was one of the founders of the Commons Preservation Society, and in days when both legal and general opinion was still wavering he offered prizes for essays on the best means of preserving open spaces, and subsequently published six essays on the subject, which undoubtedly played their part in emphasizing and guiding public feeling. He was a warm sympathizer in the early efforts to preserve Epping Forest, and threw the weight of his position in the City on the side of the Corporation of London when they espoused the cause of the public. Some years later Burnham Beeches were offered for sale, together with a considerable acreage of enclosed plantation, and inquiry showed that this most picturesque common and its magnificent pollards ran great danger at the hands of the speculative builder. The Corporation were able and willing to buy the Beeches, but they had no power to purchase the plantations. On being informed of the difficulty Sir Henry Peek at once agreed to acquire the whole property and to resell the open woods and common to the Corporation at a proportionate price. He thus made the preservation of the Beeches possible.

High Temperature in September.—The high temperature which prevailed during the first half of the current month will not be quickly forgotten. The 8th inst. was not only the hottest day we have had this year, or as a matter of fact since August, 1893, but the hottest September day experienced for just thirty years past. At eight o'clock in the morning the thermometer in the shade in London stood at 69 degrees, and by 10 a.m. it had risen to 83 degrees. while at about midday it reached a maximum of 92 degrees, the reading being no fewer than 25 degrees above the average for the month of September. At Kew the reading was somewhat higher. To find an equally hot September day we must go back to the year 1868, when the thermometer at Greenwich rose on the 7th of the month to 92 degrees. In no other September of the past fifty-seven years did the thermometer get within 4 degrees of the reading on the 8th, or within 4 degrees of the 1868 value, the nearest approach to it being Wednesday, 7th inst., and on the 4th of the month in 1880, when it reached 87 degrees. In only seven of the past fifty-eight Septembers has the thermometer in London even touched 85 degrees, and in no fewer than forty-three years out of the fifty-eight it failed to reach 80 degrees.

Fruit Growing in Suburban Gardens is the subject for discussion at the meeting of the Royal Horticultural Society on Tuesday next. The discussion will be opened by Mr. W. Roupell, who has devoted much attention to this aspect of fruit culture.

The Pomological Congress to be held at Mans under the auspices of the French Pomological Society from October 6 to October 9 will be chiefly devoted to questions relating to the production of cider and perry. The programme is as follows: (1) Diseases of the apples and pears; selection of varieties for cider; (2) varieties that have been successfully introduced into the Sarthe district; (3) general description of varieties of apples and pears grown in Sarthe for cider and perry; (4) new apples and pears for vintage purposes; (5) foreign varieties recommended for cider and perry; (6) culture of apples in arable and grass orchards; (7) raising new varieties of apples; (8) the use of manures in apple culture; (9) the preparation of fruit for cider and perry; (10) the sale and exportation of cider and perry. The congress should be of interest to those engaged in the cider industry.

Tree Preservation.—Notwithstanding our much vaunted civilisation, it is evident that some members of the English community might with advantage take lessons from at least one of the primitive races of the world. M. Louis de Rougemont, whose account of his enforced exile of some twenty-eight years among the cannibal blacks in the Cambridge Gulf region of Australia has created much interest, states that the tribes with which he was associated had a great veneration for trees. Stone axes are used for felling trees, but the natives only fell trees with the greatest reluctance, and apologies are offered to the trees for taking their lives away. The fuel used is dry dead wood that has fallen from the trees, for no trees are felled for fuel under any circumstance.

Plant Symbiosis.—An interesting case of symbiosis is described by Mr. A. Vaughan Jennings and Mr. H. Hanna in a paper contributed by them to the Royal Dublin Society. In recording their investigations of Corallorhiza innata and its mychorhiza they state that the coralloid rhizome is covered with numerous papillæ upon which tufts of hairs arise. The latter enter into very close relationship with the fungal hyphæ growing in the soil, forming a mychorhiza. Owing to changes taking place in the hairs bundles of hyphæ pass down in the inside of the hairs through the outer layers of cells into the cortex, in the outer layers of which they form a coiled mycelium, and in the deeper layers they undergo a process of degeneration, and are absorbed by the protoplasm of the cells. The evidence indicates that the host plant acts carnivorously towards the hyphæ. The hyphæ constituting the mychorhiza in this case were traced to one of the higher fungi, Clitocybe infundibuliformis.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

It is not often that the sensations of what is euphemistically, and not without humour, styled "the great world" penetrates to the minor sanctuary of horticulture, but there is a striking exception in the astounding and perplexing mystery which is now agitating law courts and public. I read some scraps of the highly-flavoured reports of the Druce case with the casual and perfunctory interest which is all I can muster, as a rule, when the subject is that of the average novel, until there cropped up the name of Ormson, and then I began to arouse my sluggish faculties. Ormson is not an everyday name; on the contrary, it is a distinctly uncommon one. Could this be the same Ormson that I knew many years ago? The reference to him as a horticultural builder settled the matter. It was the same, and straightway I plunged into the mystery.

I have been trying to think how long it is since I saw Ormson. It must be nearly twenty years. He was ill at the time, and complained, if my memory serves me, of severe rheumatism. Anyway, he was troubled with a painful complaint, and I believe he afterwards died of it. Many readers of this paragraph will remember his place as well as I do. It was situated on the left-hand side of King's Road, Chelsea, a quarter of a mile past Veitch's Nursery, and close to the bridge over the railway. He had an excellent business connection, not, perhaps, as large as some, but embracing many of the best families. That, of course, is how it is that he was in the position to make the singular statement concerning the former Duke of Portland, which has recently seen the light in the daily Press. Whether it will have any influence on the fortunes of the great legal duel which seems to be impending remains to be proved. But I for one shall follow the case with a new interest as a result of this curious interposition of a dead hand.

Talking of mysteries, it would appear that we have one of our own on a small scale. It also deals with a burial and resuscitation and with a changing of names. I need not say that I refer to Acalypha Sanderi. I find that there is a good deal of talk about this in gardening circles, and I should be more than human, journalistically speaking, if I did not, as a consequence, lay hold of the subject. Assertion and denial appear to follow swiftly in each other's footsteps, but surely there is very little room for doubt. Those who contend that the plant is an old one give chapter and verse for their assertions, and it would seem that the matter can be simply and speedily resolved by testing their references. As far as the public are concerned, I don't think it likely that much will happen. I believe they will buy the plant whether it is an old one rediscovered or a genuine new one never before brought to or described in this country. The point is an academic rather than a commercial one.

A kind friend in the South of England, who tells me, with every symptom of disgust, that he is sometimes charged by sapient critics with the heinous offence of writing these notes, sends me a cutting from a local paper bearing reference to a show of animals by the gardeners of Canterbury. Not so many years ago I resided near that ancient city, and although the gardeners of the neighbourhood were great with flowers (including annuals), I was not aware that they went in for live stock. Perhaps the printer has been at it again. He made me say "hands" a week or two ago in reference to Mr. Druery, when I wrote "ferns" as plainly as—well, for want of a better simile, I will say as plainly as I ever write anything. I refuse to believe that the Canterbury gardeners exhibited their collection of "animals" in the form of insects on their plants, because they are good cultivators and regular readers (many of them) of the GARDENERS' MAGAZINE.

Mention of this paper reminds me of a wonder which I have sometimes indulged in as to whether our editor resents or appreciates the familiar abbreviation which is employed in alluding to it. With one consent the people refer to this great and glorious journal as "the Mag." I fear it is not elegant. Moreover, the expression opens up harrowing visions of an abbreviation of something else. But I expect he rather likes it for all that, because, as he must assuredly have reflected, when a popular, or nickname is adopted, it is usually a token of intimate friendship, even of affection. And it is just that spirit of personal interest, of brotherly feeling, which we like to foster. Those who get into the way of looking on the paper as a friend, and of referring to it familiarly, are the sort to do it good. You may "Mag.," therefore, as much as you like, ladies and gentlemen all. Better do that than nag, any day.

I am much obliged to "South Bucks" for his "simple" answer. It seems conclusive on the face of it, but unfortunately it is not. There are, of course, wet and dry zones. I suppose he is in one, I in another. I am not alone, though. I have at my elbow a number of records, from which I select that of Mr. W. H. Divers. I do so because it is the only one that gives the averages. The March rainfall is given as 0·10 below the average, the April fall as 0·09 above, and the May fall as 0·35 above. The average of the three months mentioned by "South Bucks" is, therefore, shown by a careful observer to be 0·34 above the general average.

Mr. George Harris's article on Apples in Northumberland may be commended to the attention of people who live in the other thirty-nine counties. I am particularly impressed with his selection of sorts, which comes as near to a model one as any I have seen. I wonder if Mr. Harris has had any experience with Lord Derby, and if so, what the result is. The market people seem to be regarding it with growing favour, and it is a sort which swells out rapidly to a great size. I think the pick of our new sorts here is the one exhibited at the Drill Hall as Rivers's Codlin, but which I hear has been given a new name. If this rumour is correct, I hope some kind friend will tell me what the name is. It is a beautiful apple, and our young trees are pictures.

LUX.

HOMOLOGY OF PLANTS.

By Professor F. O. BOWER, D.Sc., F.R.S.

THE following is the text of the important address delivered by Professor F. O. Bower, D.Sc., F.R.S., president of the Botanical Section of the British Association, at the opening meeting of that section :—

Shortly before we met last year, in the hospitable Dominion of Canada, two biologists, whose work relates to the questions I propose to discuss to-day, passed away. In both cases their services to science had received honourable recognition in this country. Johannes Japetus Smith Steenstrup, who had been for more than thirty years a foreign member of the Royal Society, died June 20, 1897, at the advanced age of eighty-four; Julius von Sachs, also a foreign member of the Royal Society, died May 29, 1897, aged sixty-five.

The former of these, a zoologist, was probably best known in this country for his work on "Alternation of Generations," a translation of which was published by the Ray Society in 1845. The title-page describes the phenomenon as "a peculiar form of fostering the young in the lower classes of animals." Botanists should remember that this term "alternation," which they often use in a sense peculiarly their own, was originally applied to the course of development in certain animals, by Chamisso in 1819. The first general statement of the subject from the zoological side was by Steenstrup in the work already named; even there no mention is made of such phenomena in plants, until the concluding paragraph, where there is an allusion in very general terms to the course of events in the life of seed-bearing plants. But when we remember that it was only in 1848 that Suminski discovered the antheridia and archegonia borne upon the prothallus of a fern, we see plainly that Steenstrup could not have used the term "alternation" in the sense in which it is now generally applied to plants. The interest for us as botanists will therefore be that Steenstrup suggested in his work on alternation in animals how in the life of plants successive phases exist, and that these are comparable to those which he described in many animals.

Work of St. Julius Von Sachs.

The work of Sachs, on the other hand, has influenced every one of us. Some, including myself, have had the great advantage of his direct personal guidance; all must have derived pleasure as well as profit from his writings. I shall not here attempt any general summary of the achievements of this great man, for that has been done efficiently by the scientific Press at large. I shall merely allude to one feature of his work, viz., the style of its presentment to the reader. He was always clear, usually concise. He was, in addition to his power as an investigator, a master with the pencil, as well as with the pen. It was this combination of qualities which made him the great text-book writer of his time. Never perhaps has a volume more fairly reflected the position of a science at the moment of its publication than did that of Sachs. It resembles the work of a snap-shot camera, and, like any instantaneous photograph of life in motion, it has fixed and perpetuated awkward positions. The morphological system of the time was stiff and unpromising; the text-book accurately depicted this, but it did not suggest or anticipate future developments; it did not bear the softened image of a longer exposure; it presents to us the angular attitude of a moment.

The powers of Sachs as a writer found their best scope in his "History of Botany," a work which will always retain its value as a masterly exposition of the results of very wide reading, arranged with a literary skill which is, unfortunately, rare among scientific men. I lay stress upon this power of Sachs as a writer, apart from his record as an investigator, because he was strong where so many of us are weak. The truth is that little effort is made by men of science to use a concise and transparent style; for the most part we write by the aid of such instincts as Nature has given us; few cultivate composition. But it should, I think, be impressed upon the young aspirant that, when he writes, it is one of his first duties to consider his readers' convenience; he must use all endeavours to convey forcibly the result of his inquiry, but to make the least possible demand upon the patience of his readers.

Three Phases of Morphological Study.

It will be in your memory that the address of last year's Sectional President was largely devoted to branches of our science which touch the material and economic interests of man. It was pointed out to us how certain fungal diseases diminish agricultural profits to an extent which may be estimated in millions of pounds yearly. Beneficent microbes were also mentioned, such as those which govern the aroma and maturing of butter and cheese; these and many others, the study of which lies properly within the province of botany, affect not only the health, but, at the most varied points, the prosperity of mankind.

It is unnecessary for me to dwell further upon these points or to urge again the utilitarian argument for the proper support of botany. I propose, on the other hand, to invite your attention to the morphology of plants. This is a department of science pure and simple. The results which it brings have not, and cannot be expected to have, any money value in the markets of the world. The present time is one of unusual bustle and change in morphology, consequent upon the discovery of new facts and the introduction of new methods. The development of the study may be divided into three periods, we ourselves standing upon the threshold of the third. The earliest phase was that of description and delineation of what might be observed of the mature form of plants; this includes the work of the herbalists and of the earlier systematists, who thus furnished the basis for classification. It is true that the mere description was enriched at times by comparisons made, but these often took a capricious form, as is shown by the many curious allusions which still survive in the nomenclature. Erasmus Darwin satirised the imaginative comparisons indulged in by early writers in his "Loves of the Plants"; an instance of this is seen in his lines referring to the legendary organism, half animal, half plant, suggested by the peculiar form of *Dicksonia* (*Cibotium*) *Barometz* —

"Cradled in snow and fann'd by arctic air
Shines, gentle Barometz, thy golden hair.
Rooted in earth each cloven hoof descends,
And round and round her flexile neck she bends;
Crops the grey coral moss, and hoary thyme,
Or laps with rosy tongue the melting rime.
Eyes with mute tenderness her distant dam,
Or seems to bleat, a *Vegetable Lamb.*"

The tendency to comparison thus already perceptible asserted itself strongly in the next phase of our study, to which it gave its character. And now the need arose for observing development; this was initiated by Schleiden, and carried to a triumphant climax by Hofmeister. Passing from the hands of these pre-Darwinian to those of post-Darwinian writers, the comparisons, while remaining virtually the same, received a new significance. Observers now pushed their inquiries into the details of anatomical structure and development, and in many cases attached an importance beyond what is justifiable to minute similarities or differences of cell-cleavage. Thus what might be called "cellular morphology," became a feature of the period. It has, however, been in a measure discredited by the excessive zeal of some of its votaries, who drew large conclusions from slight facts; a salient example of this is furnished by studies concerning segmentation of the ovum. But we must not assume that because it has been pursued indiscreetly, the study of segmentation is effete.

Morphology has lately passed to a third stage—that of experiment—with a view of ascertaining the effect of external agencies in determining form, and the limits of variability under varied circumstances. Development of itself shows only how a part originates; it does not demonstrate what it is, nor what it may become under special conditions. This new and growing phase of experimental morphology, together with comparison from the point of view of descent, now tends to supersede the formal morphology of the second period, which in many minds implied or assumed ideal types or creative plans. It has become a general view that the facts of morphology are but the stereotyped facts of physiology, form being determined by function, but under the check of heredity. This third experimental phase of the study of plant-form, is directed, as it were, to the very setting of the types, before the stereotype plate is cast. We watch Nature's compositor at work, but we also ascertain that the plate itself, after it is cast, is much more plastic than some of us had thought.

These three phases of morphological inquiry have naturally overlapped one another; we recognise, however, that first description, then formal comparison, and now experiment, have been the leading features in morphological investigation during these successive periods.

Homology.

The ideal aimed at in the study of the morphology of plants is to trace their real relationships and mode of origin, on the basis of the widest observation—in short, to reconstruct the evolutionary tree. In order to make comparison possible, or at least manageable, a terminology is necessary, and this not only of the plants themselves, but also of their parts. We may for the moment leave on one side that summing up of morphological opinion represented by the systematic arrangement of plants in a taxonomic system. I propose to-day to discuss not the classification of plants, but the classification of the parts of plants, their grouping according to their *homology*. And here I use a word which is probably explained to every class of elementary students; it is one of those terms a meaning of which is indeed revealed to the babes of the science, while those who teach are not at one as to its definition. We need not enter now into the various opinions which have been held on this point, nor need we make any antiquarian research into the introduction or early use of the word *homology;* it will suffice to state that it was already firmly established in the science before views as to descent gave it any intelligible meaning. We speak of the homologies recognised by Hofmeister, but it should be remembered that their great discoverer did not put an evolutionary interpretation upon them. Sachs points out in his history how "the theory of descent had only to accept what [illegible] morphology had already brought to view" Nevertheless, much remained ingrained in the very texture of the science which was incompatible with evolutionary thought. This was so even in the text-book of Sachs itself. The categories of root, stem, leaf, and hair are there laid down, and the parts classed under these several heads were held to be [illegible]. In their definition all those characters which refer to function were put aside, the definitions relating to origin and relative position; the reproductive organs were grouped with the rest, with the result that [illegible] parts were described as bearing a varying morphological value. But the purely formal morphology is now dead; it long survived a mere passive belief in evolutionary views, but their active practice has strangled it. The first step towards emancipation was the recognition of [illegible] parts *sui generis.* Eichler, agreeing with Braun and Strasburger, [illegible] that [illegible] it "highly probable according to the theory of descent," that [illegible] structure as the ovule has universally the same morphological [illegible]. It remained for Goebel to make the general statement that [illegible] stand in a category by themselves, and are probably not the [illegible] modification of any vegetative part. It was in this way that the [illegible] genetic factor was first asserted as bearing on a question of [illegible] in the morphology of plants. Adherents of descent no longer [illegible] accepted the direct results of investigation; they began actively to [illegible] and control the interpretation of them; but this position was not attained till more than twenty years after the publication of Darwin's "Origin of Species." Since then, however, views as to descent have [illegible] in the province of morphology [illegible] creasingly important place in the province of morphology [illegible] sent moment a far reaching comparison of allied forms, [illegible] experiment, is the most potent instrument in the hands of the morphologist.

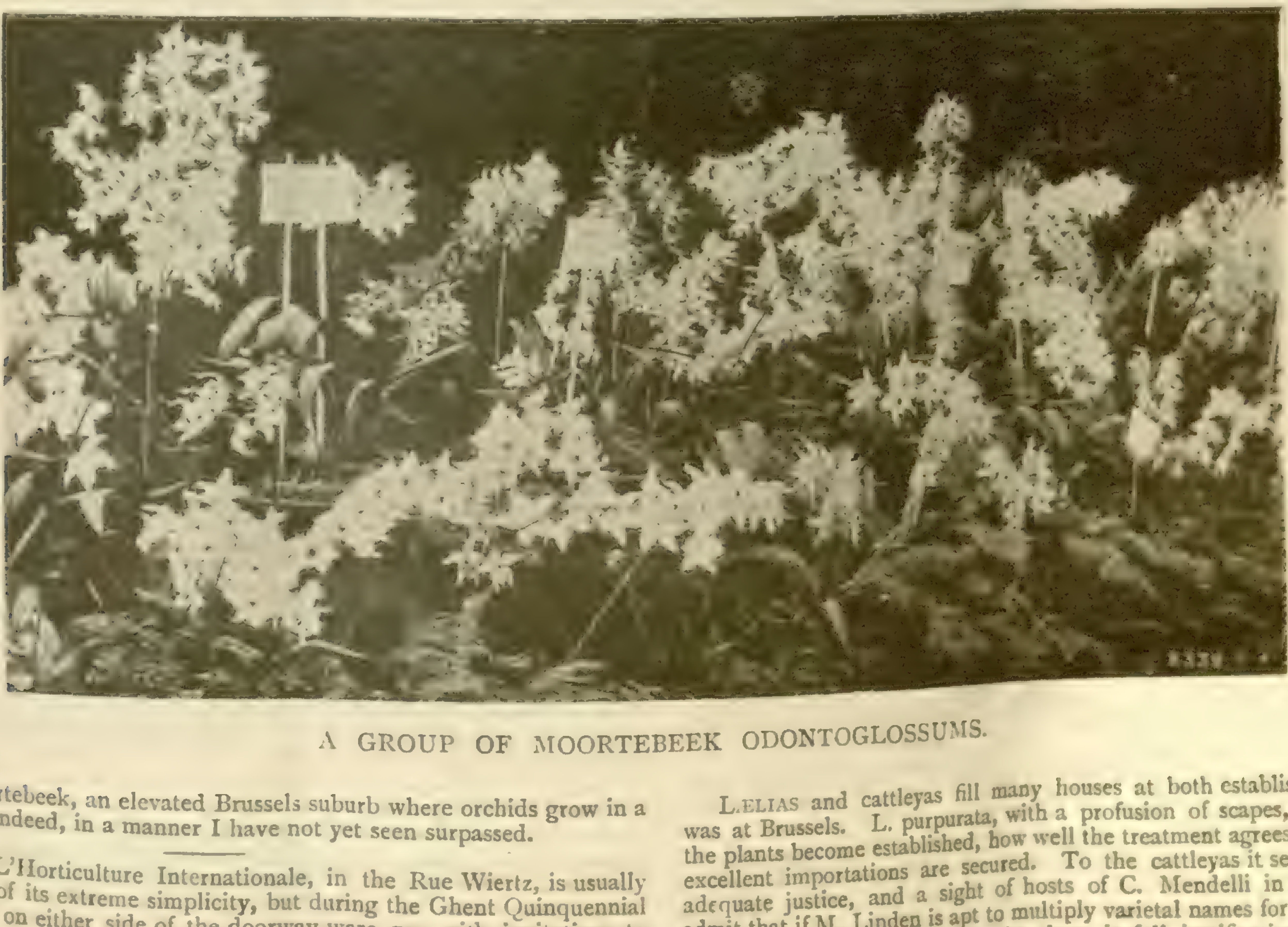
(To be continued.)

MEMORIES OF BRUSSELS.

THERE is something in the nature of most of us that is usually more or less opposed to the existing state of things, and, if we do not always so act, we often think in opposition to what we endure. Are we hot; then we desire to be cool. Are we cool; then we desire to be warm. Are we in brilliant sunshine; then we wish for leafy shade and cool breezes. And so it happens that during the past few brilliant and hot days, with a large part of our metropolis perspiring, one longs for the cool, shady, and well-watered boulevards of Brussels, with their grand system of electric trams as opposed to our underground railways. Possibly it is too hot to be pleasant, even in Brussels just now, but when last there the trees had on their new mantle of green, for it was springtime.

MONS. LUCIAN LINDEN.

AT any season of the year there is much in and around Brussels of more than passing interest to the British horticulturist. The King's garden at Laeken is well worth a visit; it is not far out, and one can readily see the famous Winter Garden from the top of the eminence that Brussels has crowned with a most wonderful, useful, and beautiful building—the Palais de Justice. The neighbouring nurseries are well managed, and the plants are splendidly grown, whether it be the everlasting palms, or dracænas, bromeliads, cyclamen, &c. Then the boulevards of Brussels, with their double and treble avenues, and abundant seats for pedestrians, and the several small but well-kept parks, all form items of interest that one endeavours to cram into a brief visit. Of course, no horticulturist would go to Brussels without a visit to L'Horticulture International, an establishment that has gained a world-wide reputation for cleanliness, high culture, splendid introductions, and its able management at the hands of the late M. Jean Linden, and now of his eminent son, M. Lucian Linden. Now the Messrs. Linden and Co. have an additional attraction for visitors in the shape of a supplemental establishment at Moortebeek, an elevated Brussels suburb where orchids grow in a wonderful manner; indeed, in a manner I have not yet seen surpassed.



A GROUP OF MOORTEBEEK ODONTOGLOSSUMS.

THE entrance to L'Horticulture Internationale, in the Rue Wiertz, is usually noticeable by reason of its extreme simplicity, but during the Ghent Quinquennial Exhibition, the walls on either side of the doorway were gay with invitations to come and see the fine exhibition of plants and orchids. If the entrance somewhat disappoints a visitor, he soon recovers upon entering, for almost immediately he is in a spacious winter garden, where handsome and graceful palms and tree ferns, aroids in variety, especially anthuriums, dracænas, and other ornamental foliage plants are grouped in a most natural and artistic manner, many of the subjects being planted out. The whole of this foliage display is brightened by whatever flowers are in season, and with a few bold orchids. One point that is quickly forced upon one's attention is the wonderful cleanliness that prevails everywhere. How often the houses are painted I do not know, but they always are in first-rate condition, and in this winter garden and the large Central Gallery, from which the series of plant houses run left and right, the paths of dull greyish spar or granite, finely broken, are neat, clean and level. The large Central Gallery also contains an abundance of fine specimen palms, notably some splendid Phœnix and Kentias at the time of my visit, aroids, choice tree ferns, &c., many in large tubs, and others planted out so as to form beds or avenues, among and under which the pathway winds. One could more easily imagine oneself in the garden of a wealthy noble rather than in a commercial horticultural establishment.

AT no season of the year can one visit the establishment at Rue Wiertz without having plenty to be interested in. As orchids are the leading class of plants cultivated, the best time of the year for a visit is spring and early summer—that is, about Temple Show time. The quantities of orchids grown surprises most folk, while the superb growth, cleanliness, and robust spikes provide the roving horticulturist with food for reflection. Not far from Ghent you may find odontoglossums growing as freely as rhubarb, and flowering amazingly, but pots and stages are green with the slime that accumulates when pond water is largely used. In the Messrs. Linden's odontoglossum houses, however, all is as clean as possible, and if growth is not rampant it is robust, and produces grand spikes and flowers. Very wonderful have been the choice forms of Odontoglossum crispum that have first flowered in Europe at Brussels; indeed, the importations of L'Horticulture Internationale have become widely known by reason of the beautifully spotted, highly coloured, and rounded forms they have produced. It is scarcely necessary to remind readers of such gems as O. crispum Luciani, O. c. Lindeni, O. c. augustum, O. c. Kegeljani, O. c. meleagris, Miss Anna Guders, of which an illustration is given herewith, and others, that have gained the highest awards in our own and other countries.

HAVING likened the Brussels establishment to a dining-room, one can only say that Moortebeek is like a drawing-room, for cleanliness is absolute, all the appointments and fittings first rate, while the odontoglossums and miltonias in April and May are almost too wonderful for words. M. Lucian Linden spreads his hands and shakes his head when you ask what fertiliser he uses to produce such wonderful results, and assures us that situation, good water, and the usual careful management are all that is necessary; he agrees, however, that the situation of the Moortebeek Nursery is a great factor in the success that has attended it. Not only does O. crispum do superlatively well here, but O. triumphans, O. Adrianæ—the fine hybrid between O. crispum and O. Hannewellianum—O. luteo-purpureum, O. Ruckerianum, O. Wilckeanum, O. Halli and its varieties, O. cirrhosum, O. Pescatorei, and, in fact, all that are worth growing, possess a vigour that is startling, produce big spikes and flowers, that in the great majority of cases a fancier would go into raptures over. Miltonia vexillaria at Moortebeek was a wonder unto many a Britisher; the collection was as even as a well-kept bed of leeks, with growths and leafage almost as stout, and without any trace of spot, yellowness, thrip-marks, or other evil; the spikes, too, were splendid, and the flowers grand in size, substance, and colour. Some of the choicest forms were seen at Westminster soon after my visit, and there they were greatly admired. Some of the Moortebeek odontoglossums—and there were nearly fifty-five thousand plants in various stages of establishment in April last—were shown at the Temple Gardens in May, together with a magnificent lot of Cypripedium Lawrenceanum, that were all superbums, giganteums, or splendidissimums, so fine were they in size and colour. A few of these choicest forms were photographed for the GARDENERS' MAGAZINE, and the reproduction gives some idea of the immense spikes of O. Pescatorei, O. crispum, O. Adrianæ, O excellens, and other species and natural hybrids produced by this celebrated Belgian firm.

LÆLIAS and cattleyas fill many houses at both establishments, but the bulk was at Brussels. L. purpurata, with a profusion of scapes, showed how quickly the plants become established, how well the treatment agrees with them, and what excellent importations are secured. To the cattleyas it seems impossible to do adequate justice, and a sight of hosts of C. Mendelli in flower compels us to admit that if M. Linden is apt to multiply varietal names for this and other species such as C. Trianæ and C. Mossiæ there is full justification for so doing when confronted with such ample flowers and diverse colouring. Cypripediums are most abundant, and it is almost impossible to name a species or hybrid of any standing that is not here represented. There are several houses full of the montanum group of the ever popular and useful C. insigne, and from these large things are expected. Hybrid cypripediums figure largely, and grow as freely as the species. No space is wanted in the houses, and long lines of pans containing Mexican lælias, sophronitis, masdevallias, barkerias, catasetums, bulbophyllums, oncidiums in great variety, and many others too numerous to mention were seen in various stages of growth. Readers need scarcely to be reminded of the wonderful catasetums the Brussels firm have introduced of late years, plants remarkable for strong growth, stout spikes, immense blooms, and wonderful colouring, producing a series of natural hybrids at once as handsome as unexpected. Vandas and ærides, with other orchids of their class, uphold the character of the establishment for vigour, and one is greeted with a fine odour upon entering a house of V. tricolor and V. suavis.

ORCHIDS do not, however, absorb the whole attention of the establishment, as my opening remarks prove, but one must be conducted to the smaller houses, "La Petite Galerie," to find what is happening behind the scenes. Here, in pretty little houses, are new and rare palms and ferns, choice tropical foliage plants, both raised from seed and imported, and curious plants not yet determined. Then you see some scrubby sticks that may some day provide stock for a new sensation; they are what some enterprising collector has sent home with the hope that they will hand his name down to posterity and create new honours for his firm. How often such hopes and those of his employers fall to the ground is known only to those who toil and wait, but how often success has attended the endeavours of Messrs. Linden, *pere et fils*, is known to all horticulturists, for were all their finds, introductions, and creations taken from us, our stoves, greenhouses, and orchid houses would be vastly poorer than they now are.

THE director of this big concern is Mons. Lucian Linden, a gentleman of wide knowledge, great organising capacity, and genial beyond words. He is the worthy son of a worthy sire, and his keenness of perception is seen in the creation and successful issue of the Moortebeek Nursery, which is being enlarged for the reception of orchids, and still more orchids. M. Linden, whose portrait accompanies these notes, is well known to a large circle of British horticulturists, for he has as hearty a welcome for the casual as for the regular visitor, and generously places his knowledge and experience at the disposal of his visitors. By the way, L'Horticulture Internationale is readily reached from the Brussels Gare du Nord station by electric tram to the Rue Belliard, from whence it is but a few steps.

SERVATOR.

THE DROPPING OF PEACHES.

AMONG the evils attending the cultivation of peaches under glass, that of dropping their fruit during the stoning period is perhaps the worst. In travelling about the country one often meets with fine crops of well-grown grapes, but good, well-grown crops of peaches are seldom seen. The methods employed in the cultivation of peaches vary according to the knowledge possessed by those in charge, but the general practice is of a stereotyped nature, and this is in a measure responsible for the undesirable dropping of the fruit during the stoning period. Some fifteen years ago I deviated from the general method of culture, and since then may say that I have not had a dozen peaches drop in a season out of a thousand grown annually. The chief causes of "dropping" of peaches are undoubtedly a too high temperature, and much too close an atmosphere, during the stoning period. Of course the erroneous idea of leaving twice as many fruits on the trees until the stoning period is over will considerably aggravate the evil. Unsuitable borders and bad management otherwise will all tend towards unhappy results.

If the fruits be reduced to one to every square foot of surface on moderately strong trees before the stoning commences, and the temperature not allowed at any time to exceed 60 degrees without ingress of air until the stoning of the crop is completed, dropping would never be heard of. The general practice of shutting up the houses with sun heat in the afternoon, and running up the temperature even to 80 degrees, is a bad one, and accountable for much of the mischief often seen and complained of. By the cool treatment it, however, takes longer to bring a crop to maturity, but the heavier yields and finer fruits more than repay the extra time required. The pernicious practice of leaving a double crop on the trees during the stoning period proves too great a strain on them at a critical time, and, consequently, contributes largely to the "dropping" which ensues. Not only does it do this, but it also reduces the size of the fruits that are carried to maturity, and reduces the strength of the trees for the succeeding year. Again, unless the borders for the roots of the peach trees are well drained, composed of a good, strong loam, and contain all the essential constituents to the growth of the peach, and these be understood and utilised by the cultivator, unsatisfactory results will follow. Besides this, a knowledge of rational methods of training, &c., must be employed to ensure success. Recently I saw one practitioner stopping the young growths at from six inches to a foot long, and pointed out to him that in all likelihood the fruit buds would either open in the autumn or drop in spring when the plants were started.

Referring to the practice of shutting up the houses and syringing the trees early in the afternoon, I have left the shutting up until the temperature fell below 60 degrees, but syringed between three and four o'clock when the weather was bright and dry. As the stoning of the fruits proves the greatest strain on the trees, stimulants can and should be supplied to them when this process is going on, and perhaps the best for the purpose is a mixture of nitrate of soda and sulphate of ammonia. Mix about equal parts of each, and apply it to the border at the rate of two ounces to the square yard, washing it in with water of the same temperature as the house. The time to apply this stimulant is when the fruits are the size of blackbirds' eggs, and at every watering until the fruits are stoned.

Peach "dropping" and peach stones "splitting" are both due to the same causes. The dropping of the flower buds is due mainly to the buds of early varieties becoming too much developed in autumn, and then receiving a check.

PEACH GROWER.

HARDY SALVIAS.

IN this country salvias are, with the exception of a few half-hardy species, such as Salvia patens and S. splendens, which are used for the furnishing of conservatories or bedding-out, rarely seen. On the Continent, especially the eastern part of Europe, many showy kinds are put to various uses with the greatest effect. They may be seen planted in the open spaces, which have invariably either a few trees or a plot of grass, with a bed or two of perennials of the most robust kinds; or a rockery is formed and these plants luxuriate where many others barely exist, their culture being of the easiest and simplest. Most salvias prefer an exposed, dry, sunny position in poor, stony soil, while others prefer a partially shady position, but none of them are very particular as to the quality of the ground. They are best planted out during the early autumn or early spring, and the long-rooted kinds are best grown in pots and raised from seeds or offsets, because if lifted from the ground they usually suffer through removal, and do not make at once the show when planted out in gardens or parks, where often no protection against wind or sun can be given. Although the genus salvia is a very large one, many of those that inhabit the tropics are half-hardy annuals or perennials, and will not be enumerated here, while of the hardy kinds only the more showy will be mentioned.

Although the ordinary Salvia austriaca is not very large-flowered, there are forms with very showy blooms. It grows one to two feet high, and has radical, ovate or cordate leaves, wrinkled and pubescent; the flowers are yellow or white, and produced in May or June. S. argentea is a biennial, grown on account of its large woolly and silky-white leaves. The flowers are usually less showy, white and fleshy. S. azurea has lanceolate or obtuse leaves, slightly serrate, the cauline ones linear, upper ones diminutive; the bracts are usually showy, and coloured like the flowers, bright azure blue. This is one of the best of the genus. There are also varieties with white and rosy-purple flowers; one species flowers during the late summer and early autumn, and is well adapted for the herbaceous border and pot culture.

S. glutinosa grows two to three feet high, and has stout petiolate, ovate or oblong, pubescent leaves; the flowers are sulphur coloured, or even deeper yellow, and spotted with brown. The stem is usually sticky; flowers appear during the summer. S. pratensis has stems one to three feet high, and oval or oblong leaves, sometimes cordate, rough and wrinkly, with long petioles; the calyx and bracts are usually bluish, but the flowers vary much in colour, and are either blue, purple, white, rosy-purple, or pink. This plant is also a British species, the purple or blue form, however, predominating, but the different coloured varieties are often found in Germany or Switzerland, and still more frequent under culture. Less strong kinds are S. silvestris, S. nemorosa, with smaller flowers, violet, reddish, or white; another variety of S. sylvestris is L. verbenacea, of Southern Austria, with purple-blue flowers and large ovate leaves, the stem being covered with woolly or densely pubescent hairs; it flowers from May till September. S. clandestina is another variety though well defined, differing in the more wrinkled and divided leaves.

S. officinalis, the Common Sage, with its varieties, having violet, purple, or white flowers, is well enough known, and more grown for its culinary worth than for its decorative value. In the more genial climate of the south this species grows into a good-sized shrub. In the same way S. verticillata is grown, a species with small pale blue or pale violet flowers and almost cordate leaves. S. hians has an erect, silky, or pubescent stem one to two feet high; leaves ovate and petiolate, often arrow-shaped; flowers racemose, calyx bell-shaped, and corolla of a bright blue colour; this is one of the prettiest members of the genus Salvia flowering in June and July. S. canescens, with lanceolate, wrinkled, white and woolly leaves, has a stem one to two feet high, covered with a woolly down; the flowers are purple, and less showy than the leaves. S. nutans grows two feet high, pubescent, with bright violet or purple flowers, that appear during June and July. S. ringens is a shrubby kind with ovate, often pinnate leaves, and purple flowers. S. taraxacifolia has rather long pinnatesect leaves, the cauline leaves being broader and shorter, irregularly toothed, and covered with white down beneath; the flowers are rosy or pink, tipped with yellow, and often purple spotted.

S. patens, and its form S. patens alba, are only hardy in the southern part of England. They are best lifted in the late autumn, and stored away like begonias. Their large bright blue or white flowers are very showy, and should be produced by every one. S. splendens and its varieties are greenhouse plants, but they are very useful for bedding out during the summer, and, like S. patens, also well adapted for pot culture.

G. REUTHE.

Cactus Dahlias.—Reading your remarks on the development and exhibiting of these now very beautiful flowers I am induced to specially urge on all compilers of schedules that they make it a condition that in any method of exhibiting these flowers special precautions be taken to have the stems well inserted in water to keep them fresh the whole time the show lasts. The same remark applies to all cut flowers. I have observed in various cases this summer where arrangements have been set up looking fresh enough for an hour or two, and have in that way caught the eyes of the judges favourably. Then ere the afternoon had far advanced, and the tent had become warm, the flowers thus honoured had utterly collapsed. That is such an unsatisfactory way of exhibiting flowers that it cannot be too strongly deprecated. All cut flowers might well be judged early for quality and arrangement, and later for freshness. It is a subject of intense disappointment to visitors when they find, perhaps not later than three or four o'clock, that large quantities of prize flowers have utterly collapsed. I noticed recently in a great show a first prize lot of what were by courtesy called cactus dahlias in a state of miserable collapse at four o'clock, and the show was of two days' duration. Bouquets of sweet peas, dahlias, and roses, stands of numerous flowers, were in the same plight, and all because no provision was made to supply ample moisture to the flowers. I would make it a condition that in all cases in which the flowers did not keep fresh for the first day at least all prizes should be withheld.—A. D.

CHRYSANTHEMUMS AT THE BRIARS, FAWKHAM.

ONE of the most enthusiastic and painstaking amateur growers of chrysanthemums whom it has been my good fortune to meet is Mr. Percy Waterer. The prominent part taken by this gentleman in the affairs of the N.C.S., of which body he acts as vice-chairman of the Executive Committee, has made most chrysanthemum growers familiar with his name, and the excellent exhibits which he has staged from time to time in the best competitions in the open classes, have reflected great credit to his skill as a grower. One of his triumphs was the winning of the American gold medal in 1896 at the Royal Aquarium for a vase of large blooms with their own foliage, and the fact of his exhibit taking fourth prize in the great class of sixty blooms at Edinburgh last November speaks more for his pluck and success than anything yet achieved, because this competition was amongst the best of professional gardeners from various parts of the country. So much for the prowess of the busy city amateur as showing what may be done when one is in earnest.

Recently I had the pleasure of a visit to The Briars, and amongst several things which are well cared for in the pretty garden we found the chrysanthemums. Of these there are some three to four hundred plants, grown for production of specimen blooms, and very promising they [illegible], neatly arranged and securely staked in long rows, with ample room for the proper development of subsequent growth. The collection is confined mainly to the Japanese section, and includes most of the best of recent introductions. The late propagation of several varieties is here found to be a great success, and the better timing of flower buds of [illegible], and more free growth of such sorts as Viviand Morel, and others of similar early bud producing varieties, is an evidence of the merits of [illegible] treatment. Few collections surely can be so pestered with earwigs as are the plants in this garden. So much so, that hundreds are caught, and the devices of "island" pots and a channel of water run round the houses, which is floated over with petroleum when the plants are taken outside, have to be resorted to in order to preserve the buds and flowers. Another expedient is the planting of a clump of dahlias about twenty yards away, amongst which crumpled pieces of brown paper are placed as traps from which the insects may be caught.

Mr. Waterer finds much interest in careful note-taking, and bases much of his practice on his own personal experience of the behaviour of the plants under his care, and this, as I have before urged on young growers, is the most safe road to success. One other hint which I gleaned at Fawkham, and which is certainly good practice, is the placing of a large oyster shell concave side downwards on the surface of the soil, so that when watering the plants the liquid may be poured on to this and thus save swilling the soil from the roots somewhat. W. H. LEES.

THE HONESTY.

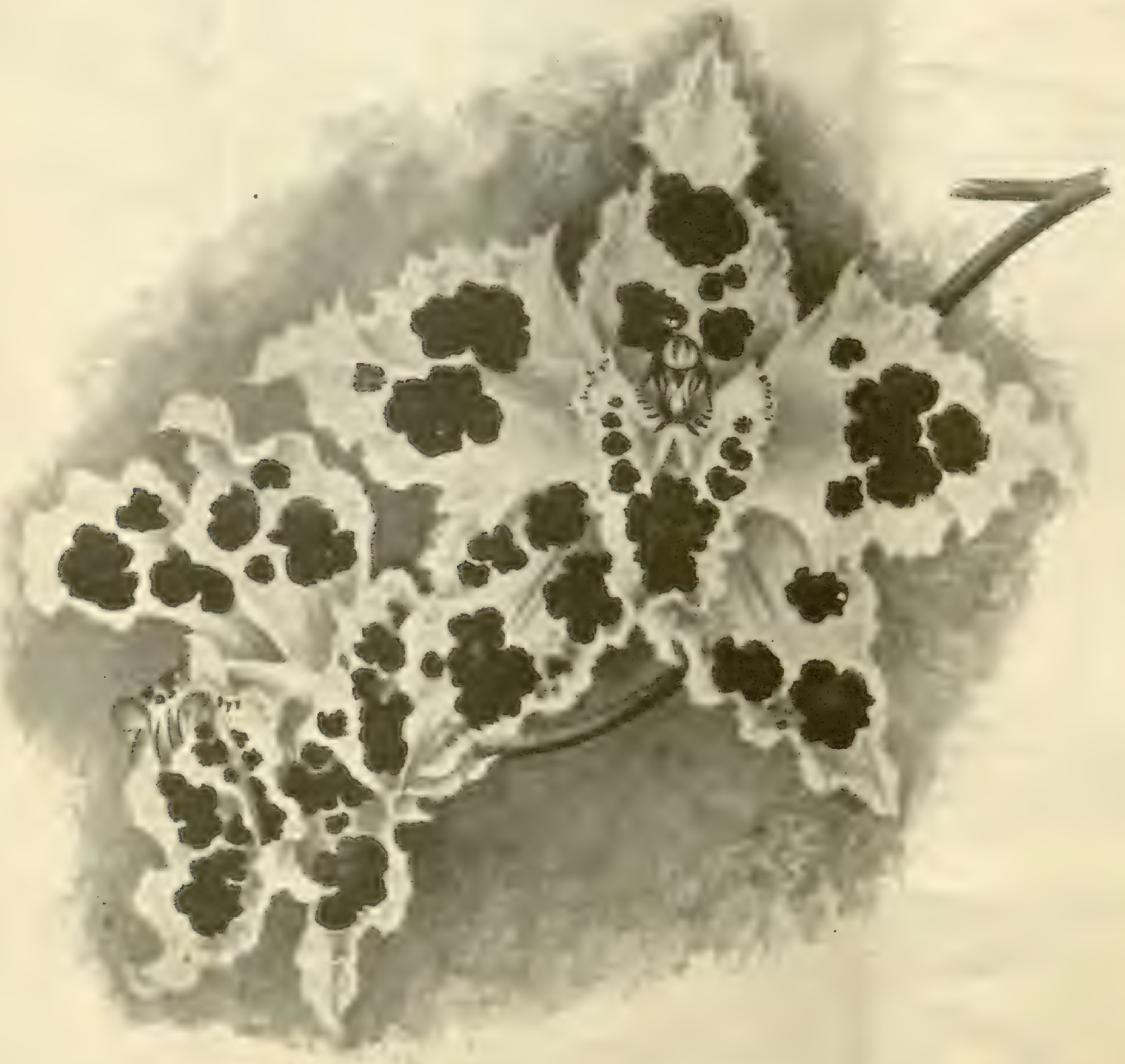
I LIKE the common name of Honesty as applied to Lunaria biennis. It has other common names as well, such as Lunary and Moonwort, no doubt from the disk-like form of its great flat seed vessels, or their silvery and transparent brightness. It is this peculiarity, no doubt, which accounts for its nicknames—White Satin flower, Monkey flower, and Silver plate—all very appropriate. Dr. Prior thinks the name—Honesty—was given to it on account of the transparency of its dissepiments, that is, a term applied to the partitions formed in ovaries by the united sides of cohering carpels, which separate the inside into cells.

For spring blooming the Honesty is invaluable, the plants form dense bushes of blossom when fully in flower, and as side spikes succeed to the central one the duration of bloom is considerable. Then there is diffused from the flowers a pleasant fragrance, which adds to its decorative value in the garden in the spring. The plants do best when they can be raised from seeds sown where the plants are to blossom. Transplanting may certainly be done with safety when the plants are young, but as soon as they grow into size they form a thick fleshy root like a long white radish attached to the base of the plant by a kind of thin cord. This root strikes down deep into the soil, and it is this fact which makes transplanting a difficult and risky process. It is therefore best to dibble in the seeds in drills, and to form a bed, and then thin out as desired, so soon as the plants are large enough to handle; or if clumps are required, to dibble in a few seeds in the form of a circle, and thin out if desired.

It is in a good deep and rather stiff loam that the Honesty flourishes, rooting very deeply; but as it is somewhat of an exhausting plant the ground should be good. It likes to be in an open and sunny position, though I have grown it well in pots somewhat shaded. I have seen it doing well on chalk banks, where its roots can travel along the openings. April and May are the months in which to sow, and then strong plants are formed to flower the following year. It is hardy, but severe frost following drenching rains will disfigure many, if they are not killed outright.

Of varieties there is a dwarfer growing deep-coloured form, known as the Crimson Honesty, which I have sometimes met with growing in a semi-wild state, as I did once in an old farmhouse garden in Kent. Seed grains and foliage, as well as blossoms, are darker in tint than the old type of purple Honesty; there is the white variety also, and a variegated-leaved form, the green leaves handsomely edged with white.

Then the seed pods, when the seed grains are fully ripe and removed from between the transparent sheaths, are found valuable for winter decoration, and are to be met with in many country houses. They mix well with dried grasses and palm leaves, furnishing corners of sitting rooms and halls in a way that adds cheerfulness to the home when without there is dulness and gloom. R. DEAN.



ODONTOGLOSSUM CRISPUM, VAR. MISS ANNA GUDERS.

WALNUTS, ALMONDS, AND CHESTNUTS.

The University of California has, during the past two years, been doing excellent work in determining the chemical composition of walnuts, almonds, and chestnuts, in regard to their requirements and demands upon the fertility of the soil, and their value as human food.

The chief ingredient of the walnut and almond kernel, is the fat (oil), of which in the walnut there is about 65 per cent., and in the almond nearly 58 per cent., for both European and Californian grown nuts; this is nearly equal to the oil content of the olive—65.73 per cent. On the other hand the fat (oil) of the chestnut kernel, is but a small fraction of the food content, viz., from about 3 per cent. in the European, to about 11.63 per cent. in Pennsylvania chestnut. The next largest constituent of the almond and walnut kernel, is the protein, or flesh-forming ingredient—in the almond, from 20 to 25 per cent., and in the ordinary walnut, about 17 per cent.; in the chestnut there is only about 11 per cent., or about one-half that of the other nuts. About three-fourths of the chestnut kernel is made up of starch, sugar, dextrine, &c., which, like the fat, furnish fuel to the body, though less economically.

All authorities agree upon the fact that nuts are a highly concentrated form of human food; caution should, therefore, be followed in their use. Walnuts and almonds possess a higher nutritive value than even the cereal grains; and, as compared with fruits, they rank high in food value, being the true seed only, and not made up mainly of fleshy coverings, as in the apple, pear, &c.; they, therefore, have less water and a higher nutritive value generally, weight for weight.

When, in a rational dietary system, other forms of food lack protein or albuminoids and fat, the walnut and the almond will supply, in concentrated shape, those needs; the chestnut, with its high content of starch, sugar, dextrin, &c., may, on the other hand, be used as a substitute for the cereals. Aside from the chestnut, the edible nuts are looked upon as luxuries, and are quite largely used as such; the chestnut, on the other hand, has long been a staple article of food in Southern Europe.

It is found that the potash in the ash of hulled walnuts comprises nearly 20 per cent. of the whole ingredients, while that of the hull alone is nearly four times as much, viz., 77·8 per cent. It will, therefore, be seen that if the hulls of the walnut are not returned to the soil, the dominant ingredient of the fertiliser intended for replacement must be potash, while if the hulls are left on the ground the chief ingredient by far should be nitrogen. The ashes of the parts of the almond and chestnut, on the whole, show few such wide differences in potash as that above given.

It is an interesting fact that the ash of the kernel of the walnut is, in weight, more than twice that of the shell, while in other nuts it is more nearly equal. Also, that in the kernel of the walnut and almond the phosphoric acid is very largely predominant over the potash, while the reverse is true in the ash of the shell. In the walnut kernel the phosphoric acid comprises nearly 58 per cent. of the ash. In the ash of the chestnut the potash is by far the predominant ingredient in both kernel and shell, and is largest in the kernel. The same is true of the European chestnut. The soda of the European chestnut is nearly twenty times that found in the Californian samples. The European walnut meal has a very large amount of ash. Its potash is greater than in the California sample of walnuts, but the phosphoric acid is still predominant.

In the total quantity of mineral matters withdrawn from the soil the almonds leads with fifteen pounds, the chestnut comes next with 8·2, and the walnut last with 7·5 pounds in 1,000 pounds of the hulled nut. The stone fruits fall much below the above in total ash, excepting the olive, the ash of which, however, is largely silica (nearly eight-ninths), an ingredient so plentifully in all soils that it is of no pecuniary value.

The data for hulled nuts show that almonds withdraw 5·49 pounds of potash, as against 3·7 for chestnuts, and 1·5 for walnuts, for 1,000 pounds of fresh nuts; however, when these figures are referred to the entire fruit, the walnut and almond take about the same quantity, eight to ten pounds, or nearly three times as much as the entire chestnut; with the exception of the olive, the stone fruits do not, on the whole, nearly approach the latter figures for equal weights.

The almond again leads in phosphoric acid, withdrawing 4·33 pounds, the hulled nut of the walnut taking 2·78 and the chestnut only 1·89 per 1,000 pounds of fresh nuts.

These results are again all materially changed when referred to the entire fruit. For equal weights, the stone fruits appear to be very much less exhaustive upon the phosphoric acid of the soil than are the nuts.

Again, the almond leads with 16·4 pounds of nitrogen, not nearly approached by the walnut, with 10·2, or the chestnut with eight pounds of nitrogen withdrawn from the soil per 1,000 pounds of fresh hulled nuts. These figures, while materially altered when calculated for the entire fruit, are still very high, and indicate a great draft upon the soil, for nuts proper carry away all of their large amount of nitrogen, which consequently must be replaced if paying crops are to be continuously produced.

The quantity of nitrogen taken from the soil by a full crop of walnuts and almonds amounts respectively to 40·8 and 32·8 pounds; on the other hand, that of the prune crop is 44·4 pounds, and of an apricot crop 68·7 pounds; the olive crop, on the contrary, takes but 12·0 pounds of nitrogen.

This heavy nitrogen draft by the nut crop is further forcibly illustrated when we carry the calculations to the other soil ingredients. Of these we find the nut crop to remove but a small fraction, as much of potash as prune and apricot crops, and only as much as the olive crop; nearly one-half as much phosphoric acid is taken up by nut crops as by those of the prune and apricot.

Thus it appears that when nut orchards need fertilisers, the first call will ordinarily be for those rich in nitrogen. Phosphoric acid will be next in demand, consequently phosphatic manures must be supplied to nut orchards, but this need will probably not arise as soon for them as for the prune and apricot orchards. If the hulls of the walnut and almonds are returned to the orchard soils, the demand for potash will be kept back for many crops. Chestnuts do not withdraw as much of potash and phosphoric acid as do the other nuts; but they seem to demand that the soil shall contain sulphates, which are found in surprising amounts in the kernel of the nut.

Harpenden. J. J. Willis.

CARNATIONS IN SCOTLAND.

The present season is the best for the full development of border carnations that has been experienced for some years, for not only have the plants been free from disease and are flowering with great freedom, but the blooms have also been large and of good form and substance. The weather has been most favourable to the earlier blooms, and very few have been tarnished by rain, while, judging by the number of unexpanded buds upon the plants, a good supply of flowers may be expected for some weeks yet.

Several beds of the most trustworthy sorts are grown here for decorative purposes, both for the embellishment of the garden, and for cutting as required for decoration in vases, and these for the past month have been one of the most prominent features in the place. Of the varieties thus grown the following have proved the best in their respective colours, whilst for freedom of growth and for producing quantities of bloom they leave but little to be desired: Mary Morris, rose pink, is a great favourite either for making a display of colour in the garden or for cutting. The plant grows about thirty inches in height, with strong, branching stems, which are usually surmounted by eight or ten flowers, well separated from each other on long, stout footstalks, and as these open at much about the same time, there is no loss on cutting the entire stem by having several unopened buds; the side growths are generally terminated by a single bud, and as these are from eight to twelve inches in length, and strong enough to support the flowers, they are most useful for small vases. The flowers are large, of fine form and substance, and always open well. The now well-known Duchess of Fife is the best of the self pink varieties, and it has proved to be a good grower, and very free in flowering, but has a more drooping habit than Mary Morris. Mrs. Muir and Alice Ayres may be classed together so far as their habit of growth is concerned; the former is pure white, and the flowers are of good size and always opens well, while the latter has a dash of carmine upon a white ground; both bloom very freely.

Uriah Pike is the best dark colour, and the plants appear to improve in robustness as time goes on; like most very dark colours the flowers of this are apt to be discoloured rather quickly under a bright sun, but if wanted for any special purpose they may be cut as soon as expanded, and the beautiful colour is retained.

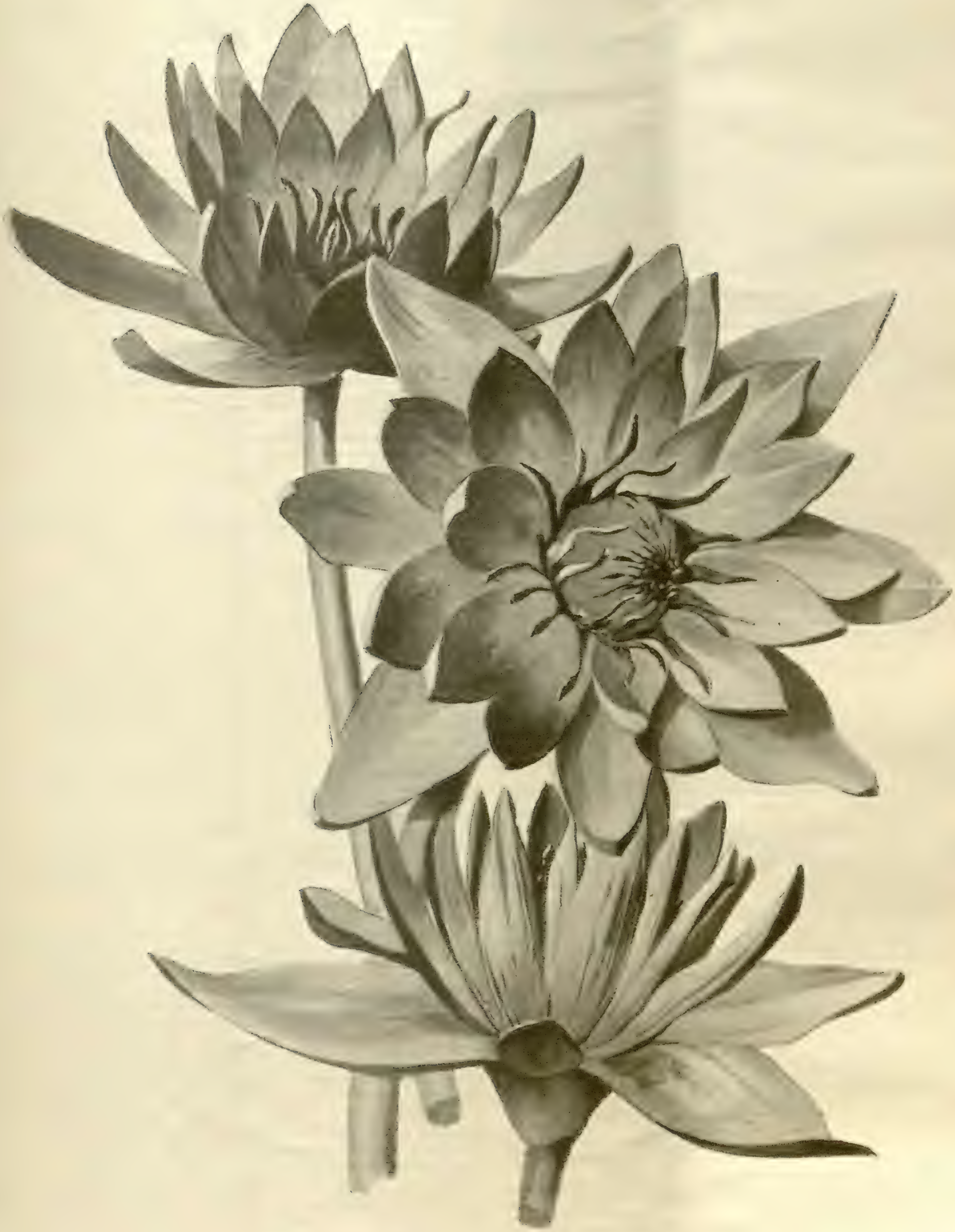
Queen of Bedders, deep rose, is the best in its colour, which is very pleasing; the plant is dwarf, and very free flowering, and makes an excellent mass of colour. Mrs. Reynolds Hole has been for years one of our standard varieties, but this year it is not doing so well as formerly.

Redbraes, picotee, has been cultivated here for many years, and the plants are as healthy now as at first. This is a fitting companion to Mary Morris, their height and profuseness of flowering being very similar. The marking or edging of this is rather too heavy for a show flower, but for producing quantities of bloom upon the open border it is most useful, and owing to the amount of growth that it makes, it is very easily propagated.

Galloway House, Garliestown, N.B. James Day.

NYMPHÆA STELLATA.

The star-like nymphæa has long been regarded with much favour by cultivators of tropical water lilies, and deservedly so, for of the comparatively large number of species now in cultivation in English gardens none of them are superior to it in beauty. It would appear also that Nymphæa stellata was as great a favourite with the ancient Egyptians as with the present-day cultivators, for it was frequently represented on their old monuments, and also used in their funeral wreaths. The species is, therefore, of special interest, and it is a matter of considerable importance that it has a robust constitution, and can be successfully cultivated without any special difficulties having to be surmounted. The conditions under which it can be grown to a high degree of perfection under glass are well understood by those who have charge of a tank in the stove for the cultivation of aquatics requiring the temperature of that structure, and therefore need not now be referred to. But it is not generally known that it may be cultivated and flowered satisfactorily in tanks in the open, provided the water is heated to a temperature of about 80 degrees, and we have no doubt many of our readers will be pleased to learn that so distinct and beautiful a species can be grown during the summer months without the aid of glass. There is, of course, nothing new in the cultivation of tropical water lilies in open tanks containing artificially-warmed water, and Victoria regia was so grown to a very high degree of success in a Chelsea nursery within a comparatively short period of its introduction to this country. This fact does not detract from the value of the services rendered by Mr. J. Hudson, of the Gunnersbury House Gardens, in demonstrating the possibility of having this exquisitely beautiful nymphæa in the highest degree of perfection in an open tank. Mr. Hudson has a small tank fixed outside one of the plant houses, and through this flow and return hot-water pipes, one of each, is taken. But, of course, there would be no difficulty in warming the water of a small pond some distance from the boiler by which the stove or orchid house is heated if it was so desired. The flowers of the species are of an exquisite shade of bright blue, with a delicate perfume not unlike that of the violet, and they are borne on stout stalks some distance above the surface of the water. Some experiments are being conducted at Kew in the cultivation of the more tender nymphæas in the open, and the results can hardly fail to be of much interest.



NYMPHÆA STELLATA. (Flowers bright cærulean blue.)

A VISIT TO SAWBRIDGEWORTH.

To those who are more or less concerned with the all-important question of fruit production, whether for home use or the supply of the markets, a visit to the Sawbridgeworth Nurseries, which enjoy, and deservedly so, a world wide reputation, is at all times interesting and instructive; but possibly the interest is greater, and the object lessons more striking when the summer is approaching its close, and the abundance of finely-developed and rapidly-ripening fruit testify to the soundness of the position long since taken up by the Messrs. Rivers on the question of fruit culture, and the remarkable skill that is brought to bear upon the management of the several departments. However that may be, a walk through the orchards under glass and in the open, and an inspection of the enormous breadths of young fruit trees in various stages of development, with Mr. T. Francis Rivers, the highly esteemed head of the firm, as guide, is pleasant and profitable, for in the course of the perambulation much information relating to the several aspects of fruit culture is obtained in an agreeable manner. At Sawbridgeworth the production of fruit on a large scale is associated with the manufacture of trees by the tens of thousands, and consequently it is not only possible to see at a glance the conditions under which the trees are being prepared for the several methods of culture, but the wide-spreading orchards, on the formation of which so much scientific and practical knowledge has been brought to bear, demonstrate the methods by which the trees may be the most profitably utilised. The knowledge thus gained of the peculiarities of varieties, the influence of stocks, relative merits of the several forms of trees, and the distances and methods of planting must be of immense value, and there can be no doubt that fruit growers appreciate the public spirit shown by the firm in freely communicating their experience to those in need of information.

One of the most important features of the nurseries is the orchard-house culture of choice fruits, which originated at Sawbridgeworth, and has been brought to so high a degree of perfection by the firm. For a considerable period after the late Mr. Thomas Rivers first advocated the cultivation of peaches and nectarines in pots as the best means of obtaining abundant supplies of these luscious fruits, the pot-culture of fruit trees was not regarded with special favour by any considerable proportion of the horticultural community, chiefly because of the labour involved in supplying the trees with water. But the firm, convinced of the advantages of pot culture, have not at any time during the forty or fifty years that have elapsed since the system was first introduced to public notice wavered in their allegiance to it, and during the past fifteen years or so this system of culture has attained to a high degree of popularity. Trees grown in pots under glass necessarily require more attention in a given period than do those trained to open walls; but the fact is now recognised that, in consequence of the uncertainty of the results, it may be necessary to give the wall trees two or three years' attention for each crop of fruit obtained, whilst the pot trees will give a satisfactory crop annually. The regularity of the yield is a strong point in favour of the cultivation of peaches, nectarines, and some other kinds under glass, and with the trees in pots it is possible to grow a larger number of varieties than would otherwise be practicable. In the cultivation of fruits for market, the largest profit is derived from growing a few varieties; but in maintaining the home supply it is desirable to have a rather large selection of varieties ripening at various periods, and thus obtain a continuous succession of fruit extending over several months from the same structure. Mr. T. F. Rivers is of the opinion—and this is based on close observation and long experience—that from a span-roof orchard-house one hundred feet in length and twenty-four feet in width, filled with pot trees, will provide an ample supply of fruit from May till October. This is a point of some importance, for the fruit is available for use during the whole of the summer, when it is the most highly esteemed. From one of the houses at Sawbridgeworth of these dimensions, 3,816 peaches and nectarines have been gathered in one season, the same house giving shelter from spring frosts to pears, plums, and apples, which were taken out of doors for the summer to finish up their crops. This year upwards of three thousand fruits of Early Rivers nectarine were gathered and marketed in April from a houseful of pot trees which had received but little assistance from fire heat. Combining large size and brilliant colouring with earliness, it is not surprising that this variety should have become immensely popular with growers for market, and is being extensively planted in private gardens.

The number of orchard houses at Sawbridgeworth is considerable, and they show some variation in design, but they all agree in being spacious, substantial, and efficiently ventilated. Ventilators are provided along the sides and at the apex, for a free circulation of air about the trees is considered essential to their wellbeing and to the full development of the characteristic colour and flavour of the fruits of the several varieties. The houses also agree in having a soil surface, which is considered preferable to a paved floor, as not only can the pots be plunged in the soil but the moisture rising from the loose surface increases the humidity of the atmosphere and thereby contributes to the health of the trees. The peach and nectarine trees of fruiting size, of which there are many hundreds, range from perfectly-formed pyramids from twelve to fifteen feet high to shapely bushes with a height of three or four feet. From the earlier houses the fruit had been gathered when we were at Sawbridgeworth at the end of August, but in the later structures there were immense crops of fruit of the highest quality. The trees occupying eight and ten inch pots were carrying from four to five dozen fruits each, while the huge pyramids in larger pots had proportionately heavier crops. One might discuss at some length the relative merits of the peaches and nectarines that by reason of their productiveness and high quality demonstrated their value for pot culture, but it must suffice to mention the names only of a few of the best. The peaches of special excellence include Alexander, Amsden June, Early Louise, Hales Early, Dagmar, Condor, Crimson Galande, Early Grosse Mignonne, Goshawk, Alexandra Noblesse, Royal George, Stirling Castle, Barrington, Sea Eagle, Gladstone, Lady Palmerston, Princess of Wales, and Late Admirable. Nectarines of high value comprise Cardinal, Early Rivers, Lord Napier, Dryden, Goldoni, Stanwick Elruge, Humboldt, Rivers' Orange, Pine Apple, and Victoria.

The culture of cherries, plums, pears, and apples in pots is carried on very extensively, and with the same high degree of success as in the case of the peaches and nectarines. We were specially interested in the house devoted to cherries, for many of the trees are of great age and considerable dimensions, and all were in robust health. From the earlier varieties the crop had been gathered, but there was an abundance of fruit of mid-season and late varieties, for cherries, like grapes, will hang long after they have attained maturity, and improve during the greater part of the time. They will hang for a month or six weeks upon the trees, and during this period become so luscious as to surprise those conversant with cherries produced in the open and gathered as soon as ripe. We met at Sawbridgeworth with several varieties, as yet not generally known, which have fruits so large, handsome, and highly flavoured as to justify their having a place in the smallest collection. Especially noteworthy are Bigarreau de Schreken, Early Rivers, Emperor Francis, Geant de Hedelfinger, and Bigarreau Noir de Guban, the last three being remarkable for the immense size of the fruit. From this house a plentiful supply is obtained from May until September, and such fruit as is here obtained would be found a very acceptable addition to the dessert throughout this comparatively long period. Plums are grown with the same degree of success as the cherries, and of the varieties grown in pots, we were especially struck by the Early Transparent, Golden Transparent, and Late Transparent, three handsome gages raised by the firm, and all remarkable for their delicious flavour. The chief points of difference in the trio is in time of ripening, and from them a succession may be had for at least two months.

The cultivation of apples and pears in pots may at first sight appear less desirable than the pot culture of the stone fruits mentioned, but it is not possible to walk through the houses and quarters in which the apples are grown, or devote a short time to an examination of the groups of pears outside at Sawbridgeworth without being convinced that the system has much to recommend it. This year, the choicer pears grown against walls and in the open quarters are in many cases producing a very light crop, if they have not completely failed to produce fruit; but the pot trees at Sawbridgeworth are as heavily fruited as the strength of the trees will permit, and the aggregate produce will be very large. The chief advantage of growing pears in pots is the certainty of an annual crop of fruit of high quality, and this advantage is sufficient to counter-balance the additional labour involved in this method of culture. As so well known the great hindrance to the successful culture of pears in the United Kingdom is the liability of the flowers and the young fruits to injury from spring frosts, and it is by no means an exceptional experience for cultivators situate in favourable districts to see the whole of the crop swept away by two or three sharp frosts or a spell of cold, wet weather when the trees are in bloom. To obviate this risk the trees at Sawbridgeworth are grown in pots, and from February until the end of May they have a place in the orchard house where they can be kept safe from frosts and the effects of a period of cold, wet weather. Here they invariably set a heavy crop, and when there is no further risk of frost they are taken out of doors to a warm and somewhat sheltered position, and have their pots plunged to nearly level with the rim in a border of moderately rich soil. Those grown in pots with perforated sides root freely into the border, and the great masses of fibrils that push from the perforations must render valuable aid to the tree in supplying the food necessary for the development of the growth and fruit. When the trees are lifted from the borders the roots extending beyond the pot are cut away, and this process is repeated year by year with evident advantage. As the trees can be arranged rather close together during the earlier stages of growth a large number can be accommodated in a house in proportion to its size; and in many gardens sufficient pear trees could be flowered in an orchard house devoted to peaches and nectarines to produce a liberal supply of fruit throughout the season. Pears are not kept wholly under glass, for it is found that the fruit ripening in the orchard house is not so highly flavoured as when fully exposed to atmospheric influences from the end of May onwards. Apples, on the other hand, attain to a high degree of perfection both as regards appearance and quality when ripened in the orchard house. There is one other detail to which special attention is given at Sawbridgeworth, and that is the protection of the fruit of pears in pots from birds, and we refer to it because of the many instances which come under our notice of pears being rendered worthless by tomtits and other birds. At Sawbridgeworth protection is given by means of old fish nets supported by strips of deal, and this has the advantage of being inexpensive and simple.

The plum orchards at Sawbridgeworth are of special interest, inasmuch as they serve to illustrate in a marked manner the immense value of the services that have been rendered the community by the firm in raising and distributing the plums with which the name of Rivers is so intimately associated. The three varieties of special importance from the market point of view are Early Rivers, the Czar, and Monarch, and of each of these there are immense orchards which serve to show the suitability of the trio for market culture and it may be assumed to be a source of profit to the firm. Early Rivers, now highly popular as one of the finest of the early plums, has this season been so heavily cropped as to render the use of stout supports necessary. The trees from which the crop had not been gathered were quite black with the fruit which weighed down the branches. The Czar, which formed an admirable succession to Early Rivers was also bearing enormous crops and the Monarch was not less productive. These yield a continuous succession, and it is of interest to mention that the fruit of the last named, which does not reach maturity until September is well advanced, is not liable to crack from an excess of moisture as in the case of other late varieties, Belle de Louvain has also been largely planted and is held in high estimation for its productiveness and other good qualities, some of the older orchards are formed with standard trees, but Mr. T. F. Rivers considers bush trees decidedly the best, inasmuch as the fruit can be gathered by women without injury to the trees and the cost of marketing materially reduced. The more recently planted apple orchards have also been formed with bush trees and with satisfactory results, Worcester Pearmain and other of the sure bearing varieties carrying excellent crops.

In turning from the orchards to the young trees that are being prepared for supplying the demand from planters much is found that is of interest in its relation to this phase of fruit culture. It will probably be of interest to mention that associated with the home nursery is a freehold farm many hundreds of acres in extent, which is largely utilised in the production of fruit trees. The farm is within a short distance of the home nurseries, and spreads over the upper part of the south-western slopes of the valley of the Stort, and it is therefore convenient of access, and by reason of its exposed position is especially favourable to the proper ripening of the wood as well as fruit. The soil is a deep friable loam, equally adapted to the growth of fruit trees, cereals, and roots, and we consequently see all three growing in association, with manifest advantage to each. Fruit trees are so exhaustive of certain constituents of the soil that it is a great advantage to give the land a rest from three to four years; and, appreciating this, Messrs. Rivers have adopted a system of rotation by which at least three farm crops are taken from land that has been occupied by fruit trees before it is again planted with stocks. By adopting this course of procedure the several breadths of trees have the advantage of what is practically new land, and in consequence a vigorous growth is obtained without heavy manuring, which has a tendency to produce soft, large-jointed wood and fat roots. It is not possible to conceive conditions more favourable to the development of an abundance of fibrous roots and firm, short-jointed wood; and therefore it is not surprising that the tens of thousands of trees which form such a conspicuous feature of Roderick's farm should present the appearance the experienced planter so justly admires. Three-year-old apple trees on the Paradise stock have from five to seven shoots, each of an average length of four feet, the shoots being stout and short-jointed, and leave no doubt in the mind with regard to their attaining perfect maturity. What is true of the apple trees in their third year is true of all other fruit trees in the preparatory quarters; for, without exception, they are making a free, healthy growth, without the slightest indication of a check from drought or any other cause, and give ample promise of growing into handsome and fruitful trees when transferred to their permanent quarters in various parts of the United Kingdom.

WORK FOR THE WEEK.

COOL ORCHIDS.

COOL orchids that have been grown in pits or garden frames during the summer months should now be removed to their winter quarters, as the nights are becoming chilly; before removing them let the house in which they are to pass the winter be thoroughly cleansed, washing the glass inside and out, and thus enabling the plants to have all the light possible to ensure both substance and strength in the growths now in progress. The plants should also be sponged and arranged so that each will have its share of light. Plants of Odontoglossum crispum that were potted last month are now rooting freely from the base of the young growths, but great judgment must still be exercised in watering, as the compost though appearing dry on the surface is often sufficiently moist underneath; repotting should be pushed on with, if not already finished, as I do not advise disturbing plants any later than the end of this month. Lycastes are now forming their bulbs and rooting freely, and therefore should receive a good supply of water at the root until the bulbs are made up. Anguloas are fast making up their bulbs, and should also receive a liberal supply of water until these are completed, after which a much less supply will suffice. The pleiones should now have less water given at the root, as these have now about completed their growth for this season; the leaves, being partially decayed, will soon fall off. Care must, however, be taken not to allow the plants to become dust-dry until the flowering period is over.

Bletia hyacinthina that has been standing outside during the summer must now be brought in, and placed in a dry cool position in which to pass the winter. Disa grandiflora and other species of Disa, having finished flowering, will now be sending up new growths from the sides of the old flower spikes; therefore, the repotting of these should be attended to, the present time being the most suitable for this operation. Well-drained pots or pans should be used, placing a layer of clean moss over the drainage, and prepare a compost consisting of three parts roughly broken peat to one of good fibrous loam, with a little chopped moss and coarse silver sand added; a few small lumps of sandstone and charcoal may be mixed in, as these help to keep the soil from becoming sour. After repotting is completed a good soaking of water is required to settle the compost; but after this only sufficient will be needed to keep it just moist. The plants must now be placed out of reach of frost, but the coolest possible position should be given them; thus a place may be found for them on a shelf near the glass close to the ventilators at the coolest end of the odontoglossum house. Keep a sharp look-out for thrips and green fly, the latter being almost sure to put in an appearance now.—E. SHILL, *New Hall Hey Gardens.*

KITCHEN GARDEN.

THE continued dry weather has made it difficult to establish newly-planted stuff, particularly endive and lettuce, but where the precaution was taken to shade the young plants until new roots were formed, these will have made some headway. With us the soil has become so dry as to be almost unworkable. As soon as rains come, preparations should be made for planting the spring cabbage, for unless this is done soon the plants will not have time to become established before the cold weather sets in. Onions in most districts will now be ready for lifting. The bulbs should be exposed for some time until the foliage has become thoroughly dried, after which they should be stored in a cool open shed. When well ripened, the most severe frost we have does them no harm if left undisturbed till they become thawed. We have had them subjected to 32 deg. of frost, and they have not suffered in the least. The varieties of the Brown Globe type keep sound much longer than those of the Spanish, therefore such should be reserved for spring use. The lifting and storing of potatos will now be an important item, and should have every attention paid to it. With us the crop is not so heavy as it has been some seasons, as the haulm was cut down by the late frosts in May. A few varieties, however, have done marvellously well, considering the season. Carter's Snowball is one of these. The tubers were of even size, good in shape, and of first-class quality. Sutton's Invincible was another, as was Ideal, all of which produced enormous crops. The ground from which the tubers were lifted has heen sown with early turnips, as small roots of these are in great demand in the early spring. Winter spinach should be encouraged to grow as quickly as possible by being supplied with plenty of moisture. The rainfall with us is but little more than half the average, and the heat for some time past has averaged about 80 degrees in the shade for a good portion of the day.

Manure should now be prepared for making mushroom beds for winter. With the external air so warm spawning must be done with care, or the heat will be too great, and so destroy it. It has been a good time of late to clear the garden of weeds. Advantage should therefore be taken of such weather whenever it is possible to clean the ground by hoeing, but much as tidyness is to be commended this should not be done at the expense of neglecting watering, for if crops are to be had with such weather as we have been experiencing of late the water-pot and hose must almost be kept in constant use. Now is a good time to wheel manure out to all vacant plots as the crops are lifted for the ground being so dry but little impression will be made in wheeling. In low-lying places we may soon expect frost, therefore it is well to be prepared. We have registered two degrees here, which makes us on the watch.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

By the time these notes appear the peach season will be fast drawing to a close, and most of the trees, except of very late varieties, will be cleared of their fruits. As this occurs, the fullest amount of ventilation night and day should be given, and houses ventilated on the old-fashioned principle of sliding lights have a great advantage over those ventilated in more modern ways, as half—and the most important half—of the trees can be fully exposed to the weather, and they will derive much good both from the fresh air and from the heavy night dews which fall in the autumn. It would be a great boon to growers, and tend to the health of the main-crop peach and nectarine trees, if some simple and easily-worked means of complete exposure at this season could be devised, and the more nearly we get to this the better the trees will be. If red spider is present the trees should be syringed forcibly and plentifully once or twice a day until most of their leaves have fallen or while any of the enemy remain. It is advisable now to remove a considerable portion of the spare wood, especially if the branches are at all thick, as this will help the present year's growth to ripen thoroughly, but I neither advise nor practise the complete pruning of the trees at this season, not that the practice is a bad one in itself, but I think the work may be done more readily when the leaves have departed. It is sufficient now to cut away the majority of the shoots that have fruited during the present season, provided they are not required for the extension of the trees. See that the borders are kept well supplied with water; to cease watering when the trees have yielded up their crop is one of the greatest errors that can be committed in peach culture and leads to many evils, one of the greatest of which is bud-dropping in spring, and one may readily realise how common an evil this is by reading the numerous queries which appear on the matter every year, and which would be materially lessened in number if sufficient attention were paid to the watering of borders when approaching dryness at any time of the year. The present, and from now onwards until the end of autumn, is the best season of the whole year for planting or replanting operations. This subject has been treated recently, and I only again allude to it as a reminder that no time nor opportunity should be lost in setting about it, also to insist once more on the absolute necessity of providing lime in the new border; given that, and a sufficient depth of soil, the nature of the staple soil matters but little, and peaches can be as well grown in any reasonably good garden soil as in the most elaborately made borders.

Very late peaches are much appreciated for dessert, for their appearance pleases, even though the flavour may not be equal to that of those gone before. The fruits, if picked before fully ripe, will keep well in a cool, dry room; they should be picked carefully and placed well apart from each other in boxes which have been thickly lined with cotton wool or the softest of wood wool, over either of which should be spread a sheet of thin waxed or oiled paper, and on this the fruits. Careful selection and handling will then extend the season for ten days or a fortnight. The very latest peaches I ever had were kept after gathering in an ice house. These remained sound and pleasing to the eye for weeks, but the flavour deteriorated sadly in the meanwhile, and unless required for a special object the plan is not to be recommended. Where the young stock of pines is insufficient no delay should be permitted in potting up more suckers to meet the requirements, as operations of this kind are best suspended through the winter. There is still time to give earlier suckers now in small pots a shift into those a size or two larger, but avoid anything like over-potting at this season.—J. C. TALLACK, *Livermere Park Gardens.*

THE OLIVE.

THAT fungus tribe is at work again. Years ago its emissaries rotted the potato; then they ruined the vines; now they have attacked the olive. Nothing is sacred from these aggressive organisms; they are here, there, and everywhere—in the grain plants and the vegetables; blighting the corn, blistering the tea leaves, and even corrupting the bulbs of Japanese lilies.

A minute fungus has been discovered which attacks the fruit of the olive, and produces a small round spot on the berry, which results in its destruction. It appeared nine years ago in Italy; in 1891 it had also infected the South of France; and no doubt, before long, will invade other countries, though as yet Spain and Tunis are said to have been spared. The outlook is a gloomy one, for anything like a permanent failure in the olive crop would mean ruin to many agriculturists, and the destruction of a profitable industry. Some few years ago the area of land devoted to olive culture in Italy alone was given as two and a-quarter million acres, and the total production of olive oil as some ninety millions of gallons. This would make a respectable lake. If all were poured into one reservoir it would have to be four hundred yards square and ten feet deep. Other vegetable oils there are, but none of them equal, for dietary purposes, to man's old friend—the olive, though some of them, on the "cheap and nasty" principle, have been too often used of late years by the adulterator to spoil the flavour of the genuine article. One of these goes by the name of Gingelie, the product of a plant called Sesamum indicum, which is largely exported from India, and, amongst other places, to France and Italy. Another is cotton-seed oil, which has now become a very important product, and of this, at the beginning of the present decade, over three hundred and fourteen thousand tons were brought to our own country alone, most of it coming from Egypt.

But a certain sentiment attaches itself to the produce of the olive tree, which not even the discovery of a substitute, or the most successful result of synthetic chemistry, would entirely replace. It is such an old-time memory—"Wine that maketh glad the heart of man, and oil to give him a cheerful countenance!" The vine and the olive go so very far back in human history. We hear of the latter in the first consecration ceremony, when the fugitive Patriarch poured oil on the rude stone which he reared on the hillside at Bethel. It figures again and again in Hebrew history, in the anointing of priest and king, as a symbol of honour or of prosperity. It was just as familiar in Greece and in Rome as it was in Palestine, and is among Southern nations at the present day—nay, probably was then in more general use, because the substitutes were fewer. There was good and bad then, as Horace knew well; and the athletes of old set as much store on simple oil as their successors would do on the more pungent liniments of modern times. Centuries, we might almost say milleniums, of cultivation have vastly improved the fruit. The home of the plant is Syria and the adjacent region of Asia. There the olive grows wild, as we incidentally learn from the well-known simile of grafting the result of cultivation on the original stock. In that condition it is a small tree, hardly more than a shrub, and thorny. With cultivation it attains a greater size, not only in fruit, but also in bole and branch, becoming a tree some thirty feet in height. It also loses its thorns—an effect of culture which has, says the *Standard*, been noted in beings at the top of the animal kingdom.

At what date the olive was introduced into European regions we do not know. It flourishes all about the Mediterranean; but though the tree can exist in the south of England under favourable conditions, our climate is too severe for it to do any good. It was taken to the New World by the Spaniards, and in some parts has done well, and is now cultivated in Australia. Apart from its commercial importance, the olive is a tree of considerable natural beauty. Where it is grown only for its fruit, much cannot be said either for its foliage or grace of form; but when it is allowed to grow freely on the hillside it is really handsome. Those who have seen the group of old olive trees on the way from Monte Carlo to Mentone will not refuse them their meed of praise; and there is something very attractive in the grey, glaucous tint of the leaves when they clothe the slopes of the Eastern Riviera or rise among the ruins of Central Italy.

Hollyhocks at Hampton Court.—These fine border flowers constitute to myriads of visitors just now not the least of the floral attractions offered in these popular gardens. The majority are of a fine double strain, but some are single. Very many like the singles best, but as a rule they do not give the massive spike the doubles do. Of course, the plants are not free from the insidious fungus, but as many of them are rather old plants that is not to be wondered at. Generally the hollyhocks line the long east border that margins the broad terrace walk, and as they get some shade no doubt they like it. The gardens are very beautiful just now, the bedding being very diversely arranged from what has been seen in the past; and the result is to encourage visits from all classes in great numbers. It will be productive of great good if the hollyhocks at the Palace Gardens help to give desired stimulus to their culture generally.—A. D.

FOOD SUPPLIES AND LAND FERTILITY.

AS stated in our issue of the 10th inst., Sir W. Crookes devoted the earlier part of his presidential address at the opening meeting of the British Association at Bristol to a discussion of the wheat supplies and the maintenance of the fertility of the land. This section of the address is of much importance and we make a few extracts from it that are likely to be of special interest to our readers.

WHEAT SUPPLY OF THE UNITED KINGDOM.

In his opening remarks, Sir W. Crookes said :—I owe an apology to this brilliant audience. I must ask you to bear with me for ten minutes, for I am afraid what I now have to say will prove rather dull. Statistics are rarely attractive to a listening audience ; but they are necessary evils, and those of this evening are unusually doleful. Nevertheless, when we have proceeded a little way on our journey I hope you will see that the river of figures is not hopelessly dreary. My chief subject is of interest to the whole world—to every race—to every human being. It is of urgent importance to-day, and it is a life and death question for generations to come. I mean the question of food supply. Many of my statements you may think are of the alarmist order ; certainly they are depressing ; but they are founded on stubborn facts. I am constrained to show that our wheat-producing soil is totally unequal to the strain put upon it. After wearying you with a survey of the universal dearth to be expected, I hope to point a way out of the colossal dilemma. It is the chemist who must come to the rescue of the threatened communities. It is through the laboratory that starvation may be ultimately turned into plenty. The food supply of the kingdom is of peculiar interest to this meeting, considering that the grain trade has always been, and still is, an important feature in the imports of Bistol. The imports of grain to this city amount to about 25,000,000 bushels per annum—8,000,000 of which consist of wheat. The consumption of wheat per head of the population (unit consumption) is over six bushels per annum ; and taking the population at 40,000,000, we require no less than 240,000,000 bushels of wheat, increasing annually by 2,000,000 bushels, to supply the increase of population. Of the total amount of wheat consumed in the United Kingdom we grow 25 and import 75 per cent. It has been shown that at the best our stock of wheat and flour amounts only to 64,000,000 bushels—14 weeks' supply—while last April our stock was equal to 10,000,000 bushels, the smallest ever recorded by "Beerbohm" for the period of the same season. Similarly the stocks held in Europe, the United States, and Canada, called the "the world's visible supply," amounted to only 54,000,000 bushels, or 10,000,000 less than last year's sum total, and nearly 82,000,000 less than that of 1893 or 1894 at the corresponding period. To arrest this impending danger, it has been proposed that an amount of 64,000,000 bushels of wheat should be purchased by the State and stored in national granaries, not to be opened, except to remedy deterioration of grain, or in view of national disaster rendering starvation imminent. This 64,000,000 bushels would add another 14 weeks' life to our population. Assuming that the ordinary stock had not been drawn on, the wheat in the country would only then be enough to feed the population for 28 weeks. I do not venture to speak authoritatively on national granaries.

POSSIBILITIES OF HOME PRODUCTION OF WHEAT.

More hopeful, although difficult and costly, would be the alternative of growing most, if not all, our own wheat supply here at home in the British Isles. The average yield over the United Kingdom last year was 29.07 bushels per acre, the average for the last 11 years being 29.46. For 12 months we need 240,000,000 bushels of wheat, requiring about 8,250,000 acres of good wheat-growing land, or nearly 13,000 square miles, increasing at the rate of 100 square miles per annum, to render us self-supporting as to bread food. This area is about one-fourth the size of England. A total area of land in the United Kingdom equal to a plot 110 miles square, of quality and climate sufficient to grow wheat to the extent of 29 bushels per acre, does not seem a hopeless demand. It is doubtful, however, if this amount of land could be kept under wheat, and the necessary expense of high farming faced, except under the imperious pressure of impending starvation, or the stimulus of a national subsidy or permanent high prices. Certainly these 13,000 square miles would not be available under ordinary economic conditions, for much, perhaps all, the land now under barley and oats would not be suitable for wheat. In any case, owing to our cold, damp climate and capricious weather, the wheat crop is hazardous, and for the present our annual deficit of 180,000,000 bushels must be imported. A permanently higher price for wheat is, I fear, a calamity that ere long must be faced. At enhanced prices, land now under wheat will be better farmed, and therefore will yield better, thus giving increased production without increased area. The burning question of to-day is, What can the United Kingdom do to be reasonably safe from starvation in presence of two successive failures of the world's wheat harvest, or against a hostile combination of European nations? We eagerly spend millions to protect our coasts and commerce, and millions more on ships, explosives, guns, and men ; but we omit to take necessary precautions to supply ourselves with the very first and supremely important munition of war—food.

Since 1871 unit consumption of wheat, including seed, has slowly increased in the United Kingdom to the present amount of six bushels per head per annum ; while the rate of consumption for seed and food by the whole world of bread-eaters was 4·15 bushels per unit per annum for the eight years ending 1878, and at the present time is 4·5 bushels. Under present conditions of low acre yield, wheat cannot long retain its dominant position among the food-stuffs of the civilised world. The details of the impending catastrophe no one can predict, but its general direction is obvious enough. Should all the wheat-growing countries add to their area to the utmost capacity, on the most careful calculation the yield would give us only an addition of some 100,000,000 acres, supplying at the average world-yield of 12·7 bushels to the acre, 1,270,000,000 bushels, just enough to supply the increase of population among bread-eaters till the year 1931. At the present time there exists a deficit in the wheat area of 31,000 square miles—a deficit masked by the fact that the ten world crops of wheat harvested in the ten years ending 1896 were more than 5 per cent. above the average of the previous 26 years. When provision shall have been made, if possible, to feed 230,000,000 units likely to be added to the bread-eating populations by 1931—by the complete occupancy of the arable areas of the temperate zone now partially occupied—where can be grown the additional 330,000,000 bushels of wheat required ten years later by a hungry world? If bread fails—not only us, but all the bread-eaters of the world—what are we to do? We are born wheat-eaters. Other races, vastly superior to us in numbers, but differing widely in material and intellectual progress, are eaters of Indian corn, rice, millet, and other grains ; but none of these grains have the food value, the concentrated health-sustaining power of wheat, and it is on this account that the accumulated experience of civilised mankind has set wheat apart as the fit and proper food for the development of muscle and brains. Cheap production of wheat depends on a variety of causes, varying greatly in different countries. Taking the cost of producing a given quantity of wheat in the United Kingdom at 100s., the cost for the same amount in the United States is 67s., in India 66s., and in Russia 54s. We require cheap labour, fertile soil, easy transportation to market, low taxation and rent, and no export or import duties. Labour will rise in price, and fertility diminish as the requisite manurial constituents in the virgin soil become exhausted. Facility of transportation to market will be aided by railways, but these are slow and costly to construct, and it will not pay to carry wheat by rail beyond a certain distance. These considerations show that the price of wheat tends to increase. On the other hand, the artificial impediments of taxation and customs duties tend to diminish as demand increases and prices rise.

SALVATION BY CHEMISTRY.

I have said that starvation may be averted through the laboratory. Before we are in the grip of actual dearth the chemist will step in and postpone the day of famine to so distant a period that we, and our sons and grandsons, may legitimately live without undue solicitude for the future. It is now recognised that all crops require what is called a "dominant" manure. Some need nitrogen, some potash, others phosphates. Wheat pre-eminently demands nitrogen, fixed in the form of ammonia or nitric acid. All other necessary constituents exist in the soil ; but nitrogen is mainly of atmospheric origin, and is rendered "fixed" by a slow and precarious process which requires a combination of rare meteorological and geographical conditions to enable it to advance at a sufficiently rapid rate to become of commercial importance. There are several sources of available nitrogen. The distillation of coal in the process of gas making yields a certain amount of its nitrogen in the form of ammonia ; and this product, as sulphate of ammonia, is a substance of considerable commercial value to gas companies. But the quantity produced is comparatively small ; all Europe does not yield more than 400,000 annual tons, and in view of the unlimited nitrogen required to substantially increase the world's wheat crop, this slight amount of coal ammonia is not of much significance. For a long time guano has been one of the most important sources of nitrogenous manures, but guano deposits are so near exhaustion that they may be dismissed from consideration. Much has been said of late years and many hopes raised by the discovery of Hellriegel and Wolfarth, that leguminous plants bear on their roots nodosities abounding in bacteria endowed with the property of fixing atmospheric nitrogen ; and it is proposed that the necessary amount of nitrogen demanded by grain crops should be supplied to the soil by cropping it with clover and ploughing in the plant when its nitrogen assimilization is complete. But our present knowledge leads to the conclusion that the much more frequent growth of clover on the same land, even with successful microbe seeding and proper mineral supplies, would be attended with uncertainty and difficulties. The land soon becomes what is called "clover sick" and turns barren. There is still another and invaluable source of fixed nitrogen. I mean the treasure locked up in the sewage and drainage of our towns. Individually the amount so lost is trifling, but multiply the loss by the number of inhabitants, and we have the startling fact that in the United Kingdom we are content to hurry down our drains and water courses, into the sea, fixed nitrogen to the value of no less than £16,000,000 per annum. This unspeakable waste continues, and no effective and universal method is yet contrived of converting sewage into corn. Of this barbaric waste of manurial constituents Liebig, nearly half a century ago, wrote in these prophetic words : "Nothing will more certainly consummate the ruin of England than a scarcity of fertilizers—it means a scarcity of food. It is impossible that such a sinful violation of the divine laws of Nature should for ever remain unpunished ; and the time will probably come for England sooner than for any other country, when, with all her wealth in gold, iron, and coal, she will be unable to buy one-thousandth part of the food which she has, during hundreds of years, thrown recklessly away." The more widely this wasteful system is extended, recklessly returning to the sea what we have taken from the land, the more surely and quickly will the finite stocks of nitrogen locked up in the soils of the world become exhausted. The store of nitrogen in the atmosphere is practically unlimited, but it is fixed and rendered assimilable by plants only by cosmic processes of extreme slowness. The nitrogen that with a light heart we liberate in a battleship broadside has taken millions of minute organisms patiently working for centuries to win from the atmosphere.

The only available compound containing sufficient fixed nitrogen to be used on a world-wide scale as a nitrogenous manure is nitrate of soda, or Chile saltpetre. This substance occurs native over a narrow band of the plain of Tumarugal, in the northern provinces of Chile between the Andes and the coast hills. In this rainless district for countless ages the continuous fixation of atmospheric nitrogen by the soil, its conversion into nitrate by the slow transformation of billions of nitrifying organisms, its combination with soda, and the crystallization of the nitrate have been steadily proceeding, until the nitrate fields of Chile have become of vast commercial importance, and promise to be of inestimably greater value in the future. The growing exports of nitrate from Chile at present amount to about 1,200,000 tons. The present acreage devoted to the world's growth of wheat is about 163,000,000 acres. At the average of 12·7 bushels per acre this gives 2,070,000,000 bushels. But thirty years hence the demand will be 3,260,000,000 bushels, and there will be difficulty in finding the necessary acreage on which to grow the additional amount required. By increasing the present yield per acre from 12·7 to 20 bushels we should with our present acreage secure a crop of the requisite amount. Now from 12·7 to 20 bushels per acre is a moderate increase of productiveness, and there is no doubt that a dressing with nitrate of soda will give this increase and more. The action of nitrate of soda in improving the yield of wheat has been studied practically by Sir John Lawes and Sir Henry Gilbert on their experimental field at Rothamstead. This field was sown with wheat for thirteen consecutive years without manure, and yielded an average of 11·9 bushels to the acre. For the next thirteen years it was sown with wheat, and dressed with 5 cwt. of nitrate of soda per acre, other mineral constituents also being present. The average yield for these years was 36·4 bushels per acre—an increase of 24·5 bushels. In other words, 22·86 lb. of nitrate of soda produced an increase of one bushel of wheat. At this rate, to increase the world's crop of wheat by 7·3 bushels, about 1½ cwt. of nitrate of soda must annually be applied to each acre. The amount required to raise the world's crop on 163,000,000 acres from the present supply of 2,070,000,000 bushels to the required 3,260,000,000 bushels will be 12 million tons distributed in varying amounts over the wheat-growing countries of the world. It is difficult to get trustworthy estimates of the amount of nitrate surviving in the nitre beds. Common rumour declares the supply to be inexhaustible, but cautious local authorities state that at the present rate of export, of over one million tons per annum, the raw material "caliche," containing from 25 to 50 per cent. nitrate, will be exhausted in from 20 to 30 years. Dr. Newton, who has spent years on the nitrate fields, tells me there is a lower class material, containing a small proportion of nitrate, which cannot at present be used, but which may ultimately be manufactured at a profit.

Apart from a few of the more scientific manufacturers, no one is sanguine enough to think this debateable material will ever be worth working. If we assume a liberal estimate for nitrate obtained from the lower grade deposit, and say that it will equal in quantity that from the richer quality, the supply may last, possibly, fifty years, at the rate of a million tons a year; but at the rate required to augment the world's supply of wheat to the point demanded thirty years hence, it will not last more than four years. For years past we have been spending fixed nitrogen at a culpably extravagant rate, heedless of the fact that it is fixed with extreme slowness and difficulty, while its liberation in the free state takes place always with rapidity and sometimes with explosive violence. There is a gleam of light amid this darkness of despondency. In its free state nitrogen is one of the most abundant and pervading bodies on the face of the earth. Every square yard of the earth's surface has nitrogen gas pressing down on it to the extent of about seven tons—but this is in the free state, and wheat demands it fixed. To convey this idea in an object lesson, I may tell you that, previous to its destruction by fire, Colston Hall, measuring 146 ft. by 80 ft. by 70 ft., contained 27 tons weight of nitrogen in its atmosphere; it also contained one-third of a ton of argon. In the free gaseous state this nitrogen is worthless; combined in the form of nitrate of soda it would be worth about £2,000. For years past attempts have been made to effect the fixation of atmospheric nitrogen, and some of the processes have met with sufficient partial success to warrant experimentalists in pushing their trials still further; but I think I am right in saying that no process has yet been brought to the notice of scientific or commercial men which can be considered successful either as regards cost or yield of product.

Fixation of Atmospheric Nitrogen.

The fixation of atmospheric nitrogen, therefore, is one of the great discoveries awaiting the ingenuity of chemists. The fixation of nitrogen is vital to the progress of civilised humanity. Other discoveries minister to our increased intellectual comfort, luxury, or convenience; they serve to make life easier, to hasten the acquisition of wealth, or to save time, health, or worry. The fixation of nitrogen is a question of the not far distant future. Let me see if it is not possible even now to solve the momentous problem. As far back as 1892 I exhibited at one of the *soirées* of the Royal Society, an experiment on "The Flame of Burning Nitrogen." I showed that nitrogen is a combustible gas, and the reason why when once ignited the flame does not spread through the atmosphere and deluge the world in a sea of nitric acid is that its igniting point is higher than the temperature of its flame—not, therefore, hot enough to set fire to the adjacent mixture. But by passing a strong induction current between terminals the air takes fire and continues to burn with a powerful flame, producing nitrous and nitric acid. This inconsiderable experiment may not unlikely lead to the development of a mighty industry, destined to solve the great food problem. With the object of burning out nitrogen from air so as to leave argon behind, Lord Rayleigh fitted up apparatus for performing the operation on a larger scale, and succeeded in effecting the union of 29·4 grammes of mixed nitrogen and oxygen at an expenditure of one horse-power. Following these figures it would require one Board of Trade unit to form 74 grammes of nitrate of soda, and therefore 14,000 units to form one ton. To generate electricity in the ordinary way with steam engines and dynamos, it is now possible with a steady load night and day, and engines working at a maximum efficiency, to produce current at a cost of one-third of a penny per Board of Trade unit. At this rate one ton of nitrate of soda would cost £26. But electricity from coal and steam engines is too costly for large industrial purposes; at Niagara, where water power is used, electricity can be sold at a profit for one-seventeenth of a penny per Board of Trade unit. At this rate nitrate of soda would not cost more than £5 per ton. But nitrate of soda is limited in quantity, and will soon be exhausted.

Human ingenuity can contend even with these apparently hopeless difficulties. Nitrate can be produced artificially by the combustion of the atmosphere. Here we come to finality in one direction; our stores are inexhaustible. But how about electricity? Can we generate enough energy to produce 12,000,000 tons of nitrate of soda annually? A preliminary calculation shows that there need be no fear on that score; Niagara alone is capable of supplying the required electric energy without much lessening its mighty flow. The future can take care of itself. The artificial production of nitrate is clearly within view, and by its aid the land devoted to wheat can be brought up to the 30 bushels per acre standard. In days to come, when the demand may again overtake supply, we may safely leave our successors to grapple with the tremendous food problem. And in the next generation, instead of trusting mainly to foodstuffs which flourish in temperate climates, we probably shall trust more and more to the exuberant foodstuffs of the tropics, where, instead of one yearly sober harvest, jeopardised by any shrinkage of the scanty days of summer weather, or of the few steady inches of rainfall, Nature annually supplies heat and water enough to ripen two or three successive crops of foodstuffs in extraordinary abundance. To mention one plant alone, Humboldt—from what precise statistics I know not—computed that, acre for acre, the food-productiveness of the banana is 133 times that of wheat—the unripe banana, before its starch is converted into sugar, is said to make excellent bread. Considerations like these must, in the end, determine the range and avenues of commerce, perhaps the fate of continents. We must develop and guide Nature's latent energies, we must utilise her inmost workshops, we must call into commercial existence Central Africa and Brazil to redress the balance of Odessa and Chicago.

THE WEATHER DURING THE WEEK ENDING SEPTEMBER 10, 1898.

Stations.	Temperature of the Air.				Rainfall.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
[illegible]	92·1	56·1	70·4	21·33	0·00	0·00
[illegible]	89·5	53·5	69·2	20·67	0 00	0·00
[illegible]	81·4	53·2	68·0	20·00	0·00	0·00
[illegible]	82·0	51·0	65·7	18·72	0·00	0·00
[illegible]	80·3	47·8	64·1	17·83	0·00	0·00
[illegible]	89·0	50·0	66·7	19·28	0·00	0·00
[illegible]	86·6	49·3	66·8	19·33	0·00	0·00
[illegible]	78·3	53·5	64·5	18·06	0·16	0·41
[illegible]	81·0	53·2	64·6	18·11	0·05	0·13
[illegible]	78·0	56·4	65·8	18·78	0·02	0·05
[illegible]	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·95 inches, and that of the Thermometer 70°·4, the latter being 11°·5 above the week's average in the 50 years [illegible]. The direction of the wind was variable, the horizontal movement of the air being [illegible], below the week's average in the 16 years 1860–75. The duration of registered bright [illegible] in the week was 59·7 hours. No rain was measured during the week.

Distillation of Lavender is an important industry in some of the Alpine [illegible] of France. This season's distillation has just been completed, and is described as highly satisfactory, the yield of essential oil being abundant and good.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

The leading horticultural society of Scotland held its annual display of flowers, fruits, and vegetables in the Waverley Market, Edinburgh, on September 14 and 15, and the opinion of those fully competent to judge was that on no previous occasion had there been a better show, either as regards quality or quantity of exhibits. It certainly was an exceedingly fine display, and one worthy of the Royal Caledonian Society. The arrangements throughout were of the best, so far as the council and the energetic and genial secretary, Mr. P. Murray Thomson, are concerned, but it seemed to us that not a few of the exhibitors have yet to learn that a horticultural society is not wholly and solely a money-making concern, but is, if it fulfils its highest duty, an educational medium. If exhibitors fail largely to label their exhibits, then one of the chief educational features is lost. So far as fruit is concerned we have nothing to complain about in the labelling, but we refer more particularly to the plants and cut flowers; the nurserymen naturally understand the value of labelling their goods. The number of entries on this occasion fell short of last year by about a hundred and fifty, but as so very few were unfulfilled the show was really larger than usual, and more tabling and staging space was occupied than ever before. To those fond of statistics, we may state that there were 2 dessert tables, 11 collections of fruit, 184 entries of grapes, 135 of peaches, apricots, &c., 438 of apples, 129 of pears, 62 of small fruits, 212 of plants, 388 of cut flowers, 446 of vegetables, 9 of nurserymen's displays, and 120 of nurseymen's cut flowers; making, in the competitive classes, a grand total of 2,136 entries. The Caledonian Society is doing a great work, and each year sees its exhibitions improving and the attendance increasing, as the merits of the displays deserve. It has a magnificent exhibition hall in the Waverley Market, and if a few groups of the Cypher-cum-Shrewsbury class could be introduced there would be room for the display of more artistic ability than there is now, and the show would be improved thereby from a spectacular and other points of view. Among those who particularly associate themselves with these fine Edinburgh shows we cannot help but mention Messrs. D. P. Laird, J. Methven and Malcolm Dunn.

Groups and Plants.

There were several competitors in the class for a table of plants arranged for effect on a space of twelve feet diameter, and here the first prize was won by Mr. G. Wood, gardener to J. Buchanan, Esq., Oswald Road, Edinburgh, who made about as effective a display as is possible on such a table. He had crotons, cocos palms, and Lilium speciosum in variety, with long arching spikes of Oncidium incurvum for his tallest examples; and under these was a good assortment of stove plants of various kinds, with nerines, pancratiums, cypripediums, Begonia Glorie de Lorraine, Clerodendron fallax, and some anthuriums and streptocarpus dotted here and there. Ferns, asparagus, pannicum, and Ficus repens provided the necessary finish and drapery for the margin. Mr. J. McIntyre, gardener to Mrs. Gurney Pease, Darlington, second, using large crotons, palms, and lilies; Mr. J. Cocker, gardener to J. Clayton, Esq., Himshaugh, third.

There was a very keen competition in the class for six table plants, the whole class producing an excellent display; Mr. J. McIntyre was a good first with pairs of crotons, aralias and dracænas, Dracæna D. P. Laird being very fine in colour and shape; Mr. D. Mackay, gardener to A. Hope, Esq., Kingston Grange, Liberton, second, and Mr. E. Palmer, gardener to Miss Moir, Alloa, third. The best half dozen ferns in forty-eight sized pots, suitable for table decoration, were those grown and staged by Mr. T. Lunt, gardener to A. Stirling, Esq., Keir Gardens, Dumblane; the second award was secured by Mr. J. Pearson, gardener to Lady Lucy Dandus, Birchwood, Murrayfield; Mr. J. Mitchell, gardener to J. Wilson, Esq., Falkirk, third; adiantums, gymnogrammas, nephrolepis, and pteris were chiefly shown. Mr. J. Crocker, The Chesters Gardens, Himshaugh, secured first prize for four exotic ferns with well-grown specimens, each about five feet across, of Davallia Mooreana, D. fijiensis plumosa, Microlepia hirta cristata, and Gymnogramma decomposita; Mr. J. H. Pearson, gardener to P. N. Fraser, Esq., Murrayfield, came second, his set containing large examples of Davallia polyantha. and Goniophlebium subauriculatum; Mr. G. Wood, third. The best four adiantums were shown by Mr. J. H. Pearson, who had very fresh and clean specimens of A. Williamsi, A. concinnum Flemingi, and A. digitatum; Mr. J. Crocker was a close second, while Mr. Pearson came third. Mr. J. McIntyre showed the best pair of gleichenias, staging a large example of G. Mendeli.

The best four orchids were exhibited by Mr. F. Nicol, Perth, his plants being neat specimens of Cattleya Dowiana aurea, Odontoglossum crispum, O. Harryanum, and Oncidium incurvum; Mr. W. Sharp, gardener to C. L. Wood, Esq., Freeland, Forgandenny, second, showing Vanda teres, Odontoglossum grande, O. Pescatorei, and Cattleya gigas. Mr. J. Mitchell, gardener to J. Wilson, Esq., Bantaskine, Falkirk, was easily first for three cypripediums, C. Dayana, C. Harrisianum, being very good; Mr. Sharp came second with C. Curtisi, C. Harrisianum superbum and C. Chamberlainianum; Mr. G. Wood, third, his C. Charlesworthi being a good variety. Mr. Sharp was a good first for one orchid with a large and well-grown Odontoglossum Pescatorei, an unspotted form with nine spikes; Mr. Mitchell, second; and Mr. Nicol, third.

Ornamental-leaved Plants.

Mr. T. Lunt was the chief prizewinner in the class for six foliage plants, his principal examples being the now little seen Campylobotrys refulgens, Alocasia metallica, and Anthurium Warocqueanum; not a single plant was labelled, and such an old and accomplished exhibitor as Mr. Lunt should not be a sinner in this respect, as it leads lesser lights to failure in the same way, and very materially reduces the value of an exhibition; Mr. W. Stewart, gardener to Sir Wilfred Lawson, M.P., Brayton Hall, Carlisle, came second. He had the usual wooden tallies inserted in the pots, but not accessible to the general public. Mr. Lunt led for six foliage plants in a class for larger specimens than the former, showing a large Campylobotrys refulgens, Heliconia illustris, Anthurium Warocqueanum, a croton, a dracæna, and Asparagus plumosus, not one of them being labelled; Mr. J. McCartney, gardener to Mrs. Croall, Southfield, Liberton, second; and Mr. D. Mackay, Kingston Grange, Liberton, third. Mr. Lunt scored for a pair of crotons with huge and well-coloured bushes; Mr. J. McCartney, Liberton, second; and Mr. J. McIntyre, third. Mr. J. McIntyre led for a specimen Eucharis amazonica, a well-flowered plant. For six selaginellas, Mr. G. Chaplin, gardener to Mrs. F. Nelson, St. Leonards, was a good first with flat specimens, most of which were not over pretty, though remarkably well grown; Mr. T. Gibb, second. For a pair of dracænas, Mr. Lunt was first with what appeared to be D. Cooperi and D. Gladstonei; Mr. M. McIntyre, gardener to Sir C. Tennant, Bart., Innerleithen, second. Mr. G. Wood had the finest caladiums, large specimens, and he was also first for a pair of coleus, with handsomely-coloured pyramids, but was bracketed with Mr. D. Mackay for the premier honours. The best specimen stove or greenhouse plant in flower was Stephanotis floribunda, from Mr. T. Lunt; Mr. McKenna, second, with a fine statice.

SOFT-WOODED PLANTS.

Fuchsias were good on the whole, Mr. J. Cumming, gardener to J. Wilson, Esq., Green Park, Liberton, leading for a pair of plants, closely followed by Mr. T. Gibb, gardener to Mrs. Edmonstone, both showing handsome pyramids. Mr. Cumming also led for three fuchsias, Mr. A. Thomson, St. Helen's, Eskbank, coming second. Mr. J. Pearson was to the fore for half a dozen chrysanthemums; Mr. D. Mackay second; and Mr. S. Abbott, Prestonfield House, Edinburgh, third; all were freely-flowered specimens of early flowering varieties. Vallota purpurea is very popular here, and the class for two specimens brought out a large competition, in which Mr. J. Shiel, gardener to Dr. W. W. Ireland, Maris Bush, Polton, led the way with a pair of first-rate specimens; Mr. W. Aitken, Balerno, second. For a single specimen of Valotta purpurea Mr. Thomas Gibb was first, and Mr. Aitken second. Mr. W. Anderson, gardener to Colonel Sir David Davidson, K.C.B., Colinton Road, Edinburgh, scored for four British ferns with well-developed specimens of Scolopendrium vulgare crispum, Athyrium f.-f. Craigi, Polystichum angulare grandiceps, and Lastrea felix-mas grandiceps; Mr. J. H. Peason second; and Mr. W. Muir, Carluke, third. For dwarf British ferns, Mr. Anderson was again first with pretty little plants of Polypodium trichomanes, P. cristatum, P. cornubiense, Asplenium marinum, A. microdon, A. trichomanes incisum, A. fontanum, Scolopendrium v. Baxteri, and Adiantum capillus veneris; Mr. J. H. Pearson second.

Some handsomely flowered and sturdily grown tuberous begonias secured for Mr. W. Galloway, gardener to J. H. Ford, Liberton, the chief award for six specimens; Mr. Mackay had the best single specimen; and Mr. Galloway led for double begonias, and with a specimen double begonia. Mr. G. McKenna, gardener to W. J. Usher, Esq., Ratha, had the best three zonal pelargoniums, freely flowered, flatly trained specimens; Mr. McKenna was also first for show pelargoniums; while Mr. Mackay scored for bronze foliaged varieties; and Mr. W. Anderson for silver variegated forms. Liliums were good, and made a splendid show, Mr. Bald winning with a fine specimen of L. speciosum, and also for L. auratum. Mr. McGregor, Dunfermline, had the best cockscombs; and Mr. McKenna the best petunias.

CUT FLOWERS.

For so late in the season roses were very good in the nurserymen's classes. Messrs. J. Cocker and Sons, Aberdeen, had the best dozen of one variety in this division, with Caroline Testout; Messrs. D. and W. Croll, Dundee, second, with the same; the Messrs Croll scored for a dozen blooms of La France; with Messrs. J. Cocker and Sons second. For a dozen blooms of Mrs. J. Laing, Messrs. D. and W. Croll, second. For a dozen blooms of any variety the Messrs. Croll took the lead with A. K. Williams; Messrs. Adam and Craigmile, Aberdeen, second, with Madame Hoste. Messrs. D. and W. Croll showed the best twelve examples of Merveille de Lyon; Messrs. Adam and Craigmile first for any other white with The Bride. Mr. H. Dickson, Belfast, won chief honours for a dozen roses with fair flowers of Her Majesty, Duke of Edinburgh, Mrs. J. Laing, Star of Waltham, and Madame J. Bonnaire; Messrs. D. and W. Croll, second. For two dozen tea roses Messrs. Adam and Craigmile led, followed by the Dundee firm, Messrs. J. Cocker and Sons scored for Alfred Colomb. The best three dozen roses came from Messrs. J. Cocker and Sons, Aberdeen, and were very fine and fresh; Caroline Testout, Lady M. Fitzwilliam, Madame Eugene Verdier, S. M. Rodocanachi, Captain Hayward, Marie Verdier, and Danmark were the best. For eighteen roses Mr. Hugh Dickson, Belfast, was first, and Messrs. D. and W. Croll second.

In the amateurs' classes, Mr. W. Parlane, Rosslea Row, had the best two dozen roses and the best six blooms of Alfred Colomb; Mr. W. Armstrong, Musselburgh, led for tea roses; Mr. Parlane led in several other rose classes, but the blooms on the whole were poor. Chrysanthemums arranged in large triangular sprays are inelegant, but in the class for a dozen sprays Mr. G. Manson, gardener to W. Pattison, Esq., Bathgate, was easily first. For six bunches of herbaceous flowers Mr. Brydon, Innerleithen, was first, his Lobelia cardinalis and Anemone japonica being very fine. Mr. Anderson, Morningside, was first for a dozen picotees, and for the same number of carnation blooms. Mr. Brydon scored for two dozen chrysanthemum blooms, showing Madame Desgrange varieties and early Japanese blooms; Mr. W. Black, gardener to P. Pringle, Esq., Hawick, had much the best chrysanthemum-flowered asters, a splendidly grown lot. For quilled asters Mr. R. Brown, of Eskbank, was first, but zonal pelargoniums were best shown by Mr. Bennett, Tweedmouth, but the flowers were not gummed, and lasted but a little while. Mr. G. W. Rilley, Galashiels, scored a first for annuals with a very bright display, but his bunches were too tight and formal. Mr. A. Dickson, Glenormiston, had the best button-hole bouquets; Mr. Hunt the best shower bouquet; Mr. Cossar the best shoulder spray, a fine one of Dendrobium Phalænopsis. Sweet peas were shown finely, Mr. J. Duncan, Duns, Berwick, winning with large blooms; Blanche Burpee, Maid of Honour, Prince Edward of York, and Salopean were first-rate; Mr. W. Wood, Kelso, second; and Mr. W. Angus, third.

COLLECTIONS OF FRUIT.

Fruit was splendid, and there were two charming exhibits put up in competition for the handsome prizes offered for the best and most tastefully decorated table of dessert fruit arranged on a table 10 feet long by 4 feet 6 inches wide. The following schedule specification will prove interesting to many readers and societies: The exhibitor must select sixteen "dishes" from the following twelve kinds of fruit, all other "kinds" of fruit being excluded. Of grapes, four dishes—of one bunch each, distinct varieties, two black and two white—may be staged on a table. Of other kinds of fruit, not more than two dishes, two distinct varieties can be staged. The number of fruit specified for "a dish" must be strictly adhered to, and neither more or less will be allowed.

Kinds of Fruit.	Number of Fruit in a Dish.	Kinds of Fruit.	Number of Fruit in a Dish.
Pineapple	1 Fruit.	Pears	6 Fruits.
Melon	1 do.	Apricots	9 do.
Grapes	1 Bunch.	Figs	9 do.
Apples	6 Fruits.	Plums	9 do.
Nectarines	6 do.	Cherries	40 do.
Peaches	6 do.	Strawberries	40 do.

Each dish must consist of one variety only, be neatly set up, as for a dessert, and correctly labelled. All fruit must be ripe, sound, and fit for immediate use. The society will provide a white table-cloth and sixteen dessert plates or dishes for each table, and no other plates or dishes can be used (except for grapes) for setting up the fruit. The grapes may be set up on neat stands or tripods, or suitable receptacles provided by the exhibitor; who can arrange cut flowers and foliage on the table cloth, or in glass epergnes or flower glasses provided by himself. All articles of plate, decanters, and wine glasses, and all plants in pots or other receptacles are strictly prohibited. The arrangement and decoration of each table must be done by the exhibitor or his regular assistant.

SPECIAL NOTICE.—The tables will be judged by points, as follows; Each dish of fruit—Pineapple may receive a maximum of 10 points; grapes, black or white, 9; melons, nectarines, and peaches, 8; apricots and figs, 7; all other fruits, 6; beauty of flowers and foliage, 10; harmony of colours, 10; and tasteful arrangement, 10. The number of points awarded to each item will be shown on a card on each prize-winning table.

Mr. R. Cairns, gardener to J. Martin White, Esq., Balruddery, won first prize, and his decoration consisted of Dendrobum Phalænopsis Shroderianum, Odontoglossum crispum, a few cattleya blooms, Gypsophila, and a few pink carnations; on the table were sprays of smilax, and long fronds of Selaginella Wildenovi. The best of the fruit consisted of pineapples, good Hero of Lockinge and Windsor Castle melons, Souvenir du Congrès pears, Royal George peaches, figs and nectarines; the grapes were not over good in most instances. Mr. A. Kirk, gardener to J. Thompson Paton, Esq., Norwood, Alloa, was placed second, and some little dissatisfaction was displayed at the award, many considering Mr. Kirk should have been first; he had splendid Gros Maroc, Appley Towers (grand), Muscat of Alexandria, and Duke of Buccleuch grapes, Admirable and Golden Eagle peaches, Souvenir du Congrès pears, Humboldt nectarines, black Jamaica pineapples, and Royal Jubilee melons. The following is the list of points:—

Mr. R. Cairn's pineapples, 8; melons, 5½; grapes, 6; apples, 5½; nectarines, 6; peaches, 5; figs, 4½; beauty of flowers and foliage, 8½; harmony of colours, 8½; tasteful arrangement, 8½; total, 66. Mr. Kirk: pineapples, 6; melon, 5½; grapes, 8; apples, 4½; nectarines, 6; peaches, 7; pears, 4½; beauty of flowers and foliage, 7½; harmony of colours, 7½; tasteful arrangement, 7½; total, 64.

Mr. R. Cairns, gardener to J. M. White, Esq., Balruddery, secured the leading award for ten dishes of fruit, showing Muscat of Alexandria and Black Alicante grapes, Moorpark apricots, Brown Turkey figs, Mère de Menage apples, Royal George peaches, Pine Apple nectarines, very fine; Souvenir du Congrès pears, a melon, and a Smooth Cayenne pine; Mr. W. Smith, gardener to the Earl of Stair, Oxenford Castle, second, with a good collection. For hardy fruits, twelve dishes, Mr. J. Day, gardener to the Earl of Galloway, K.T., Garliestown, led the way with Worcester Pearmain and Lady Sudeley apples, Williams' Bon Chretien and Souvenir du Congrès pears, Lord Napier and Pitmaston Orange nectarines, Castle Kennedy figs, Pond's Seedling and Kirk's plums, Princess of Wales and Grosse Mignonne peaches, and Morello cherries; Mr. J. Nicholson, gardener to J. W. Melles, Esq., Essex, second; and Mr. W. Williamson, Cupar, third.

There were three good collections of a dozen dishes of orchard house fruit, but the set staged by Mr. J. Beisant, gardener to Mrs. Armitstead, Castle Huntly, Longforgan, was much the best, and was composed of Peasgood's Nonsuch and Emperor Alexander apples, Marguerite Marillat and Souvenir du Congrès pears, Gladstone and Princess of Wales peaches, Spencer and Pine Apple nectarines Magnum Bonum and Rivers' Monarch plums, Brown Turkey figs, and Moorpark apricots, a grand lot of fruit; Mr. R. Cairns, gardener to J. M. White, Esq., Balruddery, second; and Mr. W. Williamson, gardener to J. Home Rigg, Esq., Tarvit, Cupar, Fife, third.

GRAPES.

Mr. Thomas Lunt, Keir Gardens, led the way for six bunches of grapes out of eight competitors, with a superb set of heavy well coloured and finely berried bunches of Muscat of Alexandria, Black Hamburgh, and Alnswick Seedling; Black Hamburgh was very fine; Mr. W. Rutherford, gardener to D. Graham, Esq., Bridge of Allan, second, with huge clusters of Muscat Hamburgh, Mrs. Pince, and Black Hamburgh; Mr. J. Beisant, third. Nine competed in the class for four bunches of grapes, and the most successful competitor was the firm of Messrs. W. Murray and Son, Park Hall Orchard, Polmont, who had good clusters of Black Hamburgh, Alicante, and Madresfield Court; Mr. T. Lunt, second; and Messrs. D. and W. Buchanan, Kippen, third. In the class for a bunch of black grapes showing the finest bloom Messrs. W. Murray and Son scored with Cooper's Black; Mr. Lunt, second, with Gros Maroc; and Mr. Leslie, Perth, third, with Gros Colmar.

Mr. T. Lunt showed the best flavoured white grapes, a bunch of Muscat of Alexandria; Mr. Beisant, second; and Mr. Rutherford, third, with the same variety. The best flavoured black grape was Madresfield Court, shown by Mr. W. J. Green, gardener to Sir C. M. Palmer, Bart., M.P.; Messrs. W. Murray and Son, second, with the same variety. Mr. Williamson scored for an unnamed white grape with a round-berried variety; and for a single bunch of any black grape Mr. J. Paterson, gardener to D. Beatson, Esq., Kirkcaldy, led the way in a very keen competition with Cooper's Black, a large bunch of large berries. Mr. R. Hunt, Murrayfield, led for Lady Downes; Mr. J. Paterson for Gros Colmar, with plum-like berries; Messrs. D. and W. Buchanan for Alnwick Seedling; Messrs. W. Murray and Son for Black Alicante, with Mr. A. Hutton a close second; Mr. J. Menzies, gardener to J. A. Harvie Brown, Esq., Larbert, first for Black Hamburgh, and Mr. Lunt for Muscat of Alexandria—all the foregoing were single-bunch classes. Mr. Menzies led for two bunches of Black Hamburgh grapes, with Messrs. W. Murray and Son second. For two bunches of Muscat of Alexandria, Mr. Thomas Lunt was a good first with long, shapely, fine-coloured and large-berried bunches; Mr. D. Kidd, gardener to Lord Elphinstone, Musselburgh, second; and Messrs. D. and W. Buchanan, Forth Vineyard, Kippen, third.

MELONS, PEACHES, &C.

Hero of Lockinge was the best green-fleshed melon, and was staged by Mr. W. R. Whitecross, gardener to G. Willsher, Esq., Auchterhouse; for a scarlet-fleshed melon, Mr. W. Kidd scored. Mr. J. Billton, gardener to Major Balfour, Fernie Castle, Fife, had the best dish of figs, scoring with Brown Turkey; Mr. M. McIntyre, second. For a dozen peaches, Mr. Lunt asserted his superiority as a cultivator, with fine fruits of Sea Eagle; Mr. J. Beisant, second, with Princess of Wales; and Mr. A. Hutton, Montrose, third. For twelve nectarines, Mr. W. Smith, Oxenford Castle, led with highly-coloured fruits of Humboldt; with Mr. W. Williamson, second. Mr. J. Cossar, of Dunbar, showed the best apricots; Mr. Smith, the best plums—Transparent Gage; Mr. J. J. Wann, gardener to Lord Balfour of Burleigh, the best yellow plums; and Mr. J. Besant, the best red plums—Pond's Seedling. Mr. Williamson staged the best four dishes of dessert plums, with Mr. W. Laing, Willfield Gardens, Fife, second, the latter showing Kirk's, Denniston Gage, Jefferson's, and Green Gage, the former having an unnamed set. For four dishes of culinary plums, Mr. J. Day, Galloway House Gardens, was first, with fine fruits of Magnum Bonum, Victoria, Pond's Seedling, and Goliath; Mr. J. Cairns, gardener to the Earl of Home, Coldstream, second.

APPLES.

The class for twelves dishes of apples brought out a good competition, and Mr. J. F. McLeod, gardener to J. P. Morgan, Esq., Roehampton, won with American Mother, Adams' Pearmain, Worcester Pearmain, Emperor, Alexander, Barchard's Pippin, King of the Pippins, Bismarck, Ribston Pippin, Gloria Mundi, Tyler's Kernel, Flower of Kent, and Peasgood's Nonsuch; Mr. R. J. Hamill, gardener to F. S. Roberts, Esq., St. Saviour's, Jersey, second; and Mr. J. Cocker, third. For a collection of twelve varieties of apples grown in Scotland, four fruits of each, the chief award was won by Mr. J. Day, Galloway House Gardens, Garlieston, Wigton, with finely-developed specimens of Lady Sudeley, Cellini, Ravelston Pippin, Queen, Worcester Pearmain, Keswick Codlin, Mère de Menage, Warner's King, James Grieve, Peasgood's Nonsuch, Loddington, and one unnamed variety; there were nine competitors; Mr. M. Smith, Prestwick, second; and Mr. T. H. Cook, gardener to the Earl of Wemyss, Gosford, Longniddry, third. Mr. Day had also the best small collection of apples; Mr. D. Robb, Auchtermuchty, second.

SINGLE DISHES OF APPLES.

In the single dish classes for apples there was a wonderful competition. Mr. J. Morrison, Archerfield, led for Blenheim Pippin; Mr. M. Smith, for Court of Wick; Mr. Day, for Cox's Orange Pippin; Mr. Fowler, St. Boswell's, for Duke of Devonshire; Mr. J. Nicholson, for Gascoigne's Scarlet; Mr. A. Dickson, Glenormiston, for Irish Peach; Mr. J. Day, for James Grieve; Mr. W. Benvie, Errol, for Kerry Pippin; Mr. J. Fraser, Coldra, Monmouth, for King of the Pippins; Mr. D. Robb, for Lady Sudeley; Mr. J. Nicholson, for Mabbot's Pearmain; Mr. A. M. Clymont, Granton House, for Oslin Pippin; Mr. R. Hamill, for Ribston Pippin; Mr. J. Day, for Thorle Pippin; Mr. Hamill, for Worcester Pearmain; Mr. W. Harper, Perth, for Yellow Ingestrie; Mr. J. McKinlay, Inveresk Gate, for Alfriston; Mr. R. Hamill, for Beauty of Kent; Mr. J. F. McLeod, for Bismarck; Mr. W. Benvie, for Bramley's Seedling; Mr. J. Jeffrey, Harewood, Leeds, for Ecklinville; Mr. Hamill, for Emperor Alexander; Mr. Hamill, for Golden Noble; Mr. Williamson, for Lane's Prince Albert; Mr. M. Smith, for Keswick Codlin; Mr. A. McComb, Gorton, for Hawthornden; Mr. J. Nicholson, for Grenadier; Mr. J. Beisant, for Golden Spire; Mr. A. Lauder, Musselburgh, for Lord Suffield; Mr. Beisant, for Lord Grosvenor; Mr. J. Jeffrey, for Lord Derby; Mr. Beisant, for Loddington; Mr. Hamill, for Mère de Menage, for Northern Greening, and for Pott's Seedling; Mr. D. Carmichael, for The Queen; Mr. J. Paterson, for Tower of Glamis; Mr. J. Patterson, for Cox's Pomona; and Mr. Hamil, for Warner's King. The educational value of such classes as these is very great.

PEARS AND SMALL FRUITS.

In the pear classes Mr. Hamill led for a dozen varieties, with Louise Bonne of Jersey, Beurre Bosc, Emile d' Heyst, Belle de Jersey, Williams' Bon Chretien, Souvenir du Congres, General Todtleben, and Grosse Calebrasse; Mr. Nicholson, second; and Mr. J. F. McLeod, third. For six varieties, Mr. J. Day was first, showing fine examples of Gratioli of Jersey, Beurre de Capiaumont, Clapp's Favourite, William's, Duchess d'Angoulême, and Pitmaston Duchess; Mr. J. Cairns, second; and Mr. T. H. Cook, third. Mr. Hamill scored for Beurre Diel; Mr. Cook for Beurre Rance; Mr. Hamill for Beurre Superfin and Durondeau; Mr. Cook for Easter Beurre; Mr. Cook for Glou Morceau; and Mr. A. Shakelton, gardener to Captain the Hon. Cecil Duncombe, The Grange, Nawton, Yorks, first for Jargonelle. In other single dish classes Mr. Carmichael and Mr. Hamill were the leading prize-winners.

Some excellent gooseberries were staged by Mr. J. Laing, Blairgowrie; red currants from Mr. J. Cairns were splendid, so also were the white currants from Mr. D. Pitt, Kelso. Mr. Cairns scored for Morello cherries with huge fleshy fruits of great merit; Mr. Morrison, second.

NURSERYMEN'S EXHIBITS.

Messrs. R. P. Laird and Sons showed a useful lot of hardy evergreen shrubs, besides numerous hardy shrubs with golden and variegated foliage, gaining first prize for their two dozen plants. Messrs. J. Dickson and Sons, second. Lack of space forbids us particularising the kinds shown. Messrs. R. P. Laird and Sons scored for six palms, contributing among others a fine rhapis, seaforthias, and date palms. Mr. J. Downie, Beech Hill Nurseries, had the best dozen table plants in this division, and consisting of Crotan Chelsoni, C. Aigburth Gem, C. Golden Ring, C. elegantissima, Aralia gracillimum, A. Veitchi, Dracæna Godseffiana, D. Mrs. Laird, D. Princess May, Pandanus Veitchi, Cocos Weddelliana, and Geonoma gracilis; Messrs. R. P. Laird and Sons, Pinkhill, Murrayfield, second. The best dozen conifers came from Messrs. R. P. Laird and Sons, and these helped to make a good ring of foliage round the bandstand; their specimens were Thuiopsis dolobrata variegata, Thuja orientalis aurea, S. occidentalis lutescens, Cupressus Lawsonianus cærulea compacta, a most distinct form, C. L. stricta alba, C. L. lutea, Retinospora plumosa aurea, R. pisifera aurea, Thuia occidentalis, Cupressus Lawsonianus albo pyramidalis, Retinospora squarrosa Veitchi, Thuia occidentallis ericoides, and Retinospora gracilis aurea; Messrs. Dickson and Sons, second.

For eighteen bunches of cactus dahlias Messrs. Laird and Sinclair were awarded first prize for a fresh lot that contained a good many varieties too nearly of the decorative type; Mr. M. Campbell, High Blantyre, second; and Mr. S. Mortimer, Farnham, third. For two dozen show dahlias Mr. M. Campbell was placed first, for a set of very large flowers; Mr. J. Smellie, Bushy, second. For fancy dahlias Mr. M. Campbell and Mr. Smellie again divided the honours. Messrs. R. P. Laird and Sons, had the best eighteen bunches of single dahlias, putting up a good set of the popular varieties. As usual, Mr. M. Campbell took leading honours for picotees. Messrs. Dickson and Sons had the best two dozen bunches of early chrysanthemums. Messrs. J. Cocker and Sons, Aberdeen, had by far the best table of hardy flowers, putting up large and beautiful bunches of gaillardias, liliums, delphiniums, montbretias, &c.; Messrs. Harkness and Sons, second; and Mr. W. Gunn, Olton, third. Mr. James Forbes, Hawick, secured the chief award for eleven spikes of hollyhocks, with beautiful spikes of shapely flowers. For thirty gladiolus spikes Messrs. Harkness and Sons, Bedale, Yorks, won with splendid blooms and spikes; Mr. N. Walker, Gateshead-on-Tyne, second.

VEGETABLES.

Throughout the display vegetables were good, though too large in some instances. The finest collection of ten varieties of vegetables came from Mr. J. Waldie, gardener to W. H. Dobie, Esq., Dollar, who had lovely Grove White celery, International leeks, Lockie's Perfection cucumbers, Canadian Wonder beans, Duke of York potatos, Duke of Albany peas, Frogmore Prolific tomatos, Eclipse cauliflowers, Cranston's Excelsior onions, and St. Valery carrots; Mr. G. Ormiston, Jedburgh, second. Tomatos were splendid, and in dishes of a dozen fruits made a great show. Mr. W. Galloway, Liberton, was first prize-winner, with Mr. J. Graham, Wishaw, second. Peas and beans were good for the lot, but need not be particularised.

Onions were fine, and Mr. A. C. Cameron, gardener to W. Boase, Esq., Dundee, led with a dozen enormous bulbs; Mr. J. Orr, Drymen, second. Cabbage, cauliflowers, savoys, beet, carrots, parsley, turnips, &c., all represented high culture. Potatos were clean and good, Mr. Gemmell and Mr. Cossar being leading prize-winners. Mr. Waldie won easily for six heads of celery; and Mr. J. Ovens, Berwick, for parsnips, a good substantial set. Leeks were best shown by Mr. J. Hood, St. Boswell's, who had splendidly blanched stems of good substance; Mr. E. Joss, Milnathost, second.

NON-COMPETITIVE DISPLAYS.

The displays put up not for competition were very numerous and in great variety. The display of fruit and plants grown at the gardens of Her Majesty the Queen, Windsor, was, of course, the great attraction on this occasion, and the Council of the Royal Caledonian Horticultural Society took advantage of the promise that Mr. Owen Thomas would make a display, to advertise and boom Her Majesty's exhibit on the boldest of posters. It was a first-rate exhibit, and though it did not give a fair idea of the capacity of the Frogmore establishment, it served to illustrate the high cultivation that obtains there. Well-grown nepenthes were staged in three rows down a long table, and the most notable plants were Nepenthes mixta, N. Curtisi, N. sanguinea, N. Dicksoniana, N. Mastersi, Amesiana, N. Curtisi superba, and N. intermedia. Around the stems of the nepenthes stands sprays of asparagus were twined with the addition of long sprays of Vanda Lowei round the taller ones. In vases down the centre were bamboo sprays, asparagus, brilliant umbels of Hæmanthus multiflorus, anthurium spathes in a variety of colours, and a few spikes of Peristeria elata, from the plant referred to in a previous issue.

Under the plants and flowers was a groundwork of excellent culinary and dessert apples and pears, all well-developed specimens, comprising a large number of varieties. Bananas and pines crowned the centre, while baskets of grapes were placed at intervals all around the table. Melons were first-rate and showy. Around the whole table, near the margin, were dishes of choice plums, apricots, peaches, cherries, nectarines, figs, and other fruits in season that are to be expected from a large establishment.

Messrs. James Veitch and Sons, Chelsea, put up a beautiful circular group of plants, consisting almost entirely of foliage subjects: large palms, splendidly-pitchered nepenthes of sorts, tall specimens of the dark bronzy Dracæna Bartoni, and large leaved crotons such as C. Reidi, C. Flamingo, and C. Thompsoni, made up a tasteful centre, around which were grouped highly coloured caladiums, Phrynium variegatum, some choice bromeliads, dracænas, and an abundant variety of pretty little crotons, with here and there a tall plant of croton, Prince of Wales, raised well above the rest to display its drooping corkscrew foliage of deep yellow. Leea amabilis, Acalypha Sanderi, D. Goldieana, Yucca filamentosa aurea-variegata, bertolonias, sonerillas, and anæctochili, were all notable plants. Facing one way this firm had a few choice orchids in their group, Miltonia spectabilis Moreliana, Cattleya aurea, and Oncidium incurvum, figuring conspicuously; on the other side was a small bank of choice Javanico-multiflorum rhododendron hybrids. From Lewisham, Mr. H. J. Jones brought a pretty exhibit of tuberous begonias, both single and double varieties, and all lifted from the open ground for this occasion; caladiums and liliums made up the central mound, while the begonias were congregated at either end. Some handsome Cocos Weddelliana and Kentias were used to crown the several mounds of which the group was composed; ferns were freely used to give finish to the display, but the begonias were the chief attraction. A splendid exhibit came from Messrs. R. Wallace and Co., Colchester, who staged a wonderfully fresh collection of cut flowers, chiefly liliums, kniphofias, gladioli, and montbretias. Lilium speciosum, L. s. album-novum, L. splendens, L. Harrisi, L. auratum in variety, such as L.a. virginale, L.a. platyphyllum, &c. Some late spikes of Hemerocallis aurantiaca major attracted considerable attention, as also did the great variety of bright montbretias.

From Rothesay Messrs. Dobbie and Co. brought a splendidly fresh and beautiful exhibit of cactus and pompon dahlias; some of the pompon varieties seemed almost too robust, but the cactus varieties did not err on the side of hugeness but were charming flowers of a suitable and characteristic size; Arachne, Night, Matchless, Gloriosa, Fantasy, Royal George, Cinderella, Capstan, Cassilda, and Harry Stredwick were a few of the finest and most distinct forms from among four dozen bunches. A pretty lot of early-flowering chrysanthemums were arranged in front of the bunches of dahlias and these made a fine show; Grace Attick is a pretty narrow-petalled white variety of great value. The front of the exhibit consisted of specimen blooms of all the newer cactus dahlias and formed a good border to a good display. Mr. J. Forbes, Hawick, contributed a grand lot of hollyhocks, staging four and five feet spikes of handsome double flowers in a considerable variety of colours from white to pink and intense crimson and crimson-purple. Bunches of phloxes and herbaceous flowers of sorts made a bright bank before the hollyhocks, while lower still were such fine pentstemons as one expects from Hawick, together with carnations in variety, pansies, violas, dahlias, &c. Messrs. Dickson and Co., Waterloo Place, Edinburgh, showed a fine lot of pot vines, fruiting; they also staged zonal pelargoniums, sweet peas, violas, and pansies, making a great display.

Mr. J. Downie, Princes Street, had a large circular display of stove and greenhouse plants, the centre being composed of attractive liliums and cannas; lily of the valley and begonias, with crotons and palms, were used towards the margin, and with considerable effect. Messrs. T. Methven and Sons, had a big group of caladiums, crotons, dracænas, vallotas, Acalypha Sanderi, and other useful plants. Messrs. James Dickson and Sons sent from their Inverleith Nurseries a small and pretty group of clematises in small pots, encircled by a ring of euonymus. Messrs R. P. Laird and Sons had a fine circular exhibit of plants in great variety, all tastefully disposed; Acalypha Sanderi was conspicuous, so also were the large specimens of Lilium speciosum and Hydrangea paniculata. The Icthemic Guano Co. and Chemical Union, of Colchester, both made tasteful displays.

Messrs. W. Thomson and Sons, Clovenfords, showed baskets of first-rate grapes and tomatos, together with a tasteful display of plants. Messrs. Kerr Brothers, Dumfries, sent a showy group of dahlias and hardy flowers. Mr. M. Cuthbertson, Rothesay, displayed hardy flowers in great beauty and variety. Mr. M. Campbell, High Blantyre, put up an extensive exhibit of liliums, hardy flowers in variety, dahlias in abundance, and carnations and picotees. Messrs. A. Lister and Son, Rothesay, contributed dahlias and hardy flowers, also a pretty collection of violas and pansies. Messrs. J. Grieve and Sons, Redbraes, showed a collection of violas and pansies, marigolds, carnations, &c. Mr. J. Smellie, Busby, contributed a bright group of pompon, show, and cactus dahlias. Messrs. Stuart and Mein, Kelso, sent dahlias and herbaceous flowers. Messrs. D. and W. Buchanan, Kippen, showed vine and other foliage preserved by their patent foliage, so as to secure autumn tints; they also showed some good grapes and tomatos. Mr. C. Irvine, Jedburgh, N.B., exhibited a fine lot of pentstemons, liliums, and herbaceous flowers in variety.

"BY THE QUEEN'S COMMAND," I once performed at Windsor before Her Majesty and several members of the Royal Family; and, oh, it was the most delightful experience I have ever had." The speaker was an enthusiastic young actress, as popular as she is beautiful. "The honour was certainly a great one," we murmured. "Yes," she responded quickly, "but it was not only that; Her Majesty was so kind, you know. It really did you good, the way she treated you." That is just it. Proper treatment is all we want. Nine-tenths of the sickness we suffer might be cured if we only had proper treatment. If you are ill or fall out of sorts, seek relief from the true friends of the sick and suffering—Holloway's Pills and Ointment.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Planting and Protecting Tea Roses.—Safrano, Surrey: (1) To protect tea roses during winter it is a good plan to place around and up to the stem a cone of finely-sifted dry soil or coal ashes and also to place bracken in the head, twisting and tying it just sufficiently to prevent its being blown away; it is needless to thatch the bushes. (2) The manure should be dug in a few weeks before planting time. (3) Let the bedding plants run their course, then clear them out, manure the ground lightly, and deeply dig it; after planting the roses place a layer of manure on the surface of the bed. (4) Six good yellows are—Amazone, Caroline Kuster, Etoile de Lyon, Francisca Kruger, Madame Hoste, and Perle des Jardins.

Theory and Practice.—G. Y.: It is a mistake to say that a certain course of procedure is "all very well in theory but no use in practice," and this arises from a misapprehension as to the definition of theory and confusing it with mere book knowledge. Theory, briefly stated, is the science distinguished from the art, or the rules of an art as distinguished from the practice as the theory and practice of gardening. Again, a theory is founded on principles which have been established on independent evidence, and therefore if the theory cannot be satisfactorily demonstrated in practice it is nothing more than a hypothesis which merely assumes the operation of a cause that would account for the phenomena but has not evidence that such cause was actually at work. This being the case an acquaintance with the theory of horticulture is desirable to those engaged in gardening; but the knowledge of the art must be sufficient to admit of the knowledge so gained being put into practice. In all cases we strongly advise the teaching of the theory and practice of horticulture simultaneously.

Names of Plants.—X Y Z: 1, Lomaria discolor bipinnatifida; 2, Davallia tenuifolia Veitchiana; 3, Adiantum cyclosorum; 4, send when in fruit; 5, Asplenium obtusilobum; 6, Acrophorus chærophyllus.

F. K.: 1, Dichorisandra metallica picta-nigra; 2, Asparagus retrofractus arboreus; 3. Bignonia argyreo violascens; 4, Ipomæa Horsfalliæ.

S. M.: Your plant is Hoya campanulata.

W. H.: 1, Filicium decipiens; 2, Eranthemum sanguinolentum; 3, Columnea Kalbreyeriana.

T. W.: We have been compelled to discontinue the naming of florists' flowers, because of the great similarity which exists between so many varieties, and the consequent difficulty of distinguishing them from the flowers alone. Your phloxes reached us in an unsatisfactory condition, for the thin cardboard box was smashed in coming through the post, and, as the packing material was cotton-wool, the flowers were much shrivelled.

Amateur: Your plant is Helianthus rigidum Miss Mellish.

Names of Fruits.—H. M.: 1, Wormsley Pippin; 2, Oslim; 3, send a specimen when approaching maturity; 4, Red Astrachan.

K. B.: The figs are—1, Bourjassotte Grise; 2, Black Ischia; 3, Col di Signora Bianca. The pears are—1, Fondante d'Automne; [2, Summer Beurré d'Aremberg.

Practical Pomologist: 1, Bryanston Green Gage; 2, Decaisne; 3, Boulouf; 4, Coe's Late Red.

S. B.: 1, White Tokay; 2, Grizzly Frontignan; 3, Mrs. Pearson; 4, West's St. Peters; 5, Duchess of Buccleuch.

R. L., Hants: 1, Galopin; 2, Balgowan; 3, Lady Palmerston; 4, Belle Bauce; 5, so much damaged in transit as to be unrecognisable; 6, Golden Eagle.

W. S., Yorkshire: The pear is Marguerite Marrillat, and it is such an excellent variety for use early in September that we would advise you to add it to your collection.

MARKETS.

Covent Garden.

THERE is a moderate supply of fruit, with a steady demand at current rates. The supply of vegetables is an average one, and for the choice kinds there has been a brisk demand.

FRUIT.—English apples, 3s. to 9s. per bushel; English pears, 3s. to 6s. 6d. per bushel; French, 3s. to 7s. 6d. per case; greengages, 2s. 6d. to 5s. 6d.; Victoria plums, 2s. to 4s. 6d.; Orleans, 2s. to 3s. 6d.; damsons, 2s. to 3s. per half-sieve; English grapes, 10d. to 2s.; Jersey, 6d. to 1s.; Belgian, 5d. to 7d. per lb.; Denia, 4s. 6d. to 7s. 6d. per barrel; peaches, 1s. 6d. to 6s.; nectarines, 1s. 6d. to 8s.; green figs, 9d. to 1s. 3d.; English apricots, 9d. to 1s. 3d. per dozen; Spanish melons, 4s. 6d. to 7s. per case; English tomatos, 3d. to 4d.; Jersey, 2d. to 3d. per lb.; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 4s. each.

FLOWERS.—Arums, 3s. to 5s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s to 4s.; gardenias, 2s. to 3s.; Lilium Harrisi, 2s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. 6d. to 4s.; and tuberoses, 6d. to 1s. per dozen blooms; Adiantum cuneatum, 4s. to 5s.; asters, 2s. to 4s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pelargoniums (scarlet), 3s. to 4s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 1s. 6d.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Cabbages, 2s. 6d. to 4s. 6d.; beetroots, 2s. to 2s. 6d.; vegetable marrows, 1s. 6d. to 2s. per tally; mushrooms, 8s. to 10s.; eschallots, 1s. to 2s.; garlic, 2s. 6d. to 3s. 6d. per 12 lb.; Valencia onions, 4s. 6d. to 6s.; Ports, 5s. to 6s. per case; endive, 1s. to 1s. 3d.; cauliflowers, 1s. to 2s. 6d.; cucumbers, 1s. 6d. to 3s. per dozen; lettuce, 2s. to 3s. per dozen; French beans, 3s. to 4s.; scarlet runners, 3s. to 5s. per bushel; turnips, 2s. 6d. to 3s. 6d.; carrots, 1s. to 2s.; parsley, 1s. 6d. to 2s. 6d.; mint, 1s. 6d. to 2s. per dozen bunches; potatos, 60s. to 90s. per ton.

Borough Potato Market.

Supplies are coming forward in largely increased quantities with the result of the values being lower. The quality of the majority of the samples is exceptionally high. Beauty of Hebron and Snowdrops, 3s. 9d. to 4s.; White Hebrons, Early Puritan, Sutton's Early Regents, Reading Giants, and Imperators, 3s. 6d.; Black Lands, 2s. 9d. to 3s. per cwt.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER 19, 20, 21, 22, AND 23.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

TUESDAY, SEPTEMBER 20.—Stove and Greenhouse Plants, Ferns, Palms, &c., Messrs. Protheroe and Morris, on the premises, The Holmesdale and Highfield Nurseries, Stevenage, Herts.

FRIDAY, SEPTEMBER 23.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY AND WEDNESDAY, SEPTEMBER 19 AND 21.—Dutch and French Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

THURSDAY, SEPTEMBER 22.—Importation of 2,000 plants of Brassavola Digbyana, Mr. J. C. Stevens, King Street, Covent Garden.

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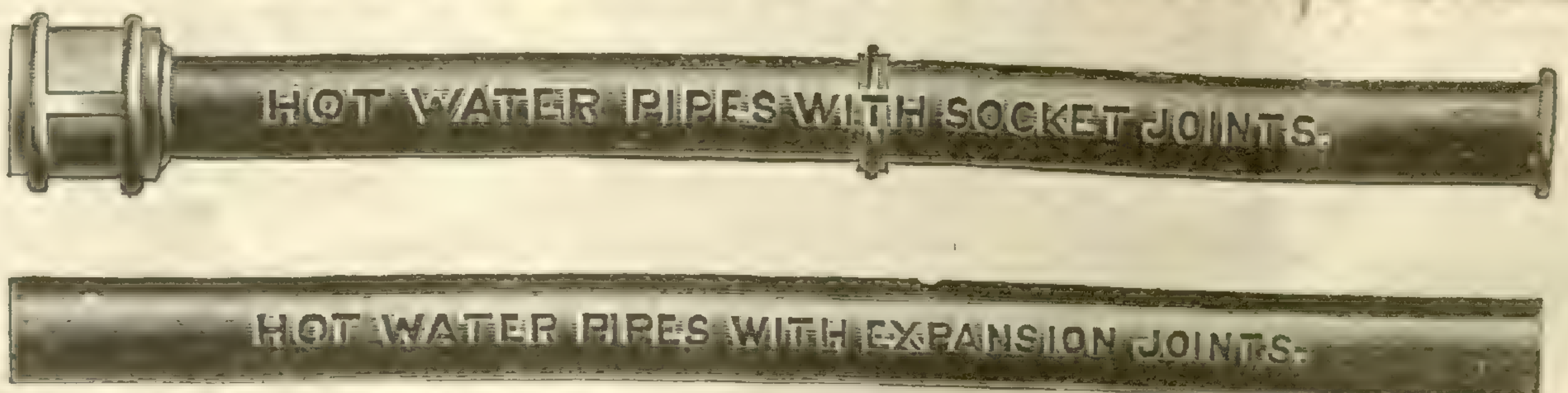
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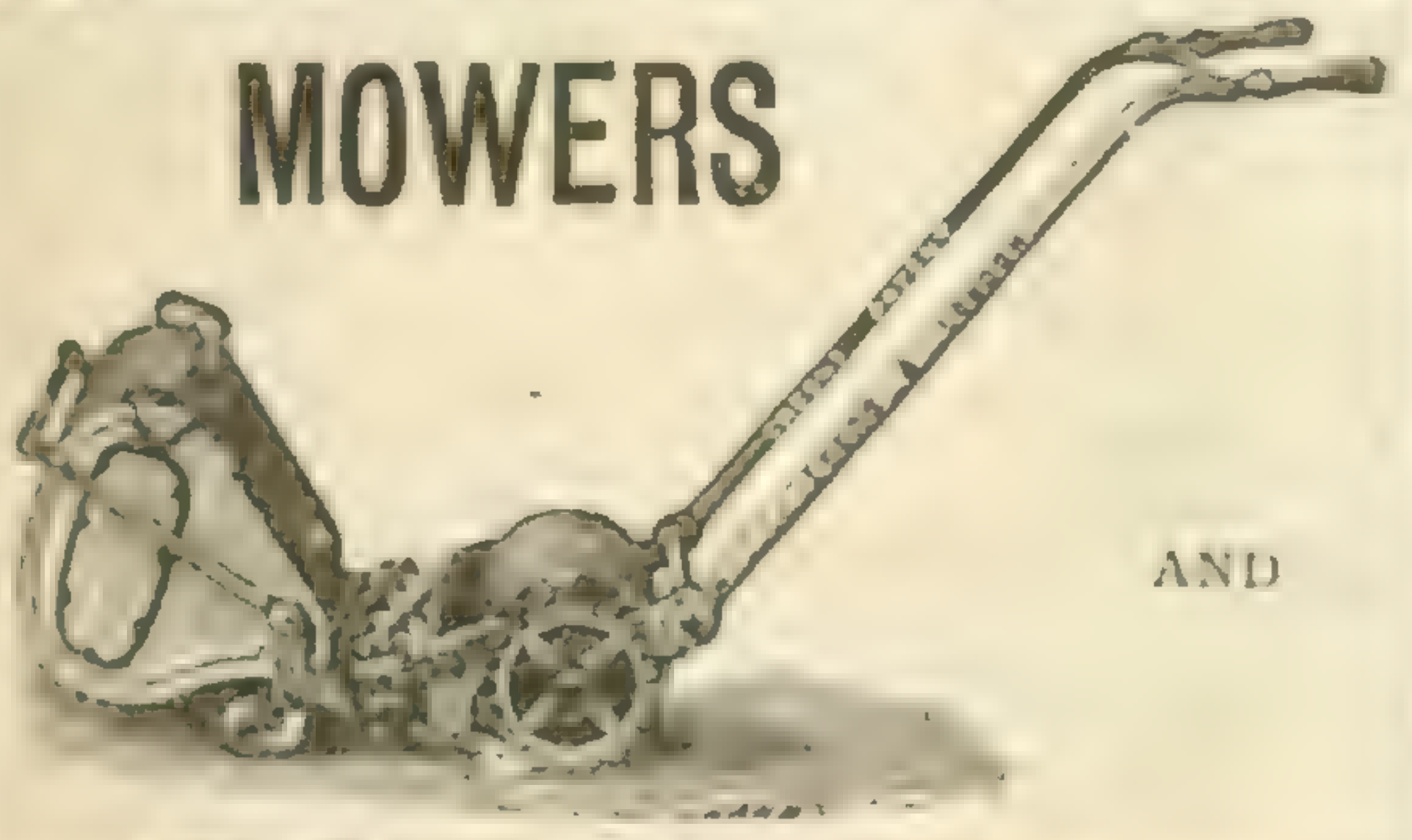

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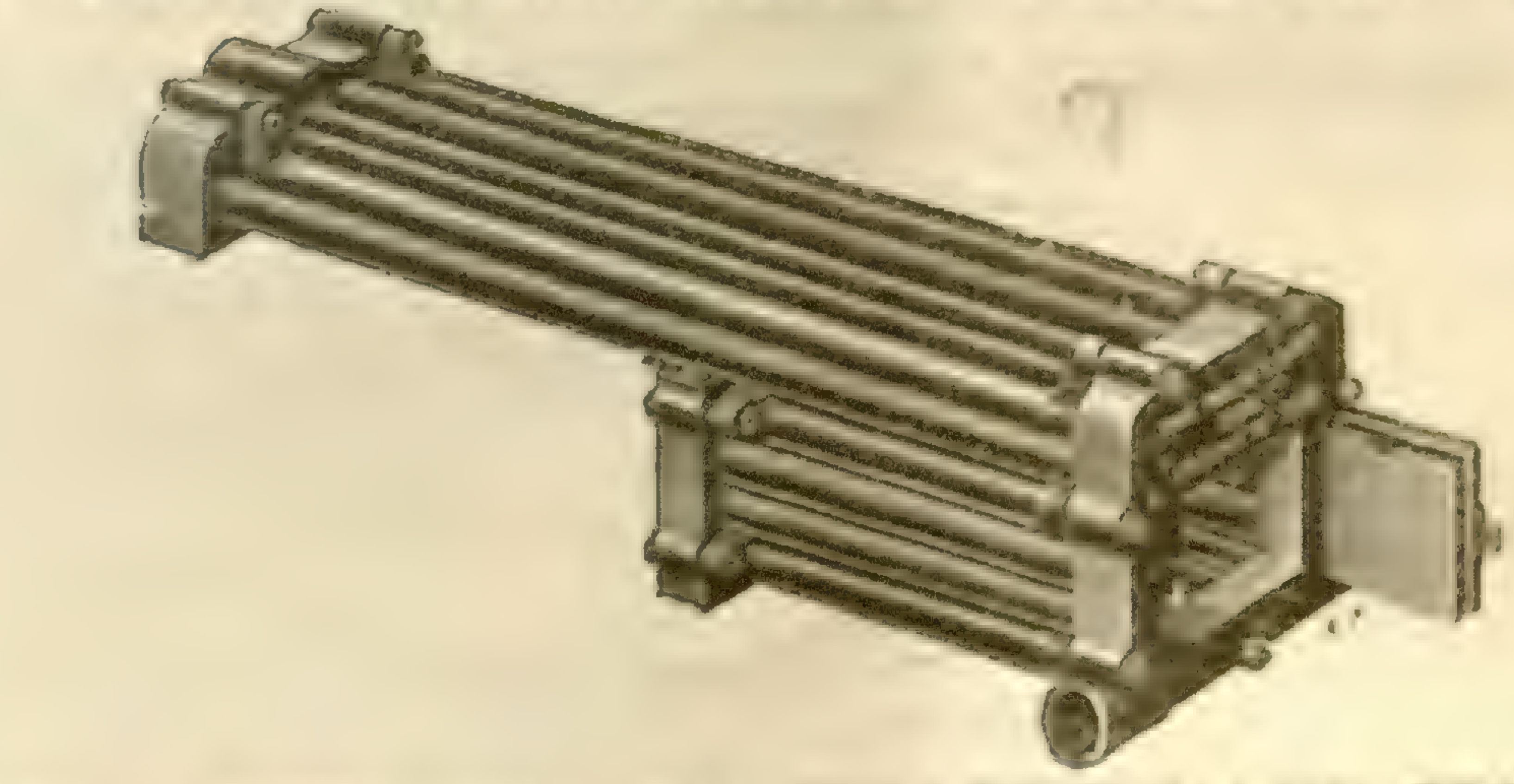

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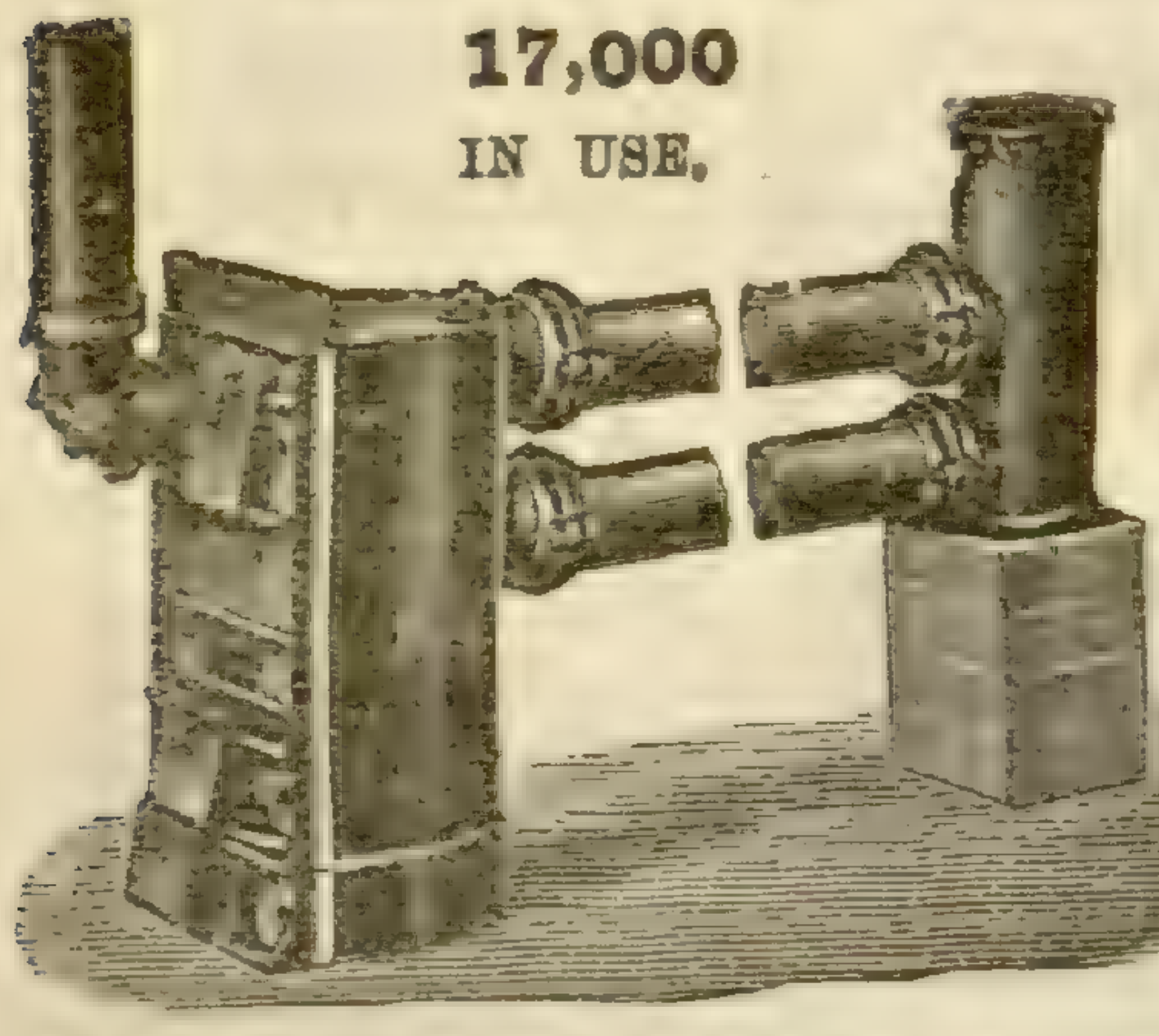

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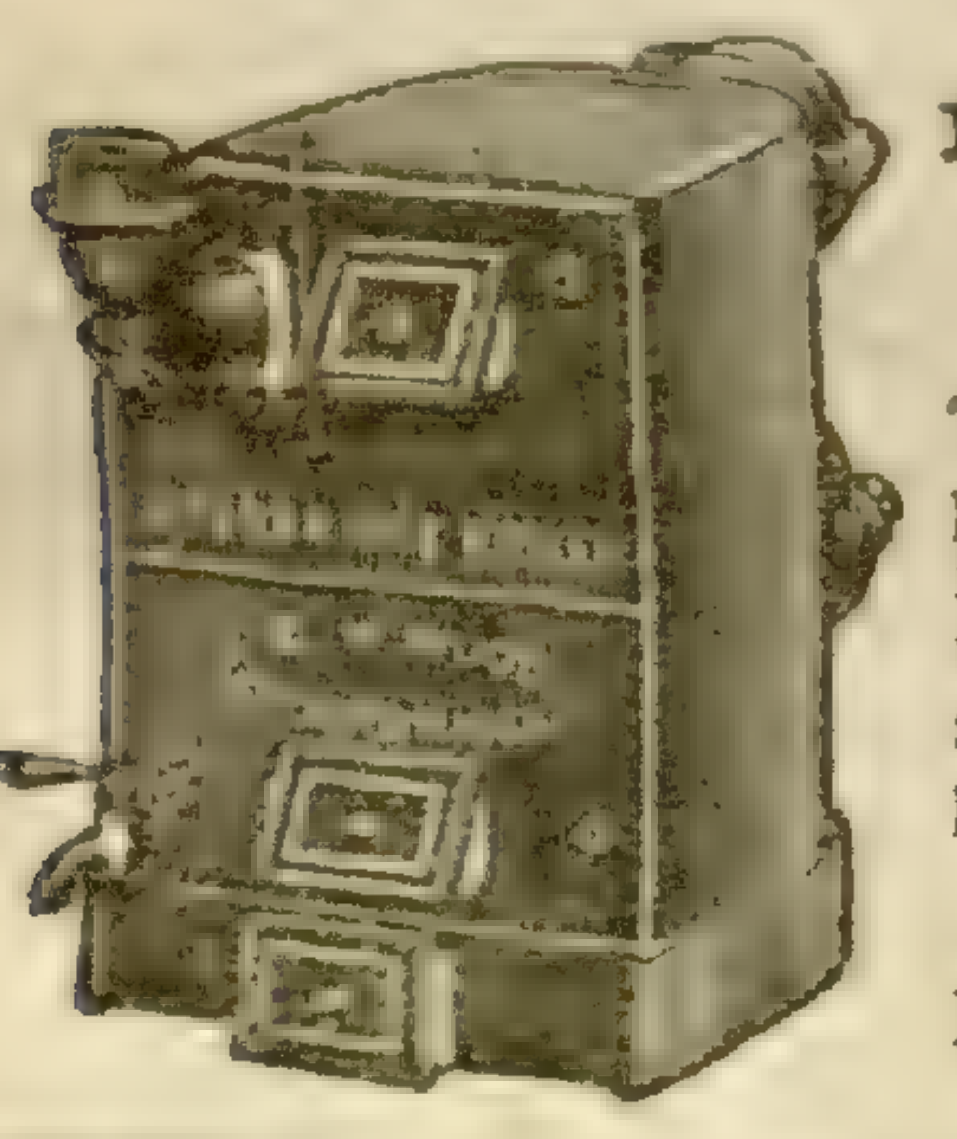

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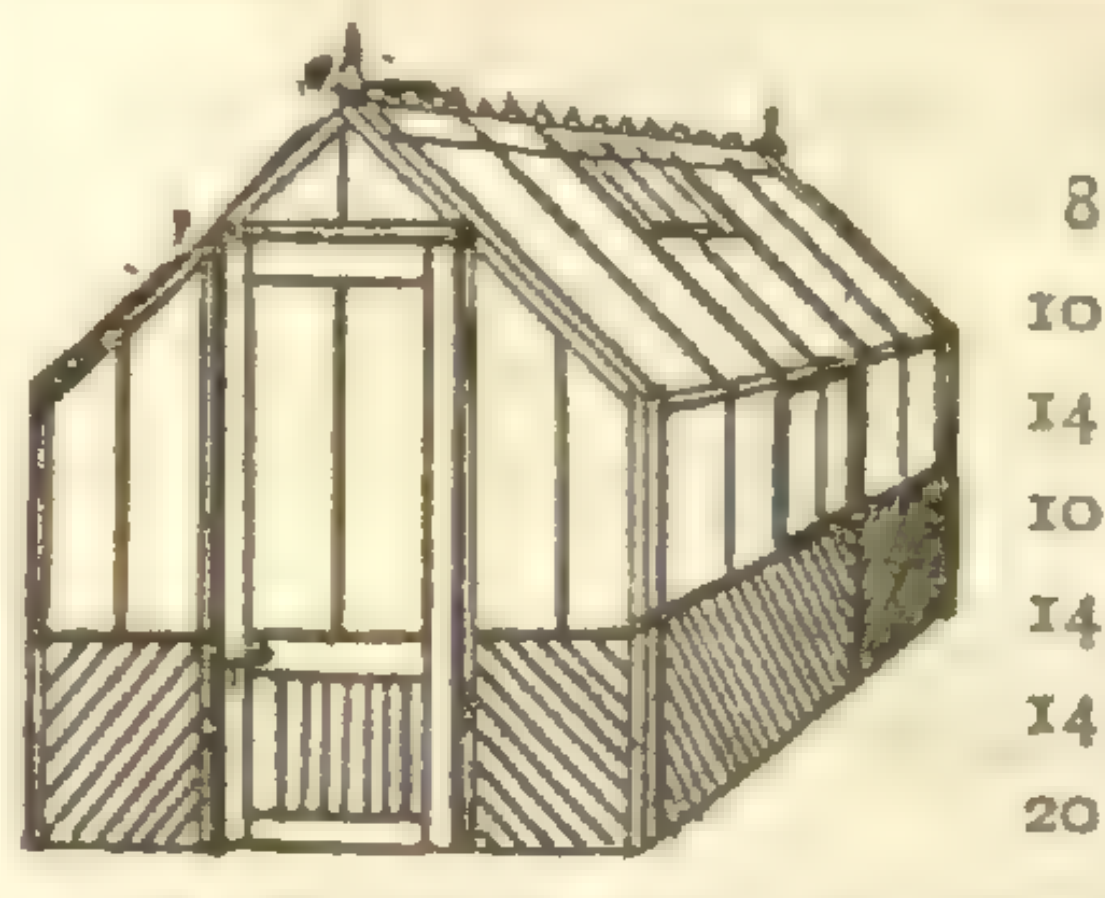

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10 X 5	48/6	58/6
14 X 6	58/6	78/6
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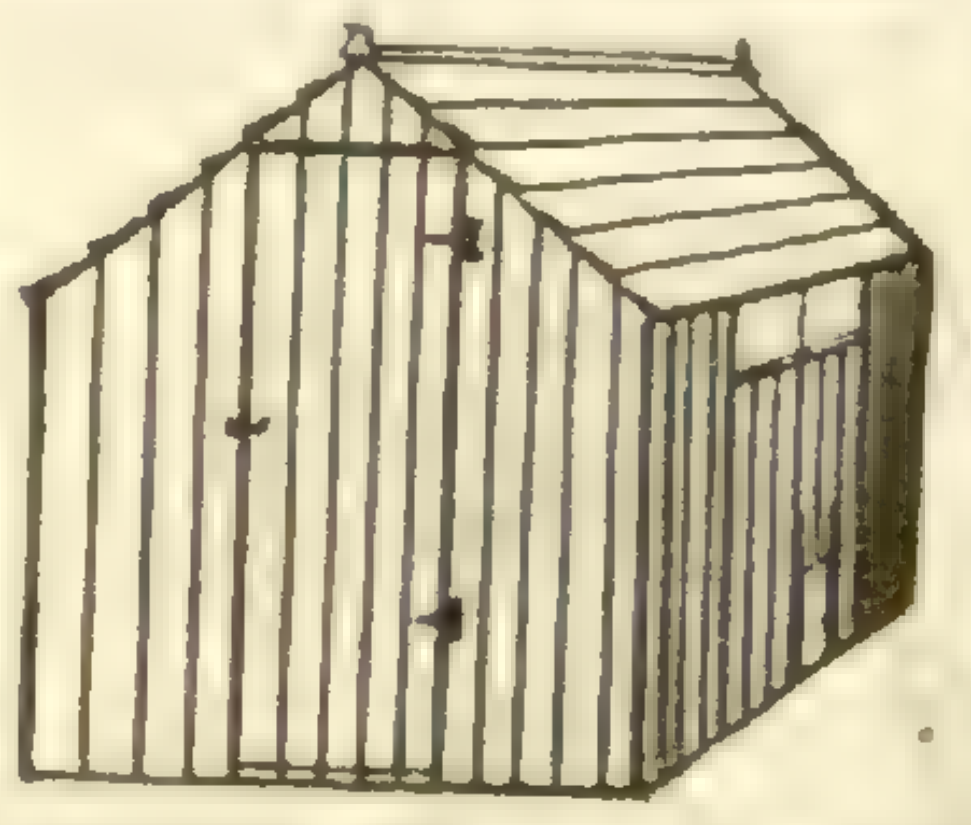

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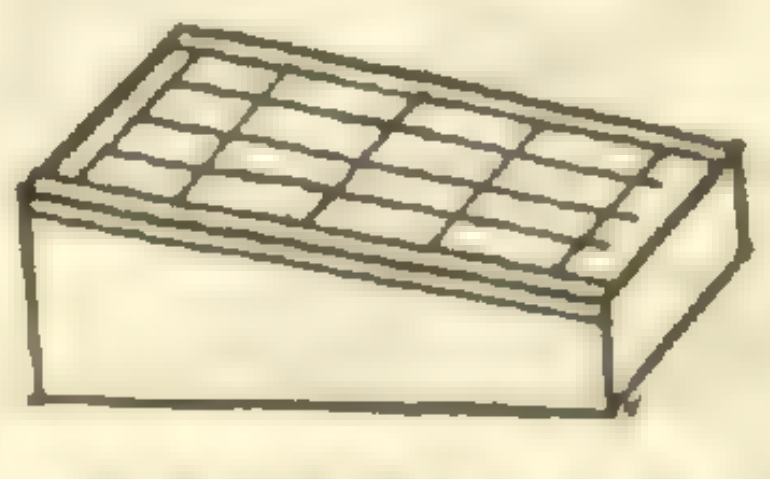

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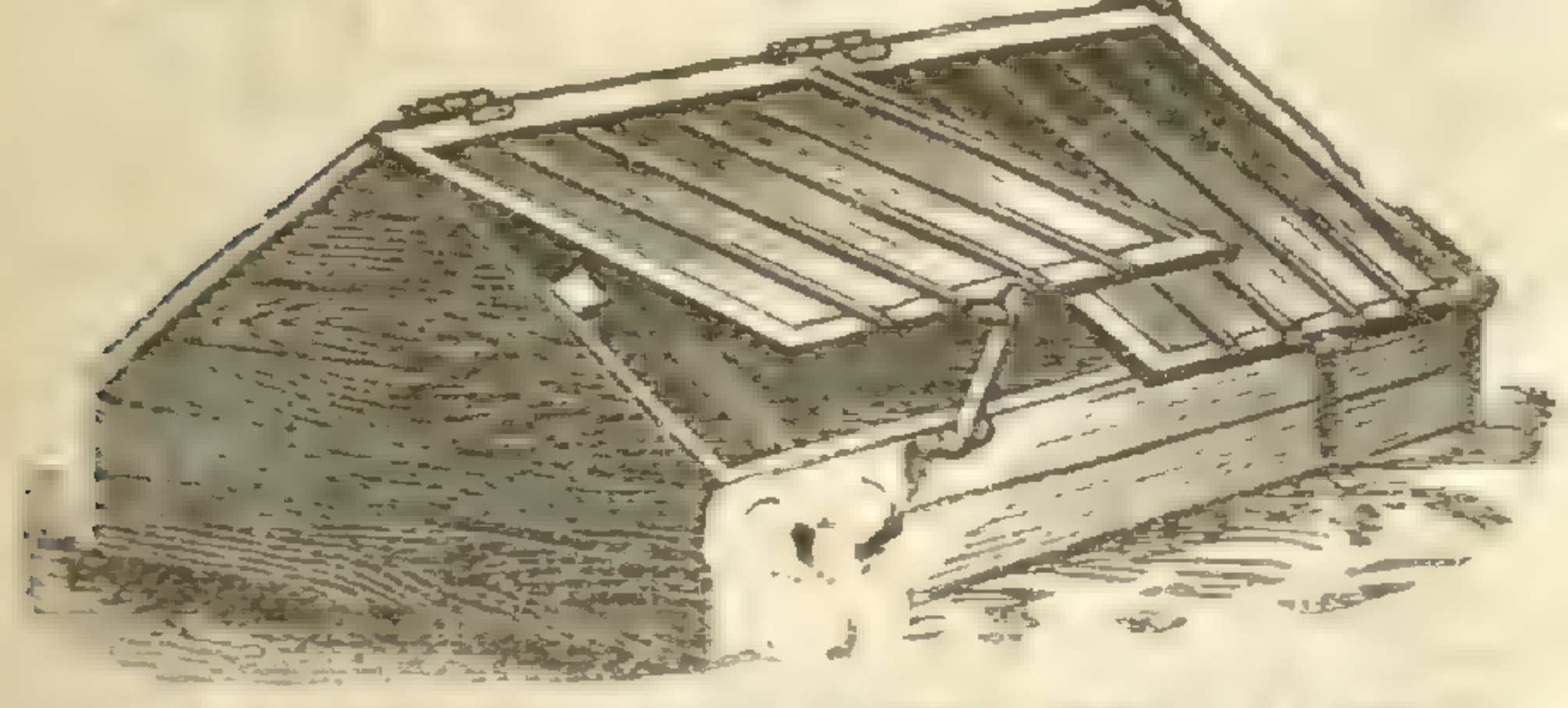

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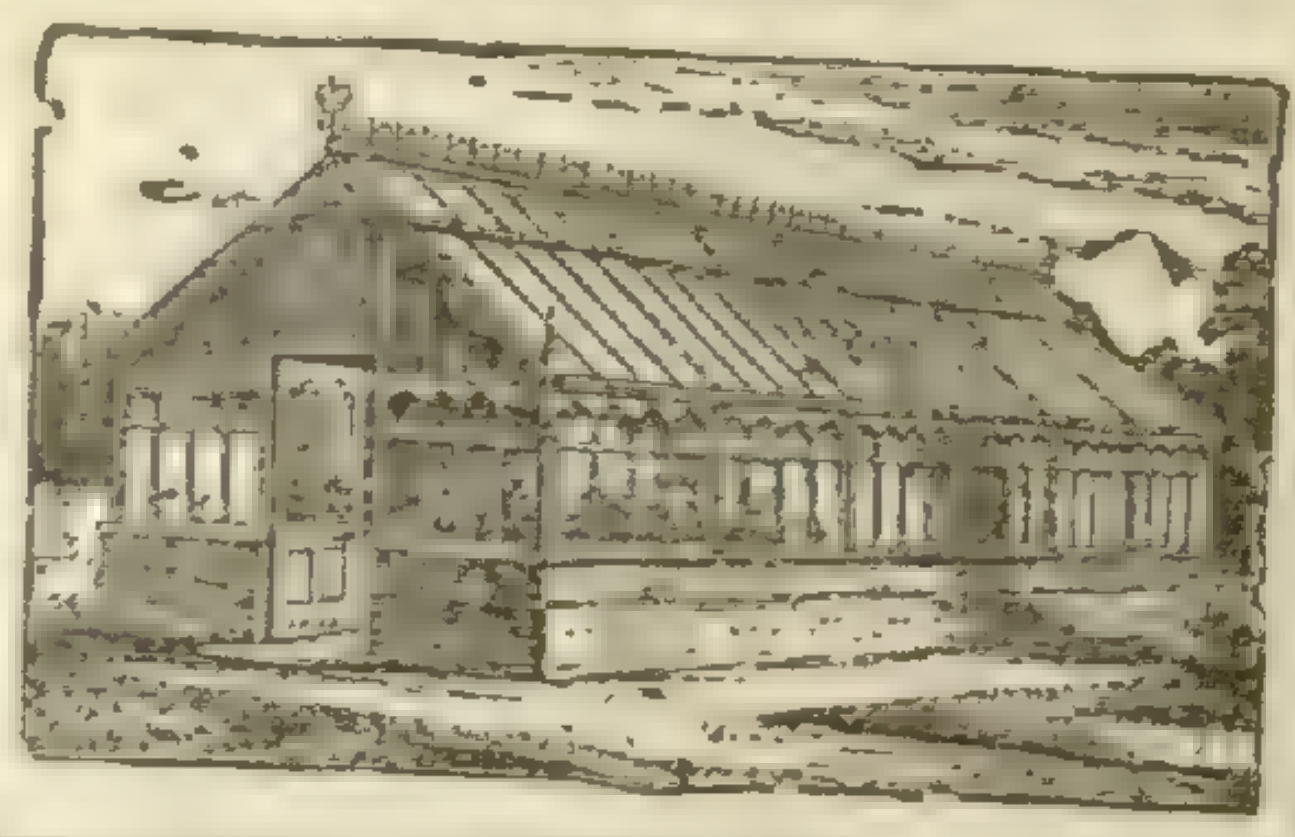

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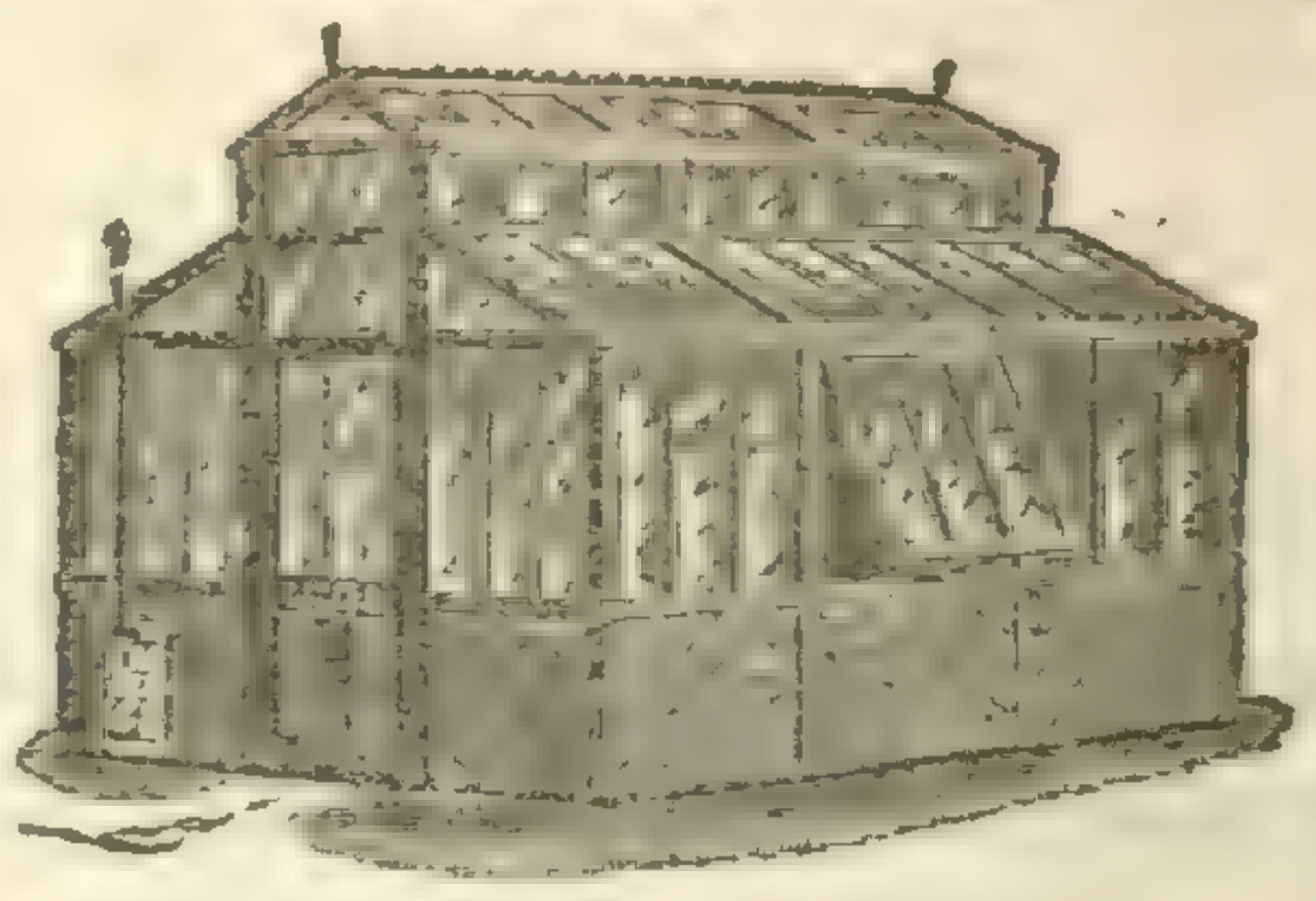

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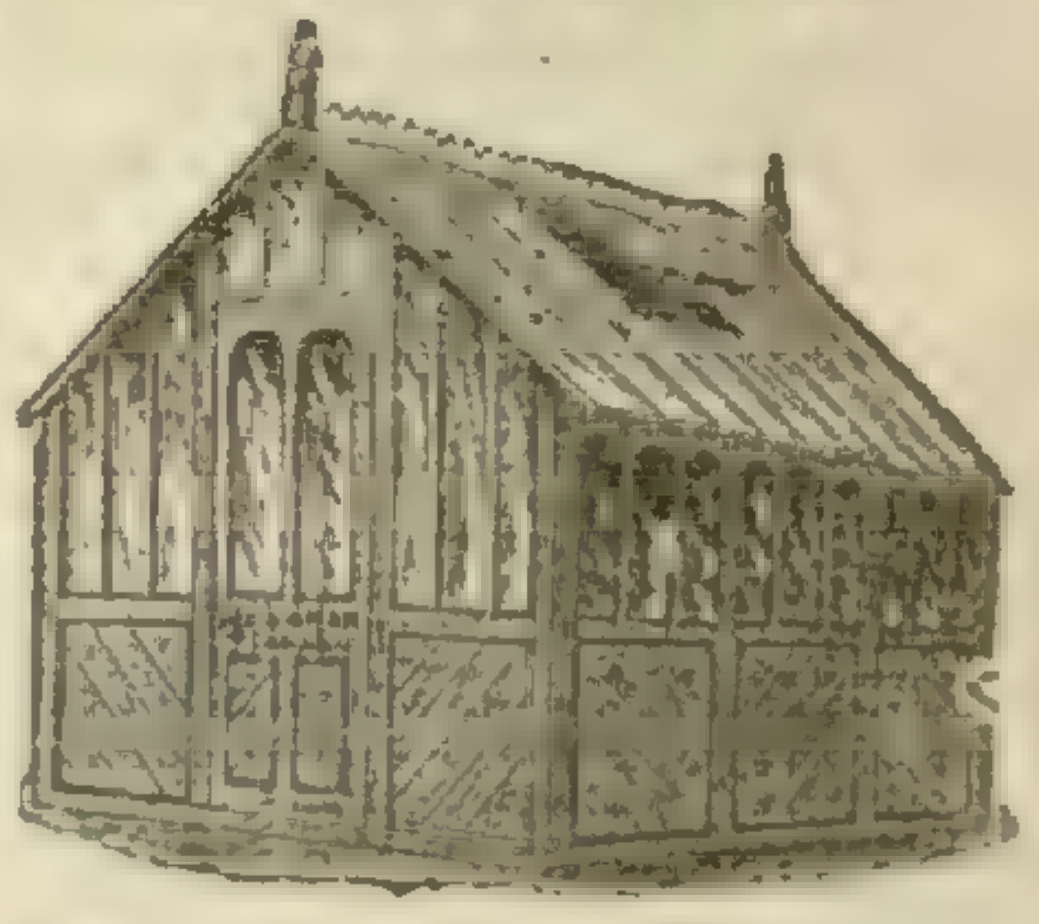

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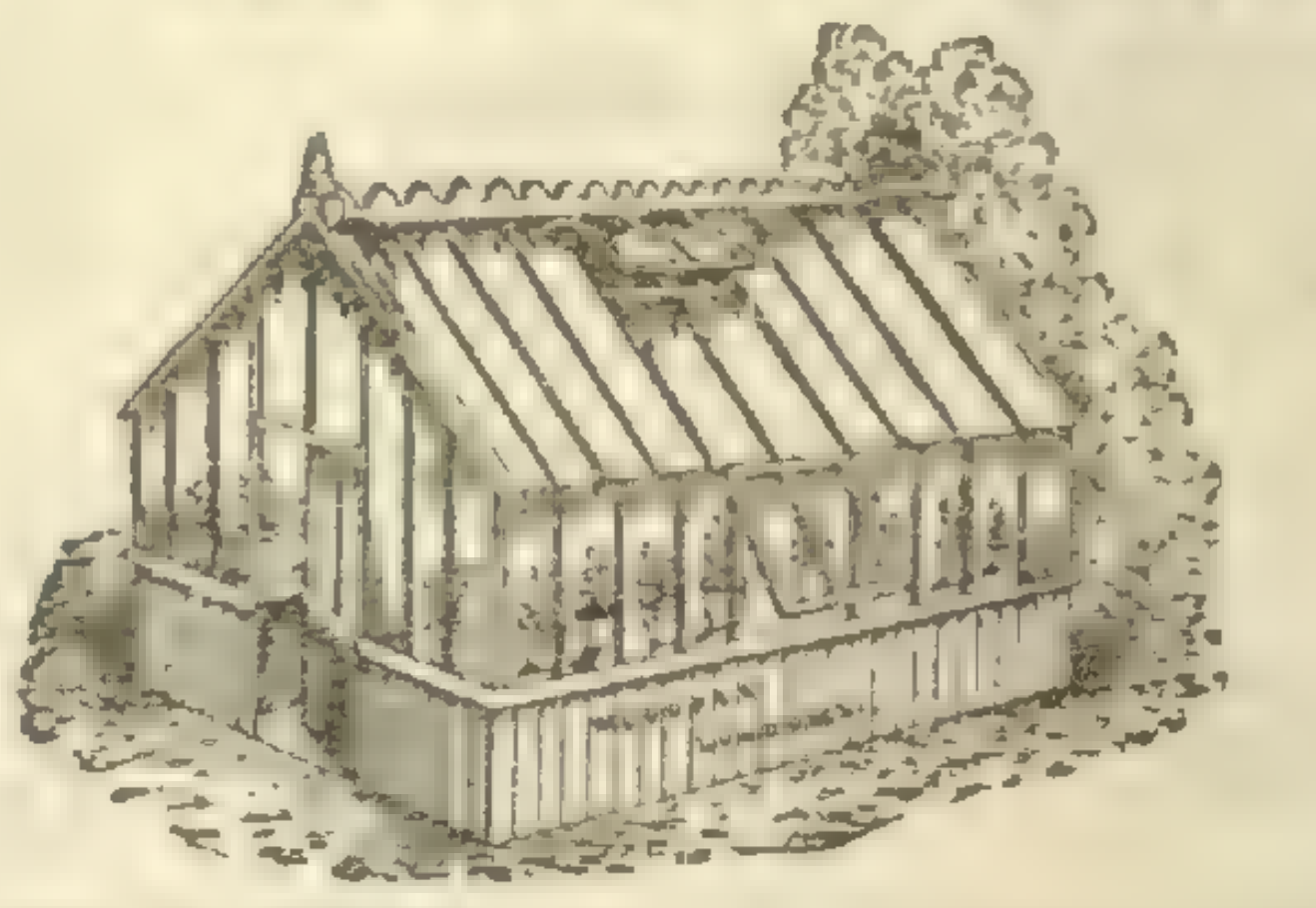

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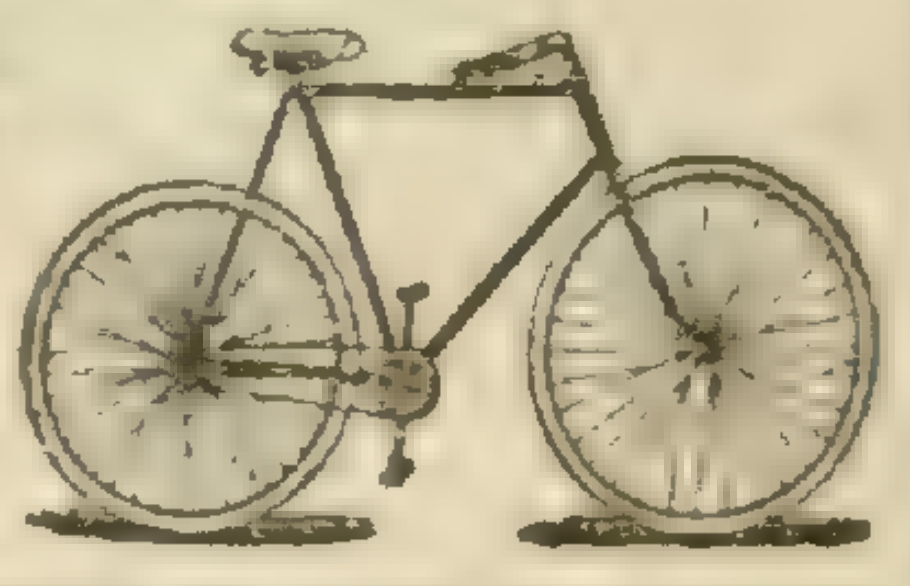

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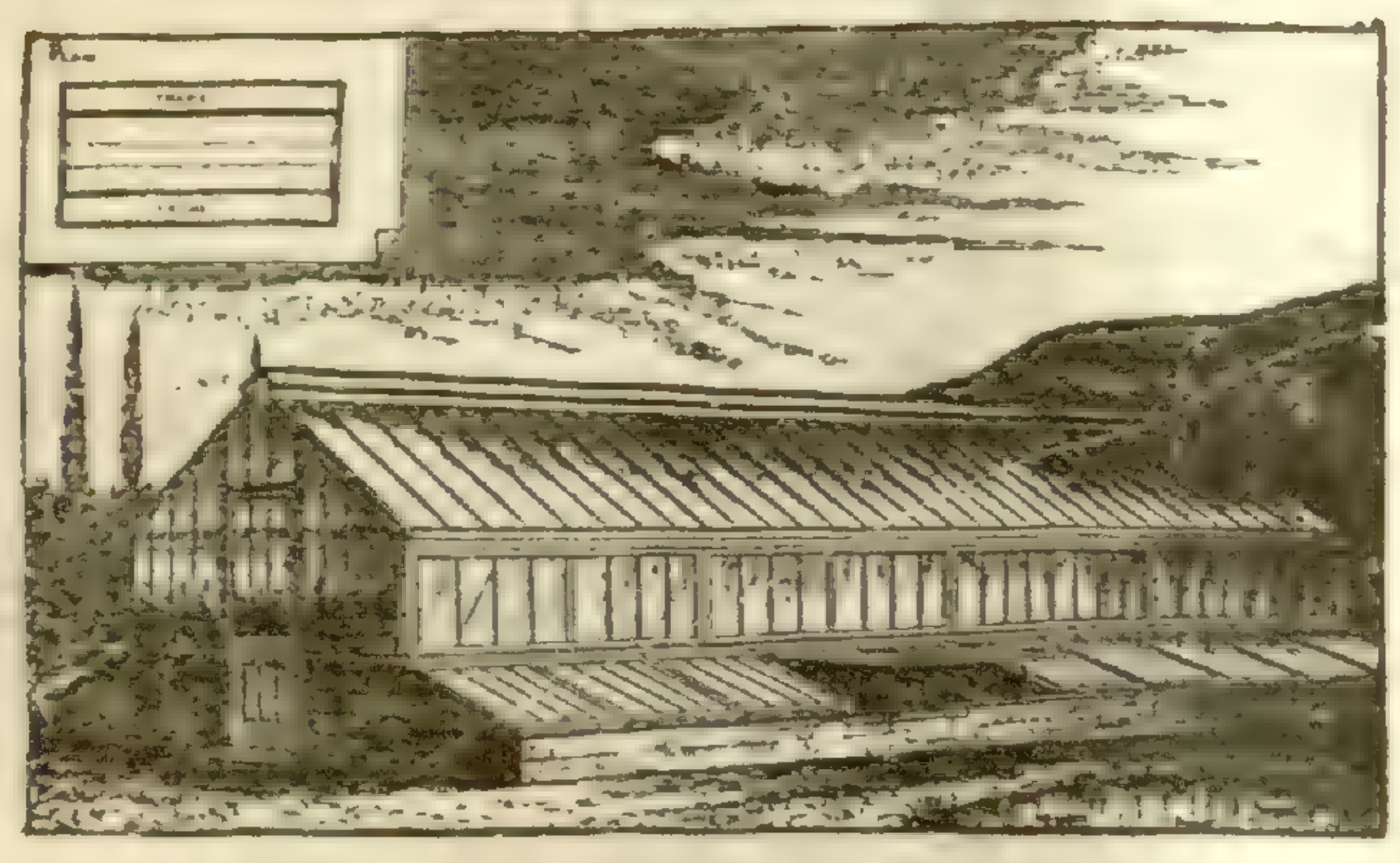

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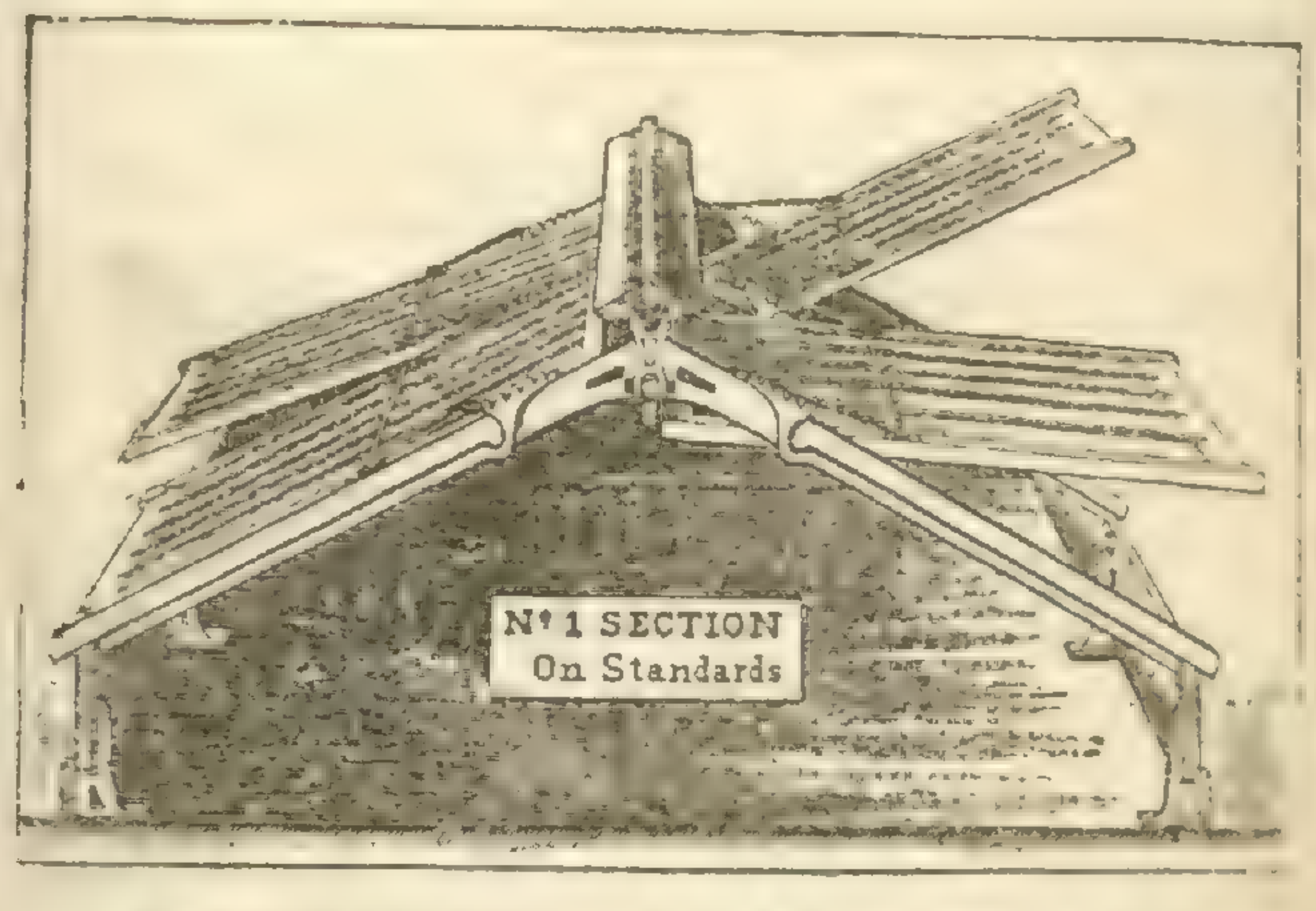

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MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, Cheapside, London, E.C., on the above dates, at Eleven o'clock each day, large consignments of named HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH BULBS, together with WHITE ROMAN HYACINTHS, and PAPER-WHITE NARCISSUS, received direct for unreserved Sale, and lotted to suit the Trade and other large buyers. Lots packed and forwarded to all parts.

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THE KING OF THE TRIANÆS!
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" insigne, var. Luciana;
" " " castaneum;
" " " aureum;
" " " delectum:
" " " Lindeniæ, &c.
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" " " excellens;
" " " Ballantini, &c.
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" " " nobilis, &c.
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Cattleya Mossiæ, var. Comte de Flandre;
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☞ See GARDENERS' MAGAZINE, September 17 last, page 603.

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Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

THREE INSERTIONS FOR THE PRICE OF TWO!

A LADY, giving up her establishment, wishes to highly RECOMMEND her gardener (Head-working); experienced in all branches; married; fifteen years' character.—J. M., The Gardens, Eversfield, Reigate.

AS GARDENER (Single-handed or with boy); thoroughly experienced, Inside and Out; good reference.—Apply, F. C., 24, Bennett Street, Buxton, Derbyshire.

AS SECOND (where four or more are kept, or small place where help is given); understands glass, fruit, flowers, and vegetables; six years in last place; age 30; single; good references.—ABBOTT, Wetherden, Stowmarket, Suffolk.

AS GARDENER (Single-handed); experienced; Inside and out; good reference; three years [illegible] place; age 23; abstainer.—Apply J. G. C., 8, Warners' Lane, Church Gate, Loughborough.

FOREMAN.—George Picker, The Gardens, Hesslewood, near Hull, would be pleased to RECOMMEND his Foreman, George Sage, to any gardener requiring the services of a reliable young man; age 27; the cause of leaving, the breaking up of the establishment.

GARDENER (Head) lately returned from America, open for ENGAGEMENT; age 30; married; well up in growing and laying-out; six years' character from last situation.—T. B. MILLS, Brewery Road, Nailsworth, Glos.

GARDENER.—Admiral Sir W. G. Luard wishes to RECOMMEND his Gardener as HEAD, where two or more are kept; thorough practical man inside and out; ten years' reference; age 30; married, one child.—R. S., Lodge Cottage, Witham, Essex.

GARDENER (Head Working); age 33; married.—A Gentleman wishes to RECOMMEND G. STRICKLAND, who has been with him two and a half years as general foreman; eighteen years' experience in all branches of gardening, two years previous as foreman.—G. STRICKLAND, Elston, Newark-on-Trent.

GARDENER (Head); age 36; married, no family; first-class fruit, plant, and vegetable grower; twenty years' practical experience; highly recommended.—W. COLEMAN, 2, Montague Road, Datchet.

GARDENER (Head), where one or two are kept, or Single-handed; age 31; single; life experience in all branches; abstainer; good references.—GARDENER, 9, Myrtle Terrace, Crawley Road, Horsham, Sussex.

GARDENER (Head, or good Single); good all-round man; Inside and Out; life experience; age 40; married; wife help in house if wanted; good characters present and previous employers.—F. OSBORNE, The Gardens, Corner Hall, Hemel Hempstead.

GARDENER (Head Working), age 30; thoroughly practical in all branches; six years' excellent character as General Foreman here, two and five previous.—[illegible] PARKER, Gilston Gardens, Harlow, Essex.

GARDENER (Head Working or good Single handed); thorough knowlege of stove and greenhouse, kitchen garden, vines, peaches, melons, tomatos; age 38; married; small family, youngest seven; four and a half years' character from last place.—W. DAVIS, Chingford Road, Walthamstow, Essex.

GARDENER (Head-Working, where two or three are kept); experienced in all branches of gardening; age 38; married, one child; six years in present situation. —Address F. GOODWIN, Duns Tew, Deddington, Oxon.

GARDENER (Head-Working); age 30; life experience; thoroughly understands flowers, fruit, and vegetables, including orchids and carnations; well recommended by past and present employers.—J. DAWSON, Rangemore Gardens, Burton-on-Trent.

GARDENER.—WANTED, SITUATION as good Single-handed, or where two are kept; last situation twelve years; leaving through death of employer.—W. HANINGTON, 239, Boxley Road, Maidstone.

GARDENER (Single-handed or Second), where three or four are kept; nine years' experience; age 25; first-class references.—B., Fortismere Cottage, Fortis Green Road, East Finchley, N.

GARDENER (good Single-handed), or where help is given; good references; thoroughly understands flowers, fruit and vegetables; age 25; married.—H. HIGGS, Updown Hill, Windlesham, Surrey.

GARDENER (Single - Handed, or with assistance given); age 34; married; experienced in all branches.—C. TRANSOM, 53, Danbrook Road, South Streatham, S.W.

GARDENER (Single-Handed); age 48; married; fourteen years' good reference; understands greenhouse, flower, and kitchen garden.—Address W. S., 5, Stoneyard Place, Lee, Kent.

GARDENER (Single-Handed, or one Under); age 27; twelve years' experience; Inside and Out; three years in present place; married when suited.—For references apply J. SYKES, 18, Percy Terrace, Hendon, Sunderland.

GARDENER (Second, or Single-Handed); ten years' experience; Inside and Out; age 23; good testimonials.—G. G., 39, Evelyn Street, Deptford, S.E.

GARDENER (Second); age 23; where several are kept; eight years' good all-round experience; Inside and Out; decorations; well recommended.—RUSE, Brockham Park Gardens, Betchworth, Surrey.

LAD, aged 16½ years, WANTS SITUATION under gardener; two and a-half years in garden; good character; small premium if required.—A. G., Wickham House, West Wickham, Kent.

MAN, young, SEEKS SITUATION on Gentleman's Estate, or Caretaker; good plumber, gas and hot water fitter; handy at other branches; long references PLUMBER, 18, Beversbrook Road, Upper Holloway, London, N.

RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c. St. John's Nurseries. Worcester.

SITUATION WANTED as Head Working Gardener, where two or three are kept; or good single handed with help; age 35; married; one girl, age twelve; twenty years' good practical experience, inside and out; excellent references.—D., Friars' Lodge, Matfield, Paddockwood, Kent.

SITUATION WANTED by young man; age 20; Inside and Out preferred; two and a-half years' good character from last situation.—Address W. GREEN, Back Road, Old Catton, Norwich, Norfolk.

UNDER GARDENER, Inside and Out; life experience; good character from present employer; age 22; single; state wages.—E. STRACEY, Shrubs Hill Sunningdale, Berks.

UNDER-GARDENER, age 19, SEEKS SITUATION; six years' experience; Inside and Out; total abstainer; disengaged.—H. BINNEE, Sudbury Grove, Sudbury, Harrow, Middlesex.

WANTED, SITUATION as Head-Working GARDENER where three or more are kept; age 35; married, one child; highest references.—J. W., 37, York Road, Caversham Road, Reading.

YOUNG MAN, single, strong and willing, SEEKS SITUATION under good man, either in large or smaller place; leaving through no fault; Churchman.—H. C., Monkton, Taunton, Somerset.

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A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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GOLDEN SPUR, a fine large deep golden yellow variety. Per 100 21/-, per doz 3/-.

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BICOLOR HORSFIELDII, petals pure white, trumpet, golden, handsome; very early. Per 100 17/6, per doz. 2/6

INCOMPARABILIS Sir Watkin, a very handsome large flower, petals sulphur, cup rich orange-yellow. Per 100 25/-, per doz. 3/6

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TRIANDRUS ALBUS (Angel's Tears), a gem on rockwork, pretty cream-coloured flowers, petals reflexed. Per 100 8/6, per doz. 1/3.

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HYACINTHS, TULIPS,
AND ALL OTHER
DUTCH, CAPE, and EXOTIC
BULBS AND PLANTS.

Our Descriptive CATALOGUE of the above, containing FULL CULTURAL DIRECTIONS, and particulars as to FREE DELIVERY, will be sent post free on application to our Offices, at OVERVEEN, near HAARLEM, HOLLAND, or to our General Agents,

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SOME SORTS OF BULBS NOTED OUT PRICE LIST.

	Per 100		1,000	
Single Anemones, in fine mixture	1	2	11	0
Crocus, II. size, in fine mixture	0	8	6	3
Crocus, I. size, in fine mixture	1	4	10	2
Hyacinths, mixed, for bedding or forcing ...	9	8	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection ...	17	6	—	
Iris Kæmpferi (Japan Iris), in fine mixture ...	5	0	40	0
Iris Germanica (Flag Iris), in fine mixture ...	7	0	65	8
Iris Sibirica, in fine mixture	5	0	40	0
Iris Spanish, in the finest mixture	0	7	5	0
Lilium Candidum, single, pure white	10	0	—	
Montbretia croscosmiæflora, orange scarlet ...	1	6	—	
Narcissus campernel Jonquil, yellow	1	2	10	0
Narcissus, double, Incomparable, primrose ...	1	6	14	0
Narcissus van Sion, single, yellow trumpet ...	2	6	23	4
Narcissus Stella, white, yellow cup	1	4	12	6
Gladiolus Marie Lemoine, fine	2	0	19	2
Gladiolus Brenchlyensis, deep scarlet	2	6	20	0
Scilla Sibirica præcox, intense blue	1	2	10	0
Tulips, single early, in the finest mixture ...	1	2	10	0
Tulips, double early, in the finest mixture ...	1	6	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	20	0
Grape Hyacinths, blue	0	7	5	4
Anemone japonica, rose	5	0	—	
Hemerocallis (Day Lily), mixed	8	0	—	
Pyrethrum, fine double, pure white	15	0	—	
Tritoma uvaria (Red Hot Poker)	14	6	—	
Sparaxis, in fine mixture...	0	8	6	0
Funkias, in fine mixture	10	0	—	
Gladiolus Colvilli, white	1	2	10	10
Hyacinthus candicans, white	5	0	45	10
Iris pumila, mixed	4	0	—	
Lilium umbellatum, red	10	0	—	
Snowdrops, Elwesi	2	0	18	4

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THE GARDENERS' MAGAZINE.

SATURDAY, SEPTEMBER 24, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY, ROYAL AQUARIUM, WESTMINSTER.—Grand Japanese Chrysanthemums, Groups of Plants, Table Decorations, Deverill's Onion, and other Vegetable Prizes. OCTOBER 11, 12, and 13, 1898. Schedules of Prizes on application to
RICHARD DEAN, V.M.H., Secretary, Ranelagh Road, Ealing, W.

THE
BRISTOL CHRYSANTHEMUM SOCIETY (in consequence of the Great Fire at the Colston Hall) will hold their 35th ANNUAL SHOW in the
DRILL HALL, QUEEN'S ROAD,
ON WEDNESDAY, THURSDAY, AND FRIDAY,
NOVEMBER 16, 17 and 18 next.
Special Classes and Prizes for Amateurs: Twelve Guiuea Challenge Vase to be competed for, and a Five Guinea Challenge Cup for Amateur Competion. The Veitch Memorial Prize for Grapes. Gold, Silver, and Bronze Medals, Solid Silver Cups, &c.
Schedules free of the Secretary,
EDWIN G. COOPER,
Mervyn Road, Bishopston, Bristol.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The ANNUAL DINNER of this Society will take place at the HOLBORN RESTAURANT on WEDNESDAY, OCTOBER 5, at 6.30 p m.
MR. GEORGD BUNYARD, V.M.H., will preside. Tickets 5s. each, to be had of the Secretary,
W. COLLINS, 9, Martindale Road, Balham, S.W.

TO SECRETARIES OF FRUIT SHOWS, &C.—JUDGING OF FRUITS, FLOWERS and VEGETABLES, by STEPHEN CASTLE. F.R.H.S., Consulting Horticulturist, Bottesford Vineries, Notts.
Terms on application. Telegrams, "GRAPES," BOTTESFORD.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

FRUIT STORAGE.

THERE is unquestionably some room for a difference of opinion as to whether it is more profitable to store late-keeping apples and pears grown for market, especially the former, until they are approaching maturity, or to sell them within a short time of gathering, as so much depends upon local conditions. But there can be no question as to the importance of storage in the case of the supplies of varieties intended for late use, and the experienced cultivator makes his arrangements accordingly. The question of fruit storage is, therefore, one that immediately concerns all who are engaged in the production of supplies of hardy fruits for private establishments, and, consequently, should have fuller consideration than is bestowed upon it by the general body of cultivators. It is essential the trees should be carefully pruned, kept free from insect enemies, and supplied with fertilisers, according to individual requirements, to ensure an abundant harvest; but unless the fruit is stored under conditions favourable to it keeping satisfactorily the efforts of the cultivator will not be of much avail. An immense improvement has of late years been effected in the method of storage in many instances, and when we call to mind the admirably arranged, yet inexpensive, fruit rooms that are to be met with in many gardens, it is astounding so large a number of makeshift contrivances that are in existence should be tolerated. In some instances we find a shed at the back of a forcing or plant-house converted into a fruit room; in others a loft over a stable is considered to be an admirable place for the storage of choice fruits, and we might give other examples in which the fruit is placed under conditions equally unfavourable to keeping its full length of time, and attaining to a high state of perfection. But these must suffice for the purpose of showing that there is in many instances an urgent necessity for reform, and impressing upon the owners of gardens that they cannot have fruit of high quality unless they provide a proper place in which to keep it until it is ready for the table. We know that many cultivators fail to obtain permission to execute their plans and erect fruit rooms in accordance with advanced ideas, because of the somewhat prevalent belief that a properly equipped fruit room is costly to build. But, as the experienced fruit grower is so well aware, there is no justification for the views held upon this point. It is not difficult to expend a considerable sum in building and fitting up a fruit room; but the results will not be more satisfactory than those obtained from an inexpensive structure, provided, of course, it is designed on proper lines. It matters not if the room be severely plain, provided it is so constructed that the fruit is not exposed to sudden or material changes of temperature, to a parching atmosphere, or an excess of atmospheric humidity. An equability of temperature is readily obtained by means of hollow walls or double sides of wood, the intervening space of the latter being packed with some dry non-conducting material, and thatched roofs some eighteen inches in thickness. The hygrometric conditions of the air can be easily regulated by the ventilators, but in the case of apples very little ventilation will be necessary. The desirability of providing separate rooms for apples and pears where the quantity of fruit is sufficient to justify this being done cannot be too strongly insisted upon, as apples keep in the most satisfactory condition in a structure in which a low temperature and a moderate degree of atmospheric humidity are maintained; while pears require a moderate degree of warmth and a dry air to ensure the full development of their colour and flavour.

WATER.

THE abnormally long spell of drought under which all plant growers are now suffering brings home to us the immense importance of a commodity of which usually the abundant supply vouchsafed by Nature renders it one of those common things which we take as matters of course without troubling our brains about them. When we do give it a thought, we regard water as a mere adjunct to our comfort, and forget that, taking our world as a whole, we earth-dwellers occupy but a minor part of it, and certainly form a very decided minority in the whole census of the vitality which peoples it. Not only do the ocean areas form a watery empire far exceeding in extent that of the land, but the land areas are invaded and occupied by an innumerable army of watery settlers in the shape of lakes, little and big, grading down to ponds and puddles, and also permeated in all directions by these channels of supply, grading up from the thread-like rills of water, the offspring of the latest shower, to mighty rivers of hundreds or even thousands of miles in length. Above a certain level, too, even in the Torrid zone, water again monopolises the earth's surface in the shape of perpetual snow and ice, and at both poles does this so thoroughly that man himself, with all his arts and sciences, is baffled in his attempts at penetration. This, however, by no means defines the extent of the watery domain; the very air is pervaded with it in its invisible form of vapour; and going further still, instead of its being a mere adjunct to our comforts, man and all living things are mainly built of it, and our needs of it, whether for ourselves or our plants, are mainly dictated by the necessity of keeping up the internal supplies to prevent ourselves and them from shrivelling into comparative nothingness. Man forms the one exception among created beings whose needs are not satisfied by his bodily supplies, he has pressed water into his service in many other ways, and by allying it with heat profits by its expansive force under such alliance, not merely to make it do the bulk of his work on land, but to turn traitor, as it were, and enable him to invade the ocean's wide expanse as easily and almost as rapidly as he does that of the dry ground. Thanks to its beneficent invasion of the land, invisible as aerial vapour, or visibly in the form of legions of clouds, not only are our lovely landscapes shaped into hill and dale by the resulting rains, but are clothed with all the beautiful vegetation in which we plant lovers revel. Thanks to the cloudy army sweeping athwart the skies from their birthplace in the ocean, not only do our gardens teem with flowers, but our islands are clad with verdure from end to end, our country is seamed with waterways, and the immense majority of our enjoyments and pleasures may be traced to the use of the facilities and forces afforded by, and derived from, the water thus conveyed to us. Small wonder, then, that a perceptible diminution of the rainfall, extending over months, should cause a general sigh for a restitution of the average, and groans from not a few gardeners at the sight of their floral pets suffering the dire distress of drought which is now so general.

NAMING SPECIMENS AT EXHIBITIONS.

IT is evident that managers of flower shows are in many cases becoming very lax in the enforcement of regulations relating to the naming of specimens exhibited, with the result that a considerable portion of the competitive gatherings annually held are shorn of much of their educational value. The object of flower shows is to promote improved methods of procedure in garden management, and this object is necessarily accomplished by presenting to public notice the highest forms of cultural excellence, the diffusion of a knowledge of plants, flowers, fruits, and vegetables by the encouragement of representative collections at the exhibitions, and by affording cultivators an opportunity of becoming acquainted with the finest of the types in the several sections. Therefore, when the naming of the specimens is systematically ignored the exhibition must of necessity fail to accomplish the object for which it was held; and it appears to us a great waste of time and money to hold a show that cannot be of much benefit to the district beyond providing a pleasant holiday. Of what advantage, we would ask, is it to exhibit plants grown to the highest degree of perfection unless those interested have an opportunity of learning the names of the plants represented by the specimens? Of what avail is it to the cultivator to have improved varieties of flowers, fruits, and vegetables presented to his notice unless he can ascertain the names, and be thus in a position to obtain them if he so desires? The answer to each of these questions is obvious, and we trust that something will be done to improve matters in the direction indicated. Within the past few weeks we have visited several exhibitions, at which not a single object other than trade collections had a name attached to it, and in the course of the present summer we have observed at exhibitions considerably increased numbers, as compared with previous years, of collections unnamed. There is some difficulty in putting into force a rule that shall be effective in making naming imperative ; because the omission of a single name through inadvertance, or the removal of a card in the interval between the exhibitor putting the finishing touches to his products and the judges making their awards, would be followed by disqualification. We have no wish to increase the risk of disqualification, and therefore would not penalise collections in which a few of the objects were not named ; but we would suggest that a rule be put into force preventing those entering into competition which are wholly unnamed. It should also be insisted that the names be legible, and so placed that no doubt can arise as to which objects they belong. In the naming of dahlias there is much room for improvement, and we hope the time will soon come when the dahlia growers will substitute for the cumbersome, and otherwise unsatisfactory slips now in use, neat labels, such as are employed by exhibitors of roses and chrysanthemums.

Her Majesty's Horticultural Exhibits are always looked upon with the greatest interest, whether displayed at the Drill Hall, the Crystal Palace, or the Waverley Market, for not only are they from the gardens of the Queen, but they are examples of high horticultural skill, while considerable artistic merit is displayed in their arrangement. Readers will be interested to learn that Her Majesty was an exhibitor at Edinburgh a few days ago, as a result of the work done by the GARDENERS' MAGAZINE. It came about this way. A copy of the GARDENERS' MAGAZINE for October 9, 1897, was placed in the hands of Mr. P. Murray Thomson, the new and energetic secretary of the Royal Caledonian Society, and that issue contained an illustration, from a photograph, of the Queen's Exhibit of Fruit at the Crystal Palace Fruit Show a week previous. Mr. Thomson was so pleased with the display as represented and described in our columns, that he wrote to Mr. Owen Thomas, Her Majesty's gardener-in-chief, desiring him to make a display in loyal Scotland at the autumn exhibition of 1898. The request was laid before Her Majesty and readily granted, much to the delight of Edinburgh horticulturists. We believe that Her Majesty will also make a display of horticultural produce from Frogmore in Ireland at an early date.

Cure for Wasp Stings.—Dr. H. Shackleton, of West Hill, Sydenham, writes as follows : Referring to your note about wasp stings in your issue of the 17th inst. I don't think it would be wise to try hypodermic injections of cocaine in the tongue without medical advice, for several reasons ; among others, because the risk of collapse from such is a serious consideration with some people ; secondly, the danger of using a needle which has not been sterilized ; and again, it is not a very easy operation in that place, and the application of a fairly strong solution on the surface ought to suffice, as the mucous membrane absorbs the cocaine rapidly. A ten per cent. solution would be strong enough for the mouth, but for general use a twenty per cent. solution might be kept in readiness, and, of course, by adding an equal quantity of water at the time this would be available for tender parts. If the solution is made in camphor water it will keep well. But I certainly think the application of some alkali, such as ammonia, should at first be the rule.

Perpetual-fruiting Strawberries, if not fully justifying their distinctive title by producing an abundance of fruit throughout the year, give a continuous supply during the summer and autumn months, and are consequently useful in gardens where a supply of strawberries is required after the usual summer crop has been gathered. The Alpine strawberries, which have not as yet attained to so high a degree of popularity in this country as in France, are more continuous in fruiting than are the garden varieties which have descended from the Chilian and Virginian forms, and the refreshing fruit is highly appreciated by those who have acquired a taste for it. For some years past efforts have been made by the French raisers to combine the perpetual character of the Alpine varieties with the large fruit and luscious flavour of the ordinary varieties, and the success achieved has been sufficient to encourage them to persevere with the work in which they are engaged. One of the most important of the results of inter-crossing the two sections is the variety known as St. Joseph, which was so well shown at Westminster, on Tuesday, when an Award of Merit was made in its favour. This has fruit and foliage similar to those of the varieties of which the Chilian and Virginian strawberries were the progenitors and the continuous fruiting character of the Alpines. The fruits remind one of small examples of Keen's Seedling, and they are agreeably flavoured, and it was interesting to observe that they were being plentifully produced both by the old plants and the runners of the current season shown by Mr. Hudson, who considers St. Joseph a distinct acquisition to late strawberries, and we are in full agreement with him.

The Flora of China is so rich as to involve a large amount of work upon those who devote any considerable share of attention to its investigation. The enumeration of Chinese plants in the Journal of the Linnean Society is near completion in its original form ; but a long time must elapse before the enormous accumulation of additional material can be worked out. Dr. A. Henry has recently presented to the Royal Gardens, Kew, a further collection of some 2,500 numbers, which, he estimates, contains about 2,000 species. This collection is from Eastern Yunnan, and it has been roughly classified and some of the more striking novelties taken out for early publication in Hooker's *Icones Plantarum*. The novelties are numerous, but no distinct or obviously new generic type was detected in the sorting. Messrs. Bourne, Carles, Ford, and Hancock, and other correspondents, have sent smaller, though not less interesting, collections to Kew.

Fertilisation of Plants.—Mr. Francis Darwin discussed, at some length, at a meeting of the botanical section of the British Association, the origin and use of the Knight-Darwin law, which has been rendered familiar to botanists through Müller's well-known work on the fertilisation of flowers. Knight's share of the law would appear to be that he made the general statement of the tendency to cross fertilisation among hermaphrodite plants. In considering Charles Darwin's share Mr. Darwin gave an interesting sketch, illustrated by numerous quotations, of the definite statements of opinion on the question of flower fertilisation which appeared in Charles Darwin's works. The point emphasized was the misuse of the expression of the Knight-Darwin law. The statement that "Nature abhors perpetual self-fertilisation" would be a more correct enunciation of the law than the statement that "no organic being fertilises itself for an eternity of generations," though the latter was the more generally accepted as correct. Charles Darwin's generalizations might be stated as follows : (1) Fertilisation of some kind is of paramount importance ; (2) the vast majority of flowers being open justifies the conclusion that there is some advatage in cross as compared with self-fertilisation, which advantage makes it worth while for flowers to run the risks and incur the expenditure necessarily connected with openness, but avoidable by cleistogamy ; (3) direct experiment demonstrates the nature of this surmised advantage of cross over self-fertilisation. Finally, Mr. Darwin said that these generalisations, which were in substance to be found in Darwin's works, were still the foundation-stones of floral biology, and would stand as firmly if the Knight-Darwin law had never been formulated. What he really objected to was the tendency among some writers to fix down the whole of Charles Darwin's writings into the Knight-Darwin law ; then, when an exception from that law occurred, to declare that it would not hold ; and to throw over not only the law, but all those principles and generalisations which could only be obtained from a general understanding of Charles Darwin's works.

Forest Education of a scientific character has hitherto received but little attention in America as in this country, but its value is now recognized in the United States and in April of the present year the New York State Legislature passed an Act authorizing the trustees of Cornell University "to create and establish a department in the university to be known as, and called, the New York State College of Forestry, for the purpose of education and instruction in the principles and practices of scientific forestry." In the same Act, provision was also made to establish a Demonstration Forest of not more than 30,000 acres in the Adirondacks, to be purchased out of the funds set aside for the Forest Preserve Board, and to become the property of the Cornell University for the term of thirty years, and to be used for demonstrations of practical forestry. The sum of 10,000 dollars has been granted for the organisation and maintenance of the College and Demonstration Forest. This institution, the director of which is Professor B. E. Fernow, has been organized and the prospectus shows that the college will furnish systematic instruction in the science and art of forestry. The provisions for teaching the science relating to forestry in the university are ample, while the connexion of the demonstration area within the College of Forestry will furnish additional advantage for original work, research, and experimentation, in advancing the science and art of forestry. Some time must elapse before the College Forest is in the best shape for demonstrative purposes, but there is every promise that the institution will prove a success.

An Interesting Fern.—Mr. A. C. Seward has prepared an account of the external characters, internal structure, and geological history of a rare species belonging to the genus Matonia. The anatomical investigation of this fern was founded on some material received through the kindness of Mr. Shelford, of the Sarawak Museum, Borneo. Matonia is now represented by two species—M. pectinata and M. sarmentosa—both confined to the Malay Peninsula and Borneo ; in the Rhætic, Upper Jurassic, and Cretaceous rocks several closely allied ferns have been found. Matonia pectinata occurs at high altitudes—three thousand feet to five thousand feet—growing in damp places in the jungle. Its rhizome creeps along the surface of the ground and gives off long and slender petioles four feet to six feet long, which are divided into about twenty pinnæ with slightly foliated ultimate segments. The sori consist of five to eleven sporangia, covered by a circular indusium. The stem of Matonia pectinata is characterised by an arrangement of vascular tissue which appears to be peculiar among recent ferns. The rhizome is thickly covered with a felt of dark brown multicellular hairs, and the leaves are not given off in the usual regular order of succession. Matonia—so far known only as regards its external characters—has usually been considered as a type apart, and some writers have assigned it to a separate tribe of ferns. The anatomical characters fully bear out the isolated position of the genus. Among ferns Matonidium and Laccopteus agree very closely with the recent Malayan fern. There can be little doubt that the two living species of Matonia are the sole survivors of a tribe of ferns which in the Mesozoic period had a wide geographical distribution.

The Royal Caledonian Horticultural Society's exhibition, fully reported in our issue of September 17, proved a financial as well as a horticultural success. Her Majesty's exhibit was, of course, a great draw, and a gold medal was awarded her able gardener, Mr. Owen Thomas ; a similar award was made to Messrs. J. Veitch and Sons, Chelsea, while silver medals were secured by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham ; Messrs. W. Thomson and Sons, Clovenfords ; Messrs. R. Wallace and Co., Colchester ; and Messrs. and W. Buchanan, Kippen. Special awards were made to Messrs. M. Campb Blantyre ; Dicksons and Co., Edinburgh ; J. Downie ; Dobbie and C Rothesay ; J. Cocker and Sons ; M. Cuthbertson, Rothesay ; J. Forbes, Hawick ; A. L J. Grieve and Sons ; C. Irvine, Jedburgh ; Kerr Brothers, Dumfries ;

and Son, Rothesay; R. B. Laird and Sons, and T. Methven and Sons. Certificates were awarded to Mr. W. Angus, Aberdeen, for a double sweet pea; to Diamond Jubilee Black grape, from Messrs. D. and W. Buchanan; and to Mr. M. Campbell, for a yellow carnation named Miss Alley. The takings at the Waverley Market were above the average, but not quite so large as at the Diamond Jubilee Show of 1897. On the 16th inst. the fruit exhibited by Mr. Owen Thomas was by command of the Queen distributed by the council among certain of the Edinburgh hospitals, and thus was a very pleasant finish made to the work in connexion with the Caledonian Society.

The Belladonna Lily (*Amaryllis belladonna*) is now contributing liberally to the attractions of gardens in which it is successfully cultivated, and in many instances the crowds of delicate pink flowers are a veritable surprise even to some who have been engaged in gardening a sufficient length of time to justify their being regarded as veterans. There is, of course, nothing remarkable in the fact that the plant is now flowering, for this is its season to do so, and if we call attention to the fact it is not for the purpose of saying that it is flowering at its usual season, but to remind cultivators of the existence of one of the most beautiful hardy plants that have a place in the floral procession. There should be no occasion for this reminder, but there are many thousands of gardens in which it would make a vigorous growth, and produce a wealth of flowers that do not contain a single bulb. Why a plant so beautiful, inexpensive, and easily cultivated has not been more generally planted is not easily determined, but it is probable that a want of appreciation of the importance of the essential cultural details has been a hindrance. Like other bulbous plants from the Cape a thorough season of rest is necessary, and as experience has shown, this can only be had when the bulbs have the advantage of a little additional warmth from an adjoining wall, and are kept comparatively dry during the winter. These essential conditions can be obtained by planting at the foot of a wall with a south or west aspect, previously placing in the bottom of the border six or eight inches of crocks or broken bricks, and covering the layer with half-rotten manure. There are but few gardens in which a suitable position could not be found for a few dozen bulbs and to show its suitability for widely separated districts it will be of interest to mention that it is equally at home at St. Fagan's Castle, South Wales, and at Harewood House, near Leeds, one of the coldest parts of Yorkshire. At Kew it blooms profusely, and extremely beautiful displays are annually produced in several narrow borders alongside the plant houses. Amaryllis belladonna is figured in the comparatively rare folio by Philip Miller, published in 1760 under the title of "Figures of the most Beautiful, Useful, and Uncommon Plants," and according to the accompanying letterpress there was then considerable doubt as to the native country of the plant, and this doubt does not appear to have been satisfactorily cleared up until quite recently. It was said to have been collected by Sir Hans Sloane in Barbadoes, but Miller states that he was unable to obtain bulbs from the island. It seems to be quite clear that it was introduced into this country in 1812 from Portugal, by, writes Miller, "a gentleman who had long resided in that country who informed me that the roots were brought from India into that country, and were propagated by some curious persons in their gardens." Miller also states that he had received from Holland, whence it had been brought from the Cape in 1754, a species with paler flowers, and blooming in the spring. Forty-five years after the publication of Miller's work, the Belladonna Lily was figured in the *Botanical Magazine* (t 733), but Curtis evidently knew nothing definite as to its native country, for he considers it "more than probable that it is a Brazil vegetable." At that time (1804) the bulbs were imported in large quantities from Portugal.

Retention of Odours.—The power of a smell to cling to a substance seems, in Professor Ayrton's opinion, to depend neither on the intensity of the smell nor on the ease with which it travels through a closed space. Musk has but a faint smell, but the recollection of the greeting of a rich Oriental survives many washings of the hands. The smell of rose leaves, again, is but faint, and it travels very slowly through air in a tube; and yet the experiments on its propagation in the glass vacuum apparatus were rendered extremely troublesome, by the difficulty experienced in removing the traces of the smell from the glass between the successive tests. Rubbing its surface was quite ineffectual, and even the mercury had to be occasionally shaken up with alcohol to free it from the remnant smell. This absorption of scent by glass, and the ease with which jasmine flowers could be distinguished from woodruff leaves, even when each was enclosed in a series of three envelopes specially prepared from glazed paper, and when many precautions were taken to prevent an odour being given to any of the envelopes in the operation of closing, as well as to prevent its diffusion through the joints in the paper, led Professor Ayrton to try whether an actual transpiration through glass could be detected with the nose. For this object a number of extremely thin glass bulbs were blown from soda and from lead glass, so thin that they exhibited colours like a soap bubble, and felt, when gently touched, like very thin oiled silk, and after a little ammoniated lavender, amyl nitrate, ethyl, sulphide, mercaptan, solution of musk, oil of peppermint, and propylamine had been introduced into them respectively, they were hermetically sealed, and placed separately in glass stoppered bottles. In some cases, on removing the stopper from a bottle after many hours, a faint odour could be detected, but so, generally, could a minute flaw after much searching; the crack, however, being so slight that it did not allow sufficient passage of the air to prevent the bulb subsequently breaking, presumably from changes of atmospheric pressure. In those cases where a smell was detected without any flaw being found in the glass, the subsequent breaking of the bulb put an end to further testing, and the question therefore remains unanswered.

Agricultural Education and Research.—Major Craigie states in his annual report to the Board of Agricultural on the distribution of grants for agricultural education and research in 1897-98, that the total amount distributed during the financial year to each of the fifteen institutions receiving assistance was £7,200, as compared with £7,000 in the previous year. The grants were made as follows: University College of North Wales, Bangor, £800—College farm, £200; Durham College of Science, Newcastle-on-Tyne, £800—College farm, £200; University College of Wales, Aberystwyth, £800; Reading College, £800; Yorkshire College, Leeds, £600; University College, Nottingham, £600; South-Eastern Agricultural College, Wye, £600; Cambridge and Counties Agricultural Education Committee, £500; Eastern Counties Dairy Institute, Ipswich (dairy instruction), £300; British Dairy Institute, Reading (dairy instruction), £300; Royal Botanic Garden, Edinburgh (class for foresters and gardeners), £150; Bath and West and Southern Counties Society (field experiments, £50; cider experiments, £50; Cheddar cheese research, £200); Highland and Agricultural Society (field experiments), £100; Agricultural Research Association, Aberdeen (field experiments), £100; Stewartry of Kircudbright Dairy Association (cheese discoloration inquiry), £50. The grants to the collegiate centres in England and Wales are of a general character, intended to assist and improve the local provision made for instruction in the higher forms of agricultural education. The thirty-two separate counties are thus provided with an efficient and economical means of systematising their local instruction, and of supervising demonstration plots and agricultural experiments by securing scientific advice and the assistance of qualified lecturers drawn from the collegiate educational staffs. The Durham College of Science and the University College of North Wales have been granted special assistance in consideration of their having taken farms for practical work and field experiments.

The Value of Trade Exhibitions was discussed at some length at the Omaha Convention of the Society of American Florists, and in the opening paper Mr. E. Cushman spoke strongly in favour of them. He said trade exhibitions are of vital importance to every one who has anything to sell. They furnish a good opportunity for every plantsman and dealer who would make a business success. They are a gathering of the same lines of business under one roof, for the purpose of showing what growers have to sell, and giving an opportunity for comparison and the extension of business acquaintance not otherwise possible. These gatherings of commercial men with samples of their goods, in conjunction with a large gathering of consumers, is one of the very best advertisements possible. The wideawake and practical men soon have the rough corners worn off at these shows, and usually the conceit taken out of them, if they have any. There are so many good things in connexion with these trade gatherings, Mr. Cushman said he was sure it must be a poor man who does not get value received for exhibiting or attending our conventions. With reference to the display of plants and flowers at home, Mr. Cushman observed—"Trade requires you to show the newest and best you have. You must fulfil this requirement, or lose custom. Show your goods, is a law of trade as essential to us as to any other line. Business men fully realised this, hence the great combination spending millions of dollars and resulting in our great expositions. Go into our cities and see the quantities of valuable goods placed attractively in large show windows, placed with all the skill and art that trained help and costly fittings can command, and you can form some idea of the value placed on trade displays in other lines of business. Our retail flower stores are not behind in this grand effort at display, for they, too, are abreast of the times in showing their beauties, with all the accessories of glass, gilt, and electric lighting. It is not possible for me to approximate the value of these displays to the business itself. I know a prominent florist who estimates the actual value of his window display at not less than fifty dollars per day, what its direct value to him is I cannot say, but that this one window has been of great indirect value to the balance of the city's flower trade, I have but little doubt. Through blistering summer, and frosty winter, that grand, beautiful live flower picture is feeding the hungry who cannot possess, and drawing the dollars from the rich who see only to possess. In the language of the proprietor of this store, 'they walk right in and buy.' Truly I believe this display is richer than the eye can see, and he who makes it is a benefactor of his race, be he the individual taken as an illustration, or any one of the hundreds making the same efforts."

Flax Culture.—It is evident from the recently issued returns that the cultivation of flax in Ireland is pursuing the same course as hop cultivation in England, only at a more rapid rate. This year's area of the flax crop is only 34,489 acres, or 24·3 per cent., practically one-fourth, less than that of 1897. Less than twenty years ago, in 1880, flax crops in Ireland occupied an extent of 157,534 acres. The areas of flax since then have shown a decrease continuous. This year's area of 34,489 acres barely exceeds one-third of that of four years ago, and is less than one-half of that of two years ago, so that the recent withdrawal of this important fibre crop from cultivation has proceeded at a rapid rate. Whether, as in 1884 and 1893, some effort may now be made to again extend the acreage remains to be seen. This year's area comprises 34,215 acres in Ulster, 146 acres in Connaught, 69 acres in Munster, and 59 acres in Leinster. The largest county areas of flax are 7,981 acres in Antrim, 6,205 acres in Londonderry, 5,840 acres in Tyrone, and 5,572 acres in Down.

United Horticultural Benefit and Provident Society.—The annual dinner of this admirably managed and otherwise excellent society will take place at the Holborn Restaurant on Wednesday, October 5, at half-past six p.m. Mr. George Bunyard, V.M.H., will preside, and a large muster of members and friends is anticipated.

The Granadilla (*Passiflora quadrangularis*) is fruiting now in a very free manner in the Royal Botanic Gardens, Edinburgh, where a specimen of this Nicaraguan plant is planted out, and its quaint four-angled growths trained up the rafters of an intermediate house. The fruits, of considerable size and egg-shaped, depend from the growths, and as there are about twenty of them hanging, the plant is quite a feature in the glass houses. The Granadilla is largely cultivated in the tropics for the sake of the purplish and sweet pulp that forms the bulk of the interior of the greenish-yellow fruits.

NEW PLANTS, FLOWERS, AND FRUITS.

Lælia splendens.

A charming hybrid, obtained by crossing L. crispa and L. purpurata, and one in which the former species is very evident. The sepals are narrow, with reflexed margins, pale rose; petals broad, prettily waved and crisped, also pale rose. Lip long, pure white along the tubular portion, creamy in the throat; front lobe very long and spreading, deep violet purple with pale wire-edge margin. A.M., R.H.S., September 20. Messrs. J. Veitch and Sons, Chelsea.

Cattleya intertexta.

A bold and beautiful orchid, obtained by inter-crossing C. Warneri and C. Mossiæ. The flowers are about seven inches across; the sepals are narrow and flattened at their apices, rose-purple; petals broad, somewhat waved at the margins, rose-purple with deeper veins. Lip very fine, two inches wide, and of an intense violet-purple hue stained with crimson-purple and margined with rose. A.M., R.H.S., September 20. Messrs. J. Veitch and Sons, Chelsea.

Miltonia Binoti.

A pretty but not very showy miltonia, free-flowering, and of neat habit; the flowers are about two inches across, sepals and petals buff, with a large and irregular rufous brown area on each; the bases are stained with rose. The broad and flattened lip is deep rose, shading to paler rose at the apex. This orchid is supposed to be a natural hybrid between M. candida and M. Regnelli purpurea. A.M., R.H.S., September 20. Mr. W. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

Miltonia leucoglossa.

A very pretty white-lipped miltonia with flowers over two inches across. The sepals and petals are almost equal, and spreading, creamy or greenish, with a cluster of deep purplish rose spots at their centres. The spreading lip is pure white, save for the rose and red stain near the creamy disc. A.M., R.H.S., September 20. Mr. W. H, White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

Dahlias.

Viscountess Sherbrooke is a bold and handsome cactus dahlia of good form, colour clear and bright orange. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co., Salisbury.

The Clown. This reminds one of Arachne in its colouring of white and scarlet, but it has broader segments, is bolder and of better habit. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co., Salisbury.

Countess of Lonsdale is a charming cactus dahlia with very spiky segments that are of a soft rosy-scarlet, a colour that is not far removed from deep salmon. A. M., R. H. S., September 20. Messrs. Keynes, Williams, and Co.

Progenitor is probably the first of a new race; it is a cactus form of the brightest scarlet colour; segments long and broad and much divided at the apex into a sort of elk's horn arrangement that gives the flower a most distinct and pretty appearance. The variety is not likely to be sent out for another year or so. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co.

The Duke is a most compact and neat pompon variety of a very bright crimson colour. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co.

William Neat is a good self show variety of a curious reddish terra-cotta colour. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co.

Watchman is a showy fancy dahlia of good size; golden ground, striped with crimson-scarlet. A.M., R.H.S., September 20. Messrs. Keynes, Williams, and Co.

Antelope, a rich and deep scarlet cactus dahlia with rosy points to the segments. A.M., R.H.S., September 20. Messrs. J. Burrell and Co., Cambridge.

Lucius, an orange cactus dahlia, previously described in our columns. A.M., R.H.S., September 20. Messrs. J. Burrell and Co.

Demon is a compact and very bright crimson pompon dahlia. A.M., R.H.S., September 20. Mr. Seale, Sevenoaks.

Distinction, a soft rosy-crimson pompon dahlia, purple tinged. A.M., R.H.S., September 20. Mr. Seale.

Leslie Seale we have already described—a single variety. A.M., R.H.S., September 20. Mr. Seale.

Peacock is a deep crimson fancy single dahlia with white tips to the segments. A.M., R.H.S., September 20. Mr. Seale.

Snowflake, a white pompon already described. A.M., R.H.S., September 20. Mr. Seale.

Iris, a curious little pompon dahlia with buff ground and rosy tips to the segments. A.M., R.H.S., September 20. Mr. C. Turner, Slough.

Claribel, a pompon variety previously described. A.M., R.H.S., September 20. Mr. C. Turner.

Ranji, a splendid dark crimson cactus dahlia of fine habit and form. A.M., R.H.S., September 20. Mr. G. Humphries, Chippenham.

David Jonson, a good rosy buff show dahlia, described in connexion with the N.D.S. A.M., R.H.S., September 20. Mr. G. Humphries.

Chrysanthemums.

May Manser, a large-flowered early chrysanthemum of Japanese form; the younger flowers have a yellowish centre, but this quickly fades to soft white. A.M., R.H.S., September 20. Mr. H. J. Jones, Lewisham.

Louis Lemaire, a free-flowering sport from M. Gustave Grunerwald; it has bronzy or chestnut-yellow flowers of good size and substance. A.M., R.H.S., September 20. Mr. W. Wells, Earlswood.

Pandanus Sanderi.

This handsome pandanus has repeatedly been referred to in our columns since its exhibition at the last Ghent show. It differs from P. Veitchi in having creamy-green variegation instead of white, and in having a yellowish rather than a silvery appearance; it is a handsome and useful plant for table and other decoration. F.C.C., R.H.S., September 20. Messrs. F. Sander and Co., St. Albans.

Gynerium argenteum aureo lineatis.

A form of the well known Pampas grass, but differing from it in having a rather dwarfer habit, and leaves that have marginal bands of yellow. The plant has a very distinct and attractive appearance. A.M., R.H.S., September 20, Messrs. J. Veitch and Sons, Chelsea.

Populus Ontario variegata.

Apparently a very attractive poplar, with the young leafage freely stained and striped with yellowish-green. A small branch was shown, and from such a specimen it is impossible to obtain an adequate idea of the tree; a small specimen tree should have been staged. A.M., R.H.S., September 20. Mr. J. Carter, Keighley,

Adiantum Faulkneri.

A pretty and most elegant adiantum, somewhat after the style of A. Lawsoniana, but of more compact growth; the pinnæ are very small and slightly crimped. It should make a useful fern for a variety of uses. A.M., R.H.S., September 20. Mr. Thomas Rochford, Turnford Hall Nurseries, Broxbourne.

Ligustrum Walkeri.

An elegant plant when in a small state as shown; it has simple green leafage and an inflorescence that is not effective. The plant is not hardy at Kew, where it needs greenhouse or temperate house treatment. F.C.C., R.H.S., September 20. Messrs. Paul and Son, Cheshunt.

Hibiscus syriacus totus albus.

This is a well known pure white flowered variety of Hibiscus syriacus, and one well worth even more extended culture than it has. A.M., R.H.S., September 20. Messrs. Paul and Son, Cheshunt.

Acer Juhlkei variegata.

This has very pretty foliage, the younger leaves having quite half their area of a creamy colour, but usually the variegation is very irregular. The backs of the leaves is silvery, so that in a breeze a tree would be very effective. A.M., R.H.S., September 20. Messrs. Paul and Son, Cheshunt.

Strawberry St. Joseph.

This is a late fruiting or perpetual strawberry, fruiting each season from successive runners. The berries are of medium to small size, conical, scarlet, brisk in flavour, with a pleasant acidity thus late in the season. A.M., R.H.S., September 20. Mr. J. Hudson, Gunnersbury House, Acton; Messrs. H. Cannell and Sons, Swanley; and Messrs. Bunyard and Co., Maidstone.

THE REDSTART.

This is a very beautiful little bird, and one of our liveliest summer visitors, nor is he shy, but frequents gardens and the vicinity of human habitations, not, as some have ignorantly supposed, for the sake of preying upon the result of the labours of man, but because in such situations he is more apt to find a suitable nesting place than he is in the open country.

The food of the redstart may be said to consist wholly of insects, especially small caterpillars, for the few berries to which he helps himself in the autumn just before his departure from among us, are really unworthy of consideration when looked at in comparison with the armies of noxious insects he destroys during the time of his stay among us.

The redstart is a migratory kind, arriving about the beginning of April, and taking its departure early in September. The nest is made in the hole of a tree, wall, building, or even in the heart of a stack of faggots under a shed, or out of doors, and the nest is merely a collection of leaves and grass lightly piled together and lined with a few feathers, or with hair. The eggs are bluish green in colour, and from five to seven in number. There are usually two broods during the season, and it is not difficult to rear the young ones on ants' eggs and common maggots, but to attempt to do so with artificial food is to court utter failure and disaster.

The redstart has a pleasing little song, which can frequently be heard from the top of a tree in the vicinity of the nest, which can often be discovered by patiently watching for a few minutes the movements of the songster; but it is almost a pity to disturb the nesting of such a handsome and useful bird, which, moreover, can only be preserved in health for any length of time by feeding it with insects of one sort or another, though it will take a little raw lean meat shredded very finely, or a little bread and milk, or crumbled yolk of hard-boiled egg occasionally, but too much of such artificial diet is sure to bring on indigestion, and that a fit, before long, therefore care must be exercised in giving them. A few small berries may be supplied in the autumn, such as elder, privet, and rowan berries, also those of the ivy and currants, which are probably taken medicinally, much as cats and dogs occasionally eat a little grass.

The male redstart has the bill, the top of the head, and the breast of a deep black colour, more or less mottled with white when the bird is young, but this mottling grows less with each recurring moult, until it finally disappears altogether. The top of the head is white; the back of the neck, the back, and scapnears are light slate-grey. The rump and all the tail feathers, except the central pair, which are brown, are russet-brown, with a ruddy sub-tinge; the breast is red, and the abdomen reddish-grey; the under tail coverts are white, the legs and feet are dark slate.

The female is greyish brown, not very unlike a nightingale, for which they are occasionally passed off on the unwary. Very old females are said to assume all the colours of the male.

The redstart is nearly six inches long, but sometimes not more than five and a-half inches; the female is somewhat less than the male.

The young males of the year have no white on the head, and there is white mingled with the black of the throat and the orange red of the breast, which is also mottled with yellowish brown, like the young nightingales, from which the juvenile redstarts can be readily distinguished by the white spots on the breast and throat.

Even in its wild state the redstart is given to imitating the notes of other birds, and in confinement becomes a most accomplished mimic; some individuals are even said to have learned to speak a few words.

A female redstart was taken captive one evening as she sat on her five young ones in the nest she had made in the hole of a garden wall, and with nest and little ones was put into a cage, but in the morning she was found quite dead, but covering her infants with her wings, and they were dead also. Surely Moses was right when he commanded the Israelites not to take the dam and the young birds together.

T. W. Greene, F.Z.S.

CHRYSANTHEMUMS.

HOUSING THE PLANTS AND SUBSEQUENT TREATMENT.

About September 25 all houses which are to accommodate chrysanthemums should be ready to receive the plants. Such preparation of these structures as may be necessary will scarcely need pointing out; such work as cleansing of glass, and painting walls with fresh lime, will suggest themselves to all who know the importance of a wholesome cleanliness. The beds or borders, under staging which has for a long season been occupied with plants in pots, may probably have become wet and sour, which will impart to the house a bad condition of its atmosphere, and increase the risk of damping of the blooms. Any such soil should be removed from the surface, and a liberal sprinkling of fresh lime given, to be covered with cinders or clean ashes.

In large gardens there is often as much difficulty in finding room for a number of chrysanthemums as in small ones, for in proportion to labour and conveniences at disposal so much more is expected and absolutely required to meet the large demands made on the various departments of the garden.

Fruit houses which are cleared of their crops are always available, but in these there is the difficulty of too much shade from foliage, which, unfortunately for many plants that are perforce placed underneath it in September, does not admit sufficient light until towards the close of the following month. The best way of meeting this trouble is to place such varieties as have formed buds early, and are not likely to extend their growth after housing, under the most shady parts, and give later flower buds the benefit of the light. Peach shoots may be loosened and the trees pruned too, quite as well as deferring this practice until the fall of the leaves; the remaining growths may be tied in groups closely together if the wood is well matured, thus admitting a good share of direct light to plants under the trees. Vines may also have all lateral growths removed, and the shoots reduced to five or six leaves in length, which really in the case of early vineries is a good plan early in September, so that the vines may concentrate their forces in building up the buds and elaborating sap which vines, as much as any plant, are supposed to do for the next season's growth.

All this may be beside the question of housing chrysanthemums, but gardeners have to scheme so much in autumn to accommodate the many things which have been growing in the open during summer that its bearing on the subject is important. It is ruinous to house varieties with soft shoots and late-formed buds under the dense shade of fruit trees; flowers will ultimately develop, but the peduncles will have become so attenuated and weakly, and the constitution of the plant so impaired through want of light, that they will be of little use for exhibition.

It is better that all the plants should stand upon boards or something other than the border soil, so that a free outlet is ensured for water given to the roots. All shoots should be kept tied quite erect, or the blossoms will be liable to uneven development, and though such blooms may look nice on the plants, when cut they are found one-sided and awkward to fix in position. Rather than to injure the roots by putting more stakes in the pot, short light pieces of cane some two feet long may be secured below the bud and looped to the main stake.

After housing, ventilators, doors, and every means of giving air should be kept wide open until the plants have gradually become accustomed to their crowded condition, and cooler nights suggest the need of shelter. Each afternoon, when fine, give the foliage a light damping over, and continue doing so until the flowers begin to unfold; this helps to maintain something of the same moisture as was supplied by dew while the plants were outside, and prevents the change being felt so keenly. Fumigate thoroughly on two successive evenings, to clear the plants of any thrips or other obnoxious insects which may infest them, and also give the lower portions of the foliage a good dusting of sulphur. This latter may be only required as a preventive of the mildew; it is perfectly harmless, and is better used as soon as the plants are housed, as this is the time when the mildew is most likely to obtain a mastery of the lower leaves owing to the plants being so closely arranged together.

Water at the roots will not be needed so frequently after housing takes place, and must be given with careful judgment only when the pots clearly ring if rapped with the knuckle. Weak liquid manure may still be used, and as the flowers commence to unfold increase the strength of this for those which are not liable to "damping," until the blooms are about three-parts developed, when clear water only is required.

Frequently it will be found that one of the large green sepals which envelope the bud does not release its hold, and so as the flower stalk lengthens the bud is pulled slightly over to one side. If this is not attended to at once, the consequence will be that the flower will not regain its upright position, and when once the stalk has hardened, any attempt to straighten it results in breaking off the bud entirely.

Those growers with small convenience for housing their plants are often found with more plants in September than they have sufficient room for, but often, too, with several which are scarcely worth crowding in. It is better to give up such plants at once than to injure the well-being of good ones through undue crowding. Such, for instance, where buds were taken too late, may be very strong plants, and require room that they will not pay for occupying, or any weakly, unsatisfactory looking plants are better left outside altogether.

Occasionally the lights from a garden frame may be raised on posts and the sides closed round with mats to protect early varieties, which in this position may be shaded and kept cool more easily than in a house; the important item being to ward off heavy rains and dews from opening blooms, and to shield the plants from frost; or, with such early ones, if the trouble is not too great, the shelter of an outhouse at night, or during rain, will do for a time, carrying them outside when fit.

I hear from many quarters of the brown rust fungus on the under sides of the leaves having made its appearance during the past few weeks. This is due to spores having been allowed to scatter some time ago, and now that cooler and moist nights prevail they develop freely. Constant repression by picking off leaves or parts of leaves whenever it appears, and a syringing with weakly diluted sulphide of potassium is the best remedy I can offer. Burn every particle gathered from the plants, and before they are housed examine each plant thoroughly, so that as far as possible none is taken into the houses. In this way we may hope to exterminate the disease from our collections.

Trent Park Gardens. W. H. Lees.

NYMPHÆA STELLATA.

I gladly comply with your request to give some further particulars of our culture of Nymphæa stellata. Being desirous of adding a blue variety of water lily to our collection, I made a tank this spring for its accommodation, having doubts of its success in the open water of our lake. A suitable position was chosen where the influence of the sun would be fully exercised. This was at the western end of one of our ranges of glass, where it was easy to make a connection to the existing pipes for the purpose of warming the water in the lily tank. A three-inch flow and return pipe we find to be ample for keeping the water at a temperature of 70 deg. to 80 deg. The depth of the tank is eighteen inches, its other dimensions being eight feet by six feet, being so arranged as to accommodate a three-quarter span frame upon the top course of brickwork an inch or so above the water. No further provision in the way of piping was provided, other than that alluded to for warming the water, this piping resting on the bottom of the tank. Some coarse rubble was spread over the bottom, and upon that some rough sods of turf, adding afterwards sufficient soil in which to plant the lilies, this consisting of loam, leaf-soil, decayed manure, and road scrapings, in all to a depth of about four inches only.

The lilies which had been started in pans in a warm house were planted out on May 21, the plants having only a few small leaves then. Within a week the increase of growth was most marked, and within three weeks the first flowers were opening. From that time to the present the profusion of flower has been simply astonishing. I have counted frequently from eighteen to twenty-three flowers expanded at one time. The promise of bloom for weeks yet to come is excellent, in fact there appears to be no appearance of cessation or exhaustion. The frame alluded to was taken off and the lilies left fully exposed about the middle of June; it is now in readiness for placing upon them again when the weather becomes sufficiently cool to check the growth. One peculiar feature of this lily is that of sending up its flowers from one foot to eighteen inches above the water, each blossom being practically self-supporting. The fragrance is also another feature; it resembles that of violets in a marked degree. The duration of the flowers is from three to four days. They open quite early in the morning, and close from three to four o'clock in the afternoon. When the plants were put out I did not think they would grow so luxuriantly, hence they are now rather too crowded. Another season I shall experiment with some of them in the open water.

Gunnersbury House Gardens. James Hudson.

SCALDING OF GRAPES.

In your "Answers to Correspondents" you say, truly enough, that scalding is due to the action of strong sunlight upon berries that are more or less covered with condensed moisture. It has also been thought and said by some that each globule of the moisture may condense the sun's rays into a burning lens. Atmospheric air at rest probably discharges similar functions. Bad glass is also, as you say, answerable for scalding; inequalities of surfaces or knobs in the glass are converted into burning lenses. Hence, anything that will absorb or prevent the deposit of the vapour on grapes sets and keeps the air of vineries in motion; in other words, early or perpetual ventilation proves a sure antidote to, or remedy for, grape scalding. There is thus, under perfect and constant ventilation, perpetual motion in the air of vineries, and this disturbs or destroys the action or the powers of the burning or scalding lenses referred to. Plenty of air all night is the surest remedy. The next best antidote to grape scalding is to give air at the top of the vinery before the sun has raised the temperature a single degree. By adhering to this rule no scalding need be feared. The amount of air given need not be much, but the rules here laid down as to morning ventilation, being ahead of any rise in temperature, must be adhered to.

There are yet other and more mechanical causes for the leaf and berry scalding of vines. Rods, leaves, bunches are often crammed so close to the glass that the free passage of vapour, water, air is blocked by the leaves. Under such stagnant conditions the heat becomes intense, and scalding of the worst sort inevitable. By training each rod from a foot to eighteen inches free of the glass roof scalding of this sort would be wholly prevented.

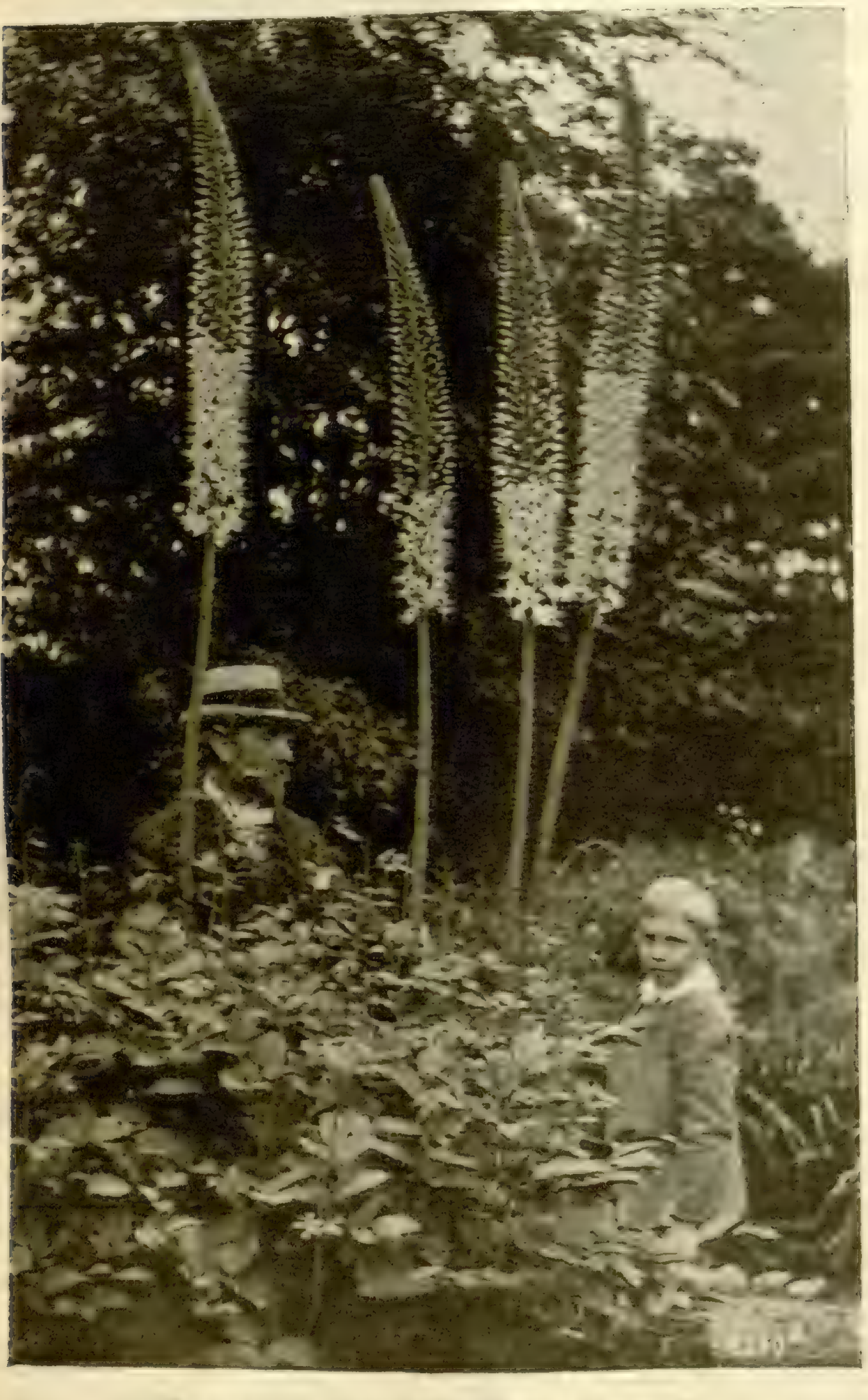
D. T. Fish.

Productive Dwarf Peas.—A few days since I cleaned up the ripe produce of some ten rows of diverse dwarf and medium-height peas that had been grown for trial in rows twenty-five feet long, and all treated alike and laid on the ground. It was very interesting to note how very much some excelled others in productiveness, and of course this productiveness indicates clearly the pod produce for gathering. Materially in excess of others were Sutton's Dwarf Defiance and Magnum Bonum, Sharpe's Triumph, Webb's Senator, President Garfield, and Majestic. Certainly there may have been causes in some cases for others coming out indifferently, as, for instance, seed growth in the spring not being good. We are so apt to regard excellence in peas per size of pod, that real average pod production is much overlooked.—A. D.

EREMURUS ROBUSTUS.

This stately hardy plant is yearly becoming more popular, and each season larger numbers of towering spikes are seen in gardens and nurseries. The species was discovered in Turkestan, and first flowered in the Botanic Gardens of St. Petersburg and Moscow in 1873, when Dr. Regel named and described it. The flowers vary slightly in colour, but are usually of a pale rose or peach shade; they measure two inches across, and many scores of them are produced on one well developed spike. In the Rectory Gardens, Scole, Norfolk, the Rev. F. Page-Roberts grows this plant finely, as the illustration, from a photograph kindly sent by him, will show.

Mr. Page-Roberts writes:—"The tallest spike in the picture of Eremurus robustus was eleven feet six inches, and the shortest nine feet six inches. The four plants were put in their present position after their seed had ripened at the beginning of August last year, a decisive refutation of those who say they ought not to be disturbed. Indeed, those which were not moved last year have not developed so remarkably. The difficulty is not in the cultivation, for this is simple enough, but in procuring good matured plants, eight years old at the least. All that is needful for the successful growing of these majestic, beautiful hardy plants to perfection is a rich light loam (I have, unfortunately, no good loam in my garden to experiment with), a sunny position, well sheltered from strong winds, which damage the leaves, an occasional dose of liquid manure, and protection from frost in the spring, when the leaves begin to expand and disclose the soft flower spikes. Water getting into them and freezing, cripples them. No protection is needed in the winter."



Eremurus robustus at Scole Rectory.

Two Good Tomatos.—From their first introduction I have beem familiar with the fine qualities of two good tomatos: Polegate, probably the very best stock of the old Perfection put into commerce; and Golden Jubilee, the very best of all the large fruited yellows. I saw both these varieties growing recently as tall plants, quite eight feet in height, at Tewkesbury Lodge, Forest Hill, and both were fruiting grandly. I cannot but wonder whence finer crops are to come. I have seen both varieties since in a tall, narrow span house at Regent House gardens, Surbiton, again fruiting very finely, and still tall, vertical plants. If yellow tomatos are in demand in the markets, then it would be difficult to excel Golden Jubilee for the purpose, and certainly no one could have handsomer, richer coloured, or more solid fruits than Polegate gave. Mr. Taylor, at Tewkesbury Lodge, estimated that his plants would yield him from ten to twelve pounds of fruit each.—A. D.

HOMOLOGY OF PLANTS.

By Professor F. O. Bower, D.Sc., F.R.S.

(Continued from page 602.)

Homology.

But various writers admit in varying degree this factor of comparison as controlling other considerations. There is indeed a wide range of difference on this point. I will cite only two extreme views. On the one hand is the view of Strasburger, which he enunciated so early as 1872. The enthusiasm for evolution in the Jena school found its botanical expression in the aphorism, "The highest problem of morphology is to explain the form of plants, but this problem can only be solved genealogically." This statement is repeated in a more definite form in Strasburger's text-book: "Phylogeny is thus the only real basis for morphology."

At the other extreme is the method of physiological organography put forward by Sachs in his lectures. I am aware that he subsequently modified his views; I merely quote the system which he propounded in 1882, as being the antithesis to that of Strasburger. For in the physiological organography descent is hardly taken into account at all; parts which are plainly of distinct origin by descent are classed together. This organography of Sachs, though introduced with all its author's charm of style, never convinced the botanical world, for it treated plants too much as the creatures of present circumstance. It may be taken as illustrating the extreme reactionary swing of the pendulum from the non-physiological attitude of the formal morphologists; a protest against the exclusion of function from the morphological arena. The protest was salutary, but its form was extravagant.

Let us now consider whither "phylogeny, as the only real basis of morphology," may lead us. Let us take as our provisional view that *homology* in the strictest sense implies repetition of individual parts, in successive generations, just as the hand of the child repeats in position and qualities the hand of the mother. Though among seed-bearing plants, for instance, this repetition may apply for the plant-body as a whole, it will be at once apparent that such repetition as regards the individual is found in comparatively few cases in plants. The continued embryology of all the higher forms, the indefinite number of the parts successively produced, and the variety in detail of their arrangement show that in the strictest sense repetition of individual parts cannot be traced. In a pan of seedlings of the sunflower, raised from seed of the same parent, the cotyledons in all cases may be regarded as homologus in the strictest sense, as they correspond in origin, number, position, and form to like parts in the parent. In a similar way the first root of the seedling appears to be individually identical with the first root of the parent, or of any other seedling of the batch. In those plants in which a foot or suspensor is present occupying a constant position with regard to the parts of the embryo, it will not be doubted that within near lines of affinity the foot in any one specimen corresponds to that of any other. The exact repetition which is thus found to exist may be regarded as the most complete type of homology.

Starting from this repetition of individual parts in plants nearly related, there is a divergence by gradual steps in two directions—firstly, in the individual plant, where the later formed parts may assume forms and positions which may even raise a question of their essential correspondence. Thus, in the batch of sunflower seedlings, there may be a varying number of leaves, with varying transition from the decussate to the alternate arrangement, intervening between the cotyledons and the capitulum. As they vary in number and position, these cannot, in the strictest sense, be accepted as individually comparable each to each by descent—the lineal representatives of like individual parts in the parent. The lateral roots also, though essentially similar, do not correspond each to each, either in number or in position.

Again, to go a step further, a fern prothallus produces antheridia and archegonia; their number and position are not uniform; by conditions of culture we have them under control, and can induce antheridia only, or we can induce a formation of archegonia upon the upper surface, where they are usually absent. Plainly these cannot be held severally as the exact representatives of like individual parts in a previous generation. Another exceptional, but most interesting, case is that of *Aspidium anomalum*, Hk. and Arn., which Sir William Hooker remarks is possibly an abnormal form of *Aspidium* (Polyst.) *aculeatum*, Sw. In this fern the sori, instead of being all on the lower surface, as in allied ferns, are often upon the upper surface of the leaf. There is no sign of tortion to explain the anomaly, while the sori themselves present no structural peculiarity except that they are sometimes quite destitute of indusium. There has doubtless been a transfer of developmental capability from the usual position of the sori to the anomalous one. In case of such transfers as these, we do not doubt that the parts in question are to be ranked as comparable to those in the normal position; we contemplate here, as in the case of the sunflower leaves, an essential correspondence, but not an individual repetition of the parts, and we learn that parts thus essentially corresponding to one another may be transferred to unusual positions.

Secondly, in plants more or less nearly related, those which are less akin may show so slight a similarity in detail that again questions of the essential corresponce of the parts may arise. Within nearer circles of affinity these questions will affect only the appendages of minor importance, which show less constancy of occurrence and arrangement, such as emergencies and hairs; but in case of plants less nearly akin the degree of correspondence of the larger members may become a matter of debate. Take, for instance, the three great phyla of living Pteridophytes, the Ferns, Equiseta, and Lycopods. While the sporophyte as a whole in each of these may be accepted as homologous by descent with that of the others, the question as to the true correspondence by descent of the leaves must still be open for discussion. It is a tenable view that the three phyla arose separately from a nonfoliar ancestry, and that the assumption of a foliar development, having in each case a different habit, and a different relation to the sporangia, led to the distinctiveness of the three stocks. Opinion on the point of homology by descent of the leaves of these Pteridophyta must at present remain in suspense; but the case is different with the leaf of Pteridophytes as compared with the leaf of Bryophytes; unless the whole morphological system of the time be in error, we shall be right in maintaining that these foliar developments have been distinct in origin from the first.

Now all the foliar parts above quoted would in a system of merely formal morphology fall into the category of "leaves." But if phylogeny be accepted as the only real basis of morphology, we must be prepared to split up the category based on mere time, place, and mode of origin, and to recognise in some cases repetition of individual parts; in others essential correspondence, but not individual repetition, owing sometimes to transfer of developmental capability; in other cases, again, a possibility of distinct origin by descent not actually proved; and, lastly, a reasonable certainty of distinct origin. The practical question for the morphologist is, having recognised these facts for himself, how is the matter to be best made intelligible to others?

A reconsideration of the term "homology" will thus be necessary: is it to be applied equally to such parts as are connected by lineal descent, and also to those which we have good reason to believe have resulted from parallel development in quite distinct phyla? Or, to put a finer point upon our inquiry, are we to distinguish in any way the cases of "individual repetition" from those of "essential correspondence"? In the latter case I think no good end would be served at present by accentuating this distinction by terms, the steps of divergence are so slight and gradual. None the less should it be clearly borne in mind that comparisons of parts commonly ranked as homologous in the plant body are based on a less complete individual correspondence than that of parts usually compared in the animal body.

But the case is different in dealing with parallel developments, and some doubt arises whether parts which probably, or it may be certainly, have arisen by separate evolutionary sequence in distinct phyla are to be classed as homologous in the same sense as those directly related by descent. This question was long ago taken up on the zoological side by Professor Ray Lankester, and it was shown that, the old word "homology" covered two things recognised as distinct from the point of view of descent. He defined as *homogenous* "structures which are genetically related, in so far as they have a single representative in a common ancestor." On the other hand, "when identical or nearly similar forces or environments act on two or more parts of an organism which are exactly or nearly alike: further, if, instead of similar parts in the same organism, we suppose the same forces to act on parts in two organisms, which parts are exactly or nearly alike, and sometimes homogenetic, the resulting correspondences called forth in the several parts in the two organisms will be nearly or exactly alike. . . . I propose to call this kind of agreement *homóplasis*, or homóplasy." Now this distinction of terms requires also to be observed in plant-morphology, and I am surprised that it has never yet been adopted by botanists, though we have long recognised cases of parallel development. I do not propose now to spend time in assigning these terms to familiar cases, but, to take the examples already cited, the leaf of a fern would be homoplastic, though not homegenetic with the leaf of a moss; or, taking examples from plants more nearly akin, it would appear possible that the leaves of the three distinct phyla of living Pteridophytes show merely homoplasy, not a true homogeny.

The successive foliage leaves of most plants are assumed in the individual to be the result of a mere repetition of development. But it is quite a possible view that in the plant-body (as is contemplated in the animal in those cases of "serial homology" which Lankester recognises as homoplastic) homoplasy may have had a place. We must inquire whether all those structures which we designate "leaves" have actually been the result of a development identical, or at least essentially similar as regards their origin in the race. The problem is, given a plant with numerous leaves of various form and function, to unravel the real story of their evolution. Two distinct factors may be contemplated as possibly occurring even in the individual, viz.:—

1. *Homogeny* of genetically related parts, with or without repetition of the parts formed.

2. *Homoplasy*, an origin of two or more distinct categories of parts, not genetically related, on the same organism.

Working upon either of these, and thus complicating the problem by obliterating such distinctions as may have existed at first, may be the phenomenon of *metamorphosis*. This has lately received its evolutionary definition at the hands of Professor Goebel, as restricted to those cases where there has been an obvious change of function. We see how change of function accounts for various forms of leaf in certain cases; but it does not follow that all leaf-forms on the same plant were so produced, by metamorphosis of a single original type.

The Lycopodineæ are particularly interesting in illustration of this point. It appears probable that *Phylloglossum* is a more primitive type than other living Lycopods; it has two kinds of leaf, the protophylls of different form from these, and arranged regularly on the strobilus; commonly there are no intermediate steps between them. This condition in a plant, which on general grounds of comparison we believe to be primitive, is certainly interesting, and we shall ask whether the two types of leaf have not arisen by distinct evolutionary sequence? In the genus *Lycopodium* there are certain species, such as *L. Selago*, which show alternately sterile and fertile zones; examining the limits of the sterile zones, we find at the base of each leaf an atrophied sporangium, similar in position to that borne by a sporophyll. When we compare this condition with that of *Phylloglossum* it apears probable that the successive zones are the result of a metamorphosis of a strobilus, which had a continuous apical growth, and unlimited repetition of sporophylls, but that some of these suffered atrophy of their sporangia, with the correlative effect of a larger vegetative development. A differentiation of the strobilus thus results in the plant as we see it, a production of foliage leaves by sterilisation of sporophylls. Recognising this, some may suggest that the protophylls originated in the same way. It is possible that they did; but it is equally possible, and, in view of the peculiar case of *Phylloglossum*, I think more probable, that in these plants we have an example of homoplastic development of parts distinct as to descent, while the limits of the two still evident in *Phylloglossum* became obliterated in the more complex case of *Lycopodium*. The proof of the point will be difficult or even impossible, but the eyes of botanists should certainly be open to recognise such individual homoplasy, should it occur, and to inquire whether it has really had a place in plant-development.

Returning now to homoplastic development in distinct groups of plants, the morphology of the *foot* provides interesting material for comparison, and especially so since there is no question of repetition here; for the comparison is between parts of which only one appears on each individual plant.

The term foot has been applied to that part of the embryo in Pteridophyta which serves to connect it physiologically with the prothallus; the term has also been used for the base of the seta in Bryophytes. Parts performing a similar function, but not referable as in other Phanerogams to the metamorphosis of cotyledons, are also found in *Gnetum* and *Welwitschia*.

In the Bryophyta what is usually called the foot is no definitely specialised structure; it is merely the absorbent base of the seta. It would appear probable that in the Bryophyta a true homogeny holds in all cases, as the requirement for it will have been uniform; and its basal position is also uniform, though some difference of detail does appear in the relation of this absorbing body to the first segmentations of the embryo.

In the Pteridophyta it is exceedingly difficult to be sure of the correspondence by the descent of the foot in distinct types, and indeed it should not be assumed that a specialised absorbent organ was always present, though general surface-absorption will naturally have taken place in all archegoniate embryos; indeed, the condition of some upright embryos is such that a foot would never have been described were it not for comparison with other types. In *Equisetum*, *Isoëtes*, *Botrychium*—all forms without a suspensor, and with an upright growing embryo—the hypobasal half of the embryo, with or without a root, is absorbent as in the Bryophyta, and is described as a foot; it is quite possible to see in them the continuation of a primitive absorbent organ. This may also be the case in the Marattiaceæ, and it is specially noted by Campbell that "in *Marattia* all the superficial cells of the central region become enlarged and act as absorbent cells for the nourishment of the embryo." From such types we may imagine the more specialised foot of the Leptosporangiate ferns to have been derived by a localisation of the absorbent function on one side only, which would be a natural consequence of the embryo taking a prone, in place of the vertical position.

A different course of events probably occurred in the Lycopodineæ. I am disposed to think that here the suspensor represents nothing more than a specialised part of the primitive absorbent organ; this seems to be indicated by the details as shown in Treub's figures of *L. cernuum* and *L. Phlegmaria*, in which the suspensor is continuous with the foot. But what is then the "foot" of *Selaginella*, which is quite apart from the suspensor, the root intervening? On this point I think we obtain light from *Welwitschia* and *Gnetum*, for in these we see an absorptive organ formed at a comparatively late period; and it corresponds in position and function, though not in time of origin or details of structure, with that of *Selaginella*. I conclude that the "foot" of *Selaginella* is probably a later formation, not comparable as regards descent either with the foot of *Lycopodium*, or with the "feeder" of *Welwitschia* or *Gnetum*. The latter are plainly of recent independent origin as comparison shows, and their actual position is defined according to the position of the seed in germination. Probably, then, there is homoplasy in such cases, not true homogeny.

Similarly with such structures as the pinnæ, stipules, indusium, corona, and still more so with such inconstant bodies as emergencies and hairs; when we speak of the "homologies" of these parts it is rarely the *homogeny*, or identity by descent, which we mean to express; usually it is only *homoplasy*, a comparison of parts similar, it may be, in form and position, or even in development and function, though not shown to be comparable by descent.

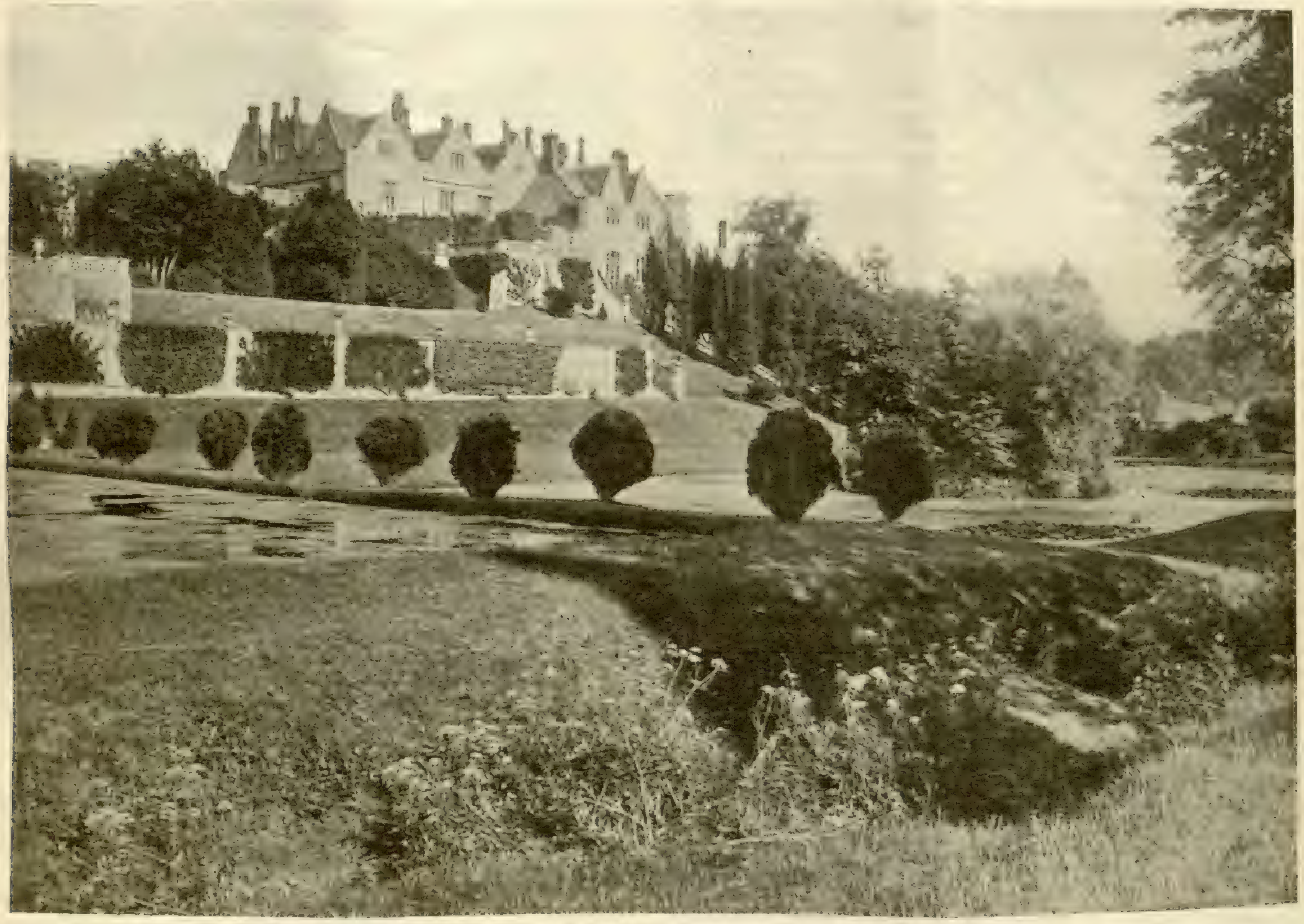
(To be continued.)

Autumn Sown Onions.—Your correspondent "Lux" has fired at me because I have somewhat, in his estimation, unduly trumpeted the merits of the Ailsa Craig onion, as I saw it both in an allotment and at a show, where the bulbs won in a class for autumn sown onions easily at Epsom. Now, had these fine bulbs been produced by "Peter" the trumpeting would have been all the other way, and readers of the GARDENERS' MAGAZINE would have been smothered in the tremendous overflow of Luxian eloquence. Well, I have a reason, for I wish to do the very thing he suggests, that is, try and induce show committees to change the terms of their class for autumn sown onions; and thereby induce cottagers and allotment holders to forego growing the all too speedily decaying Tripolis, and to sow instead such varieties as Ailsa Craig, Sutton's A1, Cranston's Excelsior, Banbury Cross, and other similar fine white and brown, round and globe varieties. Not only because these are quite as hardy, indeed, rather hardier, but also because they produce from autumn sowings very full bulbs that keep well when ripe till the end of the year, and therefore are far more valuable for domestic use or market sale than are bulbs that are ripe to-day and rotten to-morrow. Where onions in July and August are, though very fine and handsome, still growing it must be admitted that they are far more worthy of approval than are bulbs that have done growing, and will not endue a month longer.—A. D.

ST. FAGAN'S CASTLE.

St. Fagan's Castle, the seat of Right Hon. Lord Windsor, in Glamorganshire, is about four miles from Cardiff, and situated on the top of a brae, less than five minutes' walk from St. Fagan's Railway Station. It is approached on the east side by a short carriage drive, which is planted on both sides with young trees of Robinia psuedo-acacia. On the lawn, which is kept in splendid condition, are some old specimens of walnuts, cedars, and limes. The east side of the castle is covered with creepers and other plants, including the good old scented jasmine, Magnolia grandiflora, in full flower at the time of my visit, a week or two ago; and Ampelopsis virginica. The west side was already beginning to have a charming appearance with the autumn tint of the foliage of Ampelopsis Veitchi.

The gardens are on the north side of the castle, and surrounded with walls. Until Mr. Hugh Pettigrew succeeded to the charge of the grounds they were devoted to the cultivation of both flowers and vegetables; but, with good taste and a wise discrimination, he has decided, with the sanction of Lord Windsor, to make the whole into a flower garden, and to remove the kitchen garden to a more suitable place, quite away from the castle. Great strides have been made already in this direction, and further plans have been prepared for forwarding the work during the present autumn and winter. Amongst other things, a walled-off portion of the garden, at present given up to the growing of asparagus, rhubarb, artichokes, &c., is to be converted into a rose garden, for which purpose it seems admirably adapted. At the time of my visit the gardens were exceedingly gay with flowers of various sorts. There was one large bed on a slope which was particularly striking, composed of clumps of godetias, gaillardias, verbenas, African marigolds, gazanias, viscarias, antirrhinums, a dwarf crimson-flowered double dahlia, particularly good, and intermixed with such grasses as briza, hordeum, anthoxanthum, lagurus, and agrostis. The arrangement had been so tastefully made that the whole presented a charming appearance. There were many beds of the different kinds of annuals, among which I noticed scabious, salpiglossis, zinnia, stock, aster, petunia, helichrysum, centaurea, phlox, coreopsis, mignonette, larkspur, and valeriana, besides beds of those previously mentioned. There were some lovely beds of penstemons, here treated as an annual, and also a bed of Œnothera biennis. Sweet peas are largely grown, as they are so useful for cutting; they were flowering well, and amongst them were some particularly good varieties.



From photograph by Bedford, Lemere, and Co.

ST. FAGAN'S CASTLE, THE SEAT OF THE RIGHT HON. LORD WINDSOR.

The Dutch garden, with its box edgings, clipped box and bay bushes, with the flower beds one mass of bloom, showed that a great deal of time and labour had been bestowed upon it to bring it to such perfection. Near here were some fine lavender in vases. On the west side of the garden are the famous terraces of St. Fagan's. At the bottom of these are several artificial lakes in which nymphæas and other water plants abound. Beyond the lakes a small stream runs, and Mr. Pettigrew has considerably added to its beauty by planting British and other ornamental foliage and flowering plants along its margins. Several bamboos had already become established, and they will, no doubt, in a short time become a fine sight. Gunnera manicata, Osmunda regalis, Lythrum salicaria, and Spiræa ulmaria were amongst other things which had found suitable homes, or rather had suitable homes found for them. Dotted about on the terraces are well-trimmed bushes of Thuja aurea, and these, combined with the many vases filled with flowering plants, add greatly to the charm of the place. The terraces are separated from the garden by a wall which runs their entire length, and this is covered with vines and figs. At the base of the wall on the terrace side is a border containing principally herbaceous plants, though one of the most striking things in it is a row of fine lavender bushes, running from end to end. Hollyhocks, herbaceous phloxes, and Lilium tigrinum were amongst other plants which were in flower at the time. At the upper or north end of the lakes a rockery is to be constructed, and this, when finished, will be a great feature in that part of the grounds. From the terraces a splendid view of the pleasure grounds on the other side of the lakes may be obtained. White peacocks were strutting about amongst the trees, which include Scotch firs, tulip trees, cedars, sequoias (sempervirens), mulberries, some fine specimens of Quercus ilex, and some grand old trees of Robinia pseudo-acacia.

In the gardens are some fine borders of herbaceous plants, and these furnish an abundance of cut bloom for indoor decoration. The following were some of the things in flower: Phloxes, achilleas, chrysanthemums, helianthuses (single and double), Lychnis chalcedonica, Monarda didyma, and montbretias. Outside of the vineries a fine lot of Amaryllis Belladonna was in flower. The rose garden was still gay with bloom of both hybrid perpetuals and teas. Chrysanthemums are largely grown, and these were in the best of health, and promised well for a fine display of cut blooms and pot plants later on. There was a fine crop of wall fruit; the apricots were exceptionally fine, and peaches, nectarines, and plums were all that could be desired. Apples and pears were below an average crop, and small on account of the drought.

The houses showed the same good management as the grounds outside. The vines carried magnificent crops of well-finished bunches, the varieties grown being Black Hamburgh, Foster's Seedling, Madresfield Court, Lady Downes, Gros Maroc, Gros Colmar, and Muscat of Alexandria. The bunches of Gros Maroc were very large, well coloured, and finished, and good enough, I should say, for any show table. In the melon house was a fine crop of good, serviceable fruit. A splendid plant of Gloriosa superba was in flower in the stove, trained against the roof, which was also partly covered with Stephanotis floribunda. Crotons, dracænas, acalyphas (including the new Sanderi), Pandanus Veitchi, and the usual kind of stove plants were in the best of health. Calanthe Veitchi, a large quantity of which is grown, was simply growing like a weed; the plants had immense pseudo-bulbs, and these are bound to produce huge spikes of bloom. The greenhouse was bright with such things as begonias, fuchsias, petunias, and other flowers, mixed with ferns and Isolepis gracilis. At the bottom of the staging was a fine row of Adiantum capillus-veneris. On the roof there were trained several plants of Thunbergia alata, in three varieties, and Lygodium scandens, the whole having a very pretty effect. This former plant has become naturalised in Hong Kong, and it may be seen in flower in one particular locality covering at least a quarter of an acre of ground. Tomatos were an exceptionally heavy crop, both inside and out. After looking through the flower garden, pleasure grounds, and houses, I paid a visit to the place Mr. Pettigrew had selected for the vegetable garden. There I found growing peas, beans, turnips, beetroot, cauliflowers, &c., for, as one of the best known British gardeners said to me a few days ago, a man who can grow plants and flowers is no use as a gardener unless he can, in addition, grow good vegetables as well.

W. J. TUTCHER.

PRESERVING SURFACE ROOTS.

"LUX" must have been just recovering from an accidental overdose of some narcotic when he penned his notes on the destruction of peach roots (page 571), and I think "Mrs. Lux" will do wisely in seeing that her noble lord does not, in his hurry or zeal, run so serious a risk in future. In his dazed state we can easily understand his mistaking the shadow for the substance, and giving us a glimpse of the hallucinations which haunted his pillow in place of a faithful record of Peter's practice and results. Vine borders made into celery trenches? Vegetables grown on peach borders? Yes, to feed the vines and peaches! Peter's eye must be twinkling over the addition of this fertile ground to his vegetable quarters, and the huge crops of luscious fruits he can picture in his mind's eye in the near future. It taxes our credulity to its utmost limits to arrive at a conviction of such happy results, when we compare practice and its effect over a wide area, covering a period of thirty years. Theory, too, is at variance with "Lux's" contention, and these facts favour the supposition that it is only a rendering of the mutilated remains of a nocturnal vision he has deigned to publish for our edification or amusement. Although it is a step in a retrograde direction, that should be no reason why we should not consider it, for nowadays some of the new-fangled ideas are, to say the least of them, a little far fetched. In order to deal with the question thoroughly, we will take plants and soils separately.

Our aim is, or should be, to get our plants to grow quickly, produce the heaviest crops of the finest fruit possible in the briefest period of time. Not only should our aim be to accomplish this end, but also to maintain the same vigour and fruitfulness in the trees for years. Vigour and fruitfulness can only be attained by securing a balance between that part of the plant below ground and that which is above it. If we cut off a quantity of growths we shall give the balance to the roots, and shoots of a stronger nature will follow the next year. By continuing the practice for years the wood would soon arrive at such a strength that our ordinary summers would not ripen it, and fruit crops from such would be out of the question. This evil can, however, be remedied to a certain extent by crops, once the trees are in a bearing condition. The more vigorous the plant, the heavier the crop should be, and *vice versa*. Thus, by regulating the crop according to the strength of the tree, the evil effect of pruning is overcome, and a balance maintained between the two parts of the plant. On the other hand, if we prune the roots of a healthy, fruitful tree, we diminish its powers of supplying food to the stem and branches, and consequently minimise its ability in yielding crops. The equilibrium being thus upset, the plants' energy will be more feeble, the wood smaller, fruit inferior, and the crops thin ones. If the pruning of the roots be of a severe nature, and carried on annually, the plant will soon exhibit signs of a miserable existence, becoming worthless as a source of fruit supply, and be an eyesore in the garden, and a testimony to lack of skill of the cultivator, or circumstances to enable him to do otherwise.

It has often been remarked that "so long as the roots of a plant are all right it is surprising the amount of bad treatment it will submit to with impunity"; but "Lux," I think, can lay claim to being the first to state that maltreatment of the roots can be compensated with food. The soil, of course, is the storehouse and cooking department of plant food, and the better this larder is filled, and the more complete the machinery for breaking up crude organic and inorganic components with substances acceptable to the roots of plants, the more valuable it is regarded. Its depth, too, has a bearing on crops, but the surface portion will, under ordinary circumstances, always remain the most fertile. Even if we place a layer of manure, say, at three feet from the top, its decomposition will lead to gases being evolved which will find their way through the particles of soil upwards. The mineral matter, too, is brought to the surface by capillarity, as note the deposit of lime on the top of our calcareous formations, and nitrate of potash in some parts of India after a period of warm dry weather. The gases of the atmosphere also come most in contact with the outer crust, dissolving, feeding, and enriching it, and thereby moulding its condition to suit the requirements of plant life. Besides these we have the sun's influence, the principal factor in plant growth, warming the particles, aiding chemical changes, and fostering life in the surface soil. Knowing all this, we cannot be ignorant of the fact that the substratum, be it loam, gravel, or clay, is in no wise equal in any respect to supporting plant growth like that which rests upon it, and this apart from the tillage operations which the surface receives. Therefore, if the roots of fruit trees are annually destroyed in the first nine inches of surface soil, and the plants have to be fed from the cold, hungry, under layer, with its crude compounds, could we expect healthy, vigorous, fruitful wood in them? Certainly not anything approaching that produced by trees whose roots are left undisturbed nearer the surface,

TERRACE GARDEN, ST. FAGAN'S CASTLE. From photograph by BEDFORD, LEMERE, AND Co.

and cared for there. Let me take a few plants that have come under my care, as illustrating the evils of cropping fruit tree borders with vegetables, and see how they bear out the foregoing.

When I took charge of the gardens at Castle Howard, about three hundred feet run of a wall had been more or less given up to apricot culture, and the border utilized for various things. The trees were in a very unhealthy state; many of their branches were dead and dying, and annually each tree would throw up one or two gross shoots, which partially died off the following winter. These trees were all cleared out; the ground worked eighteen inches deep, and others planted. Part of the border was again covered with herbs. The trees planted where the herbs occupied the border did little good; some actually died, and the whole eventually had to go to the burning heap. Not so with the others, for I never saw finer, healthier, fruitful trees than they were, and the individual fruits were really the largest I had met with. Another wall, also about three hundred feet in length, was formerly utilized for peach culture, but had been almost abandoned for this purpose, because the trees failed to give satisfactory results. The border to this wall was employed for the production of early vegetables. The few peach trees left were merely existing, and the few fruits they produced only fit for the pigs. I made a clean sweep of all the wall trees, prepared the border two feet deep, and replanted with peaches. These did exceptionally well, making clean, healthy wood, and bearing very satisfactory crops. There were no gross suckers produced, nor any indications of gumming or canker manifested by them like that which reigned supreme with their predecessors. Of course, I was careful to leave the surface soil occupied by their roots undisturbed, and administered manure to it on the trees intimation that assistance was needed.

Not in a single instance can I recall what might be termed successful wall fruit culture when the borders for the trees' roots were annually dug and cropped with vegetables. Of course, this is not saying there are none, for nothing is impossible, and an isolated case might crop up at an odd corner, but if any one does exist, it will probably be found that the soil is a very sandy character, or that the borders are raised considerably above the soil adjoining them. Unfortunately, circumstances sometimes necessitate the employing of fruit tree borders for the growth of early vegetables, but when these circumstances dominate a portion at least of soil around the tree roots should be left undisturbed. I would not have mentioned this preservation of surface roots, to which "Lux" takes exception, had I not had sufficient practical proof of the evil attending their destruction. "Lux" had better take a lesson from Nature, by visiting gardens, fields, and forests, and noting the different effects produced by the destruction and preservation of surface roots generally. He will then find that the tree whose roots can breathe, as well as its leaves, is the one that yields the best return for labour and money spent upon it.

J. RIDDELL.

THE CAROB TREE.

THE Carob tree *(Ceratonia siliqua)*, so extensively cultivated in the more arid parts of Southern Europe, of which it is a native, has of late obtained considerable attention, in consequence of the opinion of those familiar with the various aspects of vegetation in South Africa, that its introduction to the Cape Colony would prove of immense value to an important section of the colonists. As described by the Kew authorities. it is a leguminous plant, usually from 15 to 25 feet high, with few branches and dark green pinnate leaves composed of two or three pairs of leaflets of a leathery texture. The flowers are polygamous or diœcious (*i.e*, either self-fertilising or unisexual on different plants), arranged in small red racemes. The pods, known as Locust beans or St. John's Bread, are full of a sweet mucilaginous pulp, 6 to 10 inches long, and contains numerous seeds. They are often eaten by the poorer people in the Levant, and serve as a useful food for cattle. The seeds are also said to be used in the preparation of mucilage. In Italy and Southern Spain the tree is cultivated in dry, stony localities, and yields valuable crops. The value of the carob pods exported from Cyprus has, in some years, reached £65,000.

There are several cultivated varieties, and as the tree is usually diœcious it is necessary to engraft seedling plants in order to ensure large crops. For cultivation in hot and dry districts, with stony soils, there is little doubt that the carob is a valuable tree, and deserves to be widely cultivated. It requires warmer conditions than the orange, *i.e.*, a mean yearly temperature of, say, 66 deg. Fahr. It is said to prefer a calcareous subsoil. It begins to bear at about eight years old, and a single large tree may yield pods weighing in the aggregate about 2 cwt. Carob trees are familiar objects in some parts of the Canary Islands, especially above Puerto Cruz, in Teneriffe. There they are evidently seedlings, and produce only a scanty crop of pods. There is, we learn from the *Kew Bulletin*, in the garden of Dr. Grabham, at Funchal, Madeira, a very handsome Carob tree. The main stem has a circumference of fifteen feet; at about eight feet from the base it divides into numerous wide-spreading branches, and covers a considerable area. As it is the only tree in the neighbourhood and produces a fair crop it is probably self-fertilised. The carob tree was introduced to Jamaica in 1883, chiefly from seed gathered by the present Assistant-Director of Kew, from the Madeira tree above-mentioned. The plants have grown well in the plains, but those that have hitherto flowered have produced male flowers only. Steps are now being taken to introduce grafted plants from Naples, where they are raised in large numbers for planting in Southern Italy.

The English Consul at Naples has recently presented a remarkably interesting report to the Foreign Office on the propagation and cultivation of the carob tree, and in his opening remarks he says:—

In the course of last spring a well-known gentleman from South Africa made inquiries at the English Consulate concerning the cultivation of the carob tree and the possibilities of its introduction into the Cape Colony. The carob or locust bean is a tree the fruit of which consists of a long pod, which not only forms excellent horse food, but is very largely eaten by human beings, especially children, on account of its sweetness. The pods contain very hard beans, which are useful only for seed, as horses leave them in their mangers, and if by chance they swallow them, it is found that they do not digest them. The trees bear, moreover, thick dark evergreen foliage, which gives a cool and grateful shade. It grows in many places in the Mediterranean where nothing else will grow, notably on the arid hills of Malta, and it seems certain that in the endless varieties of soil and climate to be met with in the Cape Colony there must be many districts where it would grow freely. The successful result of such an experiment would be simply invaluable to the colony if merely as a supply for horse-food, for one of the greatest difficulties in travelling at the Cape is to feed one's horses, the price of forage in some districts being extremely high, and the supply often distressingly short. Forage, moreover, as it consists of oats with their straw, is not readily portable, but carobs enough for a pair of horses for a day can be carried in a small bag. The carob in Italy grows alongside the oranges and lemons, and there can be no reason why it should not grow with the magnificent orange trees of Wellington, and become as superior to the carob of Italy as the Cape orange tree is superior to its Italian prototype. In places like Graaf-Reinet, and Aliwal North, the success of the experiment seems absolutely certain, while, judging from the way the tree prospers on the dry stone of Malta, where it grows with apparently no soil to help it, there is good hope that it might take kindly to the "Kopjes" near Colesberg, the bush veldt of the Western coast, the lower slopes of the Drakenfelds, or among the trees of the Knysna forest. The Consul being well acquainted with the Cape Colony, has investigated the matter thoroughly, and, after lengthened consultation with practical arboriculturists, the following *modus operandi* has been decided upon. First, a sufficient quantity of seed will be sent out to grow a number of seedlings in different parts of the colony. These seeds will produce carobasters, which will not have a fruit worthy of the name till they are grafted. The strongest seedlings may be grafted in their third year, but it is of no use to graft until the plant is strong and well grown, which may not be till it is five or even seven years old.

A number of plants in pots will be grafted at Naples next spring, repotted in larger pots with plenty of clay, and when the grafts have taken well the trees will be packed, the clay well soaked in water, and it is confidently hoped that they will bear the journey satisfactorily. They will be sent from Naples in the month of February, and will probably travel viâ England, which seems climatically preferable to the East Coast route, by German steamer to Durban viâ Zanzibar.

After giving full directions for the management of imported plants, the raising of seedlings, planting, and grafting, and ample information on the conditions most conducive to the trees when established, Mr. Neville-Rolfe continues:—

Some years ago the Italian Alpine Club agreed that it would be greatly to the advantage of South Italy, and would add materially to the attractions of the mountain scenery, if the Apennines, which are now for the most part quite bare, could be made to grow trees such as there is every reason to believe that they did in more ancient times. They determined to consult Signor Savastano, the professor of arboriculture in the School of Agriculture at Portici, near Naples, who gave it as his opinion that the mountains where the lentisk and the myrtle grow freely enough could be utilised to produce the more remunerative carob. To the obvious advantage of reafforesting the mountains, and thus adding to the rainfall, would be added the production of a valuable crop where nothing saleable had grown before.

The great carob-growing districts of South Italy are in the Bari region, on the Adriatic coast, and quantities are exported annually to Russia and Central Europe from Brindisi and the other ports along the coast. Though the tree may be seen in almost any garden in Naples, and is not uncommonly found on the mountains, the only person who has made a hobby of its cultivation is the Prince of Belmonte, who has large properties in the province of Salerno, not far from the ruins of Paestum. Besides planting several trees in his shrubbery, the Prince has a long avenue of them leading up to his house, which is particularly interesting, and is, we believe, the only avenue of its kind. The trees are planted 7 metres apart, and the largest of them has a trunk of 85 centimetres (about 2 ft. 9 in.) in circumference. This tree is eighteen years old, and its top is from 6 to 7 metres in diameter, and 4 or 5 in height. In common with the other trees of the avenue, the fruit is of the best description, and each tree may be taken to yield annually 50 kilos, or, say, 120 lb. of fruit, worth in Italy about six shillings. This may be spoken of as the ornamental part of the work, while the plantations of Licosa and Tresina are more on the scale of a commercial enterprise. They are both germane to our present purpose, as they show in what different circumstances the carob will grow and flourish. The Licosa grove is in a plain by the seaside, and the difference of the trees is very remarkable, some of them growing with great vigour, others not flourishing at all. The reason of this must be the existence of land-springs beneath the surface with which the weaker trees come into contact, and by which their growth is checked. There is no other apparent reason, and as the grove consists of about 1,500 trees there is scope for observation. The site is very much exposed to the wind, and in the first attempts at forming the grove as many as 70 per cent. of the plants were lost. There were other causes, too, which led up to this heavy loss. First, the whole thing being an experiment, they did not know at what period and in what way it was best to graft the trees, and also the grafters had not anything like the skill which they have since acquired.

The grove at Tresina is planted in altogether different conditions. Here we have a hilly country fully 1,000 feet above the sea, and here the outside loss of plants has been 20 per cent., which is not more than occurs in the planting of ordinary forest trees. The plantation consisted originally of 7,000 trees, but has been largely increased year by year, and the Prince expresses every confidence that in a few years' time he will clothe the barren slopes with a mantle of luxuriant green. Professor Savastano asks very pertinently why, if these results can be obtained at Tresina, they should not be obtained elsewhere, and thousands of barren acres of Italian mountains be made useful and productive. And, in fact, since he wrote upon the matter, the spread of this cultivation has been steady and continuous. We have shown pretty plainly that Prince Belmonte has attained success only by patient experiments extending over a considerable number of years. Commercially speaking, he is abundantly satisfied with the results obtained, but he does not relax his efforts. He rears some 8,000 seedlings every year, and has a skilled staff to conduct all the necessary operations, with the result that he grows a valuable crop on ground which before was absolutely unproductive; and if the landed proprietors of South Africa profit by his experience, and are equally persevering, and the tree, as is anticipated, proceeds to grow like a weed, its introduction should, in the opinion of the Consul at Naples, form a mine of wealth to the Cape colonists.

Chrysanthemums in France.—Although chrysanthemums have been long grown in France, yet it is only in recent years that they have found especial favour in the eyes of the general public. The cultural manual by Lebois, published in 1854, was probably the only one of any importance for many years, but the flower no doubt received attention at the hands of some of the botanical writers both before and after that date. We are reminded of this by a recent acquisition to our library, entitled "Sur les Chrysanthèmes d'Automne de nos Jardins, par Charles Des Moulins," a reprint from the Bordeaux Academy of Science in 1[illegible].
—C. H. P.

WORK FOR THE WEEK.

WARM ORCHIDS.

THE dendrobiums will be rapidly completing their season's growth. It would be well to have a system of removing them gradually to the resting-house, by which there would be no check. Examine them twice a-week, and those fully grown sponge with soft-soap water and remove to the intermediate-house. Others that have been removed to the house earlier can be taken into the vinery or any structure convenient that will answer the purpose, after which the water must be gradually decreased. Avoid extremes, and do not keep them too dry nor yet drown them with the hose-pipe. Such treatment has a tendency to produce black spot, with which growers are generally troubled in this section. A certain amount of thought and judgment is required. The best course to obtain good flowering plants is to have sound, well-ripened, stout bulbs, these to be kept in a plump state throughout their resting season. The deciduous species, such as Wardianum, heterocarpum, Bensoniæ, macrophyllum, Devonianum and many others, ought to shed their leaves in a natural manner, those belonging to the evergreen section ought to be just the reverse, and retain their leaves. A large proportion of orchidists have practised growing the plants throughout the winter months the same as the summer, with a view to obtaining larger plants in a shorter time, or with a view to propagation. This method is satisfactory so far as it goes, but on the other hand, providing flowers are required, the resting plan must be adopted and strictly adhered to. Sometimes it will be found at an old-established place, amongst the collection of various plants, a large specimen of Dendrobium nobile, which has been grown for a considerable number of years in the same place and entirely under the same treatment year after year, during which time there has been comparatively few flowers produced; eventually the advice of a grower is sought, and a rest is recommended, which, of course, proves a great success. The bulbs that have been growing for so many years are all well ripened and all ready and willing to make a display. When the season comes and the flowers are produced the grower is quite satisfied that such a specimen in such conditions never existed before, so must find its way to the various local exhibitions. This is a proof of the importance of resting dendrobiums.

Lælia anceps, mostly among the dark varieties, will be producing their spikes; others will be earlier and growing fast. It is advisable to put thin, neat stakes to them in order to protect them from being broken, as in lifting baskets down from the roof for watering purposes and rehanging them we are apt to break them; a slight sponge over with weak soft soap water now and then will prevent any scale lodging on the leaves or in the axils; a fumigation of X L All will also be a preventive to green fly, which very often troubles us during the growing season of the flower spikes, and, lastly, affects and disfigures the flowers. Vandas of the tricolor and sauvis section are grown in some collections; if any are leggy and dwarf plants are desired they may be cut down and dropped into a pot within a few inches of the base of the bottom leaves, that is, providing the roots are convenient to do so; if not, they may be dropped accordingly in order to have dwarfer plants, allowing them plenty of crocks and moss; nothing else is required; they must be kept in a shady place until something like established; the hot rays of the sun which we often have at this time of the year must be guarded against strictly, in order to keep the leaves in a healthy state. The damping and watering generally will require discretion; plenty of fresh air on favourable occasions, as stagnant air at this season is bad among orchids; a little more fire heat will be required at night to dry up the stagnant moisture. The cattleyas must be examined, and where any rot is lodging cut away the bulb; keep a sharp eye on the cattleya fly; fumigate occasionally to kill the insects; very little will act, they being so fragile.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

GREATER care will be required in ventilating these structures now in order to avoid cold draughts, which mean a severe check to the plants feeling it. More reliance will need to be placed upon the heating apparatus to keep up the necessary night temperature. At this season the careful and thoughtful stoker can best show his abilities; if the night has been cold, and it has been necessary to push the fire to have the necessary heat in the pipes, he will so bank up his fire that, if the morning should prove to be bright and promise a hot day, he can easily have his pipes cooled before the hottest part of the day, keeping his fire low and clean ready for starting it on again to meet the declining sun heat. The morning syringing may with advantage be performed later than has been the rule, though the floors and stages of the house will need to be damped first thing upon turning out in the morning; the afternoon syringing to be performed not later than two p.m., damping the floors again before going in to tea. The same remarks apply to the intermediate house; a little air may be left on the top ventilators in this structure on all but very cold nights.

Batches of gloxinias, achimenes, and tydæas, as they pass out of flower, place on a shelf in the full sun and gradually reduce the supply of water, withholding altogether when the shoots are thoroughly dried; when this is attained the pots may be stored away in a dry place free from drip, where the temperature in the hardest weather does not fall below 45 or 50 degrees. Caladiums, after being dried off, must be wintered in the stove, as the tubers will not stand a low temperature. Those who have experienced difficulty with the latter, when allowing them to remain in the pots in which they were grown during the preceding season, may try the plan of turning them out of their pots, shaking the tubers free from soil, and placing them singly in small pots with a little dry sand.

Ixoras that have done flowering will require a reduced supply of water, and may be stood at the coolest end of the house; those that are still flowering to be afforded weak stimulants occasionally. Afford water less freely to dipladenias, as they show signs of passing out of flower, the shoots also may receive a light thinning. Plants of Gesnera zebrina and others that are coming into flower should be afforded stimulants regularly—not strong—weak and often being the policy with these and other things requiring feeding; be careful not to wet the foliage, else it will become spotted and lose much of its beauty. Later batches may be potted into their flowering pots, using a compost of loam, peat, leaf-soil, well-decayed manure, and sand; six-inch is a suitable sized pot to flower them in. Late batches of justicias that have been growing in cool frames should be removed to the intermediate house—if they remain longer in cool quarters they will lose their foliage—the same remarks apply to Thyrsacanthus rutilans. As the plants of Urceolina pendula aurea come into flower, they should be associated with ferns, it adding very much to their beauty as they lose their leaves before their flowers appear. Bougainvillias that have done flowering should have their shoots well thinned out, but defer pruning for some time yet. All stove plants that have been used in the conservatory should be removed to the stove without further delay; if kept in the cool temperature longer they will suffer.

In the fernery it will be necessary to reduce the atmospheric moisture; should thrips be present in the house they will be likely to increase with the reduced moisture, therefore, fumigate two or three nights in succession with XL All fumigating compound, to be repeated again in the course of a week, so that they may be quite eradicated. With the reduction of atmospheric moisture greater care will be necessary in watering, so that none suffer from a lack of moisture at the roots.

Gloriosas, after flowering, should be gradually dried off, and when the tubers are quite mature (which will be when the shoots and foliage are quite ripened off), store the pots away in a dry place in a temperature of 60 degrees. Attend regularly to cleaning and sponging any plants infested with mealy-bug and scale; plants cannot progress satisfactorily where these are allowed to thrive.—J. TUNNINGTON, *Ripley Castle Gardens, Yorks.*

THE FLOWER GARDEN.

THE continued dry weather and extreme heat is playing sad havoc with the occupants of herbaceous borders under ordinary culture, and it rarely occurs that these are so situated where water may be applied in quantity and often, which has been very necessary this season to preserve a fresh and growing condition. Although a loose surface helps considerably to counteract drought by forming a kind of dusty mulching, the earth has become so hot and parched that many subjects are showing distress, and if flowers are desired later, water and an additional mulch should be applied if possible, the past week having added considerably to the distressing drought, and water supplies are in many instances used up. Border chrysanthemums, so useful through the early part of October, should receive some assistance or the flowers will be poor should the foliage suffer to any extent. Several are already in bloom, one of the best of these being the showy golden yellow Flora, a variety that continues to produce young flowering shoots from the old wood until really cut down by several degrees of frost. Some other varieties flowering are Canari (dwarf bright yellow), Bronze Bride, Mons. Gustave Gunnerwald, Mrs. Selby, Illustration, and Harvest Home, which may be described as an early flowering William Holmes, and a very desirable variety.

Michaelmas daisies in several varieties are also being forced into bloom by the extreme heat, and watering will be necessary with the tall growers to preserve the lower foliage. These are so useful for supplying cut flowers that their culture deserves extension. Nothing is more showy now than masses of the purple blue of the variety Amellus bessarabicus—about two feet in height, the foliage perfect, and where no water has been given—the white of Harpur Crewe, and the pale lilac of Cordifolius, Acris, and others. These should be tied loosely to stakes if not already done, or heavy storms of wind and rain, which we may expect sometime this or next month, will break them down. Sunflowers, Pyrethrum uliginosum, and others should also be afforded support. Phygelius capensis is one of the brightest dwarf-flowering subjects in the borders at the present time; it seems to stand the drought well and flowers freely. Dahlias in light soils have had a very trying time recently, although where well mulched and watered occasionally the flowers have been good. While these are in bloom the collection should be examined and correctly named, or the colour and description placed on a label to be attached to the root when lifted for storing later on. The second flowering of roses has, through the dry conditions above cited, been somewhat poorer than usual, the growths made being thin and weakly. One of the best dry weather roses is the old Gloire de Dijon, which has yielded a wealth of blossoms notwithstanding the drought; and some of the teas, as Anna Olivier, Madame Lambard, Marie Van Houtte, have furnished some fairly good flowers.

Carnation layers that have been regularly watered since layering will have become sufficiently rooted to allow of their being severed from the parent plant within the next week or two, to be either replanted in a permanent position for flowering next season, or to be potted up and kept in cold frames during the winter. In all light soils border carnations are best planted in the open early in autumn. In clayey, wet soils in cold localities it may be necessary to winter them in cold frames, to be planted out in the spring, but the less cooling the plants receive the better. The positions of the beds for the carnations should be changed annually, if possible, and also be prepared beforehand by deep digging, adding fresh loam or thoroughly decayed manure if the ground is in a poor condition. In planting, a space of not less than a foot apart each way should be given.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

OWING to the long protracted drought and heat in the southern parts of the country, many of the late apples are dropping their fruits in large numbers. This is to be regretted, as the crop in many districts is none too plentiful, and if the fruits are gathered too early they will not keep. Birds are most troublesome this season with the best coloured fruits, and in many cases it has been necessary to net the trees; at the same time I am not much in favour of placing nets so close to the frnits that the strain of the nets makes an impression. In the case of fine fruits, I have used tiffany with advantage. Small trees that have well coloured fruits, are covered with this material, but it is not well to cover so closely that the air cannot circulate freely. Small bush trees will repay copious supplies of moisture if in light soil, as these are mostly on the Paradise stock, which is a surface rooter, and the later varieties will need assistance to mature the fruits. Liquid manure may still be given the last-named, and if a mulch was applied as previously advised, the trees will perfect the crop, and late apples this year will be limited in quantity. Pears will pay for similar attention. Trees on the quince stock have shallow roots, and will need liberal supplies of moisture to enable them to perfect their fruit. I fear in many gardens the crops of both apples and pears this year are light, and lack size, so that feeding of trees should not be overlooked, even when the crops are cleared. As the soil is so dry the trees need moisture to build up the fruit buds for another season.

No liquid from cow yards or stables should be allowed to run to waste at this season as it is needed in so many different ways. Apricots are feeling the effects of drought in our light soil, and I am doubly anxious as it often occurs. We lose much wood the next spring after a hot, dry summer, and this in a measure may be prevented by watering and mulching. The same remarks apply to cherries on warm walls; these trees are needing more than ordinary attention, as, like the apricot, they root near the surface and need ample support. Newly-planted trees have had a trying time when planted early in the year and every endeavour should be made to keep the leaves on the trees, as if they drop prematurely the bark shrivels and it is difficult to induce the trees to grow vigorously another year. I advised special culture for these trees early in the summer and need not reiterate the advice given, but I would add that should the mulch need renewal do not hesitate to apply fresh material, as this is more necessary now than earlier, before the leaf growth was so large. Recently-planted trees bearing heavy crops should have a portion of the fruit removed as it is not well to exhaust the trees unduly, and at this date the fruits may be made good use of. In the case of early kinds the crop may be cleared and the trees given ample supplies of moisture once a week at least.

The fruit store or room, as it is often called, should be put in order before the crop is taken in. Of course, ere this some early fruits will have been gathered, but

I usually give these a cooler room, if possible, as unfortunately many fruit rooms at this date are none too cool late in the day, and fruits will keep much longer in a cellar or underground compartment than in a heated fruit room, which is often placed at the back of forcing or hot houses. Any store place that is cool and not too dry will be suitable at this season, and the best store I ever had was an old disued ice well fitted up with shelves, and here we had no difficulty in keeping apples till May. With rooms above ground much may done by having the roof thatched or the spaces between the slates and ceiling to the depth of a foot filled in with some non-conducting material, such as sawdust. Another point is, too much ventilation, as this is not so much needed if a cool temperature can be maintained, and free currents of air tend to cause shrivelling. But, of course, no matter what kind of store be employed fruits gathered too early will not keep plump and in otherwise first-rate condition. In the case of such excellent kinds ot dessert fruit as Cox's Orange and Ribston Pippin apples, far better gather late than lose the good qualities of the fruit. In many fruit rooms fires and pipes were considered necessary adjuncts to the fitting, they are the reverse, and providing frost can be kept out that will suffice.—G. WYTHES, *Syon Gardens.*

THE APPLE CROP.

Berwick.—I am very pleased to be able to report that with me this year apples are a splendid crop, Ecklinville, Warner's King, Hoary Morning, Lord Derby, Duchess of Oldenburgh, Aitkin's No. 2, and many others; we have a very large collection of, both on walls and bush trees. Fruit is much larger this year than it has been for a few years past; largest and finest I have seen for a long time, owing to the warm weather we had in the second half of August and beginning of September. Ground here very heavy. We are fully a fortnight behind a little further south. Dessert apples a splendid crop.—JAMES FOSTER, *Paxton House.*

Bucks.—Some varieties are bearing excellent crops, whilst others are a failure. The following are a good crop, although rather below the average in size owing to the dry weather: Gladstone, Ingestre (Yellow), Worcester Pearmain, White Transparent, Washington, Ribston Pippin, Seaton House, Mrs. Barron, Newton Wonder, Keswick Codlin, Lane's Prince Albert, King of the Pippins, Kerry Pippin, Duchess of Oldenburgh, Ecklinville Seedling, Gascoyne's Scarlet, Cockle Pippin, Cox's Orange Pippin, Baumann's Red Winter Reinnette, Adams' Pearmain, Cobham, and Margil.—J. SMITH, *Mentmore.*

Cheshire.—Apples bloomed very abundantly, but as is too often the case we were visited with cold winds and some frost when the fruit was setting, the result being that some trees have no fruit, some a few, and several bearing good crops, but on the whole the crop is scarcely an average one. The kinds bearing best are the following: Irish Peach, Worcester Pearmain, Cox's Orange Pippin, Dutch Mignonne, Baumann's Red Winter Reinette, Royal Russet, Ribston Pippin, Cox's Pomona, Chatley's Kernel, Ecklinville Seedling (fine fruit), Warner's King (good), Bismarck, Grenadier, Pott's Seedling, Lane's Prince Albert, Lord Suffield, Frogmore Prolific, Lord Grosvenor, Mère de Menage or Combermere, Kentish Codlin, Hawthornden, Northern Greening, and Keswick Codlin.—W. WHITAKER, *Crewe Hall.*

Cornwall.—A very good crop, the following varieties especially so: Astrachan, I find it very good on Paradise stock, colours very nicely, would sell well; Bismarck (mine are young trees), good on any stock, fine variety; Beauty of Kent, splendid for kitchen, not for dessert; Blenheim Pippin, a good old variety, always bears well after the first few years; Bramley's Seedling does well on any stock, and generally bears good crop; Cox's Orange Pippin and King of the Pippin, the two best dessert apples grown, always bear a good crop, and good colour; Devonshire Quarrenden, very good in a nice dry soil; Grenadier, the best of the Codlins with me; Irish Peach, nice early dessert, sure bearer; Newton Wonder, good late kitchen variety; Ribston Pippin, on Paradise stock, is very good, cannot grow it on any other as it cankers; Sturmer Pippin, splendid late apple for any purpose; Yellow Ingestre, small but very good dessert apple. The above are some of the best for this soil; some good varieties I cannot grow because of canker.—S. J. RICHARDS, *Mount Edgecumbe.*

Denbighshire.—There is an average crop. Ribston Pippin, good; Blenheim Pippin, good; Golden Noble, extra fine; Lord Suffield was a scanty crop but fruits very fine; Lady Sudeley is an excellent variety and does well here; Ecklinville Seedling fruits are heavy; Court Pendu Plât, Gloria Mundi, Fearn's Pippin, Hawthornden, and Wareham Russets are a fair average crop.—HENRY FORDER, *Ruthin Castle Gardens.*

Derby.—Apples are a somewhat partial crop, the fruit generally undersized, and some varieties are badly grub-eaten and scabby. Most of the Codlin varieties are bearing average crops of clean fruit; Blenheim Pippin is bearing well, also Cox's Orange Pippin. That never-failing variety, Lane's Prince Albert, is bearing its usual heavy burden; many of the early varieties are good, such as Irish Peach, Lady Sudeley, Duchess of Oldenburg, Juneating; of late varieties, Tower of Glamis, Burchard's Seedling, and Wareham Russet are well loaded. We have young trees of Allen's Everlasting, Wealthy, Gascoyne's Scarlet, Bismarck, &c., heavily laden with good clean fruit.—J. H. GOODACRE, *Elvaston Castle.*

Dumbartonshire.—Apples are a fair crop, and the most productive varieties are: King of Pippins, Warner's King, Ecklinville, and Lord Suffield, of which we have good crops.—W. MCHUTCHEON, *Auchendennan.*

Fifeshire.—We grow about twenty varieties, and Irish Peach, Ecklinville, Warner's King, Aitken's No. 2, East Lothian Seedling, have always produced a good crop for the past fifteen years; all others are very uncertain bearers.—JOHN CLARK, *Wemyss Castle Gardens.*

Hants.—Apples are a fair crop in this district, such sorts as the early dessert kinds, namely, Irish Peach, Lady Sudeley, Mr. Gladstone, and Red Juneating, are bearing good crops. Of later sorts, the heaviest crop are carried by Worcester Pearmain, Blenheim Pippin, Cox's Pomona, Cox's Orange Pippin, Ribston Pippin, Adams' Pearmain, Cockle's Pippin. Those carrying a fair crop are Mannington's Pearmain, Peasgood's Nonsuch, Mother Apple, Rosemary Russet, Fearn's Pippin, Emperor Alexander, Scarlet Nonpareil, Reinette du Canada, Sturmer Pippin, Allen's Everlasting, King of Pippins. The best early kitchen apples are Duchess of Oldenburg, Manks Codlin, and Keswick Codlin. Of later sorts with good crop are Cellini, Northern Dumpling, Ecklinville, Stirling Castles Hawthornden, The Queen, Lord Derby, Warner's King, Wellington, Lane'r Prince Albert, Norfolk Beefing, Bramley's Seedling, Winter Queening, Winte, Peach, Alfriston, Northern Greening, French Crab, Sandringham, Calville Rouge, Beauty of Kent, Chelmsford Wonder, Tower of Glamis, King of Tompkins County, Gravenstein.—J. W. MCHATTIE, *Strathfieldsaye.*

—The apple crop in this locality is considerably below the average, which must, I think, be attributed to the sharp frosts and cold winds we experienced late in spring. Birds are now very troublesome in this neighbourhood, especially blackbirds, and are destroying a great proportion of the fruit now hanging on the trees. Through the drought there is no food for them, and apples, plums, pears, outdoor figs, and even tomatos are devoured, unless securely netted. Our best dessert apples are Irish Peach and Worcester Pearmain early, followed by Cox's Orange Pippin, King of the Pippins, Blenheim Orange, Ribston Pippin, Court of Wick, and Sturmer Pippin. Best culinary are Frogmore Prolific, Lord Suffield, Golden Noble, Blenheim Pippin, Cox's Pomona, and Winter Belle Bonne; this last is a first-rate variety, good in quality, and keeping perfectly sound till the end of April.—G. TRINDER, *Dogmersfield Gardens.*

Kent.—The crop of apples is a good average. With the exception of Suffields most varieties are carrying a very fair crop. Amongst the best sorts that I have found to be the most reliable are the following: Ecklinville, this seldom fails us, but this year it has been extra good, not only for size but for the enormous quantity of fruit carried; being short-jointed it makes a very compact and pretty bush tree. Golden Spire, very heavy cropper, one of the very best culinary apples we have, should be in every garden, and certainly where room is limited; being an erect grower it can be planted eight feet apart or even less; when carrying a heavy crop we begin thinning the fruits when about the size of a hen's egg, and we are still picking from a tree that we commenced upon a month since. Grenadier, another grand apple worth growing; heavy cropper, makes a very nice tree. Then for later use we find Stones a really splendid sort; a good robust grower, heavy cropper, and capital cooker. Warner's King another reliable sort; Golden Noble, very nice shapely apple, good cropper, perfectly round, shallow eye, no waste in peeling; Queen Caroline, much like the foregoing, not such a good keeper, makes a pretty tree, in colour a lovely yellow; Lane's Prince Albert, very heavy bearer, needs much thinning to get the fruit good sized; a good late kind. Newton Wonder, this is a splendid late kind, a cross, I believe, between Blenheim and Wellington. Messrs. Pearson, of Chilwell, I see are bringing the merits of this sort before the public, and certainly it deserves all the publicity possible. Amongst dessert kinds Lady Sudeley ranks very high with me as an early kind; Mr. Gladstone I find a poor cropper, after this year I shall cease to grow it. Worcester Pearmain is another very desirable early variety, very heavy cropper; loses flavour within a day or two after being gathered, but eaten direct from the tree it is not to be despised. I have just seen some bushes four to five feet in height carrying three to four dozen highly-coloured fruits. Ribstons and Cox's Orange are good, but owing to the drought are not so large as usual. Wealthy has done well with me for several years; a very bright and attractive fruit, seems to me one that would make a good market apple. Owing to the continued drought we have experienced for weeks apples, and especially pears, are rather smaller than usual.—GEORGE WOODWARD, *Barham Court.*

Kirkcudbright.—Apples are very poor with us this season. The varieties bearing the finest crops are: Keswick Codling, Nonsuch, Lord Suffield, Hawthornden, Ecklinville, Nonpareil, King of Pippins, Early Harvest, and Ribston Pippin.—JAMES HANNAH, *Cairnsmore Gardens.*

Meath.—We had plenty of bloom, but owing to severe weather the flowers failed to set, consequently we have a very indifferent crop of apples.—JAMES HOUNSLOW, *Headfort Gardens, Kells.*

Middlesex.—Apples this season throughout this district are but a partial crop; in some places fairly good, in others very thin. Some gardens and orchards have been better favoured than others. Trees looked very promising in early spring, but what with the continued east winds and prolonged drought the crop here is almost a failure. We have a perfect plague of wasps and flies, which are compelling us to gather fruit before it is properly ripe, as they are devouring everything.—A. R. ALLAN, *Hillingdon Court Gardens.*

Norfolk.—On young trees good; older trees, owing to the dryness of the subsoil, are looking bad, and have dropped their fruit—where they have retained the fruit it is small, and of poor quality. The rainfall in May, with two or three copious downfalls since, accompanied with lightning, has kept the surface fairly moistened during the growing season, but the total absence of rainfall during the winter accounts for the miserable plight of the older trees.—W. ALLAN, *Gunton Park.*

Northamptonshire.—Varieties most prolific and those on which I depend are Lord Suffield, River's Codlin, Warner's King, Bismarck, Worcester Pearmain, Cellini Pippin, Small's Admirable, Schoolmaster, New Hawthornden, Blenheim Pippin, Mr. Gladstone, Beauty of Bath, Kerry Pippin, Irish Peach, Lady Sudeley, King of the Pippins, Court Pendu Plât, Annie Elizabeth, and Peter the Great; these are all bearing an average crop. The following are generally less prolific on our limestone sub-soil: Ecklinville Seedling, Keswick Codlin (prolific in most places), Cox's Orange Pippin, Quarrenden, Bramley's Seedling, Tower of Glamis, Alfriston, with others; even if they set, the fruit falls with a spell of hot weather. Taking the crop on the whole, it is far above the average.—JOHN HAYES, *Castle Ashby.*

Northumberland.—Orchard trees are nearly a failure here this season. Bush trees on the Paradise in the gardens are heavily cropped. The soil is poor. The site for every tree is carefully prepared; a layer of clay is placed nearly two feet deep, three inches thick, and a little is mixed with any good soil there is to spare, also lime rubbish to keep it sweet. Only few branches are grown on the trees; these, well set with fruit spurs, frequently bear crops as much as the tree can mature. Kitchen apples, Red Calville, Codlins, Domino, perhaps the heaviest cropping apple; Lord Grosvenor, great cropper; Ecklinville, exceptionally fine this year; these will maintain a supply till November; Stirling Castle, great cropper; Warner's King, to Christmas; Lane's Prince Albert, Bramley's Seedling, Newton Wonder, Dumelow's Seedling, four of the best for late use. Of dessert apples in the open in bush form Mr. Gladstone, Lady Sudeley, and Worcester Pearmain good; Irish Peach, Early Harvest, James Grieve, Red Astrachan, Cox's Orange Pippin, and Ribston do excellently on walls, but not as open bushes. For the garden, I am altogether in favour of the bush form on the Paradise stock. The frost in spring does not injure the dwarf bush so much as it does the tall orchard tree.—GEORGE HARRIS, *Alnwick Castle Gardens.*

Tipperary.—The apple crop is very much under the average here, a very unfavourable month of May working havoc among fruit trees. Northern Dumpling and Cox's Pomona, however, are carrying a full crop, both being in [illegible] situations. The finest dessert apples, as Red Astrachan, Kerry Pippin, &c., are few and far between this year. There are over 30 varieties of standard apples, and the trees indeed look barren as compared with 1896.—D. R. [illegible], *[illegible] Gardens, Templemore.*

Queen's County.—Apples are a full crop. Codlin varieties, especially Ecklinville Seedling, Keswick Codlin, Manks Codlin, and Queen Caroline, are first-rate in every way. Warner's King is also very fine. The trees are well sheltered with a high wall on the north side.—W. BEGBIE, *Emo Park.*

Radnorshire.—The varieties of apples which have cropped the best in this garden are Ecklinville Seedling, heavy crop; Golden Spire, Bramley's Seedling, Emperor Alexander, Lord Derby, Cox's Pomona, King of the Pippins, Alfriston, Ribston Pippin, Lord Grosvenor, all are a good average. Blenheim Pippin, Tower of Glamis, Cox's Orange Pippin, Lord Suffield, and several other sorts have scarcely any crop. The first ten seem to succeed the best here, Ecklinville always cropping freely and the fruit attains a large size; one drawback to it is that the fruit becomes spotted, which disfigures it very much.—W. PALLISER, *Norton Manor.*

Rutland.—All kinds flowered well, but the crop is only a partial one. It is impossible to assign a reason for the failure this season of some kinds and the success of others, as the trees were not overcropped last year, and we had no frost while they were in flower. Mr. Gladstone, Duchess of Oldenburg, Duchess' Favourite, Dewdney's Seedling, Stirling Castle, Worcester Pearmain, Duke of Gloucester, Maltster, King of Pippins, Peasgood's Nonsuch, Hambledon deux Ans, Northern Greening, Bramley's Seedling, are bearing heavy crops. The fruit will be smaller than usual owing to the recent dry, hot weather.—W. H. DIVERS, *Belvoir Castle Gardens.*

Staffordshire.—Medium crop; orchard trees, fruit smaller than usual; trees in cultivated garden very fair. Soil, stiff loam, clay subsoil; cold. Varieties which grow and fruit well are: Dessert—Adams' Pearmain, Allen's Everlasting, American Mother, Blenheim Pippin, Claygate Pearmain, Court Pendu Plât, Cox's Orange, Devonshire Quarrenden, Duchess of Oldenburg, Dutch Mignonne, Early Harvest, Kerry Pippin, King of the Pippins, Lady Sudeley, Mannington's Pearmain, Margil, Ribston Pippin, Scarlet Pearmain, Sturmer Pippin, and Worcester Pearmain. Kitchen varieties—Alfriston, Beauty of Kent, Bismarck, Cellini, Cox's Pomona, Dumelow's Seedling, Ecklinville, Frogmore Prolific, Golden Noble, Grenadier, Hawthornden, Keswick Codlin, King of Tomkins County, Lane's Prince Albert, Lord Derby, Lord Grosvenor, Lord Suffield, Newton Wonder, Potts' Seedling, Reinette du Canada, Rymer, Small's Admirable, The Queen, Tom Putt, Sandringham, and Warner's King.—GEORGE WOODGATE, *Rolleston Hall Gardens.*

Sussex.—Apples here are only a partial crop. Of the hundred or more varieties grown there are only a few of them that are anything like up to the average, the best of which are the following: Lane's Prince Albert, a full crop of fine fruit; Ecklinville, good crop; King of Pippins, Warner's King, Worcester Pearmain, Blenheim Pippin, Seaton House, Lord Grosvenor, Jubilee, Bismarck, Newton Wonder, Cox's Orange Pippin, Peasgood's Nonsuch, Stirling Castle, Potts' Seedling, Keswick Codlin, Manks Codlin, Frogmore Prolific, and Irish Peach, Wealthy are among the best. Many varieties have failed to produce a fruit, while there are others that have not half a crop. Most of the fruit is of but poor quality owing to the lack of moisture in the soil, the rainfall here up to the middle of September amounting to only 11·18 inches. Many of the late varieties are falling off from premature ripening.—H. C. PRINSEP, *Buxted Park.*

Warwick.—Apples are a good crop in these gardens, in fact, are more abundant than for some years past. A few trees of such varieties as Frogmore Prolific, Stirling Castle, and Lord Derby have required thinning considerably. Other varieties bearing heavy crops are Ecklinville Seedling, Golden Noble, Potts' Seedling, Mère de Ménage, Northern Greening, Warner's King, Tower of Glamis, Lord Suffield, Codlins of sorts, Hambledon deux Ans, Emperor Alexander, Cox's Pomona, Winter Reinnette, Beauty of Kent, Court Pendu Plât, Cox's Orange, Kerry, and King of Pippins, Worcester Pearmain, and Yellow Ingestre. The crops of apples in old orchards in this neighbourhood are very partial, some trees carrying fair crops, and others have none.—T. H. MARTIN, *Stoneleigh Abbey.*

Wexford.—The crop of apples in the gardens here is poor, with the exception of Grenadier, Yorkshire Beauty, Cox's Orange Pippin, Keswick Codling, Ecklinville, and King of Tomkins County, which are bearing satisfactorily.—JOHN McLENNAN, *Castleborough.*

Wigtonshire.—Apples are a very fair crop, the fruit of good size, clean, and well coloured. Of dessets sorts, Thorle Pippin, Mr. Gladstone, Worcester Pearmain, Ravelstone Pippin, James Grieve, Cox's Orange, and Ribston Pippin are heavily cropped. Culinary sorts, as Manks Codlin, Keswick Codlin, Domino, Lane's Prince Albert, Stirling Castle, Warner's King, Cellini, Bramley's Seedling, Baillie Neilson, and Galloway Pippin are all very good; the last-named is one of our best and most reliable cropping apples, and this year the trees are loaded with fruit. It is good for culinary use in all stages, and late in the season is very useful for dessert.—JOHN DAY, *Galloway House Gardens.*

Yorkshire.—An average crop and quality good. The cold winds from which we suffer in the East Riding of Yorkshire, as a rule from March till June, frequently do much damage to fruit trees generally when the sap is rising, and this year cold east winds and frost were more in evidence than usual, the result is that the great promise of an abundant crop of all kinds of fruit has not been realised. Some kinds of apples are carrying heavy crops, while others are quite bare. The following varieties are carrying good crops:—Keswick Codlin, Potts' Seedling, New Hawthornden, Blenhiem Pippin, King of the Pippins, Warner's King, Cockpit (a very hardy and reliable apple, rather small), Bramley's Seedling, Bismarck, Ribston Pippin.—J. ALLSOP, *Dalton Hall.*

[illegible].—Lord Suffield, Keswick Codlin, Beauty of Kent, Hawthornden, Stirling Castle, Warner's King, Galloway Pippin, Rose Hill, Grey Leadington, Warwick Beauty, Yorkshire Greening, and Lewis's Incomparable have good average crops, the late hot weather following nice rains early in August have caused the fruits to swell nicely. We have had quite an epidemic of American blight this season. Syringing the trees after July came in with rain water in which two wine glasses of paraffin were mixed in each four gallon can checked the blight and did not injure the foliage. Were I planting early apple trees for profit I would prefer the old Keswick Codlin to its near relative, Lord Suffield, for this part. On dry limestone soils the latter does very well, but on sandy soils and cold clays it is very liable to canker. Our garden is situated on the limestone formation on the south west edge of the plain of York.—H. J. CLAYTON, *Grimston Park Gardens.*

IS BRITISH SPORT DYING OUT? has often been a question for discussion, and it is very satisfactory to know that a negative answer can be given. The physical condition of Englishmen has improved during the past half century, and the cause of this satisfactory change is attributed to the better style of living which has been adopted by all classes. Men are more temperate, both in eating and drinking, and, above all, the system is kept in tone and the blood purified by medicines of sterling worth, such as Holloway's Pills and Ointment. The taste for sport will never die while people use these remedies, which will cure or relieve any complaint, and give strength in place of weakness.—[ADVT.]

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, September 20.

ON the above date one of the largest displays of the year was gathered at the Drill Hall, and much difficulty was found in finding room for all the exhibits of fruit, flowers, and vegetables. Orchids, dahlias, and early chrysanthemums were the leading flowers, and they were extensively shown.

FLORAL COMMITTEE.

The great bulk of the exhibits had to come under the adjudication of this body, and its members were in a very liberal mood, as they gave awards to seventeen dahlias and six other subjects, besides distributing two first-class certificates and thirteen medals.

A splendid exhibit was put up by Messrs. J. Burrell and Co., Howe House Nurseries, Cambridge, and it consisted of gladiolus and dahlias; the gladiolus spikes were characterised by sturdiness, substantial flowers, breadth, and variety of colouring. Atlas, rose; Dora Craven, pale blush; Rayon d'Or, yellowish; Iona, scarlet; Meyerbeer, salmon; and Althea, pink and crimson, were half-a-dozen fine named sorts, but many of the seedlings were of equal merit; a few bunches of Nancianus forms added interest to the display; silver-gilt Flora medal. Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, staged a group of plants of the brilliant Salvia splendens grandiflora raised both from seed and from cuttings; silver Flora medal. Messrs. J. Veitch and Sons, Chelsea, contributed varieties of Hibiscus syriacus, Caryopteris mastacanthus, Abelia rupestris, some freely-flowered sprays of Bignonia venusta, and a big plant of Gynerium argenteum Rendatleri, with a number of elegant plumes. Mr. Hudson also showed a group of the now well-known Acalypha Sanderi, all the plants being remarkably well grown, and making a most effective display.

A handsome and comprehensive collection of early flowering chrysanthemums came from Mr. W. Wells, Earlswood, Redhill; Louis Lemaire, a bronzy sport from M. Grunerwald, was very showy, and other especially good sorts were Arthur Crepy, Market White, Mytchett White, Madame Liger Ligneaux, M. Max Dufosse, Jeanne Willermet, Mademoiselle Marie Masse, Flora, Harvest Home, Madame Zephir Lionett, and Ivy Stark, all useful for garden decoration; silver Banksian medal. A delightful lot of cut roses was shown by Messrs. W. Paul and Son, Waltham Cross, who exhibited the blooms in vases and baskets, and on boxes; Caroline Testout, Harrison Weir, Enchantress, Empress Alex. of Russia, Marie Van Houtte, Souvenir de Catherine Guillot, Mrs. W. J. Grant, Sappho, and Maman Cochet were well shown; a little more foliage would have improved the display; silver-gilt Banksian medal. A large collection of sweet peas came from Mr. Foster, Brockhampton Nurseries, Havant, but they showed the effect of dry weather and travel somewhat, and were not staged in a very good position to be seen to advantage; silver Banksian medal. Mr. W. H. Witty, Nunhead Cemetery, put up a large group of early flowering chrysanthemums, arranging them with adiantums; the ferns were arranged in three lines across the group, and the effect was bad; silver Banksian medal.

Mr. Seale, Sevenoaks, sent a few good pompon and single dahlias. Messrs. Paul and Son, Cheshunt, staged cut roses in baskets, but very little taste was displayed in the arrangement; François Dubreuil, Kaiserin Augusta Victoria, W. A. Richardson, and Paul's Cheshunt Scarlet were the most notable varieties on view. The same firm had large baskets of Cyclamen hederaceum album, and the typical form, autumn flowering colchicums in variety, and large showy bunches of gaillardias, perennial asters, sunflowers, and phloxes; among the latter P. Coquelicot and P. Etna are sorts finely suited for planting *en masse*; dahlias in variety and a batch of the pretty antipodean Veronica salicornoides, completed an extensive exhibit; silver-gilt Flora medal. Lady Freake, Fulwell Park, Twickenham, sent thirty-three spikes of cannas, comprising some twenty-one varieties, all of which had been cultivated in the open air; Sophie Buchner, Edouard Mieg, Papa, and Duchess of York, were especially bright and good; bronze Banksian medal. A group of ferns set up by Mr. H. B. May, Edmonton, consisted entirely of davallias, and was a most instructive collection, as it consisted of fifty species and varieties; the tiny D. parvula and D. alpina figured as well as the bold D. polyantha, the elegant D. Mooreana, and D. fijiensis; gilver-gilt Banksian medal. Mr. S. Mortimer, Farnham, made a good show of dahlias, both cactus and show varieties; the latter were represented by splendidly developed flowers of the leading forms; among the cactus dahlias the vivid scarlet E. J. Deal was conspicuous, and bears out all we have previously said about its excellence; silver Flora medal. An extensive display of single cactus, and pompon dahlias was made by Messrs. J. Cheal and Sons, Crawley, who made a very bright exhibit; among their cactus varieties we noted especially good examples of Arachne, Lady Edmund Talbot, Lady Pearson, a new rosy-red; Alfred Vasey, Mrs. Scrase Dickens, and Fantasy; the pompon forms were very neat and serviceable blooms; silver Flora medal. Some three dozen distinct varieties of cactus dahlias were set up by Mr. Charles Turner, Slough, and this exhibit is deserving of special mention, for the flowers were shown in vases of a variety instead of in the orthodox triangular sprays; the group was much more pleasing in this way than in the usual style; Night, Amber, Island Queen, Miss Webster, Alfred Vasey, and Lavestock Beauty, were well represented—this was a move in the right direction, and one we have so long advocated; silver Banksian medal. A display of dahlias representing all the section came from Mr. T. S. Ware, Tottenham; all the leading sorts were on view, and behind and among them were spikes of Lilium speciosum; a bright lot of canna spikes also came from the Hale Farm Nurseries; silver Banksian medal.

ORCHID COMMITTEE.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, had a neat group of orchids, in which Lælio-cattleya intermedia-flava, L.-c. Pallas, L.-c. Nysa splendens, Vanda cærulea, Cypripedium Charles Canham, C. Sanderianum, C. picturatum, C. Charlesworthi, and Cattleya velutina figured conspicuously; silver Banksian medal. Messrs. F. Sander and Co., St. Albans, sent flowering specimens of Dendrobium atro-violaceum, the rare Cypripedium purpuratum, Odontoglossum grande, &c., arranging them amid Pandanus Sanderi and Acalypha Sanderi. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking, showed the pretty and dwarf Oncidium longipes, O. trulliferum, a sort of glorified O. pubes, Miltonia spectabilis, and M. Binoti, the latter a supposed natural hybrid between M. candida and M. Regnelli purpurea. A deeply-coloured form of Cattleya Hardyana was shown by Mr. King, gardener to J. Colman, Esq., Gatton Park, Reigate.

Mr. F. Canham, gardener to C. H. Feiling, Esq., Southgate House, Southgate, put up a bright display, chiefly of Dendrobium Phalænopsis Schröderianum, all well grown and in good variety; a few good cypripedes and cattleyas made up the exhibit; silver Banksian medal. Messrs. J. Veitch and Sons, Chelsea, sent a good batch of orchids in flower, and in their interesting group we noted Rodriguezia venusta, well flowered, Cattleya velutina, Lælio-cattleya Nysa, Cypripedium Charles Canham, Cattleya Wendlandi, C. Chloris, the latter a bright hybrid between C. maxima and C. Bowringiana; Cypripedium Rothschildiano-villosum was most interesting, and other notable orchids were Lælia monophylla and Cœlogyne Veitchi; silver Flora medal. The old Epidendrum Brassavolæ and the curious Dendrobium Mirbelianum, with twisted green flowers, came from Messrs. J. Veitch and Sons. Mr. Bond, gardener to C. L. N. Ingram, Esq., Godalming, sent Lælio-cattleya T. W. Bond, a cross between C. labiata and L. purpurata. Messrs. J. W. Moore and Co., Royd Nurseries, Leeds, staged a large plant of a fine variety of Vanda cærulea.

FRUIT COMMITTEE.

A first-rate exhibit of fruit came from Messrs. William Paul and Son, Waltham Cross, who, in addition to a large collection of fine apples in dishes, sent handsomely-fruited pot trees of leading varieties of apples, pears, figs, and peaches; the apples were very well grown, and the whole group was a credit to the firm; silver-gilt Knightian medal. Messrs. J. Peed and Sons, Roupell Park Nurseries, Norwood, showed an excellent collection of apples and pears, both culinary and dessert varieties; the fruit was remarkably clean and fairly well coloured, solid, and of a good useful size. Grapes were also represented by good bunches of Syrian, Trebbiana, Barbarossa, Gros Colmar, Alicante, Golden Queen, Muscat of Alexandria, Mrs. Pince, Madresfield Court, Black Hamburgh, and Alnwick Seedling; a good display; silver Knightian medal. A big collection of apples and pears came from Messrs. J. Laing and Sons, who arranged some seventy-five dishes of fruit in as many varieties; Gravenstein, Barnack Beauty, Ribston Pippin, New Hawthornden, Lord Derby, Warner's King, King of the Pippins, Sandringham, Wellington, Emperor Alexander, Cox's Pomona, Frogmore Prolific, Alfriston, and Celina were notably good examples of first-rate apples in this collection of good fruit; silver Knightian medal.

Some dozen varieties of plums, all picked from pot trees in a cold orchard house, came from Mr. J. Hudson, Gunnersbury House Gardens; Monarch, Golden Transparent Gage, River's Orange, Coe's Golden Drop, Grand Duke, and Reine Claude du Bavay were represented by remarkably well developed fruits; a few fine melons were also shown by Mr. Hudson, who secured a silver Banksian medal. Mr. J. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, sent about thirty dishes of fruit, in which the Conkling, Prince of Wales, Golden Rathripe, and Barrington peaches, Pitmaston Duchess nectarines, and Brown Turkey figs were good samples; silver Banksian medal. Mr. T. Robinson, gardener to W. Laurence, Esq., Elsfield House, Hollingbourne, showed a really good collection of fruit and vegetables, winning a silver Banksian medal. He had Alicante, Buckland Sweetwater, and Gros Maroc grapes, Lord Palmerston and Sea Eagle peaches, Dr. Jules Guyot and Madame Treyve pears, Sutton's A 1 and Blenheim Orange melons, Peasgood Nonsuch apples, Kentish Invicta runner beans, Puritan and Snowdrop potatos, Exhibition tomatos, and Cranston's Excelsior onions. Mr. H. Guyett, gardener to Mrs. Gabriel, Leigham Court Road, Streatham, was awarded a silver Banksian medal for his exhibit—apples, pears, grapes, and crab apples.

Mr. Kelf, gardener to Mrs. Abbott, South Villa, Regent's Park, gained a silver-gilt Knightian medal for a first-rate display of fruit, a display the more creditable when we remember it was grown within two miles of Charing Cross. Muscat of Alexandria and Alicante grapes were finely coloured and finished. There was a good bunch of bananas—Musa Cavendishi, Blenheim Orange, Monarch, and Holborn Favourite melons, and Sutton's Dessert, Duke of York, Golden Jubilee, Perfection, and Peach Blow tomatos. Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill, Beds, was awarded a silver Knightian medal for a grand lot of onions. The bulbs were solid, large, and weighty, and the varieties were Magnum Bonum, Golden Globe Tripoli, Cranston's Excelsior, Bedfordshire Champion, Record—the eighteen bulbs weighing 44½ pounds; Ailsa Craig, Holborn, Brown Globe, Lord Keeper, Empson's Selected, Cocoanut, and Rousham Park Hero.

Mr. R. J. Hamill, gardener to F. S. Roberts, Esq., Beauvoir, St. Saviour's, Jersey, gained a silver Banksian medal for a good collection of apples and pears; the apples were of large size, solid and brightly coloured, as might be expected from the Channel Islands. Mr. W. Collins, Chios House, Clapham Park, sent a few apples and pears of such excellence as to merit a vote of thanks. Mr. A. Bull, Cotterham, sent some magnificent examples of Pond's seedling plums; while Messrs. J. Veitch and Sons showed a dish of Late Devonian peaches. Mr. J. Green, Dereham, showed Up-to-date tomato. Messrs. H. Cannell and Sons, sent St. Joseph strawberries, a perpetual fruiting variety. This was also sent by Mr. Hudson and Messrs. Bunyard and Co., Maidstone. Mr. W. Roupell, Harvey Lodge, Roupell Park, sent a group of pot figs, showing also persimmons and Anona Cherimolia, grown out of doors. The same exhibitor was also awarded a silver Knightian medal for a goodly collection of apples, tomatos, and grapes; Muscat of Alexandria, Gros Colmar, Centennial, and Diamont Traube, were well-finished and most interesting. Mr. S. T. Wright, Superintendent, R.H.S. Gardens, Chiswick, made a most interesting and educational exhibit of a hundred varieties of apples grown in the Society's gardens. It would appear that the crop of apples at Chiswick is a good one on the whole, and that not many varieties have missed a crop.

WELLINGBOROUGH MIDLAND COUNTIES DAHLIA SOCIETY

THE third annual exhibition of this society took place on the 9th and 10th inst., the spacious Corn Exchange being well filled with dahlias of great excellence. The number of exhibitors and entries had materially increased, and the remarkable advance in the general good quality of the flowers was a remarkable feature. The big, coarse, open-eyed dahlias seen at the first show in 1896 have entirely disappeared, and, on the part of the working men especially, all the types of the dahlia were remarkable improvements on what was seen a year ago. Several of the southern growers exhibited in the classes open to all England, and their presence and blooms materially increased the interest in the exhibition. Mr. Thomas Pendered, an influential resident in the district, is the president of the society, and, helped by a good committee and an energetic secretary, the society appears to be established on a sound basis.

The best twenty-four show and fancy dahlias came from Mr. John Walker, Thame, Oxon, who had in very fine form John Hickling, Perfection, Buffalo Bill (self), Mrs. J. Downie, Harry Turner, John Walker, Mrs. Every, Duke of Fife, William Powell, James Cocker, &c. Mr. S. Mortimer, Swiss Nursery, Farnham, came second; and Messrs. Keynes, Williams, and Co. Salisbury, third. An extra prize was awarded to Mr. George Humphries, Chippenham. There were seven entries. There were nine entries of twelve blooms. Mr. J. Walker was again first, showing, in fine character, Daniel Cornish, Goldfinder, Duchess of Albany, Wm. Keith, John Hickling, Goldsmith, &c.; Mr. Mortimer was again a good second; and Messrs. C. Kimberley and Son, Stoke, near Coventry, third.

In the class for twenty-four blooms of cactus dahlias shown on a board as in the case of the show varieties, Messrs. Keynes, Williams, and Co. were first with a very fine collection indeed, beautifully fresh and even, which comprised Britannia, Stella, Exquisite, Daffodil, Mrs. John Goddard, Harmony, Ethel, Progenitor, Wallace, Laverstock Beauty, The Clown, Starfish, Countess of Lonsdale, &c. Messrs. J. Burrell and Co., Howe End Nurseries, Cambridge, second, with a very fine and fresh collection, also a little smaller in sizes, chief among them Lucius, Island Queen, Britannia, Keynes' White, Debonair, Ajax, Mimosa, &c., mainly highly promising new varieties of their own raising. Mr. Mortimer was third. Messrs. Keynes and Co. were also first with twelve varieties, staging very fine blooms of those already named; Mr. G. Humphries came in second; and Mr. Mortimer, third.

Cactus dahlias in twelve bunches of three distinct made a fine and attractive feature. Messrs. Keynes and Co. again took the lead, having in very fine character Britannia, Radiance, Wallace, Progenitor, Countess of Sherbrooke, Countess of Lonsdale, The Clown, Starfish, &c.; Messrs. J. Burrell and Co. were a close second, showing also in fine character Antelope, Lucius, Mary Service, Starfish, Britannia, &c.; Mr. Mortimer, third. Messrs. J. Burrell and Co. were first with twelve bunches of pompon varieties, six blooms in a bunch, staging model flowers, small, even in size, and very fresh, the varieties Arthur West, George Brinckman, E. F. Jungker, Bacchus, Tommy Keith, Rosebud, Douglas, Phœbus, &c.; Messrs. Keynes and Co., second, also with excellent bunches, having Tommy Keith, Spitfire, Clarissa, Hypatia, Emily Hopper, &c. in fine character; Mr. J. Walker was third.

In the amateurs' division the best twelve blooms of show dahlias came from Mr. F. Middleton, Althorpe, and Mr. R. Burgin, St. Neot's, was second, both showing very good flowers. Mr. Burgin was first with six capital flowers, and Mr. Middleton second; but Mr. Middleton gained the first prize with twelve blooms of cactus, having in excellent form Britannia, Island Queen, Earl of Pembroke, Standard Bearer, Starfish, Arachne, and Night; Mr. H. A. Needs, Horsell, Woking, was second; and Mr. R. Burgin, third. With six cut blooms Mr. Middleton was again first; and Mr. W. E. Prentice, jun., Wellingborough, second. Mr. Needs was first with six excellent bunches of cactus dahlias, three in a bunch, having Harmony, Starfish, Charles Woodbridge, Keynes' White, &c.; Mr. Burgin was second; and Mr. Middleton, third. Some very creditable bunches of pompons were also shown, but we missed the awards by accident. There were also bouquets of dahlias, Mr. Burgin taking the first prize.

There were classes of dahlias also for cottagers, in which some very good flowers were staged, and the cottagers have been by no means slow to gather up the ideas of quality, as shown by the preferences of the judges. The first of the special prizes offered by Mr. R. Dean, one of the judges, for three bunches of cactus dahlias, six in a bunch, was won by Mr. W. E. Prentice, jun.; Mr. W. Spriggs, the secretary of the society, was second; and Mr. W. Mason, third. The first of the special prizes offered by Mr. George Humphries for six blooms of show and fancy dahlias was won by Mr. E. Matthews, Wellingborough; Mr. Gennis was second; and Mr. C. Cox, third. The silver-gilt medal offered by Messrs. Dobbie and Co., of Rothesay, for the most successful exhibitor was won by Mr. W. E. Prentice, jun., Wellingborough.

A jury of the principal exhibitors and the judges awarded the following certificates of merit: To show dahlia, David Johnson, and cactus dahlia, Ranji, from Mr. George Humphries; to cactus dahlia, Magnificent, from Mr. J. Stredwick, Silverhill, St. Leonard's-on-Sea; to cactus dahlias, Wallace, Progenitor, The Clown, Viscountess Sherbrooke, Radiance, and Countess of Lonsdale, from Messrs. Keynes, Williams, and Co.; and to cactus, Lucius and Antelope, and pompon, The Duke, from Messrs. J. Burrell and Co.

There were a few open classes for fruit, chief among them, three dishes of culinary apples, Mr. T. Pendered, the president of the society, being first with very good fruits of Ecklinville, Peasgood's Nonsuch, and Warner's King; Mr. J. E. Bugby, Desborough, was second, with Ecklinville, Peasgood's Nonsuch, and Perkins A1. Mr. Pendered also had the three best dishes of dessert apples, having in good character Cox's Orange Pippin, Worcester Pearmain, and King of Pippins; Mr. G. Douglas, Wellingborough, was second, with Quarrenden, Cox's Orange Pippin, and Worcester Pearmain. Mr. Pendered followed up his successes by taking the first prizes with three dishes of dessert pears, having Pitmaston Duchess, Louis Bonne of Jersey, and Marie Louise; Messrs. T. Clayton and Son, Wellingborough, were second, with Madame Treyve, Pitmaston Duchess, and Souvenir du Congres. The latter had the best two bunches of grapes, staging fully ripe and finely flavoured Muscat Hamburgh of good colour; Mr. H. Rathman was second, with a bunch each of Black Hamburgh and Alicante.

WOODSTOCK FLOWER SHOW, SEPTEMBER 13.

ALTHOUGH the latest of the Oxon shows, the forty-first of the above, held in Blenheim Park, proved to be a record one in point of attendance, the natural beauties of the site and surroundings, and the large exhibition of horses, poultry, and other live stock, jumping and driving, tending to attract visitors; in addition, some 1,300 specimen agricultural roots were entered in competition. Horticultural entries were fewer, traceable to the incidence of the season, but more to the fact that the money prizes are much too small to attract exhibitors from a distance, to which may be added the ambiguity of terms employed in the schedule, which are somewhat perplexing. As a result of the meagreness of entries the executive appeal to and receive much aid from the several large gardens round, and thus are enabled to present a very attractive display.

In the competition the groups of plants for effect, on forty feet superficial, were generally semi-circular pyramids, Mr. W. T. Mattock, Blenheim Nursery, Barton-cum-Headington, being first, his arrangement having some bright, showy coleus for a central band; Mr. Johnson, Garsington Nurseries, second, he being the premier in the classes for six greenhouse ferns, one specimen greenhouse, three fuchsias, and three zonal geraniums, all of good quality. (It was somewhat remarkable that Woodstock did not present one specimen in the competition.) Mr. W. F. Cross, Chilswell, Oxford, had the premier group of hardy ferns.

The cut flower classes were well filled, and a grand display of colour was produced by the nearly one hundred bouquets, the bulk possessing artistic merit. There were some fairly good dahlias, both show and fancy—Mr. Johnson first for twenty-four and twelve, putting up cactus; Mr. Kirtland premier for a dozen show varieties in the amateur class—but exhibitors appear to care little about giving the varietal names, forgetting that this is one essential towards making the exhibition attractive. Asters, from Kirtlington—Mr. G. Kirtland securing four firsts in the two divisions with some of the finest developments exhibited in the district this season—both quilled and incurved, were good, but why the framers of the schedule should still denominate the forms as "German" and "French" is a problem which needs to be explained (the terms "quilled," "incurved," and "reflexed" would cover the whole ground and make matters simpler). Again, the grouping of "single and fancy" dahlias in one class is altogether a misapprehension; "single or pompon" would be a nearer match. The gladioli from Mr. W. T. Mattock were fairly good spikes; and the first prize double zinnias, Mr. Johnson, were superior to anything exhibited in the county this season.

Zonal geraniums, six trusses in a bunch, were a good exhibit from Messrs. Perry, of Banbury, but the varieties should have been labelled to have afforded comparison. Messrs. Perry, Banbury, were the only competitors in the class for a floral device, submitting an Irish harp, the framework of very choice blossoms, the strings being formed with the small spherical heads of Achillea millefolia set in Asparagus plumosus sprays.

Fruit classes were well filled, the premier award for the society's collection (number of dishes unlimited) going to Mr. Swaine, gardener to W. M. Foster-Melliar, Esq., North Aston Hall, who staged Blenheim Orange melon, Golden Drop plums, Muscat of Alexandria and Black Hamburgh grapes, Brunswick figs, Nectarine peaches, Bon Chretien pears, Duchess of Oldenburg apples, red and white currants, filberts, &c.; Mr. Turner, gardener to the Rev. W. F. Cartwright, Aynho Rectory, second. Mr. Swaine had the premier award for peaches, with a grand half-dozen specimens of Nectarine—as good an exhibit as has been staged in the county this season; Mr. Turner, second. Melons were in fair numbers, the prize falling to a richly-flavoured scarlet-fleshed variety named Kiddington Hybrid, raised by Mr. E. Farmer, gardener to C. Thurburn, Esq., Kiddington Hall. For four bunches of grapes, the award went to dual clusters of Hamburgh and Alicante, exhibited by the Rev. T. Nolan, Kirtlington Rectory; Mr. W. Hovell, gardener to G. H. Morrell, Esq., M.P., Headington Hill Hall, second, with Black Hamburgh and Trebbiano; Mr. C. Brock, gardener to Dr. Batt, Witney, third. Transparent Gage, from Ditchley Park Gardens, proved the best flavoured plums; those by weight being Pond's Seedling, from Mr. W. Hovell, first; Magnum Bonum taking the second and third awards. The finest pears were Bon Chretien, from Mr. R. Hope, gardener to Captain Orr-Ewing, Bletchington Park, who also produced the grandest dish of Peasgood's Nonsuch apples yet seen in the district. Vegetables were a good all-round section, Mr. R. Wadham, gardener to Admiral Bradshaw, The Grange, Steeple Aston, securing the premier awards in both Messrs. Sutton and Sons' and Messrs. Webb and Sons' classes.

BICESTER HORTICULTURAL SOCIETY.

In conjunction with the Agricultural Association, this society held its usual exhibition in the grounds of Bicester House. Entries all round were fewer, but the extra productions helped the display. Among these was a large collection of foliage and flowering plants sent by Charles T. Hoare, Esq., Bignell House, which filled the end of the largest tent, the design being formed by a back-ground of Kentia and other palms, ferns, &c., relieved by masses of Hydrangea paniculata, bouvardias in variety, Madame Desgrange chrysanthemum and its sports, dracænas, alocasias, eucalyptus, crotons, begonias, coleus, Pandanus Veitchi, forming a foreground of dot plants, surrounded with small ferns mixed with achimenes, &c.; a smaller group occupying the end of the central table near the entrance. This was arranged by Mr. Trollope, gardener to Earl Jersey, Middleton Park, and comprised of many of the above-named subjects, having in addition very pretty pieces of Asparagus plumosus, cannas, tuberoses, celosias, Caladium argyrites, cyperus, and ferns, edged with ferns and Primula obconica. As a contrast to the plants, Mr. John Walker, Thame, staged a fine collection of dahlias, including two dozen specimen blooms of show and fancy ferns, eighteen varieties of cactus, and a dozen each of single and pompon, the last three classes being posed in bunches of six blooms each. Mr. P. J. Perry, The Nurseries, Banbury, contributed a large collection of herbaceous perennials in neat bouquets, some new summer-flowering chrysanthemums, a shower bouquet of very choice blossoms, and an Irish harp, the framework of Lilium speciosum, white chrysanthemums, marguerites, sweet pea, tuberoses, carnations, the strings of pips of the blue corn flower; a much larger collection being staged by Mr. H. Deverill, Banbury, consisting of three dozen varieties of show and fancy dahlias, one dozen varieties each of cactus, single, and pompon dahlias, six blooms each, three dozen spikes of gladioli, and a varied assortment of perennials, in large bunches deftly posed.

In the competition, the most tastefully disposed arrangement came from Chesterton Gardens, the back line of palms, the foreground of mounds set with neat specimen plants such as celosias, African lily, fuchsias, begonias, and caladiums, the central specimen being a fine piece of Croton angustifolium; the second card going to a more formal arrangement; Mr. J. Timms, gardener to H. Tubb, Esq., Chesterton House, being the largest contributor of plants, he taking the card for one specimen with a fine Kentia, and also premier for six varieties, putting up very healthy examples of Dracæna australis, Croton Warreni, Caladium Triomphe de la Exposition, Cassia corymbosa, Plumbago capensis, and Eucharis amazonica; his premier six ferns being equally meritorious, and comprised Woodwardia radicans, and Adiantums farleyense, A. gracillimum, A. formosum, A. decorum, and A. cuneatum; in this class, Mrs. E. Palmer, Rose Cottage, was a fair second, having two davallias, an asplenium, and three adiantums, a gracillimum being a charming specimen. An open class for twelve plants in flower (amateurs) was a massing of colour produced by begonias, fuchsias, geraniums, and gloxinias. The first prize was awarded to Mrs. E. Palmer; Mr. T. Anstiss, Brill, second.

Cut flowers were of very fair quality, including a number of stands of dahlias, Mr. Anstiss, first, for eighteen show and and fancy; Mr. G. Kirtland, Bletchington, first, for twelve; Dr. P. L. Benson, Steeple Claydon, leading with some good forms of cactus, but in each case the varieties were not named. The asters (quilled, incurved, and reflexed) exhibited by Mr. A. E. Kirtland, gardener to Rev. R. F. Dale, Bletchington Rectory, were large, full-centred, and bright; Mr. G. Kirtland taking the cards in the amateur section. The collections of cut blooms were likewise a good feature, Mr. Timms being placed first with nicely posed bunches of cactus dahlias, eucharis, agapanthus, Allamanda Schotti, Statice latifolia, roses, chrysanthemums, asters, dianthus, scabious, sweet peas, carnations, salpiglossis, Lapageria alba, and Stephanotis floribunda; Mr. Steers, gardener to E. Slater-Harrison, Esq., Shelswell Park, second, for bouquets of one variety only, these consisting of Drummond's phlox, coreopsis, petunias, salvias, anemones, gaillardias, scabious, single dianthus, Comet aster, verbena, zinnia, carnation, corn flower, begonia, hydrangea, Madame Crousse, ivy-leaved pelargonium.

Fruit was not equal to the display that might be expected in a district possessing a number of good gardens. Grapes were not strongly represented, the first prize for white going to Mr. Ashmore, gardener to C. Keith Falconer, Esq., The Garth, for Golden Hamburgh; Mr. Timms second, with Foster's Seedling; Mr. Harrison, gardener to Sir Algernon Peyton, Bart., Swift's House, leading in the black class with finely-finished clusters of Alicante; Mr. Timms second, with Black Hamburgh. Peaches and nectarines in the first division were very poor; pears were few and poor; dessert apples limited to Quarrenden; plums were fair samples of Jefferson and Washington, the amateurs being stronger in the classes for apricots, apples, plums, and pears. For a collection Mr. H. Watts, Launton, had Jargonelle pears, Black Hamburgh grapes, Red Warrington gooseberries, Victoria plums, Morello cherries, melon, and red currants, which well deserved the premier (amateur's) card; Mr. T. C. Finch second, for Fairleigh damsons, Jargonelle pears (wonderfully large), grapes, Quarrenden apples, peaches, and Kirke's plums. One exhibit only of peaches and Moorpark aprico adorned the amateurs' table, but they were of good quality; the culinary plums, by weight, was a good class, Dr. P. L. Benson first, with Cox's Emperor (weight 1 lb. 14 oz. the eight fruits; Mr. H. G. King, Buckingham, second, with Magnum Bonums (1 lb. 11 oz.); Mr. W. H. Piggott, St. Edburg's Cottage, third, with Pond's Seedling (1 lb. 10 oz.) Amateurs' grapes were Buckland Sweetwater and Foster's Seedling, the prizes for black going to Hamburghs. Culinary apples (by weight) were fine specimens of Warner's King and Blenheim Pippin, Irish Peach scoring highest in the dessert class. The best flavoured melon was a well-formed Early Davenham, Webb's Bountiful cucumber securing the card; tomatos were good, and appeared of the Perfection type.

Vegetables in the three divisions were a full average, the most striking quality being manifested in the classes for white round potatos, the dishes of Satisfaction being exceedingly handsome though bulky, the cottagers being in no way to the rear.

ONION COMPETITION AT NORWICH.

A few days since Messrs. Daniels Bros. held a competition of their Golden Rocca onion, when no less than seven hundred and sixty-one lots of three bulbs each were entered. The judges expressed surprise at the large number, and admiration of the extraordinary size and quality of the bulbs. £25 was offered as prizes, the following being the winners: Mr. J. Bowerman, Hackwood Park, Basingstoke, first (weight 7 lb.); Mr. J. W. Harrison, Wardour, Tisbury, second; Mr. H. Folkes, Gaddesden, Hemel Hempstead, third; Mr. R. Lye, Sydmonton Court, Newbury, fourth; Mr. J. Chiverton, St. Radagunds, Isle of Wight, fifth; Mr. C. Prater, Sydmonton, Newbury, sixth; Mr. W. Balsdon, Crediton, seventh; and Mr. George Neal, The Gardens, Bampton, eighth; some other exhibitors received a highly commended card.

NEW INVENTION.

Frosteen Shading.—A liquid for use upon glass where a more or less permanent shade is necessary for the occupants of the house has recently been introduced under the name of Frosteen Shading. It should be used on a damp day, so that it may not dry too quickly, and should be applied with a soft brush, brushing the glass lengthways and then crosswise. When properly applied, and dry, this shading has the appearance of frost on the glass, and while it excludes great heat, it does not materially obstruct the light. Where a permanent shade is desired, Frosteen Shading may be supplemented by Frosteen Azo, another liquid to be brushed over the shading when the latter is dry and hard. The Frosteen Syndicate (Limited), 341, Argyle Street, Glasgow, supply both liquids.

A New Sunshine Recorder.—Professor Callendar exhibited a quantitative sunshine recorder at the meeting of the British Association at Bristol. In describing the invention, he said the instrument is essentially a recording bolometer, in which the difference of temperature between a blackened and a bright platinum thermometer of equal resistance is recorded in pen and ink in the form of a continuous curve on a revolving drum. It differs from ordinary sunshine recorders in giving a strictly quantitative record of the quantity of heat received by the earth's surface, and not merely the number of hours of bright sunshine. The instrument records the component of the sunshine in any desired direction, and gives a very complete record of its character and intensity. The passage of small clouds across the sun is very clearly recorded, and it is found that even when the sun is obscured by clouds of sufficient thickness to prevent any trace of burning on the ordinary cards a very considerable percentage of the sun's heat may still penetrate. The recording apparatus used is identical with that required for records of temperature, pressure, voltage, &c., and may be located in any convenient situation, at any required distance from the bolometer. A simple form of planimeter is attached to the instrument when used for recording sunshine. The reading of the planimeter gives directly at any time the total quantity of heat received, and can be readily reduced to the number of equivalent hours of "bright sunshine" by means of a suitable factor.

MARKETS.

Covent Garden.

THE supplies of fruit and vegetables on offer are good, and the demand is fairly brisk. English apples are arriving in larger quantities and better quality than was expected a short time since. The cut flower trade is moderate, and prices low. Potato trade still somewhat dull.

FRUIT.—English apples, 3s. to 8s. 6d. per bushel; English grapes, 10d. to 2s.; Jersey, 6d. to 1s. per lb.; Denia, 4s. 6d. to 7s. 6d. per barrel; English pears, 3s. 6d. to 9s. per bushel; French, 2s. 6d. to 6s. per case; Orleans plums, 2s. to 4s.; Victoria, 2s. to 4s. 6d; damsons, 2s. to [illegible] per half sieve; [illegible] each; bananas, 5s. to 10s. per bunch; peaches, 2s. to [illegible]; green figs, 9d. to 1s. 6d. per dozen; English melons, 9d. to 1s. 6d. each; Spanish, 4s. 6d. to [illegible] per case; English tomatos, 3d. to 4d.; Jersey, 2d. to 3d. per lb.; [illegible] to 4s. per 12 lb.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to [illegible]; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s to 3s.; gardenias, 1s. to 2s. [illegible] Lilium Harrisii, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 1s. to 1s. 6d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; asters, 2s. to 4s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 9d. to 1s. 6d.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Celery, 12s. to 18s.; horseradish, 10s. to 15s. per dozen rolls; scarlet beans, 3s. to 4s. per bushel; cabbages, 3s. 6d. to 5s. 6d; beetroots, 2s. to 3s.; vegetable marrows, 3s. 6d. to 5s. 6d. per tally; Valencia onions, 4s. 6d. to 6s.; Ports, 5s. to 6s. per case; mint, 2s. to 2s. 6d.; parsley, 2s. to 2s. 6d.; leeks, 1s. 6d. to 2s.; carrots, 2s. 6d. to 3s. 6d.; turnips, 3s. to 4s.; per dozen bunches; endive, 1s. to 1s. 4d.; cauliflowers, 1s. 6d. to 2s. 6d.; cucumbers, 1s. 9d. to 4s. per dozen; lettuce, 9d. to 1s. 3d. per score; garlic, 3s. to 4s.; eschallots, 1s. 3d. to 1s. 9d.; mushrooms, 6s. to 9s. per 12 lb.; potatos, 55s. to 90s. per ton.

Borough Potato Market.

Supplies are continuously heavy now that harvesting has been completed in most of the English counties. The demand is fair, but prices continue low. Beauty of Hebron and Snowdrops, 3s. 6d. to 4s.; White Hebrons, Early Puritan, Sutton's Early Regents, Reading Giants, and Imperators, 3s. to 3s. 6d.; Black Lands, 2s. 6d. to 2s. 9d. per cwt.

CATALOGUES RECEIVED.

E. H. Krelage and Son, Haarlem, Holland.—Novelties.
Van Velsen [illegible], Overveen, near Haarlem, Holland.—Bulbs, &c.
H. P. Bulmer, Hereford.—Cider and Perry.
Frank Dicks and Co., 66, Deansgate, Manchester.—Bulbs.
Vilmorin-Andrieux and Co., Quai de la Megisserie, Paris.—Bulbs, Seeds, &c.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Liquid Manure.—R. Martin, Barton-on-Orwell: A liquid manure suitable for the purpose you mention would be guano-water, prepared by adding guano to water, at the rate of two ounces to three gallons. The drainings from the stable or farmyard, diluted with water according to its strength, is also excellent.

Carpet Bedding.—Hortus, Braemar: You would save expense by writing direct to Mr. Ludwig Möller, Erfurt, Germany, with respect to the work referred to—"Album für Teppichgärtneri und Gruppenbepflanzung," by Karl Götze. You might mention where you saw the reference, and you will then have no difficulty in obtaining the information you desire.

Pitcher Plants for Exhibition.—T. D.: A nepenthes would be admissible in a class for foliage plants. and is generally recognised as a foliage plant. The pitchers are but coloured continuations of the leaf blade, peculiarly formed so as to enable the plant to capture insects and thus obtain nitrogenous food; they are not flowers in any sense, the inflorescence being an elongated raceme of tiny greenish flowers, rather more conspicuous than that of a croton and less so than in many of the dracænas. You need not fear disqualification.

Lifting the Potato Crop.—A. M. R.: As we have so frequently pointed out, potatos may be lifted and stored as soon as the skins are sufficiently firm to allow of the tubers to be handled without rubbing them off. Therefore, there will not be any occasion for you to expose your crop to an attack of disease should the weather conditions undergo a change favourable to the development of the disease producing fungus. We should not, however, advise you to lift the main-crop varieties still in full growth, unless they show signs of supertuberation or there is a change in the weather.

Melon Roots.—The subscriber who has sent us some diseased roots of melons packed in a tin box is informed that the plants are suffering from a severe attack of eelworms, and that nothing can be done to restore the plants to a healthy state. The plants should be pulled up and burnt, and the soil removed from the bed and burnt in the same way as clay is burnt for conversion into ballast. The walls and sides of the bed should be thoroughly cleansed with a strong solution of carbolic acid and then washed over with hot lime. The nematodes may have been introduced in the soil, the manure, or the water, it is practically impossible to say which. In consequence of the large amount of moisture contained in the box, the letter was converted into pulp in the course of transmission through the post.

Unsatisfactory Chrysanthemums.—R. F., Yorkshire: You have not supplied us with sufficient information to enable us to advise you with regard to the condition of the chrysanthemums under your care. You have told us sufficient to suggest that the plants have been raised from cuttings taken from plants that were highly fed with a view to obtain large blooms for exhibition. If this be the case you will not be able to do anything to materially improve their condition; and, so far as we are able to gather from your letter, there is not much likelihood of you achieving much success as an exhibitor. The plants will probably give you a supply of flowers that will prove useful in the conservatory and for decorative purposes in a cut state, and should, therefore, receive careful attention. We would strongly advise you to obtain cuttings from plants that have been grown under natural conditions when you propagate the stock for flowering next year. In all gardens in which chrysanthemums are grown for exhibitions, duplicates should be grown in the open quarters, and late in the autumn be lifted and put in frames for furnishing supplies of cuttings.

Agapanthus not Flowering.—G. F. B, Ellesmere. To ensure an abundant production of flowers, Agapanthus umbellatus and its varieties require to be kept dry at the roots during the late autumn and winter months, and as your specimen is associated with other plants in the border, it has had too much moisture at the roots during the season. We are inclined to the opinion, after a careful perusal of your letter, that the soil in the border has became sour, and would advise you to lift the plant, and after the removal of the old soil put it into a pot just large enough to accommodate the roots, and from November till the end of January keep the soil decidedly dry. Turfy loam with moderate additions of coarse sand, leaf-mould, and well-rotted manure. A sunny position is essential from early in the spring until the autumn, and there is no better position than a cool, airy greenhouse; but from June until September the plant may occupy a sunny position out of doors. It might be well to plant the passion-flower in the border, but it will not flower satisfactorily in a shaded position.

Watering Fruit Trees.—W K., Herts: You have been wrongly advised with regard to the supply of water to fruit trees from which the crop has been gathered. Some of the members of the old school of gardening held the opinion that to ensure the trees having a perfect rest it was necessary they should be kept quite dry, and in giving practical effect to this opinion they frequently failed to obtain a good crop in the following season. Dryness at the root has a tendency to check growth, but the check thus given is more or less injurious, and the trees resent the injury they receive by shedding their buds prematurely or not opening them in such a way as to ensure what is technically known as "a good set." If you remember for a moment that the embryo flowers are formed within the buds previous to the shedding of the leaves in the autumn, you will appreciate the importance of giving the trees such assistance as will enable them to complete their year's work. Moisture is necessary to replace the loss from evaporation, and also for the purpose of conveying food material to the different parts of the tree, and without a sufficiency of water there cannot be a satisfactory completion of the growth. It is not necessary the borders should be so moist after the fruit has been gathered as when the trees were in full growth and swelling up a heavy crop; but moisture in the soil is absolutely necessary, and one of the most successful grape growers with whom we are acquainted gives his vines a liberal supply of liquid manure after the grapes have been cut, and the splendidly finished clusters that are annually produced prove to demonstration that the practice is a good one. It is not usually necessary to supply water to peach and nectarine trees trained to open walls, but this season a thorough soaking of the border with diluted sewage or plain water would be beneficial.

Forcing Strawberries.—H. J., Cork. Presuming the runners have been shifted into the pots in which they are to be fruited, they will not require for some time to have any further attention than to be supplied with sufficient water at the roots. They should, until November, be stood upon a bed of coal ashes made up in an open position, and early in the month mentioned it will be advisable to plunge the pots rather close together in a bed of coal ashes of sufficient thickness to allow three inches of ashes under the pots to prevent worms from entering them. The time for taking them under glass will depend upon the date on which ripe fruit is required, but when strawberries have to be forced in a vinery without the fruit being required at any particular time, the best course is to take them into the vinery when the vines are started, that they may not be subjected to a high temperature at first. If the vinery does not contain any other plants and is kept freely ventilated until shut for the purpose of starting the vines, the strawberries may be taken under glass in November, care being taken to supply them with moderate supplies of water.

Fungus on Chrysanthemums.—C.J.D., Tunbridge Wells; R.W., Maidstone: In both cases the chrysanthemums are suffering from a very bad attack of a rust coloured fungus that is unfortunately spreading rapidly in this country. The best thing to be done is to remove the worst afflicted leaves and burn them in a furnace and sponge the rest with a solution of sulphide of potassium; syringing or spraying with this or Bordeaux mixture would check the disease but sponging will be by far the most effectual, though the operation will take longer, as it prevents the distribution of spores which syringing might occasion. After the sponging, and as soon as the foliage has become dry again, spray the plant with a similar, but clean solution—half an ounce of sulphide of potassium (liver of sulphur) to one gallon of water. Every two or three days it will be advisable to again spray the plants so that the fungus may be completely destroyed ere housing becomes compulsory. The man in charge should also have a sponge and some solution always at hand to remove any rust that may appear. Only by the most persistent efforts can the pest be kept down, consequently the surroundings of the plants should be treated with the solution, and it would be well to remove a film of surface soil from the pots after the sponging.

Names of Plants.—J. S., St. Albans: 1, Rhus cotinus; 2, Anthericum variegatum; 3, Datura Stramonium—The Thorn apple.

W. G., Sydenham: Abelia rupestris. We cannot tell the value of the plant without seeing it; it would not be great.

N. L. A., Richmond: 1, Davallia parvula; 2, Selaginella Wildenovi; 3, Hibiscus Cooperi; 4, Fittonia argyroneura.

C. B., Wolverton: 1, Hibiscus syriacus totus albus; 2, Rudbeckia speciosa; 3, Aster Amellus; 4, Montbretia crocosmiæflora; 5, Hieraceum aurantiacum.

Names of Fruit.—W. H., Hughenden: The Japanese Wineberry, Rubus phœnicolasius.

M. M., Worcester: 1, Ecklinville Seedling; 2, Warner's King; 3, King of Tomkins County; 4, Gravenstein; 5, Court of Wick.

Y. G. S., Warkworth: 1, Loddington; 2, Lord Derby; 3, Ribston Pippin, a poor specimen; 4, Mère de Ménage.

R. F. J., Tamworth: 1, Lane's Prince Albert; 2, Dumelow's Seedling; 3, Keswick Codlin.

THE WEATHER DURING THE WEEK ENDING SEPTEMBER 17, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	89·9	48·6	66·4	19·11	0·02	0·05
Croydon	87·2	49·0	64·9	18·28	0·11	0·28
Brighton	77·2	51·0	64·1	17·83	0·05	0·13
Bristol	81·0	49·0	61·9	16·61	0·04	0·10
Wolverhampton	77·9	47·2	59·0	15·00	0·20	0·51
Norwich	82·0	47·0	63·1	17·28	0·00	0·00
Nottingham	82·0	48·0	61·7	16·50	0·00	0·00
Liverpool	78·2	53·0	61·7	16·50	0·43	1·09
Huddersfield	81·8	49·8	60·7	15·94	0·04	0·10
Bradford	79·0	52·6	62·2	16·78	0·03	0·08
Hull	85·0	48·0	61·8	16·56	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 29·95 inches, and that of the Thermometer 66°·4, the latter being 8°·6 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 26 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 56·8 hours. The measured rainfall amounted to 0·02 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, SEPTEMBER 26.—General Committee Meeting of the National Chrysanthemum Society.

THURSDAY, SEPTEMBER 29.—Royal Horticultural Society's Great Exhibition of British Grown Fruit at the Crystal Palace; Three days.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER 26, 27, 28, 29, AND 30.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

FRIDAY, SEPTEMBER 30.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY AND WEDNESDAY, SEPTEMBER 26 AND 28.—Dutch Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

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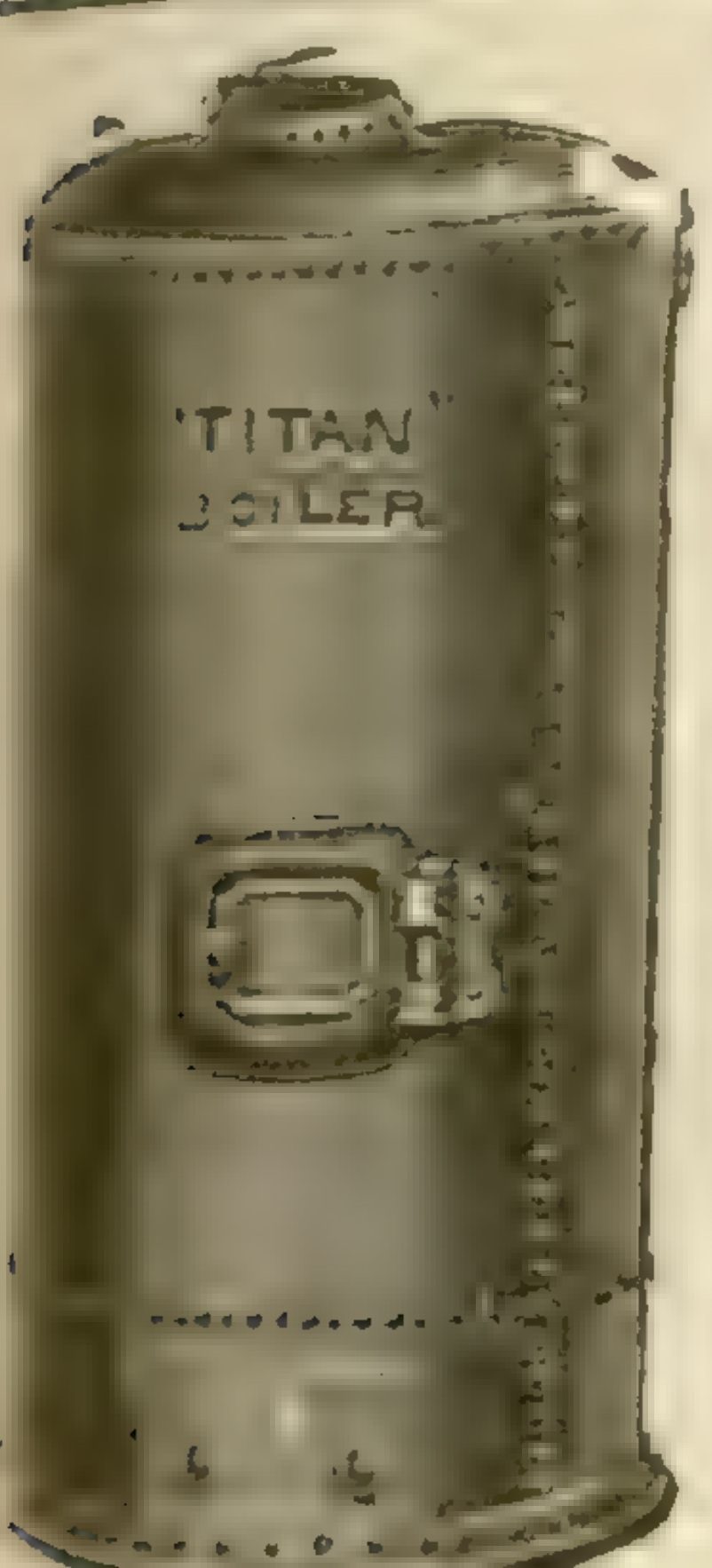

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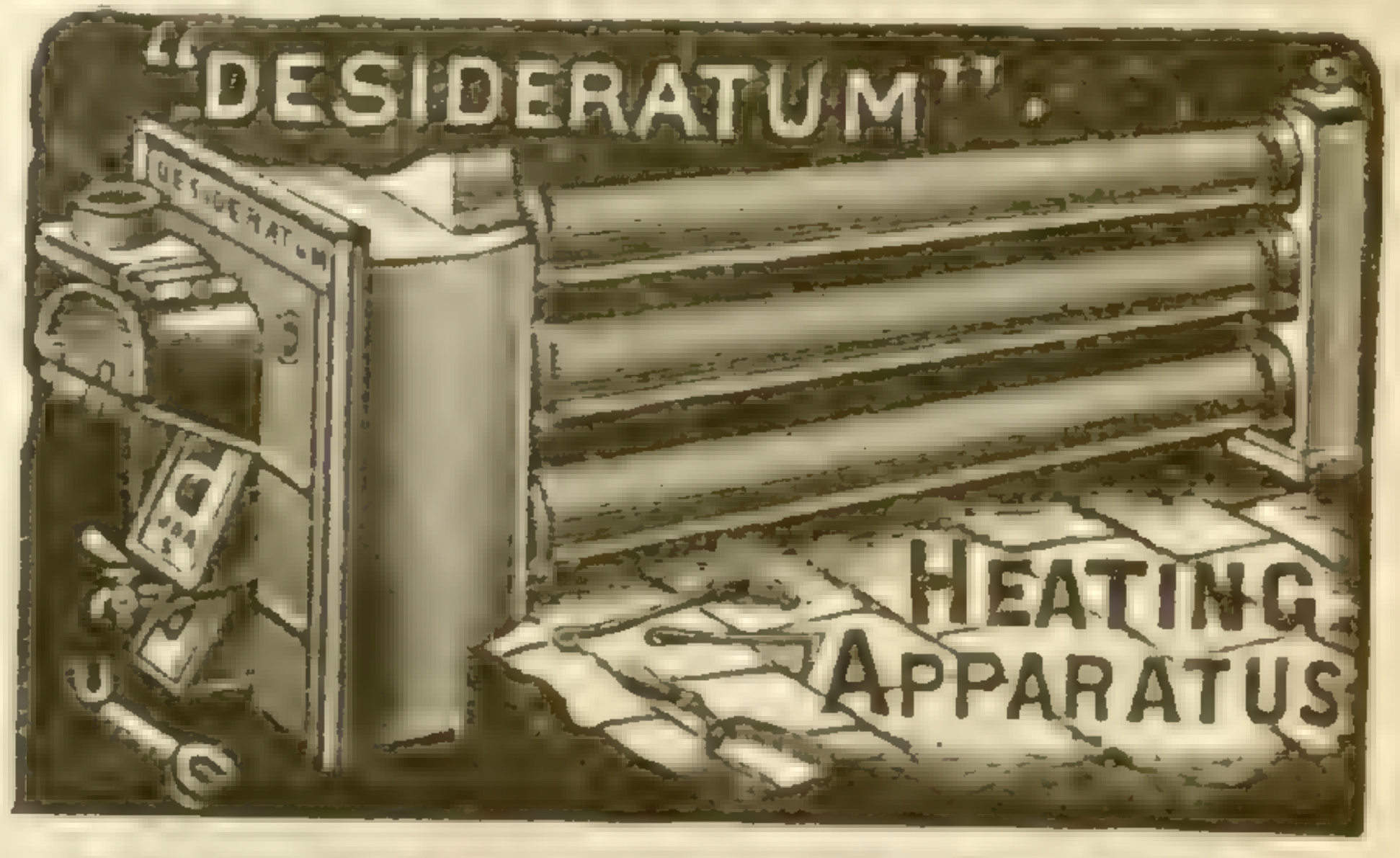

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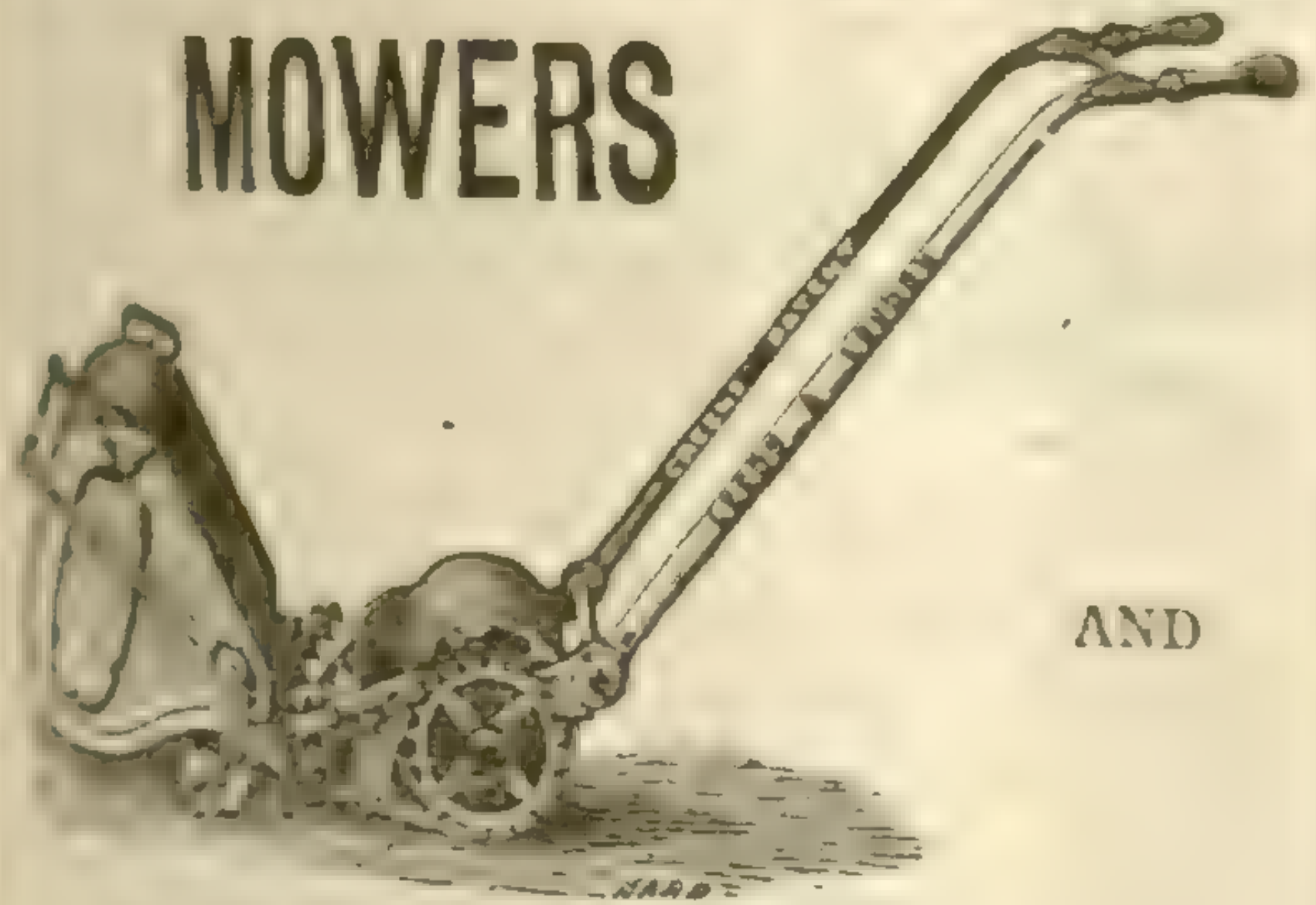

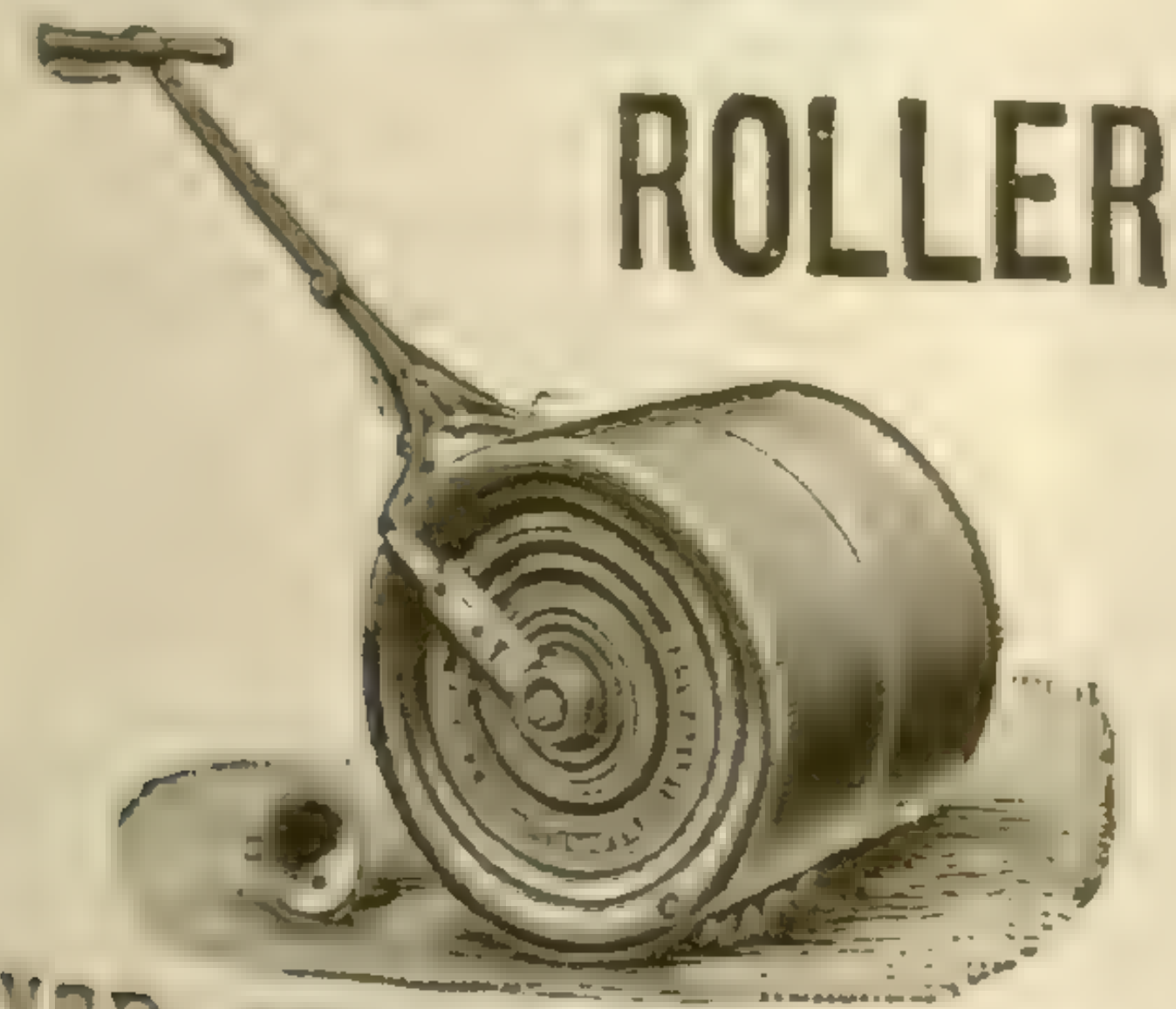

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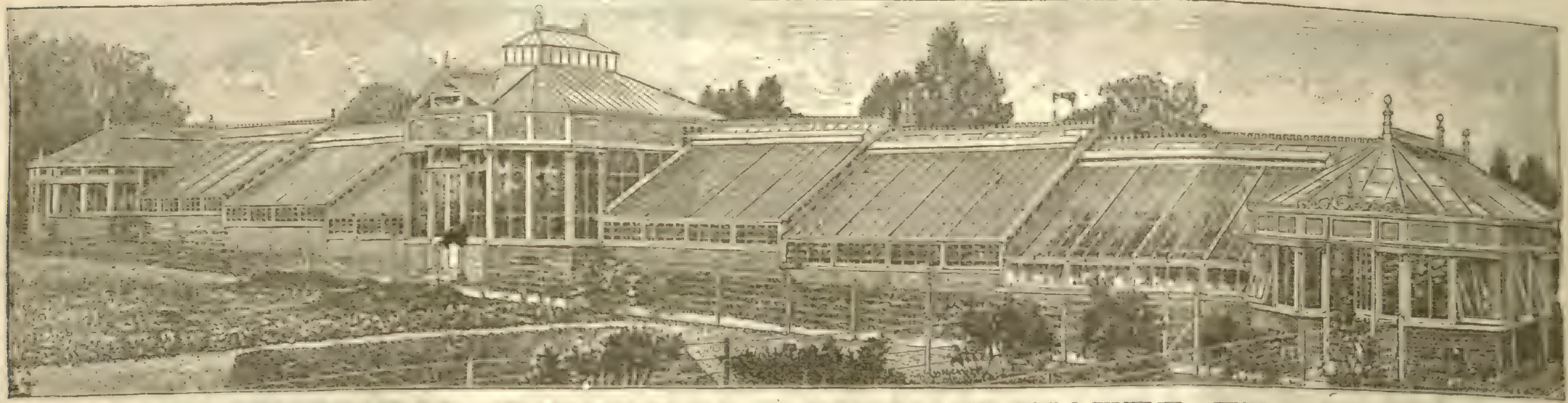

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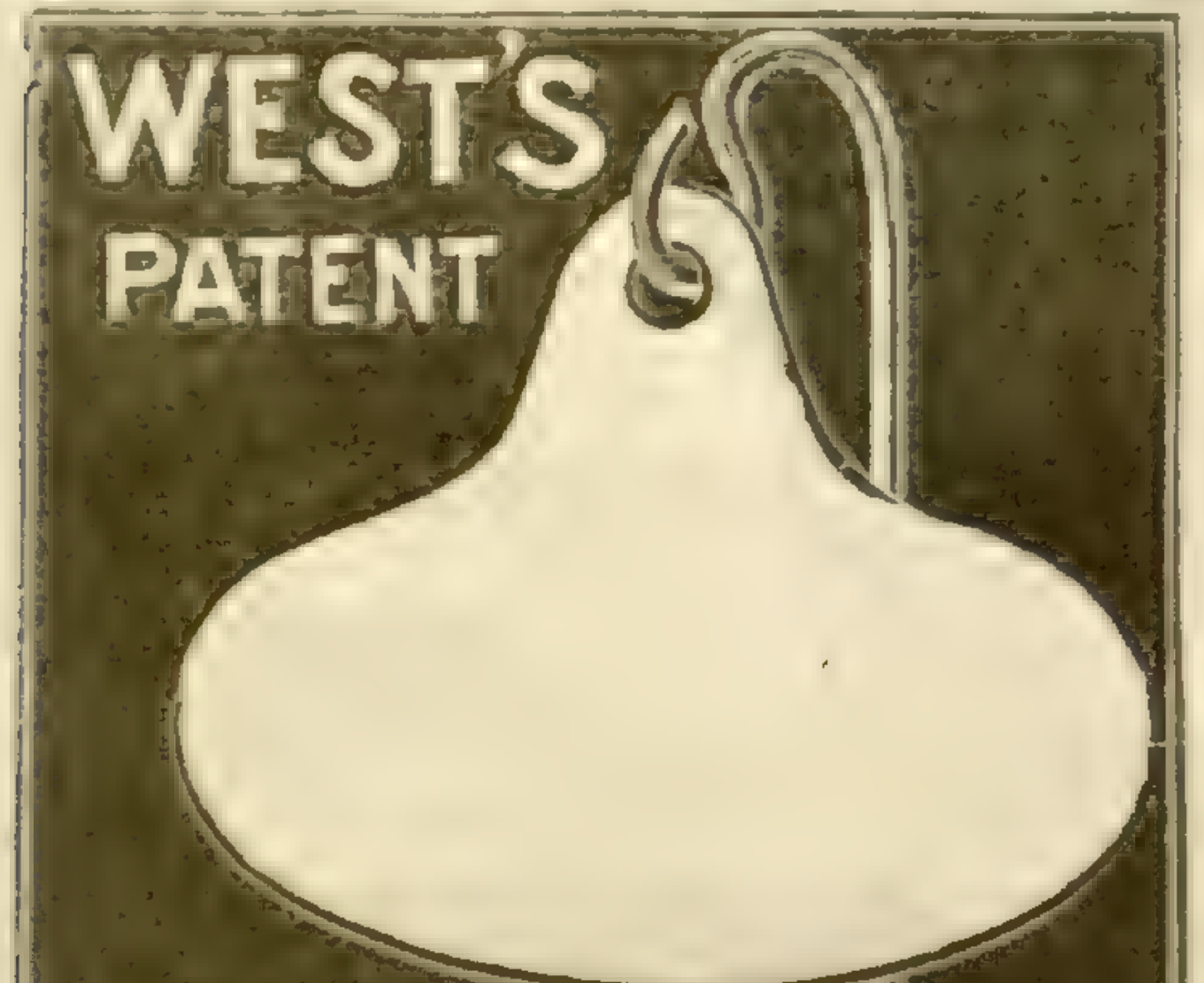

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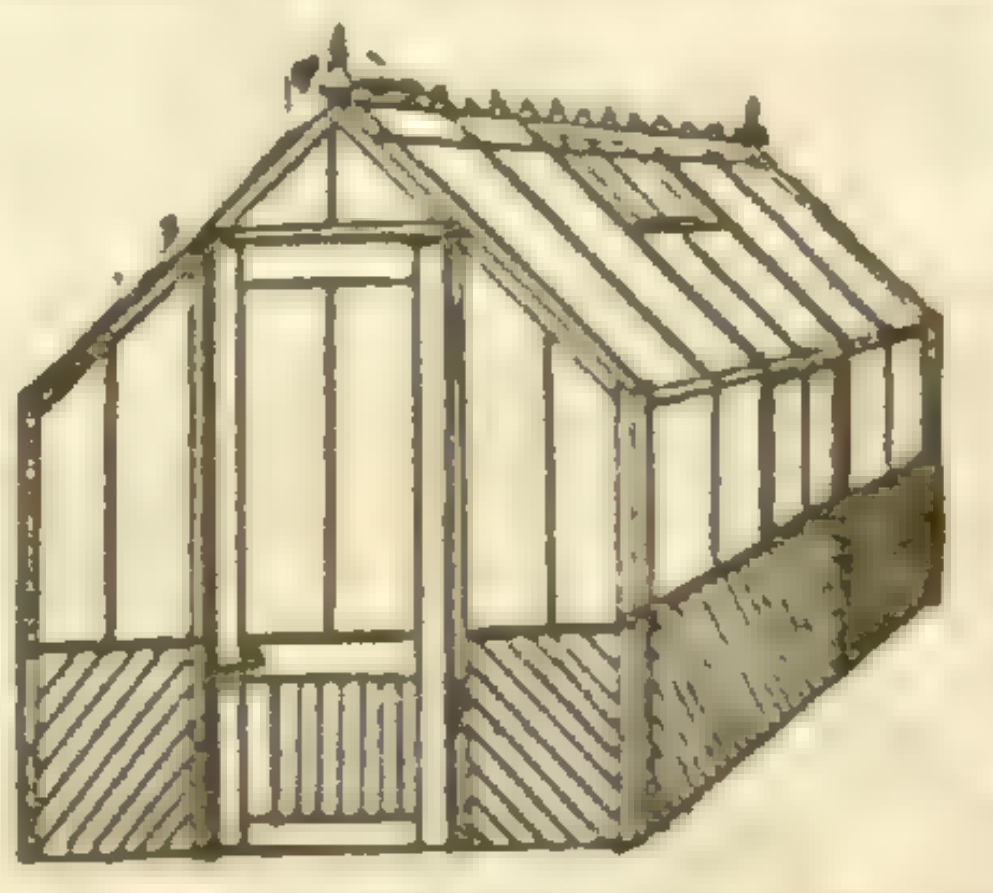

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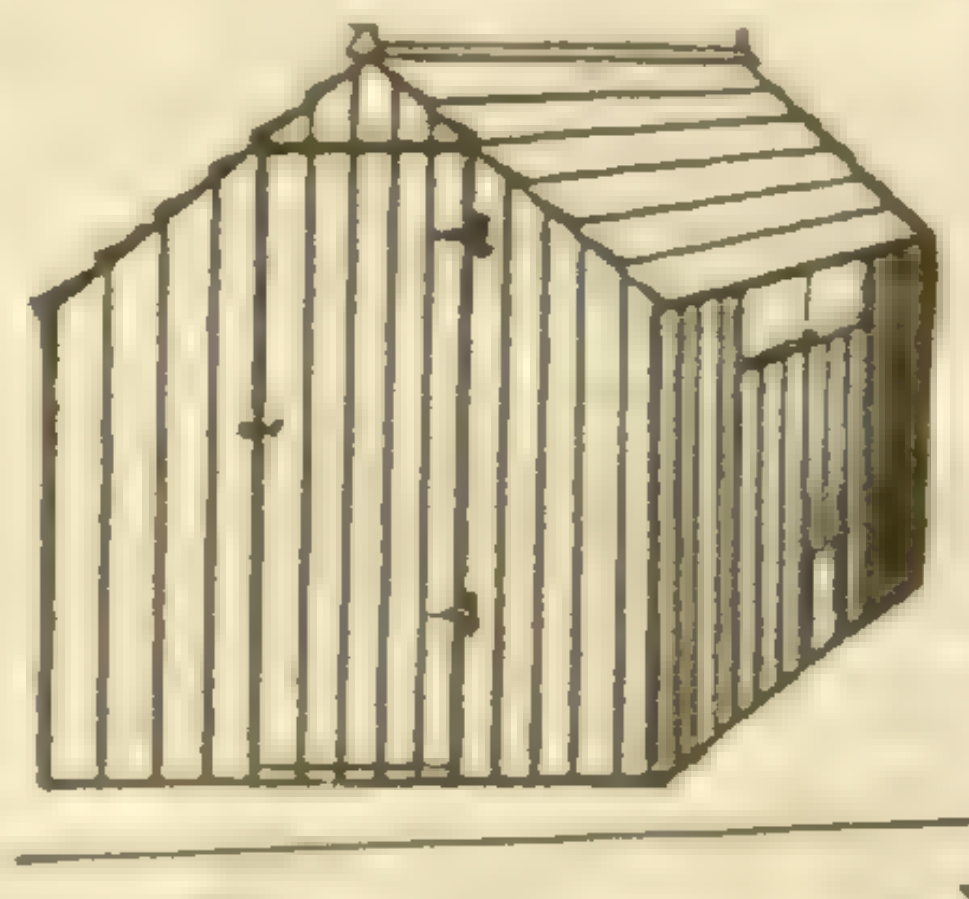

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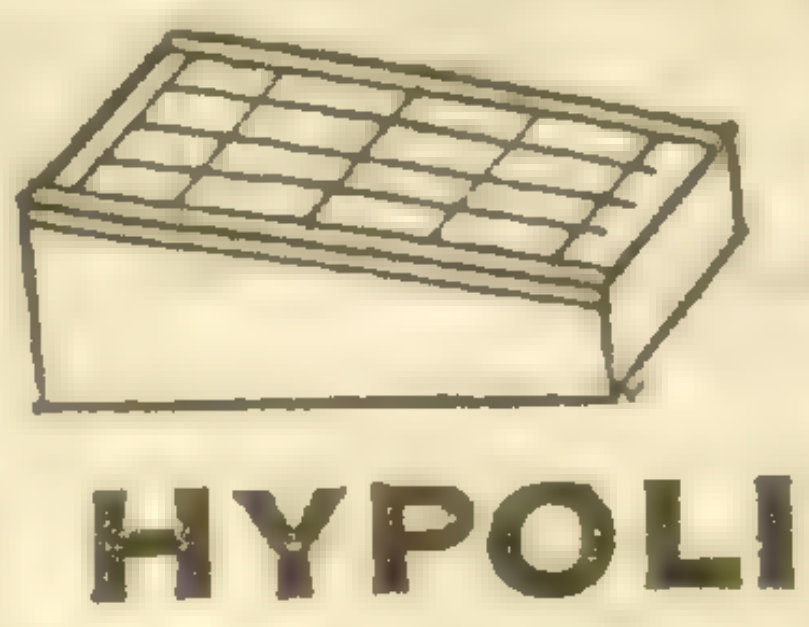

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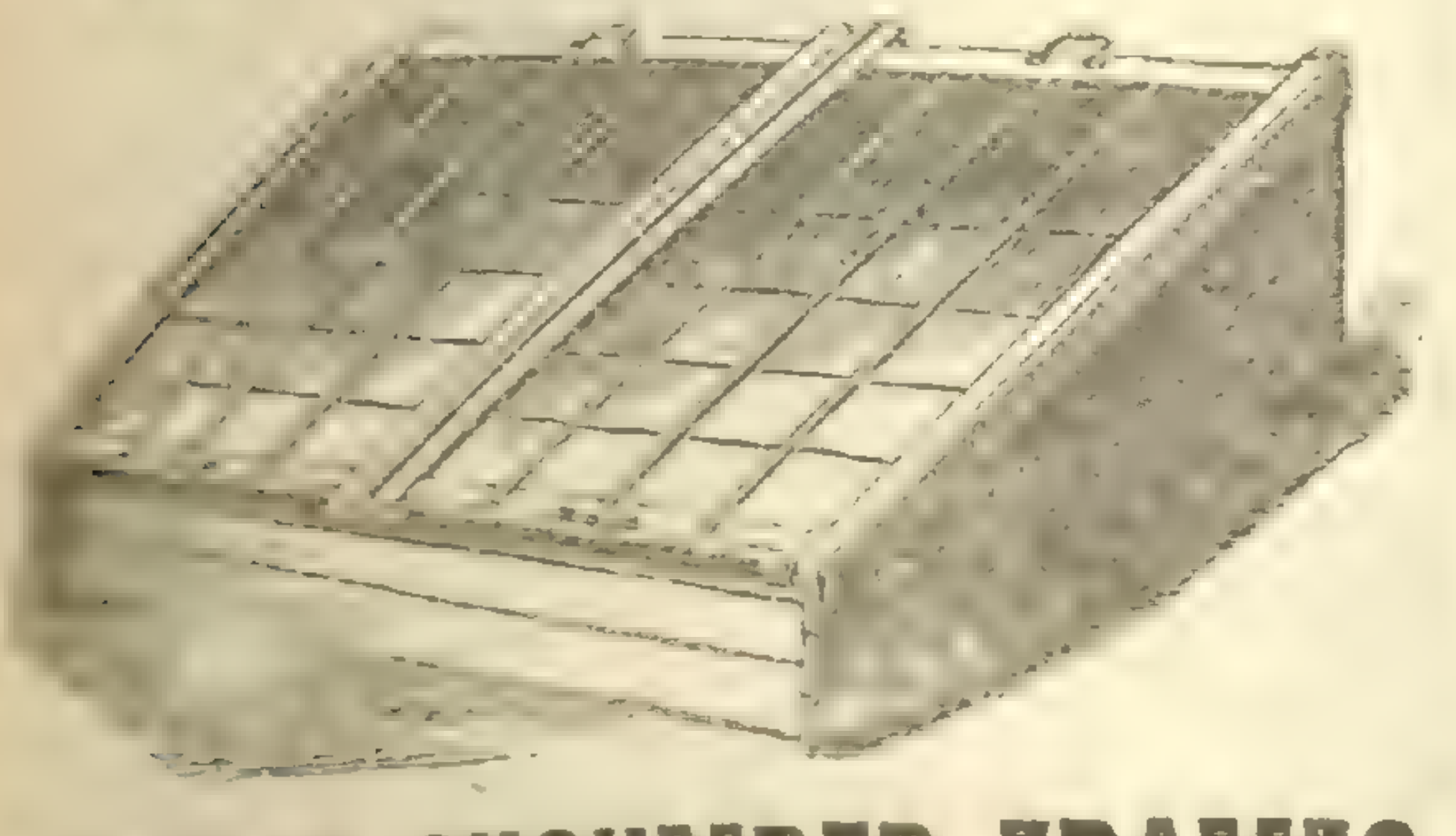

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[illegible] Herbaceous Plants.
[illegible]
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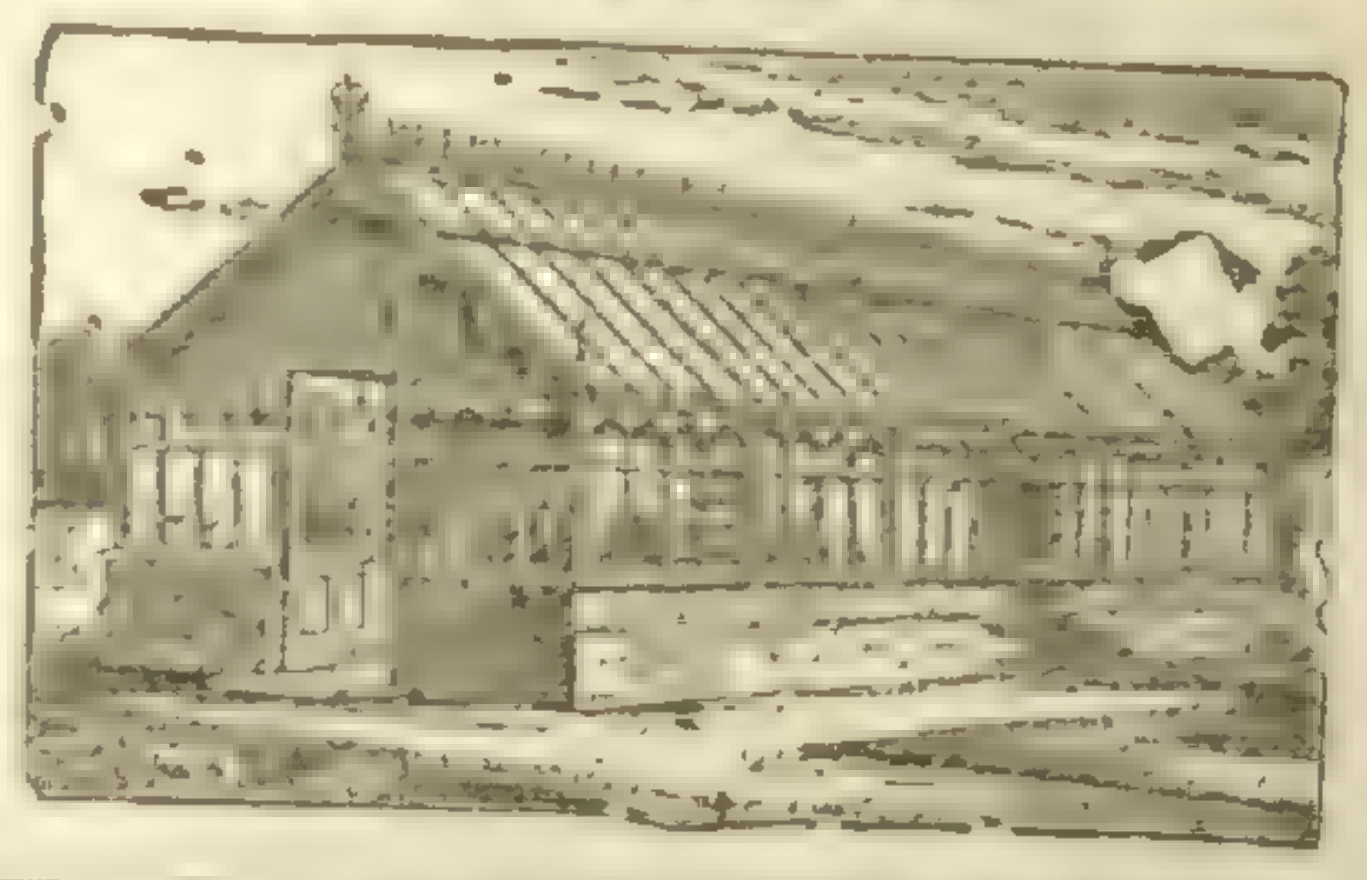

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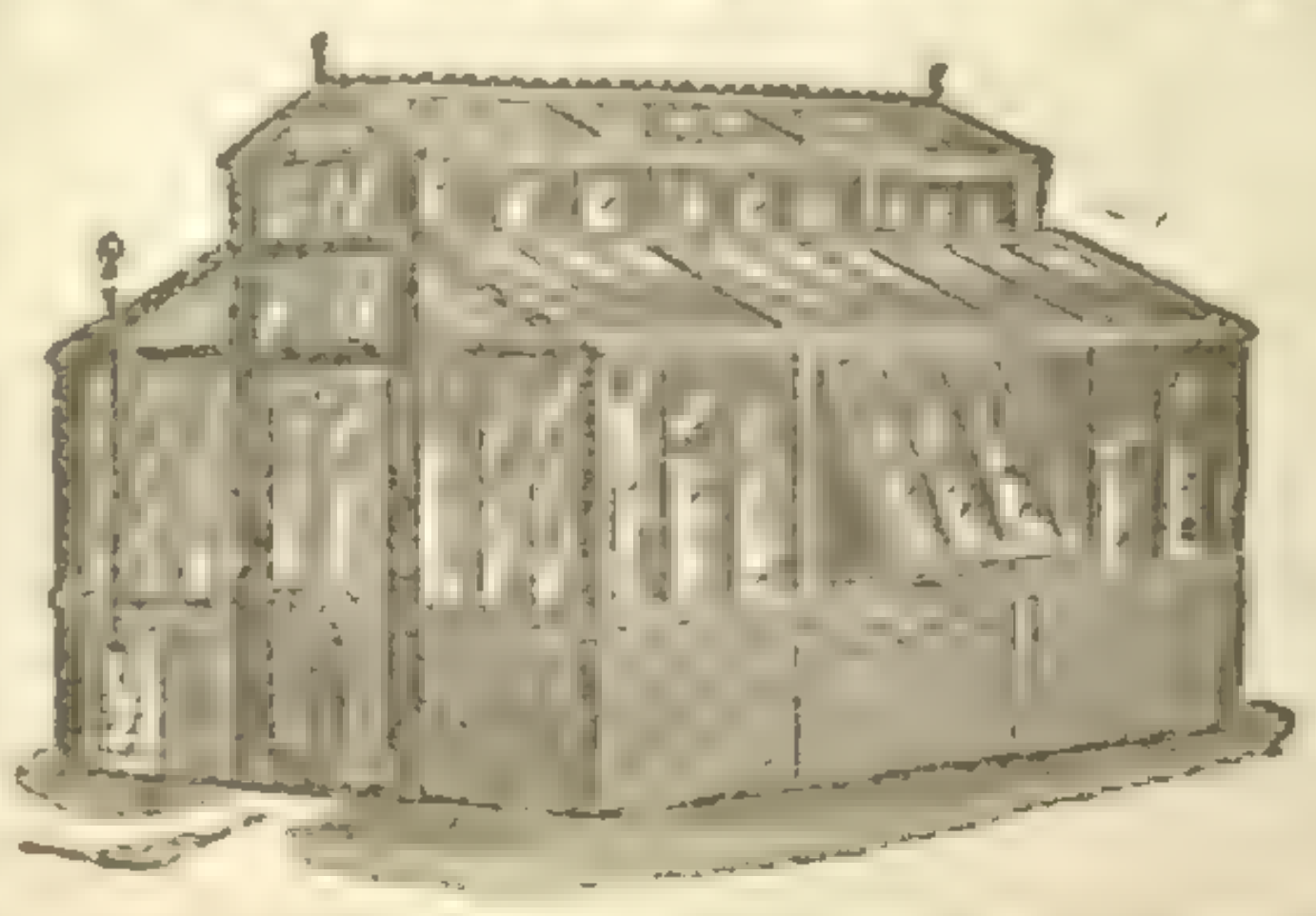

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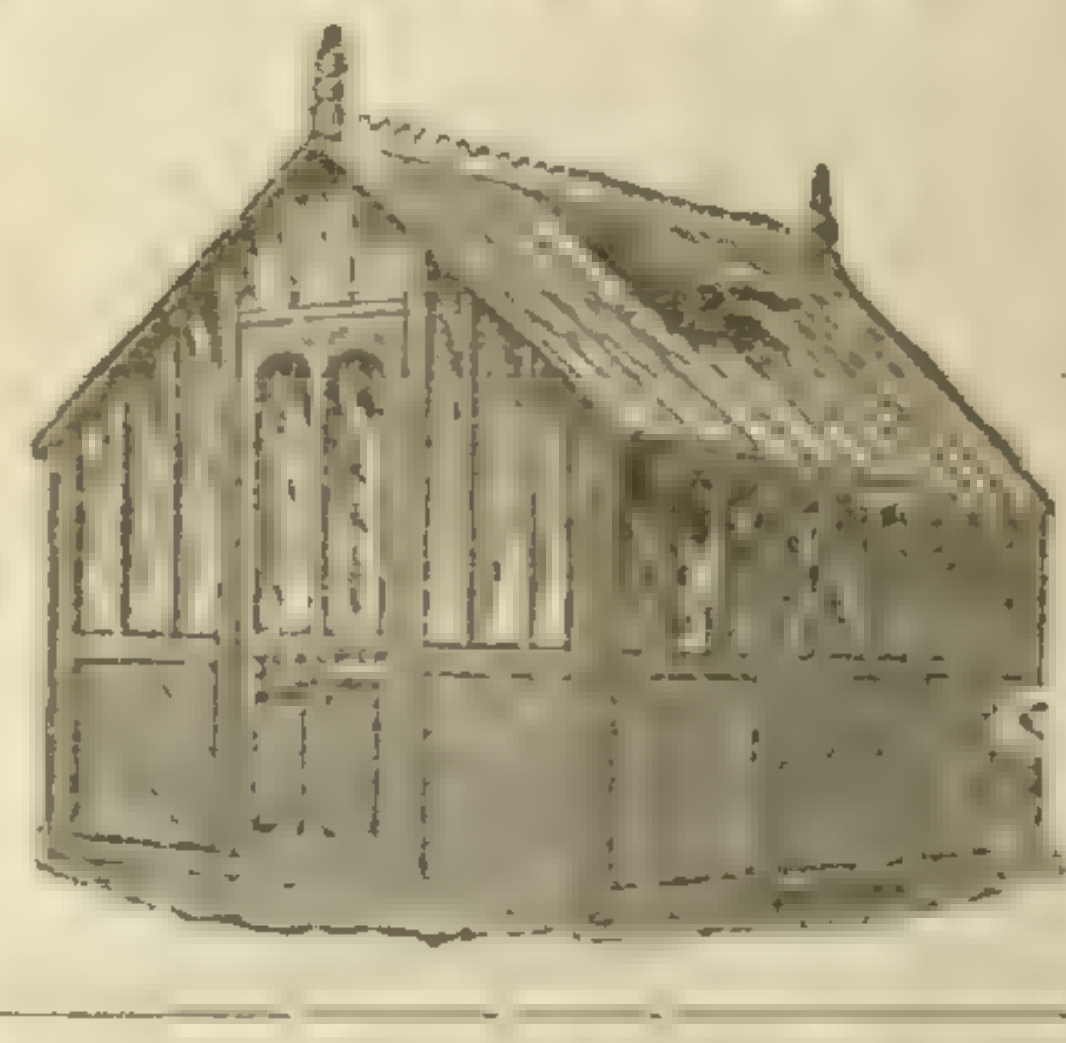

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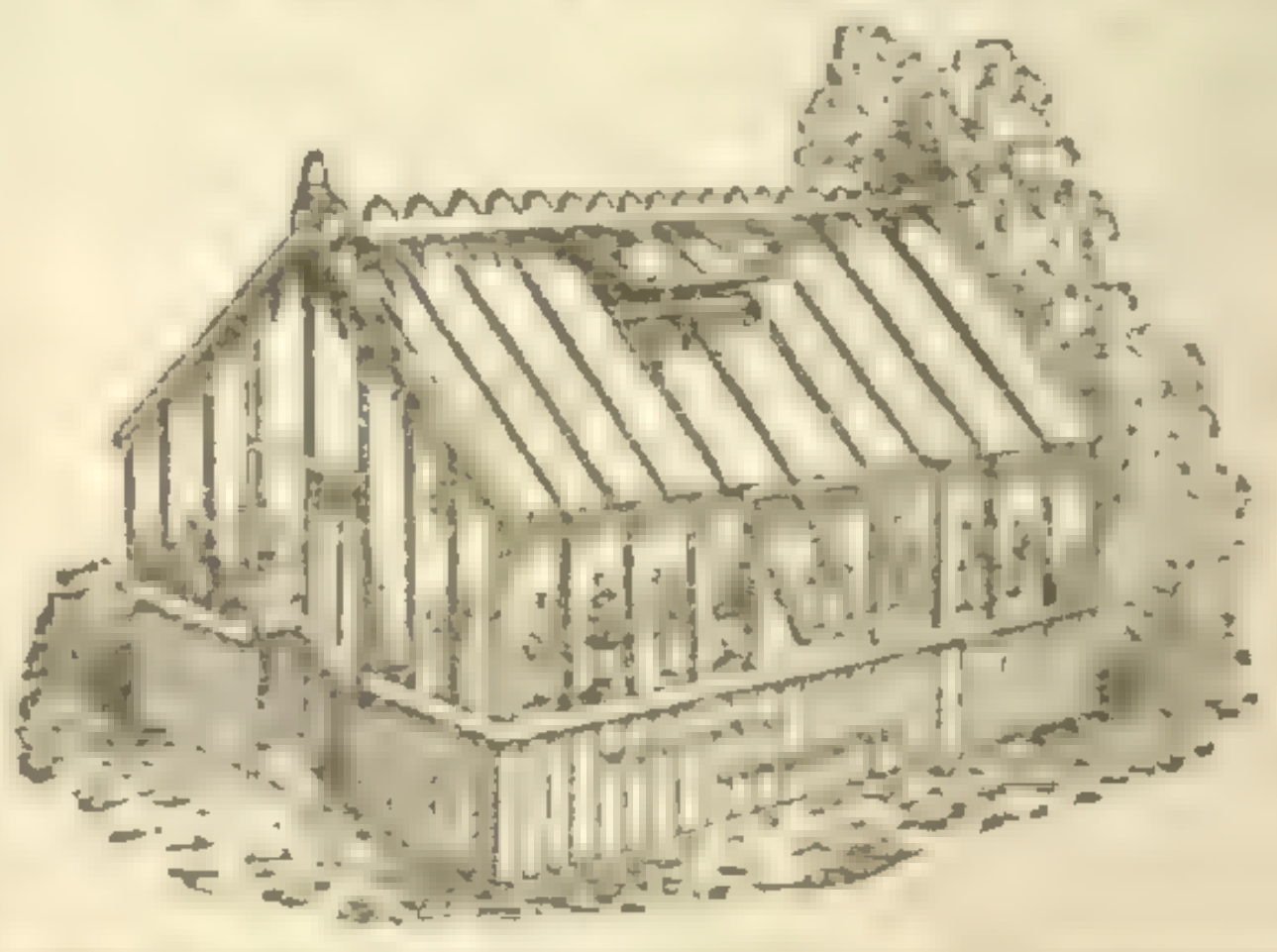

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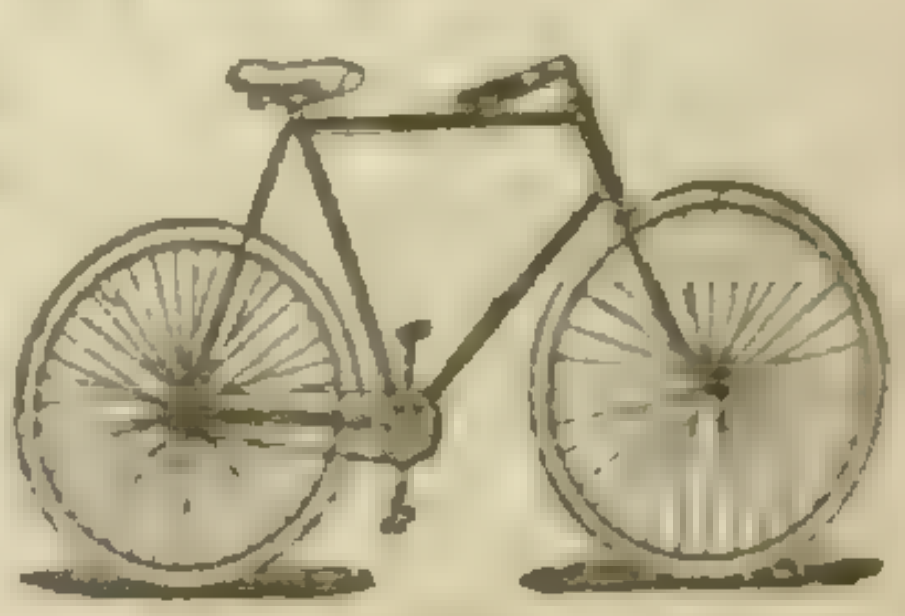

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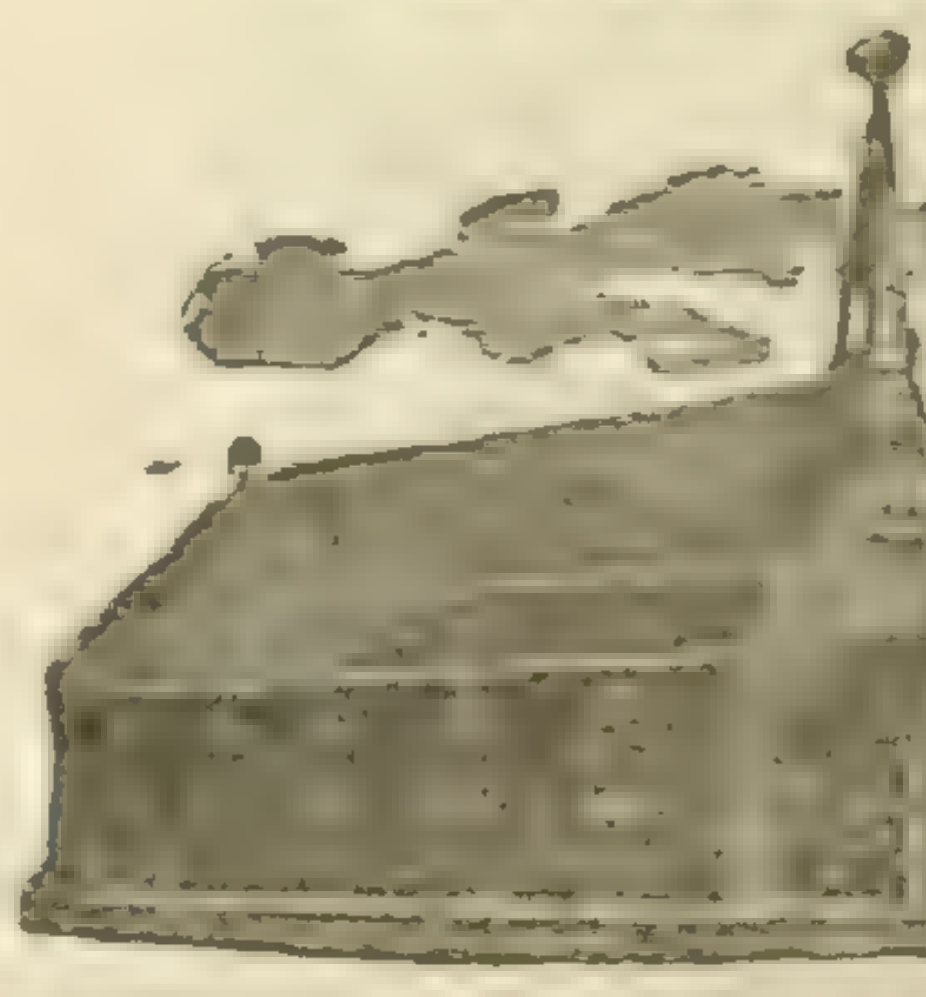

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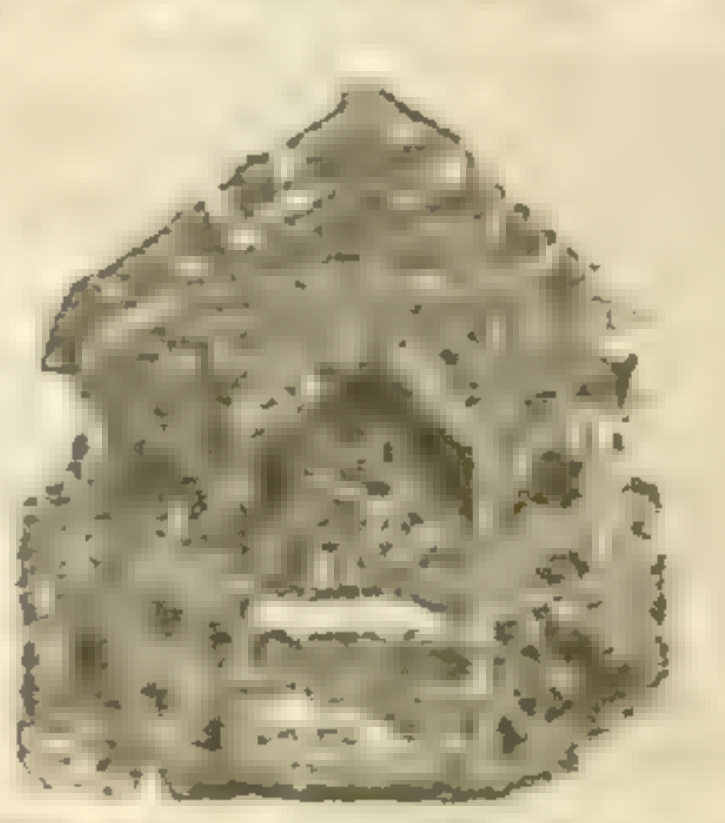

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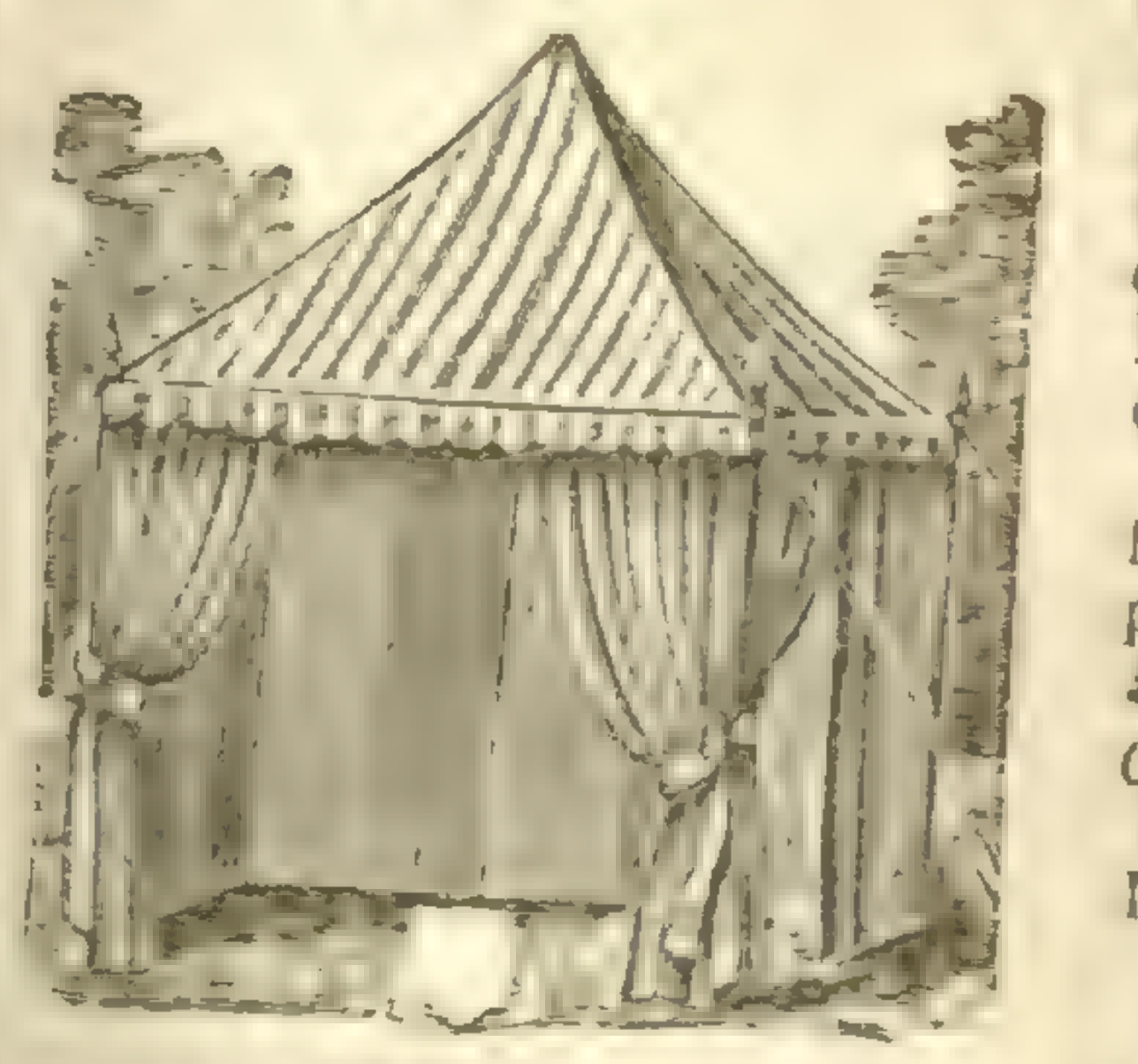

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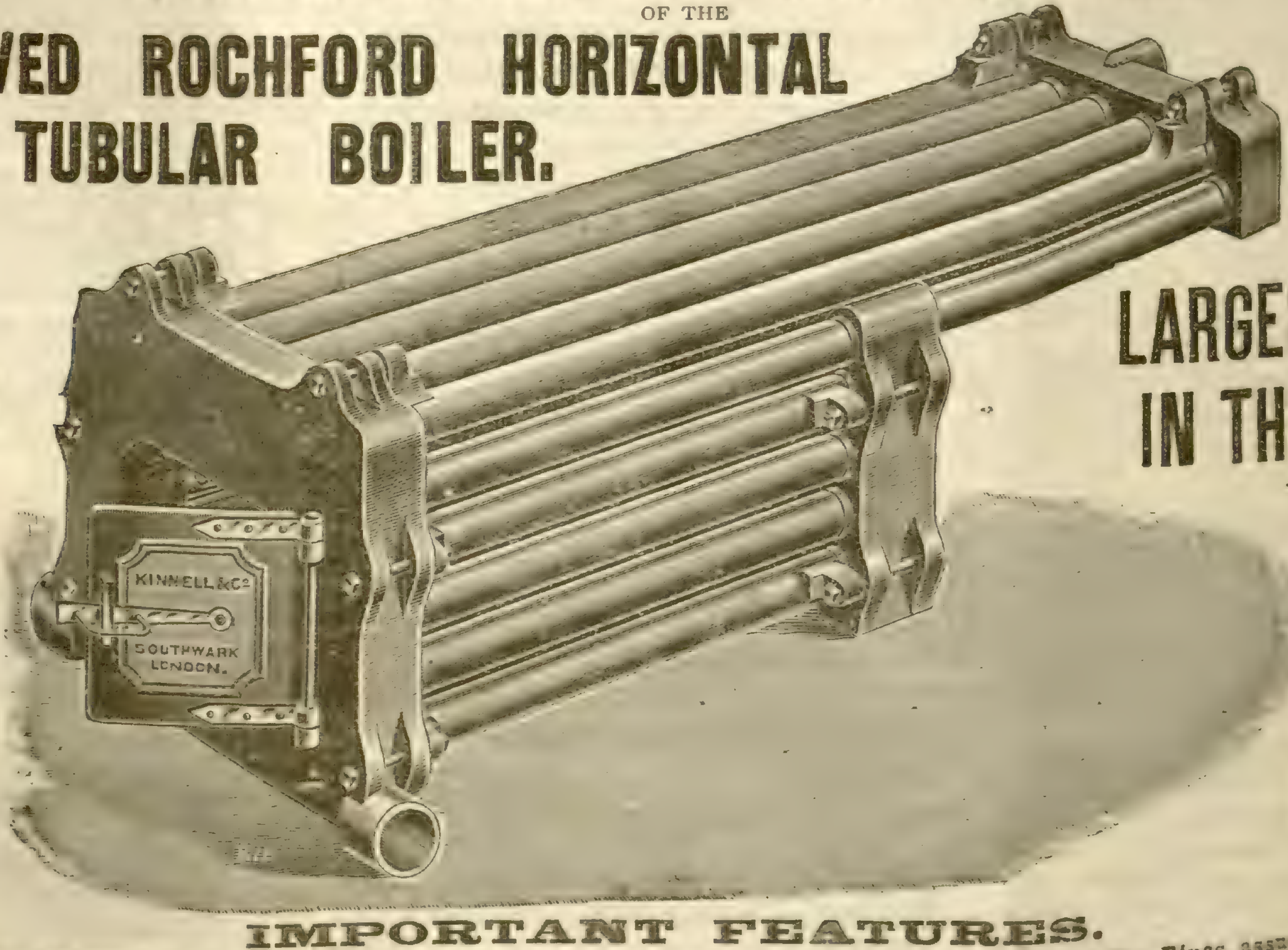

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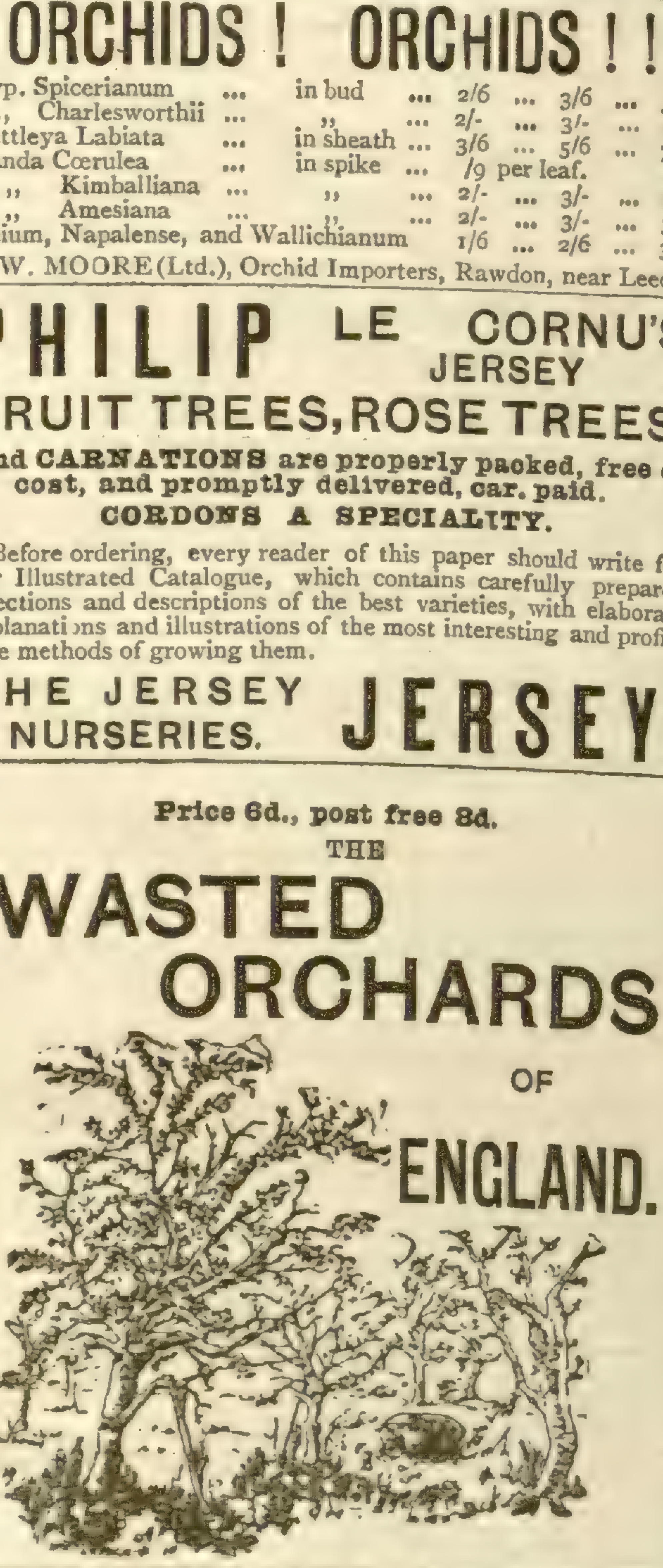

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300 Crocus, in 4 distinct colours.
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Iris Kæmpferi (Japan Iris), in fine mixture	5	0	40	0
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Iris Spanish, in the finest mixture	0	7	5	0
Lilium Candidum, single, pure white	10	0	—	
Montbretia croscosmiæflora, orange scarlet	1	6	—	
Narcissus campernel Jonquil, yellow	1	2	10	0
Narcissus, double, Incomparable, primrose	1	6	14	0
Narcissus van Sion, single, yellow trumpet	2	6	23	4
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Gladiolus Marie Lemoine, fine	2	0	19	2
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Scilla Sibirica præcox, intense blue	1	2	10	0
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Tulips, double early, in the finest mixture	1	6	14	2
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Grape Hyacinths, blue	0	7	5	4
Anemone japonica, rose	5	0	—	
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Pyrethrum, fine double, pure white	15	0	—	
Tritoma uvaria (Red Hot Poker)	14	6	—	
Sparaxis, in fine mixture	0	8	6	0
Funkias, in fine mixture	10	0	—	
Gladiolus Colvilli, white	1	2	10	10
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36 **Tulips**, do., **early single**, six varieties.
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THE GARDENERS' MAGAZINE.

SATURDAY, OCTOBER 1, 1898.

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NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE CHRYSANTHEMUM RUST.

As shown by the large number of infected specimens that we have received from our correspondents, the disease popularly known as the Chrysanthemum Rust has become so general throughout the United Kingdom as to justify in some degree the apprehensions of cultivators, and especially those who purpose taking part in the competitive gatherings. Much damage has unquestionably been done by the disease, and further injury may be anticipated; but we do not share the views of cultivators who regard the fungus causing the disease as invincible. It is not, in our opinion, a case for undue despondency, but one for increased activity, and we would, therefore, suggest that, instead of considering the question of abandoning the growth of the chrysanthemum because of the ravages of the disease, as we know some growers are doing, active steps should be taken to check the ravages of the fungus. Holding these views, we are extremely pleased that, on the initiative of Mr. Percy Waterer, the Committee of the National Chrysanthemum Society has accepted its responsibilities, and at the meeting held on Monday it decided to hold a conference for the purpose of discussing the scientific and practical aspects of the disease. This will be held at Westminster on the evening of the opening day of the October exhibition, and it should be one of the most useful of the conferences held by the Society; moreover, having regard to the importance of the subject, there should be a large gathering. As we have submitted diseased specimens to one of the most distinguished authorities on fungi, for report, there is no occasion for entering into details with regard to the rust; and it will suffice to say that in dealing with this, as with other plant diseases of fungoid origin, the cultivator must rely almost exclusively upon preventive measures in his endeavour to check the disease. When the plants have become infected with the fungus, but little can be done beyond sponging the leaves with a solution of sulphide of potassium, in accordance with the advice given on several occasions in these pages; the object in laving the leaves is obvious, and the sponging is recommended for the purpose of preventing the distribution of the spores over the healthy foliage. Another important preventive is syringing the healthy plants with sulphide of potassium in solution with a view to prevent the germination of the spores when they settle upon the leaves. A still further aid to prevention will probably be found in a more natural method of culture, for if the artificial manures so largely employed do not produce the disease, as some growers believe, their excessive use unquestionably predisposes the plants to attack. We have evidence of this in the fact, that while the majority of the plants cultivated by Mr. Waterer for the production of exhibition blooms have been attacked, those grown in the open borders without receiving supplies of stimulative manures have wholly escaped. There can be no question that the excessive feeding of chrysanthemums grown for the production of exhibition blooms has a very injurious effect on the constitution of varieties, and it is highly satisfactory to know that the practice, first suggested by Mr. Gordon in these pages, of growing plants under natural conditions for the supply of cuttings has become general, for had the old practice of propagating from plethoric individuals been continued the results by this time would have been so disastrous that we gladly turn from their contemplation.

PLANT SURGERY.

It not unfrequently happens that pot plants, ferns especially, gradually go out of condition, first of all losing that robust tint of green characteristic of healthy plants, and then throwing up smaller and smaller fronds, until eventually they dwindle entirely away, the winter probably putting the finishing touch. In the majority of cases it is not so much neglect as overcare or coddling which leads to this, and too frequent watering, with resulting impoverishment of the soil, is often at the bottom of the evil. When, however, this dwindling process has fairly set in, it is invariably seen that the centre of the plant only is really alive, and that this is surrounded by a mass of dead and decayed vegetable tissue and débris, the rottenness of which is slowly invading the living portions, so that unless some drastic measure be resorted to, complete decay is only a question of time. The reason of this is a very simple one, and once grasped indicates the remedy. Every new frond is to a certain extent an independent individual, since not only does it throw up its more or less delicate leafy portion, but from its base it sends down a number of roots peculiar to itself, and destined mainly for its own support. Now, when once, from any cause, decay has set in in the outer parts of the crown, these new roots find themselves, immediately they start out in search of nutriment, confronted by this rotten material, which, in nine cases out of ten, they fail to penetrate, become themselves infected with the germs of decay, and so never reach the nourishing soil beyond. Hence the fronds they spring from, being handicapped in this fashion, only partially develop, and usually fail altogether on the tips; the next series of fronds, are, of course, still worse off, and so the malady spreads, unless a surgical operation be effected as follows: Shake the plants thoroughly free of soil, and wash the roots perfectly clean; then with a sharp knife carefully cut away the whole of the dead roots, and also all the decayed portions of the root stock, taking care during the operation that the central axis of growth is not damaged in any way. When this is done, little probably remains, especially if the evil has nearly run its course, but if this remainder be now potted up in as small a pot as will hold it and kept close, it is astonishing how soon its vitality will be reinvigorated, and fresh growth begin. In some cases with the polystichum, a little bottom heat will have the result of inducing a profuse bulbiloid growth all over the rootstock, and it is on record that one of the finest varieties existing dwindled as described to the last spark, and being treated as above, yielded no less than eighty plants, a very fair recompense for the trouble involved.

TAKING NOTES.

It is an unfortunate fact that the capacity for intelligent observation is not always allied with a habit of noting down, for the general benefit, the experience thereby gained. The memory itself is a treacherous friend, and in any case is solely the servant of the owner of those particular brain cells in which it is subtly stored; a note-book, on the other hand, in which records are made at the time of observation, not only refreshes its keeper's memory in the future, but in its very use defines his thoughts with greater clearness. To note down a thing in writing necessitates a definition, and induces closer observation to obtain it, so that scientifically, a clearly explained note made immediately from observation is far more valuable evidence than a record made from memory. The one is, as it were, a snap-shot with a camera, and the other a sketch from remembrance. Many a man, however, who devotes himself to some special pursuit; follows this up year after year; forms, perhaps, a valuable collection, or raises, may be, a host of new things, acquiring in the process an invaluable fund of knowledge; but, on inquiry, we find that no notes are made or kept, the wisdom acquired is of a confused and rule of thumb description, and when the man dies the world, so far as his particularly-acquired experience is concerned, is no whit the richer. Another man, plodding along systematically, though he may not reap a tithe of the practical success of the other, has recorded carefully what he has seen, and by so doing added some solid grains of knowledge to the scientific pyramid. The world of Nature is full of facts, big and little, gigantic and microscopic, through the study of which man learns her secrets. A lesson is inwrought with the minutest of natural phenomena as well as the greatest; every effect is a link in a chain of causes leading back to the profound enigma—the great first cause of all. We plant lovers, watching our plants grow, waging war in their defence with their foes, combatting adverse climatic conditions, or subtly mingling the potencies of diverse species by crossing or hybridising, are brought into peculiarly close communion with biological phenomena which are fraught with instructive lessons. Starting with our note-book, we may at first find but small encouragement, so diverse and unconnected will our observations appear; but depend upon it, if we continue, we shall find, first, a recurrence of similar cases, then differences will appear, and eventually, still pursuing our quest, lines of orderly law will gradually reveal themselves, especially if, as we should do, we profit simultaneously by the knowledge gained by previous workers, and clearly recorded by them. Science, indeed, is like a coral growth, it is a slowly-built, concrete erection, composed of tiny, but always solid, atoms of wisdom, secreted and built upon a definite plan to form a coherent and homogeneous whole. The man without a note-book is like a floating, unattached coral insect, which, while it assimilates the needful pabulum around it like the others, secretes nothing, adds no particle to the structure, and consequently lives in vain.

Conference on the Chrysanthemum Rust.—In consequence of the injury done by the disease known as chrysanthemum rust, the General Committee of the National Chrysanthemum Society appointed, at its meeting held on Monday evening last, a sub-committee consisting of the officers and Mr. George Gordon, to organise a conference to be held on the evening of the first day of the society's October show, for the purpose of discussing the several aspects of the disease. The sub-committee has arranged for a paper by Mr. P. Waterer, vice-chairman of the committee, on the "Practical Aspects of the Chrysanthemum Rust," and one by Mr. George Masse on the "Scientific Aspect of the Fungus Causing the Disease." The conference will be held in St. Stephen's Hall, and the chair will be taken at six o'clock.

"Bacterial Disease" of the Potato.—For many years past American cultivators of potatos, tomatos, and other solanaceous plants have had heavy losses annually inflicted upon them by a disease, which the American scientists believe to be caused by bacteria, the species responsible for the disease being described under the name of Bacterium solani. The disease has caused some damage to potato and tomato crops in this country, more especially to the latter under glass, and therefore is something more than of academic interest to cultivators in the United Kingdom. Professor Marshall Ward has investigated the disease, and as the results of his investigations he is convinced that it is not due to bacteria, but to a true hyphomycetous fungus. The way into the tuber is prepared for bacteria by fungus hyphæ, and the open passages of destroyed vascular bundles afford them ample space. Investigations not yet completed by Professor Ward indicate that after the fungus in question has opened up the way into the tuber, all sorts of bacteria and fungi can make their way down the destroyed vascular strands and reappear in spring, when the tubers are replanted. The evidence shows that the fungus in question, once in the tuber, leads a dormant life during the early part of the winter, but gradually invades the new sprouts as they slowly appear in the early spring, and that the parasite is actually replanted by the farmer or gardener when restocking the ground in his new "sets."

The Swanley Bees appear to have become demoralised by the sweetness emanating from the jam factory situated in their midst, for according to the newspaper reports, they raided the establishment and for a time compelled the operatives to suspend work. They were not allowed to enjoy the sweets of victory for any length of time, for measures for their suffocation were decided upon, and in the result sufficient numbers to fill three bushels lost their lives as the penalty of their departure from the path of rectitude.

Incense Trees of the West Indies.—There are apparently several very distinct plants known as "Incense trees" in the West Indies, and according to the *Kew Bulletin*, the most widely distributed and best known of these is Bursera gummifera. This is the "Birch tree" of Jamaica, the "Gommier" of the Windward and Leeward Islands, and the "Turpentine tree" of St. Vincent. There are specimens in the Kew Herbarium also from Cuba, Florida, Mexico, and Guatemala. It has pinnate leaves with small precocious flowers. In his report on the forests of Jamaica Hooper describes it as a "tree of the coast and coast ranges; a smooth-barked, erect, deciduous tree, from its clean stem and its habit of branching only at the top adapted for live telegraph posts. As a timber used in coopering." Macfadyen states that all parts of the tree produce a gum capable of being substituted for gum-mastic as a transparent varnish. In the Kew Museums there are "flambeaux" from Dominica, said to contain the resin of this tree wrapped in leaves of the Balisier (*Heliconia* sp.), and in the spathe of *Euterpe montana*. It is doubtful whether this resin in every case is really from Bursera gummifera. Dr. Imray, who has also sent a gum resin from Bursera gummifera, refers to it as "the large Gommier tree."

The Prothallus of Lycopodium clavatum has been investigated by Mr. W. H. Lang, of the Glasgow University, and some interesting results obtained. Mr. Lang states: A few prothalli of the species in question were found wholly imbedded in the peaty soil underlying a patch of moss; three of them bore young plants and a number of slightly older plants, the prothalli of which had disappeared, were found in the same spot. The prothalli, which present a general resemblance to those of Lycopodium annotinum, are of considerable size, completely devoid of chlorophyll, and fairly well provided with rhizoids, especially round the edge. Their form is that of a thick fleshy cake, which soon becomes thrown into folds by the unequal growth of the margin. The upper surface is concave, owing to the sides becoming turned up at an early stage. The sexual organs are borne on the upper surface; both antheridia and archegonia may be present at the same time. These resemble the sexual organs of other lycopods. Even after the young plants have attained a length of several inches the large, almost spherical, foot can be distinguished. They are similar to those of Lycopodium annotinum; no trace of any organ corresponding to the embryonic tubercle of Lycopodium cernuum is visible, and the leaves exhibit a gradual transition from simple scales to the form characteristic of the species. A broad layer of tissue separated from the under surface of the prothallus by one or two layers of cells contains an endophyte fungus, the mode of occurrence of which suggests that it is of the nature of a mycortiza.

Influence of Electricity on Growing Plants.—At a meeting of the Mathematical and Physical Science section Association, Professor S. Lemström described some experiments that had been made with a view to determine the action of electricity on growing Plants. After a brief sketch of previous experiments on the subject made in 1885 and 1886, he referred to the researches which he carried out last year on the Estate Brödtorp, with the friendly assistance of the proprietor, Baron Edvard Hisinger. Three fields of 50m. were used for the experiments, and three of the same area as control fields. In general there was found an increase in the seeds of at least 40 per cent., in the roots from 25 per cent. to 75 per cent., depending on the kind of plant and on the nature of the soil; in beans 75 per cent.; in strawberries and raspberries as high as 75 per cent., the time for their ripening being shortened at least one-third. The experiments proved, among other things, that electricity given to plants during days with a clear burning sun might damage them very much if enough water was not also given at the same time. Discussing in what way electricity exerted an influence on plants, the author said that either the gases in the air were transformed to ozone and nitric oxides, which, being heavy, fell down upon the plants and increased the activity of their vegetation, or the electricity induced the juices of the plants to ascend more rapidly in their capillary tubes (the Gernez phenomenon). Though much has yet to be explained, the method is ready to be used for practical purposes. The author this summer carried out experiments in Finland on some especially interesting plants. Of these the tobacco plant did not yield, in earlier experiments, to the favourable influence of the electric currents, through want of water. Photographs of the experimental and the control field, which were watered to the same extent, were taken at the same distance from both fields, and showed that under the influence of the current the results were at least 40 per cent. better than without it. The current was applied for four hours in the morning and four hours in the afternoon, with many interruptions, however, from June 17 to July 30. The total number of hours was 161. Dr. E. H. Cook read at the same meeting a paper on a similar subject, and in this he described results agreeing with those of Professor Lemström. Electrically urged plants were found to come to maturity sooner, but electricity had very little effect after the cotyledons appeared above the soil, the accelerating effect being exerted on the seed and the young plant. The electricity was applied in various ways, with the same result in each case.

Grants to Botanists.—We learn that the Berlin Academy of Science has granted five hundred marks to Dr. Loesner for the completion of his monograph of the Aquifoliaceæ; six hundred marks to Professor Graebner for the continuation of his investigation of German heaths; and two thousand marks to Professor Eichler for the continuation of his extensive work upon East African plants.

Manurial Requirements of Potatos have been fully investigated at Rothamsted, and the recently-issued report on the field and other experiments, conducted on the farm and in the laboratory of Sir J. B. Lawes, contains some interesting particulars relating to the use of fertilisers in the culture of potatos. These experiments were commenced in 1876, so that 1898 is the twenty-third year of their continuance. The descriptions grown were Rock, four years; Champion, eleven years; Sutton's Abundance, five years; The Bruce, one year; and White Beauty of Hebron, 1897 and 1898. The question was not as to the comparative merits of different descriptions, and different sorts were selected on the supposition that in growing the crop year after year change was desirable, especially with a view to the avoidance or lessening of disease. The special object was to ascertain the manurial requirements of the crop, and the comparative characters and composition of the produce. The crop was grown continuously without manure, with various artificial manures, and also with farmyard manure, both alone and with some artificial manures. There were ten differently-manured plots, and under each of the ten conditions the crop more or less declined over the later compared with the earlier years. The average produce per acre of total tubers over the twenty years was—without manure, only 1 ton 11½ cwt.; with ammonium salts alone, 1 ton 18½ cwt.; with nitrate of soda alone, 2 tons 8 cwt.; with superphosphate alone, 3 tons 2¼ cwt.; with mixed mineral manure, including potash, 3 tons 6¾ cwt. Thus, purely nitrogenous manures yielded less than purely mineral manures, indicating that there was a deficiency of ash-constituents rather than of available nitrogen within the soil. With the mixed mineral manure and ammonium salts together, the average produce of total tubers was nearly six tons, and with the mixed mineral manure and nitrate of soda rather over six tons per acre. The better result by the nitrate of soda is doubtless due to its nitrogen being more immediately available, and more rapidly distributed within the soil, and so inducing a more extended development of feeding roots. The average produce by the mineral and nitrogenous manures together, over twenty years of continuous growth, was very nearly that of the estimated average produce of Great Britain under ordinary cultivation, and much more than that of Ireland. It was also more than the average of any other country in Europe, much more than many of them, and about three times as much as that of the United States.

Devon and Exeter Gardeners' Association commenced their [illegible] session on Wednesday evening with the annual meeting. The subjects arranged for discussion at the meetings to be held before Christmas are as follows: October 12, "Flowers that Bloom in the Spring," by Mr. Andrew Hope, hon. secretary; October 26, "Vine Culture," by Mr. George Lock, Newcombes Gardens; November 9, "Deciduous Trees," by Mr. F. Edwards, Honeylands Gardens; November 23, "Further Experiments with Chemical Manures applied to Garden Crops," by Mr. F. W. E. Shrivell, F.L.S., Thompson's Farm, Tonbridge, Kent; December 7, "The Honey-Bee, and why it should interest Gardeners," by [illegible] Walker, Lee Ford, Budleigh Salterton.

Importation of Canadian Fruit.—It is evident the fruit growers in this country will have to meet a still keener competition, for we are [illegible] larger supplies, more especially of pears, from Canada. Professor [illegible] who has recently visited this country for the purpose of becoming more intimately acquainted with the British markets, has made arrangements for the first trial shipment for this year of the choicer kinds of fruit, which are to be sent to the United Kingdom under the auspices of the Dominion Government. With reference to the arrangements that are being made for the shipment of the fruit, Professor Robertson states: "The fruits to be sent are pears, peaches, tomatos, plums, and grapes. The fruit growers of Canada are finding that the Canadian home markets are fully supplied now, and that when there is a full crop the markets become so glutted that they can barely obtain living prices. If an outside market could be reached with the fruit in good condition, so as to obtain satisfactory prices, the surplus could be sent there, leaving a better demand in the home market. The only market available for Canadian fruits seems to be that of Great Britain. The Minister of Agriculture and myself in our investigations this year in the old country found a growing demand for fine fruits. Pears are becoming more generally sought for by the great body of what are called the middle-class consumers of Great Britain. These supplies in the past have been a few home-grown pears, large quantities imported from France, and considerable quantities imported from California. None of these, except those grown under glass in Great Britain, compare in flesh or flavour with the finest Bartlett pears from Canada. Now that cold storage has been provided, it has been demonstrated by the trial shipments last year that pears can be landed in Great Britain in first-class condition. The smaller packages which were recommended by the Department of Agriculture last year are being entirely used this season, with every prospect of complete success. The demand for pears in Great Britain this year is unusually good, owing to the partial failure of the home crop, and not very large supplies from France."

Protecting the Edelweiss.—Laws have been passed in Styria and Carniola for the protection and preservation of edelweiss. The much-prized Alpine plant is, it seems, in danger of extirpation in consequence of the increasing number of tourists visiting the Austrian Alps and of the export of the plants with the roots.

Alpine Strawberries in their improved forms are agreeable adjuncts to the breakfast table as well as useful for dessert during late summer and autumn, and as Mr. J. Hudson, who has been eminently successful in their culture, so well observes, when once a taste has been acquired for them their culture will not be readily relinquished. Writing with reference to their cultural requirements, Mr. Hudson says: The culture of the Alpine strawberry is of the simplest description. Seedling plants are infinitely better than those obtained from runners. The old plan of propagation by runners did nothing to increase its popularity, rather otherwise. Plants raised from runners lack in a remarkable degree the vigorous constitution of seedlings, whilst they are not so fertile, nor so [illegible] in bearing. The seed may be sown in a cold frame in April, or in the open ground in May, similar to hardy annuals, a moist, cool, shaded spot being [illegible]. The seedlings should be transplanted once or twice, being finally put out [illegible] eighteen inches from plant to plant, October being the best month for the purpose. These plants, if well attended to, will commence to bear fruit in [illegible] following, being as early as the best known of the early kinds of the [illegible] strawberry, but will yield a continuous supply until the middle of [illegible], covering a period of four months. The season may be further extended [illegible] end of October if ordinary garden frames be placed over them, whilst under more favourable climatic conditions the season can be further prolonged. When the fruit is all picked the plants can be destroyed, or a portion of them, those [illegible] being kept for the first crop another season, these being again succeeded [illegible] plants, which in that case can have their first flower spikes cut off, so [illegible] strengthen the plants. The runners, which are produced freely, [illegible] be cut off. Almost any soil, but preferably a light one, will suit them, [illegible] strawberry delights in moisture and a moderate amount of shade, hence [illegible] to other fruits may be utilised for this.

The Midland Daffodil Society is the most recent addition to the organisa[illegible] have for their object the promotion of floriculture, and, considering the [illegible] judgment evinced in the management of the floricultural societies that [illegible] at Birmingham, a long and useful life may be anticipated for it [illegible] confidence. The ruling spirits are Professor W. Hillhouse and Mr. [illegible], who occupy the positions of chairman and treasurer respectively. [illegible] prizes offered for competition at the exhibition to be held in the [illegible] Gardens, Edgbaston, on Thursday and Friday, April 13 and 14, contains [illegible] classes, the most important being that for a collection with a silver cup [illegible] Messrs. Barr and Son as the premier award.

The Boston Society of Natural History is continuing its good work [illegible] encouragement of natural history investigation. It annually offers two [illegible] sixty and fifty dollars respectively for memoirs on specified sub[illegible] to be sent in by April 1st of the year mentioned, and to be [illegible]. The subjects for 1899 are: (1) Is there fundamental [illegible] "equation division" and "reduction division" in the division [illegible] (2) The phenomena and laws of hybridisation. The subjects for 1900 [illegible] and correlation of the sedimentary formations of any part of [illegible]. (2) A study in palæozoic stratigraphy and correlation.

China Grass is steadily increasing in commercial importance, and the full [illegible] of the plants from which that product and Rhea or Ramie [illegible] the preparation of the two fibres for market which appears in the [illegible] *Kew Bulletin* is extremely opportune. Hitherto it has been [illegible] the names of China grass, Ramie, and Rhea indiscriminately [illegible] Bœhmeria nivea and B. tenacissima, and as this has given rise to [illegible] it has been generally agreed to employ them with more [illegible] China grass, it may be stated, is obtained from B. nivea, which is suffi[illegible] grown in the south of England. Ramie or Rhea is the product of B. tenacissima, which in this country can only be grown with the aid of glass. The importance of exactitude in speaking of the two plants is strikingly exemplified by what has happened in India. According to Dr. Watt numerous experiments have been made to extend the cultivation of the bœhmerias in India, but in many instances they have failed because of the attempt to grow the temperate-loving plant instead of the species requiring a high temperature for its successful cultivation. The fibre of each of the two plants is of much value in the manufacture of various fabrics, but in consequence of the difficulty of cleaning the fibre except by hand the supplies are limited and high in price. Numerous attempts have bee made to dispense with hand labour, and during the past five or six years considerable advances have been made in the machines introduced for cleaning the fibre, but in the summary of the report we are told that: "Notwithstanding all the expenditure of mechanical skill and inventive ability, the conclusion cannot be evaded that we are still as far off as ever from being able to place upon the market a finished product which will effectually compete with silk, flax, and the better qualities of cotton. The plants can be grown with the greatest ease. But when the problem of treatment is solved, the supply of the raw material will be limited to warm countries. The cultivation of China grass in temperate regions will never be able to compete successfully with that of Ramie (or perhaps of China grass) in the tropics."

Fossil Plants were the subject of some interesting notes contributed by Dr. D. H. Scott to the botanical section of the British Association. In the first of the notes he dealt with "a fine specimen of the Halonial branch of a Lepidodendron allied to L. fuliginosum." This specimen (of which a photograph was exhibited) was recently discovered by Mr. Lomax at the Hough Hill Colliery. Is is of large size, with the structure perfectly preserved, and bears two series of Halonial tubercles. The main stem resembles that of Lepidodendron fuliginosum, though not absolutely identical. Each tubercle has its own vascular cylinder, surrounded by leaf-trace bundles, and evidently represents a branch, which probably constituted the peduncle of a strobilus. In the second of his communications, Dr. Scott referred to an English Botryopteris, and specimens were described showing that Rachiopteris tridentata is the petiole of Rachiopteris hirsuta, a simple monostelic fern-stem. It was further shown that the plant agrees closely in structure with the peculiar group of fossil ferns described by M. Renault under the name of Botryopteris, and that it should be placed in that genus. Dr. Scott, in his note on the structure of Zygopteris, pointed out that undescribed specimens, from the Williamson collection of the fern Rachiopteris Grayi, which is no doubt a Zygopteris, showed the anatomical structure more perfectly than any previously investigated. The stem has a very complex organization, though of the monostelic type; the leaves have a 2-5 phyllotaxis; and the vascular strand of the axiliary shoot is given off from the foliar bundle a short distance above its base.

An Ancient Oak Tree was recently unearthed near Broxbourne during the excavations for a new gas holder at the Hoddesdon Gas Works. The specimen was about twenty feet long and had evidently been trimmed of its branches; the outer two inches of wood were quite soft, but the heart wood, though perfectly black, was quite sound. No doubt this ancient oak floated from the place where it was cut down to the point where it was found, at a period when the River Lea had a much wider bed than now; some idea of the age of the tree is to be gathered from the deep clay and other deposits overlaying the gravel bed in which the trunk was embedded some twenty feet below the surface.

Potatos in Great Britain.—According to the returns published by the Board of Agriculture the potato crop in Great Britain occupied this year 524,491 acres. In England there were 365,432 acres under potatos, or 69·7 per cent.; in Scotland 126,362 acres, or 24 per. cent.; and in Wales 6·3 per cent.; these representing increases of 13,067 acres, 6,422 acres, and 188 acres respectively. The counties of Cornwall, Norfolk, Rutland, Sussex, Warwick, and Worcester record small decreases in area, but in all other English counties potatos were this year planted upon an extended acreage, the largest increases amounting to 1,684 acres in Lincoln and 1,521 acres in Chester. The largest areas of potatos are 51,881 acres in Lincoln, 38,308 acres in Lancaster, 24,773 acres in Chester, 23,680 acres in the West Riding of York, 19,849 acres in Cambridge, 13,276 acres in Kent, and 12,547 acres in Devon. In seven English counties the area of tubers falls below 2,000 acres. The trifling alteration in the acreage under potatos of Wales is the outcome of an extension of area in seven counties and a diminution in five. The largest county area is 5,989 acres in Cardigan, the smallest is 885 acres in Radnor. Two English counties, Lincoln and Lancaster, each possess a larger acreage of potatos than the whole of Wales. Excepting for decreases of the most trivial dimensions in Nairn, Renfrew, Selkirk, and Shetland, all the counties of Scotland participate in the extension of potato acreage, the largest additions being 969 acres in Perth, 938 acres in Fife, 583 acres in Mid Lothian, and 536 acres in Forfar. The greatest county areas of potatos are 14,264 acres in Fife, 12,385 acres in Perth, 11,965 acres in Forfar, 7,686 acres in Haddington, and 7,523 acres in Ross and Cromarty. The smallest is 188 acres in Selkirk, and there are five other counties in which the area falls short of 1,000 acres.

S. S. Marshall, Limited.—This company has been registered with a capital of £15,000 in £1 shares for the purpose of acquiring and carrying on the business of a nurseryman, horticulturist and market gardener, carried on by Mr. S. S. Marshall, at Barnham, Sussex, and elsewhere. The number of directors is to be not less than three nor more than five, and the first directors are to be Messrs. S. S. Marshall, W. W. Pewtree, P. Goodacre, and C. Stride.

A Fasciated Vegetable Marrow growing in the garden of Mr. Flood, at Tonbridge, appears to have created considerable interest, judging from a paragraph in one of the local papers. The plant is evidently regarded as a great curiosity, but there is nothing remarkable in vegetable marrow plants producing fasciated stems.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

FROM time to time i is my custom to jot down ideas for treatment in this column at a convenient or opportune moment. Frequently such ideas seem at the moment of their inception to be of the utmost brilliancy, But, unfortunately, before the convenient or opportune moment arrives a change has taken place. Usually it is brought about by Peter. I make a practice of submitting them to him in advance, for the reason that his opinions are held in such high estimation by readers of this paper, but in nine cases out of ten he pours cold water on them with an unsparing hand, after which he proceeds to develop an alternative scheme, supported by arguments of the most decisive, not to say dogmatic, nature. When he has done I am at liberty to say as much as I like, but under no conceivable circumstances does it make the slightest difference. The fiat has gone forth, and there is an end of it.

My latest idea was to create a discussion on the best way in which to arrange for winter study. The long nights, I pointed out, were coming on, and it was of the most vital importance to every young man to learn how to employ them to the best advantage. Now, if a course of study could be marked out beforehand, and the necessary equipment, such as books, provided for, why— But here Peter gave vent to a very loud sniff, the meaning of which was only too well known to me. With a chill and sinking feeling I paused, and begged to know if he could suggest anything better. I believe I imparted a touch of irony to the question, which may or may not have had an effect upon him if he had perceived it. As he did not, speculation is useless. Could he? An indulgent smile spread itself over his face. Well, if he couldn't, he'd, he'd——, but a simile did not come, and I was spared. Eventually, with the air of propounding something desperately and triumphantly original, Peter suggested as a topic—Greens!

Far be it from me to belittle this great subject. As developed by Peter it is one of no common character. He raises greens to the dignity of a national institution, and their culture to a Fine Art. Not only, he contends, does it present a subject that has been unaccountably neglected in the horticultural Press, but it affords a field of study during the coming winter calculated, if prosecuted vigorously, to raise the moral and intellectual standard of our young gardeners to an extraordinary degree. Nevertheless, I am not altogether convinced that he is right. If he is, why then, parodying the parodyist, we may cry :—

> "Hurrah for the curly savoy;
> Hurrah for the young budding sprout;
> Winter greens are my only true joy,
> So I'll leave all the book learning out."

The pungent "A. D." is rather hard on me in a recent issue. Of course, I brought it on myself in a measure, but when I go out of my way to say a word on behalf of the poor, helpless cottager, it is somewhat distressing to have such a painful charge as "tremendous trumpeting" flung at me. One might really imagine from this that the Mixture, which I have always regarded myself as the true reflex of a peculiarly modest mind, was the vehicle for exaggerated laudation of the works of Peter. In reply, I can only say that far from over-estimating the merits of that remarkable man, I only half do him justice. I have now sought his opinion on this onion question. His reply is characteristic, and simply crushes "A. D." (if that hardy old warrior is capable of being crushed). He says—but what he says demands the distinction of a paragraph to itself—

"Now about this 'ere Ail-sir and Cranston's Sell-sir for autumn sowing. Well! all I can say is as we've tried 'em, and its all very well o' these young beginners to try a teaching of *us*. About the Ail-sir; well, its a good name I allow, for it always ails something. And as for Cranston's, why 'tis a sell, sir, there's no getting away from it, 'cause it won't keep nohow. Now I ask—What do we grow Tripolows for? Why, for early use; very well. What do we want 'em to keep for? If we want onions to use in winter and spring, we can get 'em by sowing in March. Very well; then what do we want to sow seven or eight months earlier for, giving ourselves a lot o' unnecessary trouble, and occupying ground that would carry another crop? My idea is that this here 'A. D.' is one o' them young fellers what's got mixed up with them there certificates, else he wouldn't talk about sowing onions eighteen months before they was wanted. We can grow 'em in nine months, but, o' course, not having no certificate [biting sarcasm here—Lux] we're no good."

Having demolished "A. D.," I was disposed to turn Peter upon Mr. Riddell. Ah! I picture that gentleman beginning to quake. But I will let him off more lightly; I will tackle him myself. This shows I am in a merciful mood, not by any means put out by the genial banter, anent somnolency. Let me assure our good friend (1) that I was not dreaming when I wrote of celery on the vine borders; (2) that Peter does not sun himself in it as a vision of the future. It is an accomplished fact. We take good early celery off the vine border, and we have excellent crops of grapes. Is this really so astonishing a fact? Are we alone in it? I think there must be fellow-sinners, if they did but dare to own their delinquency; indeed, I am quite sure that I could put my hand on one famous gardener who should stand in the dock with me, for I learned the trick off him. Mr. Riddell must be indulgent. He must put me down as poor, innocent little Oliver, and hold the other man—the Fagin of the piece—responsible for my wrong-doing. Will this terrible person come forward and be twisted and tumbled in the Yorkshire riddle?

I am the first, my critic says, to state that maltreatment of the roots can be compensated with food. Well, I always like to bring forward some new truth, and I am going to stand by this one right staunchly. Let me put the case in the form of an aphorism, and as I am indulging in so weighty a luxury, perhaps the printer will favour me, for once in a way, with italics: *Roots do not create food, but food creates roots.* Going, in accordance with Mr. Riddell's advice, to the fields, I ask him, "Which fruit trees are the healthiest, those growing in old orchards without culture; left, in fact to Nature, or those in cultivated land, where the soil is annually dug? The roots of the former are never interfered with, yet they dwindle. The roots of the latter are lacerated by the yearly digging, yet they flourish. Why is this? It is because the digging facilitates the admission of air. More food is rendered soluble and more roots form to appropriate it. One famous nurseryman tears bushels of roots from his pot peaches every year, as I have said, but the results are the admiration of everyone who sees his work. According to Mr. Riddell his trees ought to die.

Now take the case of our celery. Perhaps in forking manure into the vine border we pull away some roots. To begin with they are mainly the dead fibrils of the previous year. But even if a certain number of permanent fibres are lacerated, no harm is done that is not balanced by the root-creating medium (manure) applied. Further, it is to be remembered that the vines must benefit enormously by the sewage applied to the celery in the summer. I doubt very much whether the border would get it if the celery were elsewhere, because the supply is limited. But it is practically certain that the celery does not take up all that is applied. What escapes its clutches enriches the soil around it, and myriads of feeders are pushed out by the vines to take advantage of it. Hitherto we have never earthed the celery, but have blanched it with paper. Earthing is a step in advance that may tempt an experiment ere long.

LUX.

DAFFODIL PLANTING.

THE time of year is at hand for the examination of those most popular bulbs, the daffodils. They should be lifted at once, if not already done. A garden spade is the best tool to use, placing it right under the bulbs, but taking very great care that they are not cut or bruised in any way. Some of the varieties increase very fast, so off-sets will require removal away from the mother bulb, and to increase the stock must be planted again. Where a large collection is grown, a reserve garden will be very useful for growing small bulbs in until they have attained a flowering size, which will be from two to three years. The daffodil delights to grow in a moist, loamy soil, of good depth, as the bulbs send out their roots to a considerable distance. Most of the choicer varieties, such as Madame de Graaff, which is one of the largest of the white trumpet forms, and is of exquisite beauty, with drooping habit, have a strong constitution, and are good ones to increase. Mrs. J. B. M. Camm, Mrs. Vincent, Matson Vincent, Glory of Leiden, Madame Plemp, William Goldring, cernuus pulcher, and the Angel's Tears (or Narcissus triandrus albus), Gloria Mundi, with the nearly new Lulworth, all like to be situated on a sloping bank with plenty of sand round about their bulbs; the position should be open to the sun's rays during the whole day.

The earlier the bulbs are planted the better it is for them, as they soon begin to make new roots from the bases of the bulbs. Where a great quantity are grown a wooden dibber is the best tool to plant them with, always having the ground trenched beforehand; and if the soil seems at all poor, or very light, a good thickness of decayed cow-manure should be worked in each trench, but at the bottom, so as not to come into contact with the bulbs. The manure is very beneficial, as it tends to keep the bulbs cool and moist. Some of our trade growers prefer bone dust, which, I should say, is a good manure, and indeed have found it so for pot culture. The bulbs require planting about four or five inches deep, and the same distance apart, taking care to let the bulb rest at the bottom of each hole made by the dibber, for if only dropped half-way down there would be quite a cavity underneath, and the bulbs would do very little good. The ground should be made quite firm before planting, and afterwards raked over to fill up any holes that remain. Carefully place a number or name against each variety, so that it may always be recognised.

A list of a few of the best varieties to grow may not be out of place, omitting the most expensive sorts. Taking long trumpet varieties first, there are Emperor and Empress, Golden Spur, Henry Irving, Johnstoni, Queen of Spain, a most elegant and distinct flower, N. maximus, N. minimus, N. minor, Mrs. H. J. Elwes, N. obvallaris (Tenby daffodil), P. R. Barr, N. rugilobus, Shirley Hibberd, and N. spurius, Dean Herbert, Grandee, Michael Foster, Horsfieldi, N. princeps, N. albicans, and N. cernuus, Mrs. Thompson, with N. pallidus præcox tortuosus, and W. P. Milner. Among the star narcissi choose N. Incomparabilis var. Autocrat, C. J. Backhouse, Beauty, Cynosure, Frank Miles, Queen Bess, very early; Sir Watkin, Titan, and Stella. In the Barri group select N. Barri conspicuus, Maurice Vilmorin, Miriam Barton, Golden Gem, Orphee, General Murray, and Flora Wilson. Among Leedsi forms the best are N. Leedsi, Minnie Hunne, M. Magdalene de Graaff, Mrs. Langtry, Amabilis, and Superbus. Other fine varieties are N. Backhousei and William Wilks; N. Nelsoni, N. Nelsoni major, N. Nelsoni aurantius, N. Nelsoni minor, Mrs. C. J. Backhouse, William Backhouse, N. pulchellus, N. Burbidgei, Falstaff, John Bain, Little Dirk, Model and Constance. Then there are the later sorts, such as N. poeticus, N. p. ornatus, N. p. poetarum, N. recurvus, and N. poeticus plenus (the old double white). These varieties are all good and cheap.

Totley Hall Gardens. T. W. BIRKINSHAW.

HOMOLOGY OF PLANTS.

By Professor F. O. BOWER, D.Sc., F.R.S.

(Continued from page 621.)

Alternation.

But the questions already discussed are mere matters of detail, compared with the great enigma of the alternation of generations in green plants, or of alternation at large. This is, after all, a question of degree of homology, not now of the parts only, but of the whole plant or "generation." How this greatest of all adaptations was really initiated we cannot expect to bring to the point of demonstration; at best we can only venture opinions of probability. Still this discussion commands at present more widespread interest among botanists than any other in the sphere of plant morphology.

There was a time when the attempt was made to reduce all plants to one scheme as regards their life-cycle, a method which not only prevented elasticity of theory, but was responsible for some unfortunate comparisons. It was characteristic of the period when the text-book of Sachs reigned supreme; we find it there definitely laid down that "the doctrine of alternation has the object of reducing to one scheme the main phases of the life of all plants which bear sexual organs." But the controversy between Pringsheim and Celakovsky had, as one of its results, the recognition of various types of life-history, not of one scheme only. The tendency at present is towards the opposite extreme; the frequency of the parallel developments now recognised has led some to accept a comprehensive polyphyletic view as regards alternation, and wherever difficulties of comparison arise, to take refuge in the plausible suggestion that the organisms compared represent altogether distinct lines of descent. But the view which should be confidently upheld is, that even where this may actually be the case useful comparisons may yet be made; and that the method of progress within one phylum may illustrate the probable mode of progress in another. The green Algæ may thus throw light upon the probable origin of the sporogonium in the Bryophytes, though they may in no sense be in the line of their descent; the Bryophytes may suggest valuable ideas for the comparative study of the Pteridophytes, though they may not represent their actual ancestry.

It is the alternation as seen in these green plants that I propose to discuss. Writers have distinguished various types of alternation, including under the term divers modes of "alternation of shoots"; and it should be remembered that this was the original sense of the word alternation as applied by Steenstrup. But gradually the issue in the case of green plants has been simplified, and the question now centres round that alternation of phases which some of us describe as "antithetic," while others believe the phases to be really "homologous" as regards their origin.

Briefly put, the question is, How was the first start made? Has the neutral generation or sporophyte been the result of change of any other part of the sexual generation than the zygote itself? If so, the alternation is of *homologous* generations; if not, then the alternation is what is styled *antithetic.* The whole discussion is like a purely historical inquiry, but with the minimum of documentary evidence; for on this point the fossils give scanty help. In the absence of more direct evidence we are thrown back on other arguments, such as those based on comparison of normal specimens, and secondly upon the study of abnormalities. I shall not attempt to treat the matter exhaustively; it will, however, be necessary for me to deal with certain points in the discussion which were raised in the able address of Professor Scott at Liverpool. He there restated Pringsheim's view of homologous alternation as against the anithetic. I propose now to consider three matters which I think are most material to the discussion, viz.: (1) the bearing of the Algæ and certain Fungi on the question; (2) the comparison from the Bryophyta; and (3) the argument from abnormalities.

I. ALGÆ AND FUNGI.

At first sight those Algæ and Phycomycetous Fungi which show a subdivision of the zygote appear to offer the key to the enigma of the first start of antithetic alternation, and such rudimentary fruit-bodies as those of *Œdogonium* and *Coleochæte* are frequently quoted as prototypes of sporogonia. My own position has been that they may be "accepted as suggestive of similar progress in the course of evolution of Vascular Plants." On the assumption that the zygote is equivalent in all cases—and this is itself a pure assumption—the fruit-body of such Algæ or Fungi would be comparable to the sporophyte in higher forms; but it must be clearly remembered that it is not even then proved to be *homogenetic.* Dr. Scott has based a strong line of criticism of anithetic views upon these cases. He remarks: "The sudden appearance of something completely new in the life-history, as required by the antithetic theory, has, to my mind, a certain improbability. *Ex nihilo nihil fit.* We are not accustomed in natural history to see brand new structures appearing, like morphological Melchisedeks, without father or mother. Nature is conservative, and when a new organ is to be formed it is, as everyone knows, almost always fashioned out of some pre-existing organ. Hence I feel a certain difficulty in accepting the doctrine of the appearance of an intercalated sporophyte by a kind of special creation."

In answer to this, I state that to me the zygote, from which our hypothesis starts, is not "nothing"; it is a cell with all the powers and possibilities of a complete cell. Vöchting, in his "Organbildung," has fairly concluded that "a living vegetative cell which is capable of growth has not a specific and unalterable function." I have myself demonstrated [illegible] typically sporogenous may develop as vegetative tissue, and conversely that tissues normally vegetative may on occasions become sporogenous. We may, therefore, say generally as regards the sporo[illegible], that "a living cell which is capable of growth has not a specific [illegible] unalterable function." This I conceive to have been the condition of the zygote, and of its early products.

I think that the words "intercalation" or "interpolation," as used by writers on anithetic alternation, have been quite misunderstood. I have contemplated no sudden development—indeed, on the first page of my "Studies" I have spoken of the sporophyte as "gradually" interpolated. Nor is the suggested development something "completely new," for I specially speak of elaboration of the zygote. This is the parent of these "morphological Melchisedeks"; and unless segmentation be held to be synonymous with "special creation," I confess I do not see where the initial difficulty arises. I agree that Nature is conservative; what we contemplate is the fashioning of the sporophyte by a process of which the first step is segmentation, out of a pre-existing organ—the zygote. Such simple segmentation is seen in the case of certain Algæ and Fungi, and these may be taken as suggesting how the sporophyte of the Archegoniatæ may have come to be initiated. But I am not aware of having ever suggested that these segmented zygotes of Algæ are the homogenetic prototypes of the more elaborate sporophytes.

Dr. Scott further states that "the reproductive cells produced by the ordinary plant of an *Œdogonium* are identical in development, structure, behaviour, and germination with those produced by the oospore." Professor Marshall Ward, also speaking of *Œdogonium*, remarks, "the attempt to get over this by terming asexual spores borne by the gametophyte *gonidia*, and reserving the term *spore* for bodies indistinguishable from those gonidia by any morphological or physiological character whatsoever, beyond their origin from a so-called sporophyte, carries its own refutation." Now, as a matter of fact, Pringsheim's description and figures of *Œdogonium* give scanty details; in most of the germinating zygotes the nuclei themselves are not clearly shown; much less the details of behaviour of those nuclei on germination. Klebahn has described the fushion of the sexual nuclei in *Œdogonium*, but I am not aware that he, or anyone else, has yet made detailed observations on the nuclear condition of the zoospores, or the changes which take place in the germinating egg. Till this is done I submit that it is premature and undesirable to make such assertions as those of Dr. Scott and Professor Ward. We now know that important nuclear changes do take place on the germination of the zygotes of certain Algæ and Fungi. These changes are connected with a division of the nuclei into four, which is the number of the zoospores usually produced on germination in *Œdogonium*; the details may differ, but in the zygotes of *Closterium* and *Cosmarium*, and in the formation of the auxospores of *Rhopalodia*, Klebahn has demonstrated this division into four; also Chmielewsky has described a similar production of four nuclei in the germinating zygotes of *Spirogyria.* When it is further stated that in some of these cases there is good reason to think that a reduction of chromosomes is connected with the division into four, just as a reduction is now known to accompany the tetrad division in Archegoniate and Phanerogamic plants, it is plain that such cases as that of *Œdogonium* ought not to be assumed to support a homologous view without any fresh observation of the facts.

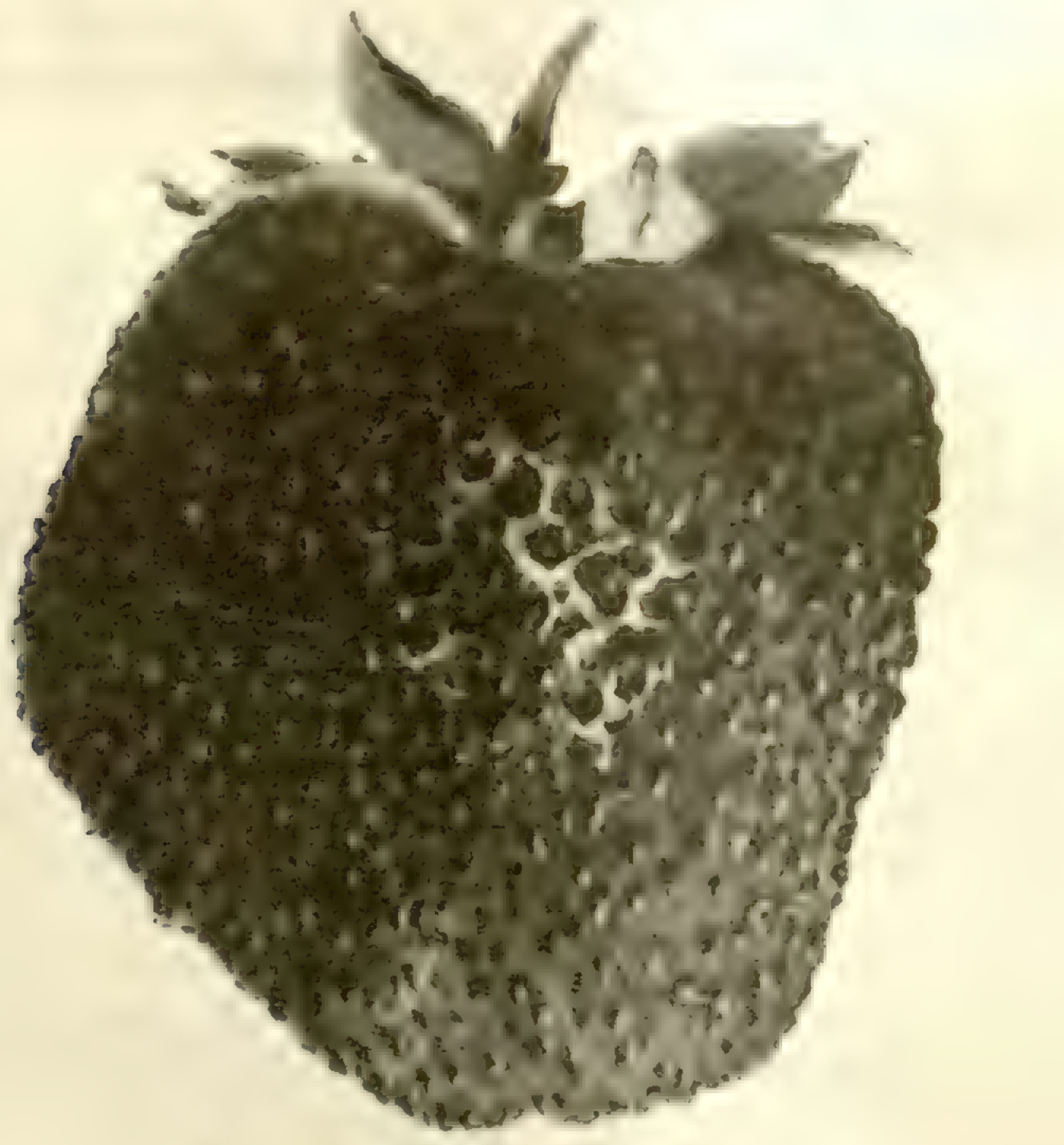
With the whole question of alternation, the nuclear details and differences in number of the chromosomes on division are now intimately bound up. Though the observations are still few, so far as they go they are consistent with the generalization first stated by Overton, and elaborated by Strasburger as regards the Archegoniate and Phanerogamic plants. It has now been seen in cases drawn from various groups, that the cells of the gametophyte show a certain number (*n*) of chromosomes, while those of the sporophyte show on nuclear division double that number (2*n*) of chromosomes. Since Section K has had the advantage of a statement on this subject from Professor Strasburger himself at Oxford, and as Dr. Scott also discussed the matter at Liverpool, I need not enlarge. I shall only remind you that Strasburger took up the position that the number of chromosomes which appears in each sexual nucleus is that original number which the ancestors possessed in a pre-sexual period; while the reduction of the double number which results from sexual fusion is, in his opinion, to be regarded as an atavistic process.

It is now well known, however, from the observations of Farmer and of Strasburger, that the nuclear conditions of *Fucus* are peculiar; that the reduction only takes place on the formation of the sexual organs themselves, and that the *Fucus* plant, like a sporophyte in the Archegoniate series, has the double number of chromosomes. At first sight this might appear to be a fatal difficulty, and Dr. Scott, attributing to the adherents of the antithetic theory views from which I personally dissent, has landed them in a seeming *reductio ad aburdum.* He himself does "not think we are as yet in a position to draw any morphological conclusions from these minute differences, interesting as they are." But we need not accept either of these extreme positions, if only a certain elasticity of theory be maintained, which should come naturally to adherents of polyphyletic development. I think the difficulty will chiefly be felt by those who, like some of the earlier writers on alternation, attempt to reduce all plants which show sexuality in to one stiff scheme; this has been found to fail in the case of alternation, and a healthy recognition of various types of alternation has been the consequence. So in the matter of chromosomes and of the position which the event of reduction holds in the life cycle; difficulties such as this in *Fucus* may be anticipated, if we assume that all plants will conform to one plan. But Strasburger has not considered it necessary to cast aside the nuclear details as a basis for morphological conclusions, because all plants investigated do not fall in with a preconceived scheme. On grounds of comparison of behaviour of the nuclei before and after conjugation in *Closterium*, *Cosmarium*, *Spirogyra*, in certain Diatoms, and finally in *Actinophrys*, he has arrived at the conclusion "that a shifting (Verschiebung) of the time of division into four, together with reduction, is possible in the history of development of organisms." It will doubtless be necessary later to put a precise meaning upon the word "Verschiebung," and to define how far, in given cases, it is to be understood as an actual shifting of the event within one line of descent, how far it merely expresses an initial difference maintained, or, it may be, extended, in different lines.

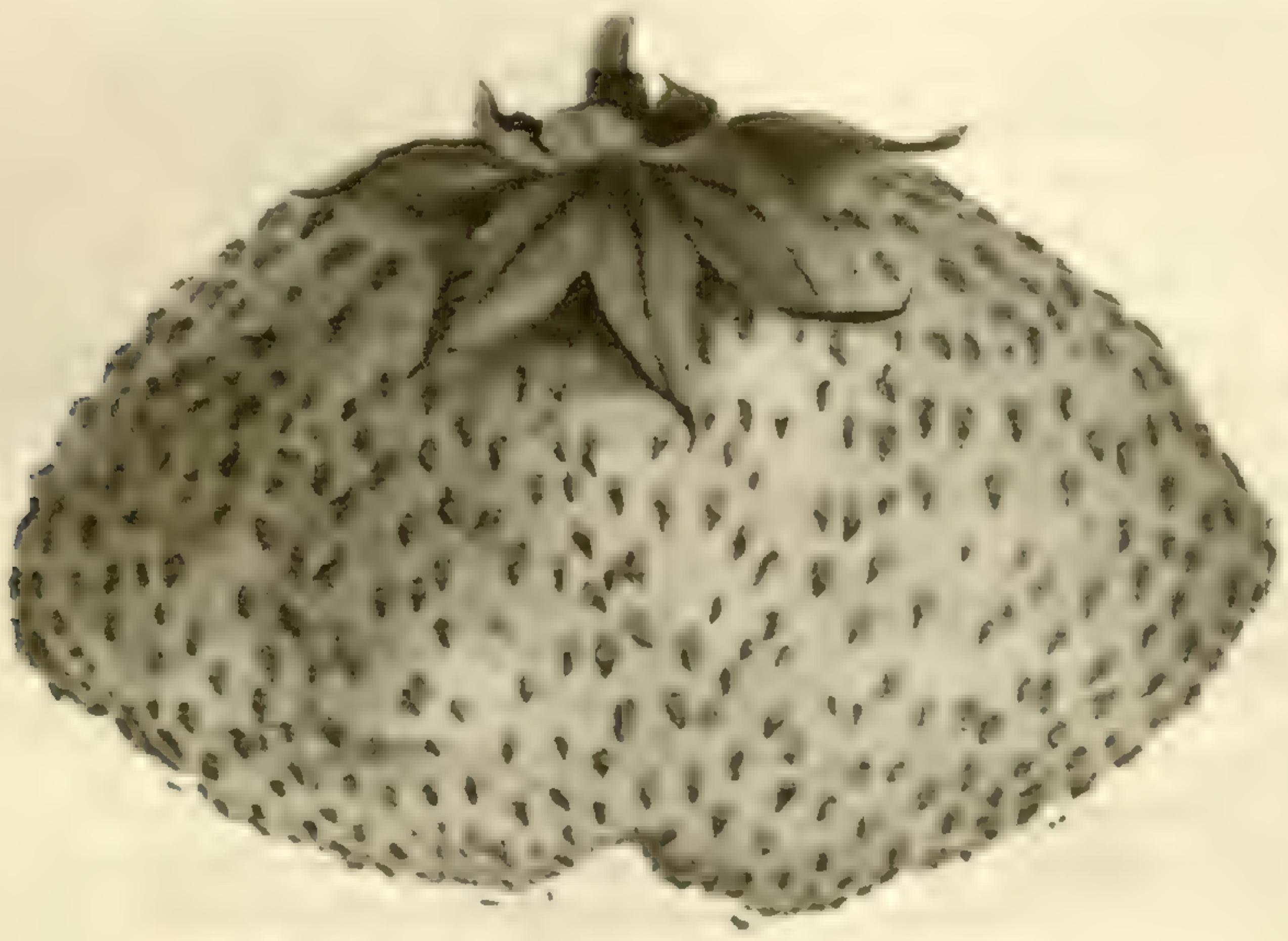
(To be continued.)

TWO NEW STRAWBERRIES.

THE two new strawberries placed before the public this year by Messrs. J. Veitch and Sons, Chelsea, possess in a marked degree the two essential qualities of a strawberry, viz., richness of flavour and good cropping powers. With regard to flavour alone, there is no doubt that the dark crimson variety, named Exquisite, takes pre-eminence, for in richness it even surpasses British Queen, a variety that has always been set up as the highest standard of excellence in this respect. It has somewhat conical, wedge-shaped fruits of a very dark colour, while the flesh is also very dark, indicating the probable use of Waterloo as a pollen parent, Lord Suffield being the seed parent. In the matter of cropping it is not behind many popular sorts; but it is on the score of delicious and rich flavour, and its usefulness purely as a dessert fruit at home, that it is to be recommended. The second variety differs from the former both in shape and colour, as a glance at the illustrations will prove. This is Veitch's Prolific, a most profuse cropper, bearing fair-sized scarlet fruits, that are wedge-shaped, but inclining to the cockscomb formation. These fruits are highly flavoured, luscious, and white fleshed, firm and solid. The variety is one of the most prolific we have seen, and, as such, will recommend itself to those who have to provide quantities of good strawberries. Veitch's Prolific is the result of crossing Empress of India with British Queen, and it was awarded a first-class certificate by the R.H.S. on July 12 last.



Strawberry Exquisite.



Strawberry Veitch's Prolific.

Spring-flowering Bulbs.—The bulb catalogues are now arriving, and no time should be lost in ordering those that are to be bought for autumn planting. If masses of colour be desired, beds may be filled with one kind of hyacinth, tulip, or daffodil, as the case may be, examples of which are prominent in spring in the London Parks. Where, however, a more continuous display is aimed at, bulbs may be associated with a groundwork of other subjects, as pansies, violas, myosotis, and similar plants; and planted thinly among them, the latter will carry on the display after the bulb flowers are past until the summer bedding out. Among blue hyacinths Charles Dickens, Grand Maitre, Lord Derby, Czar Peter, Orondates, and General Havelock are good single bedders; of white, Mont Blanc, Madame Van der Hoop, Mina, Grandeur a Merveille, and La Grandesse; shades of red, Norma, Lord Macaulay, Robt. Steiger, General Pelissier, Von Schiller, and Gigantea. Of showy double tulips the following are good: Yellow Tournesol, bright golden-yellow; Gloria Solis, large reddish-brown with golden edge; Murillo, pale rose; Purple Crown, purplish-crimson; La Candeur, white. Of single-bedding tulips the following are good: Canary Bird, early yellow: Yellow Prince, bright yellow; Joost Van Vondel, crimson; Prosperine, fine dark rose; Duchesse de Parma, red and yellow; Belle Alliance, dwarf early scarlet; Couronne Pourpre, dark crimson; Comte de Mirabeau, white; La Reine, rose and white; Prince of Austria, late orange-red; Keizer Kroon, crimson-scarlet with yellow margin; and Vermillion Brilliant scarlet Daffodils, Sir Watkin, Emperor, Empress, Princeps, Golden Spur, and Single Incomparabilis are also useful for massing in beds or associating with other subjects.—C. Herrin, *Dropmore Gardens, Maidenhead.*

FIBROUS-ROOTED BEGONIAS.

THE introduction of the fibrous rooted section of begonias as subjects for the embellishment of the flower garden was indeed a boon to those who are compelled to keep the beds gay over a long season, whether the weather is favourable or not. Certainly in the driest of gardens the fibrous-rooted begonias have presented a wealth of blossom when other subjects were all but exhausted by the extreme heat and drought of the last two months. When we consider, too, how easily from seed a large stock of plants can be raised that will give entire satisfaction the first season, an additional gain has to be recorded. In fact, the plants simply require treating as half-hardy annuals, and this is simplicity itself. At present there are half-a-dozen or more varieties, all emanating from B. semperflorens. The colour ranges from deep crimson to white, the growth is all that could be desired, being sturdy, yet compact, while the continuity of the flowering period is one of the characteristics of the race. To the Messrs. Sutton, I believe, we are indebted for several of the best varieties. Fairy Queen may safely be classed as the gem of the section, and there is a grace in the semi-drooping, branching stems, combined with the intense freedom of flower production of this form, that is not equalled by any other. The colour is a bright rosy carmine, most telling in a mass. In height it grows from ten to fifteen inches.

Crimson Gem is distinctly a gain to the flower garden. Not only are the rich red blossoms so telling in a mass, but the crimson-bronze colour of the leaves enhances its appearance considerably, rendering it doubly an object of interest; it grows from ten to eighteen inches high. Duchess of York is an elegant growing, carmine flowered variety, and the green foliage forms an admirable setting to the delicately tinted blossoms. Duchess of Edinburgh has white flowers suffused with pink, which grow much larger than those of the typical B. semperflorens. Miniature Bedding forms quite a new departure in begonias, as in habit of growth it much resembles a well-grown lobelia, and as an edging to beds it should prove a great acquisition. In height it grows at the most six inches, is floriferous, and the bright red flowers harmonise with many subjects. Its foliage, too, is suffused with purple. Princess Beatrice is still one of the most useful of this section; the pale pink blossoms are most freely produced, and the expanding buds are white, which enhances its appearance and gives variety. Not only in a mass by itself is this variety imposing in the garden, but as a carpet for tall-growing subjects like Lobelia cardinalis, for instance, or even purple fuchsias, it is valuable. Coral Gem is an exceedingly free-flowering, compact-growing variety. As its name implies, the colour of its blossoms is coral, and a pleasing tint it is. Snowflake, as its name suggests, has pure white flowers, which are produced in abundance on stout stems. All of the above mentioned varieties, with the exception of the latter, are easily produced from seed, the bulk of them coming wonderfully true to name.

In raising a stock of Princess Beatrice it is best to divide the tufts, as every particle with a root attached will grow into a sturdy plant if given suitable treatment, viz., cool conditions in the spring, with just sufficient warmth to incite a free growth during the month of March, when dividing is best done. By cuttings is not a fruitful source of increasing the stock, as although they strike readily, the plants afterwards do not throw up sucker-like growths, and instead of being of a shrubby character they are merely straight stems. To obtain a stock of the other varieties, sow seed in pans of sandy soil the first week in February in a warm, moist atmosphere. By carefully shading from bright sun, and maintaining moisture in the soil, the seed quickly germinates. Directly the plants are large enough to handle, they should be pricked off into other pans of sandy soil and given a place near the glass to induce a stocky growth, gradually innuring them to cooler quarters as growth proceeds. It is in this last detail that so many persons fail in having a good outdoor display of not only fibrous but tuberous begonias. Too often we see them growing in heat much too strong, in the hope of inducing the plants to grow large, so that they will at once give a wealth of bloom when put out in the beds. The soft, sappy growth resulting from this treatment renders them unfit to withstand either cold wind or hot sun.

E. Molyneux.

HIBISCUS MANIHOT.

As an interesting and easily grown plant for greenhouse or conservatory decoration at the close of summer, few can surpass this beautiful Hibiscus. It is not a new plant, though last year an award of merit was granted by the Royal Horticultural Society to specimens shown at a meeting in September. The date of introduction from the East Indies is given by Paxton as 1712, hence it seems curious that the plant's merits have been so long overlooked. Seeds were distributed last spring, and as the result of sowing in warmth during February, we have had plants flowering since the last week of August. The specimens attain a height from two to three feet, and are very free-flowering; the largest blooms measure six inches in diameter. Though flowers only last one day, each morning new ones open, thus keeping up a continuous display, which is likely to continue for some weeks longer yet. The colour of the perfect blossoms is a lovely soft yellow, with a rich maroon blotch at the base of the petals, and as the flowers fade they take on a pink tinge. Our plants have been grown in ordinary potting soil, such as would be used for pelargoniums, and since they were well established in small pots have been growing in a cool house. The foliage is handsome, and the plant of shapely growth. It is much appreciated here, and may be grown by anyone possessing a greenhouse who cares for plants of this character for late summer and autumn blooming.

We have tried several specimens outside in the flower borders, but this year they have not been a success; perhaps the cool weather of June and July prevented them making a proper start. An excellent illustration of Hibiscus Manihot was given in the issue of the Gardeners' Magazine for September 18, 1897, p. 583, together with historical notes.

Trent Park Gardens. W. H. Lees.

THE APPLE CROP.

Anglesea.—Apples are a full crop. Bismarck, Blenheim Orange, Cox's Pomona, Cornish Gilliflower, Duchess of Oldenburg, Ecklinville Seedling, Gladstone, Grenadier, Bramley's Seedling, Hawthornden (new), Lady Henniker, Lady Sudeley, Lord Grosvenor, Lord Suffield, Moston's Seedling, Betty Geeson, King of Pippins, Cellini, Cox's Orange, Lemon Pippin, Prince Albert, Queen Caroline, The Sandringham, Small's Admirable, Rose of Sharon, and Ringer are those varieties which carry full crops, but the following have no fruit at all: Alfriston, Astrachan, Devonshire Quarrenden, Mère de Ménage, Peasgood's Nonsuch, and Ribston Pippin.—W. HUNTER, *Baron Hill Gardens, Beaumaris.*

Cardiganshire.—Apples are below the average this year in this district, although a few good samples are to be met with. Codlins, which were so plentiful last year, are almost a failure this. The varieties that have done the best this year are Warner's King, Lord Derby, Alfriston, Dumelow's Seedling, Blenheim Pippin, Worcester Pearmain, King of the Pippins, Cox's Orange Pippin, Irish Peach, New Hawthornden, Mère de Ménage, Royal Russet, and American Mother. These have all an average crop, very clean, and with the fine weather we are now having promise to colour up well. That fine cooking apple, Lord Suffield, which as a rule, is one of the very best in this district, is very scarce this time.—R. E. WILLIAMS, *Crosswood Park Gardens, Aberystwith.*

County Down.—Apples are in some instances a good crop. A number of the larger cooking varieties such as Warner's King, Ecklinville, Bramley's Seedling, Peasgood's Nonsuch, The Queen, Blenheim Pippin, Lane's Prince Albert, Loddington or Stones, Cox's Pomona, Hawthornden, &c., are up to the standard, except, perhaps, a trifle smaller than previous years, while none of the higher dessert varieties carry anything like a crop, and the fruit is very small. Cox's Orange, Ribston Pippin, Worcester Pearmain, Irish Peach, Kerry Pippin, and all the late russets are a very poor crop indeed, and along with the codlins they seem to have suffered terribly from blight, which in some cases has quite stripped the trees of all foliage; fortunately it has confined itself mostly to old trees and those on walls or trellises.—THOMAS BRADSHAW, *Hillsborough Castle.*

—— Apples are a very poor crop here, except on trees of Red Hollandbury, which are very heavily laden; Northern Greening, Pott's Seedling, Norfolk Beefing, Royal Russet, London Pippin, and a few local varieties are fairly well laden. There was a grand show of bloom on nearly all the trees. I have seldom seen a better promise of a crop, but it was soon dispelled, as most of the standard and old-bush trees lost most of their foliage early in June through blight. Red spider is very plentiful on some trees. The soil is poor and gravelly, and water was very scarce this summer in these gardens.—J. LEICESTER, *Seaforde Gardens, Clough.*

Dublin.—The apple crop here is considerably above the average, and of good quality; indeed, the best we have had for some years. The following are some of best cropping sorts this season: Blenheim Pippin, Kerry Pippin, Emperor Alexander, Lord Suffield, Warner's King, Ecklinville Seedling, Golden Spire, Irish Peach, Red Juneating, Hawthornden, Betty Geeson, and Dumelow's Seedling.—G. SMITH, *Vice-Regal Gardens, Phœnix Park.*

Dumfries.—All the apples here are on walls and espaliers; the varieties grown are the following: Duchess of Oldenburgh, Lord Suffield, Pott's Seedling, Cellini, Ecklinville Seedling, Bismarck, Lord Grosvenor, Hawthornden (new and old), Stirling Castle, Peasgood's Nonesuch, Golden Noble, Warner's King, Tower of Glamis, Bramley's Seedling, Beauty of Kent, Lane's Prince Albert, Oslin Pippin, Cox's Orange Pippin, Gascoigne's Scarlet, Ribston, Barton Freebearer, and Scarlet Leadington. All of them with a good degree of success, but the best, and most suitable too, for this garden, are Ecklinville, Warner's King, Oldenburgh, Peasgood, and Barton Freebearer. Espalier trees on crab; wall trees on paradise, Lord Suffield, and Lord Grosvenor bear well, but canker bad and look unhealthy.—J. URQUHART, *Hoddom Castle Gardens.*

Durham.—The following apples have done well with us this year: Ribston Pippin, Golden Pippin, Red Quarrenden, Potts' Seedling, Stirling Castle, Stone Apple, Nelson's Glory, Northumberland Fillbasket, Queen Caroline, Lane's Prince Albert, Lord Derby, The Queen, Frogmore Prolific, Golden Reinette, Ecklinville Seedling, Keswick Codlin, Blenheim Pippin, Northern Greening, Wormsley Pippin, Bismarck, Dumelow's Seedling, Golden Spire, King Harry, Lord Suffield, Bramley's Seedling, Schoolmaster, Ringer, Herefordshire Beefing, Sandringham, Grenadier, Red Astrachan, Beauty of Bath, and Duchess of Oldenburg.—J. TULLETT, *Raby Castle Gardens.*

East Lothian.—The most productive varieties of apples in this district I find —Warner's King, Lane's Prince Albert, Pott's Seedling, Stirling Castle, King of the Pippins, and Duchess of Oldenburg. The codlin type are all under the [illegible] and mostly a very poor crop.—GEORGE TAYLOR, *Broxmouth Park.*

Essex.—The crop of apples in this district is under average. In the early season there was a great display of blossom, and, after setting the fruit, the trees became greatly infested with blight, causing almost some trees to become leafless. The varieties that are the most fruitful, but must quote mostly all fruits undersized, are as follows: Adams' Pearmain, Alfriston, Blenheim Pippin, Beauty of [illegible], Bramley's Seedling, Cox's Pomona, Duchess of Oldenburg, Dumelow's [illegible], Ecklinville Seedling, Fearn's Pippin, Golden Spire, Golden Noble, [illegible] Pearmain, Hawthornden, Hollandbury, Irish Peach, Kerry Pippin, King [illegible] Pippins, Lady Henniker, Lady Sudeley, Lane's Prince Albert, Lord Derby, [illegible] Grosvenor, Lord Suffield, Northern Spy, Reinette du Canada, Ribston Pippin, Striped Beefing, Warner's King, Wadhurst Pippin, and Worcester Pearmain.—A. KEMBER, *Gosfield Hall.*

Forfarshire.—Apples are only a casual crop this year. Some young trees of Lord Grosvenor, Duchess of Oldenburg, and Keswick Codlin are carrying very good crops of fine fruits, while varieties such as Ecklinville Seedling, Northern Dumpling, and Beauty of Moray, usually so fine with us, are this season a [illegible] failure. The above named varieties, along with Worcester Pearmain, King of the Pippins, Beauty of Kent, and Tower of Glamis are our best cropping [illegible] here.—T. WILSON, *Glamis Castle Gardens.*

Glamorganshire.—The crop is the largest we have had here for some [illegible] the fruits are much smaller than usual. The trees bloomed profusely, [illegible] of the flowers set, but owing to the long-continued drought a great many [illegible] when small; and some of the varieties are grub-eaten, and these [illegible] to drop when fully grown. It would be difficult for me to say [illegible] were the most productive varieties this season. All the varieties in the [illegible] here were so heavily laden that the branches had to be supported to keep [illegible] breaking under the great weight of fruit. The following varieties are [illegible] well this season: Blenheim Pippin, Warner's King, Cox's Orange Pippin, Bismarck, Wellington, Ribston Pippin, Cellini Pippin, Anna Elizabeth, Margil, and Bramley's Seedling.—A. PETTIGREW, *Cardiff Castle Gardens.*

Gloucestershire.—We have a very fair crop. The trees bloomed well, but the late spring frosts and cold winds were unfavourable to the setting of fruit. Caterpillars have not been so troublesome this season, but all fruit trees have and are now suffering very much indeed from the long spell of hot and dry weather. I have seen several apple trees lately that have lost all their leaves as the result of the drought. There is a good crop of Blenheim Pippin, but the fruit is small; Ribston, Cox's Orange, and King of the Pippins are also good; Beauty of Bath and Worcester Pearmain have carried fair crops; Lord Suffield has done pretty well, but the fruit has been rather small. I saw the other day a grand bush tree of Cox's, the fruit of good size and of splendid colour. I have no doubt that this is the best way to grow choice fruit, as trees like this one can be covered with a net.—JOHN APLIN, *Hasfield Court Gardens.*

King's County.—The apples bearing a good crop here are: Ecklinville Seedling, Domino, Warner's King, Blenheim Pippin, Ribston Pippin, Cox's O. Pippin, Greenup's Pippin, Bishop's Hero, Lady Henniker, Dumelow's Seedling, Lane's Prince Albert, Dutch Mignonne, Peasgood's Nonsuch, Hoary Morning, Cox's Pomona, Lord Derby, and one that is "locally" called Blood of the Boyne; it is a variety that I have never met with but here, and is a grand bearer every season; keeps until the spring, is of a deep blood-red colour all round, medium size, but only fit for the kitchen.—R. MCKENNA, *Charleville Gardens, Tullamore.*

Lanarkshire.—Apples are, generally speaking, below average crop. Dessert varieties are much below the average, but kitchen varieties are bearing a medium crop.—W. SUTHERLAND, *Bothwell Bank.*

Monmouth.—Although apples generally blossomed freely, the crops are not usually satisfactory, the result probably of the low state of the temperature during the flowering period. The following varieties carry the best crops upon pyramid and bush trees: Frogmore Prolific, Bismarck, Newton Wonder, Lord Derby, Grenadier, Lord Suffield, Sandringham, Golden Spire, The Queen, Wellington, Seaton House, Worcester Pearmain, Betty Geeson, and King of the Pippins. The first named is the most certain cropper that we possess, and it commences to bear heavily when the trees are very young. It is an invaluable second early variety, we have fruit of it at the present time, 15 inches in circumference, and this upon heavily cropped trees. Sandringham is another grand apple that does remarkably well here. The most shy bearers that we possess are Bramley's Seedling, Gloria Mundi, Gascoigne's Seedling, and Tyler's Kernel. The last named invariably blossoms freely, but is a bad setter. Insect pests have been troublesome, but have been kept under by spraying. The trees are very healthy and have made good growths.—T. COOMBER, *The Hendre Gardens.*

Montgomery.—Apples are a light crop and our best bearers this year are Annie Elizabeth, Potts' Seedling, Gascoyne's Scarlet, Hawthornden (winter), Bramley's Seedling, Small's Admirable, Bismarck, Lane's Prince Albert, Warner's King, Stirling Castle, Lord Derby, Cox's Pomona, Kentish Fillbasket, Beitigheimer Red, Tom Putt, Grenadier, Peasgood's Nonsuch, Beauty of Kent, Lady Henniker, Lord Grosvenor, Ecklinville Seedling, Striped Beaufin, Worcester Pearman, Mrs. Barron, Rosemary Russet, Golden Pippin, and Melon Apple.—J. LAMBERT, *Powis Castle Gardens.*

Shropshire.—Apples are under the average as regards crop, but of fine quality. Warner's King, Lord Derby, Small's Admirable, Stirling Castle, Tower of Glamis, Lord Suffield, Schoolmaster, Saltmarsh's Queen, and Gloria Mundi are all carrying splendid crops, while others are very light. On the whole they are under average, a good many are falling owing to the long spell of dry weather.—J. LOUDEN, *The Quinta Gardens, Ruabon.*

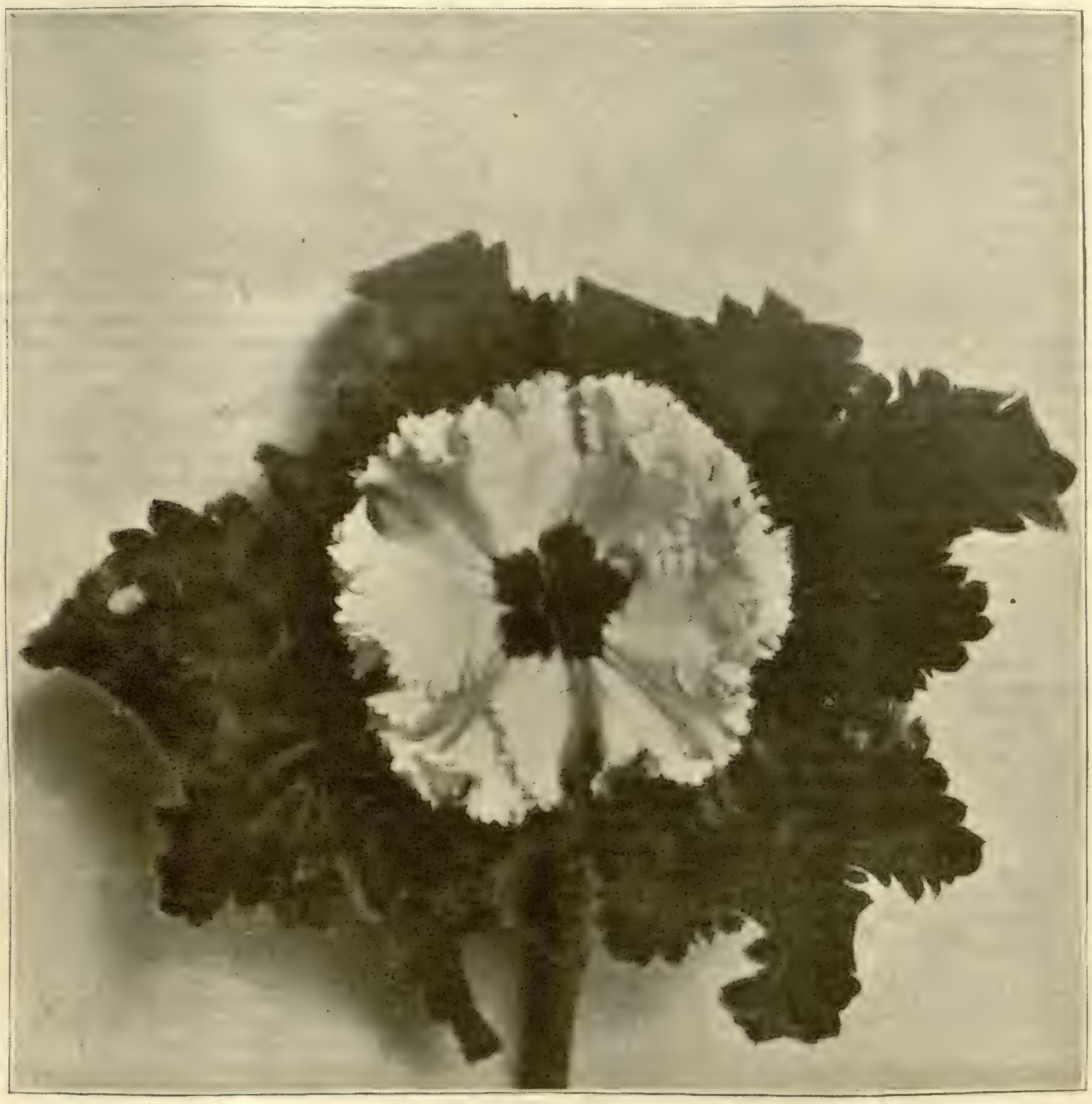
Surrey.—The following varieties have a good crop here this season: Stirling Castle, Bedfordshire Foundling, Kentish Fillbasket, Warner's King, London Pippin, Keswick Codlin, New Hawthornden, Hanwell Souring, Winter Peach, Lord Derby, Lane's Prince Albert, Sturmer Pippin, and Fearn's Pippin. Stirling Castle is the best cropper I have. I can almost rely on this for a good crop every season, and it is a good kitchen apple.—W. HIGGS, *Fetcham Park Gardens.*

Worcestershire.—Apples are a good average crop with us, the trees healthy and clean. I find that trees fruit the more freely when allowed a fairly free growth, with the main branches kept thin. Except where necessary to maintain a balanced head, the annual growth should not be shortened, as where left intact fruit buds form the whole length. The varieties which are carrying the best crops are The Queen, Tower of Glamis, Tyler's Kernel, Warner's King, Stirling Castle, Mère de Ménage, Newton Wonder (young trees), Cox's Orange Pippin, Devonshire Quarrenden, Professor, Dumelow's Seedling, Early Julien, Summer Golden Pippin, Ecklinville, Yorkshire Beauty, Lane's Prince Albert, King of the Pippins, Peasgood's Nonsuch, Worcester Pearmain, Winter Hawthornden, Potts' Seedling, Bismarck, Court Pendu Plât, Tom Putt, Rosemary Russet, Kerry Pippin, Margil, and Rymer, with a few Blenheims and Ribstons.—A. YOUNG, *Witley Court Gardens.*

Our Native Flora.—Possibly I am somewhat pessimistic in the matter, but in any case I have long held that only that which is mischievous and evil can come out of the encouragement universally given everywhere to children to gather wild flowers for presentation at flower shows as at present done. How often has the remark been made to me with a glow of exultation, "We have a wonderful show of wild flowers," and the utterers have never asked themselves what is likely to be the ultimate effect of this depletion of flowers from woods, fields, and hedgerows on our native flora. I ask any conscientous person, gardener or amateur, who has ever been at any time called upon to judge these wild flower exhibits, if they can tell me what earthly good to the children collecting and showing them has been accomplished? Have the children learned anything, are they any wiser, have they acquired any love for flowers, any knowledge concerning them or been stimulated to take any interest in them or in gardening at all? Sometimes we have seen pleasing evidence of taste in the arrangement of baskets and nosegays, but oh, how seldom; and when seen, how seldom the real work of children! In how many cases have there not been an absolutely greedy desire shown to gather and set up the very biggest bunch, literally thousands of beautiful native flowers being thus plucked from the wayside, where they adorned Nature, to be thus displayed for a few fleeting hours, then to decay and die, leaving behind no products. How often have I pleaded that instead of encouraging these wholesale massacres of wild flowers, some person in each district should form the little ones into classes, and during the summer conduct them round the lanes and woods, instructing them in the common and botanical names of each flower, then offering prizes at the local shows for collections of small bunches of twelve or twenty forms to be most correctly named. That would lead to no robbery of wild flowers, and would be really educational.—A. D.

A CURIOUS PRIMULA.

ONE of the most interesting happenings in connection with the development of their fine strains of Chinese primulas by Messrs. J. Carter and Co., of High Holborn and Perry Hill, is the production of a single variety with immense fringed flowers of the purest white, but with an enormously developed leafy calyx, instead of the usual regular organ surrounding the tube of the corolla. The variety originated a year or two ago, and has already been fixed, but owing to the small amount of seed produced it has not hitherto been catalogued for distribution. Bouquet is the name most suitably given to this primula, for each flower has its own elegant setting of greenery, as the illustration shows, while the whole central truss of flowers is also furnished with a circle of leafy bracts, quite in addition to the usual radical foliage. The large flowers are heavily and beautifully frilled, and the foliaceous calyx is also waved, crimped, and frilled in a remarkable and elegant fashion. Besides being a curious and interesting variety, as showing what strange freaks and breaks are sometimes made, as a sort of protest, by a flower that the florists wish to develop in a certain direction, Bouquet is also handsome, even when not in flower, by reason of the frilling of its leaf lobes, and calyces.



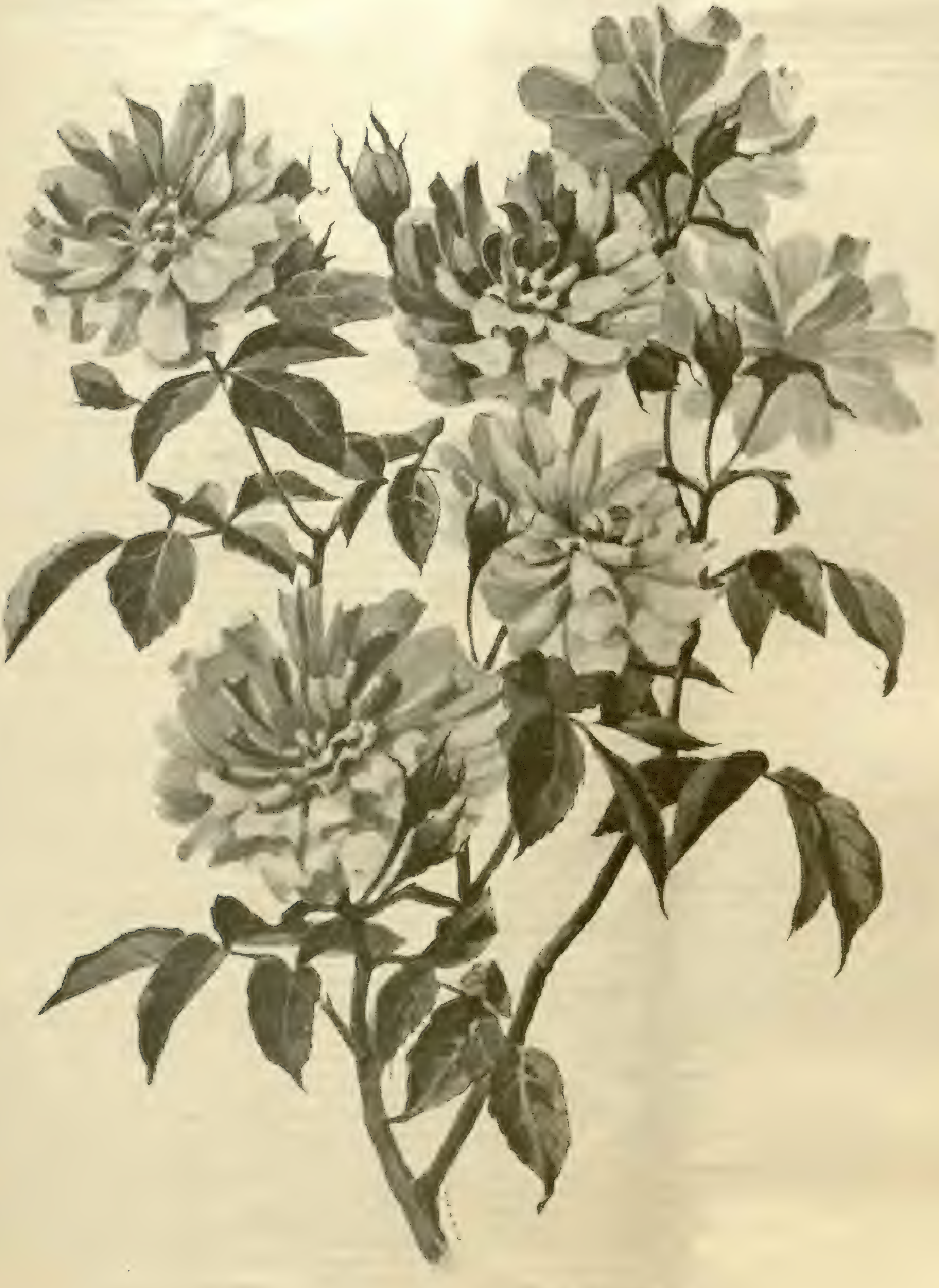
A CURIOUS CHINESE PRIMULA, BOUQUET.

Dessert Tomatos.—Market growers would look askance at the recently certificated Currant Tomato no doubt because the fruits are so small, yet there may be persons who would gladly purchase clusters of such a variety for dessert purposes, because these may not only be readily mistaken for bunches of the Red Cherry currant, but the fruits are very nice indeed for dessert purposes, and are, so far as flavour is concerned, much in advance of the large fruits for that purpose. Growers keep on adding to the list of names of so-called varieties without greatly adding to actual merit or distinctness. It seems impossible for anyone, however ready to create names, to produce varieties amongst the large fruiters that are superior in cropping, in colour, beauty, and solidity of fruits than many so-called varieties already in commerce. The creation of tomatos for market sale alone seems to be the dominant idea with most growers. Would that some one would put those aside altogether as no longer needing manipulation and would take in hand this Red Currant variety, the delicious Red Cherry, the beautiful yellow Golden Nugget, and the Red Dessert, as the very best of their class, and by seeking to intermingle the best qualities of all, secure for us, if it be practicable, superior flavour to that which even the best tomatos now furnish. Some two or three years ago when there was a large trial of tomatos at Chiswick not a variety could equal in flavour the fruits of the Red Cherry. Next to this came the beautiful yellow Golden Nugget. For dessert purposes we want none larger than are fruits of the latter, and none smaller than are those of the Red Currant, the fruits of which are very pleasant eating when cool and just ripe.—A. D.

POLYANTHA ROSE, PERLE DES ROUGES.

THE merits of the now numerous varieties of polyantha roses have been often brought before the public during the past few years, especially since the great increase in the demand for hardy flowering shrubs. The advent of the beautiful Crimson Rambler also assisted largely in drawing general attention to a hitherto somewhat despised section of garden roses, and it soon became known that dwarf varieties eminently suitable for bedding were to be obtained, and would prove as useful and beautiful as the rampant climbing or rambling forms. It is not necessary here to enter into a long dissertation upon the merits and uses of polyantha roses, for the section has been dealt with by leading rosarians in our columns, especially in the Special Rose Numbers of the GARDENERS' MAGAZINE, published each succeeding year in July. We take the present opportunity of presenting our readers with an illustration of a new and distinct polyantha rose, named Perle des Rouges, a variety raised on the Continent and introduced by Messrs. Wm. Paul and Son Waltham Cross, who submitted a handsome basket of flowering sprays for the inspection of the Royal Horticultural Society's Floral Committee on July 12 last, when an award of merit was granted. It is a rose of dwarf and bushy habit, and the flowers are described by the Waltham Cross firm as "deep velvety crimson, small and double, produced in clusters; the deepest and richest in colour of the dwarf polyantha roses, blooming abundantly and until late in the season." Our own description, published when the award was made, is "a beautiful polyantha rose, exceedingly free-flowering, and producing much-branched clusters of rich crimson flowers, the bases of the segments being shaded with deep rose."

"Histoire des Tulipes."—The above is the title of one of the prettiest little books on flowers I have ever seen. It was published in Paris, probably some time early in the present century, and the copy in my possession is tastefully bound in polished calf and richly tooled. There are twelve charming little coloured plates of different varieties of tulips, every one of which is executed in the most dainty manner, while the letterpress is of the best. Besides the history, there are chapters on cultivation, on tulip poetry, a list of the most celebrated old tulips, and also one of the best known modern varieties, in which there appear but very few English names of tulips, so that the date cannot be fixed even approximately. This flower must have pleased the French taste long before the publication of the book above mentioned, for I find in another curious old French florist's book, first printed in 1669, that Messrs. Cambier about fifty years before introduced the first tulips to Paris.—C. H. P.



POLYANTHA ROSE, PERLE DES ROUGES.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE summer-like weather experienced during the last month has been very favourable to the occupants of the cool houses, although on several occasions it was impossible to keep the temperature in the house below 75 degrees during the hottest hours of the day. But, with the ventilators thrown wide open, admitting abundance of fresh air, which is always welcome to cool orchids, and the free use of the hose pipe, a humid atmosphere was easily maintained. The newly-potted odontoglossums derived great benefit from a frequent dewing overhead through the syringe; the weather having been so favourable, this has been done almost daily since potting time, and it both encourages root action and keeps the leaves and pseudo-bulbs plump. Overhead syringing must be discontinued now, however, except on very fine days, and then great care must be taken not to let any water lodge in the young growths or injury may follow. With such a high night temperature as prevails at the time of writing, air may still be freely afforded during the night, and unless cold nights should set in, no artificial heat will be necessary for some time; it should be borne in mind, however, that it is best to have a little warmth in the pipes and the ventilators open, than to close the house up without any heat at all, as a saturated atmosphere, together with a low temperature, is most injurious to cool orchids. The temperature will now, under ordinary circumstances, range between 50 to 55 degrees by night, and 58 to 60 degrees by day.

Should the masdevallias have a house devoted to them they may be kept a few degrees warmer than above, as the plants are not so liable to spot when grown a little warmer than the odontoglossums. Seldom do we see a collection of masdevallias free from black marks and spots on the leaves, and the chief cause of this is a low and uneven temperature at a time when the atmosphere is at saturation point. When the external air is warmed above forty-five degrees, the ventilators of the masdevallia-house ought always to be freely opened, and it is essential at all times that a little air be admitted to the house. Shading may now be dispensed with on all houses with a north aspect, and the blinds, after being thoroughly dried, should be removed, and stored in a dry place until wanted again next season. With more exposed houses, the blinds should be allowed to remain for a few weeks longer, as they may be required during the middle of the day, using them only if the sun be very bright, as the plants will take no harm from a little direct sunshine.

Odontoglossum Rossi, O. Cervantesi, O. aspersum, and O. Humeanum, are now growing freely, and will require a good supply of water, but care must be taken not to allow the compost to become sodden. Sophronitis grandiflora is also growing freely, and will require a good supply of moisture until the growths are complete. —E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

THE weather of late has been most trying to pot plants, especially those which have been standing in the full force of the sun, such as chrysanthemums, salvias, tea roses, epacris, and many others required for winter flowering. Not only have these needed looking over several times a day to provide the roots with water, but more copious syringings have been necessary to counteract the trying influence of the sun on the foliage. Most of the plants mentioned will have practically finished their growth, and will now be developing bloom buds; consequently, liberal supplies of water are necessary to plump them up to the largest size. Now, also, is the time that such plants require feeding; I do not advise gorging the roots with strong, rank manures of any kind, but by using weak soot water and diluted farmyard liquid alternately, better results are obtained, and less risks are run than in using too freely some of the patent manures the grower knows little about until too late, when the roots of his plants have been burnt, and his prospects of a good harvest of bloom spoilt for the season. The roots of all pot plants standing on a bed of ashes or by the side of paths, &c., will naturally strike through the drainage in search of moisture. This should be avoided by either placing a piece of slate under each pot, or twisting the latter round once a week. Most of the buds on chrysanthemums will have been selected by now for large flowers, but even where the plants are grown in the ordinary bush form, for cutting or for use in the house as pot plants, the most pleasing results are obtained by thinning the buds freely. When this is not done, especially with some varieties, the flowers are much too crowded on each spray to look pleasing either on the plant or in a cut state. Nothing is more disappointing after a season's attention to find buds being spoiled by the attacks of insects. A sharp look out must be kept for earwigs, which generally prove the most troublesome. The remedies have often been given in these pages, and only require to be followed up with zeal, to ward off attacks and save disappointment. Cleanliness is a great thing where the plants are arranged. Where litter is allowed to accumulate, the insects complained of are sure to abound. Keep the surface of the bed where the plants are arranged raked or swept clean. Some of the early varieties are swelling their buds a-pace, and it will be necessary to remove the plants under cover as the petals show colour, as these are sure to suffer with the advent of rains and winds. It is right to keep the plants in the open as long as possible, but it cannot be considered safe to do so after the end of the present month. When that time arrives, we have had to house the plants very hurriedly in some seasons, as a sharp frost, or a severe gale, will prove most destructive; it is therefore most necessary that everything should be in readiness. Fruit houses are generally used to arrange most of the plants in. Early vines should have their growth cut back to, say, a couple or three leaves, which will not injure the vines, and will admit light. Some temporary staging should be arranged on which to stand the pots, and also to walk upon in attending to watering, and so save damaging the roots of the vines situated near the surface. See too that there are no broken panes in the roof, as a leaky roof proves anything but satisfactory, and many fine blooms are ruined by drip.

In the conservatory it will be necessary to water beds and borders copiously in which tree ferns, camellias and other things are planted. Camellias especially would be better for liquid manure, now the buds have formed, and on no account should the root run ever approach a dry condition, or the buds will fall wholesale. All these plants will be the better also for frequent syringing, as it not only encourages growth, but dislodges insects. Creepers trained to the roof are apt to become crowded, and many of the flowering ones will need pruning as the flowers fade. These will include such things as bougainvilleas, bignonias, cobæas, lapagerias, passion flowers, plumbagos, &c., and the removal of old flowering wood will not only secure neatness and make it better for new growth, but more light will reach other occupants later on when we shall have much less sunshine than we are now having.—RICHARD PARKER, *Goodwood Gardens*

KITCHEN GARDEN.

THE storing of winter roots will now be occupying the attention of the gardener. This important operation ought not by any means to be done in a careless manner, for it is not only a waste of time, but of material also, to grow good roots and then allow them to spoil for want of care in storing. Carrots, as a rule, are not very good this season, therefore, extra care should be taken to preserve them. The most suitable place is a cool shed, where a little protection can be afforded in case of severe weather. When stored away in a cellar, unless very cold, the roots start into growth, which causes deterioration, and if this is allowed to continue they become very stringy, and are almost worthless; if stored away in an open shed facing north, with the upper portion exposed, and the lower part covered with sand, they will remain sound for a considerable time; there is no difficulty in covering with a little dry litter in case of a severe frost. As a rule cooks prefer the young roots drawn from the ground; it is, however, not always practicable to grow sufficient of these to supply the requirements of a large establishment, hence the reason for storing the summer crop. Parsnips are far sweeter when used fresh from the ground, but it is always advisable to store a few in case of severe weather, but this should not be done while the foliage is so fresh and green. Beetroots should be stored, as recommended for carrots, but care must be taken in lifting the roots so as not to damage them in any way. The same remarks apply to salsify and scorzonera. Celeriac, on the other hand, ought not to be lifted at present, but when severe weather approaches sufficient should be stored for a supply while bad weather lasts, and what remains in the ground should be earthed up to protect it from frost.

Asparagus beds intended for forcing should have the growths cut off as soon as they turn yellow, so that the crowns may have a rest, before the roots are lifted. Cut down the old stems from globe artichokes and place some litter round the roots at the first convenient opportunity to prevent the frost from injuring them. Leaves will soon be falling apace; these should be collected and placed in heaps ready for making hot-beds. It will not be safe after this date to allow the lights to remain off such things as peas and French beans, as we may expect frost at any time; indeed, we have already registered two degrees, therefore, material should be had in readiness for protection.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

ABOUT this time it becomes necessary in gardens where the accommodation under glass is limited to crowd all available structures with chrysanthemums, bedding plants, and other tender things that have been during the summer months growing outside. Many people object thus to fill their vineries, but I think the objections are more apparent than real where a good grape room is available for storing the bunches. This is a necessity where such a use has to be made of the houses, as fruit will not hang safely on the vines when daily watering of plants has to take place beneath them. Chrysanthemums, especially of the Japanese type, which sometimes require a little fire heat to open them, are very good subjects for late vineries, as the heat afforded helps to ripen the vine wood. A really fine day should be chosen for cutting the grapes, especially where the grape room, as in my own case, is at some distance from the vinery, and can only be reached by making a short journey in the open air. Dryness and warmth of the atmosphere are imperative. The room should have been well ventilated and dried up; and the bottles, filled with fresh spring water, in their places in the racks. In cutting the grapes, I take no account as to which end of the lateral is prepared for insertion into the water, and frequently find it convenient to place the upper or "wrong" end of the shoot in the bottle, and the grapes keep just as plump as if the shoot is reversed. This allows one to leave a little foliage and a fair length of lateral on the vine to finish ripening. See that the shoot goes well into the water and without causing the latter to overflow and drop among the berries or on the floor. I do not sear the exposed ends of the shoots with a hot iron, nor use any other means, such as smearing with styptic to close the pores; the grapes keep just as well without it. Neither do I use any charcoal in the water, as the spring water we have remains perfectly fresh and sweet. All the after attention I give is to keep the room dark and as cool as possible, short of reaching freezing point; occasionally the bunches are looked over for decayed berries, but artificial light is always employed to see them by, for I make it a rule never to open the windows nor the shutters, as the room gets the very little ventilation it needs in other ways, and provided it is in a thoroughly dry state, I believe a room for keeping grapes is best without any ventilation.

While the houses are still empty it will be well to examine the borders once more, and give them another soaking of water if they seem dry; this will in all probability tide them over the winter, but the matter should on no account be neglected. The autumn is the best time for carrying out any lifting of vines, remaking borders, or any other root disturbance that may be thought necessary. Where grapes shank badly it often proves the salvation of future crops to thoroughly remake the borders, and get rid of all unhealthy roots that may have penetrated the subsoil, and especially any that are abnormally thickened at the extremities, for such roots as these are invariable accompaniments to shanked berries, and are best cut away back beyond the immaturely thickened part. Fibrous roots of the normal type will need no pruning beyond cutting away any damaged portions, and they may then be relaid in the border, keeping them well up to counteract the downward tendency in future. Vines in the earliest house should now be pruned and made ready for starting again. They should break freely and well, when started later on, for the sunshine we have enjoyed during the past few weeks has ripened up the wood well, and made amends for the long spells of cold and dulness experienced earlier, and which made things very backward. All wood-work, walls, and the vines themselves should be well scrubbed, using hot water and soft soap for the woodwork, and warm water and Gishurst Compound for the vines; this will ensure a clean start. I do not advise scraping the vines, further than to remove loose strips of bark, or smearing them with the dirty mixtures so commonly used, and should only do the one or the other in extreme cases of insect attacks. I have great faith in what I recommend above as cleansing agents when vigorously and plentifully applied.—J. C. TALLACK, *Livermere Park Gardens.*

Single China Asters.—What charming subjects these are during the exceptional dry weather we are now experiencing. They are single-flowered forms of a half-hardy annual, though little known in gardens yet. Growing fifteen inches or so high, and producing delicate lilac blossoms freely, they are at once valuable, either for making a display in the mixed border or in lines. Perhaps for the decoration of vases indoors they are at their best, as the blooms fully four inches in diameter, with a full complement of golden anthers in the centre, seem to lend themselves to this form of decoration perfectly. I have grown them this season as one of Messrs. Barr's novelties, and am pleased with the results.—E. M.

REMARKABLE CHANGES IN BUTTERFLIES.

At the meeting of the British Association at Bristol, one of the chief attractions in the section of zoology and physiology was the communication from Professor E. B. Poulton and Miss C. B. Sanders, on an experimental inquiry into the struggle for existence in certain insects.

Professor Poulton opened the proceedings by stating that the resemblance in colour of many species of insects to the surroundings was largely attributed to the effect of the struggle for existence; but this belief had never been subjected to experimental inquiry, by placing insects in the natural surroundings and keeping a record of their subsequent fate. The chrysalis of certain butterflies had the power of adapting its colour to the background on which it was placed; and this seemed a suitable subject for inquiry, because the chrysalis, being immovable, could easily be observed during its development. Some scientific authorities had denied the existence of any struggle for existence taking place at this stage, contending that it was of too short a duration for adaptability of colour to affect the chances of life. It was to throw light on this question that his experiments had been undertaken. The species selected for observation was, mainly, the chrysalis of the tortoiseshell butterfly, which was found in a series of shades, ranging from bright golden to dark yellow; and each shade could be produced by placing the chrysalis in appropriate surroundings. The golden form was produced on the nettle, the food-plant, and the darker forms on rocks, walls, fences, and tree trunks. The total number of pupæ fixed in these various surroundings was over 600. After having been fixed, the pupæ were constantly watched and a record kept of what happened to them. Some died, but over 550 were either carried off by natural enemies or emerged as butterflies.

The experiments were conducted in three different localities: first in Oxford, in the grounds of Magdalen College; secondly in the Isle of Wight, and thirdly in Switzerland. The results obtained at Oxford were extremely positive, while those obtained in Switzerland were strongly negative, and those obtained in the Isle of Wight were of an intermediate character. In Oxford, out of 59 pupæ exposed to their enemies, 55 disappeared and only four emerged. In the Isle of Wight, of 378 pupæ exposed, 259 were carried off and 119 emerged. In Switzerland, of 112 exposed, only 17 were carried off, while 95 successfully emerged as butterflies. The Oxford experiment was carried on from June 25 to July 23 in the present year; and the Isle of Wight experiment from August 2 to September 3. During the earlier period there was a greater ratio of extinction, which might be accounted for in some degree by the fact that the birds would still be feeding their young, and would therefore require more food. Oxford, moreover, was a place in which birds abounded; while in Switzerland, where the ratio of extinction was smallest, there was a marked scarcity of birds. There was a strong suspicion that the disappearance of the pupæ was due to birds. At Oxford, of 29 pupæ affixed to bark and tree trunks, all disappeared. Of four exposed on fences and posts, of four more exposed on walls, all were taken, and of 11 exposed on the ground, all were taken. But of 11 affixed to nettle leaves, four emerged and seven only were taken. In the Isle of Wight the number of pupæ observed was larger, and the struggle for existence was less severe. Of 209 affixed to bark and trunks, 135 were taken and 84 emerged. Of 98 affixed to fences, where the pupæ were more easily visible, eight emerged. On stone walls, 12 emerged out of 26; and on the nettle, 15 emerged out of 35. In Switzerland, 31 out of 35 placed on rocks emerged; while at a lower altitude 16 out of 21 affixed to bark emerged. At Oxford it was found that out of a number of pupæ of different shades of colour affixed to a stump the lightest went first.

In the Isle of Wight, of the pupæ affixed to a row of oaks, the lightest in colour went first, while the darker remained. This was difficult to explain except on the ground that conspicuousness was an element; but other elements of danger had to be considered. For example, in the same locality, the destruction varied very greatly. In one corner of a field all the pupæ might disappear in a few hours, while in another corner of the same field none would be taken. It seemed possible, too, that the pupæ being placed near together might lead to more speedy destruction, by inducing the enemy to search in the neighbourhood of the first find. Therefore a plan of scattered exposure was adopted, and pupæ were affixed at distances of more than 100 yards. The necessity of this was brought home by a curious circumstance. On entering a copse where pupæ had been exposed, the observers were met by a robin, who hopped up in a seemingly expectant manner, as though it knew what was going on. But when, to guard against this vitiation of the observed results, the pupæ were fixed at night time by lantern light, no marked difference of results took place. There could be little doubt that the enemies of the pupæ were birds, for the pupæ were generally fixed at a height of 3 feet or 4 feet above the ground; but it had been suggested that positive proof of this conclusion should be obtained. Miss Sanders accordingly undertook to watch a tree on which pupæ had been placed. At first she saw nothing during several hours' watch, although some of the pupæ were found to have disappeared; but at last she was rewarded by discerning a tit walking over the trunk of the tree. In Switzerland the pupæ were much less exposed to the risk of destruction; but the critical period was merely shifted to the larvæ stage; for it was found that in Switzerland the larvæ were infested with parasites which were absent in England. Possibly the presence of the very birds which were so destructive to the pupæ were also favourable to them in protecting them at the larvæ stage from parasites. The experiments which had been described were only a preliminary to the inquiry which was necessary, and he hoped in future experiments to make use of the chrysalis of the peacock butterfly, which had only two forms. The value of these experiments depended wholly on the trustworthiness of the methods adopted.

Miss Sanders explained the methods adopted for fixing the chrysalids so as to avoid all possibility of their escape or falling from the position allotted. In the discussion which followed, Professor Ray Lankaster, Professor Meldola, and Sir John Lubbock took part. The latter observed that though the experiments might not be very conclusive, they were very suggestive. It was clear that the colour of the chrysalis depended to a certain extent on the external conditions, but in these experiments a good deal of the protection afforded to the pupæ would be by the roughness of the ground on which they were placed rather than by colour. Did Professor Poulton think that the extra protection enjoyed by pupæ suspended from nettle leaves was due to the sting of the nettle? One effect of this communication would, no doubt, be that a larger supply of the chrysalis would be forthcoming in the future. He remembered that on one occasion he was anxious to get humble bees in the dead of winter. He asked the assistance of entomologists, and got a few, but not nearly enough. When, however, he offered 6d. each for humble-bees he was flooded with them; and when the price was reduced to 4d. they still poured in. It was only on a further reduction to 3d. that the supply became equal to the demand. It was clear from the paper that, though the chrysalis stage was of short duration, it was very dangerous; and one could realize how much interesting work in natural history could be performed without elaborate apparatus, but simply by the use of good eyes with a good brain behind them.

SUMMER BEDDING AT HAMPTON COURT.

That there has been manifested this season a distinct effort to render the bedding in these very popular public gardens more attractive and less stereotyped than hitherto there can be no doubt, and the new superintendent, Mr. Gardener, is entitled to all praise. The lawns have been better kept also, and greater air of neatness has prevailed. Probably there is still, and in spite of the fact that some beds have been turfed over, far too great a plethora of beds and bedding. The result is naturally too much repetition, too much to see to during the summer season, and too little labour to enable that high excellence in keeping the main lawns, without which much of the bedding becomes, as the season advances, too rough and uneven. All the beds beneath the lines of yew trees might well be dispensed with. Some fine vases and baskets, into which the roots of the yew trees would not enter, would be so much better. A number of round beds, with roses attempting to climb up iron poles in the centre, are lamentable failures, and might well be dispensed with, and some of the long beds, much too large, materially reduced in size. Certainly sub-tropical plants and various strong-growing mixtures do well in them, but the effect is after all hardly a reward for the great labour involved in preparing the stuff used and planting these long beds. Fewer beds, and more effort to produce fine effects, would be highly appreeiated.

It is interesting to note that whilst only one of the old carpet or mosaic-planted beds is in evidence this year, yet is it formed late in the season, as it has been from its planting the most perfectly-kept, the freshest, best-coloured, and on the whole the most attractive. The caterers for public approval in bedding should hesitate, whatever may be said to the contrary, before they expunge carpet beds altogether from the gardens. There are dozens of beds, especially of mixtures, that have not one tittle the attractiveness that this carpet bed has; its edging is a band of Sedum glaucum, into which is set neat plants of Acheveria Peacocki; inside of that is a very neat line of Hernaria glabra, with a few small agaves dotted into it; then comes a narrow line of Leucophyton Browni, and the design is worked out very effectively with various well-coloured alternantheras and mesembryanthemum, a few dot plants breaking the flatness of the bed. But the begonia, with various forms, constitutes the most attractive of flowering plants; none others can equal it in any way. It is the flowering summer bedder *par excellence*. There is, for instance, a singularly lovely combination of rather dwarf plants of the brilliant, small double scarlet Lafayette, planted thinly with the silvery Leucophyton Browni, as a foil. The latter, in its earlier stages of growth, should have been pegged a little to keep it broader; but all the same, it is the most beautiful combination in the gardens. The bed is marred by an edging of dwarf blue lobelia, which not only does not harmonise, but, being almost out of bloom, are getting, as all the lobelia edgings are, rough and demoralised, and would have been so much better away. I should like to see the lobelias dispensed with another year. There is no better blue-flowered edging plant for constancy and effect than is the dwarf perle-blue ageratum, six inches in height, but in spite of its great excellence it is not at all commonly grown. Then there are opposite the garden entrance two very effective purple begonia beds. These have in one case magenta or rose-coloured doubles, not large flowered, the plants fifteen inches in height planted on a carpet of the white-flowered sweet allyssum, and the other of orange scarlet doubles, twelve inches in height, on a similar carpet, both beds being neatly edged with Golden Treasure fuchsia. A large bed of single large flowered scarlet begonias on a carpet of Koniga variegata, is very effective. A few small plants of Auracaria excelsi dotted in are too dwarf, and seem to have suffered from cold, as the foliage is rather pale. A very large mass of the fibrous-rooted atropurpureum begonia, topped with a few acacias and edged with the variegated Stephanophoton labrum, gives a fine body of colour; also a nice effect is got from a bed of mixed begonias thinly planted, associated with Centaurea candidissima or dwarf Golden Feather, numerous plants of Eulalia japonica being used for top dressing. Here an edging of blue lobelia seems out of harmony, as also is a further bed of white, yellow, and sulphur begonias, with which is intermixed mauve violas. Both begonias and fuchsias give better effect when planted on close growing carpets than when the original carpet plants run up and materially cover them. Some beds that showed the troubles that may arise from certain unsuitable mixtures were such as Viola Blue Bell fighting for supremacy with pelargoniums, Verbena venosa overpowering petunias, or marguerites mastering scarlet pelargoniums. A mixture of plumbagos, tobaccos, cannas, and other plants had grown wild in spite of the dry weather; indeed, some beds seemed to have been much too liberally watered. But there can be little doubt but that such combinations will be avoided next year. Certainly many such mixtures may look very well in July, but are all abroad in September. It is in respect of constancy to character amongst other high qualities, that begonias and fuchsias seem to distance all other bedding flowering plants.

There was just coming into bloom a good bed of Lilium speciosum. These were very late, but they bid fair to make a good show in the autumn. The defect of the bed was its carpet of mixed violas which had become very ragged. So many of these need to be hard cut or pinched over early in August to induce them to bloom afresh from lower new growths late in the season. Begonia worthiana, formerly used so plentifully, is now in evidence in but one bed only, where it forms a somewhat dense centre. It is edged by blocks, about twelve inches wide, of Semperflorens rosea and alba, both dwarf and very effective, with taller blocks, alternated, of atrosanguinea. Interspersed as dress plants were Eulalia japonica and variegated maize. Dahlia scarlet bedder, or, as sometimes called, Glare of the garden, makes some effective masses, and white and yellow autumn flowering chrysanthemums are blooming profusely. The long mixed border that margins the broad walk has been unusually well planted this year and has given an abundance of bloom. How much these gardens are frequented, though some fourteen miles from London, may be seen on ordinary days, but on Sundays especially, when the visitors number several thousnds. A. D.

Apricots and Peaches.—These were a good crop, and would have swelled off and ripened of a good colour had we not been so pestered with wasps, which caused us to pick the bulk of the fruits before they were ripe. We have had some grand sunny weather during the past month. I should say there will be good crops of hardy fruits generally next year. The wood on healthy trees is ripening up well, I can see. Apricots generally do very well hereabouts, where fairly good cultural treatment is given to the trees. Our main kinds are Moor Park, Hemskirke, St. Ambrose, Kaisha, and Large Early. Were I making a new border, and replanting, I would give the roots a border, say, eight feet in width for a twelve feet high wall, and let them have sole possession of it. I have had another object lesson bearing upon this point; this year, when clearing off a three-year-old patch of strawberry plants from a South border in front of our apricot wall, I found the whole surface of the soil a network of apricot roots. Peaches and nectarines outdoors do not give us good crops of fruit oftener than one season in three. We find Hale's Early and Condor the best peaches for outdoor culture, the former in particular is very satisfactory.—H. J. Clayton, *Grimston Park Gardens.*

EXHIBITIONS AND MEETINGS.

CHELTENHAM FLOWER SHOW.

AFTER the lapse of one or two seasons the autumn show was held in the Winter Garden on September 21, and proved an encouraging success. The appearance of the flower tent was rendered charmingly effective by the four central groups, each arranged on a space of three hundred square feet, Mr. J. Cypher occupying the post of honour with a lovely design, having a bold Kentia Forsteriana with large-leaved crotons and tall bamboos as a centre, from which sprang four arches dressed with drooping asparagus and sprays of Dendrobium Phalænopsis Schroderiana, Oncidium incurvum, and other graceful orchids, pretty bits of crotons and other foliage plants; between the arches were large mounds each set with a handsome specimen of Cocos Weddelliana, backed by crotons, alocassias, caladiums, ferus, asparagus, and fine examples of Dendrobiums formosum and Phalænopsis Schroderiana, Oncidiums Forbesi and incurvum, a few Cattleya labiata and other orchids, the groundwork composed of crotons, ferns, &c., mixed with white forms of Lilium speciosum; Mr. G. W. Marsh, gardener to T. P. W. Butt, Esq., Arle Court, a fairly good second, having a fine spreading Kentia Balmoreana as a centre, with four bridges lightly dressed with graceful foliage and grand racemes of Dendrobium Phalænopsis Schroderiana and other orchids; a number of the ruby form of Lilium speciosum was used with much effect; Mr. W. Finch, Coventry, third, the bold centre being formed by a graceful Phœnix rupicola, around which were disposed pancratiums, crotons, &c.; the four angular mounds being set with Cocos Weddelliana, lilies, caladiums, crotons, and smaller subjects forming the ground work; a special prize being accorded to Mr. W. Vause, Leamington, for a design (much in the style of the first and second sets) in which crotons, ixoras, liliums, and orchids were used, but lacking finish. In the plant classes, Mr. W. T. Orchard was the only exhibitor of six fuchsias; Mr. W. Lusty, gardener to Colonel Rogers, was placed first for dwarf grown well flowered zonal pelargoniums; Rev. J. P. Davies, Mansfield, second, and Mr. H. T. Young, third.

Cut flowers were a somewhat extensive section, there being a large number of dahlias in competition; for twenty-four varieties there were eight competitors, the first prize went to Messrs. Heath and Son, whose finest blooms were Colonist, W. Rawlings, John Walker, Prince of Denmark, W. H. Williams, Eclipse, Flora Wyatt, Arthur Acock, J. T. West, and W. Powell. Messrs. Keynes, Williams, and Co., Salisbury, second, very fine, being S. Mortimer, R. T. Rawlings, A. Acock, Florence Tranter, Harry Keith, Mrs. C. Noyes, Dorothy, Dr. Keynes, Mr. Chamberlain, and Mr. Spofforth; Mr. W. Treseder, Cardiff, third, for a dozen distinct. Mr. Thomas Hobbs, Bristol, was placed first, having large spherical specimens of Chieftain, R. T. Rawlings, Dr. Keynes, Shirley Hibberd, Edward Boston, Muriel Hobbs, Willie Garrett, Prince of Denmark, and Harrison Weir; Mr. F. Harris, Bristol, second. Roses were staged in loose bunches of twelve varieties. Seven competed, Mr. John Mattock, Headington, Oxford, first, putting up large gatherings of Mrs. J. Laing, Anna Olivier, Mrs. S. Crawford, Marie Van Houtte, Maman Cochet, Souv. d'Elise Vardon, Maréchal Niel, Comtesse de Nadaillac (the last five named being wonderful buds), Princess of Wales, Ernest Metz, and Kaiserin Augusta Victoria; Messrs. Townsend and Sons, Worcester, and Messrs. Heath and Son second and third; Mr. G. Garraway, Bath, receiving a high-class card. Table decorations were very tastefully arranged: Rev. J. P. Davies, first; Miss H. F. Smith, second; Mr. W. Vause, third. Mr. E. Hall, Bath, headed the list for two dozen quilled asters; Mr. F. Lindsay, Frome, leading in the other section for incurved or reflexed. Mr. Cypher presented the best collection of zonal geraniums in triplet trusses; Mr. G. Humphries, Chippenham, securing the card for a dozen spikes of gladioli, with Mr. Mattock second. Hardy perennials in a dozen bunches each were represented by six collections: Mr. Cypher, first; Messrs. W. Treseder and Messrs. Heath and Son, taking lower awads; Mr. G. Garraway being the only exhibitor of sweet peas arranged on thirty feet superficial.

Fruit was a good section, grapes especially so. For dual clusters of two varieties of black, Mr. May, gardener to H. O. Lord, Esq., Charlton Kings, was first with fine clusters of Gros Maroc and Alicante, grand in colour and berry; Mr. A. James, gardener to F. H. Wiggin, Esq., Woolston, second, with Alicante and Black Hamburg, while for three clusters, the first prize was awarded to Mr. May, who had Black Hamburg, Madresfield Court, aud Alnwick Seedling. For two clusters of white, Mr. James led with well-finished clusters of Muscat and Foster's Seedling; Mr. F. Rea, gardener to Miss Southwood, second, with Bowood Muscat and Trebianno; the cards for three bunches going to Mr. James, who had, in perfection, Muscats. Amateurs' class for black produced a number of fine exhibits, Mr. May first, with Gros Maroc, Messrs. W. James and W. Lusty, putting up Hamburgh. For eight dishes Mr. James was strong with Gros Maroc and Muscat grapes, Woolstone Gem melon, Bon Chretien pears, Pitmaston Orange nectarines, Prince of Wales peaches, Angelique figs, and Black Gage plums; Mr. W. Child, gardener to the Earl of Coventry, Croome Court, second; Mr. W. Lusty, third; the last named was first for four varieties, with Gros Maroc grapes, Triumph melon, Pine Apple nectarines, and Princeof Wales peaches; Mr. F. Taylor, Prestbury, second; and Mr. Marsh, third. Peaches were a good class, Mr. Lusty, first, with Royal George; other varieties staged being Prince of Wales, Alexandra Noblesse, and Walburton Admirable. Nectarines being Pine Apple, Pitmaston Orange, &c., Mr. Lusty, first. A number of melons were submitted, Rev. J. P. Davies, first, for Blenheim Orange. There being nine exhibitors of four dishes of plums, Mr. James heading the list, the kinds on view were Golden Drop, Magnum Bonum, Victoria, Jefferson's, Pond's Seedling, Monarch, Kirke's, Green Gage. and Transparent Gage. For one dish of dessert apples sixteen entered, Mr. G. Garraway, first; while for a dozen culinary, thirteen entered, Mr. W. Restall securing the card with grand fruits of Peasgood's Nonsuch. For a dozen varieties (dessert and culinary), nine competitors staged, and a very fine display resulted, Mr. James filling the post of honour; Mr. W. Child, second; Mr. W. Restall, third; the pears winning being Bon Chretien.

Among the vegetables there were a dozen very fine dishes of tomatos, a few cauliflowers, the turnips and carrots evidenced a dry growing period; some sixteen dozen of potatos being staged; and of onions, the flat and globular types were represented by bulky ripe specimens. Summarised, the first prizes went to Mr. G. Garraway, for nine dishes, six dishes, twelve dishes of potatos, one dish of round potatos, runner beans, peas, and cucumbers; Mr. Mattock, first, for tomatos; Mr. A. Cook led for flat onions, celery, and parsnips; Mr. S. E. Cook, for turnips and beet; Colonel Thoyts, for kidney potatos; and Mr. Llewellyn Evans, for carrots.

Miscellaneous exhibits included a very showy lot of cactus dahlias from Messrs. Keynes, Williams, and Co., Salisbury; dahlias in variety from Mr. W. Treseder, Cardiff; dahlias from Messrs. Heath and Son, Cheltenham; Messrs. White and Son, Worcester, hardy flowers; Messrs Yates and Son, Cheltenham, hardy flowers and tomatos; Mr. H. Deverill, Banbury, hardy flowers; Messrs. Fuller and Maylon, Cheltenham, large collection of apples and pears; Messrs. Hopwood and Sons, Cheltenham, apples and pears; and roses in quantity from Mr. J. Mattock, Oxford, and Messrs. Townsend and Sons, Worcester.

ORMSKIRK HORTICULTURAL SOCIETY.

THIS exhibition was held recently at the Victoria Athletic Grounds. The entries were satisfactory, considering the extreme charge demanded for entrance fees. Surely it would be advisable to charge a moderate entrance fee, so as to secure a larger number of exhibitors. In the plant section Mr. B. Ashton, gardener to Lord Lathom, secured the chief honours, gaining first prize in the following classes: Group of plants arranged for effect, four stove and greenhouse plants, two palms, four table plants, two hardy ferns, and two pots of liliums; Mr. E. Ormesher was first for two fuchsias; for two zonal geraniums, Mr. Henry Bank staged the best; for two tuberous begonias, Mr. John Benson won with a good pair; Mr. A. J. Stanley, Thronton Nursery, took the lead for a single bouquet.

Fruit, although not very extensive, produced some good dishes. For two bunches of black grapes Mr. A. Francis, gardener to Miss Carver, Southport, won with well-coloured Black Alicantes, Mr. Ashton and Mr. T. Rimmer following. For two bunches of white, Mr. B. Ashton won with Muscat of Alexandria. For six peaches, Canon Blundell, Mr. B. Ashton, and Mr. T. J. Salway, Ludlow, were placed as named. For six plums, Mr. Thomas Ball won with Pond's Seedling; for one melon, Mr. Ashton was first; and for a dish of damsons, Mr. E. H. Wood, Ludlow, won with Shropshire.

For twenty-four cut roses Mrs. Parr, Lathom, had the best of a moderate lot. Twelve varieties of hardy herbaceous and bulbous cut-flowers brought five competitors, three of whom were disqualified through including dahlias, roses, clematis, &c.; in nearly all the stands the wording of the schedule appeared to be overlooked. The winning lot by Mr. Alfred Dower, Maghull, included a bunch of gladiolus, which contained about ten varieties; Mr. B. Ashton was second. For six cut roses Mr. E. Ormesher took the lead. Six double dahlias were well shown, Messrs. E. Ormesher, Henry Banks, and Thomas Alty being placed as named. Six pompon dahlias brought a strong lot, the winners being Messrs. T. Ball, T. Morris, and H. Banks. For six cactus dahlias the exhibitors were placed in the following order: Messrs. J. Benson, R. Benson, and E. Marsh. For six single dahlias, Mrs. Parr, Messrs. F. W. M. Gardiner, Ormskirk, and T. Alty were the winners. For six asters, six stocks, and twelve pansies, Mr. T. Alty was to the fore. Mr. Ball won for six spikes of gladiolus, and twelve carnations; Mr. A. Dower, for six hollyhocks; Mr. H. Banks, for twelve marigolds; Mr. T. Morris, for twelve African marigolds; and Mr. H. Banks, for twelve zinnia blooms.

Vegetables were undoubtedly the finest feature of the show. For the collection of not less than six varieties, Mr. T. Alty was placed first, staging twelve varieties; Mr. Ashton, with an altogether better lot, was placed second, staging ten varieties. It would be better in this class to state the number of kinds or varieties. Leading first prize winners were Messrs. Laycock and Hall, J. Nightingale, Mr. J. Taylor, Mr. T. Alty, Mr. B. Ashton, Miss Carver, Mr. G. Woodman, Mr. Job Harrison, and Canon Blundell.

For six culinary apples, Mr. B. Ashton won with Lord Suffield; for six dessert apples, Mrs. Parr was first; and for six ripe pears, Mr. R. C. Welsby led. The committee should impress upon exhibitors the importance of naming all exhibits where possible.

The potatos were a splendid lot, large, clean, and of good shape. For white round, late, Mr. B. Raymond won with Goldfinder. For white, early, flat and white, early round, Mr. D. Berry, Lathom, won in both classes. For white flat, late, Mr. T. Wainwright was to the fore with Up-to-date. For six white early kidneys, Mr. Gardiner took the lead with Snowdrop; for late variety, Mr. T. Wainwright showed Reading Giant. For round, coloured, Mr. T. Alty won with Reading Russet. For flat kinds, Mr. B. Ashton staged Mr. Bressee. For a coloured kidney, Mr. B. Raymond, Ludlow, led the way wlth Hedgott Purple. For the best collection of six varieties, Mr. B. Ashton was first, his lot including Goldfinder, Mr. Bressee, Carter's Snowball, Sutton's Abundance, Carter's Monarch, and Duke of York, all in very fine condition. The weather was fine, and the show was fairly well patronised.

SHIRLEY GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

THE usual monthly meeting was held at the Parish Room, Shirley, Mr. B. Ladhams presiding over a fair attendance. The lecture was on "Vegetable Culture," and was given by Mr. George Garner, The Gardens, Cadland Park, Hythe, Southampton. It was a sound, practical discourse on the up-to-date methods of growing all the high-class vegetables. Necessarily the instructions were much condensed, but at the same time the chief points of good culture were dwelt upon. Mr. Garner believes in much mulching of crops, and this season has brought out the value of this so very strongly, that he made the most of this point. At the close of the lecture there was a lively discussion chiefly as to the value or otherwise of seaweed as a manure. A hearty vote of thanks to the lecturer closed the business of the meeting.

There was a bright little display, and some good vegetables were exhibited for some small prizes. C. G. Stuart Menteth, Esq., J.P. (gardener, Mr. W. Risbridger) was awarded first, and the president, W. F. G. Spranger, Esq. (gardener, Mr. H. Curtis), second for six sorts of vegetables. Mr. J. R. Cole was first and Mr. C. Curtis second for four sorts of vegetables, open to cottagers only. Cannas, dahlias and cockscombs were shown by Mr. E. J. Wilcox; seedling pelargoniums, dahlias, &c., by Mr. F. Cozens, and herbaceous plants by Mr. B. Ladhams.

Chrysanthemums at Woking.—Although early in the season for specimen chrysanthemum blooms, I was agreeably surprised to find, on a recent visit to Mr. Shoesmith's nursery at Woking, some well-developed flowers of Edwin Molyneux. They were from crown buds, and, as such, were remarkable for the rich colouring so prominent in this variety. To my mind, I think that early flowers of this sort display the colour to more advantage than those of later growth. Another variety in flower was Phœbus, also from crown buds. The bright golden colour was noticeable for its richness, while in size and shape it would not have disgraced a "board" at a November show. A few plants of that fine white variety, Madame Gustave Henry, were carrying some well-developed flowers. This is one of M. Calvat's novelties of 1896, and is likely to hold a place for some time as a good exhibition variety. Its growth is strong and vigorous, while the flowers are of good shape and very pure. On inspecting the collection, it was a pleasure to see, from the healthy and vigorous condition of the leaves, it was free from that dreaded disease, the chrysanthemum rust. The buds now developing give promise of fine blooms, which will doubtless figure at forthcoming shows, and add further to the reputation of a good grower of this most popular family.—E. S.

ROYAL HORTICULTURAL SOCIETY'S GREAT FRUIT SHOW.

The fourth of the series of great autumn fruit shows held at the Crystal Palace under the auspices of the Royal Horticultural Society was opened at mid-day on Thursday, and, although weak in one or two features, may be described as a splendid success. The great palace of glass is filled from end to end with fruit remarkable for its high quality, and regarded as a whole no better demonstration of the splendid capabilities of the United Kingdom for the production of hot-house and hardy fruits could well be desired. Apples, as in former years, constitute the chief feature, and, as might have been expected, they are in consequence of the prolonged drought somewhat below the average in size. Excepting in bulk these useful fruits are fully equal to the high average of previous years, and the large number of classes devoted to them contain much to interest both cultivator and consumer. The comparative scarcity of pears in this country is made evident in several of the classes for these fruits, but less so than might have been expected. Miscellaneous collections form as usual a great and attractive feature, but we must defer notice of them until our next issue.

The present exhibition is of a more comprehensive character than any of its predecessors, for the Council very wisely introduced a section for market growers, with a view to demonstrate the best methods of packing fruits for commercial purposes, and they also added some twenty classes, two each for specified zones in England, and two each for Scotland, Ireland, and Wales. The second of these two sections was introduced to enable exhibitors to compete under more equal conditions than is possible in classes open to the United Kingdom; and the great natural advantages of Kent are shown by the fact that no other county is associated with it. The arrangements of this immense gathering have been skilfully planned and admirably carried out, and the warmest praise is due to the Rev. W. Wilks, Mr. S. T. Wright, and other members of the Royal Horticultural Society's staff for the services rendered.

COLLECTIONS OF FRUIT.

Collections of hothouse and hardy fruits were comparatively few in number, but those staged were all more or less good, and the contributions to the several classes formed a feature at once interesting and attractive. In competition for the prizes for twelve dishes, to include at least six kinds, Mr. J. McIndoe, gardener to Sir Joseph Pease, Bart., Hutton Hall, Guisborough, Yorks, obtained premier honours with a collection remarkable for its evenness and general excellence. The collection comprised a shapely, well-ripened Queen pine, good Muscat of Alexandria and Gros Maroc grapes, remarkably fine Sea Eagle and Admirable peaches, Pitmaston Orange nectarines, Souvenir du Congrès and Williams' Bon Chretien pears and Lady Sudeley apples, fairly good Brown Turkey figs, excellent Bryanston Green Gage plums, and a well-finished Champion melon; Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, was a very close second, with an admirable collection, in which Muscat of Alexandria and Black Hamburgh grapes, Washington and Gascoyne's Scarlet apples, and Doyenne Boussoch and Doyenne du Comice were especially well represented. There were five entries in the class for eight dishes to contain at least four kinds, and at the head of the several of the competitors was Mr. J. Dawes, gardener to M. Biddulph, Esq., M.P., Ledbury Park, Ledbury. The collection for which Mr. Dawes received the premier award was distinguished by its uniformity and high quality, and contained Gros Maroc and Muscat of Alexandria grapes, Worcester Pearmain apples, Williams' Bon Chretien pears, Jefferson's plums, Princess of Wales peaches, Pine Apple nectarines, and an unnamed melon. Mr. Tidey, gardener to W. K. D'Arcy, Esq., Stanmore Hall, Middlesex, followed closely for second place with a collection, in which were exceptionally fine dishes of Walburton Admirable and Sea Eagle peaches, Alnwick grapes, and Humboldt nectarines. Mr. F. Cole, gardener to Sir Charles Russell, Bart., Swallowfield Park, Reading, was third with a good collection, including superb clusters of Alicante and Muscat of Alexandria grapes.

There were five entries in the class for a collection of hardy fruit, not exceeding [illegible] dishes, grown entirely in the open air; here, Mr. R. Potter, gardener to Sir Mark Collett, Bart., St. Clere, Kemsing, Sevenoaks, won the covetedaward with a grand display, that contained splendid apples and pears in the leading varieties, Warrington gooseberries, Princess of Wales, Dr. Hogg, Royal George, and Lord Palmerston peaches, Brown Turkey figs, mulberries, plums and gages, and currants; it was a magnificent display, tastefully set off by berberis sprays and ivy. Mr. J. Powell, Dorchester, was second, also with a grand lot of fruit that included Sweetwater grapes, grand Galway peaches, Pineapple nectarines, plums and gages, red and white currants, medlars, apples and pears, cherries, and nuts.

The best collection of three dozen dishes of fruit grown to illustrate the value of orchard house culture, came from Mr. R. Potter, who showed Black Hamburgh, Foster's Seedling, and Gros Maroc grapes, plums, gages, peaches, nectarines, all grandly finished, and some magnificent apples and pears, the latter including wonderful specimens of Uvedale's St. Germain, Triomphe de Vienne, Beurre Diel, and Pitmaston Duchess; a first-class display of splendid fruit. Mr. J. McIndoe, gardener to Sir J. Pease, Bart., Hutton Hall, Guisborough, had to be content with second place, but he had fine Gros Maroc, Foster's Seedling, and Alnwick Seedling grapes.

GRAPES.

Grapes were, on the whole, below the high average of previous years, but the collections were numerous, and formed an attractive feature. There were four competitors in the class for six distinct varieties, two bunches of each, and the premier award was made in favour of Mr. J. H. Goodacre who staged medium-sized and well-finished clusters of Alnwick Seedling, Muscat of Alexandria, Madresfield Court, Black Hamburg, and Alicante; Mr. F. Cole was a capital second with Foster's Seedling, Muscat of Alexandria, and Cooper's Black of exceptionally high quality; Mr. W. Taylor, gardener to C. Bayer, Esq., Tewksbury Lodge, Forest Hill, S.E., was third with a collection remarkable for size of bunch and berry, but the clusters were mostly somewhat deficient in colour. The bunches of Muscat of Alexandria were the most noteworthy, these being of large size, shapely, and of a rich golden hue. In competition for the prizes for three varieties of grapes, two bunches of each, Mr. J. Dawes obtained premier honours with finely-developed clusters of Muscat of Alexandria, Alicante, and Gros Maroc; Mr. A. Belcher, gardener to Sir [illegible], Cranleigh, Surrey, was second with a good collection, in which the clusters of Alicante were the most meritorious; Mr. J. Jones was third, and had [illegible] and well-coloured bunches of Madresfield Court.

The best of the classes for triple bunches of specified varieties of grapes was that for Black Hamburg, in which there were seven entries. The contributions to this class were, on the whole, decidedly poor, the bunches being mostly small and indifferently coloured. The best examples were those from Mr. F. Cole, Mr. W. Mitchell (gardener to J. W. Fleming, Esq., Chilworth Manor, Romney), and Mr. J. H. Goodacre, to whom the prizes were awarded in the order of their names. Madresfield Court were but little in advance of the Black Hamburgh, the bunches being, on the whole, much wanting in size. Mr. W. Mitchell was successful in obtaining premier honours with medium-sized bunches with good berries, and finely coloured. Mr. J. Jones, York House, Malvern, and Mr. J. H. Goodacre were second and third. There was a strong competition in the class for Gros Colmar and Gros Maroc, and the premier award was made in favour of Mr. W. Allan, gardener to Lord Suffield, Gunton Park, who had huge clusters of Gros Maroc, distinguished by the large size and superb colour of the berries; Mr. W. Mitchell was second, with small clusters of the Gros Maroc; and Mr. George Reynolds was third, staging well-finished bunches of the same variety as that for which the first and second awards were made. The class for Alicante was well filled, and the long line of huge, highly-coloured clusters produced a striking effect. Mr. W. Allan was awarded the first prize in the class, and deservedly so, for the bunches were of the largest size, finely shouldered, and superbly coloured; Mr. W. Howe, gardener to Sir H. Tate, Bart., Park Hill House, Streatham Common, came a close second, with bunches remarkable for high finish; and Mr. F. Cole, who was third, had excellent bunches. Lady Downes was represented by four dishes, and the best of these was shown by Mr. W. Taylor; Mr. W. H. Bacon, gardener at Mote Park, Maidstone, and Mr. J. Dawes were second and third. In competition for the prizes for any black grape other than those referred to above, Mr. W. Mitchell was first, with huge superbly-coloured bunches of Mrs. Pince's Muscat; Mr. J. Hudson was second, with rather spare clusters of Appley Towers; and Mr. Tidey was third, staging Alnwick Seedling. The class for Muscat of Alexandria was the strongest of the grape classes, and included a considerable number of entries evincing high class cultural skill. Mr. A. R. Allan, gardener to Lord Hillingdon, Hillingdon Court, Uxbridge, was awarded the clock, value £5, offered by Messrs. Wood and Son as the first prize for magnificent clusters; Mr. G. Duncan, gardener to C. J. Lucas, Esq., Warnham Court, Horsham, was second with large well-finished bunches. There were four entries in the class for Mrs. Pearson, and the awards were made in favour of Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill House; Mr. Reynolds and Mr. G. Lane were awarded the remaining prizes in the order of their names. There were some interesting contributions to the class for any white grapes other than those mentioned, and, as a result of the competition, Mr. G. Reynolds was first with excellent bunches of Chasselas Napoleon; Mr. G. Lane was second with the same variety; and Mr. W. Allan was third with Duke of Buccleuch.

NURSERYMEN'S CLASSES.

In the class for a collection of fruit trees bearing fruit, in pots, three prizes were offered, viz., gold, silver-gilt, and silver medals. There was, however, but one exhibitor, Messrs. T. Rivers and Son, Sawbridgeworth, who gained the gold medal with a grand display of grandly-grown plum, peach, apple, pear, and fig trees, finely fruited, and in a beautiful condition. A few of the finest trees were: Rivers' Late Orange plum, a golden variety; President and Pond's Seedling plums; Albatross and Gladstone peaches; Emperor Alexander, Blenheim Pippin, Bijou, and Melon apples; Marie Louise, Conference, Pitmaston Duchess, and Louise Bonne of Jersey pears. The whole group was well set up, and on this occasion no pulled fruits were staged beneath the trees, but a few dracænas and selaginellas were used as edging.

Messrs. G. Bunyard and Co., Maidstone, Kent, secured the gold medal offered as first prize in the class for a collection of hardy fruits grown partly or entirely under glass, to illustrate orchard house culture; splendidly fruited trees in pots were used as a background, especially fine being the specimens of Grand Duke plum, Doyenne du Comice, Durondeau, Vicar of Winkfield, and Pitmaston Duchess pears; Lady Palmerston peaches, and Cornish Aromatic apples; square boxes and baskets of highly-developed plums, pears, tomatos, &c., were arranged next the trees, and dishes of fruit completed the arrangement. There were some wonderfully fine examples of Washington, Reinette du Canada, Gascoigne's Scarlet, Peasgood's Nonsuch, Belle Dubois, Cox's Orange Pippin, Ribston Pippin, and Bismarck apples; Emile d'Heyst, Beurré Rance, Beurré Hardy, Pitmaston Duchess, Directeur Alphand, Beurré Foqueray, Durondeau, Marie Benoist, and Conference pears; Nectarine, Gladstone, Sea Eagle, and Princess of Wales peaches. Altogether there were nearly one hundred dishes shown in this fine exhibit.

There were three competitors for the medals offered as prizes in the class for not less than thirty nor more than fifty distinct varieties of hardy fruit, in baskets or dishes, grown entirely in the open air. The exhibits were staged on a space twenty-four feet by three feet, and foliage plants were allowed to create effect. Here the chief award, a silver-gilt medal, was won by Mr. G. Mount, Rose Nurseries, Canterbury, who had an extremely pretty display set off by small ferns, palms, bamboos, crotons, and selaginella; the finest and most prominent fruits were Bismarck, Warner's King, Cox's Orange Pippin, Cellini, Peasgood's Nonsuch, Royal Jubilee, Gascoigne's Scarlet, and Worcester Pearmain apples, and Thompson's, Williams' Bon Chretien pears. Mr. Mount can grow apples and pears as well as he can roses, and that is saying a good deal. Mr. J. Colwill, All Saints' Road, Sidmouth, Devon, came second; and Mr. J. Basham, Bassaleg, Newport, third, the latter showing pears well.

The chief award for a collection of from thirty to thirty-six distinct varieties of pears, in baskets or dishes, all from the open air, and arranged in a space of twenty-four feet by three feet, was won by Mr. H. Berwick, Sidmouth Nurseries, Devon, with a very even set of fruit, his best samples being King Edward, Doyenne du Comice, Doyenne Boussoch, Williams' Bon Chretien, Beurré Clairgeau, Chaumontel, Glou Morceau, Hacon's Incomparable, and Beurré Bachelier. There was but one competitor.

Mr. J. Colvill, Sidmouth, Devon, led the way for a collection of fifty distinct varieties of apples, all grown in the open air; he had a splendid lot of fruit, and one of the best-coloured collections in the show; the specimens were also of good size, as a whole; Gascoigne's Scarlet, Vicar of Beighton, Sandringham, New Hawthornden, Red Beitigheimer, Twenty Ounce, Tyler's Kernel, Peasgood's Nonsuch, Duchess of Oldenburg, Lord Derby, Lady Sudeley, Jubilee, Wealthy, Washington, and Worcester Pearmain were all grandly represented; the second prize was secured by Mr. J. Basham, Bassaleg, Newport, Mon., who brought a splendid lot of fruit from South Wales, though some were spotted as if by hailstones; Bismarck, Egremont Russett, Alfriston, King of the Pippins, and Mabbott's Pearmain were very good; Messrs. Paul and Son, Cheshunt, won third prize.

There were two entries in the class for not less than seventy-five nor more than a hundred varieties of hardy fruit staged in dishes or baskets, and all grown in the open air. Foliage plants were allowed to decorate the table, and these were used in both instances. Messrs. G. Bunyard and Co., Maidstone, gained the gold medal offered as first prize, and secured it with a magnificent lot of fruit, chiefly apples, though pears, peaches, plums, nuts, and nectarines were staged. The centre of the table was occupied by a pyramid of scarlet apples, each face having a centre of yellow-skinned varieties. At the table corners were large mounds of Cellini, Lady Sudeley, Gascoigne's Scarlet, and Seaton House apples, each with a central palm and a fringe of panicum. There were baskets of handsome fruits of Warner's King, Duchess of Oldenburg, Lord Grosvenor, Bramley's Seedling, Mère de Ménage, The Queen, Bismarck, and other useful apples. Madame Treyve, Pitmaston Duchess (huge fruits), Doyenne Boussoch, Nouvelle Poiteau, Brockworth Park, Dr. Jules Guyot, Beurre Mortillet, Emile d'Heyst, Conference, and Marguerite Marillat were the best pears shown. For colour, size, and general excellence this exhibit was not surpassed in the show. Mr. H. Berwick won second prize with a tasteful display of useful and bright fruits.

GARDENERS AND AMATEURS ONLY.

A grand lot of apples staged by Mr. G. Woodward, gardener to R. Leigh, Esq., Barham Court, Maidstone, won first prize in the class for two dozen dishes, consisting of sixteen cooking and eight dessert varieties ; the fruits were of large size, clean. even sized, and brightly coloured ; the varieties were Belle Dubois, Mère de Ménage, Ecklinville, Peasgood's Nonsuch, Loddington, Emperor Alexander, Lord Derby, Grenadier, Twenty Ounce, Bismarck, Tower of Glamis, Northern Dumpling, Warner's King, Waltham Abbey Seedling, Alfriston, Belle Pontoise, American Mother, Cox's Orange Pippin, Wealthy, Ribston Pippin, Gascoigne's Scarlet, Washington, Worcester Pearmain, and Baumann's Red Winter Reinette. Mr. Woodward was the only exhibitor in this class, but he would have been hard to beat.

The competition in the class for a dozen dishes of apples, distinct, eight cooking and four dessert varieties, was better, there being six entries. The chief award was secured by Mr. B. Miller, gardener to F. W. Startup, Esq., West Farleigh, Maidstone, who showed handsome, well-coloured, and very clear specimens of Alfriston, Peasgood's Nonsuch, Ecklinville, Warner's King, Yorkshire Beauty, Tibbett's Incomparable, Spencer's Favourite, Grenadier, Baumann's Red Winter Reinette, Cox's Orange Pippin, Worcester Pearmain, and Ribston Pippin ; M. W. G. Pragnell, gardener to J. K. Digby, Esq., M P., Sherborne Castle, Dorset, came second, showing grand dishes of Peasgood's Nonsuch, King of the Pippins, and Mère de Ménage ; Mr. G. Chambers, Mereworth, Maidstone, third. Four competitors brought nine dishes of apples, six cooking and three dessert varieties, and here the first prize was won by Mr. J. Dawes, gardener to M. Biddulph, Esq., M.P., Ledbury Park, Ledbury, who scored with first-rate specimens of Warner's King, Ecklinville, Lord Suffield, Hollandbury, Beauty of Kent, Tyler's Kernel, Cox's Orange Pippin, Blenheim Pippin, and Ribston Pippin ; Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Park, Reigate, came second ; and Mr. T. W. Herbert, gardener to J. Charlesworth, Esq., Redhill, was third. There were five entries of six dishes of cooking apples, Mr. Woodward winning with very large and fine fruits of Lord Derby, Emperor Alexander, Peasgood's Nonsuch, Belle Dubois, Warner's King, and Loddington ; Mr. G. Lock, gardener to B. H. Hill, Esq., Newcombes, Crediton, Devon, gained second prize, but the judges wrote "too highly polished" across the award card. No less than eleven competitors came forward in the class for three dishes of cooking apples, so that there was a good display ; Mr. A. Maxin, gardener to Colonel H. Walpole, Heckfield Place, Winchfield, won first prize with Lady Henniker, Warner's King, and splendidly coloured Emperor Alexander ; Mr. J. Lee, Bebington, Cheshire, gained second prize. There were four exhibits of six dishes of dessert apples, the best being that staged by Mr. G. Woodward, Barham Court Gardens, who had even-sized, clean, and splendidly coloured fruits of Washington, Wealthy, Ribston Pippin, Worcester Pearmain, Cox's Orange Pippin, and American Mother : Mr. B. Miller, West Farleigh, came second, showing good Cox's Orange Pippin, and King of the Pippins. The beat three dishes of dessert apples consisted of King of the Pippins, American Mother, and Ribston Pippin, were shown by Mr. A. Pentney, gardener to A. J. Howard, Esq., Worton Hall, Isleworth ; there were thirteen competitors, and Mr. J. C. Tallack, Livermere Park Gardens, Bury St. Edmunds, won second place with King of the Pippins, Ribston Pippin, and Blenheim Pippin.

Out of three sets of twelve dishes of dessert pears staged, Mr. G. Woodward won chief honours with magnificent specimens of Marguerite Marillat, Beurre Mortillet, Pitmaston Duchesse, Triomphe de Vienne, Beurre Hardy, Durondeau, Doyenne du Comice, Doyenne de Merode, Duchesse d'Angouleme, Emile d'Heyst, Beurre Superfin, and Gansel's Bergamot ; the only complaint one can make is that some of the fruits were rather large for dessert, and would need to be carved ; Mr. W. Allan, gardener to Lord Suffield, Gunton Park, second ; and Mr. W. H. Bacon, gardener to Sir Marcus Samuel, Mote Park, Maidstone, came third.

The best nine dishes of pears, dessert varieties, came from Mr. W. G. Pragnell, Sherborne Castle Gardens, Dorset, his set consisting of Maréchal de la Cour, Marie Louise, Marguerite Marillat, Beurre Superfin, Beurre Bachelier, General Todtleben, Beurre Diel, Durondeau, and Pitmaston Duchess ; Mr. J. Powell, gardener to Colonel Brymer, M.P., Dorchester, second ; and Mr. W. Jones, gardener to J. P. Brougham, Esq., Carshalton, third.

Mr. G. H. Sage, gardener to the Marquis of Camden, Bayham Abbey, Lamberhurst, was first prize winner for six dishes of dessert pears, showing fine specimens of Williams' Bon Chretien, Souvenir du Congrès, and Pitmaston Duchess ; there were ten entries ; Mr. W. A. Cook, gardener to Major Heneage, M.P., Compton Bassett, Wilts., second. Mr. R. Edwards, gardener to G. H. Field, Esq., Beechy Lees, Sevenoaks, scored for three dishes of dessert pears, leading out of nine competitors ; Mr. G. Fennell, gardener to W. M. Cazallet, Esq., Tonbridge, second. For three dishes of cooking pears, Mr. Woodward came to the front with big specimens of Triomphe de Jodoigne, General Todtleben, and Catillac ; Mr. W. H Brown, second, out of seven sets.

There were no less than eleven sets of three dishes of peaches staged, and the competition was very keen. Mr. G. Woodward gained the leading honours with beautifully fresh fruits of Princess of Wales, Nectarine, and Sea Eagle ; Mr. A. Maxim, a good second ; and Mr. A. Pentney, third. The best single dish of peaches came from Mr. G. Wythes, Syon Gardens, Brentford, who had Sea Eagle, in fine condition ; Mr. T. Wren, second. Mr. Woodward was again to the fore in the class for nectarines, showing Rivers' Orange, Pine Apple, and Humboldt ; Mr. C. Earl, Somerhill, Tonbridge, second ; and Mr. A. Maxim, third. Mr. H. Redden, Manor House Gardens, West Wickham, scored for a single dish of nectarines with fine examples of Victoria ; a dish of fruits, apparently belonging to no one, gained second prize.

Figs were in the class specially provided for these fruits, limited to two dishes of Brown Turkey, shown by Mr. W. Mitchell and Mr. J. Jones, who were awarded the prizes in the order of their names.

The competition in the class for four dishes of dessert plums was very keen, no less than eleven competing, Mr. J. Vert, gardener to the Right Hon. Lord Braybrooke, Audley End, coming first with fine dishes of Transparent Gage, Coe's Violet, Jefferson's and Coe's Golden Drop ; Mr. W. King, Gatton Park Gardens, second. Mr. Vert won for a single dish of dessert plums with Coe's Golden Drop ; Mr. W. Pope, Highclere Castle Gardens, second, with Jefferson's, out of twenty-six entries. Mr. W. King had the best dish of gages, staging Rivers' Transparent. For four dishes of cooking plums the chief award was secured by Mr. W. Pope, with Grand Duke, Victoria, Monarch, and Pond's Seedling, all fine specimens ; Mr. J. Vert, second. Mr. W. Camm, gardener to the Duchess of Cleveland, led for one dish of cooking plums, with grand examples of White Magnum Bonum ; Mr. A. Andrews, Wickham, second, with Pond's Seedling. Mr. G. Fennell and Mr. W. J. Empson were first and second respectively for damsons.

DESSERT APPLES.—SINGLE DISHES.

There were eight entries in the class for Adams' Pearmain, the first prize going to Mr. P. Loch, gardener to B. H. Hill, Esq., Newcombes, Crediton, Devon ; and the second to Mr. W. Camm, gardener to her Grace the Duchess of Cleveland, Battle Abbey, Sussex. Mr. H. Henley, gardener to E. J. Johnstone, Esq., Roughdon Hall, Bury St. Edmunds, secured the premier award for Allen's Everlasting, in which class there were five entries. Mr. J. Powell, gardener to Colonel Brymer, M.P., Islington House, Dorchester, was second. The competition was good in the Allington Pippin class, the prizes being secured by Mr. G. Woodward, gardener to Roger Leigh, Esq., Barham Court, Maidstone, and Mr. J. Powell. Ten entries were to be found for Baumann's Red Winter Reinette, Mr. G. Woodward being first, and Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Cottage, Reigate, second. The Blenheim Pippin class evoked a fine competition, the sixteen entries being all of good quality. Mr. T. H. Slade, gardener to the Right Hon. Lord Poltimore, Poltimore Park, Exeter, securing the premier award, with Mr. R. M. Whiting, Credenhall, Hereford, an excellent second. Brownlee's Russett was well represented, the successful exhibitors being Mr. G. Chambers and Mr. Woodward. For Claygate Pearmain, Mr. Whiting and Mr. Woodward were first and second respectively. Nine dishes were staged of Cockle's Pippin, the awards going to Mr. P. Kidley, gardener to W. A. Sanford, Esq., Wynehead Court, Wellington, Somerset, and Mr. H. Henley, gardener to E. J. Johnstone, Esq., Rougham Hall, Bury St. Edmunds. Court Pendu Plât were nicely staged ; Mr. J. C. Tallach, gardener to E Dresden, Esq., Livermere Park, Bury St. Edmunds, being first, with a good dish of fruit ; and Mr. J. Vert, gardener to the Right Hon. Lord Braybrooke, Audley End, Saffron Walden, second. There were no less than twenty-five dishes of Cox's Orange Pippin staged, and the competition was extremely close. Mr. W. King, gardener to J. Colman, Esq., Gatton Park, Reigate, secured the premier award with some splendid fruit, whilst Mr. Woodward was a good second. Mr. G. Sage, gardener to the Marquis of Camden, Bayham Abbey, Lamberhurst, was first with a good dish of Duke of Devonshire ; the other prize going to Mr. H. C. Prinsep, gardener to Viscountess Portman, Buxted Park, Uckfield. Egremont Russet was of excellent quality, the premier award going to Mr. C Earl, gardener to O. E. d'Avigdor Goldsmid, Esq., Somerhill, Tonbridge ; and the other to Mr. Whiting. Mr. Stowers was first in the class for Fearn's Pippin, in which there were nine entries, and Mr. Loch was second. An excellent lot of Gascoigne's Scarlet were staged, the awards going to Mr. Stowers and Mr. Thomas. With an excellent dish of James Grieve, Mr. J. Day, gardener to the Earl of Galloway, K.G., Galloway House, Gordiestown, secured the first prize ; Mr. F. B. Parfitt, Farleigh House, Reading, being second. King of the Pippins was, of course, very well represented, Mr. Chambers and Mr. Prinsep, with fine dishes, securing the awards in the order named. Mr. Woodward, with a good dish of King of Tomkin's County, secured the premier award, with Mr. Powell a good second. For Mannington's Pearmain, Mr. Turton, and Mr. C. Harris, gardener to O. A. Smith, Esq., Hammerwood Lodge, East Grinstead, were first and second, with good dishes. No less than twelve dishes of Margil were staged, Mr. Woodward's splendid exhibit securing him the premier award, whilst Mr. Slade was a close second. Mr. Woodward was also first with American Mother, the other prize going to Mr. H. Henley, gardener to E. J. Johnston, Esq., Rougham Hall, Bury St. Edmunds. There were no less than sixteen entries in the class for Ribston Pippin, a fine dish placing Mr. Slade first, with Mr. Chopping second. Mr. Pragnell and Mr. R. Chamberlain, gardener to F. M. Lonergan, Esq., Cressingham Park, Reading, were the successful exhibitors in the class for Sturmer Pippins. Fourteen entries was the total for Worcester Pearmain, Mr. King, with an excellent exhibit, being first, and Mr. Woodward second. In the class for any other variety than those already given, there were no less than twenty-one entries, Mr. Woodward, with a very pretty dish of Mabbot's Pearmain, being first, and Mr. B. Miller, with St. Edmund's Pippin, second.

COOKING APPLES—SINGLE DISHES.

The classes in this division were, on the whole, well filled. Mr. G. Woodward was first in the Alfriston class, with Mr. J. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, W., second. Mr. Woodward was also first for Beauty of Kent, while Mr. Herrin, gardener to Lady Fortescue, Dropmore, Maidenhead, was second. There were eight entries in the Bismarck class, the fine dish shown by Mr. S. W. Sweet, Vredfort Villa, Tovell's Road, St. John's, Ipswich, securing him the premier award ; Mr. Woodward was second. In the Bramley's Seedling class there was a very spirited contest, the prizes going to Mr. W. Stowers, 10, Harold Road, Sittingbourne ; Mr. C. Ross, gardener to Captain Carstairs, Welford Park, Newbury ; and Mr. W. H. Bannister, gardener to H. St. Vincent Ames, Esq., Cote House, Westbury-on-Trym, in the order named. A very fine dish of Cellini secured Mr. Slade the premier award ; Mr. R. M. Whiting, Credenhill, Hereford, being second. Cox's Pomona was staged of very fine quality, the awards going in favour of Mr. Woodward and Mr. J. Powell, gardener to Colonel Brymer, M.P., Islington House, Dorchester. There were nine entries in the class for Dumelow's Seedling, Mr. G. Chambers, Mereworth, Maidstone, and Mr. W. H. Godden, gardener to F. W. Buxton, Esq., Pishiobury, Sawbridgeworth, being the successful exhibitors. Thirteen dishes of Ecklinville Seedling were staged and Mr. Woodward's fine fruit, gained him the first prize ; the second went to Mr. B. Miller, gardener to F. W. Startup, Esq., West Farleigh, Maidstone. Emperor Alexander was only represented by four dishes, but all were very good, Mr. Woodward and Mr. Stowers securing the awards. Mr. T. Turton, gardener to Mrs. G. Garden Nicol, Maiden Erleigh, Reading, was first with an excellent dish of Frogmore's Prolific, with Mr. A. Pentney, gardener to A. J. Howard, Esq., Worton Hall, Isleworth, second. Mr. Woodward showed a very fine dish of Golden Noble, which secured him the premier award ; the other prize went to Mr. Prinsep. Golden Spire was represented by five dishes, Mr. Woodward and Mr. Whiting being successful. Grenadier was very good, the fine dish shown by Mr. B. Miller, gardener to F. W. Startup, Esq., West Farleigh, Maidstone, putting him first, with Mr. Woodward second.

There were nine dishes of Hawthornden (new) staged, the prizes going to Mr. Woodward and Mr. Herbert, gardener to J. T. Charlesworth, Esq., Nutfield

Court, Redhill. In the class for Hormead's Pearmain, Mr. Woodward and Mr. Whiting were again first and second. Lane's Prince Albert was a fine class, there being eleven dishes staged and all of them of great merit. The first prize went to E. Chopping, Esq., Perriwinkle Mill, Milton, near Sittingbourne, and the second to Mr. Prinsep. A wonderfully fine dish of Lord Derby secured the premier award in this class, in which there were fifteen entries. Mr. A. Basile, gardener to the Rev. O. L. Powels, Woburn Park, Weybridge, being the other successful exhibitor. Mr. Herrin was first with a good lot of Lord Grosvenor, with Mr. Woodward second. Of the thirteen dishes of Lord Suffield staged, that shown by Mr. W. G. Pragnell, gardener to J. K. D. W. Digby, Esq., M.P., Sherborne Castle, Dorset, was adjudged the best, whilst that of Mr. W. Lewis, gardener to T. Oliverson. Esq., East Sutton Park, Maidstone, was awarded the second prize. Mère de Ménage was well staged, Mr. Woodward and Mr. Slade being first and second with fine dishes. Mr. C. Ross secured the premier award for New Northern Greeting, and Mr. G. Chambers was second. Mr. J. Bowery, gardener to H. H. Howard, Esq., Gurney Manor, Hingham, Norfolk, was first with a fine dish of Newton Wonder; Mr. M. J. Epson, gardener to Mrs. Wingfield, Ampthill House, Ampthill, securing the other award. This was in the class for northern counties, and in that for the southern counties. Mr. F. W. Thomas, Wannoch, Polegate, Sussex, was first, and Mr. Woodward second. Peasgood's Nonsuch was excellently staged, Mr. Woodward, with a fine dish, again being first, and Mr. Lewis second. Mr. Woodward was also first with Potts' Seedling, and Mr. J. Harris, gardener to P. Crowley, Esq., Waddon House, Croydon, was the other successful exhibitor. Four dishes of Royal Jubilee were staged, the awards being made in favour of Mr. Woodward and Mr. Ross. Mr. Ross was, however, first with a fine dish of Sandringham, with Mr. J. Howard, gardener to Sir R. Sutton, Bart., Benham Park, Newbury, second. Excellent dishes of Spencer's Favourite caused the awards to go in favour of Mr. Woodward and Mr. Mills, whilst in the class for Stirling Castle, in which there were ten entries, Mr. Ross was first and Mr. Whitney second; Mr. Ross was also the most successful exhibitor in the class for Stone's, with a fine dish; and Mr. Camm second.

Ten dishes of the Queen were staged, Mr. Woodward, with splendid fruits, seecuring the premier award, the other prize going to Mr. Miller. Again was Mr. Woodward first, this time with an excellent dish of Tower of Glamis, with Mr. Howard second. For Tyler's Kernel there were only two entries, the prizes going to Mr. Woodward and Mr. S. Lyon, gardener to R. R. Solomon, Esq., wton, Chester. The class for Warner's King evoked a spirited contest. Mr Woodward, with an excellent dish, was adjudged first of the fourteen competitors, with Mr. Chambers a good second. There were fifteen entries in the class for any other variety than those for which prizes were specially offered, Mr. Woodward securing the premier award with a splendid dish of Belle Dubois; Mr. W. Jones, gardener to J. R. Brougham, Esq., Wallington Bridge, Carshalton, with a fine dish of Dutch Codlin, was second.

Dessert Pears, Single Dishes.

In the class for Beurré Bosc, Mr. Howard secured the award; whilst for Beurré D'Anjou, Mr. Sage and Mr. J. Spottiswoode, The Gardens, Queen's Park, Brighton, were the successful exhibitors. There were eleven entries in the class for Beurré Diel, Mr. Pragnell, with a very fine dish, being first; and Mr. Wythes, gardener to Right Hon. Earl Percy, Syon House, Brentford, second. For Beurré Dumont, Mr. R. Potter, gardener to Sir Mark W. Collet, Bart., St. Clere, Kemsing, Sevenoaks, securing the premier award; and Mr. A. Basile was second. For Beurré Fouqueray, Mr. Woodward and Mr. Hudson were the successful exhibitors. The class for Beurré Hardy contained eight entries, of which the two best were adjudged to be those staged by Mr. Woodward and Mr. Prinsep. Mr. Woodward was also first in the class for Beurré Superfin; with Mr. H. J. Harvey, gardener to A. B. Sheridan, Esq., Frampton Court, Dorchester, a good second. Mr. W. Allan, ;gardener to Lord Suffield, Gunton Park, Norwich, was first for Comte de Lamy; with Mr. Herbert, gardener to J. T. Charlesworth, Esq., Nutfield Court, Redhill, second. Conference was represented by five dishes, of which the two best were adjudged to be those staged by Mr. Woodward and Mr. Thomas. For Conseiller the prizes went to Mr. Powell and Mr. Ross, who both staged fine dishes. An excellent exhibit of Doyenne du Comice secured Mr. Powell the premier award, the other prize going to Mr. Woodward. Durondeau was represented by seven dishes, the two awards going in favour of Mr. Woodward and Mr. Pragnell. Mr. Jones and Mr. Powell were first and second respectively for Easter Beurré, whilst for Emile D'Heyst the awards went to Mr. Woodward and Mr. G. Fennell, gardener to W. M. Cazalet, Esq., Fairlawn, Tonbridge. Mr. Prinsep was first with an excellent dish of Fondante d'Automne, with Mr. Powell a good second. For Fondante de Thirriott the prizes went to Mr. Woodward, and Mr. W. Child, gardener to F. M. Rendell, Esq., Shirley, Surrey; whilst for Glou Morceau, Mr. Woodward and Mr. Powell were the successful exhibitors. Mr. Powell was, however, first with a very fine dish of Josephine de Malines, with Mr. J. Fraser, gardener to F. L. Davies, Esq., Coldra Caerleon, Mon., second. For Le Lectier the prizes went to Mr. Jones and Mr. Basile in the order named. Mr. Camm, with a very good dish of Louise Bonne of Jersey, was first, and Mr. G. Duncan, gardener to C. J. Lucas, Esq., Warnham Court, Horsham, second. Mr. Woodward was first with a fine dish of Madame Treyve, the other prize going to Mr. R. Edwards, gardener to G. H. Field, Esq., Beechy Lees, Otford, Sevenoaks; whilst in the class for Marie Benoist the award was secured by Mr. W. H. Goddon, gardener to F. W. Buxton, Esq., Pishiobury, Sawbridgeworth. Mr. Allen was first for Marie Louise with a fine dish, and Mr. Pragnell was second; whilst for Marie Louise d'Uccle the prizes were secured by Mr. Allan and Mr. Webb, gardener to H. Padwick, Esq., Manor House, Horsham. For Marguerite Marrillat Mr. Woodward and Mr. Thomas were successful; whilst for Nouvelle Fulvie Mr. G. Wythes was first with a fine dish, Mr. Woodward being second. For Olivier de Serres the prizes were awarded to Mr. Harris and Mr. Woodward. Pitmaston Duchess was represented by no less than nineteen entries, Mr. Loch, with a magnificent dish, being first and Mr. Chamberlain second. For Seckle, Mr. Prinsep and Mr. Ross were successful; whilst for Souvenir de Congrès the prizes went to Mr. Herrin and Mr. Coleman Mr. Powell was first for Thompson's, with Mr. Allan a good second; whilst for Winter Nelis Mr. Bennett was first and Mr. Harris second. In the class for any other variety than those already given there were twenty entries, Mr. Woodward being first with a fine dish of Triomphe de Vienna; Mr. Hardesley, gardener to H. Partridge, Esq., Castle Hill, Bletchingley, second.

Our report of the divisions for market growers, the competition for the special district county prizes, and the contributions to the miscellaneous class will be given, with a complete audit of the fruit shown and illustrations of the more interesting objects, in our next issue.

Mr. A. Vince, late of Morants Court, Sevenoaks, has been appointed head gardener and bailiff to Lieut.-Colonel Dansey, at Cams Hall, Fareham, Hants.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

Disqualifications at Flower Shows.—Enquirer, Kent: Thanks for your communication. We shall be glad to receive a complete copy of the schedule of the exhibition in question before we can deal with the matter. If you have a list of the eleven sorts of vegetables by you we should be glad to have a copy.

Seedling Begonia.—W. A., Newcastle-on-Tyne: The variety is a good one, and the flowers very substantial and large. Such flowers could be obtained as a result of growing a first-class strain such as the leading specialists supply seed of. You are quite at liberty to show it at an exhibition, and, if the schedule demands a name, give it a local varietal one.

Figs.—C. M.: Whether grown in pots or planted out in well-drained borders figs will give an ample return. In consequence of the excessive luxuriance of figs, where they have unlimited root room in a rich border, pot culture has much to recommend it, and in planting in borders it is desirable to restrict the run of the roots by means of divisional walls.

Roses.—W. B. H., Sussex: The several phases of rose culture are so fully dealt with in the "Amateurs' Rose Book" that it will afford you all the information you will require for the successful cultivation of your favourites. The work is freely illustrated, and is published (price 3s. 6d.) by Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, E.C.

Orchids.—F. Robinson: The "two best books" on orchids in the English language are unquestionably "Veitch's Manual of Orchidaceous Plant" (price £5) and "Williams' Orchid Growers' Manual" (price £1 5s.) These works are of great excellence, and are obtainable from Messrs. J. Veitch and Sons, King's Road, Chelsea, and Messrs. B. S. Williams and Son, Upper Holloway, respectively.

To Make Holes for Flower-pots.—G. L. P., Chichester: We know of no such tool as you ask about, and, considering the difference between the base and top diameters of a pot, such a contrivance would not easily be produced. Then also there would be difficulties in the way of providing for pots of different sizes, while the expense of such a machine would be considerable. Trowel and spade will do the work well enough in the hands of a good worker.

Fungus on Chrysanthemums.—W. A., Northampton: We advise you to remove all the worst affected leaves and sponge the remainder with sulphide of potassium solution. After this is done, spray the whole of the collection with a solution of sulphide of potassium, and repeat the operation every few days as long as circumstances necessitate or permit it. See p. 630 in the issue of September 24. We suggest also that you spray the carnations as a preventive.

British Ferns.—W. Smith: British ferns might be lifted and replanted before the fronds die down without injury, provided the work is done as quickly as possible, and they receive a liberal watering when in their new quarters. If the soil is dry, water thoroughly several hours before lifting the plants. The most suitable time for replanting ferns growing on rockeries or in the open borders is just before they commence to make new growth in the spring, or when they have completed their first growth in the summer.

Hydrangea paniculata.—C. R., Highgate: There should be no difficulty in having Hydrangea paniculata in flower by the end of June or in July, for it is frequently shown in full bloom at the Temple show in May. It is advisable to obtain sturdy plants in pots, as these will respond better to a little encouragement than lifted stools. Winter them in cold frames and give them a start in a peach house or vinery, removing them to suitable quarters, when the leafage at all obstructs the light. Keep as near the glass as possible, so as to prevent undue elongation of growth, and as the season advances afford plenty of air; weak liquid manure may be applied at intervals, and, of course, a little more or a little less warmth can be accorded, as the case may be, to ensure flowering at the right date. This plant requires long and gentle encouragement to flower before its usual time, rather than great heat and moisture, indeed, these spell failure.

Failure of Nectarine Tree.—E. Y., Norwich: The failure is due to a fungoid attack upon the roots, and it appears that the roots were somewhat lacerated at planting time, and thus allowed the fungus to spread. The inherent vitality of the tree, assisted by the few new roots that formed and the reserve food stored in the plant tissues, served to tide the tree over the first year and enable it to carry a small crop of fruit. The strain of ripening the crop, together with the spread of the fungoid attack along the principal roots, crippling the fibres, led to the final collapse. Clear out all the soil that surrounded the plant and burn it, so that no mycelium be left to propagate the fungus; add new material before planting again, and in this mix some lime rubble, mortar rubbish, or similar material. See also that the roots of the new plant you will presently obtain are not damaged; if bruised or torn, cut them back to the healthy portion, and make the cut from beneath.

Names of Plants.—W. L., Romford: The white flower is Swainsonia galegifolia; and the variegated plant is Hibiscus rosa-senensis var Cooperi. We cannot undertake the naming of florists' flowers.

R. M., Barton-on-Irwell: We do not recognise the plant from the meagre description given.

A. H. B., Plymouth: 1, Ophiopogon Jaburan variegatus; 2, Anthericum variegatum; 3, Acalypha Macafeeana; 4, Galega officinalls albiflora.

W. R., Whittlesea: 1, Polygonum cuspidatum; 2, Trachelium cœruleum.

Names of Fruits.—R. H., Yorkshire: The samples were poor ones, as a whole; the number of specimens was exceeded, and neither name nor address was sent. This is scarcely fair to us, but we have done our best for you. 1, Keswick Codlin; 2, Gold Medal; 3, Withington Fillbasket; 4, Yorkshire Beauty; 5 and 12, Crimson Costard; 8, Lord Burleigh; 9, Crimson Quoining; 10, Waltham Abbey Seedling; 11, Irish Peach.

E.C.K., Douglas, Isle of Man: 1, Stoke Edith Pippin; 2, not recognised. If you can send us another specimen when the season is a little more advanced, we will again endeavour to identify it.

G.L. and S., Malton: The variety is probably a local seedling, and seems to be intermediate between Calville St. Saviour and Catshead.

L.W., Hitchen: 1, Lord Derby; 2, Kerry Pippin; 3, Queen Caroline; 4, Loddington; 5, Mère de Ménage.

S.S.J., Merton: 1, Beurre Bosc; 2, Ecklinville; 3, Gravenstein.

D.F., Derby: 1, Court Pendu Plât; 2, Adams' Pearmain; 3, Alfriston; 4, New Hawthornden.

M.J.C, Abergele: 1, Catshead; 2, Mère de Ménage; 3, Warner's King, 4, Lane's Prince Albert.

G. T., Guildford: 1, Keswick Codlin; 2, Lord Grosvenor; 3, not recognised; 4, Allen's Everlasting.

NATIONAL CHRYSANTHEMUM SOCIETY.

A FLORAL Committee meeting of the above society was held at the Royal Aquarium on September 26, the meeting was a small one. Among the most notable exhibits was the early flowering chrysanthemum, Norbet Puvrez, a rich coppery-red flower, rather small, but very pretty and extremely free and very dwarf; it was shown by Mr. J. H. Witty, Nunhead Cemetery. Yellow Queen, a sport from Queen of the Earlies, was sent by Mr. G. Thurssell, Goff's Oak, Cheshunt, and this the committee desired to see again. Crimson Pride, a rich crimson variety, with fairly large flowers, was certificated for its earliness and value for cutting; it is in the way of Mons. Menier, but evidently earlier, and with less gold on the reverse of the florets; this was shown by Mr. Wells, Earlswood, who also sent a bunch of Henri Yvon, a pretty buff and rose variety, a sport from M. Gustave Grunerwald. Soliel d'October, a good early exhibition Japanese variety, shown by Mr. H. J. Jones, Ryecroft Nursery, Lewisham, occasioned a good deal of comment, and only lost a certificate by one vote; the petals are long and drooping, soft yellow, with pale straw yellow reverse.

Some new tubes for cut blooms were shown by Mr. J. Pinches, Haymarket, but they did not meet the approval of the committee, neither did the tube shown by Mr. Burgin, St. Neot's, which was a rather complicated article. By means of additional extension tubes, Mr. Pinche's arrangement could be used so as to raise a flower fully eighteen inches all over the show board, and thus display to the full those forms with long drooping segments.

MR. JAMES MITCHELL, for the past four years general foreman at Castle Bar, has been appointed gardener to Sir Charles Barrington, Bart., Glenstal Castle, Muroe, Co. Limerick.

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REAPING AND SOWING are the two most important periods in the life of the farmer, and granting that all circumstances are favourable, he naturally, during the latter period, hopes to get an adequate return for his labour. As he sows, he expects to reap, and unless constant industry has been exercised, the harvest is generally a poor one. So it is with regard to health, if we are not constantly on the watch and destroy the germs of disease as soon as they are discerned, the body becomes weakened, and at last is unable longer to resist the attacks of the enemy. Holloway's Pills destroy even the most minute traces of disease, by purifying the blood and strengthening the system.—[ADVT.]

MARKETS.

Covent Garden.

THERE are fairly good supplies of fruit and vegetables, and these sell at moderate prices. There is a slight improvement in trade generally, as holidays are now fast concluding. The cut flower trade is also brighter.

FRUIT.—English apples, 3s. to 7s. 6d. per bushel; English grapes, 10d. to 2s.; Jersey, 6d. to 9d. per lb.; Denia, 5s. to 7s. 6d. per barrel; English pears, 3s. to 6s. 6d. per bushel; French, 3s. to 5s. 6d. per case; Victoria plums, 2s. to 3s. 6d.; Orleans, 2s. to 3s.; Pond's seedlings, 2s. 6d. to 4s.; damsons, 2s. to 3s. per half-sieve; green figs, 9d. to 1s. 6d.; peaches, 1s. 6d. to 6s.; nectarines, 2s. to 8s. per dozen; cobnuts, 35s. to 45s.; filberts, 30s. to 35s. per 100 lb.; English tomatos, 4d. to 5d.; Jersey, 3d. per lb.; pineapples, 2s. to 5s. each; bananas, 5s. to 10s. per bunch; Spanish melons, 5s. to 7s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 2s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 3s to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 1s. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; Sweet Sultan, 1s. to 2s.; pelargoniums (scarlet), 3s. to 5s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Endive, 1s. 3d. to 1s. 6d.; cucumbers, 2s. to 4s.; cauliflowers, 1s. 3d. to 2s. per dozen; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s.; parsley, 2s. to 2s. 6d.; mint, 2s. to 2s. 6d.; leeks, 2s. per dozen; vegetable marrows, 3s. 6d. to 6s. 6d.; cabbages, 3s. to 5s.; beetroots, 2s. to 3s. per tally; Valencia onions, 5s. to 6s. 6d.; Ports, 5s. 6d. to 6s. 6d. per case; mushrooms, 5s. to 8s.; eschallots, 1s. 3d. to 1s. 9d. per 12 lb.; celery, 10s. to 15s. per dozen rolls; scarlet beans, 2s. 6d. to 4s. per bushel; potatos, 50s. to 90s. per ton.

Borough Potato Market.

There is a good average demand for the season, and a fair supply to meet it. Prices are practically the same as last advised. Beauty of Hebron and Snowdrops, 3s. 6d. to 4s.; White Hebrons, Early Puritan, Sutton's Early Regents, Reading Giants, and Imperators, 3s. to 3s. 6d.; Black Lands, 2s. 6d. to 2s. 9d.

THE WEATHER DURING THE WEEK ENDING SEPTEMBER 24, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	74·6	40·0	57·2	14·00	0·12	0·30
Croydon	73·5	35·0	55·7	13·17	0·08	0·20
Brighton	72·8	43·4	59·2	15·11	0·17	0·43
Bristol	70·0	37·0	55·3	12·94	0·32	0·81
Wolverhampton	79·6	36·5	54·4	12·44	0·00	0·00
Norwich	76·0	41·0	57·5	14·17	0·10	0·25
Nottingham	86·2	39·6	56·7	13·72	0·08	0·20
Liverpool	67·0	41·6	52·7	11·50	0·11	0·28
Huddersfield	68·3	37·0	52·5	11·39	0·03	0·08
Bradford	79·2	47·2	57·4	14·11	0·04	0·10
Hull	72·0	39·0	52·7	11·50	0·00	0·00

The mean reading of the Barometer during the week at Greenwich was 29·94 inches, and that of the Thermometer 57°·2, the latter being 1°·4 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 16 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 33·8 hours. The measured rainfall amounted to 0·12 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, OCTOBER 4.—Scottish Horticultural Association.

WEDNESDAY, OCTOBER 5.—United Horticultural Benefit and Provident Society: Annual Dinner at the Holborn Restaurant at 6.30 p.m.; chair to be taken by Mr. George Bunyard, V.M.H.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, OCTOBER 3, 4, 5, 6, AND 7.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, OCTOBER 5.—Azalea Indica, Azalea Mollis, Rhododendrons, Camellias, Stove and Greenhouse Ferns, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY AND THURSDAY, OCTOBER 5 AND 6.—Nursery Stock, Messrs. Protheroe and Morris, Tunbridge Wells Nurseries.

FRIDAY, OCTOBER 7.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

NEARLY EVERY DAY—Dutch Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

THE LOUGHBOROUGH BOILER.
The Pioneer of Cheap, Simple, and Effective
Heating for Small Greenhouses.

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IN USE.

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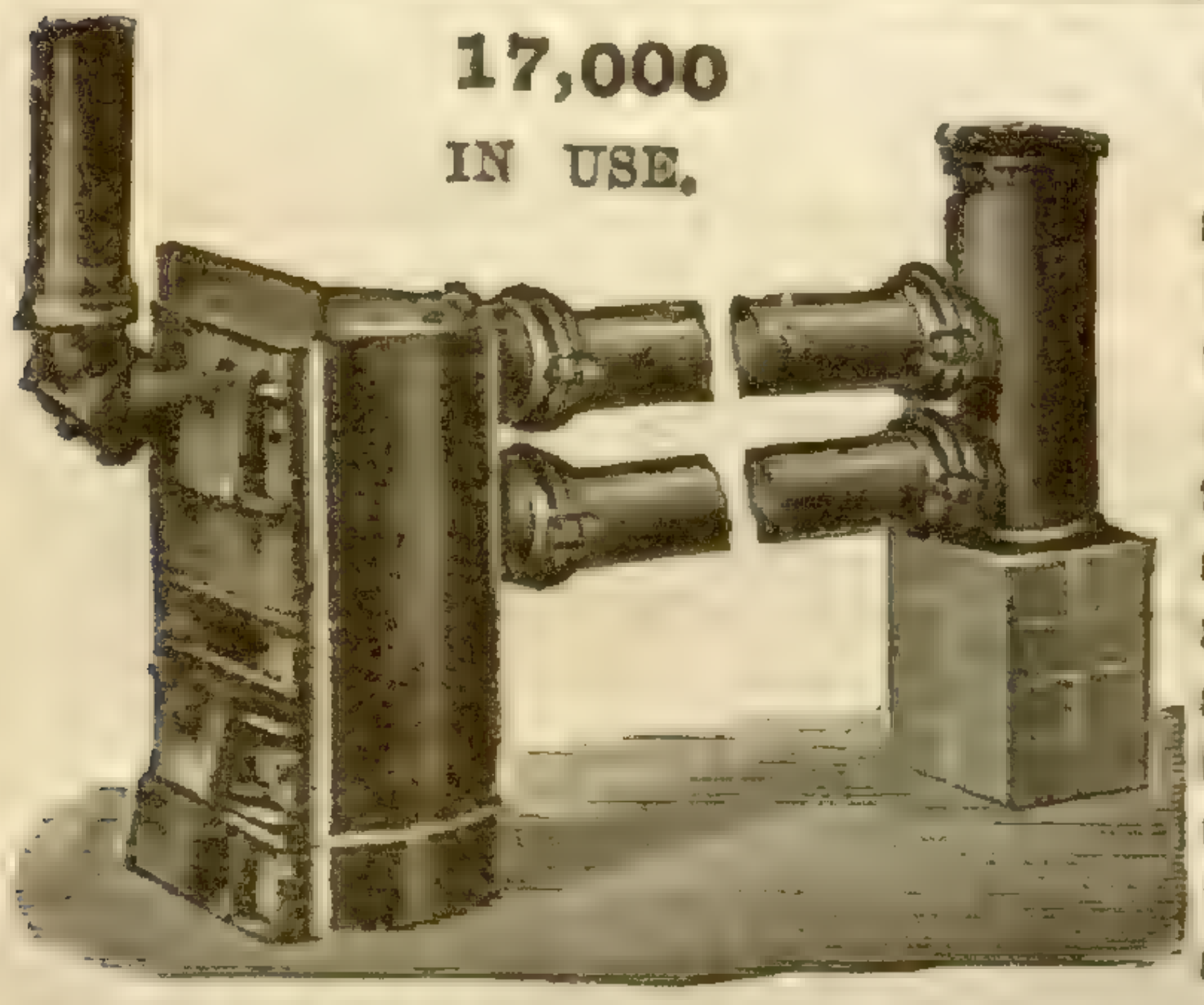

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They also beg to call attention to their extensive collections of
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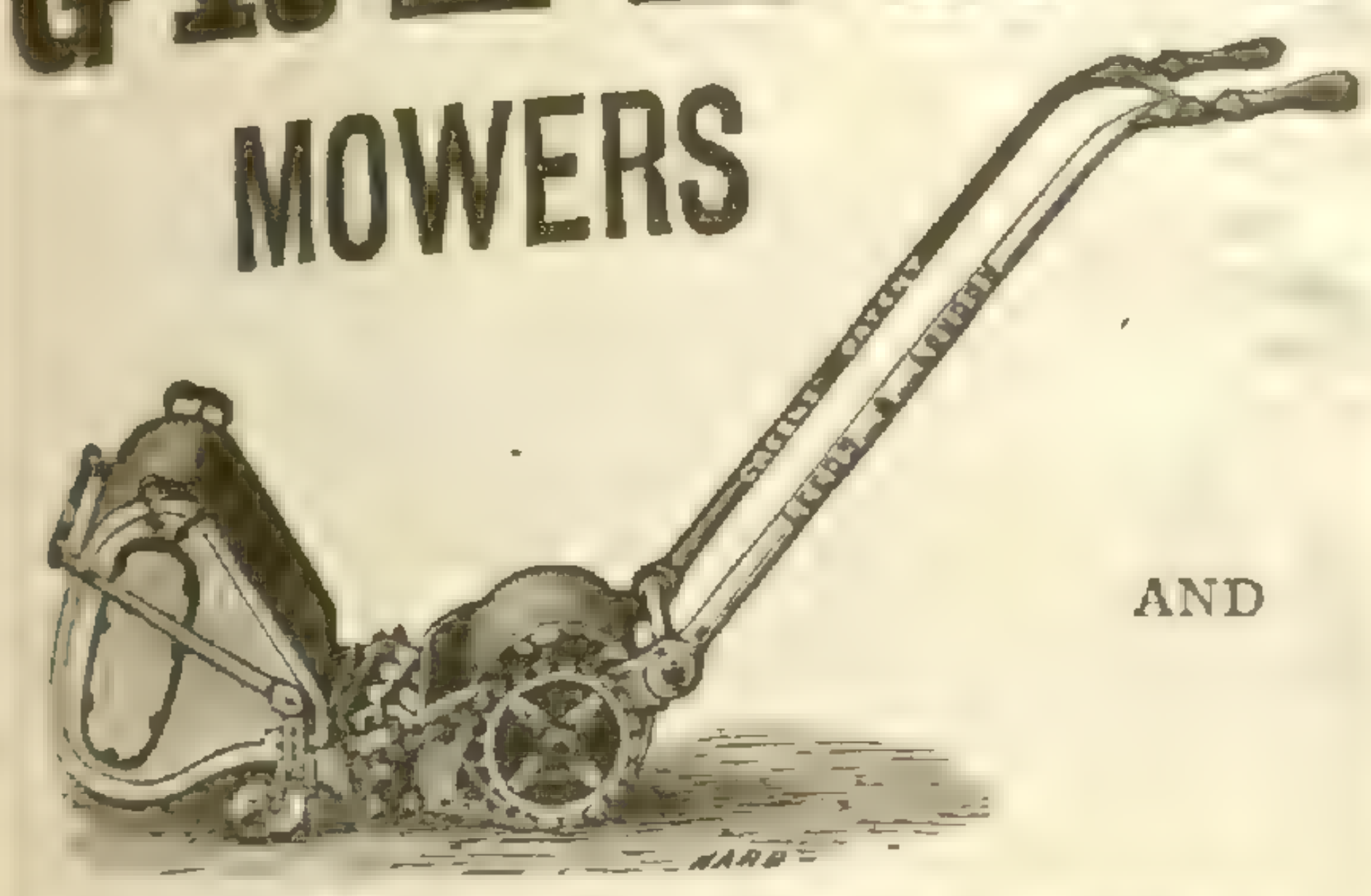
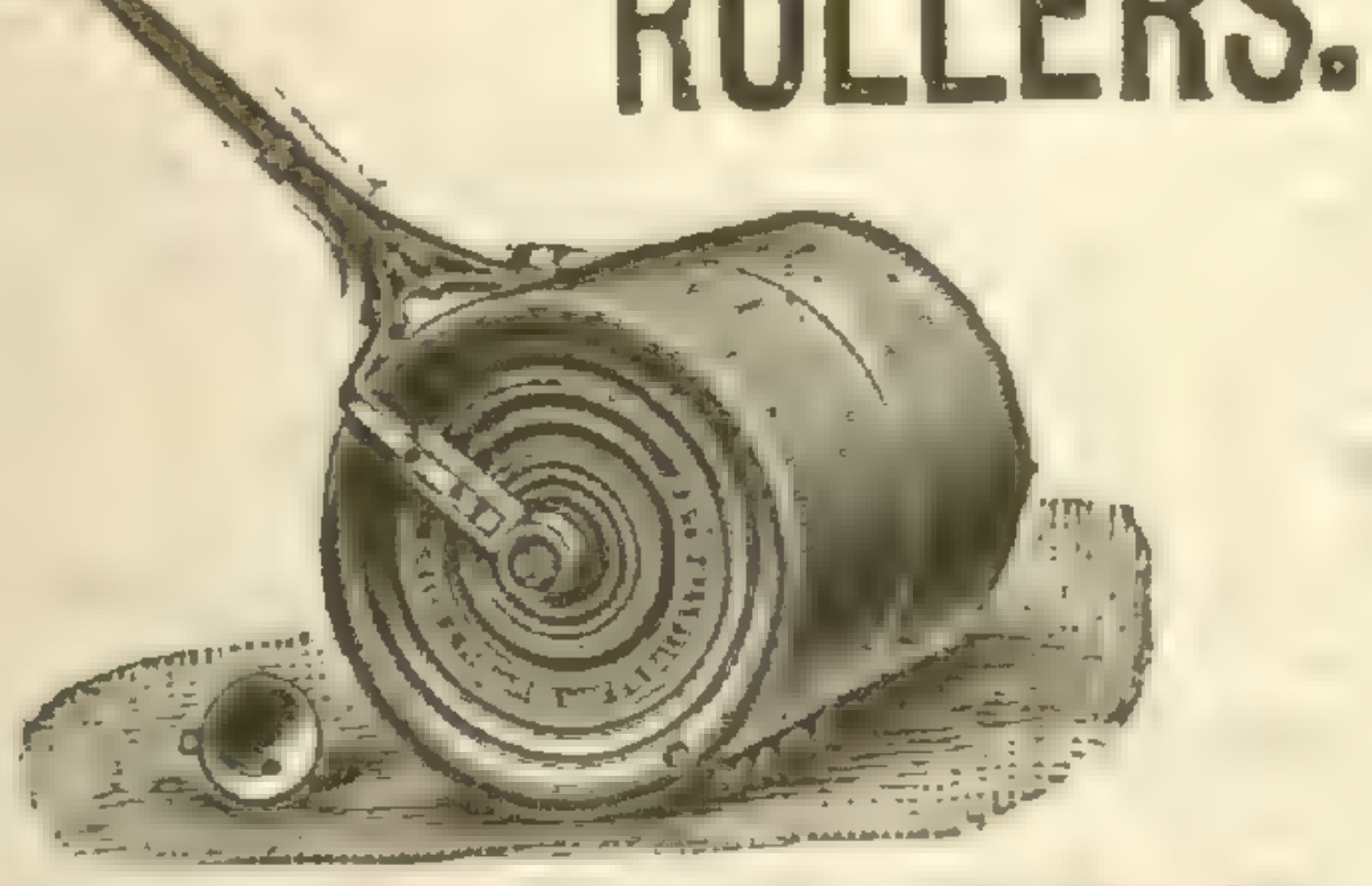


ROLLERS.



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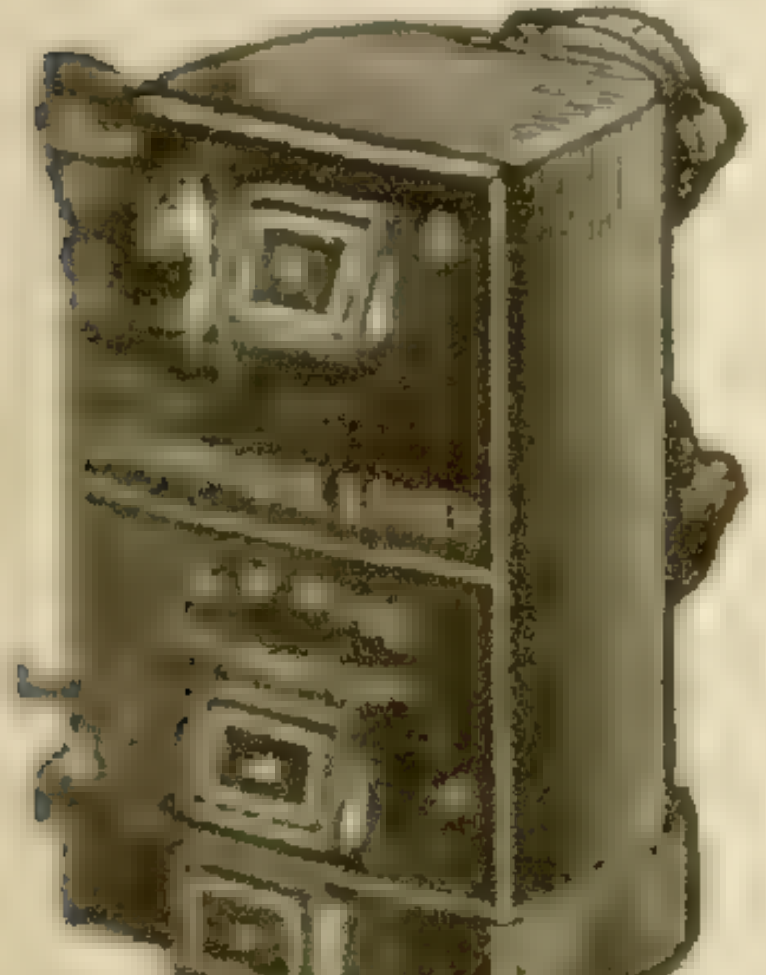

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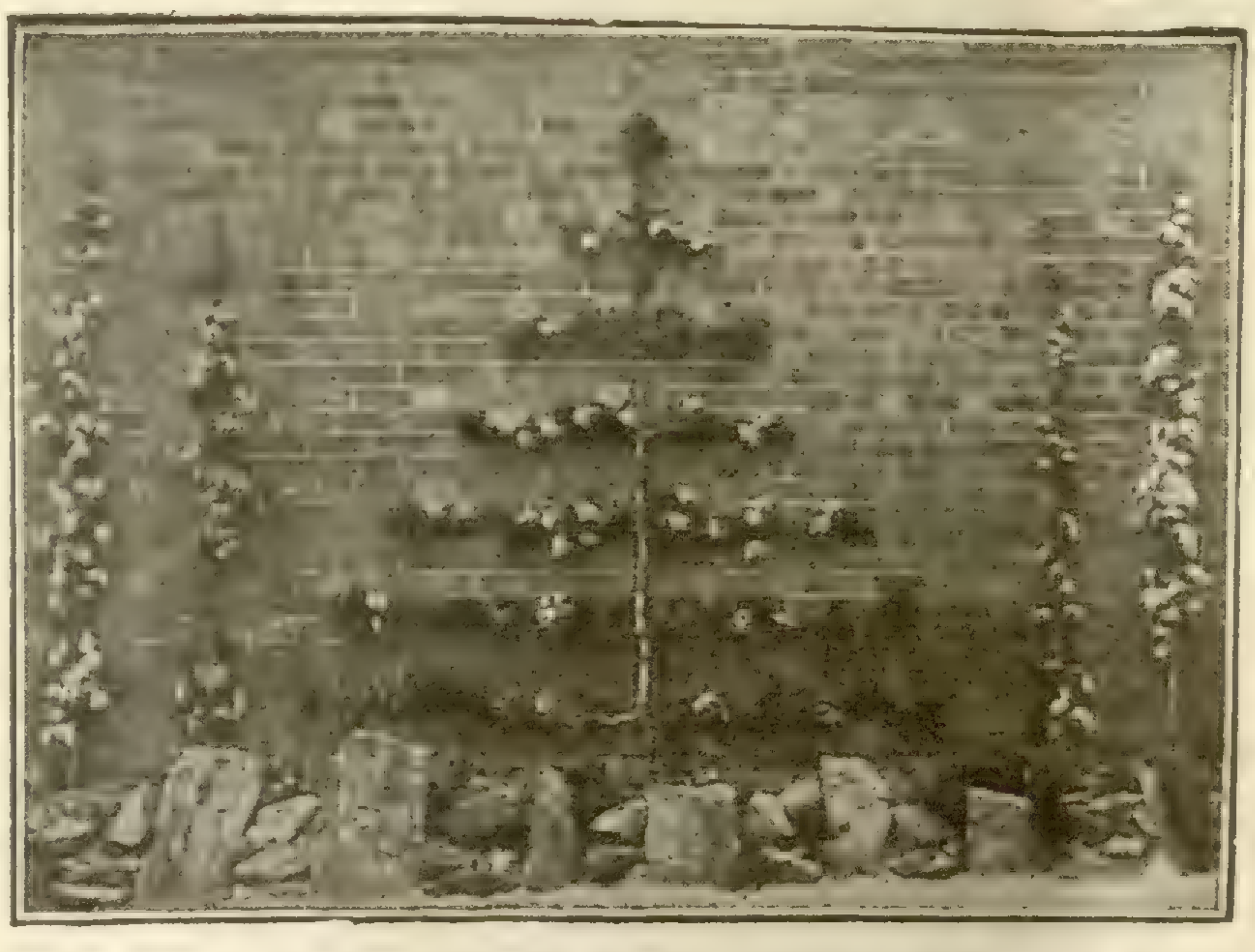

Photograph from Customer, of Trees planted the previous Autumn.

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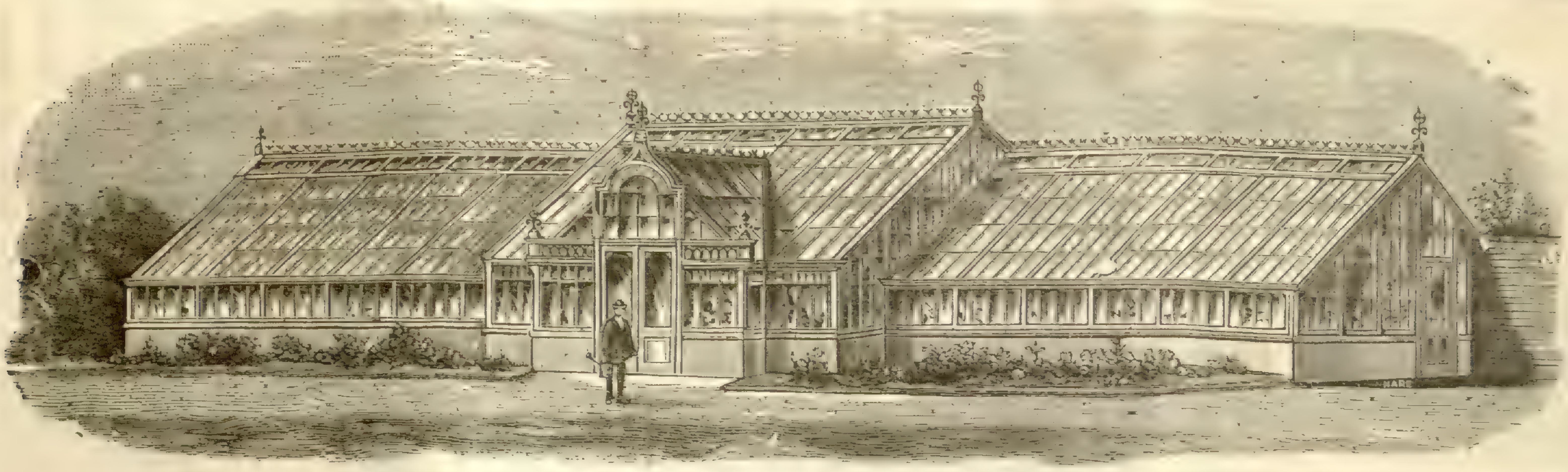

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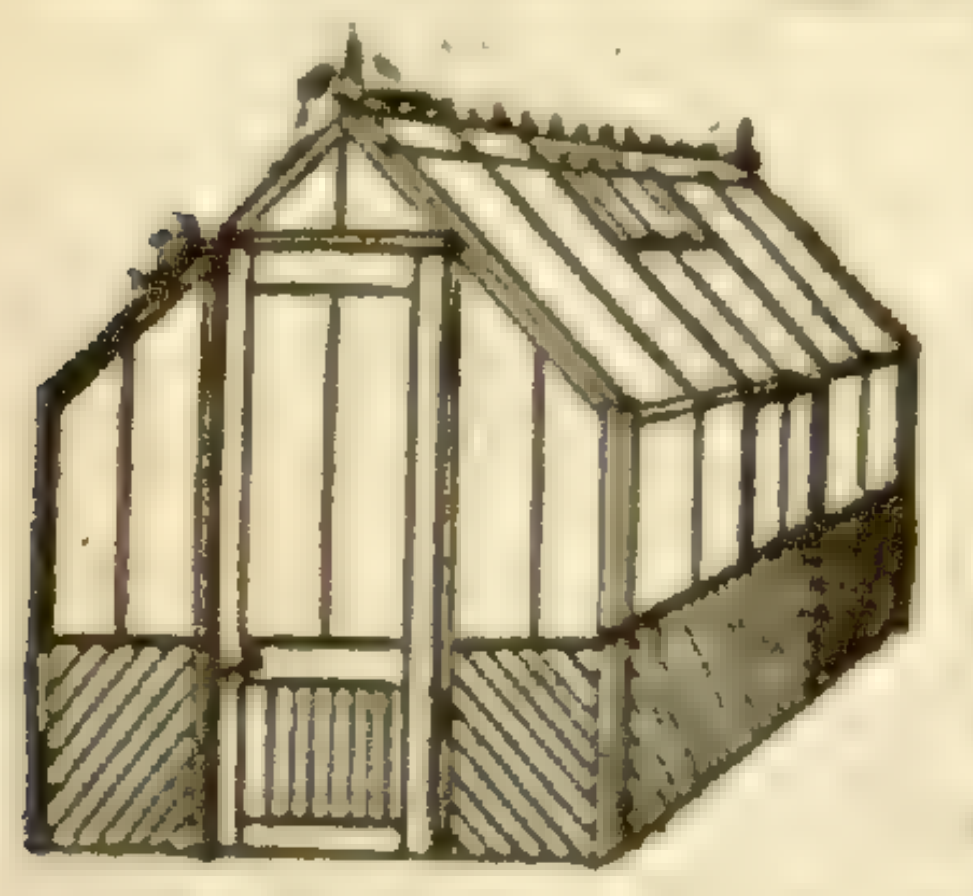

Size.	Lean-to.	Span.
8 X 5	... 36/-	... 48/6
10 X 5	... 48/6	... 58/6
14 X 6	... 58/6	... 78/6
10 X 8	... 58/6	... 72 6
14 X 8	... 78/6	... 95/-
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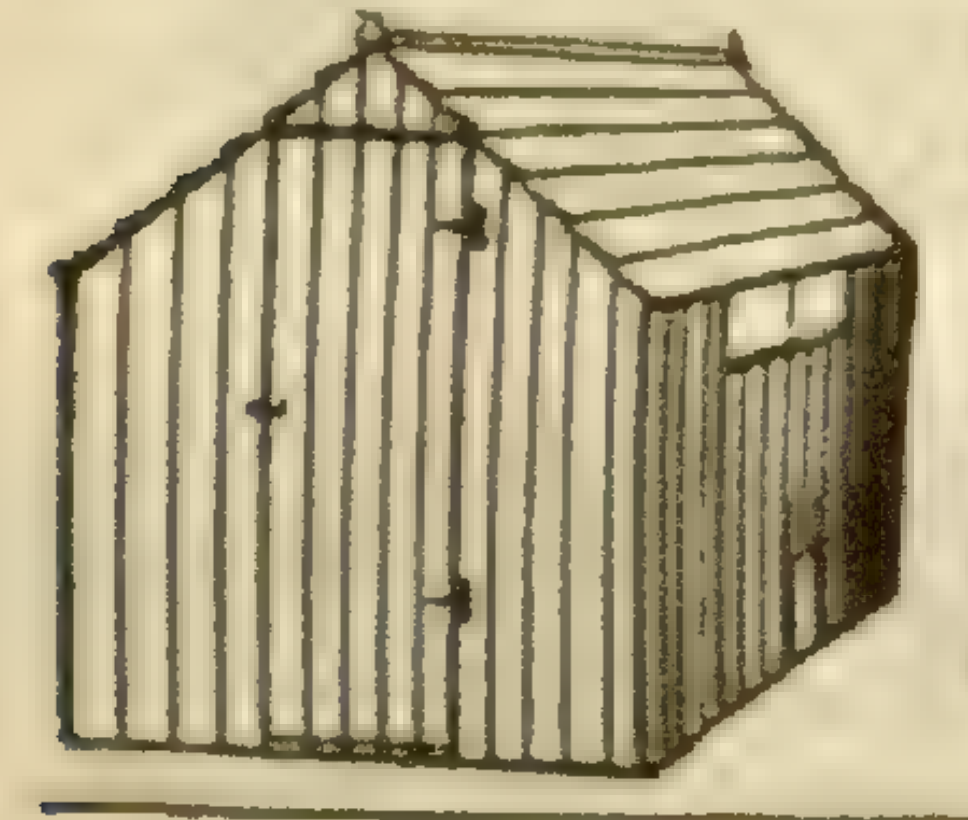

To hold.	Size.	Lean-to.	Span.
Ten ...	4 X 3 ...	10/9 ...	12/9
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Forty ...	7 X 5 ...	17/6 ...	22/6
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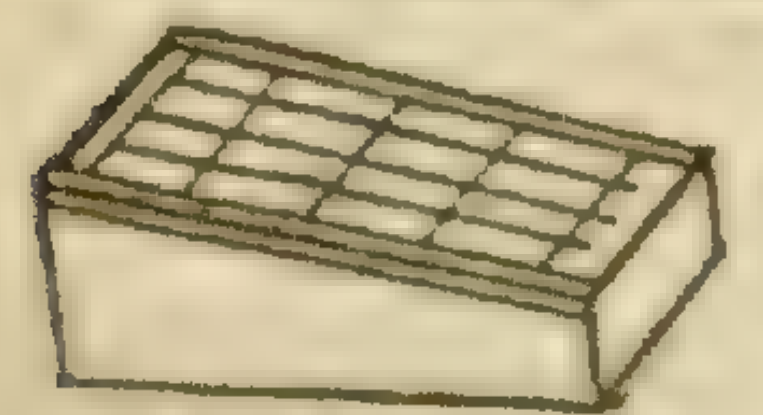

4 X 3	.. 8/9
6 X 4	... 14 6
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12 X 6	... 33/-

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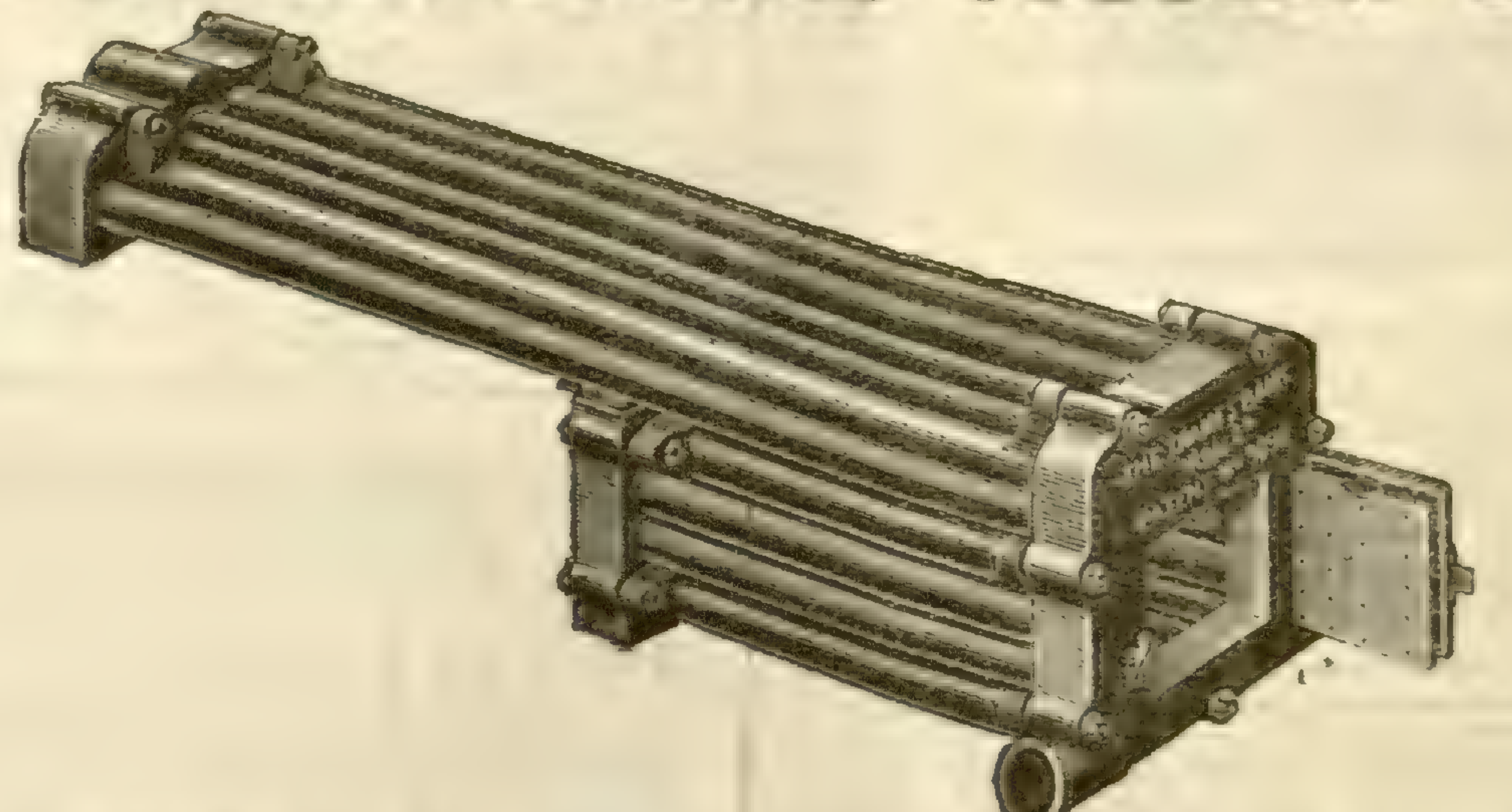

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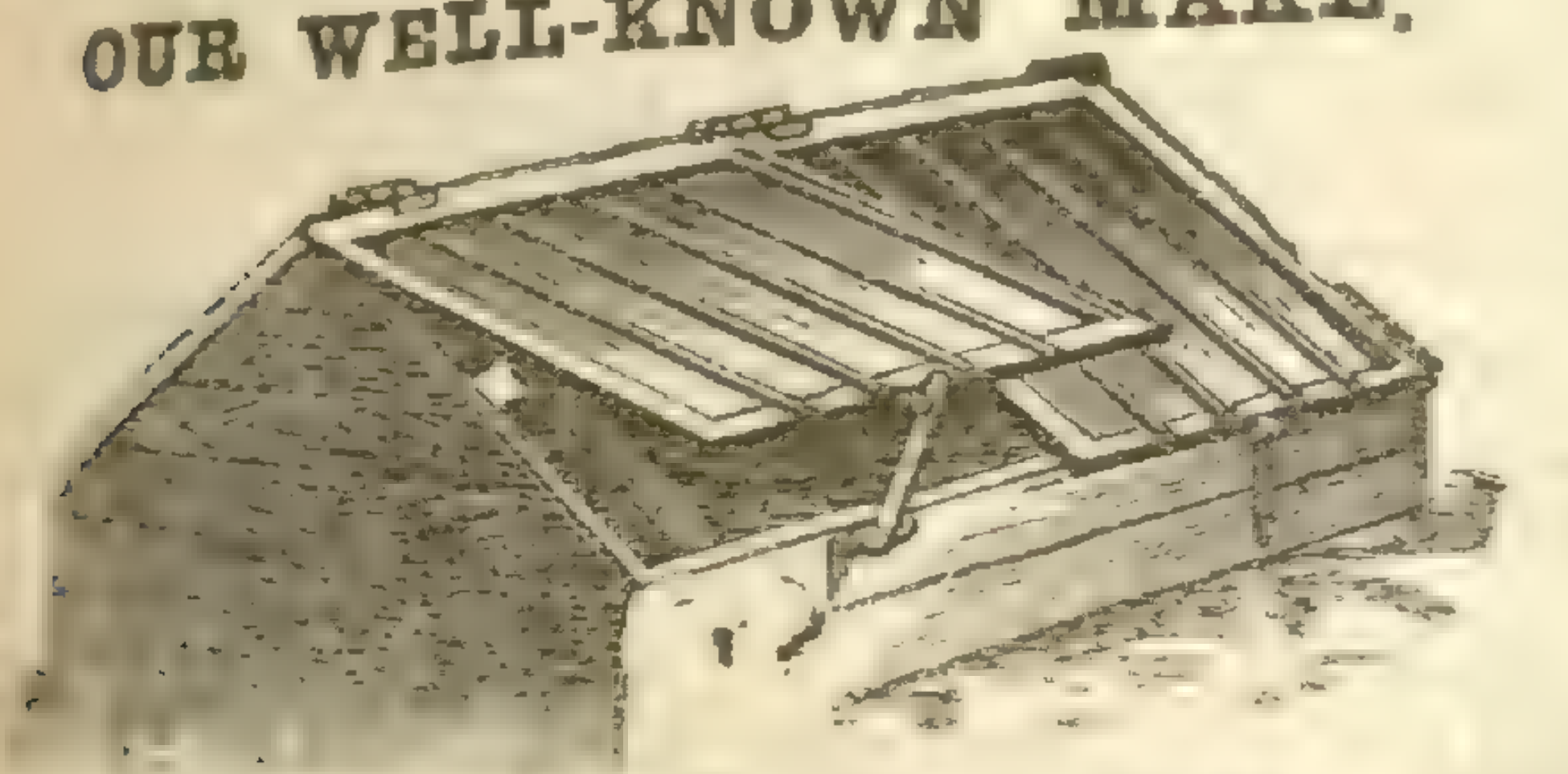

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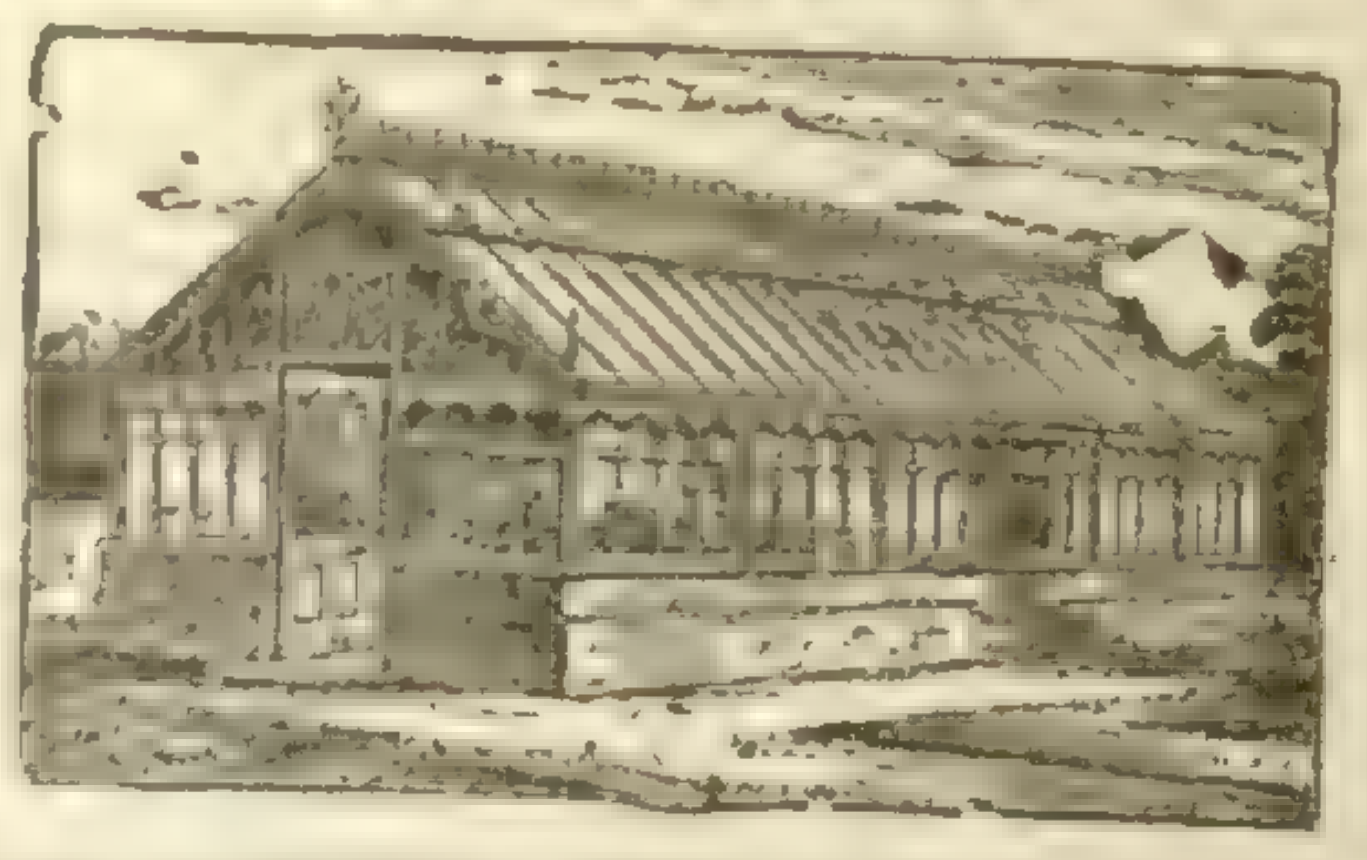

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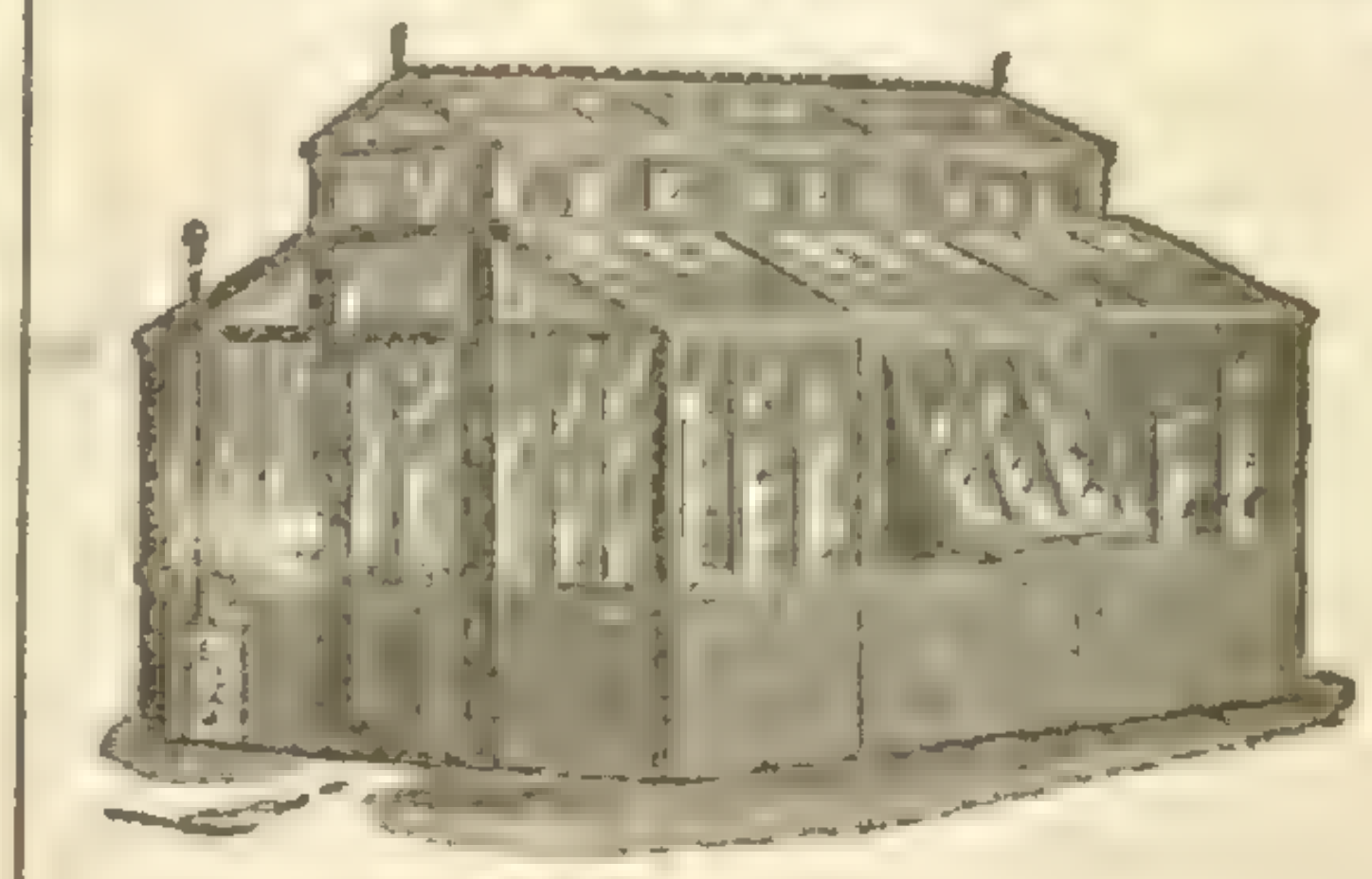

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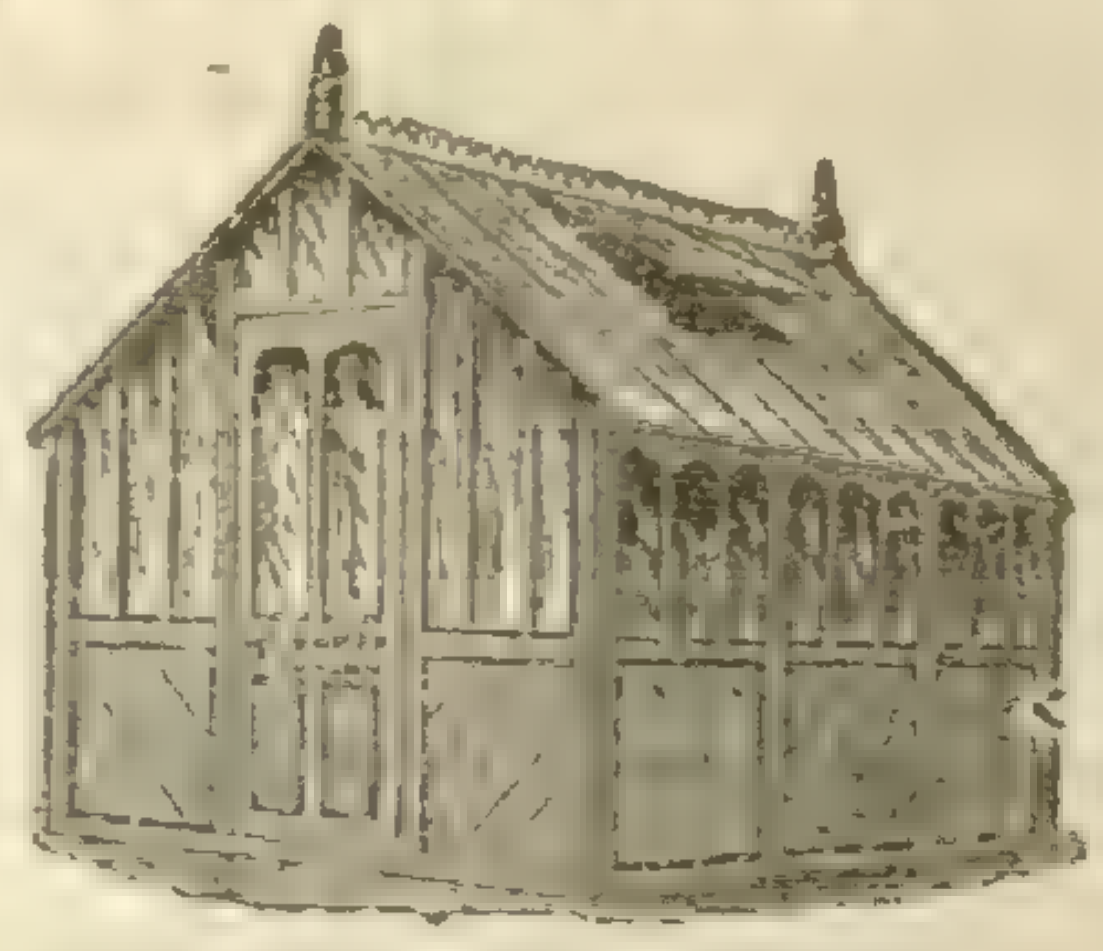

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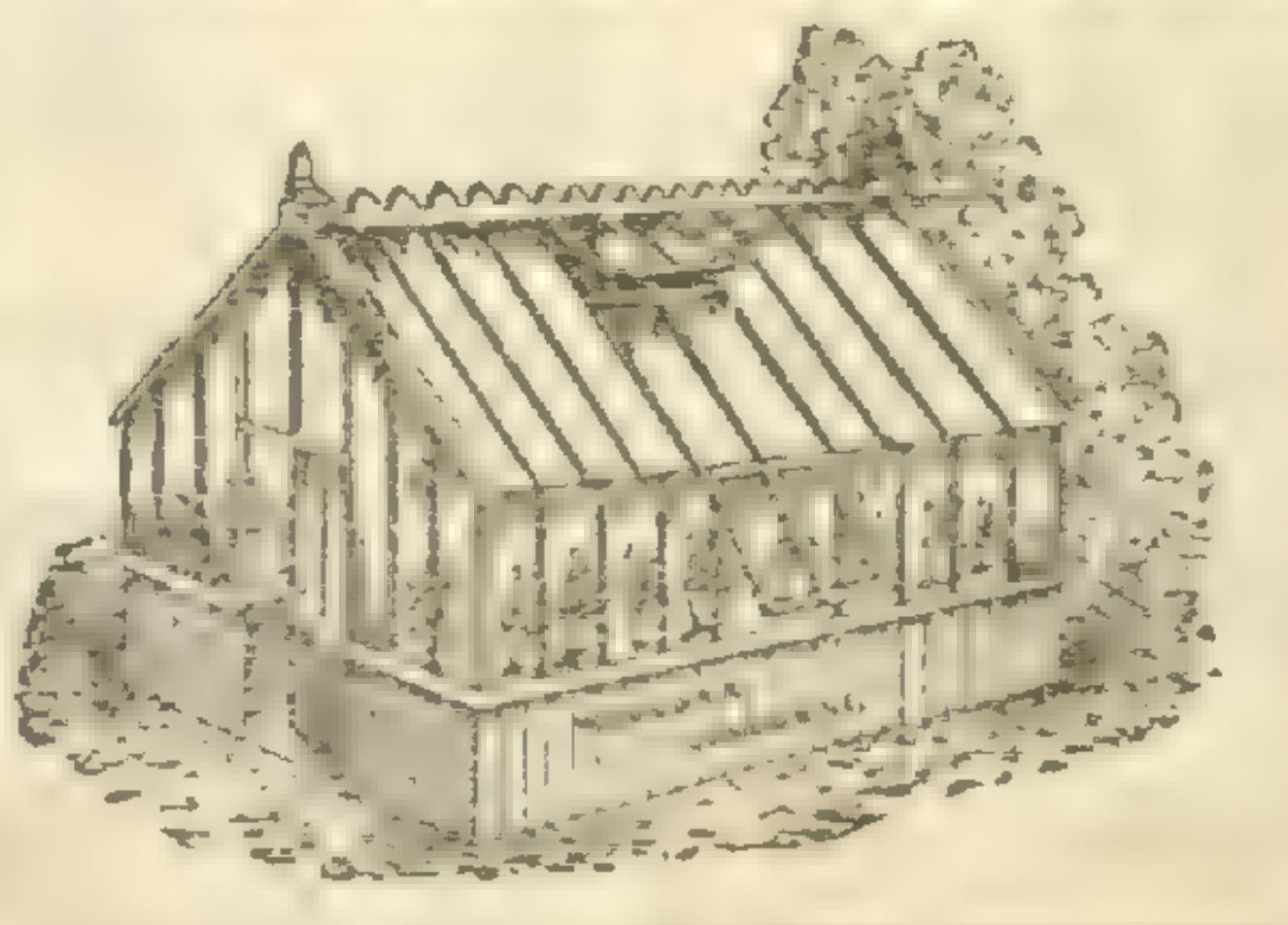

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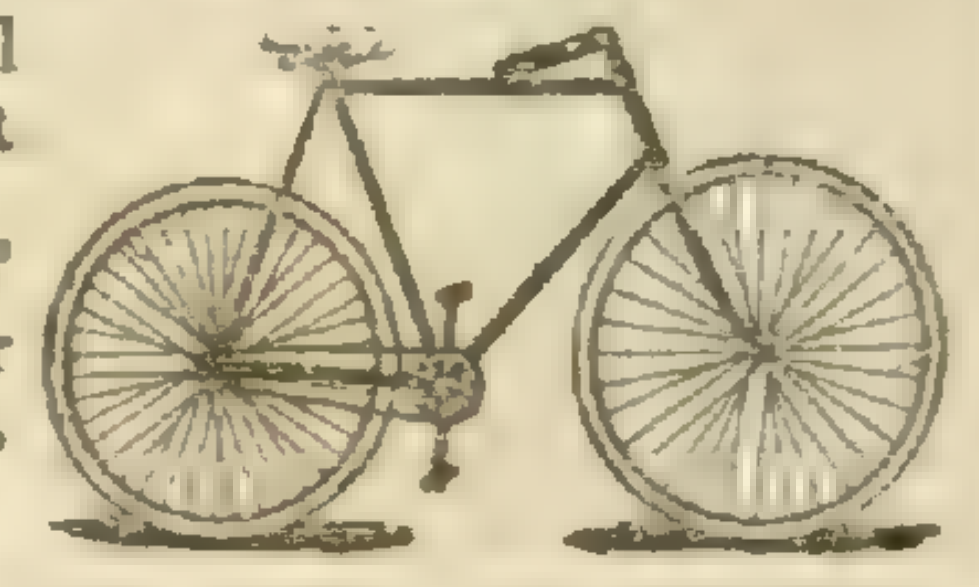

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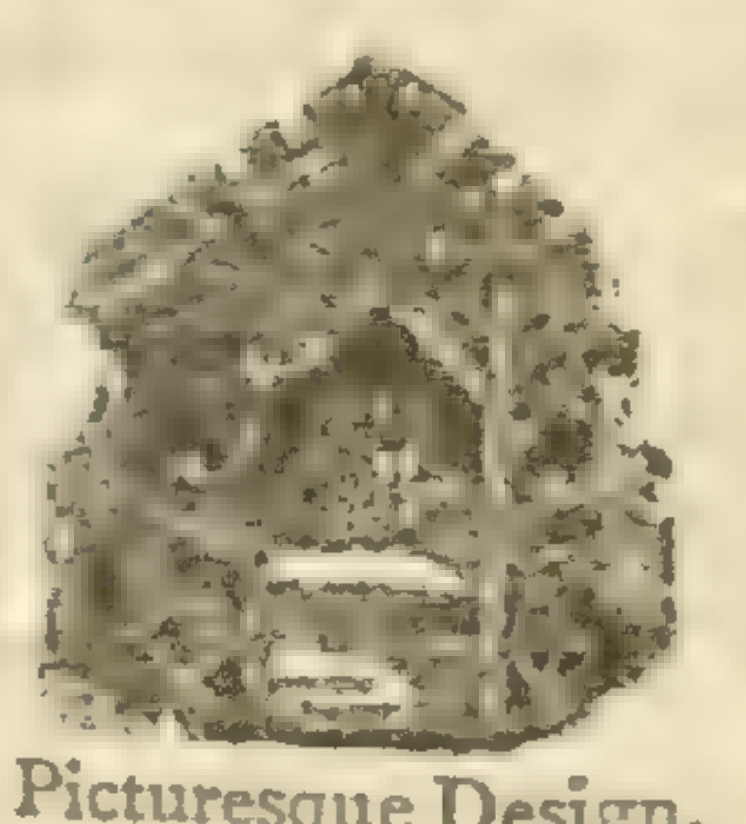

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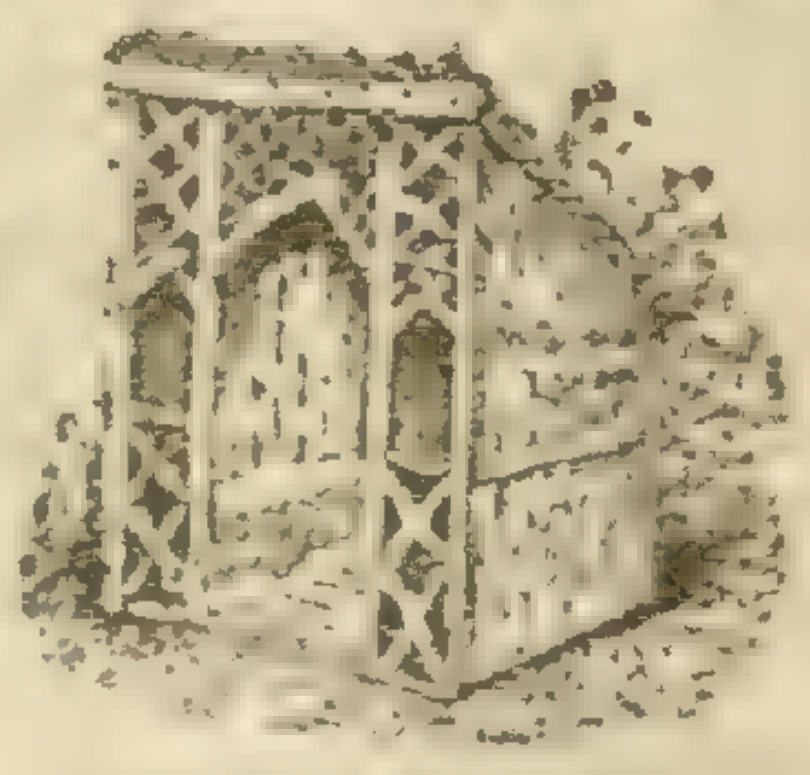

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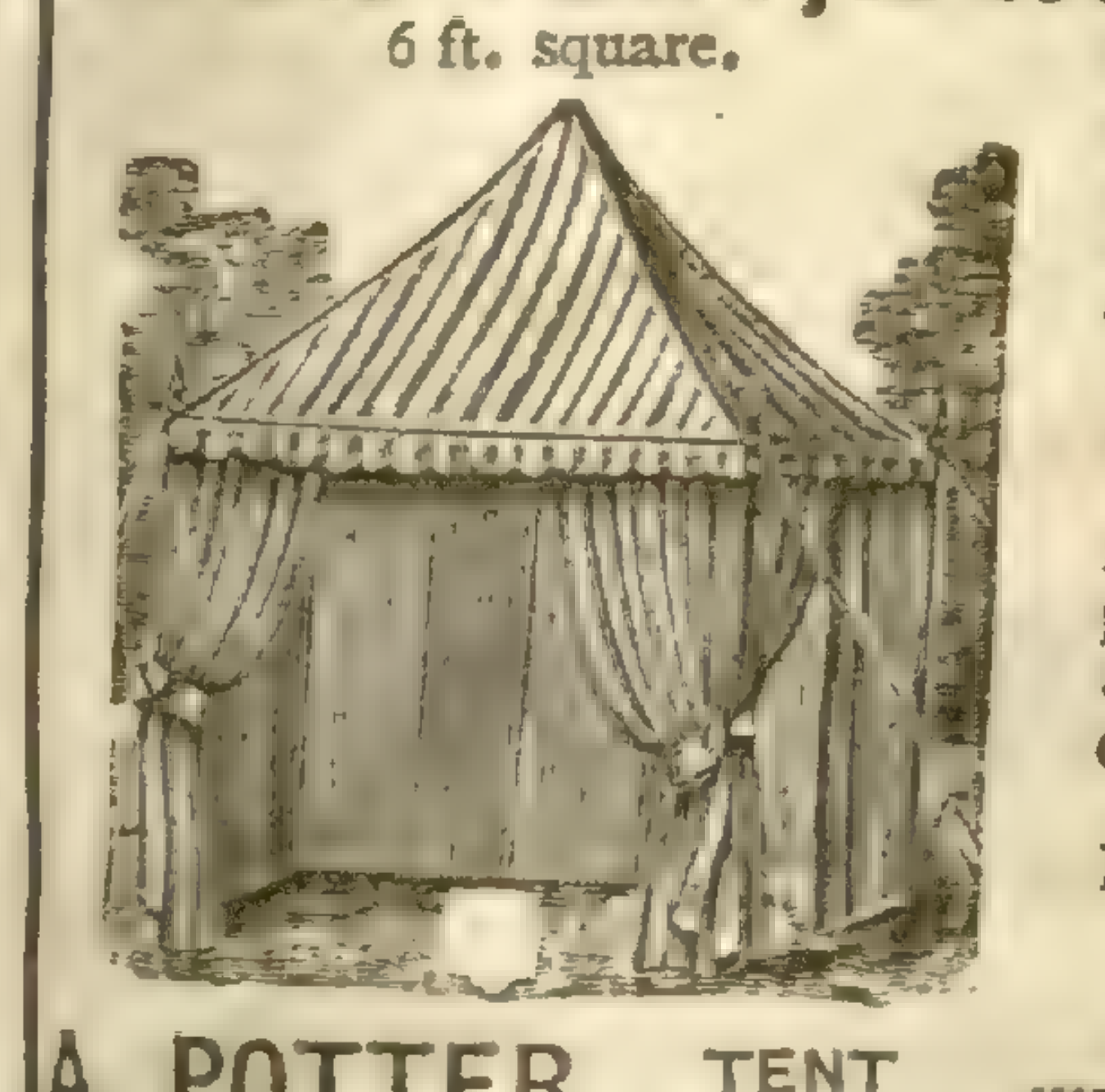

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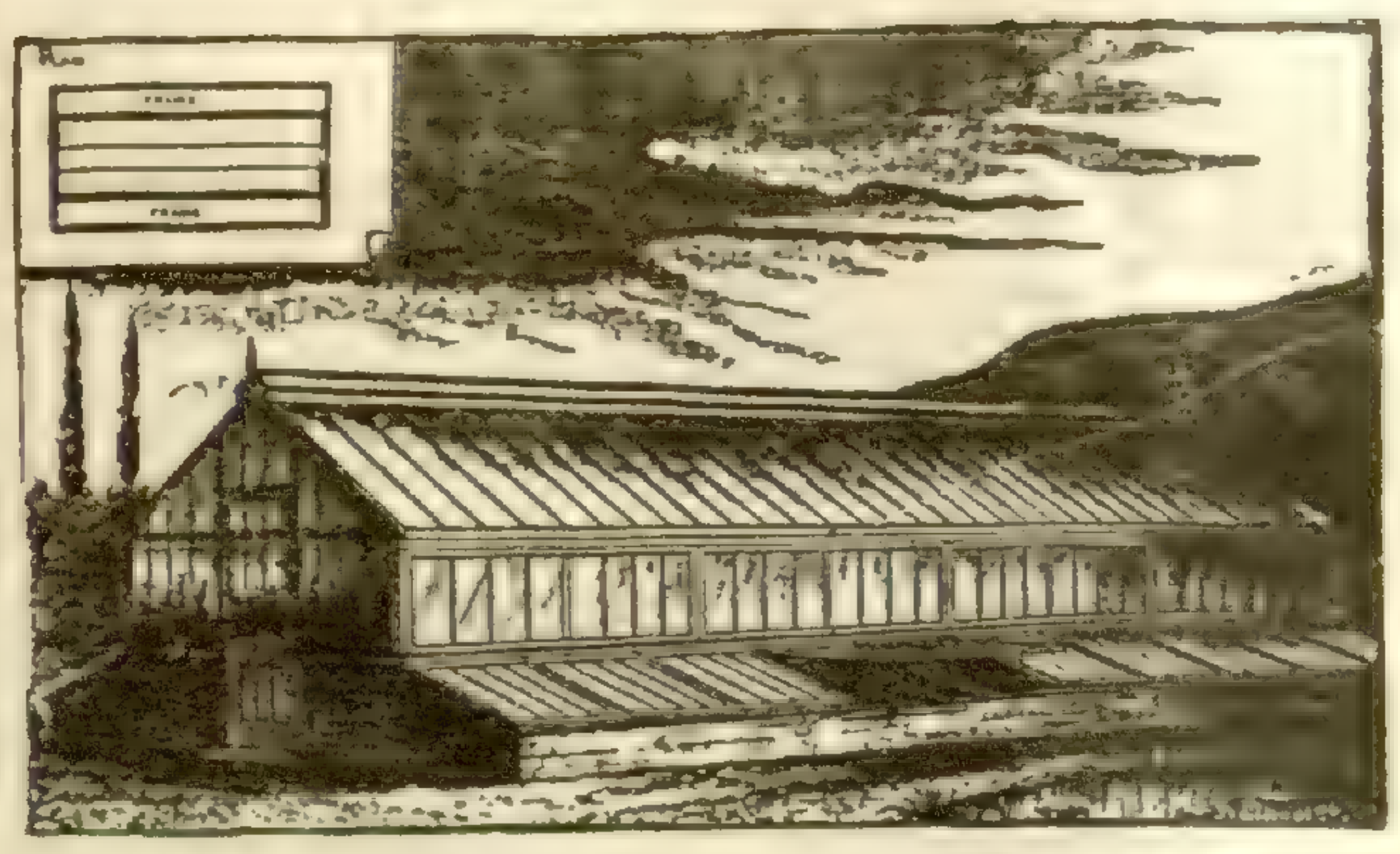

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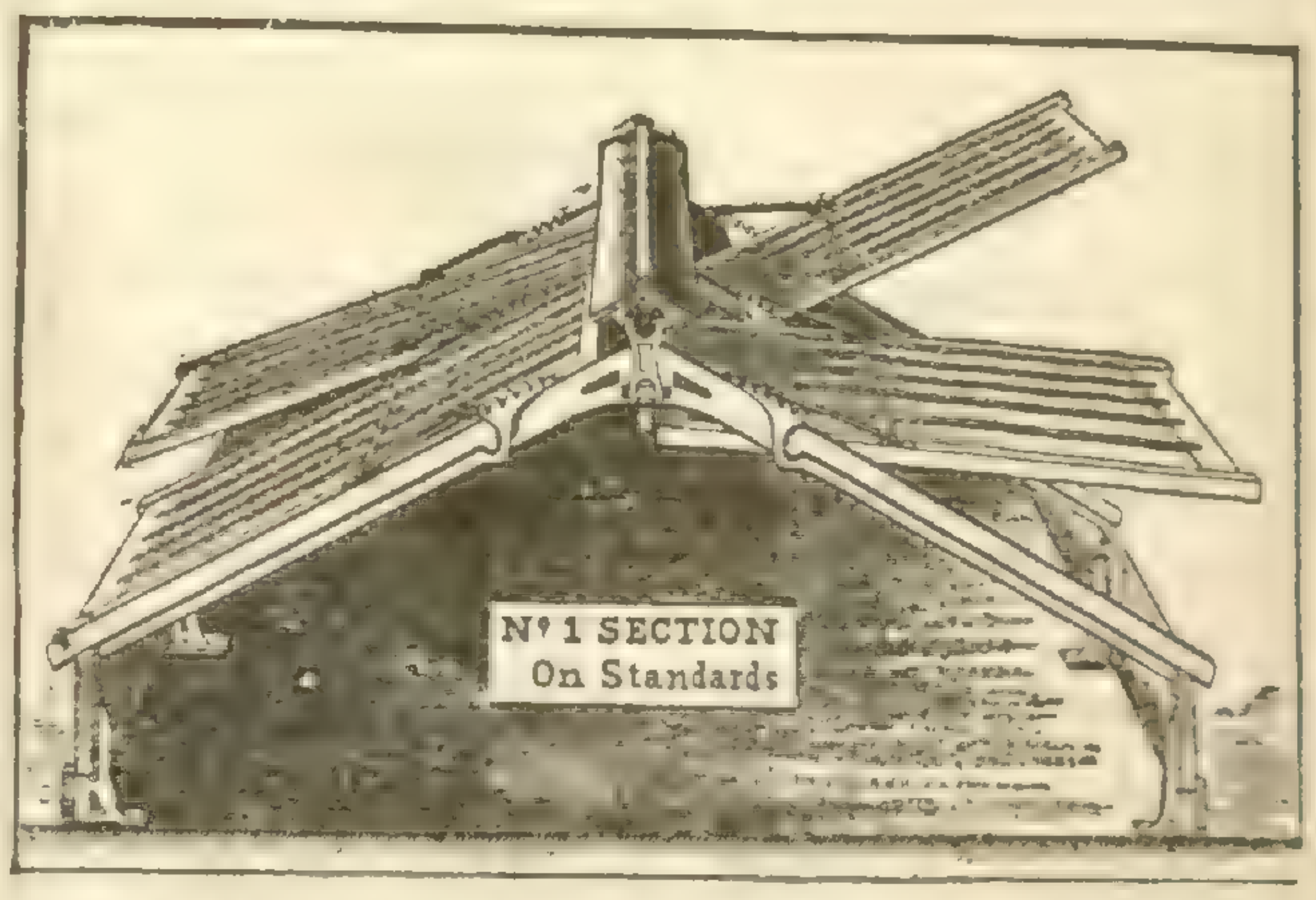

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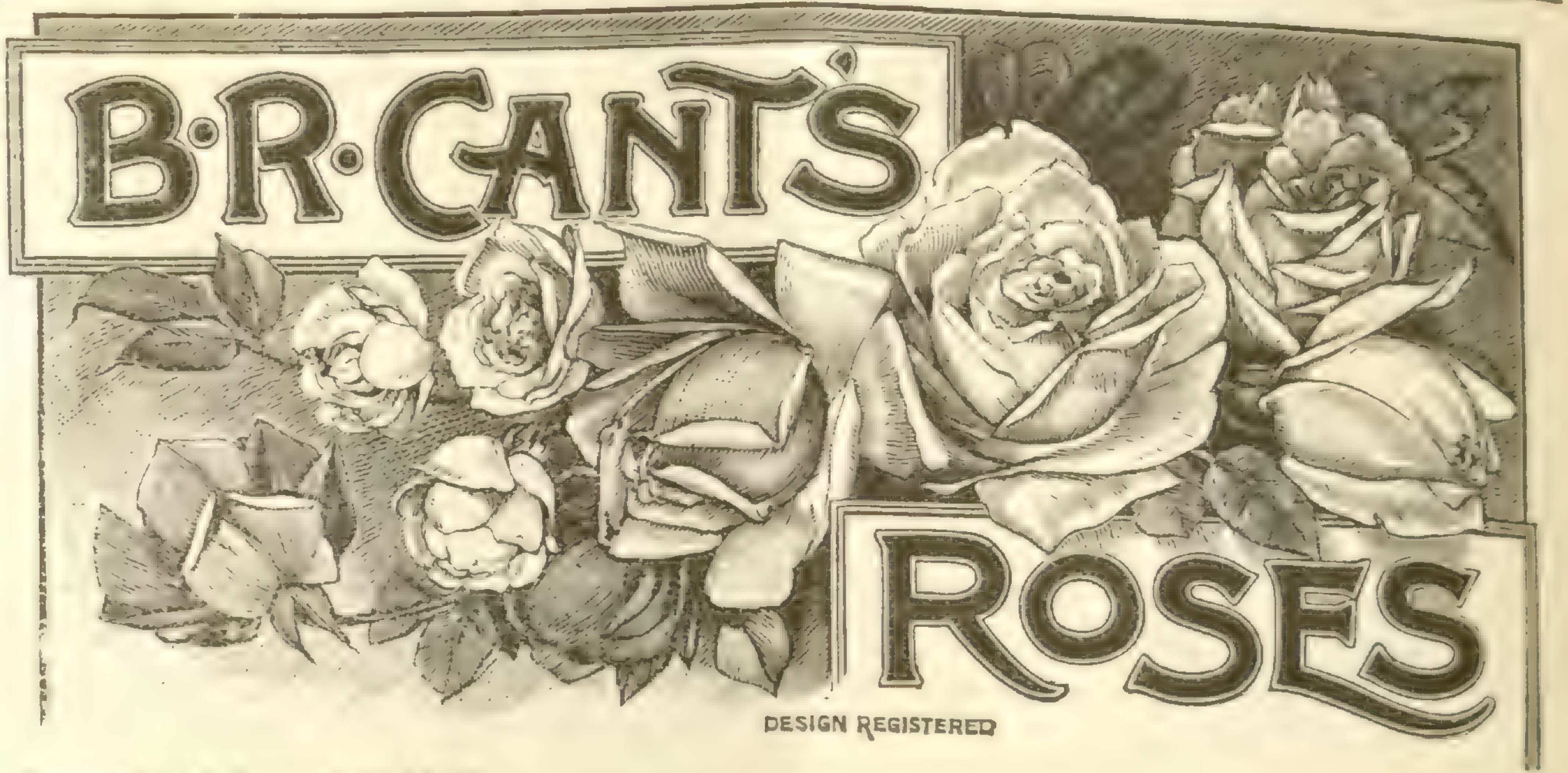

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	Per 100			1,000	
Single Anemones, in fine mixture	1	2	...	11	0
Crocus, II. size, in fine mixture	0	8	...	6	3
Crocus, I. size, in fine mixture	1	4	...	10	2
Hyacinths, mixed, for bedding or forcing ...	9	8	...	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection ...	17	6	...	—	
Iris Kæmpferi (Japan Iris), in fine mixture ...	5	0	...	40	0
Iris Germanica (Flag Iris), in fine mixture ...	7	0	...	65	8
Iris Sibirica, in fine mixture	5	0	...	40	0
Iris Spanish, in the finest mixture	0	7	...	5	0
Lilium Candidum, single, pure white	10	0	...	—	
Montbretia croscosmiæflora, orange scarlet ...	1	6	...	—	
Narcissus campernel Jonquil, yellow	1	2	...	10	0
Narcissus, double, Incomparable, primrose ...	1	6	...	14	0
Narcissus van Sion, single, yellow trumpet ...	2	6	...	23	4
Narcissus Stella, white, yellow cup	1	4	...	12	6
Gladiolus Marie Lemoine, fine	2	0	...	19	2
Gladiolus Brenchlyensis, deep scarlet	2	6	...	20	0
Scilla Sibirica præcox, intense blue ...	1	2	...	10	0
Tulips, single early, in the finest mixture ...	1	2	...	10	0
Tulips, double early, in the finest mixture ...	1	6	...	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	...	20	0
Grape Hyacinths, blue	0	7	...	5	4
Anemone japonica, rose	5	0	...	—	
Hemerocallis (Day Lily), mixed	8	0	...	—	
Pyrethrum, fine double, pure white	15	0	...	—	
Tritoma uvaria (Red Hot Poker)	14	6	...	—	
Sparaxis, in fine mixture...	0	8	...	6	0
Funkias, in fine mixture	10	0	...	—	
Gladiolus Colvilli, white	1	2	...	10	10
Hyacinthus candicans, white	5	0	...	45	10
Iris pumila, mixed	4	0	...	—	
Lilium umbellatum, red	10	0	...	—	
Snowdrops, Elwesi	2	0	...	18	4

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GARDENER (Single-Handed, or with assistance given); age 34; married; experienced in all [illegible].—C. TRANSOM, 53, Danbrook Road, South Streatham, [illegible]

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GARDENER (Single-Handed, or one Under); age 27; twelve years' experience; Inside and Out; three years in present place; married when suited.—For references apply J. SYKES, 18, Percy Terrace, Hendon, Sunderland.

GARDENER (Single-Handed), or where one or two are kept; age 26; married, one child; well up in growing grapes, peaches, cucumbers, tomatos, stove and greenhouse plants; good flower and kitchen gardener; 12 years' experience; good character.—W. J. PROCTOR, 4, Sherland Villas, Station Road, Twickenham, Middlesex.

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A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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THE GARDENERS' MAGAZINE.

SATURDAY, OCTOBER 8, 1898.

BATLEY and DISTRICT CHRYSANTHEMUM and PAXTON SOCIETY. —The ELEVENTH ANNUAL SHOW will be held in the DRILL HALL, BATLEY, on November 19, 1898, when upwards of £125 will be given in prizes, including six Silver Cups, three Silver Medals, and two Certificates. For Schedules apply
ALLEN HALL, Secretary, 4, Preston Street, Batley.

BATTERSEA, CLAPHAM, AND WANDSWORTH CHRYSANTHEMUM AND HORTICULTURAL SOCIETY'S EIGHTH ANNUAL EXHIBITION of CHRYSANTHEMUMS, FRIDAY AND SATURDAY, NOVEMBER 4 and 5. Classes for Gardeners within a radius of five miles of Clapham Junction. Schedules, &c., on application to
J. O. LANGRISH, Hon. Sec., 167, Elsley Road, Battersea, S.W.

CROYDON CHRYSANTHEMUM SOCIETY. — The ELEVENTH ANNUAL SHOW, PUBLIC HALLS, CROYDON, TUESDAY AND WEDNESDAY, November 1 and 2, 1898. Challenge Vase, 25 Guineas; other Cups and Prizes; total over £130. Entries close October 27.
W. B. BECKETT,
272, Portland Road, South Norwood.

EASTBOURNE HORTICULTURAL SOCIETY'S
GRAND CHRYSANTHEMUM SHOW.
TUESDAY AND WEDNESDAY, NOVEMBER 1 AND 2.
Several open classes. Good Prizes. Entries close October 28. Send for Schedules to
E. A. NEWMAN, 21, Brocklyn Terrace, Eastbourne.
[illegible]

EXMOUTH CHRYSANTHEMUM SHOW, OCTOBER 27 and 28.
£10 10s. for 36 Japs in 24 varieties (open class).
Schedules on application to
R. PEARCE, Assist. Sec.,
Chippenham Lodge Gardens, Exmouth.

HUDDERSFIELD and DISTRICT CHRYSANTHEMUM SOCIETY.— The SEVENTH EXHIBITION of the above Society will be held in the TOWN HALL, HUDDERSFIELD, on FRIDAY and SATURDAY, NOVEMBER 11 and 12, 1898. Entries close on Friday, November 4. Entry Forms and Schedules may be obtained from
JOHN BELL, Hon. Sec., Marsh, Huddersfield.

LEEDS PAXTON SOCIETY'S CHRYSANTHEMUM SHOW, TOWN HALL, LEEDS, TUESDAY and WEDNESDAY, NOVEMBER 15 and 16. Upwards of £180, including four Challenge Cups, will be given in prizes. Schedules from the Hon. Sec.,
JAMES CAMPBELL, The Gardens, Methley Park, Leeds.

MAIDENHEAD CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, TOWN HALL, MAIDENHEAD, NOVEMBER 3 and 4. Entries close October 29. Schedules free.
J. W. STONE, Hon. Sec.,
Cookham Dean.

NOTTINGHAM and NOTTS CHRYSANTHEMUM SOCIETY.
NINTH ANNUAL EXHIBITION.
MECHANICS' LARGE HALL, NOTTINGHAM, NOVEMBER 11 AND 12, 1898.
Large prizes in open classes for Chrysanthemums and Fruit. For Schedules apply
E. HUMMEL, 12, Alberta Terrace, Sherwood Rise, Nottingham.

THE ROYAL HORTICULTURAL SOCIETY OF SOUTHAMPTON. EXHIBITION of CHRYSANTHEMUMS, AUTUMN FRUIT, FLOWERS, &c. November 1 and 2. Liberal prizes and classification Schedules of
C. S. FUIDGE, Hon. Sec., 17, New Alma Road, Southampton.

WOOLWICH, PLUMSTEAD, AND DISTRICT HORTICULTURAL SOCIETY FIFTH ANNUAL CHRYSANTHEMUM AND HORTICULTUAL SHOW, NOVEMBER 3, 4, and 5, at the DRILL HALL, WOOLWICH. For Schedules and particulars apply to
R. J. WORTHINGTON, Hon. Secretary, 32, Acacia Parade, Plumstead Common.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTES OF THE WEEK.

PACKING FRUIT FOR MARKET.

ONE of the most important of the questions relating to the production of fruit for commercial purposes is unquestionably the determination of the methods of packing, by which the several kinds can be placed upon the market inexpensively, in the best possible condition, and in a form to attract the attention of purchasers. Hence the action of the Council of the Royal Horticultural Society in offering prizes for competition among growers for market for examples of packing of the chief kinds of fruit is deserving of the warmest commendation. If the results were not on the whole so satisfactory as could have been wished, the Council were in no way to blame. They provided numerous classes with prizes sufficiently liberal to ensure a considerable number of entries, and they were careful to select as judges experts conversant with the ways of the markets. Whether it was wise to limit the judges in the packing classes to market growers and salesmen, is a question that is open to discussion, and we are of the opinion that it would have been better to have included an expert wholly free from market traditions. However that may be, the contributions to the section open to market growers formed one of the most interesting of the features of that great gathering, for in it were represented both good and bad methods, and the awards afforded evidence of the difficulty some men have of breaking with old practices, however objectionable they may be. In the classes for grapes there was nothing new in the methods of packing; but, as it was stipulated, in three of the four classes that the grapes were to be shown in a single layer in a "baby basket," there was not much scope for originality. In the fourth class, for "any other package," the premier award was made to grapes packed in a cross-handled basket, and as grapes so packed may be sent long distances by post or rail without the slightest injury, provided the bunches are firmly secured to the sides, this method appears to be difficult of improvement. Plums and damsons were packed in the old-fashioned round basket, and with reference to them it will suffice to say that it is matter for regret that the value of inexpensive, non-returnable boxes, such as are so largely used by Belgian and French growers for sending their produce to this country, is not appreciated by growers at home. Happily there were some innovations in the methods of packing apples and pears, and Mr. Basham's basket of Ecklinville Seedling apples and Mr. Wyatt's box of Durondeau pears, of which illustrations are given on another page, represent distinct improvements. Mr. Basham's was one of the four baskets for which he was awarded the first prize for four varieties, and the only possible objection that could be raised to this system of packing is the cost of the baskets, rendering it necessary to return them. The fruit, which had undergone a long journey, was without a blemish, and the cost of the wood wool used in packing each basket, Mr. Basham assured us, did not exceed one penny. It would be interesting to know whether inexpensive boxes could not be substituted for baskets, that by reason of their cost, must be returned, and we shall be obliged if Mr. Basham will give his views upon this point. Mr. Wyatt's pears were packed in a shallow box with pink tissue paper between them, and no better method of sending these fruits to market or to purchasers resident some distance from the source of supply could well be devised. The four varieties of dessert apples and the "any one variety" of dessert and cooking apples were packed in round baskets, and it was distressing to see the first prize in each of the two classes for single varieties awarded to baskets in which the fruit was heaped up some five or six inches above the edge. The baskets were, in fact, so packed that they could not have been placed one above the other in a van or railway truck without the fruit being much damaged, as the weight of the baskets above would have to be sustained by the fruit instead of the sides of the baskets. This system of packing is only adapted for sending a few baskets to a contiguous market, and for this reason it is much to be regretted that the judges should have shown a preference to it, and made awards that must retard rather than hasten the reforms so necessary in methods of marketing fruit.

DETAIL IN NATURE.

THE comparison of a wasp's sting with the point of the finest needle is well known as exemplifying the marvellous finish which characterises the work of Nature on the one hand, and on the other the rudeness of man's handiwork when viewed by a powerful lens. The one loses all its polish under such scrutiny, and is seen to be bluntly ended and roughly surfaced, while the other betrays absolutely no defects, and reveals more and more perfection the higher the magnifying power which is brought to bear. So it is throughout Nature, wear and tear may damage the finished article, so that the butterfly's wing may here and there be devoid of feathers, or the originally perfect flower may display defective petals, but these are always accidentals. Take the butterfly just emerged from the chrysalis, or the flower from the bud, and the more we can pry into the details of their construction the more we are astounded by the finish which pervades them. Mere size goes for nothing; the zoologist may take the elephant, and dissecting it display to our wondering gaze the marvels of anatomical, muscular and nervous organisation which go to constitute that hugest of beasts; he may even go further, and giving us microscopic sections of bone and tissue, open up another realm of structural and functional marvels; but the entomologist will take one of the tiniest insects and do as much, and more, for in many cases there are metamorphoses in insect life which have no parallel in that of animals. A fly of any sort lives two distinct lives, each with utterly different organisations, and each one fraught with its own particular marvels of detail. The breathing apparatus of a caterpillar, for instance, and that of the subsequent butterfly, are as different as it is possible to imagine, while anyone who has seen the plumage of the latter would at once admit that the peacock itself was surpassed in splendour of detail and colouring, unless he had seen beforehand that every filament in that bird's plumage was an equal marvel. So it is with plants, every hair, every cell, nay, every granule of chlorophyll within those cells, are beautifully and wonderfully made, and perfectly finished off. There is no scamping or patchwork in Nature's creations, from the smallest to the largest, each one is a masterpiece, and size is merely the upheaping of minute perfections. A yard long cattle horn may seem a clumsy article, but slice off a section anywhere, and its innate beauty of structure comes to light; the elephantine tusk, the roughly corrugated tooth of the horse, the gnarled trunk of a tree, one and all need but dissection to display the same perfection internally. The roughness is due to wear and tear, or, it may be, to vital purposeful need, but never to defective work that is a thing unknown. It is, however, the marvellous details of the very minute which strikes the investigator with the greatest force. Among the diatoms, for instance, we find the transparent flinty skeletons of very low forms of vegetable life to be absolutely invisible to the naked eye, and yet to resemble the most ornate cut-glass work imaginable. Thousands of different specific types exist, and a tiny patch of mud collected from the nearest pond may yield a million of these crystal wonders, each one of which would yet be a miracle of complete and perfect workmanship, though fashioned by a microscopic blot of seemingly inanimate jelly.

POLISHING FRUIT.

THE truth enunciated by Shakespeare, more than three centuries ago, that "to paint the lily," or "to throw a perfume on the violet," is "wasteful and ridiculous excess," does not appear to be fully appreciated by some of the present-day cultivators of fruit, and we, in consequence, have at the autumn exhibitions evidence of attempts to improve upon Nature. More especially has this evidence been forthcoming at the exhibitions of British grown fruit held at the Crystal Palace under the auspices of the Royal Horticultural Society, and the Council may be heartily congratulated on their endeavour at the recent gathering to put a stop to the practice of polishing fruit staged in competition for the prizes. This is no new practice, as conclusively shown by the fact that at least fifteen years ago we made a vigorous protest against the use of the oiled rag in the preparation of fruit for exhibition. We have a lively recollection of a chrysanthemum show in one of the suburbs of the metropolis at which the apples and some of the pears were so liberally oiled that the oil could be readily seen about the eye and stalk, and made the fruits most offensive to handle. At the previous exhibition the judges had unwittingly given the premier awards to fruit that had been polished, and the other exhibitors, taking note of the advantage that had resulted from the procedure, used the oil so freely as to arrest the attention of the judges, and to bring about, to them, disastrous results, for every dish that had been oiled was properly disqualified. Of late years a more refined system of polishing has been adopted, and for a considerable period cream was used instead of oil. Cream has in its turn been superseded, and according to a statement made by the Rev. W. Wilks, when addressing the judges upon this question, the favourite materials for polishing are a soft rag and saliva, and anything more objectionable than the latter it is impossible to conceive. Not one of the forty judges questioned the statement; but they all appeared to have acted upon the instructions given them, that while they should not disqualify the polished fruit, they should take some points from it; for we found numerous collections occupying a considerably lower place in the competition than they would have done had the fruit been shown without having been subjected to a polishing process. Let us hope that the somewhat severe lesson administered on the occasion of the Royal Horticultural Society exhibition will be taken to heart by exhibitors generally, and that judges at provincial shows will follow the lead of the experts to whom was entrusted the task of making the awards at the Crystal Palace. To our minds no fruit is so attractive as when in its natural state, and apples and the smooth-skinned pears are no exception to the rule, and to give them an artificial gloss with the aid of oil, cream, or saliva, and a soft cloth, "makes," to again quote from Shakespeare, "sound opinion sick and truth suspected."

Conference on Chrysanthemum Rust.—As announced in the GARDENERS' MAGAZINE of the 1st inst., the executive committee of the National Chrysanthemum Society, has, in view of the devastation being wrought among chrysanthemum plants by the action of the Chrysanthemum Rust, arranged to hold a conference in St. Stephen's Hall, Royal Aquarium, on the evening of Tuesday next, at six oclock, to which the members of the society and all interested in the matter are invited. Mr. T. W. Sanders, chairman of the committee, will preside, and the programme includes a paper to be read by Mr. P. Waterer. vice-chairman of the committee, on "The Practical Aspects of the Chrysanthemum Rust;" and one by Mr. G. Massee, Royal Gardens, Kew, on "The Scientific Aspect of the Chrysanthemum Rust." At the close of the reading of the papers time will be allowed for discussion.

Nitrogenous Manures in Potato Culture.—The influence of nitrogenous manures on the potato crop has been very clearly demonstrated in the course of the experiments conducted at Rothamsted during the past twenty-three years, and the results obtained are of much interest. It is of considerable importance to cultivators to know that the plots receiving farmyard manure, containing about 200 lb. of nitrogen, gave less produce than the mixture of mineral manure and ammonium salts, or nitrate of soda, supplying only 86 lb. of nitrogen. This is explained by the fact that only a small proportion of the nitrogen of farmyard manure is quickly available, that due to undigested matter being more slowly available, and that in the litter remaining a long time inactive. Farmyard manure is, however, often applied in very large quantities for potatos, the process being to a great extent one of forcing, and there remains a great amount of unexhausted manure-residue within the soil. The percentage of nitrogen in potato tubers is much increased by the application of nitrogenous manures, but the less so the riper the crop. Without manure there is a comparatively low percentage of mineral matter and a medium percentage of nitrogen. With mineral manure alone there is the highest percentage of mineral matter, and the lowest of nitrogen. With purely nitrogenous manures there is the lowest percentage of mineral matter, and the highest of nitrogen. Lastly, with mineral and nitrogenous manures together, there are intermediate percentages, both of mineral matter and of nitrogen, in the tubers. More than 80 per cent. of the total nitrogen of the tubers exist in the juice. A comparatively small but variable proportion of the nitrogen of the tubers exists as albuminoids in the solid portion; perhaps on the average only about 15 per cent.; while from 40 to 50 per cent. of the total nitrogen may exist as soluble albuminoids in the juice, so that about or nearly two-thirds of the total nitrogen may exist as albuminoids, by far the larger proportion being, however, in the juice. The non-albuminoid nitrogenous matter exists chiefly as amides. The characteristic effect of nitrogenous manures, provided there be a sufficient available supply of ash-constituents, and especially of potash, is to increase the amount of the non-nitrogenous substance—starch, in the tubers. Thus, the produce of starch per acre was about 1,100 lb. without manure, nearly 2,000 lb. with purely mineral manure, and with nitrogenous and mineral manures together about 3,400 lb., or about 1½ tons. In other words, the increased product of starch by the use of the mineral and nitrogenous manures together was more than one ton per acre. That is, there was a great increase in the production of the non-nitrogenous constituent—starch—by the use of nitrogen in manure, just as there is an increase in the produce of the non-nitrogenous constituent—sugar—by the use of nitrogenous manures to root crops. The increased production of non-nitrogenous substances by nitrogenous manures, is equally striking in cereal crops; the result in their case being an increased production of starch in the grain, and of cellulose in the straw. Indeed, it is for the production of the non-nitrogenous substances—starch, sugar, and cellulose—that our direct nitrogenous manures are chiefly used.

The Robert Hogg Memorial Medal.—After the death of Dr. Robert Hogg, a movement was set on foot to obtain subscriptions from those who valued this eminent pomologist's services, to obtain a medal to be given for meritorious exhibits in hardy fruits. The necessary amount was collected, and Mr. Harry J. Veitch and the Rev. H. H. D'ombrain were appointed to make the necessary arrangements. A suitable die has been obtained, and placed in the hands of the Ccuncil of the Royal Horticultural Society, who will issue the medals at their discretion, as in the case of the Banksian and other medals. The medal was awarded for the first time at the exhibition of British Grown fruit, held under the auspices of the society, the recipients being Messrs. G. Bunyard and Co., Messrs. T. Rivers and Son, and Messrs. J. Veitch and Sons. The first-named firm received the medal as the premier award in the class for a collection of hardy fruits not exceeding one hundred dishes, while Messrs. Veitch and Rivers were awarded the medal for their contributions to the non-competitive class.

The French Grape Harvest is well advanced in the south-east, considerable progress has been made in the Bordeaux district, and a beginning has been made in the Champagne. The record of a grape harvest is necessarily much influenced by the meteorological conditions that obtain during the summer; sunshine and shower, which at their own respective seasons are each an all-important factor in the production of good wine, seem in turn to have shed their benign influences on the grape-growing districts of France generally. Under the head of weather, as affecting this year's vintage, several points of interest are to be noted. The mild winter of 1897-98 was succeeded by a spring which, although cold and dry, was singularly free from the frosts so justly dreaded by vineyard proprietors. In April the healthy condition of the vines suggested hopes, further encouraged by the genial warmth that made its appearance with the commencement of summer—hopes which have since been realised owing to the continuance of the fine weather culminating in the record "September summer" experienced France as in England. The year 1898 may be pronounced one of exceeding dryness, practically no rain having fallen since the flowering of the vines in June—a fact confirmed by the rain gauge of Chateau Loudenne, which shows that the rainfall recorded during the ninty days following the flowering, a period generally accepted as fixing approximately the date of the vintage in the Médoc, has only amounted to one inch. As a consequence of this drought, the healthy condition of the vines and their entire freedom from the onslaughts of insect pests, presage the produce of 1898 in the Bordeaux as almost certain to be of excellent quality, while the quantity will be considerably increased by the timely showers of the last few days. The wood of the vines, moreover, is so well seasoned that it promises, under pruning, to start well equipped for the campaign of 1899. A curious fact in connexion with this year's grape harvest has been remarked by those who rejoice in coincidences. For the last fifty years those which terminate with the figure 8—viz., '48, '58, '68, '78, and '88—have all produced clarets of excellent quality, and it seems, therefore, but fair to conjecture this year that 1898 will follow the example set by its predecessors having the same terminal figure.

Bulbs for the London Parks.—The order for the bulbs required for planting in the parks and gardens under the control of the London County Council has this year been given to a Dutch firm, and this purchase has naturally given rise to considerable indignation on the part of those interested in commercial horticulture, which forms such an important industry of the United Kingdom. Mr. J. R. King, the well-known seedsman, writes in reference to the matter: "I am much surprised to find that the London County Council has placed the order for bulbs required for planting the London parks with a Dutch firm. I consider that no words are strong enough to condemn such a piece of injustice, and I venture to hope that the matter will not be allowed to drop. It is certainly open to question whether or not tenders from Dutch houses should have been invited at all. Our splendid London parks are English in their character and use. English money has provided them, English taxes support them, and English enterprise should be used to beautify them. To allow foreign tenders to be pitted against, and to be accepted in preference to, those of English houses is one of those strange characteristics of the dealings of public bodies which it is difficult to understand. The Dutch grower pays no rent, rates, nor taxes to this country, while the English seedsman is not only heavily taxed, but has to bear his share in providing the money required by the London County Council, who, in return, prefer to place their orders with foreign houses. I believe this is the first time the order for bulbs has been placed abroad, and, that it may be the last, I hope every pressure will be brought to bear on the responsible committee of the London County Council, not merely to give a satisfactory explanation, but to prevent the repetition of such an injustice to English seedsmen."

Royal Horticultural Society.—The Fruit, Floral, and Orchid Committees will meet at the Drill Hall, on Tuesday next, at noon; and at the afternoon meeting of Fellows the Rev. G. Henslow will lecture on "Some of the Plants Exhibited."

Experimental Stations were discussed in a paper read by Mr. Lewis Castle, manager of the Woburn Experimental Fruit Farm, at the meeting of the Birmingham Gardeners' Association, held at the Athletic Institute on Monday last. The subject was dealt with at some length; the experimental work in Great Britain and abroad was reviewed, and suggestions made for the formation and management of horticultural stations. Mr. W. Latham, curator of the Birmingham Botanic Gardens, presided, and at the close of a long and interesting discussion, a hearty vote of thanks was accorded Mr. Castle for his lecture.

The Fruits of the Passion Flower suffer so much in transit, unless packed with exceptional care, that hitherto it has been found impossible to import them from abroad, and it would appear that the problem of their successful importation still awaits solution. The latest consignment of these fruits to this country arrived a few days since by the "Orient," but the fruit contained in the twenty cases was in such an unsatisfactory condition as to necessitate the whole of it being condemned. Further attempts are, however, likely to be made in order to get this particular kind of fruit placed on the market, as it is thought that when the fruit is once introduced a profitable trade may be cultivated. In appearance the Passion fruit somewhat resembles the walnut. The fruit is of a yellow colour, and the flavour is nearly similar to that of a black currant. In the colonies, where there is a good demand for the product, it is frequently eaten with sugar and cream. Mr. S. Low, of the firm of Messrs. W. Weddel and Co., 16, St. Helen's Place, has been appointed by the New South Wales Government to report on the condition of the shipment, and when seen by a representative of the *City Press* he pointed out that the present consignment had not been packed in the best manner possible, and that the temperature of the compartments in which it had been carried had been far too high. Consequently, he said, more than an ordinary amount of delay occurred. Mr. Low thinks that in the future a very large business will be done in the fruit of Passiflora edulis, but in his opinion the trade might best be opened up by sending a few cases to a private merchant, who would distribute it among the best class of fruiterers. The fruit could thus be introduced to the public, and a demand would, he says, no doubt, soon be created.

American Fruit Crop.—The September report of the Department of Agriculture at Washington contains much information of interest relating to the American fruit crop. The apple crop does not appear to be very satisfactory, and the downward movement in the general condition of the apple crop has continued, only four States—Georgia, Iowa, Minnesota, and Idaho—reporting any improvement upon the condition in the preceding month. Three States return the September condition above 100: these are Idaho, 115; Minnesota, 105; Wisconsin, 104. At the other extreme are such values as 18 for Indiana, 20 for Ohio, 20 for Nebraska, and 25 for Missouri. In the New England States the average condition ranges between 75 and 51, whilst in New York it is only 33, and in New Jersey 38. Of peaches about two-thirds of a full crop is looked for, but there is great local variation. Georgia, the leading peach-growing State of the Union, is fortunate in returning an average as high as 108. On the other hand, Texas at 46 and Arkansas at 38, these ranking probably as second and third of the peach-producing States, have less than half a crop each. Along the Atlantic slope, from New York to Virginia inclusive, from 10 to 49 per cent. of a full crop is indicated. The condition of the grape crop is regarded as very satisfactory.

Horticultural Club.—The first dinner and conversazione of the session 1898-99, will take place on Tuesday next at six p.m. The subject for discussion will be "The Fruit Crop of 1898 and its Lessons," to be opened by Mr. George Bunyard, V.M.H.

Protectively-coloured Mice.—The common house mouse did not escape the notice of the scientists assembled at Bristol, for Dr. H. Lyster Jameson exhibited examples of a race of protectively-coloured mice which inhabit a sandy island in the Bay of Dublin, known as the North Bull. A considerable percentage of the examples are distinctly lighter in colour than the ancestral type of house mouse, though every possible intergradation occurs between the typical house mouse and the palest examples. Dr. Jameson regards the marked predominance of sand-coloured examples as due to the action of natural selection. The hawks and owls which frequent the island, and are the only enemies the mice have to compete against, most easily capture the darkest examples, that is to say, those that contrast most strongly with the colour of the sand, and thus a protectively-coloured race is becoming established. A reference to old charts and Parliamentary papers has shown that this island first came into existence about a century ago, and consequently it is possible to fix a time limit within which the race in question has been evolved. Professor Poulton emphasised the value of these time data as being an additional proof of the statement made by the president in his opening address that the transmutation of species is not necessarily so slow as to be indiscernible.

Some Crested Begonia Blooms of great excellence have been sent us from Aberlour, Strathspey, by Mr. J. G. White, who states that the plants bearing them were raised from seed sown this year. In the Strathspey district begonias, both single and double, have flowered profusely, but unfortunately two frosts occurred last week, one of four and the other of seven degrees, which effectually ended the outside display. Mr. White is to be congratulated upon his success as a begonia grower, for the trusses and flowers before us are large and substantial, bright, clean, and fresh even after their long journey. There are buff, pink, salmon, apricot, and crimson forms all fringed in a much more regular and bold manner than any we have hitherto seen.

Sweet, Seville, and Bergamotte Oranges.—The Sweet orange, which is also known as the Chinese or Portugal orange, is the fruit of Citrus aurantium, a small, much-branched tree of about twenty feet in height, which is scarcely known at the present time in a wild state, but which seems to have been originally a native of Northern India or Southern China, and not introduced into Europe till the middle of the fifteenth century, at least, so says Mr. J. R. Jackson, A.L.S., in *Knowledge*. At the present time the Sweet orange is cultivated very extensively in many parts of the Mediterranean district, as well as in Spain, Portugal, Madeira, the Azores, and many other countries possessing a suitable climate. In the South of Europe the trees flower in April and May, and the fruits ripen about a year after. A very large number of varieties of the orange have been described, the most important being those affecting the size, form, or quality of the fruit. The more important varieties are those known as the China orange, the St. Michaels, the Blood or Malta, in which the pulp and juice are of a blood-red colour, the Mandarin, and Tangerine. Orange trees are remarkably prolific fruit bearers, and it has been stated on good authority that one tree has been known to yield twenty thousand fruits fit for exportation. Enormous quantities of fruits, which are ever increasing in bulk, find their way into the English market, and when it is borne in mind that each fruit has to be gathered separately, wrapped in paper and packed, together with the cost of the boxes, freight and labour throughout, and after all this the fruits can often be sold in the retail market at twenty for a shilling, it seems very remarkable that the crops are made to pay even for the ground upon which they are grown. The orange is one of the most wholesome fruits known, and a truly valuable refrigerant, and it is remarkable that very few people dislike the orange. Besides the use of the pulp as an edible, the rind of the fruit, known as Sweet orange peel, is valued for its aromatic, stimulant, and slightly tonic properties.

Essential Oils from Oranges.—The essential oil, contained in such large quantities in the glands of the rind of the Sweet orange, is extracted both by the sponge and ecuelle processes. Large quantities of oil of orange peel are used in Germany in the preparation of perfumes and liqueurs. From the flowers a volatile oil is distilled, known as oil of neroli, which is one of the ingredients in Eau de Cologne, and is also used in perfumery and liqueurs. Besides this, the leaves and young shoots of the orange plant yield by distillation another kind of oil known as Essence de petit grain. The bitter or Seville orange, which is a variety of the last named, is rather a smaller tree, and does not seem to be cultivated in India except in gardens, but it is extensively grown in the same countries as the Sweet orange. The chief distinction is that the rind of the fruit has a bitter aromatic taste. It is used in making candied orange peel. The flowers are also used in distilling for oil of neroli. This variety, which is now classified as Citrus aurantium, var. Bigaradia, was at one time considered a distinct species under the name of C. vulgaris. The Bergamotte orange is another variety (C. aurantium, var. Bergamia). Its chief distinctions from the Sweet orange are its smaller flowers, which are known by their delicate and peculiar odour, and the paler colour of the fruit. The Bergamotte orange is grown chiefly near Reggio, in Southern Calabria, and more sparingly in Sicily, Southern France, and elsewhere. The volatile oil obtained from the rind of the fruit forms the Essence of Bergamo of the chemist, the principal use of which is in perfumery, while from the pulp is obtained, by expression, the acid juice which forms a portion of the commercial lime-juice.

A Practical Gardener on Bird Destruction.—In reply to a letter by Colonel Lautour, which appeared in the *Morning Post*, in condemnation of the steps that are being taken with a view to the preservation of useful birds, Mr. R. Maher, head gardener at Yattenden House, Newbury, writes: "You did me the honour to publish my plea on behalf of the birds, and likewise a letter on the other side of the question from Colonel Latour, who seems to think that the preservation of our British birds is a whim of a certain class of faddists. Of that class I am one, and at same time a practical gardener of forty years' experience. The last eighteen years I have had charge of large gardens practically in a wood swarming with birds. My bread and cheese, as it were, depend on a full supply of fresh flowers and vegetables, and yet the birds and I get on very well together. Of course, gardening, including fruit and vegetable culture, is essentially a matter of dressing and keeping, and where birds are numerous netting must be provided for bush fruits and strawberries. Speaking from a practical gardener's point of view, the only bird I consider it necessary to destroy is the bullfinch, for its bud-destroying propensities, and even the bullfinch during part of the year lives on weed seeds, such as docks, charlock, &c. The worthy Colonel seems to be afraid of foreign competition, but if British produce had as free access to the markets of Paris as French produce has to those of London that bugbear would soon disappear. If the French would admit our choice products, such as hothouse grapes, choice dessert apples, and pears, duty free, as we admit their produce, we need not kill our blackbirds and thrushes on that score. A short time since a good trade was springing up in France for British hothouse grapes; it was displacing the native produce by reason of its superiority, when a heavy duty was placed on the grapes, and of course the trade collapsed."

NOTES FROM IRELAND.

THE strawberry crop turned out excellent, even beyond our expectations, and thanks to the fine and sunny weather the flavour was all that could be desired. Red, white, and black currants were an unusually good crop. Cherries were an absolute failure. Gooseberries were an enormous crop of fine berries. Pears are well nigh a failure. Apples are somewhat uneven, some trees being heavily laden, while others have but a few fruit; the crop, however, will be an average one. Raspberries have borne a very heavy crop. In other parts of Ireland from here to Cork, I notice apples are everywhere a very heavy crop, notably on old trees in orchards. Plums, as far as my observations go, are a very light crop everywhere. This is also the report I have of the fruit crop over a widely scattered district. So far this has been one of the best years for potatos I remember. Early varieties have yielded a magnificent crop, and the quality is of the highest order after cooking. Ashleaf's turned out a really splendid crop, reminding one of a crop of Magnum Bonum. My old favourite, Early Puritan, has excelled all previous records; and this is unquestionably the potato for the cottager, being a splendid cropper and of superb cooking quality. Peas and beans have cropped well, and appear to have been in no way affected by the dry season. Autumn-sown onions are this year a very indifferent crop, while the spring-sown varieties are the worst I have ever had. Tomatos on outside walls are carrying a very fine crop of fruit, and providing we do not have a wet autumn, they should ripen thoroughly. During the past fortnight the weather has been very showery, and mushrooms, which are generally very abundant in this locality, have proved a very disappointing crop. Wasps are very abundant this year, and as a proof that fruit is scarce here, I may add that they have eaten the few solitary pears we had, although they were as hard as stones; to-day I notice they are eating the carrots in the ground.

Carnations have been satisfactory this season, while I do not remember seeing roses so good anywhere as they have been here this year. Chrysanthemums are very promising; the wood is firm, owing to the plants being dwarfer this year than usual. Montbretia crocosmiæflora is a glorious sight now. I have never seen it so good as it is this year; not a bulb has missed flowering, while some have as many as four spikes. The secret of successful cultivation of this bulbous plant is to transplant at least every second year. Plant them singly, just like gladioli, and the result will surprise anyone who has not tried it. If allowed to form large clumps they carry only a few spikes of bloom on the margin of the clumps, which are very poor compared with what they are when regularly transplanted. Some growers consider the montbretia to be only half hardy. This is an erroneous idea, here, at any rate, for they are perfectly hardy throughout Ireland. Even, when required for pots, the bulbs are best planted out, lifted, and potted when coming into flower. If well watered directly after potting they never exhibit the least symptom of distress. I have this season formed golden opinions of the dwarf antirrhinums for bedding. Some large beds of the crimson, white, and yellow varieties which I pass frequently have been a mass of flower ever since the end of June. They form one of the prettiest features in a very attractive garden. On the rockery autumn crocuses and cyclamen are making a good display. Various tritomas, phloxes, anemones, a fine selection of asters, with an endless variety of gladioli, are the principal features in the herbaceous borders now. Roses are flowering exceptionally freely this autumn, and dahlias, too, are making a fine display. Among liliums, auratum and its varieties are simply magnificent, as these do exceptionally well on this gravelly soil. Olearia Haasti has everywhere flowered splendidly this year. It is a pity this beautiful shrub is not more generally grown, as it appears to do well everywhere. Its compact habit is a great point in its favour.

Crotanstown Gardens. R. WELLER.

OUR NATIVE PLANTS NEAR THE SEA.

THOSE who reside near, or make frequent visits to the sea coast in the more remote parts of the country, must often have observed the manner in which one class of plants is situated in one particular place, and another class will hold its own but a short distance off, and yet neither will unduly encroach upon the other, although soil and general surroundings are in both cases very similar. I have been much interested this season by noting the manner and rapidity in which certain species of plants have spread over a considerable area of sea sand, from which they have drawn sufficient nourishment to sustain them in vigorous health, as though they had the best of cultivated soil in which to grow. The position referred to is at the head of a small inlet from off the Wigtown Bay, which is, as it were, let into the pleasure grounds of Galloway House, as these surround the greater part of it. This is well protected by a lofty headland from the fierce Atlantic gales, and tree and shrub life thrive luxuriantly to within a few feet of high water mark. At the highest and most sheltered part of this inlet, or bay, is a stretch of sand some five hundred yards in length, by twenty in breadth, most of which has been thrown up by the sea in former ages, but which, with the exception of occasionally very high tides, or violent storms, is not covered with salt water, even for short periods at the present day.

This bed of sand, especially the higher portion of it where it merges with terra firma, has become the home of many of our native plants, some of which are very seldom met with. One of these is the thorn apple (*Datura Stramonium*), which has been known here for several years, but until the present season it has not been seen in great numbers, yet, owing probably to some favourable event having occurred in connexion with the distribution of last year's seed, it is more numerous now than ever before. When fully developed, the plant is about two feet in height, double this in breadth, and presents a nearly flat surface of very dark green foliage, from which the white tubular flowers protude in a very effective manner. The plant commences to flower when only a few inches high, from the point of the shoot. As soon as the first flower is formed, two shoots spring from its base, and these in turn produce flowers, and the branching process is again repeated, so that a matured plant will generally present a good many blooms, with seed-pods, in various stages of growth, down to the ripening seed. The seed capsules are quadruple in form, and are covered with very strong spines, greatly resembling chestnut burrs. As the seeds ripen these open, showing the great quantities of seed contained within. The plant is fibrous rooted, and although it supports such a quantity of foliage, it penetrates but a short distance below the surface, and may be very easily detached from the sand. Though thriving so well in sea sand, it cannot withstand actual contact with sea water, as, when this occurs, its utter collapse is only the matter of a few hours. This plant should make a useful subject for subtropical gardening or bedding out, as the foliage is freely produced, and handsome in appearance, and closely resembles that of the solanums, so often used for the purpose.

Another quaint, if not beautiful, plant growing at the same place is the Henbane (*Hyocyamus niger*). The arched branches of this are about three feet in length, and are furnished with a double row of leaves, which droop gracefully on either side, while along the back or upper side of the branches are two rows of the peculiar coloured flowers, which are succeeded by the seed capsules, standing erect along the whole length of the branches, and are fitted with the cap-like arrangement, which, when ripe, is easily removed with the point of a knife, disclosing vast quantities of seeds.

The common Teazel (*Dipsacus sylvestris*) is fairly well represented, but it does not increase to the same extent as the plants already mentioned, which is doubtless owing to the ripened flower heads being cut for arranging with sedges and other lasting flowers in the winter season.

Verbascum thapsus, the common Mullein, has also become well established on the higher ground, and, judging by the rate it has increased during the past year or two, it will soon be very prominent. At one particular place the four species named formed a charming picture of Nature's handiwork. In the front row were the Thorn Apples, showing great numbers of blooms, well raised above the luxuriant foliage; behind these the Henbane was spreading its long branches in all directions; while the Teazels and Mulleins reared their stately spikes of bloom against a background of beech, pine, and other trees, which gave a very effective setting to the whole. JAMES DAY.

Galloway House, Garliestown, Wigtownshire.

HARDY FRUIT AREA.

I QUITE agree with you in reference to the extension of the fruit area, and I feel that the authorities had better let well alone, though the well may be far removed from exactness. There are few things so truly hateful to the rural mind as statistics, or any change in the methods of collecting them. By some means or other hardly does a parish or Government official appear with note book and pencil than the nightmare of a bigger rate or new tax troubles the agricultural mind. Hence in practice new schedules may secure no more reliable data than old ones. Growers have become used to the latter, and it will require years to help them to take kindly to the former. And meanwhile most growers are dead against official returns or other figures in their special business. Only those most familiar with the mysteries of rural life—such as growers, fruit merchants, jam factors, horticultural teachers or lecturers—can have any true idea of the horror and suspicion of figures that so generally prevails. Unless Major Craigie and other heads of departments are gifted with great patience and prudence, our newest schedules of fruit returns may readily become more illusionary than the first. Neither do all the mistakes arise from a prejudice or aversion to exact or, indeed, any returns. Some of them, as your extract from Major Craigie shows, are more or less inherent to the nature of the case. He says the use of the new schedules has brought to light in somewhat numerous instances cases where the older entries necessitated a careful inquiry, which showed that there had been in some places in former years a failure of the occupier in dealing with the classes of fruit properly included under this head, and that errors were made in the measurement of the small fruit areas lying within orchards and gardens, but occupied at the same time by fruit-bearing bushes. But this is a merit of modern cropping on which much of the success of modern fruit growing depends rather than on faults of scheduling, and the more crops we can run abreast on the same ground the better or the more profitable. Just now, when market gardening is being made a special branch of farming, and many small farmers and allotment holders are devoting special energy, skill, capital, and larger areas to market gardening, it seems almost a national misfortune that the acreage of our market gardens should have been dropped or discontinued. Possibly the mixed cropping, which is one of the chief merits of the system, proved the chief difficulty here also. Certainly, it must not be too hastily assumed that these market gardens have ceased to exist or to pay because they have dropped out of our national returns. On the contrary, their areas are widening, and their produce and profits growing in volume and quality day by day. And market gardens need multiplying at least tenfold before our toiling millions can have enough and to spare of our most luscious fruits, nutritious foods, and most fragrant flowers. The distinction, again, between orchard and garden produce has always been more or less capricious and uncertain, especially our head fruit (such as apples, pears, plums, and cherries) and ground fruit (such as gooseberries, currants, raspberries, intercropped again with strawberries, lettuces, &c.) And so long as we crop and feed the earth, as we do to-day under our express and multiple systems of cropping, so as to leave the residuum of fertility in favour of the soil, we shall go on reaping a maximum of food from minimum areas, schedule them as we may. Practical experts in culture and in special knowledge might also be able to afford useful information in the art of scheduling produce, so as to avoid omission or overlapping, and make our returns in these classes more reliable records of facts, while interfering as little as possible with the freedom or prejudices of growers, which no officials can ignore with impunity. D. T. F.

The Missouri Apple Crop of 1897 was estimated as worth twelve million dollars, but the crop this season is estimated at a much less value, although the fruit growers are quite satisfied with their prospects.

CHRYSANTHEMUMS.

NEWS OF VARIOUS COLLECTIONS AND GOOD PROSPECTS.

I HAVE lately taken a gardener's holiday, which means that occasionally a day or a few hours have been spent in rushing off to see other people's gardens. There is much satisfaction in this form of recreation, because we are bound to find something to "make a note of," and often, too, lose a little of our conceit by finding that we do not monopolise all the good things, or perhaps, occasionally, get something in the way of consolation when we happen to observe that other people have the same difficulties to overcome and experience the same reverses in cultivation as ourselves. Best of all, however, if we approach our neighbours with open minds, we not only find out some of our weak spots but also the ways and means to cure them.

Knowing how interested chrysanthemum growers are in the prospects of the season generally, I have made notes of a few collections which may be acceptable to readers, and judging from what I have seen, which, however, is entirely in the southern counties, we may reasonably look forward to a very successful season. The past hot weather has been ideally favourable to the plants, and complaints of unripened growth can hardly be possible. Watering has been a heavy item in the labour pertaining to their good cultivation, and consequently opportunities for supplies of liquid manure, without the risk of encouraging a too gross leafage, have been frequent. The possibilities of damping of the flowers is much less when growth is made under the influence of hot sunshine than that of showery seasons. One drawback, however, which may be present with some growers is where early buds have been secured the chances are in favour of their becoming too hard and refusing to open so well, or of such satisfactory form as would be the case in more moist weather. This early bud selection is a mistake, generally speaking, as I have before pointed out, and the only assistance that can be offered to such plants is to stand them where they will be shaded through the hottest part of the day, not under trees, but on the north side of a wall or building. There is also the chance of early buds dying off when little larger than peas; this usually results from over-feeding. When the plant has finished growing, supplies of manure should be much less frequent until the blossoms begin to unfold, otherwise injury to, if not the total loss of the bud is probable.

In the course of one of my visits I saw the famous collection of plants grown by Messrs. Cannell at Swanley; a regular grove of healthy stock, numbering some thousands, were neatly arranged in a fine open position here. Mr. Cannell's grower must have had some tender knuckles if he has used them to rap the pots of this huge batch of plants. That they have been well and carefully tended there is no doubt, and the Swanley flowers will tell a good tale in due season of the labour and thought bestowed on them; but of these more may be said another time.

From Swanley to Bromley, with the help of the useful bicycle, is not a long journey, and the opportunity of seeing the well-kept garden at Elmstead Grange, which is under the charge of Mr. J. Blackburn, was well worth the run. Everything is well kept here, and in first-rate order. How much neatness and methodical management enhance the good effect of high cultivation is strikingly shown in these gardens. The chrysanthemums are examples of the skill of an old hand, a collection where each plant bears inspection, and promises to yield a good result for the care evidently bestowed on it. Blooms from this place have materially helped in past seasons to win for Bromley the N.C.S. trophy for affiliated societies, and have also scored many successes in various other contests. It is to a certain extent remarkable that, even amongst the best cultivators, there is more or less a distinctive appearance about the plants, an individuality, as it were, pervading the whole, which in some cases makes it difficult to recognise certain varieties from their habit and foliage as compared with one's own. A few buds in this collection appeared to be developing rather rapidly, and may be past before the November shows, but the majority are well timed.

In the same locality, Mr. Weeks, the enthusiastic secretary of the Bromley Society, showed me what a very busy amateur can do in spare half-hours. Some fifty plants are grown at the back of his place of business, and a few more in his private garden, and really good they are; in fact, one sees many large gardens where these plants are not so well done. Many, if only they take a real liking for flowers, would find that the thorough cultivation, as a hobby, of one or two things, rather than attempting too much, yields the greatest pleasure, and I am sure they would be surprised as well as gratified at the success they could command. The chrysanthemum is one of the best plants for such growers, not only because it is easily grown, but best of all because it blooms during the autumn and winter, and lasts such a long time in beauty.

In our own neighbourhood the best plants are grown by Mr. Page at Chase Side House, Enfield. Though the collection is small, not more than two hundred and fifty plants being the limit, they are decidedly first-rate. Most of the cream of last season's novelties are included; healthy plants and buds (this latter one of the points which prove the cultivator best) are there of such promising sorts as Madame A. Rosseau, Souvenir de Madame E. Rosette, Mdlle. L. Zede, Sec Fierens, Mary Molyneux, Lady Isabel, Georgina Pitcher; and of the well-known varieties, the same excellent "timing" is naturally in evidence. Mr. Page looks forward hopefully, as he may well do; it is his first season in Enfield, but not so with chrysanthemums, as some of his flowers grown at another place were sent over to Ghent with the deputation from the N.C.S in 1897, his Madame Carnot being one of the finest shown.

On another journey I had the great pleasure of an afternoon at Aldenham House Gardens, where, as everyone knows, chrysanthemums have a real home. The plants here are most promising, quite a picture of health, and so good that Mr. Beckett must surely be satisfied. Many varieties are grown in nine-inch pots, and knowing how experienced a grower Mr. Beckett is, one cannot question the practice, as results have satisfied him long ago of its value. We ourselves, as readers will know, prefer a size larger pot, excepting for a few sorts, but probably the difference in the soil used at Aldenham and our own (the former being much richer) brings the value of the rooting medium about equal. Some robust seedlings are on trial, one or two are of an exceptionally dwarf habit amongst these, and had buds which should give large flowers, and we may hope good colours too, for of the old ones several are much too tall, and on this score must give place to any improvements in habit, providing the flowers are up to the same standard.

Both incurved and Japanese sections are well represented; of the former most growers will be more interested in the Queen's. These are fine plants, and the buds all taken about August 25 to August 30. Princesses were nice buds of earlier dates, taken about August 15, and were swelling away most kindly. The new Lucie Faure, Madame Ferlat, Duchess of Fife, Emile Nonin, and Mrs. Egan look well, and exhibit in their strong growth their close affinity to Japanese types.

Of the new Japanese, very fine-looking plants and dwarf in habit, are Georgina Pitcher, Chatsworth, President Nonin, Surpasse Amiral, and Belle of Castlewood; at the same time the hazel appearance of the stems and tinted leaves show that the hot sunshine has matured the growth, which is a condition essential to the development of sound blossoms. A batch of bush-grown plants were principally of late varieties for giving supplies of cut flowers through December onwards. Many-branched and clean-grown stuff that will be invaluable at midwinter.

The neat, well-arranged, and perfectly kept tone which pervades the whole of these extensive gardens is evident in every detail of the chrysanthemum culture, plainly suggesting to every observant visitor the fact that only by strict attention to small matters can such results be achieved. There are not many Aldenhams it is true, because there are not many such princely gentlemen who really love gardening as does its noble owner, but equally true also, because there are so few Becketts.

Trent Park Gardens. W. H. LEES.

DWARF KIDNEY BEANS.

ALTHOUGH a trial of dwarf kidney beans was conducted at Chiswick very recently, yet it seems needful to keep pace with the new ones so rapidly introduced that yet another trial should be made next year. These beans constitute one of the vegetables that can be well done outdoors in the Royal Horticultural Society's gardens. But whilst with so many of these beans there seems to be very little distinction in plant or pod, or even in cropping quality, there is undoubted distinction in colour and form of seed, and although to the grower that point may be of small moment, yet does it serve to satisfy that there is between them actual distinctness.

I have been making a small trial of these beans in two places this season. But whilst the one was a comparative failure, because the site and soil were so very cold in the early summer, in the other case the growth was excellent, and the crop highly satisfactory. One of these varieties was a white-seeded form, having also white flowers that were borne in prominent racemes above the leafage. This is an early, dwarf, very free cropping variety, and I have it under the name of Everbearing. It does not seem to be in common cultivation. Such well-known varieties as Negro Long Pod—though in this case it was not the true long-seeded selection I used to have at Bedfont—and Ne Plus Ultra, the ripe seeds from a dry sand being quite golden in colour, are difficult to beat as dwarf, free-cropping varieties and early. It is no matter for surprise that these continue to be so much in request in gardens. My latest to crop and ripen was Canadian Wonder, yet one of the very finest and best of all the section, and likely to hold its high position for many years. Another very full bearer is Sutton's Magnum Bonum. This in appearance and growth very much resembles Canadian Wonder, but the seeds are rather large, white, and have an edge of rich colour on the eye side. Sutton's Perfection is also a good mid-season bean, cropping heavily, the seed reddish speckled.

I had also the old Mohawk, not very easy to obtain in commerce now. The seeds of this variety are also speckled red, and it seems to be an excellent one. Two or three varieties or selections of late come from the Mohawk. Very striking amongst the new sorts are the fine ones raised by Mr. J. Smythe, Basing Park, Hants. One named Goliath is a strong grower, carries very long fleshy pods, and has seeds black in colour and long. The other is like a dwarf scarlet runner, for the flowers are scarlet, being borne on long racemes well above the leaves, and the seeds, though smaller, resemble those of scarlet runners. Both of these have been obtained by intercrossing the scarlet runner and Canadian Wonder.

But there are, old and new, so many varieties, distinct, or assumed to be, in commerce, that a thorough good trial of all should have exceeding interest. To enable full justice to be done to each variety the seeds of the earlier and dwarfer varieties should be sown fully six inches apart, and those of the stronger growers quite nine inches apart. Hence very few seeds would be needed to sow a row of some twelve to fifteen feet. Some dry seeds of every variety should be kept for inspection, and every effort should be made to bring all the varieties or stocks, which seem from the colour of the seeds to be similar, closer together. When that is done efforts at comparison are so materially helped. I hope these suggestions will be acted upon in the proper quarter when the Chiswick trials for next year are arranged. A. D.

THE CHRYSANTHEMUM RUST.

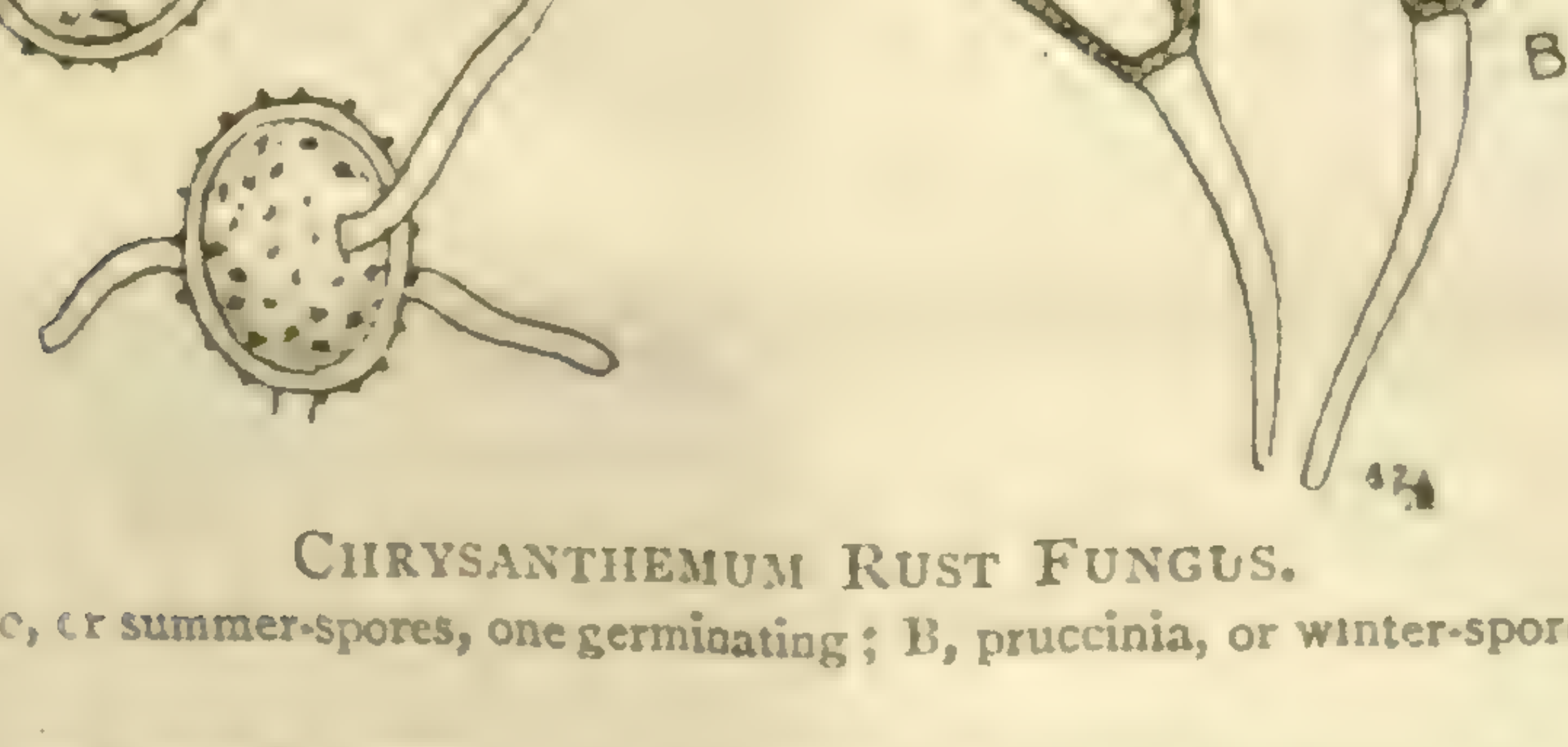
FUNGI are very remarkable plants in many respects. Their quaint forms, peculiar colours, and often poisonous properties, led to their being considered uncanny, and associated with witchcraft and other peculiar practices during the dark ages. Consequently they were promptly destroyed on every possible occasion by proper-minded people. Even at the present day it is interesting to observe that the majority of people consider it a duty, even at the expense of slight inconvenience to themselves, to kick over every toadstool with which they come in contact; an inherited survival, almost unconsciously performed, persisting after the cause of its origin has been forgotten.

CHRYSANTHEMUM-LEAF INFECTED WITH RUST.

Again, fungi differ from the great majority of plants in not being able to obtain their food directly from the soil, but are *saprophytes*, obtaining their food from dead organic matter, or *parasites*, living on and obtaining their food from living plants, or in rare instances parasitic on animals. It naturally follows that fungi follow in the wake of the higher plants, from which they derive their food, and are never pioneers in the extension of plant life.

Finally, as a rule, parasitic fungi do not indiscriminately attack any plant that comes in their way, but can only live and enjoy life fully on those particular orders of plants on which their ancestors flourished.

Puccinia Hieraci, the Chrysanthemum Rust fungus, has long been known to mycologists, those peculiar people who devote their time to the study of fungi, as a very common fungus in Britain, growing on various kinds of composite plants, as the hawkweeds, burdock, nipplewort, knapweed, &c., and such people are not in the least surprised to learn that this fungus has claimed the cultivated chrysanthemum as a host, considering that it is a member of the family specially favoured by the attention of the fungus. The principal reason why the fungus is so very abundant on chrysanthemums is because these plants are just now usually grown in crowded communities, and it is so much easier to pass from one plant to another than is the case in a state of nature, where the host plants are usually scattered; besides, it entails no pecuniary loss to anyone if a few hundred hawkweeds are destroyed, hence its ravages on wild plants pass by unobserved.



CHRYSANTHEMUM RUST FUNGUS.
A, uredo, or summer-spores, one germinating; B, pruccinia, or winter-spores, X 400.

The rusty spots so abundant on the leaves represent the *uredo*, or summer fruiting stage, of the fungus. Spores are produced in myriads, and germinate as soon as they are mature, and although the fungus is deprived of the usual means of spore diffusion when growing on plants cultivated in houses, this misfortune is more than compensated for by kindly sprayings, watering, and sundry disturbances of the plants, which enable the spores to reach still healthy parts of the plants, which promptly become inoculated with the disease. When the disease is first observed all suspicious plants should be removed, and the remainder sprayed with potassium sulphide, which destroys germinating spores. Later in the season the leaves that have borne uredo spores now produce the winter form of fruit, the spores of which do not germinate until the following spring, when they inoculate the young chrysanthemum leaves, and give origin to the uredo stage of the disease. From the above account it will be seen how very important it is to collect and burn all leaves bearing the winter form of fruit, as the recurrence of the disease depends entirely on the presence of these spores in the vicinity of the plants. G. MASSEE.

EXHIBITING DAHLIAS.

THE dahlia show, which may be said to have given birth to the National Dahlia Society, was held in St. James's Hall in 1858, and ever since that time, when a special exhibition of dahlias has been held, some attempts have been made to illustrate the decorative value of the dahlia. From the device of thirty or forty years ago, which only produced incongruities and monstrosities, to the tables of dahlias to show their decorative value, which was inaugurated at Earl's Court in 1893, and reproduced in 1897 at the Crystal Palace, there have been seen attempts to reach this end, but they have produced but little in the way of practical results.

All the writing and talking in the world will never get rid of the present method of exhibiting the show and fancy dahlias on boards. For what is the ruling purpose of exhibiting but to show a particular flower in as fine a character as it is possible to obtain it, whether it be the dahlia, rose, carnation, or any other. To this end special and attentive culture is necessary to bring out as far as possible the possibilities of the flower, and that being done, the next thing to do is to exhibit it so that as much as possible of its surface can be seen, and its perfect symmetry noted. A perfect show dahlia may be a formal looking flower, but there is no better method of showing off its fine proportions to better advantage than when placed in contrasting lines on an old-fashioned board. All competitive exhibitions must of necessity be formal, it is inevitable from their very purpose. I do not think the florist who grows his dahlias especially for exhibition purposes should be lectured because he prefers to show his dahlias in a particular way. This particular way, sanctioned by long usage and universal adoption, is conducive to a complete critical examination on the part of those whose business it is to decide upon the merits of competing stands of blooms, as it enables the whole surface of the flower to be noticed; and if there are defects in any they are revealed. A perfect dahlia stands as an emblem of power in a flower, and mankind admires power, whether it be manifested in a vegetable product or human being, an animal, or a work of art.

The present method of showing cactus, pompon, and single types on wire frames is formal in the extreme, but is the means of displaying the individual blooms to the best advantage, and it is difficult to see how the method can be advantageously improved upon. If dahlias are to be shown in vases, as suggested in these columns, the stems must be wired to keep them in an upright position, and then they will exhibit just as much formality as when arranged on boards. There are but very few, indeed, of our large show and fancy dahlias the flower stems of which are stout enough to support a heavy bloom in an upright position for any length of time. It is, if anything, worse than the cactus varieties. The pompon type might be utilised in vases of, say, a dozen blooms each, because the flowers are small, and the stems generally of a somewhat rigid character. The single varieties are so fragile that their value for decorative purposes is greatly discounted by their fleeting floral service.

By all means let opportunity be afforded at our dahlia exhibitions for "demonstrating the possibility of producing artistic effects in the garden," and there are many gardens that furnish pleasant illustrations as to how the dahlia can be used in this way. There are hundreds of houses which have gardens decorated with dahlias that within doors furnish delightful illustrations of how the dahlia can be employed in brightening the home. By all means make our dahlia shows as varied as is possible, but let the florist who grows for exhibition follow his own inclinations and methods as an important part of the dahlia exhibition. There is plenty of room for him and for his belief that the flower he tends with so much care is the incarnation of every attribute of beauty, as well as for the artistic critic who is rich in epithet and condemnation, but poor in inventive resource. All that is said against the present method of exhibiting show dahlias is said against the mode of showing specimen blooms of chrysanthemums, but they will survive the shock of these periodical attacks, and be witnessed at exhibitions long after the suggested methods for the attainment of artistic excellencies have proved illusive and disappointing.

I venture to throw out the suggestion that the Royal Horticultural Society might appropriately devote one of its meetings—one at the end of August or early in September—to the production of appropriate methods for utilising the dahlia for decorative purposes. A paper bearing upon the subject and formulating suggestions might be read, and discussion invited. This, if carried out, may operate to bring out something better adapted to be shown in public than has been suggested or illustrated during the past thirty years. It might well become a part of the programme of the society in the year 1899. RICHARD DEAN, V.M.H.

HOMOLOGY OF PLANTS.

By Professor F. O. Bower, D.Sc., F.R.S.

(Continued from page 635.)

Here a brief reference must be made to the very beautiful results of Wager on the changes in the zygote of *Cystopus candidus*, which have been verified and extended by Berlese. Wager states that in this fungus the process of fertilisation does not differ in any essential particular from the process as it takes place in Angiosperms. On the division of the fusion-nucleus of the zygote the number of the chromosomes present before division appears to be considerably in excess of the number observed in the nuclei of the ogonium. "By counting as carefully as possible, twenty to twenty-four, or even more, appear to be present, and the impression is produced that the number is certainly much larger than that observed in the oogonium." Divisions of the nucleus then follow to form four, eight, sixteen, and finally thirty-two, in which condition a period of rest ensues; and, finally, it appears that a division of each into four follows, to form the nuclei of four spores. Wager believes the reduction to take place at this last division, and Berlese has established a strong probability that such a reduction actually does take place. Plainly these observations are not final or conclusive, and even if they were, the strict homogeny of this fruit-body with a rudimentary sporophyte of a green plant would not be proved. It must, however, rank at least as an important parallel case, illustrating how the reduction may be effected in a distinct line of descent.

We see then that in green Algæ such as *Œdogonium*, *Sphæroplea*, and *Coleochæte* certain divisions follow fertilisation, but we are not yet in possession of the nuclear details. I prefer, therefore, to suspend judgment as to the nature of those divisions; but in view of the peculiar behaviour already seen in other zygotes it may be distinctly anticipated that some form of reduction will be demonstrated at that stage. If that be shown then we shall be right in recognising in these small cell-bodies the rudimentary correlative of a sporophyte—the sort of beginning from which a neutral generation may have sprung in land-living plants. We cannot go farther than this as regards the green Algæ until we are in possession of the facts. There is no greater desideratum in morphology at the present moment than a detailed knowledge of the germination of zygotes such as that of *Œdogonium*.

Here I may remark that the admirable observations of Professor Klebs, whom the Section will welcome as a distinguished guest, do not appear to me to touch this question. His very varied and convincing experiments show in a number of algæ and fungi that, as regards the succession of vegetative and sexual modes of propagation, the experimenter has a very complete control. I do not find, however, any observations of his which touch the behaviour of germinating zygotes of green algæ as regards details of segmentation. I do not mention this as in the least impairing the brilliancy of Professor Klebs's work, but because Professor Ward has brought Klebs's results to bear upon the discussion on antithetic alternation in a manner which I do not think that the facts will support.

II.—Bryophyta.

Turning now to the bryophytes, these plants stand at the moment in a somewhat discredited position. We have been warned by Dr. Scott that "there is no reason to believe that the Bryophyta, as we know them, were the precursors of the Vascular Cryptogams at all," and that "there is no appreciable resemblance between the fruit of any of the Bryophyta and the plant of any Vascular Cryptogam," and the suggestion has been thrown out afresh that they may really be "degenerate descendants of higher forms."

In view of statements such as these it may be well to examine the Bryophyta quite separately, without reference to Vascular Plants at all, and see what are their main bearings on theories of alternation. And if the Bryophytes were the only Archegoniate Plants in the world, I think the case for their origin by a progressive antithetic alternation would be an uncommonly strong one. The points which are especially noteworthy are: (1) The readiness with which they may be arranged in natural sequences which illustrate increasing vegetative complexity of the sporophyte as a consequence of progressive sterilisation; (2) the nuclear details, which are as yet known, however, in only few cases; (3) the constancy of the two alternating phases, the relations of which are very seldom disturbed by apospory, and never, to my knowledge, by apogamy.

The first of these matters has been dealt with at length in my "Studies." It is, of course, possible for anyone to read such sequences as are there mentioned in reverse order, and to uphold a theory of simplification; but this must be shown to be in accordance with probability. Now it appears to me that the general probability in the case of the Bryophytes is against simplification, for the larger the number of spores which can be matured the greater the probability of survival; even in cases where, as in *Buxbaumia* and *Diphyscium*, there is an exiguous, and probably reduced Moss-plant, the sporogonium is not of a reduced type, but, on the contrary, unusually large. It seems to my mind much more probable that the Bryophytes, as a whole, illustrate a course of progressive complexity. A comparison of anatomical details frequently suggests a progressive sterilisation, a process which we see demonstrated both in Pteridophytes and Phanerogams, where actual conversion of potentially sporogenous tissue into temporary or permanent vegetative tissue does occur. When it is added that the nuclear evidence, scanty though it still is, shows the sporophyte with a double number of chromosomes, and the reduction taking place on the tetrad division of the spores, the comparison with the segmented zygotes of algæ and fungi those mentioned seems inevitable. The position of those who hold views of antithetic alternation will, therefore, be that the simple sporogonium was produced as a post-sexual growth. The starting point was probably some such multicellular body as we see nowadays in certain algæ and fungi resulting from division of the zygote, but not necessarily homogenetic with any such body that we know now living. The land-habit imposed a restriction on fertilisation, and an alternative method of increase in numbers was an advantage. The multicellular body resulting from division of the zygote provided the means for this; the cells developed separately as dry, dusty spores. As the number of divisions increased the powers of the plant to nourish, protect, and disseminate the spores became the measure of the number produced. Hence followed the elaboration of the nourishing and disseminating mechanism, which has involved a diverting of some cells from their first office of spore-production, the start being, perhaps, made in a manner similar to the formation of the peridium in the uredineæ. To my mind—taking the bryophyta alone—there is an inherent probability in all this, which far counterbalances any of the obstacles which have been raised against it.

The greatest obstacle is the fact of apospory in mosses. This departure from the usual alternation will be more generally discussed in relation to the ferns, where it is more frequent. Besides its being artificially induced in mosses by special treatment, it appears also to have been noted by Ugo Brizi in *Nature*, in the case of atrophied capsules of *Funaria*, which had buried themselves in the soil. The essential point is the production of the sexual generation by direct vegetative growth from the neutral. This would appear to involve a reduction of chromosomes, but Pringsheim's drawings show nothing analagous to the usual process of tetrad division to form the spores; the reduction, if it occurs, must be effected in some other way.

A theoretical suggestion on this point will be made later. Meanwhile let us estimate its probable importance as regards the bryophyta. It cannot fail to strike the observer how uniform is the alternation in these plants; there are, I believe, no recorded cases of deviation from the normal alternation in liverworts. I know of only a single case of apospory among mosses taken in the open, and then in atrophied capsules; apospory, when induced, follows such extreme treatment as chopping the sporogonium into pieces. And it is not as if the mosses and liverworts had escaped detailed observation; hardly any group of plants has been more carefully examined by competent observers. Deviations from strict alternation then are rare, and appear under physiological stress. This great group, which includes the simplest sporophytes among archegoniate plants, is also singularly constant in its alternation. I think this is to be connected with the permanently dependent condition of the sporophyte; its equable physiological condition, nursed and protected by the moss plant, finds its morphological expression in its comparative uniformity. Conversely the independent position of the sporophyte in ferns, and its exposure to varied conditions may have elicited more freely in them unusual developments.

(To be continued.)

TIGRIDIAS.

The Tigridias or Tiger Flowers are truly remarkable members of the great family of Irideæ—remarkable for large and handsome blooms of the most gorgeous and varied hues, some of which display white, yellow, orange, and scarlet in striking contrast, whilst others are heavily spotted and blotched with black and red on yellow, white, and purple grounds. These spots or blotches, which thickly cover many of the flowers, have procured for them the popular name of tiger-flowers. Various species and hybrids of Tigridias have been introduced in recent years with the natural sequence of increased interest being shown in them, and a greater demand for these Mexican bulbs. Ease of culture is a distinguishing feature, if a dry, sunny border can be devoted to them—as they then prove quite hardy and may remain in the soil throughout the winter; but if grown in heavy or damp soil it may be advisable to lift and store in sand until the severest weather is past and over.

Although the blooms are very evanescent, being truly "flowers of a day," this is fully counterbalanced by the quantity produced, if good culture obtains. As above mentioned, a dry, sunny border suits them best, a light, rich soil being necessary to bring them to the greatest perfection, a position frequently recommended for their cultivation being under the breakfast-room window, as, generally speaking, this will be found on the sunny side of the house, and, furthermore, the tigridias always appear to the best advantage during the early hours of the day, for many flowers, in full bloom then, are decidedly *passee* after noontide, but only to be replaced by others the following morning. For indoor culture the bulbs may be potted as soon as received, in November or December, in a sandy loam, to which some growers prefer to add one-fourth of peat. Water sparingly throughout, to avoid anything like stagnation. After flowering is over grant perfect rest in a dry and frost-proof place. It is only fair to state that much better and stronger plants are obtained from the open border, granted the essential conditions of success, than from pot culture. The normal period of blooming is from June to August.

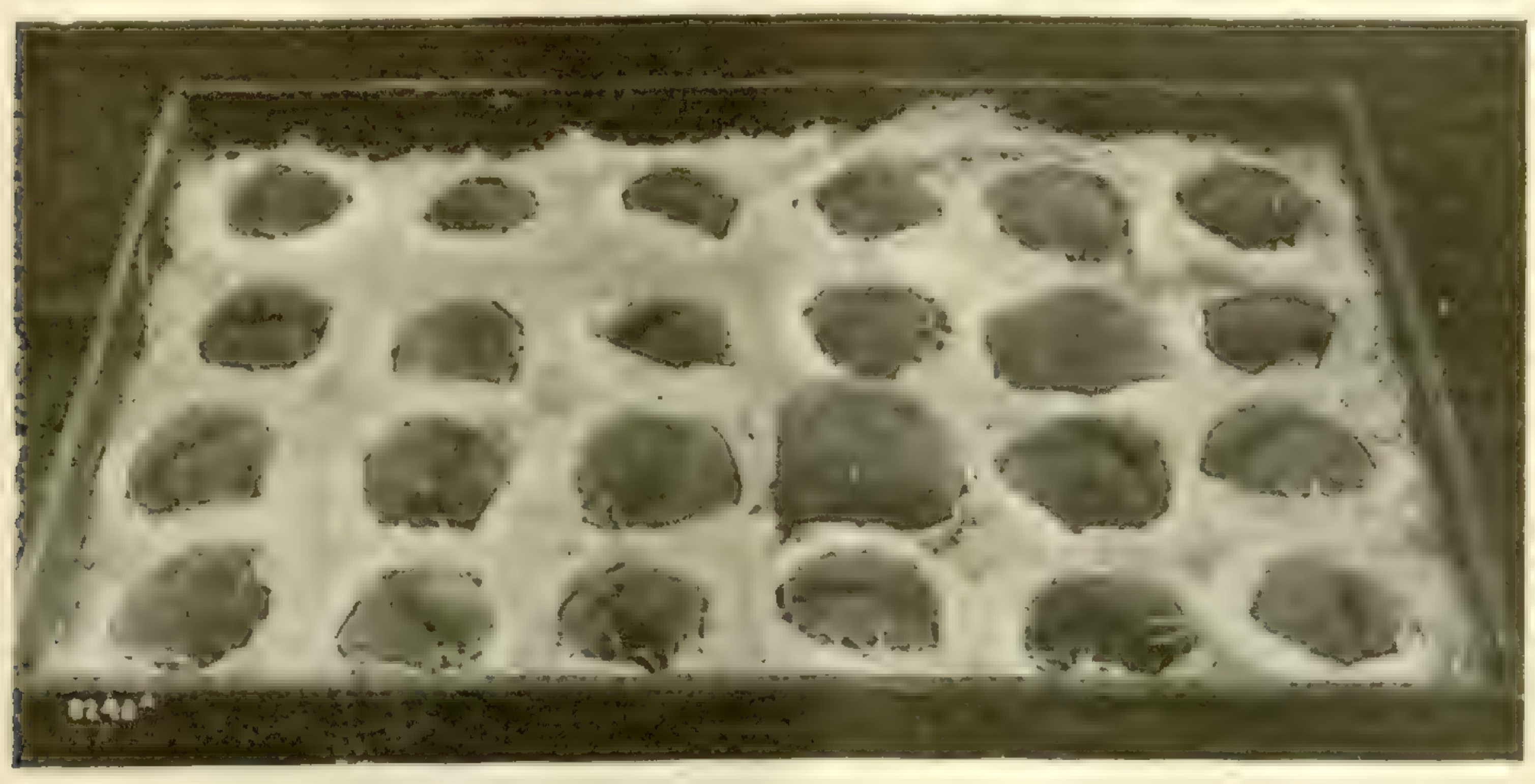
The following list, though very incomplete, includes some of the oldest and best known along with a few noteworthy novelties. Tigridia pavonia, orange-red, well known, very showy; T. p. grandiflora alba, large and beautiful flowers, white spotted with crimson; T. p. g. a. immaculata, pure white, a perfect gem; T. p. g. aurea, petals rich old gold colour, mottled chocolate, very fine; T. p. conchiflora (the Shell Flower) is yellow, crimson spotted; T. canariensis, yellow, with fine scarlet spots; T. Van Houttei, yellow and chocolate brown, a charming little species; T. violacea is very pretty, with violet-dotted centre, a true Mexican. In addition to the foregoing we have T. Pringlei, a kind of glorified T. pavonia; and T. Patscuaro, with bell-shaped flowers, white-tipped and blotched with crimson lake, a decided acquisition.

A good border of mixed Tigridias always proves an attractive feature, for in it we may have many hundreds of curious and beautiful flowers, with scarcely two alike, embracing all the colours of the rainbow, grotesquely mixed and blended. It also affords a daily transformation scene. Surely these "Mexican Day Lilies" are equalled by but few, and surpassed by none, the cultivator being amply repaid for the little time and care bestowed upon them.

Ripon. F. Dixon.

ROYAL HORTICULTURAL SOCIETY'S GREAT FRUIT SHOW.

IN fulfilment of the promise made in our issue of October 1, we give the continuation and conclusion of our report of the great exhibition of British grown fruit held at the Crystal Palace on September 29 and 30, and October 1. We also present our readers with five illustrations of leading and interesting exhibits. Messrs. G. Bunyard and Co.'s gold medal exhibit was one of the chief attractions at the show, as readers will readily understand from a glance at our reproduction from a photograph, and the descriptive account on p. 643. The first prize, won by Mr. A. R. Allan, gardener to Lord Hillington, Hillington Court, Uxbridge, with the three fine bunches of Muscat of Alexandria grapes represented, was a handsome clock, valued at £5, and presented by Messrs. Wood and Son, Wood Green, a noted firm of horticultural sundriesmen.



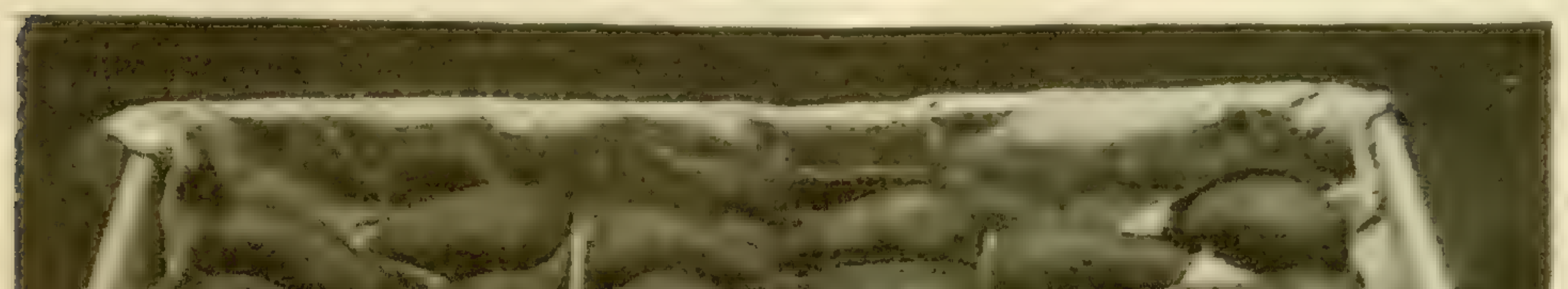
FIRST PRIZE BOX OF PEACHES (PACKED), SHOWN AT THE CRYSTAL PALACE, BY MR. J. GORE, POLEGATE.

Considerable interest attaches to the new departure of the society in providing a section for market growers, for while the exhibits as a whole taught us little that was new, it served in very many cases to show what to avoid in the way of packing, and, in some very few cases, presented features worthy of compliment. The most interesting exhibit was that of apples packed and grown by Mr. Basham, of Bassaleg, and referred to in detail in another column; Mr. Gore's method of packing peaches was simple in the extreme and effective; while Mr. Wyatt, of Hatton, also used shallow boxes for his samples of Durondeau pears, and the fruits had all carried well.

MARKET GROWERS' CLASSES.

This was a most interesting section and quite a new one; it was also educational as showing packing methods and suggesting various improvements. In the class for a single layer of black Hamburgh grapes, not less than 12 pounds, in a baby basket, no prize was awarded, as in the only basket shown the fruit had carried badly. In a similar class, but for any other black grape but Black Hamburgh, Mr. G. Thompson, grower to Messrs. W. and E. Wells, Hattonhurst, Hounslow, secured first prize with well finished Gros Maroc that were as good as if only just cut; apparently no second prize was awarded though there were other competitors. No prize was awarded for white grapes in a baby basket. Mr. J. Gore, Polegate, Sussex, won first prize for grapes packed in any other than a baby basket, his fruit being packed in a cotton-wool and paper-lined cross-handled basket, a fine method of packing for market.

The best set of four varieties of cooking apples shown in baskets or boxes containing 42 pounds net, came from Mr. E. Basham, Griffin Gardens, Bassaleg, who sent his fruit in white wicker flats packed in two layers; the varieties were Bismarck, Lord Derby, Ecklinville, and Lane's Prince Albert; this was a first class method of packing, and each layer contained about three dozen fruits; the second prize was awarded to Mr. A. Wyatt, Hatton, Middlesex, who staged rounds of Manks Codlin, Stirling Gastle, Golden Noble, and Loddington. Mr. Wyatt scored for four packages of dessert apples containing about 20 pounds each; he sent half-sieves of Duchess Favourite, Worcester Pearmain, Cox's Orange Pippin, and King of the Pippins, all finely coloured and not at all damaged; Mr. G. Tebbutt, Isleworth, came second with Worcester Pearmain, Yellow Ingestre, King of the Pippins, and Blenheim Orange. For a package of 42 pounds of cooking apples Mr. G. Tebbutt, Isleworth, won with Lady Henniker, in a sieve; Mr. Wyatt, second, with Damelow's Seedling, similarly packed.



FIRST PRIZE BOX OF PACKED PEARS, DURONDEAU, SHOWN AT THE CRYSTAL PALACE, BY MR. WYATT, HATTON, HOUNSLOW.

The best 20 lb. package of dessert apples was a half-sieve of Cox's Orange Pippins, shown by Mr. McKenzie Bradley, Leylands, Meopham; Mr. J. Jeune, Tonbridge, came second with the same variety and a similar package; the square boxes did not gain the favour of the judges. In the class for a 42 lb. package of apples, showing improved methods of packing for market, Mr. W. Galpin, Wincanton showed a box containing three layers of apples, thirty-five fruits per layer, but without any packing material beyond the blue paper lining. The judges made no award, as they did not think the method superior to others in vogue. For pears, two varieties, in two packages, each containing about 20 lbs., there was a fair competition, the first prize falling to Mr. A. Wyatt, Hatton, who had good Williams' Bon Chretien and Pitmaston Duchess in the usual half-sieves; the fruits were well graded, and had carried well; Mr. G. Tebbutt, second; two packages were shallow wicker baskets, but, though the fruits were good, lack of packing material was evident, and no award was made.

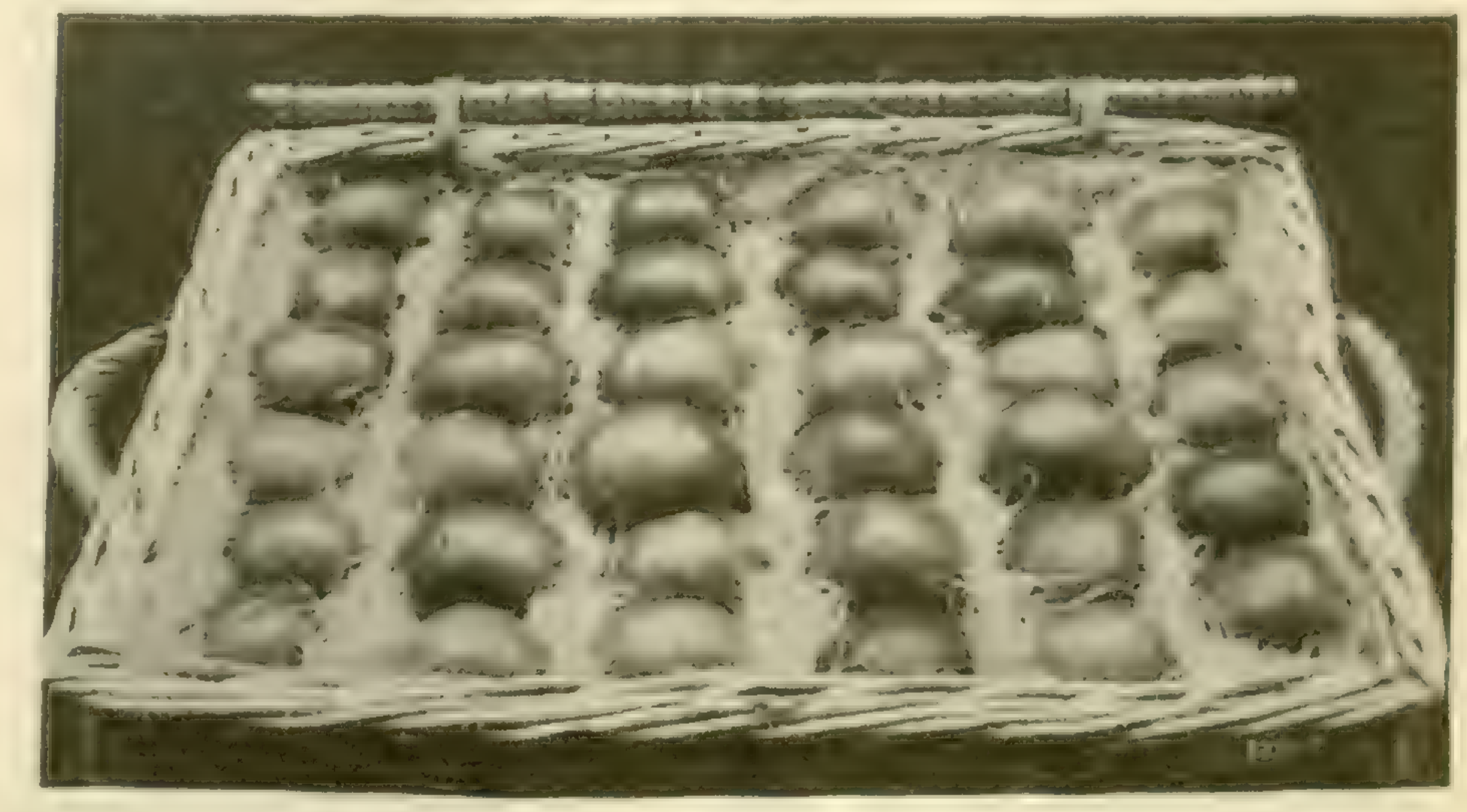
There were four packages containing from two to four dozen fruits of a choice dessert pear, packed for market, and here the first prize was won by Mr. A. Wyatt, who sent fine examples of Durondeau, packed in a single layer on wood wool in a shallow box; each fruit was wrapped in pink paper, but leaving one cheek exposed; Mr. G. Thompson, second. Only a second prize was awarded for a packet of 28 lb. of cooking plums, these being examples of Sandell, neatly packed in a half-sieve, by Mr. G. Tebbutt; the square basket from Ightham was rejected. Mr. A. Wyatt had the best basket of damsons.

Mr. J. Gore had the best box of peaches, packing his fruit in a thin wrap of cotton wool and embedding them in fine wood wool; they carried well, and presented an attractive appearance. Mr. J. Miller, gardener to Lord Foley, Esher, gained second prize, but it seems to us that he should have been disqualified, for the schedule states that "gentlemen's gardeners or amateurs, who sell surplus fruit, and nurserymen, are excluded from this division." Mr. C. Marchand, Somerfield Plantation, Maidstone, sent his peaches in bags of a soft material, but not otherwise packed; not a good method, we think. The best package of filberts or cob nuts was a 20-lb. square wicker basket of fine nuts sent by Mr. J. Jenner, Tonbridge; Mr. J. Durling, Ightham, second, with a similar packet of Kent cobs. The best package of tomatos, about 12 lb., was a cross-handled basket of two layers of fruit, sent by Mr. J. Gore; Mr. W. Iggulden, Frome, second, with a similar package. Shallow boxes were again passed by the judges in this class. Altogether this section was not so educational as we had expected it would be; however, doubtless it will be a greater success in future if continued. Mr. Basham's display was the only really distinctive feature in it.

SPECIAL DISTRICT COUNTY CLASSES.

In this division the counties of England were divided into six districts; one district combined some Welsh and English counties; another district took all but four of the Welsh counties; while Scotland and Ireland each formed a separate district. Two classes were provided for each district, making a total of twenty classes, one for six dishes of apples, and one for six dishes of pears. Two prizes were offered in each class, and in both cases the third-class railway fare of the competitor was the award coupled with £1 and 15s. respectively for first and second prize-winners with apples, and £1 10s. and £1 respectively in the case of pears.

Kent growers had a class all to themselves for six dishes of apples, and here Mr. W. Stowers, gardener to G. Dean, Esq., Sittingbourne, was first with superb fruits of Peasgood's Nonsuch, Emperor Alexander, Worcester Pearmain, Cox's Orange Pippin, Bramley's Seedling, and Lane's Prince Albert; Mr. G. H. Sage, gardener to the Marquis of Camden, Lamberhurst, second. In the Kent growers class for six dishes of pears there was but one entry, the first prize being awarded to Mr. G. H. Sage, for first-rate examples of Souv. du Congrès, Williams' Bon Chretien, Beurre Bachelier, Doyenne du Comice, General Todleben, and Pitmaston Duchess.



BASKET OF APPLES, ECKLINVILLE, PACKED BY MR. E. BASHAM, BASSALEG, NEWPORT.

The second county district included Surrey, Sussex, Hants, Dorset, Somerset, Devon, and Cornwall; here there were eight lots of six dishes of apples, the first prize being won by Mr. W. Camm, gardener to the Duchess of Cleveland, Battle Abbey, Sussex, who showed Ribston Pippin, Cox's Orange Pippin, Mère de Ménage, Peasgood's Nonsuch, Stirling Castle, and Warner's King; Mr. G. Lock, gardener to B. H. Hill, Esq., Newcombes, Crediton, was placed second; he had grand fruit, but it had been highly polished and so probably lost points. In this divison, the best six dishes of pears came from Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Cottage, Reigate, who showed excellent examples of Louise Bonne of Jersey, Beurre d'Amanlis, Souv. du Congrès, Fondante de Cœurne, and Pitmaston Duchess; Mr. J. Witt, gardener to H. Padwick, Esq., Horsham, was placed second among seven competitors.

In the class for growers from Wilts, Gloucester, Oxford, Bucks, Beds, Herts, and Middlesex, there were ten exhibits of apples, and Mr. T. Turton, gardener to G. Gorden Nicol, Esq., Maiden Erleigh, Reading, came first, with fine fruits of Cox's Orange Pippin, Ribston Pippin, Loddington, Mère de Ménage, Peasgood's Nonsuch, and Warner's King; Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill, second. There were eight sets of pears staged, the best lot coming from Mr. W. A. Cook, gardener to Major Heneage, V.C., Compton Basset, Colne, Wilts, his set being Beurre Diel, Louise Bonne of Jersey, Marie Louise, Doyenne du Comice, Pitmaston Duchess, and Williams' Bon Chretien. Mr. R. Chamberlain, gardener to F. M. Lonergan, Esq., Cressingham Park, Reading, second.

The combined counties of Essex, Suffolk, Norfolk, Cambridge, Hunts, and Rutland, brought out a display of only five sets of apples, the best being splendid samples of Peasgood's Nonsuch, Cox's Orange Pippin, Ribston Pippin, Bramley's Seedling, Loddington, and Warner's King, from Mr. J. Bowery, gardener

FIRST PRIZE MUSCAT OF ALEXANDRIA GRAPES, SHOWN AT THE CRYSTAL PALACE BY MR. A. R. ALLAN, HILLINGDON COURT GARDENS, UXBRIDGE.

MESSRS. G. BUNYARD AND CO.'S GOLD MEDAL EXHIBIT OF FRUIT AT THE CRYSTAL PALACE.

to H. Burnard. Esq., Hingham, Norfolk; Mr. J. C. Tallack, Livermere Park Gardens, Bury St. Edmunds, came second. Only two sets of pears came from these counties, the first prize being awarded to Mr. A. Andrews, gardener to the Hon. W. Lowther, Campsea Ash, Wickham Market, for dishes of Beurre Hardy, Maréchal de la Cour, Williams' Bon Chretien, Doyenne du Comice, Souvenir de Congrès, and Pitmaston Duchess; Mr. J. Nicholson, gardener to J. W. Mellis, Esq., Sewardstone, second.

Three competitors came forward in the class open to growers from Lincoln, Northampton, Warwick, Leicester, Notts, Derby, Shropshire, and Cheshire, Mr. J. Lee, Higher Bibington, Cheshire, scoring for apples with Worcester Pearmain, King of the Pippins, Alfriston, Peasgood's Nonsuch, Ecklinville, and Warner's King; Mr. Divers, gardener to the Duke of Rutland, Belvoir, second. For pears Mr. T. Bennett, Shavington Gardens, was first in this division with very fair samples of Louise Bonne of Jersey, Marie Louise, Williams' Bon Chretien, Beurre d'Amanlis, Pitmaston Duchess, and Beurre d'Anjou; Mr. Divers second.

Two collections of apples came from the combined areas of Worcester, Hereford, Monmouth, Glamorgan, Carmarthen, and Pembroke, the best being Cox's Orange Pippin, Worcester Pearmain, Bramley's Seedling, Stirling Castle, Peasgood's Nonsuch, and Lord Derby, staged by Mr. R. M. Whiting, Credenhill, Hereford; Mr. Bateman, Leominster, second. No pears were shown.

In the class for growers in other counties of Wales than previously specified, two sets of apples were forthcoming, Mr. G. Squibbs, gardener to the Dowager Lady Winn, Llangedwyn, Denbigh, coming first with Cox's Orange Pippin, Ribston Pippin, Mère de Ménage, Lord Suffield, Tower of Glamis, and Alfriston; Mr. H. Austin, gardener to L. P. Pugh, Esq., Abermaide, Aberystwith, second. Mr. Squibbs and Mr. Austin were first and second respectively for pears.

A class was provided for growers in the six northern counties of England, and in the Isle of Man; here the competition was by no means keen, two sets of apples and no pears being set up; Mr. W. J. Jeffrey, gardener to the Earl of Harewood, Leeds, was first prize-winner with Worcester Pearmain, Cox's Orange Pippin, Potts' Seedling, Stirling Castle, Lord Suffield, and Alfriston; Mr. R. J. Hind, Formeby, near Liverpool, second.

Among growers from Scotland Mr. J. Day won first place for six dishes of apples, with first-rate fruits of Worcester Pearmain, James Grieve, The Queen, Loddington, Peasgood's Nonsuch, and Warner's King. Mr. Day, who is gardener to the Earl of Galloway, Garlieston, Wigton, was also first for pears, with splendid examples of Gratioli of Jersey, Louise Bonne of Jersey, Madame Treyve, Williams' Bon Chretien, Doyenne Boussoch, and Pitmaston Duchess. There were no exhibitors in the class for growers from Ireland; this is a great pity, as good fruit can be grown in the sister isle, and the inducement of railway fare for prize winners should have had the effect of bringing out a few of the best growers.

Nurserymen's Fruit Displays.

The numerous non-competitive exhibits put up by the leading nurserymen added considerably to the effect of the show as a whole, but these exhibits would have been even more interesting had they been entered for competition.

The Hogg Memorial medal was awarded to Messrs. T. Rivers and Sons, Sawbridgeworth, for a magnificent display of fruit chiefly grown with the help of an orchard house; the specimens of Peasgood's Nonesuch, Ribston Pippin, and Cox's Orange Pippin were revelations of high culture, as also were the grand examples of Pitmaston Duchess, Louise Bonne of Jersey, Parrot, and Beurre Hardy pears. There were splendid lots of Gladstone, Sea Eagle, Thomas Rivers, Lady Palmerston, and Princess of Wales peaches, in neat baskets; boxes of luscious and finely-bloomed Admiral, Jefferson, Decaisne, Pond's Seedling, Monarch, Grand Duke, Golden Transparent, President, and Autumn Compote plums; handsome clusters of highly-finished Gros Maroc and Alicante grapes; and freely fruited pot trees of apples, pears, and plums. Half a-dozen fruits of Warner's King apple, shown by the Sawbridgeworth firm, were enormous examples.

Messrs. J. Veitch and Sons, Chelsea were awarded a Hogg Medal for a large, comprehensive, and attractive exhibit of fruit. In the centre they had pot trees of apples, pears, and figs, all freely fruited; these were flanked by mounds of extremely pretty and quaint ornamental gourds, while dishes and baskets of apples and pears filled out the long tables. Among the apples we noted very fine baskets of Lord Grosvenor, Warner's King, Sandringham, Seaton House, Cellini, Hanwell Souring, Bramley's Seedling, Lane's Prince Albert, King of the Pippins, Peasgood's Nonsuch, Blenheim Orange, Cox's Orange Pippin, Tyler's Kernel, Standard Bearer, King Harry, Fearn's Pippin, and Court Pendu Plat. Among pears we made note of Marie Louise d Uccle, Beurre Superfin, Princess, Pitmaston Duchess, Beurre Fouqueray, Doyenne Boussoch, Souv. du Congres, Marguerite Marillat, Clapp's Favourite, Charles Ernest, Marie Louise, Gidley's Beurre, Beurre Clairgeau, and Glou Morceau among about a hundred varieties well shown. Negro Largo figs, Morello cherries, Late Devonian peaches, Mackinley and Popham pears, Beacon, Sir J. Banks, and Livermere Favourite apples, late blackberries, and St. Joseph strawberries were also shown by this firm.

A silver-gilt Knightian medal was awarded to Messrs. J. Cheal and Sons, Crawley, for their exhibit of apples, pears, plums, &c., arranged with cut dahlias, young fruiting apples, pears, and figs. The exhibit was a large one, and made a good display; down the centre were some very large mounds of splendid Bismarck apples, also big baskets of Lord Grosvenor, Bramley's Seedling, Pott's Seedling, Jubilee, Walthamstow Beauty, Peasgood's Nonsuch, Nanny, Old Nonesuch, Colonel Vaughan, Blenheim Pippin, Frogmore Prolific, and Warner's King; this was a splendid contribution, and not so monotonous and flat as many. The display made by Messrs. J. Peed and Sons, Norwood, S.E., was a great attraction, and well deserved the silver Knightian medal awarded. From the corners some vines were extended, so as to meet in the centre, and the alternate rows of depending bunches of black and white grapes tied along the rods were very realistic. Below were fine baskets of highly coloured fruit, the mounds of Bismarck, Emperor Alexander, Cox's Orange Pippin, Peasgood's Nonsuch, Beauty of Kent, King of the Pippins, Tyler's Kernel, and Mère de Ménage being very fine; pears were equally good, and the collection comprehensive.

Messrs. Sutton and Sons, Reading, had a very comprehensive and attractive display of tomatos, no other fruits being shown; they were represented by scarlet golden, red, and peach-coloured sorts, also round and pear-shaped varieties. The fruiting plants in pots were the great attraction, and especially worthy of note were the specimens of Golden Nugget, Abundance, A1, Best of All, Peachblow, Eclipse, Princess of Wales, and Sutton's Sunbeam, all introductions of the Reading firm; a silver Knightian medal was awarded. We may add that the fruit in baskets had all been grown in the open air on the trial grounds of the firm. Cider was shown by Messrs. Gaymer and Son, Attleboro', Norfolk; this firm also sustained their reputation as apple growers by the display they made on their conical stand; besides cider apples there were excellent dishes of the best dessert and culinary varieties. Mr. W. Horne, Perry Hill, near Rochester, exhibited a few good samples of apples, pears, and plums, gaining a bronze Banksian medal. Mr. R. C. Notcutt, Broughton Nurseries, Ipswich, sent a really good lot of fruit, showing what can be done in the Eastern counties; there were first-rate dishes of Cox's Orange Pippin, Cellini, Warner's King, Bramley's Seedling—twelve dishes weighing sixty pounds—Ribston Pippin, The Queen, Mere de Menage, Gascoigne's Scarlet, Dr. Harvey, and Ecklinville, among many others; silver Banksian medal.

From Forest Hill, Messrs. J. Laing and Sons brought a fine lot of hardy fruit, staging their apples and pears in baskets and dishes; pot trees of apples and pears, carrying good crops, made an attractive centre to the group, while the baskets of Grenadier, Alfriston, Bismarck, Cellini, Peasgood's Nonsuch, Cox's Pomona, and Emperor Alexander apples made a splendid show; in the collection of pears we noted Souvenir du Congres, Dr. Jules Guyot, Duchess d'Angouleme, Gen. Todleben, Beurre Bachelier, Beurre Superfin, Pitmaston Duchess, and Doyenne Boussoch as being especially well represented; silver Knightian medal. Mr. B. Wells, Crawley, sent a few samples of good apples, his dishes of Peasgood's Nonsuch, Worcester Pearmain, very fine, Bismarck, Lord Suffield, Adelaide, and Cox's Orange Pippin were first rate; Mr. Wells also showed samples of native seedling crab stocks, which he considers hardier than the usual free stock. Mr. W. Taylor, Hampton, gained a bronze Banksian medal for a small but select collection of apples and pears staged mostly in neat baskets; Hawthornden, Jubilee, Bismarck, Stirling Castle, and Cox's Orange Pippin apples, and Gratioli and Pitmaston Duchess pears were the best samples.

An attractive exhibit came from the Horticultural College, Swanley; there were good samples of popular apples, pears, plums, and nuts, set on a groundwork of wood wool and amid maidenhair fern; three towers made of bottled fruits of various kinds attracted a good deal of attention, as the fruits were preserved whole in every case, even down to raspberries. From Messrs. S. Spooner and Sons, Hounslow, came a collection of clean and nicely-coloured apples and pears, altogether about one hundred and fifty dishes or baskets of fruit; though not over large, the fruits shown by the Hounslow firm were especially clear skinned throughout; a silver Banksian medal was awarded. Mr. G. J. Squibbs, gardener to the Dowager Lady Williams Wynn, was awarded a silver Banksian medal for a collection of about seventy dishes of highly-coloured apples and well-developed pears, grown at Llangedwyn, Denbighshire; the Williams' Bon Chretien, Durondeau, Pitmaston Duchess, Doyenne Boussoch, Catillac, and Marie Louise pears, and the Magnum Bonum plums were very good.

From the Royal Nurseries, Handsworth, Sheffield, Messrs. Fisher, Son, and Sibray sent about eighty varieties of apples and pears; this exhibit seemed to show that good colour can be obtained in outdoor apples even as far north as Sheffield; the specimens were clean and of fair size, and represented those varieties that succeed best in the northern and colder midland counties. This firm grows considerably over a hundred thousand apple trees of various forms and varieties. Messrs. Fisher, Son, and Sibray also showed four fine melons, a green fleshed variety named Countess of Derby, and obtained by crossing Knowsley Favourite with William Tillery; it has a dark skin, and light netting that is very pretty. The variety has already gained numerous awards, and is first-class in size, cropping powers, and flavour.

Floral Exhibits.

Messrs. J. Laing and Sons, Forest Hill, had a pretty corner group near the orchestra, making a tasteful display with begonias, caladiums, palms, heaths, and an assortment of orchids. On the opposite corner a group of ivies was put up by Mr. J. Russell, Richmond Nurseries, Richmond; this was a very interesting display, for the ivies were well grown, well coloured, and represented in great variety; Hedera arborea Silver Queen, H. arborea Russelliana, H. a. aurea, and H. a. Regneriana were first-rate plants largely shown. Messrs. J. Laing and Sons also made a bright display with Michaelmas daisies, dahlias, Physalis Franchetti, rudbeckias, and other late autumn flowers; they also had a big group of trained bays, Acer Negundo variegata, araucarias, ferns, bamboos, and other suitable furnishing material.

Messrs. H. Cannell and Sons, Swanley, put up a brilliant group of cannas produced in the usual first-rate style one expects from the Home for Flowers. Messrs. W. Cuthbush and Sons, Highgate, contributed a goodly display of flowers, plants and fruits, their exhibit consisting of mounds of carnations, Begonia Gloire de Lorraine, well-grown bouvardias, pernettyas, nerines and crotons; around these mounds the firm grouped dishes of fine apples and pears, plums, tomatos, and Excelsior onions of great size; the firm sent three bunches of the somewhat new Lady Hutt white grape, and gained for the whole display a silver Banksian medal. Messrs Paul and Son, Cheshunt had a group of roses that were very fragrant and made an acceptable display—a sort of "last rose of summer" exhibit.

Mr. E. Beckett, gardener to Lord Aldenham, Aldenham House, Elstree, Herts, showed fruiting growths of eighteen varieties of ricinus; a silver Banksian medal was awarded. The kinds represented were: R. Gibsoni, R communis, R. communis major, R. carboriensis arboreus, R. Gibsoni mirabilis, R. viridis, R. glaucus, R. atropurpureus, R. purpureus, R. corboriensis, R. cambodgensis, R. africanus albidus, R. sanguineus, very attractive; R. Belot Defourgeres, R. sanguineus tricolor, R. africanus, R. zanzibarensis, and R. macrocarpus; an effective group of sub-tropical subjects that not a few gardeners took care to make notes about. Mr. J. R. Box, West Wickham, Croydon, showed a table of cut begonia blooms staged in crosses, circles, and other devices; ferns and palms were used among the flowers.

A large and interesting group of hardy plants was put up by Messrs. J. Veitch and Sons, Chelsea, and it contained a large assortment of such well-grown bamboos, as Arundinaria auriconia, A. Fortunei variegata, B. Veitchi, Arundinaria Hindsii, and A. H. graminia, Phyllostachys aurea, P. Henonis, and P. viridis-glaucescens. Towering above the bamboos and Eulalia zebrina, a grand specimen, was a large example of Gynerium argenteum Rendatleri, carrying a number of elegant plumes of a rosy-silver hue. This was a very useful exhibit. A bright but rather too regular display of dahlias came from Mr. T. S. Ware, Tottenham. The centre of the group was composed of handsome cactus dahlias, the golden Mrs. C. Turner being conspicuous; pompon dahlias were grouped at one end, while at the other were baskets of very fine tuberous begonias, double and single, in a variety of pleasing colours.

Sundries.

Messrs. Wood and Sons, Wood Green, N., had quite an artistic display of sundries, and it would be difficult to mention many things required by a gardener which the firm did not represent; there were manures of various kinds, chiefly their own specialities, weed killers and insecticides, orchid baskets, samples of peat and loam, raffia, bast, labels, baskets of many kinds, knives, saws, blinds, stakes, watercans, jardinieres, &c., all making quite an attractive exhibit. Mr. J. Pinches, Camberwell, exhibited a large assortment of the metal labels that have rendered his name famous among horticulturists; his display was arranged with a few plants and flowers. Highly commended was the award made to Mr. Pinches for his useful and durable labels.

HERBACEOUS PLANTS IN DROUGHT.

THE whole of the south-eastern part of England has been under the spell of an anti-cyclone for several weeks past. Here we had a month ago a fine fall of rain amounting to one and a-quarter inches, but we have had none since, and it is melancholy to see how some things suffer by it. It suits cannas to perfection where they have been previously taken care of, but on the other hand, it has acted very banefully on the gandavensis section of gladiolus; fine spikes are formed, but no time is given to them to develope; as soon as two or three blooms open they frizzle up with the intense heat, and so it is almost impossible to obtain a good spike. At such times then any plant that blooms satisfactorily is deserving of care and attention. Amongst these I would mention:—

Senecio pulcher.—I have a good plant of this now displaying its striking flowers; it is perfectly hardy, and easily propagated by cutting its large flesy roots into pieces about two inches long; the flowers are what I should call a magenta hue, but in some catalogues they are said to be purplish crimson; the flowers are five inches across, and altogether it forms one of the most striking of our early autumn perennials.

Crinum Powelli.—This very fine bulbous-rooted plant was raised by Mr. Powell, of Southborough, near Tunbridge Wells, and is remarkably vigorous and striking in appearance; it has thriven well with me in ordinary garden soil in a position somewhat sheltered, and I suppose, from the size of its roots and the depth to which they go, it has not suffered from the excessive drought we have now had to endure for some weeks; the flower stem is perhaps not so high as it would have been if we had had some rain; I have also the white variety, Crinum Powelli album, which, however, has not flowered this year.

Zauschneria californica.—I see that some writers complain of this beautiful autumn perennial not being hardy, and, indeed, suggesting means for its protection in winter; with me the great difficulty, in this south-eastern part of England, is to keep it within bounds. It is planted on a dry part of my rockery, and by means of its underground stolons it has run about in all directions, and I have to uproot a large quantity every year. It requires a hot, dry time in order to enable it to flower well and truly, consequently this season has been peculiarly favourable to it, and my plant is covered with its bright vermilion-coloured flowers.

Linum flavum.—This is another plant about which some people have doubts as to its hardiness, but may it not be that there is another plant which is sometimes confounded with it, viz., Linum arboreum, which I am told some people have not found perfectly hardy.

Helenium grandicephalum striatum.—This a grand autumn flowering plant. I received mine from Mr. C. J. Grahame, in whose garden I saw it flowering; it grows to the height of about four feet, and is covered with branching heads of flowers of bright orange, irregularly striped and blotched with crimson, giving it a very striking appearance amongst the autumnal blooms.

Lilies.—I do not think there is any tribe of plants which excels in beauty of colouring, elegance of form and sweet perfume, the lilies. From early spring to late autumn some of the many species are continually with us, and so now in this second week of September I am rejoicing in two clumps amongst others which are a daily source of pleasure to me. One is a fine clump of Lilium auratum, which has sixteen expanded blooms at the same time, and appears to be in rare health, yet my experience of many years leads me to look upon it very doubtfully. I have had as fine clumps of it before, but the next year hardly anything of them appeared; the bulb has a bad habit of breaking up, and when it does this, all hope of retaining good blooming stems vanishes, and yet it cannot be so with every one, or else how could it be possible to be able to purchase enormous bulbs the size of double-closed fists, and these are not always imported. There are many varieties of it, such as Rubro-vittatum, Virginale and Wittei, which all seem to share the same unpleasant way of acting, hence it is that the immense quantities which are every year imported are necessary, for those who wish to grow the species and its varieties. Another clump that I have gives me greater satisfaction, not only because of its great beauty, but because I know it means to stay; it is that beautiful variety of L. speciosum called Melpomene, the most richly coloured of all the crimson spotted varieties, and very vigorous in growth; there are many varieties of speciosum, but I do not think that any of them can compare with this. We owe its introduction to an American horticulturist, the late Mr. Hovey, of Boston. The Dutch bulb growers have successfully cultivated it, and bulbs can now be had at a comparatively trifling cost. Other varieties of speciosum are also in flower, but none are comparable to this.

Tropæolum speciosum.—Oh! how I have battled with this, and what pains I have taken since I first saw it many years ago in Wigtonshire, to get it to stay with me. I there saw it in every possible situation, in cottage gardens, on churchyard walls, climbing up apple trees, and in every conceivable position; nor was it particular as to aspect, although I was told it required a northern position, yet I saw it in the full blaze of sunlight, and everywhere a marvel of beauty. I have once more given it a trial under different circumstances. I obtained last autumn some roots from the gardens of Kenninghame Castle, Wigtonshire; instead of planting these as I had previously done, I procured a tolerably deep basket, knocked the bottom out of it, plunged it in the ground to its edge, and filled it with well-prepared light soil, just in front of some shrubs; the plant has made very vigorous growth, climbed up the shrubs, but as yet I do not see any appearance of flower. I am told by some I ought not to expect this the first year of planting, and I am therefore hopeful, if spared till next year, I shall see it covered with flower; it is a most exquisite plant, and I shall be delighted to overcome its difficulties. I should say that my reason in planting it thus was that I found it travelling about in all directions, but still refusing to flower.

H. H. D.

THE PEAR CROP.

Anglesey.—Pears are quite a failure owing to the cold, wet spring.—W. HUNTER, *Baron Hill Gardens.*

Berks.—Pears are very unsatisfactory this season, and our best varieties are Beurre Giffard, Jargonelle, Beurre d'Amanlis, Beurre Mortilett. Louise Bonne of Jersey, Thompson's very good, Marie Louise, Pitmaston Duchess, Beurre Superfin, Hacon's Incomparable, and Knight's Monarch.—J. TEGG, *Bearwood Gardens.*

Berwickshire.—We have a very fair crop of many varieties. Trees on walls good crop and fruit a fair size, some trees are bearing a very heavy crop. Hessle pears scarcely up to last year, but a fair crop. Wall trees with shelter from east winds are the best with me this year. Suffered very much with frost and winds in the spring, and as my garden is close upon the Tweed, frosts are severe with us.—J. FOSTER, *Paxton House Gardens.*

Bucks.—Pears are small owing to the dry weather. Beurre d'Amanlis, Beurre Clairgeau, Beurre Hardy, Williams' Bon Chretien, Doyenne du Comice, Duchesse d'Augoulême, Glout Morceau, Madame Treyve, Pitmaston Duchess, Citron des Carmes, Fertility, and Louise Bonne of Jersey are the best.—J. SMITH, *Mentmore Gardens.*

Cardiganshire.—Pears are an average crop, and in some instances trees are loaded. We have nearly twice as many pears as apples in these gardens. Williams' Bon Chretien rarely misses a crop, and this year is very heavy and good. Jargonelle is most disappointing; very few pears are to be had from it at any time. Amongst the best crops are Doyenne Boussoch (heavy), Duchesse d'Angoulême, Beurre Diel, Beurre Bachelier, Doyenne du Comice, Pitmaston Duchess, Easter Beurre, Knight's Monarch, Bergamotte d'Esperen, and Clapp's Favourite, whilst fairly good are Josephine de Malines, Marie Louise, Winter Nelis, and General Todtleben. That fine-flavoured variety, Louise Bonne of Jersey, has a good crop, but, as usual in this district, is cracked and scrubby.—R. C. WILLIAMS, *Crosswood Park Gardens.*

Cheshire.—Pears as a crop are about the same as apples; if anything, rather better. The kinds bearing best are the following: Williams' Bon Chretien, Marie Louise, Emile d'Heyst, Doyenne du Comice, Doyenne Boussoch, Louise Bonne, Durondeau, Nouvelle Fulvie, Easter Beurre, Beurre d'Amanlis, Marie Louise d'Uccle, Beurre Diel, Autumn Colmar, Red Doyenne, Thompson's, Easter Beurre, Winter Nelis, Glout Morceau, and Beurre Rance.—W. WHITAKER, *Crewe Hall Gardens.*

Denbighshire.—Pears are good. Williams' Bon Chretien, Clapp's Favourite, and Souvenir du Congrès exceedingly fine; Beurre Diel, Beurre Clairgeau, Pitmaston Duchess, Beurre Superfin, Beurre Batchelier, and Marie Louise are also good.—H. FORDER, *Ruthin Castle Gardens.*

Derbyshire.—Pears are more general than apples, both on walls and pyramids. Citron des Carmes, Doyenne d'Ete, Jargonelle, Beurre d'Amanlis, Williams' Bon Chretien, and Althorpe Crassane are the heaviest cropped pyramids; Louise Bonne of Jersey, Beurre Hardy, Beurre Diel, Pitmaston Duchess, Fondante d'Automne, Beurre Superfin, and Doyenne du Comice are the best on walls. The freest-bearing new varieties on walls are Clapp's Favourite, Triomphe de Vienne, Beurre Fouqueray, President d'Osmanville, Magnate, and Marguerite Marillat.—J. H. GOODACRE, *Elvaston Castle Gardens.*

Devonshire.—Pears are a medium crop. Beurre d'Amanlis, medium; Beurre Brown, good; Beurre Easter, fair; Beurre Superfin, fair; Bon Chretien, heavy; Doyenne du Comice, slight; General Todtleben, good; Glout Morceau, fair; Josephine de Malines, fair; Louise Bonne of Jersey, heavy; Marie Louise, fair; Pitmaston Duchess, fair; Winter Nelis, fair; and Catillac, good. The pear crop was partly spoiled by the heavy hailstorm in the spring. The fruits are showing the marks now where the hail struck them; some of them have as many as four pits in them, which would spoil their sale.—S. J. RICHARDS, *Mount Edgcumbe Gardens.*

County Down.—Pears are a good average crop on wall trees. Marie Louise, Williams' Bon Chretien, Jargonelle, Glout Morceau, Emile d'Heyst, Beurre d'Amanlis, and Beurre Diel are carrying heavy crops of fine fruit. No fruit on bush trees; in fact, pears will not bear fruit worth picking in this district except those grown against walls.—J. LEICESTER, *Seaforde Gardens.*

—— Pears are almost a failure, and especially so on unprotected walls. The cold winds during the early part of June completely destroyed the crop, which up to then was very promising. A few important varieties that were afforded slight protection are very fine, though scarce, Souvenir du Congrès, Clapp's Favourite, Pitmaston Duchess, Glout Morceau, Beurre Diel, and Williams' Bon Chretien being the best. Some of the late varieties on standards, such as Ne Plus Meuris, Beurre Capiaumont, Prince Consort, Winter Nelis, and the Bergamots are fairly productive.—T. BRADSHAW, *Hillsboro' Castle Gardens.*

Dublin.—Pears are a good crop here, and good quality, especially on walls. The following sorts have done well on pyramids: Beurre Diel, Beurre d'Amanlis, Citron des Carmes, Louise Bonne of Jersey, Williams' Bon Chretien, Marie Louise, Glout Morceau, Doyenne d'Ete, Beurre Bosc, and Beurre Hardy.—G. SMITH, *Vice-Regal Gardens.*

Dumbartonshire.—Pears are rather a poor crop.—W. McHUTCHEON, *Auchendennan Gardens.*

Dumfriesshire.—Pears are only slightly cultivated, and this year but partly successful. All are trained as espaliers, Comte de Lamy, Hazel, Louise Bonne of Jersey, Williams' Bon Chretien, Flemish Beauty, and Autumn Bergamot. Hazel is by far the most prolific, but none this season.—J. URQUHART, *Hoddon Castle Gardens.*

Durham.—The varieties that generally do well here are Jargonelle, Duchesse d'Angoulême, Beurre d'Amanlis, Doyenne du Comice, Clapps' Favourite, Williams' Bon Chretien, Beurre Diel, Pitmaston Duchess, Winter Nelis, Chaumontel, Flemish Beauty, and Beurre Superfin.—J. TULLETT, *Raby Castle Gardens.*

East Lothian.—There has been a very good crop of Louise Bonne of Jersey, Clapp's Favourite, Bergamotte d'Esperen, Beurre d'Amanlis, Jargonelle, Beurre Bachelier, Pitmaston Duchess, Souvenir du Congrès, and Marie Louise.—G. TAYLOR, *Broxmouth Park Gardens.*

Essex.—Pears are a very bad crop in these gardens, and I believe it to be almost such throughout the district with an occasional exception. The most productive varieties here are Knight's Monarch, Vicar of Winkfield, Duchesse d'Angoulême, Beacon, Louise Bonne of Jersey, Magnate, Beurre Bosc, Beurre d'Amanlis, Princess, Durondeau, Chaumontel, Marie Louise d'Uccle, Beurre Hardy, and Doyenne Boussoch.—A. KIMBER, *Gorfield Hall Gardens.*

Fifeshire.—Jargonelle, Marie Louise, and Williams' Bon Chretien are the only varieties that have given favourable returns this season, but we do not grow many sorts.—J. CLARK, *Wemyss Castle Gardens.*

WORK FOR THE WEEK.

WARM ORCHIDS.

WE have now reached the decline of the year, and many of the warm orchids in different sections are rapidly terminating their season's growth, some having already completed it. Taking the season throughout, one cannot say it has been a very good one, and yet it has not been a bad one for orchids. In some of our large collections we always find certain warm orchids have grown better than others, yet without special treatment; it thus behoves growers to well study such cases and endeavour to find the cause for their own benefit. Phalænopsis will have attained their full leafage; these orchids enjoy strong shading in the summer months, especially in exposed houses. Early in the year advice was given to afford shading both inside the house and outside, the outer to be used with discretion, and the inner to remain throughout the growing season. The time of the year has arrived when the shading must again have attention, and if at various periods during the growing season too much shade has been given and the leaves are very sappy, proper care and attention will now bring the matter right. The moisture must be gradually decreased, and the inner blinds must be taken down, though it would be well to take the top half down first, and the remaining half in another week; no more syringing will be required, as the present time is a very critical one. The bottom ventilation must receive every attention, and fluctations of temperature must be strongly guarded against.

Dendrobium atro-violaceum having been recently imported, many growers will be able to purchase a few plants, this being such a pleasing orchid, and, without doubt, well worthy of cultivation. Thoroughly examine each plant to see that nothing in the way of beetles or insects are lurking in or among the stems. Well wash the plants in lemon oil or some other insecticide before placing them along with the other occupants in the warm-house; the species will require plenty of heat all the year round, and especially at the growing season. Some of the plants are pretty well advanced in growth, and these should be placed in a strong heat. Others that are not showing growth should be kept quiet for the winter, and started early in the coming year, as this will allow them a long growing season. Indeed, it is far better to adopt this plan than to force a small weak growth in the short time left this year. Odd plants of Cattleya aurea and C. gigas that finished their flowering season early, will be sending forth new roots, and if any attention in the way of potting is required, this may be given. Great care must be taken in the watering, keeping the compost rather dry. Cattleyas of all sections will require to be well watched at this time of the year. C. labiata will be coming into flower in many collections, in fact, many are in full flower. Water must be given sparingly, and cold nights guarded against.

The temperature in different houses should range as follows:—East Indian house, 70 degrees by night; and cattleya house, 65 degrees. The day temperature must be regulated according to the weather outside. The dendrobiums should not have below 60 degrees of heat.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

INSTEAD of offering obstruction to the rays of the sun, which is customary during the hottest months of the year, the endeavour from now on through the winter should be to afford the plants in stoves all the light possible. With this object in view all roof climbers should be well thinned out; in the case of stephanotis that are planted out in beds, and, therefore, cannot be removed, as much of the old wood should be removed as possible, also any superfluous shoots of the current season's growth, reserving the strongest and best ripened of the current season's growth to furnish the wires for the first crop of bloom next spring; these shoots may be tied loosely into small bunches and looped to the wires over the pathway. Allamandas must be freely thinned out, and the remaining shoots shortened, but on no account finally pruned until they have been brought to a state of rest. Aristolochias, passifloras, bougainvilleas, and, in fact, all roof plants may be freely thinned, and afforded a gradually reduced water supply until they are brought to a complete state of rest, when they may receive their final pruning. The roof glass and woodwork should also receive a good washing with soft soap and water to get rid of all the green matter which generally forms so freely, owing to the close, humid atmosphere. Thoroughly wash the gravel on the stages, or, if ashes are used, clear all out and replace with new, as by so doing much filth will be got rid of. Before re-arranging the plants, all should be carefully cleaned; crotons, ixoras, tabernamontanas, and plants of a similar habit may be syringed with or dipped into some good insecticide; eucharis, pancratiums, anthuriums, marantas, dracænas, &c., to be sponged, taking care during the operation that the leaves are not broken. When arranging them in position avoid that flat, even surface one so often sees, and break the outline by raising some, and here and there bringing a larger plant to the front; by such an arrangement the house is made far more pleasing.

If not already attended to, the poinsettias should receive a light top dressing, incorporating in the soil a little artificial manure. A few plants may be introduced into the stove for affording early bracts, but the bulk of the plants for the time being are better in a light house with a temperature of 55 degrees by night and 60 degrees by day; an occasional watering with soot-water will be beneficial, and impart that dark-green colour to the leaves which one delights to see. Again I would warn those who have the watering of these plants to attend to, be sure the ball of earth is thoroughly moistened through, and now and again a plant should be turned out to see that such is actually the case; if the roots in the lower part of the pot become dry, and remain so for a few days, the plant will quickly lose its lower leaves. The bracts of poinsettias are beautiful; but they are doubly so if the plants are furnished with leaves to their base. Plants of alocasia and maranta will now require less moisture; I do not mean to afford dribblets instead of a thorough watering, but to water at wider intervals of time; a position at the warmest end of the stove will be their best quarters for the winter. Young gardenias and ixoras that have filled their pots with roots should be shifted on. A position in the intermediate house will suit old plants of gardenias until such time as it is desired to push them on into flower. The tops of any leggy crotons may now be taken off and rooted, as these will root more quickly now than in spring, when the wood has become hardened. Put in another few pots of cuttings of panicum and fittonia; they will be very useful after the turn of the year. Aphelandras are now advancing to bloom, and should be placed where the syringe will not reach them; afford them stimulants regularly at the root. Eranthemums, linums, and reinwardtias should have a position at the cool end of the intermediate house; they will need to be regularly syringed to keep red spider in check.

Great care will now be necessary in ventilating the stoves, and more reliance will need to be placed upon the heating apparatus to keep up the necessary temperature on cold nights.—J. TUNNINGTON, *Ripley Castle Gardens, York.*

THE FLOWER GARDEN.

THE cold nights recently experienced have come as a reminder that all tender subjects should now be placed under cover or so situated that protection may be easily afforded on cold nights. Although the drought still continues the recent tropical heat has given way to a cooler air, and at this date frost is liable to occur any night. At the time of writing bedding geraniums are still finely in bloom, and subtropical plants, where water has been applied, are in good condition. One of the most effective flowering plants at the present time is the yellow Cassia corymbosa, a very useful subject for association with others in the subtropical garden. It is not injured by a few degrees of frost, and blooms most profusely in the autumn. The dry weather has been very trying for bedding calceolarias, and, unless water has been applied freely, young growths for furnishing cuttings will be somewhat scarce. Where these are obtainable the present to the middle of the month is a suitable time for inserting the cuttings for the next season's stock. These will be found to root more readily now than if inserted at an earlier date, especially in seasons like the present one. Young shoots with growing points should be chosen, rejecting those that show flower buds. The best position for striking these cuttings successfully is a cold frame set on a hard base of coal ashes, or something similar, on which some rough leaf-soil about three inches in depth should be placed, and over this three or four inches of moderately light soil previously passed through a half-inch seive. If the soil is heavy it should be lightened with sand and leaf-mould. The whole should be trodden firmly, allowing a slight slope to the front of the frame, and over the surface scatter a sprinkling of silver or sea sand. The cuttings should be inserted with a rather bluntly-pointed dibber, allowing a space of about three inches between each. The bed should be given one good watering after inserting the cuttings, and then all be kept close for a few weeks and shaded from bright sunshine until roots are formed.

Antirrhinums, pentstemons, and gazanias may be similarly treated, and strike readily at this date. If small quantities only are required pots or boxes may be used for the cuttings, and these stood in a cold frame kept close until roots are formed. Violas for summer flowering may be treated similarly to calceolarias, or if given a sheltered position on the open border they strike almost with certainty. The cuttings should be made from the young growths starting from the base and not from those that have borne a crop of flowers. The old plants may also be pulled in pieces and the youngest growths, with bits of roots attached, be pricked off on a border to stand until spring, when they may be transferred to the flower beds in March or April. Pink pipings, if inserted when advised, should now be in a good condition for removal to their permanent positions in the borders or beds, which should be duly prepared for them by digging in a dressing of rotten manure and soot. If planted in beds a space of nine inches asunder should be given. Pinks are suitable subjects for front lines or patches on the herbaceous borders or where the edging is of stone or tiles; they may be planted a few inches on the inside and be allowed to grow over and cover the same. The old white and Mrs. Sinkins are useful varieties for this purpose. The double-flowered violets should now be lifted from the open ground and be planted in frames. In many instances the clumps of these will be smaller than usual owing to the heat and drought experienced throughout their time of growth, and they may therefore be planted at a less distance apart; as a general rule, if the plants stand two or three inches clear of each other at planting time this should suffice. The frames in which they are to be planted should be raised well to the light, a good position being on spent hot beds on which the frames are placed, putting in them sufficient soil in which to plant the roots so as to bring the tops very near to the glass when the lights are placed on. A good watering should be given to settle the soil; give full exposure in mild weather. Beds of Marguerite carnations, so useful for prolonging the supply of these sweetly-scented flowers, should have some arrangement for protecting the blooms from wet and frost for a week or two if the flowers are prized for cutting. These do not lift well for transferring to pots, so a batch should be grown on outside in pots and now placed in a warm greenhouse temperature for carrying on the supply into the winter.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

SINCE penning my last calender note we have had no rain to reach even the surface roots of the trees, with the result that most of the remarks I then made concerning moisture are now equally applicable, indeed, more so, as in light soils trees are suffering badly, some varieties having lost their foliage prematurely. Trees that are suffering will benefit by a mulch, as, without this, moisture evaporates quickly and is lost in a few hours. In many gardens it is usual to allow the trees to carry the wood made during the summer, as some growers think by so doing the trees are benefited. Space does not permit me to point out the importance of summer stopping, but there can be no question as to the advantage of removing shoots now, as this will cause the buds to swell up at the base of the growths left, will give the wood more light, and reduce the demand upon the roots. With newly planted trees more license must be given, and my remarks mostly apply to trees making a strong growth, and of course only these will now be shortened—not pruned to the proper distance. Watering recently planted fruit trees should not be overlooked, as upon the supply given now will mostly depend next season's crop, for as there are none too many roots the trees need assistance. No matter how small the fruit garden, it will repay the cultivator to grow the best trees, and now is a good time to select new material and to mark those not worth growing. There are generally some old and worthless trees, so it is a necessity to plant a few young ones yearly, that losses may not be felt. Many value an old fruit tree for its age and appearance, but it is useless if the fruits are so poor that they are not worth storing. Now is the time to purchase new stock, as the trees may be seen in a growing state, and though I fear planting may be later than usual this season, owing to the heat and drought, it will be well to prepare by selecting and by making the land ready at an early date for the trees when they are ready to lift.

A little advice on planting may not be out of place. Many mistakes are made by planting in the same spot that the old trees occupied. This should not be, as the soil is so impoverised that good results cannot follow. It may be at times necessary to plant on the same spot; if so, it is well to remove the old soil and replace with other, adding such aids as burnt refuse, wood ashes, old mortar rubble, and some bone-meal, the whole being made firm, so that the roots made are of a fibrous nature. Of course, what is termed maiden loam is not to be beaten as a compost for new trees; but it is not within everyone's reach, and to purchase it is not always feasible. The aids advised, however, will be of great benefit in ordinary soil. In heavy clay land road scrapings, mixed with mortar rubble and ground bones, make an excellent compost, and in places where small charcoal can be readily obtained, it is a valuable addition. By preparing the soil now it will be in better condition for planting, and the rainfall will make it more workable. I have not mentioned animal manures, and, indeed, this is best let alone, as young trees, with the usual attention to cultural details, are inclined to grow freely enough; animal manures are best used as surface dressings. On the other hand, I have, with poor soil, used spent manure to advantage. Old melon beds or old mushroom manure are excellent, and assist in building up good wood if not used in great quantities.—G. WYTHES, *Syon Gardens.*

AUDIT OF THE R.H.S. FRUIT SHOW OF 1898.

For the fifth year in succession we present our readers with an audit of the great fruit show held at the Crystal Palace. It will be seen from the analysis appended that the competitive display—the only part taken into account for the audit—was larger than in any previous year, except 1895, which was an exceptionally good season. The lateness of the present season is indicated by the appearance for the first time in our audit of blackberries, currants, raspberries, and strawberries, these being shown in collections of fruit. Another striking feature of the late season was the increased display of plums and peaches, the former being represented by 214 dishes as compared with 115, the next highest amount, in 1897; peaches were 96 dishes, sixteen ahead of the number shown in 1895, the previous highest. Two dishes of gooseberries were staged, and only on one other occasion, viz., 1894, had this fruit been staged in competition. More kinds of fruit were shown this year than at any other of the R.H.S. shows at the Crystal Palace; the number of kinds was 22, and the number of varieties 378, a total twice exceeded, viz., 411 in 1897, and 433 in 1895. Considering that two new sections were provided in the 1898 schedule, these affording an addition of forty classes, it cannot be said that the competition was so keen as usual; indeed, there was a falling off in the single dish classes, while we understand that the total entries were only three more than in 1897.

Apples.

	Dishes					Dishes			
Varieties.	1898	1897	1896	1895	Varieties.	1898	1897	1896	1895
Cox's Orange Pippin	89	66	75	122	Autumn Pearmain	3	4	1	0
Ribston Pippin	73	73	61	111	Dutch Codlin	3	2	2	1
Warner's King	69	56	41	72	Nelson's Codlin	3	0	0	0
Peasgood's Nonesuch	63	39	33	79	Red Beitigheimer	3	1	3	5
Worcester Pearmain	51	42	31	49	Small's Admirable	3	2	2	1
Lord Derby	40	34	27	61	Striped Beefing	3	7	5	6
Blenheim Pippin	39	43	28	32	Yellow Ingestre	3	3	13	9
King of the Pippins	38	52	45	98	Bedfordshire Foundling	2	2	1	4
Eckinville Seedling	35	30	12	33	Cornish Aromatic	2	1	1	4
Bramley's Seedling	34	33	17	26	Cornish Giant	2	1	0	0
Lane's Prince Albert	34	32	33	37	Cornish Gilliflower	2	0	0	0
The Queen	33	27	20	49	Dewdney's Seedling	2	0	0	0
Bismarck	32	21	22	36	Duchess's Favourite	2	4	4	3
Cox's Pomona	30	38	27	53	Foster's Seedling	2	2	1	2
Gascoigne's Scarlet	29	22	16	28	Greasy Pippin	2	0	0	0
New Hawthornden	29	10	11	34	Hollandbury	2	0	0	0
Mère de Ménage	29	20	21	13	Melon Apple	2	0	0	0
Lord Suffield	28	25	15	53	Manks' Codlin	2	0	0	0
Baumann's Red Winter Reinette	27	22	18	17	Northern Dumpling	2	0	0	0
Stirling Castle	25	20	12	38	Northern Greening	2	1	0	1
Stone's, or Loddington	24	21	18	29	Okera	2	0	0	0
Dumelow's Seedling (syn Wellington)	22	25	18	29	Reinette d'Osnabruck	2	0	0	0
Newton Wonder	22	10	12	16	Roundway's Magnum Bonum	2	2	0	1
Alfriston	20	19	15	22	Seaton House	2	2	2	1
American Mother	20	19	17	23	Vicar of Beighton	2	3	1	0
Emperor Alexander	19	27	34	51	Yorkshire Greening	2	1	1	1
Beauty of Kent	17	22	8	14	Beauty of Hants	1	2	4	2
Cellini	16	23	21	34	Beauty of Stoke	1	0	0	0
Lady Henniker	16	13	5	20	Belle de Boskoop	1	0	0	0
Tower of Glamis	16	18	12	27	Betty Geeson	1	2	1	1
Wealthy	16	11	4	8	Betty Boston	1	0	0	0
Golden Noble	15	20	19	29	Bowhill Pippin	1	0	0	0
Margil	15	16	13	19	Braddick's Nonpareil	1	2	4	0
Frogmore Prolific	14	11	4	10	Calville Rouge Précoce	1	3	4	6
Pott's Seedling	14	22	14	34	Castle Major	1	2	1	2
Sandringham	13	16	12	5	Catshead	1	1	1	1
Washington	13	14	13	11	Chelmsford Russet	1	0	0	0
Grenadier	12	6	5	6	Chelmsford Wonder	1	0	0	0
Lady Sudeley	12	7	2	5	Christmas Pippin	1	0	0	0
Queen Caroline, or Spencer's Favourite	12	14	2	17	Crimson Quoining	1	0	0	0
Allington Pippin	11	4	1	0	Devonshire Quarrenden	1	7	1	2
Fearn's Pippin	11	20	17	19	Duchess of Gloucester	1	4	0	1
Royal Jubilee	11	5	8	13	Duchess of Oldenberg	1	0	0	0
Tyler's Kernel	11	8	5	9	Duke of Gloucester	1	0	0	0
Adams' Pearmain	10	8	4	18	Dutch Mignonne	1	0	0	0
Egremont Russet	9	5	1	6	Evargil	1	1	0	0
Mannington Pearmain	9	7	6	7	Farmer's Seedling	1	1	1	1
Claygate Pearmain	8	7	8	2	Flander's Pippin	1	1	1	2
Gloria Mundi	8	8	14	13	Gospatrick	1	1	0	0
King of Tompkins County	8	8	2	7	Greenup's Pippin	1	2	0	5
Belle Dubois	7	5	0	7	Harvey's Wiltshire Defiance	1	2	1	0
Brownlee's Russet	7	9	7	3	Hawthornden (Old)	1	5	0	3
Court Pendu Plât	7	16	12	4	Hereford Crimson Queen	1	0	0	0
Duke of Devonshire	7	1	3	2	Hoary Morning	1	3	6	5
Golden Spire	7	9	10	8	James Grieve	1	2	1	0
Mrs. Barron	7	3	3	4	Jolly Beggar	1	0	0	0
Reinette du Canada	7	5	5	13	Kentish Pippin	1	3	1	0
Scarlet Nonpariel	7	2	11	5	Keswick Codlin	1	3	2	2
Sturmer Pippin	7	2	11	2	Lady Falsworth	1	0	0	0
Cockle's Pippin	6	1	3	2	Lemon Pippin	1	0	0	0
New Northern Greening	6	5	4	17	Magnum Bonum	1	0	0	0
Yorkshire Beauty	6	7	1	3	Nelson's Glory	1	0	0	0
Allen's Everlasting	5	3	1	0	Norfolk Beefing	1	0	0	0
Annie Elizabeth	5	8	6	11	Round Winter Nonsuch	1	3	0	4
Lord Grosvenor	5	10	6	18	Royal Russet	1	3	0	2
Belle de Pontoise	4	2	5	3	St. Edmund Pippin	1	1	0	1
Gold Medal	4	3	2	4	Scotch Bridget	1	0	0	0
Gravenstein	4	5	4	4	Sedgemere Reinette	1	0	0	0
Hormead's Pearmain	4	4	6	4	Smart's Prince Arthur	1	1	0	0
Tibbett's Pearmain	4	2	3	4	Succombe's Seedling	1	0	0	0
Twenty Ounce	4	3	3	4	Sultan	1	0	0	0
Waltham Abbey Seedling	5	6	8	8	Summer Strawberry	1	0	0	0
Mabbott's Pearmain	5	5	9	3	Thomas Rivers	1	0	0	0
					Tibbett's Incomparable	1	0	0	0

Apples (*continued*).

	Dishes					Dishes			
Varieties.	1898	1897	1896	1895	Varieties.	1898	1897	1896	1895
Tom Putt	1	2	1	2	Winter Hawthornden	1	0	0	0
Transparent de Cronsels	1	1	0	1	Winter Quoining	1	1	4	3
Wadhurst Pippin	1	4	1	2	Withington Fillbasket	1	0	0	0

Apricots.

Moor Park	1	1	1	1

Blackberries.

Rubus laciniatus	1	0	0	0

Bullaces.

Common Bullace	1	3	1	3

Cherries.

Morello	2	1	6	12

Currants.

Raby Castle	1	0	0	0	White Dutch	1	0	0	0

Damsons.

Prune	5	1	1	5	Frogmore Prolific	1	0	0	0
Farleigh	3	0	0	0	King of Damsons	1	0	0	0
Bradley's King	1	0	0	0	Old	1	0	0	0
Chester	1	1	1	2	Shropshire Prune	1	1	0	1
Common	1	1	1	0					

Figs.

Brown Turkey	8	14	4	4	Negro Largo	2	3	2	1

Gooseberries.

Warrington	2	0	0	0

Grapes.

Muscat of Alexandria	24	24	30	31	Appley Towers	3	0	0	0
Alicante	16	14	24	17	Chasselas Napoleon	3	3	0	2
Gros Maroc	16	14	14	13	Buckland Sweetwater	1	3	3	2
Black Hamburgh	13	11	12	8	Cooper's Black	1	0	0	0
Alnwick Seedling	7	4	0	1	Duke of Buccleuch	1	0	0	0
Gros Colmar	6	9	4	5	Gros Guillaume	1	3	1	3
Madresfield Court	6	8	12	5	Mrs. Pince	1	5	5	4
Foster's Seedling	5	6	7	3	Black Muscat	1	2	1	0
LadyDowne's Seedling	5	5	8	6	Sweetwater	1	2	1	0
Mrs. Pearson	4	3	3	3	Trebbiano	1	1	1	1

Melons.

Champion	1	0	0	0	Imperial Green Flesh	1	0	0	0
Countess	1	0	0	0	Royal Favourite	1	0	0	0
Duchess of York	1	0	0	0					

Medlars.

Royal	2	1	0	0	Common	1	1	3	0
Dutch	1	2	0	1					

Nectarines.

Pineapple	9	4	0	7	Rivers' Orange	2	0	0	0
Victoria	6	3	1	1	Albert Victor	1	2	0	0
Humboldt	5	0	0	0	Darwin	1	0	0	0
Pitmaston Orange	4	0	0	0	Elruge	1	1	0	5

Nuts.

Cobs	7	4	6	9	Walnuts	3	3	7	6
Filberts	4	2	0	7					

Pears.

Pitmaston Duchess	71	46	55	69	Seckle	4	3	6	1
Williams' Bon Chrétien	42	2	0	30	Beurre de Capiamont	3	4	3	3
Doyenne du Comice	34	35	39	28	Beurre Rance	3	2	8	3
Beurre Diel	30	32	38	35	Brockworth Park	3	7	8	12
Durondeau	30	26	36	42	Grosse Calebasse	3	4	6	9
Louise Bonne of Jersey	29	36	33	55	Dr. Jules Guizot	3	0	0	0
Souvenir du Congrès	29	9	12	29	Fondante de Thirriott	3	5	4	2
Beurre Hardy	23	18	24	16	Gansel's Bergamotte	3	10	7	5
Marie Louise	23	23	40	54	Le Lecteur	3	1	0	1
Doyenne Boussoch	19	15	4	14	Nouvelle Fulvie	3	6	8	7
Beurre Superfin	18	31	24	16	Princess	3	5	6	9
Duchesse d'Angoulême	16	18	28	17	Triomphe de Jodoigne	3	3	1	4
Maréchal de la Cour	15	13	13	17	Beurre de Mortillet	2	0	0	0
Marguerite Marillat	13	6	1	5	Beurre Jean van Geert	2	2	4	2
Beurre d'Amanlis	12	9	1	14	Beurre Sterckmans	2	4	2	2
Conference	12	8	4	5	Comte de Flandre	2	1	3	2
Emile d'Heyst	12	6	11	12	Flemish Beauty	2	0	0	0
Marie Louise d'Uccle	12	20	8	15	Olivier de Serres	2	4	1	0
Beurre Bachelier	11	17	14	5	President d'Osmonville	2	2	5	0
General Todleben	11	10	9	14	Autumn Bergamotte	1	1	2	0
Catillac	10	16	7	15	Autumn Nelis	1	1	1	0
Fondante d'Automne	10	10	5	15	Baronne de Mello	1	0	0	0
Madame Treyve	10	8	1	9	Beacon	1	0	0	0
Gratioli of Jersey	9	4	0	4	Belle de Bruxelles	1	1	0	0
Triomphe de Vienne	9	1	2	12	Bellissime d'Hiver	1	0	0	0
Thompson's	9	9	8	5	Beurre Benoit	1	0	0	0
Winter Nelis	8	14	25	12	Beurre Brown	1	0	0	0
Beurre d'Anjou	7	1	5	0	Beurre de Jonghe	1	2	1	0
Beurre Fouqueray	7	2	3	0	Bishop's Thumb	1	2	0	1
Josephine de Malines	7	17	20	13	Directeur Alphand	1	1	1	1
Uvedale's St. Germain	7	10	17	15	Directeur Hardy	1	1	0	0
Easter Beurre	6	11	20	4	Dr. Joubert	1	1	1	0
Fondante de Cuerne	6	2	0	0	Fertility	1	1	1	4
Glou Morceau	6	15	25	19	Forelle	1	1	3	2
Beurre Clairgeau	5	9	16	10	Gilogil	1	0	0	0
Beurre Dumont	5	3	1	0	Gregoire Bordillon	1	0	0	0
Comte de Lamy	5	3	1	1	Hythe's Prince of Wales	1	0	0	0
Hacon's Incomparable	5	2	7	1	Jargonelle	1	2	0	1
Vicar of Winkfield	5	4	6	9	King Edward	1	0	0	0
Beurre Baltet Père	4	5	6	2	Knight's Monarch	1	0	0	0
Beurre Bosc	4	14	14	6	Napoleon	1	2	3	1
Chaumontel	4	3	4	0	Nouvelle Poiteau	1	4	2	0
Clapp's Favourite	4	0	0	0	Soldat Labourier	1	2	2	1
Marie Benoist	4	7	5	4	VanMons. Leon leClerc	1	0	0	0

Pineapples.

Queen	1	1	0	0

Peaches.

	Dishes					Dishes			
Varieties.	1898	1897	1896	1895	Varieties.	1898	1897	1896	1895
Princess of Wales ...	21	9	1	4	Lord Palmerston ...	2	3	2	5
Sea Eagle	18	21	6	17	Violet Hative	2	0	0	0
Barrington	13	2	0	11	Admirable	1	0	0	0
Nectarine	9	4	2	3	Dr. Hogg	1	0	0	0
Walburton Admirable	6	7	1	10	Dymond	1	0	0	0
Gladstone	4	2	0	4	Goshawk	1	0	0	0
Late Admirable... ...	4	5	1	5	Gregory's Late	1	0	0	0
Prince of Wales... ...	3	3	0	7	Lady Palmerston ...	1	5	3	0
Alexandra Noblesse ...	2	0	0	0	Salway	1	4	1	0
Bellegarde	2	1	1	1	Thames Bank	1	0	0	0
Golden Eagle	2	4	0	4					

Plums.

Coe's Golden Drop ...	27	34	10	32	Autumn Compote ...	1	1	0	0
Jefferson's	26	4	3	2	Bellegarde	1	0	0	0
Monarch	22	9	6	6	Blue Imperatrice ...	1	1	0	2
Pond's Seedling ...	22	9	1	6	Bonne Bouche	1	0	0	0
Victoria	14	3	0	1	Coe's Emperor	1	2	1	2
Kirke's	10	1	1	2	Coe's Violet	1	1	0	0
White Magnum Bonum	10	3	1	4	Decaisne	1	0	0	0
Diamond	5	0	0	0	Denbigh	1	0	0	0
Grand Duke	7	5	0	8	Denniston Superb ...	1	0	0	0
Reine Claude de Bavay	7	7	2	7	Golden	1	0	0	0
Bryanston Green Gage	6	5	4	4	Goliath	1	1	0	0
Red Magnum Bonum	6	3	1	4	Ickworth Imperatrice	1	0	0	0
Late Transparent Gage	5	2	1	0	Late Black Orleans ...	1	0	0	0
Transparent Gage ...	5	2	0	2	Old Green Gage ...	1	0	0	0
Brahy's Green Gage...	3	2	1	1	Orleans	1	0	0	0
Archduke	2	2	0	2	Prince of Wales... ...	1	2	0	0
Belle de Septembre ...	2	1	2	7	Purple Gage	1	0	0	0
Golden Eagle	2	0	0	0	Rivers' Golden Transparent	1	0	0	0
Guthrie's Late Gage...	2	0	0	0	Royal George	1	0	0	0
Imperial de Milan ...	2	1	1	1	Sandall	1	0	0	0
Kentish Bush	2	0	0	0	Sandall	1	0	0	0
Prince Engelbert ...	2	0	0	0	Washington	1	2	0	0

Quinces.

Pear-shaped	2	1	17	12

Raspberries.

Northumberland Fill-basket	1	0	0	0	October Red	1	0	0	0

Strawberries.

Royal Sovereign ...	1	0	0	0	St. Joseph	1	0	0	0

Tomatos.

Palmer's Triumph ...	2	0	0	0	Royal Jubilee	1	0	0	0
Chiswick Dessert ...	1	0	0	0	The Cropper	1	0	0	0
Conference...	1	2	1	3					

ANALYSIS OF THE R.H.S. FRUIT SHOWS.

HELD IN 1894, 1895, 1896, 1897, 1898.

	1898.		1897.		1896.		1895.		1894.	
	Dishes.	Var.	Dishes.	Var.	Dishes.	Var.	Dishes.	Var.	Dishes.	Var.
Apples	1494	156	1485	201	1083	168	1838	201	1027	172
Apricots	1	1	1	1	1	1	1	1	2	1
Bananas	—	—	—	—	—	—	1	1	—	—
Blackberries ...	1	1	—	—	—	—	—	—	—	—
Bullaces	1	1	3	3	1	1	3	1	5	2
Cherries	1	1	1	1	6	2	12	1	7	1
Currants	2	2	—	—	—	—	—	—	—	—
Damsons	15	9	5	5	4	4	18	7	6	4
Figs	10	2	26	7	7	3	9	6	4	1
Gooseberries ...	2	1	—	—	—	—	—	—	1	1
Grapes	115	19	120	19	135	22	97	18	105	21
Medlars	4	3	5	4	3	1	2	2	—	—
Melons	5	5	8	6	7	6	10	7	—	—
Nectarines ...	29	9	11	5	4	3	18	6	15	8
Nuts	14	3	10	4	19	8	26	8	—	—
Passiflora edulis	—	—	1	1	1	1	—	—	—	—
Peaches	96	21	77	20	24	12	80	19	51	12
Pears	694	88	677	96	795	116	779	98	829	106
Pineapples ...	1	1	3	2	5	3	—	—	—	—
Plums	214	43	115	33	38	16	101	28	90	21
Quinces	2	1	1	1	17	1	16	3	6	1
Raspberries ...	2	2	—	—	—	—	—	—	—	—
Strawberries ...	2	2	—	—	—	—	—	—	—	—
Tomatos	6	5	3	2	2	2	67	26	—	—
Totals...	2711	376	2552	411	2152	370	3178	433	2148	351

Lifting and Planting Fruit Trees.—At this period of the year it is usual to commence lifting any trees that are too gross in growth and unfruitful, and if the soil is in a moist condition I think the earlier the work is done with such trees as peaches and nectarines the better; and I also like to lift apricots early, as these trees bloom early. Unless moisture is given, however, the ground is far too dry at this date, and to avoid delay we are removing the surface soil and well watering several times before commencing the work. There is no gain in leaving these trees till the leaves have fallen; indeed, the reverse, as by lifting in October the trees make new roots at once, and it is an easy matter to syringe overhead early in the day, to prevent flagging after the trees are newly planted. Avoid undue mutilation of the roots, and where it is necessary to shorten strong roots this should be done with care, but in all cases keep a reasonable distance from the bole of the tree, so as to preserve the roots needed. With large pear and apple trees it may be well to defer lifting to an early date in November; but here I am in favour of doing the work as soon as the soil is in condition, and with young trees it is an easy matter to give sufficient moisture to saturate the soil, and ample supplies after the work is completed. Where top-dressings may be of service, a richer compost may be employed to encourage new surface-roots, but whether planting, lifting, or top-dressing make the new soil as firm as possible.—G. WYTHES, *Syon Gardens.*

EXHIBITIONS AND MEETINGS.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual dinner of this, the only benefit society open solely to horticulturists, was held at the Holborn Restaurant on Wednesday, October 5, Mr. G. Bunyard, V.M.H., presiding over a large gathering of members and friends, those present including such horticultural celebrities as Messrs. N. N. Sherwood, J. H. Veitch, H. B. May, H. Weeks, J. Baker, G. Gordon, J. Hudson, S. Wythes, J. G. Veitch, S. T. Wright, J. G. Ingram, G. W. Collins, W. Nutting, A. Outram, R. Dean, &c. After a well served dinner the usual loyal toasts were proposed and acknowledged in the usual energetic fashion.

Upon rising to propose "Success to the United Horticultural Benefit and Provident Society," Mr. Bunyard read several letters from absent friends, notably one from the Rev. W. Wilks, who much regretted his unavoidable absence. The Chairman, in referring to a few facts relative to the society, stated that there were seven hundred and twenty-eight benefit members. There was no need, he thought, to prove the need of such a society, for they all knew a gardener's work was not of the easiest, and he was greatly at the mercy of the weather; in addition to this, some employers do not care to pay their gardener when he is ill or incapacitated He urged all those present to do their level best to secure a new member, either benefit or honorary, each year, for they must remember that members are continually growing old, and so new ones must be obtained. As an investment, as an old age fund, and as a benefit society, he knew of nothing better than the United Horticultural Benefit and Provident Society; this being so, he asked all to do their best to increase its prestige, and obtain instead of sixty-four new members, as in 1898, six hundred and forty new ones in 1899. Mr. J. Hudson, the treasurer, responded, and having thanked the chairman for his advocacy of the society, showed that the invested money per member was greater in the U.B. and P.S. than in any other benefit society he knew. He also showed that the society was worked at a minimum of cost, and a great deal of labour was given to it gratuitously. He urged that the society encouraged frugality and thrift, and this being so, he hoped a very large number of the young gardeners would join, and so enable them to soon register the thousandth member.

The toast of "The Honorary and Life Members" was proposed by the venerable Mr. Nathan Cole, who heartily thanked all those who had helped the society as honorary members, and remarked that nurserymen were such good supporters of the society. He also expressed the society's deep thanks to the three lady patrons, who had done a great deal to assist, and to one of whom the Convalescent Fund was largely due. Mr. James H. Veitch, who was well received, suitably responded, and expressed his regret that Mr. Sherwood had had to leave early. He suggested that all the foremen gardeners in the country should be approached on behalf of the society, and he felt sure that all these would be persuaded to join if the benefits of the institution were placed before them.

Mr. T. Winter proposed "The Visitors"; he trusted all such had thoroughly enjoyed themselves, and that they would do their best to assist the society by becoming members, and inducing others to join also. Mr. S. T. Wright, superintendent of the R.H.S. Gardens, suitably responded to this toast.

Mr. H. B. May, in a few brief, eulogistic remarks, proposed the health of "The Chairman," a toast that was received with enthusiasm, and drunk to the accompaniment of musical honours. Mr. Bunyard responded in a very feeling manner, thanking all for their kindness in drinking his health. A list of donations was then read, this being:—Mr. Garcia, £1 1s.; Mr. G. Munro, £1 1s.; Mr. J. Watkins, £1 1s.; Leopold de Rothschild, Esq., £1 1s.; Mr. J. H. Veitch, £3 3s.; an anonymous donor, £1 1s.; Mr. S. T. Wright, 10s. 6d.; Mr. R. Dean, 10s. 6d.; N. N. Sherwood, Esq., £5 5s.; Mr. Cox, £1 1s.; Mr. Pinches, 10s. 6d., to the Convalescent Fund.

The toast of "Kindred Institutions" was proposed by Mr. W. Roupell and ably responded to by Mr. J. G. Ingram, the secretary to the Gardeners' Royal Benevolent Institution, who stated that his society was now aiding a hundred and sixty-eight disabled gardeners or gardeners' wives annually, in addition to assisting in a smaller way the unsuccessful candidates for its pensions.

Mr. Richard Dean, V.M.H., gave "The Horticultural Press," remarking that the society was largely indebted to the gardening press for its present high position and widespread success. He considered high honour and praise due to the horticultural press for its outspoken remarks on behalf of all gardening charities and deserving institutions in connection with the profession. Mr. George Gordon, V.M H., in responding, alluded to the fact that the U.B. and P.S. owed its origin chiefly to the inventive brain of a former editor of the GARDENERS' MAGAZINE. He was glad to find the society duly appreciated the power of the horticultural press, not only as regards its printed matter but in having horticultural pressmen upon its governing body. He urged the members to keep in every possible way the claims of the society before the gardening public.

Mr. W. Collins (secretary of the society) presented the thanks of the gathering to the donors of fruit and flowers, a toast responded to by Mr. J. McKerchar. A very pleasant and highly successful meeting was brought to a conclusion at an early hour with "Auld Lang Syne." Songs, part-songs, and instrumental solos by the Lamb Brothers' Glee Club enlivened the proceedings.

DEVON AND EXETER GARDENERS' ASSOCIATION.

THE Devon and Exeter Gardeners' Association held its annual meeting the other evening, under the presidency of the Sheriff of Exeter, at the Guildhall, Exeter. The executive stated in the annual report that the society had amply justified its existence, and had shown itself not unworthy of the support of those interested in horticulture. Working on broad lines, the papers dealt with covered a wide area of knowledge on gardening and other kindred subjects. "The Qualifications and Duties of a Gardener," "How a knowledge of Botany is a Help to Gardening," "Pruning and the General Management of Fruit Trees," "Herbs, their Cultivation and Uses," were among the papers read during the past autumn session, and in one or two cases they were made more interesting by practical demonstrations. The last item on the syllabus was "Winter Flowering and Foliage Begonias," which was much appreciated by the members. Following the friendly supper at Christmas, the spring session was opened with a paper on "Himalayan Rhododendrons," by a gardener who had taken a particular interest in that rather out-of-the-way subject. The next was a valuable contribution on "Orchid Growing." "Four Years' Experiments in the Cultivation of Vegetables with and without Chemical Manures," by Mr. Shrivell, proved very interesting, and the discussion that followed showed that the members appreciated the [illegible]. An essay on "Potatos," by a member, "Variety in the Flower Garden," by Mr. Moorman, and an eminently successful paper on "Summer Bedding" [illegible] a close a most successful session. The summer excursion was held at Endsleigh, near Tavistock, through the kindness of his Grace the Duke of Bedford. These excursions are very much enjoyed, and prove to be of a high educational value from a gardening point of view. An excellent programme has been arranged for the coming session.

On the motion of the Sheriff, seconded by Mr. J. T. Rogers, the report was adopted. The hon. treasurer's report showed a balance in hand of £13 11s. 3d. Mr. Pincott moved the adoption of the report, and said the association owed a great debt of gratitude to Mr. Mackay for the admirable manner in which the accounts were kept. Mr. Andrew seconded the motion, which was adopted. Mr. Hope moved that Mr. E. A. Sanders be re-elected as president of the association for the third year. Mr. Osman seconded the motion, which was unanimously adopted. Messrs. Hope and Mackay were re-elected hon. secretary and treasurer respectively, Mr. Osman, who proposed the motion for their re-election, remarking that the members might feel confident that the affairs of the association would be thoroughly managed by such officers. The committee were elected as follows: Mr. W. Andrews, Mr. W. R. Baker, Mr. G. C. Crabbe, Mr. J. Lacon, Mr. J. Rodgers, Mr. S. Radley, Mr. J. T. Baker, Mr. W. Charley, Mr. F. Edwards, Mr. J. Luxton, Mr. W. Rowland, and Mr. J. Weeks. The meeting terminated with votes of thanks to the officers, committee, and chairman.

MARKETS.

Covent Garden.

THE supplies of fruits and vegetables are moderate, and there is a steady business at the prices quoted. There is a tendency to rise in the prices for the best green vegetables.

FRUIT.—English apples, 3s. to 10s. per bushel; English grapes, 10d. to 2s.; Channel Island, 6d. to 1s. per lb.; Almeria, 9s. to 15s. per barrel; Lisbon, 6s. to 9s. per case; English pears, 4s. to 9s. per bushel; French Williams, 2s. 6d. to 4s. 6d. per box; plums, 3s. to 5s. 6d.; damsons, 2s. 6d. to 3s. 6d. per half-sieve; blackberries, 2s. to 2s. 3d. per peck; bananas, 5s. to 10s. per bunch; English tomatos, 2s. 6d. to 4s.; Channel Island, 2s. to 3s. per 12 lb.; green figs, 9d. to 1s. 6d.; peaches, 1s. 6d. to 6s. 6d.; nectarines, 2s. to 8s. per dozen; walnuts, 3s. to 4s. per prickle; Spanish melons, 4s. 6d. to 7s. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 2s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 3s to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. 6d. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Valencia onions, 5s. to 6s.; Ports, 5s. to 6s. 6d. per case; Dutch picklers, 2s. to 2s. 6d. per bag; marrows, 5s. to 8s.; cabbages, 4s. to 7s. per tally; eschallots, 1s. 3d. to 1s. 9d; mushrooms, 5s. to 8s. per 12 lb.; endive, 1s. to 1s. 6d.; cucumbers, 2s. to 4s.; cauliflowers, 1s. to 2s. per dozen; beans, 4s. to 5s. per bushel; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. 6d. to 4s.; parsley, 1s. 6d. to 2s. per dozen bunches; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; lettuce, 1s. to 2s. per score; celery, 10s. to 18s. per dozen rolls; potatos, 55s. to 90s. per ton.

Borough Potato Market.

There are moderate supplies, and these together with the steady demand keep prices firm. Beauty of Hebron and Snowdrops, 3s. 6d. to 4s.; White Hebrons, Early Puritan, Sutton's Early Regent, Reading Giants, and Imperators, 3s. to 3s. 6d.; Black Lands, 2s. 6d. to 2s. 9d. per cwt.

THE WEATHER DURING THE WEEK ENDING OCTOBER 1, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	66·1	39·9	52·9	11·61	0·16	0·41
Croydon	65·5	35·5	50·9	10·50	0·21	0·53
Brighton	66·0	39·8	54·3	12·39	0·80	2·03
Bristol	—	—	—	—	—	—
Wolverhampton	60·0	31·9	46·9	8·28	0·84	2·13
Norwich	66·0	35·7	52·4	11·33	0·06	0·15
Nottingham	64·1	37·0	49·6	9·78	0·31	0·79
Liverpool	60·3	41·1	50·1	10·06	0·69	1·75
Huddersfield	61·0	34·5	48·9	9·39	0·17	0·43
Bradford	62·0	44·0	51·3	10·72	0·46	1·17
Hull	64·0	37·0	49 9	9 94	0·22	0·56

The mean reading of the Barometer during the week at Greenwich was 29·80 inches, and that of the Thermometer 52°·9, the latter being 1°·7 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 17 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 42·4 hours. The measured rainfall amounted to 0·16 of an inch.

CATALOGUES RECEIVED.

J. RUSSELL, RICHMOND, SURREY.—Bulbs and Herbaceous Plants.
S. DOBIE AND SON, HEATHFIELD GARDENS, CHESTER.—Bulbs and Roots.
BENJAMIN SODDY, 243, WALWORTH ROAD, S E.—Bulbs.
JAMES CARTER AND CO., HIGH HOLBORN, LONDON.—Bulbs.
A. F. UPSTONE, CHURCH STREET, ROTHERHAM.—Bulbs.
DOBBIE AND CO., ROTHESAY, N.B.—Bulbs and Plants.
ALEXANDER CROSS AND SONS, HOPE STREET, GLASGOW.—Bulbs, Fertilisers, &c.
CHARLES TURNER, ROYAL NURSERIES, SLOUGH.—Bulbs and Roots.
W. FROWMOW AND SONS, CHISWICK, W.—Bulbs.
BARR AND SONS, KING STREET, COVENT GARDEN.—Bulbs and Tubers—Daffodils.
TOOGOOD AND SONS, SOUTHAMPTON.—Bulbs and Roots.
R. H. BATH, WISBEACH.—Carnations, Roses, &c.—Bulbs.
J. CHEAL AND SONS, LOWFIELD NURSERIES, CRAWLEY.—Dahlias.
G. R. SHILLING, WINCHFIELD, HANTS.—Bulbs.
R. WALLACE AND CO., COLCHESTER.—Hardy Plants and Bulbs.
W. RUMSEY, WALTHAM CROSS, N.—Roses, Trees, Shrubs, &c.
AMOS PERRY, WINCHMORE HILL, N.—Bulbs and Plants; Asters.
G. BUNYARD AND CO., MAIDSTONE.—Fruit Trees, Roses, &c.
DANIELS BROTHERS, NORWICH.—Bulbs, Fruit Trees, &c.
W. DUNCAN TUCKER, TOTTENHAM.—Joinery.

UNITY IS STRENGTH may indeed be said with regard to Holloway's Pills and Ointment, for when used together, they are remarkable in their effects upon disease. No matter how stubborn the symptoms may be, they cannot long withstand these remedies. All sufferers, whom other treatment has failed to relieve, should try the celebrated Ointment, which will strengthen and cure them. The Pills recommend themselves to the attention of all sufferers. No injurious consequences can result from their use; no mistake can be made in their administration. In indigestion, confirmed dyspepsia, and chronic constipation, the most beneficial effects have been, and always must be, obtained from the wholesome power exerted by these purifying Pills over the digestion.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Caterpillar on Roses.—G. F. B., Ellesmere: Judging from your remarks, the caterpillars have done little damage to the roses, and are so few in number that hand picking will suffice to speedily extirminate them. What the species is we are not able to definitely state, for when the packet was opened there was no caterpillar to be found, though its chrysalis was there in a deformed condition. It probably represents the Magpie moth (*Abraxus grossulariata*), or a closely allied species. Look for chrysalids in the surface soil and destroy them.

Stachys lanata.—S. R., Harrogate. The plant is one that was used extensively during the time that summer bedding was quite a rage; it has, however, become quite lost to many gardens, while in others a plant or two struggles for existence and its name is almost forgotten. It is perfectly hardy and is also very useful for a permanent edging when treated properly. To keep it in condition it must annually be lifted, pulled to pieces and replanted during the spring, as only by this means can it be kept dwarf, neat, and free from flowering. If allowed to remain untouched it becomes straggling during the second season of growth and runs to flower. There will be no difficulty in increasing the plant in the spring, by division; plant every piece separately.

Campanula pyramidalis.—C. W., Bath: We presume you refer to pot culture. Sow seed in April, using shallow boxes or pans of light soil and placing these in a close frame until the seedlings are well above the soil. Prick off as early as possible into pans or boxes and keep the tiny plants as near the glass as possible so as to prevent drawn growth. Pot the plants into five-inch pots about the end of June and give another shift early in August, as seems desirable; the plants may be kept in five-inch pots during the winter and be potted on in March, and this ensures their flowering the same season, though they would not be so large as specimens left to grow during the second summer. Plenty of air must be given the young plants. and soon after the first potting they may be placed in the open until winter begins, when the protection of a cold frame should be afforded. Potting compost should consist of good strong loam with a little mortar rubbish and wood ashes mixed with it.

Grouping Chrysanthemums.—A Yorkshire correspondent—W. B.—writes as follows: "I purpose competing at our local chrysanthemum show, in November next, in the class for 'a group of chrysanthemums, not to exceed fifty square feet; a margin of foliage plants allowed.' The groups last year were all arranged in semi-circles. I have a good lot of chrysanthemums, spring struck stuff, in six and seven-inch pots, each to carry one bloom. At what height ought the flower of the central plant in the back row to be above the floor? Should the blooms be wired to keep them from being snapped off, and if so what length and thickness of wire should be used? Should the pots in the back row be tilted a little, so as to present the face, instead of the side, of the bloom to the spectators, or would this effect be best obtained by wiring? Never having put up a group of chrysanthemums, I am desirous of obtaining such information as may assist to secure success." As the present offers a suitable opportunity for discussing the question of grouping chrysanthemums, we invite our numerous readers who are successful chrysanthemum exhibitors to send us their opinions of this matter, basing their remarks upon the questions asked in the above letter.

Scab on Apples.—H. C., Goole: The markings upon the fruits are caused by a fungus (Fusicladium dentriticum), known as Apple Scab. Not only does it injuriously affect the tree, but it spoils the appearance of the apples, rendering, in most cases, the dessert varieties unfit for table. A cure for this pest is to be found in a general cleaning of the tree or trees during the winter, removing all loose and rotten bark, moss, lichen, &c., so as to give the tree a better chance next spring; follow this with a spraying of a solution of carbonate of copper, also while the trees are dormant. In early spring, when the leaves appear, and before the flower buds expand, spray with Bouillie Bordelaise, and follow this with more sprayings at intervals of a fortnight, commencing after the fruit has properly set. The carbonate of copper solution is made as follows: Obtain one ounce of copper carbonate and enough ammonia solution to dissolve the copper. This may be kept in well-corked bottles until required for use, but it must be diluted with nine gallons of water. Bouillie Bordelaise or Bordeaux mixture you probably know how to make already, as the prescription has so often been given in our columns.

Herbaceous Plants for Exhibtion.—C. W., Bath: Soil and locality have such an effect upon plants, that what would prove best for certain gardens, would not prove so for others. The season you mention is also a rather extended one—six weeks at least—so that any dozen herbaceous plants suitable for July would not also be the twelve best for September. We append the names of a few of the subjects most popular with exhibitors of these hardy flowers: Delphiniums, pyrethrums, Heuchera sanguinea, Kniphofias, Lilium speciosum, L. candidum, L. umbellatum, Lychnis chalcedonica, Lathyrus grandiflorus, Centaurea macrocephala, Achillea ptarmica, fl. pl. The Pearl, Stenactis speciosa, Lathyrus latifolius, white and rose forms; phloxes, gladiolus, Helianthus rigidus, Catananche bicolor, Aconitum Napellus, Gaillardias, Alstrœmeria aurantiaca, Chrysanthemum maximum, Scabiosa caucasica, Coreopsis grandiflora, campanulas, &c. The fine two dozen bunches that secured first prize at Newcastle, July 13 last, were composed of three varieties of delphiniums, three of pæonies, four of irises, Dictamnus fraxinellus albus, Centranthus ruber, Lilium Martagon album, L. longiflorum, Thalictrum angustifolium, Gladiolus Colvillei The Bride, and G. C. delicatissima, Eryngium alpinum, Inula glandulosa, Aquilegia cærulea, Geum coccineum, fl. pl.; Gaillardia Penelope, Heuchera sanguinea, and Helenium Belangeri. If you intend competing, you will, to achieve any degree of success, have to start a herbaceous border, and plant a wide selection of useful subjects such as here given. There are plenty of others almost, if not quite, as good. We shall be glad to afford you any further information.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the members be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

S. R., Harrogate: Stachys lanata (see further reply).

J. Y., Southwick: The seed pod of a tree pæony.

R. E. T., Milborne: 1, a form of Tradescantia crassifolia; 2, Ananassa sativa variegata; 3, Begonia imperialis; 4, a cypripedium, send flower; 5, a garden variety of Begonia Rex; 6, Begonia sanguinea.

T. W., Ipswich: 1, Quercus Robur; 2, Osmanthus illicifolius; 3, Sciadopytis verticillata; 4, Cupressus Lawsonianus.

R. P., Bideford: 1, Hippophœa rhammoides; 2, Pernettya mucronata.

Names of Fruits.—G. S., Guildford: Yes; you might send No. 3 again, two or three specimens.

G. W., Calcot: 1, Dumelow's Seedling; 2, Beauty of Kent; 3, Baddow Pippin; 4, Beurre Diel; 5, Fearn's Pippin; 6, Lady Henniker.

J. H., Ascot: 1, Durondeau; 2, Beurre Bosc; 3, Beurre Diel; 4, Triomphe de Jodoigne.

G. A. G., Bournemouth: 1, Hollandbury; 2, Dumelow's Seedling; 3, Keswick Codlin; 4, Gravenstein; 5, Worcester Pearmain; 6, Ecklinville.

W. M. L., Haslemere: 1, Chaumontel; 2, Beurre Rance; 3, Waltham Abbey Seedling; 4, Peasgood's Nonesuch.

D. G., Sunninghill: 1, Cox's Pomona; 2, Duchess' Favourite; 3, Manks Codlin; 4, not recognised; 5, Fearn's Pippin; 6, Ribston Pippin.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Tuesday, October 11.—Royal Horticultural Society: Committee meet at 12 o'clock; Demonstration at 3 p.m. by Rev. Prof. G. Henslow, M.A., V.M.H., on Some of the Plants Exhibited.

National Chrysanthemum Society, at Royal Aquarium; Three days. Conference on Chrysanthemum Rust on the first day, at 6 o'clock, in St. Stephen's Hall.

Saturday, October 15.—Liverpool Farmers' Club Annual Show.

AUCTIONS.

Monday, Tuesday, Wednesday, Thursday and Friday, October 10, 11, 12, 13, and 14.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Rooms, Cheapside, E.C.

Thursday, October 13.—Surplus Stock, Messrs. Protheroe and Morris, Nurseries, Bagshot, Surrey.

Friday, October 14.—Imported and Established Orchids, Messrs. Protheroe and Rooms, Cheapside, E.C.

Nearly Every Day—Dutch Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

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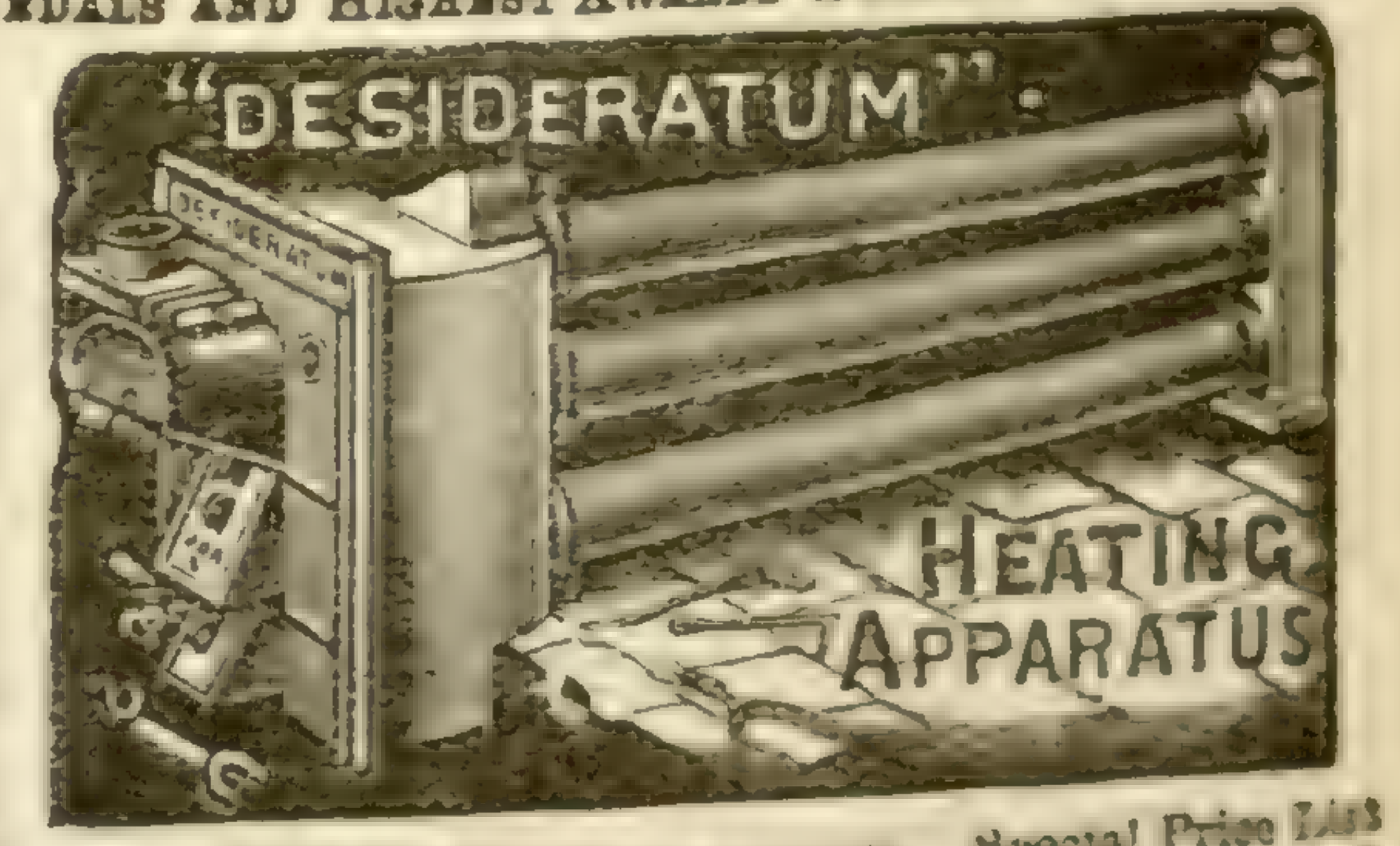

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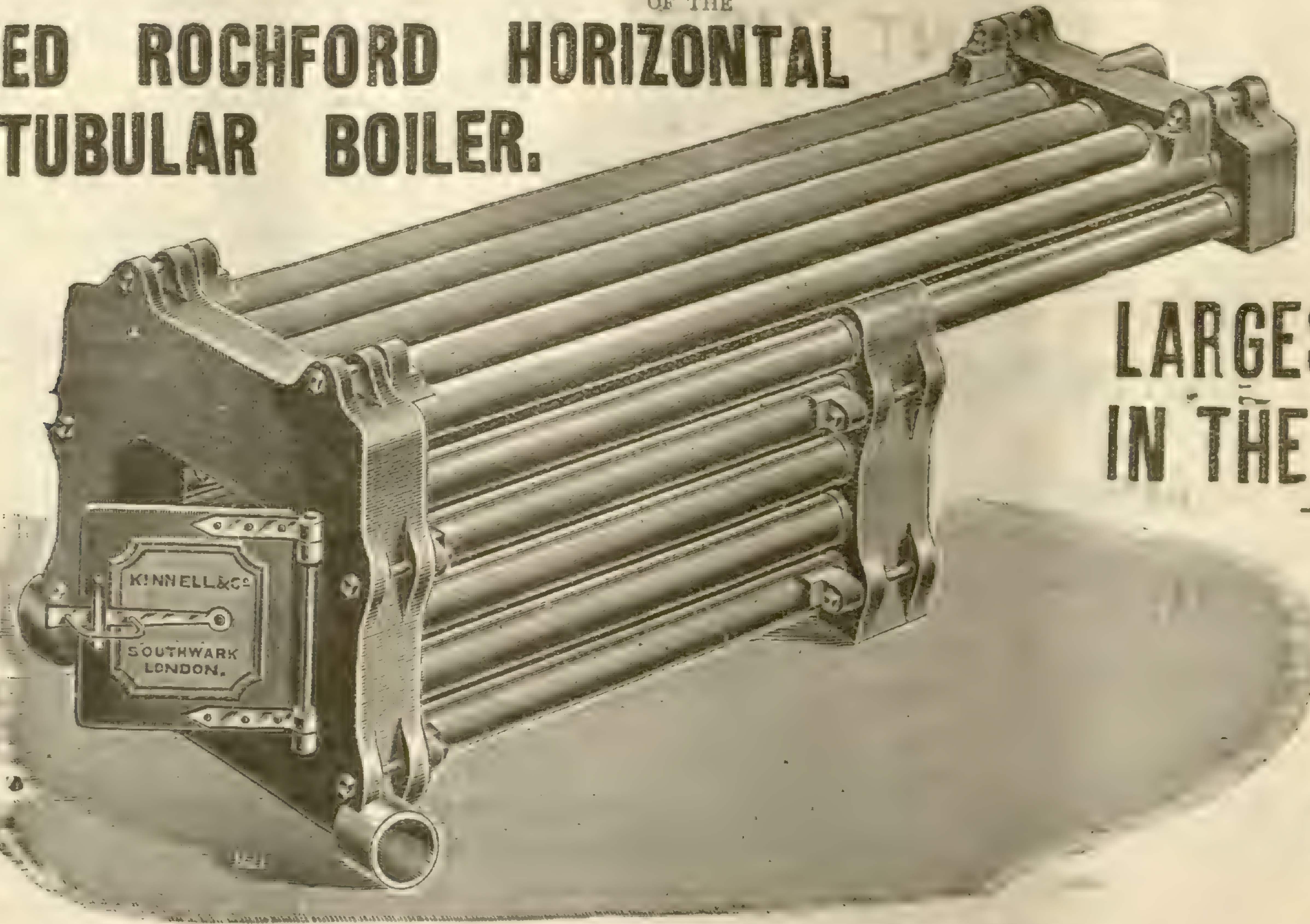

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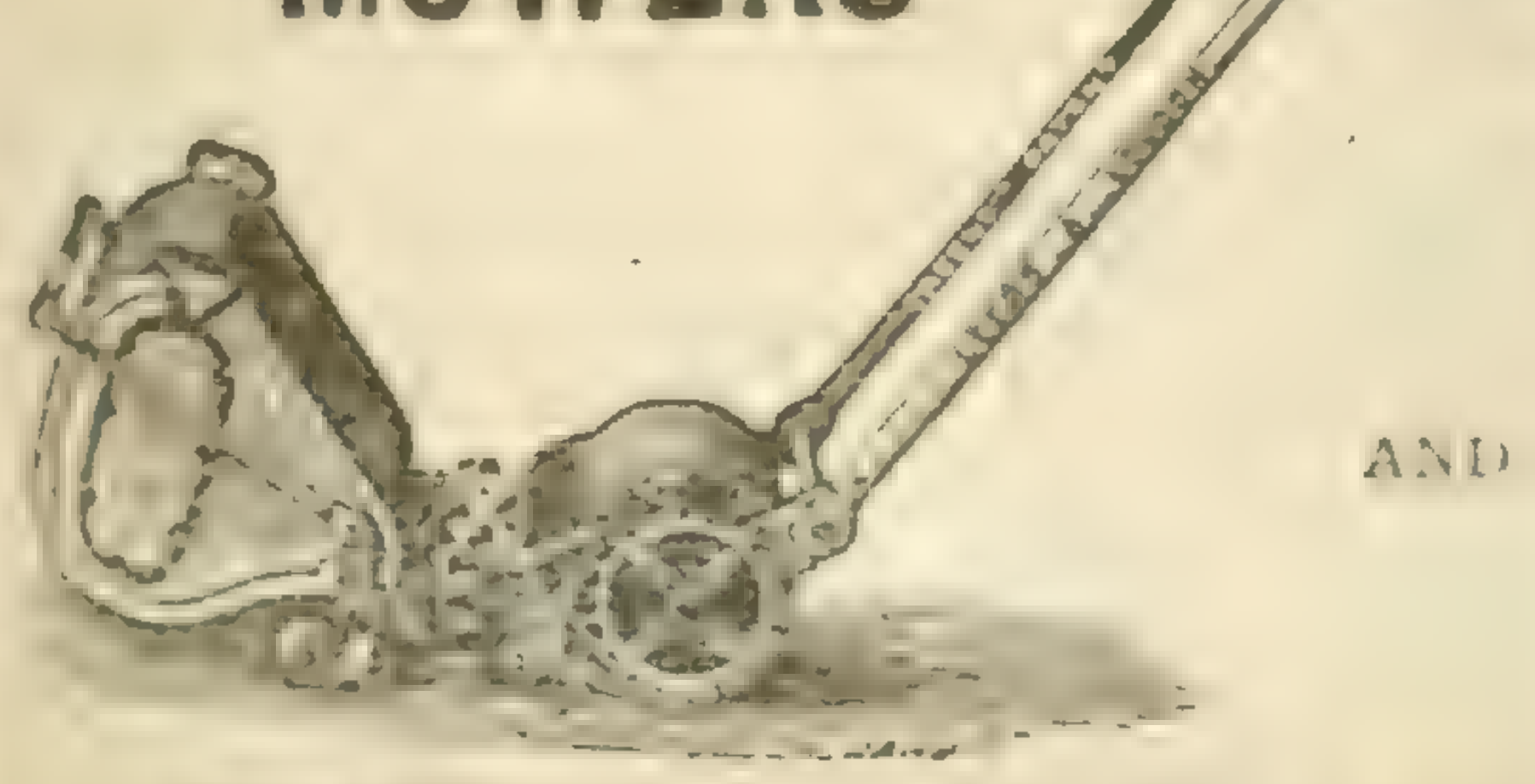
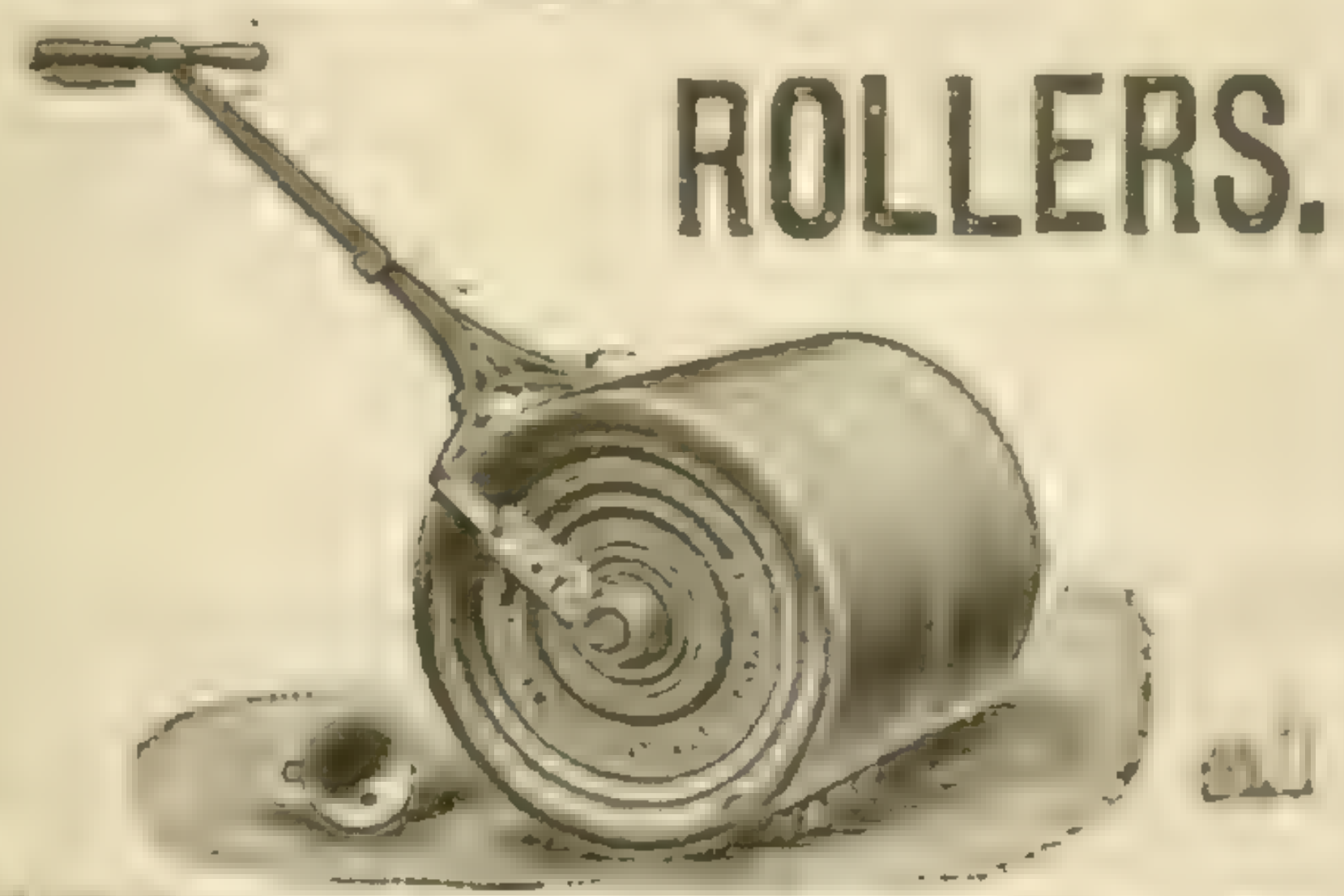


AND

ROLLERS.



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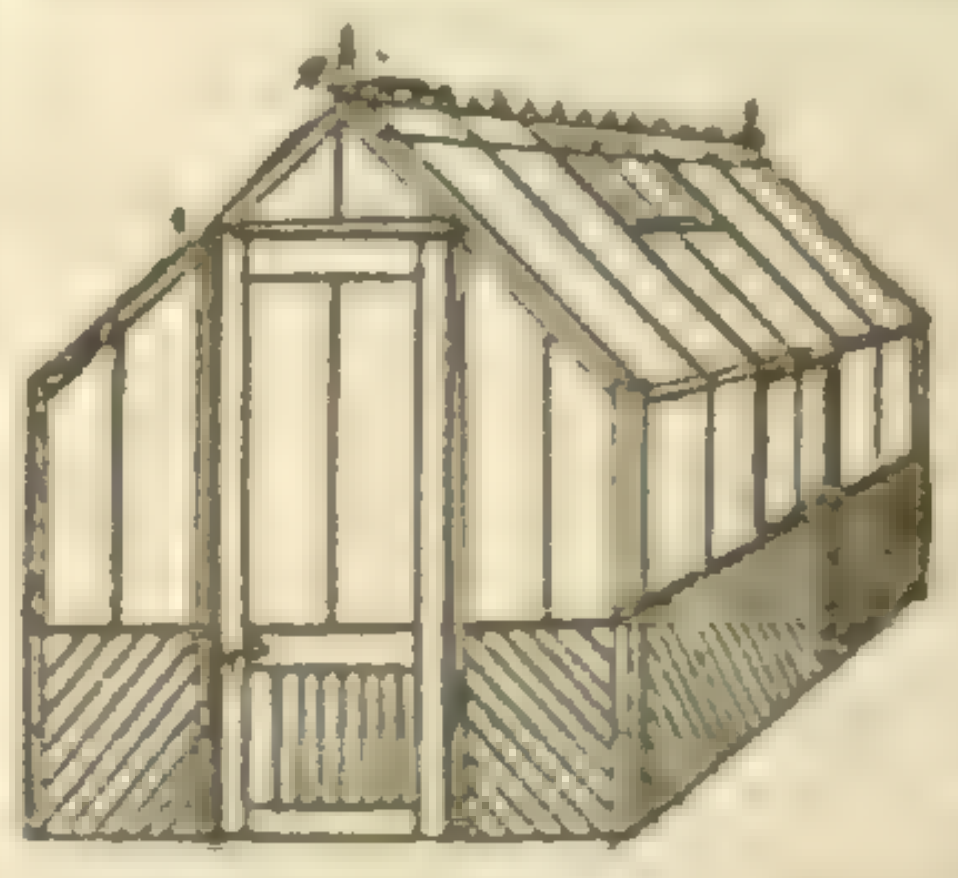

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10 X 5	48/6	58/6
14 X 6	58/6	73/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
14 X 10	95/-	£5/7/6
20 X 10	£[illegible]	£[illegible]

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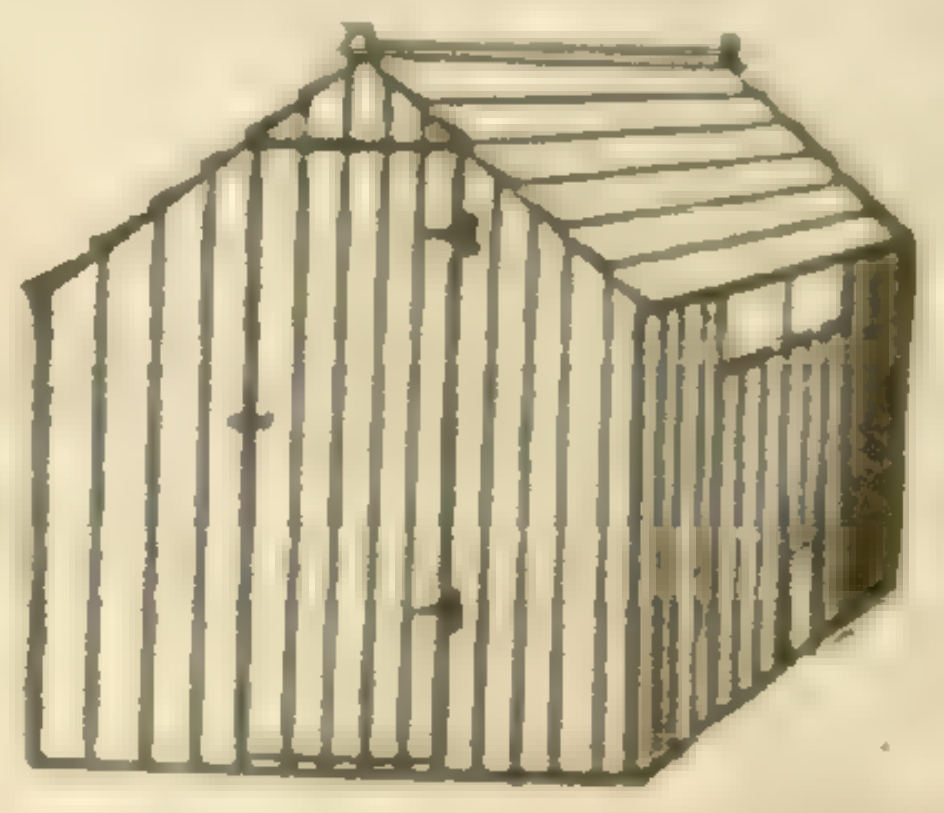

To hold.	Size.	Lean-to.	Span.
Ten	4 X 3	[illegible]	[illegible]
Twenty	5 X 4	12/[illegible]	1[illegible]
Forty	7 X 5	17/6	22/6
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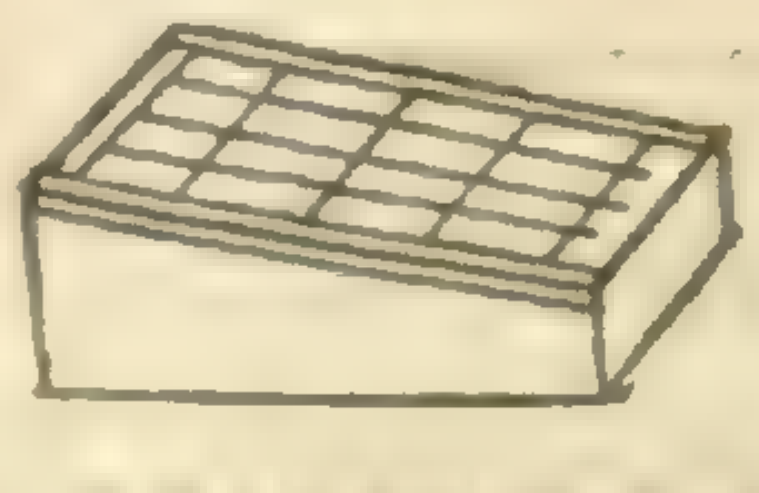

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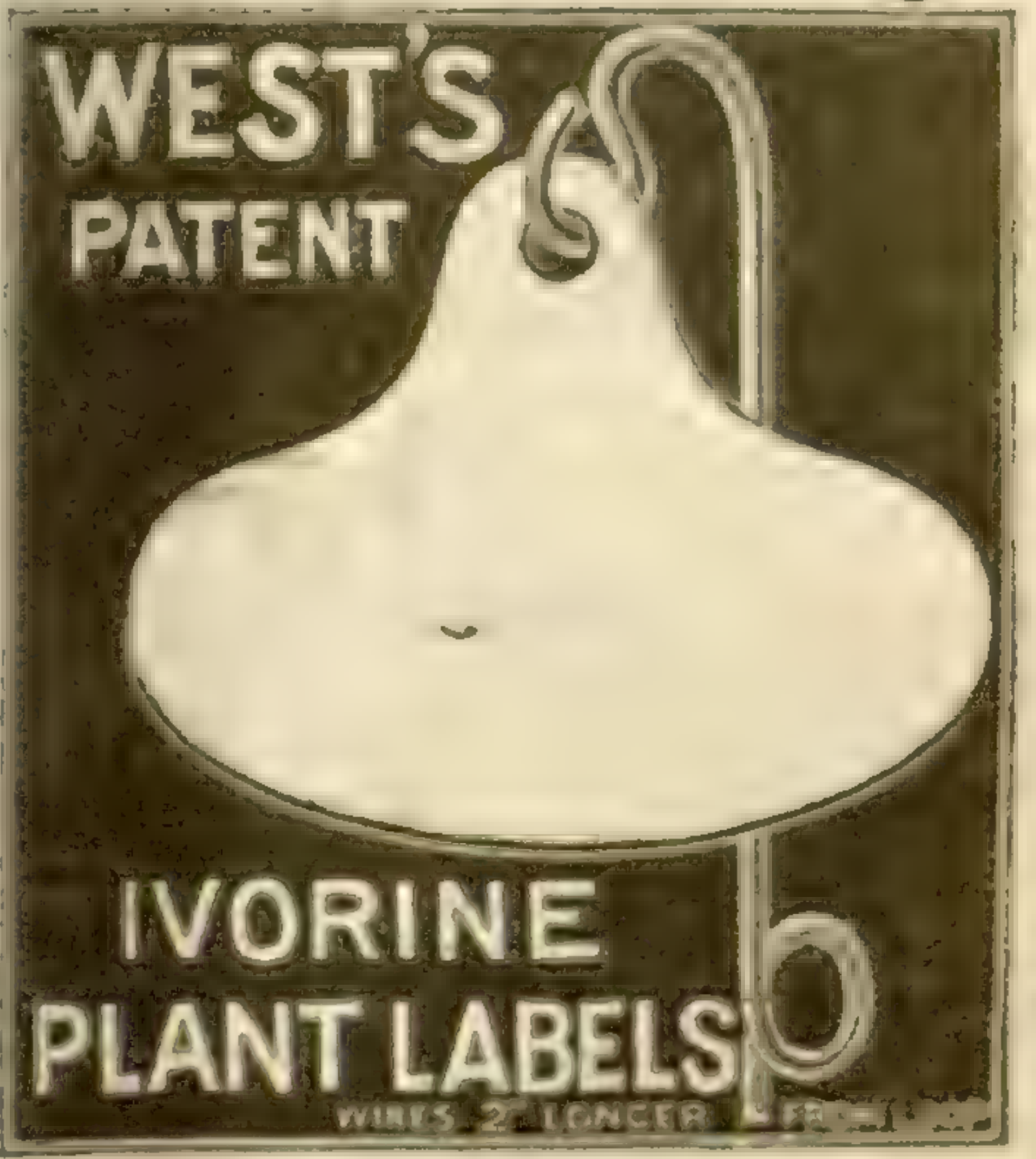

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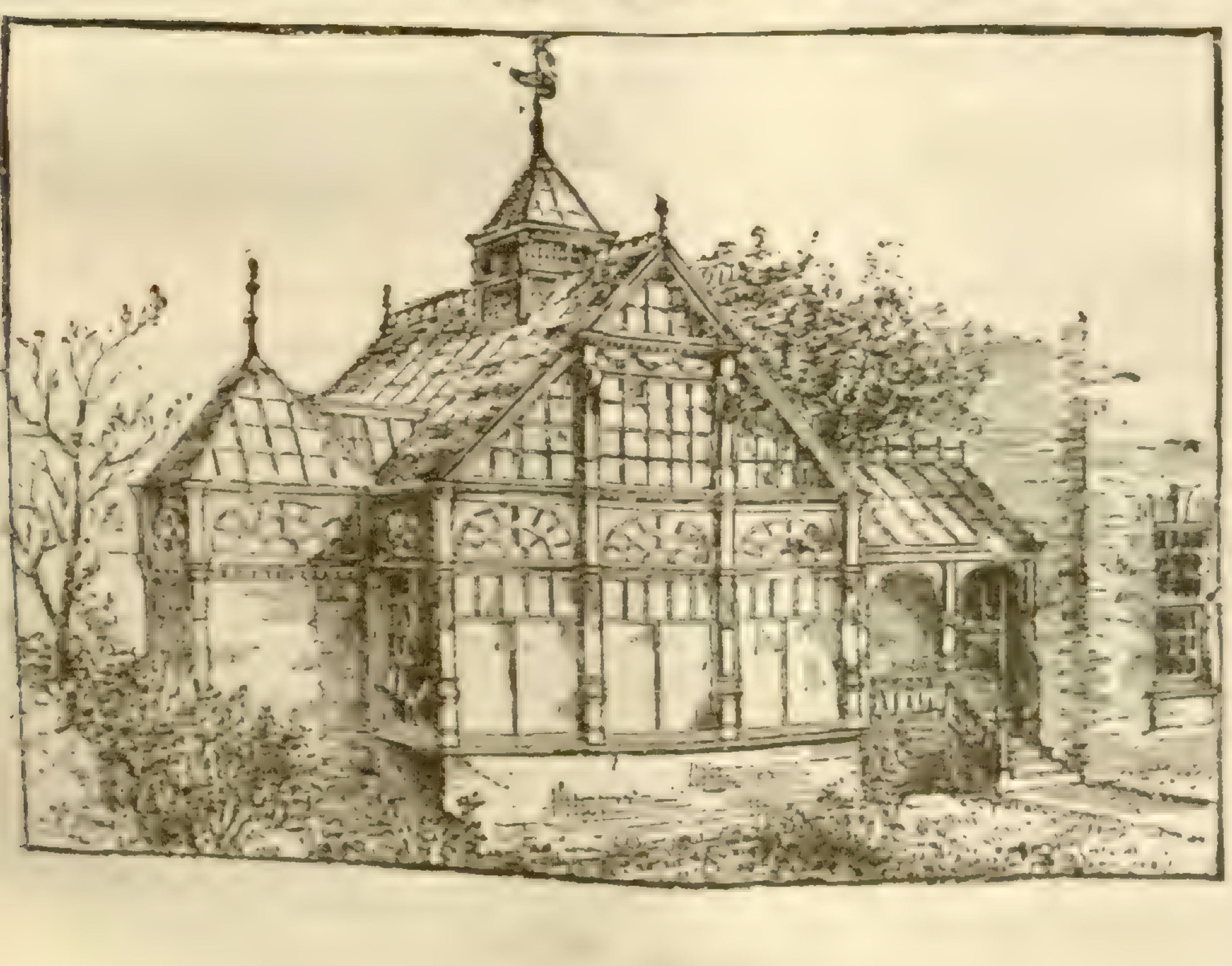

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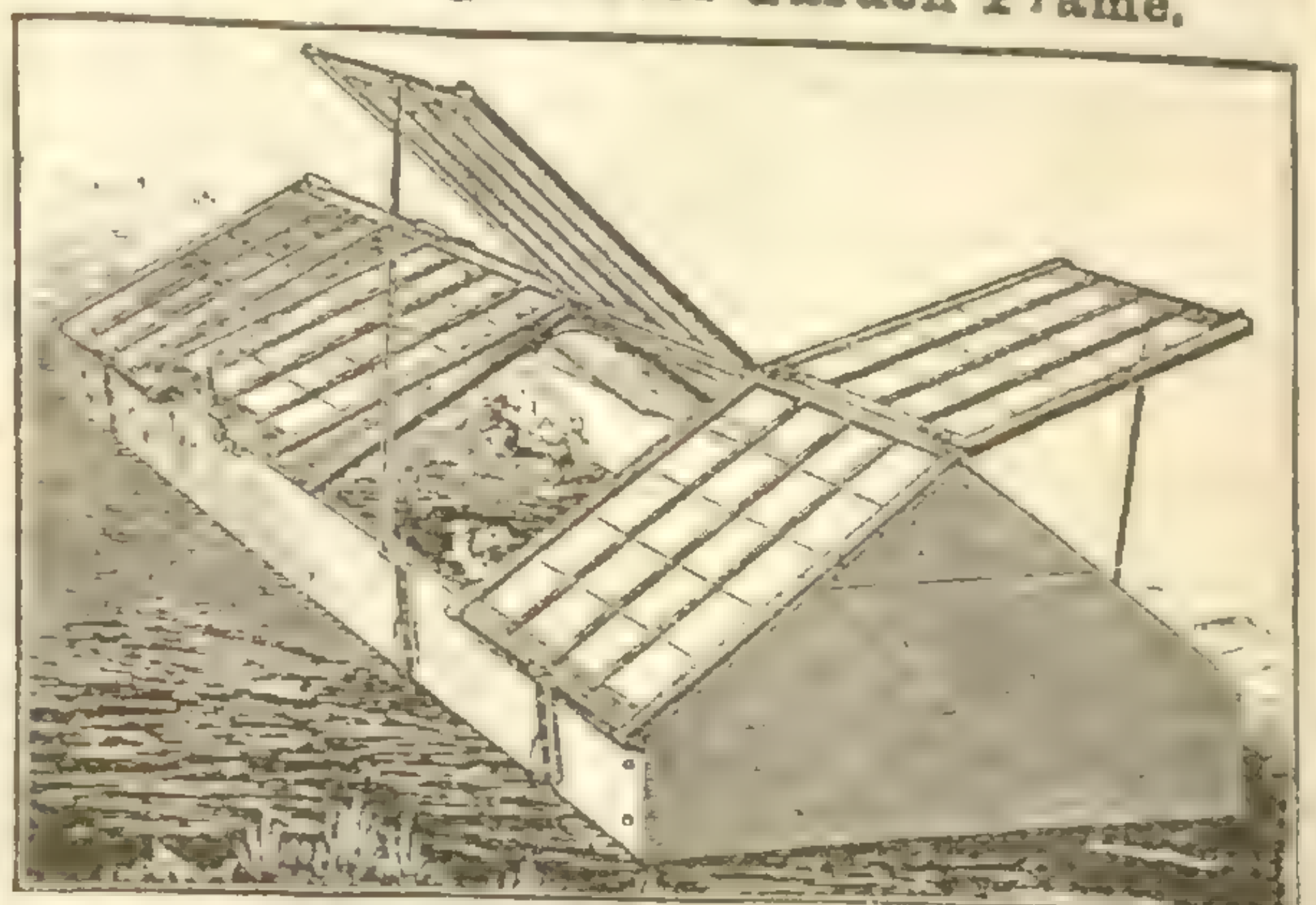

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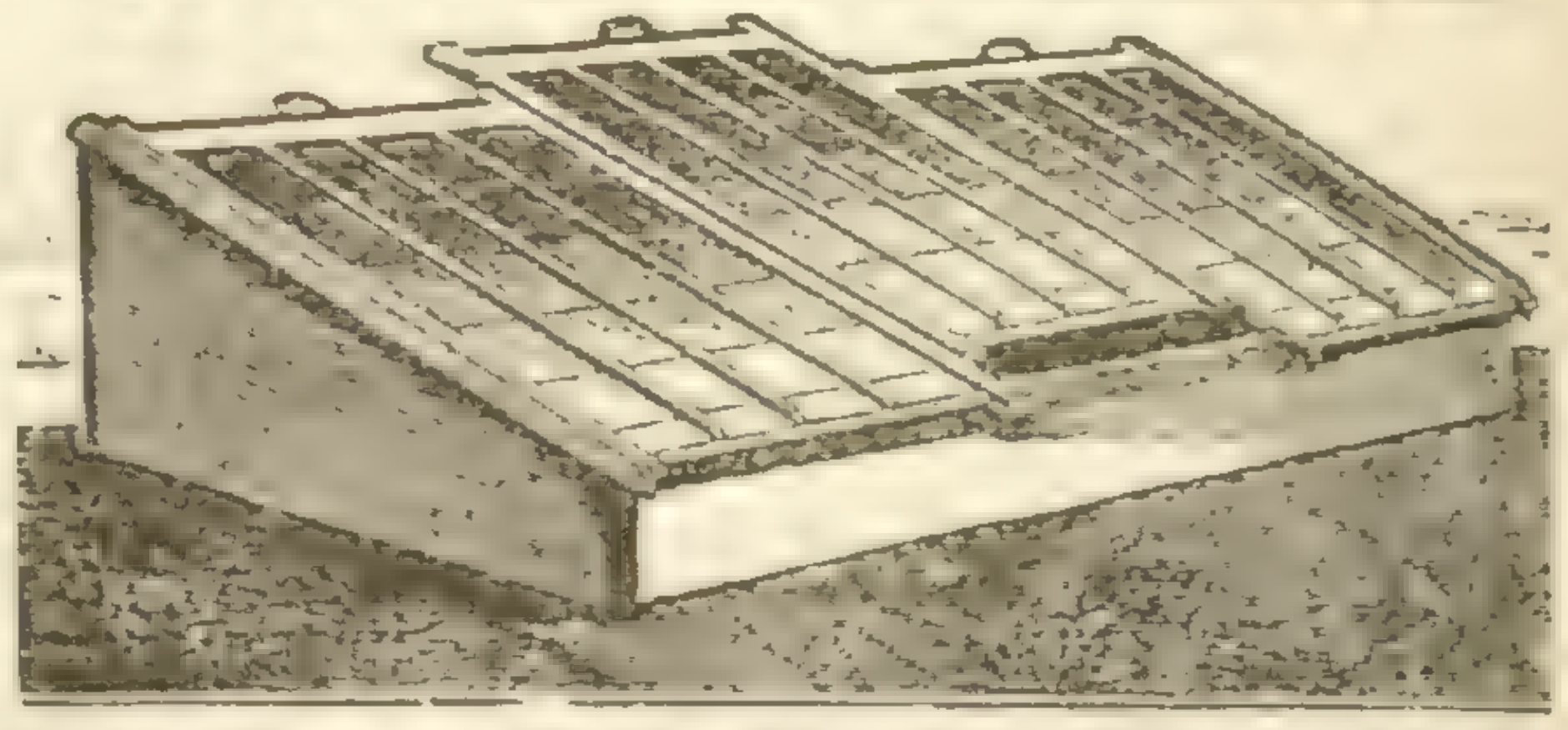

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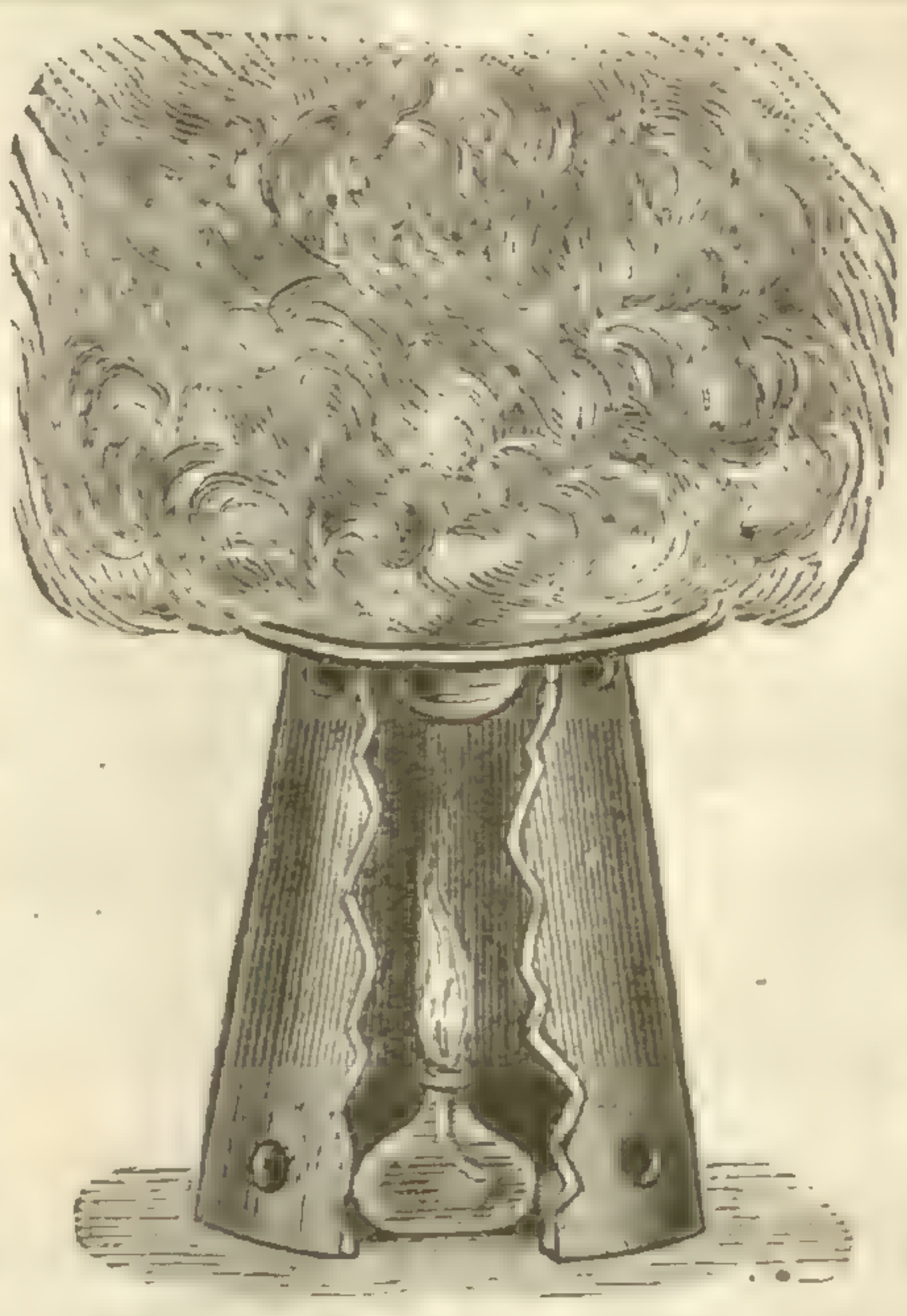
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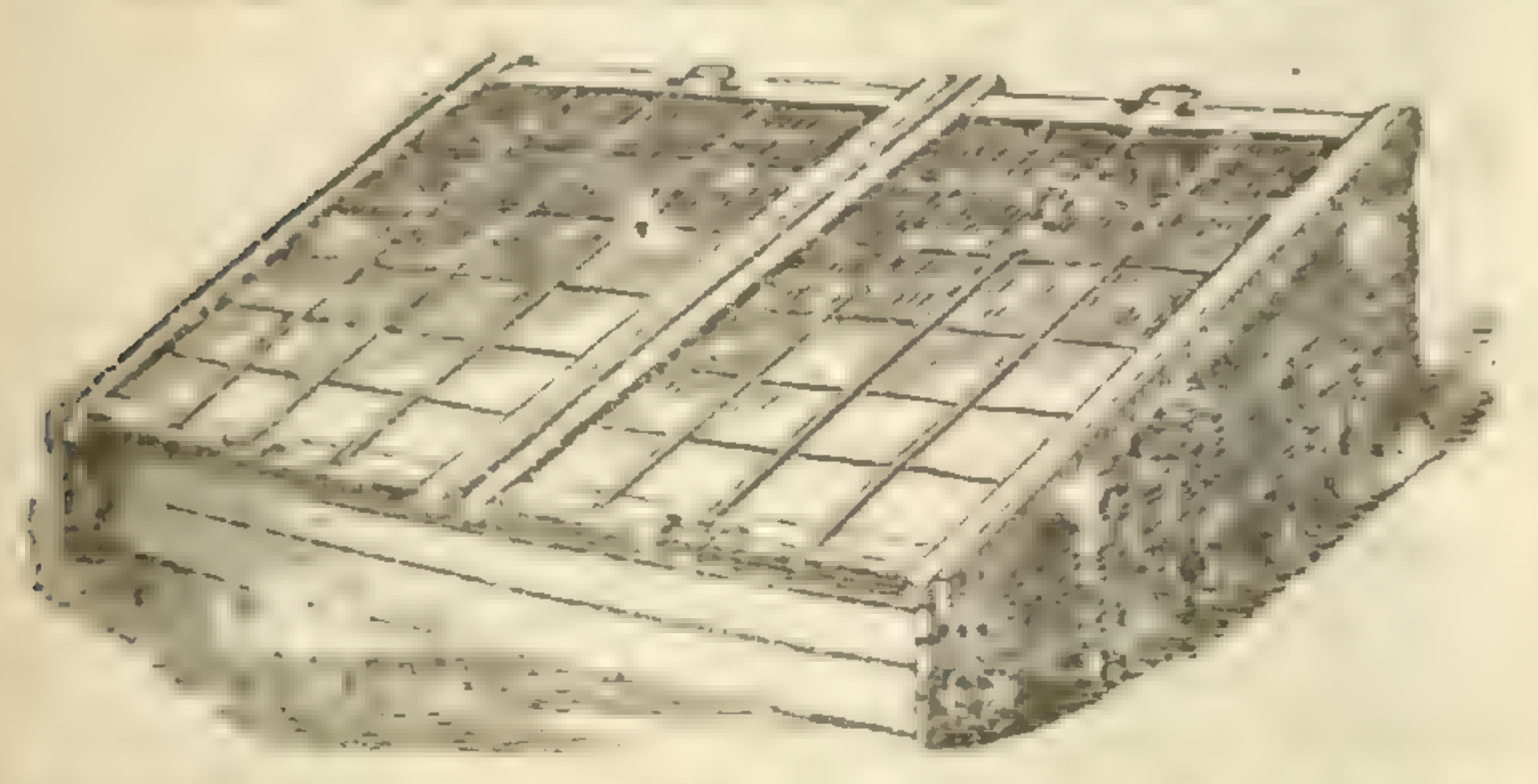

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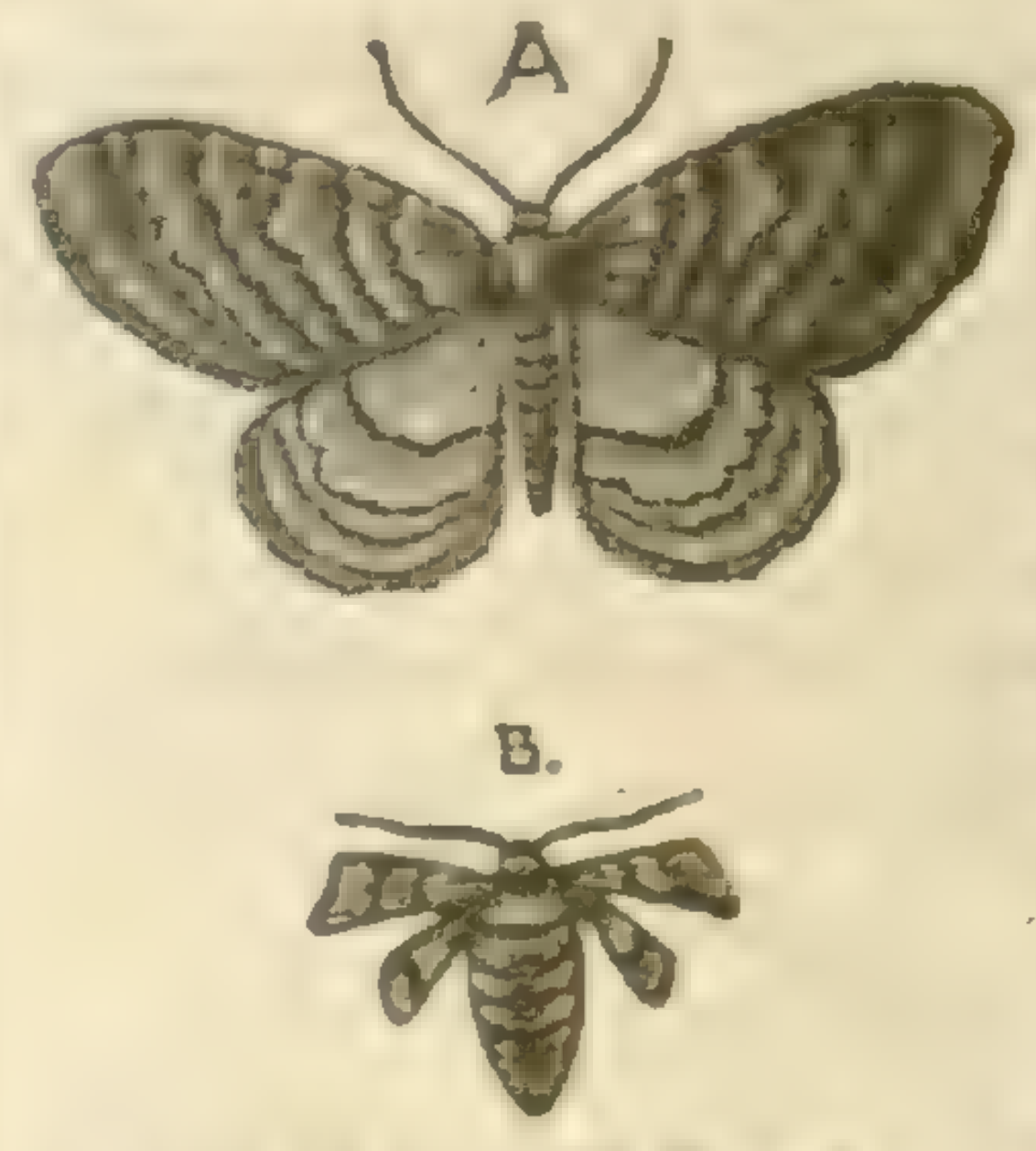

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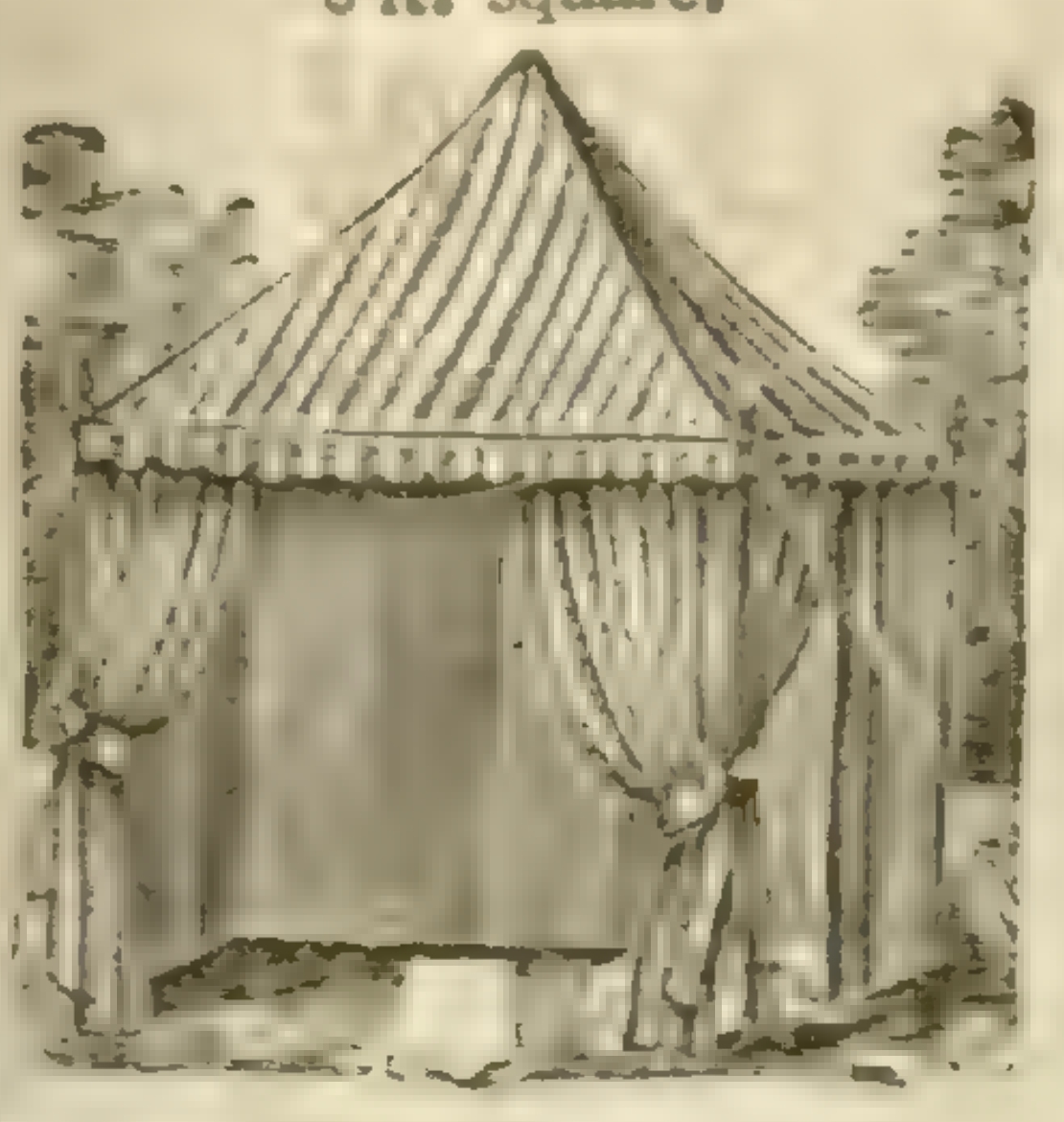

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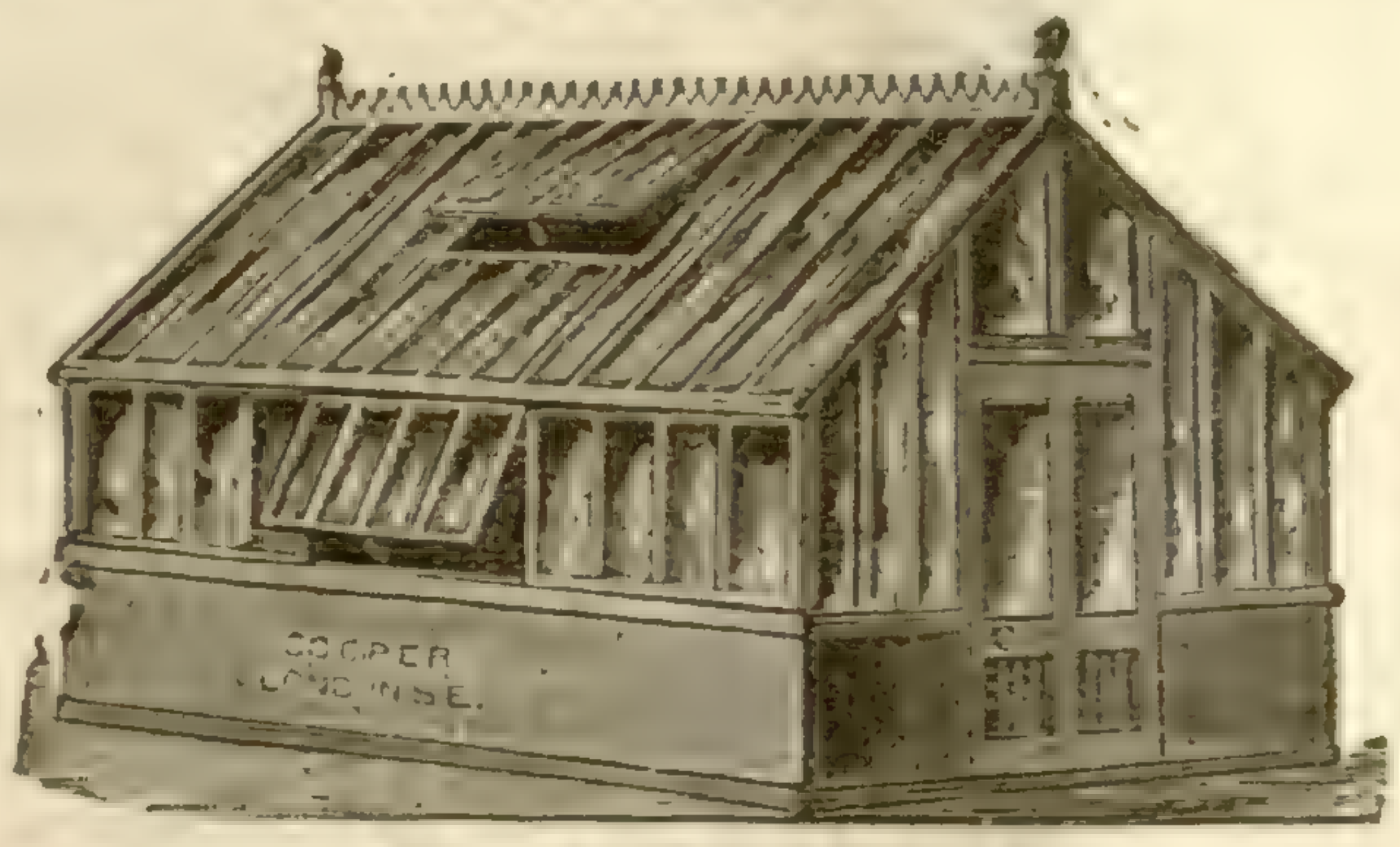

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8	5	7 0	4 0	3 10 0	5 0 0
9	6	7 3	4 0	4 0 0	5 10 0
10	7	7 6	4 6	5 0 0	6 15 0
12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
25	10	9 0	5 6	15 0 0	20 0 0
5	10	9 0	5 6	25 0 0	35 0 0
	10	9 0	5 6	45 0 0	65 0 0

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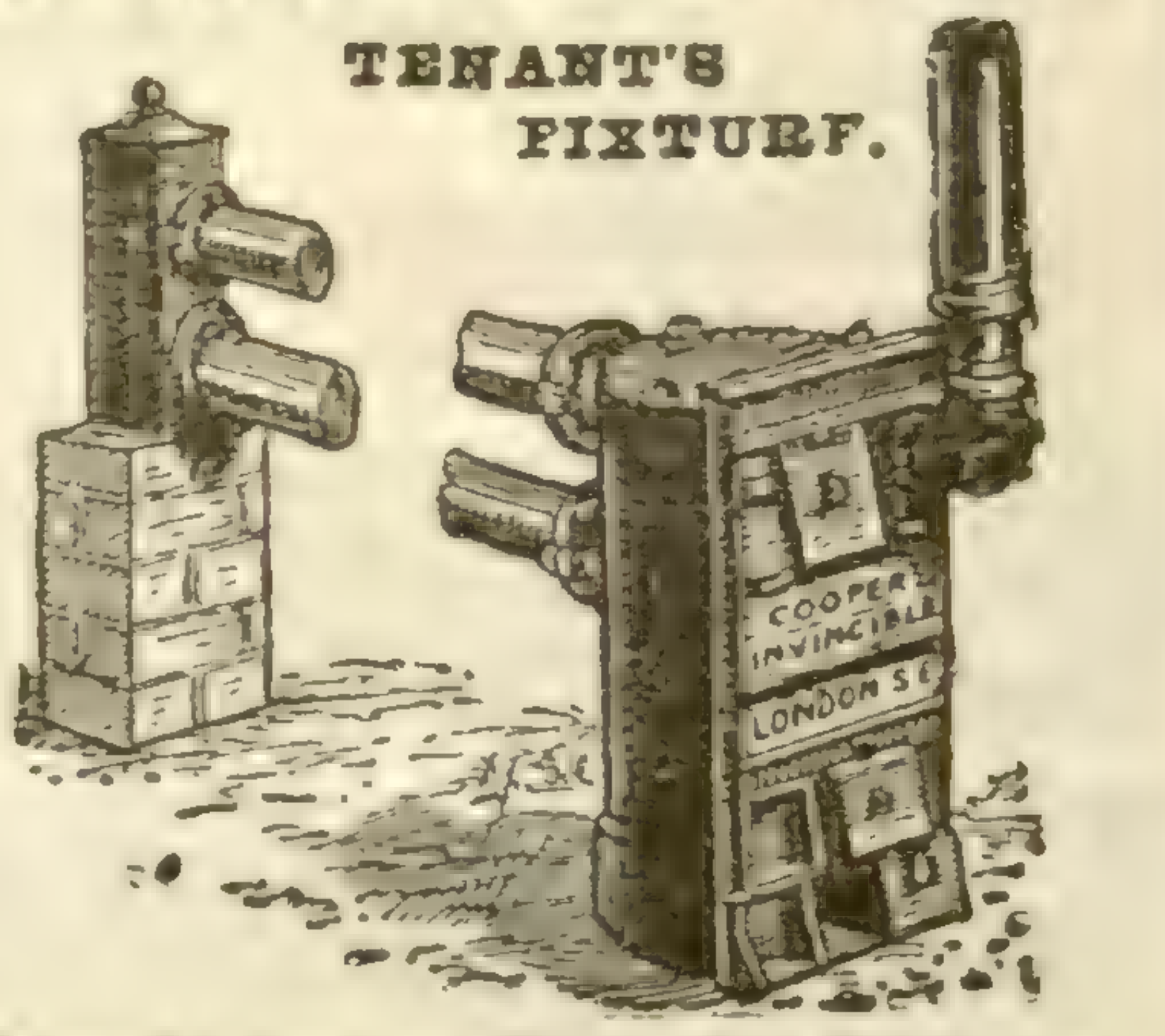

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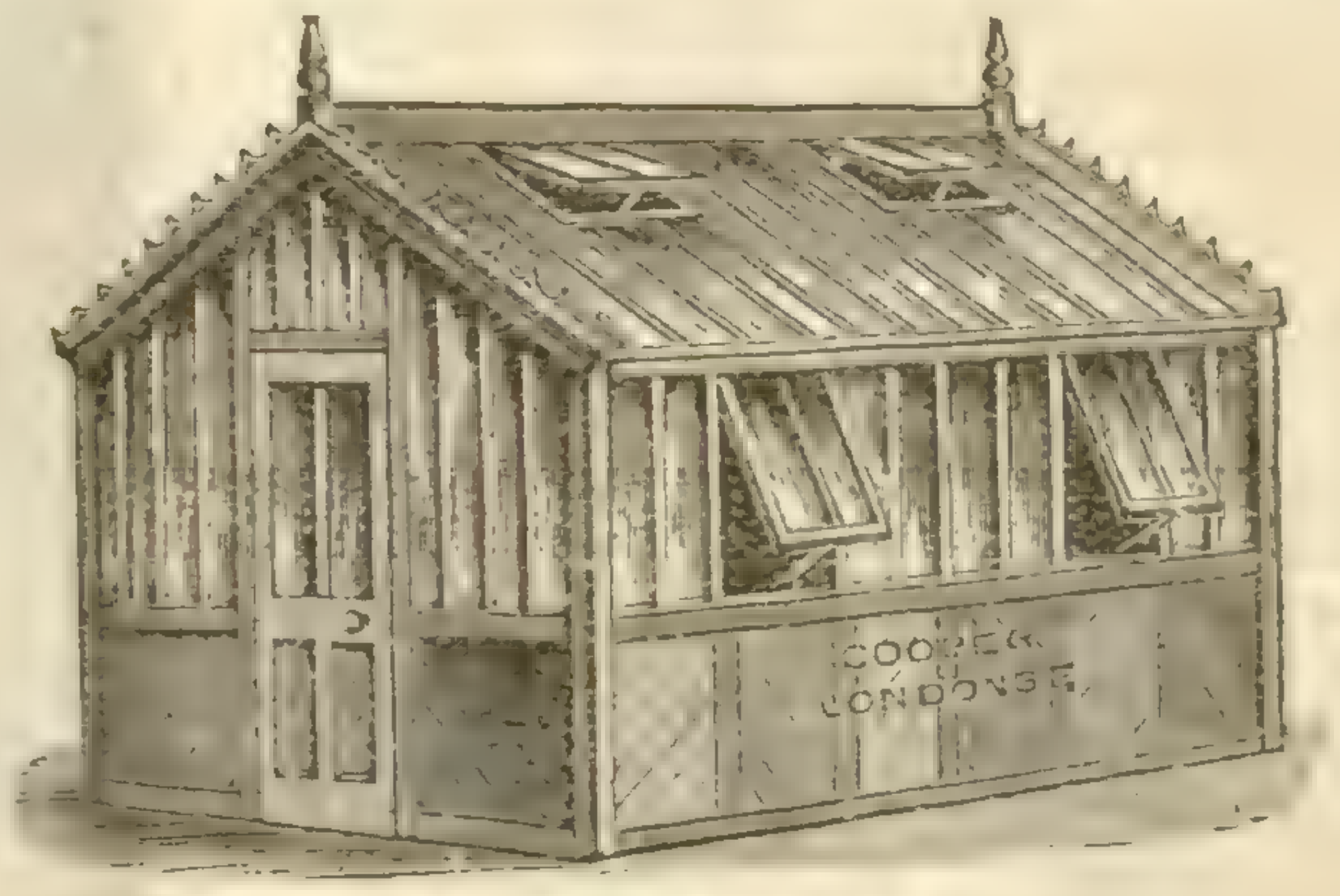

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8	5	7 0	4 0	7 10 0	10 10 0
9	6	7 0	4 6	9 0 0	12 0 0
10	7	7 6	4 6	9 10 0	13 10 0
10	8	7 6	4 9	11 10 0	15 0 0
12	8	8 0	5 0	12 10 0	16 10 0
15	10	8 6	5 3	18 0 0	23 0 0
18	10	9 6	5 6	21 0 0	26 0 0

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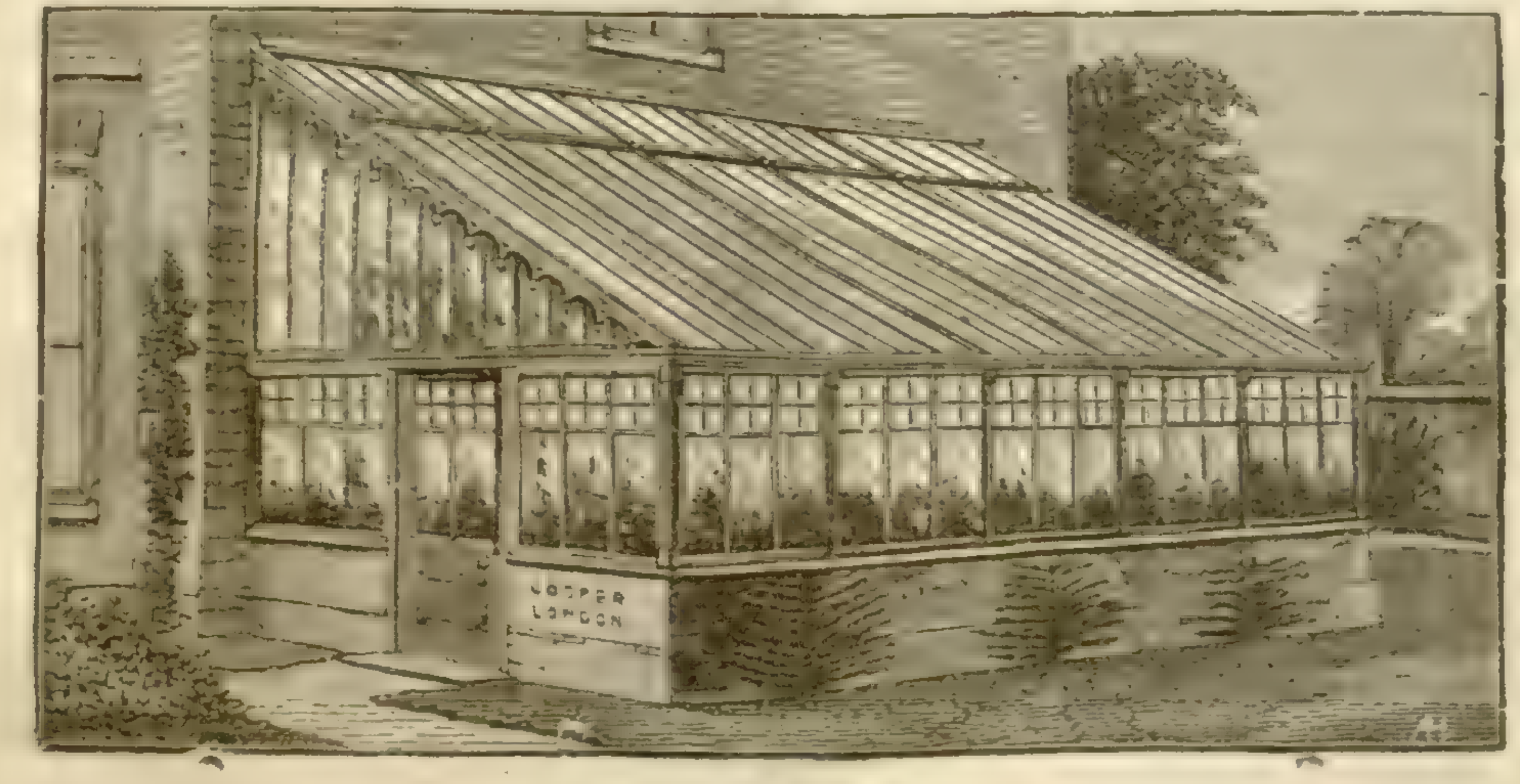

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20	12	10 6	7 0	30 0 0	42 10 0
25	14	11 0	7 0	45 0 0	60 0 0
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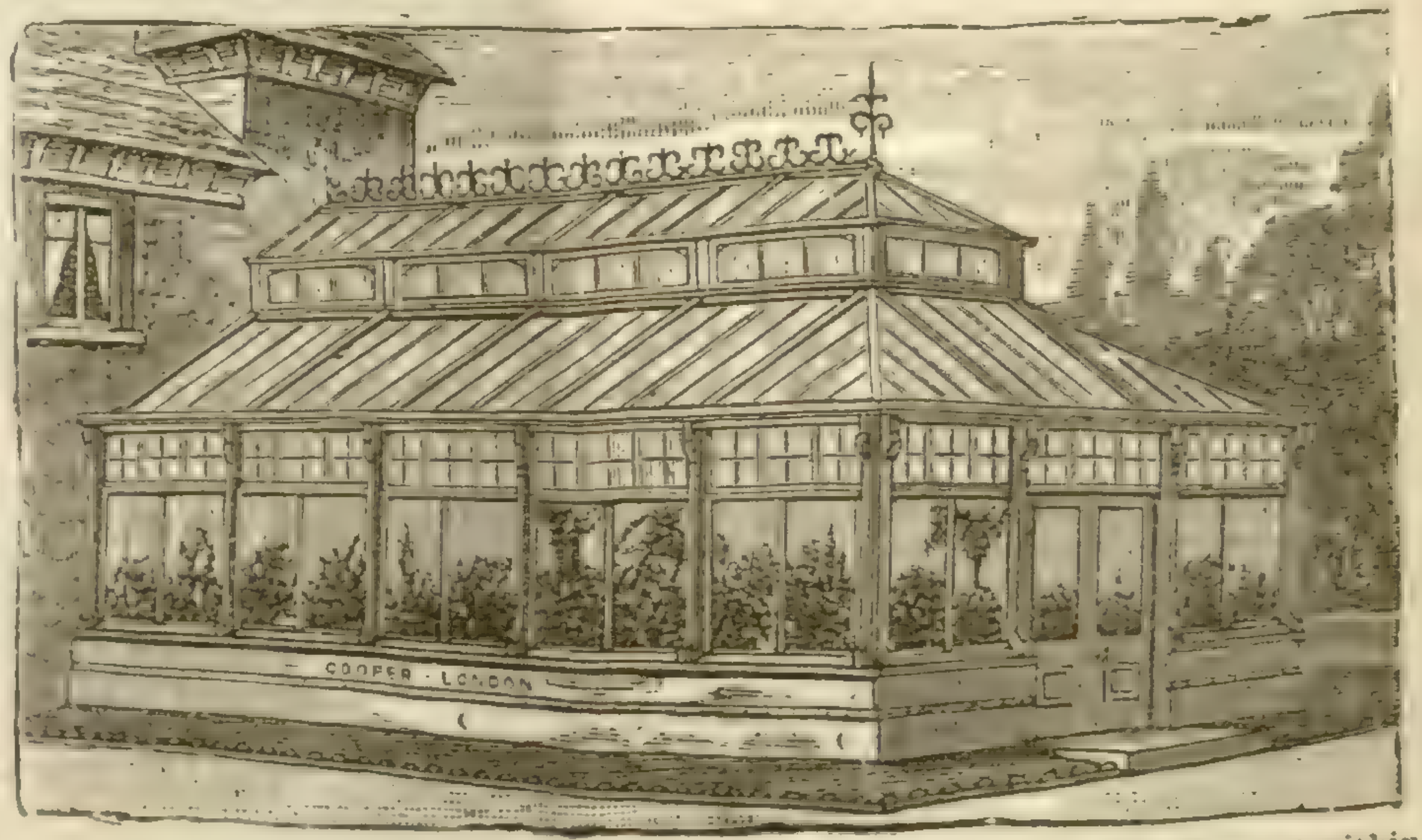

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20	12	12 0	8 0	43 0 0	55 0 0
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30	15	13 0	8 0	80 0 0	100 0 0
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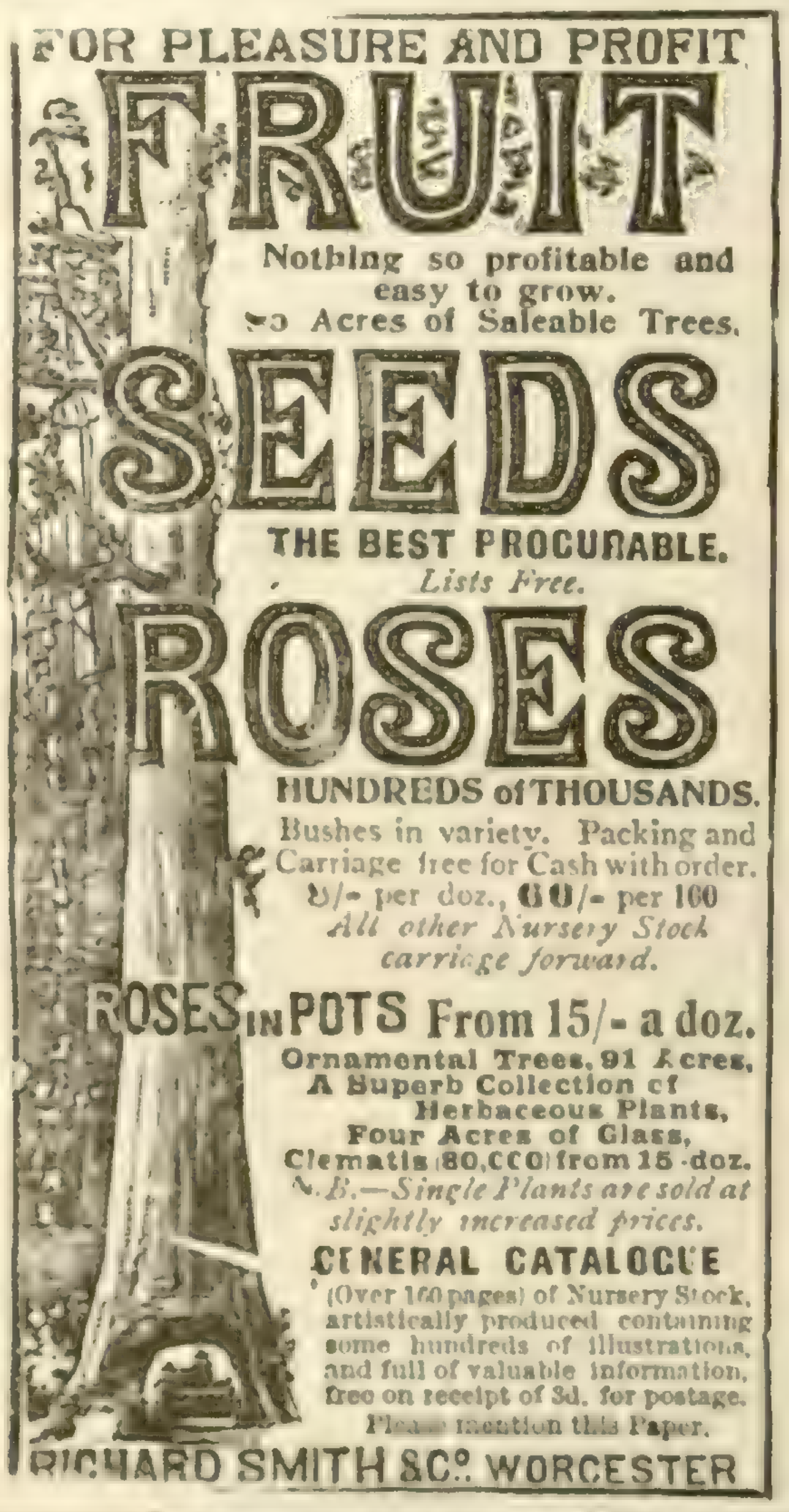

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	Per 100		1,000	
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Crocus, II. size, in fine mixture	0	8 ...	6	3
Crocus, I. size, in fine mixture	1	4 ...	10	2
Hyacinths, mixed, for bedding or forcing ...	9	8 ...	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection ...	17	6 ...	—	
Iris Kæmpferi (Japan Iris), in fine mixture ...	5	0 ...	40	0
Iris Germanica (Flag Iris), in fine mixture ...	7	0 ...	65	8
Iris Sibirica, in fine mixture	5	0 ...	40	0
Iris Spanish, in the finest mixture	0	7 ...	5	0
Lilium Candidum, single, pure white	10	0 ...	—	
Montbretia croscosmiæflora, orange scarlet ...	1	6 ...	—	
Narcissus campernel Jonquil, yellow	1	2 ...	10	0
Narcissus, double, Incomparable, primrose ...	1	6 ...	14	0
Narcissus van Sion, single, yellow trumpet ...	2	6 ...	23	4
Narcissus Stella, white, yellow cup	1	4 ...	12	6
Gladiolus Marie Lemoine, fine	2	0 ...	19	2
Gladiolus Brenchlyensis, deep scarlet	2	6 ...	20	0
Scilla Sibirica præcox, intense blue ...	1	2 ...	10	0
Tulips, single early, in the finest mixture ...	1	2 ...	10	0
Tulips, double early, in the finest mixture ...	1	6 ...	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6 ...	20	0
Grape Hyacinths, blue	0	7 ...	5	4
Anemone japonica, rose	5	0 ...	—	
Hemerocallis (Day Lily), mixed	8	0 ...	—	
Pyrethrum, fine double, pure white	15	0 ...	—	
Tritoma uvaria (Red Hot Poker)	14	6 ...	—	
Sparaxis, in fine mixture...	0	8 ...	6	0
Ixias, in fine mixture	10	0 ...	—	
Gladiolus Colvilli, white	1	2 ...	10	10
Hyacinthus candicans, white	5	0 ...	45	10
Iris pumila, mixed	4	0 ...	—	
Lilium umbellatum, red	10	0 ...	—	
Snowdrops, Elwesi	2	0 ...	18	4

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50 Anemones, single.
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100 French Ranunculus.
36 Gladiolus nanus.
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24 Ixias, best mixed.
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6 Tulips, Duc Van Thol, scarlet.
36 Tulips, do., early **single**, six varieties.
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THE GARDENERS' MAGAZINE.

SATURDAY, OCTOBER 15, 1898.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—GRAND CHRYSANTHEMUM SHOW, to be held in the ROYAL PAVILION, BRIGHTON, NOVEMBER 15 and 16. Schedules of

SECRETARY, 1, Dyke Road Drive, Brighton.

ECCLES, PATRICKOFT, PENDLETON, AND DISTRICT CHRYSANTHEMUM SOCIETY.—The TWELFTH ANNUAL EXHIBITION will be held in the TOWN HALL, ECCLES, on FRIDAY and SATURDAY, NOVEMBER 11 and 12. Prizes to the amount of £130 are offered. Entries close on Thursday, November 3. Schedules may be obtained from

H. HUBER, Hon. Secretary,
Hazeldene, Winton, Patricroft.

HUDDERSFIELD and DISTRICT CHRYSANTHEMUM SOCIETY.—The SEVENTH EXHIBITION of the above Society will be held in the TOWN HALL, HUDDERSFIELD, on FRIDAY and SATURDAY, NOVEMBER 11 and 12, 1898. Entries close on Friday, November 4. Entry Forms and Schedules may be obtained from

JOHN BELL, Hon. Sec., Marsh, Huddersfield.

KENT COUNTY CHRYSANTHEMUM AND HORTICULTURAL SOCIETY.—ELEVENTH GRAND ANNUAL EXHIBITION of CHRYSANTHEMUMS and other Flowers, Fruits, and Vegetables, will be held in the RINK HALL, BLACKHEATH (opposite S.E.R. Station), on WEDNESDAY and THURSDAY, NOVEMBER 2 and 3, 1898. Schedules and all particulars of the Hon. Sec.,

F. FOX, The Gardens, The Cedars, Lee, S.E.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.—The ANNUAL SHOW will be held at the DRILL HALL, KINGSTON-ON THAMES, on TUESDAY and WEDNESDAY, NOVEMBER 1 and 2. Entries close October 28. Trade exhibits invited. Schedules, &c., of

Mr. W. D. ELSAM, Secretary, Clarence Chambers, Kingston-on-Thames.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER AND THE NORTHERN COUNTIES.
Founded A.D. 1827.
GREAT CHRYSANTHEMUM SHOW, NOVEMBER 17, 18, and 19.
In ST. JAMES' HALL, MANCHESTER.
£180 in Prizes. Open to all comers.

THE "DERBY" CHALLENGE CUP, value £25, presented by the Right Hon. the Earl of Derby, K.G., and £10 given by the Society for 48 Blooms (24 Japanese and 24 Incurved) distinct. Schedules post free on application to

P. WEATHERS, Curator and Secretary,
Royal Botanical Gardens, Manchester.

THE WOLVERHAMPTON CHRYSANTHEMUM SHOW will be held on WEDNESDAY and THURSDAY, NOVEMBER 2 and 3, 1898, in the DRILL HALL, WOLVERHAMPTON. Schedules from the Secretary,

J. H. WHEELER, Glen Bank, Tettenhall, Wolverhampton.

WOOLWICH, PLUMSTEAD, AND DISTRICT HORTICULTURAL SOCIETY FIFTH ANNUAL CHRYSANTHEMUM AND HORTICULTUAL SHOW, NOVEMBER 3, 4, and 5, at the DRILL HALL, WOOLWICH. For Schedules and particulars apply to

R. J. WORTHINGTON, Hon. Secretary, 32, Acacia Parade, Plumstead Common.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

FUTURE OF THE NATIONAL CHRYSANTHEMUM SOCIETY.

THOSE of our readers who take an interest in associations that have for their object the improvement and extension of the culture of the chrysanthemum will not need to be reminded of the controversy with regard to the affairs of the National Chrysanthemum Society, which originated soon after last year's November exhibition. They will remember that the discussion was carried on, chiefly by members of the governing body, until the annual meeting, and that on this occasion the members instructed the committee to report to them, at a meeting to be held in November next, on the question of the place of holding the shows subsequent to this year. They have also been duly informed that in compliance with the resolutions passed at the adjourned annual meeting some five or six members were appointed to obtain the information necessary for the preparation of the report. This sub-committee has completed its inquiries, and it now remains to be said, that a notice has been issued convening a special meeting of the Executive Committee for Monday evening next, for the purpose of receiving and considering "a report from the Investigation of Sites Sub-Committee in reference to places in which to hold the exhibitions of the society in 1899." We are necessarily unacquainted with the contents of the report, and, we might add, cannot say whether it has yet been drawn up. But the purport of the proposed report has become generally known in chrysanthemum circles, and we are in a position to state that the removal of the exhibitions from the Royal Aquarium to Sydenham will be recommended; a change that should have the most careful consideration from the members of the executive in the first instance, and from the members themselves when the final issue is presented to them in a few weeks hence. So drastic a measure as the removal of the exhibitions from the centre of London to a suburb seven or eight miles distant, and involving a railway journey of between half an hour and forty minutes, is far too important to be accepted without very powerful reasons being given in support thereof. No doubt reasons that appear satisfactory to the majority of the members of the sub-committee will be given when the report is presented on Monday night, and these we await with keen interest. Arguments will, in all probability, be advanced with which we are familiar; and if none stronger are forthcoming, those responsible for the management of the society will have but one duty, and that will be to insist upon such proofs as will satisfy them that the change will be in the best interest of the society, before consenting to so important a change. The proposed recommendation must of necessity be considered, from a business standpoint, and in arriving at a decision it will be desirable for the members to consider whether the National Chrysanthemum Society would have grown from a small suburban organisation, not wholly free from financial difficulties, to the foremost chrysanthemum society in the world during its association with the Royal Aquarium had that association been what the agitators and faddists would fain have us believe. They should then consider whether it is to the interest of a large body of members to have to make an additional railway journey when visiting the exhibitions, and whether it will be an advantage or otherwise to an important section of the exhibitors to have imposed upon them an additional tax of time, strength, and money in the conveyance of their products to the shows. We have no doubt upon these points, and we shall be much surprised if the majority of the Executive Committee do not evince by their action on Monday a general agreement with our views.

CHILL OCTOBER.

ONCE again the whirl of the seasons brings us to the threshold of winter, which in this abnormal year of 1898 seems but a step from the blazing summer, so much has the sunshine prevailed to render the autumn a brief one. Once again, strolling round our gardens, we find a general shabbiness beginning to prelude the casting off of the leafy garments of the growing season, and although the heavy night dews, coming after the long drought, here and there start the checked growth into temporary activity, we know the winter sleep is close impending, and that the flicker of energy is wasted. To many minds, the shortening days, lengthening nights, advent of chilly breezes and frosty airs, and the consequent change in the face of Nature, have a depressing and saddening effect, though in point of fact this is as illogical as if the daily dip of the sun were so regarded. We live upon a revolving and rolling planet, which in its daily revolution alternately plunges us into sunshine and shade, and in its annual swing round the sun alternately gives us an excess and deficit of daylight over and under the happy medium of the equinox. All organic life has, through evolution, adapted itself to these conditions, and just as we, needing rest, pass the darkness of the night in slumber, rising refreshed the following day, so plants and many animals profit by the cold and dark season of the year to take their rest, and so prepare themselves for a fresh and vigorous growth when the advent of spring reawakens them. Viewed, therefore, as a preparation for this, the incoming of the drowsiness which is now pervading vegetation is seen to be but a prelude to a healthful invigorating sleep, and by no means the death which it mimics with bare branches and the litter of dead leafage—the cast-off clothes of the season. Autumn, indeed, has many charms. Deciduous trees, shrubs, and plants of all descriptions, though they cast off, as we have said, their leafy garb of the season, have a thrifty knack of emptying all the pockets, as it were, before they do so. The leaves are not suddenly cast off with their little cells full of living sap, by which the woody tissues could profit; all this is slowly withdrawn, and in the process the dark or light green pales and changes, and runs through a gamut of a score of tints before those little divorcing cells at the stalk's base decree the separation. Hence the woodland landscape, hitherto diversified with varied verdancies only, is now ablaze with all the hues of the rainbow save the blue, which heaven supplies liberally to fill the gap. Every gust of wind brings its little aerial maelstrom of fluttering leaves to the ground—yellow and pink and crimson and dappled and brown, and here the busy worm acts the sexton in conjunction with a very universe of insects and fungi, and speedily restores the shed materials to the ready roots for future assimilation. Under the ground, if we curiously dig and delve, we shall find exceptions to the prevailing sleepiness in the form of awakening bulbs already pushing out their slender white roots, after sleeping the summer through, to establish themselves for an early start in spring. Herbaceous plants are fattening up their crowns to the same end, and all the ripened fruits that have the chance are quietly burying their contained seeds among the *débris* of this year, to add their quota of new life to the resurrection of plant life in the next.

A GOOD INVESTMENT.

THE wages of the general body of gardeners are so low that, even with the most rigid economy, it is extremely difficult for those having an average income to make provision for sickness and old age, or for their families, should they die comparatively young. Hence it is of the highest importance the small sum annually available should be invested to the best possible advantage, and for this reason the report of the quarterly meeting of the United Horticultural Provident and Benefit Society, held on Monday evening, is of special interest. At this meeting the principal business was the consideration of the case of the oldest member, who, having attained the age of seventy, and being in failing health, was entitled under the eighteenth rule to an allowance from the Benevolent Fund. This member was one of the founders of the society, and has taken a part in the management throughout the thirty-two years that have elapsed since it was established. The committee, having taken these facts into consideration, unanimously resolved to grant him an annuity at the rate of 8s. per week for life. On attaining his seventieth year this member had standing to his credit in the ledger the sum of £80, from which he can draw according to his requirements. These facts cannot be brought too prominently before the gardening community, for no better investment could have been made than in this case, as can be readily shown by a comparison of the payments to the society with those required under the rules of the Post Office for the purchase of a deferred annuity. During the thirty-two years a sum of £2 1s. has been paid annually, and the benefits in return were a weekly sum of 16s. during sickness, until the scale of payments was increased to 18s. three or four years since, the return of the surplus profit on the attainment of the seventieth year or death, and a claim upon the Benevolent Fund throughout the whole period. Happily, in this case there was no occasion to draw sick pay. Had the member in question purchased a deferred life annuity of a similar value from the Post Office by annual payments, under the "money returnable" table, he would have had to pay about £3 annually, and would now have the option of obtaining the return of the money paid, equal to about £96, or an annuity of £20. On the other hand, as the result of his membership of the society, he has the sum of £80 at his disposal, and an annuity of £20 16s. What more need be said, except to express the hope that the member may long enjoy the annuity that has been granted him?

N.C.S. Conference on Tuesday was a splendid success in every way, and we have much pleasure in recording this fact because of the prevalent belief that conferences have had their day. Conferences might be made as popular at the present time as at any period in the history of horticulture, but they must be carried out on proper lines, and what these lines are was sufficiently indicated at the N.C.S. gathering. There must not be several lengthy papers of merely academic interest; but instead, short pithy addresses by men who are known to fully understand their subjects, and these subjects must be of current interest and admit of being briskly discussed. The subject selected for the chrysanthemum conference was abstruse, but it was of immediate interest, and, in consequence, upwards of three hundred persons mustered in St. Stephen's Hall to hear what had to be said about the fungus causing the disease of the chrysanthemum, known as the rust. This large number not only came to the conference, but the greater proportion stayed until the close of the proceedings, and this desirable result was brought about by rigidly limiting each speaker to five minutes, thus preventing tedious repetition by those who are not accustomed to speaking in public.

Strawberry Mildew.—Strawberry plants were seriously affected in many places during the past season by the strawberry mildew (*Sphærotheca pannosa*), a fungus which attacks first the leaves, causing them to curl and shrivel up, and then the fruits as they are forming. This disease makes its appearance in May, in the form of white spots upon the leaves. These gradually spread and cover the leaf-surface and extend to the fruit, covering it with white filaments, which may easily be mistaken for common mould. To casual observers the fungus appears to attack the fruit only as it approaches ripeness, when it spreads with astonishing rapidity; but this is due to the fact that it is not readily seen with the naked eye upon the fruit until the latter has coloured, but with the aid of a pocket lens it may be discovered upon the fruit in all stages. It is, however, most rapid and destructive in its action as the fruit approaches ripeness. This fungoid attack must not be confounded with that of Sphærella fragaria, which is confined to the leaves, nor with that of Glæosporium fragaria. In the case of plants infected by this fungus it is advisable to brush off the leaves as closely as possible without injuring the crowns, and to rake up and burn at once all the leaves and rubbish between the rows. The ground between the rows should be well forked and hoed in the autumn and early spring, to bury the perithecia, and weeds should be kept down, both in the beds and around their borders. After an attack in the previous year the plants should be sprayed early in the following season, before the blossom shows, with a weak Bordeaux mixture, composed of 4 lbs. of sulphate of copper and 3 lbs. of lime to 50 gallons of water, or with a composition of 2 lbs. of sulphide of potassium (liver of sulphur) to 50 gallons of water. In large plantations these compositions can be put on with the distributing machine used for spraying potatos, and in small beds with a knapsack machine. The spraying should be performed early, and repeated in about ten days. When white spots are seen upon the strawberry plants that have not been infected previously, spraying with either of the above compositions should be carried out at once.

The Polishing of Fruit.—With reference to this question, Mr. D. T. Fish makes the following pertinent observations: Your piquant "Note of the Week" in last week's GARDENERS' MAGAZINE should suffice, with the assistance of all respectable societies, to banish all such practices from flower and fruit shows. Your picture of dirty rags, oil, cream, and saliva, to which might be added butter, lard, and glycerine, as aids to prize winning, could they only be reproduced in *Punch*, or others of our comic journals, should suffice to deal the last blow at such nasty practices. I can conceive nothing more likely to bring fruit culture, and especially prize-winning at our great fruit shows, into contempt than these or other polishing compounds. It was bad enough to smear our old seeds with grease and oil, to dye our flowers, and revivify our plants or bulbs with the semblance of new life; but this modern nastiness thrust on the fruit that we must all perforce proceed to eat is worse than any of the processes and adulterations of the olden times. With our plants and seeds almost perfected, it is not likely that the public will longer submit to the most nauseous and filthy pollution of their fruits on the altogether false plea of improving its appearance. It does nothing of the sort. To every true judge of fruit polished fruit is already largely spoilt, the shining cheeks have already lost their chief charm—that of their natural bloom; and it would be almost as reasonable to wipe or scrub off the bloom of peaches, plums, and grapes as of apples and pears. Possibly the polishing of fruit is another useless and mischievous survival from the laborious practice of sweating it, once so common. When fruits sweltered for weeks or months in steaming heat it was at times at once cleanly and convenient to wipe off or up the perspiration with a clean, soft cloth. But no cream, oil, saliva, milk, nor even pure water, hot or cold, was added to the fruits in those days, nor was any rubbing that could be called a polish indulged in. The superfluous sap that false and faulty methods of storing and ripening fruit had condensed on the external surface was softly sponged or rubbed off with a soft cloth and a light hand, that was all. With improved methods and cooler and more regular temperatures for fruit storing the sweating of fruit is now prevented, and hence neither polishing nor wiping of hardy fruits is needed.

The Coming Trouble.—According to the calendar, we should, writes Mr. George Bunyard, of the Royal Nurseries, Maidstone, now be hard at work executing orders for roses, gooseberries, currants, trees, and conifers, and even lifting some few pears and plums for orders. But alas! the land is as dry as possible, and below the surface crumb is as dry as a brick, making all this work impossible; and meantime we are bombarded with letters, such as "I am told that now is the very best time for removing the things I ordered"; "If you are unable to supply what I ordered you should have said so at the time"; "Unless my order is forthwith executed, please consider it cancelled, that I may be better served elsewhere." Well! What for a remedy? Why *patience*. Practically the season is three weeks late, and as no fibrous roots can be got out of the hard soil, my kind friends, trust to your *nurseryman* to do his very best. Apples are yet in full growth, and practically a week's heavy rain is wanted before lifting time can be started. I send these few lines on behalf of myself and fellow-nurserymen, as we, I feel sure, are only too anxious to do our best, and are not responsible when the clerk of the weather and the calendar do not agree.

The Manchester Chrysanthemum Show, to be held under the auspices of the Royal Botanical and Horticultural Society of Manchester, in the St. James's Hall on November 17, 18, and 19, should be of exceptional excellence, for some handsome prizes are to be offered, notably £4 and a gold medal as first prize for two dozen incurved blooms in twelve varieties; £6 and a gold medal as a first prize for thirty-six Japanese blooms in not less than eighteen varieties; and £5, £3, £2, and £1 respectively as prizes for thirty-six miscellaneous blooms. The great prize for cut blooms, however, is £10 and a challenge cup valued at £25—presented by the Earl of Derby—offered as first prize for the best forty-eight blooms, two dozen each of Japanese and incurved varieties, distinct; second, third, and fourth prizes are £6, £4, and £2 respectively. The cup has to be won twice by the same competitor to become his property. There are good prizes for groups and winter flowering plants of many sorts.

The Yield of Perfume Plants.—A correspondent in *Gardening* (Chicago) states that in the south of France one violet plant will yield two-thirds of an ounce and one orange tree twenty-two pounds of flowers. A woman can pick in a morning, that is in four hours, about forty-four pounds of roses, seven pounds of jasmine, thirteen pounds of tuberoses, and in a whole day twenty-two pounds of violet or orange flowers. To produce one kilog. of essence (essential oil), one long ton, or about 1,200,000 orange flowers, are necessary. Sixteen tons of roses, or 5,000,000 flowers will only provide one kilog. of essence. Five hundred long tons of pomades and perfumed oils and 4,000,000 litres (or quarts) of odoriferous waters valued, as first matters, at over £625,000, are annually manufactured in the south of France.

A Botanical Exploration of Mount Koscinsko, the highest mountain in Australia, has been made by Mr. J. H. Maiden, the Government botanist at Sydney. The mountain has a height of 7,328 feet above the level of the sea, and even at Midsummer (January, 1897), the temperature was only 1·5 degrees above the freezing point at noon. In the list of the species gathered the most largely represented orders are the Rununculaceæ, Leguminosæ, Myrtaceæ, Compositæ, and Gramineæ. There are no species of Saxifragaceæ or Primulaceæ included in the list, and only one each is recorded of Crassulaceæ and Gentianaceæ.

Importation of Raspberries.—It is reported that the experiment of exporting raspberries from Canada to England will be made next year. The wild raspberries, of which the country produces great quantities annually, are to be used in the experiment, and they are to be packed in ten-pound tins. If this business can be made a success from Canada, says the *Rural New Yorker* there seems to be no reason why it should not be from America, and this may settle the question for some of our raspberry growers who have found the an unprofitable one during the past few years. If the American growers cannot find a profitable outlet for their raspberries in their home markets, they will certainly not do so in the markets of the United Kingdom, for fruit more objectionable than tinned raspberries cannot be conceived.

Chlorophyll Assimilation.—The leaves of maritime plants under the influence of sea-salt undergo a reduction of chlorophyll, acquiring by way of compensation a greater thickness and a more marked development of the assimilating tissues. But this modification of structure, although having a tendency to [illegible] the injurious action of the salt, is, according to Mr. E. Griffon, [illegible], since the assimilation per unit of surface is always less for the [illegible] of a maritime species than for comparable leaves of the same species growing inland.

Fruit Culture in Roumania.—In the recently published statistics of the areas and crops of the vineyards and plum orchards of Roumania for the year 1897, the total area of vines under cultivation is estimated at 380,000 acres, of which less than one-third was productive, the total yield being calculated at 5,491,860 gallons of wine, of the value of £302,000, or about 1s. 1d. per gallon. The cultivation of plums is an important industry in Roumania, chiefly on acccount of the national drink of the lower classes being a kind of plum brandy, called "tuica"; there were estimated to have been about 135,000 acres under cultivation in 1897, planted with plum trees at the rate of about 240 to the acre, but only 42,100 acres are estimated to have been productive. The yield was 1,251,000 bushels of plums, of the value of £130,708. These statistics show that the rains and floods of last year's season affected the vine-growing districts of the country to the extent of over two-thirds of the total area, the plum-growing districts having suffered to about the same extent.

Peppermint Culture has assumed considerable proportions in the United States of late years. Michigan leads all the States of the Union in the production of this aromatic crop. In 1897, it was estimated that there were 8,260 acres of peppermint grown in that State. Over 1,000 acres of this were grown by one man, Ex-Congressman A. M. Todd. In the same year, Indiana produced about 165 acres of peppermint, and New York 275 acres. The crop is not considered as profitable as it used to be. The chances are that, in the future, the culture of this [illegible] will be concentrated upon extensive farms where advantage may be taken of large appliances in growing and distilling the product. The total yield of the essential oil in America is estimated at 230,000 lbs. annually.

Chrysanthemum Shows in the London Parks.—Chrysanthemums in the parks under the control of the London County Council present a promising appearance, and the displays will be highly attractive when the flowers are fully developed. The parks in which exhibitions will be held are: Finsbury Park, opened on Saturday last; Southwark Park and Waterloo Park, opened on Thursday; and Battersea Park and Victoria Park to be opened to-day (Saturday.)

Grape Harvest in the City.—The remarkable summer we have just passed through has, says the *City Press*, been an unspeakable blessing to the amateur gardeners of the City. Never before have their efforts to make their window-sills and garden patches bright and gay been rewarded with so much success. One resident in Golden Lane has even had the good fortune to grow a [illegible] crop of really excellent grapes. He has made several attempts, but on each previous occasion has just failed to bring the grapes to maturity.

The Starlike Water Lily (*Nymphæa stellata*) has been much inquired after since the appearance of the excellent illustration that was given in the Gardeners' Magazine a few weeks since, and both Mr. Hudson and ourselves have received large numbers of letters relating to it. The majority of our correspondents appear to be under the impression that this beautiful blue water lily, which has been grown with so much success in an open tank in the Gunnersbury House gardens, is difficult to obtain. This, however, is not the case, for it may be obtained from any of the principal nurserymen, good plants being worth about half a guinea each.

The late Baron von Mueller.—The executors of the late Baron von [illegible] are endeavouring to raise a sum sufficient to defray the cost of the erecting [illegible] grave in the St. Kilda Cemetery, Melbourne, a monument worthy of his [illegible]. The monument is to be of grey granite, twenty-three feet in height, all [illegible], and will stand in the centre of a grave-plot twelve feet square, [illegible] specimens of the Australian flora. We learn also that the Baron [illegible] supplemental volume of the "Flora Australiensis," upon which he [illegible] for years, and was preparing for the press at the time of his death, [illegible], together with two volumes on his administration as director of [illegible] Gardens, Melbourne, and embracing a biography and complete [illegible] of his writings.

Bermuda, whence we receive immense numbers of bulbs annually of Lilium [illegible] Harrisi, is described by the American Consul in the island as being [illegible], but only a part of it is under cultivation, and some of this is but [illegible] tilled. Only about 3,000 acres of a total of 10,642 are under cultivation. [illegible] well cared for, the ground is capable of yielding four crops of [illegible] a year; but many of the cultivators are shiftless, and do not improve [illegible] opportunities. On estates where care and skill are exercised, great [illegible] attained. The principal exports are tomatos, potatos, onions and [illegible] which go to the United States. The last are the most important, [illegible] been stricken with a parasitic disease which has also attacked some [illegible].

T. S. Ware (Limited).—There has been a recent change in the firm of Mr. [illegible], of Tottenham, and this old-established business will be known in [illegible] the style and title of T. S. Ware (Limited). Mr. Brazendale, so long [illegible] of the Hale Farm establishment, will be the managing director of [illegible] company.

CONFERENCE ON CHRYSANTHEMUM RUST.

Under the auspices of the National Chrysanthemum Society a most interesting conference on the above subject was held on the evening of October 11, in the St. Stephen's Hall, Royal Aquarium. The attendance was large, and probably there were not less than 300 present when Mr. T. W. Sanders opened the meeting and called upon Mr. Percy Waterer to read a paper upon the

Practical Aspects of the Chrysanthemum Rust.

Mr. Waterer commenced by observing that the disease became evident mostly during the autumn of 1897, and it soon became evident that drastic measures would have to be taken to eradicate it. After referring to several diseases that the chrysanthemum suffers from Mr. Waterer briefly described the fungus as like tiny patches of snuff on the under and also upper sides of the leafage, this being followed by a discoloration of the foliage. White Swan, M. E. André, Australian Gold, Graphic, Mary Molyneux, and some others were stated to be varieties very liable to disease, while Edith Tabor and others were almost free, and the Davis family proved entirely free from the disease, so far as his observations went. Mr. Waterer said he also found the disease upon plum trees, dock leaves, and wild plums near his garden, and he felt sure that its presence there assisted chiefly in its distribution in his collection. He also thought the disease was propagated largely through the potting mixture by means of spores retained in leaf-soil, &c., and considered many of the myriads of spores produced escaped the rubbish heap fire, and continued the mischief. He tried to destroy the spores, but could not do so, even by paraffin, soot, brimstone, &c., and by a French decoction that was so abominable that it might even "Kill the devil at a hundred yards." He thought the chief methods of prevention would consist in keeping the ground clear of all harbouring plants, and frequent syringing with mixtures of any kind that would prevent spore germination. He advised that all fallen leafage should be burned and not allowed to accumulate.

With regard to the scientific side of the question Mr. Waterer confessed that he did not know much, but so far as his microscopical observations had gone he could scarcely corroborate what Mr. Massee had written in our columns recently with respect to the difference between puccinia spores and teleutospores. Mr. Waterer was attentively listened to and applauded at his conclusion.

The Scientific Aspects of the Fungus.

Mr. G. Massee gave a most interesting lecture, showing how fungi have cycles of existence, and that the point for the cultivator of plants attacked by fungi to discover what was the weakest spot in that cycle, and so break the connection and destroy his enemy. After detailing the life history of Puccinia Hieraci, as shown in the Gardeners' Magazine of October 8, Mr. Massee said that the fungus only, and naturally, did the best it could for itself, and its present widespread attack upon chrysanthemums was due to the fact that it had now found a new and congenial host upon which to grow, and it took advantage of the circumstance and lived a happy life. He said that the puccinia was parasitic upon almost all composites, and infested ten genera and thirty species of British plants. It was a well-known fungus, and no new thing, but it had found a new host. Gardeners were themselves very largely to blame for the spread of the disease because they, as a rule, knew so little of fungi growth that only when they saw the fruit or spores did they know the pest was present, whereas, as a matter of fact, the disease had been present for months. He showed how the puccinia spores were shed during summer, and these, falling upon a damp leaf surface, soon germinated, and in about a week were ready to produce fruit themselves; this method of reproduction continued until the chrysanthemum leaves began to undergo the chemical change inseparable from late autumn and winter, when the fungus—having to continue its species, and not having the means at hand for so doing as had prevailed during the summer—then produced teleutospores or resting spores, and these, falling anywhere, laid low until with the new growth of spring — under natural conditions—it had an opportunity of lighting upon its congenial host, germinated, produced mycelium that ran throughout the leaf tissues, and presently once again set up the puccinia-spore condition. Mr. Massee showed that the weak point in the fungus was that it produced no perennial mycelium, but was dependent upon suitable conditions for the germination of the teleutospores. He strongly advised that all decayed leafage be burned as quickly as possible, and that a house which had contained infested plants should be syringed out with sulphate of iron. Then in spring he advised methods of prevention, and showed that overcrowding should be avoided, while frequent sprayings with sulphide of potassium would effectually prevent any spores from germinating upon the surface treated. He contended that nothing would cure the disease, but the disease could readily be prevented. Mr. Massee was listened to with wrapt attention, and loudly applauded for his able and immensely interesting address.

Discussion.

After asking for brief speeches, the chairman threw the meeting open to general discussion of the question.

Mr. Wells, of Earlswood, considered a gardener could as readily destroy a fungus as he could produce a cucumber. He considered chrysanthemum rust was not a fungus. The fungus he thought quite a distinct affair. A tablespoonful of paraffin to a gallon of water was stated by Mr. Wells to be both a preventive and a cure for the fungus. He prescribed a remedy composed of lime, soda, soft soap, flowers of sulphur, and water, but we failed to catch the precise amount of each; this to be thoroughly syringed on to the infested plants over and over again. He did not consider the fungus would ever be a pest to be afraid of by growers, or that it would seriously affect the flowers produced by the plants attacked. Mr. Norman Davis felt that the more he grew chrysanthemums the more he found there was to know about them. Was it right that the spores could not be destroyed by fire? He thought rain water assisted the development of the disease, as the spores were distributed on the roof and then washed into the rain water tank. He had never seen the chrysanthemum rust until last year, and he thought the dry weather had been a means of distribution. He also thought the intercrossing had done much to weaken the constitution of chrysanthemums and so predisposed them to disease. Mr. T. Bevan remarked that a couple of years ago the fungus was raging in France, and he thought the pest might be an introduction from thence in plants or soil. Mr. H. Cannell showed that the disease needed certain conditions to enable it to propagate, and he thought the dry season was conducive to its increase, but that ordinary English summers would prove almost fatal to its general spread. Mr. H. J. Jones also spoke briefly.

Mr. Massee, in reply, said they were all agreed as to the existence of a fungus on the chrysanthemum, and he thought the theory of distribution by rain water from house roofs a most plausible one. As to the introduction of the pest from France, that was begging the question, as the pest existed in the field, common, and hedgerow, and in abundance, the hawkweeds being especially subiect to its attack, and thus we had the fungus at our doors ready to attack our chrysanthemums. In its native land the chrysanthemum was peculiarly enough free from the attack of this puccinia, but in its present cultivated condition the fungus found it a splendid host, and, judging from the wide area of attack, had made good use of its opportunities. He also stated that by careful attention the fungus might be kept in subjection. On the motion of Mr. George Gordon, V.M.H., a hearty vote of thanks to Mr. Waterer and Mr. Massee was passed. Mr. R. Dean moved a vote of thanks to the Aquarium Company for the use of the St. Stephen's Hall, and Mr. Cannell moved one to the chairman, this concluding the proceedings.

SCOTTISH HORTICULTURAL ASSOCIATION.

AT the recent monthly meeting held at St. Andrew's Square, Edinburgh, Mr. M. Todd, the able and genial president, presided. The exhibits consisted of several interesting displays of small flowering early chrysanthemums grown in the open air; these were shown by Messrs. T. Methven and Sons, Mr. Chaplin, St. Leonard's Park, and Messrs. R. B. Laird and Sons. Mr. A. Mackenzie, of the Warreston Nurseries, gave some interesting notes on these welcome and useful favourites. The president contributed some choice vases tastefully furnished with cut blooms; these consisted of a vase of gaillardias, one of pure white pyrethrums, a great improvement for decorative purposes over the choicest white asters, and a fine display of roses, chiefly the old General Jacqueminot, with a few pink and fuller coloured dark roses, that made a deep, choice mixture. As a groundwork for all these Messrs. James Grieve and Sons sprayed the table over with a fine collection of showy pansies, that gave a rich effect. With the election of the members nominated last month and the nomination of others the general business was concluded, and the president called on the secretary, Mr. R. Laird, to read the paper for the evening, "The Horticultural Press," in the absence of Mr. A. Galt, of London. There was a good attendance, close attention, and the paper occupied over three quarters of an hour. At its conclusion there followed one of the most earnest discussions that have followed any of the meetings of the association. Some members condemned the accounts of the daily Press as worthless, while others maintained that gardeners and nurserymen were indebted to the lay Press for many valuable suggestions. As your correspondent took a vigorous part in vindicating the power and the place of the horticultural Press, which is now well assured—whether we will or not—I will use the space at my disposal with a brief epitome of Mr. Galt's lecture without further reference to the discussion, only adding here, instead of at the end, that the business concluded with hearty votes of thanks to Mr. Galt, Mr. Laird, and to the President.

After a few general remarks on the power of the Press in determining the destinies of individuals, and of families, and of nations, the endless multiplication of books (the more the better, of good), Mr. Galt hastened to divide the Press into two sections—the lay, or general; and the special, or horticultural. Horticulture is essentially the industry through which we are fed and clothed. Horticulture is likewise an important science claiming relation with many other sciences, and has a close connection with mind as well as matter, though yet, as a rule, the lay or general Press has little to say about horticulture; and when it does voice its views not seldom makes mistakes, and is perhaps more amusing than instructive through being buttonholed at times by one or more cranks. It seems high time that most of our great dailies had one or more gentlemen on their staff able and willing to do justice to all matters horticultural. To the many other experts on our great dailies, surely it is high time to add horticultural experts, and that in their own interests as well as those of the public at large. There is no need for the general Press to compete with the special in copiousness, rather it should be truly accurate and truly educational, so far as it goes.

He considered it convenient to divide the horticultural Press into the following three divisions: First, the periodical Press, mostly weekly; second, books dealing with special subjects; third, trade literature, such as seed and fruit lists, catalogues, pamphlets, &c. The periodical Press is generally run, first of all, on sound trade principles. It is also a great and, in fact, the most potent educational agency among gardeners; it keeps them up to date in their information over the wide field of horticulture; and now we have a Press and papers to suit all classes and conditions of people, as gloves fit our hands. No trade or profession is better served with handy manuals and weekly papers than horticulture. Encyclopædias, popular compendiums abound, and some of them are being pulled up to date through new editions. Nicholson's "Dictionary of Gardening," "The Treasury of Botany," Thomson's "Gardener's Assistant," "The Fruit Manual," are but samples of useful books that abound, and that have proved companions and mentors to thousands of gardeners. Special books, manuals, genre to horticulture, crowd the highways and byeways of our craft on fruit, vegetable, and flower culture, ferns, roses, herbaceous plants, hardy and exotic plants, coniferous trees, shrubs, &c. Principles are also freely expounded, as well as sound practice taught, in all directions, and fully expounded as well as advocated through the Press; and, unless this is done, the gardener becomes the mere slave of his predecessors. Subsequently the Press quickens dull brains, fosters dullards into students, and presents each with a set of keys that virtually open the closed doors, he meets with in his everyday life, enabling him to find that what he reads has a direct bearing on what he does—the trivial round—the common task of his daily gardening.

The highly educational and other advantages of our greatly improved trade literature must be obvious to all. The descriptions of most of these are true to fact, the illustrations true facsimiles of Nature, and the cultural instructions the best available, contrasted with some of their survivors from olden times, we see borne fast and borne far; we have travelled in higher and better directions. Gardeners should make their wants known thoroughly by advertising, and perhaps this is best done by following the lead of an American journalist, who expressed it thus: "Let us know what you are doing." The effect of the Press on the individual appears, as we remember that nothing develops the individual like reading, neither is it true that only fools engage in Press controversies. Discussions often flash out new light, and all who engage in it often do become gainers. To make sure of our facts is our first qualification for Press work of any sort.

The influence of the Press on gardening as a profession has been to raise it greatly, and it has done not a little to raise wages, but the battle is not yet over, because it has not yet been won. Partly through having the educational standard of England pushed up to, or even beyond the standard of Scotland, Mr. Galt considered Scotsmen and Scotland had lost their almost exclusive monopoly of first-class situations in both countries; this is not that the northerner has not fallen away, but that the southerner has gone up. Mr. Galt concluded his paper on the Press with a reference to our Press advertisements, and a hearty commendation of the gardening charities.

D. T. F.

NEW PLANTS, FLOWERS, AND FRUITS.

DRACÆNA EECKHAUTI.

AN elegant dracæna having long recurving leaves of a deep metallic-green hue. The leaves are about fifteen inches to eighteen inches in length and scarcely more than an inch across at their widest part. A stately plant, and one likely to stand hard usage. A.M., R.H.S., October 11. Messrs. J. Veitch and Sons, Chelsea.

ALOCASIA SPECTABILIS.

A bold and effective aroid producing saggitato-cordate leaves measuring over eighteen inches in length by about ten inches in breadth. The mid-rib and its branches are very prominent and of a very pale green colour; the veins are greyish and show up clearly on the dark slaty-green ground. A.M., R.H.S., October 11. Messrs. J. Veitch and Sons, Chelsea.

SOPHRO-CATTLEYA CLEOPATRA.

A pretty and interesting orchid, but one bearing small flowers as might have been expected from such parentage, for it is the result of crossing Sophronitis grandiflora and Cattleya guttata Leopoldi. It is remarkable how little the cattleya influences the sophronitis. The flowers are barely three inches across and the petals are rather broader and more rounded than the sepals; the latter are bright, soft scarlet with a tinge of rose, while the petals have a deeper rose suffusion, lip narrow, side lobes palest yellow or cream coloured, tipped with red; central lobe, narrow rich rosy scarlet, stained at the base with bright yellow. A.M., R H.S., October 11, Messrs. Charlesworth and Co., Bradford, Yorks.

LINOSPADIX PETRICKIANA.

A neat little palm, which in the young state produces its fronds in quick succession; these are of a bright green hue, and the pinnæ are long, narrow, and very stout and leathery. This can scarcely as yet be called a graceful palm. F.C.C., R H.S., October 11. Messrs. F. Sander and Co., St. Albans.

ANGRÆCUM ICHNEUMONEUM.

A curious orchid, and one of more interest than beauty. It has stout leafage, and long depending spikes of palest creamy-green flowers that have by their curious shape gained for the plant the name of the Ichneumon Fly Orchid. B.C., R.H.S., October 11. Mr. Elphinstone, Shipley Hall, Derby.

LÆLIO-CATTLEYA HENRY GREENWOOD.

A splendid orchid, having long and rather narrow sepals of a pale lilac hue; petals pale lilac down the centre, but surrounded by a deep veining of bright purple. The lip is large, side lobes paler purple, but with their tips bright purple, this colour shading into the intense violet-purple of the broad and rather square-cut apec of the lips. The throat is bright yellow save for a few bright tints of purple. A.M., R.H.S., October 11. Messrs. B. S. Williams and Son, Holloway, N.

LÆLIO-CATTLEYA DOMINIANA VAR. LONGLEYENSIS.

A very fine form of a well-known hybrid, secured between Cattleya Doweana and Lælia purpurata. Whether the variation, noticeable in increased size and bright colour, is due to anything more than high cultivation, is perhaps an open question, but at any rate, the flowers were very fine indeed. The light purple sepals and petals form a grand setting for the rich crimson-purple lip. F.C.C., R.H.S., October 11. Messrs. J. Veitch and Sons.

DENDROBIUM RHODOSTOMA.

A pretty but somewhat sparse-flowered dendrobe, obtained by crossing D. Haltoni with D. sanguinolentum. The flowers are just over an inch across, the segments close together, white, with a tip of bright-red purple to each organ. The flowers are produced in twos and threes along the slender growth. A.M., R.H.S., October 11. Messrs. J. Veitch and Sons, Chelsea.

DAHLIA EBONY.

This is an exceptionally dark blackish crimson cactus dahlia with pointed segments; the central florets are a shade darker than the outer ones. A.M., R.H.S., October 11, Miss S. Mortimer, Farnham, Surrey.

CHRYSANTHEMUMS.

Crimson Pride is a very early flowering chrysanthemum, coming in to flower in September without any protection. It has large flat segments of a bright crimson hue, with dull gold shading, and streaking on the reverse of the florets. F.C., as a variety for cutting from, N.C.S., September 26. Mr. W. Wells, Earlswood.

Jules Mary is an early flowering Japanese variety of good habit; very free, and producing useful flowers of a rich and bright crimson colour, the reverse of the florets being old dull gold colour. A.M., R.H.S., October 11. Mr. W. Wells, Earlswood.

Rayonante is a charmingly light and elegant Japanese chrysanthemum, producing large blooms of a pretty soft rose-pink shade. F.C., N.C.S., October 11. Mr. H. G. Jones, Lewisham.

Soliel d'Octobre, a splendid soft yellow Japanese variety of fine shape and most pleasing appearance; florets of fan length and good breadth. F.C., N.C.S., October 11. Mr. W. J. Godfrey, Exmouth.

Reginald Godfrey, a handsome Japanese Chrysanthemum with rich but soft rosy crimson florets that are dull old gold colour on the reverse, this shade showing through in some cases. F.C., N.C.S., October 11. Mr. W. J. Godfrey, Exmouth.

APPLES.

Invincible.—This is a large, solid cooking apple with heavy but not prominent ridges, these forming a crown around the large, deeply-set, and closed eye. The stalk is small and slender, deeply inserted. Skin bright green, covered with tiny dots of russet, and having a bright red flush over the sunny side. A.M., R.H.S., October 11. Mr. D. Bodaly, Green's Norton, Towcester.

Mrs. John Seden.—A most interesting apple, and one obtained by crossing Transcendant Crab with King of the Pippins. The fruits are small, bright yellow, with scarlet cheek, and possessing a rather acid but nevertheless a pleasant flavour. A.M., R.H.S., October 11. Messrs. J. Veitch and Sons, Chelsea.

MELONS.

Wythes' Scarlet.—A richly-coloured and goodly-flavoured melon. The netting is light coloured and closely covers the dull yellow skin. A.M., R.H.S., October 11. Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford.

Gunton Scarlet.—A good scarlet fleshed melon of first-rate flavour; it is of medium size, and lightly but prominently netted over a golden-yellow skin. A.M., R.H.S., October 11. Mr. W. Allan, Gunton Park.

PLUM PRIMATE.

A large plum of a rich red colour heavily coloured with a soft bloom; the fruits are elliptic, and very fleshy. This is a very fine late plum for culinary purposes. A.M., R.H.S , October 11. Messrs. T. Rivers and Son, Sawbridgeworth.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

CONTRASTS.

A REMARKABLE thing is custom, and one of the hardest to change, whether it be a concern of nations or only a small matter, having bearing on the habits of a few individuals. We get used to things, sights, and ways till they become to us like second nature, and we count anything different as strange and novel, though with those to whom such are a custom they are old and time-honoured. Before the days of railways and newspapers every district was a little world in itself, knowing and caring but little how matters moved outside its sphere, and following a routine of life that in time became general, and though the common free intercourse of modern times has done away with all that, yet the habits and customs then formed in different localities still remain, particularly with people who till the ground as a means of livelihood. Striking indeed are the contrasts that exist in the methods of cultivation and customs of the workers in the few hundred miles stretching from John o' Groat's to Land's End. In the case of professional gardeners it is not so much noticed, as they are a migratory class of men, drifting from one locality to another in probationary days, and if they are not fortunate enough to get a "life place," following up their nomadic existence to the end of the chapter. In this way gardeners become acquainted with many customs, and can have a knowledge of them all without becoming the slave of any one. Conditions of the soil, climate, and general adaptability to various crops have bearing on the customs of any locality in a marked degree. For instance, a district naturally suitable for fruit produces a race of fruit growers; in an arable neighbourhood everyone is more or less interested in corn growing, and in dairying localities the most important considerations are cows, butter, cheese, and so on. The condition of crops vary as much as the methods of growing them, according to soil and situation, which makes the contrasts of a half-day's railway journey all the more striking.

The country south of the Thames did not present a refreshing appearance during the early weeks of September. It was hot, unbearably hot, and people got tired of hoping for the rain that refused to come. For weeks there had been a continual slush, slush of water in gardens where there was a supply of that indispensable commodity, but, alas! in many cases there was a famine, and after waiting and hoping day after day for the shower that was to give the winter greens a start, and help the celery along, the former had to be put in without it. Some got as much water as could be spared, and after a struggle lived; others went without the liquid, and after a gallant attempt to keep pace with their more fortunate brethren, sickened and died. The lucky ones that pulled safely through the precarious time had other ills awaiting them, for which the drought must be partly attributable. When once they got a start, winter greens grew apace, and growers felt hopeful, but the enemy was lurking near. It was in the form of a plague of caterpillars that have played almost as much havoc with the greens as the British artillery did with Dervishes at Omdurman. Thousands were picked off and destroyed, but others filled the breaches, devouring as they went, and though now that we are in October, with the air cooler and nights frosty, we may expect to see the last of them, the winter greens are in a sad way. Whole plantations of Brussels sprouts, cauliflowers, and autumn cabbage present a pitiable appearance, there being little left but the stalks and midribs of the leaves. Celery has suffered from the ravages of the grub, and is anything but robust. Rain a few weeks ago would have made all the difference. Those who had water gave it, and the celery is strong and healthy looking, but we cannot expect much from plants that suffered from drought at the root, a tropical sun o'erhead, and hordes of rapacious maggots mining under the tissues of the leaves.

The harvest in the South was early on account of the sunshine and protracted drought. When sportsmen turned out on September 1 to shoot partridges, they were hampered but little with standing corn, and could walk the stubble with more freedom than they could get near to the coveys. Potatos also ripened quickly, and early in the month most of the garden crops were lifted and stored. The crops were not so large as was at one time anticipated, but the tubers came out clean and dry. It seemed early to be lifting late potatos, but they had done growing, and to leave them in the ground was only giving invitations to the disease. Onions were harvested at the end of August, and were generally a good crop. No beating down of the tops, or drying on inside vine borders was necessary, as Nature did it all. The tops withered and died while the bulbs were in the ground, and though they would have been bigger had there been more rain, still they are even and sound, and, what is more to the point, they will keep. A look round in September showed pastures parched and withered, and the green of the hop gardens changed to a dull brown. The pickers worked and sweated under a tropical sun, and they were amongst those who appreciated the fine weather, as hop-picking in a wet autumn is no joke. In the fruit plantations there was activity among the quickly ripening plums and damsons. Both crops were fairly plentiful, and growers of only odd trees felt the want of a local market, as the Kentish fruit industry is necessarily a wholesale one, and unless you have enough to make it worth while to send away, the chances of sale are small. London is the great centre, though distribution now extends to all parts, where the population is thick.

And now for the contrasts, even though comparisons are sometimes odious. The monster express engine slowly steamed out of the London terminus, and tore its way through shire after shire, by arable land and grazing land, at first in the fresh clear air and then in the smoky atmosphere of coal and iron fields, where vegetation seems to have a struggle for existence; then on again through a miniature forest of factory chimneys, and, after that, agricultural country again, till the long train slowed up and stopped, having left the metropolis one hundred and fifty miles behind. The first spontaneous expression was: "There has been more rain here!" and therein lay the first contrast. There were no hop gardens, no fruit plantations, and not many sun-dried pastures; but, on the other hand, mile after mile of green verdure, which was refreshing and pleasant after the burnt-up appearance of land in the South. Welcome rains after the hay season had set the grass growing again, with the result that meadows by their emerald appearance were easily distinguished, and the cows were browsing contentedly on the sweet herbage. We were in a dairy farming country, and there was activity at every station on the line. It was not with the loading of fruit, as had been the case at Kentish stations a few hours before, but another commodity going to supply the demand of London's millions, namely, milk. London is a mighty consuming medium, into which all parts of England pour their products, be they natural, animal, mineral, or manufactured, and the supply is never ceasing. The heavier rainfall in the midland and northern counties has had its effect in gardens as well as on farms. Greens for the winter supply looked healthy and robust, and what is more, were leaf-whole—a contrast favourable to the North. Caterpillars had done some damage, they generally do, but we noticed none of that mutilated, woebegone appearance which characterized the breadths of greens in the garden we had left behind. Celery, on the other hand, had suffered to about the same extent through the attack of the celery fly.

The enquiry about potatos did not bring a conclusive reply, and the reason was obvious on ascertaining the fact that most of the late sorts were in the ground and still growing, showing the crop to be several weeks later than in the South. There is a natural feeling of satisfaction in knowing that the crop of the indispensable tubers is safely lifted and stored, and when we thought of our clean, even samples, free from any speck of disease, and safely housed, and then turned our eyes to the breadths of half green and half black stems and leaves noticable in many gardens, well, we felt relieved that our potatos were as they were. The green was natural enough, and was waiting only for the ripening process to be completed; but the black told another story, and it needed not the eye of an expert to see that it was the result of the dreaded blight. "Oh, they're allright," said one grower; "the tubers are sound enough." My hopes were that they would turn out so, but I had my fears. Another contrast was noticed in the onions. In one garden a large bed of spring-sown bulbs had a green, healthy, upright appearance, but somehow I fancy that the inside vine border process of ripening will have to be called into use there. A man was busy bending over their stiff necks, and stared in profound astonishment when we casually remarked (with as little pride as we could show) that ours were harvested, roped, and were suspended at that precise moment from the beams in the store, except the two-pounders (the result of sowing a packet of Ailsa Craig under glass) which, for fear their necks might not be strong enough to support their weight, were accorded a position on the shelf. "I should think your's ain't a bad country for gardening," remarked the man as he applied the back of his rake to the onion tops more vigorously than before. I said nothing about the greens, as the quarters of healthy-looking Brussels sprouts and cauliflowers disconcerted me.

One could hardly draw comparisons as regards fruit, as the conditions are so much at variance. Fruit-growing is not a staple industry there, and the methods of cultivation contrast very unfavourably with the ways and customs of the South. Apparently, every farmhouse has its orchard of apples, plums, and damsons, but fruit generally was scarce. To all intents and purposes it did not seem to matter very much whether the apples cropped or not. It would have been interesting to know who planted many of the trees, and to have learnt something of their life history, as, judging by their patriarchal appearance, they have weathered many a storm. They seem to be there simply as an extra, as though, by some chance or other, they were planted in the first place, and since then have grown of their own free will. If they carry a crop, all well and good; and if they don't, it isn't a great loss. On one occasion I found myself in a damson district, where this crop is of considerable importance, though this season there has been very little fruit. For an area of several miles damsons grow everywhere—in gardens, orchards, meadows, and even along the hedgerows. The methods of distribution contrast very forcibly with those in the South, as, instead of sending away to large markets, the growers prefer to sell at home. Trade is therefore done with dealers who visit the locality, or the damsons are carted to the nearest town on market day. A farmer's trap, possessing a good deal more timber than spring, conveyed us to one of these interesting gatherings, where every agriculturist in the district seems to attend, either on business or as a matter of custom. The wide, open market-place and the straggling main street presented an animated appearance. From behind a row of canvas-covered stalls tradesmen shouted out the merits of their various wares, and along the curbstone were baskets of butter and eggs, poultry (live and dead), as well as apples, plums, damsons, mushrooms, and so forth, offered for sale from various receptacles. Buxom farmers' wives haggled with dealers over the price of the different produce until, by some unexplainable means, the market prices settled themselves, and were accepted on all hands as the standard charges. I cannot say much for the apples. They were a mixed medley lot, and not largely represented. There had evidently been no steps taken to grade them into sizes, or to keep the varieties distinct; and if they had to be taken as a sample of home-grown fruit I, for one, should be inclined to sink patriotic sentiments, and go for the Americans. Damsons were much better, the fruit being large and fleshy, and the price, owing, doubtless, to the scarcity, would have satisfied the most avaricious of Kentish growers. Still, the method of sale is precarious. Dairy produce, eggs, and fruit all go together, and it must be sold, as it does not pay to carry it back

H

HOMOLOGY OF PLANTS.

By Professor F. O. Bower, D.Sc., F.R.S

(Continued from page 653.)

III.—ABNORMALITIES.

AND now I may pass to my third point, and discuss more generally the argument from abnormalities. I have no wish to prejudge the question by the use of this term as applied to apogamy and apospory, or in any way to detract from their morphological importance—I merely intend to express that they are departures from that order of events which is the most frequent in Archegoniate plants at large, and I particularly wish to point out that while such irregular developments are now shown to be frequent in Ferns, they are exceedingly rare in Bryophytes, and are not, I believe, hitherto recorded for Lycopodineæ or Equisetineæ.

While direct vegetative transitions from one generation to the other may appear as a *primâ facie* support of an homologous origin of the two generations, I must protest against their being used, as they have been, as evidence against an antithetic view. It has been said that the facility with which these transitions from one generation to another in Ferns take place "shows that there is no such hard and fast distinction between the generations as the antithetic theory would appear to demand." Why should it demand a hard and fast distinction? For my own part, I had already described apogamy and apospory as occurring in the same individual before I wrote on alternation. The presumption seems to be that a distinct course of evolution must have imposed "hard and fast" limits upon the potentialities of the parts evolved. But we ought to rember how the root, whether in Phanerogams or Ferns, has doubtless had a long course of evolution as a member distinct from the shoot; and yet we see it bearing adventitious buds upon it, as in the Rosaceæ, Poplar or Elm; or even transformed at its apex into a shoot, as in *Platycerium* or *Anthurium*. Such cases as these, though not exact parallels, should suffice to show that hard and fast lines are not to be anticipated as a consequence of a distinct course of evolution.

There is another kindred, though almost converse, proposition which has been advanced by Pringsheim. He made his experiments on Moss fruits, "in the hope that he would succeed in producing protonema from the sub-divided seta of the Mosses, and thus prove the morphological agreement of seta and Moss-stem." The point here appears to be that parts which are capable of producing similar growths are in "morphological agreement." I cannot assent to this proposition. In the case of the roots above quoted, the production of buds upon them, or the conversion of their apices into shoots, does not prove their "morphological agreement" with shoots upon which such developments are common.

By those who use such arguments it is to be borne in mind that the two generations, however distinct in their evolution, are still merely stages in the life-history of one and the same organism. The hereditary qualities of the race as a whole must be transmitted through the successive generations. It may be a question how far, and under what conditions, its various potentialities come into evidence, as, for instance, in the formation of an apogamous sporophyte, or of an aposporous protonema: but that some such potentialities are there is in no way inconsistent with the antithetic theory.

I have above pointed out how morphology has recently passed to an experimental stage, and I am glad to say that by means of the cultures of Dr. Lang and others we are beginning to gain an insight into the circumstances which lead to these phenomena. In certain Ferns direct apogamy occurs; that is, "the immediate production of vegetative buds by prothalli which are usually incapable of being fertilised"; the origin of this is still obscure. But apogamy may also be induced in various other species. Dr. Lang states that "the causes which appeared to induce apogamy in these prothalli were, the prevention of contact with fluid water, which rendered fertilisation impossible, and the exposure to direct sunlight. Possibly the temperature had some effect." It is further to be noted that in every case of induced apogamy "normal embryos were produced when conditions permitted fertilisation." Now the conditions of prevention of fertilisation, exposure to light, and possibly also a high temperature, all lead to a plethoric state, which we may thus recognise as a precursor of induced apogamy, possibly also of apogamy at large.

On the other hand, the circumstances which precede or accompany apospory are commonly those of deficient nutrition. In the case of Ugo Brizi's *Funaria*, it is mentioned that the capsules were atrophied and buried in the soil, where they could not obtain nourishment by their own assimilation. In the induced apospory of Stahl and Pringsheim the growths appear upon parts of the chopped up seta, isolated from their usual sources of supply. Among Ferns, the conditions of nutrition which precede apospory have not been noted in all cases; but the following facts are interesting. *Athyrium filix-fœmina* var. *clarissima* is a pale chlorotic Fern with exiguous leafage, while the more or less complete arrest of the sporangia is a concomitant of apospory. In *Polystichum angulare* var. *pulcherrimum* there is no obvious disturbance of the vegetative organs, but I have specially noted the sporal arrest, which, in the specimens examined by me, appeared to be complete. This is, then, a concomitant of apospory, though it may be uncertain how far there is a causal connection. In the case of apospory in *Pteris aquilina*, reported by Farlow, there is an irregular diminution of leaf-area in the pinnules which show apospory; this is accompanied by various stages of abortion of the sporangia, though some fully-matured spores were found. Here, as also in *Polystichum angulare*, the tips are specially affected. Farlow remarks, "the sporangia became more and more irregular the nearer they were to the tip." In the case of *Scolopendrium vulgare*, the plants which showed apospory at so peculiarly early a stage had been raised by Mr. Lowe from prothalli which had been repeatedly divided, a process calculated to affect the physiological condition. The aposporous plants of *Trichomanes alatum*, *pyxidiferum*, and *Kaulfussii*, were all cultivated under artificial conditions, and are characteristically shade-loving plants, a habit which must affect their nutrition. Perhaps the most interesting case, however, is that described by Atkinson in *Onoclea*. In plants from which, by removal of the foliage leaves, the sporophylls had been induced to change their character and develop as foliage leaves, the sori were arrested. "When the leaf has lost so much of its reproductive function that the sporangia are becoming rare or rudimentary in the sorus, apospory frequently occurs, and the placenta develops among the rudimentary sporangia prothalloid growths." Here is, again, a case of deficient nutrition; the assimilating leaves, after formation, but before they could have carried their functions far, were removed. The plant makes an effort to supply their place at the expense of spore production; arrest of sori and sporangia is the result, accompanied by cases of the direct vegetative transition to the prothallus. From these examples we see that deficient, or, at least, disturbed nutrition is frequently, perhaps always, a concomitant of apospory. Thus there is some countenance for the view that apospory and apogamy follow on converse conditions of nutrition.

We may next inquire how these converse conditions may lead to the changes in question; and especially the state of the nuclei ought to be considered. Owing to practical difficulties of observation the behaviour of the nuclei in apogamy and apospory has not been directly followed. But if the nuclear difference between the two generations be, as it is believed, nuclear changes will be closely connected with these vegetative transitions. What could appear more natural than that apogamy, which presumably involves a doubling of the chromosomes, should follow a condition of plethora, and that apospory, which presumably involves a halving of the chromosomes, should follow deficient nutrition?

One further fact in either case appears to me to be specially noteworthy, that the changes are not confined to a single cell. The directly apogamous bud of *Lastrea filix-mas* may, perhaps, be referable to a single cell, but Dr. Lang shows by numerous examples that the transition from characteristic tissue of the gametophyte to that of the sporophyte may arise at various points, and involve considerable tracts of tissue. Similarly I have shown in the case of apospory that the change may affect not one cell only, but cell-groups at various and distinct points of the same individual. It would seem that there is a widespread disposition of the tissues to undergo the change.

For my own part, I think the usual attitude on the chromosome question has been too absolute and arithmetical. Evidence is accumulating from various sources that the usual numbers are not strictly maintained; it is known that in vegetative cells there are often considerable differences of the number of chromosomes from those in the sexual cells of the same plant, while observers have noted the irregularities in the divisions of the pollen-mother cells in such plants as *Hemerocallis* and *Tradescantia*. If there be any causal connection between the number of chromosomes and the morphological character of the sporophyte and gametophyte, irregularities such as these at least countenance the idea of nuclear instability being possible. It will be a question for special treatment and investigation how far nuclear instability is connected with disturbed nutrition. But into the mechanism of the presumable nuclear change, and the question whether it be sudden or gradual, we cannot enter with any more than a speculative interest, in the absence of direct observations. Whatever the nuclear details may be, I regard it as a matter of very great importance to recognise that special conditions of nutrition commonly accompany, if indeed they do not actually determine, those changes which we term apospory and apogamy. But the story of the past is not simply a matter of conditions of nutrition, as we see them now influencing Archegoniate plants in their present highly specialised state. The real question is a purely historical one, How *did* the present state of things come about?

(To be continued.)

Centennial Grape.—When Messrs. T. Rivers and Sons recently exhibited fruit of this Australian white grape the berries, long oval in shape, were the largest, perhaps, of any white variety seen. Not only were they devoid of quality, but were, on being cut, found to be hollow. Possibly the variety had in that case been too liberally grown and fed. Mr. W. Roupell had a small bunch of the variety at the Drill Hall on the 20th ult,,and the berries, smaller and better coloured though still very fine, were of far superior quality, having firm flesh of a rich musky flavour. It had all the appearance in that case of being a big Cannon Hall Muscat. Mr. Roupell had found it to be like that variety, an indifferent setter. His Diamant Traube, a pretty white grape, which he strongly recommended for invalids, merits all his praise for such purpose.—A. D.

Park Place, Henley-on-Thames.—That a most enjoyable day is spent at the above place on the occasion of the annual reunion of past and present employés is proved by the large number of old hands who availed themselves of Mrs. Noble's kind hospitality on a recent occasion. The invite extends to all who have served in the gardens or on the estate during the last twenty-five years, and many are the happy meetings of men who served together in bygone days, and who otherwise would seldom or never come into contact with each other again. The kindly interest evinced by Mrs. Noble in the welfare of all who have served on her beautiful estate is sincere, and her presence on the scene of the day's pleasure is hailed with the warmest enthusiasm by all. An interesting ramble round the well-kept gardens and grounds with the able and respected chief, Mr. G. Stanton, under whom all have served, occupies the early part of the day, and later a cricket match is played between past and present members of the club, the latter invariably winning the game. It must be very gratifying to Mr. Stanton to have around him so many of his old men now away and occupying good positions in various parts of the country—men, too, who owe much to the teaching of their master, both in practical matters and in the botany lessons, which were given in spare time in the bothy and in roadside and meadow rambles. Gardeners do not, as a rule, have too many holidays, but this is one most keenly enjoyed by all who participate, and one cannot help thinking how many might spend enjoyable days were similar gatherings to take place on the many large estates throughout the kingdom. —W. H. L.

PRESERVING SURFACE ROOTS.

I am indeed grateful to "Lux" for dealing mercifully with me. His assertion, however, that he really grows celery on his vine borders with the three-fold object of securing good celery, mutilating his vine roots, and getting food into the soil for the vines, rather diminishes his lustre as an up-to-date gardener. He also admits that he is not alone in his methods, and even craves the support of others adopting such primitive means of culture. Unhappily for "Lux," but fortunately in the interests of horticulture, few such delinquents survive, not being among the fittest. Therefore, we can calmly content ourselves, viewing with equanimity of mind any attack from the lingering few. As a contrast to the antiquated idea promulgated by "Lux" regarding roots in the first nine inches of surface soil, I would remark on what I saw in a noted garden recently. When walking through the vineries with the accomplished head, he showed me with pride and enthusiasm the mass of fibrous roots permeating every inch of the surface of his borders. This most successful gardener showed unmistakably the value he put upon these fibrils by the care with which he handled them. The health of the vines, the crops they were carrying, and their perfect finish were positive proofs that the plants' requirements were thoroughly understood and administered. It would have required the courage of a "Lux" to suggest the digging of these vine borders, and the crooping of them with celery. If "Lux" is a traveller, and ever finds himself in the self-same garden, let him try what effect an announcement of his views will have on the clear-headed, deep-thinking adept in charge.

"Lux's" startling declaration in italics that "*roots do not create food, but food creates roots*," is only in keeping with his other contentions. I wonder what he would think were I to reverse it, and say that roots create food, but food does not create roots? Strictly speaking, I entirely fail to see what assumption he can base his assertion upon—that food creates roots. Perhaps he will kindly enlighten us. For, remembering a rather heated discussion years ago in a contemporary on this same subject between weighty men for and against the root-creating power of food, and the result arrived at being doubtful, I will still leave it a moot question. The food-creating power of roots is, however, a very different thing, and a fact familiar to lesser lights than "Lux." This fact has been referred to more than once in the pages of the GARDENERS' MAGAZINE during the last few years. In order to make the fact apparent to "Lux" (for his light burns low at times), it might be well for me to remark that water is the natural solvent of plant food in soils. Any substances that do not dissolve in water are termed insoluble. Now, I have seen some big trees growing in rocks—limestone, for instance—with their roots outside the influence of "Lux's" mutilating machine, and yet they grew and flourished like green bay trees. Limestone rock is insoluble, in the general sense of the term ; but the roots of trees are able to create food out of it to support the growth of the plants. It will be remembered that roots are organs of excretion, as well as organs of absorption. As such they, by osmosis, pass out at their ends sap, which generally has acid properties, and this dissolves substances otherwise insoluble, *creating* and assimilating plant food out of them. The simplest means of demonstrating this fact is to cover a piece of perfectly smooth polished marble with a thin layer of sand, sow mustard seeds on it, and keep moist and warm. When the young plants have grown for a short time wash all off, and it will be found that the rootlets have eaten their way into the marble. Seeing, thus, that roots will decompose insoluble solid rocks, and *create* plant food out of them, we can readily perceive, in our mind's eye, how the same process is facilitated in soils. Knowing this, we can dismiss "Lux's" "new truth" and aphorism from our thoughts with the kindly wish that he may be more fortunate in his next selection of such luxuries.

"Lux" asks me to say which fruit trees are the healthiest, those growing in old orchards without culture, left, in fact, to Nature ; or those in cultivated land where the soil is annually dug. Two wrongs do not make a right, and I certainly strongly condemn neglect in the one case, and the ruthless destruction of fibrous roots in the surface soil in the other. Neither modes of culture tend to desirable results. Nevertheless, in answering the question, I am sorry my experience and observations do not enable me to verify the conditions in which "Lux" has been pleased to present the respective points. On the contrary, I have had to dig up in my time hundreds of dead and dying fruit trees which had been slowly, but surely, killed by the pernicious practice of digging the surface soil occupied by their roots, and destroying all these organs of nutrition found therein. And I can point to many now that are fast going the way of all things organic through the same cause. With a deep, fertile loam—a rather rare thing—fruit trees may exist for a considerable length of time even with their roots confined to the under stratum, but their growths and crops are never what they would be were they allowed and encouraged to occupy the surface soil. In the "Wasted Orchards of England" there are too many examples of neglect. But where roots are left undisturbed, and stock kept from the fruittrees, they never assume the pitiable appearance of those mutilated objects grown on what "Lux" terms cultivated land. Growths may be short and small, fruit scanty and below the average size, but the trees, when free from parasites, are generally healthy. In describing the two sets of trees, "Lux" has made the same mistake as he did in connection with roots and food. He has reversed facts to suit his own purpose.

Again, "Lux" refers to a "famous nurseryman who tears bushels ot roots from his pot peach trees annually, and the result is the admiration of all who see his work." This we can quite understand. Trees restricted in growth have to be restricted in the number of their roots, in order to secure a balance between the two. A special object requires special treatment to attain it, but there are generally more ways than one of arriving at the desired result. In dealing with pot peaches, some might favour the intelligent use of manures to that of wasting food and the plants nutritive organs, to accomplish their aims. By repressing, or otherwise confining the extension of branches, the proportion of nitrogen to that of phosphorus and potash usually employed should be reduced. In fruit culture generally, orchards, for example, the trees should be encouraged to grow as quickly as possible with only as much knifing as may be necessary to secure light to all parts and the head uniform. The trees ought to be regularly fed ; the natural fertility of the soil determining the kinds of manures, and quantities of each, to use. If the orchard is a grass one, a double dose will be necessary. In all cases the fertilisers should be applied in autumn or early winter as top-dressings, to allow time for their being well washed into the soil before they are needed by the plants. During the dormant period of the trees manures can be applied better than when the roots are in action, and those which have to undergo a chemical change before they can be of any use to the plants, have time for a rearrangement of particles. Among manures for this purpose may be noted basic slag, bone meal, fish guano for phosphorus ; kainit, sulphate of potash, and ash from the burned refuse heap, for potash ; and sulphate of ammonia for nitrogen. The chemicals may be applied at four ounces to the square yard when the roots are not active, and only half that quantity when they are so. The best manure of all, however, is farmyard liquid. It can be used at its full strength without the least harm ; but frequent applications of this will necessitate an occasional one of quicklime. By feeding with these materials, and feeding with judgment, the health and growth of the trees can be regulated to our liking, and heavy crops of fine fruit obtained annually. Not only this, but the roots of the plants will be inveigled into the surface—richest, healthiest—layer of soil, and get the benefit of the air. "Lux" lays such stress on "without mutilating and lacerating them." The plants' roots would find food ready to hand, and would neither have to multiply to get it, or hunt to find it—important items in successful fruit culture. If "Lux" will read, study, and digest these well-known facts, and lay them to heart, perhaps "Peter" will have less grounds for contention and more reverence for his master.

J. Riddell.

VINE CULTURE IN THE OPEN.

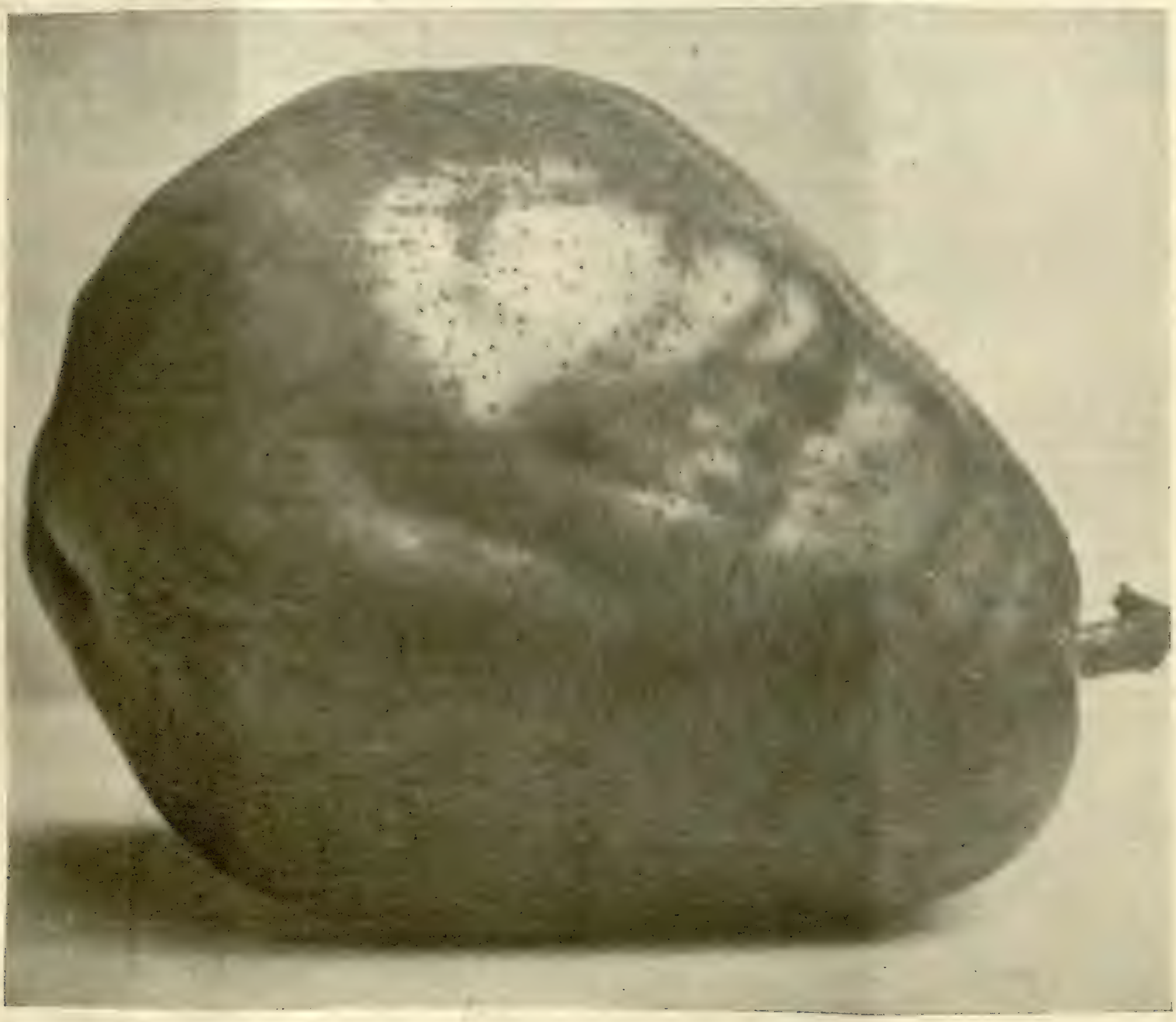
In his book on "Vines and Vine Culture," Mr. A. F. Barron strongly recommends the Royal Muscadine for open-air culture on walls : he also mentions Black Hamburgh and Black Prince as ripening their fruits sometimes in fine weather. White Frontignan and the Dutch Sweetwater are also mentioned as ripening their fruits very fairly on walls in the Chiswick Gardens, but the latter frequently sets badly. When Mr. Robert Fenn was at the Rectory, Woodstock, many years ago, he grew grapes in the open with great success; but they were planted against the gable end of the house, and had the advantage of a chimney flue, at the bottom of which a fire was always burning by day. Some years ago Black Hamburgh grapes were annually grown, ripened, and coloured upon open walls at Branham Park, Tadcaster, but the walls were warmed by means of flues. In this case one hundred and twenty yards of the south side of the gardens were flued, and from this wall excellent peaches, apricots, and Black Hamburgh grapes were obtained, the peaches and apricots ripening fully three weeks earlier than upon walls not flued, thereby extending the season by that time. In fine summers it was said the Black Hamburgh grapes ripened as completely and coloured as finely as in a vinery. It must be admitted that even in the most favourable districts in the south of England grape-growing is a precarious business ; and this is probably the main reason why it is so seldom attempted. Yet there are many who, while they cannot afford to erect a glass structure, might undergo the expense of flued walls. It does appear as if the principle, if it is not extensively applied, is yet capable of more general application.

What is the time required to bring grapes to perfection in the open air? In the grape-growing districts of France the vines begin to grow about the middle of March, and the fruit is ripe about the end of September or beginning of October ; and as the mean temperature in March and April in France is somewhere about eight degrees above what it is in this country ; and September and October would be probably about ten degrees higher than with us, it will be seen that our summers are not long enough for the cultivation of the grape in the open. Hot as the summers are sometimes while they last, some artificial means require to be adopted to obtain the best results. It is true that in the Marquis of Bute's vineyards in South Wales grapes will generally ripen pretty well in the open air. It must be remembered, however, they are special sorts, grown for wine-making, and not for eating. Seeing then it has been taught by experience that a flued wall is quite sufficient to counteract the shortness of our seasons, even so far north as Yorkshire, and as flued walls are probably as easily and as cheaply constructed as solid ones, their construction is to be commended. Of course, fire-heat would be required at night and on cold days during the months of March, April, and May to start the vines into early growth, and also in September and October to ripen the fruit and wood ; and as to the cost of heating, it would be a mere trifle, as anything in the way of fuel could be burned—such things as prunings and rubbish which will burn might be disposed of in this way.

A projecting coping would be found necessary to prevent the too rapid radiation of heat in the earlier stages of growth, and a warm, dry border is indispensable, which might be covered during the winter months with some materials to protect the roots from heavy and cold wintry rains, and this might be secured by the use of wooden shutters, straw, &c. This covering would be necessary before the cold drenching autumn rains set in, and it is probable that a coat of fermenting material applied about the beginning of March, would be found to facilitate the rising of sap. The shoots would require to be kept thin and closely nailed to the walls, and all lateral shoots closely stopped. It would perhap proves an advantage if the walls were blackened. R. D.

PEAR DR. JULES GUYOT.

THIS handsome and otherwise excellent early pear, of which we give herewith a characteristic illustration, is by no means new, for it was introduced to cultivation in 1873 by its raisers, the MM. Baltet Frères, of Troyes It is, however, one that has been overlooked by the general body of fruit growers, or at any rate has not been accorded a fair trial in many private gardens or market plantations. Probably this fact is due to the expression of opinion—amounting to a condemnation—given of it in the last edition of "The Fruit Manual." From observations made during the last few years in some establishments where this pear is much appreciated, we are fully persuaded that Dr. Jules Guyot is well worth cultivating for the supply of the table and market early in the autumn, and Mr. George Bunyard regards it as one of the most valuable pears of its season. Notwithstanding this it is not a variety of which the general body of gardeners are advised to plant any considerable number of trees, and in the largest of gardens two or three at the most will suffice. The market gardener, on the other hand, who has a ready market for a handsome and good pear, ripening about the middle of September, will do well to plant it somewhat largely, the number of trees being determined by his means for disposing of the fruit, for though in colour and shape resembling Williams's Bon Chrétien, it is larger and of finer appearance. When ripe the skin is yellow, with a pale crimson blush on the sunny side; the eye is open and set on the surface; the stalk is short and fleshy; the flesh tender and very juicy, and of good flavour, this being intermediate between Williams's Bon Chrétien and Louise Bonne of Jersey. The fruit does not last in good condition for many days, hence the need of the advice we have given with regard to the number of trees. This variety is admirably adapted for light loamy soils, on which it grows vigorously, and produces heavy crops of finely flavoured fruit. Trees should be planted in various positions, so as to prolong the season, just as in the case of Williams's Bon Chrétien, a well-known variety that no one condemns as worthless, simply because it ripens quickly and soon passes its best condition. Dr. Jules Guyot does well on the quince stock, making a compact growth, and usually crops more heavily than Williams's Bon Chrétien, owing chiefly to it withstanding the spring frosts. Our illustration is a reproduction of a photograph specially taken for us by Messrs. Negretti and Zambra of one of the fruits exhibited by Messrs. G. Bunyard and Co. at the recent exhibition of British grown fruit held under the auspices of the Royal Horticultural Society at the Crystal Palace.



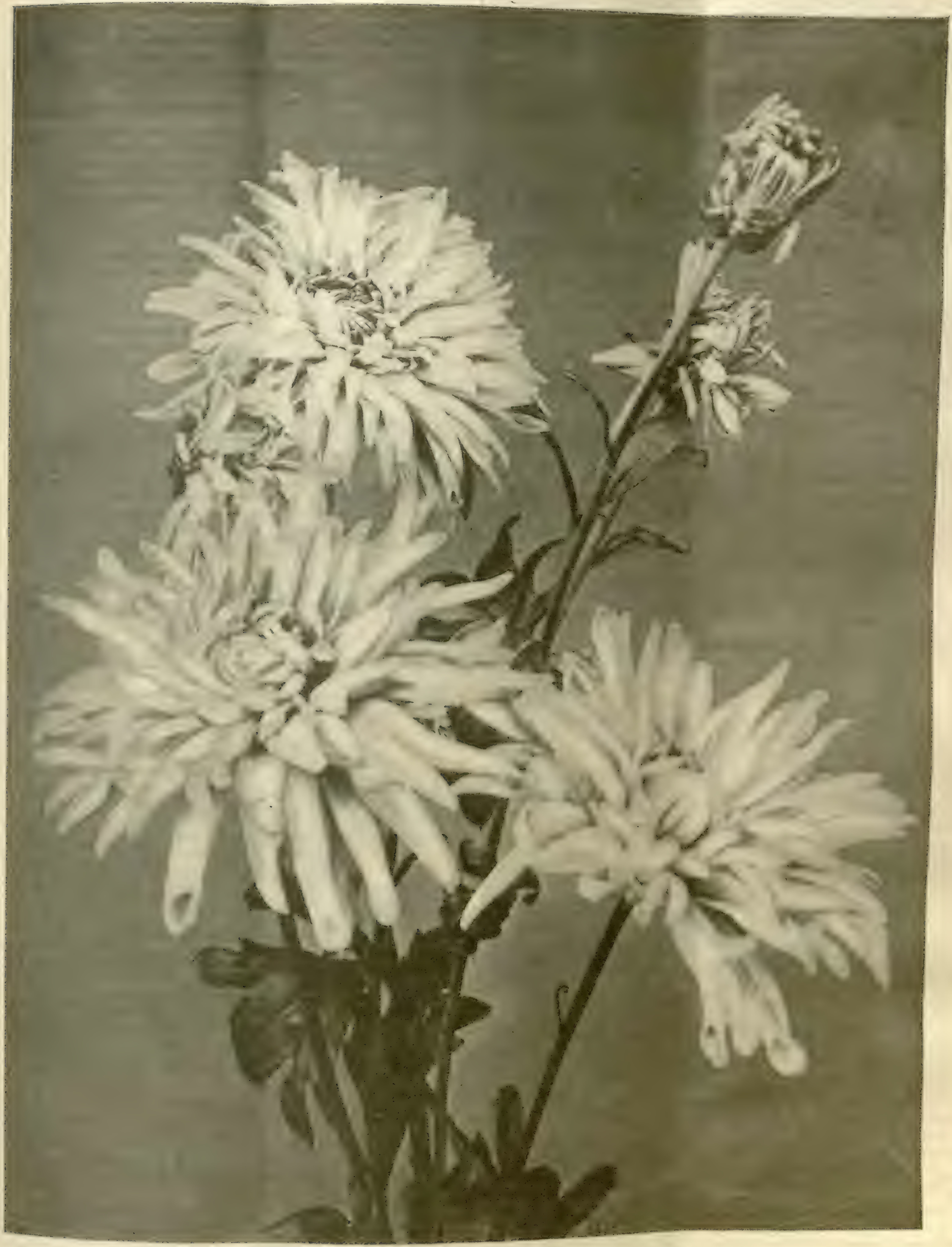
PEAR DR. JULES GUYOT (Natural size).

Begonia Disease.—I have noticed for two seasons a mite on the leaves of the fibrous rooted begonias. The mite is much like the celery-fly (Sephritis ompordinis). It commences from apex of the leaf, and eats its way through, mostly on the indoor plants. If we are going to be troubled in this way, a remedy is greatly needed, as the begonia has become a favourite plant with many. —J. H. S., *Taunton*.

A GOOD EARLY-FLOWERING CHRYSANTHEMUM.

ALTHOUGH this season has not, so far, been one of the best for early-flowering chrysanthemums as a class, yet about four varieties out of our small collection of a dozen and a half have proved eminently satisfactory, both for effect in the garden and their usefulness in a cut state. These four are: Flora, golden yellow; Piercy's Seedling, bronzy orange; Harvest Home, crimson-scarlet and gold; and Madame Marie Massé, rose or lilac-mauve, with a silvery sheen. Of these four the last-mentioned has been by far the best, though in a large garden it would scarcely be so effective as the two first-mentioned. It flowers with the utmost freedom, and as the flowers are so large, and rather heavy, it is good practice to place a neat stake for the support of the central or main stem. Under quite ordinary culture, in fairly good garden soil, and with an occasional watering during the continued drought, we have had many flowers five inches and more across, and without recourse to disbudding. Three plants were put out in April last from sixty-sized pots, and these have given us a most pleasing display ever since the first week in September, while some scores of flowers have been cut for indoor decoration, where they last in good condition for more than a week. One plant not so much exposed to the sun as the others has only just commenced to open its first flowers, so that this, together with the flowers open and yet to expand on the earlier pair, will give us flowers well into next month, provided the weather does not become too wintry. The accompanying illustration shows three flowers and some buds, all on one spray, but to admit these to the picture the camera had to reduce the size of the blooms. Madame Marie Massé is a first-rate autumn-flowering Japanese chrysanthemum, and for it we are indebted to Mons. Délaux, who distributed it in 1894. In 1895 some flowers were placed before the Floral Committee of the National Chrysanthemum Society, when a first-class certificate was awarded. To show the usefulness of the variety we may add that the date of the award was October 8.

Sedum spectabile.—Why is not this fine stone crop more extensively grown? it might well be asked, for there is no plant in my opinion more attactive at this season; the colour is not brilliant, but a soft and pleasing shade of pink; my plants of it are between three and four feet through, and it is much beloved of insects. In former years I have seen many species of butterfly rejoicing in it—red admirals, painted ladies, tortoiseshells, and brimstones—but this year I have hardly seen one, corroborating what I have said some times since with reference to the great scarcity of butterflies this year. I do not think that we have many butterfly hunters about us, so this can hardly be traced to that, but most probably to our cold spring. Bumble and hive bees also rejoice in it, and the former become so intoxicated or overfilled that they do not seem to be able to get away from it, and so die in numbers.—H. H. D.



EARLY-FLOWERING CHRYSANTHEMUM, MADAME MARIE MASSÉ.

THE PEAR CROP.

Berks.—Pears all round are a heavier crop here this season than apples, and though, owing to the drought, not extra large, the fruit generally is fine—some above the usual size, of good colour, and free from spot. Those named are carrying heavy crops: Bergamotte d'Esperen, Beurre Bosc, Beurre d'Amanlis, Beurre Diel, Beurre Giffard (good old early sort), Beurre Hardy (very good), Beurre Mortillet, Beurre Superfin, Williams' Bon Chrétien (heavy crops on walls), Clapp's Favourite (very fine), Chaumontel, Doyenne d'Ete (early), Doyenne Boussoch (fine, but does not last long), Doyenne du Comice (one of the best), Duchesse d'Angoulême (very fine), Durondeau (high colour), Fondante d'Automne, General Todleben (handsome fruit), Glou Morceau (fine flavour and good cropper), Jargonelle, Louise Bonne of Jersey, Madame Treyve (large), Magnate (new variety), Marie Louise (heavy crops), Knight's Monarch (an excellent sort), Ne Plus Meuris, Olivier de Serres, Pitmaston Duchess, Seckle, Souvenir du Congrès (early), Thompson's (one of the best for flavour), Vicar of Winkfield (large and heavy crops, but only grown for stewing), and Winter Nelis. A wall of single cordons (west aspect), and including many of the above and other sorts, are fruiting very freely; these have been partly thinned out early in the season, and are now clothed with fine, clean fruit.—OWEN THOMAS, *Frogmore.*

Cork.—Pears are small and deformed in most gardens. Glou Morceau, Marie Louise, Beurre Superfin, Autumn Bergamot, Beurre Brown, Duchesse d'Angoulême, Beurre Diel, and Williams' Bon Chrétien almost useless in consequence of the long drought, but full crop. Aston Town and the old Bishop's Thumb have had the best crops. Other varieties have borne a few, but in all cases fruit much below an average in quality.—W. OSBORNE, *Fota.*

Devon.—Pears are almost a total failure. Beurre d'Amanlis, Louise Bonne of Jersey, Glou Morceau, Durondeau, and Josephine de Malines are the only varieties bearing anything, and those barely half a crop, and, I should add, all on cordon-trained trees.—J. ELLICOTT, *Exeter.*

Essex.—Although pears were a grand crop last year, there is an almost entire absence of these useful fruits this season.—S. PRAGNELL, *Chelmsford.*

Forfarshire.—Pears this year, with us, are a total failure as they are only grown on the walls here. We have not a very large selection. The varieties generally most satisfactory are Williams' Bon Chretien, Louise Bonne of Jersey, Beurre Bosc, and Autumn Bergamot.—T. WILSON, *Glamis Castle Gardens.*

Glamorganshire.—Pears are a heavy crop, the trees are clean and free from blister, and the fruits, comparatively, are much larger than the apples. The following varieties are carrying good crops this year: Jargonelle, Williams', Bon Chretien, Beurre d'Amanlis, Beurre Hardy, Beurre Bosc, Beurre Diel, but the fruits of the latter are badly scabbed, and a great many are dropping. Beurre Clairgeau, Beurre Rance, Bergamotte d'Esperen, Durondeau, Doyenne du Comice, Glout Morceau (extra heavy crop, trees robust and in vigorous health), Josephine de Malines, LouiseBonne of Jersey, Marie Louise, Ne Plus Meuris, Pitmaston Duchess—good crop on walls, but slight crop on pyramidal trees—Thompson's, Vicar of Winkfield, and Winter Nelis, Gansel's Bergamot, Beurre Bachelier, are very fine on a wall with a wet exposure, and General Todtleben is good on a south exposure.—A. PETTIGREW, *Cardiff Castle Gardens.*

Gloucestershire.—Pears are a very thin crop, except Jargonelle, Williams' Bon Chretien, and Beurre Diel. Perry pears are more plentiful, but a lot of the fruit is dropping off before it is ripe.—J. APLIN, *Hasfield Court Gardens.*

Hampshire.—Pears are below the average both in quantity and quality, which must, as in the case of apples, be attributed to the bad weather in their early stage of growth. The young fruit received a check when commencing to swell freely, from which they never appear to have properly recovered. Fan-trained trees on warm walls are carrying the best crops, and the fruit is larger and better shaped than in pyramid and bush trees, but even when the roots have been kept supplied with moisture, the fruit is much smaller than usual. Our best varieties mentioned somewhat in their order of ripening, are Jargonelle, Souvenir du Congrès, Williams' Bon Chretien, Madame Treyve. Beurre d'Amanlis, Seckle, Marie Louise, Beurre Superfin, Beurre Hardy, Doyenne du Comice, Durondeau, Beurre Bosc, Marie Louise, Pitmaston Duchess, Marie Louise d'Uccle, Winter Nelis, and Glout Morceau. All these are excellent here. Triomphe de Vienne will also turn out a good variety, I think, but we have not yet given it a fair trial.—G. TRINDER, *Dogmersfield Gardens.*

—— Pears on walls are a fairly good crop. The best early pears are Jargonelle, Williams' Bon Chretien, and Clapp's Favourite. Later sorts that are good are Louise Bonne of Jersey, Thompson's, Marie Louise, Pitmaston Duchess, Beurre Superfin, Beurre Bosc, Doyenne du Comice, Winter Nelis, Easter Beurre, Zepherin Gregoire, Beurre Diel, Hacon's Incomparable, Knight's Monarch, Beurre Rance, Glout Morceau, Bergamotte d'Esperen, and Passe Crasanne. Of stewing pears the most constant bearers are Catillac, General Todtleben, Uvedale's St. Germain, and Vicar of Winkfield. The finest crops on standard trees in the open are Beurre de Capiaumont, Hessle, Marie Louise, Louise Bonne of Jersey, Princess, and Durondeau. Other standard pears are thin in fruit this season.—J. W. MCHATTIE, *Strathfieldsaye Gardens.*

Kent.—Pears, under average. With me most of the best varieties are poor. The only sorts that have done well are Pitmaston Duchess, Doyenne Boussouch, Durondeau, and Margaret Marillatt. Louise Bonne, Doyenne du Comice, and Beurre Hardy's seemed to have suffered from scorching. A large early pear is Beurre Mortillet, fairly good quality; one of the largest; will not keep many days after gathered, though bright and attractive. Nouvelle Fulvie is not so well known as it should be; excellent flavour; rather poor appearance; needs to hang on the tree as long as possible, otherwise they shrivel. I usually tie ours on.—GEORGE WOODWARD, *Barham Court.*

King's County.—Pears, except on the walls are a light crop. Those about an average crop are Williams' Bon Chretien, Jargonelle, Doyenne d'Ete, Duchess d'Angoulême, Beurre de Capiaumont, Beurre Diel, Brown Beurre, Easter Beurre, Marie Louise, Louise Bonne of Jersey, Josephine de Malines, Souvenir du Congrès, White Doyenne, Durondeau, Napoleon, Marie L. d'Uccle, Fertility, and Zepherin Gregoire.—R. MCKENNA, *Charleville Gardens.*

Kirkcudbright.—Pears are very poor, Autumn Bergamot, Beurre Diel, Brown Beurre, Easter Beurre, Marie Louise, Williams' Bon Chretien being the best.—J. HANNAH, *Cairnsmore Gardens.*

Lanarkshire.—Pears are an average crop.—W. SUTHERLAND, *Bothwell Park Gardens.*

Leicestershire.—None of our pears are carrying heavy crops this season. Blossom was plentiful, and was well protected with netting. The fruit, too, has suffered from the hot, dry weather, and will not be so large as usual. The varieties that have done the best comprise Jargonelle, Beurre Superfin, Beurre Diel, Beurre Hardy, Beurre du Buisson, Easter Beurre, Emile d'Heyst, Doyenne du Comice, Maréchal de la Cour, Thomson's (the best-flavoured of all, and bears well on a pyramid tree), Josephine de Malines, Dunmore, Louise Bonne of Jersey, and Beurre Rance; the latter seldom comes to perfection here.—W. H. DIVERS, *Belvoir Castle Gardens.*

Middlesex.—Pears are thin on standards, but on walls are a fair crop.—A. R. ALLAN, *Hillingdon Court Gardens.*

Monmouthshire.—Pears are under average, but the quality of the fruit is good. The following upon walls have good crops:—Jargonelle, Flemish Beauty, Beurre d'Amanlis, Beurre Superfin, Souvenir du Congrès, Louise Bonne of Jersey, Durondeau, and Beurre Diel; while upon Pyramids, Baronne de Mello, Doyenne du Comice, Durondeau, Beurre d'Amanlis, Beurre Fouqueray, Beurre Bosc, Louise Bonne of Jersey, and Williams' Bon Chretien are good bearers. Souvenir du Congrès is a grand pear, not so often met with as it deserves to be. It is in season with Williams' Bon Chretien, which is one of its parents. Durondeau is another handsome and highly-flavoured variety that should be included in every collection. Our most heavy cropper this season is the best of all pears, Doyenne du Comice; but Marie Louise, Beurre Hardy, Pitmaston Duchess, and Conseiller de la Cour, which usually carry good crops, are poor this year.—T. COOMBER, *The Hendre Gardens*

Montgomeryshire.—Pears are an average crop of fair size fruit. Williams' Bon Chretien, Beurre Boussoch, Louise Bonne of Jersey, Brockworth Park, Pitmaston Duchess, Beurre Superfin, Beurre Diel, Marie Louise, Doyenne du Comice, Glout Morceau, Beurre Steckmans, Marie Louise d'Uccle, Autumn Nelis, Duchess d'Angoulême, Fertility, and Beurre d'Anjou are the best.—J. LAMBERT, *Powis Castle Gardens.*

Norfolk.—Pears on walls are good, and have had to be thinned, with the exception of a very few trees. An unusual amount of labour has been bestowed on the trees, to cleanse them from pear leach—lime and sharp sand I find the best remedy. They have had repeated syringing with quassia, and soluble paraffin to cleanse the leaves from aphis and honey dew. Such a year for filth on trees I never remember; heavy waterings at intervals had to be given to induce the fruit to swell away. The fruits are now promising to be of good size, and to repay for all the extra labour bestowed.—W. ALLAN, *Gunton Park Gardens.*

Northampton.—The following are exceptionally well cropped, but are rather of poor flavour, considering the exceptional tropical temperature, I might say, we have had the past few weeks: Doyenne d'Ete, Jargonelle, Beurre Giffard, Clapp's Favourite, Beurre d'Amanlis, Beurre Superfin, and Marie Louise. The following are the next best croppers, all being on walls: Van Mons. Leon de Clerc, Glout Morceau, Louise Bonne of Jersey, and Doyenne du Comice. Espaliers and pyramids of all varieties are far below the average, particularly Winter Nelis, Bergamotte d'Esperen, Zepherin Gregoire, Knight's Monarch, Pitmaston Duchess, Ne Plus Meuris, Dr. Lindley, Maréchal de la Cour, and Beurre Rance.—J. HAYES, *Castle Ashby Gardens.*

Northumberland.—Pears are all grown on walls. The best are Jargonelle, Louise Bonne of Jersey. We have Triomphe de Vienne, highly commended as a September pear; we have it on trial. Styrian is good, Beurre Superfin, Brockworth Park, Backhouse Beurre, Marie Louise (these I would especially emphasise). Doyenne du Comice is the best pear we have in November; it does well as a cordon and espalier on south wall, and in pots, sheltered a few weeks up to the middle of June in a house, then plunged in ashes in the open until it begins to bloom; the next year very fine fruit can be had of the highest quality. The same may be said of Josephine de Malines, the best late as to the pot system. Emile d'Heyst fruits as a young tree; Beurre d'Amanlis is free to crop in the country; Hacon's Incomparable, Conference, Comte de Chambord, Beurre Van Geert are all of excellent flavour, but the trees as yet are small. Winter Nelis does in best positions north of this. Beurre Clairgeau we grow for early cooking, great cropper; also Flemish Bon Chretien.—G. HARRIS, *Alnwick Castle Gardens.*

Queen's County.—Pears are a very thin crop upon orchard trees—there are scarcely any. Trained trees against an east wall and on the quince stock are carrying a few good fruits, the best being Jargonelle, Bellissime d'Hiver, Catillac, and Easter Beurre. Many other varieties, although a sheet of bloom, have not produced a single fruit.—W. BEGBIE, *Emo Park Gardens.*

Radnorshire.—Williams' Bon Chretien, Marie Louise, Fondante d'Automne, Duchess d'Angoulême are well cropped, and the fruit is good in quality. Pitmaston Duchess on a young tree has a good crop. Louise Bonne of Jersey, Brown Beurre, Beurre Superfin, Beurre Die are very poor. Uvedale's St. Germain, heavy crop.—W. PALLISER, *Norton Manor Gardens.*

Shropshire.—Pears are over the average and of splendid quality. Doyenne du Comice, Beurre d'Amanlis, Beurre Diel, Beurre Giffard, Beurre Bachelier, Beurre Superfin, Josephine de Malines, Fondante d'Automne, Louis Bonne of Jersey, Clapp's Favourite, Pitmaston Duchess, and a lot of others are all heavy laden, whilst the fruits are clean and of excellent quality.—J. LOUDEN, *The Quinta Gardens, Chirk.*

Somerset.—Pears are a very slight crop throughout, but the best are Gros Calebasse (a medium crop of fine fruit and clean), Pitmaston Duchess (medium, fine fruit, and clean), Glou Morceau (nice clean fruit of medium size), and Autumn Crassane (a heavy crop of small fruits on pyramids).—W. H. MILES, *Ilminster.*

Staffordshire.—A fair crop on several varieties, others with a small crop, and a few sorts without any fruit. All trees well furnished with blossom, but hardly a variety which wholly escaped the destructiveness of the frost. The following are the most satisfactory in this district, viz.: Bergamotte d'Esperen, Beurre d'Amanlis, Beurre Clairgeau, Beurre Diel, Beurre Rance, Beurre Superfin, Comte de Lamy, Doyenne du Comice, Duchesse d'Angoulême, Emile d'Heyst, Flemish Beauty, Josephine de Malines, Louise Bonne of Jersey, Marie Louise, Olivier de Serres, Pitmaston Duchess, Princess, Souvenir du Congrès, Thompson's, and Williams' Bon Chretien. Pears, owing to the late cold spring and the long spell of dry weather since, are not so large as usual.—G. WOODGATE, *Rolleston Hall Gardens.*

Surrey.—Here the following varieties are on cordons and horizontally trained: Bergamotte d'Esperen, Zepherin Gregoire, Josephine de Malines, Beurre Bachelier, Ne Plus Meuris, Beurre Rance, Conference, Marie Louise d'Uccle, Louise Bonne of Jersey, Beurre d'Aremberg, Triomphe de Vienne, Glou Morceau, Pitmaston Duchess, Jean de Witte, Baronne de Mello, and Beurre Hardy. Pears here make very clean growth, the soil being very suitable for them, and we have an average crop every year, but not on the same varieties.—W. HIGGS, *Fetcham Park Gardens.*

Sussex.—The fruits set wonderfully well, but owing to the severe frost experienced about the middle of May most of them were so frozen that they fell off, only a few varieties in the open having anything like a crop, and these do not appear to be worth anything. Those on walls are a little better, the best being Beurre Diel, Williams' Bon Chretien, Jargonelle, Marie Louise, Beurre Hardy, Fondante d'Automne, Jean de Witte, Passe Colmar, Huyshe's Prince Consort, Huyshe's Prince of Wales, Glout Morceau, and a few others.—H. C. PRINSEP, *Buxted Park Gardens.*

Sutherland.—The pear crop is very poor—almost a failure, caused, no doubt, by the inclement weather at the time of setting. Jargonelle carried a few medium-sized fruit. Beurre d'Amanlis, which is usually one of our best pears, only bore very sparsely. Galston Muir Fowl-egg under average and small. Others were almost nil.—D. MELVILLE, *Dunrobin Castle.*

Tipperary.—Pears on walls are bearing a splendid crop; Beurre d'Amanlis and Colmar d'Ete are particularly good.—D. R. PHILLIPS, *Abbey Gardens.*

Warwickshire.—Pears are a very thin crop, indeed, and these are quite second-rate in quality. The ravages of the Pear-tree slug (*Tenthredo adumbrata*) played sad havoc with our trees, in spite of frequent dustings of lime on the foliage, which is the only remedy I know of for this noxious pest; a tree of Beurre Diel and one of Duchesse d'Angoulême are carrying very good crops. The remainder of our trees on walls, thirty in number, are practically fruitless.—H. T. MARTIN, *Stoneleigh Abbey Gardens.*

Wexford.—Pears are under the average.—J. McLENNAN, *Castleborough Gardens.*

Wigtownshire.—The following are growing against walls, with various aspects, and are all bearing very satisfactory crops: Jargonelle, Williams' Bon Chretien, Louise Bonne of Jersey, Marie Louise, Princess (Rivers'), Beurre Diel, Beurre Superfin, Pitmaston Duchess, Beurre d'Amanlis, Gratioli of Jersey, Beurre de Capiaumont, and Easter Beurre. As pyramids and bush trees Williams' Bon Chretien, Hessle, Swan's Egg, Louise Bonne of Jersey, Catillac and Autumn Bergamot are very well cropped.—J. DAY, *Galloway House Gardens.*

Worcestershire.—Pears are not such a satisfactory crop as the apples, the best being on the wall trees. All trees bloomed freely enough, but the cold inclement weather was too much for the embryo fruits. That good old variety, Marie Louise, is carrying good crops, so with gathering at intervals the supply will be enabled to be carried on for some time. I do not think the hot weather has hastened the ripening of earlier varieties in the least. The late start in the spring, followed with this hot September month, having timed the ripening about normal. I may say that the fruit is clean and of good quality; Williams' Bon Chretien, Glout Morceau, Durondeau, Beurre Rance, Easter Beurre, Passe Colmar, Beurre Hardy are the most productive.—A. YOUNG, *Witley Court Gardens.*

Yorkshire.—Pears under the average, and smaller than usual. Those carrying the best crops are as follows: Williams' Bon Chretien, Clapp's Favourite, Louise Bonne of Jersey, Doyenne du Comice, Durondeau (or d'Tongers), Pitmaston Duchess, Beurre Rance, Beurre Superfin, and Thompson's.—J. ALLSOP, *Dalton Hall Gardens.*

—— Pears are a very partial crop, the only varieties that have or had anything like a good crop are Doyenne d'Ete, Citron des Carmes, Summer Franc Seal, Beurre d'Amanlis, Louise Bonne of Jersey, Urbaniste, Doyenne du Comice, Beurre Diel, and Bergamot d'Esperen. Marie Louise, which usually does so well with us, is this year almost fruitless. We have a space at the top of a south wall, say, twenty yards long, by an average of three feet in depth, from which we have frequently picked twenty stone of fine fruit. The trees were planted many years ago on the north side of the wall. Some twenty-five years since we trained shoots over to the south side, and they have, as I say, done splendidly, as a rule, ever since they got well over. I am very fond of espaliers for training pears upon when grown away from walls. I would not plant bush or pyramid trees in the north, the fruits are so liable to be injured by the autumn gales before they are fit to pick. We have some espaliers here erected quite fifty years since, I should say, and they are as good now as when first put up. With the exception of an eight-foot wall planted with cordon trees a year or two ago, all our pear trees are growing upon the free stock; cordons are on the quince.—H. J. CLAYTON, *Grimston Gardens.*

Awards of the Fruit Committee.—Your reporter seems to have been incorrectly informed as to the awards of medals made to the various exhibits at the Drill Hall on the 20th ult. Not only Messrs. W. Paul and Sons, but also Messrs. J. Laing and Sons and Messrs. J. Peed and Sons received silver-gilt Knightian medals. The silver-gilt is a superior award to the silver Knightian. Mr. Kelf's award was a silver Knightian, and not a silver-gilt Knightian. The collection of apples shown from Chiswick received high cultural commendation, as they were from young trees planted late in 1896. But for the fact that the fruits came from the Society's gardens a silver Knightian medal would have been awarded. St. Joseph Strawberry from three sources received an award of merit for its autumn and free-fruiting properties, but the flavour is poor. It offers, however, a tempting subject for cross fertilisation in the hope of importing quality to the fruit.—A. D.—[With regard to the R.H.S. medals, our report was in accordance with the official list, and so far we have had no complaints from the firms interested. If our Norwood and Forest Hill friends gained the higher award we have only to add that they deserved it.]

Seedling Strawberries.—I have read with interest your notice of Messrs. Laxton Bros.' strawberry grounds. It seems surprising that so huge an effort should apparently produce so little that is good. Of all the varieties put into commerce by the present Messrs. Laxton, or their father, only two stand out with marked prominence. These are Royal Sovereign, the very best variety put into commerce during the past twenty years; and Latest of All. Noble has been grown only for its earliness and the size of its soft, watery, flavourless fruits. It is now generally neglected for Royal Sovereign. I do not mention these things as a reflection on anyone, but simply to show how, in strawberry raising, there is much cry and very little wool. It is feared that the efforts so freely made to produce fruits of great size have had much to do with this comparatively poor result. Not a few new ones have been exhibited to display cropping quality. I do not know that there is much room for advance in that direction; many of our old varieties when well done are just as heavy croppers as are the best new ones. Curiously enough, when looking over the trials at Chiswick these very heavy crops have not been so apparent. If there were less of seeking after size and more of striving for real table excellence some gain might result. Veitchs' Perfection gave delicious flavour, but so far it does not seem to be a great cropper or a good grower. Their Prolific, if in the future it proves to be what so far it has seemed—good robust constitution and heavy cropping—should become a standard variety, because its flavour is admirable, but it is not a grand looking fruit. It is a variety more for the lover of excellence than for the market grower. However, it may be assumed, seeing how strawberries have come and gone during the last fifty years, that we must regard it as fortunate that we have obtained a Royal Sovereign to add to our limited list of really standard varieties.—A. D.

LONDON'S TREES.

PUBLIC attention has recently been directed in the columns of a daily contemporary, we are glad to state, to the paucity of trees in the streets of London, and to the lack of shade from which foot-passengers suffer during the summer solstice throughout the highways and byeways of this gigantic city in consequence of that unfortunate circumstance. We are assured by one venerable adage that "experience teaches," and admonished by another that "prevention is better than cure." If the distressing experiences of excessive heat lately acquired by Londoners of every social class have not convincingly proved the wisdom of the latter apophthegm, we can only conclude that the metropolitan public is at once deaf to the appeals of pure reason, indifferent to sound advice, and insensible to physical discomfort. It must surely be obvious to the dullest apprehension that the terrors of such a heat-wave as mercilessly swept over this country during August, scorching our soil, staunching our springs, and enfeebling our energies, could effectively be abated by an abundant provision of shade in the broader thoroughfares of our chief commercial centres—especially in those of our huge and densely-populated capital. Nature, the all-wise and foreseeing, has shown shortsighted man how this kindly shade may be surely procured and cheaply maintained. Among the beneficent wonders of which she is prodigal, and which we complacently accept without understanding them, are trees—trees infinite in the variety of their service to mankind, in the beauty of their stateliness or gracefulness, in the "nuances" of their many-hued foliage, and in the picturesque charm which they impart to commonplace scenes as well as to romantic landscapes. In order to purify the vitiated atmosphere of our crowded towns, and afford to their inhabitants the most efficient and pleasurable of shelters against the burning heat and dazzling glare of the sun's rays at high summer-tide, all that we have to do is to line at least one side of our principal streets with avenues of forest trees, taking intelligent measures to foster the growth and conserve the health of these verdant "protectors of the poor."

Our much-decried climate, by reason of its prevalent humidity, is exceptionally favourable to the rapid development and robust longevity of the trees. There is no part of London in which they will not thrive luxuriantly, if planted "secundum artem" and judiciously attended to during the extreme severities of hot or cold weather. The trees that fringe the Thames Embankment were mere saplings a few years ago. How they flourish at the present day, and what an adornment they are to the noblest of European promenades! London can boast of no improvement at once more decorative and more useful than the long rows of lindens and chestnuts that flank the trottoirs of the Old and New Kent Roads and a few other transpontine boulevards, the after-dark retail trade of which, with all its bustle and clamour, is refreshingly set in a gay green frame, animate with gleams of sparkling light and murmurs of rustling foliage. Why should these summer attractions be wanting to Oxford Street and Holborn, the Strand and Fleet Street, Pall Mall and Piccadilly, Regent Street and Portland Place—to our great East-end arteries of commerce, which, by their imposing width and length, are eminently qualified for conversion into superb umbrageous avenues? In foreign capitals, streets corresponding in commercial importance to these metropolitan thoroughfares are for the most part generously lined with healthy trees, and liberally provided with sitting accommodation; while a weary pedestrian in London, outside the public parks, the Embankment, and a few suburban high roads may ask till he is hoarse where, save in a public-house—and not always there—he can rest his limbs without incurring an obligation to purchase something which he does not want, and Echo will invariably answer "Where?" Even in the most fatiguing weather, no other reply to his piteous inquiry is forthcoming. It is not so in Paris, Vienna, Berlin, or any of the great Italian cities, or provincial French, German, and Austrian towns, where free seats, in boulevards and avenues alike, are as numerous as shade is plentiful.

Nor are the suburbs of Continental capitals less comfortably equipped in these respects than the central districts, which were correctly termed intramural not so very long ago, but are now no longer engirdled by rigid cinctures of ramparts, bastions, and fortified gates. All the faubourgs of Paris are lavishly planted and agreeably shady. So are the "Vorstädte" of Berlin, from Tegel in the north to Tempelhof in the south, Charlottenburg in particular, the chief western suburb of "Modern Athens," being a stately complex of leafy boulevards. So are the outer "Bezirke" of Vienna—the Leopoldstadt, the Wieden, Mariahilf, Lerchenfeld, and the rest, nowadays only parted from the "Alte Stadt" by the mighty Ring and the broad, fast-flowing Danube Canal, a turbulent loop of the giant river that is navigable from above Ratisbon to the Black Sea. Single trees, moreover, often of great size and considerable antiquity, are freely scattered about the narrower streets of Berlin, dotting the old lines of demarcation between the side-walks and the former "Rinnsteine" or open gutters, once only covered in at crossings, and now replaced by subterranean drains hidden away under solid kerbstones. The stray trees have been carefully preserved in several of the older side-streets, as, for instance, in the Behrenstrasse, Charlottenstrasse, and "prolonged" Friedrichstrasse, and to this day constitute gay oases of verdure in dismal deserts of stone and stucco. Germans of all varieties are steadfast respectors of trees in town or country, park or forest, "Lustgarten" or "Biergarten," regarding them not only as pre-eminently ornamental, but as useful instruments of sanitation and appliances of open-air comfort. They know how to treat them, and derive the utmost gratification from sitting under the shade of their wide-spreading branches when the mercury is rising to inordinate heights in its crystal tube, and the air seems to quiver in tremulous protest against the extravagant heat pervading it. In respect to the assiduous cultivation of trees in our urban thoroughfares, we Britons cannot do better than follow the sensible example set to us by our Teutonic kinsfolk, who contrive to get a great deal more genuine enjoyment out of street-life than we do, although we are apt to consider ourselves by far the most practical people on the face of the habitable globe.

CALL DUCKS.

THESE birds are in reality bantam specimens of the Aylesbury and Rouen varieties. Their name is derived from the fact that they keep up a ceaseless quacking, just such as would attract the attention of birds flying overhead. They have also been called the Decoy Duck, as they were used at one period for drawing wild ducks into the meshes of fowlers. They are a hardy, attractive kind of duck, but from their active nature cannot be caught if kept on a large sheet of water, but must be shot if they are to be killed. There are two varieties of the breed, the white and the grey, the former resembling the Aylesbury, and the latter the Rouen, or, more properly speaking, the wild duck. The Call Duck is short, round, and compact, with full and high forehead. The wings are long, reaching to the end of the tail feathers, thus making them strong and rapid flyers. Call Ducks do not receive much attention from amateurs, who, if they desire a small variety of duck, go in for some of the richer-coloured breeds; besides which, the Call looks very "homely," to use an American expression.

E. B.

Work for the Week.

COOL ORCHIDS.

ATTENTION must now be paid to cleansing the plants and houses, putting everything in a condition to pass the greater portion of the winter months. All the light obtainable will now be necessary for the well-being of the plants, and to obtain this the glass should be thoroughly scrubbed outside as well as in so as to remove the coat of dirt that has settled on it; the inside woodwork should be well cleaned with soft soap, making all sweet and clean, this being done the plants should be sponged, using some safe insecticide, and taking care not to use it too strong. The cleaning of plants is a work which must be done carefully, as newly-potted plants are easily loosened in their pots, and in such a condition it is impossible for them to make satisfactory progress; then, again, if the plants are not carefully handled the centre leaf of the new growth is sometimes pulled out, or the leaves cracked and broken, which gives them an unsightly appearance. After being sponged and their pots washed the plants should be so arranged that each one will have its equal share of light; place all hanging plants out of the reach of direct draught from the top ventilators. With regard to the damping of the houses, once a day will in most cases be sufficient, this being done in the morning, providing the weather is mild, and no artificial heat is necessary. Should the nights be frosty and a little fire heat necessary, damping down will be required twice daily as the atmosphere will dry more quickly; shading can now be dispensed with altogether, there not being sufficient power in the sun to do any harm.

There are a number of orchids that have occupied positions in the cool house during the summer months that will be much better for a little extra warmth during winter, and as the nights are becoming colder, these should now be removed, and suitable positions found for them. Plants of Miltonia vexillaria should be placed in the most airy part of the house, as it delights in plenty of fresh air. Dendrobium infundibulum and D. Jamesianum should be given a light position to help them to finish up their growths, also Lælia præstans which are now showing for flower. Among the oncidiums are O. ornithorhynchum, O. incurvum, O. phymatochilum, O. tigrinum, O. varicosum, and its fine variety, Rogersi, Odontoglossum Krameri, O. cirrhosum, O. Harryanum, O. nævium, Masdevallia tovarenseis, and all of the Chimæra section. Vanda Kimballiana and Ærides japonica, are also much better wintered in a warmer temperature. Cypripedium Charlesworthi, C. purpuratum, C. Arthureanum, C. Spicerianum, C. insigne, and its varieties are now showing flower buds, and should be supplied with plenty of moisture at the roots, the latter being also much benefited at this season by occasional doses of weak liquid manure, especially large specimens that have their pots filled with roots.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

THE first fortnight in October is generally an anxious time for the plant grower, as arrangements have to be made for housing a large portion of his stock, which for some months has either been standing in the open or in cold pits. By this time the last of the chrysanthemums will have been safely housed, and where these were put under cover hurriedly to escape frost their rearrangements often becomes necessary, especially when grown for the production of exhibition flowers, while again those plants of the latest varieties which are so valued for decoration at Christmas and onwards, should be kept by themselves, if possible, and receive such treatment as is calculated to retard the flowers. Over crowding should be avoided, as however well the plants may bloom half their attractiveness is lost should they be minus healthy foliage down to the rim of the pots. Chrysanthemums require careful handling when first brought under cover, as this is a sudden change to what they have been accustomed to, especially in not having the night dews, which proves so invigorating to the leaves This, to a certain extent, may be substituted, by slightly dewing the foliage overhead during bright afternoons, but we are not in favour of carrying this to excess, as with less sun and a descending temperature almost nightly there is a danger of setting up the much dreaded mildew if the leaves are dripping with moisture at nightfall. Careful watering and judicious feeding will also claim attention to secure the best results. Other things, however, must not be neglected, and if not already done, the stock of violets which have been prepared for flowering in frames should be lifted and placed in their winter quarters at once. It has been a trying summer for these moisture loving plants. We delayed the planting of ours until we received the much needed rain. Fortunately the plants were put out last March in a position where they were shielded from the fierce rays of the sun by tall fig trees. With one or two waterings and frequent syringings at sunset, the plants pulled through the trying ordeal, and they are now planted in frames and pits free of red spider with every promise of flowering profusely. No better place can be found for these favourite flowers than in frames on old hotbeds. Additional soil or leaves should be placed in the frames, so as to bring the plants near the glass. The outside of the frames can then be banked round with leaves and long litter which not only wards off frost and drying winds, but a gentle warmth is set up, which, together with the ammonia arising from the manure stimulates growth and keeps red spider at bay, which is not easy when the plants are grown in light, airy houses. The sashes, of course, will have to be brought into use when the condition of the weather necessitates it, but until then full exposure is best. In planting the stock preserve all the best side shoots or runners. Trim these up and dibble them in sandy soil either in a shallow frame or boxes. In March these will have made capital stuff for planting out, and if necessary the old plants may be destroyed.

Arums must be brought under cover, but it is only necessary to exclude frost from these, therefore a cold pit which can be covered with mats will be all that is required to suit them. In handling the pots see that the drainage is clear, and should worms have gained an entrance, dislodge these by watering with lime-water. Plants that are well established, and whose pots are full of roots, may be placed in a warm greenhouse near the glass, and they will throw up some early spathes. It is a mistake to place bouvardias in a warm house direct from the open. This is sure to encourage the formation of weak shoots, and the flowers produced on the extremities will be of poor quality, and fail to last the usual length of time when cut. Placed in the cool greenhouse, they prove more satisfactory. Poinsettias, although considered as stove plants, are managed much better by cool treatment until just before the bracts form, when additional warmth assists to develop them. From the time the cuttings were rooted in a very gentle hotbed at the end of June until the present time, they have been grown in a cool, airy pit, with the full force of the sun. Being thinly arranged, they remain sturdy and retain their leaves. Now is the time to commence feeding the roots of these. It would serve no good purpose to allow camellias and Azalea indica to remain outside longer, although they can withstand a few degrees of frost; gales would be continually blowing them over, with the risk of breaking their pots. See that the latter are scrubbed and the drainage free before taking them in. The azaleas might be laid on their side and every part of the plants syringed with some solution to destroy thrip, should any have gained a foothold, or as a preventive. Bedding and other half-hardy plants should be placed under glass, allowing plenty of air and excluding damp from the former, or many may be lost.—RICHARD PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THE importance of doing work at the proper time during this season of the year should on no account be overlooked. A few days in the spring either in sowing or planting makes but little difference to the crop, but at this time of the year it is all important that the work be done at the right time, as unfavourable weather may set in and so delay the operations still further. The storing of all roots should now be completed without delay, more especially the tender kinds. After the crops have been gathered in, manure the ground and turn it up roughly that the frost and air may act upon it during the winter. This is all important, for when the work is delayed till the soil has become saturated with rain it is not advisable to turn it up in that condition. Autumn digging is always best on light soils, particularly in those districts where the rainfall is slight, and if heavy soils be turned up at this time of the year before they become too wet, the work in spring at the time of sowing will be greatly reduced. It is, however, not advisable to dig such stiff land at the present time as is intended for very early crops, as there would be some difficulty in getting upon it to sow the seeds at the proper time; such plots are best left until the time of planting or sowing, which could be done as digging proceeds.

Protection must now be afforded to all tender crops such as peas and French beans. The former ought to have a free circulation of air both night and day by allowing the lights to be tilted both top and bottom; the latter will thrive very well in a little closer atmosphere where fire heat is applied, but it is not well to push them on too fast, as the pods will remain longer in good condition in a lower temperature. Sowings for succession should be made at intervals of every two or three weeks, for as the days become shorter growth will be less active, and the flowers will not set so freely. Cauliflower plants raised from seed sown in the open during the last month should now be pricked out in a cold frame where they can be protected should bad weather set in. Those possessing hand-lights may put five plants under each light, or more if the others are taken away in spring before growth commences. Both Brown cos and the hardy cabbage lettuce should be planted in frames for protection, and more may be pricked out in a warm sheltered border. Where Queen onions are grown these should now be large enough for transplanting. This, in my opinion, is by far the most useful variety for autumn sowing, as when transplanted at this time of the year they turn in so quickly in spring that useful bulbs are obtained early in May. Pay every attention to keeping small plants free from weeds, as these have a tendency to induce spindly growth that is very liable to injury in case of severe weather.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

FIG trees grown under the extension system should now be pruned, as the removal of surplus wood and leaves will help the growths retained to finish up well. The method I advocate and practice is to cut out bodily all the longest branches that can be spared, thus keeping the trees within the limits of space that can be allowed. This does away with all need for foreshortening, and the gaps made by removing the branches can be filled up when retying the trees after they are cleaned. Under this system very old trees can be easily filled out with young wood, so that there is never any necessity to retain anything in the shape of big branches, which are difficult to deal with, and fill up space which might be better occupied. When the branches have been cut out, all that remains for the knife to do is to cut away all fore-right and any other shoots that would be superfluous and awkward to bring into position. Such shoots make capital cuttings, root freely, and soon make good plants if any are required; so a few of the best should be retained and inserted about five inches deep in eight-inch pots, well drained and filled with sandy soil, placing them in a cold frame to winter, and keeping the soil somewhat dry, so that they shall not commence growth until the days begin to lengthen again.

Planted-out figs are often relegated to the back walls of houses which have the roof occupied with vines or something of the sort, but this is not fair treatment, and though they are expected to crop under such conditions the expectation is rarely realised in anything like a satisfactory manner. Figs deserve, and ought to have, a full supply of light, and the best way of providing for them is to train them fan-shaped on wires, at a convenient distance from the roof-glass, where they are made the chief occupants of the house, and receive what they want. Gross growing trees which cast their fruits may now be taken in hand and root-pruned, cutting away all roots that go down into the subsoil. If the soil in which they have been growing is very rich, it should either be replaced with poorer material, or treated to a goodly quantity of mortar rubbish, broken brick, and burnt earth, which should be rammed in as firmly as possible. This will prevent grossness in the future, and greatly assist the trees in carrying heavy crops. Highly manuring the soil for fig trees is the greatest of all possible mistakes; all the food they require should be given in liquid form during the growing season. Pot trees for early forcing are carrying their leaves longer than usual this year, but this is no evidence of unripeness, and I always look for the best results after the leaves have held on well, provided the wood is not too green. For some few weeks yet, such trees will enjoy their outdoor quarters; a touch or two from slight frost completes the process of preparation for another season, and does good rather than harm. All who are looking out for a grand forcing fig should get S. John's, one of the most certain of croppers.

Pot strawberries should be set out more thinly if they appear to be crowding each other, Royal Sovereign especially requiring plenty of room. Even if they do not require moving on account of space, it does good to shift them about, and prevents the roots from growing through the pots into the ashes. Loam for potting and planting should be cut and stacked as soon as possible now, but in most districts it will be necessary to wait for rain, the ground being so very dry. It is not wise, however, to allow very much rain to fall before commencing, as this washes out the goodness from the top spit.—J. C. TALLACK, *Livermere Park Gardens.*

"**Il crisantemo**" is the title by which the quarterly official organ of the newly-founded Italian Chrysanthemum Society will be known. No. 2 is just to hand, and, if it may be taken as a sample of what we may expect in future, promises to be an interesting addition to the various foreign periodical publications on the flower. It consists of twenty-four pages of printed matter entirely devoted to the society's records, and to articles on the history and cultivation of the popular flower. Our excellent friend, Mr. Briscoe Ironside, and his Italian colleagues are to be congratulated on the new undertaking, which certainly looks like a promising one.—C. H. P.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, October 11.

THERE was a most interesting display of flowers, plants, fruits, and vegetables on the above date at the Drill Hall; indeed, the visitors were agreeably surprised to see such a number of large and varied exhibits.

FLORAL COMMITTEE.

As usual, the bulk of the exhibits came before this committee for consideration. Roses, nepenthes, perennial asters, greenhouse rhododendrons, and winter-flowering begonias were the leading subjects on view. Novelties were somewhat scarce. A charming group of warm greenhouse rhododendrons, staged by Messrs. J. Veitch and Sons, demonstrated—if demonstration be now necessary—the great beauty and usefulness of these hard-wooded plants for autumn flowering. A few of the most telling varieties were Hercules, Souvenir de J. H. Mangles, Apollo, Lord Wolseley, Mrs. J. Heal, Virgil, and Ajax; silver Banksian medal. A silver Flora medal was awarded to Messrs. Paul and Son, Cheshunt, for their exhibit of roses, both cut flowers and plants in pots. There were charming baskets of Maman Cochet, Madame P. Cochet, Ulrich Brunner, Madame A. Chatenay, and Gustave Regis. The Messrs. Paul also sent some neat and freely flowered plants of Masdevallia tovarensis, staging these and Cypripedium Spicerianum with the roses, edging the whole with ferns. The interesting Acalypha Sanderi was sent by Messrs. F. Sander and Co., St. Albans; Dracæna Godseffiana was good, and so also was D. Sanderiana; Cattleya Mantini inversa, Saccolabium Penangiana, Stenoglottis longifolia, Oncidium Jonesi, and Miltonia vexillaria Leopoldi were orchids staged amid the foliage plants.

One of the most effective and attractive exhibits in the hall was that of nepenthes, staged by Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford. There were thirty distinct forms, including species, varieties, and hybrids, and these were set upon stands so as to exhibit their pitchers to the best advantage; Cocos plumosus was arranged down the centre of the group, while under the plants were ferns of various kinds. Some of the finest speciments were of N. mixta, N. Curtisi superba, N. Mastersiana, N. Amesiana, N. Chelsoni, N. sanguinea, N. Morganiæ, N. Wrigleyana, N. Veitchi, and N. Wittei; silver-gilt Flora medal. Mr. A. B. May, Edmonton, had a splendid exhibit of beautifully-grown specimens of Begonia Gloire de Lorraine, one of the finest of begonias for winter flowering, especially as grown by Mr. May. Adiantums in variety, nephrolepis and Lygodium scandens served to make a suitable and elegant setting for the begonias; silver-gilt Flora medal. Mr. George Prince, Oxford, had a small but very pretty exhibit of tea scented roses. There were some lovely flowers of Maman Cochet and The Bride Mr. T. S. Ware, Tottenham, sent a few bunches of showy single dahlias, an assortment of Michaelmas daisies, helianthus and flowering plants of nerine rosea, N. Planti, N. Fothergilli, and N. Mrs. Fell.

A large exhibit of roses from Messrs. W. Paul and Son, Waltham Cross, served to show how open and warm the season is. There was a good show of pot roses, Queen Olga of Greece, a new blush tea rose, Niphetos, Enchantress, and Innocente Pirola being conspicuously good. There were good bunches of Mrs. W. J. Grant, Gustave Piganeau, Maman Cochet, Mrs. Sharman Crawford, Caroline Testout, and W. F. Bennett. A silver Flora medal was granted. Physalis Franchetti, the finest of all the winter cherries, was largely and well shown by Messrs. J. Veitch and Sons, Chelsea; this exhibit was a great attraction, for its huge scarlet balloon-like calyces are most effective and useful for winter decoration; silver Banksian medal. Mr. W. Allan, gardener to Lord Suffield, Gunton Park, sent some very fine spikes of Tritoma grandis; the flowers are gathered thickly together at the head of the spikes, making a thicker head than in most tritomas. Anthurium crystallinum illustris is a highly variegated aroid apparently of lesser growth than the type; the deep green ground colour is finely coloured with white or rich cream colour; an extremely bright and handsome foliage plant. The Messrs. Veitch showed Dracæna Eeckhanti, a pretty dracæna with gracefully recurved foliage; they also sent Alocasia spectabilis, a form with greyish mottlings and veinings on a dark slatey-green ground. Mr. W. Wells showed Jules Mary chrysanthemum, a rich crimson early variety that was greatly admired. Some flowers of the rather rare Trichinium Manglesi came from Mr. F. W. Moore, Glasnevin.

A silver Flora medal was awarded to Messrs. J. Veitch and Sons, Chelsea, for a grand group of Michaelmas daisies associated with spikes of Tritoma corallina; the asters were shown in fine large clumps of a size sufficient to illustrate the habit of the variety. A. amellus, A. ericoides, A. densus, A. acris, A. cærulescens, A. Coombe Fishacre, A. cordifolius, and A. panculatus were especially well represented. Mr. W. Bain, gardener to Sir Trevor Lawrence, Bart., Dorking, sent some late spikes of beautiful pentstemon seedlings; also Lobelias Carmine Gem, Queen Victoria, Crimson Gem, and Prince Arthur, all fine attractive sorts.

ORCHID COMMITTEE.

Messrs. J. Veitch and Sons, Chelsea, staged a few well-grown specimens of Lælio-cattleya callistoglossa ignescens, L.-c. Dominiana, a grand hybrid with huge, rich, purple lip; L.-c. Nysa, always admired; Lælia splendens, the fine cross between L. crispa and L. purpurata, and Dendrobium rhodostoma, obtained by crossing D. Haltoni with D. sanguineolenta. From Messrs. Charlesworth and Co., Bradford, came a small flowered but pretty hybrid orchid named Sophro-cattleya Cleopatra, obtained by crossing Sophronitis grandiflora and Cattleya guttata Leopoldi; this has rosy scarlet sepals and petals, and a yellow stained lip. Mr. J. Howes, gardener to Walter Cobb, Esq., Dulcote, Tunbridge Wells, showed a splendid example of Vanda Sanderiana, carrying fine spikes, and a total of about four dozen flowers and buds; the variety was the very best, and the size of the flowers was almost exceptional; Mr. Howes also sent a deep-coloured form of Cypripedium Lawrebel named Dulcotense. Mr. C. Whitlock, gardener to W. A. Belney, Esq., Fir Grange, Weybridge, sent two small pans of Lælia præstans, splendidly flowered.

Lælio-cattleya Henry Greenwood was exhibited by Messrs. B. S. Williams and Son, Upper Holloway; this is a beautiful orchid and referred to by us in connexion with the Ghent Show held early in the year; this orchid is stated to be the result of crossing Lælio-cattleya Schilleriana and Cattleya Hardyana. The Messrs. Williams showed Vanda concolor and a fine variety of Cypripedium Charlesworthi. Mr. F. Fullerton, gardener to B. B. Baker, Esq., Roupell Park, sent a specimen of Odontoglossum grande carrying seven spikes and twenty-five flowers.

Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, showed five plants of Cypripedium Lawrebel, these carrying ten very fine blooms; there were numerous examples of Habenaria militaris with spikes of rich flowers; spikes of Cattleya exoniensis, very gay for this season of the year; Dendrobium Phalænopsis alba, Lælia pumila, L. præstans, the quaint Epidendrum porphyreum, and Miltonia Lamarckiana, a cross between M. candida and M. Clowesi. Messrs. Hugh Low and Co.'s contribution contained some bright spikes of the good old Cattleya Bowringiana, Ondontoglossum grande, Cymbidium Traceyanum, carrying nine splendid flowers, well marked; Oncidium ornithorhynchum album, Vanda cærulea, V. Kimballiana, and Cattleya superba splendens with intensely-coloured blooms; bronze Banksian medal.

Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, secured a silver-gilt Flora medal for a very handsome group of beautifully flowered plants of Dendrobium formosum giganteum; the batch of thirty-four plants carried an aggregate of six hundred and seventy-five substantial flowers. There were two spikes on most of the growths, and in some cases three; the largest number of flowers on one plant was sixty-four, and one four growths. On one plant there were thirty-three blooms. Mr. Elphinstone, gardener to E. Miller Mundy, Esq., Shipley Hall, Derby, sent Angræcum ichneumoneum, a quaint orchid with long spikes of transparent and pale green flowers, like flies on a twig, and Dendrobium puniceum.

FRUIT COMMITTEE.

Mr. A. H. Rickwood, gardener to the Dowager Lady Freake, Teddington, was awarded a silver Knightian medal for a collection of apples and pears; the fruits were not over large, but quite large enough to be generally useful; all the examples were clean and shapely, the pears especially so. A silver-gilt Knightian medal was won by Mr. C. Blick, gardener to Martin R. Smith, Esq., The Warren, Hayes, Kent, who staged a first-rate exhibit of three dozen dishes of handsome and well-developed pears; Pitmaston Duchess, Marie Louise d'Uccle, Durondeau, Duchesse d'Angoulême, Doyenne du Comice, Souvenir du Congrés, Doyenne Boussoch, and President Drouard were especially fine.

Messrs. G. Bunyard and Co., Maidstone, put up a splendid exhibit of a hundred dishes of cooking apples, securing a silver-gilt Knightian medal; Mère de Ménage, Hereford Beefing, Peasgood's Nonesuch, Beauty of Kent, Flanders Pippin, Cellini, Striped Beefing, and Belle de Pontoise were finely represented.

Mr. W. Allan, Gunton Park Gardens, showed new melons, gaining an award of merit for a scarlet-fleshed variety, named Gunton Scarlet. Captain C. J. Shephard, Maidstone, sent specimens of Princess May, a new seedling peach from the Victoria nectarine. Messrs. R. Veitch and Sons, Chelsea, showed a very fine pebble-shaped potato named Walter Raleigh. Seedling apples were shown by several exhibitors, and those gaining awards are described in another column.

Messrs. H. Cannell and Sons, Swanley, Kent, put up a first-class display of onions in some twenty-six varieties; these were all grand bulbs, and yet produced by farm culture; Cannell's A1, Lord Keeper, Ailsa Craig, Rousham Park Hero, Cranston's Excelsior, and Masterpiece were among the finest; silver Knightian medal. Mr. R. W. Green, Wisbech, secured a silver Banksian medal for his display of twenty six dishes of excellent potatos; Snowdrop, Duke of York, Clark's Main Crop, Sutton's Abundance, Sutton's Satisfaction, The Saxon, and Up-to-date attracted our attention by reason of their clean appearance.

NATIONAL CHRYSANTHEMUM SOCIETY, October 11, 12, and 13.

THE show held at the Royal Aquarium on the above dates was a great success, as the display was largely increased beyond its usual size by Mr. Deverill's vegetable competition and the non-competitive exhibits chiefly from trade growers.

The best group of chrysanthemums was that staged by Mr. J. Spink, Walthamstow, who had dwarf plants carrying fine flowers, arranged with Cocos Weddelliana crotons, Phrynium variegatum, ferns, &c.; Mr. Spink had carefully avoided overcrowding. The second prize fell to Mr. W. Howe, gardener to Sir H. Tate, Streatham Common, who showed much taller plants than Mr. Spink.

The competition in the class for two dozen blooms, Japanese, in not less than eighteen varieties, was good, the chief award being secured by Mr. James Brookes, gardener to W. J. Newman, Esq., Totteridge Park, Herts, who had grand examples of Madame G. Henry, Elthorne Beauty, Sunstone, Oceana, Mutual Friend, Mrs. G. W. Palmer, Mrs. H. Payne, W. Seward, Emily Silsbury, John Seward, Mons. A. Moulin, Ella Curtis, Reine d'Angleterre, Edith Tabor, W. H. Tucker, Vis. R. de Cheyelles, Phœbus, and Australia; Mr. H. Shoesmith, Claremont Nurseries, was placed second; while Mr. R. Jones, gardener to C. A. Smith Ryland, Esq., Barford Hill, Warwick, gained third place. The chief honours for twelve Japanese blooms were secured by Mr. J. Fulford, gardener to F. D. Lambert, Esq., J.P., Moor Hall, Cookham, who staged first-rate flowers of Mrs. J. Shrimpton, Mrs. J. Lewis, Oceana, Mons. Panckoucke, Dorothy Seward, Elthorne Beauty, Mons. G. Biron, Reine d'Angleterre, Mrs. F. Brewer, Ella Curtis, Iserthe, and a white Seedling; Mr. R. Jones, Warwick, came second; and Mr. J. Brookes, third.

For six Japanese blooms one variety, Nr. R. Gladwell, gardener to Sydney Smith, Esq., Wernder Hall, South Norwood, scored a first with Madame G. Bruant, very large blooms; Mr. J. Brooks, second, with Madame G. Henry; and Mr. B. N. Nash, Woking, third, with Edith Tabor. The best six incurved blooms were examples of Mr. R. Bahaunt, Baron Hirsch, and D. B. Crane, submitted by Mr. Robert Bassil, gardener to D. H. Evans, Esq., Shorter's Hill House, Pangbourne; Mr. T. Robinson, gardener to W. Lawrence, Esq., Hollingbourne, second; and Mr. R. Jones, Warwick, third. Mr. Cook, of Hendon, was awarded a second prize for his set of twelve bunches of pompon varieties. Mr. Turk had the best six bunches of pompon chrysanthemums, showing good flowers of Nellie Rainford, Yesuve, Osires, Madame E. Dordan, La Vogue, and Veuve Clicquot; Mr. G. Debenham, St. Albans, second; and Mr. Cook, third. Messrs. Debenham, Mr. E. W. Coote, and Mr. A. Taylor also secured prizes for pompon chrysanthemums.

Mr. D. B. Crane, Woodview Terrace, Highgate, led for three epergnes of chrysanthemums, using, as is his wont, orange, crimson, and yellow chrysanthemums, such as Ivy Stark, Percy's Seedling, and Harvest Home, with croton leaves and autumn-tinted foliage; although the best set, we did not think these epergnes were quite up to Mr. Crane's best efforts; Mrs. W. Green, jun., Harold Wood, Essex, second; and Mr. J. R. Chard, Stoke Newington, third. Mrs. W. Green, jun., led for a vase of pompon chrysanthemums; Mr. T. J. Turk, gardener to T. Boney, Esq., Southwood House, Highgate, second, with a large mass, in which wires and sticks were too evident to be pleasing; Mr. D. M. Hayler, gardener to Mrs. Langworthy, Geys House, Maidenhead, third. For the first prize for a pair of vases of chrysanthemums, large blooms, Mr. W. Mease, gardener to A. Tate, Esq., Downside, Leatherhead, scored with immense flowers of popular Japanese varieties, associated in big, handsome vases with ampelopsis and maple foliage; Mr. J. Brooks, second; and Mr. Norman Davis, Framfield, Sussex, third. For a single vase of chrysanthemums, Mr. D. B. Crane, Mr. A. Taylor, and Mr. D. M. Hayler secured the awards in the order mentioned. Miss N. Erlebach, assistant to Mr. J. R. Chard, Stoke Newington, gained first prize for a table of bouquets, wreaths, &c., these consisting chiefly of white, orange, yellow, or crimson varieties of early chrysanthemums; autumn-tinted foliage was used in a tasteful fashion with the flowers; Mr. J. Emberson, Walthamstow, was second.

Mr. Gladwell led for a dozen Japanese blooms in the amateurs' division, his best flowers being Madame G. Bruant, Phœbus, Louise, and Lady Byron. Mr. Gladwell was also first for six blooms, Japanese, distinct, with fair flowers of Madame G. Bruant, E. Molyneux, Mrs. C. H. Payne, Reine d'Angleterre, Madame G. Henry, and Phœbus; Mr. W. Perrin, Sawbridgeworth, second; and Mr. Turk, third. Mr. W. G. P. Clark, Hitchin, had the best dozen Japanese blooms, in six varieties; Mr. H. Love, Sandown, Isle of Wight, second. Mr. W. Amies, South Ashford, Kent, was awarded first prize for six Japanese blooms; Messrs. Clark and Love taking second and third places.

M. DEVERILL'S PRIZES.

Mr. Deverill held his annual vegetable exhibition in connection with this show.

The first prize for eight kinds of vegetables was won by Mr. E. Beckett, Aldenham House Gardens, Elstree, who had magnificent specimens of Ailsa Craig onions, Autumn Giant cauliflowers, Glenhurst Favourite tomatos, beet, Oxonian leeks, Intermediate carrots, Aylesbury Red celery, and Satisfaction potatos; Mr. R. Lye, gardener to Mrs. Kingsmill, Sydmonton Court, Newbury, a good second, with Mr. Pope, third; the competition was keen throughout. For Glenhurst Favourite tomatos, Mr. E. Beckett, Mr. T. Wilkins, and Mr. Bowerman, were placed first, second, and third respectively.

For a dozen specimens of Ailsa Craig onions Mr. W. Fife, Lockinge Gardens, Wantage, won first prize with grand bulbs weighing 30 lbs.; Mr. J. Masterson, Weston House Gardens, Shipton-on-Stour, second; and Mr. T. Wilkins, Henstridge, third. For six bulbs of this onion Mr. Fife was again first, his set weighing 14¾ lbs.; Mr. Masterson, second; and Mr. Wilkins, third. Mr. Fife showed the best twelve pedigree onions, staging bulbs of Lord Keeper that weighed 30¼ lbs. in the aggregate; Messrs. T. Wilkins and Keep came second and third. Mr. Wilkins had the best Wroxton Improved onions, Mr. Wyton, Garstang, coming second. In the class for a dozen bulbs of a pedigree onion, Mr. Beckett was placed first with Ailsa Craig weighing 21 lbs.; Mr. J. Bell, Berkhamsted, second.

Mr. Beckett scored for Aylesbury Prize Red celery, and Mr. D. Gibson, gardener to J. B. Johnston, Esq., Coombe Cottage, Kingston, showed the finest six leeks, the variety being Oxonian. Mr. Beckett and Mr. Bowerman were first and second respectively for Middleton Park Favourite beet with splendid roots. In the amateurs' class for a collection of vegetables, Mr. G. Wells, Kineton, Warwick, took first prize with good produce; Mr. Horton, near Warwick, second. Out of twenty sets of twelve carrots, Mr. J. Masterson won first place, showing Deverill's Intermediate; Mr. Wilkins, second; and Mr. N. Kneiler, Basingstoke, third. Mr. Beckett led for Hollow-crowned parsnips, Mr. Lye coming second.

NON-COMPETITIVE.

Mr. H. J. Jones, Ryecroft Nursery, Lewisham, put up a large and exceedingly attractive group of chrysanthemums, breaking up the surface into artistic mounds, and tastefully associating the chrysanthemums with ferns, crotons, dracænas, palms, and bamboos; Lili Boutroy, a new white Japanese; Eastman Belle, a gold and crimson sport from Pres. Borel, were two new sorts that attracted attention; M. Fatzer was notably good, so also was the light crimson sport from Madame Marie Massé, a useful form for outdoor growth; Queen of the Earlies we noted as carrying fine large flowers, gold medal. Messrs. Cannell and Son, Swanley, put up a fine table of chrysanthemum flowers, with sprays of polygonum, salvias, &c. Mr. R. Owen, Maidenhead, gained a bronze medal for a few dozens of fine Japanese blooms, a white seedling named Countess Grey being notably good.

Mr. N. Davis was highly commended for a basket of an intense golden-coloured Japanese chrysanthemum, named Klondike, an October market variety. Mr. S. Mortimer, Rowledge, Farnham, was awarded a silver-gilt medal for a large and most interesting group of cactus show dahlias in fine condition. Mr. S. Robinson was awarded a bronze medal for cut chrysanthemums. Mr. W. J. Godfrey, Exmouth, Devon, brought up a large collection of Japanese blooms: President Bevan, Soliel d'Octobre, Le Grande Dragon, Mrs. J. P. Bryce, Queen of the Earlies (in large vases) and Madame P. Rivoire were especially good. Mr. Godfrey, who also sent a charming lot of carnation blooms in a great variety of colours was awarded a silver medal. Mr. J. R. Box showed double and single begonia blooms, arranged flatly, in boxes. Mrs. Wingfield, an early-flowering chrysanthemum of Japanese form, and producing an abundance of clear lilac-coloured blooms of a pale shade, and shown by Mr. Empson, Ampthill House Gardens, Bedford.

Mr. W. Wells, Earlswood, Redhill, put up a large group of chrysanthemums, making a groundwork of vases of early flowering varieties among which L'Imperatrice, M. Max Dufosse, Jeanne Willermet, Madam Carmeaux, Ivy Stark and Jules Mary were very attractive and all noteworthy. The general arrangement consisted of plants carrying one large bloom and Mdme. Gustave Henry was well represented, so also was Ella Curtis, Le Grande Dragon, and Mellissima: a silver gilt medal was awarded. Messrs. H. Cannell and Sons, Swanley, was awarded a silver medal for a showy group of the ever-useful cannas.

For an extensive display of apples and pears Messrs. S. Spooner and Son. Hounslow, were awarded a silver gilt medal. Mr. H. Berwick, Sidmouth, was awarded a silver gilt medal for a splendid exhibit of hard fruits and Belladonna lilies. Messrs. W. Cuthbush and Sons showed some fine pears, apples, onions, and carnations. Mr. H. Deverill, Cornhill, Banbury, gained a silver medal for his display of autumn flowers in great variety, perennial asters being very showy.

Mr. Fife showed a dozen wonderfully fine and handsome bulbs of a fine onion, Ne Plus Ultra; one bulb weighed 3 lbs. 10 ozs.; a new conical bulb named the Sirdar was also shown.

Mr. Norman Davis, Framfield, Sussex, put up one of the grandest displays of Michaelmas daisies we have ever seen. His group occupied a table about six feet wide by about fourteen yards long, and consisted of large bunches of almost all the varieties and species worth cultivating, arranged tastefully in vases. A few sprays of solidago brightened the other flowers. Mr. Davis has a fine form named Framfieldiense of Aster amellus, and he staged splendid sprays of Coombe Fishacre, A. ericoides, A. multiflorus, A. N. B. Apollo, A. cordifolius major, A. N. B. Circe, &c. A small gold medal was awarded. Mr. E. Beckett, gardener to Lord Aldenham, Elstree, gained a silver-gilt medal for a most interesting exhibit of Michaelmas daisies, representing an immense number of varieties; A. cordifolius major, A. c. elegans, and A. N. B. Nancy were splendid. Mr. Beckett had an unfortunate position for his exhibit, as all the sunshine that appeared fell upon his flowers and soon spoiled their beauty. Messrs. J. Laing and Sons, Forest Hill, sent a fine collection of apples, pears, nuts, medlars, pot-vines, &c., associated with plants and cratægus sprays; silver-gilt medal. Mr. T. S. Ware, Tottenham, gained a silver-gilt medal for a goodly show of cactus, pompon, and single dahlias, associated with bamboos, &c.

WOOLTON GARDENERS' IMPROVEMENT SOCIETY.

THE first meeting of this session was held on the 6th inst. at the Mechanics' Institute, Mr. R. W. Ker presiding over a fair attendance. The chairman, in opening the proceedings, remarked that the programme for the coming winter promised to be an excellent one, judging from the syllabus that had been placed in the hands of the members, which contained a varied and useful number of subjects of great importance to those engaged in horticulture. Mr. J. Wynne, of Waverton, Chester, read a paper on the "Culture of Vegetables for Exhibition Purposes," in which he stated that he was there to illustrate and give some practical information on an important subject in which three details must be present, viz., right soil, right stock, and right culture. The general preparation of the ground must include trenching, the ground two pits deep, and giving a liberal dressing of manure; the work to be done during the autumn and winter, so that the manure might be incorporated with the soil by seed-sowing time.

Taking the subjects alphabetically would bring them to beans, French, runner, and broad; there was not much to treat upon in this section, except to sow thinly and thin out deformed pods. Beet wanted special treatment for different varieties, Pregnell's requiring a rich soil, while Dickson's Exhibition proved most satisfactory in a poor compost. To sow beet, a long peg three feet in length and two inches in diameter at the top should be used, making a hole the full length of the peg, which should be filled with a compost of three parts sand and one of loam; seed time end of April or early in May. Cauliflowers, cabbage, savoy, and Brussel sprouts, if liable to club, apply a dressing of lime; if cauliflowers are too early partly sever the stem, or pull up the entire plant, insert in water and place in the dark. Carrots require richer soil than beet; the provision for sowing should be similar, but using a smaller peg. Artificial manures produce forked roots; syringing with soap suds to keep off fly, and gas tar on rags placed between the rows was advised. Celery should not be sown too early; the first week in March was recommended in a temperature of about 50 degrees; when the plants are up remove to cold pits or cooler house; prick off when fit, and place in warmth for a day or two to give the plants a fresh start. When planting out make them firm in shallow trenches; if they refuse to make headway, partly lift them, breaking the roots, after which make firm, and often growth will result immediately. Blanching should be done with paper, removing the same every four or five days to clear away any pests that may have worked their way inside; after a time rough bags can be used which should be kept moist to induce a quicker blanching. Leeks should be treated on similar lines to celery, but they cannot receive too much manure; plant deeply and use paper collars for blanching. In planting, make a deep hole, and fill in with sand. Onions require a deep, rich soil, and a layer of manure should be placed on the lower spit during trenching, which should be done in winter. Raise the plants in January in a little warmth, afterwards placing them in a cooler position; plant out in February or as soon as the ground will permit, and make the soil firm. To prevent an attack of grub use gas tar as advised for carrots. Parsnips should be sown in prepared holes as for carrots, only the peg should be larger and longer; sow about middle of February, and thin early. Peas should be sown twelve to fourteen weeks before required; Autocrat, a splendid variety, takes a fortnight longer than the Duchess. Sharpe's Queen and Gladstone (new) are good varieties. The Autocrat differs from many varieties, as the pod and peas both grow simultaneously, whereas in many the pods are full sized before the peas commence to swell. Watering in all sections must not be neglected. R. G. W.

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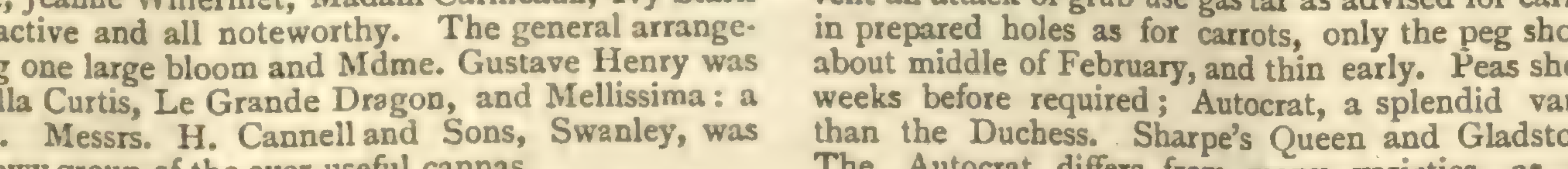
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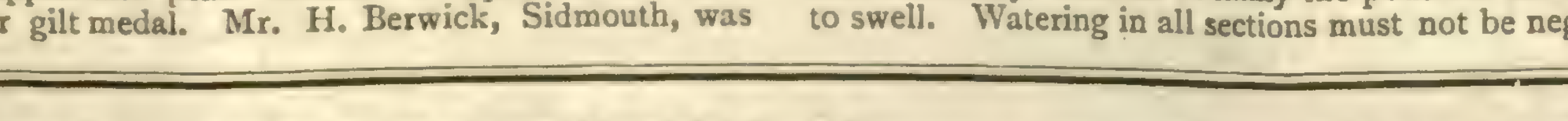
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ISLE OF WIGHT FRUIT SHOW.

There was a fine show at Newport on October 4, when no less than six hundred dishes of first-rate fruit were staged; one great point about the show was that not a single prize was offered. Messrs. J. Cheal and Sons, Crawley, had a fine display of apples and pears. Prominent among the pears were mammoth specimens of Pitmaston Duchess, Mr. Alderman Colenutt, J.P. (Ryde), being credited with sending the largest, and he was followed closely by Mr. W. H. Jacobs, gardener to Mr. Alderman W. H. Chatfeild Clarke; and other exhibitors sent meritorious specimens. The display from the garden of Captain Evelegh, Shide, gardener, Mr. W. Morris, included a rare dish for the season—red currants, and Mr. Munson, gardener to the Rev. E. Summers, Brading, also sent a dish of red currants. There were some fine specimens of Warner's King and Countess in the collection of apples sent by Lady Daly's gardener, Mr. G. Honeybourne, from Miss Mitchell's garden, Ventnor, while Mr. W. W. Sheath sent some exceptionally fine apples and pears. Newton Wonder, from S. P. Munford, Esq., Cowes, gardener, Mr. Hygate, were said to have surpassed anything at the Palace show. The collection from the Rev. R. L. Morris, Brook, was noteworthy for some superb Blue Imperatrice plums. Duke of York tomatos were sent from Sir Charles Seely's gardens, and Mr. Barkham, gardener to Mrs. Rylands, Haven Street, made melons and gourds a speciality. The collection of apples and pears from Mr. J. I. Thornycroft, Bembridge, was perfect, and some fine grapes were sent by Mr. R. Roach Pittis, J.P., and Mr. T. Brown, of Newport. Other prominent exhibitors were: Lord Fitzwilliam; Colonel Crozier, J.P., gardener, Mr. Kent; Captain Lyon, Sandown; Mr. E. V. Harcourt, St. Clare Castle, gardener, Mr. C. Meehan; Mr. Arthur Atherley, J.P., Landguard Manor; Mr. W. G. Young, Wootton; Mr. F. A. Joyce, Newport; Mr. H. Mortimer, J.P., Newport; Mr. H. Mitchell, J.P., Bonchurch; Lady Harrington, Cowes; Admiral Denison; and Mr. G. Williams, Gatcombe. Mr. J. J. Linington, Newport, exhibited two dwarf apple trees laden with fruit, showing the advantage of cultivation. Mr. Cave, of the Newport Nursery, lent some orchids, ferns, and other flowering and foliage plants for decorative purposes, and Messrs. W. A. Kent, Newchurch, and W. Matthews, Carisbrooke, sent dahlias.

READING GARDENERS' ASSOCIATION.

THE first meeting of the 1898-99 session was held on Monday evening last in the club-room at the Old Abbey Restaurant, Mr. Turton presiding over a good attendance of members. The subject for the evening was "A few Orchids that can be Grown with other Plants," introduced by Mr. W. P. Bound, of Bill Hill Gardens, Wokingham, and late of Messrs. Sanders, St. Albans. The lecturer took up the various species aud varieties suitable for different houses, and gave very valuable and practical advice as to their treatment from the time of the purchasing of the bulbs to the time they had done flowering, great importance being given to the buying of imported plants. An interesting discussion ensued, in which Messrs. Woolford, Neve, Townsend, Murrell, Dockerill, Martin, Parsons, Turton, and Alexander took part, which turned chiefly on whether the drawing-room was a suitable place for orchids, and if it is desirable to give manure directly to the plants. A hearty vote of thanks to Mr. Bound for his practical paper brought the meeting to a close. A splendidly flowered specimen of Miltonia Clowesi was shown by Mr. Lever, gardener to Leonard Sutton, Esq., Hillside.

ANSWERS TO CORRESPONDENTS

Wire Supports for Chrysanthemums.—G. P., Dorset: Your letter stating that you intended sending us a specimen of your invention reached us in due course. We are still waiting for the arrangement; did you send it, or was it overlooked?

Potassium Sulphide.—B. B., Sevenoaks: Sulphide of potassium, or potassium sulphide, is popularly known as Liver of Sulphur. It is obtainable at almost every chemist's shop, and is by no means expensive. The great thing to avoid is the substitution of *sulphate* of potassium for the sulphide; so, until you know the difference between the two, take care to ask for sulphide, so that the chemist cannot mistake your request. No doubt the various horticultural sundriesmen will be able and willing to supply the right article.

Black Rot on Tomatos.—F. J., Blackrock: The black patch at the apex of the tomato is due to a fungus known as *Macrosporium Tomato*. It is presumed that this finds a suitable ground for operation when, from any cause, the delicate ovary and style of the tomato flower becomes damaged after fertilisation has taken place. The presence of the fungus is made known by the black, rotting patches of flesh that usually appear when the fruit is about half ripe. A close atmosphere almost always ensures an attack, so the best preventive is a free circulation of air, an absence of all rank stimulants, and a dry, rather than a moist, atmosphere. Unfortunately, tomato plants are often predisposed to disease while young, owing to the anxiety of the cultivator to obtain large specimens as quickly as possible.

Names of Plants.—J. A. W.: 1, Ampelopsis quinquæfolia; 2, 3, and 5, send when in flower; 4, Vitis striata, also known as Ampelopsis sempervirens; 6, Spiræa Bumalda.

R. F. J., Anglesey: The yellow Banksian rose.

C. B. G., Exeter: 1, Tradescantia virginica; 2, Aster Novæ-Belgi densus; 3, A. ericoides; 4, A. Robert-Parker.

E. B., Tooting: An Ipomæ, a species not recognised, please send again.

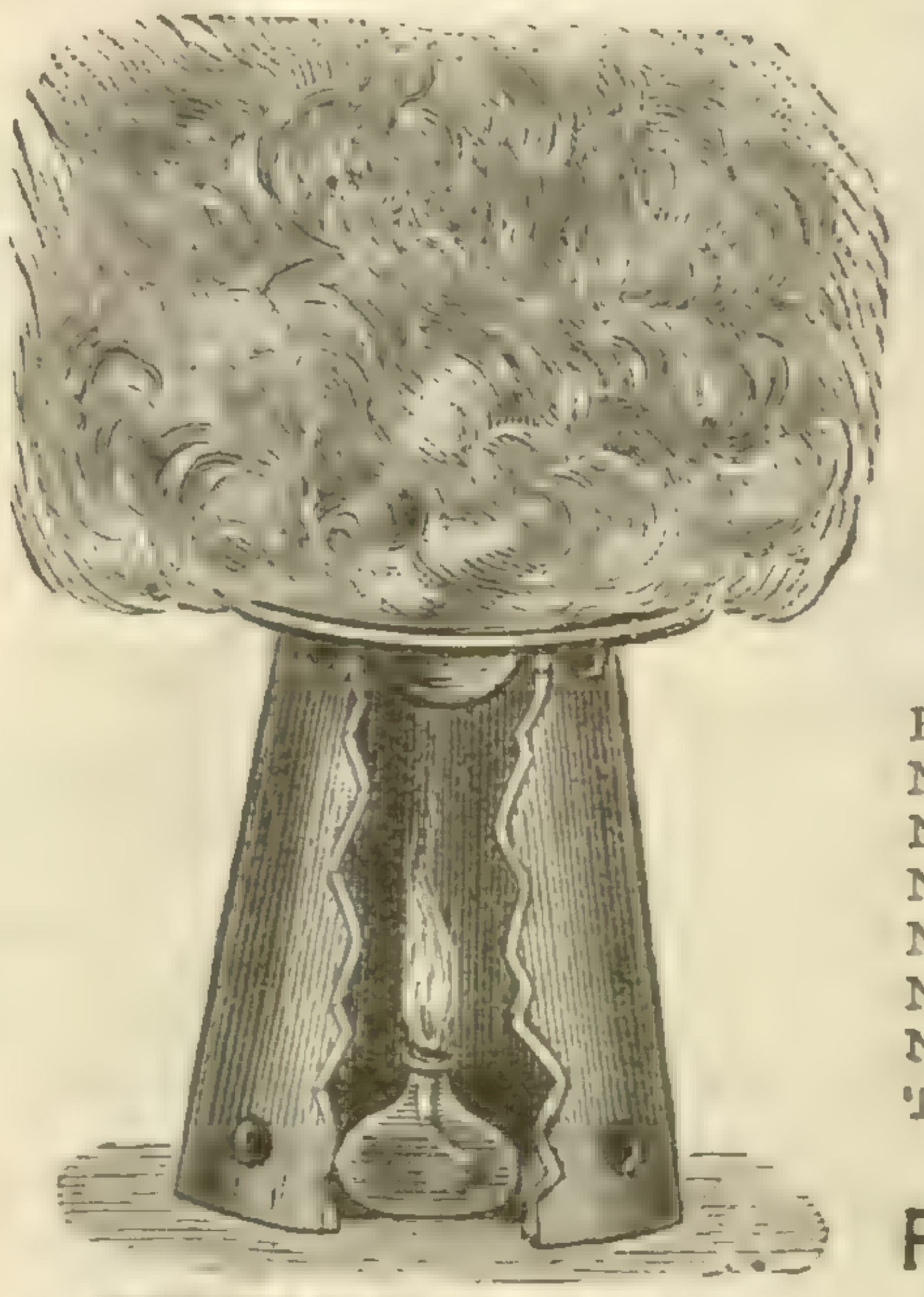
A. D. M., Cheshunt: 1, Gleichenia Mendeli; 2, Pteris scaberula; 3, P. longifolia; 4, P. semipinnata; 5, Gymnogramma Matthewsi.

S. O., Reading: 1, Costus igneus; 2, Croton interruptus aureus; 3, Sanchezia nobilis; 4, Aphelandra aurantiaca.

C. H., Newport: 1, Eucalyptus globulus; 2, Eurya latifolia variegata.

Names of Fruits.—F. J., Blackrock: The pear is Beurre Superfin.

R. E. T., Milborne: 1, Blenheim Pippin; 2, Grange's Pearmain; 3, a poor specimen, not recognised; 4, Kerry Pippin; 5, Queen Caroline; 6, not recognised.



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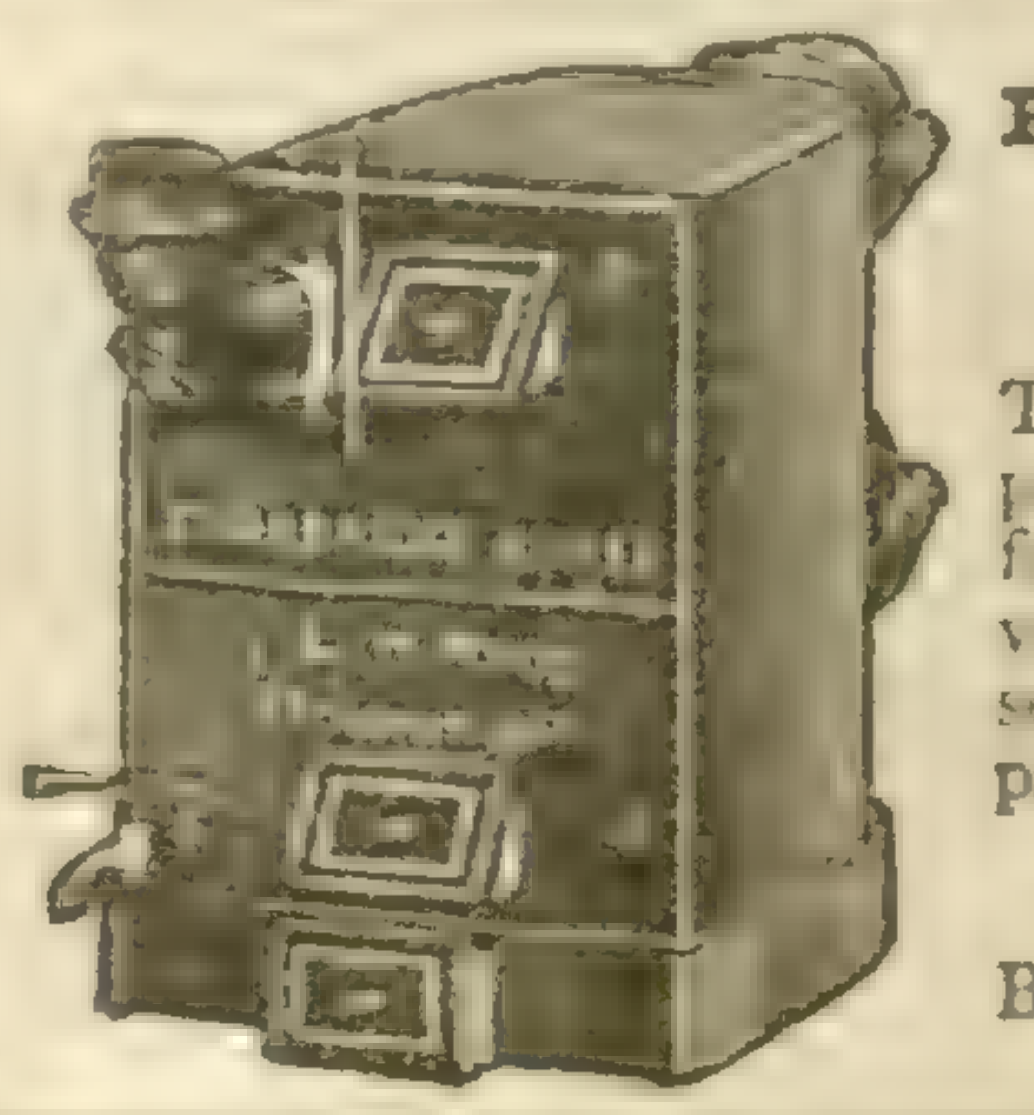

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W. D., Botley: 1, Nonesuch; 2, Baumann's Red Winter Reinette; 3, Grenadier.

J. T. B., Billinghurst: 1, Scarlet Pearmain; 2, probably a local seedling.

H. H., Weybridge: 1, Manks' Codlin; 2, Lane's Prince Albert; 3, not recognised; 4, Magnum Bonum; 5, Adams' Pearmain; 6, Lady Henniker.

W. Y. P., Morpeth: 1, London Pippin; 2, not recognised; 3, Yorkshire Beauty; 4, Lord Derby; 5, Kentish Pippin; 6, Flemish Beuuty.

J. B, Morchard Bishop: 1, Gospatrick; 2, Belle de Pontoise; 3, probably Christmas Beefing; 4, Tom Putt.

D. L. P., Doncaster: 1, Mère de Ménage; 2, Crimson Quoining; 3, Newton Wonder; 4, Bramley's Seedling.

A. C. H., Harrow: 1, Adams' Pearmain; 2, King of the Pippins; 3, Blenheim Pippin.

W. T., Bristol: 1, Dutch Mignonne; 2, Queen Caroline; 3, Braddick's Nonpareil.

B. C., Guildford: 1, King of the Pippins; 2, Yellow Ingestre; 3, Beurre Bosc; 4, Beurre Rance.

C. F., Meopham: 1, not recognized; 2, Monarch; 3, Reine Claude du Bavay.

THE WEATHER DURING THE WEEK ENDING OCTOBER 8, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.	Fahrenheit.	Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	69·2	37·9	56·1	13·39	0·02	0·05
Croydon	67·5	39·5	55·7	13·17	0·00	0·00
Brighton	69·8	46·0	58·9	14·94	0·00	0·00
Bristol	68·0	40·0	54·6	12·56	0·01	0·03
Wolverhampton	65·2	41·0	53·1	11·72	0·04	0·10
Norwich	68·0	37·0	54·4	12·44	0·05	0·13
Nottingham	69·2	38·3	54·8	12·67	0·08	6·20
Liverpool	66·7	42·8	54·1	12·28	0·01	0·03
Huddersfield	68·7	42·0	54·1	12·28	0·09	0·23
Bradford	69·6	48·8	56·3	13·50	0·28	0·71
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 30·00 inches, and that of the Thermometer 56°·1, the latter being 3°·1 above the week's average in the 50 years 841—90. The direction of the wind was north easterly, the horizontal movement of the air being 7 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 18·3 hours. The measured rainfall amounted to 0·02 of an inch.

"THERE'S A CHIEL AMONG YE TAKIN' NOTES, AN' FAITH HE'LL PRINT 'EM," has now become a saying so familiar that no apology need be made for introducing it; especially as it is intimately associated with the Press, which has helped in publishing the value of Holloway's Pills and Ointment. "The chiel that had been takin' notes" for the past fifty years of the cures effected by these wonderful remedies, has frequently informed the public that they have no equal. He has noted where they have been successful when other medicines failed, and he has been particular in stating that at this period of the year they are especially useful, as they cure or relieve dysentery, diarrhœa, all stomach and bowel disorders, bile, and indigestion.—[ADVT.]

MARKETS.

Covent Garden.

THE supplies of both fruit and vegetables are only moderate, but the demand is steady, and good prices are obtained for the best goods. Hardy cut flowers are becoming scarcer each day. The potato trade shows a slight improvement.

FRUIT.—English apples, 4s. to 10s. per bushel; plums, 4s. to 6s. 6d.; damsons, 2s. 6d. to 3s. 6d.; blackberries, 4s. to 4s. 6d. per half-sieve; pineapples, 1s. 6d. to 5s. each; bananas, 5s. to 10s. per bunch; English grapes, 9d. to 2s.; Channel Island, 6d. to 1s. per lb.; Lisbon, 7s. to 12s. 6d. per case; Almeria, 10s. to 15s. per barrel; English pears, 5s. to 10s. per bushel; French, 2s. to 3s. 6d. per box; pomegranates, 4s. 6d. to 7s. 6d.; Spanish melons, 5s. to 7s.; lemons, 12s. to 20s. per case; green figs, 9d. to 1s. 6d.; peaches, 2s. to 8s. per dozen; English tomatos, 3s. to 4s.; Channel Island, 2s. 6d. to 3s. 6d. per 12 lb.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 2s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 3s to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. 6d. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Endive, 1s. to 2s.; lettuce, 9d. to 1s. 3d.; cucumbers, 2s. to 4s.; cauliflowers, 1s. to 2s. per dozen; Valencia onions, 5s. to 6s. 6d.; Ports, 5s. 6d. to 6s. 6d. per case; picklers, 2s. to 3s. 6d. per bag; eschallots, 1s. 3d. to 1s. 9d.; mushrooms, 5s. to 6s. per 12 lb.; parsley, 1s. 6d. to 2s.; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s.; leeks, 1s. 6d. per dozen bunches; beetroots, 2s. to 3s.; cabbages, 4s. to 7s. per tally; spinach, 2s. 6d. to 3s. 6d per bushel; marrows, 1s. 6d. to 2s. 6d. per dozen; potatos, 50s. to 90s. per ton.

Borough Potato Market.

Trade is still slow, and the supplies are about sufficient to meet it. Prices remain practically unaltered, but the cold weather will no doubt influence both trade and prices. Beauty of Hebron and Snowdrops, 3s. 6d. to 4s.; White Hebrons, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giants, and Imperators, 3s. to 3s. 6d.; Black Lands, 2s. 6d. to 2s. 9d. per cwt.

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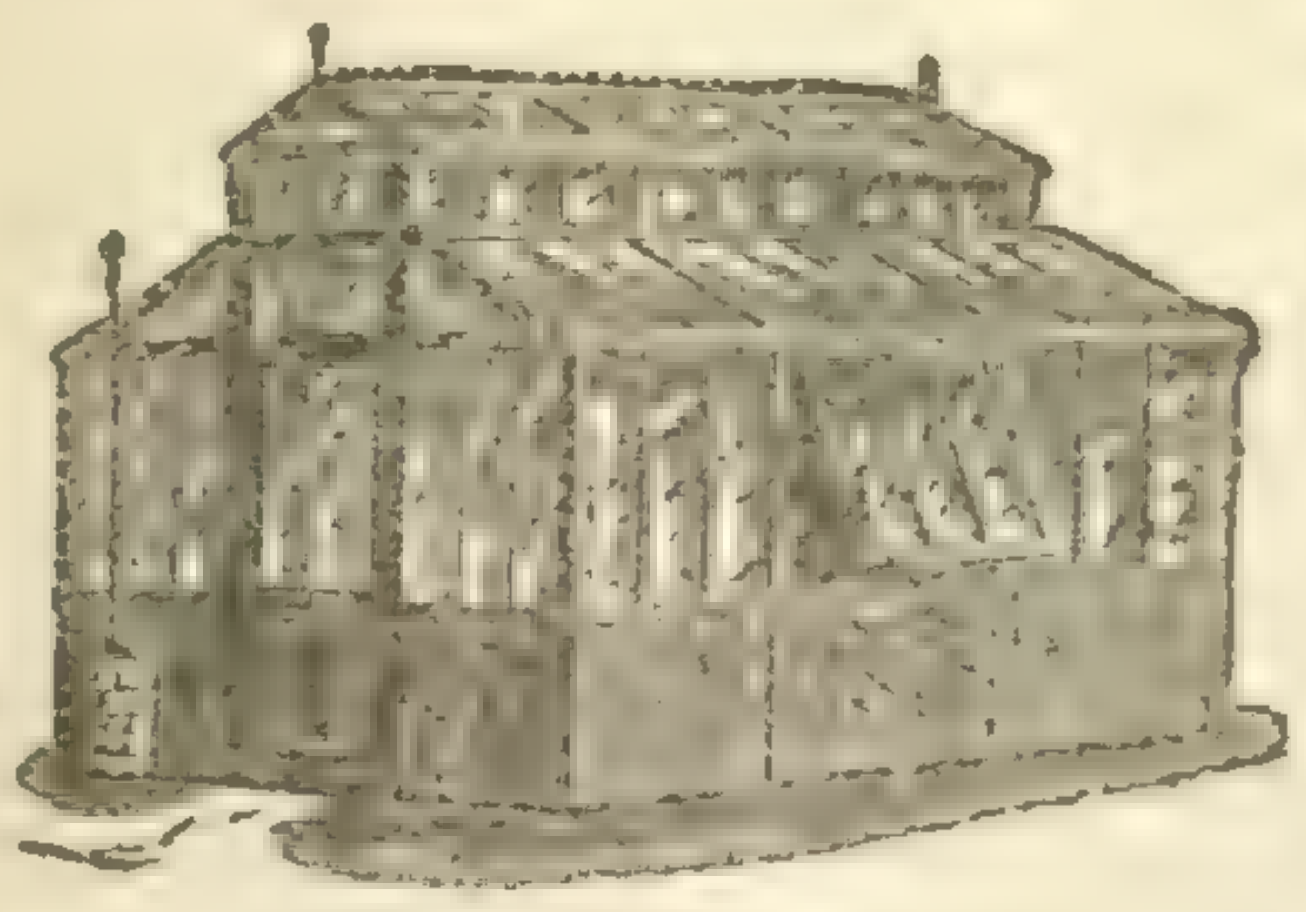

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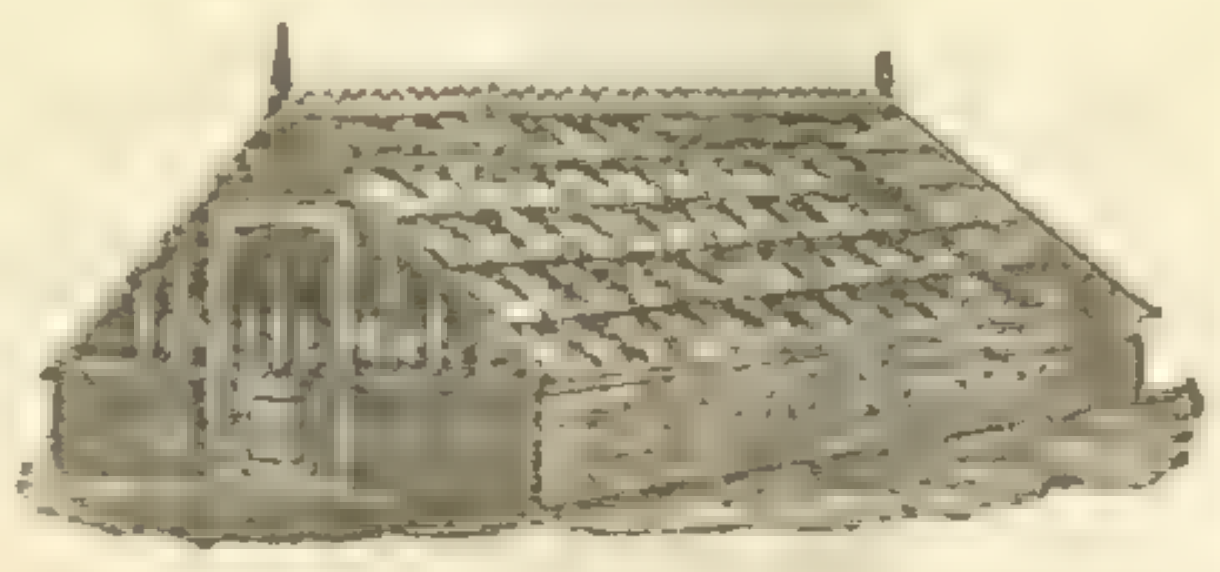

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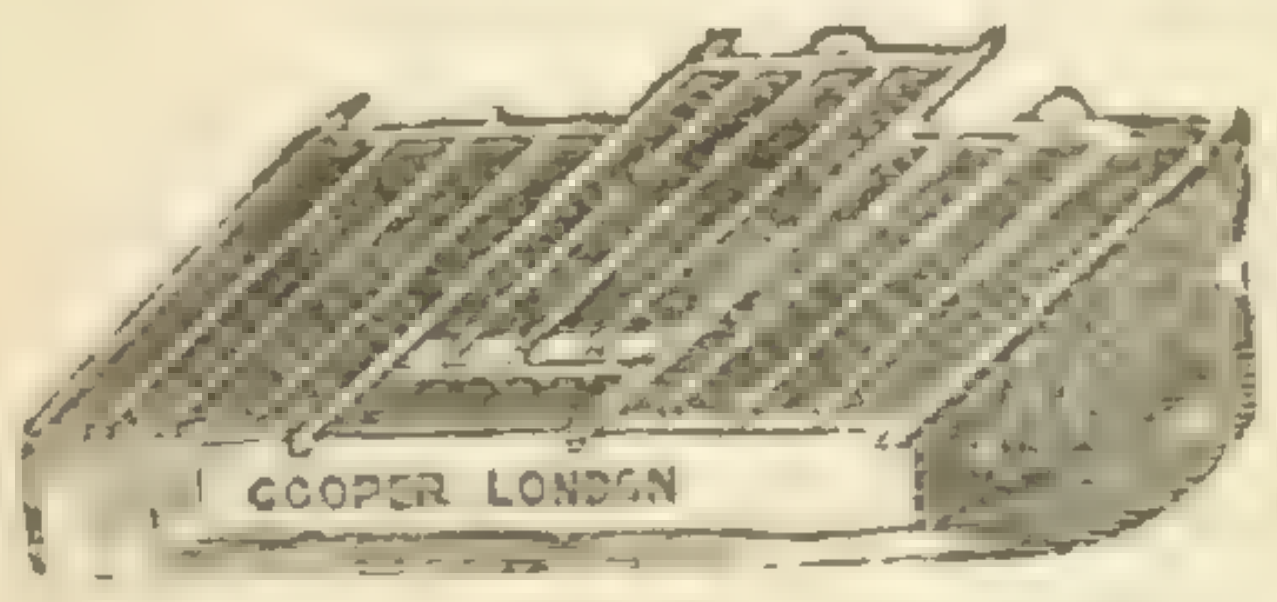

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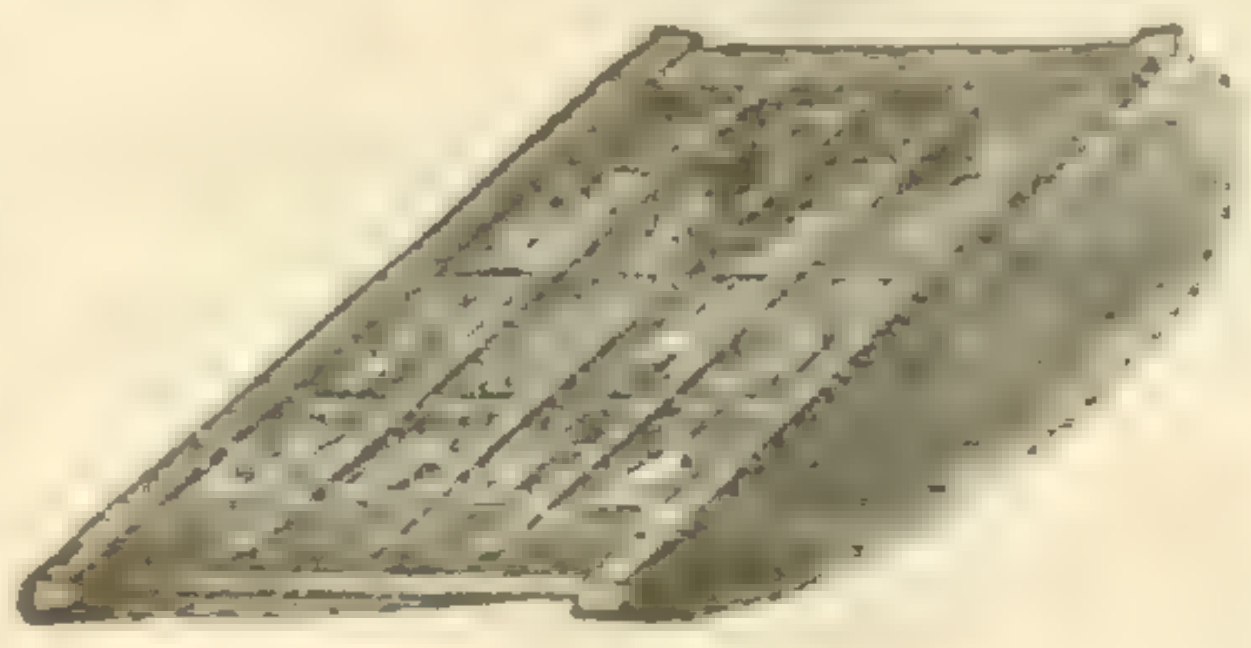

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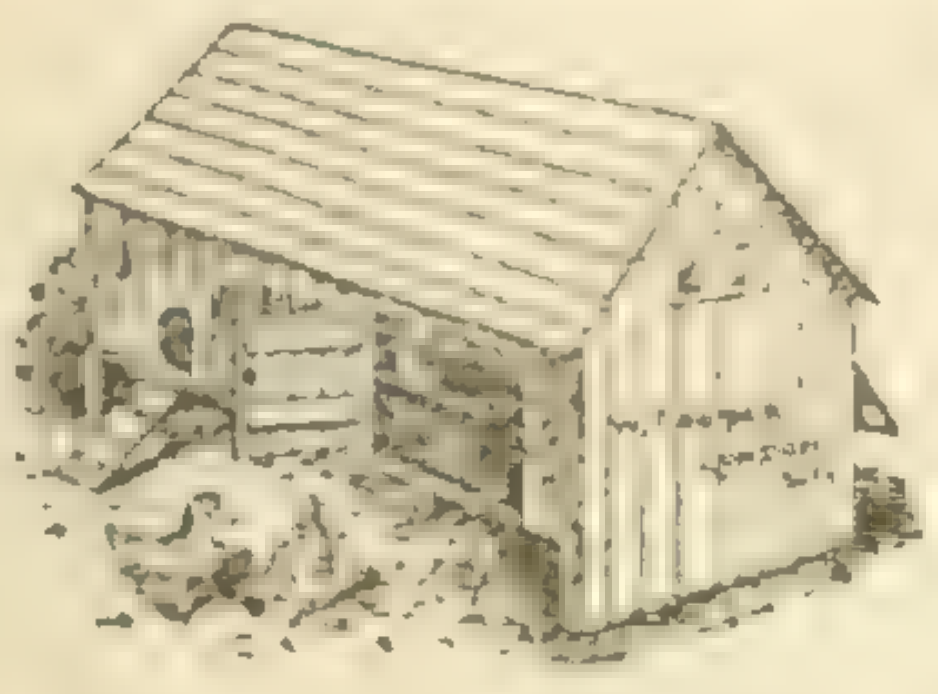

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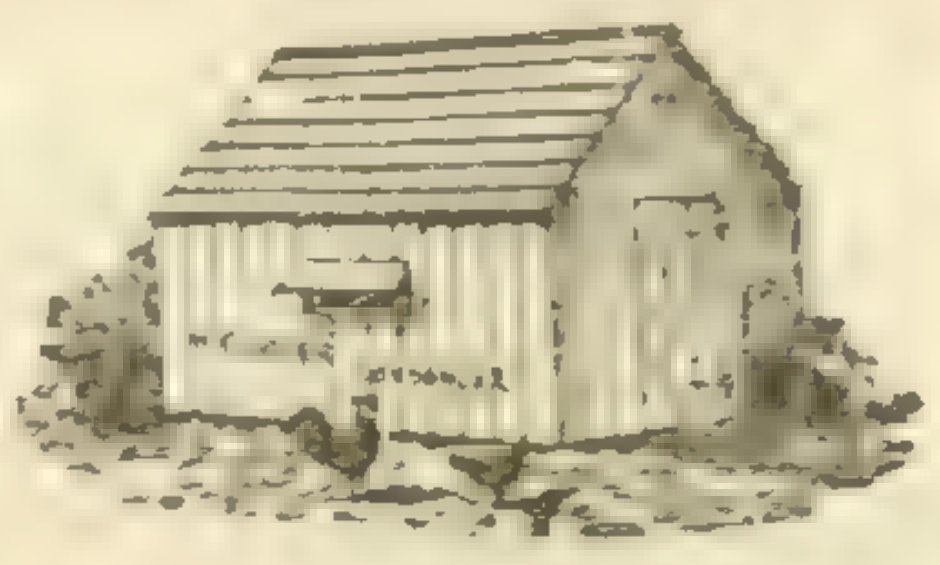

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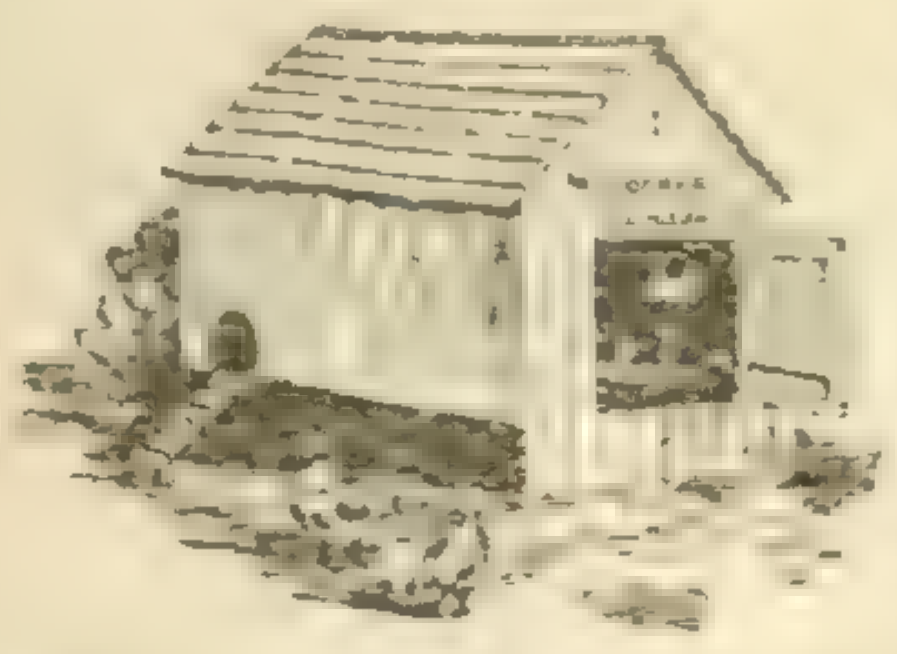

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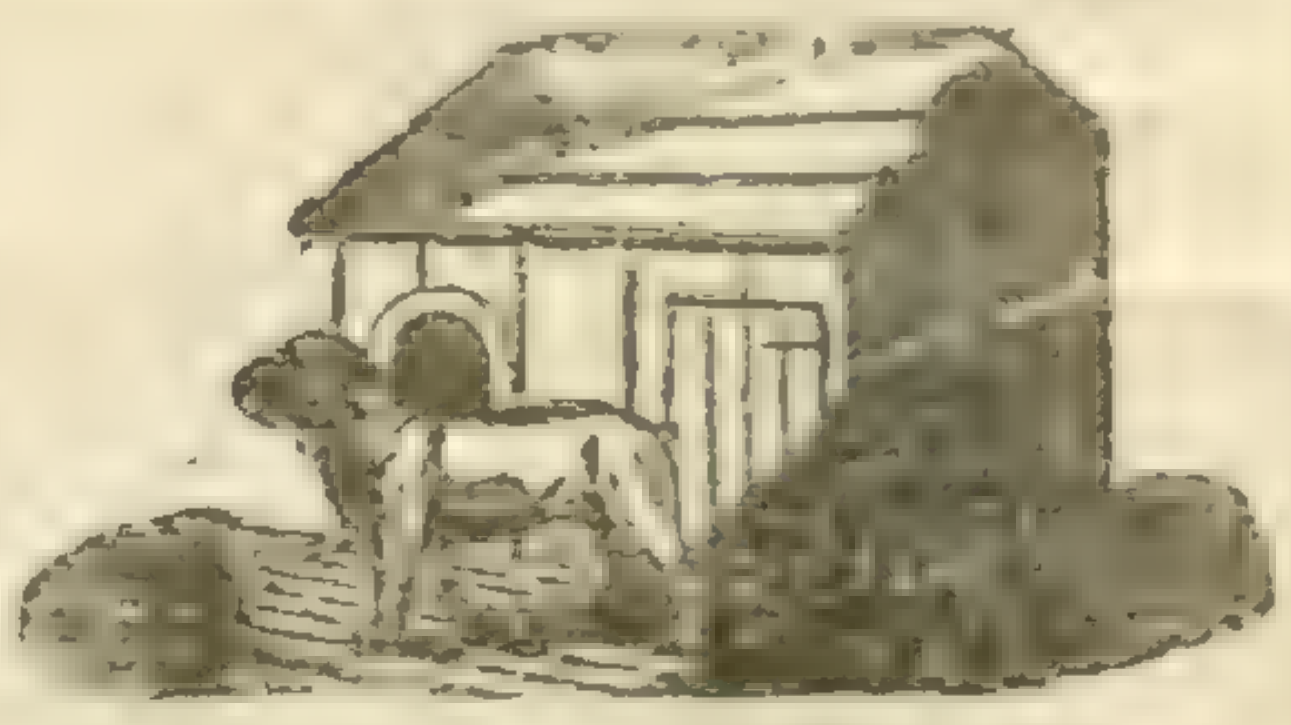

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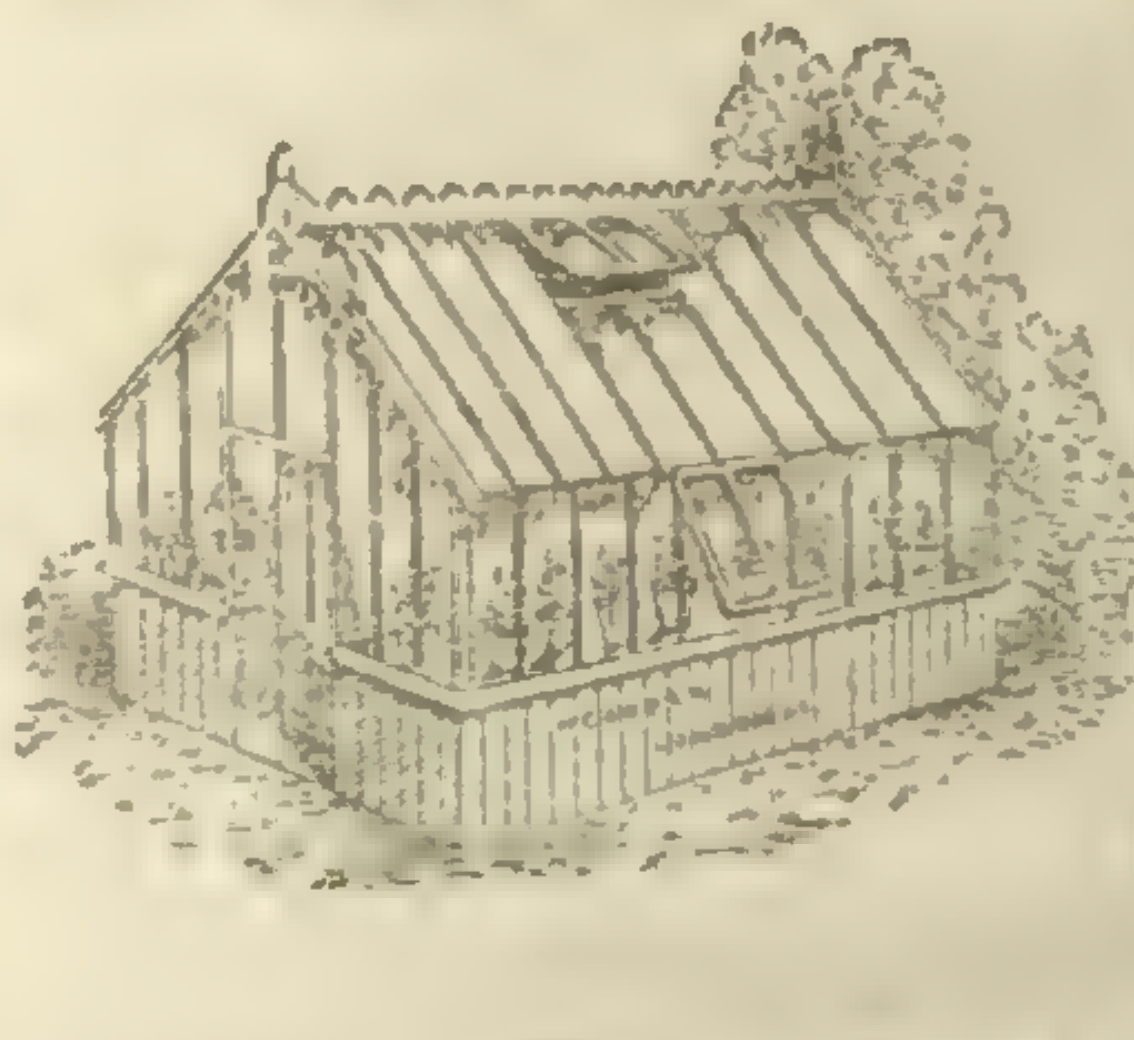

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8	5	7 0	4 0	3 10 0	5 0 0
9	6	7 3	4 0	4 0 0	5 10 0
10	7	7 6	4 6	5 0 0	6 15 0
12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
25	10	9 0	5 6	15 0 0	20 0 0
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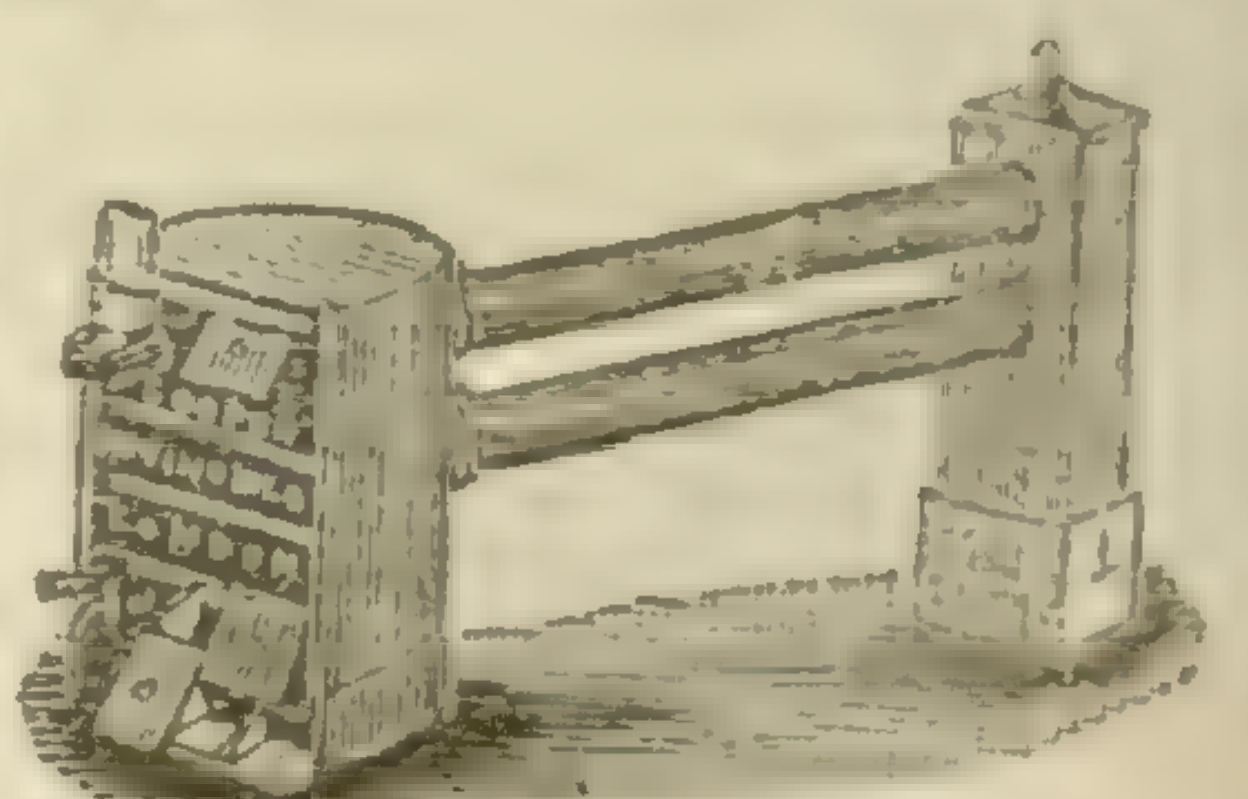

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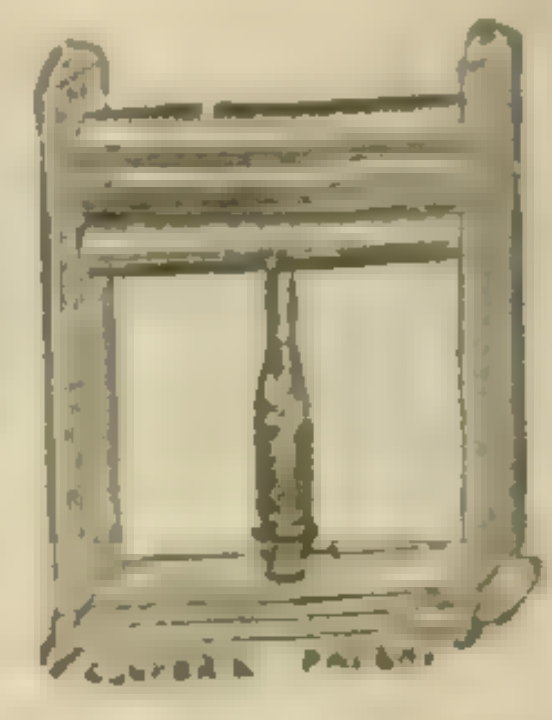

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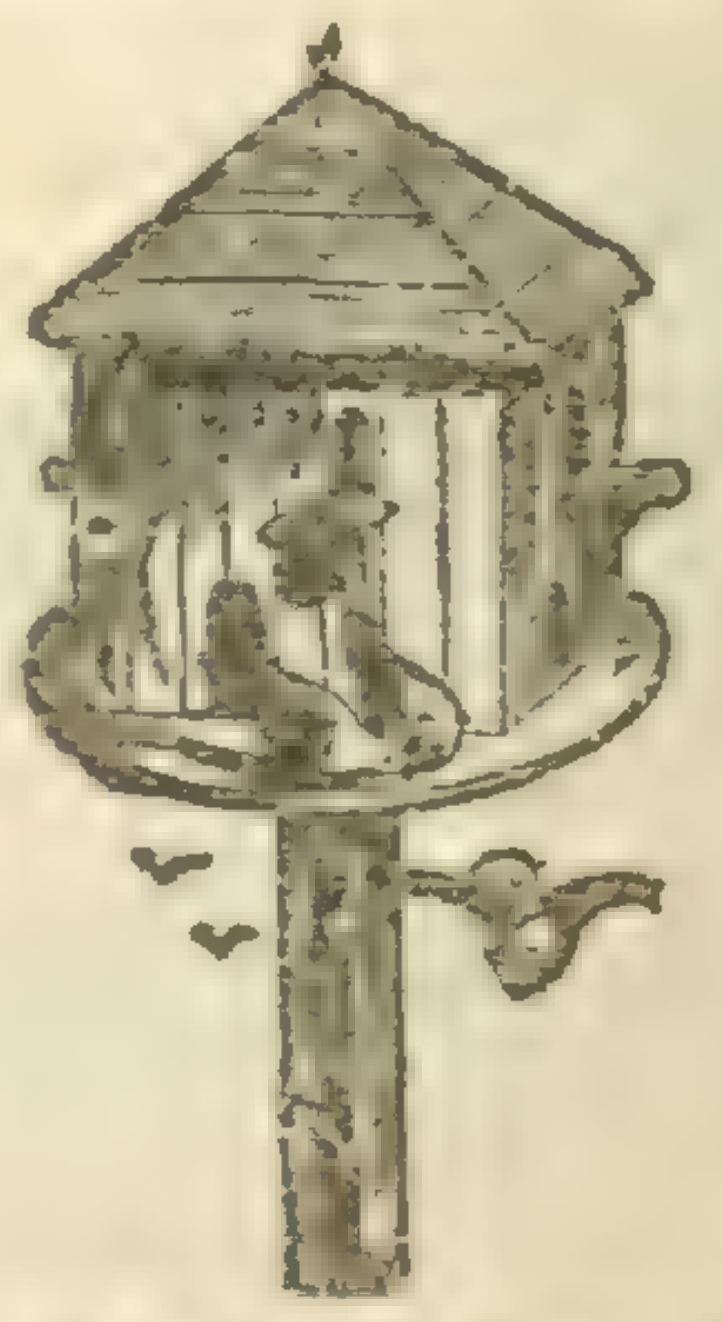

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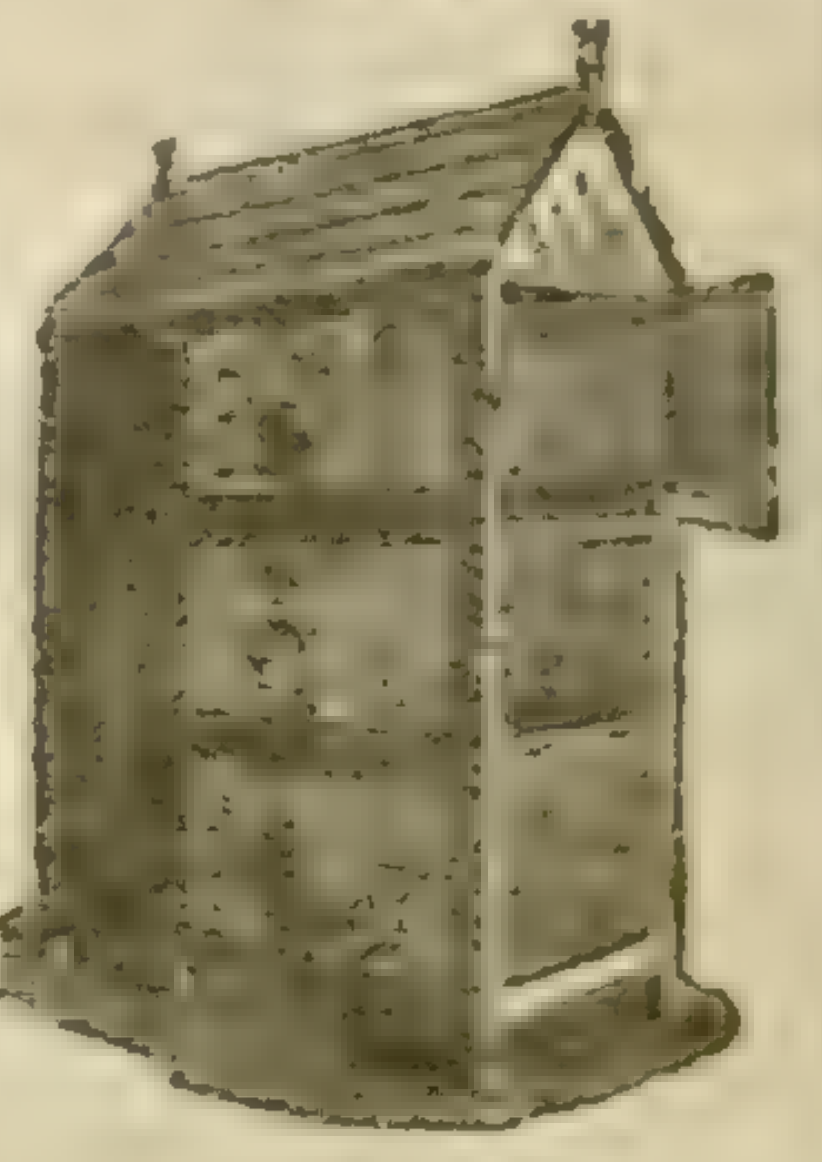

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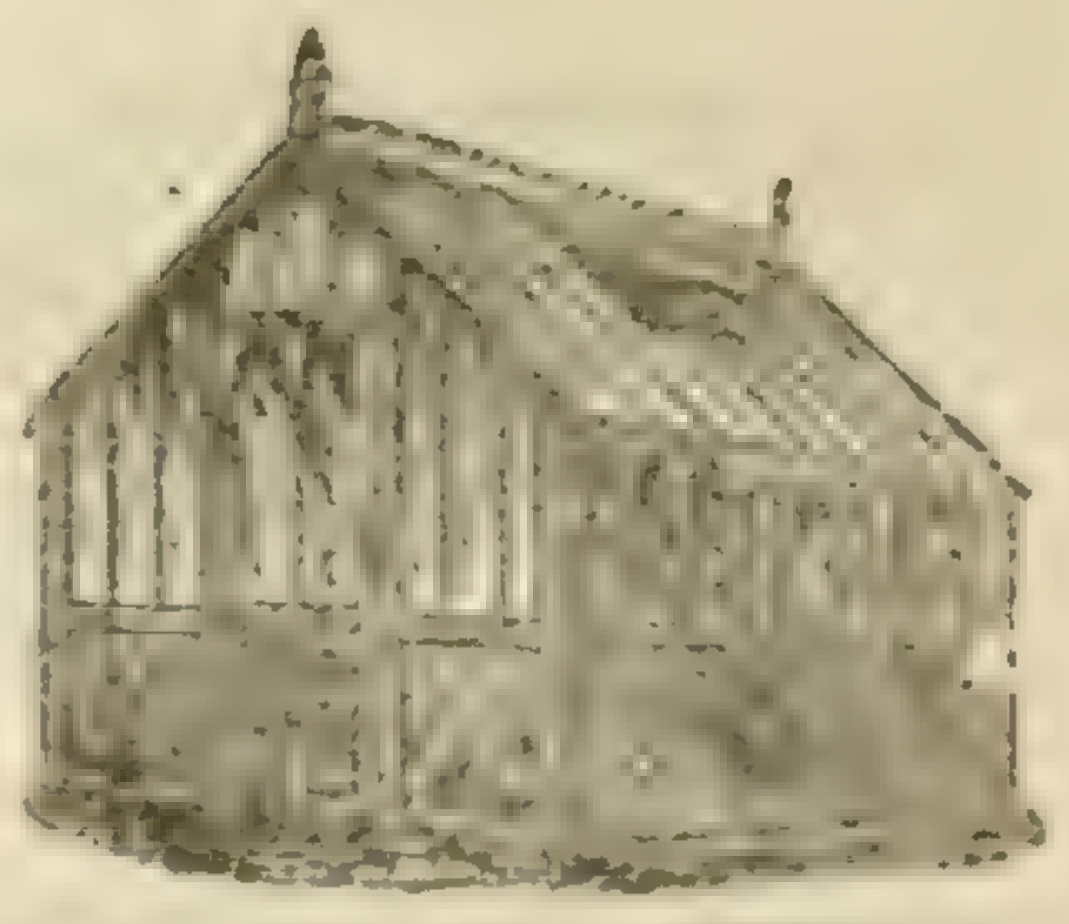

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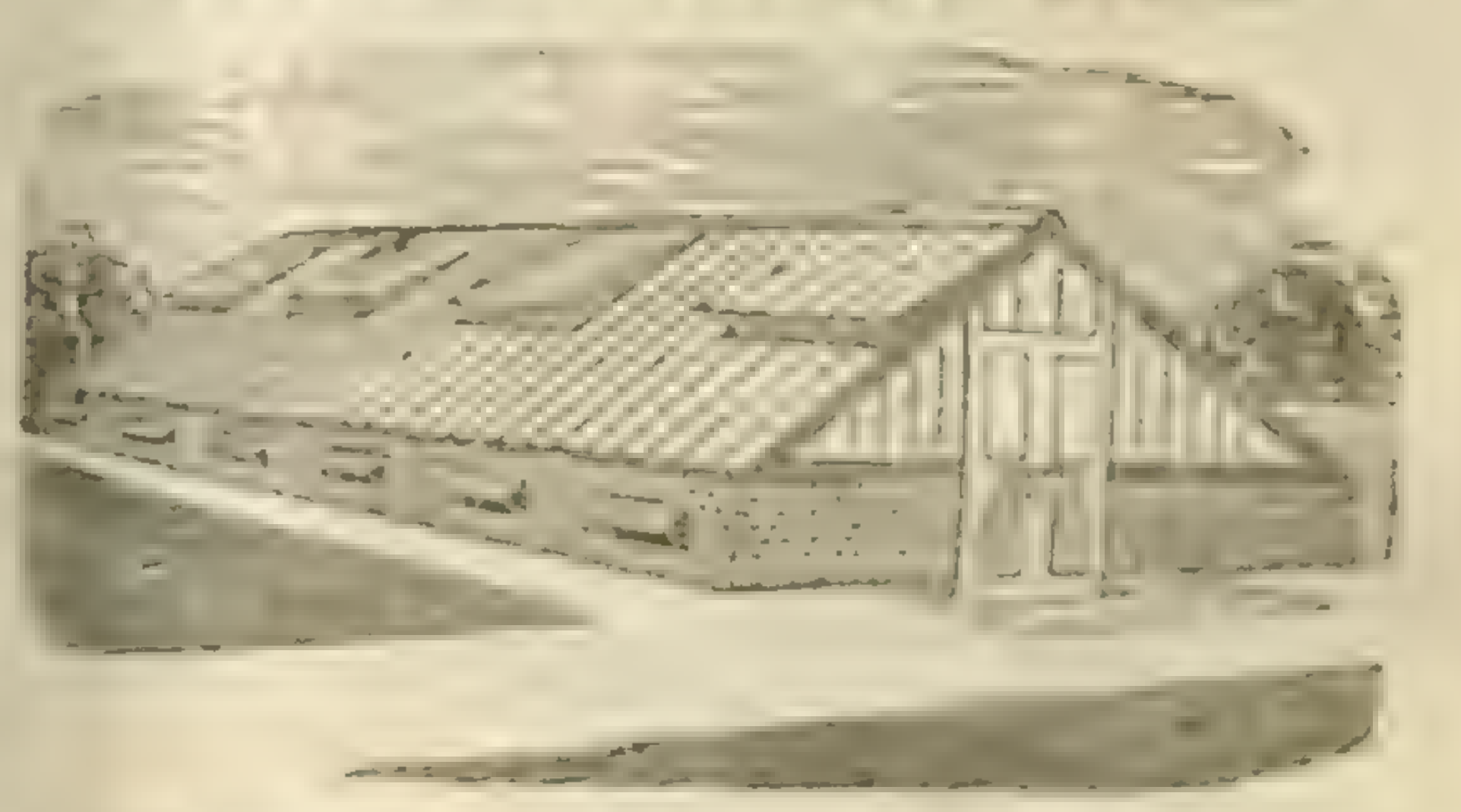

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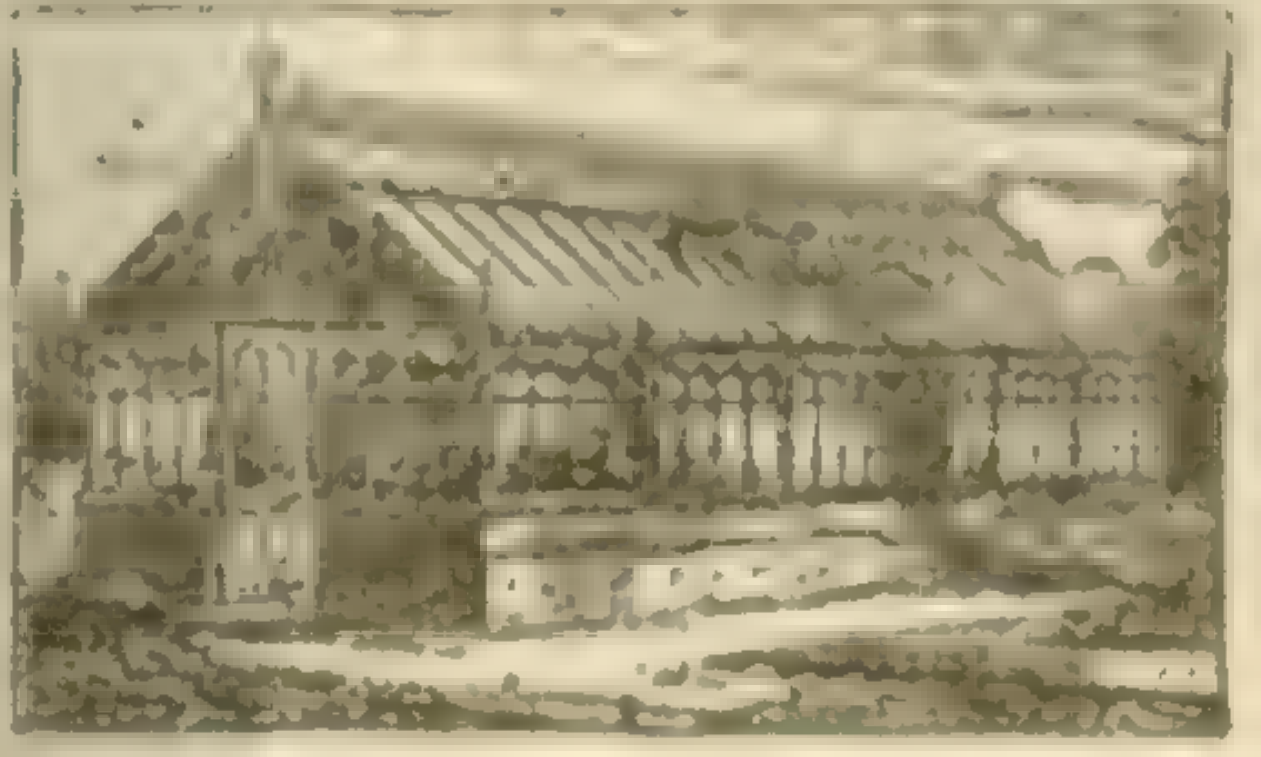

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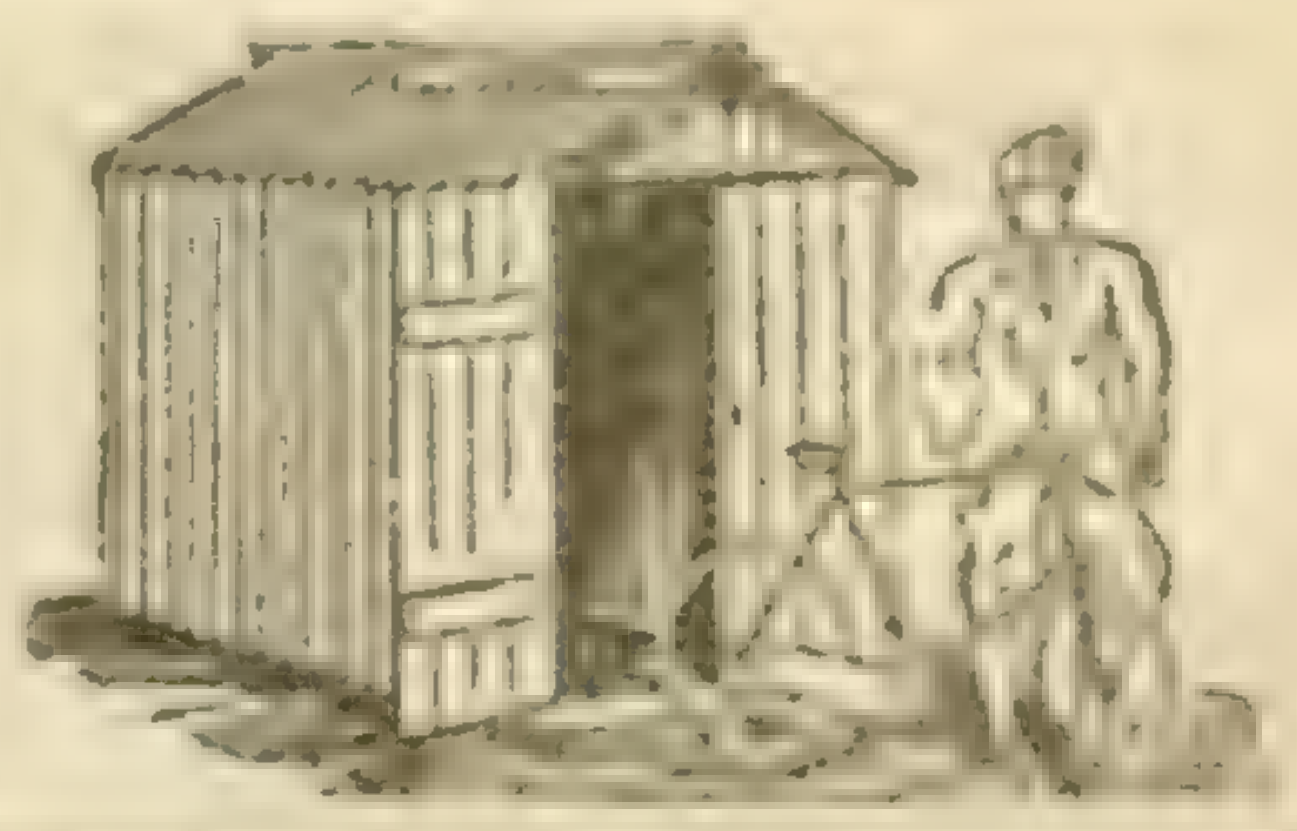

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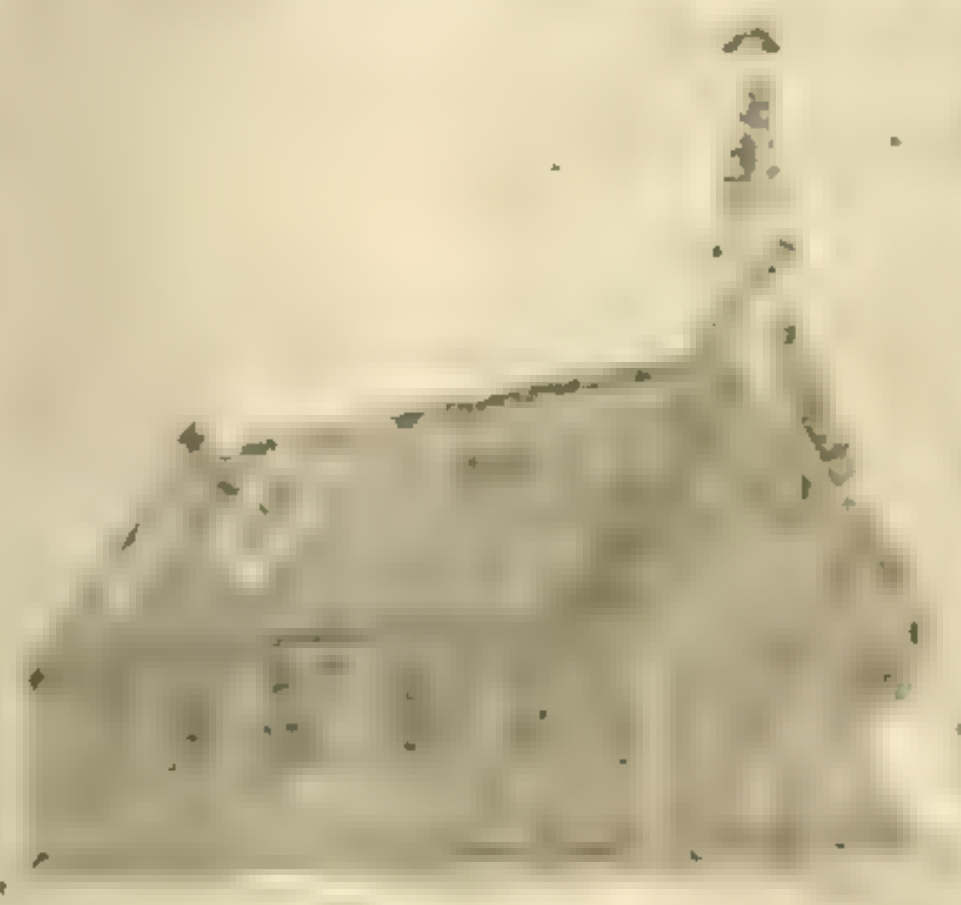

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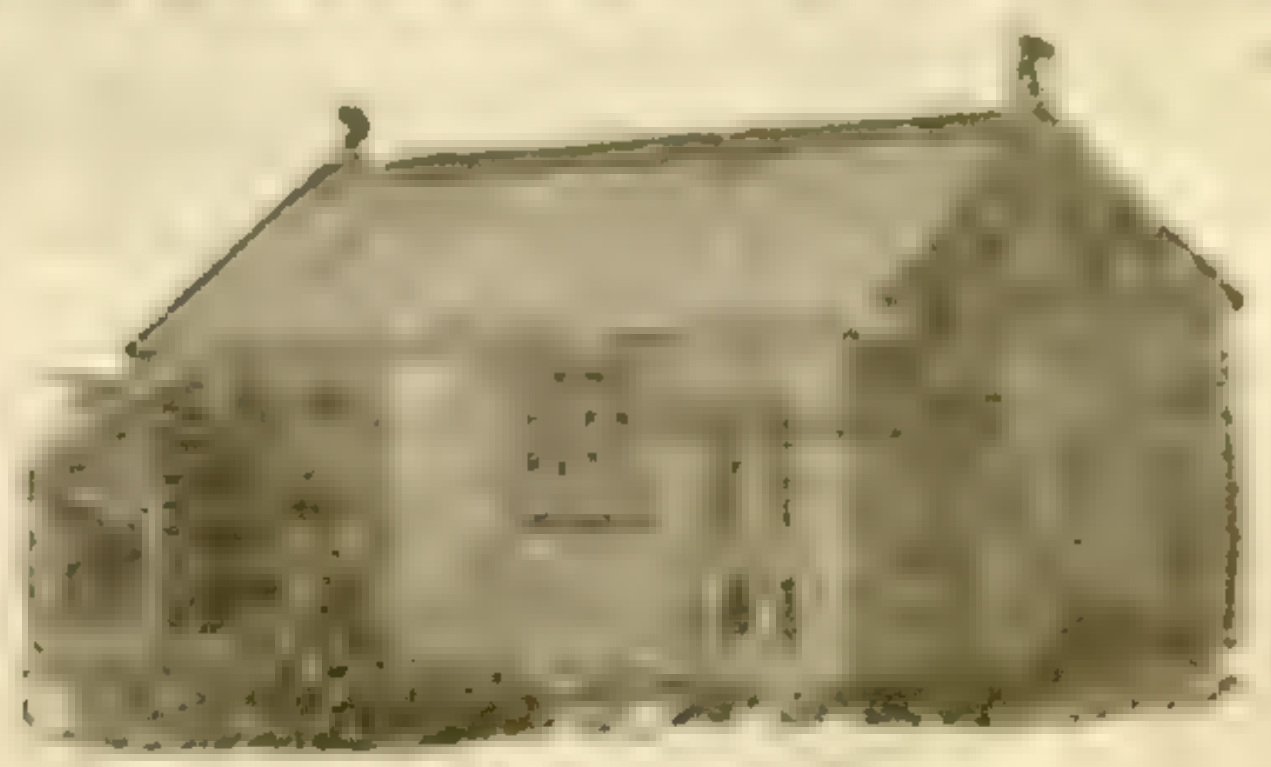

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GARDENER (Head); age 38; married; abstainer; good references from good public and private gardens.—J. TOPPER, North Lodge, Wardown, Luton, Beds.

GARDENER (Head, where more are kept, or good Single-Handed); eighteen years' experience in all branches of gardening; good references; married, no family; age 33; please to state wages given.—E. POST, Drayton House, Ealing, W.

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GARDENER (Head Working or otherwise); age 33; married; life experience in vines, fruit, flowers, and vegetables; 5½ years' good character.—R., 33, Connaught Road, Ealing Dean.

GARDENER (Head Working); age 34; married; two children; 20 years' experience in first-class establishments; well up in all branches.—E. B., 2, Gorden Road, Cambridge Road, Kilburn, N.W.

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GARDENER (Single handed or otherwise); age 31; single; life experience in the cultivation of fruit, flowers, and vegetables; good references; abstainer.—A. P., 9, Myrtle Terrace, Crawley Road, Horsham, Sussex.

GARDENER (Single handed); age 26; life experience in all branches; married when suited; good reference.—C. OSMAN, 29, North Road, Highgate, N.

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GARDENER (where assistance is given); age 38; well up in stove and greenhouse plants, vines, peaches, cucumbers, and melons; flower and kitchen garden; good chrysanthemum grower; good references.—E. POSNETT, 38, Olinda Road, Stamford Hill, N.

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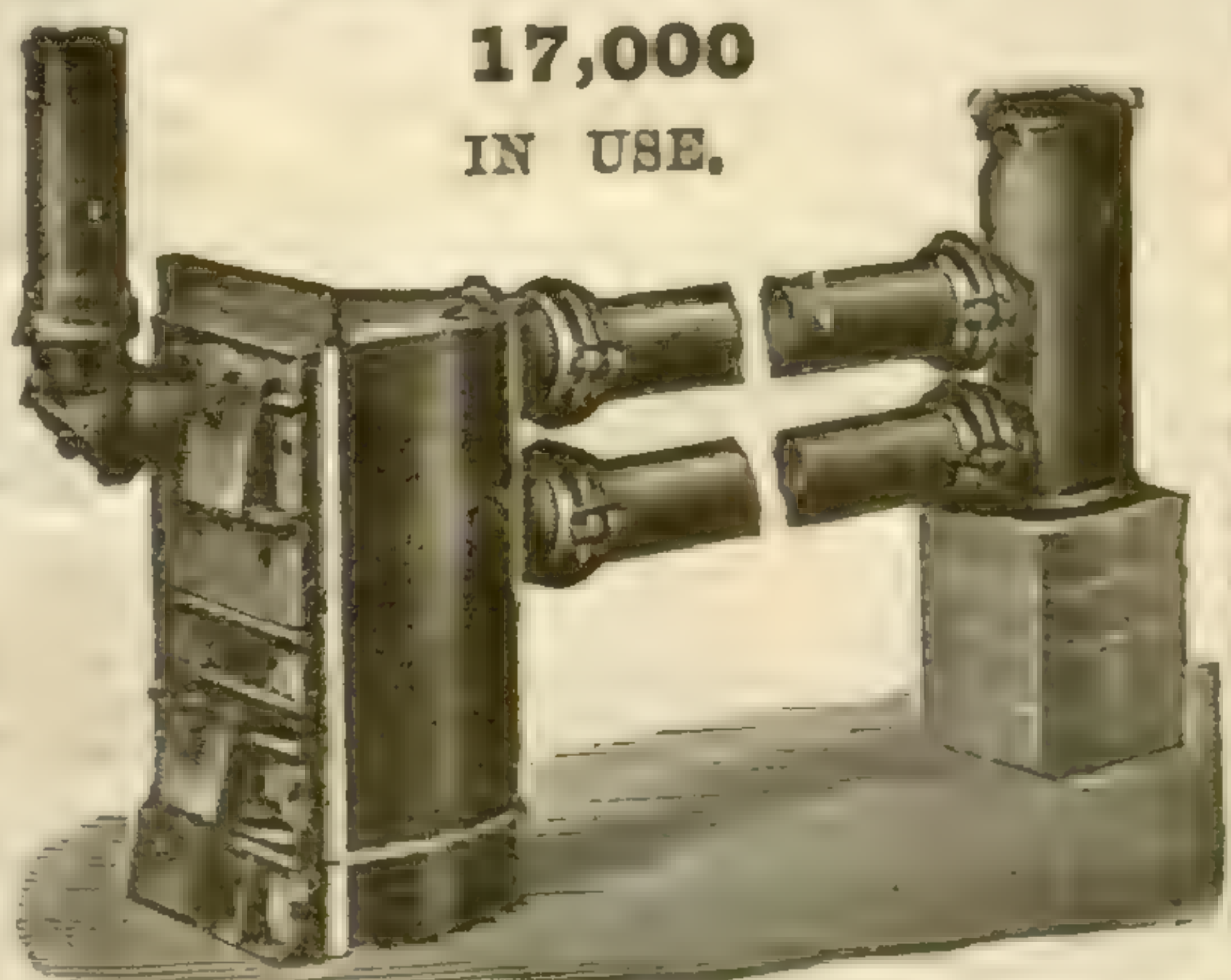

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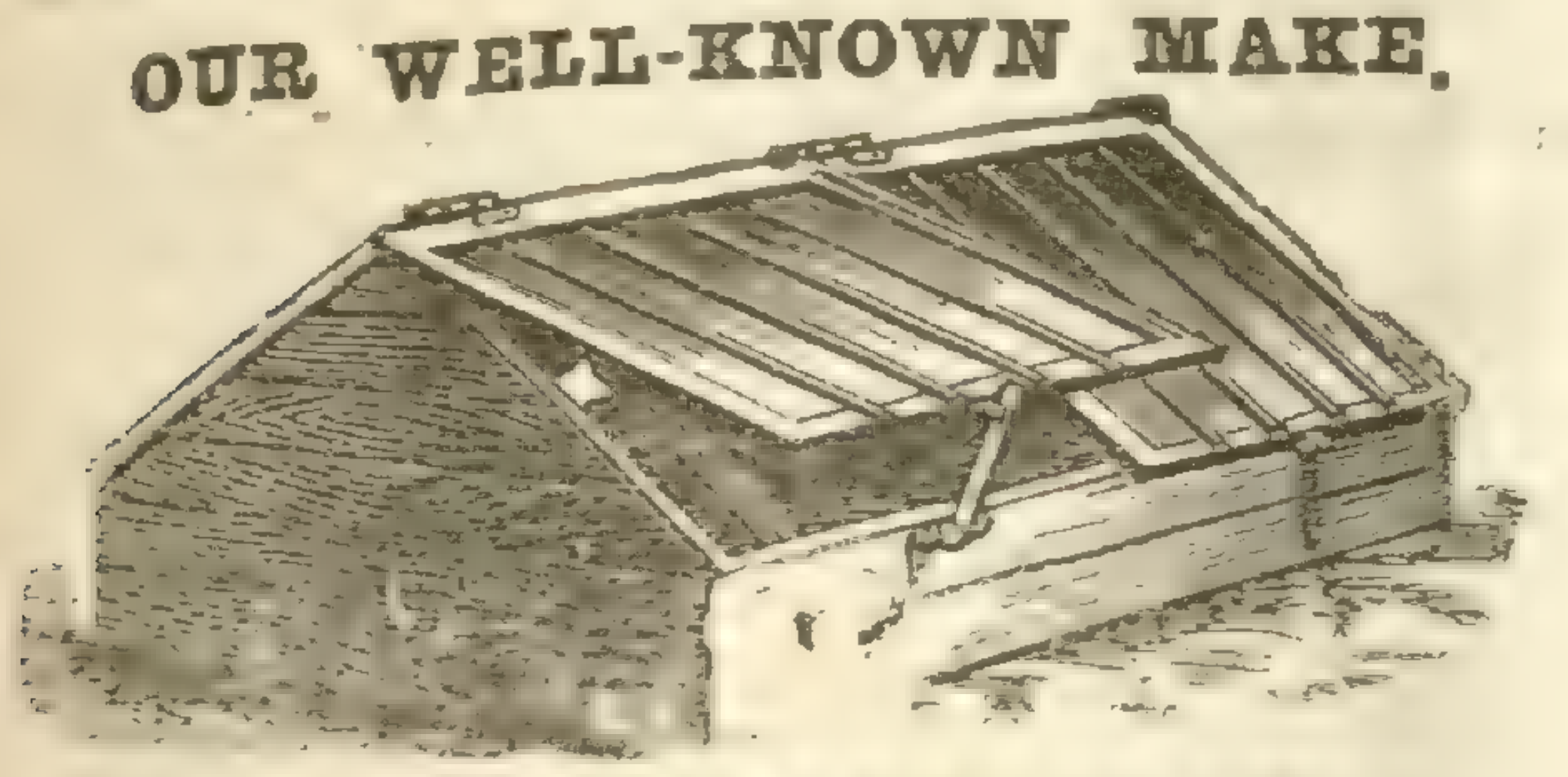

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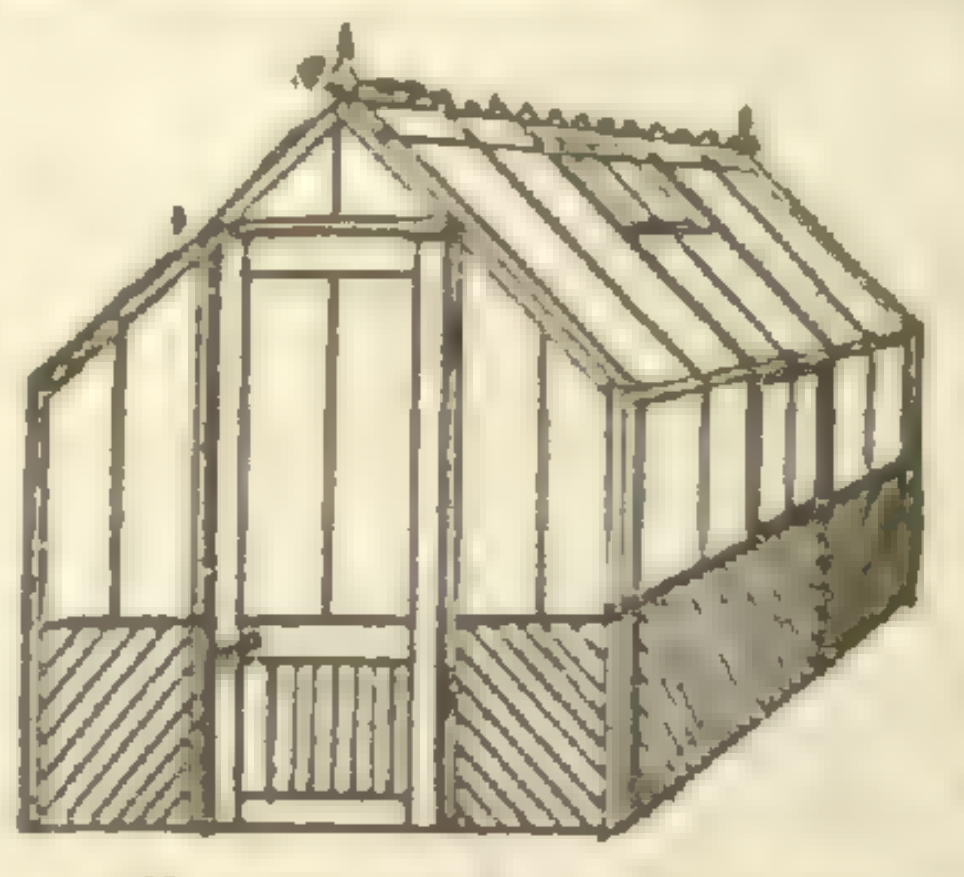

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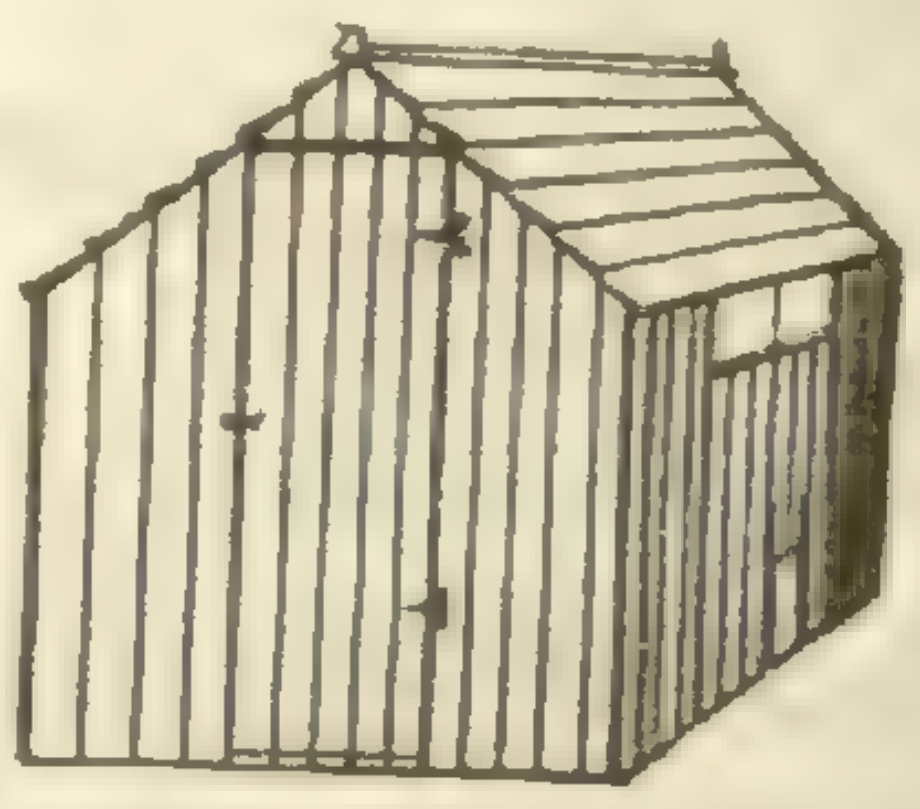

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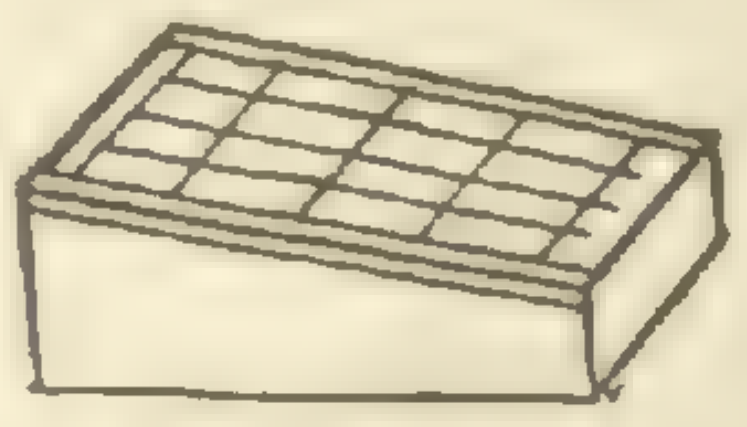

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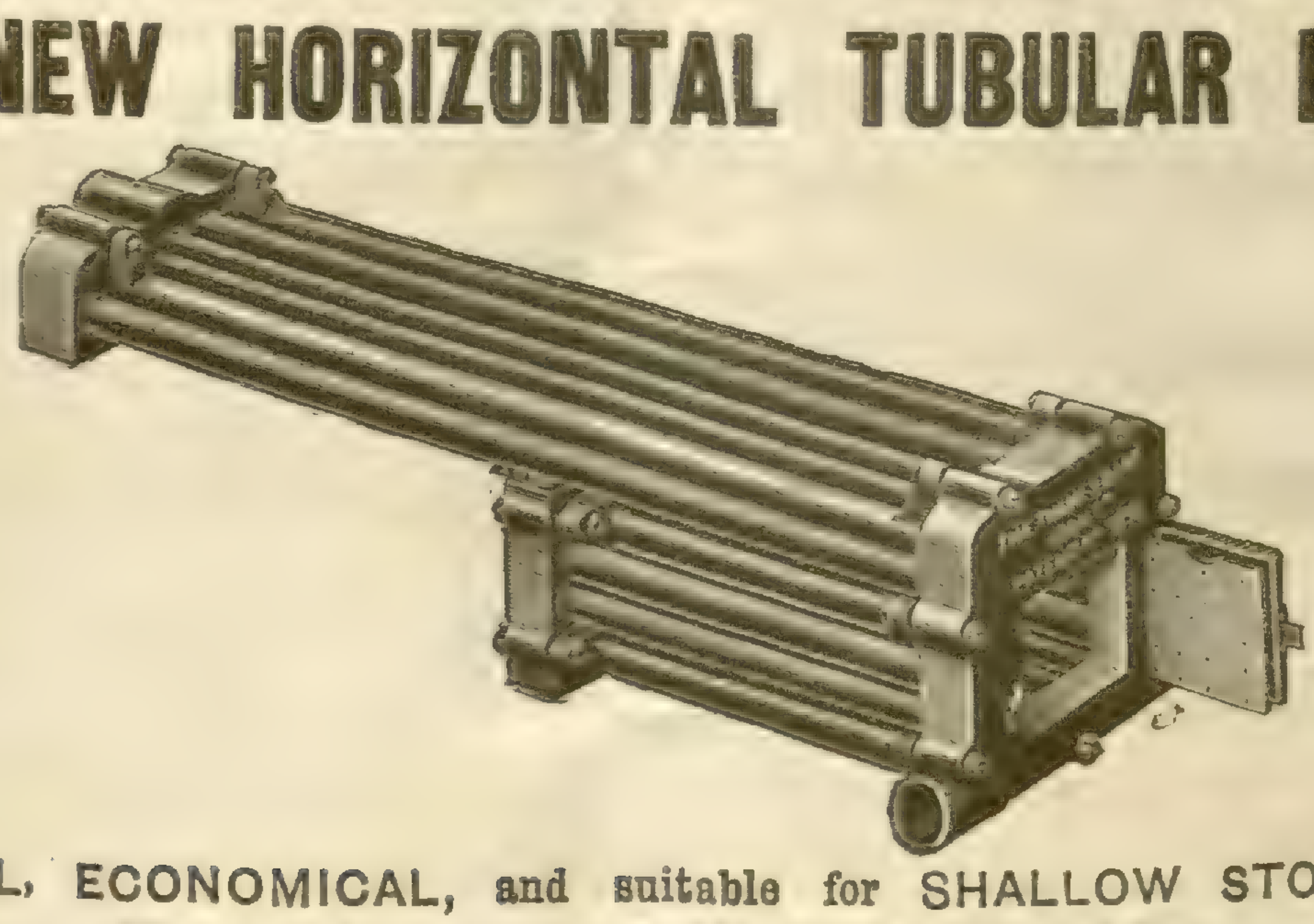

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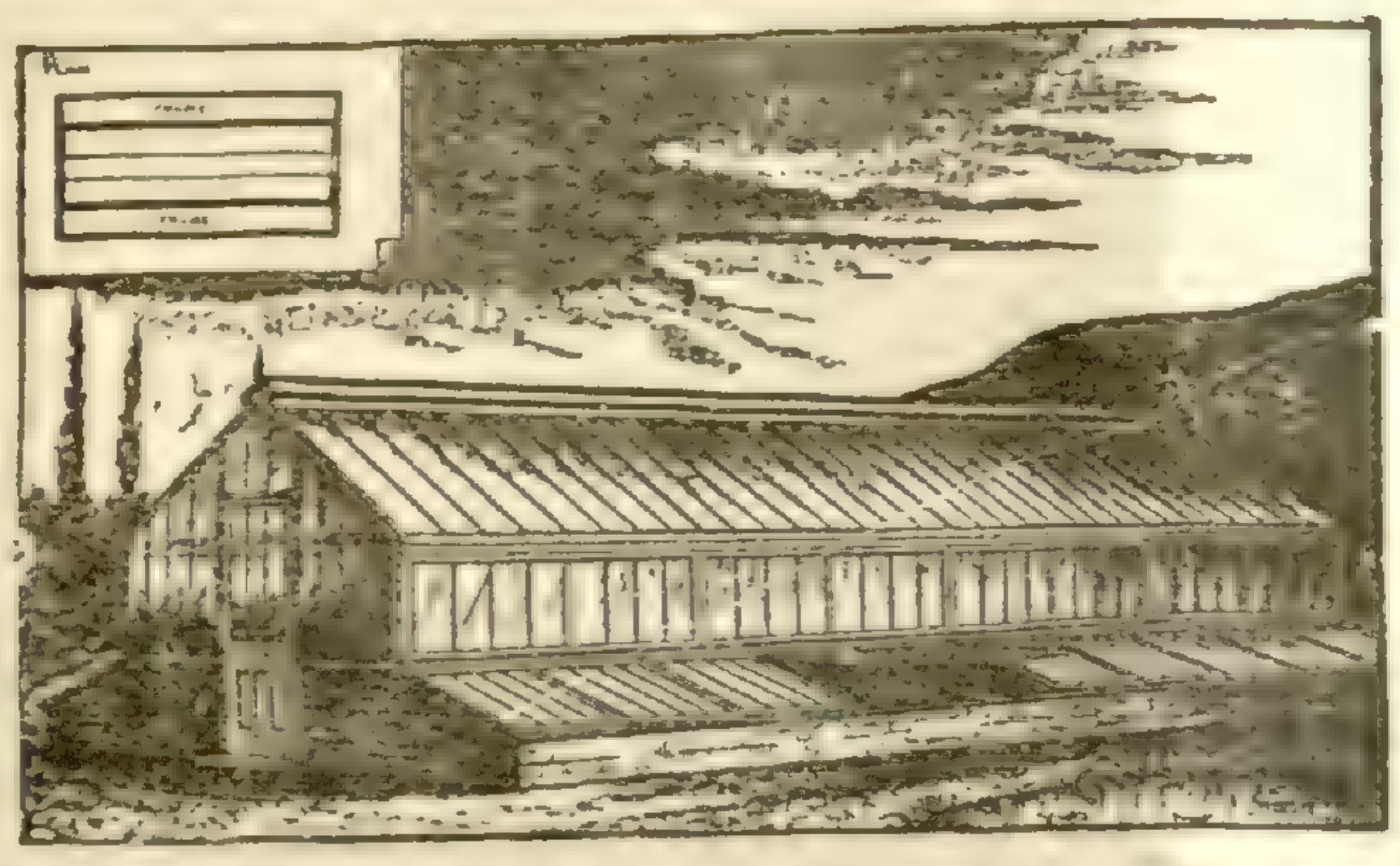

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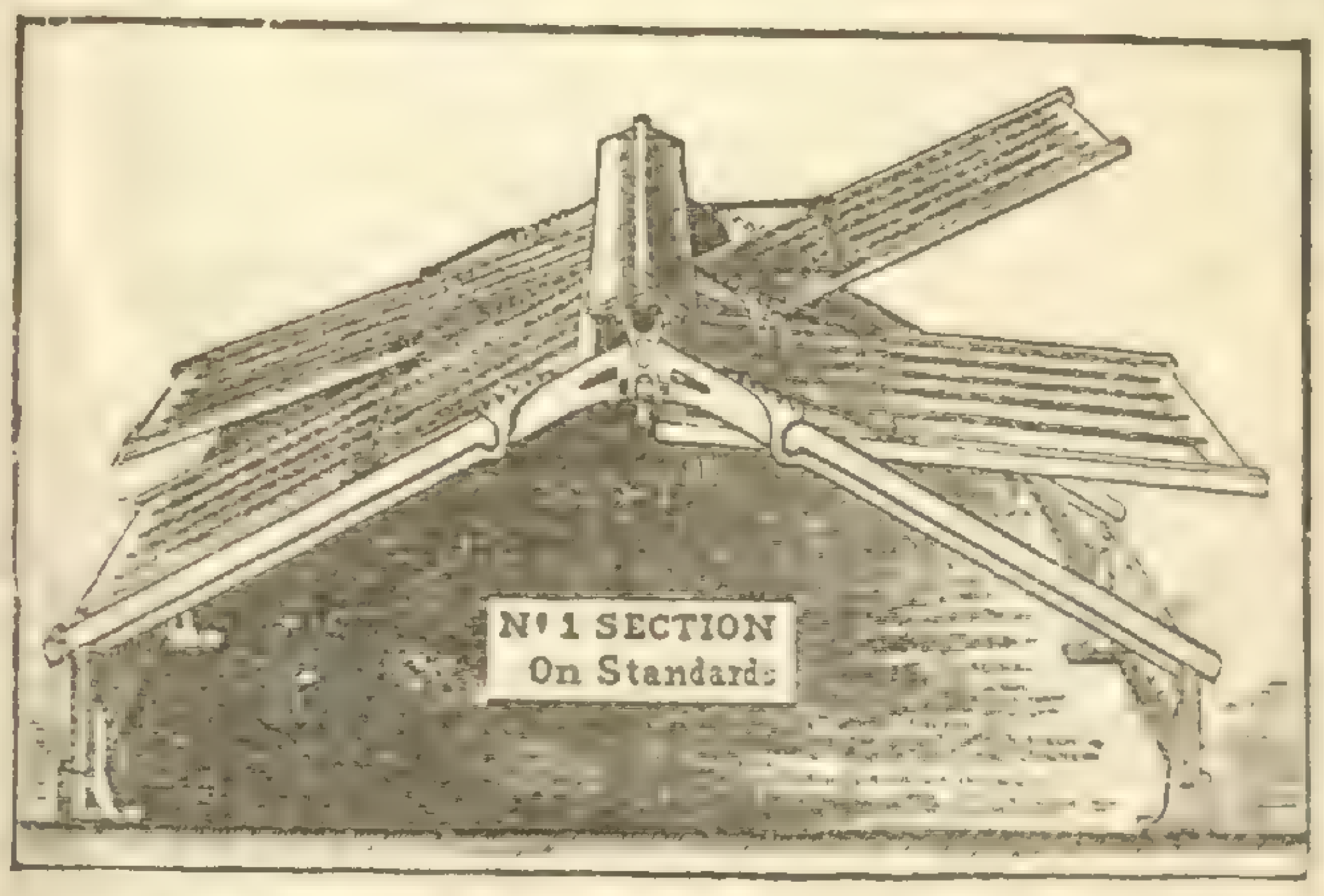

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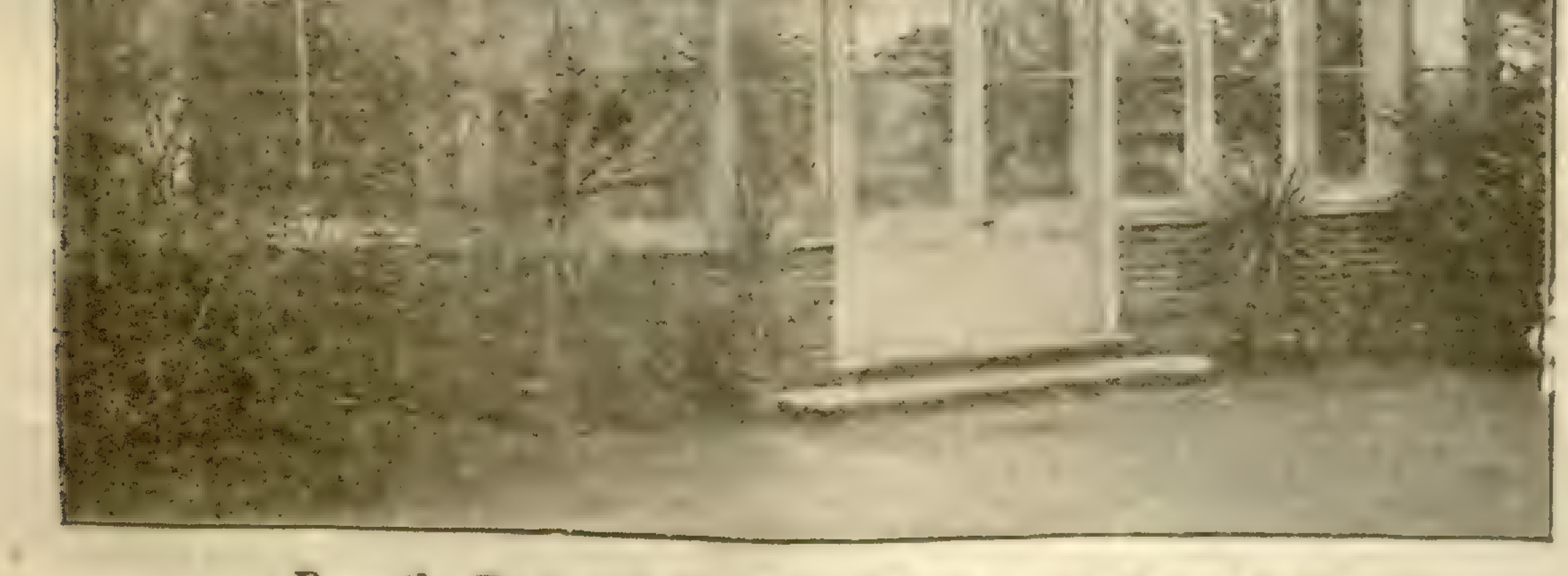

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CUTHBERT'S SPECIALITE MUSHROOM SPAWN. Always alike; most productive. Hundreds of testimonials. Per bushel, 5s.

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GISHURST COMPOUND. — Used since 1859, for Red Spider, Mildew, Thrips, Green Fly, and other Blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a Winter Dressing for Vines and Orchard House Trees, in lather from cake for American Blight, and as an emulsion when paraffin is used, has outlived many preparations intended to supersede it. Boxes 1s., 3s., and 10s. 6d.

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THOMSON'S CELEBRATED MANURES for VINES and PLANTS are largely used both at home and abroad. They are Perfect Plant Foods and Stimulants. All who wish the best cultural results should try them. For terms apply to WM. THOMSON and SONS (LTD.), Tweed Vineyards, Clovenfords, Galashiels, N.B. Sold by most seedsmen.

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GREAT SALES OF DUTCH BULBS

Every Day except Saturdays.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, Cheapside, London, E.C., as above, at Eleven o'clock each day, large consignments of named HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH BULBS, together with WHITE ROMAN HYACINTHS, and PAPER-WHITE NARCISSUS, received direct for unreserved Sale.

The Auctioneers will be pleased to enter the names of intending purchasers on their Lists who may desire a regular supply of catalogues for their Autumn Sales.

On view Mornings of Sale, and Catalogues had.

Willesden Lane, N.W.

ABSOLUTE CLEARANCE SALE of the whole of the NURSERY STOCK and STOVE and GREENHOUSE PLANTS at this Branch Nursery, in consequence of the expiration of the lease at Christmas next. By order of Mrs. E. J. Goubert. Without reserve.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the premises, the AVENUE NURSERY, BRONDESBURY PARK, WILLESDEN LANE, N.W., on WEDNESDAY next, OCTOBER 26, at Twelve o'clock, 3,800 LAURELS and PRIVET, 800 AUCUBAS, 4,500 EUONYMUS, 1,100 STANDARD and BUSH ROSES, 1,000 FRUIT TREES various, 1,300 FOREST TREES, 13,000 STOVE and GREENHOUSE PLANTS, 600 AZALEAS, amongst them many large white varieties, CAMELLIAS, 9,000 KENTIAS and LATANIAS in various sizes, 1,000 CARNATIONS, 1,500 MAIDENHAIR FERNS, 250 ORCHIDS in pots and baskets, and other stock.

May be viewed one week prior to the Sale. Catalogues had on the premises, at the Kilburn Gate Nursery, Kilburn Gate, N.W., and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

N.B.—The erections of 17 GREENHOUSES, 5,000 ft. of 4-inch PIPING, BOILERS and SHEDS, also a brick-built and slated COTTAGE, will be sold on the premises on MONDAY, November 7th.

Tottenham, N.—Two Days' Sale.

Adjoining the Tottenham Hale Station, Great Eastern Main Line, close to Bruce Grove, Seven Sisters, and South Tottenham Stations.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, the HALE FARM NURSERIES, TOTTENHAM, N., by order of Mr. T. S. WARE, on TUESDAY and WEDNESDAY, NOVEMBER 1st and 2nd, at Eleven o'clock precisely each day, in consequence of the large number of lots,

NURSERY STOCK,

consisting of

2,500 ROSES in pots, extra strong.

Also a grand collection of Dwarf H.P.'s in fine variety, as well as a number of

STANDARD ROSES, straight clean stems and good heads, in all the leading varieties.

10,000 CARNATIONS and PICOTEES, named sorts in pots, consisting of the very best varieties in cultivation.

TREE CARNATIONS, in variety, fine strong stuff, in 48-pots, well-grown, in all the best sorts.

50,000 Double and Single TUBEROUS-ROOTED BEGONIAS. Probably the finest collection in the world, and a special feature at this Nursery.

A fine assortment of Double HOLLYHOCKS.

50,000 CLEMATIS, AMPELOPSIS, and other Climbers.

100,000 SEAKALE and ASPARAGUS, extra strong forcing stuff. Both are grown in enormous quantities, and they promise to be remarkably fine this season.

10,000 HOME-GROWN LILIES. All of good size and perfectly healthy.

200,000 BERLIN CROWNS LILY OF THE VALLEY. These are exceptionally fine, being of the true Berlin or best forcing variety.

FORCING PLANTS and BULBS in endless variety.

200,000 HERBACEOUS PLANTS and MISCELLANEOUS BULBS, consisting of Dutch Bulbs, Narcissi, Scilla, Hypericum Moserianum, Coreopsis grandiflora, Statice latifolia, strong; Gaillardia grandiflora, varieties; Oriental Poppies in variety. Also thousands of other Plants, &c.

The Stock may be viewed any day prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

IMPORTED AND ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., on FRIDAY next, OCTOBER 28th, at Half-past Twelve o'clock.

On view Morning of Sale, and Catalogues had.

DUTCH BULBS!
DUTCH BULBS!

SALES NEARLY EVERY DAY, IN LARGE AND SMALL LOTS, TO SUIT ALL BUYERS.

MR. J. C. STEVENS will SELL BY AUCTION at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, nearly every day, at Half-past Twelve, first-class consignments of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs arriving daily from well-known farms in Holland, in the finest possible condition.

On view Mornings of Sale, and Catalogues had.

Wednesday next.

Choice-named Standard and Dwarf Roses, Ornamental Shrubs and Trees from Holland, Palms, Azaleas, &c., from Ghent, 10,000 Lily of the Valley Crowns, Fruit Trees, Lilies, Spiræas, Border Plants, &c.

MR. J. C. STEVENS will SELL the above BY AUCTION, at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, on WEDNESDAY next, OCTOBER 26, at Half-past Twelve precisely.

On view morning of Sale and Catalogues had.

Thursday next.

A Magnificent Importation of Orchids.—By Order of Messrs. F. SANDER AND CO.

MR. J. C. STEVENS will SELL the above BY AUCTION, at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, on THURSDAY next, OCTOBER 27, at Half-past Twelve precisely.

On view morning of sale, and Catalogues had.

FRUIT TREES

A SPECIALTY.

Large Stock of Stout, Robust, and Fibrous-rooted Trees.

Leading Varieties by the 1,000, True to Name.

PYRAMIDS and BUSHES

A FEATURE.

STANDARDS, ESPALIERS, and CORDONS,

WELL GROWN, WELL TRAINED.

ROSES, SHRUBS, FOREST TREES.

HEDGE AND COVERT PLANTS

In Great Variety.

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BARNHAM NURSERY,

BARNHAM JUNCTION, SUSSEX.

FOR PLEASURE AND PROFIT

FRUIT

Nothing so profitable and easy to grow.

50 Acres of Saleable Trees.

SEEDS

THE BEST PROCURABLE.

Lists Free.

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HUNDREDS of THOUSANDS.

Bushes in variety. Packing and Carriage free for Cash with order.

8/- per doz., **60/-** per 100

All other Nursery Stock carriage forward.

ROSES IN POTS From 15/- a doz.

Ornamental Trees, 91 Acres,
A Superb Collection of Herbaceous Plants,
Four Acres of Glass,
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N.B.—Single Plants are sold at slightly increased prices.

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Fruit Trees, Roses, Vines, Figs, Oranges, and Orchard House Trees.

A LARGE AND SELECT STOCK ALWAYS ON VIEW.

ILLUSTRATED and DESCRIPTIVE CATALOGUE,

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Roman Hyacinths, selected bulbs, 10/6 per 100, 1/6 per doz.

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Scarlet, 2/6 per 100.
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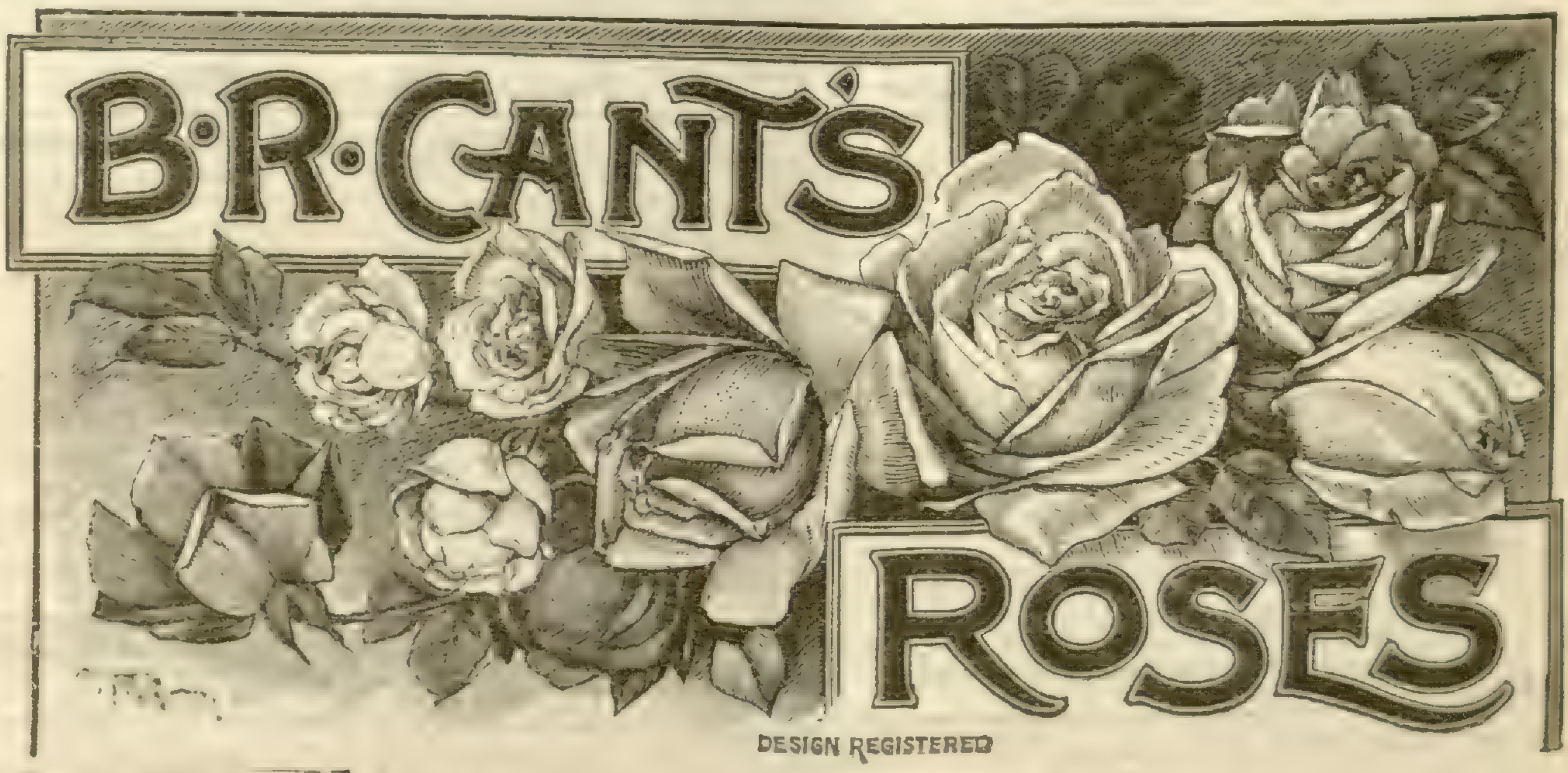

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During the Season of 1898,

WON THE CHAMPION TROPHY of the National Rose Society, London.
WON THE QUEEN'S CUP, at Windsor, for the second time, becoming owner.
WON THE RICHMOND CUP, Presented by the Mayor of Richmond.
WON THE WOODBRIDGE CUP, for the second time.
WON THE ELY CUP for the second time.
WON THE BATH CUP, Presented by the Mayor of Bath.

BESIDES NUMEROUS OTHER FIRST PRIZES at all the principal Shows throughout the Country.

This record of prizes is sufficient guarantee that the plants for sale from these Nurseries this Autumn must be of the finest quality to have produced such wonderful results.

Priced Catalogue of Standard, Half-Standard, Dwarf, Climbing, and other Roses,

Free by Post on application to

BENJAMIN R. CANT, ROSE GROWER, COLCHESTER.

ESTABLISHED 133 YEARS.

Situations Wanted.

Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

THREE INSERTIONS FOR THE PRICE OF TWO!

FLORISTS.—Young Lady SEEKS RE-ENGAGEMENT as second or third hand near London; three years' character; age 19.—Address E. W., 34, Dutton Street, Greenwich.

FOREMAN.—J. P. Leadbetter, The Gardens, Tranby Croft, Hull, RECOMMENDS with confidence James Pearson.—Address as above.

GARDENER (Head); age 36; married, no family; first-class fruits, plants, and vegetables grower; 20 years' experience; highly recommended.—W. COLEMAN, Essex Villa, Montague Road, Datchet.

GARDENER (Head); age 38; married; abstainer; good references from good public and private gardens.—J. TOPPER, North Lodge, Wardown, Luton, Beds.

GARDENER (Head, where no less than five are kept); age 33; single, otherwise when suited; 18 years' thorough practical experience in growing grapes, peaches, pines, figs, melons, tomatos, cucumbers, orchid, stove and greenhouse plants, chrysanthemums, kitchen and flower garden, house and table decoration, and all the requirements of a good, well-kept establishment; excellent testimonials.—Apply, J. NESLING, Ganarew Cross, Monmouth.

GARDENER (Head Working or otherwise); age 33; married; life experience in vines, fruit, flowers, and vegetables; 5½ years' good character.—R., 33, Connaught Road, Ealing Dean.

GARDENER (Head Working); age 31; married; experienced in all branches; good references; abstainer.—G. A., 100, Wellington Road, Slough, Bucks.

GARDENER (Head Working); age 34; married; two children; 20 years' experience in first-class establishments; well up in all branches.—E. B., 2, Gorden Road, Cambridge Road, Kilburn, N.W.

GARDENER (Head-Working); age 30; married; life experience in all its branches; Inside and Out.—H. HOLLAND, Easton Park Gardens, Wickham Market.

GARDENER (Single-Handed, or Second, where three or four are kept); age 25 years; nine years' experience; first-class references.—B., Fortesmere Cottage, Fortes Green Road, East Finchley, N.

GARDENER (Single-handed, or in good establishment, as Inside and Out).—Age 28, single; ten years' experience, six last place; well recommended. Rooms preferred.—GARDENER, Harlow Grange, Harrogate.

GARDENER (Single handed or otherwise); age 31; single; life experience in the cultivation of fruit, flowers, and vegetables; good references; abstainer.—A. P., 9, Myrtle Terrace, Crawley Road, Horsham, Sussex.

GARDENER (Single handed); age 26; life experience in all branches; married when suited; good reference.—C. OSMAN, 29, North Road, Highgate, N.

GARDENER (Single-handed, or with help); age 24; married; good experience in all branches; can be well recommended.—Apply W. R., care of Mr. Downes, Barnet Road, Potter's Bar, Middlesex.

GARDENER, where two or more kept; age 31; one child, four years; 18 years' practical experience; highest references; disengaged when suited.—CHARLES, Castle Lane, Olton, Birmingham.

GARDENER (Under, where two or more are kept); age 21; four and a-half years' experience Inside and Out; no objection to cows.—POULTON, Mitchfield, Lea, Ross.

JOURNEYMAN, Inside; age 20.—S. Hoad, The Gardens, Vicar's Hill, Lymington, Hants, will be pleased to recommend a young man as above, in a good establishment.

MARRIED COUPLE SEEKS SITUATION as Gardener and Cook; age 42 and 39; 10 years' good reference.—W. H., Blueman's Farm, Westfield, near Battle, Sussex.

RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

SITUATION WANTED by Young Man; Inside and Out preferred; 2½ years' good character from last place.—Address, W. GREEN, Back Road, Old Catton, Norwich, Norfolk.

SITUATION WANTED by a Young Man, age 23, as Improver, Inside and Out, in a good establishment, where five or six are kept; six years' experience; 12 months in present situation; leaving through breaking up of establishment.—G. B., Church-road, Horley, Surrey.

YOUNG MAN seeks Situation in a Nursery where fruit and flowers are grown for market; previous experience; good reference.—HORTUS, care of Pierce's Library, 50, High Street, Sydenham, S.E.

YOUNG MAN, age 20, SEEKS SITUATION as Journeyman; Inside and Out. G. Comber, Dove Cliff, Burton-on-Trent, can highly recommend above, who has been with him six years.

Situations Vacant.

Advertisements under this heading are charged 2s. 6d. for Four lines (32 words), and 6d. per line of eight words after.

REQUIRED, a thoroughly good all-round MAN as Gardener; wife must be a good laundress; young children objected to.—Apply for particulars to Mr. J. SMITH, The Nurseries, Derby Road, Loughborough.

WANTED at once, UNDER-GARDENER, where three are kept; one with some knowledge of glass and able to use a scythe preferred; wages 18s.; no bothy; must have good character.—J. W. ROBERTS, The Gardens, Clonard, Harrow Weald.

IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded addressed 148 and 149, Aldersgate Street, London, E.C.

ORCHIDS! ORCHIDS!!

Cyp. Spicerianum	in bud	2/6	3/6	5/6
" Charlesworthii	"	2/-	3/-	5/-
Cattleya Labiata	in sheath	3/6	5/6	7/6
Vanda Cœrulea	in spike	/9 per leaf.		
" Kimballiana	"	2/-	3/-	5/-
" Amesiana	"	2/-	3/-	5/-
Lilium, Napalense, and Wallichianum		1/6	2/6	3/6

J. W. MOORE (Ltd.), Orchid Importers, Rawdon, near Leeds.

NEW HINTS
— FOR —
FRUIT GROWERS.

"A Year's Work on a Kent Fruit Farm."
1s. Post Free from the Publishers,
GEO. BUNYARD and CO., Maidstone.

STRAWBERRY PLANTS
(My Speciality),

THE best MARKET KINDS of Emperor William, Louis Gauthier, Monarch, and Leader, 4s. per 100; Latest of All, Prince and Princess of Wales, 3s. per 100; Royal Sovereign, Paxton's, and Noble, 1s. per 100. All others equally cheap.

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PERPETUAL OR WINTER BLOOMING.

STRONG PLANTS now ready for the coming season. The finest set of novelties ever sent out.

BORDER VARIETIES.—Fine collection. Strong layers now being despatched. Catalogues free.

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EXMOUTH, DEVON.

FRUIT TREES
For Market and Private Growers.
ORNAMENTAL TREES, SHRUBS, &c.
Descriptive Catalogues Post Free.
J. CHEAL & SONS
Crawley, Sussex

ROSES ROSES.

THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s.; 12 best hybrid Perpetuals, dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d.; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d.; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

JAMES WALTERS, Rose Grower, **EXETER.**

754 BULBS FOR 20/-.

All sound flowering bulbs, including 50 named Hyacinths in six distinct colours, 25 large Trumpet Daffodils, 25 Nonsuch Daffodils, 100 Snowdrops, 200 Crocus in four separate colours, 50 Tulips, with a liberal number of Anemones, Iris, Scillas, Jonquils, Gladiolus, &c.

For full list and number of varieties see Catalogue.

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243, Walworth Road, London, S.E.

To be Let.

TO LET.—HAZELL NURSERIES, Lordship Lane, Wood Green, N. Four nearly new Forcing Houses, well heated; low rent will be taken to a good tenant.—Apply to ALFRED PEEL and SON, Horticultural Builders, Wood Green, N.

FRUIT TREES AND VINES.

JAMES VEITCH and SONS, Ltd.

BEG TO DIRECT ATTENTION TO THEIR VERY FINE STOCK OF

All the Leading Varieties of the above.

CATALOGUES AND ALL PARTICULARS MAY BE OBTAINED AT

THE ROYAL EXOTIC NURSERY, CHELSEA, LONDON.

DICKSONS ROSES - - (20 Acres)
DICKSONS FRUIT TREES (75 Acres)

THE FINEST AND LARGEST STOCKS IN THE KINGDOM.

Now is the time to Order. Inspection Cordially Invited.

Catalogues (now ready), post free on application.

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THE EXPORT NURSERIES.

J. J. THOOLEN,

BULB AND PLANT GROWER,

HEEMSTEDE, NEAR HAARLEM, HOLLAND,

Formerly Overveen,

HAS the honour to inform readers that his Illustrated Bulb and Plant Price List, at lowest prices, in English, Autumn, 1898, will be sent post free on application. No charges for packing. Orders of 10s. and above entirely free to destination in England, Scotland, and Ireland.

SOME SORTS OF BULBS NOTED OUT PRICE LIST.

	Per 100	1,000
Single Anemones, in fine mixture	1 2	11 0
Crocus, II. size, in fine mixture	0 8	6 3
Crocus, I. size, in fine mixture	1 4	10 2
Hyacinths, mixed, for bedding or forcing	9 8	91 8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection	17 6	—
Iris Kæmpferi (Japan Iris), in fine mixture	5 0	40 0
Iris Germanica (Flag Iris), in fine mixture	7 0	65 8
Iris Sibirica, in fine mixture	5 0	40 0
Iris Spanish, in the finest mixture	0 7	5 0
Lilium Candidum, single, pure white	10 0	—
Montbretia croscosmiæflora, orange scarlet	1 6	—
Narcissus campernel Jonquil, yellow	1 2	10 0
Narcissus, double, Incomparable, primrose	1 6	14 0
Narcissus van Sion, single, yellow trumpet	2 6	23 4
Narcissus Stella, white, yellow cup	1 4	12 6
Gladiolus Marie Lemoine, fine	2 0	19 2
Gladiolus Brenchlyensis, deep scarlet	2 6	20 0
Scilla Sibirica præcox, intense blue	1 2	10 0
Tulips, single early, in the finest mixture	1 2	10 0
Tulips, double early, in the finest mixture	1 6	14 2
Duc van Thol Tulips, single, excellent for early forcing	2 6	20 0
Grape Hyacinths, blue	0 7	5 4
Anemone japonica, rose	5 0	—
Hemerocallis (Day Lily), mixed	8 0	—
Pyrethrum, fine double, pure white	15 0	—
Tritoma uvaria (Red Hot Poker)	14 6	—
Sparaxis, in fine mixture	0 8	6 0
Funkias, in fine mixture	10 0	—
Gladiolus Colvilli, white	1 2	10 10
Hyacinthus candicans, white	5 0	45 10
Iris pumila, mixed	4 0	—
Lilium umbellatum, red	10 0	—
Snowdrops, Elwesi	2 0	18 4

250 Bulbs of the same kind will be charged at the 1,000 rate; 25 at the price per 100; 6 at the price per doz.

COLLECTION D.—For Spring Gardening, containing 1,520 Bulbs, £1 1s. Half this for 11s.

COLLECTION B.—For Indoor, containing 529 Bulbs, for 92 Pots or Glasses, £1 1s. Half this for 11s.

BARR'S GOLD MEDAL DAFFODILS

The Most Lovely of all Spring Flowers.

SEND for BARR'S DAFFODIL CATALOGUE, illustrated with original photographs taken at the Long Ditton Nurseries, and containing a Descriptive List of all the finest Daffodils in cultivation and the latest Novelties for 1898. Free on application.

A FEW FINE SORTS FOR POTS OR OUTDOORS.

GOLDEN SPUR, a fine large deep golden yellow variety. Per 100 21/-, per doz. 3/-.

HENRY IRVING, one of the earliest; very large flower, fine deep golden yellow. Per 100 21/-, per doz. 3/-.

QUEEN OF SPAIN, very beautiful, delicate soft yellow, with reflexing petals. Per 100 17/6, per doz. 2/6.

BICOLOR HORSFIELDII, petals pure white, trumpet golden, handsome; very early. Per 100 17/6, per doz. 2/6

INCOMPARABILIS Sir Watkin, a very handsome large flower, petals sulphur, cup rich orange-yellow. Per 100 25/-, per doz. 3/6.

BARRII CONSPICUUS, broad yellow petals, cup conspicuously edged bright orange-scarlet; a beauty, and a general favourite. Per 100 17/6, per doz. 2/9

LEEDSII MRS. LANGTRY, broad white petals, large white cup edged canary-yellow, and much crinkled; a pretty Daffodil, and very free. Per 100 35/-, per doz. 5/6.

TRIANDRUS ALBUS (Angel's Tears), a gem on rockwork, pretty cream-coloured flowers, petals reflexed. Per 100 8/6, per doz. 1/3.

POETICUS POETARUM, the most beautiful of the White Poet's Daffodils. Per 100 12/6, per doz. 1/9.

BARR'S GENERAL BULB CATALOGUE, containing a descriptive List of the best Bulbs and Tubers for autumn planting, and a List of Bulbs and Plants for early forcing, *free on application.*

BARR & SONS, 12 & 13, KING STREET,
Covent Garden, London.

DUTCH BULBS

Direct from the Grower to save the Middleman's profit.

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THE GARDENERS' MAGAZINE.

SATURDAY, OCTOBER 22, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY.
ROYAL AQUARIUM, WESTMINSTER,
November 8, 9, and 10, 1898.
GREAT AUTUMN CHRYSANTHEMUM FESTIVAL.
Specimen Plants, Groups, Cut Blooms, Fruit and Vegetables. The Largest Chrysanthemum Show in the United Kingdom.
Schedules of Prizes from
Richard Dean, V.M.H., Secretary and Superintendent, 42, Ranelagh Road, Ealing, W.

BRADFORD and DISTRICT CHRYSANTHEMUM SOCIETY.—TWELFTH ANNUAL EXHIBITION in St. George's Hall, November 11 and 12. £150 in prizes, four Silver Cups, and three Gold Medals to be competed for. Entries close November 7. Schedules, &c., to be had from
R. Eichel, Hon. Secretary, Westcliffe Road, Shipley.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—GRAND CHRYSANTHEMUM SHOW, to be held in the Royal Pavilion, Brighton, November 15 and 16. Schedules of
Secretary, 1, Dyke Road Drive, Brighton.

CORN EXCHANGE, BURY ST. EDMUND'S.—GRAND CHRYSANTHEMUM FLOWER and FRUIT SHOW.
THURSDAY and FRIDAY, November 10 and 11.
The Show will be opened on Thursday, at Half-past Two o'clock.
Entries close November 4. For Schedules apply to the Hon. Secretary,
Walter Noeton,
Bury St. Edmund's.

EASTBOURNE HORTICULTURAL SOCIETY'S
GRAND CHRYSANTHEMUM SHOW.
TUESDAY and WEDNESDAY, November 1 and 2.
Several open classes. Good Prizes. Entries close October 28. Send for Schedules to Secretary,
E. A. Newman, 21, Brocklyn Terrace, Eastbourne.

HUDDERSFIELD and DISTRICT CHRYSANTHEMUM SOCIETY.—The SEVENTH EXHIBITION of the above Society will be held in the Town Hall, Huddersfield, on FRIDAY and SATURDAY, November 11 and 12, 1898. Entries close on Friday, November 4. Entry Forms and Schedules may be obtained from
John Bell, Hon. Sec., Marsh, Huddersfield.

KENT COUNTY CHRYSANTHEMUM AND HORTICULTURAL SOCIETY.—ELEVENTH GRAND ANNUAL EXHIBITION of CHRYSANTHEMUMS and other Flowers, Fruits, and Vegetables, will be held in the Rink Hall, Blackheath (opposite S.E.R. Station), on Wednesday and Thursday, November 2 and 3, 1898. Schedules and all particulars of the Hon. Sec.,
F. Fox, The Gardens, The Cedars, Lee, S.E.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.—The ANNUAL SHOW will be held at the Drill Hall, Kingston-on Thames, on TUESDAY and WEDNESDAY, November 1 and 2. Entries close October 28. Trade exhibits invited. Schedules, &c., of
Mr. W. D. Elsam, Secretary, Clarence Chambers, Kingston-on-Thames.

LEEDS PAXTON SOCIETY'S CHRYSANTHEMUM SHOW, Town Hall, Leeds, TUESDAY and WEDNESDAY, November 15 and 16. Upwards of £180, including four Challenge Cups, will be given in prizes. Schedules from the Hon. Sec.,
James Campbell, The Gardens, Methley Park, Leeds.

LOWESTOFT CHRYSANTHEMUM SHOW.
November 2 and 3.
£50 offered in Prizes. Entries close Saturday, October 29.
Schedules and particulars of the Hon. Secretary,
H. W. Bevan, 9, High Street, Lowestoft.

MAIDENHEAD CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, Town Hall, Maidenhead, November 3 and 4. Entries close October 29. Schedules free.
J. W. Stone, Hon. Sec.,
Cookham Dean.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER AND THE NORTHERN COUNTIES.
Founded A.D. 1827.
GREAT CHRYSANTHEMUM SHOW, November 17, 18, and 19.
In St. James' Hall, Manchester.
£180 in Prizes. Open to all comers.
THE "DERBY" CHALLENGE CUP, value £25, presented by the Right Hon. the Earl of Derby, K.G., and £10 given by the Society for 48 Blooms (24 Japanese and 24 Incurved) distinct. Schedules post free on application to
P. Weathers, Curator and Secretary,
Royal Botanical Gardens, Manchester.

WOKING HORTICULTURAL ASSOCIATION.—FIFTH ANNUAL CHRYSANTHEMUM SHOW, WEDNESDAY and THURSDAY, November 2 and 3, 1898, at the New Church Hall, Woking. Two Challenge Cups and numerous prizes for Chrysanthemums, Fruit, and Vegetables. For Schedules apply to
W. I. Neal, Chesalon, Claremont Avenue, Woking

TO SECRETARIES OF FRUIT SHOWS, &c.—JUDGING OF FRUITS, FLOWERS and VEGETABLES, by Stephen Castle, F.R.H.S., Consulting Horticulturist, Bottesford Vineries, Notts.
Terms on application. Telegrams, "Grapes," Bottesford.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

SURE-BEARING APPLES.

As we have so frequently pointed out in these pages, there are many thousands of acres of excellent land in the United Kingdom that are occupied by fruit trees which, from some well-known cause, or a combination of causes, do not yield sufficient fruit annually to pay for the rent of the ground. In innumerable instances the unprofitableness of the orchards and fruit plantations is due to the exhaustion of the trees from old age or indifferent management, and in others it is the result of planting varieties that cannot be depended upon to produce crops excepting in seasons specially favourable to the apple. These facts were brought into special prominence in the long, elaborate, and costly investigation of English orchards we made a few years since with such satisfactory results, and as they were fully set forth by our special commissioner in his series of reports, under the title of "The Wasted Orchards of England," it is not now necessary to refer to them further than to say that an enormous sum of money is lost to the country through so large an area annually being planted with varieties of the apple that bear crops in those seasons only when apples are exceptionally abundant. It is not possible to give an exact estimate of the annual loss from this cause, but it must amount to some hundreds of thousands of pounds sterling, and the loss of such a large sum is specially regrettable from the fact that it might be materially reduced within a few years were owners of orchards to take advantage of the information that is given them. The question of substituting sure-bearing for uncertain varieties is not less important to the private cultivator than to the grower for market, and we are pleased to say that much is being done in private gardens to improve matters by replanting and regrafting. Recognizing the importance of evidence that will not admit of question, we asked a large number of the leading fruit growers to send us the names of apples that have this year, which has been remarkable for the lightness of the apple crop, borne satisfactorily. Our request received a ready response, and the reports which have been received and published contain information of the most valuable character. As will have been seen from a perusal of the reports, the number of sure-bearing varieties is very small in proportion to the number of apples that have a place in trade lists, but it is more than sufficient for the purpose of maintaining a liberal supply during the seven or eight months in which apples may be had in perfection. We have prepared an audit of the varieties enumerated in the reports, and the twenty-four standing highest in the audit of cooking apples are: Bismarck Blenheim Pippin, Bramley's Seedling, Cox's Pomona, Dumelow's Seedling, Ecklinville Seedling, Gascoyne's Scarlet, Golden Spire, Golden Noble, Keswick Codlin, Lane's Prince Albert, Lord Grosvenor, Lord Suffield, Manks Codlin, Mère de Ménage, New Hawthornden, Newton Wonder, Northern Greening, Stirling Castle, Loddington or Stones, Tower of Glamis, Warner's King, Wealthy, and Yorkshire Beauty. The twelve dessert apples that are mentioned as bearing the heaviest crops, by the largest number of correspondents, are: Allen's Everlasting, Cox's Orange Pippin, Court Pendu Plât, Duchess of Oldenburg, Fearn's Pippin, Irish Peach, King of the Pippins, Lady Sudeley, Red Astrachan, Ribston Pippin, and Worcester Pearmain. There are, of course, many excellent cooking and dessert apples other than those enumerated above, and cultivators may be advised when they find an apple of good quality that bears abundantly in their district year after year to plant it in accordance with their requirements. But as the varieties named are of good quality and sure-bearing in all parts of the country, they should in all cases be selected, as profitable fruit plantation can only be obtained by the planting of sure-bearing varieties.

FRUIT AND VEGETABLE IMPORTS.

The Board of Trade returns for September are even more satisfactory than were those for August, there being a material augmentation in both the imports and exports. The exports, which in the case of an old country are regarded as the best indication of activity in commercial circles, show an increase of £1,639,810, equal to 8·9 per cent. As is customary, the products of the garden and the farm constitute an important part of the imports, and in glancing at the figures it is difficult to understand why our dependence upon foreign and colonial produce cannot be materially lessened. Of apples we imported 248,126 bushels, of the value of £74,651, and the absorption of this large quantity at remunerative rates is sufficient to refute the views of those who a few years since were so loud in proclaiming that an extension of fruit culture would be disastrous, inasmuch as there would be no outlet for the produce. During the nine months ending September 30, our imports of apples amounted to 1,310,553 bushels, of the value of £460,066. There was a material increase in the imports of grapes, those for September amounting to 274,835 bushels, of the value of £126,173, which is the largest sum we have paid for these fruits in September for several years past. With reference to the imports of pears, it must be said that there was a drop in quantity of 142,511 bushels, and in value of £37,173; the quantity received during the month being 169,064 bushels, of the value of £70,501. There was a material decrease also in the quantity of plums received; but the imports of these fruits were more than sufficient to prevent the price of home-grown fruit rising to a point that placed it beyond the means of the masses. Unenumerated fruits continue to be received in increased quantities, the imports amounting to 328,793 bushels, against 251,154 and 157,224 bushels respectively in the corresponding month of the two preceding years. There has been a similar increase in the imports of the first nine months of these three years, and it is of interest to observe that the value of the imports for the nine months ending with September last closely approached three-quarters of a million sterling. It is satisfactory to have evidence in the returns that the consumers were less dependent during the past month upon foreign growers for their supplies of potatos than was the case last year. Last month the imports amounted to 77,271 cwt., of the value of £14,078, against 91,895 cwt., of the value of £17,078, in the corresponding month of 1897. For the year the imports of potatos will be heavy, as during the nine months under review we imported nearly 6,500,000 cwt., against about 2,250,000 cwt. in the two previous years. As regards values, we have paid this year nearly £1,000,000 more for our supplies of potatos than in 1896 and 1897. Onions show a drop both in quantity and value for September; the quantity received having been 664,376 bushels, of the value of £72,486, as compared with 755,499 bushels, of which the value is given as £82,860; truly a large sum to pay for a month's supply of onions, which nowhere can be grown to a higher degree of perfection than in this country, as witness the magnificent examples shown at the two meetings held at Westminster during the past week.

The Orchid Houses at Kew, at least those to which the public were admitted, have been rebuilt of late, and, as previously noted in our columns, four houses take the place of the original two. These are lower-roofed than the old ones, and are thus better adapted to plant cultivation, while the visitor can the better examine and study the specimens. The effect of the plants as now arranged is scarcely so striking as formerly, but the provision of four small houses allows of as many variations of temperature, whereas before the new order of things the orchids had perforce to put up with either hot or cool conditions. The private department attached to the T-Range has also undergone considerable alteration and expansion, so that there now seems to be sufficient space for our extensive and comprehensive national collection of these most interesting plants. For many years past the orchids have suffered from overcrowding, for the number of plants and species has increased, while the space at disposal remained the same. The private orchid houses are all connected with those open to the public by a closed and covered way, an improvement likely to be appreciated by those in charge quite as much as by the plants. One misses the porch-like house at the outer end of the orchid houses wherein the insectivorous plants were grown, and its absence is rather a disadvantage, for now one has to pass out of doors from one pair of houses to the other, instead of making the tour of all the orchid and other houses in the range without going out of doors.

The Drought in East Kent.—Mr. E. Hollman, Bramhope, Canterbury, writes: Seldom has rain been needed here more than previous to the recent rains, for with so little for the past three months the need for it became seriously apparent. In this district many trees and shrubs show only too plainly how much they require moisture, many deciduous kinds shedding their leaves prematurely, and will take some time to recover. Never have I seen the stems of Jerusalem artichokes with so many flower buds, the result of the hot, dry weather. When visiting a neighbouring garden lately I noticed that the celery crop was almost a failure, and was informed that although it had been well attended to by frequent waterings, &c., the plants had refused to grow, and would not pay for earthing up. The garden has a light subsoil. Caterpillars have done much damage in many places, almost stripping cauliflowers, sprouts, &c. The frosts of September 27 and 29, which cut marrows, dahlias, &c., remind us that the time for planting fruit trees, &c., is close at hand, and how much we need rain for this most important work, for, although we may water, who can do this part of the work like Nature?

Sir Edwin and Lady Saunders celebrated their golden wedding at Fairlawn, Wimbledon Common, on Wednesday, the 12th inst. Both Sir Edwin and Lady Saunders were the recipients of many "golden" tokens of affection and esteem from friends at home and abroad, and among the two hundred guests who gathered to congratulate the genial President of the National Chrysanthemum Society and his amiable lady were such distinguished personages as Sir Samuel Wilks, President of the Royal College of Physicians; Sir William MacCormac, President of the Royal College of Surgeons, and Lady MacCormac; the President of the Royal Medical and Chirurgical Society, the President of the Odontological Society; Sir William White, Constructor to the Royal Navy, and Lady White, Sir William and Miss Roberts, Sir Henry Thompson, Sir William H. Broadbent, Lady Russell Reynolds, Lady and Miss White Cooper, &c. As our readers are well aware, Sir Edwin has been a generous patron of horticulture; he has been a Vice-President of the Wimbledon and District Royal Horticultural Society almost from its institution. He became a Fellow of the Royal Botanic Society in 1853, being elected to a seat on the Council, while as a Fellow and President of the Royal National Chrysanthemum Society he has furthered its interests by his presence and generous support. In Mr. A. Newell, who has been in his service for nearly twenty years, Sir Edwin Saunders has a most enthusiastic gardener, who is justly proud of the cups and medals won at Wimbledon, the Royal Aquarium, and elsewhere. Sir Edwin was born in 1814, and for his services to the dental profession was knighted in 1883. For many years he was Dental Surgeon to the Queen, and on the occasion of his golden wedding Her Majesty honoured him with a letter of congratulation. We hope the veteran knight may long be spared to support the art and science of horticulture.

The Grapes at Chiswick are very fine this season both as regards size of berry, quality, and general finish, and this fact seems to be generally recognised by Fellows of the Royal Horticultural Society, for, Mr. S. T. Wright informs us, orders are plentiful, and it is not likely that many bunches will spoil. The collection of varieties of grapes at Chiswick is extensive, and at the present time there are a number to select from. In the big vinery the following are ripe: Black Hamburgh, Black Alicante, Lady Downes, Royal Muscadine, Buckland Sweetwater, Raisin de Calabra, Dutch Hamburgh (poor quality), Gros Colmar, Golden Hamburgh, Black Prince, Black Monukka, and Muscat of Alexandria, with Gros Guillaume to follow soon. In the long vinery Gros Maroc is just ripe. In one of the small curvilinear vineries such interesting varieties as San Antonio, Muscat of Hungary, Royal Ascot, and Golden Queen are ripe, while in the muscat house there still remain splendid examples of Muscat of Alexandria, fair sized, but large berried bunches; Canon Hall Muscat and Bowood Muscat, Foster's Seedling, almost all gone; Mrs. Pearson, Madresfield Court, finished by the time this appears; Mrs. Pince and Dodralabe, the latter a poor form of Gros Colmar, and evidently left in the muscat house as a kind of "shocking example." There are many subjects of interest at Chiswick, but the apples and pears in the fruit room and the hanging bunches of grapes in the various vineries are the chief, and these are such as to prove that the gardens are not quite so played out as some would have us suppose.

"Orchid Culture" is the title of a small treatise issued by the Leeds Orchid Company, in which the several details that must have attention are dealt with. These details include the temperature, heating, ventilation, and shading of orchid houses, and the potting, watering, and resting of the plants. The several diseases to which orchids are subject are also referred to.

Effect of Drought upon Floral Colours.—The Rev. W. Wilks has made the following observations on the colouration of flowers of the present season: All through the exceptionally hot weather of the end of July and August all scarlet flowers had a tinge of dull brown in them, pink had a shade of orange, yellow was very yellow, white was creamy. This was very marked—*e.g.*, in dahlias. Thus Fire King and Sunset, two ordinary bright clear scarlet flowers, had a distinct dull brown tint overlying and spoiling utterly the usual scarlet, so much so that, having been away from home the first three weeks of the heat, I thought on my return the dahlias must have somehow got wrongly named. But now the weather is cooler the bright scarlet has come back, and the dull browny tint has gone, and all is as usual. The only colour the heat seemed (to me) to suit was the salmons, and they have been very fine and intense, having a sort of glow added to them.

The Potato Disease, in spite of the long-continued dry weather, has not been so completely checked as was generally expected. The late crops in Cornwall, Cumberland, Devon, Lancashire, Lincoln, Kent, Stafford, Norfolk, Nottingham, Yorkshire, and Monmouth have in very many instances been affected. In Lanark and Roxburgh the pest has been found, and also in the Welsh counties of Anglesey, Glamorgan, Merioneth, and Pembroke. We are also informed that the early crops, properly ripened and stored, are sprouting fast, so that they will be difficult to keep well unless cold weather sets in.

The English Cut Flower Trade.—At the conclusion of a most interesting article on Flower Farming in England, contributed to the Journal of the Royal Agricultural Society, Mr. W. E. Bear says there is no doubt that flower-growing is greatly extending in this country, and that competition among home growers is becoming more and more severe. Foreign supplies of flowers have increased, but not nearly as greatly in proportion as home supplies, and it seems clear that home growers have gained ground in relation to their foreign rivals, except with respect to flowers for the growth of which foreigners have extraordinary natural advantages. There is a danger of the culture of the narcissus being too much expanded; also that the chrysanthemum is produced in excess of the demand. Again, in the production of violets, the warm and sunny south of France has an advantage not possessed by this country, while Holland maintains her hold upon the hyacinth and tulip trade for a similar reason. But whether the production of flowers as a whole is gaining ground upon the consumption or not it is difficult to determine. Mr. George Monro, of Covent Garden, who is certainly one of the best authorities, is of opinion that supplies of cut flowers are "pretty nearly overdone," as indicated by the great glut that occurred in the summer of 1897. Prices, he says, are much lower than they used to be, and only the best growers do well. Thus in flower-growing, as in nearly every other career, inquiry leads to the conclusion that "there is plenty of room at the top." In this industry, moreover, there is such a very wide scope for the exercise of superior skill, industry, and alertness, that it is not surprising to find some who are engaged in it doing remarkably well to all appearance, while others are struggling on and hardly paying their way. To the casual looker-on, who knows nothing of the drudgery of the industry, flower-growing seems a delightful method of getting a living. That it is an entrancing pursuit there is no doubt; but it is equally true that it is a very arduous one, requiring the most careful forethought, ceaseless attention, and abundant energy.

New Park for Lee and Blackheath.—The Parks and Open Spaces Committee of the London County Council have informed the Lee Board of Works that they will recommend the Council to provide one-half of the purchase price for the Manor House Estate, so that the latter shall become a public recreation ground. The owners—Lord Northbrook and Lord Baring—have fixed the price at £9,600 for the nine acres. Lord Northbrook has, however, offered to give £1,300 towards laying out the estate. We understand that the Parks Committee propose to acquire ger's House and part of the surrounding land as public property,

Experimental Horticulture is a subject of more than passing interest to gardeners in these days, when it is absolutely necessary that large crops, and of the highest quality, be raised on the smallest possible area and at the minimum of cost. An opportunity of discussing the best ways and means of conducting experiments likely to be of lasting value to horticulturists will be afforded at the Drill Hall, Westminster, on Tuesday, October 25, when Mr. George Gordon, V.M.H., will give a lecture upon Experimental Horticulture before the Royal Horticultural Society, at three p.m.

The Flora of Puerto Rico.—We are informed that Mr. Cornelius Vanderbilt will bear the expense of an expedition to start in November to study the flora of Puerto Rico. Mr. A. A. Heller, an experienced collector, will conduct the expedition, which was planned by Dr. Nathaniel Lord Britton, one of the authors of "The Illustrated Flora of the Northern United States."

National Chrysanthemum Society.—The members of the sub-committee appointed in the spring for the purpose of making investigations and reporting upon the place most suitable for holding the exhibitions of the society, having completed their labours, submitted their report to the General Committee at a meeting held on Monday evening. As this gathering, in common with other meetings of committees, was private, we cannot with propriety give a full report of the proceedings; but, in view of the great interest evinced by the members of the society with regard to the place of holding the exhibitions, we give the following facts. The meeting was held at the usual place, and there was a large muster of members of committee and delegates from affiliated societies. The report was lengthy, and gave in considerable detail the investigations that had been made, and the conclusions arrived at with regard to the suitability or otherwise of the several places visited. Abundant proof was afforded by the report that the members of the sub-committee had fully appreciated their responsibilities, and had performed their duties with a thoroughness deserving of much praise. Some of the buildings in London that had been regarded as likely to prove suitable were found, on enquiry, not available in 1899, in consequence of their being already engaged; while none of the other buildings visited were recommended. The sub-committee also interviewed the Crystal Palace and the Royal Aquarium authorities, and, as a result, a recommendation was made to the General Committee that arrangements be made with the Crystal Palace Company for holding the exhibitions at Sydenham. The report was fully discussed, as indicated by the fact that its consideration extended over two hours, and the discussion was throughout brisk, and in excellent spirit. The chief objection urged against the Crystal Palace as the future home of the National Chrysanthemum Society was its distance from the centre of London, and the principal arguments in favour of continuing the shows at the Royal Aquarium were the central position of the building and the remarkable development of the society since it had held its exhibitions at Westminster. On the motion for the adoption of the report being put, the votes were in exact proportion of two to one against the proposals of the sub-committee. The consideration of the arrangements for next year was deferred until the meeting of the General Committee, to be held on Monday next, and a hearty vote of thanks was accorded the members of the sub-committee.

Supposed Hybrid between Dahlia and Helianthus.—Mr. Lowe, of Shirenewton Hall, forwarded blossoms to the R.H.S. Scientific Committee which had a true dahlia appearance, but which he believed to be raised from seeds of a parent the issue of the above cross. Nothing, however, excepting a rather large disc appeared to indicate a cross. The relationship between a dahlia and a helianthus being relatively remote, any *à priori* probability of such a cross being effected is but slight. In experimenting it would be extremely difficult to prevent self-fertilisation, unless it be proved that the pollen is self-impotent in dahlias.

Horticultural Club.—The first dinner and conversazione for the session 1898 and 1899 took place on Tuesday, 11th inst. The chair was occupied by Mr. Philip Crowley, and there were also present: Messrs. Geo. Monro, James H. Veitch, Peter Kay, William Bassett, James Walker, Peter Veitch, J. Assbee, C. Mason, and the Secretary. A paper of Mr. George Bunyard's was read, who, owing to indisposition, was himself unable to attend. The subject of it was "The Fruit Crop of 1898, and its Lessons." It was very ably treated, and led to a very interesting discussion, in which most of those present took a part.

Two New Cactus Dahlias, of considerable merit, have been sent us by Mr. J. T. West, of Brentwood, a successful raiser and grower of these popular autumn flowers. One variety is bright golden yellow and named Mrs. J. J. Crowe; the other is a handsome crimson-scarlet form named Mrs. Carter Page. Both these dahlias are of the best type, having curved, spiky, and pointed florets. Mr. West states that the dry weather has prevented him exhibiting these varieties at dahlia shows during the autumn, and under favourable conditions the flowers would probably have been larger. We hope the flowers will not be of larger size in better seasons, and we also trust that Mr West will give us many more good new dahlias provided beauty and good form, rather than large size, continue to be his aim in their production.

An International Horticultural Exhibition will be held at Antwerp in April, 1899, from the 9th to the 13th days inclusive. This exhibition is to celebrate the three hundredth anniversary of the birth of Antoine van Dyck; it is to be held in the Palais des Fêtes of the Royal Zoological Society, and is organised by the Royal Horticultural and Agricultural Society of Antwerp, with the patronage and assistance of the Government, and of the province and city of Antwerp. The schedule before us provides for one hundred and eighty-two classes; there are five for newly-introduced plants, and eight for new hybrids; orchid growers have the run of fifteen classes, and the prizes include a work of art presented by Baron Ozy de Zegwaart for the most artistic group of orchids, eleven gold medals, and a number of silver and silver-gilt medals. The Queen o Belgium offers a gold medal for the best twenty-five specimen flowering plants, while gold medals are freely offered by the society and the leading Belgian horticulturists for anthuriums, liliums, hyacinths, tulips, amaryllis, roses in pots, azaleas (eleven classes and nine gold medals), rhododendrons, New Holland plants, &c. His Majesty the King of the Belgians offers a gold medal for the best collection of fifteen ornamental foliage plants, distinct species or varieties. Palms and ferns are amply provided for; so are dracænas, crotons, nepenthes, bromeliads, succulents, and conifers. A number of classes are provided for florists' arrangements, and the prizes will be awarded with a view to encouraging originality in design and treatment. Intending exhibitors should communicate with M. Anatole de Cock, 215, Chausée de Malines, Antwerp, and entries must be made not later than March 10, 1899. Baron Ozy de Zegwaart is president of the Council of Administration, while MM. Jean Everaerts and Alphonse de Cock are vice-presidents; M. H. Vanderlinden is treasurer, and MM. C. Vanderlinden and Anatole de Cock are the secretaries; M. Chas. de Bosschere officiates as librarian editor. On the council are such well-known gentlemen as MM. Charles van Geert, Florent Pauwels, Alberic Lunden, Baron von Ohlendorff, Arthur Morren, &c.

The "Botanical Magazine" for the present month contains illustrations of Cyrtosperma senegalense, a curious West African aroid; Cytisus purgans, a handsome, golden-flowered, and dwarf broom; Amelanchier canadensis var. oblongifolia, a geographical form of the June berry; Feijoa Sellowiana, a Brazilian shrub with blood-red flowers and large guava-like fruits; and Rhododendron rubiginosum, a pretty rose-coloured species found in Yunnan by the Abbé Delavay.

What is an Amateur?—This question will come before the County Court at Hastings on Monday next. Some prizes awarded in the amateurs' classes at the November exhibition of the National Chrysanthemum Society were withheld by the General Committee on the ground of the exhibitor not being a *bona fide* amateur, and he has entered a plaint for their recovery. The hearing of the case is fixed for eleven o'clock.

Weather Forecasting.—At the recent meeting of the British Association at Bristol, it was proposed by Mr. Douglas Archibald that, in addition to the present daily forecast of changing weather conditions in these islands, a supplementary forecast should be given of the probable general character of the weather for half a week or more. The utility of such an extension, if practicable, of our present system is obvious, especially to the agriculturist. Our present twenty-four-hour forecasts, designed, as they were, chiefly to warn us of the approach of dangerous storms, are mainly serviceable to the mariner and fisherman. To the farmer and agriculturist they are of little value. A single day to him is of small account. What he would like to know is, How long is this weather likely to last? What will it be next week or next month? What sort of a season is it going to be—dry, hot, cold, rainy, cloudy, or that mixture of all the types which is so trying to the temper, but at the same time so conducive to the preservation of that national vigour of mind and body which has given England a leading position among the nations? If at present we dare not proclaim the possibility of eventually predicting the general character of an entire season, it is not because there is any scientific prohibition, but rather because, having started at the wrong end, viz., the particular, we must advance cautiously towards the general. Half a-loaf, however, is better than none at all. Half a-week's forecast ought to be of some service to the agriculturist, especially if it is framed in language suitable to his particular needs. The basis for this new departure in weather prediction lies in the growth and recent development of the knowledge of specific weather types prevailing over large areas.

Fungus on Pear Foliage.—Some diseased pear leaves sent to a recent meeting of the R.H.S. Scientific Committee were submitted for investigation to Mr. Worthington G. Smith, who has reported as follows:—The pear leaves with rusty spots are attacked by a Roestelia, one of the group of Uredineæ. This fungus is one which completes its life history on two host-plants. The leaves submitted are those of one host—the pear. They bear two distinct kinds of rusty spots or areas, viz., smooth areas in which the leaf tissue is almost normal, and swollen areas with the leaf tissue abnormally increased and full of starch. The smooth spots are studded on the upper surface with black points, the pycnidia or spermatia; as a rule these were covered with a hardened film of what had been sticky masses of ejected conidia, generally blackened with smut or bearing saprophytic fungi. The swollen pustular areas also bore spermatia on the upper surface, and also partially developed æcidium cups embedded in the abnormally increased tissues of the lower half of the leaf. The imperfect development of these æcidia prevents me identifying the species of Roestelia exactly; it is probably R. cancellata. This fungus may also attack the fruit. The second host of the "rust" is given as the Savin (*Juniperus sabina*), and it would be useful to know if this or an allied Juniperus occurs in this garden, also if they were perfectly healthy. The rust is a common source of trouble, especially a form which occurs on apple trees. The latter is very injurious in the United States. American authorities advise removal of the second host, the juniper, also destruction of badly diseased trees or branches. After these precautions are carried out Bordeaux mixture is said to give good results. It is used in two or three sprayings at intervals of eight to ten days, the first given as soon as the young foliage appears. It is also strongly urged to use varieties of apples or pears suited to resist the rust. These, of course, vary for different soils, and must be found out after making the necessary experiments in the locality where wanted.

Gas.—Dr. Calmette, in the "Le Nord Horticole," points out that manure evolves large quantities of carburetted hydrogen gas which is inflammable, and makes the absurd proposal that farmers should make use of it to light their farms. The manure, he says, should be covered by a bell-shaped receiver to collect the gas and lead it to a second receiver, where it can be washed and stored.

A BOTANICAL TOUR IN PERAK.

MR. C. CURTIS, F.L.S., Assistant Superintendent of Forests at Penang, and chief of the Penang Botanic Gardens, has recently been on a short botanical tour in Perak. The following are a few brief notes anent the tour :—

I arrived at Teluk Anson at eight a.m. (July 30) and found myself just five minutes too late for the train to Ipoh. As the next suitable train did not leave until 2.25, I drove out with Mr. L. Hawkins to see the coffee and rubber plantation under his charge. The coffee looked well, although there had been an unusually long drought at the time of my visit. Given suitable soil, the success of this cultivation in Perak is assured, but the present low price must be a great disappointment to those who invested heavily two or three years ago.

Rubber Trees.

The Para Rubber, with which a commencement had been made, and for which the soil appeared to be adapted, looked well, but a new enemy, supposed to be mouse deer, has taken a fancy to this tree and eats the tops off. All the plants so eaten sprout again, still the check is considerable, and, if constantly repeated, must eventually kill them. This is a factor that has not hitherto been taken into account in connection with the tree, and shows that it will be necessary to keep the *lalang* and jungle growth clear, so that there be no harbour for these animals until the tops of the trees are high enough to be out of their reach, or else to fence in the area to be planted.

At Ipoh, I took up my residence in the Rest House, and the following morning started out to explore the neighbouring limestone or marble hills. Quite close to the railway, a Singapore company have commenced quarrying marble, and three Italians, I was told, have been recently imported from Europe for this work. Many interesting plants were collected during the morning, but the most interesting thing to me was the finding of several trees of Gutta Rambong (*Ficus elastica*) in a truly wild state. Everyone interested in the subject knows that Gutta Rambong is collected by Sahkis and brought in for sale, and the tree has long been recorded in botanical books as a native of Perak, but, curiously enough, neither Mr. Ridley nor myself had ever collected this tree in the Peninsula. All that I had seen hitherto had undoubtedly been planted, but these trees were growing high up on the rocks and had sent their aërial roots down the face of the cliffs. Every tree I saw had been tapped, and in some cases tapped to death. I obtained leaf specimens only, as none of the trees were in fruit. Another interesting plant from a botanical point of view, very abundant here, is Lowia, a genus named after Sir Hugh Low, a former resident of Perak and a keen botanist. Gardening is not greatly to the fore in Ipoh. Shade trees are badly wanted all over the place, for walking or driving on those intensely white and hot roads during the heat of the day is killing. A half-hearted attempt at planting has been made in places, but the fencing has not been sufficient to protect the trees from the ravages of goats, &c.

The European residences at Batu Gajah are beautifully situated, commanding a fine view of the surrounding country. In the hospital grounds I noticed the largest tree of Jacaranda mimosiæfolia I have yet seen. No doubt it is the same age as the oldest of those planted in Penang, but it is much larger than any here. All the trees of the kind, in this part of the world, are, I believe, from seeds or plants distributed from the Penang Gardens, and the oldest cannot be more than twelve years planted. There is also in the same grounds a fine clump of palms and a Kayu Rue (*Casuarina*), that looks somewhat different from typical Casuarina coquisetifolia, of which I obtained seeds.

At Sungei Siput, I called first to see Mr. Forrest, who is superintending the opening-out of land for coffee, cocoanuts, &c., not far from the station. However, he had gone out, and the boy said he would not be back until the evening, so I retraced my steps through the village and proceeded along the Kuala Kangsar Road so far as Kamuning Estate, though I did not at the time know what estate it was. This seemed to be a favourable place for collecting, so I worked around the edge of the clearing, collecting living plants for cultivation and specimens for the herbarium, until it was time to return to Sungei Siput to catch the train for Ipoh. The coffee on this estate is the finest I have yet seen. Para Rubber planted alongside the road through the estate does not appear to grow so well as it does in damper soil. On August 3 I went out to some hills about three miles from Ipoh, on the GopengRoad, to the only habitat I know of Habenaria Kingi, an interesting orchid with greenish flowers. Of this I succeeded in getting some thirty plants, and a few other things of interest. It is a difficult spot to work, as all the rocks are surrounded by swamp. Since I last went along this road a good deal of coffee has been planted, and other smaller cultivations have increased considerably. Before going out in the morning I visited Mr. Barnard, who kindly presented two or three interesting plants for the Gardens. At half-past five the next morning I left Ipoh for Melimbau, a village near the foot of Gunong Kledang. In a 'rikisha it took half-an-hour to reach, so that I was able to start collecting up the hill while it was still cool. There is a good road up the Kledang, with a Goverment bungalow near the top. The distance from the foot is four miles and a-half. Going slowly and dipping into the jungle here and there, it was near noon when I got to the top. The lower slopes of this hill have been cleared of all big trees for firewood or charcoal, and I noticed several wood-cutters at work. About half-way up there occurs, and more or less from there to near the top, a magnificent palm with a stem six or seven feet high and immense paddle-shaped leaves, which the Malays call "Daun Sang." I spent a lot of time in hunting for seeds of this, but without success. We dug up a few young plants, but palms are always difficult to transplant, and I do not expect to save more than one or two. Daun Sang occurs, I am told, all through this range. I saw some leaves used for the side of a native house at Sungei Siput, and if anyone in the locality can send ripe seeds it will be a most acceptable contribution to the Penang Gardens. Near the top there grows a very pretty Indian Primrose (*Didymocarpus*), with orange flowers, quite new to me and, I believe, undescribed. Palms of many kinds are a marked feature of the vegetation on this hill, rotans and bertam being very abundant. The day following I packed all plants collected during the previous five days and forwarded them to Penang, and on the next day left for Kuala Dipang. Kuala Dipang is not the pleasant place it once was. This, the most charmingly situated of rest-houses, has been turned into a police-station. There are, however, two rooms used by Government officers when on duty, one of which I occupied for two nights before going up Bujong Malacca. It is a pity that this house should be occupied by the police, for Government officers, unless they are more fortunate or sounder sleepers than myself, cannot get much rest when in this place.

Gunong Bujong Malacca.

On Monday, at eight a.m., I left Kuala Dipang with four Malays engaged on the spot, and my own man and boy from Penang, to ascend Gunong Bujong Malacca. The Malays were a very poor sample, but as my time was limited I took the first that offered. We went on climbing slowly until about eleven a.m., when we came to a Chinese kongsi-house at a place called Kadongdong. Here the men decided it was time to stop and cook their rice, and as the spot looked like a promising collecting-ground, I raised no objection, but poked about among boulders for an hour while they got *makan*. Their style of hill-climbing suited me all right, but would have been a frightful nuisance to anyone whose object was simply to reach the top. After leaving this kongsi-house, in which there are five men, we found, at only a few minutes' walk distant, two ways up to Ulu Palas, the one to the left being longer but not so steep. This we decided to take in going up, and to return by the other. I was very pleased afterwards that the men told me of this longer route, as it proved more interesting botanically than the other. At about half-past three (watch stopped) we arrived at another kongsi-house in a large valley which the Chinese call "Amokong," and the Malays "Ulu Palas." The Palm "Palas" (*Licuala spinosa*), from which the stream takes its name, is very abundant along all the ridges of the mountain. In this mining kongsi-house, in which are six men, but there had apparently at one time been many more, we decided to spend the night, and go to the top in the morning.

After a brief rest I started out to examine and collect plants in the neighbourhood, but the Malays were all asleep inside of ten minutes, and, as they were at the other end of the house, I saw nothing more of them until the next morning. Washing for tin has been going on in these streams for years, and it is a bit difficult at this point to make out just exactly where the original water-courses came in, but so far as I could see there are at least three different streams which join at this spot. Grubbing for tin has capsized trees in all directions, so that it is easy to get to examine the orchids and various other plants growing on them. There had been no rain for some time previous to my visit, and many of the smaller things, such as filmy ferns, on both rocks and trees, were quite shrivelled up. Many larger plants of a succulent nature were hanging limp and languishing for rain. They got it before I left.

During the night I thought the matter over and came to the conclusion that if I took my bedding, provisions, &c., to the top, and slept there, it would take the kind of men I had a long time to get up, and I should get but few plants carried down. Consequently, I decided to leave my boy with all the things at the kongsi-house, take all the men out with me to carry plants, and return at night. From this point none of the men knew the path to the top, but they knew that, higher up the stream, there was one more kongsi, where, if we could find it, some information could be obtained. So we kept to the stream until we struck it. Here some of the men spoke Malay, and one came with us to show the path until a point was reached, after which there could be no mistake.

There is a pretty stiff bit before getting on to the last ridge, but the whole distance from Kuala Dipang to the top could be done in a day by one in pretty good training, and desirous of doing the thing quickly. The height, I was told, is 4,090 feet, but, judging from the vegetation, I should have thought it more. The hut on the top is in excellent order, and water is obtainable at a much less distance from the top than I expected. We remained on the top for about an hour, admiring the view and refreshing the inner man, after which we commenced to retrace our steps and collect things spotted on the way up. Up to this time, I had not seen a drop of rain since leaving Penang, but during the night it came on heavily, and as the kongsi-house leaked like a sieve, things were a bit uncomfortable. On the way down we got another thorough soaking, so that by this time the vegetation will be looking much better than when I was up there. Altogether, it is a most interesting mountain. On the top there are a great number of the fir tree that grows on Government Hill, "Kayu Rue Bukit" (*Dacrydium elatum*), but they are smaller and more stunted. Most of the orchids have rather insignificant or dull-coloured flowers, but they are very abundant. Some of the ground orchids are of great interest. Two kinds of rhododendrons, a pitcher plant, and scores of other things of great interest, were noticed and collected. All the way up palms abound, but the animals—monkeys, I think—manage to get all the seeds before they are quite ripe. On the rocks are an abundance of ferns, begonias, Indian primroses, and other small-growing plants in great variety. Having a day to spare after coming down, I tried Bujong Malacca again from the Kuala Dipang valley side. It is much steeper than the usual path to the top, and I did not find anything strikingly different from what I had already collected the previous day.

The next morning I went out to some rocks near Kuala Dipang, to get a begonia and one or two other things noted previously, and later in the day went on to Kampar, where I remained the night in the Rest House.

Roses.—Whence should the amateur, who seeks to recall the fragrance of the past, stock his garden with the white moss rose, the clustered blush rose, the plain, old-fashioned damask rose, or the single, striped York and Lancaster? How, too, should he revive the faintly remembered glories of that rich corner of the garden in the old home, where year after year the same, venerable, lichen-frosted rose trees, scrambling over moss-grown walls, dropped their showers of petals over the marjorum and gillie flower, the sweet basil and true-love-lies-bleeding beneath? It would be a worthy effort, observes a writer in the *Globe*, of some of the democratic authorities whom modern views have placed in charge of parks and public places, to reproduce in some corner of each the flower garden as it used to be when our grandfathers courted our grandmothers there. Thus, the nation might retain in fact, as well as fragrant memory, many of the floral favourites that bloom in Shakespeare's verse. Some are gone beyond recall; but some still linger by accident in the gardens of old estates, which have not yet passed into the hands of manufacturing millionaires. But the task is beyond the strength of the amateur rose-grower of limited means, who courts more complete disappointment in attempting to revive the past than he does even in trying to keep pace with the breathless present. So he generally collapses into comfortable mediocrity, and orders his roses by the dozen of "good, mixed sorts" from the nearest nurseryman. Then, when a guest askes him the name of one of his roses, he can say, "Oh, that is a La France, or a Jeremy Diddler, or something," and everyone is satisfied. But the name or fashion of a rose matters little, after all—a sentiment which Shakespeare has, by the way, anticipated. It is still a rose, the sweetest and queenliest of flowers; and there is no period of man's life over which the rose does not exercise its sway. Childhood, which puts everything that its hands can grasp into its mouth, rejoices to find that the rose, unlike the geranium, is quite palatable; while the succulent shoots of the rose bush may be chewed with relish. The boy promoted to knickerbockers admits cheerfully that the rose has a "jolly smell," and is always ready to follow the example of Yorkists and Lancastrians and wear it as a badge. Indeed, in the vicinity of some large schools, where the red and the white rose typify the classical and mathematical sides, the demand for roses of pronounced hue on great school occasions severely taxes the local supply. Passing from boyhood, the youth still recognises the rose's symbolic power; and, whether he wears it in his own buttonhole or presents it, with a frond of maidenhair, to the only girl he has ever truly adored, it is the recognized badge and livery of all-conquering love. To middle age, the rose expresses the fulness of virtuous beauty, the fragrance, as it were, of a well-spent life, and the richness of complete content.

CHRYSANTHEMUMS.

DEVELOPMENT OF THE FLOWERS.

THE abominable fungus which has recently infested, more or less, almost every collection of chrysanthemums, comes as an additional worry to those in particular who grow specimen blooms for exhibition. Its marvellous rate of increase and the apparent ease with which it is distributed amongst the plants are very discouraging facts, and we must meet the trouble in a very determined manner if we are to escape its far-reaching and serious consequences. The initiative taken by Mr. Sanders and Mr. Waterer in suggesting a conference on the subject, to be held at the October exhibition under the auspices of the N.C.S., is deserving of high praise, and let us hope that the outcome may be some readier means of combating the disease than has at present been discovered. Meantime we must pick off and burn every spot which can be found, and spray the foliage with sulphide of potassium, already recommended in the GARDENERS' MAGAZINE, whenever the weather permits such treatment, at intervals of a few days. Everything depends on individual effort in the stamping out of such a disease, and nurserymen especially ought to be alive to this fact, and take especial pains to avoid distributing infected cuttings or plants, otherwise chrysanthemum growing may receive a serious check.

Complaints reach me from all parts of the South of England of the loss of buds through their dying off when about as large as hazel nuts, and though this applies to several varieties more or less, the worst affected are Madame Carnot and its sports. There is little doubt that this is caused by the hot sun and altogether exceptional weather experienced since the buds were taken, and the reason Madame Carnot has suffered most is that its extremely succulent nature has presented too much sap to the buds, which, under the influence of abnormal heat, has resulted in decay. Many of our own plants of the Carnot section were housed early and shaded from bright sun, after which no loss occurred. Simplicity, Duke of York, Lady Byron, and buds of others "taken" early in August are those which have suffered most. With such a gloomy opening to my contribution it might appear to some that there is nothing but trouble in store for those who cultivate chrysanthemums. The advent of the flowering season, however, has brought with it plenty of bright prospects to those who have carefully attended their plants, and we may offer a few hints at this time on the development of the blooms.

By the time these notes appear, cooler, and we may hope for many reasons, more rainy weather will be with us; ventilation will need more care, and fireheat be necessary when the outside temperature approaches the freezing point. The pipes must also be warmed when rainy weather or fogs prevail. The aim will be to maintain a buoyant atmosphere ranging from 45 to 53 deg. Always give a little top ventilation night and day if there is no risk of driving rains or too low a temperature injuring the flowers. Fumigate frequently before insects have a chance of doing mischief, and keep all the shoots carefully fastened in an upright position to ensure the blooms unfolding evenly. Flowers which are likely to be rather too early for a given date may be retarded by being kept heavily shaded, and as cool as possible, away from draughts and the risk of a damp air. When these are three parts developed, they may be kept in almost total darkness, and for the last few days are best cut from the plants, stripping the foliage from the stems, and immersing the latter some ten inches in bottles of water. Late buds, on the other hand, need full light, and to be kept well up to the roof glass in a temperature not exceeding 58 or 60 deg. with ventilation. Sulphate of ammonia will help such buds, as it is quickly taken up by the plant, and tends to hasten the growth, though, as so often advised, only small quantities may be safely used, which should not exceed the rate of one ounce per gallon of water. Decaying leaves and strong sucker growth need constant removal, and if possible the whole collection should be examined and rearranged, giving ample room to each plant if space can be found.

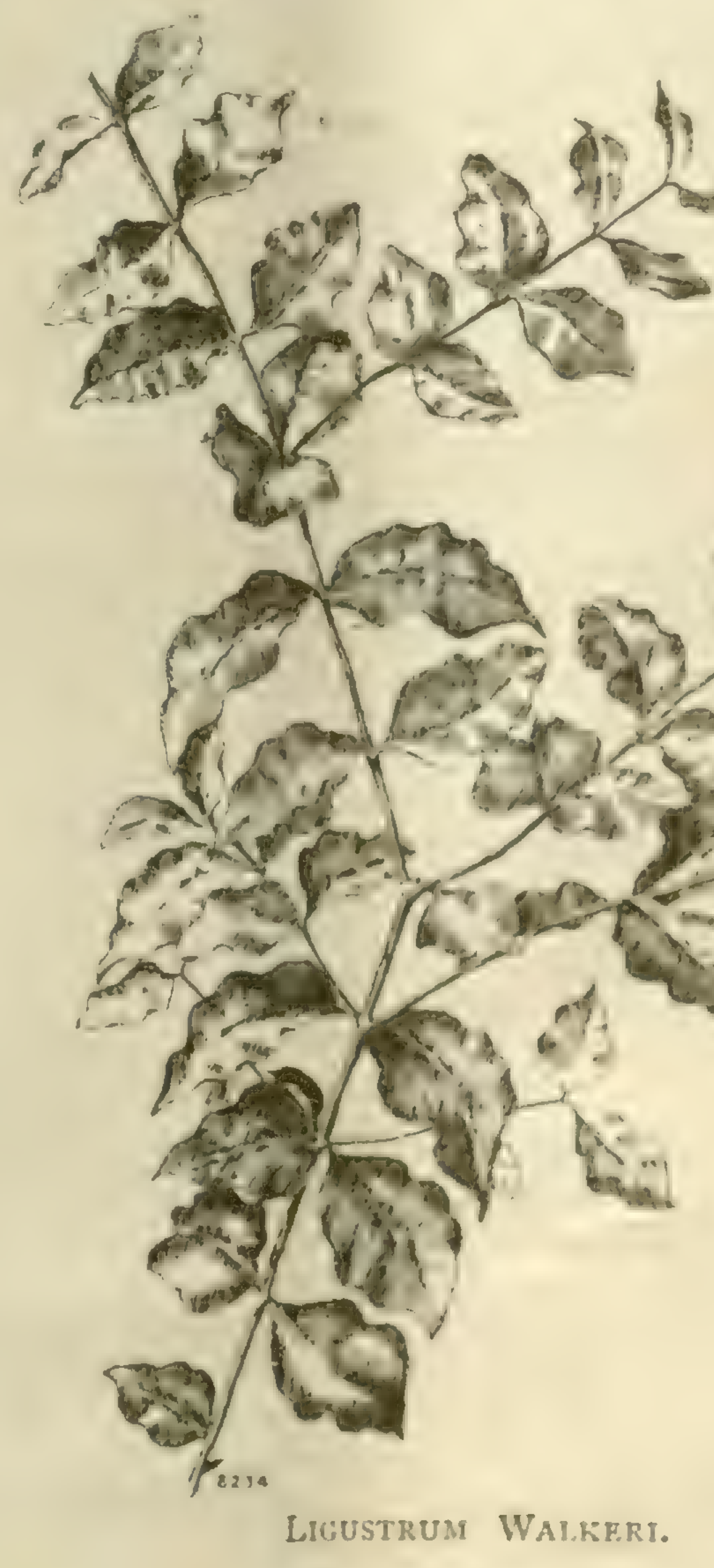
It is an old practice and a good one, to place varieties of the large petaled incurved section, of which the Queens are the most important, on front stages when the flowers are about one-third unfolded. The stakes are removed, and the shoots suspended from the roof so that the blooms hang head downwards. In this way the petals maintain their incurving form better, and it is an easy matter to attend to the removal of crowding or deformed florets, which so materially assists a perfect development. All incurved varieties need watching for similar deformities, though the forceps for this must be very carefully used, or more injury than good may follow the possible bruising of young florets in the centre of the bud.

Several novelties have very promising buds, notably one named Madeline Davis, which, if I am not mistaken, will prove a fine acquisition. General Paquié, Madame C. de Terrail, and Madame H. de Vilmorin are also likely to be first-rate sorts and of exhibition quality. Mrs. C. F. Payne, Master Tucker, Royal Sovereign, Sec. Fierens, and S. W. Gilbert also appear to warrant their inclusion in all collections. We do not find that the past fine weather has unduly forwarded the flowers, though many people express a contrary opinion. Certainly with the early border varieties it appears to have had a retarding influence. The useful Ivy Stark is much later in blooming than last year, and I am inclined to think that the extra sunshine and dry atmosphere has hardened the buds and made them open more slowly. The September sorts have been less brilliant in colour, and by no means so good as usual, and I am rather dreading a chastisement from "Lux" if his plants have not been more satisfactory than our own. However, the later varieties, which carry on the supply of outdoor flowers to November, are better, and extremely useful where large quantities of cut flowers are in demand. Just now these, with Michaelmas daisies, rudbeckias, and perennial sunflowers, are the mainstay of the hardy flower borders.

Trent Park Gardens. W. H. LEES.

LIGUSTRUM WALKERI.

SINCE the Floral Committee of the Royal Horticultural Society awarded Ligustrum Walkeri a first-class certificate the plant has been the subject of a good deal of comment among the habitués of the Drill Hall meetings. There can be little doubt but that the committee overrated the value of this privet; but, on the other hand, it does not follow that, because a plant is unsatisfactory at Kew, it must be so everywhere else. Ligustrum Walkeri is a native of Ceylon and the Neilgherry Hills, and though the young and shining green leafage is attractive, we have other plants of which the same may be said. Young, branching specimens, like those exhibited by Messrs. Paul and Son, Cheshunt, are decidedly attractive, but the plant soon grows out of this condition, and becomes somewhat straggling in habit. Then, also, the species is not sufficiently hardy to stand unprotected throughout the year even as far south as Kew. The next question to decide is whether this shrub is of sufficient value to warrant greenhouse cultivation. We are of opinion that its merits will not justify such care in the large majority of gardens. It has, however, been suggested as suitable, when properly grown, and in tubs, for the decoration of large cool conservatories or winter gardens, and for this purpose it may prove of value. The accompanying illustration is reduced from a pen and ink sketch of a small branch, to show form of leaf and growth.



LIGUSTRUM WALKERI.

NOTES ON THE CRYSTAL PALACE SHOW.

IT appeared to be the general opinion of those best able to judge that apples and pears were not quite so good as usual at this show, which fact may probably be accounted for by the very dry weather that has been so long experienced in the southern parts of the kingdom, from whence the finer and best-coloured fruits are usually forthcoming. Any deficiency, however, there may have been in these was amply compensated for in the classes for stone fruits, as it is seldom that such fine examples of peaches and nectarines as were exhibited are to be seen at shows held some weeks earlier in the season; and the end of September may be considered rather late for showing these in such good condition, especially after the hot weather that has been experienced this year. Plums, too, were a marvellous display, and it is, I think, correct to say that, taken as a whole, no finer collection nor finer individual dishes of the fruits have ever before been brought together in this country; and how some of these had been ripened, protected from wasps and insects, and the bloom preserved so perfectly upon trees in the open air, was to me a mystery. In this section of the show alone the Council of the Royal Horticultural Society may justly claim the credit of accomplishing good work by bringing before the public, and gardeners in particular, the several newer varieties of these fruits which have been introduced to cultivation in recent years. Many of these are a great advance in size and appearance upon older varieties, and being later in ripening, the season of these popular fruits is considerably prolonged. The method of staging adopted now at the Palace is also a great improvement upon that in vogue a few years ago, as not only is the fruit shown off to much better advantage by being arrayed on long tables with the classes together or in consecutive order, which makes it an easy matter to find any particular number or class of fruit instantly, but it is also of great assistance to exhibitors when staging, and saves an immense amount of running to and fro to find any particular number, or of pestering the officials with inquiries at a time when these are already closely engaged with the proper arrangement and after appearance of the show.

Galloway House, N.B. JAMES DAY.

HOMOLOGY OF PLANTS.

By Professor F. O. Bower, D.Sc., F.R.S

(Continued from page 668.)

III.—ABNORMALITIES.

The following considerations influence me in forming an opinion as to the real place of apospory and apogamy in the history of the alternating generations:—

I. The Bryophytes show remarkable uniformity of alternation; irregularities are few; apogamy is not recorded; apospory appears rarely, as a physiological refuge for the destitute plant. This uniformity goes along with the protected and dependent condition of the sporophyte. All Pteridophytes have their embryos protected while young, and this seems to have been their primitive condition. The true lesson of the Bryophites, which include the simplest living Archegoniates, seems thus to be that uniformity of alternation goes with a simple structure, and a protected or dependent condition of the sporophyte; and this we have reason to believe was the condition of the simpler Archegoniate fruits.

II. The distribution of apogamy and apospory among Archegoniates at large is very irregular; the Leptosporangiate Ferns are the headquarters; but they are a pecularly specialised phylum, with free sporophyte, exposed when mature, though protected while young. They are adapted to special conditions and show a greater plasticity of development than any other Pteridophytes. The Ferns are subject to other abnormalities than apospory and apogamy. The root may develop directly into a shoot, or the apex of the leaf into a bud. I think it has been too readily held that the Ferns occupy a special place as a key to the morphological problem. We should bear in mind how really isolated they are; they are essentially an extreme, even an extravagant type; they show the largest sporophylls in the whole vegetable kingdom, with the largest numerical output of spores from each. Many are specialised in accordance with extreme conditions of shade and moisture. These considerations should temper our view of them, not only as material for normal comparison, but also as exponents of abnormality.

III. The fact that in cases of induced apogamy in Ferns archegonia are first produced, clearly shows that in these cases the first intention of the plant is towards a normal production of embryos, while apogamy takes its place as a substitutionary growth. It may remain an open question how far direct apogamy will bear a similar interpretation.

IV. The character of the aposporous and apogamous growths is very anomalous; their position is not definite. Aposporous growths may arise from the sorus and sporangia, or from the most varied points on the margin or surface of the leaf. With regard to apogamy in Ferns, it appears, as the result of a large number of observations, that though there is an average normal of position, still any part of the sporophyte—stem, leaf, ramentum, root, sporangium, or even tracheid—may arise, independently of others, from the prothallus. Single sporangia, or groups of them, may appear without vegetative organs of the sporophyte; leaves without other parts; in one case, I believe, as many as ten roots have been seen without any other members of the sporophyte! The close similarity of the parts thus irregularly placed to those formed in regular sequence in the normal plant should be a warning of their abnormality. I cannot see in them any suggestion of a primitive state. Dr. Lang tells me that these exceptional developments form only a small proportion of the individuals in any one culture; still they are there, and those who hold that apogamous developments are a suitable basis for morphological argument must not pick and choose those cases which suit their views, but must take even the most extravagant into careful estimation. My own view is that these anomalous growths are not a safe guide to past history. But looked upon as the result of a recently-acquired transition from one generation already established to the other, following nuclear changes, in the one case of reduction after insufficient nutrition, in the other of doubling of the chromosomes following on plethora apospory and apogamy are at least intelligible. We shall understand how the transition may take place at one point or at many, while the irregularity of the parts produced offers no morphological difficulty; it is rather what might have been anticipated if the transition were a ready consequence of the conditions we have noted.

Lastly, a word on Dr. Scott's utilitarian argument. He remarks "a mode of growth which affords a perfectly efficient means of abundant propagation cannot I think be dismissed as merely teratological." We must be clear that utility is no certain evidence of antiquity. As refuges for the physiologically destitute, apogamy and apospory may play an important part *now*, and in so far are not to be dismissed as mere freaks of nature. But in my view they would rank, as regards utility pure and simple, with the formation of adventitious buds on the root-system of a poplar that has been felled; or with the bulbils which replace the flowers in so many mountain species; neither these, nor, I think, aposporous or apogamous growths, throw any direct light upon the story of descent.

To sum up then, not only do I find that the facts in our possession, including the wildest anomalies, are consistent with an antithetic theory, but a comparison of normal forms seems to me to support the opinion that the sporophyte has appeared as the result of gradual elaboration from the zygote, a fresh phase having been thus gradually intercalated in the course of evolution. The idea first clearly stated by Celakovsky in 1868, was developed by him in subsequent writings. I endeavoured to place it on a footing of adaptation to external conditions in 1890; and in 1897 we find Strasburger restating the position in terms almost identical with my own, but upon a basis of nuclear detail which had not been dreamed of when the view was first propounded. Dr Scott has enthusiastically appreciated the double verification of the forecasts of Professor Pringsheim; I think that the way in which the antithetic theory is found to work in with the nuclear details recently discovered appeals quite as strongly to my mind.

In the course of this discussion I have not been anxious to point out such difficulties as beset the homologous view; all I have attempted here has been to set aside some of the difficulties which have been suggested in opposition to an antithetic view, and to show that the latter theory will adequately cover the facts.

Returning now to our general inquiry on homology, we see that on the antithetic view the two generations are not *homogenetic*; but they may be in a high degree *homoplastic*, and this homoplasy may be impressed upon the two generations, even in the same species, as in some Lycopods. I have never felt the cogency of the fact that the gametophyte of *L. cernuum* is somewhat similar in outline to the young sporophyte. Both generations are exposed to similar circumstances, and may be reasonably expected to have reacted alike. Moreover, the similarity of form of the "leaves" of prothallus and plant is but slight, and is not maintained in allied species. Their arrangement is variable. Between them also lies the essential structural difference, so widespread among Archegoniate plants, that in the sporophyte stomata and intercellular spaces are present, in the gametophyte they are absent. These are just such differences as point to homoplastic development. Most commonly, however, the homoplastic development is only seen in distinct organisms, and in this sense we shall rank the leaf of the Moss as the homoplast, but not the homogene, of the leaf of a Lycopod or of a Fern.

Theory of the Strobilus.

Some years ago I submitted a theory of the strobilus in Archegoniate plants. Comparisons were drawn between Pteridophytes and Bryophytes, and it was suggested that the origin of the strobilus of the former was "from a body of the nature of a sporogonial head." I specially pointed out at the time that my object was not a mere hunt after homologies, but to obtain some reasonable view of *the methods of advance* in Archegoniate plants. I wish to lay special stress upon this, for some appear to think that by denying an homology which I have not been at pains to maintain, they invalidate this search after the methods of advance. The Bryophytes as we now see them are our best guides in the search after these methods, even though they may not have been in the direct line of descent of Vascular Plants. As regards the comparison of the strobilus with a sporogonial head, I wish to make it clear that a *Moss* sporogonium is not specially indicated. The expression used has been "the origin of the strobilus from a body of the nature of a sporogonial head"—that is simply a part of the sporophyte which bears spores internally as distinct from a lower vegetative region. We see in more than one sequence of Bryophytes how in a sporogonial head, as thus defined, the spore-production becomes restricted in extent, and relegated towards a superficial position by the formation of a central sterile mass. I am ready to join Dr. Scott, in his confession of inability to find anything like an intermediate form between the spore-bearing plant of the Pteridophyta and the spore-bearing fruit of the Bryophyta, and to agree that at the best there is nothing more than a remote parallelism not suggestive of affinity; but none the less I think we should continue to search among the Bryophyta for suggestions as to the *methods* of advance, and to have confidence in transferring these ideas across the gulf, for I believe this to be both a reasonable and a promising method of study.

(To be continued.)

ECCREMOCARPUSES.

Few hardy climbers are more effective when grown under suitable conditions than this little family. The genus consists of two species, one a native of Chili and the other of Peru. Both are fairly hardy in most districts, but quite so in the South and West of England, fine specimens being frequently seen in southern gardens. I noticed recently, in the neighbourhood of Byfleet, Surrey, a fine specimen of the best known species, Eccremocarpus scaber. It was growing on a south wall, was quite fifteen feet in height, and several yards wide; its handsome flowers being produced in great profusion. It was made more effective by a large plant of Clematis coccinea growing near, the branches and flowers of which had intermingled, and the brilliant scarlet of the clematis contrasted well with the striking colour of the Eccremocarpus. The flowers are produced freely from July to September, the tubular-shaped blossoms being crowded on the racemes, and of a deep orange-red or scarlet colour. The leaves are deep green, bi-pinnate, ovate, cordate, and sometimes serrated, terminated by a conspicuous spiral tendril, and altogether very ornamental. A name adopted by some authorities for this plant is Calampelis scaber, and under this it was described by Sweet in his "British Flower Garden," Series II., p. 30. Eccremocarpus scaber was introduced from Chili in 1824. A fine garden form is sometimes met with under the name of Eccremocarpus scaber rosea, differing only in the colour of its flowers, which are salmon-rose. It is well worth cultivating, forming an agreeable contrast to the type.

The Peruvian species, Eccremocarpus longiflorus, introduced in 1825, is distinct from the Chilian. Its tubular flowers are longer, yellow in colour, with a distinct greenish limb, while its leaves are deep green, bi-tripinnate, and its leaflets oval, entire, and sessile. It flowers during July and August, and although rare in cultivation, is quite as easily grown as E. scaber. The vigorous growth of the species renders them valuable for covering walls, trellises, or pillars quickly. Their culture is very easy, as they thrive well in any rich sandy loam. They are readily increased by means of seeds, which, if sown in heat during February and March, will produce plants to flower during the latter part of the same year; and also by cuttings of the young growths, taken during July and August, provided they are kept in cold frames during the winter.

Woking. E. Scaplehorn.

Peach Trees.—In the neighbourhood of Taunton this season I have had peach trees drop their leaves, twice with the aphis before the flower, and after the fruit had been set. I thoroughly syringed the trees with aphis wash before and after, but I found that syringing with a half-pint of paraffin to twelve gallons of water has kept them in abeyance, and the trees are in a healthy state, and scarcely any of the fruit has dropped.—J. H. S.

TRENT PARK GARDENS, NEW BARNET.

The name of this excellent establishment has gained enviable notoriety during recent years, more particularly on account of the high quality of the chrysanthemums which have been grown here, and achieved such distinction in the principal towns and cities of the United Kingdom during recent years. A visit to the gardens at all times is particularly interesting, and especially so at the present, as the near approach of the chrysanthemum season brings with it increased interest owing to the high positions always attained by Mr. W. H. Lees, the excellent and able gardener to F. A. Bevan, Esq. All eyes will be directed to efforts made by Mr. Lees this season, and readers will, doubtless, be interested to learn how fares the collection of plants under the skilful treatment of this master-hand.

It is safe to state that the chrysanthemums are a particularly promising collection, and the buds being admirably timed, notwithstanding a most exceptional summer season, there is every reason to suppose a good account will be given when the blooms are staged upon the exhibition table. A handsomer lot of plants it would, indeed, be difficult to imagine, and this year they are characterised by well-ripened wood, nice stocky growth, stout leathery foliage, plump, fast developing buds, the plants as a whole being absolutely devoid of coarseness. Failures have been recorded in the collections of many growers in different parts of the country, but in this instance there have been very few indeed; in fact, hardly sufficient to notice. The buds of Madame Carnot and its sports have caused many growers to bemoan their fate owing to the loss of the most promising through a kind of dry rot, but in the Trent Park collection these are represented by a beautifully even lot of buds, which are developing easily and kindly. There is said to be a pink Madame Carnot, and if this is indeed a fact there is a hope of seeing this variety staged in some of the keenest competitions of the present season. We noticed a fine lot of Matthew Hodgson in various stages of development, and as this is without exception one of the finest crimson-red Japanese extant its value will be highly esteemed. Royal Sovereign promises well; so, too, do John Neville and Joseph Brooks, introduced last season with considerable promise. A variety likely to receive the attention of those who value a good thing when they see it, is Madeline Davis, a flower of the most delicate colouring, and also of the most chaste description. Other novelties, such as Joseph Chamberlain, Mary Molyneux (very tall, attaining a height of almost five feet before a natural break was made), President Nonin, Secretaire Fierens, the latter two being two of the best of M. Ernst Calvat's last season's novelties; Chatsworth, Ella Curtis, Madame G. Bruant, Julia Scaramanga, Mrs. F. A. Bevan, Oceana—this latter variety being grandly represented—are just a few of the newer kinds destined to play an important part at the forthcoming shows. Very fine plants of Mrs. H. Weeks, some grown in the ordinary way and stopped early in the season, and others rooted early in the spring, and the first bud developing secured, showed how amenable is this variety when properly treated. Of the Viviand Morel family of plants there were some splendid examples, and these gave promise of producing blooms of exceptional merit.

The incurved varieties were also admirably represented, the "Queens" being characterised by neat and even growth, rich green foliage, and buds secured in excellent time for the November shows. The footstalks to the buds were stout and erect, proving conclusively that the plants possessed the necessary vigour to build up deep, globular flowers. The "Princesses" were also coming along in promising style, so there is the prospect of seeing this handsome type of the chrysanthemum in good form as of old. The newer sorts were also noticeable, including such varieties as Miss Dorothy Foster, Miss Violet Foster, Mdlle. Lucie Faure, Madame Ferlat, Mrs. N. Molyneux, Ernest Cannell, besides many others, and to these must be added such typical varieties of those a little older, and represented by Charles H. Curtis, Globe d'Or, J. Agate, and a few more which have achieved distinction. Taken as a whole, they are distinctly the best lot of plants it has been my good fortune to see thus early in the season, and the forecast of ultimate triumph is decidedly cheering. Mr. Lees is particularly careful not to overcrowd his plants in his different houses, so that they may be examined with comparative ease, and this is no mean advantage during the work of the next few weeks. Ample ventilation is always afforded, and the blinds lowered during bright sunshine. All the plants were housed before the last week in September, which must have been a consolation when it is remembered that there were several experiences of frost at this time.

The early varieties are appreciated at Trent Park, both for their value as plants for border decoration, as well as for use in a cut state, and for this work they are considered most useful. As with other growers, the collection here was later in flowering this season than is usual, and some of the well-tried varieties have lost much of their colour. Those chiefly grown for this purpose are Madame Marie Massé, Ivy Stark (one of the best for outdoor culture), Madame la Comtesse Foucher de Cariel, Vice-President Hardy, and Ryecroft Glory among the Japanese; and a few pompons, including Blushing Bride, Fred. Pelé, and Flora. A white Japanese variety for pot culture, and grown in bush form, is Lady Fitzwygram, this being invaluable for cutting.

The display of Michaelmas daisies is a very good one, and these are pleasingly displayed in a long border with a northern aspect. The abnormal dry season has had its effect here, and although the effect is very fine, on close inspection one can see how much the drought has affected the plants. Several very handsome varieties are already over, although they should now be at their best, and others fall far short of what they should be in a normal season. Nevertheless, they demonstrated most effectually their value as an indispensable plant for the harder border, as when judiciously disposed in the border, a very graceful and pleasing effect is easily brought about. The most conspicuous among them were Aster [illegible] bessarabicus, A. cordifolius elegans, A. cordifolius Diana, A. Coombe Fishacre, A. multiflorus, A. Novæ-Belgi densus, A.N.-B. Robert Parker, A.N.-B. Harper Crewe, and A.N.-B. lævigatus, and others to succeed. The hardy border is always pleasant to look upon, and at the time of my visit was aglow with many free-flowering subjects. The Japanese anemones were very fine, as were helianthuses in variety, the finest of them, Miss Mellish, looking particularly handsome, with quite a host of other subjects too numerous to mention. Four long borders are devoted to roses, and many of these were, naturally, plants with a past. H.P.'s are represented by masses of the best known sorts, such as Mrs. John Laing, and hybrid teas by La France. Teas and noisettes were still blossoming freely, and some of the most charming of the garden roses were also in evidence.

A new terrace garden recently constructed on what was previously a slope, with a northern aspect, was one of the most interesting and pleasing features of the outdoor garden. The borders were full of bright-flowering plants, even thus late in the season. A grand effect has been obtained by planting subjects of a kind in masses, and the importance of this arrangement was best appreciated when the whole display was viewed from the upper terrace. Even so late in the season as the occasion of my visit, pentstemons were making quite a brilliant display. Early-flowering chrysanthemums, tuberous-rooted begonias, cannas, &c., in large blocks, made a most striking and glorious array of colour with their blossoms, and the free use of violas in many of the newest varieties, chiefly represented by William Niel, Ethel Hancock, Princess Louise, Bella, Rosea pallida, Isa Fergusson, Mrs. C. F. Gordon, Harepema, and Duchess of Fife, showed the wisdom in the selection of the subjects used for this purpose.

I must not omit to mention a fine house of Muscat of Alexandria grapes, in which many handsome exhibition bunches were hanging, the berries being large and well coloured. There were other houses of interest, but space prevents further details. The estate of Trent Park is charmingly situated, and it would be difficult to find its equal so near to town, with its delightfully undulating landscape, well timbered, and just now assuming its autumn garb. In the generous proprietor, Mr. F. A. Bevan, it is exceedingly gratifying to know that the world of horticulture has such an enthusiastic supporter, and the greatest credit is due to him for the encouragement given to those whose privilege it is to care for his beautiful gardens and pleasure grounds. VISITOR.

REMEDY FOR CHRYSANTHEMUM RUST.

TOGETHER with many other growers I attended the conference of the N.C.S. on the subject of chrysanthemum rust on October 11. I had intended giving my experience of the pest, but the time allowed for discussion was rather short, and I waited over-long to hear what gardeners had themselves done to cure or prevent it. None, however, came forward, at least with one exception, and he had no experience with the pest; all the others were trade growers who took part in the discussion, and only one of these had a remedy to propose, so far as I could hear. So far as the petroleum (paraffin) treatment is concerned, my experience differs from that of Mr. Wells, for I tried it in the spring of 1896, when the rust first made its appearance in our collection, but it was of no use at all, for it did not stop the pest from spreading over the two plants experimented with; neither did quassia water, clear lime water, Bordeaux mixture. There were eight plants of Lord Brooke attacked by the rust, so I put these alone in a small house and labelled the pairs of plants I syringed with each mixture, so as to avoid mistakes. For five weeks I syringed these plants twice a day with the mixtures mentioned, but to no purpose, for every plant was worse at the end of that time than when I started, so the furnace was used to prevent the fungus spreading to the collection of 1,500 plants we were growing that year.

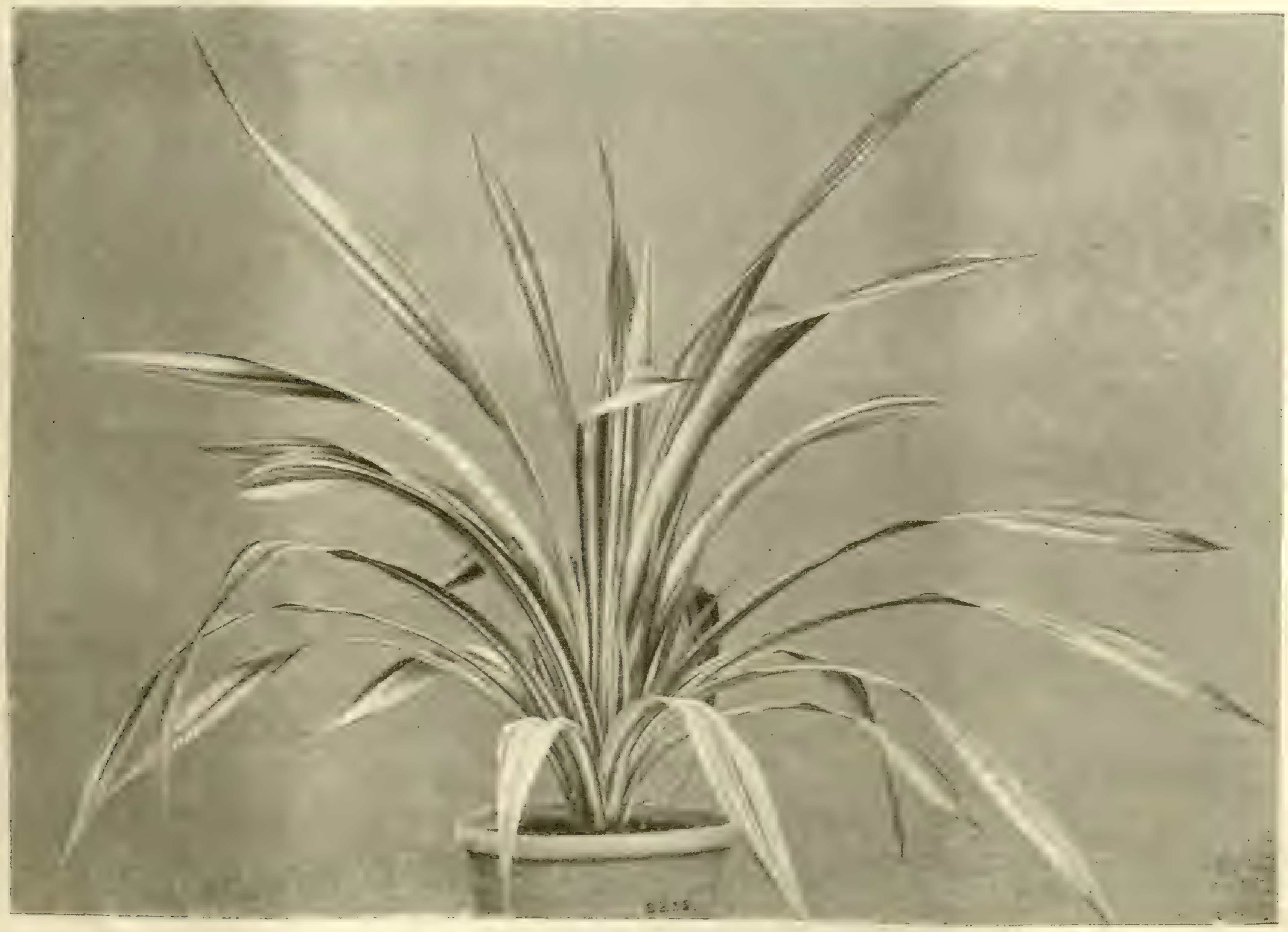
We saw no more of the chrysanthemum rust until the end of July, 1897; then we had two or three cold, damp nights, and a day or two afterwards I noticed a few spots on such varieties as Mrs. S. C. Probyn, Miss E. Zeichman, H. L. Sunderbruck, Niveus, Julia Scaramanga, James Myers, and a few others, but those named were the worst, though curiously enough these were not all in the same yard, but some were at one end of the garden and some the other. Altogether there were forty-three plants out of the 2,000 grown that had these rust spots, and in every instance the leaves that had the spots were from a foot to fifteen inches from the first break. Remembering that I had to burn the plants of Lord Brooke after five weeks' syringing, I thought I would either kill or cure this lot, so I decided to make a strong solution of Kill-m-Right, and give that a trial. The affected plants were put together in the melon ground and syringed twice a day for a week, then I found the rust had ceased to spread, so syringing was done once a day in the evening; at the end of three weeks all the leaves that were affected—those parts that were infested by the fungus—had dried up, so that when taken between one's finger and thumb the diseased portions crumbled up to dust, leaving the rest of the leaf sound, although unsightly. Some of the "cured" leaves remained on the stems until the plants were cut down for storing.

This year, 1898, there has not been a sign of rust on any of our plants, as the precaution was taken to syringe them regularly twice a week during April, May, August, and September, and once a week during June and July; this we consider has prevented the rust attacking our collection. The following is the method of preparing Kill-m-Right for stocking against rust: Three pounds Kill-m-Right dissolved in two and a half gallons of boiling water, well stirring the whole until cool. For use we put a sixty-sized potful of this liquid into two gallons of rain water, in a wooden bucket; this is sprayed on by means of a syringe, using the jet and one finger to make a spray to reach the under surface of the foliage; the two gallons will suffice for about 160 plants, spraying both sides of the row.

Wimbledon House Gardens. T. DOSSETT.

PANDANUS SANDERI.

As a companion plant to Pandanus Veitchi and for general usefulness for table decoration P. Sanderi cannot fail to become popular as it becomes better known and its price declines. There is a great general resemblance between the two plants, and at first sight the difference of colour is the only one readily recognised. Nevertheless there are probably sufficient points of distinction to warrant specific rank for the new comer. It has rather longer leafage than P. Veitchi, while these are armed along the margins with very small spines; the habit of the plant is also rather more dense than that of P. Veitchi. The long sword-like leaves of P. Sanderi are variegated prettily with bands of creamy green and yellowish green alternating with a darker green ground colour. This variegation is not confined to margin or centre, but is spread over the whole surface, and is as evident in a small plant as in a large specimen. Our illustration, reproduced from a photograph taken specially for us at the St. Alban's Nurseries, gives a very good idea of the elegant contour of a well-grown example, and shows how useful such a specimen would be either for home decoration or the exhibition table. A large plant was staged by Messrs. F. Sander and Co., its introducers, in their splendid group of novelties at the Ghent Quinquennial Exhibition of April last, as noted in our report of that show given in our issue of April 23. Since then plants have been repeatedly shown in London, and on September 20 last the St. Alban's firm had the satisfaction of seeing their introduction stamped as "first class" by the Floral Committee of the Royal Horticultural Society.



PANDANUS SANDERI.

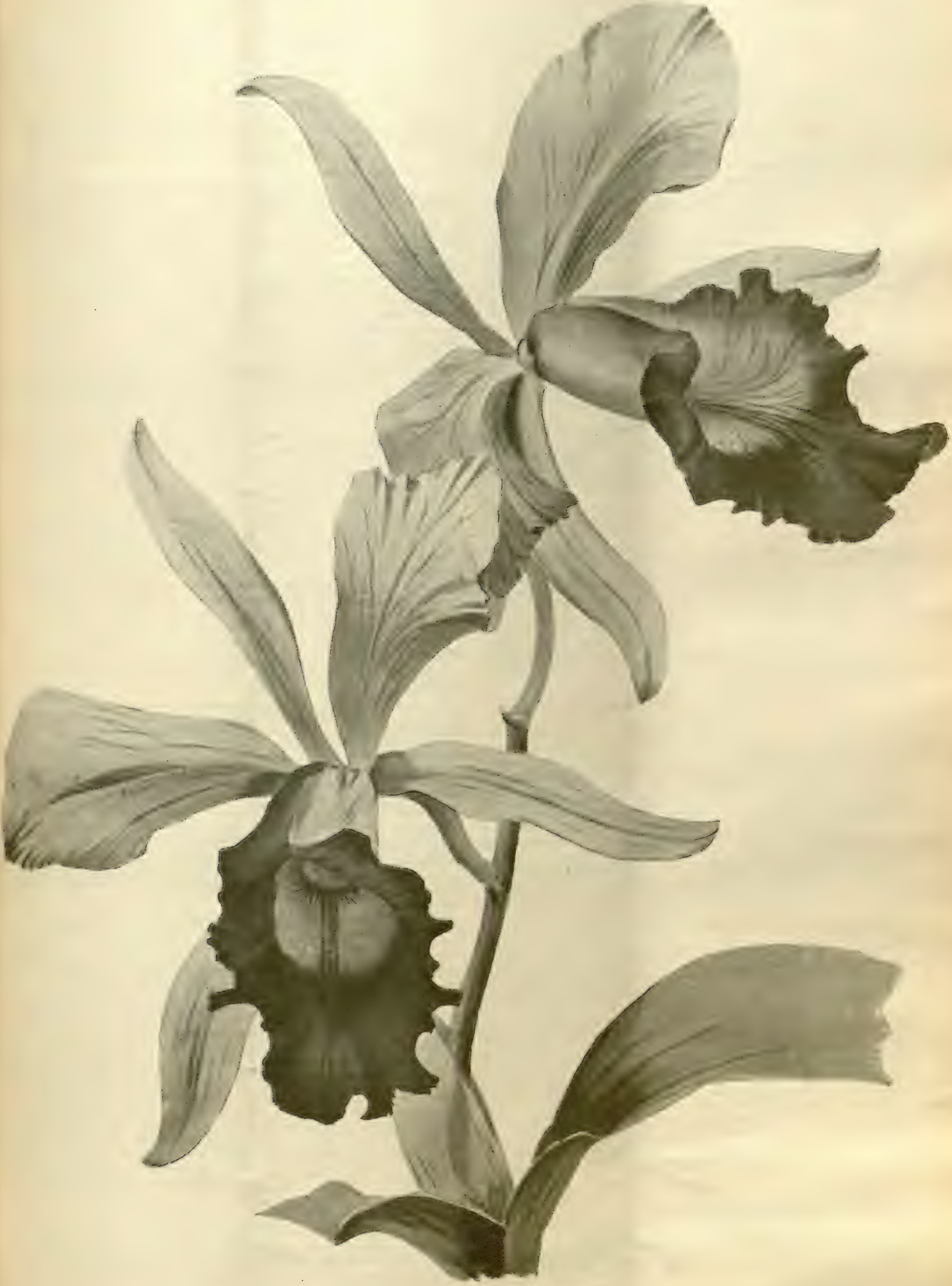
New Fruit Trees.—Although the soil is yet dry in lifting and planting fruit trees, without doubt orders are flowing into the nurseries, and there rain is awaited impatiently to enable the work of lifting to be proceeded with. But even with a good rainfall it must be some time ere soil and roots become thoroughly moist, and for that reason those who wait not for the rain but have trees in at once will do well to have the roots placed in water for a night preparatory to planting next day. Sometimes, even when we have a moist time, roots are exposed appreciably in transit, and reach the purchaser rather dry. Nothing helps to put the roots in proper form so readily as a good soaking in water and a proper trimming with a sharp knife prior to planting.—A. D.

Autumn Sown Onions.—My recent note on these subjects in reply to a criticism by Lux conveyed a meaning totally diverse from what I really intended to convey. I do not wish to induce framers of schedules to change the terms of their ordinary class, "Autumn-sown Onions" Nothing could be further from my desires. But what I do want is, that exhibitors in this class should sow and grow the finest varieties for such class, such as we ordinarily sow in the spring. Anyone who saw the onion trial at Chiswick this year would have come to the conclusion I have long held, that the harder round and globe forms of what we call the Spanish section of onions are by far the best. Then I should like to see those who are so constantly and so stereotypedly advising the sowing of tripolis in the autumn, simply because their fathers did so, reject that old fetish, and advise the sowing of the varieties or forms I have referred to. At Chiswick Mr. Wright has kindly promised to preserve, as well as he can, bulbs of the best varieties in the recent trial, and state the results. I can have no present doubt but that the bulbs of the harder forms will keep sound months after the tripolis, white, red, or otherwise, are rotten. We have in spinach sowing yet another fetish of the same kind. Calendar writers persist in saying sow round spinach in summer, and prickly spinach in autumn, meaning thereby the round and prickly seeds of the Flanders variety. They seem to be absolutely ignorant of the fact that the finest summer spinach is the large-leaved Long Flanders, and the finest winter sort is the Viroflay or Victoria.—A. D.

LÆLIO-CATTLEYA HENRY GREENWOOD.

This is an exceptionally handsome Lælio-cattleya, and, judging from its free and robust habit, is one that is likely to eventually obtain a permanent position in orchid collections, for there can be no question as to its beauty when in flower. We first saw this orchid at Ghent, in April of the present year, when, at the Ghent Quinquennial Show, it was so greatly admired by the jury that the members unanimously awarded it first prize as the best new hybrid orchid, and raised the prize from a silver to a silver-gilt medal as a recognition of its merit. On that occasion L.-c. Henry Greenwood was exhibited by Mons. Charles Maron, of Rue de Montgeron, Brunoy, Paris, who is also the raiser. The parentage was given as Lælio-cattleya Schilleriana var. Stelzneriana and Cattleya Hardyana. The flowers, as represented in the accompanying page illustration, are as large as those of good forms of C. gigas, and are extremely beautiful and novel in form and colour. The rather narrow sepals were very pale lilac in the case of the handsome plant shown at the Drill Hall, on the 11th inst., by Messrs. B. S. Williams and Son, Holloway, but they were lighter in colour, almost white, on the plant we saw at Ghent; the petals are much broader and brighter, the veinings of rosy-purple spreading over a greater part of the pale rosy lilac ground colour. The labellum is magnificent; the side lobes meet over the column, but have their tips rolled back, and of a bright purple colour, a shade that spreads into the broad apical lobe until it is lost in the intense crimson-purple area that occupies nearly the whole of it. The throat is bright and soft yellow, save for a central band composed of lines of dark purple. The margin of the lip is waved and crisped into a narrow frill that has a wire-edge margin of palest lilac. Messrs. Williams' plant, which our illustration represents, carried two flowers, as shown, and the Orchid Committee considered it worthy of an award of merit. Many orchids of equal merit have gained a F.C.C., and perhaps this will some day, if shown again, for to our mind it deserves such an award.

Tomatos.—When looking through a range of span-roof peach houses at Tewkesbury Lodge, Forest Hill, recently, where the peach and nectarine trees are trained crosswise to wire trellis, I noticed that against the iron uprights on the alley sides of these trellises, the supports running up to the span-roofs, that single plants of tomatos were growing, and they had each reached a height of about eight feet, with foliage right to the bottom. The varieties were the fine red selection of perfection named Polegate, and that nice golden yellow variety, Royal Jubilee. All the plants were carrying very full fruits, those of Polegate being especially handsome, richly coloured, and perfect in form. No assumed new tomato I have seen anywhere is superior to this selection. Where so many so-called new ones are put up as distinct, it is well to have ample knowledge of what good ones there are in commerce, and what their qualities are as to cropping. Mr. Taylor, the gardener, said that he expected to take during the season fully twelve pounds of fruit from each of these plants. What new variety can excel such productiveness? Some others planted against the side of the houses, and rather loosely trained semi-horizontally, were also fruiting finely. The demand for these fruits is here very great, and it is needful to have all available house space occupied to keep up the supply. Of course, the plants are growing in the peach border, which is, however, very firm, as the local loam is so stiff in texture, that it has to be tempered very much by a liberal addition of burnt earth. No doubt, this substantial character of the soil has much to do with the constant production of such splendid grapes year after year.—A. D.



LÆLIO-CATTLEYA HENRY GREENWOOD.

The Plum Crop.

Anglesey.—Plums do not succeed in Anglesey, and even on walls they are a very poor crop. This season I have not seen a single plum on any of the trees in our orchard; we only planted the trees in the orchard five years ago.—W. Hunter, *Barron Hill Gardens.*

Berks.—For dessert, plums are here nearly all grown on walls, and have been better than usual this year. The following sorts give a long season, in succession, and if care is taken to preserve the bloom they furnish a very attractive dish, and many are delicious: Angelina Burdett, Belle de Septembre, Coe's Golden Drop, Cox's Emperor, Denniston's Superb, Early Prolific, Gisborne's, Golden Esperen, Green Gage, Golden Transparent, Blue Impératrice, Jefferson's, Kirke's, Pond's Seedling, White Magnum Bonum, Monarch, Prince Englebert, The Czar, Victoria, and Washington. Reine Claude de Bavay, Victoria, and some others bear very well on standards, and are useful for preserving.—Owen Thomas, *Royal Gardens, Windsor.*

—— Plums are under an average crop; our best sorts on walls are Rivers' Early, good; Orleans, Kirke's, Jefferson's, Green Gage, Prince of Wales, Victoria, and Golden Drop; on standards, Victoria, Pond's Seedling, and Denniston's Superb.—J. Tegg, *Bearwood Gardens.*

Berwick.—Plums have been fairly good; Green Gages have been a better crop this year than last; Victorias, good; Magnum Bonum, very good. We had to pull the fruit before ripe because of the injury done by wasps, of which I never saw such a host before.—J. Foster, *Paxton House Gardens.*

Bucks—Plums have been a rather thin crop generally; Victorias, a heavy crop; Green Gage, very poor, although the fruits were large and fine; Gisborne's, a very heavy crop; Pond's Seedling, a good crop; Purple Gage, good; prunes were very thin, and damsons much under the average.—J. Smith, *Mentmore Gardens*

Cardiganshire.—Plums were a good crop in this district, and of good quality. Victoria was the best, followed very closely by Orleans, Jefferson, Pond's Seedling, Kirke's, Magnum Bonum, Washington, Green Gage, and Golden Drop. The wasps were very trying, and damaged the plums considerably. They were rather later in commencing, but have more than made up for lost time.—R. C. Williams, *Crosswood Park Gardens.*

Cork.—Plums are much below the average. Coe's Golden Drop, Jefferson, Monarch (cannot be too highly recommended for late kitchen plum), Orleans, Victoria, Rivers' Early, Green Gage, these have borne average crops on walls; pyramids, no fruit, in consequence of the cold spring after a mild winter. Sap checked and blossom destroyed, not by frost, but long continued low temperature. —W. Osborn, *Fota Gardens.*

Cornwall.—Plums were a very slight crop. Victorias, very good; Goliath, average; Orleans in variety, good; all other sorts were a failure.—G. J. Richards, *Mount Edgcumbe Gardens.*

County Down.—Plums, with the exception of the gages, were an average crop, such varieties as Goliath, Washington, Jefferson's, Kirke's, Pond's Seedling, and Coe's Golden Drop being very fine, as were also Victoria, Magnum Bonum, Diamond, &c. I may state we have had quite a plague of wasps here this season, attacking plums, &c., long before they were fit for gathering.—Thomas Bradshaw, *Hillsborough Castle Gardens.*

—— Plums have heavy crops on wall trees; Victoria, Early Green Gage, Coe's Golden Drop, Denniston's Superb, Jefferson, and White Magnum Bonum were all severely thinned directly the fruit was set, an operation which well repays the time spent; result, extra fine fruit both in size and weight. Damsons a failure.—J. Leicester, *Seaforde Gardens, Clough.*

County Meath.—Among plums Victorias were very good, this being one of the best. Green Gages had a fair crop; quality very good.—James Hounslow, *Headfort Gardens.*

Denbighshire.—Plums have been almost a failure, though I never saw the trees so full of blossom, but when in bloom we had a severe hailstorm, which did great damage, and only where the trees are situated in a sheltered position is there fruit to be found. Victorias were fairly good, in fact it is the only variety bearing anything like a crop.—H. Forder, *Ruthin Castle Gardens.*

Derby.—Plums were the poorest we have had for many years. Of the many varieties that are grown here none carried a full crop, and, curiously, the best varieties cropped the best, such as Golden Drop, Jefferson, Kirke's, and some of the newer varieties were very fairly loaded, such as Monarch, Archduke, Grand Duke, and Czar.—J. H. Goodacre, *Elvaston Castle Gardens.*

Dublin.—Our plum crop is light and poor. Green Gage is the only variety that came near an average. The trees have been badly infested with aphis. The following are some of the sorts that do well here as a rule: Green Gage, Purple Gage, Denyer's Victoria, Magnum Bonum, Kirke's, Orleans, Jefferson, and Coe's Golden Drop. In some favoured districts the crop is good, but as a whole it is partial and disappointing. Damsons are a failure.—G. Smith, *Vice-Regal Gardens, Dublin.*

Dumfriesshire.—Among plums Victoria is the best cropper by far; the others grown are Orleans, Jefferson, Caledonia, Green Gage, Magnum Bonum, Kirke's, and Golden Drop, but Victoria, Caledonia, and Magnum Bonum are the only bearers this season. The first two are grown as espaliers and the latter on a wall.—John Urquhart, *Hoddom Castle Gardens.*

Dunbar.—The most productive kinds of plums here are Victoria, Pond's Seedling, Jefferson, and Washington. Green Gages are quite a failure, owing to the very cold winds we experienced during the time they were in bloom.—George Taylor, *Broxmouth Park Gardens.*

Durham.—All the following varieties of plums have done well, considering the very dry season we have had: McLaughlin's Gage, Kirke's, Brahy's Green Gage, Washington, Bryanston Green Gage, Transparent Gage, Lawson's Golden Gage, Green Gage, Jefferson, Victoria, Magnum Bonum, Diamond, Prince Englebert, Orleans, Coe's Golden Drop, Duke of Edinburgh, Pond's Seedling, Purple Gage, and Grand Duke.—James Tullett, *Raby Castle Gardens.*

Fifeshire.—Kirke's Seedling and Washington are the only plums of which we had a crop this season, and they were below an average.—John Clark, *Wemyss Castle Gardens.*

Forfarshire.—Plums, both as wall trees and standards, generally do well here, but this year are rather a thin crop. Victoria, Jefferson, Kirke's, Prince of Wales, and Coe's Golden Drop are those most grown and the best croppers.—Thomas Wilson, *Glamis Castle Gardens.*

Glamorganshire.—Plums are all but a complete failure in this district. The trees flowered freely, but the fruit did not set, and the foliage suffered from the attacks of green aphis beyond anything I have ever seen before. Bryanston Gage is the only variety in the open quarters that has anything like a crop. Victoria, which is usually a grand cropper, has completely failed in the open quarters this year. I have a good many trees growing by the sides of walks, and not one has borne a fruit, and there is not more than half a crop on the wall trees. The crops of Coe's Golden Drop, Kirke's Seedling, Transparent Gage, and other varieties are very poor indeed, and I am afraid the trees will not do much next year.—A. Pettigrew, *Cardiff Castle Gardens.*

Gloucestershire.—Among plums Victoria has done well, some of the fruit being very large. Kirke's, Coe's Golden Drop, and Jefferson are good, but as a whole it is a poor plum season here.—John Aplin, *Hasfield Court Gardens.*

Hampshire.—Plums on walls have been a poor crop this season. Our best are Yellow and Red Magnum Bonum, Rivers' Early Prolific, Oullin's Golden Gage, Denniston's Superb, Kirke's, Victoria, Jefferson, Pond's Seedling, Coe's Golden Drop, Monarch, Golden Transparent, Grand Duke. On standard trees Victoria was the best. Damsons were poor in quality and crop.—J. W. McHattie, *Strathfieldsaye Gardens.*

—— Plums are a good crop, and may be said to be above the average; but the fruit is being devoured wholesale by wasps and bees. The latter are more troublesome than wasps and flies, and, as we have about eighteen bar-frame hives in the garden, we find them just now very destructive. Our best culinary varieties are Early Rivers, Victoria, Pond's Seedling, Green Gages, and Diamond. The best dessert varieties are Kirke's, Green Gage, Transparent Gage, Jefferson, and Golden Drop.—G. Trinder, *Dogmersfield Gardens.*

King's County.—Plums have borne well, and the heaviest croppers were Blue Impératrice, Orleans, Victoria—this never fails—Pond's Seedling, extra good; Prince of Wales, Magnum Bonum, Green Gage, Reine Claude de Bavay, and Grand Duke.—R. McKenna, *Charleville Gardens.*

Kirkcudbrightshire.—The plum crop was very poor. Blue Impératrice, Early Orleans, Kirke's, Victoria, and White Magnum Bonum are the varieties that do best here.—J. Hannah, *Cairnsmore Gardens.*

Monmouth.—Plums are under an average crop, the only variety that is heavily cropped being Victoria. The varieties that have light crops are Rivers' Early Prolific, Pond's Seedling, The Czar, Jefferson, Kirke's, Early Transparent, and Monarch. The latter is a valuable late plum, as is also Grand Duke, which generally bears well. The above are grown with several other varieties as bush trees. We have very poor crops upon walls; the wall trees, however, are placed in a position considerably lower than are the bush trees.—Thomas Coomber, *The Hendre Gardens.*

Montgomeryshire.—Plums are a very thin crop; but the best are Victoria, Transparent Gage, Brahey's Gage, Diamond, Early Rivers, Magnum Bonum, and Jefferson.—John Lambert, *Powis Castle Gardens.*

Norfolk.—Plums are a very partial crop in some gardens in this neighbourhood. There is a fair crop of Rivers' Early Prolific, Czar, Pond's, Goliath, Coe's Golden Drop; other kinds, like Victoria, Belgian Purple, that seldom fail, are very poor indeed. All trees are suffering from the dryness of the subsoil. Damsons and bullaces are a poor, light crop.—W. Allan, *Gunton Park Gardens.*

Northamptonshire.—The following varieties of plums are particularly good on walls: Angelina Burdett, De Montfort, Impératrice, Reine Claude de Bavay, Goliath, Magnum Bonum, Jefferson's, Coe's Golden Drop, and Victoria. On standards Pond's Seedling, Early Orleans, and Victoria are the best, but far below the average. Damsons are a failure throughout.—John Hayes, *Castle Ashby Gardens.*

Northumberland.—Plums are much more certain on the walls than as standard trees in the open. The latter were a failure this year. We had good crops of Jefferson and Victoria; also some good Kirke's and Coe's Golden Drop, with Oullin's Golden Gage as a first early dessert, which is very good; Lawson's Gage and Green Gage are also worth planting. Prince Englebert is good on walls, and so are many other varieties; but we are satisfied to plant the few that will serve from first to last, and that the best kinds, because wall space is limited. I am told the Orleans is good. The Czar should be planted on walls and in the open. As orchard trees heavy crops are obtained in favourable seasons. Victoria is the greatest cropper; Pershore a great crop, but poor flavour, Cox's Emperor, Czar, Monarch, and Wyedale are good. The last three are on trial in the open on standard, with many others.—G. Harris, *Alnwick Castle Gardens.*

Queen's County.—Plums have been very poor, and the trees have been very much blighted. Pond's Seedling and Nectarine plums are the only two varieties that carried a crop. The first-named seems to do very well here, and we can generally rely upon a few fruits every season from it. White Magnum Bonum, Washington, Victoria, Reine Claude de Bavay, Jefferson's Green Gage, and Coe's Golden Drop, although a mass of bloom, produced no fruit.—W. Begbie, *Emo Park Gardens.*

Radnorshire.—Green Gages, Victorias, and Kirke's, also Pond's Seedling, carried good crops on west wall; but standards were a complete failure, owing to the late frosts in the spring.—W. Palliser, *Norton Manor Gardens.*

Rutland.—Early Prolific (Rivers'), The Czar, Kirke's, Victoria, Pond's Seedling, and Coe's Golden Drop carried good crops on walls. The standard trees had very few fruits this year.—W. H. Divers, *Belvoir Castle Gardens.*

Shropshire.—Plums, on the whole, are decidedly under an average crop, but they are of fine quality. Prince of Wales, Kirke's Black, Jefferson, and Dancer's Seedling are fairly well cropped, but others are very thin. Damsons—the cottager's friend—are also very much under the average but of fair quality.—James Louden, *The Quinta Gardens.*

Somerset.—Victoria has a heavy crop on walls facing west, as fruits were well covered in spring with fine net. Kirke's is a medium crop, nicely coloured; Coe's Golden Drop, medium; Jefferson, medium; Brahy's Green Gage, medium; Reine Claude de Bavay, medium.—W. H. Miles, *Dillington Park Gardens.*

Staffordshire.—Plums have been almost a total failure this season, with the exception of the trees growing against walls, which have perfected a fair crop, while pyramids and standards were completely denuded of embryo fruits and blossom by frosts and cold snowstorms. Plums of all kinds seem to thrive well in this neighbourhood. We have over 30 varieties, all of which are very satisfactory. Denyer's Victoria, Jefferson, and a local variety called Dovebank are the sorts that are grown by the cottagers.—George Woodgate, *Rolleston Hall Gardens.*

Surrey.—I had a good crop of the following plums on walls, but trees in the open were spoiled by late frost. Bryanston Gage, Denniston's Superb, Lawson's Golden Gage, Guthrie's Late, Kirke's, Coe's Golden Drop, Rivers' Prolific, Magnum Bonum, Jefferson. For bearing heavy crops Rivers' Prolific is the best of the varieties I grow.—W. Higgs, *Fetcham Park Gardens.*

Sussex.—Plums have been a peculiar crop this season, as some varieties have borne such crops that the trees were broken down with the weight of the fruit. Of standards or bushes the following have been the most prolific: Early Rivers, Washington, White Magnum Bonum, The Czar, Bush, Prince of Wales, Victoria, Reine Claude Violette, Pond's Seedling, Cox's Emperor, Lawrence Gage, Stint, Monarch, Wyedale, and Diamond. On walls green gages: Coe's Golden Drop, Purple Gage, Kirke's, Blue Impératrice, Imperial de Milan, Stint, and Transparent are amongst the best, though many other varieties had a fair crop. Of damsons Frogmore Prolific is the best with us this season, though in the neighbourhood Prolific is not much grown, the Cluster being the favourite, and this has a fair crop.—H. C. PRINSEP, *Buxted Park Gardens.*

Sutherland.—Rivers' Early Prolific bore an excellent crop, small and early; Oullin's Golden Gage, moderate crop; Lawson's Golden Gage, moderate crop of good quality; Victoria, heavy crop, required thinning. The plum crop was much under average on the whole—D. MELVILLE, *Dunrobin Castle Gardens.*

Wigtonshire.—Plums have turned out much better than was expected some time ago, and very good crops of the following are now ripe or ripening: Czar, Early Rivers, Jefferson, Kirke's, Lawson's Golden Gage, Denniston's Superb, Transparent Gage, Victoria, Pond's Seedling, Magnum Bonum, and Goliath; these are growing against walls. Very good crops of Victoria and Belle de Septembre are now being gathered from bush and standard trees.—J. DAY, *Galloway House Gardens.*

Worcestershire.—Plums with us have been an excellent crop, and the fruit of good quality throughout. Although wall trees were in flower at the time of the blizzard, I never saw fruit set more thickly, and, moreover, had to be heavily thinned. The weather was dry, which must have made the difference, as a few later varieties, which were in flower a little later, with the weather much milder but moist, the set was poor. Jefferson has been grand, whether the trees were on south, east, west, or north walls, or even in the open. Kirke's, Coe's Golden Drop, Orleans, Rivers' Prolific, Victoria, Pond's Seedling, Pershore, the latter, although a common plum, still the best for bottling. Oullin's Golden Green Gage, Belle de Septembre, The Czar, Monarch (now carrying heavy crop). For trees to bear freely, either on walls or the open, lay in young growth the whole length, wherever there is room, when fruit buds will form the whole length. —A. YOUNG, *Witley Court Gardens.*

Yorkshire.—Plums are a very thin crop indeed. As with apple trees there was an abundant blossom on most kinds. The Green Gage family were the exception to this. Victoria, which in the North generally does so well, is this year nearly fruitless; they did not bear well last year either. The trees generally were much pestered with green fly in the early part of the summer, both on walls and in the open. Still, on the whole, they look fairly promising now, and probably next year will be a plum year, and much lower prices for the fruits. Taking one each of light and dark plums for this part and for dessert use, Jefferson and Kirke's bear the palm. Coe's Golden Drop in this district is not fit for dessert one year in seven. Winesours are grown to a great extent within a few miles of us. About Sherburn there are large orchards of this plum, the fruits from which are said to have a better flavour than usual. At any rate, the growers have seldom or never any difficulty in disposing of their fruit at fairly good prices. I have known epicures give 15s. per stone of 18 lb. for them—H. J. CLAYTON, *Grimston Park Gardens.*

—— Plums have been under the average. The best crops are of Kirke's, Coe's Golden Drop, Pond's Seedling, Victoria, and Magnum Bonum.—J. ALLSOP, *Dalton Hall Gardens.*

Nymphæa stellata.—This variety is grown in one of the open groves at Sandhurst Lodge, Berks, but under the name of N. capensis. The plant I saw there recently was not so strong as the one at Gunnersbury House, having been more recently introduced. At Sandhurst Lodge it is planted into a broad, deep pan filled with good loamy soil and decayed manure; then kept in a warm pit all the winter, is taken out, dropped into the warmest of the several groves in the month of June, and is lifted and returned to its winter quarters in October. When I saw the plant a few weeks since it was blooming well, and, as the flowers stood up from the water fully twelve inches, was very distinct from the general stock of nymphæas. Some beautiful tropical forms are grown also plunged in pans in tanks placed under a south wall and heated by pipes. I like this species for the reason especially that it carries its blooms high, because not a few of the ordinary strong growers amongst water lilies produce such an excess of leaves that the blooms, because they sit on the surface of the water, are rather hidden. Some regulation of the soil bed of the pond seems needful, as such rank growers need less encouragement, whilst the weaker growers that are so much better near the margins rather appreciate it. It is true that the flowers of N. stellata are light and smaller than are those of the ordinary nymphæas, and for that reason they have less need of the sustaining support of the water. Still blooms well thrown above the leafage have great merit. We cannot too warmly thank the introducer of these lilies for having been so instrumental in adding another and a singularly beautiful charm to our gardens. No one in England has done more in this direction than has Mr. Hudson.—A. D.

Koelreuteria paniculata.—Although June and July is the proper period for this hardy Chinese tree to flower, I was surprised to find a few days ago a considerable number still in bloom. It is an old inhabitant of gardens, having been introduced from China in 1763, but as yet is by no means common in cultivation. It is very ornamental either in or out of flower, as its leaves are attractive. It forms a small tree scarcely ever exceeding fifteen feet in height, while its style of growth is irregular. The leaves are deciduous alternate, imparipinnate in shape, deeply serrated on the margins, and deep green in colour. The flowers, which are deep yellow, with a striking crimson centre, are borne in terminal panicles, succeeded later by large bladdery capsules, which renders it very conspicuous in late autumn. Its culture is of the easiest, as it grows freely in any good garden soil, but flowers better if planted in a sheltered position. Propagation is effected by cuttings of the young shoots in spring, or by layers in autumn as well as by seeds sown in spring. Its handsome appearance when growing and free-flowering qualities, combined with its easy culture, should lead to it finding a place in every collection of hardy trees and shrubs. Koelreuteria bipinnata is a distinct species from the mountain regions of Yunnan, which as yet is scarcely ever seen outside nurseries and botanic gardens, although deserving of cultivation. It is of recent introduction, having been introduced to this country in 1888. The leaves differ from that of K. paniculata in being bipinnate, while its flowers are of a brighter shade of yellow. Some authorities regard this as only a variety of K. paniculata, but a description in *Revue Horticole* of 1888, p. 393, fig. 93, seems to justify our regarding it as a species.—E. S., *Woking.*

SNOWFLAKES.

ONE of the most satisfactory and interesting phases of modern gardening is the return to the natural as distinct from the formal. This is greatly evidenced by the growing tendency to plant hardy bulbs in grass amongst shrubs, beside woodland walks, in the orchard and "wilderness," in fact in every quarter where early mowing is not compulsory. The flowers springing from their verdant setting produce a charming effect, while such culture adds considerably to the available breadths of flowers for cutting, and last, but by no means least, it permits the maturing and ripening of the bulbs undisturbed and the foliage unmutilated until its particular work has been performed. Amongst the most suitable subjects for naturalisation the leucojums, or snowflakes, stand pre-eminent. Considering the attributes of this genus it has hitherto been a somewhat neglected one, though there is an inclination on the part of many to now accord it a more prominent place.

With the exception of some few of recent introduction the leucojums are perfectly hardy and non-exacting in their requirements as regards soil, &c., provided the situation be not too dry. Though, perhaps, somewhat seldom met with in a wild state, two species are indigenous, their habitat being moist meadows and shady places, as noted by Curtis in his "Flora Londinensis" (1798). The bulbs may be planted in clumps, three or four inches deep, in grass, or rather deeper in any ordinary garden soil, from September to November, and will require no further care except an occasional lifting and dividing when at rest. A few bulbs should be potted annually in good soil for blooming in the cool house, for if brought on gradually, and plentifully supplied with water during the most active period of growth, all the snowflakes are excellent for pot culture.

The following are placed somewhat in the order of flowering: Leucojum vernum (the Spring Snowflake), flowers white, tipped with green; very sweet-scented, and early, as the name implies; one of the most beautiful and best known. L. v. carpathicum, a strong-growing variety of the preceding; white, yellow spotted; very fine. These bloom in February and onwards. L. roseum has most elegant, rose-coloured flowers. L. æstivum is the well-known Summer Snowflake, but the specific appellation is somewhat a misnomer, as the flowers are produced during April and May. They are pure white, and drooping. L. pulchellum (Hernandezi), like the last named, is a strong grower, attaining a height of eighteen inches, with flowers of a similar colour and form, greatly prized for cutting; May blooming. L. autumnale is the Ladies' Snowflake; a dwarf species, flowers white, pink-tipped and veined. It flowers in August and September, and is very suitable for the rock garden. Mention may also be made of L. trichophyllum, which resembles the latter in its flowers, being pink and white, and sometimes pure white. It is a spring-flowering species, and, along with the recent introductions from Andalusia, should be grown in moist and very sandy soil.

The leucojums possess another recommendation almost stronger than their gracefulness and purity of flowers, and that is their fragrance, which resembles the delicate odour of the violet, whence the generic name—from two Greek words signifying "white violet"—though, as a matter of fact, the Snowflakes remind us much more powerfully of the snowdrops, differing from the latter only in the form of the perianth, the segments being of equal size in the former, and alternately even in the latter, besides a slight structural difference in the opening of the anthers.

Ripon. F. DIXON.

STEPHANOTIS FLORIBUNDA IN COOL HOUSES.

IT is sometimes found that certain exotic plants which come from hot countries, and are regarded here as stove subjects, will thrive in a temperature considerably below that usually afforded to the occupants of highly heated houses.

One of these is the Stephanotis floribunda, a plant which, when in bloom, is greatly admired by most persons, but one which is often passed over owing to the fear that it will only succeed where plenty of heat and moisture are at command, whereas, by a little careful treatment by way of watering during the coldest part of the year, it may be successfully cultivated in an ordinary plant house, where the temperature is not allowed to fall below 40 degrees for any length of time during severe weather.

At the recent show at Edinburgh, Mr. Lunt, Keir Gardens, gained the premier award in the flowering plant class with a well-grown and profusely flowered specimen of the above. This was trained upon a balloon trellis, about thirty inches in diameter, and although larger plants of the kind have occasionally been seen at this show, it is very doubtful whether one with healthier foliage, finer trusses, or larger individual flowers has been seen there. This plant has been grown for some years in a house that contains a varied collection of plants, useful for decoration or cutting, and at present consisting principally of geraniums, begonias, cannas, and a very fine plant trained upon the roof of Lapageria rosea, which has several hundreds of blooms now open, this showing that the temperature maintained must be very moderate. On mentioning this fact to Mr. Lunt, he stated that the house was ventilated at all times to suit the requirements of whatever class of flowering plants might be in season, with a view to prolong the flowering of the same as long as possible, and that the thermometer had been known to fall as low as 27 degrees, but no harm had ever resulted to the stephanotis.

To accomplish the cultivation of this plant successfully in a cool house water must be given very sparingly in the winter season, or when the plant is at rest, and a position should be provided where it may receive a considerable amount of sunlight to ripen its growth, which, compared with that made in much heat, will be stout and short-jointed, with large and deeply coloured leaves. The flowers also will last much longer upon the plant, which may be used for house or conservatory decoration if required, without the risk of damage, by being removed to a cooler atmosphere than that in which it has grown.

Galloway House Gardens, N.B. JAMES DAY.

WORK FOR THE WEEK.

WARM ORCHIDS.

LÆLIA PERRINI will now be commencing to flower; its segments and labellum are rather narrow, otherwise it is a very beautiful orchid, and one that is very welcome, flowering as it does at the same time as Cattleya labiata autumnalis, C. aurea, &c.; other points in its favour are its ease of culture and its longevity. Anyone who can grow orchids at all can be successful with this; it thrives well with the cattleyas if allowed plenty of water while in a growing state, and removed to the cool end of the house when resting, the water being gradually diminished until sufficient only is allowed to keep the bulbs in a plump state until growth commences. Lælia Perrini nivea, which is almost white, requires exactly the same treatment. Both the species and its variety require to be kept in a dry atmosphere while flowering, otherwise the damp will affect the flowers.

Dendrobium album is another late flowering subject that is very welcome, for its beautiful ivory-like flowers, associated in the flowering house with brighter colours, gives a very pleasing effect; a good specimen well-flowered is very pretty, as, unlike many of the dendrobiums, it flowers on the pseudo-bulbs still carrying green leaves, which enhances its beauty. This orchid must be grown in the dendrobium house, in a compost of rough peat and sphagnum, in pans or baskets suspended from the roof, and when resting, must have a few degrees more warmth than the vinery affords. Dendrobium chrysanthum is another of the same type, but will have about finished flowering; this is very easy of cultivation, enjoying abundance of water during its growing season, and occasional waterings of liquid manure; this also thrives well under basket culture in a compost of rough peat and sphagnum and should be suspended from the roof; some growers are successful with it in a cool house. Schomburgkias will have mostly finished their growth, and in order to prepare them for flowering they will require to be removed to a cooler house and placed as close as convenient to the glass.

Galeandra Devoniana is a charming orchid and well worth growing for its beauty, but like many others it is very difficult to grow successfully. and has now become scarce; this enjoys plenty of heat and a good supply of water while growing; it is a victim to red spider and thrip, and requires to be syringed. Now it has finished flowering it must be removed to cooler quarters for the resting season; teak wood baskets or pans suspended from the roof suit it well. The shading now on the warm houses is not necessary, except in the case of phalænopsis. Guard against excessive moisture and too high a temperature; keep all bottom ventilators open when convenient, only closing them against very cold winds; the top ventilators should be opened when the weather is favourable.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

THE stock of panax may be rapidly increased now, and should this be desired the stems may be cut into pieces from one to one and a-half inches long, pressed into pots of sandy soil and plunged in the propagating case, where they will not be long before they form roots and break into growth. The roots also may be cut into lengths and served in the same way, and with a little careful attention to potting on as required will soon produce useful plants. Specimens of Dracæna gracilis which have become bare at the base should have the top removed and inserted as a cutting, and the old stem be stood in the propagating house, where it will soon push forth young shoots from the latent eyes; these, when about four inches long, should be removed with a heel and inserted in thumb pots of sandy soil and plunged in bottom heat, where they will soon root without the loss of a leaf. Old stools of dracænas will throw out young growths more freely if laid on their side instead of being stood upright. Continue to put in a few cuttings of crotons occasionally to supply the place of those suffering injury from frequent use indoors. A few small suckers of Pandanus Veitchi also should be put in from time to time; highly-coloured plants of this are very susceptible to damp, also to injury in rooms, therefore it is necessary to have young plants in various stages always ready to take their place. Keep up a regular supply of panicum, tradescantia, and Pilea muscosa, as these are useful for house and table decorations, and the season is at hand when ladies generally say, "We cannot get to the gardens often, so we must have the gardens in the house." A few plants of epiphyllum should be now placed in the stove to bring them into flower; when the flowers expand keep moisture from them or they will soon be ruined; when fully in flower gradually harden and place in the conservatory, but be careful not to over-water.

Stove plants still in active growth should be afforded positions at the warmest end of the house, while those which have completed growth and are approaching their season of rest may be placed at the cooler end; these latter will require less water than formerly, yet they must not be neglected, but have their wants met with the same care as given during the season of growth. Success would more frequently attend the efforts of the cultivator were he to give closer attention to plants during their season of rest than they generally receive. Eucharis are growing freely and should receive a little stimulant occasionally; an application of soot water once a week will be to their advantage. We give our plants a watering once a month with lime water, and I find they are the better for it; we never rest eucharis, yet they flower freely, and though mite is not altogether absent it never causes us any inconvenience, the foliage being strong and healthy; we have our most abundant show of spikes during December and the early part of January, when, of course, they are most useful. Continue to dry off caladiums, achimenes, and gloxinias, but do not withhold water from them suddenly. A few of the earliest-rested tubers of gloxinias may now be started for affording a supply of flowers early in the year, when they will be greatly valued. Palms should receive stimulants regularly—soot water alternated with some good artificial fertilizer will supply their wants admirably; keep the fronds clean by an occasional sponging. Keep decaying fronds regularly removed from ferns, and have the watering of these attended to in the morning so that the moisture may dry up before evening. The night temperature of the stove should now range from 65 degrees on cold nights to 70 degrees on mild ones; day temperature five degrees higher from fire heat; the intermediate house 60 degrees at night and 65 by day.—J. TUNNINGTON, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

THE time has now arrived when dahlia roots should be lifted and stored for the winter. A dry day should be chosen for this operation when the borders may be trodden on without fear of carrying the soil on to the paths. The tops should be cut away to within six or eight inches of the ground, and when lifted and the earth shook away, the labels must be securely fastend to the roots and not the stems, which may drop off eventually, with tarred string or thin wire. If convenience admits, the roots may be temporarily housed in some open shed or frames and laid over on their sides to allow moisture to dry out of the stems, and the stools afterwards stored for the winter in any cool place from which frost is just excluded. Choice varieties should be placed together, each variety in a box, and given a little extra attention during their time of rest. Roots of Marvel of Peru, cannas, Salvia patens, hedychiums, &c., may be stored in somewhat the same way, removing the tops partially at first. If not already done any old plants of pelargoniums or other bedders it may be necessary to save from the beds should be potted up into the smallest sized pots the roots may be conveniently placed in and stood out of the reach of frost, keeping the soil rather dry. Pelargoniums potted up at this date should not be cut back because of the liability to decay, therefore select plants that may be potted up intact, simply clearing off leaves and flower buds. These old plants are useful for filling the centres of beds the following year and for providing cuttings in spring if required. Tender plants of all kinds should be housed forthwith where this has not already been done.

The summer bedding plants, even if not injured by frost, will by this be somewhat unsightly, and may now be cleared away, especially where the beds are replanted with spring flowering subjects. Where this is practised the beds should be at once dug, first spreading a slight dressing of rotten manure on the surface, and put in order to receive the spring flowering plants, as the earlier now planted the better chances they have of becoming established before winter. Summer bedding violas may, if desired, remain in the beds, where they will usually flower profusely in spring. The old flowering growths should be trimmed off and the surface of the beds between the plants slightly loosened up, and if other subjects, as variegated pelargoniums and others have been associated, spring flowering ones may now be substituted. Myosotis dissitiflora, or the blue nemophila, may be mixed with white violas; or Myosotis sylvatica alba, yellow wallflowers or white hyacinths may be associated with violas of blue or purple shades. Pansies and violas prepared during the past month or two will also now be ready for planting and should be in their winter quarters during the present month, if possible, the weather later being very uncertain. For the same reason bulbs of hyacinths, tulips, and various daffodils should also now be planted. The beds for these bulbs should be prepared as for other bedding plants. Hyacinth and tulip bulbs may be planted with a rather bluntly pointed dibber, making the holes for the bulbs about four inches in depth at a distance of six to eight inches apart each way. A little sand may be scattered over the surface to work in with the bulbs when planted, although this is unnecessary where the soil is of a light nature. In herbaceous borders the principal flowering subjects now, excepting chrysanthemums, are the perennial asters or Michaelmas daisies, which, notwithstanding the drought, have made a brave display the past few weeks. More attention has been devoted to these of late years, and several good varieties added to the list. Seedlings are also easily raised (the seeds should be saved now) and in this way a great variety in colour and habit may be obtained with very little trouble; by sowing under glass in spring plants may be flowered the first year.—C. HERRIN, *Dropmore.*

HARDY FRUITS.

THE audit of the recent great fruit show will do much to inform growers what are the most appreciated varieties of fruit, and at this season intending planters will do well to note that Cox's Orange Pippin heads the list. In my last note I touched upon the importance of selecting trees at this season, and also of lifting to get good wood. The latter work must be yet deferred in this part of the country, for we have not had enough moisture to make lifting at all safe. Of course, when thorough soakings of water can be given it alters the condition of things, but I fear in few cases there is not enough labour at command to do this. Peaches this year have been good, both in crop and quality, indeed I never remember a better season as regards the quality; any trees that dropped their fruits badly early in the year will now be making more growth, and it will be well to see that the new wood, unless needed, does not prevent the older wood ripening. It may not be out of place to give the names of a dozen of our best peaches, some of the best nectarines, and other hardy fruits, but, of course, soils greatly influence variety; ours is a very light soil on gravel. The varieties named, however, are mostly reliable, and my list may be useful to younger fruit growers. I will place them in their order of ripening. My earliest peach is Waterloo; Amsden's June follows, and is equally reliable, as is Hale's Early, Early Grosse Mignonne, Early Silver, Royal George, Crimson Galande, Dymond, Sea Eagle, Nectarine Peach, Late Devonian, and Princess of Wales; these provide fruit from early July to the end of September, and of high quality. Nectarines are less numerous, and unless the season be a favourable one the late kinds do not always ripen. Our earliest is the Early Rivers, a splendid fruit, and, what is better, it so far has never failed to give a good crop with us; Lord Napier is our next and best; Rivers' Orange, Newton, Humboldt, and Pineapple follow in order as named. There are other nectarines, but these we find most reliable; on the other hand, many find Elruge and Dryden excellent for open walls.

Apricots do not thrive everywhere, but they are delicious fruit and well repay good culture. Breda is reliable with us, as is Shipley or Blenheim and Hemskirke; none beats the Moorpark, but it is not a good grower, the best as regards growth being Large Early; the same remarks concerning the soil apply to apricots as to cherries. Plums are so numerous that it may not be necessary to give varieties, seeing so much depends on how they are grown; for instance, the Victoria and cooking kinds do well in standard or dwarf bush forms; Rivers' Early Prolific, Diamond, Pond's Seedling, Victoria, Prince of Wales, Prince Englebert, Sultan, Pershore (Magnum Bonum), Monarch, and Grand Duke are our best croppers. For dessert Transparent Early Gage, Green Gage, Denniston's Superb, Ickworth Impératrice, Jefferson, Kirke's, Lawson's Golden, Bryanston Gage, Coe's Golden Drop, Reine Claude de Bavay, Purple Gage, and Late Transparent Gage are first-rate, but many of them should have wall shelter. Pears will need attention, and here intending planters will find the greater difficulty in selection. I fear in some cases size is preferred to quality, and readers will note that in the audit the large Pitmaston Duchess heads the list; this is a valuable pear for size, but lacks high quality. I am glad to see, however, Doyenne du Comice take so high a position, and no one will make a mistake in planting this, for it is one of the very best autumn pears grown and one that never lacks flavour. Louis Bonne of Jersey is good, for it is a free cropper and the quality is fine. An excellent early pear is the Fondante d'Automne, and in light soil Gratioli of Jersey is very useful; Williams' Bon Chrétien does well in bush or standard form; Thomson's does not do well in all soils, but on a wall it is fine, as is Marie Louise, and one cannot well omit Pitmaston Duchess, Durondeau, Beurré Diel, Beurré Hardy, Brown Beurré, and Beurré Baltel père, and though Winter Nelis lacks size it is of grand quality. For late supplies Easter Beurré, Nouvelle Fulvie, and Josephine de Malines are our best, but the new Le Lectier promises well. All collections of apples should include Cox's Orange, Ribston Pippin, Worcester Pearmain, and Duchess of Gloucester for first supplies; Lady Sudeley, Wealthy, Blenheim Pippin, King of Pippins, Peasgood's Nonsuch, all the best russets in variety, Claygate Pearmain, Reinette du Canada, D'Arcy Spice, when it succeeds, and Sturmer Pippin; whilst for cooking there are the Keswick and Manks' Codlins, always free bearers, Cellini, Warner's King, Golden Spire, Golden Noble, Bismarck, Beauty of Kent, Dumelow's Seedling, Lane's Prince Albert, Newton Wonder, Alfriston, Northern Greening, Sandringham, Bramley's Seedling, and Norfolk Beaufin. Of course others could be added.—G. WYTHES, *Syon Gardens.*

EXHIBITIONS AND MEETINGS.

FRUIT AND VEGETABLE SHOW AT LIVERPOOL, October 15.

IN connexion with the Liverpool Farmers' Club an' interesting and important exhibition was held in a large marquee near the North Haymarket on October 15, and judging from the exhibits and visitors it promises to fully maintain its position as one of the leading root shows in the North. The number of exhibitors shows an increase of two and entries 11; the total for this year being 172 and 1,062 respectively. The majority of the classes are for fruit and vegetables, which makes it interesting to the gardener. In this section potatos play a prominent part, considerably over 500 dishes in 35 classes being entered. Space will not permit to give the full list, so the first prize winners will be given excepting in the new varieties of potatos, when all three will be stated. Except in special classes six tubers were the number staged.

White early kidney, Mr. J. Halsall, Burscough, with Early Eclipse; Sutton's Early Regents, Mr. Edward Tinsley, Ormskirk (extra clean); early round, Mr. Peter Davies, Warburton, Cheshire, with Harbinger; second early kidneys, Mr. E. Tinsley, with Twist's Perfection; second early round, Mr. James Johnson, Scarisbrick, with White Perfection; second early, any other shape, Mr. James Johnson with Sutton's Seedling, Snowdrop, or Lord of the Isle; Mr. James Johnson with Satisfaction (good form); Lymm Grey, Mr. John Halsall; Reading Giant, Mr. Thomas Alty, with clean, smooth tubers, 17 entries; Satisfaction, Mr. B. B. Raymond, Ludlow, Salop, with a grand dish; Up-to-Date or General Roberts, Mr. Thomas Alty, with large tubers of the former, 32 entries; late main crop Mr. Edward Tinsley. 27 entries; Bruce, Mr. James Johnson; Fidler's Colossal, Mr. Thomas Alty; Farmer's Glory, Mr. Thomas Rimmer, Ormskirk; kidney, any other variety, Mr. James Johnson, with beautiful forms of Woodstock; late round, any other variety, Mr. Peter Davies, with Saxon's; late, any other shape, Mr. G. Ashley, Manchester, with Zion House; red or coloured, early or second early Kidney, Mr. John R. Newton, Warrington, with Peerless Rose; red or coloured, early or second early round, Mr. G. H. Colin, Ludlow, with Vicar of Laleham; red or coloured late, other than rounds, Mr. B. Bowen, Ludlow, with Edgecote Purple; red or coloured, late round, Mr. B. B. Raymond, with Vicar of Laleham; for the heaviest old or new variety, Mr. James Gordon, Holmes Chapel, Cheshire, scored with British Queen, the heaviest tuber scaling over two and a-half pounds.

NEW VARIETIES.—Early or second early Kidney, Mr. Edwin Clarke, Heatley, with Challenge; Mr. E. W. Turton, Hale, with Prime Minister; Mr. P. Davies, with Reliance: nineteen entries. Early or second early round, Mr. B. Ashton, Ormskirk, with Carter's Reliance; Mr. J. Halsall, with Daniel's Norwich; Mr. James Johnson, with Lancashire Hero. Late Kidney, or any other shape than round, Mr. J. R. Newton, with Webb's Motor; and Mr. P. Davies, with Syon House Prolific. Late, round, Mr. Thomas Almond Maghull, with Seedling Model; Mr. J. Johnson, with Mona's Pride; and Mr. E. Clarke, with Syon House Prolific. Three dishes, prizes presented by Messrs. Sutton and Sons, Reading, Mr. B. Bowen, with Satisfaction, Seedling, and Windsor Castle. Single dish, nine tubers, prizes presented by Messrs. Sutton and Sons, Mr. B. B. Raymond staged the premier lot, having fine tubers of Satisfaction. Kidney, or any other shape except round, unwashed, prizes presented by Mr. W. L. Hutton, Ormskirk, Mr. T. Critchley, Halewood, with Fidler's Queen; Mr. J. S. Gordon, with Scottish Triumph; Mr. Thomas Rimmer, with The Union. Round, six tubers, prizes presented by Mr. William Kerr, Dumfries, Mr. Joseph Draper, Lathom, with Fidler's Prize Winner; Mr. T. Rimmer, with King of Norway; Mr. T. Kerr, with The Sirdar. Special class, prizes presented by Mr. W. Kerr, Dumfries, Mr. J. Johnson, with a grand lot of General Roberts; Mr. R. Shepherd, same variety; Mr. G. Ashley, third, with Cigarette. For three distinct varieties, seven tubers each, prizes presented by Messrs. Fidler and Sons, Reading, Mr. G. Ashley scored, with Queen, Giant, and Prizewinner.

In the vegetable classes the chief awards were: Turnips, six white, table, Mr. C. Warburton, Timperly. Cabbages, two red, Mr. G. Ashley, with Monsters. Brussels sprouts, two sticks, Mr. C. Warburton. Cauliflowers, two, Mr. C. Warburton, with splendid heads. Celery, three heads, white, Mr. James Johnson. Celery, three heads, red or pink, Mr. G. Taylor, Southport. Celery, three heads, Fidler's Prizewinner, prizes presented by Messrs. Fidler and Sons, Reading, Mr. J. Johnson. Celery was well shown in all classes. Carrots, six long, Mr. W. Shepherd, with large roots. Carrots, six intermediate, Mr. B. Ashton, clean roots. Carrots, six white, Mr. W. Shepherd. Carrots, six Short Horns, Mr. J. R. Carter, Chester, with a good lot. Beet, six, Mr. G. Roughley, the best of twenty entries with Dickson's Reliance. Parsnips, six, the Rev. Canon Blundell, with large roots. Onions, six, Mr. G. Roughley, with immense specimens. Leeks, six, Mr. B. Ashton. Cucumbers, two, Mr. A. Bruckshaw, Tarporley. Tomatos, six red or crimson, Mr. A. Bruckshaw. Tomatos, six yellow, Mr. T. Brocklebank.

FRUIT.—Apples and pears predominated; there were many kinds of good size, but generally deficient in colour. Apples, six culinary, twenty-four entries, Mr. G. H. Colin, first. Six dessert varieties, Mr. W. Mackarell, Formby, first, with Ribston Pippin; same number of entries as previous class. Pears, six culinary varieties, Mr. G. H. Colin; six dessert varieties, Rev. Canon Blundell, with [illegible] Marie Louise. Apples, six culinary varieties, special, Mr. G. H. Colin. Apples, six dessert varieties, special, Mr. Thomas Lunt, Halewood, with Cox's Orange Pippin. For any other kind of fruit Mr. B. Ashton was first with grapes.

Non-competitive exhibits included: Mr. W. Kerr, Dumfries, a large selection of potatos; Dicksons, Chester, apples and potatos; Messrs. W. Kerr and Co., Liverpool, miscellaneous collection of fruit, vegetables, and salads; Mr. H. Middlehurst, The Gateacre, swedes. The arrangements were carried out in a most satisfactory manner.

ONION AND ROOT SHOW AT THAME, October 18.

HEAVY rain attended the holding of Mr. John Walker's popular South Oxon autumn exhibition, the whole of the exhibits being ranged and staged on the open footway in front of Mr. Walker's seed shop and adjoining premises. The prizes offered were fairly liberal, and a brisk competition resulted.

ONIONS.—Four prizes were awarded for a dozen bulbs each of Walker's Exhibition strain, a useful form of White Spanish. Twenty competitors entered the lists (open to all England), the awards falling to Mr. Dover, Fingest, Bucks, first; Mr. R. Lye, Sydmonton Court Gardens, Newbury, second; Mr. Bartlett, Peverill Court, Aylesbury, third; and Mr. Cross, Shabbington, Bucks, fourth, for shapely bulbs measuring an average of fifteen inches round.

ROOTS.—Of these about two hundred and fifty specimens were in competition, and a fair average size was maintained throughout. Turnips were limited to one exhibit only; swedes were good; but the mangolds proved of splendid quality. The awards were as follows: Long red mangolds (six), Mr. T. Elton, Thame, first, weight 130 lbs.; Mr. C. Rose, North Weston, second, 109 lbs. Globe mangolds (six), Mr. T. Elton, first, 109 lbs.; Mr. C. Rose, second, 97 lbs. Golden Tankard mangolds (six), Mr. G. Gale, Chilworth, first, 65 lbs.; Mr. T. Elton, second, 69 lbs. Swedes (six), Mr. T. K. Elton, first, 68 lbs.; Mr. T. Elton, second, 58 lbs. Turnips (six), Mr. H. Reynolds, Notley Abbey, second, 34 lbs. Three long red mangolds (may be garden grown), Mr. C. Bidmead, first, 74 lbs.; Mr. J. Kemp, Haddenham, Bucks, second, 65 lbs. Three globe mangolds, Mr. J. Harris, Shabbington, Bucks, first, 59½ lbs.; Mr. Kemp, second, 59 lbs.

Miscellaneous contributions included a splendid stand of eighteen varieties of show and fancy dahlias exhibited by Mr. G. Saunders, gardener to C. Aubrey Aubrey, Esq., Dorton House (Thame dahlias were all cut off last week by frost); Mr. J. Walker put up nearly one hundred specimens of his selected Intermediate carrot; Mr. M. Brown, grand dishes of Reading Russet and Reading Giant potatos, the latter very handsome, one tuber weighing 21½ ozs.; Mr. A. Briscoe, Haddenham, excellent dozens of Satisfaction, Purple Perfection, Mr. Bresee, and Wordsley Pride potatos, and three gourds averaging 50 lbs. each; Mr. Stevens, Stone, sent Giant Rocca onions averaging 29 ozs. each; Mr. H. Newitt excellent savoys, being the third crop this season and planted after two cuttings of lucerne.

NATIONAL CHRYSANTHEMUM SOCIETY.

SINCE the annual meeting of the National Chrysanthemum Society at the beginning of the year I have spent many hours thinking over the questions there raised, and have come to the conclusion:—

Firstly, that it is time the existing state of things ceased, *i.e.*, the holding of the exhibitions at the Royal Aquarium under the conditions they are at present held, and further, that it is expedient that a proper home for the committee be found in some central part of the metropolis, easy of access from all the great railway termini.

Secondly, that, in seeking to make an alteration, it is necessary to go about the matter in a very careful manner, so that it may be an improvement; as I take it the committee, and the general members of the society as well, are anxious to make every show a success, it behoves the Sites Committee to always bear in mind the absolute necessity of making, or of obtaining, a place that will be equally accessible to those living north of London as to those living south, and *vice versa*, and at the same time to keep constantly in view the fact that there are many thousands of Londoners who pay their 2s. 6d. or 1s. (as the case may be) to view the exhibitions while those exhibitions are held in London. They go, not perhaps so much from a special love of chrysanthemums, as that the society's shows afford them a change from the everlasting theatre. But were the flowers removed from their midst would they make a half-hour railway journey to support the show? Well, the few lovers of the chrysanthemum would, but you may depend upon it that the average sightseer would not, and this would incur a serious loss in receipts, which, according to the financial statement presented to us at the annual meeting, the committee must not for one moment entertain.

Thirdly, then the question seems to me to be to obtain a hall in a central position in London, north of the Thames if possible, capable of holding the exhibition, and that the society should hire it for the time required, and take its own gate, as in my opinion it is only by having an entirely free hand in this matter that the thing can be expected to pay its way. So much for 1899. But what about the twentieth century? We all hope to live longer than 1899, and we hope to see the N.C.S. march along in a manner to justify the amount of money expended on it. Where, then, are we going after 1899? This question will bear going further into. Look, for instance, at the R.H S. holding its meetings in the Drill Hall (Westminster). A Royal society, and cannot boast of a place of its own to meet in! Why cannot this state of things be altered? I suppose the reason is money. Now, if this is the cause, why do not all the horticultural societies, *i e*, all the sections, amalgamate, and see what can be done? The N.C.S. and the R.H.S. each have a goodly number of provincial societies affiliated to them. Why not convert each of these societies into collecting centres? I believe that if this were done sufficient might soon be raised to build a hall that would accommodate both the societies, and, what is more, they might to some extent choose their own position. Each society would within its walls have a permanent home, and perhaps the valuable Lindley Library might be of more general and practical use than in its present *locale*.

I wish you would make the dry bones of contention so rattle as to stir someone great in the horticultural world to move. JASON FEARS.

Hertford, October 15.

Musical Organs in Spiders.—In describing, the other day, the musical organs in spiders, Mr. R. J. Pocock pointed out that the sound organs were in many cases constructed on exactly the same principle as a musical box; and after describing the position of the sound organs and the means by which the sounds were produced, he went on to consider the use of these organs. The activities of any animal, he said, were directed towards one of four purposes—the procuring of food, the avoidance of enemies, the reproduction of the kind, or the protection of the young. The sounding organs of the spider fell into two categories. There were the cases in which the organs were equally well developed in both sexes, and appeared early in the life of the individual; and there were the cases in which the organs appeared only in the male, or were much more fully developed. The significance of the organs in the latter case was purely sexual; and the sounds might serve to assure the female of the identity of the male; for, owing to the strength and voracity of the female, the period of courtship was full of risks for the male. As to the case where the organs were equally developed in both sexes, there was no reason to suppose that they had any sexual significance whatever. Their use was to warn approaching enemies; for when these spiders were attacked it was their habit to rear up and stridulate. These large spiders were poisonous and inedible, and the stridulation was to prevent their being destroyed by enemies in ignorance of their distasteful qualities. The power to stridulate in these cases served the same purpose as the bright colouring which distinguished poisonous reptiles and insects. Where the sounding organs were equally developed in both sexes, there was no reason to believe that the spiders themselves heard the sounds which they produced.

SENTENCED TO DEATH. These are the most terribly significant three words we have in the English language. Thousands of wretched creatures, whose lives have become forfeited to the outraged laws of their country, have heard them pronounced with feelings of sickening terror. The man who has neglected the most simple laws of health feels that all is indeed lost, when the dread sentence is pronounced by the doctor, who has used all his medical skill upon him in vain. In the latter case, however, the door of hope has been opened, through the medium of Holloway's Pills and Ointment. They have effected a cure at the last moment, as thousands of testimonials being constantly received will prove.—[ADVT.]

NEW BOOKS.

Bulletin of the French Horticultural Society of London. (20, Bedford Street, Strand, W.C.)—If any evidence were needed of the vitality and continued prosperity of this young but flourishing society we could do no better than point to its annual *Bulletin* recently published. Bulletin scarcely conveys to the English mind the kind of publication which our French friends resident in England publish year by year, for it is a large sized volume of one hundred and forty-two pages, that would seem to merit a more dignified name. The issue now under notice has several illustrations to accompany the text, and offers to the reader as a frontispiece an excellent phototype portrait of Mr. Harman Payne, whose connection with the society dates back to a time when very few English horticulturists had testified to their appreciation of the society's aims. A short biographical notice by the genial president, Mr. George Schneider, is given explanatory of Mr. Payne's position in regard to French horticulture. The contents are, as usual, varied and numerous, for we find the annual report, showing that the society now counts four hundred and twenty-four members, and has a satisfactory balance in hand, the rules of the society and long lists of officers and various grades of members next appear, together with a list of what we might in English define as affiliated societies. The library, which is an interesting and instructive feature of the society, contains a representative collection of horticultural books, both in English and French, a list of which appears on page 57. Then the *Bulletin* contains concise reports of each monthly meeting held during the past year, together with a special account of the annual dinner held in January, a most enjoyable and successful function, and one that is fast increasing in popularity. The purely literary portion of this publication consists of a series of papers by the members on such subjects as anthuriums, pelargoniums, lilies, adiantums, fuchsias, bouvardias, orchids at Kew, caladiums, &c., some of which indicate considerable pains being taken by the young authors, one of the most notable being the article on the National Chrysanthemum Society's exhibitions of 1897.

Altogether the society is deserving of great credit for the style and get up generally of the *Bulletin*, which, as will be seen from the few remarks already made, contains interesting matters to others than merely members of the society. The president, Mr. Schneider, deserves the warmest thanks of horticulturists on both sides of the Channel for the earnest enthusiasm he displays in the management of the society, whose prosperity so largely depends on his tact and sympathetic appreciation of the needs of the young foreigners who come to our shores.

OBITUARY.

BRIGADE-SURGEON J. E. T. AITCHISON, F.R.S., late of the Bengal Army, whose death occurred the other day at the age of 61, was distinguished as a botanical explorer, and during the last thirty years added much to our knowledge of Oriental floras. In 1878, Lord Roberts, then in command of the Kuram field force, applied to the Indian Government for his services as botanist with the army. There afterwards appeared in the journal of the Linnean Society, in 1880 and 1881, two papers detailing his discoveries and observations in the valleys of the Kuram and Keraia rivers. In 1884, Dr. Aitchison was appointed scientific officer with the Afghan Delimitation Commission, and spent two years in Northern Beluchistan, the Helmund Valley, and the other districts in Central Asia traversed by the Commission. The results of these exploration were embodied in a paper printed by the Linnean Society in their transactions for 1887. Dr. Aitchison was an indefatigable collector. His Afghan and Central Asian collections amounted to more than twenty thousand specimens of plants, which were distributed to Kew and the other principal herbaria of the civilised world. He was accustomed to add to them valuable original observations regarding their economic value.

MR. GEORGE TAYLOR, who for so many years was associated, as foreman, with Messrs. J. Veitch and Sons at their Chelsea Nursery, died, we regret to hear, a week or so ago at Deal. Since retiring from active service Mr. Taylor has resided at Deal, and there a large number of his old acquaintances gathered to pay their last respects on Tuesday last.

Sutton's Champion Scarlet Horn Carrot.—This is a very much improved stock of the Early Nantes, and has been grown by me in a trial of several varieties this year. So far as everyone knows we have had an exceptionally bad carrot season, indeed it has been generally the worst I have ever known. That has been through no fault of stocks but entirely of weather. But on the exceedingly dry, porous soil at Richmond, where the trial took place, Champion Scarlet Horn has proved to be the very best. The roots are not large, being within about six inches long, of medium breadth, cylindrical in form, abrupt ended, of rich scarlet hue, and the flesh when cooked exceedingly succulent and delicious. It is such a carrot as I would have alone for my table had I a garden. All the large carrots, fine to look at, are not to be compared with this one for table excellence. It is good to sow in frames, on warm borders, in the open quarters in April, and not least for winter pulling in July.—A D.

A Plea for the Owl.—Owls' feathers have lately been very prevalent in hat trimmings, and attempts have been made to justify their use on the ground that the owl does great harm to pigeons, poultry, and small birds. The following statistics, quoted by the Massachusetts Audubon Society for the Protection of Birds, have been prepared to exonerate owls in general from the charges brought against them, and to enlist in their defence the sympathy of all lovers of interesting, harmless, and helpful wild life. There are five species of owls, which may be termed common in the eastern United States; of these the screech owl is by far the commonest, and probably outnumbers all the other species together. This owl has the following record: Out of 255 stomachs examined, none contained pigeons or poultry, 16 per cent. contained the remains of birds, and 80 per cent. those of mice, insects, and English sparrows. The figures for four of the common species—the screech owl, the barred owl, the long and short-eared owls—are as follows: Of 572 stomachs examined, 1 1-5th per cent. contained poultry or game birds, 9 per cent. small wild birds, 52 per cent. mice, and 26 per cent. insects. The great horned owl, it is true, has a bad record, for of 127 stomachs examined, 25 per cent. contained the remains of poultry or game, and only about 23 per cent. those of mice or insects. This owl, however, is becoming one of the rarer species, and it is unfair, to say the least, to condemn the whole family on account of one black sheep. Dr. Fisher goes farther and points out the grave injury which would inevitably result to the farmer and to the gardener if owls were persecuted. The figures given above do not, of course, give the exact proportion of good which owls do; some individuals had nothing in their stomachs, some had other mammals or spiders; but it is certainly safe to befriend in every possible way the four species whose bill of fare is so constituted that four out of every five individuals dine on mice or insects.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Dendrobium chrysanthum.—W. A., Newcastle-on-Tyne: This fine orchid flowers at various times of the year, but mostly during autumn or winter. It grows best if placed in a well-crocked teak basket, using fibrous peat and sphagnum moss as compost; suspend the basket in a stove where plenty of light can be afforded at this season of the year. New compost should be afforded or the plant re-basketed as soon as the new growths are an inch or so in length. While growing freely, plenty of heat and moisture are necessary, but when the pseudo-bulbs cease to elongate, and no more leaves form, water must be given sparingly; do not absolutely dry the plant off, however, but place it at the cool end of the stove or in an intermediate house while at rest.

Disqualification at Flower Shows.—Enquirer, Kent: Thanks for schedule. Provided your statements are correct, and we have no reason for disbelieving them, the judging at the show in question was most unfair. The exhibitor who was awarded the second prize could have legally claimed the first, provided he showed according to schedule, while the exhibit gaining first prize contained eleven instead of six sorts of vegetables. We are inclined to think, however, that some mistake has been made, though we cannot suggest where, especially as in other classes the judge rightly disqualified competitors who did not conform to the schedule. It would be interesting to know the judge's opinion in connexion with the vegetable class, and also to whom he awarded the first prize. With regard to cucumbers you were wrong; the schedule asked for three, not for two, though only a brace was needed in the cottagers' division.

Paraffin Wash.—S.T.: Paraffin should invariably be used in the form of an emulsion because of the difficulty of mixing the oil with the water. The following instructions given by the Maryland Experiment Station for the preparation of a paraffin emulsion for the destruction of aphids on peach and other trees will afford you the desired information. Take half a pound of soft soap, one gallon of water (rain water if convenient), and two gallons of paraffin. Put the water in a vessel holding four or five gallons, add the soap, place on a stove. and bring to the boiling point, occasionally stirring it to thoroughly dissolve the soap; then remove to the yard, or some convenient place away from the fire, and pour the paraffin directly into the water. This should then be pumped in and out of the vessel with a good force pump for from five to ten minutes, or until the emulsion is formed. If properly made, it will have the appearance of buttermilk, and will readily mix with water without any oil coming to the surface. It will keep an indefinite length of time, becoming a semi-solid when cold. If used when fresh it can be diluted with cold water to the strength desired; but if cold and hard, warm water should be used. Every gallon of the emulsion used should be diluted with from 10 to 13 gallons of water, and applied with a good spray pump.

Diseased Tomatos.—J. D., Carnarvon: Your tomatos seem to be attacked by several diseases, and are in such a bad way generally that there appears to be little hope of those not yet showing distress doing much good. Fungoid pests are so easily distributed that the damage is done ere the grower notices anything wrong. Some day—and the time is not far distant—every gardener of importance will keep Bordeaux mixture and sulphide of potassium in his store-room, just as now he considers it necessary to keep a stock of tobacco rag or vaporisers, whichever he may use for fumigating. For some years past the most successful growers of plants and fruits have fumigated with some degree of regularity, believing in the prevention of insect pests rather than the radical cure of a plague. So with fungoid diseases; where certain plants are grown, which by reason of their high cultivation, excessive propagation, and weak tissues, become predisposed to fungoid attack, then fungicides of known value should be used upon them occasionally in the form of spray, so that stray spores may be destroyed and prevented from germinating. Remove all affected leaves and burn them, together with all badly affected plants, and then spray the remaining plants, surface soil, walls, &c., with the fungicide, following this with other sprayings at intervals. We presume that as regards airing, watering, and feeding, the plants have been carefully tended. We should be inclined to make a fresh start, if strong plants are obtainable, after an effectual clearance.

Raising Gladioli from Seed.—S. M., Banbury: The seed should be kept in a dry, cool place during the winter. As the sample sent is not very ripe, we suggest that previous to storing it the opening pods should be laid on sheets of paper on a stage in a greenhouse, where they can be kept from damp, and have all the sunshine possible to assist in the proper ripening of the seeds. The best time to sow gladiolus seed is early in March; use large and fairly deep pans of good sandy soil, crock these carefully, and sow the seed thinly. Place the seed pans in a gentle heat until the seedlings appear, then move to cooler quarters, reducing the temperature gradually, and keeping the seedlings as near the glass as safety permits; this gradual hardening off should continue until, in the summer, the pans may be stood out of doors. If care is taken to keep the young gladioli growing steadily until autumn, and if the plants have not been overcrowded, some nice corms should be formed, and these may be carefully ripened and stored, like older bulbs, for the winter. In the ordinary way quite a number of these corms should flower the second season. The middle of March will usually be early enough to plant the corms, selecting a warm border and rich soil; six inches apart will probably suffice, but more room should be given if the corms are of a size to justify a hope of their flowering. Plant the corms from two to three inches deep, the latter depth for the larger sizes.

Early-flowering Chrysanthemums.—T. R., Hampton: One of the most useful reports upon early-flowering chrysanthemums that has hitherto been published appeared on p. 578 of our issue of September 18, 1897. This report was made after an examination of the large trial held at Chiswick; thirty-two of the best varieties are fully described, and their heights, habit, and size of flowers given. These varieties are grouped according to colour. A further report appeared on p. 650, in the issue of October 16, 1897, when all the varieties gaining an award of three marks at Chiswick on October 4 were briefly described. Appended we gave a list of the varieties then on trial, which had a few half-opened buds, or at most but two or three open flowers, on October 7 of that year; also a list of varieties that had no flowers open on that date, and consequently could have no claim for consideration as early-flowering chrysanthemums for border culture. It should be remembered that the climate and soil of Chiswick Gardens are such that varieties proving unsuitable there as early-flowering would most likely be equally unsuitable a good deal further south. The taste for early-flowering chrysanthemums is growing rapidly, and to meet the demand nurserymen have of late introduced a number of continental and other varieties, so that there seems to be a pressing need that the Royal Horticultural Society should continue to extend its trials of these beautiful autumn flowers at its Chiswick Gardens.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

W. A., Newcastle-on-Tyne: Dendrobium chrysanthum, which see.

J. S., Glasgow: 1, Cydonia japonica; 2, Berberis stenophylla; 3, B. Darwini. The Cydonia (or Pyrus) japonica fruits freely in the southern counties but not so readily in the north. A preserve can be made from the fruit. Grow the shrub against a wall.

J. C. B, Warwick: 1, Aster Novi-Belgi densus; 2, A. cordifolius elegans; 3, A. ericoides; 4, A. multiflorus.

C. G., Exeter: 1, Rudbeckia speciosa; 2, Ligustrum ovalifolium aureo-variegatum; 3, Cratægus pyracantha Leelandi.

A. B., Romford: 1, Tecoma radicans; 2, Hibiscus syriacus.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

L. E. B., Uxbridge: 1, Autumn Bergamotte; 2, Marie Louise d'Uccle; 3, d'Arcy Spice.

D. B., Wellingborough: 1, Pitmaston Duchess; 2, Duchesse d'Angoulême; 3, Beurre Bosc; 4, Princess; 5, Marie Louise; 6, Nouveau Poiteau.

J. M., Botley: 1, Yorkshire Beauty; 2, Tibbett's Pearmain; 3, D'Arcy Spice; 4, Fearn's Pippin; 5, Mank's Codlin; 6, Thompson's.

R. P., Uttoxeter: 1, Northern Greening; 2, Norfolk Beefing; 3, Queen Caroline; 4, Tom Putt; 5, Blenheim Orange.

W. G., Southall: Alfriston.

F. C., Alverstoke: 1, Tower of Glamis; 2, Cambusnethan Pippin; 3, Frogmore Prolific; 4, Margil; 5, Autumn Nelis; 6, Beurre de Capiaumont.

E. K., Keston: The bulk of the apples were Calville Rouge Précocée; one apple, just going rotten, appeared to be Emperor Alexander.

A. L., Wimbledon: 1, Bishop's Thumb; 2, Beurre d'Amanlis; 3, Comte de Chambord; 4, Withington Fillbasket; 5, London Pippin; 6, Northern Greening.

G. S., Guildford: 1, a form of Blenheim Pippin; 3, Rymer.

H. W., Penshurst: 1, Cornish Aromatic; 2, Frogmore Prolific; 4, Queen Caroline; 5, Lane's Prince Albert; 6, American Mother; 7, Emperor Alexander; 9, Autumn Bergamotte.

J. S., Glasgow: You have not complied with the rules we publish concerning the naming of fruits. The fruits were not good specimens, and fixing the numbers on with tin tacks made them worse. We have named the best; if you send good samples of not more than six others we will do our best to assist you. 1, Dutch Mignonne; 2 and 5, Dumelow's Seedling; 3, probably a local seedling, a good apple, however; 7, Court Pendu Plat; 11, Blenheim Pippin; No. 2 pear is Autumn Bergamotte.

THE WEATHER DURING THE WEEK ENDING OCTOBER 15, 1898.

STATIONS.	TEMPERATURE OF THE AIR. Highest. Fahrenheit.	Lowest. Fahrenheit.	Mean. Fahrenheit.	Mean. Centigrade.	RAINFALL. In Inches.	RAINFALL. In Centimetres.
London	60·5	42·0	49·5	9·72	0·42	1·07
Croydon	62·2	36·5	47·4	8·56	0·32	0·81
Brighton	60·8	41·8	51·1	10·61	0·15	0·38
Bristol	59·0	35·0	47·4	8·56	0·52	1·32
Wolverhampton	56·5	34·5	46·6	8·11	0·38	0·97
Norwich	—	—	—	—	—	—
Nottingham	60·6	37·8	49·6	9·78	0·04	0·10
Liverpool	58·7	38·6	47·6	8·67	0·27	0·69
Huddersfield	58·5	38·0	47·3	8·50	0·20	0·51
Bradford	60·2	43·4	51·5	10·83	0·25	0·63
Hull	58·0	33·0	47·1	8·39	0·24	0·61

The mean reading of the Barometer during the week at Greenwich was 29·64 inches, and that of the Thermometer 49°·5, the latter being 1°·2 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 29 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 12·5 hours. The measured rainfall amounted to 0·42 of an inch.

CATALOGUES RECEIVED.

T. S. WARE, HALE FARM, TOTTENHAM.—Bulbs and Plants.
HARLAN P. KELSEY, BOSTON, MASS., U.S.A.—Hardy American Plants.
M. M. RIVOIRE ET FILS, LYONS.—Bulbs and Fruit Trees.
J. UNITE, EDGWARE ROAD, N.—Tents, Flags, Tarpaulins, &c.
H. CANNELL AND SON, SWANLEY.—Bulbs and Small Fruits.

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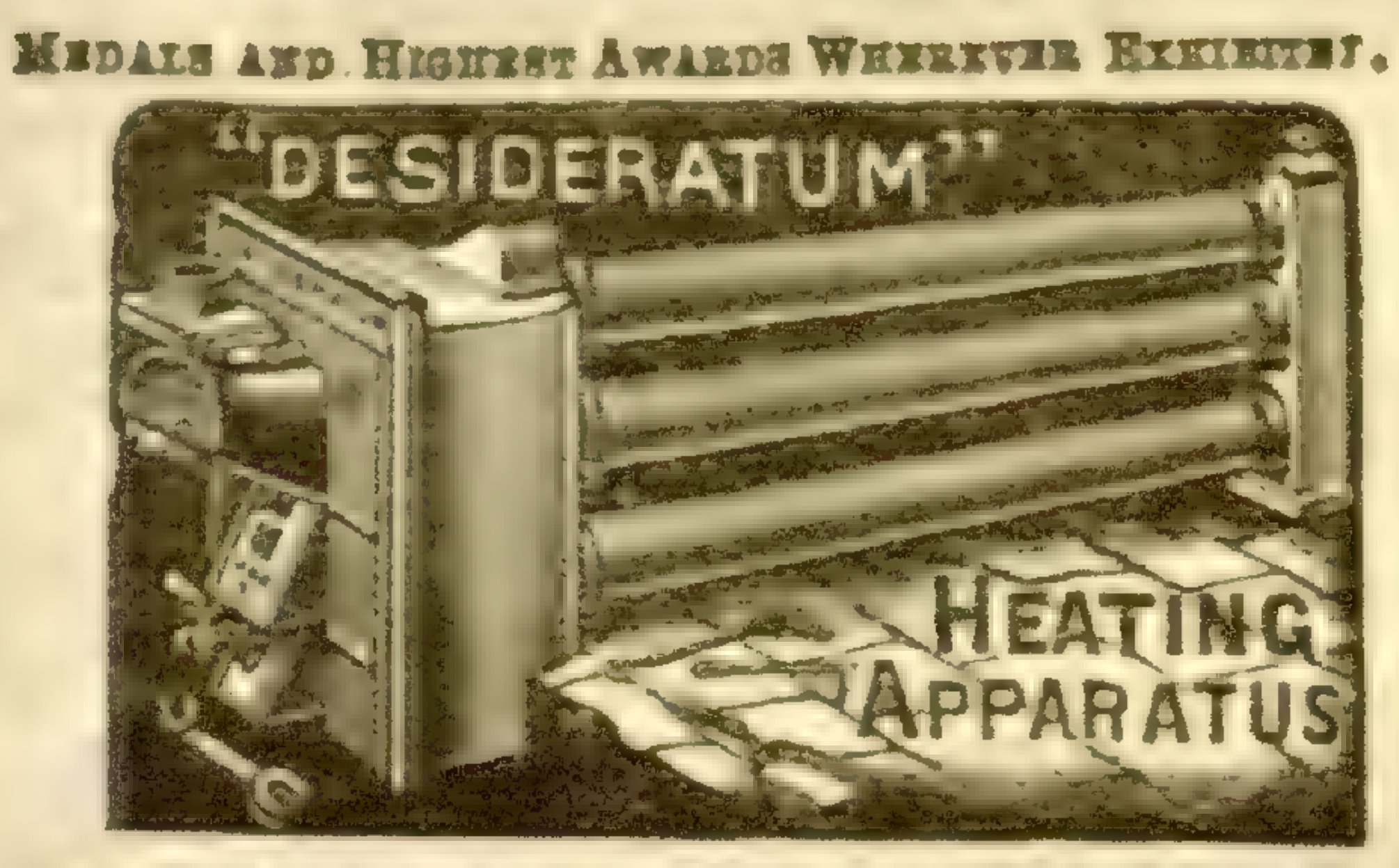

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MARKETS.

Covent Garden.

RATHER better contributions have brought the market supplies up to the average, and the demand throughout is steady and good. Prices for green vegetables are firm. Cut flower trade improving.

FRUIT.—English apples, 4s. to 8s. per bushel; Nova Scotian, 15s. to 25s. per barrel; English grapes, 10d. to 2s.; Channel Island, 6d. to 1s. per lb.; Almeria, 9s. to 16s. per barrel; Lisbon, 7s. to 10s. per case; bananas, 5s. to 9s. per bunch; lemons, 15s. to 25s. per box; oranges, 10s. to 16s. per case; pineapples, 2s. to 5s. each; English tomatos, 3s. 6d. to 4s. 6d.; Channel Island, 2s. 6d. to 3s. per 12 lb.; Bordeaux, 2s to 3s. per case; peaches, 2s. to 8s.; green figs, 9d. to 1s. 3d. per dozen; English pears (Williams), 8s. to 10s. per bushel; damsons, 2s. 6d. to 3s. 6d. per half-sieve; Spanish melons, 5s. to 7s.; pomegranates, 4s. to 6s. 6d. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 2s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. 6d. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; white gladiolus, 8d. to 1s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Valencia onions, 5s. 6d. to 6s. 6d.; Ports, 6s. to 7s. per case; Dutch picklers, 2s. 6d. to 3s. 6d. per bag; Brussels sprouts, 2s. 6d. to 3s. 6d. per half sieve; spinach, 3s. to 4s per bushel; cabbages, 4s. 6d. to 9s. per tally; endive, 1s. 4d. to 2s.; lettuce, 1s. 3d. to 2s.; French, 2s. to 3s.; cucumbers, 2s. to 4s.; cauliflowers, 1s. to 2s. 6d. per dozen; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. 6d. to 3s. 6d.; parsley, 2s. to 2s. 6d. per dozen bunches; mushrooms, 2s. 6d. to 3s. 6d. per peck; potatos, 60s. to 90s. per ton.

Borough Potato Market.

Supplies have increased, and are now fairly heavy, but the growing demand keeps prices firm. Beauty of Hebron, Snowdrops, and Up to Date, 3s. 6d. to 4s.; White Hebron, Early Puritan, Bruce Magnums, Sutton's Early Regent, Reading Giants, and Imperators, 3s. to 3s. 6d.; Black Lands, 2s. 6d. to 2s. 9d. per cwt.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, OCTOBER 24.—National Chrysanthemum Society; Floral Committee at 1 p.m.; General Committee at 7 p.m.

TUESDAY, OCTOBER 25.—Royal Horticultural Society: Committees meet at 12 o'clock; Lecture at 3 p.m. on Experimental Horticulture, by Mr. George Gordon, V.M.H.

WEDNESDAY, OCTOBER 26.—Mr. R. Sydenham's Vegetable Show at Birmingham; Two days.

THURSDAY, OCTOBER 27.—Exmouth Chrysanthemum Show; Two days.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, OCTOBER 24, 25, 26, 27, AND 28.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

FRIDAY, OCTOBER 28.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY AND THURSDAY, NOVEMBER 1 AND 2.—Roses, Carnations, Begonias, Hollyhocks, Lily of the Valley, &c., Messrs. Protheroe and Morris, Hale Farm Nurseries, Tottenham, N.

WEDNESDAY, OCTOBER 26.—Laurels, Aucubas, Carnations, &c., Messrs. Protheroe and Morris, Avenue Nursery, Brondesbury Park, Willesden Lane, N.W.

WEDNESDAY, OCTOBER 26—Standard and Dwarf Roses, Shrubs, &c., Mr. J. C. Stevens, King Street, Covent Garden.

THURSDAY, OCTOBER 27.—Orchids, Mr. J. C. Stevens, King Street, Covent Garden.

COMING EVENTS.

BATLEY CHRYSANTHEMUM SHOW, November 19.
BATTERSEA AND WANDSWORTH CHRYSANTHEMUM SHOW, November 4 and 5.
BELFAST CHRYSANTHEMUM SHOW, November 15 and 16.
BERKHAMSTED CHRYSANTHEMUM SOCIETY, November 9 and 10.
CARDIFF CHRYSANTHEMUM SHOW, November 9 and 10.
EASTBOURNE CHRYSANTHEMUM SHOW, November 1 and 2.
EXMOUTH CHRYSANTHEMUM SOCIETY, October 27 and 28.
LIVERPOOL CHRYSANTHEMUM SHOW, November 9 and 10.
MAIDENHEAD CHRYSANTHEMUM SHOW, November 3 and 4.

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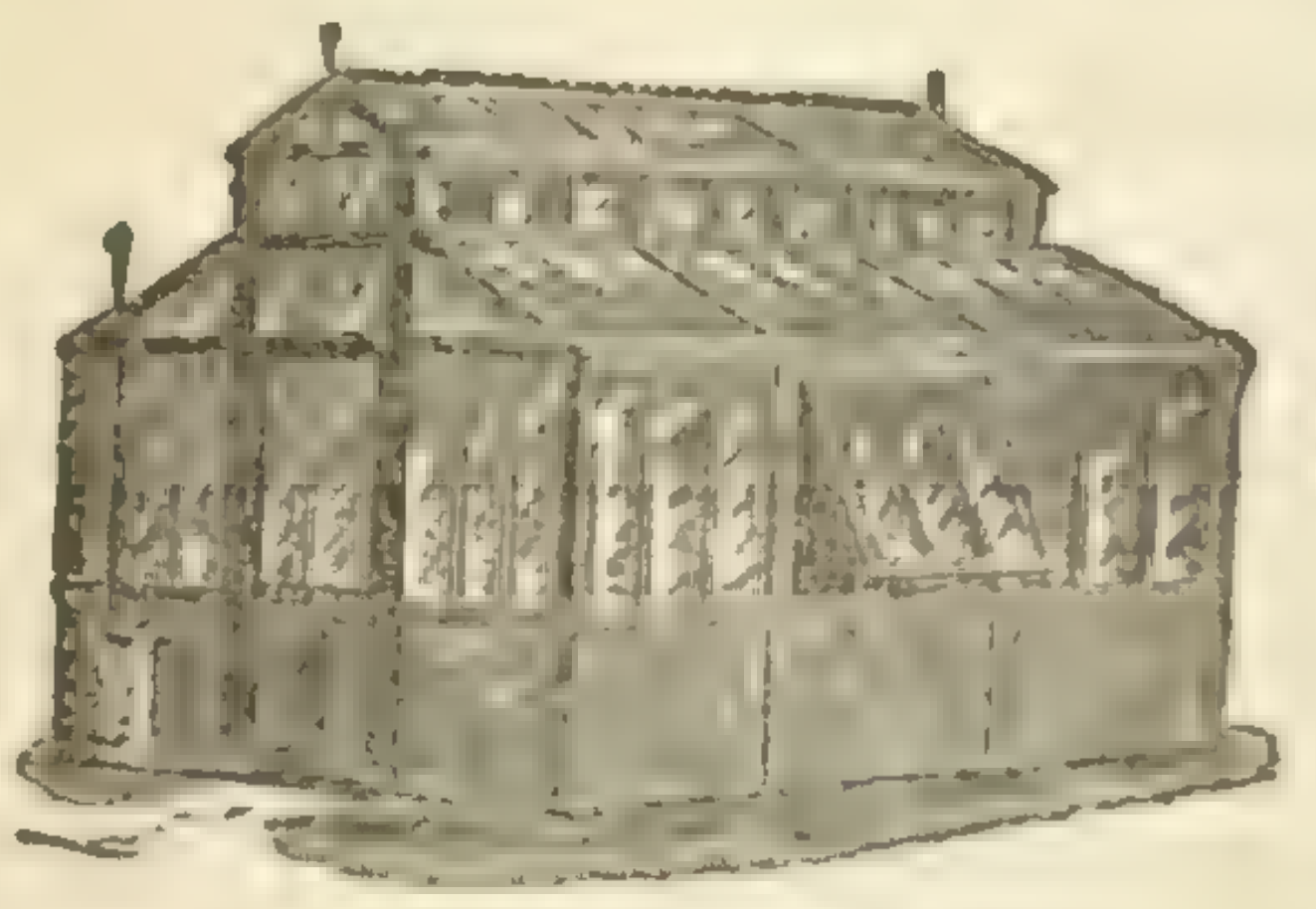

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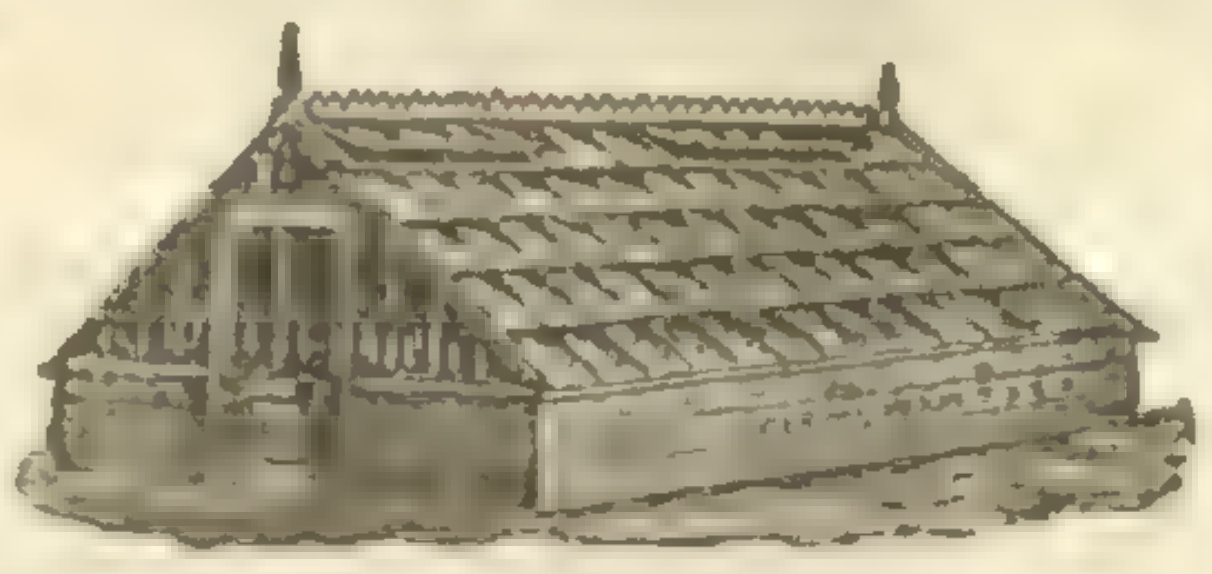

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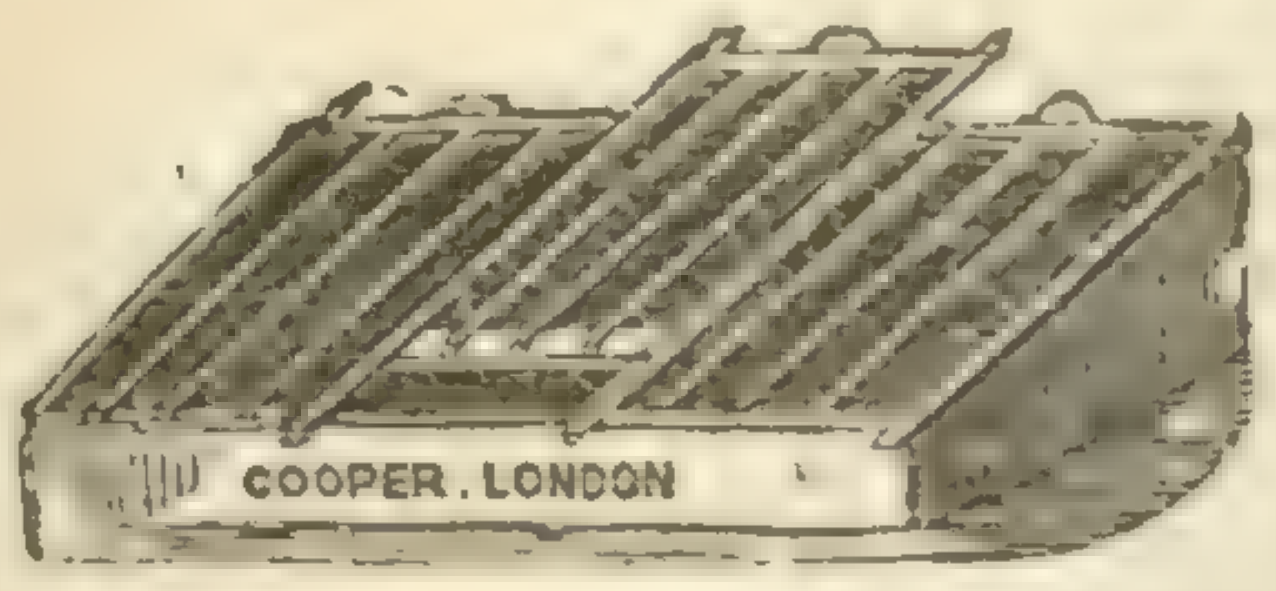

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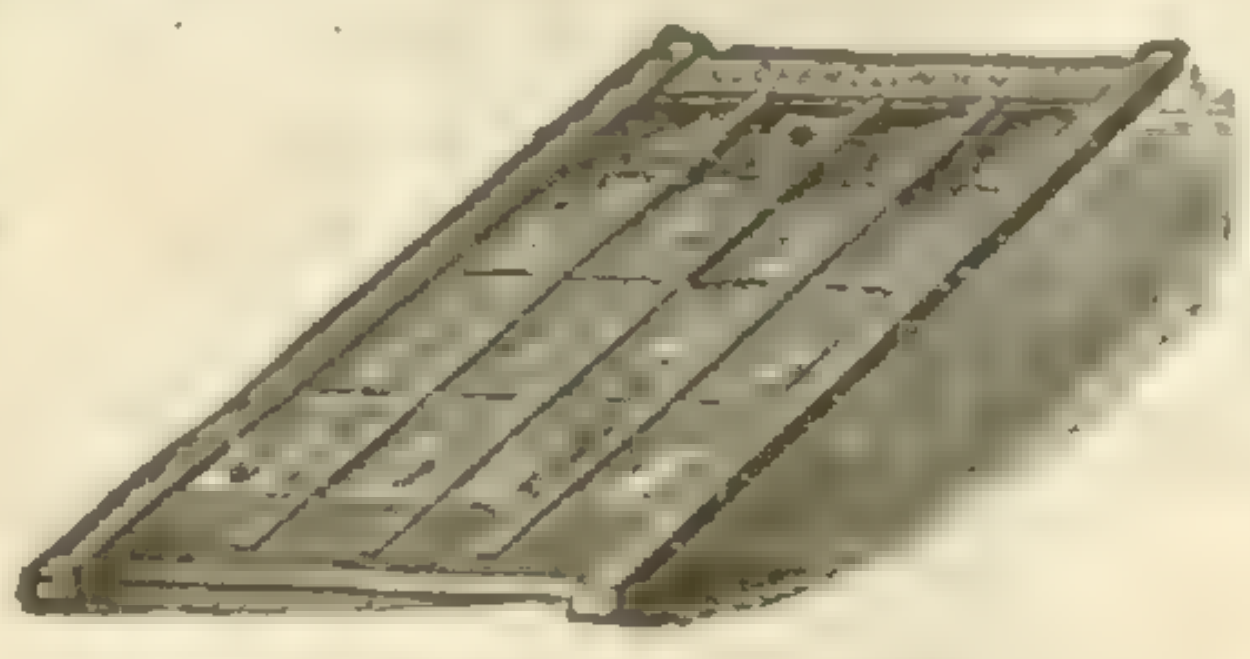

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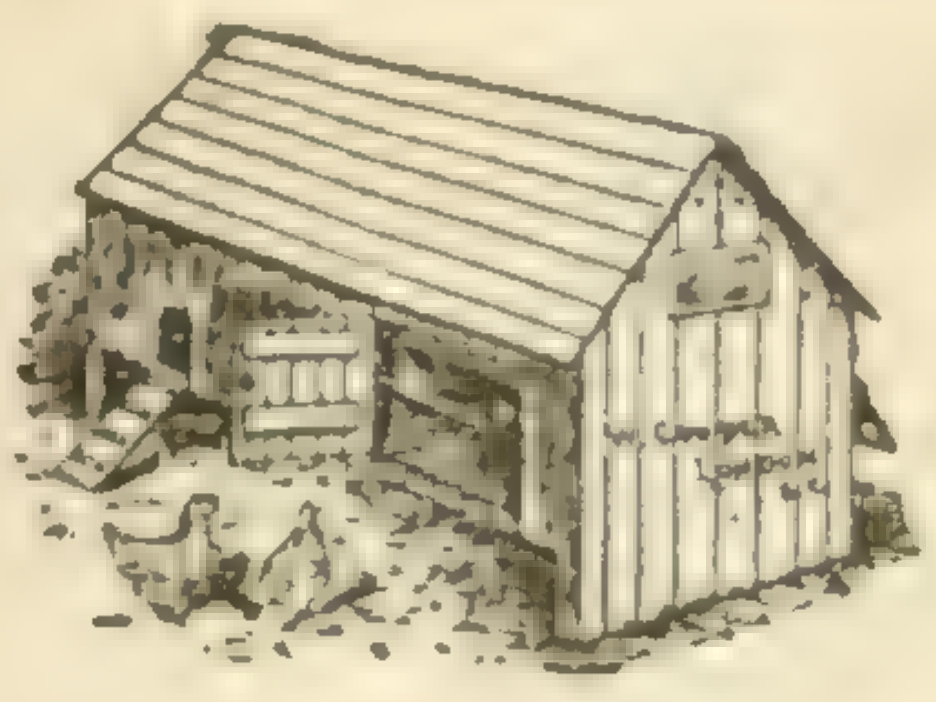

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5 ft. by 4 ft. ... ... 25s.
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7 ft. by 5 ft. ... ... 30s.

SPAN-ROOF POULTRY HOUSE.

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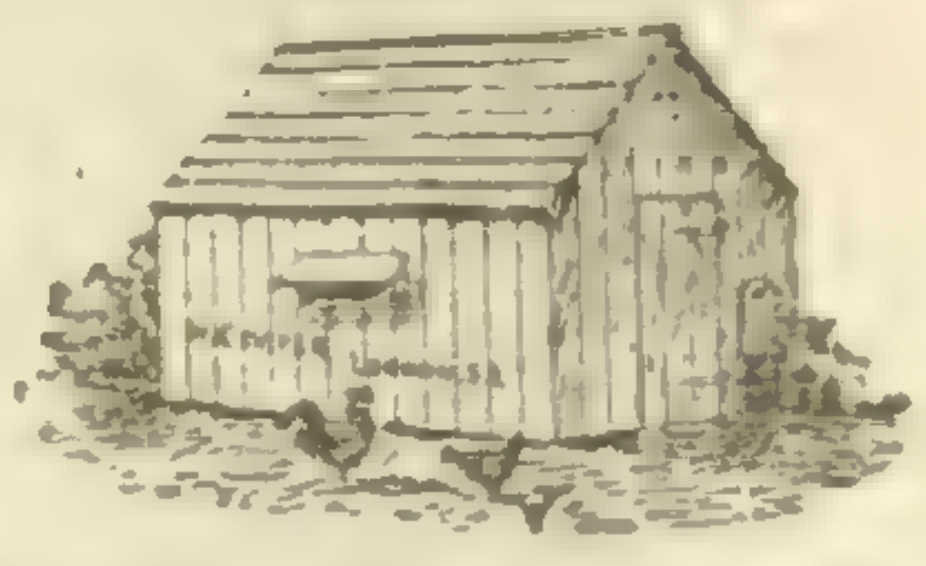

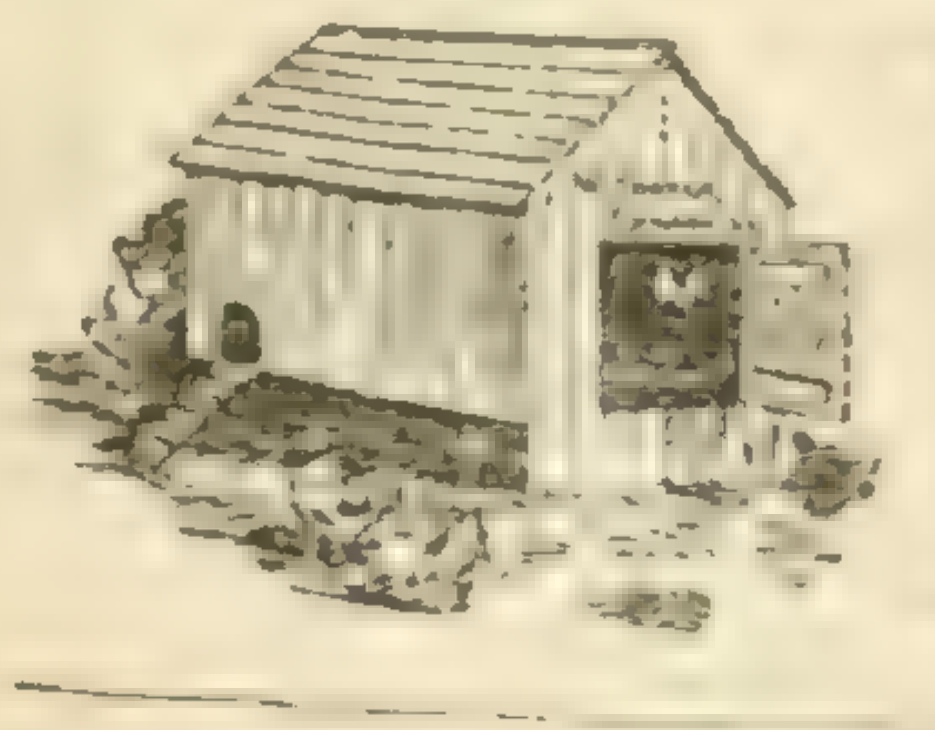

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12s. 6d., 17s. 6d., 25s.

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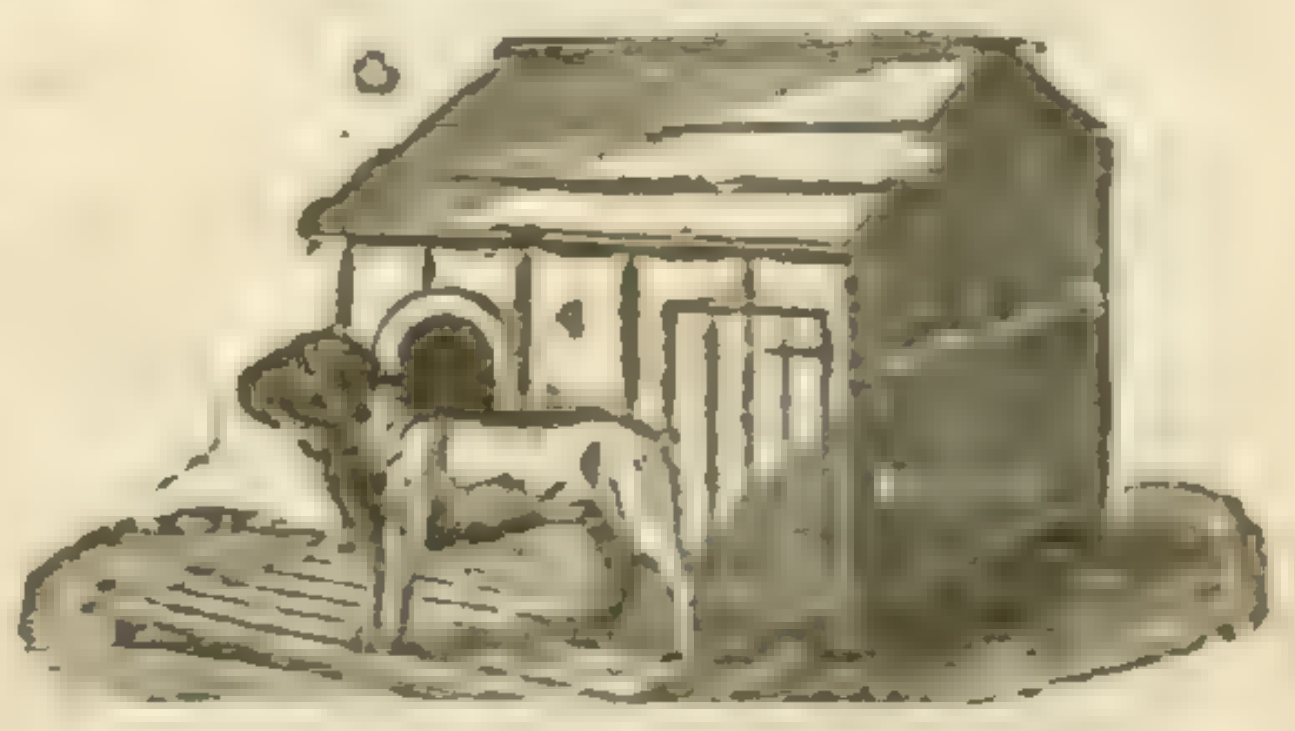
See List.



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Patent Asphaltic Rolls, 25 yards long, 33 in. wide, 3/3 per roll; 6 rolls, 3/2 per roll; 12 rolls, 3/1 per roll; 25 rolls, 3/- per roll. Free on rail.

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Ground must be cleared.
Required for building.

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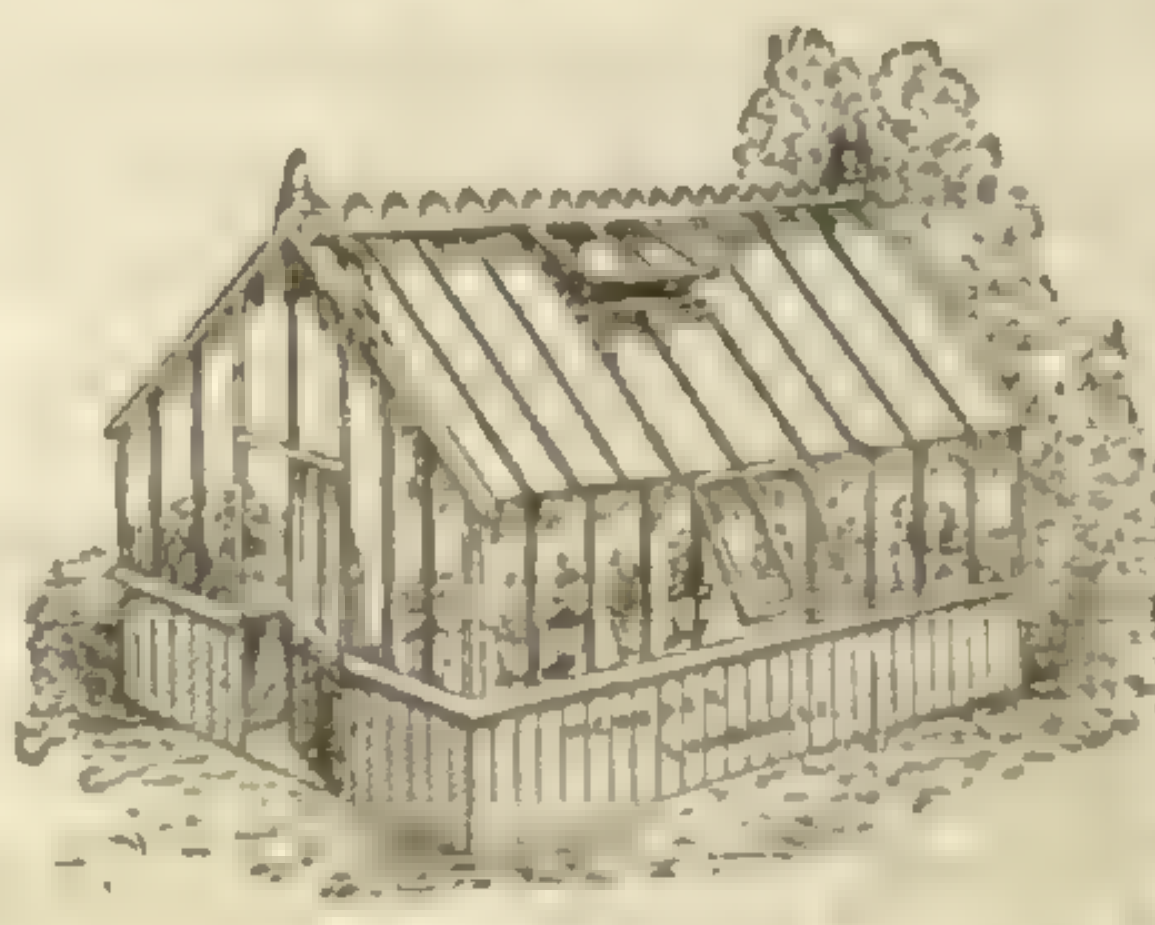

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Long. ft.	Wide. ft.	High. ft. in.	To Eaves. ft. in.	Packed on rail. £ s. d.	Erected within 50 miles. £ s. d.
7	5	7 0	4 0	2 16 0	4 0 0
8	5	7 0	4 0	3 10 0	5 0 0
9	6	7 3	4 0	4 0 0	5 10 0
10	7	7 6	4 6	5 0 0	6 15 0
12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
25	10	9 0	5 6	15 0 0	20 0 0
50	10	9 0	5 6	25 0 0	35 0 0
100	10	9 0	5 3	45 0 0	65 0 0

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Most Efficient and Cheapest in Existence. Cost of complete Apparatus for Greenhouse, with 4 in. flow and return pipes along one side.

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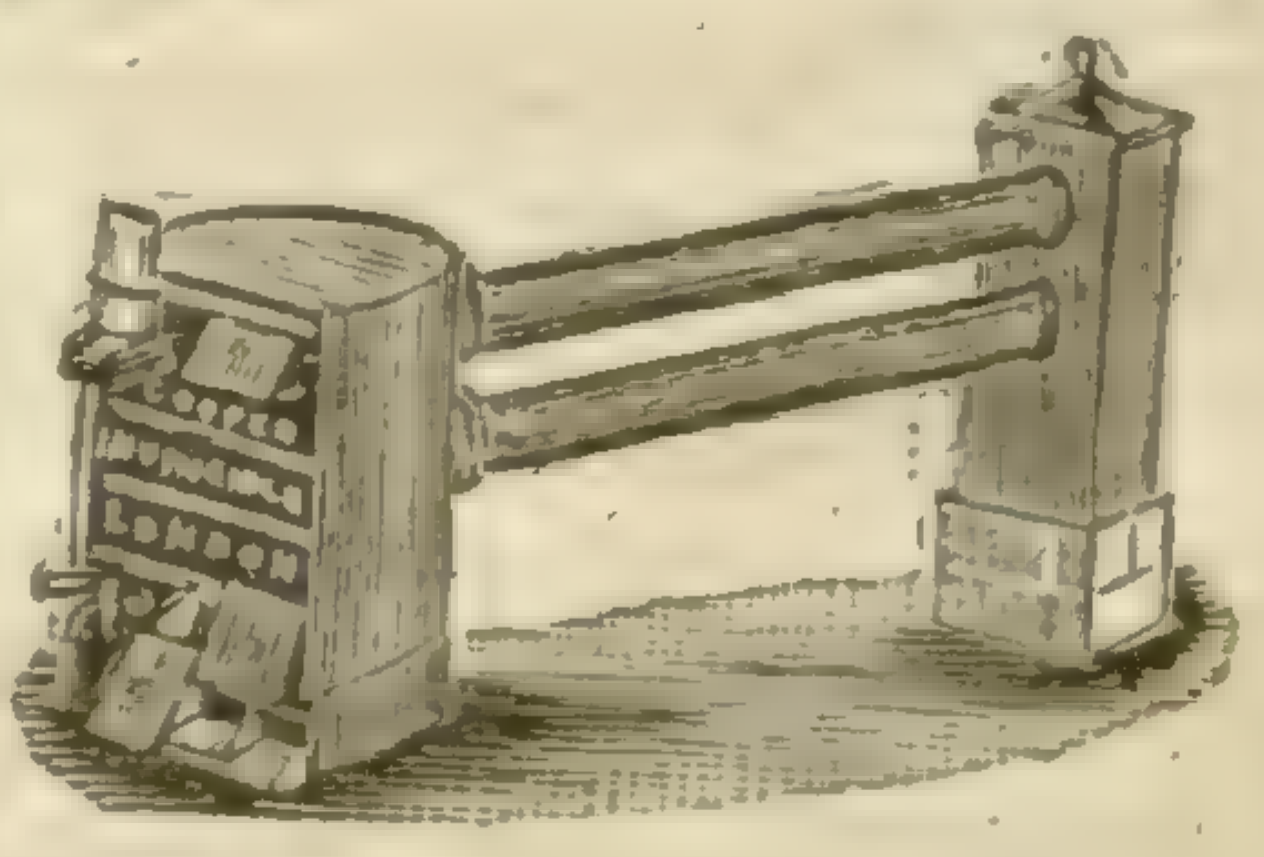
9 by	6	£3 10 0
12 by	8	£3 15 0
15 by	10	£4 15 0
20 by	10	£5 15 0
25 by	10	£6 15 0



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Without smoke or smell.

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16s. Extra for Gas, 2s.

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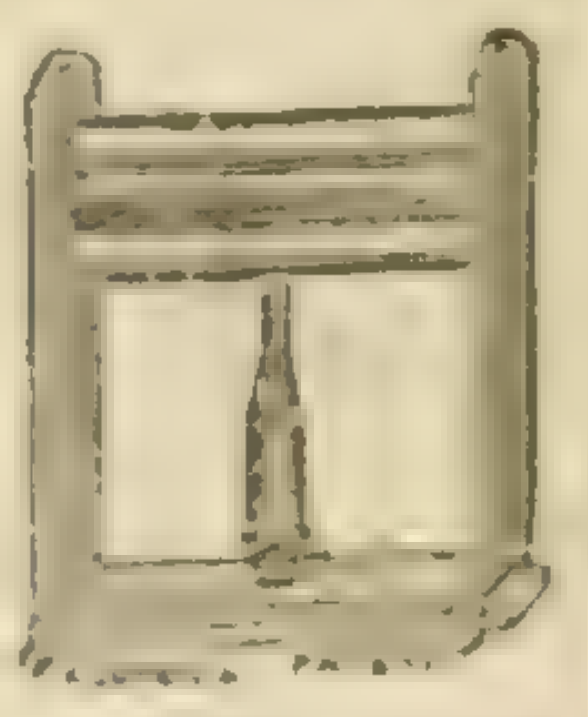

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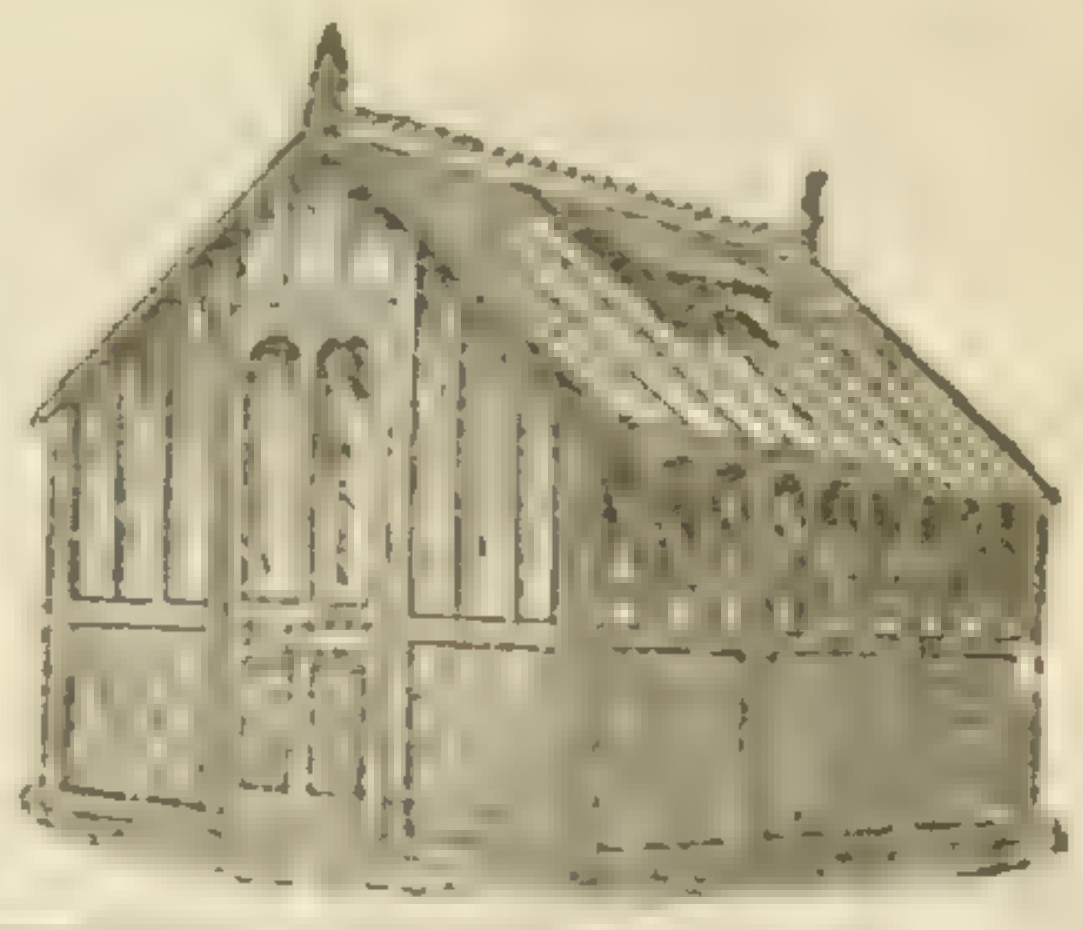

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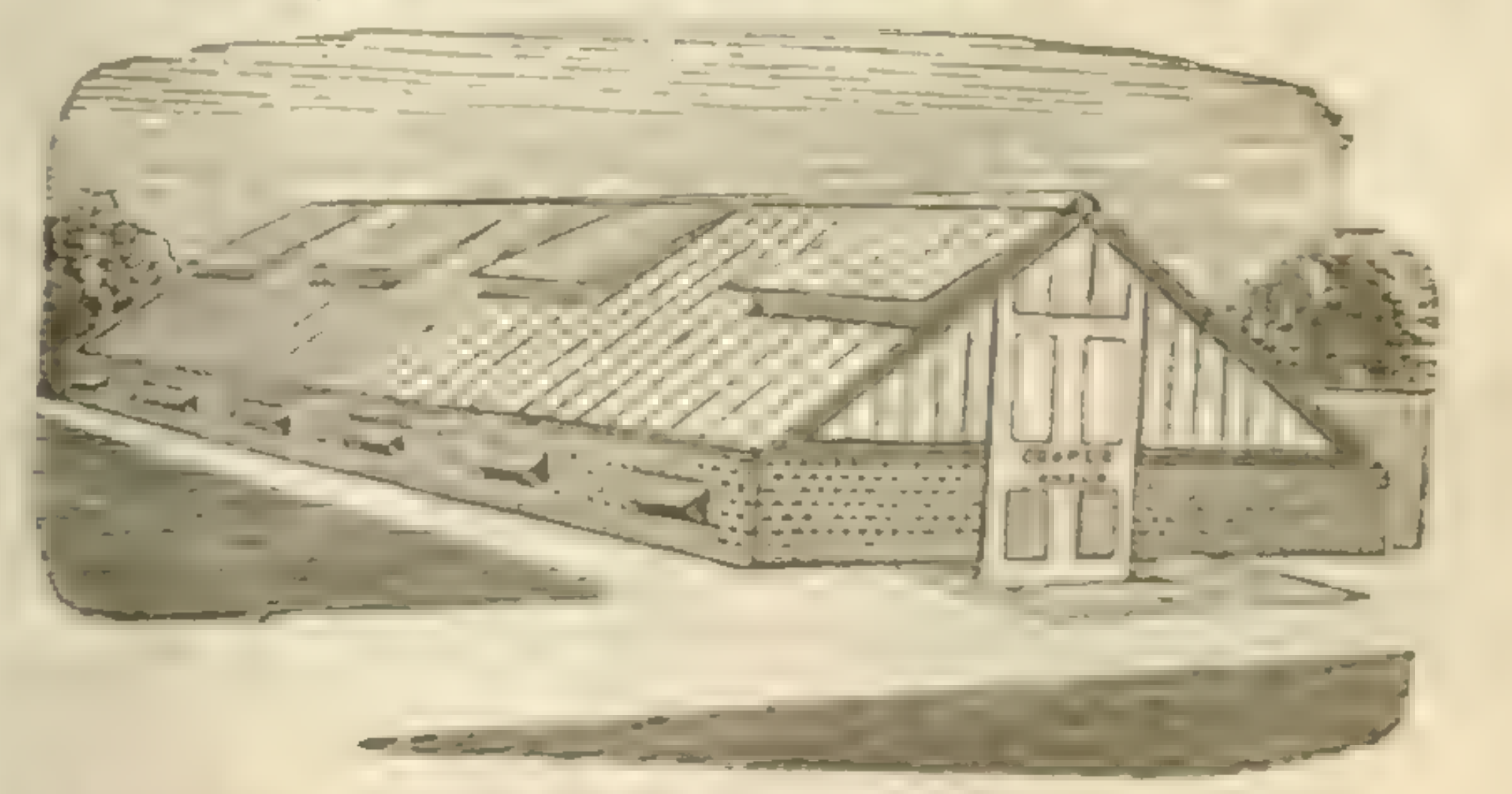
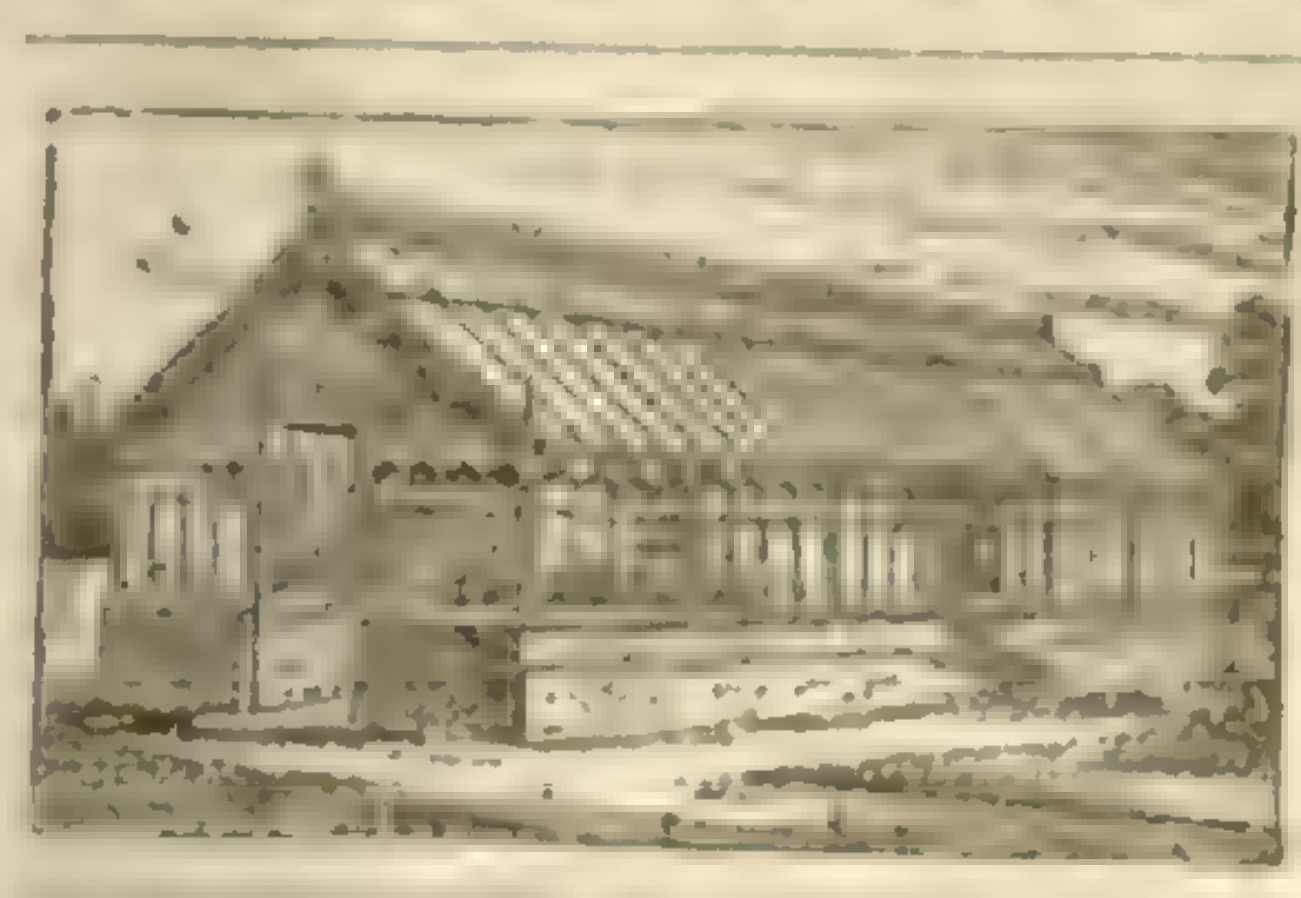


A most useful house for gentlemen, nurserymen, &c., for forcing and growing Tomatoes, Cucumbers, Melons, &c. Complete, and ready for erecting on brickwork.

Length.	9 ft. wide.	12 ft. wide.
20 ft.	£8 0 0	£10 0 0
40 ft.	15 0 0	19 0 0
100 ft.	35 0 0	42 0 0



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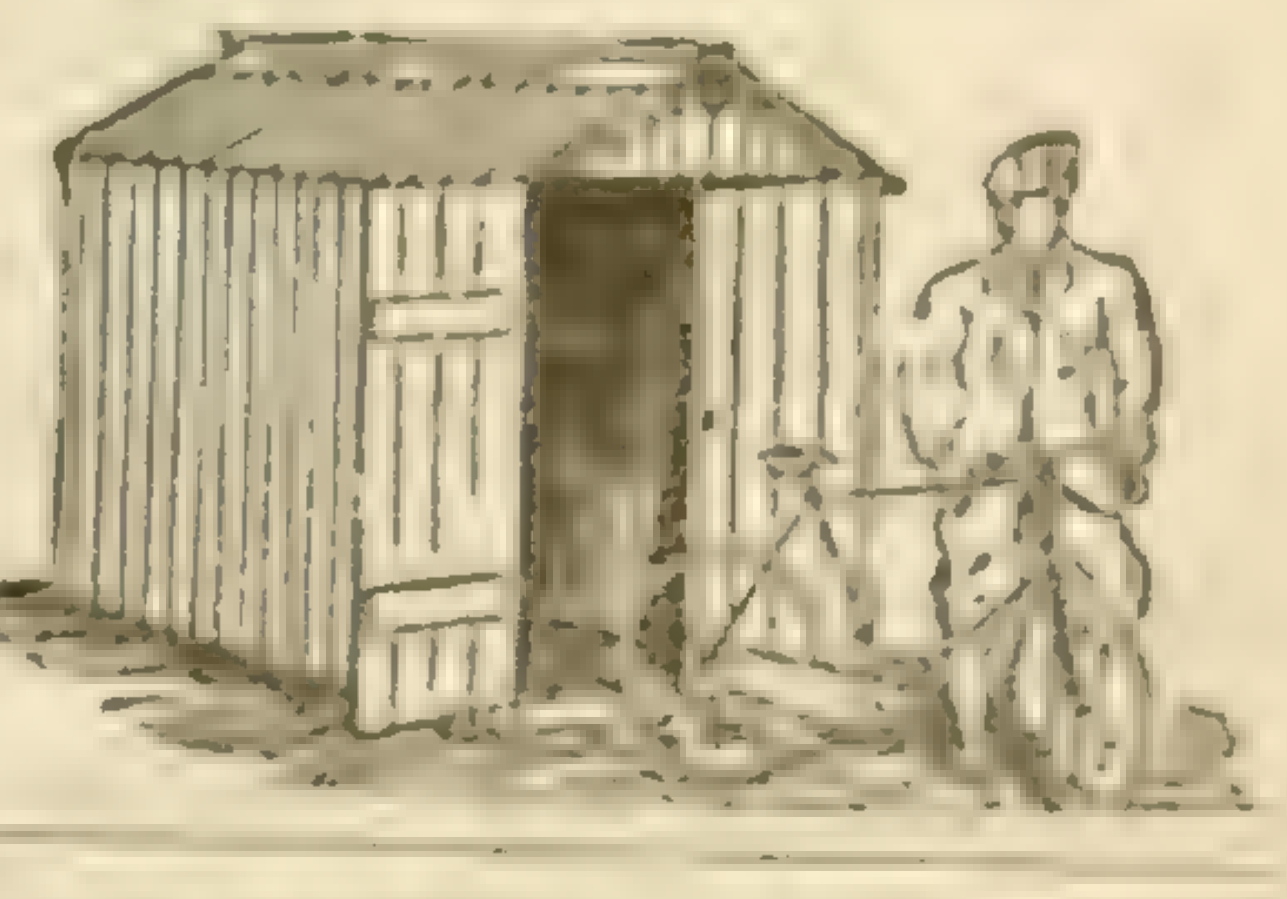

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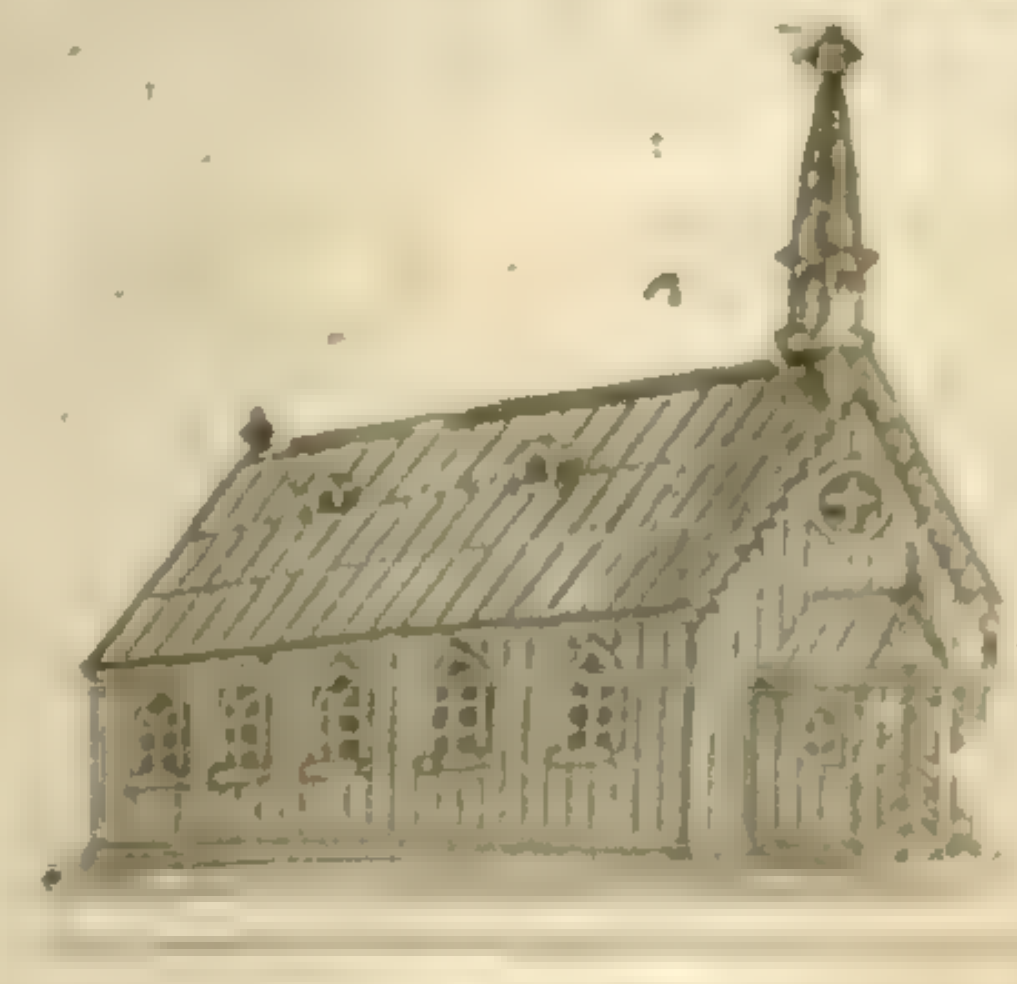

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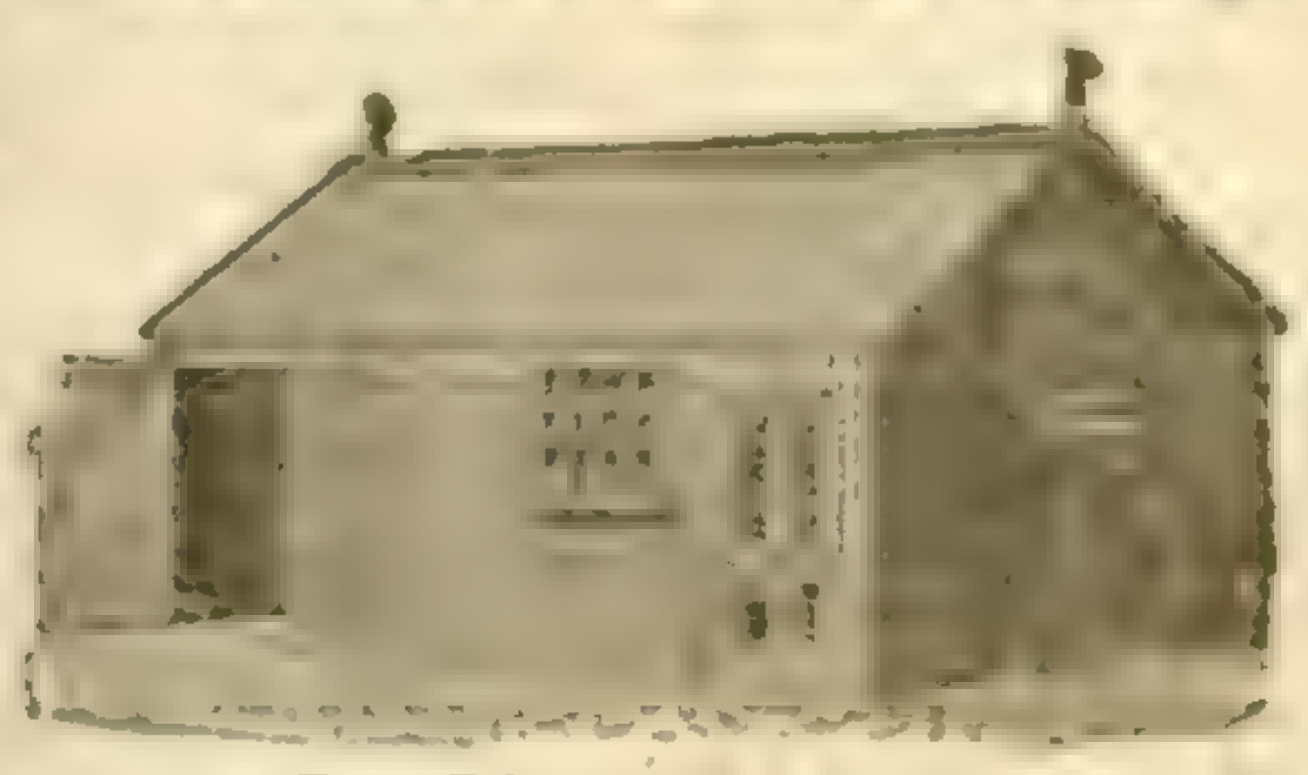

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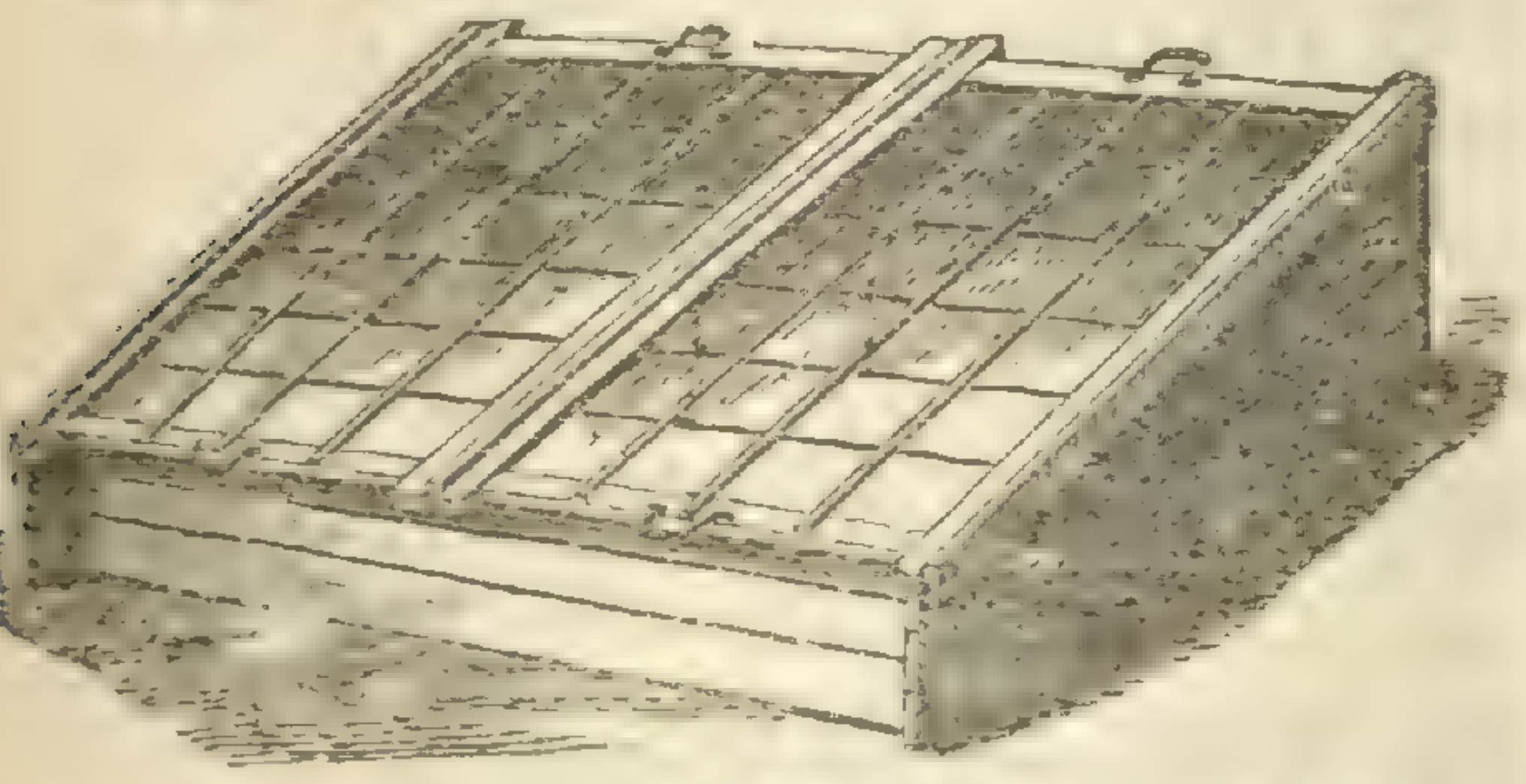

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3-light 12 ft. by 6 ft. ...		4	2	6
4-light 16 ft. by 6 ft. ...		5	5	0
5-light 20 ft. by 6 ft. ...		6	7	6
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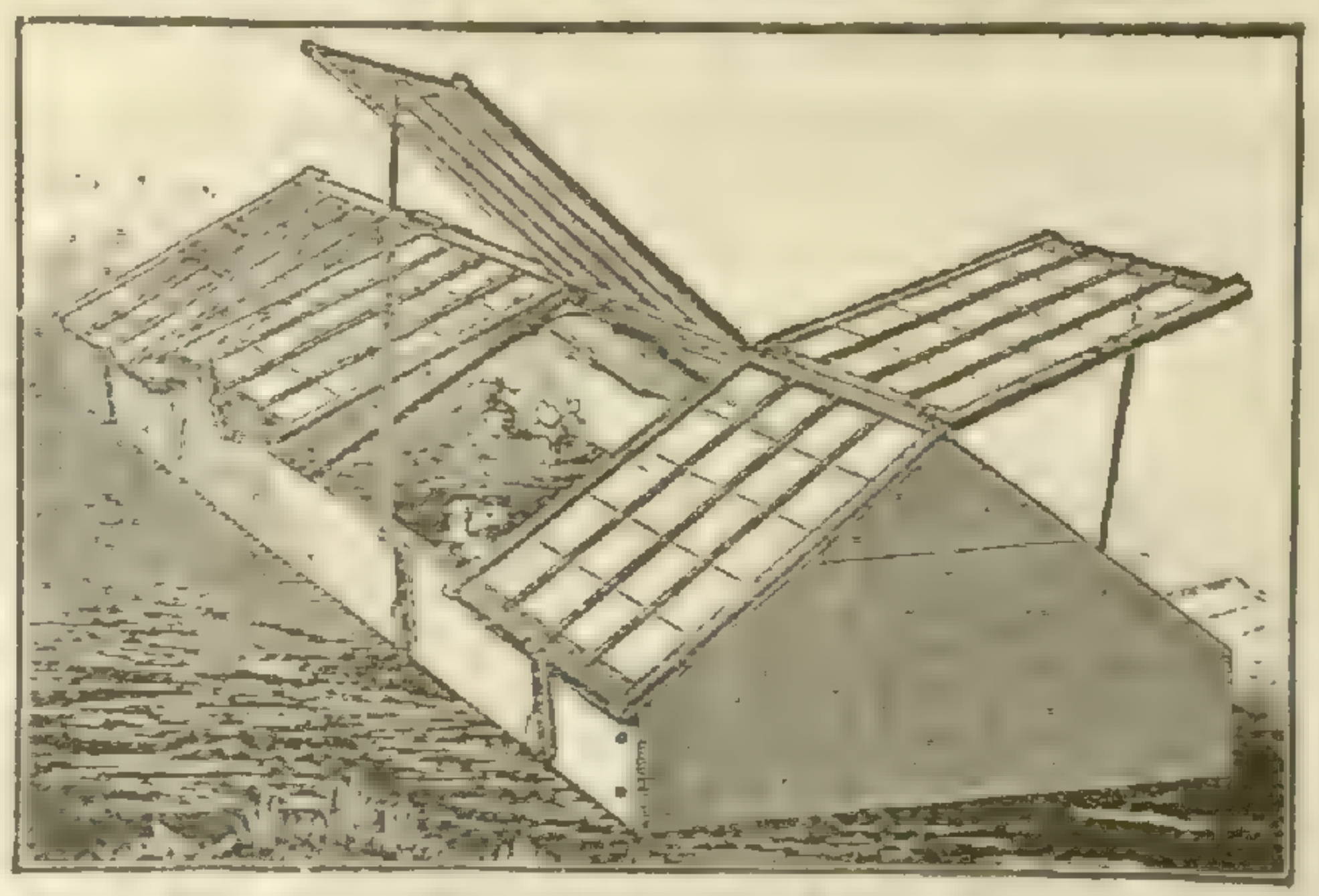

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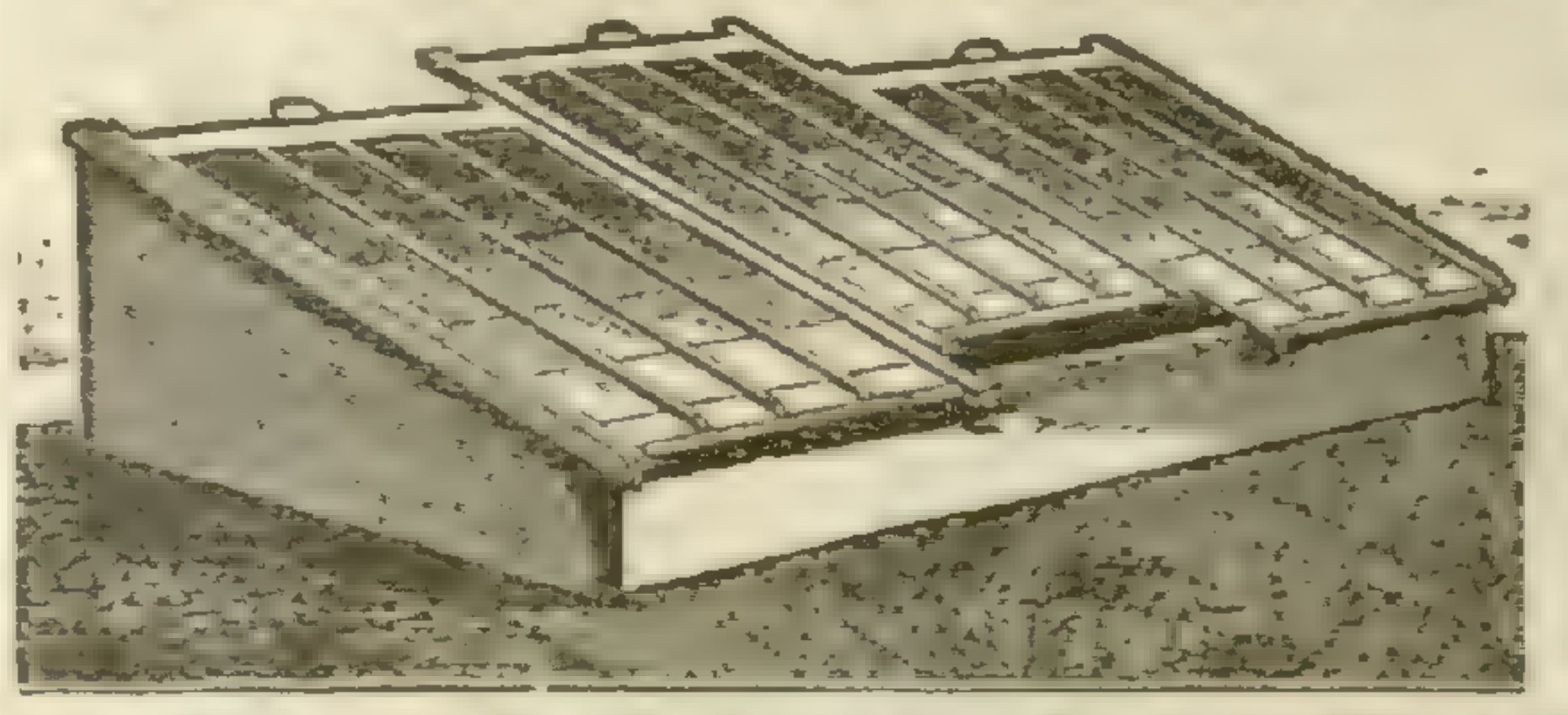

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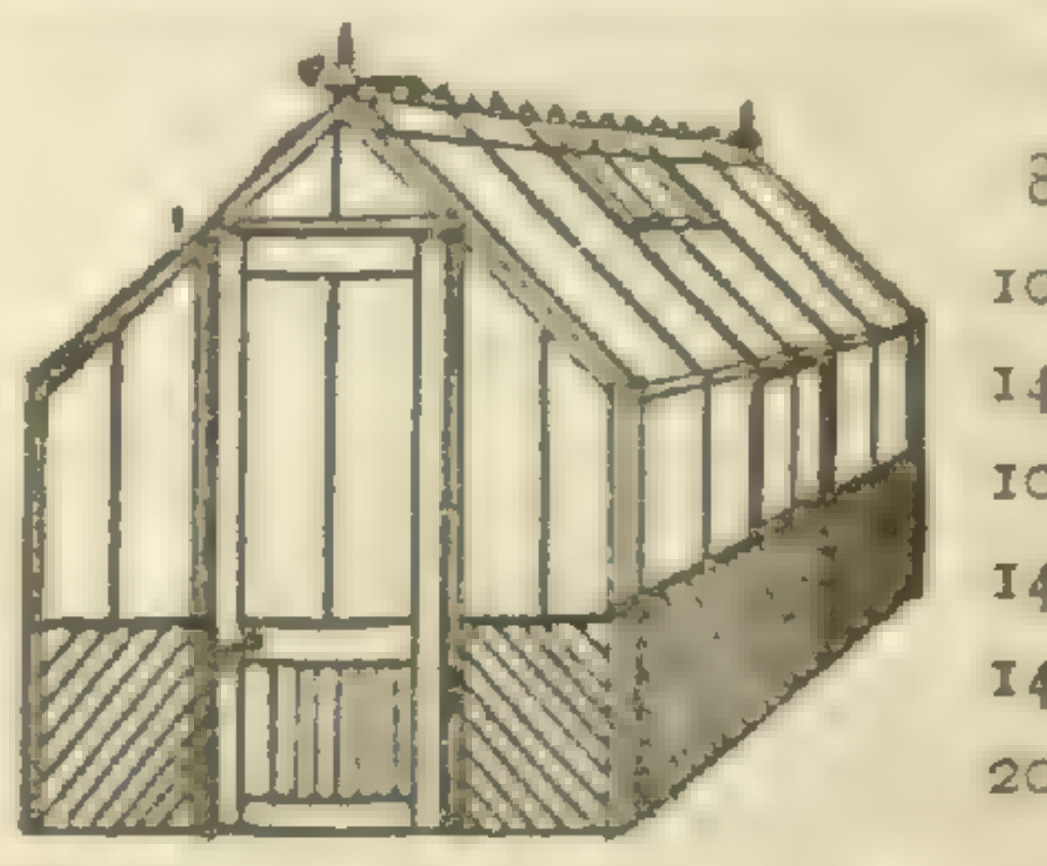

Size.	Lean-to.	Span.
8 × 5	36/-	48/6
10 × 5	48/6	58/6
14 × 6	58/6	78/6
10 × 8	58/6	72/6
14 × 8	78/6	95/-
14 × 10	95/-	£5/7/6
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All 7 ft. high, and 4 ft. sides (a few 5 ft. sides, trifle more). Ironwork, staging, and one coat paint included.

A comparison :—
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All sizes are in proportion. Need we say more?

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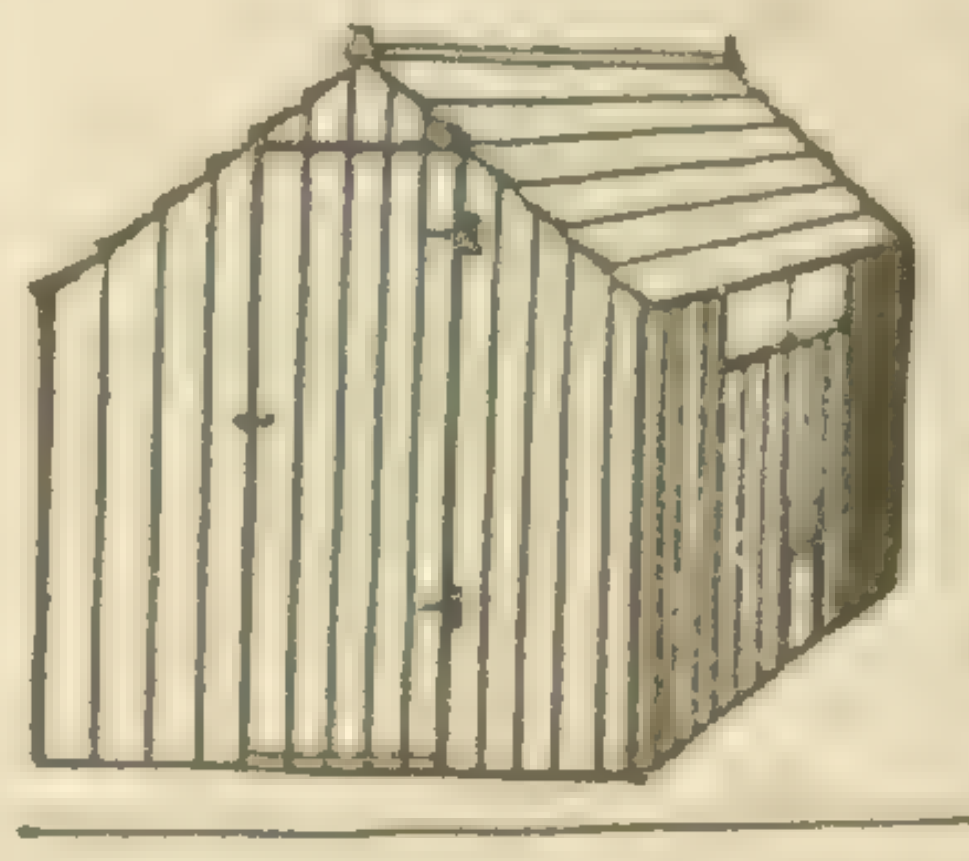
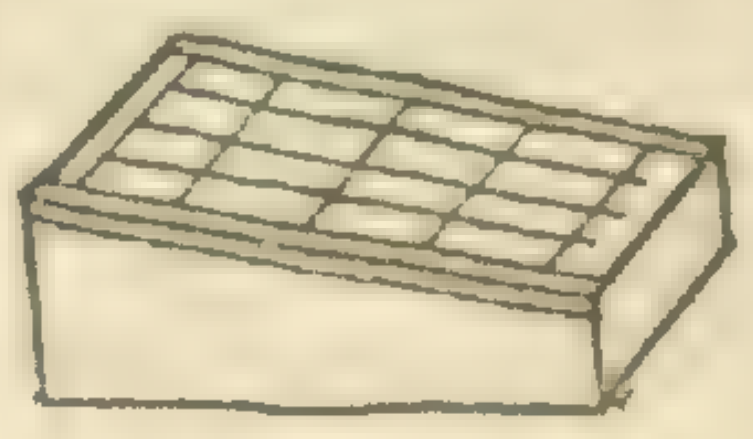


To hold.	Size.	Lean-to.	Span.
Ten	4 × 3	10/9	12/9
Twenty	5 × 4	12/9	16/6
Forty	7 × 5	17/6	22/6
Hundred	12 × 7	—	33/-

(Also a few cheaper ones left.)

Usually made from half inch wood, these are one-third thicker, and felt cover to roof.



Size	Price
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9×12	100 ft.	stock sizes as stated in margin, 12×14 to 18×24	at 8/6	13×20
9×13	200 ft.		at 16/6	14×16
9×14		**4ths 21-oz.**		14×18
10×12	100 ft.	stock sizes as stated in margin, 8×12 to 16×20	at 13/-	14×20
10×14	200 ft.		at 25/-	14×24
12×12	100 ft.	stock sizes as stated in margin, 16×24 to 18×24	at 15/-	15×20
12×13	200 ft.		at 28/-	16×18
12×14		**3rds 21 oz.**		16×20
12×16	100 ft.	stock sizes as stated in margin, 8×12 to 16×20	at 14/-	16×24
12×18	200 ft.		at 27/-	18×20
12×20	100 ft.	stock sizes as stated in margin, 16×24 to 18×24	at 16/-	18×24
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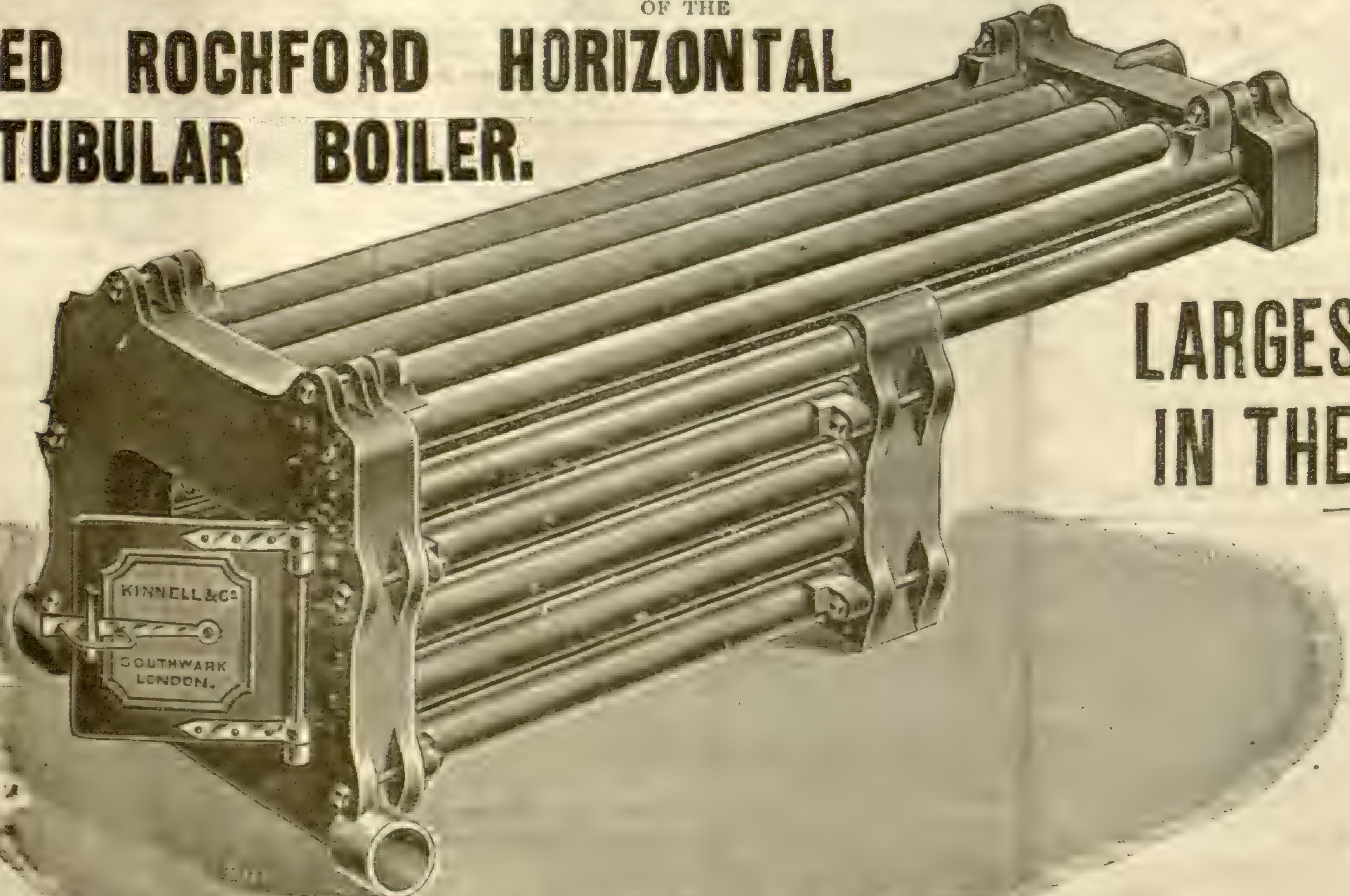

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THE

GARDENERS' MAGAZINE

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FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
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On view Mornings of Sale, and Catalogues had.

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MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, the HALE FARM NURSERIES, TOTTENHAM, N., by order of Mr. T. S. WARE, on TUESDAY and WEDNESDAY, NOVEMBER 1st and 2nd, at Eleven o'clock precisely each day, 2,500 Roses in pots, Standard Roses, 10,000 Carnations and Picotees (named sorts in pots), Tree Carnations in variety, 50,000 Double and Single Tuberous-rooted Begonias, a special feature at this Nursery; Double Hollyhocks, 50,000 Clematis, Ampelopsis, and other Climbers; 100,000 Seakale and Asparagus, extra strong; 10,000 Home-grown Lilies, 200,000 Berlin Crown Lily of the Valley, forcing Plants and Bulbs in endless variety, 100,000 Herbaceous Plants and miscellaneous Bulbs. May be viewed. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

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MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, Cheapside, London, E.C., on WEDNESDAY next, NOVEMBER 2, at Five o'clock.

On view morning of sale, and Catalogues had.

Thursday, November 10.

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MESSRS. PROTHEROE and MORRIS will SELL as above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, Cheapside, London, E.C., on THURSDAY, November 10, at Twelve o'clock.

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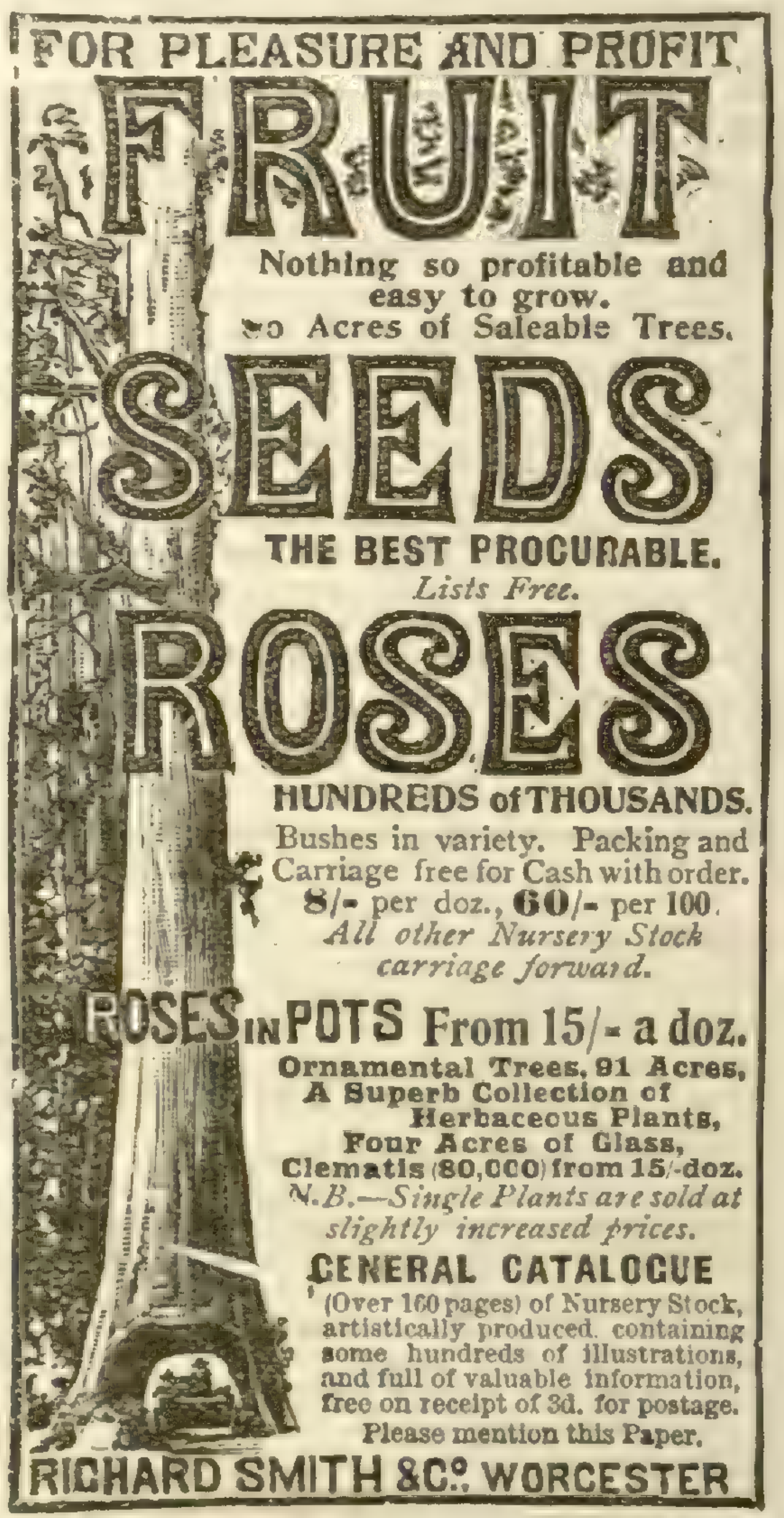

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	Per 100			1,000	
Single Anemones, in fine mixture	1	2	...	11	0
Crocus, II. size, in fine mixture	0	8	...	6	3
Crocus, I. size, in fine mixture	1	4	...	10	2
Hyacinths, mixed, for bedding or forcing	9	8	...	91	8
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection	17	6	...	—	
Iris Kæmpferi (Japan Iris), in fine mixture	5	0	...	[illegible]	[illegible]
Iris Germanica (Flag Iris), in fine mixture	7	0	...	[illegible]	[illegible]
Iris Sibirica, in fine mixture	5	0	...	[illegible]	[illegible]
Iris Spanish, in the finest mixture	0	7	...	[illegible]	[illegible]
Lilium Candidum, single, pure white	10	0	...	—	
Montbretia croscosmiæflora, orange scarlet	1	6	...	—	
Narcissus campernel Jonquil, yellow	1	2	...	[illegible]	0
Narcissus, double, Incomparable, primrose	1	6	...	14	0
Narcissus van Sion, single, yellow trumpet	2	6	...	[illegible]	4
Narcissus Stella, white, yellow cup	1	4	...	12	6
Gladiolus Marie Lemoine, fine	2	0	...	15	2
Gladiolus Brenchlyensis, deep scarlet	2	6	...	[illegible]	0
Scilla Sibirica præcox, intense blue	1	2	...	[illegible]	0
Tulips, single early, in the finest mixture	1	2	...	[illegible]	0
Tulips, double early, in the finest mixture	1	6	...	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	...	[illegible]	0
Grape Hyacinths, blue	0	7	...	5	4
Anemone japonica, rose	5	0	...	—	
Hemerocallis (Day Lily), mixed	8	0	...	—	
Pyrethrum, fine double, pure white	15	0	...	—	
Tritoma uvaria (Red Hot Poker)	14	6	...	—	
Sparaxis, in fine mixture	0	8	...	6	[illegible]
Funkias, in fine mixture	10	0	...	—	
Gladiolus Colvilli, white	1	2	...	[illegible]	[illegible]
Hyacinthus candicans, white	5	0	...	45	10
Iris pumila, mixed	4	0	...	—	
Lilium umbellatum, red	10	0	...	—	
Snowdrops, Elwesi	2	0	...	18	4

250 Bulbs of the same kind will be charged at the 1,000 rate; 25 at the price per 100; 6 at the price per doz.

COLLECTION D.—For Spring Gardening, containing 1,520 Bulbs, £1 1s. Half this for 11s.

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For Market and Private Growers.

ORNAMENTAL TREES, SHRUBS, &c.

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WALTHAM CROSS, HERTS.

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ROSES IN ALL FORMS.

STANDARDS	from 18s. dozen.	DWARFS or BUSHES	from 6s
HALF STANDARDS	from 15s. ,,	CLIMBERS	from 6s.
DWARF STANDARDS	from 10s. ,,	ROSES IN POTS	from 10/6

They also beg to call attention to their extensive collections of

Fruit Trees, Hardy Trees and Shrubs, Rhododendrons, Herbaceous Plants, Climbing Plants, Camellias and Azaleas, and Bulbs, all in the best possible condition for autumn delivery.

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IMPORTANT!—OBSERVE CHRISTIAN NAME AND ADDRESS:

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Situations Wanted.

Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

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GARDENER (Head Working or otherwise); age 33; married; life experience in vines, fruit, flowers, and vegetables; 5½ years' good character.—R., 33, Connaught Road, Ealing Dean.

GARDENER (Head Working); age 31; married; experienced in all branches; good references; abstainer.—G. A., 100, Wellington Road, Slough, Bucks.

GARDENER (Head Working); age 34; married; two children; 20 years' experience in first-class establishments; well up in all branches.—E. B., 2, Gorden Road, Cambridge Road, Kilburn, N.W.

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GARDENER (Head-Working); married; life experience; Inside and Out; disengaged, establishment being sold; abstainer; good character; references from other places.—E. T., 18, Houselands Road, Tonbridge.

GARDENER (Single-Handed, or Second, where three or four are kept); age 25 years; nine years' experience; first-class references.—B., Fortesmere Cottage, Fortes Green Road, East Finchley, N.

GARDENER (Single-handed, or in good establishment, as Inside and Out).—Age 28, single; ten years' experience, six last place; well recommended. Rooms preferred.—Gardener, Harlow Grange, Harrogate.

GARDENER (Single handed or otherwise); age 31; single; life experience in the cultivation of fruit, flowers, and vegetables; good references; abstainer.—A. P., 9, Myrtle Terrace, Crawley Road, Horsham, Sussex.

GARDENER (Single handed); age 26; life experience in all branches; married when suited; good reference.—C. Osman, 29, North Road, Highgate, N.

GARDENER (Single-handed, or with help); age 24; married; good experience in all branches; can be well recommended.—Apply W. R., care of Mr. Downes, Barnet Road, Potter's Bar, Middlesex.

GARDENER (good Single-handed); age 40; married, one in family; understands glass, flower and kitchen garden; active and obliging; nine years' good reference. T. Garrett, 18, Lime Cottages, Betchworth, Surrey.

JOURNEYMAN, Inside; age 20.—S. Hoad, The Gardens, Vicar's Hill, Lymington, Hants, will be pleased to recommend a young man as above, in a good establishment.

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RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

SITUATION WANTED by Young Man; Inside and Out preferred; 2½ years' good character from last place—Address, W. Green, Back Road, Old Catton, Norwich, Norfolk.

SITUATION WANTED by a Young Man, age 23, as Improver, Inside and Out, in a good establishment, where five or six are kept; six years' experience; 12 months in present situation; leaving through breaking up of establishment.—G. B., Church-road, Horley, Surrey.

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WANTED, strong active YOUTH, age not less than 17, for General Garden Work; must have some previous knowledge; wage 14s. per week; no bothy.—Apply Head Gardener, Temple Court, Guildford, Surrey.

GARDENER WANTED; good knowledge of flowers, greenhouse, vinery, and kitchen garden; helper kept.—Write No. 74 Box, Post Office, Leicester.

NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH. IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
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Vanda Cœrulea ...	in spike ...	/9 per leaf.		
" Kimballiana ...	" ...	2/- ...	3/- ...	5/-
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NEW HINTS
— FOR —
FRUIT GROWERS.

"A Year's Work on a Kent Fruit Farm."

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VIOLETS, prepared for frames, Marie Louise, Californian, and Double white "B. de Chatenay." Good clean stuff, at 3s. per doz., 20s. per 100. Apply J. Hill, Babraham, Cambs.

CHRYSANTHEMUMS, about 100 extra fine specimen plants (Lincolns), for sale in eight and nine-inch pots.

Suitable for furnishing.

Apply, Pollington, 10, The Causeway, Teddington.

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A SPECIALLY good stock now on hand of ORCHID PEAT in good condition; also for Stove, Greenhouse, and Hardwood Plants, Rhododendrons, &c., in large or small quantities. Rich Fibrous Loam, Silver Sand, Excellent Leafmould, C. N. Fibre, Sphagnum Moss, Charcoal, &c., &c. Special cheap through rates to all parts.

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TO LET.—HAZELL NURSERIES, Lordship Lane, Wood Green, N. Four nearly new Forcing Houses, well heated; low rent will be taken to a good tenant.—Apply to Alfred Peel and Son, Horticultural Builders, Wood Green, N.

TO BE LET, large GARDENS, situate about 18 miles from London, and comprising about 11 acres, enclosed with high walls; with vineries, peach-houses, potting and other sheds, cottage, &c.

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F. J. Coverdale, Ingatestone, Essex.

LAND TO LET for NURSERY and FLORISTS' BUSINESSES, situate at Edgewarebury, Edgeware, nine miles from Town. Capital Soil. Water laid on. Choice of 180 acres. Rent £5 an acre. Lease 30 years. Immediate possession.—Address, The Nursery, Florist, and Fruit Growers' Syndicate (Limited), Edgewarebury, Middlesex.

ROSES ROSES.

THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s.; 12 best hybrid Perpetuals, dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d.; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d.; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

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RAFFIA, CUBA BAST, SACKS, BAGS, ROPES, LINES, TWINES, and
HORTICULTURAL SUNDRIES OF EVERY KIND.

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Price 3/6.

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FOR EXTENSIVE PLANTING.

Double Yellow
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Including many New Seedlings shown at the Royal Horticultural Society's Exhibitions.

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The Most Lovely of all Spring Flowers.

SEND for BARR'S DAFFODIL CATALOGUE, illustrated with original photographs taken at the Long Ditton Nurseries, and containing a Descriptive List of all the finest Daffodils in cultivation and the latest Novelties for 1898. Free on application.

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Emperor, petals primrose, trumpet full yellow, large flower of great substance. Per 100 30/-, per doz. 4/6.

Henry Irving, one of the earliest, very large flower, fine deep golden yellow. Per 100 21/-, per doz. 3/-.

Queen of Spain, very beautiful delicate soft yellow, with reflexing petals. Per 100 17/6, per doz. 2/6.

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Incomparabilis Sir Watkin, a very handsome large flower, petals sulphur, cup rich orange-yellow. Per 100 25/-, per doz. 3/6.

Barrii conspicuus, broad yellow petals, cup conspicuously edged bright orange-scarlet; a beauty, and a general favourite. Per 100 17/6, per doz. 2/9

Leedsii M. M. de Graaff, broad white petals, white cup suffused orange, very beautiful. Per doz. 8/-.

Triandrus albus (Angel's Tears), a gem on rock-work, pretty cream-coloured flowers, petals reflexed. Per 100 8/6, per doz. 1/3.

Poeticus Poetarum, most beautiful of the White Poets' Daffodils. Per 100 12/6, per doz. 1/9.

BARR'S General BULB CATALOGUE containing a descriptive List of the best Bulbs and Tubers for autumn planting, and a List of Bulbs and Plants for early forcing, *free on application.*

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12 and 13, KING ST., COVENT GARDEN,
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POPULAR COLLECTION OF SPRING FLOWERING BULBS.

CHEAP OFFER TO CLEAR.

25 Bedding Hyacinths, mixed.
25 Tulips, double mixed.
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50 Crocus, mixed.
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50 Triteleia uniflora lilacina.
100 Ornithogalum umbellatum.
50 Muscari racemosum.
150 Spanish Iris, mixed.
50 Ranunculus, mixed.
25 Winter Aconites.
50 Galanthus Elwesii.
50 Chionodoxa Sardensis.
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25 Anemone bracteata plena.

1,000 Bulbs as above for 20s.

Half the quantities, 500 for 10s. 6d.

Cash with Order. Catalogues Free.

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And CARNATIONS are properly packed, free of cost, and promptly delivered, car. paid.

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THE JERSEY NURSERIES. **JERSEY.**

754 BULBS FOR 20/-.

All sound flowering bulbs, including 50 named Hyacinths in six distinct colours, 25 large Trumpet Daffodils, 25 Nonsuch Daffodils, 100 Snowdrops, 200 Crocus in four separate colours, 50 Tulips, with a liberal number of Anemones, Iris, Scillas, Jonquils, Gladiolus, &c.

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BENJN. SODDY, "R" Dept.,
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The ONLY House supplying First Size named **HYACINTHS** at **3d.** per root. As we are Growers, we save customers all middlemen's profits. The small advance in price is solely due to the great scarcity and unusual demand this season.

Roman Hyacinths, selected bulbs, 10 6 per 100, 1/6 per doz.

All our Bulbs are Guaranteed First Size ONLY.

DUC VAN THOL TULIPS.
Scarlet, 2 6 per 100.
Red and Yellow, 2/6 per 100.
Single Mixed Tulips, 2/6 per 100, from finest named varieties.
All other Bulbs equally as cheap and reliable.

Catalogues free on application.

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Bulb Growers & Seed Merchants,
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"**THE GODFREY.**"—Whiter than ordinary variety; earlier; requires less room, and will give five times the number of spathes from the same space.

"**DEVONIENSIS.**"—Dwarfer and slightly smaller than the above, but even more floriferous.

Good plants, **2 6** each; small plants, **1/6.**

W. J. GODFREY,
EXMOUTH, DEVON.

For sturdy growth and abundance of root, none can beat the

SALISBURY ROSES.

CATALOGUES GRATIS.
KEYNES, WILLIAMS, & CO.,
ROSE GROWERS, SALISBURY.

DICKSONS ROSES - - (20 Acres)

DICKSONS FRUIT TREES (75 Acres)

THE FINEST AND LARGEST STOCKS IN THE KINGDOM.

Now is the time to Order. Inspection Cordially Invited.

Catalogues (now ready), post free on application.

DICKSONS NURSERIES, CHESTER.

THE GARDENERS' MAGAZINE.

SATURDAY, OCTOBER 29, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY.
ROYAL AQUARIUM, WESTMINSTER,
NOVEMBER 8, 9, and 10, 1898.
GREAT AUTUMN CHRYSANTHEMUM FESTIVAL.
Specimen Plants, Groups, Cut Blooms, Fruit and Vegetables. The Largest Chrysanthemum Show in the United Kingdom.
Schedules of Prizes from
RICHARD DEAN, V.M.H., Secretary and Superintendent, 42, Ranelagh Road, Ealing, W.

BOLTON HORTICULTURAL AND CHRYSANTHEMUM SOCIETY.—The TWELFTH EXHIBITION will be held in the TOWN HALL, BOLTON, on NOVEMBER 18 and 19.
£130, a Ten Guinea Challenge Cup. two Five Guinea Cups, and Medals are offered in prizes for Plants, Flowers, Fruit, and Vegetables. Schedules from
JAMES HICKS, Sec.

BRIXTON, STREATHAM, AND CLAPHAM HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of CHRYSANTHEMUMS, ORCHIDS, STOVE and GREENHOUSE PLANTS, FRUIT, &c., NOVEMBER 2 and 3, STREATHAM HALL. The Show will be opened at Two p.m.
W. ROUPELL, Hon. Sec.

BROMLEY and DISTRICT CHRYSANTHEMUM SOCIETY.—The SEVENTEENTH ANNUAL EXHIBITION of CHRYSANTHEMUMS, FRUIT and VEGETABLES will be held on NOVEMBER 9 and 10, 1898, in the GRAND HALL, BROMLEY, KENT. Entries close November 5. Schedules and particulars of the Hon. Sec.,
W. WEEKS, 29, Widmore Road, Bromley, Kent.

CORN EXCHANGE, BURY ST. EDMUND'S.—GRAND CHRYSANTHEMUM FLOWER and FRUIT SHOW.
THURSDAY and FRIDAY, NOVEMBER 10 and 11.
The Show will be opened on Thursday, at Half-past Two o'clock.
Entries close November 4. For Schedules apply to the Hon. Secretary,
WALTER NOETON,
Bury St. Edmund's.

DERBY CHRYSANTHEMUM ASSOCIATION. — FOURTEENTH ANNUAL EXHIBITION.
ROYAL DRILL HALL, NOVEMBER 11 AND 12.
Entries close November 7. Schedules and particulars from
H. J. BELL, F.R.H.S., Hon. Sec., Normanton Road, Derby.

ECCLES, PATRICROFT, PENDLETON, AND DISTRICT CHRYSANTHEMUM SOCIETY.—The TWELFTH ANNUAL EXHIBITION will be held in the TOWN HALL, ECCLES, on FRIDAY and SATURDAY, NOVEMBER 11 and 12. Prizes to the amount of £130 are offered. Entries close on Thursday, November 3. Schedules may be obtained from
H. HUBER, Hon. Secretary,
Hazeldene, Winton, Patricroft.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY'S EXHIBITION of CHRYSANTHEMUMS, TABLE DECORATIONS, &c, NOVEMBER 8, 9, and 10, at the HOLLOWAY HALL, HOLLOWAY ROAD.
W. E. BOYCE, Secretary, Highgate.

HULL.—The 15th ANNUAL CHRYSANTHEMUM SHOW of the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY will be held in the ARTILLERY BARRACKS, HULL, on WEDNESDAY and THURSDAY, NOVEMBER 16th and 17th.
Entries close November 9th.
Schedules free from the Hon Secs,
EDWARD HARLAND, Manor Street, Hull.
JAMES DIXON, F.R.H.S, 2, County Buildings, Hull.

LEEDS PAXTON SOCIETY'S CHRYSANTHEMUM SHOW, TOWN HALL, LEEDS, TUESDAY and WEDNESDAY, NOVEMBER 15 and 16. Upwards of £180, including four Challenge Cups, will be given in prizes. Schedules from the Hon. Sec.,
JAMES CAMPBELL, The Gardens, Methley Park, Leeds.

MIDDLETON, &c., CHRYSANTHEMUM SOCIETY. — FIRST ANNUAL SHOW will be held in the LARGE SALEROOM, OLD HALL STREET, on NOVEMBER 12, 1898.
Rules and Schedules on application to F. ENTWISTLE, Secretary, Westfield, Middleton, or Alderman WALKER, Treasurer, Masons' Arms Hotel, Middleton.
Admission, Subscribers and 1s. Ticket-holders from 2 o'clock; General Public from 3 o'clock, 6d.; after 3, 3d.
F. ENTWISTLE. Hon. Sec.

SHEFFIELD CHRYSANTHEMUM SOCIETY.—ANNUAL SHOW
CORN EXCHANGE, SHEFFIELD, NOVEMBER 11 AND 12, 1898.
£200 in Prizes. Schedules free on application to
W. HOUSLEY, Secretary,
28, Joshua Road, Sheffield.

WEST OF ENGLAND CHRYSANTHEMUM SOCIETY, GUILDHALL, PLYMOUTH. The ANNUAL SHOW will be held on NOVEMBER 3rd and 4th. Over £150 in Prizes. Entries by post up to Saturday, October 29th.
Schedules and particulars of CHAS. WILSON, Hon. Sec.
4, North Hill, Plymouth.

WOKING HORTICULTURAL ASSOCIATION.—FIFTH ANNUAL CHRYSANTHEMUM SHOW, WEDNESDAY AND THURSDAY, NOVEMBER 2 and 3, 1898, at the NEW CHURCH HALL, WOKING. Two Challenge Cups and numerous prizes for Chrysanthemums, Fruit, and Vegetables. For Schedules apply to
W. I. NEAL, Chesalon, Claremont Avenue, Woking

YORK CHRYSANTHEMUM SHOW.—The NINETEENTH ANNUAL SHOW will be held NOVEMBER 16, 17, and 18, 1898. Upwards of £200 offered in Prizes, in liberal proportions, for Plants, Cut Flowers, Fruit, and Vegetables.
Schedules, &c., to be had from
J. LAZENBY, 13, Feasegate, York.
Challenge Prize, value £20, added to 1st Prize (£10) for 36 Cut Blooms. £7 and Cup (£5) for Group. Entries November 9.

HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T H. SMITH, 13, Somerville Road, Small Heath, Birmingham

NOTES OF THE WEEK.

THE AMATEUR QUESTION.

THE solution of the amateur question has long been regarded by a considerable proportion of the committees of horticultural societies as one of the most difficult problems with which they have to deal in the preparation of exhibition regulations; yet the question is simplicity itself, for the definition of an amateur to be found in any dictionary of the first rank has the sanction of common sense and legal authority. The case of Stredwick v. Dean, heard in the Hastings County Court on Monday last, amply confirms this view, and as illustrating the law upon the subject, and also the importance of clearness of expression in rules and regulations, is of general interest. Last year the National Chrysanthemum Society decided to increase the classes at their November exhibition in which the competition would be limited to those who either grow their plants themselves or who do not employ more than one gardener. In accordance with this decision the committee provided in the schedule seventeen classes, which were arranged in two sections, one of these being for amateurs who employed a gardener and the other for those who had no paid assistance. Mr. Stredwick, who is engaged in business at St. Leonards as a horticultural builder, and is a successful cultivator of the chrysanthemum, competed in the first of the two sections, and was awarded several prizes. Subsequent to the awards being made a protest was lodged against Mr. Stredwick's qualification to compete as an amateur, and having considered the protest and ascertained that he issued a catalogue the committee withheld the prizes. Some correspondence followed, and, as stated in our issue of the 22nd, Mr. Stredwick entered a plaint in the Hastings County Court for the recovery of the value of the prizes, and the case was heard on Monday, with the result that the decision of the committee was upheld, and judgment given in favour of Mr. R. Dean, who, as secretary, represented the National Chrysanthemum Society. The question was raised at the commencement of the proceedings whether Mr. Stredwick was not debarred from taking legal proceedings by the fact that the rules stipulate that the decision of the Arbitration Committee, to whom the question had been submitted, shall be final. But the judge having ascertained that Mr. Stredwick had not been invited to attend the meeting of the Arbitration Committee when the protest was considered, decided to hear the case, observing that in accordance with a well-known principle of common law no decision in cases of this kind should be decided without both parties having an opportunity of being heard. Mr. Stredwick readily admitted, in the course of his evidence, that during 1897 he had issued a catalogue and sold plants and cuttings; but he contended that he was still an amateur, and as fully entitled to compete in the amateurs' classes in 1897 as in the year previous to his issuing a catalogue, as he sold plants and cuttings "for the purpose of recouping the expense to which he was put in the purchase of novelties," and with a view "to make a business for his son." The judge said an amateur might be permitted to occasionally sell a few surplus cuttings or plants, but immediately he issued a catalogue he became a nurseryman, and was barred from competing in classes limited to amateurs. The judge commented on the regulations relating to the definition of amateurs in the N.C.S. schedule, and strongly advised the representatives present to take the necessary steps to have them amended and rendered more intelligible, and with this advice we heartily concur. The ambiguity has arisen in consequence of a want of appreciation, on the part of a section of the committee, of the fact that all cultivators who do not grow for sale are amateurs. The erroneous view is held that an amateur is a cultivator with limited resources, whereas, both from the common sense and legal point of view, the owner of a garden under the charge of a skilled head gardener with a large staff is just as much an amateur as the cultivator who owns a small plot and does all the work himself. What is much required in the Society's rules is a clear declaration that no one who systematically sells cuttings, plants, or blooms shall be allowed to compete as an amateur, and this having been provided it will be a very easy matter to so arrange the sections as to enable the several classes of cultivators to compete under conditions as nearly equal as it is possible to make them.

INFLUENCE OF MANURES ON POTATO DISEASE.

IT is a matter of common knowledge that the weather is the most important factor in determining an attack of the fungus causing the potato disease, and it is desirable that it should be equally well known that manures have a direct influence in its development. In the report on the Rothamsted experiments in the cultivation of potatos it is conclusively shown that during the period over which the investigations extended the proportion of diseased tubers was the smallest where non-nitrogenous manures were used; or, in other words, the crops which made a short sturdy growth, and attained maturity at a comparatively early period of the season, suffered the least from the attack. On the other hand the crops growing in soil supplied with nitrogen made a luxuriant growth, which was continued until late in the season, and in consequence of the softness of the tissues enabled the mycelia of the fungus to rapidly spread over the whole plant. In these crops were found the largest proportion of diseased tubers. It was, indeed, proved that when unfavourable climatic conditions are experienced, those tubers suffer the most which have the richest juice; or, to put it in another way, which have the least fixity of composition. In all these cases there was a higher, and sometimes a considerably higher, percentage of nitrogen in the dry substance of the diseased than in that of the sound tubers, indicating a loss of potash and other mineral substances. The still white and also the separated discoloured portion of the flesh of the diseased tubers were analysed, and the analyses demonstrated the fact that while the juice of the white flesh contained approximately the normal amount of nitrogen, that of the discoloured portion contained considerably less. The washed "marc" of the white portion, on the other hand, contained a very small proportion of nitrogen, while that of the discoloured portion considerable quantities. The distribution of the mineral matter followed to an appreciable extent that of the nitrogen, and justifies the opinion that the juice had been deprived of a material proportion of both its nitrogenous and mineral matter during the growth of the fungus. There was also more sugar in the diseased than in the sound tubers, and it is assumed, and rightly so, that this materially aided the growth of the peronospora. The first material change in the development of the disease appears to be the destruction of starch and the formation of sugar. There is also a considerable loss of organic, and chiefly non-nitrogenous, substance, due in part to the evolution of carbonic acid, as a coincident of the growth of the fungus at the expense of the available organic substance, this being a characteristic of the growth of the fungi of which the species attacking the potato is the type. It will therefore be seen that the results obtained in the course of the investigations are quite consistent with the fact that the fungus attains to the highest degree of development in tubers produced by plants grown with the aid of highly nitrogenous manures, and having a juice rich in nitrogen. A full available supply of mineral matter is essential to the successful growth of the potato, but these being provided, the amount of produce depends in a large measure upon the available supply of nitrogen. The soundness of the practice of successful cultivators is amply confirmed by these experiments, for they conclusively prove that nitrogen used in proper proportions is of immense advantage, while when applied in excess it predisposes the plants to disease by encouraging the production of luxuriant haulm, through which the fungus is able to extend with extreme rapidity.

Chrysanthemum Exhibitions increase in number year by year, and the coming month will be a very busy one both for amateur and trade growers who do much exhibiting. Whether this excessive multiplication of exhibitions is an unmixed blessing it is rather difficult to say; we think not, and would much prefer to see district rather than purely local shows, shifting the venue year by year throughout the district. Our diary shows that not less than one hundred and forty chrysanthemum exhibitions will be held in the United Kingdom during November, and we do not pretend that ours is a complete list; doubtless the secretaries of small and comparatively insignificant societies have not taken the trouble to send in their show dates; it contains, however, all the leading displays in the four countries. The month opens with ten exhibitions, followed by eighteen on the 2nd, fourteen on the 3rd, three on the 4th, two on the 7th, ten on the 8th, nineteen on the 9th, seven on the 10th, thirteen on the 11th, one on the 12th, one on the 13th, eleven on the 15th, thirteen on the 16th, six on the 17th, four on the 18th, three on the 19th, one each on the 21st, 22nd, and 23rd, and two on the 25th of the month. No less than twenty-eight really good chrysanthemum displays will be open to the public on Wednesday, Nov. 9th; these, of course, including two-day shows that opened the day previous; a similar number will be open on the 10th, counting the third days of the N.C.S., Highgate, and Birmingham; but on Thursday, November 3, there are thirty-two shows to choose from, provided one has not been visiting on the 2nd. Our list gives the dates of shows as wide apart as the Lizard and Aberdeen, Colchester and Carnarvon, London and Dublin, Dunfermline and Waterford, and comprises ten exhibitions of three days' duration, one hundred and nine lasting two days, and twenty-one that keep open but one day.

Fruit Growing in the Colonies.—It is stated in the circular recently issued by the Emigrants' Information Office that there is an excellent opening in the colonies for men with a little capital, who can take up land for fruit-growing, dairying, or general farming. In Ontario and the North-West of Canada free homesteads are given to settlers on simple conditions of residence and cultivation, the 160 acre grants in the North-West being open land, requiring no clearing. Western Australia is the only one of the Australasian colonies which gives free homesteads—the Free Homestead Act there dates from 1893, and has lately been much used; 562 of such farms, of an average size of 151 acres, besides 54 homestead leases, representing nearly 72,000 acres, were taken up in 1897. In the other colonies land (mostly uncleared) can be bought from 2s. 6d. an acre. But settlers must remember that the conditions of culture are necessarily very different from those they have been accustomed to here, so that they should not buy or rent land immediately on arrival, but should work for 12 or 18 months with some colonial cultivator till they have acquired experience of soil, climate, and other local conditions. If a man has a working family he could, it is stated, cultivate a ten-acre block for fruit-growing, without the expense of hiring outside labour.

Manures for Potatos.—An interesting competition for prizes offered by the Sulphate of Ammonia Committee, with a view to demonstrate the value of sulphate of ammonia in the cultivation of potatos, has been brought to a conclusion within the past few days. The competition was arranged in the Arbroath district, and there were originally eleven entries, but owing to the extreme drought and the disappointing nature of the crops seven withdrew. Competitors had to enter three acres, which could be treated with farmyard manure, phosphates of any kind, and potash, but the only artificial nitrogen had to be from sulphate of ammonia. The first prize was awarded to Mr. James Kydd, Scryne, with 15 tons 15 cwts. per acre; the second to Mr. John Brown, Peasiehill, with 14 tons 11 cwts.; the third to Mr. W. C. Swan, Inverpeffer, with 13 tons 11 cwts.; and the fourth to Mr. D. Morgan, South Mains, with 10 tons 17 cwts. Mr. Kydd grew the Bruce variety, and used sixteen loads of farmyard manure per acre in the drills, 2 cwt. of sulphate of potash, and 1 cwt. of sulphate of ammonia. Mr. Brown grew Up-to-date and Farmer's Glory, manuring with twenty loads of farmyard manure and 2 cwt. of sulphate of ammonia. Mr. Swan grew Up-to-date, and dressed with sixteen loads of farmyard manure on the stubble and 1 cwt. of sulphate of ammonia in the drills. Mr. Morgan grew Saxons, and applied sixteen loads of farmyard manure in the drills, with 2 cwt. of sulphate of potash and 1 cwt. of sulphate of ammonia.

Watering Window Boxes.—A very interesting case was heard in the Westminster County Court the other day in which the plaintiff sought to restrain the defendant from watering the plants in his window boxes in such a way as to annoy other tenants. It was stated by counsel, in opening the case, that defendant had seven years' lease at £180 a year of a flat on the fourth floor, with a frontage to Victoria Street and Prince's Street. He had a considerable number of windows, and in each of these windows was a box which was filled with flowers. He took a great interest in the flowers, and watered them copiously, so copiously that the water dripped on to the window-sills below and damaged the curtains when the windows were opened. When pastry and puddings were left on the table by the kitchen window these were soaked, and so was any linen that happened to be there. The Judge said it had been a very hot summer, and not likely to occur again, and considered it to be a case which should be settled. It was stated by counsel that defendant had tried to settle it, and had linings put to his boxes. In the result the case was adjourned with a view to some arrangement being come to by the parties.

Horticultural Exhibition at St. Petersburg in 1899.—From May 17 to May 27, inclusive, there will be held in 1899, at the Palais de la Tauride, St. Petersburg, the third International Horticultural Exhibition organised by the Russian Imperial Horticultural Society. At the same time the society also celebrates its 40th anniversary. The schedule we have received shows that the exhibition will be conducted on similar lines to those that obtain in Belgium, Germany, and France. It provides two hundred and ten classes, and in every instance the prizes are medals. These medals are of six grades, there being large, medium, and small ones, both of gold and of silver. Ten classes are provided for new plants, while there are ample sections for ferns, orchids, plants for dwelling-rooms, aroids, palms, crotons, and dracænas, conifers, cacti, bromeliads, hyacinths, tulips, amaryllis, lilies, azaleas, rhododendrons, roses, forced and preserved fruits and vegetables, models of horticultural buildings, garden designs, pottery, tools, heating apparatus, &c. One cannot find fault with the compilers of the schedule on the ground of lack of comprehensiveness. The foreign section will be under the presidency of M. A. Fischer de Waldheim, director of the Imperial Botanic Gardens of St. Petersburg; and Mr. W. Ender is secretary. As our readers have already been informed, Mr. James H. Veitch, Chelsea, has been appointed Commissioner for Great Britain and Ireland, and he will give any information required in connection with the forthcoming exhibition.

Berries of Daphne mezereum are generally considered to be poisonous to animals, but according to some recent correspondence in *Nature* birds eat these berries without fatal results. A Loughton gentleman wrote: From repeated observations in my own garden, I know that song-thrushes will eat ripe mezereon berries greedily. In the winter of 1896 they cleared a small bush containing, perhaps, two hundred berries, in the course of a week or two, returning at once when driven away, and becoming half stupefied; so that they might, apparently, have been caught with the hand. Dr. Withering states ("British Plants," ed. 1812) that six berries of this shrub (Daphne mezereum) will kill a wolf. Another correspondent, from Bedford, remembered a young blackbird, some years back, that used to frequent the garden of the house in which he was staying, and who eagerly swallowed the berries of Daphne mezereum. He was rather tame and would take the berries when thrown to him, following them as they rolled along the ground, as a chicken would go after peas. Sowerby confirms the ordinary opinion as to the poisonous nature of these berries: "The whole plant is a powerful irritant, both bark, leaves, and fruit acting poisonously if taken in large quantities. A few of the berries have been known to cause death when swallowed. The blackbird, however, did not seem the worse for them."

Experimental Horticulture.—A lecture on this subject was given by Mr. George Gordon at the meeting of the Royal Horticultural Society, over which Dr. Masters, F.R.S., presided. In the course of his lecture he pointed out that, in consequence of British horticulturists having in the past been so impressed with the importance of practical knowledge, the great value of experimental work had not been fully recognised. As the result of a want of appreciation of the utility of carefully conducted experiments there were now but few experimental stations in the United Kingdom, the most important being the gardens of the Royal Horticultural Society at Chiswick and the experimental orchards on the Madresfield Court and Woburn estates. Experimental plots and gardens had been formed by County Councils, and these, it was believed, would prove useful; but it was felt that they were too few to produce a distinct impression upon the advancement of horticulture, and he feared that an adequate return would not be obtained from them unless they could be brought into close touch with each other through the medium of some central body, such as the Royal Horticultural Society, to ensure carefully planned and systematic investigations and exact records. In contrast with the means available for the investigation of matters of horticultural interest in Great Britain, the liberal provisions made in America for conducting experiments were briefly alluded to. While we have a very limited number only of experimental stations, there are fifty-four stations in the United States, with a staff of about five hundred persons and an annual income of £678,000. The scope of the investigations at the American stations was referred to, and it was stated that much of the information available in this country on insect infestations and fungoid diseases had been obtained as the result of the activity on the other side of the Atlantic. Mr. Gordon urged the importance to British cultivators of a thorough investigation of the conditions under which the several fertilisers can be most successfully employed, under varying conditions of soil and climate, in the cultivation of the several fruit and vegetable crops; of plant diseases and methods of prevention, and of insect infestation and the most effectual remedies. The desirability of comprehensive trials of fruits and vegetables was suggested, and the opinion was expressed that to render such trials of the highest possible degree of utility the records must be more exact than has hitherto been the case, and that in the case of novelties a careful comparison should be made between them and standard varieties allied to them and grown under precisely the same conditions. The great need the Royal Horticultural Society has for a large experimental garden in the country, as supplementary to or in the place of the Chiswick Garden, was pointed out, as also was the necessity for co-operation of experimentalists, that investigations, which to be successful must be conducted under varying conditions, might be carried out. Suggestions for the improvement of existing varieties of plants were made, and asparagus and the blackberry were mentioned as possessing great possibilities. Sir John T. D. Lewellyn, Bart, M.P., said he was so deeply interested in experimental horticulture that one of his chief objects in coming to London on that occasion was to hear the lecture, which had given him much pleasure. The importance of experimental horticulture could not be overestimated, and as one proof of this he pointed to the great improvements that had been made in the potato. Several points in the lecture having been commented upon by Mr. A. Dean, Dr. Masters made some interesting references to the experiments that had been made at Chiswick, and pointed out that to carry out experiments on the lines suggested in the lecture the services of a director of experiments would be required.

A Bad Year for Fungi.—It is many years since mycologists have had such a disappointing season as that of 1898. Even the homely mushroom has been very scarce this autumn, and many a farmer who usually adds to his income by marketing this unsown (by him) crop will have to make good a deficiency by other means. Mr. G. Massee informed us a few days since that the fungus forays of this year in Yorkshire, Epping Forest, Burnham Beeches, and elsewhere, have proved singularly unproductive—and yet the chrysanthemum grower considers there never was such trouble with fungus as he has had this year.

Horticulture at Richmond, *Surrey*.—The Mayor of Richmond recently invited the committee of the Horticultural Society of that town to dinner, and the function was altogether a great success. Success to the society was proposed by the Mayor, and responded to by Mr. Skewes-Cox, M.P., for sixteen years past chairman of the society, and Mr. Algernon Chancellor, hon. secretary, and son of the Mayor. Mr. Chancellor stated that the society had never been in a more flourishing condition, both financially and otherwise. No less than fifty-five new guinea subscribers had added their names to the list last year. Sir Henry Irving's three guinea subscription showed that people outside as well as in the borough appreciated it. The last show had been the best and largest of the series. He was sorry that the cup given by his father and mother for roses had not been retained in Surrey, but had gone to Colchester; but he hoped that others might be offered. Regretting deeply the death of the Duchess of Teck, he hoped that the Duke of Teck might be able to be amongst them next year. He returned thanks to the many contributors to the prize list, and expressed his belief that the Richmond society would soon pass the Royal Horticultural Society.

The Famous Thorn Tree of Prestonpans suffered considerable damage during the storms of last week, a large limb being broken off about nine feet from the ground. It was near the tree that Colonel Gardner received his fatal wound at the battle of Prestonpans in 1745. A few years ago a limb was wrenched from this old thorn by the fury of the elements, and so, to preserve it, Lord Wemyss had each limb girt with a strong iron band and the whole connected with steel wire; the strain of the recent gale, however, proved too much for even such supports, and now there is one more limb the less.

Local Horticultural Societies.—The horticulturists resident in the Hornsey district are somewhat perturbed by the question as to whether or not it is desirable to establish a dahlia society at Hornsey. We are much gratified to find that so much interest is taken in the cultivation of dahlias in the north of London, but having regard to the fact that there is already a horticultural society in the village we are strongly of the opinion that some effort should be made to combine a display of dahlias with the exhibitions of the existing society. The multiplication of small societies is undesirable because of the heavy outlay involved in proportion to the amount of work accomplished. One strong society in a district has an opportunity of contributing to the advancement of horticulture, but several small societies can do but little to encourage cultivators, and the continuous canvassing for subscriptions has, in many instances, the effect of inducing gentlemen to refrain altogether from contributing to the funds of horticultural associations. In commenting upon the question at issue the *North Middlesex Chronicle* very properly observes, "The Hornsey Horticultural Association covers very useful ground, and it would be well for all interested in horticulture to confine their attention and interest to this society. It needs help in more than one respect, and almost entire reorganisation, in order to avoid a repetition of the recent regrettable result of the prize distribution. If everybody would unite in the matter the Horticultural Society would go ahead with a swing, and a dahlia society could be formed when the necessity arose. There is more need at present for assistance to the existing society than there is for the establishment of another association."

Junipers from the West Indies.—Dr. Masters recently exhibited some specimens of a juniper, native to Jamaica, which he had received through the kindness of Mr. W. Fawcett, the Government botanist of the island. This species had been referred to the J. burmudiana of Linnæus, with which J. barbadensis of the same author is taken to be synonymous. On comparison the Jamaica juniper is seen to agree very closely with J. virginiana, the so-called Red Cedar of the mainland of North America from Canada to Florida. This species furnishes the best "cedar" wood for pencils, and many forms of it are cultivated in English gardens. The resemblance of the Jamaica plant to the American is so close that Dr. Masters does not hesitate to include them both under the same name of J. virginiana.

Lee and Blackheath Horticultural Society.—This society has in accordance with its usual custom arranged a series of meetings for the reading of papers and discussion during the autumn months. The programme is as follows: October 28, "Garden Roses," Mr. George Gordon; November 25, "Mistakes in Gardening," Mr. T. W. Sanders; December 23, "Chrysanthemums," Mr. E. Dove; January 27, "Artificial Manuring," Mr. E. O. Greening; February 24, "Herbaceous Calceolarias," Mr. James Martin; March 24, members' night for discussion.

Herr Ernst Virchow, a son of Professor Rudolf Virchow, has been appointed director of the Royal Gardens at Wilhelmshöhe.

Orchard and Small Fruits.—A new instalment of the agricultural returns for the current year includes the acreage of orchards and small fruits. From the returns we learn that the area under orchards in England is 220,220 acres, against 218,261 for 1897; 3,690 acres in Wales, against 3,707; 2,149 acres in Scotland, against 2,148; and 226,059 in Great Britain, against 224,116. Of small fruits there are 63,438 acres for England, compared with 63,535 in 1897; 1,044 acres in Wales, against 1,043; 5,271 acres for Scotland, against 5,214; and 69,753 acres for Great Britain, against 69,792 in 1897.

Forestry at the Cape.—Mr. D. E. Hutchins, conservator of forests at the Cape, has been showing how great a need there is for an extension of the area at present under forests in the colony. While the colony has produced £100,000 worth of fruit during the past two years, it has, during the same period, imported not less than £269,349 worth of timber, and yet almost the whole of such an amount could be produced in national forests 50,000 acres in extent. He shows that in many places where agriculture is difficult or impossible forests might do well, as instanced by the richly-wooded slopes of the lofty Amatolas, the similarly beautiful forest with its gigantic yellow-wood trees in the barren Knysna country, and, perhaps most striking of all, the cedar trees of Clanwilliam, growing on the absolutely bare rocks of the stupendous Cedarberg Range; while at Genadendal an introduced tree, the Cluster Pine (*Pinus pinaster*), hardier than any of the indigenous trees, is spreading itself self-sown up the rocky mountain-side, in spite of fires, drought, hot winds, and climatic vicissitudes, that are too often the despair of the agriculturist. By means of comparison Mr. Hutchins indicates clearly the position of Cape Colony in relation to other countries with respect to forest area, giving the acreage under forest in each country, followed by the percentage under forest of the total area of each country. The figures are: European Russia, 527,427,000 acres, or 42 per cent.; Sweden, 42,366,000 acres, or 42 per cent.; Austria, 46,856,000 acres, or 31 per cent.; Germany, 34,350,000 acres, or 26 per cent.; Norway, 18,920,000 acres, or 25 per cent.; India, 140,000,000 acres, or 25 per cent.; France, 20,750,000 acres, or 16 per cent.; Portugal, 1,666,000 acres, or 5 per cent.; Great Britain and Ireland, 2,790,000 acres, or 4 per cent.; Cape Colony, 353,280 acres, or 0·29 per cent.

Messrs. J. Laing and Sons have been awarded a diploma and gold medal for the display of flowering and other plants they have made at the Earl's Court Exhibition during the past season.

The New Addition to Epping Forest.—Yardley Hill, recently added to Epping Forest through the generosity of Mr. E. N. Buxton, is about twenty-eight acres in extent; it is a timbered ridge projecting into and commanding a fine view of the Lea Valley. Chingford station is the nearest point to Yardley Hill by rail, but the road passing through Chingford to Waltham Abbey skirts the estate on the east side. Davis Lane links the addition to Bury Wood, while Gillwell Lane connects it with Sewardstone Green. The letter to the Lord Mayor in which Mr. Buxton makes the gift to the City Corporation is as follows: "I have for a long time past been impressed with the importance (if not the necessity) of securing the picturesque vantage ground known as Yardley Hill as an addition to Epping Forest. It is a timbered ridge which projects into the Lea Valley basin, from which river its highest point is distant about four hundred yards. From its prominent position it commands many miles of the valley, along which a manufacturing population is steadily assembling, as well as such distant points as Hampstead, Barnet, and the high ground near Broxbourne. A more practical consideration is that it would connect that charming outlying portion of the Forest called Gillwell Lane—at present, owing to its isolation, rarely visited—with the main block near Hawkwood. My efforts, more than once renewed, have at length been successful, and I have now the pleasure of offering your Lordship, as Chief of the Conservators of Epping Forest, to accept twenty-eight acres of this land for the public use. In making this offer may I once more express to the Corporation over which you preside my abiding gratitude for their spirited action in the past, and my confident hope that, in conjunction with residents, upon whom a duty also lies, they will lose no reasonable opportunity in the future to consolidate, extend, and complete the precious inheritance of which they are trustees."

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

I HAVE an announcement to make this week which will, I feel sure, afford much satisfaction to readers of this paper. Peter has been induced to take up the question of chrysanthemum rust. Knowing that in a matter of current interest such as this no expense ought to be spared I acceded to his request for a few days' holiday, and the amount of a bicycle hiring, and despatched him Londonwards. His gyrations on the bicycle were not a bit more amusing than Mr. Riddell's among the roots, but they were far more destructive, particularly in the case of a heavily laden furniture van that was thoughtless enough to get in his way and suffered for its neglect. However, he duly reached St. Stephen's Hall, and once there my knowledge of him tells me that he must have made his presence felt in a very singular degree.

When Peter returned he was labouring under the weight of a great secret, and so much did it engross him that I had some difficulty in getting him to discuss the rust at all. Eventually, however, he unbosomed himself. "Now, the first thing about this rust," he began, "is that them there chaps don't know anything at all about it. What do you think most of them was doing when they was talking? Why nothing no more than saying a lot to hide what they didn't know. Now——" But here I interrupted. "Remember, Peter, that it is the rust and not the root critics you are discussing. I fear you are confusing the two." "There is a bit o' confusion about, I must confess," returned Peter, grimly. "There's the name for one thing. It seems to me as there's an idea about in some quarters—for they talks in a fatherly way of having started the MAGGIEZEEN on it—that it won't do to have a name given in our paper, but they must find another. Now I can tell you the name o' this rust. It isn't Journalia Abbeyi, nor yet it isn't Maggiezeenia Masseei. It's Hardbrediana Peteri."

My excellent but erratic helper surveyed me with much complacency as he propounded this startling suggestion. It evidently afforded him very great satisfaction. Perceiving an enigmatical something in his manner, I patiently awaited the continuation of his remarks. "There's a lot o' people," he resumed, "who'd never understand the meaning o' that name. I was going to get up and tell 'em it at the Aquarium, and then I thought to myself, why, poor chaps, they'd not like me to show 'em all up afore their friends, so I won't. But that's it, sir, right enough." "And Hardbrediana, I suppose, conveys, Peter, that ——" "Of course it does; nothing else. There's these people been a-doing nothing but a-breeding and a-cross-breeding the chrysanthemums till they've knocked the constitution out of 'em, same as they did with potatos an' hollyhocks, and same as they will with dahlias before they've done. You mark my words. Well, now they've done it, what do they do? Why, they start arguefying about names, an' one recommends a wash which another says is no good, and so they go on, one a-contradicting the other. All the lot of 'em won't do any good till they give the plants the constitution they've been a-robbing them of, an' that's all I've got to say about rust."

As I am well aware that it is useless to argue with Peter when he comes to the decision that a subject is closed, and as I perceived that he was still oppressed with his secret, I changed the subject in order to give him an opportunity of unbosoming himself. He was, however, wary. I have reason to believe, notwithstanding this reserve, that there is serious risk of my losing him. Strange as it may appear, this is closely connected with the recent leader on the future of the N.C.S. I gather from his guarded hints that he has been approached with a view to ascertaining whether he would, in case of certain eventualities, interest himself actively in organizing exhibitions at a great place of entertainment in London. What can this mean but that the directors of the Royal Aquarium mean to run a society and shows of their own if the N.C.S. packs up and departs? With Peter as sub-manager things would certainly boom. But think, gentlemen, what it means. Two "national" societies and two "national" shows. Can both succeed? It is as plain as a pikestaff that cleavage is in the air, and only the most wise and resolute diplomacy can unite the disunited. Who is to be the Chrysanthemum Bismarck?

If there is no error in the report, our onion champions are making still further headway. On page 676 we are told that Mr. Fife exhibited twelve Lord Keeper weighing 30¼ lbs. That, of course, means 2½ lbs. per bulb. I had no idea that the variety (a semi-flat one) could be grown to this enormous size. It has not the physical advantages of Ailsa Craig, and if it has really been produced of the same size as that more globular variety Mr. Fife has achieved a remarkable triumph. If he gets them much bigger than this we shall have a drum and fife band of a new sort. Where, however, is Mr. Bowerman? Is he retiring from the field of battle, and leaving the fray to younger bloods?

In reading the report of Mr. J. Wynne's paper on exhibition vegetables (page 676) I was struck by the coincidence of his taking up the very crop which Mr. Riddell and I have been sparring about for the purpose of suggesting root mutilation as a means of hastening growth, viz., celery. Partially relifting the plants, and breaking off some of the roots, will, he says, often spur on sluggish celery. I haven't tried it, but I fancy sewage would help on this result. A good many people have had neither water nor sewage this season, and it is therefore quite open to Mr. Wynne to retort that his plan is the more practicable, since you can't apply liquids if you don't possess them, while it is always possible to make a raid on the roots.

This root question is full of interest, and Mr. Riddell throws some new and weird light upon it. He scouts my idea of food creating roots. We have all read of the root that went twenty or thirty yards to a wall, climbed the latter, passed through a hole, and went straight to some decaying matter. And some misguided and obscure scientists (I am not sure whether one Charles Darwin was not of the number) have been so crassly ignorant as to suggest that the food drew the root, the latter being—to speak practically and without quibbling—created by the former. But it was a knowing root, a wary root. It was just fooling the scientists. What really happened (see Mr. Riddell) must have been something quite different. No doubt, the root "created" the food in some quiet corner, and carried it through the wall to a secure hiding-place—just as a dog will take away and hide a succulent bone. How that hoary-headed impostor of a root must have laughed at us all till Mr. Riddell came along and showed it up!

I must thank Mr. Riddell for giving to the world in general so accurate a description of, and to me in particular, so excellent a weapon about trees in undug soil. The very best that he is able to claim for them is "growth short and small, fruit scanty and under the average size." A truly tempting picture, is it not? Something admirably calculated, we must all agree, to stem the tide of foreign fruit. No matter that the digging and cultivating system gives the healthiest of trees and the most magnificent of fruit, we must still cling to worn-out theories and leave the soil alone. When I read about Mr. Riddell's hundreds of ruined trees I could not help thinking of a certain summer day when our editor took me to see some southern orchards, and one, above all, which has been often talked about from the splendour of its produce. This orchard is annually dug and surface cultivated, and the "mutilated" specimens were pictures of health and laden with superb fruit. "Growth short and small, fruit scanty and under the average size." This, then, is the ideal set up for growers in Britain. Mr. Riddell has given his case away.

LUX.

NEW PLANTS AND FLOWERS.

LÆLIA PUMILA COLMANI.

A fine form with almost pure white sepals and petals and a violet-purple coloured apex to the white-tubed lip. The flowers measured just over five inches across and have a white stripe down the centre of the apex of the lip. A.M., R.H.S., October 25. Mr. W. King, gardener to J. Colman, Esq., Gatton Park, Reigate.

LÆLIA PERRINI LEUCOPHÆA.

A handsome and distinct form of this popular winter flowering orchid. The flowers are very broad, the sepals and petals being of a pale lilac shade. The lip has a long, white tube and white throat, but a deep reddish-rose apex. A.M., R.H.S., October 25. Mr. W. H. Young, grower to Sir F. Wigan, Bart., East Sheen.

CHRYSANTHEMUMS.

Soleil d'Octobre, a fine early-flowering, golden Japanese chrysanthemum, already described. A.M., R.H.S, October 25. Mr. H. J. Jones, Lewisham; and Mr. J. Hudson, Gunnersbury House Gardens.

Golden Queen of the Earlies, a bright yellow-flowered sport from the well-known Queen of the Earlies, and quite as valuable for decoration and market work. A.M., R.H.S., October 25. Mr. H. J. Jones.

Nellie Brown, a most useful early-flowering, decorative variety, making bushy plants covered with bright, bronzy-orange flowers. A.M., R.H.S., October 25. Mr. W. Wells, Earlswood; and Messrs, H. Cannell and Sons, Swanley.

Baronne de Veillard, a large incurved chrysanthemum of a soft bronzy-buff colour; the inner surfaces of the florets are deep crimson. A.M., R.H.S., October 25. Mr. W. J. Godfrey, Exmouth; and Mr. R. Owen, Maidenhead.

Major Matthew, a small-petalled but large-bloomed incurved variety of a soft but not over bright rosy-mauve colour; inner surfaces purple. A.M., R.H.S., October 25. Mr. W. J. Godfrey, Exmouth.

Ettie Mitchell, a useful decorative variety with pretty yellow flowers faintly streaked with scarlet and so giving an orange effect. A.M., R.H.S., October 25. Mr. W. J. Godfrey, Exmouth.

Mrs. W. Seward.—A large, finely-built Japanese, and, like many of Mr. Seward's seedlings, very rich in colouring. It is deep in build, the florets are flat and of good substance, and very regularly arranged. The colour is deep rosy-cerise, with a reverse of gold, and the florets are tipped an edged gold. F.C.C., N.C.S., October 24. Mr. W. Seward, Hanwell.

Market White.—Decorative Japanese. A pretty little flower; colour pure white, tinted sulphur in the centre. F.C.C., N.C.S., October 24. Mr. W. Wells, Earlswood.

Jules Mary.—A decorative Japanese; florets narrow, stiff, and neatly disposed; colour deep bright crimson, reverse golden; very effective. F.C.C., N.C.S., October 24. Mr. W. Wells.

Mrs. W. Cursham.—This is another of the big battalion. The florets are broad and deeply grooved, twisted and intermingling, and curly at the tips; the ground colour is white, shaded pale lilac mauve. F.C.C., N.C.S., October 24. Mr. W. Wells.

Mrs. Wingfield.—A very pretty decorative Japanese, and something resembling the Christines in form; colour deep bright pink. F.C.C., N.C.S., October 24. Mr. W. J. Empson, Ampthill.

Ada Owen.—A very nice looking, regularly built incurved, close and compact; florets broad and stiff; the blooms are of good size; colour pure white. F.C.C., N.C.S., October 24. Mr. R. Owen, Maidenhead.

Lady Phillips.—An incurving Japanese, big, bold, and solid; florets very broad; colour pale mauve, with a reverse of silvery pink. F.C.C., N.C.S., October 24. Mr. R. Owen.

Mrs. George Hill.—A pretty little decorative Japanese, with white drooping florets, centre shaded yellow; very free and useful. F.C.C., N.C.S., October 24. Mr. H. J. Jones, Lewisham.

President Bevan.—Japanese incurved. A big mauve flower of exceptional build; florets grooved and pointed; colour deep golden-yellow, shaded bronze. F.C.C., N.C.S., October 24. Mr. W. Wells.

Major Matthew.—Incurved; rather narrow florets, but closely incurving; a globular, well-built, medium-sized flower; rich rosy-pink. F.C.C., N.C.S., October 24. Mr. W. J. Godfrey, Exmouth.

CEROPEGIA WOODI.

A quaint little climbing plant with pairs of heart-shaped leaves, silver variegated, and small white flowers tipped with crimson. B.C., R.H.S., October 25. Mr. W. Bull, Chelsea.

HYBRID MONTBRETIAS.

THE flowers commonly known as hybrid montbretias, which would more correctly be called hybrid tritonias, have lately been the subject of a good many notes in gardening papers. They were most of them raised by Messrs. Lemoine, of Nancy, from a cross between Crocosmia aurea and Tritonia Pottsi. He now offers upwards of thirty varieties. That they may be very ornamental when well grown seems to be generally agreed, but there is one statement about them concerning which a timely warning should be attended to—the statement that they are perfectly hardy in the open border. The cultivation of these bulbs is in most gardens comparatively recent, and gardeners speak of their experience of the last three or four unusually mild winters. Besides this, the term "hardy" should always be qualified by defining the county or soil of which it is spoken, otherwise it may be very misleading. I began the cultivation of these hybrid tritonias more than ten years ago, having had a longer experience of both the parents, neither of which I have ever found quite hardy in severe winters without protection. When I first dealt with Mr. Lemoine I asked him his experience of the hardiness of these hybrids. He told me that none of the hybrids, and neither of the parents, were hardy in the open ground at Nancy without a thick coat of litter on the surface during the winter. The winter of Nancy is, it is true, more severe than that of England; but most of us who grew these bulbs before the beginning of 1892 know that all of them that were left in the open ground unprotected were killed outright by that winter, except in warm and favoured situations; and they will always be killed by three weeks of continuous frost where the ground is frozen hard to the depth at which the bulbs are growing.

But hybrid tritonias are so very easily dealt with in such a way as to exclude danger of losing them by frost, that it is not worth while to run any risk in the matter. Even when winter spares them, many of the kinds, especially the type T. Pottsi and T. crocosmiæflora, increase so rapidly, that if left to themselves for more than two years they exhaust the soil and strangle one another, and produce a dense forest of leaves with little or no flowers. Some amateurs to whom I have given them have been so alarmed at their rate of spreading as to dig them all up and consign them to the rubbish heap. But there are several ways of dealing with them by which the increase may be checked, and the flowers made very ornamental in the mixed flower border.

It is the habit at Edge at any time before the ground is frozen deep, say about the middle of November, to get together a hundred five-inch or six-inch pots, and, digging up the clumps, to put three or four bulbs in each pot, which may be filled with any refuse soil, and well watered. Then they may be put away under the trees in any shrubbery or waste ground, and covered two feet deep with any light litter which will neither heat nor blow away. They should have all the rain the sky gives them, for it may be noted that they cannot stand drought, either when growing or at rest, as they belong by nature to rather wet ground. Any attempt, therefore, to store them dry during winter like the corms of gladiolus, will end in their certain death. As for the large number of surplus bulbs, it is well to reckon for how many bunches room can be found; if more are wanted than the number of pots filled, it is very easy to save the surplus by burying them in any waste corner, and littering them over to exclude frost. None should have the tops cut until replanted in March. At the end of that month they are safe from damage by frost. Those in pots are then planted in rich soil which does not dry up, about six or eight inches deep. The buried clumps may then be divided, so that each new clump has not more than eight or ten growing points. It is better, however, to throw away thousands than to plant or leave any crowded clumps. Treated in this way, they begin to flower early in July, and continue until late in October.

It will often be found, some varieties being far worse than others in this respect, that whole clumps turn brown and wither prematurely before all the flowers are open. I cannot assign this to any preventable cause—either soil or situation, or too much or too little water—but I conclude that these bulbs will not ripen well for next year, and throw them all away. The best soil is rich, open loam, and the best situation sunny, but partly overgrown by dwarf shrubs, so that the surface of the soil does not get burnt. If grown entirely in the shade, though they make luxuriant leaves, they do not flower; and, however fine these bulbs look when dug up, they require a season's growth in sunshine before they consent to flower again.

As for the varieties, upwards of thirty in number, most of which I obtained from the raisers soon after they were first offered, the commonest, next to the type Tritonia Pottsi, is called crocosmiæflora. These increase so rapidly as to tempt the grower to consign them all to the rubbish heap, but there are great improvements on both these being of the same colours, and moderate growers. For the first of them, Etoile de Feu, has the same scarlet flowers of larger size, and increases very moderately, and has a very good constitution, seldom withering prematurely. Instead of the other, I should recommend Bouquet Parfait, a fine shaded orange, and equal in constitution to any of the set. For a dark yellow, I find Aurore possesses the same desirable qualities as the others recommended, and Pluie d'Or, as a lighter yellow, equally good. The palest in colour is Solfaterre. These five represent the most distinct contrasts of colour, and make a very good selection. There is a small flowered variety exactly like T. Pottsi in size, but having the inside of the flower bright yellow and the outside scarlet. It does not spread like its namesake. It is called Pottsi grandiflora, an unsuitable name, as the flower is smaller than any other of the hybrids.

In recommending the above treatment and varieties, I speak entirely from my own experience. Other cultivators, where the soil and conditions are different, may perhaps have a different story to tell. Here they thrive in retentive, rich, well-worked soil. I must not conclude without speaking of two very fine flowers of which the treatment is nearly the same, and which are generally associated in catalogues with so-called hybrid montbretias. They are named Crocosmia imperialis, and C. maculata, and are both, I believe, varieties of the old C. aurea, which has for long been in cultivation as Tritonia aurea. Their flowers are twice as large as any of those described above; they are produced rather later, and the bulbs are perhaps rather less hardy. They increase more sparingly, making flowering stalks at the end of stolons a foot or more long, so that if left in the soil they do not make a compact bunch. For this reason it is more difficult to protect them against frost unless they are taken up and potted, a plan I generally adopt. They are excellent for greenhouse ornaments in September and October. In lifting them to pot great care must be taken not to break off the long shoots, of which there are seldom more than two or three to each bulb. They are very fragile, and, if broken, no fresh growth is sent out, and the bulb is useless. In potting, the points of some of the shoots should be brought to the centre of the pot, and not all be left to grow up against the rim.

Edge Hall, Malpas. CHARLES WOLLEY DOD.

VINE CULTURE IN THE OPEN.

"R. D." DOES well to call attention to this matter. Vines are mostly worth growing on houses, walls, and up trees, both as foliage and flowering plants. For fragrance, fineness, and, in many cases, colour of foliage, we have few equals and no rivals to grape vines. Several of our grapes, such as Alicante, West St. Peter's, Barbarossa, Madresfield Court, Lady Downes, &c., colour their foliage, though they may not ripen their fruit in the open air. Then two of the hardiest vines and grapes for the open air—and these will ripen freely in the south and east of England without the help of walls—are Miller's Burgundy (or the Dusty Miller) and the Claret, the leaves as well as the fruit of the latter being dyed a deep purple. These are two of the best and hardiest vines, and grown in the open like raspberry canes, in rows a yard apart, or as dwarf standards or cordons about eighteen inches or more from plant to plant, alternate rows of these two varieties give vivid pictures of purple interleaved with silver. Among hardy vines these two grapes are also good wine makers. The Dusty Miller takes its name from the mealiness of the leaves, rather than the bloom of the grape, though the latter is supposed also to add to the piquancy of the grapes and their resulting juice. Though the leaves are so densely covered with down as to be always white during most of their growth, the grapes finish off a deep dark colour, distinguished not only by the depth and density of their bloom, but the excellency of the small berries for eating, and the rich bouquet of their wine.

The Black Cluster is not seldom confounded with the Dusty Miller, though readily distinguished from it by the absence of mealiness on the leaves, and the larger bunches of berries. It is, however, an equally hardy and good grape for the open air, on walls, and is perhaps the most popular vine on the Moselle or the Rhine as laying the foundation of the finest brands of burgundy or champagne wines. The Claret may be best described as purple all over, and therefore it is recommended in the open, and on walls, alternately with Dusty Miller and Black Cluster, and, as a contrast to both, the Parsley-leaved Muscadine. This vine is about as deeply laciniated in the leaves as is the Cut-leaved Bramble (*Rubus laciniatus*), while the variety is as hairy as the common White Muscadine or Sweetwater. There is also a Black Sweetwater and Black July. The Espiran is the largest and perhaps most certain of all our hardy grapes for walls. The Cambridge Botanic Garden is another hardy black grape, which forms an excellent companion to the Espiran on warm walls. The Black July bears small grapes, full of refreshing juice, fit for eating or the press. The Purple Fontainbleau, as well as Black Prince, Black Hamburgh, and Black Sweetwater, will also often ripen in sheltered gardens on warm walls.

Among white grapes, the delicate, sparkling Chasselas Musqué, Chasselas Vibert, also the Frontignans, white, black, and grizzly, have been perfectly ripened on warm walls. There is one very noticeable and encouraging feature that has distinguished most, if not all, the attempts made to grow Frontignan grapes in the open air on our walls. Under cool treatment the grapes have neither shanked nor shrivelled, and the flavour has equalled, or excelled, those grown in heat. The Early Saumer Frontignan, as its name implies, ripens earlier than any of the others, but the Grizzly, alike out of doors as in, is the highest flavoured. Other white hardy grapes well worth growing are the Scotch White Cluster, Stillward's Sweetwater, perhaps the hardiest and freest setter of all the Sweetwaters; The Early Smyrna, and the Early Malvasia. These and others may yet be met with in various parts of the country.

Our hardy vines are however, greatly in need of rigid selection as well as improved culture. Some years since there was a considerable run on hardy American vines, as well as for bigger blackberries, and with little more successful results. If County Councils would use their influence to bring these out-door grape vines under the notice and management, for a year or two, of their horticultural lecturers, the character of the grapes and the quality and quantity of the wine produced might speedily be enormously improved. Improved varieties would do much, but rational treatment and youthful vigour might do more in both directions, for with a few rare and notable exceptions, which only prove the rule, the worst treated plant in all the garden or orchard is the grape vine. Too generally it is a mere crush of fruit, foliage and shoots, allowed to run wildly to waste instead of being planted, trained and cultivated into a thing of plenty and of beauty, and a joy for a generation, if not for ever, for the entire family. Sweetness and beauty the vine cannot help giving, but the amount of pleasure and profit it will yield to its possessor depends upon the care, the skill, and the love of the cultivator. D. T. FISH.

HOMOLOGY OF PLANTS.

By Professor F. O. Bower, D.Sc., F.R.S

(Concluded from page 684.)

Dorsiventrality.

INTERESTING questions arise in connection with dorsiventral structure. In the Equisetineæ, and almost all Lycopodineæ, the strobilus is of the radiate type, therein corresponding to the radial structure of typical sporogonia. While certain ferns are of the radiate type, others are conspicuously dorsiventral, even from their earliest embryonic state. Dorsiventral structure also appears in the vegetative region, and sometimes, though rarely, in the strobilus of *Selaginella.* Professor Goebel, in a chapter of his "Organographie," the publication of which may be recognised as the leading event in the morphological studies of the year, discusses the origin of the dorsiventral state in a number of examples, and his results have a most interesting bearing on our theory of the strobilus.

He shows in the case of *Vaccinium myrtillus* how the first shoot of the seedling is orthotropic and radial; the lateral shoots, formed after the apical growth of this is arrested, are also orthotropic, but the lateral shoots of higher order become plagiotropic with leaves in two lateral rows. He points out the intermediate steps from one condition to the other, and how finally the growing point itself is influenced by the external agency (apparently light), which leads to a change of the leaf arrangement. This seems to be the case in many other Phanerogamic plants.

A particularly interesting account is also given of similar changes in *Selaginella.* Some eight species are orthotropic, radial, and isophyllous. *S. sanguinolenta* shows a direct response to external conditions, being upright and isophyllous in bright and dry situations, plagiotropic and anisophyllous in damp and shady situations. The bulk of the genus are, however, either plagiotropic and anisophyllous throughout, or some may have an early orthotropic stage. But he concludes that even in "habitually" anisophyllus *Selaginellas* we have to do with an adaptive character, induced probably by light.

We see then good evidence that in certain cases the dorsiventral shoot is a result of adaptation, and the radial probably the primitive. Was this always so? We need not discuss the case of the gametophyte, as the problem there is even more varied and difficult, and does not at the moment engage our attention. But the question whether in the sporophyte the radial was in all cases the primitive type is clearly related to our theory of the strobilus. The sporogonia of Bryophytes are, with few exceptions, orthotropic, and almost uniformly radial; exceptions, such as *Diphyscium* and *Buxbaumia* have been shown to have an interesting relation to the incidence of light, and are readily recognised as derivative. The distinctively strobiloid Pteridophytes mostly maintain this radial structure; this may be so both in strobilus and vegetative organs, as in *Equisetum*, *Isoetes*, in most species of *Lycopodium*, and in some *Selaginellas*; or the vegetative region may be dorsiventral, and the strobilus return to the radial type, as in some species of *Lycopodium* and most *Selaginellas*; but in some *Selaginellas* even the strobilus may be dorsiventral.

In the Ferns the case is less obvious; the large size of the leaves, combined often with a dorsiventral structure of the shoot, makes a comparison with a radial strobilus less easy. Goebel has pointed out that in many dorsiventral Ferns the dorsiventrality is already defined in the *punctum vegetationis*, and does not depend upon a subsequent shifting of the parts. But it should be remembered how many Ferns are orthotropic and radial; that almost all the large genera include species with simple unbranched leaves. Further, the series of the Ophioglossaceæ, possibly a distinct phylum from the true Ferns, may be held to illustrate a progressive elaboration of the leaf, from smaller-leaved forms which are orthotropic and radial, to larger-leaved forms, which are sometimes orthotropic and radial (*Botrychium*), sometimes plagiotropic, and dorsiventral (*Helminthostachys*). It is not, I think, improbable that these, and also the true ferns, are referable in origin to an orthotropic strobiloid type, with radial structure. This opinion was in substance suggested in 1894 at Oxford; these recent observations of Goebel on the derivative nature of dorsiventral shoots strengthen the position then taken up, while they supply us with fresh examples of homoplastic development.

Conclusion.

This discussion was entered on with a view to finding whether phylogeny as a basis of morphology would lead us. However unprepared we may be to pursue it with certainty into detail, or to apply a terminology to the sequences which we recognise, we must, I think, accept phylogeny as the natural basis for morphology. I do not think that any middle course between this and an artificial system is possible or reasonable. But here we launch ourselves upon a sea of uncertainties on which we must keep our course with care. Following it, we think we espy certain great movements in Nature. We may recognise what we believe to be a true evolutionary sequence, but who is to say whether it is a progressive or a retrograde sequence? It may even be one divergent from some middle point. Our best friend may read the sequence in opposite order to ourselves and arrive at a diametrically opposite conclusion. There is no finality to this judging of probabilities, a fact which should be always before the mind, especially in the warmer moments of discussion.

It is interesting to trace the parallel between the progress of classification of plants as a whole, and that of the classification of their parts. In each case the earlier symptoms were artificial. We may compare the Linnæan system of taxonomy with the Hofmeisterian organography; in both the rigid application of a preconceived method placed incongruous things in juxtaposition, in each case a widening of the basis of the classification has resulted in a redistribution on more natural lines. The present ideal of taxonomy is the same as that of the phylogenetic organography, viz., to group according to descent. The limitations are alike: systematists and morphologists both find their greatest difficulty in the incompleteness of the record, and the frequent isolation of the things to be classified.

But, without following the obvious parallel further, we may now briefly review our position as regards organography, and the following categories are to be recognised, though they graduate almost imperceptibly into one another:—

Homogeny.—(*a*) *Repetition* of the individual part in successive generations, with the same number and position. This is exemplified by the cotyledons, the foot, and the first root.

(*b*) *Essential correspondence* of parts varying in number and position, but corresponding in character and development, produced in a regular sequence; *e.g.*, most cases of continued embryology.

(*c*) *Transferred position* of parts, similar in origin and structure to those produced in regular sequence; *e.g.*, roots, adventitious buds, sori of *Aspidium anomalum*, aposporous and apogamous growths, many monstrosities; these we may believe to result from a transfer of inherited developmental capability.

Homoplasy.—This may be recognised with varying degrees of probability; starting from cases where the question of community of descent is open (as with nearer circles of affinity), and proceeding to those in which distinct evolution is virtually certain. It remains for future investigation to clear up doubtful points. Meanwhile, taking the case of leaves for the purpose of illustration, we may contemplate the following possibilities:—

(*a*) A possible origin of two homoplastic series of leaves in the same plant, and the same generation (*Phylloglossum*).

(*b*) Two homoplastic series in the same plant, but in different generations (*Lycopodium cernuum*).

(*c*) A possible distinct origin of homoplastic leaves in distinct phyla, but in the same generation (sporophyte of Ferns, Lycopods, Equiseta).

(*d*) A distinct origin of homoplastic leaves in distinct phyla, and distinct generations (*e.g.* leaves of Bryophyta and of Pteridophyta).

Now *Homology* has been used in an extended sense as including many, or even all, of these categories. It seems plain to me that this collective use of the term homology carries no distinct evolutionary idea with it; it indicates little more than a vague similarity; the word will have to be either more strictly defined or dropped. The old categories of parts based upon the place and mode of their origin are apt to be split up if the system be checked by views as to descent. Comparison, aided by experiment, supersedes all other methods, and the results which follow raise the question of terminology of parts which have arisen by parallel development.

In parts which are of secondary importance, such as stipules, pinnæ, the indusium, hairs, glands, the inconstancy of their occurrence points to independent origin by parallel development in a high degree; in parts of greater importance, such as leaves, a parallel development may also be recognised, though in a less high degree; in the case of sporangia their acceptance as a category *sui generis* dispelled the old view of their various origin from vegetative parts; but we must remember that this does not by any means exclude a parallel development also in them, by enlargement and septation from some simpler spore-producing body, though this is not yet a matter of demonstration. Finally, the sexual organs are probably homogenetic in all Archegoniate plants, but we have no proof that sexuality arose once for all in the lower plants; the probability is rather the contrary. Thus we may contemplate as very general a polyphyletic origin of similar parts by evolution along distinct lines, but resulting, it may be, in forms essentially similar.

There are two extreme courses open to those who wish to convey clearly to others such matters as these: the one is to use a separate term for each category of parts, which can be followed as maintaining its individual or essential identity throughout a recognised line of descent—in fact, to make a polynomic terminology of members run parallel with a polyphyletic development; the other course is to make it clear always in the use of terms applied to parts that they do not convey any evolutionary meaning, and to use them only in a descriptive sense. Perhaps the former is the ideal method, and it may be a desirable thing, as polyphyletic origins of parts become more established, that the terminology should be brought to reflect at least the more important conclusions arrived at. How this may be done we leave for the future to decide, though I have indicated a first step in the case of the leaves of Mosses and Ferns.

But, for the present, the whole matter is still so tentative that it is well to be content with something which falls short of the ideal, and to maintain the usual terms, such as stem, leaf, root, hair, sporangium, &c., as simply descriptive of parts which correspond as regards general features of origin, position, and nature; but with no reference either, on the one hand, to conformity to any ideal plan, or, on the other, to any community by descent; in fact, we shall preserve the original pre-Darwinian sense of these words, which was purely descriptive, and avoid any attempt to read into them any accessory meaning.

A special interest attends those cases of transfer of inherited developmental capability where a part appears with its normal characters, but in a position which is not usual, such as the transfer of the sori of *Aspidium anomalum;* comparable with these transfers on the one hand are those apogamous growths where roots, leaves, ramenta, sporangia may arise independently out of the usual succession. These may be compared, on the other hand, with those interpolations of extra parts, such as the accessory stipules in the stellate Rubiaceæ, the extra stamens in Rosaceæ, &c. We are unable as yet to say what it is which determines the position and mode of origin of parts; I do not myself think that Sach's hypothesis of "Stoff und Form," involving ideas of material differences which have not been demonstrated, will advance the question so much as a careful following of the details in the origin of the parts, say in some of these apogamous growths. Here we see the plant body in a sense analysed before us ; any one part may be produced separately from any other. An elucidation of how any one of these is imitated and determined should lead to a knowledge of the influences which act also in the normal sequence, and determine the origin of parts in the plant body at large.

I have attempted to touch upon some of those questions in the Morphology of Plants which specially interest us at present, and I dare say in doing so have revealed to you some of the special weaknesses of this branch of the science. The want of finality in this unravelling of history without documents, the ample latitude for difference of opinion, according to the relative weight attached by one or another to the same facts ; these are difficulties inherent in the very nature of our study, while to many minds they increase rather than diminish its attractions. Nevertheless the progress of morphology in late decades has plainly been towards a truer appreciation of how divers forms have originated, and so towards a better recognition of affinities. Seeing that this is clearly the main trend, we may take heart as to the advancement of morphological knowledge. We shall not allow ourselves to be deterred by reason of the want of finality or the deficiency of evidence, however strongly we may feel the weight of these difficulties. We shall rather try to make the best of such evidence as we possess, with the full confidence that, however insoluble the problem of descent may really be, inquiry along scientific lines will at least lead us nearer to the goal.

CANNAS.

During the last few years cannas have come wonderfully to the front, and are now indispensable in most establishments for the beautifying of beds or borders. They are strikingly pretty even as single specimens, but it is when they are grouped in fairly large masses that they produce the most telling effect. The groups, too, are most effective when confined to one variety, or varieties very much alike in colour of flowers and foliage. Perhaps the most suitable places for cannas are the margins of shrubberies, fairly large beds, and mixed borders. In such positions the clumps can be well separated. In filling very large beds clumps of ten or twelve dotted over it, and the intervening spaces filled with Bartonia aurea, or something of this kind, are very effective. For smaller beds cannas might occupy the centre, and be surrounded with Coreopsis Drummondi, edged with some dwarfer plants. These isolated beds look well both at a distance and near at hand, but cannas are most conspicuous when employed to give a little colour to the margins of shrubberies. Here the varieties with pale green leaves and bright flowers give a pleasing tint to the whole, and liven up the rather sombre hues of rhododendrons, yews, &c. Cannas are well worth growing for their foliage alone during the summer months, as a variety of tints, from pale green to dark purple, can be obtained.

For indoor decoration the cannas are also exceptionally valuable, either as pot plants or cut flowers. As pot plants nothing can be better for grouping round the base of palms or forming banks of foliage and flowers for filling recesses or corners. Although the taste for cannas has led to a great increase in the number of varieties in recent years, yet in gardens rather remote from large establishments the old and inferior kinds are still to be found. In order to bring themselves abreast of the times gardeners should once a year, at least, visit some place or places where the cream of recent introductions can be seen. The lesson thus learned will well repay the time and money spent. For choice, perhaps, some large up-to-date nursery establishment would be best, as greater variety is more likely to be grown to meet varied tastes than at any private one, be it ever so large. In the larger private gardens the best kinds of certain decided colours only are likely to be met with, as the special tastes of the owners have to be gratified. In verification of this I might remark that recently in the gardens of his Grace the Duke of Westminster at Eaton Hall I saw Königin Charlotte extensively grown. It is a very strong-growing variety, with broad green leaves, and rich velvety blood-red and yellow flowers, which are produced freely. The individual blooms are unusually large and of good substance, and the plants are apparently of a hardy constitution, for they were growing luxuriantly at Eaton. Besides this variety there were several others admirably grown under glass at Eaton by Mr. Barnes, his Grace's head gardener.

At Dickson's huge nursery establishment at Chester two large pieces of ground were filled with cannas of all colours during this season, and here the most fastidious could be satisfied. For general purposes I noted a few of the most distinct, those with dark-coloured flowers and foliage and those having exceptionally huge flowers and green leaves. Among the dark foliaged and flowered section Colonel Dodds stood out conspicuously ; it is also a tall-growing, robust form. J. Bichon has orange and red flowers of unusual size, even amongst the large-flowered section. Doyen J. Sisley is a salmon-scarlet, just a little paler in colour than J. Bichon ; Madame Crozy, a brilliant scarlet, edged yellow ; and Progression, golden yellow, spotted chestnut-red. These six varieties are the best I have seen ; in fact, I might say the cream. Of course, opinions might differ, but so far as a strong constitution, free flowering proclivities, and decided colour are concerned they would be hard to beat.

J. Riddell.

Some New Potatos.—Challenge, one of Mr. Finlay's productions, bids fair to become a popular round, for it is a great cropper, excellent in quality, and is very handsome. Devonian, an old-fashioned shaped kidney, sent me for trial by Mr. O. Thomas, is a capital cropper also and of superb quality. I regard this variety as a great acquisition to our best eating potatos. Iva is very much like the preceding in appearance, and as it came originally from the Canaries I rather think it may be the same as is the variety we can purchase in the shops from Teneriffe in the spring. It, too, is of first-class quality. Pride of Tonbridge has also been remarkably good with me, giving a capital crop of handsome white kidneys. My own trial this season has been a fair one, but drought terribly baked the soil.—A. D.

SOUV. DE LA MALMAISON CARNATIONS.

During the past few years large flowering carnations have attained to an exceptional degree of popularity, and are now grown with more or less success in most gardens. Some measure of this increasing popularity is doubtless due to the excellent new varieties which have been raised by Mr. Martin Smith at The Warren House, Hayes. This gentleman has, by careful cross fertilization, produced a large number of distinct improvements in carnations of several types, and especially amongst the large flowered or Malmaison section success has attended his efforts. Besides the delightful fragrance and the charming colours introduced by these new ones, the very essential quality of a sound and vigorous constitution is characteristic of them all. Their cultivation is thereby much more easily managed, and under reasonable conditions the plants yield most satisfactory results.

Many people have found by experience that the cultivation of the old lovely pink and blush varieties is by no means an unmixed pleasure, chiefly owing to their susceptibility to disease, and, unless under the best of management, their weakly and uncertain constitution. Neither of these two old sorts, however, are altogether superseded, and they should not be given up. The fascination of their lovely flowers, and probably, too, the gratification obtained in mastering any intricacies of culture, is continually increasing the number of those who determine to have a house wholly or in part devoted to carnations.

The accompanying illustration will give some idea of the beauty of a number of plants in full bloom, though it cannot convey the pleasing associations of colour or the delicate perfume which combine with the capital lasting properties of the blossoms to ensure their appreciation by all lovers of flowers. The plants in the foreground of the picture are from layers rooted the previous autumn, and are carrying but one flower each. Those in the centre and at the back are one year older, and give from a dozen to fifty blooms, according to the number of growths and the amount of disbudding practised. The group is mainly composed of the two original Souvenir de la Malmaison forms, but includes the ten new ones sent out previous to 1898. This autumn twelve more are being distributed, making a total of twenty-two directly emanating from Hayes. They have an excellent reputation, and from the appearance of the young plants are all good growers, a fact which will commend them to beginners.

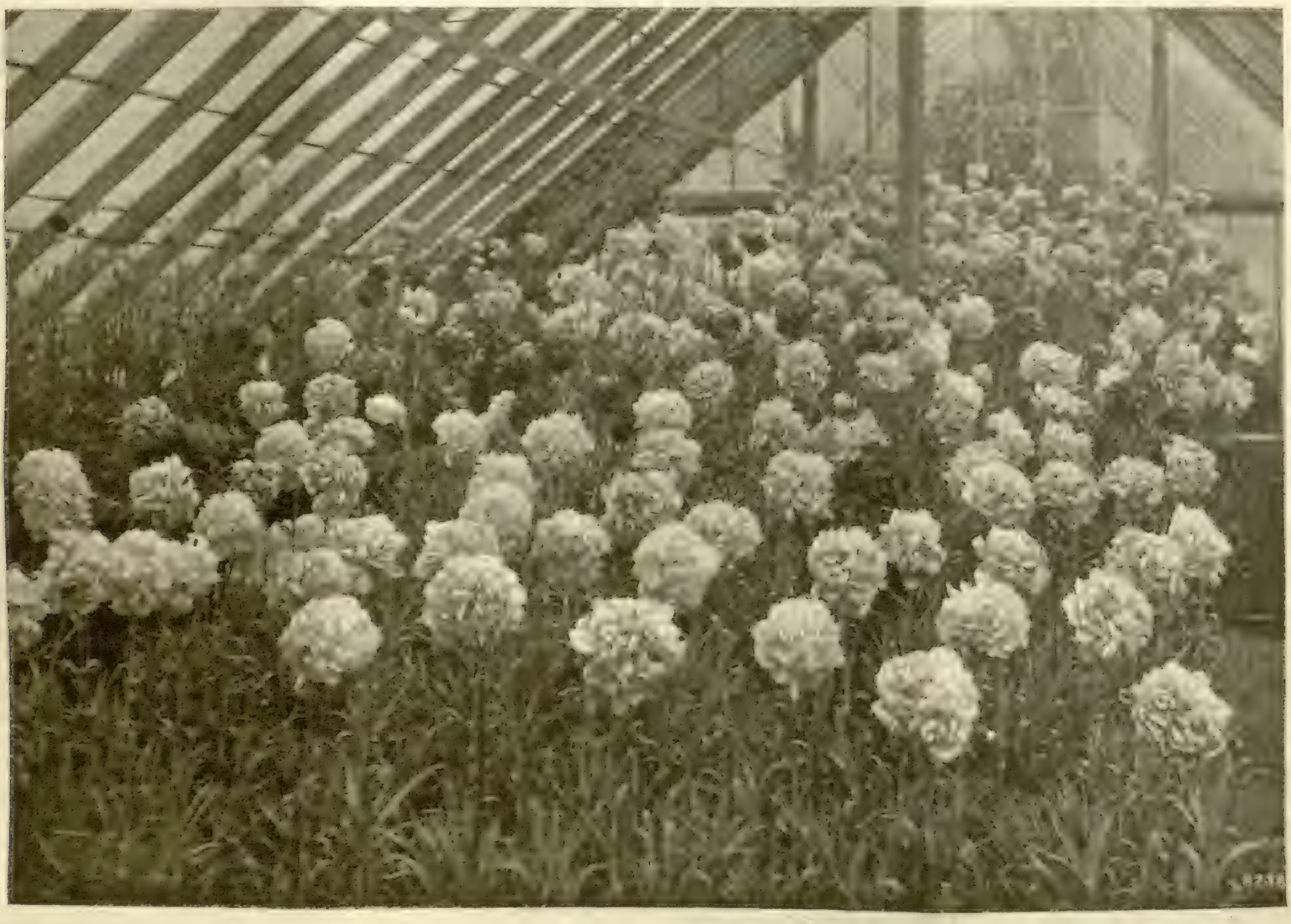
As the details of cultivation may be helpful to some who have not hitherto been so successful as they could wish, I have been asked to give an outline of our own treatment, and a brief description of the several new varieties which have already flowered here may also be acceptable. The largest flowered form is Sir Charles Freemantle ; its blooms are enormous, and though it does, like most of the others, burst its calyx, there are such a number of petals that the flower does not become loose or unshapely. The colour is good, a deep rosy pink. Lady Grimston is very sweet; the colour is a flaked mixture of white and rose, whilst the habit of the plant is exceptionally good. Princess May is the earliest to bloom; the flowers are of medium size, bright rose in colour, and produced on good long stalks. Nell Gwynne is white, and though yet only flowered on small plants, it promises to be first rate. Lord Rosebery is excellent ; it is described in the lists as dark rose, but nearly approaches crimson in colour. The Churchwarden is a fine crimson ; its habit is dwarf, and it produces many growths. Prime Minister, bright scarlet, is a splendid plant ; the flowers are large and nicely scented. Trumpeter is rather tall in growth, and comparatively short in the leaf ; the flowers are very good, sweet scented, and dark crimson in colour. Sir Evelyn Wood and Mrs. Everard Hambro are perhaps the least desirable of the set, though they may be included in a collection. Their flowers are borne on rather short stalks, though the growth of both is vigorous. The former is a striped flower, pink on a white ground, and the last-named is crimson, but with us soon loses its brightness. Perhaps none of those named have quite the rich and powerful fragrance of the two well-known old varieties, hence these should be largely included in all gardens.

The chief points to bear in mind in cultivating the plants are that they must always have abundant ventilation, a cool, comparatively dry, buoyant atmosphere being most essential at all times, but especially must this be provided during winter. The soil should be a free, open mixture, mainly composed of the best turfy loam obtainable. In potting, provide ample drainage, and press the soil quite firm and even throughout. Then the watering—a frequent cause of failure, even where it might be least expected. No plants are more sensitive of too much moisture, and during the dull months of the year it is surprising how little they require. It should not be given unless the ball of soil is parting from the sides of the pot, and a sharp ring is discernible when the pot is rapped. The right condition is not difficult to ascertain after a little experience ; but, of course, it is possible that the plants may suffer for lack of water, though in a cool house in winter time this is not likely to occur. Whilst the plants are in full growth, and during the flowering season, they naturally take much water, and the risk of giving too much is not so great. The frequency of supply then will be governed by the condition of the roots, whether the soil in which they grow is fully occupied or not, and outside influences of weather.

The season for propagation is during July and August, and increase is made by layering. Usually the two-year-old plants complete the cycle, as it were, and after flowering in June are immediately used for propagation. This is best done by plunging the old plants in a bed of soil under an ordinary garden frame, because here the layers may be shaded from bright sun, and also sheltered from heavy rains. As soon as they are well rooted, and have been severed from the parent plant about ten days, they are potted into sandy soil in three and a-half inch pots. They are still kept under the frame, ventilated slightly for the first few days until established, and shaded. After this the lights are only used as a protection from rain, and through the heat of the day are well raised above the frame to carry shading, but otherwise are removed entirely. Light syringings are given during very hot weather until September. A capital place to winter these young plants is on a shelf near the roof, in a peach-house, or any similar place, where they may have abundant light and ventilation. Early in the new year they need potting into five or six inch pots, still giving them a similar light and airy position. The soil used depends entirely on the nature of the staple loam. The silky, fibrous loam from the Epsom district of Surrey is a good sample, and to two-thirds of this may be added the remaining portion, equally composed of leaf-mould, well-decayed horse manure, and good fibrous peat. Mix with the whole a little finely-broken old mortar rubble and plenty of some coarse sand, with just a dusting of the best quality bone meal. Ordinary details of potting will naturally receive careful attention.

From this stage the plants will go on steadily till the flower spikes develop. Then comes the question of disbudding. Whether all or part of the side buds are removed is entirely a matter for the grower to decide. The choice lies between one finely formed, large flower, or several medium to small-sized ones. Shade from strong sunshine should always be given, and especially while the flowers are opening. As soon as flowering is past a repotting will be necessary into eight or nine inch pots, using similar soil to that already advised. A first-rate position for the remainder of the summer is provided by removing the plants to the open, and plunging them two-thirds of the depth of the pots in ashes or leaves, with just a board round to keep these together. Then a rough framework, some two feet above the plants, should be arranged to carry lights, in the event of heavy rains, or shading when required. Ultimately, as the pots become filled with roots, liquid manure may be given in moderate quantities, and at alternate waterings, until the plants have passed out of bloom again, when they are generally used for propagation instead of for larger specimens. Insects which may be troublesome are aphides and thrips; both are readily destroyed by fumigation indoors, or, if only a few of the former are present, a dusting with tobacco powder will remove them.

Trent Park Gardens. W. H. Lees.



HOUSE OF SOUV. DE LA MALMAISON CARNATIONS AT TRENT PARK.

Amaryllis Belladonna.—The Belladonna lily has flowered unusually well this autumn, and its culture is very simple, and entails but little trouble. Although it is not desirable to lift the bulbs frequently, yet where some time established and become crowded it is prudent to lift them and select the largest to replant, utilising the surplus for another site. Directly after flowering is over will be found the best time for this operation. In planting anew, a warm position should be selected, a narrow border against the front wall of stoves, vineries, or greenhouses with a south or west aspect has been found a very suitable situation to ensure a free-flowering and good growth, the bulbs to be planted almost close to the front wall. A fairly good and rich soil is needed, and the bulbs should be planted at least three inches under the surface. Where not lifted, a little of the old top soil should now be removed, and a rich top-dressing be given to induce a vigorous growth.—C. Herrin, *Dropmore Gardens.*

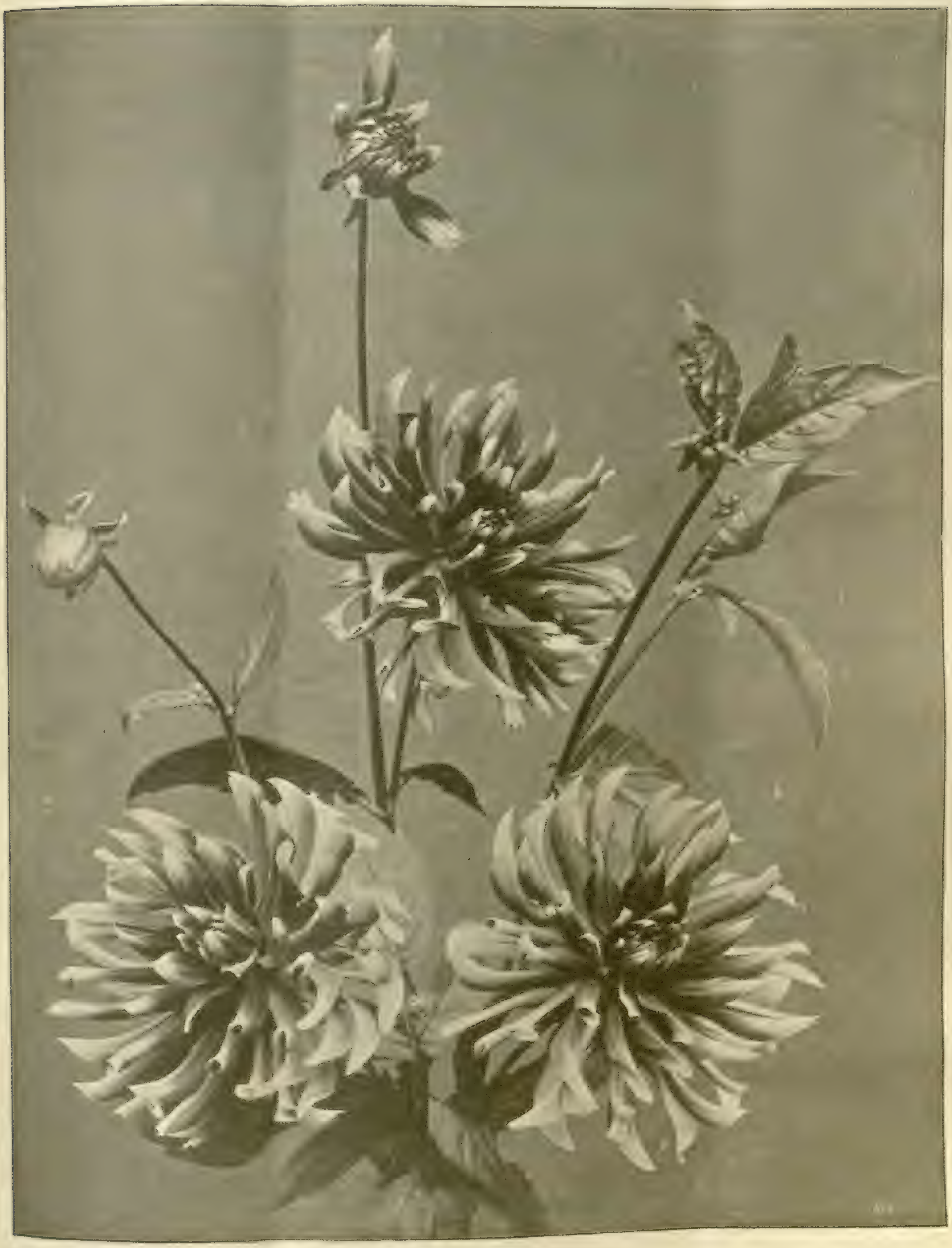
CACTUS DAHLIA THE CLOWN.

Quite a distinct type of cactus dahlia, both as regards form and colouring, was introduced by Messrs. Keynes, Williams, and Co., of Salisbury, when they produced the pretty variety named Arachne, and, considering the popularity this had and has, it was only natural to anticipate further developments in a similar direction. The variety named The Clown has followed Arachne, and while it is not more beautiful than the latter it has a bolder flower and is a better grower. Our present illustration, reproduced from a photograph, admirably represents the new form, and shows the curious disposition of the white and scarlet colouring; but whereas Arachne—which gained two first class certificates and an award of merit in 1897—has the flowers very much narrowed and pointed by the reflexion of the lateral edges, The Clown has broader segments, with just a sufficient turn to the margins to produce a quaint and distinct effect. Then also the colours are disposed in curious but effective mottlings on The Clown, and doubtless this peculiarity suggested the name given it by Mr. Wyatt, the genial head of the firm of Messrs. Keynes, Williams, and Co. The variety is of fair but not excessive size, and the flowers are carried clear of the foliage on stiff, wiry stems. When exhibited before the Royal Horticultural Society on September 20 last The Clown was considered worthy of an award of merit.

FOREIGN CHRYSANTHEMUM SHOWS.

These are probably more numerous this year than ever, and some of them are events of considerable importance. At Lille there will be a conference and show of international interest, another is also promised at Troyes, under the auspices of the French N.C.S. The Paris show also promises to be one of the best and largest in extent.

American shows are advertised to be held at Boston, Brockton (Mass.), Buffalo, Chicago, Elmira, N.Y., Germantown, Hartford, Indianapolis, Morristown, N.J., New Bedford, Newport, R.I., New York, Philadelphia, Poughkeepsie, Providence, St. Louis, Syracuse, Toronto, Walo (Texas), and Worcester, while nearer home Continental and adjoining countries announce the following:—Alexandria (Egypt), November 5; Algiers, October 28 to 30; Amiens, November 19 to 21; Arras, November 13 to 15; Antwerp, November 12 to 14; Bourges, November 3 to 7; Bordeaux, October 29 to November 3; Cette, October 29 to November 3; Chambéry, date not fixed, but during the first fortnight of November; Cognac, October 28 to 30; Clermont Ferrand, November 10 to 13; Cairo, November 4 to 6; Grenoble, October 28; Geneva, date not fixed, but early in November; Hanover, November 6 to 13; Lyons, November 4 to 13; Lille, November 10 to 15; Langres, November 12 to 14; Le Vésinet, date not fixed; Moulins, November 3 to 6; Milan, November 10 to 14; Nimes, October 28 to 31; Paris, November 9 to 14; Pau, November 10 to 12; Turin, October 22 to 29; Villafranca, November 12 to 14. C. H. P.



NEW CACTUS DAHLIA, THE CLOWN.

APHIDES.

THE season of 1898 has witnessed an unusually widespread attack of aphides, or "green flies," as they are commonly called, upon trees, plants, and flowers of many kinds. (Aphides are termed "green flies" indiscriminately, as if they were of the same species, though each kind of tree, plant, and flower has its peculiar species, with as well-defined distinctions as the host upon which it is found.) It is believed that the mildness of the winter and the absence of sharp frosts preserved the hibernating aphides of species that are generally affected by normal winter weather; while the abnormally small rainfall also favoured, without doubt, the preservation of these species.

The *Board of Trade Journal* states that among the trees most seriously attacked by aphides were limes and beeches. The foliage of the former trees, in some cases, shone with the honeydew falling from the numbers of aphides on the under surfaces of the leaves; their fragrant blossoms were materially lessened by the injurious action of the insects; and many of the leaves withered and fell prematurely. Varieties of ornamental limes in gardens and shrubberies, such as *Tilia argentea*, *T. europea*, and *T. euchlora*, suffered particularly from the continuous action of aphides in the past season. The aphis infesting limes is known as *Pterocallis tiliæ*, of the family *Lachninæ*, whose wingless viviparous female is yellowish-green with a black head, and a long and narrow body with black stripes upon the abdomen. The winged female is yellow with dark legs, and ample iridescent wings with forked cubital veins. Boussingault states that in Switzerland these aphides often kill lime trees by their persistent attacks.

The beech aphis (*Phyllaphis fagi*) belongs to another genus of the *Lachninæ*. It seriously injures the common beech (*Fagus sylvestris*), as well as the "Copper" or Purple beech. There were many complaints of harm caused by aphides to Purple beech trees in gardens and shrubberies. The insects swarmed on the under sides of the leaves and changed their rich glossy colour to dull sombre tints. This aphis covers itself with a waxy exudation resembling white cotton or silk, which with the "honeydew" forms a nasty, sticky mass on the lower parts of the leaves. The wingless viviparous female is green when deprived of its cottony coat, with a rather narrow body, large red eyes, and a short beak or rostrum.

With regard to remedial measures against these aphides infesting trees, it is impossible to adopt any in the case of fully-developed and large trees. Young trees and fair-sized trees in gardens, public parks, and in shrubberies may be syringed with soft soap and quassia by means of specially constructed garden engines, having strong pumps. In several instances purple beeches were syringed in this way with very great advantage. The mixture used was 7 lbs. of quassia chips and 7 lbs. of soft soap to 100 gallons of water.

Peach and Nectarine Aphis.

Peach and nectarine trees were infested with the aphis named *Aphis amygdali*. As the fungus *Exoascus deformans*, causing what is termed the "curl," was abundantly present in many gardens, this aphis was not always held to be the author of much harm, though, in fact, it did incredible mischief to the trees as well as to the crop of the present year. Spraying and syringing with soft soap and quassia, in the proportions of 6 lbs. of soft soap and 6 lbs. of quassia chips to 100 gallons of water, was successfully adopted in the case of this insect. Spraying, too, with a weak solution of sulphate of copper and lime, at the rate of 5 lbs. of sulphate of copper and 2½ lbs. of lime to 100 gallons of water, was useful against the "curl" fungus.

Plum and Hop Aphis.

The "blight," as the attack of aphides is termed in Kent, sorely beset the hop plants. There has seldom been such a persistent visitation. As fast as the hop growers washed off the insects fresh swarms appeared, and, where spraying or "washing," as it is called in the hop districts, was neglected, the leaves turned black, and the cones were black and full of filth. The hop aphis (*Phorodon humuli*) is distinguishable by the lowest joint of the antennæ being toothed, and each of the frontal tubercles is also furnished with a tooth. A remarkable feature in the life history of this aphis is that it migrates from trees of the *Prunus* tribe to the hop plants in the spring, returning to the former to lay eggs upon them, in which state the winter is passed. Clouds of winged aphides may be seen in September leaving the hop grounds on their way to the plum, damson, and sloe trees in the neighbourhood, and, in the spring, flights of winged females are again seen coming from the plum and damson trees. It was long ago believed that there was a migration of these aphides from plum and damson trees to the hop plants, and Professor Riley determined this by close observation made near Maidstone in 1887. There is little doubt that besides the hibernation of this insect in egg form upon trees of the *Prunus* tribe there are some wingless viviparous females, which hibernate in the ground close to the hop hills, if the weather is not abnormally severe, and produce young upon the first approach of spring. In many hop districts, notably in Kent, where there are numbers of damson trees, and where the plantation of these trees is gradually extending, aphis blight regularly recurs, and with increased intensity, entailing enormous expense in washing the plants, which operation frequently has to be done five and even eight times.

But this hop aphis—which comes from plum and damson trees in the spring and returns to them in the winter, when eggs, to be seen easily with a pocket lens, are laid on the twigs and branches—must not be confounded with the plum aphis (*Aphis pruni*). This insect remains upon plum and damson trees throughout the year, and is quite a distinct species from the hop aphis. It makes its appearance in the form of wingless females, popularly known as green lice, the products of eggs laid in the autumn. These bring forth living young, which again give birth to lice and multiply in a remarkable manner, there being, according to Westwood, nine generations. In seasons of bad attacks, notably in the last (1898), by the time the damsons are formed they are beset by aphides which suck up the juices from the stems and the leaves near them, and cause them to drop off, or to be stunted and misshapen. Plum trees are also often seriously injured in the same manner, but not so much as the damson trees. As a rule, prudent fruit growers spray or "wash" damson and plum trees, before the fruit is formed, with solutions of soft soap and quassia, made of the extract of 6 or 7 lbs. of quassia chips and 6 lbs. of soft soap to 100 gallons of water. This solution, thoroughly applied, was very efficacious in the past season in cleaning off the aphides and their filth. It is found that Paris green, mixed with the quassia and soft soap solutions, makes them far more effective. Only a very small quantity of Paris green is used for this purpose, four ounces to 100 gallons of this solution being found sufficient to affect insects without injuring the blossoms and leafage.

Apple Aphis.

The apple aphis (*Aphis mali*) makes its appearance as soon as the leaves show signs of coming forth, and it follows up the blossoms from their earliest development. It is very destructive to the blossom of certain kinds of apple trees whose leaves are hardly out when the blossom is formed—as a rule, the blossom of apple trees appears before the leaves are perfectly developed. The aphis attacks the blossoms, which are sweet, and either prevents fructification or so attacks the tiny fruitlets that, weakened by the extraction of their juices, they do not "set" properly. Those that manage to set rarely attain to full size and perfection. As the leaves of the trees come out they are covered with aphides and curl up, become black, and finally fall.

The winged viviparous female has a light green body with black markings, and wings with peculiar neurations. The egg-laying females are somewhat round in shape, they deposit little black eggs between the folds of the rind near the buds at the end of the summer. These are hatched in the early spring and produce wingless viviparous dark green females, called by German entomologists *Stammütter*, and "adult queen aphides" by Mr. Buckton, from which are produced many generations of lighter green larvæ, the main cause of the active injury to the leaves and blossoms. These larvæ have long rostra, or suckers, and are covered with fine white powder. It is considered that in some cases, and when the winter season is mild, wingless viviparous larvæ hibernate as in the case of the hop aphis. Washing or spraying apple trees is of great benefit if it is done early and well. It not only clears away aphides, but at the same time materially checks the winter moth and other allied caterpillars, as well as the apple sucker (*Psylla mali*) and the apple weevil (*Anthonomus pomorum*). The materials used for spraying apple trees are the extract of 6 lbs. or 7 lbs. of quassia chips and 6 lbs. or 7 lbs. of soft soap to 100 gallons of water. Paris green added to this in the proportion of 4 oz. to 100 gallons of the mixture is of great advantage, as it poisons the food of the insects and does not hurt the foliage or blossoms.

The multiplication of pests like the apple aphis and of other insects is much influenced by the neglected and unpruned condition of the apple trees. Where the bark is thick and full of deep fissures, and the branches are thickly twisted together, and when lichens and mosses are allowed to cluster densely upon the boughs and twigs, insects are generally far more numerous and destructive than upon trees that have been pruned properly, well scraped, and cleared from foreign growths. The lamentably neglected condition of many of the apple orchards of this country serves to intensify and to perpetuate the visitations and injuries of the apple aphis, the woolly aphis, the whole tribe of winter moths, the ermine moth, the apple blossom weevil, the *Psylla*, the codlin moth, and other pests, to say nothing about equally dangerous fungi. Other insects also depend upon these neglected apple trees for their subsistence, or make them their shelter and refuge, from which they emerge to blight or destroy other crops.

Currant Aphis.

Among aphides which were particularly abundant and troublesome to black and red currants during the past season was the *Rhopalosiphum ribis*, the currant aphis, which makes galls, or swellings, upon the surfaces of the leaves of black or red currant bushes. The galls are usually of a red colour, and upon examination of the under surfaces it will be seen that there are companies of larvæ engaged in sucking up with their club-shaped syphons the juices from the leaves, causing them to blister, curl up, and eventually fall. The currants in these circumstances often "shank" and "run off," like grapes in vineries where the conditions are unhealthy. The winged viviparous female has large, long translucent wings, and is prettily marked, having a yellow body with black and green bars and spots, a black thorax, and yellow legs with black feet. At the end of the season wingless egg-laying females are evolved which lay long large eggs, and fasten them to the stems and twigs of the currant bushes. In this aphis, which is green in colour, the wingless viviparous female, or adult wingless female, has large cauda projecting beyond the cornicles.

Cherry Aphis.

Myzus cerasi is another aphis infesting currant bushes as well as cherry trees, but there are several and important differences between this and *Rhopalosiphum ribis*. The wingless female is much broader and has a somewhat squat form, being dark in colour with yellow legs, and the winged female's body is also much broader with different venation of the wings.

This insect does not make galls upon the leaves, but the swarms of larvæ congregate under the leaves and suck out their juices. They also emit quantities of the curious secretion known as honeydew, which falls upon the leaves below them, also upon the bunches of fruit, covering them with sticky filth. The other currant aphis, *Rhopalosiphum ribis*, does not emit honeydew.

The action of *Myzus cerasi* upon cherry trees is the same as upon currant bushes. The leaves are pierced by countless beaks, or rostra, and the fruit is covered with honeydew.

It is almost impossible to use remedial measures for the attacks of these insects upon currant bushes. The leafage is so thick that spraying is a most difficult operation, and could hardly be performed so as to reach the aphides upon the leaves within the bush, especially in the case of red currant bushes. It might be attempted early in the season, when the aphides are first discovered and the leaves not so dense. After infestation black currant and red currant bushes should be pruned more closely than usual. The cuttings should be taken away and burned. Spraying with kerosene emulsion might be tried, before the leaves appear, upon bushes infested in the previous season, as it might make the surroundings of the aphides unpleasant for them when they come on the scene.

Cherry trees fastened to walls may be easily sprayed, and small standards also, either with garden engines or knapsack machines. Large trees would require special machines with powerful pumps. The quassia and soft soap mixture, as prescribed above, would be the best to use. Spraying should be done early—as soon as aphides are seen.

Aphides on Vegetable Crops.

Carrots and parsnips were much infested by an aphis, the former being injured somewhat seriously in various market garden districts and in allotment and private gardens. The leaves of many of the plants became quite shrivelled, and the roots were consequently stunted and deformed. The mischief was generally not quite so great in the case of parsnips, though in a few instances the roots were very poor and "spindly" from the exhaustion of the leaves by the aphides. Celery plants were also infested by the same aphis and somewhat injured. The species of aphis found upon the carrots and parsnips was that defined as *Siphonocoryne pastinaceæ*. The winged viviparous female is yellowish green with a dark green head and yellow legs. The wingless female is green, with long vasiform cornicles. The legs and the antennæ are short; the rostrum is also short, club-shaped towards the end, and finally terminates in a sharp, black point. When very young the larvæ are often of a light brownish hue, but they soon turn to green.

It is obviously difficult to spray carrots and parsnips, as they are so full of foliage, and the leaves of carrots are often close to the ground. It is not so difficult to spray celery plants if a knapsack machine is used, and if this is done early, with quassia and soft soap, in which a little paraffin is mixed, churned up well together, it would also keep off the celery fly, a far greater pest than the celery aphis. Swedes and turnips were infested by the *Aphis* (*Rhopalosiphum*) *rapæ* in some parts of England and Scotland.

Field and garden beans were much infested by *Aphis rumicis*, the "Black Dolphin," and their crops in some places were seriously lessened. This aphis is black in all its forms, except in the very early stage, when it is brown. Little or nothing can be done to check this attack in fields; in gardens it is possible to spray infested beans.

Rose and Lily Aphis.

Aphides were abundant upon rose trees, and upon several species of garden lilies. In the former case they were easily cleared off by spraying with quassia and soap solutions, but this was nearly ineffective with the lilies, as the aphides were covered by the folds of the buds.

SPRING FLOWERS.

AT a recent meeting of the Devon and Exeter Gardeners' Association Mr. Andrew Hope read an interesting paper upon the above subject. Proceeding to describe the various flowers as they appear in spring, the essayist appropriately referred firstly to the aconite, which gives a warmth of colour at a cold time of the year, say early in January. Sweetest of spring's children was the snowdrop. As a rule—

> "The snowdrop in purest white arraie
> First rears her hedde on Candlemas Daie,"

as an early Church calendar has it. Of the snowdrop, many of the best varieties are grown in, and exported from, Palestine. The flower has been dedicated to the Virgin Mary, from the fact of its being so often found in the gardens of old nunneries. In many parts of Devonshire a single blossom when taken into a house is considered to be a death-token from its pure white shroud-like colour and form. Whilst the snowdrop speaks to us of gentle repose and shyness, the crocus breathes an air of exuberant gladness. The ancients dedicated the crocus to St. Valentine, and in an old Church calendar of flowers it is referred to in the lines:—

> "The crocus hastens to the shrine
> Of primrose love on St. Valentine."

Milton employed this gaily amorous flower to stud the retiring bower of Adam and Eve before the Fall. One of the most dainty of spring flowers, and one that is too little known, is the Glory of the Snow (Chionodoxa Luciliæ), which is absolutely hardy and has been seen blooming in the hard frosty ground of February. It likes sandy soil, and some of the finest specimens have been grown between Budleigh Salterton and Sidmouth. Scillas or squills used to be more popular than they are now, which is a pity, because their blue flowers are none too plentiful. Daffodils are perhaps the loveliest of spring flowers. The grandest of all the varieties of the daffodil is the Narcissus maximus, which has been truly described as "like a vase of beaten gold." One of the most satisfactory of all the Narcissus family is the Sir Watkin, of which, near Falmouth last spring, some were cut with stalks about four feet long and flowers of enormous size. The daffodil is indeed, as Keats describes it, "A thing of beauty and a joy for ever."

The hyacinth he described as the queen of spring flowers, and the title is not inapt. Its bulbs are only grown for sale in one country—Holland—and in only a small part of that not very large country, for it might be comprised in the area between Heavitree and Exmouth and the estuary of the Exe on one side, with a distance as far as Sidmouth for its breadth. This is a perfectly level plain, and the soil is a kind of sticky black sand, the nearest approach to which is the land near the village of Newton Poppleford. The process of reproduction is by scooping out the base of the bulb, and making incisions across the exposed part at right angles, and replanting with the cut part downwards. Then there comes out a very large number of bulblets which nestle and grow like chicken under a brood hen. These bulblets are properly dealt with until in the fourth or fifth year they are ready for sale as flowering bulbs. Tulips make a grand show in the spring, and at a small cost. Those who had seen the public parks in our great cities knew what an effective display is made, and he hoped to see the public gardens of Exeter similarly treated before long. Ten pounds spent on Northernhay would be a good investment, and would be a certain attraction for citizens and visitors. During the last few years the anemone has become popular, especially the large brightly-coloured sorts. Anemones are most useful as cut flowers, for they last a long time in water, and to the end retain a gay and not ungraceful appearance. There was a time when the ranunculus was much grown, but lately they have been neglected for the less formal, much larger, and more brilliantly coloured French ranunculus.

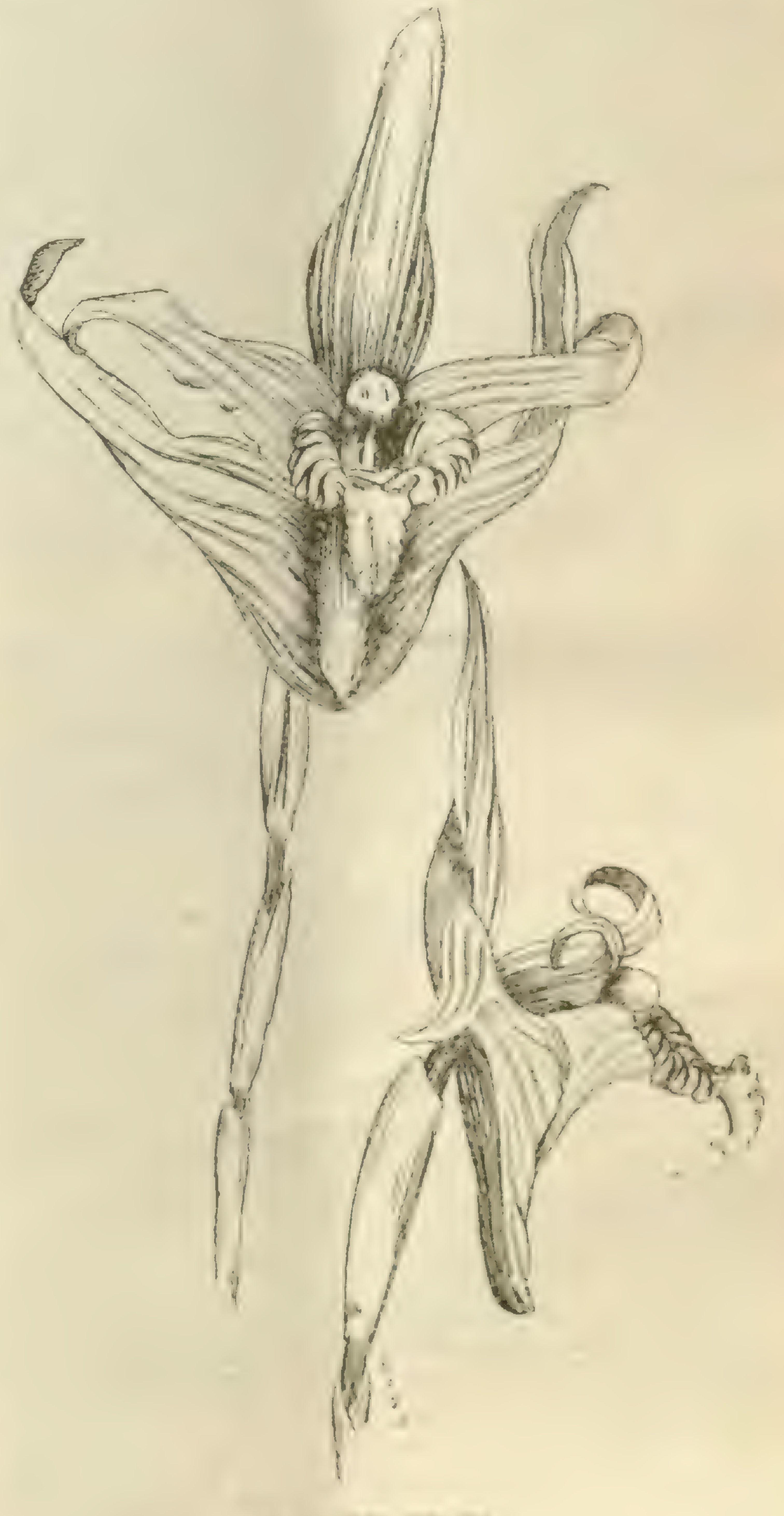
Though his remarks had been confined to bulbous-rooted flowers, Mr. Hope did not forget their spring companions so beautifully referred to by Nature's poet, Thomson, in "The Seasons." There were some spring flowers which were too rarely seen. For instance, there was the Crown Imperial, one of the noblest and handsomest, with its flowers, bell-shaped, hanging down in a circle like a bejewelled crown. The fritillary is another old-fashioned and very beautiful flower. It was given as a wild flower occurring in the east and south of England, and it is said to have been found in our county "about East Down" many years ago by the Rev. J. H. Townsend. The irises are a large and scattered family, but all are beautiful and interesting, and few flowers that bloom in the spring can compare with them for general usefulness and interest. The taller varieties have a majestic appearance, and from that cause possibly the iris was adopted as a symbol of power. We have it on the sceptre and as a national emblem on our coinage—the fleur-de-lys or luce.

Besides out-of-door flowers there were many very beautiful subjects which brighten the conservatory and greenhouse of the early months of the year, and of this the Gardeners' Association had afforded ample evidence in the excellent spring shows held under its auspices for two or three years. Among the most popular and useful for Christmas decorations are the Roman hyacinths, which are grown in the South of France. Of the lily of the valley, by far the finest is the Berlin variety. Another very useful conservatory flower is the Polyanthus narcissus, of which there are now many charming kinds. Freesias are highly serviceable plants, for their perfume is delicious, they occupying small space and are easily grown. He had not treated upon other spring favourites, such as cyclamen, spiræas, genistas, dielytras, primulas, auriculas, &c., and he hoped others would supply the deficiency on some future occasion. They might not be able to turn the "winter of their discontent" into "glorious summer," but they could by judicious arrangement and forethought secure a wide choice and have an array and a succession of lovely spring flowers in the winter months until "the rain is over and gone, and the time of singing of birds is come, and the voice of the turtle is heard in the land."

NOTES ON ORCHIDS.

MAXILLARIA STRIATA.

THIS pretty Peruvian orchid is still somewhat scarce in collections, although introduced by the Messrs. Linden and Co., L'Horticulture Internationale, Brussels, about 1892, and flowered for the first time, in cultivation, at their establishment in August of that year. So far as shape is concerned the species is intermediate between M. venusta and M. grandiflora, having a labellum very much like that of the former. The sepals and petals are rather attenuated, and in some forms the tips recurve somewhat; they are yellowish-green with regular striations of reddish-purple, the lines fading, however, towards the apex of each segment, leaving a bright greenish-yellow tip. The lip has a white ground colour, and the curved, central lobe is almost pure white; the side lobes recurve prettily, and so show off to full advantage the handsome veinings of bright purple. The extreme diameter of a good form of Maxillaria striata may be as much as five and a half inches, but in the majority of instances coming under our notice the flowers measure a little over four inches across. The blooms are borne singly at the apex of stout, six to eight inches long, scapes, and when several are expanding at once a most effective and elegant plant is the result. M. striata is not so gorgeous as Cattleya Mossiæ, but then we should get tired of nothing but cattleyas in our collections of orchids.



MAXILLARIA STRIATA.

EULOPHIELLA PEETERSIANA.

This splendid orchid from Madagascar was described and figured in these columns when it flowered for the first time in England at Burford Lodge, Dorking. We refer to it now in connection with the two coloured illustrations that appear in the *Bot. Mag.*, t. 7,612, 7,613, as the text states the discoverer of the species was Johannes Braun, who died at Antananarivo, but who sent specimens of leaves to Dr. Kranzlin, these measuring two feet in length. At a later date Mr. Mocoris sent living plants to M. Peeters, the well-known orchidist of St. Gilles, Brussels, where one flowered and provided Dr. Kranzlin with the necessary material for completing his description. It is to be sincerely hoped that plants of this grand eulophiella will be forthcoming in quantity now that Madagascar is less turbulent than formerly, for such an orchid should be in every collection.

WORK FOR THE WEEK.

COOL ORCHIDS.

THE time is now at hand when the application of water to cool orchids will require the most careful attention. To give a hard and fast rule as to the amount of water each species requires is impossible; what one requires is discretion and keen observation regarding the state of the weather, the size and health of the plant. A plant in a large pot with a huge mass of material about the roots will not need water nearly so often as one in a smaller pot. It is generally understood that orchids should be kept in a rather dry state whilst inactive, but even this must not be overdone, for I have seen plants so shrivelled by drought as to be beyond recovery. Ada aurantiaca is a species that requires little water during the winter months, but the soil should never be allowed to become thoroughly dry; this species thrives admirably in company with the odontoglossums during the summer months, but should now be placed in a slightly warmer house for the winter, for if kept cool the leaves become spotted on the under surface and a check is given. Lælia harpophylla will only need sufficient water during the dull months to keep the pseudo-bulbs from shrivelling, and it is also much better if removed into a warmer house. Epidendrum vitellinum having now made up its new pseudo-bulbs should have a much smaller supply of water at the roots until the flower spikes commence to push forth next spring; this species, like Odontoglossum Rossi, will stand the cold better than most cool orchids, but if subjected to too much moisture during winter the leaves spot badly.

Odontoglossum madrense is a very distinct and handsome cool house orchid, the deliciously fragrant flowers lasting several weeks in perfection, and plants of it have formed a special feature in our houses for many weeks past; usually, by the time the flowers fade, the pseudo-bulbs are fully made up, but if the spikes are removed as soon as the flowers are fully open the bulbs are then about half-grown, therefore the plants should be generously treated until growth is complete, after which only sufficient water must be afforded to keep the roots from perishing and pseudo-bulbs from shrivelling. The Brazilian oncidiums, as O. varicosum, and its fine variety, Rogersi, O. crispum, O. tigrinum, and O. Forbesi, are now throwing up their flower spikes, and it should be remembered that it is an easy matter for these plants to exhaust themselves by abundant flowering; indeed, this is often the cause of plants gradually dwindling away. The best practice, even with strong plants, is to cut the spikes off as soon as the flowers are open, placing them in water, where they will keep fresh for a good length of time. With regard to small, weakly plants the spikes should be pinched out as soon as they make their appearance. Oncidium concolor will not require much water now, the compost being kept just moist until the flower spikes appear. Cattleya citrina is now growing freely, and should be kept moderately moist at the root; it should be given the warmest position in the house, or better still, if convenient, be removed to a warmer house.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

THE season has arrived when the plantsman must be ready for sudden changes of temperature, and once more it has become necessary to have the heating apparatus in proper working order, so that the necessary amount of warmth may be given at nightfall not only as a preventive against frost, but also against a low, sluggish atmosphere. All available space under glass in many gardens will be crowded with a variety of plants which require such protection directly frost threatens, but unless a buoyant atmosphere is maintained many of the occupants soon show the evil results of overcrowding and the want of pure fresh air, causing many to damp off. It is far safer to maintain a gentle warmth in the pipes with a certain amount of ventilation at the highest point of the house or pit for the escape of condensed moisture, thereby keeping the ventilation closed, with a view to saving fuel. Damp during the prevalence of November fogs proves most destructive to plant life and the lasting properties of bloom. The condition of the atmosphere in the conservatory may be kept slightly warmer than that in the greenhouse to suit the requirements of palms and other things; moreover, for some weeks to come banks of chrysanthemums, bouvardias, primulas, and such like will be giving a gorgeous display, and to retain the flowers in a fresh condition as long as possible the greatest care should be exercised in watering the plants. The roots should never lack moisture, but in applying it see that as little as possible is spilled about the stage and floor. As regards syringing, this should be curtailed as much as possible, and the palms and other foliage plants need only be slightly dewed overhead on bright mornings, allowing time for the dampness to pass off before sunset.

Some little anxiety is caused the last thing at night to determine whether it is necessary to turn on a little heat in case of frost. We have always found it better at this season—especially with houses where the occupants are kept as cool as possible to retard their flowering—to turn on sufficient heat to nicely warm the pipes, and then shut it off the last thing. This, as a rule, is sufficient to ward off 10 degrees of frost, and there is not the danger of the temperature rising too much, making it higher at night than perhaps it was during the day; or, what is worse, to find that the "chink" turned on over night was not sufficient to cause circulation, and so have the mortification of finding Jack Frost had made an entry. Unheated pits may still be used for cinerarias and other things which it is necessary to retard for succession, providing double mats are available for covering the glass when their use becomes necessary. These and many other tender foliage plants soon fall a prey to green fly, when the ventilation has to be reduced. It is a great mistake, and proves anything but a saving in the cost of fumigating, to defer doing so until the pest has gained a foothold. A slight fumigating once a week or ten days will keep the foliage clean at a trifling cost. As the days are now getting very short, with only a few hours' sunshine at the best, any shading which was used on the glass during the summer should be washed off at once, so that all the light possible can reach the plants below. Creepers, too, that have been trained to the roof might be thinned somewhat with advantage, as these not only obstruct light, but the long trails of foliage are apt to hold the condensed moisture from the roof glass, and perhaps cause a drip to fall on other things situated beneath them. It is almost impossible to keep plants healthy, or to preserve bloom, unless the roof is drip-proof.—RICHARD PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

WHERE early forced vegetables are in request leaves should now be collected for making hot beds. Good oak, beech, or chestnut leaves are the best, as these, if collected when dry, will retain the heat for a considerable period. As the growth of asparagus has now ripened, this may be cut down and the roots taken up for forcing. Asparagus does not require a great amount of heat to cause it to start into growth, therefore it will not be necessary to make very substantial hot beds to generate sufficient warmth to promote a healthy and vigorous start of the crowns. If leaves and stable litter are mixed together in equal portions and turned over a few times to allow the rank steam to pass off, the bed may then be made up and the soil placed on. As the roots are lifted they should be taken and placed thickly together on the bed and covered with about four inches of light rich soil. Care must be taken not to allow the fermenting material to become over-heated or the roots will be burned, at the same time a genial temperature must be maintained or growth will be stunted. After the first sharp frost the foliage of seakale will begin to fall, the roots may then be lifted and the crowns prepared for forcing. To grow tender and crisp seakale too much heat should not be employed, and if forcing can be done without the aid of fire heat so much the better. A temperature of from 55 to 60 degrees suits the growth of this admirably, but perfect darkness must be secured if a crisp sweet growth is to be produced.

Mushrooms will now be in great demand, and as the outside temperature is reduced their growth will be less rapid, therefore artificial means must be resorted to if a supply is to be maintained. Where beds were made up during the summer, in a cellar, these will now be ready for bearing, so that if a little water be given, heated to about 70 degrees, just sufficient to moisten the surface of the beds, which should afterwards be covered to prevent evaporation, the mushrooms will soon make their appearance. Collect and prepare more material in readiness as other beds become exhausted. We have at last had some rain, which has moistened the soil, therefore those who have not previously been able to put out their spring cabbage may now do so, and the sooner such work is completed the better. Pay particular attention to vegetables in frames. Do not allow them to become drawn for want of air, or frosted owing to neglect to put on the lights.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

POT vines for carrying the earliest crop of grapes are a great relief to the early vinery proper, which may be kept back for a few weeks yet, and thus escape the hard forcing during the dullest part of the year which is necessary to produce ripe grapes early in April. Such hard forcing has a bad effect on permanent vines, and the produce is never really first class. It is time now to put the earliest pot vines into position for forcing, as a slow start with moderate heat is better than delaying later and then pushing growth on rapidly. Good light pits with a sunny aspect are the best quarters that can be given, the pots being stood on piers or some other rigid foundation near, but not close up, to the front wall, and surrounded with a good body of oak or beech leaves which have already fermented slightly in a heap outside. Some growers use stable manure with the leaves, but this is often the cause of too rapid fermentation, producing too much bottom heat to begin with and over-stimulating the roots, which is one of the worst things that could happen. Leaves, on the contrary, if well prepared and sweet, give off a gentle heat which lasts for a long time. They should be packed tightly round the pots and brought up nearly to the rims. Test the bottom heat frequently, and if it should rise much above 70 degrees pull away some of the plunging material for a day or two, replacing it when danger of overheating has passed. In cases where it is impossible to use plunging material in the usual way some means must be devised for keeping the pots moist at an equable temperature, and not subjecting them to the sun's rays. Quite the best lot of pot vines I saw fruited this year had their pots placed in others a few sizes larger, at the bottom of which were placed a few inches of good, rich soil, the remaining space being filled up with green moss, which was kept damp all through the season. It is not always convenient to provide extra pots in this way; but rough-made boxes, or even a plank or two set on edge, would answer the purpose intended, and should be easily available. The vines should not be at once tied up in position, but should be bent round so that the middle part of the canes, which generally produces the weakest breaks, is most elevated, as this will help to induce regularity in breaking. No cutting of the vines must take place now, as this would induce bleeding; if any of the lateral growths have not already been removed they should be left intact for the present, and have their buds rubbed out as the vines break into growth; this is a very good way of dealing with vines that have been a little backward in ripening, for, though the short lateral growths which some vines produce more freely than others make the rods look a bit rough, they do no harm whatever, while cutting them away now, or within a few weeks of starting the vines, might cause bleeding. The proper temperatures for the pits to commence with will be 50 degrees by night and 55 degrees by day, allowing the usual 10 degrees rise above this with sun heat. These temperatures should be the maximum for the present, and no harm will accrue if a degree or two less occur in very cold weather, as this will be better than firing hard to keep to a fixed standard. Syringe the vines once or twice a day when the weather is fit, but not late enough in the day to have moisture hanging to them during the night; also keep the walls and plunging material moistened on the surface. The roots, of course, must be supplied with tepid water as they need it, but they will not require much until growth is being freely made, so that care is necessary not to give overdoses of water at the start. Ventilate slightly on all favourable occasions, but exclude draughts and close up the pits early in the afternoon before the temperature begins to fall.

Fruiting vines will need careful attention in the matter of heating arrangements. The bottom heat should not fall below 85 degrees, and should be kept at that as nearly as possible. It is at this time of the year when bottom heat from hot-water pipes is most valuable, as it is not possible to regulate the heat properly with plunging material alone. The top heat may range from 70 to 75 degrees by night, and a good rise allowed with sun. Damp down between and round about the plants freely in fine weather, but avoid overhead moisture, and leave off watering at the roots when the fruit begins to colour. Allow a fall in the night temperatures for successions to arrest growth during the winter, 60 to 65 degrees is quite hot enough at night, and the plants will require but little water.—J. C. TALLACK, *Livermere Park Garaens.*

Tree Leafage in Towns.—How well in the autumn thick-leaved trees, &c, such as the plane, fig, vine, and ivy, amongst other things, demonstrate their exceeding value as producers of town greenery. On the other hand, thin-leaved trees like the lime, elm, acacia, and others soon look very brown and miserable. It is astonishing with the experience now possessed of the unsuitableness of the lime for town planting it should be still largely employed. No doubt early in the season it wears a very pleasing appearance, but certainly in the autumn it presents then a very ragged and deplorable aspect. The plane carries superb green leafage several weeks after that of the lime has become browned, and largely fallen. Doubtless the excretions of lime leafage, commonly called honey dew, not only early exhaust the leaves, but because rendering them glutinous cause dirt rapidly to accumulate on them, and thus renders the stomata incapable of performing natural functions. In the country limes remain green much longer, but still are amongst the earliest to show the effects of root drought. The fig is one of the very best of autumn town trees. Late in showing leaves it carries them in vigorous condition very late into the autumn. So also does the vine. The rich crimson coloured variety Coignetiæ should make a capital town climber. Certainly any common vines are good ones, keeping foliage late. Ivy does remarkably well, too, where established, but it well repays an occasional washing. The tulip tree also keeps its leafage very late and green, and is an admirable town tree.—A. D.

EXHIBITIONS AND MEETINGS.

ROYAL HORTICULTURAL SOCIETY, October 25.

An altogether first-rate exhibition was held at the Drill Hall on the above date, and no one could complain of lack of variety among the exhibits. Chrysanthemums were largely displayed, orchids were good, and fruit was especially fine. In the afternoon Mr. G. Gordon, V.M.H., delivered a lecture upon Experimental Horticulture, the chair being taken by Dr. Masters, F.R.S.

Floral Committee.

Mr. W. Wells, Earlswood, Redhill, put up a large and showy group of orchids, showing a fine lot of early flowering varieties of widely different shades of colour. Among these were staged single-flowered specimens of President Nonin, General Pacque, Mrs. White Popham, a grand variety; and numerous good seedlings, including one provisionally named R. H. Pearson. Among the cut flowers were fine flowers of Le Grand Dragon, Pres. Bevan, Werther, and General Pacque. Among the early flowering varieties we noted Mychett Beauty, golden; Jules Mary, crimson; Mychett White, Madame Marie Masseé, Mons. Dupuis, Claret Bell, and Crimson Pride as especially good; Nellie Brown, rich bronzy scarlet, was also very handsome. Mr. Wells was awarded a silver Flora medal. Mr. A. Kingsmill, Harrow Weald, showed prettily fruited growths of Vitis heterophylla humulifolia carrying plenty of bluish berries. Mr. T. S. Ware, Tottenham, had a large and most attractive exhibit of dahlias and early chrysanthemums; the dahlias were especially fine for so late in the season, and in the cactus varieties we observed fine bunches of African, Fusilier, Beatrice, J. T. Barber, Blanch Keith, Mrs. W. Fell, Matchless, Sylvia, Harmony, and Starfish; silver Banksian medal. Messrs. J. Waterer and Sons (Limited), Bagshot, Surrey, sent a handsome lot of conifers, all shapely specimens, and many of them having variegated foliage; Retinospora filifera aurea variegata, Thuiopsis dolobrata variegata, Libocedrus decurrens aurea variegata, Juniperus chinensis aurea, Thuiopsis borealis aurea variegata, and Cypressus Lawsoniana lutea were a few of the brightest forms shown; silver-gilt Flora medal.

From Mr. W. J. Godfrey, Exmouth, came specimens of a golden-orange decorative chrysanthemum named Ettie Mitchell and bunches of Emily Grunnerwald, a beautiful soft golden variety suitable for decoration; several stands of cut flowers of exhibition sorts came from Exmouth, and these included Halcyon, a large Japanese anemone; Gold Standard, Japanese; Madame W. T. Budde, pink; Le Grand Dragon; Autumn Glory, flesh pink; Reginald Godfrey, crimson and gold, very handsome; and Werther, deep red; all Japanese varieties remarkable for good form and colour. Messrs. W. Cutbush and Sons, Highgate, contributed a group of ericas, Skimmia oblata and S. japonica, Begonia Gloire de Lorraine, Pernettyas in variety, and Nerine Fothergilli major. Mr. H. B. May again made a pretty display, staging Begonia Gloire de Lorraine in first-rate style, and associated in small groups with bouvardias, chrysanthemum Mutual Friend, and carnation Mrs. Leopold de Rothschild; surrounding these numerous small groups were ferns in great variety, charming crotons, palms, acalyphas, phryniums, &c., the whole display occupying the length of one table down the hall and producing a fine effect; silver Flora medal. Mr. Robert Owen, Maidenhead, sent several stands of fine chrysanthemums, the varieties including Suzie, soft yellow; W. Towers, yellow; Lord Boston, blush; President Nonin, yellow; Soleil d'Octobre and Madame Louise; Mrs. W. Smith, golden; Brossillon, white, all good Japanese forms; Baronne de Veillard, a bronzy incurved in the way of Egyptian, was also well shown by Mr. Owen. M. Leschalles, Windlesham, showed Miss Mary Leschalles, a white sport from Reine d'Angleterre.

Dahlias were splendidly shown by Mr. S. Mortimer, Farnham, who put up ten dozens of clean and bright show dahlias, as well as first-rate bunches of the leading cactus forms, such as Arachne, E. J. Deal, Harry Stredwick, Starfish, Mrs. J. Goddard, and Miss A. Jones; silver Flora medal. Mr. J. R. Box, Croydon, sent blooms of tuberous begonias from the open ground; these were of high quality, but laid flat on moss were not attractive. Messrs. J. Cheal and Son, Crawley, sent a few bunches of handsome autumn-tinted foliage; Quercus coccinea, Rhus typhina, Rhus glabra laciniata, Cratægus crus Galli, Pyrus arbutifolius, Liquidamber styracifolia, and Berberis Thunbergi. Messrs. J. Hill and Son, Edmonton, showed ferns in variety, mostly large plants of great beauty, such as Cheilanthes elegans, Darallin Mariesi, Adiantum trapeziforme, Microlepia hirta crustata, Gymnogramma calomelamos, &c.; silver-gilt Banksian medal.

The largest display in the hall was a fine group of foliage plants staged by Mr. W. Howe, gardener to Sir Henry Tate, Park Hill, Streatham; there were huge Kentias, bamboos, big and bright crotons, Platycerium alcicorne finely grown, ferns, alocasias, graceful dracænas, and other useful stove plants, all tastefully associated, although somewhat crowded; it was an imposing display, and merited a silver-gilt Banksian medal. Messrs. H. Cannell and Sons, Swanley, showed cut chrysanthemums in variety; Mons. Bahuant, Globe d'Or, and D. B. Crane being the best incurved, and Thos. Wilkins, Reine d'Angleterre, G. C. Schwabe, Pres. Borel, G. W. Childs, Phœbus, and R. Powell among the best Japanese forms.

Mr. W. Bull, Chelsea, showed Limosa argentea, Ceropegia Woodi, Dracæna Victoria, a beautiful variety in the way of Lindeni, Maranta picta, and Ficus radicans variegata, all new and interesting plants. Messrs. F. Sander and Co. showed Ptychosperma Sanderiana and Kentia Kirsteniana, the latter more like a Caryota than a Kentia. Mr. R. Galzow, Bexley Heath, showed a grand specimen of the variegated Anthurium crystallinum, named Illustré; it was shown in a Wardian case, and was generally admired. Mr. G. W. Piper, Uckfield, showed a pretty coppery-buff tea-scented rose, named Sunrise, a new form of great beauty. Mr. H. J. Jones, Ryecroft Nursery, Lewisham, sent chrysanthemums in variety, the most attractive forms being General Pacque, Lionel Humphreys, Soleil d'Octobre, Rayonnante, Queen of the Earlies, Werther, and Madame Robert de Massey. Mr. Boyce, Marsh Farm, Dartford, sent specimens of a second crop of horse chestnut flowers. Messrs. H. Cannell and Sons sent Polygonum molle, a graceful white-flowered species; they also showed the new decorative chrysanthemum, Nellie Brown. Mr. J. Prewett, gardener to C. A. Pearson, Esq., Farnham, staged fine blooms of Mons. Bahuant, Globe d'Or, and D. B. Crane incurved chrysanthemums, and also fine blooms of such Japanese forms as Thos. Wilkins, Mons. Pankoucke, G. C. Schwabe, Pres. Borel, G. W. Childs, Emily Silsbury, M. Chenon de Leche, &c.; silver Banksian medal.

Orchid Committee.

A pretty display of orchids was arranged by Messrs. J. Veitch and Sons, Chelsea, who were awarded a silver Flora medal. Graceful examples of Oncidium varicosum, O. crispum, O. pulvinatum, and Odontoglossum Percatorei made a charming background for a comprehensive lot of orchids; Lælio-cattleya callistoglossa ignescens, L.-c. Nysa, Cattleya Mantini, C. Wendlandi, Miltonia spectabilis Moreliana, Miltonia vexillaria Leopoldi, Cœlogyne Veitchi with long spikes of white flowers, Cypripedium insigne Sanderæ, Odontoglossum grande, finely flowered, Gomeya recurva, and Catasetum fimbriatum were all finely represented, together with many cypripediums of value. From Messrs. Stanley Mobbs and Ashton, Southgate, came a splendid lot of well-flowered plants of Lælia pumila, these representing a great variety of shades of colour, but all large flowers; Cattleya gigas, C. labiata Lewisi; this group merited a silver Banksian medal. In the exhibit made by Messrs. F. Sander and Co., St. Albans, there was a grand specimen of Cattleya Harrisoniæ with nine large spikes of beautiful flowers; several forms of C. labiata made a good show, while a two-spiked example of Cymbidium grandiflorum occupied the central position; smaller orchids of note were Habenaria militaris, Masdevallia melanoxantha, and Habenaria carnea.

A pretty little lot of orchids was shown by Mr. W. H. Young, grower to Sir F. Wigan, Bart., Clarelawn, East Sheen; a finely grown plant of Cyperorchis (cymbidium) elegans was conspicuous with its light drooping spikes of yellowish flowers; Cymbidium Winnianum was represented by one spike; Cattleya labiata alba, very fine; C. Dowiana aurea, Lælio-cattleya Hon. Mrs. Astor, Lælia pumila, with flowers over five and a-half inches across, and Cypripedium Godefroyæ leuchochilum were among the most interesting of the other orchids staged; silver Banksian medal. Mr. C. A. Roberts, Rose Hill House, Ipswich, sent some orchids growing in Clozone pots. Mr. W. King, gardener to J. Colman, Esq., Reigate, showed a beautiful form of Lælia pumila with blush tinted sepals and petals. Mr. W. H. Young submitted Lælia Perrini leucophæus, a beautiful pale-tinted and large-flowered form. Lælia Briseis was again shown by Mr. J. Douglas, Bookham, who also sent Cypripedium macropterum, a cross between C. superbiens and C. Lowi. Lælio cattleya Henry Greenwood was again shown, this time by Mr. W. Gill, gardener to H. Greenwood, Esq., Highfield, Haslingden. Mr. J. Davis, gardener to J. Gurney Fowler, Esq., South Woodford, showed a pale form of Cypripedium insigne. Mr. W. Goodliffe, Worthing, sent Cypripedium grande and C. Boxalli. Cypripedium insigne Cobbiana and C. i. Sanderæ were shown by Mr. W. Cobb, Tunbridge Wells. Cypripedium Evenor was sent by Messrs. H. Low and Co., Clapton.

Fruit Committee.

Mr. G. Woodward, gardener to Roger Leigh, Esq., Barham Court, Maidstone, put a magnificent lot of apples and pears. Mr. Woodward is so well known as a successful exhibitor that our readers can well imagine the big fruits with their fine clear skins and rosy or scarlet cheeks; Mère de Ménage, Bismarck, Washington, Gascoyne's Scarlet, and Emperor Alexander were gloriously coloured, as indeed were many other varieties. The pears were equally fine, Beurre Superfin, Doyenne de Merode, Brockworth Park, Fondante de Thirriott, Pitmaston Duchess, Princess, and Margaret Marillat were especially good. A Hogg medal was awarded and thoroughly merited. An attractive collection of well-grown fruit was staged by Messrs. J. Laing and Sons, Forest Hill. The collection was a comprehensive one, and among the many varieties we noted Adam's Pearmain, American Mother, Court Pendu Plat, King of the Pippins, Lord Lennox, Baumann's Red Winter Reinette, Worcester Pearmain, Bismarck, Winter Queening, and Hoary Morning apples as very clean and bright; silver Knightian medal.

Mr. E. Beckett, gardener to Lord Aldenham, Elstree, showed a grand lot of celery, staging three heads each of Pink Perfection, Crystal White, Aylesbury Prize Red, Major Clarke's Red, Superb White, Early Rose, Standard Bearer, Solid White, Claymonth Prize, Dwarf Solid Red, White Gem, Leicester Red, and Sutton's A1. A silver Banksian medal was awarded. Mr. J. Prewett, gardener to C. A. Pearson, Esq., Farnham, staged a good collection of apples and pears, not large, but clean and bright specimens of all the leading sorts; silver Banksian medal. Messrs. J. Cheal and Son, Crawley, were awarded a silver Knightian medal for an extensive display of apples and pears. Among the latter were fine dishes of Duchess d'Angoulême, Alexander Lucas, Marie Benoist, Souv de Congrès, Epine Dumas, Pitmaston Duchess, Abbé Fetel, and Catillac. Mr. W. Howe, gardener to Sir H. Tate, Streatham, sent three bunches of Black Alicante grapes, finely coloured and of large size, cut from a vine carrying eighty bunches; the three clusters weighed fifteen pounds. Messrs. J. Veitch and Sons showed fruiting plants of the St. Joseph strawberry. Mr. G. Wythes, Syon House Gardens, sent a bunch of bananas, a form of Musa Cavendishi; Mr. Wythes also sent a good new seedling tomato. Mr. Miller, gardener to Lord Foley, Esher, sent four fine specimens of William Tillery melons, and gained a cultural commendation. Some good beetroot came from the Chiswick gardens, the pick of the varieties on trial, but no awards were made. Mr. W. Miller, Coombe Abbey, Coventry, sent a box of fruits of Passiflora edulis. Mr. Herrin, Dropmore Gardens, Maidenhead, sent good specimens of Coe's Golden Drop and Brahy's Late Gage plums.

NATIONAL CHRYSANTHEMUM SOCIETY.

The Floral Committee held a meeting at the Royal Aquarium, Westminster, Mr. Harman Payne occupying the chair. Specially noteworthy were the following: Miss Mary Leschelles, a pure white sport of great merit, from Reine d'Angleterre; Miss Godsmah, a golden-bronze Japanese, which the committee wished to see again, as they also did Thomas Singleton. Mr. M. Russell, a fine golden chestnut-coloured incurved, was also asked to be sent up again; Madame Conval de Terrail, pale flesh-coloured Japanese, and Le Grand Dragon, a big yellow Japanese, were the objects of a similar request. Autumn Glory, a pink-coloured Japanese with a shiny reverse, was commended. Ellen Shrimpton, very bright and pretty deep rosy cerise, also a Japanese, the committee wished to see again, and Mychett Beauty, a deep golden-orange decorative variety of the Japanese type. Ten first-class certificates were awarded, and the varieties gaining awards are described under "New Plants and Flowers."

SHIRLEY GARDENERS' ASSOCIATION.

The monthly meeting of above society was held at the Parish Room, Shirley, Southampton, when Mr. B. Ladhams, F.R.H.S., presided over a fair attendance. There was a discussion on "The best Apples for the District," opened by Mr. J. Miles, the Gardens, Portswood Park. Mr. Miles gave a list of the most suitable kitchen and dessert apples for growing on the somewhat general gravelly subsoil of the surrounding district. Some good varieties canker too much to be of any service, even with careful planting. The discussion which ensued brought out the members' experiences with many sorts, and a reduced list of varieties was afterwards given to suit amateurs and cottagers desiring to plant a few sorts only. A cordial vote of thanks was accorded Mr. Miles at the close of the discussion. There was an excellent exhibition of fruit, apples, and pears, chiefly contributed by the members.

CHRYSANTHEMUMS IN THE LONDON PARKS.

Battersea Park.

Here, as at most of the public parks, the display is arranged to please the general public, and good use is made of most of the old standard sorts. The collection is housed in a large greenhouse about 100 feet long, and is very largely patronised by the local inhabitants.

The plants are arranged in a single sloping bank, and the ends and front side of the house are decorated with free-flowering plants in bush form of Margot—a great favourite here—and such pompons as Sunset, La Vogue, Sœur Melaine, Rosinante, Golden Mme. Marthe, and Précocité. A free use for the purposes of colour is made of M. William Holmes, William Seward, and John Shrimpton, whose various shades of crimson help materially to brighten the display.

Japanese varieties of Continental origin are fairly numerous. La Triomphante, an old pink seedling of De Reydellets is in good form. M. William Holmes, a deep crimson and gold October flowering variety, sent out some years ago by Delaux, is also much used for its colour. Others are M. C. Molin, Brise du Matin (Delaux), a pretty soft-coloured pink; Pres. Borel, Mme. Ed. Rey, large and good; Louise, big solid, but rather pale in colour; M. Chenon de Leché, Mlle. Thérèse Rey, Mme. Carnot, Calvat's Australian Gold, L'ami Etienne, all well-known varieties of M. Ernest Calvat's raising, are conspicuous by the excellence of their cultivation. Older sorts comprise novelties of long ago, almost forgotten by present-day exhibitors at societies' shows, but still preserved at the parks for their usefulness in groups, and of these Hamlet, a beautiful bright shade of deep rosy salmon; Comte F. Lurani, a charming rich pink on a white ground; Ed. Audiguier, deep purple maroon with a reverse of silver; Val d'Andorre, golden chestnut; Bouquet de Dames, white; Mlle. Lacroix, white; Jeanne Delaux, deep crimson and gold; and Charlotte de Montcabrier, pale pink, are the best.

Chrysanthemums of English and American origin include some very good examples of James Salter, Lady Selborne, both very old sorts; with a mingling of A. H. Fewkes, J. H. Runchman, Sunflower, Gloriosum, W. H. Lincoln, Edith Tabor, Modesto, in yellows; John Shrimpton, William Seward, Edwin Molyneux, G. W. Childs, in crimsons; and W. Tricker, pink; Florence Davis, white; Puritan, Eda Prass, Mrs. H. Weeks, very large white; Lady Byron, same colour; Good Gracious, and the new sport from Viviand Morel, called Lady Hanham.

Interspersed here and there are some freely-flowered plants of that pretty little globular pompon, colour pale pink, Mdlle. Elise Dordon, which helps to lighten the arrangement. M. R. Bahaunt, a big rosy-crimson incurved, is always striking and useful on account of its earliness; Col. W. B. Smith, golden bronze, is another; and among the large number of varieties grown, which amounts to something like 2,200 plants, the incurved family are numerous. It will suffice to mention the names of a few to show the value that may be attached to this group. Golden Empress of India, Empress of India, Mrs. W. Shipman, Baron Hirsch, Golden George Glenny, Lord Alcester, John Lambert, Queen of England, Mrs. Robinson King, John Doughty, Princess of Wales, Jeanne d'Arc, Globe d'Or, Refulgens, Mr. Bunn, Alfred Salter, C. H. Curtis, Princess of Teck, &c.

Hairy varieties receive a somewhat smaller share of recognition, the only prominent ones being Louis Bœhmer, Hairy Wonder, Beauty of Truro, Esau, Mrs. Alpheus Hardy, Spartel, and Mrs. Dr. Ward.

Finsbury Park.

This collection is housed in the same greenhouse, as usual, near the Manor Gate entrance, and is somewhat tastefully arranged by being set up within a kind of serpentine border, and sloping in undulating form towards the front. English novelties form a conspicuous feature of the collection, and comprise the Yellow Sunflower, Edith Tabor, Marjory Kinder, all good and fine; while in whites Emily Silsbury is large and freely shown. William Seward, Mrs. J. Shrimpton, the newer Mary Molyneux, Mrs. H. Weeks also help to maintain the renown of home raisers.

American novelties at the time of our visit were not to be found in any great numbers, the best, perhaps, being the deep velvety crimson Jap G. W. Childs; Mrs. E. G. Hill, valuable on account of its size and earliness; the Egyptian; Gorgeous, a noble yellow Japanese incurved, colour deep golden yellow; Eda Prass, pale creamy pink; Hairy Wonder, rich and bright; and one or two more besides.

Australie, the big Colonial raised novelty of a few seasons since, rather dull purple in colour and having a silvery reverse, is as massive as ever; while in the hairy section King of the Hirsutes, a long petalled pale yellow variety, struck us as being very well done. Alfred Chantrier, a large yellow Japanese, with tubular florets, we do not remember seeing before. Source d'Or, a medium-size rich golden bronze variety, very useful for decorative purposes; it is one of the old kinds that never seem to fall into disfavour in such displays as the one we are now noticing.

Brighter and livelier shades of colouring are to be found in some very good examples of President Borel, Préfet Robert, Edouard Audiguier, rich purple-mauve with silvery reverse; the old Triomphe du Nord, Baron Hirsch, a rich finely-incurved golden-chestnut bronze variety that always gives a good effect to a mixed group.

It is only possible to mention just briefly some of the many other sorts in this collection, and of these Calvat's Australian Gold, N.C.S. Jubilee, L'ami Etienne, M. Chenon de Leché, Phœbus, merit special attention.

We noticed that M. Freeman, a pretty dwarf incurving pink Japanese, is usefully employed as a front row plant here, as elsewhere, with good effect, and in pinks Charlotte de Montcabrier and M. Tarin always seem to find favour in the metropolitan parks, although they have long since been discarded by exhibitors at shows.

Mastic, a flat reflexing Japanese, colour pale ochre-yellow; Descartes, a brightly-coloured Japanese anemone; Mrs. C. Harman Payne, big and compact as usual; the old variety La Triomphante, and Marquis de Paris, a large white Japanese with a faint greenish centre; and Mr. C. E. Shea, the pale yellow sport from Mdlle. Lacroix, are also conspicuous by the excellence of their culture. Other varieties in fairly good form comprise such well-known sorts as Werther, M. Panckoucke, M. R. Bahaunt, big, solid, always early, and useful for its deep rich tone of colour. Bouquet de Dames, an old white Japanese, is shown in very good form, and so, too, are Souvenir de Petite Amie, and several others in the same colour. Louise, very fine in build, still maintains a foremost position as a useful dwarf front row flower for such groups as we see at the parks.

Southwark Park

The collection of chrysanthemums here is just now in good form, and will continue so for some little time to come. The arrangement is tasteful and artistic, and judiciously arranged. Among the chrysanthemum plants are various foliage plants, palms, &c., that help to embellish the display. Japanese here, as at most places, predominate, but the old type of incurved is not neglected, for some promising blooms of C. H. Curtis, M. R. Bahaunt, Mr. Bunn, D. B. Crane, Prince Alfred, Lord Wolseley, Beverley, Madame Darier, the Queens and Empresses, &c., are rapidly coming on.

There is, as was the case several years ago, an interesting collection of the hairy varieties, and of these we need only mention Enfant des deux Mondes, white; Esau, rosy pink; Dr. Ward and Mrs. W. H. Caldwell, yellow; Louis Bœhmer, Hairy Wonder, Prima Donna, Sautel 1893, and King of the Hirsutes, a large pale yellow.

English standard varieties of acknowledged merit are to be found in good crimsons like William Seward, of which there are several very finely coloured examples, Edwin Molyneux, &c. Yellows comprise Marjory Kinder, Mrs. J. Shrimpton, Charles Davis, Sunflower, J. H. Runchman, and H. Shoesmith, while whites include Lady Byron, Emily Silsbury, Mrs. C. Blick, and the old Lady Selborne. Others of home or colonial raising are the deep golden yellow Oceana, large and good; Master H. Tucker, deep crimson; Pride of Madford, purple amaranth; Miss Ethel Addison, and Australie.

Among Continentals, Gloire de Mézin, a pretty globular Japanese of golden bronze, is striking and effective; Descartes, a rich wine-coloured Japanese anemone, is also good; Commandant Blusset, purple; Préfet Robert, Madame Marius Ricoud, a pretty bright rosy pink; the famous Madame Carnot, M. Panckoucke, yellow; N.C.S. Jubilee, silvery pink; Louise, Phœbus, and a charming variety called Gambetta, which is a beautiful shade of soft, golden, salmon rose, with a golden reverse, stands out in striking contrast to its surroundings. The deep orange and bronze M. C. Molin is useful in that tint, Charlotte de Montcabrier, pale pink, old Source d'Or, and a few others from the same source are all worthy of note.

Miscellaneous novelties include G. W. Childs, a good velvety crimson; W. Tricker, a pretty and useful pink; Mutual Friend, Gloriosum, Gloire du Rocher, very fine and brilliant in its shade of golden terra-cotta, Interocean, &c.

Victoria Park.

The collection under Mr. Moorman's charge at Victoria Park is not quite so far advanced as the one at Finsbury, but it bids fair to be a very effective display in the course of a week or ten days. The plants are arranged on each side of the greenhouse with a central path, and the front of each bank is lined with a selection of pompons. Very pretty are some freely-grown plants of Ryecroft Glory, Mdlle. Elise Dordon, and Emily Silsbury; but, of course, the majority of the blooms have been grown for the purpose of obtaining good specimens, and of these the incurves are generally well represented, C. Curtis, the Rundles, Prince Alfred, the Beverleys, Globe d'Or, M. R. Bahaunt, and Baron Hirsch forming the most meritorious at the present moment. Very useful on account of its earliness is Madame Ed. Rey, a bold, large pink Japanese; Louise, big, solid, and compact, colour delicate pale pink, which are grown in fairly good number; as also are Marjory Kinder and President Borel, another useful, highly-coloured variety, and early.

Among Japanese of Continental origin Viviand Morel, La Triomphante, Mrs. C. Harman Payne, in the pinkish shades, are noteworthy, while yellows are rather better represented by such excellent sorts as Calvat's Australian Gold, Globe d'Or, Amiral Avellan, Phœbus, M. Molin, &c. Yvonne Desblanc is a very large, globular, incurving variety, pure white in colour, but as big, compact, and solid as Louise, although paler in colour, being almost, if not quite, a pure white. Descartes, a rich, deep wine-coloured Japanese anemone, with long, drooping florets, is striking and effective; and mention must also be made of the curious novelty Madame Ed. Roger, the green Japanese incurved, which in its early stages shows its peculiarity of colour in a very marked degree, and will attract much attention.

Further on we notice amongst the hairy varieties Sautel 1893, a pretty, bright-coloured specimen of that type. Perle Dauphinoise, Pres. Nonin, M. Panckoucke, and J. H. Runchman, all in varying shades of yellow, are interesting. Lady Hanham, the new sport from Viviand Morel, is coming on, and especially bright and rich are the flowers of Gloire du Rocher.

Lady Byron is a fine large white, and older known sorts in this colour are represented by Elaine, Lady Selborne, Mdlle. Lacroix, Bouquet de Dames, and several more. For richness of colour Mr. Moorman effectively blends such valuable crimsons and purples as M. William Holmes, Mr. J. Laing, G. W. Childs, Ed. Audiguier, Préfet Robert, M. Geo. Biron, and most of the well-known sorts in these shades.

The collection is a thoroughly representative one for American seedlings, such as W. Tricker, A. H. Fewkes, Col. W. B. Smith, H. L. Sunderbruck, and the pale pink Mrs. E. G. Hill are freely used. Oceana is a big yellow colonial seedling now well known, and among other popular sorts Charles Davis, its parent, Viviand Morel, Madame Gustave Henry, Silver King, Graphic, Edwin Molyneux, Pride of Madford—another colonial-raised variety of great richness of colour—are all represented by some capital examples.

Heavy Crops of Potatos.—We have had this season some first-rate crops of potatos, and, considering the dry state of the soil, this is rather to be wondered at, but I attribute the success to deep digging, good manure, and plenty of room. All the ground was turned up two spits deep last season and worked with a fork before planting, this time forking in some stable manure. We allowed three feet between the rows of short-haulmed varieties, but for Up-to-Date three feet six inches was allowed, which I consider none too much. Another advantage gained by planting early varieties a good distance apart is that you can crop between the rows without damaging either crop, the potatos coming off first. Our best crop this season has been of Carter's Snowball, which turned out at the rate of nearly thirty tons to the acre. The tubers were of extraordinary size, some of them weighing two and a-half pounds each; in fact, six turned the scale at fifteen pounds. These were the largest potatos we have ever turned out, and they were not ungainly-looking either. They cook well, and are free from disease. Next to these for crop and weight came Up-to-Date, our heaviest last season; these were of immense size, and came out at about sixteen tons to the acre. This potato is fast becoming a popular variety. Sutton's Reliance and Sutton's Ideal were both excellent, and produced a rare crop of nice, handsome potatos of fine cooking quality and perfectly free from disease. These two potatos have been much admired for their general good quality and appearance, while they yielded nearly as heavily as Up-to-Date. Sutton's Flourball has done extra well this season, and in some gardens has yielded at the rate of twenty tons per acre.—W. A. Cook, *Compton Basset, Wilts.*

SOW THE SEEDS of good health, prune and strengthen sickly and weak branches of the tree of life, with the aid of Holloway's World Renowned Pills and Ointment. The Pills improve the appetite, strengthen the digestion, and regulate the liver. Under treatment with the Ointment bad legs become sound, scorbutic skins cast off their scales, and scrofulous sores cease to annoy. When rubbed upon the abdomen, it checks all tendency to irritation in the bowels, and averts diarrhœa, and other disorders of the intestines frequently prevailing through the summer and fruit seasons. Heat bumps, blotches, pimples, inflammation of the skin, and enlarged glands can be effectively overcome by using Holloway's remedies, according to instructions given to each purchaser.—[Advt.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Tomatos.—Hortus, Aigburth: A concise little work that should suit you is "The Tomato," price 1s.

Ornamental Tubs for Shrubs, &c.—F. C., Alverstoke: We do not recommend nurserymen or traders of any kind in this column, for obvious reasons. You would doubtless obtain estimates and descriptions of such tubs as you require on application to any of the horticultural sundriesmen who advertise in our pages.

MSS. for the "G. M."—G. B., Chichester: We are obliged to you for your interest in the matter, but we cannot utilise the MS. sent us. It is more suitable for the advertisement than the editorial department. Only members of the staff write notices such as you desire, and they—as do all our regular correspondents—write on one side of the paper only, and use ink instead of pencil.

Glazing for Orchard Houses.—A. L., Leicester: A large number of glasshouses recently built have the roof glazed with long panes placed end to end, and not overlapped; this acts very well if properly done and the roof is sharply pitched. With regard to the firm in question, we are not in a position to state what methods are adopted, but if you communicate with them they will no doubt give you the necessary information.

Florist and Pomologist.—H. E. W., Paddington: The "Florist and Pomologist" is not now published; and writing from memory we believe it ceased about thirteen years ago. Sets are occasionally offered at sales of second-hand books, and the price obtained varies according to its completeness, general condition, and the horticultural interest that is taken in the sale. Some few leading second-hand booksellers sometimes offer sets in their catalogues.

Roses Under Glass.—A. L., Leicester: Of the varieties mentioned, the best for cultivation under glass are Climbing Niphetos, Maréchal Niel, Niphetos, The Bride, Catherine Mermet, Madame de Watteville, and Kaiserin Augusta Victoria. Maréchal Niel and Climbing Niphetos may not be suitable for outdoor culture in your locality, but all the others named should prove useful, provided they receive a little protection during the winter, such as a cone of ashes or dry soil placed about the base of the plant.

Judging at Flower Shows.—T. W., Stoke: Useful information relative to judging fruits, flowers, plants, and vegetables is to be found in the publication of the Royal Horticultural Society, entitled "A Code of Rules for Judging, and Suggestions to Schedule Makers, Judges, and Exhibitors." It can be obtained post free for 1s. 1d. on application to the Secretary, R.H.S., 117, Victoria Street, S.W. Another useful book is the "Horticultural Exhibitors' Handbook," W. Blackwood and Sons, price 3s. 6d., as it gives the points of merit in all the leading subjects to be found at horticultural exhibitions.

Failure of Grapes.—W. H., Middlesex: It is quite probable that overcropping was the chief cause of failure, coupled with the sulphuring and late syringing. Then the removal of so much surface soil would injure or destroy all the free-feeding surface roots, and at a time when the vine was most depending upon them; while to put on such an amount of cow manure and top it with the excavated soil was to exclude air from the border and so keep it far too cold and wet. This winter you had better carefully lift all the roots within at least a foot of the surface, removing the soil and remaining manure; then after cutting away all dead or injured roots spread out the live ones in layers, two, four, and six inches from the surface, in some good substantial loam, with which a little bone meal may be used, but this is not indispensable if the loam is good, as waterings with liquid manure can be given when the vines are in full growth and carrying their crops. If the drainage of the border is poor have it improved.

National Chrysanthemum Society's Medals.—J. R.: We have carefully considered your communication with reference to the awards made for miscellaneous exhibits at the recent exhibition of the National Chrysanthemum Society, and fail to see that any useful purpose would be served in publishing it. The judges engaged by the society, with the assistance of an official who is well known for his judgment and impartiality, awarded certain medals to certain exhibits in accordance with their views as to the respective merits of the collections. You suggest they were altogether wrong in their awards, and the only point is whether you or the judges are right. We have heard a considerable amount of grumbling about the awards of medals at this exhibition, but so far as we have been able to discover the only substantial grievance is to be found in the fact that each exhibitor did not have a gold medal of higher value than everyone else.

Downward Growth of Roots.—R. B. T., Borrowash: Most of the treatises on elementary botany will give you the necessary information. We may state, however, that as far back as 1806 Knight demonstrated the influence of gravitation upon the downward growth of roots. He exposed seedlings to the continued action of centrifugal force by submitting them to rapid rotation either in the vertical or horizontal plane. It was shown that the growing root-apices behaved exactly as if they were simply projected from the centre of rotation, like the weight of a pendulum made with a thread and swung rapidly round in the hand, while the shoot of the seedling behaved in exactly the contrary manner and grew towards the centre of rotation. Another reason for downward growth is the greater amount of moisture received from below. The root increases in length by the multiplication of the cells situated immediately behind the root-cap, and such increase is dependent on a free supply of moisture. The pressure of the superincumbent soil and the direction of the root hairs, when present, also facilitate downward growth, and prevent the root from being pushed back.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

M. N., Malvern: 1, Kerrya japonica; 2, Spiræa Bumalda; 3, Polygonum molle; 4, Berberis Thunbergi.

W. H. H., New Wortley: We were unable to identify the plant from the specimen sent. If you could send another specimen, with particulars of habit, &c., we will do our best to assist you.

W. C., Wimbledon: The orchid was overlooked; it is evidently Epidendrum Godseffianum.

Clapham: 1, Selaginella cæsia; 2, S. apoda; 3, S. Kraussiana; 4, Tradescantia Zebina; 5, send fertile fronds; 6, Adiantum capillus veneris.

W. B., Birmingham: 1, Buxus sempervirens myrtifolia; 2, Abies Pinsapo.

E. B, Tooting: Probably a form of Ipomæa bignonioides.

J. B., Brentwood: 1, Dracæna Guilfoylei; 2, not recognised; 3, Areca lutescens; 4, Croton Lord Derby; 5, Justicia carnea; 6, Begonia Haageana.

J., Yatton: Cratægus coccinea; we believe the fruits have no poisonous properties, but they are scarcely edible.

H. E., Nottingham: 1, Davallia solida; 2, Oleandra nodosa; 3, Nephrolepis exaltata; 4, Davallia elegans; 5, Lomaria spicant var.; 6, Nephrolepis ramosa.

M. J., Tenby: 1, Adiantum formosum; 2, Daphne laureola; 3, Tamarix gallica; 4, send when in flower; 5 and 6, varieties of Quercus ilex, the Evergreen Oak.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

X. Y., St. Albans: 1, Souvenir de Congrès; 2, not recognised.

G. M., Canterbury: The pear is Pitmaston Duchess, and the apple Cambusnethan Pippin.

S. G. R., Yalding: When unpacked, the fruits were rotting; they apparently represent Comte de Lamy.

Correspondents not answered this week will be good enough to consult our next issue.

C. L., Worcester: 1, American Mother; 2, Lady Henniker; 3, Dumelow's Seedling; 4, Lord Derby.

L. E. B., Uxbridge: No. 4 was not recognised; you may send another specimen, two if possible, as apples vary very much even on the same tree, and cannot always be identified from one example.

THE CHRYSANTHEMUM RUST.

THE conference recently held by the N.C.S. will undoubtedly lead to much good, and I should have liked to have taken part in the discussion, but was afraid I could hardly say what I wished to in the five minutes wisely limited to each speaker. I was particularly struck with the large attendance of growers, especially as it is only a few who admit that they are troubled with the "Rust on 'mums."

The various writers inform us "that they hear the rust is rather prevalent," but they have not noticed it in their collections. Still, it was surprising to note what a large number of those at the meeting seemed to be interested in the matter. During the past few weeks I have seen many collections, and in no instance have I failed in finding the disease. Its course seems peculiar and erratic. One collection of about three hundred plants was last year clear of the rust, although the stock the plants were raised from was infected. This season new blood was introduced in the way of fresh varieties, and these are now clean, although obtained from a stock which was badly attacked last season, but strange to say a few of those which were clean last year have recently become infested with the fungus, and no others. In many instances the varieties that were badly attacked last year are almost clean this, whilst those which suffered but little then are severely attacked this season.

It was rather to be regretted that trade rivalry sprang up at the discussion. Mr. Wells honestly stated that his collection was affected, and further said all trade collections were more or less suffering from the disease, a statement which was undoubtedly true.

During the season plants which were affected by the fungus were sent out by all the most important trade growers; at least, I received them as such, and further, I supplied hundreds of plants and cuttings which were more or less diseased to the members of the trade at the meeting. If the disease is only in the plants it proves that it makes but little difference whether the plants are procured from an infected stock or otherwise. All the principal trade growers obtain large quantities of stock from each other every season.

Mr. Wells says he can destroy the spores, but many will incline to the opinion of Mr. Massee that he cannot do so except by practically destroying the foliage. It is possible to treat the powdery matter so that it falls off, and also to prevent its spreading by rendering the foliage safe from infection. As to the disease dying out, I am afraid we cannot look forward to this with much hope. We have hollyhock and potato diseases with us more or less every season, and so it will be with the fungus on chrysanthemums. Perhaps we may raise varieties which will resist the disease.

As to preventives, there does not seem to be any difficulty in getting the stock clean during the summer, for stocks badly affected during the previous autumn and winter become apparently quite clean during the growing season, but towards the autumn, when the foliage is losing its vigour, the brown spots appear, and soon affect the whole plant. When once the disease has a good footing all attempts to stay its spread seem to be useless, and the only chance of keeping it at bay is to commence with the syringing of the stools with some of the various remedies prescribed, and also dipping the cuttings before insertion and the plants at every potting. Instead of syringing with clean or soot water every day, use a fungicide once or twice a week. Every few days make a diligent search for the disease, and, should it appear, burn every bit of infected foliage, taking great care to gather it carefully, and putting it into a covered tin in taking it to the fire, so that none can float in the air. As to remedies, Mr. Wells gives one which he has proved to be good. The Bordeaux mixture or a solution of sulphate of copper and lime is very simple and effective, but care must be taken to use the purest sulphate of copper. The rust in carnations is very similar to that affecting chrysanthemums, and it is giving much trouble to American growers, but the most effective remedy yet propounded is a decoction of arsenic; an ounce of this dissolved in a little alcohol, and mixed with 100 gallons of water, is the recipe, but it requires great care in using. That it is very efficacious I have proved.—W. J. GODFREY, *Exmouth.*

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, OCTOBER 31.—National Chrysanthemum Society; Floral Committee meets at one o'clock.
TUESDAY, NOVEMBER 1.—Scottish Horticultural Association.
Croydon Chrysanthemum Show; Two days.
Torquay Chrysanthemum Show; Two days.
Southampton Chrysanthemum Show; Two days.
Kingston Chrysanthemum Show; Two days.
Eastbourne Chrysanthemum Show; Two days.
Truro Chrysanthemum Show; Two days.
Stratford-on-Avon Chrysanthemum Show; Two days.
Hereford Chrysanthemum Show; Two days.
Walthamstow Chrysanthemum Show; Two days.
Watford Chrysanthemum Show; Two days.
WEDNESDAY, NOVEMBER 2.—Swindon Chrysanthemum Show; Three days.
Kent County Chrysanthemum Show; Two days.
Isle of Thanet Chrysanthemum Show; Two days.
Dorchester Chrysanthemum Show; Two days.
Jersey Chrysanthemum Show; Two days.
Wolverhampton Chrysanthemum Show; Two days.
Ascot Chrysanthemum Show; Two days.
Parkstone Chrysanthemum Show; Two days.
Brixton Chrysanthemum Show; Two days.
Woking Chrysanthemum Show; Two days.
Hertford Chrysanthemum Show; Two days.
Lowestoft Chrysanthemum Show; Two days.
Burgess Hill Chrysanthemum Show; Two days.
Portsmouth Chrysanthemum Show; Two days.
Dorking Chrysanthemum Show; Two days.
Barnet Chrysanthemum Show; Two days.
Westerham Chrysanthemum Show; Two days.
Uxbridge Chrysanthemum Show; Two days.
THURSDAY, NOVEMBER 3.—Reigate Chrysanthemum Show.
Colchester Chrysanthemum Show.
Forest Gate Chrysanthemum Show; Three days.
Woolwich Chrysanthemum Show; Three days.
Exeter Chrysanthemum Show; Two days.
North Peckham Chrysanthemum Show; Two days.
West of England Chrysanthemum Show; Two days.
Maidenhead Chrysanthemum Show; Two days.
Reigate Chrysanthemum Show; Two days.
Putney Chrysanthemum Show; Two days.
Manor Park Chrysanthemum Show; Two days.
Leamington Chrysanthemum Show; Two days.
Leyton and Leytonstone Chrysanthemum Show; Two days.
Finchley Chrysanthemum Show; Two days.
FRIDAY, NOVEMBER 4.—Battersea and Wandsworth Chrysanthemum Show; Two days.
Lizard Chrysanthemum Show; Two days.
Hinckley Chrysanthemum Show; Two days.
SATURDAY, NOVEMBER 5.—North of Scotland Root, Fruit, and Vegetable Show.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, OCTOBER 31, and NOVEMBER 1, 2, 3, AND 4.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.
WEDNESDAY, NOVEMBER 2.—Japanese Lilies, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E C.
TUESDAY AND WEDNESDAY, NOVEMBER 1 AND 2.—Roses, Carnations, Begonias, Hollyhocks, Lily of the Valley, &c, Messrs. Protheroe and Morris, Hale Farm Nurseries, Tottenham, N.
FRIDAY, NOVEMBER 4.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.
NEARLY EVERY DAY.—Tulips, &c., Mr. J. C. Stevens, King Street, Covent Garden.

CATALOGUES RECEIVED.

C. PLATZ AND SON, ERFURT.—Novelties.
E. WEBB AND SONS, STOURBRIDGE.—Bulbs.
SHANNON CO., ROPEMAKER STREET.—Office Appliances.
HENRY NORTON, LOUTH, LINCS.—Roses.
COLLINS BROS. AND GABRIEL, WATERLOO ROAD, S.E.—Bulbs.
CHARLESWORTH AND CO., HEATON, BRADFORD.—Orchids.
H. DUNCAN CARR, KIMBERLEY ROAD, STOCKWELL, S.W.—Bulbs.
FOTHERINGHAM AND KING, DUMFRIES.—Bulbs and Roots.
ANT. ROOZEN AND SON, OVERVEEN, NEAR HAARLEM, HOLLAND.—Bulbs.

Chrysanthemum Rust.—Unless this disease can be effectually checked, it bids fair to become as great a trouble to our chrysanthemums as the other, puccinia, has been to our hollyhocks. Practically no real remedy in the way of an external application has been found for that, that is not harmful to the tender stems and leaves. Mr. George Massee has given information in relation to the life and growth of the rust, and what is to growers of more consequence, gives some information as to remedies, amongst which entire destruction of affected leafage is one. That is no doubt in many cases, if carried out, tantamount to destroying the plants. Where in all cases blooms are cut, the entire stem should also be cut low down, and be burnt. It is worthy of special attention whether plants growing out in the open ground are as liable to the attacks of the rust as are plants in pots, also whether highly-fed plants intended to produce large flowers are more or less susceptible to attacks. Then as to other remedies or dressings, applications in the form of sprayings of a solution of potassium sulphide, half an ounce to a gallon of water, is recommended as a preventive. Wide information should be furnished where the potassium sulphide can be purchased, and its price, also something of its nature, whether it be a poison or not. Scientists write easily of these various chemicals, but they are cavaire to the general reader. May not boulilie bordelaise be tried with some likely success. Mr. Massee states that when all the leaves die and fall, the plants are practically free from the disease. But when that happens in the course of nature, or where shoots and leaves have formed, are they clean or not?—A. D.

COMING EVENTS.

IN addition to the chrysanthemum shows already notified in our columns for the ensuing month, we give the following list of recently-received dates. Secretaries would much oblige us by notifying any alterations of dates at once.
NOV. 1 and 2.—Truro, Stratford-on-Avon, Hereford, Watford, Walthamstow.
NOV. 2 and 3.—Lowestoft, Burgess Hill, Portsmouth, Dorking, Barnet, Westerham, Uxbridge.
NOV. 3.—Reigate.
NOV. 3 and 4.—Putney, Leyton and Leytonstone, Manor Park, Grimsby, Leamington, Finchley.
NOV. 4 and 5.—Lizard, Hinckley.
NOV. 7 and 8.—Sevenoaks.
NOV. 8 and 9.—Coventry, Kidderminster, Clevedon, Bexley Heath, Sutton.
NOV. 9 and 10.—Hanley, Berkhamsted, Wimbledon, Southgate, Melton Mowbray, Bromley, Gloucester, Carlisle, Bodmin.
NOV. 10 and 11.—Sidcup, Southport.
NOV. 11 and 12.—Waterford, Altrincham, Wellingborough, Dalkey, Carnarvon, Blackburn.
NOV. 15.—Liscard.
NOV. 15 and 16.—Chester, Stirling, Great Yarmouth.
NOV. 16 and 17.—Chippenham.
NOV. 17 and 18.—Lincoln.
NOV. 17, 18, and 19.—Norwich.
NOV. 18.—Wrexham, Broughton-in-Furness.
NOV. 18 and 19.—Bolton.
NOV. 19.—Arbroath.
NOV. 25 and 26.—Dunfermline, Aberdeen.

MARKETS.

Covent Garden.

FRUIT is selling well, and there is no difficulty in clearing the supplies that come to hand. The supply of greenstuffs is shortening somewhat, consequently prices are slightly enhanced.

FRUIT.—English apples, 4s. to 8s. per bushel; Nova Scotian, 15s. to 28s. per barrel; French pears, 2s. 6d. to 5s. per case, 7s. to 12s. per crate; Californian, 5s. 6d. to 8s. per half-case; bananas, 5s. to 10s. per bunch; pineapples, 2s. to 4s. 6d. each; English grapes, 9d. to 2s.; Channel Island, 6d. to 1s. per lb.; Almeria, 10s. to 17s. per barrel; peaches, 2s. to 8s.; green figs, 9d. to 1s. 6d. per dozen; cobnuts, 40s. to 50s. per 100 lb.; walnuts, 4s. to 5s. per bushel; lemons, 15s. to 25s. per box; pomegranates, 4s. to 6s. per case; celery, 12s. to 18s. per dozen rolls; English tomatos, 3s. 6d. to 4s. 6d.; Channel Island, 2s. 6d. to 3s. 6d. per 12 lb.; Bordeaux, 2s. 6d. to 3s. 6d. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 3s. to 4s.; tea roses, 6d. to 1s.; pink roses, 1s. 6d. to 3s.; red roses, 6d. to 1s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Turnips, 3s. to 4s.; carrots, 2s. 6d. to 3s. 6d.; parsley, 2s. to 2s. 6d.; leeks, 1s. 6d. to 2s. per dozen bunches; Valencia onions, 6s. 6d. to 7s. 6d.; Ports, 6s. to 6s. 6d. per case; Dutch, 3s. to 3s. 6d. per bag; spinach, 3s. to 4s. per bushel; cauliflowers, 1s. 6d. to 3s.; cucumbers, 2s. 6d. to 4s. 6d.; endive, 1s. 2d. to 1s. 10d.; lettuce, 1s. 3d. to 1s. 9d.; French, 2s. to 3s. per dozen; cabbages, 4s. to 9s. per tally; mushrooms, 2s. 6d. to 3s. 6d. per peck; eschallcts, 1s. 6d. to 2s. per 12 lb.; potatos, 60s. to 90s. per ton.

Borough Potato Market.

Average supplies arrive, but trade is improving and there is a decided tendency towards a quotable rise in prices. Beauty of Hebron, Up to Date, and Snowdrop, 75s. to 80s. per ton; White Hebron, Early Puritan, Bruce Magnums, Sutton's Early Regent, Reading Giant, and Imperator, 65s. to 70s.; and Blacklands, 60s. to 65s. per ton.

THE WEATHER DURING THE WEEK ENDING OCTOBER 22, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	64·8	47·0	55·3	12·94	1·42	3·61
Croydon	65·0	47·5	54·7	12·61	1·49	3·78
Brighton	62·8	46·0	55·7	13·17	1·91	4·85
Bristol	63·0	44·0	52·2	11·22	5·43	13·79
Wolverhampton	60·0	41·4	50·4	10·22	1·18	3·00
Norwich	67·6	47·0	55·4	13·00	1·24	3·15
Nottingham	61·3	45·4	51·4	10·78	1·83	4·65
Liverpool	63·9	46·5	51·6	10·89	1·82	4·62
Huddersfield	65·0	44·5	50·4	10·22	2·67	6·78
Bradford	67·0	46·4	53·4	11·83	2·43	6·17
Hull	65·0	45·0	52·5	11·39	2·25	5·71

The mean reading of the Barometer during the week at Greenwich was 29·25 inches, and that of the Thermometer 55°·3, the latter being 6°·1 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 1 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 10·9 hours. The measured rainfall amounted to 1·42 inches.

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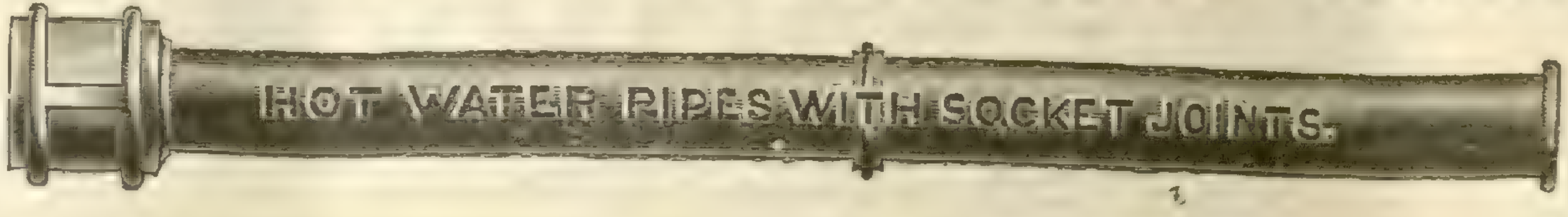
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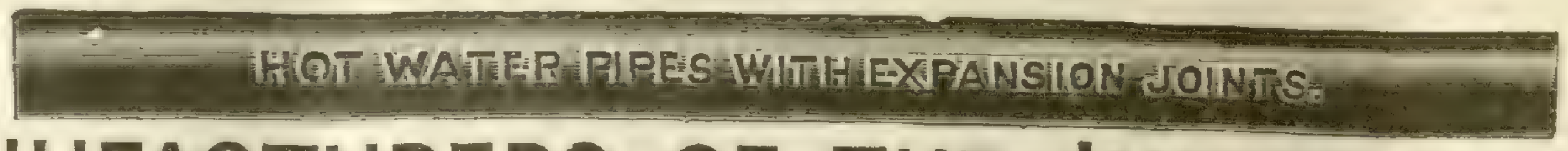
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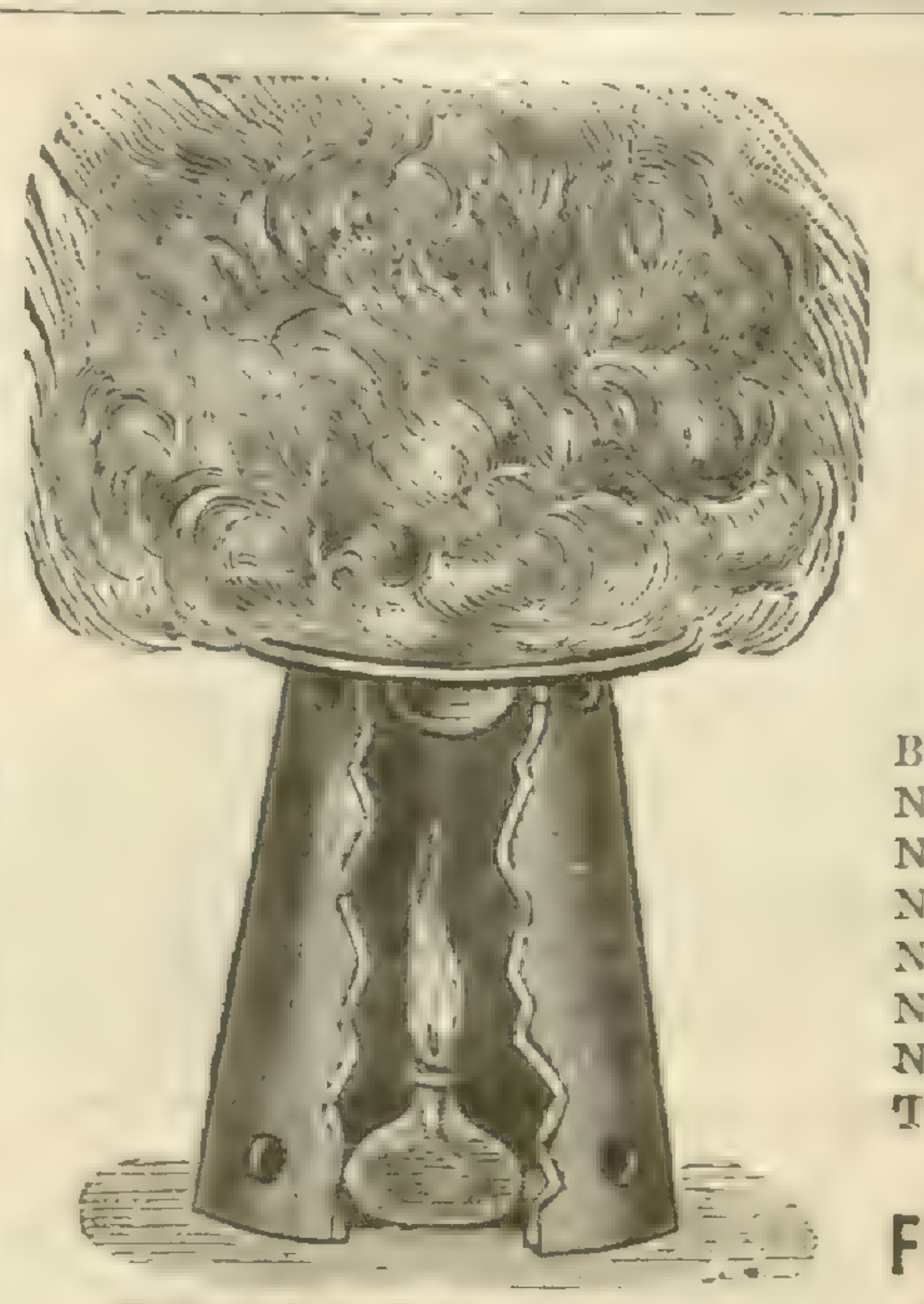

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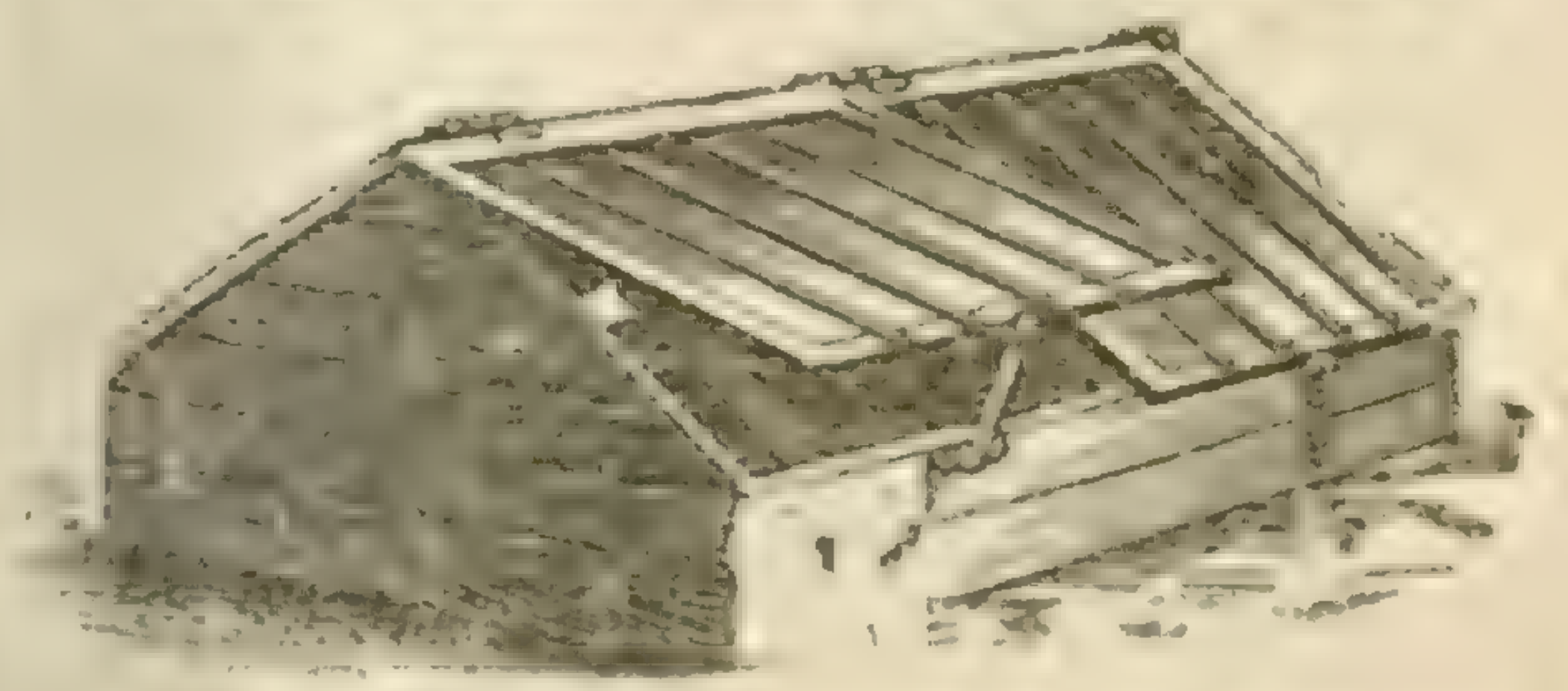

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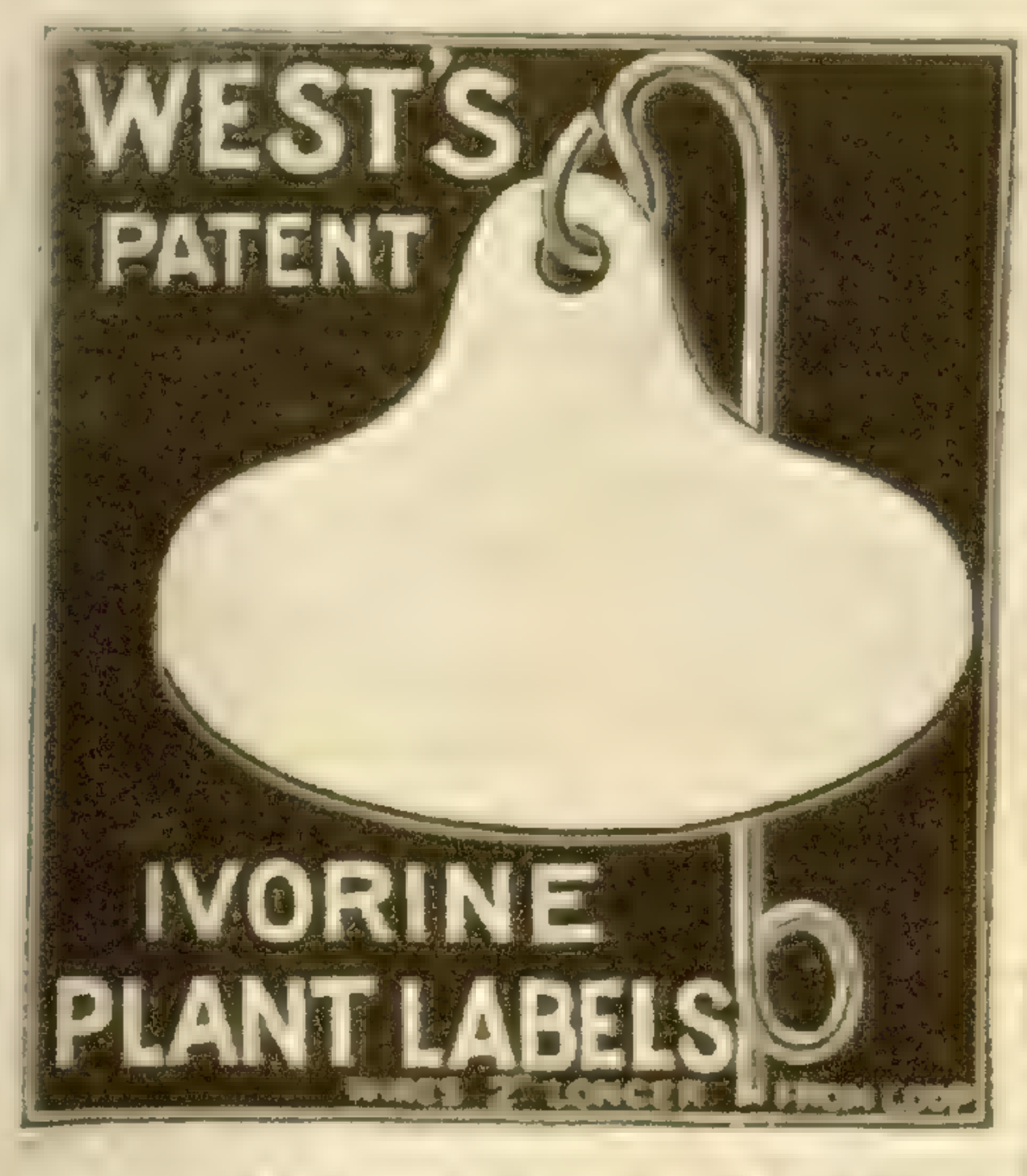

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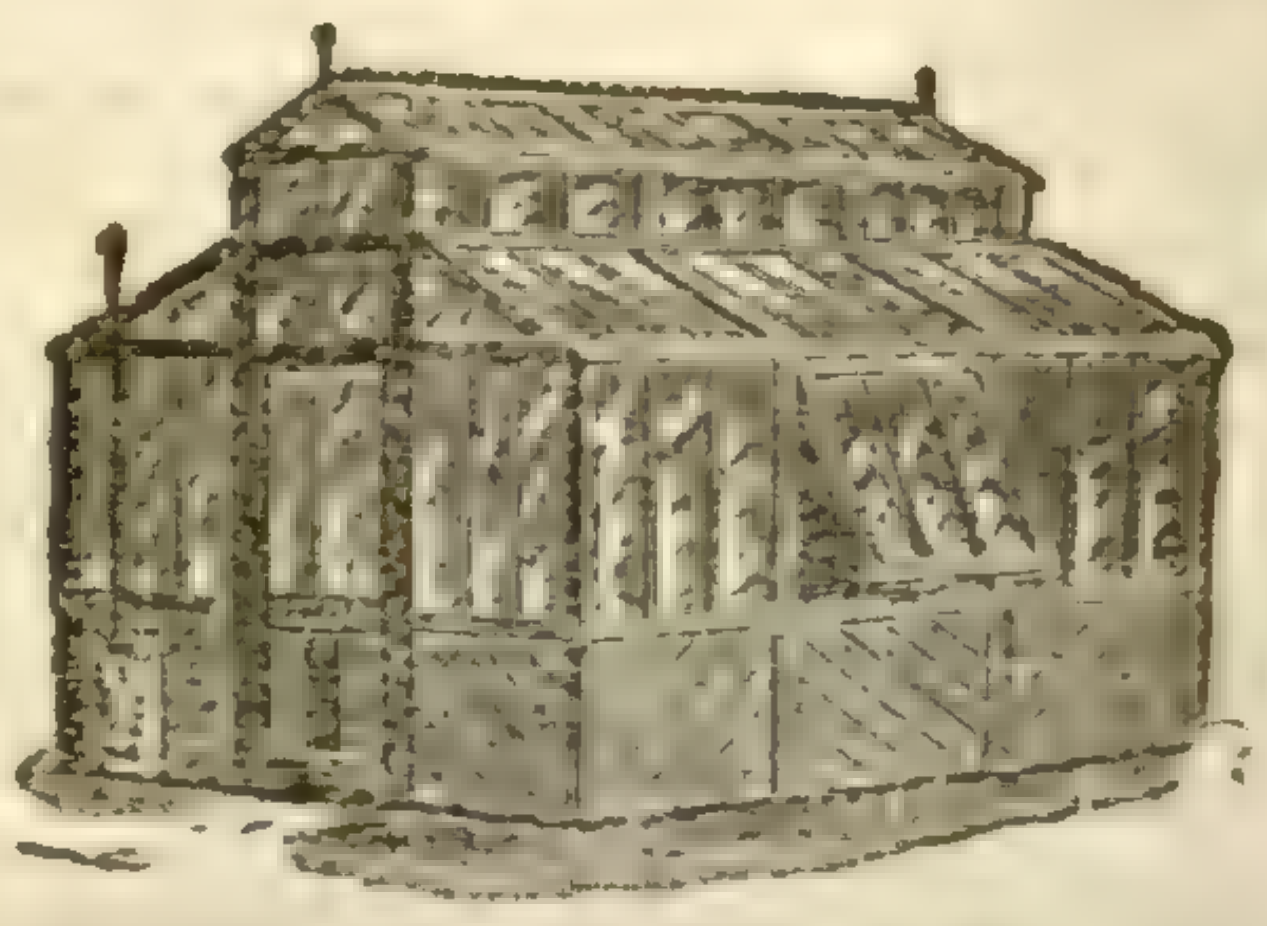

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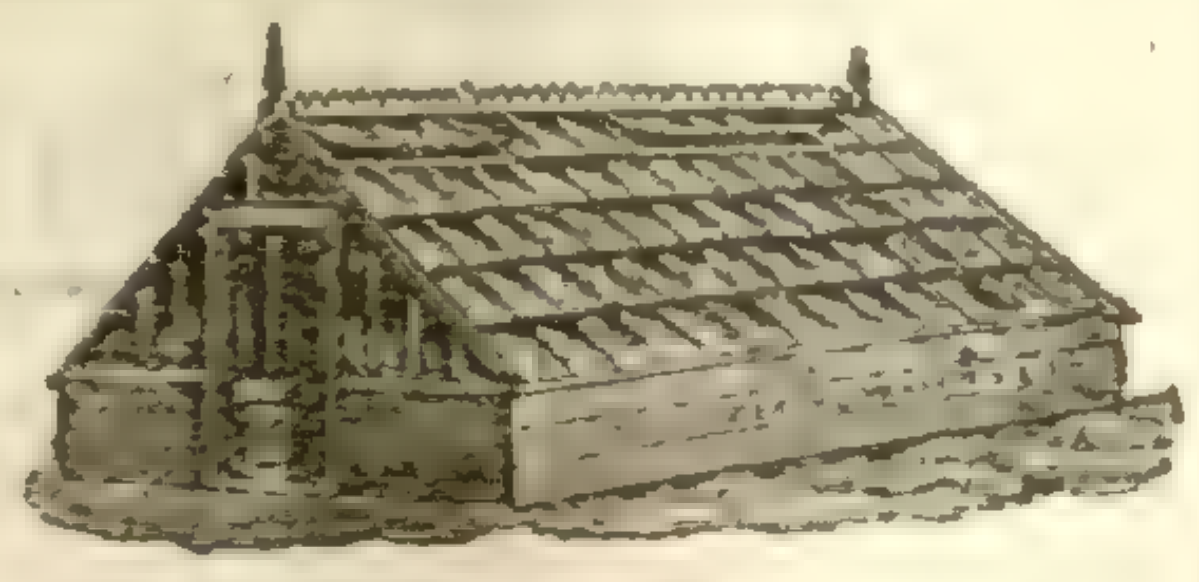

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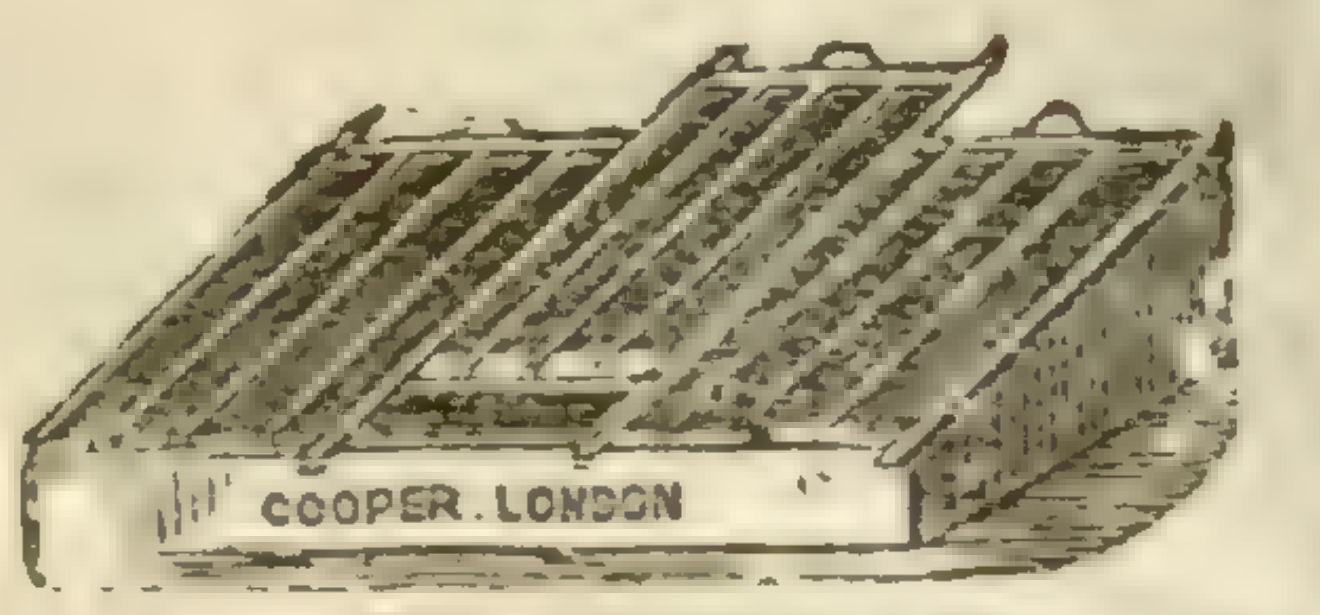

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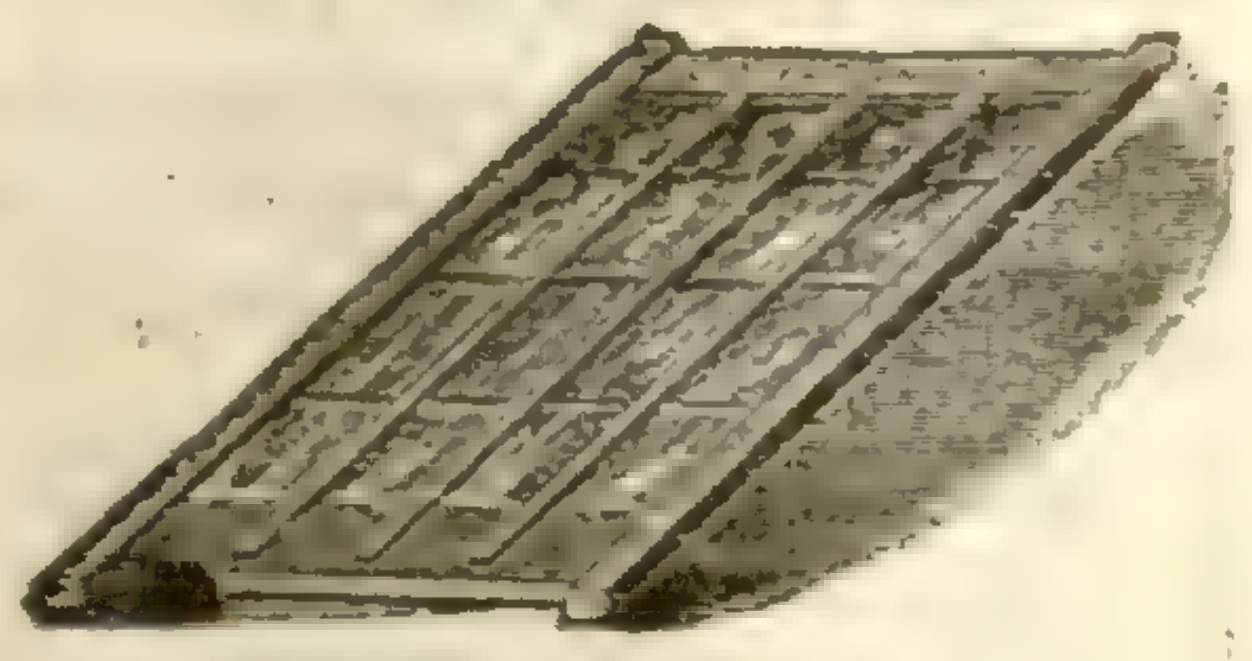
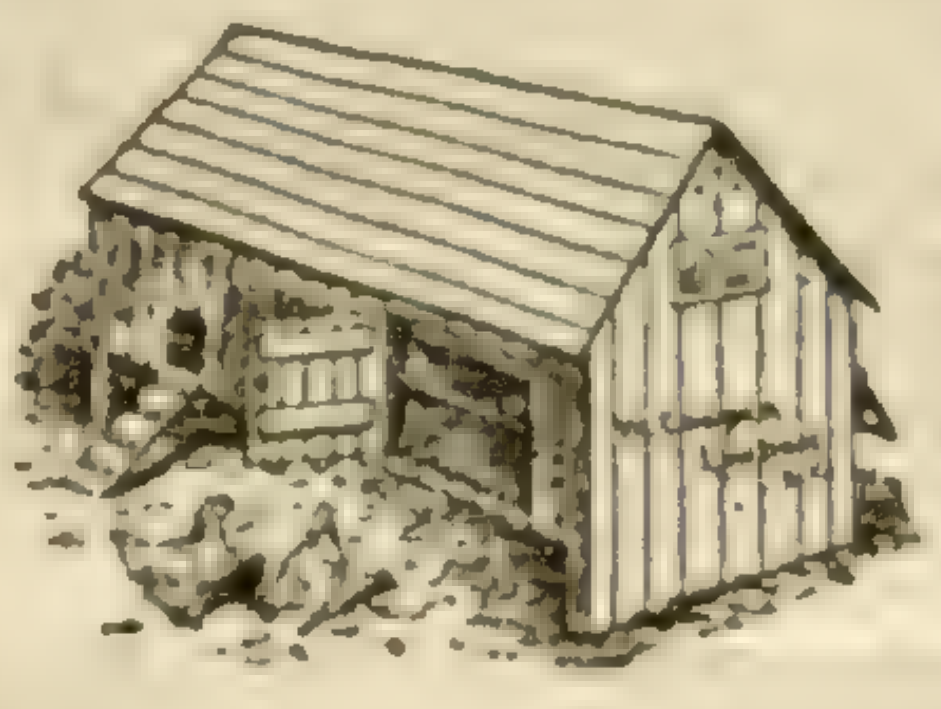
8 ft. by 6 ft., 50s.



GARDEN LIGHTS.

Painted and Glazed, 21 oz.
3 ft. by 2 ft., 5s. each.
4 ft. by 3 ft., 6/6 „
6 ft. by 4 ft., 9s. „
Unglazed.
6 ft. by 4 ft., 3/6 „

Special quotations for large quantities.

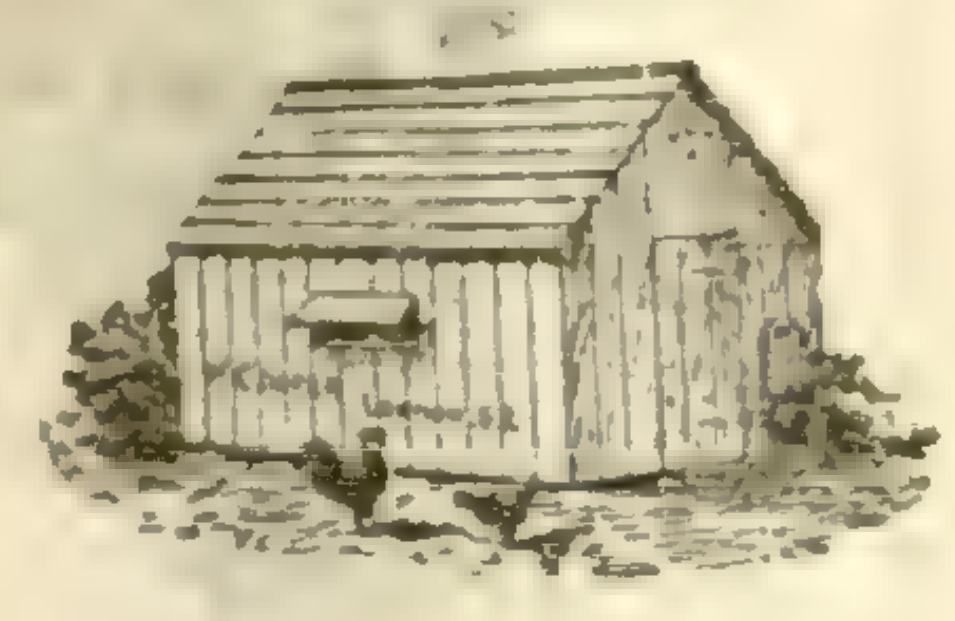


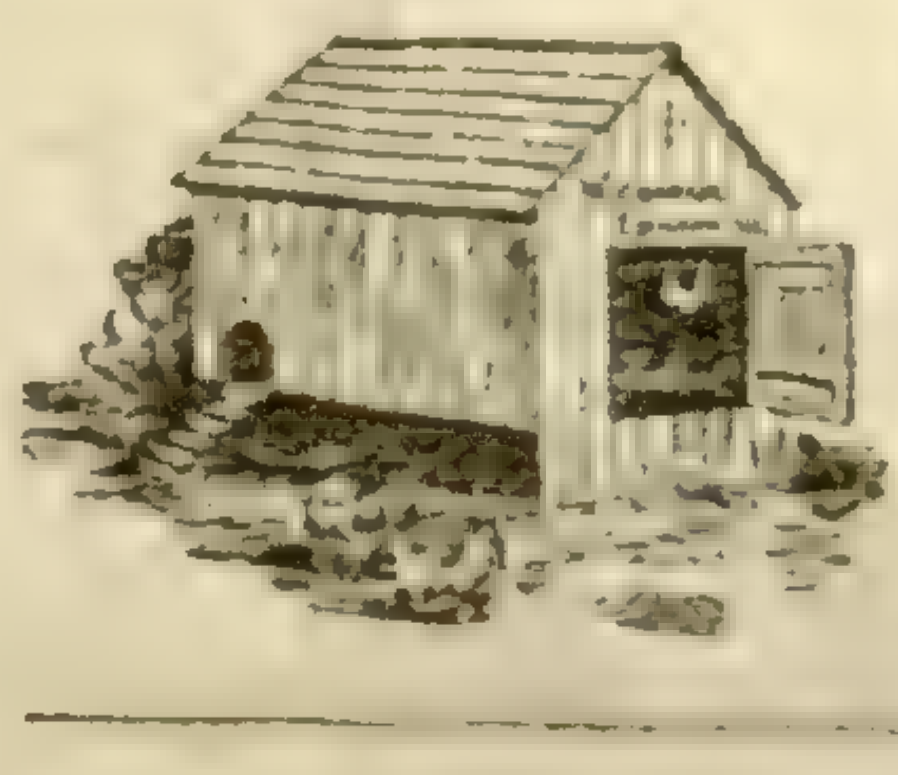
NEW SPAN-ROOF IMPROVED POULTRY HOUSE.

4 ft. by 4 ft. ... ... 23s.
5 ft. by 4 ft. ... ... 25s.
6 ft. by 4 ft. ... ... 27s.
7 ft. by 5 ft. ... ... 30s.

SPAN-ROOF POULTRY HOUSE.

5 ft. by 4 ft. ... ... 25s.
6 ft. by 4 ft. ... ... 30s.
7 ft. by 5 ft. ... ... 36s.
9 ft. by 6 ft. ... ... 42s.





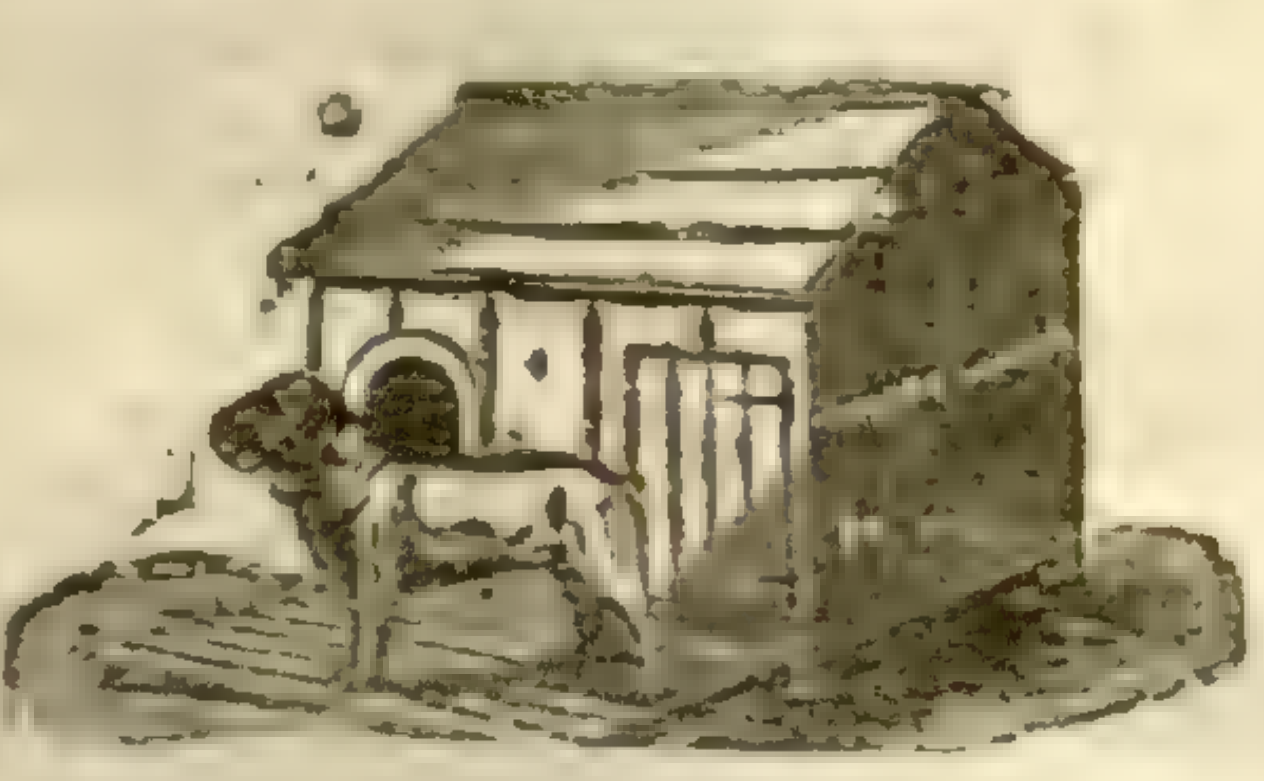
SPAN-ROOF IMPROVED POULTRY HOUSE.

5 ft. by 4 ft. ... ... 37s. 6d.
6 ft. by 4 ft. ... ... 45s.
7 ft. by 5 ft. ... ... 55s.
9 ft. by 6 ft. ... ... 60s.

PORTABLE DOG KENNEL.

12s. 6d., 17s. 6d., 25s.

See List.



ROOFING FELT.

Patent Asphaltic Rolls, 25 yards long, 32 in. wide, 3/3 per roll; 6 rolls, 3/2 per roll; 12 rolls, 3/1 per roll; 25 rolls, 3/- per roll. Free on rail.

SPECIAL CHEAP OFFER.

FRUIT TREES.

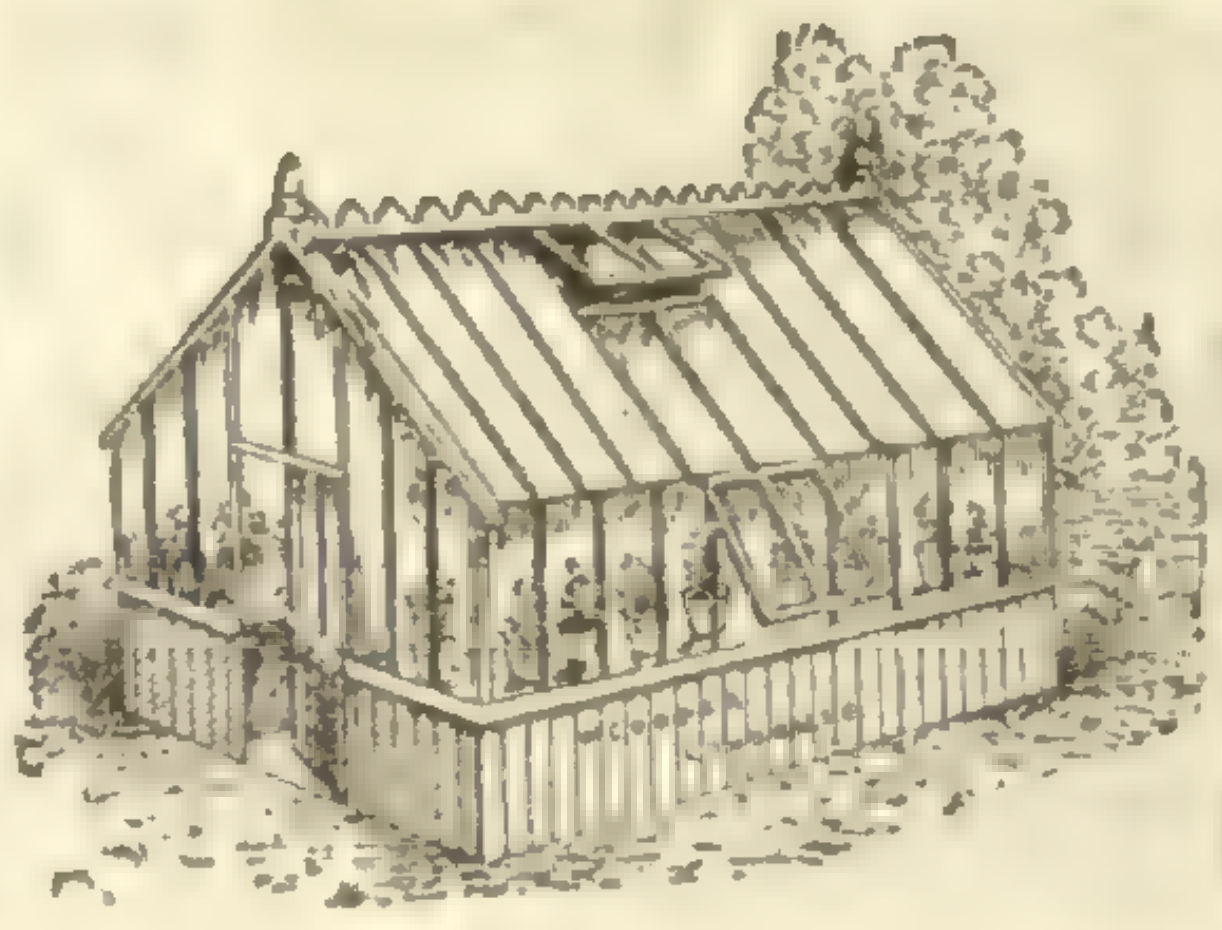
Ground must be cleared. Required for building.

8,000 **Apple Standard,** 4 ft. to 6 ft., all leading sorts, well rooted, 3 and 4 years, **60s.** per 100.
2,000 **Plums Standard,** 6 ft. to 8 ft., 3 and 4 years, **60s.** per 100.
1,000 **Pear Standard,** 3 and 4 years, 4 ft. to 6 ft. **60s.** per 100.
3,000 **Black Currant,** 3 years, well rooted, good bushy stuff, **25s.** per 100.
2,000 **Red Currants,** 3 years, **25s.** per 100.
500 **Morello Cherries,** 4 ft. to 6 ft., 4 years, **40s.** per 100.

The above are carefully Packed and put on Rail at our
NURSERIES, FELTHAM, MIDDLESEX,

AMATEUR SPAN-ROOF GREENHOUSE.

Everything complete and ready for erection.



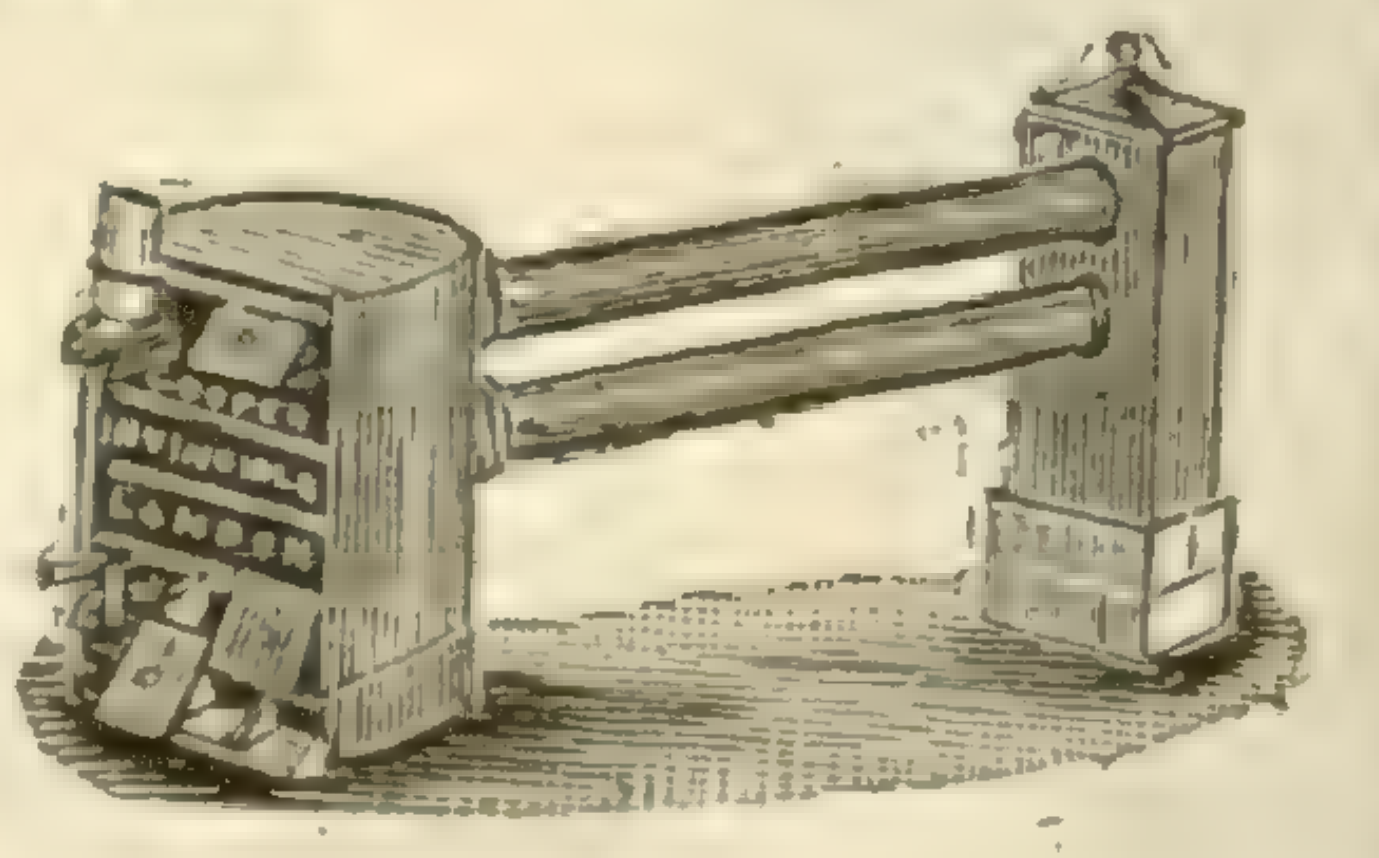
Tenant's Fixture from £2 16 0

Long. ft.	Wide. ft.	High. ft. in.	To Eaves. ft. in.	Packed on rail. £ s. d.	Erected within 50 miles. £ s. d.
7	5	7 0	4 0	2 16 0	4 0 0
8	5	7 0	4 0	3 10 0	5 0 0
9	6	7 3	4 0	4 0 0	5 10 0
10	7	7 6	4 6	5 0 0	6 15 0
12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
25	10	9 0	5 6	15 0 0	20 0 0
50	10	9 0	5 6	25 0 0	35 0 0
100	10	9 0	5 3	45 0 0	65 0 0

INVINCIBLE HOT-WATER APPARATUS

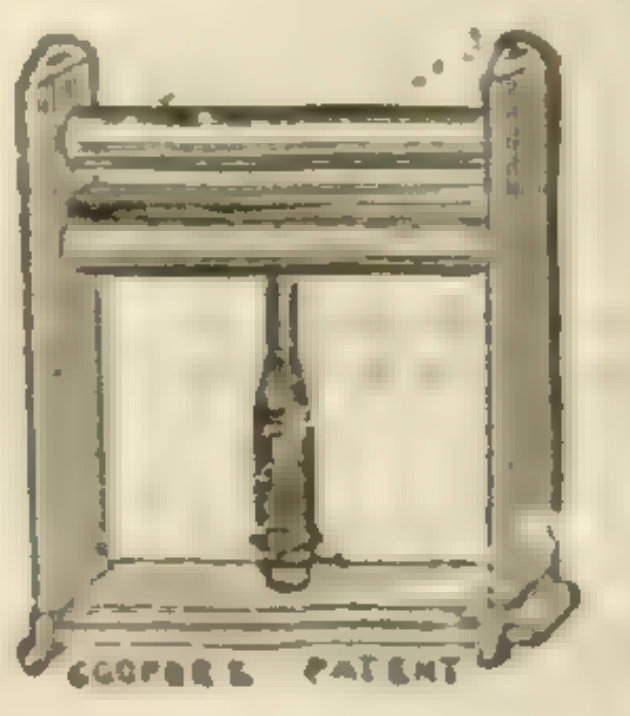
Most Efficient and Cheapest in Existence. Cost of complete Apparatus for Greenhouse, with 4 in. flow and return pipes along one side.

Size of House. Ft.	Ft.	£ s. d.
7 by	5	£3 5 0
9 by	6	£3 10 0
12 by	8	£3 15 0
15 by	10	£4 15 0
20 by	10	£5 15 0
25 by	10	£6 15 0



COOPER'S HYGIENIC HEATER.

Without smoke or smell.
18 by 25 by 10, will heat house 7 ft. by 5 ft. Consumes three-quarter pint of oil in 10 hours.
16s. Extra for Gas, 2s.
See List for other sizes.



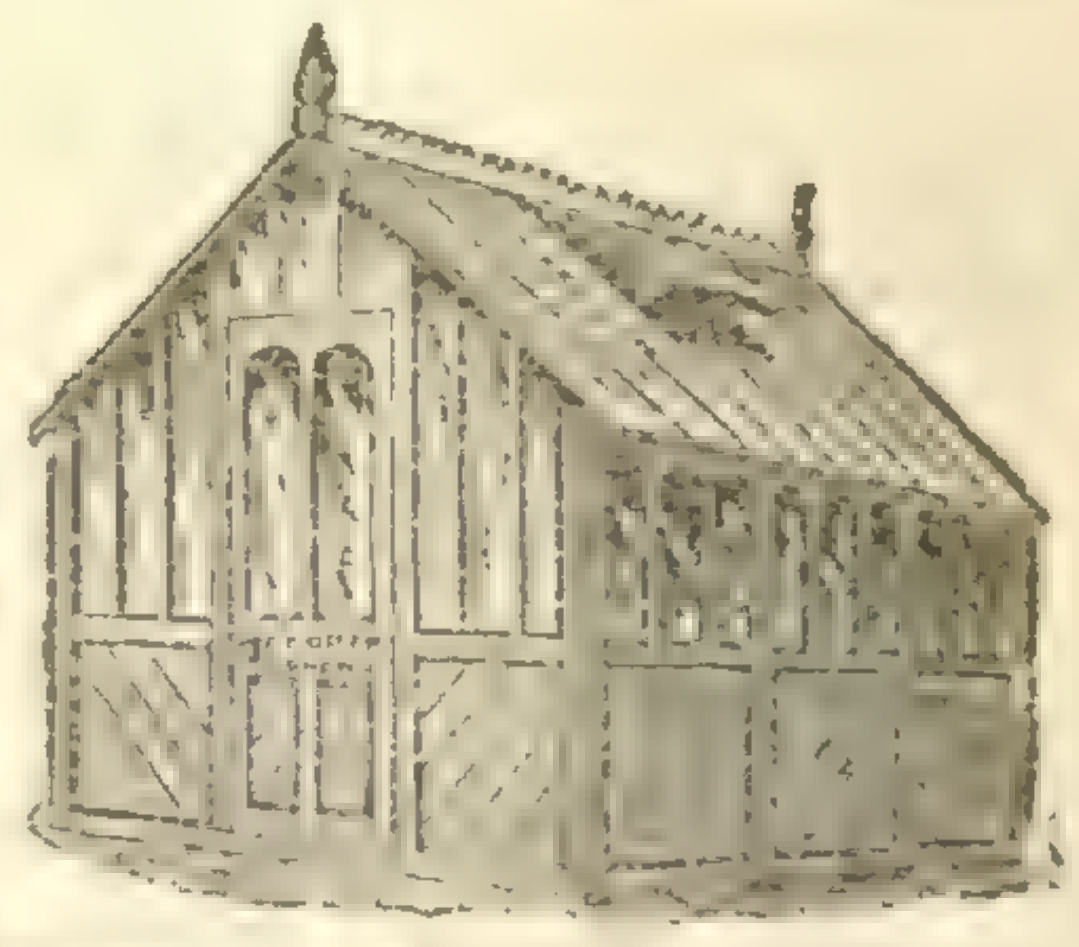
SURVEYS BY APPOINTMENT.

When any special designs are required we shall be pleased to let one of our Representatives wait upon Ladies or Gentlemen at their residences in any part of the country to take all necessary particulars, and we will then submit designs and estimates in accordance with his report, FREE OF CHARGE.

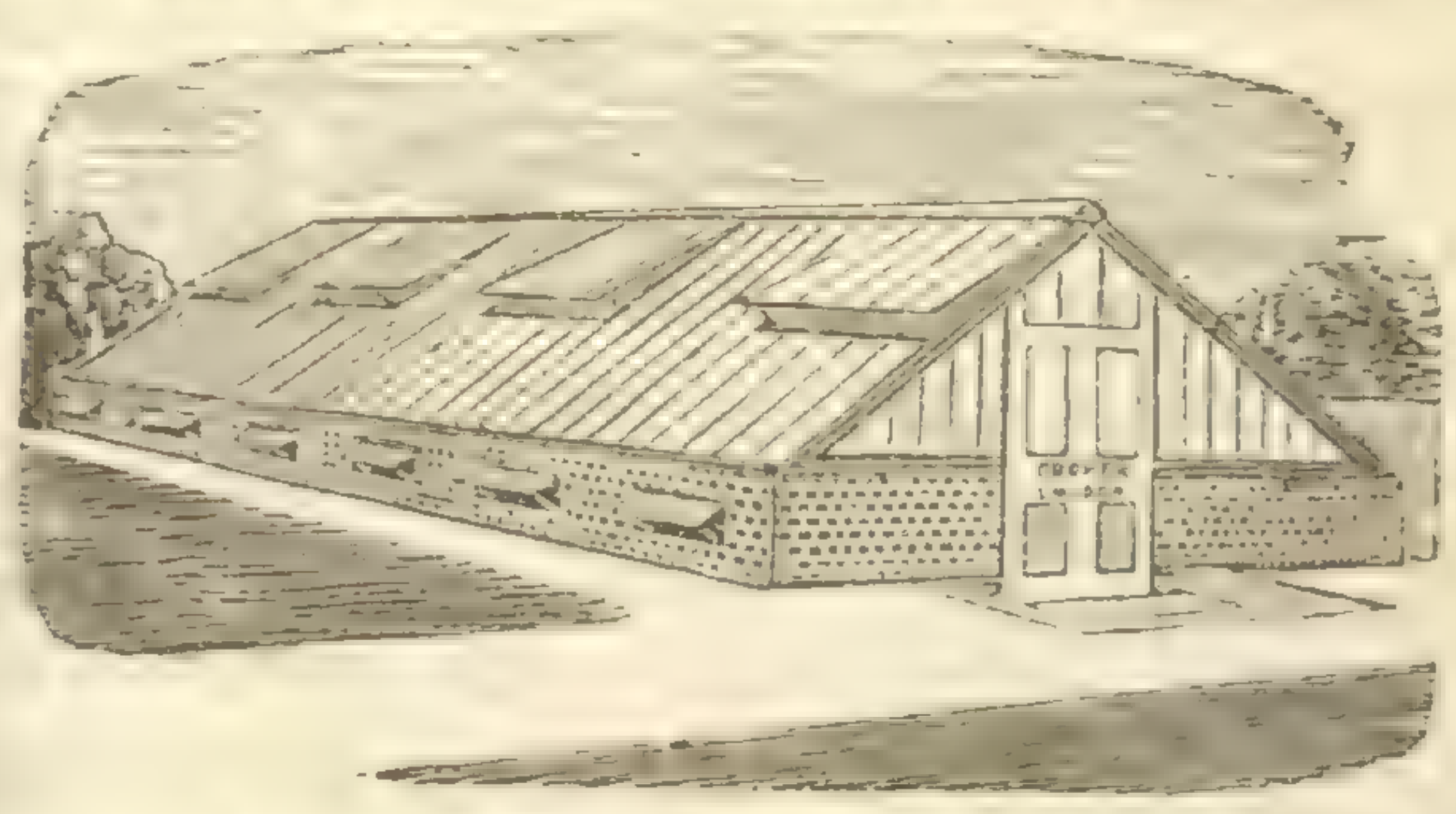
CIRCULAR-LIGHT CONSERVATORY.

Substantially constructed upon the most approved principles.

See List, post free.

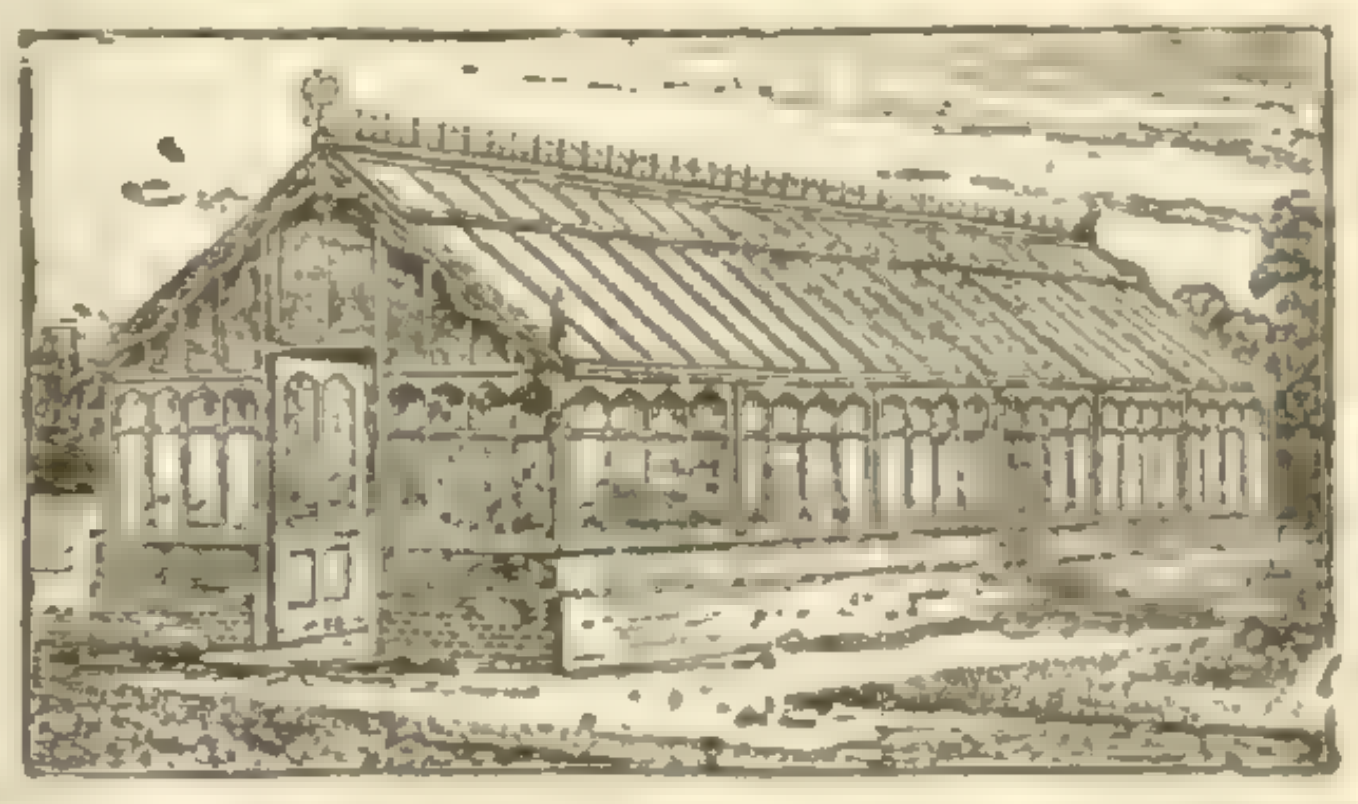


SPAN ROOF FORCING HOUSE.



A most useful house for gentlemen, nurserymen, &c., for forcing and growing Tomatoes, Cucumbers, Melons, &c. Complete, and ready for erecting on brickwork.

Length.	9 ft. wide.	12 ft. wide.
20 ft.	£8 0 0	£10 0 0
40 ft.	15 0 0	19 0 0
100 ft.	35 0 0	42 0 0

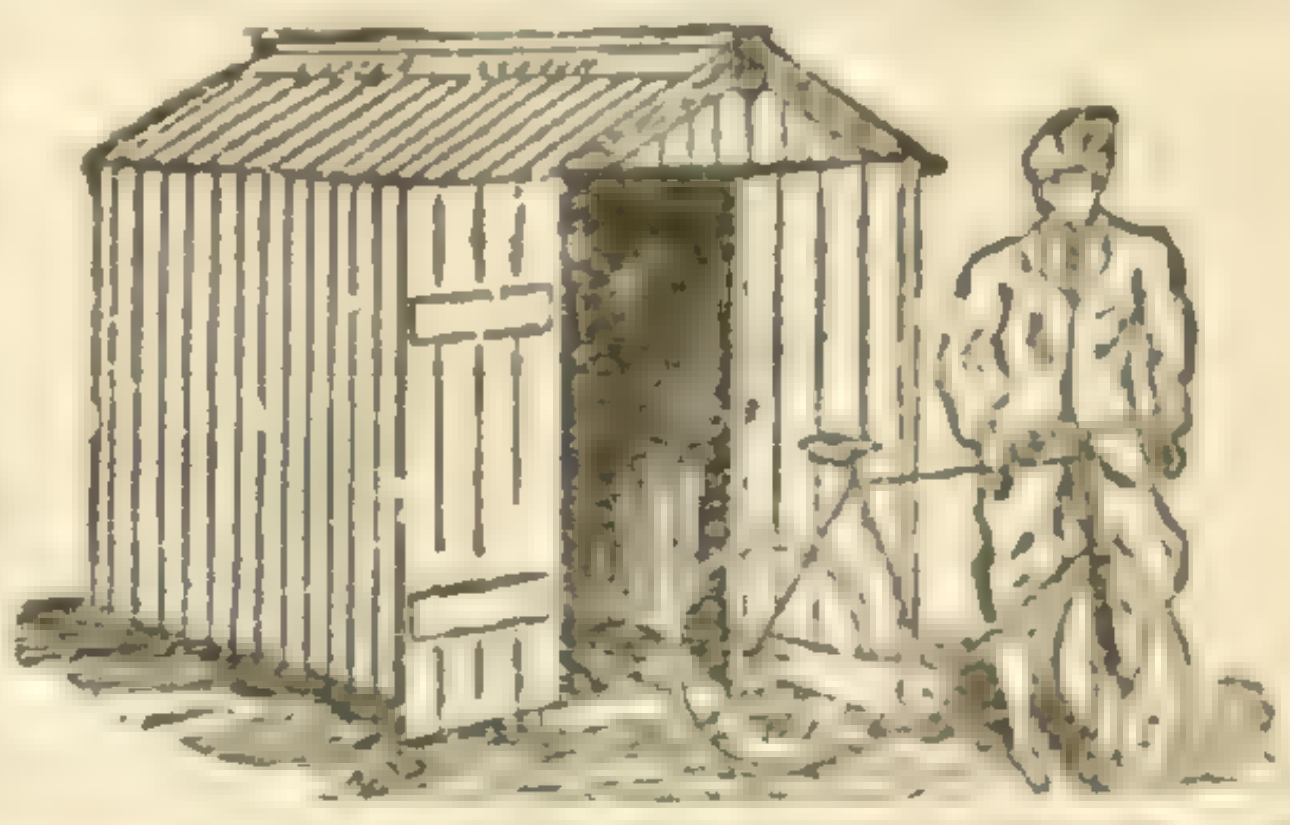


SPAN-ROOF CONSERVATORY.

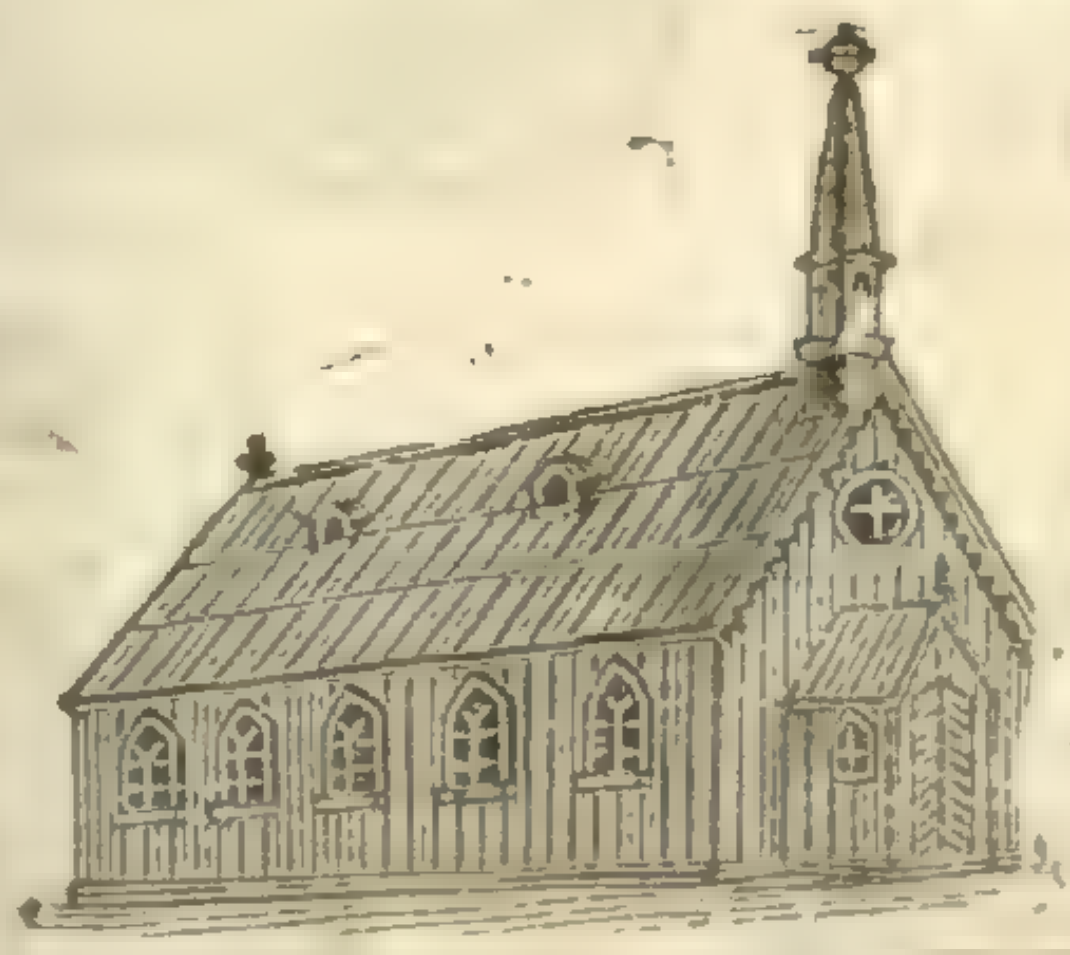
Substantially and handsomely built. Everything complete and ready for erection.

BICYCLE OR TRICYCLE HOUSES.

6 ft. long, 4 ft. wide, 5 ft. high, £2 5s.
See No. 212 in List.



IRON BUILDINGS OF EVERY DESCRIPTION.



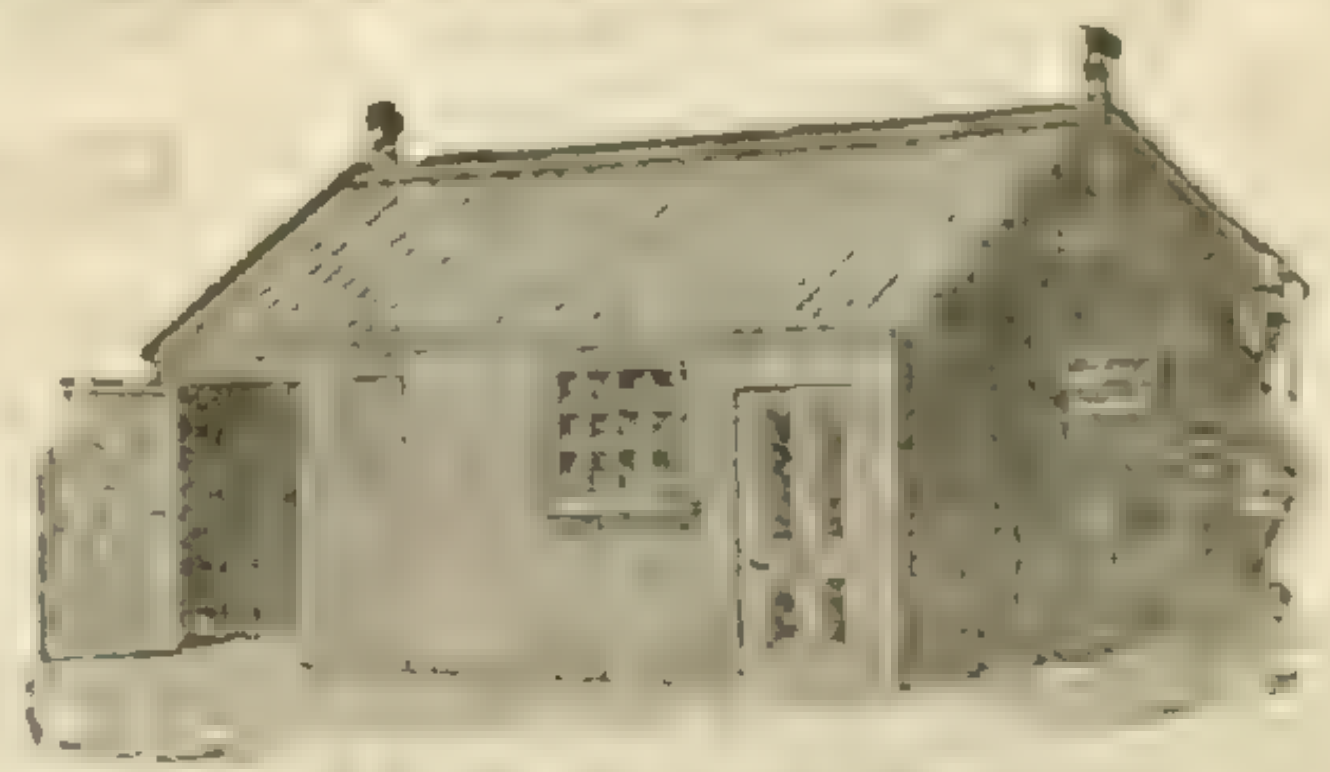
Churches, Temporary Hospitals, Bungalows.

Packed on rail, or erected in any part of the Kingdom.

See Section IV. in List.

Plans and Estimates free.

PORTABLE STABLE, COACH-HOUSE, AND HARNESS-ROOM COMBINED.

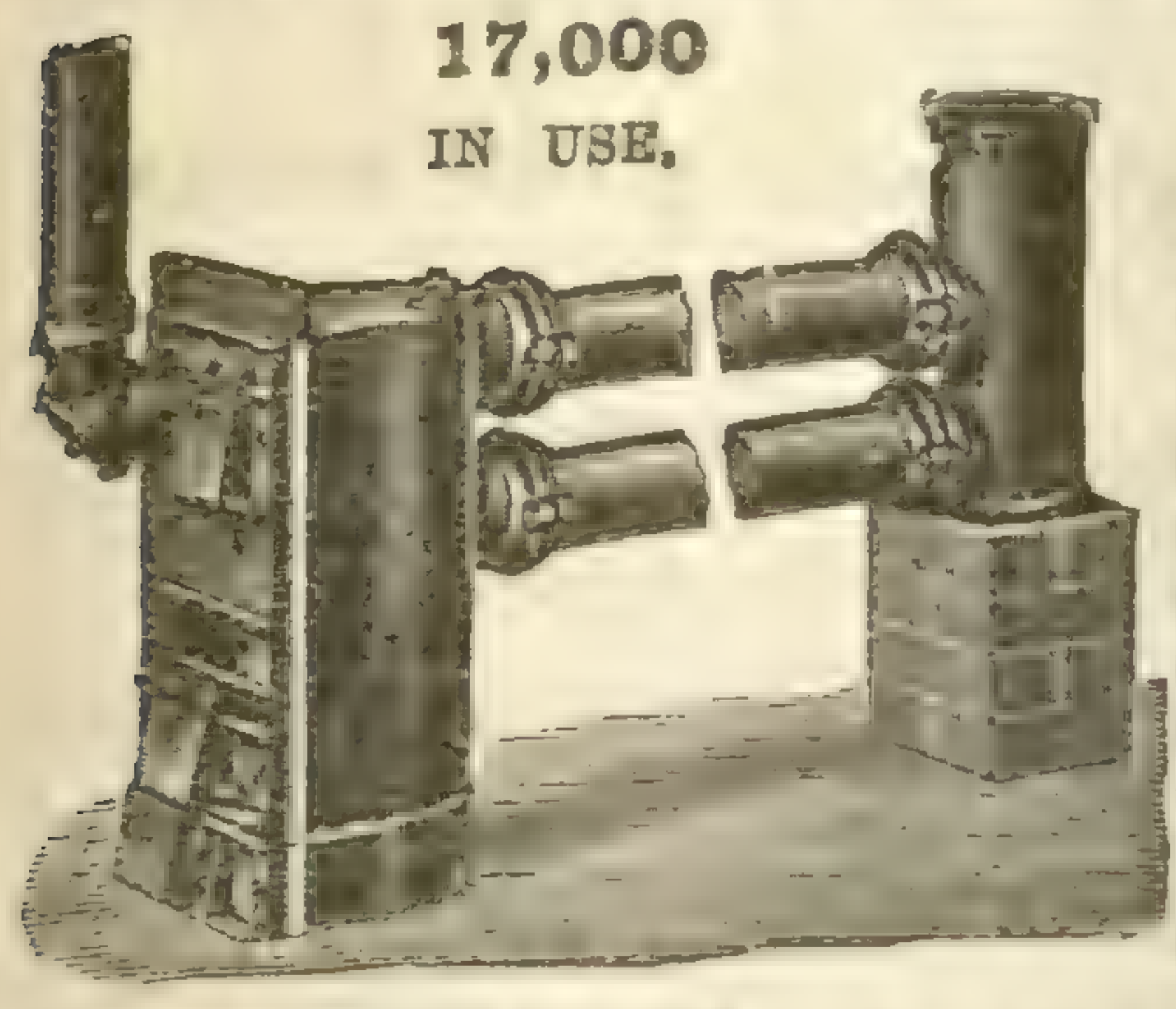


See List, post free.

Estimates for every Description of Horticultural Work, Post Free on Application.

LARGE ILLUSTRATED LIST POST FREE ON APPLICATION.

W. COOPER, HORTICULTURAL PROVIDER, **755, Old Kent Road, London, S.E.**



THE LOUGHBOROUGH BOILER.

The Pioneer of Cheap, Simple, and Effective Heating for Small Greenhouses.

17,000 IN USE.

THE immense sale of this Boiler and the numerous imitations of it sent out in recent years afford abundant testimony to its undoubted success.

No. 1, to heat 100 feet of 2-inch pipe .. £2 17s. 0d.
No. 2, " 200 " " ... £4 2s. 6d.
No. 3, " 400 " " ... £5 10s 0d.

Also made in larger sizes.

Complete Apparatus from £4 16s.

Estimates and Illustrated Lists free.

MESSENGER AND CO., LIMITED, LOUGHBOROUGH,
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London Office:
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NICHOLLS AND CLARKE,

MERCHANTS,

GLASS, PAINTS, OILS, VARNISHES.

Telegraphic Address—GLASS, LONDON.

HORTICULTURAL GLASS.

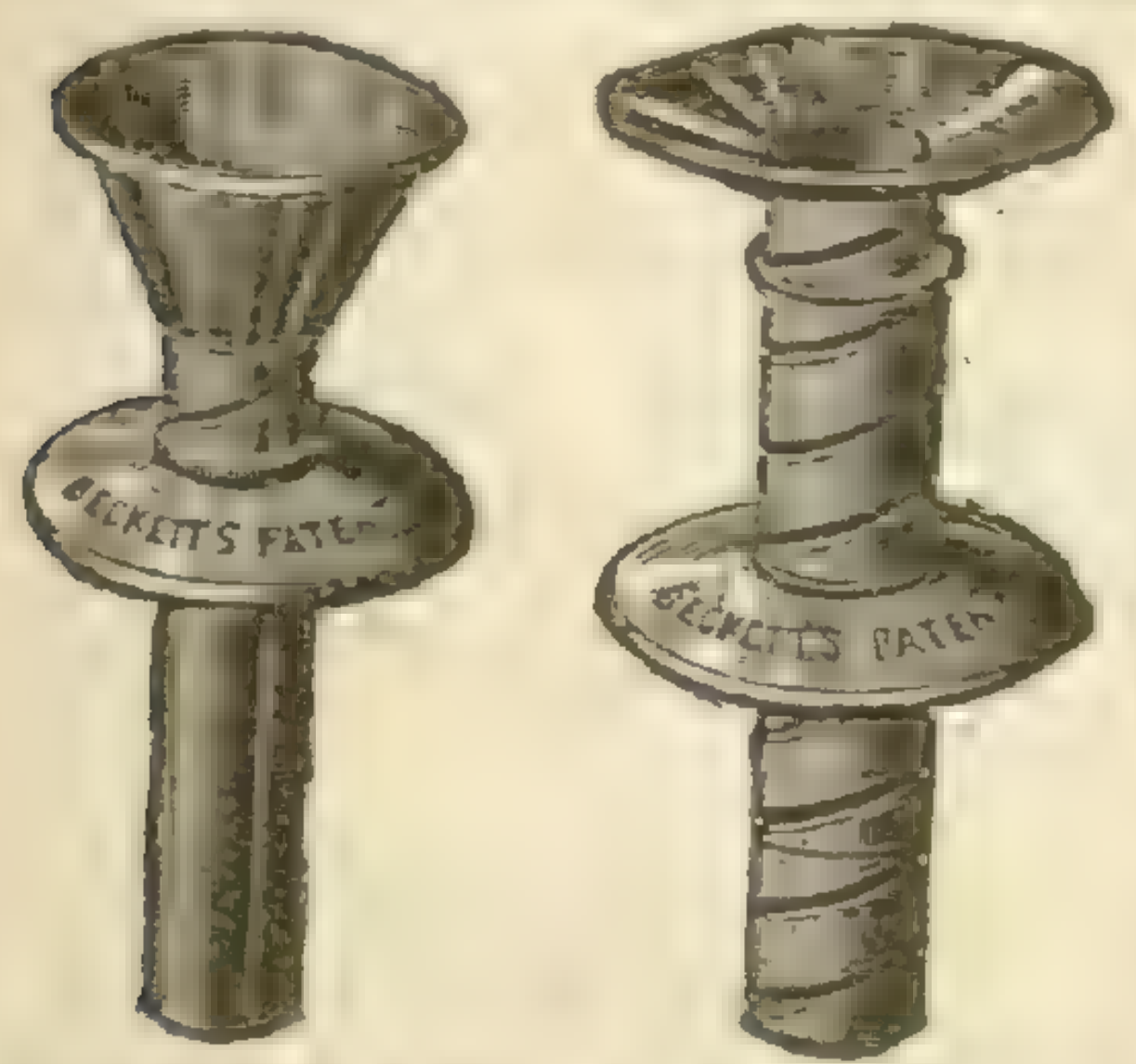
A Heavy Stock, 15 oz. and 21 oz., all Sizes.

WHITE LEAD—GENUINE ENGLISH.

BALTIC OIL—DOUBLE BOILED OIL.

PRICES ON APPLICATION.

SHOREDITCH, LONDON.



BECKETT'S EXHIBITION FLOWER TUBES

FOR

CHRYSANTHEMUMS, ROSES, &c.

To be had of all Seedsmen and Nurserymen.

List free on application to

STILL and CO., 24, Charles Street, Hatton Garden, LONDON, E.C.

THE MOST NUTRITIOUS.

EPPS'S

GRATEFUL—COMFORTING.

COCOA

BREAKFAST—SUPPER.

FIRE PROTECTION OF MANSIONS.

PORTABLE HAND FIRE PUMPS,

As supplied to Buckingham Palace, Windsor Castle, Osborne House, and other Royal Palaces, &c.

Price complete, **£5 5s.**

MERRYWEATHERS, 63, LONG ACRE, W.C.

PAINT TRY LEETE'S 2½D. LB ON IRON, WOOD & STONE

CHEAPEST HOUSE FOR BRUSHES, COLORS, VARNISHES & GLUE.

129, LONDON ROAD, S.E.

WORKMEN'S COMPENSATIONS under the new Act.

POLICIES to cover THE WHOLE OF THE EMPLOYER'S EXCEEDINGLY HEAVY LIABILITY.

Apply for full particulars to the

ACCIDENT INSURANCE COMPANY
(LIMITED).

Business Founded 1849. CLAIMS PAID, £1,000,000.

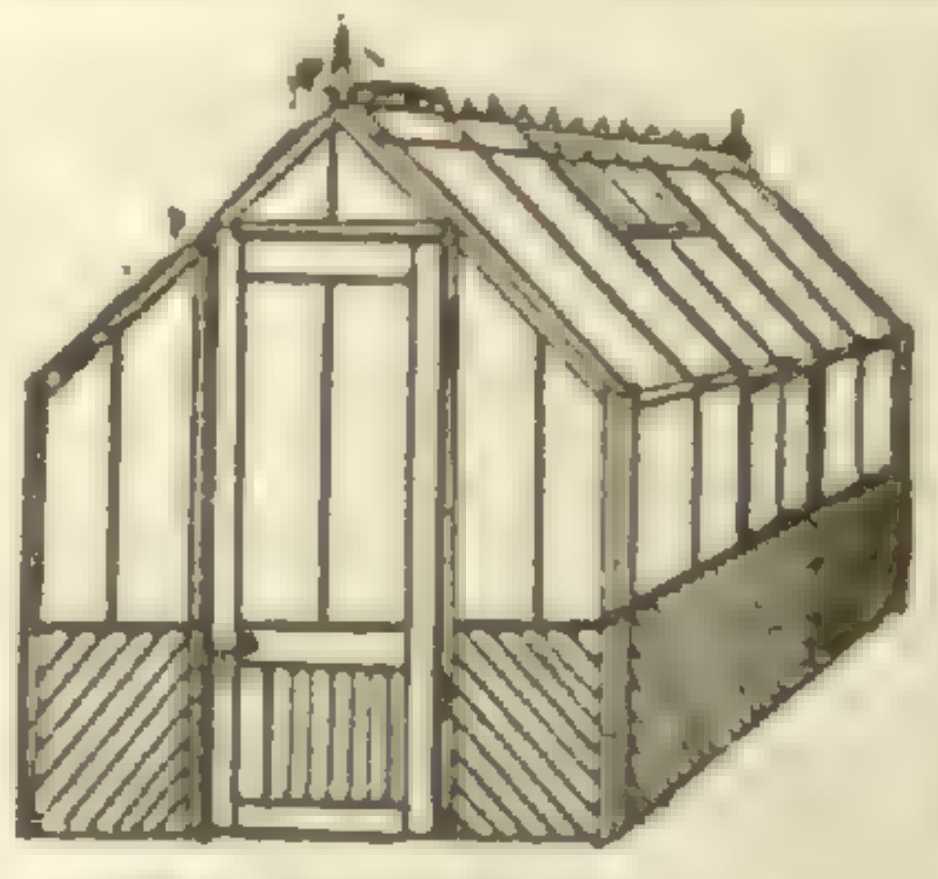
THOS. POTTER, Man. and Sec.

10, St. Swithin's Lane, London, E.C.

SURPLUS STOCK ONLY

AT THESE PRICES.

21-oz. glass throughout. Extra strong woodwork. Send for list, containing full specifications. Wherever you buy insist on having a full and complete specification of what you are going to receive. A comparison will then show that these goods, low though the prices are at first sight, in reality are much cheaper still, because so much more substantial. Do not accept vague statements, and take the rest for granted, but insist on knowing definite dimensions of material. The appearance of these houses is also much improved by having the boarding diagonal and more beaded (we have still a few of the lighter make left, prices proportionately lower). All goods on approval with pleasure. Sample end first if desired. Special arrangements for carriage. It will please others if you buy elsewhere, it will please you if you buy from us. So please yourself!

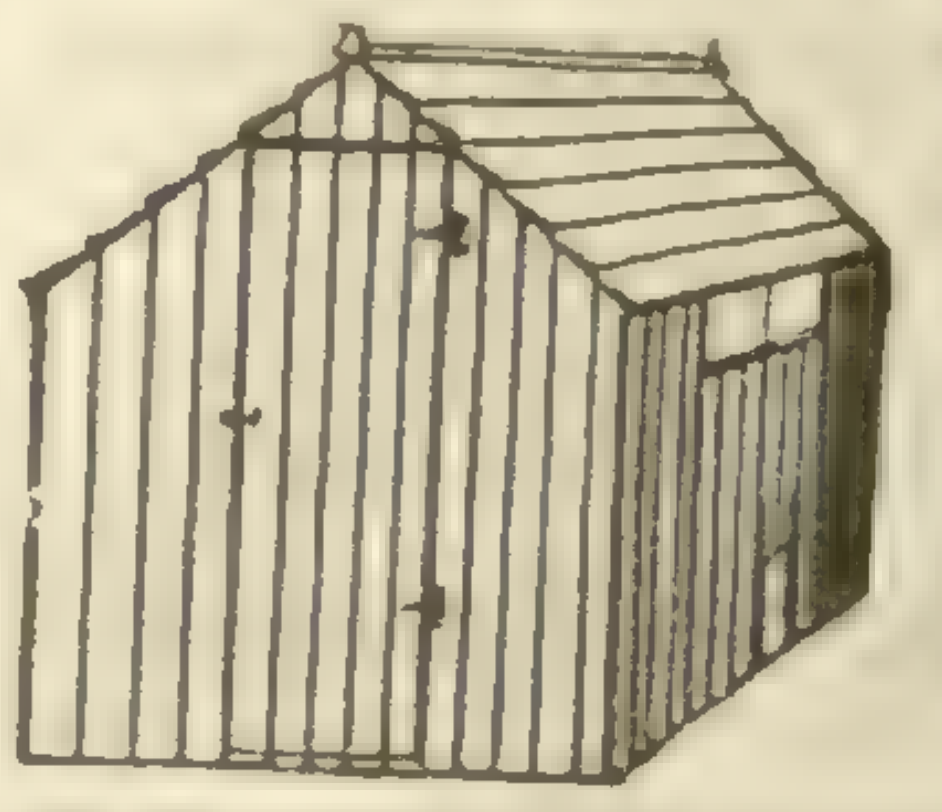


Size.	Lean-to.	Span.
8 X 5	36/-	48/6
10 X 5	48/6	58/6
14 X 6	58/6	78/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
14 X 10	95/-	£5/7/6
20 X 10	£5/17/6	£6/17/6

All 7 ft. high, and 4 ft. sides (a few 5 ft. sides, trifle more). Ironwork, staging, and one coat paint included.

A comparison:—
£3/10/0 buys elsewhere 8 X 5 lightest possible make.
£3/12/6 buys from us 10 X 8 extra substantial make.
All sizes are in proportion. Need we say more?

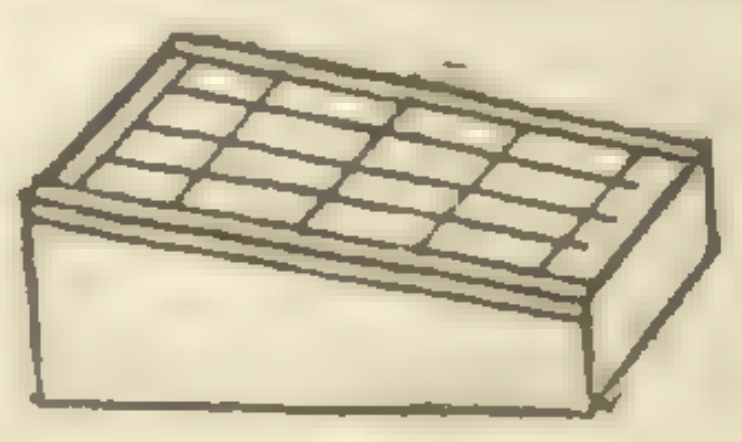
Speculate in a sample end, and set your doubts at rest.



To hold.	Size.	Lean-to.	Span.
Ten	4 X 3	10/9	12/9
Twenty	5 X 4	12/9	16/6
Forty	7 X 5	17,6	22/6
Hundred	12 X 7	—	33/-

(Also a few cheaper ones left.)

Usually made from half inch wood, these are one-third thicker, and felt cover to roof.



4 X 3	8/9
6 X 4	14/6
8 X 6	22/6
12 X 6	33/-

21 oz. glass, strong lights (a few cheaper, 4 X 3 & 6 X 4 left).

Apply for List to—

HYPOLITE, DEPTFORD.

CHEAP GLASS. GOOD GLASS.

SPECIAL OFFER
OF
HORTICULTURAL GLASS

Of reliable quality, to be cleared at the following low prices:

Stock Sizes.	Boxes.		Per Box.	Stock Sizes.
		4ths 15-oz.		
8X10	50 ft.	stock sizes as stated in margin, 8X10 to 12X13	at 4/6	12X24
8X12	100 ft.	stock sizes as stated in margin, 12X14 to 18X24	at 8/6	13X17
9X12	200 ft.		at 16/6	13X20
9X13		**4ths 21-oz.**		14X16
9X14	100 ft.	stock sizes as stated in margin, 8X12 to 16X20	at 13/-	14X18
10X12	200 ft.		at 25/-	14X20
10X14	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at 15/-	14X24
12X12	200 ft.		at 28/-	15X20
12X13		**3rds 21-oz.**		16X18
12X14	100 ft.	stock sizes as stated in margin, 8X12 to 16X20	at 14/-	16X20
12X16	200 ft.		at 27/	16X24
12X18	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at 16/-	18X20
12X20	200 ft.		at 30/-	18X24

NOTE.—No Box can be divided, and one size only is contained in each Box.

The above Glass is offered subject to being in stock on receipt of order. The prices are *ex* Wharf, London, whence all Railway Companies' Vans collect.

SASH BARS AND HORTICULTURAL WOOD WORK

Of all kinds at Low Prices.

CATALOGUES POST FREE ON APPLICATION.

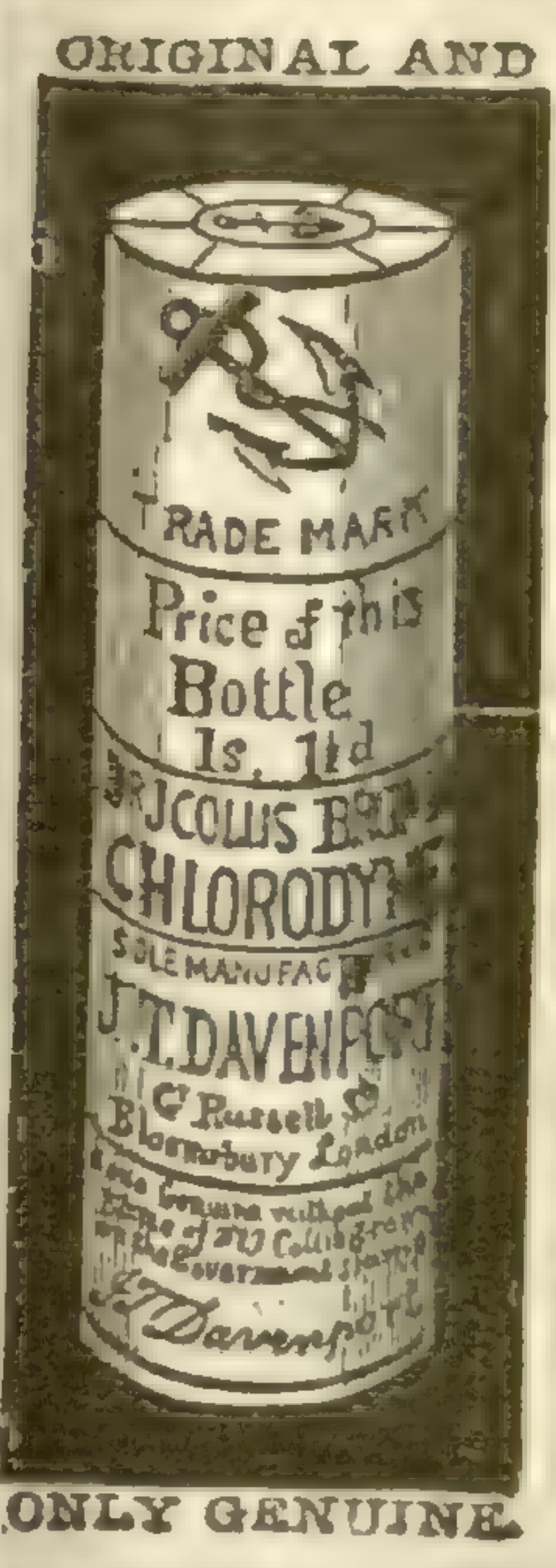
THE CHEAP WOOD COMPANY
72, BISHOPSGATE STREET WITHIN,
LONDON, E.C.

Ask your Nurseryman or Seedsman for

RICHARDS' NOTED PEAT.

THE Stock for 1898 is exceptionally fine. Choice selections for Orchids, Stove and Greenhouse Plants, Ferns, Rhododendrons, &c. By the sack, cubic yard ton, or truck-load. Can be seen in bulk at London Wharf, Immediate despatch either from London or Grounds. By Rail or Steamer. Prompt and Special Quotations for delivery to any station or Port.

G. H. RICHARDS, 124, Southwark Street, London, S.E. and Old Shot Tower Wharf, Lambeth, London, S.E. Letters Orders to Southwark Street.



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GENUINE CHLORODYNE.

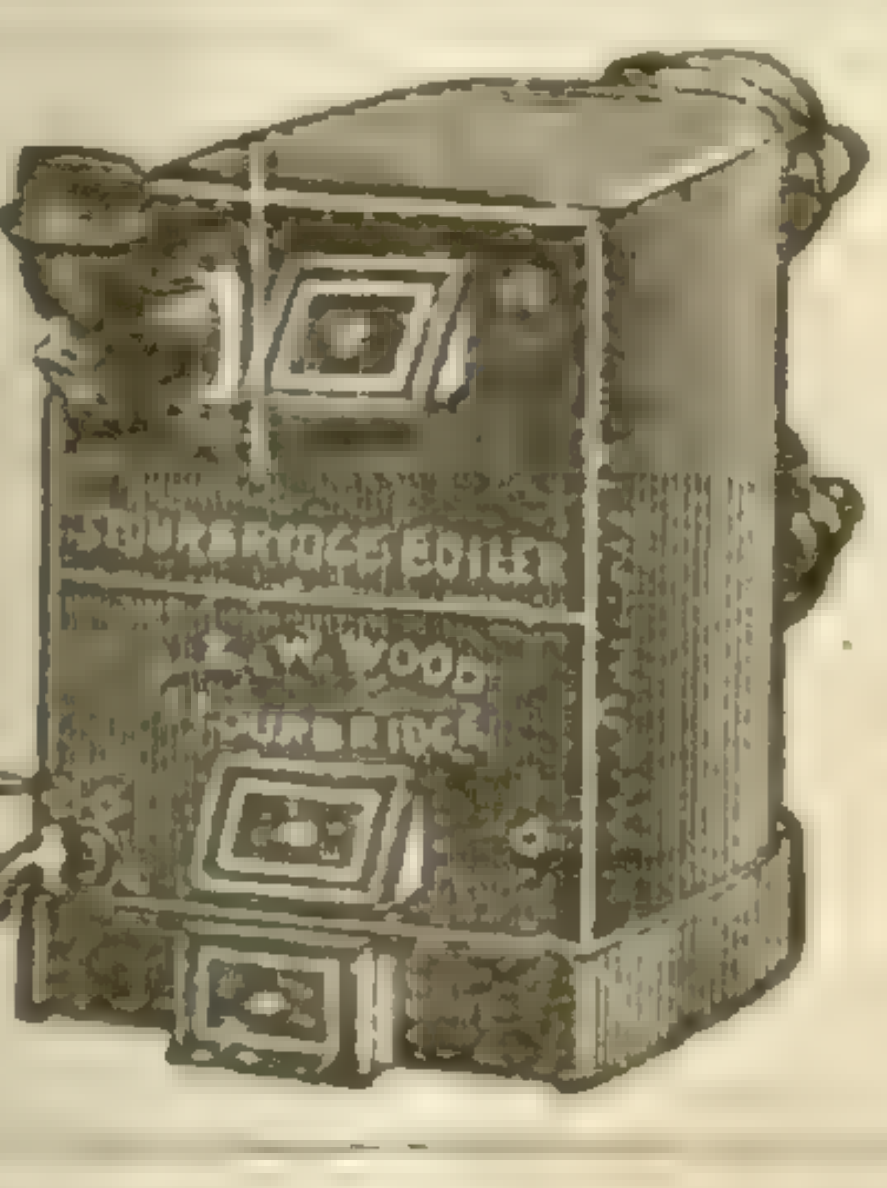
Each Bottle of this well-known

Remedy for
Coughs, Colds, Asthma, Bronchitis, Rheumatism, Toothache, &c.,

Bears on the Government Stamp the Name of the Inventor,

DR. J. COLLIS BROWNE.

Sold by all Chemists, 1s. 1½d., 2s. 9d., 4s. 6d.



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FOR GREENHOUSES,
CONSERVATORIES, &c.

Most Economical and Efficient. This apparatus has attained great popularity. Made at our own foundry, and under our own supervision. Before ordering elsewhere, send for Price List, giving full particulars, free by post.

J. and W. WOOD,
BIRMINGHAM STREET FOUNDRY,
STOURBRIDGE.

CARSON'S PAINTS.

Patronised by 20,000 of the Nobility, Gentry, and Clergy.

ANTI CORROSION, in Dry Powder,

THE BEST FOR ALL OUTSIDE WORK.

Greenhouses, Garden Lights, &c., &c.

Does not Peel or Blister.

One cwt. of Powder and Oil Mixture Free to all Stations.

LIQUID PAINT, NON-POISONOUS.

For Interior Work.

PRICES AND PATTERNS POST FREE:

GROVE WORKS, LOMBARD ROAD,
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WORTH A GUINEA A BOX.

BEECHAM'S PILLS

FOR ALL

Bilious & Nervous Disorders

SUCH AS

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CONSTIPATION,
WEAK STOMACH,
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DISORDERED LIVER,
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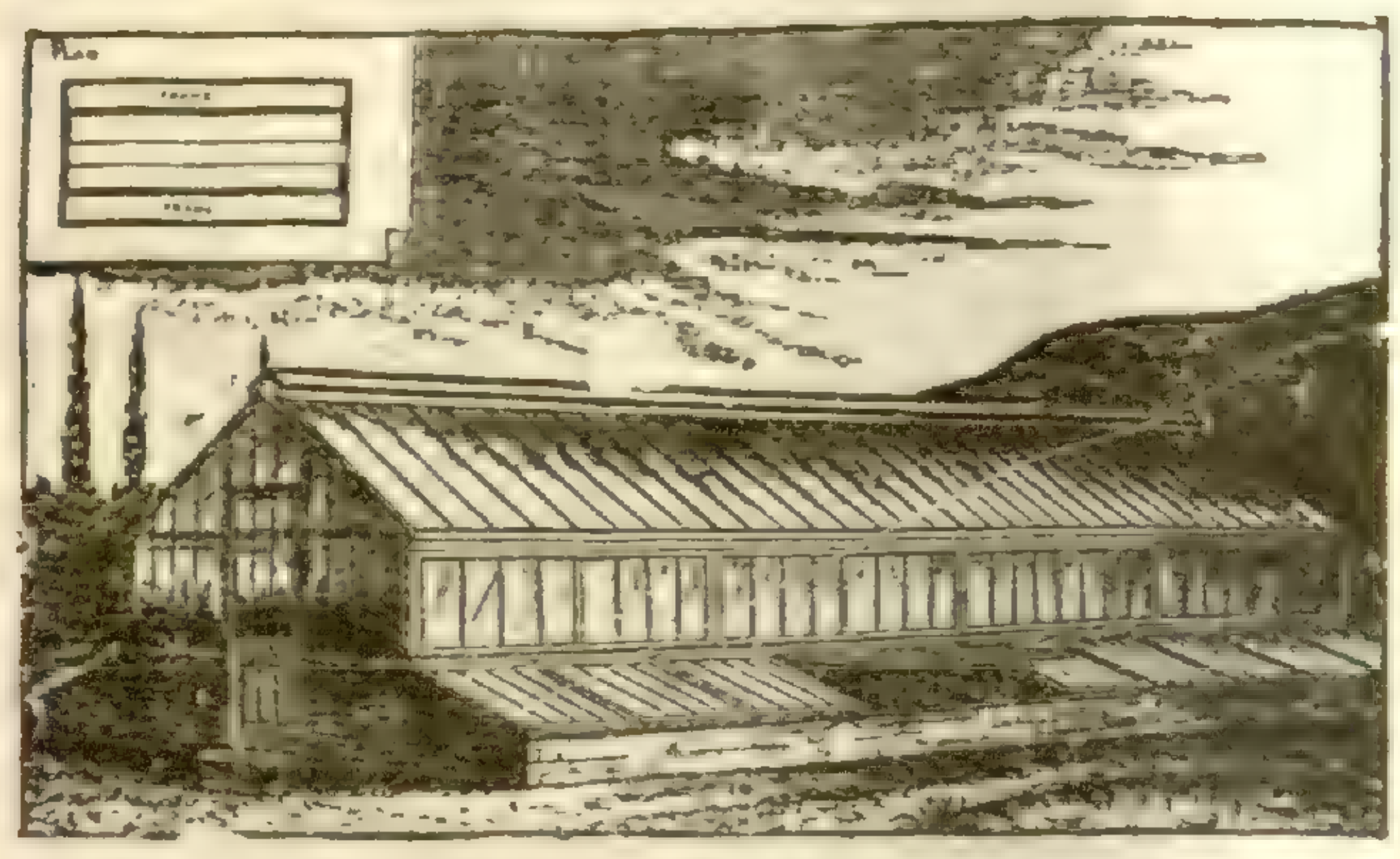
Annual Sale Six Million Boxes.

In Boxes, 9½d., 1s. 1½d., and 2s. 9d. each, with full directions. The 1s. 1½d. box contains 56 Pills.

Prepared only by the Proprietor—

THOMAS BEECHAM, St. Helens, Lancashire.

FOSTER & PEARSON, Ltd.



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From E. L. CAVE, Esq , Solicitor, Bromyard.

"The Houses that your firm supplied nearly

30 YEARS AGO

are still good and sound."

OUR HOUSE WILL STAND THE

TEST OF TIME.

From Sir HENRY EDWARDES, Wootton Hall, Ashbourne.

"The Vinery you erected for me at Wootton Hall is the same in every respect as when it left your factory

25 YEARS AGO."

ESTIMATES ON APPLICATION

— FOR —

RANGES, VINERIES, &c.,

— IN —

TEAK,

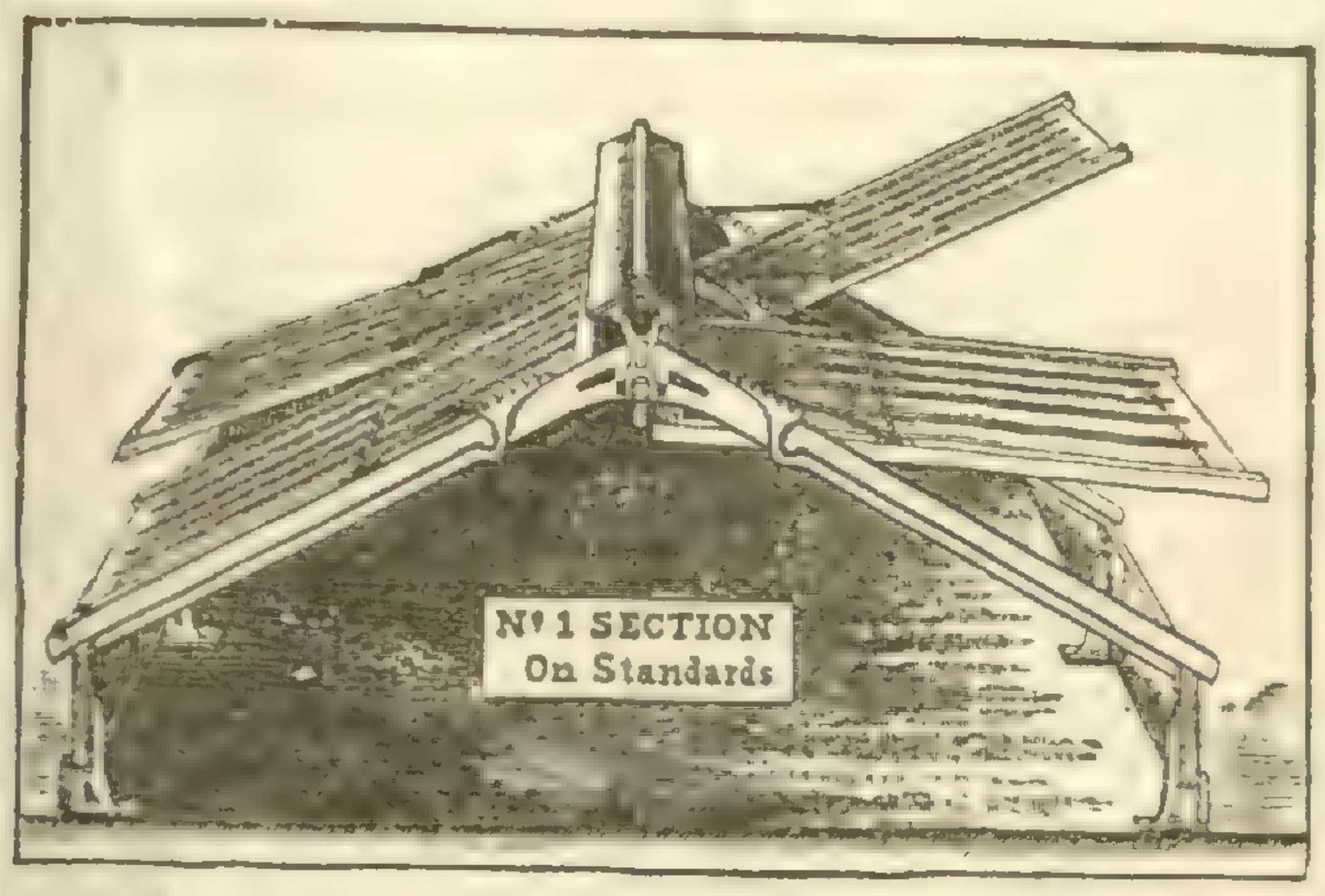
Of which we hold a VERY LARGE STOCK.

From EDWARD BROWN, Esq., The Grove, Lincoln.

"The large Vinery you built for me

23 YEARS AGO

is as sound and good as the day it was put up."



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ROSES
DESIGN REGISTERED

During the Season of 1898

WON THE CHAMPION TROPHY of the National Rose Society, London.
WON THE QUEEN'S CUP, at Windsor, for the second time, becoming owner.
WON THE RICHMOND CUP, Presented by the Mayor of Richmond.
WON THE WOODBRIDGE CUP, for the second time.
WON THE ELY CUP for the second time.
WON THE BATH CUP, Presented by the Mayor of Bath.
BESIDES NUMEROUS OTHER FIRST PRIZES at all the principal Shows throughout the Country.

This record of prizes is sufficient guarantee that the plants for sale from these Nurseries this Autumn must be of the finest quality to have produced such wonderful results.

Priced Catalogue of Standard, Half-Standard, Dwarf, Climbing, and other Roses,
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BENJAMIN R. CANT, ROSE GROWER, COLCHESTER.
ESTABLISHED 133 YEARS.

SAVE HALF THE COST.

GARSIDE'S BEDFORDSHIRE SILVER SAND

(COARSE OR FINE) is admitted by the leading Nurserymen to be **THE BEST QUALITY** obtainable in the trade. Consumers should **BUY DIRECT** from the owner of these celebrated and extensive Pits, which contain a practically inexhaustible supply of splendid Sand, and thus *save half the ordinary cost.* APPLY DIRECT TO THE PROPRIETOR FOR SAMPLES AND PRICES free on rail or canal. All orders executed with the utmost promptness and under personal supervision. Special railway rates in force to all parts. All kinds of PEAT supplied at lowest possible prices. Sample bag sent on application.

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Fruit Trees, Roses, Vines, Figs, Oranges, and Orchard House Trees.

A LARGE AND SELECT STOCK ALWAYS ON VIEW.

ILLUSTRATED and DESCRIPTIVE CATALOGUE,
POST FREE, 3d.

THOMAS RIVERS & SON,
Sawbridgeworth, Herts,
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STRAWBERRY PLANTS
(My Speciality),

THE best MARKET KINDS of Emperor William, Louis Gauthier, Monarch, and Leader, 4s. per 100; Latest of All, Prince and Princess of Wales, 3s. per 100; Royal Sovereign, Paxton's, and Noble, 1s. per 100. All others equally cheap.

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FOR AMATEUR CULTIVATORS, COLLECTORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

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On view Mornings of Sale, and Catalogues had:

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May be viewed. Catalogues had on the premises of J. Alfred Hopps, Esq., the Trustee (Messrs. Hopps and Bankart), Chartered Accountants, 12, Friar Lane, Leicester, 3, Market Place, Loughborough, and 80, Coleman Street, London; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Thursday Next, November 10th.

HARDY BORDER PLANTS and rare Hardy Bulbs from a well-known collection, including many Novelties; splendid roots of Iris from Syria and the Holy Land; German, Japanese, and Crimean Iris; Liliums rubellum and Longiflorum giganteum; imported Joss Lilies, Belladonna Lilies, and Lilies of the Valley; many thousands of new border, Tree and Clove Carnations; Hollyhocks, Phlox, Pyrethrums, Rock Plants, Clematis, Ivies, Ampelopsis, and Michaelmas Daisies, together with thousands of Border Plants.

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On View morning of Sale and Catalogues had.

Friday Next.

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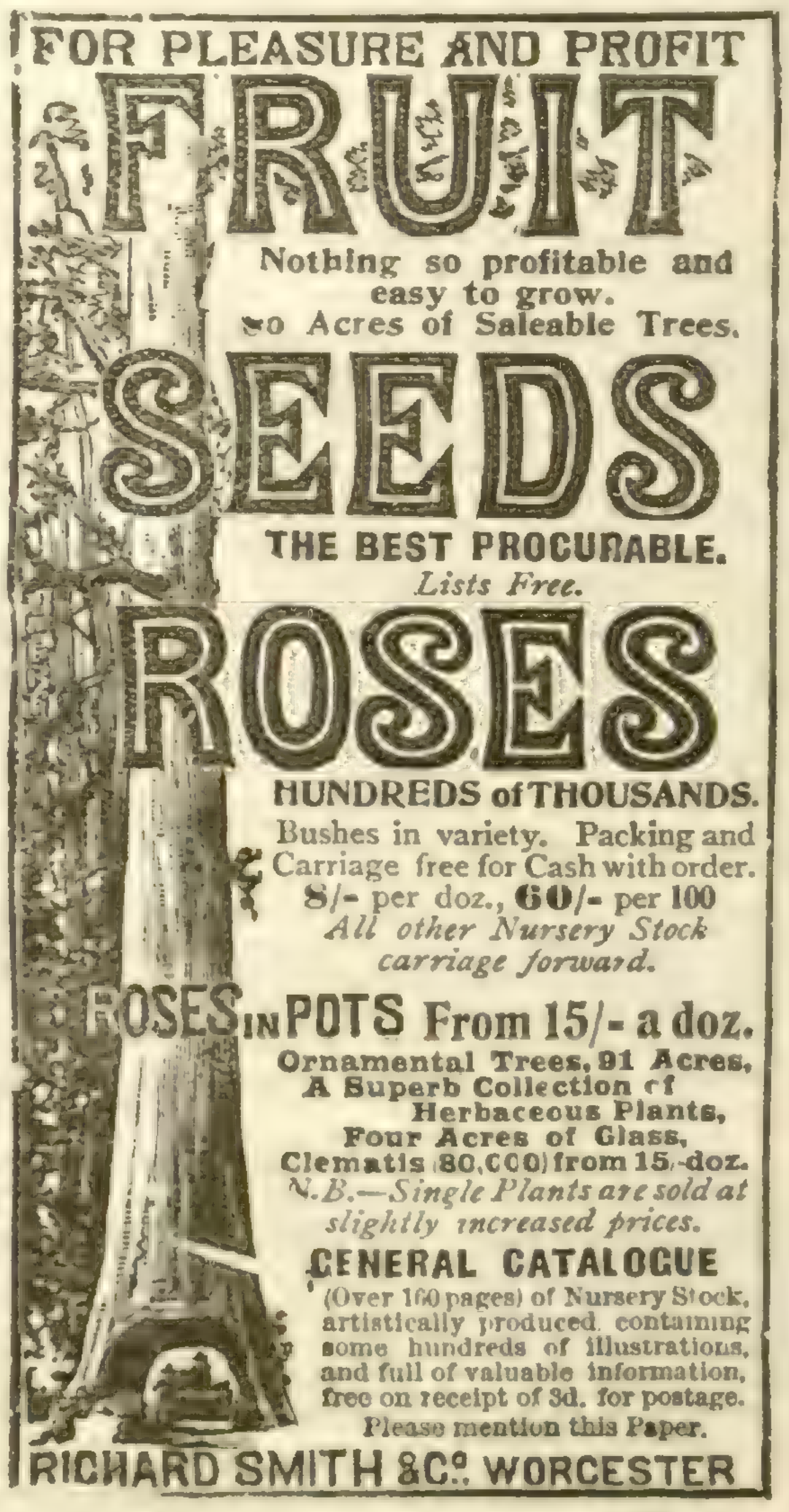

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Crocus, II. size, in fine mixture	0	8	...	6	3
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Hyacinths, mixed, for bedding or forcing ..	9	8	...	91	[illegible]
Hyacinths, single, first size, named, in several best leading sorts (red, white, and blue varieties), equal quantities, my selection ...	17	6	...	—	
Iris Kæmpferi (Japan Iris), in fine mixture ...	5	0	...	[illegible]	0
Iris Germanica (Flag Iris), in fine mixture ...	7	0	...	65	3
Iris Sibirica, in fine mixture	5	0	...	[illegible]	0
Iris Spanish, in the finest mixture ...	0	7	...	5	0
Lilium Candidum, single, pure white	[illegible]	0	...	—	
Montbretia croscosmiæflora, orange scarlet ...	1	6	...	—	
Narcissus campernel Jonquil, yellow	1	2	...	[illegible]	0
Narcissus, double, Incomparable, primrose ...	1	6	...	14	0
Narcissus van Sion, single, yellow trumpet ...	2	6	...	23	4
Narcissus Stella, white, yellow cup	1	4	...	[illegible]	6
Gladiolus Marie Lemoine, fine	2	0	...	[illegible]	2
Gladiolus Brenchlyensis, deep scarlet ...	2	6	...	20	0
Scilla Sibirica præcox, intense blue ...	1	2	...	10	0
Tulips, single early, in the finest mixture ...	1	2	...	[illegible]	0
Tulips, double early, in the finest mixture ...	1	6	...	14	2
Duc van Thol Tulips, single, excellent for early forcing	2	6	...	20	0
Grape Hyacinths, blue	0	7	...	5	4
Anemone japonica, rose	5	0	...	—	
Hemerocallis (Day Lily), mixed	8	0	...	—	
Pyrethrum, fine double, pure white	15	0	...	—	
Tritoma uvaria (Red Hot Poker)	14	6	...	—	
Sparaxis, in fine mixture...	0	8	...	6	[illegible]
Funkias, in fine mixture	10	0	..	—	
Gladiolus Colvilli, white	1	2	...	10	[illegible]
Hyacinthus candicans, white	5	0	...	45	[illegible]
Iris pumila, mixed	4	0	...	—	
Lilium umbellatum, red	10	0	..	—	
Snowdrops, Elwesi	2	0	...	18	4

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GARDENER (Head-working); middle-aged; life experience; excellent references; where two or three are kept; also son, age 18.—PRICE, Gardener, St. Peter's, Jersey.

GARDENER (Working); age 30; married; one child; experienced in all branches, or could superintend Dairy Farm; good references; abstainer.—F. GOTT, High Greenwood, Hebden Bridge.

GARDENER (Single-handed, or in good establishment, as Inside and Out).—Age 28, single; ten years' experience, six last place; well recommended. Rooms preferred.—GARDENER, Harlow Grange, Harrogate.

GARDENER (Single-handed, or with help); age 24; married; good experience in all branches; can be well recommended.—Apply W. R., care of Mr. Downes, Barnet Road, Potter's Bar, Middlesex.

JOURNEYMAN, Inside; age 20.—S. Hoad, The Gardens, Vicar's Hill, Lymington, Hants, will be pleased to recommend a young man as above, in a good establishment.

MRS. G. WILDER (late of Stansted Park) highly RECOMMENDS her Gardener. He has been in her service as above for 20 years. He is a thorough all-round Gardener for a good establishment. Total abstainer.

Apply—

C. HOSKINS, Stansted Park, Emsworth, Sussex.

RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

SITUATION WANTED by a Young Man, age 23, as Improver, Inside and Out, in a good establishment, where five or six are kept; six years' experience; 12 months in present situation; leaving through breaking up of establishment —G. B., Church-road, Horley, Surrey.

TO NURSERYMEN.—FOREMAN PROPAGATOR and Grower in first-class establishment; well up in grafting roses, clematis, cut flowers, stove and greenhouse plants, forcing, and decorating; good references.—Apply T. K., 7, Eagle Cottages, Friarwood, Pontefract, Yorks.

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Situations Vacant.

Advertisements under this heading are charged 2s. 6d. for Four lines (32 words), and 6d. per line of eight words after.

WANTED, for Nursery at London Road, Hounslow, good SPADE HANDS, used to planting, &c.; wages, 20s. per week.—W. FROMOW and SONS, Sutton Court Nurseries, Chiswick, W.

WANTED, good Single-handed GARDENER; melons, tomatos, cucumbers, and chrysanthemums; age not over 30; must have good references.—Apply, stating full particulars, wages, &c., FENTON, Vicarage, Henfield, Sussex.

WANTED, an experienced Grower of Pot Plants, Palms, Ferns, &c., for market nursery.—Apply, with particulars as to wages, references, &c., to G. JACOB, Witney, Oxon.

IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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ORNAMENTAL TREES, SHRUBS, &c.

Descriptive Catalogues Post Free.

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Crawley, Sussex

DESCRIPTIVE CATALOGUE.

Roses, Fruit Trees, Rhododendrons, Conifers. Decidous and Evergreen Trees and Shrubs, Forest Trees, Climbers, &c., &c., on application.
150 acres devoted to Nursery Stock.

H. LANE & SON,
Nurseries, Berkhamsted, Herts.

To be Let.

TO BE LET, large GARDENS, situate about 13 miles from London, and comprising about 11 acres, enclosed with high walls; with vineries, peach-houses, potting and other sheds, cottage, &c.

For particulars apply to
F. J. COVERDALE, Ingatestone, Essex.

LAND TO LET for NURSERY and FLORISTS' BUSINESSES, situate at Edgewarebury, Edgeware, nine miles from Town. Capital Soil. Water laid on. Choice of 180 acres. Rent £5 an acre. Lease 30 years. Immediate possession.—Address, THE NURSERY, FLORIST, and FRUIT GROWERS' SYNDICATE (LIMITED), Edgewarebury, Middlesex.

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Come and See.

AN enormous amount of evidence confirming our special system, first adopted by us for propagating from properly prepared stock, from pure, clean, healthy, open-field grown stools, free from fungi, has come to light, and is still coming and proving more and more that ours are far the best, the key to success, and win more victories than, perhaps, all others put together.

Please remember our forte and aim is stock of the best quality, carrying satisfaction all over the world. The following is unmistakable:—

"Mr. H. ADAM, Hon. Secretary,
"Dunedin Chrysanthemum Club, New Zealand,
"September 13, 1898.

"We received the chrysanthemums. I am instructed by my committee to thank you very much for your liberal treatment. The plants arrived in splendid condition; only two died out of the 44; forward me your catalogues, as you can rely on us ordering.

"H. Cannell and Sons, Swanley, Kent."

DON'T BELIEVE ME! COME!

and see for yourself that my Stock of Chrysanthemums is absolutely free from Rust or Disease of any kind.

Inspection cordially invited.

Catalogues now ready, Post Free 1d.

Catalogue and Cultural Guide, 7d.

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THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s.; 12 best hybrid Perpetuals, dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d.; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d.; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

JAMES WALTERS, Rose Grower, **EXETER.**

ORCHIDS! ORCHIDS!!

Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
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FRUIT GROWERS.

"A Year's Work on a Kent Fruit Farm."

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THE AMATEUR'S FLOWER GARDEN. By the late SHIRLEY HIBBERD. Illustrated. A Practical Guide to the Cultivation of Popular Flower. **Price 3/6.**

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GENUINE BULBS

VEITCH'S COLLECTIONS
Of HYACINTHS,

Selected from the most distinct named varieties.

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Of DAFFODILS,

Embracing the finest of each section.

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Containing the most effective kinds for pots.

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ROYAL EXOTIC NURSERY,
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The ONLY House supplying First Size named **HYACINTHS** at **3**d. per root. As we are Growers, we save customers all middlemen's profits. The small advance in price is solely due to the great scarcity and unusual demand this season.

Roman Hyacinths, selected bulbs, 10,6 per 100, 1/6 per doz.

All our Bulbs are Guaranteed First Size ONLY.

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Scarlet, 2 6 per 100.
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Single Mixed Tulips, 2/6 per 100, from finest named varieties.
All other Bulbs equally as cheap and reliable.

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"THE GODFREY."—Whiter than ordinary variety; earlier; requires less room, and will give five times the number of spathes from the same space.

"DEVONIENSIS."—Dwarfer and slightly smaller than the above, but even more floriferous.

Good plants, **2 6** each; small plants, **1/6.**

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754 BULBS FOR 20/-.

All [illegible] flowering bulbs, including 50 named Hyacinths in six distinct colours, 25 large Trumpet Daffodils, 25 Nonsuch Daffodils, 100 Snowdrops, 200 Crocus in four separate colours, 50 Tulips, with a liberal number of Anemones, Iris, Scillas, Jonquils, Gladiolus, &c

For full list and number of varieties see Catalogue.

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The Most Lovely of all Spring Flowers.

SEND for BARR'S DAFFODIL CATALOGUE, illustrated with original photographs taken at the Long Ditton Nurseries, and containing a Descriptive List of all the finest Daffodils in cultivation and the latest Novelties for 1898 Free on application.

A FEW FINE SORTS FOR POTS OR OUTDOORS.

Emperor, petals primrose, trumpet full yellow, large flower of great substance. Per 100 30/-, per doz. 4/6.

Henry Irving, one of the earliest, very large flower, fine deep golden yellow. Per 100 21/-, per doz. 3/-.

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12 and 13, KING ST., COVENT GARDEN,
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POPULAR COLLECTION
OF
SPRING
FLOWERING BULBS.

CHEAP OFFER TO CLEAR.

25 Bedding Hyacinths, mixed.
25 Tulips, double mixed.
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50 Narcissus, Leedsi Circe.
25 Narcissus, Double Von Sion.
50 Narcissus, Incomparabilis Seedlings.
100 Scilla Siberica.
50 Crocus, mixed.
50 Triteleia uniflora.
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100 Ornithogalum umbellatum.
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150 Spanish Iris, mixed.
50 Ranunculus, mixed.
25 Winter Aconites.
50 Galanthus Elwesii.
50 Chionodoxa Sardensis.
25 Anemones, mixed.
25 Fritillaria meleagris.
25 Anemone bracteata plena.

1,000 Bulbs as above for 20s.
Half the quantities, 500 for 10s. 6d.
Cash with Order. Catalogues Free.
Advice Free as to Landscape Gardening.

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Hale Farm Nurseries,
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PROFITABLE GARDENING. By the late SHIRLEY HIBBERD. Illustrated Work on the Culture of Vegetables, Fruits, and other Garden Produce.
Price 3/6.
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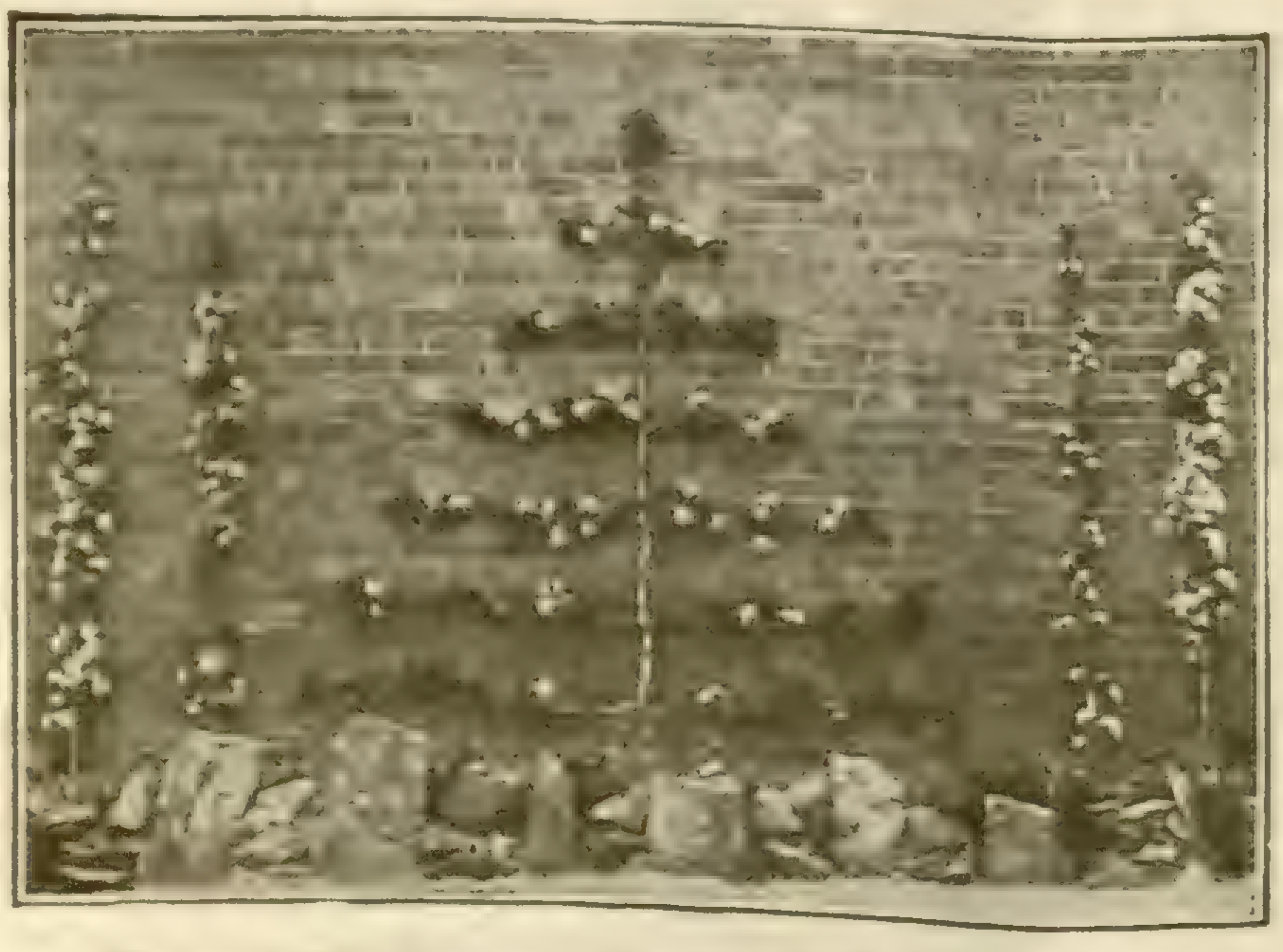
FIELD FLOWERS. By the late SHIRLEY HIBBERD. With Eight Coloured Plates and Engravings, Describing the wild flowers of each month.
Price 3/6.
W. H. & L. COLLINGRIDGE, 148 & 149, Aldersgate St., London.

AN AGE OF SPECIALISTS.

20,000 Trained Trees to Select from!
50,000 Apples on Paradise!

For considerably over a century our firm has been noted for the careful cultivation of Fruit Trees, and has built up a reputation by sending out Trees **TRUE TO NAME.** During the past Sixteen Years we have greatly **extended our culture of Fruit Trees,** and, having given up the cultivation of all General Nursery Stock in favour of these, and Roses, we may fairly claim to be **Fruit Tree Specialists.** To-day we are pushing the matter still closer, and make a Speciality (without neglecting other branches of Fruit Tree Culture) of



Photograph from Customer, of Trees planted the previous Autumn.

ESPALIER TRAINED TREES.

Last Season we had a **Stock of over 20,000,** a stock which for excellence or number we believe to be without parallel. We have **Apples, Pears,** and **Plums** trained in this form. **Peaches, Nectarines, Apricots, Cherries,** &c., as fan-trained Trees. We were the first to grow **Plums** as horizontally trained Trees, a method which suits them infinitely better than any other.

DESCRIPTIVE CATALOGUE, with article on Planting, Pruning, &c., 6d.; Gratis to Customers.

J. R. PEARSON & SONS, CHILWELL NURSERIES, NOTTS.

THE GARDENERS' MAGAZINE.

SATURDAY, NOVEMBER 5. 1898.

NATIONAL CHRYSANTHEMUM SOCIETY.
ROYAL AQUARIUM, WESTMINSTER,
NOVEMBER 8, 9, and 10, 1898.
GREAT AUTUMN CHRYSANTHEMUM FESTIVAL.
Specimen Plants, Groups, Cut Blooms, Fruit and Vegetables. The Largest Chrysanthemum Show in the United Kingdom.

Schedules of Prizes from
RICHARD DEAN V.M.H., Secretary and Superintendent, 42, Ranelagh Road, Ealing, W.

BRADFORD and DISTRICT CHRYSANTHEMUM SOCIETY.—TWELFTH ANNUAL EXHIBITION in ST. GEORGE'S HALL, NOVEMBER 11 and 12. £150 in prizes, four Silver Cups, and three Gold Medals to be competed for. Entries close November 7. Schedules, &c., to be had from
R. EICHEL, Hon. Secretary, Westcliffe Road, Shipley.

DERBY CHRYSANTHEMUM ASSOCIATION. — FOURTEENTH ANNUAL EXHIBITION.
ROYAL DRILL HALL, NOVEMBER 11 AND 12.
Entries close November 7. Schedules and particulars from
H. J. BELL, F.R.H.S., Hon. Sec., Normanton Road, Derby.

HULL.—The 15th ANNUAL CHRYSANTHEMUM SHOW of the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY will be held in the ARTILLERY BARRACKS, HULL, on WEDNESDAY and THURSDAY, NOVEMBER 16th and 17th.
Entries close November 9th.
Schedules free from the Hon Secs.,
EDWARD HARLAND, Manor Street, Hull.
JAMES DIXON, F.R.H.S , 2, County Buildings, Hull.

LEEDS PAXTON SOCIETY'S CHRYSANTHEMUM SHOW, TOWN HALL, LEEDS, TUESDAY and WEDNESDAY, NOVEMBER 15 and 16. Upwards of £180, including four Challenge Cups, will be given in prizes. Schedules from the Hon. Sec.,
JAMES CAMPBELL, The Gardens, Methley Park, Leeds.

READING CHRYSANTHEMUM SOCIETY.—ANNUAL SHOW of CHRYSANTHEMUMS and FRUIT, TOWN HALLS, WEDNESDAY, NOVEMBER 16.
W. L. WALKER, Secretary, Balmer tie Road, Reading.

RUGBY CHRYSANTHEMUM EXHIBITION, NOVEMBER 16 AND 17, 1898. Entries close November 9.
WILLIAM BRYANT, Secretary, 8, Barby Road.

SHEFFIELD CHRYSANTHEMUM SOCIETY.—ANNUAL SHOW
CORN EXCHANGE, SHEFFIELD, NOVEMBER 11 AND 12, 1898.
£200 in Prizes. Schedules free on application to
W. HOUSLEY, Secretary,
28, Joshua Road, Sheffield.

WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL AND COTTAGE GARDEN SOCIETY.
The ANNUAL EXHIBITION of CHRYSANTHEMUMS, VEGETABLES, FRUIT, &c., will be held in the DRILL HALL, WIMBLEDON, on WEDNESDAY and THURSDAY, NOVEMBER 9 and 10
Schedules and particulars of the Hon. Sec., W. S. THOMSON, The Nurseries, Wimbledon.

YORK CHRYSANTHEMUM SHOW.—The NINETEENTH ANNUAL SHOW will be held NOVEMBER 16, 17, and 18, 1898. Upwards of £200 offered in Prizes, in liberal proportions, for Plants, Cut Flowers, Fruit, and Vegetables.
Schedules, &c., to be had from
J. LAZENBY, 13, Feasegate, York.
Challenge Prize, value £20, added to 1st Prize (£10) for 36 Cut Blooms. £7 and Cup (£5) for Group. Entries November 9.

THE ROYAL GARDENERS' ORPHAN FUND.

The ELEVENTH ELECTION of CHILDREN to the benefits of this Fund, consisting of an allowance of 5s. per week (subject to the conditions stated in Rule XIII), will take place on FEBRUARY 17 next at ANDERTON'S HOTEL, FLEET STREET, E.C.
All applications must be made on a printed form, copies of which may be had gratis of the Secretary or of any of the local Secretaries Such form must be correctly filled up, duly signed, and returned to this office not later than TUESDAY, DECEMBER 20.
A. F. BARRON, Secretary, 13, Sutton Court Road, Chiswick.

HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T. H. SMITH, 18, Somerville Road, Small Heath, Birmingham. First Examination Paper ready November 5. Join early for the whole course.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE CHRYSANTHEMUM SEASON.

CHRYSANTHEMUMS have for some time past contributed liberally to the attractions of the garden, and where full advantage has been taken of the wealth of material to be found in the early-blooming section the borders have throughout the past month presented a bright appearance, and yielded an abundant supply of cut flowers for the decoration of the house. Under glass, the fantastic and gaily coloured Japanese and the formal incurved have for two or three weeks past been sufficiently in bloom to produce an attractive display and quicken the interest in the important group of plants to which they belong. But the chrysanthemum season, from the exhibitor's point of view, did not commence until the past week, and so numerous were the competitive gatherings during the second and third days that sufficient have been held to indicate the character of the season. It has afforded us an immense amount of satisfaction to have unquestionable proofs, in crowded buildings, that there is no diminution in the interest taken by the general public in the golden flower, which brings so much of brightness and beauty into what is admittedly the dullest period of the year, and thus be in a position to state that those who are careful to introduce new features into their exhibitions may proceed with their good work with the assurance of substantial support. Of the general character of the season it is yet early to speak otherwise than with some reservation ; but as far as it is possible to judge from the exhibitions at which we have been present, the collections in gardens we have seen, and the reports of our correspondents, we are of opinion that the present season will hardly be up to the high average of recent years. There will be large and attractive displays at the exhibitions, but there is a probability of the quality of the greater proportion of the blooms staged being lower than usual. We hear on all sides of many buds on the finest Japanese varieties opening slowly and unsatisfactorily, and Madame Carnot, so finely shown last year, is this season especially disappointing in not a few collections from which we received information. Indeed, one grower states : "I have a score of plants of Madame Carnot and its sports, from which I shall not cut more than half a dozen exhibition blooms." The incurved varieties appear to be even more unsatisfactory than the Japanese, for the buds have not expanded well, and so far the blooms that have attained their full development have been wanting in the high finish which forms so great a charm of the section. We have already seen considerable numbers of rough incurved blooms on the exhibition tables, and, although we shall expect an improvement in the later flowers, we must be prepared for some amount of roughness in the section, and especially is this likely to be the case where many of the varieties that are intermediate between the older incurved varieties and the Japanese are grown. The cause of this lack of quality in the several sections is not difficult to understand. It is not due as some of our friends would have us believe, to the disease popularly known as chrysanthemum rust, for in no case that has come under our notice has the attack been so severe as to bring about the results of which cultivators are complaining. In our opinion the cause of the failure of so large a proportion of the plants to produce blooms of high quality has been the unfavourable climatic conditions that obtained during the summer months. Until midsummer the weather was for the most part cold and dull, and this was followed by a period of excessive heat and drought, which continued until quite the end of September, and imposed a check upon the growth, and brought about a premature ripening of the tissues. This point is of interest, for, if its significance is fully appreciated, it will be at once understood that any falling off in quality which may be noticed has not been due to lack of skill on the part of the cultivators, but to conditions over which they have no control.

THE PHILOSOPHY OF THE APPLICATION OF WATER.

HOW often one hears the question put, "How many times a day must I water this plant?" The querist evidently regards the plant in the light of an animal, needing so many meals a day to sustain life ; and it matters not what may be the time of the year, or the weather, or the condition of the plants, whether at rest or active, this question is put. Now there are great differences in respect of the quantity of water plants can endure without being materially injured by it, but with the exception of such as grow wholly submerged there are none that may not be hurt by an oversupply at some stage of their growth. The principle, indeed, is a perfectly general one, modified in innumerable ways, no doubt, according to the varying nature of the plants, but still, in itself, one and invariable. Inflorescence, and the act of pollination, which is the natural purpose of all flowering plants, must be performed in dry air and not in water. We have proof of this everywhere around us ; for in orchard, in cultivated fields, in garden, and in wild nature an over-rainy season during the flowering period is invariably accompanied both by decreased numbers and beauty and diminished fertility of the flowers. Anyone who chooses may verify this by his own observation, in what part of the country soever he happens to be situated ; and if this is the case with an excess of natural rain, much more must it be the case with an excess of artificial watering—a process which is always more clumsy and less beneficial than watering by the natural rains of heaven. Let it be understood that there are two living processes which seasonably follow each other in a healthy and fertile plant—the growth of the plant itself as an individual of one generation of its race, and the elaboration of the flower and parts of fructification which are wholly to be separated and cast off whenever the seed arrives at such maturity as that it is in a condition for generating if placed in a position proper for that purpose. These two operations may go on together in the same plant, but never in the same part of it ; and if they go on together each of them tends to weaken the other. Knowing this and paying careful attention to the differences between the circumstances which stimulate these two kinds of vegetative action, we are enabled to so feed the plant as to make it run more to individual growth or more to flowering, according as we may desire the one or the other. If we would have a large and handsome plant we must keep down, or, if necessary, entirely suppress, the flowering until these properties are obtained; and if, afterwards, we would have the flowering profuse and luxuriant, in proportion to the previous growth of the plant, we must repress its growth as a plant, and, as far as we can, direct the whole of its energy to the production of flowers. This is what every successful florist does in reality, whether he understands the principle upon which he proceeds or not; and our object is to make him, in so far as we have gone, at least acquainted with the principle. The grand distinction between these two kinds—we might almost call them successive generations—of life in the same plant is this: the growth of the individual plant works more by heat with moisture, and the flowering works more by heat and light and a diminished supply of moisture. Light is, indeed, necessary to the healthy individual growth of all plants, excepting the very few which grow in mines and places absolutely dark, none of which actually bloom; and moisture is necessary to bring on the flowers until they are nearly perfected, and begin to expand their petals, for until they do this they are still parts of the parent plant, and possess the same kind of vegetable life with the rest of it; but when they are perfected, and fertilisation is about to take place, the grand function of the flower is directed to the originating of a successional plant by means of the seed, and though, while the seed is advancing towards ripeness or maturity, it still depends upon the parent plant for its nourishment, it is not, physiologically speaking, any part of that plant as an individual, and cannot in any way, or to any extent whatever, promote the additional growth of its parent.

The "Gardening Year-Book" for 1899 being now in course of preparation, the Editor desires the assistance of secretaries of horticultural societies in making the list of horticultural and botanical societies in the United Kingdom as complete and useful as possible for the forty-first issue. Notification of change of address and secretary, and dates of exhibition for next year, should be sent at once to the Editor, "Gardening Year-Book," 148, 149, Aldersgate Street, E.C. Information with regard to newly-formed societies will also be gladly welcomed.

Apple and Pear Orchards and their Produce.—The paper by Mr. Radcliffe Cooke, M.P., on this subject, which was read before the Farmers' Club on Monday, dealt with the cider industry of this country. The actual process of cider-making, he pointed out, is simple enough. The real difficulties begin after the expressed juice is put into the casks for the purpose of fermenting. The first or tumultuous fermentation, which involves an effort to get rid of the matters in suspension in the liquid, is the essential predecessor of the vinous fermentation If the cider be allowed to ferment until all the sugar has been converted into alcohol it loses it sweetness and becomes dry, or, as it is usually termed, "hard." In this state it is preferred by many cider drinkers, and by those whose constitutions will not allow them to drink any liquor containing sugar. But there is always danger lest, vinous fermentation having come to an end, acetous fermentation should follow, with the result of turning the liquid into something akin to vinegar. With the object of arresting fermentation at the desired stage resort is made to the use of preservatives which destroy the ferment germs. The propriety of employing such materials as boracic acid, salicylic acid, formalin, and saccharin was criticized. The main reason why saccharin and preservatives are used is, according to Mr. Radcliffe Cooke, that they save labour, expense, and trouble, and enable poor stuff to be palmed off on the consumer. Worse, however, than this are those cases in which liquor containing no apple-juice whatever is put on the market under the name of cider. One such proved on analysis to consist of water, sugar, burnt sugar, and a dangerous drug employed to convey the flavour of pear juice. English makers of cider and perry were urged to produce pure liquors of fine quality, as in these they have no rivals. American cider was described as merely a sweet drink without much merit, and French ciders were said to be weak and washy compared with ours. The necessity of planting new orchards of vintage fruit and of renovating existing orchards was insisted on, and attention directed to the useful work in progress under the auspices of the technical education committees of the Hereford and Monmouth County Councils. Aided in such ways our cider trade should, Mr. Cooke belives, regain its former importance.

Paris Universal Exhibition of 1900.—The plans of the Horticultural Section at the Paris Exhibition of 1900 are now complete, and it promises to be a very attractive building. Space has been secured for British exhibitors, and it is hoped that it will be filled in a manner to reflect credit on horticulture in this country. It is understood that there will be periodical shows of flowers and fruit during the continuation of the Exhibition. A sub-committee of the Royal Commission, composed of the following gentlemen, has been formed: Sir J. Trevor Lawrence, Bart., Sir Edward Grey, Bart., M.P., W. T. Thiselton Dyer, Esq., Dr. Masters, Dr. Schlich, T. A. Dorrien Smith, Esq., and Harry J. Veitch, Esq. The latter gentleman is the honorary secretary to the sub-committee, and any communications may be addressed to him, or to the Secretary, Royal Commission, Paris Exhibition, St. Stephen's House, Westminster, S.W.

Coloured Drawings of Burmese Orchids.—The widow of the late Rev. Charles Samuel Pollock Parish has presented Kew with two folio volumes of coloured drawings of orchids, executed by him. Long before orchid growing had become so popular as it is now, that is to say, in 1852, Mr. Parish went to Moulmein, in Burma, where he remained until 1878. He was early attracted by the variety and beauty of the orchids, and began studying, drawing, and cultivating them. He also introduced a large number of living plants into this country. Almost from the first he was in correspondence with Kew, and a contributor to the Herbarium and Gardens. When he came home in 1871 he presented a beautiful collection of water-colour drawings of orchids. These are accompanied by admirable analyses of the flowers. On his return to Burma he continued to send specimens and sketches or tracings of his original drawings. Now, in accordance with his wishes, Kew possesses the whole of his original, elegant, and accurate drawings; a most valuable addition to the existing collection. In conjunction with the late Dr. H. G. Reichenbach, he published descriptions of a large number of new orchids in the *Transactions* of the Linnæan Society (vol. xxx., 1873), illustrated by a number of plates from his own pencil. Parish also contributed the part dealing with the orchids in Theobald's Mason's *Burma* (1883), upwards of 350 species being enumerated, nearly all from the province of Tenasserim, and including seventy-two species of dendrobium. Among the many species introduced by him into cultivation are Sarcanthus Parishi, Hook f. (*Bot. Mag.*, t. 5217); Dendrobium senile, Parish (t. 5520), and the highly curious Bolbophyllum lemniscatum, Parish (t. 5961). In 1870 Sir Joseph Hooker dedicated the ninety-sixth volume of the *Bot. Mag.* to him, as a tribute to the value of his many contributions to Kew, and to the plates of that publication. Mr. Parish died on October 18, 1897, at the age of seventy-five years.

Chrysanthemum Rust.—Messrs. J. R. Pearson and Sons, of the Nurseries, Chilwell, write: "Referring to Mr. Godfrey's letter in your last issue, we do not think that his rather sweeping assertion as to the universality of the disease should be allowed to pass uncontradicted. We ourselves received diseased plants in the spring from several sources, but by careful quarantine and constant treatment with fungicides succeeded in getting rid of it, and we believe our collection is absolutely clean at the present moment, and there may probably be a number of others equally fortunate."

Plants of the Coal Measures.—At the recent meeting of scientists Dr. Scott, keeper of the Joddrell Laboratory, Kew, gave a brief account of a part of his recent work on the anatomy of coal-measure plants; the most important of his contributions was a description of the structure of a new form of the genus Medullosa from the lower coal-measures of Lancashire. This extinct type of Palæozoic plants has not hitherto been recorded from a British locality, and has not previously been found in rocks of lower coal measure age. The material on which the description was founded was obtained by Mr. Lomax, and the excellent sections, of which micro-photographs were shown on the screen, were prepared by this able worker. Dr. Scott showed that the type of structure represented by the Lancashire Medullosa is that of a polystelic Heterangium, which bore Myeloxylon petioles. The same author exhibited photographs of an unusually fine specimen of the Halonial branch of a Lepidodendron, allied to L. fuliginosum, recently discovered by Mr. Lomax. Other contributions by Dr. Scott dealt with an English example of the interesting Palæozoic fern Botryopteris, and with a remarkably fine example of Zygopteris from the Williamson collection of coal-measure plants in the British Museum.

National Rose Society.—The committee of this society will meet at Hotel Windsor on Tuesday at the usual hour (three p.m.), and, as is customary at the meeting held in the month preceding the annual, there will, we have no doubt, be a large muster of members, notwithstanding the counter attractions of the chrysanthemum exhibitions.

Ancient Society of York Florists.—This old and flourishing society has a chaplain as well as an able executive, and much to the regret of the members the Rev. H. Vyvyan, who has held the office during the past four years, has found it necessary to resign the position in consequence of his having accepted a living in Cornwall. The committee decided to recognise the value of the services rendered by Mr. Vyvyan, and on the 28th ult. they presented him with an illuminated address, in which they express their appreciation of the work he had accomplished, the regret they felt at his leaving the city, and their best wishes for his health, happiness, and success in his new sphere. The presentation was made by Mr. J. Pillmoor in appreciative terms. Mr. Councillor Staines, Mr. J. Lazenby, and several other members of the executive testified to the esteem in which Mr. Vyvyan is held. In acknowledging the honour done him, Mr. Vyvyan said that his appointment as their chaplain was a great honour, and he desired to thank them for the kindly manner in which they had always treated him. Although he was going so far away, he should still continue to be a member, and would try to come year by year to their shows. His new home was ten miles from the nearest station and close to the Atlantic, and in the neighbourhood grew many very rare plants and flowers, some of which were to be found in no other places in the kingdom. He should always be pleased to be visited by any of his fellow members.

Royal Horticultural Society.—The several committees of this society will meet on Tuesday next at the usual hours, and at the afternoon meeting the Rev. George Henslow, V.M.H., will lecture on some of the plants exhibited. The exhibitions now close at four o'clock.

Medicinal Value of Apples.—Chemically, the apple is composed of vegetable fibre, albumen, sugar, gum, chlorophyll, malic acid, gallic acid, lime, and much water. Furthermore, the apple contains a liberal percentage of phosphorus, but it is less than in the pear, cherry, or plum. This phosphorus, the *Family Doctor* observes, is admirably adapted for renewing the essential nervous matter, lethicin, of the brain and spinal cord. It is, perhaps, for the same reason, rudely understood, that old Scandinavian traditions represent the apple as the food of the gods, who, when they felt themselves to be growing feeble and infirm, resorted to this fruit for renewing their powers of mind and body. Also, the acids of the apple are of great use for men of sedentary habits, whose livers are sluggish in action, these acids serving to eliminate from the body noxious matters which, if retained, would make the brain heavy and dull, or bring about jaundice or skin eruptions and other allied troubles. Some such experience must have led to our custom of taking apple sauce with roast pork, rich goose, and like dishes. The malic acid of ripe apples, either raw or cooked, will neutralise any excess of chalky matter engendered by eating too much meat. It is also the fact that such fresh fruit as the apple, the pear, and the plum, when taken ripe and without sugar, diminish acidity in the stomach, rather than provoke it. Their vegetable salts and juices are converted into alkaline carbonates, which tend to counteract acidity. A ripe, raw apple is one of the easiest vegetable substances for the stomach to deal with, the whole process of its digestion being completed in eighty-five minutes. Gerard found that the "pulpe of roasted apples mixed in a wine quart of faire water, and labored together until it comes to be as apples and ale—which we call lambeswool—never faileth in certain diseases of the raines, which myself hath often proved, and gained thereby both crownes and credit." "The paring of an apple, cut somewhat thick, and the inside whereof is laid to hot, burning, or running eyes at night, when the party goes to bed, and is tied or bound to the same, doth help the trouble very speedily and contrary to expectation—an excellent secret."

Food Value of the Coco-nut.—With respect to its life-supporting qualities, an Indian contemporary states that the coco-nut is quite equal to the best of other vegetable products that have been ranked above it, and although these nutritive qualities are admitted, the amount of nutrition derived is much greater than is generally supposed. As an example, we may refer to the account that has been published of a vessel which left San Francisco with four hundred passengers for Sydney. Running short of stores, they were obliged to put in at a port where a large quantity of coco-nuts was obtained. The remainder of the passage was attended with heavy weather, and the vessel became water-logged, only reaching Sydney after a perilous voyage of eighty days. Owing to the extreme length of the voyage, their provisions ran out, and men, women, and children were reduced to an exclusive diet of coco-nut, and, owing to the scarcity of these, the quantity apportioned was in the proportion of one coco-nut to each adult. Notwithstanding this diet, wholly unrelieved by any change, not a life was lost, not a single case of illness occurred, all the passengers landing in a healthy and well-nourished condition. This is speaking well for the trade in shredded coco-nut, which, with the improvement in manufacturing the last few years, has almost entirely replaced the fresh coco-nut. This is because of its keeping qualities, and when prepared in a careful manner it is much healthier, and certainly more economical, for it will not turn rancid.

Dahlias as Garden Plants are of such immense value that the paper on the subject to be read by Mr. T. W. Girdlestone, at the conversazione of the Horticultural Club on Tuesday, should be of much interest and evoke a brisk and instructive discussion.

Fruit Trees on Grass Land.—In a letter received from Mr. S. Pragnell, Broomfield Lodge Gardens, Chelmsford, he informs us that the apple crop was under the average, though better than in 1897. The point we wish to emphasize, however, is that at Broomfield almost all trees growing on cultivated ground have carried fair crops of good fruit, while the crops on fruit trees growing on grass land were almost an entire failure, the fruit dropping wholesale, and that remaining being very small; on these trees American blight has also been unusually prevalent. These remarks speak for themselves.

Sexuality of Fungi.—Considerable advance has been made during recent years in the discovery of sexual organs in several groups of fungi, and these discoveries are briefly set out by Mons. L. Mangin in the *Revue Générale des Sciences.* The close and patient researches of Messrs. Harper and Dangeard among Ascomycetes, of Sappin-Trouffy with Uredineæ, and of Thaxter on the Laboulbeniaceæ are especially referred to by Mons. L. Mangin.

Insect Infestation.—Cabbages recently planted for the purpose of giving supplies in late spring and early summer have the promise of giving good results should cold weather arrive in time to check insect activity, for which the season is maintaining its notoriety to the end. A considerable attack of Snowy Fly (*Aleyrodes proletella*), sometimes called the Cabbage Powdered-wing, is now in progress. It is a small four-winged fly, allied to the aphides and scale insects; when disturbed in its hiding-place on the under sides of the cabbage leaves it rises in hundreds and then falls like miniature snowflakes. Celery growers are having their share of trouble, for this plant, which should now be coming into profit, is much infested with the Celery Fly (*Tephritis onorpordinis*), a true two-winged fly, the larva or maggot of which, a leaf-miner, devours the substance between the upper and lower sides of the leaf, rendering the latter brown and shrivelled and incapable of making starch, so that the whole plant suffers from defective nutrition.

Temperature of Trees.—Herr F. Schlechert has been making some interesting observations in the sphere of vegetable physiology. He has discovered that the highest temperature in the stem of a tree, at about 4¾ inches (12 cm.) depth from the surface, occurs about midnight, and the lowest between noon and three p.m. While the chief factor which governs the temperature of the interior of a tree is the temperature of the surrounding air about twelve hours earlier, it is also affected by the temperature of the soil, by that of the ascending moisture, and by the degree to which the twigs are exposed to direct sunlight.

The Dock is regarded as an unmitigated nuisance both by farmers and gardeners, and not without justification, for when allowed to become established it is exceedingly difficult to eradicate. There is, however, a possibility of the weed giving a profit under cultivation, and the experiments in progress to put the matter to a practical test can hardly fail to be of interest. The Californian dock, known as "canaigre," is largely imported for the valuable tannic acid it contains. Specimens were sent to the Colonial College, Hollesley Bay, where, after several varieties had been tested, it was found that the roots were the source of the valuable glucoside. Twenty-one per cent. was the yield from the Suffolk dock, as compared with thirty-six per cent. from the Californian canaigre, and twelve to thirteen per cent. from oak-bark. As canaigre fetches from £10 to £20 per ton, and as an acre of land will yield ten tons, it will be readily seen that the English dock, which requires little labour in cultivation, may prove a source of revenue to the farmer, instead of the nuisance he has hitherto regarded it; but whether it will do so can only be determined by experiments conducted on a rather large scale.

Fruits of Diospyros Kaki have been perfected in the garden of Canon Ellacombe, on a tree growing against a south wall. The specimen has never been protected, and has been in its present position at least a dozen years.

Cold Storage of Hops.—The utilization of cold for the preservation of hops, though an innovation of very recent date, is securing rapid adoption. First attempted in the United States eight or nine years ago, the system was introduced into this country about three years ago. Our largest brewers are erecting, or have erected, cold stores of their own; hop merchants are providing stores for the requirements of their more moderate-sized customers; and there can be very little doubt that in a few years hence practically all the hops stored for, or stored by, wholesale brewers of any size or importance will be stored in the cold. Several authorities incline to the belief that the most valuable constituent of the hop is its soft resin; this resin undergoes in ordinary storage a process of deterioration which can be arrested or postponed by storing in the cold. In one largely-adopted method the temperature is kept below freezing point during summer and winter. It is not necessary that air should be excluded from the cold rooms in which the hops are stored, for any moisture which the air may introduce when the stores are opened for the purpose of withdrawing or depositing pockets is frozen, and thus rendered inoperative for mischief. The plan answers well, although it involves a considerable outlay in capital and working expenses. In a modification of this plan chloride of calcium is employed as an absorbent of moisture, and a temperature of 33 degrees to 40 degrees is then found to be sufficiently low for the preservation of hops. At the outset it was feared that, having regard to the dampness of our climate, hops withdrawn from cold storage would condense upon their surface sufficient moisture to damage them during the time elapsing between emergence from the store and arrival at the brewery, or during brief storage in the brewery just prior to use. It was further thought that they might have to go through some process of defrosting on their withdrawal to preserve them against this risk of injury. It has been found, however, that this risk is non-existent, and no process of defrosting is called for. The scientific study of hops continues to make steady progress. Amongst other recent investigations is that of the tannin of hops, and there are grounds for assuming that the quantity of hop-tannin may serve as a valuable index to the other important constituents. Methods are now in use for the estimation of the hard and soft resins in hop samples.

Commemoration Trees.—One reason why we should plant trees in commemoration of important events is, observes a daily contemporary, because we, at a nation, have ever loved memorial trees. They are found even in our simplest ballad literature, Since Tristan was buried beside Yseult, and out of one tomb grew a birch and out of the other a brier, the ballad-makers have given these memorial trees to a great many of the love-stricken lads and lassies who die, at the end of their verses. In many old English families it has been the custom for centuries to plant a tree in honour of some great event, and no one has followed it more enthusiastically than the Queen, who probably has planted more trees than any other Sovereign, unless it were Mary Queen of Scots. Unfortunately, in regard to the latter there is only tradition to go on, and probably it has added considerably to the box trees, hawthorns, and yews that she planted in various places of sojourn. Our own Queen has lived at a time when more exact records are kept, and the foresters of the future may be able to set at rest several controverted questions by watching the growth of such memorial trees as the fine oak she planted at Chatsworth in 1832, when on a visit with the Duchess of Kent, who planted a Spanish chestnut close by, while some years later Prince Albert added a sycamore to the group. It would be tedious to enumerate all the trees her Majesty has planted since at Windsor, Osborne, and Balmoral, to say nothing of those at Taymouth, Blair Athole, Drummond Castle, and elsewhere where she has adopted this means of commemoration. At Balmoral alone the Queen has but to look at ceatain trees to recall the stages of her career—one for the Prince Consort, one for her fiftieth birthday, one for the fortieth year of her Accession, one for Jubilee-day, 1887, ond one for her seventieth birthday, and so. The Prince of Wales, too, has planted a great number of memorial trees in his time, and could no doubt recall by their aid many great events of the last thirty years. From the records of private families innumerable examples of commemoration trees might be given; but none would be found more interesting than the long and magnificent avenue of Spanish chestnuts near Lord Egremont's ruined castle at Midhurst. The avenue was fomred to commemorate a visit of Queen Elizabeth, and for two centuries children have gathered chestnuts from the trees.

Failures in Hybridisation.—The Rev. Professor G. Henslow writes that he will be greatly obliged to any raisers of hybrids or varieties by crossing (not spontaneous seedlings) who will tell him of any species which failed to take the pollen of any other species, or of any variety of a species which could not be fertilised by crossing it with some other variety or species. He would like also to record any plants which could not be fertilised by their own pollen, or with pollen of other plants of the same species."

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

By the time these lines appear in print we shall be in the thick of the chrysanthemum season; in fact, we may have got a stage further and be nearly through it. Our editor, you see, has an autocratic way of putting general "copy" away in a drawer when shows and such-like things are prevalent. Of course, if he did but recognise the fact, the gardening public as a whole is far more deeply interested in the health and doings of Peter than in any number of shows. He is, so to say, a permanent exhibition of the most fascinating character. But things being as they are supposed to be rather than as they really are (this remark is more noteworthy for profundity than lucidity, I fear) I should not be very much surprised if we are temporarily shelved.

My remarks as to the N.C.S. imbroglio were parlously near to coming a day after the fair. When they were written the great question of show head-quarters was still unsettled, but before they appeared in type the fray was over. I am not very much surprised to see that the executive have overruled the sub-committee. There are some people who profess to be astonished, but I think they overlook one highly important fact, namely, that, although a large number of influential members are not at all satisfied with many details of the management of the society, they nevertheless perceive concrete advantages from the Aquarium association. It is not unlikely that the opposition is attempting too much, and would achieve a greater measure of success if it were more moderate. Personally, I remain of the opinion I have held a long time, namely, that it lacks a leader. With a really able tactician at its head it might do something, but it is disjointed and invertebrate. Tactics mean a lot in a world like this.

That there are troublous times in store for the society is not open to doubt. The present management perceive that clearly enough, and they give a striking proof of this in the much-debated three years clause. I regard this as one of the most adroit moves on their part, and if they succeed with it they will have scotched, if not killed, the opposition. Were Peter appointed to the front opposition bench he would fight that suggestion tooth and nail. I trust, however, that nothing will transpire which will in any way interfere with our present position of neutrality. I feel that the horticultural world expects from us the most carefully balanced and impartial opinions. What we think about the N.C.S. business is soon told. We are in entire sympathy with those who contend that the Aquarium is not an ideal place for holding flower shows, but we do not think that they have yet clearly proved that the disadvantages outweigh the advantages.

You all remember what happened with regard to the Drill Hall. No outcry that has yet been made about the Aquarium as a headquarters for the N.C.S. has equalled that which assailed the unfortunate Westminster rendezvous of the R.H.S. It was everything that was horrible, and even high officials of the Society joined in the condemnation. I have no wish to beat the big drum, but many of my faithful band of readers will remember that the only word on behalf of the Drill Hall was uttered in this column. I endeavoured to look at the matter, not from the point of view of a few horticultural specialists, but from that of the great London public. Time has proved which was the correct view, and nothing is now heard of the noisy criticisms which were so rife a few years ago. This paper, gentlemen, always takes the popular, rather than the class view, and it usually comes out right side up in consequence. Perhaps it gets a little abuse sometimes, and certainly it does not escape cheap sneers. But that sort of thing only serves as a tonic. The more we get, the better pleased we are.

I am sorry to have to drag in another reference to Peter, but he absolutely refuses to be silent on one particular matter. So firm is he, that it is quite clear that if I did not deal with the case he would write direct. If that happened, woe to the unhappy person who came under the lash. I am of a considerate disposition, and tone things down; Peter himself shows no mercy. The victim at present is "A. D.," and I need hardly say that the subject on which these two great minds are at variance is onions. Peter complains, and, I think, with some reason, that "A. D." has evaded his real argument in the most pusillanimous way. His position is that this idea of sowing Ailsa Craig and other large onions of what are known as the spring type, in autumn, is unpractical and absurd, because all the onions wanted for winter and spring use can be grown of the highest quality by sowing in the following spring.

Now, what is "A. D.'s" position? He would have us sow these sorts in the August of 1899 to use in the winter and spring of 1901. But we can get a splendid crop for use at that period by sowing several months later, that is, in the spring of 1900, and in the time intervening between our season of sowing and his we can get another crop off the ground. Will your correspondent please answer this objection? I can assure him that it is much too important a practical question to be passed over in silence. A reply to it is imperatively demanded, and I am a little surprised that "A. D." has not hastened forward before now with his answer. I can only hope that it is on the way, and if it anticipates this so much the better. I may say that, in thus wording Peter's complaint for him, I do so in entire agreement with him.

A man with an hour on his hands can usually pass it pleasantly and instructively in a perusal of the R.H.S. Journal. In preference to dismissing it with a cursory run through, I generally save it up for a spell of leisure, and I have not often had cause to regret doing so. It is, perhaps, a little heavy and sombre in its style, and I think it would be even more interesting than it is if it had a pleasantly written causerie. But it is eminently practical and good. The trials are to my mind one of the strong features of it. They are in good hands, and they tell us what we want to know in a commendably terse form. I was certainly a little struck with the report of the raspberry trials. I read that the canes were not procured until the autumn of 1896, and yet here in 1898 we have a report of them. I hope nobody will say that the R.H.S. is a slow-going body after this. To get a raspberry trial all over inside two years is an achievement of no small significance. I suppose there will be a certain number of people going about with a smile after reading this report, but there always were superior people in the world.

I presume that the black currants were procured from a different source to the raspberries. Why do I presume this? Simply because the report shows that there is a difference between Baldwin's and the Black Champion, and Mr. Bunyard, who supplied the raspberries, makes no secret of his opinion that the two are really one. He ought to know; but then, so ought the R.H.S. Which is right? The difference pointed out in the Journal is in the leaves, those of Baldwin being described as of equal length and breadth; while those of Black Champion are stated to be longer than they are broad. I had a stock of Champion in a former garden of mine that gave far larger fruit than Baldwin's, though I must in fairness say that the bushes were younger.

Mr. Lees need be under no apprehension of a "wigging" from me. We are on very cordial terms. True the plants which he was good enough to send me have suffered somewhat from the drought, but they have made a very pleasant feature in the garden for all that, and as the able and genial giver has supplemented them with some admirable articles in these columns I am more than content. LUX.

YELLOW-FLESHED NECTARINES.

A few years ago there was by no means a great liking for yellow-fleshed nectarines, but their free cropping and other excellent qualities have made them greater favourites of late. The Messrs. Rivers and Son have given us some very fine varieties, which should find a place in all gardens where nectarines succeed, and these have helped to popularise the section. I do not intend to name every yellow variety, but to briefly note those we find best.

Pitmaston Orange is one of the oldest varieties, having been raised at Pitmaston, near Worcester, as long ago as 1815. This is a very beautiful fruit under glass; it is not equal, however, to Pineapple with us for open wall culture, as we find in some seasons it cracks badly, and does not ripen so well as varieties of recent introduction. Another point against it is that it makes less growth than Pineapple and Humboldt, so that unless the situation and locality are of the best I would certainly advise planting stronger growers. On the other hand, forced, or grown merely with glass protection, Pitmaston Orange is one of the most delicious of nectarines, as the flesh is rich and the fruits colour grandly. Rivers' Orange is, with us, more reliable on open walls than the former. It is a seedling from Pitmaston, and is very much like it but earlier, and in many places precocity counts for a good deal; it is very prolific and an excellent nectarine for open wall culture. The fruits are of a beautiful colour, and the quality even superior to that of the parent, the flesh being very sweet and juicy. Fruits are produced so freely that with us this variety needs severe thinning. My favourite yellow-fleshed nectarines are Humboldt and Pineapple for open wall culture. Of course, with white-fleshed varieties the newer Early Rivers and Lord Napier cannot be beaten. Humboldt is a very beautiful fruit, a delicious nectarine of large size. This was raised from Pineapple, and if only one kind can be grown Humboldt should have the preference. This is one of the Messrs. Rivers' seedlings, and one of the best nectarines grown, richly coloured, having the delicious flavour of Pineapple, and being very prolific, succeeding where others fail. I have found this variety equally as good on a west as on a south wall, but of course later. Its season is the end of August, but there is no difficulty in keeping the fruits longer. This variety makes a free growth; we have trees that have only been planted three years and they are already of large size.

Pineapple is a much later variety, and is another seedling from Pitmaston Orange; it produces beautiful fruits on a warm wall, is a medium grower, and fair cropper; also, with us, it is far more reliable than its parent, and is valuable for its lateness, as it ripens during the early part of September. The fruits are large and of rich flavour, flesh a deep orange colour, and skin a beautiful dark red on the sunny side. It is one of the hardiest of nectarines, and often seen at exhibitions in the latter part of September; this season, on a south wall, and in spite of the hot summer, we gathered our last fruits of this variety on September 27.

Darwin, also one of the Rivers' seedlings, is probably less known than some newer varieties of the yellow-fleshed section; one of its parents was no doubt Stanwick. With us it is less reliable on the open wall than the others already noted, but the quality is so good that it deserves a place in the section. Darwin is an early variety, quite a week ahead of Rivers' Orange; the fruits are handsome, roundish, and the flesh a bright orange colour. It is an excellent variety for the cool house, and forces well, but for open walls I prefer the larger fruiters. Byron, a late large nectarine, is of excellent quality, and a free-grower, if given good culture; it is not unlike Pineapple in size and appearance, but both should be grown; the quality is good, and the fruit keeps well, it being in season about the same time as Pineapple. There are other varieties, but it is not necessary to name them, as the foregoing are our best.

Syon Gardens. G. WYTHES.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

INTERESTING CORNERS.

ALMOST every garden has its quiet nooks and interesting corners, to which it is a relief sometimes to escape from everything flavouring of rule and practice, and seek solace in Nature as she is found there, with perhaps an addition of history and romance. There are doubtless those who have an eye for nothing but the practical work-a-day side of gardening—the sowing, planting, potting, pruning, and all the rest of it—and such of course find no pleasure in the interesting corners that delight others cast in a different mould. The same may be said of gardening literature. We have so much that is doubtless sound, practical, and good, that to read assiduously is keeping abreast of the times, but by the time one has gone carefully through a long practical essay, and reached the end, there is a demand for variety and change which is found in the interesting corners of literature; for, though only a limited number of writers have found it out, there are many phases of the garden, not necessarily practical, which have rarely or never been touched upon, whilst everyday matters have been worn threadbare. 'Tis good sometimes to break away from rule and seek variety, hence no apology is offered for leaving that which, though all-important, becomes a little tedious, and dwelling briefly on a few impressions gathered in the nooks and corners of the garden.

I have said that nearly every garden possesses its interesting corners, and the more ancient the garden the more interesting the nooks. Rarely are these points shown when paying a visit. 'Tis the gardener's office to show you the garden, and in the good man's idea these are only bits thrown in. He cheerfully leads the way through the greenhouses, the vegetable, fruit, and other departments, naturally thinking these are all you have come to see, but you find the interesting corners yourself in passing from one point to another. What greater relief could one have, when getting a little wearied with the stereotyped, than to find oneself, without hardly being aware of it, in a half-hidden, half-wild bit of garden approached by a narrow winding path that appears to have chosen its own meandering route, in order to make the surprise greater when you reach the end? Such a spot gives you the most comforting impression of a garden—rest. There may be nothing special there, nothing to interest the expert or the sternly practical gardener, but there is an air of repose, a semi-wild luxuriance of vegetation, a kind of miniature garden all its own that cannot fail to appeal to one. Yet there may be more. There is interest even in the ivy creeping over the tree stumps, or the blue periwinkles peeping out from among the bushes. There may be greater interest in such a spot, but you must penetrate to find it. It is cool and shady, and the semi-natural, semi-artificial attempt at rockery is not there with any idea of approaching the artistic, but rather to form a home for the little alpine and rock plants that peep out from the recesses. Many gardens possess such a corner, but minus the alpines, and a charming addition is lost. It would serve no purpose to mention names, as the family is so large, but they adapt themselves perfectly to sheltered corners, and in such spots their simple beauty may be appreciated to the fullest. Neither is animate nature wanting. Song-birds build fearlessly in the bushes, and on spring days it is the resort of the cuckoo, and when shadows fall the nightingale takes up the thread. Who will say that such a corner is not crowded with interest?

In a well-known garden I could mention one of the prettiest and most interesting bits is rarely seen from the most advantageous point; in the first place, because few know where that point is, and, secondly, because it is difficult of access. In this interesting corner there is water, and doubtless at one time there was an intention to make it a feature in the shape of an elaborate cascade. For some reason or other the idea was evidently abandoned, but not before something had been done, and the assistance that art at that time rendered to nature is now charmingly apparent. A cascade with only a driblet of water is but a poor apology, but here there is an abundance, which tumbles over the moss-covered stones and creeps through the masses of bogbean and yellow May blossoms till it loses itself in a diminutive marsh at the bottom. Most visitors peep at the dripping water from the top, where little can be seen for the overgrown bushes that crowd each side. To appreciate the wild beauty of this interesting corner one must carefully pick a way over the boggy ground now blue with forget-me-nots, and follow the slippery overgrown path by the side of the cascade from the base. A weeping willow droops half over the water at the bottom, and under its spreading branches is a rustic seat. The approach is by stepping-stones, now slimy and overgrown, and the very existence of the retreat seems quite forgotten. Scarlet hawthorn, white lilac, laburnum, and guelder roses in their season hang gracefully over the waterway, and pretty orchises peep out among other wild flowers near the water's edge. The shady banks and rocky nooks are the home of ferns. Here is an immense clump of the Royal Fern (Osmunda regalis), there the Lady fern (Athyrium filix-fœmina), and forms of lastreas, polypodiums, polystichums, and scolopendriums. Time was when all these were planted with care, and though that bit of garden has been apparently forgotten, and has a half-neglected look about it, vegetation has prospered, and the work of years ago is still apparent.

Some gardens possess a cemetery, and though a burial-ground is usually connected with sad thoughts and recalls painful partings, no such gloom hangs over the garden cemetery. It is an interesting spot, where rest the remains of some faithful horse or dog that for long service or extraordinary sagacity has been perpetuated to memory by a honoured grave. I know of such a corner in a garden where the last resting-place of a faithful charger is marked by a moss-covered stone, bearing the following inscription: "This gallant horse carried his master, Captain ——, in the battles of Salamanca, Vittoria, Nivelles, and Waterloo. He lived to a great age, and was buried here with appropriate honours." The date follows, but it has slipped my memory. Shades of the past! What more appropriate burial-place than a nook in the garden would one desire for a creature that played a part in overthrowing one of the mightiest dynasties the world has ever known? In the gardens at Tredegar Park, Monmouthshire, in a quiet, secluded spot, a stone column is reared over the remains of a horse that carried his master, the present Lord Tredegar, through the valley of death at Balaclava. He bore his rider safe through the ill-fated charge "and back from the jaws of death," and in doing so earned a lasting reputation and a monument. Ivy creeps now round the foot of the stone, and there is nothing in the surroundings to attract the attention of a gardener, yet the spot to any visitor is one of the most interesting in the grounds. These are but a couple of solitary instances in the many that, no doubt, exist where the bones of faithful animals are given a honoured resting-place in the garden.

There is always a charm about a bit of crumbling ruin in a garden, though it is, of course, quite distinct from anything connected with cultivation. The crumbling masonry, held together only by the tendrils of ivy, tells an unwritten story of the past. All decoration may be gone from the embrasured windows where now flourish flowers and weeds that owe their existence to the birds that deposited the seeds there. At night the screech owl hoots round the ruined battlements, and late-roosting birds hustle into the ivy at the warning of danger. A few stunted old roses grow outside the walls. They may be ancient, or they may be modern, but there is no record of them, and you like to think that they or their parents were prized in the garden when the ruin was the home of some vassalled lord of the manor. All ruins are cherished, and particularly so in a garden. I have yet to meet the man possessing one of these bits of antiquity who did not cherish the fragments of crumbling masonry with a jealous pride, and guard them with as great care as any of the modern portion of his establishment. History repeats itself. Once the pile was fortified and protected against the onslaughts of enemies. Now there is nothing left but a few bits of decaying ruin, but as jealously protected as of yore, though now the enemy is Time. The old pile is surrounded by legend and story which no one thinks of questioning or contradicting, and every nook and crevice in the tottering fragment seems to be filled with a little history of its own. Moss covers the pavements on which barons once trod, old-fashioned flowers flourish where armed men fought. Nothing original would be in keeping there, and though old and tottering, half wild, and apparently uncared for, the ruin will be, as long as it stands, one of the most interesting corners in the garden.

H.

AUTUMN COLOURS.

THERE are many trees and shrubs in the pleasure grounds which present the most artistic colouring every autumn, and some of these are of exceptional beauty this year, owing, no doubt, to the very bright and late sunny season. First and foremost in point of beauty was the tulip tree, Liriodendron tulipifera. This tree was most charming with its intensely golden leaves, and could be seen from a long distance; this season it carries a lot of seed pods, which I am anxious to see ripen. This tree, when well grown, is very handsome, especially when clothed to the ground; it is easily grown, and as a deciduous tree has few equals for lawn and park ornamentation, as it will grow in nearly any soil. Koelreuteria paniculata is another tree that is unusually beautiful this season, its leafage being of a very bright and striking yellow, very similar to the colour of its flowers. Leycesteria formosa was also very striking, and is well worthy of a situation in the shrubbery, especially where a taller tree grows above it; this shrub will grow in partial shade and in cool ground, and, in fact, hardly any place could be found where it will not thrive. It is an erect grower, with long pendulous racemes of white and purple flowers.

Amelanchier canadensis is a small tree, remarkable for its perfect autumn colouring of golden yellow tinged with red. Cotoneaster Simmondsi is one mass of red berries, these making a beautiful contrast to the rich hues of the decaying foliage; C. frigida is likewise one mass of berries, and one of the most handsome features of the shrubbery; C. nummularia, with its dark purple berries, is also very attractive. These cotoneasters are easily raised from seed, and soon become nice specimens in nearly any soil from sand to clay. Cratægus Crus-Galli, or Cockspur Thorn, is very beautiful, both foliage and berries being extremely well coloured, and more persistent than usual. Rhus cotinus, now that the flowers are all gone, has its foliage exposed, and is a picture of beauty, the leaves being mottled red and yellow; the latter are extremely useful and pretty for dinner table decoration. The specimens of the Pampas grass are excellent this season; the mild winter of '97 and '98 and recent favourable summer and autumn seem to have suited them well, especially those upon the northern slopes; the light green foliage and silvery plumes add to the fine autumnal effects in our gardens.

Compton Basset. W. A. COOK.

Baumann's Red Winter Reinette Apple.—I could but notice how very much out of place this large apple looked in a class to itself amongst the single dishes of dessert varieties at the Crystal Palace show. The fruits were well fitted to be in the cooking section, being quite large, and whilst not at all in harmony with the required pippins, pearmains, and nonpareils of the dessert section, would have been absurdly large to place on a dinner table, except when cooked. Not only are big fruits quite out of place in the dessert, but there should be, irrespective of other qualities, a specified average size for dessert fruits, and almost every other variety, classed as such, is of moderate size. Blenheim Pippin is the largest, perhaps, but no one in preparing a dessert thinks of putting up the largest, but rather the best smaller ones.—A. D.

PLANT ROOTS AND PLANT FOOD.

IN the interesting controversy going on in the GARDENERS' MAGAZINE between our esteemed friends "Lux" and Mr. J. Riddell, "Lux" states that "roots do not create food, but food creates roots," while Mr. Riddell maintains the reverse order "that roots create food, but food does not create roots." My own opinion is that both are right and both are wrong.

In the first instance, food creates roots, because if there was no food in the seed sown there would be no growth of roots. But roots having once been established, go on accumulating plant food from the stores within the soil or from the atmosphere. If we took a quantity of rocks, such as we find in various parts of the earth's surface—granite, slate, quartz, limestone, &c.—and after grinding them to different degrees of fineness, were to mix them together in different proportions, we could from the known composition of these various rocks produce soils which would contain the most important mineral constituents of plant food in very different proportions. Assuming that we purposely made one soil as rich as we could in this mineral food, one as poor as we could, with two others in intermediate stages, and we left them exposed to the ordinary influences of sun and rain—provided the area was sufficiently large—we should find that the seeds of plants carried by the winds and other agencies would spread and grow upon these soils with very different degrees of rapidity. The character and amount of the vegetation would differ greatly on the different soils, and the largest amount would be found on the soil where the plant could obtain the largest amount of mineral food.

There being no carbon or combined nitrogen in the soil, the first plants would be entirely dependent upon the food in the seed and what they could obtain of these substances, directly or indirectly from the atmosphere. Rain water always contains ammonia, and the plant and the soil may condense a certain further amount from the atmosphere; but growth, even in the soil richest in mineral food, would at first be small, as the decomposition of carbonic acid and fixation of carbon would be limited by the amount of combined nitrogen which the plant could obtain from the sources mentioned; and it would be much greater where the most abundant mineral food existed, as every particle of the available nitrogen would be there used up; while where there was less mineral food some of the combined nitrogen might pass through the soil and be lost.

Every year a certain portion of the vegetable growth dies off; leaves and branches fall, and portions of the roots decay. Part of the organic matter which falls upon the surface of the ground returns again to the atmosphere, but a certain part remains, and, added to that which decays underground, becomes available for future growth. The atmosphere of the soil, which at first differed little from that which exists above it, becomes highly charged with carbonic acid, which decomposes the minerals of the soil, and thus year by year more and more of the nitrogen collected by each generation of plants becomes available for the generation that succeeds it.

The nitrogenous capital of a soil, which represents to a considerable extent its fertility, thus depends, as a rule, on the bulk of the previous crop residues. The present fertility of a soil is, therefore, in great measure a consequence of its past root growth. The organic matter in a fertile soil, say in a pasture turf, derived chiefly from root growth, is continually undergoing oxidation by various agents in the soil, the general result being its conversion into the simple substances, water, carbonic acid, and nitric acid. The vegetable root residues left by previous crops are thus reconverted into plant food, and made fit to support the life of a new generation of plants. It is consequently true that when rootlets come in contact with soil in which there is an abundance of plant food they will be developed with far greater rapidity than in neighbouring portions of earth in which less food is to be found.

To test this point Nobbe took some heavy clay, and divided it into two equal portions. One of these was left without manure, to the other was added a full supply of manure. Red clover was planted in each, with the following results:—

	Weight of Hay. Grains.	Weight of Roots. Grains.
Unmanured	431	30
Fully manured	592	60

The two boxes of the experiment were found to be filled throughout with vigorous roots, though, naturally enough, the roots were more abundant in the fertilised earth, and weighed twice as much as the roots in the unmanured soil. Further, it may be mentioned that Professor Corenwinder planted a number of beets in a circle two feet in diameter, and pushed down a bit of oilcake an inch or so into the soil at the centre of the circle. Some months afterwards he found that several of the beets had sent out horizontal rootlets as far as the oilcake, which was covered with a complete mat of capillary rootlets. One or two of these side rootlets had passed through a course of sixteen inches before reaching the oilcake.

Professor M. C. Potter, M.A., in his work on "Agricultural Botany," says, "The root in many cases forms an excellent repository for the various reserve materials which are manufactured by plants for use on a future occasion. This is especially the case among herbaceous biennial or perennial plants, which live in countries where either warm and cold, or else wet and dry, seasons alternate with each other, and whose stems die down during the period unfavourable to growth.

In these plants the leaves manufacture during the period advantageous to plant life more material than is required for immediate use. This excess of material is in many instances stored up in the roots, and forms the reserve fund from which stem and leaves are constructed in the next spring.

To sum up the matter in a few words: (1) Plant roots will not grow in sterilised soil unless food be added from external sources; (2) Roots having once established themselves in a soil increase the store of available plant food by their excretions, their root sap, and even in their death by decay and the nitrification of their products.

Harpenden.

J. J. WILLIS.

THE BRITISH BLECHNUMS.

I HAVE headed this article in the plural, despite the fact that there is only one British species, because the varieties of that species are so marked in character that, if found abroad, some of them would certainly be regarded as specific forms. Considering the tough texture and evergreen nature of the fronds, and the pretty contrast afforded by their two-fold form, it is much to be regretted the species is not more frequently seen under culture, that is, in moist, shady nooks and corners, where drought, its greatest enemy, cannot penetrate. The fronds, as I have said, are of two forms, one set, the barren ones, being shaped like a double, broadly toothed comb, the teeth of which are blunt, and set closely together on the midrib, and tapering in length towards both ends in the shape of long slender lances. These barren fronds spread out into a circle, and are sometimes considerably over a foot in length. Their colour is a dark and shining green, and texture so hard and tough that the popular name of the Hard Fern is fully justified. The fertile fronds, on the other hand, grow perfectly erect, are longer than the barren ones, and much more slender, the comb teeth being reduced to almost midrib. This difference persists through all varieties save one, called Blechnum spicant anomalum, in which all the fronds are slightly fertile and narrowed. The fructification is very peculiar, apart from its confinement to a special set of fronds. On examination it is seen that the spore heaps extend the entire length of the pinnæ, or comblike teeth, in two lines, one on each side of the midrib, and that a thin, skinlike cover springs from each side of each line, so that the spore cases or pods lie in a deep furrow. This independent cover or indusium distinguishes Blechnum from its near relative Lomaria, in which the edges of the comblike teeth are turned over to form the cover, while in Blechnum they are placed as an independent margin all round. This being so, it is curious that some of our most popular authorities call our native species Lomaria, ignoring altogether the clear specific character which has determined the separation of the families.

Blechnum spicant is a very widely spread fern in the British Isles, and frequents hedgebanks, moorlands, glens, and forests, and indeed may be found everywhere where plenty of moisture and leaf-mould and an absence of lime (its special aversion) and the peripatetic fern vandal (its particular foe) give it a fair chance of existence. Under culture it does well in many soils, if they be free from lime, and soft water alone be supplied. A fine yellow friable loam, with a liberal admixture of leaf-mould or peat, and some silver sand to keep it open, suits the fern well, and once so installed it will thrive for many years without a shift. Its habit is to spread by short stolens or offsets, so that in time a clump is formed, and when well established there are few decorative plants to surpass a good cleanly grown Blechnum spicant, with a crop of decumbent barren fronds spreading round in a large rosette, and a dozen or so tall spikes of the fertile ones to set them off by contrast.

The species, as I have said, has been by no means chary in affording good sports or varieties, some beautifully tasselled, some branched as well, some beautifully cut, the combteeth being combs themselves; and others contracted, congested, or varied in other ways. In every case, with the one exception above cited, these peculiarities present themselves associated with the two forms of fronds, and are often so exaggerated in the fertile ones, owing to the contraction. As usual, nearly all the varieties have been found wild, though we owe the most beautiful of all, known as Airey's plumosum, to a sowing from a merely saw-toothed find, B. s. serratum. This, if well grown, is one of the grandest British ferns we have, displaying wide, triply-cut fronds two feet long in profusion. A plant I exhibited some years ago at the R.H.S. Fern Conference was so beautiful that competent judges could hardly be persuaded it was of so normally simple a species. One of my own finds, B. s. concinnum Druery, is a small grower, but has the comb transformed into an even string of tiny green scallop shells, the fronds being ribbon shaped, and only a quarter of an inch wide. Mr. Barnes found one, B. s. lineare, in which the fronds are scarcely divided at all, being narrow and strap-shaped; while another find of his has sharply-pointed, slender teeth, and a radiating, spiky crest at the frond tip—B. s. multifurcatum Barnes (or B. s. trinervis coronans).

Mr. Phillips, of Belfast, found a curious form, in which the two bottom teeth of each frond are transformed into smaller fronds, making a sort of trident. This variety covers a large area in the Mourne Mountains. Dr. Kinahan's Irish find of B. s. ramocristatum is finely branched and tasselled, and several finely tasselled varieties have been found by Mr. G. B. Wollaston and others. I have two very good varieties of this crested character, one found by a quarryman (Sinclair) in Strathblane, and another by a lady friend in Devonshire, both thoroughbreds. B. s. Aithinianum and B. s. cladophorum are curiously branched varieties, but do not rank among the gems. There have also been finds of densely leafy character. B. s. imbricatum is one, Hartley's crispissimum another—a veritable dwarf, even the hard little fertile fronds not exceeding some three inches in height, springing from a rosette of the same diameter.

All those named are well worthy of culture, and, if my remarks be attended to as regards the aversions and needs of the plants, their beauty will well repay the little care required. B. spicant is as green in the winter as any other time, and that is an advantage: it needs no heat, and, given only congenial harbourage, will always pay its rent.

CHARLES T. DRUERY, F.L.S., V.M.H.

A Flower Farm is described in a contemporary as "a delightful sight in summer, where breadths of one to ten acres of brilliant colours make an effective mark in the landscape," and "where the eye is irresistibly drawn to a fiery mass of orange scarlet . . . so bright that workmen can only spend an hour or two at a time for weeding, the intensity of the colour affecting the eye." We should hardly consider a "sight" of this description delightful, but there is no accounting for taste.

CHRYSANTHEMUMS AT THE NURSERIES.

Messrs. J. Veitch and Sons.

Compared with some of the trade collections, the Chelsea collection of this well-known firm is not exceptionally large, but it certainly is of a very high order of merit, both from a cultural point of view and in the selection of varieties grown. There are two large greenhouses in which the collection is arranged, and in one of these there are some very pretty and useful bush-grown plants suitable for general decorative purposes. The varieties employed in this way consist principally of Madame la Comtesse Foucher de Careil, Lady Fitzwygram, M. W. Holmes. W. Seward, Souvenir de Petite Amie, W. Tricker, and Mrs. Cullingford, with several examples of others less well known, such as the old Mdlle. B. Pigny, which is very free, Mabel Douglas, deep yellow, and October, yellow.

Passing through the house containing the main collection, Descartes, the richly-coloured Japanese anemone, is much in evidence; Frank Ashman, a large Japanese with very broad florets, deep golden yellow; Colonel W. B. Smith, Mrs. R. C. Kingston, incurved, large and good, and the curious pale yellow sport from Enfant des deux Mondes, called Leocadie Gentils, are sure to attract the visitor's attention. Mrs. Falconer Jameson is rich in colour, and so too is John Neville, a Japanese, with very long drooping florets twisted at the tips and of medium width, colour deep golden yellow, shaded carmine.

James Murray belongs to the old type of florists' incurved, and is of good form, the colour pale pink. Miss Nellie Pockett is of Australian origin; it is a very pretty Japanese, with a multitude of very narrow grooved incurving florets pointed at the tips, colour pure white. William Towers is a large spreading flower, with long drooping florets of medium width, and the colour is very pure pale canary yellow. The large, white Lady Byron is in good form, deep and solid, so too are Sunflower and Robert Powell, both fairly well known. Modesto, the rich, deep golden-yellow American introduction, is very fine in colour and size.

Amongst the miscellaneous novelties of a few seasons ago received from the Continent, M. Aug. Lacoivier is rather early, but of a peculiarly delicate blending of colour. Baron Hirsch, Hairy Wonder, and William Seward are also noteworthy. Good whites are represented by Mrs. H. Weeks, Mrs. Chas. Blick, Mutual Friend, while higher tones and varying in degrees of richness are Octoroon. Royal Standard, Ethel Addison, Charles Davis, and its parent, Viviand Morel.

Calvat's seedlings are finely-flowered, one of the best being Louise, which is big, massive, and of good substance. President Nonin is very large, an incurving Japanese of fine form, buff yellow with a straw reverse. The rich golden-yellow Amiral Avellan is also of good size, and, like most from this source, helps to maintain the reputation of this well-known raiser. Werther, a deep rich velvety-purple amaranth, is fairly well known, as also is M. C. Molin. General Paquié is another very large Japanese of a deep orange-yellow shaded bronze, and having very long florets. President Borel, Madame Gustave Henry, need no description. One of the older sorts is Madame Marius Ricord, a very pleasing shade of deep rosy-pink, and Madame Ferlat, a finely incurved white variety of large size, leaves little or nothing to be desired. N.C.S. Jubilee, pale silvery-pink, and Souvenir de Molines, orange-bronze, are also worthy examples of M. Calvat's skill.

At Earlswood.

Mr. W. Wells just now has a very attractive and extensive collection, comprising nearly all the best introductions from all sources, but particularly in French and colonial novelties. The plants are arranged in a large span-roof house of dimensions suitable for making an imposing display, and knowing from past experience the quality we might expect we were pleased to find our estimate not disappointing. The incurved section is not so largely represented here, but there are still a few of undoubted merit, and of these Topaze Orientale, a lovely pale pure yellow, with a multitude of narrow florets forming a deeply built compact flower, is certainly one of the best. Madame Desblanc, incurved Japanese, is of a charming shade of pale mauve passing to white, and Yvonne Desblanc is a very perfect large white incurved of good form. Emile Nonin, seen last season, golden chestnut, is also promising.

In the Japanese section almost every type and form are represented, the preference, however, being given to promising varieties suitable for the showboard, of which Mrs. White Popham is a very large deeply built Japanese flower with medium-sized florets pointed at the lips, colour pale purple mauve and a silvery reverse. This is grown in large quantities, and makes a noble, imposing looking bloom. A fine deep golden chestnut tone is found in John Pockett, an incurving Japanese of colonial origin, having rather broad florets and a reverse of golden bronze; Pride of Madford, from the same source, also appears to maintain its previous reputation, while the rich crimson sport from that variety, Pride of Stokell, having a golden reverse streaked crimson, will be sure to be effectively employed where brilliancy of colour is required. Also of colonial origin are Australian Belle, a deep rosy pink, and a large white called Mrs. C. Boun. Chatsworth is another, but the finest of all is undoubtedly Mr. T. Carrington, a Japanese incurved with very deeply grooved florets, grooved and pointed, and of great length, the colour being deep velvety purple, with a reverse of pale silvery purple.

Still confining our remarks to Australian seedlings, in which the Earlswood collection is peculiarly rich, Miss Nellie Pockett, a fine white Japanese, has been seen in good form at several places; and The Convention, Japanese incurved, deep golden terra cotta, shaded bronze inside, is of a very taking shade. Mrs. G. A. Harris, golden bronze, is striking but rather small; and certainly one of the finest, which we believe it is intended to call Lord Ludlow, has a multitude of narrow-grooved florets of great length, is very deep and globular in build, and in colour is of a very rich shade of fine canary yellow, shaded in some instances with bronze. Nor must we omit Australie, big, massive, and tall as usual. Purple Emperor is also colonial, and a lovely, telling variety it is, the colour being indicated by its name. Whites are strongly represented by Western King, Beauté Grenobloise, Mutual Friend, Don de la Madone, Madame Carrey, Madame Ph. Rivoire, all of varying shades and forms; also others like Simplicity, Madame Carnot, and Mrs. J. Lewis. Then there are some very good blooms of G. J. Warren, the yellow Carnot sport, and the pale sulphur Mrs. W. Mease, which claims the same parentage. Lady Hanham, the Viviand Morel sport, and Mrs. J. W. Barks, a fine deep golden-bronze sport from Edith Tabor, are both worthy descendants from popular favourites. Mary Molyneux, pale silvery pink, large and promising, was seen last season in very grand style. W. Towers, medium sized narrow florets, a Japanese of pale canary yellow; Ella Curtis, a deep golden yellow; and Mrs. Hunter Little, with long narrow florets but rather thin, are certainly not the least attractive. Mrs. G. W. Palmer is a rich purple bronze, and M. Louis Remy, a pure white, both sports from Mrs. C. Harman Payne, and equal in size. Joseph Chamberlain is deep chestnut crimson, reverse golden, very compact, and of the incurved Japanese type.

There is a good number of French novelties from various raisers more or less well known, and whose flowers, taken on the whole, are only of ordinary merit. The exhibitor who grows for big prizes will, however, be more interested in Calvat's seedlings. Madame G. Bruant, introduced last season, is richer in colour than we have seen it elsewhere, for instead of being almost white it is of a fine shade of pale purple mauve paling off to white in the centre. N.C.S. Jubilee, delicate silvery pink, is good. Surpasse Amiral is a large deep golden yellow. Dr. Liébert is another large one, having narrow florets curly at the tips, pale pinkish mauve. Iserette is also good in colour. M. Hoste, Pres. Nonin, Werther, Madame Gustave Henry, Congrès de Bourges, Madame Ferlat, Australian Gold, the very curious green Madame Ed. Roger, Mdlle. Lawrence Lédé, and Madame X Rey Souvin, all recent introductions, have already been seen in more or less good form last season or before. But dealing exclusively with his novelties for the present year which have not been seen in flower in this country before, the most meritorious in his set are undoubtedly Pres. Bevan, a fine large solid Japanese incurved with broad florets, colour deep golden buff; Mdlle. Madeleine Expulson, a deeply-built bloom, with florets sharply pointed, twisted, and intermingling, colour pure creamy white; Marie Calvat, a very large but rather rough Japanese with long straggly tubular florets, white tinted purple; M. Fatzer, Japanese incurved, with medium florets, deep golden yellow outer florets, tinted bronze; Madame Couvat de Terrail, large, but flat, a Japanese, colour white, and General Paquié, a fine Japanese, with flat drooping florets, colour deep golden amber, with golden reverse, and of which a coloured illustration was given in Mr. Calvat's spring catalogue. Madame Bertet, white; Mélusine, rosy white; Mdlle. Gab. Seince, white, also belong to this season's set, but are not so striking and effective as those already named.

We cannot leave this eminent grower's novelties without referring to Le Grand Dragon, a fine long-petalled golden yellow Jap; Tatiana, a very close, compact Japanese with long drooping florets, a finely-formed flower, colour rich canary yellow; and Perle, fine, a large Japanese with long quilled florets, a pleasing but curious flower, colour deep lilac pink. There are in all thirty-two of Mr. Calvat's 1898 novelties, but we think we have selected from them the names of the best and those most likely to suit the exigencies of English exhibitors, to whom Mr. Calvat appeals far more than most of his fellow countrymen.

At Swanley.

The large span-roof house in which Messrs. Cannell and Sons' collection of chrysanthemums is usually staged is very bright just now, and contains a comprehensive collection of novelties from all sources. The blooms, as a rule, are well developed, and will repay a visit to anyone interested in the study of the season's novelties. Continental novelties are very numerous, and, as a whole, promising, although here and there we find examples of seedlings from one or two well-known raisers that appear, to our taste, to be disappointing. There are several contributions from MM. Delaux, Nonin and Boncharlat, one or two of the last-named being of a very delicate and refined character, although not quite up to our exhibition size.

Calvat's novelties of the past and present seasons comprise, amongst other grand things, M. Fatzer, a very large, deeply-built Japanese incurved, close, compact and solid, colour rich golden yellow. Topaze Orientale is a lovely pale yellow incurved of fine form, deep and regular in form. Mdlle. M. Expulson, a large white, Souvenir de Molines, large, bright brick-red, tinted and tipped with gold. In very rich shades of colour Madame Robt. de Massy is of a deep velvety purple, with silvery reverse, a Japanese, large and deep in form. Le Grand Dragon, fine Japanese, of deep golden yellow, has already been mentioned in the N.C.S. Floral Committee report; Mélusine, very long, drooping florets; white, shaded purple, is big and deep. Sardou is not large for an incurving Japanese; it has grooved florets of a reddish shade inside, with reverse of gold. A fine yellow is to be found in Tatiana, which has long, drooping, narrow florets, and is of a beautiful shade of golden canary yellow. This promises to be quite an acquisition. Iserette, golden bronze; President Nonin, Australian Gold, Beauté Grenobloise, white; Congrès de Bourges, Madame Ferlat, N.C.S. Jubilee, a fine pale-silvery pink; M. Massange de Louvrex, yellow, and the peculiar green Madame Ed. Roger are all a season older than the preceding, but by no means the worse on that score. General Paquié is a very fine new yellow Japanese, and from the same set comes Marie Calvat, a big, white Japanese, slightly tinted. There are many other varieties from this source, but we have said enough to give an indication of their merits, and there is no doubt that M. Calvat still occupies the foremost place, in spite of several strong competitors from his side of the Straits of Dover.

In Continental incurves of recent date Triomphe d'Eve is a fine white. Emile Nonin, deep golden chestnut, is good, but not equal in form to the first-named. Yvonne Desblanc, pure white, and very large, is also a first-class novelty of this type.

While holding a high opinion of the Continental novelties, we are by no means unmindful of the special claims of our kindred across the sea in far Australasia, and this is the first year we have had such a capital opportunity of seeing so many colonial novelties at once. We like Mrs. J. T. Tibbs, a pure white sport of Lilian B. Bird, and also Mrs. H. B. Higgins, a fine large white Japanese of a pure creamy shade, very delicate and soft in tone. Mr. T. Carrington is a fit companion for such monsters as Australie and Pride of Madford, to both of which there is a slight likeness. Miss Mary Underhay is a Japanese incurved of very good build. The florets are of medium size, regularly incurving, grooved and ribbed on the reverse, a lovely thing in colour, being a rich buttery yellow. Purple Emperor, as its name implies, is grand, velvety purple and silvery pink reverse. Wonderful of the Wheeler type, Euterpe, rosy mauve; Nellie Pockett, white; Mrs. Bissett, S. Kerslake, pure white; and Miss Vera May Fraser, lovely shade of terra cotta, exhaust the space at our command for this group.

Among home-raised Japanese of varying shades of yellow, Edith Tabor, Ella Curtis, Baron Tait, C. T. Payne, and the fine Carnot sport, Mrs. W. Mease, must not be forgotten. Lady Hanham, the beautiful Viviand Morel sport, is also first rate, and in whites we get Mrs. H. Weeks, Lady Byron, Kathleen Rogers, a fine Japanese incurved of good size and substance. Belle Mauve is pretty in its class, a Japanese with long florets the colour indicated by its name. Lady Ridgway, Milano, Mrs. J. W. Barks, the golden bronze sport from Edith Tabor, are all in good form, and make very attractive-looking blooms. Lady Isabel, delicate silvery pink, was seen last season, and so too was Duke of Wellington, a big solid Japanese incurved of deep golden bronze.

In the old section of florists' incurved there are a few representatives, Miss M. A. Haggas, Mrs. Heale, Austin Cannell, Violet Tomlin, very bright and fine; all the Princess family, Globe d'Or, C. H. Curtis, Mrs. R. C. Kingston, and others being of the number.

NEW LATE PLUM.

OF the several kinds of hardy fruits grown in British gardens the plum is second only in usefulness to the apple, and therefore a promising addition to the list of varieties can hardly fail to be regarded with much favour by the general body of fruit growers. This being the case, it is not surprising that the variety, of which a characteristic illustration is given herewith, should have created much interest and obtained distinction when submitted to the Fruit Committee of the Royal Horticultural Society on the occasion of the first of the two meetings held by that body in October. Primate is the name this handsome plum has received, and, like so many of the varieties now so largely grown, it had its origin in the Sawbridgeworth Nurseries. The fruits, which are so admirably depicted by our artist, are large and handsome, and in the matter of appearance they have no superiors. The size and shape of the fruits are so well portrayed that no description is necessary beyond stating that they are herewith represented their natural size. The skin is bright purplish red, with heavy bloom, and marked with numerous small dots; the flesh is yellowish, rich, and juicy, and when the fruits are fully ripe parts readily from the stone. The productiveness of the tree, the large size, attractive appearance and high quality of the fruit fully justify the award of merit which was made in its favour by the R.H.S. Fruit Committee, but it has another claim for consideration, and that is the late period of the season when it attains maturity. The exact date of ripening depends upon the weather experienced during the summer, but in ordinary seasons it may be had in perfection throughout the month of October. The cluster of fruits here figured when received from Messrs. T. Rivers and Son at the middle of the month was not fully ripe, and remained in excellent condition until quite the close. Messrs. Rivers have introduced a large number of plums to cultivation, a considerable proportion of which are now extensively grown for market as well as for home consumption, and this, the latest of their productions, promises to be not less useful than the best of the additions they have previously made to the culinary section. Of mid-season plums we have perhaps sufficient to meet general requirements, but very early and very late varieties are still required, and the Messrs. Rivers are rendering a service to the community in their endeavour, which has already been attended with so much success, to meet this admitted want. Another valuable late culinary plum raised and introduced by this firm is Autumn Compote, a productive variety, producing handsome finely-flavoured fruits, which ripen a fortnight or three weeks after Victoria. They have also been successful in raising several dessert plums of much value, both for their high quality and the late period at which the fruit ripens. The more important of these are Grand Duke, in season during the early part of October; Monarch, an especially good variety, available during the second half of September; and Late Orange, in perfection during October. All these varieties, with the addition of Primate, should be planted in gardens where plums are required for as long a period as possible

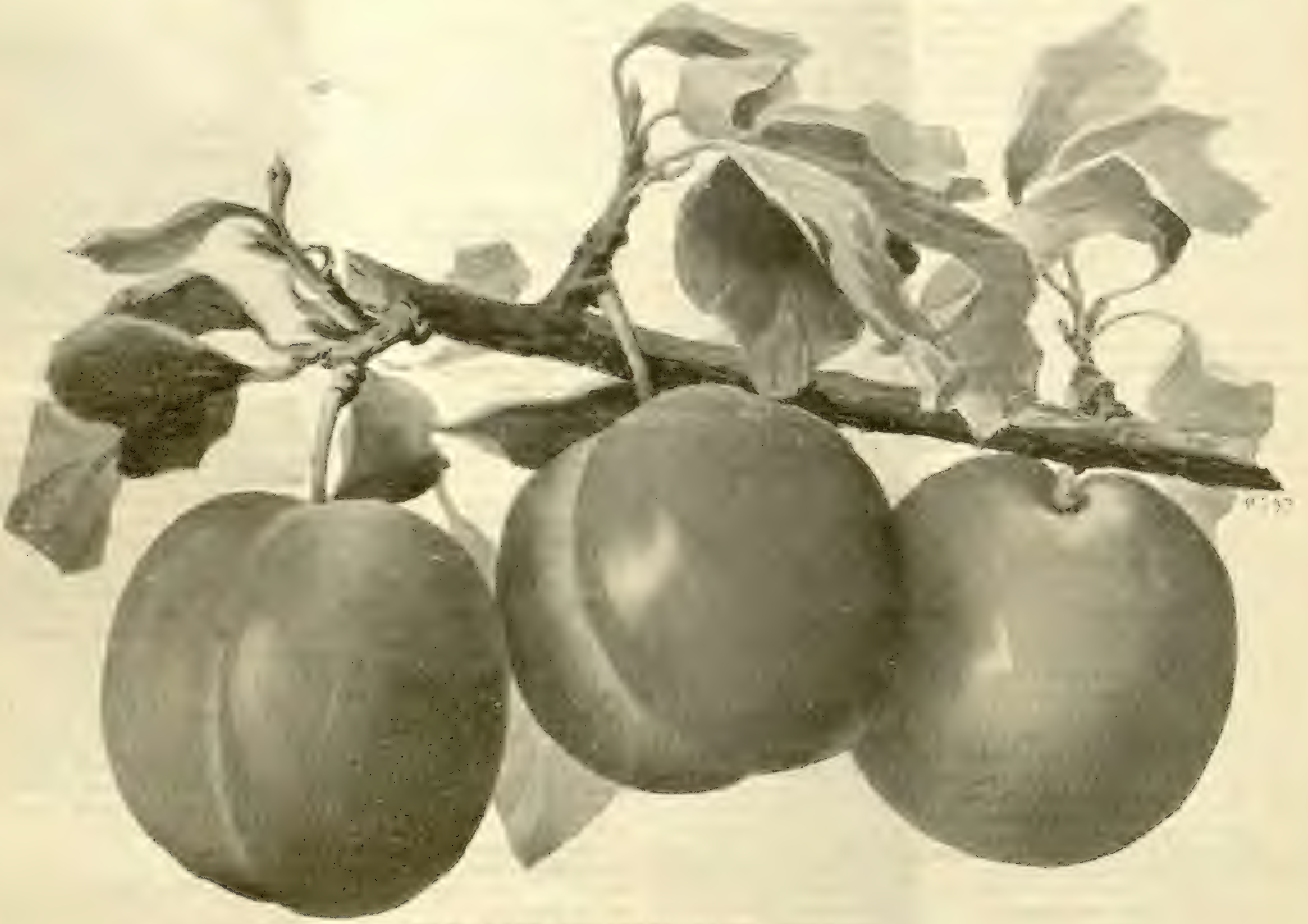
NEW PLANTS.

CATTLEYA MARONI.

A BEAUTIFUL orchid carrying a fine spike of seven large flowers with bronzy-yellow coloured sepals and petals and rich rosy-crimson lip. This grand orchid is the result of crossing Cattleya velutina with C. aurea, and certainly both parents are evident in the progeny. The flowers measure four and a-half inches across, but the petals bend forward rather than spread out; these are of a curious shade of bronzy-yellow or old gold with slightly deeper veins. The lip has a long tube composed of the clasping buff, rose-margined side lobes; the throat is brilliant golden-orange with scarlet markings, but the broad apex is two inches across, frilled, crisped, and waved, rich rosy crimson with deeper veins, and a buff tinge in the ground colour of the extreme tip. This is a strong grower, and, if it can be put on the market, it cannot fail to become popular. The accompanying page illustration represents the spike as staged at the recent Drill Hall meeting, where it was greatly admired, and generally considered to be one of the most distinct and beautiful hybrids yet raised. F.C.C., R.H.S., October 25. Mons. Charles Maron, 3, Rue de Montgeron, Brunoy, France.

RHODODENDRON YUNNANENSE.

This is a pretty erect-growing species from Yunnan; it has very dark green leafage and white flowers that have a few oblong red spots towards the bases of the upper lobes. The species is perfectly hardy at Kew, where it has been in cultivation since 1894. It is one of the Abbé Delavay's discoveries, and was found at Houang-li-pin, in Yunnan. A peculiar feature of the plant is that the leaves are sparsely covered with short stiff hairs. *Bot. Mag.*, t. 7,614.



NEW LATE CULINARY PLUM, PRIMATE.

LOBELIA INTERTEXTA.

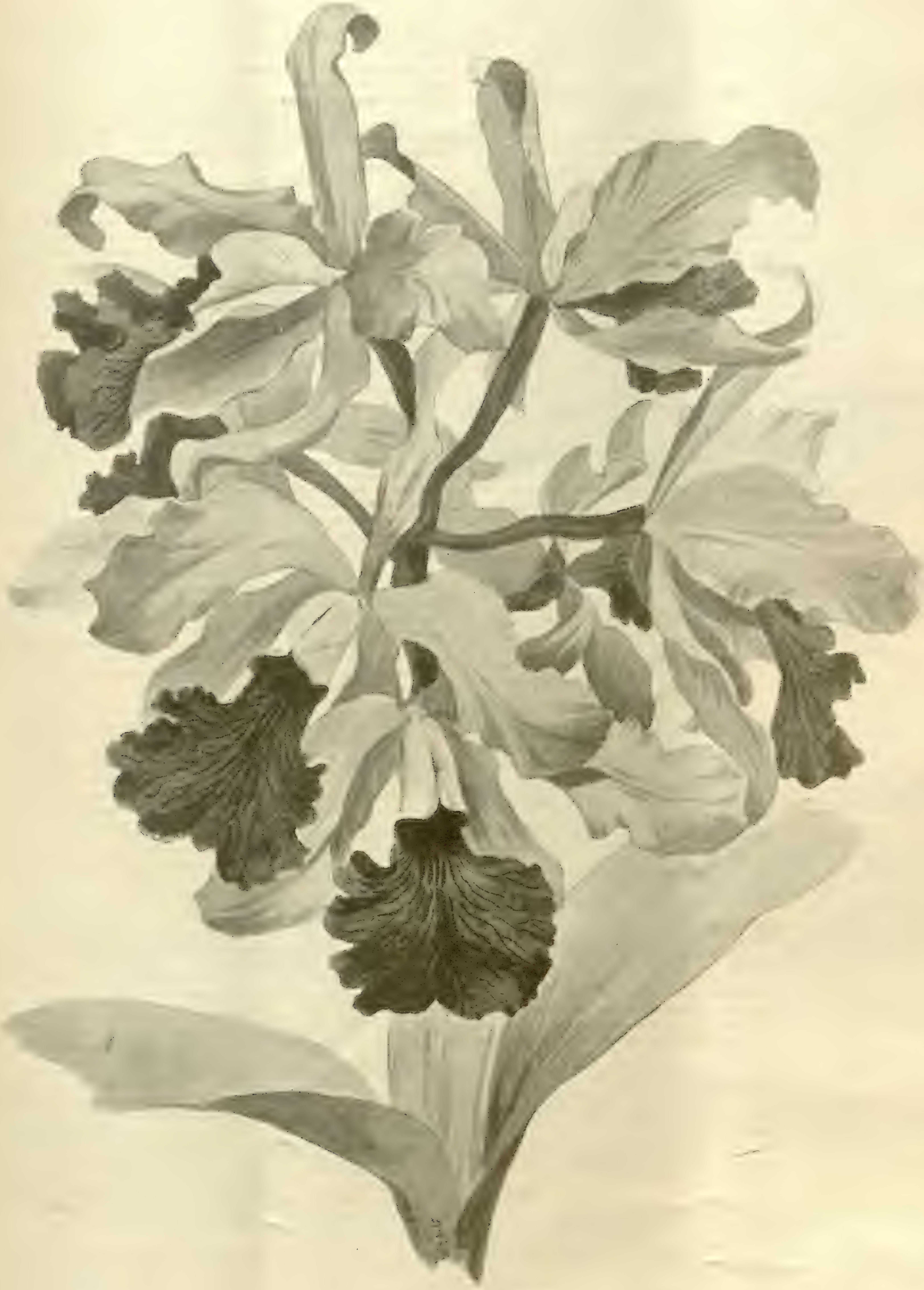
This native of British Central Africa closely resembles Lobelia erinus bicolor, and was discovered by Mr. A C Whyte, F.L.S., superintendent of the Forest Department. It is a slender, diffusely-branched annual with broadly ovate leaves; the flowers are white at the base and wholly violet beyond the middle; there are two large violet spots placed at the junction of the two large lobes with the central one. At Kew Lobelia intertexta has been grown in a warm house, where it flowered in December, and made a pretty, profuse-flowering pot plant. *Bot. Mag.*, t. 7,615.

CALLISTEPHUS HORTENSIS.

This is the wild form of the well-known China aster, and is figured in the *Bot. Mag.*, t. 7,616, because good illustrations of the type are extremely rare. The indigenous form is found in abundance on rocky hills in Northern China, from Pekin to the Yang-tse-Kiang; it is also found as far west as Afghanistan and Eastern Turkestan, though here, as in Japan, it is probably only known in cultivation. The species was probably introduced in 1731, and at an early date its usefulness was recognised, and florists found in it a plant that responded to their efforts readily. Plants flowered at Kew last autumn as the result of sowing seed collected in Eastern Szechuan by Abbé Farges.

CYRTOSPERMA SENEGALENSE.

A curious aroid from Upper Guinea, having an oblong lanceolate spathe from a foot to eighteen inches in length, green, red-clouded without, and yellowish-green, striped with red-brown within; the spadix does not exceed six inches in length, is blunt and stout, dark violet purple. The root stock of this quaint plant is a large tuber; the leaves are sagittate, oblong, about a foot broad by six inches across. It is a stove plant, and at Kew the spathes lasted in good condition for over two months. *Bot. Mag.*, t. 7,617.



CATTLEYA MARONI.

CYTISUS PURGANS.

A bright-flowered broom of dwarf habit, and producing abundance of golden blossoms during May. The species is plentiful in the southern half of France and in the northern part of Spain, and found growing freely in rocky districts. It was introduced to cultivation in this country as long ago as 1768, and was formerly regarded as of economic value; it has no place, however, in modern medicine, and does not ever seem to have been much valued as a purgative. C. purgans is a handsome and effective flowering shrub. *Bot. Mag.*, t. 7,618.

AMELANCHIER CANADENSIS OBLONGIFOLIA.

The common June berry or Service berry is well known and appreciated as one of the most beautiful of our hardy and early-flowering trees, but the variety figured as Amelanchier canadensis oblongifolia in the *Bot. Mag.*, t. 7,619, is not so well known as the type. It differs from the species in its smaller size, shrubby habit, and less sharply serrated leaves, the latter having a tomentose under surface. The flowers are bolder, and the resulting fruit more juicy, than in the species. This variety is known in New Brunswick as the Swamp Sugar Pear; it is plentiful near the River Saskatchewan, where the Cree Indians use the wood for pipe stems and arrows.

FEIJOA SELLOWIANA.

This is an erect-growing shrub allied to Psidium; it has opposite, oblong, shining green leaves and handsome drooping flowers two inches across. The latter has a whitish calyx with reflexed lobes; the orbicular petals are white on the outer and blood-red on the inner surface, save for a white margin. The stamens are very numerous, spreading into a large, broad tuft, rich blood-red, tipped with tiny yellow anthers. The fruit somewhat resembles a guava, and has a richly aromatic odour and flavour. Feijoa Sellowiana is a native of Brazil and Uruguay, and it commemorates Don J. da Silva Feijo, of San Sebastian Natural History Museum, and M. Fr. Sellow, of Potsdam, the energetic collector who discovered it. *Bot. Mag.*, t. 7,620.

RHODODENDRON RUBIGINOSUM.

Yet another rhododendron from Yunnan, and also discovered by the Abbé Delavay. It appears to be closely allied to R. punctatum, an American species, and Sir J. D. Hooker, in the *Bot. Mag.*, t 7,621, states: "It is difficult to say how the two are to be distinguished, except by the much larger flowers of the Chinese plant, which has disproportionately large, highly-coloured anthers and much less hairy filaments." R. rubiginosum is quite hardy at Kew, where it produces its bright rose-coloured flowers in April and May. The specimen was obtained from Messrs. J. Veitch and Sons, Chelsea. *Bot. Mag.*, t. 7,621.

CHRYSANTHEMUMS.

Waterlow Park.

FROM an educational standpoint the show of chrysanthemums at this popular North London park bids fair to rival any other existing public display of the kind. Very nearly 3,000 plants, in almost endless variety, are well represented, and on the occasion of our visit were seen in their best and freshest condition. Good culture characterised the great bulk of the plants, and we rarely, if ever, have seen the chrysanthemums turned out better at this establishment. The collection does not contain as many of the new introductions as one would expect to find, and this is a pity, as North Londoners are so apt to make comparison with other displays in the immediate neighbourhood.

The most conspicuous of the newer Japanese varieties were Mrs. S. C. Probyn, a good incurved Japanese of fine form and substance, of a pale pink colour; Yellow Carnot (G. J. Warren), which looked very promising; Emily Silsbury, one of the best white, and a very easy sort to grow; Pride of Exmouth, a large pale pink, almost white on early flowers; Lady Byron, a very grand white Modesto; Duchess of Wellington, a good yellow of spreading form; and Mons. Edouard André. Of the older Japanese varieties there were several notable examples of cultural skill, and good colour in the majority of the flowers was a special feature of the display. Phœbus, probably the most popular of all yellow, was in grand form; Mrs. E. G. Hill, an undoubted semi-early flower of a pretty pale blush pink colour; Gloire du Rocher, brilliant crimson and golden; Australian Gold, straw yellow; William Seward and J. Shrimpton, two distinct shades of crimson; A. H. Neve, still very pretty; Eda Prass, a very lovely soft pink; Avalanche, the white of a few years since, still popular here, and the members of the Viviand Morel family each call for special notice. This last lot of plants promised some very large full flowers.

Incurved varieties were rather sparsely represented, but what there were of them answered well the purpose of illustration to the admiring throng of visitors. Baron Hirsch has rarely been seen with blooms of such rich colouring, while the beautiful blooms of the Rundle family are freely represented. Anemones, such as Descartes, the rich coloured bright crimson red, are grown in a free manner, and for decorative effect are most attractive and striking. Pompons are always an interesting feature here, and a nice variety, including white and yellow Mdlle. Marthe, the glorious William Westlake, President, Black Douglas, Mdlle. Elise Dordan, Emily Rowbottom, and several others contributed largely to a pretty and effective arrangement of the fine range of glasshouses here. To Mr. Webb, the grower, praise is due for a notable advance in quality. The natural picturesque character of the park shows the skilful handling of Mr. Pallett, under whose superintendence the outdoor display has been improving each year. A wise selection of early flowering chrysanthemums has kept the beds and borders quite gay for some time past, and even so late as the last week in October there is plenty to interest the visitors to the park from this source alone.

It is a pity the Parks Committee are not just a little more liberal in the purchase of a larger number of first-rate novelties, as this is probably one of the best means of creating an interest, and also keeping alive the interest, too, in the autumn queen.

VISITOR.

The Experimental Farm, rented and managed by the Agricultural Department of the University of North Wales, Bangor, was opened recently by Mr. Long, M.P. The farm is 358 acres in extent, and is at Lledwigan, Anglesea, and here the theoretical information given at the college will be experimentally illustrated. The Professor of Agriculture at the University will reside at and manage the farm, with the assistance of a small committee of practical farmers, who will see to the equipment, stocking, and cropping of the farm, and control the finances. Towards the maintenance of this farm the Board of Agriculture make a special grant of £200, and in this connection it is interesting to note that the Bangor University College was the first in the kingdom to apply for and make use of the grant voted by Parliament for agricultural education.

WORK FOR THE WEEK.

WARM ORCHIDS.

VANDA SANDERIANA, the king of the genus, seems to be more popular now than formerly, and certainly is the very finest of all the vandas, and ought to be grown more extensively. Though high priced it is deserving of a place in every collection. It is far the best plan to purchase a good strong specimen at first, large enough to lead one to expect flowers, and, indeed, this should be the case with all this section of vandas; for if small plants are purchased it means years and years of culture before they attain a flowering stage. The species mentioned thrives well if grown in the cattleya house; it enjoys abundance of water when growing freely, with a diminished supply when resting. It also enjoys basket culture, and to be suspended from the roof. There are many opinions with regard to the culture of Vanda teres; some growers never allow it to be removed from the house where it is grown, and never allow any rest, keeping it in a hothouse all through the winter months; others practise the extreme, and remove their plants annually to the coolest house. I advocate a medium method; we grow them successfully in plenty of heat during the growing season (in the dendrobium house), and when the growing season is over they are placed on a shelf close to the glass, kept dry at the roots, only sufficient water being allowed to keep the growths firm, and under such treatment they flower luxuriantly year after year.

Dendrobium phalænopsis Schroderianum will in most collections be making a fine display, and they are grand orchids at this season of the year. Less water at the roots and also in the atmosphere must be provided now the flowers are open, but sufficient water is required to enable them to finish flowering prior to their having a good rest. Particular attention at this season must be paid to a steady temperature, especially under the present conditions of the weather, as we have occasional cold nights. The bottom ventilators must be kept open night and day when convenient, but sufficient heat must be kept in the pipes to keep up a temperature of, say, 65 degrees at night. Cattleya Bowringiana will now be brightening our cattleya houses, and is well worth cultivating; the water supply must also be checked for this species. C. labiata autumnalis will also be flowering. This has become so cheap that it is within reach of anyone who has a glasshouse; it is also of easy culture, and invaluable for cut flowers at this time of the year. The plants, however, have a bad fault of rotting off at the top of the bulb when the flowering season is over; a good plan to stop this is to withhold water and cut away the affected part as far as the rot penetrates, and rub the cut surface with dry lime or flower of sulphur. Cockroaches and beetles will be troubling orchid growers now in the warm houses, so must be trapped.

The temperatures at night should be: East Indian house, 70 degrees; cattleya house, about 62 degrees; and cypripedium house, 65 degrees, allowing a few degrees rise by day in fine weather.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

A NUMBER of cuttings of each variety of coleus should be put in to afford stock for propagating from in the spring, these wintering better and occupying less space than the old plants. Continue to introduce batches of Poinsettia, Euphorbia jacquinaflora, Plumbago rosea, justicias, &c., to the stove, so as to maintain a regular succession of bloom; see that each plant receives plenty of light, so that the leaves may be retained, an accompaniment of plenty of clean, healthy foliage tending to show off the flowers to the greatest advantage. Afford these, and all other plants in active growth, stimulants regularly, but not so strong as they are usually applied earlier in the season. When either flowers or bracts are fully expanded remove the plants to a cooler and drier house, where they will retain their beauty much longer than in a warm, moist stove. Attend carefully to the wants of succession plants of Poinsettia, Eranthemum pulchellum, E. Andersonianum, Centropogon Lucyanus, and Thyrsacanthus rutilans, and while giving them sufficient water for their requirements be careful that they are not overwatered. Examine them regularly to see that no insect pests have gained a footing, and should any be found adopt means for their destruction at once, as these troublesome disturbers of the peace of a gardener's mind increase rapidly now that the syringe can be less liberally applied, and that, owing to the rapidly decreasing light, the atmosphere has to be kept less humid. Begonia Knowslyana, B. corallina, B. President Carnot, B. Ingrami, are flowering freely in a house with a temperature of 58 degrees by night and 63 degrees by day, and their flowers are extremely useful at this season; a sprinkling of a good artificial fertilizer once a fortnight, with an intermediate watering with soot water, suits them admirably. When watering care must be taken not to wet the foliage or to spill water about. Saintpaulia ionantha is flowering in the same house; this is a lovely little subject, and should be grown in all gardens.

Bougainvilleas must now be gradually dried off, and the leaves as they fall should be gathered up daily, especially those which fall upon the foliage of other plants beneath. Encourage allamandas to go to rest by gradually reducing the supply of water; when the leaves have fallen shorten the shoots, and, if of a movable size, place the plants at the back of the stove, but do not stand them too near the hot-water pipes. Clerodendrons may be treated similarly to allamandas, only that no shortening of the shoots should take place until the plants are pruned for starting again. Keep ixias moderately dry at the roots, and shorten back the shoots if not already done. A few plants of gardenias set with buds may be introduced at intervals from the intermediate house where they are resting, and stood in a light position at the warmest end of the stove; afford them stimulants regularly; see that they are free from insect pests before the flowers begin to expand. Phrynium variegatum is apt to become infested with red spider at this season, and must be regularly sponged, else the leaves will soon lose their beauty. Plants standing in positions where the light only reaches them from the one side should be turned regularly, so that they may be kept from inclining to one side. Those plants in small pots for table decorations should be stood on a moisture-holding base, and have the pots twisted round frequently to prevent the plants rooting into the ashes, small gravel, or whatever the material they are standing on may be. On very dull days one syringing will be sufficient; in lieu of a second syringing overhead damp freely amongst the pots and on the paths, and keep the evaporating troughs regularly filled.—J. TUNNINGTON, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

WHERE not already accomplished a general clearance of the remains of summer bedding should now take place. With the much-desired rainfall we have recently had the lifting and planting of various subjects, as small conifers, wallflowers, violas, and others, may be safely carried out. The beds should be previously dug over two spits in depth, and any manuring necessary be given now, thus leaving the beds to be simply dug over when the summer bedding-out comes round again. In large gardens, or where there are beds of good size, small conifers and flowering shrubs may be effectually employed for winter and [illegible] decoration. Large beds, or those occupying central positions in flower [illegible] of considerable size, may be thinly planted with small retinosporas, [illegible] as R. plumosa, R. pisifera, R. p. aurea, R. ericoides, R. squarrosa, and several forms of Cupressus Lawsoniana and thuias in variety. Among flowering shrubs that should be planted well set with flower buds, hybrid rhododendrons are the most important, and others that may be used are the early flowering Andromeda floribunda and A. japonica, Lauristinus, Berberis Darwini, and berried plants of Pernettya mucronata. Euonymus in variety are also admissible, and the early-flowering heath, Erica herbacea carnea. The small conifers, when used annually, do not increase materially in size for some years, and form compact root masses that render transplantation easy. The beds may be edged with a broad band of violas of suitable colour or other spring flowering subjects, as wallflowers, myosotis, Silene pendula compacta, and, if sparingly planted with conifers or flowering shrubs, a groundwork may also be used of similar materials. All spring flowering plants should be in their permanent quarters as soon as possible after this date where not yet planted; the same remark will also apply to bulbs of all kinds used for this purpose.

Sub-tropical and all half-hardy plants, as fuchsias, abutilons, cannas, Aloysia citriodora, specimen heliotropes, and other such like subjects that it may be desired to preserve for another season, should be housed forthwith or placed in [illegible] temporary shelter out of the reach of frost, for, although extremely mild up [illegible] the time of writing, frost may now set in any night sufficient to kill tender plants. Tuberous begonias also should be lifted, and laid close together in boxes, allowing a little of the soil to adhere to the tubers, and these may be stored in a cool greenhouse out of the reach of drip and away from hot-water pipes, avoiding either extreme of dryness or damp, and they will take care of themselves until the spring. Gladiolus in variety may also now be lifted, the foliage having matured. The corms should be dug up and laid out in a shed, or on the floor of a greenhouse or vinery, until the tops part easily from the corms, when the latter should be stored out of the reach of frost, and may be placed in their varieties in bags or drawers until the spring. Some varieties, as Colvillei, Byzantinus, and the old Brenchleyensis, may remain in the ground if desired, provided they are planted at a depth of four inches, and in the event of severe frost some coal ashes are spread over the surface as an additional protection.

Where rose planting is contemplated preparations should now be made for this operation, as the present month is the most suitable time, if the weather remains open, for planting roses of all descriptions; and, if early planted and mulched with half-rotten manure, the trees become partially established before severe frosts occur. Also where existing beds have become impoverished the plants should now be lifted and laid in by the heels elsewhere while the beds are trenched and manured, and some new loam also incorporated, if circumstances permit, removing a corresponding part of the old soil that the beds be not over-full. Make the soil compact by well treading over the beds before planting, and when this is done allow ample space for development, according to the strength of the variety. Remove any broken roots and shorten others that are long and fibreless, planting at a depth similar to that at which they have previously been growing. Make the [illegible] firm about the roots, and stake and tie if necessary to prevent any swaying [illegible] wind. Most roses flourish in a good retentive loam approaching to brick earth, and where the staple is light means must be taken to make it heavier by working in loam of a clayey nature, removing some of the lighter to make room for it. If the soil is generally light and porous a six-inch layer of clay may with advantage be placed about eighteen inches under the bed, which will assist in retaining moisture.—C. HERRIN, *Dropmore Gardens*.

HARDY FRUITS.

MOST hardy fruits will now be in the store-room, though in spite of the heat and drought fruits have matured later than usual. We have only this week cleared our latest pears; the trees are somewhat sheltered, and we always allow the fruits to remain as long as possible, so that they may keep good till after Christmas. Examine the stored fruit often, and remove bad fruits, so that they do not affect others. It is full late to write about plums, but much the same remarks apply to these as to late pears, as the trees of Coe's Golden Drop and Wyedale have only just been cleared, though, of course, it has been necessary to keep them netted. These plums will keep a considerable time if each fruit is wrapped in tissue paper and placed in a close drawer; indeed, I have had Coe's good at Christmas treated thus. It happens sometimes that one has a batch of fruit trees in pots that were grown in houses recently planted, but now there is no room for the pot trees indoors. I recently saw some splendid crops from such fruit trees placed in a sheltered border between some span-roof houses, as in that position it was an easy matter to protect them when in bloom. In many parts of the country, south and west, excellent crops may be had from standard peach trees, and the fruits are of excellent quality, as the exposure to full air and light is so favourable to ripening. Of course, grown thus, only early kinds are advised, and to these [illegible] added the new nectarine Early Rivers; indeed, this excellent variety promises well. I need not dwell upon this mode of culture other than to note that it is essential to pay the trees ample attention, and to be a success there must be stopping and disbudding, thinning and feeding, for it is important to have the trees [illegible] and sufficiently thin to admit light and air. Figs in cold localities do not [illegible] on open walls, but with some little protection they would do well in pots. Many could grow figs thus who cannot devote a house to their culture, and if [illegible] in the winter or early spring and placed out in May they give a good crop of late fruit. Of course only one crop can be taken, and the plants, to save [illegible], may be plunged due south, and well fed. Now is a good time to pot up new stock, repot older ones, and top-dress any not potted.

October is usually the month advised for lifting such fruit trees as need a check to promote a fruitful growth, but until now the soil has not been in a fit state for the work, being so dry that lifting was delayed. In many cases it is not necessary [illegible] take out the trees, but merely to work under them, and cut coarse roots going [illegible] down into the subsoil. This only applies to older trees, and with such [illegible] be well to take two seasons to do the work, as by so doing the crop [illegible] be sacrificed any one year. Peach and nectarine trees on walls should [illegible] early attention, and at the time of penning these lines, the last week in [illegible], we are lifting a goodly number of trees, some to fill up gaps, and others [illegible] are growing too strong. This latter evil is soon rectified at this [illegible] it does not mean mutilating the roots, but preserving all the small [illegible] and giving any strong ones a clean cut at a sufficient distance from [illegible] that it may be induced to make a fibrous growth; by so doing fruiting [illegible] be made instead of gross growth. Peaches and nectarines are best lifted [illegible] leaves fall, but at this date any other trees may be transplanted. Cherries [illegible] should have the earliest attention, as these are the first to start in the [illegible]. Plums are making a late growth and may be left till last, but even these, [illegible] and apples, may now be moved safely; indeed, the work is best done [illegible] weather is open. The soil for fruit trees is an important matter; now [illegible] time to bring material together, and if at all dry this should be spread out to let the rain moisten it. In heavy land of a clayey nature drainage will be an important detail; this may be secured, and at small cost. When in the North I could not grow some kinds of fruits until a regular system of drainage was adopted for all young trees. Such materials as old mortar rubble, burnt refuse, wood ashes and road scrapings are of great value for mixing with heavy soils. It will also be advantageous to trench and dig the quarters for fruit trees. In the case of wall or border trees it is well to plant new trees in different positions to what older ones occupied, but if necessary to fill the same spot it will be well to wheel out a large portion of the old soil and replace with other of a better nature. I am greatly in favour of autumn as against spring planting, for having a very light soil to deal with, and on a gravel subsoil, late-planted trees suffer much in hot, dry summers. Gooseberry quarters should receive a good mulch of manure at this season, and if my advice earlier was carried out as to thinning out crowded wood when the crop was cleared there will be little pruning to do; the same remarks as regards food will apply to currants.—G. WYTHES, *Syon Gardens*.

AUSTRALIAN GRASSES.

THE marvellous abundance of beef and mutton in Australia is largely due not only to the enormous extent of the area devoted to pastoral purposes, but also to the rich luxuriance of the native grasses, of which, so far as is at present known, there are one hundred and ninety-eight species and thirty-three well-defined varieties indigenous to New South Wales. Out of this number are sixteen species which, when old, are somewhat dreaded by pastoralists in the interior districts, on account of their long seed awns, or sharp-pointed seeds or leaves. Most of these undesirable grasses are really good pasture plants while young, and it is only at the season of ripening their seeds that they become troublesome to sheep. Among the more valuable of the native grasses is the "bent grass," a slender, tufted grass, growing from six inches to one and a-half feet high, which, together with two other species of the same genus, forms a considerable percentage of the herbage in some pastures on the high table-lands, more particularly in the southern portion of the colony. During the summer months these grasses yield a fair amount of rich herbage, which sheep eat with avidity. The "blue grass" is generally found growing, from one to two feet high, in the coastal districts and in the colder parts of the colony. It grows on various soils, but it appears to succeed best and yield more herbage on those of a moderately strong loamy nature. In sheltered situations it makes considerable growth during the winter months; therefore it is doubly valuable to the grazier. Kangaroo grass and Mitchell grass also enjoy a good repute for their fattening qualities. The seeds of the latter at one time constituted an important food of the aborigines. Oat grass is found on the southern mountains, where it forms a considerable proportion of the alpine herbage. It generally attains a height of from four to five feet.

The wallaby grass is common throughout the colony. The love grass, of which there are several varieties, grows from one to four feet in height, both on good and on poor soils. When growing on good land these grasses yield a great amount of rich, succulent herbage, of which all herbivora are remarkably fond, and fatten on. The seeds usually ripen during the summer months. Twelve other species of the grass are found in the pastures in varying proportions over nearly the whole of the colony. Stockmen call certain of them "never fail," on account of their drought-enduring qualities. Many will withstand a phenomenal amount of dry weather, and most are excellent pasture grasses. The Australian millet is found over nearly the whole of the colony, from the coastal districts to the far interior, and in some places is very plentiful. In moist places, and by the side of watercourses, this grass grows four feet high, but on the plains it rarely exceeds a couple of feet in height. In all its varied forms it yields a valuable herbage. At one time the aborigines used to collect the seeds in great quantities, grind them between stones, make the meal into cakes, and use them as an article of food. The yellow-flowered panic-grass, growing from one to three feet in height, is generally found on the western plains. On good soils it gives a great quantity of rich, succulent herbage, and is said to be one of the best fattening grasses in the interior. It produces an enormous amount of seed; in fact, the panicles are often so full and heavy with grain that they are weighed down to the ground.

Twenty-eight other species of the grass are found in the colony, and they form a large percentage of the herbage in the pastures in the coastal districts, on the high table-lands, and in the interior. The sugar grass is most common in the interior districts, and when in flower is easily recognised amongst other grasses by its rich, brown, silky spikes. It is generally found growing on the richest of soils, and often on deep alluvial flats bordering rivers and creeks. During the summer months, in an ordinary season, it produces a great bulk of rich, succulent, sweet herbage, much relished by all herbivora. It attains a height of about four feet. The wild sorghum is found principally in the coastal districts, and in the colder parts of the colony, where it attains sometimes a height of five feet. In the New England district it is, when in flower, quite a feature in the pastures, and is regarded as a valuable grass. Horses are said to eat the seeds with avidity, and to thrive on them. In the colder portions of the colony it is a summer grass, but elsewhere it grows all the year round. These are a few only of the native grasses of New South Wales, but their abundance explains the general excellence of the beef and mutton raised in the colony, the use of oil cake and other artificial foods, so common in Europe, being infrequent in Australia, where, during the winter months, there is plenty of forage in the shape of hay made from the younger grasses. Imported grass seeds are employed in renovating old pastures, but the native grasses are always plentiful when the land is not systematically overstocked.

JOHN PLUMMER.

Sydney.

Vineries in Damp Weather.—With rainy weather following a prolonged drought an increase of fire heat will be necessary in vineries, as also will very careful top ventilation. The fire, though an absolute necessity, will be an evil if damp is not removed from the house at once. A strong heat, with a corresponding increase of top ventilation, is the correct thing. Grapes will steam and gather the damp, and with a lower outside temperature, especially at night, much damage may be quickly done. If up to this date all has been done that is required in the way of removing the superfluous ties, with also the smaller sub-laterals below and just above the bunches, the right thing has been attended to, but too often failures arise from want of attention in small matters. Cleanliness is essential in a house of hanging grapes, and of course no unnecessary water should be spilled about the path or borders. Keep the front ventilators tightly closed. Falling leaves should be taken away daily, as nothing holds damp more than decaying foliage. If there are cold houses of grapes these will want cutting quickly, even under the best of circumstances. Without making the vinery a hothouse, it should nevertheless be comfortable and dry.—STEPHEN CASTLE, F.R.H.S., *Bottesford Vineries, Notts.*

EXHIBITIONS AND MEETINGS.

WATFORD CHRYSANTHEMUM SOCIETY, November 1 and 2.

THIS society held its thirteenth annual display on the above dates in the spacious Clarendon Hall. The display seemed rather below the average in extent, though the quality of the exhibits was good. One missed, however, Mr. Beckett's contributions to the show. The Earl of Clarendon's gardener put up a grand group of flowering and foliage plants in the centre of the hall, while Messrs. Cutbush and Son, Scrivener and Son, Wood and Son, H. Lane and Son, and Mr. D. Hill put up excellent and varied non-competitive displays.

GROUPS AND PLANTS.

In the class for a group of chrysanthemums Mr. W. Tidy, gardener to W. K. D'Arcy, Esq., Stanmore Hall, Middlesex, easily won the chief honours, which included a silver cup in addition to a good money prize. Mr. Tidy's group was rather heart-shaped than semi-circular, the lobes being raised slightly, as also was the centre at the back, falling slightly towards the front. The design was good, and the flowers also of considerable excellence, though quite a number had not expanded to their fullest extent. In the members' division the first prize for a group of chrysanthemums staged on a space of fifty square feet was won by Mr. Wilson, gardener to H. J. Jourdan, Esq., C.M.G., The Elms, Watford, who had a good exhibit of dwarf plants carrying fine flowers; a three guinea cup accompanied the money prize. Mr. J. Wilks, gardener to J. Dunbar Thomas, Esq., Elmdene, Pinner, secured the second award, though a little more care in staging might have resulted in the higher prize.

Low groups of miscellaneous plants are always a successful feature at the Watford shows, these alternating with the chrysanthemums round the hall. On this occasion Mr. W. Tidy beat all comers in the open class, with a tasteful and light arrangement of palms, crotons, calanthes, dracænas, and cypripediums over a dense bed of deep green maidenhair fern; caladiums, peperomas, and ferns formed a suitable edging. Mr. C. Brown, gardener to Viscount Esher, was second, his cattleyas being very good, but dominating the other subjects too much; Mr. C. Worsley, Bushey, third. In the members' section the first prize for a miscellaneous group of plants was awarded to Mr. H. Reed, gardener to Mrs. Moon, Cassio Bridge, Watford, who had a group planned on the same principle as Mr. Tidy's, but producing a rather brighter effect by a judicious use of cattleyas and Vanda cærulea. Mr. Tidy, who took a lion's share of the prizes, showed the best dozen, a pretty set of the usual subjects; Mr. C. Brown, gardener to Viscount Esher, Heath Farm, Watford, a good second. Mr. A. Canfield, gardener to W. Judge, Esq., Watford, showed the best group of chrysanthemums staged on a space of twenty-five feet, a loose but rather pretty group. Messrs. Richardson and Davis were successful exhibitors of primulas.

CUT BLOOMS.

Mr. J. Dinsmore, gardener to T. F. Blackwell, Esq., The Cedars, Harrow Weald, led in the class for twenty-four Japanese blooms, distinct, scoring with good specimens of Australie, Royal Sovereign, Simplicity, Eva Knowles, Mutual Friend, Joseph Brooks, Lady Hanham, and Graphic; Mrs. H. Weeks, Mrs. G. Carpenter, Phœbus, Lily Mountford, Mrs. G. W. Palmer, Pride of Madford, C. B. Haywood, and Oceana; Edith Tabor, Mrs. J. Bernard, Dorothy Seward, Mrs. W. H. Lees, Elthorne Beauty, Master James Epps, Lady Ridgeway, and Mons. M. Ricoud; the second prize was won by Mr. Gilbert, gardener to H. J. Lubbock, Esq., Newberries, Radlett. The best dozen Japanese blooms were shown by Mr. W. J. Roberts, gardener to G. T. Skilbeck, Esq., Harrow Weald, who put up very large specimens of Australie, Mutual Friend, Viviand Morel, Oceana, Mons. E. Andre, Edith Tabor, Beauty of Adelaide, Simplicity, Pride of Madford, Mrs. H. Weeks (best Japanese in the show), Mons. Chenon de Leche, and Phœbus; Mr. J. Wooster, gardener to V. M. Martin, Esq., Shenley Lodge, came second; and Mr. J. Cox, gardener to the Hon. A. Holland Hibbert, Watford, third.

There was a very keen competition in the members' division, in the class for two dozen Japanese varieties, distinct, Mr A. B. Higgins, gardener to R. P. Cooper, Esq., Berkhamsted, winning, his best flowers being Mutual Friend, Emily Silsbury, Modesto, Pride of Madford, and Robert Powell; Mr. J. Dinsmore scored a second. The best six Japanese blooms of one variety were specimens of Madame Gustave Henry, not over good, shown by Mr. W. Pummell, gardener to A. T. Ashwell, Esq., The Hermitage, Harrow Weald; Mr. Dinsmore, second, with Modesto; and Mr. Tidy, third, with Hairy Wonder. The best dozen Japanese blooms, members' class, were good blooms of Australie, Mutual Friend, Elthorne Beauty, Oceana, Mons. C. de Leche, Miss E. Teichmann, Beauty of Adelaide, Mrs. H. Weeks, Pride of Madford, Madame G. Henry, Mons. E. Andre, and Edith Tabor; Mr. J. Wooster, second; and Mr. J. Gilbert, third; there were six stands. In the section provided for members employing not more than three gardeners Mr. Fowler, gardener to the Rev. H. Burchell-Herne, Watford, was the chief prize winner in the class for two dozen Japanese blooms, with a good set. In another section Mr. G. Hill, gardener to Mrs. Part, Radlett, also gained a first prize for twelve Japanese, and also first for a dozen Japanese blooms.

Incurved blooms were good for this early date. For two dozen blooms, distinct, Mr. Tidy led the way with Mons. R Bahaunt, Jeanne d'Arc, Brookleigh Gem, Empress of India, Globe d'Or, J. Agate, Prince Alfred, and C. H. Curtis; Queen of England, Lord Wolseley, Golden Empress, Mons. F. Mistral, J. Lambert, Ami Hoste, Princess of Wales, and Lord Alcester; M. P. Martignac, Alfred Salter, Nil Desperandum, Princess Beatrice, Madame Darrier, Lucy Kendall, Mrs. Dixon, and John Salter; Mr. J, Dinsmore took the second award. Mr. Tidy also won first place for twelve incurved blooms, staging first-rate examples of Prince Alfred, C. H. Curtis, Mons. R. Bahaunt, Globe d'Or, M. P. Martignac, Brookleigh Gem, Jeanne d'Arc, Lord Wolseley, Mons. F. Mistral, Mrs. G. Rundle, Mrs. Dixon, and Princess Beatrice; Mr. C. Sims, gardener to Mr. T. S. Gooch, Birringdon, Hemel Hempstead, second. Five competitors entered in the class for six incurved blooms, one variety, Mr. Gilbert winning with large blooms of Baron Hirsch; Mr. Higgins, second, with Madame Darrier; and Mr. Tidy, third, with Mr. James Murray. In the members' division Mr. C. Sims led for a dozen incurved blooms, and Mr. Tidy second; there were seven stands in this class. In another division Mr. J. Wilks had the best twelve incurved blooms, and Mr. Davis came second. In yet another class for twelve incurved blooms, limited to small establishments, Mr. Hill was the successful competitor, his Globe d Or being very fine; Mr. Hill also had the best six incurved blooms. The best incurved bloom in the show was a flower of Mrs. James Murray, exhibited by Mr. W. Tidy.

Miss M. D. Smith, Oxhey Lane Farm, Watford, had the best epergne of chrysanthemums, a pretty arrangement. Miss Belgrove was first for table decoration, and deservedly so, the orange and yellow flowers being charmingly associated; Miss M. D. Smith, second. Miss Mead was a successful exhibitor of buttonhole bouquets, while Messrs. Scrivener and Co., Watford, were easily first for a wreath of white flowers, and also for a chrysanthemum bouquet; the best cross of flowers was also staged by this firm, who are charming floral artists.

VEGETABLES AND FRUIT.

Vegetables are always first-rate at Watford, but this year there was not so good a competition as usual. Mr. C. Brown, gardener to R. Henty, Esq., Abbots Langley, secured the Messrs. J. Carter and Co.'s prize for a collection of vegetables, with Mr. Fowler second. Mr. Brown also won the Messrs. Sutton's chief prize with fine produce, the Brussels sprouts being especially good; Mr. J. Fowler, second. Mr. G. Rickett, The Grove, Watford; Mr. Goldring, Hunton Bridge; Mr. C. Coleman, Abbots Langley; Mr. Hall, Church Road, Watford; and Mr. C. Brown were further winners of one or more first prizes in vegetable classes.

Mr. J. Dinsmore staged the best six dishes of fruit, showing good Alicante and Muscat of Alexandria grapes, Queen pineapple, Doyenne du Comice pears, Sandall plums, and Cox's Orange Pippin apples; Mr. A. B. Higgins came second; and Mr. Tidy had to be content with third place. Mr. Higgins staged the best three bunches of Muscat of Alexandria grapes, and Mr. Cox the second best lot. Mr. Tidy led for black grapes, with heavy, well-finished clusters of Black Alicante; Mr. Higgins, second; and Mr. G. Hill, third. Mr. J. Norton, gardener to D. Hill, Esq., Herga, Watford, had the best four dishes of apples—Cox's Orange Pippin, Blenheim Pippin, Peasgood's Nonsuch, and Warner's King; Mr. Tidy, second. Mr. H. Reid, Cassio Bridge, led for pears, showing Doyenne du Comice, Duchess d'Angoulême, Beurré Diel, and Beurré Clairgeau in fine form; Mr. Dinsmore, second. Messrs. Fowler, Wilson, Percival, Wild, and Shepherd were all leading prize winners.

KINGSTON CHRYSANTHEMUM SHOW, November 1 and 2.

REAL November weather ushered in the month of fogs and the season of chrysanthemum exhibitions. It was a dull, cheerless morning when the exhibitors staged their products at the Drill Hall on the occasion of the twenty-second annual show of the Kingston and Surbiton Society. Though not what they were of yore, the shows of Kingston are still good, and if groups of chrysanthemums are now wanting there are still good cut blooms. Some alteration in the general arrangement of the show produced a better effect than usual, and altogether, considering the difficulties it has to contend with, the Society is to be congratulated upon its most recent effort. We would also add that the committee effected a clearance of competitors and assistance five minutes before eleven o'clock, and so allowed the judges an opportunity of commencing at the proper time. So seldom is this so that we feel compelled to mention the fact.

GROUPS AND PLANTS.

There was nothing of special merit to record with respect to the groups. There are now no groups of chrysanthemums such as Kingston was formerly noted for, but for a miscellaneous group, in which twenty-five chrysanthemums had to be staged, the chief award fell to Mr. J. Lock, gardener to C. S. Eady, Esq., Q.C., Oatlands Lodge, Weybridge, who had a miniature lake and bridge, with orchids and stove plants in abundance; Mr. J. Hopkins, gardener to D. Salamon, Esq., Willowbrook, Hampton Hill, second; and Mr. Bolton, gardener to Mrs. Blacker, Coombe End, third. For four Japanese specimen plants the leading award was won by Mr. Brett, gardener to W. Campbell, Esq., Coombe Ridge, with W. H. Lincoln, Viviand Morel, Souvenir de Petite Amie, and Colonel W. B. Smith; Mr. S. Read, gardener to R. S. Bond, Esq., Crozlands, Surbiton, second. Mr. Plowman, gardener to C. L. Lavers-Smith, Esq., Long Ditton, led for a single bush specimen, with Mr. Brett second. The best half-dozen table plants were choice, neat dracænas, crotons, and aralias, staged by Mr. F. King, gardener to A. F. Perkins, Esq., Holmwood; Mr. McGregor, gardener to Lady Hay, Putney Hill, second; and Mr. Bolton, third. There was a keen competition in this class for the prizes offered by Mrs. V. Knapp. Messrs. F. King and S. Read won the leading awards for primulas.

CUT BLOOMS.

The eighth Champion Challenge Vase, valued at twenty-five guineas, was won on this occasion by Mr. F. King, gardener to A. F. Perkins, Esq., Oak Dene, Holmwood, and, having been previously won by the same gentleman, it is now his property. His was a fine and first-rate set of forty-eight blooms, and his Japanese varieties were John Seward, E. Molyneux, International, C. Davis, Madame T. Rey, Australie, Mrs. G. W. Palmer, Simplicity, Lady Hanham, Lady Northcote, Mrs. C. Orchard, Pride of Madford, G. J. Warren, Madame G. Bruant, Mrs. W. Mease, Phœbus, Pres. Nonin, Mons. E. Andre, Oceana, Madame Carnot, Mary Molyneux, Edith Tabor, R. Powell, and C. B. Haywood. The incurved varieties were Ma Perfection, Ernest Cannell, M. P. Martignac, Chrysanthème Bruant, Lady Isabel, J. Agate, Miss D. Foster, Duchess of Fife, Baron Hirsch, C. H. Curtis, Perle Dauphinoise, Mrs. N. Molyneux, M. R. Bahaunt, Globe d'Or, Yvonne Desblanc, D. B. Crane, Jeanne d'Arc, J. Pearce, Empress of India, Brookleigh Gem, Lord Alcester, Miss M. A. Haggas, Robert Petfield, and J. Lambert. Some of the incurved blooms were of exceptional excellence. Mr. G. J. Hunt, gardener to Pantia Ralli, Esq., Ashstead Park, Epsom, took second place with a fine lot of flowers; Mr. O. Smith, gardener to W. Addison, Esq., Kingston Hill, third; and Mr. J. Lock, Weybridge, fourth.

In the local class for a dozen Japanese blooms Mr. J. W. Forbes, gardener to Madame Nicols, Regent House, Surbiton, just managed to beat Mr. C. Smith. Other leading prize-winners in this section were Mr. Brett and Mr. Atkins, and Mr. Nagle for a dozen incurved.

Mr. S. Matthew, Surbiton Hill, won Mr. Furze's prize for twelve Japanese blooms, amateurs' section, while Mr. F. Bowler, Cricket Field, Esher, led for twelve Japanese, with a bright set of medium-sized flowers. Mr. J. Norris, Mr. E. Randel, and Mr. A. N. Smart were other winning amateurs.

In the open class for twenty-four incurved blooms, a Ryecroft medal, presented by Mr. H. J. Jones, Lewisham, accompanied the first prize. The chief honours fell to Mr. F. King, who was in fine form, and scored with good specimens of Duchess of Fife, Mons. Desblanc, Lady Isobel, C. H. Curtis, Percy Surman, Ernest Cannell, Miss D. Foster, and Ma Perfection; Globe d'Or, Miss M. A. Haggas, J. Doughty, Mrs. N. Molyneux, Perle Dauphinoise, Chrysanthème Bruant, Empress of India, and Lord Wolseley; Leonard Payne, Yvonne Desblanc, Robert Petfield, Jeanne d'Arc, J. Pearce, Lord Alcester, D. B. Crane, and Triomphe d'Eve. The best dozen incurved blooms came from Mr. Caryer, gardener to A. G. Meissner, Esq., Aldenholme, Weybridge, who won with clean examples of Topaze Orientale, Mrs. N. Molyneux, Miss Violet Tomlin, Miss V. Foster, Mr. T. Murray, Robert Petfield, Mr. R. C. Kingston, Globe d'Or, Mrs. Heale, Major Bonaffon, Baron Hirsch, and Madame Darrier; Mr. J. French, gardener to Mrs. Barclay, Wimbledon Park, second. For six incurved blooms the first prize was awarded to six huge but loose flowers of Duchess of Fife, shown by Mr. F. King; Mr. Brett, second, with C. H. Curtis.

There were some good competitions in the class for twenty-four Japanese blooms, distinct, and here the chief honour fell to Mr. J. F. McLeod, gardener to J. P. Morgan, Esq., Dover House, Roehampton; his varieties were Lady Ridgeway, Madame M. Ricoud, Mrs. G. Henri, Mons. Panckoucke, Australie, Mrs. G. Palmer, Lady E. Smith, and Pride of Madford; Lady Byron, Oceana, J. Chamberlain, Reine d'Angleterre, Sunflower, Chatsworth, Mrs. C. H. Payne, and Phœbus; James Bidencope, Mons. Chenon de Leche, Mons. Hoste, Lady Oporto Tait, Mrs. H. Probyn, Col. W. B. Smith, Edith Tabor, and Madame Philip Rivoire. The second prize was secured by Mr. F. King, who had fine specimens of Phœbus, Chas. Davis, and Mrs. Mease. The best dozen Japanese blooms came from Mr S. Pead, gardener to R. S. Bond, Esq., Surbiton; Mr. A. Smith, Roehampton, second. Mr. Atkins had the best six Japanese white; Mr. King had the best six of one variety, Mdlle. Thérèse Rey. For reflexed blooms Messrs. Caryer and Read scored; Mr. Forbes led for anemones, and Mr. Caryer for a dozen bunches of pompon varieties, in a close competition. Mr. Forbes had a fine stand of singles, winning with Rose Pink, Admiral Sir T. Symonds, Mrs. Walton, Crown Jewel, Miss Crissy, Charming, E. Forbes, Miss Mary Anderson, Annie Holden, Maud Robinson, and Earlswood Glory. Mr. Forbes also won a special prize for twelve incurved blooms.

His Worship the Mayor of Kingston (Alderman J. Hart, J.P.) offered a prize for the best basket of chrysanthemums, and this was won by Mr. G. W. Forbes, gardener to Madame Nicols, Surbiton, with large blooms set in coloured azalea foliage and sprays of smilax; Mr. Brett second, and Mr. Bolton third; the second prize lot best suited our taste. Mr. W. Atkins showed the best lady's spray; Miss Johnstone, Coombe Cottage, the best arrangement of cut flowers and foliage for a dinner table, a light arrangement of cypripediums and cattleyas. The best bouquet of chrysanthemums was that shown by Mrs. Hugh Macan, Richmond Villa, Kingston; Mr. W. Atkins second. For buttonhole bouquets the chief award fell to Mrs. Hugh Macan, who had very light arrangements of orchids and asparagus; Mrs. Atkins second.

FRUIT.

Mr. W. Taylor, gardener to C. Bayes, Esq., Tewkesbury Lodge, Forest Hill, had the best four dishes of dessert fruit, showing good grapes, figs, apples, and pears; Mr. G. J. Hunt, second, with a melon, grapes, pears, and plums; there were seven competitors. Mr. J. Lock showed the best six dishes of apples, three dessert and three cooking varieties, examples of King of the Pippin, Lady Henniker, Ribston Pippin, Peasgood's Nonsuch, Reinette du Canada, and Cox's Orange Pippin; Mr. Cooper, gardener to Colonel Egerton, Stud House, Hampton Court, second. Mr. A. H. Rickwood, gardener to the Dowager Lady Freake, Fulwell Park, Twickenham, led for four dishes of pears with good specimens of Duchess d'Angoulême, Beurré Superfin, Durondeau, and Pitmaston Duchess; Mr. Cooper, second. Mr. Sadler, gardener to Mrs. Fulk, Cowley House, Chertsey, secured the first prize for three bunches of black grapes with large berries—Gros Colmar; Mr. Taylor, second, with the same variety. For white grapes Mr. Taylor was first, and Mr. Brett second, each with well-finished Muscat of Alexandria.

NON-COMPETITIVE EXHIBITS.

Mr. W. Wells, Earlswood, Redhill, put a charming lot of large bunches of early-flowering chrysanthemums, the variety named Crimson Pride figuring largely. Mr. H. J. Jones, Lewisham, sent a good number of cut blooms of newer varieties, including Soleil d'Octobre, General Paquié, Yellow Mrs. Lees, R. Hooper Pearson, President Nonin, and Mrs. W. Mease shown in fine form. Messrs. G. Bunyard and Co., Maidstone, put up a splendid lot of apples, staging large dishes of fine fruits of leading varieties; all were so good that none need be particularised. Mr. S. Mortimer, Farnham, showed a splendid lot of dahlias, and an exhibit of such excellence is seldom to be seen on the first day of November. Mr. J. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, sent a collection of fruits, on which the labels had got badly mixed. Messrs. J. Cheal and Sons, Crawley, also showed a good lot of pears and apples; Mr. W. Tayler, Hampton, staged hardy fruit, and Mr. W. Hayward, Kingston, sent floral arrangements of great beauty.

BRIXTON AND STREATHAM, November 2 and 3.

As in the case of some other suburban shows that of Brixton has fallen from its ancient high estate. There was a time when Kingston and Brixton were the two largest and finest of the South London chrysanthemum shows. Now, however, the show of the Brixton, Streatham, and Clapham Society is of more local interest, and judged thus it is a decided success. On some other occasions the exhibits have had to be squeezed together more than on the present. There was a good display, however, and the Japanese blooms were of special quality, both as regards size and finish. Groups and plants were also good and would not have disgraced the Aquarium. The Messrs. Peed put up a goodly non-competitive group; Mr. Roupell sent some apples and grapes; while Mr. Pearse showed a handsome lot of heaths, which made an attractive bank near the stage.

In the principal group class there was a fair competition, and the first prize, a silver cup, was won by Mr. Howe, gardener to Sir H. Tate, Streatham Hill, with the prettiest group we have so far seen this season. The plants were dwarf, and in small pots, each carrying a single flower; Mr. C. Poulton, gardener to C. T. Cayley, Esq., second. The best set of six bush specimens of Japanese chrysanthemums came from Mr. J. Weston, gardener to Dr. Martineau, Clapham Park; Mr. Gidney, gardener to Major Saunders, coming second. Mr. Mursell, gardener to Mrs. Burton, Leigham Court Road, led the way for primulas with eight large specimens of single varieties; for double forms Mr. J. Jones was easily first. Mr. Gilks, gardener to A. Morris, Esq., had the best cyclamen, but these were not of special merit. Mr. Ransome, gardener to J. T. Gabriel, Esq., Roupell Park, showed the best half-dozen orchids—Cattleya labiata, Vanda cærulea, Cattleya Bowringiana, and Oncidium varicosum; Mr. J. Jones, second. Mr. Fulbrook, gardener to B. B. Baker, Esq., Roupell Park, showed the best specimen orchid, a good Cattleya labiata; the same competitor was also first for three orchids.

Mr. Poulton was first for six untrained specimens of Japanese chrysanthemums, with a pair each of Phœbus and J. Shrimpton, the latter grand plants, though not large; Viviand Morel and Souvenir de Petite Ami. Mr. Gruyett, gardener to Mrs. Gabriel, secured the Messrs. Toogood's prize for four ferns, putting up good specimens of davallias and gymnogrammas; Mr. J. Jones, gardener to N. N. Sherwood, Esq., coming a good second, and showing a first-rate Adiantum Farleyense. Mr. Gilks put up the best three trained chrysanthemums, having large and freely flowered plants of J. Shrimpton, Emily Silsbury, and Bessie Chapman. Mr. Chalk, gardener to A. Norman, Esq , Longdon, Streatham Hill, secured the leading award for four foliage plants, showing a big Kentia, Anthurium crystallinum, and a pair of crotons; Mr. Howe had to be content with second place.

In the principal class for cut flowers, that for two dozen Japanese, Mr. Howe was again successful, putting up a splendid stand of the following varieties: Mrs. H. Weeks, Lady Hanham, Australie, Lady Ridgeway, Lord Justice Lopes, Colonel W. B. Smith, Viviand Morel, and Ella Curtis; Madame de la Rochetiere, R. Powell, Mrs. E. G. Hill, Edith Tabor, M. Chenon de Leche, Souvenir de Madame Rosetti, Madame P. Rivioire, and Mrs. G. W. Palmer; Mons. Panckoucke, Beauty of Teignmouth, Mrs. Maling Grant, E. Molyneux, Mrs. F. A. Bevan, Pride of Maidenhead, President Nonin, and Directeur Seebert; Mr. Poulton, second; and Mr. Mursell, third. In a special class for twelve Japanese blooms Mr. Andrews was first. Mr. Howe had the best half dozen Japanese blooms one variety, showing Phœbus in fine colour. Mr. Banks, gardener to J. C. Covell, Esq., Tulse Hill, won the first prize for a dozen Japanese blooms, single-handed gardener class, and also secured the Ryecroft silver medal with good flowers of Viviand Morel, Madame Carnot, Reine d'Angleterre, Modesto, President Borel, Charles Davis, Dorothy Seward, Mrs. H. Payne, Mrs. J. Lewin, Lady Hanham, Edith Tabor, and Colonel W. B. Smith; Mr. Farrow, gardener to G. B Peerless, Esq , Clapham Road, second.

Only one competitor came forward in the class for two dozen incurved blooms, and this was Mr. Howe, who was awarded first prize for the following: J. Agate, Prince Alfred, Mdme. Ferlat, Lord Wolseley, Globe d'Or, Duchess of Fife, C. H. Curtis, M. R. Bahaunt, Jeanne d'Arc, Lady Isabel, Mdme. Darrier, Aristene Anderson, Incogniti, R. Petfield, D. B. Crane, Baron Hirsch, and Brookleigh Gem, with duplicates to make up the number. Mr. Hill, gardener to G. W. Ryder, Esq., Streatham Hill, secured first prize for twelve incurved with good examples of C. R. Kingston, Globe d'Or, Mdme. Darrier, M. R. Bahaunt, C. H. Curtis, Lord Wolseley, Prince of Wales, Beverley, Refulgens, M. A. Haggas, Brookleigh Gem, and Baron Hirsch. The best six incurved blooms, one variety, were of C. H. Curtis, shown by Mr. Howe; Mr. Hill second with Baron Hirsch. Mr. Weston gained first prize for a pretty lot of pompon varieties. The best dozen blooms of broad-petalled, incurved Japanese varieties were shown by Mr. Howe, who set up fine flowers of Mrs. Dewar, N. C. S. Jubilee, Beauty of Teignmouth, Australie, E. Molyneux, Pres. Nonin, Lady Ridgeway, Lord Justice Lopes, R. Powell, Louise, and Mdme. F. Rosetti; Mr. Poulton second in a good competition. For six Japanese blooms Mr. Banks was first, and Mr. W. Smith, gardener to Rev. S. M. Ranson, Streatham Park, second, both showing well. In a duplicate class Mr. Milson, gardener to J. Stoddart, Esq., Tulse Hill, won first place for twelve Japanese blooms, his set containing specially fine C. Davis, Mrs. W. Mease, and M. de la Rochetiere; Mr. J. Young second. Messrs. Poulton and Mursell divided the honours for a dozen cut blooms staged on long stems with their natural foliage attached. This class made a good show and was rather novel.

Baskets of chrysanthemums were very pretty, and the first prize was well won by Miss Crook, Palace Road, Streatham Hill; Miss Whitford, Bronton Hill, second, with a handsome lot of rosy flowers.

Mr. Howe had the best three bunches of black grapes, showing good Alicante; Mr. Milsom second. For white grapes the order was reversed, both exhibitors staging Muscat of Alexandria. Mr. Vince showed the best apples, and Mr. Young, gardener to Dr. A. Stevens, Tulse Hill, the best pears. Mr. Mursell staged the best Black Hamburgh grapes. Mr. Poulton won Lady Tate's special prize for a collection of vegetables, putting up a grand lot of produce; Mr. Howe second.

CROYDON CHRYSANTHEMUM SOCIETY, November 1 and 2.

THE eleventh annual exhibition of this enterprising society, which was held at the Public Halls on the above dates, was a conspicuous success. The cut blooms were noticeable for high quality and freshness, and in most classes there was a spirited competition, the best contested being that for the Cup, which was awarded to Mr. Mills, gardener to Frank Lloyd, Esq., who was also the successful exhibitor last year. There was a splendid display of fruit and also of vegetables, the cottagers contributing largely to the last-named. The general arrangements, in the hands of the courteous secretary, Mr. W. B. Beckett, were satisfactory.

CUT BLOOMS were shown in great numbers, and were for the most part of good substance and quality. The Challenge Cup brought a most spirited competition, no less than eight exhibitors staging blooms of great merit. The Cup, of the value of £25, is offered for three dozen Japanese blooms, and the award was made in favour of the winner of the last year's competition, Mr. M. Mills, gardener to Frank Lloyd, Esq., Coombe House, Croydon, who staged grand flowers of G. C. Schwabe, Australie, Edith Tabor, M. Panckoucke, Sunflower, Miss Elsie Teichmann, Mme. Gustave Henry, Oceana, Edwin Molyneux, John Seward (2), Mutual Friend (2), Louise (2), Joseph Brookes, Phœbus, Mons. Chenon de Leche, Mme. G. Bruant, Mrs. G. W. Palmer, Emily Silsbury (2), Royal Standard, Lady Byron (2), Graphic (2), President Borel, and Charles Davis. This was a fine exhibit, and well deserved the award. Mr. H. Paddon, gardener to Colonel Ricardo, Bramley Park, Guildford, was a good second; and Mr. W. King, gardener to J. Colman, Esq , Gatton Park, Reigate, third.

In the open classes Mr. H Paddon headed the four exhibitors of eighteen incurved in not less than twelve distinct varieties, with fine blooms of Mrs. R. C. Kingston, Baron Hirsch, Princess of Wales, M. R. Bahaunt, Miss V. Foster, D. B Crane, Globe d'Or, Golden Nugget, Austin Cannell, Lucy Kendall, Empress of India, and Lord Wolseley; Mr. W. King was second; and Mr. C. Lane, gardener to E. H. Coles, Esq., Caterham, third. Mr. Mills was awarded the first prize for twelve Japanese, white, showing splendid flowers of Emily Silsbury, Mutual Friend, Madame A. D. Galbert, and Elsie Teichmann. Mr. Lane was the only exhibitor of twelve yellow incurved, and was awarded the second prize.

In the local classes Mr. E. Mills was first for eighteen Japanese, in not less than a dozen varieties, with well developed blooms of Edith Tabor, Edwin Molyneux, Sunflower, Mutual Friend, W. Seward, and Louise; Mr. G. Prabble, gardener to M. Hodgson, Esq., Shirley, was a close second; and Mr. R. Gladwell, gardener to Sydney Smith, Esq., South Norwood, third. Mr. J. Munro, gardener to J. L. Bucknall, Esq., Langley Court, Beckenham, was first for twelve incurved, staging Mrs. J. Kearn, Lord Alcester, Madame Darrier, Lord Wolseley, Queen of England, Golden Beverley, Baron Hirsch, Jeanne d'Arc, Globe d'Or, C. H. Curtis, Miss Violet Tomlin, and Brookleigh Gem; Messrs. Prabble and Dyer were second and third respectively. Mr. Mills gained premier honours for twelve Japanese blooms in four varieties.

The classes open to single-handed gardeners and amateurs were well contested. Messrs. W. Habben, J. G. Mills, and Osmond were the prize takers for six incurved blooms; Mr. A. Dyer was first for six bunches of pompons, showing Perle des Beautés, Mdme. Martha, Mdme. E. Dordon, Prince of Orange, Black Douglas, and Golden Mdme. Martha; and Mr. H. Green gained a similar honour for his exhibit of six Japanese.

GROUPS AND PLANTS were well shown, and the arrangement of the former in the centre of the hall, instead of as in former years against the wall, was a decided improvement. In the open classes, Mr. E. Dove, gardener to H. E. Fry, Esq., Bickley Hall, was a well-deserved first for a group of chrysanthemums arranged on a space of thirty-five superficial feet. The blooms were of large size and well contrasted as to colour. Mr. C. Lane was second with plants not quite so finely flowered, and Mr. C. Padley, Southbridge Road Nurseries, was third. Mr. J. Slater was first for six plants, and Messrs. Lane and Mills were first and second respectively for nine plants suitable for table decoration. Mr. G. Eales, gardener to J. Glaisher, Esq., was second for six primulas. Mr. Slater was first for six plants of single varieties, which were well-flowered and very effective.

In the class open to single-handed gardeners for a group of miscellaneous plants arranged on a space of thirty-five feet, Mr. G. Eales headed the four competitors with a tasteful group; Messrs. Dyer and Purnell were second and third.

FRUIT.—Apples and pears were staged in great abundance, and the fine quality was much commented upon. Grapes were also plentifully shown, but were of poor quality. In the open classes Mr. W. E. Humphreys gained the premier honours for a collection of twelve dishes of apples, in which were grand samples of King of the Pippins, Cox's Orange Pippin, Remborough, dessert; and Blenheim Orange, Mère de Ménage, and Bramley's Seedling, kitchen; Mr. J. Harris was a close second; and Mr. W. Jones, third. Mr. Linton, gardener to W. Greenwell, Esq., Marden Park, was first for four bunches of grapes, showing Black Alicante and Muscat of Alexandria; and Messrs. Dingwall and Tilbey were second and third respectively.

In the local classes Mr. C. Jordan, gardener to H. Hoskier, Esq., Coney Hill, Wickham, headed the eight exhibitors of six dishes of dessert pears with splendid samples, Beurré Superfin and Magnate being especially good; Mr. W. E. Humphreys, gardener to A. H. Smee, Esq., Hackbridge, was a good second; and Mr. W. Jones, gardener to J. R. Brougham, Esq., Wallington Bridge, third. Mr. O. Jeal, gardener to N. Waterall, Esq., Waddon Lodge, gained premier honours for six dishes of dessert apples, staging King of the Pippins and Cox's Orange Pippin in fine condition. The second prize was awarded to Mr. W. Jones, who also gained the first prize for six dishes of kitchen apples, his best fruits being Blenheim Orange and Emperor Alexander; Mr. W. E. Humphreys was a very close second, and Mr. J. Harris, gardener to P. Crowley, Esq., Waddon, third. Five competitors staged two bunches of white grapes. Mr. W. R. Clarke, gardener to J. Densham, Esq., was first with good bunches of White Tokay; and Mr. J. Dingwall, gardener to W. F. Stanley, second. Mr. W. R. Clarke headed the seven competitors for two bunches of black grapes, showing Black Alicante; Mr. Dingwall was second.

VEGETABLES were shown in great quantities, and the quality was for the most part excellent. Mr. O. Jeal was first for six dishes of potatos with fine tubers of Early Puritan, Abundance, Satisfaction, and Windsor Castle; Mr. E. Mills was second, and Mr. T. H. Hill third. For a collection of twelve varieties the awards were made in favour of Messrs. A. Hornsby, Robinson, and Johnson.

Miscellaneous exhibits were plentiful, and contributed in a great degree to the success of the exhibition. Messrs. J. Laing and Sons, Forest Hill, in addition to staging a number of dishes of apples, decorated the entrance hall and stage in a very tasteful manner. Messrs. J. Peed and Sons, Roupell Park Nurseries, J. Cheal and Sons, Crawley, and J. R. Box, West Croydon, contributed representative collections of apples; and floral designs were sent by Mr. Henry Anstey, West Norwood, and Mr. J. Williams, Oxford Road, Ealing. The Agricultural and Horticultural Association (Limited) and Mr. E. S. Rogers, Croydon, had stands of horticultural sundries, and a pretty contribution was that from Messrs. Stanley Mobbs and Ashton, who sent finely-flowered plants of Lælia pumila.

EASTBOURNE HORTICULTURAL SOCIETY, November 1 and 2.

THE annual chrysanthemum exhibition was held in the spacious Floral Hall of Devonshire Park on the above date, and a better place could not be selected for the purpose of a November show. It is a miniature Crystal Palace; a portion of the roof is shaded, which tempers the light from above, but there is abundance of side light. The secretary, Mr. E. A. Newman, and his staff of assistants arranged the exhibits in an admirable manner.

MISCELLANEOUS EXHIBITS found a place round the sides of the hall. A fine and striking group of chrysanthemums and foliage plants came from Mr. May, The Gardens, Compton Place, Eastbourne. The platform was lavishly embellished by Mr. G. T. Scott, nurseryman, Eastbourne, with excellent chrysanthemums and other plants; Mr. T. D. Young, another nurseryman in the town, filled the west end of the hall with a large collection of plants; Mr. F. G. Miller, also a local florist, had a choice collection; and Mr. W. Wells, of Earlswood, had a collection of the newer varieties of Japanese chrysanthemums and charming bunches in vases of his new decorative varieties. Certificates of merit were awarded to Mrs. White Popham and President Bevan among the Japanese, and to Crimson Pride and Mychett Yellow among the decorative types.

GROUPS.—Some good groups of plants were shown in the various divisions. The best in the one open to all came from Mr. W. Jupp, gardener to G. Boulton, Esq., Eastbourne, showy and well arranged; Mr. J. Gore, Polegate, was second. Mr. Gore had the best group of flowering and foliaged plants mixed, Begonia Gloire de Lorraine being a telling subject; and Mr. Jupp was second. In the amateurs' division Mr. F. Williams, Eastbourne, had an excellent collection of plants, finely grown and bloomed; Mr. C. Hibbert was second. In another division Mr. Pattender, gardener to Miss Wilson, Eastbourne, was first; and Mr. E. S. Reid, gardener to the Rev. E. W. Foley, Eastbourne, second.

CUT BLOOMS.—In the open division cut flower classes Mr. J. Stredwick, Silverhill, St. Leonards, was first, with twenty-four Japanese, having excellent flowers, chief among them being Graphic, Eva Knowles, Edith Tabor, Pride of Madford, Charles Davis, Madame G. Henry, Australian Gold, and President Nonin. Mr. Stredwick also had the best twelve; and Mr. J. Harwood, gardener to A. J. Jack, Esq., Seaford, was second. The latter was first with six blooms of one variety, white, having Simplicity in fine form. The best six blooms of any other colour were those of the yellow Oceana, from Mr. Harwood; Mr. A. Emery, gardener to H. Oakley, Esq., coming second, with well-coloured E. Molyneux. In another division Mr. E. East, gardener to Mrs. Ray, Meads, was first for Japanese, Mr. W. Jupp being second.

Incurved varieties were scarce, and those staged were not fully developed. Mr. A. Emery had the best six varieties, chief among them being Madame Darrier and Baron Hirsch; Mr. G. Holding, gardener to the Rev. H. Shortland, Mill Gap, was second.

Dinner tables arranged with chrysanthemums and other flowers were highly effective; and there were vases of six blooms of chrysanthemums which were very effective.

There was a good display of fruit, and especially of apples and pears. Mr. Camm, gardener to the Duchess of Cleveland, Battle Abbey, was first with three bunches of black grapes, having finely-finished Alicante; Mr. Gore was second, with good Gros Colmar. Mr. Camm's three bunches of Muscat of Alexandria were grandly finished, and really splendid in colour. Culinary and dessert apples, stewing and dessert pears, were numerously and well shown.

NATIONAL CHRYSANTHEMUM SOCIETY, October 31.

A MEETING of the Floral Committee of this society was held at the Royal Aquarium on Monday, when the novelties submitted formed an interesting and attractive display. The principal exhibitors on this occasion were Messrs. H. Cannell and Sons, Swanley; Mr. W. J. Godfrey, Exmouth; Mr. H. J. Jones, Ryecroft Nursery, Lewisham; Mr. N. Molyneux, Rookesbury Park; Mr. H. Weeks, Thrumpton Hall, Derby; and Mr. Wells, Earlswood, all of whom presented, in good form, novelties of much merit.

The following certificates of the first class were awarded: to Mr. W. J. Godfrey for *Mrs. W. Mease*, the beautiful primrose-yellow sport from Madame Carnot, shown for the first time last year by Mr. W. Mease, by whom it was fixed; the blooms shown were splendidly developed, and fully justified the high opinion entertained of the variety when first presented to public notice. To Mr. W. Wells for *Nellie Pockett*, a distinct Japanese with medium sized solid blooms, having narrow florets that are cream-white with greenish centre in the earlier stages of development. *Mrs. White Popham*, a large incurving Japanese, the blooms solid and the colour deep pink—should become popular for exhibition; and *Mychett Yellow*, a remarkably good decorative variety of neat habit and free blooming; the flowers are of medium size and the colour rich yellow. To Mr. Robert Owen, Maidenhead, for *Sir Herbert Kitchener*, a pleasing Japanese, the blooms rather large with long drooping florets of a rich golden chestnut hue. To Mr. H. J. Jones for *R. Hooper Pearson*, a superb Japanese, the blooms large and solid, with broad somewhat drooping florets turned up at the tips, the colour rich golden yellow; fine for middle and back rows; and *Ryecroft Scarlet*, a neat dwarf-growing decorative variety with medium sized flowers of a brilliant crimson hue and of much value for decorations in a cut state. To Mr. H. Weeks, for *Emily Towers*, an incurved Japanese, the blooms large, massive, and of a rich rose-pink hue. *Lady Crawshaw*, an exquisitely beautiful Japanese, the blooms large and massive and with long slightly drooping florets, cream-white, centre florets tipped rose; *Mrs. Coombe*, a superb Japanese, the blooms of the largest size, solid and finely finished, the colour deep rose; and *Henry Weeks*, a noble flower, similar in character to M. Chenon de Leche, from which it has been raised, the florets bright crimson with golden reverse. To Mr. N. Molyneux, for *John Miles*, an incurved, remarkable as shown for its high finish; the blooms are of medium size with broad, stout rounded florets, solid, and the colour is a pleasing shade of orange-buff.

In Messrs. H. Cannell and Sons' collection we made note of the promising Topaze Orientale, a distinct incurved, the blooms large and of a pale yellow hue, and Purple Emperor, a beautiful Japanese, the blooms of medium size and of a rich purple hue, not large enough for exhibition but of immense value for the conservatory. Mr. Seward, Hanwell, had several seedlings, but they were not sufficiently developed.

SOUTHAMPTON, November 1 and 2.

THE annual show was held in the Victoria Hall on the above date, and was in every way a success. Mr. Fuidge, as usual, carried out the secretarial arrangements in an efficient manner.

CUT BLOOMS were the most interesting feature, judging from the crowds who surrounded the stands during the day. For twenty-four Japanese Mr. H. N. Mose, Belmont Nursery, Sholing, was an easy first with clean, medium-sized specimens; the following were the most noteworthy varieties—Edith Tabor, Edwin Molyneux, N.C.S. Jubilee, Phœbus, Modesto, President Nonin, Pride of Exmouth, Duke of Wellington, Lady Hanham, and M. Panckoucke; Mr. Bowerman, gardener to Mrs. C. Hoare, Hackwood Park, Basingstoke, was a good second; Mr. G. Nobbs, gardener to Her Majesty the Queen, Osborne, third. In the class for eighteen Japanese, distinct, Mr. Bowerman gained premier honours with a stand of good blooms; Mr. Nobbs was second with creditable examples. For twelve Japanese Mr. Nobbs won easily with medium-sized, bright-coloured specimens; the second place was occupied by Mr. West, gardener to R. Wigram, Esq., Northlands, Salisbury. Mr. Goss, gardener to W. G. Roy, Esq., Marchwood, with twelve blooms in eight varieties, won premier place in the Japanese section with heavy and bright specimens; Mr. Nobbs followed closely. Japanese, white and yellow, in six blooms, were well represented. Mr. L. Dawes, gardener to Mrs. Ogilvie, Hambledon, won with representative blooms of Phœbus and Australian Gold.

Incurved blooms were poor. In the amateur division the flowers were of exceptionally good quality. In the classes for both twelve and six blooms Mr. H. H. Lees, 54, Cedar Road, The Avenue, Southampton, gained the premier award with grandly-developed specimens of Mrs. Weeks, Mutual Friend, Pride of Exmouth, Edith Tabor, and Pride of Madford; Mr. E. Brown, jun., Hill Lane, Southampton, second.

PLANTS were of average quality, excepting in the chrysanthemum groups, in which there was really a creditable display. Mr. Bain, gardener to Mrs. Dickson, Shirley, secured the coveted award with plants dwarf in growth, freely-bloomed, and well arranged; Mr. Hossy, gardener to C. D'Esterre, Esq., Elmfield Hill, second. For a group of chrysanthemums and foliage plants, Mr. Amys, gardener to Mrs. Elliott Yorke, Netley, was distinctly ahead of all others with a pleasing arrangement; Mr. T. Hall, gardener to Sir S. Montagu, Bart., South Stoneham House, second.

FRUIT AND VEGETABLES were well staged. Mr. Mitchell, gardener to J. Willis Fleming, Esq., North Stoneham, was first for three bunches of grapes, distinct, as well as for Muscats; Messrs. Sanders and Hall following.

Non-competitive exhibits added to the beauty of the show. Foremost was Messrs. E. Hillier and Son's grand display of apples. Mr. Rogers, Red Lodge Nursery, sent an interesting collection of shrubs and trees, and Mr. Bailey a choice assortment of wreaths, &c.

KENT COUNTY, November 2 and 3.

As usual, the Kent County Society held its annual Chrysanthemum Show, the eleventh, in the Skating Rink, Blackheath. It was a pretty show, and, if not quite so large as sometimes, there were a large number of first-class flowers to be seen and good quality generally. All arrangements were well carried out and up to time. It is to be hoped the wet weather of the first day did not spoil the "gate."

Four chrysanthemum groups were staged, each occupying a space of fifty square feet. These were a great attraction to the show, and the best was that from Mr. E. Dove, gardener to H. E. Fry, Esq., Bickley Hall, Kent; Mr. A. W. Hollands, Lee, second; and the Messrs. Pollard Brothers, Lee, third, with a very dwarf lot of plants. The first prize for a group of flowering and foliage plants was easily won by Mr. J. Lyne, gardener to H. Tiarks, Esq., Foxbury, Chislehurst. He had a splendid lot of crotons, cattleyas, Clerodendron fallax, calanthes, Dendrobium phalænopsis, aralias, &c., all well arranged as regards colour, but rather too closely staged. The second prize was withheld, and the third was awarded to a group that apparently had no owner. Mr. Lyne was a successful exhibitor of table plants.

The first prize for thirty-six blooms, half incurved and half Japanese, together with the Ryecroft silver gilt medal, was won by Mr. J. Robinson, gardener to W. Lawrence, Esq., J.P., Elsfield House, Hollingbourne, who had an altogether fine lot of flowers. His Japanese varieties were Pride of Madford, Madame Gustave Henry, Miss Ella Curtis, W. Wright, Mrs. J. Lewis, and Eva Knowles; Mrs. Weeks, J. Seward, J. Bidencope, Mons. Panckoucke, Australie, and Simplicity; N. C. S. Jubilee, Madame Bergier, Sécrêtaire Fierens, Madame Carnot, Mons. G. Biron, and Soleil d'Octobre; the incurved were Yvonne Desblanc, Miss V. Foster, J. Lambert, Mons. Bahaunt, Leonard Hayes, and Ma Perfection; Queen of England, Miss Haggas, A. Salter, J. Kearns, Topaze Orientale, and Lord Wolseley; C. H. Curtis, Mrs. J. Murray, Golden Empress, Globe d'Or, Empress of India, and Golden Nugget. There were four exhibitors, the second prize falling to Mr. C. Payne, gardener to C. J. Whittington, Esq., Elmhurst, Bexley Park; Mr. J. E. Poole, gardener to A. G. Hubbuck, Esq., Elmstead Lodge, Chislehurst, third. The president's prize for two dozen blooms, eight Japanese, eight incurved, and eight reflexed, was well won by Mr. J. Lyne, gardener to H. F. Tiarks, Esq., Foxbury, Chislehurst, who staged Mrs. H. Weeks, Robert Powell, Australie, Madame Carnot, W. Tucker, Beauty of Exmouth, Mrs. C. H. Payne, and Australian Gold as Japanese; Mrs. J. Murray, C. H. Curtis, Duchess of Fife, V. Tomlin, Globe d'Or, Mrs. Colman, Princess of Wales, and Madame Darrier as incurved; and Dorothy Gibson, King of Crimsons, Amy Furze, Clara Jeal, R. Smith, Chevalier Domage, Cloth of Gold, and Florence Lunn as reflexed; Mr. J. E. Poole second. The best dozen blooms of the Rundell family were those shown by Mr. C. Russell, gardener to T. Pim, Esq., Marten's Grove, Crayford, who staged four blooms each of George Glenny, Mr. Rundle, and Mrs. Dixon; Mr. Poole second, and Mr. Lees third. Mr. Russell had the best dozen anemones, Descartes and Judge Benedict being very good; Mr. Lyne second. The best Japanese bloom in the show was Mrs. H. Weeks, shown by Mr. Lyne. The best incurved was Mrs. J. Murray, shown by Mr. C. Payne.

The leading award for two dozen Japanese blooms was secured by Mr. H. Hurst, gardener to W. T. Holland, Esq., The Gables, Bexley, who showed very good specimens, clean and fresh, of Simplicity, R. Powell, Pride of Exmouth, Eva Knowles, Lady Byron, Reine d'Angleterre, Mrs. G. W. Palmer, and Australie; James Bidencope, Viviand Morel, Sunflower, Père Franoun, E. Molyneux, C. Davis, Madame Gustave Henry, and Lady Ridgeway; Duke of Wellington, Mdlle. T. Rey, N.C.S. Jubilee, G. C. Schwabe, Hairy Wonder, Eda Prass, Phœbus, and Matthew Hodgson; Mr. J. Blackburn, gardener to J. Scott, Esq., Elmstead Grange, Chislehurst, second; and Mr. C. Dann, Maidstone, third. For a dozen incurved blooms Mr. T. Osman, gardener to T. J. Baker, Esq., Ottershaw Park, Chertsey, was first with C. H. Curtis, Queen of England, Golden Beverley, Prince Alfred, Madame Darrier, Brookleigh Gem, Jeanne d'Arc, Lady Hardinge, D. B. Crane, M. Bahaunt, Globe d'Or, and Empress of India; Mr. Lyne second; the flowers were not very good in this class. Six fine flowers of Colonel W. B. Smith won first prize in the class for six of one variety for Mr. C. Dann; Mr. Osman second with Madame Ricoud. The six best white Japanese, one variety, were Mutual Friend, shown by Mr. T. Osman; Mr. Spink, gardener to H. B. Hohler, Esq., Fawkham Manor, Kent, second with Lady Byron. For twelve Japanese blooms Mr. Hurst secured the chief award from seven competitors with fresh and bright blooms of J. Seward, Lady Byron, R. Powell, Australie, Viviand Morel, Mrs. G. W. Palmer, Madame Gustave Henry, C. Davis, James Bidencope, N.C.S. Jubilee, Sunflower, and G. C. Schwabe; Mr. J. Lyne second, and Mr. C. Dann third. The best six incurved, one variety, were Mr. Russell's blooms of Baron Hirsch, well finished and bright; Mr. Lyne second with Jeanne d'Arc. In the smaller classes the leading prize winners were Mr. J. Cartwright, Lewisham; Mr. F. Shepley, Brockley; and Miss de Quincy, Chislehurst.

Miss M. Davis secured the leading award for a bouquet with a charming arrangement, Mrs. Hollands being first for an epergne.

Mr. W. Taylor, gardener to C. Bayer, Esq., Tewkesbury Lodge, won first prize for white and second for black grapes; Mr. Lyne was first for black grapes with Alicante. Mr. Dann was a successful exhibitor of apples, and Mr. C. Jordan had the best pears.

A few miscellaneous exhibits helped the display. Messrs. J. Laing and Sons decorated the platform, and put up a comprehensive and well-grown lot of fruit. Messrs. Bunyard and Co., Maidstone, sent a goodly lot of apples and pears. Mr. H. J. Jones, Lewisham, had a pretty table of chrysanthemum blooms, newer varieties, on long stalks, these being associated with Begonia Gloire de Lorraine, palms and ferns. Mr. J. Carvill showed a pretty little set of cattleya blooms, notably of C. Harrisonæ.

HERTFORD HORTICULTURAL ASSOCIATION,

November 2 and 3.

THE exhibition held by this enterprising society was of so high a degree of excellence as to deserve kinder treatment from the weather than was meted out on the opening day. Within the Corn Exchange there was a brilliant display of colour, without the weather was dull and wet; yet, when the exhibition was opened by Lady Faudel Phillips, there was a large gathering of members and others to assist at the function. With the exception of the vegetables, the exhibition was of larger extent than any previous exhibition held in the town, and the falling off in the vegetable classes was wholly due to the drought.

CUT BLOOMS constituted a large and immensely attractive feature, for the entries were numerous and the quality of the blooms was for the season remarkably high. There were five entries in the great class for twenty-four Japanese blooms, distinct, and the premier award was made in favour of Mr. W. Ring, gardener to J. Warren, Esq., Capel House, Waltham Cross, who had exceptionally fine blooms of Mrs. W. Mease, Mrs. C. H. Payne, Madame Carnot, Pride of Madford, Baron de Rothschild, G. J. Warren, Viviand Morel, Madame G. Henry, Queen of Buffs, W. Newitt, Charles Shrimpton, Phœbus, G. C. Schwabe, Mons. Biron, Souvenir de Petite Amie, Edith Tabor, J. Myers, Pallanza, Louise, William Tricker, Madame M. Ricoud, Mrs. C. Blick, Robert Powell, and Eva Knowles; Mr. Collins, gardener to J. W. Carlile, Esq., Ponsbourne Park, Hertford, was a very close second with an excellent collection, which included a magnificent example of Phœbus, which was selected as the premier Japanese in the show; Mr. Cox, gardener to John Trotter, Esq., Brickendon Grange, Hertford, was third, with heavy blooms. In competition for the prizes for twenty-four incurved Mr. Collins was an easy first with good blooms of Globe d'Or, C. H. Curtis, Violet Foster, Princess of Wales, Prince Alfred, M. P. Martignac, and Baron Hirsch, the last-named being selected as the premier incurved. There was only one stand of twelve incurved, and the premier award was made in favour of Mr. Turk. In the corresponding class for Japanese there was a keen competition, and the prizes were awarded to Mr. Collins, Mr. Ring, and Mr. Cox, all of whom had good stands, in the order of their names. Mr. Turk, and Mr. Caterer, gardener to T. Usher, Esq., Elmsfield, Hertford, were first and second for twelve reflexed. The class for six blooms of one variety of Japanese staged in vases with eighteen inches of stem was an exceptionally good one, and Mr. F. Clark, gardener to J. H. Johnson, Esq., Little Berkhamstead, was first with finely-developed blooms of Mdme. M. Ricoud; Mr. Luff, gardener to H. Barclay, Esq., Little Berkhamstead, was second with good blooms of Phœbus; and Mr. Cox was third with Mrs. G. W. Palmer. In the class for six blooms, distinct, of Japanese, to be shown in a vase and with eighteen inches of stem, Mr. G. Clark, York Road, Hitchin; Mr. Durrant, Ware; and Mr. Douglas Garrett, Hertford, were the prizetakers in the order of their names, with blooms differing but little in relative merit. The entries to the vase classes formed a very pleasing feature, and fully justified the position the classes had in the schedule.

GROUPS arranged for effect were equal to the high average of previous years. The premier group of chrysanthemums was contributed by Mr. E. H. Caterer, who had a neat and effective arrangement, remarkable for the high quality of the blooms and the ample development of the leafage. Mr. W. Ring was second with an excellent collection, but the effect was somewhat marred by the obtrusive stakes; Mr. F. Clark third. In the competition for the prizes for small groups of chrysanthemums the first and second awards were made in favour of Mr. G. Peacock, Mangrove Hall, Hertford, and Mr. J. Hornett, Bengeo, both of whom had attractive arrangements. Groups of miscellaneous plants were of exceptional merit, and the post of honour was occupied by Mr. O. Catling, gardener to W. C. Baker, Esq., Bayfordbury, with an arrangement in which bouvardias, tuberoses, crotons, palms, and nerines were tastefully disposed in an undergrowth of maidenhair ferns. Mr. Turk and Mr. Caterer followed closely for second and third place with tasteful arrangements.

MISCELLANEOUS PLANTS, including zonal pelargoniums, primulas, cyclamen, and table plants, were well represented, but it must suffice to say that the most successful exhibitors of these were Mr. J. Ryder, Mr. J. Turk, Mr. W. Collins, Mr. Luff, and Mr. O. Catling.

FRUIT formed a large and most interesting feature. There was a strong competition in the class for six dishes of pears, and Mr. A. Willsher, gardener to the Rev. E. W. Kirkby, The Vicarage, Ware, was first, with finely-finished fruit of Marie Benoist, Doyenne du Comice, Pitmaston Duchess, Duchesse d'Angoulême, and other well-known varieties; Mr. G. Fulford, gardener to R. Walter, Esq., The Priory, Ware, was a close second in this class. The first prizes in the classes for six dishes of dessert apples and for six dishes of kitchen apples were awarded to Mr. R. Gunter, gardener to G. Pearson, Esq., Brickendon, who in each class had fruit remarkable for its large size and high colour; Mr. G. Fulford was second in each class with highly creditable collections. Mr. Ryder and Mr. G. Fulford, gardener to A. G. Sanderson, Presdales, Ware, were first and second for black grapes, with superb clusters of Alicante; and in the class for white grapes Mr. O. Catlin was first, with highly-coloured examples of Muscat of Alexandria, and Mr. J. Ryder was second, with Mrs. Pearson in capital condition.

VEGETABLES were largely shown and, on the whole, of high quality, onions and potatos being exceptionally good. There was a keen competition in the class for six kinds, and Mr. Catling and Mr. Cox were first and second respectively.

LADYWELL AND LEWISHAM.

THE Ladywell, Lewisham, and District Cottagers' Horticultural Society held its fifteenth annual dinner at the Parish Church Hall, Ladywell, on Thursday, October 27. Mr. T. W. Sanders took the chair, being supported by Mr. T. White as vice-chairman, and Mr. A. Pratt, the secretary. Other gentlemen present, who took part in the proceedings, were: Mr. Harman Payne, Mr. H. J. Jones, Mr. Leonard Brown, Mr. G. Hayward, &c. The prizes, consisting of medals, cash, certificates, &c., were presented to the winners by Mrs. Bickersteth, wife of the vicar of Lewisham. There was a large gathering of members and friends, and the proceedings were of the heartiest nature.

MARKETS.

Covent Garden.

THERE continues to be a steady and good demand for both vegetables and fruits, and as these are not supplied in excessive quantities a clearance is readily effected at fair rates. Green vegetables are becoming dearer, consequently there is an improving request for potatos. Choice cut flowers meet a good demand.

FRUIT.—English apples, 4s. to 9s. per bushel; Nova Scotian, 12s. to 22s. per barrel; English grapes, 9d. to 2s.; Channel Island, 6d. to 1s. per lb.; Almeria, 8s. to 16s. per barrel; lemons, 15s. to 24s. per box; Californian pears, 4s. to 6s. 6d. per half-case; French Duchesse, 2s. 6d. to 4s. per case. 6s. to 10s. 6d. per crate; blackberries, 1s. 3d. to 1s. 9d. per peck; pineapples, 2s. to 5s. each; bananas, 5s. to 9s. per bunch; green figs, 1s. to 1s. 6d.; peaches, 2s. to 8s. per dozen; pomegranates, 4s. to 6s.; Spanish melons, 4s. 6d. to 6s.; oranges, 10s. to 20s. per case; English tomatos, 3s. 6d. to 4s. 6d.; Channel Island, 2s. 6d. to 3s. 6d. per 12 lb.; French, 2s. 6d. to 3s. 6d. per crate; English walnuts, 3s. to 4s. per bushel; French, 10s. to 13s. per 50 kilos bag.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white, 1s. to 3s.; eucharis, 3s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, coloured, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Celery, 9s. to 12s. per dozen rolls; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; mushrooms, 2s. to 3s. per peck; cabbages, 3s. to 8s. per tally; parsley, 1s. 6d. to 2s.; leeks, 1s. 6d. to 2s.; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. to 3s. per dozen bunches; cauliflowers, 1s. to 2s.; endive, 1s. to 1s. 9d.; cucumbers, 2s. to 4s.; artichokes, 2s. to 2s. 6d.; French lettuce, 9d. to 1s. 3d. per dozen; Valencia onions, 6s. 6d. to 7s. 6d.; Ports, 5s. 6d. to 6s. 6d. per case; Dutch, 3s. 6d. to 4s. per bag; eschallots, 1s. 6d. to 2s.; spinach, 2s. to 3s. per bushel; potatos, 55s. to 90s. per ton.

Borough Potato Market.

A steady trade continues at prices that are firm and good. Beauty of Hebron, Snowdrop, and Up to Date, 75s. to 80s. per ton; White Hebron, Bruce, Magnum Bonum, Sutton's Early Regent, Imperator, and Reading Giant, 65s. to 70s. per ton; Blacklands, 60s. to 65s. per ton; Abundance, from Scotland, 60s. per ton; Germans, 2s. 9d. per bag.

EVERY HOUSE may shortly be supplied with electric light by a simple piece of mechanism placed over the kitchen chimney, if a new plan of Edison's for generating electricity directly from heat is successful. Thus the poorest person could have the benefit of a useful invention which is now regarded as a luxury only for the comfort of the rich. Mr. Thomas Holloway, however, has given a greater blessing to humanity than has yet been afforded by the most wonderful discoveries of science. His Pills and Ointment have succeeded in cases where the greatest authorities on medical treatment have failed. Whatever the condition of a patient may be, these medicines will effect a cure if such a thing is humanly possible.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Tomatos for Spring Fruiting.—J. S., Neath. We have seen the following tomatos succeed admirably as producers of early fruit, and probably they would suit you: Duke of York, Polga.e, Cropper, Earliest of All, and Frogmore Prolific. Perhaps your moist climate has something to do with the poor set obtained; try a little more warmth coupled with judicious ventilation.

Rotting Onions.—G. H., Coventry. We fear the onions could not have been properly dried and ripened before storing or that the store room was damp and unsuitable. It is just possible that the onions were frozen slightly and then handled before the frost was out of the bulbs; this soon causes the bulbs to decay. Thoroughly dry the sound bulbs on a stage or shelf in an airy greenhouse before returning them to dry, cool storage.

Support for Chrysanthemum Blooms. — G. P., Parkstone: The arrangement is a useful one, but we do not think it light and inexpensive enough for it to become popular, and consequently do not advise you to go to the expense of patenting or protecting it. It certainly does all you promise for it, but the majority of exhibitors will prefer the old method of wires and ties as being less expensive and almost as quick. If something lighter and less expensive could be designed, though still as serviceable, some sundriesman or chrysanthemum specialist might be persuaded to put the invention upon the market for you.

Mealy Bug on Vines.—F. D., Tooting: Practically nothing can be done with this pest until the grapes have all been cut, except to keep the bunches clean. Remove the crop as soon as possible, and then thoroughly syringe the vines and the woodwork of the house with a petroleum (paraffin) emulsion made as follows: Dissolve half a pound of hard yellow soap in one gallon of boiling water, and while the latter is still hot add two gallons of petroleum (paraffin or kerosene), and keep the whole well agitated with a small pump or jet syringe until the petroleum is well mixed with the soapy liquid. For application to the vines use one pint of this emulsion to one and a quarter or one and a half gallons of soft water. It will be advisable to place some tiffany or mats on the borders to catch any insects dislodged by the syringe. Repeat the operation at intervals of two or three days, taking care always to stir the emulsion before use, and to keep the syringing mixture well agitated while in use. Severer treatment should be accorded during winter, thoroughly cleansing the woodwork and also the vine rods.

Apple Tree Bored by Caterpillar.—T. C., West Hoathly: The damage to the apex of your apple tree is caused by the boring of the caterpillar of the Wood Leopard Moth (*Zeuzera pyrina syn. Z. æsculi*). The caterpillar or larva arrived safely in the piece of wood, and, being a well-developed specimen, was readily recognised by its yellowish colouring, two black spots on the head, a black plate on the second segment, and a large black shining plate on the last segment; there are also some raised black dots on the other segments. The larva does not confine itself to apple trees, but is occasionally found doing considerable damage to pear, willow, thorn, chestnut, birch, beech, lilac, and walnut trees. Fortunately the Wood Leopard moth is not common, but it is mostly met with in what may be called the London district. The larva feeds, during winter and early spring, upon the live wood of the tree it bores into; about May or June it becomes full grown and then spins itself a cocoon, turns to the chrysalis stage, and eventually emerges as a perfect imago or moth. Eggs are laid during July and August, and it is stated that one moth may lay at least three hundred oval, salmon-coloured eggs; the caterpillars soon hatch, and feed at first upon the bark, but soon those not destroyed by birds commence to bore into the wood, where they work galleries about a foot long and wider than themselves. As you have cut away the affected portion of the tree there is no need for remedial measures for that particular case; we advise you, however, to examine all your apple, pear, and other trees, so far as possible, to discover whether there are not other larvæ at work; keep a sharp lookout for the entrance to borings and the sawdust-like gnawed wood that appears there. When any such are discovered it is a good plan to push a stout pointed wire along the tunnel and so destroy the caterpillar; if the wire fails, then use a strong mixture of soft soap and tobacco liquor, forcing this into the boring by means of a syringe. If no more wood dust appears after the operation it may be taken for granted that the larva has been destroyed.

Names of Plants.—A. A., Holt: It is not possible to identify the plant from the specimens sent; send us a foot or two of growth and leafage next summer.

R. M., Patricroft: The plant is an oxalis, but we do not know which species, having no flowers for identification; we kept the plant several days, but all the flower-buds dropped. It is probably O. Bowiei.

J. W., Dereham: 1, Erica Austiniana; 2, Nerine Fothergilli major; 3, Hibbertia dentata.

L. B., Winchester: 1, Aster grandiflorus; 2, Oncidium crispum.

F. H. J., Reading: 1, Aphelandra aurantiaca; 2, Nothochlæna sinuata; 3, Nertera depressa; 4, Coccoloba platyclada; 5, Asparagus Sprengeri.

Names of Fruits.—R. W., Burnham: Tyler's Kernel.

W. H., Sleaford: 1, probably a local variety; 2, Northern Greening; 3 and 4, Dumelow's Seedling; 5, Lemon Pippin; 6, Dutch Mignonne; 7, London Pippin.

W. T., Croydon, pears: 1, Beurré Bosc; 2, Bergamot; 3, Easter Beurré; apples, 1, Waltham Abbey Seedling; 2, Reinette du Canada; 3, Emperor Alexander; 4, Lamb Abbey Pearmain; 5, Mère de Ménage; 6, Dumelows Seedling; one other variety was included, but it also seemed to be number 2, it was Tower of Glamis, while the more russety fruit was Reinette du Canada.

J. H., Wells: 1, Beurré Hardy; 2, Doyenne du Comice; 3, Aston Town; 4, Urbaniste; 5, Ribston Pippin; 6, Dumelow's Seedling.

S. H., Chippenham: Wormsley Pippin, a fine sample.

E. C. K., Ramsey: Appears to be Brown Beurré.

S. E. A., Yorks: 1, Warner's King; 2, Pickering's Seedling; 3, Swedish Reinette; 4 and 5, probably local varieties; 6, Newtown Pippin.

G. E. J, I. of W.: Two authorities have given it as Durondeau.

THE WEATHER DURING THE WEEK ENDING OCTOBER 29, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	64·0	45·4	55·5	13·06	1·03	2·62
Croydon	63·9	46·5	54·6	12·56	0·18	0·46
Brighton	63·2	49·0	56·8	13·78	1·38	3·51
Bristol	61·5	46·0	53·9	12·17	0·78	1·98
Wolverhampton	60·8	40·1	50·9	10·50	0·54	1·37
Norwich	66·0	43·4	54·0	12·22	0·09	0·23
Nottingham	61·5	43·3	53·2	11·78	0·25	0·63
Liverpool	58·7	46·0	52·0	11·11	0·92	2·34
Huddersfield	59·5	40·2	52·1	11·17	1·13	2·87
Bradford	64·0	43·2	53·3	11·83	0 84	2·13
Hull	61·0	39·0	51 7	10·94	0·58	1·47

The mean reading of the Barometer during the week at Greenwich was 29 81 inches, and that of the Thermometer 55°·5, the latter being 8°·0 above the week's average in the 50 years 1841—90. The direction of the wind was south westerly, the horizontal movement of the air being 11 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 22·2 hours. The measured rainfall amounted to 1·03 inches.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

Monday, November 7.—St. Neots Chrysanthemum Society.
Sevenoaks Chrysanthemum Show; Two days
Tuesday, November 8.—Royal Horticultural Society; Committees meet at twelve o'clock; Lecture at three p.m., on "Some of the Plants Exhibited," by Rev. Prof. Henslow, M.A., V.M.H.
National Chrysanthemum Society; Three days.
Highgate Chrysanthemum Show; Three days.
Birmingham Chrysanthemum Show; Three days.
Yeovil Chrysanthemum Show; Two days.
Coventry Chrysanthemum Show; Two days.
Kidderminster Chrysanthemum Show; Two days.
Clevedon Chrysanthemum Show; Two days.
Bexley Heath Chrysanthemum Show; Two days.
Sutton Chrysanthemum Show; Two days.
Oxford Chrysanthemum Show; Two days.
Wednesday, November 9.—Bodmin Chrysanthemum Show.
Bournemouth Chrysanthemum Show; Two days.
Wisbech Chrysanthemum Show; Two days.
Royal Horticultural Society of Ireland Chrysanthemum Show; Two days.
Northampton Chrysanthemum Show; Two days.
Stoke Newington Chrysanthemum Show; Two days.
Cranbrook Chrysanthemum Show; Two days.
Ware Chrysanthemum Show; Two days.
Berkhamsted Chrysanthemum Show; Two days.
Liverpool Chrysanthemum Show; Two days.
Cardiff Chrysanthemum Show; Two days.
Hanley Chrysanthemum Show; Two days.
Southgate Chrysanthemum Show; Two days.
Wimbledon Chrysanthemum Show; Two days.
Melton Mowbray Chrysanthemum Show; Two days.
Bromley Chrysanthemum Show; Two days.
Gloucester Chrysanthemum Show; Two days.
Carlisle Chrysanthemum Show; Two days.
Thursday, November 10.—Maindee Chrysanthemum Show.
Walton and Weybridge Chrysanthemum Show.
Harrogate Chrysanthemum Show; Two days.
Bury St. Edmunds Chrysanthemum Show; Two days.
Windsor and Eton Chrysanthemum Show; Two days.
Sidcup Chrysanthemum Show; Two days.
Southport Chrysanthemum Show; Two days.
Friday, November 11.—Nottingham Chrysanthemum Show; Two days.
Leicester Chrysanthemum Show; Two days
Huddersfield Chrysanthemum Show; Two days.
Alderley Edge Chrysanthemum Show; Two days.
Bradford Chrysanthemum Show; Two days.
Eccles and Patricroft Chrysanthemum Show; Two days.
Sheffield Chrysanthemum Show; Two days.
Waterford Chrysanthemum Show; Two days.
Altrincham Chrysanthemum Show; Two days.
Wellingborough Chrysanthemum Show; Two days.
Dalkey Chrysanthemum Show; Two days.
Carnarvon Chrysanthemum Show; Two days.
Blackburn Chrysanthemum Show; Two days.
Derby Chrysanthemum Show; Two days.
Saturday, November 12.—Middleton Chrysanthemum Show.
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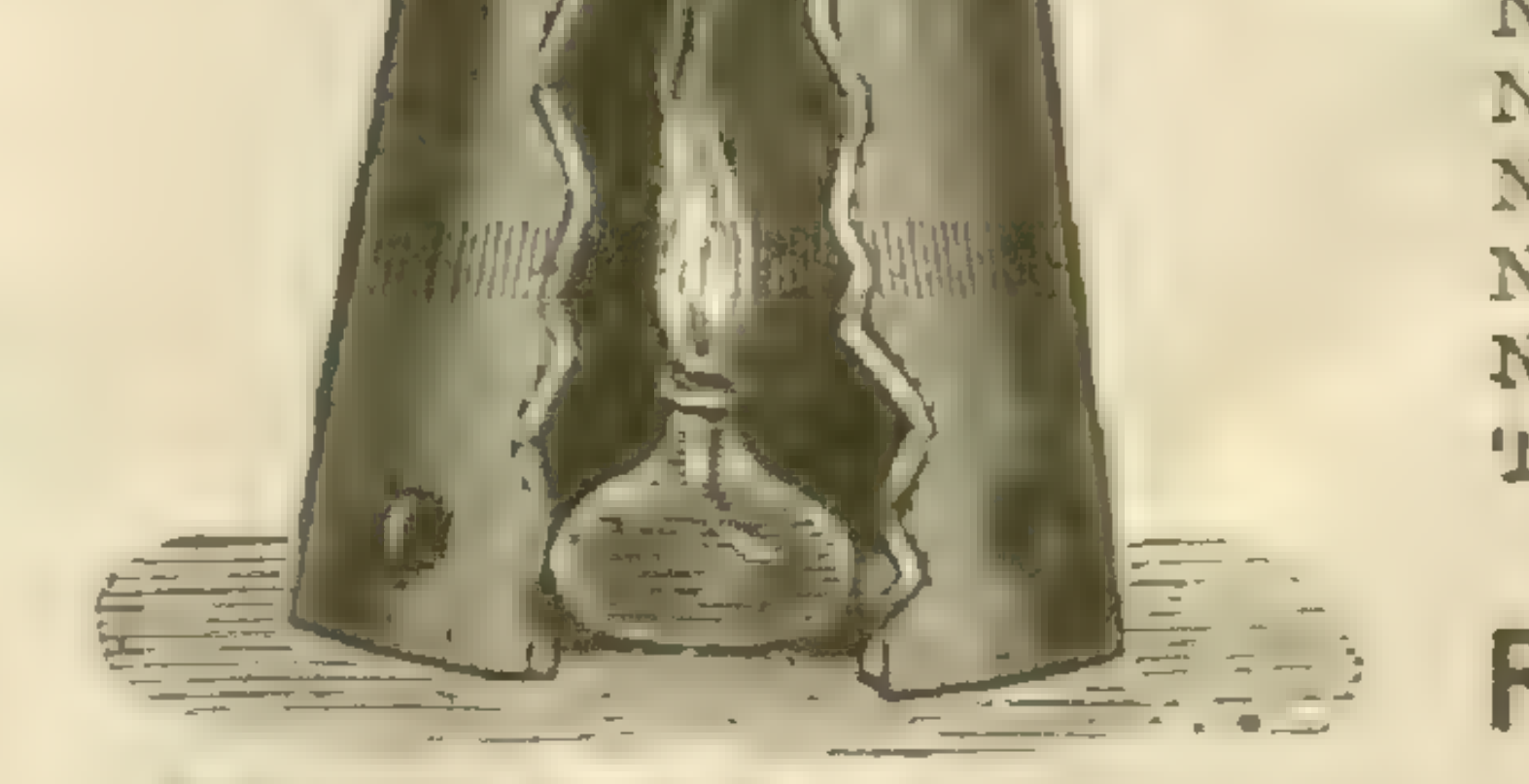

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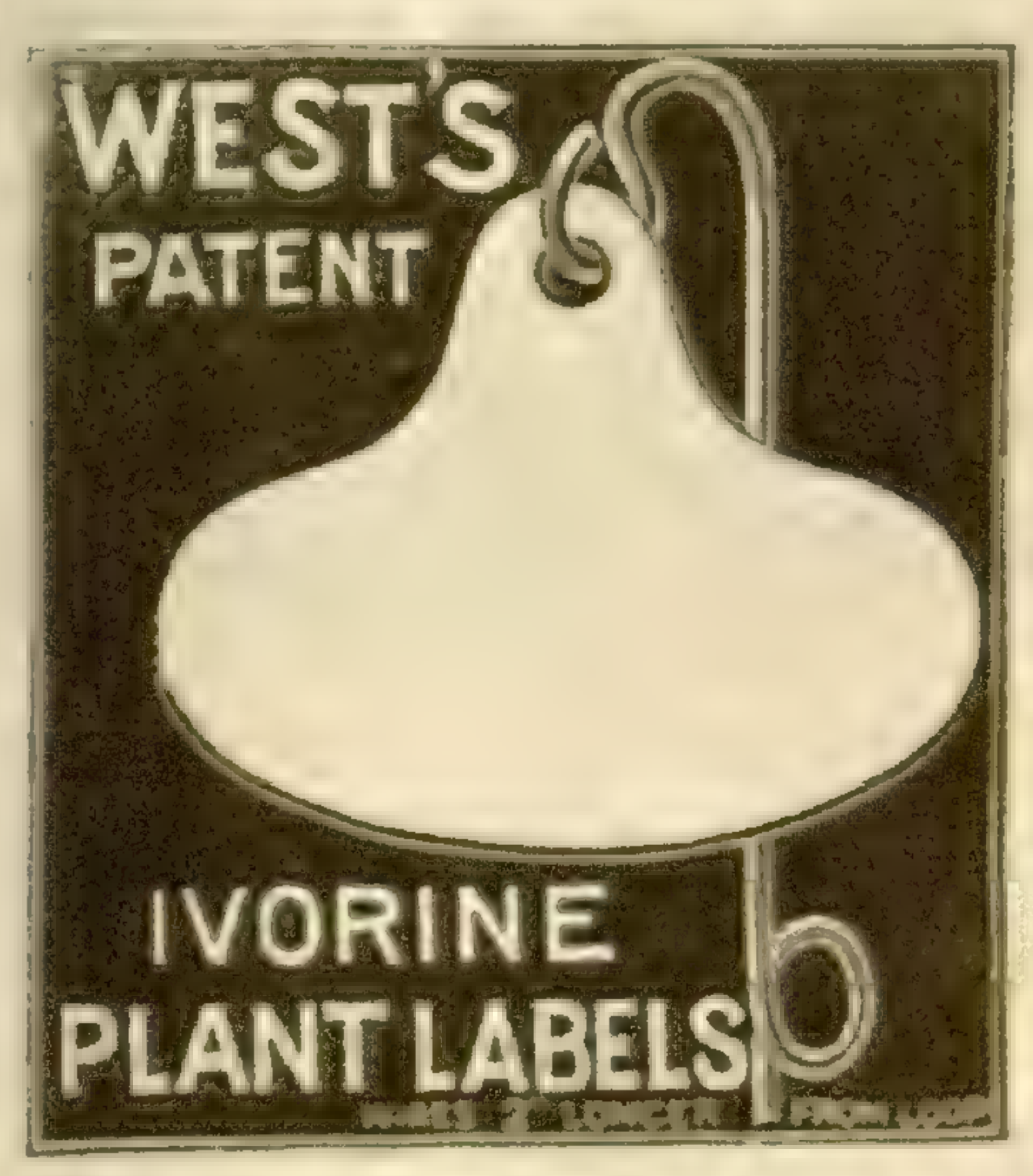

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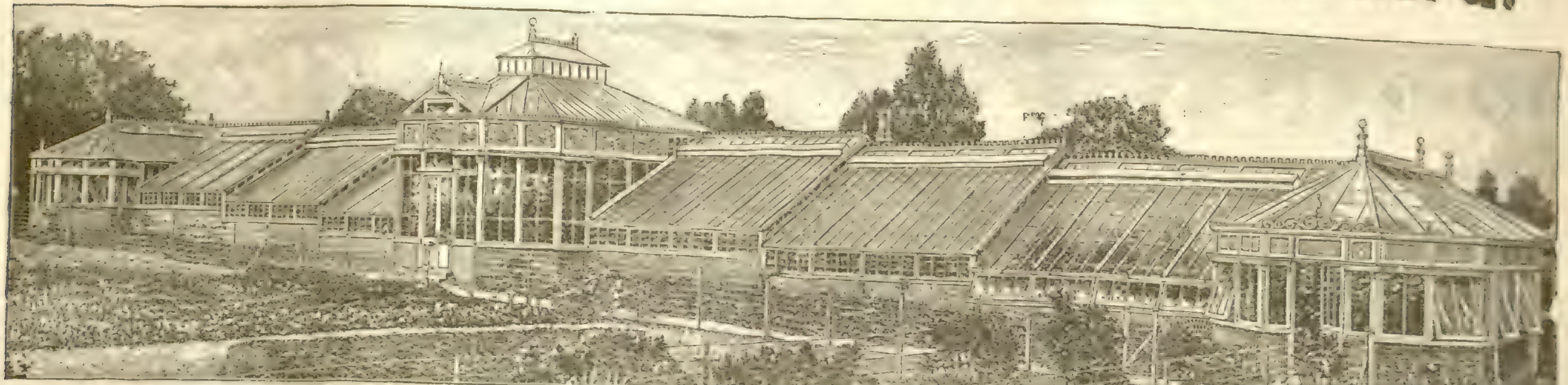

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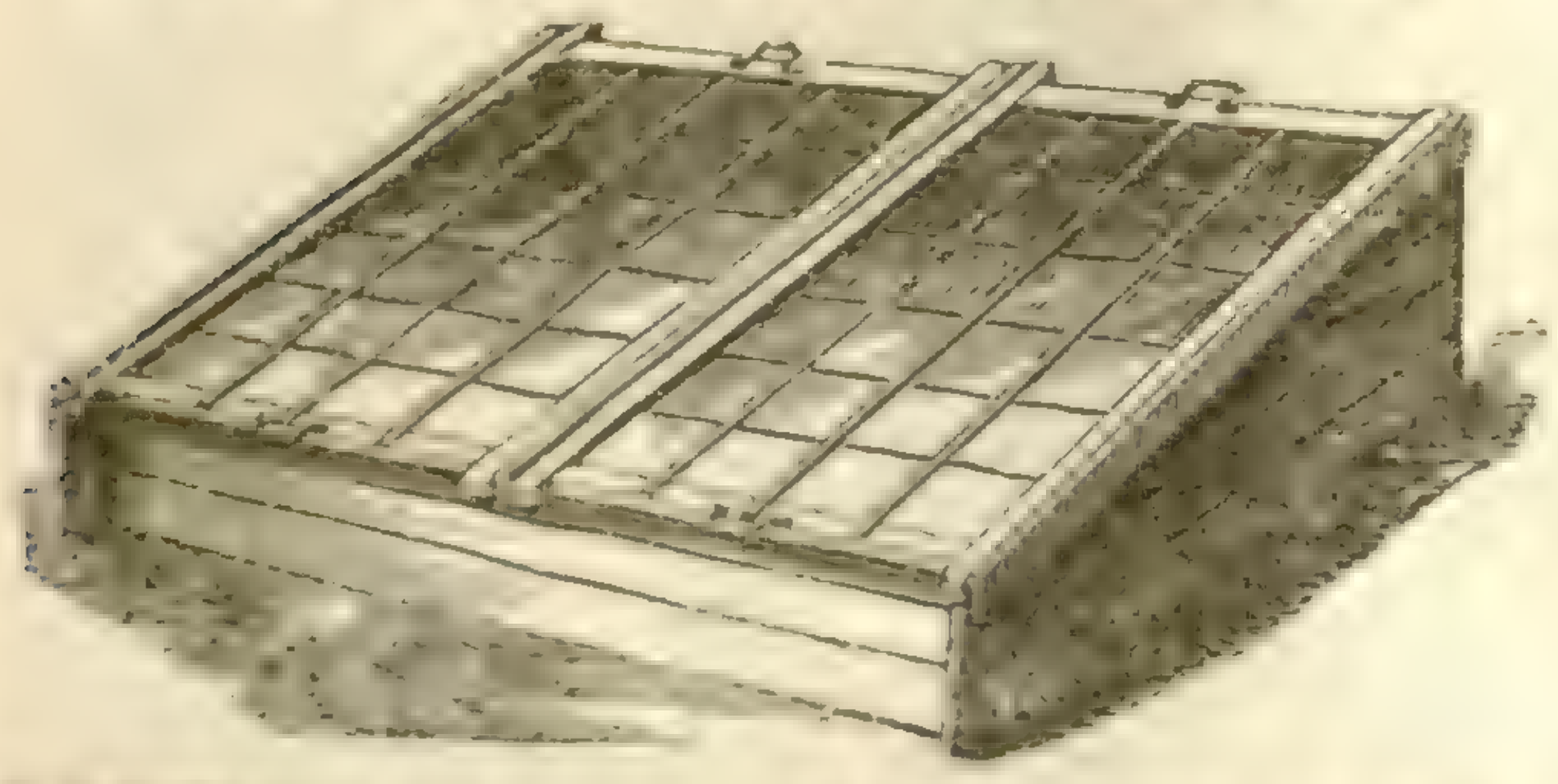

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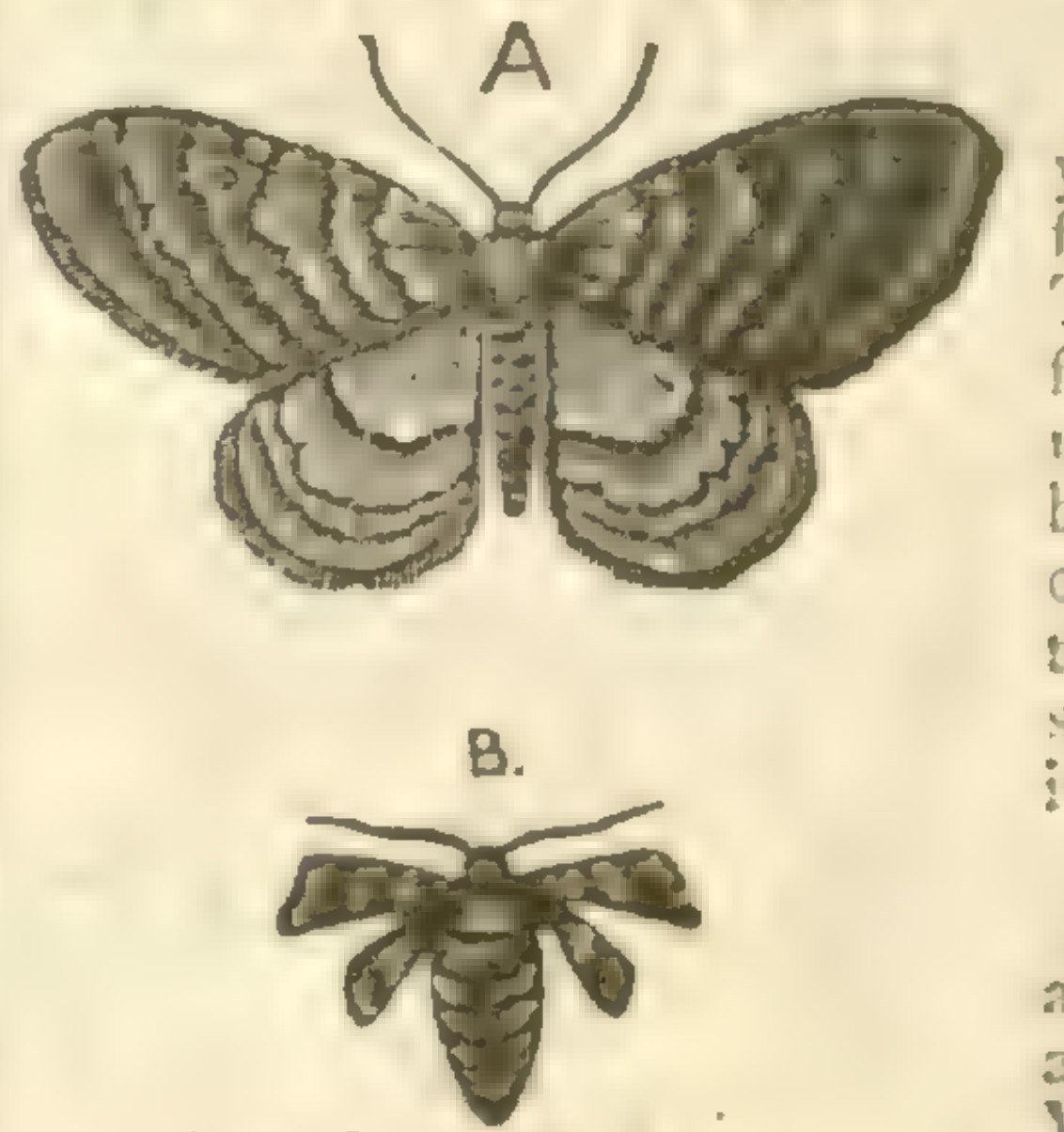

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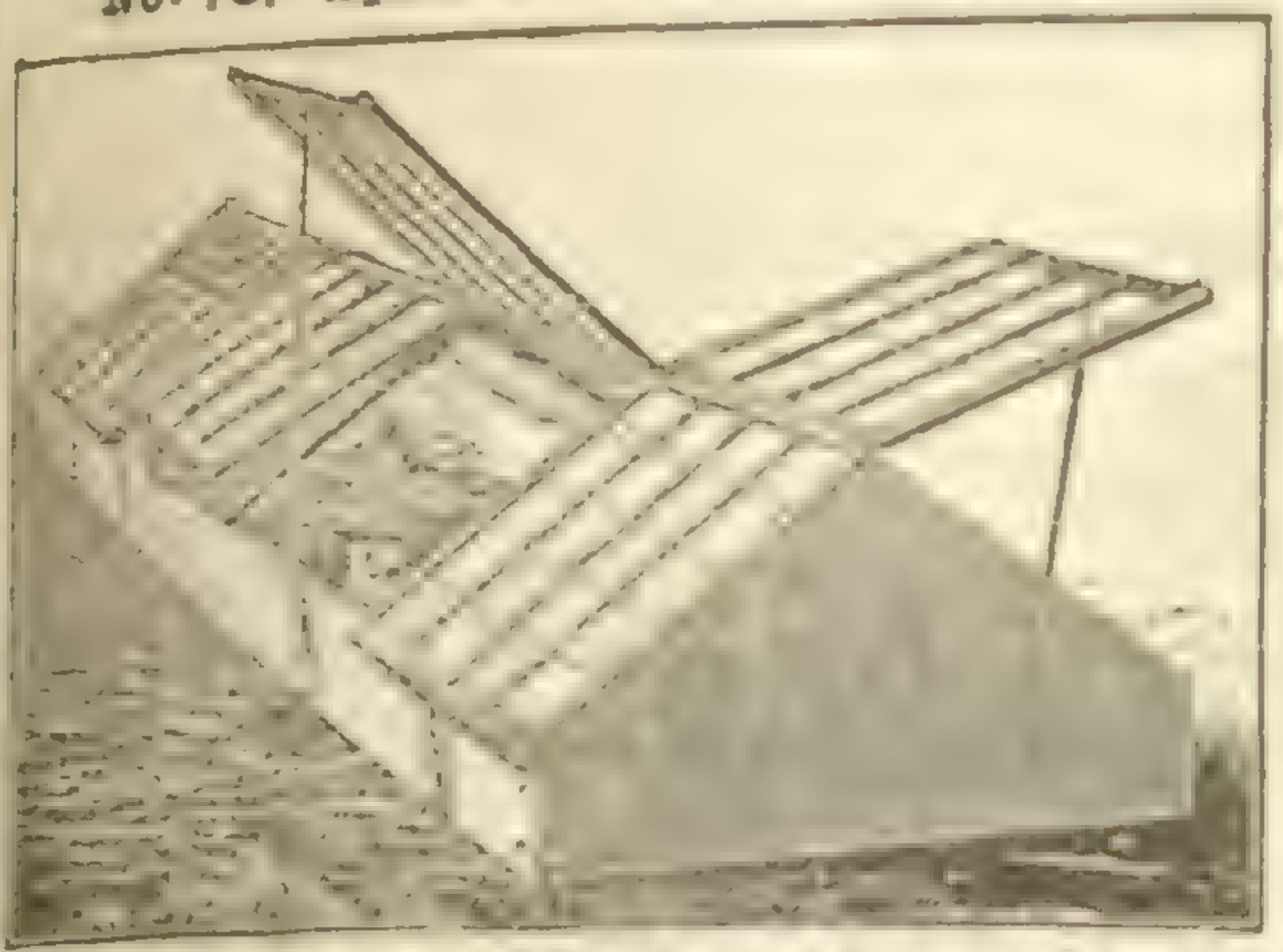

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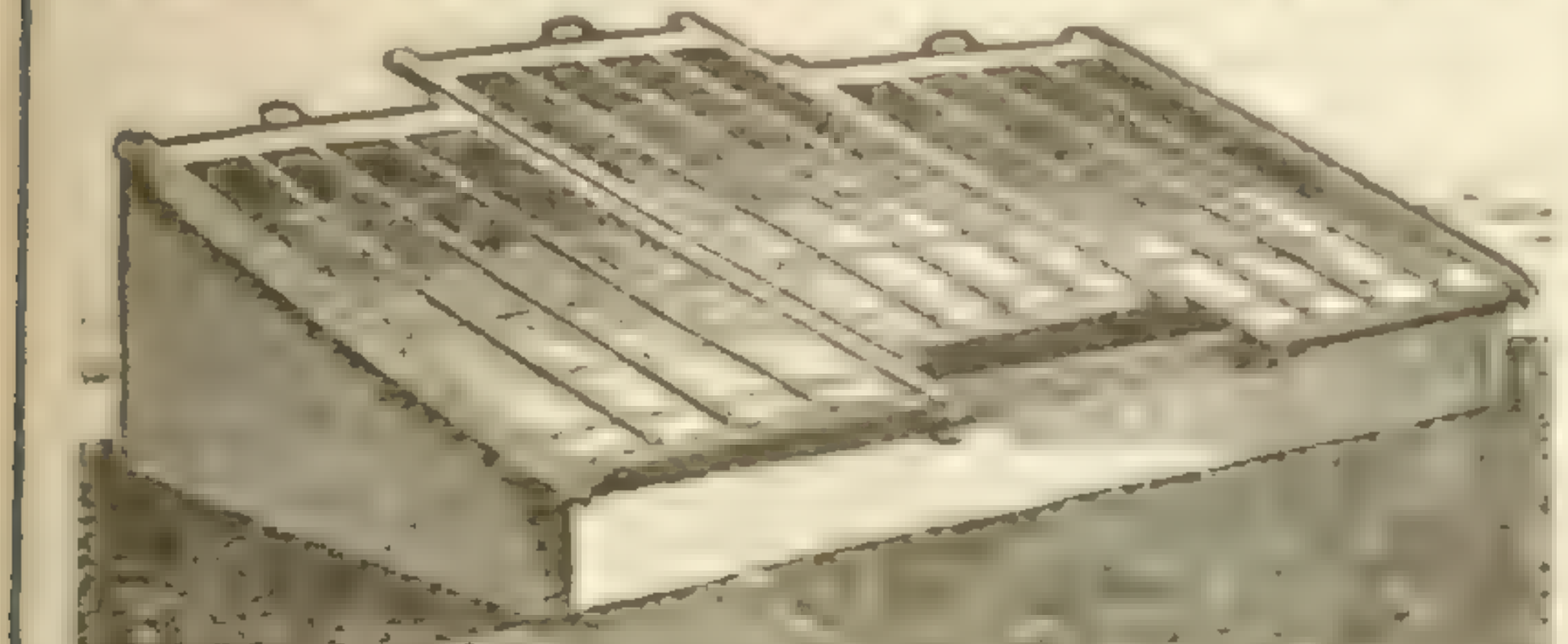

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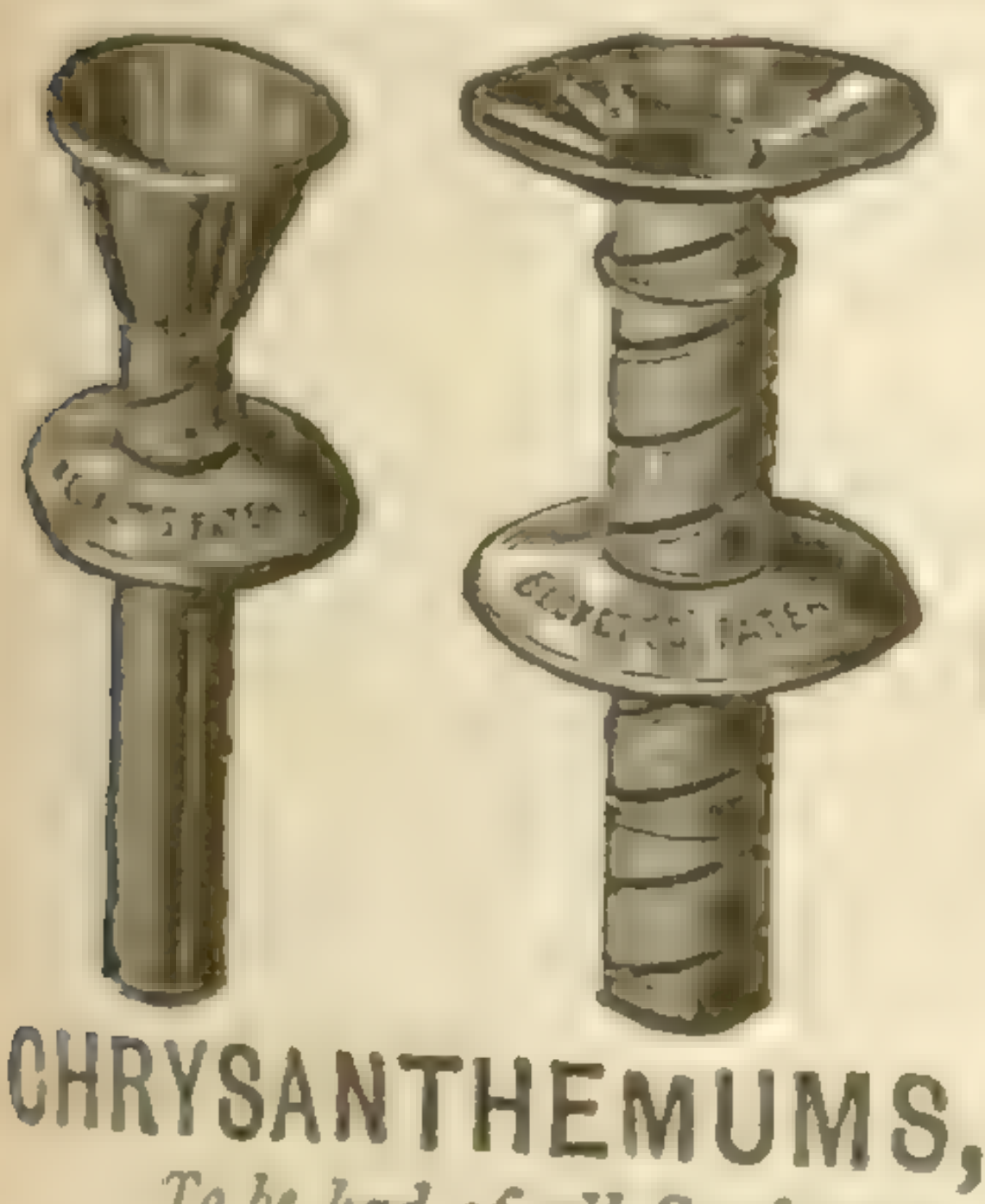

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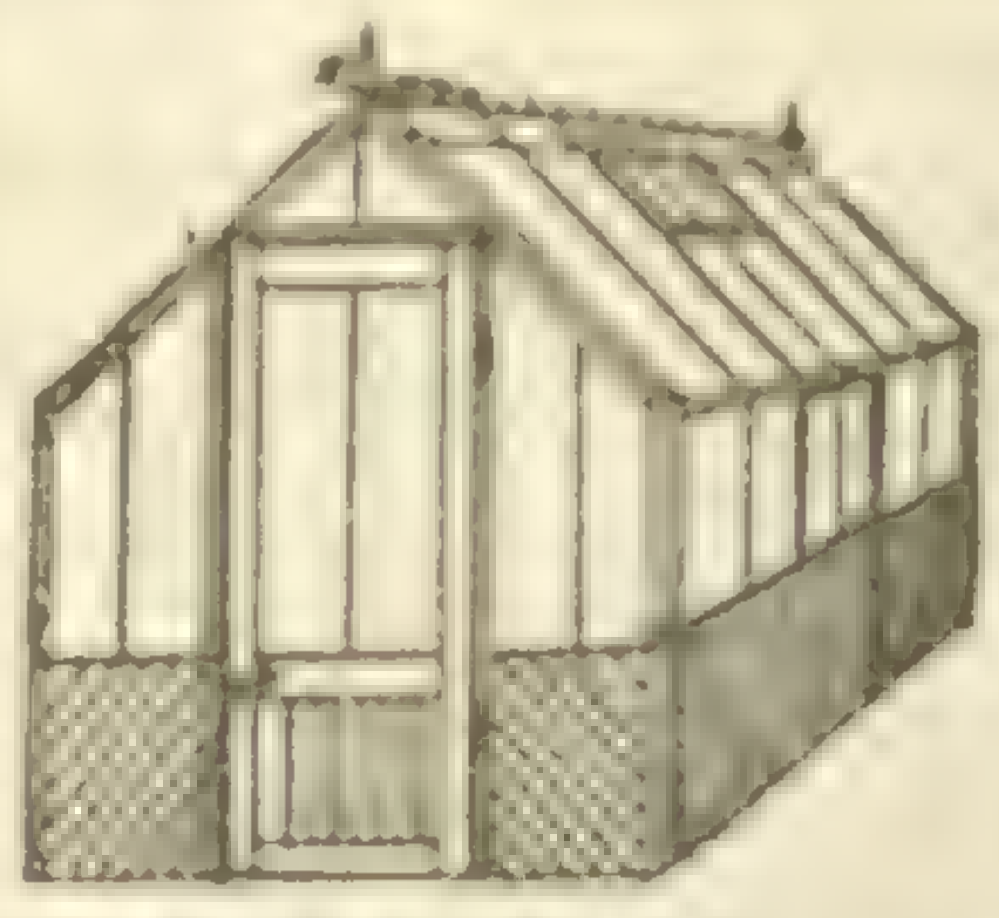

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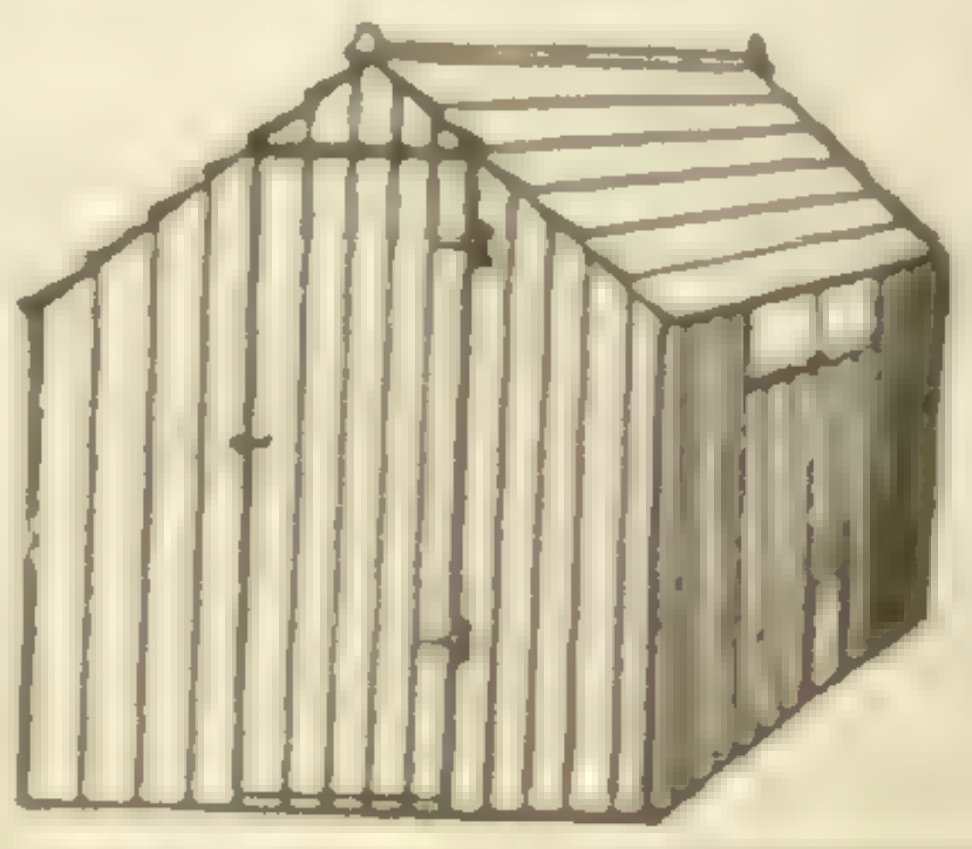

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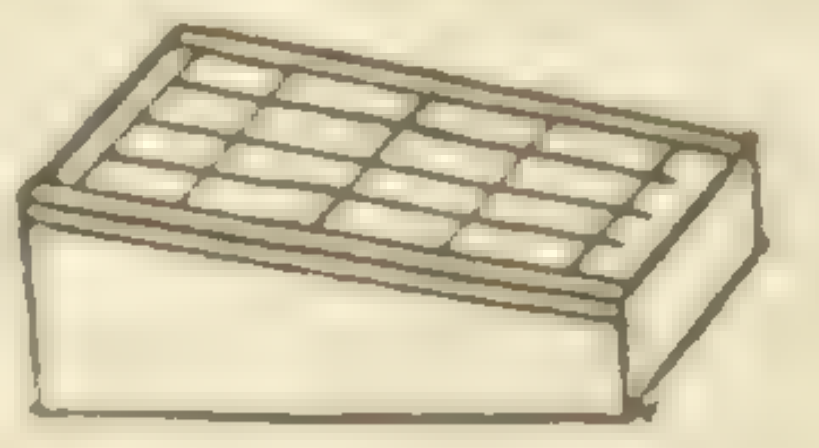

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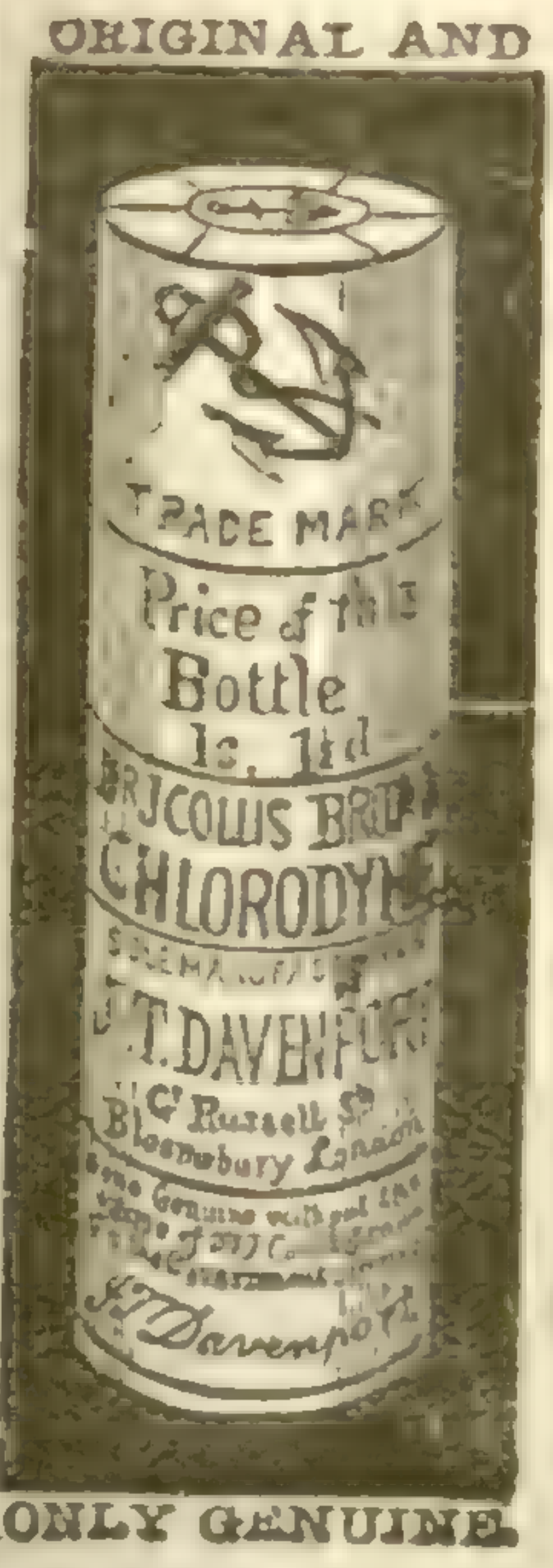

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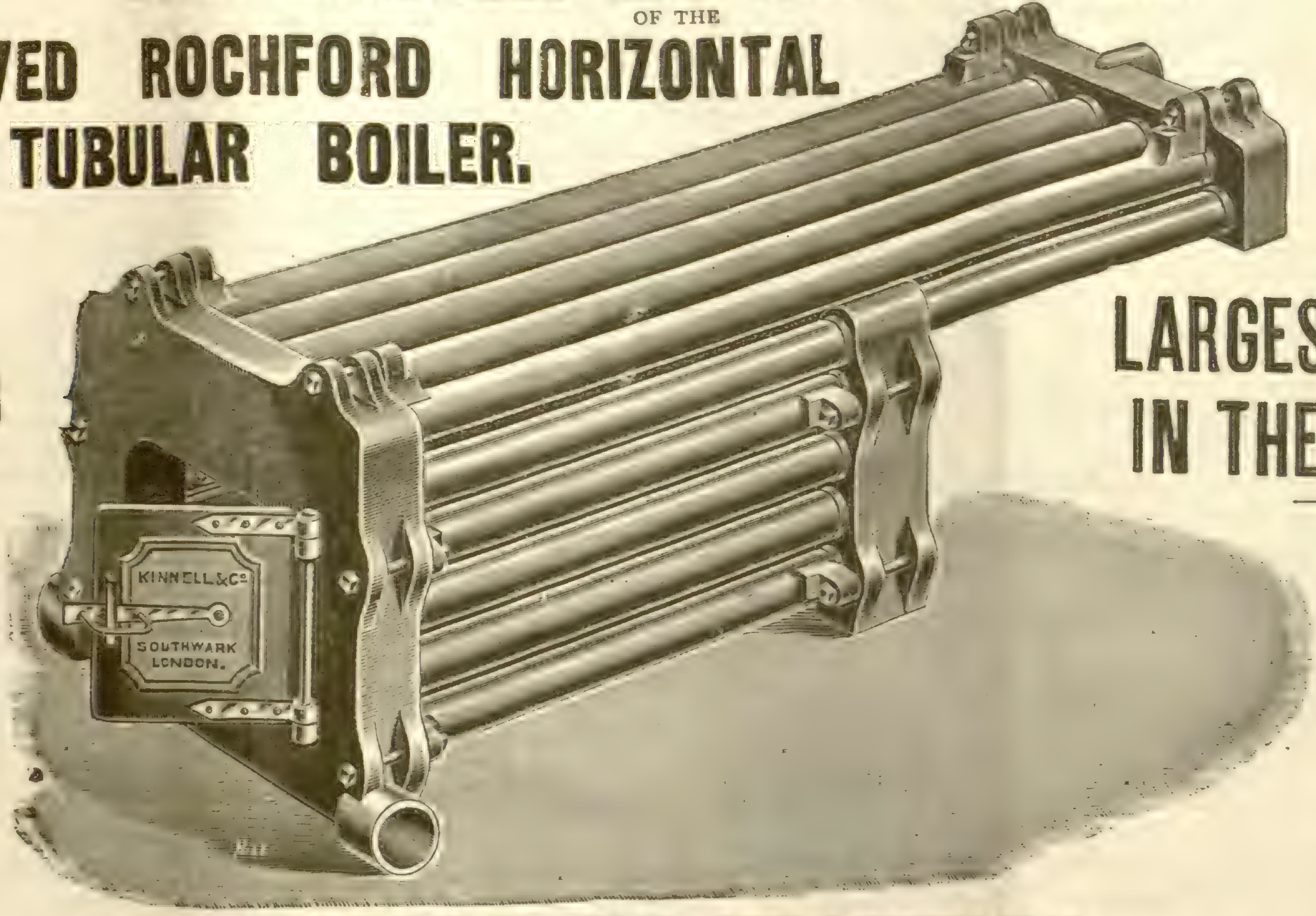

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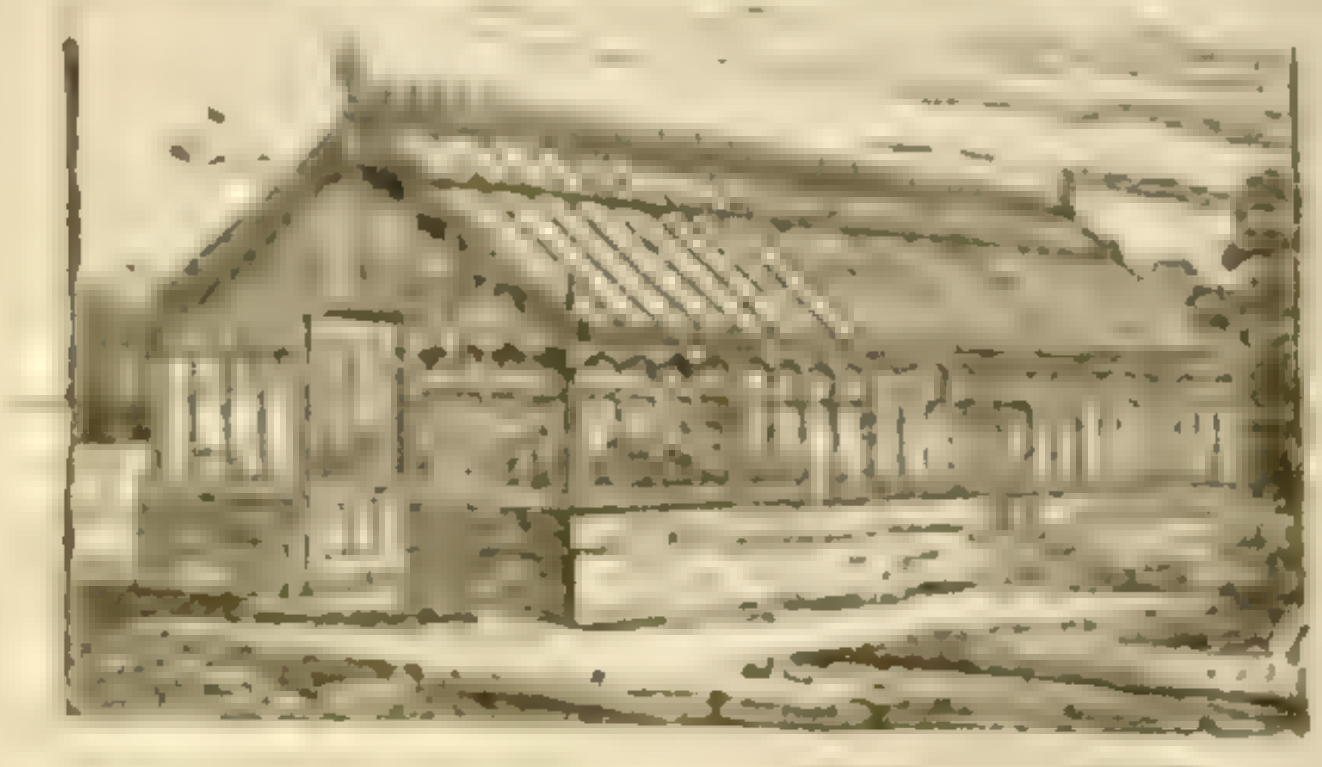

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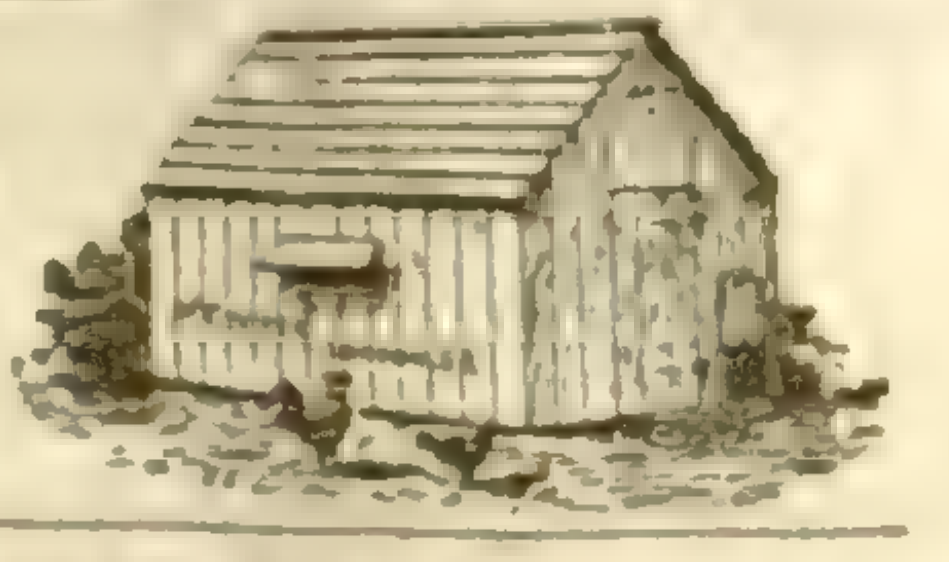

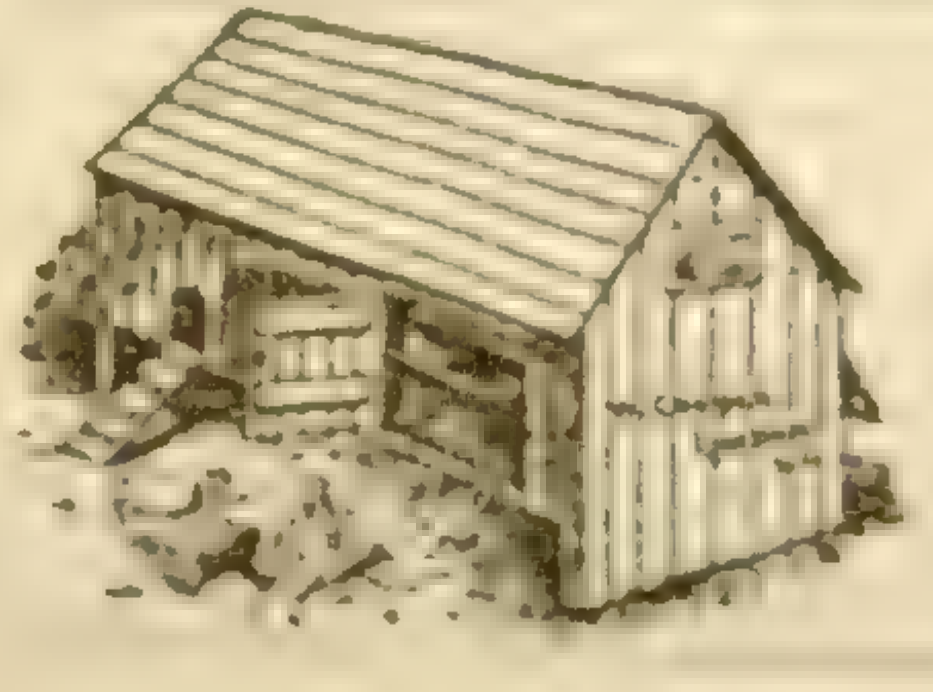

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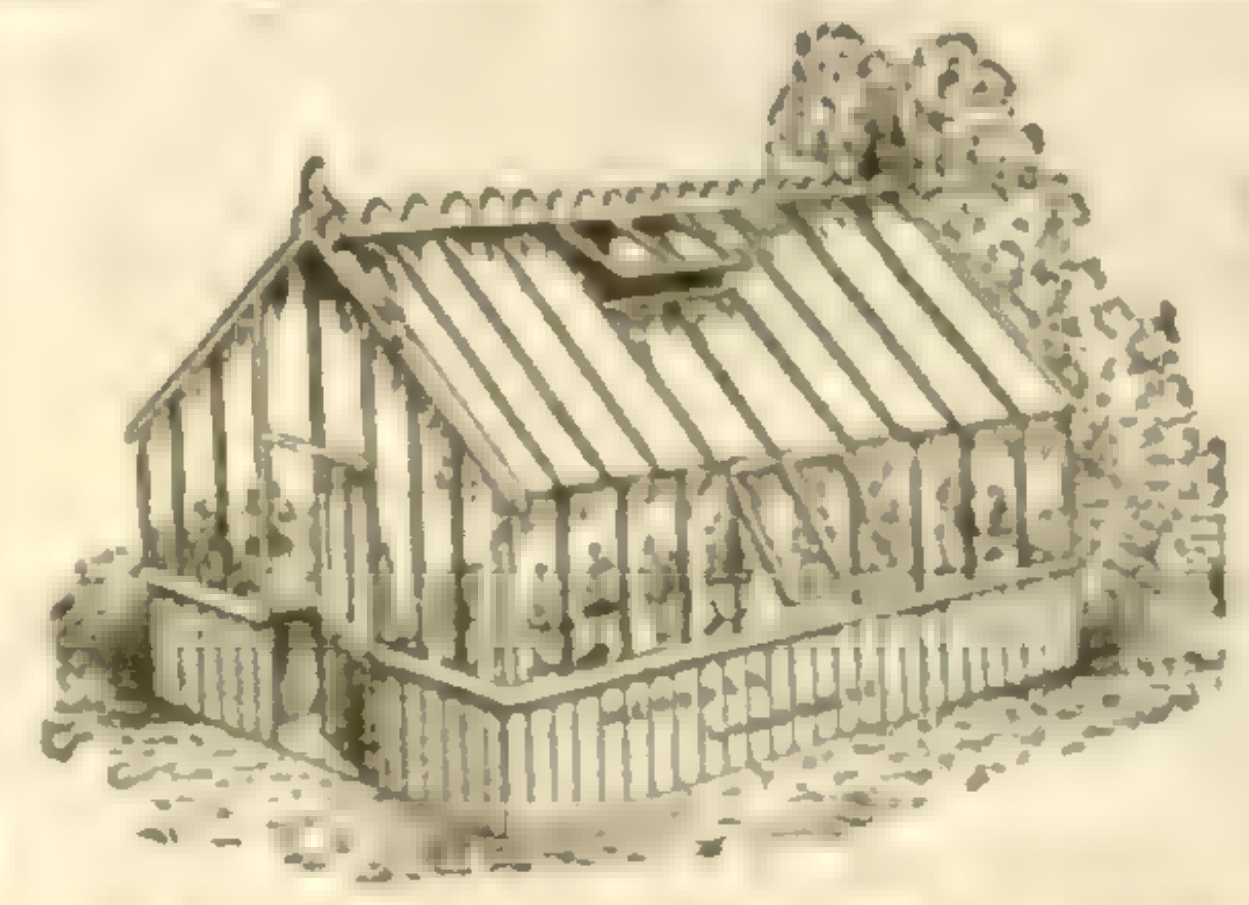

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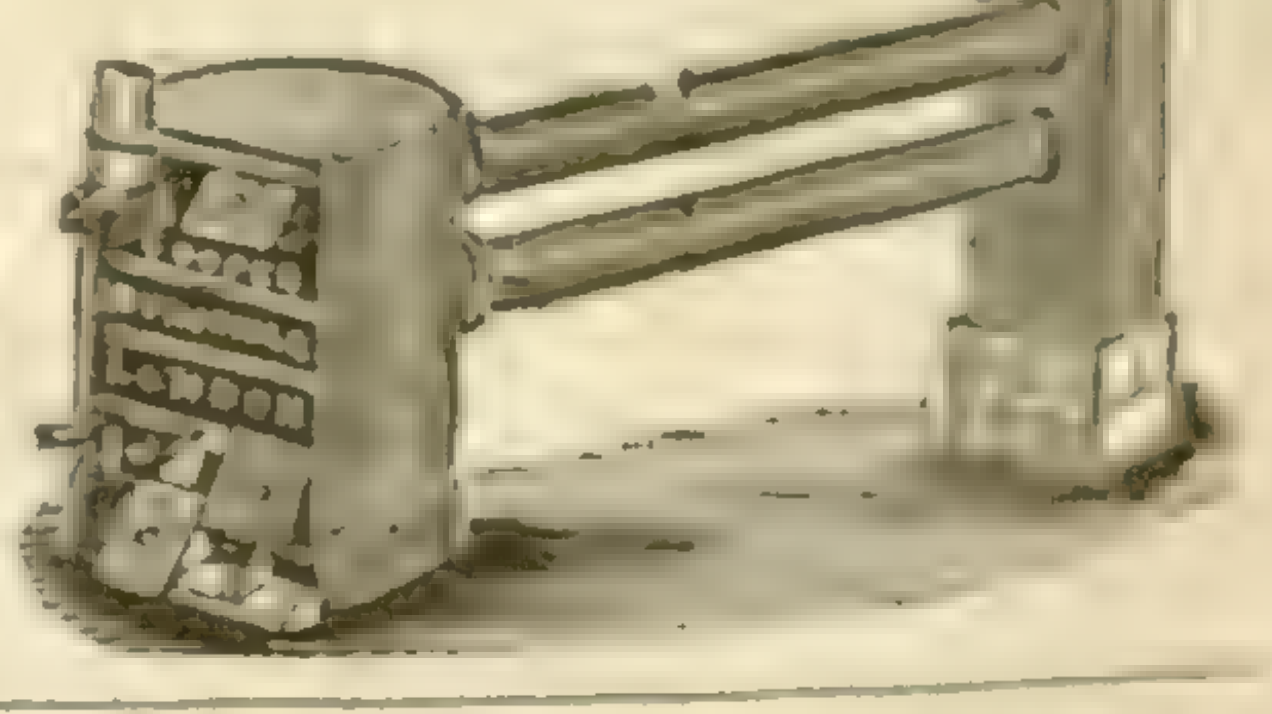

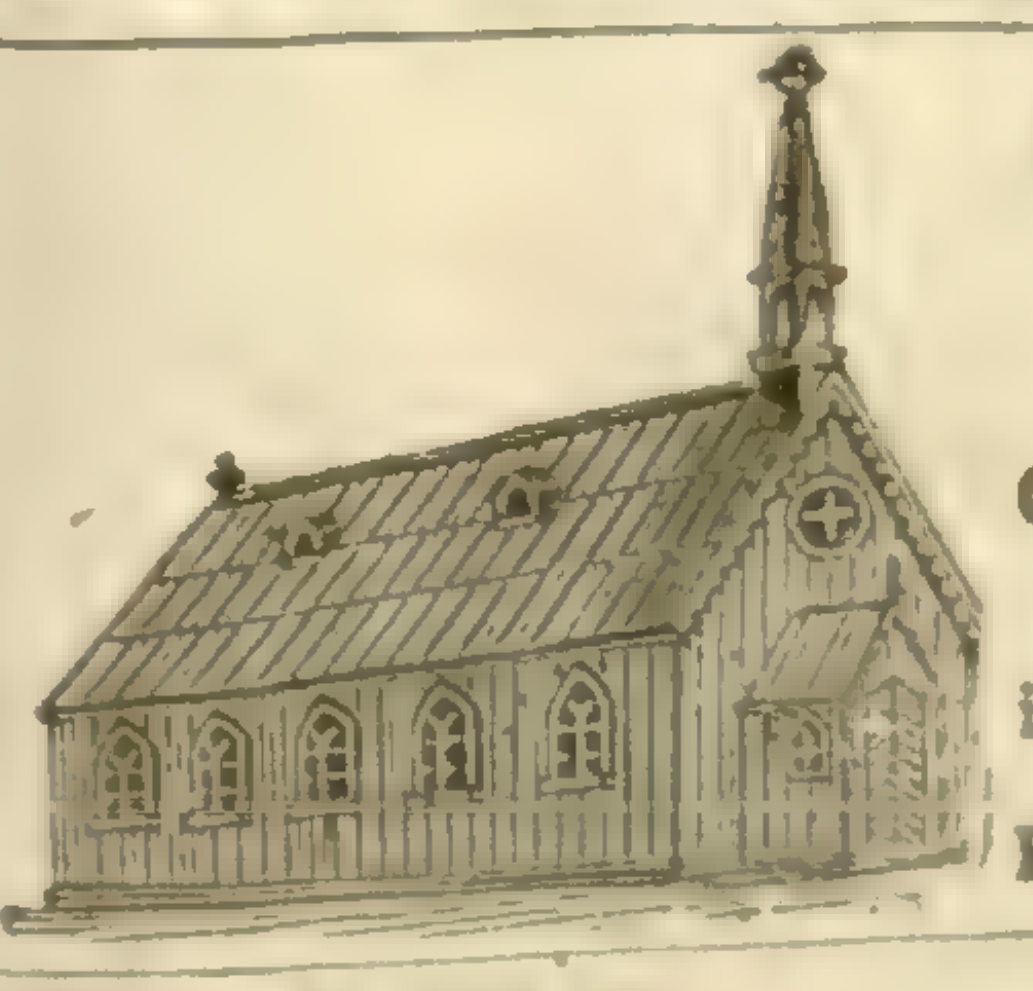

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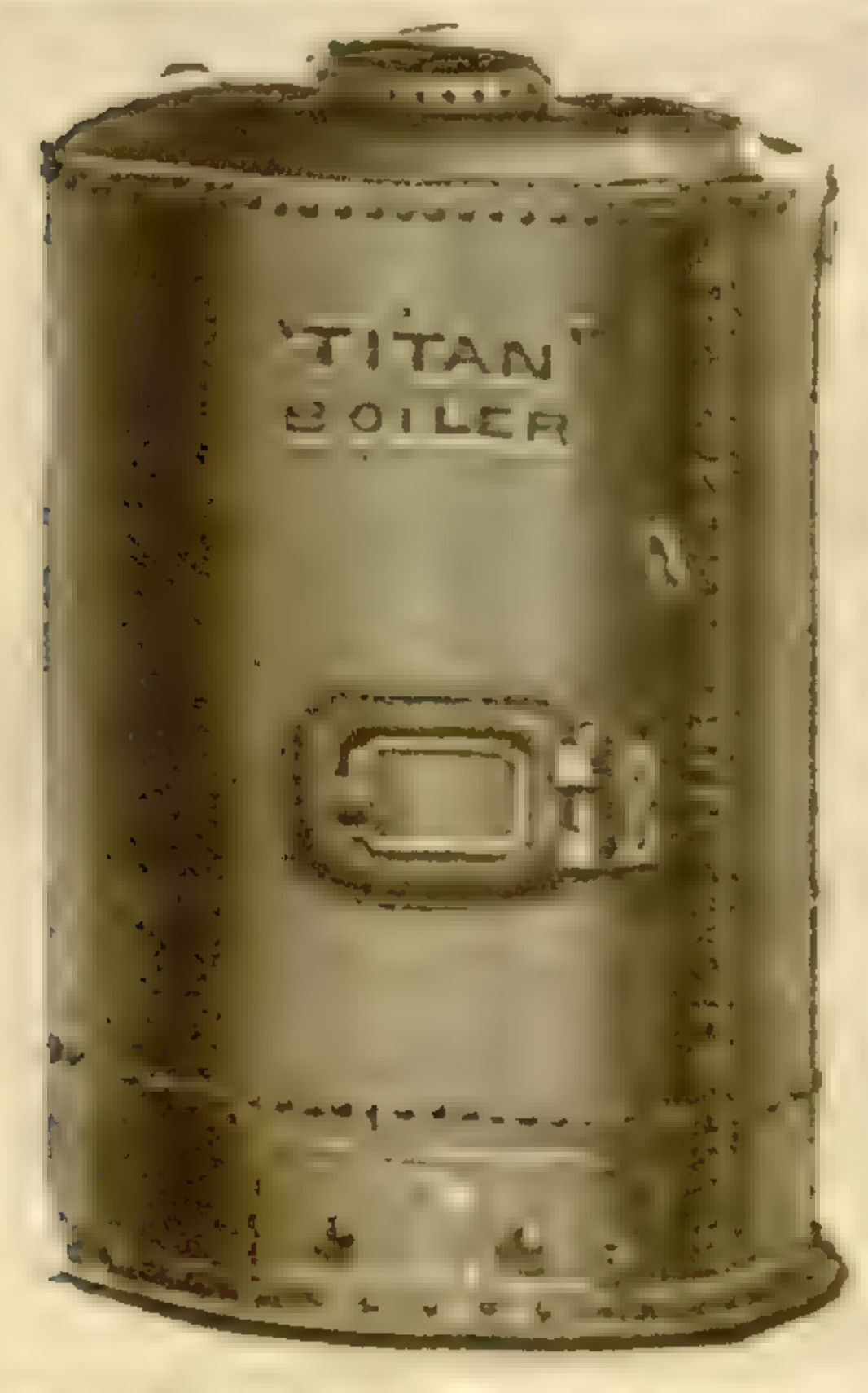

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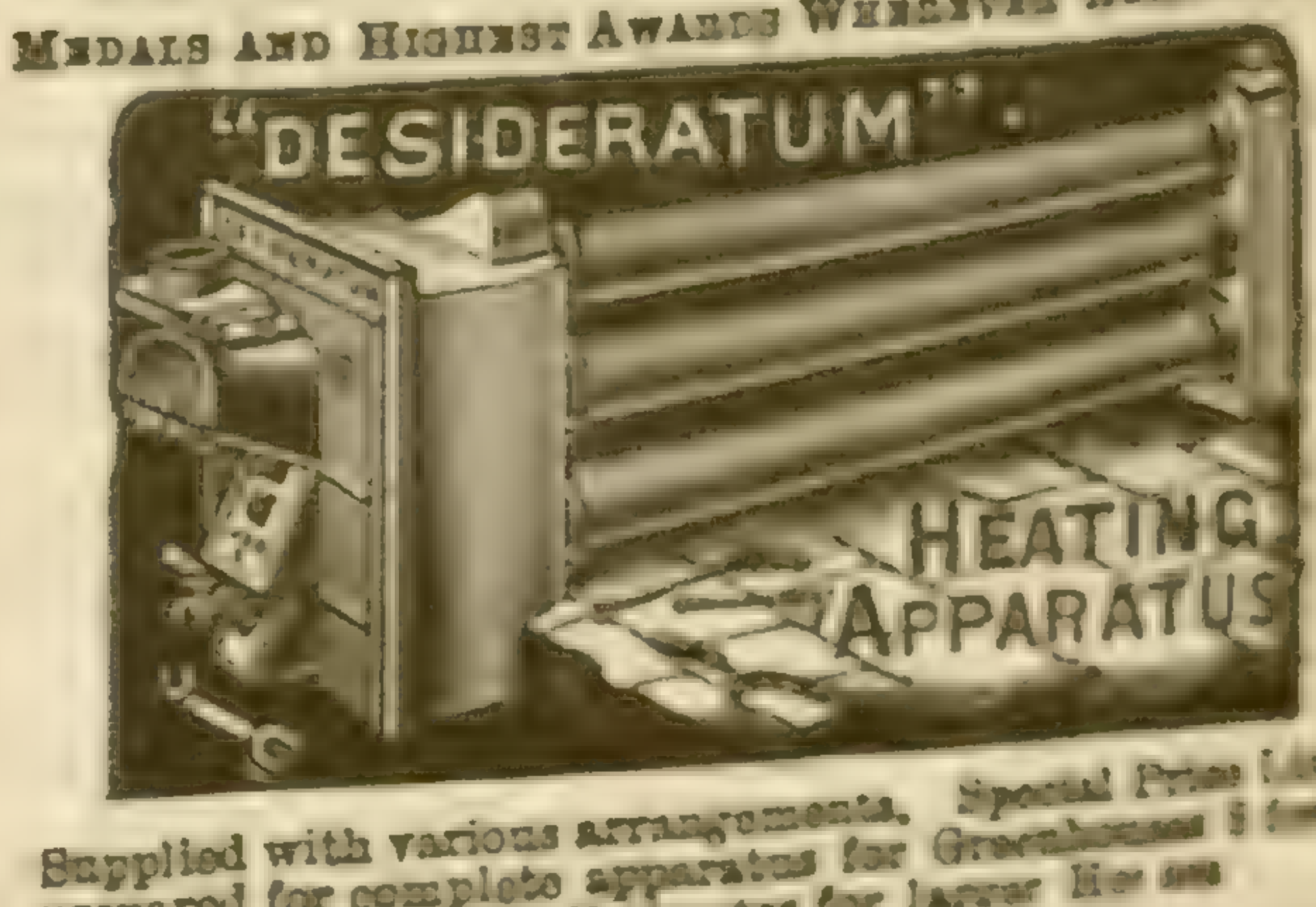

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MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., on FRIDAY next, NOVEMBER 18th, at Half-past Twelve o'clock.

On view Morning of Sale, and Catalogues had.

DUTCH BULBS! DUTCH BULBS!

SALES NEARLY EVERY DAY, IN LARGE AND SMALL LOTS, TO SUIT ALL BUYERS.

MR. J. C. STEVENS will SELL BY AUCTION at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, nearly every day, at Half-past Twelve, first-class consignments of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs arriving daily from well-known farms in Holland, in the finest possible condition.

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Monday, Wednesday, and Thursday next.

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and see for yourself that my Stock of Chrysanthemums is absolutely free from Rust or Disease of any kind.

Inspection cordially invited.

Catalogues now ready, Post Free 1d.

Catalogue and Cultural Guide, 7d.

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} Pyramids, Bush, Standards, and Cordons, 1s 6d. each, 15s. dozen; extra selected, 2s. each, 18s. dozen. Horizontal and Fan, Trained for walls or walks, 2s. to 3s. each.

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} Trained Trees, fine, 3s. 6d. each: Do. extra selected, 5s. each.

Low Terms quoted for quantities of 100 and upwards.

GOOSEBERRIES, market sorts, strong, 3s. 6d. dozen; 25s. per 100.

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STRAWBERRIES, 1s. dozen, 3s. 6d. 100.

Orders of £1 and upwards CARRIAGE PAID for cash with order, to any station in England. Full Descriptive Catalogue on application.

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A grand stock of especially fine plants can be offered this season Stout, well-ripened wood and fibrous roots. All the best Exhibition and Garden varieties. Descriptive Catalogue on application.

Dwarf H P. ...	6s. dozen ...	30s 100.
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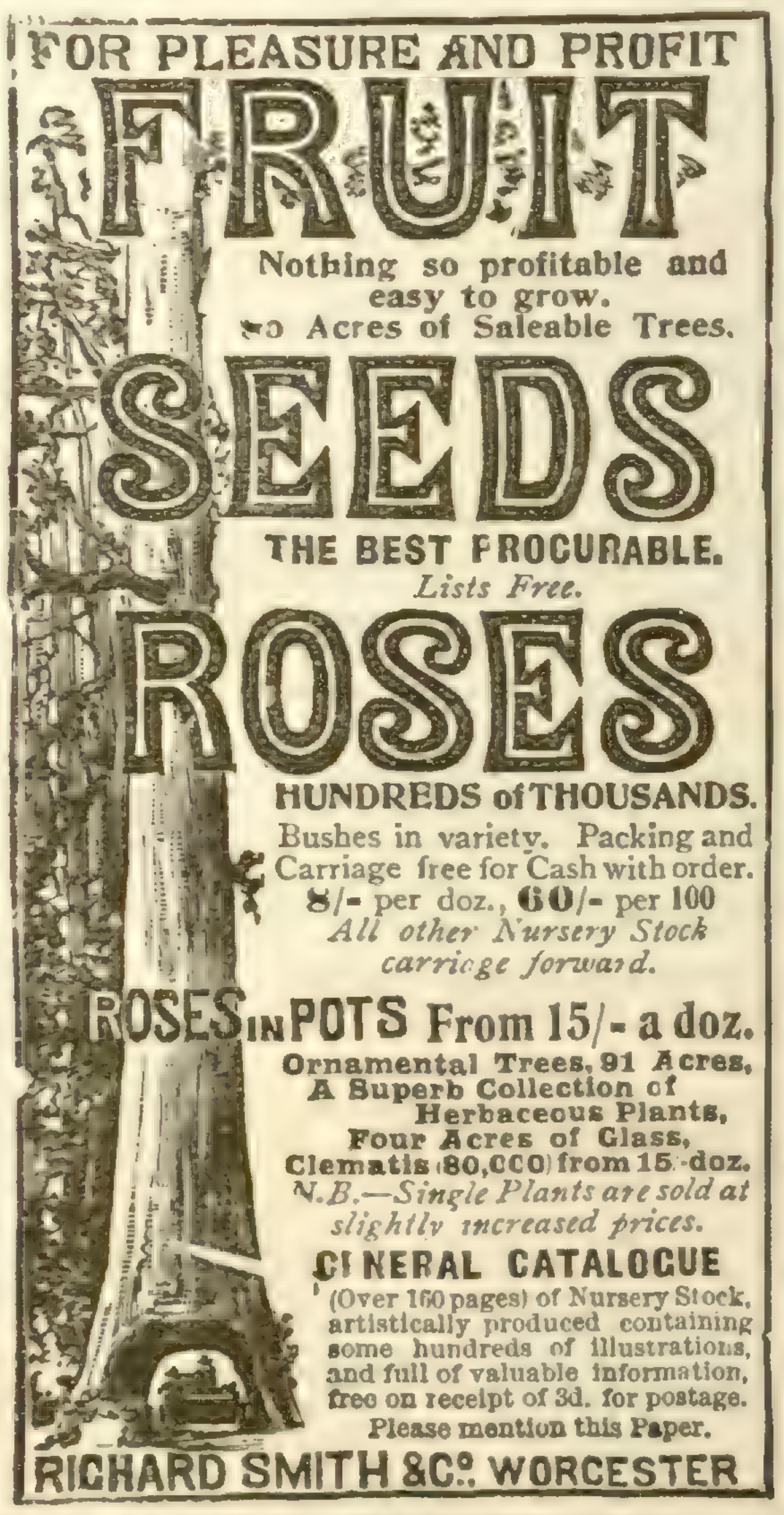

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HUNDREDS of THOUSANDS.
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ROSES IN POTS From 15/- a doz.

Ornamental Trees, 91 Acres,
A Superb Collection of Herbaceous Plants,
Four Acres of Glass,
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Double Orange Phœnix (Eggs and Bacon) ...	10/- per 1,000.
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Double White Gardenia Narcissus	10/- „
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Jonquil Campernelli	7/6 „
Rugilobus, pale sulphur petals, yellow trumpet	10/- „
Stella, large white petals, yellow crown ...	6/- „
Pheasant Eye Narcissus (sweet scented) ...	3/- „
Single Daffodil (Lent Lily)	3/- „
Snowdrops	6/- „
Tulips, Double and Single, mixed	2/- per 100.
Mixed Bulbs, in good varieties of Narcissus and Daffodils	6/- per 1,000.
Ditto	3/6 per 500.

Please address in full

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BULB GROWER, WISBECH.

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SALISBURY ROSES.

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All selected runner plants for immediate planting, true, and will bring heavy crops. Also Raspberries. Illustrated Catalogue free.

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Fruit Trees, Roses, Vines, Figs, Oranges, and Orchard House Trees.

A LARGE AND SELECT STOCK ALWAYS ON VIEW.

ILLUSTRATED and DESCRIPTIVE CATALOGUE, POST FREE, 3d.

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Sawbridgeworth, Herts,
HARLOW STATION, G.E.R.

H. J. JONES,

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Was Awarded the ONLY GOLD MEDAL given for

CHRYSANTHEMUMS

ONLY,

At the N.C.S. SHOW, held at the Royal Aquarium, November 8th, 1898.

Situations Wanted.

Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

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AS GARDENER (Head or Single-handed); twenty years' thorough practical experience in all branches; age 35; married, one child; good references.—W. PEARCE, The Gardens, Ewelme Manor, Wallingford, Berks.

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MRS. G. WILDER (late of Stansted Park) highly RECOMMENDS her Gardener. He has been in her service as above for 20 years. He is a thorough all-round Gardener for a good establishment. Total abstainer.—Apply C. HOSKINS, Stansted Park, Emsworth, Sussex.

RICHARD SMITH and CO., beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries. Worcester.

SHOPMAN.—Well up in Seeds, Bulbs, Wreaths, Crosses, Plants, and general nursery stock; good salesman; age 35; twenty-one years with present employer.—F. PRIME, Trumpington, Cambridge.

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YOUNG MAN SEEKS SITUATION as Journeyman; age 20; 4½ years in present place; Inside and Out preferred; good reference can be had.—Apply to Mr. J. MURPHY, Gardener, or A. W. Moore, Esq., Cronkbourne, near Douglas, Isle of Man.

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WANTED after Christmas Experienced Single-handed working GENERAL GARDENER to help Owner develop established Nurseries. One preferred understanding field flowers, mushrooms; starting with small salary and profit percentage. Splendid opportunity to a faithful, diligent man.—Write by December 1, "Nurseries," 8972, GARDENERS' MAGAZINE Offices, 148 and 149, Aldersgate-street, E.C.

WANTED, Young Experienced GARDENER for Jobbing and Indoor work; constancy for suitable Man.—Apply FLORIST, 312, Balham High Road, Tooting, S W.

IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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For Market and Private Growers.
ORNAMENTAL TREES, SHRUBS, &c
Descriptive Catalogues Post Free.
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Crawley, Sussex

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RETARDED and NON-RETARDED
LILY OF THE VALLEY
(SPECIALS).
CROWNS or FLOWERS
CAN NOW BE HAD
ALL THE YEAR ROUND.
PRICE ON APPLICATION TO
PUTNEY, S.W.

DESCRIPTIVE CATALOGUE.
Fruit Trees, Rhododendrons, Conifers, and Evergreen Trees and Shrubs, Forest Trees, Climbers, &c., &c., on application.
150 acres devoted to Nursery Stock.
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Nurseries, Berkhamsted, Herts.

LAURELS in Variety; Good Bushy Stuff;
from 2 ft. to 5 ft., cheap.
Price on Application.
T. TRUSSLER, Enfield.

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Come and See.

AN enormous amount of evidence confirming our special system, first adopted by us for propagating from properly prepared stock, from pure, clean, healthy, open-field grown stools, free from fungi, has come to light, and is still coming and proving more and more that ours are far the best, the key to success, and win more victories than, perhaps, all others put together.

Please remember our forte and aim is stock of the best quality, carrying satisfaction all over the world. The following is unmistakable:—

"Mr. H. ADAM, Hon. Secretary,
"Dunedin Chrysanthemum Club, New Zealand,
"September 13, 1898.

"We received the chrysanthemums. I am instructed by my committee to thank you very much for your liberal treatment The plants arrived in splendid condition; only two died out of the 44; forward me your catalogues, as you can rely on us ordering.

"H. Cannell and Sons, Swanley, Kent."

CHRYSANTHEMUMS.

BEST RESULTS

Are obtained by starting with healthy country-grown Plants and Cuttings. To prove that GODFREY'S STOCK IS SECOND TO NONE it is only necessary to point to the fact that he has been awarded in one season more Certificates by the National Chrysanthemum and Royal Horticultural Societies for Exhibition Japs than *all other trade growers combined.*

Every bloom so certificated was grown in the Exmouth Nurseries, and had not been "put to be grown," as many frequently are by Chrysanthemum Specialists. Further comments are needless.

CATALOGUES.—Godfrey's Descriptive Catalogue should be in the hands of all, amateur or expert. It contains more *Practical, Reliable, and Interesting matter than any other published.* Post free.

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THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s; 12 best hybrid Perpetuals, dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

JAMES WALTERS, Rose Grower, **EXETER.**

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Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
" Charlesworthii ...	" ...	2/- ...	3/- ...	5/-
Cattleya Labiata ...	in sheath ...	3/6 ...	5/6 ...	7/6
Vanda Cœrulea ...	in spike ...	/9 per leaf.		
" Kimballiana ...	" ...	2/- ...	3/- ...	5/-
" Amesiana ...	" ...	2/- ...	3/- ...	5/-
Lilium, Napalense, and Wallichianum		1/6 ...	2/6 ...	3/6

J. W. MOORE (Ltd.), Orchid Importers, Rawdon, near Leeds.

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— FOR —
FRUIT GROWERS.

"A Year's Work on a Kent Fruit Farm."
1s. Post Free from the Publishers,
GEO. BUNYARD and CO., Maidstone

Berlin Crowns of Lily of the Valley, 6s. per 100.
Dutch Crowns, 5s. per 100.
Gladiolus The Bride, 2s. 6d. per 100.
Lilium speciosum roseum and **rubrum**, 3s. 6d. per dozen.
Lilium candidum, 1s. 9d. per dozen; 11s. per 100.
Snowdrops, Double, Single, or Giant, 2s. per 100.
Spiræa japonica, 2s. 6d. per dozen.

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How to Build a 100 ft. Greenhouse for £6 with the
"EUREKA" TRANSPARENT WATERPROOF PAPER.

The only effective substitute for Glass. Equally suitable for Cucumbers, Tomatos, or Plant Growing. Send stamped and addressed envelope for prices and particulars to—
C. A. CHRISTIANSEN, Norwood Green, Southall, London, W.

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JAMES VEITCH and SONS, Ltd.

BEG TO DIRECT ATTENTION TO THEIR VERY FINE STOCK OF

All the Leading Varieties of the above.

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POPULAR COLLECTION
OF
SPRING FLOWERING BULBS.

CHEAP OFFER TO CLEAR.

25 Bedding Hyacinths, mixed.
25 Tulips, double mixed.
25 Tulips, single mixed.
50 Narcissus, Leedsi Circe.
25 Narcissus, Double Von Sion.
50 Narcissus, Incomparabilis Seedlings.
100 Scilla Siberica.
50 Crocus, mixed.
50 Triteleia uniflora.
50 Triteleia uniflora lilacina.
100 Ornithogalum umbellatum.
50 Muscari racemosum.
150 Spanish Iris, mixed.
50 Ranunculus, mixed.
25 Winter Aconites.
50 Galanthus Elwesii.
50 Chionodoxa Sardensis.
25 Anemones, mixed.
25 Fritillaria meleagris.
25 Anemone bracteata plena.

1,000 Bulbs as above for 20s.
Half the quantities, 500 for 10s. 6d.
Cash with Order. Catalogues Free.
Advice Free as to Landscape Gardening.

THOS. S. WARE, Ltd.,
Hale Farm Nurseries,
TOTTENHAM, LONDON.

The ONLY House supplying First Size named **HYACINTHS** at **3d.** per root. As we are Growers, we save customers all middlemen's profits. The small advance in price is solely due to the great scarcity and unusual demand this season.

Roman Hyacinths, selected bulbs, 10/6 per 100, 1/6 per doz.

All our Bulbs are Guaranteed First Size ONLY.

DUTCH BULBS.

DUC VAN THOL TULIPS.
Scarlet, 2/6 per 100.
Red and Yellow, 2/6 per 100.
Single Mixed Tulips, 2/6 per 100, from finest named varieties.
All other Bulbs equally as cheap and reliable.

Catalogues free on application.

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ALDGATE, LONDON, E.C.

THREE GOLD MEDALS FOR ROSES IN 1898.

WM. PAUL AND SON,

Rose Growers by Appointment to Her Majesty The Queen, Tree, Plant, Bulb, and Seed Merchants,

WALTHAM CROSS, HERTS.

Respectfully solicit orders for their unrivalled stock of

ROSES IN ALL FORMS.

STANDARDS	from **18s.** dozen.	**DWARFS or BUSHES**	from **6s.** dozen.
HALF STANDARDS	from **15s.** ,,	**CLIMBERS**	from **6s.** ,,
DWARF STANDARDS	from **10s.** ,,	**ROSES IN POTS**	from **10/6** ,,

They also beg to call attention to their extensive collections of

Fruit Trees, Hardy Trees and Shrubs, Rhododendrons, Herbaceous Plants, Climbing Plants, Camellias and Azaleas, and Bulbs, all in the best possible condition for autumn delivery.

PRICED LISTS POST FREE ON APPLICATION.

NOTE.—All Nursery Stock offered by WM. PAUL and SON is particularly fine this season, the warm, dry summer having produced exceptionally fine growths on the cool, moist, loamy soil of which their nurseries consist.

IMPORTANT !—OBSERVE CHRISTIAN NAME AND ADDRESS:

WM. PAUL and SON, WALTHAM CROSS, HERTS.

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ROSES

DESIGN REGISTERED

During the Season of 1898

WON THE CHAMPION TROPHY of the National Rose Society, London.
WON THE QUEEN'S CUP, at Windsor, for the second time, becoming owner.
WON THE RICHMOND CUP, Presented by the Mayor of Richmond.
WON THE WOODBRIDGE CUP, for the second time.
WON THE ELY CUP for the second time.
WON THE BATH CUP, Presented by the Mayor of Bath.

BESIDES NUMEROUS OTHER FIRST PRIZES at all the principal Shows throughout the Country.

This record of prizes is sufficient guarantee that the plants for sale from these Nurseries this Autumn must be of finest quality to have produced such wonderful results.

Priced Catalogue of Standard, Half-Standard, Dwarf, Climbing, and other Roses,
Free by Post on application to

BENJAMIN R. CANT, ROSE GROWER, COLCHESTER.
ESTABLISHED 133 YEARS.

THE GARDENERS' MAGAZINE.

SATURDAY, NOVEMBER 12, 1898.

READING CHRYSANTHEMUM SOCIETY.—ANNUAL SHOW of CHRYSANTHEMUMS and FRUIT, TOWN HALLS, WEDNESDAY, NOVEMBER 16.
W. L. WALKER, Secretary, Bulmershe Road, Reading.

YORK CHRYSANTHEMUM SHOW.—The NINETEENTH ANNUAL SHOW will be held NOVEMBER 16, 17, and 18, 1898. Upwards of £200 offered in Prizes, in liberal proportions, for Plants, Cut Flowers, Fruit, and Vegetables.
Schedules, &c., to be had from
J. LAZENBY, 13, Feasegate, York.
Challenge Prize, value £20, added to 1st Prize (£10) for 36 Cut Blooms. £7 and Cup (£5) for Group. Entries November 9.

TO SCOTTISH AMATEURS AND GARDENERS. — GEORGE BUNYARD AND CO. beg to intimate that they are EXHIBITING KENTISH FRUIT at the EDINBURGH CHRYSANTHEMUM SHOW, 17th, 18th, and 19th inst.
THE ROYAL NURSERIES, MAIDSTONE.

HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T. H. SMITH, 18, Somerville Road, Small Heath, Birmingham. First Examination Paper ready November 5. Join early for the whole course.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S EXHIBITION.

THE great exhibition which has been held under the auspices of the National Chrysanthemum Society during the past week has been of special interest to those who fully appreciate the importance of the work in which the society is engaged, and are jealous of the reputation it enjoys as the foremost chrysanthemum society in the world. This gathering has marked an important event in the history of the society, and it has proved to demonstration the remarkable influence the latter has upon those who aspire to honours as exhibitors of the Golden Flower in its many forms. Two years ago the society celebrated its jubilee in a befitting manner, and this year it has celebrated its twenty-first year at Westminster. With the exception of one class, no special provisions were made to distinguish this exhibition from the shows held in November under normal conditions, and it is therefore more useful for purposes of comparison than would have been the case had the prize list been specially augmented. There may be some difficulty in comparing the exhibitions held during the week with those of the past two or three years, more especially as in 1896 the society's jubilee was celebrated, but there is none in determining with exactitude the enormous advance that has been made since the society migrated from the north-east to the west of London. The Assembly Rooms at Stoke Newington and the Hackney Town Hall were considerably less spacious than St. Stephen's Hall, which was no more than sufficient for the display of the specimen plants and vegetables, and yet there was no overcrowding of either products or visitors in the suburban buildings. For two or three years after the exhibitions were held at the Royal Aquarium the products used a portion only of the ground floor when supplemented by palms and other plants hired for the purpose of enhancing the display. This year not only was St. Stephen's Hall filled to its utmost capacity, but the ground floor and the two immense galleries of the Royal Aquarium were so fully occupied that, had the entries been more numerous, no small difficulty would have been experienced in finding room for the exhibits. It is, of course, a matter of common knowledge that these exhibitions have grown to immense proportions; but in view of the criticism to which the society has been subjected during the past twelve months we regard it as a duty to point to its enormous growth during the past twenty-one years as a proof that the executive has not been so wanting in judgment as some of the critics have endeavoured to show in remaining at Westminster. Of the details of this great gathering we must leave the full and special report given in this issue to speak. It was a truly magnificent display, worthy alike of the society and those who so liberally contributed the products of their skill, and it was, by reason of its varied character, of much interest. Very wisely the chrysanthemums are supplemented by fruits and vegetables, and although these are not, as we are sometimes told, related to the golden Flower, chrysanthemum growers are interested in the products of the kitchen and fruit gardens, and as exemplified at so many shows, it is possible for exhibitors to simultaneously obtain honours for chrysanthemums, fruits, and vegetables. But this is not the only point; visitors have to be considered, and, speaking in a general way, the most successful exhibitions are those of which the attractions are such as to satisfy diverse tastes. We were pleased to find that our advocacy in these pages of the importance of encouraging the decorative aspects of the chrysanthemum is bearing good fruit, and that on this occasion the vases, baskets, epergnes, and other arrangements formed a large and highly attractive feature that was evidently much appreciated by the general public.

FRONDLESS FERNS.

FERNS, as we generally know them, being composed entirely of fronds and roots, the latter of which are simply feeders to the former, ferns without fronds would seem to be an absurdity, yet Dr. W. H. Lang's recently issued monograph, entitled "On Apogamy and the Development of Sporangia upon Fern-Prothalli" (Philosophical Transactions of the Royal Society, series B., vol. 190, 1898, pp. 187-238), demonstrates their actual existence. Until quite recently the normal forms of ferns were alone deemed worthy of the attention of the scientific botanist, but this most interesting paper embodies the result of some two years' active research into the phenomena of reproduction of varietal forms, the result being, as might have been expected, that the varietal character was found to be by no means confined to the obvious and external types of frond, but extended also to the minuter details of the reproductive phenomena which present themselves on the little green scale produced by the spore, and upon which the sexual organs or flowers of the fern are developed. Normally this small green scale or prothallus is heart-shaped, and about the size of a herring scale; it attaches itself to the soil by a number of root hairs, and bears upon its under side two types of organs, the antheridia, or male, and archegonia, or female, the former scattered about in considerable numbers among the root hairs, and the latter, much fewer in number, being seated on a thickened cushion near the indentation of the hearts. The antheridia burst when ripe, and a number of organisms, equivalent to mobile pollen grains, are thrown out, which subsequently fertilize the embryo seed contained in the archegonia. This then develops into a fern with fronds, and a new generation is launched into being. Professor Farlow found that in some cases young plants were formed by simple non-fertilised buds on the site of absent archegonia, and to this mode of reproduction the descriptive name apogamy (or no marriage) was given. Dr. Lang's researches have shown that this apogamic method can be induced by preventing normal fertilisation by withholding the water, in which alone the antherozoids can make their way to the ovum or embryo seed. The prothalli then continue to grow, often in the most eccentric fashion, and eventually find outlets for their reproductive energies, not merely by apogamic buds, which develop into typical ferns, but in some cases they go the wrong way to work, as it were, and throw out strong roots (as distinct from root hairs) into the soil prior to, or, so far as the examples examined were concerned, without forming a fern plant at all. Other prothalli budded out into bunches of prothalli; others again, and these were the most interesting, formed thick cylindrical outgrowths from the heart indentation, and upon these growths, in which, of course, all the potentialities of fern life must exist, these potentialities broke out, not only in the form of both types of sexual organs, but also of roots, viviparous buds, and, finally, the most unexpected feature of all and the most original, actual heaps of spore cases, containing spores, precisely such as we find on the backs of fronds of mature plants. Here, of course, is an absolutely frondless fern, since no approach to frond formation precedes their appearance, and assuming such spores to be capable of germination (which has yet to be demonstrated), and their progeny inherited this peculiar precocity, we should have a new class of ferns altogether, which to the naked eye could not be distinguished from liverworts.

"CUI BONO?"

"CUI BONO?," or "What is the use of it?" is one of those phrases which are as often tacitly implied as openly expressed to those who are vulgarly considered as poking and prying into the secrets of Nature to no conceivable purpose whatever, and the most provoking part of the matter to the poker and pryer is that it is usually precisely that class of persons who put the question who are least capable of comprehending a rational reply. Very often, too, the investigations partake so much of a fishing character that no definite reply can be given, the belief, based on previous experience, vicarious or personal, that something may turn up being all that the explorer has before him as an inducement. If, however, it could be brought home to the querists that practically all our civilization, with its comforts, refinements, and luxuries, has been built up by virtue of discoveries, small and large, arrived at under circumstances where the "Cui bono?" seemed most justifiable, he or she would probably abate a trifle of the superciliousness which usually underlies the question. Take, for instance, our wonderful array of flowers, fruits, and foliage plants. Nature, it is true, has fashioned a host of these all by herself, as it were; but even these, so far as their presence here goes, we owe to the enthusiastic botanist or collector, who is doubtless regarded by the savages or semi-civilised natives as a mild and harmless maniac, and the "Cui bono" consequently finds itself translated into their local tongues, and expressed with much the same unction as by civilised ones. Bit by bit, however, these explorers have brought together such galaxies of floral charm as we see at Kew and elsewhere, and with the material so supplied another set of pokers and pryers go to work, and, seizing upon an oddity here and a feature there, start every now and again a new strain or combination of such a character that, although a thousand failures may have justified Mr. and Mrs. Cui Bono for a time, this one brilliant success eventually enriches the floral world with a gem which amply makes up for the loss and trouble, and answers the question conclusively. So with mechanics. A thoughtful lad sits apparently idly watching the oscillations of the kettle lid, agitated by the escaping steam. "Cui bono?" is the question; but that seeming waste of time over a trivial everyday occurrence is the fertilizing moment of the world's greatest industries, all based on steam power. In the olden days the research into the tiny unseen world of the microscope was ever met by the same query. Man was a special creation, far and away above such insignificant matters as germs and animalculæ; but now the poker and pryer has his day, when, through the knowledge gained little by little and atom by atom, he demonstrates that man is absolutely dependent for his existence upon these unseen friends and foes, and once again the scornful questioner is vanquished when, by the minute study of the life histories of these tiny organisms, we are enabled to baffle their attacks at the outset if they be foes, or to second their efforts if they be friends, with absolute certainty of results. We are indeed surrounded by, and made up of, innumerable facts and factors, each one of which is a link in a chain of natural causes. Hence, whenever the investigator finds himself baffled in following up this chain, regardless of "Cui bono?" he is never satisfied until the seeming anomaly is explained, and not seldom finds that explanation to open up a new set of hitherto unexpected facts of endless utility and value inestimable.

IMPORTS OF FRUIT AND VEGETABLES.

THE returns issued by the Board of Trade for the past month are less satisfactory than were those for September, the increase in the exports being small, while in the imports there was a decrease; but in no case was the change sufficient to justify a feeling of anxiety with regard to the course of trade. The majority of the products in which our readers are specially interested show an increase, and again indicate the dependence of this country upon foreign and colonial cultivators for fruit and vegetables. The imports of apples amounted to 694,027 bushels, of the value of £202,562, or an increase in quantity of 236,580 bushels, and in value of £80,179. Of plums also there was a large increase, the imports being 93,307 bushels, against 29,289 bushels in the corresponding month of last year. The values of these fruits received in the two months are returned as £29,229 and £9,514 respectively, and these figures should be sufficient to convince the sceptical that we have not as yet planted plum orchards in excess of the requirements of the community. Grapes were received in large quantities, the imports aggregating 346,049 bushels, of the value of £173 426, against 360,151 bushels, of the value of £173,670 in October, 1897. There was no great change in the quantities of pears imported during the past month and the corresponding month of last year, but there was a material difference in the values. Last month we imported 103,217 bushels, of the value of £49,000, and in October, 1897, the imports amounted to 107,527 bushels, of the value of £39,595. There was thus a drop of 4,308 bushels, and an increase in value of £9,405, a change which the producers can hardly fail to regard as otherwise than satisfactory. Unenumerated fruits continue to be received in increased quantities, and last month we imported 83,361 bushels in excess of the imports in the corresponding month of last year, and the value is returned as exceeding by £24,327 the amount paid for the imports in that period. We have an indication of the satisfactory crop of potatos that has this year been harvested in the fact that last month the imports of tubers were 105,112 cwt., against 325,253 cwt. in October, 1897, the values for the two months being given as £18,601 and £54,902 respectively. Notwithstanding a saving of £36,301 in the month, our bill for potatos will be a heavy one this year, for it already amounts to £1,876,618, or nearly £1,000,000 more than was paid in the corresponding period of each of the two previous years. France and Germany have benefited to the largest extent from the unsatisfactory character of the potato crop lifted in 1897; but no one will grumble at this. On the contrary, considering the shortness of our crop last year, the community have cause to be grateful to these countries for the aid they rendered in this direction.

Gardening Year Book for 1899 is, with the exception of one or two sections, now in the printers' hands, and the Editor will be greatly obliged by information relating to changes in the public parks and gardens of the United Kingdom being sent to him at once. The communications should be addressed, The Editor, "Gardening Year Book," 148 and 149, Aldersgate Street, E.C.

Commercial Mushroom Culture in Scotland has undergone material development of late years, and at the present time it has become in Edinburgh an important industry. There is an old, disused railway tunnel under the city, and, perceiving its adaptability for the production of mushrooms, a Glasgow firm leased it ten years since from the North British Railway Company, to whom it belongs. Possession having been obtained of the tunnel, many hundred tons of soil and manure were deposited in it, the beds were formed and spawned, and in due course produced a crop of so high a quality as to show how well suited the tunnel is for the growth of this toothsome esculent. The beds in consequence rapidly increased in numbers, and at the present time there are eight hundred mushroom beds in various stages. In fact, the whole of the floor is covered with them except the space occupied by the single line of rails used for the conveyance of the manure and soil to various parts of the tunnel. About one thousand tons of manure and one thousand baskets of spawn are used annually, and the highest monthly output is about five thousand pounds. The Scottish Mushroom Company, by whom the Edinburgh tunnel is leased, being so well satisfied with the results obtained, are negotiating for a lease of the disused railway tunnel under the Law Hill, Dundee, for the purposing of devoting it to mushroom culture, this tunnel, as in the case of that at Edinburgh, affording a large area of floor space.

Judging New Chrysanthemums in America.—The Chrysanthemum Society of America has a committee to adjudicate upon new seedling chrysanthemums, but the methods of procedure differ from those of the N.C.S. Exhibitors have to pay a fee of two dollars for every variety entered, but this entry fee entitles the exhibitor to submit the variety before as many committees as he may desire. Six blooms are required of each variety shown, and to be eligible each variety must have been tested at least two years. No member of a committee shall show his bloom before the committee of which he is a member. Varieties scoring 85 points are entitled to the society's first-class certificate. Foreign varieties may also be entered and certificated under the same conditions. All numbered seedlings entered must also be provided with a name. In case the variety does not score enough to secure a certificate, and the exhibitor desires to apply this name to some other variety in the future, it will appear in all reports under number if the secretary be so requested. The scale of points adopted by the Chrysanthemum Society of America for exhibition blooms is: Colour, 25; form, 25; fulness, 15; stem, 10; petallage, 10; and size, 15—total, 100. The committees meet four times in October, and the same in November; and sit at New York, Boston, Philadelphia, Cincinnati, and Chicago.

Baldwin's and Champion Black Currants.—Mr. A. H. Pearson, Chilwell, writes: I note the remarks of "Lux" in your issue of November 5 respecting the supposed similarity of Baldwin's and Black Champion black currants, and I must say I was surprised to find them entered in the Royal Horticultural Society's pamphlet on "Fruits for Cottagers" as identical. We procured our stock of Baldwins some years ago from Mr. Bunyard, and believe the stock is true, but it is certainly distinct from Black Champion. The most important difference between the two seems to be that Champion frequently dies back after pruning, especially when the pruning is done early in the season, a weakness which I have never seen in Baldwin's. Again, the wood of Baldwin's is not so thick as Champion and darker in colour; the fruit of Champion is larger, but we think Baldwin's the better cropper. I am speaking of young trees grown side by side in the nurseries. I do not write this for the sake of argument, but simply with a view to obtain more light on the subject.

The Uses of Leaf-cups.—When a gardener wishes to protect a choice plant from the attacks of ants or slugs he places it on the top of an inverted flower-pot and places this in the middle of a flat dish containing water, where it stands, as it were, on an island inaccessible to the ants, many of which perish in their ineffectual attempts to reach it. Similarly, says *Knowledge*, the water in the leaf-cups of the teasle surrounds and isolates the stem; the leaves and flowers are protected as by a moat from the attacks of creeping insects. Although such protection is perhaps their original use, leaf-cups in many instances appear to have assumed an additional function. Mr. F. Darwin has observed that certain hairs in the leaf-cups of the teasle emit protoplasmic threads into the water; this also occurs in the case of Silphium. As filaments exactly similar are emitted from certain cells in the little traps of the toothwort, now regarded as a carnivorous plant, there can be little doubt that leaf cups serve to some extent like the pitchers of Nepenthes and Sarracenia for capturing insects, and that they consequently furnish the plant with an important source of nitrogen. This view is confirmed by the frequent presence of putrefactive bacteria in the water of leaf-cups. It has been found that when a drop of water containing carbonate of ammonia in solution is placed on a leaf, after a time both water and salt disappear. Leaves as well as roots therefore take up ammonia, and this explains why plants which have no true power of digestion are yet benefited by capturing insects; from the decomposing bodies of their victims products are evolved which the plants are able to assimilate.

R.H.S. Meetings for 1899.—The fortnightly exhibitions of the Royal Horticultural Society, together with the meetings of the various committees, will be held at the Drill Hall, St. James' Street, Westminster, on the following dates in 1899: January 10 and 31; February 14 and 28; March 14 and 28; April 18; May 2 and 16; June 13 and 27; July 11 and 25; August 15 and 29; September 12 and 26; October 10 and 24; November 7 and 21; and December 5 and 19. As the R.H.S. year does not end in December there are two fixtures made for the year 1900, viz., January 9 and 23. The Great May Exhibition at the Inner Temple Gardens will be held on May 31 and June 1 and 2, while the Great Exhibition of British Grown Fruit is fixed for September 28, 29, and 30, to take place at the Crystal Palace, Sydenham, as usual.

Lonicera Hildebrandiana, a very large flowered honeysuckle, was discovered in Upper Burma in 1878 by General Sir Henry Collett, K.C.B., F.L.S., and described in the Journal of the Linnean Society (vol. xxviii., page 664) as "a conspicuous shrub, with large, dark, glossy leaves, and fine crimson flowers seven inches long, and is by far the largest of any known species of honeysuckle." Seeds of it were kindly forwarded to Kew in 1894 by Mr. A. H. Hildebrand, C.I.E., Superintendent and Political Officer of the Southern Shan States, after whom the plant is named, and plants raised from them were liberally distributed. According to the *Kew Bulletin*, it proved too tender for cultivation in the open air at Kew; on the other hand, it has grown vigorously under greenhouse treatment, but has not yet flowered. Mr. F. W. Moore, the able keeper of the Royal Botanic Gardens, Glasnevin, has, however, been more successful, flowers having been produced there in August last on a plant grown in a sunny, airy position in a greenhouse. The example forwarded to Kew by Mr. Moore bore two-flowered axillary racemes, with flowers six inches long, and of a bright golden colour – not crimson, as stated in the note quoted above. Writing from Burma in April last year, Mr. Hildebrand said: I am sorry that you are unable to flower the large honeysuckle and rose (Rosa gigantea). The former is a sight to behold just now in my garden, and strikes the densest in horticultural matters with astonishment. It is a mass of flowers, white when they open, and of a lovely gold when far spent. It flowers on last year's wood. Water at the roots is what both rose and honeysuckle require.

The premier chrysanthemum bloom at the N.C.S. exhibition held on November 8, 9, 10, at the Royal Aquarium was a magnificent example of G. J. Warren shown by Mr. Vallis, Bromham Fruit Farm, near Chippenham, who was a good second to Mr. Lees for the Holmes Memorial Cup, offered for 48 Japanese blooms. This premier bloom won Mr. Simpson's special prize of one guinea, together with portrait in oils of the flower itself.

Gardeners' Royal Benevolent Institution.—We are requested to state that the committee of the above institution have been obliged to remove their offices from 50, Parliament Street, to 175, Victoria Street, S.W., to which address all communications should in future be sent. We need scarcely remind our readers that Mr. G. J. Ingram is the secretary of this excellent charity.

Early-flowering Chrysanthemums from Scotland.—It may at first sight seem absurd to write about early chrysanthemum flowers at the present time, when chrysanthemum shows are being held everywhere; but the weather has been kind to garden flowers, and both chrysanthemums and dahlias are still flowering, unprotected, as we write. Only a few days ago we received two boxes of early-flowering chrysanthemums from Messrs. Dobbie and Co., cut from the open ground at their Rothesay nursery; the collection contained sixty varieties, and the flowers in varied shades of crimson, orange, bronze, white, yellow, rose, and mauve are still making our office quite gay. The varieties that best suit our taste are Madame Fouchier de Carie, Orange Child, White Lady, Edith Syratt, Piercy's Seedling, Alfred Drcz, Jeanne Villermet, Louis Lemaire, Max Duforse, Canari, A. J. Quintus, Silversmith, and Mrs. Carmeaux. All the sixty varieties were beautiful, however, while their usefulness cannot be denied.

Aster-flowered Dahlias.—According to an American contemporary, the *Weekly Florists' Review*, the next sensation in dahlia culture will be the new type to be called the "Aster-flowered." The description of the class is as follows: "Flowers not as large as the show type; petals, however, are longer and often rolled or folded, sometimes cut, serrated or fringed, inner petals often curled and twisted; always shows a small yellow centre; blossoms very graceful, usually on long stems, and unequalled for cut flowers. They undoubtedly will be a great acquisition." Judging from the photographic illustration accompanying this note, we do not think aster-flowered dahlias will become popular in this country, especially as we have now practically rejected what were formerly classed as "decorative" varieties.

An Agri-Horticultural Congress will be held in connection with the Universal Exposition that takes place in Paris in 1900. It has been decided to discuss agricultural, sylvicultural, and horticultural matters and also dairying. There will probably be a general horticultural congress during the first fortnight of May, 1900, while fruit culture will be the particular subject for a congress to be held in conjunction with the autumn exhibition of fruit. Like the Exposition itself, these congresses will be international in character and under the immediate patronage of the French Government.

The Oldest India-rubber Plantation in the World is, perhaps, one existing in the west of Java, in the province of Kranong. A former proprietor of the Pamanockan Tjiassan Estate, which is the biggest private property in Java, containing 540,000 Dutch acres, had most of his land under coffee until 1872. Finding the cultivation of this plant was no longer lucrative, he planted some of the land up with Ficus elastica. The coffee plantations had already been more or less cleared of forest growth, so that the planting of Ficus elastica cost less than thirty shillings per acre. The soil of these coffee gardens had become useless for other agricultural purposes; and, had not Ficus elastica been planted in time, would only have become covered with poor forest growth. The trees were planted 8¼ yards apart, or 72 trees to the acre. The area planted was 72½ acres, containing 5,200 stems. The trees were first tapped when the plantation was 14 years old, and the yield for that and the six following years was: 1886, 5,512 lbs., [illegible]; 1887, 4,954 lbs, £540; 1888, 1,514 lbs., £165; 1890, 3.307 lbs., £360; [illegible]1, 6,113 lbs., £387; 1892, 5,992 lbs., £256; 1895, 3,197 lbs., £411; total, [illegible] lbs., valued at £2,719. Seventy-two and a-half acres thus, says the *Indian* [illegible], yielded in seven years a surplus of £2,712, or £5 8s. per acre per annum. The yield was 71 lbs. per acre per annum during this period. During the 23 [illegible] from the establishment of the plantation in 1872 till 1895 the net yield [illegible] acre per annum amounted to £1 12s. 10d.

Symbiosis in Plant Life.—The term symbiosis is applied to those curious [illegible] in which we find two organisms of different kinds living together in [illegible] for mutual benefit and protection. A remarkable example of such symbiotic association is afforded, states the Rev. Alex. Wilson, M.A., in *Knowledge*, by certain rotifers which take up their abode in the pitcher-like leaflets of some Jungermannias. One of these liverworts (*Frullania dilatata*) growing on the bark of species of Acer has hollow appendages of this description in which the water is retained by capillary attraction. In each of these pitchers a rotifer (*Callidina symbiotica*) takes up its quarters, finding in this retreat food and shelter. The association in all probability is one of mutual advantage; the rotifer is supposed to make a return to the plant for its entertainment in the shape of excrementitious products. The water-vessels of the Bromelias and allied epiphytes, which often contain half a pint or more of water, are particularly interesting. The hollow leaf-base in some of this group of plants is a veritable aquarium. The water which accumulates in these curious receptacles Fritz Müller found to be inhabited by caddis-flies, entomostracans, and aquatic beetles belonging to species not occurring elsewhere. A small frog even takes up its abode among the bromelian leaves. Species of Utricularia also occur—small aquatic plants which capture in their curious little bladders the tiny crustaceans inhabiting the water in the bromelia leaves where they grow. U. nelumbifolia in this way grows in the leaves of Tillandsias, which are themselves epiphytes on the branches of other plants.

The Mild Weather of this Month is somewhat unusual even for a late season. A correspondent writes from Broadstairs that on November 4 the thermometer registered 92 degrees in the sun at 10.45 a.m., while the shade temperature was 63 degrees. At this seaside resort, and indeed throughout most of the southern counties, roses, pelargoniums, marguerites, petunias, heliotropes, chrysanthemums, marguerite carnations, stocks, tropœolums, and primroses are still flowering with considerable freedom where they have not been removed to make room for bulbs and other spring-flowering subjects.

Chrysanthemum Mrs. W. Mease.—Mr. W. J. Godfrey writes: "In the last issue of the Gardeners' Magazine in reporting on this variety, blooms of which were certificated by the N.C.S., it is stated [Where?—Ed.] that 'it is a beautiful primrose-yellow sport from Madame Carnot, shown for the first time last year by Mr. W. Mease, by whom it was fixed.' This is hardly correct, for Mr. Mease had nothing to do with the fixing of the sport of which blooms were exhibited. Madame Carnot sported in several places two seasons since, and having a primrose-yellow one almost identical, if not quite, with the sport of Mr. Mease's, I did not consider it advisable to 'split hairs' over the name and adopted the name 'Mrs. Mease.' As we have had shades of yellow, we may reasonably expect one of a still darker and richer tone."

Horticulture v. Agriculture—In his interesting and useful "Story of the Farm," Professor J. Long makes what at first sight seems a startling statement, viz., that within a radius of twenty miles of London thousands of acres produce hay which realises no more than fifty shillings an acre, and yet within the same area soil of the same character produces, under glass culture, crops worth over £1,000 per acre. Professor Long also states that one grower employs some 300 men upon six or seven acres from which, under glass, has been produced in one year 300 tons of grapes, a large proportion of which were sold at 1s. 6d. per lb. At 1s. 6d. per lb. the amount is over £50,000 Another grower made £46 per ton of his potatos between the middle of April and the end of May, despatching to market a ton and a-half every day, and this grower also obtained from one of his glasshouses 80 tons of tomatos, most of which he sold at 1s. per lb. The price would produce £8,960 as the yield from one glasshouse in one season. Another grower cuts in the season between 4,000 and 5,000 cucumbers per day; one set of houses alone last year produced 55,000 dozens. Mr. Long adds that with some knowledge of the crops and the prices it is easy to realise how £1,000 per acre can be made—indeed, he asserts that much more than £1,000 per acre is actually realised. He explains that glasshouses are not the expensive buildings they used to be, and that in many cases the growers put them up themselves.

The November Meteor Shower.—Many horticulturists are almost as much interested in astronomy as in meteorology, and we would remind such that, given clear weather, there will be a grand display of celestial fireworks on November 14, 15, 16, visible from midnight till early morning. This November the earth will be well into the immense stream of Leonids, a stream 100,000 miles broad, and taking us three days to pass through. The constellation Leo is the point to look for as, here the meteors enter our atmosphere, and travelling at the rate of 40 miles per second generate so much heat that they burn, melt, and vapourise ere they can reach our little world.

Copper Sulphate for Dressing Wheat.—As a preventive against attacks of wheat rust several preparations have of late been advocated for steeping wheat seed in before sowing. Copper sulphate is the most commonly used prescription, but it appears that there are preparations in the market which are practically useless for the purpose in view. A case was recently brought before the Royal Agricultural Society where a large wheat grower sent two samples of "wheat dressings." One of these consisted of the genuine and useful blue vitriol, or sulphate of copper, while the other showed the following analysis: Sulphate of iron, 98·75; Prussian blue, 1·06; sand, ·19; total, 100·00 This was merely sulphate of iron coloured blue with Prussian blue, so as to make it look like sulphate of copper, the purchaser no doubt thinking that he was getting the latter, the appearance of which was familiar to him. On making further inquiry Dr. Voelcker, consulting chemist to the society, found that this mixture was sold under the following description: "Finely-ground vitriol, specially prepared as a dressing for wheat." The price paid was 28s. per cwt., that of sulphate of iron being about 4s. per cwt., while sulphate of copper would cost about 20s. per cwt. Unfortunately, inasmuch as the general term "vitriol" is applicable alike to sulphate of copper and sulphate of iron (the former being "blue vitriol" and the latter "green vitriol"), it is doubtful what remedy a purchaser would have. The second preparation was a "colourable imitation" of sulphate of copper; so it is well farmers should be on their guard and horticulturists as well now that sulphate of copper is becoming daily more frequently used as a fungicide.

FLORA OF YUNNAN.

FROM a most interesting letter sent by Dr. Augustine Henry, a gentleman who has done wonders for botanical science in China, to Mr. T. W. Thiselton-Dyer, director of the Royal Gardens, Kew, and published in the current issue of the *Kew Bulletin*, we make the following extracts.

I left Mengtze in the end of January with a caravan of mules, some forty, carrying stores, &c. I had three mule-loads, *e.g.*, of silver. The journey here took eighteen days, rather easy stages. The country passed through was very varied. I was in good spirits, rode nearly all the way, and enjoyed the trip very much. I crossed three large rivers *en route* by pontoon and suspension bridges, the latter very well made, of iron rods joined by rings at the ends, the best specimens I have seen of Chinese blacksmith's work. At these river crossings we reached low levels, about 1,800 feet above the sea, and came into tropical vegetation, which I never find at all interesting. At Yuenchiang, on the Red River, the ugly-looking shrub Calotropis gigantea was in flower, and there was a great display of the tree-cotton, Bombax, in flower, without any leaves, looking like an artificial candelabrum affair more than a living tree. These and some areca palms were the only things of note. At the higher levels vegetation was at a dead point and I collected very little, one or two species of clematis, two rhododendrons: the very curious Scolopendrium Delavayi, which I had never seen before, I found one day on a shady bank where I stopped for tiffin. I also found, at the same place, two plants of Abutilon sinense, which had been sent by me from Ichang, and an Antrophyum, which may be new. I also came across Lonicera Bournei in flower; it is of no value as an ornamental plant. There was very little forest until after Talang, when we passed one or two days through almost continuous pine forest, varied here and there by little woods of evergreen oaks. Here, rather to my surprise, I learned that the peacock exists in the wild state, and it is quite common in the forest south of Szemao. These pine forests had not a plant in flower amongst them. I noticed, however, two little woods made up of an Abies, new to me, but I only found one cone. However, I am not pretending now to give any account of the trip botanically, as it would require too much time to get my notes in order at the moment. On the eighteen days I may have collected about thirty plants in flower. At one or two places I might have done a lot of collecting if I could have stayed for a day or two, but I was travelling on official business, and could not tarry.

Szemao is the end of China. To the south is Chienhung, a collection of little Shan States, dependent on China at the moment, as Britain didn't claim them on taking Burma. The Yunnan plateau is still here and goes on south, if one can call a plateau a collection of mountains rising to 6,000 feet, with intervening valleys averaging 4,000 to 5,000 feet, occasionally widening out into plains of a few miles in width and length. The mountains are being colonised by Lolos and Chinese, while the valleys are in the hands of the Shans, who live by cultivating rice. They are a lazy and immoral people. In the Shan States south and east of Szemao there is a good deal of cultivation of tea, the so-called P'u-êrh tea, concerning which you have published in the *Kew Bulletin* (1889, pp. 118-120, 139 142) a lot of information, mainly gathered by Bourne on his trip here some years ago. This tea is sent to all parts of China and to Tibet. I have an idea that this region is, perhaps, the site of the earliest cultivation of the tea plant; but this section of country was until modern times a Shan principality, and China only extended earlier as far south as the Red River.

There is a good deal of wooded country at no great distance from Szemao, and the mountains run up to nearly 6,000 feet, but there is an absence of the sharp and precipitous kind of mountain and valley, and the flora in consequence is very uniform and not nearly so interesting as Mengtze nor so rich in species. Hills clad with pine and oak are almost barren in interesting plants, and I have not come on any of those dark ravines and steep wooded cliffs which are the joy of the botanical collector. There is a great absence (perhaps the autumn will make a better show) so far of ferns and herbaceous plants. What one collects is mainly trees and shrubs and climbers. There is a fair number of epiphytic orchids. The common plants are not the common plants of Mengtze, in fact the two floras are very different. Szemao will possibly turn out very like the Shan country where Sir Henry Collett collected, and Indian forms not hitherto recorded from China are frequent enough. The commonest tree, after the pine and the evergreen oaks (of which there are perhaps ten) and Castanopsis, is Schima Wallichi. There are four or five laurinæ, a Halesia, a Eugenia, Itea macrophylla, Meliosma, two rhododendrons, a tree Callicarpa, seven or eight species of ficus, a magnolia, to mention the first which come to my mind. Rubus is represented by five species, one new to me; and in China one always expects to meet a new and very distinct rubus after travelling twenty miles in any mountainous part. Rubus ellipticus appears in its ordinary form in the forests with large soft-pointed leaflets. From Mengtze to here and to Talifu a very distinct variety occurs, with smaller, harded, rounded-off leaflets, and this variety occurs in the open country, on poor, bad soil, in dry, barren, exposed places. It is quite evidently a case of adaptation. The variety has rather pleasant, yellow, raspberry fruit, produced in great profusion, and I think it might be of service to gardeners in places where they wanted to grow raspberries on very bad soil in dry, arid climates. In the dry pine and oak woods a cycas occurs, with a stem two or three feet high, but it has not as yet flowered. There is also a fern in the same locality, which I have not seen with spores, which has precisely the same habit as the cycas. The leaves of both are so hard that they can stand, I should think, any amount of drought, and that is necessary here, as little or no rain falls during more than half the year. At Mengtze limestone was the prevailing rock; here it is a red sandstone, and this may account in part for the poorer flora. I have always found limestone to be richer in interesting plants than any other kind of rock. One curious thing occurs here as well as at Mengtze, *i.e.*, the occurrence of two or three species of the same genus in precisely the same locality and often flowering at the same time. There are two climbing loniceras, *e.g.*, here, which are to be met with flowering together. One of the rhododendrons is very lovely; it is a bush some four or five feet high. The flower buds are a delicate red, and the flower just on opening is flushed with pink; the pink disappears, and the flower, three or four inches in diameter, becomes a pure white, except for a dash of yellow on the interior of the upper petal. This dash of yellow on one petal of an otherwise pure white flower occurs in other species of rhododendron. I have not seen a rose as yet, but Rosa gigantea, I believe, occurs. The common Melastoma candidum looks as if it were a rose at a distance, and is almost everywhere. The difference between this shrub and a rose expresses exactly the difference between sub-tropical and temperate vegetation. The latter is in some mysterious way much more beautiful and satisfactory to the eye. I was quite pleased to read the other day in a notice in the *Saturday Review* a savage invective against florists' flowers. It does seem a pity to spoil the simply beautiful flowers by converting them into monstrosities with crested appendages, &c. Of course, as scientific experiments the cresting, doubling, &c., are all right and interesting, and your account of the cyclamen I read with much interest.

The woods near Szemao are full of birds, and the notes are exquisite, and to be heard in perfection in these days of showery weather, for the rainy season has begun. When the sun gets out the cicadas start such a racket that one can hear nothing else. I am afraid there will be no chance here of getting hardy bamboos. Bamboos of that character do occur in the higher ranges of Yunnan, but who is to go there at the time when they are in seed, once every sixty years the Chinese say. I am sorry about the non-success of the lily bulbs; but you have received seeds of the species. I am afraid there will be little here of a hardy nature, but there are a few things of which I shall try to send seeds later. Is it worth while sending seeds of orchids? Yesterday I came across a very peculiar terrestrial orchid, with tiny flowers (half-inch) like beetles. I also found in the same place a little undershrub, about six to eight inches high, with pinnatifid leaves and very long (three inches) cylindric-tubed, rotate-limbed, white flowers. I think it is a curious Solanacea, but I am not certain, as I have not examined the flowers carefully. It would be rather pretty in cultivation. These I found on a bit of cliff which I stumbled against for the first time. There are also two little palms here, which I hope to get in fruit later on. Has Burmannia been in cultivation, any species, with you? There is a species here and at Mengtze, occurring in wet grassy places at high elevations, and the flowers, deep blue, while not very large, are very curious, and a number of plants massed together would be pretty enough. It is a representative of a very small family, and I do not understand what trick the flowers are up to in their peculiar shape. In many of the Mengtze and Szemao trees and shrubs the flowers occur on the branches below the leaves, and not on the peripheral surface of the tree, as in ordinary cases. Many lianas have this peculiarity. These are all forest plants, and I think the explanation is that in forests there are two surfaces open to insect visitors, the top of the forest and the bottom. Some trees and shrubs and climbers can't get to the top, so they have their flowers at the bottom. But of course this explanation is only a guess. There is no time for me to make any observations of the kind necessary; if one could spend six months on end in a forest one could observe, measure, &c. The Mucuna sempervirens of Ichang was a splendid example of this peculiarity. There was in one specimen a dense wall of foliage climbing over trees, interlaced with them, &c., nearly 200 ft. by 100 ft., while the main trunk of the climber close to the ground was covered with flowers which were easily visited by thousands of insects of all kinds. There is quite a little group of shrubs which occur on the banks of rivers (and often in beds of streamlets) that overflow. These shrubs are submerged often, and are not hurt. These *fluviatile* shrubs have a certain facies, very difficult to describe. There must be thirty or forty species of them in the Yunnan river valleys. These shrubs don't occur elsewhere than on banks or in the beds of streams. The last one I have found is a very fine species of Ficus. This class of shrub would be a nice enough problem for someone to work out.

I hope you will try and get a young Cambridge or Oxford botanist to come to this part of the world, do some naturalist work, and collect seeds and live plants for cultivation. China is a very easy country to travel in, and expenses of travelling are not heavy. The mountainous regions of Yunnan and Szechwan are very healthy besides. With regard to San-ch'i (the species of Aralia § Panax), the medicinal plant of which I have sent your herbarium specimens and seeds, I will try and send a note on it for the *Bulletin* by next mail. It would be a favourable opportunity, if one of the staff had time, to go through the section and make a little synopsis of it. It includes the American ginseng plant, Corean ginseng, and two or three other species, and I found some forms of Ichang which were not worked out. The forms seem to run into each other in a puzzling way. It is very curious that the Chinese should have selected two forms—one in the extreme north of the empire (Manchuria and Corea), the other in the south, near Mengtze—as two most powerful and famous drugs. There is something peculiar about the history of certain drugs which European doctors consider useless. Take sarsaparilla and china-root, species of smilax, much believed in by native American races and by the Chinese. With regard to benzoin, it is not known here; but our Consul will probably take a trip by and bye down into Siam, and I will try and induce him to make inquiries for the tree. Have you tried writing on the subject to the British Consul at Chiengmai in Siam? The Yunnan plateau is apparently continued into the Shan States, and teak, benzoin, &c., are probably confined to the lower levels lying south. I have some specimens—only leaves—of the tree which produces the very valuable cinnamon of the Laos, but I am afraid they will not help much in clearing up the species. They were brought to Mengtze by a pedlar after I had left the place. I have said nothing in my letter about recent events in China, but they are very important. It is impossible to believe that China will remain hopelessly stagnant, and that she will make no effort to cope with these disastrous times. The Chinese are just as clever as the Japanese; they are wonderfully homogeneous; there are no class or race hatreds as in India. Waking up is slow, very slow, but it must come. In such places as this letters are esteemed more than gold, more than tobacco—they are the only little joys we have. It is very hard to live in such places as this, and we only go through it by the aid of letters and a certain doggedness which is acquired by practice. Russian officers in similar stations in Siberia commit suicide at the rate of five per cent. annually, I have been told.

Cassia corymbosa.—I was delighted to see a good plant of this beautiful yellow-flowering greenhouse plant in bloom the other day, and to my mind we have nothing like it so easy to cultivate, or producing such bright flowers in the autumn. Why is it we lose all these good old stove and greenhouse plants, and cannot something be done to bring these old favourites into prominence again?—J. L. P.

Some Recent Yellow Chrysanthemums.—How rich and beautiful in tone are some of the yellow chrysanthemums introduced during the past two or three years, and from a decorative point of view it is difficult to say which are the best, individual taste alone must be the guide. For form and beauty combined I cannot help awarding the palm to Mrs. W. Mease, and next to that comes G. J. Warren, several tones deeper. Miss Mary Underhay is a lovely pale yellow of great purity, and, of course, Edith Tabor and Ella Curtis will need no words of praise to commend them. Le Grand Dragon is a beautiful shade of deep golden yellow, and is a true Japanese. Mrs. Ernest Carter is a lovely deep primrose; Oceana and Modesto are now generally known and admired. Some of Calvat's yellows are specially noteworthy. Who has not seen and admired Pres. Bevan, large and incurving; M. Fatzer, General Paquié, a lovely warm golden bronze; Sécrétaire Rivoire, pale canary; Tatiana, all of this year's set? While last year's lot comprises M. Massange de Louvrex, President Nonin, Soleil d'Octobre, Topaze Orientale, a beautiful large type of purely incurved flower. R. Hooper Pearson is one of the biggest and deepest, a rich, deep, velvety golden yellow with a lighter reverse; Archie Ray is not large, but it is a very delicate shade of primrose, a sport from Mdlle. M. A. de Galbert. Mrs. A. Cross is of the deep golden hue; Comtesse de Boulaincourt, Mrs. L. Humphrey, Mrs. J. W. Barks, Hugh Crawford, Lady Oporto Tait, Princess Charles of Denmark, and many others give a wide scope for selection.—C. H. P.

WORK AMONG POT ROSES.

THE early part of November is a particularly busy and important time among pot roses; whether it be the potting up of fresh plants from the open or shifting on those already in pots. The batch of plants for early forcing also needs attention, and those intended for flowers at Christmas must be on the move at once. Even where pot roses have been well watered and cared for the past dry summer has ensured more than usually well-ripened wood, and there are very few plants that will not be in excellent condition for forcing. It is an excellent plan to examine all pot roses at this season. Those that have been standing in the open will need their drainage made efficient, and should be given some slight shelter from excessive rain and frosts. A very little cover or protection will secure this, and there could be no better place than a deep pit or frame, over which the lights could be placed as occasion requires. But many are short of such cover; and even where it is possessed there are several subjects needing it more than pot roses intended for late use. We have found a few hurdles, with some branches of birch, fir, or gorse interwoven, a capital and efficient protection when some loose framework is erected over the roses. They are quickly and easily removed, and last a long time.

We are, however, more concerned at present with pot roses needed for immediate forcing. I am aware that the majority of gardeners prefer a pot rose to be well established in the same pot it is to flower in. This does not recommend itself to us, and, after many years' experience, we have decided to repot all roses before forcing. Let me give the reasons for this. A plant that has become completely pot-bound must necessarily have exhausted the compost. One need not fear that any disturbance of root will interfere with the flowering properties of wood made under those conditions. So long as the wood is well matured, and the roots not unduly disturbed, the plant will flower quite as freely and with as much certainty as if forced in its pot-bound condition. It is very different to plants lifted afresh from the open, in which case we lose many roots, and have none that are established in the soil. On the other hand, our pot plants have the bulk of their roots undisturbed, and when we afford a little fresh compost new roots are made more freely, and feed the plant to much better effect than can be the case with artificial manures only. I am not alluding to large plants and pots, comparatively few of which are grown in these days, but the majority of our pot roses for conservatory decoration and winter cut flowers. We cannot continue to repot very large plants; they must have an occasional shaking from the soil, and be replaced in the same sized pots as before, feeding them in the meantime by mulching and liquid manures. It may be said that this is simply what is done when smaller plants are treated without repotting; but I contend that to give them a little fresh compost is the better plan of the two. We know how very quickly rose roots respond to a little heat, and how quickly new roots are formed when plants are laid in fresh soil, even in the open ground. Then why not give them the same encouragement under glass, and the needed fresh food at the same time?

To my mind there are no better roses for early forcing than those which have been growing in five or six inch pots, and well ripened in the open air during summer. We do not need a large quantity of wood—a fair amount, and that efficiently matured, is ample. I am not alluding to climbers, but such free growers as Niphetos, Madame Falcot, Catherine Mermet, and the like. Turn them out of the pots, remove as much as possible of the old soil without seriously disturbing the roots, and repot, using the following compost, or one as nearly like it as your conveniences will allow: turfy loam one-half, thoroughly decayed vegetable refuse and leaf-mould one-fourth, and the same of well decayed stable or farmyard manure. Roses do not need much drainage, but what is given must be efficient. Place a little of the coarser compost over the drainage, and set the ball of roots upon this. We should thus have the bole of the plant half an inch or so deeper than before. Give a double shift, *i.e.*, pots two sizes larger than the rose previously occupied. On no account should the compost be passed through a fine sieve or riddle; one with an inch and a-half mesh is quite small enough. As a rule our own compost is not passed through a sieve, but is chopped up with a spade and bricklayer's trowel. Be sure that the bole of your plant is not over dry when potting, and make the compost firm all round it.

With climbers intended to flower in pots we need as much as possible of last season's wood; and here a strongly grown plant is an advantage. I should shift these on just the same as already noticed. Really good plants of Maréchal Niel, William Allen Richardson, and others can be had in six-inch pots, generally carrying from one to two rods of well-matured wood. An eight or ten-inch pot suits these. Such climbers have invariably been forced on, and cannot fail to exhaust the soil in a six-inch pot. I have never had blooms of so good a quality from plants forced in the same root-bound pot they grew in the previous summer as when a shift and fresh compost has been given. We do not disturb the roots sufficiently to cause blind growths from the long rods, but give the plant something to feed upon during the excessive strain climbers are put to when producing a flower from almost every eye upon a six or ten feet growth. After potting place the roses in a cool pit or house, keep rather close for a time, and prune about three weeks later, when taking them to slightly warmer quarters. One need not fear to prune teas fairly hard. Do not cut back old wood, that should have been done during summer, when necessary, but cut back the new lateral growths of Niphetos, Souvenir d'un Ami, Maman Cochet, and others to within two or three eyes of their main branches. The climbers will only need their extreme points removed. It is a great mistake to hurry roses at the start. When once they have received a forcing temperature of 65 to 70 degrees, it must not be allowed to fall much lower. After the flower bud is visible they may be hurried on, if needed, but not with safety before this point. Although repotted, weak liquid manures will help very much after the roots are well at work among the new compost.

[illegible] A. PIPER.

WINTER-FLOWERING BEGONIAS.

As the tuberous-rooted begonias pass out of flower after a long season of bloom, the fibrous-rooted species and varieties may be utilised to take their place to a certain extent, especially where a warm greenhouse or intermediate house exists. The blooms, although not individually so large as those of the tuberous-rooted section, are yet to be counted among the most showy and effective of our winter flowers; so, with the numerous hybrids now to be obtained, a display of handsome flowers and foliage may be maintained throughout the winter months.

Amongst those in flower now are Begonia coccinea, more generally known as B. corallina; this is decidedly one of the best of its class, a strong grower, with stout stems and green leaves with a reddish margin; both specific titles describe its flowers, and it may almost be called a perpetual bloomer. The now well-known and deservedly popular B. President Carnot also belongs to this class of strong growers, carrying inflorescences almost a foot across; all the male flowers drop from these, leaving the large pistillate blooms with their very large and brilliant ovaries. Begonia Teuscheri is also a tall grower, with stems six to eight feet long, carrying large foliage, deep green above and reddish beneath; the flowers are of a pinkish-red colour, and are now expanding. B. undulata is a dull white-flowered species which makes a break between the bright-coloured begonias noted above; the foliage has undulated margins. All the foregoing begonias are best grown planted out either in beds or, better still, planted in some good soil under the stages, when the strong bamboo-like growths may be brought up at the back and trained under the roof in a cool stove or intermediate house. If this method be adopted, little trouble will be given, and a good supply of flowers obtained and effectively shown.

B. fuchsioides is another good plant of this kind, but suitable for a cool greenhouse. This species is a native of New Granada, grows to a height of eight or more feet, and is covered with quantities of small green ovate leaves. The drooping panicles of flowers are rich scarlet in colour, and commence to expand during October. Another good subject for greenhouse cultivation is B. metallica, the specific name applying to the foliage, which is large and decorative; the axillary inflorescences are composed of pinky white flowers of large size. B. nitida, if kept growing and planted out, will also give abundant supplies of its large flowers. B. manicata is perhaps one of the most free-flowering, producing, if planted out, stems about four feet high and an inch in diameter; these bear huge panicles of pink flowers. It is a Mexican species, and a good stove plant. The hybrid raised from this and another species, viz., B. Paul Bruant, is also a good plant of like character, with dark-coloured foliage of a rather metallic hue, and trusses of bright pink flowers. B. Dregi is a useful plant for pot culture, making pretty specimens about eighteen inches high in small pots; the foliage is of a delicate light green, flowers white.

Perhaps the Socotran species, B. socotrana, is among the most interesting as a winter bloomer. The leafage, borne on short stems, is peltate, and of a light green colour, while the bright rosy-coloured and large flowers are always attractive, lasting for a week or more. The hybrid raised from this and B. Dregi is now probably more grown than almost any other begonia, and undoubtedly B. Gloire de Lorraine is a most useful and pretty plant. Shapely plants may be secured for flowering from November through the winter if struck in the late spring and kept growing in an intermediate temperature. Plants in five or six-inch pots cannot fail to command attention, and such should be grown in all collections for winter decoration. B. Knowsleyana is valuable where cut flowers are in demand, being a good grower and free bloomer, the flowers being pinky white. Another good pot plant is B. Ingramii, with flowers of a reddish tint, and deep green, small foliage. For the greenhouse a pretty small-growing species is B. geranioides, a native of Natal. The root stock of this plant is tuberous, the reniform leaves rise about six inches from the ground, and are light green in colour, and densely covered with hairs. The white flowers are borne on peduncles that rise above the foliage. Many other begonias are in cultivation, which may be grown if required, but the above are amongst those most useful for general purposes, and when well cultivated are always attractive.

Royal Botanic Gardens, Edinburgh. R. L. HARROW.

The Drill Hall Meetings.—I often wonder whether there exists anywhere in the world gatherings that at all resemble, not merely in connection with horticulture, but with any other great vocation, practice, or science, those so regularly held in the Westminster Drill Hall by the Royal Horticultural Society. Ordinarily habitués may look upon these meetings as very commonplace things, but then, if so, that feeling arises solely from not being invited to take a philosophical view of them. But propound to the most stereotyped visitor the question, "Are not these meetings, after all, most remarkable and wonderful illustrations of the wide-spread devotion to horticulture which exists in Great Britain?" and the soul of the materialist is at once aroused, and he admits that so regarded they are. I fear horticulturists at large do not sufficiently value them all the same; and certainly the general public, perhaps from lack of knowledge of their existence, do not. Now, it is an undoubted weakness of all ordinary shows that we know pretty well beforehand from previous experience just the nature of the exhibits that will be presented to view. In the case of the Drill Hall meetings—and we may write of them ordinarily really as exhibitions—we never know beforehand what we shall see at them. Most certainly we do see the very best of everything horticultural the kingdom, nay, almost the world, can produce. There is no privilege any gardener of any description can enjoy that is greater than being enabled to attend these meetings frequently, and no greater honour can be bestowed on anyone than to be a member of one of the R.H.S.'s committees. The more I see of the society's workings, and of its meetings and general proceedings, the more do I realise that it merits at once the confidence and support of the entire community. —A. D.

PLUMS FOR NORTHERN COUNTIES.

If wall space can be set apart for plums, a crop can usually be secured even at Alnwick. If space is limited, only the very best kinds should be grown. We find Early Rivers useful on south walls, but it is very small though a free cropper. Oullin's Golden Gage is an exceptionally useful kind; we gathered it on August 13 from a south wall, and as dessert fruit is scarce at that date it is the more valuable. This variety will crop in about four years if the young trees are lifted once. Some varieties of plums will take double that time before a crop can be secured. I would specially emphasise the importance of lifting young plum trees after they have been planted three years, if they grow very strongly. The largest roots should be cut off, and all the small fibrous ones retained. The latter should be laid out carefully in healthy but unmanured soil, otherwise extra strong shoots will again be produced. Plum trees need much care in training during the first few years, so as to have the main branches covered with fruit spurs. When cutting back the leading shoots at the winter pruning, it is a good practice not to leave more than fifteen to eighteen inches of the last summer's growth, as this will tend to force the back buds to form spurs. If a greater length than this is left the back buds will not grow, and consequently the main shoots will show blank spaces. It is always best to hasten slowly in covering walls with plums. We have trained many fine young trees here during the last sixteen years, and they continue to fruit on the lower branches right back to the stock, nearly as well as on the upper branches, where naturally the sap flows most freely. Aphides have done the trees some damage this season, and both plums and peaches should be syringed with safe insecticide before the flowers begin to open in spring, so as to destroy the earliest breeding insects, and prevent much damage by them during the flowering and setting time.

The Victoria is our best cropping plum; indeed, great care is necessary to prevent over-cropping with this prolific variety when it has been carefully planted in healthy soil and trained as described. The trees here have cropped regularly for the last twelve years, and sometimes carried heavy crops. To ensure a regular crop of high class fruit annually we mulch with cow manure early in the spring and also use artificial manure freely, affording abundance of water in dry seasons. The Victoria is commonly used as a dessert plum, and the choicest fruit, if carefully gathered, is of very good flavour, very little inferior to Jefferson and Kirke's. When training the Victoria on walls it is important to lay in young wood annually, as many of the spurs on the main branches die out after maturing a heavy bunch of fruit, and leave spaces with no spurs. Therefore the best-placed young shoots should be laid in and shortened back at the winter pruning. This is done to a less degree with other varieties, but these rarely produce such heavy crops as the Victoria.

We find the Jefferson plum a good regular cropper on south walls, and about a fortnight later than Victoria. Kirke's is another that should be grown where room can only be found for a few of the best. It rarely fails to produce fruit. We have some parts of our trees heavily cropped, and other parts with scarcely any fruit this season; but usually there is a nice even lot of fruit. Lawson's Golden Gage is usually a good cropper, but is not so this year. We have Green Gage on trial again, a variety that crops well in some parts of Scotland. Then there is that indispensable plum, Coe's Golden Drop, the latest dessert plum, but one always difficult to set well, even with every care. Perhaps some day a Rivers or someone else may give us an improved free-setting Coe's. This would be a great acquisition.

There are large demands for plums throughout the autumn, and we feel very keenly the lack of variety of fruit, so take the greatest possible care to plant varieties that will give a succession over as long a season as possible; these must also prove regular croppers. Many kinds will not answer here, so we disregard them, and advise others to do likewise. I have only noted those that have given the best results over many years' trial, and this information to any person desiring to plant thus far north is of value, for it is vexing after ten or more years' careful training to have to discard a tree. In this cold district we also feel more than anyone the necessity of having fruit trees true to name.

Plums planted in orchards carry practically no fruit here this season, but several varieties are generally worth planting, and Victoria stands first, producing heavy crops most seasons. Monarch, Czar, and Prince Englebert, with the damsons, yield heavy crops. We have some of the Japanese plums on trial. In conclusion, I would not advise the planting of Pond's Seedling and Magnum Bonum plums so far north as this, unless in very favoured localities.

Alnwick Castle Gardens. GEORGE HARRIS.

Own Root Roses.—A simple way of propagating own root roses may be practised during the next few weeks in the open. A sheltered border with a west aspect should by preference be chosen, and if the soil is light further preparation is unnecessary. Select cuttings of moderate strength from well-ripened shoots from six to nine inches long, and if these are inserted firmly a good percentage will form plants by the spring. In making the cuttings, the eyes or buds should not be cut away from the end inserted in the border, as strong shoots may start from these later on. After the site has been forked over and trodden firmly, the quickest way of inserting a quantity of cuttings is to chop out a shallow trench almost perpendicularly across one end, and lay the cuttings in about six inches apart, treading the soil firmly against them, and continue in this way until all the cuttings are inserted, the rows to be nine inches asunder. If a small quantity are to be inserted, a dibber may be used instead. Many varieties of H.P. roses strfke readily in this way, as also does the Crimson Rambler and most of the climbing roses, and others of fairly strong growth.—C. HERRIN, *Dropmore.*

THE RAINFALL AND THE CROPS.

Having recently returned from a few days' holiday to the South of England, part of which was spent at the great exhibition of British grown fruit held at the Crystal Palace, and the remainder in visiting some of the noted gardening establishments in the neighbourhood of London, I was much impressed by the great difference that at present exists in regard to moisture and the state of vegetation in the district mentioned and in Scotland. In the former the ground at the time of my visit was everywhere parched and hard for want of rain, and nearly all kinds of vegetables were suffering severely, and much apprehension was manifested by cultivators as to the winter supply of green stuff and root crops. In market gardens the crops of cabbage, broccoli, and cauliflower had a very distressed appearance, while carrots and beetroot presented a most unusual sight at this season, the roots being small and the foliage drooping upon the soil, and it is doubtful whether heavy rains would benefit these to any great extent. In private gardens the spectacle was not much better, for the crops mentioned were in many instances almost a failure, and the seed of spinach, turnips, and other autumn crops had failed to germinate, or the crops were very thin and weak. In this case the area of the crops being smaller, watering had to some extent kept things going, but the supply of this in some places has failed, or only sufficient could be allowed for the more pressing requirements of the garden. Trees and shrubs have also suffered very much, and many of the former, especially beeches, were almost leafless, while many of the commoner shrubs in suburban gardens or in situations where the soil is shallow were in such a flagged condition that it seemed doubtful whether they can possibly recover.

The contrast between this state of things and that obtaining in the South-west of Scotland is a wide one. Here an abundance of rain has fallen throughout the whole time that the drought has been most severely felt in England, and as the weather has been exceptionally bright and warm for this part of the country at this season growth has been very rapid, and vegetables are very abundant and good in quality. At this date (October 13) peas, beans, and marrows are giving good returns, as sufficient frost to damage them has not been experienced. In the flower garden begonias are flowering profusely, while dahlias and many of the herbaceous plants have grown to an unusual height, and are flowering with great freedom. As some among your numerous readers are interested in the rainfall, I give below the records for the past three months. The month of July was the driest of any summer month for the past twenty years, as only ·40 of an inch was registered. Between August 1 and 12 4·20 inches fell, and on two occasions, the 5th and the 10th, over an inch was registered, the total for the month being 6·44 inches. September had twelve rainy days, which produced in the aggregate 4·16 inches. The total rainfall during the nine months of the year ending September 30 amounted to 25·9 inches, which is a little below the average of former years.

Galloway House Gardens, N.B. JAMES DAY.

ERYTHRINA CRISTI-GALLI.

Seldom does one see this handsome plant, popularly known as the Coral Tree, to such advantage as was the case of some specimens I recently noted. They were conspicuous for their size, fine growth, and gorgeous flowers, which were produced in great profusion. Although generally treated as a half-hardy subject, it was interesting to find that in the neighbourhood of Woking the species is perfectly hardy; those seen having withstood the winters of the past five years with no other protection than that afforded by a slight covering of coal ashes. When we remember this species is a native of Brazil, this is all the more remarkable. Its culture is of the easiest. To ensure strong growth and freedom of flower a sunny position is requisite, as well as abundance of water during the growing season. It is by no means particular as to soil, although a strong loamy one is to be preferred. If desirable to increase stock, cuttings of the young shoots will root readily, if taken in spring, inserted in pots in sandy soil, and placed on a gentle bottom heat; so treated they will make fine plants the same season. The flowers are borne on long terminal racemes, and are deep, dazzling scarlet in colour. The leaflets are oval, glaucous green in colour, and the leaf stalks or petioles are glandular and prickly.

Erythrina cristi-galli was introduced from Brazil in 1771, and was described in the *Bot. Mag.*, t. 2,161; by some authorities it is called *Erythrina laurifolia.* The species possesses several forms which are sometimes seen in our gardens, all of which are well worth growing. Probably the finest is E. c.-g. ruberrima, with very large flowers of a brilliant crimson colour, with a pleasing rose shade. Erythrina c.-g. ornata has very dark vermilion flowers, and is useful as a contrast. E. spectabilis is exceedingly useful, its leaves being marked and splashed with yellow, rendering it a most conspicuous subject; while E. c.-g. Cottyana has flowers of a deep rich reddish shade. The species and its several forms are deserving of more extended cultivation than at present afforded them, as their easy culture and free-flowering qualities entitle them to a place in every garden, flowering as they do late in the year.

Woking. E. S.

Laxton's John Howard Pea.—I have grown this fine new pea two seasons, and without doubt it is one of the best of the Laxton introductions; it has a strong branching habit, growing with me about four feet in height, and producing pods in pairs, well filled with about eight or nine peas of good size and of a distinct flavour from any other pea of the marrow type. It is a variety of the Ne Plus Ultra section, with short blunt-ended pods, and the seed peas very much resemble those of Ne Plus Ultra. In my opinion John Howard will become a general favourite.—J. L. P., *Norfolk.*

CHRYSANTHEMUMS AT THE NURSERIES.

Mr. H. J. Jones.

THE Ryecroft Nursery, over which Mr. H. J. Jones presides with so much business energy and skill in cultivation, has long been renowned for its very comprehensive and well-kept collection of chrysanthemums, as evidenced at all the public exhibitions by the very charmingly arranged groups which in late years have excited so much attention, the excellence of which may be attributed to Mr. Jones' visits to the Continent, where so much talent is displayed in setting up similar groups. At the present moment the Ryecroft collection, which Mr. Jones tells us has in no way suffered from the plague of rust that is troubling so many of his countrymen, is in full burst of colour. The plants are well arranged in three large houses, and, as usual, comprise novelties from all quarters of the globe.

Although great attention is paid to home-grown seedlings, the French, perhaps, claim the greater share of attention, and of these the seedlings received from M. Ernest Calvat include a grand-looking incurved called Topaze Orientale, beautifully built, very deep in form, and of a pleasing shade of clear pale yellow. François Coppée is a deep golden shade with long florets. President Bevan, a noble flower of its type, is big and massive with numerous narrow grooved florets closely incurving and of a deep golden-bronzy shade. Marie Calvat is rather rough and loose, a long-petalled Japanese, colour white faintly tinted. Le Grand Dragon is one of this season's novelties, very fine long florets, drooping and of medium width, a rich golden orange-yellow faintly streaked with red. The green novelty, Madame Ed. Roger, is curious, and Sécrétaire Rivoire, a Japanese of pale yellow. One of the noblest and best of Calvat's 1898 seedlings is M. Fatzer, a Japanese of great size and substance, the colour a deep rich pure golden yellow. Mélusine is white, streaked purple, large but not very taking; the same cannot be said of General Paquié, which has flat recurving florets and is of a very pretty and distinct shade of golden terra-cotta. President Nonin is another, somewhat similar in build and colour. M. Hoste is older, a large white Japanese tinted purple.

Some of the Colonials here, as elsewhere, do credit to the raisers in the Antipodes, who seem to understand the kind of flower most likely to appeal to English tastes. Oceana, Australie, and Pride of Madford are all well known, and to them must now be added Chatsworth, a fine deeply-built Japanese of pale pink; Mrs. H. Briscoe, a large Japanese with long florets, colour pretty rosy mauve with reverse of silver; Miss Mary Underhay, one of the finest and best, and of a lovely shade of rich buttery yellow; an incurved Japanese Beauty of Adelaide, long florets, colour rosy pink; Nellie Pockett, white; and Miss Vera May Fraser, a charming shade of golden terra-cotta with a golden reverse.

Here there is an unquestionable difference in the two yellow Carnot sports. Both are grand blooms, but G. J. Warren is certainly several shades deeper in tone than the pale primrose yellow of Mrs. W. Mease, which, to our taste, is by far the more chaste and pleasing. Mrs. W. Popham is big, solid, and substantial, a Japanese incurved, very deep in build, colour pale purple with silvery reverse. H. T. Wooderson, of the same section, close and compact, colour bright deep rosy pink. In yellows, Lady Oporto Tait is large, and Mrs. Maling Grant, different in form, is deep golden buff streaked bronze; Princess Charles of Denmark is golden yellow, James Brooks another, and Mrs. J. W. Barks is a fine bronzy-yellow sport from Edith Tabor. Very deep in its own peculiar shade of shiny, glistening golden yellow is J. Hooper Pearson, a Japanese with rather broad-grooved florets. Lionel Humphrey, of the Japanese type, is large with flat-drooping florets of great length, colour deep crimson chestnut with a golden reverse. Robert Powell, Julia Scaramanga, and Vicar of Bray are but varying and deeper shades of the primary colour of our popular flower.

Not large but very pretty is the graceful pale pink Mrs. F. A. Bevan, and Mr. Peter Keary, a Japanese with drooping reflex florets, and of a fine shade of velvety purple, reverse silvery, is also most attractive. A deep golden yellow sport from the well-known Edwin Molyneux ought to be a good thing judging from its present appearance, and for richness of colour Royal Standard, a striking bright crimson and gold Japanese, is at once effective and rich. A few others of the best are Mrs. A. J. Baker, large and globular, narrow florets, curly at the lips, colour pure paper white; Duke of Wellington, big, solid and globular, a Japanese incurved, with broad florets of rich golden bronze; Mrs. L. Humphrey, large Japanese, colour pale primrose or canary yellow; Lady Hanham, Mr. A. Barrett, quite distinct from Mrs. G. W. Palmer, the sport from Mrs. C. Harman Payne, and several others in which perhaps individual taste will play a large part in allotting the position they should occupy hereafter.

Miscellaneous Continental and other sorts are well represented by Chrysanthemiste Bruant, a big golden chestnut bronze Japanese incurved; Madame Leon Teyerick, deep golden ochre yellow, with broad florets, forming a good Japanese incurve; Rayonnant, an exaggerated and finer Lilian B. Bird; Miss M. Donaldson, a true Japanese of a delicate shade of pink, pretty, but not over large, and Dr. Noel Martin, a creamy white Japanese. Others, such as Emile Nonin, golden chestnut, incurved; Comtesse de Boulain Court, yellow Japanese; Abbé Brosson, large white Japanese; Fleur de Lilas, pretty rosy pink, medium size, and a few more are not commonly met with but deserve to be mentioned.

In conclusion, the novelty hunter may do well to keep a look out for such as M. Caillebotte, purple amaranth, Sita, Tatiana, a fine yellow La Marcadion, incurved reddish chestnut and golden buff, upon whose merits it is perhaps premature at present to pronounce.

The Framfield Nurseries.

Of the many nurserymen who specially identify themselves with chrysanthemums, Mr. Norman Davis may fairly claim to be one of the most enthusiastic. The nurseries at Framfield are extensive, and contain a number of lofty and spacious glass structures, splendidly adapted to the flowering of a large collection of chrysanthemums. Vineries and smaller houses are all turned to the best account in several ways, and are both interesting to the visitor as well as a source of profit to the owner. Second only in importance to the enormous business carried on in the distribution of cuttings and plants of chrysanthemums is the growing of fruit and flowers for the wholesale markets. The fine crops of [illegible] and Black Alicante grapes were quite a feature of this work. Tomatos are grown in immense quantities, and early in the year green peas form one of the crops under glass, which give much satisfaction Hardy herbaceous perennials, too, are well done, and most interesting of these at the time of our visit were the charming Starworts or Michaelmas daisies. The collection is one of the best, including only those species and varieties which are really worth growing. The splendid exhibit of these from Framfield at the recent October show of the N.C S. illustrated most forcibly what grand subjects the asters are for autumn display in the open border. Those still looking bright and fresh were A. Coombe Fishacre, A. ericoides, A. amellus, in several distinct forms and colours; A. vimineus, A. cordifolius, and a very charming variety of the latter called Diana; A. tradescanti, A. turbinellus, and A. oblongifolius; these have all done remarkably well. The great drought seems to have had no ill-effect on them at all; several varieties of the Novi Belgi section have been rather smaller in the individual flowers than usual, but have all flowered most profusely. New and improved forms are much in evidence. The best is a fine variety of A. amellus called Framfieldi. The flowers of this truly handsome daisy are much larger and brighter than in the type, but its chief value lies in the fact of its being a month later than the ordinary stock of amellus. Other good novelties are A. Mrs. F. Rayner, a very bright rose-pink; and Mrs. C. W. Earle, a most delicate shade of pale lavender.

Early chrysanthemums in the open border are later in blooming this year than usual, some varieties being quite a fortnight later than last season, and several of the new varieties do not come up to expectation. It may be that the abnormal heat and drought has been the cause of this. Such old favourites as Foucher de Cariel, Harvest Home, Ivy Stark, Ambrose Thomas, Flora, Madame Eulalie Morel, Piercy's Seedling, Mrs. Cullingford, Madame Marie Massé, O. J. Quintus, Samuel Barlow, and Queen of the Earlies are amongst the finest. M. Gustav Grunerwald and its several sports are not first-rate; after flowering in fits and starts during summer they grow straggling and weedy just when they are most wanted.

The indoor early sorts are grown in enormous quantities. A special favourite seems to be Lady Fitzwygram; over two thousand plants are grown of this, its pure white blossoms being in great demand. Barbara Forbes is a splendid market variety, and five hundred plants of Ryecroft Glory are very fine, the colour on many of them being almost red. A peculiar feature of all the plants grown here is the beautifully bright and clear colours developed throughout. Many thousands of later varieties, grown entirely for market, promise to recoup well for the extra labour devolved during the past dry summer.

Coming to the exhibition varieties, the chief attention is evidently paid to novelties and seedling plants. The older and less important varieties are, from a specialist's point of view, perhaps scarcely so good as last year on the whole. The scarcity of water has perforce put the commoners on short rations. When it is mentioned that only two days' rain fell from March until the recent change it is surprising that the plants look so well as they do. The most striking feature of the present show lies in the magnificent array of Madame Carnot and its sports. These are arranged the whole length of a house two hundred feet long, and look most promising. The later buds will probably give better blooms this season than usual. Another favourite here is Western King, of which there are over one hundred plants, all perfectly healthy, and swelling up clean and promising buds; these are all terminal buds, which is the only way to obtain the clean, broad florets and finely built flowers such as Mr. Davis has shown so well during the past three years. Soleil d'Octobre is a splendid yellow in its season, and fine blooms were to be seen, also some enormous mops of Madame Gustav Henry; this latter is so easy to grow that anyone may produce large blooms, though the quality of the flowers is not of the best.

Amongst the novelties of the season which promise well are R. J. Upton, a beautiful dwarf yellow, having very large buds just opening, of a shade deeper than Australian Gold; it looks like proving a sensational variety. Ed. Spurge is a seedling of an intense glowing crimson colour, and will probably be a good thing. Madeline Davis, which was so fine a seedling plant last year, will probably make its mark; the colour is charming, here it is pearly white, delicately tinted and flushed violet. A magnificent large incurved, at present unnamed, is opening well, and will no doubt soon be placed before the Floral Committee. There are scores of most promising seedlings; but it is rather early for a fair judgment of their merits at present, and a careful and exclusive selection will be made to avoid disappointing growers with novelties that are not desirable, or which have no merits beyond existing varieties. Mr. Davis makes his list of novelties as concise as possible, recognising the bewildering effect which lengthy lists of names and coined adjectives of the superlative order have on those who would fain rely on the plain English, so desirable as a guide in the purchase of new varieties. Joseph Chamberlain promises to sustain the reputation which the raiser gave it last year, though on very early buds it may be disappointing. The long-expected white Viviand Morel has been found in Mrs. Ritson; of some sixty plants grown here every flower is opening pure white, and on late buds, too.

Several of Calvat's novelties are likely to sustain this raiser's high reputation. Le Grand Dragon is an intense yellow, and Marie Calvat is a variety possessing every good feature. General Paquié is a large orange and red coloured flower of excellent form, and will be much sought for. Others very promising are Chatsworth, Pride of Stoke (the sport from Pride of Madford), George Foster, Madame A. Rosseau, Mrs. C. F. Payne, Master Tucker, Sécrétaire Fierens, and W. Towers. These are amongst the most advanced; a few weeks hence and there will be many others worthy of mention, and also of note, by those who would be up-to-date in their selection of novelties.

Claremont Nursery, Woking.

An old exhibitor, and one who has made a name for himself in many a competition, is Mr. H. Shoesmith, who is now in business on his own account at the Claremont Nursery, Woking. We paid him a visit there a few days ago to see what attention was given to the famous November flower with which he is so familiar in all its details, and were pleased to find a very nicely grown, well-assorted collection of everything that was good and novel from the exhibitor's standpoint.

The old florists' type of incurved was, and evidently still is, a favourite with Mr. Shoesmith, for we noticed some very finely grown samples of such standard sorts as Queen of England, Empress, Lord Alcester, Mrs. Heale, Mrs. Coleman, Miss Dorothy Forster, C. H. Curtis, Princess of Wales, &c. Anemones and pompons here, as is the case almost everywhere, are not grown in any quantity for display, and our observations which follow refer exclusively to varieties of the ever-popular Japanese section.

Among the recently introduced Australian seedlings John Pockett is a good, sized Japanese incurved with long pointed florets, reverse golden bronze, and among others from the same part of the world the solid, massive Australie, Oceana, and Pride of Madford, all well known to growers, and are certainly of considerable merit. The selection does not, however, end with these, for we noticed a very pretty bright crimson sport from Pride of Madford, called Mabel Kerslake, Mrs. Ernest Carter, big and fine, with long drooping florets, colour clear deep primrose, Mr. T. Carrington, deep rosy amaranth, and the Convention, golden bronze. Special mention ought to be made of Miss Mary Underhay, a beautiful clear pale yellow, Master H. Tucker, bright crimson and bronze, Chatsworth, pale pink, Miss Nellie Pockett, white, recently certificated, and Mrs. Ernest Carter, very fine deep primrose, all of which come from the Antipodes.

Selections from some of the most promising of the continental varieties of recent importation must necessarily include a special mention of M. E. Calvat's seedlings, of which Madame [illegible] de Mauny, a Japanese, of a velvety purple amaranth shade, and a silvery reverse; N.C.S. Jubilee, Japanese incurved, pretty silvery pink; Sécrétaire Rivoire, a Japanese with long drooping florets, colour pale canary yellow shaded bronze; Madame Bertet, pure white tinted flesh colour, are all fairly good. Among others from the same source of special merit may be counted monster blooms of such varieties as Dr. Liebert, globular and deep, colour bright rosy mauve with silvery reverse; Australian Gold, Madame Carnot, the curious green Madame Ed. Roger, Le Grand Dragon, a fine new golden yellow of this season; Madame Couvat de Terrail, a big spreading Japanese of a pale pink, passing to white; Madame Madeleine Expulson, a new white; Melusine, Tatiana, Antoinette; Sita, white streaked purple; M. Chenon de Leche, Werther, and one or two more.

Well-known standard sorts are also found in good examples of Mrs C. Harman Payne, very large and bright in colour, and in its two sports, M. Louis Rémy and Mrs. G. W. Palmer. Madame Rozain is a grand incurving pink Japanese, not a modern one, but still of some value. There are some good blooms of Viviand Morel, Etoile de Lyon, Phœbus, and others from various Continental raisers other than M. Calvat.

Home-grown and miscellaneous varieties are seen to advantage in Col. W. B. Smith, Modesto, Edith Tabor, a beautiful colour and finely formed; Ella Curtis, very large; Lady Ridgeway, Lady Isabel, pale silvery pink; Robert Powell, Simplicity, and Joseph Chamberlain; while several of the recent sports from varieties of acknowledged merit are represented by excellent blooms of Lady Hanham, Charles Davis, G. J. Warren, and the paler but nevertheless beautiful variety, Mrs. W. Mease. Mr. Hugh Crawford is a very striking deeply built flower of canary yellow, and Mrs. G. Carpenter, bright rosy mauve, is another.

Illustrative of the value of the chrysanthemum as an outdoor border plant we found in full flower several plants of such free flowering early sorts as Roi des Précoces, Harvest Home, Madame Eulalie Morel, Ivy Stark, M. Dupuis, G. Wermig, Mdlle. Marie Massé, Ambroise Thomas, O. J. Quintus, and others, very valuable for such a purpose and for cutting.

ONIONS FOR AUTUMN SOWING.

I OBSERVE that "A. D." omits one point in his recent note, viz., that the best strains of summer or Spanish onions are the best and the longest keeping to sow at any season, and that they are also hardier than the Tripoli and other onions usually sown in the autumn. Possibly the hardiness is structural rather than constitutional. Thick or bull-necked onions seldom winter so soundly and well as those with small and delicate necks. The flesh of most spring onions is also harder and firmer, and more impervious and insensible to climatal influences than the larger, softer Italians, Tripolis, &c. There is yet another point in favour of sowing spring rather than the so-called autumn onions for the winter, the quality of the onion is better, and reaches to the high level of the best onions sown in February. For a good many years our onion sowing, weather and seed bed permitting, has been forwarded by a full month, the first of February being substituted for the first of March.

The sound keeping of onions is more a matter of perfect harvesting and cool storing than of dates of sowing. It may seem a long cry from July or August to February or March as favourable times to sow onions in the open. But with perfect tilth and culture, and a good selection of varieties, good useful onions may be grown at either season. Autumnal sowing, however, has this additional recommendation, it proves a perfect antidote to the greatest scourge of the onion in many gardens—the onion maggot. The practice of autumn sowing onions baulks the onion flies of their sweet and savoury nests on the crown of the bulblets for their eggs. There will be no flies about at that season to lay eggs, nor eggs to lay, nor suitable nests on the young onions to receive them, there can be no resulting maggots. And this freedom from the sore pest of maggots among our onions is the crowning victory and reward of our autumnal sowing of our main crops and best selections of onions. These will become general when growers learn that all onions are alike hardy, and should there be a difference it is in favour of those with smallest necks and hardest flesh. D. T. F.

Migration of the Landrail.—One of the most remarkable things about the landrail is, observes the *Saturday Review*, its extraordinary instinct or passion for migration. Whence comes to it that overpowering desire which, twice in the year, impels it, weak-winged though it is, to change its quarters, to range during our English springtime as far north as the bleak and frozen shores of arctic Greenland, to descend in the fall of the year away south into Africa, and eastward into Asia, reaching in its return migration countries so distant and so widely sundered as Natal and Afghanistan? At present—in spite of theories and surmises—we have no satisfactory reason offered to us for the wonderful migration—recurring steadily, persistently, and unfailingly, year after year—of a bird like the landrail, whose weak wings and strongly-developed legs plainly attest the fact that its natural powers of progression lie far more in walking and running than in flying. The extent of the migration of the landrail, although not yet perfectly ascertained, is reasonably well known. In its northern passage it reaches, during April and May, England, Scotland, Ireland, the Hebrides, the Orkney and Shetland Islands, the far Faroes, nay even such solitary and remote Atlantic rocks as the lonely islet of St. Kilda. It is well known in North Europe, resorting in its spring passage to Norway, Sweden, and Denmark. But, beyond even these great migrations, there is established the fact that this feeble-winged creature, which in September seems scarcely capable of flapping heavily for thirty paces before the gunner, can and does summon up powers of flight sufficient to carry it across stormy and trackless seas as far north as Greenland, and as far north-west as the Bermudas and the eastern shores of North America. Wonderful as are the facts and records of migration, the case of the homely landrail is certainly one of the most remarkable among the instances of this overpowering instinct. Quitting our British fields towards the beginning of October, the landrail seeks light, warmth, and a fresh variety of food southward and eastward over a sufficiently wide expanse of country. Touching here and there—as it does in its spring migration—various countries in the south of Europe, it proceeds to take up its winter quarters in North Africa, Palestine, and Asia Minor, penetrating eastward certainly as far as Afghanistan. Beyond Afghanistan its range seems limited, only one instance of the occurrence of the landrail having been recorded in India. In its African migration it is manifest that, although not yet identified in the central part of the Continent, it does pass southward right through the heart of the country. The well-known naturalist, Mr. T. Ayres, identified many specimens years ago in Natal, and its presence there is well known. Curiously enough, only a single specimen has been recorded in the Cape Colony.

WORK FOR THE WEEK.

COOL ORCHIDS.

OWING to the continued mildness of the season very little fire-heat has been required up to the present, and only on very few occasions has the outside temperature been below 45 degrees by night; therefore the ventilators have been in constant use, admitting abundance of fresh air both night and day. This, of course, has been much in favour of the occupants of the cool houses, as they have a great dislike to fire-heat or a close atmosphere, and under such favourable conditions the plants have had a splendid opportunity afforded them to make strong and healthy growths, which will greatly assist them to pass through the winter months. At the time of writing we are experiencing some very dull, wet weather, yet very mild, therefore very little damping down is required. On the first appearance of thrip, green or black fly the houses should be fumigated on two successive evenings with "X L All" vaporiser. The black fly we find more troublesome than the green, this usually attacking the flower spikes as they issue from the axils of the leaves. Keep a sharp look-out also for slugs and small snails, and set traps for them, using pieces of potato, lettuce leaves, beans, &c. They should be also carefully sought for at night with the lamp. I fancy slugs are more voracious at this season than at any other, and they play sad havoc among the tender roots and flower spikes. With regard to the flower spikes, I think there is no better plan than to place a little cotton wool round the base of the spike as soon as it makes its appearance. With valuable plants it is as well to adopt the plan of placing them on an inverted pot stood in a saucer filled with water, and even then it is necessary to watch the plants narrowly for a few weeks at first to see that no slugs have been imprisoned in the fortress, as they cannot pass the moat either way.

Lycaste Skinneri, and its variety alba, having now matured their growths, will soon begin to show their flower spikes, these being produced from the base of pseudo-bulbs; from the time the spikes appear a much less supply of water will be needed, taking care, however, not to allow the plants to become dry and cause the pseudo-bulbs to shrivel. L. cruenta, L. aromatica, Anguloa Clowesi, and A. Ruckeri should also be kept pretty dry at the root, and given the driest position in the house. A pretty little cool-house orchid is Cœlogyne ocellata; the spikes, which appear in the young growths, do not produce flowers until the bulbs are matured, this event taking place at the present season, and from now up to the time root action begins again very little water will be sufficient for its needs; the same remarks apply to C. Schilleriana, which has also finished up its pseudo-bulbs, but this species does not flower until next spring, when it produces its flowers and foliage simultaneously. C. cristata, having now completed growth, will only require sufficient water to keep the bulbs from shrivelling; a cool, dry greenhouse, with the temperature as low as 45 degrees, will suit it during winter, and in such a temperature very little water indeed is needed. The sweet-scented Trichosma suavis, having passed out of flower, is now starting into growth, and if repotting is required it should now be attended to; the ordinary orchid compost will suffice over good drainage. Very little water is needed for some time, only keeping the material just moist until root action becomes brisk.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

FOR the next few weeks chrysanthemums will prove the main feature in the conservatory and also provide cut flowers; but, serviceable as they are now, they are a great deal more so later on, that is, during the latter part of the year and the beginning of January. At that season most gardeners have an extra demand for plants and flowers, and by having a hundred or so to fall back upon it saves the forced bulbs, poinsettias, and the like; even the latest varieties of chrysanthemums are liable to be past their best at the period named, when the right buds were not selected or the plants have not been carefully retarded. To ensure a good late display it would be wise to examine the stock of plants at once, and draw out all which promise to be backward, standing them in a cool, airy vinery or peach house, where only just sufficient warmth need be turned on at night to ward off frost. Where individual plants are likely to be required for room decoration they should be arranged thinly, so as to preserve as much of the lower foliage as possible, without which they will not prove serviceable. Where space is limited and cut bloom is the desideratum, then the plants may be packed much closer together, and, though they may lose leaves, the quality of the bloom is not greatly reduced, and, of course, a larger quantity is obtained. We find it best to devote a few plants of each variety and place them by themselves for the supply of cut bloom. The whole plant can then be cut down if necessary, and the stool removed to a cold frame at once, which is far better than cutting over the whole collection daily for what cut flowers are required. Now is the season to see that the different varieties are properly named, affording new labels where necessary, so that they can be easily recognised when the time arrives for taking the cuttings. Some are naturally shy in producing these at the time it is desired to take them, therefore the old plants should not be destroyed until they are secured; on the other hand, of those which show cuttings freely only a few plants need be reserved. Cold pits are the best places for cut-down plants; they can be arranged near the glass, and the lights can be entirely removed during mild weather, double mats, of course, being at hand for covering the glass during hard frosts.

The earliest bulbs, such as Roman hyacinths and paper-white narcissus, will now be sufficiently rooted—where potting was done early in September—for placing in gentle heat, when they would produce flowers in a week or two. The foliage of each of these should be well up, even with the slight protection of a cold frame, where all the early bulbs should now be stored. There is no difficulty in getting the varieties named to flower in November providing they are well rooted, and not placed in a brisk heat at once. Time is saved by bringing them on gradually, and the substance and keeping properties of the flowers are improved thereby. When brought direct from the outside plunging bed of ashes or sand and placed in a temperature, perhaps, of 70 degrees, the change is too sudden, resulting in many of the bulbs coming blind, when of course they are useless. Batches of each variety should be uncovered, and arranged in cold frames near the glass. The young growth then becomes inured to the light, and saves the check often given by exposing the growth which has grown up through the plunging material several inches and become blanched. When they reach the stage for placing in the forcing pit, arrange the pots near the glass, as during the sunless days of winter the spikes of hyacinths in particular become weak and unsuitable for arranging in glasses. The same remarks apply to freesias. These should always occupy a shelf near the roof, and if a moderately warm house can be used when they commence to flower both increased substance and perfume will be added to the bloom, which is not the case when they have to develop in a close, humid forcing pit. The stock of forcing shrubs, such as thorns, lilacs, deutzias, azaleas, and rhododendrons, should be arranged in a sheltered spot, standing or partially burying the pots in ashes, and then pack bracken, long litter, or leaves about them to prevent frost reaching the rims. Such plants are better left in the open until required for forcing, as a few degrees of frost proves beneficial, and they generally force more readily afterwards.—RICHARD PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THERE is much work at the present time in collecting fallen leaves. This should by no means be neglected, for they not only give the place an untidy appearance, but where accumulated in any quantity amongst small plants they hold the moisture, and so cause them to decay; therefore, as they fall, have them collected together in a heap, as they will be found useful for making hot-beds. Forcing of vegetables in some establishments will now be general, for where a great variety is needed there is always some difficulty in obtaining a suitable change. Owing to the long-continued dry weather, spinach has not made much progress until the last few weeks, and as the nights are now getting too cold for rapid growth this vegetable will be scarce during the coming winter should it be severe. Where an abundant supply of moisture could be afforded, celery will have grown sufficiently to be ready for its final earthing. Choose dry weather for this operation, for if the soil be put to the stems when in a wet condition there is always a probability of causing it to rot. It will not be necessary to earth the late planted lots for the present, as celery is perfectly hardy until such times as it is blanched. The blanching causes the stems to be tender, rendering them liable to injury if frozen. In districts where the rainfall has been plentiful broccoli will have made rapid growth this autumn, particularly where the soil is in good heart. This being so, they should be lifted and the heads turned to the north that the leaves may fall over the hearts to protect them in case of severe frost. The latter part of October was very wet in some districts, which has prevented many outdoor operations, such as the wheeling on of manure and digging, but when dry enough this work ought to be got in hand, for when digging is properly done in the autumn much time is saved in spring, when other work is more pressing. All vacant ground should now be turned up roughly as deep as the soil will permit without bringing to the surface barren subsoil. When treated in this manner and left until March it will break down finely with ease. Moisture is materially conserved when the ground is dug in the autumn, as it has time to solidify before being planted. In some places it is the rule to make a sowing of peas about the middle of November. If the situation be sheltered and the soil of a light nature often good results follow should the winter not be too severe, and for those who have no accommodation for forwarding plants under glass the practice is to be commended, as a week or so in the time of gathering is of great importance. Those who desire a good dwarf kind will find Chelsea Gem, William Hurst, Sutton's Forcing, and Carter's Forcing all good. They may not be quite so hardy as some of the round-seeded kinds, but with me there has not been much difference. The one great drawback to these autumn sowings is that they are subject to the attacks of snails and other enemies for so long a period before the weather is sufficiently warm to induce them to grow out of their way. In heavy soils these are far worse than in light ones, there being far more harbour for them under the small clods. It is not necessary to sow so deeply at this time of the year as during hot, dry weather, there being sufficient moisture to cause quick germination.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

To obtain successful results from the very early forcing of peaches and nectarines it is quite necessary to go slowly to work with them at first, as the trees will not bear any undue hastening to commence with, and the slower their development, provided they are kept moving up to the time the fruits are set, the more likelihood there will be of a satisfactory crop. If this is borne in mind and acted upon, peach forcing becomes an easy matter, and the cause of nearly all the failures which happen is the application of too much heat, as this makes the blossoms flimsy and unable to develop and set properly. An early start made within the next fortnight will give ample time to produce fruits as early as they can be grown, without having to hurry until the dangerous stages have passed. First of all, the trees should be pruned, cutting away all weakly spray, and if the shoots left are not well ripened it may be necessary to shorten them slightly; but I always advocate and practise leaving the young shoots as long as possible, and only shorten in cases of unripe tips or where there is not room to lay them at full length. In shortening, cut to a wood bud, which can be readily recognised by its pointed form. Some peaches, especially early varieties, make very few wood buds on the young growth, and it is very necessary to be careful in shortening these, and it is not always safe to rely on the middle bud of triplets being a wood bud, so that the grower should make himself thoroughly acquainted with such buds by close observation. When the trees are pruned they should have a thorough cleansing, and if red spider or scale have been troublesome a vigorous syringing with clear water, heated up to 120 degrees, may do all that is necessary, and the woodwork and glass should be thoroughly cleansed. I am no advocate for the indiscriminate use of insecticides on trees at this time of the year, especially nowadays, when we have such excellent and deadly appliances as vaporising insecticides in the growing season, when found necessary. Tying in the trees should immediately follow cleaning, and do not fear to remove a few more shoots if those left on appear to be closer together than they ought to be, for nothing is gained by having a plethora of wood and leaves in the trees, for a very thinly-trained tree will carry more fruits than can ever be brought to perfection, and beyond a few extra to allow for a little dropping—some of which is sure to take place if the weather is unfavourable during blossoming time—such fruits are only an extra and needless tax on the trees.

In commencing to force no heat should be applied for the first fortnight, but the ventilators should be kept closed, and this will give the necessary impetus, especially if aided by a very gentle hotbed of leaves being made up inside the house directly before the house is closed, as this can be relied on to very gradually raise the temperature. I prefer leaves alone for this work, as the fermenting action is steadier with these than it is with stable litter. A night temperature of [illegible] degrees should be the maximum for the first fortnight, except when it is too mild outside to bring the house down so low, and 5 degrees higher will be sufficient rise after that up to the time when the flowers open. A little ventilation must be given on sunny days to keep the temperature down, as this ought not to rise much above 50 degrees at any time. Occasional light syringings may be given, but their regularity should depend on the weather, and in any case they ought not to take place after midday. When the weather is not suitable for overhead syringing the hotbed should be sprinkled twice daily, and this will keep up a sufficiently humid atmosphere. Only use fire-heat when absolutely compelled by frosty weather to do so. Presuming that the border is in a moist condition when the house is closed it will not require any water for a few weeks. I prefer to give a good soaking a few days in advance of closing the house rather than to give it then, as too many exciting causes at one time are not good; still, if this has not been done, it must not be neglected, for anything is better than a dry border. Keep a sharp look-out for green or black fly directly the trees are seen to be on the move, for these pests are soon at work, and a stitch in time with these saves more than the proverbial nine. For their destruction I find nothing so good as one or other of the vaporising insecticides now on the market.

The November fogs make constant attention to grapes hanging on the vines necessary; bad berries should be sought for at frequent intervals and cut out. A dry atmosphere, with some top ventilation, must be kept up, and this can only be done by the aid of a little fire-heat by day. Front ventilation I find absolutely dangerous here, for the situation is low and exceedingly liable to fogs, in consequence of our proximity to large sheets of water. Bananas showing fruits must be kept in a high temperature and growing briskly all the while if we are to prevent the bunches from becoming deformed. All overhead syringing should be suspended from such plants.—J. C. TALLACK, *Livermere Park Gardens*

NOTES FROM IRELAND.

WE are having the finest autumn ever known in this country. The harvest was brought in in splendid condition, the hay and corn crop being excellent, both in quantity and quality. Grass, too, for the time of year, is exceptionally abundant. As is usual in years of plenty prices for all agricultural produce are very low; the very best oats can be readily obtained at the rate of a halfpenny per pound, while hay and straw are correspondingly cheap. Mangolds, swedes, and turnips are splendid crops everywhere in this locality, but, of course, these are not yet on the market. Barley is this year, so far, the most remunerative crop, and sells readily at from a penny to a penny farthing per pound rate, according to quality. Potatos are turning out a splendid crop of the very best table quality. I have not this season had facilities for testing many varieties of potatos in fields, but hope to go in for them more extensively next year. Main Crop gave a very creditable crop of good serviceable sized tubers, and the quality when cooked is excellent. Garton produced an astonishing crop, the tubers being enormously large; they are, moreover, of excellent quality. Champions are very thick this year, though smaller than usual, but what is of greater importance their cooking qualities are all that could be desired; this variety is somewhat affected by the disease, but all others are singularly free from disease this year. Our soil is a strong rich loam, resting on gravel. Beauty of Bute produced a very good crop of even-sized tubers, of the best cooking quality. Some people consider this variety too sweet in flavour to be a good eating potato. The Bruce, an old favourite of mine in the south of Ireland, has done famously here this year in every way. When in county Kerry recently I noticed some magnificent samples of Champions, the produce of plants that had been twice sprayed during the season. After this demonstration of the good result of spraying, I am, from being somewhat prejudiced against the system, now on the high road to becoming an advocate of it.

A most beautiful sight around the picturesque and thriving town of Cahirciveen is the luxuriant masses of Fuchsia Riccartoni. Around some of the cottage gardens I noticed the hedges were made completely of this charming shrub, and right well they thrive in spite of the terrible wind which must sweep on them there sometimes from the broad Atlantic. I saw some of the most magnificent scenery there it has been my good fortune to see, and, though a long and tedious journey, one is amply repaid with the splendid scenery in which the locality abounds. A recent inspection of the chrysanthemums being grown by the holder of the challenge cup of the R.H.S. of Ireland was to me an introduction to "the rust" which is now agitating the minds of chrysanthemum growers generally, and Mr. Mitchisen in particular; his plants are badly hit, and, of course, it has the appearance of destroying the plants, but I should say that the quality and substance of the blooms are in no way affected by the rust. The blooms are very promising, but it will give enough to do to have them in bloom by Nov. 9. Dahlias, Michaelmas daisies, Schizostylis, and Pyrethrum uliginosum are making a splendid display just now. All leafage is as green now (October 29) as it was in August. Evidently, we shall get no autumn tints this year, as the leaves will probably fall before they change colour.

R. WELLER.

Co. Kildare.

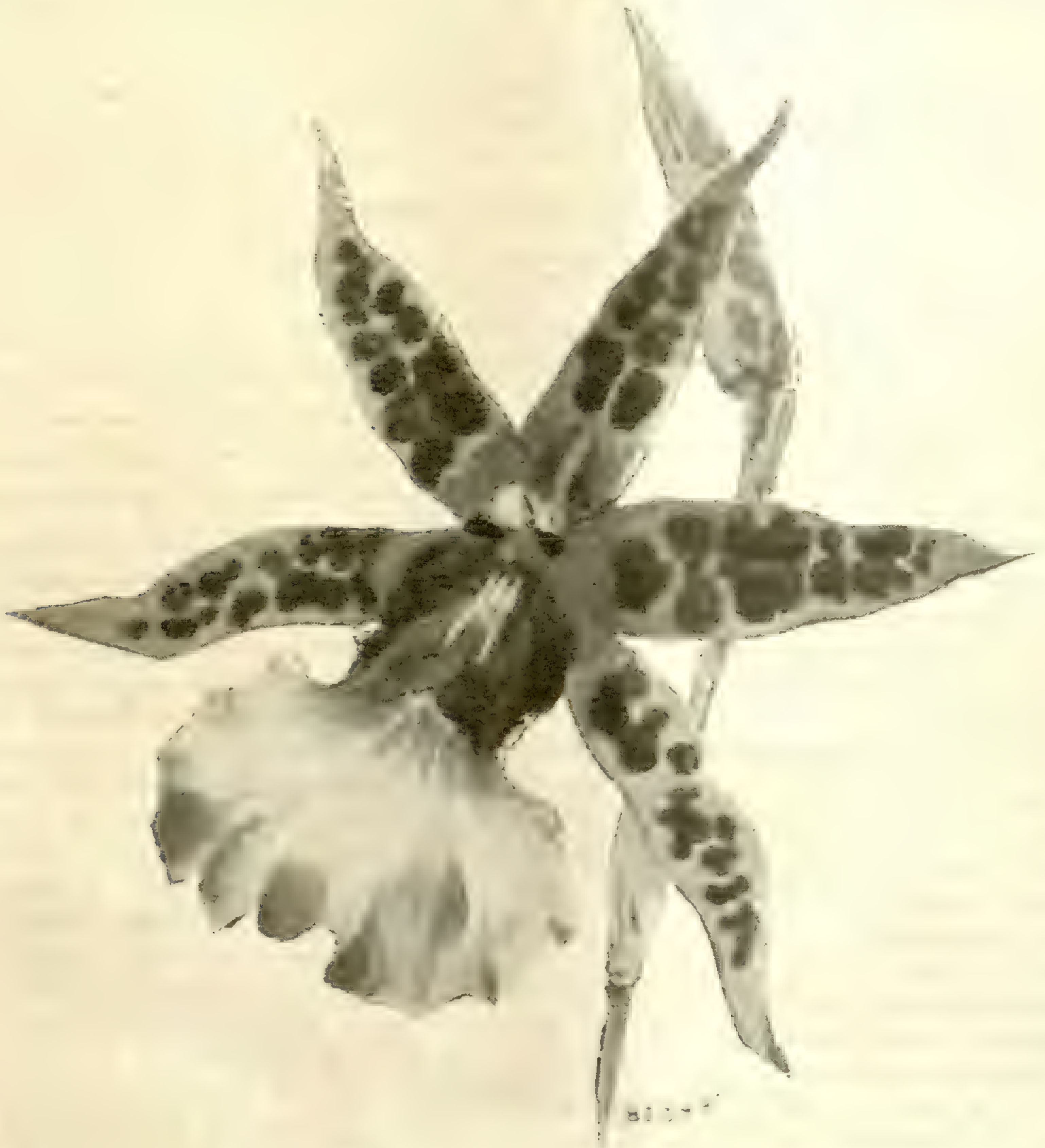
CHRYSANTHEMUMS AT BICKLEY HALL.

SOME two thousand plants of different types are grown here under the skilful hand of Mr. Dove. Japanese varieties largely predominate, although there is a goodly number of incurved sorts represented in excellent condition. A system of culture finding much favour at this establishment is that of propagating early in the spring, and flowering the resulting plants on single stems, each plant in a six-inch pot. By these means blooms of phenomenal size are now seen in large numbers, and for grouping purposes these plants lend themselves so well for such arrangements. As this happens to be one of the chief objects in the cultivation of the chrysanthemums at Bickley Hall, it is expected a good account will be given at many of the shows in and around the neighbourhood. Handsome blooms of Madame Gustave Henri, on second crown buds, quite pure white; Australie, very tall; Western King, opening very kindly; M. Edouard André, the finest blooms we have seen of this peculiar flower; Louise, very large and compact; G. C. Schwabe, exceptionally fine and of good colour; N.C.S. Jubilee, probably doing as well this season as ever; Hairy Wonder, time of flowering well calculated; Thos. Wilkins, represented by dense and well-coloured flowers; Surprise, valued because of its colour in the group; Simplicity, particularly chaste and white; besides many other well-known varieties in excellent condition. High quality was seen in the incurved varieties. Large, handsome, neatly-incurved flowers of Duchess of Fife were fast developing—one particularly fine bloom on a plant in a forty-eight sized pot called for special praise; D. B. Crane was simply charming, deep blossoms of golden buff, very regular and globular, stamping this as a useful bloom for the early shows; Chas. E. Curtis and some of the Princess family looking well. To Mr. H. E. Fry, the generous proprietor, much is due for the encouragement given to the cultivation of the chrysanthemum here.

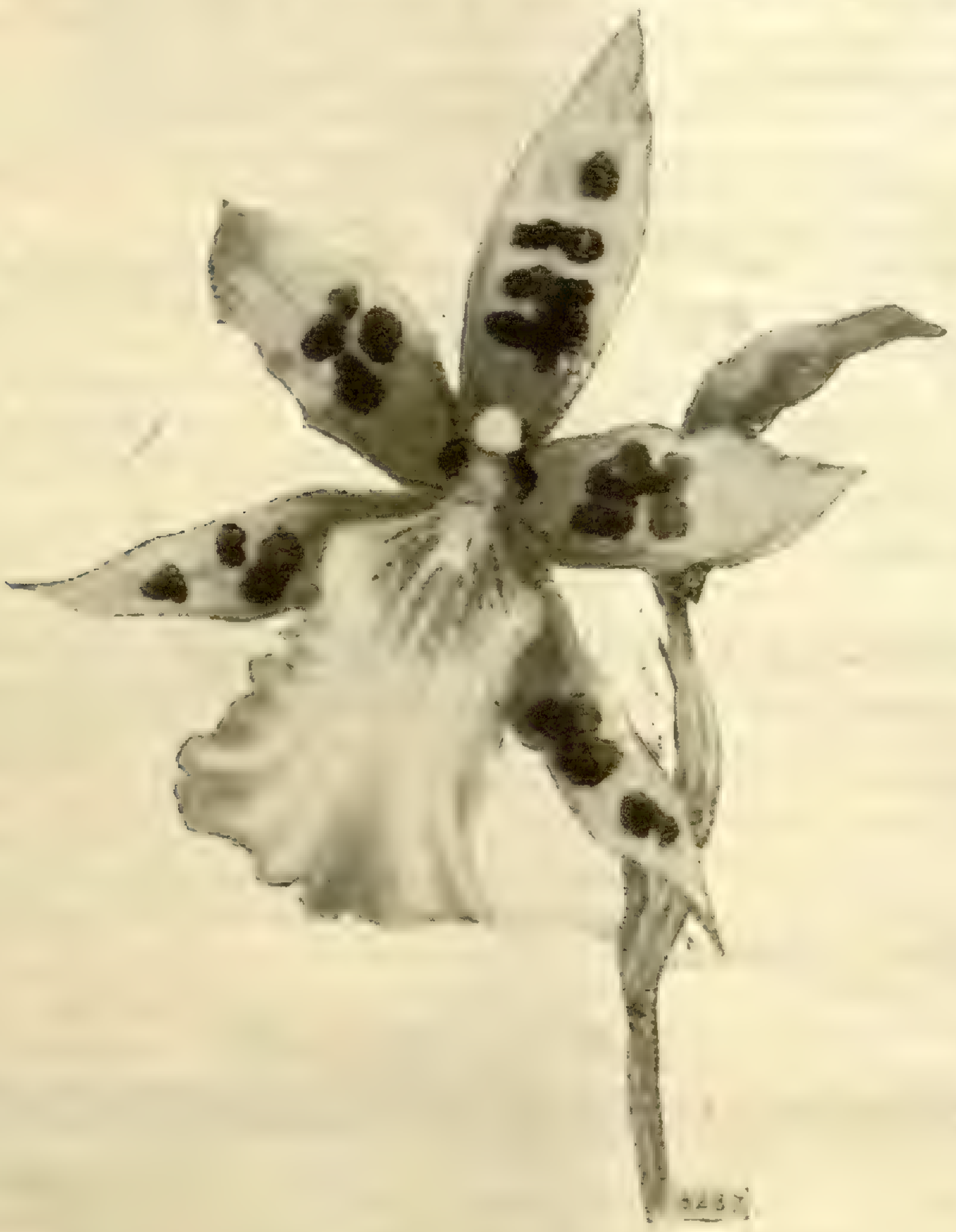
VISITOR.

SOME HYBRID MILTONIAS.

THERE is perhaps no genus of the orchid family that has yielded more natural hybrids than the Miltonias, and these form an interesting and beautiful addition to our collections. Some of the natural hybrids have been in cultivation for a number of years, but the majority are practically of recent introduction. A short note, with the accompanying illustrations of some of these, will, no doubt, be of considerable interest to orchidists.


MILTONIA BLUNTI VAR. LUBBERSIANA.

There has been only one hybrid raised artificially, and it is worthy of note that it has been obtained first by M. Bleu, of Paris, and since then by Mr. Sedin, in Messrs. J. Veitch and Sons' nurseries. The cultural details relating to Miltonias are so ably dealt with in the weekly calendars of the GARDENERS' MAGAZINE that further reference is not called for here, as they are as suitable for the new as the older known sorts.

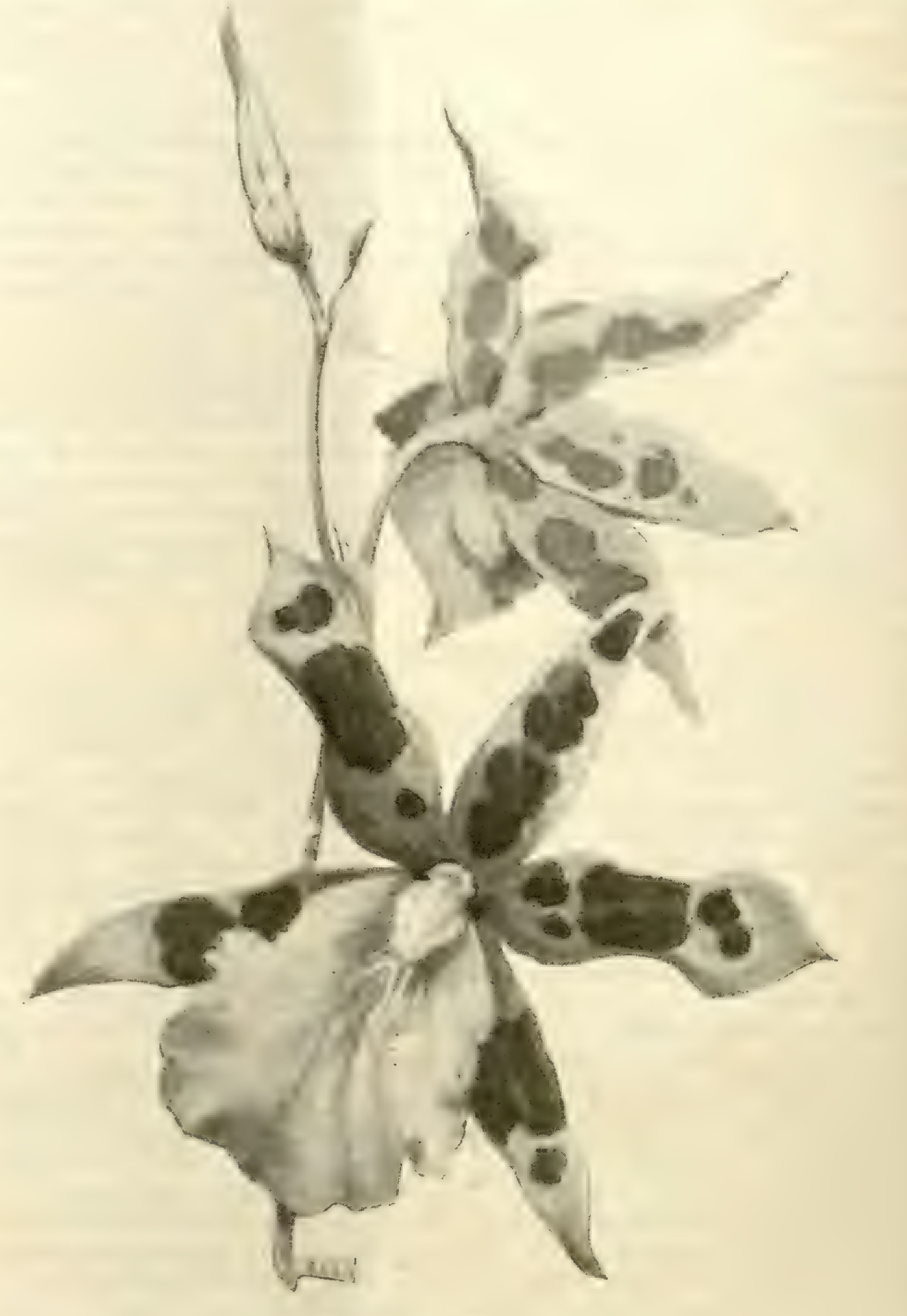

MILTONIA LEUCOGLOSSA.

M. FESTIVA.—This is no doubt a natural hybrid between M. spectabilis and M. flavescens. It was the first to make its appearance, and was described in 1868. The flowers are produced three or four on a spike; the sepals and petals creamy yellow. The large lip has a ground colour of creamy yellow, mottled and suffused with purple. It is a very rare orchid, and is only met with in a few collections where Miltonias are appreciated.

M. BLUNTI was first described in 1879. It is supposed to be a natural hybrid between M. spectabilis and M. Clowesi. It has the intermediate characteristics of both these species in the habit of growth, and also in the shape and colouring of the flowers. The sepals and petals are creamy yellow, the central area being almost wholly covered with large reddish-brown blotches. The apical part of the lip is white, the basal part becoming suffused with crimson purple.

M. BLUNTI LUBBERSIANA is one of the most handsome Miltonias in cultivation. The flowers are larger than the original form, and the colour also is finer. The sepals and petals are light yellow, with some violet purple at the base; the central area is covered with numerous dark brown blotches and spots. The front lobe of the lip is white, becoming suffused with purple at the base, where it has a prominent, ridged, yellow crest. The accompanying illustration was made from a plant recently exhibited by Mr. White at the Drill Hall, from the collection of Sir T. Lawrence, Bart.

M. BINOTI is supposed to be a natural hybrid between M. candida and M. Regnelli. The sepals and petals are buff, with a suffusion of purple at the base, while the central area is covered with large light brown blotches and spots. The lip has the intermediate characters of the two species from which the hybrid is supposed to have been derived; it is pale lilac suffused with purple and veined with another and darker shade of purple. It has several raised, light-coloured ridges at the base, the centre one being bright yellow. This hybrid is of free habit, and a most desirable orchid. The plant was exhibited before the orchid committee of the R.H.S. on September 20 last, when it was adjudged worthy of an award of merit; it came from Sir T. Lawrence's collection.

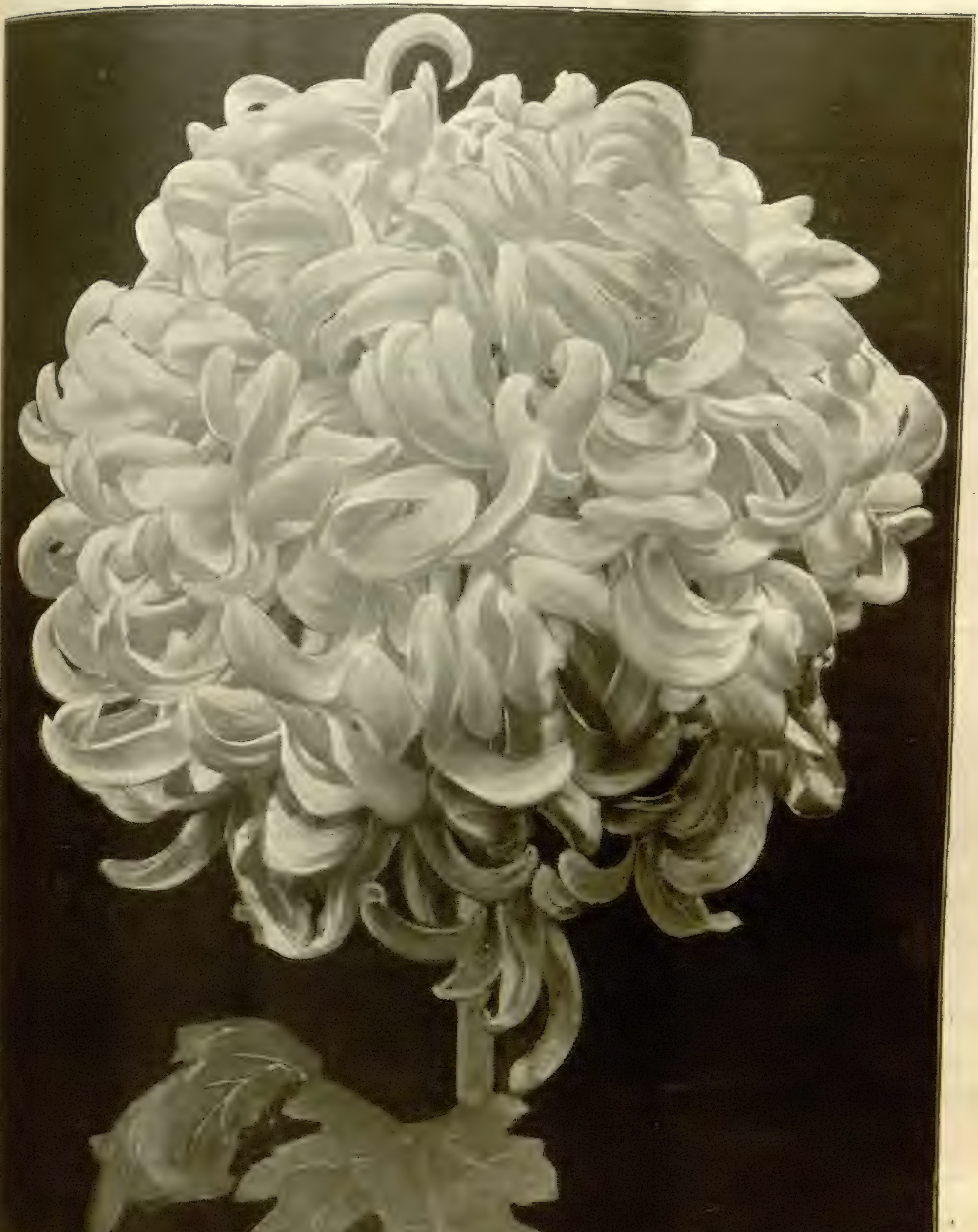

MILTONIA BINOTI.

M. LEUCOGLOSSA is one of the most distinct and desirable Miltonias one can grow. The sepals and petals are greenish-white, spotted with a distinct shade of violet-purple. The large lip is pure white, except at the base, where it has a violet-purple suffusion on either side of the yellow-ridged disk. It resembles M. spectabilis in the habit of growth, and is probably a hybrid between that species and M. candida. It was exhibited before the Orchid Committee on September 20 last by Sir T. Lawrence, and gained an award of merit on that occasion.

M. LAMARCKIANA is considered to be a hybrid between M. candida and M. Clowesi. Its sepals and petals are deep brown, barred and tipped with yellow. There is also a suffusion of purple at the base. The front half of the lip is pure white, with a blotch of purple in the centre. There are several raised ridges at the base, white shading to purple at their bases. It has the intermediate characters of the two species.

M. PEETERSIANA is a natural hybrid between M. spectabilis Moreliana and M. Regnelli. It is most distinct, of free habit, and possessing a good constitution. It is intermediate between the two species, from which it is supposed to have been derived. The sepals and petals are light purple. The lip also is purple, with a darker shade of colour in front of the raised yellow lines forming the disk. It is worthy of a place in any collection where Miltonias are appreciated.

The only garden hybrid that has yet been introduced is M. Bleuana, and as stated above, has been twice raised by the inter-crossing of



CHRYSANTHEMUM MISS NELLIE BYRON. (See page 73[illegible].)

M. vexillaria and M. Roezlii. The Continental raised form has been the more interesting of the two hybrids, from the fact that M. Bleu raised a larger number of seedlings than was obtained by the Messrs. Veitch. As with most other batches of seedlings, there has been considerable variations in M. Bleuana, so much so that the Orchid Committee have distinguished no less than five varieties to which they have awarded first-class certificates. Its many forms are very handsome and desirable, and when grown under suitable conditions it is one of the easiest plants we have to deal with. It requires the warm intermediate house treatment throughout the year, with a liberal supply of atmospheric moisture at all seasons. The plant has lent itself readily to multiplications in continental collections, and can now be procured at a reasonable price from any of our leading nurserymen. The general habit of growth and the shape and colour of the flowers are intermediate between those of the parents, both being easily distinguished in all portions of the plants.

Cambridge Lodge Gardens. H. J. CHAPMAN.

CHRYSANTHEMUM MISS NELLIE BYRON.

MR. H. WEEKS, the capable gardener to Lady Byron, Thrumpton Hall, Derby, is now well known as a most enthusiastic and successful grower of chrysanthemums, while in addition he has gained no small share of fame as a raiser of first-rate exhibition varieties. Two varieties that have helped most to make him famous are Lady Byron and Mrs. H. Weeks, while the particularly bold and handsome varieties exhibited on the 31st ult. at the Royal Aquarium will help to maintain his position both as grower and raiser. There were four new Japanese from Thrumpton Hall gardens, named respectively Emily Towers, Lady Crawshaw, Mrs. Coombe, and Henry Weeks, all of which gained first-class certificates, and are described on p. 724 in our issue of November 5. In the present number we give an almost life-size representation of a new and distinct seedling raised by Mr. Weeks, but not yet exhibited, and which chrysanthemum enthusiasts will probably have to wait another year before they see. Mr. Weeks kindly sent us the one available bloom, and it was photographed after a railway journey from Derby, so there is no doubt about its ability to travel well. The bloom was of large size, fully eight inches across, and about the same depth. The florets are broad and slightly keeled, substantial, incurving at the top, and curling somewhat at the base of the flower. The colour is intensely pearly-white, and there can be no doubt that Miss Nellie Byron will be as great a success in a year or two as Mrs. H. Weeks is now.

CHRYSANTHEMUMS ROUND LIVERPOOL.

UNDOUBTEDLY growers this season of the autumn queen of flowers have had in this district more than their usual course of disappointments to deal with, and so far as can be gathered the reasons for failure are more unaccountable than usual. In this district the growing season appeared to be a satisfactory one, the plants generally being strong with well-ripened wood, points that are generally considered the forerunners of good blooms, but in many cases this has not proved the case, one large grower stating that he housed the finest plants, but has only obtained the worst flowers he ever had. Various causes are assigned for the unsatisfactory results, some blaming the slight frosts of September, others stating that the hot weather about the time of "taking the buds" dried the growth too quickly, thus causing contraction in the stems. Although it is generally admitted the season is an unfavourable one, yet many new varieties, especially in the Japanese, are grand, so it may be that the exhibition table will not suffer. Another point against numbers is the lateness of the flowers, whilst the principal show—Liverpool—is earlier than usual. The incurved section promise well. The Corporation of Liverpool continue to grow in large numbers, and the exhibition is thoroughly appreciated by the citizens, as evidenced by the throngs of visitors who are in attendance daily.

Botanic Gardens.

The principal house, one hundred and twenty feet by twenty, recently constructed by Mr. J. Webster from plans of the city surveyor, contains upwards of two thousand plants, the centre section containing plants bearing two to five flowers, and the outside stages are filled with bush plants of pompons, singles, &c. The plants show evidence of good treatment, having large, dark, leathery foliage, without a sign of the many pests that the "mums" are liable to. The large flowering plants vary from two to six feet in height, and, as they are placed a little lower than the paths, visitors have the pleasure of having the blooms under the eye, which is a distinct advantage. Mr. Devanney, the grower, has a large number of seedlings of considerable promise, the one named after the esteemed chairman of the Parks and Gardens Committee being a pale lilac colour of reflexed Japanese, an altogether desirable variety. The most noticeable in the general collection are M. Aug. de Lacviver, C. J. Jefcott, S. D. M. Bullier, Etoile de Feu, Mrs. D. Dewar, M. Molyneux, Dorothy Gibson (reflexed), Coun. F. Foucher (pompon). A nice bank of cyclamens and some few cattleyas and cypripediums add to the attractions of these gardens.

Sefton Park.

A fine show is presented here with seven hundred plants for large blooms and fifteen hundred bush plants, many of which were struck late, and grown on without stopping. The house is similar to that in the Botanic Gardens, and the arrangements are on similar lines with the exception that here the centre is of switchback form, which breaks the monotony of arrangement. The plants will not be at their best for a few days, and the bush plants will be even longer. An advantage is gained by striking late in reducing the height of the plants, making them more suitable for the side stages. Amongst the most noteworthy are E. G. Hill, C. B. Haywood, Mr. G. W. Palmer, Lady Byrom, Beauty of Teignmouth, Eva Knowles, Edith Tabor, and many of the older varieties of incurved. The best amongst the bush plants are W. Stevens, Fiberta, Rosinante, Rose Owen, Mrs. Dewar, Scarlet Gem (single), and Mrs. F. Travis (single).

Mr. Herbert, superintendent of the parks and gardens, and Mr. Gutteridge, superintendent of the Botanic Gardens, are to be congratulated upon the able manner in which they are carrying out the wishes of the committee in providing attractive exhibits of floriculture for the citizens of Liverpool.

EXHIBITIONS AND MEETINGS.

NATIONAL CHRYSANTHEMUM SOCIETY,
November 8, 9, and 10.

THE great event in the chrysanthemum growers' year has taken place, and as compared with other years it was as great a success as ever. The quality of the Japanese blooms may sometimes have been exceeded but by very little, and considering the difficulties of the season they were magnificent. The competition throughout was extensive and close, the judges having in most cases to point the blooms to arrive at a just decision. The exhibition as a whole was a huge and gorgeous display, and perhaps the only falling off was found in the specimen plant classes, our old friend Mr. Donald being absent from the battle. The arrangements were better than usual, as visitors were kept away as much as possible until the judging was complete. Vegetables and fruit were good, and the non-competitive exhibits formed no inconsiderable part of the general attractiveness of a great display that was worthy of the National Society.

NATIONAL CHALLENGE TROPHY.

The national competition among the horticultural and chrysanthemum societies affiliated with the National Chrysanthemum Society was fairly keen, four societies competing for the Challenge Trophy and the handsome money prizes offered. The judges had not an easy task to decide which was the superior stand, and eventually pointing had to be done to arrive at the just merits of each set. The first prize was won by the Portsmouth and District Horticultural Society, and the blooms were wholly contributed by Mr. J. Agate, nurseryman, Havant. The Japanese varieties were well coloured, of fair size and good finish, and the names were: Jane Molyneux, Mrs. Mease, Milana, C. Davis, V. Morel, Oceana, Madame Carnot, and Australie in the back row; Edith Tabor, Lady Hanham, T. Brooks, Mrs. White Popham, Ella Curtis, Madame P. Rivoire, J. Chamberlain, and a yellow seedling in the middle row; with Colonel W. B. Smith, Australian Gold, Mrs. Molyneux, Princess Charles of Denmark, Mdlle. Thérèse Rey, Dorothy Seward, Lady Byron, and International in the front row. The incurved blooms were splendid, large, well coloured and finished, the varieties being Mrs. N. Molyneux, Lady Isabel, Perle Dauphinoise, Miss Violet Foster, Globe d'Or, Duchess of Fife, C. H. Curtis, and Nellie S. Thelfall in the back row; Baron Hirsch, Miss M. A. Haggas, Ma Perfection, Princess of Wales, Madame Ferlat, Mrs. G. Coleman, J. Agate, and Dorothy Foster in the middle row; and J. Kearns, Lord Rosebery, John Miles, Topaze Orientale, Miss V. Tomlin, Mrs. R. C. Kingston, Lucy Kendal, and Madame Darrier in the front row. The second prize was won by the Bromley and District Chrysanthemum Society, blooms being contributed by Messrs. Blackburn, Blick, Brisser, Dove, Lyne, Parfield, Tapper, and Wheadon; this was a good set, and the Bromley society made a first-rate fight. The Barnet and District Society won the third prize.

HOLMES MEMORIAL AND TURNER CUPS.

There were no less than six entries in the class for thirty-six blooms of distinct incurved varieties, the Holmes Memorial Challenge Cup being the leading award, together with £10 given by Sir Edwin Saunders, president of the society. The premier award was won by Mr. W. Higgs, gardener to J. B. Hankey, Esq., Fetcham Park, Fetcham; the best stand of blooms, however, was sent by Mr. W. H. Lees, but unfortunately Princess of Wales and Mrs. Heale were associated in this stand, and so the judges had no option but to disqualify it. Mr. Higgs' varieties were Duchess of Fife, Mons. Desblanc, Golden Empress, Dorothy Foster, Globe d'Or, Madame Ferlat, John Lambert, Mrs. R. C. Kingston, Major Bonaffon, Robt. Petfield, and Lady Isabel, in the back row; Alfred Salter, F. W. Wilkinson, C. B. Whitnall, Mrs. R. King, Queen of England, Baron Hirsch, Lord Alcester, Mrs. J. Eadie, J. Agate, George Haigh, Ernest Cannell, and Empress of India, in the middle row; D. B. Crane, Austen Cannell, Miss Coleman, Sir T. Lawrence, Bonnie Dundee, Miss M. A. Haggas, Violet Foster, Jeanne d'Arc, Violet Tomlin, M.P. Martignac, Madame Darrier, and Princess of Wales, in the front row. The second prize was awarded to Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, who had a good even set, including fine developments of C. H. Curtis, Baron Hirsch, Globe d'Or, and Lady Isabel; Mr. W. Mease was third, and Mr. F. G. Foster fourth.

The Holmes Memorial Challenge Cup and £10, offered as first prize for forty-eight Japanese, was won by Mr. W. H. Lees, gardener to F. A. Bevan, Esq., Trent Park, Barnet, who had a magnificent lot of flowers; in the back row were grand flowers of Surpasse Amiral, Australie, Lady Ridgway, Madame Carnot, Viviand Morel, Louise, Oceana, Mrs. W. H. Lees, Mrs. C. H. Payne, Elsie Teichmann, Phœbus, Madame M. Ricoud, Mons. Hoste, Sécrétaire Fierens, Reine d'Angleterre, and Mrs. H. Weeks; in the middle row were Chenon de Leche, Souvenir de Petite Amie, J. Bidencope, Mrs. Palmer, Souvenir de Madame Rosetti, Simplicity, N.C.S. Jubilee, Pride of Madford, Mutual Friend, Chas. Shrimpton, C. B. Haywood, Madame Rosseau, Mrs. Lewis, E. Molyneux, Madame P. Rivoire, and Ella Curtis; in the front row were Nellie Pockett, R. Powell, Edith Tabor, Mrs F. A. Bevan, Madeleine Davis, Miss D. Shea, Lady Byron, Col. Chase, Chas. Davis, Mrs. Mease, J. Chamberlain, Pres. Nonin, Chatsworth, Col. W. B. Smith, Seedling, and Madame G. Bruant. Mr. Frederick Vallis, Bromham Fruit Farm, Chippenham, came second, with a fine set of flowers, Mr. W. Mease third, and Mr. J. McHattie, gardener to the Duke of Wellington, Strathfieldsaye, fourth.

Mr. Norman Davis, Framfield Nurseries, Sussex, won the Turner Memorial Cup for three dozen Japanese blooms in twelve varieties, three blooms of each; Mr. Davis has now secured the cup for himself. The varieties shown by Mr. Davis were: Madame Carnot (beautiful), Joseph Chamberlain, President Nonin, Mutual Friend, Phœbus, E. Molyneux, S. C. Probyn, Oceana, Dorothy Seward, Madame G. Henry, General Roberts, and G. J. Warren (three magnificent blooms); Mr. W. J. Godfrey, Exmouth, won second prize, his J. Brookes, G. J. Warren, Le Grand Dragon, and Mrs. Mease being especially fine.

SPECIAL OPEN CLASSES.

There was a splendid competition in the class for two dozen Japanese blooms, for prizes offered by the chairman and directors of the Royal Aquarium to commemorate this the twenty-first exhibition of the N.C.S held at the Royal Aquarium. The first prize was £8 and a large gold medal, and as there were sixteen competitors the winner can afford to feel proud of his position. The chief honour was won by Mr. R. Kenyon, gardener to A. F. Hills, Esq., Woodford Green, Essex, who showed a beautiful set of substantial and finely-coloured blooms; the back row varieties were Madame G. Bruant, Phœbus, Lady Hanham, Mdlle. L. Brossillon, Mons. Hoste, Master Tucker, Soleil d'Octobre, and Mrs. Weeks; middle row—Madame G. Henry, John Neville, Edith Tabor, Mrs. C. H. Payne, C. Davis, Mrs. Mease, Viviand Morel, and Mons. Chenon de Leche; front row—N.C.S. Jubilee, Mr. J. Lewis, Sécrétaire Fierens, Mons. Desblanc, Mrs. Burkess, Mrs. Carrington, Dorothy Seward, and Mrs. G. Carpenter. The second prize was won by Mr. W. Mease, gardener to A. Tate, Esq., Leatherhead; Mr. H. Perkins, gardener to the Hon. W. F. D. Smith, M.P., Greenlands, Henley-on-Thames, third.

In the special class provided by Mr. H. J. Jones, Lewisham, for six blooms, two each of Madame Carnot, G. J. Warren, and Mrs. Mease, there was a good and close competition, Mr. W. Mease winning with splendid blooms of great substance; Mr. W. Higgs, second; and Mr. G. Foster, gardener to H. Hammond Spencer, Esq., Teignmouth, third. There were eight competitors.

INCURVED BLOOMS.

There were six entries in the class for twenty-four incurved blooms, distinct, and here the first prize was won by Mr. Higgs, who showed the following varieties, some of them immense flowers:—Duchess of Fife, Major Bonaffon, R. Petfield, Ma Perfection, Globe d'Or, J. Lambert, Mons. Desblanc, and Lady Isabel in the back row; Alfred Salter, Queen of England, Madame Ferlat, Mrs. J. Eadie, Golden Empress, J. Agate, Leonard Payne, and Ernest Cannell in the middle row; Lord Alcester, Mrs. R. C. Kingston, Jeanne d'Arc, Violet Tomlin, Empress of India, G. Haigh, Princess of Wales, and Baron Hirsch; Mr. W. Wilson, gardener to R. C. Christie, Esq., Bagshot, second; Mr. T. Robinson, third; and Mr. J. Agate, Havant, fourth.

Out of nine competitors in the open class for a dozen incurved blooms, distinct, Mr. G. J. Hunt was to the fore, winning with fine large blooms of Duchess of Fife, C. H. Curtis, J. Lambert, Mons. Desblanc, Empress of India, Mr. S. Coleman, Ma Perfection, Miss Dorothy Foster, Miss M. A. Haggas, Globe d'Or, Golden Empress, and Lord Alcester; Mr. W. Robinson came second, Mr. J. W. McHattie third, and Mr. W. J. Adams fourth. For six incurved blooms, one variety, there was a grand competition, the six sets staged being all splendid flowers, Mr. G. J. Hunt, gardener to Pantia Ralli, Esq., Ashtead Park, Epsom, winning with immense globes of Duchess of Fife; Mr. W. J. Farmer, gardener to H. P. Leschalles, Esq., Windlesham, Surrey, second, with C. H. Curtis; and Mr. T. Robinson third with Miss Violet Foster.

JAPANESE BLOOMS.

There were seven entries in the class for six blooms of any one Japanese variety, Mr. Norman Davis winning with magnificent specimens of Madame Carnot; Mr. J. Agate came second with Jane Molyneux; and Mr. G. Elder, gardener to J. W. Benson, Esq., The Oaks, Walton-on-the-Hill, third, with Madame Carnot. The best half-dozen blooms of any Japanese chrysanthemum other than a yellow or white variety was won by Mr. J. W. McHattie with fine flowers of Australie; Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Cottage, Reigate, second, with Lady Hanham; and Mr. T. H. Lodge, third, with pale blooms of Viviand Morel. The best half-dozen yellow Japanese chrysanthemums, one variety, were fine blooms of Phœbus, shown by Mr. H. Shoesmith, Woking; Mr. J. Agate, second, with Mrs. W. Mease; Mr. G. Elder, third, with Phœbus; and Mr. McHattie, fourth, with Edith Tabor.

Mr. H. Perkins, gardener to the Hon. W. F. D. Smith, M.P., Henley, secured the chief award for half a dozen Japanese incurved blooms, showing J. Pockett, Pride of Madford, Pres. Bevan, Australie, Australian Gold, and Mdme. Gerard; Mr. Justice second, and Mr. W. Robinson third. Mr. H. Love showed the best half-dozen hairy chrysanthemums, staging moderate flowers of Beauty of Teurs, Mrs. Dr. Ward (2), Hairy Wonder (2), and Abbé Pierre Arthur; Mr. Justice second, and Mr. Batchelor, Harefield Park, Uxbridge, third In a second open class for a dozen Japanese blooms, distinct, there were eleven competitors, the first prize falling to Mr. W. Meredith, gardener to D. P. Sellar, Esq., Brentwood, who staged Chenon de Leche, Mdlle. Thérèse Rey, Pride of Madford, C. B. Haywood, Lady Hanham, Louise, Mrs. G. W. Palmer, Mons. C. Panckoucke, Lady Ridgeway, Mons. Hoste, G. Seward, and Chas. Davis; Mr. F. King second.

ANEMONE, POMPON, AND SINGLE VARIETIES.

The first prize for twenty-four large-flowered anemone blooms was won by Mr. W. King, gardener to J. Warren, Esq., Capel House, Waltham Cross, with handsome examples of Mdlle. R. Brun, Sir W. Raleigh, Mrs. Judge Benedict, Empress, Gladys Spaulding, Owen's Perfection, Juno, and Delaware in the back row; M. C. Lebocqz, Mrs. Hugh Gardiner, Mons. R. Owen, W. W. Astor, Queen Elizabeth, M. Dupanloup, J. Bunyan, and Cincinnati in the middle row; and Robin Adair, Lady Margaret, Enterprise, Ada Strickland, Jeanne Marty, Robert Burns, Mrs. P. R. Dunn, and Nelson in the front row. The second prize was won by Mr. W. Skeggs, gardener to A. Moseley, Esq., Hadleigh, Barnet; and Mr. J. Justice third. In the class for a dozen Japanese flowered anemones the chief award was secured by Mr. W. Robinson, gardener to the Right Hon. Lord Ludlow, Westbury, who had splendid examples of W. W. Astor, Mr. H. Gardiner, Sœur Dorothe Souille, J. Bunyan, Ower's Perfection, M. Dupanloup, Sir W. Raleigh, Enterprise, Mrs. Caterer, Ruche Lyonnaise, Robin Adair, and Jeanne Marty; Mr. W. Skeggs second, and Mr. J. Justice third.

Mr. J. Justice, gardener to the Right Hon. Sir R. Temple, Bart., Worcester, won first prize for a dozen bunches of anemone pompon varieties, showing Briolus, Bessie Flight, Chestnut, Mr. Astie, E. Rowbotham, Mr. Wyness, Francis Boyce, Antonius, Aglaia, Madame Montels, Sidonie, and Calliope. Mr. T. Caryer, gardener to A. G. Meissner, Esq., Alderholm, Weybridge, won first honours for a dozen trebles of pompon varieties; this was one ot the best stands seen for a long time, the varieties being Perle des Beautés, President, Toussaint Marizot, Mr. Holmes, Osiris, La Vogue, W. Westlake, Mdlle. Marthe, Black Douglas, Rubra Perfecta, Pygmalion, and Mdlle. Elise Dordan, all lovely flowers; Mr. W. Aldridge, Palmer's Green, second; and Miss Debenham, St. Albans, third.

The best dozen varieties of single chrysanthemums, three blooms of each, came from Mr. W. Aldridge, gardener to G. Lacey, Esq., Springfield House, Palmer's Green, who put up exceptionally fine blooms of Lady Churchill, Miss Brown, [illegible] Camoen, Alphonso, Miss A. Mumford, Framfield Beauty, Springfield Beauty, Purity, Rose Pink, Orange Beauty, Sir T. Symonds, and Oceana; Mr. Forbes second, and Mr. R. Pallant third. Mr. J. Justice had the best twelve large anemone blooms, winning with clean, well-developed examples; Mr. King second, and Mr. Ives third. Mr. T. Caryer was first for reflexed blooms, and Mr. W. Robinson second.

GROUPS AND SPECIMEN PLANTS.

Groups were good, but the specimen plants not up to the usual standard. The first prize for a group of chrysanthemums in pots, any varieties, mingled with foliaged plants, all to be grown by the exhibitors, to be arranged for effect in a space twelve feet in diameter, was won by Mr. J. Spink, Summit Road Nursery, Walthamstow, with a splendid arrangement of finely-grown chrysanthemums arranged most tastefully with Cocos Weddelliana, crotons, &c. These were three fine groups, the second prize falling to Mr. W. Howe, gardener to Sir Henry Tate, Bart., Park Hill, Streatham; Mr. E. Dove, gardener to W. E. Fry, Esq., [illegible] Hall, third.

Mr. T. Gilks, gardener to A. Morris, Esq., Court Green, Streatham, staged the finest set of six standard trained chrysanthemums, showing shapely, freely-flowered specimens of Bertier Rondatler, Cleopatra, Col. W. B. Smith, Bessie Chapman, Emily Silsbury, and Mrs. E. S. Trafford. For four standard trained specimens Mr. W. Davey, gardener to C. C. Paine, Esq., Haverstock Hill, was placed first for his well-grown examples of Wm. Tricker, Cleopatra, Stanstead Surprise, and Eva Knowles; Mr. F. E. Wright, gardener to J. Troup, Esq., Upper Clapton, second.

The six plants staged by Mr. Gilks were regarded as the best of the low-trained specimens; the varieties were Wm. Kennedy, W. Westlake, Fremy, St. Michael, Sœur Melanie, and Black Douglas; Mr. Gilbert, gardener to W. A. Sewell, Esq., Highgate, gained second prize with Japanese varieties. For four trained specimens, any varieties, Mr. F. E. Wright was first with Chas. Davis, J. Shrimpton, W. Tricker, and Col. W. B. Smith; Mr. Gilks second, and Mr. Davey third. In all cases the plants were large and covered with flowers. Mr. Davey was awarded second prize for a specimen plant of an incurved variety, showing C. H. Curtis in rather poor condition; Mr. Wright third with the same variety in standard form.

AMATEURS' CLASSES, DIVISION A.

The great progress made by amateurs in the cultivation of the chrysanthemum was fully sustained at this exhibition. The classes were mostly well contested, and the quality of the blooms was very good. Mr. Gladwell, gardener to Sydney Smith, Esq., Werndee Hall, South Norwood, was a good first for six Japanese with well-developed flowers of G. J. Warren, Phœbus, Mdlle. Marie Hoste, Madame Carnot, Reine d'Angleterre, and Mons. Chenon de Leche, thus outdistancing eight exhibitors; Mr. W. Perrin, gardener to C. W. Richardson, Esq., Sawbridgeworth, was second; and Mr. R. Chamberlain, gardener to F. M. Lonergan, Esq., Cressingham, Reading, was third. Mr. John Denyer, gardener to Edwin Smith, Esq., Ingleside, Chatham, was first for six blooms of one variety with Phœbus, Mr. J. Acock being second. Mr. G. E. Wilkins's exhibit of twelve incurved gained for him a silver medal and the first prize. He staged Lady Isabel, Ernest Cannell, Mrs. N. Molyneux, Globe d'Or, Mrs. R. C. Kingston, Perle Dauphinoise, C. H. Curtis, Mons. Desblanc, Madame Ferlat, Madame Yvonne Desblanc, Mrs. R. D. Douglas, and Mrs. R. Owen. Mr. A. Hooney, gardener to G. H. Cox, Esq., The Grange, East Barnet, was second. Mr. C. E. Wilkins also headed the five exhibitors of six incurved with nice fresh blooms; Mr. W. Leppard was second, and Mr. W. C. Pagram third. Messrs. Hooney and Wilkins were the successful exhibitors for six blooms of one incurved variety, staging C. H. Curtis and Austen Cannell respectively. Mr. A. Taylor was first for six bunches of pompons, and Mr. T. W. Preston was second.

Only three exhibits of eighteen Japanese were staged, and Mr. L. Gooch, gardener to T. Wickham Jones, Esq., South Norwood, was first with highly-developed blooms of International, Mr. G. W. Palmer, Edith Tabor, Mrs. H. Weeks, Pride of Madford, Australie, Mons. Panckoucke, Mons. E. Andre, Simplicity, Préfet Robert, Australian Gold, Charles Davis, Mutual Friend, Oceana, Mons. Chenon de Leche, Lady Hanham, Viviand Morel, and Madame Carnot; Messrs. A. Hooney and A. W. Seabrook were second and third respectively. The competition for twelve Japanese was very keen, Mr. W. A. Brown, gardener to H. W. Sillem, Esq., The Pines, Woking, heading the twelve exhibits with a splendid set of flowers; he staged Lady Ridgeway, G. C. Schwabe, Miss E. Teichmann, Modesto, Madame Carnot, Dorothy Seward, Lady Hanham, Edith Tabor, Viviand Morel, Charles Davis, Mrs. H. Weeks, and Pride of Madford Mr. R. Gladwell was a creditable second, and Mr. J. Acock third.

AMATEURS' CLASSES.—DIVISION B.

Only two exhibits of twelve incurved were staged, and Mr. R. Knight, Ashford, was first with very fair blooms of C. H. Curtis, Empress of India, Miss Violet Tomlin, Golden Empress, Madame Darrier, J. Kearns, Dorothy Foster, Bonnie Dundee, Jeanne d'Arc, Baron Hirsch, Miss M. A. Haggas, and Mrs. N. Molyneux; Dr. J. H. Sharpe, Bridgwater, was only a moderately good second. The prize-takers for six incurved were Messrs. G. P. Clark, A. R. Knight, and Sharpe.

Four exhibits of twelve Japanese were staged, and the premier award was made in favour of Mr. H. A. Needs, Heathview, Woking, who had well-grown blooms of M. George Biron, Lady Ridgeway, Madame Couvat du Terrail, Viviand Morel, Sunstone, Edwin Molyneux, Australie, Edith Tabor, Miss Elsie Teichmann, Oceana, Mrs. G. N. Palmer, and Wm. Seward; Mr. W. G. P. Clark was a good second, and Mr. F. Durrant third. Mr. H. A Needs also headed the five competitors for six Japanese with a nice even set of blooms; Messrs. W. G. P. Clark and W. Amies were second and third respectively. Mr. Norman Wrighton, Addiscombe, was first for six blooms of one variety, with massive samples of Phœbus, Mr. Henry Love being second.

Mr. A. R. Knight gained the silver cup offered by Mr. G. P. Linford for eighteen Japanese with fine flowers of J. Brookes, Viviand Morel, Mutual Friend, Simplicity, Modesto, Etoile de Lyon, Milano, Charles Davis, Sunstone, Mrs. F. A. Bevan, Mrs. C. H. Payne, Lady Hanham, Edith Tabor, Mary Molyneux, Surpasse Amiral, Eva Knowles, Madame G. Henry, and Mrs. G. W. Palmer; Mr. Martin Silsbury, Shanklin, was a very close second, and Mr. Henry Love, Sandown, I.W., third.

MAIDEN CLASSES.

No less than sixteen competitors tried conclusions in the class open to those who had never won a prize at the shows of the society, and the first prize was well gained by Mr. Folkes, who had nice blooms of Edith Tabor, Graphic, Madame Ricourd, Australie, Mrs. C. W. Palmer, and N.C.S. Jubilee. Mr. A. G. Clinton, Glendevon, Horsell, Woking, was a close second; and Mr. T. Parkins, gardener to F. W. F. Ward, Esq., 34, Bisham Gardens, Highgate, was third. There was a spirited competition for three Japanese, and Mr. Folkes was again the successful exhibitor. Messrs. Clinton and G. Hagon were second and third respectively. Mr. J. Coomber, gardener to Mrs. Saunders, Warren Lodge, Kingston Hill, headed the eight exhibitors of six incurved blooms with nice flowers of Duchess of Fife, Globe d'Or, Baron Hirsch, C. H. Curtis, Miss Violet Tomlin, and Princess of Wales. Mr. G. Hobday, Havering Road, Romford, was a very fair second, and Mr. H. Folkes third. Messrs. Poole, Folkes, and Foster were the prize-winners for three incurved.

FLORAL DESIGNS.

The competition in the classes designed to display to the full the decorative character of the chrysanthemum was splendid, and the quality of the exhibits was good throughout. The epergnes and the table of floral designs were especially good.

A grand table of floral designs from Messrs. Perkins and Sons, Coventry, secured the chief honour for such a display; there were lovely bouquets, crosses, vases, baskets, stars, harps, and other designs in variously-coloured chrysanthemums associated with suitable foliage. It was a fine and tasteful exhibit. Miss E. Erleback, Stoke Newington, was second, and Mr. W. Hayward, Kingston-on-Thames, third.

In the class for three epergnes of chrysanthemum blooms suitable for table decoration there were no less than nine entries, these making a grand display in themselves; the premier award was won by Miss C. B. Cole, Feltham, who had pretty light designs in orange, deep yellow, and rose-coloured blooms associated with asparagus and croton foliage; Mr. Seale, Sevenoaks, second; and Mrs. W. Green, jun., third. Mr. D. B. Crane had a fine exhibit, but he had faced his designs too much. Six hand baskets of chrysanthemums were staged, and the best one came from Miss Easterbrook, Fawkham, Kent, who had a grand exhibit of yellow and white flowers mixed with Asparagus plumosus, and A. Sprengeri; Miss C. B. Cole second, and Mrs. Strugnell third.

There were eleven entries in the class for a vase of Japanese blooms, Mr. T. Perkins, gardener to F. W. F. Ward, Esq., Highgate, coming first; Mr. R. Chamberlain second, with Phœbus, and Mr. C. Jones third. The best pair of chrysanthemum bouquets were shown by Mr. Mark Webster, and reflected great credit upon this successful exhibitor; Mr. J. Mansey, Islington, second. For a pair of vases of pompon varieties Mr. Mark Webster, gardener to E. J. Preston, Esq., Kelsey Park, Beckenham, was first prize-winner out of five competitors; Mrs. W. Green, jun., Harold Wood, second; and Mr. W. G. Pagram, gardener to J. Courtenay, Esq., Weybridge, third.

Six competitors came forward in the class for a vase of six Japanese blooms, one variety, arranged with any foliage, and here Mr. J. King, gardener to J. G. Lloyd, Esq., Itchel Manor, Hants, came first with a handsome vase of Edith Tabor; T. H. Lodge, gardener to Mrs. Meret, Bishops Stortford, second with Madame Carnot, and Mr. G. W. Forbes third. Miss Easterbrook showed the best basket of autumn foliage and berries, making a pretty show with physalis, berberis, privet, snowberries, maple, and honeysuckle foliage; Mr. A. Webb, Barnet, second, and Mrs. W. Taylor third.

Fruit.

There was not so much fruit exhibited as on some former occasions, but the competition was keen in each class, and the quality extremely good. In the class for six dishes of culinary apples seven exhibits were staged, and the premier award was made in favour of Mr. W. Stowers, gardener to G. H. Dean, Esq., Sittingbourne, who had splendid examples of Mère de Ménage, Lane's Prince Albert, Glory of England, Peasgood's Nonsuch, Bramley's Seedling, and Emperor Alexander; Mr. A. J. Thomas, Burgam's Hill, Rodmersham, was a good second; and Mr. H. Berwick, The Nurseries, Sidmouth, third. There were also seven exhibits in the class for six dishes of dessert pears, and Mr. A. J. Thomas was first with tempting fruits of Pitmaston Duchess, Columbia, Maréchal du Cour, General Todleben, Princess, and Beurre Lamoyeau; Mr. H. Berwick was a close second with only slightly inferior samples; and Mr. R. Potter, gardener to Sir M. W. Collet, Bart., St. Clere, Sevenoaks, third. Mr. H. Berwick gained premier honours for six dishes of dessert apples with well-coloured samples of Ribston Pippin, Melon Apple, American Mother, King of the Pippins, Wealthy, and Adams' Pearmain; Mr. A. J. Thomas was a good second, and Mr. W. Stowers third. Five sets of three bunches of white grapes were put up, Mr. W. H. Lees, gardener to F. A. Bevan, Esq., Trent Park, New Barnet, being first; Mr. C. W. Cole, Feltham, second; and Mr. W. Taylor, gardener to C. Bayer, Esq., Tewkesbury Lodge, Forest Hill, third. Each competitor staged Muscat of Alexandria. Mr. W. Howe, gardener to Sir H. Tate, Bart., Park Hill, Streatham Common, was first for three bunches of Alicante, with finely-coloured bunches; Messrs. Taylor and Maycock were second and third respectively. Messrs. Taylor and Milson were the prize-takers in the class for three bunches of Gros Colmar, each staging remarkably fine bunches.

Vegetables.

The special feature of this section was the keen competition for the prizes offered by Mr. Sydenham and the success of our coadjutor, Mr. Beckett. There was a spirited competition for the prizes offered by Messrs. Sutton and Sons, Reading, for nine dishes of potatos of their own introduction. Nine collections were staged, Mr. E. S. Wiles, gardener to the Hon. Evelyn Hubbard, M.P., The Rookery, Down, Kent, being first. He staged grand tubers of Satisfaction, Reliance, Sutton's Seedling, Windsor Castle, Invincible, Reading Russet, Supreme, Ideal, and Abundance. This was a very fine exhibit. Mr. S. Cole, gardener to the Right Hon. Earl Spencer, K.G., Althorp Park, Northampton, was a very close second; and Mr. A. Basile, gardener to the Rev. A. L. Powels, Woburn Park, Weybridge, third. Mr. S. Cole headed the eleven competitors in the class for two dishes of potatos with fine tubers of Supreme and Windsor Castle. Mr. H. Foulkes, gardener to E. Strachan, Esq., Goddesden Place, Hemel Hempstead, was a highly creditable second, and Mr. E. S. Wiles third.

Five collections of nine varieties were staged in competition for the prizes offered by Messrs. Webb and Sons, Stourbridge, and the successful exhibitor was Mr. E. Beckett, gardener to the Right Hon. Lord Aldenham, Aldenham House, Elstree, whose exhibit evinced cultural skill of no mean order. He staged Colossal leeks, Defiance carrots, Motor potatos, Autumn Giant cauliflowers, Webb's Masterpiece onions, Sensation tomatos, Mammoth red celery, Hollow Crown parsnip, and Matchless Brussels sprouts. Mr. R. Lye, gardener to Mrs. Kingsmill, Sydmonton Court, Newbury, was a good second with fine produce; and Mr. A. Basile third.

The prize offered by Mr. Sydenham evoked a spirited competition, and the general quality of the produce must have been very gratifying to him. There were seven entries for three cauliflowers, and Mr. J. Read, gardener to the Earl of Carnarvon, Bretby Park, Burton-on-Trent, was first with firm heads; Mr. R. Lye, gardener to Mrs. Kingswell, Sydenham Court, Newbury, was second; and Mr. A. Basile third. Mr. E. Beckett gained premier honours for three savoys; Messrs. Basile and Read being second and third respectively. Mr. Read headed the six exhibitors of three red cabbages with fine samples; other prizes being awarded to Messrs. E. Beckett and Basile in the order named. Six exhibits of six sticks of celery were staged, and the successful prize-takers were Messrs. Folkes, Lye, and Beckett. The first prize lot was a splendid exhibit. Mr. Folkes was also first for three stems of Brussels sprouts, Mr. Beckett second, and Mr. T. Wilkins third. Mr. W. Pope gained premier honours for six carrots with nice straight roots; Mr. E. Brown was a close second, and Mr. H. Folkes third. Messrs. Brown, Wilkins, and Basile were the successful exhibitors of six beets. Mr. Beckett was an easy first for six parsnips; Messrs. Read and Basile were second and third respectively; while the awards for six leeks were made in favour of Messrs. Lye, Wilkins, and Becket, all of whom staged the variety known as the Lyon.

There were five exhibits of eight onions, and the awards were made in favour of Messrs. Beckett, Folkes, and Wilkins. Mr. Beckett also headed the six exhibitors of two dishes of potatos with fine tubers of Windsor Castle and Snowdrop; Messrs. Folkes and Lye were the other prize-takers. Messrs. Lye, Folkes, and Read gained awards for their exhibits of eight turnips. Eight dishes of tomatos were staged, and the awards were made in favour of Messrs. Beckett, Read, and Folkes, each of whom showed the variety Perfection, a term which might well be applied to the samples on view. A silver cup, valued at fifteen guineas, was offered to the exhibitor who gained the greatest number of points in all the classes of this section, and it is gratifying to state that Mr. Beckett was the lucky recipient, thus showing by practice the excellence of his teaching in the articles on cultivating vegetables for exhibition which have recently appeared in these columns.

Non-competitive Displays.

One of the most attractive of the non-competitive displays was the gigantic exhibit put up by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham; his exhibit was in three parts, a large central table of vases and stands of cut blooms representing all the newer varieties, and then a large group of plants on either side of this. The vases of blooms were most tastefully put up, and over a groundwork of crotons, ferns, &c., bunches of brightly-coloured early flowering varieties. In the stands we made note of Mrs. Mease, Mrs. Mary Underhay, G. J. Warren, Rayonante, &c. The groups of plants were well put up, backed by bamboos, and fronted by a few crotons and ferns, these foliage plants not being mixed with the chrysanthemums as on former occasions. Mr. H. J. Jones thoroughly deserved the gold medal awarded, for he made a famous display. Space limits prevent us from detailing the many new and rare varieties exhibited.

A grand exhibit came from the home of flowers, Swanley, Kent, the Messrs. H. Cannell and Sons gaining a gold medal for their extensive and comprehensive exhibit, which consisted of banks of brilliant cannas in pots, pelargoniums in great variety, and a representative collection of the newer chrysanthemums, making a showy bank of bloom. Some of the most prominent varieties were Lady Hanham, Ella Curtis, Mrs. T. A. Compton, Mrs. W. Mease, Edith Tabor, N.C.S. Jubilee, Souvenir de Molines, Miss Sanderson, Marie Calvat, President Bevan, and Chatsworth.

A first-class exhibit was put up by Mr. W. J. Godfrey, Exmouth. At the back Mr. Godfrey put up large spray-like vasefuls of President Nonin, Golden Harvest, Captain Bellamy, a good yellow, &c. The single specimen cut blooms numbered about eighty to a hundred, and were fine examples: Miss G. Vanderbilt, G. J. Warren, R. Powell, Mrs. Bryce, Princess Charles of Denmark, Wilfred Godfrey, Mrs. Mease, Ella Curtis, Lady Ridgeway, Le Grand Dragon, and Mrs. E. Shrimpton were notably and conspicuously good. A silver-gilt medal was awarded to this celebrated Devonshire grower and exhibitor.

A large table of plants exhibited by Messrs. B. S. Williams and Son, Holloway, secured a small gold medal. Winter-flowering begonias, heaths, solanums, and Acalypha Sanderi were conspicuous, but the chief attractions were the orchids, which included a fine collection of cypripediums, calanthes, Oncidium crispum, O. varicosum, dendrobiums, and cattleyas. Mr. Robert Owen, Maidenhead, was awarded a silver-gilt medal for a collection of new varieties, in which were some promising novelties, such as La Tzigane, Mrs. Winkley Smith, Mrs. W. Mease, Mary Molyneux, Thomas Singleton, Sir Herbert Kitchener, Lord Cromer, Paul Oudot, and Charles Page. The group of chrysanthemums staged by Messrs. John Peed and Sons, Roupell Park Nurseries, Norwood, well deserved the silver medal which was accorded to it.

Messrs. J. Laing and Sons, Forest Hill Nurseries, were awarded a silver-gilt medal for a well-grown collection of conifers and berried shrubs. A gold medal was awarded to Messrs. W. Cutbush and Son, Highgate, for their contribution, in which some very fine chrysanthemums, lily of the valley, and carnations were to be seen. T. S Ware, Limited, Tottenham, showed a table of new chrysanthemums, together with a few late dahlias, chiefly cactus varieties, and was awarded a small silver medal. Mr. John Russell, Richmond, Surrey, had a first-rate exhibit of ivies in great variety, the golden and silver variegated forms being well represented. This was accorded a silver medal. A pretty table decoration of chrysanthemums and autumn foliage was shown by Mr. J. Williams, Oxford Road, Ealing.

Miscellaneous Exhibits.

Messrs. C. P. Kinnell and Co., Southwark Street, S.E., had an exhibit of their well-known boilers and other greenhouse sundries. Rustic terra-cotta pots came from Messrs. D. Dowel and Son, Ravenscourt Avenue, W.; and the Agricultural and Horticultural Association (Limited), who had an exhibit, and Mr. J. Arnold, 32, St. Paul's Road, London, N.W., were also in evidence. The Permanent Nitrate Company, Gracechurch Street, E.C., exhibited their wares, and also a large collection of farm and garden produce. The Ichthemic Guano Company and the Lawes Chemical Manure Company each had an exhibit of their specialities, and both staged blooms grown with the aid of their fertilisers. Mr. John Pinches, Crown Street, Camberwell, had an exhibit of his well-known useful indestructible labels and a few other sundries; Mr. J. George, Redgrove Road, Putney, had a large exhibit of horticultural sundries, including Thomson's vine and plant manure, and baskets of fine Gros Colmar grapes grown with its aid; Mr. Howes showed his patent watering cans; Messrs. Fenton and Son, Tudor Street, E.C., sent specimens of their heating apparatus, notably their Kozmopolite condensing stove; Mesrrs. Dosby and Sons, King's Cross, staged heating apparatus specially suitable for amâteurs' conservatories.

HORNSEY CHRYSANTHEMUM SOCIETY, November 1 and 2.

THE ninth annual exhibition of the above society was held on the above dates in the National Hall, Hornsey, and although the entries were, unfortunately, not so numerous as usual, the show may be pronounced a success. Unfortunately, to the bad weather on the second day was due a marked falling off in the attendance, and consequently a diminution in the receipts.

CUT BLOOMS were of good quality, although the entries in the various classes were not so numerous as could be desired, and it is to be hoped that next year there will be an improvement in this respect. For eighteen Japanese the prize was awarded to Mr. W. Austin, Eastfield Road, whose best blooms were Viviand Morel, Colonel W. B. Smith, Edith Tabor, Louise, Lady Byron, Mrs. Trafford, Excelsior, and Charles Davis. Mr. A. F. Bongard, Corrie Glyn, Hertford Road, Hornsey, was first in the class for twenty-four Japanese, staging magnificent blooms of Viviand Morel, William Seward, Mdlle. Thérèse Rey, Mons. Gruyer, E. Silsbury, Oceana, Pride of Madford, Commandant Blissett, Lady Hanham, Van der Heede, Mons. Panckoucke, Mrs. E. Teichmann, Hairy Wonder, International, Mdlle. G. Henry, Eva Knowles, Edith Tabor, Australie, C. Davis, J. Myers, Phœbus, G. Schwabe, and Mutual Friend. Mr. F. J. Matthews, Warrington Road, Crouch End, was second. Mr. T. L. Turk, gardener to T. Boney, Esq., Southwood House, secured the premier award for twelve Japanese distinct with very good blooms of Reine d'Angleterre, Préfet Robert, Edith Tabor, James Bidencope, Mons. C. de Leche, Lady Ridgeway, Commandant Blussett, Mutual Friend, Pride of Madford, Graphic, and Robert Powell. The second prize was allotted to Mr. H. C. Green, gardener to W. B. Lister, Esq., Ladywell, Church Lane, Hornsey. Mr. Turk was first for six Japanese and six incurved, his Japanese being good blooms of James Bidencope, Mutual Friend, Commandant Blussett, Pride of Madford, Lady Ridgeway, and Edith Tabor; the incurved were Baron Hirsch, Leonard Payne, Brookleigh Gem, Refulgens, Globe d'Or, and M. R. Bahaunt. Mr. Green secured the other award. For twelve Japanese, not less than nine varieties, the prizes went to Mr. Bongard and Mr. B. R. Durrant, the former's stand containing nice blooms of William Seward, Charles Davis, Mutual Friend, Mdlle. Thérèse Rey, Mons. Chrétien, Madame G. Henry, Pride of Madford, E. Silsbury, G. C. Schwabe, and Lady Derby. Mr. Durrant was, however, first for twelve Japanese distinct, his best blooms being Phœbus, John Seward, Louise, Colonel W. B. Smith, Pride of Madford, Swanley Giant, and Mdlle. Lacroix; Mr. Bongard was second. To Mr. J. Brooks, gardener to W. W. Reynolds, Esq., J.P., The Grove, Hornsey, was awarded the first prize in the class for eighteen Japanese, nine varieties, and two of each variety; he staged excellent examples of Madame Gustave Henry, Reine d'Angleterre, Pride of Madford, Mrs. Mease, Mutual Friend, M. Chenon de Leche, Viviand Morel, Phœbus, and President Borel. Mr. Bongard was again first for twelve Japanese, two of each of six varieties, with good blooms of Mons. Chrétien, Phœbus, Eva Knowles, Madame Gustave Henry, Van der Heede, and William Seward; Mr. F. J. Matthews, Barrington Road, Crouch End, secured the other award. Mr. Bongard was also first for six Japanese of one variety, with excellent specimens of Phœbus, whilst a fine bloom of Oceana secured him the premier award for a single specimen cut bloom in vase. In this class Mr. Durrant, with a good bloom of Gustave Henry, was second. Mr. Durrant was, however, first for twelve Japanese, distinct, with good examples of William Standring, Lady Byron, Mons. Panckoucke, Pride of Madford, Mutual Friend, Phœbus, Mons. O. Lallimond, Edith Tabor, Elthorne Beauty, and Louise; Mr. Matthews was second. Again was Mr. Durrant first, this time with six incurved, distinct, his best blooms being Baron Hirsch, Duchess of Fife, and Madame Darrier. A really excellent stand was that staged by Mr. F. Seagrief in the class for twelve Japanese for those who had not previously taken a prize, who showed fine blooms of Madame Carnot, William Seward, Phœbus, Elaine, Gloire de Rocher, Charles Davis, and Viviand Morel. Mr. Austin secured the premier award for six incurved distinct with blooms of Jeanne d'Arc, Globe d'Or, C. H. Curtis, Duchess of Fife, Baron Hirsch, and Brookleigh Gem. Mr. Green was first for twelve Japanese distinct with really fine examples of Graphic, Phœbus, Edwin Molyneux, A. Gold, Commandant Blissett, Viviand Morel, Trafford Utopia, Charles Davis, Sunflower, Mrs. C. Hill, and Lady Randolph. Mr. J. Brooks was the successful exhibitor in the class for eighteen Japanese, distinct, with very fine blooms of M. Chenon de Leche, Viviand Morel, Mrs. Mease, Pride of Madford, Australie, Simplicity, Louise, Dr. Seward, Mrs. G. Andre, Phœbus, Mutual Friend, Madame Borel, Robert Powell, Edwin Molyneux. Madame Gustave Henry, Graphic, Edith Tabor, and Reine d'Angleterre. For six incurved one variety very good specimens of Baron Hirsch secured Mr. Turk the premier award, Mr. Saunders, gardener to G. Hayes, Esq., being second with Globe d'Or, and Mr. F. C. Green, gardener to W. B. Lister, Esq., third with Baron Hirsch. Mr. Turk was also first for six distinct incurved, staging good blooms of Leonard Payne, Baron Hirsch, Mrs. Bonn, Brookleigh Gem, Globe d'Or, and Mons. R. Bahaunt; Mr. Green was second. Mr. Turk was also first in the class for thirty-six pompons, staging excellent examples of Fremy, Mdlle. Elise Dordan, Maid of Kent, Nelly Rainford, Comte de Morny, William Westlake, Rosinante, Mrs. Holmes, President, Osiris, and Madame Marthe. The second award went to G. Saunders. For six bunches of pompons Mr. Austin secured the premier award, his best blooms being Black Douglas, Madame Marthe, Comte de Morny, W. Westlake, Adonis, and Prince of Orange.

Groups and Specimen Plants.—In the class for a group of chrysanthemums not to exceed fifty square feet the first prize went to Mr. H. Ward, gardener to H. T. Eve, Esq., Q.C., Hermiston, whose group contained some very fine flowers, although the arrangement was not so good as might be desired. The second prize went to Mr. G. Saunders. Mr. Durrant secured the award for a group of chrysanthemums not to exceed thirty feet with an exceedingly tasteful arrangement. For six plants Mr. Austin was first, with Mr. J. Bainbridge second, and Mr. J. Newman third; whilst for one plant Mr. Seagrief secured the award. Mr. Seagrief was also the successful exhibitor in the class for two plants.

Fruit and Vegetables.—Mr. Dunn was first for three bunches of blackgrapes, whilst for three dishes of dessert apples the first prize went to Mr. Brooks and Mr. A. Newman, gardener to C. W. Nicholls, Esq., Rokesby. Mr. Brooks was also successful with three dishes of cooking apples, with Mr. Turk and Mr. Newman second and third. For a collection of vegetables the prizes went to Mr. Stovel, Mr. Newman, and Mr. Durrant.

A very tasteful arrangement of flowers and plants, for which was awarded a silver medal, was staged by Mr. A. MacGregor, Prospect Nursery, Turnpike Lane, Hornsey, whilst a splendid collection of fruit was kindly exhibited by Alderman Sir M. Samuel, The Mote, Maidstone.

REIGATE CHRYSANTHEMUM SOCIETY, November 3.

The tenth annual exhibition held on the above date at the Public Hall fully sustained, even if it did not increase, the enviable reputation which has been gained by this society for its interesting shows. Unfortunately the entries were not quite so large as on some previous occasions, but the quality of the exhibits was very good. There was a slight falling off in the classes allotted to cottagers, for which the recent drought must be held responsible.

Groups and Plants were well represented, and constituted a pleasing feature. For a group of chrysanthemums arranged on a space occupying fifty superficial feet Mr. J. B. Mead, gardener to M. Marcus, Esq., High Trees, Redhill, gained the first prize with a collection in which there were about two hundred blooms, and Mr. W. Cooper, gardener to P. Paddock, Esq., who was second, only succeeded in missing the premier honour in consequence of the somewhat faulty arrangement. Mr. J. Fitt, gardener to F. C. Campion, Esq, Colley Manor, was third. The smaller groups were almost equally good, and Mr. W. Hunt, gardener to G. Jackson, Esq., Cherchefille, gained the first prize with a superb group, Mr. W. Seaman being second. The group of pompons made a nice change, and the premier award was made in favour of Mr. G. Smith, gardener to R. W. Myles, Esq., Craigendowie, the second prize going to Mr. A. J. Dodd, gardener to Mrs. Campion, The Frenches, Redhill. Mr. G. Stonnard, gardener to Sir A. T. Watson, Reigate Lodge, and Mr. G. Steer, gardener to P. Mordan, Esq., Stone House, were the successful competitors in the class for three bush specimens of Japanese varieties, and the positions of these two exhibitors were reversed in the class for six pompons in pots. The primulas staged were much better than is usually the case at this show, and for six plants the prizes were awarded to Mr. Steer, Mr. Cotton, and Mr. Seaman in the order named. The successful exhibitors of six cyclamen were Mr. Hunt, Mr. Smith, and Mr. Steer; for six table plants Mr. Mead, Mr. Dodd, and Mr. Smith were the prize-takers, and for six solanums the awards were made in favour of Mr. Smith and Mr. Fitt.

Cut Blooms were of the usual good quality, although the competition was not quite so keen as on some occasions. For thirty-six Japanese Mr. C. J. Salter, gardener to T. B. Haywood, Esq., Woodhatch Lodge, was awarded the first prize with a fine, even set of blooms. He staged Australie, Phœbus, Lady Byron, Pride of Madford, Robert Powell, C. B. Haywood, A. H. Fewkes, Charles Davis, Colonel W. B. Smith, Edith Tabor, Edwin Molyneux, Mons. H. Jacotot fils, Graphic, Leonard Brown, Madame Carnot, Madame Marius Ricoud, Mons. Chenon de Leche, Mons. Panckoucke, Mrs. Harman Payne, Mrs. Lees, Mrs. J. Lewis, Mrs. Maling Grant, Mrs. N. C. Robin, N. C. S. Jubilee, Oceana, Pride of Hokell, Nellie Pockett, Werther, William Seward, Reine d'Angleterre, Viviand Morel, Mrs. Barks, Mons. Hoste, Lady Ridgeway, Mdlle. Garielle Seince, and Madame Desblanc. In the second prize stand, shown by Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Cottage, were remarkably fine blooms of Mrs. H. Weeks, President Nonin, and Mutual Friend. Mr. Dodd and Mr. King, gardener to J. Colman, Esq., Gatton Park, were awarded prizes in the order named for two dozen Japanese, both staging grand blooms, and Mr. W. Hunt headed the competitors for twelve Japanese. As in the previous class there was a spirited competition for six blooms distinct and six of one variety; in the former case the first prize was gained by Mr. S. J. Crofts, gardener to W. D. Freshfield, Esq., The Wilderness, and in the latter by Mr. W. King.

The classes for incurved blooms were not quite so well represented as the Japanese, either as regards number or quality of the flowers. There were only two exhibitors of twenty-four Japanese, and the first collection was staged by Mr. C. J. Salter, who had representative examples of Alfred Lyne, C. H. Curtis, Austin Cannell, Brookleigh Gem, Baron Hirsch, D. B. Crane, Duchess of Fife, Globe d'Or, Jeanne d'Arc, Mr. Murray, Lord Wolseley, Prince Alfred, Novelty, Yvonne Desblanc, Madame Darrier, Dorothy Foster, Mons. Martignac, Mrs. C. H. Kingston, Ma Perfection, Miss M. A. Haggas, Miss Violet Tomlin, Lady Isabel, Emile Nonin, and M. Lucile de la Drome. Mr. W. King was a close second. Prizes were awarded as written to Messrs. Dodd and Steer for twelve incurved, to Mr. Crofts, who was also first for six blooms of one variety, and Mr. Slogrove for six distinct incurved.

The successful exhibitors of twelve reflexed in not less than eight varieties were Messrs. Salter and Steer, who had blooms of high quality, while Mr. Cotton was first for six varieties. Messrs. Salter and Dodd received awards for their exhibits of twelve anemones, and the prize-takers for twelve pompons were Messrs. Steer, Salter, and Dodd. The blooms were for the most part of good quality, and produced a bright display. Mr. Crofts was first in each class for six anemones and six pompons. The president's prize offered for nine Japanese varieties, three blooms of each to be shown with foliage, was very strongly contested, and was gained by Mr. W. Slogrove.

PUTNEY AND WANDSWORTH CHRYSANTHEMUM SOCIETY, November 3 and 4.

The above society celebrated its coming of age by holding an excellent show on the above dates in the Wandsworth Town Hall, a show which proved to be in every way a great success.

Groups and Specimen Plants.—As usual these were a great feature of the show. For a group of chrysanthemums not to exceed 40 feet super a magnificent exhibit of fine flowers, well staged, secured to Mr. Tew, gardener to Mrs. E. Gordon, Westcombe Lodge, Park Side, the premier award, Mr. C. Taylor, Belmont Gardens, Wimbledon Common, being second. The exhibits in the class for a miscellaneous group were all of very good quality, Mr. A. Methven, gardener to W. Keiller, Esq., Fernwood, Wimbledon Park, being first with a very tasteful arrangement. The other awards were made in favour of Mr. C. Taylor and Mr. Pett, gardener to J. Dickie, Esq., Lower Park, Putney Hill. In the class for two large-flowered chrysanthemums Mr. G. Mynett, gardener to J. Carlisle, Esq., Ashburton House, Putney Heath, was first, with Mr. C. Bentley, gardener to Major Bosworth, Cedar Court, Roehampton, second. Mr. Mynett and Mr. Bentley also secured the same awards for two Japanese, whilst for a single specimen incurved the successful exhibitors were Mr. Bentley, Mr. Grimsell, gardener to W. Graham, Esq., and Mr. Twilley, Merton Road, Wandsworth. Mr. Bentley secured the awards for single specimen Japanese and a standard pompon, and he was also first for a single specimen pompon; Mr. Mynett and Mr. Grimsell were second and third respectively. Mr. Mynett was, however, first for an untrained bush plant, the other awards going to Mr. Twilley and Mr. Tew. Mr. French, gardener to Mrs. Barclay, Ambleside, Wimbledon Park, was first for six plants, single stem Japanese, Mr. Mynett second, and Mr. Dark, gardener to J. Hooker, Esq., Lomond House, Putney, third.

Cut Blooms were numerously staged and of good quality. In the big class of thirty-six Japanese, twelve incurved and twelve Japanese incurved, in which a handsome cup of the value of twenty-five guineas was given by the local tradesmen. Mr. G. J. Hunt, gardener to Pantia Ralli, Esq.. Ashtead Park, Epsom, who won the cup last year, was again successful, and thus wins the cup outright. The incurved he staged were fine blooms of Globe d'Or, Charles Curtis, Violet Tomlin, Mons. Desblanc, Golden Empress, Miss Violet Foster, Ma Perfection, Miss Dorothy Foster, Empress of India, Madame Darrier, John Lambert, and Duchess of Fife; this latter bloom was awarded the prize for the best incurved in the show. The Japanese incurved were: Duke of Wellington, Oceana, Pride of Madford, Louise, Mrs. Carrington, Robert Powell, Lady Ridgeway, Swanley Giant, Australie, Master H. Tucker, N.C.S. Jubilee, and President Nonin. The Japanese were magnificent examples of Graphic, Ella Curtis, Etoile de Lyon, Viviand Morel, Rose Wynne, Lady Hanham, Mrs. Richard Jones, Mary Molyneux, Lady Byron, Eva Knowles, Edith Tabor, Yellow Carnot, Mrs. J. Lewis, Lanawee, Mons. Chenon de Leche, John Seward, Mons. Gruyer, Simplicity, E. Molyneux, Mrs. W. H. Lees, Mephisto, Pride of Exmouth, G. W. Palmer, Mutual Friend, Madame Marius Ricoud, Mdlle. Thérèse Rey, Modesto, International, Jules de Ferry, Phœbus, La Moucherotte, Mons. Panckoucke, Niveus, M. Sillander, Mons. Hoste, and Admiral. Mr. F. King, gardener to A. F. Perkins, Oakdene, Holmwood, Surrey, was awarded the second prize, and amongst his blooms were noticeable: Phœbus (awarded the prize for the best Japanese bloom in the show), John Seward, Lady Hanham, and Ella Curtis. The third prize went to Mr. J. F. McLeod, gardener to J. C. Morgan, Esq.. Dover House, Roehampton.

Mr. Bentley secured the premier award for twenty-four incurved, the best blooms he staged being Lady Isabel, Lord Wolseley, Charles Curtis, Prince Alfred, Empress of India, Violet Tomlin, Jeanne d'Arc, Lucy Kendall, Empress Eugénie, M. Darrier, Refulgens, Mrs. S. Coleman, Brookleigh Gem, Mrs. C. R. Kingston, Baron Hirsch, Queen of England and Globe d'Or; Mr. French was second, noticeable on his stand being good blooms of Ernest Cannell, Baron Hirsch, Mrs. R. C. Kingston, and J. Agate. Mr. Bentley was also first for twelve incurved, his exhibit containing fine examples of Prince Alfred, J. Agate, Lord Wolseley, Lady Isabel, Queen of England, C. H. Curtis, M. Darrier, Baron Hirsch, Violet Tomlin, Brookleigh Gem, Globe d'Or, and Mrs. R. C. Kingston. The second prize went to Mr. French. Mr. J. Smith, gardener to the Lady Superior, The Convent Gardens, Roehampton, was first for six incurved, distinct, staging good blooms of Violet Tomlin, D. B. Crane, Baron Hirsch, Globe d'Or, Brookleigh Gem, and Miss M. A. Haggas. The other prize went to Mr. Mynett. In the class for twenty-four Japanese, distinct, Mr. Dark was the most successful exhibitor, staging splendid blooms of Australie, Phœbus, Mr. S. C. Roby, G. Palmer, E. Molyneux, Oceana, Lady Byron, Mons. Panckoucke, Duke of Wellington, James Bidencope, E. Andre, Elsie Teichmann, International, Edith Tabor, President Borel, Charles Davis, William Seward, C. Smith, Robert Powell, Chenon de Leche, Surprise, Louise, Eva Knowles, and Mutual Friend; Mr. French was second. Mr. Smith secured the premier award for twelve Japanese, distinct, with fine examples of Pride of Madford, J. Shrimpton, Colonel W. B. Smith, Sunflower, Mdlle. Thérèse Rey, W. Wright, Mrs. C. H. Payne, Robert Powell, C. Davis, Lady Tait, and James Bidencope. The second prize went to Mr. French. Mr. Mynett, Mr. Dark, and Mr. Bentley were the successful exhibitors in the class for six Japanese, distinct, Mr. Mynett's blooms being Phœbus, Pride of Madford, Mdlle. Thérèse Rey, President Borel, Mrs. S. C. Probyn, and Robert Powell. Mr. Bentley secured the award for six reflexed, with good examples of Cloth of Gold, Dr. Sharp, Chevalier Domage, Pink Christine, Cullingfordi, and Golden Christine. He was also successful for twelve bunches of pompons, the best being Laciniatum, Lady Dorothy, Black Douglas, Mr. Austin, Mdlle. E. Dordan, white, M. Martha, and Golden Martha. Mr. Bentley and Mr. Mynett were first and second for six singles. Of Mr. Bentley's collection the best were perhaps Miss Cressy, Yellow Purity, Terra Cotta, Lady Churchill, Purity, and Oceana. Quite a feature of the show were the exhibits in the class for twelve vases of chrysanthemums, twelve varieties, three blooms in each, and only chrysanthemum foliage to be used. Mr. Hunt was first, Mr. McLeod second, and Mr. French third.

In the class for four ferns the prize-winners were Mr. Hutton, gardener to G. E. Frere, Esq., The Camels, Wimbledon Park, Mr. Methven, and Mr. Mynett; and for primulas the successful exhibitors were Mr. French, Mr. Mynett, and Mr. Tew. Mr. Mynett and Mr. Tew were first and second respectively for table plants, whilst for berried plants the awards were made in favour of Mr. Taylor, Mr. French, and Mr. Mynett.

FRUIT AND VEGETABLES.—There were five entries in the class for black grapes, the successful exhibitors being Mr. Bentley, Mr. Methven, and Mr. Taylor; whilst for white grapes Mr. Methven, Mr. Hutton, and Mr. Bentley were the prize-winners. Mr. Taylor, Mr. Tew, and Mr. Methven were first, second, and third for dessert apples, for kitchen apples, and for pears. For the best collection of vegetables the awards went to Mr. Hutton and Mr. Bentley, whilst for six varieties of vegetables the order of positions of the two was reversed.

Special mention must be made of the fine group of miscellaneous plants and flowers occupying the whole of the lower end of the hall and staged by Messrs. Veitch and Sons, Chelsea.

FINCHLEY CHRYSANTHEMUM SOCIETY, November 3 and 4.

THE above society held its thirteenth annual exhibition in the New Lecture Hall, East Finchley, on the above dates, and fully maintained the high reputation this society has enjoyed. Perhaps the exhibits were scarcely so numerous as usual, but on the other hand the quality of the cut blooms was very fine indeed, an improvement which it is very pleasing to note, seeing that so often excellence of culture appears to be ranked below plenitude of exhibits.

CUT BLOOMS were fairly numerously staged and of excellent quality, the Japanese being on the whole superior to the incurved. In the class for twelve Japanese and twelve incurved distinct there were four exhibits, the premier award going to Mr. H. A. Page, gardener to Mrs. P. Twells, Chase Side House, Enfield. His best Japanese were Australie, Robert Cannell, Edwin Molyneux, Pride of Madford, Colonel W. B. Smith, Mutual Friend, Thomas Wilkins, and Mrs. Weeks, whilst of his incurved the pick were Queen of England, Violet Tomlin, Baron Hirsch, Globe d'Or, Madame Darrier, and C. H. Curtis. The second prize went to Mr. J. Sandford, gardener to G. W. Wright-Inglis, Esq., North Finchley, and the third to Mr. S. Foster, gardener to R. Nivison, Esq., Hendon. For twenty-four Japanese Mr. J. Brookes, gardener to W. J. Newman, Esq., Totteridge, secured the premier award. In his stand were to be seen fine blooms of Australie, J. Seward, Mons. G. Henry, W. G. Nevill, J. Bidencope, E. Tabor, Mons. C. de Leche, Oceana, Angleterre, M. E. Rosette, Phœbus, Pride of Madford, B. Nowell, and Marie Hoste. In the class for six blooms of Mutual Friend the competition was keen, and of the six exhibitors Mr. F. Read, gardener to G. J. Morris, Esq., Hendon, was adjudged first, Mr. Brookes second, and Mr. Page third. Mr. Brookes was, however, first for six yellow Japanese with fine blooms of Phœbus. The other awards went to Mr. A. Page and Mr. Foster. For three pairs of incurved the premier award was made in favour of Mr. Page, who staged fine blooms of Globe d'Or, C. H. Curtis, and Brookleigh Gem. Mr. C. Bradley, gardener to G. Watson, Esq., North Finchley, was second, and Mr. Cook third. Mr. Brookes's splendid blooms of Marie Hoste placed him first in the class for six Japanese of one variety, Mr. Sandford being second, and Mr. H. Tilbury, gardener to C. E. B. Young, Esq., Southgate, third. Mr. Brookes was also first for twelve Japanese distinct, staging good examples of M. E. Rosette, R. Powell, Oceana, Angleterre, E. Tabor, Pride of Madford, Modesto, Lady Hanham, C. de Leche, Phœbus, Marie Hoste, and Mrs. W. H. Lees. The other awards went to Mr. Sandford and Mr. Tilbury. In the class for six incurved and six Japanese distinct Mr. G. Partridge, gardener to T. R. Whiteley, Esq., East Finchley, was adjudged first. His incurved were nice blooms of D. B. Crane, Baron Hirsch, C. H. Curtis, Mons. R. Bahaunt, Madame Darrier, and Brookleigh Gem, whilst the Japanese he staged were Mutual Friend, Edith Tabor, Pride of Madford, Mrs. H. Weeks, Lady Byron, and Viviand Morel. Mr. Martin, gardener to Mrs. Langton, Hendon, was second, and Mr. G. Spacey, gardener to H. Ward, Esq., Finchley, third. There were five entries in the class for six Japanese one variety, Mr. F. Read being first with good examples of Mrs. C. H. Payne, the other awards going to Mr. Martin and Mr. C. J. Webber, gardener to F. Abethell, Esq., Muswell Hill. For twelve Japanese distinct Mr. Martin was, however, first with nice specimens of Australie, Phœbus, Edith Tabor, Mrs. C. Teichmann, Eva Knowles, Chenon de Leche, Simplicity, Pride of Madford, Lady Ridgeway, James Bidencope, Mdlle. Thérèse Rey, and Dorothy Seward; Mr. Partridge was second, and Mr. Spacey, gardener to H. Ward, Esq., Finchley, third. Mr. Wright secured the principal award for six white Japanese with excellent blooms of Madame Carnot, the other prizes going to Mr. A. L. Bongard and Mr. W. Timewell.

For six Japanese distinct Mr. Timewell was, however, first, with Mr. Wright and Mr. Bongard second and third. Mr. Partridge, Mr. Bradley, and Mr. Cook were in the order named the successful exhibitors in the class for six incurved. For six Japanese distinct the prizes went to Mr. Read, Mr. Partridge, and Mr. Spacey. On Mr. Read's stand were fine blooms of Mrs. C. H. Payne, Phœbus, Madame Carnot, Charles Davis, Viviand Morel, and Mdlle. Gilbert. Mr. Martin secured the premier award for six incurved distinct, staging excellent examples of James Murray, Duchess of Fife, Baron Hirsch, Globe d'Or, Jeanne d'Arc, and Madame Darrier; Mr. Spacey was second, with Mr. Partridge third. Mr. Wright was first for twelve Japanese distinct, his best blooms being M. Gruyer, Dorothy Shea, Pride of Madford, Phœbus, Duke of York, Chenon de Leche, G. C. Schwabe, Charles Davis, and Mdlle. Thérèse Rey. The other awards were in favour of Mr. Bongard and Mr. Timewell. For three pairs of Japanese the prizes went to Mr. Wright, Mr. Russell, and Mr. James, whilst for six yellow Japanese Mr. Wright, Mr. Bongard, and Mr. Timewell were the successful exhibitors. Mr. Tilbury secured the award for twelve incurved distinct, his best blooms being C. H. Curtis, Duchess of Fife, Lord Wolseley, A. Lyne, Jardin des Plantes, and Brookleigh Gem. A fine exhibit by Mr. Page secured him the award in the class for twelve bunches of chrysanthemums with foliage. Mr. J. Maule, gardener to H. T. Matthews, Esq., Hadley, was first for twelve reflexed, noticeable on his stand being good blooms of Distinction, Golden Christine, Jelli, Elsie, King of Crimsons, Chevalier Domage, and Pink Christine; Mr. Page was second. Mr. Maule and Mr. Page were also first and second respectively for twenty-four large-flowered anemones, Mr. Maule's best blooms being Grand Alveole, Dawson, Thorpe Junior, Dame Blanche, Mrs. W. Gardner, and Jeanne Marty. For twelve large-flowered anemones Mr. Sandford was first, with good specimens of Delaware Junior, Gluck, Sequisition, Madame Lawton, Descartes, Delaware, and Minnie Chate; Mr. Maule and Mr. Page were second and third. Mr. Wright secured the premier award for six pompons, distinct, his best blooms being Fremy, Charles Dickens, Touissant, Morizel, White Madame Martha, Rubra Perfecta, and Golden Madame Martha. The other prizes went to Mr. Timewell and Mr. Taylor. For twelve bunches of pompons, distinct, Mr. Page was adjudged the most successful exhibitor, and on his stand were to be seen fine examples of Bessie Flight, B. M. Hart, Edith Rowbottom, Black Douglas, Maid of Kent, West Lake, and Adonis. The other awards went to Mr. Spacey and Mr. Cook. A fine stand of single chrysanthemums secured Mr. Speller, gardener to W. B. Tubbs, Esq., Finchley, the first prize, his best blooms being Rose Pink, Lady Churchill, Miss A. Holden, Yellow Jane, Miss Mary Anderson, Lizzie Mainwaring, Earlswood, Terra Cotta, Emily Wells, and Buttercup; Mr. Page was second.

GROUPS AND SPECIMEN PLANTS were not numerous; Mr. G. Neal, gardener to H. C. Stephens, Esq., M.P., Finchley, was first for a group of fifty square feet, with Mr. Foster second. Mr. Brookes was first for three trained Japanese plants, and also for a single trained specimen Japanese. In the latter class Mr. Tilbury was second. Mr. Brookes and Mr. Tilbury were also first and second respectively for single specimen incurved. For six table plants the prizes went to Mr. Read, Mr. Martin, and Mr. Webber.

FRUIT AND VEGETABLES were of excellent quality and fairly numerously staged. For three bunches of white grapes Mr. Sandford, Mr. Spelter, and Mr. Bradley were the successful exhibitors in the order named, whilst for black grapes Mr. Sandford and Mr. Page were first and second. Mr. Tilbury, Mr. Spacey, and Mr. Bradley were successful for three dishes of dessert apples; whilst for kitchen apples Mr. Neal was first, Mr. Tilbury second, and Mr. Bradley third. For a collection of vegetables the awards were in favour of Mr. Cook, Mr Low, and Mr. Page, in the order named.

A very fine feature of the show were the fine groups exhibited (not for competition) by Messrs. Cutbush and Messrs. B. S. Williams and Son.

PORTSMOUTH, November 2 and 3.

THE Portsmouth Chrysanthemum Society was this year fortunate in securing the Town Hall wherein to hold its twelfth annual show, which proved to be one of the best held under the new *régime*. The plants and groups were arranged around the sides of the hall under the galleries, the cut blooms, fruit, and vegetables occupied a prominent position on tables down the body of the hall. The arrangements were quite of the best in the hands of the hon. secretary, Mr. W. H. Berry.

CUT BLOOMS received the most encouragement and made a good display; the quality throughout was well up to the average. The principal class was that for forty-eight in thirty-six varieties, half to be incurved and the remainder Japanese. Four competed, making an attractive display. Mr. C. Penford, gardener to Sir F. Fitzwygram, Bart., Leigh Park, Havant, succeeded in winning the premier award by the fine quality of his Japanese blooms, which were heavy, brightly coloured, and well staged. The varieties were: Australie (two), Eva Knowles, Ella Curtis (two), M. Gustave Henry, Mrs. W. H. Lees, Mrs. C. H. Payne, Pride of Exmouth (two), very fine, Edith Tabor, Pride of Madford (two), Mrs. G. Carpenter, Modesto, Chenon de Leche, Viviand Morel, Primrose League, R. Powell, Mdlle. M. A. de Galbert, Colonel W. B. Smith, Lady Hanham, Phœbus, and E. Molyneux. Incurved were rather uneven. The varieties were: Lady Isabel, Lord Wolseley (two), C. H. Curtis (two), Duchess of Fife (two), Austin Cannell, Miss A. Haggas, D. Foster, Madame Darrier (two), Mrs. R. C. Kingston, Princess of Wales (two), Brookleigh Gem, Jeanne d'Arc, G. Haigh, R. Petfield, V. Foster, Mrs. S. Coleman, Lucy Kendall, Violet Tomlin, and Triomphe d'Eve. Mr. W. G. Adams, Clarendon Road, Southsea, was a good second. The incurved blooms here were much superior, but he lost much ground on the Japanese. Especially good was Princess of Wales, Duchess of Fife, and Mrs. N. Molyneux. Mr. F. G. Foster, Brockhampton Nurseries, Havant, was a good third. The class for twenty-four Japanese produced good competition, and as the exhibits were all of high class an attractive show was made. Mr. J. Agate, the Nurseries, Havant, easily beat Mr. Penford for premier place with a grand lot of blooms. Lady Byron, Australie, Mrs. W. Mease, Mdme. Carnot, President Nonin, Oceana, Milano, Mons. Hoste, M. de a Rocheterie, Simplicity, Australian Gold, Mrs. W. Popham, Lady Hanham, and Mdme. Philip Rivoire were the most noteworthy; Mr. Penford second, and Mr. Woodfine, gardener to Major Boyd, Emsworth House, third. Mr. Penford easily secured the leading award for twenty-four incurved with a fairly good stand of blooms. Princess of Wales, Jeanne d'Arc, Duchess of Fife, and Mdme. Darrier were the best. Mr. C. White second, and Mr. F. R. Williams third.

Amateurs staged strongly, the best twelve Japanese coming from Mr. White, Southsea, Mr. Courtnell and Mr. H. H. Lees, Cedar Road, Southampton, following in the order named. Numerous classes were provided for growers in Portsea Island only, and produced a full entry and good quality blooms. Mr. C. White secured the leading award for twenty-four Japanese, Mr. Adams occupying a similar position for twenty-four incurved, both staged creditably.

Much interest was centred in the table decoration, bouquet, and epergne classes, Miss Turner winning first prize in the first named with a pleasing arrangement. Messrs. W. Turner and Sons won for a bouquet of chrysanthemums, a similar honour falling to Mrs. E. H. Marshall, Southsea, for an elegantly decorated epergne.

For a group of chrysanthemums interspersed with foliage plants there were six entries. Mr. J. Agate was distinctly first with an arrangement that left little to be desired; Mr. Foster second. Mr. Bevans, Landport, staged the best six plants, freely flowered and not too formally trained. The same exhibitor won also for one specimen. Mr. J. Nance, Buckland, secured a like award in the amateurs' section.

Fruit and vegetables were numerous and good in quality. Mr. W. Cheator won for black grapes and two collections of vegetables, staging really good exhibits. Mr. Penford had the best white grapes, creditable examples of Muscat of Alexandria. First-class certificates were awarded to Mr. W. Wells, Earlswood Nurseries, for chrysanthemums Lord Ludlow, Miss Nellie Pockett, and Mrs. White Popham, all belonging to the Japanese section; to Mr. N. Molyneux, Rookesbury Park, Fareham, for chrysanthemum Jane Molyneux, creamy white Japanese; and to John Miles, incurved of much promise. Two certificates from the N.C.S. were awarded, one to Mr. Penford for his forty-eight chrysanthemum blooms, and the other to Mr. G. W. Adams for his exhibit of incurved blooms.

PLYMOUTH, November 3 and 4.

THE seventh annual exhibition of the West of England Chrysanthemum Society was held in the Guildhall, and was much the best of the series yet held. Spacious as is this splendid municipal building, additional space had to be provided by erecting a marquee near to the entrance of the hall. This contained many of the plants and all the vegetables, the latter being especially numerous, owing, no doubt, to the extra encouragement offered to exhibitors by the special prizes given in this section by Mr. R Sydenham, Birmingham. The arrangements necessary for such a vast show were as usual in the capable hands of Mr. Charles Wilson, the energetic honorary secretary, and were, as might be expected, efficiently carried out. The most interest centred in the cut blooms, of which there was a large display.

The principal class was for forty-eight Japanese, in not less than twenty-four varieties, and as there were six competitors it proved an interesting as well as good display. The first prize of £10 was somewhat easily won by Mr. G. W. Drake, The Cathayes Nurseries, Cardiff, with a magnificent set of large yet full quality specimens, beautifully staged. The varieties were Lady Hanham, Mrs. J. Lewis, grand, Mrs. G. W. Palmer, Madame Carnot, E. Molyneux, James Bidencope, Lady Ridgeway, Australie, Edith Tabor, full; Pride of Exmouth, Mutual Friend, Mons. Gruyer, Mons. Chenon de Leche, rich colour; Thos. Wilkins, Viviand Morel, Robert Powell, Mrs. C. H. Payne, Ella Curtis, Pride of Madford, especially deep in colour; Mrs. W. H. Lees, G. C. Schwabe, M. Gustave Henry, Elthorne Beauty, Mrs. G. Carpenter, Dorothy Seward, M. G. Bruant, Mrs. H. Weekes, Joseph Brooks, and Simplicity. Mr. G. Foster, gardener to H. Hammond Spencer, Glendanah, Teignmouth, was a good second; while Mr. W. H. Fowler, Claremont, Taunton, was an exceedingly close third. For twenty-four Japanese, in not less than eighteen varieties, there was also brisk competition. Mr. G. Stiles, gardener to the Rev. G. Lyon, Teignmouth, was a creditable first-prize taker with a stand of heavy, well-coloured blooms; Mons. Hoste, Lady Hanham, Milano, and Baron Adolph Rothschild were noteworthy. Mr. Foster was second, and Mr. Fowler third. In the class for twelve Japanese Mr. G. H. Paddon, gardener to H. Leah, Esq., Treverven, was the most successful, staging the following varieties in splendid condition: Phœbus, M. Chenon de Leche, Australian Gold, Magnificent, M. Hoste, Oceana, Reine d'Angleterre, and Viviand Morel; Mr. Stiles second. A class was provided for six incurved Japanese, but in which there were but two competitors. Mr. Paddon staged creditable examples of Australie and Oceana, and secured the leading award; Mr. Foster second. With grand examples of Souvenir de Petite Ami, Mr. Farmer, gardener to the Misses Carew, Buckfastleigh, won the first prize for six white; Mr. Foster second. For six of any colour, except white, there was spirited competition and a choice lot of blooms. Mr. Paddon won with fully-developed specimens of Australian Gold; Mr. Stiles followed closely with richly-coloured Phœbus; very fine Australie securing for Mr. Foster the remaining award. As compared with the Japanese the incurved section was poorly represented. For twenty-four Mr. J. Wilkins, gardener to Lady Theodora Guest, Inwood House, Blandford, won first place with blooms of varieties naturally possessing a rough exterior; Mr. Foster was second, with much smaller yet superior examples, showing the Chinese section much more truthfully. These two exhibitors reversed their position for twelve incurved, the winning stand containing many creditable examples. Anemone-flowered varieties were fairly well represented, but in the baskets of chrysanthemums the blooms were of inferior quality.

Good prizes were offered for the best floral display occupying a space six feet by five feet, and as this class had a prominent position assigned it in the centre of the hall it was a great attraction. Messrs. Perkins, Coventry, were easy first prize winners with one of their characteristic exhibits; Mr. J. Arnold, Stoke, was second; Mr. J. Tomlinson, Devonport, third, both staging creditably.

Groups of chrysanthemums, interspersed with foliage plants, occupying one hundred square feet, made a bold display at the sides of the hall. Mr. J. Webber, Plymouth, secured the leading award with a somewhat stiff arrangement of plants carrying good blooms; Lady Jackson, Pounds, Plymouth, second. Mr. F. Hodges, Plymouth, arranged an interesting group of orchids in front of the orchestra, which was much admired. Plants were numerously staged, adding much to the general appearance of the hall. Fruit was a feature, and so were the vegetables. Limit of space, however, forbids further notice.

SCOTTISH HORTICULTURAL ASSOCIATION.

AMONG the exhibits at the recent meeting of this body were fine centre pieces of chrysanthemums with grass and asparagus, prominent among which were Globe d'Or, Viviand Morel, W. H. Lincoln, Miss Watson, Source d'Or, &c.; the president also showed a charming glassful of General Jacqueminot rosebuds as fresh as if gathered in June.

Messrs. Greene and Sons showed a promising seedling chrysanthemum, the Portsman; Mr. Chaplin, St. Leonards, Edinburgh, a very charming trained and perfectly bloomed plant of Begonia Gloire de Lorraine; Mr. Little, Largin Castle, a nice collection of hydrangeas with bluish blooms from the open air. Mr. McMillan, of Trinity Cottages, sent some half dozen of the pretty dwarf magenta chrysanthemum, Madame Marie Masse, a most profuse bloomer, about a foot high. Mr. Dalgleish sent a remarkably delicate seedling tuberous-rooted begonia of great promise, of full size and delicate colours.

The lecture on this occasion was given by Mr. D. McDonald, who discoursed upon the "Chrysanthemum for Cut Flowers and Conservatory Decoration." Mr. McDonald dealt with the subject in a most practical and yet attractive manner, and the large audience accorded him a hearty vote of thanks.

ROYAL HORTICULTURAL SOCIETY, November 8.

THERE was but a small exhibition at the Drill Hall on the above date, and also a small attendance, owing to the counter-attraction provided by the National Chrysanthemum Society.

FLORAL COMMITTEE.

A splendid group of fifty species and varieties of polypodiums was put up, in addition to fine examples of Begonia Gloire de Lorraine, by Mr. H. B. May, Dyson's Lane Nurseries, Edmonton; and a nice collection of dahlias, principally pompons and cactus, was contributed by Messrs. T. S. Ware and Co. (Limited), Tottenham. Messrs. Sander and Co., St. Albans, sent some fine plants of Dracæna Sanderiana and Acalypha Sanderi; and begonias, Myra and Mrs. Heal, came from Messrs. J. Veitch and Sons (Limited), Chelsea. About a hundred blooms of Japanese and Japanese incurved blooms were staged by Mr. W. Wells, Earlswood, Redhill. Some of the finest were Mr. T. Carrington, Mrs. Mease, G. J. Warren, and John Pockett, Lord Ludlow, Mrs. White Popham, and a new bright yellow hairy variety, named Leocadia Gentil, a sport from white Louis Bœhmer. Mr. W. J. Godfrey, Exmouth, put up some fine chrysanthemums, including King of the Yellows, Dome d'Or, incurved varieties; and Mr. T. Carrington, Mrs. J. G. Glenner, Lord Boston, Pres. Bevan, Marie Calvat, Le Grand Dragon, and Autumn Glory, all Japanese varieties of great beauty.

The Chelsea firm of Messrs. J. Veitch and Sons showed some handsome perennial asters, such as A. grandiflora, A. Tradescanti, and A. Drummondi Sappho. Messrs. F. Sander and Co., St. Albans, put up a splendid lot of plants of the showy Acalypha Sanderi, and A. Godseffiana.

ORCHID COMMITTEE.

Mr. G. Day, gardener to H. T. Simmonds, Esq., Woodthorpe, Beckenham, sent a pretty little collection of orchids, Odontoglossum grande and Oncidium vancosum being especially good. Mr. Smith, orchid grower to the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, showed a few good orchids, including Lælio cattleya Semiramis, Cattleya T. Austin, and C. Mrs. Edicott. Messrs. J. Veitch and Sons, Chelsea, contributed a good display of orchids, including many most interesting plants, such as Cypripedium Lawrenceanum and Leanum, Miltonia Bleuana with seven beautiful flowers, Cypripedium insigne Sanderæ, C. œnanthum superbum, and Cattleya Dowiana.

FRUIT COMMITTEE.

A representative collection of about a hundred varieties of dessert apples was staged by Messrs. Bunyard and Co., Maidstone.

MEDALS.

A gold medal was awarded to Messrs. G. Bunyard and Co. for a collection of hardy fruit; and one to Messrs. J. Veitch and Sons, Chelsea, for orchids; Silver-Gilt Banksian medal to H. J. Elwes, Esq., F.R.S., for a group of hybrid nerines; Silver-Gilt Flora medal to Mr. H. B. May, Edmonton, for a group of polypodiums; Silver Flora medal to Messrs. T. S. Ware and Co. (Limited), Tottenham, for chrysanthemums; and to Mr. W. Wells, Earlswood, for chrysanthemums; Silver Banksian medal to the Right Hon. J. Chamberlain, Birmingham, for orchids; to H. Simmonds, Esq., Beckenham, and to Mr. J. Bradshaw, Southgate, for orchids. A Bronze medal was awarded to Mr. J. Douglas, Bookham.

SEVENOAKS AND WEST KENT CHRYSANTHEMUM SOCIETY,

November 1 and 2.

THE fourteenth annual exhibition of the above society was held on the above dates, and proved that this district is well to the front in the art of successfully cultivating the greatest of our autumn flowers.

GROUPS AND SPECIMEN PLANTS, always a feature of this show, were not quite so numerous as usual, but this falling off was more than balanced by the excellence of culture displayed. The competition in the big class for a group of chrysanthemums arranged for effect—for which a twenty guinea cup was offered as the premier award—was extremely keen, the first prize being awarded to Mr. A. Hatton, gardener to Mrs. Swanzy, The Quarry, Sevenoaks, for an excellent group of fine flowers. Mr. Hatton having previously won this cup on two occasions it now becomes his property. Mr. Tebay, gardener to Mrs. Rycroft, Everlands, Sevenoaks, was second, and Mr. W. Adams, gardener to Mr. J. Dixon, Edenhurst, was third. For three high-trained plants the awards were made in favour of Mr. A. Hoadley, gardener to Mr. F. L Bevan, Kippington; Mr. Brooker gardener to J. T. Rogers, Esq., Riverhill; and Mr. Hatton; whilst for a single bush-trained plant Mr. Hoadley was first, Mr. Hatton second, and Mr. Brooker, third. Mr. Huntley secured the award for three incurved, and Mr. Heath for three Japanese. Mr. Heath was also first for a group of plants not to exceed a space six feet by five feet. Mr. Huntley secured the premier award both for three pompons and for a single bush-trained plant, whilst in the latter class Mr. Heath was second. A good feature of the show was the class for twelve cut blooms with long stems arranged with foliage and plants; the competition was severe, Mr. Tebay securing the first prize with an extremely tasteful arrangement, his flowers being also very fine indeed. Mr. J. R. Edwards, gardener to Mr. G. Field, Beechy Lees, was second, and Mr. Hoadley third.

CUT FLOWERS.—For six Japanese, one variety, the awards were in favour of Mr. W. Hough, gardener to Mrs. Lambarde, Beechmont; Mr. W. A. Searing, Parkwood, Swanley; and Mr. L. Taylor, gardener to Mr. C. Young, The Thorns, Sevenoaks, in the order named. Mr. Tebay was first for twelve Japanese distinct, with Mr. Searing second, and Mr. G. Latter, gardener to Mr. Payne, Park Grange, Sevenoaks, third; whilst for twelve Japanese, not less than eight varieties, Mr. Adams, Mr. Hough, and Mr. Hoadley were the prize-winners. Mr. Tebay secured the award in the class for twelve incurved, distinct, but for twelve incurved, not less than eight varieties, the awards were in favour of Mr. W. Hough, Mr. Brooker, and Mr. Latter in the order named. A good stand of anemones secured Mr. Hoadley the post of honour in that class, Mr. Taylor and Mr. Adams being second and third. For six incurved, not less than four varieties, the prize-winners were Mr. Fox, Mr. Heath, and Mr. Huntley.

FRUIT AND VEGETABLES were a great feature of the show, as is always the case here. They were both numerously staged and of good quality. For two bunches of black grapes Mr. Hough secured the premier award, the other prizes going to Mr. Hoadley, Mr. Potter, and Mr. Latter in the order named. Mr. Potter was, however, first for four dishes of kitchen apples, with Mr. R. Edwards second, and Mr. George Sears, Clenches Farm, Kippington, third. The latter exhibitor secured the premier award for four dishes of dessert apples, the other prizes going to Mr. Searing and Mr. Edwards. For four dishes of pears the awards were in favour of Mr. Edwards, Mr. Potter, and Mr. Latter. Mr. E. Dawes, gardener to Mr. Wilson, Claridge House, Sevenoaks, was first for two dishes of kitchen and two dishes of dessert apples, Mr. S. Huntley, gardener to the Rev. T. S. Curleis, second, and Mr. Heath, gardener to Mrs. Petley, Riverhead, third. There were no less than three classes for six varieties of vegetables; in the first the prizes were secured by Mr. Hoadley, Mr. Tebay, Mr. Searing, and

Mr. Adams; in the second the awards fell to Mr. Huntley, Mr. W. Fox, gardener to Mr. H. Sowerby, and Mr. E. Turner, gardener to the Rev. H. P. Thompson, Kippington Vicarage; whilst in the third award was made in favour of Mr. Heath.

COLCHESTER HORTICULTURAL SOCIETY, November 3.

THE autumn exhibition of this enterprising society, held on the above date, was a splendid success, and reflected much credit upon all concerned. The spacious Corn Exchange was, as in previous years, crowded with products of a high order of merit, and these produced a highly attractive display, and were of much interest as illustrating the horticultural activity of the district, of which Colchester is the centre. In consequence of the unfavourable character of the season there was a slight falling off in the entries of chrysanthemums, but the decrease was wholly in the smaller classes, and the display of cut blooms was not less attractive than were those in previous years. The groups of chrysanthemums were of a higher quality than in any previous year, and arranged along one side and across the end of the spacious building they formed an exceedingly beautiful feature. In the division for fruit there was a material advance not only in entries, of which there were seventy more than last year, but in the quality, which was so good as to prove to demonstration the capabilities of Essex as a fruit-producing county. Altogether there were about five hundred dishes of fruit, and of vegetables there was an excellent display.

CUT BLOOMS were admirably represented, and, as is customary, proved a source of much attraction. There was a keen contest for first place in the class for twenty-four Japanese, and in the result the premier award was made in favour of Mr. B. Rogers, gardener to the Mayor of Colchester, who had a remarkably fine stand, comprising in a high state of development Australian Gold, Edith Tabor, Pride of Exmouth, Queen of the Buffs, Mrs. H. Weeks, Oceana, Phœbus, N.C.S. Jubilee, and Modesto; Mr. R. C. Notcutt was second, with an even stand, in which were exceptionally fine blooms of President Nonin, Edith Tabor, and Mrs. W. Mease, the beautiful primrose sport from Madame Carnot. Mr. Rogers obtained premier honours also in the open class for twelve Japanese, and had superbly developed blooms, comprising Duke of Wellington, which was selected as the premier bloom in the exhibition, Phœbus, Lady Hanham, Viviand Morel, Edith Tabor, Lady Byron, Colonel C. B. Smith, N.C.S. Jubilee; Mr. F. Kettle, gardener to G. Egerton Green, Esq., was a capital second, with a stand in which Lady Hanham was especially well represented; Mr. W. R. Johnson, Stainwall Hall, was third, with neat blooms. In a second class for twelve Japanese Mr. Rogers was again first, and Mr. F. Kettle second, both having excellent blooms, especially noteworthy in the first prize stand being examples of Phœbus, Eda Prass, T. Wilkins, and Lady Hanham. Mr. Rogers was not less successful as an exhibitor of blooms of incurved varieties, and was first for twelve, staging finely-developed examples of Globe d'Or, Duchess of Fife, Triomphe d'Eve, C. H. Curtis, and J. Agate; Mr. Kettle second. Mr. Fincham was third, with neat blooms, from which was selected Globe d'Or as the premier incurved bloom shown by residents in the borough. The last-named exhibitor had the finest stand of twelve Japanese, in which the competition was limited to growers residing within the borough, and for this he was awarded the Borough Cup, offered as the first prize, the N.C.S. silver medal for the best stand of twelve blooms grown in the borough, and the N.C.S. certificate for the premier Japanese bloom in the borough section.

GROUPS constituted a highly attractive feature, and in the principal class set apart for them there were six entries, all of which were more or less good. Mr. Norfolk, gardener to S. Hanbury, Esq., Wyvenhoe Park, was first with a superb arrangement, the foliage ample, the blooms of magnificent quality, and the colours tastefully contrasted; Mr. F. Kettle was second with a bold and effective group; and Mr. W. Diaper was third with an arrangement a trifle flat, but in other respects satisfactory. In the class for small groups the awards were made in favour of Mr. Allchurch, Wyvenhoe, Mr. H. Johnson, and Mr. T. Ham, all of whom may be congratulated on the excellence of their exhibits. In the classes for specimen plants the most successful exhibitors were Mr. C. Munson, Mr. F. Kettle, Mr. Allchurch, Mr. J. Levet, and Dr. F. H. Cooke.

FRUIT was so plentiful and well staged as to form of itself a highly attractive exhibition. In the division for fruits the Rev. Dr. Bartram, Wakes Colne Rectory, was very successful, taking eleven first prizes in the more important classes. In competition for the prize for six dishes of pears this gentleman was first with large, well-finished examples of Emile d'Heyst, Beurré Diel, Beurré Superfin, Doyenne du Comice, Pitmaston Duchess, and Conseiller de la Cour; Mr. F. Kettle was a good second. Mr. Prestney was a capital first in the class for three dishes of dessert pears with Pitmaston Duchess, Beurré Clairgeau, and Beurré Diel; Mr. Woolley a close second. Rev. Dr. Bartram occupied the post of honour in the class for six dishes of culinary apples with grand fruit of Cox's Pomona, Mère de Ménage, Bismarck, Lane's Prince Albert, Bramley's Seedling, and Peasgood's Nonsuch; Mr. F. Kettle and Mr. O. G. Orpen, West Bergholt, were second and third with fruit differing but little in relative merit. The Rev. Dr. Bartram had the best collection of six dishes of dessert apples, the fruit highly coloured and well finished, the varieties including Blenheim Pippin, Ribston Pippin, Cox's Orange, King of the Pippins, and Gascoyne's Scarlet, the last mentioned being rather too large for dessert. Mr. O. G. Orpen was an excellent second, his fruit being good throughout. Mr. Chapman and Mr. Harward were first and second in the class for three dishes of dessert apples with fruit of high quality. Mr. R. W. Wallace, Colchester, was first in the class for one dish of a dessert apple with Allington Pippin, beating Cox's Orange and other of our popular variety; the fruits were rather large, richly coloured, and highly flavoured. Mr. Wallace was also first for twelve fruits of a dessert apple packed for travelling with excellent fruits of this variety; these were packed in a shallow box with wood wool, and might have been sent any distance by post or rail without injury. The premier award for nine dishes of apples, comprising five cooking and four dessert varieties, was made in favour of the Rev. Dr. Bartram, who had superb examples of well-known varieties. The second award was made in favour of Mr O. G Orpen, who had a fine collection.

VEGETABLES had a large number of classes set apart for them, and as these were all well filled they formed an interesting feature. Mr. Kettle was first in the amateur class for eight kinds, Mr D Strowlger occupied the premier position in a similar class for market gardeners, and in the class for amateurs not employing more than one gardener Dr. F. H. Cooke obtained premier honour.

BATTERSEA CHRYSANTHEMUM SOCIETY, November 4 and 5.

THE annual exhibition of the above society was held in the Town Hall, Lavender Hill, on the above dates, and both the quality and number of the exhibits was hardly equal to the shows of previous years.

GROUPS AND SPECIMEN PLANTS.—In the class for a group of chrysanthemums not to exceed thirty super feet Mr. W. Forth was first, and Mr. W. Riddle second; whilst for a group not exceeding twenty-four plants the prizes went to Mr. C. Hemstead, Mr. J. Kimber, and Mr. Stringer in the order named. Mr. Green, Mr. Duke, and Mr. Awberry were the successful exhibitors in the class for three pompons; and Mr. Langrish, Mr. Hart, and Mr. Hemstead were first, second, and third respectively for three ferns. For three foliage plants the awards went to Mr. Eason, Mr. Hemstead, and Mr. Awberry; and for three table plants the awards were made in favour of Mr. Hart, Mr. Hemstead, and Mr. Awberry. Three very good entries were staged in the miscellaneous group class, the first prize going to Mr. T. MacGregor, The Gardens, Keith House, Putney Hill; the second to Mr. W. Boswell, gardener to P. Parnell, Esq., Woodlands, Streatham Hill; and the third to Mr. A. J. Povey, gardener to W. Mayne, Esq., The Field, Larkhall Lane, S.W. Perhaps the most spirited competition in the show was evoked in the class for a table group of plants and cut blooms, and of the five competitors the most successful exhibitor was Mr. Hart, with a very tasteful arrangement; the second prize went to Mr. Bond, and the third to Mr. Awberry.

CUT BLOOMS.—It was in this section that the show was weakest and where the greatest falling off was to be observed, and it is to be hoped that next year there will be an improvement in these classes, particularly with regard to the number of entries. For eighteen Japanese Mr. Povey secured the award, the most noticeable blooms on his stand being Mrs. Hume Long, G, J. Warren, Madame Carnot, Eva Knowles, Charles Davis, Australie, Mons. Chenon de Leche, Australian Gold, Graphic, Mons. Gruyer, Mdlle. Thérèse Rey, Pride of Exmouth, and Mrs. Herman Kliss. He was also first for twelve Japanese, staging fine examples of G. J. Warren, Lady Ridgeway, Madame Carnot, Australie, Mons. Chenon de Leche, Australian Gold, Mrs. J. Lewis, Pride of Madford, Mrs. G. Carpenter, Mrs. Hume Long, Eva Knowles, and Mrs. H. Weeks. Mr. MacGregor was second. Mr. Povey was also successful for six Japanese distinct, his blooms being Madame Carnot, Mons. Gruyer, Elsie Teichmann, Graphic, Viviand Morel, and Pride of Madford. Mr. MacGregor secured the award for six incurved, being best with examples of Globe d'Or, Madame Darrier, C. H. Curtis, and Baron Hirsch. Mr. G. L. Innes was first for twelve Japanese, and on his stand were nice blooms of Chenon de Leche, Madame Ricoud, Van der Heede, Edith Tabor, Oceana, Viviand Morel, Modesto, and Elthorne Beauty. Mr. Bond was second and Mr. White third. For six Japanese, distinct, Mr. Underwood was the successful exhibitor with good blooms of W. H. Lincoln, Viviand Morel, Chenon de Leche, Phœbus, Pride of Madford, and Charles Davis. Mr. Underwood, Mr. Langrish, and Mr. Bond were successful in the order named for six Japanese, whilst for six Japanese one variety Mr. Hemstead and Mr. White secured the awards. For six Japanese, white, Mr. Langrish was first, Mr. Innes second, and Mr. White third. Mr. Bond secured the award in the class for six incurved, not less than four varieties, his blooms being Miss A. Foster, Ma Perfection, Guernsey Nugget, C. H. Curtis, J. Agate, and Duchess of Fife. For six bunches of pompons Mr. Stewart was first with examples of Madame Martha (twice), Nellie Romford, La Vogue, W. Westlake, and W. Kennedy. Mr. Green and Mr. Bond were second and third respectively. Mr. McLellen was first for six Japanese, with good blooms of W. Tricker, Mrs. E. G. Hill, Charles Davis, Souvenir de Petite Amie, and Viviand Morel The other prizes went to Mr. Brill and Mr. Duke.

A good group of plants and flowers was exhibited by Mr. Neal, Wandsworth Common, whilst an effective display of cut flowers was staged by Mr. W. Wells, Earlswood, Redhill. Mr. Box, of West Wickham, contributed a capital exhibit of fruit and begonias.

WOOLTON GARDENERS' SOCIETY, November 3.

A MOST successful meeting of this society was held on the 3rd inst, under the presidency of Mr. B. Cromwell, who, in introducing the lecturer, Mr. B. Ashton, gardener to the Earl of Lathom, referred to the high order and artistic tastes that were followed at Lathom Hall in the "Art of Dinner Table Decorations," the subject of the lecture. Further reference was made as to the importance of a good knowledge of decorating, which was now considered one of the leading traits in good gardening. Mr. Ashton, in opening his lecture, dwelt upon the paramount importance of gardeners having a thorough grasp of this subject, and he urged upon all young gardeners that they should endeavour to make themselves proficient in the art of decoration. Thirty years ago the chief requirements of a gardener were to grow good fruit, plants and vegetables, but the gardener of to-day must be a capable decorator in addition. To obtain a pretty table, elegance, perfume, or colour must be considered or combined. Many flowers could be utilised, such as cdontoglossums, oncidiums, cattleyas, &c, carnations, roses, especially tea varieties, and sweet peas. Cornflowers in the beautiful shades of blue were good for day but not for artificial light, cactus dahlias, Begonia Gloire de Lorraine, montbretias, ixias, sparaxis, Gladiolus Berberis, snowdrops, crocus, and many others Amongst foliage were crotons with their brilliant colouring, abutilons, acers, coleus, azaleas, mollis varieties in autumn, oaks, vine leaves, Virginian creepers, bramble, carrot tops, smilax, rhodochiton, &c. The most desirable plants were a few kinds of palms, aralias, dracænas, pandanus, asparagus, &c., and orchids, fuchsias, celosias for flowering plants, and solanums for berried plants. Plants should be used according to the room. In some cases crotons on single stems five feet high would prove most effective. A good discussion followed, in which it was stated that often common or wild material proved most effective, such as oats and poppies, wild roses, ox-eye daisies, water lilies, buttercups. For garnishing dishes of fruits pear and vine leaves at this season were recommended for their rich colouring.

ST. NEOTS, November 7.

A QUAINT old town is the St. Neots of Huntingdonshire, and one which many visitors journey to with interest in the summer months. It is also the centre of a good horticultural district, and therefore it is not surprising that the society, established some fifteen years ago, has flourished greatly, and still continues to prosper even more than similar bodies in much larger towns. In a great measure, however, this is due to the energy of a guiding spirit in the person of Mr. William Ratchelous, who during the whole of the time has performed the duties of honorary secretary. That he has been well supported by the committee goes without saying, but ample testimony has been afforded by the high esteem in which he is held by the members.

The Corn Exchange was well filled on Monday last, and it was very satisfactory to note that the entries were forty-seven in excess of last year, any deficiencies in a few classes being fully made up by the additional ones in others, especially in the hardy fruit classes, which have developed into a most important department. Possibly the season had some effect upon the cut bloom classes, and perhaps the absence of a challenge vase as a stimulus deterred some from competing, but the money prizes were good, and the blooms staged were of uniformly high quality. The principal class was for thirty-six blooms in equal numbers of Japanese and incurved, not less than twenty-four varieties of the two sections. It was a comparatively easy class, yet there were only two competitors, and Mr. T. Lockie, gardener to A. J. Thornhill, Esq , Diddington Hall, St. Neots, was awarded first prize for excellent blooms, the Japanese being much superior to the others, and including the following varieties particularly well represented: Dorothy Seward, Pride of Exmouth, Madame Carnot, Edith Tabor, Mrs. C. H. Payne, and Beauty of Teignmouth. The leading incurved were Globe d'Or, M. Bahaunt, Duchess of Fife, Prince Alfred, Miss F. Foster, Baron Hirsch, Lord Wolseley, Rose Owen, and J. Agate. The second prize was secured by Mr. J. Walker, gardener to J. Linton, Esq., Stirtloe, St. Neots. In the class for twelve Japanese there were also some good blooms, especially in the first prize stand from Mr. Redman, gardener to Miss Goodjames, St. Neots, which comprised Australie, Eva Knowles, Madame Carnot, M. Chenon de Leche, Mrs. G. W. Palmer, Edith Tabor, Viviand Morel, and Simplicity. The second and third places respectively were taken by Mr. T. Lockie and Mr. J. Walker, who had rather smaller but good blooms.

Mr. Redman was again the premier exhibitor with eighteen incurved and Japanese blooms, followed by Mr. Stevens and Mr. J. Pack, gardener to A C. Sweeting, Esq., St. Neots; while six magnificent blooms of Phœbus won Mr. Thomas, gardener to Lady Esmé Gordon, Paxton Park, the first prize in the class for one variety only. Incurved were shown in small numbers, and the only stand worthy of note was that in the class for twelve blooms, which secured the first prize to Mr. T. Lockie.

Groups of chrysanthemums arranged for effect added materially to the attractions of the show, both plants and blooms being satisfactory in most cases, but uncommonly so in the open class, where Mr. J. Pack was placed first, followed closely by Mr. Redman and Mr. Petchey. Mr. Redman had some well-trained specimen chrysanthemums, which, however, would have improved if the show had been a few days later.

Mr. Maycock, gardener to Madame de Falbe, was adjudged first honours for six table plants, neat, light, and well-coloured examples of crotons and dracænas being prominent. The same exhibitor was also very successful in the fruit classes, taking the first place with a collection of six dishes, his grapes, both black and white, being admirable. Mr. Maycock also won several prizes with apples and pears, Messrs. Redman, Lockie, Walker, Carter, and Thomas competing keenly.

Vegetables were a good feature, Mr. T. Lockie being, as usual, in excellent form, the collection which gained him the first prize comprising extremely handsome Royal Windsor cucumbers, Perfection tomatos, Intermediate carrots, Lyon leeks, Satisfaction potatos, and Anglo-Spanish onions; Messrs. Stevens and Carter were second and third in the order named.

Table decorations included some tasteful effects. Baskets, stands, and vases of chrysanthemums were also numerous, bright, and varied; while a collection of dahlias from Mr. Burgin, of Eynesbury, an unusual exhibit at a November show, added to the attractions of a compact and excellent display.

WEST DERBY MUTUAL IMPROVEMENT SOCIETY.

THE second lecture arranged by the Technical Instruction Committee of the Liverpool City Council was delivered on the 2nd inst., at the Social Club, by W. A. Herdman, Esq., D.Sc., F.R.S., Professor of Zoology in University College, Liverpool, the chair being occupied by Colonel Halifax Wyatt. The course of lectures deals with certain aspects of gardening, and, in addition to the one already mentioned, includes five by R. J. Harvey-Gibson, M.A., F.L.S., Professor of Botany, University College, on "Blight," "The Reserve Food of Plants and its Digestion," "The Colours of Flowers and their Transformation," "Nitrogen, its Source and Use to the Plant," and "Hybrids." The lectures are illustrated by lantern, and by experiments and microscopic or other preparations. The attendance was good, including a fair number of ladies, the subject of Professor Herdman's lecture being "Insect Pests"—their abundance and importance in the world, their forms, with their variety of wings, the effect of seasons and climates, the balance of nature and its disturbance—and under this heading a word of appreciation was given for our sparrows, starlings, tits, cuckoos, &c. Habits and food were also treated upon, with the value of many insects that lived on other insects, lady-birds being of considerable value for this reason. Wire-worm was noticed for its ravages, and to counteract these shallow sowing was recommended for cereals, and preventives were named as the best means of holding the pests at bay. The lectures were illustrated by a number of lantern views, which showed the action and habits of the pests, which were of material aids to the cultivator in enabling him to recognise and destroy the pests.

ISLE OF WIGHT.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last, when Dr. J. Groves, B A., presided over a large attendance of members who were present to hear a lecture by Mr. F. W. E. Shrivell, F.L.S., Tonbridge, Kent, on "Four Years' Experiments with and without Chemical Manures." The lecture was most interesting and instructive, and was conveyed to the audience in clear and simple language, which was more forcibly impressed on the minds of those present by the use of tables, &c. A profitable discussion ensued, after which a unanimous vote of thanks was accorded Mr. Shrivell on the proposition of the Chairman, and seconded by Mr. T. Gibbs, C.C., who is an ardent educationalist. Mr. A. Guy staged some well-grown primulas. At the close twenty new members were elected.

WEST COWES.

ON Friday evening last Mr. F. W. E. Shrivell, F.L.S , gave an interesting and profitable lecture before the members of the West Cowes Horticultural Improvement Association. Mr. Benzie briefly introduced the lecturer, who dealt exhaustively with the subject of "Four Years' Experiments with and without Artificial Manures," illustrated by tables, &c. The progress of this society is very gratifying, and bids fair to do a large amount of useful work in the development of horticulture in the town and neighbourhood of Cowes. At the close of the lecture a unanimous vote of thanks was accorded Mr. Shrivell for his able and interesting address on the important subject of manures and manuring.

"CRITICISM WILL FOSTER TALENT," is an adage too well known to need dilating upon, especially as it is necessary to speak of something which for many years has defied adverse criticism. Holloway's Pills and Ointment, as sterling remedies for all complaints, are more familiar than "household words," being in constant daily use by thousands of people, who look upon their possession as a positive necessity. Leading medical authorities advise their use as reliable medicines in times of need. As a certain cure for all skin diseases they are unequalled, whilst for bile, sick headache, flatulency, indigestion, and all liver and stomach disorders, it has been truly said they are worth their weight in gold.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Scions from Old Trees.—F. A. R., Royston: A scion taken from an old tree will prove quite as satisfactory as one from a young tree, provided it is a clean, healthy growth. Thanks for your letter.

Grafting Apples.—F. J., Cork: Head back the trees to the clean, healthy wood and graft next March with Newton Wonder. Do not head back more closely than is necessary, for it will be better to put on additional grafts and thus obtain a crop quickly. The old vine rods can be removed now, covering the cuts with styptic or painter's knotting.

Ashes of Wood and Leaves.—F. N., Bradford: Both wood ashes and the ashes from burned leaves and garden refuse have a high manurial value, and are especially useful for lightly forking into fruit-tree quarters. It is, however, impossible to make a wrong application of such material, and if enough can be spared dig them into plots that are to be presently devoted to vegetable culture. First of all, however, look after the gooseberries and bush roses.

Black Hamburgh Grapes not Colouring.—F. D., Tooting: We can only suggest that the Black Hamburgh grapes did not receive quite those conditions necessary for the production of good colour and finish, viz., more air and a drier atmosphere, at the time they commenced to colour. The grapes would begin to colour while the Alicantes were still green, and probably the conditions best suited to the latter were maintained. There appears to be no other solution of the difficulty. Gros Colmar requires a longer period to ripen and more heat to finish it than either of the other varieties named, and so should not be grown with them. Alicante would do better with Gros Colmar than would Black Hamburgh.

Bast or Raffia.—E. C., Croydon: Bast is the strips of the bast fibres, or inner bark of the Lime Tree, and consequently was formerly known as Linden Bast, the Lime *(Tilia europæa)* being often known as the Linden Tree. This material is now seldom used for tying purposes, having been superseded by raffia. Raffia, rafia, or raphia, is obtained from a Madagascar Palm *(Raphia Ruffia)*, also from *Raphia tædigera*, and is the cuticle stripped from the huge fronds of these giant palms. Some of the palms in our West African dependencies yield a raffia, and probably a considerable industry will arise in this direction; at present Madagascar supplies almost the whole of the raffia of commerce. The old name of "bast" is in some gardens still applied to raffia by old hands.

Propagation of Quince and Myrobella.—J. L. P., Norfolk: The quince is readily propagated, both by cuttings and layers. The former should be made from the current year's growth, and with a heel of old wood attached; they should be taken and inserted in the open early in the autumn, where they root readily. Layering should be done in early autumn, or as soon as the growths are firm enough; the following autumn the layers should be ready for removal from the stock and placed in nursery rows. The Myrobella or Myrobalan *(Prunus cerasifera)* is best propagated from seed, which may be obtained through any nurseryman dealing largely in hardy trees and shrubs for fencing and forestry. The ripe fruits are placed in dry sand, on very light, dry soil in autumn, and the seed cleared out during the winter for sowing in the spring.

United Horticultural Benefit and Provident Society.—S. R., Bedford: This is not a charity, but a benefit society. It was established in 1865, and the rules were drawn up on the lines of the old Wiltshire Friendly Society. Two or three of the original rules have been slightly altered of late years to meet the times, one important alteration being to increase the amount of payment to sick members. There are two scales of contributions, one being 6d. per week and the other 9d. per week, to the sick fund; the lower scale member receives 12s. per week (formerly 10s. 6d.) during sickness, and the higher scale member receives 18s. per week in sickness (formerly 16s.) On the lower scale a member pays 2s. per year, and on the higher 3s. per year to the benevolent fund, and every member pays 2s. 6d. per year for management, the full contributions for the year being £1 10s. 6d. and £2 4s. 6d. respectively. The amount of sick pay paid out is deducted from each member's deposit account proportionately, and the balance of his contributions is carried to his credit, and interest is added at the rate of 3 per cent. on all amounts above £1. There is no fixed sum to be paid at the death of a member, but the amount standing to his credit is paid to his nominee. If a member ceases to pay his contributions for twelve months he is considered to have left the society, and the amount of his deposit is transferred to the lapsed members' account, and the interest on this money is transferred to the management fund. One very important point in this society is that a lapsed member does not lose the money he has paid (as in other societies), but he can draw the amount on reaching the age of sixty, or should he die the sum standing to his credit at the time he ceased to pay would be paid to his nominee on application to the committee. When a member reaches seventy years of age he ceases to pay into the sick fund, and may draw the amount standing to his credit in the ledger, or he may leave the capital and draw upon it as he pleases. He is also eligible for an allowance from the benevolent fund should he require it, the amount to be fixed by the committee. A member who recently reached the age of seventy had over £76 standing to his credit. The society is really a savings bank, an insurance and benefit society combined. The number of members at the end of the last financial year (January 10) was six hundred and eighty-two, being three hundred and seventy-nine higher scale and three hundred and three lower scale members; sixty-four have joined since, and eight have died, the total benefit members at the time of the recent annual dinner being seven hundred and thirty-eight. The voluntary convalescent fund, which was started a few years ago by Mr. Sherwood, is very useful, enabling members to obtain a change of air and scene after sickness. The committee may grant assistance to members from this fund, all cases to be recommended by a duly qualified medical practitioner. Mr. W. Collins is the secretary, and we gladly publish his address—8, Martindale Road, Balham, S.W.

Names of Plants.—E. C., Croydon: Lælia Perrini; Oncidium crispum; the dendrobium was so much damaged that we cannot say whether it was D. bigibbum or a small D. Phalsenopsis, most likely the former.

J. M., Nottingham: 1, Selaginella hæmatodes; 2, S. cæsia; 3, S. suberosa; 4, S. Kraussiana aurea; 5, S. Kraussiana; 6, S. canaliculata.

I. C., Bath: Yes; Cymbidium giganteum, good form.

Names of Fruit.—J. D., Galloway.—1, American Mother, unquestionably; 2, not recognised, may be a local variety.

F. A. R., Royston.—1, not recognised, though somewhat like a small Hollandbury: does it grow larger? 2, Reinette Grise.

C. G., Winford.—1, Reinette du Canada; 2, Loddington Pearmain; 3, Hawthornden.

F. E., Warnham.—1, Madresfield Court Muscat; 2, Duchess of Gloucester; 3, Olivier des Serres; 4, Beurre Bosc.

J. G., Chadwell Heath.—1, Marie Louise d'Uccle; 2, Uvedale's St. Germain.

Balham.—Please send name and address next time. 1, Dumelow's Seedling; 2, Winter Nelis; 3, Easter Beurre; 4, Lord Derby; 5, Lord Lennox.

H. C., Dorking.—King of the Pippins.

D. B., Merton.—1, Round Winter Nonsuch; 2, Waltham Abbey Seedling; 3, Ribston Pippin; 4, Cellini.

E. C. R., Derby.—1, Ringer; 2, Mère de Ménage; 3, Baumann's Red Winter Reinette; 4, Gravenstein; 5, Lamb Abbey Pearmain.

P. D., Swanley.—1, Mère de Ménage; 2, Tower of Glamis; 3, King of the Pippins; 4, Egremont Russet.

R. O. A., Hemel Hempstead.—1, Thompson's; 2, Marie Louise; 3, Duchess d'Angoulême; 4, Vineuse

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, NOVEMBER 14.—National Chrysanthemum Society. Meeting of the Floral Committee.
TUESDAY, NOVEMBER 15.—Leeds Chrysanthemum Show; Two days
  Folkestone Chrysanthemum Show; Two days.
  Winchester Chrysanthemum Show; Two days.
  Ipswich Chrysanthemum Show; Two days.
  Brighton Chrysanthemum Show; Two days.
  Hartlepools Chrysanthemum Show; Two days.
  Belfast Chrysanthemum Show; Two days.
  Chester Chrysanthemum Show; Two days.
  Stirling Chrysanthemum Show; Two days.
  Great Yarmouth Chrysanthemum Show; Two days.
  Liscard Chrysanthemum Show.
WEDNESDAY, NOVEMBER 16.—York Chrysanthemum Show; Three days.
  Hull Chrysanthemum Show; Two days.
  Bristol Chrysanthemum Show; Two days.
  Banbury Chrysanthemum Show; Two days.
  Faversham Chrysanthemum Show; Two days.
  Tonbridge Chrysanthemum Show; Two days.
  Lewes Chrysanthemum Show; Two days.
  Rugby Chrysanthemum Show; Two days.
  Birkenhead and Wirrall Chrysanthemum Show; Two days.
  Chelmsford Chrysanthemum Show; Two days.
  Blandford Chrysanthemum Show; Two days.
  Chippenham Chrysanthemum Show; Two days.
  Reading Chrysanthemum Show.
THURSDAY, NOVEMBER 17.—Edinburgh Chrysanthemum Show; Three days.
  Manchester Chrysanthemum Show; Three days.
  Norwich Chrysanthemum Show; Three days.
  Barnsley Chrysanthemum Show; Two days.
  Lincoln Chrysanthemum Show; Two days.
  Aylesbury Chrysanthemum Show.
FRIDAY, NOVEMBER 18.—Stockport Chrysanthemum Show; Two days.
  Bolton Chrysanthemum Show; Two days.
  Broughton-in-Furnes Chrysanthemum Show.
  Wrexham Chrysanthemum Show.
SATURDAY, NOVEMBER 19.—Batley Chrysanthemum Show.
  Bush Hill Park Chrysanthemum Show.
  Arbroath Chrysanthemum Show.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, NOVEMBER 14, 15, 16, 17, AND 18.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY AND TUESDAY, NOVEMBER 14 AND 15.—Great Unreserved Clearance Sale of Superior Nursery Stock and Fruit Trees, Messrs. Protheroe and Morris, at the Rutland Park Nurseries, Perry Hill, Catford, S.E.

WEDNESDAY, NOVEMBER 16.—Japanese Lilies, Palm Seeds, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

FRIDAY, NOVEMBER 18.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY, WEDNESDAY, AND THURSDAY, NOVEMBER 14, 16, AND 17.—Bulbs, Shrubs, Plants, Trees, &c.—Mr. J. C. Stevens, King Street, Covent Garden.

NEARLY EVERY DAY.—Tulips, &c., Mr. J. C Stevens, King Street, Covent Garden.

CATALOGUES RECEIVED.

W. CLIBRAN AND SON, ALTRINCHAM.—Trees and Shrubs.
WM. PAUL AND SON, WALTHAM CROSS.—Trees and Shrubs, Fruit Trees.
H. CANNELL AND SONS, SWANLEY.—Autumn Catalogue.
CHARLES TURNER, SLOUGH.—Roses, Fruit Trees, &c.
JAMES WALTERS, WONFORD ROAD, EXETER.—Roses, &c.
J. AND W. WOOD, STOURBRIDGE.—Hot water apparatus.
B. R. CANT, COLCHESTER.—Roses.
W. CUTBUSH AND SON, HIGHGATE, N.—Carnations, &c.
G. W. PIPER, UCKFIELD, SUSSEX.—Roses.

MARKETS.

Covent Garden.

THERE is a fairly good supply of most fruits and vegetables, and the demand is brisk. Green vegetables are inclined to be dear, and potatos remain firm. The best oranges and tomatos meet a brisk demand at good prices.

FRUIT.—English apples, 3s. to 9s. per bushel; Nova Scotian, 12s. to 25s. per barrel; French pears, 3s. to 5s. per case, 7s. to 12s. per crate; Californian, 4s. 6d. to 6s. 6d. per half-case; English grapes, 9d. to 2s.; Channel Islands, 6d. to 1s. per lb.; Almeria, 10s. to 16s. per barrel; Spanish melons, 5s. to 7s.; pomegranates, 4s. 6d. to 6s. 6d.; oranges, 10s. to 20s.; lemons, 12s. to 25s. per case; bananas, 5s. to 9s. per bunch; pineapples, 2s. to 5s. each; peaches, 3s. to 10s. per dozen; English tomatos, 3s. 6d. to 4s. 6d.; Channel Islands, 2s. 6d. to 3s. 6d. per 12 lb.; cobnuts, 40s. to 45s. per 100 lb.; English walnuts, 3s. 6d. to 4s. 6d. per bushel; Grenobles, 5s. to 6s. per bag.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Cucumbers, 3s. to 4s. 6d.; endive, 1s. to 1s. 9d.; lettuce, 9d. to 1s. 3d.; cauliflowers, 1s. to 2s. per dozen; Dutch onions, 3s. 6d. to 4s. per bag; English, 4s. 6d. to 5s. 6d. per cwt.; Valencia, 5s. 6d. to 6s. 6d. per case; eschallots, 1s. 6d. to 2s.; garlic, 3s. per 12 lb.; mushrooms, 2s. 6d. to 3s. 6d. per half-sieve; parsley, 1s. 6d. to 2s.; carrots, 2s. to 3s.; turnips, 2s. 6d. to 3s. 6d. per dozen bunches; celery, 8s. to 12s. per dozen rolls; Brussels sprouts, 2s. to 2s. 6d. per half-sieve; spinach, 2s. to 3s. per bushel; potatos, 60s. to 90s. per ton.

Borough Potato Market.

While not exactly dull, the potato trade is quiet, and there are good and increasing supplies. Beauty of Hebron, Snowdrop, and Up to Date, 75s. to 80s. per ton; White Hebron, Early Puritan, Bruce, Magnum Bonum, Sutton's Early Regent, Reading Giant, and Imperator, 65s. to 70s. per ton; Blacklands, 60s. to 65s. per ton; Abundance (Scottish), 60s. per ton; Germans, 2s. 9d. per bag.

THE WEATHER DURING THE WEEK ENDING NOVEMBER 5, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	60·3	38·0	49·8	9·89	0·52	1·32
Croydon	60·5	33·0	49·4	9·67	1·17	2·97
Brighton	59·0	38·2	51·1	10·61	0·66	1·68
Bristol	60·0	37·0	49·0	9·44	1·06	2·69
Wolverhampton	58·6	32·6	47·7	8·72	0·22	0·56
Norwich	60·8	36·4	49·4	9·67	0·74	1·88
Nottingham	60·3	31·3	48·1	8·94	0·87	2·21
Liverpool	60·2	41·7	49·1	9·50	0·81	2·06
Huddersfield	58·0	39·3	47·8	8·78	1·28	3·25
Bradford	59·8	41·2	50·0	10·00	1·11	2·82
Hull	61·0	40·0	47·8	8·78	0·48	1·22

The mean reading of the Barometer during the week at Greenwich was 29·60 inches, and that of the Thermometer 49°·8, the latter being 3°·3 above the week's average in the 50 years 1841—90. The direction of the wind was south westerly, the horizontal movement of the air being 49 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 28·7 hours. The measured rainfall amounted to 0·52 of a 1 inch.

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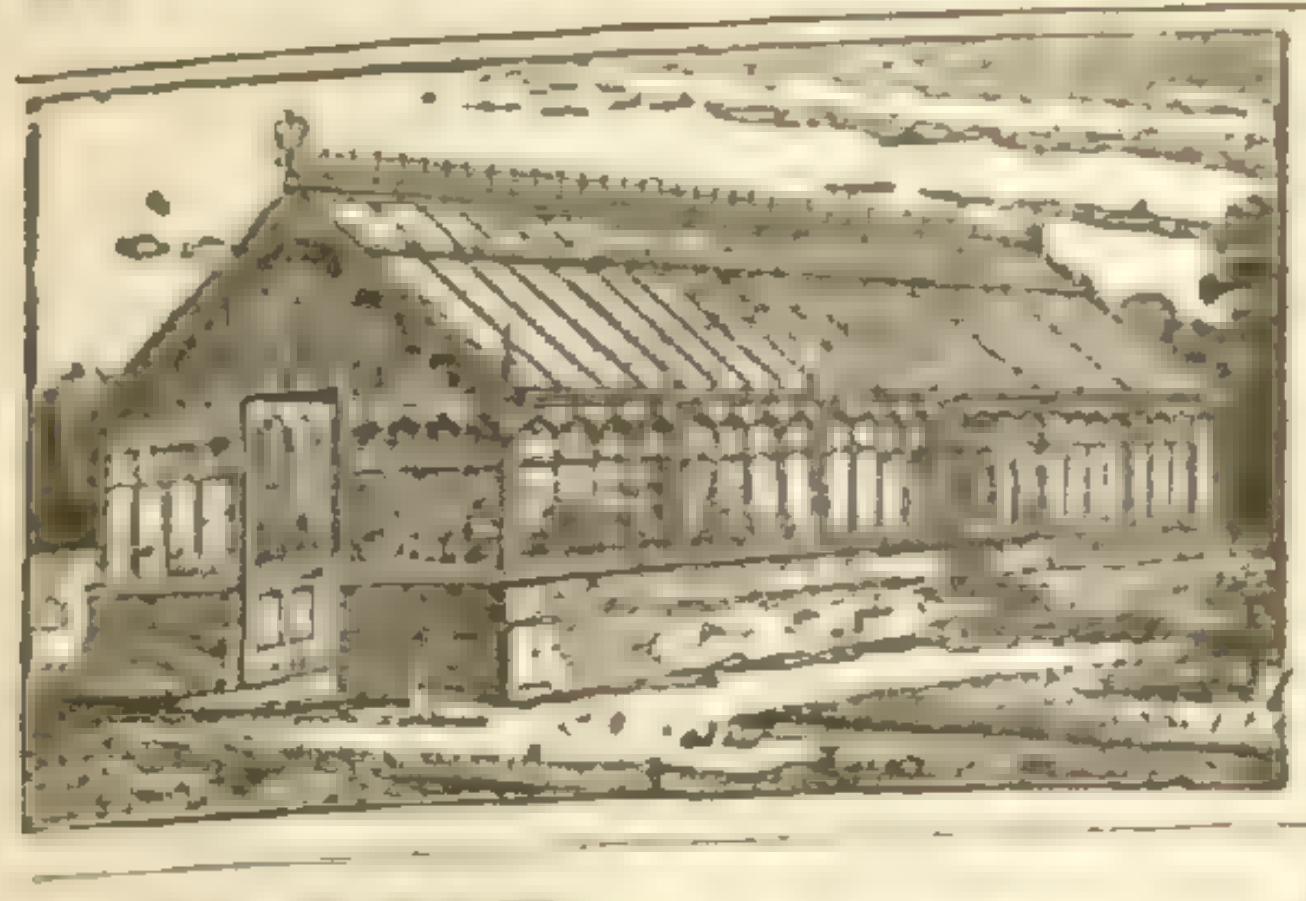

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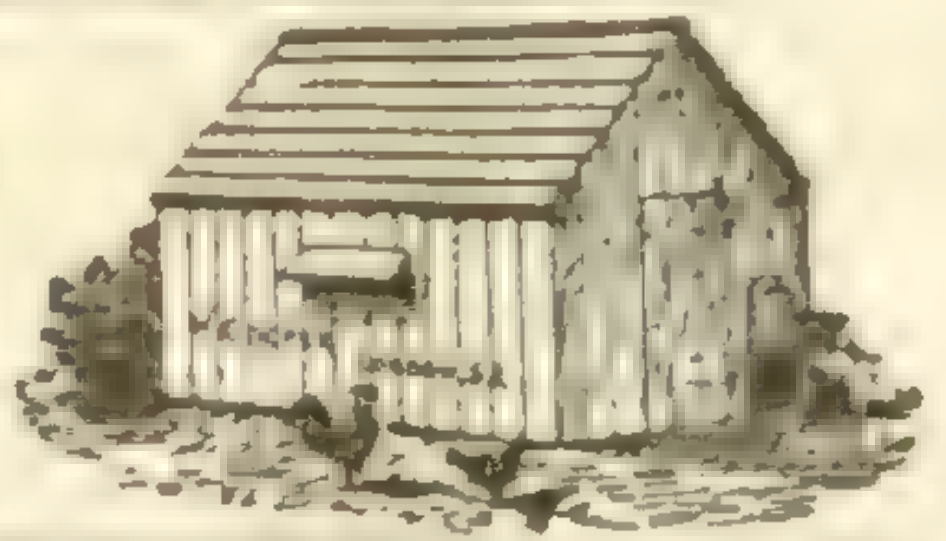

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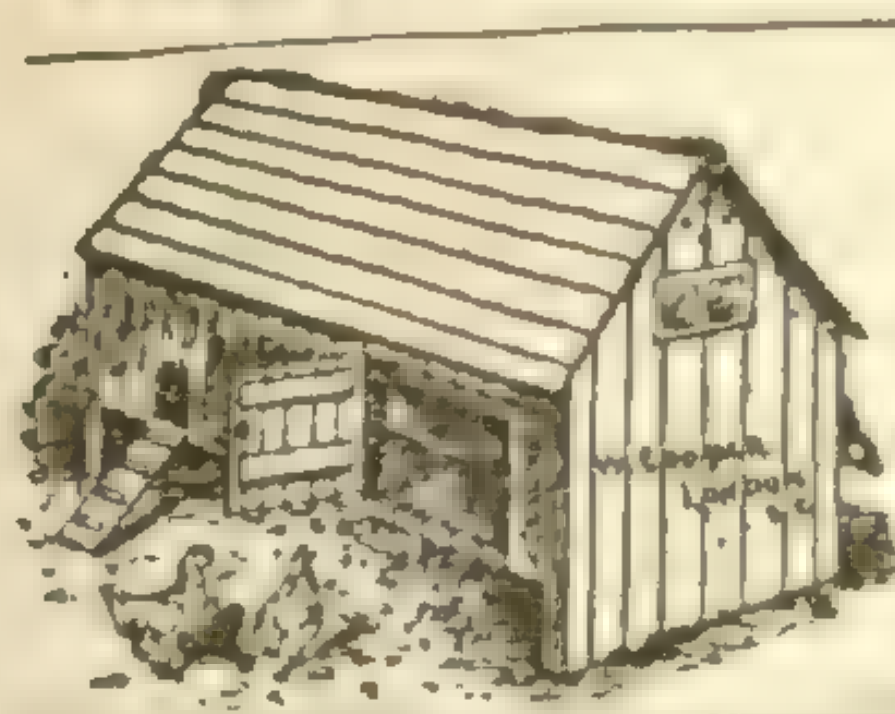
7 ft. by 5 ft. ... ... 36s.
9 ft. by 6 ft. ... ... 42s.



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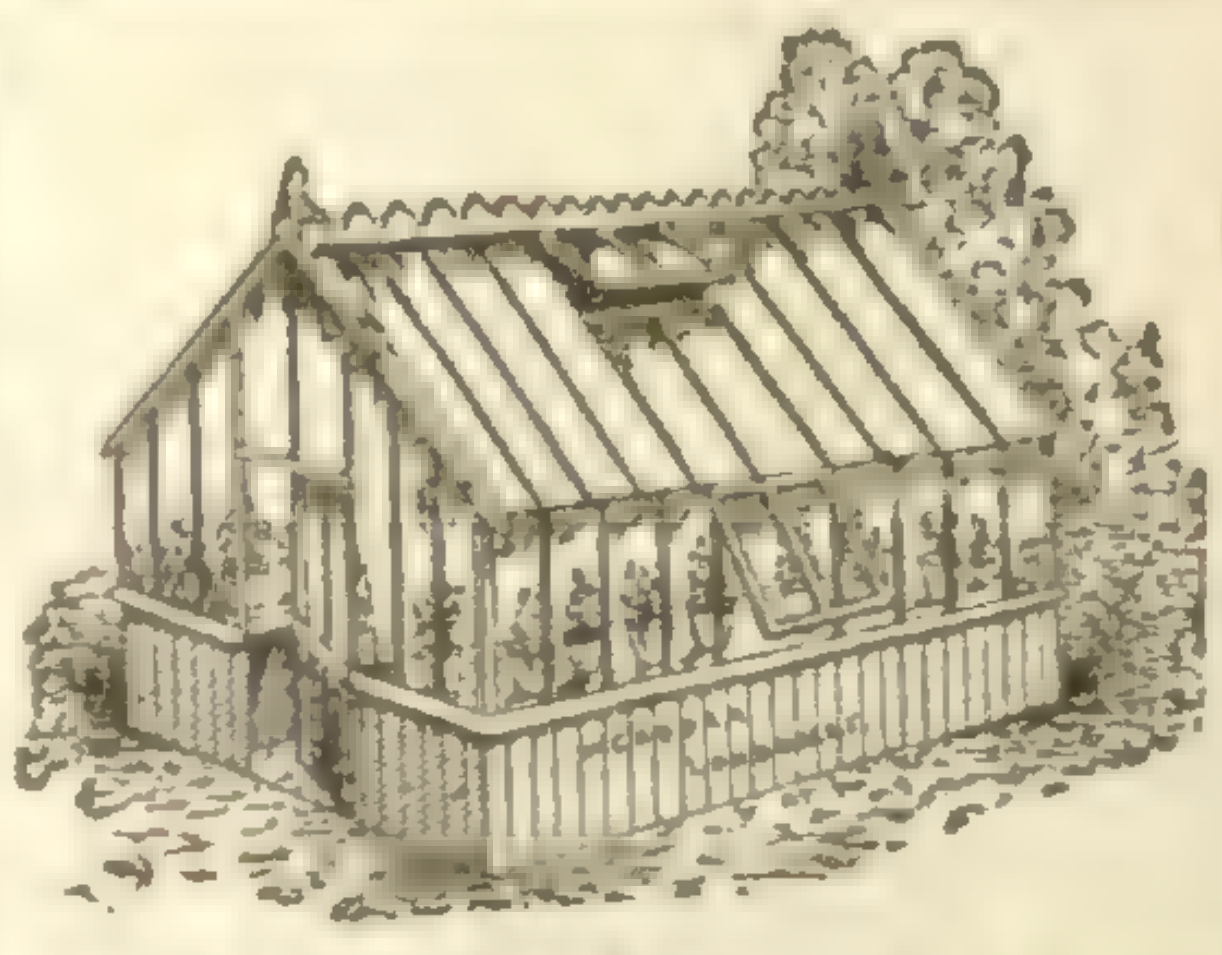

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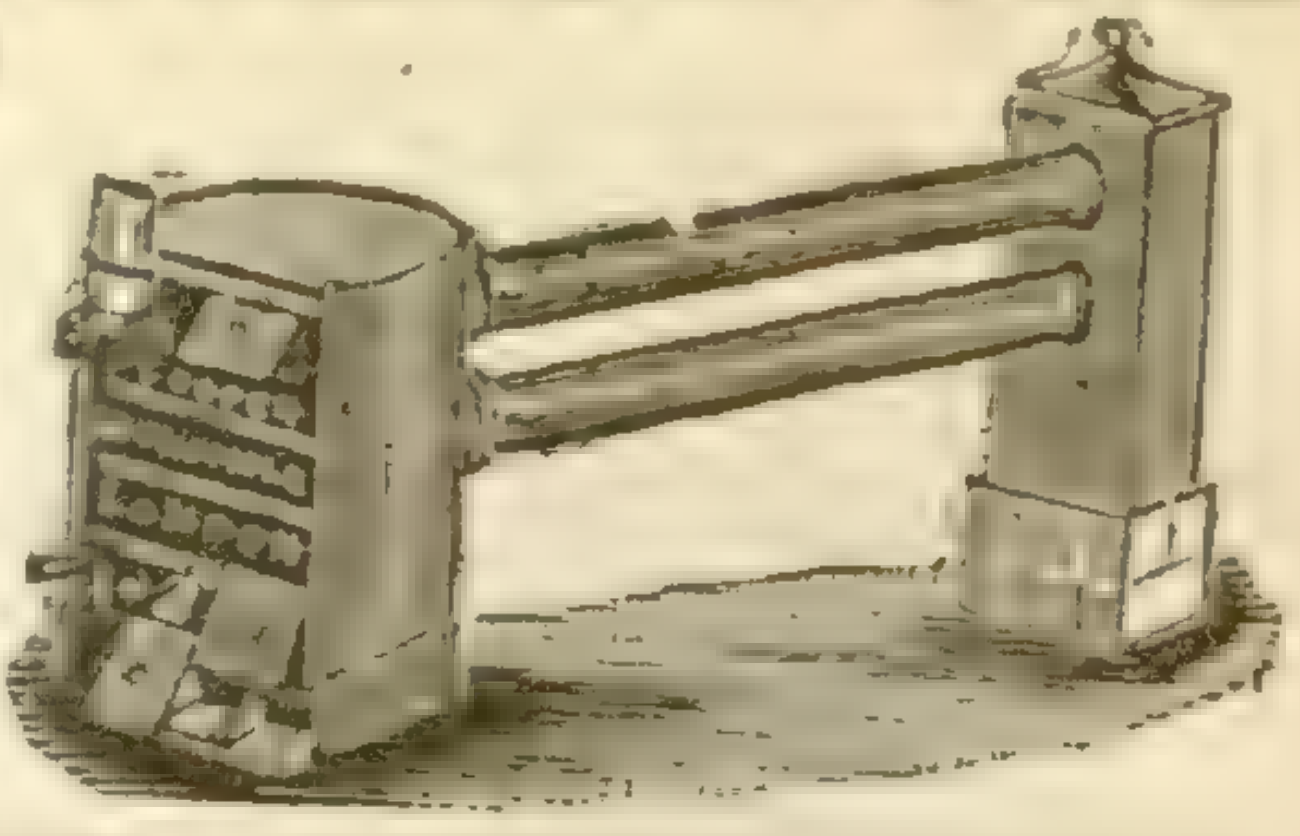
Long. ft.	Wide. ft.	High. ft. in.	To Eaves. ft. in.	Packed on rail. £ s. d.	Erected within 50 miles. £ s. d
7	5	7 0	4 0	2 16 0	4 0 0
8	5	7 0	4 0	3 10 0	5 0 0
9	6	7 3	4 0	4 0 0	5 10 0
10	7	7 6	4 6	5 0 0	6 15 0
12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
25	10	9 0	5 6	15 0 0	20 0 0
50	10	9 0	5 6	25 0 0	35 0 0
100	10	9 0	5 6	45 0 0	65 0 0



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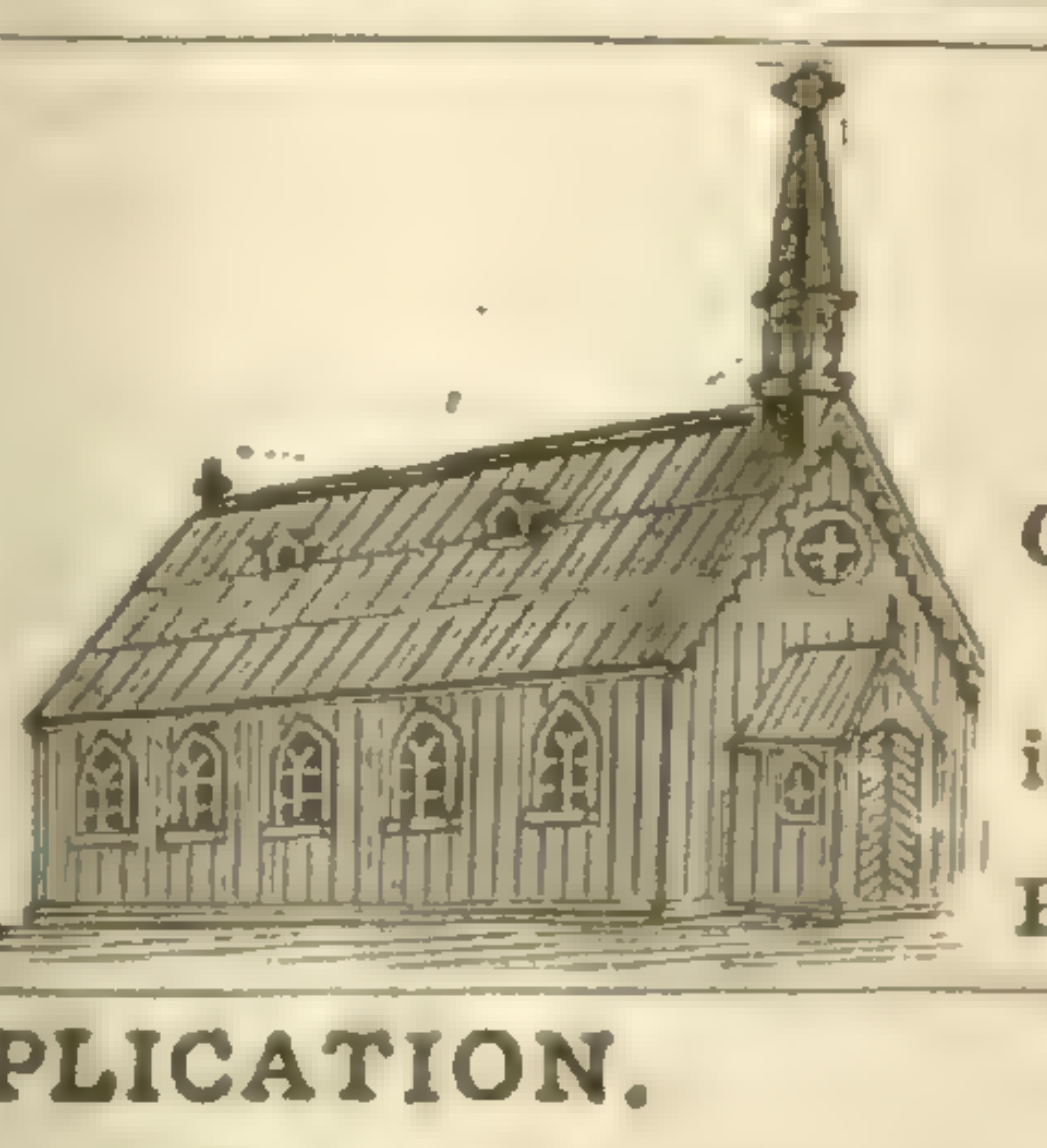
9 by	6	£3	10	0
12 by	8	£3	15	0
15 by	10	£4	15	0
20 by	10	£5	15	0
25 by	10	£6	15	0



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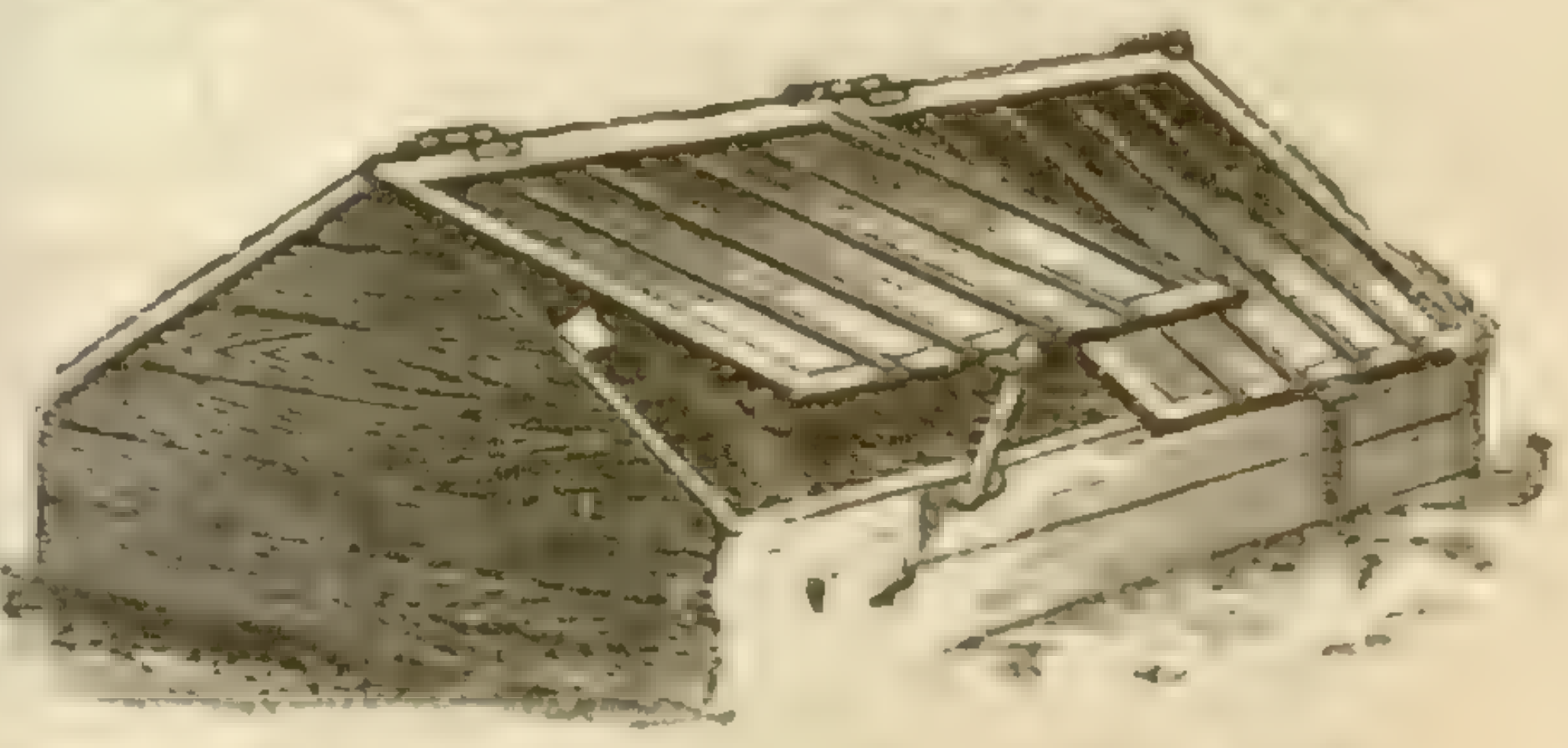

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12 feet " 4 feet "		4	0	0
6 feet " 5 feet "		2	15	0
12 feet " 5 feet "		4	15	0
12 feet " 6 feet "		5	12	6

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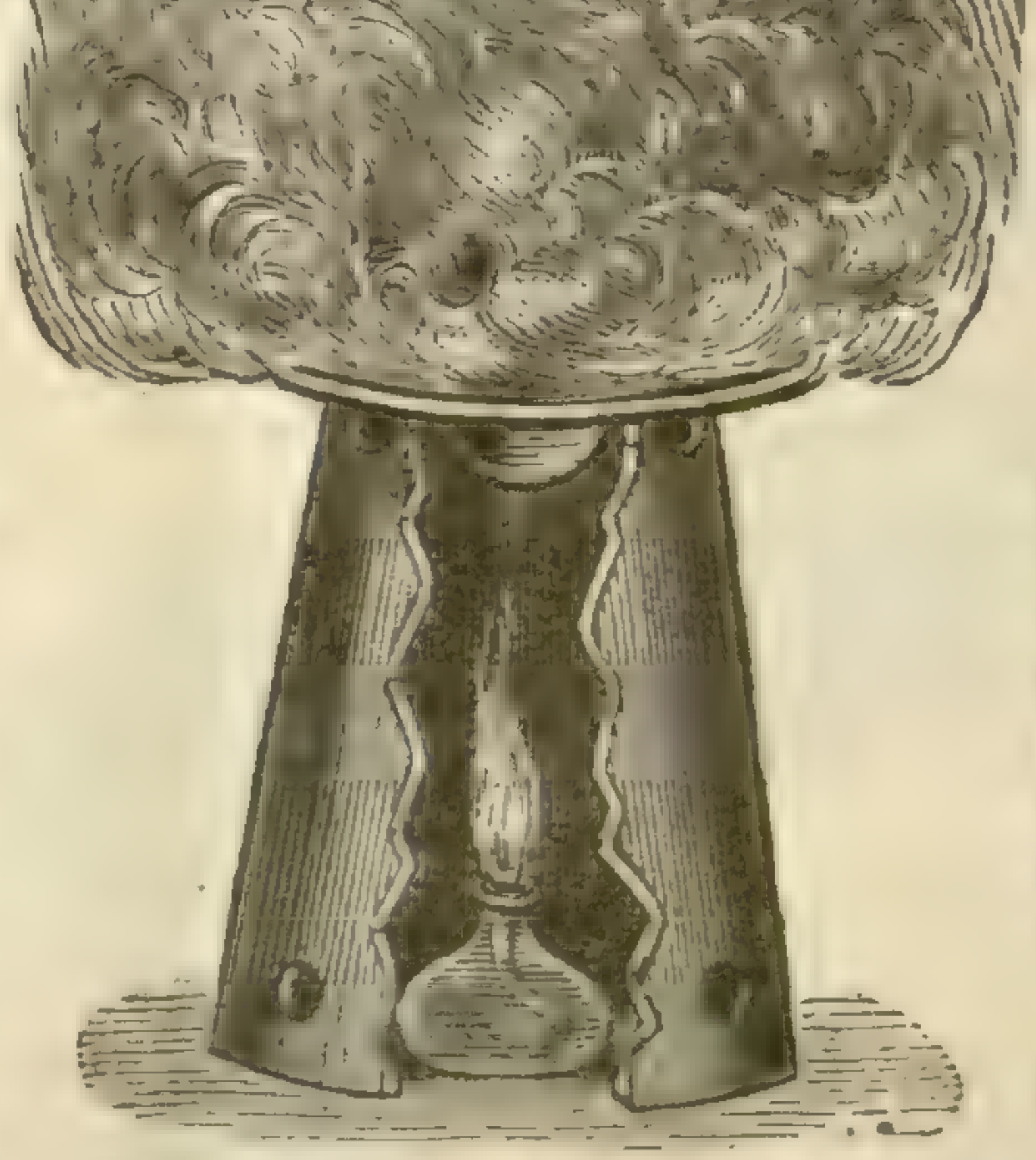

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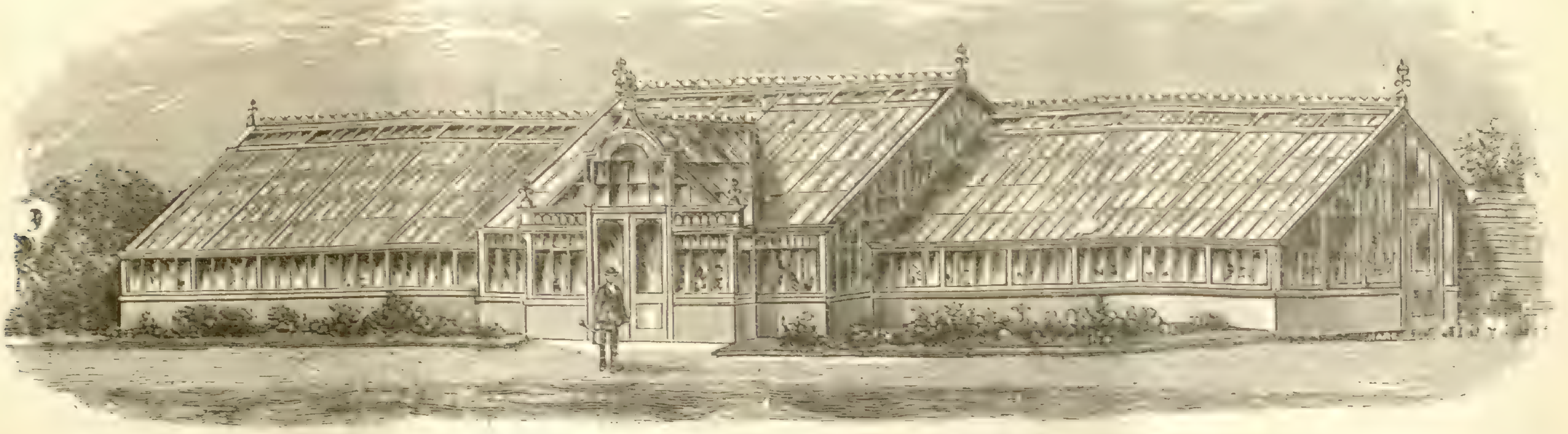

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12×18	200 ft.		at	30/-	18×20
12×20					18×24

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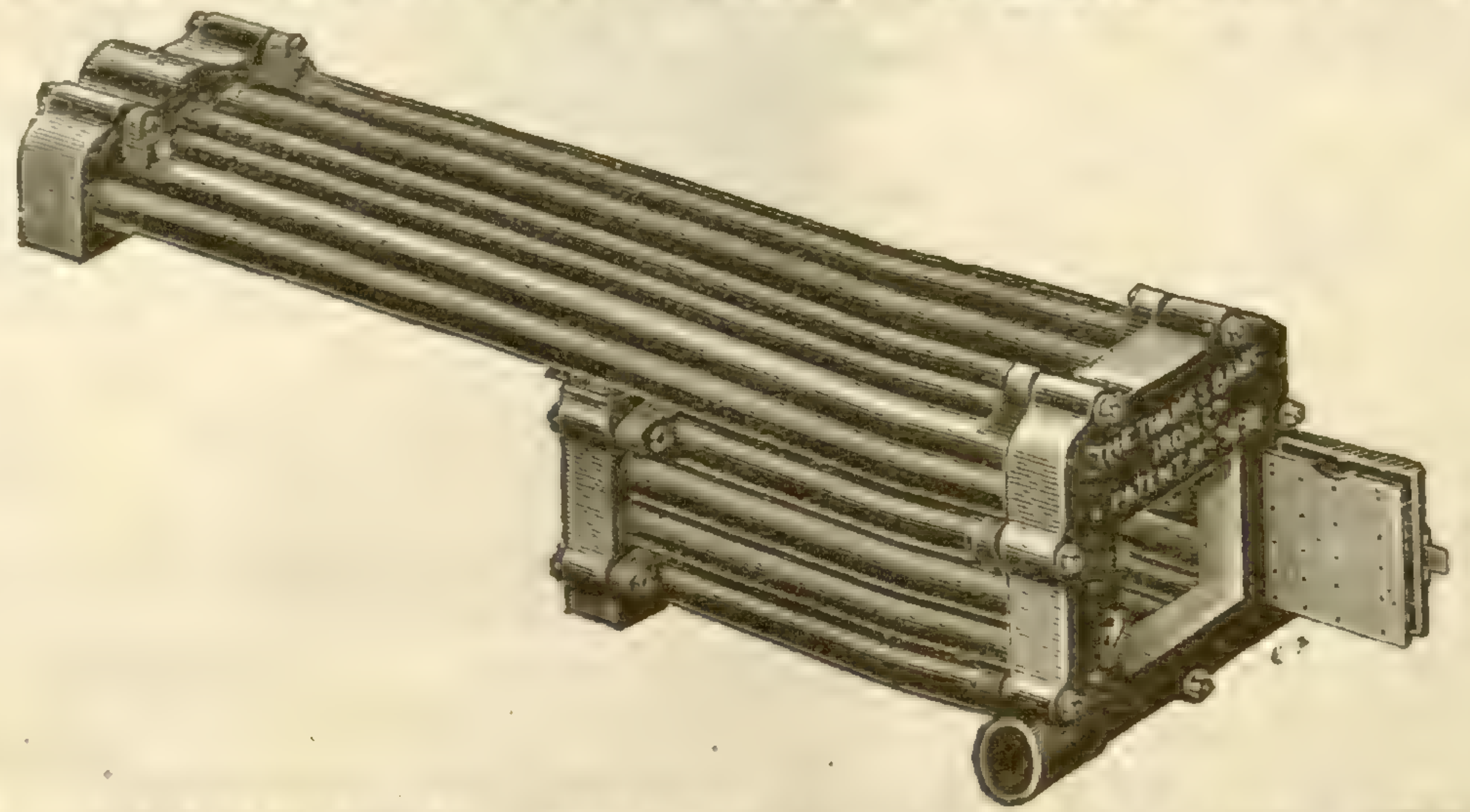

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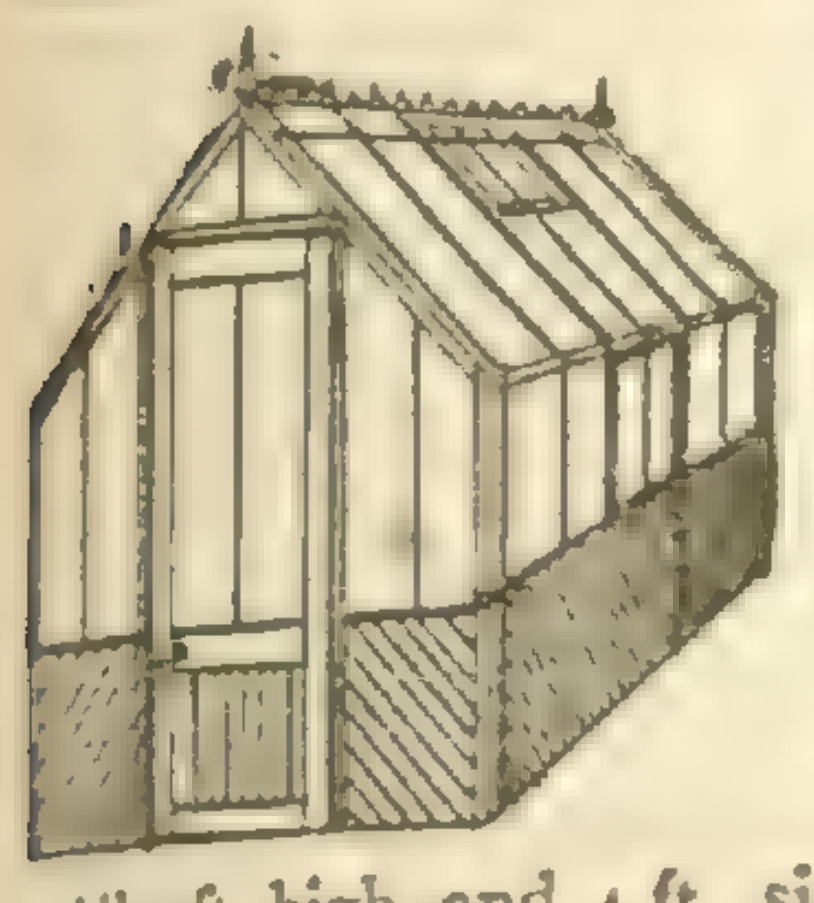
AT THESE PRICES.

21-oz. glass throughout. Extra strong woodwork. Send for list, containing full specifications. Wherever you buy insist on having a full and complete specification of what you are going to receive. A comparison will then show that these goods, low though the prices are at first sight, in reality are much cheaper still, because so much more substantial. Do not accept vague statements, and take the rest for granted, but insist on knowing definite dimensions of material. The appearance of these houses is also much improved by having the boarding diagonal and more sealed (we have still a few of the lighter make left, prices proportionately lower). All goods on approval with pleasure. Sample end first if desired. Special arrangements for carriage. It will please others if you buy elsewhere, it will please you if you buy from us. So please yourself!

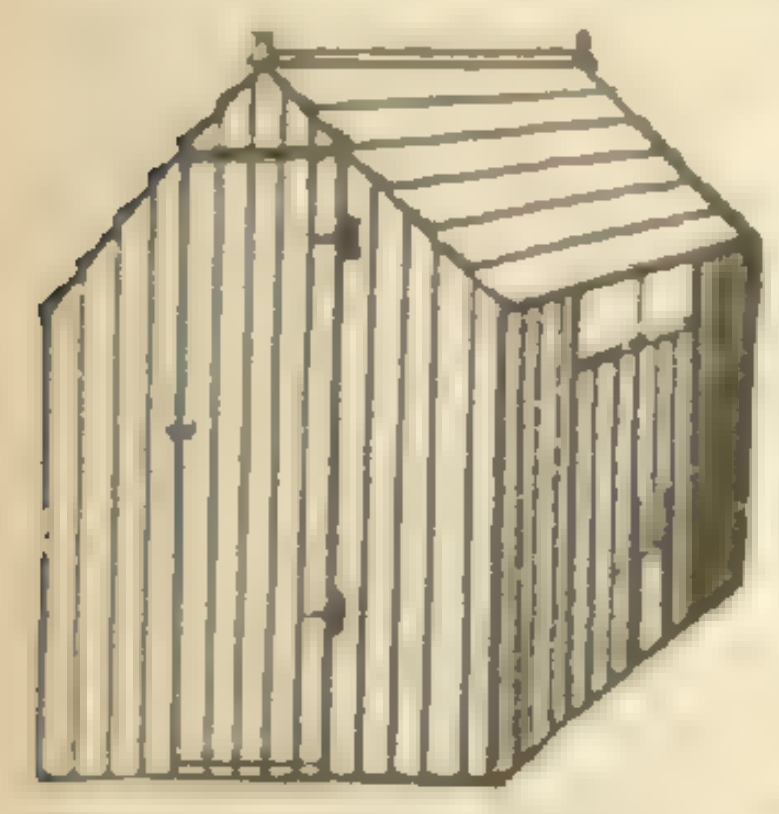


Size.	Lean-to.	Span.
8 X 5	36/-	48/6
10 X 5	48/6	58/6
14 X 6	58/6	78/6
10 X 8	58/6	72 6
14 X 8	78/6	95/-
14 X 10	95/-	£5/7/6
20 X 10	£5/17/6	£6/17/6

All 7 ft. high, and 4 ft. sides (a few 5 ft. sides, trifle more). Ironwork, staging, and one coat paint included.

A comparison:—
£3/10/0 buys elsewhere 8 X 5 lightest possible make.
£3/12/6 buys from us 10 X 8 extra substantial make.
All sizes are in proportion. Need we say more?

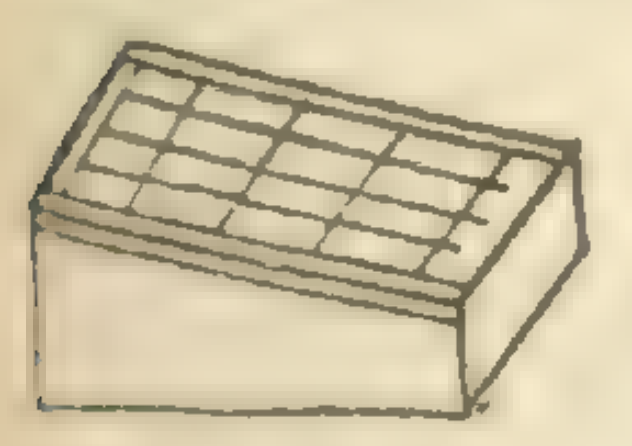
Speculate in a sample end, and set your doubts at rest.



To hold.	Size.	Lean-to	Span.
Ten	4 X 3	10/9	12/9
Twenty	5 X 4	12/9	16/6
Forty	7 X 5	17/6	22/6
Hundred	12 X 7	—	33/-

(Also a few cheaper ones left.)

Usually made from half-inch wood, these are one-third thicker, and felt cover to roof.



4 X 3	8/9
6 X 4	14/6
8 X 6	22/6
12 X 6	33/-

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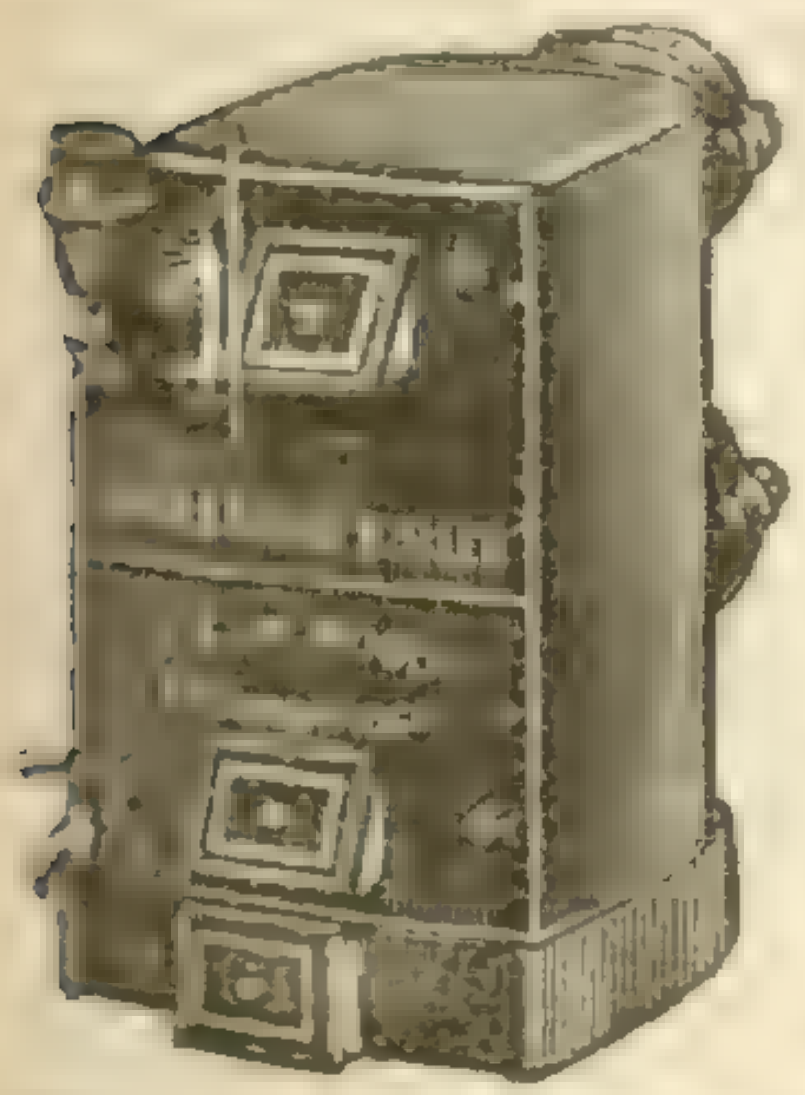

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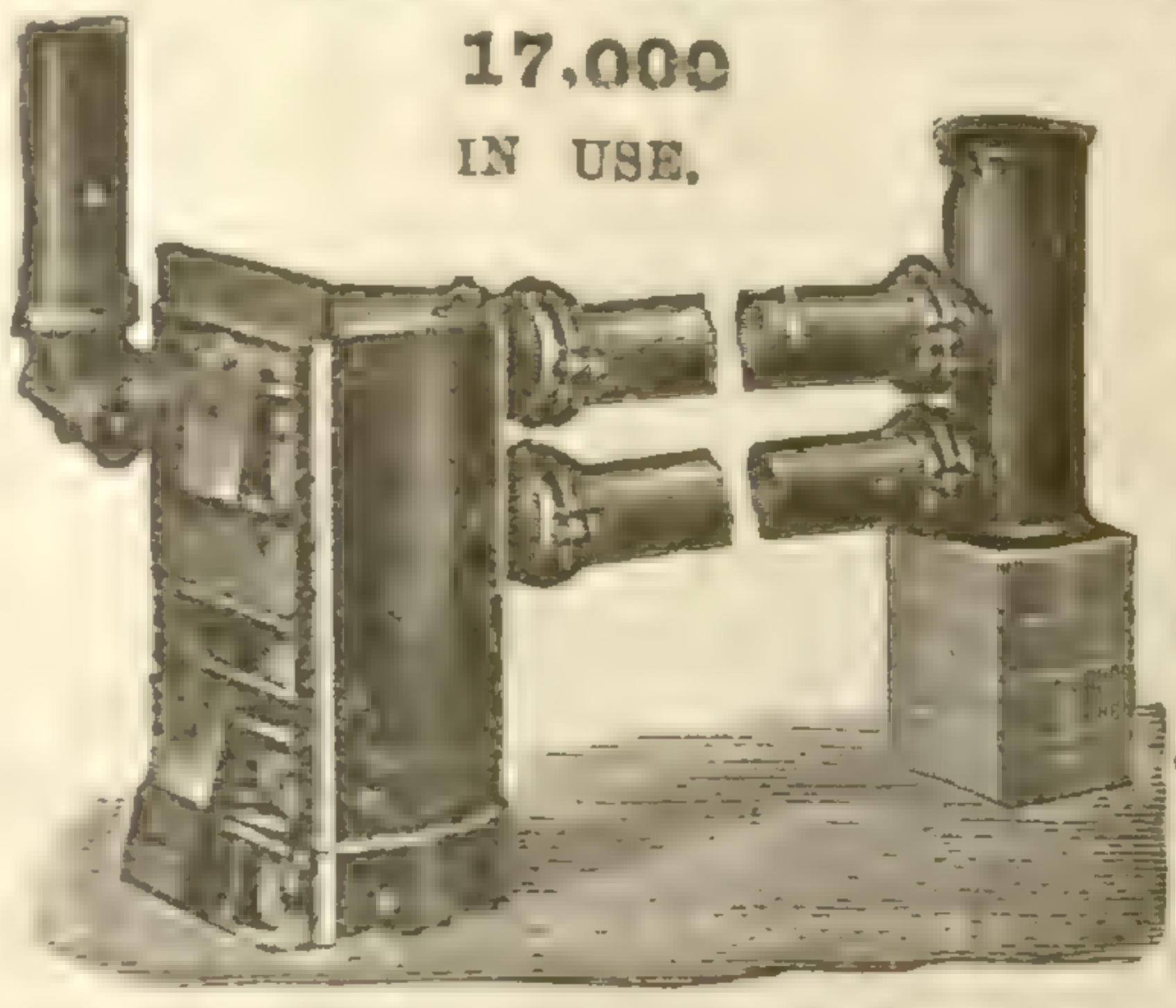

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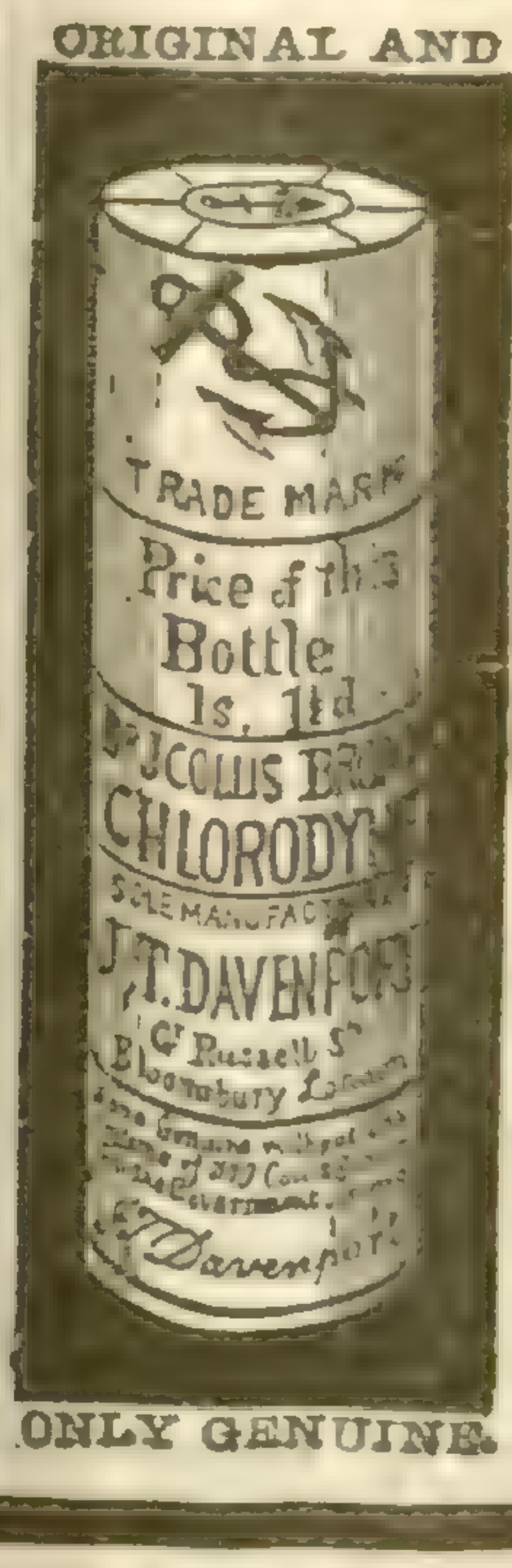
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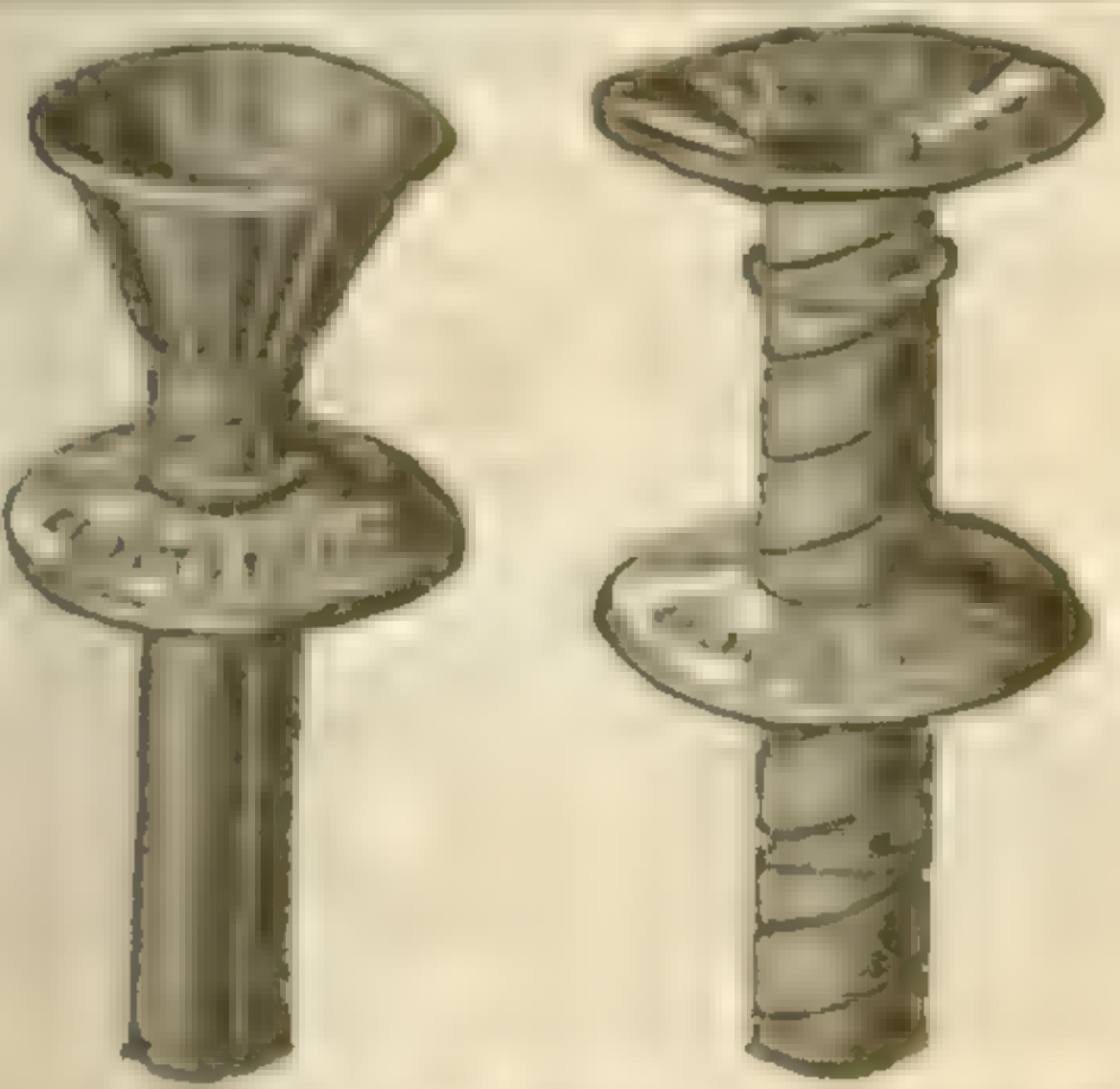

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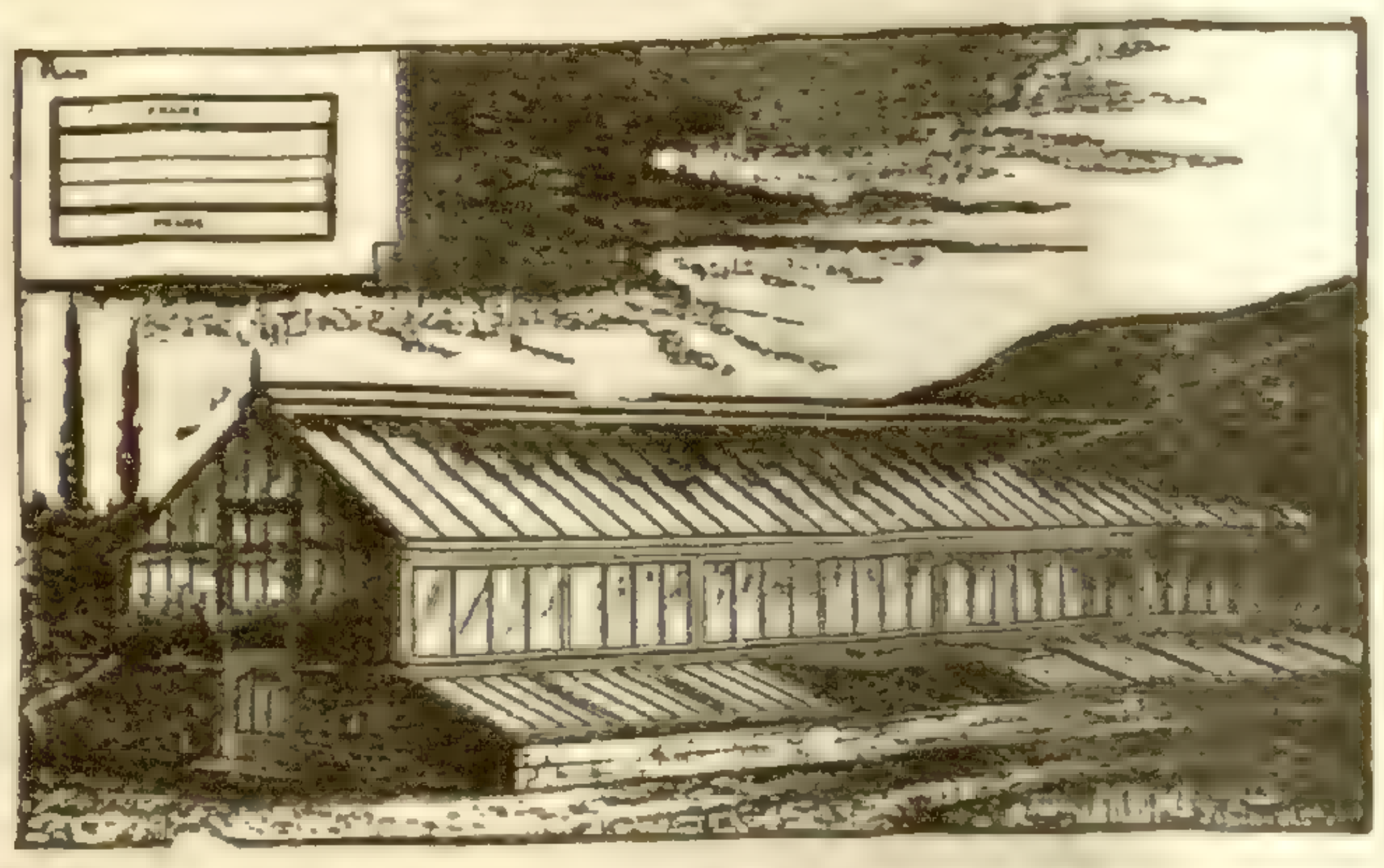

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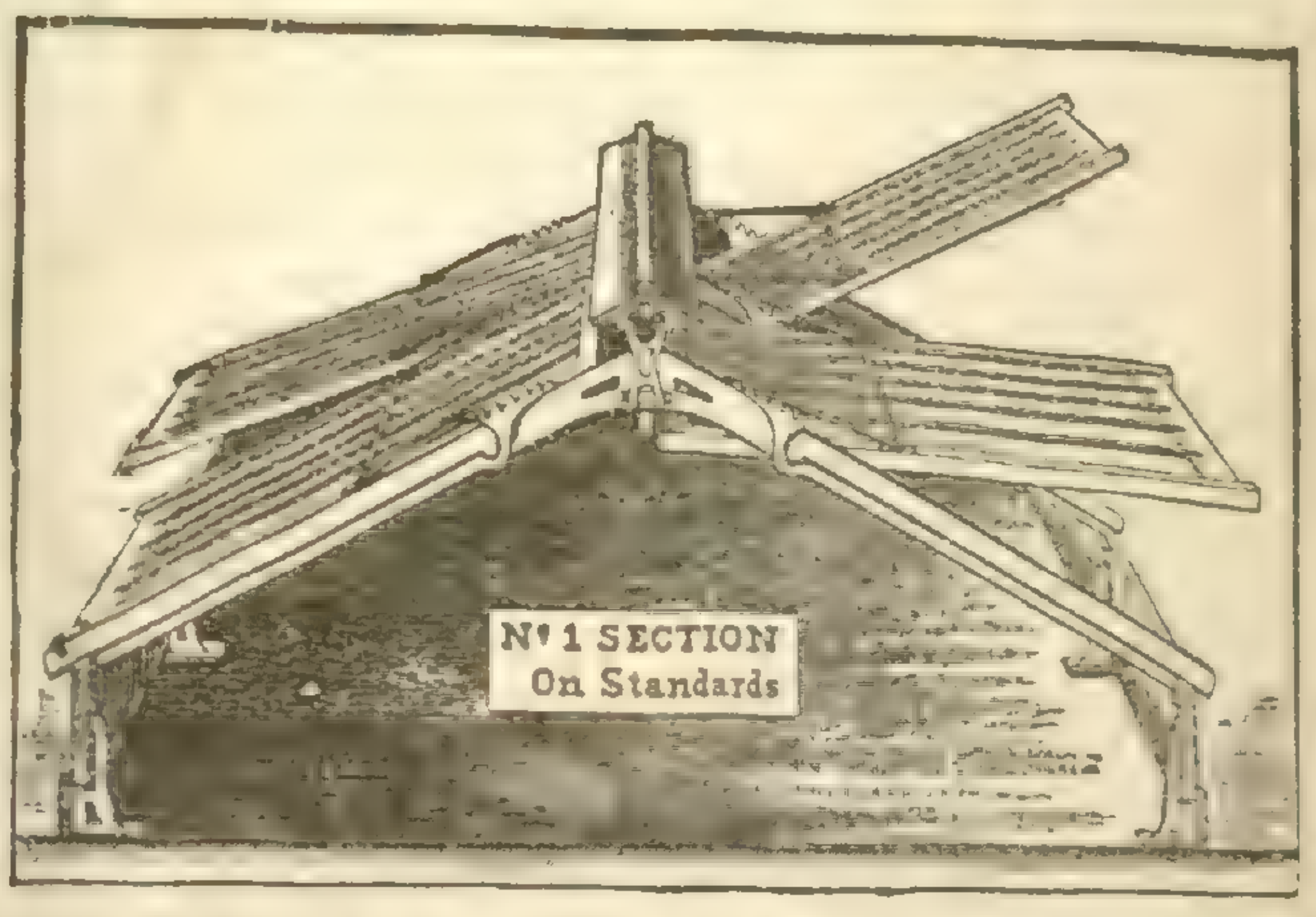

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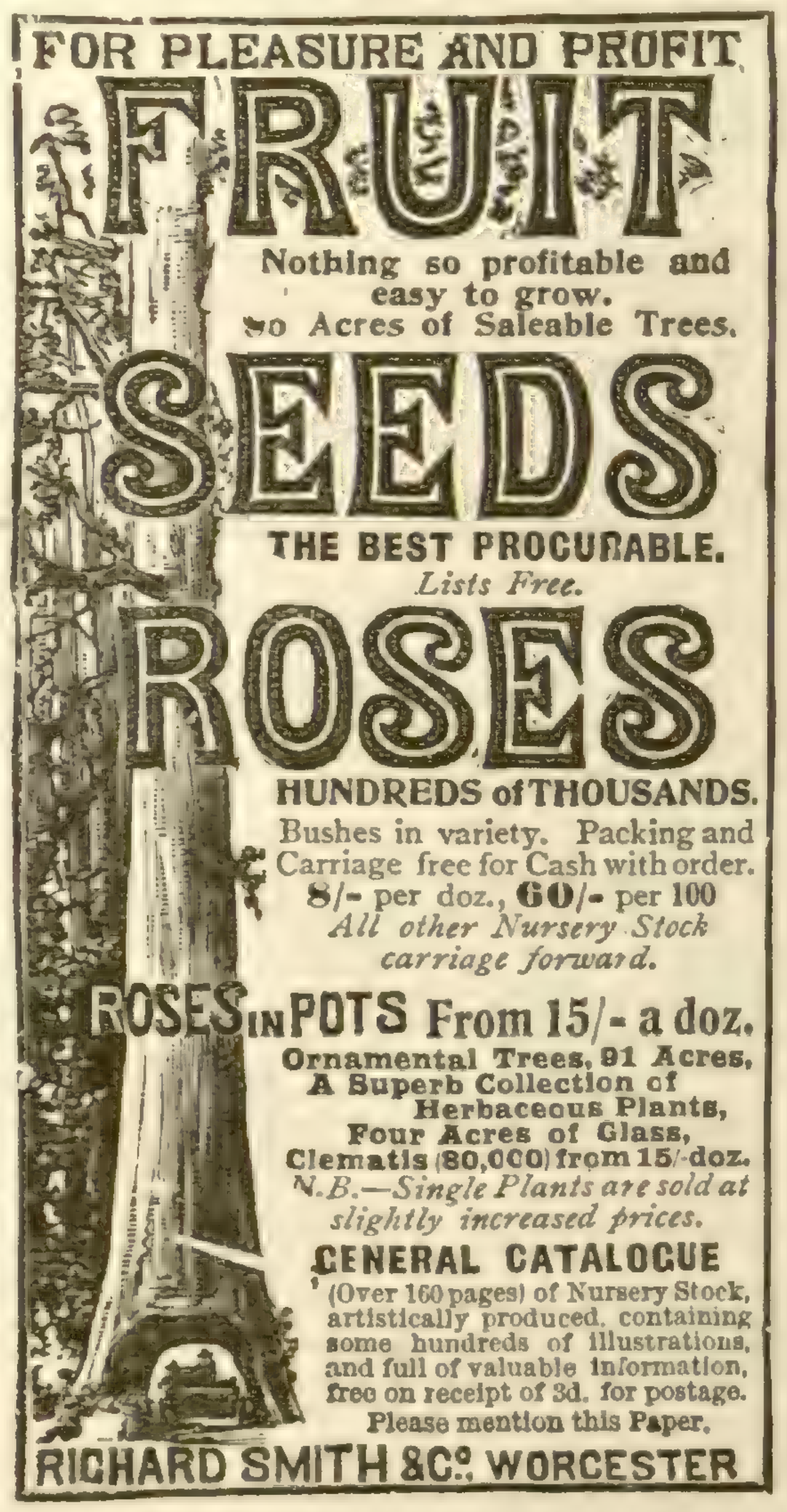

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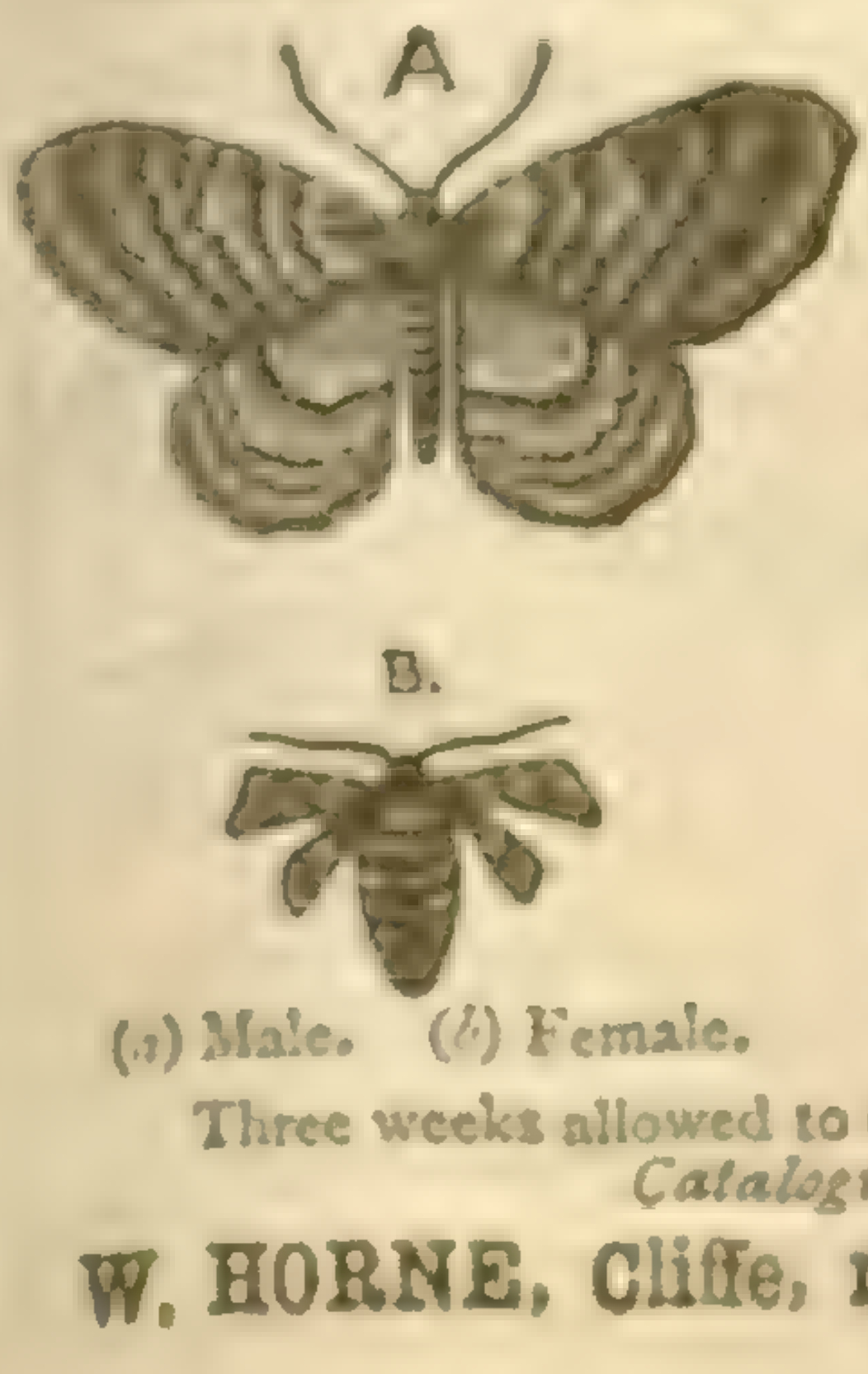

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THE GARDENERS' MAGAZINE.

SATURDAY, NOVEMBER 19, 1898.

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NOTES OF THE WEEK.

DO CHRYSANTHEMUMS WEAR OUT?

THOSE who fully appreciate the charms of the incurved chrysanthemum in its highest attribute of beauty can hardly have observed otherwise than with feelings of regret the inferior position which the Queen of England and the varieties that have originated from it as sports have occupied at the exhibitions held this season. A few years since these varieties so greatly predominated in the stands of incurved blooms that it was feared they would check the cultivation of the smaller but beautiful forms that had for so many years given pleasure to those who had a predilection for the section. Now they have fallen so low in the favour of exhibitors that they are sparingly shown, and so inferior in size as to be invariably given a place in the second or front row, instead of in the back row, where until recent years they were almost invariably found. The paucity and inferiority of the blooms of the varieties forming the Queen group have naturally been much discussed by the more observant of those who take an interest in chrysanthemums, and a considerable difference of opinion has found expression. It has been suggested to us that the decline in their popularity is due to their having been superseded by more recent introductions. Were we to accept this view of the case as correct we should require some explanation of the small size and inferiority of the blooms staged even by successful exhibitors; but, with one or two exceptions, the newcomers are so distinct that no proper comparison can be instituted. Being unable to admit that they have been superseded, we must look for some other cause, and some, whose opinions are deserving of respectful attention, regard the degeneracy of the varieties in question as simply a case of wearing out. They contend that as varieties are artificial productions, and can only be propagated by means of cuttings and division, they gradually lose their vigour, and eventually perish from loss of vitality. But there is no evidence forthcoming in support of this opinion that will bear the test of careful examination. We know, of course, that varieties of the chrysanthemum, as of other plants raised from seed saved from the same parent, will differ materially in constitutional vigour as in other points. We are also fully aware that those with a weakly constitution will succumb to unfavourable conditions more quickly than will those with a robust one. But these facts do not support the views of those who believe that varieties, like individuals, die out at a period determined by their initial vigour; they simply show there is a difference in the constitution of plants as of animals, and that the least vigorous of the varieties suffer more quickly from unfavourable conditions than do those endowed with a high degree of vitality. It would be an easy matter to show that the theory of wearing out of varieties, which was first proposed by Knight at the end of the last century, is not based on fact; but the scope of this note will not admit of this being done. Suffice for the present to submit that the decline in the Queen group is not due to the introduction of superior varieties, or to their old age, but to the unfavourable conditions under which they have been placed consequent on the changes that of late years have been made in the methods of procedure. In consequence of the undue preference shown by the majority of judges and exhibitors for big blooms, the plants have received such excessive supplies of fertilisers as to become in the course of a few years more or less diseased. It follows as a matter of course that when a plant becomes unhealthy a cutting taken from it will carry the disease with it, and this will continue as long as successive generations are exposed to the influences which originally caused the unhealthy condition. It is, therefore, obvious that before we can hope to see the Queen, and the several sports obtained from it, reinstated in the position so worthily occupied judges must give proper importance to high quality and exhibitors adopt a more rational course of culture.

LEAVES.

NOW that the leaves of deciduous trees and shrubs have fallen, or are in the process of falling, we may well devote a little consideration to their innate beauty, while we recall the two phases of their outward loveliness which have been enjoyed by us in summer and autumn. We may indeed say three phases, for the spring development has its own peculiar loveliness, which is as distinct as possible from the other two, though it grades into the maturity of summer verdure without that comparative suddenness of change witnessed in the autumn. In the spring we see the leafless branches and twigs of deciduous trees breaking forth into an infinite variety of buds, every species having its own peculiarities, both in the protecting shields which have guarded the latent bunches of incipient leafage all through the winter, and in the method by which this shield is broken through as its contents burst it to greet the cheery glimpses of the sun. It is then that the utmost delicacy of verdure is seen, when first the tiny leaves, which, small as they are, usually display on examination all the detail of the matured leaf, at which stage they arrive by the expansion and multiplication of these little formative cells. Thus the horse chestnut has no sooner spread its plumage out, freed from its shiny black husk, than it is seen to expand and inflate itself precisely as do the wings of butterflies and moths on emerging from the chrysalis. Other forms of leafage act in different ways, and emerge as mere points of growth which do all their elaboration afterwards, and between these two extremes lie all grades, each one with beauties of its own. Under April sunbeams and showers one and all speedily transform their particular skeleton of boughs and branchlets into a vast community of living and breathing and hardworking individuals which we call leaves, and it is the function of these individuals to extend the empire of their particular species both by strengthening the constitution of their own community, the tree or shrub which bears them, and by sending out far and wide their little ambassadors, the seeds, to form colonies abroad. All this is done by the leaves, which we too often regard as mere appendages to the plant, just as we regard the coral insects as mere fringes to the reefs they construct and maintain. The flowers are nowadays recognised at their true value as leaves which have modified themselves in a myriad ways to fulfil the general purpose aforesaid, propagation, and in so doing have enriched the world with a beauty of colour and form which, though appreciated by man, is by no means designed particularly for his delectation, except in so far as he has had a hand in selection, as well as bees and beetles, and so forced his tastes into recognition as well as theirs. In all ways leaves are wonderful. If we pick up and study one of the dead ones now scattered around us—it matters not to what species it may belong—we cannot fail to be struck by the delicate and purposeful architecture displayed in its structure, and, taking up one after another, the variety of plan will also appeal to us as equally astonishing. The tiniest blade of grass and the most ornate and decompound leaf are each as perfect as the other, the strength being distributed exactly where it is needed, and no provision omitted for that subtle intercourse between cell and cell, and between that particular community of cells and its supporting twig and branches, trunks and roots, which is essential for the general wellbeing. Take the first leaf to hand, scrutinise it well, and all that we have said will be seen to be but a mere fingerpost to a myriad marvels.

PEARS FOR PLANTING.

PEARS are such delectable fruits that it is difficult to have them in too great an abundance, provided the supply is so arranged as to extend over the longest possible period, or, to be more exact, from August until the following March. There is no dearth of early, mid-season, and late varieties; on the contrary, the number available in each season is in excess of the requirements of the largest garden. There is, however, so great a difference in the productiveness of the immense number of varieties in cultivation that unless the planter selects with great care he may fill his garden with trees of which a small proportion only will give a satisfactory crop. At their best pears are somewhat uncertain, consequent on their susceptibility to unfavourable climatic conditions when the trees are in bloom, and when the fruits are passing through their first stage, and therefore it is essential to select varieties that can be depended upon to bear a crop in seasons not specially unfavourable. Pears differ also in quality, and, as a small proportion only of the varieties that have been introduced can properly be described as first class, it is necessary to guard against the selection of varieties of indifferent quality by planting those known to be richly flavoured when grown under ordinary conditions. In view of these facts, the reports from our numerous correspondents on the pears giving the best results, that we published in a recent issue, are of much value, and intending planters will act wisely in taking full advantage of the information they contain. To render this task as easy as possible, and to still further assist those readers who have not had widely extended experience in fruit culture, we have extracted the names of the varieties that were described as being the most satisfactory in the largest number of instances, for the purpose of pointing out the season in which they are available for the table, as it is important there should not be a preponderance of varieties ripening at any particular period during the autumn and winter. Commencing in the order of ripening, we have first the Jargonelle, which is the best of the August pears, more especially in the North of England, where, with the shelter of a wall, it attains a high degree of perfection. Following this fine old variety we have Dr. Jules Guyot, Souvenir du Congrès, and Williams' Bon Chrétien. These might well be taken in the order of their names, for Dr. Jules Guyot is a much finer pear than Williams' Bon Chrétien, and Souvenir du Congrès is of special value. For use during October and November, Beurré Bosc, Beurré Hardy, Beurré Diel, Beurré Superfin, Durondeau, Emilie d'Heyst, Louise Bonne of Jersey, Marie Louise, and Pitmaston Duchess are of a high degree of utility, and will afford an ample supply during the two months. To follow the foregoing, Bergamotte d'Esperen, Doyenne du Comice, Easter Beurré, Glout Morceau, Josephine de Malines, and Winter Nelis are prominent among the varieties enumerated by our correspondents. So much depends upon the district and soil in which they are grown, and also the season, that it is difficult to state exactly the date of the ripening of their fruit, but for all practical purposes it will suffice to state that, generally speaking, they will maintain a supply during December and the three following months. In addition to these we would suggest President Barabe as deserving of a widely extended trial. The variety has been grown in the Gunton Park gardens, one of the best known of the Norfolk establishments, for several years past, and Mr. Allan has found it one of the most productive of varieties in a comparatively large collection, and the fruit, which ripens during February, is unsurpassed in quality.

Diploma for the Victoria Medallists.—The sixty leading horticulturists of Great Britain and Ireland who were recipients of the Victoria Medal of Honour in Horticulture, instituted by the Royal Horticultural Society in 1897 to commemorate the sixtieth year of her Majesty's reign, have now been presented with a diploma verifying their title to the use of the now well-known letters V.M.H. We need not here enumerate the medal-holders, as the portraits of the whole sixty were published in the GARDENERS' MAGAZINE of November 20, 1897. The diploma is surmounted by the Royal Arms and reproductions of the obverse and reverse of the Victoria Medal. Then follows, with the name of the holder inscribed:—"Royal Horticultural Society, Founded 1804. Incorporated by Royal Charter 1809. Anno Domini MDCCCXCVII. Whereas it has graciously pleased Her Majesty the Queen, Empress of India, to assent to the establishment by the Royal Horticultural Society of the Victoria Medal of Honour in Horticulture, in perpetual commemoration of the 60th year of Her reign. This is to make known that we, the President and Council of the Society, have conferred the said medal upon our right worthy Fellow *George Gordon*. Given under our Common Seal, this 26th day of October, 1897. Signed Trevor Lawrence, President. W. Wilkes, Secretary." At the foot of this diploma, which measures 16½ by 12½ inches, is affixed the seal of the society.

Edinburgh Chrysanthemum Show.—A magnificent exhibition is that now being held in the Waverley Market, Edinburgh. The competition is exceedingly keen in all classes. The City of Edinburgh prize of £15 and a piece of plate, value £20, for twenty vases of chrysanthemums, distinct, is well won by Mr. T. Lunt, gardener to G. Stirling, Esq., Keir, Dunblane, with the finest exhibit seen this year. Mr. D. Nicoll, gardener to J. W. Bell, Esq., Rossie, Forgandenny, second; Mr. A. Haggart, Moor Park, Ludlow, third; Mr. J. Beisant fourth. Mr. T. Lunt also won first prize for thirty-six Japanese with a fine exhibit; Mr. Addison, Black House, Skelmorlie, second; Mr. J Martin, Comdean Hall, Gloucestershire, third; Mr. Haggart fourth. Plants are grandly shown, Mr. G. Thomson, Preston Grange, Prestonpans, Edinburgh, being very successful.

The Pollination of Flowers by Birds, according to Dr. F. Johow, of Berlin, occurs in a much smaller degree than is generally believed and stated. He shows that humming birds in particular, since they feed entirely on insects, and not on nectar, play but a small part in the carriage of pollen. He describes, however, an unquestionably ornithophilous flower in a Chilian Bromeliad, Puya chilensis. The "nectar" in this flower is exceedingly abundant, but is not attractive to insects, being very watery, and containing but little sugar. It is, however, eagerly drunk by humming birds, but more especially by the Chilian starling, and these birds get their heads plentifully besprinkled with the pollen, which they then carry to other flowers.

New Public Parks and Gardens are continually being made, and the Editor of the "Gardening Year-Book" (148 and 149, Aldersgate Street, E.C.) will be greatly obliged by our readers sending particulars of any new open spaces that may have come under their notice.

Scab on Potatos.—Some diseased potatos recently placed before the R.H.S. Scientific Committee were referred to Mr. Worthington G. Smith for examination, and he has reported as follows: "Almost simultaneously with receipt of specimens from the Scientific Committee other specimens were received from Dr. Masters. Both sets of material showed a well-marked form of 'scab' involving the tip or growing end of every tuber. Freshly cut sections showed a mycelium inside the tubers, both in discoloured and normally coloured parts. The first result of cultivation was an abundant crop of a mucor (white mould), which soon passed into the zygospore resting stage. An abundant crop of bodies of a fungus nature were also present about this time in active growth. Later several other fungi appeared. The rotten parts showed the presence of bacteria, white mites, and nematode worms. Phytophthora was not met with in course of the examination. The 'scab' disease has been ascribed to (1) various fungi, (2) bacteria, (3) nematode worms, (4) mites, (5) an organism of a slime-fungus nature (Pseudocommis). The material examined was not suited to discriminate the actual cause of the disease, because four of the above agencies were present in company. The presence of a fungus mycelium in freshly exposed sections inclines me to give the precedence to some fungus. In the cases examined moss litter from a stable was used largely in one case; the other had also been manured with moss-litter manure, but the source and quantity are not stated. This would seem to indicate that such manure offered good nourishment to the fungus. Comparing my results with other cases recorded, I am inclined to think that the fungus (another cause) came from the soil. Investigations on potato scab have been often made in the United States, Belgium, Germany, and France. No definite cause has as yet been fixed on, but experiments in preventive treatment have been fairly successful. Of the latter, the following have been tried in the United States and in Europe: 1. Corrosive sublimate—the favourite treatment in the United States. When seed tubers are treated before planting out with 1 part sublimate in 1,000 of water for one or two hours good results generally follow, although some experiments on badly infested land were negatived. 2. Sulphur—also an American favourite. The seed tubers are thoroughly dusted with flowers of sulphur before planting. One authority speaks highly of good results from 300 lbs. sulphur per acre applied in the open row, like artificial manures, from a drill distributor. The same writer is also in favour of a mixture of sulphur and kainit at the rate of 300 lbs. per acre. 3. Kainit, for application to land known to be infested. This seems to me a safe cure, and it is favourably reported on."

Asparagus from the Sahara.—It is within the bounds of possibility that our neighbours across the Channel may obtain their earliest supplies of the succulent asparagus from the Oued Rir' region of the Sahara Desert, where the South Algerian Agricultural Society has created three oases and centres of colonisation. The Date Palm is the plant it is most desired to grow, and, owing to the subterranean watercourses, considerable success has attended the efforts made. Figs, apricots, vines, and pomegranates have been cultivated, but their produce is unsatisfactory; the banana, peas, potatos, and beans have been failures. Among the forest trees planted the eucalyptus has done the best, after being protected in its earlier stages. The greatest success achieved so far has been with Argenteuil asparagus, at Ayata and Sidi-Yahia; its culture was commenced in 1892, and some difficulty was experienced in keeping the plantations free from couch grass. When in full bearing it became possible to cut asparagus of the finest flavour over a period of from twenty-five to thirty days. The difficulty, of course, will be to market the produce in good condition. At present it takes five or six days to reach Paris from Ayata; consequently, owing to the expected increase of the yield there, various methods of packing will be tried, so that the transport difficulty may be overcome as nearly as possible.

Dimorphic Leafage on Lavender.—Dr. Masters called attention, at the recent R.H.S. Scientific Committee, to sprays of lavender on which the majority of the leaves were small, grey, with stellate hairs, and with inrolled margins, these characters being acquired by many plants frequenting arid and hot regions. Some of the leaves, however, were much larger, dark green and flat, such being characteristic of plants in a moister climate. The different appearance of the latter is caused by there being much fewer hairs, and these, instead of having long and very slender branching rays, have only extremely short ones, with scarcely any branches; consequently they scarcely overlap each other, and so reveal the green chlorophyll below and between them. With regard to the stomata, they are about equally and very sparingly distributed. They occur on both sides of the leaves.

The Biology of Ferns, though studied carefully of late years by many skilful botanists, is still a subject in which a great deal remains to be explained; thus the student has a wide field here for investigation. Dr. Aurelio de Gasparis, an Italian professor, has, however, recently brought forward a good deal of new information anent ferns. Some of his observations show that there are certain forms of dissemination not previously observed, others relate to the trophilegic action of the fronds, in connection with which certain arrangements have been observed, destined to facilitate the passage of water to the roots. Dr. Gasparis has also discovered two new cases of myrmecophily, as well as a number of instances of acarophily among ferns, many of them very evident and easy of observation.

Where Fruits Pay Like Gold Mines.—Upon the authority of Mr. A. F. Coleman, of Corning, the *National Nurseryman* publishes some very interesting facts and figures anent the fruit industry in the Ozark Region, along the fertile Port Arthur Route from Kansas City to the Gulf. Although the fruit business is yet in its infancy here, some remarkable results have been obtained. Thus, three hundred carloads of strawberries were shipped in the summer of 1897 from one section and brought into one town £52,083. One grower, Mr. Davidson, had had strawberries that paid £62 10s. per acre; another sold peaches for more than £72 per acre; one hundred and sixty acres of four year old peach trees produced

£3,125 worth of peaches. One grower sold peaches at over £62 10s. per acre, while another made over £20 clear per acre off his berry patch. Forty acres of apple orchard, nine years old, realised £500 for the crop on the trees, while one big grower has four hundred acres of apple trees that brought him £6,250 for the crop on the trees, the trees being nine years old. All these things can be had, by men of push, without loss of home and home pleasures, with none to molest or make afraid along the Port Arthur Route. Many sold their apple crop this year for more than they asked for their whole farms a year ago. Mr. Coleman's figures almost tempt us to pack up and take Charles Kingsley's advice to "Go West."

Artificial Garden Manures and their general usefulness forms the subject for discussion at the next fortnightly meeting of the Royal Horticultural Society to be held at the Drill Hall, Westminster, on Tuesday, November 22. Mr. A. D. Hall, of the Wye Agricultural College, will open the discussion by reading a paper on this interesting matter. The committees meet as usual at twelve o'clock, and the meeting closes at four p.m.

The Sherwood Cup for Vegetables.—A handsome silver cup, valued at £10 10s., is offered by Mr. N. N. Sherwood for competition at the R.H.S. meetings of June 13 and September 16, 1899; for this prize vegetables alone are to be staged by either amateurs or gentlemen's gardeners. Apparently there is no restriction as to number of kinds and varieties; judging will be by points, and the points obtained by each competitor on each day will be added together for the result. We may add here that the R.H.S. Rose Show of 1899 will be held on June 27.

Cinerarias as Bedding Plants.—An experiment was made at Isleworth last spring, writes Mr. G. Mallett, to ascertain the value of cinerarias as bedding plants; the results were such as to prove their usefulness to a degree hardly anticipated. The varieties experimented with were those of the ordinary garden type of cineraria, chiefly blue in colour, as that was the colour needed for effect in this particular instance. Seeds were sown in October of the previous year, and the resulting seedlings were kept growing slowly throughout the winter in sixty-sized pots, in a frame heated sufficiently to exclude frosts. A bed, moist and cool, was specially selected for them, shaded from strong sunshine, in which they were planted in the following May, and a light shelter was provided for them on the two or three frosty nights which occurred immediately after planting. Growth was rapidly made when they became established, and they commenced to flower at the beginning of June; by July 1 they were one mass of bloom, before the ordinary summer bedding plants had commenced to make any show of colour, and they lasted in good condition well into August. The residue of the plants after bedding were planted among some hardy ferns in a shady corner; these, from the coolness of the situation, were retarded somewhat, but when in flower they rendered a dull quarter of the garden very bright and effective. Occasional rains which fell at the time of flowering did not harm the flowers in the least degree, beyond giving them a greasy appearance whilst still wet. This season I am intending to sow seeds in December, with a view of retarding them still more, in order that they may flower at a period free from frosts. The results effected at Kew about three years ago by hybridising florists' forms of cineraria with C. cruenta has given origin to a strain of variously coloured varieties with the habit of C. cruenta, known as Cineraria Kewensis; these are eminently suitable for bedding purposes, from their robust habit and effective height. The trouble of keeping them through the winter is not greater than that demanded by other bedding plants, whilst the effect is almost immediate, and has only to be once seen to be repeated.

Plant Hybridisation and Cross Breeding.—An international conference on Hybridisation and Cross Breeding in Plants will be held at the Chiswick Gardens of the R.H.S. on July 11, 1899, and advantage will be taken at that function to bring together as large an exhibition as possible of hybrid and cross-bred plants, together with their parents (when possible) for comparison. This should prove a most interesting conference and exhibition.

Potatos Blackened by Boiling.—Mr. R. Morse recently exhibited some specimens of raw and cooked tubers of Windsor Castle potato to show the difference, in those cooked, as grown in a garden and in a field. The soil from the field sent was very red with the presence of iron, consequently there was very little doubt that the tannic acid, being liberated by boiling, united with some salt of iron imbibed, producing tannate of iron, the usual ingredients of ink. Beyond being somewhat unsightly, nothing of a deleterious character was present. A similar blackening is of common occurrence in potatos from the peaty soils of Skye, and even preferred by the local inhabitants.

The Crystal Palace Grounds will be open to season ticket holders, during the pleasure of the Board, on Sundays, from noon till dusk. Admission may be obtained on Sundays at the Rockhills, South Transept, Low Level, Penge, and Sydenham entrances. Stockholders were formerly admitted to the grounds on Sundays, but since the absorption of the A stock under the Act of Parliament that came into force on October 15 last this privilege has ceased.

Manurial Value of Road Sweepings.—It must have occurred to many a thoughtful observer that the road sweepings in our large and well-paved cities must possess a high manurial value, and that this material should be utilised for increasing the fertility of market garden and farm land. The gardener has long since taken full advantage of road scrapings and sweepings, using them in the kitchen garden and elsewhere both for their manurial properties and mechanical action. In the United States the Department of Agriculture has made a most interesting and useful investigation with respect to the value and utility of road sweepings, and it is to be hoped their example will be followed at home. It appears that the fertilising value of the sweepings varies greatly with the nature of the pavements, being practically nothing in the case of material of macadamised roads, and approaching that of good stable manure in the case of material collected on the hand-swept and well-paved streets of crowded cities; but in autumn the quantity and quality of the street sweepings are much enhanced by the falling leaves. The analysis of eighteen samples of street sweepings in Washington showed the following range of percentages: Organic matter, 35·5 and 10·2; nitrogen, 1·18 and 0·17; phosphorus pentoxide, 0·16 and 0·1; potash, 0·5 and 0·08. A pamphlet from the U.S. Department of Agriculture shows that a farmer who uses the sweepings from Atlanta, Georgia, finds one ton of them to be about equal to half a ton of mixed stable manure (two-thirds cow, one-third horse); he has used the sweepings for three years for maize, wheat, oats, rye, and potatos, broadcasting about twenty tons per acre, and his lands have greatly improved. At Norfolk, Virginia, a grower has been using street sweepings for several years, and with much profit, on spinach, cabbage, kale, and potatos; he finds that their effect on the land is much more lasting than that of stable manure. At Pittsburg, Pennsylvania, street sweepings are used very largely in the parks, with excellent results; the material is powerful and quick in its action, and gives a capital growth of grass, while its effect is considered to be more lasting than that of artificial manures.

Music in the London Parks cost the London County Council the sum of £7,476 during the season of 1898. The sum voted was £7,800, and the Parks and Open Spaces Committee has recommended that a similar amount be voted for 1899. During the present year the L.C.C. has paid £3,752 as wages to its own bandsmen and attendants, £3,038 being expended in hiring and subsidising bands.

The Gardeners' Company were entertained a few evenings ago at dinner by the Master, Sir W. Farmer, and at a meeting of the court which preceded the banquet Mr. C. Bayer, of Tewkesbury Lodge, Forest Hill, was admitted to the livery of the company and elected a member of the court, and Mr. W. L. Seyfang, of The Cedars, Maidstone, was elected a liveryman. These two gentlemen were the guests of the evening, and in proposing their health the Master alluded to Mr. Bayer as a most zealous and successful gardener, as the magnificent grapes which he had brought that evening as a present to the company showed. They would be no less pleased to receive Mr. Seyfang into their body, as he also had special claims to admission into their brotherhood as a grower of the finest chrysanthemums. The health of "The Worshipful Company of Gardeners and the Master" was eloquently proposed by the Rev. W. Wilks, and most heartily drunk. During the evening it was announced that the annual scholarships of £25, founded by the Gardeners' Company in connection with the Royal Horticultural Society, were now fully provided up to the year 1902, the gift of the endowment for that year being made at the table by Mr. F. G. Ivey.

Chrysanthemum Miss Alice Byron.—In our issue of November 12 we published the name of the fine new chrysanthemum raised by Mr. H. Weeks, Thrumpton Hall Gardens, Derby, as Miss Nellie Byron. This was an unfortunate mistake, as Mr. Weeks informs us the name should have been Miss Alice Byron.

Extra-Nuptial Nectaries in Myrmecophilous Plants.—To the list of myrmecophilous plants already known to be furnished with what are called "extra-nuptial" nectaries there have now to be added seven or eight other species. These, says *Nature*, have been observed, in the Botanical Gardens at Naples, to possess these glands, which differ from the ordinary melliferous glands in not being associated with the floral organs and being provided for the purpose of attracting ants instead of for promoting fertilisation. The newly-observed cases occur in Cardamine cheledonia, L., Lilium croceum, L., Dyckia regalis and D. remotiflora, a species of Aechmea, Iris fœtidissima, L., and Vicia serratifolia, Koch. The families of Cruciferæ and Bromeliaceæ are thus added to the fifty-eight families previously known to contain species furnished with the glands in question.

The "Bloom" on Fruits and Leaves is a waxy covering that serves several purposes. Professor H. L. Jones, of the Oberlin College, has shown by a series of experiments that this bloom serves to check the transpiration of water. With several forms of Agave, which were tested, the loss from this cause when the bloom was removed was from one and one-third to two and one-third as great as when it was left on the leaves.

Structure of Indigo Seeds.—A curious and interesting discovery has been made by Professor Church while investigating the structure of the seeds of wild indigo plants such as Indigofera linifolia, I. cordifolia, &c. He found that sections of the embryos showed a marbled surface, having brownish patches, due to the colouring matter erythrophyll. On boiling crushed seeds to test for starch none was found, 33 per cent. being albuminoid matters; hence these are the most nitrogenous of all leguminous seeds known. On the solution being left the true indigo blue separates and becomes insoluble. Thus there are two quite independent colouring matters in the same seed. The solution being red, the blue formed a ring round the porcelain vessel containing it.

The United States Potato Crop of 1898 is very slightly above the average of the past ten years. The average yield per acre for that period is 75·1 bushels, while the average for 1898 is 75·2. In 1897 the average yield of potatos per acre throughout the Union was 64·6 bushels; in 1896 it was 86·8 bushels, and in 1895 the enormous yield was 100·7 bushels per acre. Considering that the United States farmers have secured the largest hay crop ever recorded this year, and that the total yield of maize is estimated at 1,927,000,000 bushels, they do not seem to have had much cause to grumble about the weather.

An Old Coin Discovered by a Potato.—Mr. James Finlay, when lifting potatos at Liberton a few days ago, noticed something sharp sticking out of the edge of one. On examination he found the edge of a coin protruding, three-fourths being embedded in the potato. On being extracted it proved to be an Edinburgh halfpenny of 1790.

The Pine Forests of Arizona are of great extent, and in the north-eastern district there are 2,000 square miles of Pinus ponderosa, forming a magnificent forest at an altitude of from 9,000 to 12,000 feet; below 9,000 feet this species does not occur, but junipers, spruce, and Douglas fir grow freely on the lower slopes.

HULL CHRYSANTHEMUM SOCIETY,

November 16 and 17.

DURING the fifteen years that have elapsed since the foundation of this society the exhibitions have attained to so high a degree of excellence that any material advance appeared to be well-nigh impossible; but the gathering on the above dates was in the leading features so far superior to the previous exhibitions that we have no hesitation in describing it as the best of the series of magnificent exhibitions held at Hull. The two great features were formed by the groups, which were fully equal to the high standard of previous years, and the cut blooms, which were not only better than they have been at Hull for two or three years past, but they were, on the whole, the finest that have come under our notice this season, the incurved being considerably in advance of those previously staged at the southern exhibitions. Table decorations were of a high order of merit, and formed a very attractive display. The arrangements, under the direction of Mr. E. Harland and Mr. J. Dixon, the honorary secretaries, were, as is usual at Hull, as near perfection as we can hope for, and it would be difficult to speak of them in terms in excess of their merits. At Hull it has been the practice to have the exhibition buildings cleared at ten a.m., and with this knowledge the exhibitors complete their arrangements and are ready to leave immediately the last bell is rung, and the judges are consequently in a position to commence their duties exactly at ten o'clock. On this occasion the exhibitors of cut blooms were so well advanced that they left soon after the first bell at 9.45 was rung, and three minutes before the hour of ten every exhibitor had left the gun-room, in which the cut blooms are invariably arranged.

CUT BLOOMS constituted an important and highly attractive feature, for the entries were numerous, and the whole of the collections were of a high order of merit. There were four competitors in the class for twenty-four incurved, and the premier award was made in favour of Mr. C. Crooks, gardener to Lady Hindlip, Hadsor House, Droitwich, for the finest stand of incurved blooms that has been presented to public notice this season. The blooms were large, well finished, and of good colour, and included excellent examples of "The Queen" family. The varieties were Lady Isabel, Golden Empress, Madame Ferlat, C. H. Curtis (2), R. Petfield, Jeanne d'Arc, J. Agate, Duchess of Fife, Topaze Orientale, Violet Foster, Empress of India (2), Dorothy Foster, Lord Alcester, Bonnie Dundee, Empress of India, Duchess of Fife, and Brookleigh Gem; Mr. W. Mease, gardener to A. Tate, Esq., Downside, Leatherhead, was a capital second, his blooms being distinguished by their high quality; Mr. C. J. Hunt, gardener to P. Ralli, Esq., Ashtead Park, Epsom, was third. There was a keen competition in the class for eighteen incurved, and here Mr. R. Walker, gardener to Colonel Clitherow, Hotham House, Brough, was first, with superb blooms; Mr. W. Hotham, gardener to Brantingham, Thorpe, was a capital second; and Mr. Jackson, Waltham Hall Gardens, Grimsby, was third. For twelve blooms Mr. T. Down was first, and Mr. R. Walker second, both staging excellent examples.

There was a strong competition in the great class for twenty-four Japanese, and here Mr. W. Mease was first with magnificent blooms of Mrs. J. Lewis, J. Bidencope, Miss Nellie Pockett, Mrs. G. W. Palmer, Surpasse Amiral, Viviand Morel, Ella Curtis, Mutual Friend, E. Molyneux, C. F. Payne, Madame G. Henry, Mons. Panckoucke, Mrs. W. Mease, Silver Queen, Simplicity, Sec. Fierens, Madame Carnot, G. J. Warren, Mons. Chenon de Leche, and Mrs. Weeks. Mr. J. P. Leadbetter, Tranby Croft, was second with a superb lot of blooms; and Mr. C. Crooks third, with an excellent stand. Mr. J. Backhouse obtained premier honours in the class for eighteen Japanese with blooms remarkable for their superb development. Mr. R. Walker was a close second, and Mr. H. Thompson, Cottingham, was third. Mr. T. Down was successful in taking the first prize for twelve Japanese, and Mr. R. Walker and Mr. Thompson were second and third respectively. For six blooms of one Japanese variety Mr. R. Walker was first with Mons. Chenon de Leche, and Mr. C. Jennings and Mr. J. Backhouse were second and third respectively.

Such classes as large-flowered anemones, reflexed, singles, and pompons, which are not frequently met with in considerable numbers, were superbly shown. Mr. F. Mason, Hessle, was first for twelve anemones with magnificent blooms of Sir W. Raleigh, W. W. Astor, Delaware, Queen Elizabeth, and Enterprise; Mr. W. Mason, Kirk Ella, Hull, was a capital second. The finest board of reflexed blooms was contributed by Mr. R. Walker, and Mr. Bearpark was second. Mr. Waterhouse, Cherry Gaith, Cottingham, had a superb stand of single varieties, and Mr. W. Sinclair was first for pompon varieties.

GROUPS, to which the large hall was devoted, constituted a highly interesting and very attractive feature, and fully sustained the reputation the society enjoys for the excellence of its arrangements of plants. As was the case last year, the finest of the groups of chrysanthemums and ornamental-leaved plants was contributed by the Superintendent of the Public Parks under the control of the Hull Corporation, and the superintendent may be heartily congratulated on the high development of the plants and the taste displayed. Mr. George Wilson, gardener to Sir James Reckitt, Bart., Swanland Manor, Brough, had an exceedingly beautiful arrangement which was placed second to the Corporation group, but as the latter was not eligible for a prize it received an honorary award, and the first prize was awarded to Mr. Wilson, and was well deserved. Mr. G. Jarvis was third in order of merit and received the second prize with a beautiful arrangement. Mr. G. Cottam, Cottingham, was fourth in order of merit and received the third prize, his group also being highly meritorious. The first and second awards for groups of miscellaneous plants were made in favour of Mr. J. W. Wilson and Mr. George Wilson, both of whom had circular arrangements evincing much taste. There was also a keen contest for the prizes for decorated drawing-room mirrors, and the first prize was awarded to Mr. G. C. Coates, Hull; Mr. J. P. Leadbetter was a capital second, and Mr. J. Foster was third.

PLANTS were profusely shown, and on the whole remarkably good, the bush-trained specimens being especially meritorious. The most successful competitors were Mr. H. Thompson, Mr. W. Mason, Mr. H. Clark, Mr. J. Backhouse, Mr. R. Thirsk, and Mr. G. Cottam. Bush-grown and cut back plants consisted exclusively of Japanese varieties, and the glorious masses of flowers produced a rich effect.

TABLE DECORATIONS and other floral arrangements sufficed to fill a large hall, and were of such exceptional merit as to do much credit to the taste of the Hull ladies.

PREMIER BLOOMS in the open classes were, incurved Duchess of Fife, shown by Mr. Cross, and Japanese Monsieur Chenon de Leche, staged by Mr. R. Walker.

Chrysanthemum Mrs. W. Cursham.—In our issue of October 29 a description of the above-named fine Japanese chrysanthemum was given on p. 698. This variety gained a first-class certificate from the N.C.S., but it was inadvertently ascribed to Mr. W. Wells, whereas the raiser and exhibitor was Mr. H. Weeks, Thrumpton Hall, Derby.

NEW PLANTS AND FLOWERS.

PTYCHOSPERMA SANDERIANA.

AN elegant palm, reminding one of both] Cocos Weddelliana and Geonoma gracilis; the fronds are long and graceful, each having a long foot-stalk, thus rendering the plant light and suitable for table decoration; the pinnæ are narrow, and spreading rather than drooping. F.C.C., R.H.S., October 25. Messrs. F. Sander and Co., St. Albans.

DRACÆNA VICTORIA.

A splendid dracæna, somewhat resembling D. Lindeni and D. Massangeana; it has a similar graceful and well-furnished habit, and bears broad leaves of a bright creamy yellow shade with a dark green central band that is again striped with greyish-green. F.C.C., R.H.S., October 25. Mr. W. Bull, 536, King's Road, Chelsea.

TEA ROSE, SUNRISE.

A charming tea-scented rose of strong growth, and bearing dark, richly-coloured foliage, and long-stemmed flowers that are coppery buff with a rosy tinge. Very sweet and pretty. A.M., R.H.S., October 25. Mr. G. W. Piper, Uckfield, Sussex.

CHRYSANTHEMUMS.

Mrs. W. Howe.—This is a very fine incurved variety of large size and great depth. The colour is soft yellow. The florets are pointed and incurve well. F.C.C., N.C.S. Mr. W. Howe, gardener to Sir H. Tate, Streatham.

H. J. Jones.—A grand Japanese variety of somewhat spreading form and having broad, substantial florets that are intense and brilliant crimson on the upper surface and pale bronze on the reverse, though the underside is seldom seen. F.C.C., N.C S., November 14. Mr. W. Seward, The Firs, Hanwell.

Hanwell Glory.—A large and globular incurved variety, with pointed and closely overlapping florets that are of a curious shade of yellowish bronze streaked with red. F.C.C., N.C.S., November 14. Mr. W. Seward, Hanwell.

C. S. Bates.—A large globular incurved variety, its colour being a peculiar shade of golden chrome; there is also a suspicion of orange in the lower florets. The florets do not cup so freely in this as in some forms. F.C.C., N.C.S., November 14. Mr. R. Owen, Maidenhead.

Le Chalonaise, a splendid Japanese anemone of most distinct colour; it is a bold, handsome form, and wholly of a rich and deep yellow, the outer florets tinged with rose, and the splendid disk being of an orange shade. F.C.C., N.C.S., November 14. Mr. H. J. Jones, Lewisham.

John Pockett, a bold incurving Japanese variety of large size, and with very thick, substantial florets that are fully half an inch broad. The colour is dull velvety crimson on the inner surface, but light bronze on the outer and most evident surface. A.M., R.H.S., November 8; F.C C., N.C.S., November 14. Mr. W. Wells, Earlswood Nurseries, Redhill.

Madeline Davis, an extremely pretty Japanese variety, having the lower florets broadened and of a lovely soft rose hue; the more central florets are shorter, twisted, and pointed, and of a softer and paler tint. F.C.C., N.C.S., November 14. Mr. W. H. Lees, Trent Park, Barnet.

Madame Gabrielle Debrie is a huge incurved Japanese with immensely broad pale flesh pink florets; a fine exhibition variety in the way of Louise. F.C.C., N.C.S., November 14. Messrs. H. Cannell and Sons, Swanley.

Mrs. Annie Hills is a magnificent incurved variety of large size, great solidity, and distinct colour, the latter being of a pretty shade of pearly blush. The florets are of fairly good size and pointed, and they incurve well. F.C.C., N.C.S., November 14. Mr. H. Weeks, gardener to Lady Byron, Thrumpton Hall, Derby.

HORTICULTURAL CLUB.

THE monthly dinner and conversazione took place at the rooms of the club, Hotel Windsor, Victoria Street, Westminster, on Tuesday evening, November 8. The chair was occupied by Sir John D. T. Llewelyn, Bart., M.P., chairman of the club. There was a large attendance of members, including the Rev. W. Wilks, the Rev. Joseph H. Pemberton, Messrs. H. J. Veitch (vice-chairman of the club), Edward Mawley, C. Pearson, James H. Veitch, W. Bassett, M. J. Garcia, T. W. Girdlestone, G. Bunyard, W. F. Cooling, R. Gofton Salmond, Selfe Leonard, Harry Turner, and the secretary. The discussion was opened by Mr. T. W. Girdlestone on the dahlia as a garden flower. He reviewed the various sections, and showed how much the cactus dahlia had increased in popularity, and that we might look forward to still further improvements in it. In the discussion which followed, in which most of those present took part, many interesting facts in connection with the flower were brought out, and a hearty vote of thanks was proposed by the chairman to Mr. Girdlestone for his most interesting address.

The Colchester Gold Cup, offered by Mr. William Colchester, of the Chemical Manure Works, Griffin Mills, Ipswich, as the first prize for barley, has been won by Mr. W. Nisbet, Park Gate Farm, Stratford St. Andrew, Saxmundham. The competition was open only to users of the Gold Cup Fertiliser, Griffin Brand, prepared and manufactured at these works, and each ton of Gold Cup Fertiliser used by the purchaser entitled him to enter one sample of the barley grown by its aid. An essential condition was, of course, that no other form of chemical manures should be utilised, but permission was given to use the Gold Cup Fertiliser with or without farmyard manure at the discretion of the grower. It was a noteworthy fact, however, that not one of the entrants used any farmyard manure, but relied wholly upon the fertiliser. A very strong competition took place, entries coming from Norfolk, Suffolk, Essex, Cambridgeshire, Herts, and Kent. The winning sample was Webb's Kinver Chevalier Barley (raised by the Stourbridge firm of Messrs. E. Webb and Sons), grown on medium soil, with a sandy subsoil, the preceding crop in 1897 being beans and peas, and the manure used at the date of sowing, February 28, four hundredweight only per acre of the Gold Cup Barley Fertiliser. The crop was reaped on August 26, and the unanimous opinion of the judges was that the sample was a very excellent first. A diploma went to sample No. 59, entered by Mr. Harry Fulcher, Finningham, grown on a heavy soil, the preceding crop being beet. Mr. Fulcher used three hundredweight of the manure only per acre, the seed being sown in the middle of February, and reaped the middle of August. The third place was taken by Mr. Walter Fallows, Witnesham, who also received a diploma.

PERPETUAL ROSES.

THE most valuable roses for garden cultivation are those which have the characteristic of so-called perpetuality. A very large number of hybrid perpetuals are unworthy of the name. There are many which achieve so much in summer—and among these is the incomparable Duke of Edinburgh—that any attempt to bloom well in autumn is generally unsuccessful. Others, whose first period of flowering is not so protracted as to exhaust their capability, flower with great facility during the autumn months. Among these I would especially commend A. K. Williams, one of the brightest of our dark crimson roses—if such an expression be admissible, as I think it is; its formation is a near approach to absolute perfection, and I think its value can hardly be overestimated, whether as a summer or autumn flowering rose. Before me, as I write, at this late season of the year, are some very fine specimens of this truly inestimable rose; but it has many almost equally charming contemporaries in the vases adorned by its crimson hues, among which are the finely contrasted Margaret Dickson, one of the finest varieties the Newtownards firm has given to the world, as exquisite in its texture, and as commanding in its dimensions, as it was in July. The date at which I am writing is November 3, and the roses I am mentioning, *honoris causa*, were gathered to-day. Associated artistically and most effectively with these are the recently originated Countess of Caledon and Madame Abel Chatenay, which have already proved themselves precious acquisitions; Enchantress, Medea, a magnificent lemon-coloured variety, and Empress Alexandra of Russia, excellent emanations from Waltham Cross; Mrs. W. J. Grant, a notable Irish beauty, which has recently become a naturalized American under the title of Belle Siebricht, but is likely to retain, at least in Great Britain, its original name; Marie Van Houtte, one of the sweetest of tea roses, and Madame Hoste, worthy of a similar description, though both of these varieties, possessing delicate petals, are very susceptible to atmospheric influences, and have of late suffered considerably through the influence of rain. Marquis of Salisbury and Cheshunt Scarlet are still blooming profusely and retaining their fresh fragrance in the absence of the sun. Medea, with closely compacted petals, and the primrose-hued Kaiserin Augusta Victoria, which also is somewhat too closely folded, are heroically striving to unfold their secret charms, with wonderful success. But varieties such as these, with their affluence of petals, require more sunlight to open with facility than at this late period they usually receive.

More successful in the direction of floral development during the late autumnal season are the majority of the teas and hybrid teas. Conspicuous among the former are Madame Chedane Guinoisseau, which, though defective in central fulness, is the loveliest yellow rose, with the exception of Rosa Harrisoni, within the range of my acquaintance, even including the Maréchal Niel, which I regard as quite unsuited, by reason of its delicacy, for open-air cultivation; and Madame Bravy, creamy white, an odorous and most attractive rose, greatly undervalued in comparison with others of more commanding hues, but its exquisite beauty, by its pendulous habit, is largely concealed. Of a different character is the beautiful buff-coloured Anna Olivier, which is among roses what Lilium excelsum is among lilies, with long-shaped, handsome, lightly-borne flowers, one of the finest of autumn treasures, a veritable garden gem. Papa Gontier, which should perhaps be regarded as a hybrid tea, raised by Nabonnand, and introduced into cultivation in 1883, is perhaps the most important of his many bright creations, inferior only in colour to L'Ideal (which is not much of a climbing variety) but superior to it in every other respect. Etoile de Lyon has much the same colour, and many of the attributes, save the limitations, of Marie Van Houtte. Fiammetta Nabonnand, generally supposed to be the result of a cross between Papa Gontier and Niphetos, is a gracefully formed, late-flowering rose. Madame de Watteville flowers easily, but does not grow to its full size in autumn, even when it has been exactingly disbudded. Madame Lambard is very distinctive in its colour, and strikingly prolific even at this late season. Madame Charles is of much more vigorous constitution than Madame Falcot; then there are also Princess Vera and Perle des Jardins. White [illegible] has been condemned as an unsuccessful production; it is, nevertheless, to my thinking, a very fascinating rose, its faintly suggested carmine shading on the yellowish-white petals being finely effective. I must give it a wider circulation in my garden, for I like it much better than Perle des Jardins, which, notwithstanding its richly yellow colour, often comes with abortive, "divided" blooms.

Nor must I forget, while dealing with this somewhat elaborate class of late-flowering varieties, that venerable tea rose, Souvenir d'un Ami, one of my oldest and best-loved favourites; and its snow-white variation, discovered by the eminent Oxford rosarian, whose honoured name and fame it is likely to perpetuate—Souvenir de S. A. Prince. Throughout the whole summer and autumn these bloom almost, I might say, without intermission. Their period of rest is in every instance extremely circumscribed: like Marie Van Houtte—a charming companion for these—they are either blooming luxuriantly or preparing rapidly to bloom. Noisette roses, as a general rule, are not very reliable for what may be termed autumn production; though Caroline Kuster and Aimée Vibert are striking exceptions. On the other hand, China and polyantha roses, which are among the most thoroughly perpetual of all, always seem to wish to make final and specially heroic efforts on the confines of winter, as if conscious that the period of involuntary floral cessation were not far away. Their flower buds at this season are like Henry Kirke White's early Primrose, "born in whirling storms, and cradled in the winds." Turner's Crimson Rambler has of late given evidence of something like perpetuality, by suddenly generating on the west wall of my garden a veritable shower of miniature buds.

Among the grandest of autumnal bloomers are the hybrid teas, and especially such splendid varieties as La France, Augustine Guinoisseau, Caroline Testout, the highly fragrant Viscountess Folkestone, Clara Watson, Grace Darling, White Lady, Madame Pernet Ducher, Marquis Litta, Marjorie, and Gloire Lyonnaise. Roses of this character are invaluable for garden culture, combining as they do the finest characteristics of the hybrid perpetuals with the free-flowering qualifications of the teas.

DAVID R. WILLIAMSON.

PERENNIAL POLYGONUMS.

THOUGH being a large genus, only a few of the polygonums are of real value as ornamental plants, and on this account many of them are almost unknown outside the collections of botanical gardens. Among them there are, however, a small number of the most interesting and pretty of hardy perennials, their singular beauty entitling them to a place in the collection of every admirer of that class of plants, and excepting one or two species, which for some unaccountable reason are difficult to manage, all are easily grown, not being partial to any soil, situation, or time of planting, their peculiar rhizomatous root stocks fitting them to all sorts of conditions, and they thrive under the most adverse circumstances.

Polygonum alpinum is a handsome plant, forming in the course of a few years a nice bush two to three feet in height, and producing its numerous panicles or plumes of white flowers uninterruptedly from June till September; very useful as a border plant or for cut flowers. P. amplexicaule produces its pretty, bright rosy red flowers in racemes borne on wiry stems clothed with rather large foliage; the root stock is deep rooted and woody. This species flowers during the summer and autumn. P. affine belongs to quite a different class from the former, being close-growing, covering large patches of ground, and having handsome foliage, linear or lanceolate in outline, and dense spikes of bright rosy flowers. Its close-growing and perpetual-flowering habit adapts it for growing either on the rockery, in borders or in baskets.

P. spærostachyum somewhat resembles the pretty P. amplexicaule as far as habit is concerned, only it is dwarfer, closer, and less rapid in growth. It forms loose bushes, the wiry stems being clothed with handsome, bright green, lance-shaped foliage, the racemose flowers on the extremities of the stems being of the brightest and most intense rose colour, making it one of the most showy of hardy herbaceous plants. Unfortunately its culture has not been always the most successful, and more than once this charming plant has disappeared from the catalogues of the specialists, as well as out of the garden of the amateur, necessitating its reintroduction from the Himalayas. P. compactum, although not quite as showy as the former, has a dwarf habit with pretty heart-shaped and bright green foliage, as well as white flowers, these latter appearing uninterruptedly through the whole of the summer. Its fitness to be used as an undergrowth constitutes this species a very useful plant, especially for exposed positions. P. cuspidatum (P. Sieboldi): To do justice to this species it should be used as a solitary plant on the lawn, border, or shrubbery, and there are few plants more ornamental and stately than it. Being of rapid growth it soon forms a compact clump from six to ten feet in height. Its slender stems, with its more or less fan-shaped branches, bend outward, displaying the bright green, heart-shaped foliage and axillary, catkin-like spikes of green flowers. This plant can, however, only be effectively used in large gardens. P. sacchaliense, like the last, can be used with great effect as a foliage plant, with the difference that it refuses to grow exactly where one wants it to on account of its stolons or rhizomes rapidly running away from the orginal plant, and I have known cases where in the course of time the suckers travelled through a hard piece of roadway and were found growing two hundred yards away from where the original plant was placed. The foliage of this is much larger than in any of the former, and is of the deepest green colour and forming, with the showy, pure white racemes of flowers, a fine combination, being, in spite of its straggling habit, well worth a place in a collection of hardy plants. Some years ago it was strongly recommended as a valuable fodder plant, and large quantities were bought up in this country and exported to the Continent, principally to France, but not having heard much about it lately one may presume it was not the success anticipated.

P. vaccinifolium is a very desirable trailing or climbing plant, and, considering its usefulness for both out and indoors, it is, I consider, not often enough grown. Its habit is shrubby, with wiry stems that grow rapidly over pieces of rockwork, old walls, banks, or borders. The leaves, being rather small and of the lightest shade of green, set off the racemes of pale pink flowers produced in the greatest profusion through the whole summer. P. baldschuanicum is still very rare, though exceedingly beautiful, and I feel sure, when better known, it will not be missing even from the smallest collection of herbaceous plants. It is one of the most rapid-growing climbing plants I know. Here, at the Hale Farm, the tiniest plants, grown in pots for one year and then planted in the open in the spring, have by the time I am writing (end of October) grown into magnificent specimens, and with its pretty heart-shaped foliage and graceful, charming panicles of pure white flowers, produced on the extremities of the branches, is more beautiful than anything at present flowering. On account of its slender habit there is need of support, such as a dead tree, over which it twines in a very short space of time. The past summer I had the good fortune to see a fine specimen in the southern part of Germany, resembling, when seen from a distance, a huge Spiræa japonica, with its plumes of white flowers. There is little to be said about its culture, as it seems to be perfectly hardy, none of the wood dying away during the winter; the leaves, however, fall off after the first sharp frost. It was introduced about 1888 from Eastern Buchara.

G. REUTHE.

VEGETABLE FORCING.

Now that the leaves have fallen and winter is at hand, preparations for forcing vegetables must no longer be delayed if we are desirous of keeping the kitchen constantly supplied with choice vegetables. To ensure success a certain amount of care and forethought must have been exercised previously, for no mode of forcing vegetables will produce satisfactory results unless the roots or crowns of the various crops be of the best; therefore good cultivation during the summer months is indispensable. I propose here to deal with three kinds of vegetables, and these the best.

Asparagus.

It is our practice to provide this really excellent vegetable constantly from the end of November until April. Our plan is to lift annually two large beds from the quarter devoted to asparagus, two young beds being annually planted to replace them, and by this process we obtain yearly a valuable piece of ground for an important future crop in the kitchen garden. Although the forcing of this vegetable is simplicity itself, I would draw attention to a few features which are essential to success. In the first place, if urged too speedily in a close, moist atmosphere, it becomes tall, colourless, and devoid of flavour; on the other hand, if insufficient heat be given, it will be tough and malformed. I have as yet found no plan better than the old one of making up a hotbed of stable manure and placing a frame thereon; this bed will afford just that amount of heat, as well as ammonia, that the asparagus likes. Of course attention should be given to lining the bed to maintain a uniform temperature (in mild winters this will hardly be necessary). A covering of mats or similar material will be required in frosty weather, and abundance of air on all favourable occasions is of the utmost importance, though this must be given judiciously, the state of the weather being taken into consideration. It is a well-known fact that if we wish to bring out that natural green colour of the stems that is so much admired, and without which it is somewhat insipid, a course of treatment must be followed as nearly allied to Nature as is possible, and to attain this object it is obvious that light and air must be accorded. For the first few batches a temperature of from 65 to 80 degrees will not be too much, but for the later supply 60 to 70 degrees will be ample. A few roots, according to the demand, should be lifted about every fortnight, or more often if required, and a layer of half-rotted leaves should be placed over the surface of the bed, also working some of this material about the roots; a good watering with lukewarm water may then be given to settle the whole. A handful of common salt dissolved in the water will prove beneficial.

Seakale.

The old practice of forcing seakale out of doors by covering the crowns with pots has given place to other and much improved methods. Generally speaking, in establishments where large quantities of this vegetable are required during the winter, bins or boxes fitted with lids to exclude air and light are constructed in the mushroom house, or other similar structures for the purpose, with hot-water pipes running through or beneath them; or, failing these, some stable manure or tan will answer admirably, provided that these do not become too hot. A temperature of 60 to 65 degrees, or at the most 70 degrees, is sufficient, as it is much better to apply heat in moderation, especially so early in the winter. Seakale requires but little room in which to grow when forced; a bin of about six or eight feet in length, and three or four in width, will accommodate a great number of crowns, and these may be brought in and plunged every nine days, or as often as is required to keep up a supply. Any light material, as leaves or tan, answers the purpose for plunging. For the late supply forcing in the open air is resorted to here with excellent results; in fact, we obtain some extraordinarily large and tender heads by the following method. The crowns are planted in a double row at about one foot apart each way, and these rows we usually contrive to have near the garden paths for convenience in cutting. Early in the month of February they are covered to a depth of fifteen inches with mushroom bed refuse in the form of a ridge, and these ridges are examined carefully every day after the heads commence pushing up the material. Strict attention should be paid to this operation, or the tips of the young leaves quickly become purple. These plants are left on the same spot two, and sometimes three, years, after which they may be destroyed, and either replaced with young plants or with one-year-old crowns. This system has much to recommend it for late supply, being little trouble, and the produce is decidedly better than could be obtained in mushroom houses during the latter part of the month of March and onwards.

Mushrooms.

So much has been advanced respecting the successful cultivation of mushrooms that it may appear somewhat superfluous to record my experience; nevertheless, as we have been very successful, the few notes I shall offer may not be unacceptable. The material often employed for the beds consists of horse-droppings, with as little litter as possible, but if a large and constant supply is to be maintained, and the number of horses kept be few, it becomes necessary to incorporate with the droppings a certain amount of litter, which is in the natural course of things well saturated with urine, and I find that quite as good results may be obtained by utilising some of the litter. I have made note of the fact that market growers, generally speaking, use a quantity of rough material, and the result they attain speaks for itself. The manure should be collected, placed in an open shed, and frequently turned before making up the beds. The durability of the beds will depend in a great measure on the depth they are made and the firmness with which they are rammed. Deep beds are apt to become too hot, and this is detrimental to the running of the spawn; therefore I consider that a depth of twelve or fifteen inches is sufficient. The temperature of the bed when spawned should not exceed 85 degrees, and be just on the decline. After the spawn is inserted the surface of the bed should be covered with good mellow loam to about one and a-half inches in thickness; this needs to be moist, and of the same temperature as the bed. No water should be applied unless absolutely necessary, but rather maintain a constant humidity in the atmosphere of the house. If this be closely attended to, and care is exercised to allow but little fire-heat, and a temperature of from 55 to 65 degrees will suffice, excellent results will follow.

Stoneleigh Abbey Gardens. H. T. Martin.

LONDON GARDENS IN OLDEN TIMES.

It is recorded by FitzStephen, the chronicler, that in the reign of Henry II.—the latter half of the twelfth century—the inhabitants of London had large and beautiful gardens attached to their dwellings. In 1276 the Royal Garden at Westminster was celebrated for the great numbers of roses and lilies grown there, and there is still an order extant of Edward I. for pear trees for his garden. Stow relates that round about Somerset House large gardens were cultivated for profit, as likewise at many places in the City, where vegetables and fruit were grown in such profusion as to amply satisfy the wants of the citizens without their depending upon consignments from elsewhere. People in those days took the air and their walks in their own gardens. Bishopsgate, the Minories, Goodman's Fields, and many other large open spaces in the neighbourhood were large gardens and orchards where the gardener's skill was brought into requisition. Cattle grazed and archers shot at Finsbury, and it was in rural Islington that Dame Owen was nearly shot by an arrow as she was promenading in her demesne, and which event caused her to devote a large sum in the erection of free schools, which, under different conditions, survive to the present time. Where Shaftesbury Avenue now runs was the village of St. Giles, famous for its garden produce, and Charing Cross and Whitehall had their State gardens. Spring Gardens, of course, were so in reality as well as name. Holborn enjoyed great fame for its gardens, Ely Place having both flower and kitchen gardens, together with a vineyard and orchard, and the bishops enjoyed great reputation for their fruits.

Gerarde, the botanist, about three hundred years ago, had a large garden in Holborn, where he raised a thousand plants and trees. In 1596 he printed a catalogue of it, dedicated to Lord Burleigh, whose garden he had superintended for twenty years. It may be seen in the British Museum. The first edition of his "Herbal" is also dated from there. Writing of violets, he says, "Of water violets I have not found any such plenty in any place as in the water ditches adjoining to St. George his fielde near London." He also mentions that pennyroyal grew in the greatest abundance in the Minories, and many fine plants in the ditches of Piccadilly. Baldwin's Gardens was a nursery of one Baldwin, a gardener to Queen Elizabeth. Lincoln's Inn, in those days the residence of the Earl of Lincoln, was famous for its grapes, pears, and roses. The Temple Gardens have ever been famous, and Shakespeare laid the origin of the Wars of the Roses there. These gardens are still well kept, notably so until a year or two ago, when an edict of the Benchers went forth that the chrysanthemums, for which they had acquired great fame, were to be no longer grown, and horticultural retrenchment was to be made. The gardens of Gray's Inn owe their inception to Lord Bacon, himself a practical gardener, who took a great deal of interest in them, and did much to further their reputation. There is still a catalpa tree there, which was originally planted by him. Such are a few of the memories of the past which crowd before the fancy as the busy streets of this modern Babylon are traversed by the thoughtful wayfarer.

Wm. Norman Brown, F.R.H.S.

IS THE ONION SURFACE ROOTING?

The question of whether the onion is a surface-rooting or deep-rooting vegetable has been the subject of much comment and discussion in an East Anglian gardening community of late. The discussion was commenced by a horticultural lecturer assuring his audience that the onion was only surface-rooting, and illustrating his assertion by chalk drawings on a blackboard. Cottagers were advised to dig manure just below the surface in ground for onions, and to subsequently use top dressings. The old plan of digging manure under the top spit was considered wasteful, as onion roots could not possibly reach it. Some old onion growers present thought differently, as they had found onion roots at least two spits' depth from the surface, and always made a practice of digging plenty of manure deeply into onion beds. Their opinion was privately communicated to the lecturer, who still, however, stuck to his assertion, and intimated that market growers annually produced fine market crops by surface dressings alone.

The lecturer's attention was drawn to the able articles on Onion Culture by Mr. E. Beckett, published in the Gardeners' Magazine, March 26 and April 2, pp. 197 and 212, wherein it was recommended that the soil be broken up two feet six inches and a layer of manure placed at the bottom. At the succeeding lecture the lecturer said those gardeners who considered the onion as deep-rooting, and acted accordingly, wasted their employers' property and time, and hinted at the undesirability of deep cultivation for this crop. One grower stated that the onion was the deepest rooted of any garden vegetable he knew among those with divided roots. The lecturer's response was to bring forth an onion produced by a prizetaker who followed the surface manuring principle only; it was a specimen of the flat Spanish type. "Very small and lean," someone remarked. "Yes," was the reply, "that was owing to the drought." Most of us thought the lecturer had given his case away, especially when we remembered how many cottagers had, by deep digging and manuring, obtained better onions than the one shown, in spite of drought.

Now, ye onion growers, who place manure in two layers when preparing onion beds, you are invited to show cause why you thus waste your employers' material, and to no purpose? Perhaps Mr. Beckett will have a word or two to say in defence of his methods, and I am sure the editor will find room in the Gardeners' Magazine for what Messrs. Fyfe, Bowerman, Pope, and other champions have to say upon the matter, also the remarks of any market growers.

S. P., *East Anglia.*

[We shall be pleased to afford the space necessary.—Ed]

WORK FOR THE WEEK.

WARM ORCHIDS.

OWING to the decrease of sun heat, the short days and long nights, the present is an unsatisfactory time to do any repotting in the warm houses. Sometimes, however, we have one or two plants out of season which are making brave attempts to produce new roots, and, as the compost has not been removed for a considerable time, it is becoming sour, therefore repotting must be beneficial to such, and, if neglected, the roots will die off. We must now do all we can to ensure the plants having all the light obtainable. Take down all the thin cotton blinds, wash them with soap and water, and see that they are thoroughly dry before storing until next spring. With respect to heavy roller blinds, one has to consider the conditions and requirements of the houses. If in a cold, bleak place, and the boiler power or amount of piping is inadequate to properly combat cold winds and frost, then such blinds may be a great help if let down in bad weather. It is far better to use the blinds thus than to fire severely, as some of our amateurs are in the habit of doing. If there is sufficient heating apparatus, take down the blinds, roll them up, and put them away, after being well washed, dried, and labelled. Where orchid-houses are situated near large towns, the recent dull weather will have resulted in a deposition of soot upon the glass, while in more open situations, permanent shading, such as summercloud and stipple, will yet remain; but the time has now arrived when all this must be removed, and the glass thoroughly cleansed with hot water.

All orchids of whatever section, that have completed their growth, must have as much light as can be given them at this period to substantiate their growths. All the cattleyas must be placed as near the glass as convenient and reasonable, they can easily be raised on pots or stands of any description that will answer the purpose; where a second or false stage is provided a good plan is to raise the stage up with a few bricks, glazed ones or good Ruabons look nice when clean and answer admirably. A good plan is to place these bricks in a large saucer, which must be kept filled with water, and so prevent slugs or beetles from climbing on to the stage. Before this is done each plant may be placed in a tub of water, allowing it to remain in for about 15 minutes, so that if any pest is hiding this will force it out; we are sure then to have a clean start. Any baskets hung underneath the ridge of the house where much woodwork exists must be removed near the light. — T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

THE work in the stoves will now be of a routine nature, watering, damping, syringing, when the weather is favourable; tying, sponging, and the application of insecticides as necessary for the destruction of insect pests. During the winter months is the best time to wage war for the destruction of the latter, for growth being matured insecticides may be applied stronger than when the plants are in active growth, and the leaves consequently more tender. In the case of mealy bug it is not merely necessary to clean the plants infested, but the walls should be washed with lime into which petroleum has been mixed, working this well into all the crevices; all the woodwork, stages, underneath as well as over, should be well scrubbed with soapy water containing petroleum. Any rubbish lying amongst the pipes must be carefully removed, and, in fact, every corner where there is likely to be harbourage for it must be carefully scoured. Even after all this labour the pest may still make its appearance, but in such reduced numbers that it will be an easy matter to keep it in subjection. For eradicating thrip sponge frequently and fumigate two nights in succession at intervals with "X L All" fumigating compound. If this is followed out thrips will be completely banished. For destroying scale there is nothing to surpass syringing the plants with petroleum emulsion, and sponging at intervals with strong soapy water, always taking the plants in hand before any of the scale arrives at maturity. Little or no ventilation will be required in the stove, as at this season sufficient air will gain ingress between the laps of the glass, and when the doors are opened. Should bright weather occur, check the fire in preference to opening the ventilators, for, however carefully the latter are manipulated, the cold air is likely to reach some of the plants to their detriment.

Gloxinias and achimenes that are quite at rest should be placed in their winter quarters—a dry position with a temperature of 45 to 50 degrees; we pack ours away on a shelf in a stokehole where the temperature is as named above. The earliest-rested tubers that were started again a few weeks ago are now growing nicely, they will not require repotting; keep them in the stove well up to the light and afford weak stimulants occasionally. During the prevalence of very dull weather be very careful over the watering of all stove plants, test each plant carefully, and give only sufficient to each for its requirements. The racemes of Thyrsacanthus rutilans are advancing rapidly, and to show off their full beauty the plants should either be elevated on other pots inverted, or be slung to the roof by means of wire. Justicias are now in full beauty, and are very useful at this season; stand them in a cooler structure and keep the syringe from them. Aphelandra Roezli is one of the most showy stove plants in flower now; it needs plenty of water at the root, but should be kept dry overhead. Eranthemum pulchellum, Rondeletia speciosa, poinsettias, and eucharis are among the remaining plants in flower in the stove at this season. The minimum night temperature for the next few weeks may range from 60 degrees on cold nights to 65 on mild nights, with a rise of 5 degrees during the day from fire heat.

The majority of ferns will now have ceased growth; it will be necessary to keep the atmosphere drier, and also afford less water at the root, but be careful they are not allowed to become too dry, else they will suffer severely. Cheilanthes, gymnogrammas, and nothochlænas are especially susceptible to damp at this season, and must be placed in positions free from drip. Examine adiantums regularly and remove all decaying fronds, for if this is not attended to large specimens may soon be spoiled by damp. Watering should be done in the early part of the day, so that the moisture may dry up before night. The warm fernery may be kept at a temperature of 55 to 60 degrees at night, and 60 to 65 degrees during the day—the lower figures denoting the temperature for cold days and nights.—J. TUNNINGTON, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

WITH regard to roses and rose planting the habit and vigour of the varieties must guide the planter as to the requisite distance apart the plants should be placed. If beds of mixed varieties are to be planted, a distance of two to three feet apart would generally suffice, although for beds of one variety the distance may be more or less according to the strength and habit of growth of the variety. Upright growing roses, such as Baroness Rothschild and those of similar habit, may be planted not more than two feet apart, while stronger growers, as Duke of Edinburgh and vigorous tea roses, should be placed from two and a-half to three feet apart. In selecting varieties for the garden those which generally grow and bloom freely should be chosen rather than mere exhibition varieties. Of H. P.'s in pink shades the following are free and good: Baroness Rothschild, Mrs. Sharman Crawford, Mrs. John Laing, Madame Gabriel Luizet, Captain Christy, and La France; of crimson and red shades Alfred Colomb, Duke of Edinburgh, General Jacqueminot, A. K. Williams, Ulrich Brunner, Gustave Piganeau, Marquis de Castellane, Victor Verdier, Beauty of Waltham, Countess of Oxford, Madame Victor Verdier, and many others; white or light varieties, Margaret Dickson, Merveille de Lyon, Madame Augustine Guinoisseau, and Violette Bowyer are among the best. Good tea varieties are numerous, and Marie Van Houtte, an old variety, is still one of the best. Other most desirable ones are Catherine Mermet, Madame Lambard, Francisca Kruger, Hon. Edith Gifford, The Bride, Souvenir d'un Ami, Souvenir de S. A. Prince, Perle des Jardins, Madame de Watteville, Innocente Pirola, and Rubens. The hybrid sweetbriars are well adapted for planting in semi-wild gardens or pleasure grounds, and as isolated specimens are effective, as they grow into large bushes in a short time and require little pruning, as the long strong shoots should be retained at full length.

In the pleasure grounds general cleanliness should be maintained as far as possible. The relaying and levelling of turf may be taken in hand now, and in herbaceous borders decaying stems and foliage should be cleared away, and where contemplated any rearrangement and division of these subjects may be carried out as long as the weather remains mild and open. Owing to the very dry state of the soil about the roots of evergreen trees and shrubs, the lifting and planting of these subjects has been almost impossible in most districts until recently, and even at the time of writing the moisture has not penetrated the dry soil to scarcely the depth of one foot. Where, however, it is desired to move American plants as rhododendrons, kalmias, andromedas, and others of this class this autumn it should be completed during the present month. Although the spring months are perhaps preferable, there is often a pressure of ordinary routine work to be got through at that season, and for this reason planting of these subjects may take place now. A considerable amount of labour is requisite in the preparation of the sites for rhododendrons where the natural soil of the place is not congenial to them and the beds have to be artificially made up, as is the case where of a heavy, clayey nature, or in soils abounding with chalk and limestone. In this case the natural soil must be thrown out to the depth of 18 inches or more and made up with peat, keeping the rougher portions at the base and affording drainage below if necessary. Failing the peat a mixture of light, fibrous loam and leaf mould in equal parts may be used. It should be well trodden—unless in a wet state—and will then, when finished, be in a condition to receive the plants at once. If immediate effect is desired they should be planted thickly now, according to the size of the bushes, to be thinned out and transplanted to other positions later when this is necessary from overcrowding. Hybrid rhododendrons are numerous, and any reliable catalogue will furnish a ready means of selecting good varieties of various colours. Some of the early blooming varieties of the Nobleanum type should be planted in sheltered positions in a west aspect, or where screened by deciduous trees from spring frosts and early morning sun, as the flower trusses are often valuable for indoor decoration at this season. Andromeda floribunda is also useful, and the flowers do not suffer unless frost is severe. —C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

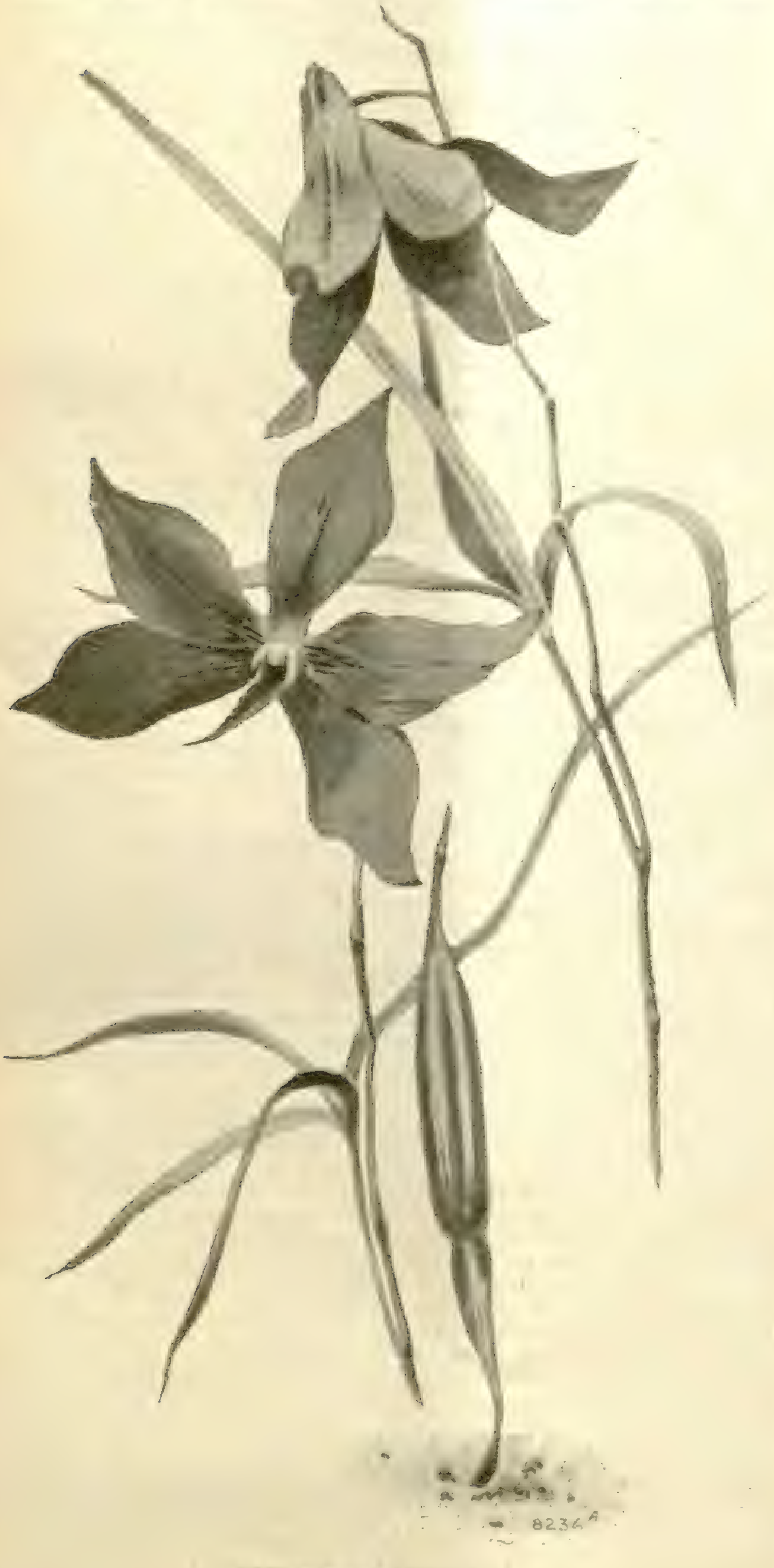
THERE is now plenty of work in the fruit garden, as with the ground in good condition for planting there should be no further delay. I am much in favour of early planting, but am aware it is not always easy to secure trees from the grower just at the time we need them; thus it is always better to place our orders in August or September than wait till the trees are needed. Another great point is to go and select the trees whilst in growth, as by so doing much the best material is obtained. With a thin, light soil to deal with, and this resting on gravel, we find it advantageous to have all our planting done as early in November as possible; indeed, such fruits as apricots, peaches, and nectarines are planted or lifted in October. Many may think there is danger of the bark shrivelling, but young trees having ample roots rarely suffer; indeed, there is a great gain, as the trees make a mass of fibrous roots as soon as planted, and, what is so important, they do not fail to crop the following season. Of course to obtain trees in October from a long distance is out of the question, and so to secure ample root growth we grow the trees on for a season, and by so doing can finally plant much earlier. This, in our soil, is a great gain, as if we plant after Christmas the trees need so much attention in the way of watering at a time when it is almost impossible to attend to their wants. It is an easy matter to devote a small space for the growth of young fruit trees; indeed, in our case it is a necessity, as some varieties, such as apricots and cherries, are none too reliable, and it often happens we need a young tree to replace one that has lost its branches, and we find those grown on as advised most useful. In other ways the advice given may not be out of place, for many can buy maidens, or one year old trees, who could not buy more costly ones, and by purchasing a few every year there will be a good stock and those of the best kinds. Whilst on this subject let me add there is no value, indeed the reverse, in harbouring old trees after badly cankered and unsightly in any garden, as these look bad enough in our orchards, but a garden should have the best and those that are profitable. I am aware there is a difficulty in some gardens in getting rid of such trees, but it is mistaken sentiment to allow the soil to be encumbered by them.

There is a great improvement in the growth of trees of late years in gardens of limited area. It is an excellent plan to plant the trees in rows, so that the sun and light can reach all parts; the apple on a dwarf stock, such as the Paradise, and the pear on the quince, are readily managed. Given ample room the best crops are secured from standard trees, and I think the best quality also in some cases; indeed, our best Ribston and Cox's Orange Pippins this year were from small standard trees, but the fruit lacked the size of those from dwarf trees. Those who need fruit in quantity for sale will do well to note the manner some varieties crop, and here let me add there is no merit whatever in mere variety; indeed, for market purposes, doubtless, half a dozen kinds would suffice. As regards the kind of tree, this will be governed by the variety, soil, and position, for in some soils certain varieties do not thrive, whilst others are at home.

In gardens it is an easy matter to make the soil to suit the crop—thus peaches and nectarines will not succeed in heavy wet soil, so drainage is a necessity, while deep planting is an error; to such soils add burnt refuse or charcoal refuse, road scrapings from limestone roads, old mortar rubble, or anything that lightens, placing the rougher materials at the base of the roots. Avoid mixing with the soil quantities of animal manures with trees of any size, but if the staple soil be at all poor one may add old cucumber or melon beds and spent mushroom-bed manure, but young trees are best without these aids if the soil is fairly good or a little new material can be given at planting. Firm planting is a necessity, and it will be well to keep all roots well spread out horizontally, using some of the surface soil for the smaller roots. Do not expose the roots to the air longer than possible, and if dry when received give a good soaking previous to planting. Mulch as the work is done, using any light manure that will not keep the soil cold and wet.—G. WYTHES, *Syon Gardens.*

DENDROBIUM SANGUINEUM.

THIS is a charming species of slender growth, and bearing large sanguineous-red flowers, which are remarkable for the relatively small size of the lip. The terete channelled pseudo-bulbs are uninterrupted along their lower portion, but the upper part is very slender, and here the flowers are borne, apparently only produced singly, as will be seen in the accompanying illustration. The flowers are about an inch and a-quarter across, with almost equal sepals and petals. The colour is distinct among dendrobiums, being deep Venetian red, with a creamy shade at the base of each segment; the small and pointed lip is also of a deep red hue. The leafage of this distinct species is very slender, linear, and about three inches long. Dendrobium sanguineum will be welcomed alike by the orchid grower and the hybridist for its distinct, rich, and beautiful colouring. A specimen shown by Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., on September 6 last gained an award of merit from the Orchid Committee of the Royal Horticultural Society.



DENDROBIUM SANGUINEUM.

The "Botanical Magazine" for November contains admirable portraits, in colours, of Astragalus ponticus, a curious légume with close axillary heads of yellow flowers; Kniphofia longicollis, a species from Natal, and closely allied to K. aloides, it has a dwarf habit and yellow flowers; Aloe leptophylla, a handsome Cape species, with variegated leaves and heads of bright orange-yellow flowers; Podotheca chrysantha, a curious composite from Western Australia, bearing terminal heads of yellow florets; and Calliandra fulgens, a handsome légume producing large blood-red heads that are composed principally of long and showy stamens.

A FURTHER GLIMPSE AT FRIAR PARK.

ALL those who have had the privilege and pleasure of a visit to the charming country residence of Frank Crisp, Esq., F.L.S., readily acknowledge that Friar Park, Henley-on-Thames, is one of the most interesting of horticultural establishments. It is a garden wherein the broad horticultural tastes of the owner are evidenced on all sides by the different phases of gardening met with, and yet also one wherein the special taste of the proprietor has been given full play without detracting from aught else. Readers of the GARDENERS' MAGAZINE are already familiar with some of the beauties and wonders of Friar Park, for in the issue of July 9 last a descriptive and illustrated account of them was given. In the present issue two other reproductions from photographs are given, one representing the view to be obtained from the terrace in front of the mansion, and the other showing the newer and larger portion of the magnificent rock garden.

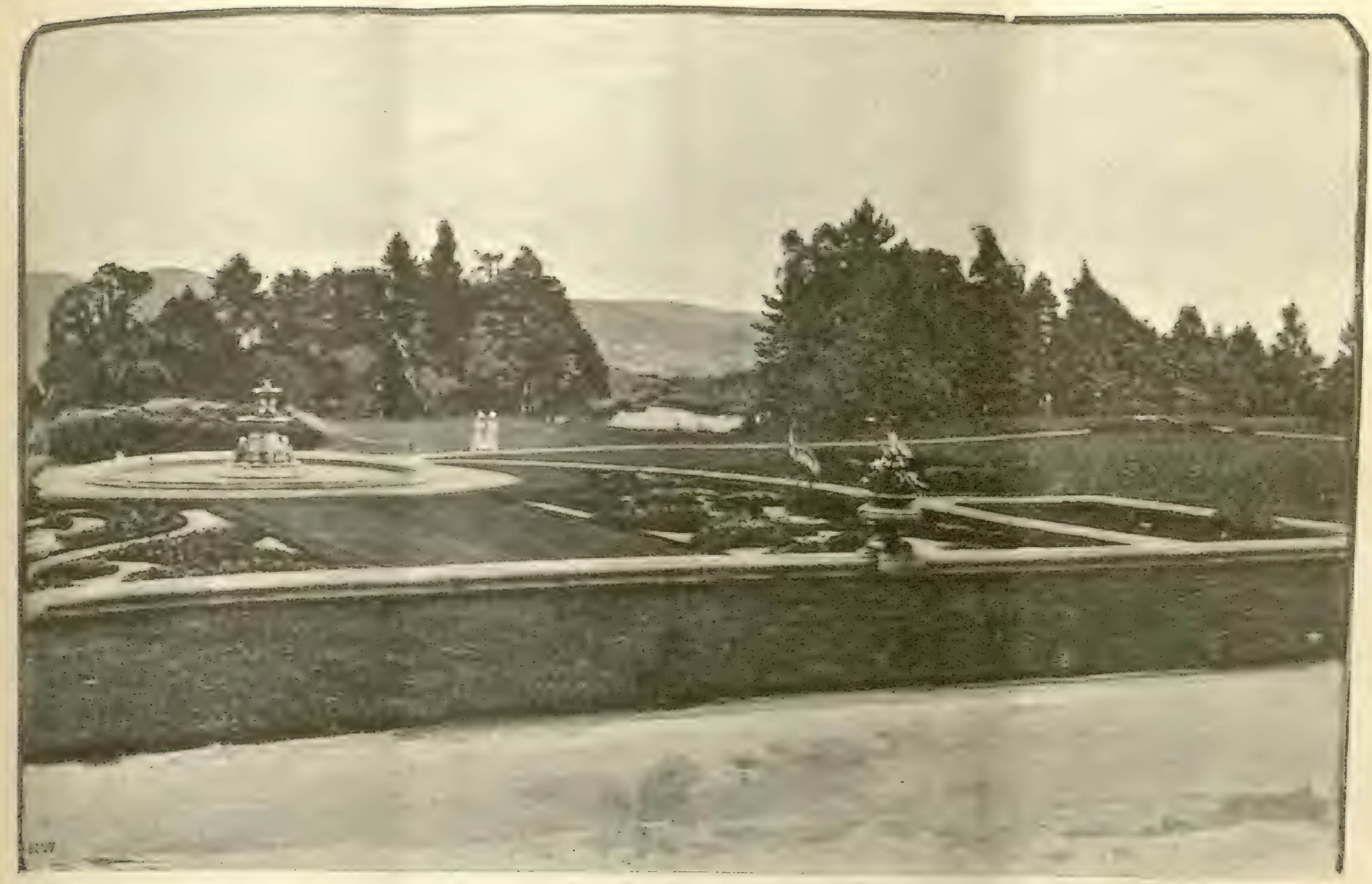
Did Friar Park contain nothing else of horticultural merit besides its rock garden, it would still be entitled to a large share of fame, and during spring and summer would draw many visitors who have a special love for dainty alpines, and even the more robust plants that delight to grow amid, upon, and over rocks. The highest and boldest portion of the rock garden, also the newest, was constructed and planted by Mr. P. O. Knowles, Mr. Crisp's able gardener and steward, and is of quite recent date; indeed, a few finishing touches have been given during the present year. Many of the huge boulders weigh five tons each, and the largest of all weighs over six tons; several of these masses of soft stone are massed picturesquely together at the highest point in the rock garden, and over one very broad rock that is kept in place by the superincumbent weight of others a broad sheet of water falls into a pool below, and thence hurries down the irregular channel, tumbling in tiny cascades over numerous obstructing rocks of various size, till at last it reaches the pool in the valley, and finally is conveyed underground to feed the lake in a lower part of the grounds. This upper sheet of water is depicted in the accompanying illustration at the apex of the central rocky eminence, and some idea of the size of the rockery will be gained when it is remembered that under the overhanging rock and behind this miniature Niagara there is ample room for three or four persons to stand without getting wet, and even if you are six feet high you may stand upright without bumping your head.

Mr. Knowles has been most successful in designing this part of the rock garden, and not only has he produced a bold and pleasant effect, but has so planned the whole that no part is out of reach, as flat rocks are embedded so as to form stepping-stones, and yet so as not to interfere with the general mountainous effect. One of these mountain paths leads right to the summit, and behind the sheet of water that falls over the broad rock already referred to. From this point of vantage a splendid view over Maidenhead and away to the Chiltern Hills is obtained, while at one's feet the huge rock garden is spread out as a panorama. The purple thyme, golden sedum, blue campanula, and yellow Tropæolum polyphyllum are grandly effective as seen from above during the summer time, the latter plant being more beautiful here than I have ever seen it elsewhere. Dotted about down the mountain side are small but choice conifers, such as Abies balsamea, Juniperus canadensis aurea, Pinus strobus, P. sylvestris, Abies pygmæa, A. procumbens, A. Remonti, and several dwarf kinds of thuias and retinospora. Opposite this eminence is another, consisting of an almost sheer face of rock surmounted by Abies Douglasi and A. Nordmanniana; to understand fully the amount of work this piece entailed, one has to leave the rock garden for the lower grounds and look back, when it will be found that an immense mound was raised and planted with pines and abies to block out a certain view. This mound is supported on the other side by the face of rock just instanced.

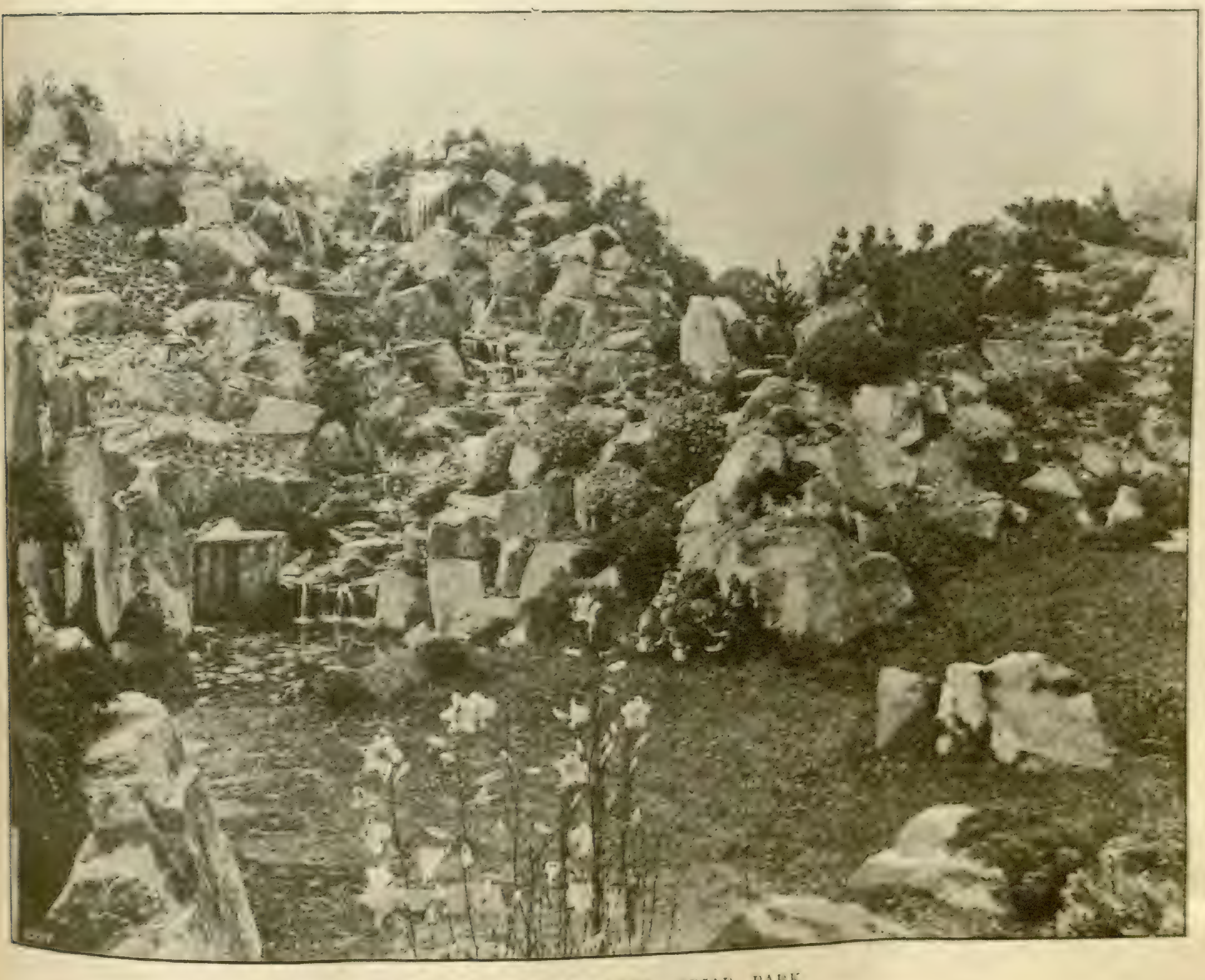
Along the side of the mansion that faces the River Thames there is a broad, raised terrace, and just below the terrace is a garden in the old formal Dutch style, the beds being edged with box and parted from each other by areas of spar. Some of the beds are planted with permanent subjects, such as Daphne Cneorum, Erica Foxi, Gaultheria procumbens, &c.; while others are filled during the summer time with semperflorens begonias, or tricolor pelargoniums. A pair of storks in this garden—well-designed figures—add to the general effect desired, that of an old Dutch garden, and these can readily be distinguished in the illustration of the view from the terrace. Below the Dutch Garden broad stretches of lawn slope away towards the lake and the small woods on either side; these again combine in the landscape with the wooded valley of the Thames towards Marsh Lock, while in the distance a pretty curve of the river is plainly to be seen when the sun lights up the water.

To the left of the Dutch Garden, and at some little distance from it, there is a fine Pine Walk, of considerable length, straight, and sloping towards the river. This passes under two even rows of healthy spruce and Pinus sylvestris. For the moment one is reminded of breezy Bournemouth and its pine-woods. Passing through the lavender garden, that has been deliciously fragrant, the rose and herbaceous garden is reached. Here the more popular herbaceous plants bloom profusely in their season. Light iron and wire archways run through the centre, and these are covered, or nearly so, with beautiful roses; the Penzance briars were a glorious sight, gay and fragrant during the past summer, while Crimson Rambler provided a glorious blaze of scarlet, and Cheshunt Hybrid bore a profusion of its lovely and sweet-scented blooms, that threatened to pull the plant from its support by their weight.

Mr. Crisp loves his Garden and shows his love by his keen interest in it and the liberal manner in which he provides for its wants, and thus encourages the skill and energy of his clever gardener. Although previously stated, it will bear repeating that Mr. Crisp opens Friar Park to the public one day a week. Sixpence per head is charged for admission, and half the total proceeds go to local charities, the other half going to the Gardeners' Royal Benevolent Institution. C. H. CURTIS.



DUTCH GARDEN AND VIEW FROM THE TERRACE AT FRIAR PARK.



VIEW IN THE ROCKERY, FRIAR PARK

EXHIBITIONS AND MEETINGS.

ASCOT, November 2 and 3.

THE fifteenth annual show of chrysanthemums, fruit, and vegetables was held at the Grand Stand—about the best place for a show in the kingdom; but this year there were very few exhibits. Blooms are late in this neighbourhood, and not up to the standard of late years in size and colour. The group classes were fairly well represented, and hardy fruit and vegetables very good. In the class for twenty-four Japanese there was one entry, and for twenty-four incurved not one, yet in previous years these two classes have been contested by some of the leading exhibitors. This season Mr. W. L. Farmer, gardener to H. P. Lachelles, Esq., the Highams, Bagshot, was awarded second prize for a nice clean set of twenty-four Japanese. For eighteen incurved and eighteen Japanese Mr. W. Lane was first with very good flowers, his Japanese varieties being Mrs. W. H. Lees, Australie, Oceana, Beauty of Teignmouth, International, Edna Ross, Boule d'Or, Mrs. J. Lewis, J. Chamberlain, Snowdon, Phœbus, Commandant Blussett, Emily Silsbury, Mrs. G. L. Beer, Mrs. Main, Lady Hanham, Madame Carnot, and C. Davis; incurved—Lord Wolseley, J. Agate, Lady Isabel, Duchess of York (grand), Globe d'Or, Prince Alfred, Mrs. R. C. Kingston, Baron Hirsch, C. H. Curtis, Mrs. J. Murray, Queen of England, Madame Darrier, Martagon, Mr. J. Kearne, Brookleigh Gem, Jeanne d'Arc, E. Cannell, and Rosa Owen. Mr. W. Farmer, gardener to H. P. Lachelles, Esq., second, but only two points behind the first. For twelve incurved Mr. W. Wilson, gardener to R. C. Christie, Esq., Ribsden, Bagshot, showed fine blooms; the same was also first for twelve Japanese, there being but one entry.

For six white Japanese, one variety, Mr. Farmer was first with Miss Mary Lachelles, a promising seedling For half a dozen blooms of any other colour Mr. Wilson was first with Edith Tabor, while the same grower had the best six incurved with C. H. Curtis, Mr. Farmer second with the same variety. For twelve blooms shown as grown Mr. Wilson was first with good flowers.

For a circular group eight feet in diameter, chrysanthemums and foliage plants mixed, there were four competitors. Mr. Farmer was a decided first; Mr. J. Edge, gardener to Lord Harlech, Tetworth, Ascot, second; Mr. J. Cowie, gardener to Sir Thomas Lucas, Bart., Ascot, third. Three did battle for the best group of chrysanthemums, and Mr. H. White, gardener to the Marchioness of Conyngham, The Mount, Ascot, was a good first; Mr. Lane, gardener to Miss D. Smith, King's Ride, Ascot, second; Mr. A. Hawthorne, gardener to Messrs. Blair and Shackle, The Schools, Ascot, third. Mr. Edge was first for a group of miscellaneous plants, but not bright enough for this time of the year. Mr. Farmer was first for six table plants and Mr. White for six pots of grand violets.

Messrs. Farmer and Wilson were first in the apple and pear classes, while Mr. Lane was easily first for nine and six dishes of vegetables.

WIMBLEDON, November 9 and 10.

AN extremely pretty little show was held on the above dates at the Drill Hall, a very suitable place for a chrysanthemum exhibition. If the cut bloom classes were scarcely so well filled as on some previous occasions, the principal group class amply made up for any other deficiencies; indeed, it is very seldom that such a splendid lot of groups are to be seen at what is almost a purely local show. The arrangement of the groups all along one side of the hall leaves something to be desired, as a better distribution would add considerably to the spectacular effect of such a show. The general arrangements were good and the judging done to time.

There was an exceptionally keen competition in the class for a group of chrysanthemums arranged on a space of forty square feet. The chief award was a silver cup, offered by the tradesmen of Wimbledon, and this was secured by Mr. J. French, gardener to Mrs. Barclay, Ambleside, Wimbledon Park, who had a most effective display of well-grown and well-flowered chrysanthemums; his Madame Carnot, Phœbus, Madame Gustave Henry, and C. H. Curtis were especially attractive. There were six competitors in this class, so the effect the groups had along the big Drill Hall can well be imagined. Mr. J. Martin, gardener to Colonel Mitchell, Canizaro House, Wimbledon Common, won second prize; his flowers were splendid and his plants dwarf, and a little more care in effective arrangement would have secured him the first prize. Mr. A. Newell, gardener to Sir E. Saunders, Fairlawn, Wimbledon Common, was a good third; Mr. T. Chandler, gardener to the Rev. Canon Haygarth, fourth; while to Mr. Thornton an extra award was made.

In the smaller class the chief award was won by Mr. C. Pullen, gardener to G. Fores, Esq., Raynes Park; Mr. F. Chandler, gardener to Mrs. Wilson, St. Mary's Road, second. For a miscellaneous group the first prize was awarded to Mr. A. Newell, who had a pretty display of dracænas, crotons, palms, Begonia Gloire de Lorraine, and scarlet bouvardias; Mr. McGregor, gardener to the Dowager Lady Hay, North House, Putney Heath, was placed second, and Mr. F. Chandler third.

The society's special prize for three dozen blooms, half incurved and half Japanese, was won by Mr. J. Hunt, gardener to P. Ralli, Esq., Epsom, who showed the following Japanese varieties in good condition: Mrs. J. Lewis, Mrs. N. Molyneux, E. Molyneux, Graphic, Ella Curtis, Australie, Mrs. Carrington, Edith Tabor, Mrs. R. Jones, Mrs. Herman Kloss, Simplicity, Mons. Panckoucke, Phœbus, Lady Ridgeway, M. M. Ricoud, Louise, Modesto, and Eva Knowles. The incurved varieties were Empress of India, J. Salter, C. H. Curtis, Ma Perfection, Globe d'Or, Duchess of Fife, Mrs. Coleman, Lord Alcester, R. Petfield, W. Tunnington, Golden Empress, J. Doughty, R. Cannell, Princess of Wales, Bonnie Dundee, Miss M. A. Haggas, Violet Tomlin, and J. Lambert. Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, Mitcham, was placed second.

Mr. Hunt was also first for twelve blooms each of Japanese incurved varieties, showing fine flowers of Mrs. J. Lewis, Mrs. N. Molyneux, Eva Knowles, Modesto, Mrs. R. Jones, M. M. Ricoud, Ella Curtis, Australie, Edwin Molyneux, Louise, Niveus, and Phœbus as Japanese; C. H. Curtis, Lucy Kendall, Miss M. A. Haggas, Ma Perfection, J. Lambert, Violet Tomlin, Globe d'Or, Duchess of Fife, Lord Alcester, Mrs. Coleman, Golden Empress, and Empress of India, incurved; Mr. C. Bentley, gardener to Major Bosworth, Cedar Court, Roehampton, second. Mr. Balton, gardener to Lord Tankerville, Kingston, won Mr. H. J. Jones's prize for six blooms Japanese. In the open class for six Japanese, distinct, Mr. W. Brett, gardener to W. M. Campbell, Esq., Coombe Ridge, Kingston, was first prize winner. Mr. Brett also showed the best six incurved blooms, good flowers of Miss V. Foster, Duchess of Fife, C. H. Curtis, Princess of Wales, and Miss D. Foster.

Mr. Brett was first for twelve Japanese, distinct, putting up very fair examples of Viviand Morel, Western King, Modesto, Madame Carnot, Australie, Simplicity, Duke of York, Mrs. W. H. Weeks, Edith Tabor, Reine d'Angleterre, and Phœbus; Mr. A. Skeggs, gardener to Mrs. Dann, Copse Hill, second: there were six stands staged. Mr. Brett was first for a dozen incurved, distinct, with large flowers of Austin Cannell, Queen of England, J. Salter, Topaze Orientale, Miss D. Foster, Jeanne d'Arc, Miss F. Foster, C. H. Curtis, Brookleigh Gem, Duchess of Fife, Lucy Kendall, and Miss M. A. Haggas; Mr. J. French, second; and Mr. C. Bentley, third. Mr. J. Wright, gardener to Colonel Tuffnell, Wimbledon Park, had the best pompons. Mr. Brett was first for six Japanese blooms, one variety, with good Madame Carnot; Mr. Puxted second with the same variety, and Mr. Hawkes third. Mr. C. Taylor, Belmont Gardens, Wimbledon Park, showed the best basket of chrysanthemums, using the spidery Mrs. Filkins and similar varieties; Mr. C. Pullen second with a bolder basket. For a tastefully-arranged basket of plants Mr. W. Thornton, gardener to F. E. Crocker, Esq., Draxmont, won Mr. R. Dean's prize with single chrysanthemums, cattleyas, nerines, &c.; Mr. H. Woodgate, Clapham Park, second.

Mr. J. Puxted, gardener to J. H. Boobbyer, Esq., Mitcham, showed the best primulas, Mr. F. Chandler the best solanums, Mr. T. H. Bolten the best table plants, and Mr. C. Taylor the best capsicums.

Mr. R. Clarke, gardener to J. L. Densham, Esq., Waldronhyrst, Croydon, was a good first for white grapes with White Tokay, and Mr. Brett second, with Muscat of Alexandria. For black grapes Mr. Clarke scored with Black Alicante, while Mr. C. Bentley came second with Gros Maroc. For dessert apples, Mr. C. Taylor was to the fore; while for culinary varieties Mr. F Stephens, gardener to G. H. Peck, Esq., Phipp's Bridge, was first. Mr. C. Taylor also had the best pears. Mr. Bentley scored for vegetables, Mr. Pullen coming second.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY, November 8, 9, and 10.

THIS enterprising society has always taken a high position in promoting the cultivation of the "Autumn Queen," more particularly in the neighbourhood of the northern heights of London. For years its efforts have been considerably hampered, because of the committee being unable to find a building in the immediate neighbourhood of Highgate adequate to meet their demands, and for this reason a move was made nearer town, to the Holloway Hall—a well-known north London public building. Commodious as this building is, it was taxed to its utmost capacity to find accommodation to display to anything like advantage the numerous exhibits of high quality which represented the fourteenth annual exhibition.

For a group of chrysanthemums to cover sixty square feet, to be edged with foliage plants, Mr. J. Brooks, gardener to W. J. Reynolds, Esq, J.P., The Grove, Highgate, was an easy first with heavy flowers, Mr. G. Saunders, gardener to W. Hayes, Esq., Gloucester House, Highgate, being a poor second. For a group of chrysanthemums and foliage plants, arranged in semicircular form, sixty feet square, Mr. J. Brooks was again a good first. This exhibit was a special feature of the show, and was remarkable for the high quality of its flowers, charming arrangement of colour, and a pleasing blending of foliage plants. Second prize was awarded to Mr. J. Tubbs, gardener to H. G Regart, Esq., Highgate Lodge, Highgate, also for a pleasing arrangement, but with flowers of less quality. Six trained specimen plants again found Mr. Brooks leading with plants hardly up to this grower's usual standard, yet very pretty and freely flowered. His best plants were Miss Watson, a good yellow Japanese, Mdlle. Bertier Rendatler, Colonel W. B. Smith, and an incurved in Mrs. Dixon. The system of tying was all that could be wished for. For six trained specimen pompons, distinct, Mr. Brooks secured premier position with freely-flowered plants, somewhat spoilt by a too stiff tying, yet very fresh and good; particularly good were William Westlake, President, and Adonis. A good second was found in Mr. F. Gilbert, gardener to W A. Sewell, Esq., Shepherd's Hill, Highgate, with three charming plants of Marie Stuart, William Westlake (very fine), and William Holmes; the remaining three plants unfortunately fell short of the standard set up in the others. Mr. J. Brooks again triumphed in the class for a single specimen, staging a magnificent plant of Mdlle. Bertier Rendatler, followed by Mr. Gilbert with Lady Selborne; Mr. Saunders with Maiden's Blush was third.

The principal cut bloom classes were well contested, and the blooms would bear favourable comparison with most of the leading shows. Mr. J. Brooks (a nephew of the plant grower), gardener to W. J. Newman, Esq., Totteridge, Herts, won the silver cup, value ten guineas (for the second time, and, therefore, absolutely now), for forty-eight Japanese blooms in not less than twenty-four varieties, staging fairly good blooms of Oceana, M. Chenon de Leche, Monsieur Hoste, Edith Tabor, George Seward, Lady Hanham, Phœbus, Madame E Rosette, Van den Heede, Mutual Friend, E. Molyneux, Pride of Madford, and Australie (very fine). For thirty-six blooms, eighteen incurved and eighteen Japanese, each distinct, Mr. A Jones, gardener to Miss Wyburn, Hadley Manor, Barnet, was a good first with fairly neat and even incurved blooms, these being represented best by Miss Dorothy Foster, Mrs. R. C. Kingston, Violet Tomlin, Madame Darrier, Jeanne d'Arc, Princess of Wales, and Chas. H. Curtis. Of the Japanese his best were Madame Carnot, Eva Knowles (very fine), Louise, Chas. Davis, Mons. Geo Biron, Mutual Friend, Mrs. C. Harman Payne, and Madame Gust. Henry. The class for twenty-four Japanese, not less than eighteen varieties, brought forth five competitors, and this was one of the finest displays in the exhibition. The place of honour was taken by Mr. J. Brooks, Totteridge, with an admirable lot of blooms, remarkable flowers of Australie, M. Chenon de Leche, and Mrs. Maling Grant standing out conspicuously; others a trifle less in point of quality being J. Brookes, Mons. Hoste, Viviand Morel, John Neville, Surprise, Mrs. G. W. Palmer, and Duke of Wellington. This exhibit also gained the society's special certificate. A pretty lot of flowers from Mr. J. Sandford, gardener to G. W. Wright-Ingle, Esq., Wood House, North Finchley, secured second prize. A class for twelve blooms, pure yellow Japanese, produced a spirited competition. Mr. Brooks, Totteridge, was again first, having triplets of Phœbus, Modesto, Oceana, and another; Mr. Sandford was a good second, and Mr. A. Page, gardener to A. L. Reynolds, Esq., North Finchley, third. A grand lot of flowers in the class for twelve Japanese, distinct, were forthcoming, Mr. Brooks, Totteridge, again being invincible with M. Chenon de Leche, Australie, Pride of Madford (very fine), Mrs J. Lewis, G. C. Schwabe, Simplicity, and E. Molyneux well represented; Mr. Sandford secured second position with a much weaker set, and Mr. J. Brooks, Highgate, third. A pretty class was one for six white Japanese, distinct, Mr. Brooks, Totteridge, having chaste and large flowers of Madame Carnot, Mrs. H Weeks, Simplicity, Feu de Champsaur, Mdlle. Thérèse Rey, and Madame Ad. Moulin; Mr. A. Jones was second. For six Japanese, white varieties excluded, Mr Sandford proved victorious with six of the finest blooms of Mons. Chenon de Leche we have seen; they possessed colour, substance both in petal and build, and breadth of petal, and were ideal flowers of that unique sort. A good second was found in the Totteridge Mr. Brooks, with superb examples of Mons. Hoste. A class at this show, and of special interest, is that for a single specimen Japanese bloom. This secured for Mr. Sandford first prize with a grand bloom of Mrs. H. Weeks, Mr. Brooks following with a phenomenal Australie of high quality.

Incurved varieties were here and there seen in pleasing form and neat finish, but, taken as a whole, they were rather rough and uneven in finish. For twelve blooms (six varieties) Mr. A. Jones secured first prize, his best being Lucy Kendall, Charles H. Curtis, Madame Darrier, and Mrs. R. C. Kingston; the remaining three competitors were decidedly weaker. With six handsome blooms of Charles H. Curtis, Mr. A. Jones won the first prize for six incurved, one variety only, smaller blooms of the same variety securing second position for Mr. M. Roe, gardener to Colonel Wilkinson, Highgate, and third prize to Mr. J. Tubbs with Baron Hirsch. Eight entries were staged in this last competition. In a class for twelve anemones (large-flowered) three capital stands were staged, leading honours falling to Mr. Sandford with a very pretty and even lot of flowers. Specially noticeable were Madame Lawton, John Bunyan, Fabian de Mediana, Delaware, and Descartes; second prize being secured by Mr. Spacey, gardener to H. Ward, Esq., Finchley, John Bunyan and Sir Walter Raleigh being his best flowers; and Mr. A. Page a close third.

Pompons are always staged in excellent condition at this exhibition, and exceedingly pretty were they, and admirably staged. Mr. T. L. Turk, gardener to T. Boney, Esq., Highgate, is invincible in this department, his stand of twelve triplets, which occupied the leading position, being notable for ideal blooms of Maid of Kent, President, Mr. Holmes (lovely colour), Comte de Morny, William Westlake (the best yellow), Adonis, Osiris (very fine), Mdlle. Marthe, and Mdlle. Elise Dordan. A capital second was found in Mr. E. H. Chitty, gardener to S. Hardy, Esq., Cholmeley Lodge, Highgate, lovely blooms of Francis Boyce (anemone pompon), William Kennedy, and Bessie Flight calling for special notice. A similar class in the single-handed gardeners' classes found these two enthusiasts occupying similar positions with very handsome flowers. A class deserving encouragement has been tried here for years with great success, and is for twelve cut blooms of chrysanthemums set up with ferns, grasses, and other foliage (in pot or cut), arranged for effect in a given space. This was very pretty, and was well contested. In this class Mr. J. Brooks, Totteridge, proved his superiority with a very light and pleasing association of foliage and grasses, and with handsome Japanese blooms; Mr. M. Roe was a good second, closely followed by Mr. A. Page. As mentioned earlier, the decorative classes were a pleasing and instructive feature of the exhibition; epergnes, hand baskets, bouquets, sprays, and buttonholes, vases in great variety, and autumn foliage and berries arranged in baskets, occupied a great amount of tabling, but want of space prevents a descriptive notice of each. The chief prizes were gained by Mrs. Wheadon, Mrs. Halsey, Messrs. T L. Turk, E. H. Chitty, J. Brooks (Totteridge), G. Saunders, G. Partridge, and A. Page.

The amateur classes were well filled and contributed in no small measure to the interest of the visitors, the chief prizes being secured by Messrs. W. Timewell, Finchley; A. F. Bongard, East Finchley; F. J. Matthew, Muswell Hill; A. Taylor, and G. E. Willis, East Finchley.

Messrs. W. Cutbush and Sons, Highgate, had a pretty group of foliage plants and heaths, &c.; Messrs. B. S. Williams and Sons, Upper Holloway, also staging lovely group of foliage plants, orchids, &c., and a useful group of coniferous plants. We regret to see that this society has withdrawn from affiliation with the N.S.C.

BIRMINGHAM, November 8, 9, and 10.

THE show of chrysanthemums at Birmingham may fairly be described as the most important of the several good exhibitions held in the Midland counties, and the society having the advantage of the large and commodious Bingley Hall in which to hold its shows is enabled to arrange the grand displays of flowers and fruit to the best advantage. The liberal prizes offered in the opening classes are the means of attracting a splendid competition amongst the best cultivators from various parts of the country, equally in the fruit as in the classes for chrysanthemums The rise and fall of champion growers both of past and present times have been witnessed on the scene of these encounters, and accounts of the show are always interesting to those who cultivate these flowers. The fine effect produced by the groups and trained plants is scarcely equalled anywhere, and this year an interesting exhibit of fruit and flowers was contributed from the Royal Gardens, Windsor, by Mr. Owen Thomas. The pines and various hardy fruits are first-rate and pleasingly arranged amongst autumn foliage and chrysanthemums, a fine lot, the lovely Princess of Wales violet being also disposed round the margin of the table.

Trade exhibits were a fine feature. Messrs. Sutton and Sons, Reading, occupied one hundred feet of tabling with a fine lot of their specialities in cyclamen, gesnereas, fibrous begonias, &c., and a grand collection of potatos. The firm has been awarded two gold medals for this splendid exhibit. Messrs. J. Laing and Sons, Forest Hill, had a very important show, fine fruits of apples and pears being the chief part and for which the firm is justly famous. The competition in the fruit was most keen, and of the highest excellence; grapes were far superior to shown at Sydenham in September, including huge bunches of Barbarossa weighing about eight or ten pounds, and grandly coloured Muscats. The show is ly, as a whole, the most comprehensive held at this season of the year.

The leading class in the prize list is for a display of floral arrangements. Mr. Crooke, Edgbaston, first, and Messrs. Pope and Sons, Birmingham, second, with very fine floral designs The tables of British-grown fruits to occupy square feet included some magnificent exhibits, Mr Mullen, gardener to H. Somerset, coming first with huge clusters of Muscat and black grapes, apples and pears, peaches, cherries, currants, plums, damsons, &c; Mr. acre, Elvaston Castle, second with a scarcely less inferior exhibit, including of the finest hardy fruit in the show, but less variety than in the first prize

The classes for nine plants of chrysanthemums were well filled and made a good feature, though the blooms were scarcely so fully developed as usual at this show. The classes for groups were as attractive as possible, there being ten exhibits. were exceedingly well done and artistic arrangements. Mr. Menzies, gardener to R. Cadbury, Esq., Moseley, was first with a splendid blaze of colour, yet a light arrangement of chrysanthemums and fine foliage plants; Mr. McDonald, gardener to J. H. Kenrick, Esq., Edgbaston, second.

The rivalry in the cut bloom classes was well sustained, and these formed, as usual, the centre of interest. In the class for twenty-four incurved, Mr. C. Crooks, gardener to Lady Hindlip, Droitwich, was a grand first, showing in the best form Duchess of Fife, Wm. Tunnington, Madame Ferlat, Major Bonaffon, Empress of India, Miss D. Foster, Topaze Orientale, Lord Alcester, Lady Isabel, Violet, John Lambert, Robert Petfield, Queen of England, Golden Empress, J., Brookleigh Gem, Miss Haggas, Mrs. Heale, Violet Tomlin, Jeanne d'Arc, Coleman, Princess of Wales, and Lucy Kendall; Mr. Goodacre, gardener to Harrington, second, and Mr. Foster, Havant, third. There were eight entries. Mr. Crooks was first in the other incurved classes for eighteen and twelve respectively, showing in first-rate form blooms of the same varieties included in the large class, and of largest size and perfect development. The class for twenty-four Japanese blooms resulted in eight entries, and though good did not equal the incurved in point of merit; the first prize was awarded to Mr. Pearce, gardener to S. Loder, Esq., Flore House, Weedon, his best blooms being Mrs. J. Lewis, Madame Gustave Henry, Madame Carnot, Lady Hanham, Mrs. Weeks, M. Massage de Louvrex, M. Chenon de Leche, N. C. S. Jubilee, Edith Tabor; Mr. Salter, gardener to T. B. Haywood, Esq., Reigate, was an exceedingly close second with bright fresh blooms of good colour and substance, including W. Seward, Chas. Davis, Viviand Morel, and Mons. Hoste; Mr. Lees third, and Mr. Crooks fourth. Mr. Sceany, gardener to E. S. Cope, Esq, Redditch, was first for eighteen Japanese; Mr. Jones, gardener to Smith Rylands, Esq., being second. The class for twelve Japanese was only moderately represented, and minor classes generally did not bring much competition. The new classes for cut blooms, arranged with long stems and suitable foliage, is a step in the right direction, but more liberal prizes are necessary to attract better competition; the exhibits were very pretty, and showed the true decorative value of large blooms

Primulas, though not so good as is usual at this show, were very largely exhibited, and sustained the reputation of the growers. There was also a good show in the vegetable classes.

WITNEY CHRYSANTHEMUM AND FRUIT SHOW, November 8.

THIS West Oxon society held its second exhibition in the Corn Exchange Buildings under most favourable circumstances, the weather being bright and the air warm and soft. There were seven groups for effect around the hall, the winner of the premier award and silver medal being arranged by Mr. W. Blake, gardener to Mrs. Worley, Field House, very attractive being the colossal blooms of Madame Carnot, Good Gracious, Swanley Giant, C. H. Curtis, &c; the second award going to Mr. John Calcutt, florist, High Street, whose giants were Viviand Morel, Phœbus, Mrs. C. H. Payne, Modesto, &c.; the choicest collection in the amateurs' section coming from Mr. W T. Felton (hon. sec.), whose finest forms were Madame Carnot, Phœbus, C. Davis, Edith Tabor, . Morel, Mrs. Trafford, President Borel, John Shrimpton, Boule d Or, W. Holmes, and Louis Bœhmer. Specimen plants were numerous and good, carrying four or five blooms each. Mr. C. W. Miles, gardener to C. W. Early, Esq., first, Mr. Blake second for examples of C. H. Curtis in the incurved class, the same variety winning in the amateur division; while for Japanese Mr. Felton was to the fore with Charles Davis. For four plants the awards went to Messrs. Blake and Miles for healthy specimens, the former having a grand Baron Hirsch, and the latter a nice bush of Brookleigh Gem.

Cut blooms were a strong feature, all fresh and of good size and colour, the premier award for a dozen Japanese going to Mr. Macfarlane, gardener to Harvey du Cros, Esq., Cornbury Park, who put up noble specimens of Stanstead White, Eva Knowles, W. Seward, Phœbus, Viviand Morel, and Gloire du Rocher; Mr. Blake second, very fine being Swanley Giant, Mdlle. Thérèse Rey, Mrs. Hume Long, Madame F Rosetti, Mons. Chenon de Leche, Madame Carnot, Souvenir de Petite Ami, Mrs. C. H Payne, C. Davis, Silver King, and Viviand Morel. The corresponding class for incurved was filled with excellent forms, the first prize going to J. L. Burgess, Esq., Maisey Hampton, Fairford, who put up big, well-finished examples of Duchess of Fife, Globe d'Or, Lord Wolseley, Charles Curtis, Prince Alfred, Perle Dauphinoise, Jeanne d'Arc, Robert Petfield, Mr. R. C. Kingston, and D. B. Crane; Mr. C. W. Miles, second For six of one variety Messrs. Macfarlane and Blake shared the honours with fine developments of Globe d'Or, the first-named winning with very large blooms; while for one bloom Mr. Macfarlane led with the same variety, Mr. Blake staging Charles Curtis, and Mr. Burgess Duchess of Fife. For six Japanese Mr. Macfarlane was once again to the fore with a lovely set of Phœbus (equal to anything yet seen in the district); Mr. G. Jacob, Exotic Nurseries, second, with Australian Gold; Mr. Miles, third, with Charles Davis. Some very fine flowers were exhibited by the amateurs, notably a grand specimen of Phœbus, by Mr. W. Whitcher, hairdresser (who also led for six of the same variety), a Viviand Morel by Mr. Felton, and a pretty form of Good Gracious by a cottager. Mr Calcutt secured the award for a basket of flowers and foliage, Mr. G Jacob being greatly praised for his lovely epergne of orchids, chrysanthemums, bouvardias, pancratiums, double primulas, statice, &c.; Mr. F. Walter second with a showy but somewhat more dwarf arrangement. Primulas were in evidence, and a good average, Mr. Jacob leading for double, and Mr. C. Brock, gardener to Dr. Batt, The Hill, for single forms.

A large proportion of the fruit on view was of excellent quality, Mr. C. Brock being first in each class for grapes, staging finely-finished clusters of Foster's Seedling and Alicante; Mr. C. Taylor, gardener to Captain Cottrell Dormer, Cokethorpe Park, second for Trebbiano and Alicante; Mr. Jacob third for black, with some perfectly-ripened Gros Colmar. Some apples from the chalky sediment at Wantage were remarkable for colour, the first prizes for six dishes and one dish going to C. O. Walter, Esq., Ickleton House, Berks, who put up Peasgood's Nonsuch (the finest fruit scaling twenty one ounces), Blenheim, Ribston, and Cox's Orange Pippins, Wellington, and Lane's Prince Albert. Some grand Pitmaston Duchess pears gained chief honours for Mr. Clack; and a collection of eighteen varieties of remarkably fine apples came from Mr. J. Anderson, gardener to James Mason, Esq., Eynsham Hall, specially large and high-coloured being Mère de Ménage, King of the Pippins, Yorkshire Greening, and Hanwell Souring; his Alicante and Muscat grapes were also noteworthy. This same exhibitor also arranged a very extensive grouping of Japanese, pompon, and single chrysanthemums set in ferns, palms, and grevilleas, &c., which entirely filled the platform at the end of the hall. In the ante-rooms were several very excellent collections of a dozen varieties of vegetables, Mr. John Baker, Bampton, first, having extra good cauliflowers, tomatos, carrots, and kidney beans, the latter large, straight, and of excellent colour. The carrots, parsnips, &c., were equal to those of an ordinary season, the onions and potatos being shapely though large.

BROMLEY CHRYSANTHEMUM SOCIETY, November 9 and 10

THIS flourishing society held its seventeenth annual exhibition on the above dates in the Grand Hall, Bromley, and the exhibits staged fully maintained the high reputation this society has for the excellence of culture displayed at its annual shows.

CUT BLOOMS.—As usual these were the feature of the show. In the big class, in which a ten guinea cup is offered, the competitors have to stage twenty-four Japanese distinct and twenty-four incurved, not less than eighteen varieties. The magnificent stand of blooms staged by Mr. C. Payne, gardener to C. J. Whittington, Esq., Elmhurst, Bickley Park, secured him the premier award. His Japanese were splendid blooms of Simplicity, G. C. Schwabe, E. Teichmann, Australie, C. Payne, Matthew Hodgson, Mrs. J. Lewis, Mrs. W. H. Lees, Viviand Morel, Dorothy Seward, Julia Scaramanga, Joseph Chamberlain, Edith

Tabor, Pride of Exmouth, Mrs. M. Grant, Mdlle Thérèse Rey, Mrs. G Carpenter, Mrs. H. Weeks, Edwin Molyneux, Phœbus, Beauty of Adelaide, and Chas. Davis. Amongst the incurved he staged were fine, clear examples of Globe d'Or, Ma Perfection, Mrs. J Murray, Duchess of Fife, Prince Alfred, Triomphe d'Eve, Mr. C Eagon, Madame Ferlat, Violet Tomlin, Charles H. Curtis, Mons. Desblanc, Mrs. R. C. Kingston, Austin Cannell, Mrs. Molyneux, George Haigh, and R. Petfield. Mr. J. E. Poole, gardener to W. A. G. Hubbuck, Esq., Elmstead Lodge, Chislehurst, was second. Most noticeable amongst his Japanese were Mons. Chenon de Leche, Mrs. H. Weeks, Lady Ridgeway, and Mrs. G. W. Palmer, whilst of his incurved perhaps the pick were Mrs. R. C. Kingston, Mrs. N. Molyneux, and Mrs. J. Murray. The third prize went to Mr. J. Lyne, gardener to F. Tiarks, Esq., Chislehurst; and the fourth to Mr. P. Wheadon, gardener to W. J. Langton, Esq., the Red House, Bickley. For twelve incurved and twelve Japanese, distinct, Mr. H. Redder, gardener to W. G. Bird, Esq., Manor House, West Wickham, was first. The incurved he staged were fine blooms of C. H. Curtis, Mr. J. Kearns, Jeanne d'Arc, Baron Hirsch, Mrs. R. C. Kingston, Mrs. S. Coleman, Mrs. J. Murray, Madame Darrier, Prince Alfred, Miss Violet Tomlin, Duchess of Fife, and Princess of Wales. His Japanese were splendid examples of Edith Tabor, Madame N. Ricoud, Mrs. H. Weeks, Mdlle. Thérèse Rey, Mrs. F. Jameson, Edwin Molyneux, Charles Davis, Préfet Roberts, Louise, Phœbus, Viviand Morel, and Simplicity. Mr. Payne secured the other award. Mr. J. Blackburn, gardener to W. J. Scott, jun., Esq., J.P., Elmhurst Grange, Chislehurst, was the first of the four exhibitors in the class for twenty-four Japanese distinct, staging fine blooms of Mr. G. Warren, Eva Knowles, Edith Tabor, Beauty of Teignmouth, Phœbus, Royal Standard, Mutual Friend, Charles Davis, Mons. Chenon de Leche, General Roberts, C. F. Payne, Australian Gold, Mrs. H. Weeks, Viviand Morel, Golden Gate, Ella Curtis, Mustapha, G. C. Schwabe, J. Bidencope, Matthew Hodgson, Lady Hanham, Simplicity, Oceana, and Dorothy Seward.

Mr. Poole, gardener to W. A. G. Hubbuck, Esq., was first for six Japanese, six reflexed, and six incurved, distinct. His Japanese were Viviand Morel, J. Bidencope, Phœbus, Mons. Chenon de Leche, Graphic, and Oceana; the incurved were C. H Curtis, Duchess of Fife, Ernest Cannell, Topaze Orientale, President Nonin, and Ma Perfection; and the reflexed were Charles Tutt, Miss F. Lawson, Dorothy Oxberry, Mdlle. Tityens, Aurore, and Dorothy Gibson. Mr. Lyne was second, and Mr. W. Thomas, gardener to J. Greig, Esq., Shepherds' Green, Chislehurst, third. There were four entries in the class for twelve incurved, distinct, and of these Mr. J. Munro, gardener to J. Lloyd Bucknall, Esq., Langley Court, Beckenham, secured the premier award. His stand contained fine examples of Mrs. R. C. Kingston, Ma Perfection, Violet Tomlin, Lord Alcester, Baron Hirsch, Mrs. J. Kearns, C. H. Curtis, Queen of England, Madame Darrier, J. Agate, Lord Wolseley, and John Salter. The second prize went to Mr. Redder, and the third to Mr. W. Pascoe, gardener to Captain Torrens, Beston Manor, Hayes. For six incurved, distinct, Mr. C. Payne was the successful exhibitor, with good examples of Duchess of Fife, C. H. Curtis, Globe d'Or, Mrs J. Murray, Madame Ferlat, and Robert Petfield; Mr. G. Prebble, gardener to M Hodgson, Esq., Shirley Cottage, Croydon, was second; and Mr. F. Francis, gardener to C. S. Good, Esq., Oak House, Green Street Green, Orpington, third. For twelve Japanese, distinct, Mr. Budworth was the first of the six exhibitors, staging splendid blooms of Chas. Davis, Emily Selsby, W. Seward, Phœbus, Robert Powell, Madame Gustave Henry, Viviand Morel, Mutual Friend, Mons. Chenon de Leche, Eva Knowles, G. J. Warren, and N. C. S. Jubilee. Mr. C. Blick, gardener to Martin Smith, Esq., The Warren, Hayes, and Mr. Travers secured the other awards. There were no less than eight entries in the class for six Japanese distinct, and of these the premier award went to Mr. Blick for some splendid blooms of G. J. Warren, Mutual Friend, Viviand Morel, Madame Carnot, Eva Knowles, and Edith Tabor; Mr. Blackburn was second and Mr. E. Stone, gardener to C. D. Clark, Esq., Eccles Hill, Hayes Lane, Bromley, third. Mr. Dodd was first for six anemones, with nice specimens of Mrs. H. Gardener, Judge Benedict, Madame Chate, John Bunyan, Descartes, and Sabine. The other awards went to Mr. Stone and Mr. Pascoe. Mr. Dodd was also first for twelve pompons, distinct, his blooms being Black Douglas, Pygmalion, Maid of Kent, White Mdme. Martha, Golden Mdme. Martha, Prince of Orange, Elsie Wallis, Erasus, Eynsford Gem, President, Our Fred, and William Sabey; Mr. Pascoe was second. For twelve singles Mr. E. Marshall, gardener to W. Hardy, Esq., South Bank, Chislehurst, secured the award with fine blooms of Mayblossom, D. Winsor, Miss Cressy, Charming, Rev. W. E. Renfrey, Emily Webb, Oceana, Gertie Sedgley, Pattie Ranford, and David Winsor. Mr. Lyne was first for six incurved of one variety with blooms of Duchess of Fife; Mr. Redder was second with C. H. Curtis, and Mr. Payne third with Duchess of Fife.

For six Japanese of one variety Mr. Blick was first with magnificent blooms of Edith Tabor. For six blooms of C. H. Curtis there were no less than eleven entries, the awards going in favour of Mr. Redder, Mr. Dodd, and Mr. Blackburn in the order named. Mr. J. E. Poole was first for six Japanese, distinct, with blooms of C. F. Payne, J. Bidencope, Chatsworth, Mons. Chenon de Leche, Lady Hanham, and Mr. Grant; Mr. J. Amey, gardener to F. E. Leibrich, Esq., Loys Hill, Chislehurst, was second, and Mr. E. Marshall, gardener to W. Hardy, Esq., South Bank, Chislehurst, third. Mr. Poole was also first for six incurved, distinct, with fine blooms of C. H. Curtis, Yvonne Desblanc, Madame Darrier, Mr. J. Eadie, Duchess of Fife, and Golden Empress; the other awards went to Mr. Amey and Mr. Marshall. There were three classes for single-handed gardeners—for twelve Japanese, for six Japanese, and for six incurved. In the first Mr. J. H. Simpson, gardener to R. Field, Esq., Oak Lawn, Beckenham, secured the premier award, staging nice blooms of Chas. Davis, Mutual Friend, G. C. Schwabe, Madame Carnot, Phœbus, Graphic, Edith Tabor, Viviand Morel, Colonel W. B. Smith, G. J. Warren, Elsie Teichmann, and Mons. Chenon de Leche; Mr. E. Legg, gardener to G. W. Devon-Astle, Esq., The Cedars, Bickley, was second, and Mr. J. Knapp, gardener to F. W. Amsden, Esq., Chichester Road, Croydon, third. Mr. Knapp was, however, first for six incurved distinct, in which class there were five entries. The blooms he staged were Baron Hirsch, C. H. Curtis, Globe d'Or, Jeanne d'Arc, Madame Darrier, and Prince Alfred. Mr. C. Croker, gardener to W. Rogers, Esq., Hawthorn Road, Bickley, and Mr. Simpson were second and third respectively. There were six entries in the class for six Japanese distinct, and of these the prize-winners were Mr. Legg, Mr. Knapp, and Mr Croker in the order named. On Mr. Legg's stand were good specimens of Simplicity, International, Thomas Wilkins, Australie, G. C. Schwabe, and Miss Elsie Teichmann. The amateurs' classes were chiefly noticeable by reason of the magnificent stand of twelve Japanese, staged by Mr. William Weekes, Bromley, which secured him the premier award in that class. His blooms were wonderfully fine examples of Madame Carnot, G. J. Warren, Mrs. Weeks, Edith Tabor, Pride of Madford, Charles Davis, G. C. Schwabe, Simplicity, J. Bidencope, Mutual Friend, Viviand Morel, and Elsie Teichmann. Of the other seven competitors in this class the two best were adjudged to be Mr. T. Griffin, Weybridge, and Mr. James Cartwright, Lewisham.

There were only two entries in the class for a group of chrysanthemums not to exceed fifty square feet, Mr. Brister securing the premier award with a beautifully arranged group, in which were noticeable some very fine blooms; Mr. Dove was second. For a single trained specimen Mr. Brister was again first, the other prize going to Mr. W. Hopgood, gardener to P. C. Parr, Esq., Powis Lodge, Bickley. Mr. Blick, Mr. Lyne, and Mr. Pascoe were the successful exhibitors in the class for twelve table plants, whilst for six table plants Mr. Munro, Mr. Amey, and Mr. Blackman were the prize-winners. For twelve Chinese primulas the awards were in favour of Mr. Brister, Mr. Legg, and Mr. Amey, and for six Chinese primulas Mr. C. Cooke, gardener to W. Rogers, Esq., Hawthorn Road, Bickley, was first, Mr. Hopgood second, and Mr. C. Heath, gardener to J. C. Holmes, Esq., The Corner House, Shortlands, third. In the class for twelve zonal pelargoniums there were five entries, the first prize winner being Mr. M. Paice, gardener to H. M. Pollett, Esq., Fernside, Bickley, who staged some magnificent trusses, the most noticeable of which were J. M. Barrie, Chas. Mason, and Trilby; Mr. G. Wheadon, gardener to J. Layton, Esq., The Red House, Bickley, was second, and Mr. Pascoe third.

FRUIT AND VEGETABLES were fairly numerous and of good quality. Mr. Amey, Mr. Blackburn, and Mr. Lyne were first, second, and third for black grapes, whilst for white grapes Mr. Blackburn and Mr. Blick were successful. Mr. C. Jordan, gardener to H. Hoskier, Esq., Coney Hill, Hayes Common, secured the premier award for a collection of fruit, Mr. Blackburn being second, and Mr. Blick third. In the class for dessert apples there were eight entries, Mr. W. A. Searing, Parkwood, Swanley, securing the premier award, the other prizes going to Mr. H. Filkins, gardener to R. B. Berens, Esq., Kevington, St. Mary Cray, and Mr. Lyne. Mr. Lyne was, however, first for cooking apples, with Mr. Dove and Mr. Searing second and third. For pears the awards were in favour of Mr. Blick, Mr. Jordan, and Mr. Simpson. Mr. Blick was also successful for a collection of vegetables, with Mr. Filkins second, and Mr. Dove third.

The platform in the main hall was extremely tastefully decorated with plants and flowers by Messrs. J. Laing and Sons, Forest Hill.

LIVERPOOL HORTICULTURAL ASSOCIATION, Nov. 9 and 10.

THE nineteenth autumn show was held under the auspices of the above society in St. George's Hall, under most favourable climatic conditions. The exhibition in many details showed a distinct improvement, and for merit alone must be conceded the finest held by the association. The number of entries were three hundred and eighty-one, an increase upon last year of forty-two; this extra influx gave the Staging Committee a considerable amount of difficulty in finding room for the exhibits.

The plants of chrysanthemums called for no special comment; the groups contained many fine flowers, and the premier lots of pompons were remarkably pretty, carrying medium-sized flowers. Four trained, two Japanese, and two incurved varieties, J. G. Hitchin, Esq. (gardener, Mr. J. Rose), won with Colonel Smith, Viviand Morel, Mrs. G. Rundle, and Mrs. Dixon; J. A. Bartlett, Esq. (gardener, Mr. T. Gowen), and Mr. J. Harrison being the remaining prize-winners. For the single specimen H. Cunningham, Esq. (gardener, Mr. W. Wilson), Mr. John Rose, and Mr. J. Harrison were placed as named. For three pompons, Mr. W. Wilson won with models of W. Kennedy, Wm. Westlake, and Emily Rowbottom; Messrs. J. Harrison and J Rose being second and third. For the singles Mr. W. Wilson again scored, with Emily Rowbottom. For one standard, Mr. Thos. Gowen scored with Mrs. Dixon; for one pyramid, Mr. W. Wilson had the best. For six untrained and a single specimen Mr. T. Gowen took the lead, with well-flowered plants.

For groups of chrysanthemums, sixty square feet, E. Pryor, Esq. (gardener, Mr. E. Taylor), won with flowers of considerable merit, Messrs. J. Harrison and W. Bustard following. For twelve Japanese in five-inch pots, John Findlay, Esq. (gardener, Mr. E. Wharton), Messrs. Thomas Gowen and G. Haigh were placed as named.

CUT BLOOMS.—These certainly were a distinct advance upon anything previously seen, the new varieties standing out with special prominence, especially in depth. For twenty-four incurved and twenty-four Japanese, distinct, for the Society Silver Challenge Vase and £10—First, R. P. Houston, Esq. (gardener, Mr. J. Heaton), his Japanese being Madame G. Henry, Mons. H. J. Jones, Graphic, Ella Curtis, Mons. Hoste, Eva Knowles, Simplicity, Australian Gold, Phœbus, Mons. C. de Leche, Pride of Madford, Duke of Wellington, Edwin Molyneux, Pride of Exmouth, Mrs. G. W. Palmer, N.C S. Jubilee, Australie, Mrs. J. Lewis, Edith Tabor, Lady Hanham, Robert Powell, Lord Justice Lopes, Mons. Panckoucke, and Lady Ridgeway. Incurved—Duke of Fife, Perle Dauphinoise, Miss D. Foster, Ma Perfection, C. H. Curtis, James Agate, Lord Alcester, Leonard Payne, Queen of England, John Doughty, Violet Foster, Mrs. N. Molyneux, Empress of India, John Salter, Robert Petfield, Miss M. A. Haggas, Austin Cannell, Golden Empress, Baron Hirsch, Miss V. Tomlin, Globe d'Or, and Princess of Wales. G. B. Cockburn, Esq. (gardener, Mr. G. Burden, Birkenhead), second, with a fine stand of Japanese and immense incurved flowers of Lady Isabel, Madame Ferlat, John Lambert, &c. Thomas Gee, Esq. (gardener, Mr. P. Green, Allerton), third; Miss Thompson (gardener, Mr. R. Foster, Broad Green), fourth.

For eighteen incurved distinct, E. Ellis, Esq. (gardener, Mr. J. Davies Heswell) was first with smart flowers, Lady Isabel, C. H. Curtis, John Lambert, and Madame Ferlat being the best. Mr. C. Osborne, second; and Mr J. Jakeman, third. For twelve incurved varieties, distinct, Lord Trevor (gardener, Mr. W. Davies, Chick) won with a good stand. For six incurved, distinct, E. Edmundson, Esq. (gardener, Mr. C. Sherlock), staged the best; for eighteen Japanese H. Tate, Esq. (gardener, Mr. C. Osborne), won with good flowers, Lady Ridgeway, Duke of Wellington, Madame Gustave Henri being the most noteworthy, C. Ellis, Esq. (gardener, Mr. J. Davies), and Mr. P. Jakeman taking the remaining prizes. For twelve Japanese, distinct, Mr. W. Davies won with fine flowers, the front row being exceptionally good. For six Japanese, distinct, F. W. Mayor, Esq. (gardener, Mr. J. George), took the lead; for six anemones, distinct, and six reflexed, distinct, Mr. W. Wilson won in both classes.

For twelve pompons, not less than six varieties to be shown in bunches of three flowers, J. Findlay, Esq. (gardener, Mr. E. Wharton), won with magnificent flowers charmingly staged. In the class for those who have never won a prize of the society, Mr. A. H. Randall took leading honours. Messrs. E. Blair and T. Sumner took the leading prizes in amateurs' classes. A basket of chrysanthemums, arranged with fern, brought twelve competitors, C. J. Procter, Esq. (gardener, Mr. J. Williams), winning with a beautiful combination.

For a circular group of plants, eighty square feet, a strong fight was made, this entry causing a distinct charm to the whole show. W. H. Watts, Esq.

(gardener, Mr. J. Bracegirdle), was adjudged the premier award for large flowers intermixed with ferns, palms, &c. T. S. Timmis, Esq. (gardener, Mr. B. Cromwell), had a beautiful combination in which crotons, palms, and alocasias gave a pretty effect. For a basket of plants, prizes given by Messrs. R. P. Ker and Sons, the first prize was won by Mr. E. Pryor, Cattleya labiata and other orchids being shown to advantage. For four ferns distinct, Mr. J. Bracegirdle won with grand specimens of Glechenia Mendelli, Nephrolepis davallioides furcans (eight feet diameter), Goniophlebium subauriculatum, and Microlepia hirta; Messrs. B. Cromwell and T. Gowen second and third respectively. For three orchids, distinct, Mr. J. Bracegirdle won with Cattleya Bowringiana, Cypripedium Spiceranum, and Cattleya labiata. For two orchids suitable for cool house prizes were given by Messrs. John Cowan and Co., Gateacre. F. Cross, Esq. (gardener, Mr. E. Duke), won with Oncidium crispum and O. varicosum Rogersi. For a single orchid Mr. J. Bracegirdle was again successful with a fine Cattleya labiata Emperor. This exhibitor was again to the fore for one cypripedium, winning with a well-flowered C. insigne.

FRUIT constituted the finest feature of the show, over one hundred bunches of grapes being entered, whilst the apples, both for size and colour, were splendid. In the class for six dishes of fruit, distinct (pines excluded), Mrs. Bright (gardener, Mr. J. Skitt, West Derby) won with Gros Colmar and Muscat of Alexandria grapes (good), Louise Bonne and Marie Louise pears, Worcester Pearmain and Ribston Pippin apples; second, Messrs. W. and E. Gladstone (gardener, Mr. T. Elsworthy); third, Earl of Derby (gardener, Mr. R. Doe, Knowsley). For four bunches of grapes, two black and two white, Mr. T. Elsworthy staged the best in Muscat of Alexandria and Black Alicante. The same exhibitor won for two bunches of Black Alicante. For any other black, C. Gatehouse, Esq. (gardener, Mr. H. May), won with large bunches of Barbarossa. For two bunches of white Muscats, Mr. W. Neild, Holmes Chapel Horticultural School, was well to the fore with fine berries, superbly coloured. For any other white Mr. J. Skitt was to the fore with good Golden Queen. For six dishes dessert pears, distinct, Mr. R. Hanagan, Cheshire, won with Pitmaston Duchess, Marie Louise, Doyenne du Comice, and others; Mr. W. Bustard and Mr. J. McColl taking the remaining prizes. For four dishes, distinct, Messrs. R. Hanagan, R. Doe, and H. Reynolds were placed as named. For a single dish Mr. H. Reynolds won with Doyenne du Comice out of nineteen competitors. For six dishes dessert apples, distinct, W. E. King King, Esq. (gardener, Mr. J. Davis), Leominster, won with well-coloured samples of Colonel Vaughan, Cox's Orange and Ribston Pippins, Worcester Pearmain, Blenheim Orange, and King of the Pippins; J. Lee, Esq., Cheshire, and W. Morgan, Esq, Herefordshire, were second and third respectively. For three dishes, distinct, Earl of Derby, Mrs. R. Pinnington, and Mr. J. Lee were the winners. For the single dish Mr. T. Ferguson was adjudged the best of 27 entries. For eight dishes culinary varieties Mr. J. Davies won with grand fruit, Mère de Ménage and Peasgood's Nonsuch being most conspicuous; Mr. Morgan second. For four dishes culinary varieties, distinct, Mr. J. Lee took the lead. The prize for a single dish was won by Mr. J. Davis, with Peasgood's Nonsuch.

Certificates of merit were awarded to Messrs. J. Cowan and Co., for a fine group of orchids in variety with foliage plants; Messrs. R. P. Ker and Sons, for a fine bank of cyclamen; to Turner Bros., for a pleasing display of floral designs; and to Dicksons (Limited), Chester, for apples and ornamental plants.

ROYAL HORTICULTURAL SOCIETY OF IRELAND.

THE chrysanthemum show in connection with this society was held on Wednesday and Thursday, November 9 and 10, in the rooms of the Royal Dublin Society. It showed a very marked improvement on its predecessors. The groups of plants were a decided advance on any we have previously seen there, the hall was better filled than usual, and the non-competitive exhibits around the sides gave a decided finish to the exhibition. The weather, too, was splendid, and in consequence the attendance was far above the average. The judging of cut blooms and plants was splendidly done, but there appeared to be some errors of judgment with regard to fruit and vegetables; for example, two very moderate bunches of Trebbiano grapes were awarded first prize, while two superb bunches of Muscat of Alexandria only secured second place. In the cut bloom classes the first prize stand in nearly every case was far ahead of the others, but the competition was very close for the remaining awards. Mr. McKellar, gardener to Lord Ashbrooke, Castle Durrow, Queen's County, secured first place in every class in which he exhibited with superb blooms, verifying the prediction we made here a few years ago that the then champion would have to look out, for this young exhibitor was forging ahead. He is to be congratulated on having attained the object of his ambition.

For forty-eight blooms in as many distinct varieties the first prize of £10 and the society's large silver medal were well won by Mr. H. Crawford, gardener to Gertrude, Countess of Pembroke, Mount Merrieu, Booterstown, county Dublin; Mr. Mitchison, gardener to Hon. C. F. Crichton, Mullaboden, Ballymere Eustace, co. Kildare, second; Mr. McKenna, gardener to Lady Bury, Charleville, Tullamore, King's County, third. For a stand of thirty-six blooms, eighteen Japanese and eighteen incurved, in not less than twenty-four varieties, nor more than two of any variety, the first prize was a challenge cup valued ten guineas, offered by Messrs. Waterhouse and Co., Dame Street, Dublin, with a cash prize of £3 added by the society; this was ably won by Mr. McKellar, gardener to Lord Ashbrooke, Durrow Castle, Queen's County; Mr. H. Crawford, second; Mr. Fernie, gardener to R. de la Poer, Esq., Kilcronagh, Waterford, third. The principal prize from a gardener's point of view is the "Gardeners' Prize," which is a "challenge cup," value ten guineas, presented by the gardeners of Ireland, with £3 added by the society to the first prize. Mr. McKellar secured this coveted trophy with superb blooms; Mr. Mitchison, second; Mr. McKenna, third. In the class for twenty-four incurved blooms, in eighteen varieties, the first prize, a piece of plate presented by the Ichthemic Guano Company, with money prizes added by the society, was won by Mr. McKellar, with Mr. Crawford second. For twelve incurved, in six varieties, Mr. Farrell, gardener to Clifford Lloyd, Esq, was well first, Mr. McKenna second, Mr. Rigg, gardener to Lord Cloncurry, Lyons, Hazelhatch, co. Kildare, third. Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, presented a silver-gilt medal, and this with money prizes added by the society for twelve Japanese, in six varieties, was won by Mr. Maher, gardener to C. S. Spear, Esq.; Mr. Webster, gardener to Lord Plunkett, Old Connaught, Bray, co. Wicklow, second; and Mr. Dunne, gardener to J. C. Parkes, Esq., third. For twelve blooms, six Japanese and six incurved, distinct, open only to exhibitors who had never previously won a first prize at any of the society's chrysanthemum shows, Mr. Webster came first, and Mr. Rigg second.

For anemone-flowered chrysanthemums, twelve blooms, in at least six varieties, Mr. McKenna came first; Mr. Morrison, gardener to J. Gubbins, Esq., Bruree, co. Limerick, second; and Mr. McLennan, gardener to Lord Carew, Castle Boro', Enniscorthy, co. Wexford, third. For pompons, twelve bunches, in six varieties, Mr. Rigg first, R. T. Harris, Esq., second, and Mr. Mitchison third. For a stand of six white Japanese, in one variety, the prizes were presented by Messrs. Alex. Cross and Sons, Glasgow, and here Mr. McKellar was again a good first; Mr. McKenna second. For six yellow Japanese Mr. McKellar was again first with wonderful blooms of Australian Gold; Mr. Kearns, gardener to Mrs. Moore, second; Mr. Farrell, gardener to Clifford Lloyd, Esq., third. For six incurved blooms, any variety, Mr. McKellar was first, Mr. Crawford second. There was a spirited competition in the class for the three vases of chrysanthemums in three varieties, three blooms of each, own foliage only allowed, and blooms to be not less than twelve inches above the vase; Mr. McKellar was first, Mr. Mitchison second, and Mr. Maher third. For a basket of chrysanthemums, any foliage allowed, F. V. Westby, Esq., came first, Miss Carty second, and Miss Taafe third.

For a group of plants, not to exceed thirty pots, Mr. Goff, gardener to Mrs. McCann, scored, and Mr. McKenzie, gardener to Mrs. Pease, second. The same competitors, and in the order named, secured the prizes for thirty-six specimens arranged in a group of fifty superficial feet, staging in an effective manner well-grown plants. The best group of twelve plants came from Mr. Coghlan, gardener to Mrs. W. McComas; Mr. Goff, gardener to Mrs. McCann, second; and Mr. Geoghegan, gardener to J. Miller, Esq., third. For six pompons Mr. Goff, Mr. Geoghegan, and Mr. Dunne were the prize-winners. For four plants, any varieties, of chrysanthemums for decoration, to be grown in pots not exceeding eight inches in diameter, Mr. Goff was first, and Mr. Finnegan, gardener to H. B. White, Esq, second. For a specimen chrysanthemum Mr. Goff and Mr. Kirk, gardener to Colonel Clements, secured the awards, while for six pots of primulas Mr. Goff was again first; Mr. Anderson, gardener to R. Tedcastle, Marley, Rathgarnham, second; and Mr. McKenzie, third. Mr. Campbell, gardener to Lord Ardilaun, was first with six magnificent Primula obconica; Mr. McKenzie second, and Mr. Kearns third. For six table plants, distinct, in six-inch pots, Mr. McLennan was first, Mr. Rigg second, and Mr. Sayers, gardener to Mrs. Goodbody, Obelisk, Blackrock, co. Dublin, third. Mr. McKellar secured the prizes for the premier chrysanthemum bloom in the show, having a superb bloom of Australian Gold as Japanese and C. H. Curtis incurved.

There was an imposing display of fruit of all kinds, excellent grapes being shown. For four bunches in two varieties Mr. McKenna was first and Mr. Bunting, gardener to F. V. Westby, Esq., second. For two bunches white grapes Mr. Mernagh, gardener to Mrs. Bookey, came first, Mr. McKenna second. For two bunches black grapes Mr. T. Caldwell, gardener to R. Tedcastle, Esq., was first and Mr. Bunting second. For a dish of six baking pears Messrs. Goff, Sheppard, and Weeks were first, second, and third respectively. The best dessert pears came from Messrs. Morrison, Carr, and Harvey. Mr. Harvey showed the best baking apples, and Mr. Colgan the best Warner's King. For a dish of six dessert apples Messrs. McKenzie, Pilgrin, and Tobin came first, second, and third respectively, while for Ribston Pippins Messrs. McKenna, Stringer, and Campbell won in the order named. For six fruits of Cox's Orange Pippin Messrs. McKenna, Morrison, and McKenzie took the awards. The best collection of twelve dishes dessert pears in as many varieties, four fruits each, came from Mr. McKenna, Mr. Whitelaw, gardener to the Earl of Drogheda, Moore Abbey, Monasterevan, co. Kildare, second, and Mr. Tobin, gardener to J. F. Lombard, Esq., third. Mr. McKenna was first for twelve varieties of apples in dishes of six, and for six varieties of dessert apples.

Vegetables were exceedingly well shown, onions probably being the best ever exhibited in Dublin, Mr. Hartley coming first, Mr. McKellar second, Mr. Webster third. For white celery Mr. Stringer was first and Mr. Byrne second. For red celery Mr. Byrne and Mr. McLennan took the prizes. The best collection of twelve distinct kinds of vegetables was staged by Mr. Stringer, Mr. McLennan second, Mr. Reynolds third. For a collection of six distinct kinds of vegetables Mr. Hartley and Mr. Russell came first and second. Miss L. Taaffe, Mrs. Geoghan, and Miss M. G. Ball secured the prizes for dinner table decorations. Mr. R. Jameson secured the silver medal offered to nurserymen by the society for the best group of foliage and flowering plants, Messrs. Ramsay securing the bronze medal.

Messrs. Alex. Dickson and Sons secured the society's silver medal for a magnificent collection of over two hundred dishes of fruit superbly staged and splendidly coloured, and the bulk of these were put up in huge basketfuls, creating a splendid display. Messrs. Saunders and Son, Cork, secured a similar award for a collection of two hundred varieties of fruit, while Messrs. Richard Hartland and Sons, Cork, were awarded the society's bronze medal for a fine exhibit.

WARE HORTICULTURAL SOCIETY, November 9 and 10.

OF exceptional excellence was the annual exhibition of this society, which was held in the Town Hall, Ware, on the above dates. The principal hall and side rooms were literally packed with products, that with but few exceptions were staged in competition, and the quality was throughout so high that it has not been surpassed on any previous occasion.

The classes for cut blooms were well filled, and having regard to the season the principal stands were remarkable for the high finish of the blooms. Mr. G. Fulford, gardener to R. Walters, Esq., The Priory, Ware, again distinguished himself in taking the premier award (this year a valuable silver cup) for thirty-six blooms to comprise equal numbers of incurved and Japanese. The collection was remarkable for its uniformly high qualities, and the varieties included Viviand Morel, selected as the premier Japanese in the exhibition, Lady Byron, Mrs. G. W. Palmer, Mrs. H. Weeks, Mons. Chenon de Leche, Australie, Charles Davis, Lady Hanham, and G. J. Warren, of the Japanese; and Ma Perfection, Queen of England, Mrs. R. C. Kingston, Madame Ferlat, Madame Darrier, Violet Foster, C. H. Curtis, Globe d'Or, and Lord Alcester, incurved. Mr. G. Fulford, gardener to A. G. Sandeman, Esq., Presdales, Ware, was second, with fine blooms. For twelve Japanese blooms the last-named exhibitor occupied the post of honour with good blooms of well-known varieties, closely followed by Mr. G. Fulford, The Priory, and Mr. R. Dover, gardener to R. Barclay, Esq., High Leigh, Hoddesdon. In the corresponding class for incurved varieties Mr. C. Bank, gardener to S. Croft, Esq., St. Margaret's, Ware, was first with a fine stand containing a superb bloom of Duchess of Fife, adjudged the premier incurved in the exhibition. Mr. G. Fulford, The Priory, was an uncomfortably close second, and Mr. R. Dover a good third. Mr. A. J. Willsher, gardener to the Rev. M. Kirkby, The Vicarage, Ware, was first for six Japanese, distinct. Mr. Dover obtained premier honours for six Japanese blooms, one variety, with Australian Gold, and Mr. F. Gull, Amwell, was second with Madame Carnot. For three Japanese, one variety, Mr. Durrant, Ware, was first with Lady Hanham, and Mr. D. Garratt, Hertford, followed for second place with Viviand Morel. Mr. Dover was first for six reflexed, which was not a very strong class.

The most important of the plant classes were those arranged for effect, and in the class for large groups of chrysanthemums Mr. C. Bank and Mr. G. Fulford, The Priory, were first and second respectively, with arrangements remarkable for the high quality of the blooms and the taste displayed in grouping. Highly satisfactory were the smaller groups of chrysanthemums, for which Mr. D. Garratt, Mr. J. H. Spencer, and Mr. A. J. Willsher were first, second, and third respectively. Of exceptional excellence were the collections of miscellaneous plants arranged for effect, and much praise is due to Mr. G. Fulford, Presdales, Mr. R. Dover, and Mr. C. Bank. The last-named exhibitor had the best six table plants, and Mr. F. H. Gull was first for cyclamen, zonal pelargoniums, primulas, and winter-flowering begonias; Mr. Dover and Mr. C. Seden also exhibited successfully in these classes.

Fruit and vegetables were highly meritorious, and Mr. A. J. Willsher, in the apple and pear classes, added to his successes at Hertford in the previous week, taking four first prizes, three of which were for collections. Mr. F. H. Gull was first for black grapes with huge, superbly-finished clusters of Alicante. Mr. C. Bank and the Messrs. Fulford, with other exhibitors, competed successfully in the fruit classes. In the open class for collections of vegetables Mr. C. Bank, Mr. Willsher, and Mr. R. Dover were the prize-takers in the order of their names with produce evincing much cultural skill. There was a very strong competition in the cottagers classes, both as regards the number of entries and the quality of the produce.

The floral arrangements were of a mixed order, some being highly creditable, while others were decidedly poor. The most beautiful vase was that of chrysanthemums shown by Mr. Durrant.

COVENTRY, November 8 and 9.

THE members of the Chrysanthemum Society of the "City of Spires" may well be proud of the rapid advance made during the few years it has held an annual show. The Market Hall was utilised this year in place of the Corn Exchange, the latter building not being available. The energetic secretary, Mr. F. Curtis, and members of the committee are to be congratulated on the efficient way they arranged and draped this immense building in order to make it suitable for the exhibition. The classes set apart for groups of chrysanthemums were well represented, first honours being secured by Mr. Morris, gardener to Sir R. Moon; Mr. Blake, gardener to W. H. Herbert, Esq., second. Mr. Chandler, gardener to A. James, Esq., Rugby, easily secured both first prizes in the principal cut flower classes, viz., for twenty-four Japanese and twenty-four incurved; Mr. Blakeway, gardener to P. A. Mundy, Esq., being second in the former, and Mr. Collier, gardener to G. Singer, Esq., second in the latter class. Non-competitive exhibits were without doubt a special feature of the show, and came in for a large share of admiration. In the centre of the hall Mr. Finch, nurseryman, had erected a most imposing and artistically arranged display, containing towering palms, well-coloured crotons, dracænas, orchids, &c. This exhibitor also had a stand of beautiful wreaths and anchors. Mr. H. T. Martin, gardener to the Right Hon. Lord Leigh, had an excellent show of vegetables and fruit, occupying thirty feet of staging; the former contained twenty-two distinct kinds of vegetables in season, and all were well-grown and clean examples. Interspersed amongst the thirty dishes of fruit were many grand blooms of exhibition-sized chrysanthemums, the whole exhibit being backed up with palms and crotons. Messrs. Perkins, the well-known Court florists, had a magnificent shower bouquet, composed principally of orchids. Messrs. Kimberley and Sons, nurserymen, had an attractive group of plants, and Sir R. Moon a collection of fruit. Large-flowering violets in variety were well shown by Messrs. J. House and Son, Westbury-on-Trym, Bristol. The attendance on both days was good, and this comparatively young society bids fair to rank as one of the best in the county.

WINDSOR, November 10.

THE seventh annual exhibition was held as usual in the Albert Institute, and was much the best of the series. A great improvement was manifest in the general excellence of the exhibits. Especially is this remark applicable to the chrysanthemum groups both in the amateur and open classes. The arrangements were as usual of a perfect order in the hands of Mr. Finch, the hon. secretary, and an efficient committee, of which Dr. Wyborn is the able chief.

For a group of chrysanthemums in pots a challenge cup is offered in addition to the first prize, which no doubt stimulates the competition, as no less than six competed, making a pleasing display. Mr. W. Cole, gardener to Mrs. E. B. Foster, was an easy first with plants dwarf in growth, well clothed with foliage, and carrying good blooms, the arrangement leaving little to be desired; Mr. W. Davis, gardener to Henry Adams, Esq., second; Mr. A. Gillies, gardener to Sir Robert Harvey, third. In the amateurs' section for a similar group there was keen competition and a really meritorious display. Mr. H. Edwards, 32, Albert Street, Clewer, Windsor, secured the leading award with suitable well-grown plants; Mr. J. R. Stribling second with plants carrying good blooms, but not the best of arrangement. Dr. Wyborn secured the remaining award with capitally-grown plants tastefully arranged, but lacking quality in the flowers. Specimen plants were sparsely shown, Mr. Fifield, gardener to R. Cawte, Esq., winning the premier award for four with profusely-flowered examples of Mrs. G. Rundle, Beauty of Teignmouth, Colonel W. B. Smith, and Viviand Morel.

Cut blooms were numerous and well up to the average in point of quality. For twenty-four Japanese, in not less than eighteen varieties, Mr. Sturt, gardener to L. Cohen, Esq., Englefield Green, Ascot, was distinctly first with medium-sized blooms of good quality and well staged; Viviand Morel, Edith Tabor, Madame Carnot, Australian Gold, Mdlle. Thérèse Rey, M. Chenon de Leche, Mutual Friend, and Lady E. Saunders were the most noteworthy. Mr. Lane, gardener to Miss Ridge, Ascot, second; Mr. Fulford, gardener to F. D. Lambert, Esq., third. This stand contained the premier bloom of the show, a fairly good one of Madame Carnot. Mr. Lane won the premier place for twenty-four incurved with somewhat small but neat, fresh examples of popular varieties; Mr. Sturt second; Mr. D. M. Hayler, gardener to Mrs. Langworthy, third. For twelve incurved and twelve Japanese, distinct, a silver challenge cup was offered with the first prize; this Mr. Lane secured with good blooms in both sections, and of the following varieties. Incurved—Madame Ferlat, Duchess of Fife, Topaze Orientale, Dorothy Foster, R. Petfield, Mrs. E. J. Murray, C. H. Curtis, Empress of India, Golden Queen of England, Lucy Kendall, and Mrs. R. C. Kingston; Japanese—Oceana, Viviand Morel, Madame Gustave Henry, Charles Davis, Modesto, Hairy Wonder. Mary Molyneux, Joseph Chamberlain, Pride of Madford, and Lady Hanham, Mr. Sturt a close second. For twelve incurved Mr. F. J. Paul, gardener to Mrs. Bowring, won premier position with small but neat blooms; Mr. W. Hull, gardener to Captain Farwell, second.

For twelve Japanese six competed, Mr. J. Wood, gardener to Lord Boston, winning first place with a good set of heavy, fresh specimens. Mr. Wood also secured the leading award for six incurved, one variety, with medium-sized, well-finished examples of C. H. Curtis; Mr. Lane second with Madame Ferlat. In a similar class for six Japanese Mr. Lane with Beauty of Teignmouth won first prize, Mr. Sturt with Phœbus taking the second place. Anemone-flowered varieties were fairly well represented, Mr. W. Cole, gardener to Mrs. E. B. Foster, winning first prize, Messrs. J. Williams and J. Wood taking the remaining prizes. Chrysanthemums cut with long stems and arranged in baskets with foliage are always a feature at this show; this year they were even better than ever. Mr. Lane won the pride of place with really good specimens lightly arranged with harmonious autumnal and other foliage, Messrs. Wood and Sturt following. In a similar class devoted to ladies there was a stiff competition. Mrs. Bargrave Wyborn, Clifton House, Windsor, was a long way ahead of all others with a charming arrangement of bronze and yellow flowers judiciously associated with suitable foliage, Mrs. Young second with a somewhat stiff arrangement, Miss H. M. Sainty third.

Fruit and vegetables were distinct features of the show, so well were they represented; space, however, forbids details. Mr. F. H. Beney, gardener to Lady Mary Caine, Clewer Hill House, staged an interesting group of Nerine Fothergilli major along with Adiantum cuneatum, which was much admired.

BEDFORD, November 10.

FOR some years Bedford was without a horticultural society and without a show. The gap has been filled by the Beds Horticultural Improvement Association, which has sought to justify its name and existence by holding meetings for discussion and providing displays of the local garden produce. The autumn exhibition was held last Thursday, and proved in all respects a great advance on previous efforts. The Corn Exchange devoted to the display is admirably adapted for the purpose, and the honorary secretaries, Mr. Edward Laxton and Mr. W. Kingston, took the fullest advantage of their opportunities to make a bright, varied, and tasteful show.

Ample space was provided for groups, which are seen at their best in such a large and lofty hall, and it is to be hoped that in future years this class will be still further encouraged. The premier award was won by Mr. C. Ellis, gardener to T. H. Barnard, Esq., Pemberley, with an excellent contribution, the plants well grown and healthy, the blooms massive, and the arrangement effective. Mr. Tysoe, gardener to Miss Fitzpatrick, Bedford, was placed second with dwarf plants bearing good blooms, but rather too rigidly tied. The most imposing group, however, was the non-competing one from Messrs. Laxton Brothers, which was one of the best we have seen at a provincial show, the blooms excellent, and the arrangement all that could be desired.

In the cut bloom classes the Japanese forms were by far the best represented, and some extremely meritorious exhibits were staged. The best twenty-four blooms came from Mr. Restell, gardener to F. S. Wigram, Esq., Elstow, very handsome blooms of great substance, the varieties being as follows (only twelve required): International, Viviand Morel, Pride of Exmouth, Mrs. W. Mease, R. Powell, Australie, Mrs. H. Cheeseman, Modesto, Duke of Wellington, M. Chenon de Leche, and W. Seward. Second honours fell to Mr. Hayes, gardener to the Marquis of Northampton, Castle Ashby, who had very bright, fresh blooms, and with a little more substance they would have been easily first. Mr. E. Jones, Bedford, was a good third. For twelve Japanese Mr. Hayes was well to the front, his blooms being even and again excellent in colour, a point too often overlooked now. Mr. E. Jones was second, and Mr. Day, gardener to L. C. Higgins, Esq., Castle Close, took the third place. Mr. E. Jones had the best six Japanese in a good class, the varieties shown being Madame Carnot, Viviand Morel, Edith Tabor, Australie, Mutual Friend, and Phœbus. A non-competing stand of twelve Japanese was staged by Mr. McKinlay, gardener to Earl Cowper, Wrest Park, and for bright colours and clean, even quality they were not excelled by any in the show. Mr. Hayes had the only noteworthy stand of incurved blooms, which deservedly gained him premier honours in the class for twelve distinct. They were fresh, even, and of moderate size, the varieties being Lord Wolseley, Golden Empress, Violet Tomlin, M. Bahaunt, Prince Alfred, J. Doughty, Baron Hirsch, Pink Venus, Mrs. G. Rundle, Prince of Wales, Globe d'Or, and Alfred Lyne.

The floral decorations were an extremely beautiful feature in the show, a row of tables occupying the whole of the centre of the hall, and some highly tasteful designs were contributed by the ladies of the district. A good deal of interest was excited by the awards being determined by the votes of the visitors, each one of whom was furnished with a voting paper. That considerable diversity of opinion was expressed by this method can be easily understood, and the awards were not made known until late in the afternoon.

Apples were well represented in the fruit classes, the leading prizes being taken by Mr. W. Chapman, gardener to T. Barnard, Esq., Cople; Mr. J. Pullen, gardener to Lady Taylor, Turvey House; Mr. Hayes, and Mr. C. Ellis.

Vegetables constituted another important feature, and were shown in admirable condition. Mr. C. Ellis had the best collection of ten sorts, and so excellent were they that a high position would have been commanded at much larger shows. Parsnips, carrots, tomatos, potatos, celery, onions, and beet were models. Mr. Dewell, gardener to C. Franklin, Esq., and Mr. Hayes followed in that order, both showing well-grown produce. There were smaller classes also well filled, and the prizes for onions brought several strong competitors. An extensive and unique collection was contributed by F. Collins, Esq., Bedford, which filled about fifteen feet run of table space, and comprised examples of all the best vegetables in season in first-rate condition. A special prize and certificate of merit were awarded for this exhibit.

NATIONAL CHRYSANTHEMUM SOCIETY.

ON the 14th inst. there was quite an interesting display before the Floral Committee, most of the leading growers exhibiting. Mr. Hall, Prestbury, Macclesfield, showed several Japanese forms. Mr. R. Owen, Maidenhead, showed several new and interesting incurved blooms, Mrs. W. C. Egan and Pearl Palace being notable. Mr. Wells, Earlswood, showed fine flowers of Nellie Pockett, John Pockett, Mr. T. Carrington, and Chatsworth, Japanese; Duc d'Orleans, C. S. Bates, and Mrs. W. C. Egan, incurved. Mr. R. Holmes, Norwich, showed Lizzie Adcock, a golden sport from Source d'Or. The type and three other forms were shown; the new and bright golden yellow sport was passed, however, notwithstanding its bright shade. Messrs. Adams, Howe, Cantley, and Davis also staged flowers. Mr. H. J. Jones, Lewisham, sent some good anemones and Japanese forms, the latter including the crimson variety named J. Chamberlain. Mr. A. Kember, Gosfield Hall, Halstead, showed a splendid yellow sport from Mrs. Dr. Ward; this was commended. Mr. W. H. Witty sent some queer blooms, the variety "What Ho" having long spidery florets; Golden Shower had long tassel-like florets and was very pretty. The committee desired to see the varieties again.

AIGBURTH, November 12.

THIS exhibition fully sustained its reputation for high-class specimens. Chrysanthemums were very fair throughout, Mr. F. Keightley, gardener to Mrs. Duncan, securing the premier award for the forty-feet group with good blooms interspersed with palms, crotons, &c.; Mr. E. Taylor, gardener to E. Pryor, Esq., being second. For three distinct plants and for a single specimen the same exhibitor led the way in each class, winning the latter with a fresh-flowered Chas. Davis.

Cut blooms, as usual, were the most important feature, and this is principally through the generosity of A. L. Jones, Esq., who has provided a splendid silver challenge cup; this was secured by the Liverpool winner, Mr. J. Heaton, gardener to R. P. Houston, Esq., M P., with fine fresh blooms of Japanese—Madame Gus. Henry, Jas. Brookes, Mrs. G. H. Palmer, Australie, Pride of Exmouth, Edith Tabor, Madame Carnot, Mons. H. J. Jones, Graphic, Australian Gold, N.C.S. Jubilee, and Lady Ridgeway; incurved—C. H. Curtis, John Lambert, John Salter, Lord Alcester, Rob. Petfield, Princess of Wales, Lady Isabel, Queen of England, Miss M. A. Haggas, Duchess of Fife, Perle Dauphinoise, and V. Tomlin. Mr. W. Whittle, gardener to G. Allan, Esq., last year's victor, was second. For six incurved and six Japanese Mr. E. Sherlock, gardener to E. Edmondson, Esq., led the way with good blooms; Mr. A. Randall, gardener to A. L. Jones, Esq., second. For six incurved, six Japanese, and three incurved and three Japanese the cup winner again proved his skill by being awarded first in each class. The class for six Japanese shown with their stems and foliage as grown produced a nice display. Mr. T. Ankers, gardener to W. Bowring, Esq., being accorded the place of merit.

In the plant classes Mr. F. Keightley, Mr. A. Randall, Mr. Heaton, and Mr. E. Sherlock were to the fore. The most tastefully arranged hamper, prizes given by Messrs. R. P. Ker and Sons, was shown by Mr. F. Keightley, in which Cattleya labiata and oncidiums showed to advantage; Mr. E. Taylor second.

Fruit was very well shown throughout, Mr. Kelly winning for two bunches of black grapes, and Mr. Dickinson, gardener to H. A. Samuelson, Esq., for two bunches of white grapes with Muscat of Alexandria. For four dishes of apples Mr. Leadbeater led the way; Mr. Bustard second. For four dishes, culinary, Mr. Kelly was again to the fore with Winter Hawthornden, Alfriston, Lord Suffield, and Ecklinville. For eight varieties of vegetables, prizes given by Mr. T. Whalley, Liverpool, the winners were Messrs. G. Leadbeater, A Randall, and F. Field.

SHEFFIELD, November 10 and 11.

UNDOUBTEDLY the exhibition held at Sheffield on the above dates was the most successful held in the City of Blades for a very long time past. We are glad to note that the society is in a prosperous condition, and also that in its schedule it made several new departures. There was an imposing opening ceremony, at which the Lord Mayor (Alderman W. E. Clegg) said he had attended several shows promoted by the Sheffield Society, but, looking at the exhibits that day, he was amazed at the progress in cultivation which had been made. He could quite believe that the exhibition was the finest out of London, and he ventured to think that even London might have to take a back place.

CUT FLOWERS were first-rate, and in the leading open class for two dozen incurved blooms in not less than eighteen varieties the first prize was secured by Mr. C. Crooks, gardener to the Dowager Lady Hindlip, Droitwich, who staged specimens of Duchess of Fife (2), Topaze Orientale (2), Madame Ferlat, Wm. Tunnington (2), J. Agate, C. H. Curtis (2), Miss Dorothy Foster, John Lambert (2), Lady Isabel, Queen of England, Miss V. Foster (2), Lord Alcester, Mrs. Coleman, R. Petfield, Empress of India, Prince of Wales, Golden Empress, and Jeanne d'Arc, the best blooms being those of Topaze Orientale and J. Lambert; Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, second; and Mr. A. Alderman, gardener to J. D. Ellis, Esq., Worksop, third. There was a very keen contest for the leading award in the class for two dozen Japanese blooms, in not less than eighteen varieties, and here the winners were eventually placed as in the previous class, Mr. Crooks scoring with a fine, substantial lot of flowers, the varieties being Simplicity, Mrs. W. G. Palmer (2), Madame Gustave Henry (2), Australie (2), G. J. Warren, Eva Knowles, Madame Carnot, Pride of Madford (2), Ella Curtis, M. G. Bruant, Phœbus (2), M. C. Panckoucke, Modesto, Charles Davis, Edith Tabor, M. Chenon de Leche (2), J. Bidencope, and Mrs. H. Weeks. Mr. Crooks had the best twelve incurved, and Mr. Scott, gardener to J. Colley, Esq., Worksop, the best half-dozen blooms.

Mr. T. Morton, gardener to J. G. Lowood, Esq., Glossop Road, Sheffield, won first prize for a group of chrysanthemums arranged with other flowering and foliage plants, on a space of eighty-five square feet; Mr. E. Austin, gardener to L. Brett, Esq, Chesterfield, was second. Mr. Scott led for three specimens, incurved varieties, for three trained Japanese forms, and also for three pompons; he also scored first for British ferns and a group of primulas, coming second to Mr. Wenman, gardener to Viscount Halifax, Hickleton Hall, for table plants. In the amateurs' plant and group classes Messrs. Glossop, Banham, Walker, and Goodwin were the leading prize-winners.

Mr. F. G. Nelson, gardener to A. Barnes, Esq., Ashgate Lodge, Chesterfield, had the best black grapes; Mr. Alderman second; other winners in the first classes were Messrs. Stocks, J. Smith, and C. Scott.

Some fine non-competitive exhibits from Mr. Nelson, Catcliffe; Messrs. Hiram Shaw and Son; Messrs. Crosland Brothers, Handsworth; Mr. S. Seagrave, Gleadless; and Messrs. W. Artindale and Son, Sharrow Vale; they were attractive, and each gained a special silver medal.

DEVIZES, November 15.

A SMALL but excellent exhibition of blooms of high quality was held in the Corn Exchange on the above date. The exhibition is held by the Devizes Benevolent Society, and is in conjunction with a bazaar, the proceeds being devoted to relieving the necessities of the poor of the town during the winter months. The arrangements of the show as to the staging, &c., were well carried out by Mr. Thomas King, of The Castle Gardens, Devizes, and both staging and judging were got through in great comfort.

Six stands of twenty-four incurved, distinct, competed, and some very fine blooms were staged, especially by Mr. J. Dumble, gardener to Sir C. E. G. Phillips, Bart., Picton Castle, Haverfordwest, who had a well-finished, even collection of large size, chief among them being Madame Ferlat, Miss Dorothy Foster, Duchess of Fife, Ma Perfection, C. H. Curtis, J. Agate, Bonnie Dundee, Golden Empress, Mdlle. Lucie Faure, Queen of England, Violet Tomlin, Lord Alcester, Topaze Orientale, Globe d'Or, &c. Mr. C. J. Salter, gardener to T. B. Haywood, Esq., Woodhatch, Reigate, was second with a very good stand of blooms, though not without a few blemishes; he had C. H. Curtis, John Lambert, Jeanne d'Arc, Flora Macdonald, Queen of England, Ma Perfection, M. P. Martignac, &c.; Mr. W. G. Adams, florist, Clarendon Road, Southsea, was third. Mr. Salter came in a good first with twelve blooms of incurved, having a very even stand of flowers, chief among them Mrs. R. C. Kingston, Madame Ferlat, John Doughty, Globe d'Or, Ma Perfection, C. H. Curtis (of a very deep shade of yellow), Empress of India, Mrs. Heale, Jeanne d'Arc, John Lambert, and others; second, Mr. W. Robinson, gardener to the Right Hon. Lord Ludlow, who had in very good character Bonnie Dundee (of a great depth of colour), Duchess of Fife, C. H. Curtis, Alfred Salter, Madame Ferlat, &c.; third, Mr. R. Bassil, gardener to D. H. Evans, Esq., Shooter's Hill, Pangbourne.

The stands of twenty-four blooms of Japanese were a fine feature. The first prize was taken by Mr. F. E. Vallis, Bromham Fruit Farm, a grower who appears likely to take a high place as a successful exhibitor; the blooms were large, fresh, full, finely-developed, even, and brilliant, the leading varieties being Madame G. Henry, Oceana, Simplicity, Mons. C. de Leche (very free), Phœbus, Lady Hanham, Mrs. G. W. Palmer, Surpasse Amiral, Nina Daubbs, pure yellow, with very broad ribbonlike florets, Swanley Giant, Lady E. Clark, Madame Carnot, G. J. Warren, J. Lewis, Viviand Morel, and others equally good. Mr. C. J. Salter was second, having remarkably good blooms of Mr. T. Carrington, Charles Davis (having a singular depth of colour, approaching chestnut), Viviand Morel, E. Molyneux, President Bevan, Nellie Pockett, Edith Tabor, Mons. Panckoucke, Mrs. J. W. Barks, Elsie Teichmann, John Pockett, &c. Mr. Vallis took the first prize with a stand of twelve incurved Japanese, having a grand lot, chief among them being Mrs. W. H. Lees, Lady Ridgeway, Graphic, Western King, Modesto, Boule d'Or, the new form, Swanley Giant, Oceana, C. A. Owen, &c. Mr. C. J. Salter came second, he staging fine examples of Australie, Oceana, Mons. H. Jacotot fils, Lady Ridgeway, John Pockett, Nellie Pockett, The Convention, and others; third, Mr. F. G. Foster.

In the class for twelve blooms of Japanese, the exhibitors confined to the county of Wiltshire, Mr. H. Clack, gardener to Colonel C. E. Colston, Roundway Park, Devizes, was first, having in excellent character Western King, Edith Tabor, Lady Hanham, Beauty of Teignmouth, Oceana, Madame G. Henry, &c.; Mr. W. Robinson was second. In his stand were Joseph Chamberlain, Madame Carnot, John Pockett, Mons. Hoste, &c.

There were some excellent stands of anemone flowered varieties, Mr. H. Clack taking the first prize with capital examples of Robin Adair, Descartes, John Bunyan, Junon, W. W. Astor, Enterprise, &c.; Mr. C. J. Salter second, whose leading blooms were Delaware, John Bunyan, Descartes, W. W. Astor, Mrs. H. Gardiner, &c.; Mr. W. Robinson third.

The best group of sixty plants, arranged in a circle and forming a bold feature in the centre of the hall, came from Mr. H. Clack; good growth and fine blooms were conspicuous; an edging of dwarf foliaged plants gave a finish to it. Mr. W. Mantell, gardener to Colonel Dunn, Rowdeford, was second; Mr. G. Hillier, The Gardens, Manor House, Market Lavington, third. In the class for a basket of autumn foliage and berries twenty-one were staged, the first prize going to Miss Mabel Brookes, Devizes, Miss Buchanan second, and Miss Spackman third. Great interest seemed to be taken in this class by the numerous visitors. A stand of very pretty pompon varieties was staged by Mr. Salter.

GLOUCESTER.

THIS show, held at the Corn Exchange on the 9th and 10th, was a great success horticulturally. The arrangements were admirably carried out by the indefatigable secretary, Mr. Sidney S. Starr. The total number of exhibits in all departments was four hundred and ninety-five.

There was a grand lot of apples, but several of the best collections and single dishes had been polished too much. Potatos were a good lot, but perhaps not quite so clean in the skins as we have seen them, no doubt on account of the dry summer; other roots were fine, Messrs. J. C. Wheeler and Sons making a grand display.

Chrysanthemums made a grand display, but there was only one class for plants, and that a group. Here Mr. J. Aplin, gardener to W. M. Baker, Esq., carried off the first prize for the fourth time in succession; Mr. Tedmarsh, gardener to W. Cammidge, Esq., second. There were five competitors in the class. For twenty-four cut blooms, twelve incurved and twelve Japanese, Mr. Martin, gardener to T. W. Swinburne, Esq., was awarded the first prize, Mr. J. Aplin the second, and Mr. Marsh, gardener to T. W. P. Batt, Esq., was a good third. For twelve blooms, six Japanese and six incurved, the first prize went to Mr. Sourey, gardener to Sir Hubert Parry, this was a grand lot; Mr. Martin second. For twelve Japanese the first prize went to Mr. F. May, gardener to H. O. Lord, Esq., whose blooms were very fine indeed; Mr. Sourey gained the second prize.

The prize-winners for the collections of apples were Mr. J. Watkins, Mr. T. Morris, Mr. T. Palmer, Mr. Conway Jones (of rose renown), Mr. J. H. Wootton, Mr. D. Phelps, Mr. A. H. Taylor, and Mr. H. C. Organ. For single dishes the winners were Mr. G. Davis, Mr. H. C. Organ, Mr. G. T. Bates, Mr. J. Aplin, Mr. G. Marsh, Mr. F. Cowcher, Mr. E. G. Caddick, Mr. E. F. Bellamay, Mr. J. Watkins, Mr. T. H. Phelps, Mr. Martin, Mr. May, and Mr. Jones, gardener to G. Canning, Esq. Pears were not so largely staged, but Mr. J. Watkins, Mr. Conway Jones, Mr. E. F. Bellamay, Mr. Jones, Mr. G. Davis, and Mr. G. M. Collet took the principal prizes. For the best dish of nine tomatos the first prize went to Mr. Jones, second to Mr. F. Williams, third to Mr. J. Aplin. Mr. F. Williams, Mr. G. Davis, Mr. J. M. Collet, Mr. W. Williams, Mr. T. H. Phelps, Mrs. Bennett, Mr. E. Pool, Mr. Taylor, Mr. Aplin, and Mr. F. Chamberlain, gardener to A. Kuowles, Esq., gained the awards for potatos, while for carrots and parsnips Mrs. Bennett, Mr. F. Williams, and Mr. J. Aplin were the successful exhibitors.

NORTH OF SCOTLAND ROOT, FRUIT, AND VEGETABLE ASSOCIATION.

THE annual show of roots, fruit, and vegetables in connection with this association was held on Saturday, 5th inst., in the New Drill Hall, Inverurie, N.B. The weather was exceedingly fine, and in the new hall and outside grounds the display of produce was seen to the best advantage. The hall is well lighted from both sides, and exhibitors had every advantage in the way which their products were laid out. The usual arrangements had been made by the energetic and obliging secretary, Mr. Alex. Greig, Paradise, Inverurie, who was assisted by a splendid acting committee. The entries were considerably over six hundred, which is an improvement compared with last year.

In the section of the show appropriated to field produce, which was shown outside the hall, rarely have the size and quality of the roots been so uniformly good. Mr. Lawson, Scotsmell, took first place for green-top swedes, his exhibits being of good size and shape and true to name. There were other good entries from Glenlogie and Upper Ingliston. There was a very good display of green-top yellow turnips. Mr. James Reid, Cultray, was first, and Mr. Murray, Fauchfolds, ran him very close. Mr. Murray had the credit of taking first and second places for purple-top yellows with well-grown roots, but the green-top variety took the special prize for the best sample of yellows on the ground. The competition for the best collection of roots was pretty strong; but Mr. Moir, Shadowside, deserved his victory with a well-selected, useful lot of bulbs. In the section for field potatos there were exhibited several exceptional dishes, especially of the long white varieties. The round white class, where Mr. Nicol, Blairbowie, carried off the first prize, was not so large as has been seen at Inverurie, but the three first lots were very fine, the prevalent variety being Regent. Round coloured potatos comprised a number of superior dishes of fortyfolds and round blues, Mr. R. Cowie, Newlands, securing first and second places with good specimens. The long white potatos, in the opinion of one of the judges who has attended the show for over twenty years, was the finest seen at Inverurie. The most conspicuous varieties were the Up-to-Dates, Sutton's Abundance, and the Bruce. Mr. Paterson, Mill of Drumnahoy, was awarded first and second prizes for two very fine dishes of Up-to-Date of perfect shape and quality. It was remarked by the judges that some of the tubers were rather large, as extra size can only be cultivated at the expense of quality in the long run. The meritorious character of the class was evidenced by the fact that the judges gave nearly a dozen commendations. The piece of plate for the best dish in the hall was awarded to Mr. Paterson, Mill of Drumnahoy, for his magnificent Up-to-Date specimens.

Of garden produce there was an exceptionally fine display. For potatos Mr. James Ferguson, gardener to Mr. Craigie, Linton, Cluny, took not only the first prize in the class but the piece of plate with the same potatos for the best lot in the section. There was a fine display of six potatos of any variety, there being no fewer than twenty-four entries.

Fruit was not a large display in the aggregate, but the general quality of the apples was very good. The chief prize-takers in this section were: T. Middleton, Monymusk House; A. Campbell, A. Middleton, A. Beaton, and J. Ogston, Bourtie House.

The display of vegetables, notably leeks, onions, and baskets of vegetables, was the finest that has been seen at Inverurie for many years. For the prize for the best collection of vegetables there was not a large though a close competition, so close, indeed, that the judges had to divide the prizes between Mr. Ogston, Bourtie House, and Mr. Middleton, Manar.

MARKETS.

Covent Garden.

THERE are moderate supplies of most fruits and vegetables, and the demand is good. Green vegetables are inclined to be dear, and potatos remain firm. The best tomatos meet a brisk demand at good prices.

FRUIT.—English apples, 3s. to 9s. per bushel; Nova Scotian, 12s. to 24s. per barrel; French pears, 3s. to 5s. per case, 7s. to 10s. per crate; Californian, 4s. 6d. to 6s. 6d. per half-case; English grapes, 9d. to 2s.; Channel Islands, 6d. to 1s. per lb.; Almeria, 10s. to 16s. per barrel; Spanish melons, 5s. to 7s.; pomegranates, 4s. 6d. to 6s. 6d.; oranges, 10s. to 20s.; lemons, 12s. to 25s. per case; bananas, 5s. to 9s. per bunch; pineapples, 2s. to 5s. each; English tomatos, 3s. 6d. to 4s. 6d.; Channel Islands, 2s. 6d. to 3s. 6d. per 12 lb.; cobnuts, 40s. to 45s. per 100 lb.; English walnuts, 3s. 6d. to 4s. 6d. per bushel; Grenobles, 5s to 6s. per bag.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Cucumbers, 3s. to 4s. 6d.; endive, 1s. to 1s. 9d.; lettuce, 9d. to 1s. 6d.; cauliflowers, 1s. to 2s. per dozen; Dutch onions, 3s. 6d. to 4s. per bag; English, 4s. 6d. to 5s. 6d. per cwt.; Valencia, 5s. 6d. to 6s. 0d. per case; eschallots, 1s. 6d. to 2s.; garlic, 3s. per 12 lb.; mushrooms, 2s. 6d. to 3s. 6d. per half-sieve; parsley, 1s. 6d. to 2s.; carrots, 2s. to 3s.; turnips, 2s. 6d. to 3s. 6d. per dozen bunches; celery, 8s. to 12s. per dozen rolls; Brussels sprouts, 2s. to 2s. 6d. per half sieve; spinach, 2s. to 3s. per bushel; potatos, 60s. to 90s. per ton.

Borough Potato Market.

There are good supplies. Snowdrop and Up to Date, 75s. to 80s. per ton; White Hebron, Early Puritan, Bruce, Magnum Bonum, Sutton's Early Regent, Reading Giant, and Imperator, 65s. to 70s. per ton; Blacklands, 60s. to 65s. per ton; Abundance (Scottish), 60s. per ton; Germans, 2s. 9d. per bag.

THE WEATHER DURING THE WEEK ENDING NOVEMBER 12, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	58·6	39·1	49·6	9·78	0·02	0·05
Croydon	59·0	34·5	47·9	8·83	0·00	0·00
Brighton	60·2	40·0	52·0	11·11	0·06	0·15
Bristol	56·0	37·0	48·3	9·06	0·22	0·56
Wolverhampton	55·0	35·5	46·4	8·00	0·44	1·12
Norwich	59·6	37·2	48·2	9·00	0·12	0·30
Nottingham	56·4	34·4	46·3	7·94	0·09	0·23
Liverpool	54·9	43·3	48·0	8·89	0·39	0·99
Huddersfield	55·2	37·8	45·6	7·56	0·48	1·22
Bradford	53·4	41·4	40·5	8·06	0·04	0·10
Hull	54·0	36·0	46·4	8·00	0·08	0·20

The mean reading of the Barometer during the week at Greenwich was 29·85 inches, and that of the Thermometer 49°·6, the latter being 5°·4 above the week's average in the 50 years 1841—90. The direction of the wind was south-easterly, the horizontal movement of the air being 49 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 27·2 hours. The measured rainfall amounted to 0·02 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, NOVEMBER 21.—National Chrysanthemum Society, Floral Committee.

TUESDAY, NOVEMBER 22.—Royal Horticultural Society: Committees meet at 12 o'clock; Lecture at 3 p.m., by Mr. A W. Hall, Principal of the South Eastern Agricultural College, Wye, on "Artificial Manures in the Garden."

WEDNESDAY, NOVEMBER 23.—Newton Stewart Chrysanthemum Show.

THURSDAY, NOVEMBER 24.—Dundee Chrysanthemum Society; Three days.

FRIDAY, NOVEMBER 25.—Dunfermline Chrysanthemum Show; Two days.
Aberdeen Chrysanthemum Show; Two days.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, NOVEMBER 21, 22, 23, 24, AND 25—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, NOVEMBER 23.—Azaleas, Rhododendrons, Dwarf Roses, Hardy Border Plants, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

FRIDAY, NOVEMBER 25.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

NEARLY EVERY DAY.—Tulips, &c., Mr. J. C Stevens, King Street, Covent Garden.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Cypripedium insigne.—I. C., BATH: The flower sent represents a common form of Cypripedium insigne. It lacks breadth in the dorsal sepal, as well as colour and substance in the petals. In some of the best forms the dorsal sepal is very large, and has a large upper area of white; the green portion is finely spotted with varying shades of purple, and these spots are continued in paler form a little way into the white apex. Then the albino forms are, of course, very beautiful and valuable, C. insigne Sanderæ being especially fine.

Introduction of the Fuchsia.—Mum, Otley: The fuchsia was first introduced to cultivation at the end of the eighteenth century, and is supposed to have been brought home by a sailor, who grew it in his window. Here it was discovered by Mr. Lee, a nurseryman, of Hammersmith (the firm of Lee and Son still exists), who purchased and propagated it. The fuchsias of gardens are a very mixed race; in the first place seedlings were obtained from the long-flowered species, and these were crossed, re-crossed, and selected according to the particular end in view of the florist who made them a speciality.

Seedling Apple.—J. W., Sutton Coldfield: It is hardly fair to expect us to form a definite opinion as to the merits of a seedling apple from one fruit, and that a small one. We need some particulars as to the habit of the tree, fruitfulness, stating quantity produced each year if possible; also date of ripening, information with regard to its keeping qualities, and its usefulness for cooking or dessert. The apple sent had been gathered before it was ripe, but if it is a good dessert variety when in condition it possesses some merit, for it also has high colour to recommend it; it is rather a soft apple, however. If full particulars and several specimens are sent we will gladly give an opinion of the merits of the variety.

Wintering Tuberous Begonias.—NOVICE: Lift the plants and remove the remaining growth, shake away the soil, and then allow the stool to dry. The tubers may be shaken quite clean of soil, and then stored in boxes in a temperature of about forty degrees, where no moisture reaches them; or they may be placed closely together in shallow boxes, without having quite all the soil removed, placing fine, dry soil or cocoanut fibre refuse about them. Under these conditions they may be kept in a cupboard or on a cellar shelf until next spring, provided they are kept dry and free from frost. There is no real difficulty in keeping begonia tubers through the winter, provided frost and moisture are kept from them. The difficulty will be to start them into growth early in the spring without the aid of pits or greenhouse, for if left to start at will they are likely to be late in making good plants.

Names of Plants.—T. C., Glastonbury: Fontanesia phillyræoides.

Names of Fruit.—F. J. B., Hartlebury: 1, Withington Fillbasket; 2, Fearn's Pippin; 3, Five-crown Pippin; 4, Warner's King; 5, Ribston Pippin; 6, King of the Pippins.

G. J. W., Farnham: 1, Lord Derby; 2, Mère de Ménage; 3, Egremont Russet; 4, Court of Wick.

S. J. F., Bedford: 1, Fearn's Pippin; 2, Minchull Crab; 3, King of the Pippins; 4, Golden Noble; 5, Dumelow's Seedling; 6, Reinette du Canada.

C. A., Hendon: 1, Histon Favourite; 2, American Mother; 3, Adam's Pearmain; 4, Alfriston; 5, Lane's Prince Albert.

H. C., Hitchin: The pear is Doyenne du Comice; the apple, Old Hawthornden.

S. E. A., Yorks: 1, Flemish Beauty; 2 and 5, we cannot see any real difference in the two specimens sent; No. 2 is Hacon's Incomparable, and if No. 5 is a characteristic fruit it is the same variety; 3, Beurré Diel; 4, Maréchal Dillon; 6, Beurré de Jonghe.

F. H. Pike, Herts: 1, Tom Putt; 2, Cox's Orange Pippin; 3, Dumelow's Seedling.

W. H., Middlesex: 1, Bramley's Seedling; 2, Leathercoat Russet; 3, Lemon Pippin; 4, Dutch Mignonne; 5, Lord Derby.

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IMPORTANT DISCOVERIES OF GOLD are no doubt of great value to Society, especially at a time like the present, when the money market is so tight and poverty so distressing. Still, however, there are some things in this world far more precious than gold, in spite of the immense influence it wields over mankind. Health, for instance, cannot be purchased for money, but it may be preserved and secured by the use of Holloway's Pills. No family should be without them, as they are equally good in their effects for either old or young. No complaint can for long withstand their healing power. They drive out all impurities from the blood, strengthen the digestive organs, and cleanse the stomach.—[ADVT.]

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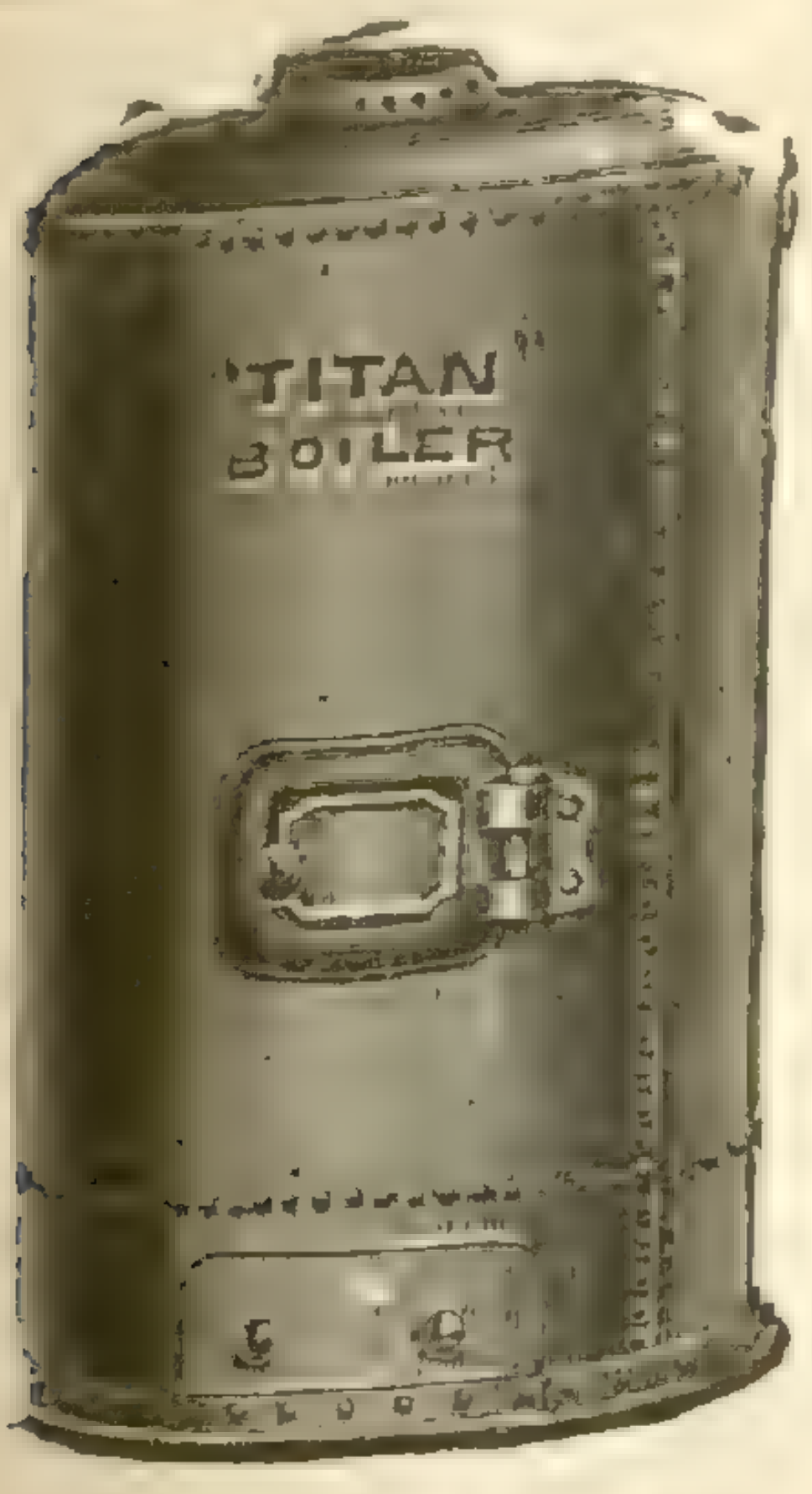

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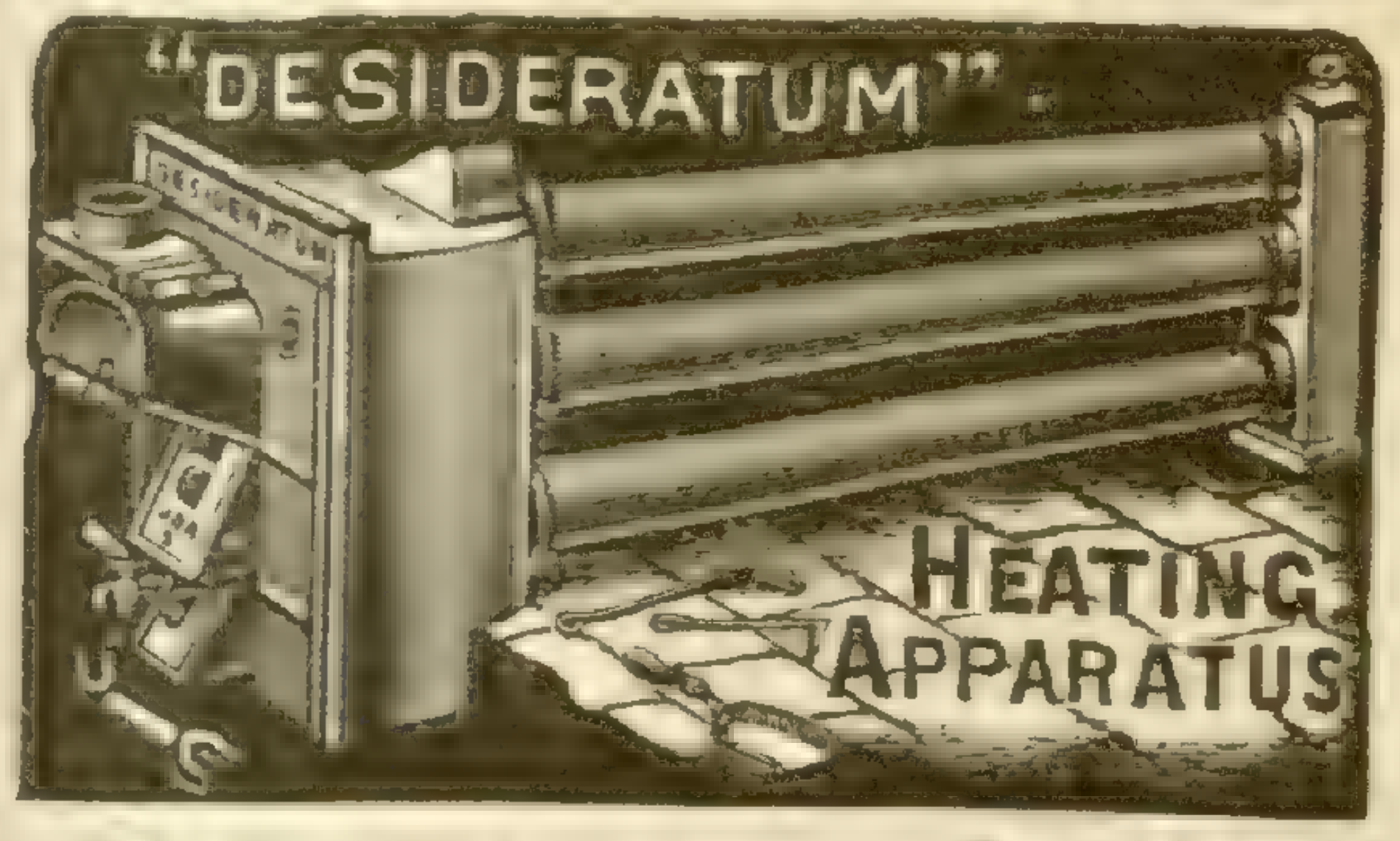

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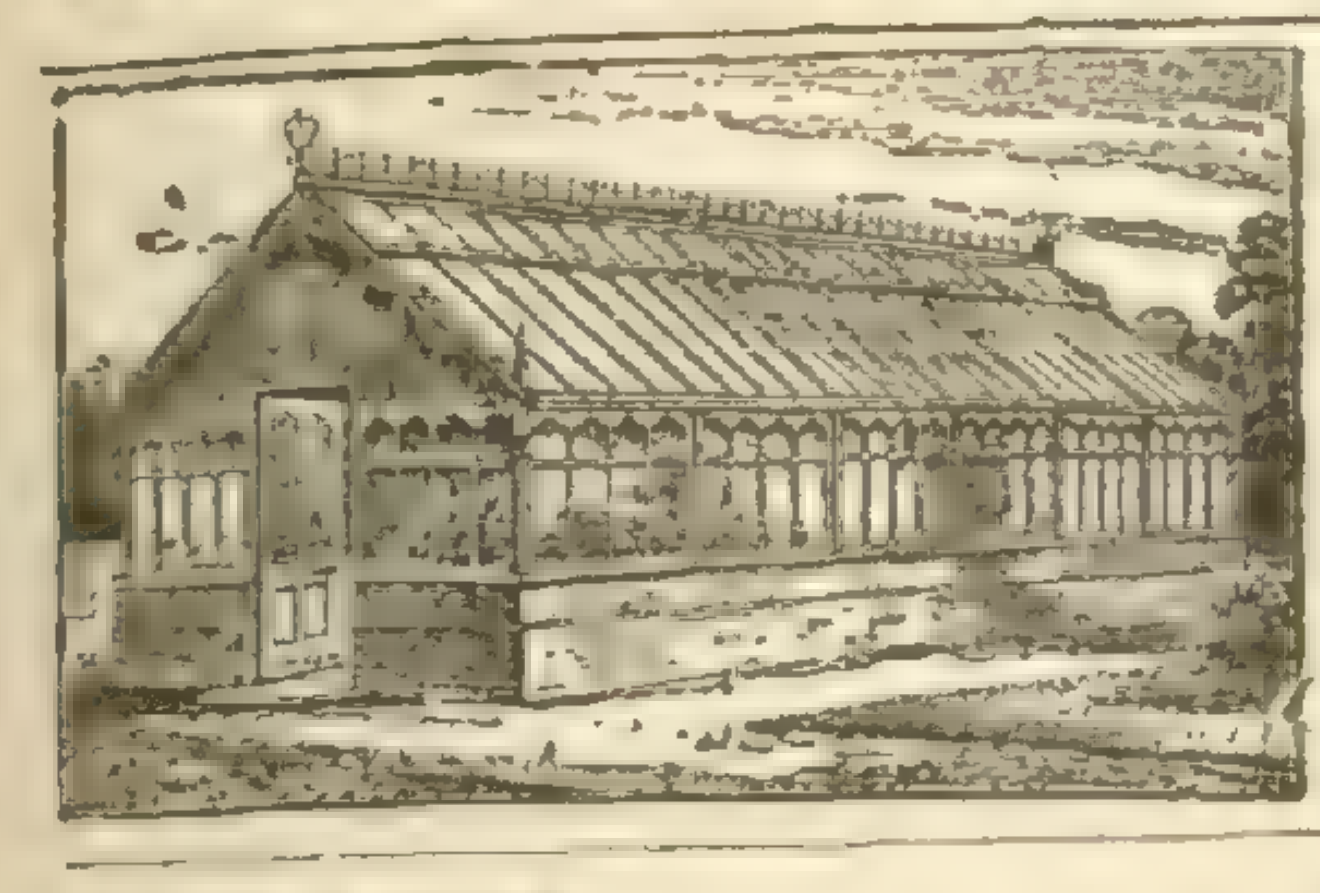

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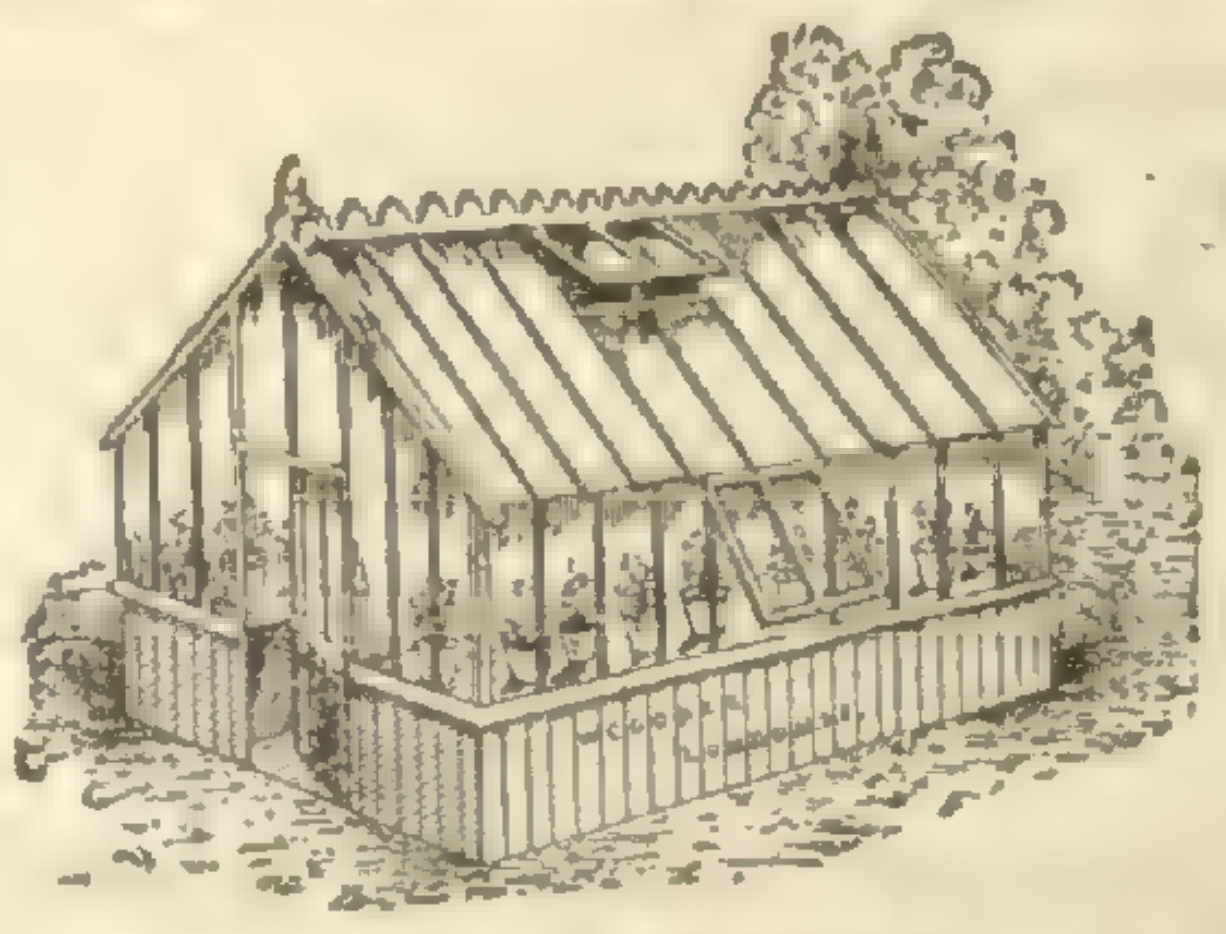

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12	8	8 0	5 0	6 0 0	8 0 0
15	10	8 6	5 0	8 10 0	12 0 0
20	10	9 9	5 6	12 0 0	16 0 0
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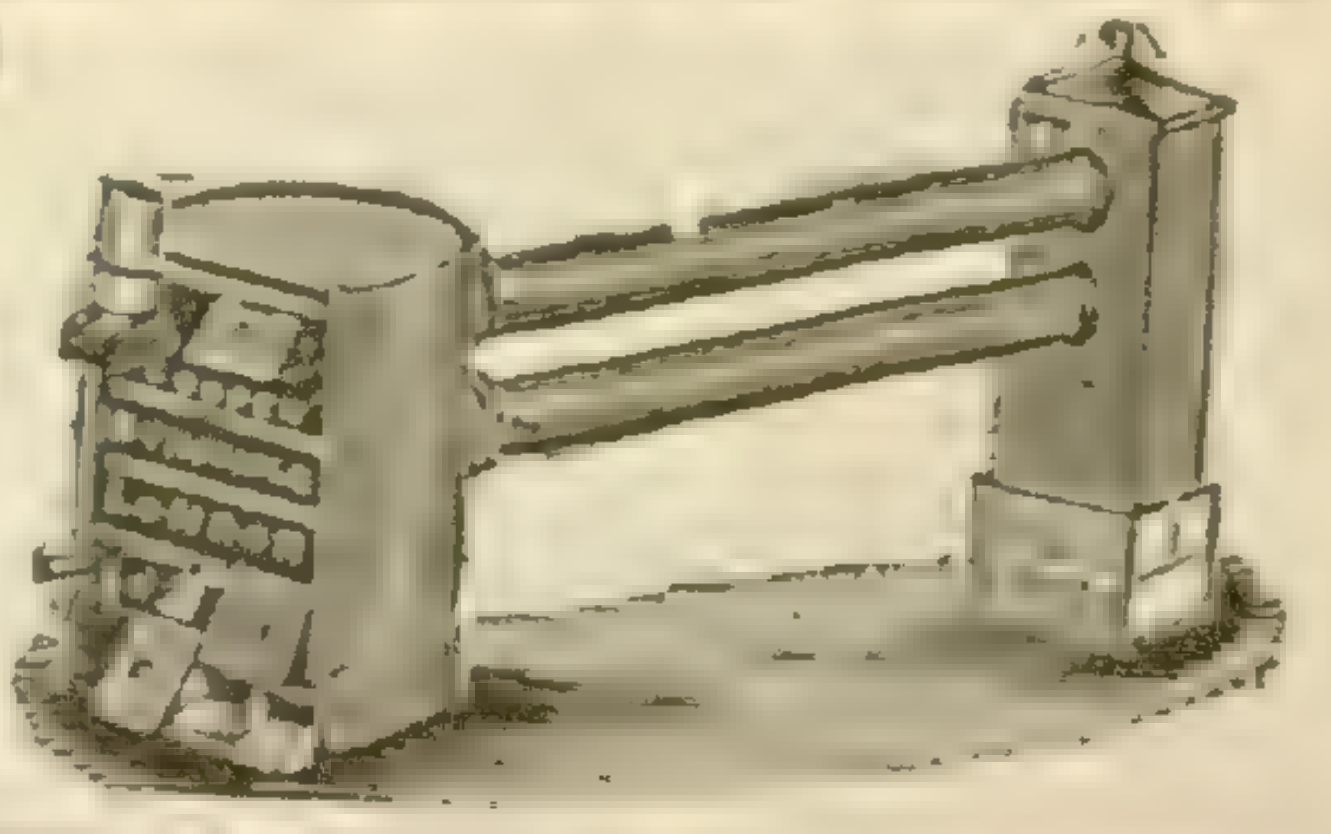

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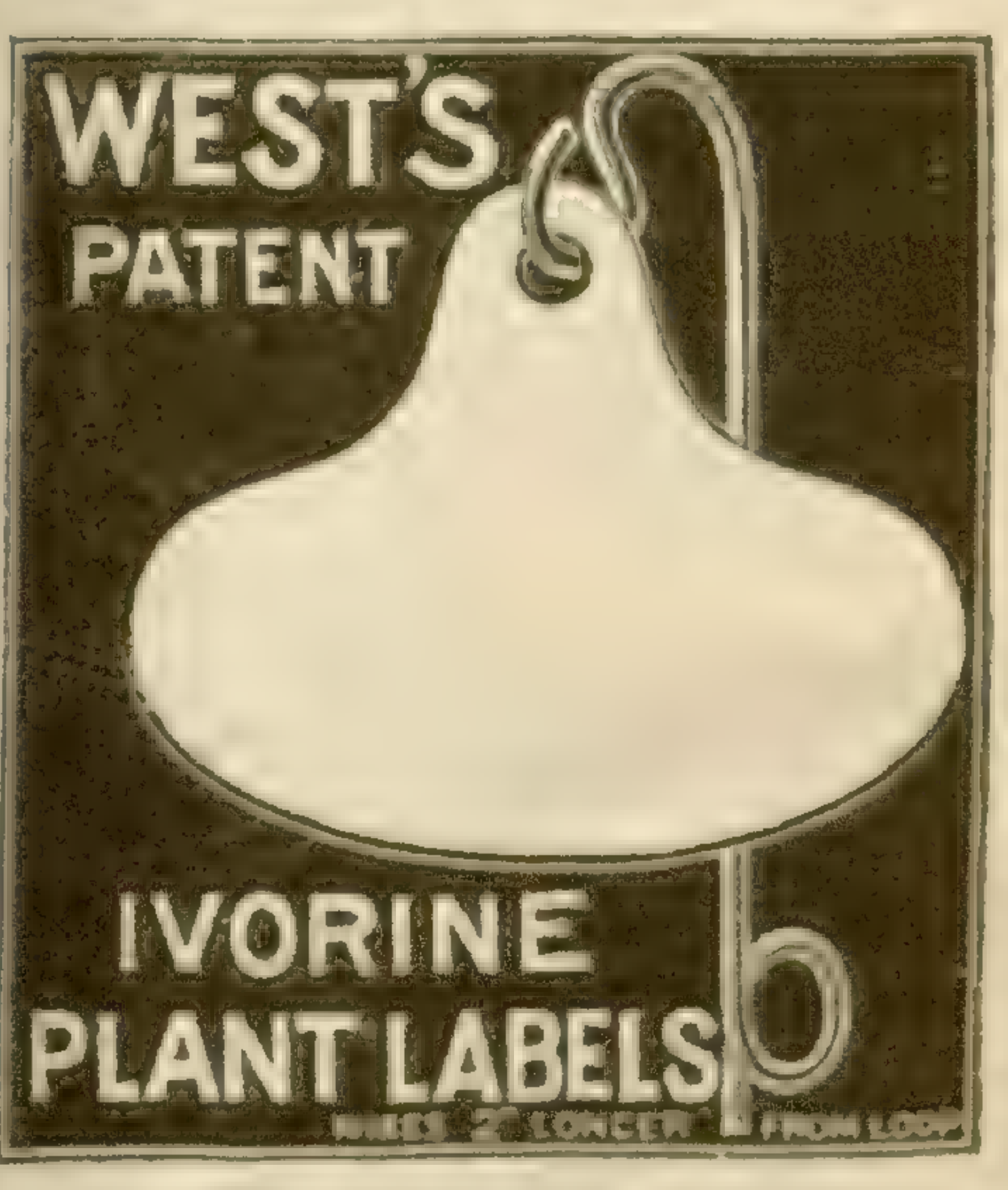

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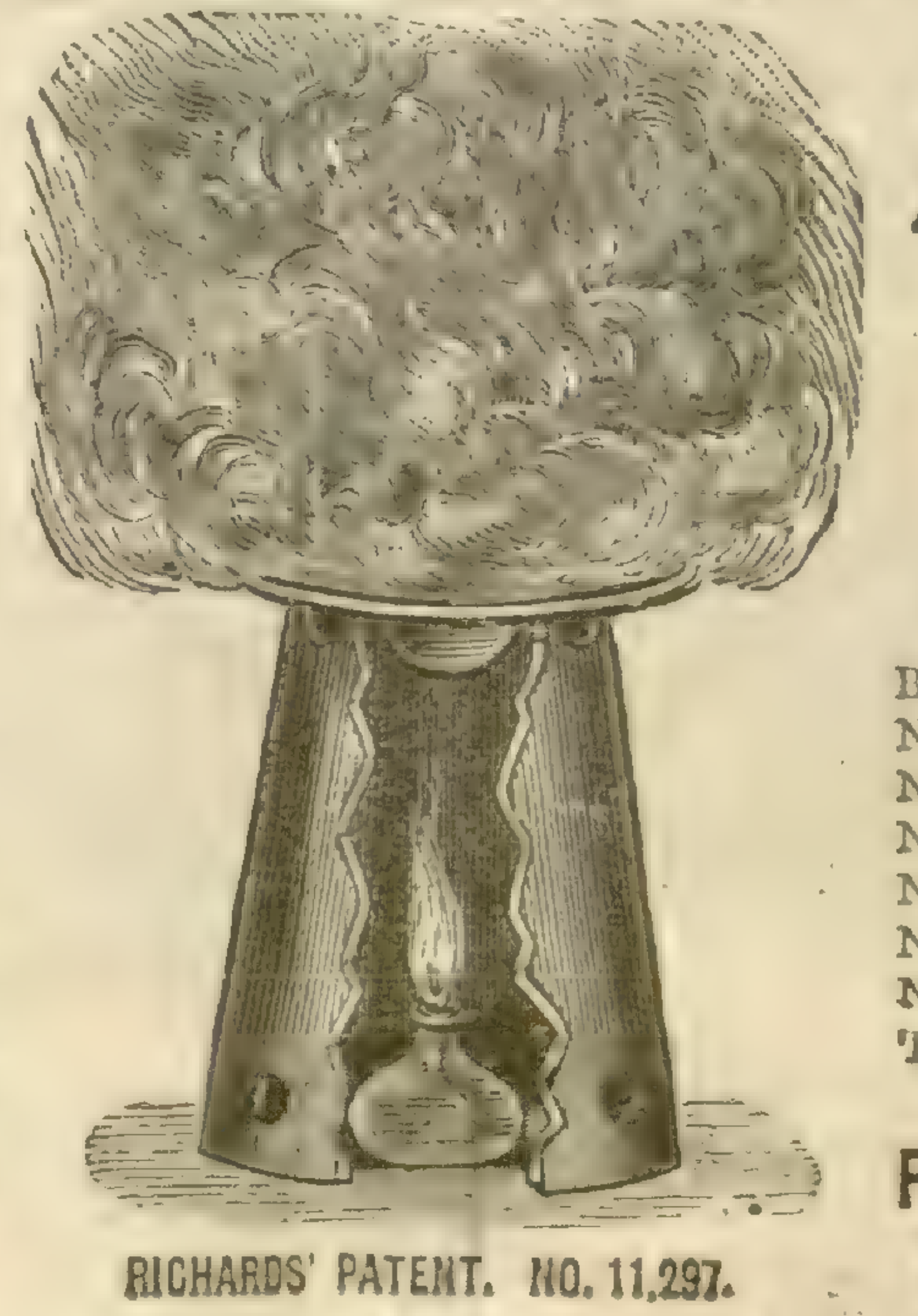

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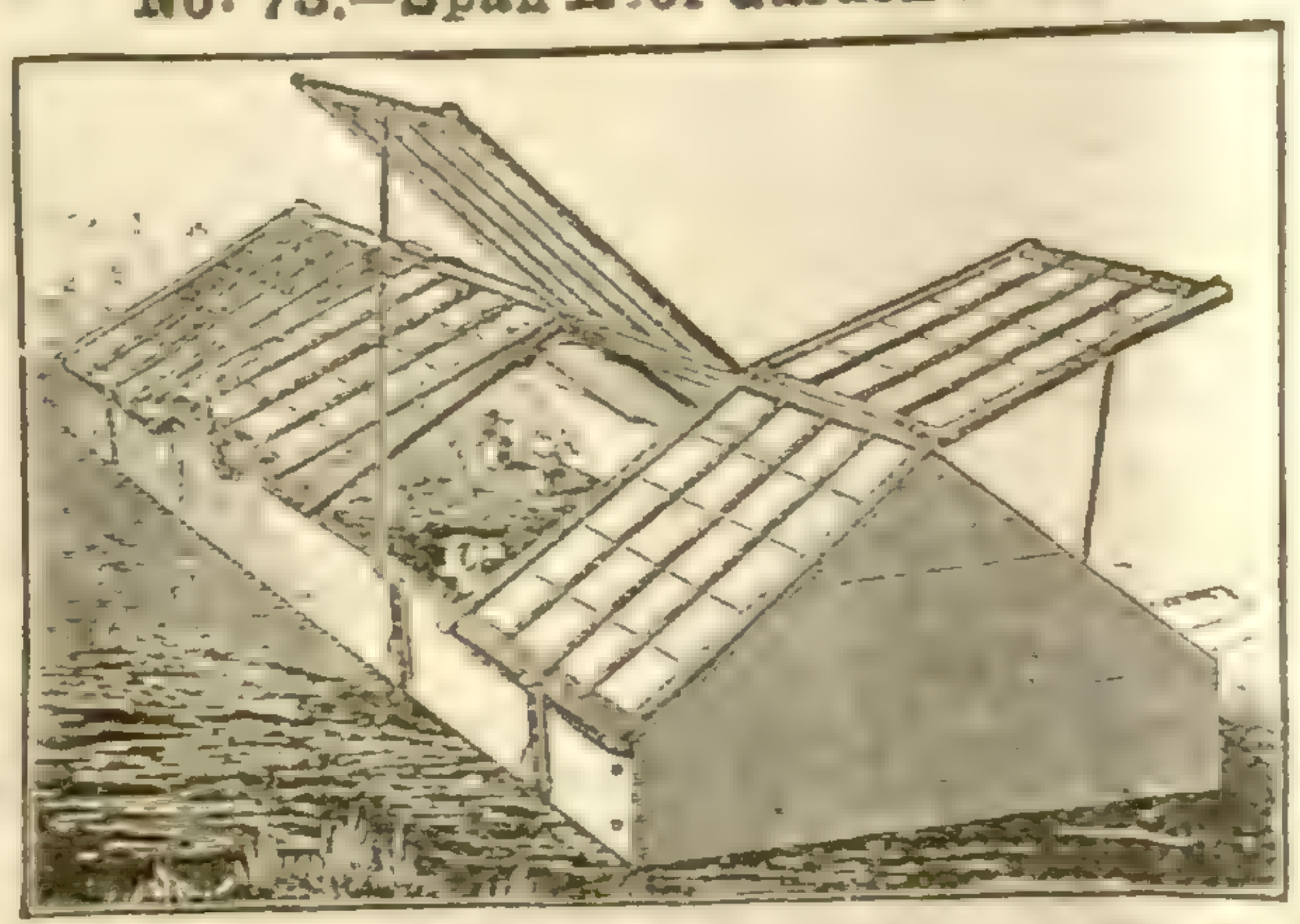

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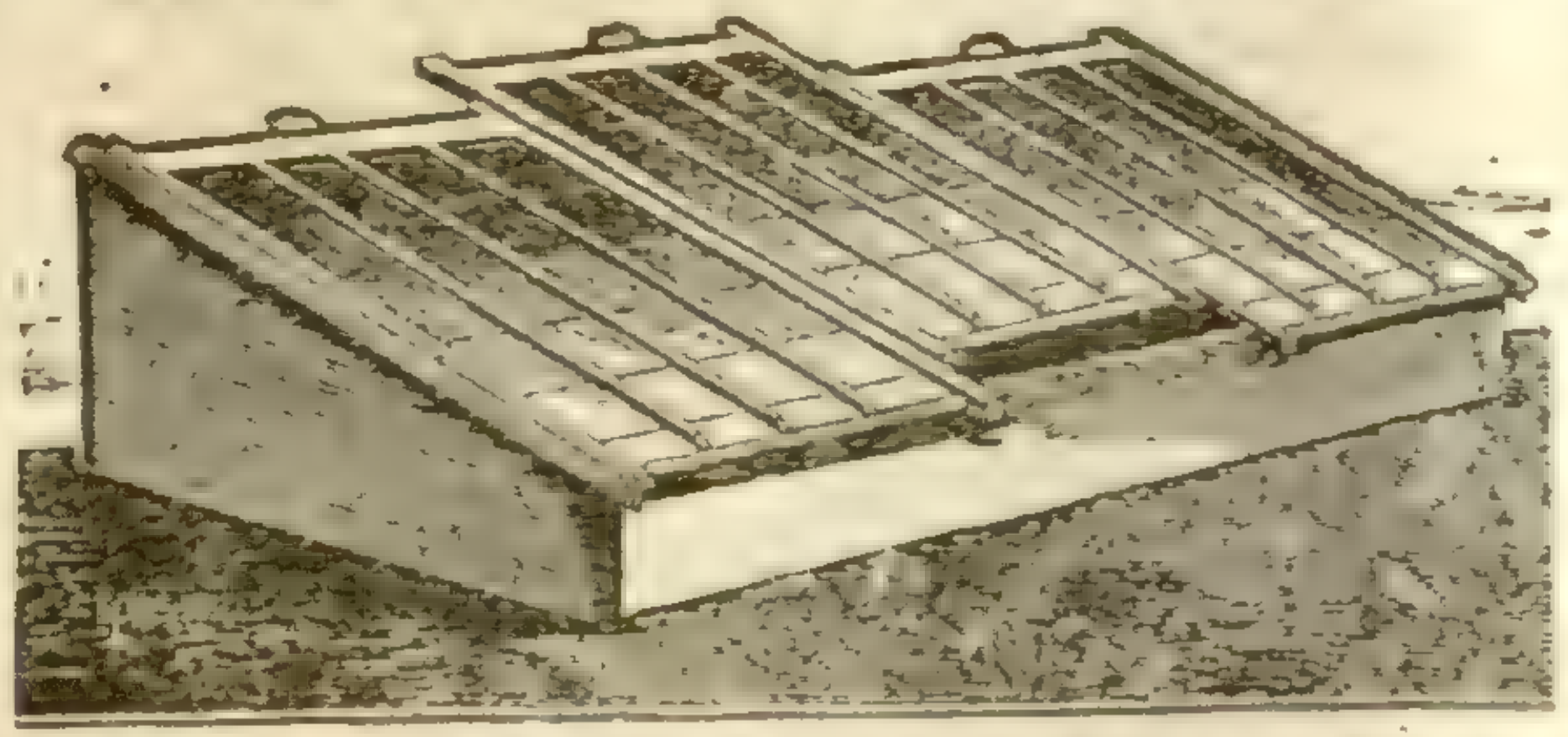

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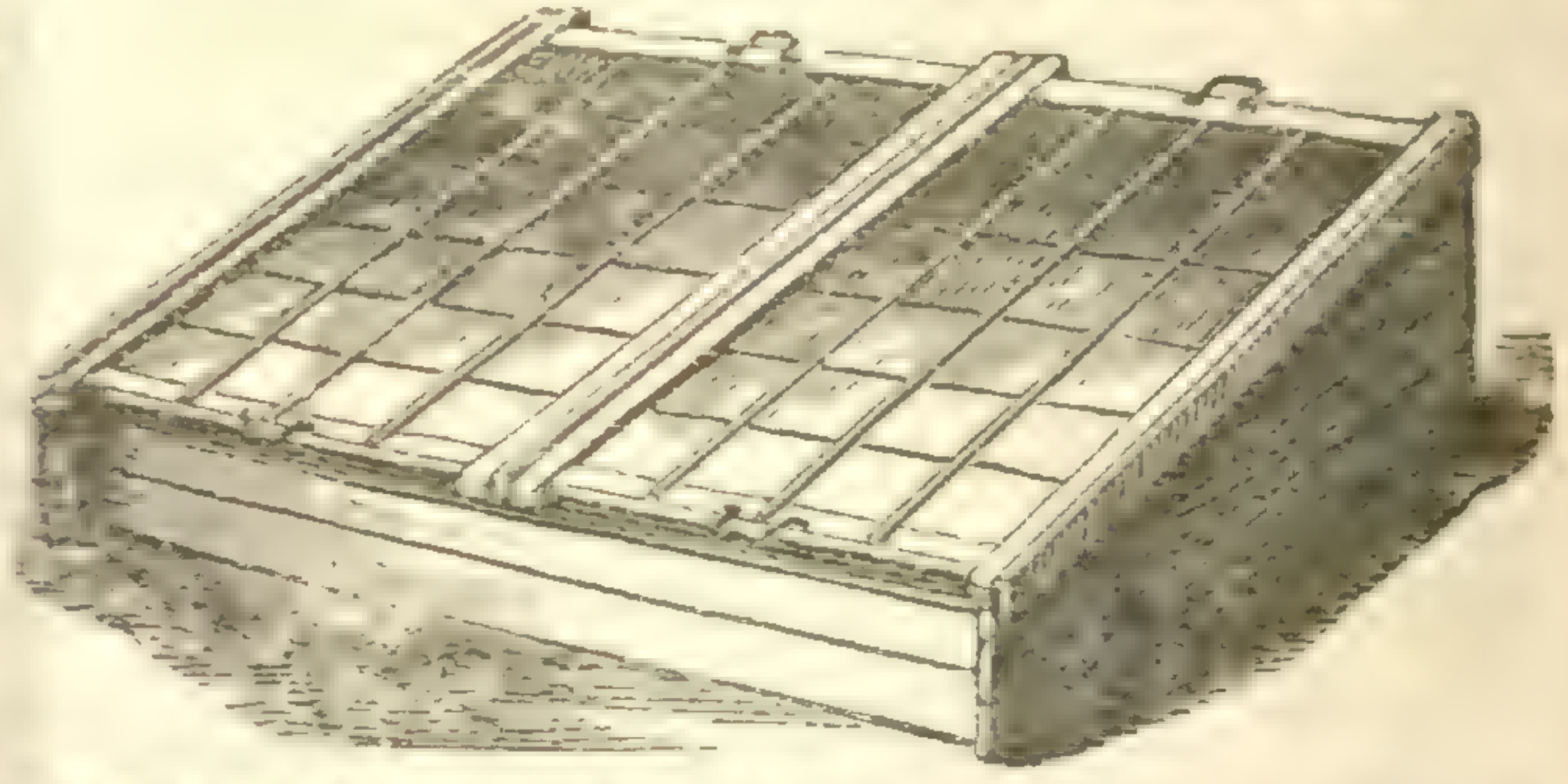

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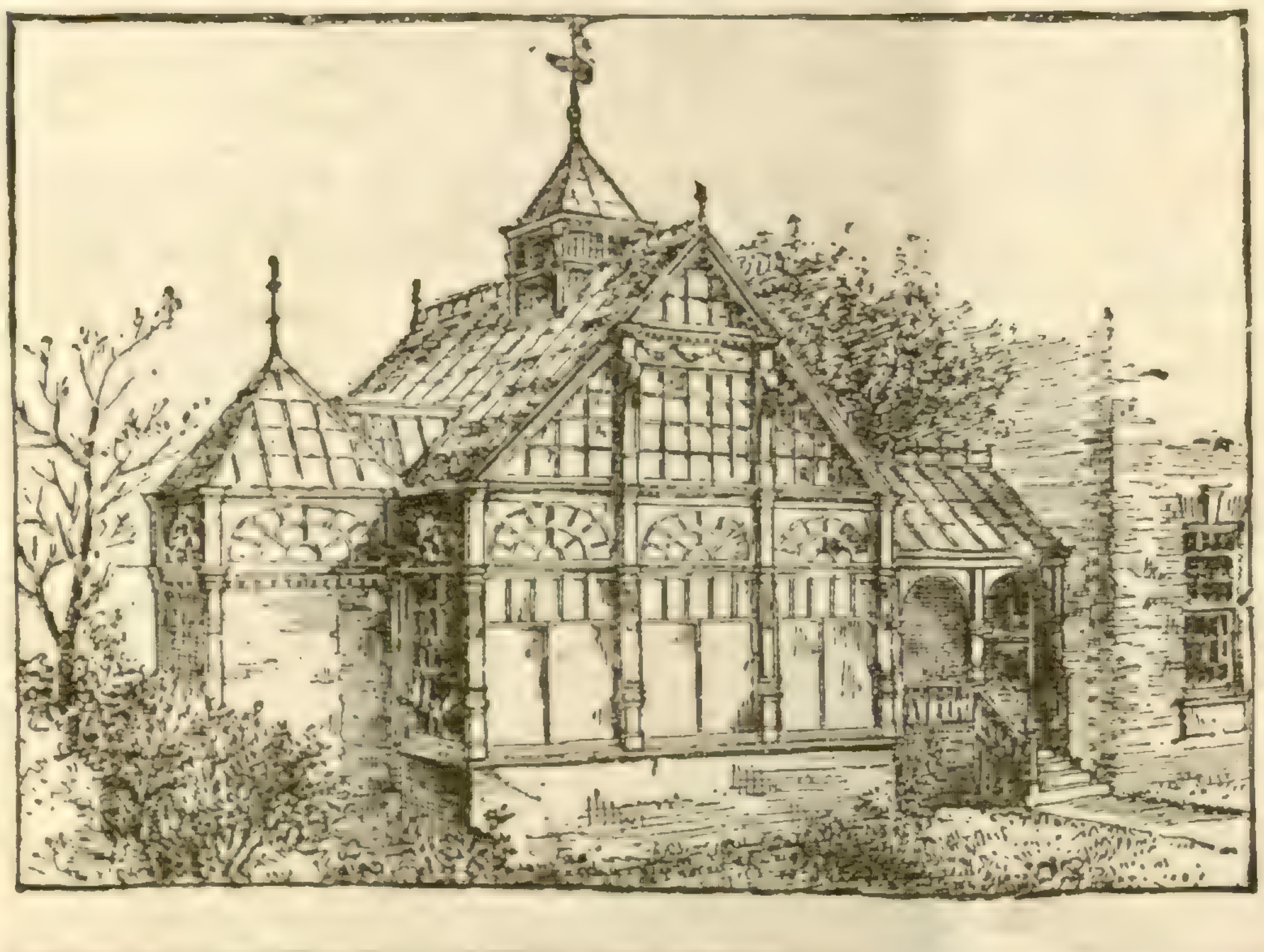

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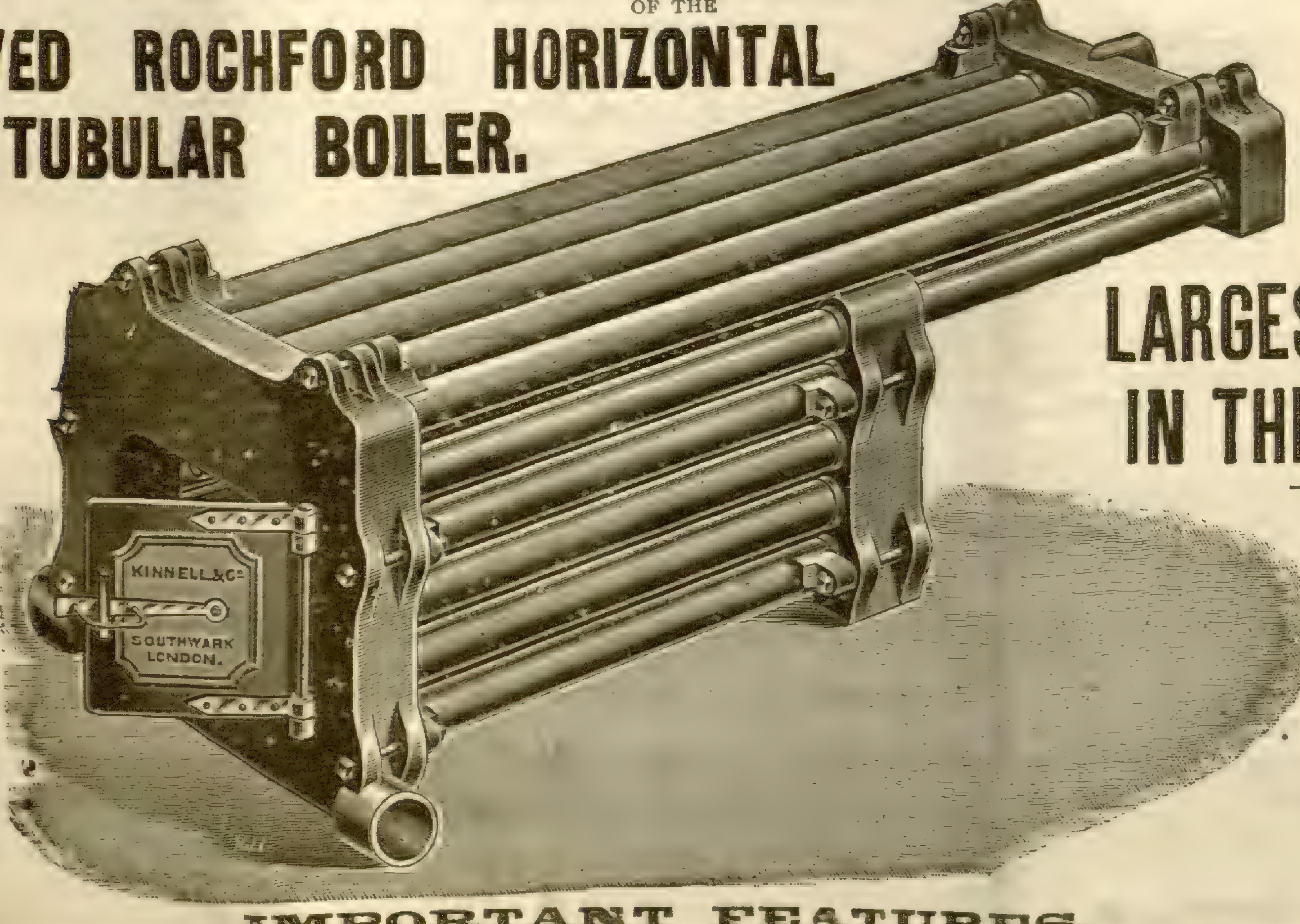

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FLOWER GRIP-HOLDER. — WEST'S PATENT SELF BUTTON-HOLE FLOWER HOLDER, holding the flowers firmly and water tight, also for [illegible] and decorative purposes. Price 6d., from all Florists, &c. See large advertisement.

Sales by Auction.

GREAT SALES OF DUTCH BULBS

Every Day except Saturdays.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, Cheapside, London, E.C., as above, at Eleven o'clock each day, large consignments of named HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH BULBS, together with WHITE ROMAN HYACINTHS, and PAPER-WHITE NARCISSUS, received direct for unreserved Sale.

On view Mornings of Sale, and Catalogues had.

Friday Next.

IMPORTED AND ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., on FRIDAY next, DECEMBER 2nd, at Half-past Twelve o'clock.

On view Morning of Sale, and Catalogues had.

Hounslow, Middlesex.—Clearance Sale.

GREAT SALE of FRUIT TREES and OTHER STOCK, by order of Messrs. S. SPOONER AND SONS, who are clearing a portion of the ground at their Wellington Road Nursery.

IMPORTANT TO MARKET GARDENERS, FRUIT GROWERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, THE WELLINGTON ROAD NURSERY, HOUNSLOW, about twelve minutes from Hounslow and Whitton Station (L. and S. W. Railway), on WEDNESDAY, DECEMBER 7, and two following Days, at Twelve o'clock precisely each day, about

50,000 FRUIT TREES,

comprising a fine assortment of STANDARD, PYRAMID, and BUSH APPLES, PEARS, and PLUMS, including 1,500 Stirling Castle, 1,000 Ecklinville, 500 Worcester Pearmain, 1,000 Duchess Favourite, and Hundreds of Keswick Codlin, Hawthornden, Wellington, Domino, Grenadier, Royal Jubilee, and most of the leading kinds of Apples; 5,000 Victoria, 1,000 Rivers' Early Prolific, 500 Czar, 2,000 Monarch, 1,000 Pond's Seedlings, 500 Prince of Wales, 500 Grand Duke, and other varieties of Plums; 4,000 MORELLO CHERRIES, 3,000 DWARF TRAINED PEACHES, NECTARINES, and PLUMS, 1,000 EARLY RIVERS' NECTARINE (New), several Thousands of Apple, Pear, and Plum Stocks, fit for working, 2,500 STANDARD and DWARF ROSES, and other Miscellaneous Stock.

May be viewed. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Monday, Tuesday, and Wednesday next.

GREAT THREE DAYS' SALE OF PLANTS AND BULBS.

MR. J. C. STEVENS will SELL BY AUCTION at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, as above, at Half-past Twelve precisely each day, an enormous importation of Hyacinths, Tulips, Crocuses, Narcissus, Lilies, and other Bulbs, thousands of Ornamental Shrubs, Flowering Trees, Roots, &c. Palms and Azaleas from Ghent. English and Foreign Roses. Fruit Trees, Border Plants, &c., &c.

On view Mornings of Sale, and Catalogues had.

ORCHIDS! ORCHIDS!!

Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
,, Charlesworthii ...	,, ...	2/- ...	3/- ...	5/-
Cattleya Labiata ...	in sheath ...	3/6 ...	5/6 ...	7/6
Vanda Cœrulea ...	in spike ...	/9 per leaf.		
,, Kimballiana ...	,, ...	2/- ...	3/- ...	5/-
,, Amesiana ...	,, ...	2/- ...	3/- ...	5/-
Lilium, Napalense, and Wallichianum		1/6 ...	2/6 ...	3/6

J. W. MOORE (Ltd.), Orchid Importers, Rawdon, near Leeds

DON'T BELIEVE ME! COME!

and see for yourself that my Stock of Chrysanthemums is absolutely free from Rust or Disease of any kind.

Inspection cordially invited.

Catalogues now ready, Post Free 1d.

Catalogue and Cultural Guide, 7d.

H. J. JONES,
Ryecroft Nursery, Lewisham, S.E.

☛ SPECIAL OFFER.

SPIRÆA JAPONICA, extra large clumps, per doz., 2/6.

Do. PALMATA, beautiful pink variety, per doz., 3/6.

LILIUM Lancifolum, Rubrum, and Roseum, per doz., 3/6.

GLADIOLUS Brenchleyensis, per doz., 9d. & 1/-. Very scarce. Ditto, The Bride, per 100, 2/6

LILIUM Auratum, expected shortly, will be very scarce this season.

ORDER EARLY

DUTCH BULBS.

Send for our SPECIAL OFFER at once, post free.

CANNAS, Mixed, from choicest named varieties, per doz., 4/

The CHEAPEST HOUSE for every description of Bulbs and Garden Sundries.

MICHAEL RAINS & CO.,
BULB GROWERS,
34, Mansell Street,
ALDGATE, LONDON, E.

FRUIT TREES A SPECIALITY.

S. S. MARSHALL, Limited, offer an immense stock of strong, well-grown Trees of every description. All the best varieties in cultivation, true to name.

Special Cash offer, Carriage Paid.

FRUITING TREES.

APPLES
PEARS
PLUMS
CHERRIES
Pyramids, Bush, Standards, and Cordons, 1/6 each, 15/- doz.; extra selected, 2/- to 3/- each, 18/- to 30/- doz. Horizontal and Fan-trained for walls or walks, 2/- to 3/- each.

PEACHES
APRICOTS
NECTARINES
Trained Trees, fine, 3s. 6d. each.
Do. extra selected, 5s. each.

Low Terms quoted for quantities of 100 and upwards.

GOOSEBERRIES, market sorts, strong, 3s. 6d. dozen; 25s. per 100.

CURRANTS, market sorts, strong, 3s. dozen; 22s. 6d. 100.

RASPBERRIES, Red, 1s. 6d. dozen, 10s. 100; Yellow, 2s. dozen.

STRAWBERRIES, 1s. dozen, 3s. 6d. 100.

Orders of £1 and upwards CARRIAGE PAID for cash with order, to any station in England. Full Descriptive Catalogue on application.

ROSES.

A grand stock of especially fine plants can be offered this season. Stout, well-ripened wood and fibrous roots. All the best Exhibition and Garden varieties. Descriptive Catalogue on application.

Dwarf H.P. ...	6s. dozen ...	30s. 100.
Standard H.P. ...	15s. dozen ...	£6 100.

S. S. MARSHALL, Ltd.,
Barnham Nursery, Barnham Junction, Sussex.

For sturdy growth and abundance of root, none can beat the

SALISBURY ROSES.

CATALOGUES GRATIS.

KEYNES, WILLIAMS, & CO.,
ROSE GROWERS, SALISBURY.

CHRYSANTHEMUMS.

BEST RESULTS

Are obtained by starting with healthy country-grown Plants and Cuttings. To prove that GODFREY'S STOCK IS SECOND TO NONE it is only necessary to point to the fact that he has been awarded in one season more Certificates by the National Chrysanthemum and Royal Horticultural Societies for Exhibition Japs than *all other trade growers combined.*

Every bloom so certificated was grown in the Exmouth Nurseries, and had not been "put to be grown," as many frequently are by Chrysanthemum Specialists. Further comments are needless.

CATALOGUES.—Godfrey's Descriptive Catalogue should be in the hands of all, amateur or expert. It contains more *Practical, Reliable, and Interesting matter than any other published.* Post free.

W. J. GODFREY,
EXMOUTH, DEVON.

CHRYSANTHEMUMS!
CHRYSANTHEMUMS!!

Calvat's '98, '97, and '96 sets, and other choice sorts. Strong cuttings. True to name. Absolutely free from disease, and at prices cheaper than any other grower. All orders post free. List free on application.

A. J. WILLMOT,
WITHYCOMBE, EXMOUTH, DEVON.

B·R·CANT'S
ROSES

DESIGN REGISTERED

During the Season of 1898

WON THE CHAMPION TROPHY of the National Rose Society, London.
WON THE QUEEN'S CUP, at Windsor, for the second time, becoming owner.
WON THE RICHMOND CUP, Presented by the Mayor of Richmond.
WON THE WOODBRIDGE CUP, for the second time.
WON THE ELY CUP for the second time.
WON THE BATH CUP, Presented by the Mayor of Bath.

BESIDES NUMEROUS OTHER FIRST PRIZES at all the principal Shows throughout the Country.

This record of prizes is sufficient guarantee that the plants for sale from these Nurseries this Autumn must be of the finest quality to have produced such wonderful results.

Priced Catalogue of Standard, Half-Standard, Dwarf, Climbing, and other Roses,
Free by Post on application to

BENJAMIN R. CANT, ROSE GROWER, COLCHESTER.
ESTABLISHED 133 YEARS.

JOHN WATERER and SONS, Limited,

AMERICAN NURSERY,

BAGSHOT, SURREY,

Beg to call attention to their magnificent stock of

HARDY RHODODENDRONS, AZALEAS,

CONIFERS, EVERGREENS, DECIDUOUS TREES, &c.

☛ INTENDING PLANTERS WOULD DO WELL TO INSPECT THE NURSERIES. ☚

CATALOGUES ON APPLICATION.

Situations Wanted.

Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

THREE INSERTIONS FOR THE PRICE OF TWO!

AS GARDENER (Head or Single-handed); twenty years' thorough practical experience in all [illegible]; age 35; married, one child; good references.—W. PEARCE, The Gardens, Ewelme Manor, Wallingford, Berks.

GARDENER (Head).—Henry Naylor (late with Spencer W. Gale, Esq., Holywell Park, nearly three [illegible]) is seeking a situation. Previously with Lord Rosslyn and Sir Hugh Adair, Bart. Is strongly recommended in testimonials to lady or gentleman wanting a capable working gardener with reliable character. Age 39; married; no family.—Address Vine Cottage, Meopham, Gravesend.

GARDENER (Head, or good Single-handed); age 30; married; well up in all kinds of Plants, Fruits, and Vegetables; good references.—E. POSNETT, 38, [illegible] Road, Stamford Hill, N.

GARDENER (Head), where two or three are kept; age 35; married; experience in all branches of gardening; good references.—A. HUNT, Hooley Nursery, Purley, Surrey.

GARDENER (Head Working); age 28; life experience in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, kitchen and flower garden, &c.; good references.—F. COLLYER, Castle Hill, Rotherfield, Sussex.

GARDENER (Head Working — Scotch), where two or more are kept. Life experience in all [illegible], Inside and Out, including bees. Highest references; [illegible] in last situation.—WM. CLARK, Rose Cottage, B[illegible], Basingstoke.

GARDENER (Head Working), where two or three are kept; age 28; single; good all-round experience.—Address GARDENER, 274, Romany Road, West Norwood.

GARDENER (Head Working) where two or three others are kept; age 27; married; 12 years' good practical experience in all branches; first-class references.—E. STRANGE, The Grange, Hindhead, Haslemere.

GARDENER.—Vicar Highly RECOMMENDS thorough honest, trustworthy Man. Single-handed, or where boy is kept. Age 27; total abstainer; accustomed to glass; excellent testimonials; good 6 years' character; no children.—B. B., Winkfield, Windsor.

GARDENER (Single-handed). Single. Life experience; Inside and Out; age 25 years; good references, also character.—Address C. TANNER, Grove Lodge, Nursling, Southampton, Hants.

JOURNEYMAN (Second or Third), inside, in gentleman's establishment; three years' experience; age 19; good character and reference.—J. REDDING, Holbrook, Ipswich, Suffolk.

To Fruiterers, Florists, Seedsmen and Nurserymen.

MANAGER or SHOPMAN.—Situation wanted as above; experienced in Seeds, Bulbs, Sundries, Plants, Cut Flowers, and Making-up Trade; age 32; good references.—J. MORRIS, 6, Union Street, Andover.

RICHARD SMITH and CO., beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

SHOPMAN.—Well up in Seeds, Bulbs, Wreaths, Crosses, Plants, and general nursery stock; good salesman; age 35; twenty-one years with present employer.—F. PRIME, Trumpington, Cambridge.

YOUNG MAN, age 22, seeks SITUATION as Gardener, Second of four, or First of two; understands Vines, Peaches, Tomatos, and gardening generally; abstainer; good references.—H. HODGES, Guy's Cottage, Hollyport, Maidenhead, Berks.

YOUNG MAN (age 20); five years' experience with good firms, desires situation in nursery; would accept small wages if good opening and insight into business to be obtained.—G G, 2, Ramsbury Road, St. Albans.

Situations Vacant.

Advertisements under this heading are charged 2s. 6d. for Four lines (32 words), and 6d. per line of eight words after.

GARDENER WANTED (Single-handed) for Beckenham, Kent; age about 30; must have thorough knowledge of kitchen and glass; grounds three-quarter acre; single man preferred; live out; first-class character indispensable.—Apply by letter only, stating full particulars and wages required, to GARDENER, 107, Cheapside, London.

IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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For Market and Private Growers.

ORNAMENTAL TREES, SHRUBS, &c.

Descriptive Catalogues Post Free.

J. CHEAL & SONS
Crawley, Sussex

ICETON'S

RETARDED and NON-RETARDED

LILY OF THE VALLEY

(SPECIALS).

CROWNS or FLOWERS

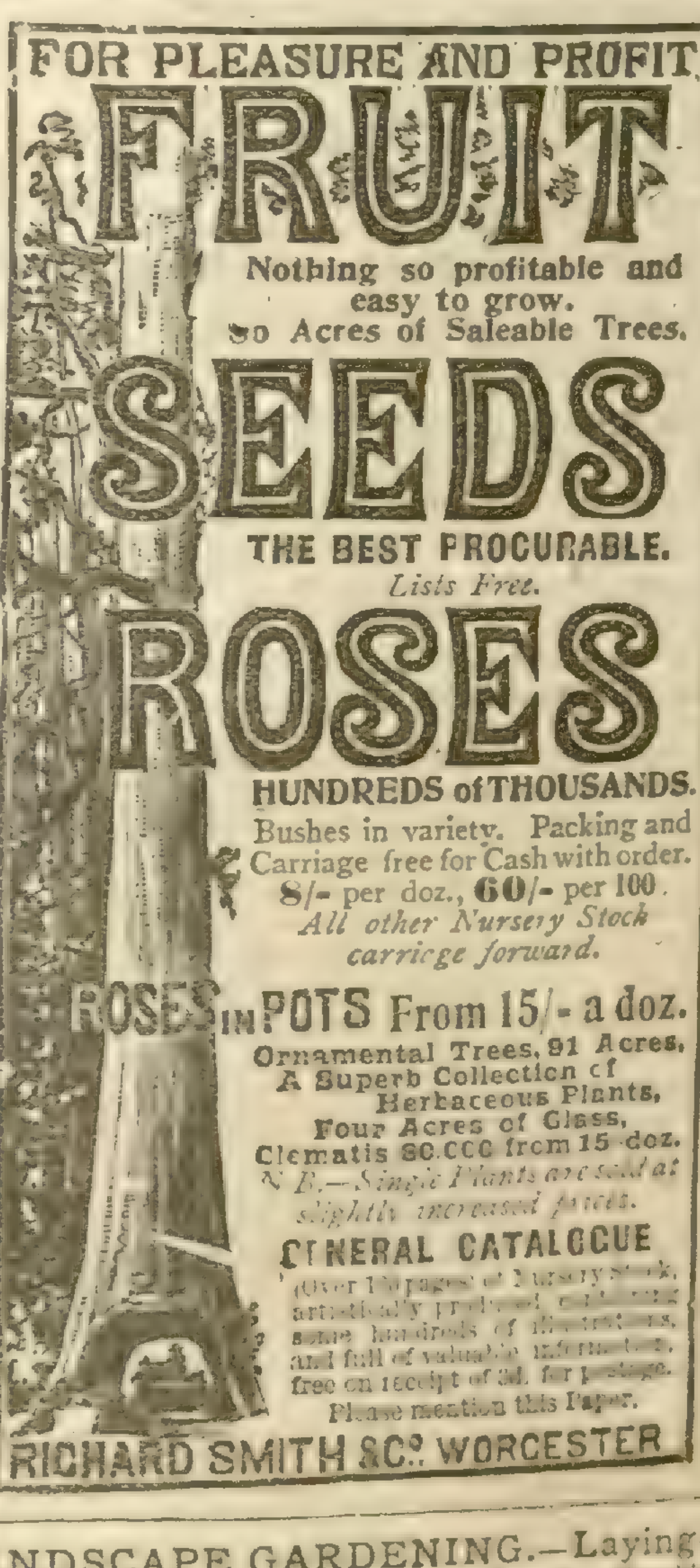
CAN NOW BE HAD

ALL THE YEAR ROUND.

PRICE ON APPLICATION TO

PUTNEY, S.W.

THOSE having Houses to Let or Sell, or [illegible] to Let, whether in town or country, should [illegible] to the "CITY PRESS." The paper is [illegible] to be one of the best mediums for this purpose. [illegible] terms: 32 words, One Shilling; three times for [illegible]. Offices: 148 and 149, Aldersgate Street, London,



FOR PLEASURE AND PROFIT

FRUIT

Nothing so profitable and easy to grow.
50 Acres of Saleable Trees.

SEEDS

THE BEST PROCURABLE.
Lists Free.

ROSES

HUNDREDS of THOUSANDS.
Bushes in variety. Packing and Carriage free for Cash with order.
8/- per doz., 60/- per 100.
All other Nursery Stock carriage forward.

ROSES IN POTS From 15/- a doz.

Ornamental Trees, 91 Acres.
A Superb Collection of Herbaceous Plants.
Four Acres of Glass.
Clematis 80,000 from 15/- doz.
N.B.—Single Plants are sold at slightly increased prices.

GENERAL CATALOGUE
(Over [illegible] pages of Nursery Stock, artistically produced, containing some hundreds of illustrations, and full of valuable information), free on receipt of 3d. for postage.
Please mention this Paper.

RICHARD SMITH & Co. WORCESTER

LANDSCAPE GARDENING.—Laying-out new Grounds, Renovating old, Planting Shrubberies, Orchards, Laying Tennis-lawns, Road-making, Draining, &c. This branch of Horticulture, being my speciality, and having had many years' experience, enables me to advise, plan, estimate for any Lady or Gentleman having this work to do. High-class reference. Distance no object.
F. BROWN, Landscape Gardener and Nurseryman (Established over 40 Years), High Road, Clapton, London, N.E.

OWEN'S ROYAL CHRYSANTHEMUMS.

Genuine English Seedlings, raised at the Floral Nurseries, Maidenhead.
Acknowledged by the Leading Growers to be the Grandest Novelties of the Season.

LADY PHILLIPS, 5/-,
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SIR HERBERT KITCHENER, 7/6,
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ADA OWEN, 5/-,
F.C.C., N.C.S. (Inc.).

LORD CROMER, 7/6,
Award of Merit, R.H.S. (Jap.).

CATALOGUES FREE.

ROBERT OWEN, MAIDENHEAD.

BULBS! BULBS!! BULBS!!!

Special Cheap Bargains for Cash.

Double Orange Phœnix (Eggs and Bacon) ...	10/-	per 1,000.
Old Double Yellow Daffodil	5/-	,,
Double White Gardenia Narcissus	10/-	,,
Princeps, large yellow trumpet, very showy ...	10/-	,,
Jonquil Campernelli	7/6	,,
[illegible], pale sulphur petals, yellow trumpet	10/-	,,
Stella, large white petals, yellow crown ...	6/-	,,
Pheasant Eye Narcissus (sweet scented) ...	3/-	,,
Single Daffodil (Lent Lily)	[illegible]	,,
[illegible]	[illegible]	,,
Tulips, Double and Single, mixed	[illegible]	per 100.
Mixed Bulbs, in good varieties of Narcissus and Daffodils	[illegible]	per 1,000.
[illegible]	[illegible]	per 100.

Please address in full

J. W. CROSS,
BULB GROWER, WISBECH.

VAN MEERBEEK & CO.'S

CLEARANCE OFFER !!!

FOR INDOOR.

No. 1 COLLECTION, price **£2**, containing—

24 Roman Hyacinths, white
24 Italian ,, blue
36 Dutch ,, in fine vars.
150 Tulips, in fine vars.
200 Crocus ,, ,,
18 Narc. Dubius (Paper white)
18 ,, Double Roman
18 ,, ,, Van Sion
18 ,, Single ,,
18 ,, Odorus rugulosus
18 ,, Polyanthus, in fine vars.
50 Jonquils, single
6 Lilium Harrisii
18 Cyclamen Pers. gigant. mixed
50 Glad. nanus, in fine vars.
50 Grape Hyac., blue
50 Hyac. Communatus
12 Richardia (Calla), Little Gem
50 Sparaxis, in fine vars.
50 Tritonia crocata, mixed
50 Triteleia uniflora

928 Bulbs.

No. 2 COLLECTION, containing half of above, at **21s.**

No. 3 COLLECTION, containing one-fourth of above, at **11s.**

FOR OUTDOOR.

No. 4 COLLECTION, price **£2**, containing—

75 Hyac., double and single mixed
100 Tulips, single mixed
100 ,, double ,,
50 ,, Parrot ,,
300 Crocus, mixed, all colours
100 ,, large yellow
200 Narc., in fine vars.
100 ,, double and single mixed
50 ,, Polyanthus mixed
100 Jonquils, single
50 Anomatheca cruenta
25 Alstrœmeria, mixed
100 Galanthus (Snowdrop) Elwesii
100 ,, nivalis, single
100 Glad. nanus, mixed
50 ,, Brenchleyensis
50 Hyac. Candicans
100 Iris Anglica, mixed
50 Montbretia, mixed
100 Sparaxis, mixed
100 Triteleia uniflora

2,000 Bulbs.

No. 5 COLLECTION, containing half of above at **21s.**

No. 6 COLLECTION, containing one-fourth of above, at **11s.**

No Packing Charges.

GOODS delivered FREE in the chief SEAPORTS of Great Britain and Ireland.
Illustrated Catalogue Gratis and Post Free from

VAN MEERBEEK & CO.,
HILLEGOM, HOLLAND.

ESTABLISHED 1852. Please mention Paper.

WHO distributed the **THREE BEST JAPANESE CHRYSANTHEMUMS** which stood at the top of Mr. Molyneux's audit last spring, viz., **G. J. Warren, Lady Hanham, and Julia Scaramanga?**

Why, WELLS.

WHO distributed **Mrs. White Popham, Nellie Pockett, John Pockett, Mr. T. Carrington, Pride of Stokell, and Mrs. Barks?**

Why, WELLS.

WHO will distribute **Lord Ludlow**, another grand Australian seedling of **Mr. Pockett's**, also **Hon. W. F. D. Smith**, the grandest of all the grand Crimson 'Mums this season: may well be termed **Crimson Madame Carnot?**

Why, WELLS.

WHO was awarded the Gold Medal in Paris on November 9th, 1898, for Novelties?

Why, WELLS.

WHO will publish **THE BEST BOOK ON 'MUMS EVER WRITTEN**, giving the best photographs, and other information *re* the Fungus, and other useful and injurious insect pests, with modes of destroying them?

Why, WELLS.

This book will be ready middle of January, 1899. Cloth bound 1s. 6d. each, post free.

Catalogues ready. Post free, from

W. WELLS, Earlswood, Surrey.

ROSES FOR AUTUMN FLOWERING.

SEE

PAUL & SON'S

CHESHUNT OFFER

Of kinds in quantity for

OCTOBER BLOOMING.

AUTUMN FLOWERING H.P's.
AUTUMN FLOWERING H.T's.
AUTUMN FLOWERING T's.

KINDS STILL in BLOOM at CHESHUNT.

H.P. Bacchus.
H.P. Cheshunt Scarlet.
H.P. Mrs. J. Laing.
H.P. Victor Hugo.
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H.T. La France.
H.T. C. Testout.
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H.T. V. Folkestone, etc., etc.

STANDARDS AND HALF-STANDARDS.
Large Stock of Grand Plants from 18s. per doz.

DWARF ROSES ON BRIAR.
New Hybrid Tea, "DAWN," semi-double.

CLIMBING AND SINGLE ROSES.
New Single Hybrid Perpetual, "ROYAL SCARLET."

GARDEN ROSES AND SPECIES.
Special First Prize Crystal Palace Collection.

POT ROSES FOR FORCING.
Seven Silver Cups, Royal Horticultural Society.

Priced Catalogues on application from

The "Old" Nurseries,
CHESHUNT.

NEW TEA-SCENTED ROSE
"SUNRISE,"
Illustrated and described in Present Issue.

THIS is one of the freest growing and most constant bloomers we have. In fact, it has never been out of flower, under glass, during the six years we have grown it; and is also a good bedder. An Award of Merit was given by the Royal Horticultural Society on October 25 of the present year. The following Extracts from the Gardening Press speak for themselves. Orders have already been received from prominent Rosarians, and we anticipate a large demand.

Extracts concerning Rose "Sunrise."

The Gardeners' Magazine, October 29.

"Mr. G. W. Piper, Uckfield, showed a pretty coppery-buff Tea scented rose named 'Sunrise,' a new form of great beauty."

The Journal of Horticulture, October 29, 1898.

"ROSE 'SUNRISE' (G. W. Piper).—A lovely Tea-scented variety that is deliciously fragrant. The under portion buff-apricot, and the outer side bright cerise (award of merit).'

The Gardeners' Chronicle, October 29.

"Mr. G. W. Piper, Uckfield, exhibited blooms and shoots of a new Tea rose named 'Sunrise, and an award of merit was recommended. It has very pretty little buds, and in point of colour is exceedingly attractive. Some of the outer petals are cerise-coloured, but the blooms have shades of copper and bronze."

The Garden, October 29.

"ROSE 'SUNRISE' (Tea).—This in its colouring, or more strictly combined colouring, is unique, the outer petals reddish-carmine, shading to delicate fawn and pale salmon within, the open blossoms of a pleasing yellow. The chief value of the flower is in the warmer tints that are so abundantly apparent as the flowers open, and these coupled with the bronzy foliage are charming. The flowers, too, are produced in great abundance. the buds being exceptionally well formed. From Mr. G. W. Piper, The Nurseries, Uckfield, Sussex."

Horticultural Advertiser, November 2.

"ROSE 'SUNRISE' (G. W. Piper).—A charming Tea-scented variety, most deliciously scented; a stand of blooms artistically arranged called forth many expressions of admiration. The flowers are salmon-apricot, outer petals bright cerise, the foliage deep bronze, which forms a fine contrast. We have seen the stock growing at home and the plants appeared very vigorous and free-blooming. Award of merit."

Healthy plants in pots will be distributed in May next, price **7s. 6d.** each; or **6** for **£2 2s.**

TRADE TERMS UPON APPLICATION.

All varieties of merit are grown. Our Stock this year is chiefly upon the Seedling Brier, and exceptionally well ripened.

A Descriptive Catalogue, drawn up on entirely new lines, free upon application.

G. W. PIPER,
THE NURSERIES, UCKFIELD, SUSSEX.

WARE'S NARCISSI.

Cheap offer of Bulbs for immediate Planting.

	Per Doz.	Per 100.
Albicans	4/-	
Backhousei Wm. Wilks... ...	2/6	15/-
Barri Conspicuus	3/-	20/-
Empress	3/-	
Grandee	3/-	20/-
Horsfieldii	2/6	15/-
Victoria (New) ... 3/- each	30/-	
Bulbocodium	3/-	21/-
Bulbocodium Citrinus	1/3	7/6
Bulbocodium monophyllus ...	2/-	12/-
Emperor	5/-	
Golden Spur	3/-	21/-
Henry Irving	3/-	
Incomparabilis aurantius plenus	2/-	12/-
Incomparabilis Cynosure ...	-/9	3/-
Incomparabilis plenus	-9	3/-
Incomparabilis Princess Mary	12/-	
Sir Watkin	4/-	
Stella	3/-	
Sulphureus plenus	5/-	
Leedsi Superbus	2 6	
Obvallaris	1/6	12/-
Princeps	1/-	6/-
Poeticus plenus	-9	4/6
Poetarum	2/-	15/-

Other varieties of Narcissi offered in our Autumn Catalogue of choice Bulbs and Plants for the Flower Garden, copies of which may be had *free upon application.*

Advice Free as to Planting, and Landscape Gardening generally.

THOS. S. WARE, Ltd.,
Hale Farm Nurseries,
TOTTENHAM, LONDON.

THE GARDENERS' MAGAZINE.

SATURDAY, NOVEMBER 26, 1898.

NATIONAL CHRYSANTHEMUM SOCIETY.
ROYAL AQUARIUM, WESTMINSTER.
EARLY WINTER EXHIBITION.
DECEMBER 6, 7, and 8, 1898.
Schedule of Prizes from— RICHARD DEAN, V.M.H., Secretary, Ealing, London, W.

SPECIAL NOTICE.
THE NEXT BIRMINGHAM CHRYSANTHEMUM EXHIBITION
Will be held in BINGLEY HALL
On
TUESDAY, WEDNESDAY, and THURSDAY,
NOVEMBER 7, 8, and 9, 1899.
Secretaries { J. HUGHES, High Street, Harborne.
F. W. SIMPSON, Victoria Road, Harborne.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

CONFERENCE ON CROSS-BRED AND HYBRID PLANTS.

THE projected conference on crossing and hybridising, to be held next year under the auspices of the Royal Horticultural Society, should be one of the most interesting of the gatherings that have been held hitherto at Chiswick. The possibilities in this direction of adding to and embellishing our floral treasures by skilful alliances between them have been so recently recognised that nearly all the results have been obtained within comparatively few years, anterior to which very little was done, and what was effected was mainly of an experimental character, and not on the strictly selective lines now adopted. It is, however, devoutly to be hoped that the exhibition will be subjected to stringent rules that the parentage of the crosses and hybrids be represented in every case, as far as possible, by the plants themselves, *i.e.*, the two parents and their joint offspring, so that the outside student may be able to see how the dual characters have combined. Without such evidence the known sportiveness *per se* of many plants might lead to the belief that no cross had been effected, while with it the show, apart from the benefit of the conference itself, would afford a grand object lesson in that mysterious capacity of the tiny pollen grains of one type of plants to transmit that type wholly or partially to a different one or to deftly arrange a middle course and combine the two without masking either. From the florist's point of view very few plants are ideally perfect, and it is often the case that when the flower itself is all that can be desired the habit of the plant handicaps it as regards pose or prominence, and the fault is so obstinately transmitted that the merely selective breeder fails to eliminate it. The question now arises, what nearly related species is there which, though with less attractive bloom, possesses the requisite carriage? Possibly this virtue lies in some new importation, or it may be in an old and little appreciated one. An alliance is effected, and the desired habit obtained, and if the flowers of the hybrid leave something to be desired that is soon bred out, and the long wished for combination is obtained. There is much to be learnt as regards the partial or entire sterility of the hybrid or crossed plants, and the conference would afford a splendid opportunity of bringing to a centre an immense amount of unrecorded knowledge in this direction and others which is now scattered about among the hybridists, many of them doubtless can more deftly and more efficaciously apply the pollen of one bloom to another than they can fertilise a sheet of blank paper with thoughts from their pen. A systematic schedule of points to be answered would facilitate the obtaining of this floating wisdom in a concrete form. There is far too wide a gap even yet between the scientist, with his intimate knowledge of the inner mysteries of plant organisation, and the man who handles those plants as living beings and studies their habits and peculiarities from a different point of view altogether. Each has his own particular mass of data of inestimable value, but of a different class, and it is precisely such conferences as the projected one which bring the two elements together, and afford the opportunity for that hybridisation of ideas to which mankind has often been hugely indebted.

FLORAL ARRANGEMENTS.

THOSE who fully recognise the value of demonstration at public exhibitions of the arrangements by which the various classes of flowers can be the most satisfactorily employed in the adornment of the home can hardly have failed to note with gratification the prominent position that floral decorations have now assigned them in the schedules of the leading societies, more especially those intimately associated with the chrysanthemum. During the season now brought to a close the arrangements of cut flowers formed at some of the more important gatherings a feature so large and attractive as to constitute of themselves an exhibition of considerable importance. More especially was this the case at the shows held at the Royal Aquarium and Hull; and, without instituting comparisons as to the relative merits of the respective displays, which for our present purpose are wholly unnecessary, the National and Hull societies may be heartily congratulated on the success they have achieved in their efforts to encourage taste in arrangement, in conjunction with their endeavours to improve cultural skill. We make special reference to the work of these societies because of the lead they have taken in the development of the decorative aspect of the chrysanthemum and the opportunities their exhibitions afford for gauging the public taste. At Hull the dinner tables and other decorations are sufficient to fill a hall large enough to accommodate a moderate-sized exhibition, and here we find much to admire and something to criticise. The dinner tables are invariably so tasteful as to disarm criticism, but in the classes for epergnes and other arrangements that are intended to be seen from all sides we find, as at many other shows, the objectionable practice of facing. The exigencies of space compel the executive to place the decorations on side tables, and, knowing the positions their arrangements will occupy, the exhibitors proceed to so arrange the flowers that they will present a pleasing appearance to the visitor as he walks round the room, while the other side of the receptacle is practically bare of flowers. They wholly overlook the fact that judges who understand their duties know that a vase, a basket, or an epergne, intended to stand upon a table, it may be in the centre of a room, should present an equally attractive appearance on all sides, and that they are careful to determine whether the arrangement complies with this essential condition. It consequently follows that "faced" arrangements, which seen from the dressed side are pleasing to the eye, occupy a low position, much to the surprise of the exhibitor and those who content themselves with a superficial glance at the objects exhibited. The practice of "facing" was also in evidence at the National Chrysanthemum Society's show, and greatly marred what would have been beautiful arrangements had they been completed, and some endeavour should be made to impose an effectual check upon it. The prizes are offered for the purpose of encouraging taste in the arrangements of flowers for certain purposes, and if the objects are so dressed as to be rendered unfit for these purposes harm is of necessity done by awarding prizes to them. Hand bouquets also have in many instances been so defective as to suggest the desirability of more stringent regulations with regard to them. A hand bouquet should, of course, be so arranged that it could be carried by a lady, but in not a few cases bouquets that had an attractive appearance on the exhibition table have, on being lifted out of the receptacle, been found to have handles so big that no lady could hold them, and in some instances a portion of the material so loosely fastened as to fall away when the bouquet was handled. This touching up should be checked, and there is no better way of imposing a check than to handle the bouquets, and to determine their relative merits after this has been done.

ARTIFICIAL MANURES.

ARTIFICIAL manures are now so largely used in the production of garden and farm crops that the desirability of the general body of cultivators becoming fully acquainted with the properties of the several kinds and their effects upon the various forms of vegetation under the widely divergent conditions of soil and climate does not admit of question. Hence the lecture by Mr. A. D. Hall, M.A., on artificial fertilisers before the Royal Horticultural Society on Tuesday, was of special interest to both scientific and practical horticulturists. Mr. Hall, who has accomplished much valuable experimental work in the college gardens at Wye, and on the hop farms in Kent, stated in his opening remarks that farmers are considerably in advance of gardeners in their knowledge of artificial manures, and, although we are unable to accept the statement unquestioned, we are in full agreement with him that much has yet to be learnt with regard to their profitable utilisation in the garden. We have given expression to our views upon this point on more than one occasion, and we have endeavoured to assist our readers in the acquisition of knowledge upon this aspect of garden management by obtaining the co-operation of some of the highest authorities, as our pages so amply testify. The use of simple manures was recommended in preference to mixed manures, because of the difficulty, when the latter are applied, in determining which of the several constituents have produced a favourable or unfavourable effect upon the crop. But this advice must be taken with some reserve, for, were cultivators to act upon it, many waste products now utilised with much success by gardeners and farmers would have to be removed from manufactories at a considerable cost instead of being a source of profit ; and if this does not immediately concern cultivators it would indirectly affect them, as any material reduction in the supplies would have a tendency to raise the prices of the simple fertilisers. There is, of course, much to be said in favour of simple manures, and they can, of course, be used with advantage as supplementary to fertilisers of a more general character. Mr. Hall suggested that except nitrogen, phosphates, and potash there was nothing worth buying, and to a certain extent this is true, for in a general statement of the case these are the only food constituents that the cultivator need apply to the soil. At the same time it would not be wise to base an estimate of the money value of farmyard manure on the percentage of these constituents, because of the usefulness of humus derived from decaying organic matter in the retention of plant food in the soil and the conservation of moisture. As we understood Mr. Hall, he did not suggest that the value of farmyard manure should be determined in this way, but he did not show how greatly the latter differed in its effects from artificials. The several artificial fertilisers were passed under review with remarkable lucidity, and it was pointed out that, while nitrogenous manures had the effect of greatly stimulating the production of leaves and growth generally, the phosphatic fertilisers, such as superphosphate of lime and basic slag, and potassic manures, of which kainit is best known, are of special value in building up the tissues, and in the production of fruits and roots. The value of applications of sulphate of ammonia and nitrate of soda to such crops as cabbages and lettuces early in the spring was pointed out, and cultivators were warned against using these in excess, and thus promoting a soft growth, this advice having special application to those who have to send the produce long distances, as, for example, to the market or town house. Mr. Hall referred to the value of nitrate of soda as a spring dressing for strawberries making but little leaf growth, and gave some interesting particulars of the experiments he had carried out. The importance of systematic experiments was insisted upon, and it was shown how much might be accomplished in this direction by cultivators with but little trouble or expense to themselves.

Gardeners' Magazine Christmas Number.—We have much pleasure in announcing that our Christmas number, which will be published on December 17, will be of special interest, and fully maintain the popularity of our issues associated with the Christmas season. Mr. F. W. Burbidge, M.A., will deal with the literary and historical aspects of the nelumbium ; Mr. Norman Brown will relate the adventures of a pretty Parisian bouquetière ; Mr. George Gordon will discuss the rise, decline, and the revival of an old gardening art that was at the zenith of its popularity in the days of "Good Queen Bess," and will give illustrations of some unique examples ; Mr. G. Nicholson, A.L.S , will contribute an article on the horticultural aspects of the Riviera, which will be illustrated by reproductions of a series of photographs taken by Henry Little, Esq. ; Mr. R. Dean will take us back to the days when Chiswick was the chief centre of horticultural activity, and accompanying his paper will be several illustrations that may be described as unique ; Mr. J. R. Jackson, A.L.S., Lux, Jack Bowser, and other writers will contribute to the issue, with which will be presented a beautiful almanack printed in colours, illustrative of the Penzance briers.

Potato Experiments.—During 1897 and the present year experiments have been carried out at the Cheshire County Council's horticultural school, and the report of the experiments received from Mr. J. G. Gordon, principal of the school, is of much interest. The first experiment was one testing the productiveness of a great number of varieties, and the results of 1898 were strikingly similar to those of 1897. In both seasons the most productive of early round varieties was Early Market Favourite, while Challenge was the heaviest cropper of early kidneys, British Queen of second early kidneys, and Up to Date of late varieties, followed by Hough Giant, County Councillor, Hough Abundance, Cheshire Delight, and Maincrop, in the order given. Up to Date is credited with the enormous crop of over 21 tons 3 cwt. per acre, and Hough Giant with a yield over 20 tons 4 cwt. A trial with cut sets against whole sets gave no decisive results. In an experiment with seed tubers of different sizes there was a steady increase of yield, from that of tubers that would pass through a sieve with one and a-half inch mesh, but not through one of one and a-quarter inch, to that of tubers which would not pass through a two and a-half inch mesh. There were three intermediate sizes. The largest seed tubers gave more than double the yield obtained from the smallest. In the manuring experiments, as farmyard manure was applied to every plot, the results indicate the relative values of extra artificials. The greatest yield was obtained on a plot dressed with three hundredweight of superphosphate, one hundredweight of sulphate of ammonia, and one hundredweight of muriate of potash, in addition to fifteen tons of farmyard manure, and the profit from the use of artificials was also greatest in this case. Sulphate of ammonia did better than nitrate of soda, and muriate appeared to be much the best form in which to apply potash.

Vases of Chrysanthemums.—M. Fatzer, who is one of the most successful of the cultivators of chrysanthemums in France, surprised the visitors to the recent exhibition at Paris by his magnificent vases of blooms. The latter were similar in development to those seen at British exhibitions, and presented a striking contrast to those staged by the majority of the exhibitors. M. Fatzer was awarded a large silver-gilt medal for his vases of chrysanthemums, and for his grapes he received a gold medal.

Proposed Winter Garden for Brighton.—It is proposed to erect a winter garden on part of the site of the Brighton Aquarium, and particulars of the scheme were recently laid before the committee of the Town Council, which body has, by Act of Parliament, certain rights of veto in regard to constructive alterations of the Aquarium. The committee were informed that a syndicate proposed to purchase the Aquarium from the liquidators of the company, and by a liberal expenditure, estimated at £30,000, and the introduction of many new features, including a winter garden, to make the altered and enlarged Aquarium a thoroughly attractive "all day" pleasure resort, available under all conditions of weather. Several new entrances will be provided, and on the eastern portion of the present Aquarium roof a light iron and glass roof is to be formed, extending for a length of about three hundred feet. At the western end of the building a covered portion would be provided, which would be available for the public, virtually forming a covered seat and shelter. In acknowledgment of such concessions as may be necessary, the syndicate offer to afford facilities for widening the Marine Parade, adding an area of 1,350 yards, particulars of which have already been published. The committee have unanimously advised the Council to allow the scheme to proceed.

The National Chrysanthemum Society's Annual Dinner will take place at the Holborn Restaurant, High Holborn, W.C., on Wednesday, November 30, at 6.30 sharp. Sir Albert Kaye Rollit, M.P., has kindly consented to take the chair on this occasion. The challenge trophy, Holmes and Turner memorial cups, medals, &c., won at the great November show, will be presented to the winners during the evening. Tickets, exclusive of wine, are 5s. each, and may be obtained from Mr. Richard Dean, V.M.H., Ranelagh Road, Ealing. On the occasion of this annual dinner ladies will be for the first time admitted, and their presence is most desirable.

Botanical Appointments.—Dr. G. Klebs has been appointed Professor of Botany and Director of the Botanic Gardens at Halle, while his successor at the University of Basle is Dr. W. Schimper. Mons. C. Sauvageau has been appointed Professor of Botany to the Faculty of Sciences at Dijon. Professor L. M. Under wood has been elected president, Professor B. L. Robinson vice-president, and Professor G. F. Atkinson secretary of the Botanical Society of America for the ensuing year.

Chrysanthemum Congress at Troyes.—The congress and exhibition held at Troyes, under the auspices of the National Chrysanthemum Society, was a splendid success. There was a large gathering of those who take an interest in the chrysanthemum, and considerable regret was expressed that the leading English authorities on the chrysanthemum were, in consequence of their numerous engagements, unable to be present. The jury had for its president M. de la Rocheterie, and for its secretary M. Debrie ; and between one hundred and fifty and two hundred seedlings were submitted for inspection. On the completion of the labours of the jury the members were entertained at a banquet, at which, among other notabilities, M. Viger was present, and conferred upon several of those present the Order of the Merit Agricole and of Public Instruction, amongst those receiving the distinction of an Officer of Public Instruction being M. Charles Ballet. At the close of the banquet the congress was declared open, and in the course of the proceedings a lecture was given by M. Chifflot on the insects and fungi by which chrysanthemums are attacked ; and M. Dauthenay discussed the question of races. The second meeting was devoted chiefly to the consideration of the question of preparing a catalogue of chrysanthemums ; and M. de Meulnaëre, of Ghent, defended with much vigour his system of arranging the names, which consists in giving the surname first. After several hours' discussion it was decided to adopt this plan in the new catalogue to be prepared by the French National Chrysanthemum Society. It was decided to hold next year's congress at Lyons.

National Dahlia Society.—This society will bring its year's work to a close on December 13, when the annual meeting will be held at 2 p.m , at the Horticultural Club. The business will include the preparation of next year's schedule and the revision of the select list of cactus dahlias.

Ramie and Rhea Fibre.—At various times, and especially in connection with Dr. Morris's lectures upon fibres and fibre plants, we have referred in these columns to the great possibilities that lie dormant in ramie and rhea fibres, the chief difficulty being the absence of a suitable machine for the decortication of the fibrous stalks in a cheap and efficient manner. Time, however, works improvements, and it now appears that we are really at the commencement of a profitable industry in these beautiful fibres from which such strong and yet delicate structures can be manufactured. Mr. Ferguson, of Brighouse, who for many years has been experimenting with a view to solving the difficulties attending the production of ramie, has worked out a machine that is simple, effective, and cheap. Mr. Ferguson's invention has been examined by many experts, who are apparently all agreed that it is a success. Some considerable capital is needed to give this new industry a good start, and when this is raised we shall watch with interest the development of ramie fabrics.

A Mild November.—Until the 22nd inst. the month of November was very mild, and such comparatively tender plants as zonal pelargoniums were to be seen flowering freely in many a garden. Writing early in the present week from Great Amwell, a correspondent states that the following subjects, exclusive of such as chrysanthemums, hellebores, Jasminium nudiflorum, &c., such as one expects to flower at this season, were blooming freely in his Hertfordshire garden on the 19th inst. : Dianthus, mignonette, Lobelia cardinalis, blue lobelias (varieties of L. erinus), gaillardias, scabious, pentstemons, stocks, tritomas, vincas, roses, polyanthuses, pansies, auriculas, Daphne Cneorum, rudbeckias, primroses in variety, campanulas, hepaticas, geraniums, antirrhinums, hypericums, a passiflora, Phlox Drummondi, Primula Cashmeriana, Tropæolum tuberosum, Cyclamen hederifolium, and Anemone japonica. On the 5th inst. he gathered some very good flavoured fruits of Viscomtesse Hericart de Thury strawberries, and some roses of quite summer excellence from that superb variety Augustine Guinoisseau.

St. Petersburg International Horticultural Exhibition.—A supplement to the schedule of prizes offered for competition at the international horticultural exhibition to be held at St. Petersburg in May next has been issued. The supplement includes several new classes for orchids, two classes for carnations, and a class for a collection of tea-scented and hybrid tea roses, and one for new roses.

A Plant Protection Station has been established at Freihafen by the State of Hamburg, and under the direction of Dr. C. Brick. Here shipments of living plants from abroad will be examined for the purpose of preventing injurious insects from entering the state. The station authorities will also undertake the inspection of orchards and vineyards in the Hamburg district, overlook the schools of viticulture, and investigate plant disease, with a view to successfully combating them.

Commons Preservation Society.—Under the presidency of Mr. Shaw Lefevre the Executive Committee of this society met on Monday last, when it was stated that two actions in which the society were interested had been satisfactorily decided by the Court of Appeal. The first referred to a prosecution instituted by the lord of the manor against a labourer for cutting underwood upon a turf fuel allotment set out under an Enclosure Act, at Egloskerry, in Cornwall It had been held by the Appeal Court that the lord of the manor had been fully compensated for all his interests in the enclosed common by the allotment made to him, and that he had no part or share in the fuel allotment, the soil of which was held to be vested in the churchwardens and overseers of the parish. The second action was with respect to Towyn Trewan Common at Llanfaelog, Anglesey, 1,300 acres in extent, upon which it was sought to erect an explosives manufactory. An injunction, confirmed by the Court of Appeal on Friday last, had now been obtained, together with a declaration of the rights of the commoners, which would save the common from the possibility of further encroachments. It was stated that the War Office was purchasing Donyland Heath, near Colchester, for the purpose of a rifle range. The society had appealed to the Department to make by-laws under the Military Lands Act, 1892, so that when the land was not in actual use for military purposes it should remain open to the public as heretofore, and they asked that a recreation ground should be given to East Donyland. since the heath, an exceptionally beautifully-wooded open space, was the only land in the district available for purposes of recreation. Upon the motion of the chairman, seconded by Sir W. Vincent, a hearty vote of thanks was accorded to Mr. E. N. Buxton, one of the earliest members of the society, for his recent munificent gift of an additional twenty-eight acres of land at Yardley Hill, Epping Forest, to the Corporation of London. The society is further increasing its usefulness by advising local authorities and private individuals in upwards of fifty cases of encroachments upon common land, open spaces, roadside wastes, and obstructions of rights of way in different parts of the country.

Chrysanthemum Shows at Public-houses.—A correspondent to a northern contemporary writes : "We are not ultra pious in Halifax, like Huddersfield. We do allow our people to enjoy the benefits of the tram on Sundays, and save their legs, but still we are likely to earn a very unenviable reputation if chrysanthemum shows are to be held in public-houses on the 'Sawbuth.' It seems to me that the trade are getting to desperate straits when the beauty of nature is to be caged within the four walls of a liquor den to draw custom on the day of rest."

Chrysanthemum Rust.—With reference to this disease Mr. W. M. Cameron writes :—Any information respecting the chrysanthemum rust has been eagerly sought after during the past two months in the GARDENERS' MAGAZINE by nearly all Guernsey growers of the Autumn Queen. It has shown itself here for the first time this year, and there are very few collections, if any, that have not been attacked throughout the island, whether large or small, grown in pots or planted out. In some cases the stems are quite naked, and the rust has attacked them as well. It has been so virulent in one or two instances that the foliage has been absolutely destroyed in a month from the time it was first noticed, and the flowers, of course, are useless. The varieties most infected were The Queen, Souvenir de Petite Amie, Modesto, Admiral Sir T. Symonds, Niveus, Stresa, Mdlle. Lucie Faure, Yanoma, Phœbus, and Miss Ethel Addison. Spraying with petroleum—about a wineglassful to two gallons of water—has had but little effect, if any, in checking the progress of the disease. Yet some of your correspondents say that they have got rid of it with a petroleum mixture, but a much weaker solution than above. The prevailing opinion seems to be that it cannot be killed, and the best way to combat the disease is to use fungicides during the growing season, either as a spray or a powdery dusting, as a preventive. At least, this was the conclusion arrived at by the Guernsey Gardeners' Mutual Improvement Association at a meeting on the 8th inst.

Botany in the Board Schools.—The London School Board has sanctioned the payment to Her Majesty's Office of Works of 24s. a week for the remuneration of a gardener in one of the Royal parks for providing Board schools with specimens of plants and flowers, with a view to teaching botany in accordance with the method followed in the Berlin elementary schools. We trust that British plants will be those most extensively used and studied.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

THINGS are coming to a pretty pass. Amongst my voluminous correspondence, no small portion of which is on gardening matters, there is quite a chorus of complaints about the unexpected forms in which the chrysanthemum rust is causing trouble. The principal grumblers just lately have been officials connected with shows, whose manifold distractions have been materially increased by the reluctance of timid growers, who have hitherto escaped the plague, to come forward, for fear of their exhibits being contaminated by others from stricken collections. One cautious spirit seems to have gone so far as to demand a written undertaking, worded in awe-inspiring legal phraseology, that if the disease should appear in his collection within six (6) months of the date of the show the sum of ten pounds (£10) shall be paid over to him by way of compensation.

I need not enlarge on the terrors of committeeship if this sort of thing extends. They are quite formidable enough now, when the rampaging of the go-ahead member, the prolixity of the argumentative member, and the dismal forebodings of the pessimistic member are all weighed up. But all this will be as nothing when writs and judgments begin to circulate. There will be arguments à certiorari, habeas corpus, and all sorts of other strange monstrosities. Recalcitrant treasurers will be making up their balances in Holloway. I do not know what reply was sent to the cautious spirit referred to. Perhaps the undertaking was given. Or perhaps the committee offered to compromise by supplying a quarantine station. But the incident is proof enough of the alarm which the spread of *Hardbrediana Peteri* has caused. Fortunately, blooms may be considered immune, so that exhibitors of cut flowers need have no apprehensions.

I have a nut for Mr. Massee to crack. The rust has appeared on outdoor plants. I exceedingly regret that I am not permitted to give particulars of the place, but on this point the victim is inexorable. He is a nurseryman, and is very anxious that the fact of his having the disease on his establishment shall not be advertised, for reasons that are easily understood. Nevertheless, my statement is absolutely accurate. The incident seems to me to be a very significant one. What, for instance, about the overcrowding theory? The plants are dotted in a mixed herbaceous border. I beg to direct Mr. Massee's careful attention to this new phase. Readers will, I feel sure, be desirous of hearing whether he is disposed to modify his previous opinion in view of this new factor. In conversation with the grower I raised the question of overcrowding in the early stages of growth, before the plants were put out, but this is strenuously denied.

I have been trying to get in a paragraph about the Crystal Palace Fruit Show, but I fear it is rather belated. Nevertheless, it is by no means out of season, inasmuch as it relates to the date of the exhibition. While Peter and I were perambulating the Palace on the opening day we were told by several of the principal exhibitors that the date was too early for them. They would prefer it a fortnight or three weeks later—the latter for choice. I do not know if this is the general opinion, but in any case the point is worth ventilating. There may be reasons against it which the management alone are aware of ; if so, the mention of them would do no harm. It is not to be supposed that the R.H.S. can do as it likes with a great place of public entertainment such as the Crystal Palace. The latter has its other affairs to consider.

I noticed a paragraph a few weeks ago from the pen of Mr. W. A. Cook relating to Messrs. Carters' splendid new potato, Snowball. I say from Mr. Cook, but I am trusting to memory. In any case I beg to add a word by way of corroboration. Snowball has not only won a great many prizes this year, but it is proving to be a great cropper and of good flavour. I am the more disposed to refer to the variety because of the fact that it is one which I had selected to put to the test the point alluded to in the MAGAZINE some time ago, namely, the property of mixtures containing muriate of potash of causing waxiness. No such difficulty has occurred. I am not by any means sure that the muriate is the best form of potash, because, as I mentioned some time ago, I have had some most excellent results from the sulphate, but I certainly cannot trace waxiness to the muriate.

In the issue of October 22 I observed an editorial reply to a question about paraffin wash. With the advice to use the oil in the form of an emulsion I cordially agree, but when I consider the proportions I am induced to wonder which of three things is correct—(1) An error on the part of Mr. Printer ; (2) excessive weakness of Maryland petroleum ; (3) extreme tenderness of the Luxian trees. I see that the proportions advised by the Experiment Station are, in the first place, half a pound of soft soap, a gallon of water, and two gallons of paraffin, the emulsion to be subsequently diluted with ten to thirteen gallons of water. Our trees won't stand anything like this. Perhaps we surface cultivate them too much, and certainly the digging atrocity is practised amongst them. I find that a pint of petroleum (with a pound of soft soap made into an emulsion) is quite enough for fifteen gallons of water. It seems weak—ridiculously so, compared with the American formula—but it does its work.

LUX.

[Not "*the* emulsion," Mr. "Lux," but "every gallon of the emulsion used should be diluted with from ten to thirteen gallons of water," thus making from thirty to thirty-nine gallons of wash.—ED.]

NEW PLANTS AND FLOWERS.

CYPRIPEDIUM WOTTONI.

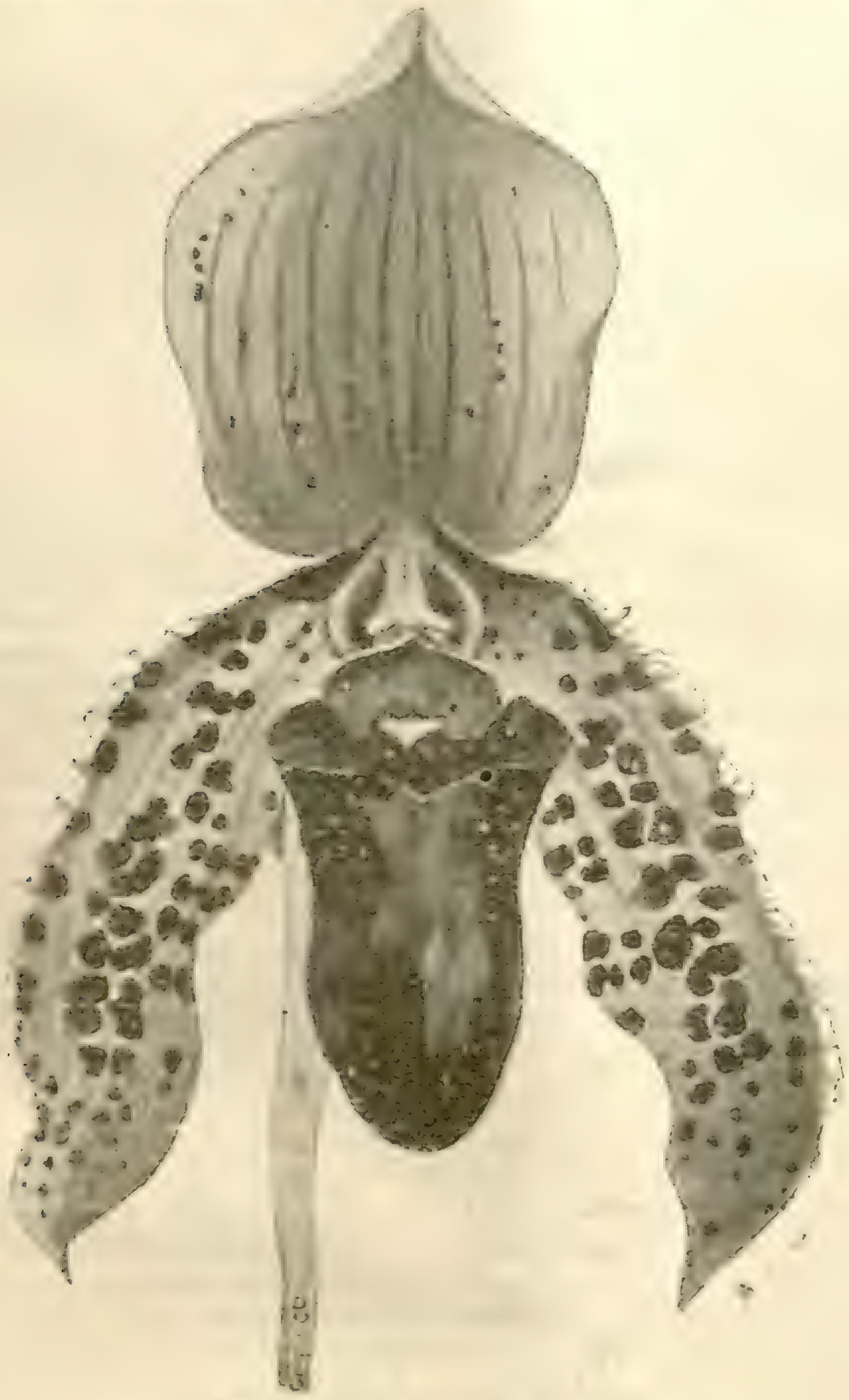
A BEAUTIFUL cypripedium, reminding one of a glorified and lightened C. callosum. The dorsal sepal has a white upper margin, is suffused with rich purple, and has a greenish base; over the whole are numerous dark purple veinings. The apices of the rosy petals are margined with white, while dark brown spots are strewn over the lower halves. The fine rich purple lip is veined with darker purple. This hybrid is the result of crossing C. callosum with C. bellatulum. A.M., R.H.S., November 8. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell.

CATTLEYA BOWRINGIANA LADY WIGAN.

A distinct and charming variety of a well-known winter-flowering cattleya; it has fine large flowers and substantial segments of a pretty lilac shade. The lip is lilac tinged with rose, and having a broad, deep purple band down the centre and extending on to the side lobes, where it contrasts forcibly with the white throat. A.M., R.H.S., November 8. Mr. W. H. Young, orchid grower to Sir Frederick Wigan, Clare Lawn, East Sheen.

CYPRIPEDIUM ARGO-MORGANIÆ.

A new hybrid obtained by crossing C. Argus with C. Morganiæ at Burford Lodge. Both the parents are evident in the hybrid. The dorsal sepal is fairly large and broad; whitish, shaded with rose and with longitudinal green lines that are here and there interrupted by small dark purple dots. The petals are very bold, deflexed somewhat, and blunt ended; pale greenish-white ground colour, very heavily spotted with large claret-purple spots. The lip is dull rosy-purple with a paler base. A.M., R.H.S., November 22. Mr. W. H. White, orchid grower to Sir T. Lawrence, Bart., Dorking.



CYPRIPEDIUM ARGO-MORGANIÆ.

BEGONIA WINTER PERFECTION.

This is another of the race of hybrid begonias raised at Chelsea and valuable for their winter-flowering propensities. This variety has large semi-double flowers of a soft and pretty shade of light rose. The foliage is bold, and the plant is robust and free. A.M., R.H.S., November 8. Messrs. J. Veitch and Sons, Chelsea.

DRACÆNA THE SIRDAR.

A handsome compact habited dracæna, with broad foliage of a very dark green shade and bordered with bright scarlet and crimson. The newer leaves are very bright in colour, especially under artificial light. A.M., R.H.S., November 8. Messrs. J. Veitch and Sons, Chelsea.

POLYPODIUM GRANDI-NIGRESCENS.

This is the name given to a novel and bold fern that is stated to be a hybrid between P. nigrescens and P. vulgare grandiceps. The plant is mostly akin to P. nigrescens, and like it shows the teat-like protuberances where the sporangia are placed. The fronds are of a dark green hue, somewhat stiff, and very much divided and tasselled at the ends, the divisions being quite bunched in some instances. F.C.C., R.H.S., November 8. Messrs. J. Veitch and Sons, Chelsea.

NERINES.

Miss Jekyll.—The segments of the flowers are but slightly undulating in this variety; the flowers and trusses are of a large size, and of a clear rosy salmon shade.

Lady Clementine Mitford.—A beautiful nerine, having fine flowers of a pretty salmon tint, with the segments all charmingly undulated.

Mrs. Douglas.—This is a distinct form, having rather campanulate flowers with regular segments that are neither recurved nor waved; colour bright rosy cerise, shading to pink. A.M., R.H.S., November 8. Mr. Lane, gardener to H. J. Elwes, Esq., Andoversford, Gloucester.

CALANTHE LABROSIOR.

A beautiful calanthe, bearing a fine spike of large flowers that are of the very faintest tinge of rosy-blush, with a pale yellow shade over the disk; the flowers measure two and a-half by three inches and are almost pure white. The variety was raised at Burford, but the parentage is not known. A.M., R.H.S., November 22. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

CIRRHOPETALUM APPENDICULATUM.

A quaint little orchid with long combined lateral sepals, creamy with red spots; petal small, yellowish green, with violet purple lines and fringes; lip small, violet purple. B.C., R.H.S., November 22. Mr. W. H. White.

DENDROBIUM FORMOSUM-LOWI.

An interesting and handsome hybrid obtained by crossing D. Lowi with D. formosum. The habit is intermediate, but the flower is much like that of D. formosum, save that the lip is flatter and has a deep orange shade over the whole of the disk and along the raised lines. Sepals and petals white. A.M., R.H.S., November 22. Mr. W. H. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

CHRYSANTHEMUMS.

Lord Cromer.—A fine, bold Japanese variety, with broad, substantial florets that are brilliant crimson in colour, with a light golden reverse; the central florets incurve, and show the reverse side. An English-raised seedling. A.M., R.H.S., November 8. Mr. R. Owen, Maidenhead.

Mrs. W. Mease.—Now well known as the handsome primrose-coloured sport from Madame Carnot. A.M., R.H.S., November 8. Mr. R. Owen.

Jane Molyneux.—A handsome pure white Japanese variety, with long, drooping florets. A.M., R.H.S., November 8. Mr. N. Molyneux, gardener to J. C. Garnier, Esq., Rookesbury Park, Farnham.

President Bevan.—An immense Japanese incurved variety that appears to be somewhat variable in colour, from a flesh or salmon-pink to pale rosy-bronze. A.M., R.H.S., November 8. Mr. W. Wells, Earlswood; and Mr. W. J. Godfrey, Exmouth.

Nellie Pockett.—A finely shaped Japanese variety, massive and full; the florets, which are very numerous, are creamy white. A.M., R.H.S., November 8. Mr. W. Wells.

Chatsworth.—A large and deep Japanese chrysanthemum, with creamy white centre and rose-shaded outer florets; florets broad and incurving. A.M., R.H.S., November 22. Mr. W. J. Godfrey, Exmouth; Mr. W. Wells, Earlswood; and Messrs. H. Cannell and Sons, Swanley.

Golden Shower.—A handsome and curious decorative chrysanthemum, the florets being modified into long drooping threads like silk. The colour is rich gold, with crimson scarlet shading on some of the florets. A.M., R.H.S., November 22. Mr. Witty, Nunhead Cemetery.

Mrs. Barclay, a most distinct chrysanthemum with very broad florets that reflex slightly. It is a huge, massive flower, and of a very bright and rich rosy mauve colour. A fine exhibition Japanese form. A.M., R.H.S., November 22. Mr. H. Weeks, Thrumpton Hall, Derby.

Earlswood Beauty, a charming single chrysanthemum, with large and pretty flowers of a pleasing creamy shade. A.M., R.H.S., November 22. Mr. W. Wells, Earlswood.

Daisy Brett, a sport from the above, and differing from it only in being pure white instead of creamy. A.M., R.H.S., November 22. Mr. W. Wells, Earlswood.

Beauty of Scholing, a good decorative variety with broad flowers, in which the colours, scarlet and gold, are freely intermixed in shadings and streaks. A.M., R.H.S., November 22. Mr. W. Wells, Earlswood.

EPIPHYLLUM TRUNCATUM PRINCESS.

Certainly we have nothing so delicately beautiful among epiphyllums as this charming new variety. It is a free-flowering form, judging from the two small plants shown at the Drill Hall, and its flowers are of exquisite beauty, being of a transparent, soft, and very light shade of rosy blush. It is very distinct, and should help to revive the culture of epiphyllums. F.C.C., R.H.S., November 22. Mr. W. Bull, King's Road, Chelsea.

APPLE BALLINORA.

A fine late apple that probably has to own Blenheim Pippin as one parent. It has much of the shape of that variety, and is a good deal like it in flavour, but a little more mealy. The skin is wholly of a bright crimson scarlet, save for a yellowish base that is almost covered with russet; the eye is large and open, as in the Blenheim Pippin. A.M., R.H.S., November 22. Messrs. Hartland and Son, Cork.

CHRYSANTHEMUM RUST.

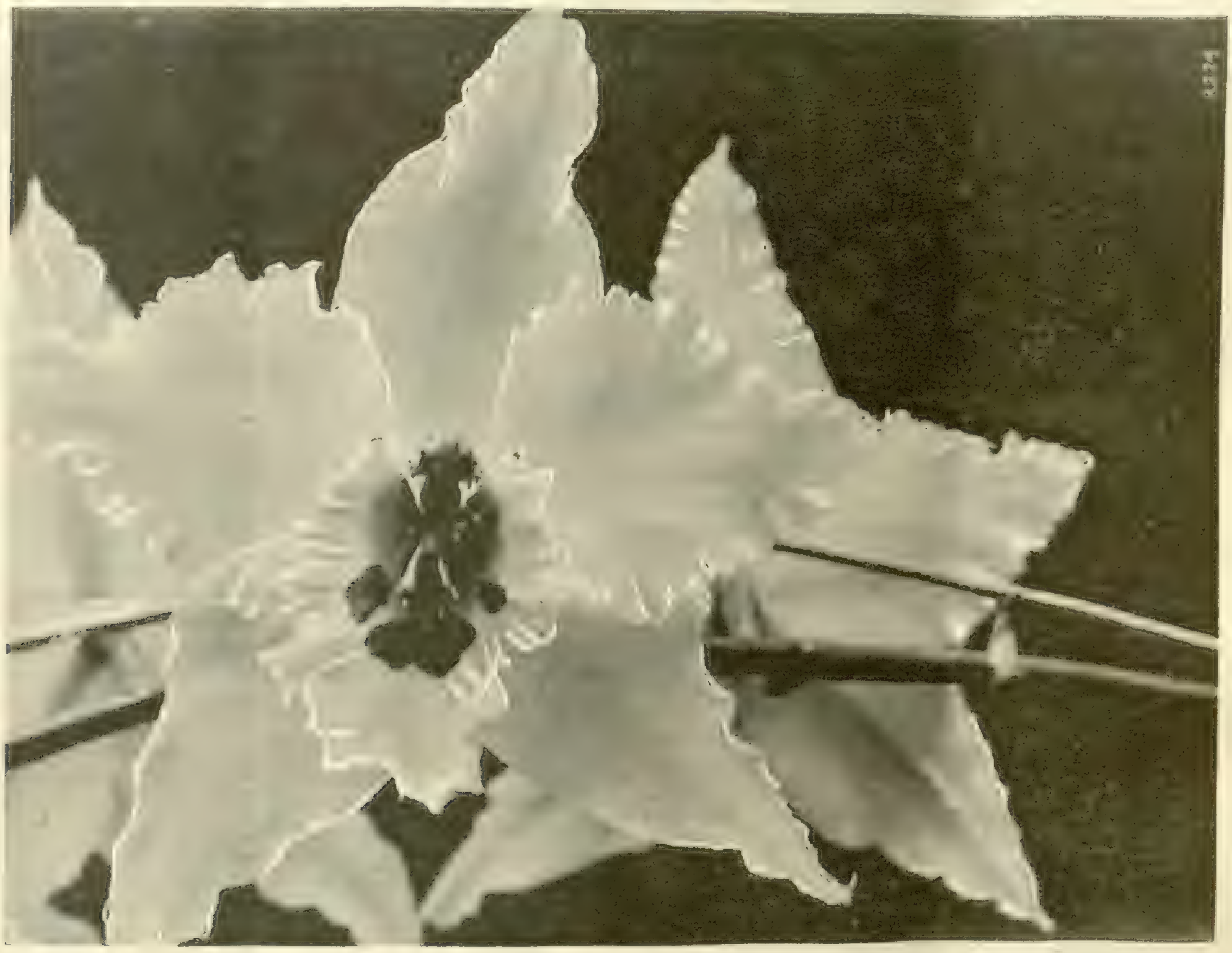
THERE have been of late quite a series of discussions respecting the "rust" on chrysanthemums. My opinion is that if taken in time it can be eradicated. Early last March, when our plants had been potted into three and a-half inch pots, I noticed on the under sides of the leaves small black specks, the worst attacked being Pride of Madford, Simplicity, Lady Byron, Eva Knowles, C. H. Curtis, and Lady Hanham. The other plants, about three hundred and eighty, were quite free, but these came from the south. I at once took these away from the collection and placed them in a cold frame by themselves, dipping each in a solution of sulphide of potassium, half an ounce dissolved in a gallon of water, as recommended by the GARDENERS' MAGAZINE. I continued it twice a day for a week, adding to it one tablespoonful of petroleum, and keeping it thoroughly mixed with the hand syringe while using. At the week end there was not a sign of the fungus left; and all these varieties have developed exhibition blooms of good colour. When the whole collection was "housed," the first week in October, the plants were syringed individually with a decoction of sulphur, quicklime, and paraffin, and up to the present date not a bit of mildew or fungus is to be seen.

Totley Hall Gardens. T. W. BIRKINSHAW.

Wintry Weather.—Early in the past week there was a material change in climatic conditions, and so great a drop in the temperature as to remind us that winter is rapidly approaching. The keen north-easterly wind that prevailed on Tuesday was followed on Wednesday by heavy falls of snow in the more northern parts of Great Britain, throughout Scotland, the North of England, Wales, and in some parts of the Midlands. In Lancashire there was a veritable blizzard. In many parts of the country the fall of snow was so heavy as to block railway lines, render roads impassable, and put a stop to outdoor work, and it is feared that in some districts the farmers will suffer from loss of sheep. From present appearances it is probable that we may now have a short period of cold weather.

ODONTOGLOSSUM CRISPUM PRINCE OF WALES.

POSSIBLY no odontoglossum exhibited in this country during the present year has been so much admired or widely commented upon as the beautiful variety introduced by Messrs. H. Low and Co., Bush Hill Park Enfield. No doubt it is the premier form of O. crispum seen during 1898, for not only is it of great beauty, but it is finely formed. Its beauty consists almost entirely in its purity, for sepals and petals are of the purest whiteness, save for the very faintest tint of blush on a segment in one or two of the dozen flowers the fine spike carried. The extra large lip is white, with the usual golden disk, with three or four rich red-brown spots just where the disk begins. The flowers are four and a-quarter inches broad across the petals, thus comparing most favourably with the distinct and handsomely spotted O. crispum apiatum belonging to Baron Schroeder. The accompanying illustration is a reproduction from a life-sized photograph of O. crispum Prince of Wales, taken at Enfield by Mr. I'Anson. The merit of this grand orchid can be to some extent gauged by the fact that when it was exhibited in June last Messrs. Hugh Low and Co. were awarded a first-class certificate by the Royal Horticultural Society, and, in addition, a silver Banksian medal.



ODONTOGLOSSUM CRISPUM PRINCE OF WALES.

PLANTING HARDY FRUITS.

PLANTING has been somewhat delayed this season by the extremely late defoliation of most trees, but especially apples, in many districts. By the third week of November in some years I have had thousands of young trees placed in their permanent quarters, or transplanted for nursery purposes, yet now I have numbers that are nearly as green as they were two months ago, and have scarcely lost a leaf. It may be that when the foliage has so nearly completed its work little injury results even if the trees are lifted before it is all fallen, but that a considerable evaporation does take place under certain conditions is readily proved. The safety or injury resulting from moving fruit trees while still in leaf depends, therefore, to a great extent upon the weather prevailing at the time or immediately following the operation. With bright, sunny, warm days, such as we have had lately, there is a risk of giving a further check than would result from the mere transplanting alone, and for this reason I generally defer the autumn planting until the leaves are all down. The most important point of all is, however, to have the soil in the right condition, and especially if it be of a heavy, adhesive nature. In my experience I have found that this outweighs all other considerations in fruit-tree planting; the utmost care in other respects is of little avail if the soil be wet and cloggy, as it is either forced round the roots in impenetrable masses, or it leaves gaps that are almost as bad. It is better rather dry, so that it can be worked freely, and, given a vigorous tree that has been carefully lifted, it is surprising what recuperative powers it will display in the first season.

In ordinary garden planting the arrangement of the fruit trees is a comparatively simple matter, because it is seldom that a quarter is specially set apart for them, as the majority, besides those trained to walls, are planted near the walks, where they will not too heavily shade the adjoining vegetable ground. When a regular or more extensive plantation is to be formed, the method of arrangement and distances require the most careful consideration, because it is necessary to look to future results. Experience shows that it is easy to err in the direction of planting too thickly, and, if thinning is not duly provided for, in a few years an otherwise very valuable plantation will be greatly reduced in productiveness. Many instances come under my observation that illustrate such evils, but two will suffice to show what is meant. In one, the plantation of apples, plums, and pears has been formed about twelve years, and it should now be in full bearing, and as a matter of fact a large quantity of fruit is produced; but an inspection of the crowded thickets proves not only that the crops are scarcely more than half of what they should be, but the trees are being rapidly ruined. Thinning now would be a difficult matter, as the trees are so drawn up that many would need staking to ensure their safety in storms, for hitherto they have been self-supporting, as it were. Close planting is adopted to obtain as large returns as possible from a limited area of highly rented land, and when the time for thinning comes few growers have the courage to do what is so needful for after good results.

The other example is quite a young plantation of dwarf apples with bush fruits between, and there the progress and returns have been highly satisfactory up to the present. At the same rate of advance, however, in three or four years' time half the trees and bushes will have to be removed to give the others a chance to thrive and bear. In this case the apples are planted at seven feet apart each way, with gooseberries or currants at the half distances between the rows and in the rows. For small-growing varieties, like Stirling Castle or Seaton House, the distance named will suffice for some years; but for free growers, like Bramley's Seedling, Lord Grosvenor, or Cox's Orange Pippin, double the distance would be much more satisfactory if a permanent plantation is to be formed. The only way in which such a plantation can be thinned is by removing alternate trees in each row, thus leaving it in the triangular form instead of the square, but while this doubles the distance between the trees in the rows it only slightly increases the distance between the trees in adjoining rows. The same objection applies if the trees are planted in the triangular or alternate system, because the thinning would then take the form of removing alternate intermediate rows, thus leaving the trees in the quadrangular system, but with double distances between the rows, while that between the trees in the rows would remain unaltered.

A system I have adopted with satisfactory results is to form mixed plantations of large and small-growing apples in the following way: The strong growers are planted as bush apples on a Paradise stock at fourteen feet apart each way (quadrangular), then at half distances between these Stirling Castle, or a similar grower; while again between these gooseberries and currants are planted, and though the latter have not much space yet they will stand for some years, and if the land is clean and fertile they give a good return before it is necessary to remove them. When these and the small-growing apples have to be sacrificed it will leave me permanent trees at fourteen feet apart each way, and the future of the plantation could be still further provided for by having standard apples alternately, *i.e.*, at twenty-eight feet apart, thus somewhat reducing the number of dwarf apples but ensuring a more lasting orchard.

FRUIT GROWER.

POT CARNATIONS.

THE carnation has now become such a general favourite that there are few places where an attempt is not made to grow a few in pots; in fact, some very desirable varieties would be lost to us were it not that we could give them the shelter of a house during the winter months, their constitutions not enabling them to withstand cold and damp with impunity. But merely putting a carnation in a pot does not mean its successful growth, for it requires a special soil for its roots, special atmospheric treatment, and exceptional care in watering to secure the best results. In smaller establishments the essential conditions to securing healthy, vigorous plants are not always obtainable, for in not a few places they have to be grown along with other greenhouse subjects. In cases of this kind the carnations will have to submit to general treatment, and it will only be an exceptional instance when they are found in a satisfactory state.

When a house can be devoted to their culture—and they are worth one—there is no reason why pot carnations should not be found as healthy as geraniums. The chief difficulty in carnation culture lies in the tenderness of the roots. These organs resent too much moisture, and are impatient of dryness. This teaches us that the compost used should be a porous one, and that strict attention and care in watering should be exercised. A porous loam—one that will not run together—is the one to endeavour to secure for carnation culture in general. Of course, to obtain the best results all round different blends will be necessary, for it will be found that the more spindly the natural habit of growth of any variety the more sandy should be the soil for its roots, and the more robust the growth the stronger should be the loam used. In all cases a natural is better than an artificial blending, and therefore an open sandy loam is the one to employ generally for wiry-growing carnations. For strong growing sorts, such as Malmaisons, a really porous loam is the staple to make use of. To this may be added leaf-mould and well-dried cow manure. In the event of the soil having a tendency to run together, soft red bricks broken fine, some powdered, may be incorporated with it. Should sand be necessary to get the blend of compost desired, use that which is sharp and clean. As is well known, thorough drainage is indispensable in the pot culture of carnations. Not only should the crocks be well placed, and in sufficient quantity, but they should be covered with some lasting material, such as dried moss, to prevent the soil mixing with them. Some like their balls of soil around the roots moist before they pot the layers up, and then they allow the newly-potted plants to stand a few days before water is given to them. Others, again, prefer the little balls just damp, and then they give a good watering immediately the operation is finished. In either case stand the pots on ashes or gravel in a cold frame for six weeks or two months, and then remove them to a light, cool, airy, dry structure for the remainder of the winter months. During these months the plants will not require much water, but they should be examined once a day at least, and their wants supplied.

The success or failure which follows is almost entirely in the hands of those who attend to the watering. To meet with success we must not water until it is necessary, and then fill the pot to the brim. This will drive out all the air among the particles of soil, and enable a fresh quantity to take its place when the water drains away. In the way of feeding, fish guano, bone meal, wood-ash, and nitrate of soda are all useful as helping and stimulating agents, but should be used sparingly. Weak solutions of farmyard liquid manure may also be given occasionally, and sour milk, though it has a most unpleasant odour, will foster healthy growth in the carnation. If the loam employed be of a fertile character very little assistance from fertilizers will be necessary, and therefore in all cases only a limited quantity of any should be utilised. Worms are sometimes a little troublesome, but if none of the specially prepared antidotes are at hand a solution of mercuric chloride at the strength of one ounce to five gallons of water will shift them. In order to get the mercuric chloride to dissolve it will be necessary to first dissolve a little chloride of ammonia in warm water, and then add the mercuric chloride.

A damp, stagnant atmosphere in the house should be sedulously guarded against; in fact, a free circulation of air at all times when the temperature is above the freezing point, with a gentle warmth in the pipes in rather cold, foggy weather, will be most conducive to healthy, sturdy growth in the carnations. Over or under watering and faulty ventilating will almost invariably lead to an attack of fungus, which will take time, patience, and perseverance to get quit of.

The finest houses of pot carnations I have yet seen are at Eaton Hall Gardens. The tree forms are grand, but the Malmaisons are superb. Mr. Barnes, the Duke of Westminster's head gardener, is in this, as in every subject committed to his charge, thoroughly familiar with the essential items to successful cultivation, and the keen practical energy with which these are carried out leaves nothing to be desired. The trees and Malmaisons are in separate houses, both of which are span-roofed, with paths in the centre and beds on each side. The plants standing on these beds were close to the glass, and in the current of air passing through the house—between the bottom and top ventilators. The soil in which Malmaison carnations were growing was, I noted, of a very porous loamy character, like little lumps, to which had been added leaf-mould and crushed bricks. The majority of the plants were in seven-inch and eight-inch pots, and were a mass of strong, healthy growths, foliaged right down to the soil. Not a speck of disease or anything else was visible on the, comparatively speaking, broad, thick leaves. Every plant was a specimen, and when the time comes for them to yield their quota of flowers the display, judging by the exceptional stoutness of growth and short internodes, will be well worth a long journey to see. Such exceptional examples of successful pot cultivation of carnations are so rare that I feel constrained to advise anyone interested in them to endeavour to secure the privilege of a peep at those at Eaton Gardens. Ocular demonstration is positive proof of facts, and a few wrinkles can nearly always thus be obtained.

J. RIDDELL.

DISAS.

THERE are a large number of these beautiful cool house orchids described, but only about half-a-dozen are worthy of extended cultivation. The species are natives of South Africa, and chiefly found growing at high elevations. Most disas are of exceptional beauty, and quite distinct in floral character from other garden orchids, while, if well managed, they make a fine display when in bloom. They are herbaceous, for when the leafy annual stems have finished their growth and flowered they die down, and young growths take their place. Growth is made during our winter and spring, and flowers are produced in early summer, these remaining in condition for six or seven weeks. When they have done blooming the plants will require a short rest, and during the resting period they want little water beyond a spraying once a day. At all times, however, they need plenty of air, day and night; even in winter a little should be allowed when the weather is at all favourable. We always remove our plants from the house at the latter end of May, and put them in a cold frame with a north exposure until the first week in the present month, shading them with a roller blind whenever the sun is very hot. During the time they are in the cold frame watering must be done with great care, and according to individual requirements.

The present is a good time to commence repotting the disas, as I find October the best month, because as yet the new roots are not matted together. All pots and crocks should be clean, for the roots of the disa love cleanliness. The compost should consist of three parts peat of a rough nature, a small portion of turfy loam pulled with the hand into small pieces, some chopped sphagnum, and pieces of soft sandstone, mixing these ingredients together. Crocking the pots or pans should be done with care, and the crocks are best arranged in the pots on their edge, instead of flat side down, as it is much better for the water to pass away quickly from the tuber; and not only that, but the fleshy roots delight to ramble in the moist drainage. Give the crocks a covering of sphagnum moss, to keep the soil from choking the drainage. The plants should be slightly elevated above the pot rim; then, with a thin label, work the soil down the side, but not so as to make it too firm, or the roots will not spread; finish off with a little sphagnum moss. After potting remove the disas back to their winter quarters, which should be a very light, airy house; stand the pots or pans on stone slabs covered over with sand and spar to hold moisture both day and night. This latter is very important; so also is it to have these orchids near the front ventilators. Insects which are troublesome to disas are green and black fly, thrip, and red spider, but these pests can soon be eradicated by the use of XL All vaporiser. Slugs are very fond of them, and also the little shell snail; these can be trapped with lettuce leaves. Syringe the plants twice a day when the weather is favourable, but little water will be required at the roots until the early months of the year, when, from February to May, they will take copious supplies. During the latter month a little weak guano water given once a week will prove very beneficial.

Disa grandiflora produces the largest flower of any member of the genus, and varying in colour from brilliant carmine-red to a deep blood-red; the sepals in some varieties are orange tinted. There are several hybrids, such as D. Langleyensis, the result of crossing D. racemosa with D. tripetaloides; also the beautiful D. Veitchi, a hybrid between D. grandiflora and D. racemosa, the sepals in this being of a bright carmine, with the inner portion of the lip almost white, spotted with crimson. D. Kewensis, D. Premier, and D. Clio (the latest) are all additions of great value. Disa grandiflora ripens abundance of seed, and this should be sown as soon as it is ripe, for it does not improve with keeping. My method is to obtain a round seed pan, putting in the bottom some crocks, then place in some pieces of peat and lumps of sandstone, giving the whole a thorough watering with boiling water. When cold, sow the disa seed on the soil, just sprinkle a little silver sand on it, cover over with a bell-glass and keep it in a temperature of 50 to 55 degrees, shading it from the sun at all times. The seed will soon germinate, then gradually harden the seedlings, so that they can be placed in a cooler house. The temperature I find to suit the disas best is from 40 to 45 degrees at night, with as slight a rise as possible during the day.

Totley Hall Gardens. T. W. BIRKINSHAW.

Notes from Natal.—A correspondent at Helpmakaar, Natal, writes as follows: "Since I have been here I have heard of a red and also of a pink arum lily." He inquires, do we know of such varieties? Yes, certainly. Then he proceeds: "The place where I am to see them is about a hundred miles from here, but if novelties I will go and see them. They are said to be about half the height of an ordinary white arum, and should live in the South of England. Would it be worth my while to get what bulbs I can, which would involve another journey? I know the white arum lilies are, of course, no good; but would it pay me if I could get a quantity of yellow ones as well? I am told of a place in Zululand where they are to be found, and I intend making the journey. I should like to know of any South African plants which would be of use, as I do not know when I shall go next, or what I may come across. The flowers of the veld are not yet in bloom (October 20), as it is too dry, with the exception of a very pretty miniature iris—mauve, with a yellow spot on each segment, of which I have seen several specimens. England is not the only place that has been suffering from drought, for the veld, as I have said, is as brown as a berry, and our sheep and cattle are dying of starvation. It is impossible to plough, and when we shall have green vegetables again I do not know. Yesterday we had the first rain of the season. It was just enough to start the grass, but not enough to plough. The heat is dreadful, the only time of day which is tolerable being from five to half-past seven a.m. I live five thousand feet above the sea, at the end of a chain of mountains called the Biggarsberg, and, standing at my open bedroom door, can see right into the Transvaal and Zululand. I send this letter by a Kafir to the nearest post office, twelve miles distant, whence another Kafir will take it twenty miles or more to the railway station, and I have to send that Kafir to the same place now and again to see if there are letters for me, for there is no postal delivery here. On our (Boer) farm we lay in a stock of groceries for three years at a time!"—WM. NORMAN BROWN.

WORK FOR THE WEEK

COOL ORCHIDS.

PLEIONES, or Indian crocuses, as the deciduous cœlogynes are sometimes called, are charming little orchids for supplying flowers at this dull season of the year; they not only make valuable decorative plants, but are most useful for supplying cut flowers, and for the latter purpose, when gathering them, it is best to give the blooms a gentle tug, when they will readily part from the young growth, and by so doing you have a much longer stem than by cutting. The following—P. lagenaria, P. Wallichiana, P. Reichenbachiana, P. humilis, P. Hookeriana, P. maculata and its pretty but rare variety alba—should be grown by every amateur, as they are easily managed, and few orchids repay us better for the little trouble they give. Being deciduous orchids, they are often thought to require a good rest after flowering, but this is a mistake, as they are never really inactive, for by the time the flowers have faded the green young shoots from which the flowers sprang will have commenced to push out from their base a number of small white roots, telling plainly that this is the time to repot. Under proper treatment these small growths will make strong flowering pseudo-bulbs. It is not absolutely necessary to repot these plants every year, unless the soil has become sour, once in two years will suffice, and result in the production of plenty of flowers. When repotting, shallow pots or pans may be used, but for those who prefer to grow their plants suspended from the roof pans are the most convenient, but in either case it is necessary to afford abundant drainage, so that the large quantities of water these plants require when in full growth may pass freely through the compost; over the crocks should be placed a thin layer of sphagnum moss to keep the drainage clear, and the compost used should consist of equal parts of peat, loam, and moss, with a good sprinkling of silver sand, mixing the whole together. The method of dividing the pseudo-bulbs, as is often practised, I do not recommend, preferring to pot them up in clumps with the bulbs almost touching each other, as by potting them in this manner the tender young roots are not so liable to injury as when pulled to pieces. After the plants have been turned out, all the exhausted soil removed, and old roots cut away, the pots or pans which are to receive them should be nearly filled to the rim with the compost, and on this the base of the clump should rest, then fill in with the compost, and press it firmly around the bulbs, also filling in between the bulbs with the roughest of the material, or some nice heads of living sphagnum moss. This business being completed, the plants should be placed on a shelf at the warmest end of the cool house, where they will have plenty of light, or better still, if convenient, give them a position in a house a few degrees warmer. Water must be sparingly given for some time, supplying only sufficient to keep the compost just moist; but when the plants are established and start to grow vigorously the amount of water must be gradually increased. P. Hookeriana and P. humilis, having now completed their growths, should only receive sufficient water to prevent the bulbs shrivelling; their flowering season being January and February, these two species are best grown in the cool house all the year round.

Our plants of Lælia præstans have been very gay for the past few weeks, some of the flowers having lasted four and five weeks in perfection. One half of our plants were grown in the intermediate house, and the other half in a house devoted to cool cypripediums, cœlogynes, lycastes, and various other cool orchids that like a temperature two or three degrees higher than that of the odontoglossum house. Flowers produced by these plants we find come darker in colour, open better, and last longer in perfection than those grown in the warmer house; therefore, in the future, accommodation will be found for the remainder of these plants in this house. By the end of this month the majority of them will have passed out of flower, and any that were not repotted in the spring and require new rooting material should be attended to in the same manner as advised in the spring calendar, as the young roots will now push forth from the base of this season's growth and soon enter the new material. As long as the plants continue to make roots keep the compost fairly moist, but when at rest only sufficient water will be needed to keep the pseudo bulbs plump The same remarks apply to Lælia pumila and Lælia Dayana.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

THE last of the forcing roots—lilies of the valley and spiræas—together with Azalea mollis, lilac, and other things which are required annually for cutting and decoration, are to hand, and in potting each of these up it is necessary to use as small pots as possible; indeed, there is no gain in having large ones, as the plants do not require a mass of soil to root into so long as the roots are regularly supplied with moisture; and this applies to all plants that have been properly prepared for forcing. The balls should not be reduced, but they may be forced into small pots, using fine soil, such as leaf mould and sand, for working in between the roots. It is useless attempting to force plants which have not been properly prepared and are not furnished with a mass of roots, and in no case is this so forcibly shown as with roses. Where roses are intended to produce bloom by Christmas the desired number of the most promising ones should be selected and placed in gentle heat at once, gradually increasing the temperature as growth develops. Mildew is the worst enemy one has to contend against in forcing roses, therefore this must not be allowed to obtain a foothold. The plants should be sprayed frequently with a mixture of soft soap and sulphur, especially on the under side of the leaves. It should be remembered that a low, sluggish atmosphere in the house is productive in setting up mildew, therefore both the heating and ventilating require careful consideration during dull, sunless days, and discretion used in syringing and damping down. Plants that are thoroughly established in their pots, and which have been forced previously, are the most amenable to the treatment, and may be selected for giving the first display. The pots being crowded with roots and the drainage perfect, weak soot water or liquid manure may be given in a tepid state once or twice a week. Arrange the plants near the glass, that they may have all the light possible, and do not crowd them with other things. Roses as cut flowers being the desideratum during the winter months, early fruit houses may be utilised, as the plants, being arranged beneath vines or peach trees, will take no harm for a time, and valuable gatherings of choice buds may be obtained by this means.

We have devoted one long span-roof pit this autumn to mignonette and zonal pelargoniums, the same treatment, viz., a cool temperature, plenty of air, and a slight warmth in the pipes occasionally to expel damp, suiting them admirably. They are now dwarf in habit and full of bloom, and promise to yield a good supply for many weeks to come. Weak soot water is the stimulant used, and they appear to revel in it. In writing this calendar I have referred to poinsettias being treated as greenhouse plants, and advised growing them as such, but a slightly warmer atmosphere is necessary now to encourage the bracts to develop to their largest size. Much of the beauty of these plants is lost, even when fine heads are produced, if they are not furnished with healthy leaves down to the pots. This is best secured by growing them in cool but sunny quarters, where they become short jointed, and the leaves have remarkable firmness of texture. Poinsettias are undoubtedly one of our very best winter plants, and well repay for extra trouble bestowed upon them. Potting for the time being will not command much attention, but provision should be made for a more busy season by providing a good store of different composts suitable for various requirements. By bringing fresh cut turf, peat, leaf mould, sand, &c., under cover now it will be in readiness for use next spring, when very often the outside store is either frozen or in a cold, saturated state.—R. PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THE favourable weather of the last few weeks has enabled outdoor operations to be carried on uninterruptedly. The soil is in good condition at the present time for digging, and therefore such work should be pressed forward as quickly as possible, so that all may be done before severe frost sets in. At the present time falling leaves are a great trouble, and should be cleared up as soon as they fall, for when allowed to lie among the plants they soon cause them to damp off; this is particularly the case with seedlings, such as lettuce, cauliflower, parsley, cabbage, &c., as these being tender and full of moisture are not able to submit to being partially covered. The more such plants are exposed at this time of the year the better will they be able to endure the frost later on. Those who have not made preparations for protection should lose no time in doing so, for though we have had an exceptionally mild season so far it is always best to be well prepared in case of a sudden change. Cabbages have made marvellous progress this autumn, and should the open weather continue for a time it is doubtful if they will withstand the winter should the frost be severe. In case such might be the case it would be as well to prick out those still remaining in the seed beds to fill up any blanks that may occur. During dull, foggy weather French beans in bloom must have a little extra heat given them, so that the ventilators may be opened a little wider to expel the damp, for unless the flowers are kept dry there will be but few beans set. Where room can be afforded, another sowing may now be made, for during the short days growth is very slow, therefore a much longer time is needed to have the crop ready to gather. Asparagus is often in demand at Christmas, and if preparations are made now by making a hotbed of leaves and stable manure there will be ample time for growth to be made without unduly forcing. The most tender heads are those grown where there is a free circulation of air, and for this reason it will be far better to plant a few days earlier, so as to allow plenty of time, than to try to hurry growth by applying too much heat. It will be as well to cover those beds intended for forcing with rough litter, in case bad weather should set in to prevent them from being lifted when required Globe artichokes suffer much in some places during winter where the soil is heavy. It is, therefore, a good plan to have the ground covered with a few inches of leaves to exclude the frost, and now that there are plenty falling these could be placed in position at once, which would save any further trouble. Seakale should now be taken up and laid in under a north wall, where it could have a little litter put over it in case of severe weather. When cleared off the ground in this manner it allows of digging being done, which is a great help in many places, for when taken up as required digging cannot be done till late in the season.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

POT strawberries should now be placed in their winter quarters, and if it is thought desirable that they should be wintered in frames under glass a good light position should be chosen for the frames, giving free ventilation both night and day, and covering the lights with mats only during the sharpest frosts. The pots should be plunged to the rims in ashes. My own practice is to winter the plants entirely out of doors, plunging the pots in ashes in an open position as above advised, and leaving them exposed to any weather which comes, and I have never found any ill effects arising from such exposure, though many times the plants have gone through long, lasting frosts, with the temperature falling well below zero nightly. Unless the plunging material is brought quite up to the rims of the pots there will in severe frosts be some loss of pots, but this is readily guarded against, as the ashes give all the necessary protection wanted by well-baked pots. Growth has this season been carried on much later than usual, with the result that the plants now show no signs of being grown from runners obtained from plants affected by the great drought, so that matters have righted themselves, and the crowns are plump and good.

Where the early vinery has an outside border this should have a good deep covering of dry leaves, of which there will now be plenty, and if the vines are planted outside and led through holes in the front wall the exposed portions of the stems should be well protected by haybands, or some other such protective material, as great injury is often done to growing vines by having the flow of sap arrested owing to the stems being frozen through. I am no advocate for the old-fashioned method of making up hotbeds on the early vine borders, but a deep covering of nice dry leaves is quite another matter, as it keeps the roots nicely cosy without overforcing them. The early house may now be closed and started at any time, giving it the same routine treatment as that advised a few weeks back for pot vines. Bear in mind that it will take the earliest cropping vines, such as Sweetwater and Hamburgh, at least five months from the time of starting, to perfect their crop, and if they are moved along still more slowly than this it will be all the better for the fruits, as when pushed too fast, the growths are spindly and the bunches run to tendrils. Syringing and damping down should not be indulged in too often; a damp atmosphere, though opposed to the progress of insect life, is not really good for the vines and is frequently overdone, causing a flabbiness of the foliage. Make sure that the inside border is in fairly moist condition before starting the house, and if it be found at all dry give just sufficient tepid water to alter this, leaving the first heavy watering to be done a few weeks hence when growth is really active. Push on with all work in the way of renovating or entirely remaking the borders of later houses from which the crop has been cut, as the earlier such work is finished the better it will be for next year's crop. A small but important matter in carrying out such work is to keep the exposed roots carefully covered with mats, which should occasionally be damped during the period which must intervene between lifting and relaying the roots. Roots of vines which are given to shanking will mostly be found to have soft and thickened ends resembling the air roots which such vines almost invariably show during the growing period. These thickened ends should be cut off at a point where the roots assume the normal form.

The tiny fruits of such precocious figs as St. John's and Tingo de Mel are beginning to show prominently on pot plants, and no hesitation need longer be felt as to commencing forcing operations with such excellent varieties as these, which are not at all addicted to casting their fruits. With me figs and early grapes have to share the same house, but the former are not grown under the latter; each has a portion entirely devoted to it, and the figs do really well under the same treatment as the vines, but were I in a position to divide the two I should allow the figs a little more heat during the day than I give to the vines.—J. C. TALLACK, *Livermere Park Gardens.*

FRUITS FOR COTTAGERS AND SMALL FARMERS.

R.H.S. VARIETIES OF FRUITS.

IT has been my privilege in past years, when lecturing on fruit culture in connection with technical instruction classes, to recommend and distribute the leaflet of the R. H. S. entitled in 1892 "Fruits for Cottagers and Small Farmers." The excellence of even the first edition, prepared under the supervision of the Fruit Committee, which (we are told in the first page) "consists of forty of the leading experts in fruit culture in this country," is, of course, beyond all question. Sixty thousand copies of this edition appear to have been circulated. In October, 1892, a second edition was issued, and now a similar leaflet, entitled "Varieties of Fruits," is offered for circulation. This last leaflet is, in fact, an enlarged and revised edition of the first. It contains details on artificial manuring not in the former edition, details which are of great value.

But I am writing chiefly to direct attention to the lists of apples recommended at intervals by the R. H. S. In the first and second editions twelve varieties are selected for cooking, eight for eating. In the edition recently published, fourteen varieties are named as apples for cooking, from trees suitable for gardens as bushes or as half-standards, ten cooking varieties as suitable for standards and orchard trees, eleven eating varieties, suitable for gardens as bushes or half-standards, and seven as suitable for standards and orchard trees, forty-two varieties in all. A few of the varieties, however, occur in both lists.

The poor cottager or small farmer, one would suppose, will be sorely puzzled in making a choice of his two or three trees; as he also would be over the word "pendulous," used to describe the habit of various trees.

The following table of the varieties recommended may be interesting (Editions I. and II.)—

APPLES FOR COOKING.

Blenheim Orange
Bramley's Seedling
Ecklinville
Keswick Codlin
Lane's Prince Albert
Lord Suffield
Lord Grosvenor
New Northern Greening
New Hawthornden
Pott's Seedling
Stirling Castle
Warner's King

APPLES FOR EATING.

Braddick's Nonpareil
Cox's Orange Pippin
Duchess of Oldenburg
Irish Peach
King of the Pippins
Red Quarrenden
Sturmer Pippin
(Ribston Pippin, named, but not recommended)

The edition of 1898 is no longer "Fruits for Cottagers and Small Farmers," but "Varieties of Fruits." Cottagers, owners of small gardens, and farmers are advised to consult this list. It is as follows:—

I. APPLES FOR COOKING.

(*a*) *As Bushes.*

White Transparent
Lord Grosvenor
Pott's Seedling
Frogmore Prolific
Stirling Castle
Seaton House
Golden Spire
New Hawthornden
Small's Admirable
Hormead Pearmain
Bismarck
Bramley's Seedling
Lane's Prince Albert
Newton Wonder

(*b*) *As Standards or Orchard Trees.*

Duchess of Oldenburg
Ecklinville
Grenadier
Warner's King
Lord Derby
New Northern Greening
Alfriston
Bramley's Seedling
Newton Wonder
Dumelow's Seedling or Wellington

II. APPLES FOR EATING.

(*a*) *As Bushes or Half-Standards.*

Mr. Gladstone
Irish Peach, or Lady Sudeley
Devonshire Quarrenden
Worcester Pearmain
King of the Pippins
Cox's Orange Pippin
Scarlet Nonpareil, or Cockle's Pippin
Braddick's Nonpareil, or Court Pendû Plat

(*b*) *As Standards and Orchard Trees.*

Devonshire Quarrenden
Worcester Pearmain
Cox's Pomona
King of the Pippins
Cox's Orange
Blenheim Orange
Gascoigne's Scarlet

Here is certainly choice enough and to spare. Twenty-three apples for cooking, sixteen for eating—thirty-nine in all! The first and second editions select nineteen in all; this last edition gives the cottager and small farmer a choice of twenty more.

I venture to suggest that the method of naming about a dozen apples, and then reducing them to one, two, or three, is better for the cottager, if not for us all. Let us look into these lists.

Blenheim Orange, placed at the head of the list of cooking apples in the first and second editions, now disappears, and is placed among the later eating apples; it is, however, described as "an excellent apple, cooking fairly well, but slow in coming into bearing." The removal of this grandest of English apples (at all events, in good, deep soil) from the head of the old list to almost the end of the new one seems strange. Is not Blenheim Orange distinctly a cooking apple? You describe it as such in your Leader of October 22. Rivers and Veitch place it among the kitchen apples. In Mr. Barron's invaluable Report of the National Apple Congress held in 1883 it was placed fifth on the list of culinary apples selected the greatest number of times, and fifth on the list of sixty dessert apples. I am aware that in the list of apples prepared by the R H.S. for the guidance of their judges, Blenheim Orange (so named in the first, second, and third editions—called Blenheim Pippin in the schedule of the Crystal Palace Show issued by the R.H.S.) is placed among dessert apples, and excluded, therefore, as a cooking apple, but I cannot see the reason for this restriction. Few sorts sell so well for keeping, cooking, or eating purposes. An orchardist in my neighbourhood has just sold his crop for nine shillings a bushel net; some of mine have gone for eight shillings. Lord Suffield and Keswick, recommended in the first and second editions, have both been altogether ejected. The favourable remarks respecting them in the earlier editions have not sufficed to save them, nor the remarkable fact that in the election of 1883 Lord Suffield was at the head of the poll and Keswick Codlin third. Grenadier, no doubt, is intended to take their places. May I express a doubt as to the wisdom of the change? Grenadier with me has been a poor grower, as well as an unlucky tree. My soldier son, galloping round our orchard, soldier-like, hit the head of Grenadier right off as his horse swerved. The other Grenadiers seem to mourn the loss of their companion. Sturmer Pippin, too, described in the first edition as "a very fine variety," is seen no more. I took the advice offered by the committee of forty experts in 1892, planted the tree, and have no reason to repent. The Duchess of Oldenburg was originally recommended as best for a bush or half-standard; it is now recommended, but as rather suitable for standards or orchard trees. My experience coincides entirely with that of the committee who prepared the first and second editions.

The latest list, as I have pointed out, contains a number of new names. White Transparent I do not see in three or four of the best catalogues; how long has it been tested? Early Julyan bears well and sells well. Frogmore Prolific, though a good bearer and a good cooking apple, is "soft" (so Mr. Barron describes it), and is therefore open to objection. I do not see Seaton House in Mr. Rivers' catalogue of 1897-98, but it is described by Veitch as a late Stirling Castle, and may therefore be valuable. Hormead Pearmain is said, in the "Fruit Manual," to be of medium size, and the specimens displayed at the recent Crystal Palace Show must have disappointed many. The rule of the Committee of the Apple Congress, laid down at the end of their report, seems to me a golden one. They say (p. 160), "With regard to culinary apples, since so many excellent varieties of large size, &c., are now in cultivation, all those under the standard of 'large,' *i.e.*, three inches in diameter, might be with advantage at once discarded." It is only fair to add that it is described by Mr. Barron as "large."

The highest compliment in the new list is reserved for Newton Wonder, which is called "a grand apple." Your able correspondent, Mr. Harris, recently described it, if I mistake not, as "coming rather slowly into bearing"; that, too, is our experience. An old housekeeper of mine used, years ago, to impress upon me that you can never know anyone until you have "summered and wintered" with them. No apple, in my opinion, should be placed in the list of the R.H.S. until it has been tested north, east, south, and west for at least ten years—fifteen would be better. Will Newton Wonder stand that test? I do not see it named in Rivers' catalogue of 1891. The specimens at the last Palace Show were disappointing. It is a pleasure to see Lord Derby brought to the front; this, to my mind, is one of the best of our culinary apples, and has won its way to the front rank simply on its merits. "Very large," says Mr. Barron, "first quality, a fine, handsome apple, and great bearer." Should Alfriston appear in such distinguished company? The Committee of 1883 describe it as "very firm, first quality, mid-season, a moderate bearer." I should have thought that Tower of Glammis, described by the same authority as "large, flushed, firm, mid-season, first quality, a handsome apple, and a great cropper," had a prior claim. But it comes from the land o' cakes, and its merits, therefore, may not be so well known.

Among the apples for eating Cox's Pomona is mentioned, much to the surprise, I should think, of many. In the election list of culinary apples in Mr. Barron's book it is placed thirteenth, Alfriston being fourteenth. In the descriptive catalogue of the same report it has the letter C or D attached to it, but its name does not appear among the dessert apples. Dr. Hogg calls it a culinary apple. Its colour makes it attractive and saleable, but it is "tender" (Mr. Barron), and does not keep well. I ought to add that it is described in the "Varieties of Fruits" (*i.e.*, the third edition) as also good for cooking, as it undoubtedly is. But it is very soft and a bad traveller.

In the "addenda" to the "Varieties" amateurs are invited to try, among others, D'Arcy Spice. "This," remarked Mr. Bunyard's famous foreman to me about ten years ago, "is the slowest growing tree among our six hundred varieties"; and, no doubt, it is a "terrible slow coach," as pedagogues are wont to say. After ten years' trial mine are just coming into tolerable bearing. A common opinion in Essex (where it is the favourite apple, and sells at a high price in April or May) is that there are two varieties, viz., the Spice and the D'Arcy Spice. Mr. Bunting, the nurseryman, of Colchester, used to keep these varieties distinct, but he could see little or no difference between them. Let sellers beware of sending this apple to the London markets; its appearance is not in its favour. It must be sold, like a good hunter, by character.

St. Edmund's Pippin is another apple recommended to the notice of amateurs. This is a famous russet, but why name it "Pippin"? Those shown at the Palace were splendid fruit.

A friend, who was a salesman at one of the great London markets, has recently become an Essex planter, and has put down, he tells me, six thousand trees, chiefly apples. He has kindly given me the list of his trees. Most of them came from Sawbridgeworth. It is appended :—

- Blenheim Orange
- Golden Spire
- Schoolmaster
- Bramley's Seedling
- Lord Derby
- Dumelow's Seedling
- Devonshire Quarrenden
- King of the Pippins
- King of Tompkin's County
- Yellow Ingestre
- Claygate Pearmain
- Stirling Castle
- Tower of Glammis
- Lord Grosvenor
- Worcester Pearmain
- Nelson Codlin
- D'Arcy Spice (12 only)
- Bismarck
- Scarlet-Golden Pippin

Dumelow's and King of the Pippins are planted most largely. Nelson's Codlin, though evidently a first-rate apple, is described by Mr. Barron as "very greasy." Only twelve Spice apples could be secured.

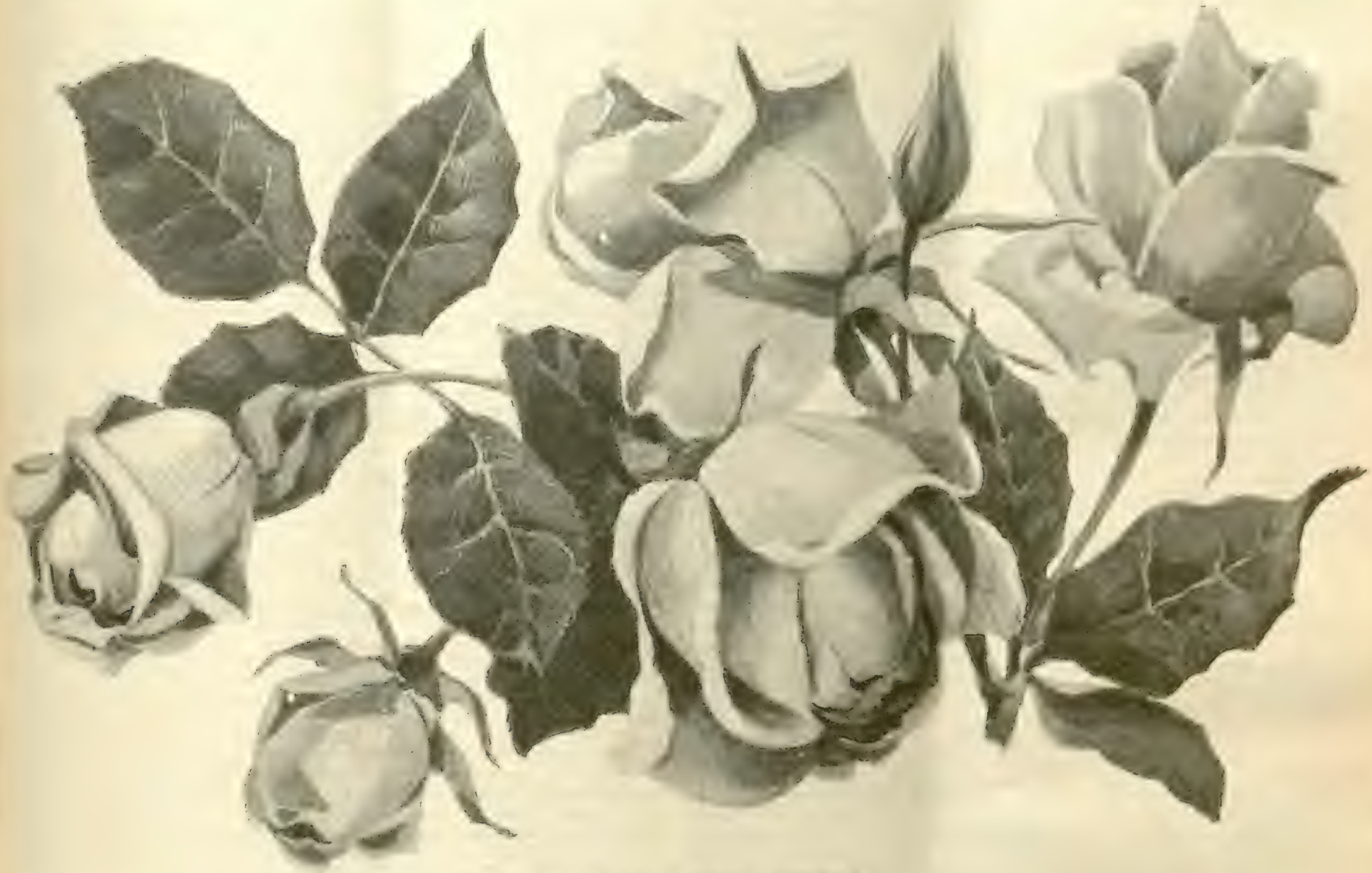
In the introductions to the first and second editions, and also to the "Varieties of Fruits," the statement is made that care has been taken to choose only varieties characterised by quality, fertility, good growth, and hardiness. May I suggest some additional and desirable features? (1) Size, in all culinary apples, according to the rule of 1883. (2) Firmness, so as to travel well. (3) Colour, when it is combined with other qualities. A bright colour, a red cheek, are always attractive. I was recently at a fruit show held at New Westminster, on the Pacific coast of Canada. The brilliant colour of the apples, as well as their size, was quite a feature of the show. No doubt the Canadian sun is warmer, but much may be done amongst ourselves if the point is kept carefully in view. (4) No apple should be recommended by the R.H.S. to the public unless it has had a probation of at least ten years in different parts of Britain.

Wakes Colne Rectory, Essex. E. BARTRUM, D.D., F.R.H.S.

The Dundee Chrysanthemum Carnival, now being held in the Drill Hall, Dundee, as we go to press, promises to be a great success, as the entries greatly exceed those of last year. The society provides forty-six classes, and offers fairly good prizes for cut blooms, plants, fruit, and vegetables. In addition there are eighteen special prizes offered, including four challenge cups and several gold, silver-gilt, and silver medals. Mr. Norman Davis provides the prizes in a most interesting class for a display of chrysanthemum blooms, foliage plants, berried plants, &c., the chrysanthemum to predominate. The energetic secretary, Mr. W. P. Laird, informs us that the society has secured the band of the Royal Scots Greys for the Thursday and Friday, and the band of the Royal Grenadier Guards for Saturday, the 26th inst. This is the strongest musical engagement available, and it is to be hoped that the enterprise of the committee will give the results anticipated. Last year's carnival at Dundee was the turning-point in the society's career, it being on a scale much larger than on previous occasions, bringing it up to the standard of the best shows in the kingdom.

TEA ROSE, SUNRISE.

OUR illustration of this pretty tea-scented rose was made from flowers exhibited in a tasteful vase arrangement at the Drill Hall meeting of the Royal Horticultural Society on October 25. Sunrise is evidently one of the freest bloomers, the growths staged having large trusses of buds and blossoms. The buds open well, and each bud is suited for personal wear or for indoor decoration. As a rose for winter forcing Sunrise is sure to become most popular, for it is free in growth, and, we are informed, has no blind or flowerless shoots. It is certainly one of the most distinct garden roses we have, and by no means its least charm is the exquisite colouring of its bronzy-purple foliage and the delightful fragrance of the blooms. The floral colouring is unique, a deep apricot in the centre and carmine upon the outside of the petal. In the bud stage, or when half expanded, it is difficult to imagine a more striking or distinctly coloured rose, and the effect is much heightened by its grand foliage. We predict a hearty welcome for this variety among all who love garden roses. Though its main usefulness may lie in its grand winter-blooming qualities, it is, nevertheless, quite hardy, a good bedder, and one of the best autumnal bloomers. Many rose authorities have seen Sunrise growing, and all speak of it in the highest praise. An award of merit was accorded the variety on the date referred to, when it was exhibited by Mr. G. W. Piper, the Nurseries, Uckfield, Sussex, who will distribute it in May next.



NEW TEA-SCENTED ROSE, SUNRISE.

Cement in Greenhouses.—When recently at Basing Park, Alton, Mr. Smythe, the gardener, drew my attention to a couple of lean-to houses, in which cement had been used to form the lower plates on the front walls instead of wood. In one case the cement plate was of the same width as the wall, four and a-half inches. In the other it overlapped, as wooden plates usually do, about one and a-half inches. But in each case the upright bars supporting the front of the house and holding the glass was not let into a wooden plate at all, but rested on the brickwork, on which was first placed a thin coat of cement to make the surface even. Then the plate was formed by filling up to a height of two inches at the sides and three inches in the centre all the space between the bars with cement, the upper edges of course being sharply sloped. When closed the glass just touched, or hardly so, the outer slopes, so that any moisture gathering on the glass inside runs down on to the outer side of the cement plate and is carried away. Such a plate is utterly impervious to moisture, and would endure much longer than even the upright bars. Wooden plates, proverbially, quickly rot, and often need replacing. Should any interstices appear in the cement close to the bars or elsewhere, they are very easily stopped with cement. The house that has the broader cement-plates is of more pretentious nature, and so admirably is the plate fashioned that no one would imagine it to be other than wood, except on close inspection. Top plates of wood are commonly fashioned, with a flat upper side. That is bad practice; the upper side should have a ridge shape, sloping partly out with the fall of the rafters, and partly in, so that so fashioned no moisture is retained on the wood.—A. D.

CHRYSANTHEMUMS AT MAIDENHEAD.

THE business established by the late Mr. R. Owen and carried on with such success for so many years has since his death been managed by his two sons, who seem to be quite as much interested in the work of growing, importing, and raising new seedling chrysanthemums as their father. Altogether they have this season something like eight thousand plants, the majority being seedlings of their own, and in the seven or eight greenhouses through which we passed we certainly saw some very promising and useful-looking novelties, which, being unnamed at present, cannot be referred to and described individually. It will be sufficient, however, to say that there is an unusually large percentage of the Maidenhead seedlings in the various shades of white, yellow, purple, and crimson, mostly, of course, in the Japanese section, but nevertheless a fair sprinkling of novelties belonging to the incurved type.

On entering the first house we were specially struck with the very finely-flowered examples of several of the plants, the chief of which, W. Bardney, is a large Japanese incurved, with broad florets of a velvety pale purple amaranth, and silvery reverse; Mrs. Philip Mann, a sport from Charles Davis, being of a golden yellow shade, flushed pale crimson.

There is a fine example of the big white Japanese Mrs. H. Weeks, and several equally good ones of the deep yellow Carnot sport called G. J. Warren. Close by is another rather striking-looking flower named David Inglis, with medium-sized florets, colour deep crimson, with golden reverse. Lucine is a large white Japanese, very full and double; and Cameo, which is the next to attract our notice, is of a charming shade of pale flesh pink, but belongs to the incurved type, and is a good, deep flower. In one corner stands a plant of Glory of the Pacific, a very free flowering, useful Japanese, not unlike the Christine family in form, but of a white colour, tinted lilac; this is regarded as a very useful variety for decoration or grouping.

Continental novelties comprise a good selection from all the leading raisers, and in another greenhouse we met with Madame Everart, a large Japanese with flat florets, white, tinted yellow in the centre; Mozart, also a Japanese, of a very rich deep shade of golden yellow, and several others. Royal Standard is home-grown, a large Japanese of dazzling crimson; Owen's Memorial is another of the same colour, but more of the Edwin Molyneux type as regards form. Mrs. C. Herrin is a Japanese incurved with numerous grooved narrow florets, colour white. Here, as at most of the trade displays, the visitor is curious to see the way in which the novelties of Mr. Ernest Calvat turn out, and they seem to be uniformly good here as elsewhere. Of these President Bevan, a big yellow Japanese incurved, already frequently described in the various reports; Tatiana, a very fine yellow Japanese; Fée du Champsaur, large white Japanese; Madame Ed. Roger, the green novelty, and most of the others to which reference has so frequently been made in our previous reports, are all noteworthy.

Other Japanese from various sources are to be found in Mrs. Chas. Birch, a Japanese incurved, slightly hairy, pure glistening white; Glory of Maidenhead, a fine Japanese, with flat florets of medium width, colour a peculiar shade of metallic crimson, reverse golden. The new Mary Molyneux, large pink; Mr. Chas. W. Cox, creamy white; Mrs. H. Perkins, also white; Mr. W. H Grenfell, deep lilac rose, are all more or less likely to attract the visitor's attention.

Among incurves one of the most regular and perfect in form is C. S. Bates, a deeply built flower of a pure golden chrome yellow. In the same section we noticed Pearl Palace, a good-looking globular form, deep and solid, colour pinkish lilac. Besides these there are some really good unnamed seedlings that are sure to be heard of next season, and to reflect great credit upon the young raisers, who bid fair to become as well known in the chrysanthemum world as their late father was.

In conclusion, we may mention that Lord Cromer is one of the most striking of the new Japanese in the collection. It is of a rich velvety reddish crimson, with a golden reverse, and makes up a bloom of great size. Madame J. Tossal is a Continental Japanese with very long, narrow florets twisted and curly at the tips, a hairy novelty of a pale lilac mauve, with silvery pink reverse. Duke of Wellington belongs to the massive type of Japanese incurved, colour golden bronze, and with the mention of these we must close our remarks on an interesting and promising collection, from which much may be expected in the near future.

STEPHANOTIS FLORIBUNDA IN COOL HOUSE.

I AM pleased to add my testimony to Mr. Day's anent the excellence of the specimen plant recently shown at Edinburgh by Mr. Lunt, of Keir Gardens, who is well known in Scotland as a skilful horticulturist. It might be well, however, to caution young growers against letting the temperature in which their stephanotis is growing to fall to 27 degrees; ten more would be far safer than this, or, say, from 35 to 45 degrees, which is quite consistent with the cool or greenhouse treatment with this sweet and beautiful plant.

The measure of cold it will endure depends very much on the dryness of the roots or the air, or the maturity of the wood. The hardiness or tenderness of the stephanotis, more than most plants, is measured by its condition, rather than its constitution. Growth made easily in rich soil and tropical heat may be severely checked, if not permanently injured, in a dry temperature of 45 degrees or under; whereas well-matured moderate growths grown in the sunlight may touch frost with impunity. There are also several strains of Stephanotis floribunda in cultivation—some with stronger shoots, larger leaves, fewer flowers, and almost certainly more tender constitution than others. As an old plant man I remember quite a rush being made after the so-called S. f. multiflora, or Elvaston variety—a very compact and enormously floriferous strain. I may be wrong, but I put Mr. Lunt's plant down as this variety as soon as I saw it. Though generally propagated from cuttings, the stephanotis occasionally shows a seed pod somewhat longer and larger than Passiflora edulis, but we seldom hear of anything equal to or better than the type resulting from the seed.

There is also another species seldom seen outside botanic gardens—S. Thouarsi—but not equal to the more generally grown S. floribunda. But there should be stated in connection with the cool treatment of this climber that while endorsing all that has recently appeared in the GARDENERS' MAGAZINE on the subject, viz., that it can be grown and bloomed well under cool treatment, I wish to add that it can be grown as well or better, and more profitably still, in tropical temperatures. I have never seen it better grown than covering the roof of a long house at Knight and Perry's (now Messrs. J. Veitch and Son's Nurseries at Chelsea). It is no exaggeration to say you could neither see roof nor rafter for sprays of leaves and flowers, and the regulation temperature was from 70 degrees to 80 degrees. As soon as I had the opportunity I ran up a house on the same lines, which produced bushels of blooms for years, and though I have had not a few, and seen many plants do fairly well in cool houses, I cannot recall a big house of Stephanotis run profitably on commercial lines with a cool temperature. Nor is the reason far to seek. The only two species yet introduced are natives of Madagascar. The plant has proved itself useful and obliging in cool houses, but it is at home in a tropical temperature. D. T. F.

EXHIBITIONS AND MEETINGS.

MANCHESTER ROYAL BOTANICAL, November 17, 18, and 19.

THE St. James' Hall is a commodious and well-lighted structure, and in every way a most suitable place for the very large show held on the above dates. This fine display was the result of an excellent rearranged schedule, together with the handsome £25 challenge cup, presented by the president, the Right Hon. the Earl of Derby, K.G.; altogether the exhibition could only be surpassed by that of the National Society, and there was plenty of light and space. Exhibitors rally round the Manchester society at all seasons, and in this new departure they have fully upheld their traditions. Although the schedule only embraced cut flowers and plants, the large hall was fully furnished; but there is no doubt if the public support this new venture Mr. P. Weathers, the courteous and energetic curator and secretary, will suggest to the council the advisability of adding a fruit section, and possibly a vegetable one, which would make Manchester the leading autumn show of the provinces. Messrs. Upjohn and Paul are to be congratulated on the staging arrangements, whilst the general regulations, under the immediate control of Mr. P. Weathers, were carried out to time and without the slightest hitch.

PLANTS.

These are all shown as naturally-grown plants, and, after the fine specimens staged, one must almost agree that this is the proper form. The class for a group of chrysanthemums and foliage plants, in circular form, and of not less than eighty square feet, brought five entries. T. Hardcastle Sykes, Esq., Cheadle (gardener, Mr. J. Roderick), secured the leading position with a most effective combination, the centre being occupied with a handsome Phœnix rupicola, banked up with good chrysanthemums, about three feet of the margin being occupied with well-grown crotons, palms, &c., on a base of ferns, foliage plants, and cork; the effect would have been considerably enhanced by a more liberal use of fern and some distinct form of edging. James Walker, Esq., Newton Heath (gardener, Mr. J. Horrocks), was second with a somewhat heavy design, but having good blooms. Miss Lord, Ashton-on-Mersey (gardener, Mr. G. Wilkes), took the remaining prize. Sets of nine large flowering plants were shown in splendid form, G. H. Gaddum, Esq., Didsbury (gardener, Mr. W. Bradburn), staging the premier lot with Duchess of Fife, Viviand Morel, Charles Davis (splendid), and C. H. Curtis, with deep blooms; Thomas Harker, Esq., Withington (gardener, Mr. Mulloy), was second with good plants; Mr. Roderick, third. For six pompons J. Brown, Esq., Heaton-Mersey (gardener, Mr. Smith), won with heavily-flowered plant, the best, being Lord Mayor, Cardinal Wiseman, Sœur Melaine, &c., Messrs Bradburn and Mulloy taking the remaining prizes. For six Japanese Mr. Bradburn won with well-flowered specimens, Messrs. Mulloy and Smith second and third respectively.

CUT BLOOMS.

Seven classes were arranged in this section, and they brought fifty-eight entries. The Derby Challenge Cup for the best forty-eight blooms, twenty-four Japanese and twenty-four incurved, distinct varieties, with four money prizes of £10, £6, £4, and £2, brought seven entries. F. A. Bevan, Esq. (gardener, Mr. W. H. Lees), occupied the position of honour with blooms highly creditable to this successful southern grower. His Japanese were: Mutual Friend, Mrs. C. H. Payne, G. J. Warren, Mrs. Lewis, Mrs. Palmer, Madame Carnot, Viviand Morel, Mrs. Weeks, Sécrétaire Fierens, Edwin Molyneux, Oceana, John Pockett, Simplicity, Colonel Carrington, Phœbus, Mrs. Shrimpton, Nellie Pockett, Edith Tabor, Eva Knowles, Elsie Teichmann, M Chenon de Leche, R. Hooper Pearson, Madelaine Davis, and C. Davis; incurved varieties: Ma Perfection, Miss V. Foster, Charles H. Curtis, Lady Isabel, W. Tunnington, Duchess of Fife, Globe d'Or, Madame Ferlat, Austin Cannell, Yvonne Desblanc, Empress of India, Mons. Desblanc, Mdlle. Lucie Faure, Major Bonaffon, Princess of Wales, Lord Rosebery, Mrs. Coleman, Lyne, jun., Mons. Martignac, Madame Darrier, Bonnie Dundee, and Jeanne d'Arc. The Earl of Harrington (gardener, Mr. Goodacre) was second with a strong stand of Japanese and grand incurved blooms of Lady Isabel, W. Tunnington, C. H. Curtis, and Miss V. Foster; Mr. Crooks was third and Mr. West fourth.

For twenty-four incurved blooms, not less than twelve varieties, the Dowager Lady Hindlip, Droitwich (gardener, Mr. Crooks), had the best out of nine lots, with Madame Ferlat, Topaze Orientale, Duchess of Fife, W. Tunnington, Chas. H. Curtis, Miss V. Foster, Madame Lucie Faure, Golden Empress, Empress of India, Egyptian, Jeanne d'Arc, Mrs. Coleman, Brookleigh Gem, George Haigh, Bonnie Dundee, and Queen of England; E. Behrens, Esq., Whitchurch (gardener, Mr. West); H. Tate, Esq., Allerton (gardener, Mr. C. Osborne); and Mr. Foster, Havant, were placed in the order named. For twelve incurved, distinct, the winners were Messrs. Foster, Crooks, and Lees, placed in the order named, Madame Ferlat, Duchess of Fife, and Dorothy Foster in the first prize lot being fine.

For thirty-six Japanese, in not less than eighteen varieties, Mr. T. Vallis, Chippenham, won the first prize and gold medal with a fine stand of G. J. Warren, Swanley Giant, Madame Carnot, Nina Dabbs, E. Molyneux, Mutual Friend, Silver King, Mrs. J. Ritson, G. W. Palmer, Yellow Carnot, Mons. C. de Leche, Lady E. Clark, Lady Hanham, Mons. G. Henry, Viviand Morel, Golden Gate, J. W. Barks, Phœbus, Silver King, Mons. Hoste, Oceana, Herman Kloss, Simplicity, M. A. Rossetta, Surpasse Amiral, M. A. de Galbert, and Boule d'Or. The remaining winners were Mr. West, with a good stand; Thomas Brocklebank, Esq., Woolton (gardener, Mr. Vaughan); and Mr. J. Davies, jun. For eighteen Japanese, not less than nine varieties, the cup-winner, Mr. Lees, was again to the fore with fine blooms, R. A. Bowring, Esq., Cardiff (gardener, Mr. Joy), and Mr. Foster following. For twelve Japanese, distinct, C. Waterhouse, Esq., Prestbury (gardener, Mr. Hall), and Messrs. T. Vallis and W. M. Low, Warwick, were the successful competitors.

For thirty-six miscellaneous blooms there were eight entries, but the small reflexed and anemones looked somewhat out of place with the Japanese giants; the prize-takers were Mr. Vaughan, J. Lamb, Esq., Bowden (gardener, Mr. Vickers), and Mrs. Banner, Huyton (gardener, Mr. R. Pinnington). The best basket of chrysanthemums, suitable for drawing-room decoration, was from Mr. Mosley, Haliwell, who had a charming light arrangement of Source d'Or and dark asparagus; Mr. Bracegirdle, Liverpool, was second with the same variety of flowers; Miss Lord was third. For three bouquets Mr. Mosley was again first with three distinct types, showing dark roses, orchids, and white flowers; Mr. Jones, Bolton, was second. The best miscellaneous collection of cut flowers came from Miss Lord (gardener, Mr. Wilkes), who staged over forty varieties; Mr. J. Smith second.

For a collection of orchid blooms Thomas Statter, Esq., Stand Hall (gardener, Mr. Johnson), won with a superb collection, arranged on a white cloth; Cattleya aurea (fine variety), Dendrobium Phalænopsis Schroederiana, Cattleya labiata in variety, and C. Bowringiana were splendidly represented. For a basket of plants the only contributor was Mr. Wilkes; but for eight table plants Messrs. Ashbrook, Lee, and Ellis were first, second, and third respectively. For six cyclamen Thomas Gee, Esq., Allerton (gardener, Mr. P. Geene). Messrs Hall and Pinnington were adjudged the winners; while for half a dozen pots of Roman hyacinths Messrs. Golden, Wilkes, and Bradburn gained the awards. The best eight pots of white primulas were shown by Messrs. Bradburn, Wilkes, and Ferguson; while Messrs Bradburn, Pinnington, and Ferguson won in a similar class of red varieties.

NON-COMPETITIVE EXHIBITS.

As already mentioned, these formed an important feature of the show. Mr. J. Cypher, Cheltenham, was awarded the society's gold medal for a charming bank of orchids, including Cypripedium insigne Sanderæ, C. i. ornatum, C. Haynaldo-Chamberlainianum, C. William Lloyd, Vanda cœrulea, fine spikes in many tints, Dendrobium Phalænopsis Schroederiana, and many others, making this exhibit one of interest and beauty. Mr. John Robson, Altrincham, also gained a gold medal for a very meritorious group of orchids in which odontoglossums, cattleyas, cypripediums, oncidiums, &c., played a prominent part. Messrs. Dickson and Robinson, Manchester, secured the society's silver medal for a bank of plants of Begonia Gloire de Lorraine, cyclamen, and a margin of potatos. Messrs. W. Clibran, Altrincham, were the recipients of a like award for a large variety of charming single chrysanthemums, Emily Clibran, pale terra-cotta colour; Lucie Clibran, bright; and Felix were especially noticeable. This firm also staged a group of celosias. Messrs. Dickson, Brown, and Tait, Manchester, had a background of foliage plants, which set off to advantage masses of lily of the valley and Begonia Gloire de Lorraine, for which a silver medal was awarded.

Messrs. W. and J. Birkenhead, Manchester, contributed a collection of ferns in great variety, which was also awarded a silver medal. Messrs. Cowan and Co., Gateacre, received a similar mark of esteem for a miscellaneous group of Acalypha hispida (Sanderi), ericas, Cattleya labiata, Vanda cœrulea, and other orchids. Messrs. H. Cannell and Sons, Swanley, gained a silver medal for a fine collection of cut zonal geraniums, cannas, and chrysanthemums; certificates of merit were granted for chrysanthemums Mrs. Filkins and Madame Gabriel Debrie. Mr. H. Deverill, Banbury, for his exhibit of magnificent onions was awarded a silver medal. Mr. E. Ashworth, Wilmslow, received a first-class certificate for Vanda cœrulea with four spikes carrying thirty-three flowers. Mr. R. Eichel gained a certificate for Odontoglossum Humeianum Masoni.

Mr W. Wells, Redhill, staged a collection of chrysanthemums, and gained certificates for Nellie Pockett, John Pockett, Mr. T. Carrington, and President Bevan. Other contributions were sent by Mr. W. Boond, Lymn, Cheshire, cut chrysanthemums; Messrs. Isaac House and Son, Bristol, a collection of cut violets; Mr. W. J. Godfrey, Exmouth, cut chrysanthemums; Messrs. Heath and Son, Cheltenham, a collection of orchids; Mr. W. Edwards, Nottingham, pottery and ferns. From the society's own gardens came an immense group, twenty-five yards long and sixteen yards wide, of stately palms and other tall foliage plants, with chrysanthemums grouped in distinct colours and intermixed with crotons, dracænas, and richly coloured Acalypha Macafeeana, the whole forming a huge and attractive bank nearly in the centre of the room.

RUGBY, November 16 and 17.

SINCE the days of the renowned Dr. Arnold the schools of Rugby have placed the town in the foremost rank of educational centres, and it is only fitting, therefore, that horticulture should receive a share of the public attention. It has been the work of the Rugby and District Chrysanthemum, Fruit, and Horticultural Society to support and extend the local interest in gardening, and by means of its annual show to provide a stimulus of distinctly educational value. The objects of the society have been well carried out during the past twelve years by a strong committee and an able secretary (Mr. W. Bryant), and the exhibition for the present year, held in the Town Hall last Wednesday and Thursday, well maintained the reputation won in preceding years.

Whether it was due to the effects of a trying season or to an alteration in popular taste it is not easy to say, but the fact has to be recorded that, while the Japanese blooms were all that could be desired both in numbers and quality, the incurved blooms were just as poorly represented. It would be very regrettable if this distinct class of chrysanthemums were allowed to decline, for, great as are the attractions of the popular Japanese, there is a charm and refinement about well-grown incurved blooms that others can appreciate besides the florists of the old school.

The most important of the cut bloom classes was that for twenty-four Japanese, distinct varieties, in which liberal money prizes brought three strong competitors. Exceptional success attended the efforts of Mr. A. Chandler, gardener to A. James, Esq., Coton House, Rugby, for not only was he first in the class just named, but he secured a similar place with eighteen and twelve Japanese, his contributions forming the best part of the show in this department. The blooms in the class for twenty-four were remarkably fine, and the examples of most of the following varieties have been surpassed in very few cases this season. Those staged were Mad. Gustave Henry, Australie, Mrs. J. W. Barks, W. Wright, Mrs. W. Mease, E. Molyneux, G. J. Warren, Mrs. G. W. Palmer, M. Hoste, Mrs. Herman Kloss, Pride of Exmouth, Graphic, Mad. L. Remy, Mrs. C. H. Payne, Mad. Carnot, M. Chenon de Leche, Phœbus, Silver King, Lady Ridgeway, Emily Silsbury, Ethel Addison, M. Gruyer, M. Panckoucke, and R. Dean. Mr. Pearce, gardener to S. Loder, Esq., Floore, Weedon, was second in the twenty-four Japanese class, and Mr. Blakeway, gardener to T. A. Muntz, Esq., M.P., Dunsmore, Rugby, was third, both staging good blooms effectively arranged in their respective stands, but the difference between these and the first was sufficiently well marked to occasion the judges little trouble in making the awards. Mr. Chandler's first prize stand of eighteen Japanese included representatives of most of the varieties in his other stand, and Mr. Blakeway was there again second, Messrs. Chandler, Pearce, and Blakeway winning the prizes for twelve Japanese in the order named. Classes confined to the district were also provided for Japanese blooms, and with twelve distinct varieties first honours were gained by Mr. Mackay, gardener to E. Edwards, Esq., Horton Crescent, Rugby, who had medium size blooms, but very fresh and bright; the second prize went to Mr. Robinson, gardener to Mrs. Caldecott, The Lodge, Rugby; and the third to G. Steel, Esq., Barby Road, Rugby, these three exhibits being all fresh and [illegible] in merit. First and second prizes were awarded to Mr. Chandler and Mr. Pearce respectively for twelve incurved blooms, neat and even, but in no degree remarkable.

During the years we have known the Rugby Show there has been no advance in the specimen plants exhibited, and it is a pity some grower will not take the [illegible] to show by a few examples what can be accomplished by skill and care in the matter. Groups were attractive, but the space is rather limited, and they are not in consequence seen to the best advantage. Three classes were provided, but the entries were not numerous, and the best exhibits were those which gained leading prizes for Mr. Robinson, Mr. Whyman, gardener to Miss Bennett, The Firs, Rugby, E. A. Scott, Esq., The Lawn, Rugby, and Mr. E. Andrews, Oxford Street, Rugby.

Hardy fruits, particularly apples and pears, occupied a large proportion of the available table space, and the majority of the exhibits were of considerable merit. Mr. Harman, gardener to the Right Hon. the Earl of Denbigh, Newnham Paddox, Lutterworth, won the premier awards both for dessert and culinary varieties, having well-grown fruits of the following varieties—Dessert: Cellini, King of the Pippins, Adam's Pearmain, and Cox's Orange. Culinary: The Queen, Peasgood's Nonsuch, Gascoyne's, and Lord Derby. Other good exhibitors were Mr. S. Cole, gardener to Earl Spencer, Althorp Park, Northampton, with Messrs. Pearce, Blakeway, and Daniels.

Vegetables are well grown in the Rugby district, both by professional gardeners and cottagers, and the classes devoted to these exhibits are always well filled. Mr. S. Cole was awarded first prize for an admirable collection of eight kinds, staging excellent onions, celery, potatos, leeks, cauliflowers, carrots, and beet. Mr. Blakeway was a close second, and Mr. Robinson third. In the other classes potatos, carrots, parsnips, celery, onions, savoys, and cauliflowers were all well and numerously represented. Floral decorations and tables were not very abundant, nor were they so tasteful generally as we have seen them in previous years.

BIRKENHEAD, November 16 and 17.

THIS exhibition was held in the large hall, Grange Road, Birkenhead, and was opened by the Mayor. The exhibits were hardly up to the usual number, but the quality was of the usual good order.

Cut blooms were the most important feature, and for the cup presented by Mrs. Stitt, for twelve Japanese and twelve incurved distinct varieties, E. Ellis, Esq. (gardener, Mr. J. Davies), won with a strong stand of Japanese containing the following: Ella Curtis, General Roberts, Australie, Souv. de Mad. Rosette, Viviand Morel, Mons Chenon de Leche, Mutual Friend, Lady Ridgeway, Chas. Davis, Mrs. H. Weeks, Mathew Hodson, and G. J Warren. Incurved: Topaze Orientale, Miss D. Foster, Ma Perfection (fine), Bynum Schiltges, Duchess of Fife, Golden Empress, Rena Dula, Harold Wells, and Mrs. R. C. Kingston; C. J. Procter, Esq. (gardener, Mr. J. Williams), was second; and J. H. Ismay, Esq. (gardener, Mr. W. Neish), third For twelve Japanese distinct Mr. J. Davies won, with fresh blooms of Mrs. G. W. Palmer, G. C. Schwabe, Viviand Morel, &c.; the remaining prizes were won as in the preceding class. In the class for twelve incurved distinct varieties Mr. Davies still continued at the front, the remaining prizes falling to Messrs. Neish and Williams.

In the local class for twelve Japanese distinct Mr. Davies still held his own, with W. H. Jones, Esq. (gardener, Mr. G. Broady), and Mr. J. Williams second and third respectively. Mr. Davies was also first for twelve incurved, distinct, followed by Messrs. E Broady and W. Thomas. For six varieties the prize-takers were G. R Clover, Esq. (gardener, Mr. P. Barber), R R. Anderson, Esq. (gardener, Mr. J. Evans), G. Webster, Esq. (gardener, Mr A. Brown). For the six incurved, one variety, E. C. De Wolf, Esq. (gardener, Mr. R. Laird), and Mr. P. Barber were the winners. In the class for those who had never won a prize Mr. Hughes was successful for Japanese and incurved varieties.

For a group of chrysanthemums in semi-circular form, arranged on a space of seventy square feet, a silver challenge cup, the gift of C. Gatehouse, Esq., was offered, together with a sum of money, as first prize, and was won by last year's winner, E. R. Laird, Esq. (gardener, Mr S. E. Haines), who is now the owner of the cup; the plants carried but one flower each, were in six-inch pots, and were neatly named by small labels attached just under the blooms; ferns and palms were used to hide the pots. For one untrained chrysanthemum Mr. W. Laird was first with a well-flowered Viviand Morel. Other prize-winners in the plant classes were Messrs. J. W. Totty, T. Edwards, A. Brown, W. Neish, W. Thomas, and W. Kinsall.

Fruit in most classes was of high order, and for four dishes Mrs. Paterson (gardener, Mr. T. Ferguson) had the premier lot in Alicante grapes, Ribston Pippin apples, and immense Gros Calabasse pears. W. E. King, Esq. (gardener, Mr. J. Davies), Leominster, second. For two bunches of black grapes D. Wilson, Esq. (gardener, Mr. T. Reid), won the first prize and Mrs. Colbain's medal with large bunches of Barbarossa. Mr. Reid again won for two bunches of white grapes with Trebbiano; Mr. M. Clary, second, with Muscat of Alexandria. For eight dishes of culinary apples Mr. J. Davis won with a grand lot, Mère de Ménage being fifteen inches in circumference; Mr. W. Morgan, Leominster, was second. For six dishes of dessert Mr. J. Davis was again to the front with Ribston Pippin, Keddleston Pippin, and King of the Pippins, Cox's Orange Pippin, Blenheim Pippin, and Peasgood's Nonsuch. In the local classes Messrs. J. Lee, J. Williams, H. Reynolds, and S. E. Haines were the chief winners.

Exhibits not for competition were staged by Messrs. R. P. Ker and Sons, cyclamen; Messrs. Dicksons, fruit and dahlias; and Mr. W. Henderson, group of chrysanthemums. The arrangements were ably carried out by Mr. Bassett (secretary) and his committee.

OXFORDSHIRE CHRYSANTHEMUM AND FRUIT SOCIETY,

November 15.

THE thirty-sixth exhibition was held in the New Corn Exchange, Oxford, and, although the day was dull, with drizzling rain, the attendance was good. Owing to the fact that the new Exchange is of smaller area than the old one pulled down, the classes for plants have had to be seriously curtailed, and there was a corresponding lack of interest among cultivators. On this occasion there were in competition no less than four groups of from eighty to ninety plants each; sixty specimen and trained plants; three dozen double and single primulas; six hundred large specimen cut blooms, besides the pompons or rosette forms which are shown in threes; one hundred and eighty dishes of well-ripened apples and pears, representing about two thousand five hundred fruits; a dessert set of seven dishes; black and white grapes, and about fifty dishes of vegetables, the whole entirely filling every inch of table and staging space available. In addition to the products in competition, mention may be made of the very fine group of chrysanthemums staged by Mr. Thomas Whillans, gardener to the Duke of Marlborough, Blenheim. In the competition the second prize group arranged by Mr. W. Howell, gardener to G. H. Morell, Esq., M.P., Headington Hill Hall, only lacked a little finishing to have secured the post of honour. The plants were sturdy and well furnished with healthy leafage and flowers of immense size; the first prize group, while possessing a large variety of good forms, secured the award mainly for its effect. The best six trained plants were staged by Mr. T. W. Jacob, gardener to Dr. A. A. Rambaut, Radcliffe Observatory, which were well worthy of the award made, the class for six Japanese containing a fair percentage of quality, the award going to

Mr. A. E. Kirtlington, gardener to the Rev. R. F. Dale, Bletchington Rectory. Double and single primulas were fairly meritorious, as staged by Mr. G. Jacob, Witney.

The cut blooms were a fine feature, the stands for twenty-four incurved being closely matched. The chief award, however, fell to Mr. G. Price, gardener to F. P. Bulley, Esq., Marston Hill, Fairford; Mr. W. J. Johnson, North Bar, Banbury, second; Mr. S. Brown, Aynho Park Gardens, third, the premier stand of twelve varieties coming from Mr. R. Hope, gardener to Captain Orr-Ewing, Bletchington Park, the same exhibitor leading for twelve of one variety with perfectly finished specimens of C. H. Curtis; Mr. C. Marcham, gardener to G. W. Bennett, Esq., Tiddington House, second, with Miss M. A. Haggas, while the best forms of incurved selected from the whole of the stands were C. H. Curtis, first, exhibited by Mr. R. Hope; Madame Ferlat, second, staged by Mr. Price; and James Murray, third, exhibited by Mr. Kirtland. In the Japanese class for twenty-four flowers distinct Mr. Marcham was in fine form, many of the leading Japanese being prominent in his stand; Mr. Brown, second; and for a dozen varieties Mr. Hovell was well to the fore, having, among other good forms, a grand development of Mrs. H. Weeks (which stood a fair chance of being selected as the premier bloom, an honour it just missed through indifferent posing); Mr. Price, second, and Mr. D. J. Macfarlane, gardener to Harvey du 'Cros, Esq., Cornbury Park, third. For twelve of one variety the prize fell to a very level dozen of Mons. Chenon de Leche, staged by Mr. C. E. Munday, gardener to Aubrey Harcourt, Esq., Nuneham Park; stands of Madame Carnot and Viviand Morel securing the second and third awards for Messrs. Hope and Macfarlane; while the premier flowers in this section were Madame Carnot; second, Viviand Morel; third, G. J. Warren, selected from the stands of Messrs. Marcham, Price, and Hope. Pompons, staged in triplets, are always shown well, and, seeing how pretty a section they are when well grown, the wonder is that more societies do not provide for them in their schedules; the winners of prizes in this district were Messrs. G. Price, J. L. Burgess (Fairford), A. E. Kirtland, and J. Holton, Worcester College Gardens. The large flowered anemones and reflexed forms also prove attractive classes, Messrs. Price, Johnson, Hope, Burgess, and R. Wadham (Steeple Aston) dividing the honours.

The fruit was remarkably good. In the dealers' classes Mr. H. Smart, The Market, Oxford, was first for a choice dessert set of seven dishes and twelve dishes of apples; Mr. Holton for six and three dishes of pears (open), the best half-dozen dishes of apples (grower's) being staged by Mr. C. O. Walter, Wantage, Berks; the two premier dozens of Blenheim Pippins secured the awards to Mr. G. Salter, Summertown (one of the founders of the society in 1863), and Mr. H. Smart. The best white grapes came from Headington Hill Hall Gardens, the finest black being those exhibited by Mr. S. Brown.

In addition to the extra production referred to at the commencement may be mentioned a fine collection of cactus dahlias, posed in triplets, from Mr. J. Johnson, Garsington Nursery; and a large group of scarlet salvias set in a mass of ferns and foliage plants from Headington Hill Gardens.

BRISTOL, November 16.

A VERY fine exhibition indeed rewarded the efforts of the committee of the Bristol Chrysanthemum Society. The huge Drill Hall was filled to overflowing with subjects of a very high order of merit; the schedule of prizes comprising nearly one hundred classes brought together a great variety of things, for there were splendid groups of chrysanthemums and cut flowers of all the types. There were specimen ornamental foliage plants, groups of mixed flowering and foliage plants, table plants, primulas, &c. There was a very fine and varied assortment of fruits and collections of high class vegetables. In addition an anteroom was filled with the exhibits of the members of the Bristol Amateur Horticultural Society. The exhibits were admirably staged by E. G. Cooper, the secretary, and his staff, and the work of judging was carried out smoothly and expeditiously; the weather was close and dull, but there was a very large attendance.

Specimen chrysanthemums were shown in several classes, and many of them, in the form of partly trained bush plants, were very good. We missed the fine examples of trained incurved varieties we used to see at Devizes and other places in the West of England years ago. The Japanese varieties were in force, well grown and flowered. By the time judging was over the crowd of visitors became so dense that it was practically impossible to gather up particulars, but most of the specimens were decidedly good collections of ornamental plants, forming a noble bank in the centre of the Drill Hall, palms, crotons, luxuriant ferns, &c., being very prominent; and these were flanked on one side by a table containing the cut flowers of chrysanthemums shown in the more important classes, and on the other side by a table of fruit, grapes, fine pears, and brilliantly coloured apples being very prominent.

The short time at our disposal enabled us to gather up particulars of only a few of the leading classes, but in one of the classes for a group Mr. W. H. Bannister, gardener to H. St. Vincent Ames, Esq., took the first prize with an arrangement of exceptional quality, grand chrysanthemums being alternated with palms, crotons, and other suitable and effective plants—a group which formed one of the chief features of the show. Mr. A. Ross, gardener to W. E. George, Esq., was second, also with a very meritorious group, and Mr. G. Newberry, gardener to J. Saunders, Esq., was third. These groups were placed round the sides of the hall, and were highly effective.

The chief interest centred in the classes for cut flowers of chrysanthemums. There were several collections of thirty-six Japanese, allowing of two blooms of one variety to be staged, the first prize carrying, in addition to one of liberal money value, the possession of the Challenge Vase of the Bristol Chrysanthemum Society; this was won by Mr. G. W. Drake, Cardiff, who had Mrs. J. Lewis, a splendid bloom, which was awarded the Silver Medal of the National Chrysanthemum Society as the best bloom in the show; Master H. Tucker, Mrs. C. Blick, G. J. Warren, Elsie Teichmann (very fine), G. C. Schwabe, Australie, Madame Carnot, Thomas Wilkins, Madame G. Henry, Duchess of Wellington, Mons. C. de Leche (very fine), Surpasse Amiral, Graphic, Lady Northcote, Mrs. C. H. Payne, Miss Mary Molyneux, &c. Mr. G. Runnacles, gardener to R. Whitehead, Esq. was a good second, showing much the same varieties as Mr. Drake; and Mr. Thomas Wilkins, gardener to Lady T. Guest, the holder of the vase last year, was third. The best twenty-four incurved were staged by Mr. J. Dumble, gardener to Sir E. G. Phillips, Bart., Picton Castle, Haverfordwest, who had very fine blooms of Madame Ferlat, Miss Dorothy Foster, Globe d'Or, Golden Empress, Chrysanthème Bruant, C. H. Curtis, Ma Perfection (very fine), Bonnie Dundee, Queen of England, Violet Tomlin, Topaze Orientale, &c., some of the foregoing being in duplicate. Mr. G. Runnacles, gardener to R. W. Whitehead, Esq., Bristol, was a good second. His leading blooms were Empress of India, C. H. Curtis, Bonnie Dundee, Major Bonaffon, Lord Wolseley, Ma Perfection, &c.; third, Mr. T. Wilkinson, gardener to the Rev. Talbot Greaves, M.A., Bristol.

The best twelve Japanese came from Mr. H. Baker, gardener to Mrs. H. A. Smith, Chepstow; the following were very fine: Viviand Morel, Australian Gold, Madame Carnot, M. Chenon de Leche, Simplicity, Mons. Panckoucke, Charles Davis, and Edwin Molyneux; second, Mr. H. A. Allen, Penarth, having very good blooms of Mrs. Lewis, Mrs. G. W. Palmer, M. Chenon de Leche, Joseph Brookes, &c.; third, Mr. G. Sutton, gardener to W. A. Ford, Esq. Stands of twelve Japanese incurved were also shown.

The best twelve incurved came from Mr. W. Cartwright, gardener to A. R. Bayley, Esq., Frome, who had capital blooms of Violet Tomlin, Emile Nonin, shown in a good incurved form, Madame Ferlat, Mrs. E. S. Egan, Mrs. R. C. Kingston, Ma Perfection, &c.; second, Mr. W. Robinson, gardener to Lord Ludlow, Wenbury. Mr. G. Dumble had the best six incurved; in fine character were Madame Ferlat, Miss Dorothy Foster, C. H. Curtis, Lady Isabel, Mdlle. L. Faure, and W. Tunnington.

There were some good stands of twelve large-flowered anemone varieties. Mr. W. Robinson was placed first with W. W. Astor, Enterprise, John Bunyan, Mrs. Judge Benedict, Sir Walter Raleigh, &c.; Mr. C. Cooper, gardener to W. M. Smith, Esq., was a good second; and Mr. J. Aplin, gardener to W. M. Baker, Esq., Gloucester, was third.

It was pleasant to see the old reflexed varieties in good form. Mr. W. Carpenter had the best twelve, and Mr. G. Farmer, Tewkesbury, was second.

The best six new varieties were staged by Mr. T. Wilkins, chief among them being Lady Ridgeway, Lady Hanham, Mrs. G. W. Palmer, and N.C.S. Jubilee; Mr. G W. Drake, Cardiff, was second. The best three blooms of any Japanese variety of 1897-98 was G. J. Warren, from Mr. R. Morse, gardener to Captain Natchbull; Mr. H. A. Smith, Chepstow, was second, with the same; and Mr. T. Wilkins, third, with Surpasse Amiral.

Special prizes were offered by Mr. W. J. Godfrey for nine vases of feathery, spidery, plumed, or hairy varieties, which brought a good and interesting competition.

The amateur contributions filled a large separate room, and formed an interesting show in themselves, and there was keen competition in all the classes. Various plant classes were also comprised in the schedule, orchids being a leading feature.

Fruit was numerously represented, though it was scarcely up to the quality of last year. The best six dishes came from Mr. J. Wickers, who had Mrs. Pince's Muscat and Muscat of Alexandria, two dishes of pears, one of apples, and a melon. Mr. W. Warren, gardener to T. Jones, Esq., was second, he having Gros Colmar and Muscat of Alexandria grapes, pears, apples, and nuts. The Veitch Memorial Medal and £5 offered for the best eight bunches of grapes were won by Mr. T. Coote, gardener to T. E. Taylor, Esq., having two bunches each of Lady Downes, Alicante, Gros Maroc, and Muscat of Alexandria. Apples and pears were very numerous, and there were classes for two bunches of grapes. Mr. W. Carpenter was first with very well finished Muscat of Alexandria, and Mr. Coote was second. Mr. Coote had the best two bunches of Alicante, very good. Mr. Marshall, gardener to J. Dole, Esq., was second. Mr. W. Robinson came in first with Lady Downes, Mr. T. Wilkins being second. Mr. W. Taylor, gardener to C. Bayer, Esq., Forest Hill, was first with Gros Colmar, and Mr. W. Warren, gardener to T. Jones, Esq., Gloucester, second. Mr. T. Wilkins was first with Mrs. Pince, of good colour and fine in berry; Mr. A. Ross, gardener to W. Gray, Esq., was second.

Vegetables were largely shown in competition for special prizes by Messrs. Sutton and Sons, Carter and Co., Garraway and Co., and others, and they were generally of fine quality.

Several miscellaneous exhibits were staged, chief among them bouquets and pretty floral decorations from Messrs. Brown and Son, Bristol; fruit, &c., in good character from Messrs. J. Garraway and Co., Durdham Down; and choice table decorations, &c., from Messrs. Parker and Son, Bristol.

MALVERN.

THIS society has been inaugurated during the present year, and held its first show on November 10 and 11 in the Public Assembly Rooms, Great Malvern. As a first effort the show is a distinct and encouraging success, for though the entries were not numerous the quality of the exhibits was good, and in some cases distinctly above the average. Some excellent non-competitive contributions of miscellaneous plants, flowers, and fruits were sent by the nobility and gentry of the neighbourhood, amongst whom Earl Beauchamp, Lady Howard de Walden, and C. W. Perrins, Esq., were especially liberal in their support. Exhibits by trade growers also assisted very materially in producing a charming little show.

The principal class was for twenty-four cut blooms, Japanese, in not less than eighteen varieties. The prize of £5, however, failed to attract more than three entries. The first prize was awarded to a very nice fresh lot of well-grown blooms, of which the best were Mrs. Palmer, Edith Tabor, Madame Carnot, Chas. Davis, Phœbus, Rose Wynne, Col. Smith, Niveus, G. C. Schwabe, and Pride of Madford. These came from Mr. Smith, gardener to R. C. B. Cave, Esq.; the second was awarded to Mr. G Ridley. The groups were extremely well done; that put up by Mr. Crump, gardener to Earl Beauchamp, Madresfield Court, was an easy first, and gave an object-lesson in the association of elegant foliage plants with well-grown blooms of chrysanthemums. The arrangement left nothing to be desired, and the selection of a preponderance of clear yellow and bright-coloured varieties had a distinct advantage over the use of the pale or undecided tints of some which are frequently employed in groups. Mr. Crump also led with a beautiful table decoration, in which class there were five entries, all of considerable merit.

There were three exhibits in a class for large blooms to be shown in a vase with suitable foliage, and these produced an excellent effect. It is by far the most charming way in which to show the best qualities of the flowers; the monotonous appearance of blooms shown on boards in the usual manner, stripped of their foliage and thereby shorn of half their charm, is becoming more and more apparent to managers of horticultural shows. It is very satisfactory to note that almost every society now offers encouragement for the exhibition of blooms with their natural foliage, and doubtless the time is not far distant when this method of presenting the flowers in all their pristine freshness and beauty of foliage will become the required condition in all the most important classes.

Worcestershire is famous for its fruit, and one found at Malvern very fine samples of hardy kinds as well as products of well-managed vineries. The fine samples of Doyenne du Comice pear, with various others, and clean, bright dessert apples could not well be surpassed in any exhibition. With such a promising first attempt Malvern may well look forward to a large share of support both financially from the resident public and at the hands of exhibitors. The excellent accommodation of the Assembly Rooms renders it a capital home for a fine show, and, judging from the attendance on Thursday, one may congratulate the executive with a "well done, Malvern!"

ROYAL HORTICULTURAL SOCIETY, November 22.

DESPITE the bitter north-east wind blowing and giving us the first real taste of winter there was a very interesting show at the Drill Hall on the above date. Chrysanthemums were the principal subjects on view, and of chrysanthemum exhibits that of Mr. Davis was the best and most attractive.

FLORAL COMMITTEE.

An exceptionally handsome and beautiful display of chrysanthemums was put up by Mr. Norman Davis, Framfield, Sussex, who had a large table to himself, and staged the exhibit of the meeting; two tall vases filled with big blooms of Western King were put at either end, and, between these, large Oriental vases of Julia Scaramanga and Souvenir de Madame Rosette. Smaller vases, placed amid palms, crotons, aralias, &c., contained Lady Hanham, J. R. Upton (a new yellow), Tuxedo (very bright), Clinton Chalfort, and the golden King of the Plumes. A huge basket of single varieties occupied the central position. In addition to all these fine flowers, tastefully disposed, there were magnificent stands of Madame Carnot, all grand exhibition blooms; G. J. Warren was shown in equally fine condition. The whole beautiful display was one of Mr. Davis's best efforts, and merited a gold medal.

Mr. C. J. Salter, gardener to T. B. Haywood, Esq., Woodhatch, Reigate, put up some beautiful chrysanthemums, thirty-six good flowers, the most interesting being M. Chenon de Leche, G. J. Warren, Madame Rozain, Madame Carnot, Lady Hanham, and Edith Tabor; silver Banksian medal. Mr. W. J. Godfrey, Exmouth, staged an extensive display of chrysanthemums, containing about seven dozen blooms, besides bunches of good decorative sorts; Orphée, a creamy rose Japanese anemone; Lord Coleridge, yellow, incurved; and Chatsworth, Le Grand Dragon, and Rudd's Red Japanese, with Wm. Neich, Mdlle. Lucie Faure, Mrs. Egan, and M. Fatzer, incurved, were all well shown, and represented newer varieties. Mr. N. Molyneux, gardener to J. C. Garnier, Esq., Rookesbury Park, Fareham, showed handsome flowers of Miss Nellie Threlfall, Golden Gem, and Earl of Crawford, respectively cream, golden, and deep rose incurved varieties. Mr. W. Weeks, gardener to Lady Byron, Thrumpton Hall, Derby, showed some beautiful chrysanthemums, notably good specimens of Mrs. Cursham, Henry Weeks, Edith Dashwood, Emily Towers, Little Nell, Miss Maud Douglas, a broad-petalled bright rose form, Mrs. Barkley, and a number of interesting seedlings.

A large exhibit of chrysanthemums came from Mr. W. Wells, Redhill, Surrey, who in addition to stands of large exhibition blooms of Julia Scaramanga, Australie, Mr. T. Carrington, Nellie Pockett, Surpasse Amiral, John Pockett, Chatsworth, Julian Hillpert, President Bevan, &c., showed large bunches of such charming single forms as the creamy Earlswood Beauty and its new white sport named Daisy Brett, Sam Casswell, and other decorative forms; we also noted the new yellow hairy form Leocadie Gentils and the fine crimson Owen's Memorial, and a new soft rose incurved named Mrs. Arthur Jack, a pretty form with narrow, pointed florets; silver Banksian medal. Mr. A. H. Rickwood, gardener to the Dowager Lady Freake, Twickenham, put up a large collection of cut chrysanthemums, showing these in vases; it was a bright display of Japanese, anemones, incurved, reflexed, and decorative varieties; silver Banksian medal. A large exhibit from Mr. H. B. May, Edmonton, contained some beautifully-grown plants of Begonia Gloire de Lorraine, a good collection of neat dracænas, and a collection of bouvardias freely flowered; silver-gilt Banksian medal.

Messrs. H. Cannell and Sons, Swanley, showed a splendid collection of decorative chrysanthemums, putting these up in large bunches and in vases. Miss Harvey, white; Mrs. Filkens, golden; Framfield Beauty, single, crimson; Sam Casswell, rose; Pride of Ryecroft, yellow; Sécrétaire Rivoire, yellow; Earlswood Beauty, cream; and Alice Carter, scarlet and gold, were among the most notable in a very fine lot; silver Flora medal. A splendid group of poinsettias, the plants all well furnished with foliage and fine bracts, was staged by Messrs. T. Cripps and Son, Tunbridge Wells; this was greatly admired, and gained a silver Flora medal. Mr. W. Neville, gardener to F. W. Flight, Esq., Cornstiles, Winchester, put up a grand lot of four dozen incurved chrysanthemums, these including fine specimens of Major Bonaffon, Ma Perfection, Globe d'Or, Laurence Zede, C. H. Curtis, Topaze Orientale, Lord Rosebery, Madame Ferlat, and Princess of Wales; silver Banksian medal. Mr. W. H. Witty, Nunhead Cemetery, showed the pretty decorative variety called Golden Shower, like an extravagant form of Alice Carter. Ornithogalum lacteum was shown by Mr. Bain, gardener to Sir Trevor Lawrence, Bart., Dorking; it has spikes of pure white flowers, and is useful for winter flowering. Messrs. J. Veitch and Sons, Chelsea, staged a handsome lot of plants of their winter-flowering begonias. The varieties shown were Ensign, rosy carmine; Winter Cheer, rich carmine, quite a scarlet hue under artificial light; and Myra, a paler and more rosy colour than Winter Cheer, but equally acceptable and useful for the embellishment of conservatory or greenhouse during winter. Mr. Gilbert Christy, Lime Street, showed a Brazilian species of begonia, named B. venosa, with thick leafage, dark shining green, but almost covered with a furry tomentum, the under sides are densely furred; flowers small and white; the stems are clothed with large imbricating, transparent bract-like scales. Mr. W. Bull, King's Road, Chelsea, showed a charming new epiphyllum, having very pretty and delicate lilac-tinted flowers; this was named E. truncatum Princess, and gained a first-class certificate. Mr. A. Kingsmill, Harrow Weald, sent fruiting sprays of Skimmia Foremanni and Vitis heterophylla humulifolia.

ORCHIDS.

Not many orchids were on view; doubtless the sudden arrival of cold weather had kept them at home. Mr. G. Day, gardener to H. S. Simonds, Esq., Woodthorpe, Southend Road, showed a pretty little group of orchids, including fine examples of Oncidium varicosum, Odontoglossum grande, Cymbidium Traceyanum, Cattleya labiata, Angræcum Leonis, several cypripediums, and other odontoglossums; a bronze Banksian medal was awarded. Mr. Whiffen, gardener to J. Bradshaw, Esq., The Grange, Southgate, showed a nice group of orchids, the central specimen being a large Cymbidium Winnianum, with nine good spikes that were staked rigidly erect; some first-rate cattleyas, including C. Mantini, and Cymbidium Traceyanum with a dozen fine blooms were shown; silver Banksian medal. Mr. H. Holah, Richmond, showed a pretty form of Lycaste Skinneri having pretty creamy sepals, it was named Holah's var. Mr. J. Medcalf, gardener to J. L. Godlee, Esq., Walthamstow, sent a pretty seedling cypripedium, but neither name nor parentage was given.

Oncidium pectorale, with brown-barred sepals and a yellow lip, was shown by Messrs. J. Veitch and Sons, Chelsea; it is from the Organ Mountains, Brazil. Mr. W. H. White, gardener to Sir Trevor Lawrence, Bart., Dorking, showed grand spikes of Calanthe labrosier with creamy white flowers, C. Bryan, the curious Cirrhopetalum appendiculatum, a new species; Dendrobium formosum Lowi, a hybrid between the species indicated and having a dull orange centre to the lip; some good cypripediums were also shown, including C. Argo-Morganiæ, referred to in another column.

FRUIT AND VEGETABLE COMMITTEE.

A very few exhibits came before this body. Mr. Lewis Dunbar, Hemel Hempstead, showed ten large specimens of Ne Plus Ultra onions. Messrs. Williams, Tallack, Hartland, and Ward sent apples for the committee's opinion, but only one gained any award, and this was named Ballinora, a large Blenheim like fruit from Messrs. Hartland and Son, Cork, which gained an award of merit; it has a bright crimson scarlet colour.

YORK CHRYSANTHEMUM SHOW, November 16, 17, and 18.

THE exhibition held under the auspices of the Ancient Society of York Florists on the above dates was more variable than is customary, yet the display produced was, as a whole, worthy of a history of at least one hundred and fifty years, and a city which for many years has been an important centre of horticultural activity. Specimen plants were hardly equal to those contributed to the more recent exhibitions, and in both of the classes for groups there was a decided falling off in numbers, but those in competition were highly meritorious. As a set-off the classes for cut blooms were well filled, and contained some of the finest collections that have come under our notice this season, whilst fruit and vegetables were very strongly represented, both as regards numbers and quality.

CUT BLOOMS constituted the great feature of the exhibition, and proved immensely attractive to the general body of visitors. As the society allows exhibitors free choice in the matter of the size of the stands for Japanese, a considerable proportion of the blooms of these were staged on boards of the size fixed for incurved, and in consequence were much too crowded to admit of the display of their characteristics. There was a brisk competition in the class for thirty-six blooms, to comprise equal numbers of incurved and Japanese, in which the premier award consisted of a challenge vase of the value of £20 and £10 in cash. Mr. J. P. Leadbetter, gardener to T. Wilson, Esq., Tranby Croft Hall, occupied the post of honour with finely-developed blooms, those of the Japanese being especially good. The incurved varieties were: Duchess of Fife, Hero of Stoke Newington (2), Golden Empress (2), Miss Violet Tomlin, Princess of Wales (2), Queen of England, Miss Haggas, Lucy Kendall, Ma Perfection (2), Leonard Payne, Madame Ferlat, Bonnie Dundee, and Mrs. R. C. Kingston. The Japanese were Miss Nellie Pockett, Australie, Mrs. J. Lewis, Viviand Morel, Mrs. F. A. Bevan, Modesto, Pride of Madford, Lady Ridgeway, E. Molyneux (2), Charles Davis, Madame Carnot (2), International, Mrs. G. W. Palmer, Edith Tabor, Lady Hanham, and Thomas Wilkins. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, was a good second, his incurved being of high quality. Mr. Folkard, gardener to Sir J. R. Walker, Bart., Sand Hutton, York, who was third, also had a collection of great excellence. The exhibitor last named obtained premier honours in the class for eighteen incurved with splendidly-developed blooms of Lord Alcester, Mrs. R. C. Kingston (2), Duchess of Fife (2), Golden Empress (2), J. Agate (2), Queen of England, Baron Hirsch, Madame Darrier, C. H. Curtis (2), Lady Isabel, L. Payne, Perle Dauphinoise, and Mrs. Coleman. Mr. J. H. Goodacre was second with a meritorious collection. There was a keen competition in the class for twelve incurved, and here also Mr. Folkard and Mr. Goodacre were first and second respectively.

The class for eighteen Japanese was noteworthy for the excellence of the blooms, and the first prize stand from Mr. D. Williams, gardener to the Earl of Feversham, Duncombe Park, Helmsley, contained some of the finest blooms exhibited this season, but the stand was not large enough to display them to the best advantage. The varieties were Eva Knowles, Mons. Panckoucke, Simplicity, Robert Powell, G. J. Warren, Mons. Chenon de Leche, Mrs. H. Payne, Mrs. J. Lewis, Good Gracious, Mrs. G. W. Palmer, Mutual Friend, N.C.S. Jubilee, Edith Tabor, Viviand Morel, and Phœbus. Mr. G. Picker, gardener to F. R. Pease, Esq., Hesslewood, Hull, was second with finely-developed blooms. The first and second awards for twelve Japanese were made in favour of Mr. Williams and Mr. Picker, both of whom staged capital blooms. Mr. Williams was first for six blooms of any white variety with Madame Carnot in a high state of development, for six blooms of any yellow variety with Edith Tabor, and for the same number of blooms of a golden yellow variety with Lord Brooke. Japanese anemones were staged in excellent form, and Mr. W. Ward, gardener to G. H. Anderton, Esq., Kilpin Lodge, Howden, was successful in obtaining premier honours. The contributions to the class for twelve sprays of chrysanthemums and for baskets were numerous and produced an attractive display, the winners of the first prize in the respective classes being Messrs. Theakston and Son and Messrs. R. Simpson and Son. Mr. R. Agar, gardener to Major Lumley, Cliffe Villa, Clifton, York, was successful in winning the first prize, which consisted of a challenge vase of the value of £10 and £3 in cash, for eighteen blooms with a collection evincing high-class cultural skill. Mr. R. Lawson, who was second, also had finely-developed blooms.

GROUPS were less numerous than usual, and the magnificent hall in which the plants are shown was hardly so attractive as last year. The arrangements in competition were, however, highly meritorious, and in the class for groups of chrysanthemums and foliage plants Mr. R. McIntosh, gardener to J. T. Hingston, Esq., Clifton, York, fully maintained the high reputation he enjoys for his cultural skill and taste by securing the premier award. The arrangement, briefly stated, consisted of a sloping and somewhat irregular bank of chrysanthemums, interspersed with fine foliage plants, and, although the whole of the blooms were of exhibition quality, the effect was very light and pleasing. Mr. J. McIntyre, gardener to Mrs. Gurney Pease, Darlington, was a capital second with a tasteful arrangement. The winner of the first prize in the class for collections of chrysanthemums, in which cultural excellence was the test of merit, was Mr. J. W. Hields, who had a magnificent group. Mr. Everard, gardener to Mrs. Gutch, Holgate, York, was, as usual, highly successful in the plant classes, as indicated by the fact that he was first for four incurved, four Japanese, and for single specimens of Japanese, incurved and reflexed, with splendidly-flowered, naturally-trained specimens. Mr. S. Hardcastle and Lord Herries were the most successful exhibitors in the classes for specimen pompons, and the last-named obtained premier honours for specimens of single varieties.

FRUIT formed as usual an attractive feature, the grapes being especially meritorious. Mr. J. Tullett, gardener to Lord Barnard, Raby Castle, was first for six bunches of grapes, staging two remarkably fine clusters of Barbarossa weighing ten pounds each, and finely-finished clusters of Alicante and Muscat of Alexandria; Mr. Goodacre and Mr. J. Allsop were second and third. The last-named obtained premier honours in the classes for single dishes of white and black grapes, staging well-finished clusters of Muscat of Alexandria and Alicante. Mr. J. McIndoe was successful in occupying the first place in the great class for thirty-six dishes of apples and pears with excellent examples; Mr. Goodacre, who was second, also had a collection evincing cultural skill of a high order. The Rev. Gordon Salmon, Mr. J. McIndoe, and Mr. J. Allsop were the most successful of the exhibitors in the other classes for collections of apples and pears.

MISCELLANEOUS CONTRIBUTIONS included a large and extremely beautiful collection of cyclamen, remarkable alike for the high quality of the strain and the cultural skill evinced, from Messrs. Sutton and Sons, and the firm also contributed well-grown examples of Primula obconica and their new cucumber, Every Day. A gold medal was awarded the firm, and Messrs. J. Backhouse and Son received a similar distinction for a magnificent collection of apples. Messrs. Clibran and Son contributed an excellent collection of chrysanthemums.

EDINBURGH, November 17, 18, and 19.

NEVER before has such a magnificent autumn show been held under the auspices of the Scottish Horticultural Association as that here recorded in the spacious Waverley Market. Nowhere in the United Kingdom could be seen such an array of blooms, and nowhere is a similar attempt made to show off the chrysanthemum in its true decorative character as here, where the principal prizes are offered for the blooms staged in vases in triplets accompanied with their own foliage.

In the plant classes, too, there was a marked improvement in the quality of the exhibits; fruit, too, was satisfactory. The only falling off was in the vegetable section; here the entries were fewer, but the produce was equal to any previously seen in point of quality.

During the whole of the three days the show was crowded with visitors; no doubt the spirited policy of the executive in engaging the fine band of the Grenadiers was in some measure answerable for the great influx of visitors. The arrangements were, as usual, of that perfect order which characterises all the meetings of this society. Mr. R. B. Laird, as usual, had the matter well in hand; if he is not a model secretary it would be difficult to find one.

CUT BLOOMS.

Cut blooms were the feature of the show, therefore demand a first notice. No less than seventeen classes were provided for blooms arranged in vases in this section. The leading class was that for twenty vases of chrysanthemums in twenty varieties, three blooms of each, with foliage; a piece of plate value £20 and £15 was the leading prize, with £20 for the second, and £12 for the third. Six competed, making the finest display seen this season. Mr. T. Lunt, gardener to A. Stirling, Esq., Keir, Dunblane, was an easy winner of the premier award with a magnificent exhibit in every respect. The varieties were Oceana, Louise, Lady Ridgeway, Phœbus, Mrs. Weekes, J. Bidencope, Australian Gold, Mrs. G. W. Palmer, Australie, Madame G. Henry, M. Chenon de Leche, Mrs. C. H. Payne, Mdlle. de Galbert, Pride of Madford, M. Hoste, Mrs. J. Lewis, Eva Knowles, Madame M. Ricoud, and Simplicity. Mr. D. Nicoll, gardener to J. W. Bell, Esq., Rossie, Forgandenny, was a capital second, staging grand clusters of Madame Carnot, Mrs. Weekes, Mutual Friend, Modesto, Edith Tabor, and Australie; Mr. Haggart, gardener to the Hon. Lucius O'Brien, Moor Park, Ludlow, third; Mr. Berisant, Castle Huntly, fourth. The Scottish Challenge Cup, value £25, and £10 in cash, was offered as the leading prize for twelve Japanese in vases of three blooms each, distinct, and for which there was brisk competition. Mr. R. Addison Blackhouse, Skelmorlie, was the first prize-taker, staging a grand lot of blooms, accompanied with capital foliage: M. Chenon de Leche, Pride of Exmouth, Phœbus, Viviand Morel, Mrs. D. Dewar, Edith Tabor, M. Gruyer, Lady Byron, Lady Esther Smith, Charles Davis, Lady Hanham, and M. Panckoucke. Mr. D. Nicoll again occupies the second place with grand examples of Mrs. Weekes, Madame Carnot, Simplicity, and Madame G. Henry; Mr. J. Bird, Raehills, Lockerbie, third; Mr. A. Kirk, Alloa, fourth. A splendid class is that for three vases of decorative varieties, not disbudded, and for which eighteen competed, making an imposing and interesting display. Mr. A. C. Cameron, Binrock, Dundee, won the premier award with an almost faultless exhibit of Source d'Or, Mrs. A. Kirke, and Yellow Lacroix arranged with suitable foliage; Mr. G. Chaplin second, and Mr. A. Linton, Glenormistie Lodge, third. For one vase, single-flowered varieties, an exceedingly pretty display was made by the seven competitors. Mr. A. Cameron again secured the leading position with well-grown blooms of Mary Anderson and Miss A. Houlden; Mr. J. Holmes, Winton Castle, second; and Mr. J. Robertson, Beechleigh, Bonnyrigg, third. For four vases, each containing six Japanese blooms, there was a stiff competition. Mr. D. Mackay, Kingston Grange, was placed first with a deserving exhibit of fully-developed blooms of popular varieties; Mr. R. Whannell, The Drum, Gilmerton, second; Mr. T. Dale, Aikenhead, Cathcart, third. Keen competition was experienced also in the class for twelve Japanese blooms in one vase, Messrs. Addison, Kirk, and Cameron winning in the order here given. For one vase of six Japanese blooms any one variety Mr. J. Bird won with capital examples of Viviand Morel; Mr. J. Clark, Bannerfield, second, with M. Chenon de Leche. Prizes were offered for six blooms each of specified varieties in vases with their own foliage, which proved interesting. Mr. Addison won with marvellous examples of C. Davis, Duchess of York, E. Molyneux, and President Borel, in all cases staging representative blooms of each variety. Mr. J. Day, Galloway House, Garlieston, won with Edith Tabor in faultless condition. Mr. Armstrong, Musselburgh, with splendid examples of Mutual Friend, secured the leading position for that variety.

For blooms staged on the ordinary stands there were many classes provided. The principal one was for thirty-six Japanese distinct, and for which a first prize of £15 was offered, which induced seven to compete. Mr. T. Lunt again demonstrated the superiority of his blooms by easily securing the coveted award with really fine examples, of which Mrs. Weekes, J. Bidencope, Madame M. Ricoud, Mutual Friend, Matthew Hodgson, Australie, Madame Rousseau, Simplicity, John Seward, Mrs. F. A. Bevan, and Oceana were the best. Mr. Addison, with smaller examples of popular varieties, was second; Mr. J. Martin, Corndean Hall, Winchcombe, third.

Mr. Lunt followed up his former success by securing the leading position for twelve Japanese amongst thirteen competitors. Oceana, Dorothy Seward, Rose Wynne, John Seward, M. Hoste, and Simplicity were the most conspicuous among them, all of which were good. Messrs. Addison and Day followed uncomfortably close for the remaining prizes. Mr. J. H. Cumming, Grantully Castle, won for six Japanese with a commendable exhibit.

Incurved varieties were but moderately staged; the best were those in the class for twelve varieties coming from Mr. J. Martin; these were of medium size and fairly well finished. Mr. A. Cameron won for six, and Mr. Martin won also for six blooms of C. H. Curtis with neat examples. Mr. J. Henderson, Elleray, Windermere, staged J. Agate in the class for six, any one variety, and secured the premier award. Mr. T. Dale second with the same variety.

PLANTS.

These were numerous, the quality a distinct improvement upon former years, owing, no doubt, to the increase in the value of the prizes. For six specimen large-flowered varieties £10 was offered for the leading award; this was secured Mr. J. Thomson, Preston Grange, Prestonpans, in an easy manner with huge examples of J. Shrimpton and La Triomphante, each carrying fully one hundred and fifty blooms, not too formally trained; Mr. D. Cavannagh, St. Edward's, Murrayfield, second; Mr. J. Wood, Dunmore Park, Larbert, third. Mr. J. Thomson also secured the leading award for four Japanese, and for single specimen Japanese. Mr. W. Pulman, Holywood, Colinton Road, won for four pompons, staging freely-flowered examples. The best specimen any white-flowered variety was staged by Mr. J. Macpherson, Dunisla House, Edinburgh, and was creditable.

Vases of vine leaves, bouquets, and other floral ornaments were numerous and good. The Misses Todd appeared to be almost invincible by the number of prizes they secured, in all instances staging really tasteful exhibits. Mr. A. E. Todd, Stoneybank, Musselburgh, won the leading prize for a circular table of cut flowers and plants with an exhibit that showed much taste in the harmonising of the material employed. Fruit and vegetables were freely contributed, and of the best quality. Space, however, forbids any further details.

NON-COMPETITIVE EXHIBITS.

These were not numerous, but of an interesting character. Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, had a table of interest. In the centre were three dozen grandly-flowered plants of Begonia Gloire de la Reine, flanked with palms and ferns; along the front were arranged about twenty dozen chrysanthemum blooms, consisting of the leading varieties, of which R. Hooper Pearson, H. J. Jones, J. Chamberlain (Japanese), Kate Broomhead and Hanwell Glory (incurved) received first class certificates. Messrs. Dobbie, Rothesay, had a pleasing exhibit of decorative chrysanthemums, apples, and potatos; Mr. Thomas Fortune, 17, Queen's Ferry Street, Edinburgh, a grand assortment of subjects suitable for floral decoration; Mr. John Downie, florist, Edinburgh, had a similar exhibit of perhaps greater merit; Messrs. G. Bunyard, Maidstone, an excellent collection of apples.

WINCHESTER, November 15 and 16.

THE sixteenth autumn exhibition was held in the Guildhall, and was in every way a decided success. The competition was keen, and the exhibits well up to the average in point of quality. The arrangements were of that perfect order characteristic of shows in this city. Mr. C. Shenton is a courteous as well as a practical hon. secretary, having all the arrangements well in hand.

Cut blooms formed the most important feature of the show, staged as they were in large numbers and of such excellent quality. The principal class was that for forty-eight distinct, half to be Japanese and the remainder incurved. For the challenge cup and £8 offered as first prize there were five competitors, making a grand display, Mr. Neville, gardener to F. W. Flight, Esq., Twyford, Winchester, winning easily with a meritorious exhibit of both sections. The incurved varieties were simply magnificent, and equal to any seen this season. The names were: Ernest Cannell, Mrs. R. C. Kingston, Miss V. Foster, C. H. Curtis, Ma Perfection, Topaze Orientale, Madame Ferlat, Lady Isabel, Mrs. N. Molyneux, Globe d'Or, Princess of Wales, R. Petfield, Queen of England, Austin Cannell, Mrs. Coleman, G. Haigh, V. Tomlin, D. Foster, Madame Darrier, M. Martignac, Lord Wolseley, Miss M. A. Haggas, and Lucy Kendall.

Japanese—Madame Carnot, Colonel W. B. Smith, Lady Hanham, Sec. Fierens, Madame M. Ricoud, Mrs. C. Blick, Mary Molyneux, Madame D. Tallandier, Miss E. Addison, Phœbus, Australie, Rose Wynne, Capt. L. Chaure, G. Roberts, E. Tabor, P. Borel, Beauté de Grenobloise, Master H. Tucker, Australian Gold, J. Chamberlain, Pride of Exmouth, Eva Knowles, and Mutual Friend. Mr. W. G. Prewett, gardener to C. A. Pearson, Esq., Frensham Place, Farnham, was a good second with Japanese and neat incurved, Lady Ridgeway, J. Wilkins, and Madame Carnot being noteworthy in the Japanese section; Mr. W. G. Adams, Clarendon Road, Southsea, was third.

For twenty-four Japanese, distinct, Mr. J. Wasley, gardener to F. B. Taylor, Esq., Sherfield Manor, Basingstoke, won easily with blooms well up to the average in point of quality; especially good were Australie, Madame Carnot, Phœbus, Mrs. W. H. Lees, M. Chenon de Leche, Pride of Madford, Milano, N.C.S. Jubilee, Australian Gold, and Mutual Friend; Mr. Neville, second; and Mr. Bowerman, gardener to Mrs. C. Hoare, Hackwood Park, Basingstoke, third. Mr. Neville won premier place for twelve incurved varieties with even, neat blooms of Mrs. R. C. Kingston, C. H. Curtis, Ma Perfection, Topaze Orientale, R. Petfield, Madame Ferlat, V. Foster, Princess of Wales, and Miss M. A. Haggas; Mr. C. White, Southsea, second. For twelve incurved, four varieties, three blooms of each, there was brisk competition and good exhibits; Messrs. Neville and White were placed first and second respectively with thoroughly representative blooms of Ma Perfection, C. H. Curtis, Princess of Wales, and Mrs. R. C. Kingston. For twelve white flowered Japanese in four varieties Mr. J. Wasley won the premier award with commendable examples of Mutual Friend, Madame Carnot, Simplicity, and Elsie Teichmann; Mr. Neville, second; Mr. G. Best, gardener to F. Leyland, Esq., The Vyne, Basingstoke, third. For a similar number of yellow or bronze-flowered varieties Mr. Wasley won the leading position with thoroughly representative blooms of popular varieties, as also he did for a similar number of red, crimson red, and gold. Mr. Bowerman was second in the first-named class, Mr. Neville occupying a like honour in the latter class.

Plants were numerous, and of much excellence. For a group of chrysanthemums, with an edging of foliage plants admitted, there were four competitors, and, as all were creditable, they made an imposing display. Mr. G. H. Street, gardener to Rev. Dr. Fearon, The College, Winchester, was distinctly the premier prize-taker with dwarf plants, well clothed with foliage and carrying grand blooms. Mr. T. Butcher, gardener to Rev. H. E Moberley, St. Michael's Rectory, Winchester, was second; Mr. G. Newman, gardener to Captain Gaussen, Twyford Lodge, third. Prizes were offered for eight plants suitable for conservatory decoration, and which produced keen competition, so good were the exhibits and close in point of merit. Mr. G. Cousins, gardener to E. H. Buckland, Esq., King's Mead, Winchester, was first prize-taker, with plants carrying good foliage and blooms; Mr. H. Grigg, gardener to the Rev. Moorsom, Holyrood, Winchester, second. For six plants, any white-flowered variety, Mr. Grigg won the pride of place, with grand examples of popular suitable varieties; this exhibitor secured a similar position for the same number of yellow-flowered varieties. Mr. Pittman, gardener to F. C. Starkey, Esq., Oakwood, Otterbourne, was a close second in each class. Standard trained plants made a great display. Mr. A. E. Taylor, Bar End, Winchester, won the premier award with a magnificent example of Madame M. Ricoud.

Groups of miscellaneous plants arranged for effect made a fine display, no less than eight competing. Mr. E. Carr, gardener to W. A. Gillett, Esq., Fair Oak Park, Bishopstoke, won the premier place, with a magnificent group, mainly consisting of orchids, palms, and ferns; Mr. Pittman a really creditable second; Mr. G. Newman, third. Primulas were grandly shown. For twelve Mr. T. [illegible], gardener to Mrs. C. Warner, Winchester, was first; and for six Mr. E. Long, gardener to C. F. Birch, Esq., Winchester, was the leading prize-taker. Table decoration was an interesting feature of the show, Mr. E. Carr winning the award with a choice assortment of orchids; Miss Nellie Owen, Basingstoke, second.

Fruit and vegetables made an imposing display. Mr. W. Mitchell, gardener to J. W. Fleming, Esq., Chilworth Manor, and Mr. T. Hall, gardener to Sir S. Montagu, Bart., M.P., South Stoneham, won the principal prizes in the former section. Mr. Bowerman won with a grand exhibit in the vegetable section.

Messrs. E. Hillier and Son staged a remarkably fine exhibit of apples and pears, not for competition; Messrs. Jarman and Co., Chard, a smaller exhibit of the same fruit. Mr. N. Molyneux, Rookesbury Park, Wickham, staged several seedling chrysanthemums, one of which—Jane Molyneux—a pure white Japanese, received a first-class certificate.

FOLKESTONE CHRYSANTHEMUM SOCIETY, November 14 and 15.

THE third annual exhibition of chrysanthemums at Folkestone was held under the auspices of the Folkestone Gardeners' Asssociation on the above dates, and was a marked advance upon the two previous gatherings, successful as they unquestionably were. The cut blooms, which were contributed in immense numbers, included some of the finest that have been exhibited this year, while the groups and pot plants were plentiful and highly meritorious. The show was held in the Pleasure Gardens, and the arrangements, under the direction of Mr. Wenham, Mr. J. Waite, and Mr. W. Walters, were remarkable for their completeness, and deserved much praise.

CUT BLOOMS were arranged in the spacious gymnasium, and produced a large and attractive display. The most important class was that for twenty-four distinct, to comprise equal numbers of incurved and Japanese, and it was satisfactory to find some seven or eight collections all more or less good. Here Mr. W. Foster, gardener to Ashley Dodd, Esq., Godinton, Ashford, was first with an even stand, in which the blooms were remarkable for their large size and superb finish. The incurved varieties were: Lady Isabel, John Fulford, John Lambert, Globe d'Or, Empress of India, Mrs. R. C. Kingston, C. H. Curtis, Miss D. Foster, Lord Alcester, Ma Perfection, and John Doughty; the Japanese varieties represented comprised Edith Tabor, J. Brooks, Pride of Exmouth, E. Molyneux, Mrs. J. Lewis, Duke of York, Phœbus, Lady Hanham, Mons. Chenon de Leche, Mons. D. Faillandre, G. J. Warren, and Australie. Mr. F. G. Foster, Brockhampton Nursery, Havant, was a close second, and Mr. H. Shoesmith a capital third. There were eight or nine entries in the class for twenty-four Japanese, and the several stands were very closely matched in point of merit. Mr. Foster was first with magnificent blooms of Australie, Souvenir de Madame Rosetta, Philipe Reviola, Charles Davis, Mons. Hoste, Mons. C. de Leche, Mrs. C. H. Payne, E. Molyneux, Swanley Giant, G. J. Warren, Graphic, Phœbus, Mr. J. Bidencope, Mrs. G. Carpenter, Surpasse Amiral, Mdlle. Rousseau, Oceana, Lady Hanham, Mrs. Mease, N.C.S. Jubilee, Madame Carnot, Etoile de Lyon, and Mrs. J. Lewis. Mr. H. Shoesmith followed closely for second place, and Mr. J. Bond was third. Of great excellence were the numerous stands contributed to the class for twelve incurved, and here Mr. D. Fairweather, gardener to J. A. Miller, Esq., Canterbury, occupied the post of honour with superbly-developed examples of well-known varieties; Mr. W. Tebay, Sevenoaks, was a capital second, and Mr. C. E. Wilkins, Wellington, Swanley Junction, was third with blooms in a high state of development. The corresponding class for twelve Japanese was equally satisfactory in point of numbers and quality, and the awards were made in favour of Mr. W. Tebay, Mr. F. G. Foster, and Mr. H. Shoesmith, while several stands were so good that the judges very properly commended them.

The class for twenty-four blooms, comprising equal numbers of incurved and Japanese varieties, in which the competition was limited to the gardeners' societies in Kent, was of much interest. The several stands were highly meritorious throughout, and in the result the Ashford Gardeners' Society obtained the premier position, while the Saltwood and Hollingbourne Societies were second and third. The gardeners' and local classes for cut blooms contained a large number of stands, which reflected much credit upon the respective exhibitors. The most successful of the competitors in these were Mr. W. Gambell, gardener to J. S. Vidler, Esq., Mountsfield, Rye; Mr. C. Payne, Elmshurst, Bickley Park; Mr. H. Hopper, Folkestone; Mr. A. Maycock, Mr. H. J. Weaham, and Mr. E S. Dunn, Cheriton.

GROUPS AND SPECIMEN PLANTS were arranged in the foyer of the theatre, and produced an exceptionally bright and pleasing effect. There was a strong competition in the class for groups of chrysanthemums occupying a space of fifty square feet, and the first prize group was one of the finest circular groups of chrysanthemums exhibited during the season. This was arrayed by Messrs. G. and A. Clark, Dover. Mr. H. J. Godden, gardener to Mrs. Walker, Hillside House, Hythe, and Mr. J. Rigden, Royal Pavilion Hotel, Folkestone, who were second and third respectively, had collections remarkable both for the high quality of the flowers and taste in arrangement; and Mr. Pilcher, Folkestone, whose group was highly commended, and Mr. R. P. Cox and Mr. T. Kennett, who received commendation, also deserve much praise for their respective arrangements. Messrs. G. and A. Clark were first also for a group of miscellaneous plants with a bright and tasteful arrangement; and Mr. J. Wilson, Folkestone, and Mr. G. Mount, also of that town, were second and third with groups differing materially in style but closely matched in merit. The specimen plants were trained in a more or less natural style, and with reference to them it is not possible to say more than that they contributed their full share to the attractions of the gathering. The principal exhibitors of these were Mr. T. Kennett, Mr. Hopper, Mr. H. J. Wenham, Mr. Clement Clark, and Mr. J. Wood.

MISCELLANEOUS contributions included a magnificent collection of hardy fruit from Mr. G. Mount and a beautiful table of floral arrangements from Mr. J. Wilson, a silver medal being awarded in each instance.

BRIGHTON, November 15 and 16.

THE sixteenth annual exhibition of chrysanthemums at Brighton was held in the spacious Dome and Corn Exchange, as usual, and great credit is due to Mr. J. Lewis and the managing committee generally for the way all arrangements were carried out. A much greater table space for fruit and cut flowers was secured by banishing the circular groups from the centre of the Corn Exchange, and limiting groups to semicircular form at the sides. If the first effect was not quite as good as formerly, visitors could get about among the exhibits with greater ease and comfort, and the increasing number of competitors made it absolutely necessary to provide more table space than in the past.

The silver cup presented by G. Sadler, Esq., for the finest of the semicircular groups was well won by Mr. G. Miles, Dyke Road Nursery, Brighton. The plants and flowers were well grown, and good use was made of small crotons, dracænas, and palms in the foreground. There was a great contrast between the first and second prize group, the latter being flat and the plants much crowded. This came from Mr. G. Simms, gardener to J. R. Cattle, Esq., Hill Crest, Brighton. It was a pretty group which won the Ryecroft silver medal and first prize for Mr. W. E. Anderson, but this appeared to lack a few taller plants at the back; Mr. E. Meachen was second with much better flowers, but too formal in arrangement. Standard plants were not up to their usual standard, but a few good dwarfs came from Mr. E. Meachen, who was placed first in both classes. There was a good specimen of Eva Knowles among these.

One of the best, and certainly the most admired of groups, came from Mr. H. Head, The Drive Nursery, Hove, who confined himself to chrysanthemums only, and had a number of excellent flowers, several of which surpassed those staged in the cut flower classes. Cyclamen were really good, and the twelve from Messrs. W. Miles and Co., Church Road, Hove, deserve special mention. The best six specimens came from Mr. T. Fairs, gardener to R. Clowes, Esq., Hassocks. There were some prettily-arranged vases of chrysanthemums only, five flowers only in each vase, and of given colours. Mr. H. Head, The Drive Nursery, was first, and Mr. M. Tourle, gardener to F. Barchard, Esq., a capital second. A stand of natural flowers and foliage is always well contested here. Mr. E. Meachen, Withdean, just succeeded in beating Mrs. Tourle, Little Horsted, who has frequently occupied the same position. This year the second prize stand wanted a little more colour in the centre. The special prize offered by Mr. H. Head for one vase of nine flowers was won by a very heavy and close arrangement from Mr. T. Fairs, Clayton Wickham, who also had some grandly grown Primula sinensis.

On the whole we did not think the cut blooms so good as usual. One of the most interesting classes was that for amateurs, the plants to be grown within three miles of the Pavilion, for which a challenge trophy is offered. Mr. G. Pigott, 37, Trafalgar Street, was successful here, and had an exceptionally good flower of International. Mr. J. Stredwick, St. Leonards, won for twenty-four Japanese, and Mr. G. Duncan, gardener to C. J. Lucas, Esq., Horsham, was ahead for twelve Japanese, but these were rather loose flowers. There was very strong competition for a table of chrysanthemums and foliage plants, the piece of plate being secured by Mr. G. Miles, Dyke Road Nursery, for a table of well-grown specimens, but many good flowers too much crowded among the palms. We liked the second prize table best as regards arrangement, but the flowers here were not up to those from Mr. Miles. The specimen blooms were not over good. Mr. Harris, gardener to Colonel Henty, Arundel, had the best in Madame Carnot and C. H. Curtis, closely followed by Mr. J. Hickson, gardener to F. Slater, Esq., Newick, Bonnie Dundee being very good.

The best non-competitive exhibit came from Messrs. Balchin and Sons, who surpassed their previous efforts, and had a grand lot of bouquets, vases, and plants. The gold medal was awarded here. That roses were still with us in the open was amply proved by the quantity staged by Mr. G. W. Piper, Uckfield. Fruit was not so good or numerous as in most seasons.

NATIONAL CHRYSANTHEMUM SOCIETY.

AT the meeting of the Floral Committee held on Monday last, with Mr. C. Harman Payne in the chair, there was a considerable number of novelties, the most noteworthy collection being contributed by Mr. H. Weeks, of Thrumpton Hall, Derby, who was awarded a silver medal; Mr. W. J. Godfrey, Messrs. Cannell and Sons, Mr. H. J. Jones, Mr. Forbes, Mr. N. Molyneux, and Mr. Motty, the latter contributing some interesting novelties from Japan. The following certificates were awarded: To Mr. H Weeks for *Mrs. Barkley*, a superb Japanese reflexed, with broad, stout florets, massive, and of fine form, colour rich lilac purple; and for *Edith Dashwood*, an exceedingly beautiful Japanese, the flowers of the largest size, refined, and of a soft flesh pink; in form the blooms remind one of Madame Carnot. To Mr. Forbes for *Floris*, a beautiful single variety, the blooms large, with long florets, and of a pleasing pink hue; and *Victoria*, a charming variety, with large blooms, elegant in aspect, and of a pale primrose colour.

MARKETS.

Covent Garden.

THE moderate supplies of fruit and vegetables meet a brisk demand, and prices are firm all round.

FRUIT.—English apples, 3s. to 9s. per bushel; Nova Scotian, 14s. to 28s. per barrel; French pears, 3s. to 5s. per box; Californian, 4s. 6d. to 9s. per case; English grapes, 9d. to 1s. 6d.; Channel Islands, 6d. to 1s. per lb.; Valencia, 10s. to 18s. per barrel; Murcia, 4s. to 7s. per box; bananas, 5s. to 9s. per bunch; pineapples, 1s. 6d. to 4s. each; pomegranates, 4s. to 6s. 6d. per case; Jaffa oranges, 9s. to 11s.; Jamaica, 8s. to 10s. per box; Murcia, 5s. to 7s. per case; English walnuts, 3s. 6d. to 4s. 6d. per bushel; lemons, 15s. to 25s. per box.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisii, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—English tomatos, 3s. 6d. to 6s.; Channel Islands, 3s. to 3s. 6d. per 12 lb.; Bordeaux, 1s. 3d. to 1s. 9d. per box; English onions, 5s. to 6s. per cwt.; Valencia, 5s. 9d. to 7s. per case; Dutch, 3s. 6d. to 4s. per bag; seakale, 9d. to 1s. per punnet; celery, 6s. to 12s. per dozen rolls; endive, 1s. to 1s. 3d.; cucumbers, 2s. 6d. to 4s.; lettuce, 9d to 1s. 3d per dozen; turnips, 2s. 6d. to 3s. 6d.; carrots, 2s. 6d. to 3s.; and parsley, 1s 6d. to 2s. per dozen bunches; cabbages, 4s. to 7s.; cauliflowers, 4s. 6d. to 8s. 6d. per tally; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; eschallots, 8s. to 10s. per cwt.; potatos, 55s. to 90s. per ton.

Borough Potato Market.

Owing to large supplies from Scotland and Germany prices have been slightly lower, but the past few cold days have tended to increase the demand. Beauty of Hebron, Snowdrops, and Up to Date 75s. to 85s. per ton; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giant, and Imperators, 70s.; Blacklands, 60s. to 65s.; Scottish Abundance, Bruce, and Main Crop, 70s. to 75s. per ton; Germans, 2s. 10½d. to 3s. per cwt.

DISOBEDIENCE IN THE ARMY is looked upon as one of the gravest crimes a soldier can be guilty of, and in the past it has often been punished with death. The fate of a battle and the lives of thousands of men, let alone our national honour, have often been dependent upon the prompt carrying out of what might have seemed a trivial order. Discipline without good health, however, would be like a house without a foundation; therefore great pains are taken to keep our fighting men free from disease. Holloway's Pills have always been found an excellent medicine for this purpose, as, in addition to cleansing the blood, they invigorate and give tone to the system.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Club-rooted Beans and Brussels Sprouts.—J. W., Aberystwyth: The Brussels sprouts are suffering from a very bad attack of club-root (*Plasmodiophora brassicæ*), and this cannot be cured in the crop now suffering. To prevent a recurrence of the disease give the land a strong dressing of fresh lime, or of gas lime if this is obtainable, and allow it to remain roughly turned up or ridged during the whole of the winter. The next crop or two should not be a brassica one. With regard to the French beans we should be glad of further information as early as possible, as the case is rather different, and presents unusual features.

Seedling Apple.—W. P., Stebbing: The apple sent is of fair quality, but it does not present a very handsome or taking appearance; consequently it would unduly raise your hopes were we to suggest that you should propagate it freely for distribution. By all means retain the specimen in your garden, as it crops well and resists blight, but there are already so many first-class varieties that prove meritorious in almost all parts of the country that the multiplication of a variety of less value is not advisable; indeed, it is to be discouraged. Graft a really good apple, say Ribston Pippin, upon one branch of your vigorous seedling, note the results, and compare the quality of the fruits.

Renovating Old Cherry Orchard.—C. T. R., Bucks: It is highly probable that a good deal of thinning is necessary, that some amount of feeding is needed, and also that the soil is lacking in lime, which is very necessary for the perfecting of stone fruits, and some, such as the cherry, like an abundance of lime; indeed, we have seen fine orchards of cherries growing in the débris and rubbish from lime quarries and kilns. We cannot, however, give a satisfactory answer to your query without some further particulars as to soil, cultivation, number of trees per acre, and their size, situation of the orchard, &c. If you will supply these we will give you the best advice we can.

Vines in Old Borders.—G. F., Driffield: Under the circumstances you cannot do better than remove a part of the border, carefully disentangling the roots and keeping them moist between mats until they can be relaid. In all probability you will find the drainage needs putting right, and this is work that must be done thoroughly. Cut back any strong, coarse roots to a point where they branch, and, of course, sever any that may have gone beyond the limits of the border; something, too, might be done by the use of tiles or slates to prevent any quantity of roots from straying, but nothing less than cement or concrete will absolutely confine them. We should advise the lifting of a half or a third of the border length this season, as this will enable you to use the largest possible proportion of new material for relaying the roots in, and also the vines will show the advantage of such treatment. If the lower soil in the border is at all sour or unfertile it must be rejected, and, as you are likely to find it so, you will appreciate the importance of doing the work piecemeal. A cartload or two of loam for the upper layers of soil, and wherein the roots will be relaid, will not prove an extravagant item, and doubtless you can manage this, whereas to do the whole border at once would, as you say, be too great an expense. Use bone-meal and lime rubble by all means, but not overmuch of the former; and be careful when the work is done—and it should be done immediately—that the cold rains and snows of winter are kept off it by means of shutters, lights, &c. During the coming season we suggest that you put aside all the turf edgings and anything turfy or loamy that you can obtain, with a view to its use next autumn on another portion of the border.

Names of Plants.—I., Cheshire: 1, Ophiopogon Jaburan; 2, Euonymus japonicus albo marginatus; 3, Begonia maculata; 4, Dieffenbachia Baraquiniana; 5, not recognised; 6, Nerine crispa.

L. B., Windsor: Hibbertia dentata.

Names of Fruits.—F. H. B., Co. Carlow: 1, Stirling Castle; 2, London Pippin; 3, Ecklinville Seedling; 4, Blenheim Pippin; 5, not recognised; 6, King of the Pippins.

H. L. C., Coventry: 1, Mère de Ménage; 2, Dumelow's Seedling; 3, Old Hawthornden; 4, Minchull Crab.

THE WEATHER DURING THE WEEK ENDING NOVEMBER 19, 1898.

STATIONS.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Mean. Fahrenheit.	Mean. Centigrade.	RAINFALL. In Inches.	In Centimetres.
	Fahrenheit.	Fahrenheit.				
London	55·8	35·6	48·0	8·89	0·02	0·05
Croydon	56·0	30·0	47·3	8·50	0·02	0·05
Brighton	58·0	39·0	49·6	9·78	0·03	0·08
Bristol	—	—	—	—	—	—
Wolverhampton	57·5	35·0	47·4	8·56	0·11	0·28
Norwich	54·4	40·4	49·0	9·44	0·21	0·53
Nottingham	56·8	40·0	47·2	8·44	0·28	0·71
Liverpool	56·8	39·4	48·6	9·22	0·09	0·23
Huddersfield	55·8	38·2	48·1	8·94	0·08	0·20
Bradford	57·2	45·0	49·8	9·89	0·23	0·58
Hull	55·0	42·0	48·0	8·89	0·18	0·46

The mean reading of the Barometer during the week at Greenwich was 30·07 inches, and that of the Thermometer 48°·0, the latter being 5°·6 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 42 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 10·7 hours. The measured rainfall amounted to 0·02 of an inch.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, NOVEMBER 28.—General Committee Meeting of the National Chrysanthemum Society.

WEDNESDAY, NOVEMBER 30.—Annual Dinner of the National Chrysanthemum Society, Holborn Restaurant; Sir Albert Kaye Rollit, M.P., will take the chair at 6.30 p.m.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, NOVEMBER 28, 29, 30, AND DECEMBER 1 AND 2.—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, THURSDAY, AND FRIDAY, DECEMBER 7, 8, AND 9.—Fruit Trees, Standard and Dwarf Roses, &c., Messrs. Protheroe and Morris, at the Wellington Road Nursery, Hounslow.

FRIDAY, DECEMBER 2.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

MONDAY, TUESDAY, AND WEDNESDAY, NOVEMBER 28, 29, AND 30.—Tulips, Crocuses, &c., Mr. J. C. Stevens, King Street, Covent Garden.

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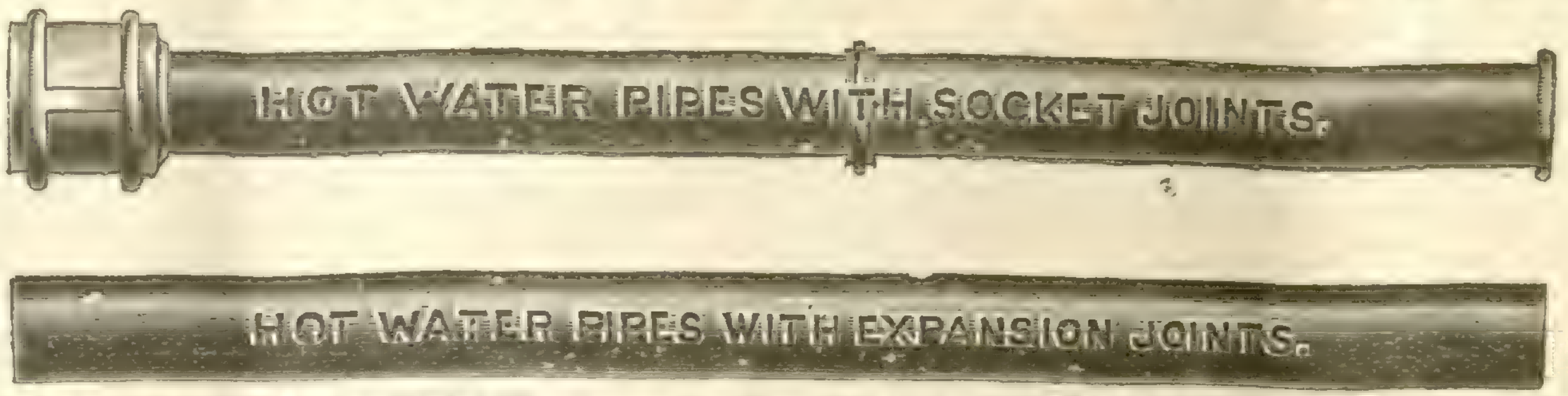
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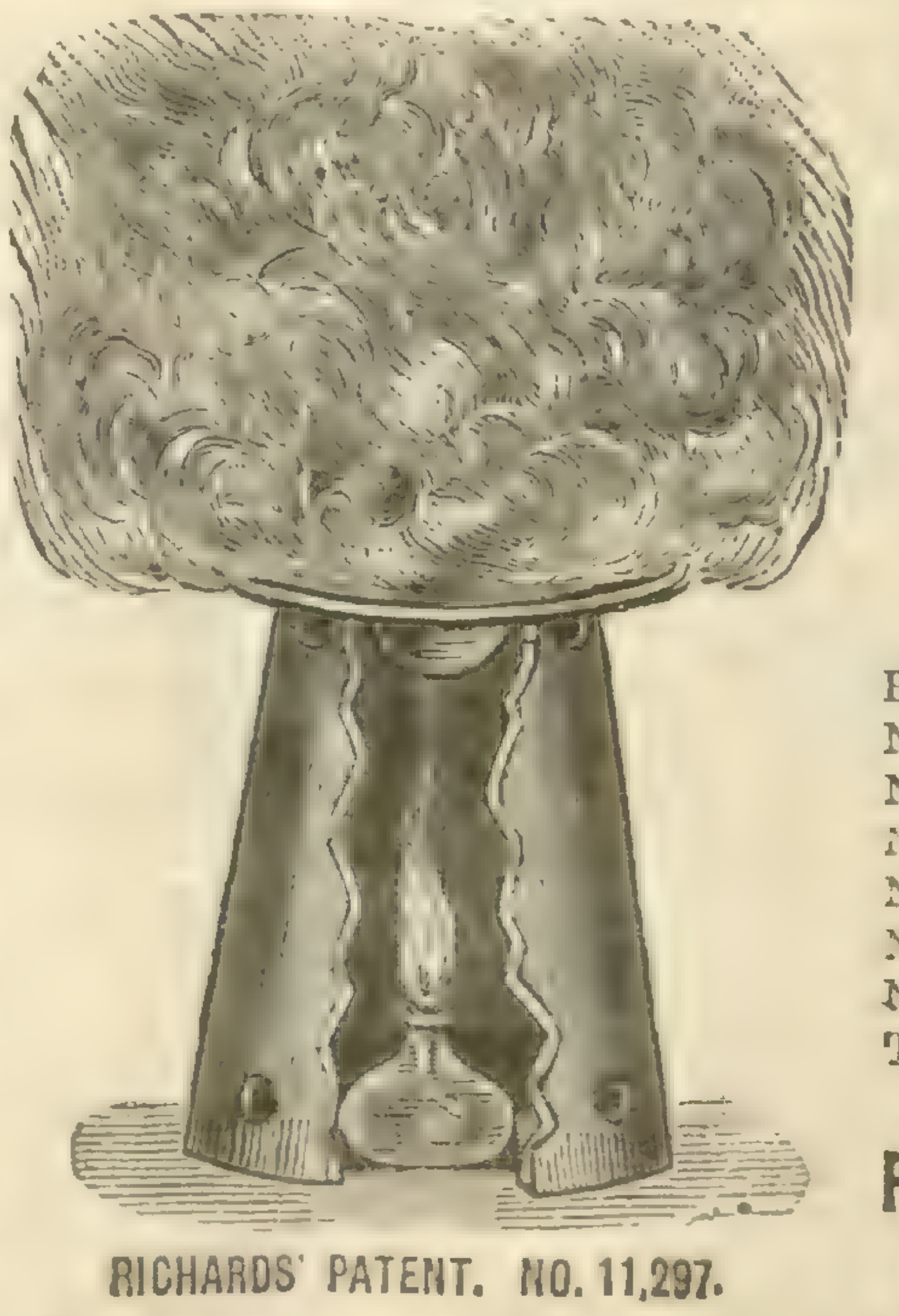
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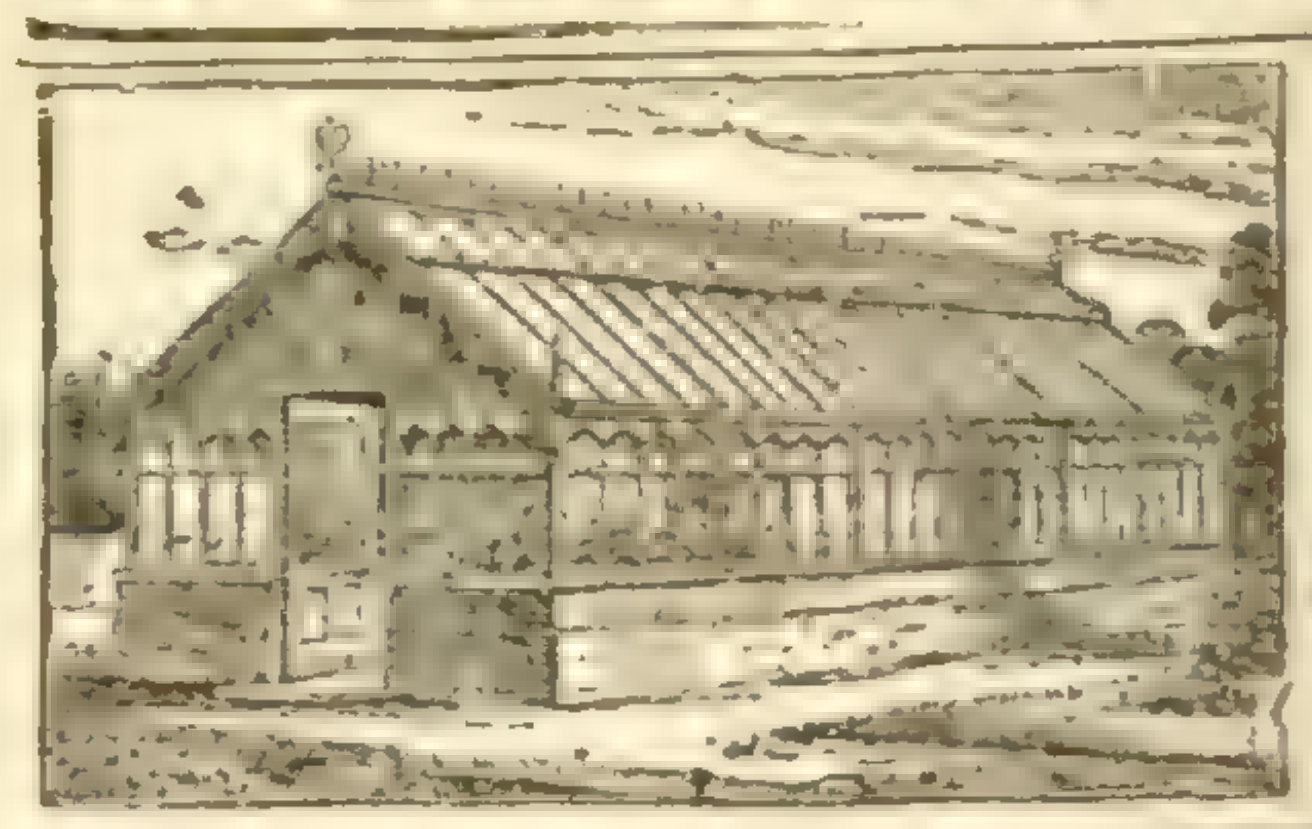

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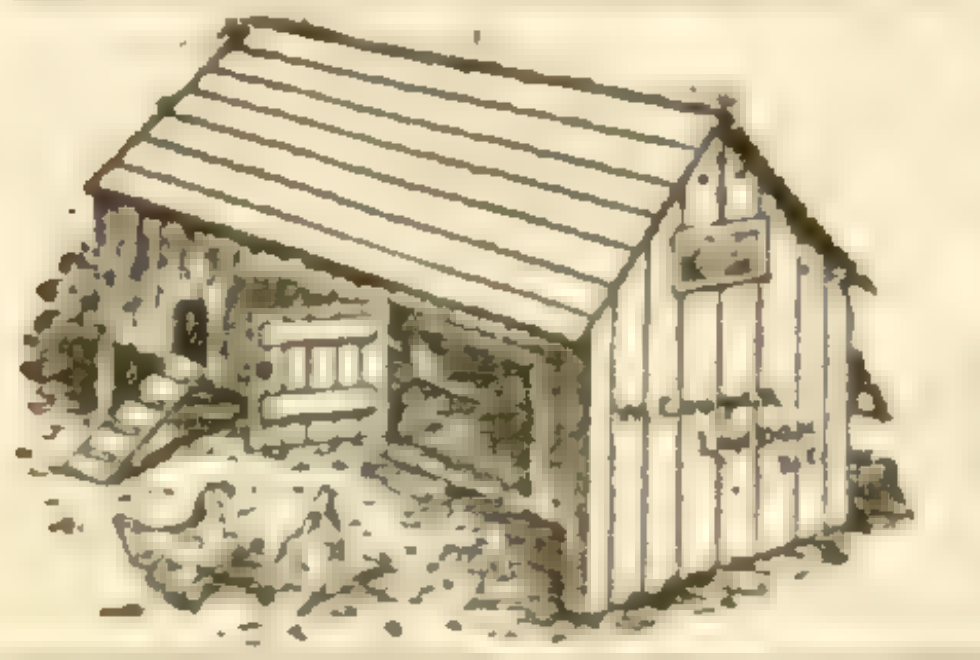

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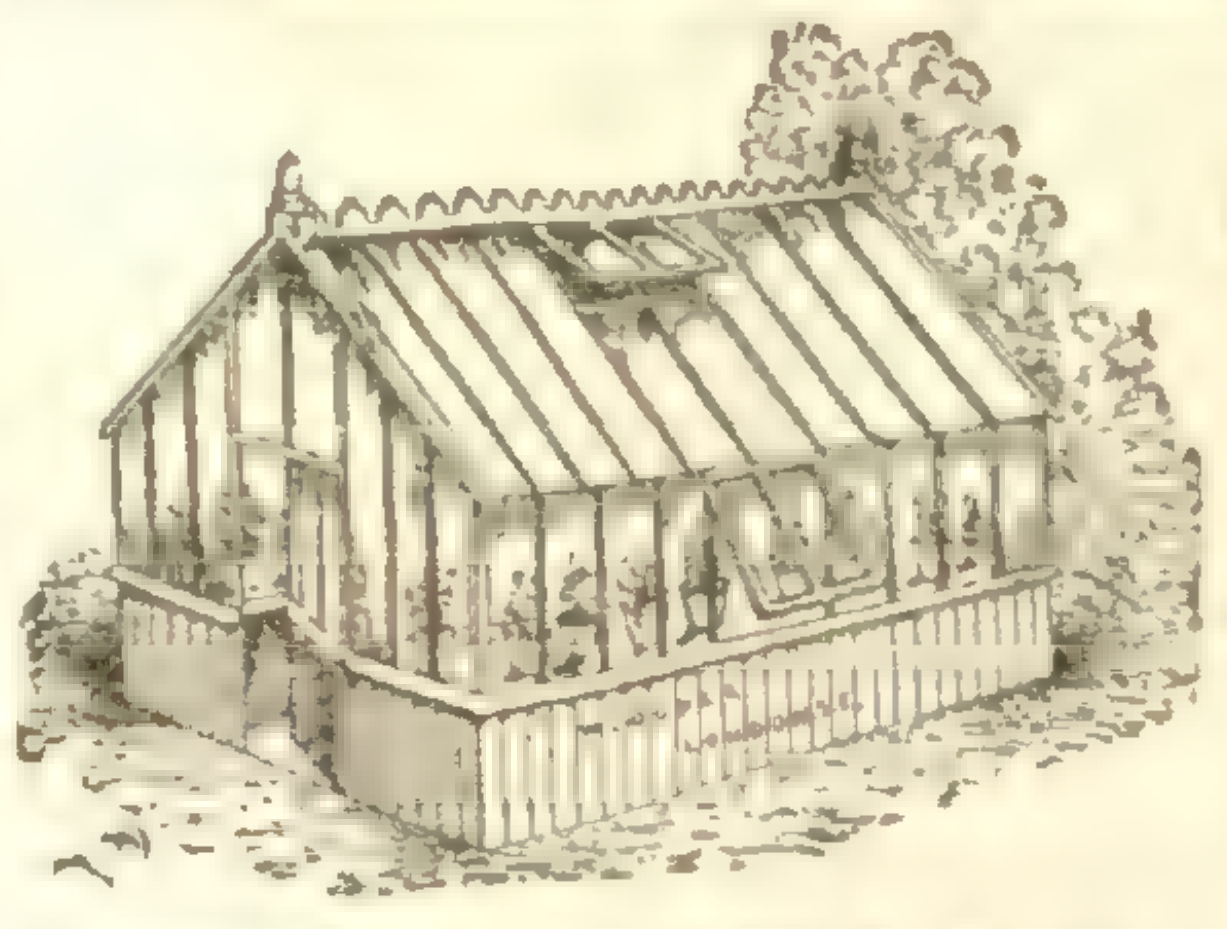

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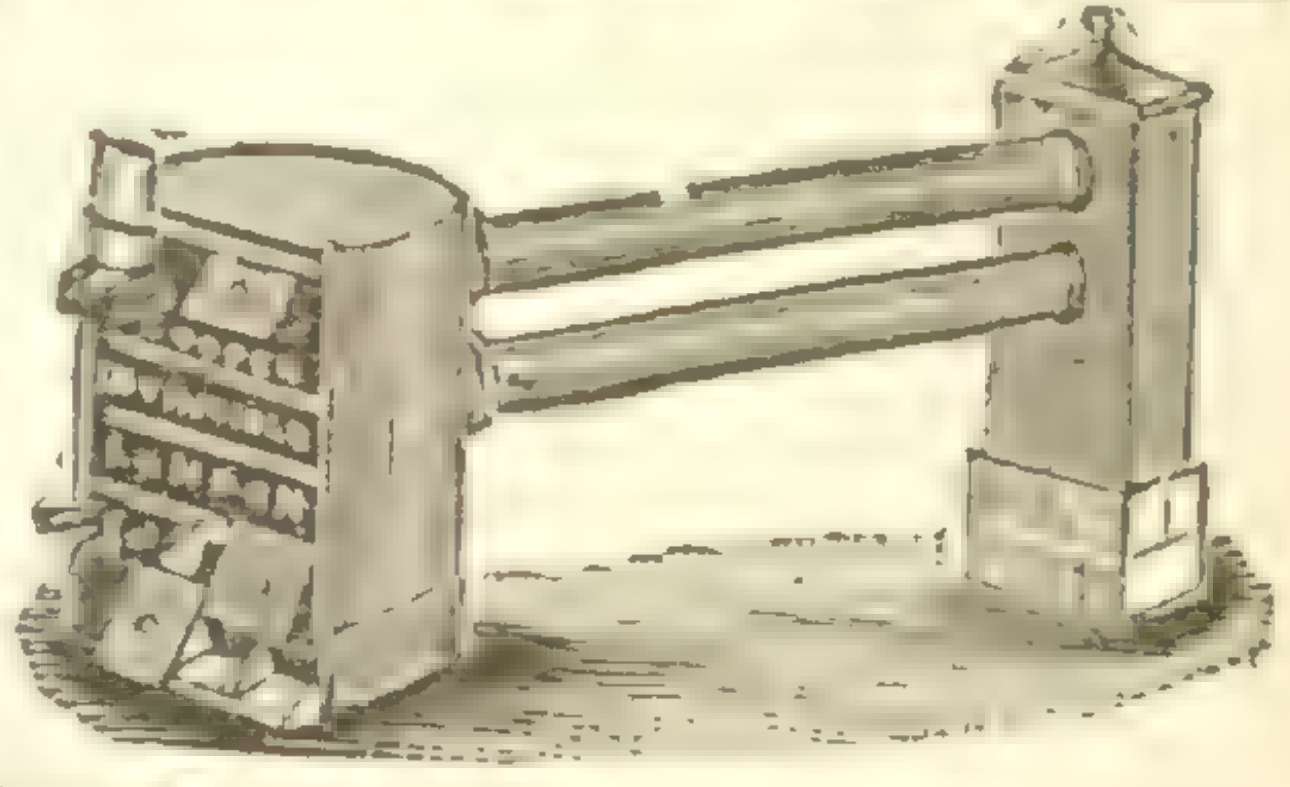

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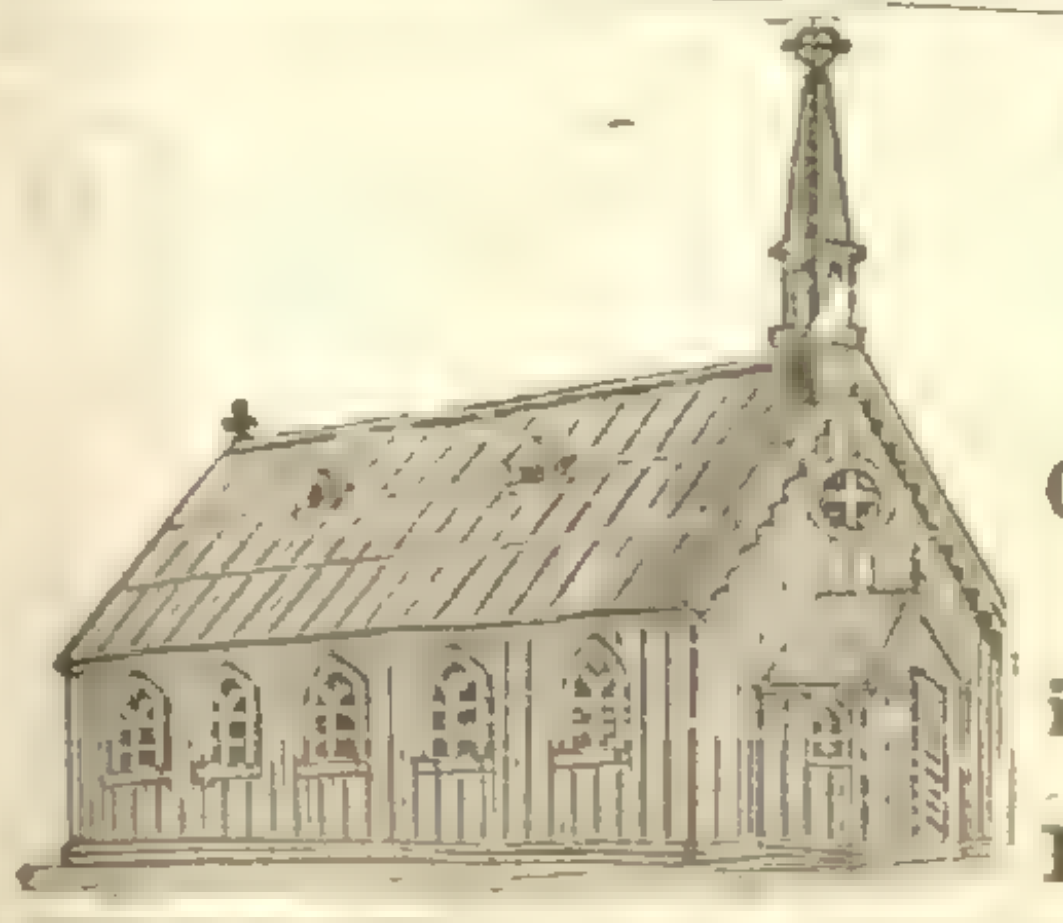

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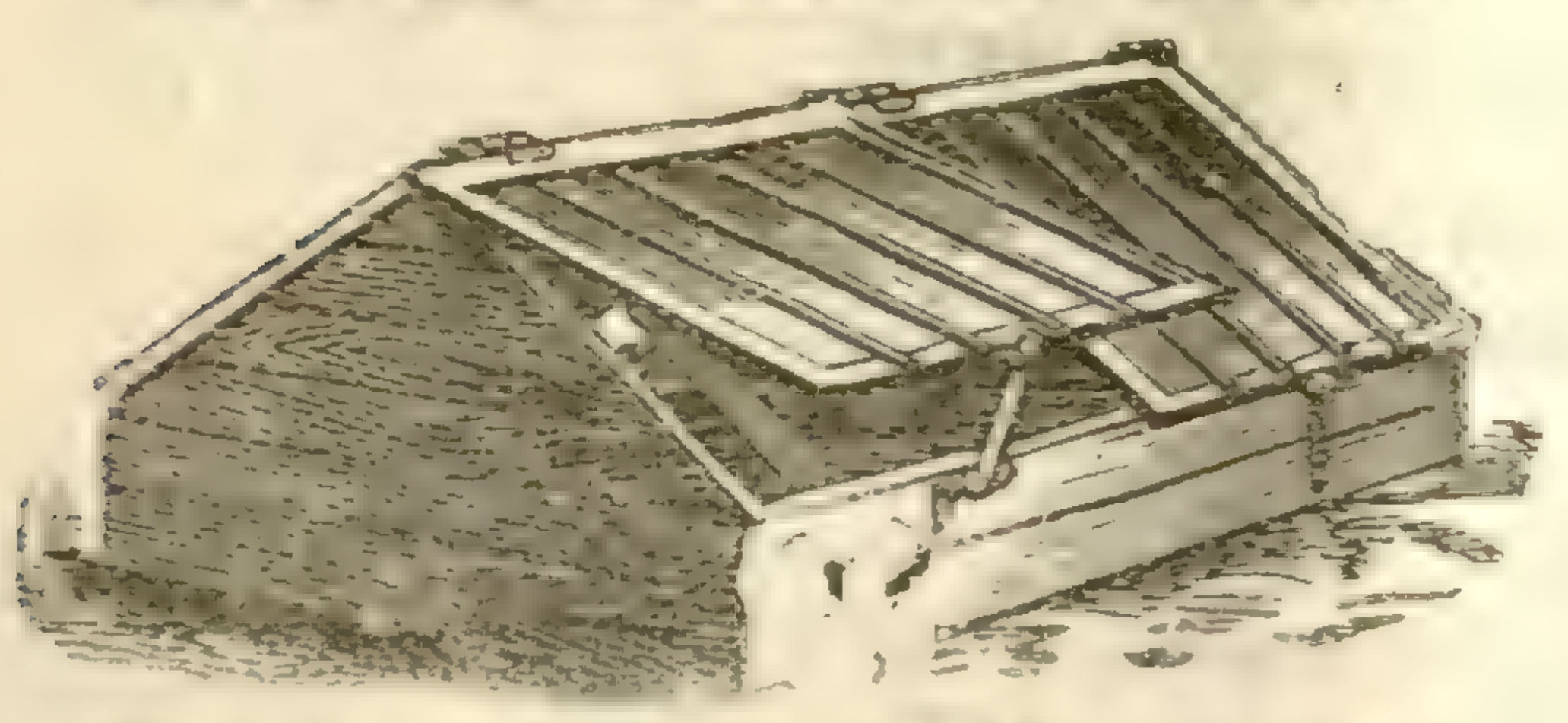

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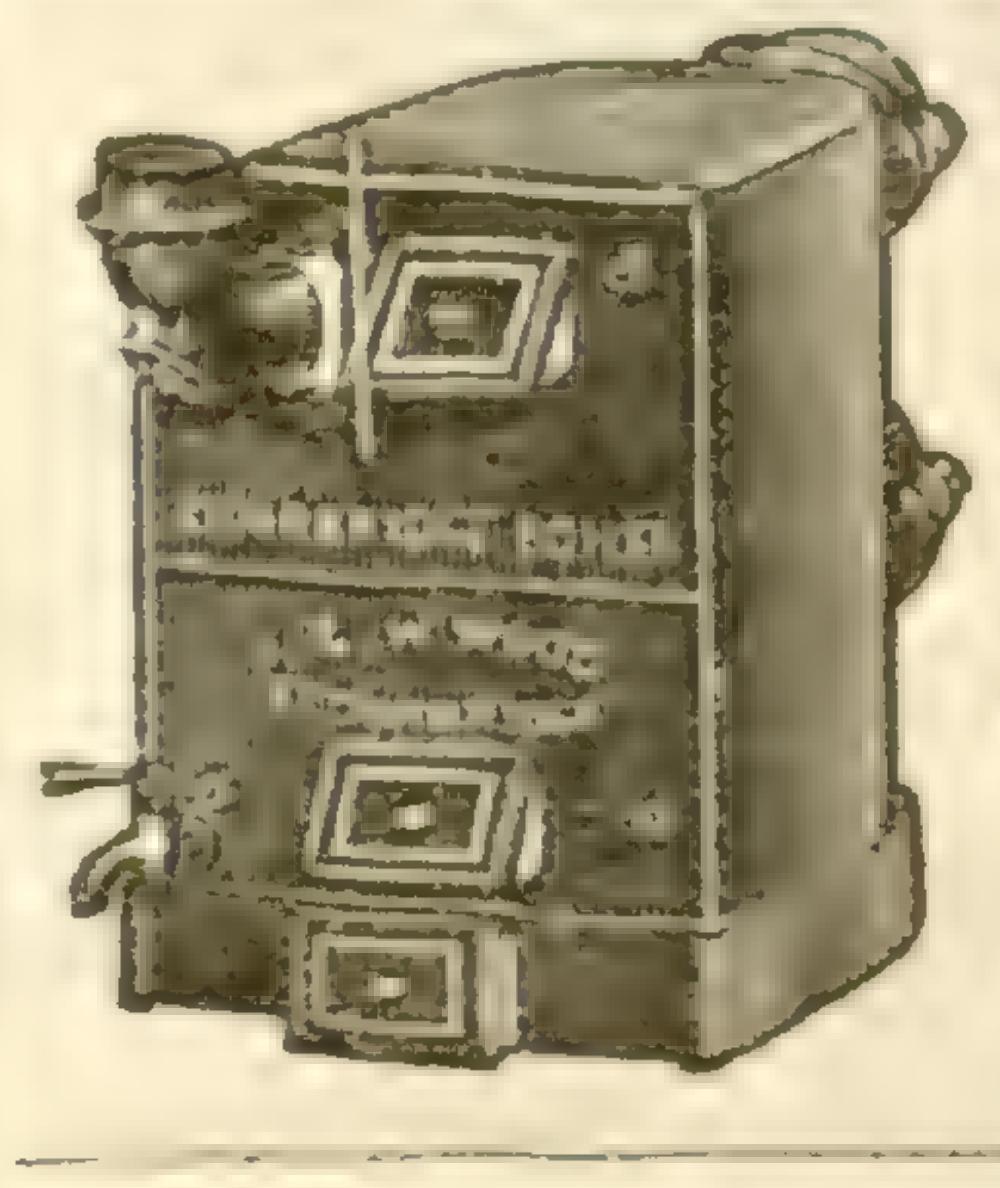

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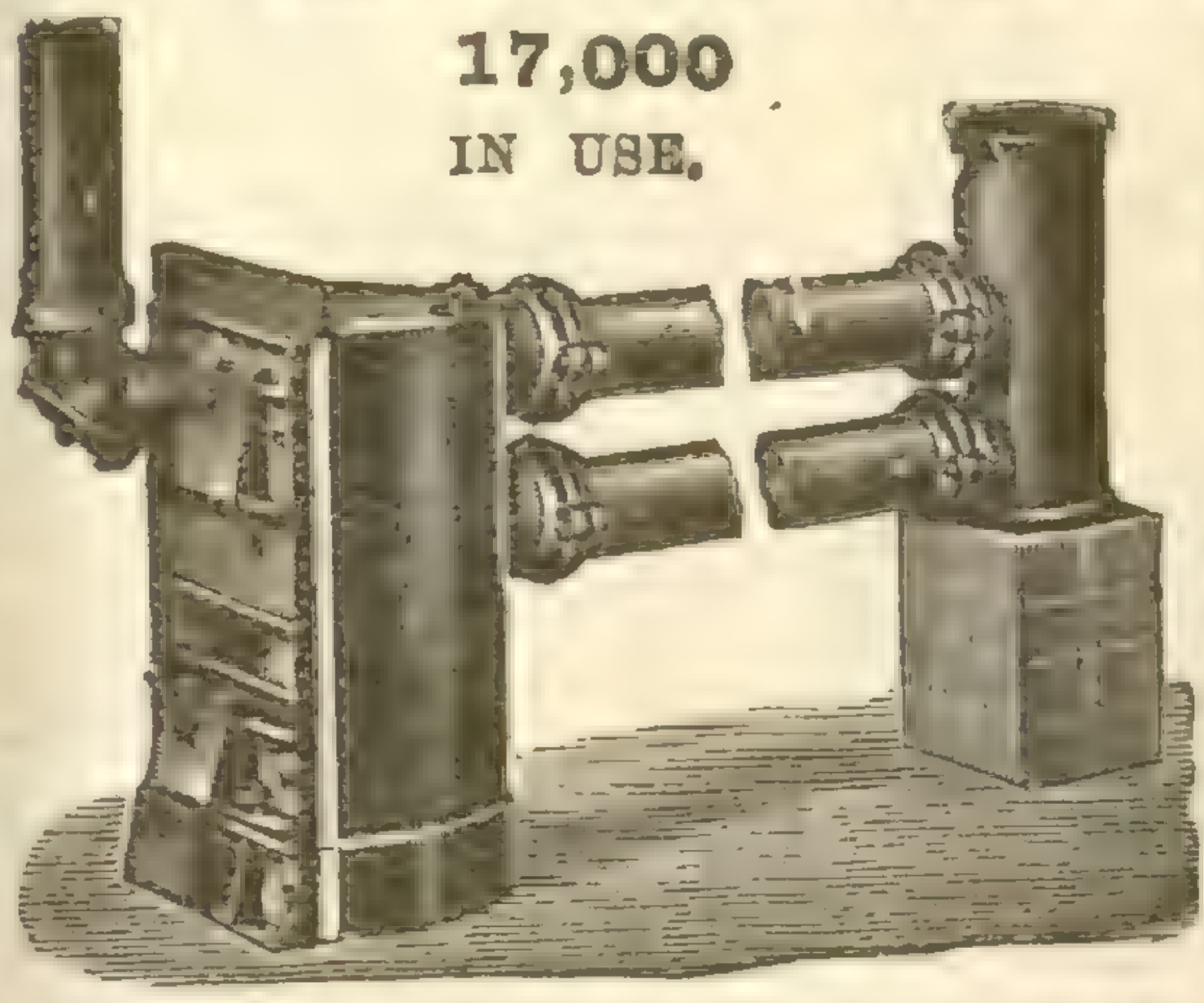

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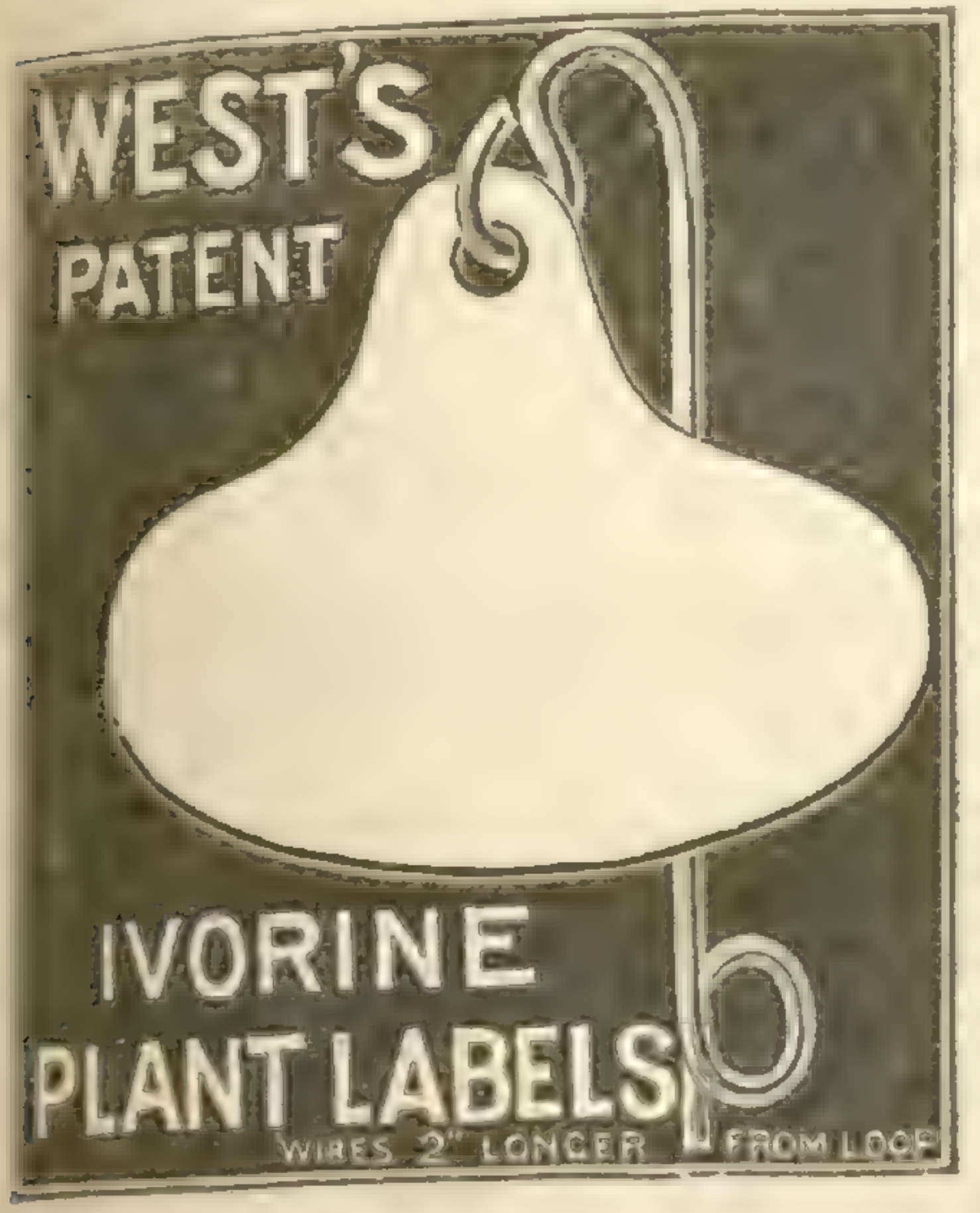

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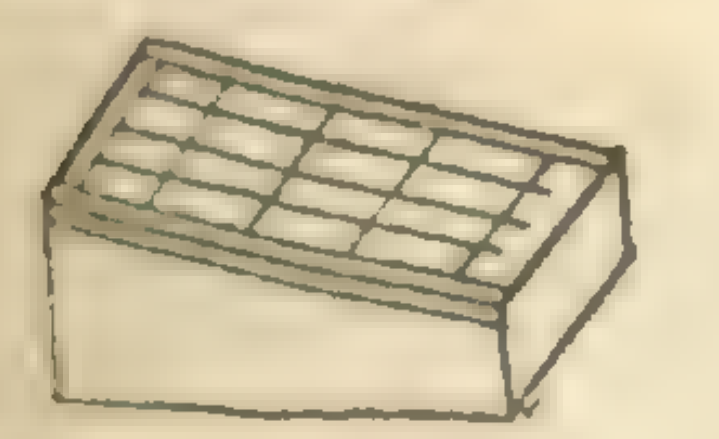

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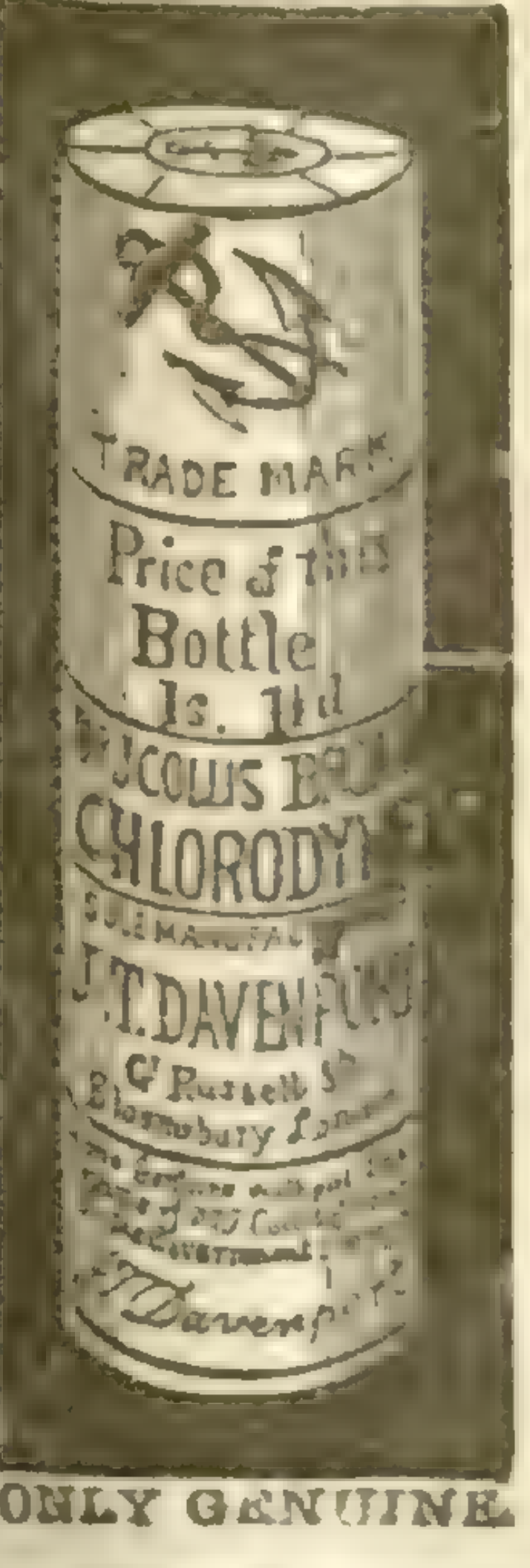
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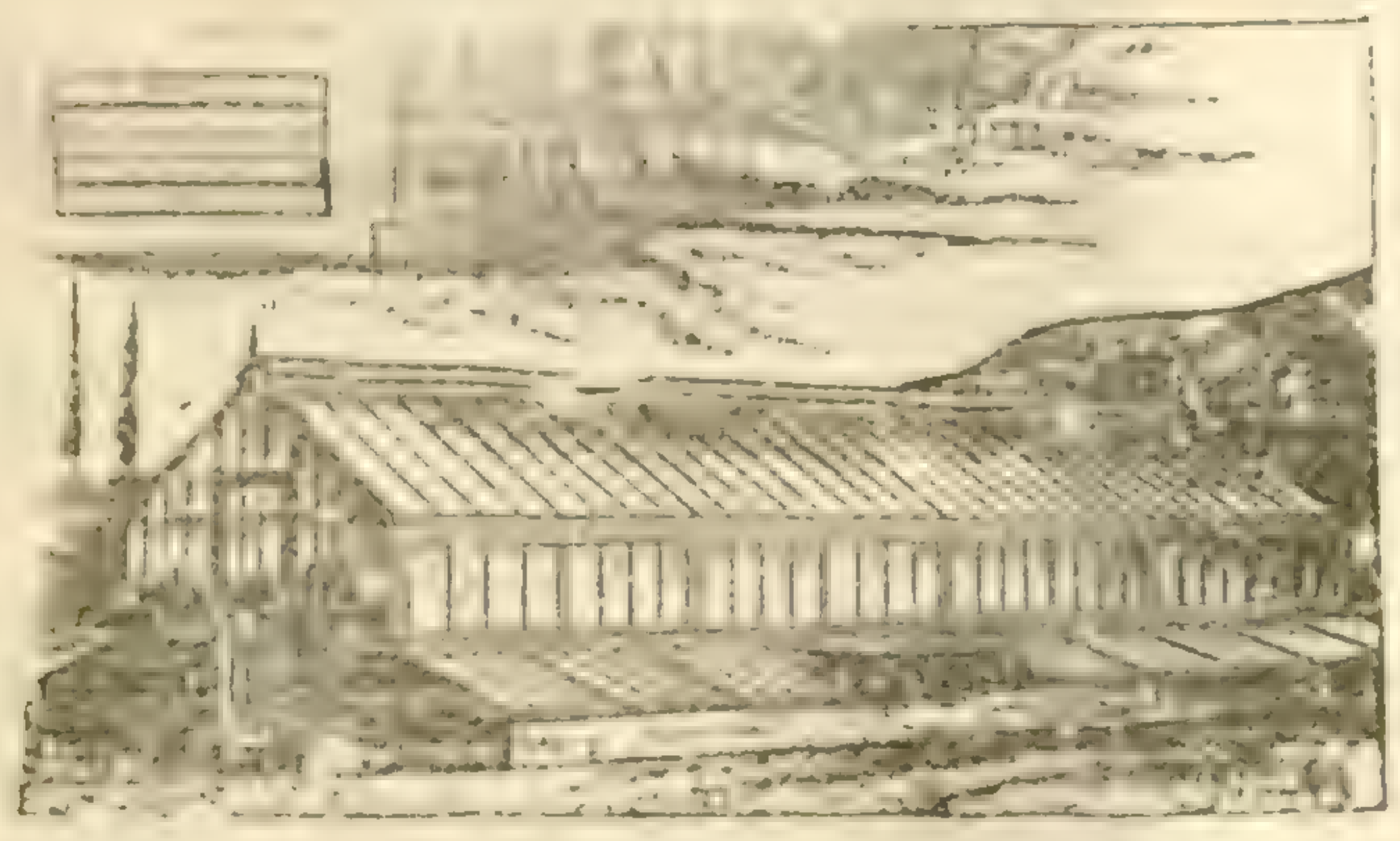

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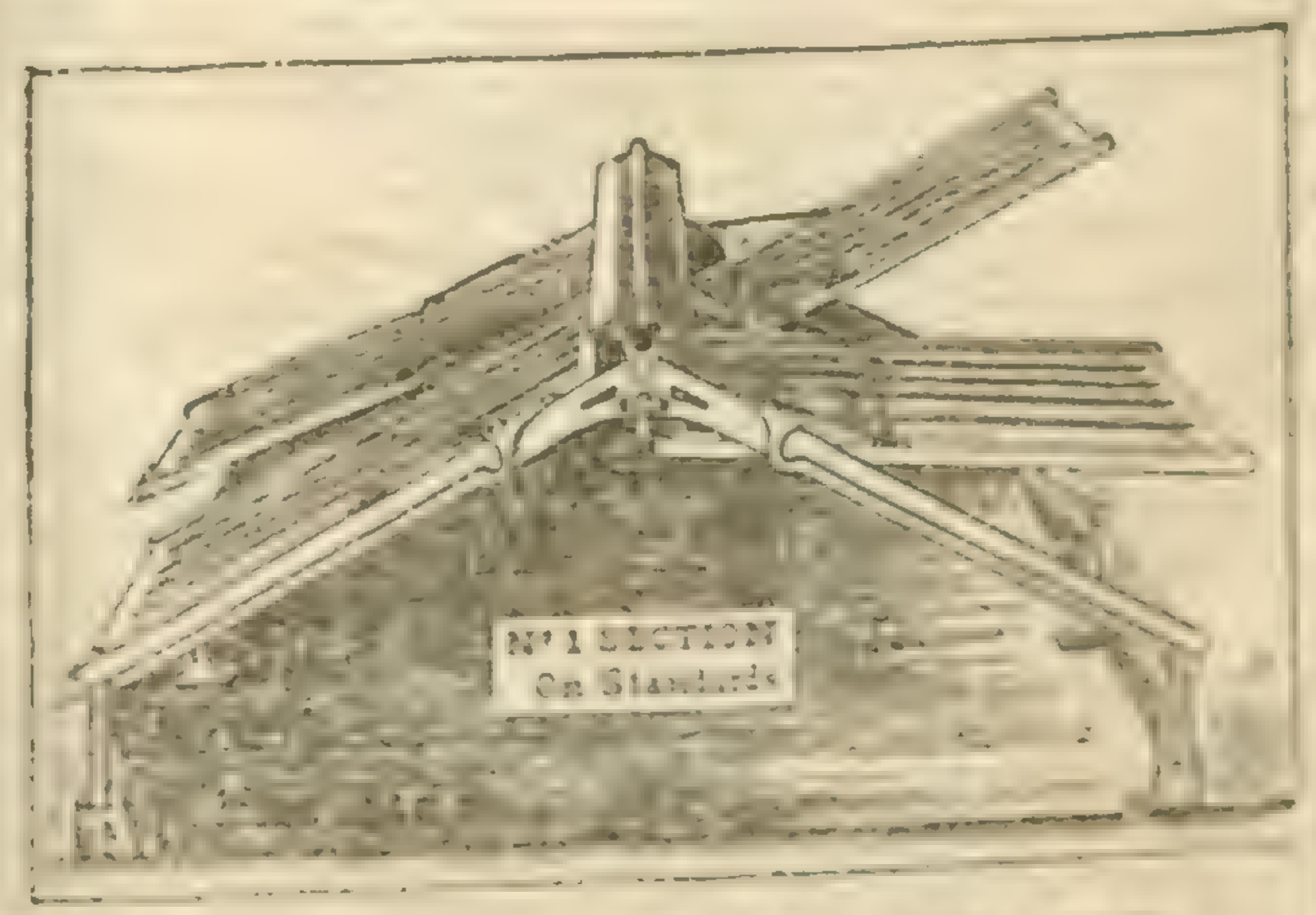

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ROSES, Rhododendrons, Azaleas, Fruit Trees, Ornamental Trees, Shrubs, Climbers, and every description of Hardy Nursery Stock, covering about 125 acres, in prime condition.
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HOLLIES, common English, well grown, bushy, well rooted, selected purposely for Hedges; any size from 1 to 3 feet. YEWS, English, 1½ to 3 feet, perfect, well-rooted plants, suitable for Hedges and Ornamental Planting. Also large stock of AUCUBAS, large LAURELS, variegated HOLLIES, and general NURSERY STOCK. Samples and prices on application.
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GISHURSTINE keeps Boots dry and soft, Boxes 6d. and 1s. from the trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (LIMITED), London.

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Manufacturers, London Works, Reading.
(Name Paper.)

FLOWER GRIP-HOLDER. — WEST'S PATENT SELF BUTTON-HOLE FLOWER MAKER, holding the flowers firmly and water-tight, also for show and decorative purposes. Price 6d., from all Florists, &c. See large advertisement.

Sales by Auction.

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Every Day except Saturdays.

(Final Sales of the Season.)

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., as above, at Eleven o'clock each day, large consignments of named HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH BULBS, together with WHITE ROMAN HYACINTHS, and PAPER-WHITE NARCISSUS, received direct for unreserved Sale.

On view Mornings of Sale, and Catalogues had.

Hounslow, Middlesex.—Clearance Sale.

GREAT SALE of FRUIT TREES and OTHER STOCK, by order of Messrs. S. SPOONER AND SONS, who are clearing a portion of the ground at their Wellington Road Nursery.

IMPORTANT TO MARKET GARDENERS, FRUIT GROWERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE and MORRIS will SELL BY AUCTION, on the PREMISES, THE WELLINGTON ROAD NURSERY, HOUNSLOW, about twelve minutes from Hounslow and Whitton Station (L. and S. W. Railway), on WEDNESDAY Next, DECEMBER 7, and two following Days, at Twelve o'clock precisely each day, about

50,000 FRUIT TREES,

comprising a fine assortment of STANDARD, PYRAMID, and BUSH APPLES, PEARS, and PLUMS, including 1,500 Stirling Castle, 1,000 Ecklinville, 500 Worcester Pearmain, 1,000 Duchess Favourite, and Hundreds of Keswick Codlin, Hawthornden, Wellington, Domino, Grenadier, Royal Jubilee, and most of the leading kinds of Apples; 5,000 Victoria, 1,000 Rivers' Early Prolific, 500 Czar, 2,000 Monarch, 1,000 Pond's Seedlings, 500 Prince of Wales, 500 Grand Duke, and other varieties of Plums; 4,000 MORELLO CHERRIES, 3,000 DWARF TRAINED PEACHES, NECTARINES, and PLUMS, 1,000 EARLY RIVERS' NECTARINE (New), several Thousands of Apple, Pear, and Plum Stocks, fit for working, 2,500 STANDARD and DWARF ROSES, and other Miscellaneous Stock.

There will also be included, by permission, 20,000 WILSON'S LONGBUNCH RED CURRANTS, well grown two-year old stuff.

May be viewed one week prior to the sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.

IMPORTED AND ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE and MORRIS will SELL the above BY AUCTION, at their CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, LONDON, E.C., on FRIDAY next, DECEMBER 9, at Half-past Twelve o'clock.

On view Morning of Sale, and Catalogues had.

Wednesday and Thursday next.

AN IMMENSE COLLECTION OF PLANTS AND BULBS.

MR. J. C. STEVENS will SELL BY AUCTION, at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, as above, at Half-past Twelve precisely each day, a fine selection of choice-named Rose Trees, Ornamental Shrubs, Flowering Trees, Border Plants, Liliums, Palms and Azaleas, Dutch and other Bulbs &c., &c.

On view Mornings of Sale, and Catalogues had.

WITHOUT RESERVE.

Wednesday and Friday next, December 7th and 9th.

GREAT SALES OF DUTCH BULBS AND CHOICE PLANTS:

At Half-past Twelve o'clock precisely.

THE BRITISH HORTICULTURAL ASSOCIATION (Limited) will SELL BY AUCTION each day, at the CITY OF LONDON AUCTION ROOMS, 33A, LUDGATE HILL (corner of Pilgrim Street), an enormous Consignment, including:—

10,000 BERLIN CROWNS LILY OF THE VALLEY (received direct in fine condition).
1,000 MONTBRETIA CROCOSMIFLORA.
1,000 PÆONIES (in variety).
50,000 NARCISSUS VAN ZION, &c.
10,000 GLADIOLUS (in variety).
1,000 DWARF ROSES (English grown).
500 STANDARD ditto.
2,000 AZALEAS, MOLLIS and INDICA, RHODODENDRONS, &c.
1,000 CACTUS DAHLIAS.

and large quantities of Hyacinths, Tulips, &c, Pyrethrum Mont Blanc, Tritoma uvaria, Fruit Trees, including Apples, Pears, and Cherries.

On View Mornings of Sale. Catalogues on application and post free.

The Association will be pleased to execute commissions free of charge for those unable to attend the sales.—Offices, 29, New Bridge Street, Ludgate Circus, E C.

FOR SALE.—A very desirable and productive ORCHARD and GARDEN, with four large Glasshouses with Vines, and heated throughout; also stabling and storeroom and shedding; area about two acres; has frontages on two main streets, and is very eligible building land; splendid opportunity for a practical energetic man as Gardener and Florist, for which there is a good opening.—For price and particulars apply to A. PATSTON, Woodstone Lodge, Peterborough.

Fifty Nurseries, Market Gardens, Florist and Seed Businesses to be disposed of.

MESSRS. PROTHEROE and MORRIS'S HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at 67 and 68, Cheapside, E.C.

SPECIAL OFFER OF ROSES.

Best varieties. Package free for Cash with order.

Standards, H.P's., our selection...	12s.	doz.
Bushes, " " " ... .. 35s. per 100;	5s.	"
M. Niel, Gloire de Dijon, Crimson Rambler, and other climbers	9s.	"
Teas and Noisettes, in pots	10s.	"
M. Niels, Gloires, Ramblers, and other climbers, extra strong, in 6 in. and 7 in. pots	24s.	"

Extra plants included for carriage.

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FRUIT TREES A SPECIALITY.

S. S. MARSHALL, Limited, offer an immense stock of strong, well-grown Trees of every description. All the best varieties in cultivation, true to name.

Special Cash offer, Carriage Paid.

FRUITING TREES.

APPLES, PEARS, PLUMS, CHERRIES — Pyramids, Bush, Standards, and Cordons, 1/6 each, 15/- doz.; extra selected, 2/- to 3/- each, 18/- to 30/- doz. Horizontal and Fan-trained for walls or walks, 2/- to 3/- each.

PEACHES, APRICOTS, NECTARINES — Trained Trees, fine, 3s. 6d. each. Do. extra selected, 5s. each.

Low Terms quoted for quantities of 100 and upwards.

GOOSEBERRIES, market sorts, strong, 3s. 6d. dozen; 25s. per 100.

CURRANTS, market sorts, strong, 3s. dozen; 22s. 6d. 100.

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STRAWBERRIES, 1s. dozen, 3s. 6d. 100.

Orders of £1 and upwards CARRIAGE PAID for cash with order, to any station in England. Full Descriptive Catalogue on application.

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A grand stock of especially fine plants can be offered this season. Stout, well-ripened wood and fibrous roots. All the best Exhibition and Garden varieties. Descriptive Catalogue on application.

Dwarf H.P. ...	6s. dozen ...	30s. 100.
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S. S. MARSHALL, Ltd.,

Barnham Nursery, Barnham Junction, Sussex.

For sturdy growth and abundance of root, none can beat the

SALISBURY ROSES.

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ROSE GROWERS, SALISBURY.

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"A Year's Work on a Kent Fruit Farm."

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ILLUSTRATED and DESCRIPTIVE CATALOGUE, POST FREE, 3d.

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Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
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Plants, 3s. Cuttings, 1s. 6d. each.

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P.S.—Every grower will find it a great advantage by forwarding us their address.

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AMERICAN NURSERY,

BAGSHOT, SURREY,

Beg to call attention to their magnificent stock of

HARDY RHODODENDRONS, AZALEAS,

CONIFERS, EVERGREENS, DECIDUOUS TREES, &c.

☛ INTENDING PLANTERS WOULD DO WELL TO INSPECT THE NURSERIES. ☚

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Advertisements under this heading are charged 1s. each, four lines (32 words), and 3d. per line after. A Copy of the "Gardeners' Magazine," Post Free, 2½d.

THREE INSERTIONS FOR THE PRICE OF TWO!

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GARDENER (Head, or good Single-handed); age 30; married; well up in all kinds of Plants, Fruits, and Vegetables; good references.—E. POSNETT, 38, Olinda Road, Stamford Hill, N.

GARDENER (Head), where two or three are kept; age 35; married; experience in all branches of gardening; good references.—A. HUNT, Hooley Nursery, Purley, Surrey.

GARDENER (Head Working). — George Astridge, age 31, for the past three years gardener to H.I.M. the Empress Eugénie, SEEKS RE-ENGAGEMENT with a lady or gentleman requiring the services of a good, all-round practical gardener; life experience; excellent references; no family.—G. ASTRIDGE, Farnborough Hill House, Farnborough, Hants.

GARDENER (Head Working); age 28; life experience in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, kitchen and flower garden, &c.; good references.—F. COLLYER, Castle Hill, Rotherfield, Sussex.

GARDENER (Head Working), where two or more are kept; thoroughly competent in all branches; excellent references; eighteen years in last place.—R. WOTTON, 14, Cynthia Road, Oldfield Park, Bath.

GARDENER (Single-handed), or with help, as groom and gardener; well understands both duties; married, small family; age 31; four years' good character; disengaged 12th.—A. TAYLOR, Gardener, Queenborough Cottages, Braintree, Essex.

GARDENER (Single-handed). Single. Life experience; Inside and Out; age 25 years; good references, also character.—Address C. TANNER, Grove Lodge, Nursling, Southampton, Hants.

To Fruiterers, Florists, Seedsmen and Nurserymen.

MANAGER or SHOPMAN.— Situation wanted as above; experienced in Seeds, Bulbs, Sundries, Plants, Cut Flowers, and Making-up Trade; age 32; good references.—J. MORRIS, 6, Union Street, Andover.

RICHARD SMITH and CO., beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

YOUNG MAN, age 22, seeks SITUATION as Gardener, Second of four, or First of two; understands Vines, Peaches, Tomatos, and gardening generally; abstainer; good references.—H. HODGES, Guy's Cottage, Hollyport, Maidenhead, Berks.

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IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.

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SPIRÆA JAPONICA, extra large clumps, per doz., 2/6.
S. PALMATA, beautiful pink variety, per doz., 3/6.
LILIUM Lancilorum, Rubrum, and Roseum, per doz., 3/6.
GLADIOLUS Brenchleyensis, per doz., 9d. & 1/.
Very scarce. Ditto, The Bride, pr 100, 2/6
LILIUM Auratum, expected shortly, will be very [illegible] this season. [illegible]

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☞ Send for our SPECIAL OFFER at once, post free!

CANNAS, Mixed, from choicest named varieties, per doz., 4/-

The CHEAPEST HOUSE for every description of Bulbs and Garden Sundries.

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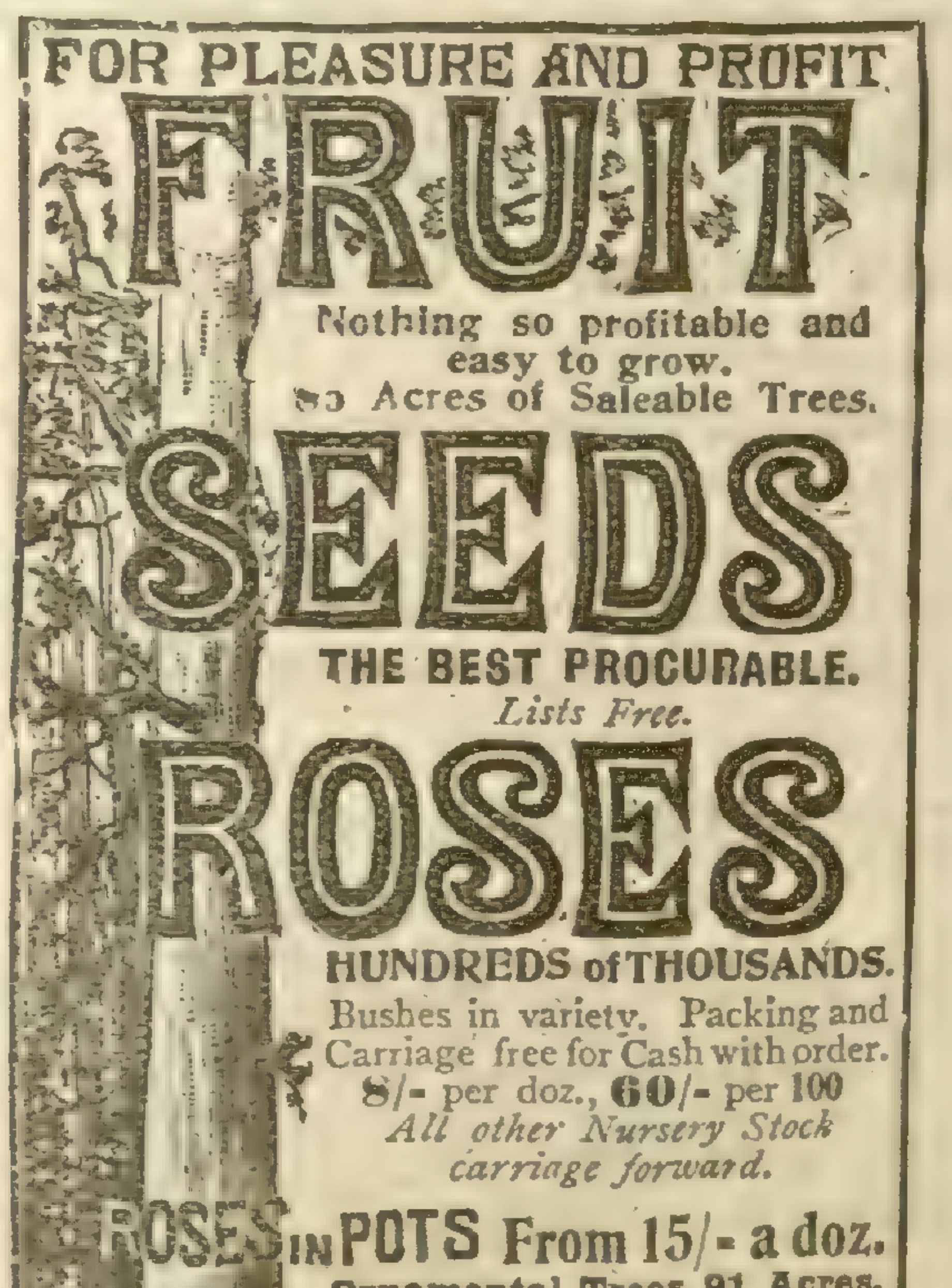

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FRUIT

Nothing so profitable and easy to grow.
80 Acres of Saleable Trees.

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THE BEST PROCURABLE.
Lists Free.

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HUNDREDS of THOUSANDS.
Bushes in variety. Packing and Carriage free for Cash with order.
8/- per doz., 60/- per 100
All other Nursery Stock carriage forward.

ROSES IN POTS From 15/- a doz.

Ornamental Trees, 91 Acres,
A Superb Collection of Herbaceous Plants,
Four Acres of Glass,
Clematis (80,000) from 15/-doz.
N.B.—Single Plants are sold at slightly increased prices.

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(Over 160 pages) of Nursery Stock, artistically produced, containing some hundreds of illustrations, and full of valuable information, free on receipt of 3d. for postage.
Please mention this Paper.

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EPPS'S selected PEAT.

A SPECIALLY good stock now on hand of ORCHID PEAT in good condition; also for Stove, Greenhouse, and Hardwood Plants, Rhododendrons, &c., in large or small quantities. Rich Fibrous Loam, Silver Sand, Excellent Leafmould, C. N. Fibre, Sphagnum Moss, Charcoal, &c., &c. Special cheap through rates to all parts.

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THE PEAT DEPOT, RINGWOOD

OWEN'S ROYAL CHRYSANTHEMUMS.

Genuine English Seedlings, raised at the Floral Nurseries, Maidenhead.
Acknowledged by the Leading Growers to be the Grandest Novelties of the Season.

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ADA OWEN, 5/-,
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LORD CROMER, 7/6,
Award of Merit, R.H.S. (Jap.).
CATALOGUES FREE.

ROBERT OWEN, MAIDENHEAD.

DON'T BELIEVE ME!
COME!

and see for yourself that my Stock of Chrysanthemums is absolutely free from Rust or Disease of any kind.

Inspection cordially invited.

Catalogues now ready, Post Free 1d.

Catalogue and Cultural Guide, 7d.

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Ryecroft Nursery, Lewisham, S.E.

PROFITABLE GARDENING. By the late SHIRLEY HIBBERD. Illustrated Work on the Culture of Vegetables, Fruits, and other Garden Produce.
Price 3/6.
W. H. & L. COLLINGRIDGE, 148 & 149, Aldersgate St., London.

NEW CHRYSANTHEMUMS.

EXTRAORDINARY SUCCESS.

NEVER in the annals of Chrysanthemum History has such phenomenal success been achieved by any raiser of New Seedlings as by Mr. H. WEEKS, in the sensational productions exhibited by him from time to time this season before the Floral Committee.

When it is remembered that in the small collection of a private garden only a very limited number of plants can be grown of each variety, and the difficulty therefore of securing the required number of blooms stipulated for by the N.C. Society on a given day, it is indeed remarkable that no less than Seven First-class Certificates should be awarded. Other varieties equally as good had to forego their candidature from the simple fact that only two flowers could be ready at the same time, or else the total number of Certificates would have been larger. This is indeed success. I have the honour to announce that I have secured the entire stock of all these magnificent Novelties, and shall distribute same together with a few of my own, and some of the finest Australian Seedlings ever introduced.

NEW CATALOGUE NOW READY, POST FREE.

NORMAN DAVIS, CHRYSANTHEMUM NURSERIES,
FRAMFIELD, SUSSEX.

CHRYSANTHEMUMS.

HOW TO WIN A GOLD MEDAL.

FULL INSTRUCTIONS WILL BE GIVEN IN

GODFREY'S CATALOGUE,

The most reliable and thoroughly "Up-to-Date" one published. Ready shortly. Post free.

W. J. GODFREY, Exmouth, Devon.

ROSES. ROSES.

THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s.; 12 best hybrid Perpetuals, dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d.; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d.; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

JAMES WALTERS, Rose Grower, **EXETER.**

See . . .

H. J. JONES'S
LIST OF SUCCESSES
IN THIS PAPER
NEXT WEEK.

NEW TEA-SCENTED ROSE "SUNRISE,"

Illustrated and Described in the "Gardeners' Magazine" for November 26.

THIS is one of the freest growing and most constant bloomers we have. In fact, it has never been out of flower, under glass, during the six years we have grown it; and is also a good bedder. An Award of Merit was given by the Royal Horticultural Society on October 25 of the present year. The following Extracts from the Gardening Press speak for themselves. Orders have already been received from prominent Rosarians, and we anticipate a large demand.

Extracts concerning Rose "Sunrise."

The Gardeners' Magazine, October 29.

"Mr. G. W. Piper, Uckfield, showed a pretty coppery-buff Tea scented rose named 'Sunrise,' a new form of great beauty."

The Journal of Horticulture, October 29, 1898.

"ROSE 'SUNRISE' (G. W. Piper).—A lovely Tea-scented variety that is deliciously fragrant. The under portion buff-apricot, and the outer side bright cerise (award of merit).'

The Gardeners' Chronicle, October 29.

"Mr. G. W. Piper, Uckfield, exhibited blooms and shoots of a new Tea rose named 'Sunrise, and an award of merit was recommended. It has very pretty little buds, and in point of colour is exceedingly attractive. Some of the outer petals are cerise-coloured, but the blooms have shades of copper and bronze."

The Garden, October 29.

"ROSE 'SUNRISE' (Tea).—This in its colouring, or more strictly combined colouring, is unique, the outer petals reddish-carmine, shading to delicate fawn and pale salmon within, the open blossoms of a pleasing yellow. The chief value of the flower is in the warmer tints that are so abundantly apparent as the flowers open, and these coupled with the bronzy foliage are charming. The flowers, too, are produced in great abundance, the buds being exceptionally well formed. From Mr. G. W. Piper, The Nurseries, Uckfield, Sussex."

Horticultural Advertiser, November 2.

"ROSE 'SUNRISE' (G. W. Piper).—A charming Tea-scented variety, most deliciously scented; a stand of blooms artistically arranged called forth many expressions of admiration. The flowers are salmon-apricot, outer petals bright cerise, the foliage deep bronze, which forms a fine contrast. We have seen the stock growing at home and the plants appeared very vigorous and free-blooming. Award of merit."

Healthy plants in pots will be distributed in May next, price **7s. 6d.** each; or **6** for **£2 2s.**

TRADE TERMS UPON APPLICATION.

All varieties of merit are grown. Our Stock this year is chiefly upon the Seedling Brier, and exceptionally well ripened.

A Descriptive Catalogue, drawn up on entirely new lines, free upon application.

G. W. PIPER,
THE NURSERIES, UCKFIELD, SUSSEX.

WARE'S NARCISSI.

Cheap offer of Bulbs for immediate Planting.

	Per Doz.	Per 100.
Albicans	4/-	
Backhousei Wm. Wilks ...	2/6	15/-
Barri Conspicuus	3/-	20/-
Empress	3/-	
Grandee	3/-	20/-
Horsfieldii	2/6	15/-
Victoria (New) ... 3/- each	30/-	
Bulbocodium	3/-	21/-
Bulbocodium Citrinus... ...	1/3	7/6
Bulbocodium monophyllus ...	2/-	12/-
Emperor	5/-	
Golden Spur	3/-	21/-
Henry Irving	3/-	
Incomparabilis aurantius plenus	2/-	12/-
Incomparabilis Cynosure ...	-/9	3/-
Incomparabilis plenus ...	-9	3/-
Incomparabilis Princess Mary	12/-	
Sir Watkin	4/-	
Stella	3/-	
Sulphureus plenus	5/-	
Leedsi Superbus	2/6	
Obvallaris	1/6	12/-
Princeps	1/-	6/.
Poeticus plenus...	-/9	4/6
Poetarum	2/-	15/-

Other varieties of Narcissi offered in our Autumn Catalogue of choice Bulbs and Plants for the Flower Garden, copies of which may be had *free upon application.*

Advice Free as to Planting, and Landscape Gardening generally.

THOS. S. WARE, Ltd.,
Hale Farm Nurseries,
TOTTENHAM, LONDON.

THE GARDENERS' MAGAZINE.

SATURDAY, DECEMBER 3, 1898.

HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T. H. SMITH, 18, Somerville Road, Small Heath, Birmingham. First Examination Paper ready November 5. Join early for the whole course.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE AMATEUR QUESTION.

IN discussing the amateur question as it affects the National Chrysanthemum Society, in our issue of October 29, we appear to have somewhat ruffled the feelings of our good friend the editor of the official organ of that excellent body, the National Amateur Gardeners' Association, and to have brought upon ourselves what is evidently regarded as a well-merited reproof. We are not greatly perturbed thereby, and only refer to the matter for the purpose of showing how difficult it is to induce people to take common sense views of things, and to set our contemporary right on some matters of fact that have an important bearing upon the question. In referring to the advice given by the County Court Judge at Hastings to the representatives of the National Chrysanthemum Society, to have the rules relating to amateurs amended for the purpose of making them more intelligible, we said "the ambiguity has arisen in consequence of a want of appreciation on the part of a section of the committee of the fact that all cultivators who do not grow for sale are amateurs." We further stated that "a clear declaration that no one who systematically sells cuttings, &c., shall be allowed to compete as an amateur," was required, and, singularly enough, our contemporary dissents from our views upon both points. He is "quite satisfied" that "the gentlemen undoubtedly referred to have the interests of the *bonâ-fide* amateur at heart," and so are we. This, however, is not a question of heart, but of head, and what we did was not to question the desire of the members to serve the interests of the amateur, but to point out that, in consequence of the mistaken views held, the definitions referred to were so ambiguous as to render their proper interpretation difficult. We do not clearly understand what is meant by a *bonâ-fide* amateur, nor does it much matter; but we have too much respect for the judgment of the members of the committee of the National Chrysanthemum Society to believe for a moment that any one of them would support "any effort" made to put the different classes of amateurs on an equal basis, as our contemporary is satisfied they would do. Our perplexity with regard to the views of our contemporary on the status of the amateur is greatly increased by the startling statement that "we strongly disapprove of the suggestion that an amateur shall be a person who does not systematically sell." To disapprove of this suggestion is to approve of cultivators who grow for sale exhibiting in classes provided for amateurs, a procedure which the rules of the National Amateur Gardeners' Association and authority proscribe. Something also is said about the sale of surplus stock, and, although no reference was made to this point in our issue of October 29, the impression is conveyed in the course of the observations that we had expressed views in favour of this being permitted, and of the amateur who grows flowers simply for the pleasure he derives from them being placed at a disadvantage when he engages in a competition for prizes. The cultivator who disposes of his surplus cuttings, plants, or blooms for money would unquestionably "systematically sell," and therefore be debarred from exhibiting under the rule we suggested. But if an amateur, on giving up possession of his garden, is not allowed to sell the plants growing in it, or is not permitted to sell the stock of a seedling or sport to a nurseryman for the purpose of distribution, without being excluded from the amateur class at the exhibition, injustice would be done. Moreover, if amateurs are not to be allowed to sell in the manner indicated any novelties they may be fortunate in raising their efforts to improve the classes of plants in which they are interested will be discouraged, and the work of improvement checked; and to hinder progress is assuredly not one of the objects of either of the horticultural societies, of which, happily, we have such large numbers.

RULES FOR AMATEURS.

As the question of the rules under which amateur cultivators should be allowed to compete for prizes is engaging much attention, it may be useful to briefly refer to what has been done, with a view to satisfactorily define the status of this class of cultivators. The Royal Horticultural Society lays down the principle in its code of judging, which represents the combined wisdom of some fifty or sixty of the most distinguished horticulturists in the United Kingdom, that persons who do not grow for sale are amateurs, whether they perform the work of the garden or employ one or more gardeners. It is also pointed out in the code that, as there are different classes of amateurs, the schedule should be so arranged that the members of each class are able to compete under conditions that will place them in an approximately equal position, absolute equality being for obvious reasons impossible. The National Amateur Gardeners' Association, which has accomplished so much useful work, prescribes in its rules that "any amateur interested in the objects of the association shall be eligible for membership," and that "gentlemen who engage professional aid shall be entitled to become members, but shall not be privileged to compete at the meetings." These are excellent conditions, and it is very proper that it should exclude from membership those who dispose "of plants, flowers, seeds, or trade in garden produce for profit." No reference to the sale to nurserymen of novelties raised by the members is made in the rule, and consequently these can only be disposed of by way of exchange. "The definition of the N.C.S." is described by the official organ of the National Amateur Gardeners' Association as "much better" than the suggestion made in our issue of October 29, notwithstanding the strictures passed upon the two rules by his Honour Judge Martineau at Hastings. The National Chrysanthemum Society recognises two classes of amateurs, one (A) who does not employ more than one gardener, and the other (B) those who do not employ paid assistance. The two rules would occupy too much space to quote here, but as a proof of the views we hold as to the necessity of these rules being improved the Judge said that one rule defined what an amateur is, and the other what he is not, instead of their defining, as they were intended to do, two distinct classes. Our contemporary claims that the last-named rules are the embodiment of the rule of the association, but we look in vain for any rule of the National Amateur Gardeners' Association that justifies the assertion in our copy of the bye-laws. The most satisfactory rule bearing upon the question under consideration is that of the National Rose Society, and believing that its more general adoption would remove many difficulties we quote it in its entirety: "No person shall be allowed to compete as an amateur who sells rose plants (except when giving up possession of the place where they grow, and in the case of new seedlings or sports), rose blooms, or buds for budding, nor any person in the employ of a nurseryman. Any objection raised as to the rightful qualification of an exhibitor shall be referred to the committee for arbitration, and their decision shall be final and binding on both parties." With a rule such as this it is a very easy matter to group the amateurs according to whether they employ paid assistance or not, and, in the case of those who have paid assistance, according to the number of assistants employed. Were some such course as is followed by the National Rose Society generally taken, instead of endeavouring to set up boundaries that have not the sanction of authority, we should hear but little of the difficulties in connection with the status of the amateur.

ECCENTRIC PROTHALLI.

THE most striking instance of combined eccentricity obtained in Dr. Lang's cultures was that produced from a spore of Scolopendrium v. ramulosissimum. In many cases normal reproduction resulted, but in some, where fertilisation did not take place, fleshy cylindrical bodies were formed. In one instance this grew out and formed a simple bulbil at the tip, producing thus an apogamous plant, but in addition this cylinder was liberally dotted over with archegonia; and, to cap the climax, at the base of the said bulbil there was a clump of sporangia, or spore cases; so that three widely different stages in the life history of the fern were as closely conjoined as could possibly be. First, the embryo unfertilised seed would be at the base of each archegonium, then we jump over all intermediate stages, fertilisation of ovum, formation of fern, and subsequent development of mature fronds, which normally bear the spores, and get the spores cheek by jowl with the embryo, and finally, having performed these feats of juxtaposition, the little cylinder furnishes us with a perfect young plant of its own conception, a born orphan, whose only history was that of Topsy, "it growed." We had the pleasure of inspecting some of Dr. Lang's cultures during his researches, and it was most striking to anyone conversant with the normal life history of ferns to view these spore heaps actually *in situ*. The monograph we have referred to is illustrated by no less than eighty-three drawings of eccentric prothalli, which seem as if they had exhausted all possibilities in the way of variation; and it is worthy of remark that nearly all the ferns experimented upon are of British origin, the vagaries being noted in connection with two varieties of Scolopendrium vulgare, two of Polystichum angulare, one of P. aculeatum, one of Lastrea dilatata, three of Athyrium filix-fœmina, one of Polypodium vulgare, and several of Lastrea filix-mas. The theory, therefore, that the abnormal forms of plants as occupying a sort of debatable borderland between Nature's apparently hard and fast rules, and her actually infinite versatility, constitutes probably a rich field for research into Nature's secrets, has borne good fruit in this instance, as it has already in others, and we have no doubt that very much remains to be learnt in the same direction. The theory of alternation of generation in cryptogamic plants is shown by Dr. Lang's cultures to admit of many exceptions, and exceptions of all classes, but decidedly the most striking exception is embodied in the discovery that the first and last stages of fern life, viz., the prothalli, is a first product of the spore, and the spore itself may be actually conjoined. Apospory, to which frequent reference is also made in Dr. Lang's paper, cuts the life history of the fern down by eliminating the spore, then apogamy was found to occur in conjunction therewith, and cut it down still more by eliminating archegonia and antheridia, shortening it to fern, prothallus, fern; and now, to crown the edifice, the spore revenges itself by asserting itself again as a factor, and the poor fern proper is ousted altogether in its turn, the life history resulting being the insignificant one of prothallus, spore, prothallus, which degrades it to all intents and purposes to the level of the lichens.

Cold Storage of Fruit.—Under the auspices of the Technical Education Committee of the Kent County Council, Mr. W. P. Wright, the county superintendent of the horticultural branch, has been conducting experiments in the cold storage of fruit. In his report he shows that in the case of strawberries (1) the fruit cannot be kept long in a temperature of 36 degrees or upwards; (2) it can be kept for three weeks at least in a temperature of 30 degrees; (3) it is necessary to surround the fruit with cotton wool, or, in the case of fruit in sieves, to place a pad of that material over the top. If this precaution is not taken the fruit, though sound, becomes dull and loses the fresh, inviting appearance which is so important when it is offered for sale. The general results were: (1) The fruit must be placed in store in advance of dead ripeness, especially in the case of strawberries. Fruits that are fully ripe will keep for some time, but lose surface freshness, becoming seared and unsightly. (2) Cherries pecked by birds soon go off, and other fruits impaired in any way will not keep. To achieve success the fruit must be sound. (3) The fruit should be covered or surrounded with cotton wool. It was observable that that so treated retained its freshness much longer than that left exposed. (4) The chambers must be kept dry and close-fitting doors are necessary. (5) All decaying or impure matter must be rigidly excluded.

Value of Horticultural Certificates.—As there is at present a desire on the part of some small societies to give, and on the part of some growers to receive from them, certificates for plants and flowers, it is as well to remind such that these certificates have no real value, and sooner or later they serve to depreciate the plant for which they are awarded, owing to the ease with which they are obtained and the fact that (usually) such plants and flowers are not brought before, or else fail to obtain awards from, the properly constituted authorities. With our various national horticultural and floricultural societies in good going order, we do not, fortunately, suffer much from local certificates; but we agree entirely with an American contemporary, which, in discussing the matter, observes that there may be "a few individuals to whom all certificates look alike, the fact that they have received an award being sufficient; and undoubtedly such people will use a statement of this award in introducing their novelties Such tactics are not of a very high moral order. The awards made in many local societies are undoubtedly honest, so far as they go, but from the necessities of the case it frequently happens that the judges' opinions do not amount to very much, and certainly have no national weight. These certificates are not really worth the paper on which they are written, and therefore it would be sound practice for those whose novelties have been adjudged worthy by authoritative societies to advertise in their public announcements just what societies are referred to when it is claimed that a certificate has been awarded."

Royal Gardeners' Orphan Fund.—Mr. A. F. Barron informs us that the next election of children to the benefits of this fund, consisting of an allowance of 5s. per week until they attain the age of fourteen years, will take place early in February. All applications must be made on a proper printed form, copies of which may be obtained gratis of the secretary, or any of the local secretaries. Such forms must be correctly filled up, duly signed, and returned to him at Sutton Court Road, Chiswick, by Tuesday, December 20, 1898.

Experiments with Manures at Hatley.—Under the auspices of the Cambridge and Counties Agricultural Education Scheme Mr. T. B. Wood has been conducting rotation experiments on the Vice-Chancellor's farm at Hatley, and the results were given before the Cambs and Ely Chamber of Agriculture on the 26th ult. Mr. Wood stated that the soil at Hatley was a stiff, wet clay, and on the plots with no manure they had an extraordinarily poor crop of roots—only 4 cwt. per acre. Farm manure gave very poor results indeed; it only increased the produce of swedes by about one and a half tons, and the barley by something under five bushels. Ten tons of manure were placed on two plots, and there was a loss in each case. They could not definitely pronounce on those plots yet; they could only say at the present time such manure had not yielded a sufficient increase of produce to pay for itself. At Thriplow, on a gravel soil, farm manure had paid very well. There they had a profit of 30s. at the end of the second year; at Hatley they had an average loss of 21s. per acre. The moral of that was that on a gravel soil animal manure very soon acted, but on a heavy, wet clay it did not act quickly, and it did not produce much result in the first two years. There were three plots on which they used 7 cwt. of artificials. The average yield of swedes on those plots was 5 tons 19 cwt. per acre, and the average amount of barley was 29⅓ bushels, an increase of nine bushels over the no-manure plot. Artificials on heavy soil appeared to act more quickly and gave a greater increase than on the gravel soil. The adding of artificials to the manure had made a very great difference on two plots. The plots which received the smallest dressing in the first year and a dressing in the second year were those which had paid best at Hatley. A dressing of artificials increased the quantity of straw to the extent of half a ton per acre. One experiment was designed to inquire into the reason why farm manure did not do so well at Hatley as they might expect it to do. They thought the reason might have something to do with the subject of denitrification, and their experiments seemed to show that well-rotted manure did not, on clay soil, interfere with nitrate of soda, or nitrates generally, but hot fermenting manure did. Nitrate of soda added after hot fermenting manure did not produce any considerable increase—only 3 cwts.—in the straw per acre, as against three times that amount when nitrate of soda was applied to short dung. Mr. Wood intends to inquire into the subject of deep cultivation, and, if necessary, conduct experiments therein.

Gardening Charities.—We have on several occasions directed attention to the great value of flower stalls at horticultural exhibitions, and collecting boxes as a means for augmenting the income of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, and it would be gratifying to know that they were taken fuller advantage of. As showing what may be accomplished in this direction we would mention that the other day the secretary of the first-named charity informed us that he had received a cheque from Mr. Treseder, of Cardiff, for over £5, the proceeds of a flower stall at the chrysanthemum show at Cardiff, and at the meeting of the committee of the second of the charities that the following amounts had been received as the result of sales of flowers: Mr. W. Bryant, Rugby Chrysanthemum Show, £7 5s.; Mr. J. Hughes, Birmingham Chrysanthemum Show, £4 3s. 4d.; and the Sevenoaks Gardeners' Society, £4; while Mr. R. Scott, of Bradford, sent £1 10s., the amount collected in his box. In addition to the contribution from Mr. Treseder, the secretary of the Gardeners' Royal Benevolent Institution has received the sum of £21 from the Reigate Chrysanthemum Society, being a share of the profits of the recent exhibition.

The *Starling* as a Friend of Gardeners.—A correspondent from Wiltshire states that to describe the starling as a wholesale depredator in the matter of fruit, as some folks are doing, is ridiculously untrue, at least, he writes, "in this part of England. He will peck a ripe apple or pear occasionally in the autumn, but I have never known him to touch strawberries, gooseberries, raspberries, currants, or any of the earlier fruits. I may, I think, claim to have some knowledge both of birds and of gardening. I have lived for thirty years in this county, and have paid special attention to the habits of birds ever since I was old enough to see them. Moreover, I have been certainly for twenty years a keen gardener. Every year there are at least half a dozen nests of starlings on our premises."

National Rose *Society*.—The twenty-second annual meeting of this society will be held in the rooms of the Horticultural Club Hotel, Windsor, on Thursday next, December 8, when, in addition to the usual routine business, the following new regulations will be submitted for the consideration of the members: "In the three trophy classes at the metropolitan exhibition, and in the two trophy classes at the provincial exhibition, the blooms must be staged in boxes of the following dimensions, viz.: Twenty-four blooms in boxes 3 feet 6 inches long by 1 foot 6 inches wide, and eighteen blooms in boxes 2 feet 8 inches long by 1 foot 6 inches wide—all outside measurements." The house list of officers and members of committee that has been issued contains several new names, these comprising Sir Weetman D. Pearson, Bart., M.P., and the Mayor of Colchester, who are recommended for election as vice-presidents; and Mr. F. W. Campion, Mr. R. B. Cater, and Mr. R. Foley Hobbs, who are recommended as members of committee. The annual dinner will take place at half-past five p.m., or immediately after the annual meeting, at the Hotel Windsor, with Mr. R. B. Cater, president of the Bath Floral Fête Committee, in the chair. The dinner is not limited to members of the society, but those who intend being present must signify their intention before December 6 to the honorary secretaries, the Rev. H. H. d'Ombrain and Mr. E. Mawley. The musical arrangements will be under the direction of Mr. J. D. Pawle, one of the vice-presidents.

Wagner's *Solution* for Chrysanthemums.—Some few years ago Professor Wagner, of Darmstadt, prepared a formula for a liquid fertiliser; this has become known as Wagner's Solution, and in America it has become popular in some districts as a liquid fertiliser for chrysanthemums, to be used twice a week, commencing about six weeks before the flowering season, and continuing until the flowers begin to fade. The solution is made thus: 2 oz. phosphate of ammonia, 1¾ oz. nitrate of soda, 1¾ oz. nitrate of potash, 1⅓ oz. sulphate of ammonia, and 50 gallons of water. This is useful for other subjects than chrysanthemums.

The Extermination of Prickly Pears by Cochineal Insects is a matter that has at various times engaged the attention of the Madras Presidency. In a report of the Madras Government Museum Dr. Bourne discusses the practicability of destroying prickly pear (*Opuntia Dilleni*) by means of the cochineal insect, and shows that the historical evidence weighs entirely against such destruction. There seems to be no doubt that the cochineal insects and the cacti are introductions, and the net result has been that the yellow flowered cactus has thoroughly naturalised itself, while the cochineal insect has just manged to struggle on here and there. There is evidence that cochineal insects were introduced five times between 1795 and 1883, with a view to the establishment of the cochineal industry in the country. In 1807 Government offered a reward of £2,000 for its successful introduction, but it never became thoroughly established. It was, however, possible that, although a fine variety of the insect best for industrial purposes would not flourish, a wilder variety might become more or less naturalised. This has occurred to a small extent, and the idea of utilising this to destroy pirckly pear has been from time to time put forward. Dr. Bourne's investigations, however, show that it is impracticable to destroy prickly pear by the so-called "wild" variety of the cochineal insect; and, even if the scheme were practicable, he doubts the advisability of encouraging the development of an insect which might eventually become an infinitely greater pest than the prickly pear.

Craterostigma pumilum (Hochst) is a very rare plant collected in Somaliland by Mrs. Lort Phillips and brought home by her. It flowered and seeded at the Cambridge Botanic Gardens during the past summer, and its peculiarities formed the subject of a paper, jointly prepared by Professor Marshall Ward, F.R.S., and Miss Dale, read at a recent meeting of the Linnean Society.

The Golden-rayed Lily (*Lilium auratum*) is at once one of the most beautiful and disappointing of the plants grown in the flower garden, the disappointment being in a large measure due to the rapidity with which imported bulbs degenerate when committed to British soil. Trustworthy information with regard to the cause of the degeneration and its prevention is therefore welcome, and the observations made by Mr. Wallace in the course of a lecture given before the National Amateur Gardeners' Association are deserving of the fullest publicity. According to the report in the society's quarterly journal Mr. Wallace described this lily as the finest in existence, and one that, if it does well, is magnificent, and when it fails does so absolutely. There are various forms, such as pictum, rubro-pictum, rubro-vittatum, cruentum, and the best form of all, Wittei, which is unspotted. Mr. Wallace said he could speak of auratum the whole evening, but he would sum up its requirements in a few words. Growers cannot give it too much shade or coolness. It grows well in Scotland. With regard to auratums "going off," his idea was that when the species first came from Japan the bulbs were small, being then collected from their wild homes. When they arrived in this country they were planted in soil richer than they had been previously used to, and the result was all that could be desired. Now, in response to the large demand for the lily, the bulbs are grown on for European markets in land very highly manured. The result is enormous bulbs which, on arrival here, are put into our gardens consisting of soil not so rich in manure, and the change is seen in the disease from which this lily suffers, caused no doubt by the overfed bulbs. Mr. Wallace then gave particulars of what had been done with a small bulb, two inches in diameter, early in 1865. It was potted in a seven-inch pot and produced that year three flowers in one stem; in 1866 it was shifted into a nine-inch pot and produced two stems and seventeen flowers. The following year shifted into an eleven-inch pot, the bulb throwing three large and three smaller stems, produced in all fifty-three flowers. In 1868 the pot was increased to a sixteen-inch, and that year there were five stems and seven smaller ones, bearing altogether one hundred flowers. In 1869 the bulb was taken out of the pot and a small portion of the old soil taken away. It was then put into a seventeen-inch pot and treated as before. It responded to the treatment by throwing up thirty-nine flowering stems, ranging from two to nine feet in height, and produced a total of one hundred and ninety-three flowers. In 1870 it was undisturbed, and threw up forty-three stems with two hundred and eight flowers. In the autumn of 1870 the mass was broken up, and there were found to be seventy bulbs, ranging in size from seven inches in circumference to bulblets scarcely formed—the product of one bulb in five years. The last we hear of this bulb was in 1873, when it was showing seventy stems and still doing well. Mr. Wallace had photographs of this wonderful specimen taken in three different years, which were shown to the meeting, and attracted much attention.

National Amateur Gardeners' Association.—This admirably managed society continues, we are pleased to learn, to grow in strength and usefulness. In June last there were 676 members on the books, and since that month 43 have joined, making a total of 719, which is eminently satisfactory. The association will hold its annual dinner at the Holborn Restaurant on Thursday, December 15, the hour fixed for the function being half-past seven p.m., the reception taking place half an hour earlier.

Chrysanthemum Exhibitions, 1899.—The committees of the leading chrysanthemum societies are now busily engaged in arranging their fixtures for next year, and we have already received notification of the fact that the Hull Chrysanthemum Society will hold its exhibition on November 15 and 16, and the dates of the Birmingham Chrysanthemum Society are November 7, 8, and 9.

Fruit Nomenclature has for some time past been engaging the attention of American pomologists, and the Horticultural Club of the Cornell University has prepared a code for naming fruits, of which the following is a brief summary. (1) The name of a variety of fruit shall consist of one word, or at most of two words. In selecting names simplicity, distinctiveness, and convenience are of paramount importance. The use of such general terms as seedling, hybrid, pippin, beurre, damson, &c., is not admissible. Nouns must not be used in the possessive form. McIntosh's Red, Crawford's Early, Bubach's No. 5, must be written McIntosh Red, Crawford Early, and Bubach. Numbers are to be considered as temporary expedients to be used while a variety is under trial. The name of no living horticulturist should be applied to a variety without his full consent; and the name of no deceased horticulturist should be used without the general agreement of living horticulturists. An author publishing a new variety should use the name given by the originator, or by the introducer. (2) In the full and formal citation of a variety name the name of the author who first published it shall also be given. It is expected that such citations of names will be used only in elaborate works on pomology, in scientific publications, or in some cases where they are necessary for clear discrimination of synonyms. (3) No two varieties in the same group shall have the same name; and the name first published for a variety must always be used to designate it. All names subsequently published must stand as synonyms. The term "group" as here used shall be held to designate the large general groups specified by words in common language, such as raspberry, plum, apricot. (4) Publication consists in the public distribution of printed name and description, the latter giving distinguishing characters of fruit, tree, &c., or in the publication of a new name for a variety properly described elsewhere. Such a publication may be made in any book, bulletin, report, trade catalogue, or periodical, providing the issue bears the date of its publication, and is generally distributed among nurserymen, fruit growers, and horticulturists. (5) No one is authorised to change a name for any reason except when it conflicts with these rules.

Chrysanthemums for Her Majesty.—Messrs. W. and G. Drover, the well-known chrysanthemum growers of Trinity Street, Fareham, recently had the honour of submitting four dozen handsome cut blooms of chrysanthemums to Her Majesty the Queen, at Windsor Castle. Her Majesty greatly admired the Messrs. Drovers' productions.

Hydrocyanic Acid Gas as an Insecticide.—On more than one occasion this powerful gas has been suggested—almost advocated—as an insecticide, especially for collections of orchids. We, however, thoroughly endorse the remarks of Dr. Kitchen, in *American Gardening*, who, while admitting that the gas will destroy every form of life, animal as well as vegetable, if used of sufficient strength and for a long enough time, warns growers against its use, on two grounds. One is that there are some insect forms that will not succumb to it unless a sufficiently strong solution of gas is used to have a caustic effect on plants of various kinds, and one trouble of the long immersion of plants in even a dilute solution of the gas is that too much is absorbed by the plants and more or less injury to them is effected. Furthermore, the gas sometimes "banks" up in certain parts of the house. Quite apart from these considerations, however, is the one that the use of hydrocyanic acid gas prepared for insecticidal purposes is too frightfully dangerous to warrant it being handled by any but the most skilled hands. In the course of experimenting with the gas Dr. Kitchen has had several narrow escapes, and he says he has been made very dizzy even by a quick walk of twenty-five feet to the ventilating apparatus in a house at nine a.m., in which the gas had been generated at five o'clock the previous afternoon. One is liable to be burned by the handling of the sulphuric acid alone, as well as suffer danger to clothing, adjacent plants, and structures, during the generation of the gas, or the subsequent clearing up after the process. The whole method is dangerous, inconvenient, and entirely too costly for general use. Formalin gas is safer and as effective both as an insecticide and as a disinfectant. It, too, is caustic in its effects on plants; but is a splendid disinfectant for empty houses, and can be used without danger for that purpose.

The Condition of the New Forest.—In a Blue Book just issued Mr. E. Stafford Howard, Commissioner for the New Forest, gives much interesting information concerning this and other forest lands that are Crown property. During the year ending March 31 last the sales of forest produce from the New Forest realised £8,624 16s. 7d., as compared with £7,355 4s. 11d. in 1896-97, and certain surface rents realised £3,073 10s. 8d., as compared with £3,099 11s. 8d. in 1896-97. Of much more importance, however, is Mr. Howard's statement that his attention has been specially drawn to the condition of certain of the old woods in different parts of the forest which are rapidly decaying, and must inevitably perish and disappear in the course of time if no steps are taken to prevent it. The area of these woods is estimated to be about 5,000 acres. Under the New Forest Act of 1877 they cannot be reinclosed or in any way protected with a view to their regeneration. In a few of them, owing to favourable circumstances, natural regeneration is taking place to a large extent, and little fear need be entertained for their future. As regards others there is a partial regeneration, as to the sufficiency of which opinions may perhaps reasonably differ; but there are some whole woods and portions of others as to which there cannot be two opinions, and unless means be adopted to encourage and protect a young growth of trees these woods must in course of time disappear. He proposes dealing more fully with this matter in the next report, but thinks it well to call attention to it now, in order that those interested in the preservation of these ancient woods may realise that the question is serious and urgent.

The Retailer's Profit on Apples.—At the hearing of a case brought before his Honour Judge Addison, Q.C., at the Southwark County Court, a few days ago, it was shown that a widow, Mrs. Fitzgerald, who distributes apples by pennyworths from a basket in Change Alley, earned as a rule from 7s. 6d. to 10s. per day by the sale of the fruit.

Two New Eucalypti.—At a recent meeting of the New South Wales Linnean Society Mr. R. T. Baker described two new species of Eucalyptus from New South Wales. These are well-defined species, remarkable for the chemical constituents of their oils, belonging to the group Renantheræ, and known vernacularly as Silver Top Stringybark and Messmate respectively. For the first of the two the name E. lævopinea is suggested, because the oil obtained from the leaves consists largely of pinene, which is lævo-rotatory; and the name E. dextropinea is proposed for the second species, owing to the oil consisting largely of pinene, which in this case is dextro-rotatory. In both the specific rotation is greater than in the well-known pinenes obtained from the Coniferæ, although chemically identical.

American Potato Crop.—According to official reports, the potato crop in the United States has this year amounted to 203,264,000 bushels, 29,148,000 bushels more than in 1897, but 42,216,000 less than in 1896.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

IT is natural to drift to fruit at this time of year, for planting, in favourable spells of weather, is in full swing. I daresay many of my readers have noticed the difference of attitude assumed towards this phase of work by private and market growers. A good many of both read this paper, more of the latter than there used to be, I think. Some short time ago the raspberry pruning question cropped up amongst a group, and one of the party referred to a discussion in the—well, we'll call it the *Gardeners' News*. The others corrected him on the spot. It wasn't in the *News*, it was in the MAGAZINE. Of course, the other individual knew he was right, and there might have been a long argument if the quietest member of the party had not promptly fished the paper out of his pocket, and clinched the matter by turning to the "Mixture." Happily, my blushes were unobserved. But this by the way. The difference of attitude referred to in the first part of this paragraph is very marked. In private gardens fruit planting is often a matter of terrific agitation; on the farms it is proceeded with in the most nonchalant way.

I often think that gardeners make a great deal too much of planting, and market men too little. The former do it to the accompaniment of a considerable amount of article writing and reading, and plenty of wrangling over minor details; the latter do it with no fuss at all. Both are wrong. Fruit articles are often very tiresome because they reiterate stale things, which are often not less misleading than old, but a certain interchange of opinion does good. Doubtless, on the whole, the gardener plants fruit better than the farmer. He has not to think about the labour bill. When the private gardener merges into the market grower he almost always finds that he has to drift into the field methods. It might not be so if his capital were very large, but generally it is very small.

There is one thing in which I think both sections make a mistake, and that is in putting a considerable quantity of manure beneath the trees. I do not object to the plan, for the reason (which I have seen stated) that the young fibres are injured by coming into contact with strong manure, nor even because of its causing excessive vigour, although there is undoubtedly something in this. What seems to me so dangerous is the rotting down of the manure, the reduction of its bulk, and the consequent gap right below the roots. A cavity of this sort serves as an admirable water trap, and, if no harm results in well-drained land, I am positive that it accrues in heavy ground that is not well drained. I have read many miles of articles on fruit planting in the course of my career, but I never remember to have seen this point raised. It is a very real one, depend upon it. A very little reflection suffices to show its theoretical strength, and a good deal of close personal observation has convinced me that it is practical, too. I believe it to be a fertile source of canker.

I have referred to advice on practical matters that is not only stale but bad. I suppose I shall catch it from some of my kind friends for dragging in raspberry pruning as an instance, but it is so glaring a case that the temptation is too strong. I once before timidly alluded to it, and I believe I was chastised then, but I am prepared to endure a lot of rough handling when I think I have good grounds for what I say. Surely the elaborated sap in mature canes must, in descending, nourish the crowns at the base, and, if it does, why cut them out in summer? Peter has been as much against me as anyone on this matter, but I really believe that for the first time in his life he is going to let me have my own way willingly. He has not said so in distinct terms, probably he never will, but there are signs and tokens not to be mistaken.

Of course this fact will add considerably to the attention which is being given to me. I can fancy readers experiencing a sudden quickening of interest, and muttering: "Oh! well, if Peter agrees, it's a different matter." The modification of his opposition has been brought about in a very simple way. When in town for the rust conference it appears that he availed himself of the opportunity to pay a long-deferred visit to a "neffy" in Kent. He went and returned per bicycle, and seems to have caused no more damage than could be reasonably expected. I have heard a good deal of this particular Kentish nephew. He has been quoted against me more than once. But now was the time for my revenge. He showed Peter the fading hops, and explained how careful the best growers were to leave the bine on the stools until it has thoroughly ripened and the sap all gone down. On no account do they remove it immediately the hops have been gathered. I do not know whether Peter would have put two and two together even then had it not been that in the return journey he came into violent collision with a tree. Over in the field where the latter fell were raspberries. Need I say more? LUX.

The Climate and Flora of Christmas Island.—Mr. C. W. Andrews, who has been making a complete examination of Christmas Island stated before the Royal Geographical Society that this little spot in the Indian Ocean had a delightful climate. During the greater part of the year it resembled a very hot English summer tempered with sea breezes. The island was perfectly healthy. there being no marshes or stagnant pools, while there was a fair supply of good water. The whole island was covered with forest except the spray-swept edges of the sea cliff and the vertical faces of the inland cliffs Many creepers and ferns added to the beauty and variety of the forest scenery. For some years Mr. Andrew Ross, brother of Mr. George Ross, the owner of Keeling-Cocos Island, had been settled in Flying Fish Cove with his family and a few men from Cocos. During his stay some substantial houses had been built, wells sunk, and fruit trees and cocoanut palms planted, and a small experimental plantation of coffee had also been made, the results showing that the island was well suited for coffee growing. In May last the total population of the island was about forty.

NOTES FROM IRELAND.

GROWERS who plant chrysanthemums outside every year in the hope of procuring a few blooms have this year been rewarded with an abundant crop. Large masses of early flowering varieties have been magnificent, while really creditable blooms of both Japanese and incurved varieties are to be seen growing against walls and fences; in fact, some plants in a garden near here, where the blooms were disbudded, are as good as any I have ever seen grown under glass for decorative purposes. Of course, none are up to exhibition standard, but nevertheless are very valuable for decorating. Some beds of single varieties are a superb sight, and pompons are in close competition. A charming new early flowering variety on Mr. W. Wells' (Earlswood) stand at the late Dublin Show was Mytchett Beauty, a rich golden yellow, and a pleasing contrast to it was Crimson Pride, a very dark crimson variety. These two caused a great sensation at the show quoted, and were greatly admired by all.

We had our first frost on the morning of November 18, but up to that date summer bedding plants were in full flower, but now there is not much left but snapdragons and monthly roses. Trees and hedges, too, dropped their foliage with astonishing rapidity. Hardy fruits should, other circumstances permitting, be a good crop next year, as the trees are bristling with fruit buds. When at Mullaboden recently I noticed the back wall of a stove there covered with Ficus repens, which had extended several yards through the house on the wall outside, and was thriving splendidly, the foliage being far larger and more luxuriant than inside the house. At the shady end of the conservatory, where nothing bright in colour could be induced to grow, Mr. Mitchison planted a few years ago two specimens of Begonia fuchsioides, which have covered the wall completely, and look charming there, where I saw them in full flower. The best berried plants of Cratægus pyracantha and C. p. Lelandi I have ever seen were noted on the pleasure ground walls at Mullaboden.

The finest specimens, in quantity, that I have yet seen in Ireland of Blenheim Pippin apples were those exhibited at the recent Chrysanthemum Show at Ball's Bridge, by Messrs. Dickson and Son, of Newtownards. They were simply superb in size, shape, and colour; it was not simply a dish of apples, but a huge basketful. Bramley's Seedling, too, in the same stand was splendid. This exhibit was probably the largest yet put up in Ireland; it was of two hundred varieties, the same as frequently put up, but instead of from three to six fruits of a variety, as is generally the case, there were in this exhibit but few dishes of six, most varieties being represented in quantities, ranging from that number to baskets containing about a bushel. That fruit growing has made enormous strides in Ireland is evidenced by this splendid exhibit from the go-ahead firm under notice. It would give exhibitors on your side of the Channel enough to do in a competition to beat Irish fruit growers now. The show of both apples and pears from private gardens made a brave show of magnificent fruit. Blenheim Pippin appears to do well everywhere in Ireland, judging from the splendid examples of this variety brought from districts widely separated. Wonderful, too, were the dishes of Beurré d'Amanlis pear, which for flavour appeared to find most favour with the judges. A promising apple was exhibited by the Messrs. Saunders, of Cork, under the name "Beauty of Friar's Walk," at the recent show, which has since been awarded a certificate of merit by the Council of the Royal Horticultural Society of Ireland. A similar award was also made to Mr. Wells, of Earlswood, for his collection of chrysanthemums, and we were all delighted to learn that he had also been awarded a gold medal in Paris, the information reaching Dublin forty minutes after the award was made in Paris.

Permit me to endorse Mr. Harrow's recommendation of winter-flowering begonias for decorative purposes. The best and most charming of them all is to my mind Begonia Gloire de Lorraine. It is a capital subject for use in groups of plants, also for house decoration. Although I cannot claim to be one invited to respond to "S. P." on "Is the Onion Surface Rooting?" perhaps I may be allowed to negative the query. Certainly, if one only surface cultivates the ground, and leaves the soil undisturbed save for a few inches on the top, so that the subsoil is hard and poor, then the onion becomes a surface rooter right enough, ripens prematurely, is undersized, and of little use for keeping. But, given deeply-cultivated and well-manured ground, save in exceptional cases, one can rely on large and sound onions. Their roots, too, will be found for more than a foot below the surface, as witnessed when digging old onion ground after the crop was cleared. Where quantities of onions are required for pickling purposes "tickling" the surface will answer fairly well, but that, "S. P.," is as far as I am prepared to agree with your lecturer. I shall be interested in reading the reply of Mr. Beckett and other celebrities to the query quoted. I fully thought that the age of surface cultivation was past and gone—at least, as far as vegetables are concerned—but reallv to hear of a County Council lecturer advocating surface "tickling" is a little too degenerate. I trust his audience will make it warm for him the next time he advocates that system.

Brownstown Farm. R. WELLER.

The Forest Lands of Northern Wisconsin have, according to Mr. Fillibert Roth, been treated destructively. The wooded area is steadily being reduced, and at present nothing is done to protect or re-stock the "cut-over" lands, which are now unproductive waste land. Mr. Roth estimates that this policy causes a loss of eight hundred million cubic feet of wood per year to the State, besides driving from the State the industries which have been most conspicuous in its development, depriving a cold country of a valuable factor in its climatic conditions, and affecting detrimentally the character of the main drainage channels of the State. It is hoped Mr. Roth's report will aid in the formulation of rational forestry legislation, and so help to develop and restore the great forest resources of the State of Wisconsin.

PANSIES PRIM.

The pansy is my second plant to represent the genus Viola. It is one of the oldest favourites in our English gardens, and its quaint beauty has gained for it many names. Canon Ellacombe and "Plant Lore" must again be my authority for these. The Anglo-Saxon name of banwort, or bonewort, cannot now be satisfactorily explained, nor can the common names of pansy or pawnce, though Shakespeare was quick to seize upon such "pansies for thoughts." Heartsease was once the name of the wallflower. Our poet's names for the pansy are Love in Idleness and Cupid's flower. The "Midsummer Night's Dream" has the pansy under both names. Says Oberon :—

> "Yet marked I where the bolt of Cupid fell ;
> It fell upon a little Western flower,
> Before milk white, now purple with love's wound,
> And maidens call it Love in Idleness.
> Fetch me that flower ! the herb I showed thee once,
> The juice of it on sleeping eyelids laid
> Will make it, man or woman, madly dote
> Upon the next live creature that it sees."

The name Love in Idleness is still used in Warwickshire. It signifies love in vain, as in Chaucer : "If God ne kepe not the citee in ydel waketh he that keptit it." Other names are Herb Trinity, Three Faces Under a Hood, Fancy Flamy, Kiss Me or Cuddle Me to You, Tickle my Fancy, Kiss Me ere I Rise, Jump up and Kiss Me, Kiss Me at the Garden Gate, Pink of my John, Tittle my Fancy. The two floral descriptions, "violets dim," "pansies prim," one by Shakespeare, the other by Spenser, may be taken, I think, as the shortest, yet sweetest and truest in the language.

"The pansy heartsease maidens call," writes Drayton. Milton uses it for Eve's couch and Sabrina's wreath, while "the white pink, the pansie freaked with jet, and the glowing violet" are mourning flowers for Lycidas. Rapin calls it "Jove's own flower, in which three colours meet, To rival violets, though without their sweet."

The pansy violet, or heartsease, is a most variable plant, but easily distinguished from other violets by the branching stem, large leaf-like stipules, and the purple, white, yellow, or tricoloured flowers with their characteristic upper petals overlapping and coloured and broad lower ones. Its habit of growth varies from that of a weak, almost annual plant, as V. tricolor, to dense perennial tufts in alpine forms. It is abundant, according to the "British Flora," throughout Europe and Britain, being, like tobacco, "a weed of cultivation." The chief British species are the field pansy, the garden pansy, and Viola lutea, with compact foliage and richly-coloured flowers. The insect fertilisation of the pansy is brought about in a most ingenious way. The visit is induced by the attractive store of nectar provided by the flower. To reach it, the insect, directed by the brilliant honey guide, or central eye, and supported by the fringe of hairs surrounding the opening of the spur, inserts its proboscis under the cone of anthers, and along the channel of the lower petal, meeting and moving the style as it dives deeper into the spur in search of nectar. Two results are generally brought about : The quick, brushing action of the pollen-laden proboscis, on entering, opens a little projecting lip upon the style, and deposits some grains within it, the same quick brushing action, on retreating, closes up this lip, so that the foreign pollen is now within the hollow style, and fresh pollen is placed upon the departing insect from the flower whose anthers it has dislocated. Bertram, the friend of Linnæus, is said to have been won to botany by the pulling of a pansy. He was a farmer, and while in the fields gathered a flower at his feet. He pulled off its petals, and was so struck by the grotesque likeness of the pistil and stamens to an animal with head and arms that he took the flower home and let its study decide the bent of his mind.

The origin of the pansy is very obscure. Charles Darwin in his "Variation of Animals and Plants under Domestication," says finally, "after having very carefully compared numerous varieties, I gave up the attempt as too difficult for anyone but a professed botanist." He noted, however, that it was grown in Evelyn's garden in 1687, and that it was cultivated in the gardens of the nobility from 1810, that Lord Gambier collected many wild ones, and with the aid of his gardener, Thompson, raised selected seedlings with the dark lines of the wild flowers converted into a central blotch, and he contrasts the small dull elongated flowers, found wild, with the large bright circular specimens seen at shows. Florists, he states, believe these latter are descended from V. tricolor, V. lutea grandiflora, and V. altaica intercrossed. His keen observation made him remark the difference in the spurs of the flowers. Those from one nursery, he states, were bent, while those obtained from another were straight, and he suggests this difference might give a clue to their parentage. In "Some Notes on the Genus Viola," by Professor Hillhouse, given in the Viola Conference Report of 1895, it is stated further that these "natural hybrids," cultivated pansies, probably arose in the crossing of these species in "les jardines des curieux," but that the historical evidence is so vague that it is valueless. "The original species from which the pansies are derived is only to be found by careful comparisons between the seedling and its supposed parents, by analysis, in which, by selecting the seedlings most unlike their parents, again and again in turn, the tendency to reversion is used to its utmost limits, and last by endeavouring to build up the pansy again, by crossing the supposed parent forms, with a view to produce plants similar to the cultivated variety. The results might never reveal the first of the many forms of pansies, but they would certainly establish more distinctly the relationship existing between what we now have to regard as separate species of wild ones."

Dr. Wittacck, director of the Botanic Gardens, Stockholm, has most kindly permitted me to use his viola studies : the careful notes, descriptions and many beautiful drawings from Nature make them a most valuable addition to the history of pansies. The earliest drawing is dated 1836, and the flower is styled Herba trinitatis. A year later Ruellius calls it Pensea. Gerarde terms it Viola tricolor, and so does Parkinson, who figures both the single and double forms. In 1583 Clusius states V. lutea to be cultivated ; in 1700 Miller describes the same flower as V. calcarata in error. Following Darwin's account, Dr. Wittacck states the native species to have been collected and careful selections made in the gardens of Lady Bennet, Lady Monke, and Lady Gambier. The hybrids were derived from V. tricolor, V. lutea and its var. grandiflora. Fortunately, these crosses proved also fertile, so that by 1835, as Darwin stated, four hundred varieties were on sale.

The species V. altaica was introduced in 1816, but is so rare and unlike the present-day pansies that it would seem to have played but little part in their production. In 1834 Paxton defined the perfect pansy of the present day as "having flowers well raised above the foliage ; smooth petalled, flat, unfringed, of lasting colour, and with small eye." Later, the florists said it must be circular. Ten pounds at this time was refused for a seedling of Metropolitan. Five shillings was the common price of a plant. The popularity increased so far that in 1841 the Hammersmith Heartsease Society was founded, and in 1845 the Scottish Pansy Society. Meanwhile, in France, a new race of pansies, the Trimardeau, fancy or continental variety, was produced as a sort of protest against the circular British show form. In 1861 the habit of the pansy received attention ; V. tricolor is but an annual, and its progeny naturally had a similar brief, if bright, career. This defect was remedied mainly by Messrs. Grieve and W. Dean, who crossed V. lutea with the show pansy of the day, to obtain a more perennial character in the progeny. The seedling Bluebell, kindly sent by Mr. R. Dean, splendidly shows this character. His notes on "Old Violas," in the Viola Conference papers for 1895, are very helpful in the history. Mr. James Grieve, of Edinburgh, who was the raiser of most of the first violas or bedding pansies, has now kindly sent me the following notes for this paper:—

The viola of to-day has more of the fancy pansy blood in it, which is to be regretted, as the fancy pansy, V. tricolor, is naturally an annual, whereas the first violas were more of the perennial. In answer to the question, What are the points of a perfect viola in contrast to those of a pansy? Messrs. Greeve replied, "As a bedding plant, the compact habit, medium blooms of distinct and telling colour, profusion of blooms, and a good constitution are the main points of the viola. Habit is not so much taken into account in the competition viola, but size of bloom and delicacy of colour. One of the main points of the pansy is size. To meet the demands of the present day it cannot be too large, if well balanced and not coarse. In shape a pansy should be as nearly circular as possible. The blotches well formed and distinct, the margin or belting to be as near as possible the same depth all round, a solid eye, without the tendency in many varieties to run into the blotches. The petals to be of good substance, with a rich velvety texture and bright colour. Pansies for massing are practically merged with violas. A better name for these latter, suggested by Mr. Robinson, is that of tufted pansies. They are all viola hybrids, and the distinction is one of origin and habit only.

During the year 1881 "Rayless" violas were introduced, but they did not become widely known until Dr. Stuart, of Chirnside, raised his beautiful Violetta. With the utmost kindness Dr. Stuart has sent me this summary of his work. I gather from it that in 1874 he sent six seedlings for exhibition before the Royal Horticultural Society, London, produced by crossing Pyrenean Viola cornuta with a blue bedding pansy, and the resulting cross with a pink pansy. Six first-class certificates were awarded for these plants on account of their fine habit, sweet perfume, and abundant flowers.

The suggestion of a florist friend that Dr. Stuart should attempt to raise a rayless flower induced a continued search amongst the seed beds for several years. In 1887 Violetta, a white rayless self, was discovered, and the next step was to cross-fertilise the bedding pansy Countess of Rosebery with pollen from Violetta, the beautiful Sylvia was the result. Dwarf tufted forms can be alone obtained from crosses with dwarf alpine species, which latter must be the seed bearer, or the produce will have the bedding pansy character only. Dr. Stuart concludes by remarking upon the grower's productions, who claims to have raised a true cross between the sweet-scented violet and the pansy, "That they are all seedlings from Violetta without any cross at all. The cross mentioned has yet to be accomplished, and there is no reason why it should not be effected." That Dr. Stuart has received the highest praise for his notable work will be realised by all who see the beautiful specimens he has raised.

The rest of Dr. Wittacck's summary gives the results of his investigations, which briefly are that pansies are an aggregate of hybrids of species of viola. The original stock was V. tricolor ; others have been grafted upon it, principally V. lutea. Pansies, by their weak constitution, show they have more of the V. tricolor strain. They cannot be called species, but rather violas × large-flowering garden pansies. He draws particular attention to the change in outline and the length in the spur, in addition to colour, blotch, and honey guide already mentioned.

The problems for the future raiser are to make it more perennial. V. calcarata, V. altaica, and V. latisepala should be tried. True-seeded varieties, selfs, and perfumed pansies are yet to be desired. Wild pansies grow both with and without spurs ; garden pansies might also be permitted more variety, and more plainly prove what human intelligence, coupled with skilful perseverance, can perform in a department where it is a question of giving pleasure to millions by caring for, improving, and multiplying plastic forms of those lovely plants which Nature, even in the North, so generously offers us.

The popularity and importance of the pansy is well seen in the statement of Messrs. Bath, of the Floral Farms, Wisbech, who write that "For the past four years the average acreage of pansies grown has been about forty. These consist chiefly of the giant Trimardeau and Empress pansies. The largest number of pansies sent out from the Floral Farms in any one year was in April, 1894, when not less than one hundred and twenty thousand were forwarded to all parts."

Mr. W. Sydenham, the pansy and viola specialist of Tamworth, from his collection of two million plants, has sent me beautiful specimens of Mary Stuart, Pembroke, Miss Hannah, Kitty Hay, and others, to show what the viola has of beauty even in a cold and backward spring.

An interesting communication from Messrs. W. A. Burpee, of Philadelphia, gives the position of the pansy from the American point of view. They state that, "while the leading house in America in the introduction of new and improved forms of pansy, it is practically impossible for us, owing to our hot, dry summer and high-priced labour, to grow our own supply of seed. Each year our Mr. Burpee visits, not only the leading pansy growers in France and Germany, but also the specialists who are engaged in the development of the flower. We are enabled in this way to supply seed of the finest strains, and to secure all the latest improvements in size and colouring in advance of other houses, and frequently, by purchasing the entire crop of a new sort, to put it out in advance of its introduction in Europe. A notable instance of this is our President McKinley Pansy, which we offer this season. While we cannot raise these fine strains in sufficient quantities for our trade, a few small growers in the cooler New England States have developed quite fine strains. By sowing the pansy seed early in the fall, and wintering the young plants in cold frames, we are enabled to have flowers of the largest size and finest colouring during the early spring months. Seed sown in the open ground in the spring produce plants that flower freely all the summer, and when the cool, moist fall weather sets in the flowers increase in size and beauty of colouring. These plants can be trimmed back on approach of severe weather, and well mulched with well rotted manure will produce grand large flowers during the very early spring. During our ordinary winter flowers can be picked from plants in the open ground nearly all winter, if we have clear, warm weather, while in cold frames they bloom freely all winter unless frozen up tight. The smaller flowered strains of pansies bloom most freely during the hot, dry summer, but are soon surpassed by the large flowered when the weather is cool and moist. The bright reputation of German pansies must be judged by these brilliant drawings sent out by the noted raiser, E. Benary, of Erfurt. These notes, however, might be almost indefinitely increased, and I do not wish to end with a weary thought. The paper began with a breath upon the Eildon Hills, with the chance finding of a pansy wildling; the making has found me many friends, without whom it hardly could have been written with any sense of final words. To Dr. Stuart, to Dr. Wittacck, Mr. Lynch, and Messrs. Barr, Dean, Grieve, Messrs. Bath, Backhouse, Benary, Burpee, and Sydenham, I owe my best thanks for the interest they have taken in my work, and these thanks I heartily give." EDWARD PEAKE.

CHRYSANTHEMUM NOTES.

Some Incurved Varieties.

THE following are some of the best incurved forms of recent introduction that have been seen during the present season, viz.:—*Miss Godsmah*, fine, deeply-built blooms, solid, compact, but rather coarse, inside of florets crimson, reverse golden-bronze. *Ada Owen*, a very pretty regular-looking incurved of good size, having stiff florets, which are close and compact and rather broad; colour pure white. *Major Matthew*, a pretty little flower with narrow florets, of good depth, globular in form, colour pink. *Yvonne Desblanc*, very large variety of French origin, pure white; and *Topaze Orientale*, one of Calvat's, very deep in build with numerous closely incurving florets, and the colour pure pale yellow. *Emile Nonin*, rather flatter in build than some, but of value on account of its colour, which is a deep golden chestnut.

In *T. Lockie* we have something in the form of Mrs. R. C. Kingston, very close in build, with very regular, narrow florets, white tinted yellow; outer florets shaded pink. *John Miles* is another whose build leaves little or nothing to be desired, colour golden orange-bronze, recently certificated.

The following are not yet in general cultivation:—*Thomas Singleton*, a closely-incurving and compact flower, pure white but the outer florets tinted. *C. S. Bates*, a deeply-built very regular flower, large in size, and of a pure golden chrome-yellow. There is also *Pearl Palace*, a rather promising variety, colour pinkish lilac; and another called *Mrs. W. C. Egan*, very deep and solid, colour pink.

Varieties for Cutting.

Even so late as the middle of November there was in many suburban gardens and nurseries a capital display of many of the early-flowering varieties in the open border. Most of them are, of course, small in size when compared with what we see at the parks and shows, and in trade displays, but they are none the less valuable, and I have been much interested in seeing the pleasure with which friends who are not *fin de siècle* chrysanthemum specialists have accepted an occasional bunch, and the long time they last when kept in vases and other vessels in rooms. Freely grown and flowered with this object in view the reward in such a season as the present is great, and amongst some of the most striking Harvest Home, Orange Child, and the old Roi des Précoces need no recommendation. Only a week ago I saw some plants flowering in profusion of Mdlle. Eulalie Morel, a pretty golden salmon coloured Japanese; G. Menier, rather tall, colour pale rosy amaranth; Ivy Stark, a pretty delicate little Japanese, with narrow florets of golden bronze; M. Dupuis, Japanese, flat florets, deep golden bronze; Mdlle. Marie Massé, rosy pink, very full; Albert Galy, bright reddish crimson; Ambroise Thomas, Japanese, with long florets, a fine deep crimson; O. J. Quintus, pink; Mytchett White, Samuel Barlow, and several others.

In the sick room there are few flowers more cheerful or more lasting, and just now more acceptable, than a bunch of chrysanthemums if the colours be well selected. The pinks, yellows, bronzes, purples, and crimsons are best, leaving the white varieties as much out of the number as possible, as that colour is likely to produce morbid thoughts in the mind of a person lying ill. Only a few days ago I received a box containing Crimson Pride, Madame Aug. Nonin, lilac mauve; Nellie Brown, golden bronze; Mdlle. Mélanie Fabre, pink; M. Dufosse, golden yellow; Triomphe de Lyon, bright rosy mauve; Madame de Sabatier, Mytchett Beauty, Martinmas, and Crimson Source d'Or, all very pretty and useful sorts for such a purpose. C. HARMAN PAYNE.

SOME INTERESTING PLANTS.

Crinum zeylanicum.

A RECENTLY imported plant of this species is now flowering here. It produces fully a dozen light glabrous green leaves, two and a-half feet long, three inches wide at the base, with scabrous margins, a purplish-coloured scape thirty inches high, bearing a dozen sessile, sub-erect flowers, closely packed together, so that the segments of adjacent flowers overlap each other. The segments are recurved, three and a-half inches in length by three-quarters of an inch in width, white in colour, with a deep crimson band extending from the tip to within one inch from the base on both surfaces. The tube is four inches in length, and is coloured crimson, as also are the style and filaments. The flowers, half of which are open at the same time, possess a sweet fragrance when they first open, but it is not so agreeable after a day or two; they only last for a week in stove house temperature, but if removed to a cooler and drier house they keep in condition for ten or twelve days.

C. zeylanicum requires plenty of water and a stove house temperature when growing, although, as may be inferred from its wide distribution over tropical Asia, Africa, and probably America (from whence this plant was imported), it is of considerable hardihood, and may be grown much cooler with success. The bulbs may be rested during winter in a temperature of 50 degrees, keeping the soil but moderately damp. There is but little difference between the flowers of this species and C. fimbriatulum (which has also just flowered here); the leaves, however, are very distinct, those of C. zeylanicum being recurved and radiating, whilst those of C. fimbriatulum are sub-erect, distichous, and spirally arranged.

Maurandya scandens.

This is an excellent climbing plant for the cool greenhouse, bearing simple palmate leaves, from the axils of which spring solitary, purplish-crimson, gloxinia-like flowers two inches long, the spreading limb of the corolla measuring an inch across. There are two rows of tufted yellowish hairs extending to the base of the tube. The green inflated calyx and the seed pods resemble those of the Cotton (Gossypium). It continues to flower and lasts in good condition for a considerable time if the seed pods are removed as soon as formed. It is a plant of easy culture, making growths from eight to ten feet in length, which are most effective if allowed to depend from the roof. The coloration of the flowers varies somewhat in seedling plants. The species appears to be quite uncommon in gardens.

Eranthemum Andersoni.

A small shrubby plant producing broadly lanceolate leaves six inches long, and terminal spikes of about forty white flowers, about an inch across, the lower petal of the whole being spotted with crimson in a manner suggestive of some orchids; the two stamens are curved upwards and much resemble the pollen sacs of some orchids. It requires a warm greenhouse temperature, and is worthy of a place in any collection of warm greenhouse flowering plants, the flowers possessing a peculiar charm, and lasting a month or two in good condition. It grows best in a compost of two-thirds loam and one-third peat, potting very firmly; cuttings of the young shoots taken off in spring make nice plants for early winter flowering; they root best in a mild hotbed under a bell-glass.

Hymenocallis eucharidifolia.

This is a very handsome stove house species of Hymenocallis; it bears a stout scape of flowers, resembling those of a small form of H. speciosa. There is so great a similarity in the flowers of some of the broad-leaved species that it is by no means easy to determine one from the other, which may account for the confusion now existing in the nomenclature of these plants in the gardens where they are grown. The leaves also are very variable, being largely influenced by the district from which they were imported. Those in the present case are alternately arranged around a short, stout stem, composed of the sheathing bases of the petioles, and measure a foot in length by eight inches in width, some leaves being nearly as broad as long. The petioles are very short and stout, in some instances almost wanting; it is a compact, sturdy-looking plant, and may be treated in the same manner as H. speciosa. The flowers are deliciously fragrant, of great value for cutting; the plant itself when in flower may be used for indoor decoration, as the flowers last a week or two in good condition.

Isleworth. GEO. B. MALLET.

Road Sweepings as Manure.—This material certainly does contain, from gravel or macadamised roads, full 50 per cent. of gritty matter, little of which may have manurial properties, but the other consists chiefly of horse-droppings, and is in that respect good manure. All the material is of great value to incorporate into stiff soils, and for such purposes seems to be too seldom utilised. Still, it makes good manure for light soils, as I have seen ample evidence of on the Richmond allotments, where large quantities of it are used by the allotment-holders yearly, and they, especially when they cultivate deeply, obtain capital crops. I am having such material, got at a trifling cost, carted on to plots at Richmond and Surbiton, feeling assured from what I see on every hand that an occasional good dressing of it, especially when it has lain for a few months and partially fermented, to be excellent manure.—A. D.

Blackened Potatos.—That potato tubers should sometimes not only boil black in flesh, but should also blacken very much when even but moderately bruised, is a matter with which growers have long been familiar. But they have never yet had explained why it is that on the same soil some varieties habitually blacken, whilst others very much like them never do so, but produce clear-fleshed tubers. There must be in these varieties some chemical difference to cause this diversity in the flesh. I used, when in Middlesex, to grow a remarkably fine kidney that became well known—Chancellor. It was a Magnum Bonum seedling, but the tubers from the Middlesex soil used to blacken when cooked, and rendered it useless to grow as a market variety, although so fine a cropper. Oddly enough, Prime Minister, from the same seed apple, and, of course, parents, very much like the other in growth, never blackened. I found that in Berkshire Chancellor tubers never blackened when cooked.—A. D.

CHRYSANTHEMUMS.

VAGARIES AND INFLUENCES OF THE PAST SEASON.

Now that the rush and bustle of the shows is past we may take breath, and with some degree of profit review what has resulted from our labours among chrysanthemums under the influence of the most abnormal season experienced for many years. Very few growers, I feel sure, will disagree with the statement that our disappointments have been above the average (we always look for some), and these have followed on the almost universal promise of exceptionally fine results.

Never before has the fact of peculiar seasons bringing out the best qualities of certain varieties, and at the same time showing an adverse effect upon others, been more strongly emphasised than during the past year, and those of mature (if this expression be allowable) experience know full well that we must not too freely discard those which have failed, nor place too much reliance on those which have behaved so well. It has been a season when calculations have been often upset in bud selection and timing, and consequently note-taking of various doings and results of 1898 will mostly be more interesting as a matter of history than useful as data upon which to base our treatment for another year.

The absence of sunshine and the low temperature of the late spring and early part of summer compelled us to protect plants with frames longer than usual, and this treatment seemed to induce an earlier formation of the "break" bud in several varieties. In the case of some which were stopped early in April the shoots made rather more rapid progress, owing to the continued protection, than we have noticed in other seasons, when at the corresponding period the plants have been fully exposed. Consequently buds formed a little earlier than we expect them to do in an ordinary season on a few kinds, but curiously the subsequent heat and long-continued dry weather seemed to exert a contrary influence, and some which we usually have too early came later, and were longer than usual in developing their flowers. This tardy development was a pretty general experience in the South, and proves that our pet theory of ripe wood may be nursed too much, though it may be that only one such opportunity will occur in a lifetime of testing how much sunshine and dry atmospheric conditions can be overdone. "If we could only have known," is a vain regret, but there is good reason to believe that had "Queens," for instance, been partially shaded after the third week in August, we should have had more good blooms, for very few indeed were the typical flowers of this family which came under my own notice at the various shows.

The later additions to the incurved section have doubtless been the mainstay of the exhibitor during the past month, and, as many of these are much in the way of Japanese in habit of growth, we may assume that the season has conclusively proved that the old type of incurves do not succeed so well in a hot season, that is, they do not produce their most perfect blossoms on hard, or, as it is generally termed, well-ripened wood.

Failures amongst Japanese varieties were common, though not so bad or complete as many growers anticipated early in October. Madame Carnot was a great offender; almost everyone lost buds of this, and men, too, who were not guilty of overfeeding. In various localities the same complaint arose that buds on plants in small pots, as well as large ones, buds taken in mid-August and at the end of the month, equally succumbed to the excessive heat. One grower wrote me that all his Carnot buds were gone, excepting on two plants, which were partly shaded by some runner beans. This was the first discordant note of the season; then followed others; Simplicity, Lady Byron, Duke of York, and a few more followed suit. Later on, when plants were housed, hard centres to the buds was the story told, and though foliage and buds both appeared to be in fine condition ultimate development was too slow and erratic; lots of growers began to fidget and almost wish for the time to come when they could be getting to work at their cuttings for another year. One large grower wrote: "from three dozen plants of Viviand Morel, Charles Davis, and Lady Hanham I shall hardly get three good blooms." An amateur friend told me that he had carried about 7,500 gallons of water to his plants, which were the most promising he had grown, and yet half of them were failures.

To the uninitiated these "sidelights," as it were, might appear very discouraging, but we very seldom find they are so—certainly not to the earnest cultivator. The lukewarm may despair (and these would never shine or succeed under any conditions), but not the enthusiast. The brighter side of 1898 has been seen in the fine productions of Oceana, Mrs. Weeks, and Mons. Chenon de Leche, probably the three varieties above all others which have been most consistent throughout the country. Fine flowers were shown in Edinburgh, as in London, and they represent grand types. Madame Ph. Rivoire, Mutual Friend, Edith Tabor, Phœbus, Mrs. W. H. Lees, and Lady Ridgeway have also done well, though in some cases better than others.

The Scotch growers have this year surpassed themselves, and I believe I am quite safe in saying that never before have such fine blooms been grown in the North as those represented in the principal exhibits at the Edinburgh Show. True, their season has been more genial, and is admitted on all hands to have been very favourable; but it must be equally true also that the finer details of cultivation are now better understood, and doubtless the determination was abroad amongst Scotsmen that the leading prizes should not go south of the border without a big effort on their part to retain them, and right well have they succeeded. Lady Ridgeway was shown better than I have ever seen it, and such a charming tone of colour. Pride of Madford, with petals naturally drooping, was very fine. Mrs. Weeks, Simplicity, and Chas. Davis were splendid amongst well-developed blooms of the best kinds, and the grand display of these noble flowers, shown in vases with their own foliage, has not been surpassed.

Many of last year's introductions have proved remarkably good, and will doubtless be largely grown another year. The novelties presented to the Floral Committee, too, have been of a very promising nature, and good ones have failed to obtain a certificate owing to the high standard of excellence displayed. Readers have been made familiar with these through the published reports of meetings, but the list may be repeated at an early date to ensure the good things obtaining the popularity they deserve. Many valuable additions have been made to the list of early-flowering decorative varieties suitable for flowering in the open border, and though the recent fine autumn may mislead us a little, no one can go far wrong in planting a good number of these beautiful autumn flowers. Long after the Michaelmas daisies were over these border chrysanthemums gave us a splendid show, and they fully deserve a border to themselves in every garden.

Trent Park Gardens. W. H. LEES.

AUSTRALIAN CHRYSANTHEMUMS.

THAT the chrysanthemum growers in the Antipodes have long been interested in the raising of new seedlings is common knowledge to most of us here in the old country, and on numerous occasions the fact has been alluded to in the pages of the GARDENERS' MAGAZINE. Some of these colonial varieties, like Oceana, Pride of Madford, and Australie, are well known for their massive build and substantial dimensions, and have evidently come to stay. During the present season many new additions have been met with at the trade exhibitions, and the older ones have merited the high opinion already formed of them. The following list gives the names and descriptions of the best of those seen this season, and the only cause for regret is that the dates and raisers' names cannot be furnished. Mr. Pockett, however, of Melbourne, is probably responsible for several. He is an enthusiastic cultivator and raiser, and is the author of a little treatise on the cultivation of the chrysanthemum, which was specially written for the Victorian Horticultural Society some few years since.

Australian Belle—Japanese, with very long tubular florets; colour deep rosy-pink. *Mrs. C. Bown*—A Japanese of good size; colour white. *Purple Emperor*—A very fully-formed, deep, compact flower of the Japanese type; florets medium sized and grooved; the colour is a beautiful velvety shade of plum-coloured purple, reverse silvery; not large, but most effective in appearance. *Chatsworth*—Japanese, with very long, narrow, drooping florets, forming a deeply-built flower; colour white, streaked pinkish-purple. *Mr. T. Carrington*—A worthy companion to Australie and Pride of Madford; very massive Japanese incurved, with long, medium-sized florets, grooved and pointed; colour deep bright purple, reverse silvery pink. *The Convention*—Japanese incurved, with long pointed florets; a globular flower; colour deep golden terra cotta, lined with bronze inside. *Mrs. G. A. Haines*—Japanese; striking, but rather small; rather broad incurving florets; colour golden bronze, reverse gold. *Mrs. J. T. Tibbs*—A white sport from Lilian B. Bird, raised in New Zealand. *Mrs. H. B. Higgins*—Very large Japanese; medium-sized florets; a fine flower; colour very delicate creamy white. *Miss Mary Underhay*—One of the best Japanese incurved; medium-sized florets, grooved and incurving; colour a rich shade of buttery yellow. *Euterpe*—A short-petalled Japanese; the florets are pointed, grooved, and rather broad; rosy mauve, with a reverse of silvery pink.

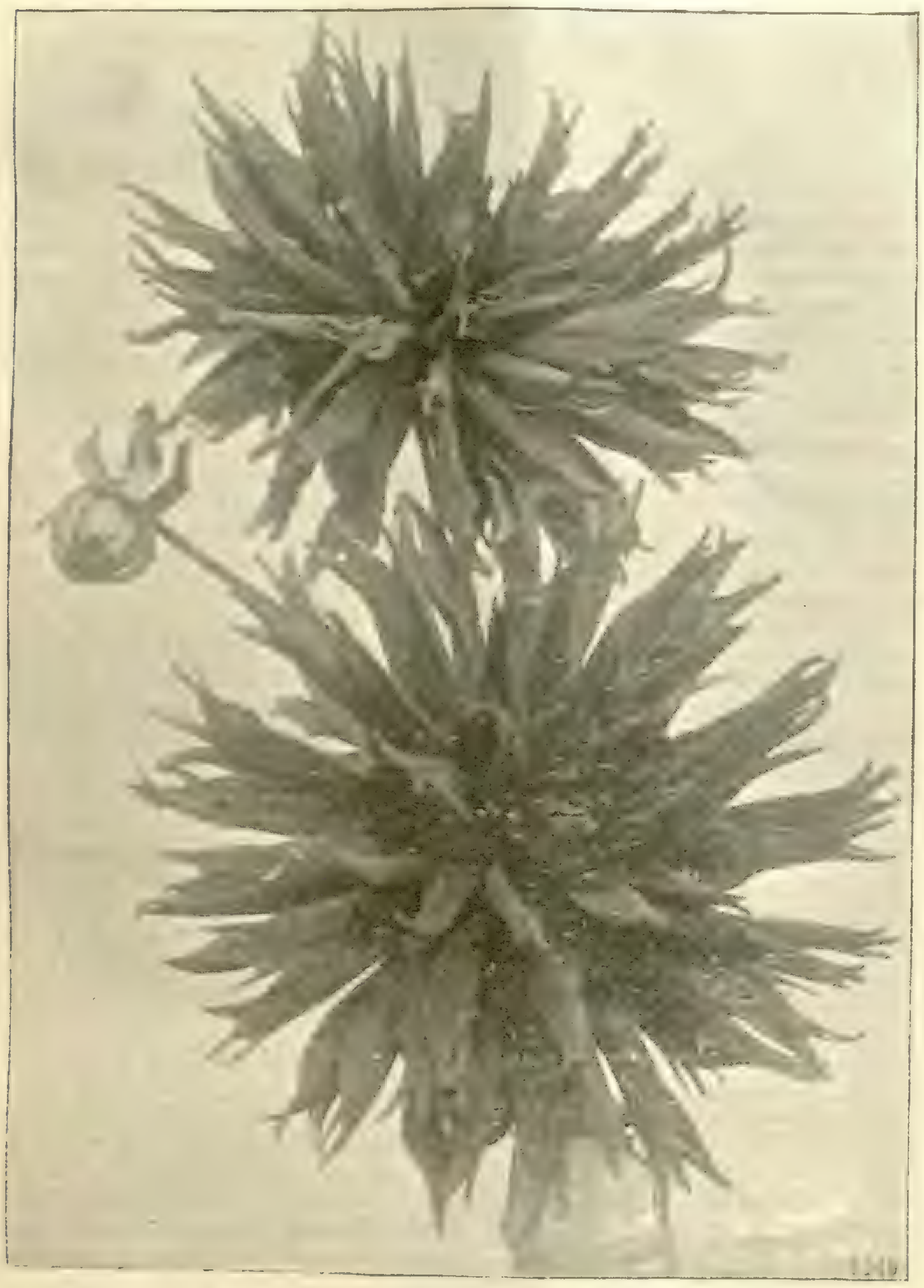
Miss Nellie Pockett—Very pretty, Japanese, with very narrow incurving florets, grooved and pointed at the tips, closely built; colour pure glistening white. *John Pockett*—A deeply-built Japanese incurved, with rather broad florets; a very rich shade of deep golden brown or chestnut, reverse gold. *Pride of Madford*—One of the biggest, too well known to need description. *Australie*—The same remarks apply to this one. *Pride of Stokell*—A sport from Pride of Madford; colour deep velvety crimson, with golden reverse. *Mabel Kerslake*—Probably a synonym of the preceding, being a crimson sport from Pride of Madford. *Wonderful*—A Japanese incurved, of the Wheeler type; broad florets; colour velvety purple-crimson, with straw reverse. *J. Bidencope*—If not actually of Australian origin, it is at any rate named after an Australian grower; a purple amaranth Japanese, with silvery reverse. *Mrs. Bissett*—Japanese florets, slightly incurving, good size and form; colour white, slightly tinted. *G. Kerslake, Junr.*—Very long florets, a Japanese; colour white. *Miss Vera May Fouser*—Japanese incurved, broad grooved florets; very fine shade of warm terra cotta, reverse golden. *Master H. Tucker*—Japanese; colour deep velvety bright crimson, reverse golden. *Oceana*—A fine, well-known yellow. *Mrs. H. Briscoe*—Japanese of large size, very long florets; colour bright rosy mauve, silvery reverse. *Beauty of Adelaide*—Japanese, with great length of floret; colour dull rosy pink. *Mrs. Ernest Carter*—Japanese of fine form; long, closely arranged, drooping florets; colour pretty pure shade of deep primrose.

C. HARMAN PAYNE.

Marguerite Leaf-Miner.—We have had some difficulty in cultivating marguerites for some years past, as leaf-miners (*Tephrites*) are very plentiful here on the holly and other plants, though strange to say the celery has escaped attack for many years. The marguerites in pots nave been so severely and repeatedly attacked that without a remedy we cannot grow them to be of any use. An effectual method of prevention, however, has been found in the use of a mixture of soft soap and petroleum—soft soap, two ounces; water, one gallon; and a wineglass of petroleum, is the recipe. The mixture is kept close to where the marguerites grow, as it is then more likely to be applied regularly. It should be used every day to get rid of the fly, and then the most persistent attack will ultimately yield, and the plants will become clean; it may take several weeks to accomplish this, but victory is certain to follow. The large white marguerite is a good winter bloomer, and spring struck cuttings grown on make fine winter flowering plants. The yellow varieties are not winter bloomers to the same extent, but are splendid for summer for cutting from when planted out in the open. —GEORGE HARRIS, *Alnwick*.

CACTUS DAHLIA PROGENITOR.

THERE are a number of dahlia growers and enthusiasts who consider that the dahlia has by no means yet given us all the diversities of form and gradations of beauty it is capable of producing. Such an opinion coming from those who make both a hobby and business of raising new varieties of dahlias is well worthy of consideration, especially when it is backed up by specimens which one instinctively feels are the progenitors of new and distinct classes. Mr. Wyatt, proprietor and manager of the firm of Messrs. Keynes, Williams, and Co., Salisbury, has been as energetic in the cultivation and production of dahlias as he has of roses, and the results of his efforts have been seen in very many excellent dahlias, both of cactus, pompon, and show forms. Each year has brought us new colours or shades, and some seasons new forms also, as in the case of Arachne and The Clown, and even more markedly in the case of Progenitor, the variety figured in the present issue. This form has the general characteristics of the cactus dahlia, and in addition the twisted florets are much divided at and near the apex in a most peculiar and yet pleasing manner; the colour is rich and bright scarlet. The name, Progenitor, could scarcely have been improved upon, for, unless we are very much mistaken, it is the commencement of a class that will run the Japanese chrysanthemum very close for elegance, grace, and beauty. Wherever exhibited, at Shrewsbury, Crystal Palace, Royal Aquarium, and the Drill Hall, Progenitor has been greatly admired for its own beauty, and for the promise it contains of further developments. It has gained an award of merit from the Royal Horticultural Society.



NEW CACTUS DAHLIA PROGENITOR.

A Few Good Apples.—At the York Chrysanthemum Show I carefully examined a collection of about one hundred dishes of apples, mostly of very fine samples, from Messrs. Backhouse and Son, and a few points gleaned by questioning the grower may be worth recording. First of all Annie Elizabeth was one of the brightest and most showy cooking apples on the table, and very large fruit. Our experience of it on the standard is that it is a very shy bearer, but I was assured that on the Paradise stock, either as bush or pyramid, it crops freely, and is a fine late keeping apple. Blenheim Pippin is generally considered a shy bearer for the first ten years at least, but on the Paradise stock it crops freely on young trees. I noted the following six dessert apples that are not grown so much as they deserve to be: Claygate Pearmain, Golden Reinette, Lord Burleigh, Brownlee's Russet, Mannington Pearmain, and Barnack Beauty, the last-named a heavy cropper; all these are worth a trial. Two years ago we planted Colonel Vaughan, a small, red-striped apple, and one commended in the south as a good market fruit. This summer the tree was very heavily cropped, and produced nice fruit, but not of the highest flavour, though it is still a desirable kind, and promises to be a heavy cropper in the northern counties. Lord Derby promises to be a fine kitchen apple here.—GEORGE HARRIS.

CORDON GOOSEBERRIES.

AMONG small fruits the gooseberry ranks as one of the most useful, luscious, and accommodating; it is very hardy, and will thrive equally as well in the northern parts of Britain as in the south, and probably in hot, dry seasons, notably in 1898, the fruit will be better flavoured and last longer in perfection in the counties north of London than in those south of the metropolis. The season of the year has arrived for the formation of new plantations, and I propose in these notes to record the methods adopted in these gardens in the cultivation of gooseberries as cordons. Some of the advantages that will accrue from this system are neatness, ease in pruning, gathering, and protecting the fruit from birds and wasps, the prolongation of the season in which ripe fruit may be gathered, and last, but not least, the ease with which the various insect pests may be held in check. I am convinced also that finer and better flavoured fruit can be produced on cordon trees than on those grown in the orthodox way, *i.e.*, as bushes.

The gooseberry will thrive in any good garden soil, provided the subsoil be of an open, dry nature; if the cultivator has to deal with a cold, wet, retentive soil, it will be advisable to drain it. In old gardens that have been under cultivation for a great number of years I find the cordons are somewhat liable to die off suddenly, which gives the trellis a patchy appearance, this being most noticeable in trees that have become aged. I advise in such instances replanting every ten or twelve years, and, if possible, in a new situation; if this is not practicable remove the exhausted soil, replacing it with good loam, as in this medium it is very seldom a gooseberry dies if proper attention is afforded. The situation must be an open one and well exposed to the sun's rays. The position our trellises occupy is an open one in the kitchen garden, where they form a background to the herbaceous borders; no better position can be given them than this.

Planting may be performed at any time from the fall of the leaf until the month of February, but the earlier it is done the better, for several reasons. The trellises here are one hundred and fifty feet in length and five feet in height, with wires placed six inches apart. If two strong posts be placed at either end for straining the wires to, lighter posts of iron will answer well for the remainder, and these should be inserted at distances of ten feet apart; indeed, the required number of posts may be of iron if desired. The whole should be well painted and dried before planting. A suitable distance at which to plant is one foot apart, making the soil firm and afterwards tying the rods neatly to the wires. If any difficulty is experienced in procuring young cordon trees, those usually advertised will answer the purpose if the side branches are pruned back to within two inches of the main stem, leaving the strongest shoot as a leader, also taking out any growths at the bottom of the main stem, so as to ensure a clean stem free from suckers.

Careful attention to watering during the season of growth will be necessary, for if allowed to become dry at the roots red spider will soon be very much in evidence, and, should this pest once obtain the upper hand, it will be difficult to eradicate. An occasional watering with farmyard liquid will be very beneficial, and a heavy mulch of manure or spent mushroom bed refuse should be applied early in the summer, this tending to conserve the moisture and keep the numerous surface roots cool. The side growths should be shortened twice during the growing season.

The winter pruning of the gooseberry may be performed soon after the fall of the leaf, for it is seldom that birds attack the buds of our trees, for a good syringing with quassia compound or spidacide, followed by a dusting with lime, will make the buds distasteful to them. The spur system of pruning is practised, cutting back each shoot to within three or four buds of the previous year's wood. The whole of the prunings should be collected and burnt. A good mulch of manure should then be forked in, but on no account should a spade be used for this operation.

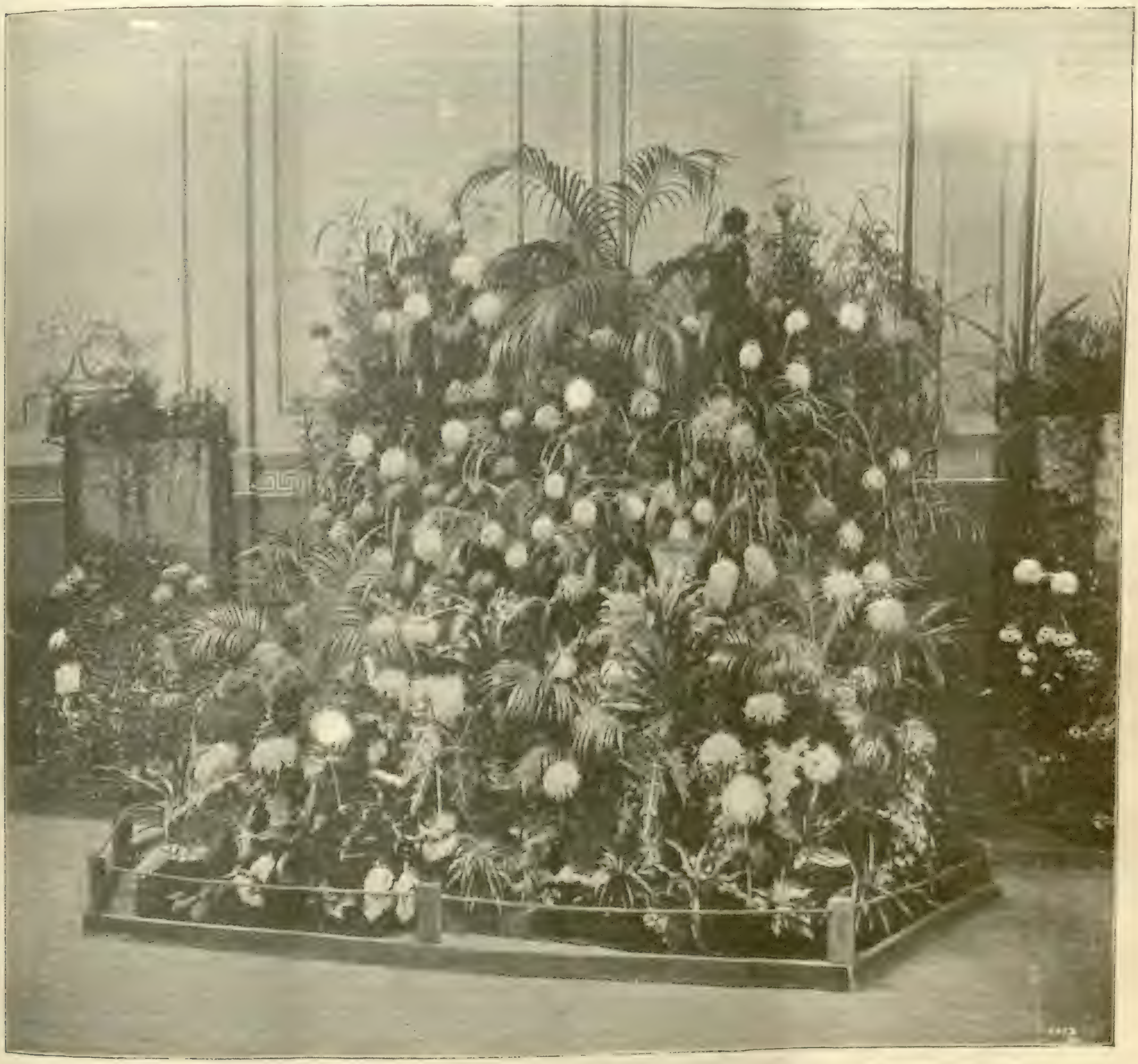
It is somewhat difficult to say which of the two most formidable enemies to the gooseberry is the worst, viz., red spider or gooseberry sawfly. In dry seasons the former will be sure to put in an appearance, and strong measures will have to be adopted to keep it in check. We find that if the hosings or syringings be frequent, and done with determination early in the season—*i.e.*, as soon as the trees break into growth—few insecticides will be needed, but an occasional syringing with an approved insecticide will act as a preventive early in the season, but if given later the fruit may be flavoured with it. Prompt measures must be taken with regard to the sawfly grubs, as they will devour the leaves, with the exception of the petiole, often defoliating the trees. When full grown these pests descend to the ground and change into pupæ, from which another brood of sawfly emerges. Hand-picking is the most effective remedy, going carefully over the trees every morning. Sprinkling the trees when the dew is on them early in the morning with soot and lime alternately will be beneficial. Also removing the surface soil entirely in winter to about two inches deep, burning it, and replacing with fresh maiden soil is a preventive measure.

The supply of ripe gooseberries may be prolonged considerably by planting some trees against a wall having a north aspect, and covering them with a double thickness of fish netting, as in ordinary seasons fruit fit for dessert may be gathered as late as the end of October. Suitable varieties for this position are Pitmaston Greengage, Warrington, Coe's Late Red, and Viper; whilst for early use on trellises such varieties as Champagne, Whitesmith, Whinham's Industry, Golden Drop, and Crown Bob cannot be surpassed for general excellence.

Stoneleigh Abbey Gardens. H. T. MARTIN.

A TASTEFUL CHRYSANTHEMUM GROUP.

NOTWITHSTANDING all that has been written with reference to the arrangement of exhibition groups of chrysanthemums and other plants, there is much room for improvement, as collections arranged for effect continue to form a somewhat weak feature at a considerable proportion of the exhibitions, and thereby to fail to contribute their full share to the attractions and usefulness of the respective gatherings. The causes of the groups being less satisfactory than they should be are not difficult to determine. In many instances they fail to satisfy those imbued with some degree of artistic perception, because of their being limited wholly to chrysanthemums, and for this the societies must be held responsible. On the other hand many exhibitors fail to produce a tasteful arrangement in consequence of their assuming that a great mass of colour is essential to artistic effect, and crowding the largest possible number of plants in the prescribed space. In not a few cases at least one-third more plants are used than are required, and it would be an immense advantage if exhibitors generally would reduce the number of plants used by the exclusion of those having blooms of indifferent quality. Not less desirable is the general use of plants with ornamental leaves, and it would be an important advance were societies to require the association of fine foliage plants with chrysanthemums in groups "arranged for effect." This may on the first impulse be regarded as imposing an additional tax upon competitors; but there are few exhibitors of chrysanthemums who would not be able to provide two or three palms, dracænas, and crotons for their groups without any great difficulty.



MR. G. WILSON'S FIRST PRIZE GROUP OF CHRYSANTHEMUMS AND FINE FOLIAGE PLANTS, HULL.

From a very early period in the history of the Hull Chrysanthemum Society chrysanthemums and plants with ornamental leafage have been shown together, and with such highly successful results that the groups at Hull have for some years past been considered, and properly so, the most beautiful arrangements that are presented to public notice in the United Kingdom. It has been not less a pleasure than a duty to refer in highly appreciative terms to them on several occasions, and I have illustrated some of the best for the purpose of showing the style of arrangement of those attaining the highest honours in the competitions, and thus assisting readers who are desirous of breaking away from the stereotyped style so common at exhibitions. With the hope of affording still further assistance in this direction I give herewith an illustration of the group for which Mr. G. Wilson, gardener to Sir James Reckett, Bart., Swanland Manor, Brough, worthily received the premier award in the class at the recent exhibition. As will be seen from a glance at the illustration, the chrysanthemums are lightly arranged amongst the palms, crotons, dracænas, and alocasias, and the whole of the blooms are of exhibition quality, the effect being surprisingly rich and extremely tasteful. At Hull the groups have to be arranged the day previous, and the practice is one that should be generally adopted, for it is extremely difficult to arrange a large group satisfactorily when, in accordance with the usual practice, it has to be done on the morning of the opening day.

To the right and left of the group are two of the drawing room mirrors which constitute such a pleasing feature of the exhibition at Hull, that on the right being the arrangement which obtained premier honours. The society provides mirrors with plain frames, and the exhibitors are allowed full scope for the display of their taste, the only condition being that the plants in front of the mirrors must be arranged in a semicircle, with a depth of about two feet. The height of the mirrors is about six feet, a fact of interest as indicating the height of the group.

G. G.

WORK FOR THE WEEK.

WARM ORCHIDS.

There has been a change in the weather since I last wrote, and now frost is beginning to trouble us. But cold nights on various occasions have been followed by warm ones, and such variations in temperature outside are bound to cause a certain amount of fluctuation under glass. Many amateurs are in the habit of driving the fires hard when there is a likelihood of frost, and causing the heat to rise to a degree that is bad for the plants. This mistake can easily be avoided by careful management and regulation of the fires according to the power of the boiler. The kind of fuel used is generally coke, some few using house coal; both of these are apt to cause fluctuations of temperature if not well managed. Coke, if kept well clinkered, will produce a tremendous heat, and house coal will produce the same if the poker is kept continually in use. Of the two fuels coke is preferable, but I would strongly advise the use of anthracite coal for orchid growing. It may prove a little more expensive, but that is compensated for by the saving in labour and a good steady fire.

During foggy weather such subjects as calanthes, Dendrobium Phalænopsis, and Lælia anceps must be carefully watched, and the houses containing them must be kept dry, while a little more heat should be afforded, especially towards evening. Dendrobiums of the nobile and Ainsworthi section that finished up early will most likely be in flower, and it is as well to bring on a few plants in warmer quarters, as such prove useful at Christmas time; the rest of the collection will now be in their resting quarters. The evergreen species, such as D. fimbriatum, must be placed at the warm end of the house and given very little water, just keeping the bulbs in a plump condition. The temperature should not fall below 55 degrees at night, rising in the day a few degrees higher. Suspended plants must not be kept nearer the glass than nine inches, thus allowing them to escape cold and draughts. Cattleya Percivaliana will have buds in the sheaths in many gardens, and must be placed at the warm end of the cattleya house and given a little more water than allowed the general collection. C. Mossiæ and C. Mendeli must be placed at the coolest end and near the glass; C. labiata must be well watched against the damping of bulbs that have recently flowered; place them at the warm end for a time, and allow only sufficient water to keep the bulbs plump, in fact a slight shrivelling will be a preventive of damping. C. superba must be given a few degrees more heat to keep it in a healthy condition. —T. Stafford, *Tyntesfield Gardens.*

STOVE PLANTS.

Dipladenias should now be resting in a temperature of 58 to 63 degrees, and very little water will be required, just sufficient to keep the roots from perishing and the wood from shrivelling. The earliest batch will not require to be started until January, and then will bloom in May. A minimum temperature of 60 degrees will be suitable for wintering ixoras, and very little water will be required at the roots; yet care must be exercised that the dryness is not carried too far so that the roots are destroyed. The resting of plants is a very different thing to the drying off of bulbous roots; the roots of the latter perish annually, so that when the growth is ripened the pots containing the bulbs or tubers may be stored away and receive no further attention until the season for starting them into growth comes round again. The resting of fibrous-rooted stove plants is quite another matter; when growth is completed they are placed in a lower temperature and water reduced at the root (not withheld), the object being to keep the plant in a dormant state, while the roots are preserved in a healthy condition; therefore, though the plants are resting, they must receive careful and intelligent attention, that when the season for active growth comes round again they may be in the best possible condition for making a strong and healthy start. These remarks apply to all stove flowering plants at rest. such as clerodendron, stephanotis, ixora, dipladenia, allamanda, bougainvillea, adhatoda, ipomæa, &c.

As the different batches of gesnera pass out of flower still afford them a light position not far from the glass, and continue to feed them until the foliage shows signs of ripening. when clear water may be applied at further intervals until it is eventually withheld altogether. Poinsettias, as the bracts become fully developed, should be removed to a drier house with a temperature about 55 degrees; continue to feed later batches until the bracts are almost fully expanded, but when watering these later plants see that the moisture permeates the whole ball, and that the water used is warmed: in fact, for all plants in warm house the water used for watering and syringing should be at about the temperature of the house. I was asked by an amateur the other day to account for some of his plants looking unhappy. I placed my hand in his water-tank and asked if he usually watered his plants from thence. Then I learned he sometimes had the tap running at the time he was using water from the tank; and as the latter was not placed near the hot-water pipes there was a difference of 15 degrees between the temperature of the water and that of the house. Success in plant growing is attained by attention to a multitude of small matters, and it is only those who attend to them who succeed. Do not syringe plants of Euphorbia jacquinæflora that are in flower, and afford them rather smaller supplies of water; E. splendens, though not frequently grown, is very useful during the winter months, especially to those who have to provide many buttonholes. Another recommendation in its favour is that it is very little trouble. Gardenias that have been moved to the stove to bring them on will require regular feeding and constant attention to keep them free from mealy bug. Plumeria alba may now be kept quite dry at the root, and alocasias and marantas will require very little water until fresh growth starts, but should not stand near the door where the cold air will strike them. Aeschynanthus should now be induced to rest by reducing the water supply; these make lovely basket plants, continue in flower during a long season, and always command attention by the brightness of their flowers, which, in different species, are crimson, scarlet, or orange. They may be raised in spring from cuttings of the half-ripened wood, about three inches long, removing all the leaves but the two uppermost; when rooted pot on as necessary until large enough to place in baskets.

Keep the atmosphere of the stove moist, syringing the plants once a day on dull days; on bright days twice. Where blinds are available let them down on cold nights, this will reduce the necessity for very great heat in the pipes, thus making the atmosphere healthier for the plants.—J. Tunnington, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

Although the pruning of roses should, generally speaking, be performed in March and April, any very strong growths, especially of H.P. varieties, may with advantage be now somewhat shortened, which will prevent their being broken off by wind or snow, or the loosening of the plants in the soil. Where long shoots are to be retained for pegging down or on climbing or pillar roses, they should be tied or fixed in position temporarily before the advent of rough weather. Rose beds and borders, where lifting or renewal of plants is not necessary, should now have any rubbish or weeds there may be removed from the surface, and a good dressing of half-rotten manure applied as a top-dressing, which may also act as some protection against severe frosts should such occur. In the spring the remains of the manure may be lightly forked in, or a little fresh soil scattered over it. Brier stocks for next season's budding should be collected or obtained as soon as possible and planted in the reserve quarters for working. All rough portions of the roots should be trimmed away, retaining the smaller roots; the stems will also require some trimming and shortening. It will be advisable to make two lengths, one for standards and another for half-standards, some of the finest exhibition roses, especially teas, being produced on the latter; two feet in height is a suitable length for these and four feet for the former.

Where planting of deciduous trees and shrubs is contemplated the work should be pushed forward while the mild state of the weather continues. Although the rains have been slight to the present time, most trees and shrubs of moderate dimensions may be safely lifted as far as moisture at the root is concerned, but any that may be dry at the base should be thoroughly watered after planting. In making a selection for shrubbery borders and pleasure grounds it is well to bear in mind the autumn effects, which are so pleasing in some shrubs that are most effective flowering ones also in the spring and summer months. The brightest autumn tints this year have been found in the rich crimson, red, and yellow foliage of the hardy Ghent azaleas, and where the soil is moderately light and lime is not present these should be freely planted. The common yellow and orange-flowered varieties grow very quickly, and they usually attain the highest colour in autumn leafage. Many other shades of crimson, pink, and red are desirable in the flowers, and double-flowering varieties are now plentiful. The mollis section is equally hardy, although perhaps of rather slower growth. Other flowering and foliage shrubs should include the almonds, which are among the earliest to flower in the spring, and varieties of the double-flowering peach in crimson and rose shades. Lilacs in many varieties are now obtainable, as the dark purple Souvenir de Leon Spath, Marie Legraye, white; Leon Simon and Virginite, double whites; Jules Finger, double pink, and several others. Laburnums are handsome flowering shrubs, while several of the shrubby spiræas are also desirable, and mention may be made of S. Anthony Waterer, S. ariæfolia, S. Douglasi, S. confusa, S. Lindleyana, and S. prunifolia fl.-pl. A few other subjects will include the white and yellow brooms, including Cytisus Andreanus; several of the single and double-flowering hawthorns in scarlet, red, and pink shades; Philadelphus grandiflorus and P. coronarius; Prunus myrobalana fl. pl., and P. Pissardi, with its handsome purple foliage; Liquidamber styraciflora, the foliage of which attains very bright autumn colours, and many of the acers for summer effect, as A. palmatum, A. p. sanguineum, A. p. septemlobum elegans, the latter with foliage of a greyish green in early summer, changing later to a deep red. These are a few only out of the many subjects that may be selected. In planting make the soil about the roots thoroughly firm by well treading or ramming, and standards or other tall specimens requiring stakes should be made secure without delay.—C. Herrin, *Dropmore Gardens.*

HARDY FRUITS.

In my last notes I dwelt upon the importance of having all planting done as soon as possible, and that advice still holds good, for we have not had any severe weather to interfere with the work. To my previous advice I would add the importance of giving newly-planted trees a mulch to keep frost from the roots, as it will be found newly broken ground is quickly influenced by severe weather. For mulching I do not advise heavy, wet manures, but a light, porous material that excludes frost. There will be plenty of work now among the older fruit trees, and wall trees may now receive attention. With peaches and nectarines the work will not be great, if the advice concerning the removal of old fruiting wood was carried out, but even now arrears may be made good rather than leave the work to the spring. Much will depend upon how the trees are trained; if to wires, the small growths which are needed for next season's fruit should be untied, as by free exposure the flowering period is retarded, and the crop will be saved. In my opinion much more may be done to save crops by hardening the wood and retarding the buds than by covering them when in bloom. Trees trained to wires are frequently affected in severe weather; the bark is discoloured, and the next season canker will set in at the part which touched the wires. I am not in favour of wired walls, having suffered badly in the colder parts of the country from the cause noted above. Nailed trees should also have the young wood detached, and only the main supports left to hold the trees in position; the wood is then cleansed by heavy rains, and pests lodged in the wall do not obtain much shelter. It is also an excellent plan when the trees are at rest to syringe the walls with an insecticide; we use Bentley's Soluble Petroleum, and then are not much troubled. There should be no further delay in having these trees lifted where at all gross, and if any need new surface soil now is a good time to do the work, as by the removal of old surface soil now a certain amount of insect life will be destroyed.

As apricots flower early they may now be pruned, but, like the peach, with attention paid to stopping there will be little pruning at this season; on the other hand, much may be done by reducing the old spur growths, as these are often much too crowded and do not give any return, for the wood may be too weak to bear fruit, and this crowds the better growth. We find it a good plan to remove a portion of weak spur growth yearly, as this encourages a much stronger, cleaner growth. Apricot trees that have lost branches may be retrained, and this will often much benefit the trees, as by rearranging the branches to fill up the wall-space the wood receives more light and sun. Our best apricots, I mean the most reliable in our light soil, are the Hemskerk and Large Early; the latter will grow when others fail. The same remarks are applicable to apricots, concerning top dressings at this season, as advised for peaches, but here a richer material may be given. We use bone meal freely, with burnt refuse or old mortar rubble, and it will be found the nearer the roots are to the surface the better in every way. We prune and nail our trees at the same time, as these trees are the earliest to bloom, and there need be no delay in starting all kinds of pruning as soon as the leaves fall.

Fig trees on open walls repay protection in many parts of the country, as in severe winters they may be killed to the soil, and it takes years to build up new fruiting wood. Of course it will not be wise to do much pruning now, but I do not think there is any gain in leaving wood that may be in the way next spring. The fruit next year will be secured from the points of the new growths made this season, consequently these are the parts needing protection. To economise covering material we find it advantageous to untie the branches, draw them up into bundles of half a dozen or more together, and secure them to the wall. Many use hay bands or straw, I have never found a better protection than dry bracken, especially if it is cut in a green state and dried, as it is then very elastic and does not confine the wood too much. Many grow figs in pots and remove them indoors during the winter; this is a good mode of culture in localities where the fig does not fruit well on open walls. Such may now have the thin wood in the centre removed and the trees cleansed whilst in a dormant state; trees infested with scale will benefit by a good cleansing previous to covering.—G. Wythes, *Syon Gardens.*

EXHIBITIONS AND MEETINGS.

BANBURY CHRYSANTHEMUM SHOW, November 16 and 17.

ON the above date the Town Hall, Council Chamber, and the Court Rooms were each filled with an exhibition of very high quality, embracing groups and collections of stove and greenhouse plants, primulas, &c., &c., the show being opened by the Hon. Mrs. Brassey, Heythrop Park, in the presence of the Mayor and the chief officials of the town.

The prize for the best arrangement of decorative winter plants and flowers went to Mr. Bush, gardener to F. J. Myers, Esq., Charlton; Mr. Turner, gardener to the Rev. F. W. Cartwright, Aynho Rectory, leading in the classes for three specimens each of pompons, Japanese, and mixed forms; Mr. A. E. Kirtland, gardener to the Rev. R. F. Dale, Bletchington Rectory, taking the first card for three incurved. The groups arranged for effect displayed any number of good flowers on dwarf plants, but they were a trifle formally set up. Mrs. A. Coleman was awarded the premier prize, as also the certificate of the National Chrysanthemum Society; Miss Gillett second. Great interest centred in the cut blooms, which filled the centre of the hall. For twenty-four Japanese Mr. Daniells, gardener to Colonel Norris, secured the card for a grand lot, the varieties being Madame Carnot, Viviand Morel, Mons. C. de Leche, Mrs. G. W. Palmer, Modesto, Lady Hanham, Sunstone, N.C.S. Jubilee, Phœbus, Australie, E. Molyneux, Duchess of Wellington, C. Davis, Simplicity, Western King, Beauty of Teignmouth, Madame E. Rogers, Duke of York, Thomas Wilkins, Mrs. H. Weeks, Oceana, Graphic, Yellow Carnot, and Madame T. Rey; Mr. R. Jones, gardener to C. A. Smith-Ryland, Esq., Barford Hill, Warwick, second. For eighteen varieties Mr. Bush led; for twelve, Mr. Jones; and for six, one variety, the cards went to Mr. R. Hope, gardener to Captain Orr-Ewing, of Bletchington Park; Mr. S. Brown, gardener to W. C. Cartwright, Esq., Aynho Park; and Mr. Daniells, for Madame Carnot; while for half-a-dozen of one variety other than white Mr. Hope stood first with Phœbus, Mr. Brown second for Australian Gold, and Mr. Daniells third for Duke of York. The incurved winners were the same as at Oxford the day before, although the order of the cards was reversed; anyhow, the stands were very evenly matched, the first prize for eighteen varieties going to Mr. W. J. Johnson, North Bar, Banbury whose selection comprised Ma Perfection, C. H. Curtis, W. Tunnington, Major Bonaffon, Mrs. R. C. Kingston, J. Agate, Miss V. Foster, Mrs. N. Molyneux, Lucy Kendall, Princess of Wales, Mrs. S. Coleman, Robert Petfield, and Madame Ferlat. Reflexed and large anemones were well represented. Mr. G. Price, gardener to F. P. Bulley, Esq., Marston Hill, Fairford, was first for reflexed, Mr. Johnson leading with anemones. Mr. Price was wonderfully strong with pompon and pompon anemones in triplets (shown with nine inches of stalk and foliage), the flowers forming lovely spherical heads of rich colouring.

The show of fruit was large and of grand quality. A large number of the dishes had been to the Oxford Show. For eight dishes of apples the card went to Mr. C. Green, gardener to Miss Thomson, Stanton House, Oxford, while for four dishes Mr. R. Hope led, the finest exhibit of Blenheim Pippin coming from Mr. C. C. Butcher, Tysoe. Mr. Brown had the finest six dishes of pears, the heaviest single dish being staged by Mr. Hope. The Alicante grapes awarded the first prize were exhibited by Mr. Brown, and were regarded as superior to any exhibit in that class in the county this season; he also secured the card for some well-finished Muscats. Mr. T. Cummings, gardener to J. P Gillett, Esq., was second for black.

Vegetables in collections were most meritorious, the potatos specially good, but we have seen onions better. For potatos the best six dishes came from Mr. D. H. Wells, Tysoe, who also led for dishes of white kidney, white round, coloured round, and a collection of vegetables; the card for onions going to Mr. H. Wingrove, gardener to Captain Cottrell-Dormer, Rousham Park. Messrs. P. J. Perry, Oxford Road Nurseries, staged a number of plants, &c., not for competition, also lent neat plants to decorate the tables, and made a fine display with buttonholes, bouquets, wreaths in various designs, &c. Messrs. Deverill, Cornhill Seed Stores, and Townsend, Bloxham Nursery, sent plants; and Mr. H. Boxold exhibited three sticks of his selected pink celery weighing 15 lbs.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY,
November 17.

THE society is always fortunate in securing a very fine exhibition, and in addition to filling St. Andrew's and the smaller Blackfriars hall a large canvas annexe was placed on the side of the large hall in what is known as St. Andrew's Plain. The number of entries was more than maintained, and of all departments it may be said that they maintained the high quality seen at Norwich.

Plants of chrysanthemums were represented by good bush specimens, and they bore good blooms for the number they carried. Mr. J. G. Snelling had the best six Japanese; Mr. A. J. Bunting was second, but in the following class for six incurved their positions were reversed, Mr. Bunting taking the first prize. Mr. Randell was the only exhibitor of pompons also, taking the first prize. Cut flowers were a leading feature, the Japanese in some instances being exceptionally fine, and the incurved generally very good. The best forty-eight came from Mr. F. Hanson, gardener to Sir Saville Crossley, Bart., they were even and generally well-finished, chief among them being Phœbus, Modesto, G. J. Warren, General Roberts, Mrs. G. W. Palmer, John Pockett, Madame Carnot, and Madame G. Henry. Mr. R. C. Notcutt, nurseryman, Ipswich, was a good second; this collection of excellent average quality contained a fine Mrs. Mease, which was selected as the best bloom in the show. Mr. W. R. Seago was third. The best thirty-six blooms, eighteen incurved and eighteen Japanese, came from Mr. Sheddick, gardener to A. E Fellowes, Esq., his incurved blooms being especially good. Mr. E. S. Trafford was second. His Japanese were probably rather the best, but his incurved varieties lacked the finish of Mr. Sheddick's. Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich, won the first prize with twenty-four excellent Japanese; they may be described as a grand lot, so good, indeed, that in addition to the first prize the certificate of the National Chrysanthemum Society was awarded for conspicuous merit. Mr. W. H. Apthorpe, Cambridge, was second. Phœbus, Modesto, Mutual Friend, and Madame Carnot were especially good. There was a good competition in the class for twelve Japanese, and Mr. C. E. Gooch was first with a dozen blooms of fine development; Mr. E. F. Buxton was second with blooms only just inferior in the aggregate. G. J. Warren and E. Molyneux—the best example of this variety we have seen this season—were particularly good.

With twelve Japanese, three of each variety, Mr. W. Allan came in first; Lord de Ramsay was second. There seemed to be some confusion in the reading of this class, as one exhibitor brought twelve blooms only in four varieties, and he could fairly put this interpretation upon the wording. The best six Japanese of any one variety were those of Mrs. G. W. Palmer, from Mr. J. A. Kendrew, with Australie. Mr. E. B. Fletcher had the best six of any white Japanese, staging very fine Madame Carnot; Mr. F. Randell was second with the same with six blooms other than white. Mr. Gooch came in first with capital Edith Tabor, really in excellent character; Mr. W. Allan coming second with very fine Mons. Chenon de Leche; Mr. F. Randell being third with Eva Knowles. Mr. Hanson took the first prize with twenty-four blooms, and such varieties as J. Agate, Lady Isabel, C. H. Curtis, Madame Ferlat, Bonnie Dundee, &c., all of a very good quality; Mr. E. S. Trafford was second with Ma Perfection, C. H. Curtis, and others in fine character. Mr. E. F. Buston was first with twelve, and Mr. B. E. Fletcher second, both having good flowers. Mr. Trafford's twelve incurved were awarded the certificate of the National Chrysanthemum Society as the best stand of blooms of that type in the show.

Fruit was scarcely up to the average of the Norwich Show either in quantity or quality, probably owing to the incidence of the season. Mr. B. E. Fletcher had the best collection of six varieties; Colonel Rous was second. Mr. C. H. Watts had the best three bunches of Black Hamburgh grapes, they might be described as extra good; and Mr. J. A. Kendrew was second. Mr. Allan had the best three bunches of any other variety, staging well-finished Alicante; Mr. Petre was second with the same.

Vegetables were largely represented, and they were generally of good quality, and so attractive did they appear to the Norwich people that it was difficult to get near them. Messrs. Sutton and Sons', Messrs. J. Carter and Co.'s, Messrs. Daniels Bros.' and other special prizes brought numerous exhibitors. Baskets of salading were full of interesting subjects. A collection of vegetables from Mr. G. Davidson, gardener to Mr. Petre, deserved special mention. Seakale was to be found in every collection.

AYLESBURY, November 17.

THIS society held its twentieth show in the Corn Exchange and the spacious Butchers' Market adjoining; the entries were four hundred and twenty-three, as against four hundred and fifty in the previous year.

In the open class but three groups were staged; that arranged by Mr. W. Tipler, gardener to Miss Smith-Dorrien, again secured the three guinea cash prize and massive silver bowl for a display of grand heads of bloom: all the leading forms were represented. Specimen plants are always good here; for nine the honours went to Mr. W. Turnham, gardener to Mrs. Bartlett, Peverel Court, who staged grand examples, five feet through, of Edith Tabor, Pride of Exmouth, M. M. Ricoud, Thos. Wilkins, W. H. Lincoln, M. Panckoucke, Madame C. Capitante, and John Lightfoot, each carrying from one hundred to one hundred and twenty blooms; Mr. Tipler second, and Mr. W. Robins, gardener to Colonel D. Lee, Hartwell Park, third. For one specimen Japanese Mr. C. Pursell, gardener to A. L. Gunn, Esq., secured the first prize with a massive plant of W. H. Lincoln; Mr. H. Brandon, gardener to Mrs. H. Gurney, second for a showy Charles Davis. Mr. Turnham was first for Cloth of Gold (reflexed). Classes were provided for sixes and threes, both in Japanese, large-flowered, and pompons, the latter section being generally of the flat type of flowers, such as the Cedo Nullis.

Cut blooms are an extensive feature here, although the repetition of the classes produces to a certain extent a repetition of varieties; the chief class is for forty-eight varieties equally divided between Japanese and incurved. Two stands were in competition, Mr. Turnham's being far and away the brightest and most massive blossoms, the following forms being represented: Japanese, back row—Silver King, Madame E Brossilon, Mrs. G. Gover, Reine d'Angleterre, G. J. Warren, Madame C. H. Payne, Eva Knowles, and Mdme. G. Henry; middle row—M. E. Andre, Madame Thérèse Rey, Australie, Lady Hanham, Madame Carnot, Baron Tate, and Mrs. G. W. Palmer; front row—Golden Gate, Madame D. Tallandier, Princess of Denmark, G. C. Schwabe, President Nonin, Robert Powell, Lord Boston, and General Roberts. Incurved, back row—Mrs. N. Molyneux, C. H. Curtis, Madame Lucy Faure, Madame Darrier, Mrs. R. C. Kingston, Miss D. Foster, Mrs. W. C. Egan, and Ernest Cannell; middle row—Globe d'Or, J. Agate, Harold Wells, William Tunnington, Jeanne d'Arc, John Fulford, Lady Isabel, and Lord Wolseley; front row—Empress of India, Bonnie Dundee, Baron Hirsch, Miss M. A. Haggas, Princess of Wales, Camille Flammarion, and Major Bonaffon; Mr. W. Tipler second, with not quite so many newer introductions as the premier set. Sixes of one variety are generally attractive, the prizes for incurved going first to Mr. Turnham, second to Mr. Tipler, and third to Mr. Buckle, gardener to C. Pigott, Esq., each for the popular yellow variety C. H. Curtis; while in the corresponding class for Japanese Mr. Tipler led with Australie, Mr. Buckle second with Charles Davis, the third place being occupied by Mr. Turnham with Madame D. Tallandier. The remaining classes were for thirty six, twenty-four, twelve, and six blooms, besides similar classes for amateur growers. Cottagers, too, were provided with classes for plants and blooms which they well filled with produce of high quality.

The fruit show was represented by about seventy dishes of apples and pears; there were nearly two hundred dozens of potatos, carrots, onions, sprouts, &c., quite dispelling the idea that we had passed through an exceptional summer, the produce of the Vale of Aylesbury being generally noted for its excellence; one exhibit of "Up to-Date" potatos from Mr. R. Hopkins was remarkably fine.

ABINGDON, November 17.

AFTER a lapse of two or three seasons the Horticultural Society revived their winter exhibition on the above date, and were successful in getting together a most creditable array of plants, blooms, and fruit, which entirely filled the staging space available in the Corn Exchange, the competition being greatly aided by a collection of plants arranged by Mr. T. Milner, gardener to Major-General Bailee; a collection of cacti from Mr. J. Stevens, Bridge House; and collections of apples sent by Mr. Joseph Brewer, Drayton, and Mr. M. W. Baker, Steventon. A very tastefully arranged group of chrysanthemums and foliage plants secured the card to Mr T. Horsley, gardener to E. J. Trendell, Esq, The Abbey, many of the blooms being very fine. Among the cut flowers Mr. A. J. Morris, gardener to F. C. Swindell, Esq., Kingston House, was a prominent winner, securing in the open class the first cards for a dozen each of incurved and Japanese, and in the local class firsts for a dozen each incurved and Japanese, six one variety in both sections, and premier incurved, the last-named being a very fine specimen of Mrs. R. C. Kingston. Miss Simpson, Ock Street, presented the best bouquet, and Miss Ballard, Park Row, the most tastefully arranged table decoration. Mr. J. Brewer led in the open competition for a dozen dishes of apples, the best dish of Blenheim Pippins, and the heaviest dish of Blenheim Pippins.

ABERDEEN CHRYSANTHEMUM SOCIETY.

THE third annual show promoted by this society was held in the Music Hall Buildings, Aberdeen. Year by year the entries have increased, and on this occasion they numbered no fewer than four hundred and sixty. These included chrysanthemums, orchids, and other pot plants, besides fruit and vegetables. In 1896, the first show of the society, the total numbers were two hundred and fifty-one, in 1897 it rose to three hundred and ninety-seven, while this year it has mounted up to the splendid total of four hundred and sixty. In point of quality, too, the show was an excellent one, the display surpassing anything previously seen in Aberdeen, and evidencing very great skill on the part of the cultivators. Lord Provost Fleming opened the show, and in doing so said the man who first found the chrysanthemum on the hillsides in Japan and brought it to these shores was almost a benefactor to our country. What had been done for the flower in developing it in colour, shape, and size was beyond calculation. It was once his fortune to be in Virginia, and to spend several days wandering through the Alleghany Mountains. There he saw the rhododendron in its native wilds. The hillsides were covered with them, just the same as ours with heather or juniper, but there the rhododendron was all of one colour—a dirty red. A Philadelphian told him that at the first flower show held at Philadelphia the Americans were amazed that British gardeners had brought back from England so many hundreds of varieties of rhododendrons; that a common plant met with every day in their own country should be so cultivated and developed by the British gardener as to become a thing of beauty. So with the chrysanthemum. On its native hillsides he understood it was only of a very few shades of colour; but now, thanks to the cultivation of the British gardener, they found the chrysanthemum such a mass of beauty as no Japanese could possibly fancy. Here in Aberdeen, where there were gardeners who had made roses famous all over the country, they would be making chrysanthemums famous also.

In the open section for pot plants Mr. George Stephen, Cuparstone Lodge, took the first prize for the best group with a splendid array of blooms, tastefully arranged. His chief varieties were Beauty of Teignmouth, Viviand Morel, and Phœbus. Mr. William Proctor, gardener to Sir William Henderson, Devanha House, took second honours with a scarcely inferior display; and Mr. Robert Mason, Claremont Street, was third. For three chrysanthemums in pots Mr. Proctor, with three splendid specimens of Souvenir d'un Ami, Commandant Blussett, and Charles Davis, was first. Mr. John Robertson, Ferryhill House, was second with very good plants, but somewhat overgrown. Coming to the cut flowers, the feature of the section, and, indeed, of the show, was the entry of Mr. J. Grant, Crimonmogate, in the class of twenty-four Japanese chrysanthemums, of at least twelve different varieties. A better exhibit has never been seen in the North of Scotland. The finest varieties in Mr. Grant's collection were Simplicity, Australie, Edith Tabor, Mrs. C. H. Payne, Mutual Friend, Phœbus, Oceana, Pride of Madford, Edwin Molyneux, Australian Gold, and Modesto, the last named being a magnificent orange. Mr. William Ogg, Morkeu, was second in this contest with some lovely blooms, but lacking the grace and texture of the first-prize collection. Other principal prize-winners in the sections for all-comers were Mr. John Pirie, Strichen; Mr. Fraser, Crathes Castle; Mr. Alexander Robb, Glenburnie Park; Mr. Reid, Durris; Mr. Grigor, Fairfield; and Mr. Kennedy, Brucklay.

The following are the principal special prizes and the winners: Open—Three chrysanthemums, pots not to exceed eleven inches in diameter, first prize, a gold medal, Mr. William Proctor, Devanha House; six chrysanthemums, at least four varieties, pots not to exceed six inches, one bloom to each plant, Mr. W. Ogg, Morkeu; a dozen Japanese chrysanthemums, at least six varieties, all named, Mr. J. Pirie, Strichen; twelve incurved chrysanthemums, at least six varieties, all named, first prize a gold medal, Mr. Grant, Crimonmogate; six bunches single chrysanthemums, at least four varieties, first prize a silver medal, Mr. Grigor, Fairfield; one hand bouquet, chrysanthemums, any kind of foliage, gold medal, Mr. Robb, Glenburnie Park; lady's spray, chrysanthemums, any kind of foliage, silver medal, J. H. Fyfe, Thistle Place, Aberdeen.

In the amateur classes gold medals were won by Mr. Coutts, Hardgate, Aberdeen, and Mr. Tough, Bon Accord Street. Mr. Coutts also carried off a silver medal for the best six blooms.

There were one or two additions to the show in the shape of non-competitive displays. Messrs. Dobbie and Co., Rothesay, had a very fine display of chrysanthemums, including four dozen varieties, mostly new. Prominent amongst these was a beautiful green French variety, Madame E. Roger, and the collection was backed by two dozen bunches of decorative kinds. Messrs. William Smith and Sons, Burnside Nurseries, Aberdeen, had also a very pretty and attractive collection, which was much admired.

WOKINGHAM CHRYSANTHEMUM SOCIETY.

NOVEMBER 22 appears late for a show so far south, and yet the Drill Hall of this town was full of plants and flowers, with some fruits and vegetables thrown in, and all was bright and effective. Groups and specimen plants were round the sides and the tables of cut flowers and fruit along the centre of the hall. The best circular group came from Mr. J. Cowie, gardener to Sir T. Lucas, Bart., and it was tastefully arranged, though chrysanthemums were somewhat sparingly used, Mr. W. P. Bound, gardener to Mrs. Leveson-Gower, with more chrysanthemums, but not nearly so tastefully arranged. The first-prize group of chrysanthemum plants not disbudded was a very attractive one; it came from Mr. C Moles, gardener to W. H. Palmer, Esq., the president of the society. Mr. R. Chamberlain, gardener to F. N. Lonergan, Esq., was second. There was a class for a smaller group; also for a specimen stove and greenhouse plant, the best being a well-coloured piece of Dracæna Lindeni.

The best twelve blooms of incurved chrysanthemums came from Mr. G. Lane, gardener to Miss Ridges, Englefield, who had good-sized, well-finished, solid blooms of Mdlle. L. Faure, Dorothy Foster, Ma Perfection, Egyptian—much more refined than is generally seen—C. H. Curtis, Violet Foster, Bonnie Dundee, Empress of India, &c. Mr. R. Bassil, gardener to D. H. Evans, Esq., Pangbourne, was a good second, his leading blooms being C. H. Curtis, Madame Darrier, Mrs. J. Gardener, and J. Agate. With six incurved of one variety Mr. Lane was the only exhibitor, taking the first prize.

Mr. R. Bassil had a decided first with twelve Japanese, having in capital character Charles Davis, Lady Hanham, Edith Tabor, Australie, Ella Curtis, Mrs. Maline Grant, International, Baroness Rothschild, Miss Nellie Pockett, &c. Mr. G. Lane came second with fine blooms of Madame Carnot, Jaline, as a very striking incurved Japanese, Mdlle. L. Zede, Graphic, Joseph Brooks, Madame Ricoud, &c. Mr. Bassil was first with six blooms of one variety, staging Australie; Mr. Lane was second with Desdemona.

One feature was a small group of cut chrysanthemums with several foliage plants, ranged on a raised table, and it brought several exhibits, the best coming from Mr. E. Paine, gardener to the Rev. A. G. Campbell, Bracknell. Mr. R. Chamberlain was second. There was too much formality about most of them. Some fruit was staged; the best two bunches of white Muscats came from Mr. H. Howell, gardener to G E. Kingers, Esq., Mr. R. Chamberlain being first in the black class with well-finished Alicante. Mr. Chamberlain was first with four dishes of excellent dessert apples, the varieties Blenheim Pippin, Cox's Orange Pippin, King Pippin, and Fearn's Pippin. Mr. W. P. Bound was second with Blenheim Pippin, King of Tompkin's County, Ribston Pippin, and under the name of Jellyflower a pretty apple of excellent flavour, of the style of Worcester Pearmain, but so much later. Mr. Bound was first with four dishes of culinary apples, having in fine character Stone's, Alfriston, Mère de Ménage, and Peasgood's Nonsuch. Mr. G. Langridge was second, with some good fruit also. Mr. Chamberlain had the best four dishes of pears, the varieties Pitmaston Duchess, Beurré Clairgeau, Doyenne du Comice, and Beurré Sterkman's.

There was a division for amateurs in which were classes for groups, specimen plants, dishes of apples, collections of vegetables, all of which were interesting to visitors. Messrs. Sutton and Sons offered prizes for a collection of six varieties of vegetables, and there were prizes for honey in addition. Mr. Bound had a quantity of All-the-year-round Tomato, of which he speaks very highly, both as a cropper and as a market sort. Mr. C. F. Pontin, florist, Wokingham, gaily decorated the front of the orchestra with plants and flowers, and Messrs. Gale and Son, seedsmen, Wokingham, had a collection of potatos and horticultural requisites.

THAME CHRYSANTHEMUM SHOW, November 15.

THE first exhibition of this society was held in the Jubilee Town Hall, and, associated with a musical entertainment, proved a financial success. There were one or two nice groups, but the specimen plants were scarcely equal to exhibition standard, the best plant in the room being a naturally-grown W. H. Lincoln.

Cut blooms were the redeeming feature. In the class for twenty-four incurved the prize went to a very even, fresh lot of flowers staged by Mr. C. Marcham, gardener to G. W. Bennett, Esq., Tiddington House, the varieties being Mrs. R. C. Kingston, C. H. Curtis, Queen of England, Globe d'Or, Empress of India, Miss M. A. Haggas, Bonnie Dundee, Princess of Wales, Baron Hirsch, Brookleigh Gem, Mrs. Heale, Jeanne d'Arc, Harold Wells, Camille Flammarion, Violet Tomlin, Mrs. Coleman, and Golden Empress. Two stands of twenty-four varieties of Japanese were in competition, Mr. Marcham again leading with massive well-finished flowers of Australie, Phœbus, Mutual Friend, Eva Knowles, Mrs. G. W. Palmer, Good Gracious, Duke of York, Australian Gold, Madame C. H. Payne, M. Panckoucke, N.C.S. Jubilee, Graphic, Charles Davis, Van den Heed, Madame Carnot, Robert Powell, Madame Thérèse Rey, Mrs. E. G. Hill, Mrs. Orchard, Oceana, M. Gruyer, Etoile de Lyon, and Rose Wynne; Mr. Tranter, Henley-on-Thames, second, with a lot of big blooms, his best back row comprising Pride of Madford, Madame Carnot, General Roberts, Viviand Morel, Mrs. H. Weeks, Charles Davis, and Australie. For a dozen blooms in two varieties the first prize went to Mr. Marcham for Madame Carnot and Phœbus; Mr. Tranter, second, for Phœbus, and Mrs. J. R. Tranter, a large spreading Japanese with long florets, blush white, with a pink shade caused by the petals occasionally bearing pink stripes.

LOUGHBOROUGH GARDENERS' ASSOCIATION.

AT the meeting of the Loughborough Gardeners' Mutual Improvement Association held on Tuesday, November 15, and presided over by Mr. W. English, of Kingston Gardens, Mr. A. Hamshire, jun., of The Gardens, Beau Manor, read his prize essay upon Cyclamen Cultivation, which was well received by the members present. The essayist referred to the seed-sowing and subsequent potting and manipulation of the plants, arriving at the flowering period in about eighteen months from the time of sowing. The discussion following chiefly dwelt on the temperature, the opinion of members being that the recommendation of the essayist was too high during the growing period.

The Co-operative Room was made gay with exhibits of chrysanthemums by Messrs. Smith and Son, Derby Road Nurseries, whose exhibits of Japanese chrysanthemums have carried all honours at the county shows, viz., Loughborough, Leicester, and Melton Mowbray. Upon this occasion they staged ten dozen Japanese in forty varieties and three dozen incurved in twenty-four varieties, the whole making a fine display. The best eighteen varieties of Japanese were Mrs. J. Lewis, Mutual Friend, Ella Curtis, Australie, Simplicity, Lady E. Clarke, Mrs. Palmer, Viviand Morel, Eva Knowles, Mons. G. Bruant, President Nonin, Lady Ridgeway, Mrs. M. Grant, N.C.S. Jubilee, Lady Hanham, and Elthorne Beauty. The best twelve incurved: Madame L. Faure, Ma Perfection, Topaze Orientale, Dorothy Foster, Violet Foster, C. H. Curtis, Austen Cannell, Ernest Cannell, Lady Isabel, Madame Darrier, Duchess of Fife, and Robert Petfield.

Mr. H. Weeks, of Thrumpton Hall Gardens, who as a raiser of new varieties of Japanese chrysanthemums has achieved so marked a success as the receiver of four F.C. certificates by the N.C.S. for some of his seedlings this year (and probably before this is in print other honours will be added to his list), afforded the members of the association a treat in the way of an exhibit of twelve seedlings not yet in commerce, some yet unnamed, the following varieties being staged: Henry Weeks, Mrs. Coombe, Mrs. Cursham, William Cursham, Mrs. Barkley, Edith Dashwood, Emily Towers, Annie Prevost, and other seedlings not yet named. The flowers in this exhibit were remarkable for the breadth of florets and substance of bloom, being after the type of Mrs. Weeks, which is so well known. Mr. F. Reynolds, gardener to W. B. Paget, Esq., was the only exhibitor in the competitive class, staging four plants of chrysanthemums, Mons. C. de Leche and one of C. H. Curtis.

SHIRLEY GARDENERS' ASSOCIATION.

THE monthly meeting of the above society was held at the Parish Room, Shirley, Southampton, on Monday, the 21st inst., the President, W. F. G. Spranger, Esq., presiding over a good attendance. The lecture was the first of two to be given on "The Soil," under the auspices of the Technical Education Committee of the Hants County Council. Mr. E. T. Mellor, B.Sc. London, Lecturer in Biology at the Hartley College, Southampton, dealt with his subject in a most interesting and at the same time instructive manner, profusely illustrating his remarks by means of lantern slides, chemical experiments, and diagrams. At the close of the lecture a number of interesting questions were put to the lecturer, and replied to in a satisfactory manner. The chief points of the lecture were: (1) The origin and formation of soils; (2) the composition of soils; (3) nutritive and other constituents of soils. The next monthly lecturer will deal with the chemical aspect of the subject. Cordial votes of thanks were accorded to Mr. Mellor, to the President, and the exhibitors at the close of the meeting. There was a very good display of chrysanthemums contributed by the members, to some of whom first-class certificates were awarded.

CHESTER PAXTON SOCIETY.

THE ninth annual exhibition of fruit and chrysanthemums was held by this society in the Town Hall, Chester, and it proved to be the largest ever held under the auspices of this body. Close upon 1,800 dishes of fruit were staged, as against 1,100 last year. The entries for chrysanthemums were also above those of any previous year. Taking the exhibition as a whole, the fruit was much above the average, the colour being especially good for this immediate neighbourhood.

In past years the majority of the prizes have been carried off by North Wales exhibitors, but this year they had to take second place to local growers, the principal prize-winners for fruit being the Rev. L. Garnett, Christleton; H. Lyle Smyth, Esq., Barrowmore Hall, gardener Mr. E. Morris; Mrs. Townsend Ince, Christleton Hall, gardener Mr. Thomas Weaver; Lord Combermere, Combermere Abbey, gardener Mr. E. Severn; and Mrs. Pochin, Bodnant Hall, gardener Mr. J. Saunderson. Mrs. Hudson, Bache Hall, gardener Mr. E. Stubbs, carried off first prize for the group of chrysanthemums, Mr. J. Wynne Ffoulkes, Old Northgate House, who had gained this prize for the two previous years, having to take second place this time. F. A. Potts, Esq., Horsley Hall, gardener Mr. W. H. Shaw, carried off in a strong competition the first prize for twelve cut blooms of distinct Japanese varieties. For the premier Japanese bloom Lord Trevor, gardener Mr. Dawes, was awarded a silver medal, and for the best incurved bloom James Tomkinson, Esq., gardener Mr. O. Roberts, was also awarded a silver medal.

A magnificent exhibit, sent by Mr. N. F. Barnes, gardener to his Grace the Duke of Westminster, Eaton Hall, and comprising apples, pears, melons, grapes, and other fruits, was much admired, and was unanimously awarded a silver medal. Messrs. Dicksons also sent a beautiful selection of choice greenhouse plants and hardy fruits from their nurseries. The committee, of which Mr. N. F. Barnes is chairman, and Mr. G. P. Milne hon. secretary, are to be congratulated upon the success which has attended the exhibition this year.

DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.

THE Floral Committee awarded at a recent meeting first-class certificates to Mr. T. E. Houtvester, of Utrecht, for chrysanthemums President Nonin and Soleil d'Octobre; to Messrs. E. H. Krelage and Son, of Haarlem, for cactus dahlias Hohenzollern, Mary Service, Mrs. Dickson, and True Friend; to Mr. Egbert Kloosterhuis, of Veendam, for Populus trichocarpa, Pyrus erythrocarpa, Stephanandra Tanakae, and Ulmus argentea albo-marginata; and to Mr. C. Meynen, of Groningen, for Vriesea hybr. retroflexa × brachystachys.

Certificates of merit were awarded to Messrs. E. H. Krelage and Son, of Haarlem, for cactus dahlias Aegir, Falka, Island Queen, Maid of Honour, and Mrs. John Goddard; and to Mr. H. D. Willink van Collen, of Breukelen, for Iochroma Warscewiczi.

A silver-gilt medal was awarded to Mr. J. Th. van den Berg, Jr., of Jutfaas, for a collection of cut flowers from Begonia tuberosa erecta gigantiflora duplex.

A silver medal was awarded to Mr. Joh. Wolfswinkel, of Enschede, for a collection of cut flowers from chrysanthemum.

NATIONAL CHRYSANTHEMUM SOCIETY.

COMMITTEE MEETING.

THE Executive Committee of this society held a meeting on Monday evening last at Carr's Restaurant, Strand, the chair being taken by Mr. T. W. Sanders. The meeting was well attended; and, after the usual preliminary business had been disposed of, Mr. Harman Payne read a letter which he had recently received from Mr. Briscoe Ironside, giving some interesting details concerning the progress of chrysanthemum culture in Italy. There was also a communication from the Secretary of the French N.C.S., thanking the committee for the cordial reception accorded to their representative to the recent exhibition, and expressing a hope that a deputation of the English society might visit the conference at Lyons next year.

A report was read from the Sites Sub-committee, setting forth the proposed arrangements with the Aquarium Company for holding next year's series of exhibitions there, and the same was agreed to. Mr. R. Dean announced that the prize money awarded at the November show amounted to £330 19s. 6d., and that one gold, seven silver-gilt, ten silver, and ten bronze medals had been awarded. For miscellaneous groups the Arbitration Committee had awarded the following: Large gold medal to Messrs. Cannell and H. J. Jones; small gold to Messrs. Williams and Son and Cutbush and Son; silver-gilt to Messrs. J. Laing, Godfrey, and Owen; large silver to Messrs. Reid and Russell; small silver to Messrs. T. S. Ware. A rough statement of assets and liabilities was then submitted and considered satisfactory. It was resolved that the Floral Committee should fix the dates of its meetings for 1899, and that that committee be invited to dine together at the conclusion of the meeting, as in former years. Several offers of special prizes were considered, and the meeting closed with the election of sixteen new members.

ANNUAL DINNER.

THE annual dinner of this flourishing society was held this year in the splendidly-appointed Crown Room of the Holborn Restaurant. The chair was taken by Sir Albert K. Rollit, LL.D, D.C.L., M.P., who was supported by Messrs. T. W. Sanders, R. Ballantine, P. Waterer, R. Dean, C. H. Payne, G. Gordon, A. Outram, E. Harland, F. A. Bevan, J. W. Wilkinson, Simpson, &c., &c.; in fact, almost all who are interested specially in this society were present, and many brought their ladies to grace the function, and this new departure was greatly appreciated.

The "Donors of Special Prizes" was the toast ably proposed by Mr. P. Waterer, who suitably referred to the fine competition brought out by the Aquarium Company's prize, also to the satisfaction that all the donors of special prizes must have felt at the competition these created, and the manner in which they helped to enlarge the show. Mr. Waterer also noted Mr. Simpson's prize for the premier bloom of the show in November last, a fine painting of whieh was shown at the dinner. Mr. Waterer advocated the display of big cut blooms in vases, and thought no one would regret offering a silver cup for such a display. The speaker offered five guineas as a first prize—provided the executive accepted it—for the best essay on the Chrysanthemum Rust. Mr. J. W. Wilkinson and Mr. H. J. Jones responded to this toast, the former alluding at length to the progressive condition of the society, and to the vast interest that special prizes create, concluding by suggesting that many others should follow the lead of the many special-prize donors already on the list. Mr. Jones tendered his thanks, and was thoroughly well received; he also offered to give a first prize of £25 in such a class as Mr. Waterer suggested—for twelve sets of five blooms arranged in vases.

The special prizes were then presented by Sir Albert Rollit, Mr. Berry receiving the Challenge Trophy on behalf of the Portsmouth Society, the Chairman congratulating him on the fight this society had shown. Mr. Berry responded, stating that Portsmouth was always in a fighting mood and he hoped to come again to receive the shield a third time. Mr. Higgs and Mr. Lees received the Holmes Memorial Cups, the Chairman remarking that "Fetcham" Park was a likely sort of place for securing prizes. Mr. Lees had won cups in four previous years, and was congratulated by the chairman on his continued success. Unfortunately Mr. N. Davis was not present to receive the Turner Cup, which now becomes his property. Several other winners were not present from various reasons, and the Sydenham Cup had been forwarded to its recipient. Mr. H. J. Jones, Mr. R. Kenyon, B. S. Williams and Sons, W. Aldridge, C. E. Wilkins, Messrs. Peed and Sons, and Mr. Barrass were presented with the medals, or a painting in the latter case, by Sir Albert, who had a congratulatory word for every one, and delighted the audience by his witty remarks.

The toast of the evening, "Continued Success to the National Chrysanthemum Society," was proposed by the Chairman, who made an exceedingly able and humorous speech. His credentials to horticulture were that he had opened the first Hull Chrysanthemum Show in 1884. He felt it a public duty to be present to help forward the interests of horticulture, as he considered the cultivation of flowers and vegetables the best of enjoyments, and he had advised the members of his own constituency to visit the public parks as often as possible. The cultivation of flowers raises character and improves homes. Sir Albert mightily amused the audience when he stated that when in Ireland a short time since he asked an Irishman whether he was a Home Ruler. He replied, "Good heavens! no, sir, I am a gardener." Sir Albert advocated a deeper knowledge among gardeners of the physiology of plants, of the way plants grow, live and feed, referring also to the close affinity there was between many plants and some animals. Combine theory with practice was the advice he gave, and which the audience received with applause. No chrysanthemum, he considered, was fully worthy of all the trouble taken with it. The Chinese did little to improve it, but when it came West it was greatly improved up to its present condition, when it had become one of the most valuable of the whole series generally cultivated. Sir Albert proudly referred to the fact that the Chrysanthemum Society originated in North London. Sir Albert at length referred to the work of the society, its conferences, nomenclature, its exhibition, and its social functions, and its balance at the bank, thus justifying the title of "Golden Flower," which the chrysanthemum possesses. He characterised the society as a truly national society, and trusted it would flourish for ever root and branch. The toast was enthusiastically received and with cheers.

Mr. E. Harland, of Hull, suitably proposed "The President, Vice-Presidents, Officers, Auditors, and Committees of the Society," eulogising their efforts and work, as he knew somewhat of the amount of work such had to get through. He thought the enthusiasm of the chrysanthemum grower was most marvellous, and he advocated the affiliation of societies with the National body, as to the latter all growers looked for the lead in chrysanthemum matters. Mr. Harland also advocated more decorative competitive exhibits, and hoped the National Society would do more to develop the grouping of chrysanthemums. This toast was responded to by Mr. Harman C. Payne and Mr. Stubbs.

The Chairman proposed "The Ladies" in a most charming speech, wherein he said he was glad not to have been present when ladies were absent from the festive board, but he was delighted to have been invited on the first occasion on which they had been invited. His remarks anent variously coloured chrysanthemums for the use of love-sick swains were received with delight. Mr. Leonard Brown suitably responded.

"The Health of the Chairman" was proposed by Mr. T. W. Sanders, and all agreed with him that no better chairman had ever graced their annual gatherings. Sir Albert Rollit briefly responded, and expressed the great pleasure he felt at being present. "The General and Horticultural Press" was put forward by Mr. R. Fife, and responded to by Mr. George Gordon, V.M.H., editor of the GARDENERS' MAGAZINE.

Auld Lang Syne concluded a most successful gathering. The musica arrangements were in the hands of Mr. A. Taylor.

IS THE ONION SURFACE-ROOTING?

"S.P.'s" QUERY, "Is the onion surface rooting?" may lead some to make conclusions from results without weighing the circumstances tending to lead to the same. We can, by placing a layer of rich plant food materials at a certain depth, induce a surface-rooting plant to send down its feeders to a much lower level than it would under ordinary circumstances, and this downward course of the roots will be fostered by a scarcity of food in the surface soil. Again, a deep rooting plant can be converted into a surface rooting one by furnishing the upper layer of soil with manure and keeping the lower stratum poor. For onions I have cultivated the land nearly two feet deep, mixing large quantities of farmyard manure with the soil in the bottom, and to within nine inches of the surface, ridging the latter. This was done in autumn. In February, or as soon as the ground was in working order, the ridges were levelled down, bone meal, ashes from the refuse heap, and sulphate of ammonia were scattered over and forked in to the depth of from four to six inches. A fortnight was allowed to elapse before the seeds were sown. The plants had to depend entirely upon the food constituents contained in the soil during the whole period of their growth, and so well did they generally do that I have been able to secure bulbs sixteen and seventeen inches in circumference on several occasions. By placing such a rich layer of soil and manure from nine to twenty-four inches below the surface the roots of the onions were found in many instances to have penetrated to an even greater depth. They were forced, no doubt, by necessity to go there for food. When I have only enriched the surface soil for onions no deep roots have been found. These facts lead us to believe that the scarcity of food in the surface layer and its abundance in the lower one induced the onion roots to meet the rising plant food supply and extend their extremities in its direction. It is simply a question of necessity finding a means whereby a difficulty may be overcome.

On the other hand, by reversing the conditions mentioned, and introducing carrots and beetroot in place of onions, we can produce bulbs instead of long, tapering roots. If anyone doubts this he has only to make his surface soil rich in plant food and the lower layer poor and grow his beetroots and carrots upon it. He will then have practical proof that with manures the natural habits of a plant's roots can be so changed that they will in no way agree with the generally recognised characters. Take the original plant as a specimen, and learn its habits and the natural conditions under which it grows (not a specimen produced under artificial circumstances) and then its true habits and characters will be known. In my opinion the onion is a surface-rooting plant, but although it be so its roots can be induced to go fairly deep by a rich layer of food placed below nine inches of the surface.

J. RIDDELL.

THE DAFFODIL IN CORNWALL.

ON a March evening, after my journey of over two hundred miles to judge at the first Cornwall spring flower show, I was asked, "Is it too late to go round the garden?" It is never too late to go round a garden. The new beauty of plants by lantern-light may have struck other stalkers of the midnight slug than myself. That first vision of a Cornish spring garden is unforgettable; the fair reaches of Falmouth Harbour and the pale gleam of the lighthouse in the distance, the mild air loaded with the scent of violets—those same wonderful violets which came in first by several lengths, or rather breadths, at the show next day—Marie Louise and Neapolitan the size of half-crowns—and, everywhere luminous in the half light, the daffodils, massive in bloom, tall in stem, and broad in leaf, having the air of opulent contentment peculiar to plants that have found all their heart's desire in both soil and air. Here, then, was the promised land of daffodils; here was the Mecca to reward a nearly twenty years' pilgrimage through long tracts of less perfect flowers. To predict of the treasury of spring blossom unlocked at Truro next day that this must forthwith rank as the premier English spring show was no breach of the sound rule not to prophesy until you know. It is outside the limits of this article to descant upon the glory of the great rhododendron trusses, ruby, pink, and white, or dappled with a score of lovely tints, except to note that they seldom or never reach London shows in perfection, and are literally a revelation to the March visitor from the bleaker shires, and a sight well worth a journey across the breadth of England, whether massed on the show tables, or, still better, shining against their superb foliage in the Cornish valleys. Nor must I dwell upon the Anemone fulgens, larger and of more dazzling scarlet than any before seen by me, except to here tender my regrets, *apropos* of this flower, for a misconception of the Cornish character. When the competitors for the anemone prize, and, indeed, in other departments of that first show, insisted on putting into their bunches more than the twelve blooms prescribed by the schedule, it is recorded in the book of the hon. secretaries that the judge betrayed impatience. From his after experience of invariably receiving thirteen to the dozen in all Cornish courtesies and hospitalities he is now well aware that the occurrence was owing, not to perversity or arithmetical incompetence, but purely to the fine lavishness of the Western temperament.

But to return to the daffodils. The Truro shows of 1897 and 1898 have convinced me that the daffodils of Cornwall are, or certainly ought to be, unsurpassed. The qualification of the "ought" will be explained presently. This judgment may be arrived at by the several criteria of excellence. Earliness is a point of great value, to the market-grower especially, and it is needless to demonstrate this quality of Cornish spring produce. Size is usually ranked next, and being fully familiar with the growth of all parts of England, of Ireland, the Channel Islands, and Holland, I can confidently give the palm for size, compatible with quality, to the flowers of Cornwall. The wonderful trumpet maximus of Captain Pinwell, Mr. Charles Dawson's giant Sir Watkin, and Mr. Andrew Lawry's Grand Monarque may serve as examples. In actual measurement of flower some Dutch blooms may possibly exceed these, but the latter are coarse in texture and literally dropsical, being grown in land half sand and half manure, their roots almost in the water. Colour counts next, though in my judgment it should reckon before mere size, and here the Cornish flowers hold the field. Mr. T. A. Dorrien-Smith has written of the Scilly narcissi, "I have never seen such colour as we get in C. J. Backhouse, Barri conspicuus, and other of the crimson-rimmed varieties. . . . The great feature in all the flowers is the purity and intensity of colour; whether this is caused by the salt in the air or by a porous soil . . . I cannot say." This holds good also of the mainland of Cornwall. I cannot answer the question whether this enhancement of the colouring is due to the air or the soil, but it is certain that some kinds put on a vividness which makes them almost unrecognisable by, say, the London grower. An instance is Cynosure, a tall-growing incomparabilis, with flowers of flimsy substance, worthless in my Hampshire garden, but having the characters of earliness and freedom of bloom, and in Cornwall developing so bright an orange in the rim of its cup as to be a very valuable market sort. The magnificent collection of cut narcissi from Scilly, contributed to the Truro Show this year by Mr. Dorrien-Smith, included specimens of the shapely Princess Mary, with a depth quite unknown to me of orange red in their broad saucer eyes. The red and yellow of the bunch-flowered Soleil d'Or from Scilly and the mainland are extremely pure and rich.

Of the first impression made by the Cornish daffodils as seen growing a word has already been written, but for magnificence of these plants grown to perfection on a large scale I have seen nothing to equal Mr. Andrew Lawry's flower farm in Mount's Bay. The view of acre upon acre of the silver Poeticus ornatus and the great waxen clusters of Grand Monarque stretching, under the brilliant spring sky of Cornwall, far away towards the blue bay and the ancient mount of St. Michael upstanding in the sunlight, would need the idyllic gift of a Theocritus to describe worthily. There can be no finer narcissi in flower, leaf, or bulb than those grown in this warm, alluvial soil. On the higher grounds, too, of the county, especially on the slopes of the southern valleys, and where there is much detritus of moist sandstone and granitic rock in the staple, they flourish exceedingly; indeed, no spot has come under my notice where they do not appear at home and happy. One garden has proved a perfect sanatorium for consumptive bulbs of certain beautiful but, in my less kindly soil and harsher climate, delicate varieties. The daffodil, to use the name in its modern application to all plants of the genus Narcissus, can but do well in a land to which it is in a manner indigenous. The cream white Tazzetta, nearly, if not absolutely, identical with the Scilly White of the winter market, is an immemorial dweller on the rocky slopes of St. Michael's Mount. Not to assign it to the inevitable Phœnician, that *deus ex machinâ* to cut all Cornish antiquarian knots, who is unlikely to have traded in "Dutch bulbs," its age is respectable enough if we suppose it to have been introduced by the monks half a dozen or more centuries ago. They probably had not our æsthetic enjoyment of its great tufts of pale bloom against the lichened stone, but employed it for medicinal or "still-room" concoctions. One ingredient of the celebrated liqueur of the Grande Chartreuse is said to be the expressed juice of a yellow daffodil. But possibly it is a true native, a western outlier of the widely distributed race of Narcissus polyanthus, which extends from Portugal to China, and from Switzerland to North Africa. The point, however, is that the "Mount lilies" are glad in their Cornish environment, untended, except by Lord St. Levan's anxiety, which it is hoped all will respect, that they shall be held sacred and inviolable by the tourist.

By the side of the long approach to one of the most beautiful homes in South Cornwall, in the clear spaces between rhododendrons, hydrangeas, and what not of choicest flowering shrubs, may be seen in February great colonies of the prettiest and best, to my mind, of all quite early-flowering trumpet daffodils, broad petalled, and of the softest pale yellow. This is a local kind, collected from meadows of the same estate, where it has been "always." (No; neither the writer nor the editor will give the address or forward begging letters for a bulb or two.) It was the existence in the isles of similarly wild or long-established sorts which suggested to Mr. Augustus Smith the enterprise, since so splendidly successful, of the Scilly narcissus industry. It is owing to no lack of appreciation of this work that it is scarcely mentioned here, but only because it has been written of again and again, from both the picturesque and the statistical points of view, and my subject is rather its extension to the mainland, which, it must be confessed, has but taken a leaf out of Scilly's book—

"Most can raise the flower now,
For all have got the seed,"

from the foresight and the labours of the Scilly dynasty, to whom all gratitude is due from the Cornish flower farmers.

There is little doubt that the surface soil of Cornwall must, in the long run, yield vastly greater wealth than its mines, for the former, if treated with fair consideration and elementary knowledge of scientific farming, is inexhaustible. The increase in population of our great towns is expressed in bewildering figures; and, though these millions may still be mostly fools, yet they buy flowers and have an insatiable appetite for the first flowers of spring. Climate is not to be made artificially, nor can flowers, like fruit, be brought thousands of miles over sea to undersell home produce. Moreover, the growing demand is not for cut flowers only, but also for plants, or, in the case of daffodils, for bulbs. This is an age of gardening; dwellers in the country make more of their gardens than in any past time, and never before was his daily or week end escape to this garden so prized by the man whose business or profession holds him in town. Put briefly, all respectable people nowadays have gardens, and all respectable gardens must have their complement of daffodils. The competition for new and fine varieties is sharp, and long prices are cheerfully paid. However lugubrious the talk of badness of times and reduction of establishments, rarities do not remain unsold. "Give us the luxuries of life, and we will dispense with the necessaries." Ten or twelve years ago half a guinea each was about the top value, until, with the advent of the white trumpet, Madame de Graaff, it rose to £5 5s. Messrs. Barr's large yellow trumpet, Monarch, now fetches £15 15s., and it is known that desirable seedlings, not yet in the general market, have sold at something like £35 per bulb. The shapely, clear-skinned bulb, weighty for size, small at base, can be harvested nowhere more surely than in Cornwall, and nowhere can valuable stocks be increased to better advantage. The excellence of the flowers shown at Truro has already induced at least one London firm to make overtures for a Cornish nursery. The bulk of the more ordinary commercial sorts has hitherto been supplied by Holland, but it is yearly more evident that the Dutch soil, a sand loaded for many generations past with cow manure, is not permanently suited to the cultivation of the daffodil. The Dutch bulbs are large, but rough, and, unless difficult precautions are observed of fallowing and alternate cropping, unwholesome of complexion and beset with the deadly "basal rot."

Great and increasing multitudes of bulbs are now grown on the alluvium round the Wash, mostly in the neighbourhood of Spalding and Wisbech—good bulbs, but in my judgment inferior to the best Cornish samples. The Cornish soils will probably prove more enduring, *i.e.*, possessed of a larger reserve of daffodil-food in their phosphatic and potassic constituents, and climate is all in favour of the western county. The daffodil is rightly called a hardy plant; few of its varieties are killed by cold, but it is a mistake to credit it with enjoyment of frost and cutting winds. The winter temperature of the high mountain pastures, whence the ancestors of most of our garden daffodils came, is very low, but it must be remembered that they are protected throughout the inclement months by a thick coverlet of snow. The habitat of those found on lower ground, as N. maximus from near Biarritz, is outside the zone of severe frost. A mild moist winter, with a sunny March and April, are the most favourable English conditions, and the earlier the plant matures the earlier the bulb can be lifted and placed on the market, a very important consideration. It has suited the convenience of the retail dealers to catalogue and distribute daffodil bulbs in autumn, together with their hyacinths and tulips, and unknowing customers still plant largely in October and November. But the daffodil by nature starts quickly into growth, and much of the preparation for its spring effort is made before winter. In proof let any reader lift a few bulbs at the end of July and note the length of fresh white roots. For the finest bloom and fullest increase planting should be completed by the end of August; my own more valuable seedlings are planted, when possible, in July. The time is not distant when this will be generally understood, and the district which can lift early in June and sell in July will forestall the market. The quite brief period of quiescence is indicated by the partial withering of the leaf, not by its total disappearance, and this may happen in Cornwall as early as the end of May. For the first bloom under glass bulbs should be potted or boxed proportionately early, and for the earliest supply of good bulbs there is and will be an unlimited demand. Mr. Dorrien-Smith alone forces a million Poeticus ornatus annually! In short, then, looking to the opportunities of the daffodil trade alone, every foot of suitable soil in Cornwall must steadily rise in value.

(To be continued.)

Tomatos against Walls.—The past exceptionally dry, hot summer has been specially favourable to the development of tomatos against walls out of doors. We sow tomato seed about the middle of February, grow on the young plants in good heat, and harden off in greenhouse temperature in May, planting them out the first week in June, sometimes before, weather permitting. Some of the fruit are set at this time, and if fine weather prevails these early set fruit will ripen by the end of July or early August. But this last season we had it exceptionally cold early in June, and the plants were much injured, some of them nearly destroyed, and this caused them to be exceptionally late. The new growths set fruit by the end of July and through August, and we have had the largest sample of fine formed fruit this autumn we have ever had, but late in maturing, because of the check the plants received early. The heaviest fruit was twenty-one ounces, but there were bushels from nine to twelve ounces each; most of these have been ripened under glass, and in October they were splendid. Many people who saw them were surprised to see such fine samples from out of doors. On November 21 we sent in several stone weight of the latest fruit for preserving. We have had the best main crop varieties, such as are usually grown under glass, outside, and all of them have done well; they were grown from four to five feet high, all side shoots removed, and carried four to six bunches of fruit.—GEORGE HARRIS, *Alnwick Castle Gardens.*

THE STRAIGHT TIP FOR THE WINNER is anxiously sought for prior to any of our great races, and the joy or sorrow of the recipients is largely measured by the [illegible] as they afterwards win or lose. There is no uncertainty, however, or anguished [illegible] The result of using Holloway's Pills and Ointment. After a fair trial the gain is sure and [illegible]. The Pills, taken occasionally in prescribed doses, keep the digestion in order, excite a free flow of healthy bile, and regenerate the impoverished blood with richer materials. The Ointment is a grand remedy for the removal of rheumatic pains, wounds, sores, ulcers, cuts, or bruises.—[ADVT.]

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

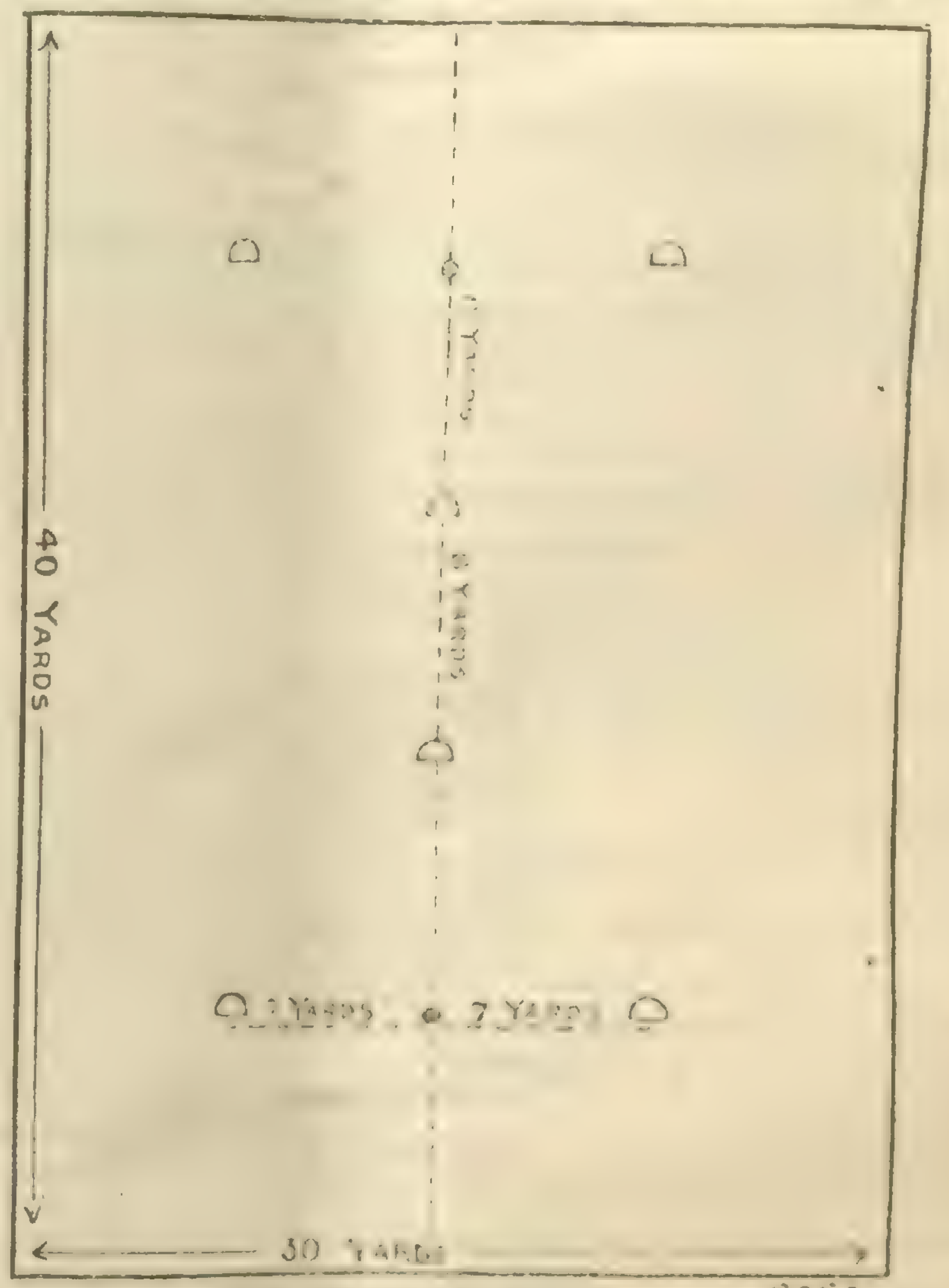
Good Dark and Yellow Roses.—A. C., Hackney: Six good dark roses are A. K. Williams, Xavier Olibo, Horace Vernet, Duke of Edinburgh, Louis Van Houtte, and Capt. Hayward. Six good yellows are Mdme. Hoste, Francisca Kruger, Caroline Kuster, Mdme. Lambard, Marie Van Houtte, and Jean Ducher.

Eligibility of Exhibitors.—A. J., Reading: The lady is quite at liberty to exhibit in other classes than those "for ladies only," provided of course there are none "for gentlemen only," as from such she would be excluded by the schedule regulations; we presume, however, she would be debarred from competing in certain classes—provided there are sections in the schedule—as she would not be eligible to exhibit both as gardener, single-handed gardener, nurseryman, and amateur, any more than a mere man would. With regard to the eligibility of a gardener who serves on a committee, such a one has every right to compete, so long as he conforms to the society's rules and regulations.

Tomatos and Cucumbers for Profit.—R. S., Nottingham: Our advice may not, perhaps, be the kind you desire or expect, but certainly we cannot advise you to start a business for yourself in the cultivation of tomatos and cucumbers for market when you have had no experience with either of these crops. You should have at least a year's experience in cultivating them ere you give up a permanent position. It would require more glass than you mention to ensure the income you wish, even provided good crops and good prices were obtained. The income could be supplemented by small cultures of various kinds that would not interfere with either tomatos or cucumbers. Obtain knowledge by experience and observation, then commence in a quiet way and build up a business according as your success, capital, and the demand shall dictate. We shall be pleased to answer any further questions.

Various Coloured Chrysanthemums.—In reply to the query from "B. W.," London, as to the cause of his flowers being deficient in colour, Mr. W. H. Lees writes:—One can only surmise that the treatment which the plants have been subjected to has in one or more details been unsatisfactory. The only cause (to which want of colour can be attributable) over which we have no control would be the impure atmosphere of large towns, as plants grown under this influence seldom develop good colours in their flowers, at least not in November. This want of colour, however, is a failure which many growers experience in good districts, and from observations I have made in several cases the weakness has been traced to one of three causes, and probably "B." will find one of these applies to his own plants. In the first place, the soil used has been of too close and adhesive a character, and by the end of the season, after the constant waterings of summer, it has become almost impervious to air, and as a consequence the roots are unable to obtain the supplies they need. It is very important to the proper development of all good qualities that the plant should be full of energy to the end, but frequently it happens, as in the case described, that the roots are unable to carry out their proper functions or are prevented extending their feeders when the final demand is made on them. A free use of old lime rubble, coarse sand, and wood ashes is the obvious remedy when the soil is mixed for potting. In the second place, a close confinement when first housed, or even later on, contributes to weak colour. The cooler the plants can reasonably be kept the better will be their colours. Any unnatural forcing by fire heat and want of ventilation cramps the energies of the plant, and as a consequence the flowers suffer in proportion. Avoid crowding the plants as much as possible, and give as much ventilation as the weather will permit. The other cause of mischief is a very common one, and is over-manuring the plants. Very frequently growers, in their anxiety to improve on previous efforts as much as possible, give extra quantities and more frequent doses of concentrated manures. Nothing so quickly defeats the object in view. An overdose of sulphate of ammonia destroys perhaps half the delicate root hairs which are busy preparing for the final effort of the plant, or a too liberal sprinkling of some compound manure on the soil kills all the roots near the surface, and so the mischief is done in mistaken kindness, and results in a proportionate failure in colour, in size, or in substance of the blooms. It is like trying to cram chickens after having half killed them and then wondering why they do not fatten. One can never overdo the caution against over-manuring, it is the stumbling-block which almost everyone falls over at some time or other, and if I were to advise that no more manures are given after the buds are taken, other than weak liquid cow manure, results in many cases would, perhaps, be much more satisfactory. At any rate, I may say do not experiment on more plants than you can afford to lose, and never employ quickly soluble manures except in the smallest quantities and in solution. One or two points in the treatment of your plants which we do not approve of are—(1) Their being left outside until the end of October; they should have been housed a month earlier, the long, damp nights which we usually experience through October are not favourable to the advancing flowers of disbudded plants at least, and those which are grown as bushes, not disbudded, are safer under cover. (2) The feeding with superphosphate, sulphate of potash, and sulphate of ammonia. If you used these in very weak solution, so that no harm to the roots took place, they could not cause failure in colour, but both the superphosphate and potash were of questionable advantage. If your soil contained a fair proportion of lime it is possible that the repeated weekly applications of these manures were too much. Taken separately, one ounce of ammonia sulphate is enough for three gallons of water, and if a variety of animal manures are used alternately, as has been advised in the GARDENERS' MAGAZINE at various times, the sulphate of ammonia need not be given more than two or three times, and this between September 25 and the end of October. (3) The blooms should be shaded from bright sun soon after they commence to expand, for, though heavy shading is not good for colour development, strong sunshine, on the other hand, is equally injurious to the flowers. Another well-known cause of deficiency of colour is too early bud selection, and though you say the want of colour was noticeable in the bush-grown plants where the buds would be late terminals it is possible your Viviand Morel and Chas. Davis were on buds taken too early, as you say these were crown buds. The best time to secure buds of the two varieties named is from August 25 to 30. Considerable care in watering after the plants are housed is very essential to the full development of colour; too much moisture is easily given. The soil should, of course, not be allowed to become dry, but must approach this condition before water is given, and each plant must have its requirements duly attended to.

Croquet Ground.—W. A., Bexhill: According to the laws of the All England Croquet Club a full-sized croquet ground should measure forty yards by thirty yards. In a line through the centre of the length of the ground two hoops and two pegs are placed; each peg is put eight yards from the end boundary of a thirty by forty ground, with the central hoops eight yards apart and eight yards from the nearest peg. The corner hoops should be in line with the pegs and seven yards from them. The accompanying diagram will assist you, but we may remark that croquet is often played on smaller grounds, and it is not necessary, except for matches played according to the A.E.C.C. rules, to allow so much space around the actual lines of play. No marking is needed, as in lawn tennis, so that once the measurements are made and the points indicated by a sunk peg it is easy to set up the six hoops and two croquet pegs.



Should Exhibitors have Extra Assistance? A correspondent writes as follows: "At our recent chrysanthemum show prizes were offered for a group of chrysanthemums arranged for effect, and the class was open only to single-handed gardeners and amateurs. There were three exhibitors, myself among them, and we all had a little assistance to bring our plants to the exhibition hall the evening before the show, such assistance being, I believe, quite allowable by all societies. The point about which I desire an opinion is whether either of the exhibitors should have been allowed to use outside aid in arranging the group, and such as would severely handicap the less fortunate ones. On entering the place of exhibition on the morning of the show I found a professional gardener and member of the society, but not an exhibitor, altering one of the groups to make it more symmetrical. I objected to his interference, on the ground that it was as much the duty of the exhibitor to arrange his plants as to have grown them; the excuse was that the real exhibitor had not the time to be present. My objection was laid before a meeting of the committee after the show, but it was decided that an exhibitor might obtain what assistance he required. The altered group was awarded first prize, and would, I think, have won in any case. I was placed second and the other competitor third, but had the latter evinced a little more taste in arrangement (or obtained outside assistance) he might have beaten me. This does not alter my contention, however, that where so much depends on tasteful arrangement it is unfair to have to compete against the combined efforts and tastes of the exhibitor and anyone he may secure to assist him."

We entirely agree with the contention of our correspondent, for if the society arranges a class in which only a single-handed gardener or an amateur may compete we hold that it is the duty of the society to make such regulations as shall ensure a fair field and no favour for the competitors. If such regulations do not exist, then the Schedule Committee is greatly to blame. It is useless to confine a class to single-handed gardeners and then allow a competitor to have the advantage of extra and professional assistance; the thing is contradictory, and such a class is a farce. In single-handed classes each exhibitor should fight for "his ain hand"; he should scorn to take advantage of an antagonist, and the committee of the society should also see that he has no opportunity of doing anything but the right.

Peas and Potatos in Pots.—O. S., Northants: It will be difficult to make a better selection of peas for pots than May Queen, Springtide, and Daisy; while for potatos a good form of Ashleaf and Snowdrop should provide all you need. As you only have a cold house at your disposal, and cannot afford any heat, it will be useless to start early, for a period of mild weather would encourage growth that a succeeding spell of cold weather would either kill or severely check. If you had an abundance of leaves so as to form a slight hotbed in the house, an early start could be made, and there would be a good chance of success in producing small early crops. As it is, we do not think anything will be gained by planting either peas or potatos before the middle of February, as then growth would not be advanced enough to suffer during the cold weather of March. One or two successional batches should be provided, if you have room, as some of the peas could be placed out of doors late in April, in a sheltered place, to finish, while the latest pot potatos could be relegated to cold frames, and covered at night if need be.

Names of Plants.—P., Warwick: Eleagnus pungens.

N. R., Halifax: 1, Cedrus atlantica; 2, Cedrus Deodara.

C. O. F., Eastbourne: 1, Libonia Penhrosiana; 2, Justicia carnea; 3, Lomaria gibba; 4, Ficus repens.

Names of Fruits.—J. F. B., Worcester: 1, Egremont Russet; 2, Beauty of Kent; 3, Baumann's Red Winter Reinette.

B. A., Bishop's Stortford: 1, Marie Louise d'Uccle; 2, Easter Beurre; 3, Doyenne du Comice; 4, Alfriston; 5, Lord Derby.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, DECEMBER 6.—National Chrysanthemum Society; three days' show. Scottish Horticultural Association.

THURSDAY, DECEMBER 8.—National Rose Society's annual meeting, Hotel Windsor, at 3.30; annual dinner at 5.30, R. B. Cater, Esq., presiding.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, DECEMBER 5, 6, 7, 8, AND 9—Hyacinths, Tulips, Crocus, Narcissus, Dutch Bulbs, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, THURSDAY, AND FRIDAY, DECEMBER 7, 8, AND 9.—Fruit Trees, Standard and Dwarf Roses, &c., Messrs. Protheroe and Morris, at the Wellington Road Nursery, Hounslow.

FRIDAY, DECEMBER 9.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY AND FRIDAY, DECEMBER 7 AND 9—Dutch Bulbs, Lily of the Valley, &c., the British Horticultural Association (Limited), at the City of London Auction Rooms, 33A, Ludgate Hill.

WEDNESDAY AND THURSDAY, DECEMBER 7 AND 8.—Plants and Bulbs, Mr. J. C. Stevens, King Street, Covent Garden.

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MARKETS.

Covent Garden.

FRUITS and vegetables are supplied in fairly large quantities, and the quality is good all round. There is a brisk demand, and a clearance is readily effected at present prices. The cut flower trade is improving, and the demand for oranges, apples, and potatos increases.

FRUIT.—English apples, 2s. 6d. to 10s. per bushel; Nova Scotian and Canadian, 10s. to 25s. per barrel; French pears, 10s. to 12s. 6d. per crate; Californian, 4s. 6d. to 7s. 6d. per case; bananas, 4s. to 8s. per bunch; pineapples, 1s. 6d. to 4s. each; Jaffa oranges, 8s. to 10s. 6d. per box; Murcia, 6s. to 7s. 6d. per case; pomegranates, 4s. 6d. to 6s. 6d. per case; English tomatos, 4s. 6d. to 6s. 6d. per 12 lb.; Bordeaux, 1s. 3d. to 2s. per box; medlars, 4s. to 5s. per box; English grapes, 9d. to 2s.; Channel Islands, 5d. to 1s. per lb.; Almeria, 10s. to 20s. per barrel.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; and pelargoniums, 4d. to 6d. per dozen sprays.

VEGETABLES.—Celery, 6s. to 12s. per dozen rolls; cabbages, 4s. to 6s.; collards, 2s. to 3s.; parsnips, 2s. to 2s. 6d. per tally; endive, 1s. to 1s. 6d.; lettuce, 9d. to 1s. 3d.; cos ditto, 2s. to 2s. 6d.; cucumbers, 2s. to 4s. per dozen; eschallots, 8s. to 10s. per cwt.; English onions, 5s. to 6s. per cwt.; Albanian, 4s. to 5s.; Dutch, 3s. 6d. to 4s. per bag; Valencia, 6s. to 7s. per cwt.; turnips, 2s. to 2s. 6d.; carrots, 2s. to 2s. 6d.; parsley, 1s. 6d. to 2s.; leeks, 1s. 3d. to 2s. 6d. per dozen bunches; potatos, 60s. to 90s. per ton.

Borough Potato Market.

A steady trade exists at recent rates; supplies are fairly large and good. A spell of cold weather is needed to make prices firm. Beauty of Hebron, Snowdrop, and Up to Date, 75s. to 80s.; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giants, and Imperators, 70s.; Scottish Abundance, Bruce, and Main Crop, 70s. to 75s.; Blacklands, 60s. to 65s. per ton; Germans, 2s. 10½d. to 3s. per cwt.

THE WEATHER DURING THE WEEK ENDING NOVEMBER 26, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	51·0	29·0	41·7	·39	1·0	4·78
Croydon	49·6	25·0	40·8	4·89	2·32	5·89
Brighton	53·0	30·6	45·5	7·50	2·05	5·21
Bristol	50·3	27·0	41·1	5·06	2·37	6·02
Wolverhampton	47·4	23·8	38·0	3·33	0·95	2·41
Norwich	51·0	29·2	41·6	5·33	0·79	2·01
Nottingham	48·5	25·4	40·1	4·50	1·06	2·69
Liverpool	48·3	28·0	38·8	3·78	0·74	1·88
Huddersfield	46·2	26·2	38·1	3·39	1·60	4·06
Bradford	48·0	29·0	40·0	4·44	0·96	2·44
Hull	50·0	26·0	39·6	4·22	1·43	3·63

The mean reading of the Barometer during the week at Greenwich was 29·30 inches, and that of the Thermometer 41°·7, the latter being 0°·4 below the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 15 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 7·0 hours. The measured rainfall amounted to 1·86 of an inch.

MR. S. GIBSON, formerly of Slingsby Hall Gardens, Malton, has been appointed head gardener to L. Jacques, Esq., Easby Hall, Richmond, Yorks.

MR. THOMAS WARD, late gardener to Captain O'Dell, Kilscleagh Park, Meath, co. West Meath, has been appointed gardener to Edmund Smithwick, Esq., Kilcrean Lodge, Kilkenny.

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Photograph from Customer, of Trees planted the previous Autumn.

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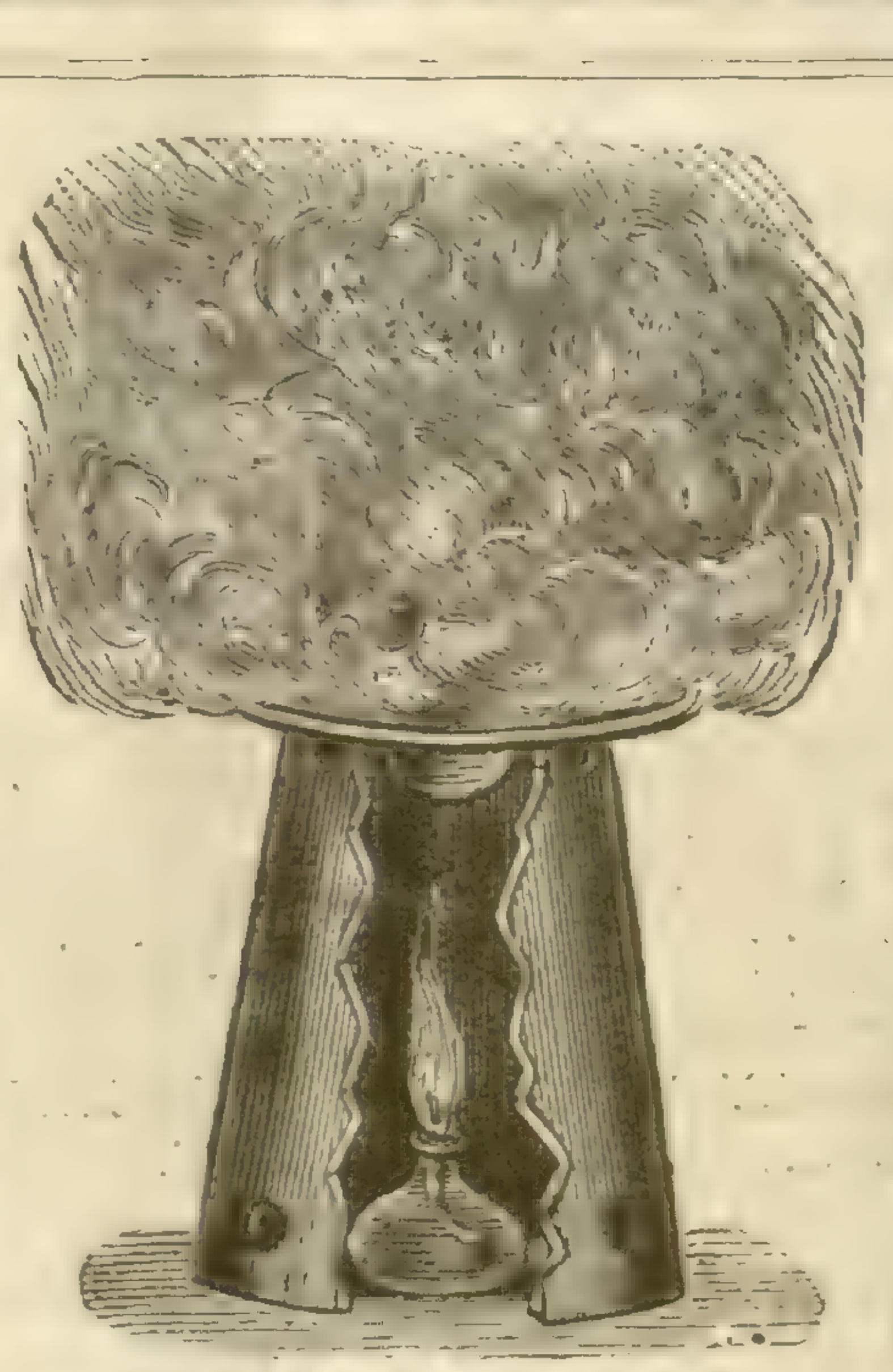

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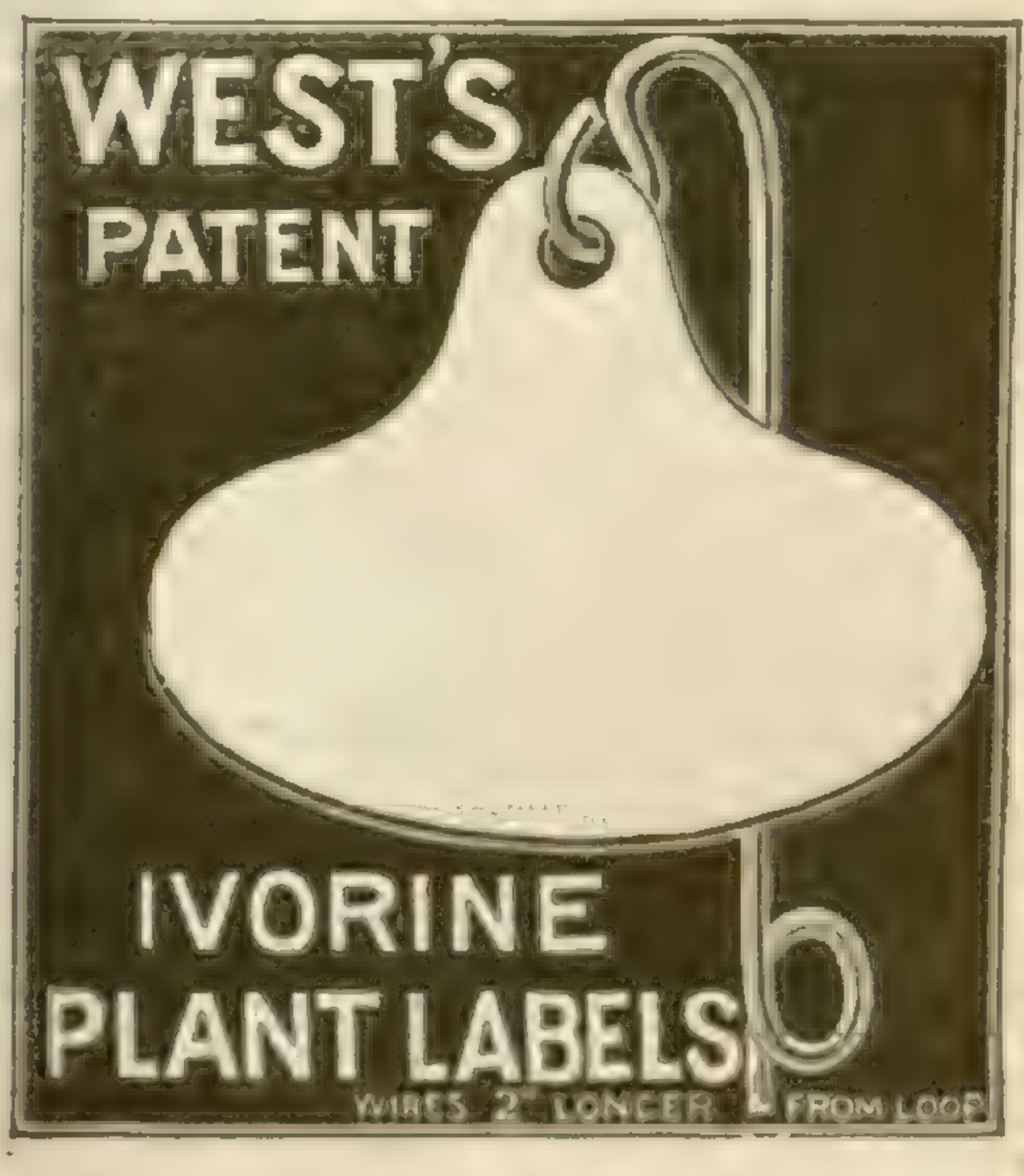

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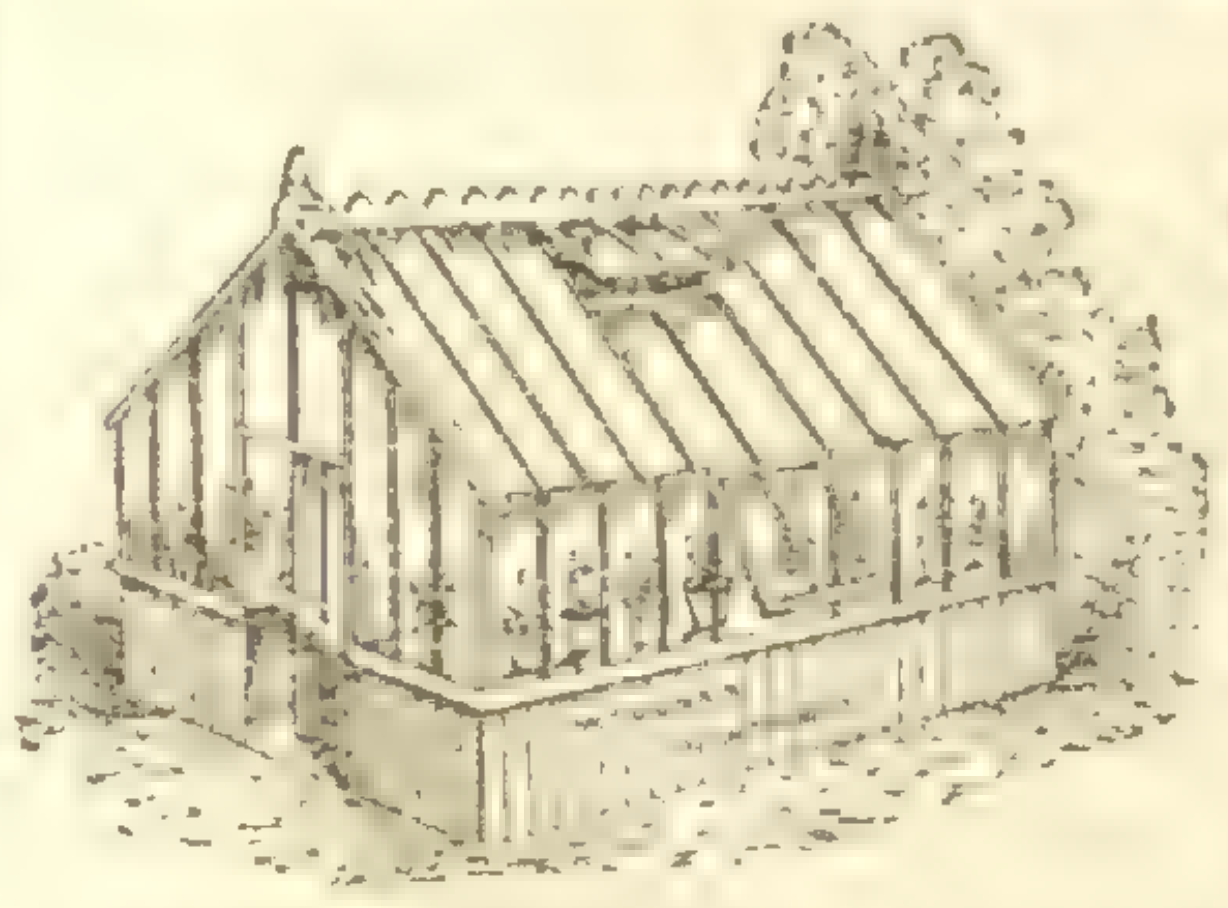

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15	10	8 6	5 0	8 10 0	12 0 0
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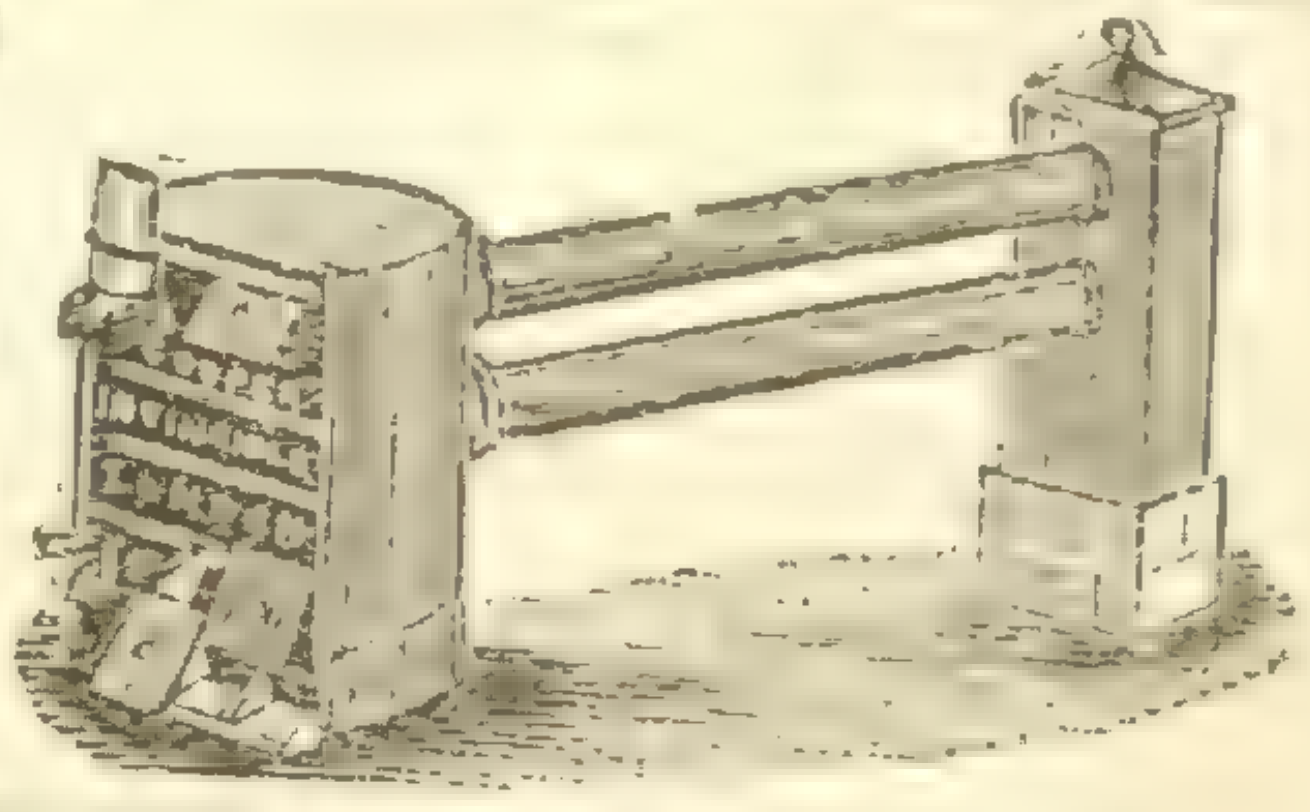

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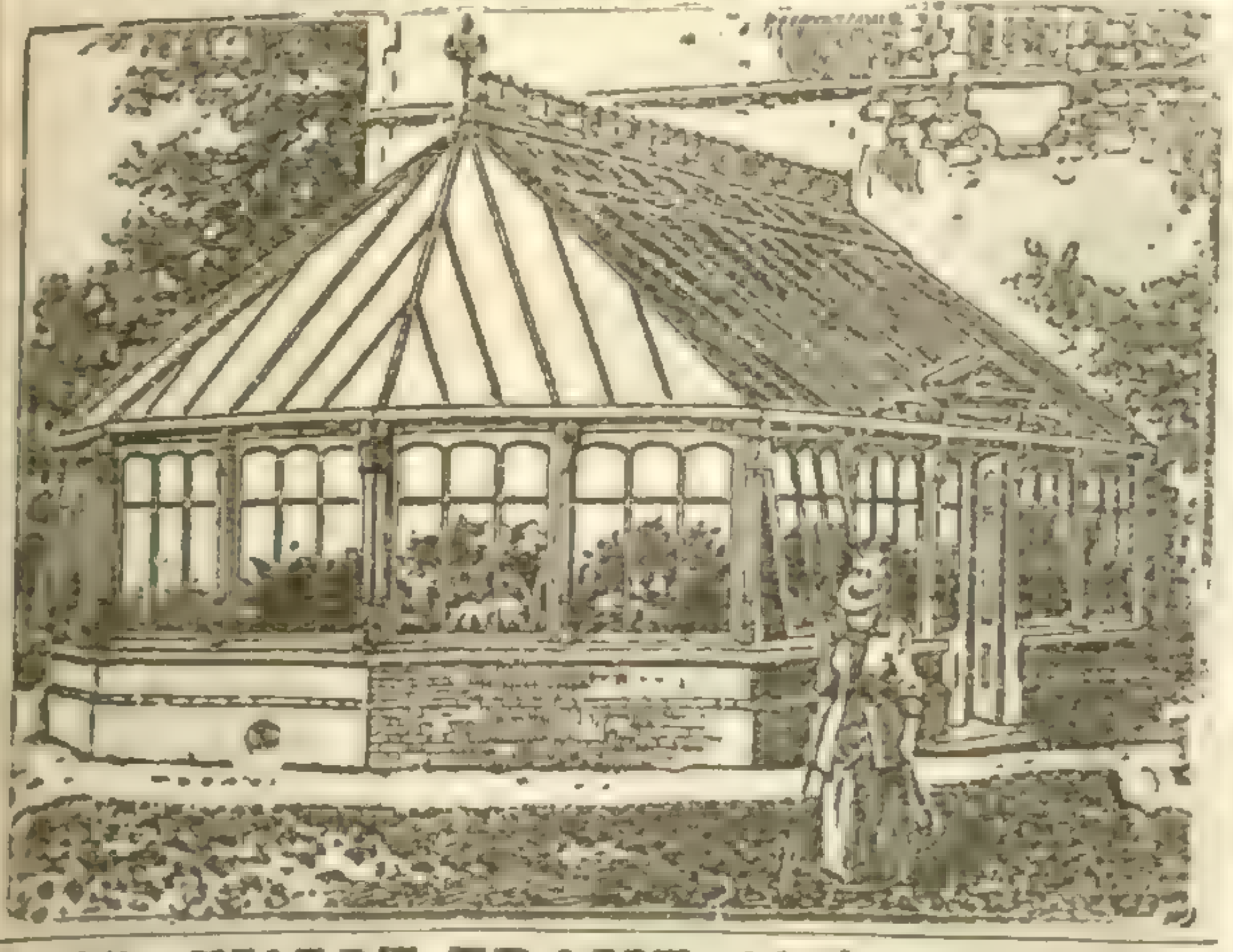

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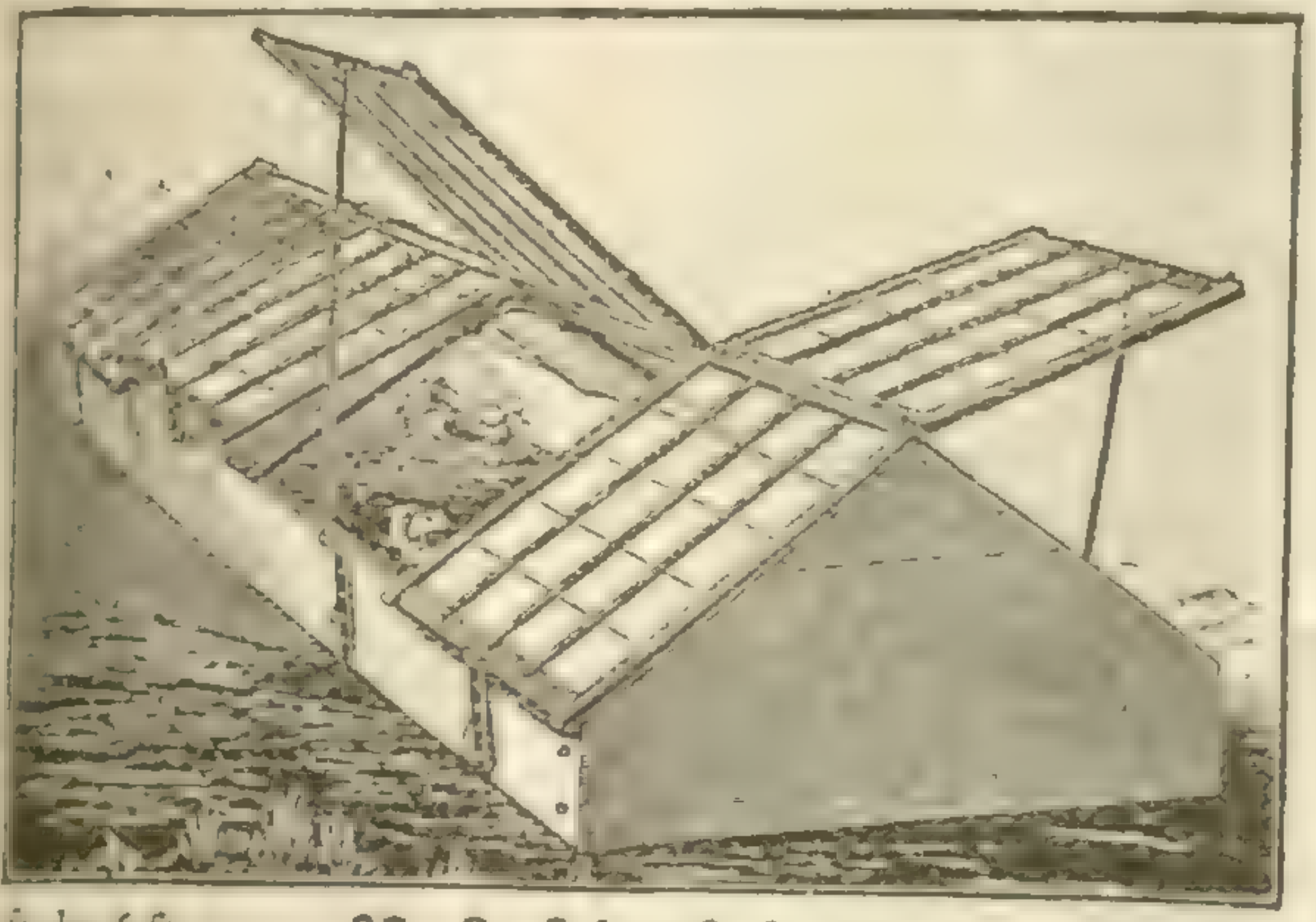

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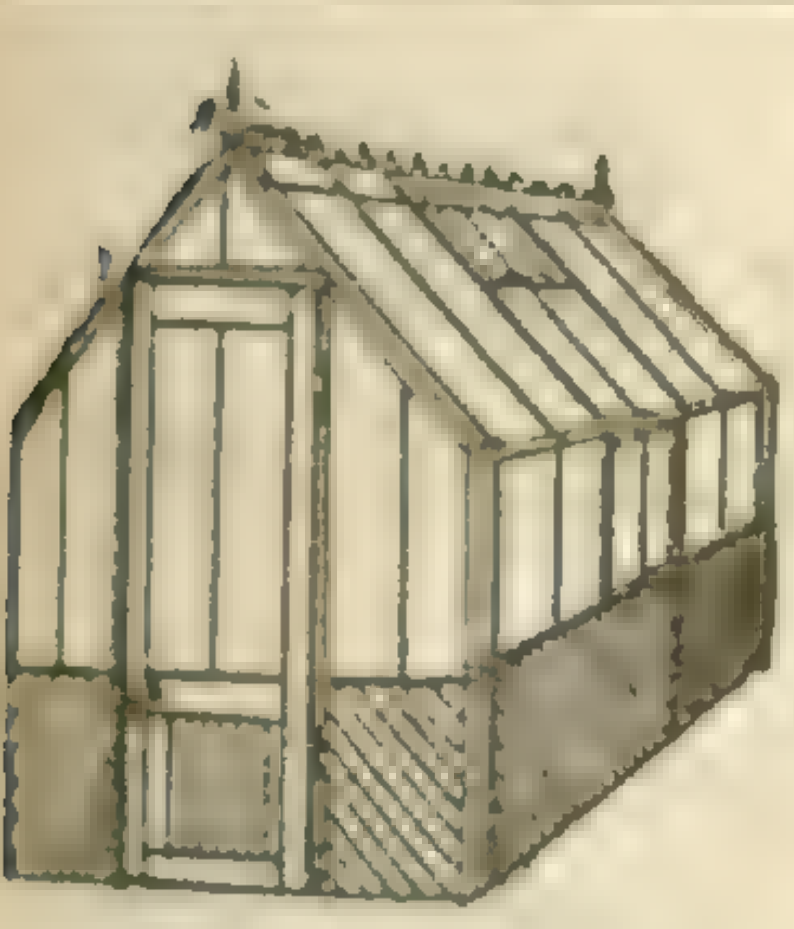

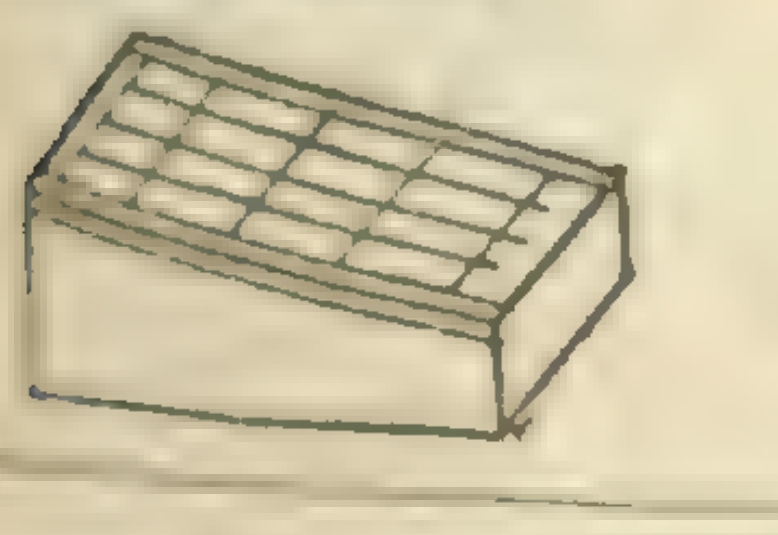

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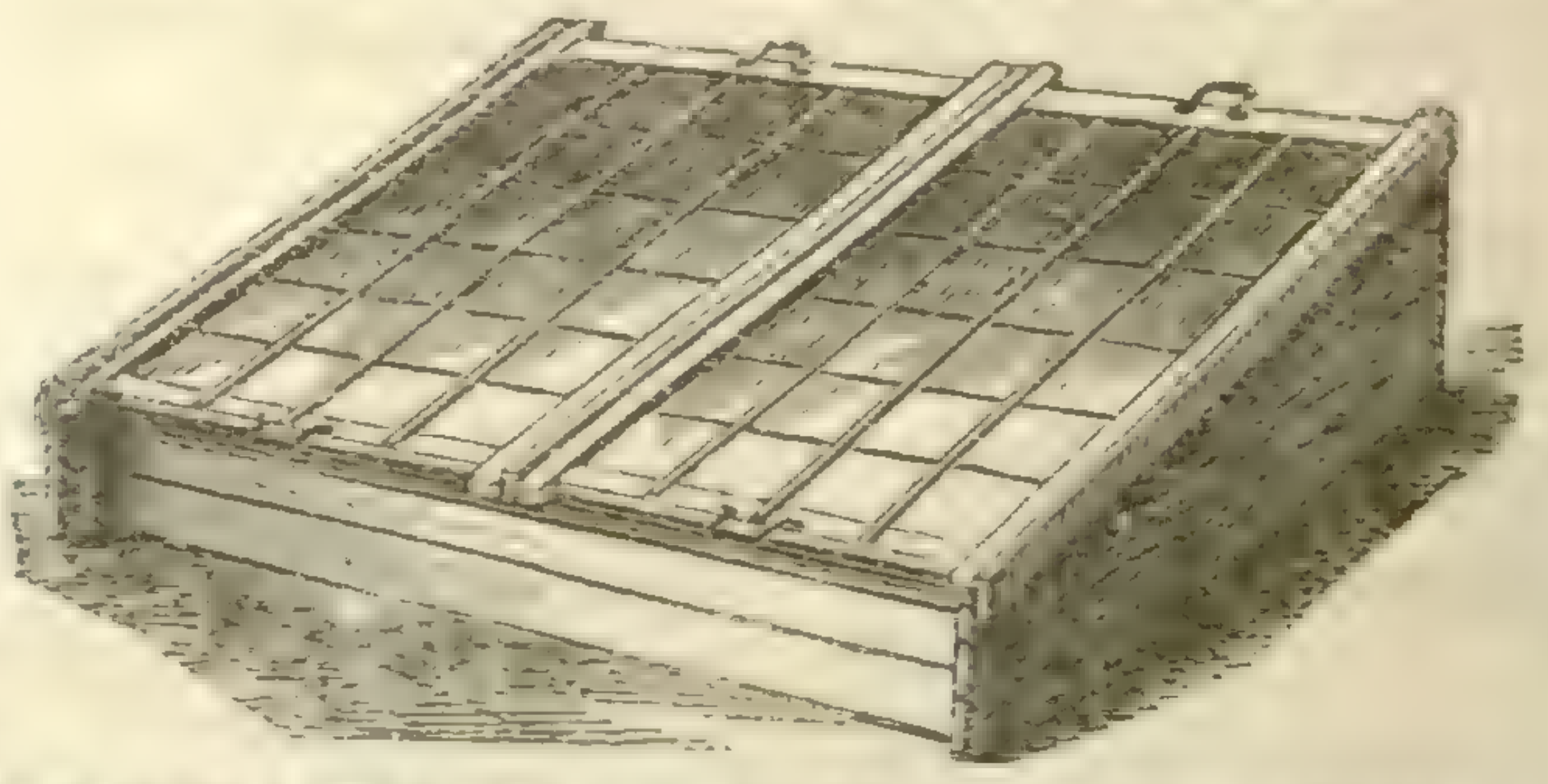

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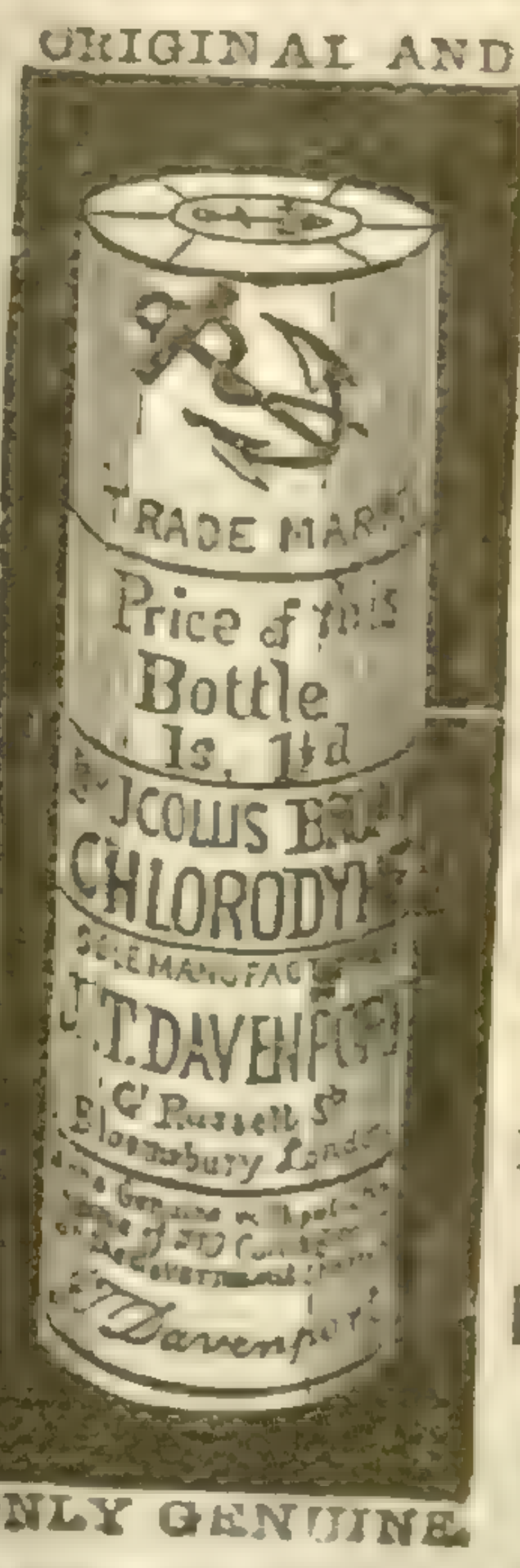

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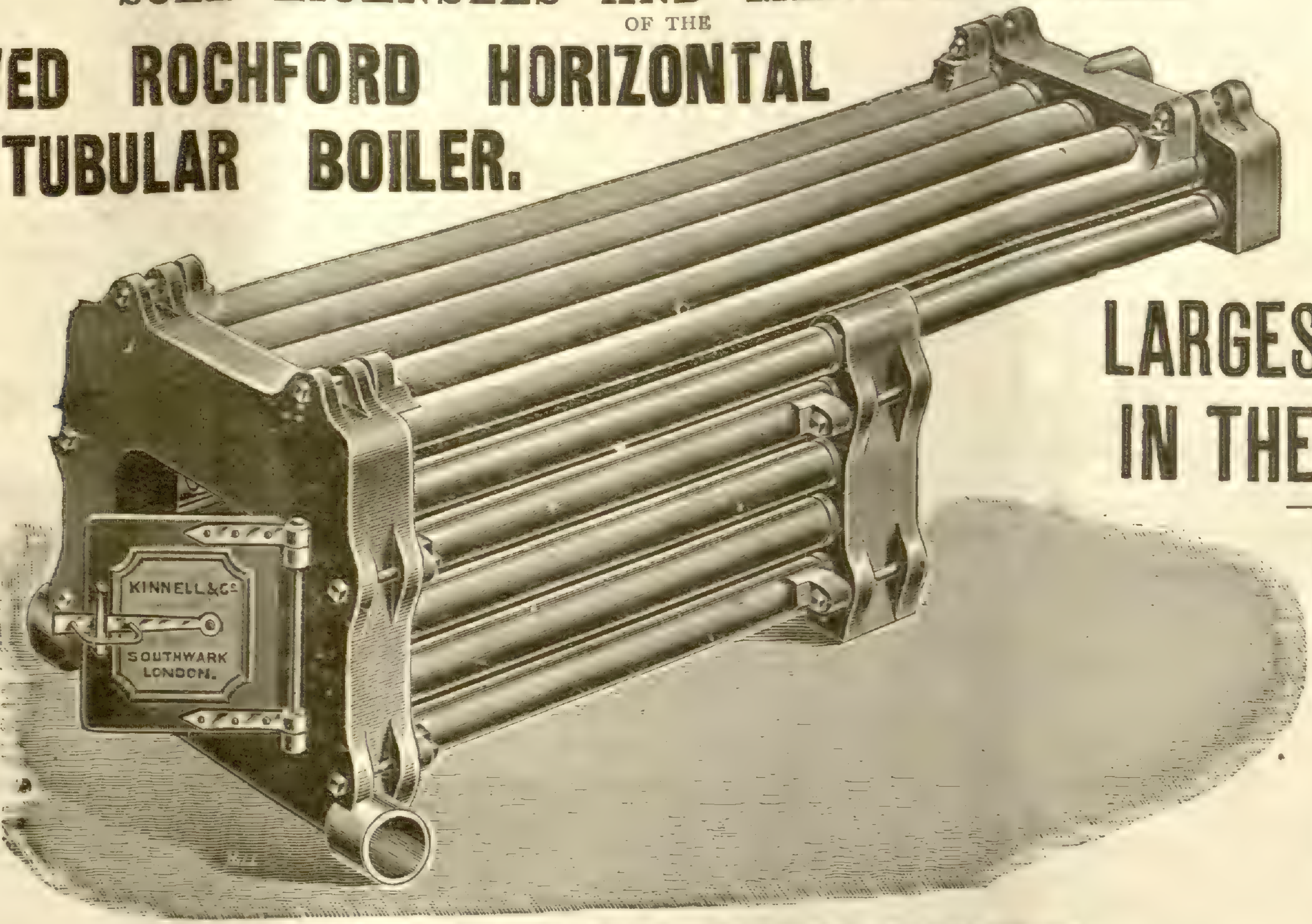

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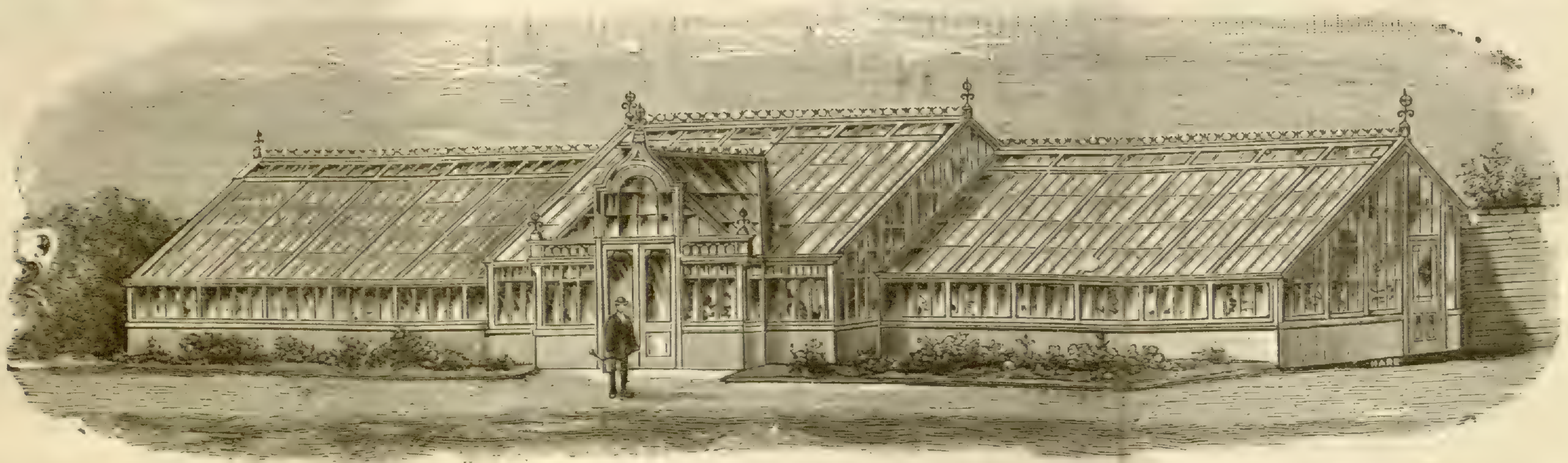

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THE

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GEE'S EARLY CABBAGE PLANTS, &c.; [illegible] sown; exceptionally scarce; very fine plants [illegible] best early and late kinds, at 6s. per 1,000 of [illegible]; [illegible] Red Pickling at 7s 6d; Lettuce, best early, [illegible]; and large Cos, especially scarce, at 10s. per 1,000, on rail for cash, or any of above at 2s. per 100 of 6 score, by *Parcels Post or Rail, package and carriage free.* Also Quicks, for hedging, two, three, and four years, transplanted, at 10s., 15s., and 20s. per 1,000; Privet, ditto, evergreen, [illegible], at [illegible], 7s. 6d., and 10s. per 100; Ditto, [illegible] at 7s. 6d., 10s., and 12s. 6d. per 100; all [illegible]. N.B.—Please name paper when ordering.
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A consignment from Belgium of

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136 CAMELLIAS, | 130 RHODODENDRONS,

together with a fine assortment of Greenhouse and other Decorative Plants, consisting of Palms in variety, Dracænas, Myrtles, Bay Trees, Ficus elastica, &c.

1,000 DWARF ROSES.
200 STANDARD and HALF-STANDARD ROSES.
200 CLIMBING ROSES in variety.
100 SWEET BRIARS.

400 Lots of Dutch Bulbs, Hyacinths, Tulips, Crocus, and Narcissus; 2,000 HYACINTHUS CANDICANS, the White Cape Hyacinth.

An enormous quantity of

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By order of Mr. Thomas Hollington, of Hale Farm, Tottenham, 300 yellow Martagon Lilies, 2,000 bulbs of the new Lilium Krameri variety Rubellum, together with an assortment of English grown and Japanese Lilies in variety.

500 of the White Blackberry "Iceberg," the paradox of the fruit world.

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Hardy border plants and bulbs, rare Californian bulbs, &c.

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WITHOUT RESERVE.

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At Half-past Twelve o'clock precisely.

THE BRITISH HORTICULTURAL ASSOCIATION (Limited) will SELL BY AUCTION each day, at the CITY OF LONDON AUCTION ROOMS, 33A, LUDGATE HILL (corner of Pilgrim Street), an enormous Consignment, including:—

12,000 BERLIN CROWNS LILY OF THE VALLEY (received direct in fine condition).
1,000 MONTBRETIA CROCOSMIFLORA.
1,000 PÆONIES (in variety).
50,000 NARCISSUS VAN ZION, &c.
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1,000 DWARF ROSES (English grown).
500 STANDARD ditto.
2,000 AZALEAS, MOLLIS and INDICA, RHODODENDRONS, &c.
1,000 CACTUS DAHLIAS,

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N.B.—On Wednesday will be sold 21 Cases of Araucaria excelsa.

SPECIAL OFFER.

SPIRÆA JAPONICA, extra large clumps, per doz., 2/6.

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Nov. 17.	(Edinburgh) Scottish Horticultural Association,	GOLD MEDAL.
Nov. 24.	Dundee Chrysanthemum Exhibition,	GOLD MEDAL.
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TO EVERY EXHIBITOR,

and will be sent post free for one stamp.

A New Edition of my CHRYSANTHEMUM GUIDE is in course of preparation, which will reach one hundred thousand with this issue; it will contain, as before, articles from the pens of the most successful Cultivators of the Chrysanthemum. This will be ready early in the New Year, and will be sent post free for seven stamps, or 1s. 2d. bound in cloth.

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Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
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For sturdy growth and abundance of root, none can beat the
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EXTRAORDINARY SUCCESS.

NEVER in the annals of Chrysanthemum History has such phenomenal success been achieved by any raiser of New Seedlings as by Mr. H. WEEKS, in the sensational productions exhibited by him from time to time this season before the Floral Committee.

When it is remembered that in the small collection of a private garden only a very limited number of plants can be grown of each variety, and the difficulty therefore of securing the required number of blooms stipulated for by the N.C. Society on a given day, it is indeed remarkable that no less than Eight First-class Certificates should be awarded. Other varieties equally as good had to forego their candidature from the simple fact that only two flowers could be ready at the same time, or else the total number of Certificates would have been larger. This is indeed success. I have the honour to announce that I have secured the entire stock of all these magnificent Novelties, and shall distribute same together with a few of my own, and some of the finest Australian Seedlings ever introduced.

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20,000 Trained Trees to Select from!

50,000 Apples on Paradise!

For considerably over a century our firm has been noted for the careful cultivation of Fruit Trees, and has built up a reputation by sending out Trees **TRUE TO NAME.** During the past Sixteen Years we have greatly **extended our culture of Fruit Trees,** and, having given up the cultivation of all General Nursery Stock in favour of these, and Roses, we may fairly claim to be **Fruit Tree Specialists.** To-day we are pushing the matter still closer, and make a Speciality (without neglecting other branches of Fruit Tree Culture) of

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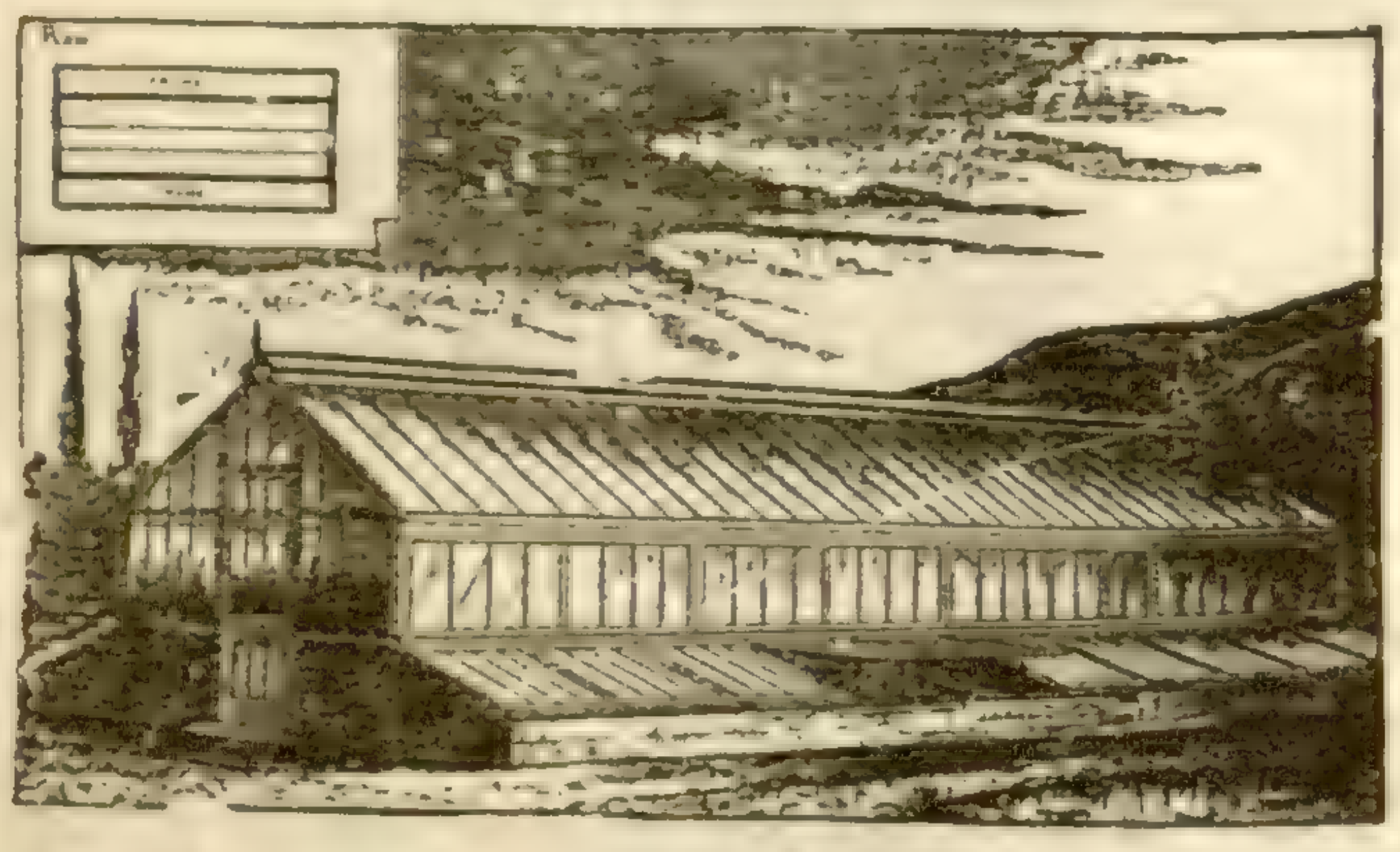

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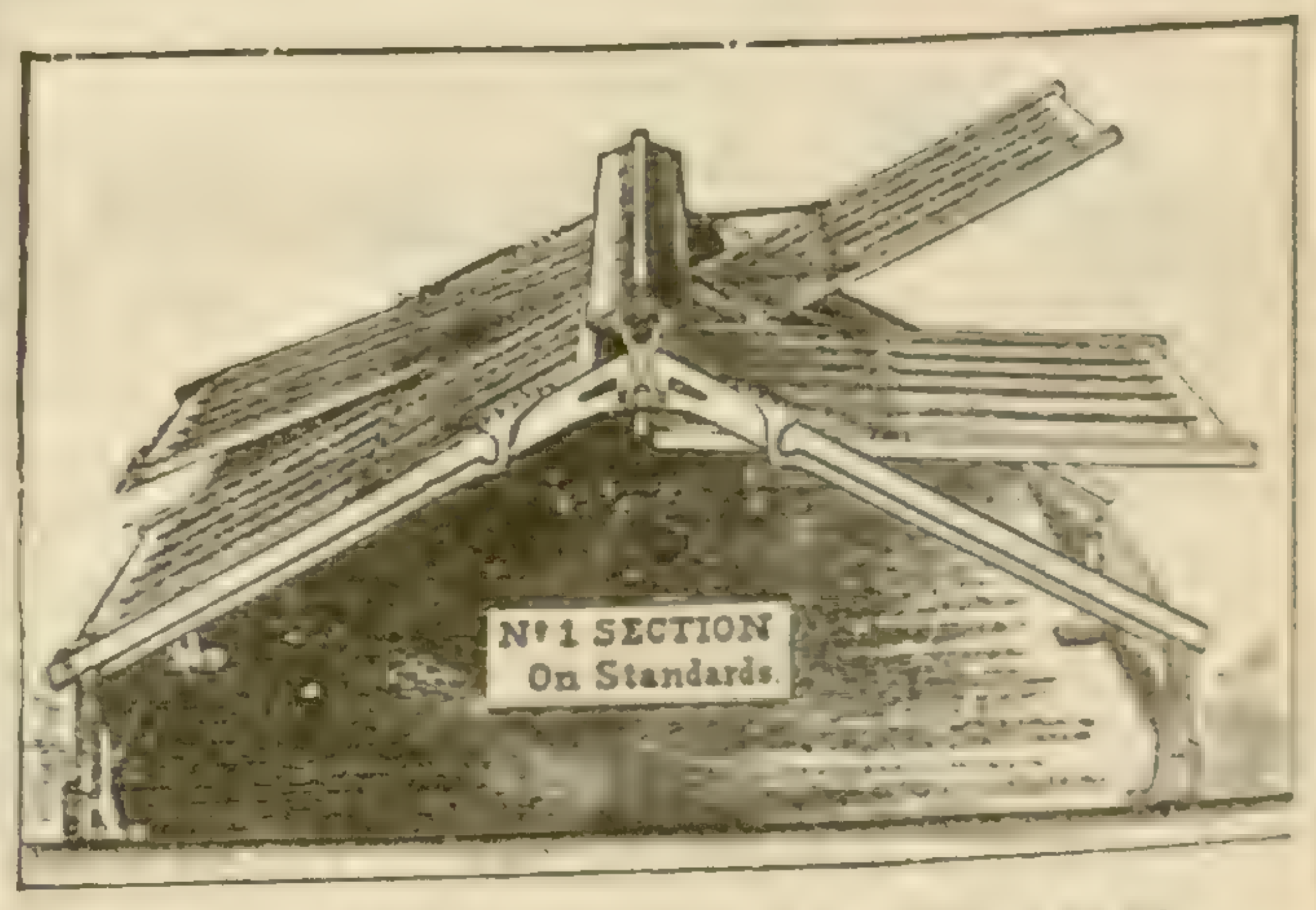

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THE GARDENERS' MAGAZINE.

SATURDAY, DECEMBER 10, 1898.

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NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

NITROGEN IN SOILS.

IN their annual report of the world's wheat supply Sir J. B. Lawes and Sir J. H. Gilbert discuss at some length the questions raised by Sir William Crookes in his presidential address at the meeting of the British Association held at Bristol in September, and thereby render the report of exceptional interest to horticulturists. After dealing with the manufacture of nitrate of soda, as proposed by Sir W. Crookes, by oxidating the free nitrogen of the air by means of electricity, these eminent scientists proceed to compare the composition of some typical soils as far as their richness in certain important elements of fertility are concerned. For the purposes of this comparison they select their own soil at Rothamsted, rich prairie lands, and some rich Russian soils, and the figures that are given with regard to the stores of nitrogen within twelve inches of the surface are especially deserving of careful attention. At Rothamsted the unmanured wheat plot is described as containing 3,139 pounds of nitrogen per acre, equivalent to 20,058 pounds nitrate of soda; the average of four Manitoba soils, 10,458 pounds nitrogen, equivalent to 66,824 pounds nitrate of soda; and the average of five Russian soils, 11,207 pounds nitrogen, equivalent to 71,609 pounds nitrate of soda. Thus even in the poor Rothamsted soil the amount of combined nitrogen is large; but to the same depth the quantity is on the average three times as much in the four Manitoba soils, while the Russian soils are even more richly stored with this important plant food. These large stores exist in the soil in the form of organic nitrogen, and as such are very insoluble; but the nitrogen, it is pointed out, is gradually, though very slowly, oxidated into nitric acid, which forms with lime, soda, or other bases in the soil, very soluble salts in which state the nitrogen becomes available as plant food. As indicating the slow rate at which nitrogen is converted into a form available for vegetation, it will be of interest to mention that according to the estimate of the authors of the report the unmanured arable soil at Rothamsted yields up an average of 22½ pounds of nitrogen per acre annually, a mere fraction of the quantity locked up in the soil. The store in the Rothamsted soil, as stated above, in the first twelve inches is 3,139 pounds per acre, whilst to a depth of ninety inches it is about 15,000 pounds, and to a depth of one hundred and eight inches from 15,000 to 20,000 pounds. It is of some practical utility to know that recent experiments in the Rothamsted laboratory have brought to light the fact that a larger proportion of nitrogen is more readily soluble in rich garden soil than in arable land—a fact of importance, as confirming the views of those who consider thorough tillage as an important factor in converting plant food stored in the soil into a form in which it can be readily assimilated and utilised in the building up of the plant tissues. Sir John Lawes and Sir J. H. Gilbert are of the opinion that under more thorough cultivation the rich American, Canadian, and Russian soils would yield up much more nitrogen in an available form than they do at present, and that as the result the yield of wheat per acre would be largely increased. What is true of the wheat crop is true of other crops, and those who fully recognise the importance of deep and thorough tillage will not fail to obtain an abundant reward.

CHRYSANTHEMUMS IN VASES.

WE have so persistently advocated the staging of chrysanthemum blooms in vases, with a sufficient length of stem to admit of their being accompanied by some portion of their foliage, that we are of necessity much pleased by the rapidly accumulating proofs of the success that has attended our efforts in bringing about an admittedly much-needed change. We have from the first fully recognised the increased difficulties of presenting fully developed blooms to public notice in vases as compared with staging them in accordance with orthodox methods, but we have not had the slightest doubt of the ability of exhibitors to readily surmount them. In some quarters an exaggerated view of the labour involved in the use of vases has been taken, and in consequence of this many committees of societies have been afraid to break away from traditions and take a course that would result in the interest and attractiveness of their exhibitions being greatly enhanced. During the past two or three years it has been proved to demonstration at several of the important exhibitions that there is no justification for any apprehension as to the result of requiring some portion of the blooms to be exhibited otherwise than on the stands in general use. Nowhere has the proof been stronger than at Edinburgh, where during the past three years the competition in the vase classes has added immensely both to the interest and the attractions of the exhibitions. We specially refer to the Edinburgh shows because they have given us the most striking examples of staging chrysanthemum blooms in vases, and the strongest possible proof of the importance of a vigorous policy in reforming long-established methods of procedure. Instead of allocating the principal prizes to the blooms staged on the ordinary flat stands, they made the vase classes the most important of those provided, and at once ensured their success. We had hoped that the National Chrysanthemum Society would have been able to include a class similar to that which creates so much interest at Edinburgh in the schedule of the November exhibition, but financial considerations rendered it necessary to abandon it. There is, however, a good prospect of such a class having a place in next year's programme, for the sum of £25 has been already promised as a first prize. If the remaining prizes are proportionate, there can be no doubt that the display of blooms will be of great magnitude and immensely attractive. Much will, of course, depend upon the conditions, and fear is being expressed by some authorities, whose opinions are entitled to the highest respect, that five blooms, the number suggested, will be too many. Mr. Molyneux is afraid some difficulty will be experienced in judging the collections with five blooms in each class; but it will probably be found that the exhibitor will have a greater difficulty in cutting five blooms in exhibition form of the several varieties than that experienced by the judges in determining their relative merits. But these are matters of detail that will in due course have full consideration. We should like this form of exhibiting chrysanthemums developed on lines adapted to the requirements of the exhibitors with limited means who compete at provincial gatherings, as, for example, by instituting classes for vases in pairs, triplets, or sixes, each containing three blooms of one variety. Even single vases will assist in rendering exhibitions more diversified, and we would suggest that the whole of the contributions to the classes for six blooms of one variety should be shown in vases, the prizes being increased to compensate exhibitors for the additional trouble. We should also welcome vases of sprays that have not been disbudded, for they afford a pleasing contrast to the massive blooms, and prove highly attractive to visitors, as so strikingly exemplified at York of late years.

POINT-VALUE AWARDS.

THE issue of a second edition of the Royal Horticultural Society's excellent code of judging is an event of some importance, inasmuch as it indicates a full appreciation by judges and exhibitors of the endeavour of the Council to reduce the methods of making awards at horticultural exhibitions to a well-defined system. The publication of the code has already had the effect of improving matters at a considerable number of exhibitions, and there can be no doubt that as the value of an exact system becomes generally recognised many of the difficulties that arise at the smaller shows will disappear, and the utility of the displays be greatly increased. The code, as originally published, was so carefully prepared as not to admit of any great changes being made in the second edition, but the minor points that required emendation have undergone thorough revision, and an appendix has been added, in which point-judging and point-values are exhaustively treated. As stated in the appendix, point-judging is the most exact of all the systems of making awards, and in very close competitions it is difficult to demonstrate the correctness of a decision without giving a numerical value to every point of merit discovered in the several items of a collection. Sometimes it is stipulated that certain classes shall be judged by the point system, while in others the judges are allowed full discretion as to the method they shall adopt. Except for classes of a special character the latter course is decidedly the best, as the judges can then resort to pointing or not as they may consider desirable. When the competition is very close the collections should be pointed; but it would obviously be a waste of time to determine by pointing the merits of exhibits so far removed from each other that the untrained eye can readily distinguish them. As a corollary of the point system it seems at first sight as if the prize money should be divided in proportion to the number of marks obtained by each competitor, as is done in a special class at Carshalton. But with reference to this question it is suggested in the code that "whilst the system of point-judging cannot be too strongly recommended in all close contests, the system of point-values requires consideration, and should not be adopted too hastily," and with this suggestion we fully agree. Briefly stated, point-value is the system whereby, instead of a definite sum being offered in the schedule for the first prize, a lesser sum for the second prize, and so on, a lump sum is allotted to the class, and divided into one, two, three, or more prizes, as stated in the schedule, in proportion to the number of points obtained by the respective competitors. As sometimes only one point, or even half a point, divides the collections, it appears from a superficial view of the case that there should be a considerable difference in the value of the awards. The adoption of point-value awards would remove this inequality, but it is doubtful whether the change would promote competition. We are not of the opinion that it would, for by reducing the value of the first prizes, as it inevitably does, there would be less encouragement for the most successful cultivators to take part, and of necessity it is the finest produce that is required at public exhibitions. An example of the manner in which the sum of £5 would with four prizes be distributed under the system is given. By the system now in vogue the sum would be divided as follows: £2 first, £1 10s. second, £1 third, and 10s. fourth; whilst under the point system the same amount, presuming the prizetakers have obtained 86, 78, 65, and 62 marks, would be distributed in the following sums of £1 9s. 8d., £1 6s. 8d., £1 2s. 8d., and £1 1s. 2d. Under the latter system there is less difference between the first and fourth prizes than between the first and second under the ordinary system, but as each point above a certain average is of much greater value than one below it, the exhibitors of collections relatively low in the scale obtain too large a proportion of the prize money. This is a serious objection to point value; but it is much less than the objection on the ground of the immense amount of additional labour imposed upon the judges. Were it to be adopted in making all the awards in an exhibition, the staff of judges would have to be enormously increased to admit of the prizes being awarded within a reasonable time.

The National Chrysanthemum Society of France is evidently more progressive than the English national society, and probably more than the friends of the latter would wish it to be. At a recent meeting of the Executive Committee of the French society the question was discussed of charging a fee for each new variety submitted to the Floral Committee. M. Rozain, who introduced the proposal to charge one franc for each new variety entered for a certificate, pointed out that the meetings of this committee were a rather heavy tax upon the finances of the society, and that as the certificates were of considerable commercial value to the raisers it was only reasonable that they should bear a share of the cost of the meetings. Moreover, he thought that the imposition of a small fee would have the effect of reducing the large number of varieties now submitted for the consideration of the committee. In the result it was unanimously decided that a charge of one franc should be made. It was also resolved at the same meeting that one-half of the sum realized from entry fees should be distributed amongst the members of the committee at the close of the season proportionate to the distances travelled in attending the meetings, for the purpose of recouping some portion of the expenditure in railway travelling. The resolutions passed by the French National Chrysanthemum Society may not commend themselves to the horticulturists of the United Kingdom; but possibly some of those who take an active part in the work of the various metropolitan societies and reside some distance from London will be of the opinion that something might be said in their favour.

Golders' Hill.—Those who have taken an interest in the purchase of the Golders' Hill estate and its transference to the care of the London County Council as an enlargement of Hampstead Heath will remember that the old house and flower garden remains enclosed as yet and is not open to the public. The L.C.C. was asked at its recent meeting to decide whether or not the house and garden should or should not be let to private individuals. Mr. Shaw Lefevre suggested it should be let for £600 a year, but was met with general disapproval; his contention was that if the house were used for public purposes it would cost the Council £300 or £400 a year. To accept his proposal would, therefore, mean a difference of nearly £1,000 a year; and the amount of rent receivable would be quite sufficient to pay the interest on the amount contributed by the Council towards the purchase of the whole estate. Mr. Burns objected to the Council's converting such a fine old house into a sort of modern lodging-house for prosperous journalists or South African millionaires. Who would not, if he had the money, give £600 a year for this house and grounds? There were at least half-a-dozen millionaires who would gladly pay £3,000 a year for this place. The Earl of Meath considered that as £15,000 had been contributed by private persons towards the purchase of the estate, on the distinct understanding that the whole of the thirty-six acres were to be thrown open to the public, they had no right to break faith with these benefactors. Subsequently the recommendation of the Parks and Open Spaces' Committee, that the house and garden be not let for private use, but only as a refreshment house, reading-rooms, or other public purpose, was adopted.

West Indian Botanical Stations.—We are informed that Dr. Morris, superintendent of the Botanical Department for the Lesser Antilles, will have the control of the following stations: Barbadoes, Grenada, St. Vincent, St. Lucia, Dominica, Montserrat, Antigua, and St. Kitts. The Jamaica, Demerara, and Trinidad stations will at present remain independent, and it is proposed to establish a new station at Tobago, which will be under the control of Trinidad.

Chrysanthemums in Vases: A Suggestion.—In reading your report of the speeches made after the N.C.S. dinner last week I note with pleasure (writes Mr. E. Molyneux) the liberal offer from Mr. H. J. Jones of £25 as first prize for cut blooms staged in vases. This is a stride in the right direction, for in no other way can the large cut blooms be arranged so well as with long stems, and accompanied by their own foliage. There is one point, though, I would like to draw attention to, viz., the number of blooms in a vase—five. This is too many for the purpose, because each bloom and all portions of the bloom staged could scarcely be arranged so as to be readily inspected. With five blooms in one vase one must have an exceptionally large vase. This increases the expense of either the exhibitor or the society, and it is the latter's duty to provide vases, so as to obtain uniformity, and place all exhibitors on an equality so far as possible. Apart from this, if five blooms are to be shown in one vase, the vases should be arranged on a table so that the blooms can be seen from all sides, as five blooms are certainly too many to be examined or seen properly on a side table or staging. Present-day blooms are of such huge dimensions that crowding them will be fatal to the effect desired. Then, again, the difficulties of exhibitors would be materially increased if five blooms, rather than three, of one variety were to be shown, and thus the competition would be limited; but perhaps Mr. Jones has not in his mind the idea of any fixed number. A combination of colours in one vase seldom, if ever, has the effect produced by blooms of one kind, except perhaps in the hands of a limited few who know well how to blend colours. It is not, however, I imagine, for the limited few that Mr. Jones desires to cater; and in his desire to create a representative class at the leading shows he will excuse my comment.

Grape Classes at the Shrewsbury Fete invariably attract a fine competition, so that there is a large and first-rate exhibition annually at this enterprising town. It seems, however, that the committee of the Shropshire Horticultural Society intends to beat its best by offering £100 in cash prizes in one class for six varieties of grapes, two bunches of each, at the fête to be held in the Quarry on August 23 and 24, 1899. It may be that this specification may be altered in the meantime, but it is pretty certain the committee will offer £100 in a class for grapes to be competed for on the above dates, when the society celebrates its twenty-fifth birthday. We understand that the £100 will be allotted as follows: First prize, £30; second prize, £25; third prize, £20; fourth prize, £15; fifth prize, £10.

A Big Seed List from Kew.—Even in these days of big seed lists and catalogues the "List of Seeds of Hardy Herbaceous Plants and of Trees and Shrubs" just issued by the Kew authorities as an appendix to the *Kew Bulletin* will come as a surprise to many. The seeds listed have, for the most part, ripened at Kew during 1898, and one can imagine the large amount of labour involved in the work of gathering, labelling, packeting, and cataloguing the seeds, representing some six hundred and thirty-eight genera of hardy herbaceous, annual, and perennial plants, and some one hundred and thirty-five genera of trees and shrubs, or about three thousand five hundred species. These seeds are not sold to the general public, but are available for exchange with colonial, Indian, and foreign botanic gardens, as well as with regular correspondents of Kew. No application, except from remote colonial possessions, can be entertained after the end of March next.

An Enemy of the Tea Plant.—At the meeting of the R.H.S. Scientific Committee Mr. Michael gave an interesting account of a new species of Acarus, sent by Mr. E. E. Green, Hon. Gov. Entom. of Eton, Pundaluoya, Ceylon. They were forwarded in tubes filled with sterilised air, a plan which Mr. Green had found very useful for preserving fleshy insects in their natural form and colours. He also forwarded specimens of young tea leaves attacked by the mite, which causes considerable damage and loss of crop on the tea estates in Ceylon. Mr. Green writes as follows: "Some years ago I gave a description and figures of this mite in a little pamphlet on 'Insect Pests of the Tea Plant.' For purpose of registration I gave it the provisional name of Acarus translucens, but I find that this name is already occupied by a different mite, described by Nietner in his 'Enemies of the Coffee Tree'; therefore the insect is still nameless. I should be glad to have it properly identified. It is curious in laying two different kinds of eggs, one form being quite smooth, and another form rather larger and beautifully beaded. The latter is the most usual, and I have watched the emergence of the mite from this egg. I have only recently noticed the smooth eggs. The immature insects are very sluggish, the mature ones decidedly active. They attack the young leaves only. As each bud unfolds they move up on to it, deserting the older leaves, which, however, are permanently injured. The attack of the mite imparts a brown scaly character to the leaf cuticle, which persists throughout its life. When the unopened leaf bud is attacked the punctures are concentrated upon the groove and the infolded edges. This forms a permanent scar, appearing like a strong sub-lateral nervure on the expanded leaf." Mr. Michael observed that the mite was one of the Tarsonomi, a group only lately known, but proving to be great destroyers of vegetation—e.g., box trees at Turin were all destroyed in one season. Professor Canastrini of Padua discovered that the mite bored between the epidermises of the leaf. Another species attacks the sugar canes of Barbadoes, but does not appear to be so injurious, though fresh canes swarmed with the Tarsonomi. Few species are known as yet, but they are very destructive. They are extremely minute, and have consequently escaped detection until the last few years.

Rev. W. Wilks, secretary of the Royal Horticultural Society, will open the discussion that is to follow the monthly dinner of the Horticultural Club at the Hotel Windsor on Tuesday, December 13, and his subject is to be "Size—in Flowers, Fruit, and Vegetables." This is a subject well worthy of discussion, and it is hoped that there will be a large number of members present.

The Broughton-in-Furness Chrysanthemum Society is to be congratulated upon the success of its fifth annual exhibition. Not only was a fine exhibition provided, but in the afternoon of the show day a lecture was given by Mr. J. W. Thompson upon "The Cultivation of the Japanese Chrysanthemum for Exhibition." An exhibition and a lecture would have satisfied most people, but the good folk of Broughton-in-Furness had yet another item on the programme—a dance, this being held in the evening at the Town Hall.

Lepidodendron Wunschianum.—At a recent meeting of the Cambridge Philosophical Society a description was given of the anatomy of an unusually well-preserved stem of Lepidodendron Wunschianum recently found in a railway cutting at Dalmeny in Linlithgowshire. The stem measures nearly forty c. m. in diameter, the outer bark is well preserved, but the more delicate middle cortex was destroyed before petrification; the innermost cortex and the central cylinder show remarkably perfect structure. One of the important characters noticed in the stem was the structure of the leaf-trace bundles; these consist of a small strand of xylem more or less completely surrounded by radially disposed rows of secondary elements. The presence of numerous secretory canals in the outer cortex or phelloderm was also referred to as a feature of some interest.

The Value of Deep Tillage has been proved over and over again, and perhaps no one has so persistently advocated its adoption by agriculturists as the venerable General Sir Arthur Cotton, who is now almost in his ninety-eighth year. With three-foot tillage Sir Arthur obtained a crop of wheat this year that is more than double the average yield per acre for England, and this in spite of a severe visitation of blight. Last winter Sir A. Cotton took the temperature of the soil at the bottom of his three-foot tillage, and here the thermometer registered 47 degrees Fahr., while the surface of the soil was frozen.

The Currants that form, with raisins, the chief attraction of the grocers' shops at this season of the year, come, as most are aware, from Greece, and, curiously enough, are not currants at all, but grapes. A peculiar point about these currants is that they do not vary materially in price. This is the result of an action taken some years ago by the Greek Government to prevent the depression of prices that necessarily followed too large a supply. By an Act of 1895 the growers are compelled to deposit with the Government currants equal to 15 per cent. of the amount exported. This keeps down the supply and keeps up prices. The currants stored by the Government are sold for wine-making and distilling.

The Yang-tsze Basin, about which much has been heard of late, is undoubtedly one of the most fertile regions of China. According to Mr. Archibald Little, an authority upon the subject, in a recent lecture before the Society of Arts, the Yang-tsze basin comprises a watershed of from 600,000 to 700,000 square miles, an area twelve times as large as the area of England and Scotland. It is one of the richest, if not the richest sub-tropical region on the world's surface, and inhabited by a people as hard-working in their way as that of the United States of America, with which country it had so many points of analogy. The whole region, except the high pastoral plateau of the Tibetan portion of the catchment area, was cultivated like a garden; the mountains of Szu-chuan were terraced to their summits, and a ceaseless rotation of crops was forced rom a willing soil by the repeated applications of manure carefully garnered from the cesspools of the countless towns and villages which abounded throughout that thickly-populated country. The vast mineral resources had hitherto been practically undeveloped, but foreign methods and foreign capital would ere long do for them what Chinese hand labour had done for the surface soil, namely, develop them by mining.

Bournemouth Terrace Gardens.—For some time past the Bournemouth Town Council has been pushing forward a scheme for the alteration of the lower public gardens at an expense of £1,000. It was intended to form lakes, grottoes, and artistic bridges. The inhabitants appear to object to this expenditure, and they prepared a memorial against the scheme; this was read at a recent Council meeting, with the result that by a majority of fifteen to eight it was decided not to proceed with the scheme of alterations at present.

Comparison Between Gymnosperms and Angiosperms.—In a most interesting botanical study contributed to *Knowledge* by Mr. A. Vaughan Jennings, after comparing the cryptogams (selaginella), with phanerogams (Abies excelsa), the author compares the gymnosperm (Abies) with an angiosperm, choosing for an illustration of the latter class the Mountain or Martagon Lily (*Lilium Martagon*), collected in July at an elevation of 6,000 to 7,000 feet on the Eastern Alps. We noted, he states, that the pine belonged to the gymnosperms or naked-seeded plants, because the ovules and seeds are carried on the free surface of scales, and not enclosed in a special case. The lily, on the other hand, belongs to the angiosperms, because the ovules and seeds are contained within the walls of an enclosing "ovary." It is, however, the possession of a "flower" which one naturally regards as the distinctive feature of the angiosperms, and we have to ask at once what is a flower, and what parts of it (if any) correspond with the structures seen in the pine or selaginella. We may regard a flower as a shortened axis, bearing whorls (or spirals) of leaves, the upper of which are modified in connection with the essential organs of reproduction, and the lower specialised for purposes accessory to the process. If we imagine a pine cone shortened, its upper scales bearing ovules, those below pollen-sacs and the lowest become barren, expanded, soft, and green or coloured, we should have (details apart) the structural plan of a flower. It would be impossible to say why the lower leaves should become so altered if we knew nothing of the relationship between flowers and insects. Though almost everyone has now a general idea of the important part played by insects in securing the cross-fertilisation of plants, yet few recognise that the attraction of insects is, biologically speaking, the reason for the very existence of true flowers. The pine tree casts its myriad spores to the wind and has no need of petals to its cones, and in the same way the wind-fertilised angiosperms bear small and inconspicuous flowers without a coloured perianth. Fertilisation by this method is uncertain, and an immense amount of pollen has to be produced. With the greater certainty attainable through the agency of insects there is greater economy, but the plant must make its flowers attractive, and often form those curious devices and traps to make the insect do its work, the study of which forms so fascinating a chapter in biological study. In our mountain lily the plant's assistant seems to be usually a day-flying moth, Macroglossa stellatarum, known in Switzerland as the "Taubenschwanz" or "pigeon-tail." There are nectaries or honey-glands at the base of the perianth, and a long fold or half-closed tube leads to them along the middle of the petals. The moth, hovering below the flower, has to pass its long tongue down this tube in its efforts to get at the honey, and in doing so becomes dusted over by the shaking anthers above with the pollen, which it afterwards carries to another flower. After a careful study of pollen grains, anther sacs, and other minute details of the lily flower, Mr. Jennings finds that we can prove the presence there of parts corresponding to those observed in the higher flowerless plants. We find that even in the highest plants we can trace the relics of that "alternation of generations" which is so characteristic of the life-history of the moss and the fern. Though, from the moss upward, through the series of types studied, the Sporophyte stage has become ever more and more predominant, and the Oöphyte stage ever less and less, the microscope shows it to be still there, though hidden away among the secrets of the ovule and the pollen grain. Mr. Jennings tells no new tale, but his "studies" are pleasant reading as well as being accurate.

Atropa Belladonna and Birds.—A correspondent of *Nature* states that for eight years he has had a large plant of Atropa growing in his garden amongst currants and gooseberries; close by is a mountain-ash, and at a short distance a large cherry-tree. Birds, including the blackbird, build in the garden; but although the cherries, currants, gooseberries, and raspberries are annually stripped, the Belladonna berries are never touched. The birds are encouraged, and the frut can be spared. The Belladonna berries are conspicuous objects from July to November; there are hundreds on the plant every year, long after other fruits have vanished—black, lustrous, luscious-looking—but no bird ever touches them.

The Beautiful Scenery Around Richmond, the popular Surrey riverside resort, is once again brought before public notice owing to the settlement of the dispute between the Thames Conservancy and the trustees of the Dysart Estates. The result of this settlement, as stated by Mr. Alderman Burt at a dinner given a few evenings ago by the Mayor of Richmond, is, that while the Dysart trustees claim a large part of the riverside lands, these lands would henceforth and for all time remain unenclosed, apart from existing fences. By this agreement a strip extending from River Lane, at the foot of Richmond Terrace Gardens, to beyond Teddington Lock, several miles in length, will be secured for the use of the public.

Stephanotis floribunda.—Where large quantities of cut stephanotis flowers are required the tropical treatment recommended by D. T. F., on page 772 of the GARDENERS' MAGAZINE for November 26, is no doubt the best, at least for the greater part of the year, and especially if the plant can have a house to itself. Its great enemy, mealy bug, is then easily kept at bay. Mr. Bowman, late of Hylands Park, Chelmsford, flowered stephanotis well, trained thinly on the roof of a fruiting pine stove, and I can recall, writes S. P., many other instances of successful hot treatment in bygone years. For late exhibition purposes, &c., the cool treatment, too, has its advantages, as evidenced by Mr. Lunt. We have for some years grown stephanotis for embellishing the conservatory in summer, and here its sweet fragrance is prized after Rhyncospermum jasminoides is over; for this purpose our methods differ somewhat from those mentioned by your correspondents, and embrace both hot and cool treatment, even including a spell out of doors for resting and ripening purposes. Two plants are grown on balloon trellises, one, the Elvaston variety (mentioned by D. T. F.), is somewhat the weaker in growth, but flowers the more abundantly. One specimen is introduced to the stove in February, the other in April; the young shoots of the latter are trained under the glass to strings, and about the end of April a slight shading of summer cloud is given. Before the flowers begin to open the strings are carefully cut, the young shoots trained to the trellis, and the plants removed to a late vinery. Under the shade of the vines the flowers open slowly before being taken to the conservatory, where, under canvas shading, they last a long time. After flowering, the plants are stood out of doors, in partial shade the first week, afterwards in full sunshine, and about September 20 the plants are both housed in the late vinery, where, later on, in damp and cold weather, a little fire heat is used to preserve the grapes. In sharp, frosty weather the thermometer sometimes drops to 33 degrees, but never without heat in the pipes. Here they remain until the new year, when they are sometimes put into a vinery just started previous to being placed in the stove. Both at housing and starting times a syringing with petroleum is given, using a wineglass to the gallon of water, and keeping this well stirred during the operation. Before putting into the stove the growths are thinned and the plants shaken out and repotted if necessary; generally one is potted each year. Under this treatment the plants never fail to yield a good supply of flowers, and with very similar treatment they were exhibited a few years ago at June and July shows.

Prune Cultivation in Oregon.—The State of Oregon has now to be considered as a competitor in the market by those who have hitherto had the prune trade in their own hands. There are now some 40,000 acres of prunes in Oregon, and half this area is of trees in bearing. All the plantations, thanks to the efforts of the State Board of Agriculture, are in fine condition, clear of insects and fungoid pests. Although the 1897 crop was a heavy one, that of 1898 has been equally good on plantations where thinning is systematically carried out.

LEAVES FROM A RAMBLER'S NOTE-BOOK.

IMPRESSIONS OF THE AUTUMN.

LAST night there was a sharp pinch of frost, and to-day the sun shines brightly, as though it would put matters to rights again. But it is too late. There is a constant rustle of falling leaves, a never-ceasing drop, drop at every movement of the breeze, which leaves bare branches behind and the earth receives her own again. She has a just claim to it, and in the giving and the taking lies the chief power which moves the machinery of this great natural world. It seems but a few days since the spring, when every growing plant was drawing on the great storehouse for the strength to push forth leaf, shoot, and flower, and now the machine is reversed. Animate nature gives back that which she borrowed, repaying with interest, as the dying leaves and decayed vegetation returning to the earth carry with them valuable properties to form food for the living when the next resurrection comes. It is no miserable shuffling off as though life had proved a failure, but a grand finale set in brilliant colours; the freshness of bursting spring changed to the full ripeness of a glorious autumn, a picture of life well spent and work well done, and then a passing out with a roll of drums before the curtain falls. The tints are the same as they were last year, the year before, and for hundreds of years, and yet they seem new and marvellous in their contrasts and combinations. Woodlands present a rich panorama of wonderful colouration, too delicate, too diverse, and too pleasingly blended to be the work of anything but nature. As I write the leaves of Ampelopsis Veitchi follow one another in their downward course from the wall to the ground, and are seen through the window. First a pale yellow, then a rich orange-scarlet, and again a bright crimson, and so on; now flickering down one by one, and then in little showers, till soon their beauty will be seen no more, and nothing will be left but the bare wall and leafless stems. But there is a practical as well as a sentimental side to autumn's impressions.

"It's been a funny season," remarked a gardening friend the other day as he tilted his hat over his eyes and scratched his back hair as though that would aid him in explaining himself further, "about as funny a season as ever I remember; but, when one comes to reckon up everything, I've known many worse. It's been one of those years when one has to grow everything, watch everything, and all the time be fighting something. Take that celery, for instance," pointing to an excellent row that had just received its final earthing; "now that isn't bad for the season, and I've no doubt you've seen a good deal worse. Well, there you are, it's watching, feeding, and fighting that have done it. For days that trench was ready, and the plants fit to put out, but the soil was hard-baked, lumpy, and unkind. Then one night we had a gentle rain, and before breakfast the next morning the celery was in the trenches. So much for watching. Now some people have had to grow celery without water this season, simply because they hadn't got it, but it hasn't been a success. I was better off than that, but things had to be carefully managed, or there would have been none for the celery. The sewage tank, too, was emptied as fast as it filled, and it was wearying work at the time, but the result is there. And the fighting? Yes, there has been a good deal of that. Not much maggot; no, that's where the fighting comes in." Visions rose before me of rows of celery with the foliage brown and seared, and I contrasted them with the green, healthy plants before me. "Perhaps the main secret was the watering," added my friend. "Vigorous growth keeps insects at bay; but that wasn't all. We watched for signs of maggots, which I felt sure would come in such a season, and kept a little coarse bag of soot handy. Then just a light dusting in the morning when the dew was on, and a sharp look-out for blistered leaves. No, it didn't take long, and amply repaid the trouble. But it's like this. People are apt to forget these little preventive measures till the eggs are laid and the mischief is done, then they apply the remedies, but it's no good. It's a case of locking the stable door after the horse is stolen, and it doesn't do with celery, because the maggot is not on the surface but inside."

Autumn impressions in respect of the crops of winter greens are not altogether favourable. Forecasts have already appeared to the effect that greens will be scarce and dear before the winter is over, a report that sounds ominous to those who have to buy, and cheering in the ears of those who grow for sale and are blessed with plenty. I know from observation that some growers are fortunate in this respect, but those who have the best crop of greens are like my friend of the celery—watchers, feeders, and fighters. "Get your greens out early" is the advice of an old gardener, and this season has proved the value of it. There were gentle rains in the early summer, which some took advantage of to plant cauliflower, broccoli, Brussels sprouts, and so forth, and others had to wait because the plants were too small for removal. In the weeks that intervened those planted early got a good start, and since have not looked back much. But what of those that were not ready at the favoured moment? Drought set in, parching weeks of burning sunshine, and the greens were spoiling. Compulsion gave no choice. They had to be planted, and some by the aid of water supplied struggled through. But it was only a struggle, a mere existence for weeks before they began to grow at all, and now, when one can hardly hope for more growth, they are stunted, small, and hold out little hopes of ever being profitable. Lucky, then, were the early planters. Feeding has also assisted matters, particularly on dry, porous soils, where applications of sewage and occasional light dressings of nitrate of soda could be given. It was early in the summer when large numbers of dainty cabbage butterflies hovered about the kitchen garden, and observant men prepared for the fight. No rain came to wash away the eggs, which the warm sunshine assisted to hatch, and the caterpillar harvest was prolific. They came forward in swarms, devouring all before them where their right was not challenged, and now they have entered mother earth to winter in the chrysalis state; but they have left their traces everywhere, in the shape of mutilated foliage and leafless stems, except in the garden of the fighting man. He allowed them no quarter, but assiduously picked away as fast as the caterpillars appeared, and his labours were rewarded in the breadths of greens which are healthy and leaf-whole, and in the knowledge that the soil is free from dormant pests.

It is the commendable aim of every good gardener to pick his first dish of green peas as early as possible, and then to keep up the supply without a break till the end of the season. A very worthy idea this when Dame Nature sees fit to fall in with it, but this season she has shown her perversity in various ways, and refused to lend her aid towards a continual pea supply. The start was capital; early peas grew apace, well-filled pods formed, and we gloated over the flavour and good all-round qualities of our Chelsea Gems, American Wonders, Graduses, and so on, and trusted in the healthy-looking succession rows to carry on the supply. But our district shows a remarkably small rainfall record, and the peas were amongst the first to feel it. The ground had been trenched and well manured, but the drought was extraordinary and the water supply ran out. Day after day they became more sickly, and vigorous growth changed to a dwindling existence. An occasional watering, followed by mulchings, and the assistance rendered by early applications of superphosphate, saved some of the rows, but many of them fell a prey to the effects of the drought and the attacks of every ill and pest that pea life is heir to. We have missed our late dishes of delicious marrow fats, and our Ne Plus Ultras, Duke of Albany, Autocrat, and other late sorts have been wanting in most of their best qualities. Fortunately matters have not been so bad everywhere, as some districts have been more liberally dealt with in regard to rain. Still we cannot look back on a satisfactory pea season, even where the best of gardening efforts have been put forth.

A recent walk in a fruit plantation did not create a very favourable impression. The grower eyed his dwarf apple trees critically, and followed the operation by a doubtful shake of his head. "Two dry seasons in succession have been too much for this shallow soil, and the trees haven't made a deal of growth." He was right. Vigorous-growing kinds looked fairly well, but others had an unhealthy appearance. Growth was stunted, foliage had fallen early, and here and there branches with dead tips were noticeable—all signs that there was something wrong. "Had any fruit?" continued the grower. "No, not much; though I never saw a better show of bloom—too much, in fact, according to my opinion—but most of it fell; and though, of course, I may be wrong, I attribute it largely to the drought of last season. There was no rain in the autumn to ripen and feed the buds, and when they opened there was no stamina in the flowers." "Then, according to that theory, it does not promise well for next season?" I argued. "Afraid not; but we are hoping for more rain yet, and we've done our best to help them by watering this autumn. I never thought much about the moisture required by trees after the fruit is off till lately; but these dry autumns have convinced me that it is necessary." No doubt many others have learnt a similar lesson from Nature's teaching. As with fruit trees under glass, so with trees out of doors. Withhold water from the former during the ripening period, and unsatisfactory results are inevitable. When a light autumn rainfall follows a dry summer the same state of affairs exists in plantation and orchard, and growers cannot do better than give the fruit trees the benefit of superfluous sewage matter and water. The grower's reflections were not all of a disappointing character. Apples certainly had failed him, and his pears he could not call a success; but other fruits had given returns sufficient to put the margin on the right side of the balance-sheet—the result, as he put it, of not having all your eggs in one basket. Good advice certainly, that might be taken with advantage among other impressions gathered at the close of such a season of uncertainty.

H.

THE CHELSEA BOTANIC GARDEN.

THE Apothecaries' Society has decided, owing to considerations of expense, to abandon the management of the physic garden that was founded by Sir Hans Sloane in the early part of the eighteenth century, and was subsequently transferred to the company in trust. A scheme has accordingly been drawn up for vesting the control in the Trustees of the London Parochial Charities. The actual management is to devolve upon a committee of fifteen members, eight to be nominated by the Trustees, and one each by the Treasury, the Lord President of the Council, the Technical Education Board, the Royal Society, the Society of Apothecaries and the Royal College of Physicians in turn, the Pharmaceutical Society of Great Britain, and the Senate of the University of London. The scope of the garden is to be somewhat extended. The existing garden is to be fully maintained, a suite of rooms is to be provided for lectures and experimental teaching, and the Trustees are to be given authority, if they think fit, to erect and fully equip a physiological laboratory. An income of £800 a year is to be provided by the Trustees, and in addition the committee will be furnished with such a capital sum as may be necessary to enable them to enforce the scheme to its full extent. The committee are to appoint a curator for the scientific supervision of the garden, and power is given to them to choose the other members of the staff. Further, the committee are authorised by the scheme to provide instruction by means of lectures or otherwise in botany, with special reference to the requirements of elementary education; and to arrange for the maintenance of botanical collections of living plants for teaching purposes, and, so far as practicable, for the supply of botanical specimens for the purpose of external instruction. Students of institutions receiving aid from the funds of the City Parochial Foundation are to be eligible for admission without payment of fees, and it is provided that, so long as a yearly payment of not less than £150 is made to the Trustees out of the moneys provided by Parliament, students of the Royal College of Science shall also be admitted to the garden without payment, while they, the professors, and teachers of the college shall be entitled to the use of the garden, the botanical collections, and the lecture rooms for such time as may be approved by the Charity Commissioners. It will thus be seen that the scheme is of a far-reaching character, and is calculated to materially increase the present usefulness of the garden.

PEAS IN PLENTY.

IN the month of August last it was my good fortune to revisit Wem, a little Shropshire village that has become well known by name throughout the civilised world as the home of that grand old florist, Mr. Henry Eckford, who has given us such a host of beautiful sweet peas which delight us for months together with their elegance and fragrance, and who also has raised and distributed many of the finest culinary peas in cultivation. It is about ten or eleven years since Mr. Eckford settled at Wem, and during that period his business has increased greatly, and his seed grounds have proportionately extended to keep pace with it. For many years a large proportion of the seed peas needed were grown for Mr. Eckford in Essex, but the yield per acre was not comparable to that obtained at Wem, while the quality was not so good as that of the home-grown sample. Then the distance of Essex from Wem is considerable. It proved a costly business to pay for frequent visits to the seed farms to ensure the varieties being kept true and free from rogues. Now, however, all this has changed, and besides having under his immediate control all his new varieties of sweet and culinary peas, trials, crosses, sports, and what not, Mr. Eckford can convey a visitor to his seed farms in half an hour, as all three of his establishments lie within a mile or so of each other. Altogether, Mr. Eckford has about thirty acres of land, and not less than nine-tenths of this area is devoted to peas that are beautiful to look upon or good for food. The latest addition is a fourteen acre lot at the little hamlet of Clive, about two miles from Wem on the way to Shrewsbury, an open spot set in the midst of bracing and charming country.

Culinary Varieties.

It was at once pleasant and provoking to see magnificent crops of culinary peas at Wem at a time when in many a small southern garden this succulent vegetable was but a memory, and in larger ones was proving a vexation of spirit to the gardener who had none too much of labour or water. No matter what the season, one may depend upon seeing famous crops of peas at Wem, and when it is remembered that the pods are left to ripen—for seed, not green peas, is the end in view—then we are compelled to admire the wonderful constitution and productiveness of the Eckford varieties. In the matter of cultivation Mr. Eckford's methods do not differ materially from those adopted in good gardens; good dressings of manure are essential, and these are provided with an occasional year of rest, when lime in some form or another is given. The land is deeply ploughed as soon as possible after the crop has been harvested, threshed, and housed ready for being picked over. The soil is allowed to remain rough during winter and is worked down during suitable weather early in the year. Sowing is a big business here, and it is highly probable that no other seedsman sows and produces under his own immediate supervision such quantities of peas as does Mr. Eckford. The staff is not a big one but it is capable, and its members are well aware they have a good employer; they know all about sowing peas (previously red-leaded), the labels are ready, and with Mr. H. Eckford, his genial son Mr. J. Eckford, and their capable foreman Mr. Jones to see that there is no mixing or misplacement of tallies the work is done in a wonderfully short time in spite of the fact that besides the catalogued varieties of sweet and culinary peas there are several hundreds of crosses and trials to be sown each year. Last year all the peas were sown within three days, but, of course, the weather was fine and open and the workers did not worry about keeping an eight-hour day.

My note-book contains notes of some fifty varieties of culinary peas, these including only sorts that are catalogued, or are named ready for distribution, or have been on trial sufficiently long to justify large breadths being sown. I shall not give these in detail, nor even go to the extent of naming all the varieties noted for their special excellence, as this would prove a tedious matter. A very good idea of the Eckford culinary peas is to be obtained from Mr. Eckford's 1898 catalogue, for, putting aside the raiser's descriptions, it is seen that more than half of the twenty-eight varieties listed have gained awards from the Royal Horticultural Society, and most of these have been tested and proved at Chiswick. Even the latest issue of the society's journal testifies to the excellence of the Wem seedlings, for to the trial of thirty-nine varieties conducted at Chiswick this summer Mr. Eckford sent two, Bruce and Prior, and both these splendid forms gained awards of merit. A great feature of the Eckford race of peas is that the pods are produced in pairs, and each pod is packed as full as possible with large, highly flavoured, wrinkled, narrow peas. There is no waste of energy in these varieties - that is to say, the peas are not clustered in the centre of the pod, leaving vacant ends. So far as number of peas per pod is concerned, the girls who in former days were anxious to find a pod containing nine peas, so that they might lay it on the lintel of the kitchen door, and thus ensure to themselves as husband the first single man who afterwards entered, would now have no difficulty whatever in finding such pods at Wem during the summer, or even with ten, eleven, twelve, aye, and thirteen peas per pod; indeed, the greatest difficulty at the Wem seed ground would be to find pods with fewer than nine peas.

A few varieties must be mentioned, and perhaps a selection of twelve will answer every useful purpose; it shall be a baker's dozen, and arranged in the order of use: Eckford's No. 1, a grand early pea, five feet high, and bearing profusely the whole length of the haulm; Shropshire Hero, two and a-half feet, and The Don, four feet, first-rate second earlies; then follow Fame and Juno, the former four feet and the latter under two feet in height; Consummate and Critic, superb main crop forms, two and a-half and four and a-half feet high respectively; the latter is one of the very finest of peas no matter how considered; Colossus and Memorial, rising five feet each, both very prolific, and the former carrying immense pods full of a dozen or so of large, splendidly-flavoured peas; Superabundant and Superiority will follow, the ormer two and a-half feet and the latter five to six feet, and of the pair my inclinations are toward the latter, as it stands dry weather as readily as Critic; Heroine and Censor will bring up the rear, and are two and a-half and three feet high respectively. The varieties are paired, so that a smaller selection can be made if necessary. If you want later peas you must start again with the early varieties. If you desire the newest of the new, the finest of the best, and have no objection to paying a rather higher price, then you cannot do better than try Ideal or Pioneer as early varieties; Prior as second early; Bruce and Royalty for main crop supplies. Still later productions that will appear in the 1899 catalogue are Wem Wonder, a beautiful dwarf early that is wonderfully prolific; The Clive, a useful second early that fills up speedily; and Diamond Jubilee, a good late that succeeded splendidly under field culture at Clive and had no sticks to support it.

Each year the Eckford peas are becoming more and more popular, more extensively cultivated, and they are being annually improved; as fast as any variety previously sent out is superseded it is dropped out and its successor takes its place. This is the right method, for one does not want bewildering lists—but we do want the best varieties.

SWEET PEAS AT MR. H. ECKFORD'S CLIVE SEED GROUNDS.

Sweet Peas.

A great debt of gratitude is due to Mr. Eckford, for to his energy, patience, and persistence the development of the sweet pea from a comparatively insignificant flower to one of exquisite beauty, grace, and fragrance is mainly due. Then the intensely beautiful and varied shades of colour, or combinations of colours, now to be found in sweet peas suffice to please the most fastidious and exacting, for among them are some that will harmonise with the most subtle art shades in which my lady's boudoir can be decorated. The evolution of the sweet pea is one of the wonders of the age, horticulturally, at any rate, and, if ever a history of floriculture is written, the name of Henry Eckford will occupy a prominent place, for to few is it given to enjoy such a long and honourable career, and few, very few, have achieved so much as he, and single-handed.

Charming as are sweet peas as we see them in our own gardens, in our homes, and at exhibitions, it is only when seen by the acre, as at Wem and Clive, that they become thoroughly impressive. The grand clumps or bushes of a variety that Mr. Molyneux annually produces at the pretty Swanmore Park Gardens are, in their way, the finest I have seen, but these imposing displays are utterly eclipsed during July at Wem and Clive, when the sweet peas are in their greatest beauty. You climb an elevated platform and overlook the acres of sweet peas in the home nursery, all in long orderly rows, neatly staked, and with the flowers so closely set that each row seems to be a dense swarm of some exquisite butterfly, and the motion provided by the gentle summer zephyr accentuates this idea. Some of the more intensely coloured varieties gleam like breadths of silk or velvet in the sunshine, and at each motion of the breeze or turn of one's head new shades of colour appear in those forms that combine several hues. Such a sight is worth going a long way to see; indeed, several American enthusiasts—and Eckford's sweet peas are as well known to Brother Jonathan as John Bull—have crossed the Atlantic on purpose to see this beautiful sight. At the Clive grounds both culinary and sweet peas are grown without sticks, and here, just before the haulm begins to bend over by reason of the weight of flowers and early-formed pods of seed, an indescribably beautiful effect is produced. The long rows of sweet peas extend for several hundreds of yards across the wide field, and with a number of rows side by side—as shown in the accompanying view specially taken for the GARDENERS' MAGAZINE—the effect is better imagined than described.

Mr. Eckford is a broad-minded florist, and recognises that there are a variety of tastes with regard to the form of even such a generally popular flower as the sweet pea; consequently we find that, in addition to those bold forms that have big broad standards, there are others less militant, and yet others, known as hooded, that, like a coy maiden, partly hide their charms by infolding their segments, this very peculiarity forming, paradoxical as it may seem, one of their greatest charms. Some eighty varieties are kept true at Wem, and constitute the trade collection, but year by year finer forms and distinct shades are introduced, or a great improvement is effected upon the depth of colour in existing and old forms, so that the forward movement is as noticeable in this quiet village as in the larger centres of industry. A glance at the R H.S. list of awards shows that up to 1893 sixteen certificates and awards had been granted for sweet peas, and of this number thirteen were made to Mr. Eckford. Since then Mr. Eckford has fully maintained his position as a raiser, and during the past summer several beautiful forms gained the highest honour the R.H.S. could confer upon them. Just as in the case of roses, so with sweet peas, it is a very difficult matter to make a selection of even a dozen varieties that will exactly meet the tastes of all persons; fortunately, Mr. Eckford exhibits largely in summer time, and so growers have an opportunity of noting what best pleases them For my own part a suitable dozen, excluding the new varieties that will be soon offered, would be Blanche Burpee, white; Queen Victoria, very pale yellow; Shahzada, deep and rich marone; Salopian, brilliant red and orange; Prince Edward of York, a real beauty, rose and scarlet; Lady Nina Balfour, greyish mauve; Lady Grisel Hamilton, heliotrope; Prince of Wales, deep clear rose; Colonist, lilac and soft rose; Black Knight, marone, with a metallic lustre; Lady Mary Currie, a lovely shade of pink; and Lady Beaconsfield, salmon-rose and yellow. Mrs. Sankey would form a fine additional white.

Some beautiful and entirely new forms that are to be distributed shortly are as follows: Sadie Burpee, a splendid white flower, but a black-seeded variety. For size, substance, freedom, and grace it cannot be surpassed; it is a hooded flower. Sadie Burpee quite captured the R.H.S. Floral Committee, and gained an award of merit during the present year. Lady Skelmersdale was seen at several exhibitions during the summer, and is a charming hooded variety in which white and rosy-lilac are sweetly combined. Duke of Westminster is a magnificent form both in size, shape, and colour, the latter being a rosy marone tinged in a unique way with violet; this and Sadie Burpee are, to my mind, the two finest novelties of the set. Countess Cadogan has slightly hooded flowers of a bright violet-blue hue. Mrs. Dugdale bears finely-expanded blooms with rose and primrose standards, and primrose wings that are splashed with very pale rose. Hon. F. Bouverie is a variety that cannot fail to receive a cordial welcome, especially from the ladies, by reason of its exquisite coral-pink colour; in size and freedom it is also one of the best. Mr. Eckford has a fine rich crimson-purple form named Othello, but whether the stock is sufficient to justify its distribution in 1899 has not yet been decided. The new set give us new and pleasing shades of colour; they are robust, free flowering, and as beautiful as only first-rate sweet peas can be. The flowers are of wonderful substance, as many have had opportunities of noting at the Drill Hall, Crystal Palace, Hanley, Leicester, Cardiff, and elsewhere during the past summer; they also are carried on long, stout stems, and almost in every instance three flowers on a stem.

Pansies and Grasses.

In addition to the masses of peas, both drawing and dining-room varieties, Mr. Eckford and his son devote a good deal of energy to the improvement of pansies, and a wonderfully fine strain they possess, especially in bronze and yellow forms; while the breadths of Bronze Prince are something to admire and remember. Ornamental grasses are largely grown, and these are eminently useful for association with sweet pea flowers in vases. Chinese primulas are carefully seeded and selected, so that the strain is of a high order of merit. Verbenas are good, and this reminds me that there was a time when each year found floriculturists as eager to discover what new verbenas Mr. Eckford had raised as to-day they are to find the newest and biggest chrysanthemums. Dahlias are not wanting, for Mr. Eckford does not like to be entirely "off" with his old loves, though he is well on with the new.

There are few greater pleasures in the life of a busy horticultural scribe than that of a quiet day with Mr. Eckford at his seed grounds. Fresh, clear, and bracing air, peace and quiet, open country, beautiful flowers, and a companion whose wealth of knowledge, gained by experience, is only exceeded by his intense love of all that is beautiful in flowers; what more could one want? The stately old Scotsman has long since passed his allotted span of threescore years and ten, but he is hale and hearty, firm of foot, and keeps his seventy-odd inches as erect as most of us less than half his age. If further proof of the vigour of this grand old florist is needed, it may perchance be found in the fact that two years ago he learned to ride a bicycle, and now, week in and week out, he may be seen on most days merrily wheeling out or in between his comfortable home and the grounds at Clive or Wem; but even at Wem, unfortunately, grey hairs are not exempt from the camera demon, and an evil-hearted snapshottist caught Mr. H. Eckford "in the act" last summer, and gave me the result, which I shall keep as a souvenir of my brief sojourn where, even in 1898, there were Peas in Plenty.

SERVATOR.

THE BIRCH AS AN AVENUE TREE.

WE have few trees to equal the birch for freshness, fragrance, grace, and beauty, and the chief fault urged against it for such a distinguished position as the formation of an avenue is its lack of size and longevity. It seldom attains a height of more than fifty or sixty feet, or lives much longer in good health or full beauty than a hundred years. But even in ruin the birch is picturesque, full of the sheen of twinkling life, mobile grace and beauty, so that while attaining its majority or sinking into venerable age through a century of years or more, in groups or single trees, avenues, or hedgerow, who shall say how many eyes it has refreshed with its graceful branchlets, or lightened with the paper whiteness of its silvern bark? The stem as well as the head of the birch is filled to overflowing with grace. A recent correspondent's hedgerow tree, three feet in diameter at seven feet from the ground, and others with wide spreading drooping heads, twenty yards in diameter, must indeed be weeping giants worth a long journey to see.

The average size of white birch seldom exceeds five feet in circumference, nor its height sixty feet, and in fact the birch is never more graceful than at much smaller sizes than these. For the white birch is emphatically a tree to live with rather than to be overshadowed by; though looking up through the mobile, twinkling branchlets of birches from thirty to seventy feet high is to find fragrance, light, and shadow in a pleasing and refreshing blend, seldom furnished by any other tree. In all hours of the day and seasons of the year the birch provides new relays of freshness and beauty. At sunrise, sunset, and noon; in spring, summer, autumn, and winter the Lady of the Wood earns her popular name by retaining much of her charming grace and versatility. The birch is one of the earliest blooming of our hardy trees; the flowers are small, and appear in February or March, male and female on the same tree. The male flowers are light brown and loosely pendulous; the female green, tipped with crimson stigmas, in the way of, but smaller than, filberts or common hazel nuts. The seeds after maturation assume the shape of minute winged nuts. The leaves of the birch are the personification of grace and beauty; the early leaves are distinguished by their freshness and grace, until the autumnal sunshine paints them with coats of many colours, and in various proportions of red, gold, and scarlet.

As the trees advance in bulk and age, the twigs or young shoots often assume a more purple hue, and the trees produce larger and more curious "bird nests," a common name given to the curiously stunted or abortive branches of birch trees—which, however, I have never known birds to use for nests, so that it is as vain for the birch trees to grow their imitation nests in sight of the birds as it is for the fowler to set his snares in their sight. But these quaint imitations of birds' nests by birch trees is one of those curiosities of tree life that add greatly to the interest of avenue and wayside trees. Neither is the cause of it quite cleared up by the orthodox botanical solution—suppressed development. It may be so, but why just there and then, and for what possible purpose, if no bird will use the curiously malformed birch branch for a nest? Can these be grown for seed baskets, to collect and store the winged seeds for dispersion later on by March winds, and so secure a wider and more general seed bed for the extended growth of these charming trees?

Young birches grow rapidly under liberal conditions, making from two feet to thirty inches growth a year. But they are most effective and characteristic when grown much more slowly. Single trees, groups, and woods of birches are also beautiful; but avenues, or hedgerows clothed with birch, accentuate and multiply their gracefulness. Birch in woods and avenues, by moonlight, and in gardens, parks, and landscapes, are simply bewitching. And as to the odour of birch, no one, so far as I am aware, has succeeded in describing one half of its unique freshness or inexhaustible fragrance.

Birch timber and bark are largely used in our industries, and prove as profitable as that from other forest trees.

D. T. FISH.

The New York Botanical Garden, now in course of development, occupies, as already stated in these columns, about two hundred and fifty acres of the northern part of Bronx Park. After several years of agitation, inaugurated and influenced by the Torrey Botanical Club, the sum of about £5,300 was in June, 1895, raised by public subscription, and the Board of Estimates and Appointments was authorised to issue bonds aggregating £104,166 for the construction and equipment within the grounds of the necessary buildings. Much has already been accomplished in grading, planting borders, establishing a nursery, and accumulating herbarium, museum and library material. By an agreement with Columbia University the herbarium and botanical library of the University will be deposited in the garden. Reservations of suitable extent and location have been set apart for decorative grounds, forest areas, meadows, pinetum, deciduous arboretum, fruiticetum, viticetum, herbaceous grounds, rockery, economic garden, bog garden, and ponds. The range of horticultural buildings to be erected comprise thirteen houses, covering about 45,000 square feet. A circular palm house, one hundred feet in diameter and ninety feet in height, is the central feature, and the houses are so arranged as to enclose a large court that will be utilised for aquatic planting and other ornamental features. The houses occupy a commanding position upon a broad terrace. We learn from *Gardening* (Chicago) that the tract of land devoted to the garden is an ideal one for its uses. Its surface is undulated, and it includes all degrees of shade and of exposure to sunshine and moisture, and a soil that is remarkably good throughout. The families of plants in the various departments will be arranged in a sequence following the latest system of botanical classification. The Bronx river, with its overhanging banks and damp glades, will furnish an appropriate home for the ferns and moisture-loving plants, which cannot be located in formal beds, and will also add beauty to the landscape and features. Our American contemporary gives some charming illustrations of river views, and of the beautiful natural features of the locality. The chief work in the garden during the past summer has been on the border, which is to enclose it, making a thick plantation of trees and shrubs, sloping down from the outside and shutting out objectionable views where such exist. This border when completed will be about two miles long, and comprise some three hundred and fifty species or varieties of trees and shrubs planted under the direction of the superintendent, Mr. Samuel Henshaw.

WHY IS NOT THE GLADIOLUS POPULAR?

"BUT is it not popular?" some will ask. "I think it a very handsome flower, and am always pleased when I see grand collections of it staged." That may be truly said by a great many, but with all that I aver that it is not popular. There are two ways in which this assertion may be proved. In the first place, who ever sees a collection of them grown in either private or public gardens? I have seen a good many gardens, but I cannot call to mind one in this part of England, at any rate, where named varieties are to be found in any quantity, or where any enthusiasm is shown in their growth. How different it is with really popular flowers! Take, for example, the rose and the chrysanthemum. We have national societies which concern themselves only with these flowers; we have special exhibitions of which they are the sole flowers exhibited; we have affiliated societies dotted all over the country, and nurseries where, if they are not the sole, they are, at any rate, the chief object of culture; but none of these things can be said of the gladiolus. There is no society especially interested in it, for the very simple reason that there are no cultivators who would support it.

There is another test of popularity, namely, exhibitions. There have been spasmodic attempts from time to time to galvanise it into life. The Rev. Joshua Dix many years ago got a sum together for the purpose of offering special prizes for it, but the attempt, in the hands of even that genial and popular florist, was a miserable failure, and it was never repeated. During the forty years that I have grown the flower I have never seen, where there was an amateurs' division, more than three or four exhibitors. I need hardly say how different this is to the rose and chrysanthemum, where exhibitors may be counted by hundreds. During that time I have seen many an ardent horticulturist successfully competing. I can remember the fine spikes that Lord Hawke would exhibit, and collections staged by Mr. Herbert Fowler and Mr. E. B. Lindsell; but I have seen all these and many others "throwing up the sponge," and retiring from the field. The rose grower may get tired after a few years, and you see him no more, but there are always others to take his place, and so with the chrysanthemum grower, we may miss the names which in former years were always attached to the principal prize cards, but then others have taken their places, and so the interest in them never ceases. I do not think these facts can be controverted, and, as I am the only amateur that I know of who during these forty years has held his ground, I think I may be credited with knowing something about gladioli.

What, then, are the causes which have contributed to this end? or are there no causes, and must it be attributed to caprice? To this I reply there seem to be many and sufficient reasons for it. In the first place, it is a troublesome bulb to grow; the soil most suited for it is a good strong loam, much the same as we find best suited for strawberries and roses, therefore in light soil it is apt to be a failure. But, supposing you have a suitable soil, see what trouble it involves; you must have each of your spikes staked and tied, that is if you wish to have them straight and well formed; this tying must be done two or three times. Where amateurs grow for exhibition they must use shades or wooden cases, which are placed over the flowers; these latter are expensive and difficult to manage. Then, when the bulbs are matured, they have to be taken up and placed in an unheated greenhouse, or some such place free from frost, and when sufficiently dried the earth and old roots have to be taken away and the bulb cleaned and put into its winter quarters. All the smaller bulbs, if it is wished to continue a collection, must be taken off from the base of the old bulb, and placed in paper bags or small boxes, there to remain until the spring, when they are to be sown in drills like onions; they will probably come (most of them) into bloom in the second year. The flowering bulbs must be kept separate, either in an open trellis case, in bags, or on the shelves. I do not think bags are very desirable, as they are apt to stimulate root formation, which is bad. If gladiolus are troublesome to grow, they are equally troublesome to exhibit. Many plans have been devised, and I myself have spent both time and money in providing cases to take them to the exhibition. The best plan, however, I think, is to place them standing upright in cases covered with tiffany or light canvas, and then when you get into the place of exhibition you have to take them out of the cases and place them in stands with tubes especially prepared for them, so that they can stand upright, and not fall about upon one another, and I believe that this is one of the chief causes why there are hardly any amateur exhibitors. I have for many years exhibited at the Crystal Palace, and I can speak from sad experience of the trouble that it is to take even a stand of twelve and place them on the exhibition stage in time for the judges. The happy exhibitor of chrysanthemums or dahlias can arrange his flowers in the trays in which they are exhibited, and when he arrives at the place of exhibition has only to draw out his trays and place them on the stage. Even the rose exhibitor has not so much trouble. He places his flowers in the tubes in the boxes. Doubtless several of them may have to be removed, and their place supplied by some of his "spares," but this is not at all equal to the trouble which devolves on the gladiolus exhibitor.

But the most formidable obstacle to the growth of the gladiolus is unquestionably the fact that a considerable number of the bulbs perish every year, and from what cause has been a matter of controversy. Some maintain that it is from exhaustion, that the bulbs have been so long in cultivation that their vigour is gone. I do not believe this, for you may have a dozen bulbs of a variety, two or three of which perish, while the others remain sound; and, again, I have received bulbs this year of new varieties, not yet sent out, from the raisers at Fontainbleau, and some of these have gone off in the same way. Others speak of it as the degeneration of the bulbs. This comes to very much the same thing, and for the same reason I do not think it is tenable. The bulbs become simply a mass of rottenness and decay, and some years ago I submitted some bulbs to one of our most eminent mycologists, who, after careful examination under the microscope, described the attack as a fungoid one, very similar to that which sometimes affects the crocus plantations in Holland, and occasions severe losses. For this disease I have tried various preventives, but I have never found one of them to be of the least avail, for if when you lift the bulbs you see the least speck on their smooth surface it is most probable that when you put them by in their winter quarters you will find that this spot has spread, and the whole bulb is destroyed. Still more curious is the fact that a bulb will sometimes throw up two shoots, one of which will produce a sound bulb and the other a diseased one; of course, when you give half a guinea or a guinea for a bulb, this is very disheartening, and cannot long go on. I have known growers for sale who have spent considerable sums in endeavouring to get up a collection, but who have been obliged to abandon the attempt.

It may be said that all these facts are very discouraging, and so they are, but there are two ways of meeting the difficulty; one is that to which I have already alluded, viz., saving the young bulbs and growing them on from year to year; the other is that of purchasing unnamed seedlings, which can now be had of excellent quality. Formerly, when growers sowed their seed without any attempt at cross fertilisation, mixed seedling bulbs were a failure, but now that English growers have been carefully hybridising their flowers the case is entirely different. If anyone had noticed the fine stands of flowers shown by Messrs. Barrell and Co., of Cambridge, and Messrs. Harkness and Son, of Hitchin, at the Aquarium not long since, he would have seen what a large number there were without any names attached to them, and many of these I venture to say were quite equal to the French varieties sent out of late years, and then a hundred of these can be obtained for the price of one bulb of a new variety sent out by the French firms.

I have been sometimes asked why I put these unpalatable facts before the public; my reply is simply that I do what I think is for the best interests of horticulture. Nothing is gained by trying to live in a fool's paradise, and assuredly he does so who thinks that growing a collection of gladiolus involves neither trouble nor disappointment.

H. H. D.

RASPBERRIES ON NORTH BORDERS.

BY various methods and with the newer varieties it is now an easy matter to prolong the strawberry season, but with raspberries the case is different, though where autumn-fruiting varieties are grown fruits may be had well into the autumn. This year we have gathered good fruits of Superlative from young shoots much later than on other kinds; indeed, this variety appears to be an excellent late fruiter, and if planted on north borders it gives a large quantity of later fruits. All may not be able to devote a north border to raspberries, but they may plant a few under trees, though the results are not always then satisfactory, especially in a wet season. One often sees all the raspberries in the same position, and the crop then matures almost all at once. This may suit market growers, but in gardens where fruits are needed in quantity over as long a period as possible there is a great gain in having later quarters and varieties, and in such cases the advantage of a north border is great. No matter what position they are grown in, raspberries succeed best in a good loamy soil. With good culture they will thrive on gravel, but they need more food, moisture, and general attention. In good holding soil I have had most of the canes as thick as stout walking-sticks when grown on a north border in the northern part of the country, and, owing to their success, we had no need to grow autumn fruiting varieties, for by pruning them hard they bore grand fruits well into September. At the time named the newer Superlative was not in existence, and I feel sure this variety will be one of the best for the north border. The varieties we formerly grew were Northumberland Fillbasket for dessert, and Semper Fidelis for cooking, the latter producing a splendid fruit somewhat more acid than others, and having a rich bright scarlet colour. It is in free fruiting and one of the most continuous croppers anyone could grow.

The newer Superlative is superior, as regards cropping qualities, to the Northumberland Fillbasket, but, of course, there is quite a different soil to deal with here, as it is very light, resting on a gravel subsoil, yet Superlative makes a much better growth than any other variety. Semper Fidelis is a good grower, but not equal to Superlative, which is good even in adverse seasons.

In previous issues of the Gardeners' Magazine I have pointed out the importance of good cultivation, and, what in some gardens is often overlooked, the advantages of occasionally planting a new quarter to replace old worn-out plantations. A certain amount of pride is permissible in a grower who can point to a quarter that has been continuously cropped for a quarter of a century, but in many such cases it would have been more profitable to have created new quarters of young plants, and secured heavier crops. The raspberry soon impoverishes the soil, and we find it much the best to make new quarters previous to the middle of December; if the weather is open, I prefer early in November, if possible. Ample manuring is a necessity, and more so if the land is poor; indeed, with poor soil it well repays the cultivator to add some new material, removing a good portion of the poor, inert soil, and getting the land in condition some little time in advance of planting. Canes for north borders should be strong ones. Some varieties, such as Superlative, make a strong growth in a short time, and we have had a fair lot of fruit from it the second year after planting; but to do it justice plant early in the autumn, and secure strong plants. We do not wait for the leaves to fall, but endeavour to obtain a good mass of fibrous root.

Last season we gave a trial to one of the yellow varieties, New Guinea, a splendid form, that recently received an award from the Royal Horticultural Society; it is well worth growing for dessert. It was raised from Superlative, and like it is a free, strong grower, having large foliage and handsome fruits. I am sure more white raspberries could be grown in private gardens, but of late years they have not received much notice. Magnum Bonum is also a good variety in our light soil.

G. WYTHES.

Syon Gardens.

CHRYSANTHEMUM H. J. JONES.

UNQUESTIONABLY the most brilliant-hued Japanese chrysanthemum brought forward this season is the grand variety raised by Mr. J. Shrimpton, gardener to W. Seward, Esq., The Firs, Hanwell, and exhibited by him at the Floral Committee meeting of the National Chrysanthemum Society held on November 14. This fine form has been named after Mr. H. J. Jones, of the Ryecroft Nursery, Lewisham, who, we understand, has acquired the stock of it. The illustration in the present issue serves to show the massive proportions of this excellent exhibition variety, and also indicates the elegance of the spreading, broad, substantial, and flattened florets. The beauty, distinctness, and brilliance of the colouring is the principal feature of the new comer, and those who know the many grand crimson forms Mr. Shrimpton has already raised will be surprised to hear that the shade seen in H. J. Jones has not hitherto been equalled for effect. The florets are intense and brilliant crimson, a shade in which a good deal of scarlet seems to be mixed; the reverse side is pale coppery-bronze. It is hardly necessary to state that the variety gained a first-class certificate from the N.C.S. Growers should remember that this new Japanese chrysanthemum is not Mons. H. J. Jones, nor Mr. H. J. Jones, but H. J. Jones; there is no need for a handle to the name of such a variety.

FLAVOUR IN PEARS.

THE flavour of pears has been of a very high quality this season, for which we are indebted in a great measure to the brilliant and extremely warm weather experienced during the latter part of the summer and early autumn. The heat, combined with judicious root waterings and surface feedings in the shape of artificial manures, has also led to many sorts attaining large size, and they have also developed clear and smooth-looking skins generally, while during the three or four weeks previous to the ingathering of the mid-season kinds they attained a high degree of colour. This has been so pronounced in many instances that persons unacquainted with the nature of the soil and locality would incline to the opinion that the fruits had been produced under glass.

With these few preliminary remarks I will give a list of varieties, with brief comments, which have been found exceptionally high flavoured. This list will be by no means an exhaustive one, but will, as has just been stated, include the cream of the sorts which have ripened up to date or are within a few days of being ready for table. The first on the list is Beurré Giffard; in some seasons this is rather insipid, in others mealy, but this year it was exceedingly good and richly flavoured. The fruits were produced by cordon trees, and grown on a south-west wall. Colmar d'Eté, from a pyramid, followed closely, the fruits being fine in size and highly coloured; in most seasons this pear is rather crisp eating, but on this occasion it was quite melting and delicious. Jargonelle is so invariably good irrespective of seasons that no further comment is necessary. Williams' Bon Chrétien was very large and beautifully coloured, from cordons on a west wall, and was succeeded by those gathered from bush trees out in the open garden. Here again the flavour was all one could wish, and so was that of Souvenir du Congrès, a pear somewhat similar in appearance and flavour, though much larger in size. Clapp's Favourite, a very handsome fruit, was also extremely good, especially from a pyramid on the pear stock. Next came Gratioli of Jersey from a bush tree, closely followed by the same variety from cordon trees on a west wall, which receive a good deal of shade from a plane tree growing some distance from them. The flavour in this case was extremely good, and the same remark applies in an equal degree to Beurré d'Amanlis, the fruits of which were extra large and carried a bright crimson flush on the side exposed to the sun. This is a fairly good keeping pear. and by gathering at intervals the supply can be spread over several weeks. This sort lasted until the extra highly flavoured Thompson's came into use. The crop of this was an excellent one, and there still remain a few fruits of it in the pear room at the time of writing, which are in good condition. This really succeeds better either as a bush or pyramid than when grown against a wall. Duchesse d'Angoulême ripened next, and has been a great success. In some seasons it is only half-melting and gritty, particularly if the trees are on the pear stock, but this year the flesh was melting and the flavour rich and luscious. Perhaps it is only fair to add that it is grown here in a bush form, and worked on the quince stock, and it is from such trees that the best results are to be obtained with this variety. Its near relative, Pitmaston Duchess, grew to large dimensions, and has perhaps never been better flavoured. Alexandre Lambre, too, must not be forgotten, as both the size and flavour have been first-rate.

Beurré Hardy, which is such a regular cropper, is now in use; the fruits are very fine and high coloured, the flesh melting, juicy, and rich. Beurré Superfin is ripening fast, in fact some fruits are already fit for table, and are first-rate, which is invariably the rule with this variety. Before these lines appear Doyenne du Comice will be over; it has done remarkably well, the specimens being very large, highly coloured, and exceedingly luscious. Durondeau, as usual, is conspicuous by its rich, reddish-brown coloured skin, while in point of size it is equal to those produced in former years. This pear requires a thoroughly warm summer and autumn to render its flesh quite buttery, and to free it from the rough flavour which characterises it in some seasons. This year it is first-rate. Maréchal de la Cour is now in perfection, and I have sent fine fruits of it to table the last few days. There is a marked distinction in the appearance of this pear when grown against a wall and out in the open garden. In the first case the skins are quite smooth, and in the latter russety and rather rough, but as regards flavour matters are equal. Marie Louise will be ready in a few days, and, as this is always of high quality, it may be taken for granted that it will this season prove no exception to the rule. A new pear to me, which has fruited for the first time here, is Beurré Alexander Lucas, which in point of flavour is equal to any of the foregoing varieties. To succeed Marie Louise, and to carry us on to the end of the year, we have Althorpe Crassane, a good old pear, which usually lasts in good condition a considerable length of time; Beurré d'Anjou, Passe Colmar, Nouvelle Fulvie, and Beurré d'Aremberg. About the end of December Winter Nelis, Zepherin Gregoire, and Knight's Monarch should be ready, to be followed by that grand mid-winter pear, Glout Morceau, the fruits of which are extra large and the crop a heavy one this season.

Stoke Edith Gardens. A. WARD.

NEW AND SCARCE HYACINTHS.

NEW varieties are constantly putting in an appearance, but it is difficult to obtain anything that is a marked improvement upon the fine varieties already in cultivation. Time is required to bring seedling hyacinths into flower, and when they have bloomed, and appear to be of a promising character, they have to be put to a severe test to show actual advance and constancy; these assured, the work of propagation is then prosecuted with vigour, in order to secure sufficient stock to enable them to be distributed.

The novelties I have seen during the past two or three years are Atchina, single, red, the colour of Koh-i-Noor, but a more massive spike, and therefore it may be regarded as an improvement upon it. Cardinal Wiseman, single, red, is of a rich deep pink or pale rose, and throws a massive spike, one of the largest among the single varieties; it is very pleasing in colour. Enchantress, single, blue, is a lovely pale blue in the way of Czar Peter, but with a longer spike; a fine addition to a section which already includes some charming types. Isabella, double, white, is a magnificent variety, the blossoms perfectly double, the spikes close and compact, symmetrical, and very fine for exhibition. La Belle, single, blush, also known under the name of Jacques, is something in the way of Grandeur A'Merveille, with a massive spike; but it is likely to be high priced for a few years. L'Espérance, single, blue, is of a rich dark purple shade, and throws a very fine symmetrical spike; it deserves to be included in a select collection. McMahon, single, yellow, is pale soft yellow, and for one of this section produces a very fine solid spike, but it is not so deep in colour as City of Haarlem, single, yellow, which obtained an award of merit at one of the meetings of the Royal Horticultural Society, and is the deepest and most refined yellow. Marchioness of Lorne, single, yellow, is of a delicate salmon-buff colour, quite novel, and every way desirable; it is perhaps a seedling from Duc de Malakoff. Pink Perfection, single, red, or soft pink, is an improvement upon Gigantea, and produces a handsome massive spike. Rosea maxima, single, red, is in the same way; it is of a lovely shade of pale soft pink, and will be generally appreciated. Stanley, single, red, is of a deep pink tint, and throws a compact, handsome spike, not large, but it is one of the best light reds in commerce; unfortunately the bulbs are small, and it is generally thought that a small bulb produces a small spike. Souvenir, single, blue, is of a rich porcelain blue, and forms a compact, symmetrical spike. Queen of Naples, single, red, is of a rich deep rose, the bells having a pale centre, and it appears to be a decided best over King of the Reds. A decided acquisition, T. Cremar, single, blue, is an improvement on Lord Palmerston, which is of a lovely soft blue, because it throws a better spike; but those who grow Lord Palmerston will not soon give it up, because of its delightful soft tint. Waterloo, single, red, a name which was given many years ago to perhaps the oldest of the double red varieties, is of a rich pale coral pink shade, paler than Norma, and likely to become a general favourite.

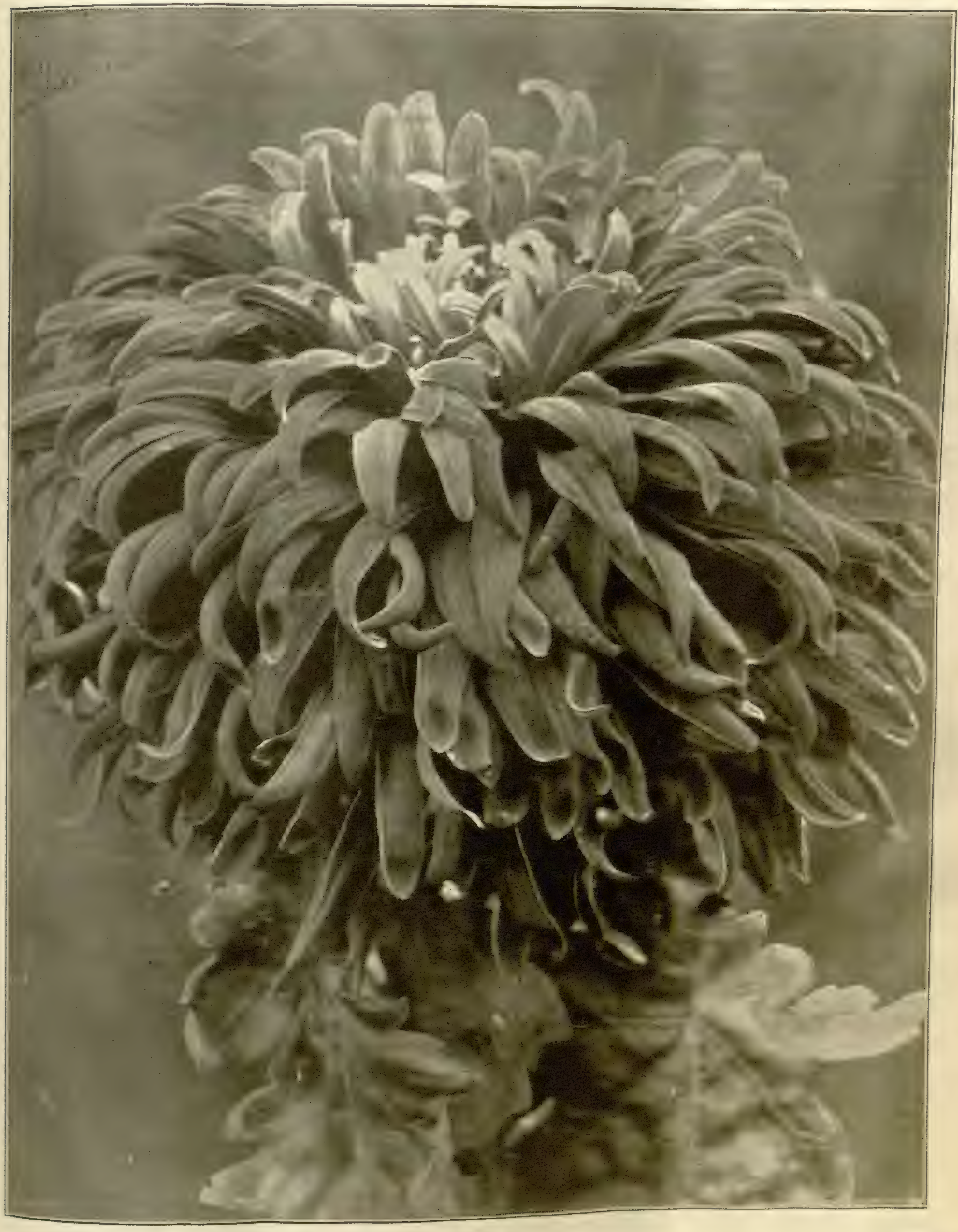
A very fine selection of hyacinths for house decoration and exhibition purposes will be found in Czar Peter, Captain Bovton, Grand Maître, King of the Blues, the best true blue; and William III., an improvement on William I., all single blues; Fabiola, Lord Macaulay, Moreno, a charming and most constant coral pink variety; pink Charles Dickens, like its blue namesake, always to be depended upon; and Roi des Belges, single reds. Balfour and Sir W. Mansfield are two single purple or claret shades, and the best of the section. La Grandesse, L'Innocence, and Mont Blanc are all pure single whites of great beauty; also Grandeur A'Merveille and Leviathan, single blush. King of Yellows, Ida, and Heroine are the best single yellows.

Three-quarters of a century ago the double hyacinths were all the rage, and there were but very few single varieties in cultivation. The reverse holds good now, yet there are some who like to have a few double varieties in their selection. To such the following may be confidently recommended: double red, Princess Louise, the darkest, and very fine; Groot Vorst, blush, a very fine old variety; Lord Wellington, a delicate blush pink, with very large and handsome bells; and Noble par Merite, rose; La Tour d'Auvergne, white, also a very old variety; and the old Anna Maria, with its fine shaped bells and dark centre; Bloksberg, Charles Dickens, Laurens Koster, blue, and Victory, a new and fine variety of a purple shade. There are no double yellows worth mentioning.

Varieties which naturally flower early will be found in La Tour d'Auvergne, double; Alba superbissima, and Blanchard, single, white; Amy, General Pellissier, and Norma, single, shades of red and pink; and Bloksberg, blue. The hyacinth still holds its own as a highly popular spring flowering subject.

R. DEAN.

A Pear within a Pear.—Examples of this not uncommon monstrosity have been recently exhibited by Mr. W. J. Clarke, Manor House, Benbrook, Market Rasen, and Mr. J. T. Bennett Poë. The pear has no core, but in its place the apical bud develops into another pseudo-pear. The terminal bud then attempts to produce a third or more; finally a tuft of small leaves at the top represents the still growing terminal bud.



CHRYSANTHEMUM H. J. JONES.

DO CHRYSANTHEMUMS WEAR OUT?

ON the whole I endorse your Editorial remarks under this heading that appeared in the issue of November 19th. There can be little or no doubt that among chrysanthemums, as among other plants, and most animals also, over-feeding tends to weakness, exhaustion, disease, and death. Through this cause horticulture has lost many rich and valuable treasures, and there can be little doubt that far more of our valuable plants have been fed, rather than starved, to death. Starvation rather stunts growth than destroys life. Probably, then, the Queen of England and many other favourite chrysanthemums, incurved or otherwise, have suffered considerably and lost much vigour of constitution through the extreme concentration of vital force in the plant by the modern methods of culture. I was much impressed by the remark of one of our greatest authorities the other day, to the effect that plants capable of furnishing one perfect bloom would generally furnish at least three as well, or better. If this be true, as I believe it is, what, then, becomes of two-thirds of the vital force of the plant? We cannot blow it off as the engine driver does his waste steam. Neither can it always be grown off in seasonable shoots, which may mar the perfection of our blooms, as well as enfeeble the constitutional vigour of our plants.

The intense concentration of force into limited areas, being unnatural, is always accompanied with more or less extra risk or danger to health and life; hence, if two-thirds of the force of a chrysanthemum is allowed to run to waste, what more certain than that this waste—which may be defined as vital force in the wrong place and state—should induce disease or shorten life? An excess of vital force or unappropriated protoplasm is as likely to weaken the health and shorten the longevity of chrysanthemums or other plants as excessive feeding; in fact, they amount to the same thing. No, varieties do not die out through the lapse of years, though they mav be stuffed out through excess of food or choked through having protoplasm sufficient for a dozen blooms crammed into one stem and flower.

But the decline of incurved chrysanthemums, which most of us have noted and regretted, is capable of a more simple explanation. We have fashions among chrysanthemums, as in ladies' dresses or bonnets. So for some years past, and now more than ever, the Japanese forms have been and are still all the rage, but instead of turning penitently to our older loves, the incurved, we are welcoming decoratives and single varieties, almost calling those dwarf Chusan daisies back again. Another revolution in the whirligig of fashion will call the incurved varieties back. At present they are suffering from neglect, and it is hoped that all our finer incurved varieties will return before any of them are lost. Cultivators have only to put their love and skill into the work and incurved flowers will hold their own with the best Japanese.

D. T. FISH.

CHRYSANTHEMUMS IN ITALY.

READERS of the GARDENERS' MAGAZINE will no doubt remember that early in the present year the formation of a National Chrysanthemum Society for Italy was announced. The popular autumn flower has been grown there for some few years, and there is no doubt that the residence of Mr. Briscoe-Ironside, a well-known amateur and great enthusiast in all matters pertaining to the flower, has in no small degree helped to quicken the interest that is now being taken in the chrysanthemum in Italy.

Several gardeners and nurserymen in that country have taken up the subject of seedling raising, chief of whom perhaps is Mr. Alexander Scalarandis, gardener to the King. Then there are others, such as Messrs. Radaelli, Longhi, Ragionieri, Baragiola, &c.

During the past season three shows have been held, viz., at Turin, Pallanza, and Milan. The first was a great success, and was visited on the first day by the King and Queen. Thousands of pot plants were exhibited, and these were mostly remarkable for their dwarfness, hardly any being more than two feet in height. At this show the leading prize-winners were Messrs. Scalarandis, Radaelli, Brocchi, and Briscoe-Ironside.

Pallanza was the scene of another show, although somewhat smaller in extent. Besides showing cut blooms, Mr. Ironside set up an imposing group of pot plants twelve yards long by six yards wide, comprising several hundred varieties, the whole being interspersed with palms, dracænas, foliage and other plants, and here too, as at Turin, Mr. Ironside was the recipient of a medal and diploma in recognition of his display.

The chief interest perhaps to English exhibitors centres itself in the efforts of the Italian N.C.S., whose first annual exhibition was held at Milan from November 10 to 15. It took place in the Fine Art Gallery, and a finer and lighter and more suitable building for such a show would be difficult to find. There are two floors, several passages, besides committee and refreshment rooms, and the walls being covered with pictures gives an additional source of interest to the visitors. The floor space in all is probably equal to that of the Royal Aquarium at Westminster, and it was well filled, the majority of exhibits being pot plants. Mr. Briscoe-Ironside had a room to himself, which he filled with an exhibit with examples of every section of the chrysanthemum, and also with plants. For this he was awarded a gold medal.

The Floral Committee held a meeting, but awarded only two first-class certificates. These went to Mr. Ernest Calvat for the following—Princesse Bassaraba de Brancovan, a large Japanese of the C. B. Hayward type; and Lesdiguirex, also a Japanese of large size, pale orange streaked crimson. At the show there were eighty-four competitors in the forty classes, and after the proceedings of the first day were concluded a banquet was held, at which seventy guests were present, including a delegate from the newly-formed Swiss N.C.S.

C. HARMAN PAYNE.

WONDERS WILL NEVER CEASE we are told; but it cannot be denied that Holloway's Pills are the greatest wonder of modern times. They correct bile, prevent flatulency, cleanse the liver, and purify the system, strengthen the stomach, increase the appetite, invigorate the nerves, promote health, and reinstate the weak to an ardour of feeling never before experienced. The sale of these Pills throughout the globe astonishes everybody, convincing the most sceptical that there is no medicine equal to Holloway's Pills for removing the complaints incidental to the human race. They are indeed a blessing to the afflicted, and a boon to those who suffer from disorders, internal or external. Thousands of persons have testified that by their use alone they have been restored to health, after other remedies had proved unsuccessful.—[ADVT.]

FRUITS FOR COTTAGERS AND SMALL FARMERS.

THE criticisms by the Rev. E. Bartrum, D. D. (p. 770), on the selection committee of the R.H.S. are somewhat severe. There is, however, much truth in what he says and considerable room to doubt the choice of varieties (in many instances) in this latest selection. In criticising all selections of fruit due regard should be paid to local conditions, such as soil, situation, and market requirements. All of these are factors that cannot be lightly disregarded. For instance, Lord Suffield is the best kitchen apple in commerce where the soil is suitable. In other districts, where the soil is heavy and retentive of moisture, this apple will scarcely exist, let alone flourish. Market requirements too need deep consideration. For example, Ecklinville Seedling is quite useless with some fruiterers, who regard it as much too "soft" in the skin and flesh also. For home consumption for the large establishment and for the cottager this cooking apple deserves a place in even the smallest collection. As a bush tree it is perfection, as its habit of growth is all that could be desired, being free yet compact, and as such it should be included in the R.H.S. list. I agree with the Rev. Dr. Bartrum that Blenheim Pippin is an excellent cooking apple, and well deserves a place. Apples that can be eaten, when cooked, without the addition of sugar to make them palatable to all tastes are to be encouraged, and this is one of them. At one time I held a strong objection to Blenheim Pippin, owing to its shy cropping propensities in a young state, but now, after from fifteen to twenty years' growth, I regard it as indispensable; when once thoroughly established it appears to be less influenced by climatic conditions than any other apple, as it gives a crop of fine fruit annually.

The reverend gentleman seems to have missed the substitution of Lord Grosvenor for Lord Suffield, as a bush, by the R.H.S.; with this alteration I quite agree, as the former is much more trustworthy than the latter in a variety of soils. I regard it as quite the best apple for market in August and September. Grenadier with me is shy in bearing. Sturmer Pippin can well be spared from any list, as it has but its free-bearing properties to recommend it, while in flavour it is quite third-rate. Duchess of Oldenberg is one of the best apples for espalier training possible to find; its growth is just what is required, as it produces spurs freely. As a bush, too, it is a desirable form. I should not think of planting this apple as a standard in a position at all exposed to south-west winds, as the fruit at all stages of growth is "soft" and easily damaged. I agree with the committee in placing Alfriston in the list of selected standards; it is a grand apple, free bearing, shapely, keeps well, and is of the finest quality as a cooking variety. Tower of Glammis is not a good grower, being somewhat sparse; perhaps this is why it was omitted by the R.H.S. Cox's Pomona is indeed a strange selection for the dessert; it is as bad as the admission of Wealthy as a dessert variety at exhibitions. Cox's Pomona is a really good market apple, as its handsome colour will sell it anywhere, though hardly a second time, for dessert, to those who consider flavour a desirable stipulation. In my opinion Pott's Seedling is hardly sure of its position, as it is prone to canker in retentive soil, and this should be a strong argument against any variety being included.

Stirling Castle, although one of the most free-bearing varieties, requires much assistance in the way of stimulative food to render its growth free enough to give the best results. It may not be generally known that Lane's Prince Albert is one of the best varieties in existence to plant as a standard; its growth is of that semi-weeping character desirable in a large, well-furnished head on a full or half standard. Mr. Gladstone is much too small, I think, for a typical dessert fruit. Beauty of Bath will prove to be more desirable, and also Red Astrachan. Worcester Pearmain, I see, is included in both selections, bushes and standards, and rightly so when its free cropping and showy appearance are taken into account. If I were confined to one apple for market use I should select Worcester Pearmain, as it is one of those apples that will bring a high price in September, and there is no trouble in storing or loss by wind. No one will dispute the rights of both King of the Pippins and Cox's Orange Pippin to both lists, as both sell readily. Gascoigne's Scarlet I cannot regard as a dessert apple. In the first place it grows too large, and its flavour is quite third-rate. I should replace it with Rosemary Russet or Fearn's Pippin if a late variety were wanted. If this was not imperative I would include Benoni, an eating apple not nearly enough known, but which will in a short time work its way to the front. In appearance it much resembles King of the Pippins, is a trifle flatter on the top, has broader streaks of red on its chest, and ripens between Worcester Pearmain and King of the Pippins, just at a time when dessert apples are exceedingly scarce. In point of flavour it excels King of the Pippins. It is a free cropper and has an upright growth, so that thick planting can be practised with safety.

Swanmore Park. E. MOLYNEUX.

APPLES FOR SMALL CULTIVATORS.

I HAVE no intention of defending the R.H.S. Fruit Committee from the onslaught made by the Rev. Dr. Bartrum on the new "Fruits for Small Growers" pamphlet. That body needs no defence; but it is fair to say that only a limited number of its members, collected from, so far as possible, all parts of the kingdom, are responsible for the lists criticised. It is all very well to say that the new lists include too many varieties, but, while one critic thinks only of those varieties that do well with him, others think of those and diverse ones that do well with them. Hence, when the committee which arranged and reorganised these lists of varieties met some time since, the difficulty encountered was not so much paucity of recommendations as that so many excellent varieties, quite first-class in one part of the country or another, were suggested, and from out of the whole the present lists were formed because essentially representative of the kingdom at large. But everyone knows that beyond these very limited lists there are scores of varieties that are held to be good somewhere. Then the lists were remodelled to show varieties somewhat in the order of ripening, which is an advantage over the alphabetical order. Then the removal of such a very strong growing apple as Blenheim Pippin from the general list to the standards is most wise, because it is quite unfit for the bush method of culture. But, as the lists now give both bush trees and standards, that also necessitated longer ones. Small cultivators need, in gardens, moderate growers, early croppers, and general or reliable croppers also. These the lists give. No human being could give a list of the best half dozen apples for every soil, situation, or district in the kingdom. Growers must of necessity do something from the lists to find out the rest for themselves.

A. DEAN.

WORK FOR THE WEEK.

COOL ORCHIDS.

COLD weather having now set in more fire heat will be needed in the cool houses, but the temperatures this month will reach their lowest points, and should be as follows: Odontoglossum house, 45 to 50 degrees by night and 50 to 55 degrees by day; masdevallia house, 48 to 50 degrees by night and 52 to 58 degrees by day. The object of every cultivator should be to manage with the least amount of fire heat possible; rather let the temperature fall a few degrees than have the pipes excessively hot. On the morning of November 22 our outside thermometer registered 10 degrees of frost, while the temperature of the odontoglossum house was 45 degrees; this was followed a day later by a severe snowstorm and cold, cutting winds—a sudden change, indeed, after such a long spell of mild weather. In such very cold weather the lower portion of the roof and ends of the houses should be covered with Archangel mats, pieces of sackcloth, or any material that will result in a difference of five to eight degrees in the warmth of the house, for by so doing less fire heat is necessary, a saving of fuel is effected, and at the same time a much more healthy condition within the house is maintained. Whatever is chosen as a covering should be so arranged as to be quickly taken off or put on. If Archangel mats are used the ends should be neatly tied, and two or three mats be sewn together, as these may then be easily rolled along the lower parts of the roof at dark, and taken off again at daylight; then in windy weather they may be made secure by laying strips of heavy wood upon them, or by strained cords. If during the night they become wet or frozen they should be thawed and dried before use again. With regard to damping, once or twice a day will be sufficient, according to the fire heat in use, ventilating on all suitable occasions, if only for a few hours during the middle of the day, and always allowing a little air on the leeward side of the house, except when the weather is very severe. Should the weather turn mild again, and very little heat be required from the hot-water pipes, then little or no damping on some days will be needed, as the air which can be admitted freely through the ventilators is fully charged with moisture at this season.

Masdevallia tovarensis is now in bloom, and its snow-white flowers, which appear well above the green foliage, are very acceptable at this dull season. The plants should be kept in the coolest part of the intermediate house, where the flowers remain fresh for several weeks. If the current season's spikes are allowed to remain on the plants they will produce blooms again next year, but it is better to remove them after the flowers fade, as when allowed to remain they sometimes weaken the plants. Care must be taken in watering during the winter, as over-much water at the roots causes the loss of many leaves. Trichopilia fragrans and T. laxa are two other very pretty orchids now in flower, and well worthy of cultivation on account of their delicious perfume. These plants are best grown at the warmest end of the odontoglossum house, and sufficient water should be afforded them to keep the compost just moist while they are in bloom, after which they should be kept moderately dry until growth recommences, when they should be repotted, using well-drained pots and a compost of equal parts peat and sphagnum moss. When potting keep the plants well raised, so that there will be no danger of water lodging in the young growths, for if this happens they soon turn black and decay. After repotting afford a light position, and give water sparingly until root action becomes brisk.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

AMONG winter-flowering plants few prove more welcome than violets, both single and double varieties. Daily gatherings of these, if only in small quantities, are highly appreciated at midwinter; neither are such difficult to obtain with ordinary convenience and careful attention in the way of ventilation, &c. It is of little consequence now how strong and healthy the plants may have been when placed in their winter quarters last September. A close watch must be kept on the plants to ensure their maintaining a supply of their fragrant flowers through these short, sunless days. Damp and mildew on the one hand and red spider on the other are evils the grower has to contend with and guard against. To check the former plenty of light and ventilation is imperative, as a low, sluggish atmosphere is not only sure to set up mildew on the foliage, but what few buds do show fail to open. It is only during inclement weather that the sashes should be closed, it being better to draw them off entirely whenever possible. Where the plants are growing in heated pits the hot-water pipes may be slightly warmed during damp or severe weather merely to keep the atmosphere buoyant and dispel moisture. Bouvardias, especially the double varieties, will now be furnishing serviceable supplies of cut blooms, and will continue to do so for some weeks if the plants are kept in a fairly warm greenhouse and new growth from the base encouraged. These sucker-like shoots often produce the finest trusses of bloom, but liberal feeding at the roots is necessary, and, of course, it is only well-rooted and healthy plants which can be so treated and yield a good return.

Carnations revel in a light, airy house, but it is necessary to apply a little fire heat to assist the flowers to develop. This, together with less ventilation, necessitates a slight fumigation occasionally to check green fly, which soon attacks the tips of the young growth and checks their progress. It is just now that the sweetly-scented marguerite section proves so valuable for cutting. Flowers of all shades, and only a small percentage of single ones, are obtained from a packet of seed sown the previous spring. Some, indeed, are so fine that they equal named varieties of the tree section, and are worthy of propagation, but by securing seed from a reliable source it hardly becomes necessary to go to the extra trouble of taking cuttings; though, instead of throwing the old plants away, we have found it a good plan to select just the best, place them in a cold frame when they pass out of flower, and pot them on in the spring. The pots may be plunged in ordinary borders the following summer, where they make free growth, which can be loosely tied to neat sticks. They can be lifted again in autumn, when they commence to give a wealth of bloom directly they are placed under glass. It is not desirable to retain the plants after the second year.

The season is once more with us when it is necessary to select and put in some cuttings of different varieties of chrysanthemums. An ordinary cold frame often has to be used for this purpose; indeed, nothing could be better, providing the cutting pots are kept near the glass, and the weather does not necessitate extra covering, which, of course, keeps the interior in darkness, sometimes for days together. The better plan is to make a temporary shallow frame on the side stage in the greenhouse, covering it with panes of glass. Here the cuttings will not suffer for the want of light; they can be attended to in all weathers, and there will be few losses, which is most important at all times, but more so when new varieties are added, and for which a good price has been paid. From now onwards most plants required for the decoration of dwelling-rooms and the conservatory will first have to go through a slight process of forcing. It is much better to commence such operations in good time, so as not to subject the plants to a much higher temperature than is really necessary for them to be ready by a certain date. As a rule the less fire heat and humidity they receive the more substance there is in the bloom, and the longer it lasts in a good condition either on the plants or in a cut state. Suitable green foliage for arranging with cut flowers is not always plentiful during the winter unless the stock of fern is cut hard. To save this ordinary asparagus seed should be sown at once, either in shallow boxes or small pots. Place in gentle warmth, and when the young plants appear they should be arranged near the glass. This is an easy way of providing suitable material for the decorator, and being light and graceful it can be used in various ways with pleasing effect.—R. PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

THE wet weather of the past week has prevented working the land where the soil is heavy, but there is ample work in other quarters requiring attention. The leaves remaining longer than usual before they fell has prevented them from being collected for making hotbeds, but as they have now fallen they should be brought together for that purpose before they decay. Leaves are much more useful for making hotbeds if gathered dry, as they then retain heat much longer and do not rot so soon. At this time of the year it is necessary to have a greater bulk, to maintain the requisite warmth for forcing, than in the spring, when the days are longer and the sun has more power; it is therefore of the utmost importance that the materials used be thoroughly mixed by turning them over two or three times to cause the violent heat to pass off. Since the employment of hot water for bottom heat the same amount of care and attention has not been paid to the preparation of materials for hotbeds, but for forcing vegetables there is nothing so congenial to growth as a gentle warmth generated by manure and leaves.

Where delicate carrots are in request very early in the season the seed must be sown at the present time, as the crop will not stand too much forcing. The soil used should be moderately dry when put on the hotbed, and should be of a thickness of at least six inches, which should be made fairly firm previous to the sowing of the seed. If sown in drills these should not be more than four inches apart, as many of the roots will be drawn for use while they are small; this will allow more room for the others to develop. Parisian Forcing Gem, Inimitable, and those of that class are more serviceable, as they make up quickly and do not require much depth of soil to root in. Some recommend sowing radishes amongst the carrots, but this is a mistake, as the broad leaves of the former overcrowd the latter and cause them to be drawn up spindly; better by far have a light or two of each than sow them together. Of radishes there are numerous varieties suitable for sowing on hotbeds, but those making the least foliage should have the preference, as they do not take up so much room; and, as they are drawn when young, a greater bulk can be had from a limited space. French beans in pits that are not well ventilated will now need constant attention, for during such damp weather as we have experienced of late it is difficult to persuade the blooms to set; for this reason air should be admitted on all favourable occasions to dry up the damp.

Rhubarb roots should be taken up and stored in a convenient place where they can be covered with litter to protect them from severe frosts, for it sometimes happens when the ground is frozen hard the roots cannot be lifted when required. Fresh batches of seakale should also be introduced into a gentle heat to keep up a supply. Roots in the open quarters may be taken up and laid in under a north wall, covering a portion with litter that they may be in readiness at any time when required. During bad weather, and where room can be provided, all the early potatos should be stood on their ends in shallow boxes. The sets ought not to be unduly excited unless required for forcing, as the more robust the growth the better the results after planting. Pay particular attention to blanching endive, chicory, and other salad stuffs.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

THE time is now fast approaching when those who have to provide as great a variety of fruits as early as possible in the year will find it necessary to commence operations in earnest. I have already dealt with some of these, such as grapes, peaches, and figs, but these are probably the easiest of fruits to deal with, and others will be wanted. Cherries and plums may occupy one house, as their treatment is identical, and the earliest crops of these are generally taken from pot trees, a convenient method, as by its use greater variety may be had from one house, the various sorts grown coming on in succession to each other. Slow and sure must be the policy with these, as they are both particularly impatient of much fire heat; therefore it is better to start slowly early in the season than to be obliged to drive them later. Both, too, are very subject to aphides, so cleanliness in the house is imperative; all the walls and glass should be subjected to a thorough cleansing before the trees are brought under cover. The trees will pay for a good top-dressing of rich compost; first, the top soil should be removed down to the roots and the new material rammed firmly over them. Commence forcing with a minimum temperature of something under rather than over 40 degrees, and allow a rise to about 55 degrees with sun heat. The trees may be syringed daily in the mornings, and in mild weather this may be repeated in the afternoons, but it should not be prolonged beyond the bud stage. Keep a constant look out for aphides, as some of these will probably be found lurking round the buds, even before the latter burst, and they are then easily dealt with. See that the roots are in a fairly moist condition, as they must on no account become dry. A little top ventilation should be given early on the mornings of bright days to prevent over-excitement of the buds.

Very early strawberries are generally poor things from a flavour standpoint, and to bring them to anything approaching good quality they need great care in management throughout. For this work I still stick to the old favourite Vicomtesse Hericart de Thury, which is one of the most certain of croppers in pots, and equal to any in point of flavour. A well-made mild hotbed, consisting principally of leaves, and brought up to within quite a short distance of the glass, is a great help to early strawberries. On this the plants should be stood thinly enough to prevent crowding, and if the bottom heat thus given is about 75 degrees, while the temperature of the house does not exceed 55 degrees, the roots will become active before the tops move, and this will tend to produce strong and sturdy flower spikes. Of course, the house should be a light one, with well cleaned glass. One important thing in strawberry forcing at any time is that the plants shall never become dry at the roots; the atmosphere of the house, too, should be kept moist up to the time of flowering. Before starting the plants it is wise to dip them into some anti-mildew preparation to destroy any spores that may be present on the old foliage; the sulphur which will be contained in the mixture will also have a deterrent effect on red spider. As soon as the plants commence growing, and show their buds, keep a sharp eye on them for green-fly, which, according to precedent, promise to be very plentiful during the coming season. To check these vaporise the house once a week with one or other of the nicotine vaporisers on the market.

Push on all work of pruning, washing, and tying peaches in late houses, as such work ought to be completed before the end of the year. I may again repeat a remark I often make, viz., that the best results are invariably produced by thin-trained trees, and that to leave a lot of superfluous wood or spurs is only to court troubles in the future. —J. C. TALLACK, *Livermere Park Gardens.*

THE DAFFODIL IN CORNWALL.

(Concluded from page 792.)

IT may, however, be asked, what warrant is there that all this affection for daffodils is not the unstable fashion of an hour? Why should not the daffodil be dethroned and another favourite reign? An amateur who has in his garden never less than some 30,000 of his own seedlings, a link in a chain of experimental work reaching over more than a decade and a half of years, must often have pondered this question. But after long thought and conference with the most piercing horticultural intellects I have retired into the solacing conviction that while roses are gathered and strawberries eaten the daffodil's empire will not be seriously threatened. The spring flower seems not to exist in nature, and cannot be evolved from the most fertile inner consciousness, which shall supersede the daffodil. Sumptuary laws are not for our times; though prices should mount to £1,000 a bulb the traffic will not be put down by Act of Parliament, as was the tulip craze of the first half of the seventeenth century in the Netherlands. Mr. George Monro, the salesman and prophet of Covent Garden, is of opinion that with regard to cut blooms we are but at the beginning of the demand for the best produce, that is, for the finest kinds perfectly grown and consigned to market in perfection. The costly elaboration in letter and picture of the daffodil specialist's catalogue, and the undeprecating boldness of its prices in guineas of two figures, argue that the daffodil cult is not on the wane, and the guarantee of its permanence lies in the intrinsic excellence of the flower. What other has the abundant market qualifications of great earliness in the open air; fresh and delicate colour, ability to store water in its cells and keep fresh two days without a drink, like a camel crossing the desert, and, by no means least, a flower at right angles to a long stem, so that it makes up into long bunches facing one way for display, and travelling uncrushed in shallow boxes. The outdoor hyacinth is profitless for cut bloom; it comes much later, will not bunch, and is too rank of scent in rooms. The attempts made of late to "boom" the tulip have fallen flat. The florist's tulip proper runs into the plethora of early summer flowers; its bloom is fugitive, and, to quote from a Cornish amateur, "in a quite common combination of sun and rain is ruined by a kind of small-pox."

A character which has endeared the daffodil to our gardens is that of all spring flowers it is the most lily-like. Botanically it is separated from the true lilies by certain features, as that of the seed vessel being formed outside instead of within the corolla. But the popular names "Lent Lily" and "Mount Lily" show that it has by a true discernment been recognised as a lily, a flower of queenly rank, removed from the crowd by a certain aristocratic grace of presence The first flower of note to appease our winter-long hunger, the very tips of its strong leaves are rejoiced in as they break the soil:—

> "When daffodils begin to peer,
>
> . . . . . .
>
> Why, then comes in the sweet o' the year."

"E molto bello: è il primo fiore della primavera," was the appreciative comment of an Italian labourer as he watched me digging up a wild yellow daffodil by the roadside outside Lucca. This fearlessness of our rough English spring—March is "the roaring moon of daffodils"—has made it pre-eminently an English flower, and the bands of Englishmen have fashioned it to its present beauty. Over two and a-half centuries ago Parkinson had anticipated Mr. Peter Barr in employing Pyrenean "root collectors," and describes some hundred kinds of daffodil. The magic art of cross-fertilisation was then undreamed of, and the possibilities latent in Parkinson's store awaited the coming of Herbert, first Dean of Manchester. Herbert, who, in one side of his versatile genius was something of a pre-Darwinian Darwin, published, in 1843, the results of many years' experiments at his Yorkshire rectory of Spofforth, and demonstrated that the short-crowned narcissi of the reputed "species" N. incomparabilis are really hybrids between the trumpet daffodils and the pheasant eye or N. poeticus. The first to avail themselves of this discovery, of such paramount importance for the enrichment of the spring garden, were Messrs. Leeds, of Longford Bridge, near Manchester, and Backhouse, of Walsingham By effecting this cross in variety, and intercrossing the resultant seedlings with other flowers and one another, they obtained the host of lovely forms now in common cultivation. These, again, are being sedulously used by the hybridist for the further evolution of size, form, and colour. The subsequent workers in the same field have all been Englishmen. A few fine trumpet daffodils have been raised in Holland, notably the very beautiful white Madame de Graaff by Messrs. de Graaff, of Leyden, but these seem to have been chance seedlings, and it is a curious fact that the Dutch, reputed quick to discern any avenue of profit, have never deliberately taken in hand the hybridisation of the narcissus. The best Polyanthus Narcissi or Tazzettas are, it is true, of Dutch origin, but these do not rank in general esteem or money value with other daffodils, and have scarcely been improved for a century. Leeds sold his entire collection for a hundred guineas, and the sum was thought so large that it was found by a small company of purchasers. Twenty times the amount would now be thought a small price. At the death of John Horsefield, the Lancashire weaver, who raised the fine white and gold trumpet daffodil bearing his name, the few bulbs were sold by auction for eighteenpence apiece—*sic vos non vobis*.

A propos of the essentially English associations of the daffodil, I have been told by Mons. H. L. de Vilmorin, of the great French firm of seedsmen and florists, that the venture of growing it on a large scale for the Paris market failed entirely. The more fanciful and fickle Parisian tires of a continuance of one flower, liking here a bit of white lilac, there a spray of mimosa or a bunch of Riviera anemones, but only now and then a daffodil. In France, too, there has never prevailed, as in England, what may be termed intensive gardening, the loving and exhaustive study of some one particular flower in all its phases and potentialities. The sight is inconceivable in France, which may be witnessed any April at a Royal Horticultural Society's gathering, of four men standing rapt and abstracted, their heads in close contact over a match-box containing a single "pip" or floweret of a new auricula seedling. The minutiæ of distinction between daffodils like "tweedledum and tweedledee" to the casual eye, their more subtle nuances of shape, tint, and growth, are for the specialist, the daffodil florist proper, and it is vain to reproach him for distinguishing between things indistinguishable. Wherever the mind's full interest is long bent upon a numerous class of objects, the critical faculty develops, and the eye, without either straining or make believe, acquires powers both telescopic and microscopic.

But there is no lack of more obvious charms in the daffodil. In its resources of form and colour there is a limitation, a certain restraint and sobriety, which belong to the highest beauty no less in nature than in art. It loses nothing when compared with the orchid's fuller colour-palette and bizarre eccentricity of form. In its general chalice or bell-like contour it presents but two elements, the inner crown, cup, or eye, and the outer whorl or perianth of six petals, or, more accurately, sepals. The crown may be a long tube or funnel, as in the trumpet daffodils, or a shallow eye defined by a rim not a quarter of an inch deep, as in the poeticus. But cross the trumpet and the poeticus, and again intercross parents and progeny, and the central portion of the flower exhibits every gradation in depth of cup, bowl, saucer, and plate, to draw a familiar comparison from the wholly inadequate resources of the modern crockery cupboard. An apter but over recondite illustration might be found in the more varied and graceful curves of the equivalent Greek and Roman vessels. The colour elements are only yellow, white, and red. The yellow—a cheerful and satisfying colour in flowers—is of large range, from the richest gold of the stately Maximus or Santa Maria, a still deeper toned flower discovered in Spain by Mr. Peter Barr, to the cream of Pallidus præcox, which consorts so exquisitely with the purple of violets or Iris reticulata. In one catalogue I find the yellows described as orange, lemon, primrose, canary, gold, sulphur, with light, full, rich, clear, soft, and a dozen other modifying adjectives. The daffodil's whitest white, almost the negation of colour, is found in the poeticus, especially the late P. recurvus. Elsewhere the whites are those of the ecclesiastical embroiderer, the faintest possible creams, greens, and, in the cups of some of the Leedsi class, citrons and pinks. When left to dress itself the daffodil employs red with quite niggardly discretion, as though to merely accentuate and set off its yellow and white. The purple brown thread which rings the eye of N. poeticus sometimes appears in its seedlings and hybrids as a ribbon-edge or a suffusion of red. By intercrossing such flowers an accumulation of the colour may result, and some of my own most recent seedlings have cups of almost true scarlet. This intensified red is held to be one of the goals of the hybridist and is greatly coveted, but I must own to private misgivings whether violence has not been done to the daffodil's better taste, and the lighter touches of colour are not more pleasing. Should a seedling ever attain to full red in both cup and petals, it would command an enormous price, but artistically considered would be somewhat of an outrage. The most disdainful of all daffodils in its rejection of red is the dainty little N. triandrus, with pale, clustered, cyclamen-like blossoms, as common in parts of Portugal as the primrose in Cornwall, but practically unknown in England until fifteen years ago. From this, crossed with the larger garden kinds, I have a series of perfectly lovely hybrids with pendant fuchsia-like flowers of the most refined cream and ivory whites. But cross it as you will with the most brilliant of the red-cupped sorts the seedlings perpetuate its own simpler apparel, and never show a trace of red.

A race more delightful to myself than perhaps any other are the Leedsi varieties, intermediate between N. poeticus and the white trumpets. It is remarkable that in this cross the former parent effaces the weakliness of the latter, and supplies a diversity of vigorous and very lovely white flowers. In the cups of some of these a quite exquisite range of colouring occurs, which can be only imperfectly conveyed by such words as salmon, citron, apricot. Recent seedlings perhaps foreshow the coming of true pink in the daffodil. To appreciate these delicate tints the flowers should be studied in the late afternoon when the sun is off them and they seem to create a still, magical atmosphere about themselves.

A discourse upon the whole art and mystery of seedling raising would far transgress the bounds of this paper, but it should be urged that the time is at hand when this department will be necessary to every gardener abreast of the times in the culture of flowers, fruit, or vegetables, to the least amateur and to the largest farmer. Seed selection and cross fertilisation are as certain to supersede, or at least supplement, the mere propagation of existing plants as the electric light is to extinguish gas. Absolutely nothing has been done in this province in comparison with what awaits the educated and industrious worker. A certain fortune, for instance, is in store for the young man who will devote his life to the scientific improvement of our fruits. In narcissi there are still many desiderata; large early yellow trumpets of sturdier constitution; finer and stronger white trumpets; short-crowned flowers, of the size and vigour of Sir Watkin, of uniform clear white, and others with cups of full red. The Polyanthus Narcissus is still capable of advancement in size and colour. I cannot join in the current depreciation of this beautiful plant; its earliness and perfection of growth in Cornwall should draw more attention to its possibilities. The poeticus may be enlarged and the eye deepened in colour.

My remark at the outset, that the Cornish daffodils ought to be unsurpassed, was not of the ungrateful nature of general faint praise, but referred to one point only. The *répertoire* of the market growers has struck me as rather meagre. The truth is questionable of the common objections that it does not pay to buy new varieties, and that the public do not distinguish between one kind and another. The wise grower will not invest largely in an untried bulb, however striking the flower may be at a show, but he will not neglect to have a small experimental bed of the newest introductions. It is strange that the bright yellow and red and the immense vigour of Barri conspicuus have not caused it to be more largely grown. That very fine golden trumpet, M. J. Berkeley, of the maximus order, but less shy in bloom, should well repay an enterprising buyer. The new bicolor, Victoria, is dear at present, but increases fast, and for size and substance will supersede Horsfieldi and Empress. More attention should be paid to the best Leedsi kinds, such as Minnie Hume and Duchess of Westminster. The spot or mildew which has lately invaded the former may be a transient effect of season. The Covent Garden salesmen tell me that good white narcissi, such as these, are wanted. It may be an excellent investment to give £5 or £10 for a bulb of a small new stock. An instance is known to me of £5 being paid for one Madame de Graaff, and at the end of three years three of its increase being sold for £12 and three still retained. A midland florist expresses to me his regret that he purchased only one bulb of Weardale Perfection on its first appearance at £12 12s. apiece.

On the subject of cultivation I am reluctant to say much. The dilemma besets me that upon the general requirements of a plant it is superfluous, and upon its local requirements presumptuous to speak. Let me not fall into the pit of the technical education lecturer on horticulture, who, in my country side of chalk downs, with the nearest water a hundred feet from the surface, devoted the whole of his introductory lecture to methods of drainage. Mr. Andrew Lawry was amiable enough to follow my suggestion and plant his ornatus deeper, but found he had made a mistake. That the following practices are beneficial I do not doubt. Early planting and early lifting; rotation of cropping, *i.e.*, not growing daffodils, or at least not similar kinds, upon the same plot for long together: an occasional entire change of stock with a distant grower, if feasible; manuring from the surface with soluble phosphate, such as dissolved bone. The much advertised basic slag is valueless on most, perhaps on all, Cornish soils.

REV. GEORGE ENGLEHEART, in *The Cornish Magazine.*

A Supposed Dahlia-Sunflower Hybrid has been forwarded to the Royal Horticultural Society for the second time this season by Mr. Lowe. The specimens were very much arrested in growth and malformed; but they would otherwise be regarded as dahlias. It may be observed that M. Martin Cahuzac attempted to cross the dahlia with the chrysanthemum; but in his case, as with Mr. Lowe, the supposed hybrid did not appear to be very marked.

EXHIBITIONS AND MEETINGS.

NATIONAL CHRYSANTHEMUM SOCIETY, December 6, 7, and 8.

ON this occasion there was held at the Royal Aquarium an exceptionally fine late show, and probably on no previous occasion has there been such a good December display. The competition throughout was good and the flowers first-rate; decorative exhibits were also good, and the non-competitive displays by Mr. Davis, Mr. H. J. Jones, and Messrs. H. Cannell and Sons were first rate.

CUT BLOOMS.

In the principal cut bloom class for two dozen Japanese varieties, in not less than eighteen varieties, Mr. T. Lunt, gardener to A. Stirling, Esq., Keir, Dunblane, N.B., followed up his previous great successes in the north by winning the first prize thus far south; his varieties were Simplicity, Australie, J. Seward, Mons. Hoste, Matthew Hodgson, Mons. Gruyer, Mrs. H. Weeks, Oceana, Mrs. F. A. Bevan, Niveus, Khama, Mdlle. M. A. de Galbert, Mary Molyneux, Graphic, Mrs. G. W. Palmer, Duchess of York, and Louise. There were six entries, Mr. R. Kenyon, gardener to A. F. Hills, Esq., Monkhams, Woodford Green, coming second; and Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Cottage, Reigate, third. Mr. Lunt was also the most successful competitor in the class for twelve distinct Japanese, staging Graphic, Mrs. H. Weeks, Edith Tabor, Simplicity, Khama, Niveus, Australie, Oceana, Matthew Hodgson, Mons. Gruyer, Madame P. Rivoire, and Louise; Mr. R. C. Notcutt, Broughton Nurseries, Ipswich, second; Mr. F. King, gardener to A. F. Perkins, Esq., Holmwood, Surrey, third; and Mr. R. Kenyon, fourth. There were no less than nine entries in this class.

There were eight competitors in the class for six Japanese blooms distinct, the first prize falling to Mr. J. Sandford, gardener to G. W. Wright Ingle, Esq., Woodhouse, Finchley, who showed excellent flowers of Silver King, G. J. Warren, C. W. Richardson, Madame Carnot, Simplicity, and Golden Gate; Mr. Lunt, second; and Mr. G. Elder, gardener to J. W. Benson, Esq., Walton-on-the-Hill, Epsom, third.

It must surely be a record to find eight stands of twelve incurved blooms at a December show, but that was the number of sets for which Mr. F. King secured the first prize with first-rate blooms of Mdlle. Lucie Faure, The Egyptian, Miss P. Fowler, C. B. Whitnall, Miss V. Foster, Bonnie Dundee (2), Lord Rosebery, L'Amethiste; Mr. F. G. Foster, Brockhampton Nursery, Havant, second; and Mr. R, Bassil, gardener to D. H. Evans, Esq., Pangbourne, third. A good and interesting class was that provided for two dozen bunches of chrysanthemums, three blooms per bunch, and here Mr. W. Howe, gardener to Sir H. Tate, Bart., Streatham Common, won first place with a good set, mostly of Japanese varieties; Mr. N. Davis, Framfield, second, showing pretty decorative varieties; Mr. S. G. Cook, Hendon, third.

The first prize for a dozen bunches of Japanese blooms, not less than six varieties, and three blooms per bunch, arranged in vases with long stems and foliage, was won by Mr. R. C. Notcutt, who had a good exhibit of Etoile de Lyon, Matthew Hodgson, Cheaberque, Mrs. Maling Grant, Lady Northcote, Julia Scaramanga, Madame Laurence Zede, Golden Gate, Silver King, Master I. H. Tucker, Niveus, and C. W. Richardson. For six bunches of Japanese blooms, three blooms per bunch, Mr. J. Hoath, gardener to A. W. Chapman, Esq., Farnham, won with bright and clean blooms of Mons. Panckoucke, M. Gruyer, Western King, Etoile de Lyon, Oceana, and Australie; Mr. G. Elder, second; and Mr. T. Robinson, third.

Mr. G. C. Farmer, Maidstone, won the prize for six Japanese blooms, amateurs; Mr. F. Durrant, Ware, second; and Mr. G. P. Clark, Hitchin, third. Other prize-winners were Mr. L. Gooch, Mr. W. Perrin, and Mr. H. Love. Mr. Perrin, gardener to C. W. Richardson Esq., Sawbridgeworth, won the chief award for a dozen Japanese blooms, his best flowers being Graphic, Madame Carnot, and G. J. Warren; Mr. H. Love, second; and Mr. Hooney, third Mr. T. Tullett, gardener to G. Alexander Esq., Brentwood, led for six bunches. of small flowered single varieties, Nellie Robinson and Miss Anderson being well shown; Mr. A. Page, North Finchley, second; and Mr. A. Felgate, third. For large flowered single varieties, six bunches, Mr. Felgate came to the front with fine flowers of Captain Felgate, Yellow Giant, Mrs. Felgate, Duchess Elizabeth, and Seedling No. 25; Mr. Tullett, second; and Mr. Meridew, Camberwell, third. Mr. G. W. Forbes, gardener to Madame Nicols, Surbiton, scored for a dozen bunches of large flowered single varieties, winning with big flowers of Turcola, Earlswood Glory, Admiral Sir T. Symonds, Yellow Giant, J. Arter, Miss Brown, Purity, Victoria, and Rudbeckia; Mr. A. Felgate came second and Mr. W. C. Pagram third.

PLANTS AND FLORAL DESIGNS.

Mr. A. Newell, gardener to Sir E. Saunders, Fairlawn, Wimbledon Common, staged the best table of plants, putting up a pretty arrangement of crotons, poinsettias, dracænas, palms, bouvardias, Roman hyacinths, Begonia Gloire de Lorraine, &c.; Mr. W. Howe, second, with a rather heavier arrangement. Mr. W. Orpwood, Uxbridge, was first for a table of cyclamen with handsome plants well flowered; the same competitor also led for primulas. An exceedingly pretty basket of berries and autumn foliage secured for Miss C. B. Cole, Feltham, the first prize in a class for the same; Mr. A. Newell was placed second, and Mrs. Newell third, Miss Easterbrook gaining an extra. Mr. W. C. Pagram led for a vase of chrysanthemums arranged with foliage, showing single varieties effectively; Mr. A. Page second, and Mr. A. Hooney, East Barnet, third. For one large vase of chrysanthemums, arranged with berries and foliage, Mr. D. B. Crane came first with a stand of yellow flowers; Mr. A. Taylor second, and Mr. E. Jones, Bedford, third.

NON COMPETITIVE EXHIBITS.

Considering the lateness of the present show, the grand exhibit put up by Mr. Norman Davis, Framfield Nurseries, Sussex, was very wonderful. He had magnificent bunches of Madame Carnot, G. J. Warren, Western King, King of the Plumes, &c., &c., staged in big vases; and some of the huge bunches contained as many as twelve or eighteen flowers of exhibition size. The examples of G. J. Warren and Madame Carnot, on boards, were splendid, so also were the single, decorative, and market varieties arranged in smaller vases and baskets. The whole produced a grand effect, together with small crotons, palms, ferns, &c. A large gold medal was awarded.

A magnificent exhibit of chrysanthemums was set up by Mr. H. J. Jones, Lewisham, who used his large Japanese vases for huge bunches of good bloom, one variety in each vase. There were also some pretty baskets of flowers, mostly of exhibition size, and representing a number of distinct varieties. Small plants and bunches of small flowers formed a groundwork for the big vases, while in front were thirteen stands, each containing a dozen good blooms of the best Japanese varieties, such as G. J. Warren, Matthew Hodgson, Western King, Duchess of York, Mr. A. Barrett, Iserette, Silver King, Joseph Chamberlain, M. Chenon de Leche, &c. Mr. H. J. Jones was deservedly awarded a gold medal. Mr. T. S. Ware sent a table of plants and cut flowers. Mr. R. Owen, Maidenhead, had a charming display of chrysanthemums, arranging them in large vases and on boards. A large table was occupied by this display. Miss Cole, Feltham, sent a basket of large-berried and well-finished Muscat of Alexandria grapes. A silver gilt medal was awarded. Mr. A. Felgate, jun , Hersham, Surrey, showed a fine late crimson chrysanthemum named Red L. Canning, staging cut blooms and plants.

Messrs. H. Cannell and Sons, Swanley, had a most brilliant display of chrysanthemums and pelargoniums, the latter in large bunches and in splendid condition, their bright colours lighting up the place finely. Begonia Gloire de Lorraine was effectively staged, as also were the bunches of Miss Harvey—a plumed chrysanthemum—Golden Dart, Mrs. Filkins, Alice Carter, and Neva Teichmann. The whole display was tastefully finished with palms and ferns; a gold medal was awarded for this extensive display from the Home for Flowers.

WOOLTON GARDENERS' IMPROVEMENT SOCIETY.

THE usual meeting was held in the Mechanics' Institute on the 1st inst., Mr. J. Glover in the chair.

That the subject, "Japanese Chrysanthemums for Exhibition," was a popular one was fully demonstrated by the very large attendance; the interest was further increased by the lecturer being Mr. J. Heaton, of Aigburth, the winner of the two silver challenge vases offered by the Liverpool Horticultural Association and the Grassendale Society.

The paper throughout showed observant cultural details, the cuttings to be put in during November to January. Care at this stage as to watering was recommended; in fact, this was the strong point through the whole period, more importance being attached to this detail than any other. Placing the pots on the ground was strongly objected to, standing the pots on the edges of two boards or on trellis being the system adopted, and this form was continued even after housing, and finer results were obtained with plants on stages than those placed on the floor. Moderate feeding from an early stage was desirable, both natural and artificial manures being utilised up to the time of cutting the blooms. Notice was made of insect pests, with the best methods for their extermination, but means for prevention were strongly advised. At the conclusion a very instructive tabulated list was given of some 50 varieties, including the time of striking, the time of stopping (in the varieties this was done), which bud was taken, and the date it was secured.

The paper was followed by an interesting discussion, in which Messrs. W. Tunnington, R. Todd, T. Carling, G. Haigh, R. G. Waterman, J. Hogan, J. Wilson, and others took part, in which questions were asked and the opinion expressed that the paper was complete in every detail, and must prove of service.

In addition to the paper a highly meritorious collection of blooms were staged by Messrs. J. Heaton, G. Haigh, T. Carling, J. Wilson, and Messrs. W. Clibran and Son. The members contributed some fine massive blooms, including Japanese—Sunstone, Western King, C. W. Richardson, Mary Molyneux, Mast. H. Tucker, Geo. Pitcher, Lady Northcote, &c.; incurves, Duchess of Fife, Mdlle. Lucie Faure, Bonnie Dundee, Miss Phyllis Fowler, Sir Trevor Lawrence, &c. Messrs. Clibran staged new varieties of Japanese and singles, the latter being much admired as being suitable for house decoration. This fine display was the means of raising a discussion as to having an exhibition in the locality, and was referred to the committee.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.

THE sixty-ninth annual general meeting of members was held at the New Municipal Buildings, Oxford, on December 3. Twenty odd members were present, the chair being taken by Mr. Aubrey Harcourt, Nuneham Park. The annual report (which, with a duly audited statement of accounts, had been circulated among the members) referred to the past year's operations as a success, financially and floriculturally. The very effective groups of carnations, tuberous begonias, and those arranged for effect on a given space, with the displays of cut roses and dinner table decorations at the June show, were regarded as fully sustaining the high quality of the Oxford summer exhibitions, while the lovely array of dahlias and herbaceous flowers with the fruit and vegetables at the August show proved a surprise for a dry summer. As is wont, death had removed a large number of old supporters during the year, and great regret was expressed at the loss of Mr. E. Thorne, the vice-chairman of the committee, and one of the most successful amateur exhibitors in the district. The accounts showed that the receipts for the past twelve months had been £409 18s., and the payments (including £214 14s. 6d. as prizes) amounted to £394 8s., the society's reserve fund standing at £91 5s. 4d.

The following were elected officers for 1899, viz.: President, Aubrey Harcourt, Esq., Nuneham Park; treasurer, Herbert Parsons, Esq., Elsfield Manor; honorary secretaries, John Thomson, Esq., Woodperry House, and Montague Wootten, Esq., Cross Ways; acting secretary, Mr, William Greenaway; auditor, W. S. Carver, Esq.; and a strong committee. The commemoration flower show will be held on June 20 next.

PRESTON AND FULWOOD HORTICULTURAL SOCIETY.

THE eighty-seventh monthly meeting of the above was held on the 3rd inst., at Preston, Mr. B. Ashton presiding over a fair attendance.

The subject under consideration was "Soils and their Treatment," by Mr. R. G. Waterman, treasurer and secretary of the Woolton Society.

The paper was of a practical nature, showing the utmost importance of this section of the cultivator's work, and was considered under the following heads: Position, shelter, draining, trenching, burning, manuring, rotation of crops, &c. The needs of keeping the work well in hand and by intelligent feeding were amongst the more important roads to success. Some few questions were put to the lecturer as to the value of lime, gas lime, soot, salt, &c.

At the conclusion of the paper, on the motion of Mr. Parkinson, seconded by Mr. Parker, a cordial vote of thanks was tendered to Mr. Waterman for his admirable paper. A similar vote was given to Mr. Ashton for his services.

ISLE OF WIGHT HORTICULTURAL ASSOCIATION.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. Dr. J. Groves, B.A., J.P., presided over a very large gathering of members from all parts of the island, who were present to hear a lecture by Mr. T. Gibbs, C.C., on "Birds." The lecture was most copiously illustrated by lantern slides of the best known birds. The lecturer gave a most interesting and instructive discourse, and showed the utility of birds, and their indispensable value to gardeners. The subsequent discussion proved most profitable, the gardeners present expressing their views on the various birds with which they had come in contact. An unanimous vote of thanks was accorded the lecturer and others on the proposition of the chairman, and seconded by Mr. R. F. Eldridge, J.P., C.A., vice-chairman of the Isle of Wight County Council, and chairman of the Technical Education Committee. Several new members were elected at the close.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Hyacinth scented Cattleya.—M. R. W., Burnham: Some forms of Cattleya labiata are delicately but not highly fragrant, so that if you have a variety of the autumn-flowering form of this species, with flowers strongly perfumed with the scent of hyacinths, it is somewhat of a novelty, and should be taken care of.

Celery for Profit.—J. H. E., Edmonton: The book to which you refer is published by W. Atlee Burpee and Co., Philadelphia, U.S.A., and can be obtained direct from them. The best plan would be to obtain it through some good publishing house, such as G. Putnam's Sons, 24, Bedford Street, Strand, W.C., who are an American firm. You will probably have to pay a little extra for duty.

Vine Border.—R. E. T., Milborne: The sample of soil sent was very poor stuff, and you had better replace it with a more congenial rooting medium. If good loam is not readily obtained, or is very expensive, we suggest that the border be renovated piecemeal, as advised for several correspondents of late. Make the drainage material good and clean; over this lay some good turves, and then proceed to make up the border, laying out the roots near the surface, and in a horizontal manner. Lime rubble, burned garden refuse, and wood ashes are very useful for mixing with the new material, and the latter should be placed near the surface.

Seedling Oaks in Orange Skins.—G. W., Leeds: In the first place obtain a large and thick-skinned orange, cut off the top, and thoroughly remove all the flesh, so as to leave as large a shell as possible. Then place the orange shell or skin where it will dry steadily—hanging it in the kitchen will do. When thoroughly dry and hard it will be ready for use; into it place some damp—not wet—soil with an acorn in the centre. Place the whole in a position where the soil will not dry quickly, as no quantity of water should be needed until the young oak has made a number of roots. It is not necessary to place the affair in the dark, but if this is done at first, light must be afforded directly growth appears above the soil.

Wooden Labels.—A. C., Worcester: The making of large wooden labels is work that can be profitably undertaken during the winter when the inclemency of the weather necessitates the provision of some tasks under cover. With a little practice labels can be made out of an ordinary builder's lath, of the double size or thickness, and cut into required lengths. Smooth the sides with as little waste as possible, and shave off smoothly about six or eight inches of the best front face with a sharp knife. Finish the lower end by cutting the sides to a short, sharp, wedge-like point. Procure a few pounds of pitch or tar, boil it, and dip into the boiling tar the lower end of the label to the required depth. Allow the tar to dry, and then spread over the untarred surface a thin coat of well-mixed paint. Lay the labels by in a dry place until required, and before using the smooth surface should have a second coat of paint, which must be written upon before it becomes quite dry. Write legibly, commencing at the top corner, so that the most important part of the name does not become obliterated.

Winter Dressing for Mealy Bug on Vines.—C. W., Southampton: Curiously enough the same post that brought your query brought an answer to it in the shape of a recipe from an East Anglian correspondent. He writes: "I do not remember ever having seen in print the recipe we use for curing and preventing attacks of mealy bug on vines. It is a winter dressing, recommended to me by a large market grower, and is composed of one gallon of water, one wineglassful of petroleum (paraffin), half-a-pint of coal tar, and sufficient clay to work the whole into the consistency of paint. We have just finished dressing our vines with this mixture for the third season in succession, and during the operation we could not discover a single mealy bug. For eleven years previous we tried various mixtures and means for clearing out the pest, but none proved wholly good, though several kept the insects in abeyance. The only fault we have to find with the tar mixture is that the young vine shoots appear to be rather more brittle than usual after the rods have been dressed with it; this matter is, of course, met by a little more care when tying down the growths."

Hyde Park.—L. J. P., Derby: We do not exactly understand what kind of information you desire with respect to this park for the paper you intend writing, but probably the following will meet your case. Hyde Park is the great Park of London, a wide expanse of land, consisting of 394 acres. It was first opened to the public in the reign of Charles I., about the year 1630, having previously been a royal hunting ground. The first ranger was George Roper, and the office is still maintained. In 1730 Queen Caroline, the Consort of George II., first conceived the idea of the famous Serpentine water, by converting the Westbourne Brook into a more imposing stream. This elaborate work was entrusted to Mr. Charles Withers, Surveyor-General of His Majesty's Woods and Forests, and 200 men were employed in the undertaking. It was finished in the year 1733. Hyde Park is for the most part what may be called meadow land, but a valuable "lung" of London, and the resort of fashion. Rotten Row, the famous ride, is a feature of interest. The bedding is finely executed under the direction of Mr W. Brown. Hyde Park is under the Crown, not the London County Council. If you need concise information respecting other London parks we reccommend to you the forthcoming issue of the Gardening Year Book, price 1s., published at the GARDENERS' MAGAZINE office, 4, Ave Maria Lane, E.C.

NEW PLANTS AND FLOWERS.

CHRYSANTHEMUMS.

Madame R. Cadbury, a first-rate Japanese variety, of large and full build, and with prettily drooping, but broad, florets of a beautiful soft-white shade that is almost creamy white, but exceptionally pure and pleasing. F.C., N.C.S., December 6. Mr. H. Weeks, Thrumpton Hall Gardens.

Red L. Canning, a useful decorative variety, with bright, red-crimson flowers that are naturally produced late in the season. F.C.C., N.C.S., December 6. Mr, A. Felgate, jun., Surbiton.

MARKETS.

Covent Garden.

SUPPLIES of fruits and vegetables are an average as regards quantity, and the quality is fair. There is a brisk demand generally, but especially for apples, grapes, tomatos, and Brussels sprouts. Cut flowers are plentiful, and though prices tend to rise they are not high for the season.

FRUIT.—English apples, 3s. 6d. to 10s. per bushel; Nova Scotian and Canadian, 10s. to 24s. per barrel; English grapes, 9d. to 2s.; Channel Islands, 6d. to 1s. per lb.; Almeria, 12s. to 20s. per barrel; bananas, 4s. to 9s. per bunch; pineapples, 1s. 6d. to 4s. 6d. each; Jaffa oranges, 8s. to 10s. per box; Murcia, 6s. to 7s.; Valencia, 8s. to 16s. per case; English tomatos, 5s. to 7s. per 12 lb.; Bordeaux, 1s. 3d. to 2s. 3d. per box; lemons, 10s. to 18s. per case; French pears, 3s. to 5s. 6d.; Californian, 4s. 6d. to 7s. 6d. per case.

FLOWERS.—Arums, 3s. to 4s.; carnations, 1s. to 3s.; chrysanthemums, white and yellow, 1s. to 3s.; eucharis, 2s. to 4s.; gardenias, 1s. to 2s. 6d.; Lilium Harrisi, 5s. to 8s.; tea roses, 6d. to 1s.; pink roses, 3s. to 4s.; red roses, 1s. to 2s.; cattleyas, 5s. to 9s.; Odontoglossum crispum, 2s. to 4s.; and tuberoses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 2s. to 4s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 4s. to 6s. per dozen bunches; stephanotis, 1s. to 1s. 6d.; lily of the valley, 1s. to 2s.; Roman hyacinths, 1s. to 1s. 6d.; pelargoniums, 4d. to 6d. per dozen sprays; and bouvardias, 4d. to 6d. per bunch.

VEGETABLES.—English onions, 5s. to 6s. per cwt.; Dutch, 3s. 3d. to 3s. 9d.; Valencia, 5s. 6d. to 6s. 6d. per case; parsley, 1s. 6d. to 2s. per dozen bunches; seakale, 9d. to 1s. per punnet; endive, 1s. to 1s. 6d.; lettuce, 9d. to 1s.; cos, 2s. to 3s.; cucumbers, 2s. to 4s. per dozen; cauliflowers, 6s. to 9s; cabbages, 3s. to 5s.; savoys, 4s. to 6s. 6d. per tally; spinach, 2s. per bushel; Brussels sprouts, 2s. to 2s. 6d. per half-sieve; celery, 6s. to 12s. per dozen rolls.

Borough Potato Market.

Large supplies from Scotland have tended to lower prices a little; the demand is good, however. Scottish Abundance, Bruce, and Main Crop, 65s. to 70s.; Beauty of Hebron, Snowdrop, and Up to Date, 70s. to 75s.; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giant, and Imperator, 60s. to 65s.; Blacklands, 60s. per ton; Germans, 2s. 9d. per bag.

THE WEATHER DURING THE WEEK ENDING DECEMBER 3, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	54·5	30·0	44·1	6·72	0·26	0·66
Croydon	55·5	26·2	42·5	5·83	0·54	1·37
Brighton	54·0	30·0	44·5	6·94	0·76	1·93
Bristol	53·0	31·0	42·5	5·83	0·42	1·07
Wolverhampton	56·2	28·5	40·4	4·67	0·02	0·05
Norwich	55·8	30·6	43·5	6·39	1·55	3·94
Nottingham	56·8	32·2	42·4	5·78	0·15	0·38
Liverpool	57·2	31·4	43·8	6·56	0·14	0·36
Huddersfield	53·8	30·5	41·3	5·17	0·49	1·24
Bradford	55·0	30·0	42·0	5·55	0·52	1·32
Hull	—	—	—	—	—	—

The mean reading of the Barometer during the week at Greenwich was 29·48 inches, and that of the Thermometer 44°·1, the latter being 3°·2 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 27 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 5·6 hours. The measured rainfall amounted to 0·26 of an inch.

CATALOGUES RECEIVED.

DAMMANN AND CO., SAN GIOVANNI A TEDUCCIO, NAPLES.—Seeds.
W. CLIBRAN AND SON, ALTRINCHAM.—Chrysanthemums.
WOOD AND INGRAM, HUNTINGDON.—Trees and Shrubs.
DEVON CHRYSANTHEMUM NURSERY, TEIGNMOUTH, DEVON.—Chrysanthemums and Dahlias.
W. WELLS, EARLSWOOD, REDHILL.—Chrysanthemums.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, DECEMBER 13.—Royal Horticultural Society: Committees meet at 12 o'clock. At 3 o'clock the Rev. Professor George Henslow, M.A., V.M.H., will lecture upon "Some of the Plants Exhibited."

National Dahlia Society: Annual meeting at Hotel Windsor.

Horticultural Club: Monthly dinner and conversazione, Hotel Windsor. The discussion upon "Size in Flowers, Fruits, and Vegetables" will be opened by the Rev. W. Wilks, Secretary R.H.S.

AUCTIONS.

MONDAY, WEDNESDAY, AND FRIDAY, DECEMBER 12, 14, AND 16—Dutch Bulbs, Lily of the Valley, &c., the British Horticultural Association (Limited), at the City of London Auction Rooms, 33A, Ludgate Hill.

WEDNESDAY, DECEMBER 14.—Azalea Mollis, Camellias, Azalea Indica, Rhododendrons, Seakale, Ferns, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

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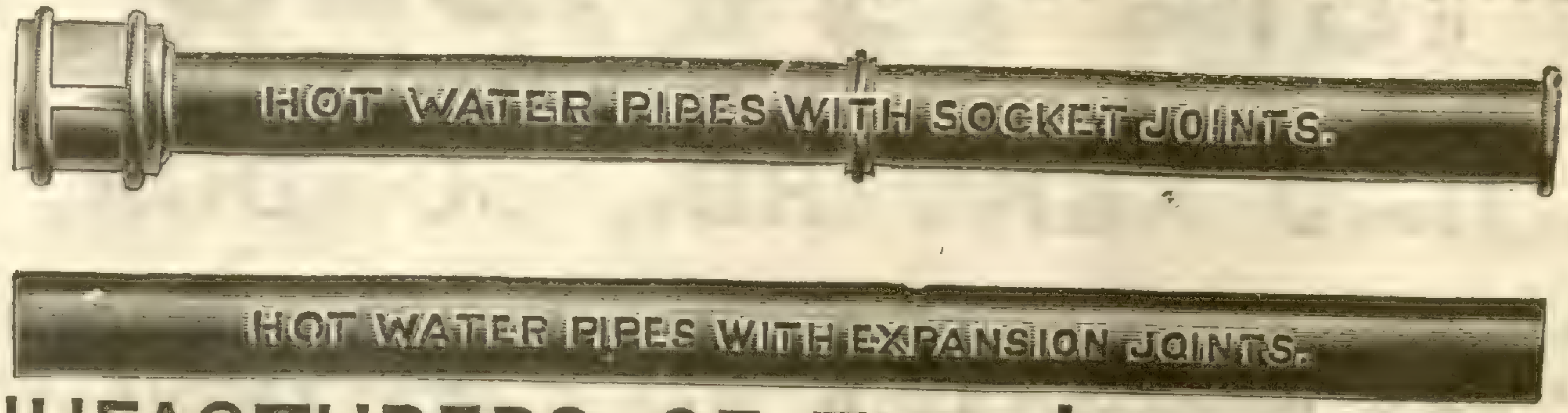
LARGEST STOCK IN THE TRADE.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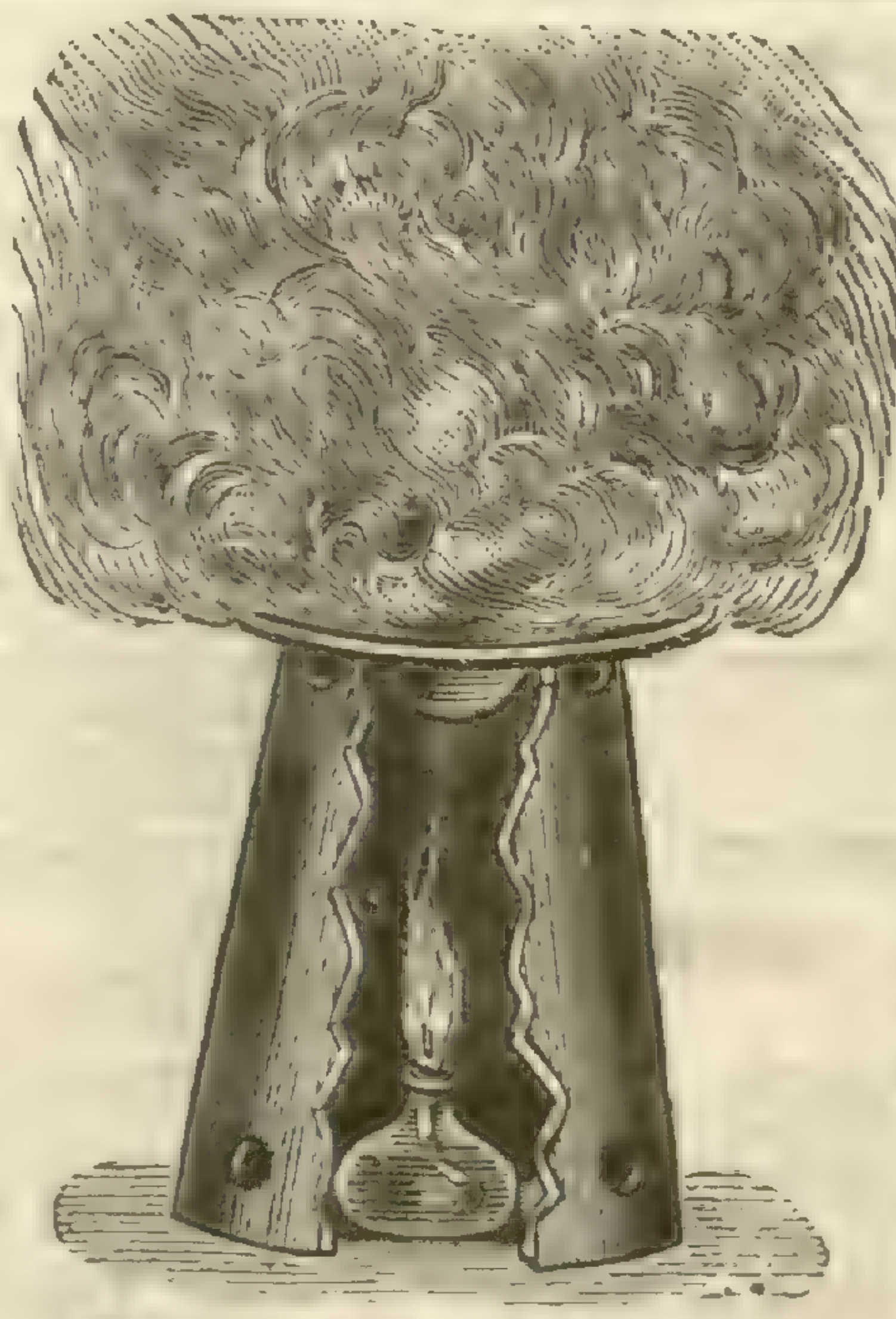

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Bottle.	Enough for cubic feet.	
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No. 2	20,000	13/-
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Tin	160,000	88/-

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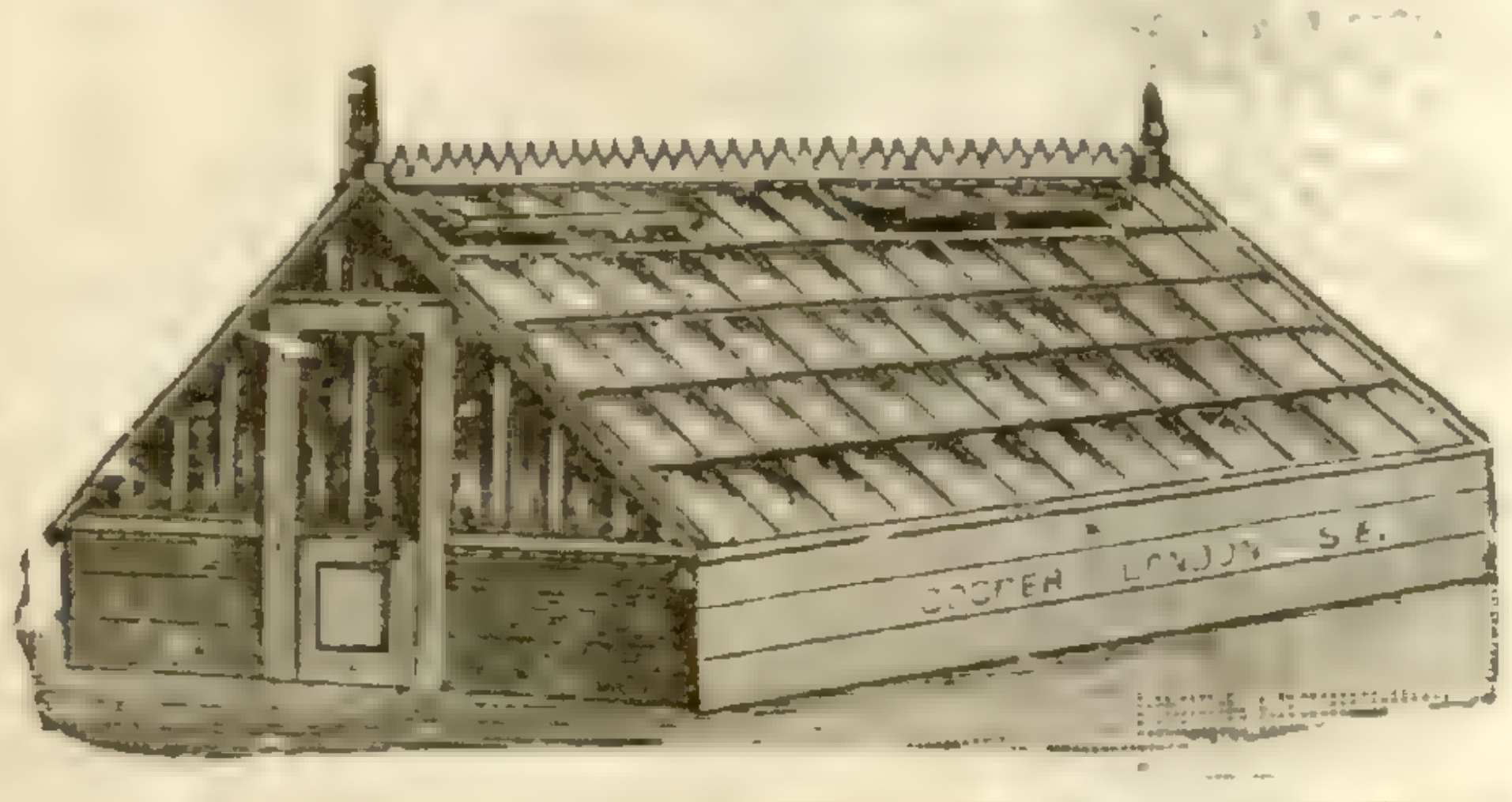
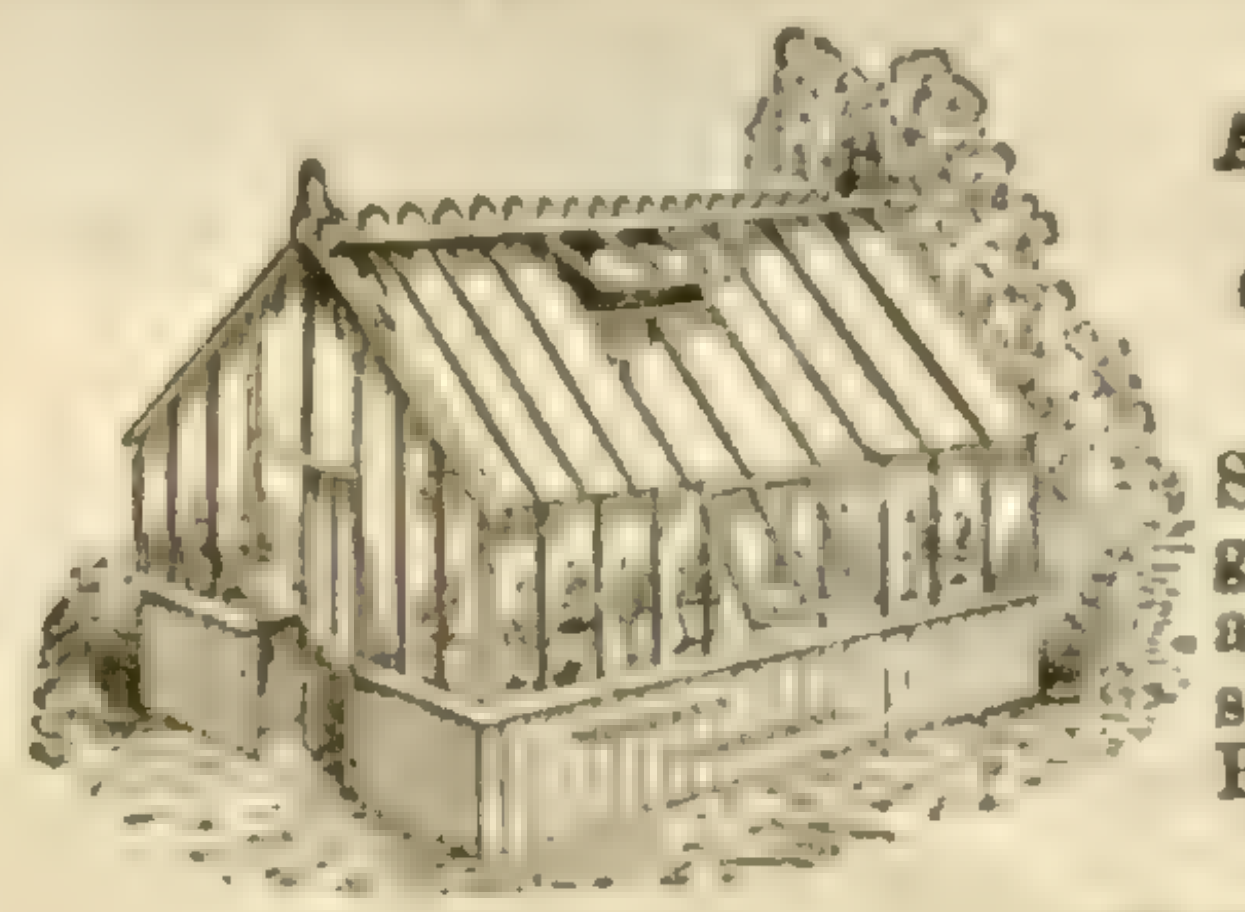


Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
1	7ft. by 5ft.	2 10 0	2 0 0
2	8ft. by 5ft.	3 0 0	2 5 0
3	9ft. by 6ft.	3 15 0	2 10 0
4	10ft. by 7ft.	4 10 0	3 10 0
5	12ft. by 8ft.	5 10 0	3 15 0
6	15ft. by 10ft.	7 15 0	5 10 0
7	20ft. by 10ft.	10 15 0	7 10 0
8	25ft. by 10ft.	14 5 0	10 0 0
9	50ft. by 10ft.	27 0 0	19 0 0
10	100ft. by 10ft.	45 0 0	33 0 0



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Made in sections. Simply screwed together. Substantial and complete with stages, glass, etc., etc. Painted one coat.

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
11 to 14	7ft. by 5ft.	2 16 0	2 3 0
15	8ft. by 5ft.	3 10 0	2 18 0
16	9ft. by 6ft.	4 0 0	3 5 0
17	10ft. by 7ft.	5 0 0	4 5 0
18 to 21	12ft. by 8ft.	6 0 0	4 15 0
22	15ft. by 10ft.	8 10 0	7 0 0
23	20ft. by 10ft.	12 0 0	9 10 0
24	25ft. by 16ft.	16 0 0	12 0 0
25	50ft. by 10ft.	30 0 0	23 0 0
26	100ft. by 10ft.	50 0 0	40 0 0

Lean-to.

Lot.		Usual Price.	Sale Price.
27	9ft. by 6ft.	3 10 0	2 14 0
28	10ft. by 7ft.	4 10 0	3 12 0
29	12ft. by 8ft.	5 10 0	4 0 0
30	15ft. by 10ft.	8 0 0	5 18 0
31	25ft. by 10ft.	16 10 0	11 0 0

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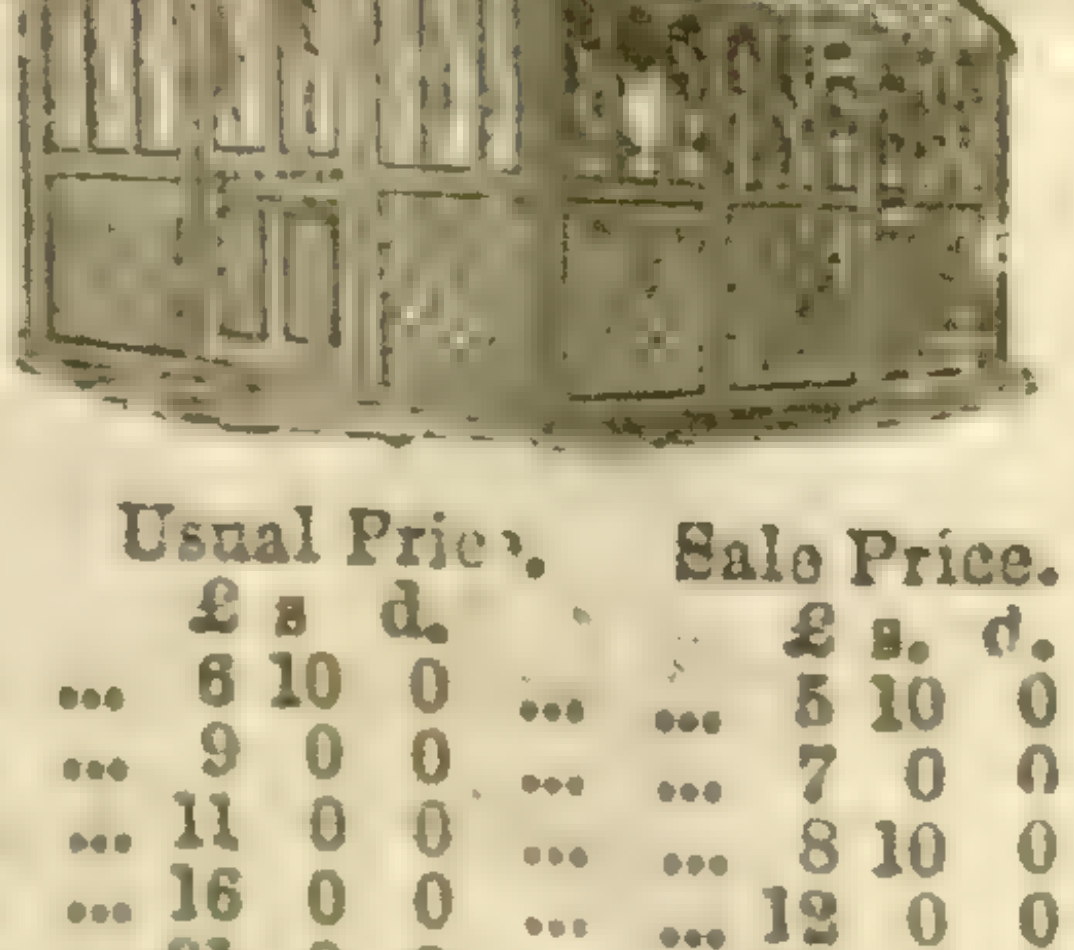
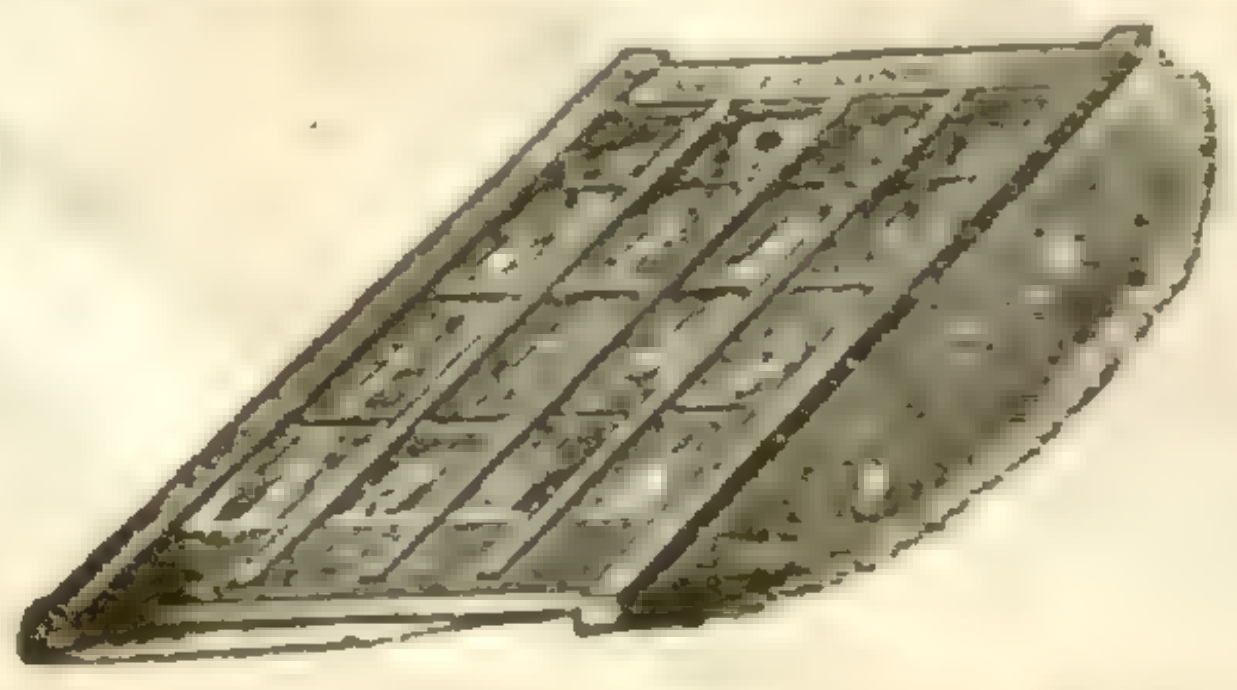


Lot.		Usual Price. £ s d.	Sale Price. £ s. d.
2	9ft. by 6ft.	6 10 0	5 10 0
3	12ft. by 8ft.	9 0 0	7 0 0
4	15ft. by 8ft.	11 0 0	8 10 0
5	20ft. by 9ft.	16 0 0	12 0 0
6	25ft. by 9ft.	21 0 0	15 0 0
7	50ft. by 9ft.	40 0 0	28 0 0
8	100ft. by 9ft.	70 0 0	50 0 0

SPAN-ROOF FORCING HOUSE.

(FOR BRICKWORK.)

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
39	20ft. by 9ft.	8 0 0	6 0 0
40	20ft. by 12ft.	10 0 0	8 0 0
41	40ft. by 12ft.	19 0 0	16 0 0
42	60ft. by 12ft.	27 0 0	23 0 0
43 to 45	100ft by 14ft.	50 0 0	40 0 0



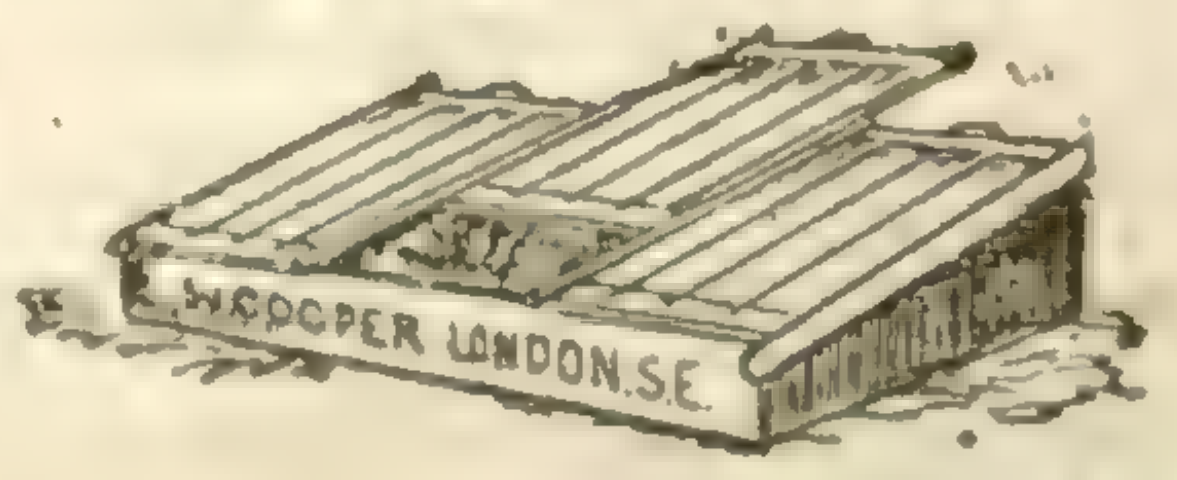
GARDEN LIGHTS.

Lot.		Usual Price. s. d.	Sale Price. s. d.
46 to 52	3ft. by 2ft. Painted and Glazed	5 0	3 9
53 to 76	4ft. by 3ft. " "	7 6	5 9
77 to 121	6ft. by 4ft. " "	10 6	8 0

MELON AND CUCUMBER FRAMES.

Well-seasoned timber only. Glazed 21 oz. and painted complete.

Lights 2 in. thick.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Lot.			Usual Price. £ s. d.	Sale Price. £ s. d.
122 to 127	1 Light Frame	4ft. by 3ft.	0 18 0	0 14 0
128 to 133	2 " "	6ft. by 4ft.	1 12 0	1 5 0
134 to 140	1 " "	6ft. by 4ft.	1 10 0	1 4 0
141 to 144	2 " "	8ft. by 6ft.	2 14 0	2 4 0
145 to 147	3 " "	12ft. by 6ft.	3 15 0	2 18 0

ODD GREENHOUSES.

These Houses are all complete, as per list, with Doors, Lock and Key, Ventilators, Irons for opening, Staging, Glass, &c., and perfectly new.

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
148	Lean-to Conservatory, 14 ft. by 8 ft.	10 10 0	8 0 0
149	Span Roof Conservatory, 12 ft. by 8 ft.	9 10 0	8 0 0
150	Span-Roof Conservatory, 18 ft. by 10 ft.	13 0 0	11 0 0
151	Span-Roof Circular Light Conservatory, 9 ft. by 6 ft.	8 10 0	7 0 0
152	Lean-to Forcing House, for 3 ft. Brickwork, 20 ft. by 12 ft.	9 10 0	8 0 0
153	Span-Roof Greenhouse, 15 ft. by 10 ft., for Brickwork	8 10 0	6 0 0
154	Lean-to Greenhouse, 10ft. by 5ft.	6 0 0	4 0 0
155	Span-Roof Greenhouse, 20 ft. by 10 ft., for 2 ft. 6in. Brickwork	12 0 0	9 0 0
156	Span-Roof Greenhouse, 30 ft. by 10 ft., portable	22 0 0	15 0 0
157	Span-Roof Forcing House, for 3 ft. Brickwork, 20 ft. by 12 ft.	10 0 0	7 15 0
158	5 Cucumber and Tomato Houses, 100 ft. long, 11 ft. wide, for Brickwork, complete with Centre Gutters, Top Ventilators, Doors, &c., 21 oz. Glass, everything New and Complete, ready for erecting. The Lot Or can be had separate at £33 each.	200 0 0	150 0 0
159	3 Cucumber Houses, complete as above, 150 ft. by 10 ft. The Lot	200 0 0	140 0 0
160	1 Cucumber House, complete as above, 50 ft. by 10 ft.	20 0 0	14 0 0
161	Lean-to Greenhouse, for Brickwork, 15 ft. by 10 ft.	8 0 0	6 0 0
162	Lean-to Greenhouse, 50 ft. by 12 ft., portable, with partition, complete	32 0 0	21 0 0
163	¾-Span Greenhouse, for Brickwork, 30 ft. by 10 ft.	25 0 0	14 0 0
164	Span-Roof Greenhouse, 60 ft. by 10 ft., with 3 partitions, making a complete range of Houses	55 0 0	32 0

Odd Greenhouses—*continued.*

		Usual Price, £ s. d.	Sale Price. £ s. d.
165	Lean-to Greenhouse, 20 ft. by 10 ft., Door and 2 Ventilators in front	15 0 0	9 10 0
166	Lean to Greenhouse, 6 ft. by 5 ft., Door in front	3 5 0	2 0 0
167	Lean-to Greenhouse, 14 ft. by 9 ft., for Brickwork	7 0 0	4 10 0
168	Span-Roof Greenhouse, 25 ft. by 12 ft., for Brickwork	17 10 0	11 10 0
169	4 Span-Roof Forcing Houses, each 20 ft. by 9 ft. 6 in., 18 in. Woodwork at base, instead of brickwork, 21 oz. Glass	12 0 0	8 10 0
170	Lean to Conservatory, 19 ft. 8 in. by 10 ft.	16 10 0	12 0 0
171	Lean-to Greenhouse, 15 ft. by 10 ft., for Brickwork	8 0 0	6 0 0

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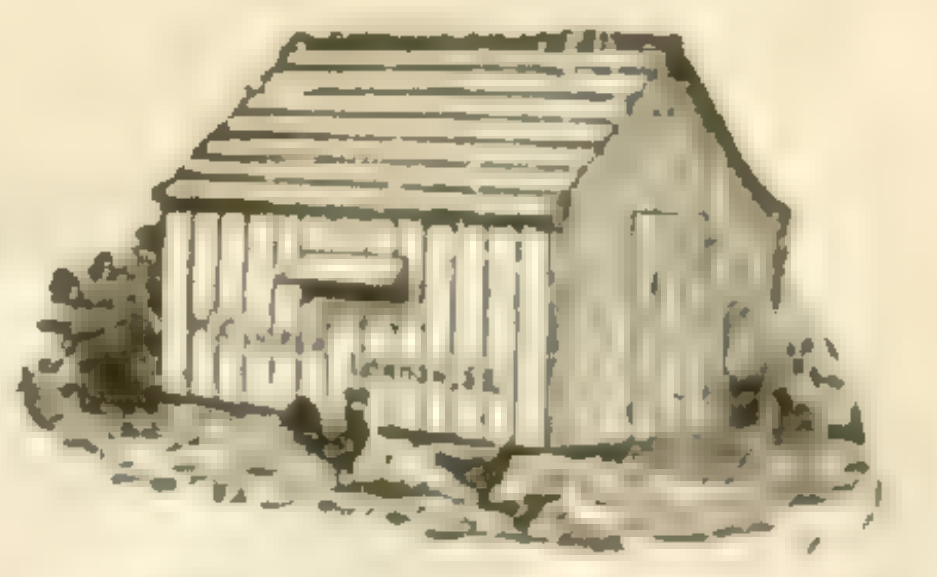
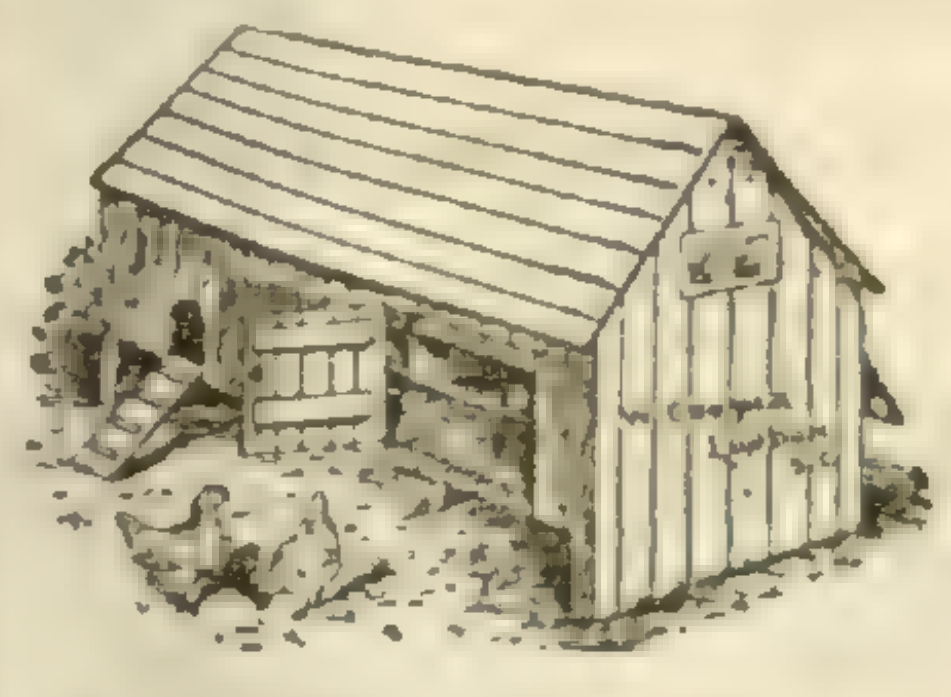
SPAN-ROOF MOVABLE POULTRY HOUSES.



Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
172 to 175	5ft. by 4ft.	1 5 0	1 0 0
176 to 180	6ft. by 4ft.	1 10 0	1 4 0
181 to 190	7ft by 5ft.	1 16 0	1 7 0
191 to 203	9ft. by 6ft.	2 2 0	1 12 0
204	4ft. by 3ft.	0 16 0	0 13 0
205	5ft. by 4ft.	1 0 0	0 16 0
206	6ft. by 4ft.	1 5 0	1 1 0
207	7ft. by 5ft.	1 10 0	1 4 0
208	9ft. by 6ft.	1 15 0	1 8 0



SPAN-ROOF POULTRY HOUSE.

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
209 to 214	4ft. by 4ft.	1 10 0	1 3 0
215 to 221	5ft. by 4ft.	1 13 0	1 5 0
224 to 228	6ft. by 4ft.	1 18 0	1 12 0
229	7ft. by 5ft.	2 5 0	2 0 0
230	8ft. by 6ft.	3 0 0	2 5 0

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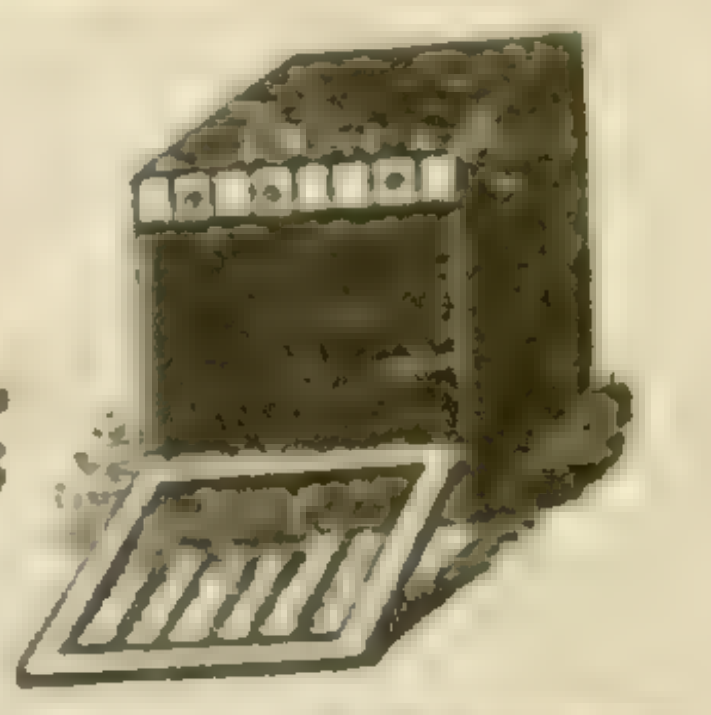

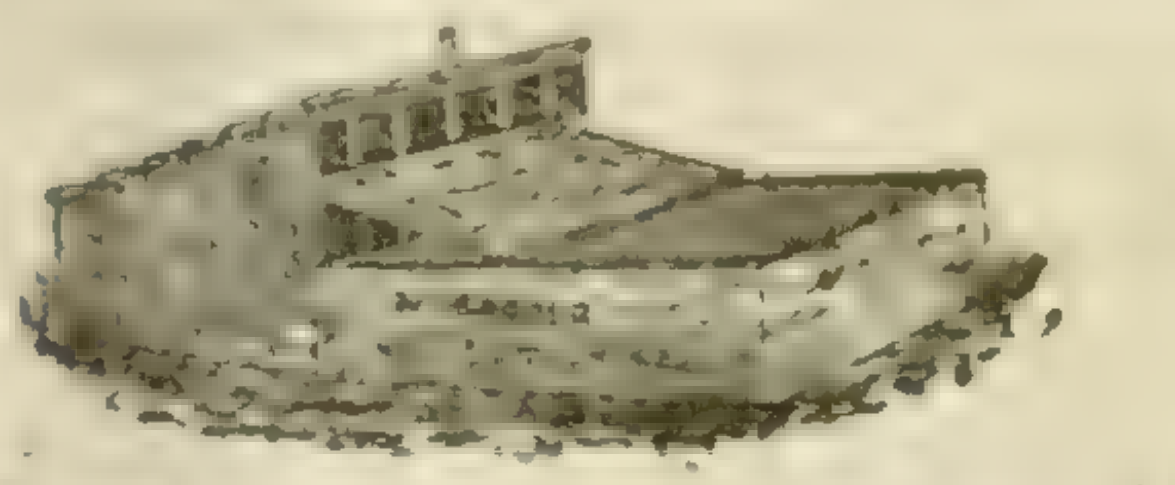

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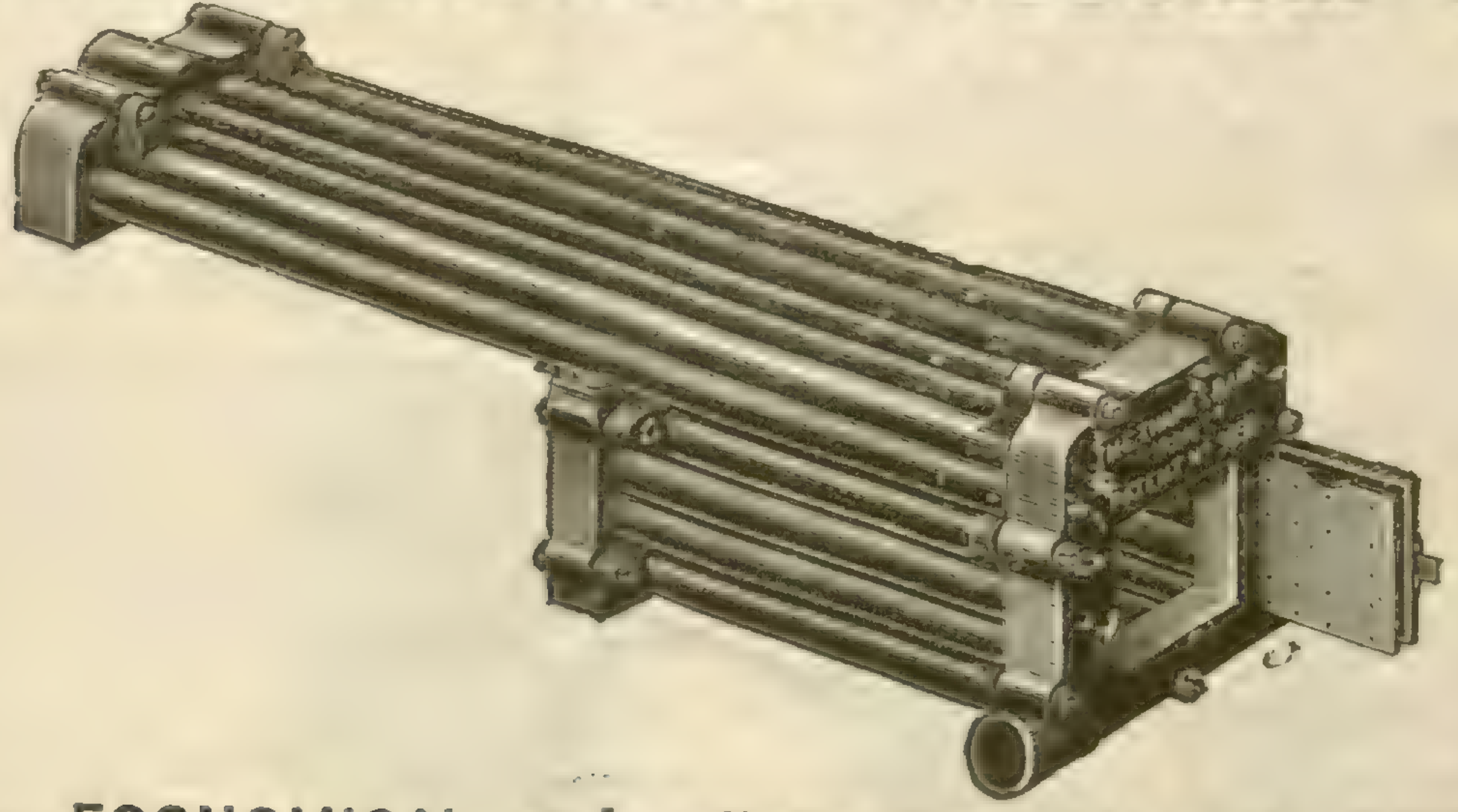

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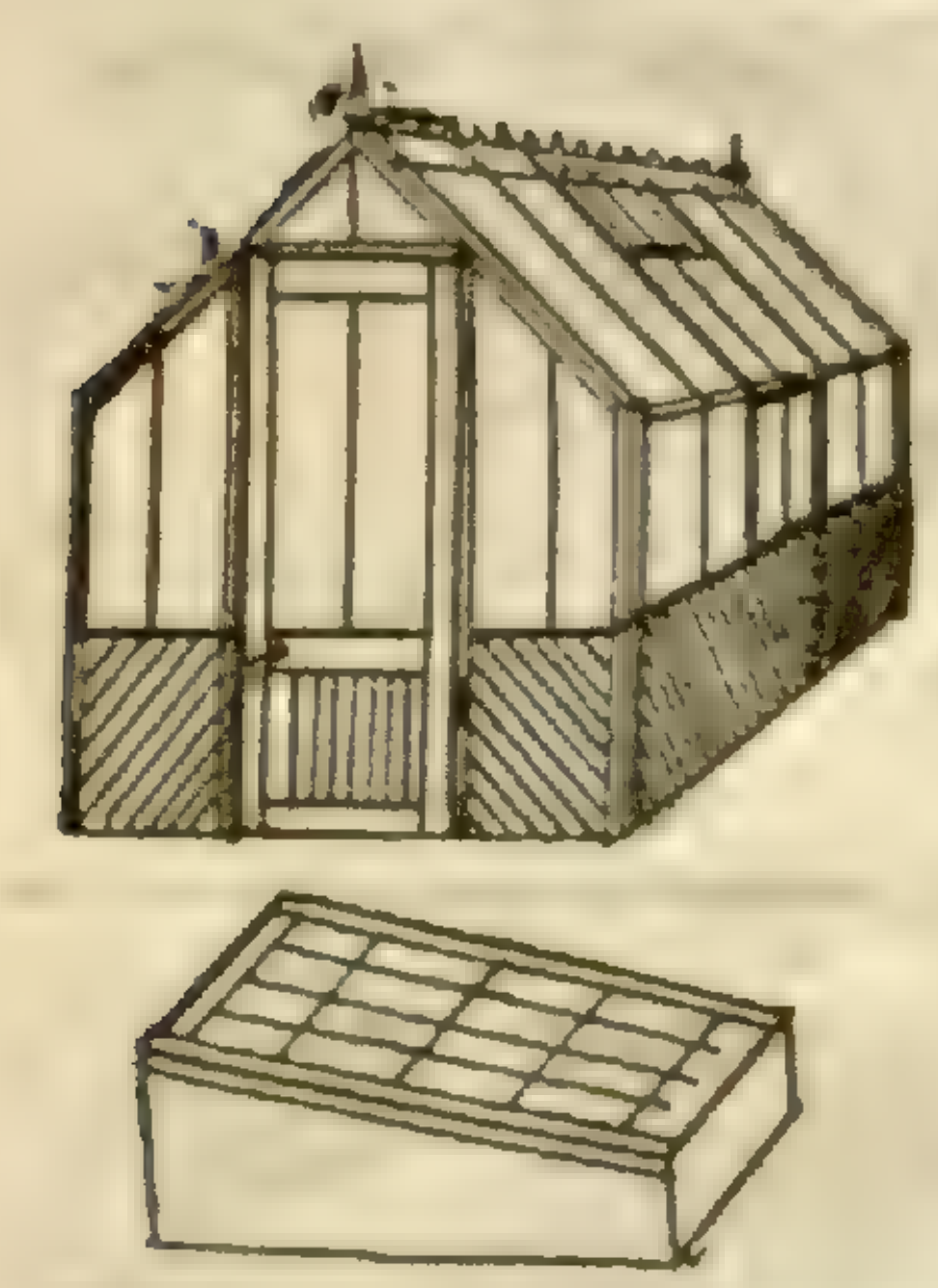
A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.



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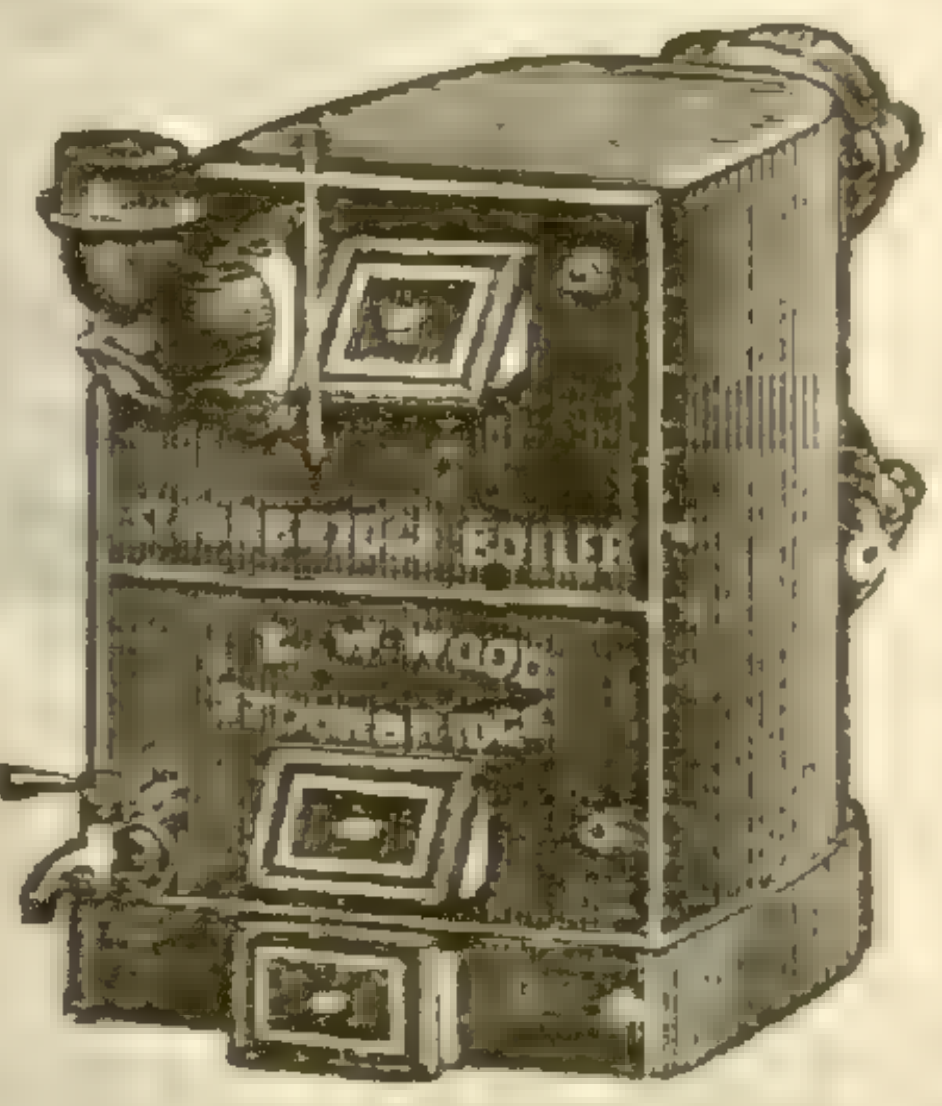

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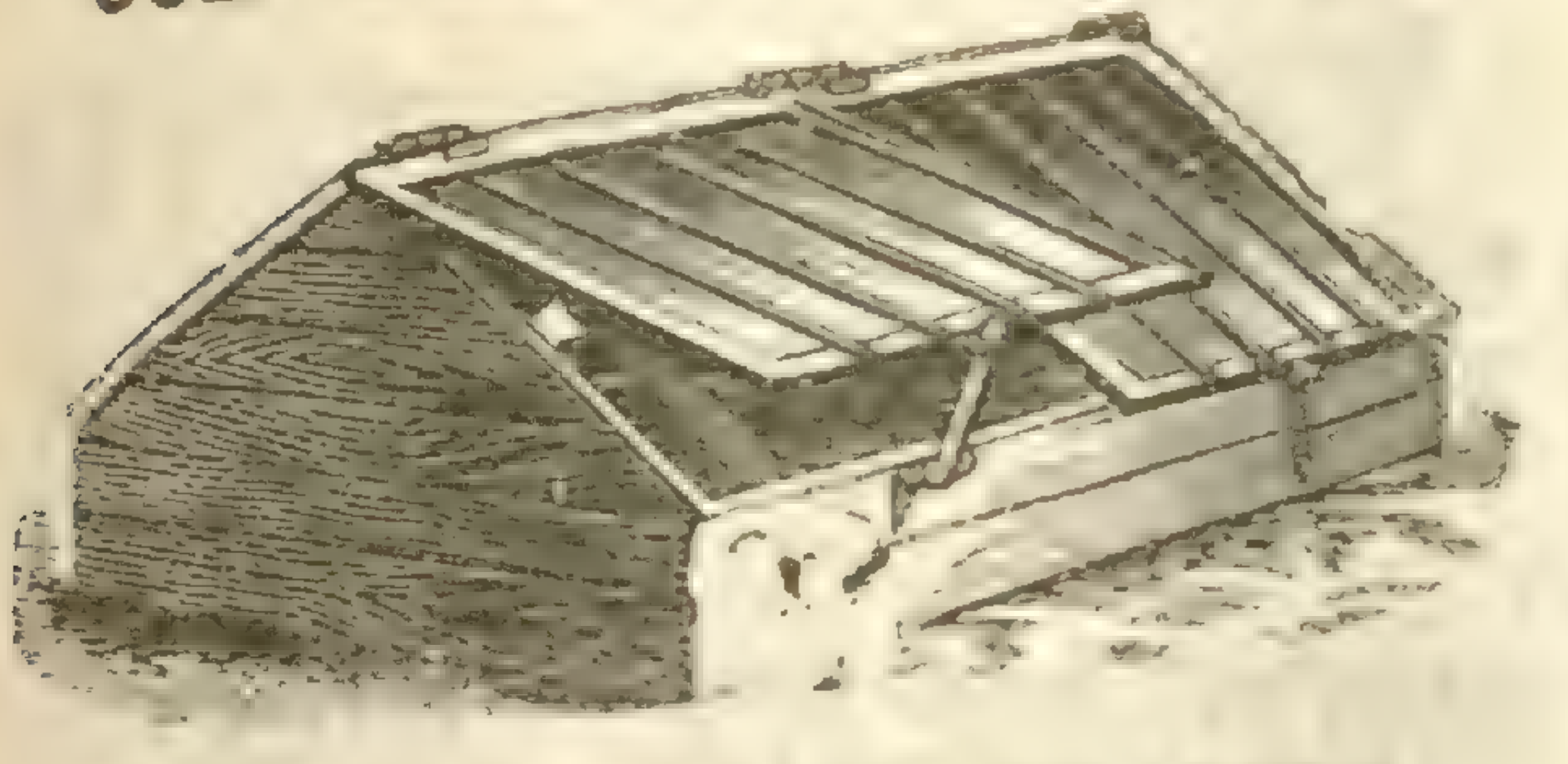

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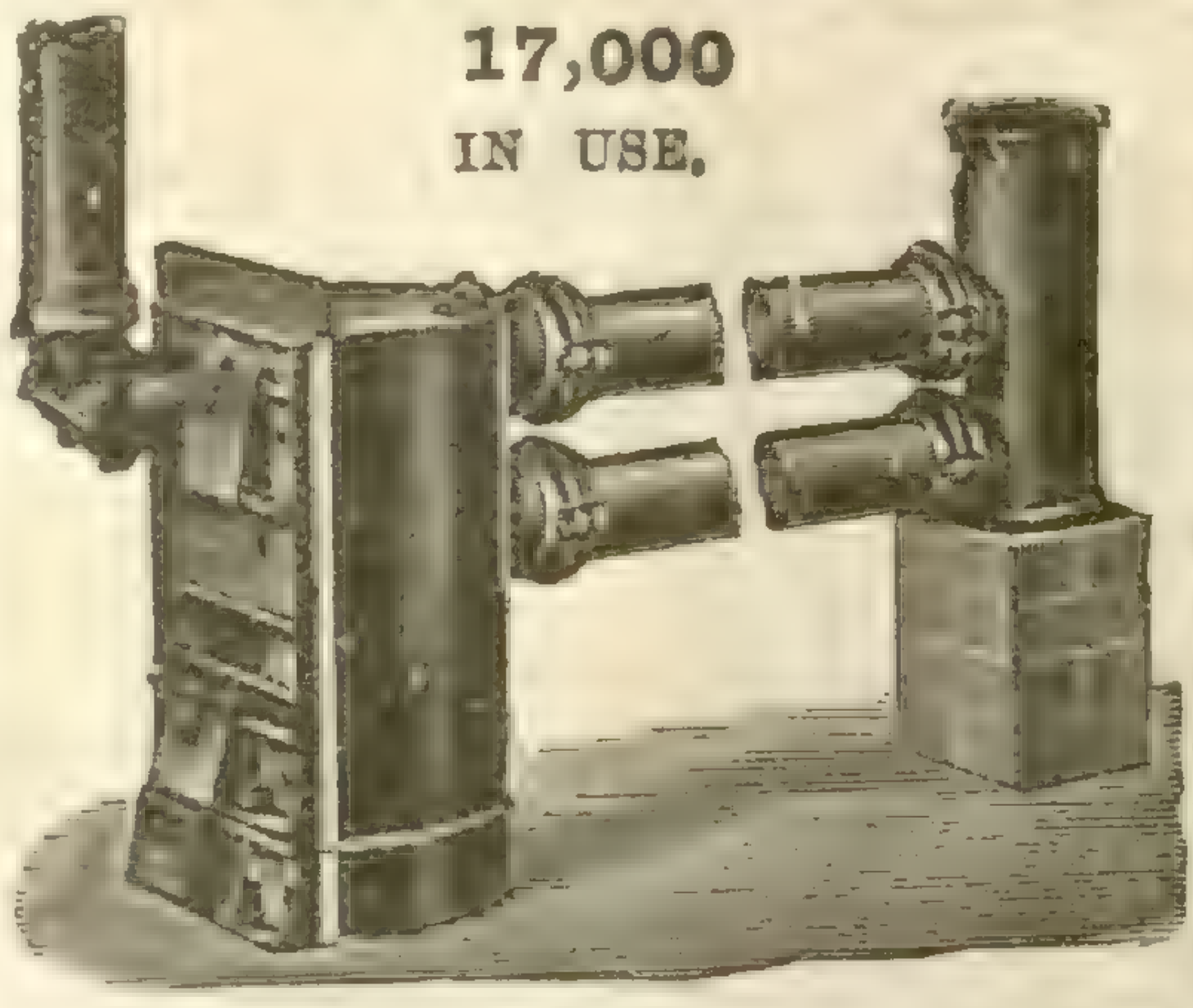

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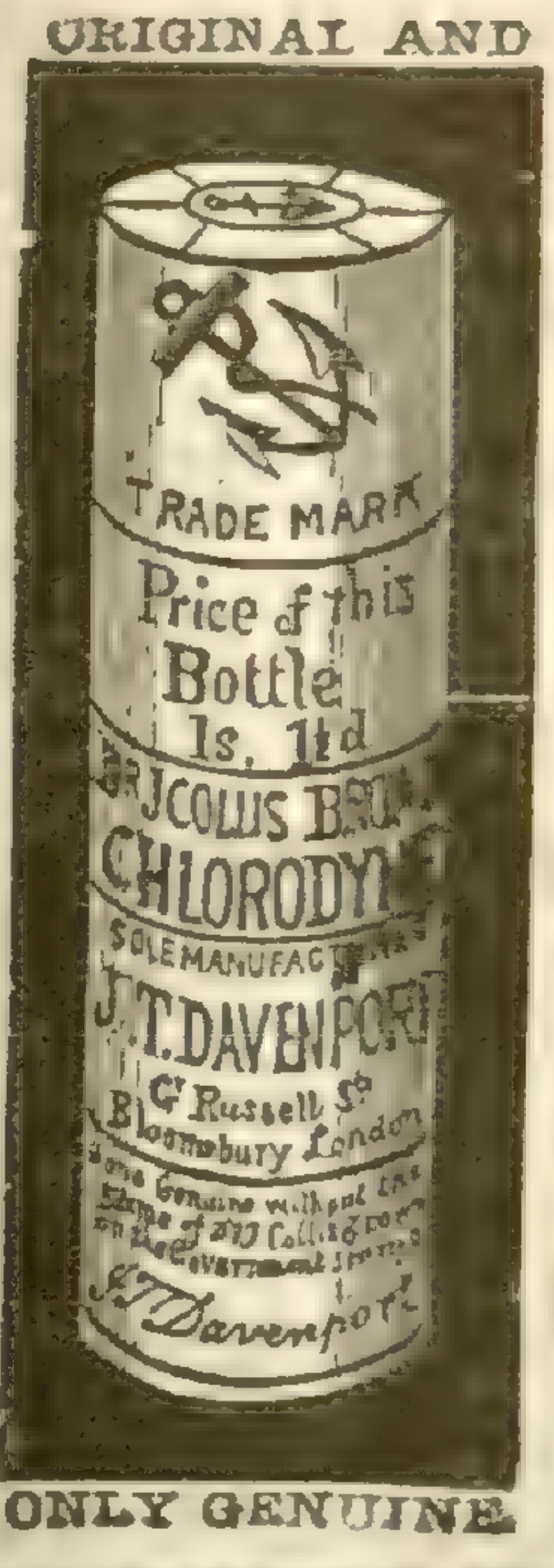

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This highly concentrated compound should be mixed with from 8 to 10 times its bulk of dry sand, ashes, or road drift, and be applied in the following proportions:—¾ cwt. per acre; ½ lb. per rod (30¼ square yards); ¼ oz. per square yard (superficial).

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90 feet long, each bed 3 feet wide, would require	½ lb.	1 lb.
90 " " " " 4½ " " " "	¾ lb.	1½ lb.
135 " " " " 3 " " " "	¾ lb.	1½ lb.
135 " " " " 4½ " " " "	1 lb. 2 oz.	2¼ lb.

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48 six inch pots, 35 seven inch pots, 27 eight inch pots, 21 nine inch pots, or 17 ten inch pots are approximately equal to one square yard, and would therefore require ¼ oz. of the compound.

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THE GARDENERS' MAGAZINE

Christmas, 1898.

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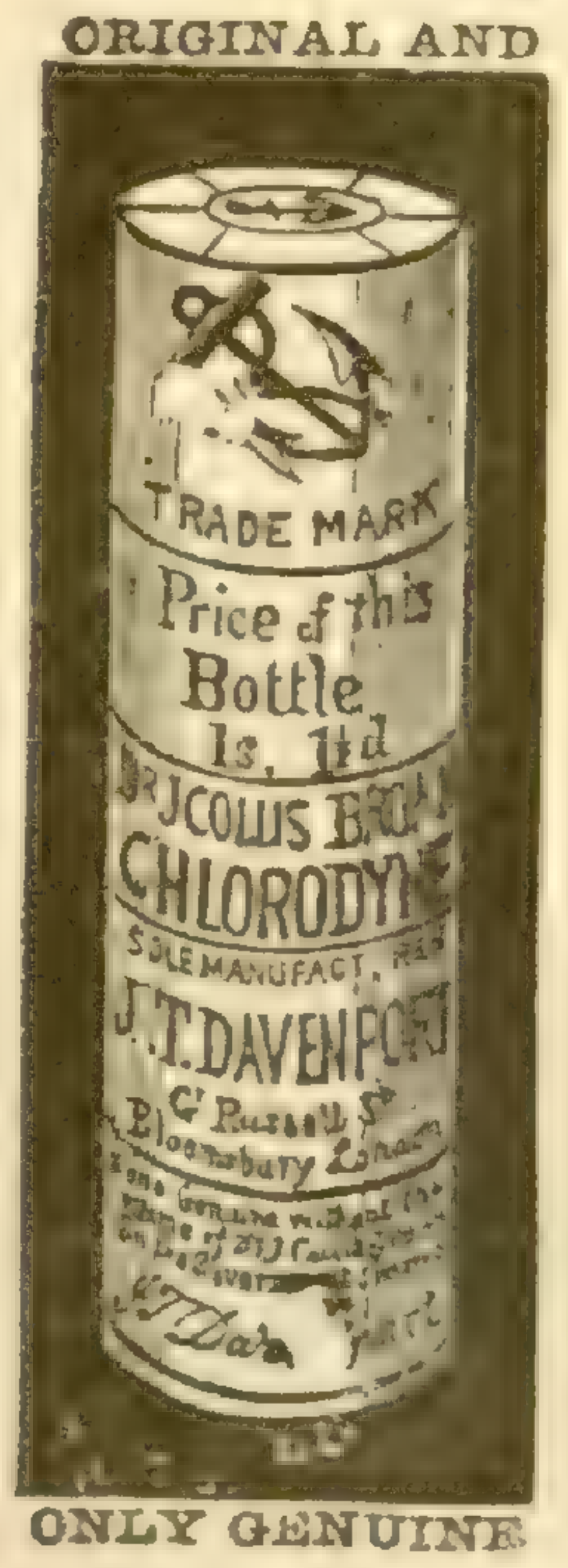

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Best varieties. Package free for Cash with order.

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M. Niel, Gloire de Dijon, Crimson Rambler, and other climbers	9s. „
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Extra plants included for carriage.

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CHRYSANTHEMUMS.— Strong, reliable Cuttings, from a large, up-to-date private collection, including Calvat's and other novelties. High quality, moderate prices. List free.—E. COLNETT, 61, Wyndham Crescent, Cardiff. Eighth Season.

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LILY OF THE VALLEY

(SPECIALS).

CROWNS or FLOWERS

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Special Cheap Bargains for Cash.

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DOUBLE ORANGE PHŒNIX (Eggs and Bacon)...	10/-
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Do. Extra large bulbs	6/-
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REGINALD GODFREY.—Of the crimson-chestnut coloured this will take the lead. Nothing so bright and effective in this class. An easy grower and capital habit. (F.C.C., N.C.S.)

QUEEN OF THE EXE.—White, but pure and glistening. Bloom large, deep, and of fine form.

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CHARLES WILSON.—Deep wine-red colour; large and full bloom.

NEW DECORATIVE VARIETIES.

MRS. E. VERE FREEMAN, ETTIE MITCHELL, and GOLDEN GLOW.

NEW INCURVED.

LORD COLERIDGE, and MAJOR MATTHEW (F.C.C., N.C.S., and A.M., R.H.S.)

AMERICAN NOVELTIES.

The following are selected from many dozens, and are offered as the finest introductions of recent years:—

YELLOW MOGUL.—One of the largest Chrysanthemums ever sent out. Florets very broad, which incurve and whirl into a magnificent bloom. The colour is distinct, being old gold, shaded and striped crimson-bronze: "a whopper."

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SILVER WEDDING.—Undoubtedly this is a variety which is come to stay. Has taken all the premier prizes in America, as the best introduction of the season.

Prizes for these splendid Novelties will be offered at the most important Exhibitions of next season, including The National, Birmingham, Belfast, Edinburgh, Dublin, Bristol, Hull, Manchester, Plymouth, and other Societies.

Full particulars (with reliable descriptions of the best varieties) in Catalogue, which is sent post free on receipt of post card.

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GARDENER (Head Working), where two or more are kept; thoroughly competent in all branches; excellent references; eighteen years in last place.—R. WOTTON, 14, Cynthia Road, Oldfield Park, Bath.

GARDENER (Head Working).—George Astridge, age 31, for the past three years gardener to H.I.M. the Empress Eugénie, SEEKS RE-ENGAGEMENT with a lady or gentleman requiring the services of a good, all-round practical gardener; life experience; excellent references; no family.—G. ASTRIDGE, Farnborough Hill House, Farnborough, Hants.

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GARDENER (Single - handed); steady, active, industrious; age 26; four years' character from last situation.—W. GRUBB, 6, Waterloo Terrace, Newent, Gloucestershire.

JOURNEYMAN (First).—Young Man, age 23, over 8½ years' experience, strong and healthy, seeks situation as above.—R. ANDERSON, Canwell, Tamworth, Staffs.

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RICHARD SMITH and CO., beg to announce that they are constantly receiving application from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

WANTED SITUATION as Single-handed working Gardener. Eleven years' experience with glass and kitchen garden; married; no family; two years' good character in present situation.—ARTHUR MORGAN, 47, Graveney Road, Lower Tooting.

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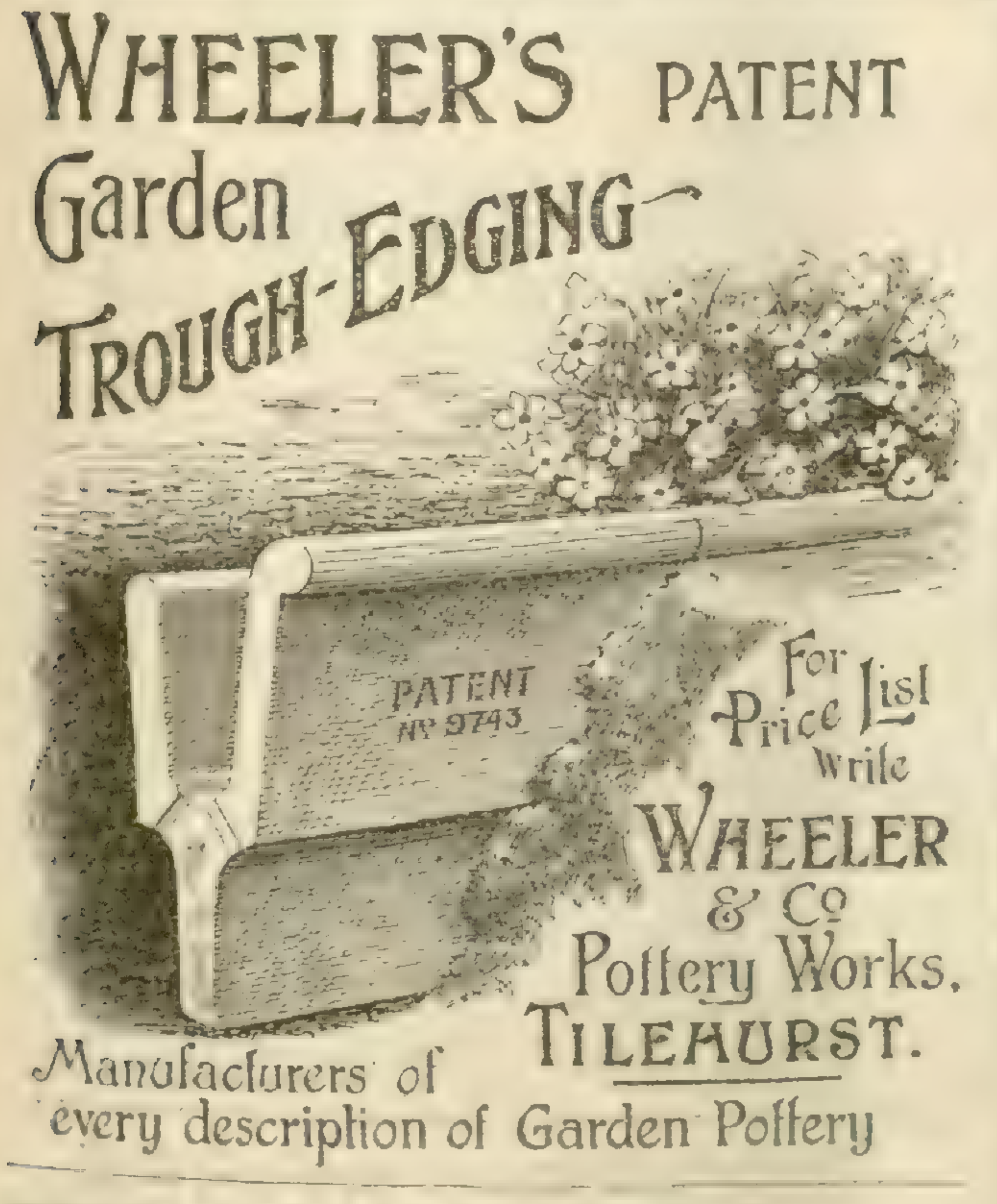
IMPORTANT NOTICE.

AN EMPLOYMENT REGISTRY DEPARTMENT IS CONDUCTED IN CONNEXION WITH THE "GARDENERS' MAGAZINE," AND THE CHARGE FOR AN ADVERTISEMENT ***INCLUDES A FREE ENTRY ON THE REGISTER FOR ONE MONTH.*** IF NOT SUITED AT THE END OF THAT TIME, AND IT IS DESIRED THAT A NAME SHOULD REMAIN, IT WILL BE CONTINUED FOR A FURTHER PERIOD UPON RECEIPT OF A REQUEST. IMMEDIATE NOTICE MUST BE GIVEN WHEN AN ENGAGEMENT IS SECURED.

A List of Gardeners on the Register will be supplied upon application to the Publishers if a stamped envelope is forwarded, addressed 148 and 149, Aldersgate Street, London, E.C.



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LILIES OF THE VALLEY.

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[illegible]. JANNOCH, Lily of the Valley Grower by Royal Warrant,
DERSINGHAM, NORFOLK.

PUBLIC IMPORTANT NOTICE.

AT p. 411 of the "Gardeners' Chronicle," last week, under National Chrysanthemums, a very grave error appears (see my reply, p. 426, in last week's issue), and as this matter has appeared in that Journal, I would like to ask the "Public Opinion" upon the matter, of which my Catalogue is a sore contention, viz., Gaining Gold Medals with other people's Flowers and Plants. Is it right? Mr. R. Dean, Secretary to the N.C.S., writes me, there is no restriction to miscellaneous exhibitors. They may get their stuff from anywhere they please; the Medals are not awarded to the exhibitors, but to the exhibits. This letter is now in the hands of Mr. T. W. Saunders, Chairman of the N.C.S. Mr. Dean also refused to bring my letters before the committee; hence the notes in my Catalogue, which will be sent free to anyone upon application. And I ask again, How much longer are the N.C.S. going to encourage trade-exhibitors to beg, buy, or borrow blooms and foliage plants, and give them their Gold Medals, in order that they may advertise "Awarded so many Gold Medals"? Is this the kind of honours Englishmen are so proud of? And how about Scotchmen?

Speaking of honours, where do my last two seasons' Novelties stand, as an exhibitor's point of view, viz., G. J. Warren, Lady Hanham, Julia Scaramanga, Lady Isobel (incurved), Nellie Pockett, John Pockett, Mrs. J. W. Barkes, Mrs. White Popham, Mr. T. Carrington, &c.? Are these any honour? Nellie Pockett has been awarded 22 First-Class Certificates or Awards of Merit; John Pockett has been awarded 20 First-class Certificates or Awards of Merit. Also the Gold Medal in Paris for "Novelties."

And how will my Novelties of 1899 stand, viz.:—

HON. W. F. D. SMITH, grandest crimson	10s. 6d.
LORD LUDLOW, another Australian Beauty ...	7s. 6d.
MR. LOUIS REMY, the grand yellow sport from Madame Louis Remy	7s. 6d.
LADY ANGLESEY, pure yellow sport from Chas. Davis	7s. 6d.

And other best Novelties, which appear in my Special List, now ready. Post free from

W. WELLS,

EARLSWOOD NURSERIES, REDHILL, SURREY.

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NUMEROUS TESTIMONIALS have reached me, unsolicited, that my CARNATION-DISEASE ANTIDOTE is a sure and certain cure for this pest. Quarts, 6s.; half-gallons, 10s. 6d.; gallons, 20s.

SPECIMEN PEACH, NECTARINE, and CHERRY TREES, all the leading sorts, Standard and Dwarf-trained. Sizes and Prices upon application.

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CHRYSANTHEMUM CUTTINGS.—Very large Stock of up-to-date varieties. Catalogue free. Duke of Wellington, 4d.; Lady E. Clarke, 6d.; Lady Isabel, 3d.; Mdme. Ferlat, 4d.; Ed. Roger, 6d.; Mary Molineux, 8d.; Mrs. Mease, 8d.; N.C.S. Jubilee, 4d; Mrs. Palmer, 3d; Royal Standard, 6d.; Lady Hanham, 3d.; Western King, 4d.

This Set, 4s, post free.

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"ARCHIE RAY,"

£5 in PRIZES for 6 BLOOMS.

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12 Magnificent Varieties, all distinct, 6s., car. paid. Any of above would make a splendid Christmas present.

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Extra Strong, for forcing, 14s. to 21s. per 100.
Strong Planting, 7s. 6d. to 10s. 6d. per 100.
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Extra Strong, for forcing, 12s. 6d. to 20s. per 100.

DICKSON'S NURSERIES,

CHESTER.

FACTS are Stubborn Things.

H. J. JONES' SUCCESSES

Sept. 6, '98.	N.C.S. Exhibition,	SMALL GOLD MEDAL.
Oct. 11.	N.C.S. Exhibition,	LARGE GOLD MEDAL.
Nov. 8.	N.C.S. Exhibition,	LARGE GOLD MEDAL.
Nov. 17.	(Edinburgh) Scottish Horticultural Association,	GOLD MEDAL.
Nov. 24.	Dundee Chrysanthemum Exhibition,	GOLD MEDAL.
Dec. 6.	N.C.S. Exhibition,	GOLD MEDAL.

The above facts

SPEAK FOR THEMSELVES,

and are better than volumes of brag and bombast, and prove the superiority of the

RYECROFT RESTED STOCK,

which, though grown so near London, is healthier than country grown stock, and up to the present time has NOT been attacked with the Rust. Thousands who have visited my Nursery and Growers of my Stock can testify to the truth of this.

WORTH POUNDS.

My CHRYSANTHEMUM CATALOGUE is not a catalogue in the ordinary sense, as it contains much valuable information, including a Special Article on Stopping and Timing nearly 600 varieties; this will be invaluable

TO EVERY EXHIBITOR,

and will be sent post free for one stamp.

A New Edition of my CHRYSANTHEMUM GUIDE is in course of preparation, which will reach one hundred thousand with this issue; it will contain, as before, articles from the pens of the most successful Cultivators of the Chrysanthemum. This will be ready early in the New Year, and will be sent post free for seven stamps, or 1s. 2d. bound in cloth.

I have much pleasure in announcing that I have arranged with Mr. W. Seward (the well-known raiser of many of our best Chrysanthemums) to introduce his magnificent varieties for '99. These are the best he has ever raised, and include what has long been wanted—some Grand Novelties in several shades of red, from terra cotta to the richest crimson. Mrs. W. Seward (a crimson scarlet), Chenon de Leche, H. J. Jones (the grandest and richest real crimson), and Mrs. Henry J. Jones (the giant incurved) are part of the set.

In addition my own Novelties include R. Hooper Pearson (the grandest yellow Jap), Lili Boutroy (large petalled white), Lord Aldenham (yellow sport from Edwin Molyneux), H. Rivers Langton (yellow sport from Mrs. W. H. Lees), Madame Leon Feyerick (yellow sport from Eva Knowles), Mr. J. T. Simpson (sport from Julia Scaramanza), Eastman Bell (crimson sport from President Borel), Mr. A. Barrett (sport from Mrs. C. H. Payne), Mr. A. H. Hall (a giant bronze seedling from Edith Tabor), Mr. A. G. Miller (a giant silvery pink), and May Manser (the new large early flowering white Jap), and several others. The full list will be ready shortly, and will be sent post free on application.

RYECROFT NURSERY, LEWISHAM.

CLAY'S LONDON FERTILIZER
TRADE MARK.

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SUCCESSFUL GARDENING
BY EMINENT SPECIALISTS (with Illustrations)
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Crushed Bones, Bone Meal,

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50 Acres of Saleable Trees.
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ROSES IN POTS From 15/- a doz.
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A Superb Collection of Herbaceous Plants.
Four Acres of Glass.
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THE BEST and CHEAPEST in the WORLD. 12 acres of Roses. 100,000 grand plants to select from. 40 choice dwarf Perpetuals for 21s. 20 choice Standards or Half-Standards for 21s.; purchaser's selection. 50 Dwarfs, unnamed, 12s. 6d. The following are my selection, carriage free; 12 choice Teas and Noisettes, 9s.; 6 Maréchal Niels, 5s.; 12 choice Climbing, 7s.; 12 best hybrid Perpetuals dwfs., 7s.; 6 lovely yellow Roses, 5s.; 6 Gloire de Dijons, 4s. 6d.; 6 beautiful Fairy Roses, 4s. 6d.; 6 choice Moss Roses, 4s.; 6 old Cabbage Roses, 4s.; 6 old-fashioned Roses, 4s.; 6 crimson Monthly Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d; 6 white Monthly Roses, 3s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briers, 3s. All for cash with order. Thousands of testimonials. Catalogues free.

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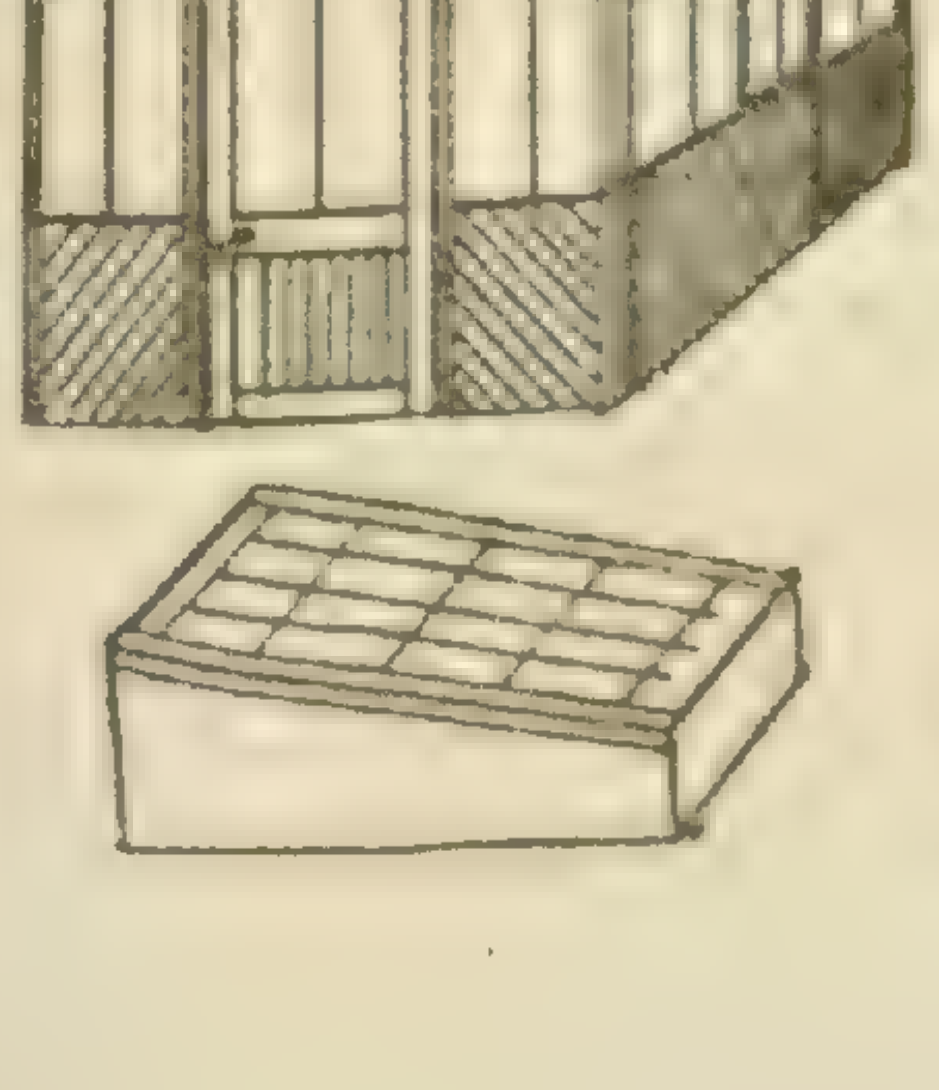

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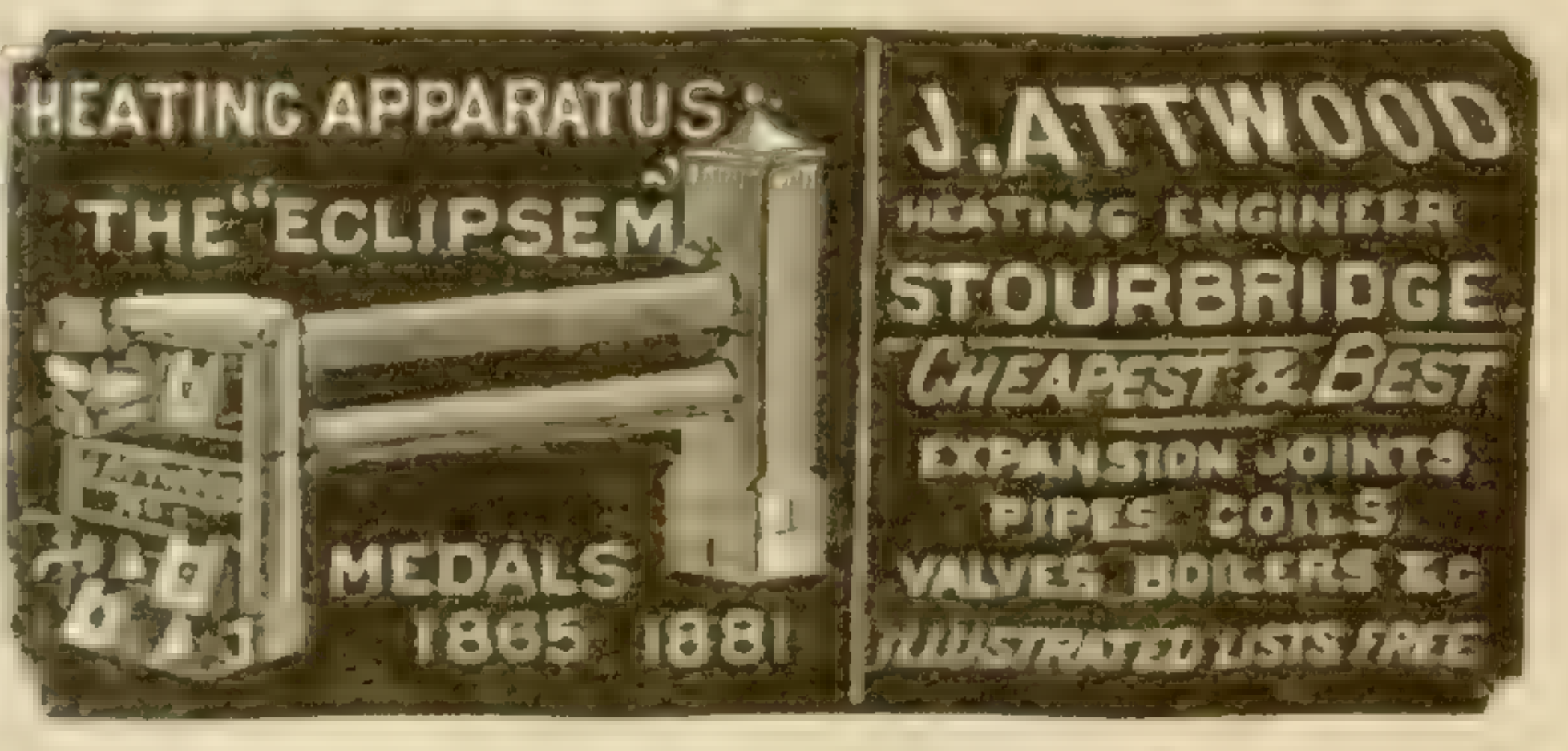

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10X14	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at	15/-	14X24
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12X13		**3rds 21 oz.**			16X18
12X14	100 ft.	stock sizes as stated in margin, 8X12 to 16X20	at	14/-	16X20
12X16	200 ft.		at	27/	16X24
12X18	100 ft.	stock sizes as stated in margin, 16X24 to 18X24	at	16/-	18X20
12X20	200 ft.		at	30/-	18X24

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EXTRAORDINARY SUCCESS.

NEVER in the annals of Chrysanthemum History has such phenomenal success been achieved by any raiser of New Seedlings as by Mr. H. WEEKS, in the sensational productions exhibited by him from time to time this season before the Floral Committee.

When it is remembered that in the small collection of a private garden only a very limited number of plants can be grown of each variety, and the difficulty therefore of securing the required number of blooms stipulated for by the N.C. Society on a given day, it is indeed remarkable that no less than Eight First-class Certificates should be awarded. Other varieties equally as good had to forego their candidature from the simple fact that only two flowers could be ready at the same time, or else the total number of Certificates would have been larger. This is indeed success. I have the honour to announce that I have secured the entire stock of all these magnificent Novelties, and shall distribute same together with a few of my own, and some of the finest Australian Seedlings ever introduced.

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DWARF STANDARDS	from **10s.** ,,	**ROSES IN POTS**	from **10/6** ,,

They also beg to call attention to their extensive collections of

Fruit Trees, Hardy Trees and Shrubs, Rhododendrons, Herbaceous Plants, Climbing Plants, Camellias and Azaleas, and Bulbs, all in the best possible condition for autumn delivery.

PRICED LISTS POST FREE ON APPLICATION.

NOTE.—All Nursery Stock offered by WM. PAUL and SON is particularly fine this season, the warm, dry summer having produced exceptionally fine growths on the cool, moist, loamy soil of which their nurseries consist.

IMPORTANT!—OBSERVE CHRISTIAN NAME AND ADDRESS:

WM. PAUL and SON, WALTHAM CROSS, HERTS.

THOSE having Houses to Let or Sell, or Apartments to Let, whether in town or country, should send an advertisement to the "CITY PRESS." The paper is acknowledged by all to be one of the best mediums for this purpose. Prepaid terms: 32 words, One Shilling; three times for Two Shillings. Offices: 148 and 149, Aldersgate Street, London E.C.

Important to Mushroom Growers.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN. Always alike; most productive. Hundreds of testimonials. Per bushel, 5s.
R. and G. CUTHBERT, Seed, Bulb, and Plant Merchants Southgate, N. Established 1797.

OWEN'S ROYAL CHRYSANTHEMUMS.

Genuine English Seedlings, raised at the Floral Nurseries, Maidenhead.
Acknowledged by the Leading Growers to be the Grandest Novelties of the Season.

LADY PHILLIPS, 5/-,
F.C.C., N.C.S. (Jap.).
SIR HERBERT KITCHENER, 7/6,
F.C.C., N.C.S. (Jap.).
ADA OWEN, 5/-,
F.C.C., N.C.S. (Inc.).
LORD CROMER, 7/6,
Award of Merit, R.H.S. (Jap.).

CATALOGUES FREE.

ROBERT OWEN, MAIDENHEAD.

ORCHIDS! ORCHIDS!!

Cyp. Spicerianum ...	in bud ...	2/6 ...	3/6 ...	5/6
,, Charlesworthii ...	,, ...	2/- ...	3/- ...	5/-
Cattleya Labiata ...	in sheath ...	3/6 ...	5/6 ...	7/6
Vanda Cœrulea ...	in spike ...	/9 per leaf.		
,, Kimballiana ...	,, ...	2/- ...	3/- ...	5/-
,, Amesiana ...	,, ...	2/- ...	3/- ...	5/-
Lilium, Napalense, and Wallichianum		1/6 ...	2/6 ...	

J. W. MOORE (Ltd.), Orchid Importers, Rawdon, near Leeds.

WILLIAM BARRON and SON,
Landscape Gardeners and Nurserymen.
INVITE INTENDING PLANTERS TO INSPECT THEIR UNRIVALLED STOCK OF
ORNAMENTAL and FOREST TREES.
Send for Catalogues and List of Public and Private Works carried out by them.
ELVASTON NURSERIES, BORROWASH, DERBY.

WILLIAM COOPER, Ltd.,

755, OLD KENT RD., LONDON, S.E.

TWELFTH ANNUAL CLEARANCE SALE

FOR THREE WEEKS ONLY. Catalogues Post Free.

Owing to the exceptionally busy season, our Stock on hand is small compared with previous Sales. We would urge all Intending Purchasers to Order Early, as when once sold they cannot be replaced at the Price. First come first served. **CONDITIONS OF SALE.**—Goods are offered subject to being on hand on receipt of reply. Cash to accompany all Orders, and Prices to be Strictly Net. All orders will be executed in rotation, and Carefully Packed on Rail.

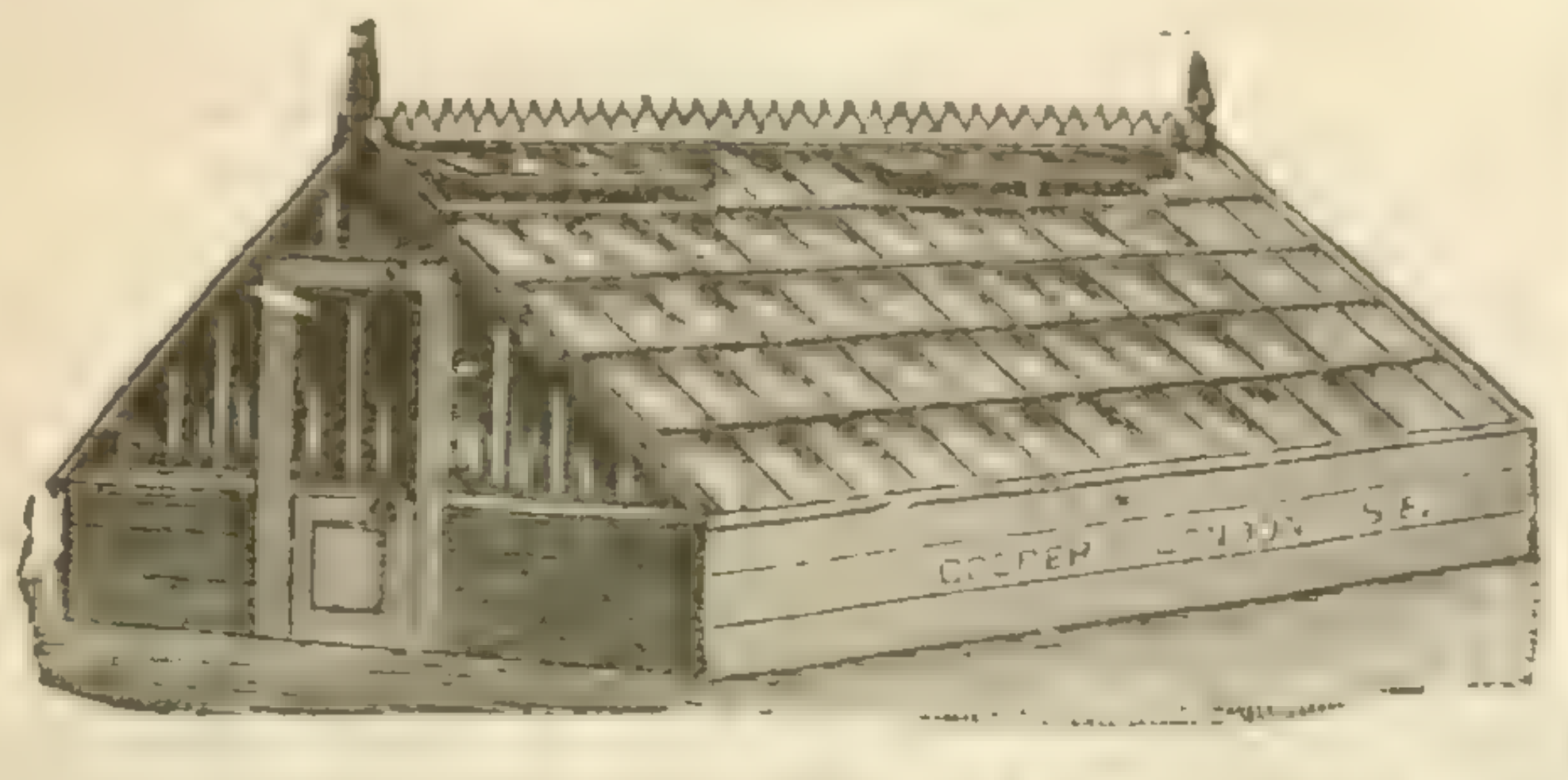
P.O.O.'s payable at 794, Old Kent Road. Cheques crossed L. & S. W. Bank.

GREENHOUSE DEPARTMENT.

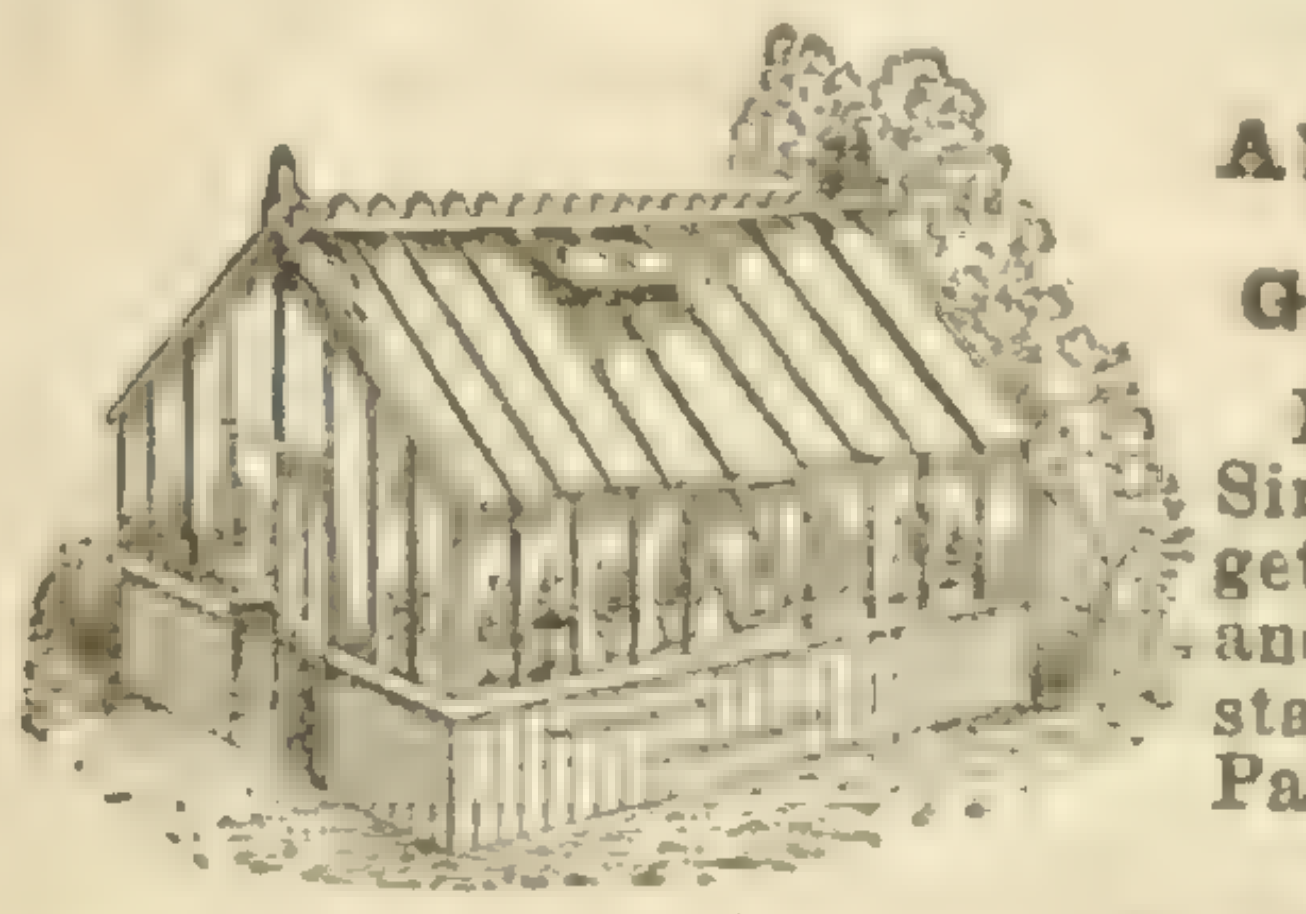
All Houses are Complete, ready for erecting, with Stages, Glass, Doors, Ventilators, &c. Painted one coat.

AMATEUR FORCING HOUSE

(TENANT'S FIXTURE).



Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
1	7ft. by 5ft.	2 10 0	2 0 0
2	8ft. by 5ft.	3 0 0	2 5 0
3	9ft. by 6ft.	3 15 0	2 10 0
4	10ft. by 7ft.	4 10 0	3 10 0
5	12ft. by 8ft.	5 10 0	3 15 0
6	15ft. by 10ft.	7 15 0	5 10 0
7	20ft. by 10ft.	10 15 0	7 10 0
8	25ft. by 10ft.	14 5 0	10 0 0
9	50ft. by 10ft.	27 0 0	19 0 0
10	100ft. by 10ft.	45 0 0	33 0 0



AMATEUR SPAN-ROOF GREENHOUSE.

Made in sections. Simply screwed together. Substantial and complete with stages, glass, etc., etc. Painted one coat.

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
11 to 14	7ft. by 5ft.	2 16 0	2 3 0
15	8ft. by 5ft.	3 10 0	2 18 0
16	9ft. by 6ft.	4 0 0	3 5 0
17	10ft. by 7ft.	5 0 0	4 5 0
18 to 21	12ft. by 8ft.	6 0 0	4 15 0
22	15ft. by 10ft.	8 10 0	7 0 0
23	20ft. by 10ft.	12 0 0	9 10 0
24	25ft. by 10ft.	16 0 0	12 0 0
25	50ft. by 10ft.	30 0 0	23 0 0
26	100ft. by 10ft.	50 0 0	40 0 0

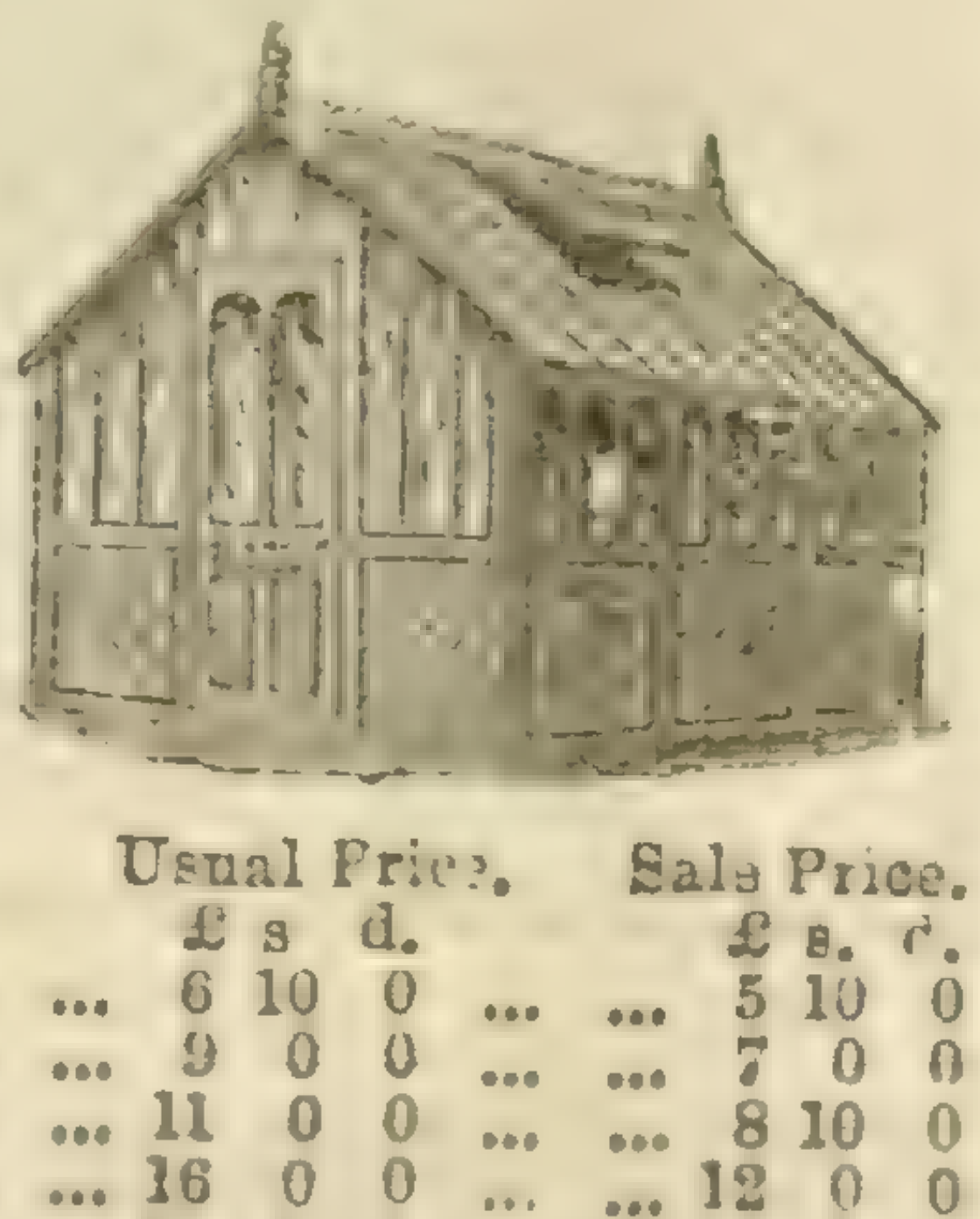
Lean-to.

Lot.		Usual Price.	Sale Price.
27	9ft. by 6ft.	3 10 0	2 14 0
28	10ft. by 7ft.	4 10 0	3 12 0
29	12ft. by 8ft.	5 10 0	4 0 0
30	15ft. by 10ft.	8 0 0	5 18 0
31	25ft. by 10ft.	16 10 0	11 0 0

SPAN-ROOF VILLA CONSERVATORY.

Substantial build, best finish.

As Illustration, but with Square instead of Circular Lights.

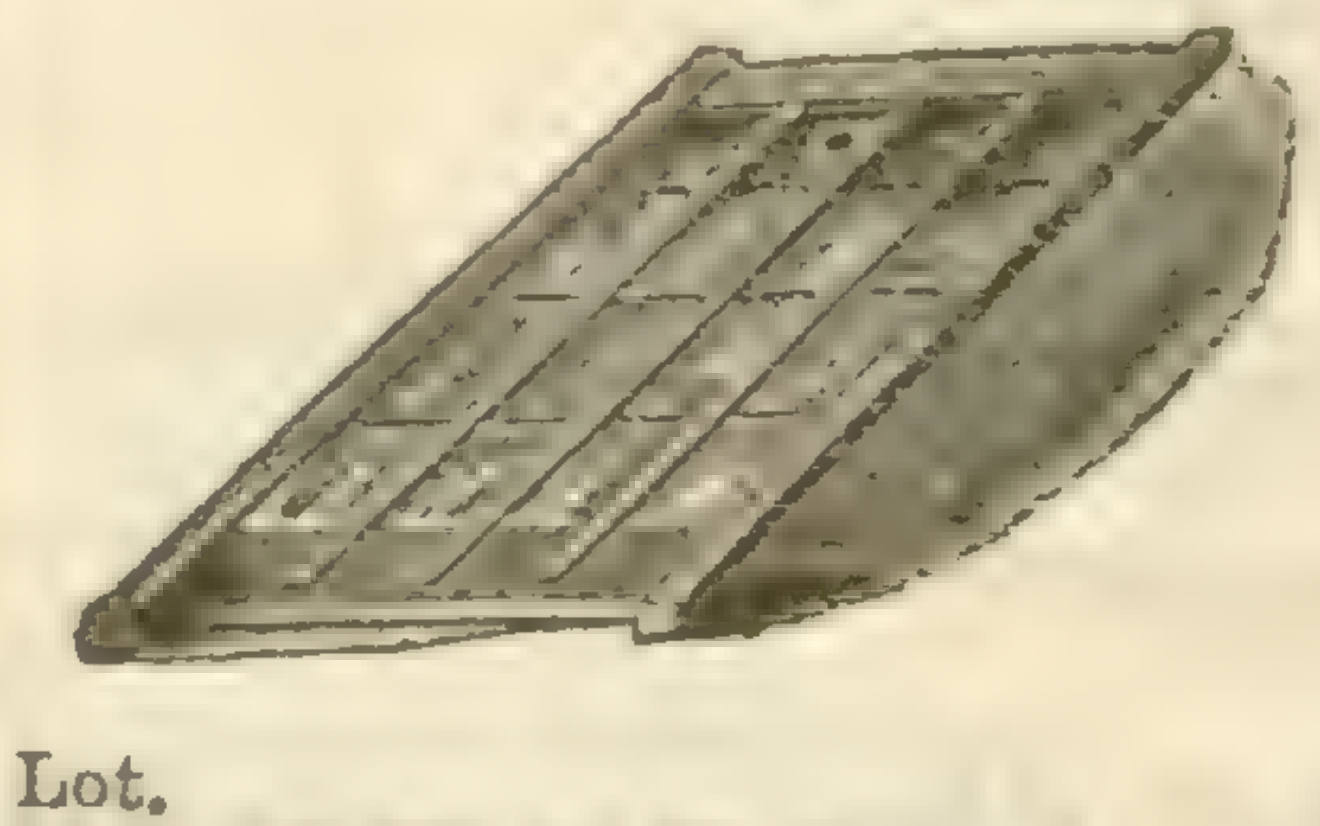


Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
32	9ft. by 6ft.	6 10 0	5 10 0
33	12ft. by 8ft.	9 0 0	7 0 0
34	15ft. by 8ft.	11 0 0	8 10 0
35	20ft. by 9ft.	16 0 0	12 0 0
36	25ft. by 9ft.	21 0 0	15 0 0
[illegible]	50ft. by 9ft.	40 0 0	28 0 0
[illegible]	100ft. by 9ft.	70 0 0	50 0 0

SPAN-ROOF FORCING HOUSE.

(FOR BRICKWORK.)

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
39	20ft. by 9ft.	8 0 0	6 0 0
40	20ft. by 12ft.	10 0 0	8 0 0
41	40ft. by 12ft.	19 0 0	16 0 0
42	60ft. by 12ft.	27 0 0	23 0 0
43 to 45	100ft. by 14ft.	50 0 0	40 0 0



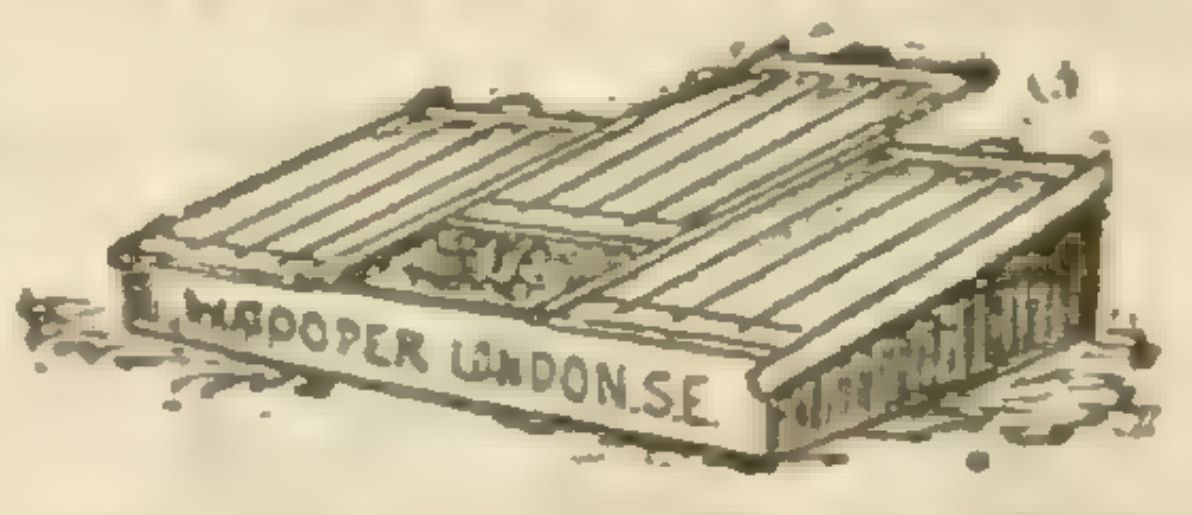
GARDEN LIGHTS.

Lot.		Usual Price. s. d.	Sale Price. s. d.
46 to 52	3ft. by 2ft. Painted and Glazed	5 0	3 9
53 to 76	4ft. by 3ft. ,, ,,	7 6	5 9
77 to 121	6ft. by 4ft. ,, ,,	10 6	8 0

MELON AND CUCUMBER FRAMES.

Well-seasoned timber only. Glazed 21 oz. and painted complete.

Lights 2 in. thick.



Lot.			Usual Price. £ s. d.	Sale Price. £ s. d.
122 to 127	1 Light Frame	4ft. by 3ft.	0 18 0	0 14 0
128 to 133	2 ,, ,,	6ft. by 4ft.	1 12 0	1 5 0
134 to 140	1 ,, ,,	6ft. by 4ft.	1 10 0	1 4 0
141 to 144	2 ,, ,,	8ft. by 6ft.	2 14 0	2 4 0
145 to 147	3 ,, ,,	12ft. by 6ft.	3 15 0	2 18 0

ODD GREENHOUSES.

These Houses are all complete, as per list, with Doors, Lock and Key, Ventilators, Irons for opening, Staging, Glass, &c., and perfectly new.

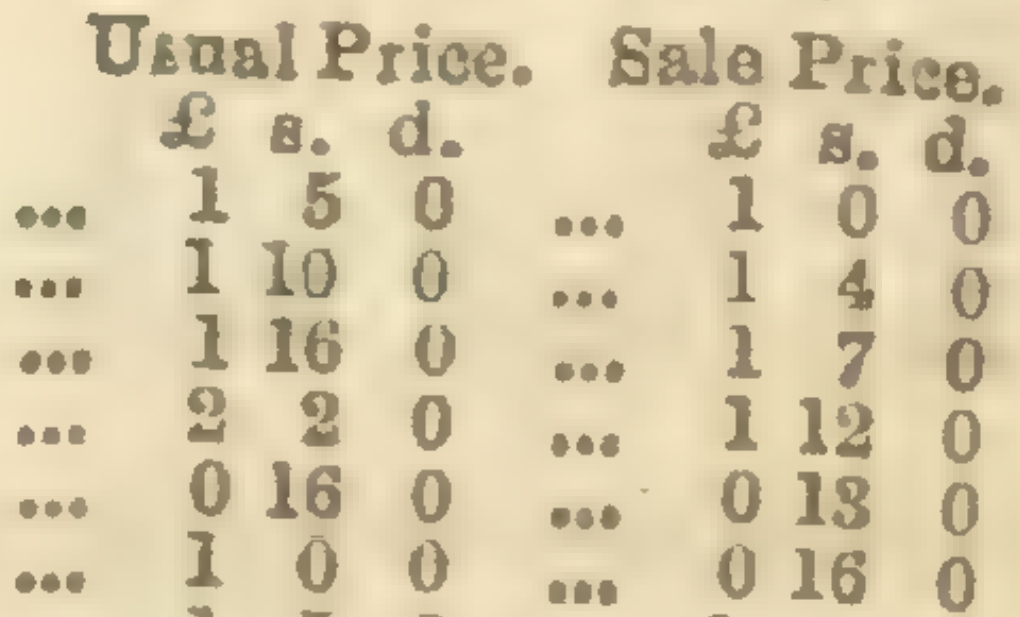
Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
148	Lean-to Conservatory, 14 ft. by 8 ft.	10 10 0	8 0 0
149	Span-Roof Conservatory, 12 ft. by 8 ft.	9 10 0	8 0 0
150	Span-Roof Conservatory, 18 ft. by 10 ft.	13 0 0	11 0 0
151	Span-Roof Circular Light Conservatory, 9 ft. by 6 ft.	8 10 0	7 0 0
152	Lean-to Forcing House, for 3 ft. Brickwork, 20 ft. by 12 ft.	9 10 0	8 0 0
153	Span-Roof Greenhouse, 15 ft. by 10 ft., for Brickwork	8 10 0	6 0 0
154	Lean-to Greenhouse, 10ft. by 5ft.	6 0 0	4 0 0
155	Span-Roof Greenhouse, 20 ft. by 10 ft., for 2 ft. 6in. Brickwork	12 0 0	9 0 0
156	Span-Roof Greenhouse, 30 ft. by 10 ft., portable	22 0 0	15 0 0
157	Span-Roof Forcing House, for 3 ft. Brickwork, 20 ft. by 12 ft.	10 0 0	7 15 0
158	5 Cucumber and Tomato Houses, 100 ft. long, 11 ft. wide, for Brickwork, complete with Centre Gutters, Top Ventilators, Doors, &c., 21 oz. Glass, everything New and Complete, ready for erecting. The Lot	200 0 0	150 0 0
	Or can be had separate at £33 each.		
159	3 Cucumber Houses, complete as above, 150 ft. by 10 ft. The Lot	200 0 0	140 0 0
160	1 Cucumber House, complete as above, 50 ft. by 10 ft.	20 0 0	14 0 0
161	Lean-to Greenhouse, for Brickwork, 15 ft. by 10 ft.	8 0 0	6 0 0
162	Lean-to Greenhouse, 50 ft. by 12 ft., portable, with partition, complete	32 0 0	21 0 0
163	¾-Span Greenhouse, for Brickwork, 30 ft. by 10 ft.	25 0 0	14 0 0
164	Span-Roof Greenhouse, 60 ft. by 10 ft., with 3 partitions, making a complete range of Houses	55 0 0	32 0 0

Odd Greenhouses—*continued.*

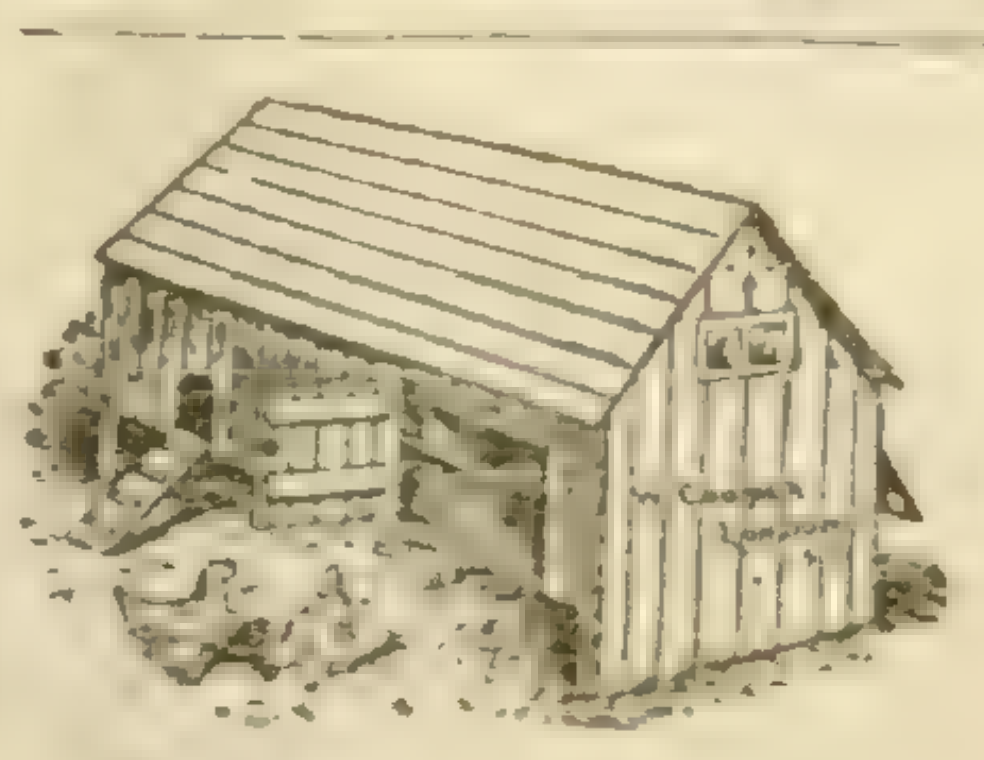
Lot.		Usual Price, £ s. d.	Sale Price, £ s. d.
165	Lean-to Greenhouse, 20 ft. by 10 ft., Door and 2 Ventilators in front	15 0 0	9 10 0
166	Lean-to Greenhouse, 6 ft. by 5 ft., Door in front	3 5 0	2 0 0
167	Lean-to Greenhouse, 14 ft. by 9 ft., for Brickwork	7 0 0	4 10 0
168	Span-Roof Greenhouse, 25 ft. by 12 ft., for Brickwork	17 10 0	11 10 0
169	4 Span-Roof Forcing Houses, each 20 ft. by 9 ft. 6 in., 18 in. Woodwork at base, instead of brickwork, 21 oz. Glass	12 0 0	8 10 0
170	Lean-to Conservatory, 19 ft. 8 in. by 10 ft.	16 10 0	12 0 0
171	Lean-to Greenhouse, 15 ft. by 10 ft., for Brickwork	8 0 0	6 0 0

POULTRY APPLIANCE DEPARTMENT.

SPAN-ROOF MOVABLE POULTRY HOUSES.



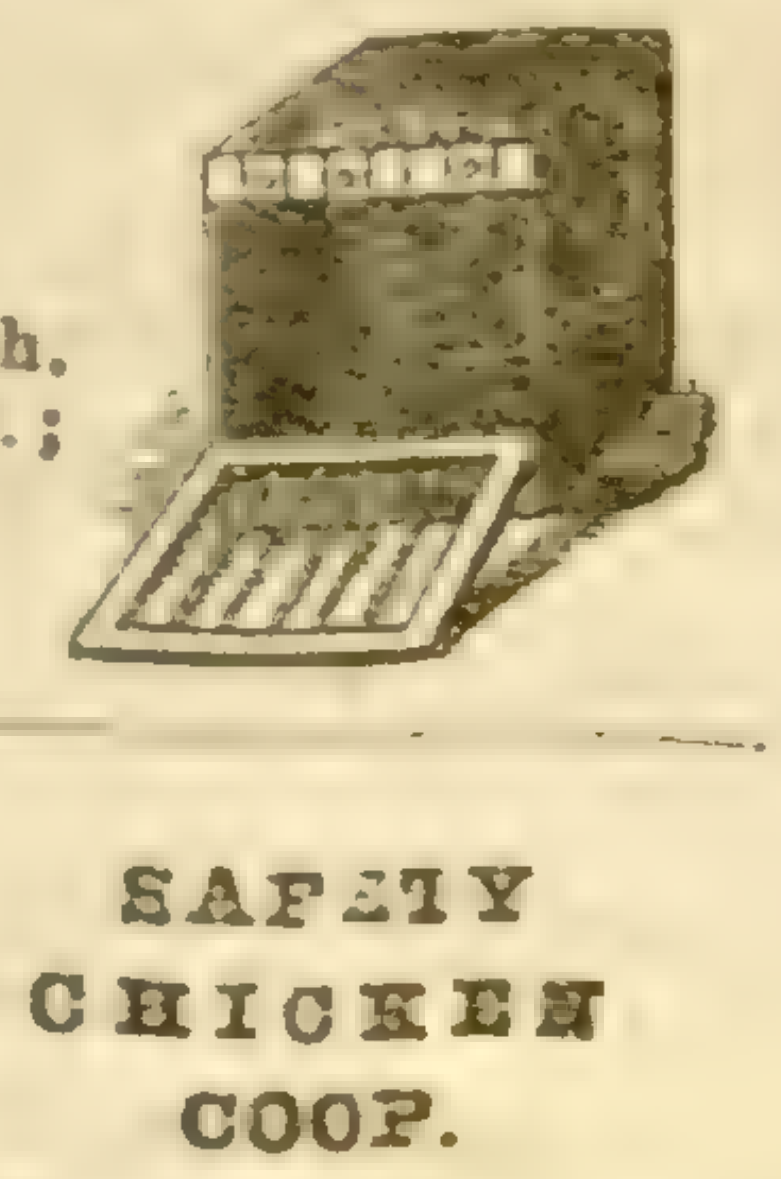
Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
172 to 175	5ft. by 4ft.	1 5 0	1 0 0
176 to 180	6ft. by 4ft.	1 10 0	1 4 0
181 to 190	7ft. by 5ft.	1 16 0	1 7 0
191 to 203	9ft. by 6ft.	2 2 0	1 12 0
204	4ft. by 3ft.	0 16 0	0 13 0
205	5ft. by 4ft.	1 0 0	0 16 0
206	6ft. by 4ft.	1 5 0	1 1 0
207	7ft. by 5ft.	1 10 0	1 4 0
208	9ft. by 6ft.	1 15 0	1 8 0



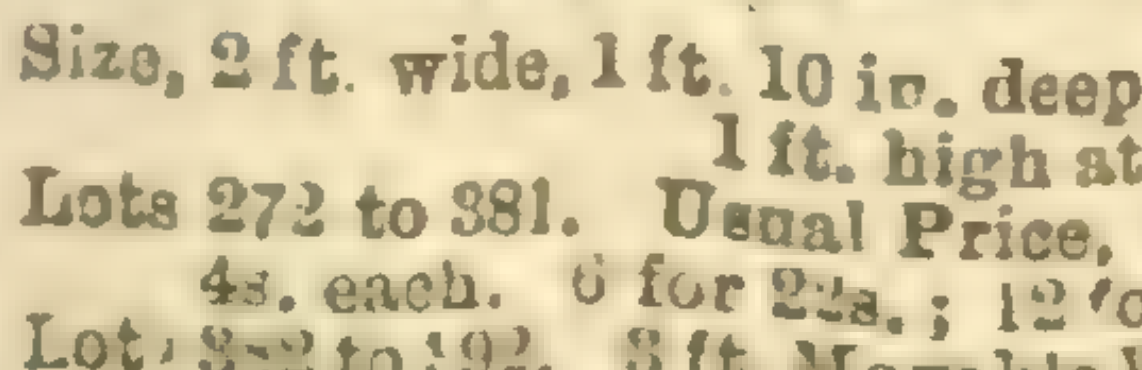
SPAN-ROOF POULTRY HOUSE.

Lot.		Usual Price. £ s. d.	Sale Price. £ s. d.
209 to 214	4ft. by 4ft.	1 10 0	1 3 0
215 to 221	5ft. by 4ft.	1 13 0	1 5 0
224 to 228	6ft. by 4ft.	1 18 0	1 12 0
229	7ft. by 5ft.	2 5 0	2 0 0
230	8ft. by 6ft.	3 0 0	2 5 0

NEST BOXES.



Lots 236 to 271. Usual Price, 4s. each. Sale Price 3s. each. 6 for 16s. 6d.; 12 for 32s.; 36 for £3 15s.



SAFETY CHICKEN COOP.

Size, 2 ft. wide, 1 ft. 10 in. deep, 1 ft. 10 in. high at front, 1 ft. high at back.

Lots 272 to 381. Usual Price, 5s. 6d. each. Sale Price, 4s. each. 6 for 22s.; 12 for 40s.; 36 for £5 5s.

Lots 382 to 392. 3 ft. Movable Wire Runs. Usual Price, 4s. each extra. Sale Price, 2s. each.

Lot 469. 12 B.S.A. pattern Cycles. Best material and workmanship. Dunlop Tyres. Usual Price, £12. Sale Price, £7. With cheaper pneumatic tyres, £6 each.

Keynes, Williams, and Co.,

ESTABLISHED OVER 150 YEARS.

THE NURSERIES, SALISBURY.

SPECIALITIES.

LORD PENZANCE'S SWEET BRIARS. We were entrusted with the propagation and first distribution of these lovely hybrids. All desiring the true stock should obtain them direct from us.

Price 1s. 6d, each.

ROSES - - - Upwards of 120,000 grown every year. The special feature about the SALISBURY ROSES is that the soil naturally tends to the production of an abundance of fibrous roots, ensuring safe removal anywhere. SALISBURY ROSES often thrive where those raised in heavier, richer soils fail.

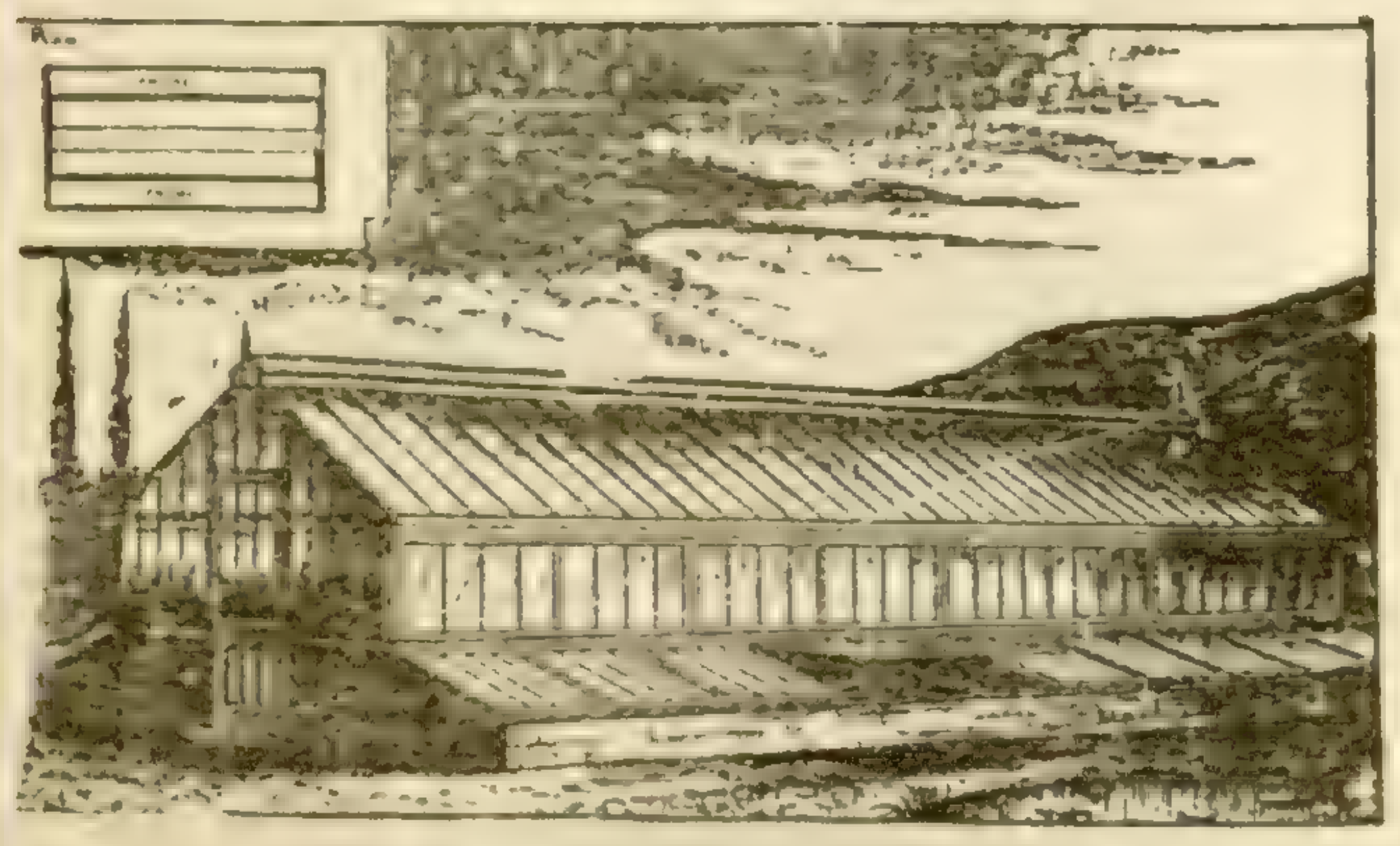
DAHLIAS - - - More than half the good varieties now in commerce were raised here. The greatest care taken to send out no plants but such as are true to name and true to character. Thousands of pot roots now ready; those prepared for export may be safely sent to any part of the world.

GRAPE VINES - - For forty years these have been a great speciality. The stock is clean and perfectly free from disease, true to name, and in every way reliable.

CATALOGUES GLADLY SENT TO ALL APPLICANTS.

KEYNES, WILLIAMS and CO., Nurserymen, &c., SALISBURY.

FOSTER & PEARSON, Ltd.



SPAN HOUSE WITH FRAMES.

From E. L. CAVE, Esq, Solicitor, Bromyard.

"The Houses that your firm supplied nearly **30 YEARS AGO** *are still good and sound."*

OUR HOUSE WILL STAND THE TEST OF TIME.

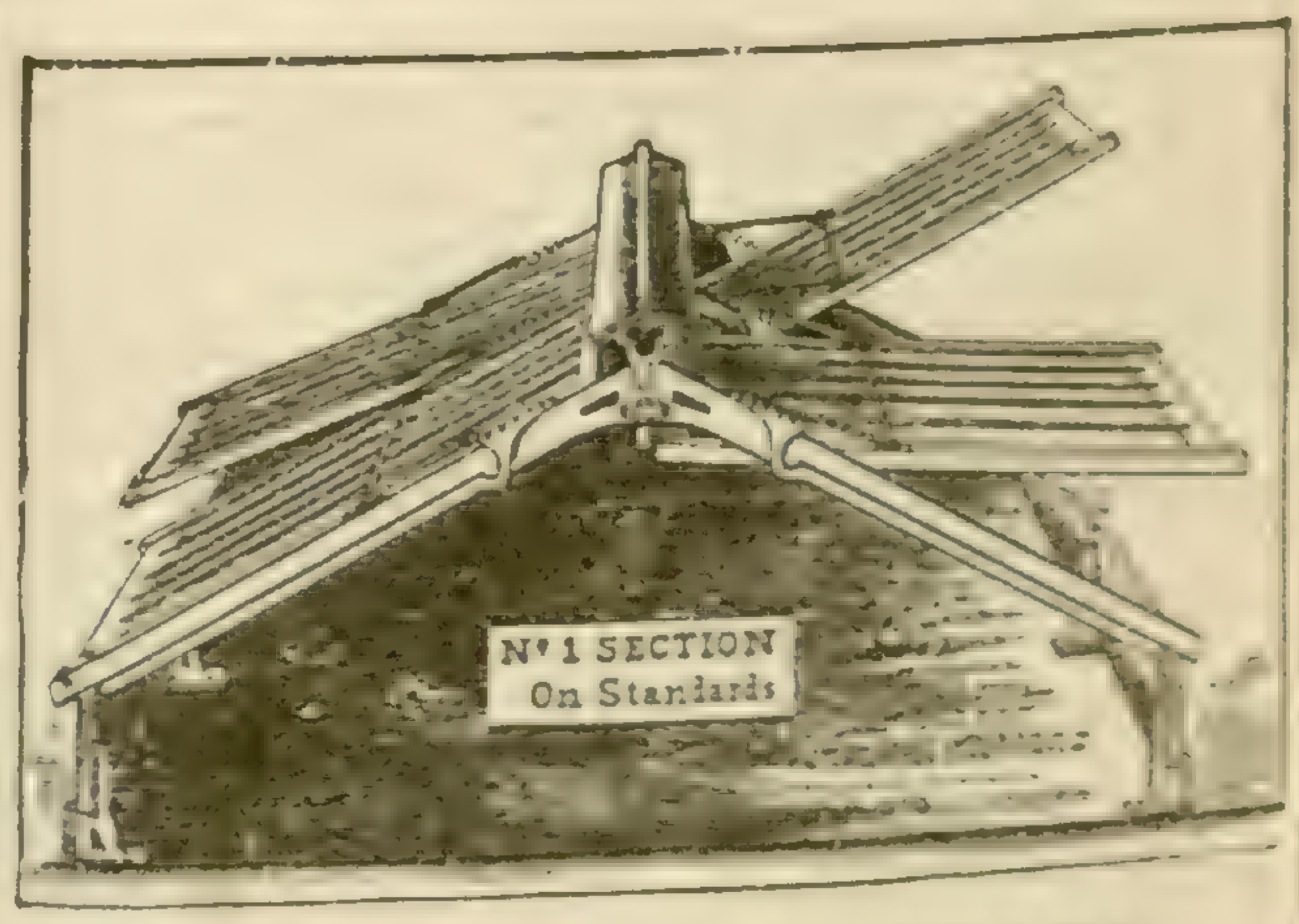
From Sir HENRY EDWARDES, Wootton Hall, Ashbourne.

"The Vinery you erected for me at Wootton Hall is the same in every respect as when it left your factory **25 YEARS AGO."**

ESTIMATES ON APPLICATION
— FOR —
RANGES, VINERIES, &c.,
— IN —
TEAK,
Of which we hold a VERY LARGE STOCK.

From EDWARD BROWN, Esq., The Grove, Lincoln.

"The large Vinery you built for me **23 YEARS AGO** *is as sound and good as the day it was put up."*



IMPROVED SPAN FRAME.

FOSTER & PEARSON, LTD., BEESTON, NOTTS.

THE GARDENERS' MAGAZINE
CHRISTMAS NUMBER

SATURDAY, DECEMBER 17, 1898

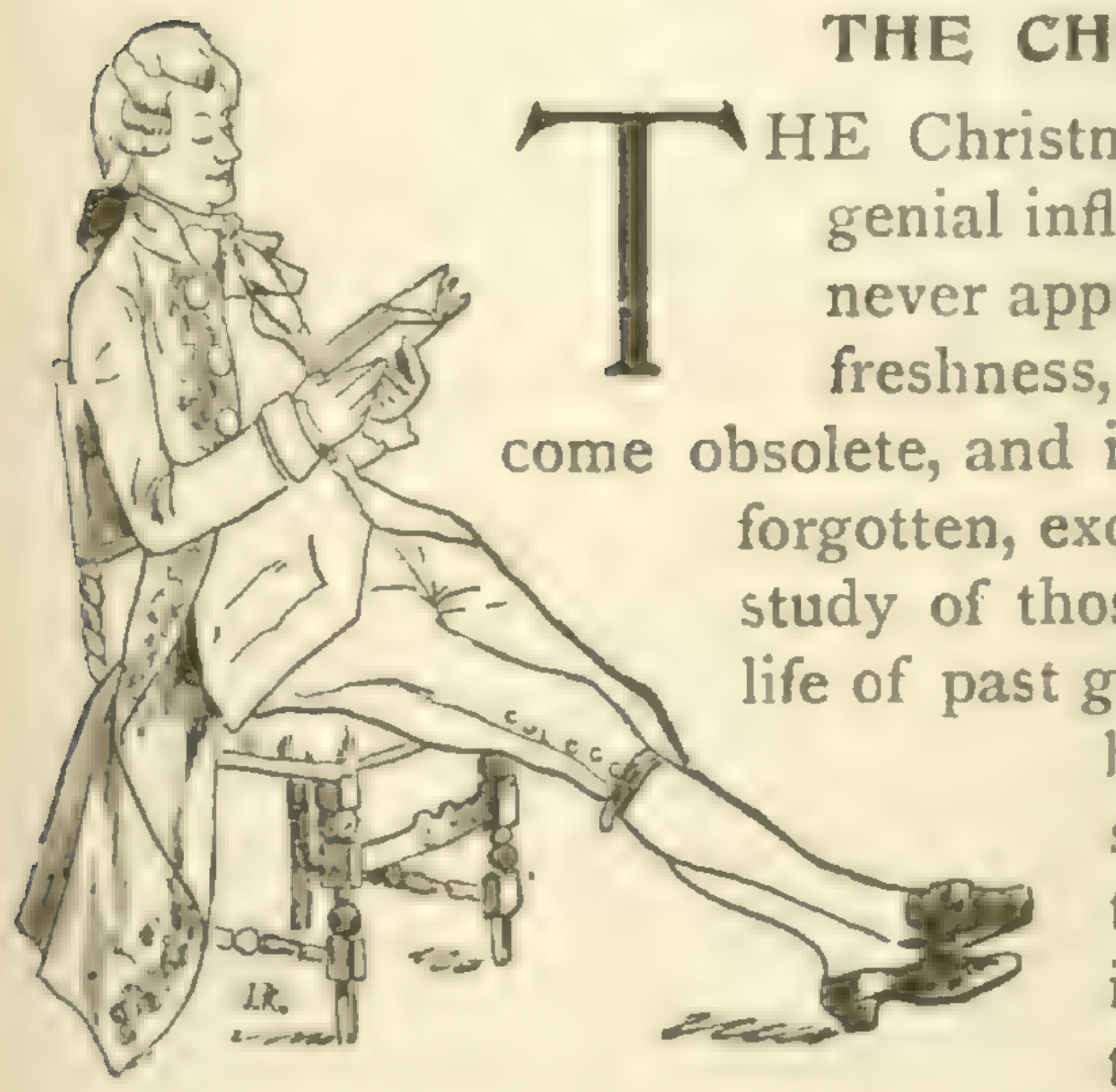
HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T. H. SMITH, 18, Somerville Road, Small Heath, Birmingham First Examination Paper ready November 5. Join early for the whole course.

TO SECRETARIES OF FRUIT SHOWS, &c.—JUDGING OF FRUITS, FLOWERS and VEGETABLES, by STEPHEN CASTLE, F.R.H.S., Consulting Horticulturist, Bottesford Vineries, Notts.
Terms on application. Telegrams, "GRAPES," BOTTESFORD.

AN ALMANACK FOR 1899
Printed in Colours and representing the
PENZANCE HYBRID SWEET-BRIERS
Is presented with this Number.
Subscribers should see that their Newsagents deliver this Supplement with each copy.

NOTES OF THE WEEK.

THE CHRISTMAS SEASON.



THE Christmas season that now spreads its genial influence upon all classes of society never appears to lack a certain degree of freshness, although many festivals have become obsolete, and in some instances are well-nigh forgotten, except by those who delight in the study of those things which entered into the life of past generations. Young and old alike breathe the spirit of this blessed season, blessed for the opportunities it affords for friendly gatherings, generous contributions to the needs of those in want of help, and kindly thoughts for others. An inquiry into the cause or causes of the remarkable freshness that characterises the celebration of this happy season would unquestionably yield much that is of interest. This investigation would probably reveal the fact that it is not alone due to the religious element, or to the social aspect of the season, but is in great part the result of their combined influence. It would also probably be found that the climate has exercised a material influence in the maintenance of a keen interest in all that belongs to Christmas, for while the festival has occupied an important position in English, German, and Scandinavian customs, its observance is materially lessened as we proceed southward. We, however, do not advise that our readers should engage in the solution of difficult problems at this season, but rather would suggest they regard the Christmas festival as in its nature a necessity of our being, and altogether beneficial. It is satisfactory to observe that the relation of Christmas to horticulture, which in the distant past was extremely slender, is rapidly becoming closer, and as the result the products of the orchard and garden play an increasingly important part in the festivities associated with the Christmas season. The shrubbery is resorted to for the holly with its glistening berries, and the orchard is searched for supplies of mistletoe, which by old and young is regarded as an essential part of the greenery employed in the decoration of the home, while flowers in great variety are lavishly employed by those who are in a position to indulge their taste in this direction. Having regard to the increasing demand for the various products of the garden, it is satisfactory that the supplies of all the more important are abundant and obtainable at reasonable rates. In some instances prices are rather too low from the grower's point of view, but while we sympathise with those who are unable to obtain an adequate return from any particular crop, we derive satisfaction from the knowledge that the section of the community with but moderate means have within their reach the choicest fruits and flowers grown for commercial purposes, and that all but the very poorest are able to obtain a plentiful supply of wholesome fruits and vegetables. Let us hope that the wants of the latter will not be overlooked, and that now, as in the past, those who are in a position to do so will remember that portion of the community who from their own resources are unable to participate in the good things that abound on all sides, and thereby act in accordance with the spirit of the Christmas season.

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MISTLETOE.

THE mistletoe is curious in being the only truly parasitical plant, native to this country, of which any decorative use is made, the comparatively few others, such as the broomrape and dodder, being neither conspicuous nor ornamental, while there are few things more beautiful than a well-developed bunch of mistletoe pendulous from its host tree, and thickly bedecked with its lovely pearl-like berries. Examining it carefully we find its entire structure to be curiously distinct from that of plants of independent habit, its peculiar jointed character, and the dull olive green of its blunt ovate leaves set on in pairs, together with its pendulous habit of growth and peculiar mode of branching, all distinguish it most markedly from the foliage among which and at whose expense it grows and flourishes. Its mode of establishment is also very remarkable. Here we have a plant absolutely incapable of taking its nourishment direct from the soil by its own roots, so that were its seeds to fall to the ground when ripe, as with ordinary plants, there would be an end of them. On the other hand, when they by chance lodge in a cleft of the tree, there lies between them and the necessary sap of their host a thick and seemingly impenetrable layer of bark. Any ordinary seed, under such circumstances, would push out a root, and, finding no sustenance, would die off straightway, but the mistletoe is a crafty and insidious plant, and starts by developing and inserting a series of claws, which grip the bark and slowly pierce it, long before it attempts to form anything in the shape of leaves. It thus concentrates all its energies upon tapping the vital forces of the tree, and having in time fixed its tentacles within the circulatory system, it then leisurely proceeds to profit by what it can draw therefrom, and with it fashions its pendulous bush, and eventually its pearly freight in addition. Those little pearls, too, are marvels of adaptation to needs. Therein lies the seed, embedded in a tenacious, sticky medium, so that a bird, making a meal of a number of them, is bound to cleanse its beak by rubbing it on the branches, and almost equally bound now and again to fix an adherent seed in a suitable place for its subsequent development, while, by way of revenge for those actually devoured, the plant supplies the birdcatcher with his birdlime. Finally, in return for its life of parasitism and treachery to its feathered friends, by some strange irony of Fate its pearly branches are selected at this joyous season as a symbol of innocent freedom among coy maids and bashful youths, and snatched from the leafy glade to deck the festal hall. Its moral obliquity as a plant is entirely condoned for the sake of its beauty and the traditions of the past which cling to it.

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FLORAL EVOLUTION.

IN these days of advanced scientific floriculture, based upon a far deeper knowledge of the laws of reproduction than obtained even when this century was well advanced, floral evolution is seen to be split into two distinct branches, one literally as old as the hills, and the other altogether of recent development. The one form of evolution has been the outcome of the general struggle for existence which has been going on between all forms of life for countless ages, and when we regard the infinite types of beauty, in form, tint, and detail, which have resulted from the intricate relations of hostile and friendly factors in the environment of plants, we cannot fail to be struck with a far greater wonder and admiration than is evoked by the other branch of evolution referred to, marvellous as that is seen to be. That branch, embracing the selective power of man, has grown with his intellectual development, and precisely as that, in these enlightened days of ours, has suddenly burst forth into the full bloom of the Victorian era, so the art and science of horticulture has advanced by leaps and bounds to keep pace with the spread of knowledge and the extension of every facility afforded thereby. In the old days the brilliant flora of the exotic world was known to the travelled only, and the roaming botanist was handicapped in a thousand ways. Enormous areas of the land were sealed books, impenetrable save at their borders, and, so far as the plant lover was concerned, the most he could do was to collect seed and trust to Providence for the rest, since slow-going sailing vessels and ignorance of the Wardian case precluded almost entirely the transport of tender living plants. Should such, by extraordinarily good fortune, reach the grower here, once again he was handicapped by hot, stuffy flues and the general insanitary conditions of the ancient hothouses. Steam revolutionised floriculture in every way, it shortened the perilous voyage, bit by bit it opened up the hitherto impenetrable areas rich with new species of plants, and finally, when these were safely to hand, steam in its incipient stage of hot water afforded the strangers literally a warm and cordial reception on their arrival, and made them feel as much at home in this wayward climate as in their native habitats. Then selective evolution leapt onward with gigantic strides; all the world contributed its material as fashioned by the bee and other tribes on the one side, and the adaptive tissues of the flower on the other, plus that omnipresent and invisible factor which actuates them all, and which no amount of argument can eliminate. This material, beautiful or curious, its sexual and specific relations studied and grasped, was then seen to be as plastic as clay in the potter's hands, and underlying all was that potent factor aforesaid aiding the cultivator in a thousand ways by variations, large and small, some of which could be accumulated into floral wonders of size, while others started off in new directions altogether to swell the crowd of distinct types. By selective culture, which means evolution, fostered and directed by man's particular tastes, a grower can modify a breed of plants in his lifetime as much as Nature would do in millions of years; but there is ever this difference in the result: Nature knows how to maintain her own creatures without man's aid, but man's floral handiwork is entirely dependent upon his continued protection, and left in the hands of Nature would speedily be restored to their pristine shape, and shorn of any exuberance due to human fancy only.

Our Illustrations.—The illustrations accompanying Mr. George Nicholson's article on "A Land of Flowers and Sunshine" are reproduced from photographs taken by Henry Little, Esq., of Baronshalt, St. Margaret's, who has been not less successful with the camera than with orchids, and the other classes of plants to which he has devoted his attention. Mr. Little has during the past few years taken some thousands of photographs in various parts of Europe, and he has given practical effect to his recreation by converting a thousand or so of his negatives into lantern slides, and exhibiting them on behalf of the local charities. Already Mr. Little has been able to hand over to the hospitals and other charitable institutions in Richmond and Twickenham between £500 and £600. The illustrations of the topiary art at Levens Hall are from photographs by Mr. J. Hogg, of Kendal; and of the examples in the gardens of Elvaston Castle Gardens from photographs by Mr. W. Winter, of Derby. The wintry scenes in the gardens of Chiswick House are from photographs by Mr. C. Henwood, of Chiswick; and the illustrations of the Kew Museums are from photographs by Mr. J. Gregory, Croydon.

Mr. W. Botting Hemsley, F.R.S., F.L.S., is known throughout the scientific world as an able botanist, and the Principal Assistant at the Herbarium, Royal Gardens, Kew. Mr. Hemsley, besides being a clever gentleman, is an extremely amiable one, as all who have had the pleasure of his company can testify. We refer to Mr. Hemsley now to congratulate him upon the dedication to himself of the hundred and twenty-fourth volume of the *Botanical Magazine* by its editor, Sir Joseph Hooker, C.B., F.R.S., &c. Sir Joseph Hooker's dedication is worth quoting: "My Dear Hemsley,—I have three reasons, each sufficient, for offering to you the dedication of a volume of the *Botanical Magazine*; firstly, as a record of the interest you have shown in this work, and an acknowledgment of the valuable aid I have received from you in conducting it; secondly, the amount and importance of your labours in Systematic and Geographical Botany, as especially evidenced in your great works on the Flora of Central America and on the Botany of the *Challenger* Expedition; and lastly, my wish that you should accept this dedication as the tribute of a friend to a collaborator for upwards of thirty years in the Herbarium of the Royal Gardens.—Believe me, with esteem and regards, faithfully yours, J. D. Hooker." Sir Joseph could have offered at least another reason for his dedication, viz., that Mr. Hemsley's rise from the ranks to his present high position, by his own efforts, was deserving of such recognition. Mr. Hemsley entered Kew as a "young gardener" in 1860, and gained a Civil Service appointment at the Herbarium in 1865; in 1867 he left Kew owing to a complete breakdown of his health, but returned after about seven years' absence, and since then has continued to rise until he now occupies a position at the top of the botanical ladder.

Chrysanthemum Fixtures, 1899.—In addition to the fixtures of interest to those engaged in the cultivation of chrysanthemums that have been already announced in these pages the following arrangements have been made. The National Chrysanthemum Society will hold its exhibitions on October 10, 11, and 12, November 7, 8, and 9, and December 5, 6, and 7. The meetings of the Floral Committee have been arranged for September 27, October 10 and 25, November 1, 15, and 22, and December 5, and the hour of the meetings has been fixed for half-past one p.m. As in former years, the exhibitions and meetings will be held at the Royal Aquarium, Westminster. The Leeds Paxton Society will hold its exhibition of chrysanthemums November 14 and 15. Messrs. E. Beckett, G. Gordon, V.M.H., E. Molyneux, V.M.H., and J. Wright, V.M.H., have been appointed judges at the Hull Chrysanthemum Show, November 15 and 16. The York Society of Ancient Florists will hold its chrysanthemum show November 15, 16, and 17.

Proposed Opening of Finsbury Circus.—There is, Mrs. I. M. Holmes informs us, a movement now on foot for throwing open the garden of Finsbury Circus to the public, and the scheme is deserving of widespread support. This garden has an ancient and interesting history, for it is a portion of the original Moorfields, a remnant of that division, known as the Lower Moorfield, which was nearest to the City boundary. The Moorfields or Finsbury-fields are described as the chief recreation-ground for the citizens of London by Fitzstephen, Stow, and other early chroniclers, and the Moor-gate led from the City into this common or playground. Although parts of the "great fen or moor" were from time to time enclosed, the palings were always pulled down by the citizens, who thus established and maintained their rights in the land. Aggas's plan of 1560 shows the plot now occupied by Finsbury Circus as an open field, where the inhabitants of London are spreading out their clothes to dry, practising with bows and arrows, and carrying water from the wells, while the cattle peacefully eat the grass. The only building is the "dogge house"—the kennels of the City hounds. But two centuries later, when houses had been built to the north, east, and west of the Moorfields, the open space still remained intact. In 1638 Charles I. granted the Moorfields to the Mayor and citizens of London, the charter expressly stating that no person should have permission from the Crown to erect any new building upon the Inner Moor or the Outer Moor or West Smithfield, "but that the said separate fields and places be reserved, disposed, and continued to suchlike common and public uses as the same heretofore and now are used, disposed, and converted to." And these common fields existed as such until 1786. In 1773 Noorthouck wrote: "What are called the lower quarters of Moorfields, which lie along the front of Bethlehem Hospital . . . are defined by broad gravel walks, planted with trees on each side, and being railed round and covered with grass they form agreeable ranges for the neighbouring inhabitants to walk in. That particularly which crosses the middle, parallel with the hospital, is distinguished by the name of the City Mall." The centre of this City Mall or public promenade, which in Rocque's plan (published in 1746) is shown as an avenue, exactly corresponded with the centre of Finsbury Circus. The ancient and extensive Moorfields and Finsbury-fields are now represented by four limited enclosures, the Honourable Artillery Company's ground, Bunhill Fields Burial Ground, Finsbury Square, and Finsbury Circus; and if the last-named of these spaces is restored to the public we shall only be giving back to the people of London a small portion of the open land which London ought never to have yielded up. The Metropolitan Public Gardens Association will support the scheme as far as is in its power.

The Preservation of the Wagtails.—The Board of Agriculture, in its efforts to protect useful birds, has issued a pamphlet giving illustrations of the pretty water-wagtails and reasons why they should be preserved. Gilbert White states that "wagtails run round cattle, availing themselves of the flies that settle on their legs, and probably finding worms and larvæ roused by the trampling of their feet." This bird is also seen near ponds, streams, and rivers, and in marshes and flooded meadows, taking the insects found there. If pied wagtails are watched it will be seen that they are never still, but are continually hunting for insects of all descriptions—beetles, flies, moths, and aphides, as well as millipedes, snails, and slugs. The pied wagtails migrate from the more northern to the southern parts of the kingdom in the autumn, and some leave this country for the winter. Flocks of them have been noticed in Kent and Sussex near the coast in September, evidently bound for foreign climes. These return again very early in the spring, but there are always pied wagtails to be seen throughout the winter in this country, except in the more northern regions. The grey wagtail is not so common as the pied species. It is found in more solitary places, in the mountainous districts of England and Scotland. It likewise is the good servant of the tiller of the soil. The yellow wagtail is not a winter bird, but appears in this country in the month of March, and leaves in the autumn. There is no doubt that this wagtail, like its congeners, devours the snail hosts of the liver fluke. All the wagtail family (dishwashers) are found near watercourses and marshy places.

Success of the Scottish Horticultural Association.—We have to congratulate this enterprising association upon the great success of its splendid chrysanthemum show held at the Waverley Market last month. On the first day £393 were taken; second day, £346; third day, £348; total, £1,087. The total income from all sources amounted to £1,301. The total expenditure, £1,092, included £233 for music, £430 for prizes, £34 for printing, £57 for advertising, £90 for fitting up the market, &c., leaving a balance of £209. We are glad to see that the association, which gave £250 to charities in 1897, is continuing its good work by distributing £100 this season as follows: Gardeners' Orphan Fund, £15; Gardeners' Royal Benevolent Institution, £15; the Infirmary, £15; Hospital for Children, £15; Society for Prevention of Cruelty to Children, £20; and £10 each to two sick members of the association who formerly rendered valuable aid to the association. Well done, "Auld Reekie."

The Botanical Magazine for the present month contains illustrations and descriptions of Musa Bakeri, a new species from Cochin China; Cardamine latifolia, a Pyrenean plant resembling a gigantic form of the common C. pratensis; Paphiopedilum (Cypripedium) Mastersianum, a fine Javanese orchid now fairly plentiful in this country; Caladenia carnea var. alba, a terrestrial and Australian orchid of slender growth; and Fritillaria pluriflora, a very handsome but rare fritillary from Northern California; its flowers open widely, and are of a rich reddish-rose hue.

A CHRISTMAS MIXTURE.

"I HAVE put you down," writes our Editor, "for a Christmas Mixture. Do the best you can. You have not prepared one for some years." Why, no. Now I think of it, the young people held the field last year, and we old fogies had to retire into the background. By a little bit of topsy-turveydom, only possible at Christmas time, the young men in a certain garden were given authority, and the chief and his local cronies had to do the subordinate work. This season we are given another turn. The editorial *communiqué* goes on: "I shall be glad of the copy at your earliest convenience, and I mention this because of the difficulty of obtaining copy up to time from some writers, even with a fair amount of badgering." Here, straight away, is a text for me. Numbers of young writers long for enshrinement in type, but never get it. Older hands have the opening placed before them, and yet have to be prodded before they take advantage of it. We hear every day about the difficulty of young writers to get their wares accepted, and editors are stigmatised as cold-blooded tyrants, rejoicing in the opportunities which they have of lacerating tender flesh. It is nonsense, every bit of it.

If the young gardeners in this country were half wide awake they would see that there are unexampled opportunities before them for Press work. I do not believe there is a single horticultural editor who would not gladly welcome new blood on his staff, provided it was of the right quality. As Blackwood said regarding George Eliot's maiden effort, there is "place and pay" waiting. Young writers do not make progress because their work is not good enough. Its brevity is baldness, its length is labour. Editors like brevity, but not baldness. They will sometimes tolerate length, but never labour. I am not going to quote names or make direct references, but I will say this—If anyone were asked to count the really capable writers on the various gardening papers he would surely be able to do it on the fingers of his hands. Yet think of the miles of columns which have to be filled every year. This is not well. I am aware that ideal gardening literature is difficult to produce. It must have practical interest, professional accuracy, freshness of idea, brightness of style, and perfect lucidity. But it could be produced if only writers would study manfully enough, and keep always before them the factors which go to make up the perfect article.

But, dear, dear! Here am I being led away into fault-finding at Christmas time, when it is so much more seasonable to be shaking hands with each other, and telling each other what jolly good fellows are we. We'll throw criticism, like physic, to the dogs. Far away sounds the voice of Peter, raised in decorous revelry. The notes are not, perhaps, musical; indeed, they bear a suspicious resemblance to the hooters of the steam tugs on the Thames, but what they lack in melody they make up in vigour. Peter is happy. He has "company," and I believe they are celebrating an argumentative triumph which their host has won. I listen, and this is the ear-haunting pæan of victory which resounds:—

THE SONG OF THE ONION.

Peter—Down beyond the 'tatur rows, up against the peas,
Not so very distant from the sprouts;
(Easy there, the chorus; steady, if you please;
When you see my signal start your shouts).
We trenched a bit o' loam, lads, made it pretty deep,
Carted on the dung and dug it in,
(The master wanted chemicals, but you can bet your heap
I argufied it quickly out of him).

Chorus—If you want some 'taturs, if you want some kale,
If you want some onions, big and sound,
Drop along at Christmas (Lux will stand the ale),
Peter is the boy to bring 'em round.

Peter—A coat beneath the second spit, a coat beneath the third
(Some poor creeturs' satisfied with one),
Every bit o' subsoil broken up and stirred,
Trenching here I tell you isn't fun.
On the top some wood ash, then a bit o' soot,
That's the way we start to make the bed,
Afterwards there's firming, I does it with my foot,
Though others gets a heavy lump o' lead.

Chorus—If you want some 'taturs, &c., &c.

Peter—When it comes to sowing I take a box o' mould
—A fortnight after Christmas is the time—
(Although some young beginners, leastways so I'm told,
Sows their seed six months ahead o' mine).
Plant 'em out in April, watching for the grub
(Paraffin's the stuff to make it ill),
Get some farmyard liquor ready in a tub,
And give it to the onions with a will.

Chorus—If you want some 'taturs, &c., &c.

I am doubtful whether the reader wants any more of this. If I thought he did I would keep on. So far I have counted thirteen verses, and Peter is still singing lustily. After all, a little music makes a change. From time to time preternaturally wise young men complain that the course of study does not run smooth in the bothy, because the chrysanthemum hand, who is clever with the flute, has invited in the cowman, who excels with the violin, and these two are reinforced by the man from the orchids, whose forte is the manipulation of a lugubrious tin whistle. Of course sympathy ought to be with the wise young man. Is he not striving to improve himself? Has he not read a paper stuffed with research (stuffed so full that nothing could be got out of it) before the members of the Claybury Gardeners' Mutual Improvement Association? Yes, these things are true. Nevertheless, if I might, at this festive season, be allowed to whisper a word in his ear, I would say, "Don't make sawdust of knowledge. Keep it fresh and sweet and attractive. If, once in a way, there comes temptation to fling books aside and keep time with the cowman's fiddle, do not shrink from it in horror, but let Nature have her head, and go back to work again when it is all over freshened and invigorated."

I once knew a young gardener who was the solemnest of all solemn prigs. That, it may be suggested, is saying a good deal, since prigs are pretty numerous in horticultural circles; nevertheless, I stick to it. He was a walking encyclopædia of gardening knowledge. He was armed at all points. It was a sight to see him when question time came after one of his numerous papers had been read. The sleek, sedate air said as plainly as possible, "roll them out, gentlemen, I am ready." He was, I say, armed at all points—all save one. There proved to be a weak point in his armour. It was not a horticultural one; indeed, it was nothing more nor less than love. Let me digress for a moment to ask if you ever saw a gardener in love? His is no common passion. It approaches the sublime. One phase of it is a predilection for making edible presents—his master's choicest peaches, for instance. Peter was once in love, and he stopped short at nothing, not even at onions. With a wild and reckless generosity he gave away half the contents of my garden. Fruit, flowers, and vegetables alike went, and I was not sorry when the affair died a natural death in the lady's elopement with a joiner. Our young gardener "read his paper"—*i.e.*, made his proposal—but when it came to question time he was utterly and irretrievably silenced by a decided "No." She preferred the first journeyman (his own junior!) because he was "nicer." Alas!

I wonder if anyone is so foolish as to consider the foregoing as an attack upon study. Perhaps they do, because, as Lord Herschell remarked in his great speech on Anglo-American unity a few weeks ago, stupid persons crop up everywhere, and no country has a monopoly of them. If I were not so desperately determined to eliminate anything which might be construed as unkind from this Mixture I might advance the fact, and give proof of it, that there are a few rather silly persons in gardening circles. However, I shall hope to be better understood by the majority. I believe in study when it is natural, spontaneous, and wholesome, but not when it is stilted and unhealthy. Mental alertness and suppleness form a better equipment than solidity of the stodgy order. If I could only command the rhyming facility of Peter I should be able to express my meaning in verse, but,—ah! my worthy henchman's chant of triumph has ended at last, and it is succeeded by something very different, carolled out in a sweet tenor voice which makes every word sound clear:—

Sing, love, of summer flowers,
For they are sweet;
Swift is the rush of hours
Here at your feet.
Day and its labour past,
Rest soothes us all at last,
Life's tide is flowing fast;
Yes, time is fleet.

Shall I, in its small span,
Stifle my soul?
Silence the glad élan
Which makes it whole?
Nature, with tender sigh,
Spreads out her robes, and I
Draw in devotion nigh,
Glad of her dole.

Empty the life of man,
Arid the heart,
Who from her wondrous plan
Ever shall part.
Tell me the tale anew,
Clarion the story true;
I, if my days be few,
Early must start.

Teach me the lesson, then,
Knowledge I crave;
Work is the lot of men
This side the grave.
But they with rev'rent eyes,
Gazing on fields and skies,
Slowly must learn to rise,
Who pain would save.

Sweet your voice, O singer; searching your philosophy. You tell us in those pure, rich notes, which come floating over the garden at this peaceful Christmastide, the story which Wordsworth told:—

> "To the solid ground of Nature
> Trusts the mind that builds for aye."

It is a lesson of life—one which we all must learn. Not alone does knowledge lie in the solid fact of text-books, but in the hushed and humble study of Nature's vast tome, the pages of which are myriad, the wisdom profound, the truth imperishable. With the hope that every gardener, young and old, may find in it a source of happiness and inspiration, I, who am privileged to be the link between our good Editor, his staff, and the increasing number who become readers of the old paper year by year, join hands all round in a prayer for contentment and prosperity this Christmastide.

LUX.

THE LAND OF FLOWERS AND SUNSHINE.

An excellent idea of the physical conditions which obtain in the portions of North-western Italy and South-eastern France which generally pass under the name of the Riviera is obtained from the following brief quotations taken from a paper in the Journal of the Linnean Society for 1880 by Dr. Allman, F.R.S.: "Nowhere in Europe is there a region which, in winter and spring, basks under the rays of a more genial sun, where its mountain barriers more thoroughly defend it from the icy winds which sweep over the unprotected plains of the north; and when the season of rains is at an end, there spreads over this sunny land an atmosphere of absolute transparency; while away upon its extreme southern boundary lie the waters of the Mediterranean, flowing round wooded crags and picturesque headlands, and gleaming with an intensity of blue approached by that only of the cloudless sky which stretches over all."

"No less peculiar is the distribution of rain throughout the year. The season of rain is confined to the winter and spring months, while the summer is, as a rule, absolutely rainless."

Take the mean temperature of the seasons at Mentone, for example, and we have winter, with a mean of 49·5 degrees Fahr.; spring, 60; summer, 73; and autumn, 55·6. At Nice and Genoa the mean for winter and spring is lower, and for summer and autumn practically higher. Given these conditions, it is evident enough that gardening must be widely different in character from what obtains in England.

The native and naturalised flora is quite as interesting as the garden flora, and a few words respecting the former may not be out of place. Every gardener is familiar with the myrtle; well, this beautiful evergreen is quite common as a brushwood plant in a perfectly wild state in many places along the Riviera. Here and there on rocky ledges may be seen Lavandula spica (the source of the true oil of spike of commerce), a plant nearly allied to, but different from, the Lavandula vera, which at one time was much more widely cultivated in the neighbourhood of Mitcham, in Surrey, than it is at the present time. Then, on rocky slopes and on walls, the Caper plant (*Capparis spinosa*), the unopened buds of which constitute the capers of commerce, grows luxuriantly. Various species of cistus grow freely on hot, dry slopes, and the common Cineraria maritima, largely used in this country as a foliage plant in summer bedding arrangements, is everywhere conspicuous along the coast by its white woolly leaves and heads of yellow flowers. This plant a few years ago was highly recommended as a remedy for certain diseases of the eye.

In rocky, dry, arid spots, too, various mesembryanthemums have become naturalized, and the fleshy-leaved M. edule, with its very large yellow flowers, forms large masses on the sands almost at sea level. The so-called American Aloe (*Agave americana*) is quite at home under similar conditions to the last-named plant, but attains much larger proportions in better soil, and where it can be watered during the long, rainless summer. Indian Figs (*Opuntias*) grow, flower, and fruit freely in many places where they were never planted. The South American Yellow-flowered Tobacco (*Nicotiana glauca*) is not uncommon, and its distinct glaucous foliage and long tubular flowers render it a conspicuous object. A sure sign of water is afforded by the presence of the Great Reed (*Arundo donax*), which forms picturesque groups a dozen feet or more in height, of a particularly tropical aspect. Here in England this rarely is seen in perfection. Here and there the Wild Olive appears as a dwarf scrubby bush, the tall cultivated olive tree—much resembling large old specimens of the Evergreen Oak (*Quercus ilex*)—looks very different. Along the coast the olives are generally allowed to attain their full development, whilst inland the trees in the olive groves are generally pollarded, and do not present nearly so picturesque an appearance.

The orange and lemon are largely grown, and the latter is of considerable commercial importance for its fruits; it flowers all the year round, and at Mentone, Cannes, &c., the fruits are gathered about four times a year. Acacia Farnesiana, the fragrant flowers of which are so largely used in the manufacture of Cassie pomade, may be seen in small fields; the bushes are kept pruned into about the size of large gooseberry bushes. Here and there large plots of tuberoses may be seen, cultivated principally for the flowers, which are largely utilised in the perfume factories. The so-called Pepper tree (*Schinus molle*) makes a very beautiful small tree with its pinnate leaves and pendulous panicles of small red pepper-like fruits. The Carob, too (*Ceratonia siliqua*), is valuable for its large chocolate-brown pods, which are exported for feeding cattle.

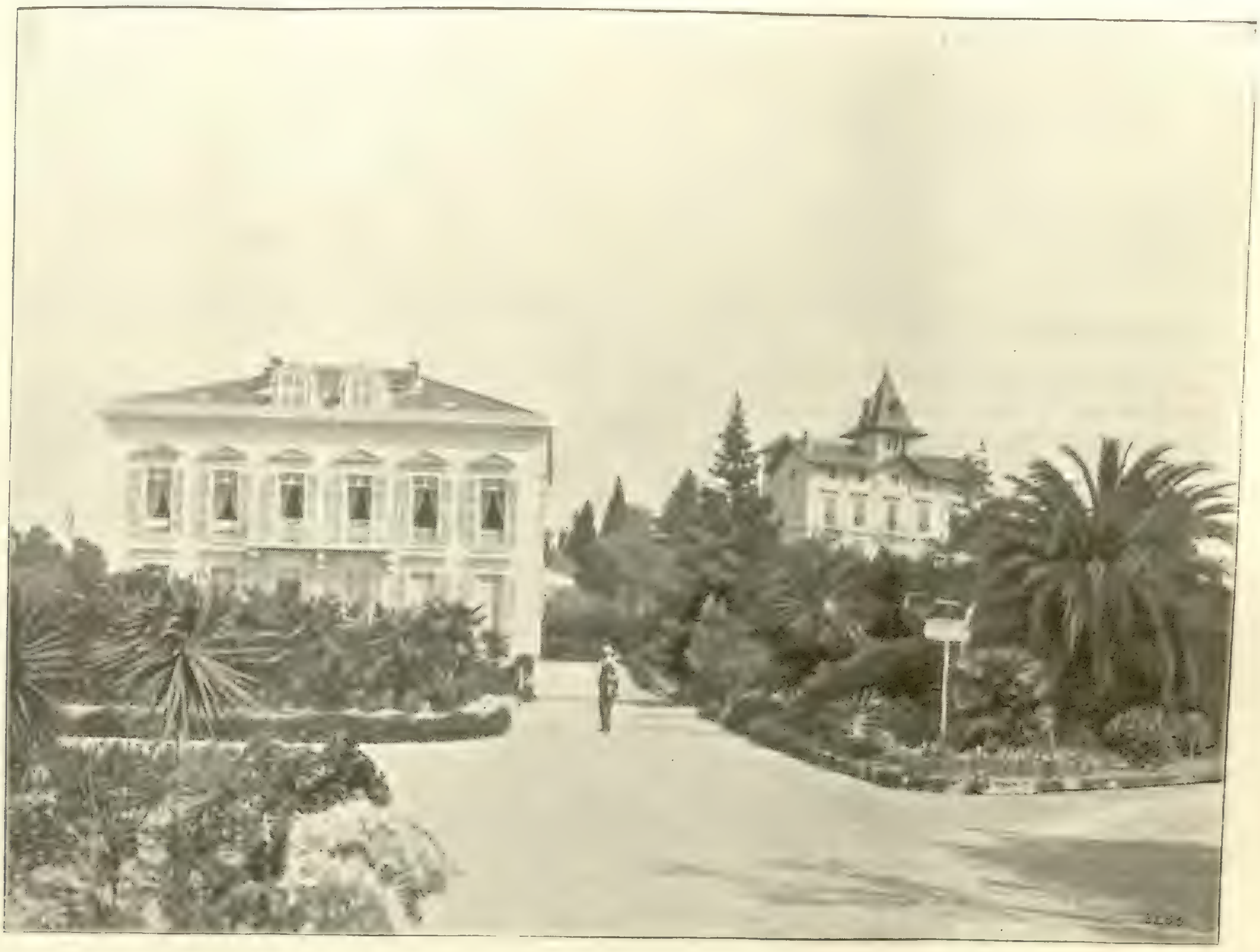
Perhaps the most striking feature in the towns of the Riviera are the palms, which are frequently used as street trees. In Hyères, for instance, the streets are planted with the Date Palm (*Phœnix dactylifera*). A much handsomer species, and apparently a quicker grower, is that from the Canary Islands (*P. canariensis*). Washingtonia filifera, a very ornamental fan-leaved palm, is a rapid grower, and attains a considerable size. Cocos flexuosa is the most abundant of the genus, and its enormous feathery leaves, towering up above its congeners and other garden companions, produce an effect which is essentially tropical. Trachycarpus excelsa, the Chusan palm, also thrives splendidly along the Riviera; this species, however, has proved itself quite hardy at Kew.

Next to the palms the most tropical feature in Riviera gardens are the bamboos. Several species, which require in this country a stove for their successful cultivation, thrive thoroughly well in the open air. Less than ten years ago there was a fine specimen of the Giant Indian Bamboo (*Dendrocalamus giganteus*), with stems thirty feet high, in the famous garden at Villa Valetta, Cannes; this same species attains a height of about forty feet in the Palm House at Kew.

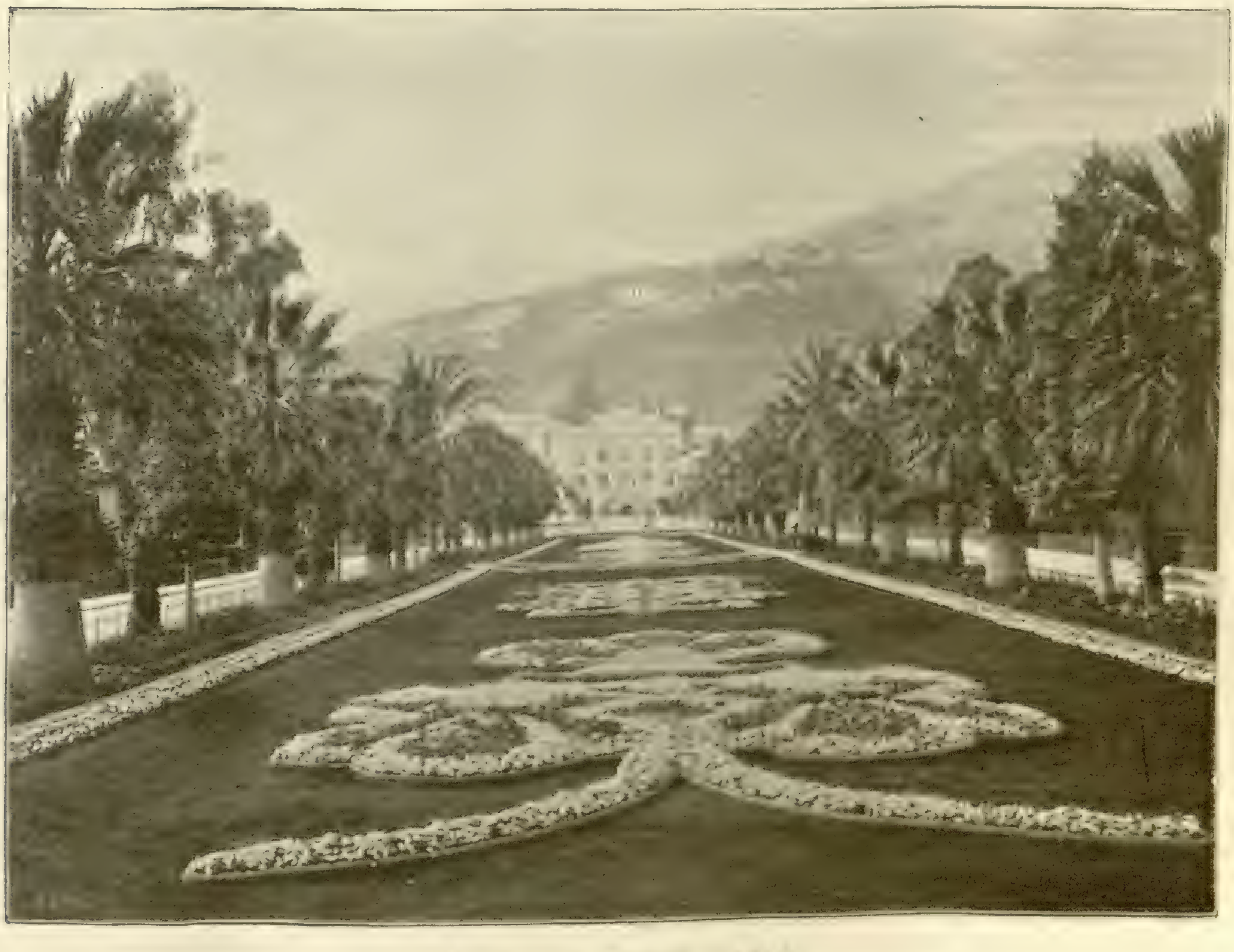
Such plants as heliotropes, pelargoniums, lantanas, verbenas, tropæolums, &c., flower all through the winter, and attain considerable size. As I write I call to mind one mass of "scarlet geraniums" growing several years ago under and amongst the pines at Monaco, which formed a tangle like the common bramble in an English wood; the bushes had thick stems, and must have been of considerable age. Allium neapolitanum, Anemone fulgens, various narcissi, and other spring-flowering bulbous plants grow in abundance under the olives on the slopes of the hills, &c., and arrest the attention of the most unobservant of visitors

Climbers on houses consist of such brilliant things as bougainvilleas,

NICE FROM MOUNT BORON.



VILLA MONTEBELLO AND VILLA MONTERY, NICE.
(These gardens were placed at the disposal of the Queen when at Nice.)



GARDEN AT MONTE CARLO
(With white Daisies and Cyclamen).

tecomas, bignonias, ipomæas, &c., and a visit to such a land of sunshine and flowers marks an event in the life of any gardener whose experience previously had been confined to more northern latitudes.

The famous gardens of Thomas Hanbury, Esq., at La Mortola are alone worth a visit to the Riviera; in this spot are grown upwards of three thousand species of plants, and in a recently published work by an anonymous author Mr. Hanbury adds a footnote to the chapter on "Springtide": "I am disappointed if I have fewer than 450 species in flower in the open border at La Mortola in the month of January." The views of Nice and Monte Carlo, with the gardens of the villas Montebello, Montery, and Lefevre, from photographs taken by Henry Little, Esq., serve to show in an admirable way the beautiful vegetation that provides such a tropical effect in Riviera gardens at a time when our gardens at home are almost bare of flowers.

Kew. G. Nicholson, A.L.S.

PLANT ROOTS AND PLANT FOOD.

I was much interested in Mr. J. J. Willis's able contribution on plant roots and plant food on page 716. He, however, is mistaken in assuming that I deny the possibility of food-creating roots. I merely questioned the accuracy of "Lux's" statement, and pointed out the food-creating power of roots—a fact doubted by him. Of course, we all know that it is not the largest or heaviest roots that contribute most to the plant's well-being, but rather the number of these organs. The more mouths, so to speak, the better are the means afforded the plant of securing adequate supplies of food. The character of roots, large or small, will determine to a great extent the kind of food abstracted from the soil, and consequently the growth of the plant. Again, the food materials within the soil will influence the growth of roots. If nitrogen be in excess there will be a tendency to large roots, and soft, succulent, unfruitful wood in fruit trees, whereas a deficiency of that constituent and a preponderance of inorganic elements will result in firmer and more fruitful growths. The number of roots in this poorer soil will be greater, and they will also be smaller, more fibrous, and with more root-hairs than those thick, succulent productions promoted by the presence of an undue quantity of nitrogen. Knowing this, we are able to regulate fruit tree growth by judicious applications of manures. The natural kind of roots of a plant is usually demonstrated in its method of branching. If they are few and strong the roots will be the same, but should the branches be twiggy and dense, then mats of fibrous roots will almost invariably be found. This teaches us another lesson, viz., that bushy plants with naturally fibrous roots require a greater proportion of potash, phosphorus, lime, and the other inorganic elements of plant food than do plants of more strong, straggling growths and corresponding roots. I must qualify this statement and say that there are exceptions, but the exceptions are rare.

Looking at "plant roots and plant food" with these facts before us, we can easily see the error of destroying fibrous roots within the first nine inches of surface soil. Mr. J. J. Willis seems to regard "plant roots and plant food" as the chief source of contention between "Lux" and myself. He is also mistaken in this conclusion. "Lux" feeds his fruit trees, and so do I; but there is a material difference in the manner in which it is done, and it is over this that we cannot come to an agreement or compromise. "Lux" treats the roots of his trees to a surgical operation every time he supplies them with food, whereas I preserve every feeder intact. He manures and digs the ground occupied by the roots of his trees, thereby destroying them within nine inches of the surface, and mutilating others immediately below that. I surface feed, and only disturb the surface to the depth of two inches when the ground is under bush and tree fruits, and simply top-dress when the orchard is a grass one. By this system of treatment and cropping I obtain heavy yields from the land, secure healthy, fruitful trees and bushes, and a dense carpet of grass in the grass orchard. In reference to grass orchards I see a note in the Magazine, page 713, saying that the trees did not do so well this last season as trees growing where the ground was dug. As this statement is at variance with results that have come under my observation, it would be interesting to know the kind of the two soils, their situation as to securing moisture, and whether the trees in the grass orchard were surface fed. The small orchard mentioned in my former notes at Castle Howard has borne overwhelming testimony to the contrary, and conclusively proved that a grass orchard, judiciously fed and otherwise cared for, was the right place and the right way to cultivate hardy fruit trees. In Breconshire I have been looking for "Lux's" grand orchard, but find nothing but miserable specimens of fruit trees, where the surface roots to the depth of nine inches have been destroyed by manuring and digging. The few trees I have come across in grass land are much superior to them, even although they have been neglected in the way of surface feeding. If "Lux" really believes in what he is teaching I would like to show him samples of trees grown under both systems. I feel convinced, however, that he knows better, and I therefore do not take his statements seriously to heart.

"Lux's" pen is, I think, to the scribe very much what the spur is to the not over-anxious horse. So if the discussion has been the means of bringing irrational methods of fruit culture more vividly before the gardening public, and will lead to better ones being adopted, "Lux" will have done good service. Hardy fruit culture is too much under stereotyped methods, as a visit to gardens, big and small, in various parts of the country will testify. The right varieties of apples, pears, and plums to plant, to suit every purpose, and the most rational system of cultivation, should be better known and utilised. Until this is the case there is plenty of room for "Lux" to find a field for his practical intelligence, wit, and provoking but still humorous kicks, in order to bring facts to the front and expose fallacious notions.

J. Riddell.

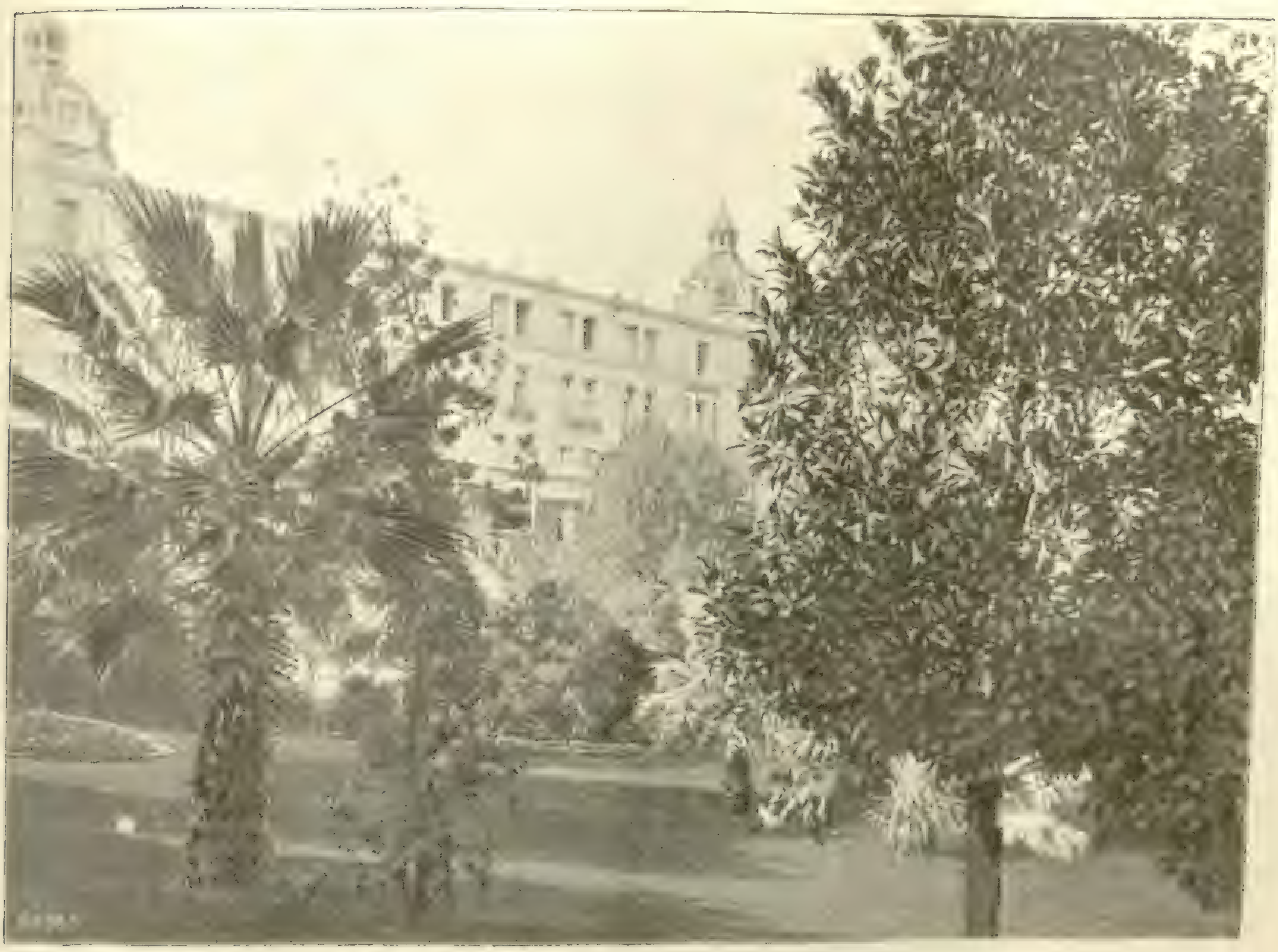
A GARDENER'S EXPERIENCES IN HONG KONG.

On my arrival in Hong Kong in the middle of December, 1891, I found things very different from what they would have been in the old country at that time. Instead of everything being bare and leafless, there was the appearance of summer everywhere. What a sight! The harbour was filled with dozens of merchant ships and hundreds of junks, and what a sight the town, built on the side of the hill, with the hilltops as a background. As a Frenchman once remarked, no one but the British could have built a town in such a place. Immediately, or rather before, our steamer was made fast to her buoy she was surrounded by a very large number of Chinese rowing boats, or sampans as they are called, and there were frantic cries from the boatmen to know if anyone was going ashore; this they did by calling out "wanchee sampan?" Naturally, we did "wanchee sampan," and as soon as we had made our want known there was a tremendous competition as to who should receive our patronage. We finally decided on one and went ashore. These boats are about fifteen feet long and five feet wide, and are, as often as not, "manned" by women. The whole family live in them, men, women, and children, and then have enough room for keeping fowls as well. It is marvellous how they manage to cook their food and sleep in such tiny craft, but a great number of things which the Chinese do are marvellous to European eyes. I believe that I am right in stating that thirty thousand (I have not the numbers with me) Chinese live in this manner in Hong Kong. They are a peculiar people and seldom mix with the people on shore. Well, on getting ashore we made our way to the Botanic Gardens.

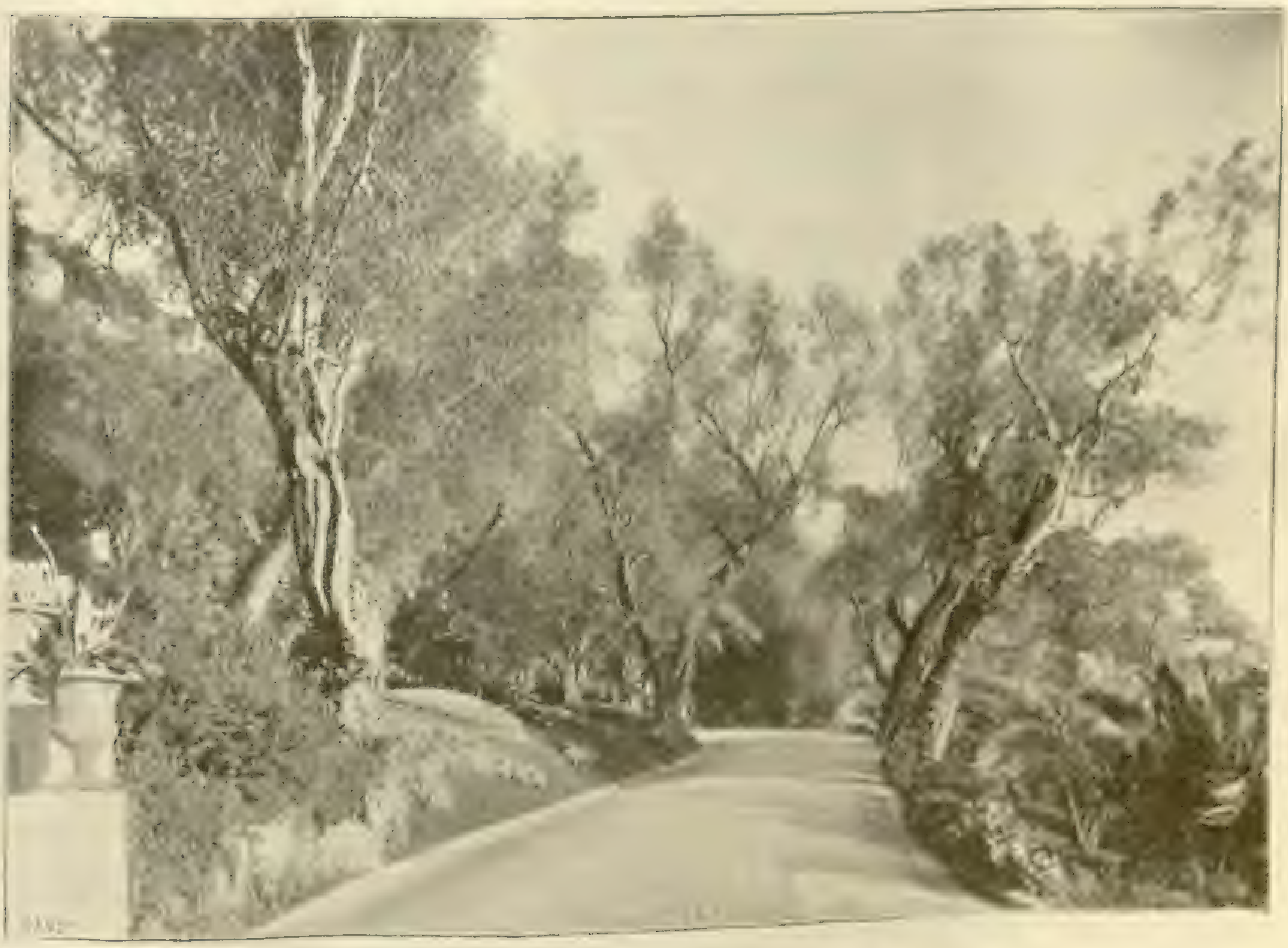
The entrance, or at least the approach, to the Hong Kong Gardens is only about two minutes' walk from the landing-stage, up a winding shady glen planted with cycads, alpinias, alsophilas, bamboos, and many other tropical plants. It was a glorious sight, and one not to be easily forgotten. No wonder that when a little girl was going up there with her mother she inquired if it were the way to heaven. On arriving at the gardens, my future sphere of work, plants and beds were gay with flowers. Geraniums and poinsettias were growing side by side in full splendour, and the tea roses were simply charming, not to mention other things. Surely winter had been turned into summer. This was a kind of thing that I had not been accustomed to, but the same may be said of everyone who goes to the tropics for the first time. You have plenty of flowers under glass at home during the winter, but it is quite a different thing to see a wealth of bloom outside. An Englishman, however, soon adapts himself to circumstances, but it is quite a different thing getting the Chinese to adapt themselves to European ways. You might argue with them until you were black in the face, and then you would be just as far off convincing them of a thing as when you started. The only way to do with them is to tell them that you want a thing done in a certain manner, and then see that they do it.

The language was a thing that bothered me a great deal at first, but I soon found out that it would be much better to get along with a mixture of English and Chinese called "pidgin English." This lingo is easily acquired, and is used by both English and Chinese in the daily routine of affairs. Pidgin is a corruption of business, and has been handed down to us from the early traders with China. Of course, in the various offices now, English is written and spoken by the Chinese as it should be. No doubt it appears very strange to hear one say to a Chinaman, "Put that piecee plant more largee pot," instead of "put that plant into a larger pot," but when one is using such phrases every day the ludicrousness of it becomes lost. Again, I should never think of telling a man to prune a tree, I should say "cut that piecee tree more short," and if I wanted it closely pruned I should say "cut it plenty more short." Upstairs is called "topside," and downstairs "bottomside." I had a rather amusing experience with one of the garden men in connection with the use of the word upstairs. A coolie was lopping a large tree in the gardens, and I inquired for him from the foreman, and this was his answer, "He have 'go upstairs makee cut that piecee tree more short." Evidently he thought that he was getting on with his English. On another occasion I sent a man to go and purchase some pipeclay for cleaning my sun helmet; imagine my surprise when he returned with two short clay pipes. After I had been out there a short time a native thought that he would astonish me by showing me the electric light, for he—in a "you have not seen this before kind of way"—inquired if we had such a thing in England, and he appeared to be quite disappointed when I told him that we had. To this day natives, coming in from out of the country places, may be seen during the cold weather attempting to warm their hands at the street gas lamp-posts when the gas is burning.

It is a great mistake to suppose that the Chinese are fond of work, at least my experience does not support such a supposition. It is true that at any place in China you will see crowds of men, women, and children working morning, noon, and night, and as a matter of course anyone just passing through any of these places goes away with the impression that the natives are a very industrious people. Residents in these places, however, know that the Chinaman only works until he has obtained a



HOTEL METROPOLE, MONTE CARLO.
From the Casino.



GARDEN OF VILLA LEFEVRE, NICE
(With Olive Trees).

sufficient sum to provide him with his day's food and lodgings ; after that he takes a rest. Consequently the crowds who throng the streets in the morning are replaced by others in the afternoon. It takes a very little to support a man and his family; in fact, the coolies employed in the gardens, and coolies in general, only get six dollars per month, which put into English money means eleven shillings and sixpence at the present rate of exchange. Of course, a Chinaman subsists on very little from our point of view. If he has a little rice with a bit of fish or vegetable added to it he is contented. A man in a better position than the average coolie, say getting ten or twelve dollars a month, is in a position to keep two wives. A man in the gardens, receiving eleven dollars a month, is in the happy position of having two better halves. How would a European manage to do such a thing on twenty shillings per month, supposing it were permissible ? If a man is in a sufficiently prosperous condition to be able to pay for a wife he has to do so, and I will tell you of an amusing case which came under my notice. A man—he was earning eight dollars per month—bought a wife for eighty dollars, and after he had been married three months his wife died. He was relating his misfortune to me, and I naturally sympathised with him, thinking that he had lost a good partner, and one to whom he was greatly attached. As he unfolded his story I found out, however, that it was not the loss of his wife he was lamenting, but the loss of the eighty dollars, and he coolly informed me that it had been a very bad speculation, and that he hoped his next venture in the same line would turn out more successfully. A Chinaman in a good position in Hong Kong who had four wives once told me that he should think Europeans had a comfortable time with only one, whereas he had a very lively time of it occasionally when the whole lot turned on him.

To a newcomer it is very amusing to watch the change which comes over some of the men during the winter season—very thin men often become enormously stout. The reason of this is they move about so slowly that they are unable to keep themselves warm, and have to put on coat after coat to make themselves comfortable. Instead of seeing a man with a coat of many colours, you will see him with many coats of many colours, and when he has a dozen on, which is not at all uncommon, his sudden obesity is easily explained. They have a great dislike to be hurried over anything, and if you want a thing done quickly you had better do it yourself. Suppose that you have ordered something from a tradesman, and he has failed to finish it by the time promised, if you speak to him about it he will tell you that there is another day tomorrow, and you will find that there are a good many to morrows before the thing is completed. As the summer comes on the stout gentlemen gradually assume their natural proportions again, and in the height of summer all that they burden themselves with is a pair of pants, made as short as possible. Of course, I am speaking of the working class, as the labourer is always in the majority.

The coolie class, generally speaking, is illiterate, but one day, in my peregrinations, I thought that I had come across an exceptionally intelligent individual in the shape of a naturalist. I was passing by this particular person's garden when I saw that he was equipped with a butterfly net, and was in the act of catching some of those beautiful insects. I stopped and inquired of him his reason for catching those insects, expecting, of course, to hear that he was making a scientific study of them ; but, alas ! my hopes were doomed to disappointment. He said, "What for my makee catch that piecee butterfly ? Why, bye-en-bye he have got plenty smallee piecee worm ; he makee chow-chow my piecee cabbagee"—which, put into English, meant that his cabbages would be eaten up with caterpillars unless he caught the butterflies, and prevented them from laying eggs. Whilst on the subject of insects I might mention a few of those which Europeans find objectionable, and I will begin with mosquitos. Newcomers suffer from these blood-suckers a great deal, but after they have been in the tropics for a year or two their blood is not rich enough for the mosquito's delicate palate, and they are generally left alone. These pests like the genuine, pure, and unadulterated article best. Wrists and ankles are their favourite feeding places, and they can pursue their nefarious practices through a thick woollen garment quite easily. You are just dropping off to sleep when you hear a slight buzzing sound at your ear, and you know at once what is the cause of it. You make frantic efforts to silence it by attempting to kill its producer by beating the air madly with your hands in all directions, but in vain. After a restless half-hour or so you get a light and settle the question once for all, as you think, for there is no sleeping until the buzz has been silenced. You then turn into bed again, under the impression that "something attempted, something done, has earned a night's repose." But you are mistaken, for in a few minutes you hear another buzz even stronger than the first, and the same pantomime has to be gone through again. Many people defy these insects by sleeping under mosquito curtains, and it is certainly very pleasant to hear them buzzing around you when you know that you are safely out of their reach, but the worst of it is it is so frightfully hot underneath curtains.

Cockroaches are innumerable, and often do much damage. They are particularly fond of the covers of books, and woe to the new arrival's library unless he has been warned of the ravages that these pests commit. For leather goods they also have a peculiar fondness. Books may be preserved from their depredations by giving them a coat of Chinese varnish as soon as you obtain them. One of the most destructive insects, if not the most destructive, is the so-called white ant (termes), which is not an ant at all. Books, clothes, furniture, and many other things are often destroyed before their owner has the slightest suspicion that anything is amiss. Boxes full of goods, standing on the floor without anything underneath them, are nothing but mere shells when you go to open them, unless you have paid constant attention to them. The ants commence underneath the boxes and work upwards, devouring boxes and goods as they go. The roofs of houses and beams of floors are often destroyed by these insects. An auctioneer was having a sale in a house in Hong Kong, and he had no sooner said "Going, going, gone," than the floor gave way, and auctioneer, buyers and goods were precipitated to the basement below, some of the people receiving serious injuries. The fact of the matter was the beams of the floor had been destroyed by white ants, and the unusual weight of so many persons had caused them to give way. Centipedes are sometimes met with in old houses, and their bites are very dangerous. It is seldom, however, that people are bitten by them. Some of them are fine, big fellows, six inches in length and an inch in breadth, of a rich chestnut colour, which sometimes changes to green. Of reptiles snakes may be mentioned. There are many kinds found on the island, both poisonous and non-poisonous, but it is very rare indeed to hear of a snake bite. The cobra is included in the list of poisonous ones, and the rock snake, a reptile about eight feet long, in the non-poisonous list.

So far I have not mentioned our seasons, although I stated that it looked like our summer at the time of my arrival in the colony. Well, we divide the seasons into two only, the hot and the cold, and do away with spring and autumn. The hot season commences in April or May, and lasts until the first or second week in October, and as a matter of course the cold season must be from October until April or May. The seasons agree with the monsoons ; when the south-west monsoon sets in our summer begins, and when the north-east monsoon comes in our winter comes with it. The summer is also the rainy season, and during its six months we have nearly the whole of our rainfall, on an average about a hundred inches a year. During the winter very little rain falls, and this season is certainly very much like an English summer, perhaps a little colder at nights towards the end of January and the whole of February. Our temperature during the summer ranges from 85 degrees to 94 degrees Fahr. in the shade during the day, and from 80 degrees to 85 degrees Fahr. at night. About three months ago people in London were crying out with having to put up with a week or two of high temperature, but what would they do if they had six months of it? I suppose they would become accustomed to it and take it as a matter of course, the same as we do. During the summer we have what are locally termed typhoons, another word for circular storms. The amount of damage done by them is very considerable when the colony receives the full force of such a gale. Trees and houses are blown down, and junks and ships are driven ashore. The force of the wind is tremendous, and I have never experienced anything like it in England, although other people may have. I remember once being carried off my feet in one of these storms, and sailing along quite merrily for a considerable distance towards a brick wall. It was a new wall and I did not want to damage it, but I was at a loss to understand how I was going to prevent it, for I was travelling at a good rate. Suddenly I alighted on my feet about ten feet from the wall, and you may be sure I breathed freely again when I fully realised that the wall remained undamaged. Whilst I have been in England I have often been asked if it rained continuously during the rainy season when I have been telling people that we had a rainy season of six months. In case there are any others who are in doubt on the subject, I may as well state that we have much fine weather through the summer. The fine days, however, are very humid.

Many folks ask how we live in Hong Kong, what we eat and what we drink ; they seem to think that we live in a barbarous country, and exist on nuts and roots. Well, we obtain very much the same kind of eatables and drinkables as people in the old country. Fowls, beef, and mutton are to be had at all times, and game when in season, as well as turkeys and geese. Vegetables, such as cabbage, cauliflowers, spinach, turnips, carrots, vegetable marrows, kidney beans, peas, and celery, are obtainable during the winter months ; and Chinese spinach (a species of Amaranthus), bringals, octros, sword beans (Onavalia), and sweet corn through the summer. Lettuce, watercress, and mustard and cress can be had all the year round. We miss the English fruits, such as strawberries (although we are beginning to be able to grow them), raspberries, gooseberries, and currants. Apples are imported from Australia and California, and pears come from North China. Tropical fruits that we have include mangoes, pumelos (or grape fruits, as they call them in the West Indies), persimmons, lichees, pineapples, bananas, and oranges. There are two or three dairy farms in the island, so that we can obtain new milk daily. Many things are imported from England in tins, such as butter, jam, and pickles. Wines and spirits are also imported, and as there is no duty on them they are much cheaper than they are in England. Good Manila cigars may be had at three dollars (6s.) per hundred, and as they are so cheap very few people smoke pipes. The Chinese are great smokers, their favourite smoke being the cigarette, made from Chinese tobacco, and generally very strong, and not at all palatable to Europeans. There are two or three very large sugar refineries in the place, so that we can sweeten our tea or toddy—if we take it—according to taste.

March and October are the two busiest months in the gardens for seed sowing. In the former month we sow our flower and vegetable seeds for our summer supplies, and in the latter month those which are to give us our winter supplies. Nearly all goods, whether light or heavy, are carried by the Chinese by means of bamboos across their shoulders. It is very seldom that they use a wheelbarrow or trolly. It is a quite common thing to see a Chinaman with a bamboo across his shoulder with a small basket of goods, weighing three or four pounds, on one end of it, and a stone or brick on the other end to balance it. We travel by means of jinrickshaws, or rickshaws, as we shorten the word down to, and chairs. The rickshaws are small, two-wheeled carriages with shafts fixed to them, pulled by coolies ; and it is surprising the distance a coolie will take you, going at a good speed, without stopping. On a good level road they can go quite easily for five miles without resting. The chairs are generally used for hill work, and are carried by two or four coolies. From the town to the peak, 1,400 feet up, at which a number of people reside, a cable tramway is laid, so that you can enjoy a cooler atmosphere within about ten minutes of the busy centre.

Hong Kong Botanic Gardens. W. J. TUTCHER.

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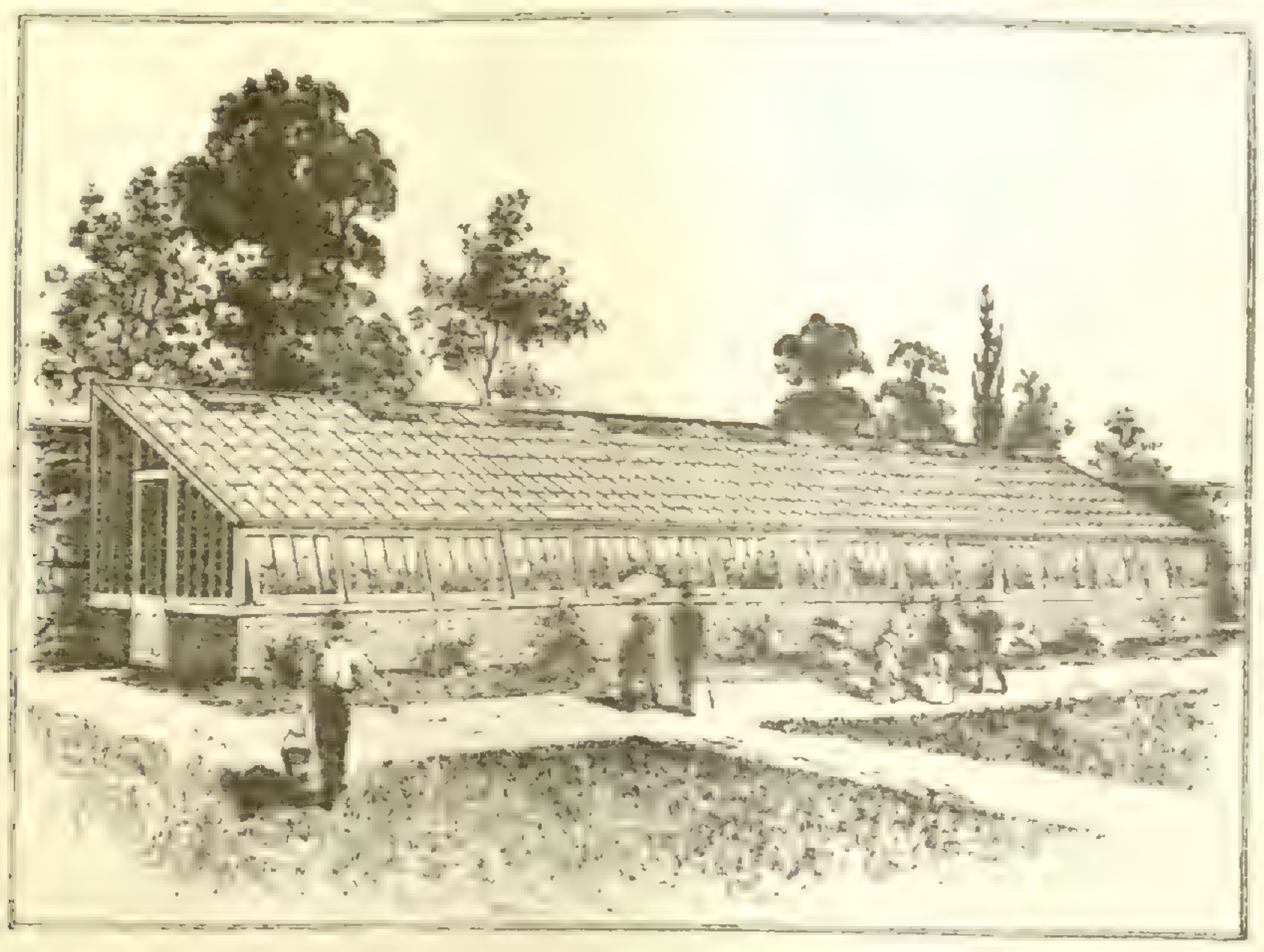

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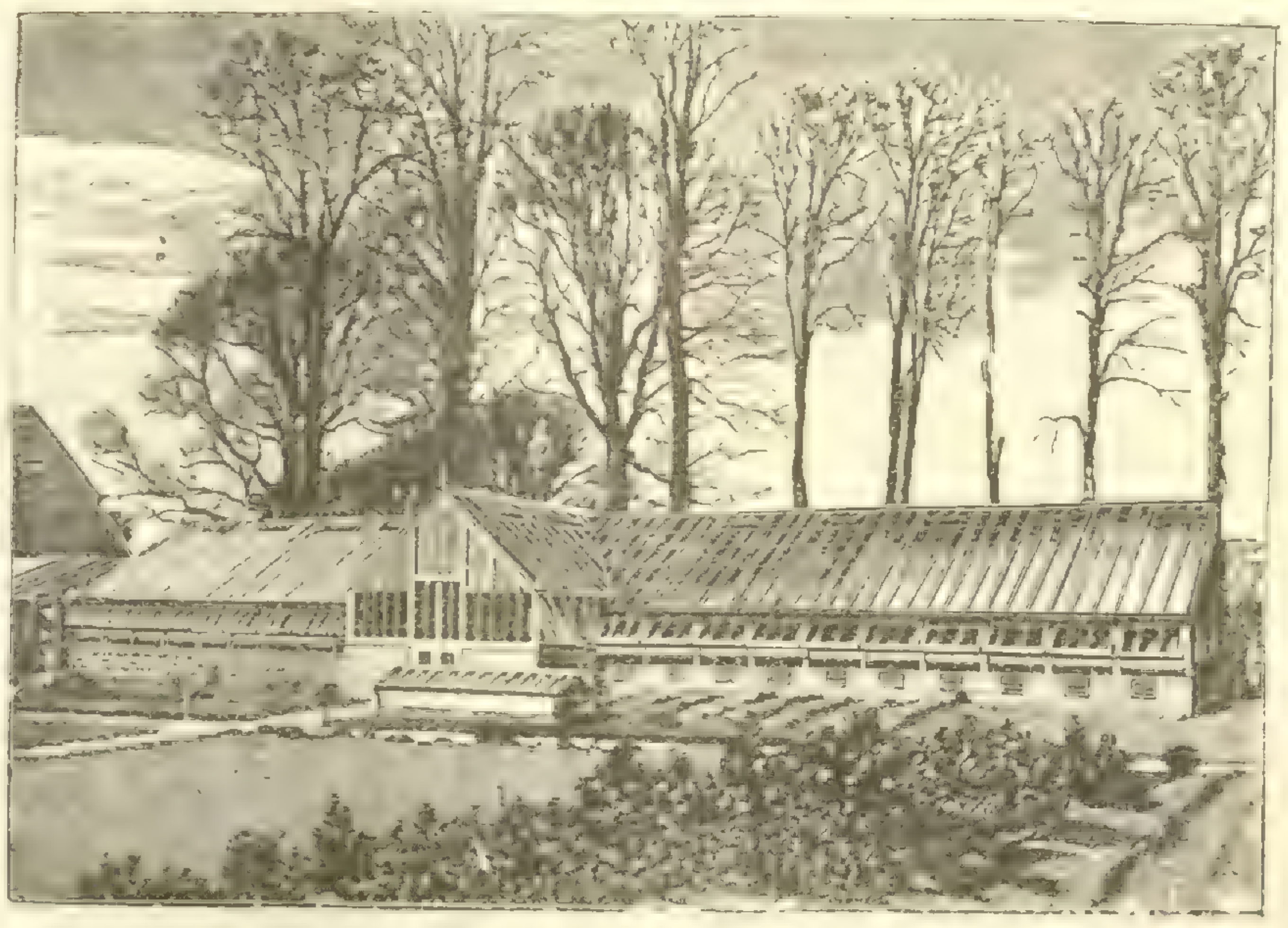

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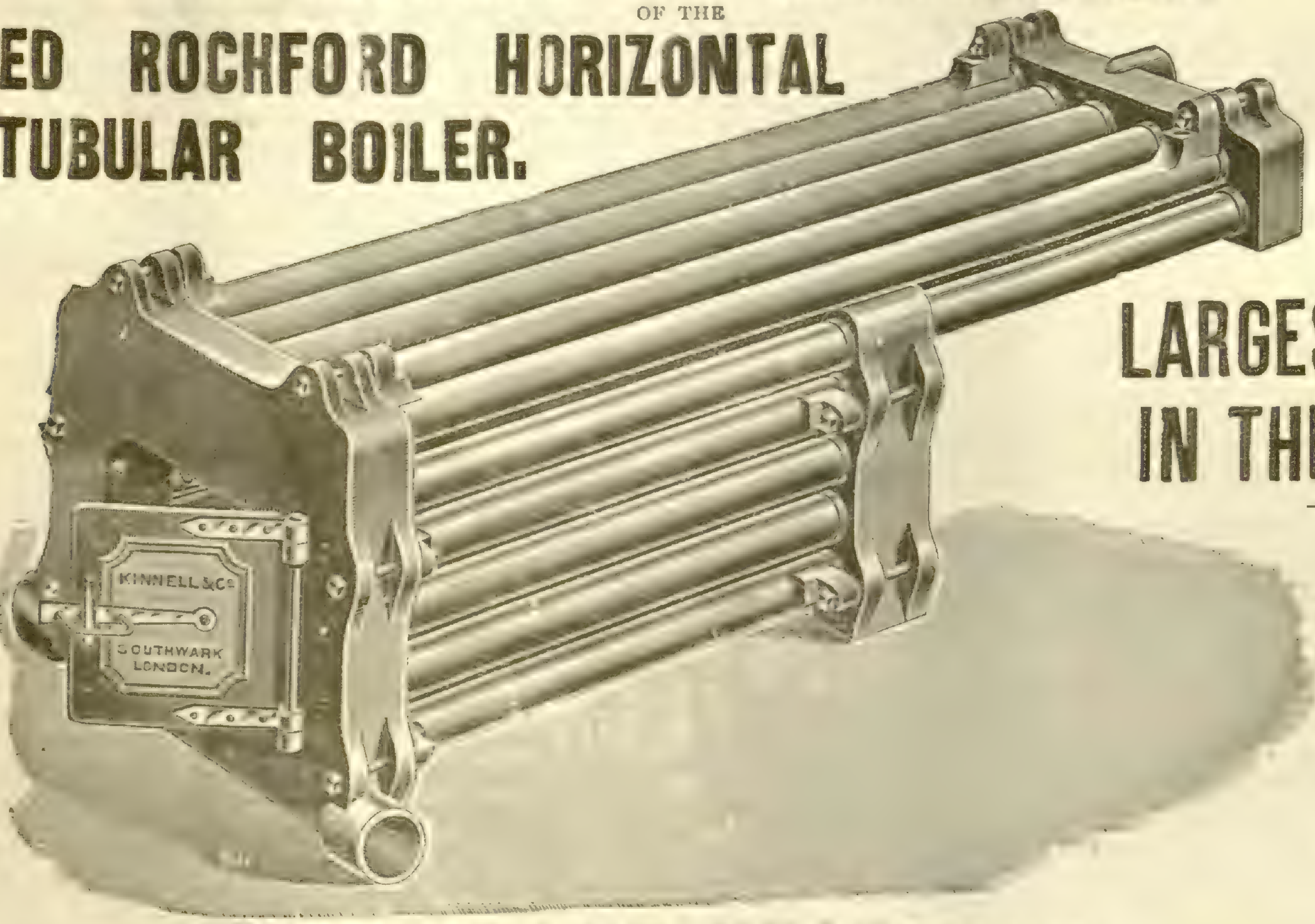

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Offices and Warehouses, SOUTHWARK STREET, LONDON, S.E.

BOTANICAL MUSEUMS.

IN times gone by the very name of a museum was sufficient to indicate to the minds of children or young people a dull, mournful building, filled with mouldy and musty specimens that had no attractions for a juvenile understanding, and very often but little meaning to that of an adult. No museum was thought to be complete without its Egyptian mummy—indeed, it was often the sole attraction. Museums in those days were collections of the most incongruous objects. All branches of science were more or less included, but often geology, zoology, botany, ethnography, and other sciences were hopelessly mixed up in a haphazard kind of way. The more general character, indeed, that a museum assumed the more it was appreciated by those who found pleasure in visiting these "old curiosity shops." Museums devoted exclusively to illustrating any one branch of science were scarcely known, while at the present day we find them being established not only in our large public schools, but in almost every elementary school, and botany is by no means left behind in this respect. On the contrary, botanical museums may be, and are, of different characters at the present time, such, for instance, as those attached to the Universities, which contain valuable stores of carefully prepared specimens to illustrate the scientific teaching of the study of botany, such as the different parts of the flowers, seeds, fruits, leaves, &c., or the structure of the stems. On the other hand, there are museums, such as those at Kew, which give special attention to the products of the vegetable kingdom, as furnishing material for supplying articles of food and medicine, and manufactures, as clothing, building, and such like. That a museum of this nature can be made popularly attractive is proved by the great number of visitors who frequent the well-known museums in the Royal Gardens, Kew, and also from the use that is made of them by commercial firms in London and the large business centres of England. The Kew Museums stand in the honourable position of being the first of the kind ever established, and their origin is due to Sir William Hooker, the first director of the Royal Gardens, who gave his own private collection as a nucleus upon which to start, the success of which has been so great that it is only repeating a well-known fact to say that the collections contained in the three museum buildings at Kew are far and away the finest and most complete in the world. Moreover, they have been taken as a pattern for establishing similar museums in many of our colonies as well as in foreign States.

In the formation of a botanical museum there are two ways in which the objects may be arranged, namely, by a botanical or a commercial classification, that is, by the system adopted at Kew, where the objects are arranged scientifically, according to the nature of the plants producing them; or, on the other hand, by a commercial arrangement, where food products, such as fruits, would be kept together, starches and meals together, drugs, oils, perfumes, &c. It stands to reason that the first arrangement, namely, the botanical classification, is more suited to museums situated in a botanic garden, such as those at Kew, while in a commercial centre the second form of arrangement would undoubtedly be the most useful.

It is difficult to believe that any of my readers are unacquainted with the Kew Museums and their arrangement, but lest there should be any it may perhaps be well to give a brief outline of such arrangement. The natural orders follow each other in the sequence adopted in the "Genera Plantarum" of the late Mr. George Bentham and Sir Joseph Hooker, commencing with Ranunculaceæ, and finishing with Gramineæ. In each order the genera are arranged in the same sequence, and all the products, be they food products, drugs, fibres, oils, or what not, are placed in the genus or species to which the plant refers. Thus in Papaveraceæ we are shown the poppy heads, or fruits of Papaver somniferum, the opium poppy, scarified to show the exudation of opium, with the actual instruments used for incising the fruits, and all the vessels and paraphernalia used in India in the preparation of opium for the market, and finally the prepared opium itself; a series of alkaloids, for which opium is valuable in medicine as well as an opium smoker's complete equipment; and further, samples of the seeds which, under the name of "maw" seeds, are given to cage birds. These seeds abound in a sweet oil which is expressed and used for mixing with olive oil for table use. From such a series as this we gain the information that the white poppy yields opium from its fruits, that it flows in a milky form from slits made in the fruits, that it becomes semi-solid and black by a system of manipulation, that it is smoked in or on peculiarly constructed pipes, that it yields a number of valuable alkaloids, as morphine, codeine, &c., and further, that though the juice is a powerful narcotic, the oil contained in the seeds is perfectly harmless and sweet, and is used as a table oil. This is just one illustration of the information sought to be conveyed by such a museum as that at Kew, and, everything being fully and descriptively labelled, it is not difficult to understand, but space will not allow us to multiply instances of classification.

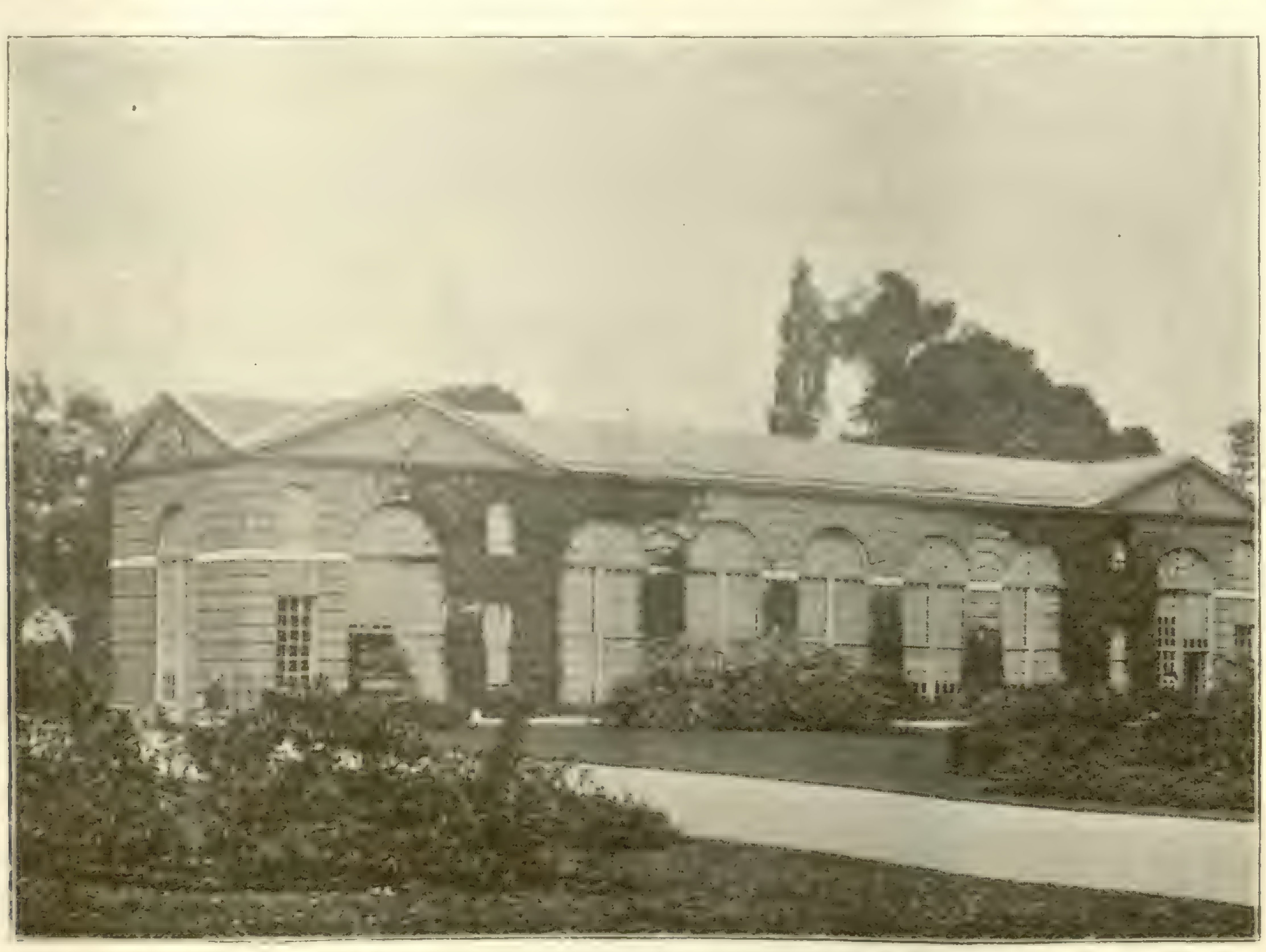
A description of a few of the most interesting objects will perhaps be of more particular interest, and none more so, probably, than the collection of wreaths and chaplets from the tombs at Thebes, where at periods of 1100 to 1200 B.C. they were used to adorn the mummies which were so carefully placed in their enduring receptacles that they have in many instances come out to-day almost as fresh as when they were first placed there, and so perfect in form that it has been quite possible to determine the species of plants that were so used. Of these may be noted the following: Nymphæa cærulea, the colour of which was distinctly blue when first discovered, but which has since turned brown by exposure to light and air: some very beautiful wreaths are composed of the flowers of this water-lily and leaves of Mimusops Schimperi strung or twisted on strips of date palm leaves. This wreath was found in the coffin of Rameses II., of the date 1100-1200 B.C. Another wreath of a like date is composed of the leaves of Salix safsaf and the flowers of Acacia nilotica. Perhaps some of the most perfect of the single flowers taken from any of these wreaths are those of Narcissus Tazetta, Chrysanthemum coronarium, and Centaurea depressum. Turning from these interesting relics of a remote age, we find in another part of the museum, in a special case, a remarkably fine specimen of the New Zealand sheep plant, a tufted plant of the Compositæ, growing often in huge masses quite as large as an ordinary sheep, and having a shaggy appearance very similar to the wool of a sheep, so that shepherds are said to be often deceived by them in the dusk of the evening, more particularly at distances on the mountains. The New Zealand sheep plants belong to the genus Raoulia, and are referable to two species at least, namely, R. eximia and R. mammillaris. The only use to which the plants are put in New Zealand is by ladies for making pincushions, by covering a small portion with silk or other fabric. Continuing our wanderings further, and by studying the products of the Anacardiaceæ—an order which includes the mango, the cashew nut, pistachio nut, and the species of Rhus which ornament our gardens—we find under Rhus vernicifera a

GENERAL MUSEUM, KEW.

very complete and interesting series of what is known as Japanese lacquer ware, which are beautiful and artistic designs in caskets, boxes, trays, bowls, sword cases, &c., the foundations of which are of wood, thickly coated with numerous layers of fluid lacquer which is drawn from the trunks of the species of Rhus mentioned above, and prepared in a variety of ways by mixing with numerous colours or with gold and silver. In the old lacquer ware, of which the Japanese were the sole masters, so long and tedious an operation was its preparation in depositing the successive layers of lacquer that actual plates of gold and silver, mother-o'-pearl, slices of shells or stones were worked into the design, and covered with layer upon layer of lacquer, and the whole rubbed down to an absolutely smooth and unbroken surface, capable of lasting for an indefinite period. Many examples of this beautiful work can be seen in the Kew Museum side by side with half-finished work and the crude materials and tools used in its manipulation.

If our inclination leads us from peaceful arts to warfare or the chase, we shall find many illustrations in the Kew Museum of such articles. Arrows, spears, and darts are not unfrequently poisoned by savage tribes, to make their aim more deadly, and many of these poisons are of vegetable origin. The best known is no doubt that of the upas tree (*Antiaris toxicaria*), a large tree of Java and Borneo, the poisonous juice of which is obtained from the bark. Of late years it has been the subject of considerable attention by chemists, notwithstanding that the poisonous nature of the tree has been known for one hundred and twenty years or more. The poison valley of Java with its upas trees was one of the most interesting stories in botany of our boyhood, which in the light of modern science we can now afford to laugh at. As the most recent examination of upas poison has been made almost at the time we are writing, and has been embodied in an address on arrow poisons delivered to the North British Branch of the Pharmaceutical Society, by Dr. Ralph Stockman, we take the opportunity of quoting from his interesting statements. The active principle is known as Antiarine. It is extremely poisonous, and experiments made by Dr. Stockman showed that 1-6400th gr. was sufficient to kill an ordinary-sized frog in comparison with 1-4500th gr. strophanthin, and 1-2600th gr. urechitin. The sap is known as Ipoh Kayu (tree poison) among the natives. It kills guinea pigs and other small animals in a few minutes from stoppage of the heart, and has been used in Cochin China against the French soldiers, who died in from half an hour to several days after receiving their wounds. It is in use throughout the Eastern Archipelago by nearly all the native peoples, pure, or mixed with snake poison, scorpions, centipedes, other plants, and occasionally with arsenic.

Regarding the extraordinary stories that have been told about the deadliness of the upas tree, Dr. Stockman says they are traceable to an account of the tree written last century by a Dutch surgeon named Foerscher, whose account was copied as genuine into a number of the periodicals of the time, and thus obtained a wide circulation. The following is an extract from this Dutch doctor's description: "I shall now only relate simple, unadorned facts of which I have been an eye-witness. In the year 1774 I was stationed at Batavia, and during my residence there I received several different accounts of the Bohon upas and the violent effects of its poison. They all seemed incredible to me, and I resolved to investigate this subject thoroughly, and to trust only to my own observation. . . . . I had procured a recommendation from an old Malayan priest to another priest who lives on the nearest habitable spot to the tree, which is about fifteen or sixteen miles distant. The letter proved of great service to me in my undertaking, as that priest is appointed by the Emperor to reside there in order to prepare for eternity the souls of those who for different crimes are sentenced to approach the tree and to procure the poison. Malefactors, who for their crimes are sentenced to die, are the only persons who fetch the poison. After sentence is pronounced on them by the judge they are asked in Court whether they will die by the hands of the executioner, or whether they will go to the upas tree for a box of poison. They are afterwards sent to the house of the old priest, and remain some days, during which time the ecclesiastic prepares them for their future fate by prayers and admonitions. When the hour of their departure arrives the priest puts on them a long leather cap, with two glasses before their eyes, which comes down as far as their breast, and also provides them with a pair of leather gloves. The worthy old ecclesiastic has assured me that during his residence there, for upwards of thirty years, he had dismissed above seven hundred criminals in the manner which I have described, and that scarcely two out of twenty have returned. He showed me a catalogue of all the unhappy sufferers with the date of their departure from his house annexed, and a list of the offences for which they had been condemned. I was present at some of these melancholy ceremonies."



WOOD MUSEUM, KEW.

The horrors of the upas have now passed, and it is no longer necessary to go to Java to learn its mysteries, which are now unfolded, and its nature and properties are fully exhibited in No. 1 Museum at Kew, amid the pleasant surroundings of the Royal Gardens, as shown in our picture. Indeed, all those objects which we have already referred to are to be found in this same building. In the other picture, which is an excellent representation of No. 3, or the Timber Museum, is arranged a very fine collection of the choice woods of the Empire of India and the British colonies, arranged in a geographical sequence according to the countries producing them. This building was formerly known as the Orangery, and for many years after the gardens were opened to the public it was used in winter for the storage of such plants as could be placed out of doors during the summer but required shelter through the winter. The erection of the central portion of the Temperate House left this building free, and it was at once converted into a museum for large specimens of timber, and a few other objects requiring special cases that cannot be accommodated in the arranged collections in Museums Nos. 1 and 2. One such special collection is of peculiar interest, as it is devoted entirely to illustrating the uses to which bamboos are put in Japan, and is the more valuable just now when bamboo culture in this country is attracting so much attention. Space will not allow us to do more than mention the existence of still another museum, which is officially known as No. 2. In this building are arranged the monocotyledonous orders, such as Scitamineæ, Liliaceæ, Palmeæ, Graminaceæ, and the Cryptogams. Thus advantage is taken in the three buildings of dividing their contents into the dicotyledons in No. 1, the monocotyledons in No. 2, and the timbers and special objects in No. 3, each of which is equally valuable both from a scientific and from a commercial point of view, for all the collections are made much use of by those engaged in trade and commerce, as well as by the teaching profession.

JOHN R. JACKSON, A.L.S.,
Keeper of the Museums.

Royal Gardens, Kew.

FORCING LILACS.

EARLY forced flowers are always much appreciated, and none more so than the Persian lilac. This old-fashioned, but ever popular, shrub ranks as one of the most valuable for forcing, requiring but a small amount of trouble to bring it to perfection, the most essential points for the cultivator to keep in view are: The proper time to start the plants so as to produce flowers when they will be in greatest demand, and the thorough maturing of the wood during the preceding season of growth, for on this depends in a great measure the success of forced plants.

It is indispensable that the forcing should be commenced gradually at first; a temperature of 50 to 55 degrees will be ample for the first week or nine days. Afterwards keep the structure in which the plants are placed more moist, with a corresponding rise in the temperature, but at no time should more than 65 or 70 degrees be accorded lilacs. Various methods are adopted in the procuring of suitable plants. Some gardeners prefer to purchase the stock, or a portion of it, from a nurseryman. These are usually well-grown and ripened, therefore almost certain to give good returns, and such may, when over for the season, be either planted out in the shrubbery, or in the reserve garden, for forcing either one or two years hence. Others depend largely on plants grown by themselves in various sizes. A stock of these may be raised annually or biennially as required, by lifting strong suckers from around an old tree that has become established in the shrubbery. The buds which have formed below the surface of the soil, and a few inches above it, should be cut clean out, so that a clear stem may be secured. These may be planted in the reserve garden at distances of two feet apart each way, and very little attention will be required by them except to keep them free from weeds. If well attended to in this respect, and kept watered in dry weather, they will be in proper condition for forcing in the second or third year.

Lifting should take place early in the month of October, and the plants be at once potted up, using a compost of equal parts loam, leaf-soil, and sand; afterwards the plants may be stood out of doors, and if they are subjected to a few degrees of frost so much the better. Where quantities of lilac are required, a few large plants may be lifted from the open for forcing, and they will be found to yield large numbers of deliciously-scented flowers. They may be lifted and housed as required, merely retaining a good ball of soil and standing the plants on the floor or bed of the house, and working in and about the roots some light compost. Plunging the plants in stable manure and leaves will be found advantageous, provided that these materials be well incorporated and turned two or three times in the open air, to allow the rankness to pass off. Syringings should be frequent, but light, more in the form of a dew than of a thorough drenching, and the floors of the house must be kept damp.

M. Lemoine, of Nancy, has been most successful in the production of many fine lilacs, notably several double forms. Madame Lucie Lemoine is a magnificent variety, bearing long panicles of bouvardia-like white flowers; these are of immense value for cutting purposes. Whether for arranging in vases for the embellishment of rooms, or for bouquets and buttonholes, they are equally effective, and will last a long time. Other good double varieties are Madame Jules Finger, Leon Lemoine, La Tour d'Auvergne, Virginité, and many others, including the purple-flowered rubella plena. Of singles, Charles X. is still one of the best, although there are other varieties which will amply recompense the cultivator for any trouble he may bestow upon them.

Stoneleigh. H. T. MARTIN.

THE AMATEUR QUESTION.

CONCERNING the remarks on the above subject in your issue of the 3rd inst. I cannot accept "the common sense view of things" as set forth. As regards the National Chrysanthemum Society's definition of an amateur I fully appreciate the advice given by Judge Martineau as to "having the rules relating to amateurs amended for the purpose of making them more intelligible." This, no doubt, will now be done. I suggested such an alteration when the schedule for the present year was under revision by the committee appointed for that purpose, but it was not then considered that such alteration was necessary. In your issue of October 29 you say "the ambiguity has arisen in consequence of a want of appreciation on the part of a section of the committee of the fact that all cultivators who do not grow for sale are amateurs." I, as one possessed of this "want of appreciation," cannot accept this, as, despite the "combined wisdom of some fifty or sixty of the most distinguished horticulturists in the United Kingdom," the definition of an amateur as laid down by the National Rose or Dahlia Societies, I submit that no professional gardener (*i e.*, one gaining his livelihood by gardening), or anyone employing a gardener, can rightly be termed an amateur. It is a misnomer that I have contended against for years at annual and other meetings of various societies which I have attended. This is an opinion shared by a large majority of the seven hundred odd members of the National Amateur Gardeners' Association. I also fail to see why you should consider it any injustice to disqualify anyone who, upon giving up possession of his garden, should sell the plants growing in it, or even anyone selling seedlings raised by himself. Both, I maintain, would be strictly trade transactions. In the former case, if he did not choose to take them away with him he could give them away or leave them for his successor; and in the latter he could make an exchange with any nurseryman willing to distribute them. Awaiting further correspondence on the subject,

East Finchley. A. TAYLOR.

Blackened Potatos.—My experience with Chancellor has been similar to that of your correspondent A. D. (page 784, December 3). Grown in the gardens here, in a deeply-dug medium loam, it cooks white and floury, and is of splendid quality. We tried it for two seasons in ploughed land on the farm, some three miles distant, both in a heavy loam and in lighter soil; in each case we had heavy crops of fine tubers, which, on being cooked, turned black, were without flavour and worthless. For this reason we had to discard it. Its parent, Magnum Bonum, and other varieties grown in the same field with Chancellor, produced clear-fleshed tubers, which never blackened.—S. P, *East Anglia.*

APRICOT CULTURE.

IN no former season have apricots produced better crops than in the one just past, when the fruits attained a degree of ripeness and perfection of flavour that will not readily be forgotten. The trees fairly revelled in the great heat, and although this latter entailed the application of a great deal of water to the roots at various times, the outcome of it all is that the trees are in the pink of condition. The wood made is of medium strength; it has ripened up as thoroughly as the most exacting could wish for, and it is also bristling with fruit buds. All this augurs well for the future, and, barring accidents in the shape of severe frosts at the time of the blossoming of the trees, or even after the fruit has set—when they are very susceptible to injury from extreme cold—the future may be looked forward to with hopefulness.

The foliage is now falling fast, which is a reminder that we have arrived at that time of the year when it is the rule to take a survey of the fruit trees generally, with the view of ascertaining what may be required in the shape of new trees to make good any deficiencies. The apricot must, of course, be included; more so, perhaps, than any other fruit tree, as owing to the bad habit it has of losing main branches it is necessary to give constant supervision in this respect if the walls are to be kept well clothed. Neglect of planting means in many instances that in course of time great blanks on apricot walls will occur, which take several years' growth to efface, and much loss of time and crop follows as a natural sequence. The present is also a good time to effect the lifting and transplanting of trees which stand in need of a check owing to their making strong growth. This has the effect of restoring them to fruitfulness, and the remedy is often necessary in the case of apricots planted in soil enriched with manure with well meaning, but mistaken, kindness.

With regard to planting, although I live in a district most favourable to the growth of the apricot, I find it very necessary to plant young trees frequently to provide against contingencies. This I do by putting in maiden trees wherever wall space will allow, and train them myself, when I always have trees to fall back upon in case of a death, or in the event of a tree becoming decrepit or worn out. Trained trees I do not buy unless absolutely compelled to, as they take a whole year in which to recover from the moving, and I find maidens give more satisfactory results. These latter grow away quickly, and frequently form far better trees in one year than purchased trained trees do in two. By growing trees at home in this way the risk arising from loss through lifting is largely minimised, as they but seldom fail, while the lifting and transplanting can always be accomplished earlier in the season than is the case when trees have to be procured from a distance. I find it an excellent plan, before planting new trees, to remove as much of the old soil from the border as can be conveniently done, and without unduly disturbing the roots of adjacent trees. I also take the precaution to have plenty of lime rubble and wood ashes mixed with the new compost. Farm or stable manures we ignore entirely, and when stimulants are required artificial manures are given on the surface during the growing season.

With regard to trees which have made too strong growth from the fact of their having been planted in a too rich compost, the sooner such are lifted and replanted the better taking care at the same time to prevent a recurrence of the evil by replacing the over-rich soil with that of a poorer description, to which calcareous matter has been added. The quantity of the latter that should be used will depend entirely on the nature of the loam, as some soils require very much more than others to keep them open. I find the apricot does best in a compost consisting of two-thirds fairly heavy loam, and the remainder made up of wood ashes, lime rubble, and a fair quantity of brickbats broken small. This should be thoroughly consolidated before the trees are planted by repeated trampings, or even ramming it if necessary. This will prevent gross growth being made; it also ensures the trees coming early into bearing, and the fruits produced by such are always of the best quality. If the lifting and transplanting be properly done in the way of following up and preserving the principal roots and fibres as far as possible, and by laying them out afresh in compost such as has been described, or that of a similar nature, according to the means at command, they should give no further trouble in this direction.

Stoke Edith Gardens. A. WARD.

IS THE ONION SURFACE ROOTING?

WITH regard to this question, perhaps I did not make it quite clear that it was not so much deep digging as deep manuring the lecturer spoke against. Cottagers were advised the onion was only surface rooting, and consequently could not take advantage of manure dug in a spit deep. I am very pleased to find the question has already received replies, and hope other growers will have something to say about this matter. As the question is solely one of onion cultivation, Mr. Riddell's remarks (cultural) prove my contention, viz., that under cultivation the onion is deep rooting. I also observe (*vide* Mr. Riddell) that "food does create roots," at any rate in the case of onions, for it lengthens and multiplies them, and that notwithstanding the bait of bonemeal and sulphate of ammonia used for surface dressings.—S. P.

Under the above heading I perused with interest some remarks in your issue of November 19, page 752, by "S. P.," and, among other things, I noticed my name mentioned in connection with an article I wrote on exhibition onions last spring. All I wish to say now is that I adhere strictly to what I then wrote, and, as the proof of the pudding is in the eating, I shall be most happy to send your correspondent, if you will furnish me with his name and address, a few specimens which were grown precisely under the conditions I then laid down. He will then be able to compare ours with any the lecturer may care to bring forward; and I may mention we experienced one of the most trying seasons I have ever had to contend with as regards drought.—E. BECKETT, *Elstree.*

WORK FOR THE WEEK.

WARM ORCHIDS.

CATTLEYA BOWRINGIANA at the present time will be emitting its young, tender roots, so that if repotting or top-dressing is required it must be attended to. A compost of rough fibrous peat mixed with a few pieces of charcoal and fresh sphagnum moss will suffice, but the plants must be kept well up above the rim of the pot, because the new breaks or growths are produced low down, and thus apt to rot off or in danger of being broken. The work, generally speaking, at this time of the year consists of giving everything a thorough cleansing. There is usually plenty of washing, sponging, &c., to be done, and it is well that all this should be finished while the ordinary course of work is light, for when growth recommences there is very little time for cleaning. Plenty of soft soap and soda will be required to wash down all the stages, rafters, and glass. All the spar or cinders ought to be well washed, so that slugs and woodlice may be killed, and the appearance of this material be made more pleasing.

We have again experienced a change in the weather, and one we do not expect at this time of the year, and are scarcely prepared for. Of late there have been times when we prepared for a night's frost, and when the morning came the rain was falling fast, consequently the houses were warmer than necessary. Great care is required when this occurs, for the following nights may bring cold winds followed by frosts. It is rather puzzling weather for growers I should prefer seasonable weather, so that the plants might take their annual rest and receive as much light as possible. At all times orchids must have a certain amount of humidity in the atmosphere, and if not found naturally such must be provided, according to requirements, by artificial means; a quite dry atmosphere in an orchid house is bad, but excessive moisture is worse.

In many collections several of the phalænopsis will be pushing up their spikes, especially in districts that are clear of fogs; it is wise to put neat stakes to these, and take every precaution to ward off attacks of beetles, slugs, woodlice, &c. But in foggy districts it would be wise to cut away these spikes, and depend upon the second crop of flowers. It is a great pity phalænopsis blooms are so sensitive to fog, for they are extremely useful and beautiful flowers, and must be favourites with all growers. A few plants of dendrobiums must be brought on gently to provide a succession of flowers for general use, as these come in well for buttonholes at the present season.—T. STAFFORD, *Tyntesfield Gardens.*

STOVE PLANTS.

THE present is a suitable time to give the palm house a thorough cleansing. In the first place, tie the palm fronds carefully up so that they be not injured by being stood closely together in one half the house while the other half undergoes a thorough scrubbing with hot soapy water. Cleanse the stages and limewash the walls, then take the palms in hand, giving each a careful sponging to remove any scale or dirt that may be upon them. For cleaning the base of such leaf-blades as Latania borbonica, chamærops, &c., produce, there is nothing better than a good toothbrush, afterwards utilising the syringe to wash out what the brush has loosened. Any potting and top dressing necessary may also be done now, providing the plants so treated are not to be used for room decoration for some time to come. In rearranging the palms, allow each plant the maximum of space to show off its individual beauty, and grow perfectly upright, for a palm whose growth is one-sided is not a desirable object. Any whose pots are full of roots, and are not potted or top-dressed, will require an occasional application of some good artificial fertiliser, with now and again a watering with soot-water to encourage that dark green colour which is such a desideratum. Among those palms most useful from a decorative point of view are Kentia Fosteriana, K. Belmoreana, Latania borbonica, Cocos plumosus, C. Weddeliana, Caryota urens, Phœnix dactylifera, P. rupicola, P. reclinata, Areca lutescens, A. crinita, and Seaforthia elegans. Caryota urens and Seaforthia elegans, though both beautiful and useful subjects, do not bear room treatment so well as the others named, and care must be taken that they are not left in for more than five or six days at a time. All palms, while they are in the rooms, should be kept rather drier at the roots, or the foliage will soon become pale; directly there is the least indication of loss of colour remove them to a warm house, thoroughly cleanse the foliage, and allow them to become quite dry, then stand the pot in a tub of very weak liquid manure for about ten minutes. The soil suitable to the majority of palms during the earlier stages of growth is one part peat, one part loam, and one part good leaf-soil, with a free admixture of sand and a little charcoal. At later pottings the peat may be reduced until, when they are placed into pots of nine-inch diameter and upwards, it may be omitted altogether, excepting for some of the more delicate, such as caryota and cocos.

Nepenthes will now require a position at the warmest and dryest end of the stove and reduced supplies of water, yet taking care that the roots are not allowed to become dry, for, though resting, they require more water than the general run of stove plants in that state. As the bracts are removed from the earlier batches of poinsettias, gradually dry them off and store them away in a dry position in a temperature of 50 to 55 degrees. The later plants are coming on rapidly, and should receive stimulants to develop the bracts to the largest possible size. Reinwardtia tetragyna is now in full beauty, and is amongst the brightest of plants in flower at this season. A position in a moderately dry house with a minimum temperature of 55 degrees suits it admirably when in flower. Urceolinas, as the flowers fade, should be stored away in the intermediate house until the season for repotting and starting into growth comes round again. Encourage gardenias that are required in flower at an early date by judicious applications of stimulants and a free use of the syringe. Pot on young plants of these and ixoras as they fill their pots with roots. Cut down plants of strobilanthus whose leaves have lost their colour, and encourage them to break away from the base, when cuttings can be taken. Keep up a supply of panicum, fittonia, pilea, and selaginella in small pots for furnishing purposes.—J. TUNNINGTON, *Ripley Castle Gardens.*

THE FLOWER GARDEN.

WHERE not already taken in hand herbaceous beds and borders should be cleaned and made as tidy as possible. All dead tops of Michaelmas daisies, solidagos, pæonies, and many others should be cut away close to the ground, and hardy fuchsias of the Riccartoni type may be similarly treated. These latter are useful subjects either for herbaceous or shrubbery borders, and may, if desired, be lifted, divided, and replanted now. During the continuance of mild weather, if the soil be not too wet, any herbaceous subjects that have outgrown their allotted spaces may be reduced or taken up and replanted, discarding the central portion of the clumps, which are often weakly and poor. Borders may also be entirely renovated during open weather by taking short sectional pieces up at a time, trenching, manuring, and replanting each piece and so on, weather permitting, until finished. This is the more easily done where the soil is of a light nature, and besides a saving of time in spring the plants make some roots and partially establish themselves before dry weather is likely to set in. Where other work is not necessary, as above, the borders should be given a surface dressing of half-rotten manure, to remain until the spring, and be then lightly pricked into the surface. Border chrysanthemums may have the tops removed, and unless cuttings are now obtainable a plant or two of each variety should be lifted and placed in cold frames, where protection may be afforded in the event of severe frosts occurring, and from these cuttings may be obtained later for future planting. Those remaining in the borders in permanent positions should be given a slight mulching of cocoa fibre refuse or coal ashes, as should any other subject not quite hardy, as dielytras, alstroemerias, cannas, montbretias, &c.

Herbaceous pæonies, where not freely supplied with water during the past summer, have suffered somewhat from the excessive drought. These strong rooting subjects require good soil and feeding to enable them to produce fine blossoms; large clumps impoverish the soil quickly, and the blooms are small and poor in consequence, and often, especially if dry, the buds fail to develop. Any spare liquid manure may with advantage be poured around the roots even in winter and the surface soil be removed and rotten manure applied, placing the soil back on the top of it. Where the clumps have become over-large they may be dug up now, weather permitting, and divided and replanted elsewhere in well-trenched and manured stations. If required in same positions trench and heavily manure, and add fresh soil about the plants at replanting. Small plants of herbaceous pæonies have little decorative value and take at least two or three years to grow into effective specimens, therefore lifting is not advisable unless the clumps are over-large and partially worn out through exhaustion of the soil.

In shrubbery borders evergreen trees and shrubs, as laurels, hollies, yews, cupressus, &c., may be cut into shape, or with laurels, where large branches have grown tall and lanky, these may be removed by sawing them away close to the ground; work of this description may be done when the ground is too wet to work upon, or even in frosty weather. Prunings of evergreens are often useful for house and church decoration at this season. A considerable amount of labour must of necessity be devoted to the clearing up of fallen leaves from walks, lawns, and pleasure-grounds generally. Leaves should be raked up and carted away without delay, otherwise they may be scattered again by winds. Sweeping should follow the raking, and after this is accomplished both lawns and paths should receive a good rolling if the weather is suitable for the operation. The leaves need not be removed from shrubbery borders in many cases, but be lightly pointed in with flat-tined digging forks. Dirty gravel paths, where regravelling is not necessary, may be easily turned at this season when moist, using forks as above, and turning the gravel over to the depth of two or three inches. New gravel may also be laid on paths providing the weather be fairly dry.—C. HERRIN, *Dropmore Gardens.*

HARDY FRUITS.

THE pruning of bush fruits, gooseberries and currants, will now claim attention. In many gardens birds are troublesome, and it may be well to defer the pruning of gooseberries till the latest possible date; but there are objections to this latter, as the birds frequently take the lower buds needed for next season's fruit. I find it much better to prune at this season, and protect from the enemy. The pruning of young trees should be confined to thinning, opening the centre of the bush room, and removing cross branches. Sucker growths should be cut or pulled clean out from the base, and in all cases the trees will be more shapely if trained to a single stem. In many gardens it may be out of the question to protect with netting; but if this can be done, and wire netting used, it preserves the fruit also. For a wash to preserve the buds I have found fresh lime mixed with quassia extract efficient. Many of our best gooseberries are of pendulous growth, and so it will repay one to give such supports, and in pruning to clear the lower branches from the soil as much as possible. Where the grub was troublesome last year it will be advisable to remove the surface soil from under the trees after the pruning, and replace with new materials; burn the old soil to prevent the spread of the pest. A good coating of fresh lime, sulphur, and soot in a soluble state will prevent moss growth. Gooseberry trees on walls should be attended to. I find we obtain much better fruit if a goodly portion of the weak spurs are removed every third year; this gives the trees a nicer appearance, and the growths, being less crowded, are stronger. At the same time it may be well to encourage new leaders in the case of old trees. Few fruits are more useful than the gooseberry on a north wall, as it is an easy matter to net the trees, and the fruits keep a long time, while the trees give a good return for the space given. Now is a good time to plant cordon gooseberries, using the cream of the dessert kinds, and training them to iron rods or strong stakes. We have now some valuable additions to dessert gooseberries in Langley Beauty, Langley Gage, and Golden Gem, all of which do well in cordon form. All kinds of fruit trees will benefit now by a top-dressing of manure.

Black, white, and red currants should now be pruned, the first by thinning out old wood or weak growth, leaving the well-ripened, strong wood of last season for next year's fruit supply. Many growers leave black currants too crowded, and the fruit are small in consequence. White currants need the same treatment as red, and both these fruit well on spurs or buds which are close to the old stems, so that in pruning it is not necessary to leave a lot of young wood except in the case of young trees needing extension. The shoots may thus be cut close home, only leaving two or three buds from the old wood. In the case of old trees it may be found by this hard pruning that branches are becoming thick and stunted; in such cases it may be well to allow a few new growths to proceed from the base, and in time these will take the place of the older wood. In our locality birds play sad havoc with the currant buds, and we are obliged to protect in the way advised for gooseberries. The black varieties are first attacked, but a dressing of quassia with other mixtures soon repels them; the first-named causes the buds to have a bitter taste. Of late years the black currant has suffered greatly from the mite, and in the case of badly infested trees I have found it advantageous to cut them down to the soil and secure new growths from the base, as half measures are useless.

Plums should now be pruned, and in the case of young trees inclined to be too gross it will be advisable to lift and replant carefully, this being preferable to severe pruning In training young trees on walls these fruits always have a tendency to ascend and grow strong, so now is a good time to lower the branches and equalise the flow of sap. In light soils or gravel the plum fruits none too freely, so if a heavier compost can be given so much the better. Dessert cherries should be pruned and renailed. Morellos also may be taken in hand, but to obtain fine fruits avoid overcrowding. All kinds of fruit trees which root near the surface, such as the cherry, are benefited by a top-dressing of good material at this season; we find burnt refuse and bone-meal an excellent fertiliser. Preparations may now be made for next season's grafting by securing scions of the varieties needed; these should be cut, labelled, and the lower half placed in soil in a cool place, such as under a north wall, and the soil made firm round the wood.—G. WYTHES, *Syon Gardens.*

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EXHIBITIONS AND MEETINGS.

NATIONAL ROSE SOCIETY, December 8.

THE annual meeting of this flourishing and ably conducted society was held on the 8th inst. at the Hotel Windsor, by kind permission of the Horticultural Club. The chair was taken by C. E. Shea, Esq., who was supported by the Rev. H. H. d'Ombrain, the Rev. G. E. Jeans, the Rev. J. H. Pemberton, Dr. Shackleton, E. Mawley, O. G. Orpen, G. Bunyard, T. B. Haywood, Conway Jones, C. Cant, R. F. Burnside, J. Burrell, G. Moules, F. Cant, Harcourt Landon, Bateman, J. D. Pawle, etc. Dr. Shackleton and Mr. J. Burrell were appointed scrutineers of the ballot, and then Mr. E. Mawley, one of the hon. secretaries, read the committee's report for 1898:

REPORT OF THE COMMITTEE FOR THE YEAR 1898.

The past year may be regarded as one of steady progress, whether the point of view taken be that of the society's exhibitions, the increase in the number of members, or the issue of its publications.

The most complete arrangements had been made by the society's local representatives—Mr. R. B. Cater, the president of the Bath Floral Fête Committee, and Mr. W. F. Cooling—for the southern exhibition at Bath, but the season unfortunately proved such a very backward one that only exhibitors from the most forward districts were able satisfactorily to compete—in fact, it was, without exception, the smallest show the society has yet held. For the same reason the metropolitan exhibition, which took place at the Crystal Palace a week later, was of rather less than average extent.

If, however, not so large as many of its predecessors, it was certainly one of the best arranged and most enjoyable of recent years. This was principally due to the whole length of the nave having been placed once more at the disposal of the society, and to the new plan of dividing the exhibits in the amateur and trade classes into distinct sections. The best rose show of the year was undoubtedly that at Halifax, where 4,100 blooms of "exhibition" roses alone were staged, making this the most extensive show—with the exception of that at Birmingham in 1890—that has ever been held by the society in the provinces. At all three exhibitions the attendance of visitors was unusually large.

The conferences held in connection with the Bath and Halifax Shows were most successful. Two excellent papers were read, one by Mr. W. F. Cooling, and the other by Mr. G. Paul, followed in each case by an interesting and animated discussion. To the authors of those papers the thanks of the committee are due, as well as to Mr. R. B. Cater and the Venerable Archdeacon Brooke for presiding at the conferences.

The sale of the society's publications during the year has been again very satisfactory, and especially that of the "Hints on Planting Roses." The first edition of these "Hints" having become exhausted, a new and revised edition was printed, and has recently been distributed to the members with the report of the two rose conferences.

It is with deep regret the committee have to record the untimely death of Mr. Rivers H. Langton, one of its members, and a constant exhibitor at the society's exhibitions. A challenge cup, subscribed for to his memory, was offered at the Crystal Palace Show as the first prize in a class in which he himself had so often successfully competed—viz., that for suburban grown roses.

FINANCE.

The committee congratulate the members upon the present satisfactory financial position of the society. The amount in hand at the beginning of the year was £39 18s. 7d., and now at its close there remained £86 16s. 10d. to carry forward to the next account, the total expenditure having been £719 17s. 2d., while the aggregate receipts, including last year's balance, amounted to £806 14s. Although more than the usual number of changes have taken place in the *personnel* of the non-exhibiting members, the amount received in subscriptions has on only three previous occasions been exceeded. This is the more encouraging, as in the Jubilee year of 1897 there was a considerable falling off in this important source of income as compared with the preceding year.

ARRANGEMENTS FOR 1899.

No application having been received from any northern town for the society to visit it in 1899, there will be only two exhibitions next year—a metropolitan and a provincial show. This the committee cannot but regard as rather a fortunate circumstance than otherwise, for had three shows been as usual held it would have been impossible to bring out the new edition of the "Official Catalogue of Exhibition and Garden Roses," which it is proposed should be issued next year, without resorting to the undesirable practice of calling upon the members to contribute to a special fund to defray the cost of its publication.

The metropolitan exhibition will be held, as usual, at the Crystal Palace on the first Saturday in July, while the provincial show will take place at Colchester, in conjunction with the Colchester Rose and Horticultural Society, on the following Thursday, July 6. In order that the early-flowering roses be not altogether overlooked, it has been decided to offer, on June 27, a few prizes at the Royal Horticultural Society's Rose Show, which will be held at their Exhibition Hall in James Street, Westminster.

A committee will shortly be formed to prepare the new edition of the society's official catalogue of exhibition and garden roses, which will be issued to members during the autumn of 1899.

MEMBERS' PRIVILEGES.

Members subscribing £1 will, as usual, be entitled to two private view and four transferable tickets, the latter admitting at the same time as the general public; while subscribers of 10s. are entitled to one private view and two transferable tickets. Each of these tickets is available for any one of the society's exhibitions. Members joining the society for the first time in 1899 will also receive copies of the following publications: The "Official Catalogue of Exhibition and Garden Roses," the supplement to that catalogue, "Hints on Planting Roses," the "Prize Essay on the Hybridisation of Roses," the "Report of the Conferences on Pruning and Exhibiting Roses," as well as the new edition of the official catalogue, as soon as issued. Members alone are allowed to compete at the shows of the society.

The committee tender their hearty thanks to all the donors of special prizes, the competitions for which have contributed so much to the interest and extent of the society's exhibitions, and especially to that at the Crystal Palace. Among these donors may be mentioned the Right Hon. Lord Penzance, the Mayor of Bath, the Venerable Archdeacon Brooke, Mr. C. J. Grahame, and Captain Ramsay. Their thanks are also due to their local secretaries, and especially to Mr. R. B. Cater, of Bath, and Mr. R. Foley Hobbs, of Worcester, through whose exertions a good many new members were obtained for the society during the year; while Mr. G. W. Cook has again done excellent service.

BALANCE SHEET.

Receipts.

	£	s.	d.
Balance at bankers December 1, 1897	£39	18	7
Subscriptions	372	11	6
Affiliation fees and for medals from Affiliated Societies ...	68	17	6
Received from Bath	50	0	0
,, ,, Crystal Palace Company	105	0	0
,, ,, Halifax	92	0	0
,, for special prizes	55	11	0
Sale of publications	6	7	11
Advertisements	11	2	6
Testing rose soils	5	5	0
	£806	14	0

Expenditure.

	£	s.	d.
Printing, stationery, and advertising...	£74	10	2
Postage, telegrams, and sundry expenses	48	0	2
Secretary's travelling expenses to arrange shows	1	13	2
Expenses Bath Show	7	11	0
,, Crystal Palace Show	11	8	0
,, Halifax Show	2	9	6
Medals	29	15	2
,, for affiliated societies...	54	3	6
Prizes, Bath Show	72	0	0
,, Crystal Palace Show...	204	5	0
,, Halifax Show	166	5	0
Purchase of plate for prizes	17	16	6
Assistant secretary and accountant	30	0	0
Balance at bankers	86	16	10
	£806	14	0

T. B. HAYWOOD, Hon. Treasurer.
J. D. PAWLE,
F. T. WOLLASTON, } Auditors.

A resolution to the effect that the report and financial statement be adopted, printed, and circulated was moved by the Chairman, who considered that the report was one upon which they could congratulate themselves, excepting that two of the 1898 shows were rather smaller ones than usual. He thought, however, the lack of display was amply made up for by the conferences; he was glad to find the society's literature was so much appreciated that the "Hints on Planting" had to go into a further edition. He did not deprecate the lack of one show in 1899—two instead of three—for it enabled the society to be rather more liberal than usual. He was satisfied that the society was ably conducted, and retained the services of its able hon. secretaries, Rev. H. H. d'Ombrain and Mr. E. Mawley. The adoption of the report was seconded by Mr. Frank Cant. The Rev. J. H. Pemberton was sorry that there was to be no northern show in 1899, and considered this somewhat of a misfortune; he even wondered whether the northern rose growers were becoming lukewarm. He thought the N.R.S. should not subsidise other societies. The Rev. H. H. d'Ombrain stated there were only about twenty outstanding subscriptions. With respect to a northern show, he knew of no large amateur rose grower in the north, and that was the reason why no invitation had been received for a northern provincial exhibition in 1898.

Mr. A. Foley Hobbs proposed, and Mr. F. W. Campion seconded the proposition, "That the thanks of the society be given to the officers and other members of the committee for their services during the year." This was carried, and responded to by the Rev. H. H. d'Ombrain, who eulogised Mr. Mawley's efforts with regard to the conferences.

Mr. George Paul proposed a new regulation, as follows: "In the three trophy classes at the metropolitan exhibition, and in the two trophy classes at the provincial exhibition, the blooms must be staged in boxes of the following dimensions, viz.: Twenty-four blooms in boxes 3 ft. 6 in. long by 1 ft. 6 in. wide, and eighteen blooms in boxes 2 ft. 9 in. long by 1 ft. 6 in. wide, all outside measurements." This regulation, he said, needed little explanation, as it made a provision by which all competitors in trophy classes mentioned should compete on an equality as regards the spacing of the blooms. Mr. Frank Cant seconded the proposition, considering it also enabled the blooms to be staged so that their labels could be distinctly read by visitors. The Rev. J. H. Pemberton could not agree entirely with the proposed new regulation, as he objected to anything that would appear as if the society did not know its own mind with respect to the size of boxes. He therefore proposed as an amendment that Rule 18 should read: "Exhibition stands should be of the regulation size, namely, four inches high in front and not more than eighteen inches wide, and be set out with moss or other suitable material. They should also be of an uniform length, namely: For twenty-four blooms, not less than 3 ft., nor more than 3 ft. 6 in.; for eighteen blooms, not less than 2 ft. 9 in., nor more than 3 ft.; for twelve blooms, not less than 1 ft. 6 in., nor more than 2 ft.; for six or nine blooms, not less than 1 ft., nor more than 1 ft. 6 in." In addition to this, he proposed that the new regulation should read: "In the three trophy classes at the metropolitan exhibition and in the two trophy classes at the provincial exhibition the blooms must be staged in boxes of the regulation size as set forth in Regulation 18 as amended." Messrs. Mawley, F. Cant, C. Cant, and O. G. Orpen took part in the discussion that followed, Mr. Orpen rather objecting to the mathematical precision proposed for the sizes of show boxes. Mr. G. Paul thought an error of a quarter of an inch should not disqualify, but an error of an inch he would consider a wilful infringement of the regulation, and deserving of disqualification. The Chairman pointed out that such small deviations from the proposed fixed sizes as one-eighth or one-quarter of an inch would not necessarily be wilful digression, and would doubtless be treated by the judges in a common-sense manner. After a little more discussion the amendment was put, with the result that ten voted for and eighteen against it. Mr. Pemberton was desirous of bringing forward another amendment, but this was not considered convenient. The proposal of Mr. G. Paul was then put to the meeting, and carried by nineteen votes against five. The committee was given power to add a notice that other sizes than those fixed would disqualify a competitor.

Mr. Landon expressed his dissatisfaction with the new regulation as passed, and proposed that the committee insert a notice in the forthcoming schedule to the effect that the new regulation and fixed sizes for show boxes were experimental, and the experiment was being made with a view to eventually fixing sizes for boxes throughout the competitions of the N.R.S. This suggestion, together with one that the committee shall meet and thoroughly consider the question of uniformity of size in show boxes for roses, was agreed to.

The scrutineers stated that the house list of officers had been accepted. The Hon. Secretary gave out that the Southern Provincial Show of 1900 would be held at Salisbury, and probably the northern one at Birmingham, but this was not settled; the metropolitan show would be held at the Crystal Palace as usual.

On the proposal of the Rev. G. E. Jeans a hearty vote of thanks was accorded the chairman for his services.

The annual dinner of the society was held later in the evening, under the presidency of R. B. Cater, Esq. The proceedings throughout were of the most enjoyable nature, the dinner being followed by speeches from the Chairman, Rev. H. H. d'Ombrain, Mr. E. Mawley, Mr. G. Bunyard, V.M.H., Mr. G. Paul, V.M.H., Mr. O. G. Orpen, Mr. J. Collingridge, and Mr. George Gordon, V.M.H. The musical arrangements were in the hands of Mr. J. D. Pawle, and gave every satisfaction.

ROYAL HORTICULTURAL SOCIETY, December 13.

THERE was a very pretty and interesting exhibition on the above date at the Drill Hall, and it formed a fitting conclusion to the splendid series that have marked the progress and popularity of the society during the present year. Orchids and winter-flowering begonias were especially good.

FLORAL COMMITTEE.

Mr. W. J. Prewett, gardener to C. A. Pearson, Esq., Frensham Place, Farnham, showed a goodly group of heaths and Begonia Gloire de Lorraine associated with Dracæna Sanderiana, D. Godseffiana, and a few cypripediums; silver Banksian medal. The value of Acalypha hispida (Sanderi) for winter decoration was admirably demonstrated on this occasion by Messrs. F. Sander and Co., St. Albans, who showed a number of good specimens carrying numbers of the long and vivid crimson tails which showed up splendidly in the half light in the Drill Hall; other introductions of this firm were on view, including Acalypha Godseffiana and Licuala Jeanenceyi; silver Banksian medal. A magnificent exhibit of Begonia Gloire de Lorraine was put up by Mr. H. B. May, Edmonton, who occupied half a long table with forty fine specimens in forty-eight's, thirty-two's, and twenty-four-sized pots; the largest were two and a-half feet through and beautiful plants; these begonias were associated with adiantum and other ferns, and Asparagus Sprengeri, the combination affording an opportunity of noting how useful is this begonia for winter decoration; silver-gilt Banksian medal.

Chrysanthemums in considerable variety were staged in bunches by Mr. W. Wells, Earlswood, Surrey; this was a bright exhibit, and the varieties staged most freely were Madame P. Rivoire, Mrs. C. Bown, Monsieur Viellard, Julia Scaramanga, Georgina Pitcher, Lucy A. Thomson, soft yellow, a useful late variety, and a sport from Silver Cloud; Beauty of Sholing, Redhill Beauty, Mrs. W. Butters, and Sunset; there was a handsome set of late-flowering kinds; silver Banksian medal. Messrs. H. Cannell and Sons, Swanley, Kent, had a brilliant exhibit of zonal pelargoniums, cut blooms arranged in big sprays; some of the most effective and warmly coloured of these large-bloomed forms were W. E. Cordon, Rudyard Kipling, King of Crimsons, Nicholas II., Lord Reay, A. Tennyson, Lord Farrer, Countess de Morella, The Sirdar, a grand new form with immense deep scarlet flowers; and Hall Caine; silver gilt Banksian medal. Mr. H. Eckford, Wem, Salop, sent four varieties of single-flowered primulas, remarkable chiefly for their excessive frilling and fringing and the graduation of the colouring in some forms, notably in Isa Eckford, where the orange-centre shades to the vivid red-rose margin.

Messrs. J. Veitch and Sons, Chelsea, showed a very bright group of the winter-flowering begonias raised by Mr. Heal at the Chelsea Nursery; these included Myra, the very bright and semi double Winter Cheer; Success, a double pink; Ensign, semi-double, carmine. All were flowering with the utmost freedom, carrying their flowers on graceful sprays well above the bold green foliage. Silver Flora medal. Mr. Empson, Ampthill House gardens, sent a specimen of the bright-flowered Plumbago rosea, a species not sufficiently grown for winter effect. Mr. Kingsmill, Harrow, showed a flower of Aristolochia ornithocephala. Mr. W. J. Godfrey, Exmouth, showed Christmas Favourite, white, and Queen of Pinks, two late Japanese chrysanthemums; Winter White was also shown, but unfortunately all the flowers had had their necks broken in transit.

ORCHID COMMITTEE.

A really fine display of orchids was made on this date, the amateur and trade growers coming out well with tasteful groups. Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, staged a beautiful lot of calanthes, all representing excellent culture; the principal forms were Calanthe revertens, C. Veitchi, C. V. lactea, C. Burfordiense, very brilliant, C. bella, C. versicolor, C. amabilis, C. Victoria Regina, and C. Veitchi splendens; Mr. White also showed fine plants of Cypripedium Leeanum in variety; silver Flora medal. Messrs. F. Sander and Co., St. Albans, put up a small group of orchids, the sprays of Oncidium varicosum Rogersi brightening up the specimens of Cypripedium Leeanum giganteum, C. L. superbum, C. L. magnificum, C. Tityrus, C. Albert Hye, and others.

From Messrs. J. Veitch and Sons, Chelsea, came an interesting collection, in which Cymbidium Traceyanum was most conspicuous and a good form; Cypripedium insigne Sanderæ with two fine blooms, C. insigne Chantini, C. Niobe, C. Leeanum, C. Arthurianum pulchellum, Masdevallia Imogen, Oncidium dasystyle, Dendrobium atro-purpureum, D. bracteosum album, Ionopsis paniculata, Epidendrum Edresio-Wallisi, and Lælia Novelty were all represented by neat flowering specimens, making together a pretty display that gained a silver Flora medal. Messrs. Hugh Low and Co. contributed a pretty set of orchids, the specimens of Cattleya Dowiana, C. crispa, Cypripedium insigne Laura Kimball, C. Leeanum in variety, Sophronitis grandiflora, Cymbidium Traceyanum superbum, a finely coloured variety, Oncidium tigrinum, O. crispum, &c., were all well represented and tastefully set up with ferns; silver Banksian medal.

Mr. H. J. Chapman, orchid grower to R. I. Measures, Esq., Cambridge Lodge, Camberwell, showed a first rate collection of cypripediums, together with a few other interesting orchids, such as Vanda Kimballiana, Sophronitis grandiflora, Oncidium cheirophorum, &c. Among the cypripediums we noted good flowering plants of C. Wottoni, C. Allanianum, C. insigne Sanderæ, C. Leeanum, C. Chamberlainianum, C. insigne Ernesti, C. Io-grande, and C. Niobe among other notable forms; silver Flora medal. Mr. A, Howard, gardener to H. Little, Esq., Baronshalt, Twickenham, sent examples of the more popular cypripediums, together with a three flowered spike of C Stonei, Lælia autumnalis, Vanda cærulea, and Dendrobium formosum giganteum; bronze Banksian medal.

Mr. Holbrook, gardener to E. Ashworth, Esq., Wilmslow, staged a fine specimen of Cypripedium insigne, Harefield Hall var., carrying bold blooms that are well marked, and of immense size. Mr. G. Cragg, gardener to W. C. Walker, Esq., Winchmore Hill, sent a remarkably well-flowered Dendrobium aureum, sweetly fragrant. A collection of cypripedium blooms came from Captain Holford, Westonbirt, Gloucester. Unfortunately the flowers were badly staged, being crowded eight or nine blooms together in the earthen vases. To send such fine blooms and then not stage them tastefully seems to us to be an unfortunate mistake. A silver Banksian medal was awarded. Sir W. Marriott, Blandford, sent a fine flower of Cattleya Mendeli crossed C. gigas.

The Chelsea firm showed several fine hybrid orchids, notably Lælio-cattleya Frederick Boyle, a hybrid in which Lælia anceps and Cattleya Trianæ are very evident; Lælia Omen, a eross between L. autumnalis and L. purpurata, very distinct; L. Digbyana-purpurata, a cross between the species noted, but one in which L. Digbyana is not very evident, save in the growth; Lælio Cattleya Andreana var. Agnes, the result of crossing L. elegans and C. bicolor. Mr. H. A. Burberry showed a very pretty and dark-lipped Lælia anceps, named Burberryanum; it is a handsome large-flowered variety.

FRUIT AND VEGETABLE COMMITTEE.

Mr. C. Ross, Welfork Park, showed an apple named Paroquet, and Mr. A. Dean sent a dish of brightly-coloured fruits of Hoary Morning. Mr. W. Shingler, Melton Constable, sent a seedling grape, the result of a cross between Lady Hastings and Gros Colmar.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE last meeting of this year has been held, and there was a good attendance, some score of new members being proposed. The president, Mr. Todd, showed a handsome vase, some eighteen inches high, with a base of smilax, furnished with fine chrysanthemums, produced, as he explained, with few of the luxuries of superior culture, just having such rough and ready treatment as any amateur grower could afford. We noticed the following blooms set off with a grass, something between a big Briza major, and called Elephant Grass: Viviand Morel, W. H. Lincoln, Yellow La Triomphante, Souvenir de Petite Aimée Mr. Jones sent a box of friends and foes of the chrysanthemum, which most growers seemed shy to open, for fear any of them should make good their escape, and Mr. Cooke showed a nice plant of Lilias with six blooms in a six-inch pot, stating that it was inserted as a cutting at the end of last March, and that many sorts could be grown successfully in six-inch pots.

The secretary, Mr. Robert Laird, then proceeded to read a paper by Mr. A. Wright, Falkland Park, South Norwood, Surrey, on the arrangement of hardy plants in the garden. The author of the paper, to the apparent surprise of the society, dealt with the question under the three heads of trees, shrubs, and hardy herbaceous and alpine plants. In each class he recommended grouping as the best means of brightening the effect. Plants of the same genera mostly go well together. The grouping of trees was often passed over because of its difficulties, and also owing to the fact that the planter seldom lived to see the full effects or results of his work. This was doubtless the reason why so little was done to develop to the full the landscape effects of trees. Deciduous trees should not be too near the house, because of the litter of their falling leaves, a gardener's, and not an artist's, reason. Foregrounds of evergreens, including conifers as recommended by Mr. Wright, are by no means always best. Thorns, laburnums, apples, cherries, crabs, chestnuts, green and purple beeches, birches, silver poplars, golden or other variegated planes, and many other trees often give far greater light and variety to our lawns and gardens. Mr. Wright hastened on to shrubs as more manageable and sooner grown into artistic groups. The great danger here, as among herbaceous plants, was formality of beds and borders. The less of this the better. Such shrubs as rhododendrons, azaleas, berberis seemed made for grouping, and, indeed, the same might be said of most of our other choice shrubs—deciduous and evergreens. Finally, as to our herbaceous and alpine plants, we had a group worthy of all the attention that could be brought to bear upon it. Year by year they were taking a more prominent place among their best hardy neighbours. Few who knew their great wealth of beauty but would admit that this was a change in the right direction. The place for herbaceous plants, &c., was in front of the shrubbery, a place hardly endorsed by several speakers, who contended that the herbaceous plants and alpines would certainly object to the roots of the trees and shrubs underground, and their shade trees and shrubs overhead.

After an animated discussion—in which the following took part, Messrs. Long, James Grieve, Comfort, Frazer, Fish, Johnstone, Mackenzie, and the President—the latter proposed a vote of thanks to Mr. Wright for his paper, which was heartily passed, for though it had elicited considerable variety of opinion all agreed that the paper had provided useful pegs for discussion. One of the most interesting facts elicited by this discussion was stated by Mr. Mackenzie, to the effect that there was nothing new in the grouping of plants for effect. All our chief gardens are planted on the grouping system, and the great Loudon, when in his prime, submitted a plan to the Town Council of Edinburgh to cover Arthur's Seat with groups of trees and flowering shrubs, such as rhododendrons, &c. The treasurer presented an epitome of the takings at the last chrysanthemum show, which showed a balance of £209 over expenditure.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.

AT a meeting held the other day of those directors of the above society who were associated with Mr. Duncan M. Smith during his vice-chairmanship of the society a resolution was proposed, and unanimously adopted, that it would be a fitting and courteous thing to recognise in some way Mr. Smith's long and untiring services to the society—services so onerous and valuable as to well deserve some recognition, not only by the directors who were associated with Mr. Smith, but also by the members of the society generally. This resolution was carried out on Wednesday evening, 7th inst., when Mr. Smith was entertained at dinner in the Imperial Hotel, Aberdeen. There was a large and representative gathering, and Mr. William Pyper, of Hillhead, president of the society, occupied the chair. After dinner the loyal toasts were proposed and very heartily responded to.

In proposing the toast of "The Guest of the Evening," the Chairman said they were there that night to do honour to a gentleman whom they had known for the last twenty years, and who had been connected with the Royal Horticultural Society of Aberdeen beyond that period. The purpose of their meeting that night was to convey their indebtedness to Mr. Smith for the services he had rendered to the society. Their guest had had a great deal to do with the building up of the society and getting it into the position it was at the present time. They were sorry to lose such an official as Mr. Smith. Although Mr. Smith was not now an official of the society, he was still a member, and as a member they would find him doing noble and honourable work as in the past.

The toast was most enthusiastically responded to, and Mr. Smith in reply said he was deeply sensible of the great honour they had done him that night, but he could not bring himself to think that the services he had performed to the society were worthy of so great a reward. He was proud indeed that he had won the respect and esteem of many of the gentlemen he saw that evening. Mr. Smith then gave many pleasant reminiscences of his connection with the society, and in conclusion bespoke the hearty support and encouragement of all classes of the community on behalf of the society, and declared that, although he was retiring from active duty, he should ever retain a warm corner in his heart for the Royal Horticultural Society of Aberdeen.

Mr. J. S. Bulchart, advocate, proposed "The Society," and the Chairman in reply said it had been in existence for seventy-four years. Its membership was about five hundred, the reserve fund amounted to £200, and they had H.R.H. the Prince of Wales as their patron.

NEW PLANTS AND FLOWERS.

Cypripedium insigne, Harefield Hall var.

This is one of the very largest forms of C. insigne yet brought under our notice. The plant is robust, and carried six blooms, each measuring four and a-half inches from the tip of the dorsal sepal to the apex of the lip, and four and three-quarter inches across the petals. The dorsal sepal is almost three inches broad, and has a very broad white apex, the white area extending some way down the sides; the basal area is very pale, transparent, and yellowish-green, over which is strewn a large number of big purple spots, a few of these extending upward into the white apex. The petals are wholly pale-green, with a few darker veins; lips large and full, pale-green, with dark-green veins; ventral sepal, very pale-green, with a few purple dots; peduncle rich and blackish-purple. F.C.C., R.H.S., December 13. Mr. E. Ashworth, Harefield Hall, Wilmslow.

Lælia Digbyano-purpurata.

A handsome orchid, whose parents are L. Digbyana and L. purpurata. The flowers are very large, and resemble a fine form of L. purpurata. The sepals are narrow, faintly blush-tinged on a white ground. Petals broad, white, with rosy-purple streaks at the margins. Lip very broad at the apex, rich purple, margined with paler purple. Throat yellow, tube cream coloured. There is not much evidence of L. Digbyana in the flower, but this species has dwarfed the habit of the plant and modified the growths and foliage. A.M., R.H.S., December 13. Messrs. J. Veitch and Sons, Chelsea.

Calanthe revertens.

A handsome calanthe, producing its flowers rather closely together on the spikes. The colour is intense rosy-red, almost approaching a scarlet shade, and very effective. The usefulness of this gay orchid can scarcely be exaggerated. A.M., R.H.S., December 13. Mr. White, orchid grower to Sir Trevor Lawrence, Bart., Dorking.

Asparagus Sprengeri compacta.

This is a most distinct form of a now well-known species, producing shorter growths, on which the leaves (phyllodes) are larger than in the type, and placed closely together. It is a graceful basket plant, and one of great beauty and usefulness. F.C.C., R.H.S., December 13. Mr. H. B. May, Edmonton.

The Rochford Tubular Boilers, as supplied by Messrs. C. P. Kinnell and Co., Southwark Street, S.E., are becoming increasingly popular owing to their simplicity, the ease with which they are managed, and their quick-heating power. Messrs. Keynes, Williams, and Co. have recently erected a considerable number of new glass houses at their East Farnham nursery, and these are being satisfactorily heated by double sets of Rochford tubular boilers, so fixed that each boiler can be readily disconnected for cleaning and repairing, or during warm weather, when but one boiler in each pair is needed to provide the requisite temperature.

Market Gardeners' Rights at Covent Garden.—A short time ago several market gardeners trading at Covent Garden sued the Duke of Bedford, as owner of Covent Garden, on behalf of themselves and all other growers of fruit, flowers, and vegetables, for a declaration that he was not entitled to exclude them from certain preferential rights as to stands conferred by the Act for the Regulation of Covent Garden Market (9. Geo. IV., cap. cxiii.), and they also claimed consequential relief. The defendant applied to set aside the proceedings on the grounds that the plaintiffs, as having separate and distinct causes of action, could not join, and also could not, as private individuals, sue on behalf of a class of the public, *i.e.*, growers of fruit, flowers, vegetables, &c., in respect of public or other statutory rights. Judgment was deferred until the 7th inst., when Mr. Justice Romer said that the first point was to consider whether the plaintiffs were entitled to sue on behalf of themselves and all other growers of fruit, flowers, vegetables, roots, or herbs within the meaning of the Act (9 Geo. IV., cap. cxiii.). Now, as pointed out in "Temperton v. Russell" (*L.R.*, 1893, 1 Q.B., 435), Order XVI, rule 9, which provides for persons suing or being sued as representing a class, only extends to cases where the class have or claim some beneficial proprietary right which is being asserted or defended. He had, therefore, to consider whether the growers in question as a class have a beneficial proprietary right under the above Act which is being asserted in this action. On consideration of the provisions of that Act in favour of the growers with regard to Covent Garden Market, he was unable to come to the conclusion that the growers as a class have any proprietary rights in respect of the market. All members of the public have a right to go to and use the market, and it appeared to him that, by the Act, all that in substance is provided is that those members of the public coming to use the market who are growers shall have preference over the rest of the public in taking and having let to them certain parts of the market. Of course, if any individual grower had let to him under the Act a part of the market he would, during the letting and in respect of the part let, have a proprietary right. But he could not see that growers as a class can be said to have a proprietary right in respect of the market merely because if any member of the class chooses to go to and use the market he can claim to be preferred over an outside member of the public in taking or having let to him a portion of certain specified parts of the market. He considered that such right as the growers as a class have under the Act is in the nature of a public right, which must be enforced when necessary by the Attorney-General. Of course any member of the class who has been injured by the provisions of the Act being disregarded will have his remedy in respect of his own individual injury. But where the complaint is that the rights of the growers as a class have been disregarded and relief is sought on behalf of the class by way of declaration of right or injunction then he thought, the Attorney-General is the proper person to sue.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the Gardeners' Magazine, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the Gardeners' Magazine, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the Gardeners' Magazine. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Crinodendron Hookerianum.—B. C., Ryde: The correct name of this Chilian shrub is Tricuspidaria hexapetala. You might apply to Mr. William Bull, 536, King's Road, Chelsea.

Rustic Adornments.—S. L., Forest Hill: We believe "Rustic Adornments for Homes of Taste" will suit you exactly, for besides treating upon summer houses, garden seats, rockeries, ferneries, and window boxes it deals with floral decorations, balcony gardening, and garden aquaria, also giving advice concerning pleasure and flower gardening and the management of an amateur's green house and conservatory. The work is published by Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, E.C., price 6s.

Half-inch Bones for Roses.—E. L. M., Surrey: We recommend quarter-inch bones for mixing with the soil in the preparation of rose beds, rather than those of larger size. As the ground has already been well prepared by digging and trenching, it will perhaps be the best plan to apply the bones when planting the roses, giving a good handful to each station. These prepared bones can be readily obtained through any of the horticultural sundriesmen who advertise in our columns or through most nurserymen. Plant the roses as quickly as possible; if they seem very dry on receipt, put them in a tank of water for an hour or two before planting. Be careful not to make the soil pasty by too much treading upon it during the present wet weather, and though it may not be too wet for planting, you will save much trouble later by using a few planks to walk or wheel upon.

Woodlice, or "Slaters."—M. B., Glasgow: We believe the pests you allude to as "slaters" are what are known throughout the southern counties as woodlice (*Oniscus asellus*). If allowed to remain and multiply in your rock fernery under glass they will do an immense amount of damage next spring when growth commences. There are various means by which woodlice can be exterminated, or, at least, so reduced as to be almost harmless, but persistent efforts are needed in every case, coupled with patience. Select a few dry and dirty flower-pots, the dirtier the better, and into these place some dry, but also dirty, moss; then place these traps where the woodlice congregate. Early in the morning, or late at night, provide yourself with a pan of boiling water or strong brine, and into this quickly shoot the contents of the pots, taking care no woodlice are left behind. The moss may be subsequently dried and used again and again. Shift the traps occasionally, and after a fortnight's trapping there should be few woodlice left. Raw potatos, halved and scooped hollow, also serve as traps, and are very useful in the case of plants in pots. Dusk and dawn are the best times to examine the traps.

Autumn and Winter Berries.—T. M., Winchester: The following list, if not a complete one, is probably quite as extensive as you could wish, and it will serve to show what a wealth of berried subjects is available during autumn and winter. Not all those mentioned are still in condition, but a considerable number could be obtained in southern gardens and utilised for Christmas and other decorations: Cratægus prunifolia, C. orientalis, C. o. sanguinea, C. punctata splendens, C. cordata, C. coccinea, C. oxycantha, C. melanocarpa, C. pyracantha, C. Leelandi, C. glandulosa, C. tomentosa, Hippophœa rhamnoides, Gleditchia triacanthos, Pernettya mucronata, P. m. speciosa, P. m. angustifolia, Arbutus procera, A. Unedo, Cotoneaster affinis, C. frigida, C. horizontalis, C. microphylla, C. Simonsi, C. bacillaris, C. buxifolia, Berberis asiatica, B. vulgaris, Rosa rubiginosa, R. simplex, R. canina, R. rugosa, in variety; Magnolia purpurea, Viburnum rugosum, V. opulus, Skimmia japonica, S. j. fragrans, Pyrus floribunda, P. malus nigra, P. Bertini, P. salvifolia, P. Ringo, P. terminalis, Hypericum androssemum, H. pyramidatum, Rhamnus cathartica, Euonymus europæus, E. e. fructo-alba, Trochodendron aralioides, Cornus sanguinea atro-sanguinea, Symphonicarpus racemosus, Ilex Perado, I. aquifolium vars., Styrax obbassa, S. japonica, Rhamnus fragula, R. f. variegata, Hedera arborea chrysophylla, Laurus nobilis, Alnus pendula Van der Bom, A. cordifolia, Cerasus Lauro-cerasus, Leycesteria formosa, Quercus Ilex, and Xanthocerus sorbifolia. The common privet also provides fine clusters of black berries that are finely decorative and the honeysuckle yields red ones. Apart from hardy trees and shrubs there are Physalis Alkekengi, P. Franchetti; the open pods of the wild iris, with scarlet berries; and then also such tender subjects as the capsicums, Solanum capsicastrum, Ardisia crenulata, Callicarpa purpurea, and Rivina humilis. The late and long-continued summer of the present year ripened up the fruits of hardy passifloras freely in the southern counties, and these could be utilised with considerable effect.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

C. H., Roehampton: 1, Linum trigynum; 2, Poinsettia pulcherrima; 3, Euphorbia jacquinæflora.

L. T. G., Sheffield: 1, Maxillaria picta; 2, Didymochlæna lunulata; 3, Gymnogramma Mayi; 4, Nephrolepis Bausei; 5, Symphoricarpus racemosus.

W. R., Leicester: 1, Erica hyemalis; 2, Araucaria excelsa; 3, Nephrodium molle corymbiferum; 4, Pteris longifolia; 5, an ordinary form of Cypripedium insigne; 6, Cœlogyne (Pleione) lagenaria.

H. E., Nottingham: 1, Polystichum angulare proliferum; 2, a selaginella, but too shrivelled to be recognised; 3, Selaginella Wildenovi; 4, Hippeastrum reticulatum; 5, send when in flower; 6, Bambusa Fortunei variegata.

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

B. W. E., Ipswich: 1, Mère de Ménage; 2, King of the Pippins; 3, Baumann's Red Winter Reinette; 4, Minchull Crab.

R. F., Windsor: Nottingham Medlar.

P. P., Berkhamsted: 1, Alfriston; 2, Ribston Pippin; 3, Dumelow's Seedling.

A. D. J., Bideford: 1, Blenheim Pippin; 2, Dr. Harvey; 3, Cellini.

S. R. M., Gloucester: 1, Glout Morceau; 2, Easter Beurre; 3, Vicar of Winkfield; 4, Catillac.

O. G., Warwick: 1, Egremont Russet; 2, Fearns Pippin.

CATALOGUES RECEIVED.

E. WISEMAN, ELGIN, N.B.—Forest trees, &c.
SUTTON AND SONS, READING.—Amateur's Guide for 1899.
J. CARTER AND CO., HOLBORN.—Seed List.

THE WEATHER DURING THE WEEK ENDING DECEMBER 10, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	57·8	38·0	49·4	9·67	1·34	3·40
Croydon	57·0	35·0	48·0	8·89	1·67	4·24
Brighton	56·6	40·2	50·6	10·33	0·68	1·73
Bristol	57·0	39·5	49·2	9·56	1·70	4·32
Wolverhampton	57·0	35·6	48·0	8·89	0·53	1·35
Norwich	56·0	33·6	48·2	9·00	0·91	2·31
Nottingham	57·8	38·2	48·4	9·11	0·59	1·50
Liverpool	58·9	40·6	50·3	10·17	0·36	0·91
Huddersfield	59·0	35·2	47·1	8·39	1·24	3·15
Bradford	59·2	37·8	49·0	9·44	0·48	1·22
Hull	58·0	37·0	47·2	8·44	0·53	1·35

The mean reading of the Barometer during the week at Greenwich was 29·82 inches, and that of the Thermometer 49°·4, the latter being 8°·6 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 46 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 6·7 hours. The measured rainfall amounted to 1·34 of an inch.

MARKETS.

Covent Garden.

THERE is now a steadily increasing demand for all kinds of produce. Supplies of fruits and vegetables are fairly large, though there is not an abundance of high-class green stuffs. Oranges, grapes, apples, and nuts sell readily. The potato trade is fairly good, and the cut flower trade brisk.

FRUIT.—English apples, 3s. to 9s. per bushel; Nova Scotian and Canadian, 10s. to 22s. per barrel; Californian, 7s. to 9s. per case; French pears, 3s. to 5s. per case; Californian, 4s. to 7s. per half-case; English grapes, 10d. to 1s. 9d.; Channel Islands, 6d. to 1s. per lb.; Almeria, 10s. to 18s. per barrel; Jaffa oranges, 7s. to 10s. per box; Valencia, 8s. to 16s.; Murcia, 6s. to 6s. 6d. per case; pineapples, 1s. 6d. to 4s. 6d. each; bananas, 4s. to 9s. per bunch; lemons, 8s. to 16s. per case; English tomatos, 6s. per 12 lb.; Bordeaux, 1s. 6d. to 2s. per box.

FLOWERS.—Arums, 8s. to 12s.; carnations, 2s. to 6s.; chrysanthemums, white and yellow, 1s. to 4s.; eucharis, 3s. to 6s.; gardenias, 1s. 6d. to 3s.; Lilium Harrisi, 8s. to 12s.; tea roses, 1s. to 2s.; pink roses, 3s. to 6s.; cattleyas, 6s. to 12s.; Odontoglossum crispum, 2s. to 6s.; and tuberoses, 4d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 3s. to 6s.; mignonette, 2s. to 4s.; pelargoniums (scarlet), 6s. to 12s. per dozen bunches; lily of the valley, 1s. to 2s. 6d.: Roman hyacinths, 1s. to 1s. 6d.; pelargoniums, 6d. to 1s. per dozen sprays; and bouvardias, 4d. to 8d. per bunch.

VEGETABLES.—English onions, 5s. to 5s. 6d. per cwt.; Valencia, 6s. per case; Dutch, 3s. 3d. to 3s. 9d. per bag; eschallots, 8s. to 10s. per cwt.; cucumbers, 2s. 6d. to 4s. 6d.; endive, 1s. 3d. to 1s. 9d.; lettuce, 9d. to 1s.; cos, 2s. to 2s. 6d. per dozen; cabbages, 3s. 6d. to 6s.; cauliflowers, 6s. to 9s. per tally; celery, 6s. to 12s. per dozen rolls; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; spinach, 2s. to 2s. 6d. per bushel; seakale, 9d. to 1s. per punnet; mushrooms, 8s.; garlic, 3s. per 12 lb.

Borough Potato Market.

There is a moderate trade at recent rates, the late and large supplies having kept prices down. Scottish Abundance, Bruce, and Main Crop, 65s. to 70s.; Beauty of Hebron, Snowdrop, and Up to Date, 70s. to 75s.; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giant, and Imperator, 60s. to 65s.; Blacklands, 60s. per ton; Germans, 2s. 9d. per bag.

ENGAGEMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, DECEMBER 19.—National Chrysanthemum Society: General Committee Meeting.

AUCTIONS.

MONDAY, TUESDAY, WEDNESDAY, DECEMBER 19, 20, AND 21.—Dutch Bulbs, Hyacinths, Lilies, Brazilian Orchids, Cattleyas, Cypripediums, Lilium Auratum, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

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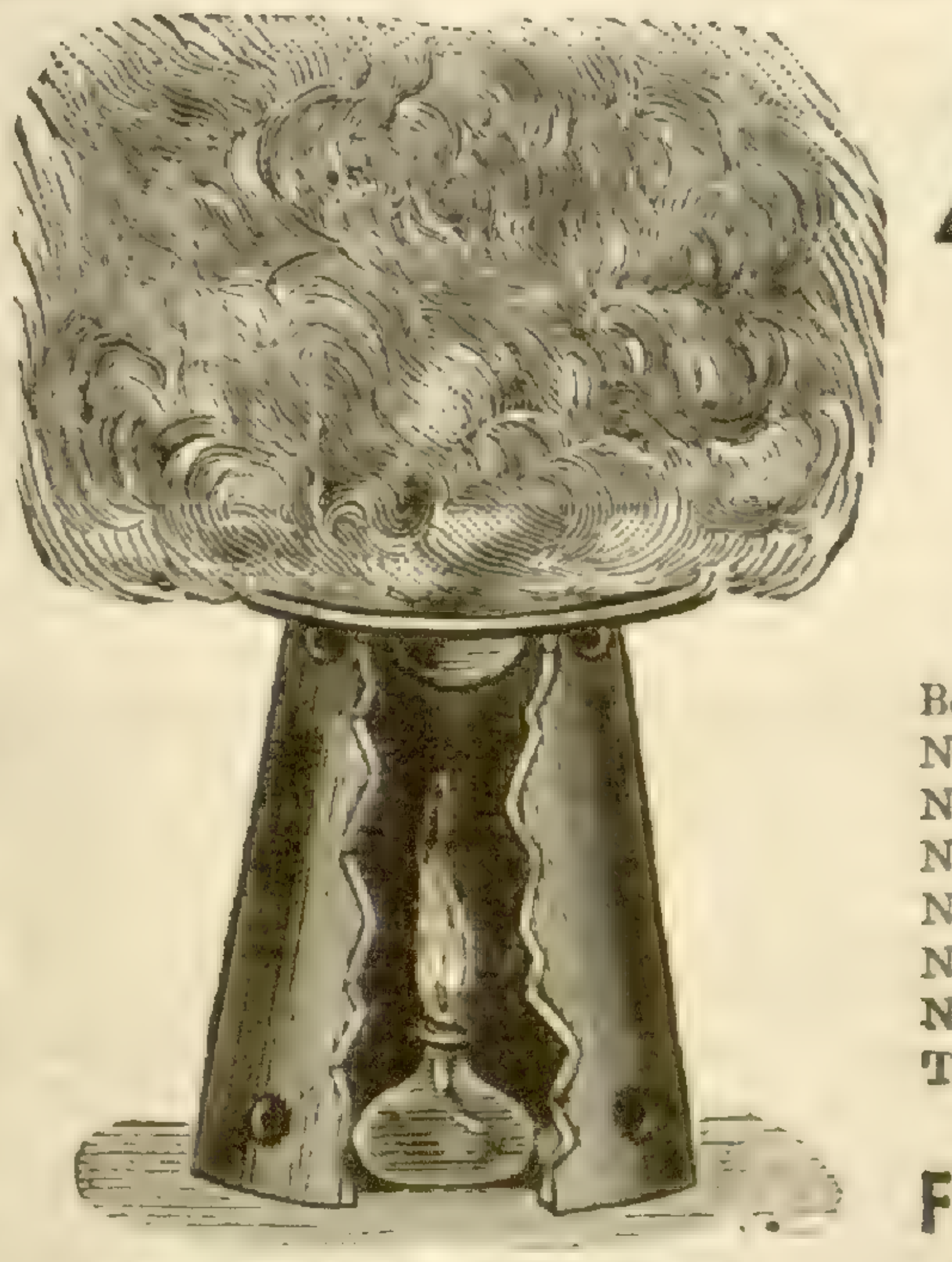

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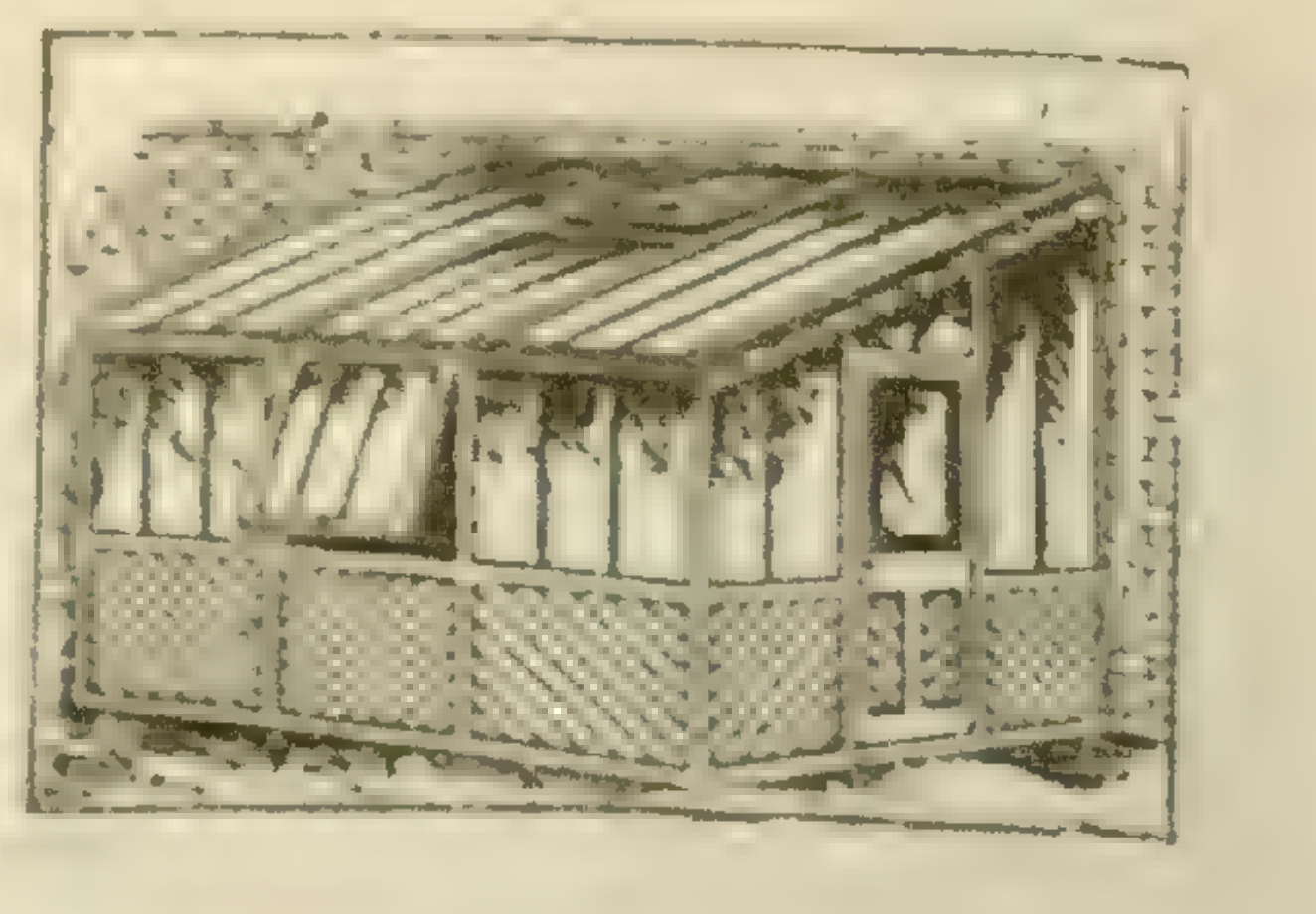

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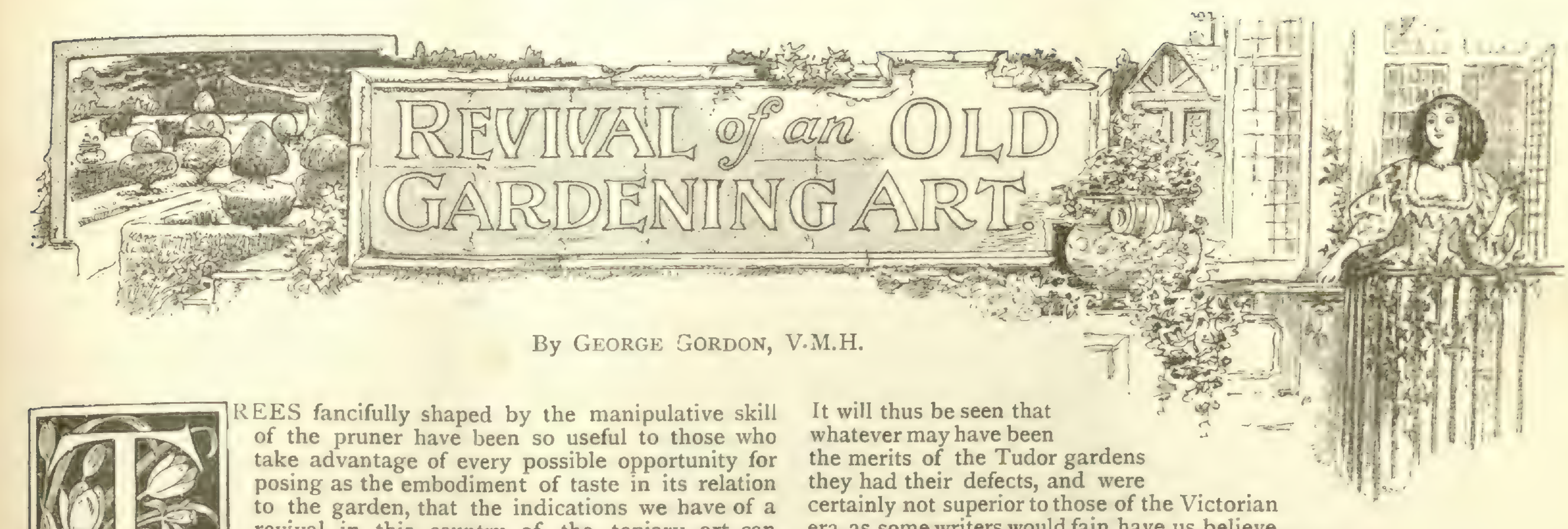
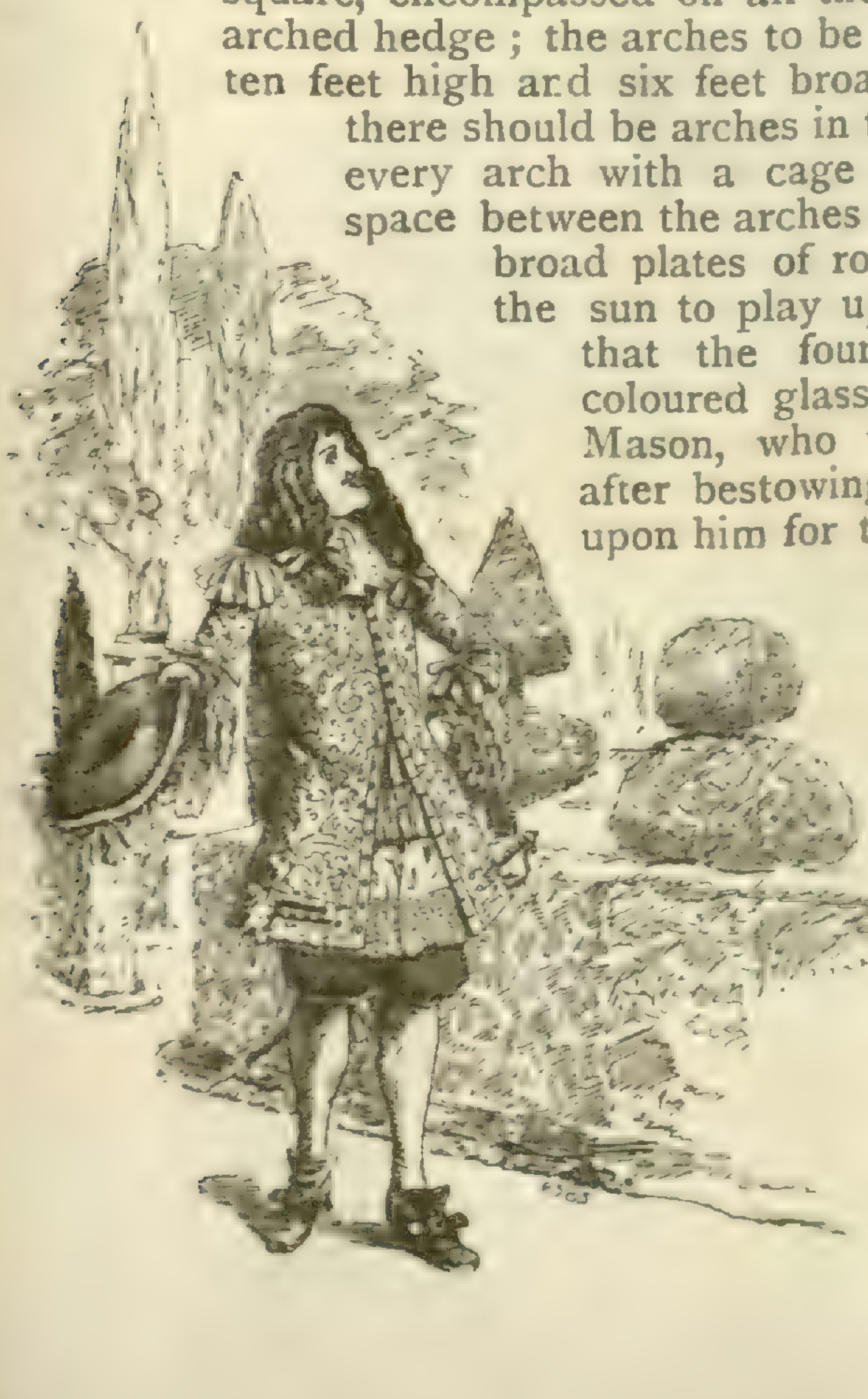


REVIVAL of an OLD GARDENING ART.

By GEORGE GORDON, V.M.H.

TREES fancifully shaped by the manipulative skill of the pruner have been so useful to those who take advantage of every possible opportunity for posing as the embodiment of taste in its relation to the garden, that the indications we have of a revival in this country of the topiary art can hardly fail to afford gratification to some members of the community. To wax indignant about them, to rail against the mutilation of trees, and to give a show of wisdom to people who are exceptionally shallow, are so easy that it is not difficult to understand why signs of some change in this direction should be welcome to the self-constituted arbiters of taste. The justification for a discussion of the relative merits of old-fashioned and modern gardens no longer exists; and with the abolition of the worst features of the bedding system, and the popularity of hardy plants, two perennial sources of criticism have been dried up. There are, of course, some who still believe that gardens of the present day cannot be compared with those of past generations, and of this I have evidence in an essay on the gardens of the Tudor period, which appeared in one of the popular monthlies a short time since. In this essay comparisons are instituted between the Tudor and Victorian gardens, and inferences drawn by no means favourable to the latter. The writer indeed asserts that "when in perfection" the Tudor gardens "were equally stately and beautiful, and in their natural variety far superior to the commonplace blaze of colour in geometrical shapes which make up the modern garden, wherein all individuality seems sacrificed to conventionalism." Following a quotation from the opening paragraphs of Bacon's famous essay on gardens, we are assured that "This is a progressive idea to which all our modern fashionable ones, as enunciated by head gardeners, is opposed." Then we read of "trees of odorous blossom," of "waving boughs and multitudinous fragrance," and of "ample areas of well-mowed evergreen grass, which should delight the eye," as compared with "the modern garden, and the limited ideas which define it, and the scrimpy 'lawn,' with its limited space cut up into octagonal and other beds of verbenas and calceolarias." In writing in this way, it is not difficult to convey to those who do not trouble to think for themselves an idea of superiority in matters of taste and an acquaintance with the styles of gardening that obtained during the two periods. But what are the facts? Instead of the flower garden possessing ample lawns with few flower beds and spacious borders, and so placed as to afford, in country districts, extensive views over park and meadow, it was enclosed between "green," or other walls, and cut up into innumerable beds known as knots, some of which were occupied by flowering plants, while others had spread over the surface some coloured material. "As for the making of knots or figures that they may lie under the windows of the house on that side which the garden stands, they be," says Bacon, in his essay, "but toys; you may see as good sights many times in tarts." Having thus stated his views with regard to the knots, this distinguished writer observes: "The garden is best to be square, encompassed on all the four sides with a stately arched hedge; the arches to be of carpenter's work, of some ten feet high and six feet broad." He also suggests that there should be arches in the hedge with a turret over every arch with a cage for birds, and "over every space between the arches some other little figure with broad plates of round coloured glass, gilt, for the sun to play upon." He further advises that the fountain be "embellished with coloured glass and such things of lustre." Mason, who was an admirer of Bacon, after bestowing a liberal measure of praise upon him for the efforts he had made with a view to the improvement of the garden of his days, writes in the first book of his "English Garden":—



"The age of tourneys, triumphs, and quaint masques,
Glar'd with fantastic pageantry, which dimm'd
The sober eye of truth, and dazzled ev'n
The sage himself; witness the high arch'd hedge,
In pillar'd state by carpentry upborne
With coloured mirrors deck'd and prison'd birds."

It will thus be seen that whatever may have been the merits of the Tudor gardens they had their defects, and were certainly not superior to those of the Victorian era, as some writers would fain have us believe.

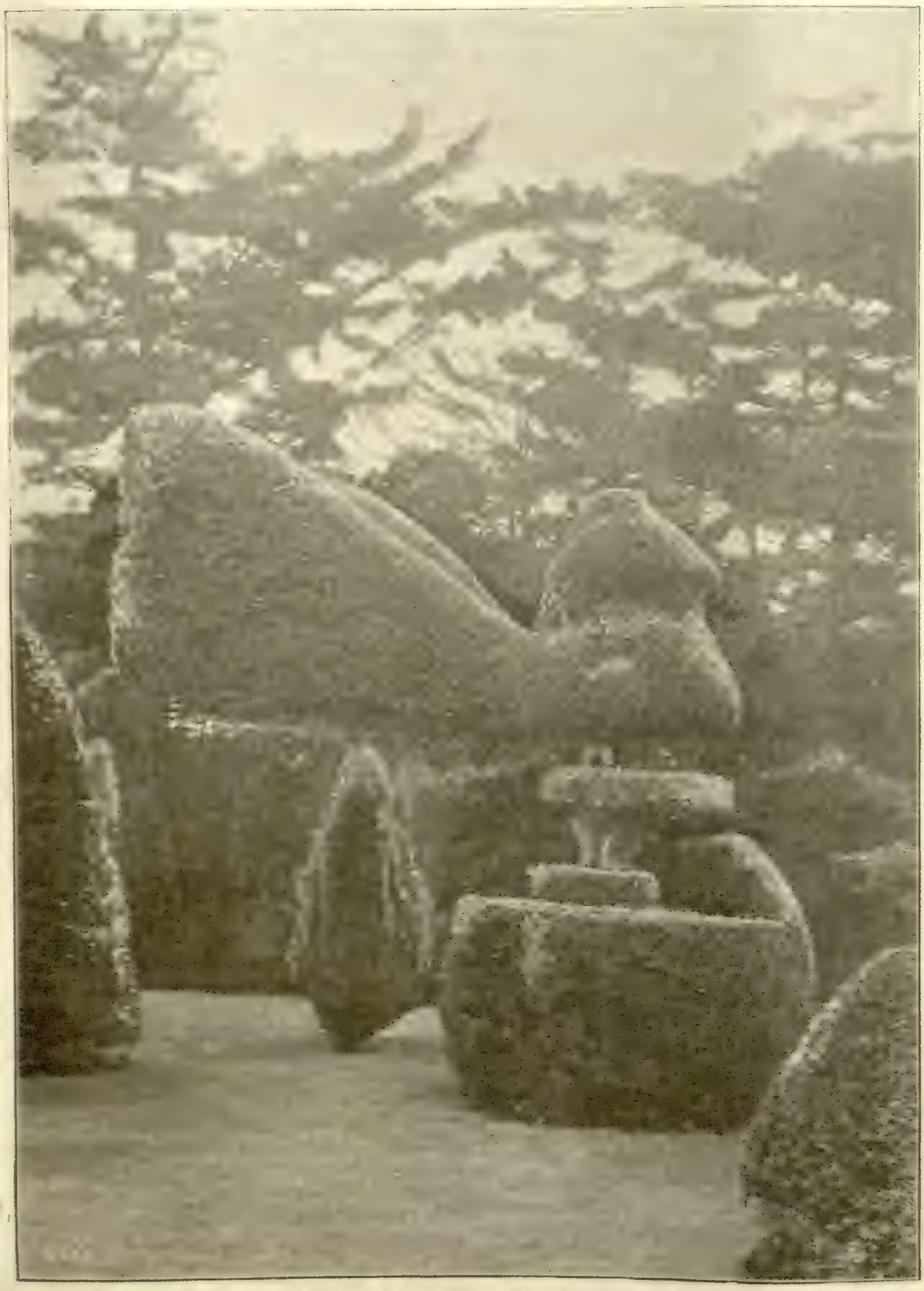
Unquestionably in the gardens of the Elizabethan era

"There likewise mote be seen on every side
The shapely yew, of all its branching pride
Ungently shorn, and, with preposterous skill,
To various beasts and birds of sundry quill
Transformed, and human shapes of monstrous size.
Also other wonders of the sportive shears,
Fair nature misadorning, there were found:
Globes, spiral columns, pyramids and piers,
With spouting urns and budding statues crowned;
And horizontal dials on the ground
In living box, by cunning artists traced;
And galleys trim, or on long voyage bound,
But by their roots there ever anchored fast."

The shaping of trees with shears and knife is frequently spoken of as mutilation, but with greater propriety it is called topiary work, from the Latin *topiarius*, shaped by cutting, the word being used in this sense by Pliny, Vitruvaris, Cicero, and other of the classical authors. In giving what must necessarily be a brief sketch of the history of the art, it is not my intention to strongly advocate the practice of shaping trees according to the taste of the pruner, with a view to accelerating the revival of which we have indications. On the other hand, I do not purpose condemning it as extravagant and absurd. It is undoubtedly true that the natural form of a tree is the most beautiful form possible for that particular tree; but it sometimes happens that we do not want the most beautiful form, but one of our own designing, for the sake of the variety it affords. So far as authority bears on the subject, it is distinctly in favour of topiary, for the Romans recognised the shaping of trees into architectural forms as an essential part of the gardening art. Shakespeare is quoted as an authority on a great diversity of matters, and more particularly in defence of "the natural style of gardening." But there can be no question that the garden of Shakespeare's time was a garden of knots and topiary. It was—as indicated by the quotation from Bacon—enclosed with hedges of clipped hornbeam and yew, and embellished with arbours, obelisks, pyramids, and spires of verdant greenery. The "curious knotted garden" mentioned in the letter of Arnado, in the first scene of "Love's Labours Lost," was, beyond all doubt, furnished with examples of the topiary art.

Shakespeare was familiar with such gardens as the one above described, and approved of the prevailing taste of his time. Bacon had no liking for clipped trees, and with reference to them he says in his essay, "I for my part do not like images cut in juniper or other garden stuff; they be for children." Many of those at the present day regard things of lustre as toys for children, and in so doing they render it impossible for them with any degree of consistency to set up Bacon as an arbiter of taste. We can go back to a time long anterior to Shakespeare for authority for the shaping of trees into fanciful forms, for the topiary art was practised with much success in Roman gardens in the first century of the Christian era. It attained a high state of development in the gardens of Pliny's Tuscan villa. According to Malthus these famous gardens were of large extent, and from the terrace, with its stately colonnade, the visitor descended to the lawn, on which were numerous figures cut in box trees. Surrounding the lawn was a broad walk enclosed by evergreens cut into a variety of forms, and a long stretch of grass used for chariot exercise, intersected by two rows of box trees representing various domesticated and wild animals. In other parts of the ground were innumerable examples of the art, including animals, obelisks, and letters—some being the initials of the owner, and others of the persons employed in the management of the garden. There can be no doubt that the garden of Pliny's villa, as it existed at the end of the first century, when, under the reign of Trajan, Rome was at the zenith of her glory, set the fashion of European gardening for many centuries. The resemblance of the Dutch and French gardens in the sixteenth and seventeenth centuries to that of Pliny's villa is remarkable. In them were the raised terrace along the principal front of the house, with the gradual slope to the lawn, the small geometrical flower garden cut up into numerous small beds, with a fountain in the centre; and walks flanked by trees, mostly shaped into a diversity of fanciful forms. With reference to the style of gardening adopted by Pliny, Walpole writes: "In an age when architecture in all its grandeur, all its purity, and all its taste; when arose Vespasian's Amphitheatre, the Temple of Peace, Trajan's Forum, Domitian's Bath, and Adrian's Villa, the ruins and vestiges of which still excite our astonishment and curiosity; a Roman Consul, a polished emperor's friend, and a man of elegant literature and taste, delighted in what the mob now scarcely admire in a college garden. All the ingredients of Pliny's garden correspond exactly with those laid out by Loudon and Wise on Dutch principles; so that nothing is wanting but a parterre to make a garden in the reign of Trajan serve for the description of one in the reign of King William."

It was, however, as easy for Walpole to denounce Roman taste in gardening as it is for present-day critics to condemn the prevailing fashions in horticulture; but such criticism may be considered as proceeding from too limited views of the subject. The Roman gardens were regarded as scenes of art, and treated as such; and, therefore, it does not follow that the owners were without a proper appreciation of the charms of natural scenery. As Loudon very properly observes, where all around is Nature, artificial scenes, even of the most formal description, will please, and may be approved by the justest taste, from their novelty, contrast, and other associations. "If," asks Loudon, "all England were a scattered forest, like ancient Italy, and cultivation were to take place only in the open glades, or plains, where would be the beauty of our parks and picturesque grounds?" With the decline of the Roman Empire, which is considered as having commenced with the reign of the Emperors, the taste for a country life underwent a material change, and in the ages that followed the fall of the Republic the interest in gardening and other arts died out in proportion to the removal of the means for enjoying them. The art of culture was preserved by the monks during the dark ages, and in the fourteenth century there was a material change for the better in the condition of Italy, accompanied by a revival of interest in the gentle art of gardening. At an early period of this revival the famous gardens of Lorenzo de Medici and Bernand Rucelli were formed, and these were arranged on the same lines as those of Pliny's villa. Gardens, geometrical in design and furnished with examples of the topiary art, had become general throughout Italy, and Forsyth describes a garden at Genoa, in which an illustration of the chase was given in verdant sculpture. A large amount of evidence of the general practice of shearing trees in Italy might be given, but it must suffice for my present purpose to state that in the second half of the seventeenth century Evelyn visited Italy and described a considerable number of gardens, and in his account of those of the palace of Hieronymo del Negro he sates that "on the terrace, or hilly garden, there is a grove of stately trees, among which are sheep, shepherds, and wild beasts."



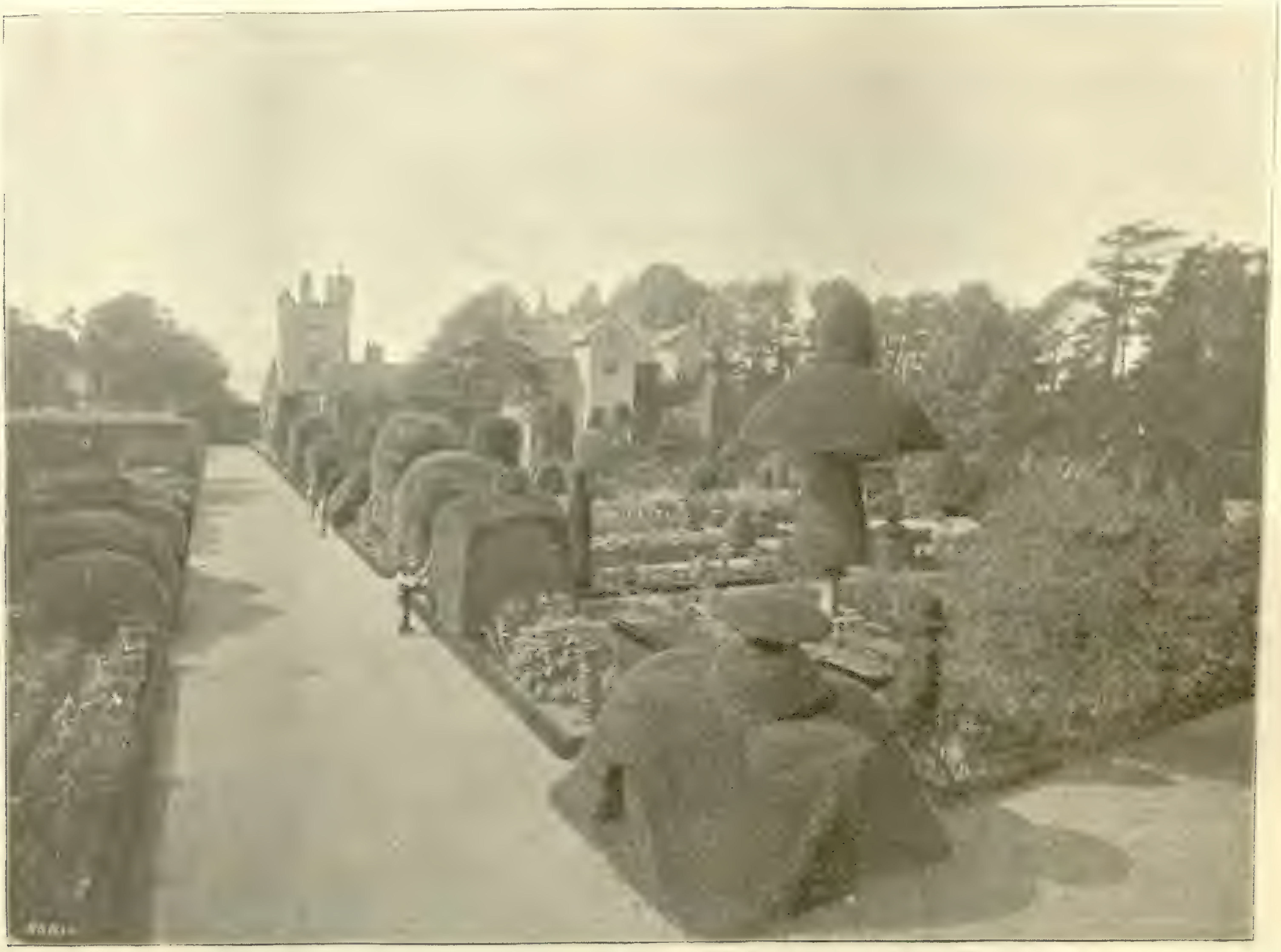
A VERDANT PEACOCK, ELVASTON CASTLE.

The practice of the topiary art had in the meantime extended far beyond the Italian boundaries, and was adopted somewhat extensively in France and Holland. It was not until the sixteenth century that clipped trees came into vogue in this country, and this is not surprising, as it was not until the termination of the Wars of the Roses, towards the end of the fifteenth century, and Henry VII., the first of the Tudor line, had ascended the throne, that gardening in any form obtained attention. With a cessation of internecine wars a new style of architecture was adopted, and the garden was no longer confined within the moat with which houses of importance were in those days surrounded. This extension of area gave greater scope for the exercise of taste in the arrangement of the garden, and also for the cultivation of ornamental plants. The first of the introductions consequent on this change were flower beds enclosed with low railings, which acquired a considerable degree of popularity, and remained in use for a long time. Gardening made considerable progress during the reign of the above-named monarch, and in the year 1522 his successor, Henry VIII., made numerous alterations in the flower gardens at Hampton Court, when railed beds were used; and their popularity for some years afterwards is shown by the fact that eleven years later the sum of £14 was paid for painting 760 yards of railing green and white in "Antyke oiled colours."

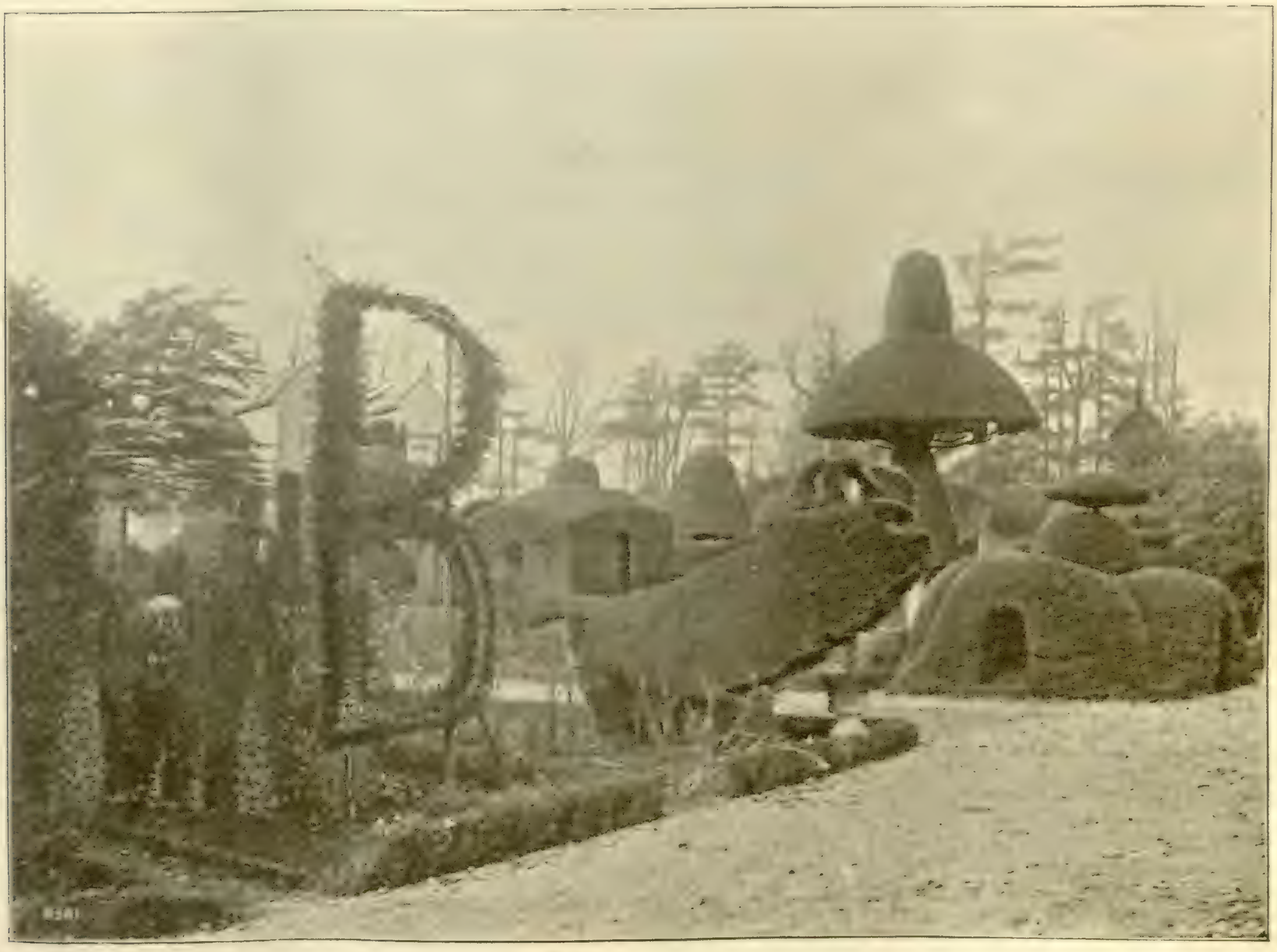
During the first half of the sixteenth century topiary work was introduced into England, and it acquired popularity with such extreme rapidity that examples were soon met with in all gardens of any pretensions, and it obtained so strong a hold upon the community that for at least one and a-half centuries it was the chief feature of the English garden. That topiary work was terribly overdone goes without saying, for it has ever been the practice to carry fashions to the point of absurdity, and the formality and finish characteristic of closely shaven trees afforded so pleasing a contrast to the roughness which had previously prevailed that owners of gardens readily made the mistake of attaching undue importance to clipped trees for the adornment of the pleasance. Leland records in his "Itinerary," published in the first half of the sixteenth century, numerous examples of the art of topiary, and he mentions that at Uskelle village, a short distance from Newton, there was "a goodly orchard with walks opere topiario," and that at Wrisehill Castle there was "an orchard with mounts opere topiario writhen about in degrees like cokilshells to come to the top without paine." Mounts of the description mentioned by Leland were about this time made in a large number of the more important gardens, the walks being flanked with closely clipped hedges or trees.

Topiary received, as a matter of course, considerable attention from writers on horticultural subjects during the seventeenth century, and Lawson remarks in his "Complete Gardener," published in 1618, "Your gardener can form your lesser wood to the shape of men and animals in the field ready to give battle, or swift running greyhounds to chase the deer or hunt the hare. This kind of hunting shall not wast your corn, nor much of your coyne." Lawson could not have had much experience of clipped trees, or he would have known that while a verdant pack with their accompanying horsemen will not beat down the crops of corn, they cannot be kept in first-class condition without a considerable outlay. Gervase Markham gives in his "English Husbandman," published in 1635, numerous figures of knots, mazes, and labyrinths, with reference to which he observes: "Many other adornations and beautifyings there are which belong to the setting of a curious garden, but forasmuch none are more rare or more esteemed than these I have set down as being the best ornaments of the best garden of this kingdom, I think them sufficient for every husbandman or other of better quality which delighteth in the beauty and well-trimming of his grounds." Le Notre, the accomplished and highly popular gardener of Louis XIV., exercised in his day a considerable influence upon landscape gardening in this country, and here, as in France, did much to popularise topiary.

The most noteworthy example in England of the Dutch style of gardening, in which the topiary art attained its highest degree of development, is at Levens Hall, Westmoreland, the residence of Captain Bagot, where no material change has been made in the grounds for at least two centuries, and where, consequently, may be seen the form of garden that found favour with William III., who exercised so great an influence in developing a taste for the Dutch style, in which clipped trees were so prominent. With the flight of James II., in 1688, Colonel Grahame, who was one of the king's most devoted adherents, retired to his Westmoreland estate, and some time subsequently he engaged M. Beaumont, who had made considerable alterations in the Hampton Court Gardens, to lay out the grounds. The two illustrations of these justly famous gardens will afford an excellent idea of the large number of clipped trees they contain. To particularise the trees would require much space, and it must suffice to mention Queen Elizabeth and her

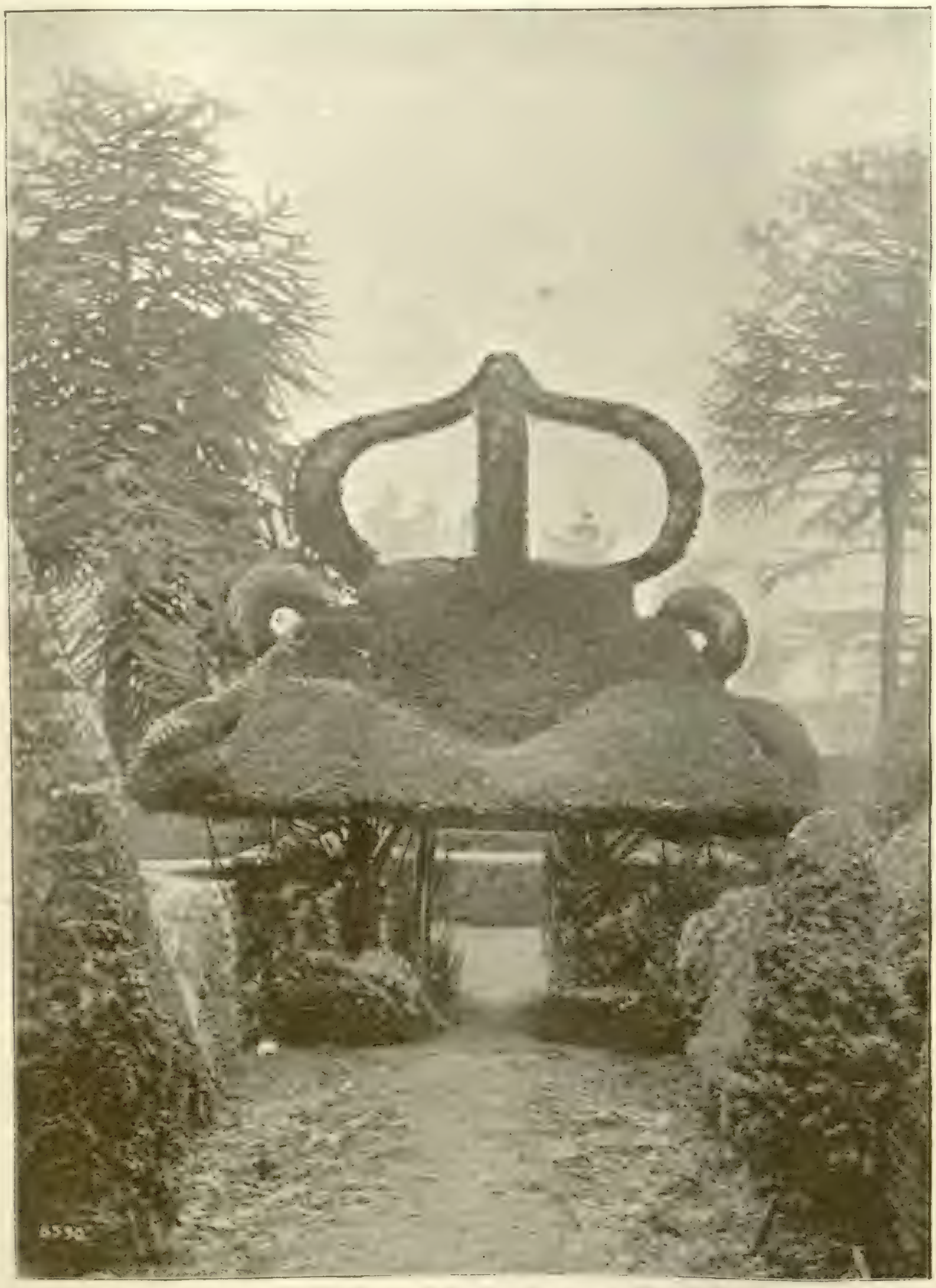


OLD DUTCH GARDEN, LEVENS HALL.



EXAMPLES OF TOPIARY WORK, LEVENS HALL.

maids, and her Crown and Jug, all cut in box ; the Lion, the crest of the Howards, in yew ; the Judge's Wig, formed by several yew trees, and of interest as an illustration of the manner in which the branches interlace, while it is an admirable retreat from the heat of the noonday sun ; and the Peacock, which in its way is specially noteworthy as an example of pruning. The peacock has from the first been a favourite with the verdant sculptors, and they were the last to be banished from gardens in which clipped trees had at one time a prominent position. At Elvaston Castle, Derby, the seat of the Earl of Harrington, the topiary art is admirably represented by trees well-nigh innumerable, and cut into almost endless forms. Here, as at Levens Hall, these quaintly formed trees are immensely attractive to visitors to these famous gardens, and serve to show how important an element is variety in the enjoyment of the garden. At Elvaston birds, animals, arbours, and forms of architecture are represented in great variety, especially interesting being the finely developed peacock and the flock of birds clustering round a coop. Although one could hardly wish to see these fanciful trees multiplied indefinitely, an hour or so spent among them affords much pleasure and interest.



QUEEN ELIZABETH'S CROWN AND JUG, ELVASTON CASTLE.

London and Wise were the two chief exponents of the Dutch style of gardening, and they had a nursery at Brompton Park, which contained, according to Evelyn, a "vast ample collection," that was valued at £40,000. Stimulated by the encouragement given by William III., the topiary art became at the beginning of the eighteenth century so popular that the gardens were crowded with clipped trees, and, as the result of the extravagance in their use, a reaction naturally set in. Addison was the first to take up the pen in condemnation of the artificiality of garden decoration and in advocacy of a more natural style, and his essay "On the Pleasures of the Imagination," published in the *Spectator* (414) in 1712, exercised a material influence in bringing about a much-desired change. Referring to this essay, Mason writes :—

"Addison,
Thou polish'd sage, or shall I call thee bard,
I see thee come : around thy temples play
The lambent flames of humour bright'ning mild
Thy judgment into smiles ; gracious thou com'st
With Satire at thy side, who checks her frown,
But not her secret sting."

In the course of his essay Addison contended that British gardeners of his day, instead of humouring Nature, endeavoured to deviate from it as much as possible. The trees arose in cones, globes, and pyramids, and the marks of the shears were seen upon every tree and shrub. And he states that although he did not know whether he was singular in his opinion, he would much rather see a tree with free spreading branches than when cut into a mathematical figure, and he declares that "an orchard in flower looks infinitely more delightful than all the labyrinths of the most finished parterre.' Addison was not singular in his opinion, for, to again quote from Mason's poem of the "English Garden"—

"With bolder rage
Pope next advances ; his indignant arm
Waves the poetic brand o'er Timon's shades,
And lights them to destruction ; the fierce blaze
Sweeps through each kindred vista, groves to groves
Nod their fraternal farewell and expire."

To state the case in more exact terms Pope contributed to the *Guardian* in 1713 an article in which he vigorously condemned the excessive formality which characterised the gardens of the period and the use of clipped trees. "A citizen," he wrote, "is no sooner proprietor of a couple of yews but he entertains thoughts of converting them into giants like those of Guildhall." For the purpose of pouring ridicule upon the practice he gives what purports to be a selection from a catalogue of sheared trees that he had received from "an eminent town gardener," who had "arrived to such perfection that he cuts family pieces of men, women, and children in trees." The items given include "Adam and Eve in yew, Adam a little shattered by the fall of the Tree of Knowledge in the great storm" ; "Eve and the Serpent, very flourishing" ; "St. George in box, his arm scarce long enough, but will be in a condition to stick the dragon by next April" ; "Dragon of the same, with a tail of ground ivy for the present" ; "Divers eminent modern poets in bays, somewhat blighted, to be disposed of—a pennyworth" ; and a "Quickset Hog, shot up into a porcupine by its being forgotten a week in rainy weather." This aspect of gardening is also dealt with by Pope in the fourth epistle of his "Moral Essays," but it is not now possible to do more than quote the following lines :—

"His garden next your admiration call,
On every side you look, behold a wall !
No pleasing intricacies intervene,
No artful wildness to perplex the scene.
Grove nods at grove, each alley has a brother,
And half the platform reflects the other.
The suff'ring eye inverted Nature sees,
Trees cut to statues, statues thick as trees,
With here a fountain never to be played,
And there a summer house that knows no shade.
Here Amphitrite sails through myrtle bowers,
There gladiators fight or die in flowers.
Unwatered see the drooping seahorse mourne,
And swallows roost in Nilus' dusty urn."

Immediately Addison and Pope had made their pronouncements in favour of the natural style, Kent came to the front, and, as the practical exponent of the views enunciated by philosopher and poet, he rapidly acquired popularity, and set his mark upon the great gardens of the country, and wrought a much-desired change. Bridgeman also accomplished much work in the same direction, but there can be no question that, in their desire to produce "natural effects," these two famous andscape gardeners and their followers went to the other extreme, and in opening up gardens they exposed them to the cold blasts from all points of the compass, and deprived them of much of their privacy and enjoyment.

A discussion of the many changes that have been made in garden design since the days of Kent would be out of place, and I will skip a century and a half, and state briefly that there is a tendency to restore some of the screens which formed so characteristic a feature of the Dutch style, with a view to obtain a greater degree of privacy, and more shelter for both visitors and plants. With this restoration of sheltering hedges and verdant belts has evidently come a desire for examples of topiary art, and already there are several modern gardens where they are to be found firmly established. In the flower garden at Ascott, the residence of Leopold de Rothschild, Esq., of which an illustration is given herewith, there are numerous examples. The gardens of Lord Rosebery's residence at Epsom contain a peacock and several geese and fowls, and the newly-formed topiary garden at Friar Park, the residence of F. Crisp, Esq., promises to form one of the most interesting features of the beautiful pleasure grounds, and reproduce a scene familiar in gardens two centuries ago.

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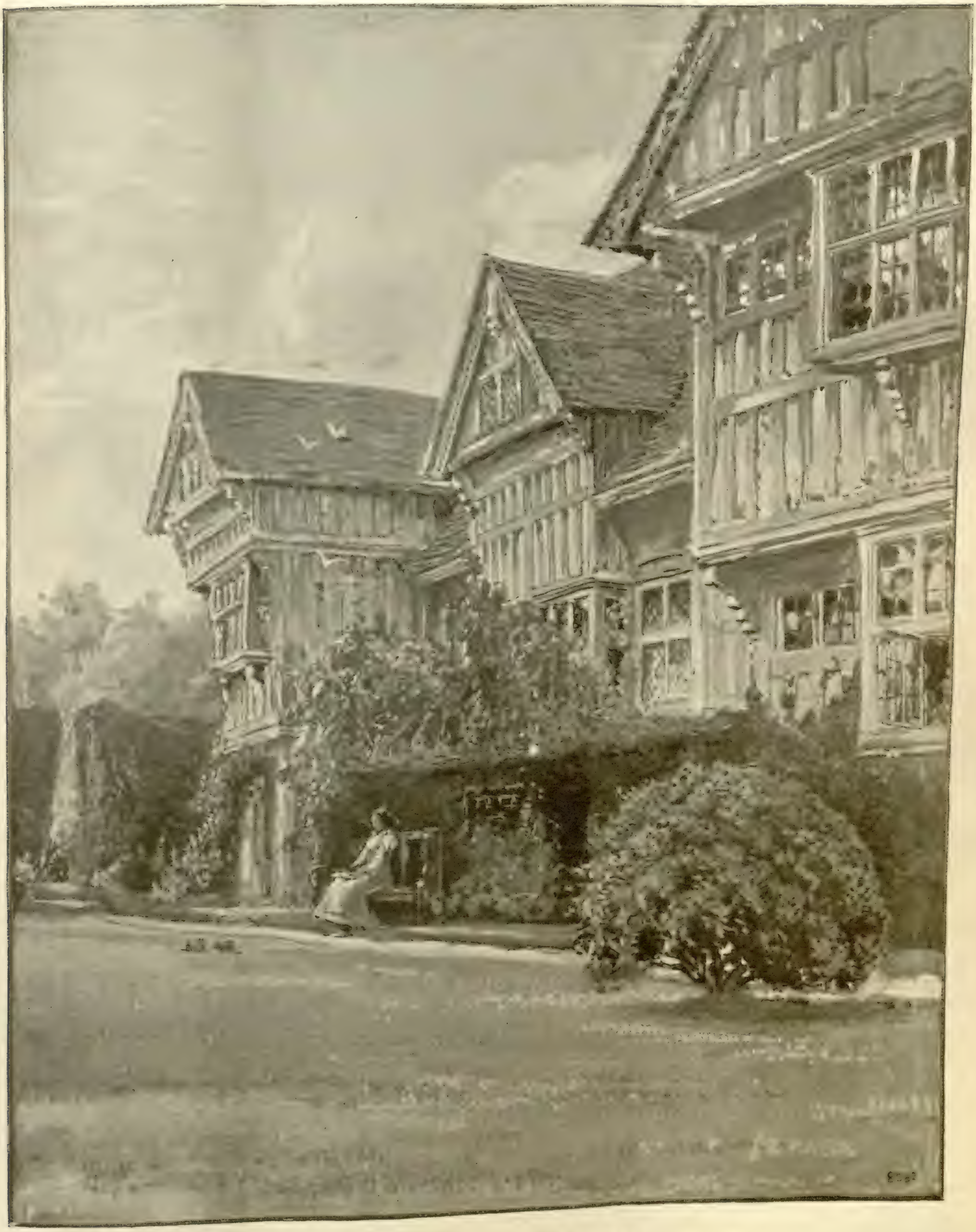


"THE HOUSE WITH THE THREE GABLES."
(From the water-colour drawing by E. A. Rowe.)

PENZANCE SWEET-BRIERS.

WHEN talking a few days ago to a friend who has obtained no small amount of success both as a grower of chrysanthemums and roses, he observed that a grower of the "Golden Flower" had a ceaseless round of work, occupying twelve months, from cutting to show-board, whereas the rose-growing amateur had quite a respectable season of rest from his labours. Said he, "Now I've quite done with roses until pruning time comes again." Quite? All planting, mulching, labelling, staking, &c., done? "Yes, all. Having eaten the N.R.S. annual dinner I've done with roses for the rest of the winter." I smiled, in fact I almost winked, for I had seen an advance copy of the beautiful GARDENERS' MAGAZINE Almanack for 1899, and I knew full well that my friend would have roses with him all the winter in the form of elegant sprays of the lovely Penzance Sweet-briers wreathed around the calendar that in a few days' time will be in its frame and set above the desk in what he is pleased to call his "scribbling den." "The almanack is a success in every way but one," was my remark when the editor displayed this triumph of draughtsmanship and lithography, to which he responded, "What *is* the matter?" in a tone of voice that one seldom hears from so dignified a vice-president of the National Rose Society. Having allayed his fears with respect to the technique of both artist and printer, I humbly suggested that fragrance only was needed, and if, with his colours, the lithographer could have blended the odour of these exquisite eglantines, absolute perfection would have been reached.

How the hybrid sweet-briers were raised by the Right Hon. Lord Penzance at Eashing Park, Godalming; how they have been propagated and distributed by Messrs. Keynes, Williams, and Co., of Salisbury; and how by reason of their robust gracefulness, attractive or delicate colouring, and their delicious fragrance, they have taken the popular fancy by storm, have all been told in these columns by many rosarians, so that repetition at this season is unnecessary. If you have planted, or intend to plant, any of these roses, and are still not quite sure how they should be managed, you cannot do better than refer to Mr. C. G. Wyatt's article on p. 412 of the GARDENERS' MAGAZINE for July 10, 1897. All who have seen fine specimens of any of the varieties will agree with Mr. Wyatt that "the best of all places to plant them is singly and separately on a lawn, with plenty of space on all sides, when the long branches, which have naturally a slightly outward curve, are allowed to grow and blossom just as Nature intended they should do." That's just it. Spenser wrote :—

> "The fragrant Eglantine did spred
> Her prickling armes, embrayled with Roses red,
> Which daintie odours round about them threw;
> And all within with flowers was garnished,
> That, when mild Zephyrus amongst them blew,
> Did breth out bounteous smels, and painted colours shew."

One need not simply indulge in a "Midsummer Night's Dream" of gardens "with sweet musk roses and with eglantine," for the hybrid sweet-briers are not expensive subjects, and, if you have space and wish for variety, you may e'en have not simply "a bush of fragrant eglantine," but sixteen bushes, and each one of a different variety, and producing variously coloured flowers. Do you wonder whether the Penzance briers will make a good hedge? Yes, most decidedly yes; but be careful how you mix the colours, for, "if mixed, the rich coloured varieties cause the paler tints to have a faded, washed-out appearance." With this proviso you may certainly have

> "Hedges flowered with eglantine"

such as Smollett had no conception of, and if you are the owner of broad acres, or only have the "three" which a certain statesman is said to have once proposed to allot us, you may experience at certain seasons, if you will, the wish of the poet Thomson—

> "Oft let me wander o'er the dewy fields,
> Where freshness breathes, and dash the trembling drops
> From the bent bush, as through the verdant maze
> Of Sweet-brier hedges I pursue my walk."

MODERN EXAMPLE OF TOPIARY WORK, ASCOTT.

Shades of rose are well represented in the Penzance sweet-briers, or we have Amy Robsart, deep rose; Edith Bellenden, pale rose; Rose Bradwardine, clear rose; Catherine Seyton, rosy pink; Flora McIvor, white, tinted with faint rose; and Green Mantle, rose, with a white centre. Some exquisite shades of colour are provided by Brenda, peach; Julia Mannering, pearly or silvery pink; and Lord Penzance, fawn. Very light and delicate are Lucy Ashton, white, pink edged; Minna, almost white, but with a blush tint. More brilliant varieties are Anne of Gierstein, dark crimson; Jeannie Deans, crimson, and semi-double; Meg Merrilies, a splendid crimson; Lucy Bertram, crimson, with a contrasting white centre; and last, but not least, of the sixteen, Lady Penzance, bright coppery yellow. Please make your own choice, with the almanack to help you if need be. Give your plants the best possible position and encouragement, for, as Dean Hole has said, if you would have good roses in your garden you must have good roses in your heart. What is worth doing is always worth doing well. Spenser says :—

> "Sweet is the rose, but grows upon a brere;
> Sweet is the junipeere, but sharpe his bough;
> Sweet is the eglantine, but pricketh nere;

* * * * *

> "So every sweet with soure is tempred still,
> That maketh it be coveted the more;
> For easie things, that may be got at will,
> Most sorts of men doe set but little store."

KARL PROSPER, JUN.

SUB ROSA;

OR,

THE PRETTY BOUQUETIÈRE.

I WAS sitting one evening, some years ago, as was often my custom, outside a café in the Boulevard des Italiens, in Paris, sipping quietly a cup of coffee following on my dinner. At the time my thoughts were unoccupied. I was listless, and sat hardly conscious of the surroundings; the cool air and blue sky, the white houses, and the crowd of pedestrians out for their usual quiet stroll and cheap enjoyment, for surely a carafe of fresh water and a lump or two of sugar, with, perhaps, a soupçon of fleur d'orange, that favourite beverage of the abstemious French, is not a prohibitive luxury. Whilst in this mood I suddenly became conscious that I was an object of regard to a pair of black, piercing eyes, whose fair owner a moment later dexterously decorated my buttonhole with a rose. A gentle voice addressed me, belonging to one of the many bouquetières who flutter along the boulevards like so many butterflies, with this difference, however, that they turn their brilliant-hued flowers to a very practical account. Following the example of some other loungers like myself, who were similarly treated by the fair nymph, I put a silver coin into her hand, and thought myself extravagantly rewarded when I received a sweet smile and the pretty verbal acknowledgment of "Merci bien, m'sieu."

To meet a perambulating and irresistible bouquetière, who places a flower in your coat, and regards you smilingly as she attends for her reward, is hardly a rare occurrence in Paris; but I was greatly interested, unaccountably so, in this pretty girl, for her manner and bearing, I could but remark, were very different from most others of her calling. Without anything theatrical in her appearance she was yet such a being as one can scarcely realise out of a ballet. Not that her dress was unconventional, save, perhaps, in its coquettish simplicity, and the smart ribbons which gave such a character to the little cap perched so jauntily on her head. Evening after evening I saw the same girl, generally near the same spot, and, as may be readily imagined, became one of her regular clientèle. I learned, too, as many facts relating to her as one could learn where most was mystery. Her peculiar and persuasive mode of disposing of her flowers was her own graceful, original idea. It was something new and natural, and whilst pleasing many offended none. Even the surliest of old stockbrokers could not refuse being decorated by such fair, nimble fingers. Accordingly she soon found herself positively famous. Much discussion arose concerning her name and where she lived. Many an adventurous student traced her footsteps hour after hour, only to lose sight of her at last.

She always contrived to mysteriously disappear. Other stratagems failing, it often occurs to the curious to ask a direct question; but in the present case this was next to impossible. Gabrielle, for so was she called, by what authority, I know not, was only seen in the most public places, and to exchange many words with her was considered a feat. Notwithstanding her strange wild way of gaining her living, there was a dignity in her manner which sufficed to cool the too curious. It soon came to pass that, being so attractive a personality, managers of cafés chantant were not slow to see money might be made out of her, and it was said she was offered and rejected many lucrative engagements. She treated these offers with the most glorious contempt. There was, indeed, something realistically dramatic in the bouquetière's disdain of the drama. She, who lived a perfect romance, could never descend to act in one. It may well be supposed that where so much mystery existed imagination would not be idle. To have believed the conflicting stories told about her would be to arrive at the conclusion that she was the stolen child of noble parents, brought up by an honest ouvrier. Some said her reputed father was a tailor of dissolute habits, who now lived on her industry, that her mother was a deceased duchess. Others denied her grace's death, and stated that she, under a false name, carried on a flourishing business as a blanchisseuse. As for the private life of the young lady herself, it was reflected in such a magic mirror of contradictory impossibilities, in the delicate discussions held on the subject, that one had no choice but to disbelieve everything.

One day a fresh fillip was given to gossip by the appearance of the bouquetière in a positively chic hat of some expensive straw, and made in a style bordering on the ostentatious. It was not doubted but that the profits of her profession would allow of such an expenditure, but in Paris the adoption of a bonnet or hat, in contradistinction to the little cap of the grisette, is considered the assumption of a superior grade, and unless warranted by the position of the wearer is resented as an impertinence. In Paris, indeed, there are but two classes of females, those with bonnets and those without; or, as has been wittily said, the powers that be, and the powers that want to be. No French bonne would, in her wildest dreams, ever think of emulating her mistress in her dress or head garniture, as Mary Jane and her sisters do, as a matter of course, in our own land. Surmises were many and marvellous. Was she becoming proud, becoming a lady? But how, why, where? Curiosity became rampant, and scandal more inventive than ever. But soon a positive catastrophe took place.

"One morn we missed 'her' in the accustomed spot"—to employ the language of poetic licence. Not only, indeed, all accustomed and probable spots, but the unaccustomed and improbable ones, even impossible spots, all of which were duly visited. In short, she was not to be found at all. All was positive amazement on the boulevards, the most hardened old flaneur turned pale, and the moustachios of the jeunesse drooped. Soon, however, a new sensation was provided for the sentimentalists of the boulevards, and the affair of the fair flower-girl was relegated to the past as a nine days' wonder.

A few months later I found myself one evening at one of those famous and brilliant receptions for which Paris is so renowned. However, in all the gay excitement prevailing, I felt unaccountably dull, and was making for the door—with a view to my quiet departure—when the fair hostess detained me for the purpose, as she whispered, of presenting me to a lady who was monopolising all the attention of the evening. She was the newly-made bride of a young baron of great wealth who was noted for a certain wild kind of genius and an utter scorn of the conventionalities of high life. The next moment I was introduced to a beautiful young lady whose brilliant eyes there was no mistaking—it was Gabrielle, the bouquetière!

I took a chair at the side of the pair, and entered into conversation. The Baronne observed that she had met me before, but could not remember where. Almost in the same breath she asked if I was a lover of flowers. I muttered something, intended as a compliment, about loving beauty in any form, and admired a bouquet she held in her hand. She selected a spray of roses, La France, and said was it not a fine specimen. I delightedly assented, and the spray not being redemanded, I did not return it. The conversation turned to the topics of the day, and soon after the Baronne and her husband took their leave. They were departing the next day, I casually heard, for the family estate.

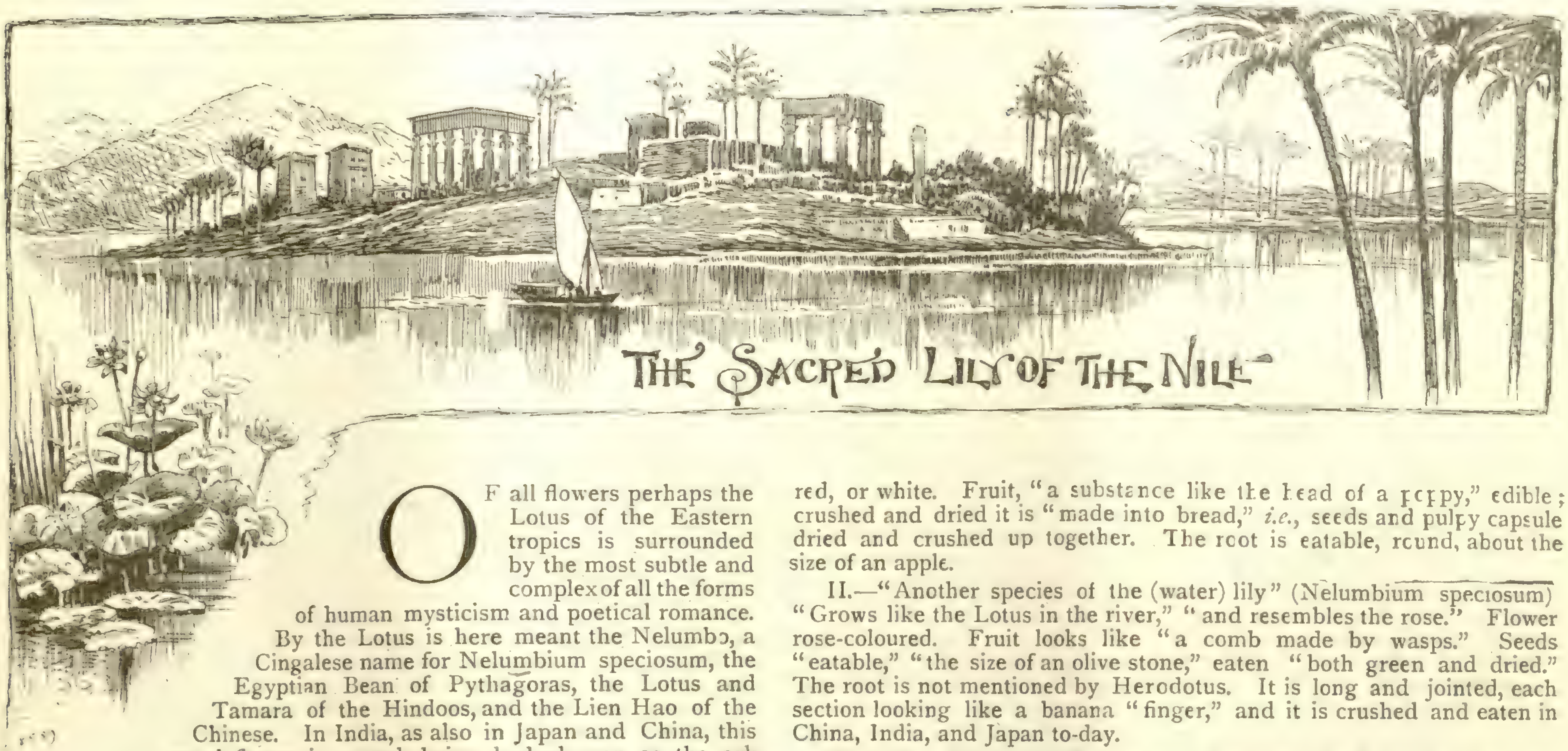
I learned subsequently that some strange stories had circulated regarding the previous life of the Baronne. Whatever they were they certainly speedily increased the calling and status of the bouquetière, and made it inconveniently popular. Young ladies of all ages, even, too, of a certain age, suddenly adopted it, and intruded their flowers with dreadful pertinacity upon inoffensive loungers, making war upon unoffending button-holes that had never done them harm. A fixed idea found favour that this practice was the road to a rich and noble husband, hence its being adopted with such enthusiasm. To-day, however, it hardly continues in vogue, having presumably proved a failure. I had almost forgotten to mention that the day after my meeting with the Baronne some friends called on me, to whom I was about to narrate my little adventure, when an incident took place which decided me not to do so. One of them admired my spray of roses, which I had preserved in a flower glass. An idea struck me.

"You know the language of flowers?" I asked him. "The rose is the emblem of love, is it not?"

"Yes," he replied, "but yours is a rose and a pair of rose buds—the emblem of *Secrecy*. You have, doubtless, another affair of the heart on hand; be careful you don't betray the fair one."

I was struck with amazement, and fell from my paradise of love to the realities of the situation. However, I am glad I was discreet enough to hold my tongue. The events narrated above occurred during the Third Empire.

WM. NORMAN BROWN, F.R.H.S.



THE SACRED LILY OF THE NILE

OF all flowers perhaps the Lotus of the Eastern tropics is surrounded by the most subtle and complex of all the forms of human mysticism and poetical romance. By the Lotus is here meant the Nelumbo, a Cingalese name for Nelumbium speciosum, the Egyptian Bean of Pythagoras, the Lotus and Tamara of the Hindoos, and the Lien Hao of the Chinese. In India, as also in Japan and China, this regal flower is sacred, being looked upon as the ark or floating shell of Vishnu, and the throne of Brahma, and even in Thibet temples and altars are embellished and perfumed by its flowers. How it came to be cultivated so largely in Egypt in ancient times is not now known, but the probability is that it was originally brought from the East as a food plant, and then afterwards became extremely popular, and was very highly valued for its beauty, so highly indeed as to become almost sacred, and it was grown extensively in canals and tanks adjoining the temples and palaces, much as we see it in Ceylon, Persia, Cashmere, Thibet, China, Japan, and Korea to-day. That the Nelumbo has been sacred from time immemorial in the East is well known, and in both Asia and Africa its rhizomes, leaf and flower stalks, and its seeds long have been and still are highly valued as food, much as the fleshy roots of Asphodel were valued in ancient Greece.*

Now let us for once and all get a clear view of all

THE LOTUS LILIES.

LATIN NAME.	POPULAR NAME.	NATIVE COUNTRY.	COLOUR OF FLOWER.
Nymphæa Lotus	Egyptian Lotus	Africa and Asia	Rosy red or white
,, stellata... ...	Blue Lotus	Tropical Africa and Asia	Blue
,, cærulea ...	Cape or African Lotus	Cape of Good Hope and Tropical Africa	Blue
Nelumbium speciosum...	Indian Lotus, or Lotus of China and Japan. "The Rose of Egypt," or Egyptian Bean	Asia and Tropical Africa	Rose, peach, deep red, flesh, and white, in many forms or variations
,, luteum ...	West Indian and North American Lotus, or Water Chinquapin	West Indies and South United States	Primrose or clear lemon yellow, rarely white

Volumes might be written about the Nelumbo, or Flower of Buddha, and on the controversies that have taken place as to the meaning of the word Lotus, and the actual identity of the plants to which the name Lotus has by ancients and moderns been applied. The Nelumbium, in one or other of its lovely forms, is found all over the East, in Ceylon, India, China, Japan, the Malayan Archipelago, the Philippines, Persia, and Cashmere, and it even extends to the shores of the Caspian Sea. Both Strabo (B.C. 54—A.D. 24) and Theophrastus (B.C. 374—285) mention it as being native of Egypt, and its form and contour, in both bud and blossoming, is very often represented on the capitals of columns, chapiters, and other details of both Indian and Egyptian architecture; but I do not believe that the Nelumbo was ever indigenous to the Nile Valley. That it was grown and highly valued there, both for use and ornament, is quite true, but facts point to its having been an introduction that became naturalised. As to this plant in Egypt, Herodotus (B.C. 484-406) says: "There is another species of the lily in Egypt, which grows, like the Lotus, in the river, and resembles the rose. The fruit springs up side by side with the blossom on a separate stalk, and has almost exactly the look of a comb made by wasps. It contains a number of seeds about the size of an olive stone, which are good to eat, and these are eaten both green and dried."

THE EGYPTIAN WATER LILIES OF HERODOTUS.†

I.—"A certain water lily," Lotus (Nymphæa Lotus). Flower rose-red, or white. Fruit, "a substance like the head of a poppy," edible; crushed and dried it is "made into bread," *i.e.*, seeds and pulpy capsule dried and crushed up together. The root is eatable, round, about the size of an apple.

II.—"Another species of the (water) lily" (Nelumbium speciosum) "Grows like the Lotus in the river," "and resembles the rose." Flower rose-coloured. Fruit looks like "a comb made by wasps." Seeds "eatable," "the size of an olive stone," eaten "both green and dried." The root is not mentioned by Herodotus. It is long and jointed, each section looking like a banana "finger," and it is crushed and eaten in China, India, and Japan to-day.

That Herodotus actually saw and described the Nelumbo there can be no doubt, the wasp's nest-like seed vessel settles that; but he is careful to distinguish it from the true Lotus of Egypt, viz., Nymphæa Lotus, which is an undoubted native, being found there in abundance to this day. The Lotus (N. Lotus) is often found in the hieroglyphs, where it stands as a symbol for the Upper Country or Southern Egypt. Its roots and seed heads are still eaten by the residents near to Lake Manzaleh, and the rivulets and shallow pools near Damietta abound with this exquisitely fragrant flower. There are red or rosy and white varieties, and it seems to have been the rose of Egypt, the national flower in old times, and was given to visitors to smell or made into wreaths and garlands for the professional beauties of the time.

The description that Herodotus gives of it is this: "For greater cheapness of living the marshmen practise certain peculiar customs, such as these following:—

"They gather the blossoms of a certain water-lily, which grows in great abundance all over the flat country, at the time when the Nile rises and floods the regions along its banks—the Egyptians call it the Lotus—they gather, I say, the blossoms of this plant, and dry them in the sun, after which they extract from the centre of each blossom a substance like the head of a poppy, which they crush and make into bread. The root of the Lotus is likewise eatable, and has a pleasant, sweet taste; it is round, and about the size of an apple."

Rawlinson adds a footnote stating that the "Nymphæa Lotus grows in ponds and small canals in the delta during the inundation, which are dry during the rest of the year, but it is not found in the Nile itself. It is nearly the same as our white water lily."

Though the N. Lotus and N. stellata, &c., were favourite flowers of Egypt, there is no evidence of their having been sacred; they were always presented to guests at an Egyptian party, and garlands of these sweet flowers were put round their heads and necks. Both the pink and white flowered N. Lotus, and also the blue N. stellata or N. cærulea, are illustrated on Egyptian monuments. There are drawings existent on rolls of papyrus in the library of Trinity College, Dublin, and elsewhere, that might have been made yesterday in Japan, so true and life-like are they in form and colour. Here one sees the Lotus flowers either held in the hand for smelling, or fixed in a kind of clip on a small table or altar before the principal characters in the scenes shown. On these rolls of Nile reed you see sacrificial oxen, with mitre-like crowns and garlands, the ibis, and sparrow-hawks, and here and there the papyrus plant itself, with its tasselled crown, is well shown. These drawings are supposed to be nearly, if not quite, four thousand years old, and though they show that both the papyrus and the Nelumbo were grown in Lower Egypt over two thousand years B.C., yet we know that neither is truly indigenous there to-day, a fact that may suggest that they were cultivated products always, and not truly denizens of the marsh country where they were grown.

Apart from drawings on the papyri, however, there are the actual dried flowers of Nymphæa Lotus, and of N. stellata (so-called blue Lotus), taken from funeral or votive wreaths in tombs four thousand years old at Dier-el-Bahara, and from the mummy cases, or graves of Ahmes I. and Rameses II., and now in the museum at Cairo.

In a room of the great temple at Karnac, in Thebes, are sculptured portraits of plants that Thothmes III. brought home from "the Holy Land, or Ruten, when he went to conquer it." Here are "water lilies as high as trees . . . . all sorts of trees, shrubs, leaves, flowers, and fruits." Are these tall water lilies Nelumbiums? Thus we see that it appears as if the true Lotus of Egypt (Nymphæa Lotus) was not sacred, though undoubtedly highly popular, but that the Eastern Lotus, or Nelumbo, became valued in Egypt after its introduction, just as it had been in the East from time immemorial. In a word, the wise old Egyptian priests and scribes seem to have been like human nature everywhere, in attaching a higher value to things introduced, or "brought

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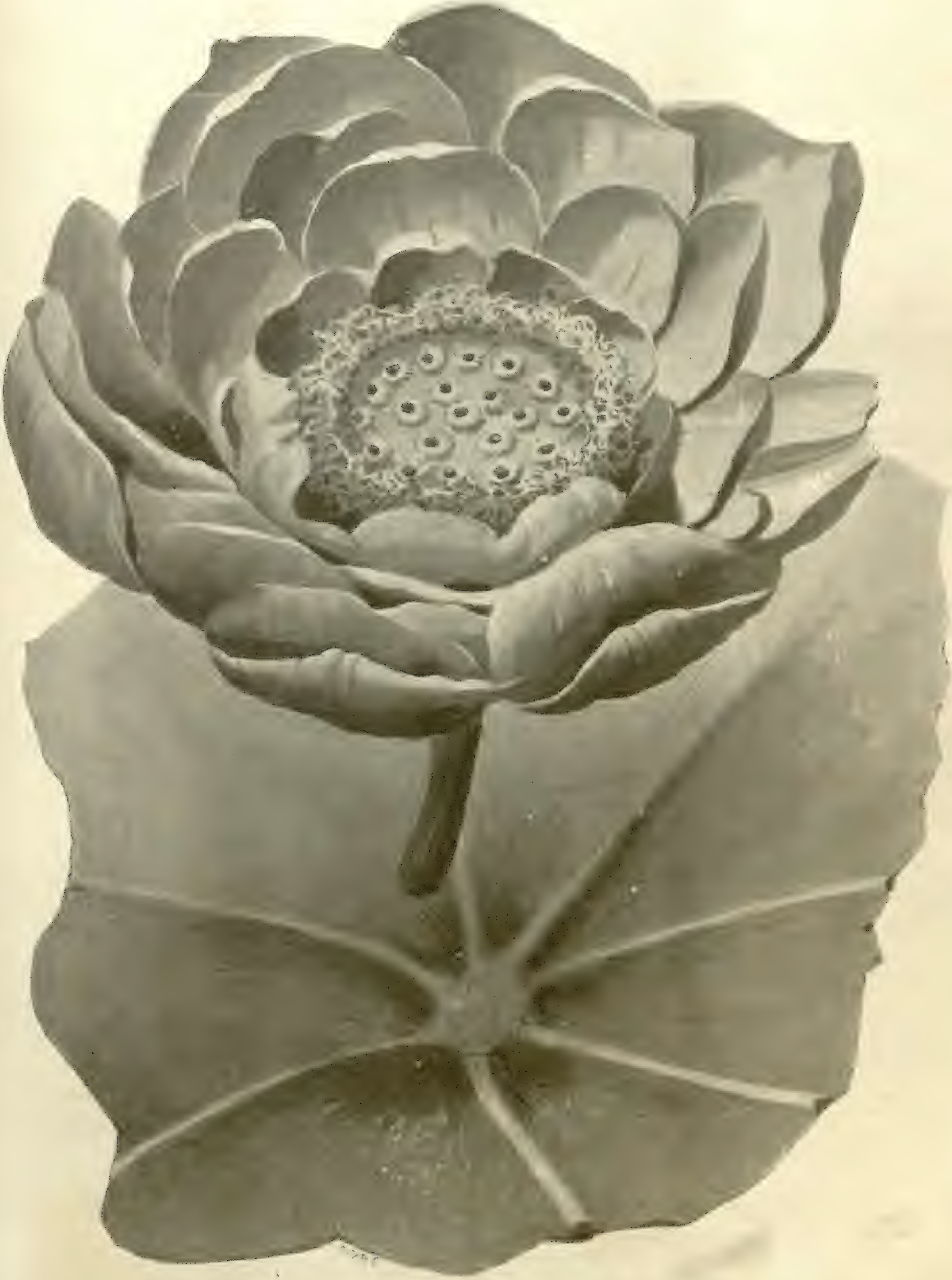
* The so-called "Nile Lily, *Richardia æthiopica*, is from South Africa and Cape of Good Hope, and is not wild in Egypt.

† That Herodotus was not much of a botanist, though most observant, is shown by his saying in the case of the Nelumbium, "The fruit springs up side by side with the blossom on a separate stalk."

Supplement to the Gardeners' Magazine, December 17, 1898.



NELUMBIUM SPECIOSUM. (Flower natural size.)

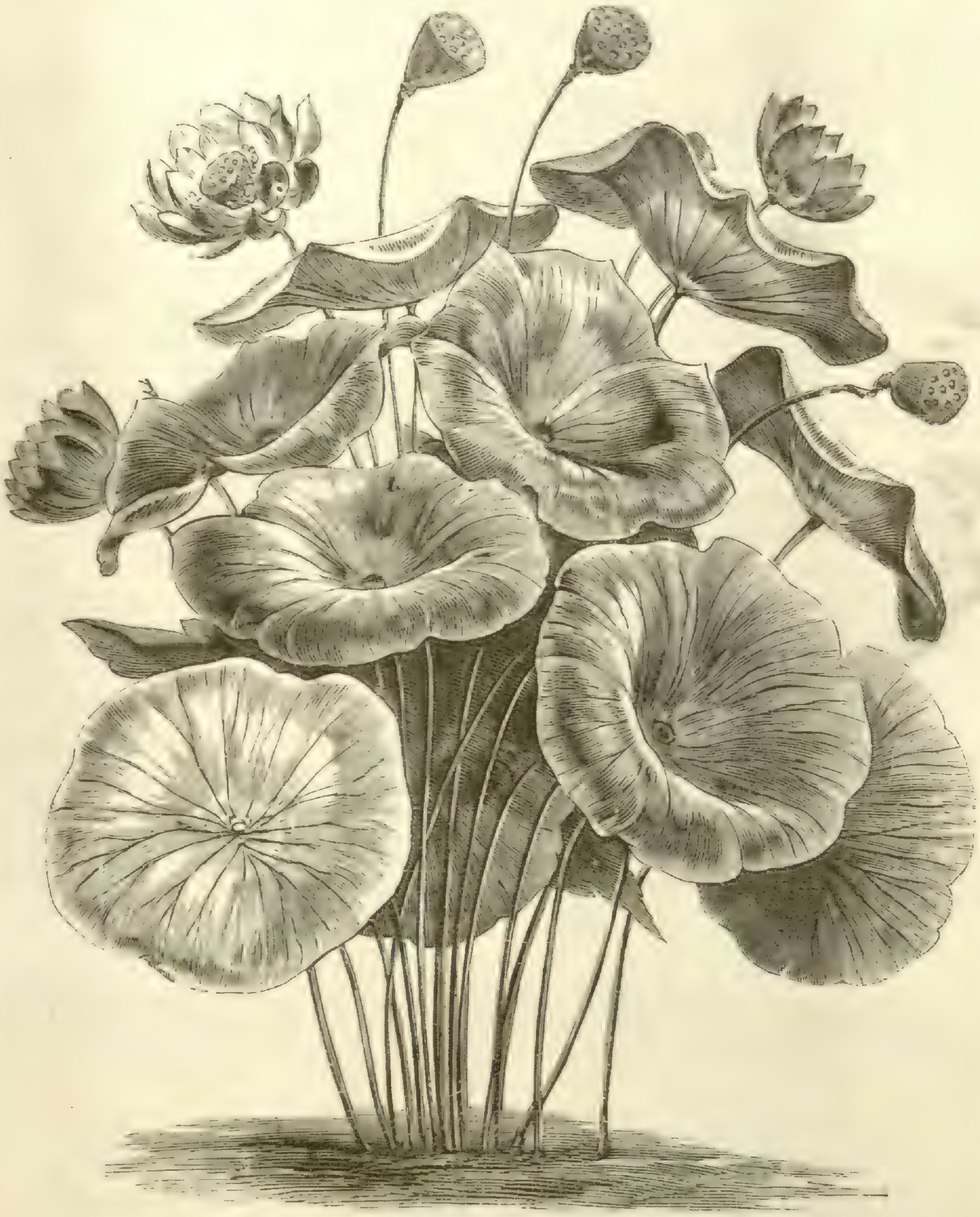
from afar off," than they did to the marsh plants and aquatics of their own land.

The rhizomes of the Nelumbo are jointed and of a pale cream or old ivory-like colour, not unlike banana fingers in general appearance, and they are cooked and eaten in various ways in China to day. These rhizomes also abound largely in starch, and a kind of arrowroot is made from them by the Chinese, and this as powdered up in milk or water makes an excellent light but nutritious vegetable soup. The leaf-stalks and flower-stalks also are boiled and eaten like greens, with oil, or condiments, or sauces of various kinds. From the leaf-stalks soft spiral threads or fibres are obtainable, and these are used as lamp wicks in the temples. The seeds are about the size and in colour not unlike the acorns of the Evergreen Oak (*Quercus Ilex*). They are even more delicate than almonds in flavour, and are eaten either raw or cooked, and roasted, or in various confections.

The old Egyptian method of sowing the seeds of the Nelumbium was to wrap each seed up by rolling around it a flattened ball of stiff clay, which, when thrown into the water, sank and carried the seed to the bottom of tank or pool, and it shows how slowly customs alter, or else from whence the custom originally came, since the self-same method is employed in India and in China to-day. A friend tells me that one of the sights from the walls of Canton, Pekin, and other Chinese cities and towns is the watery moats and pools or canals covered with the platter-like leaves and soft white, cream, or rosy flowers of the Nelumbium.

The open, parasol-like foliage of this plant is covered with a layer of the finest and softest hairs or down, which give an exquisitely soft, velvety appearance to them. At night the dew is condensed in or on these fresh, soft green platters, and when the sun rises the drops glitter like molten silver, or sparkle like diamonds, and the same thing takes place in the open chalices of the flowers. If a leaf be touched ever so gently the dewdrops run about like quicksilver and reflect the sun's rays like precious stones. Hence comes the Eastern proverb that the good and virtuous man is like the leaf of the Lotus, which growing in mud and slime, or dirty water, is always clean. So the upright man is not affected by the dirty waters of temptation, from which he emerges with pure hands and a clean heart.

In the French Salon of 1885 I was much struck by M. E. Richter's picture, nobly painted, of a dainty Persian lady fondling a lute with one hand, while she contemplates a flower of Nymphæa Lotus held in the other. "Sweetness and light," personified in lovely woman and in lovely flower, the jewel in the Lotus, "Om mani padme hum!"



NELUMBIUM SPECIOSUM.
Showing Habit of Plant.

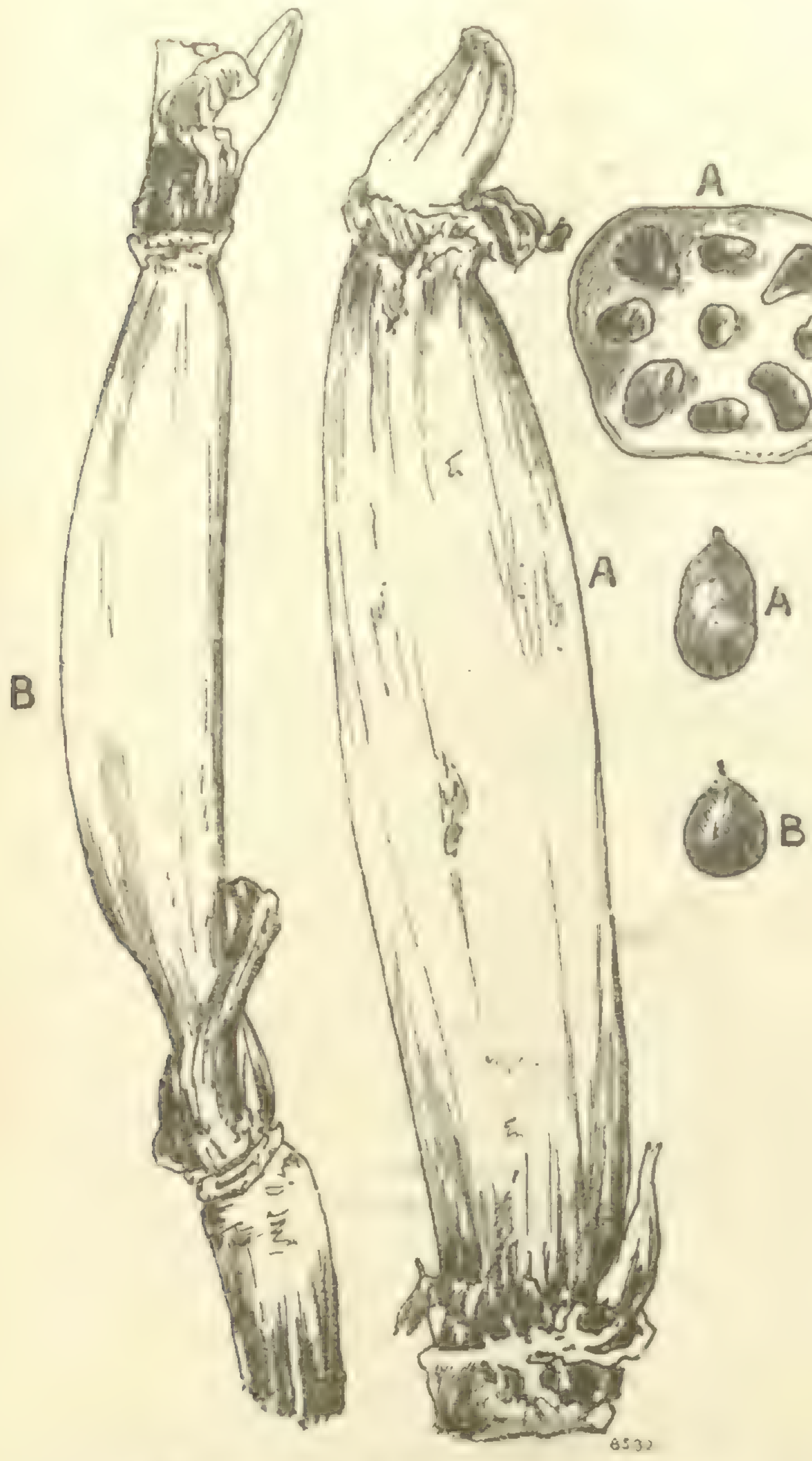
It is one of the delights of one's existence in the tropics to see Nelumbium speciosum in bud and bloom in the fresh cool morning air. I have seen many beautiful tropical flowers in the open air and under God's blue sky, but I shall never forget getting up at or before gun-fire in Singapore, in order to drive out and breakfast with Consul Whampoa, C.M.G., at his residence on the outskirts of the city. I reached the entrance of his compound as the sun rose, and there was dew on every leaf, and stalk, and flower. Palms and bamboos and bananas towered overhead. Over the walk was a covered way, or pergola, on which stephanotis, allamanda, Thunbergia, jasmine, and other fragrant stove shrubs and climbers were trained here neatly and trimly, and there dangling in wild and luxuriant abandon and profusion almost to the ground Stifflia chrysantha, ixoras, crotons, coloured dracænas, and red-stemmed palms caught and held the eye, and all the spices of Arabia and Sumatra, of India and Ceylon, nutmeg and cinnamon, allspice, benzoin, sandalwood, patchouli and champaca was wafted on the balmy breezes of early morning. But for the loud-voiced welcome given me by a small pack of house dogs I should have, like the Lotus eaters, forgotten not only home and country, but even myself and my mission, so exquisitely dreamlike and satisfying was the scene. Then the genial old Chinaman himself came out and showed me his garden—orchids of the rarest, living palms and mangoes, and orange trees, pitcher plants swinging their dainty urns from bough to bough, caladiums with painted leaves as large and as bright as coloured pocket-handkerchiefs, zephyr flowers in the grass, and bougainvilleas like a crimson and lilac veil over the roof and verandah—colour, greenery, grace of leaf and of stem, and perfume all around, but the best had yet to come. Through a jungle of papyrus, and over a willow pattern plate-like bridge, and my genial guide stood aside to look at my face. Before me, through an opening in the reeds, which the stepping aside of my host had revealed, lay a long pool or canal full of tropical water lilies, fair as a dream, white rose, peach, blue, and crimson, all with swelling bud or with wide open blossoms, still wet with dew, lay basking like naiads in the early sunshine of a tropic day. One great floating mass of the Australian Blue Lotus (Nymphæa gigantea), with "flowers as big as soup plates" (*vide* Mrs. Rowan's "A Plant Hunter," a delightful book of an artist's life in Australia), made an impression on me I shall never forget. But better even than this was a water grove of Nelumbia, consisting of at least ten or twelve distinct varieties of N. speciosum, collected from all parts of India and China. There they stood before me, soft green leaves on slender stalks, for all the world like parasols, and amongst these the shapely swelling buds, the opening buds, and the great chalice or saucer-shaped flowers, each with a jewelled dewdrop or two at its heart. I had never seen or known how exquisitely lovely, how incomprehensibly variable and satisfying the Nelumbium alone in broad groups or masses could be. Flowers and buds by the hundred towering high up above the placid water, as if soaring to kiss the sun above their heads. I had seen the great Victoria regalis at Chatsworth and at Kew, and the tropical water lily tank or pools at Oxford and in the Regent's Park, but how stunted and starved, how "cribbed, cabined, and confined" under the glass roofs, as compared with Nature's luxuriance as assisted by art in an open-air garden. When the gong went for breakfast I felt loath to leave the lilies and the Lotus before me, but the sun had mounted higher, the pearly dewdrops that had shone "like jewels of gold in baskets of silver" had evaporated, here and there petals hung limp and placid in the torrid glare. My host led me into a cool and shady room, half open to the sky, and set before me a breakfast such as is not often enjoyed by princes or kings. All that money and taste and genuine hospitality could devise was there—a cool and fragrant atmosphere and grateful shade. The butter looked as if it had just left a Devonshire dairy, and the fish and rice, and the cool curry of young cucumbers, the iced coffee, and the fruit, all of the finest, seemed not to want eating, they melted away so easily on the tongue. We talked of many things, mainly of the flowers, and then came the inimitable cup of tea and the cheroot, and I left a genial host and a garden that will for ever be photographed in my heart, at least so long as gratitude and a love of the beautiful in Nature remain.

Nymphæa Lotus was figured in the *Botanical Magazine*, vol. 75, t. 4,469, but see also vol. 80, t. 4,823.

Nelumbium speciosum was figured in the *Botanical Magazine*, vol. 23, t. 903, under its old name of Nelumbo nucifera.

The Eastern Lotus has been well described as being "the noblest flower that dedicates its beauty to the sun," and it has been for ages the symbol in the East everywhere of love and beauty and joyful fertility. From Pekin to Thibet, from Colombo to Teheran, and the fertile plains of Cashmere, it is the sign of the highest life and beauty. Even the disciples of the Prophet love and admire its grace and bloom, but to Hindoo and Buddhist it is the shrine of shrines. The holiest as well as the most lovely of flowers, a ray of golden sunlight resting on a liquid gem. Everywhere in Thibet you hear the cry—or the sigh, as the case may be—"Om mani padme hum," the "Allah il Allah" of the Arabs; "Om mani padme hum," or "Hail, oh hail," "the jewel in the Lotus," on the lips of men, women, and children; even written and bound on the prayer-wheels—it is everywhere.

The word "Lotus" is an old Greek name used by Theophrastus (B.C. 374-285), and Dioscorides (A.D. 40) in connection with some leguminose plant not now exactly known. The bright golden little "bird's-foot trefoil," Lotus corniculatus, and the black or dark velvety-brown L. Jacobæus, are two well-known plants with which the name is associated in the fields and gardens of our own time. The "Lotus tree" of South Europe is Diospyrus Lotus, a not uncommon tree in botanical gardens. The Japanese Lotus tree is Diospyrus kaki, which when in fruit resembles a large-leaved plum tree covered with fruits, in shape and colour not unlike tomatos, except for the four large leathery bracts around the stalk. The Japan D. kaki, or Keg Fig, is now much grown in California and other South American States, and in Italy and South France, where a sweetmeat of it, called "Figue-caques" is made. The Virginian Date Plum, or Tree Lotus, is Diospyrus virginiana, with fruits as large as Siberian crabs. eatable only after frost, and of which beer, cider, and a spirituous liquor have been made in North America by both settlers and the native Indians. D. mabola and D. decandra are fruit-bearing trees in the Mauritius, and in Cochin China respectively.



NELUMBIUM RHIZOMES AND SEEDS.

One cannot use the word Lote or Lotus without naturally thinking of the Lotus eaters of the Greeks, the Lotophagi of Homer (1000 B.C.).

In modern literature "a Lotus eater" is a sort of Harold Skimpole, or a person who gives himself up to mere pleasure-seeking and indolent enjoyment. The classical Lotophagi, however, were a peaceful and hospitable people, who lived in a fertile district of Cyrenaica, on the North African coast, and who appear to have depended for their sustenance on the fruit of the true Lotus tree, or Zizyphus Lotus, African or Jujube Tree Lotus. Its fruits are yellow, skin wrinkled, of the size of a small olive, sweet and farinaceous. The leaves are two to three inches long, ovate, serrate or crenulate, three-veined, bases of the petiole spinose, the fruits being solitary in the axils of the leaves on the slender flexuose branchlets. It is wild in North Africa, and is cultivated in South Europe. The Lotus fruit of the ancients is fabled as having made the companions of Ulysses and other strangers to forget their homes and native land, so that they had no desire to return. This life in the happy valley, with its sense of languor, a delicious satisfaction, has been most beautifully expressed by the late Poet Laureate, Tennyson, in his well-known poem entitled "The Lotos Eaters." An allied species, Z. Jujuba, is found in North Africa, India, and Australia, and forms a tree of thirty to fifty feet in height.

In architecture the word lotus or lotos, for it is spelt both ways (λωτος), is used in speaking of an ornament in the form of the Egyptian Lotus, or water lily, much used in early religious and domestic architecture, and especially frequent as a terminal or capital on Egyptian columns, in the temples, and on wall sculptures, &c.

"The dew is on the Lotus! Rise, great Sun!
And lift my leaf, and mix the wave with me
'*Om mani padme hum*,' the sunrise comes!
The dewdrop slips into the shining sea,"
"Light of Asia."—ARNOLD.

THE STORY OF OSIS.

(From a roll of papyrus found in a mummy case in the Fayoum, but not known to Mr. Flinders Petrie)

"I.

"The dawn was red as the sun rose over the marshes and lit the tops of the great pillar stones with rosy light. Then Osis, the beautiful daughter of Pharaoh, and her maids went forth to the river to bathe, One little slave girl, the favourite one and an Hebrew, sighed. 'Now. little one,' said Osis, 'what aileth thee?' 'Ah! most beautiful,' said the girl, 'how much is one day like unto another. We eat, and drink, and sleep, and bathe in the river, but Horus comes not nigh us nor dwells in our palaces.' 'What would you, little one?' said Osis. 'To love is not everything. To love is often to kill your soul alive.' 'Not so, fairest one,' said the Hebrew girl. 'Last night I saw a young water carrier kiss a fisherman's daughter beneath the tamarisks and oleanders, and then they laughed and sang together, and were as happy as children of the gods.' 'Ah! so it may have seemed to thee, child,' said Osis; 'but so the Sun God kisses away the dewdrops from the Lotus flowers, and behold day by day do they not fade and wither before thine eyes?' 'Daughter of the Highest,' said the maid, 'and so would I also die gladly if Amasis would but love me, for I should ever after have the jewel in the Lotus—love and contentment—in my heart.' Osis said no more, but after that night the pretty dark-eyed maid was no more seen amongst those who bathed in the river.

"II.

"Now a year or more had passed as does a summer's day, and the cruel law had gone forth that all the firstborn in Egypt should be slain. The chief steward sat with Ba Salah, he who built the great temple and tombs for Pharaoh. 'How goes on that stripling, Amasis?' said he. 'He doeth well,' said the great builder, 'since Osis granted him his heart's desire, and when I am gone no builder in Egypt will be greater than Amasis. His tall pillars have pleased the heart of the Great One, and he has still better work to come.' 'It is all very wonderful,' said the steward, 'and since Osis befriends him all is well.'

"Again and again in the rosy dawn the white-robed women went down to the river to bathe, and a little cry came from the water lilies and reeds, and when the girls looked down, behold, there was a basket of rushes, and in it a baby boy, who ceased crying, and stretched up his hand as Osis passed. The maids shrank back, and looked on the face of their mistress sore afraid. 'Take up the child,' she said, 'and hide him in the house quickly, so that none may see,' and it was so.

"III.

"And some evil days passed, and others came, but the boy grew up in the house of Osis, and was taught of the scribes; and day by day he saw the Lotus lilies in the pools and tanks, and watched the slaves and their cruel overseers as they built the great pyramid of brick, and made the great tanks of the temples, and watered the rare trees and flowers in the palace garden. And is it not written how he became the deliverer of his people from bondage in Egypt, and how he led them towards the promised land? Day by day Amasis worked in the buildings, forming here columns like bundles of papyrus, and carving Lotus buds and flowers on his great pillars, and at eventide he went home to his house under the date palms in the corner of the great garden. And his dark-eyed wife laughed and sang, and sometimes Osis with two or three of her maids came to the little lodge in the garden, and the wife of Amasis gave them sweet cakes with black seeds in them, very nice to eat, and clear amber wine to drink from elegant little glasses, that shone with all the colours of the rainbow. And in one of the smaller rooms of the temple at Karnac you can to this day see Amasis and his wife offering Lotus flowers to Osis, because, as it is written, 'she (Osis) did good to her people, and loved those who served her faithfully and well.'

"And Osis the most beautiful." . .

The end of the papyrus roll is here worm-eaten and torn and utterly undecipherable.

Nelumbia, like their cousins the

water nymphæas, are easily raised from seeds or by dividing the rhizomes. Both may also be grown in tubs or shallow tanks, with four to six inches of rich mud at the bottom, and filled with water. "Owing to the nature of their stocks, tubercles, and root stocks, nymphæas can be sent very far off in every season without getting damaged." Thus writes a sanguine grower, and to his statement I would add, "always sometimes," for the erratic vagaries of the railroad man, and of he of the parcel post, are many; he doeth as he listeth, none daring to make him afraid! Neither nymphæas nor Nelumbia should be planted deep, fifteen to twenty inches of water over six inches of compost being sufficient. The point to observe is that a shallow sheet of water is more quickly heated by sunshine, and shelter, not shade, is desirable, since water lilies and Lotus alike hate to be blown on by the wind.

M. Bary Latour Marliac, of Temple-sur-Lot, who has raised most of the new hardy varieties of nymphæa, also offers no less than eight fine varieties of Nelumbium speciosum in his latest lists. They are album, with large ivory-white flowers; album striatum, with its floral segments white at the base, and striped and tipped with rosy carmine; Japonicum roseum has rosy lilac petals shading to white below; N. luteum, with soft, sulphur yellow flowers; Osiris, which has intense rosy-crimson blooms; Pekinense rubrum, one of the best and deepest coloured varieties yet obtained; Speciosum roseum, of a deep rich rose colour, creamy-white at the base; and lastly, Roseum plenum, a very distinct "double" variety, having eighty petals of a deep rose colour, and resembling a fine flower of tree pæony, one of the rarest and best. The prices of the above vary from four to eight shillings, so that initial expenses need not deter one from growing these exquisite Lotus lilies in our gardens. To succeed with them one must either grow them in tubs or tanks in a warm, sunny hothouse, or you may run a hot-water pipe or two under the water in a shallow open-air tank made in a sheltered position and exposed to every ray of sunlight all day long. Given these conveniences, either Nelumbia or subtropical Nymphæas, such as the sweet-scented N. cærulea, N. stellata, N. Daubeneyana, &c., may be flowered in the open air, as has been done by Mr. Hudson at Gunnersbury, and by other cultivators having heated water in open-air ponds and tanks elsewhere. As an enthusiast writes: "The aspect of a sheet of water studded with these countless many-coloured flowers, swung to and fro by the breeze, like a richly-decked flotilla, is delightful. Everybody now is passionately fond of cultivating these charming undines, which grow in all sorts of waters (rain, spring, and river waters), in all aquaria, large and small, in ponds, basins, tubs, bowls, and come up in the sun as in the shade"—to which I would add here, the less shade the better.

The "Western Lotus" (*Nelumbium luteum*)* is found in the West Indies and in the Southern American States. Like N. speciosum, it has peltate velvety green leaves, very soft and pale below, and borne on long stalks which are spiny towards the leaf blade. The flowers are pale yellow or primrose coloured, and the outspread segments measure a foot or more in diameter. The flower has been well described as being like a gigantic semi-double tulip, and its blossoms are delicately scented. It was introduced to British gardens in 1810, and flowered in the hothouse or plant stove of Mr. Miller, of Durdham Down Nursery, near Bristol, in September, 1839. The plant has since bloomed at Kew and at Cambridge Botanical Gardens; and at Paris it was for years grown and bloomed, and may be so still, in a round tank in the open-air garden, a covering or roof of glass being put on in September, and allowed to remain on until April or May. Extending from New Jersey to Eastern Florida, and inland to Louisiana, it may be called the Queen of American aquatics, and is the largest wild flower of the Southern States, with the one exception of Magnolia fœtida (M. grandiflora). It has been introduced into ponds and lakes near Philadelphia, but its natural limits are not so far north, though Michaux found it as far north as Illinois. A white-flowered form is alluded to by Mr. Walter, but Barton and other botanists have regarded N. luteum as a mere geographical form of the variable N. speciosum, which often has white flowers. Although this plant usually grows in shallow pools and streams, yet Bartram saw it extending across Cape Fear River, in North Carolina, where it is two miles broad, and twelve feet or more in depth, "its leaves covering many acres, and forming a delusive wavy plain." Its flowers open in the morning and close at sunset, opening again on the following two or three days if not fertilised. The nocturnal closing seems a natural provision to keep its pollen dry, and to exclude nocturnal insect visitors.

F. W. Burbidge, M.A., V.M.H.

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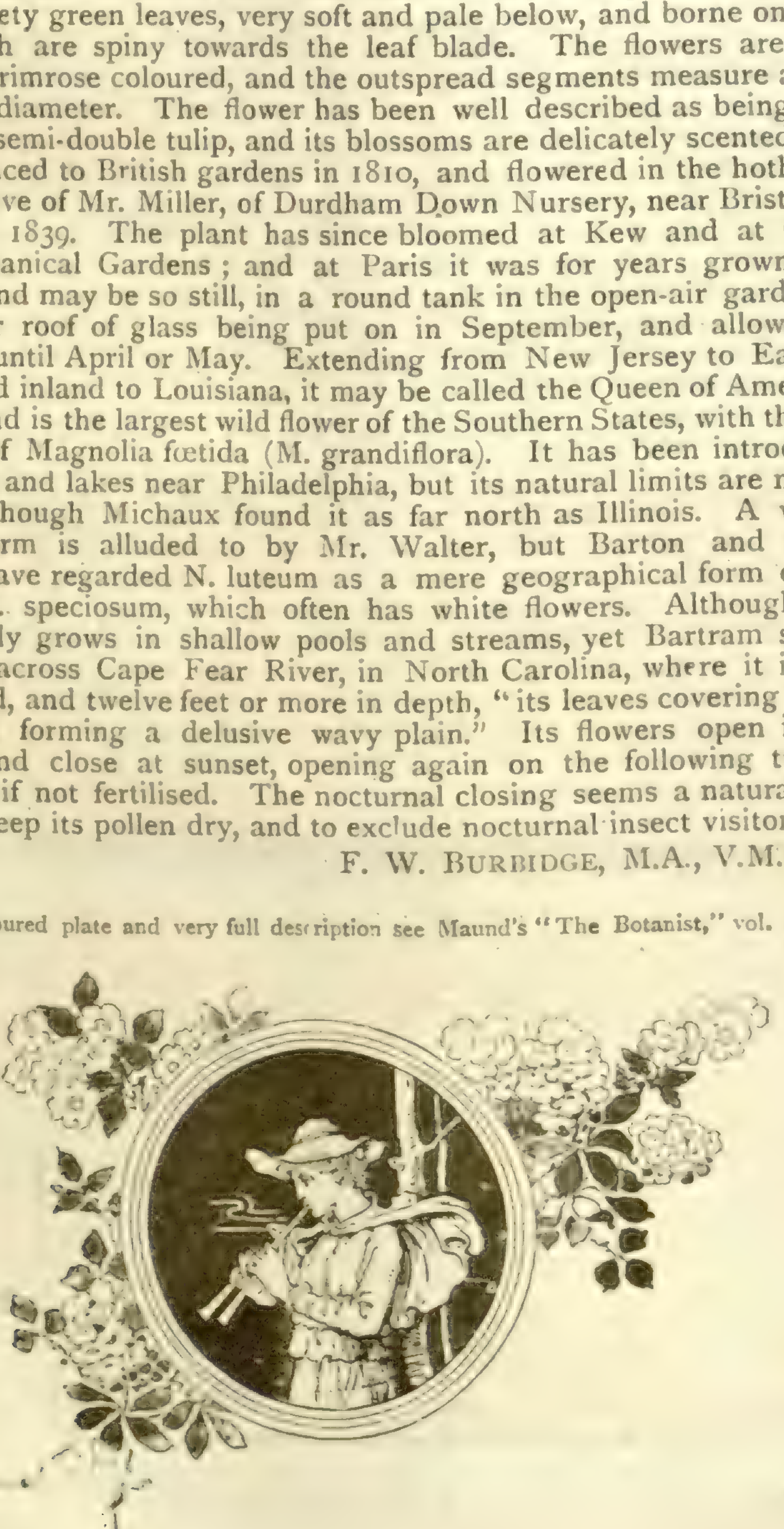
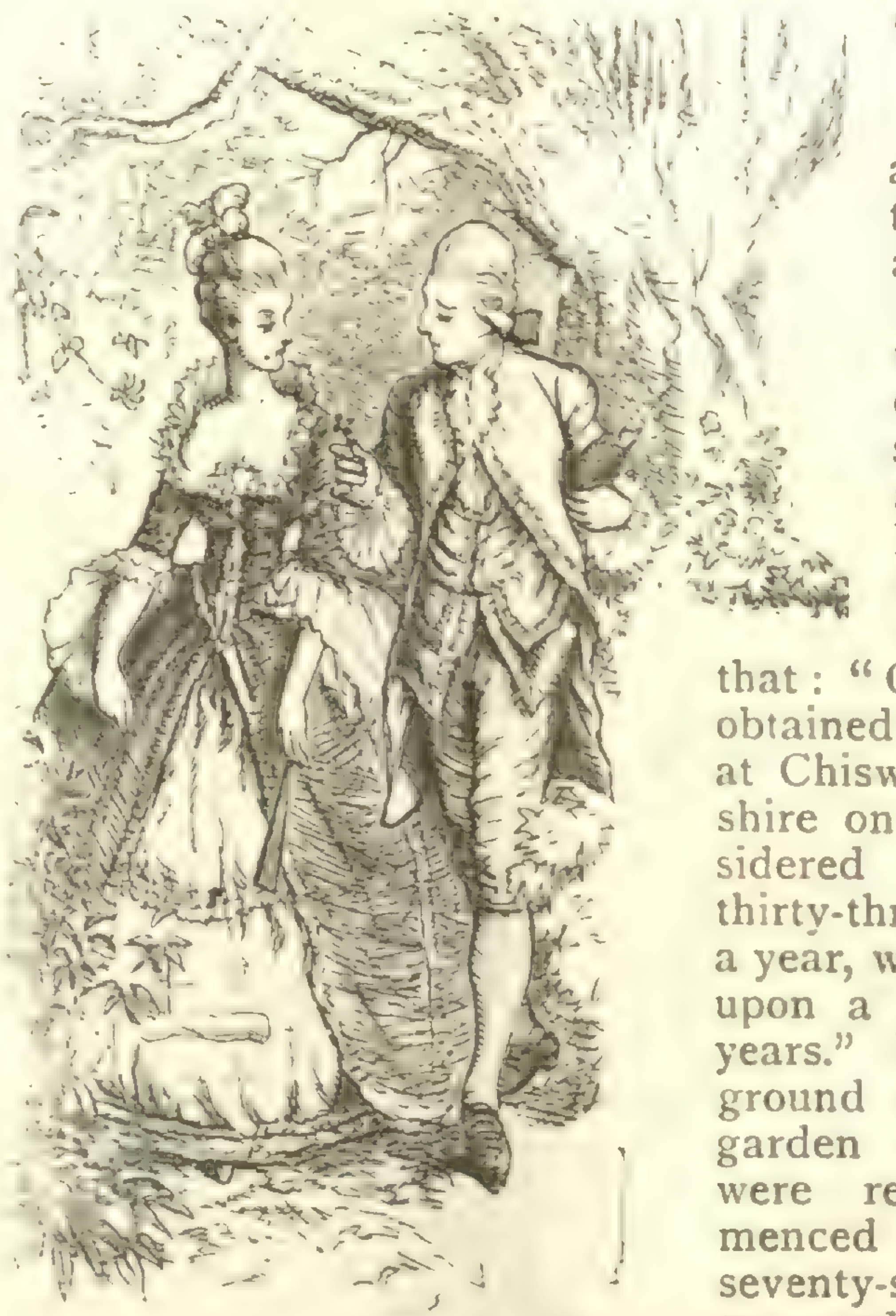
* For coloured plate and very full description see Maund's "The Botanist," vol. i., plate No. 14.

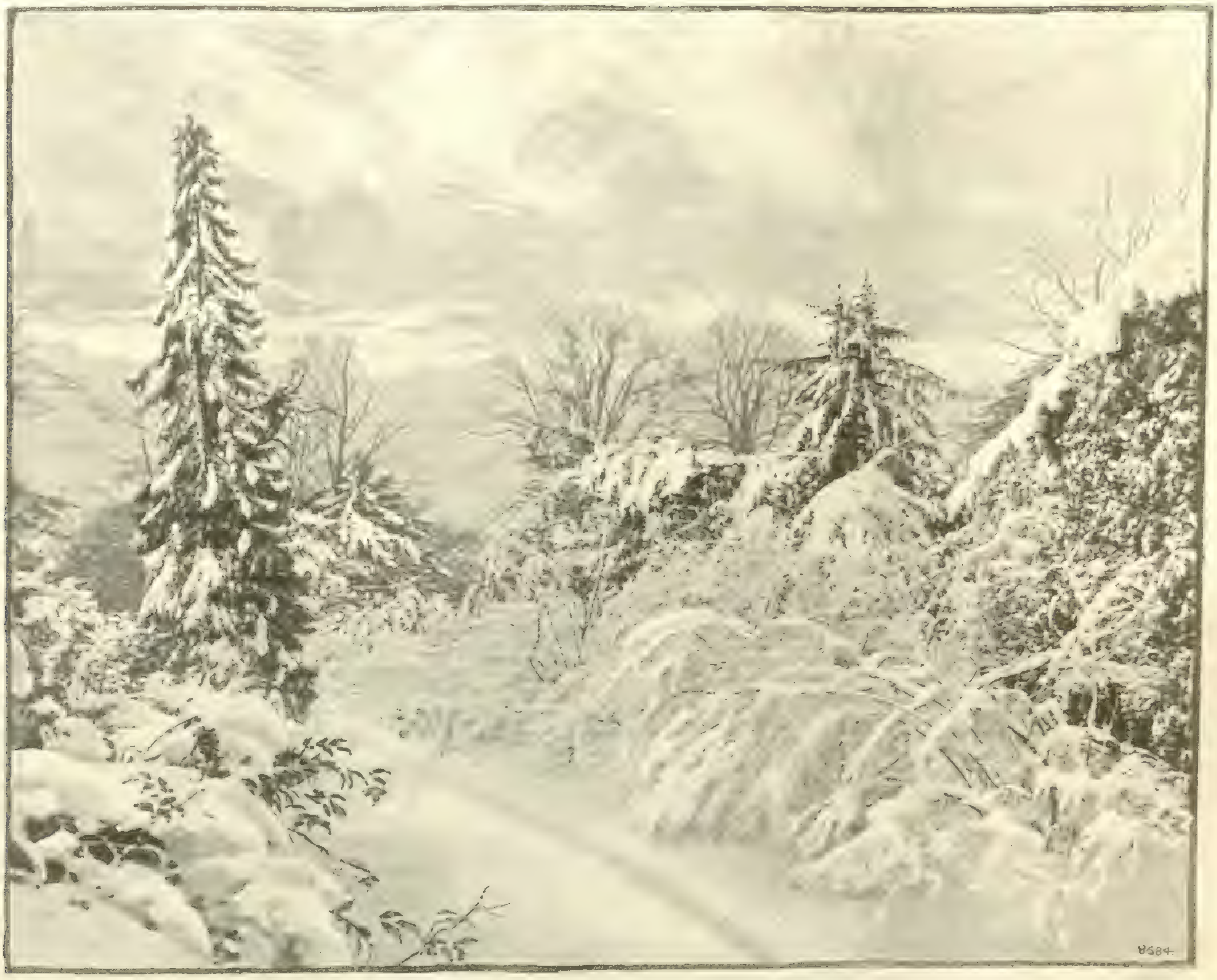


EARLY DAYS OF AN OLD HISTORIC GARDEN.

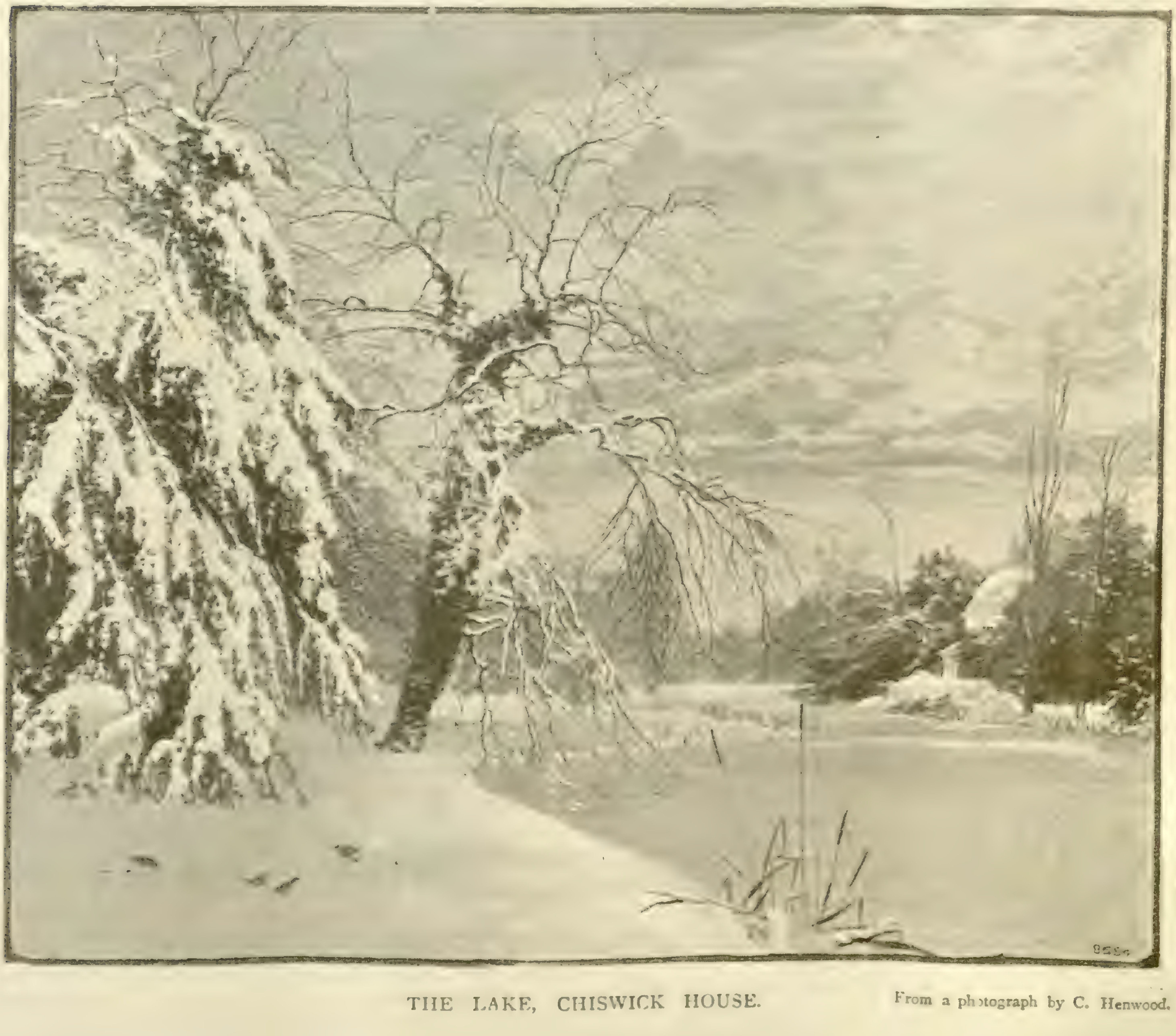


The exact date of the establishment of the Horticultural Society's garden at Chiswick has been from time to time variously stated, some authorities giving it as early as 1818, probably confounding it with the establishment of an experimental garden at Kensington at the end of that year, and of an auxiliary nursery or hospital garden at Ealing. From the "Book of the Royal Horticultural Society" we learn that: "On March 21, 1822, the society obtained a lease of the present garden at Chiswick from the Duke of Devonshire on terms which were then considered favourable. Its extent was thirty-three acres, and the rent £300 a year, with a power of renewal for ever upon a fine of £450 every thirty years." Upon taking possession of the ground at Chiswick, the Kensington garden and its auxiliary at Ealing were relinquished, and thus commenced the historic garden which, seventy-six years afterwards, is still tenanted by the society. Dear old Chiswick! illustrious in the past, and pregnant with interest for numbers in the present, though some think time has put the stamp of decay upon it, making it a declining force in horticultural enterprise. It will ever stand as a time-mark in the horticultural annals of the nineteenth century; there cluster about it a multitude of horticultural associations and of pleasant memories; it recalls keen competitions, social gatherings, many interesting experiments, and a long list of cultural successes, all of which fire the imaginations of young gardeners, and incline them to look back with sympathetic interest upon the doings of their forefathers in the time long since. Who that has mixed much among practical horticulturists during the past thirty years has not been a delighted listener to the reminiscences of old Chiswick students and boys, when they meet years after and tell of escapades, exploits, events, and associations which thrill the memory and send it back to distant days, when great exhibitions were in their prime, when horticulture drew to it the fashionable world, and the old Chiswick gardens were a university of practical gardening in this country.

The "Florist" for 1848 contains two excellent and clear woodcuts of one of the famed exhibitions at Chiswick; those who never witnessed one can gain from these illustrations some idea of what it was like. There was then a long stretch of turf east of the great vinery on which the tents were pitched, there were spreading shade-trees, and given fine weather the scene was animated in the extreme. I recall with pleasure the sight of one of these shows—it must have been that in 1855—just when their glory was on the wane. I remember the excitement, not unmixed with the delightful anticipation of the night journey from Slough to London, seated by the side of a driver on a van laden with precious specimen plants of pelargoniums. The incidents of that journey are clear and fresh in my memory; it was all novel and diverting, the stoppages at the night houses and the characters which were met with. The time was June, the night very chilly and unpleasant, but much was strange and new which made it endurable. The reaching of Turnham Green by day break, the concourse of vans, the unloading and conveyance of the specimens to the tents, the staging, the subsequent breakfast and wash, and then the stroll through the tents when the public were admitted. Dr. Lindley was very particular about the appearance of the exhibition assistants, and would have in the tents only those which were presentable. It was the first big flower show I had ever looked upon, and it filled me with wonder and delight. The tents were mostly open at the sides, they were in consequence much less stuffy and sweltering than is experienced in these days. The huge circular tent, which later was such a fine feature at provincial shows, was there, full of the fine specimens grown in these days: Aphelexis, Boronia, chorozema, Crowea, Franciscea, Gompholobium, Leschenaultia, Pimelia, and Polygala; but some of these are well-nigh forgotten, and rarely seen now. Dipladenia crassinoda was the only one exhibited in that day; it was so in the case of Allamanda cathartica; the only Ixoras were alba and coccinea; the large-flowered allamandas were unknown; so to Bougainvillea glabra, Clerodendron Balfourianum, or Anthurium Scherzerianum. I think of old William Barnes, of Camberwell, and his retort to one who said in his presence that the collections of stove and greenhouse plants since the introduction of some of the rapid-growing stove climbers now so much exhibited were better than they were forty years ago. The veteran said, "Give me the man who can grow Gompholobium polymorphum splendens, and I will show you a cultivator of specimens." The task of providing fine and attractive specimen plants is an easier one in these later days than it was in those of William Barnes. There were giant growers at that period—the Mays, Collyer, Williams, Peed, Rhodes, Green, Donald, Dods, Carson, and others, all of whom by their skill as cultivators and their success as exhibitors wrote their names large on contemporary annals of horticulture.



THE ARBORETUM IN WINTER, CHISWICK HOUSE. From a photograph by C. Henwood.



THE LAKE, CHISWICK HOUSE. From a photograph by C. Henwood.

And there was the walk through the Chiswick grounds until the exit was reached near the entrance, through massive gates, to Chiswick House, for the Duke of Devonshire of that day granted this permission to visitors to the Chiswick shows. Who can forget the sublimity of the ancient cedars near the mansion—specimens which had withstood the tempests of centuries, and had witnessed the gathering beneath their grateful shade of thousands of the world of fashion and renown? We have nothing like these gatherings now; the glory is departed with hundreds of those who promenaded the charming lawn of this historical mansion.

It was not all success at Chiswick in the old days. There were times when the council had to face periods of acute anxiety over financial difficulties; when Fellows fell away, as some constantly will and still do, and when the fashionable support, upon which so much then depended, was not constantly forthcoming. There were flower show days of storm and tempest, when the maddened winds spent their fury on the canvas tents, leaving ruin and dismay in their wake. There was one memorable occasion of a breakfast fête towards the end of the forties, when the weather turned out lamentably unpropitious. Ample tents had been erected, and an appropriate feast prepared. There was gorgeous plate, fine china, and sparkling crystal, combined with the most delicate viands and high-priced wines, to charm the eye and tempt the palate. But heavy rains descended, a howling wind arose, the pillars of the tents gave way in the water-soddened earth, and there was imminent danger that the whole fabric would collapse and bury the numerous company in its wet embrace. Men were called in from the streets; they gathered about the pillars and held them up while the visitors feasted within. It is recorded that after feasting they engaged in dancing on the wet and splashy turf, dancing in soaked boots and shoes; and there is a local tradition extant that a bushel of wet shoes and stockings were picked up in the garden and neighbourhood next day—probably thrown from the carriage windows after the owners had obtained fresh supplies from the Chiswick shops on leaving. The end came at last. "No sooner had the last visitor taken his departure, and the men had been released from their long and laborious duty, than the posts and pegs of the tents slowly yielded, ploughing through the muddy puddle in which they stood, and the whole fabric gave way with a crash, burying in one indistinguishable ruin the tables and the dinner service, wines and viands, under their wet and heavy folds. It was a fortnight afterwards before the purveyors were able to have all the articles, overwhelmed on that night, removed; and it is noteworthy, and to the credit of the society's servants, that although the whole *appareil* of the feast—broken crystal and viands—lay mixed with valuable plate for so many days, not a single article was lost. The spoons and forks were recovered by raking them out of the mud, and not one was missing."

Any contemplation of the work done at Chiswick during the past fifty years recalls the names of Thompson, McEwen, Eyles, and Barron; their memories smell sweet in the fragrance of the worthy work each did. And even now the eyes of the Horticultural world are turned towards Chiswick in faith and confidence that worthy work is still being done there; and many a pilgrimage is made to this shrine of gardening, and no devotee goes away disappointed. If the surroundings are less favourable to good culture than they were thirty years ago, they are combatted by pluck, skill, enterprise, and resource.

What of the future of Chiswick? There are some who earnestly wish this sacred spot to be for ever associated with the Royal Horticultural Society, and there are others who think its force is spent and its resources exhausted. Whatever may be its future, the thoughts of many will cluster in tender association about this old garden, and gratefully revere it for its glorious past. It may be the next generation will witness the uprising of a new Chiswick in some more favoured spot; and if it can rival, even if it does not transcend, the successes of the old, there will be gratitude and good wishes for it among the entire gardening community.

Richard Dean, V.M.H.

OLD CEDAR AVENUE, CHISWICK HOUSE

From a photograph by C. Henwood, Chiswick.

DESSERT APPLES AND PEARS FOR CHRISTMAS.

At this season of the year, when apples are in great demand, one must have good varieties. Ribston Pippin, which some palates prefer to all other apples, is one of the best, and though our fruits are not so fine as usual the flavour is first rate. Personally I prefer Cox's Orange, and these, when ripened in a little warmth, are absolutely unsurpassable. Unfortunately, quantities of apples are palmed off upon the public as Cox's which are not that variety at all. Blenheim Orange is also a good dessert apple, and one which finds much favour; in fact, it answers a twofold purpose, for it is an extraordinarily good culinary apple, and the best for mincemeat. Scarlet Nonpareil and Rosemary Russet are also superb varieties for Christmastide, and should be in every collection of dessert apples at this season.

Doyenne du Comice stands out quite alone at this season as a dessert pear of high and delicious flavour. The long autumn gave them such a long growing season that the flavour has been very considerably enhanced, and my employers and their visitors speak highly in their praise. We have had this variety in use since the beginning of October. Beurré Diel is a very fine Christmas pear, the flavour being unusually rich this year, and though the fruits are somewhat smaller than usual, they are quite large enough for dessert. Winter Nelis is also very good this season, being brighter and less marked than is the case sometimes. They are also exceedingly rich in flavour. But one may have all these and other varieties in season, yet they will all have to take positions below Doyenne du Comice.

Combton Basset. W. A. Cook.

THE DETECTIVE PLANT.

Sugarapsa plumosa (Bunkles).

MY old friend Bunkles is a many-sided man, and hence his intimate friends and his outside acquaintances form very different estimates of him, ranging from a jolly good fellow down to a cantankerous cuss, both of which extremes, I may remark, are fully justified from time to time, just as circumstances may shape his temper. This sort of variegation is, of course, not peculiar to Bunkles, but it must be admitted that he was a strongly marked specimen of the cantankerous type when he chose, and thought he had good reason for so doing, to adopt that particular phase of character. Another peculiarity of his also led to divergences of opinion about him, and that was a talent for sly, practical jokes, which his intimate friends laughed at, and sometimes repaid in kind, but which occasionally upset the equanimity of outsiders, who took matters seriously, and were consequently "sold." I recollect Bunkles getting into terribly hot water on one occasion when some brilliant scientific lights had honoured the local flower show with their coruscations, and were afterwards entertained at a little dinner. After the dinner Bunkles produced a most remarkable hybrid plant, displaying the characters of half-a-dozen species, which, he said, had originated in his greenhouse. Professor Solemun, O.P.Q.L.M.N., and several of his colleagues examined the specimen, and promulgated a number of vastly abstruse theories, justifying the peculiar phenomena of pangenetical hybridity thus exemplified. Dr. Goggles, B.C.D.E.F.G., and Professor Dummkopf, two others of the honoured guests, followed suit, and when they were all done Bunkles pulls the thing out of the pot and displays an elaborate system of wiring up as a probable explanation. Ructions followed, of course, for the thing had gone too far, but I will do Bunkles the justice of saying that he thought the fraud would have been too obvious to deceive the "wise-acres" (as he irreverently termed them) as it did.

Now, Bunkles had a garden, a large garden, far too large for him to keep in order by himself, and Bunkles consequently had also a gardener, or, rather, a succession of gardeners, for I don't suppose I shall create an immense amount of surprise when I state that in this connection the cantankerous feature was not infrequent in the relations between master and man. In these cases it was frequently difficult to know who was the more to blame, for from the gardener's point of view it must be extremely provoking to find all sorts of little traps set to prove dereliction of duty or breach of instructions. Bunkles would give strict injunctions that certain presumably precious things were to be severely let alone, and, of course, John the gardener would want to see the reason why, with the result that half-a-dozen pots and pans would turn out to be set as it were on a hair trigger, and an irreparable smash resulted from his meddling, the whole affair, I need hardly say, being merely a "trap," totally unconnected with anything precious, as John presumed. Bunkles, however, was not altogether malicious in these matters, for the fact was that he had a perfect genius for the raising of plants from hopeless looking bits and moribund remainders by little coddling dodges of his own, and from his point of view it was desperately provoking to find these delicate little sparks of vitality snuffed out by John's curiosity to see either "what they wos" or "whether they wos growin'." I have even seen Bunkles stretch a few spider's threads across a particularly precious pot as a trap of this sort, the broken web revealing the delinquency of John, to his immense mystification. Minor sins of this sort, however, Bunkles' "good fellow" side led him speedily to forgive, and every now and again he would be able to keep a man John in his employ for several months together. One indeed was with him a full year, but "Sugarapsa" turned up, and his occupation was, like Othello's, gone.

Bunkles, like every amateur horticulturist worth his salt, kept a constant eye open for the newest and best of his particular fancy plants, and one of his greatest enjoyments when a congenial spirit turned up was to display his latest acquisitions and to dilate upon their beauty and rarity. One such spirit dwelt about a mile away from Bunkles' little Paradise, and in time a sort of friendly rivalry set in. About this time Bunkles began to have suspicions that some of his less recent novelties had a knack of disappearing, either *in toto* or partially, the plants shrinking in size very mysteriously. These shrinkages or disappearances happened invariably during his occasional absence from home, and John's explanations were of the vaguest the total disappearances being imputed to raids by unknown depredators "over the garden wall." Curiously enough, however, Bunkles found his friend's collection richer on several occasions by precisely similar plants to those he missed, and one evening while out for a stroll he found John and William—that is his friend's gardener—in close confab, which they broke off with suspicious abruptness at his approach. An incapacity for putting two and two together was certainly not a weakness of Bunkles; he made the addition and concocted a plan.

The following week Bunkles arrived home with a very beautiful specimen of vegetation in a pot, which he carefully installed in a place of honour in his greenhouse, and instructed John to take very particular care of it, as there were only two or three such in the country, and its value consequently was very great. Bunkles at the same time made John bring him a label, and with his own hands, in clear print, he wrote the name "Sugarapsa plumosa." John admired the plant extremely, its fine delicate hair-like foliage being altogether new to him, and Bunkles' estimate of its value obviously just. A few weeks elapsed and Bunkles went for a fishing excursion in the north, returning a fortnight after. His first care on his return was to inspect Sugarapsa, respecting which John had a doleful tale to tell of an intrusive cat, a terrible smash, and consequent repotting as best he could, the result being, as Bunkles mentally noted, "another dwindle and a rhyme to it." Now comes the curious part of the story. Bunkles on visiting his friend, which he was not long in doing, found by an extraordinary coincidence that he too had a plant of the wonderful Sugarapsa plumosa, which his gardener William had recently acquired from a well-known nursery firm as a great bargain at two guineas, there being only, as he was told, three plants of it in existence. Now Bunkles and his friend were old chums, and he knew perfectly well that so far as the master was concerned all was fair, square, and above board, so, having heard the history of the acquisition, he whispered a word or two in his ear, and asked him to send William for his man John on some simple pretext, which was done.

"Now, William," said Bunkles, "you say you bought that plant at the nursery. Did you buy it under that name?" "Why, certainly, sir, a course I did; that's the proper name on it." "Well, John," said Bunkles, turning to his own man, "you stole that plant from me and sold it to William, for that name is my own invention. Read it backwards, and out loud, and you will stand self-convicted." John had no alternative, and read it out "Asparagus," and for his pains got the "sack," in conjunction with William, who were lucky to get off so easy. "A beautiful plant, isn't it?" said Bunkles, and a beautiful "plant" I thought it was. JACK BOWSER.

CHRISTMAS WEATHER LORE.

As might only be expected of a month which embraces within its orbit the greatest festival of the Christian Church, and coming, as it does, within the more superstitious half of the year, December has more than its full share of weather lore, which, like all other rustic and country-side folk-lore, is sometimes true, but very often false. As, however, all these fantastic legends are worth preserving, I give in the following lines some few of the proverbs of the weather-wise which have come down to our own times, and which have been culled from a variety of sources. Thus we know that a cold and snowy December is good for rye, a matter of far greater moment in Russia than in England; while again thunder in December is held to presage fine weather. In Scotland there is a jingle referring to November 11 and December 25, running thus:—

"'Tween Martinmas and Yule
Water's wine in every pool."

We are told that a "Green Christmas makes a fat churchyard," while a variation in Rutland has it that "A green Christmas brings a heavy harvest," and again, "At Christmas meadows green, at Easter covered with frost." In Germany a saying runs that "The shepherd would rather see his wife enter the stable on Christmas Day than the sun." Again, "A clear and bright sun on Christmas Day foretelleth a peaceable year and plenty; but if the wind grow stormy before sunset it betokeneth richness in the spring and autumn quarters." Another superstition runs that if the sun shines through the apple tree on Christmas Day there will be an abundant crop in the following year. Then, if there is a full moon about the 25th, we are assured that—

"Light Christmas, light wheatsheaf;
Dark Christmas, heavy wheatsheaf;"

while if it is windy on Christmas Day the trees will bring much fruit. In Germany the following rhymes are current:—

"So far as the sun shines on Christmas Day,
So far will the snow blow in May."

"A warm Christmas, a cold Easter;
A green Christmas, a white Easter."

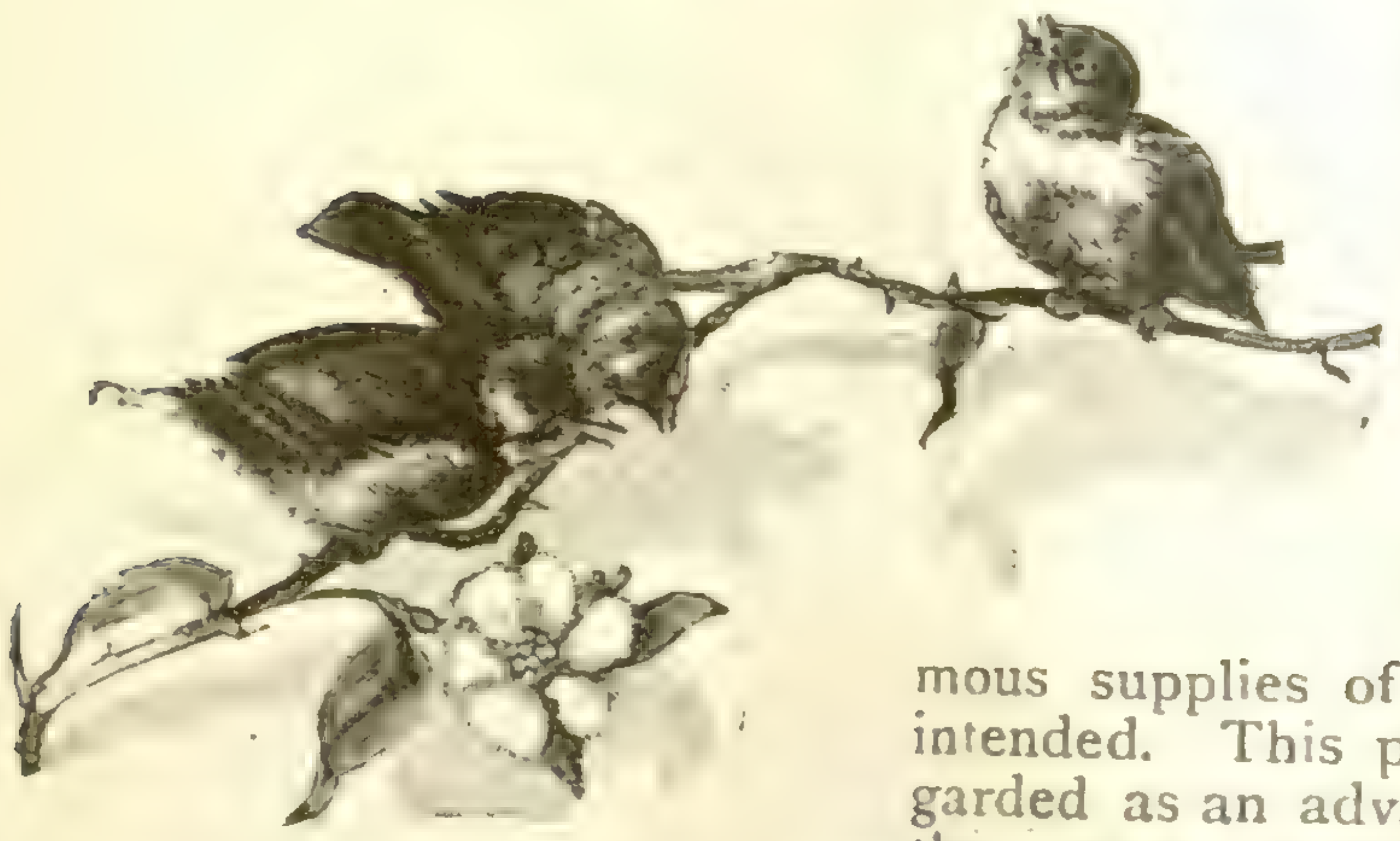
"Christmas in snow, Easter in wind;
Easter in snow, Christmas in wind."

Then again, if it snows during Christmas night the crops will do well, and, joyful news to Kent, if it snows on Christmas night good hop crop next year; while another says if Christmas be wet there will be an empty granary and barrel—which would be bad indeed, neither bread nor beer. Then we are also told in some parts that if at Christmas ice hangs on the willow, clover may be cut at Easter. A pleasing jingle relating to the weather runs:—

"If Christmas finds a bridge, he'll break it;
If he finds none, he'll make it;"

while in some places it is said that if the ice will bear a man before Christmas it will not bear a mouse afterwards, which in other parts again is remarked of a goose and duck. In Meath it is said that when the blackbird sings before Christmas it will cry before Candlemas. A windy Christmas and a calm Candlemas are signs of a good year, while in the vineyards of France they tell us that if on Christmas night the wine ferments heavily in the barrels a good wine year will follow. Much thunder during Christmas week denotes that there will be much snow during the winter, while the twelve days from Christmas to January 5 are said to be the keys of the whole year's weather, while if it rains during the twelve days after Christmas a wet year will follow. A method of superstitious divination formerly practised in France was the placing on Christmas Day of twelve onions, which represented the twelve months of the year. Each onion had a pinch of salt placed on the top, and if the salt had melted by Epiphany the month corresponding was put down as sure to be wet, while if the salt remained the month was sure to be dry. If Boxing Day is windy it is held to be bad for next year's grapes, and with this my selections must close. W. N. B.

ENGLAND'S ORCHARDS AT HOME AND ABROAD.



In consequence of the limits the Editor has found necessary to impose upon me in the matter of space I shall not be able to discuss the orchards whence the United Kingdom draws its enormous supplies of fruit so fully as I intended. This probably will be regarded as an advantage, for not even the most enthusiastic pomologist would derive much pleasure at this particular season from an examination of the multitudinous details that it would be necessary to give in a full treatment of the subject. I, however, had no intention of attempting the impossible, or, to be exact, of giving details of England's orchards, for are they not to be found in all quarters of the globe? tropical and temperate regions alike contributing their share to the fruit supplies of this country. The object I have had in view has been simply to show how great are our requirements in the matter of fruit and to indicate in some degree the countries from which our main supplies are obtained. In the consideration of the question of our fruit supplies it is eminently satisfactory to have undoubted evidence as to the increasing importance of fruit as an article of diet. A quarter of a century since such choice fruits as grapes and pineapples were during the winter months only within the reach of the wealthy, but now they are so inexpensive that the greater proportion of the middle classes are able to have them on their table with more or less regularity. Changes in other directions have cheapened and improved the supplies of fruit within the reach of the poorer members of the community. Notwithstanding the reduction in value, those who engage in fruit production on business lines appear to make a respectable profit, for we see them continually enlarging their borders. In some instances the values have been so reduced as to leave no margin for interest on capital, and what the economists designate the wages of superintendence, and many good men have unhappily gone to the wall as a consequence of the economic changes that have been brought about during the past twenty years.

Probably no greater change has been made in connection with fruit production of late years than in grape culture, and there can be no question that the community has immensely benefited from the largely increased production of these fruits. Happily the British orchards or vineyards fully maintain their supremacy, for no grapes the world has yet produced can compare with those grown at home. We have not only been able to hold our own in the British markets, but we have made some progress in obtaining supremacy in the American and French markets, where excessive duties greatly hindered us in our competition with the American and French growers. Twenty years ago we were largely dependent upon the German growers for supplies of grapes at prices that placed them within the reach of the middle classes, but the development of the grape-growing industry in the Channel Islands completely stopped these importations. Of late we have received large supplies from Belgium that have sold at low prices, more especially during the past autumn, these supplies being in a large measure due to the heavy duty excluding them from the French markets. It is estimated that the Belgian supply is equal to two hundred and fifty tons annually, a quantity which, if a small proportion only of the annual supply, is sufficient to depress the prices of the second-rate grapes. From the Channel Islands immense quantities of grapes are received in the English markets, the total being about two thousand five hundred tons. The English crop, which is of unsurpassed quality, is not less than one thousand tons. The total supply of grapes grown under glass is, therefore, three thousand seven hundred and fifty tons. In addition, the British markets are supplied with about half-a-million barrels of Almerian grapes, which, if thick skinned and flavourless, are, when of good quality, refreshing to the palate, and they afford the poorer classes an opportunity of tasting grapes. The British cultivator is also well able to hold his own in competition with the produce of the Californian, French, and Cape orchards, imported peaches being invariably tough and tasteless.

In the production of the pineapple for commercial purposes British cultivators have been beaten by the growers in the Azores, who with their great natural advantages are able to carry on the industry at a cost that is impossible in the United Kingdom. The first shipment of pines from St. Michael's was made during the sixties, and it is recorded that the fruits were sent over on the plants, and that fifty of them realised under the hammer £70. Previous to the shipment English pines were worth during the winter months from one to five guineas, and for some years afterwards Azorean fruits weighing from six pounds to seven pounds realised from £1 to £1 10s. each. This immense reduction rendered it impossible to grow pines for market otherwise than at a loss, and in consequence the commercial culture of the fruit died out. At the present time Smooth Cayennes, the variety chiefly grown in the Azores, weighing about six pounds, and in the finest condition, are offered in the fruiterers' shops at five shillings each. Whether this price leaves a margin of profit to the grower it is difficult to say; it cannot be a wide one, but it may be that it is possible to produce them on a large scale, with profit, at this price. However that may be, the industry has grown to enormous proportions, about 500,000 fruits being annually imported. The Azorean pines have nearly killed the trade in West Indian pines, so far as this country is concerned, and this is in no way surprising, when it is considered that second-rate fruits of the former can be sold at prices not greatly differing from those from the West Indian islands, while infinitely superior to the best.

Our own orchards contribute largely to the supplies of apples and pears in the British markets, but not to the extent they might, and indeed should do. The most important of the English orchards are in Kent, and from these much of the finest sent to the markets is produced. There are immense areas under apples and pears in Devon, Somerset, Gloucester, and Hereford; but, as so fully stated in the GARDENERS' MAGAZINE in the reports on the English orchards two years since, the orchards in these counties are in a deplorable condition. In some instances the trees are worn out or otherwise unproductive, and in others the varieties are so inferior as to yield fruit of but little value for market. This is very regrettable, for in no country are apples produced equal to those of Great Britain, and the demand for these fruits is simply enormous. In proof of this it will suffice to mention that in December, 1897, the imports of apples amounted to 1,186,464 bushels, of the value of £280,203, and that during 1897 we imported 6,177,192 bushels, of the value of £1,582,471. It is not possible to apportion the immense sum paid by Great Britain for apples last year among the several countries from whom we received supplies, but there can be no doubt that the greater proportion came from the United States, where are to be found England's largest apple orchards. From America, Canada, and Nova Scotia we receive supplies from the end of the autumn until the beginning of spring. These are followed by Tasmanian apples, which are received in considerable quantities during the spring and early summer months; and in the latter part of the summer and throughout the autumn Italian, French, and German apples are imported in large quantities. The fruit from these countries is inferior to that of home growth, but it comes to market in good condition and materially helps to depress prices. We cannot control the climate of this country, which is unquestionably fickle, but in ordinary seasons there should not be room for foreign apples in the English markets during the autumn.

Great Britain has long derived her principal supplies of pears from orchards outside of her boundaries, and unless some drastic reform is effected in methods of procedure she will continue to depend upon foreign orchards. There is considerable difficulty in making any great changes in the market culture of the pear, for that fruit is less certain in cropping than the apple, and if the weather happens to be unfavourable when the trees are in bloom, or the fruit is passing through its earliest stage, the crop will probably be lost. There are, however, some thousands of acres in the more favoured of the English counties on which pears might be cultivated with profit, provided suitable varieties were planted, the trees properly managed, and the fruit carefully packed. Williams's Bon Chrétien, Hessle, and Windsor are the varieties grown the most largely at home, but Pitmaston Duchess and Doyenne du Comice are favourite varieties for high-class trade, and both might be planted in much larger numbers, in districts favourable to the pear, with advantage. The earliest supplies of foreign pears come from France and Italy, and consist chiefly of Jargonelle, Louise Bonne of Jersey, and Williams's Bon Chrétien. During the autumn and early part of the winter large quantities of Williams's Bon Chrétien, Beurré Hardy, and Doyenne du Comice are received in excellent condition from California. The imports of pears from California vary, but in some weeks they have reached the respectable total of 5,000 cases. Easter Beurré, of Californian growth, is also received in large quantities during the winter, the imports averaging during December about 1,000 cases, and, as the fruit can be imported without being placed in the cool chambers, it keeps longer after arrival here than does the fruit of the varieties ripening in the autumn, which has to be subjected to cool storage. The Channel Islands, France, Germany, and Holland also send us considerable quantities of these fruits.

The market supplies of plums have increased by leaps and bounds of late years, as the result of increased activity on the part of home and foreign growers. The area of British plum orchards has of late been materially increased, and with more judicious selection of varieties and improved methods of management the newer orchards are giving good returns. The principal foreign supplies come from Italy, France, Belgium, and Germany, and extend over about three months, and from 10,000 to 15,000 boxes are sold daily before English plums are ready for the market. Our annual imports of plums now exceed a million bushels. Cherries are also imported in large quantities, the annual value of the imports being about £100,000, but as the fruit has to be gathered before it is ripe foreign cherries cannot compare with fruit of home growth. The imports of figs have materially increased of late years, the largest quantities being sent from the Channel Islands and France.

Oranges and lemons constitute a large proportion of our foreign fruit supplies, nearly all the countries in which these fruits flourish sending in large quantities. The orange supplies were so fully dealt with in the GARDENERS MAGAZINE Christmas Number of 1896 by Mr. J. R. Jackson that it would be superfluous to enter into details, and it will now suffice to say that the annual value of the imports of these fruits is above £2,000,000. Bananas, which are sent chiefly from Madeira and the Canary Islands, form a part of our fruit supplies, as indicated by the fact that between 30,000 and 40,000 bunches are received each month during the season in the London markets. As these fruits are not separately entered in the returns, it is not possible to state the exact number of bunches annually received, or the value of the imports, but there can be no doubt that bananas help very materially to swell the totals of the unenumerated fruits.

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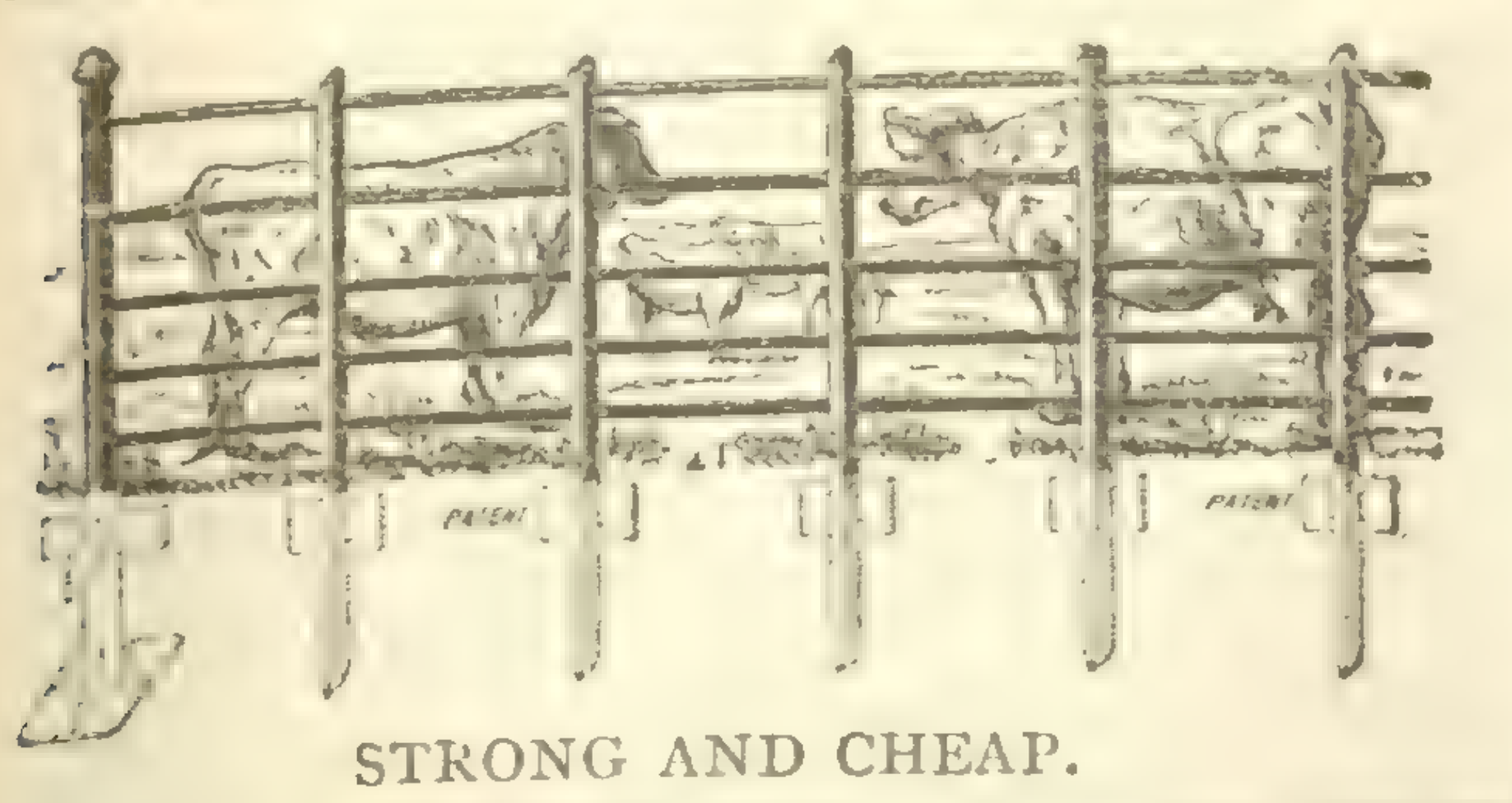

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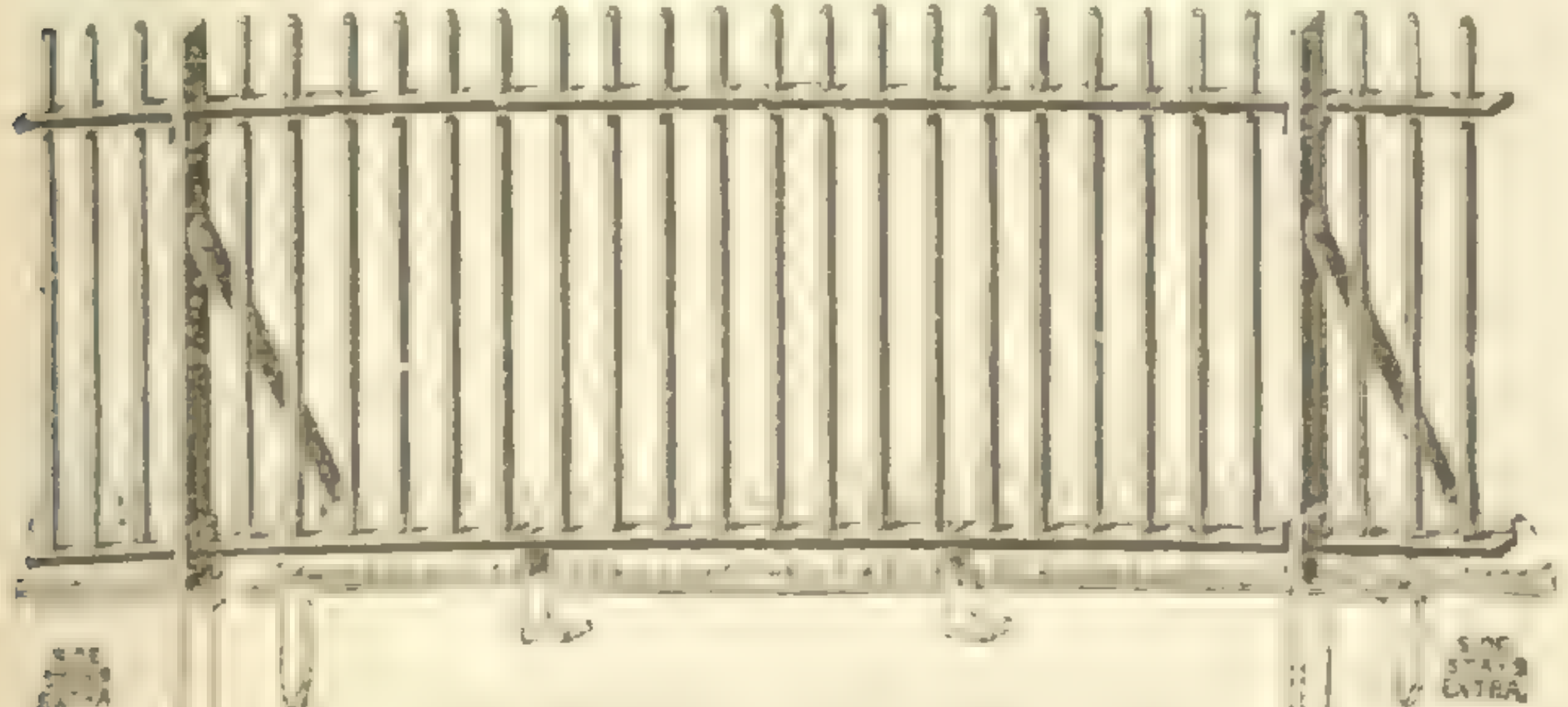

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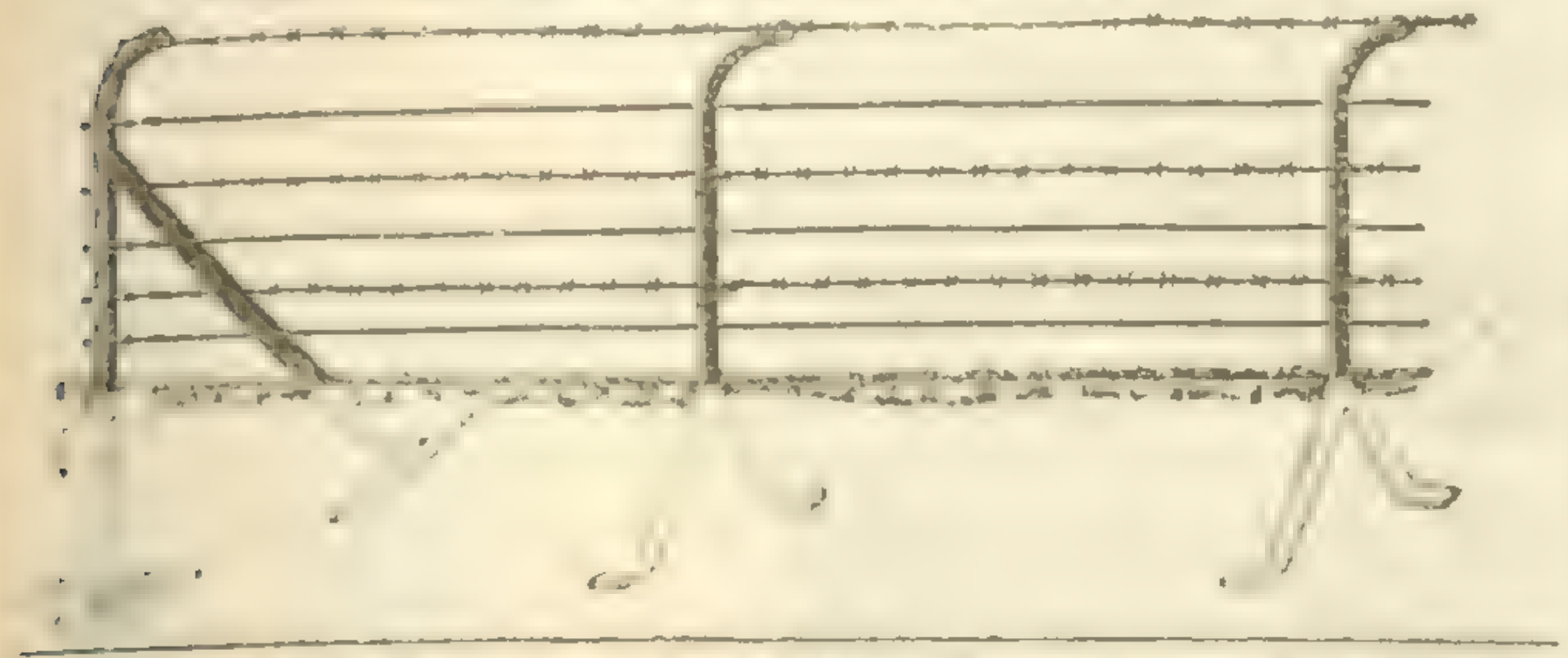

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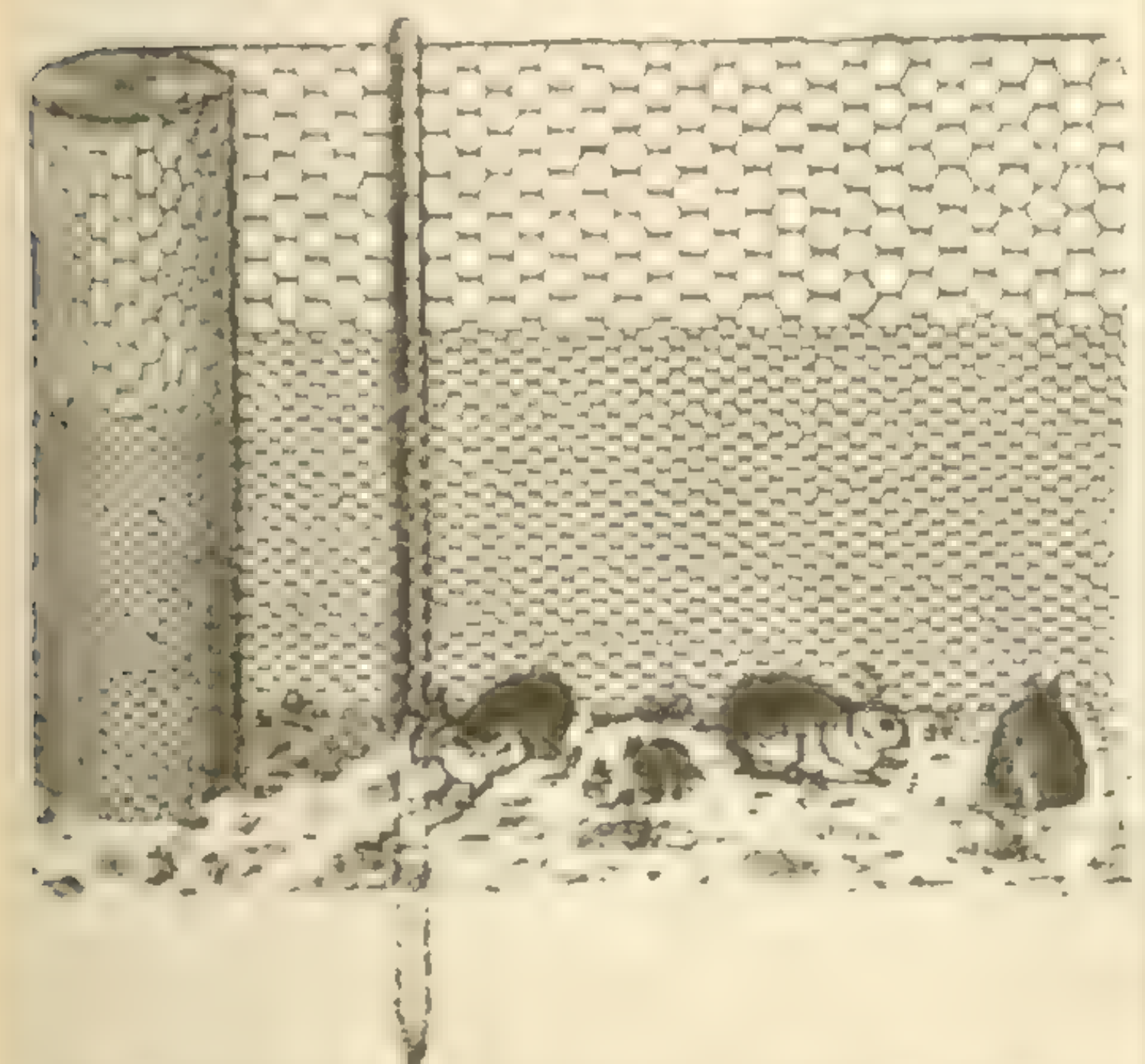

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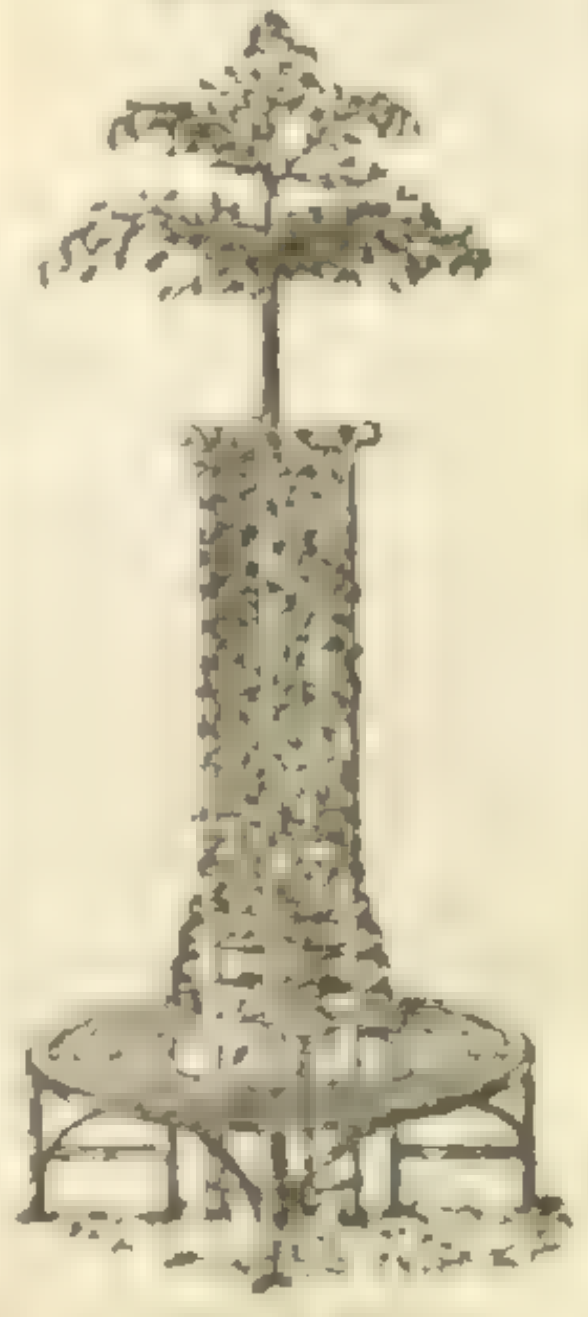

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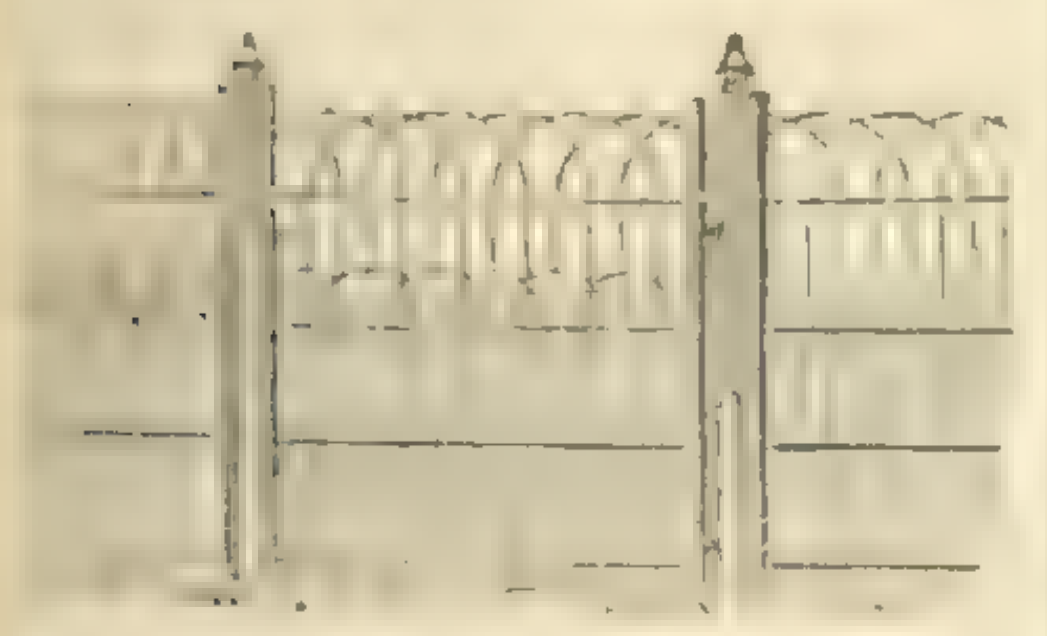

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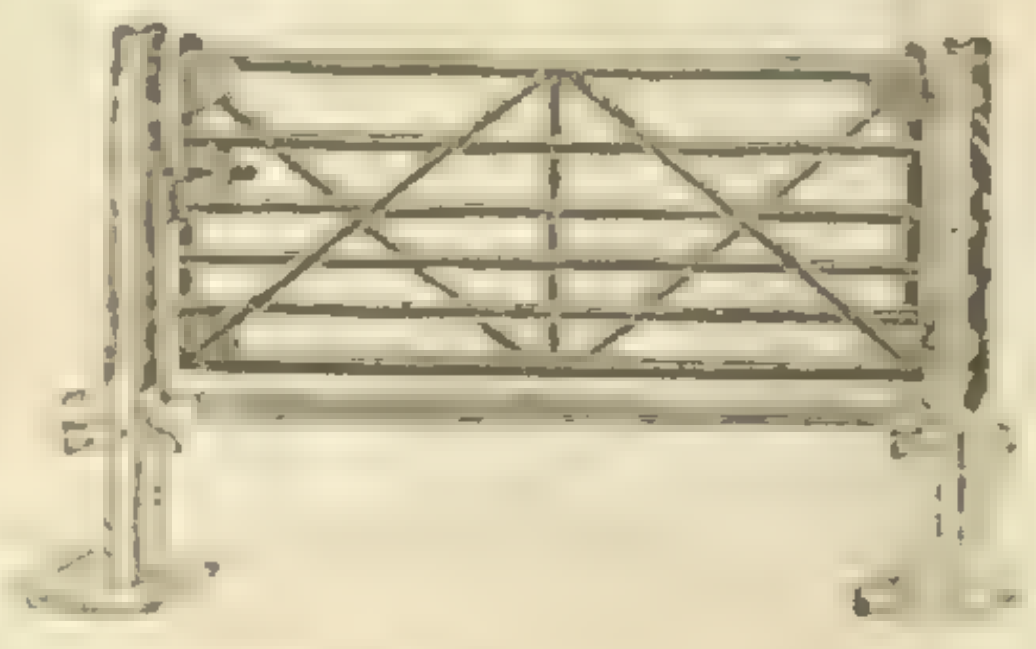

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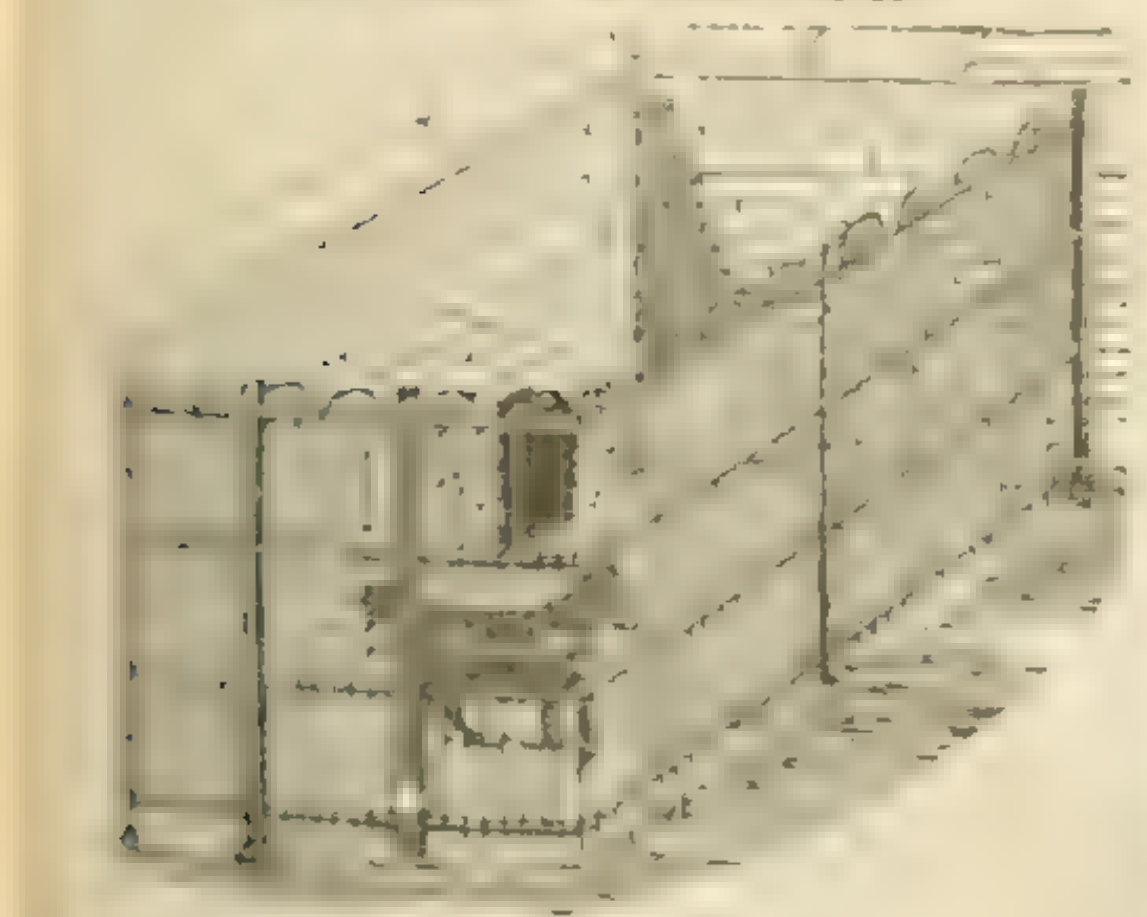

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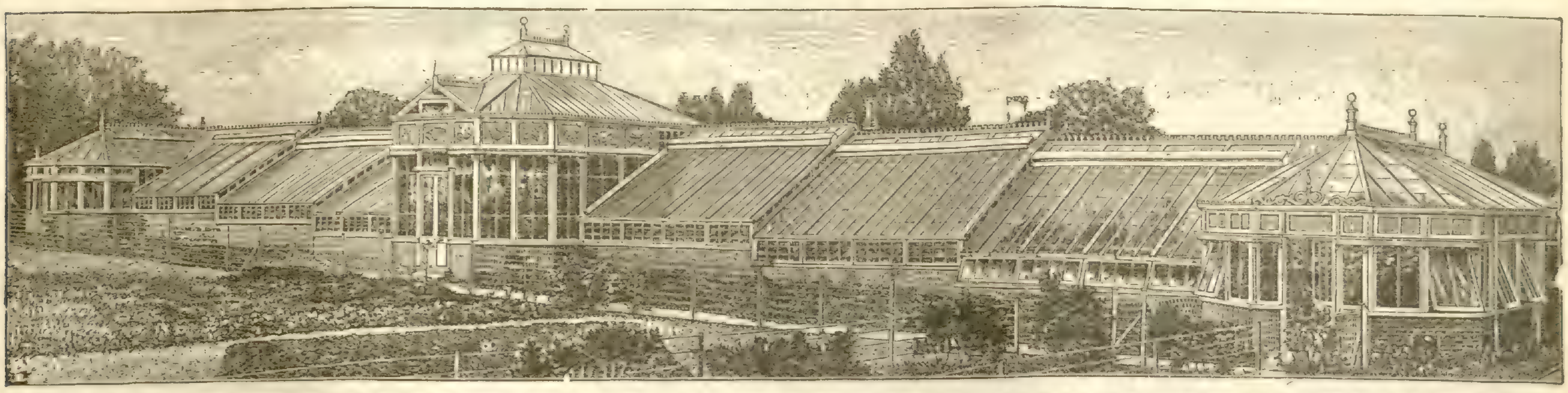

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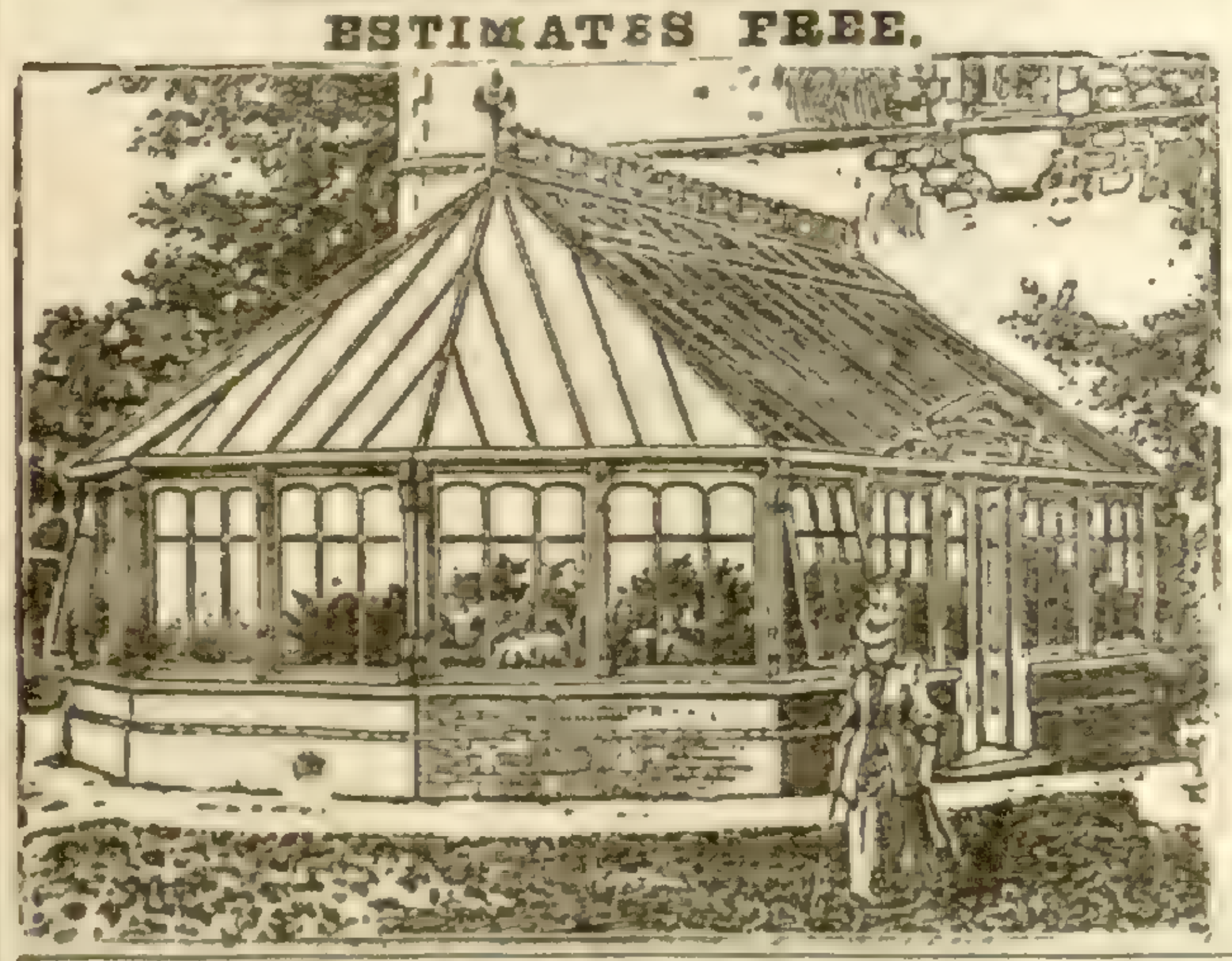

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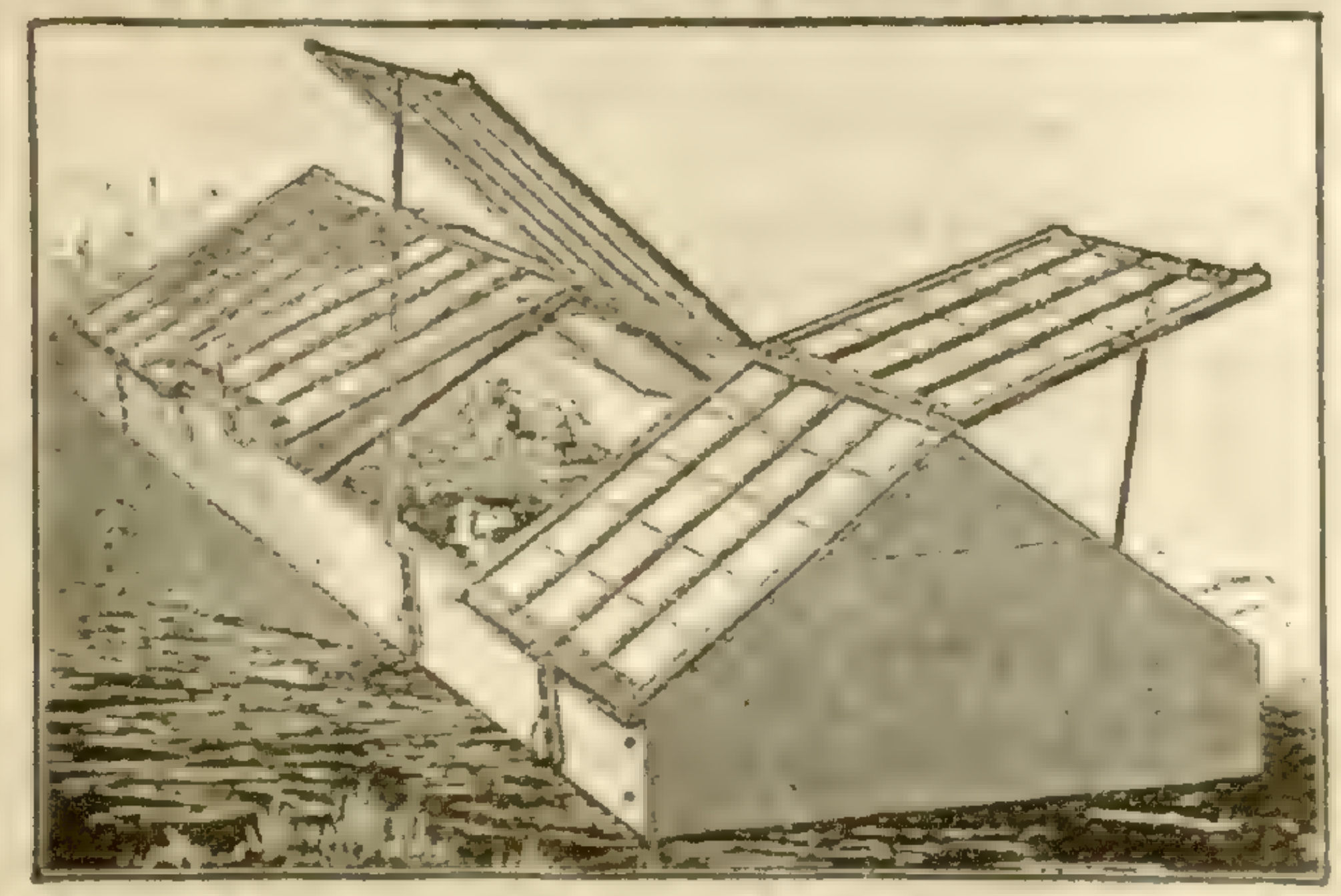

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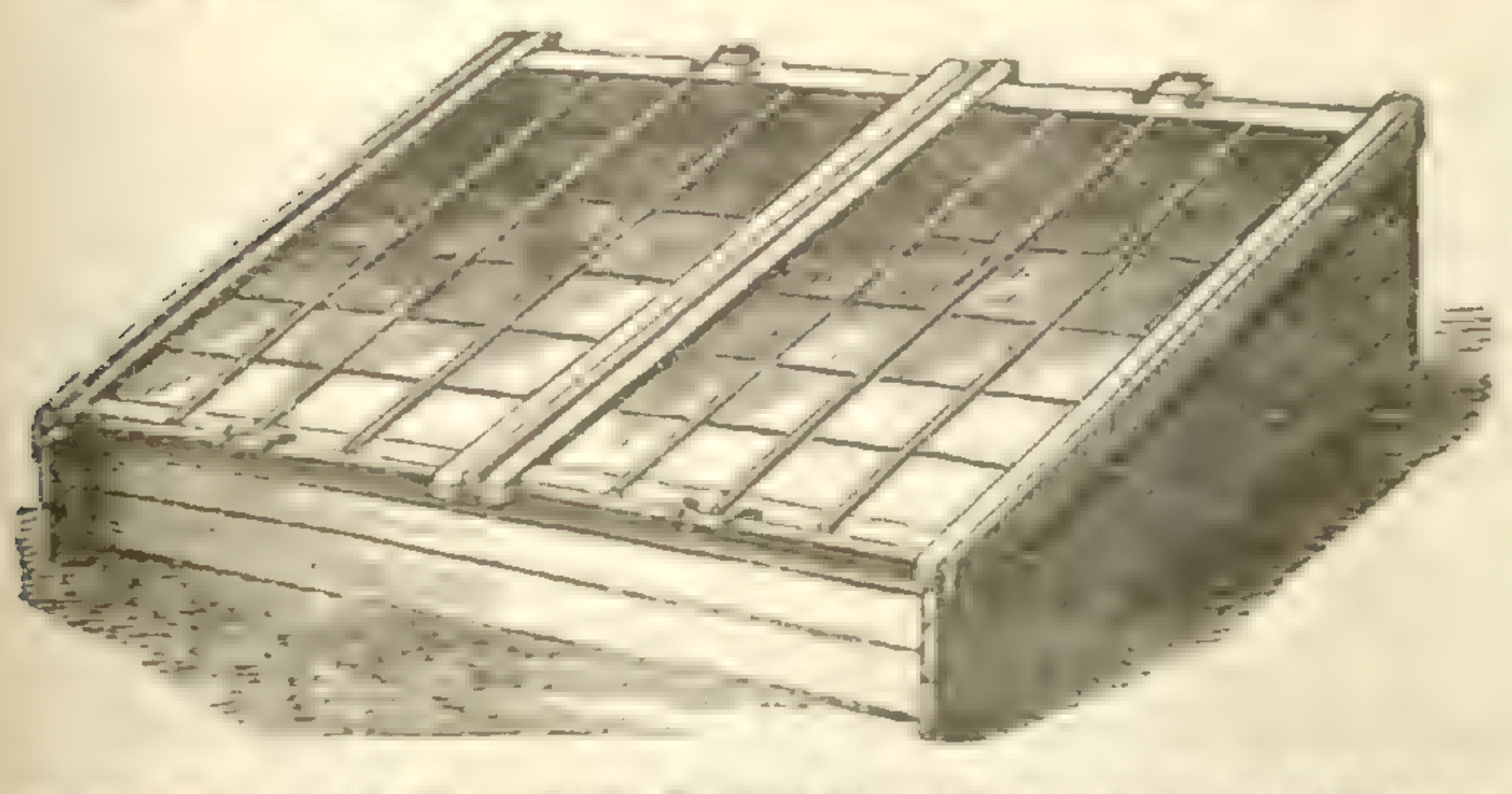

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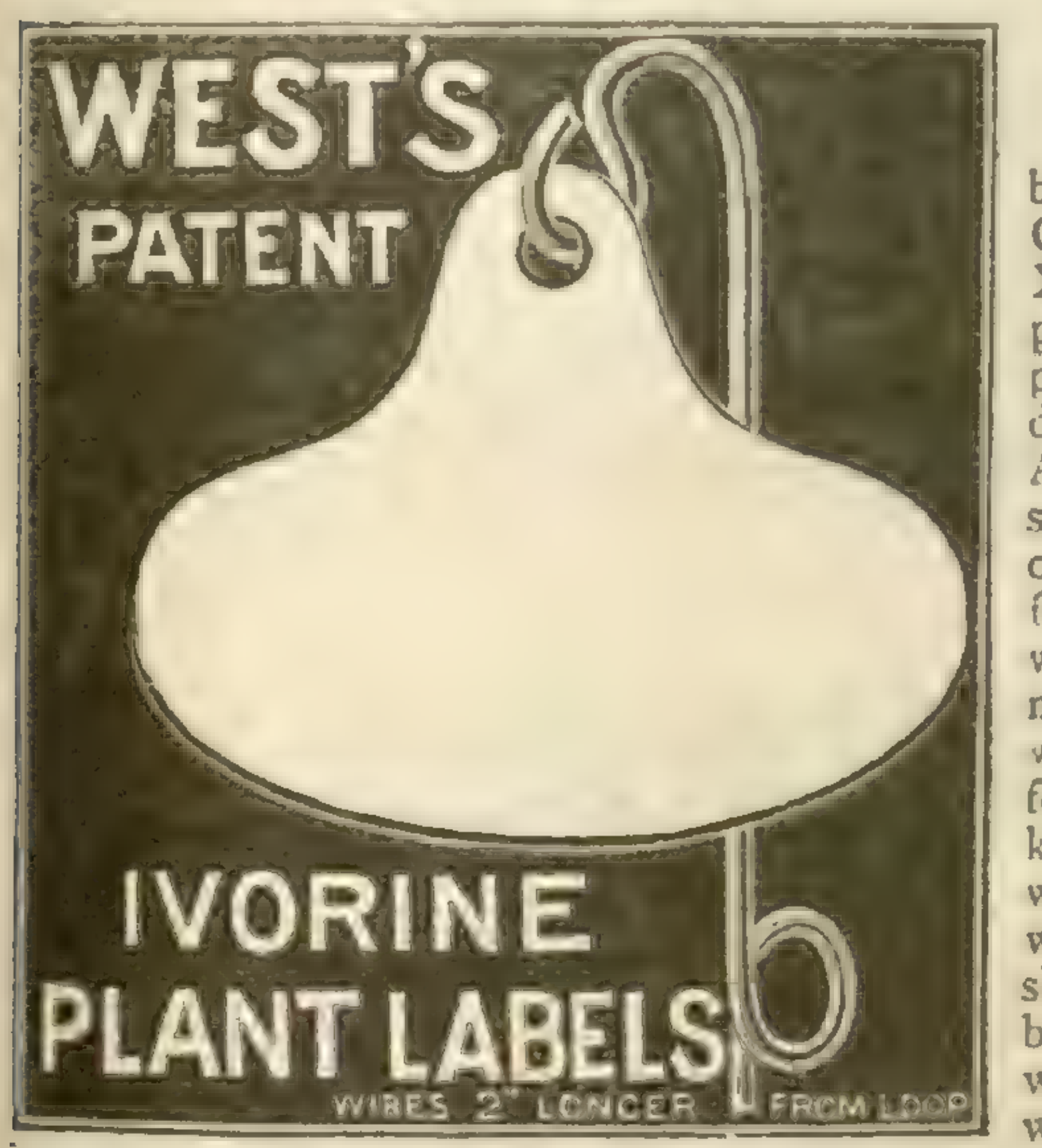

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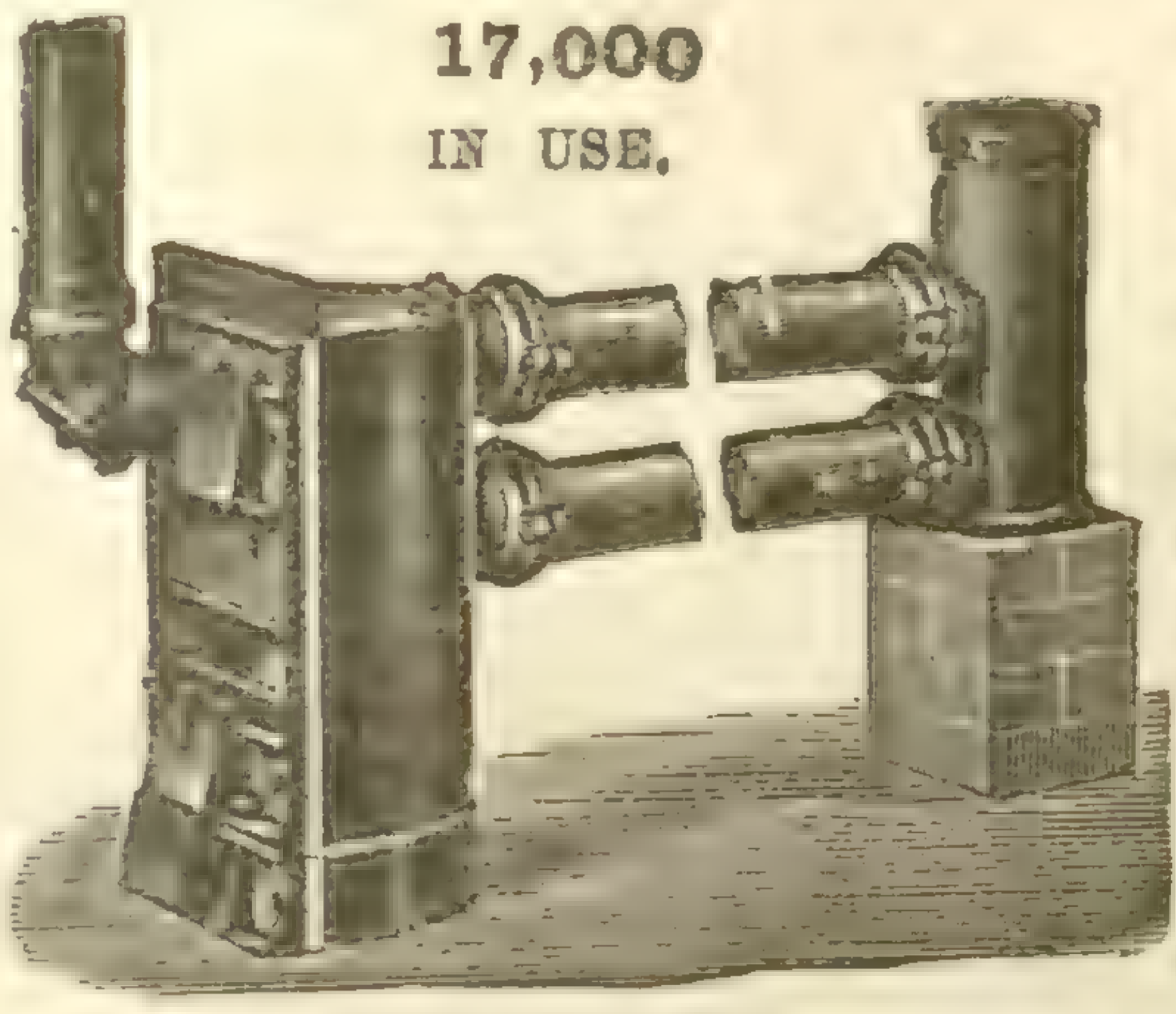

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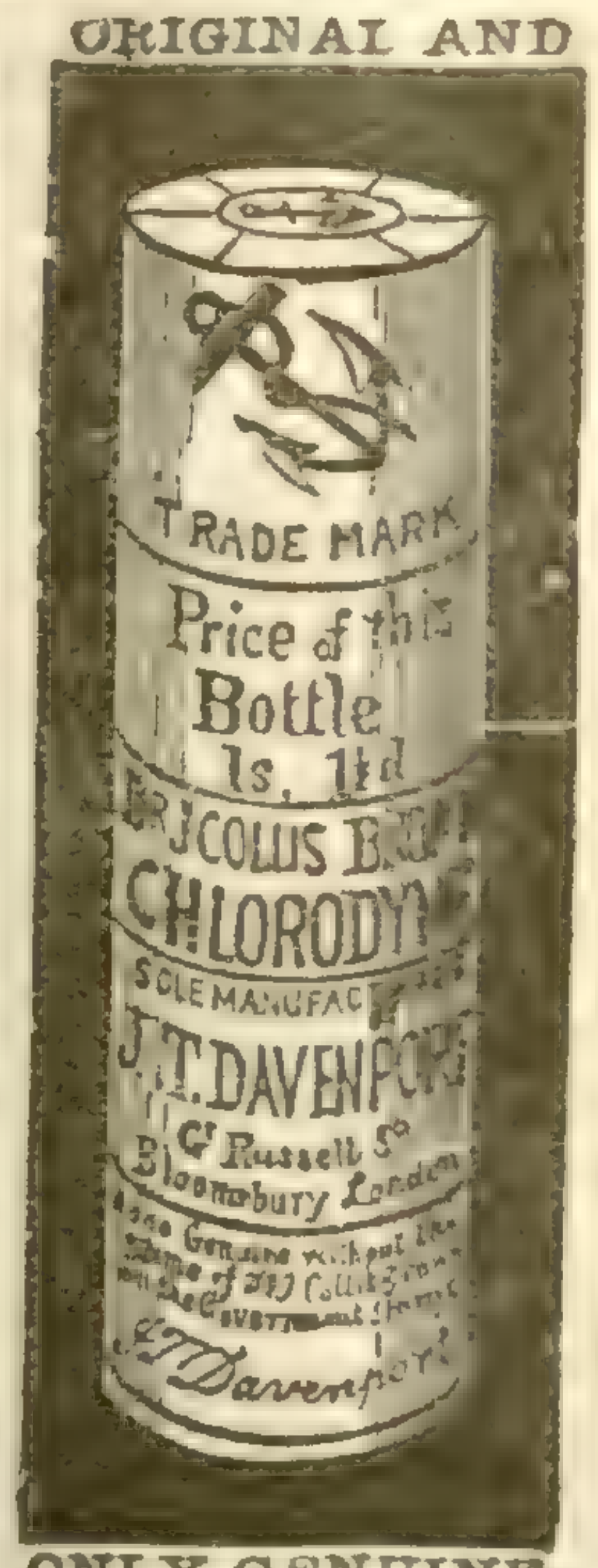

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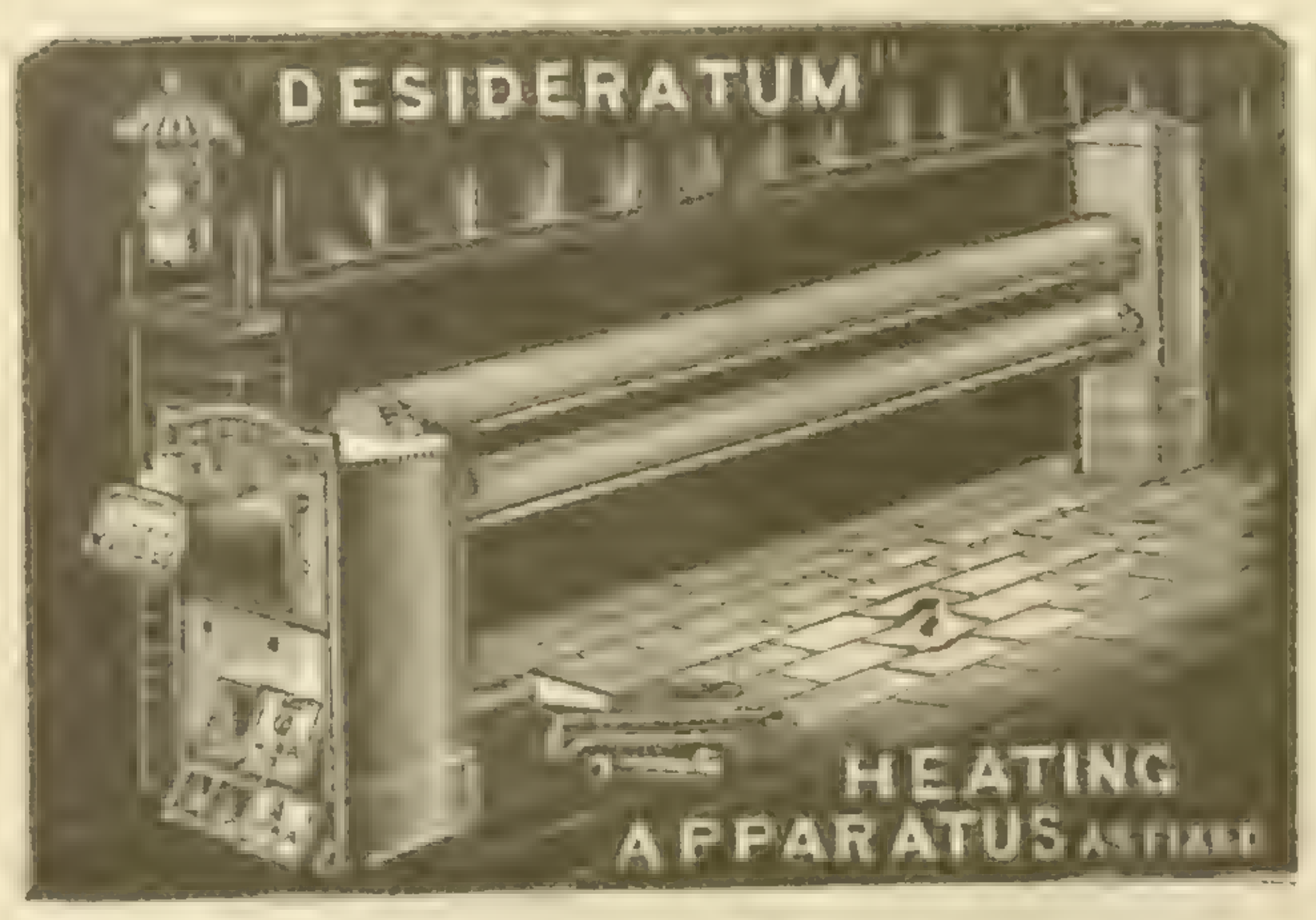

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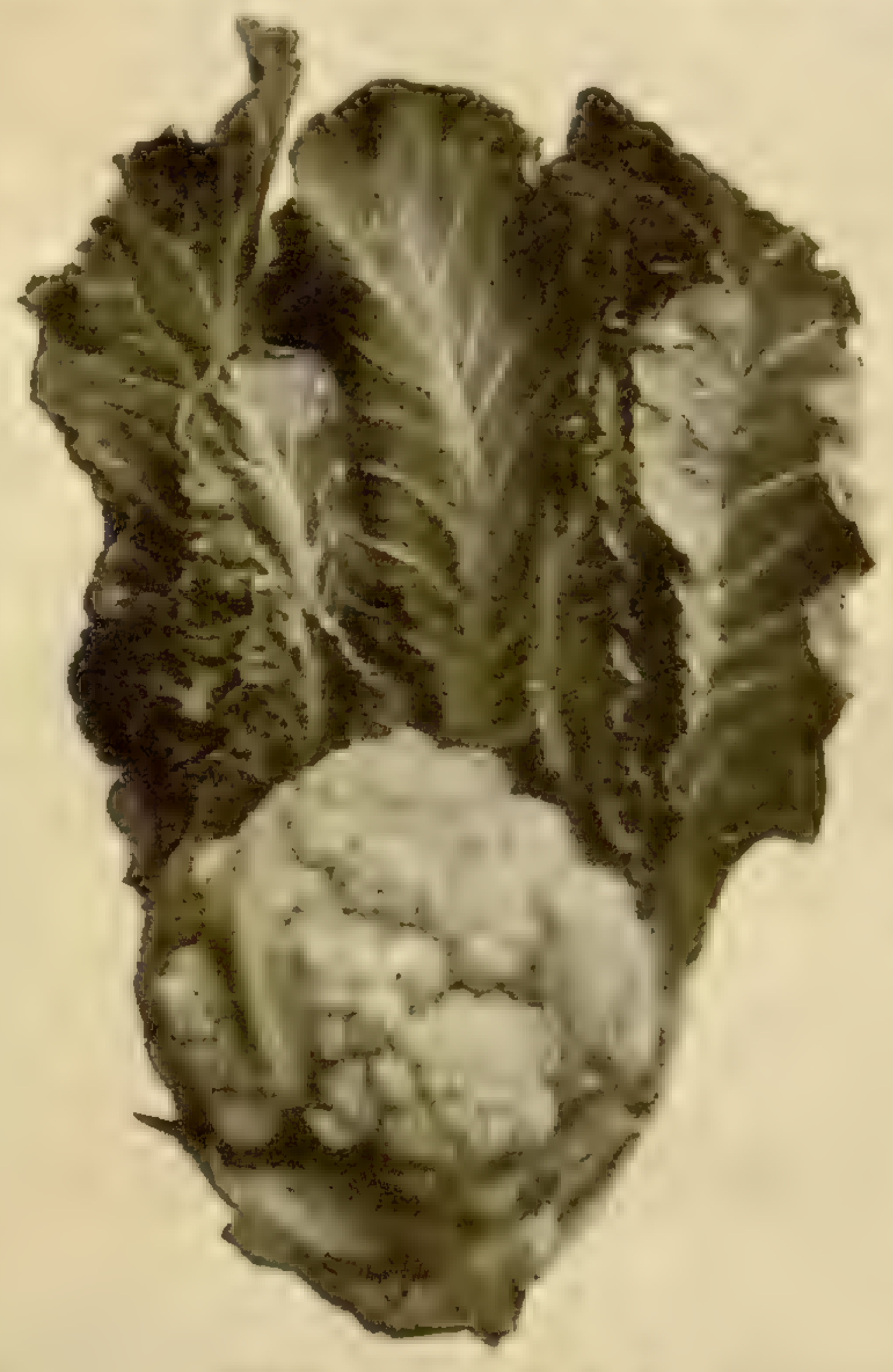

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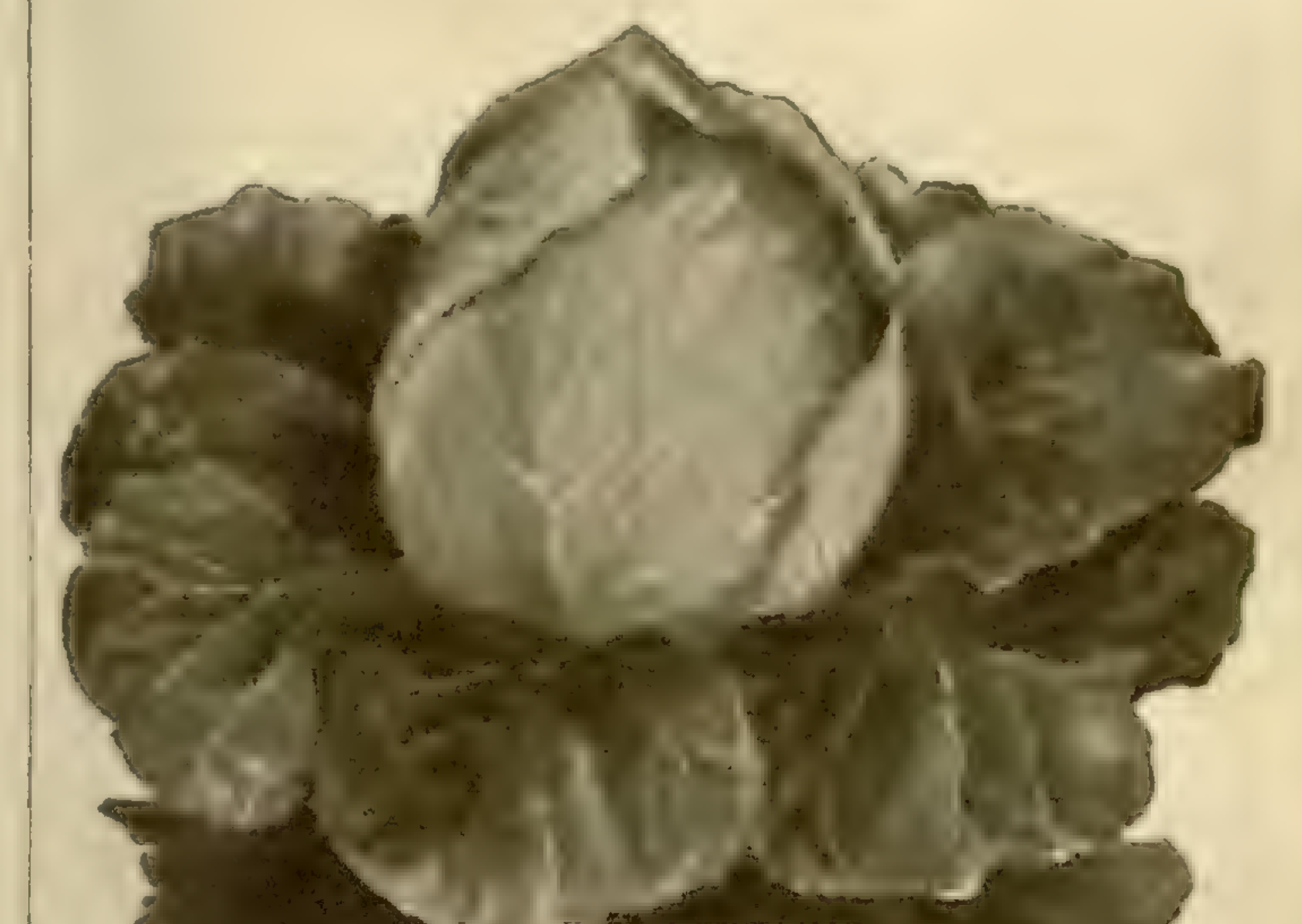

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On view Morning of Sale, and Catalogues had:

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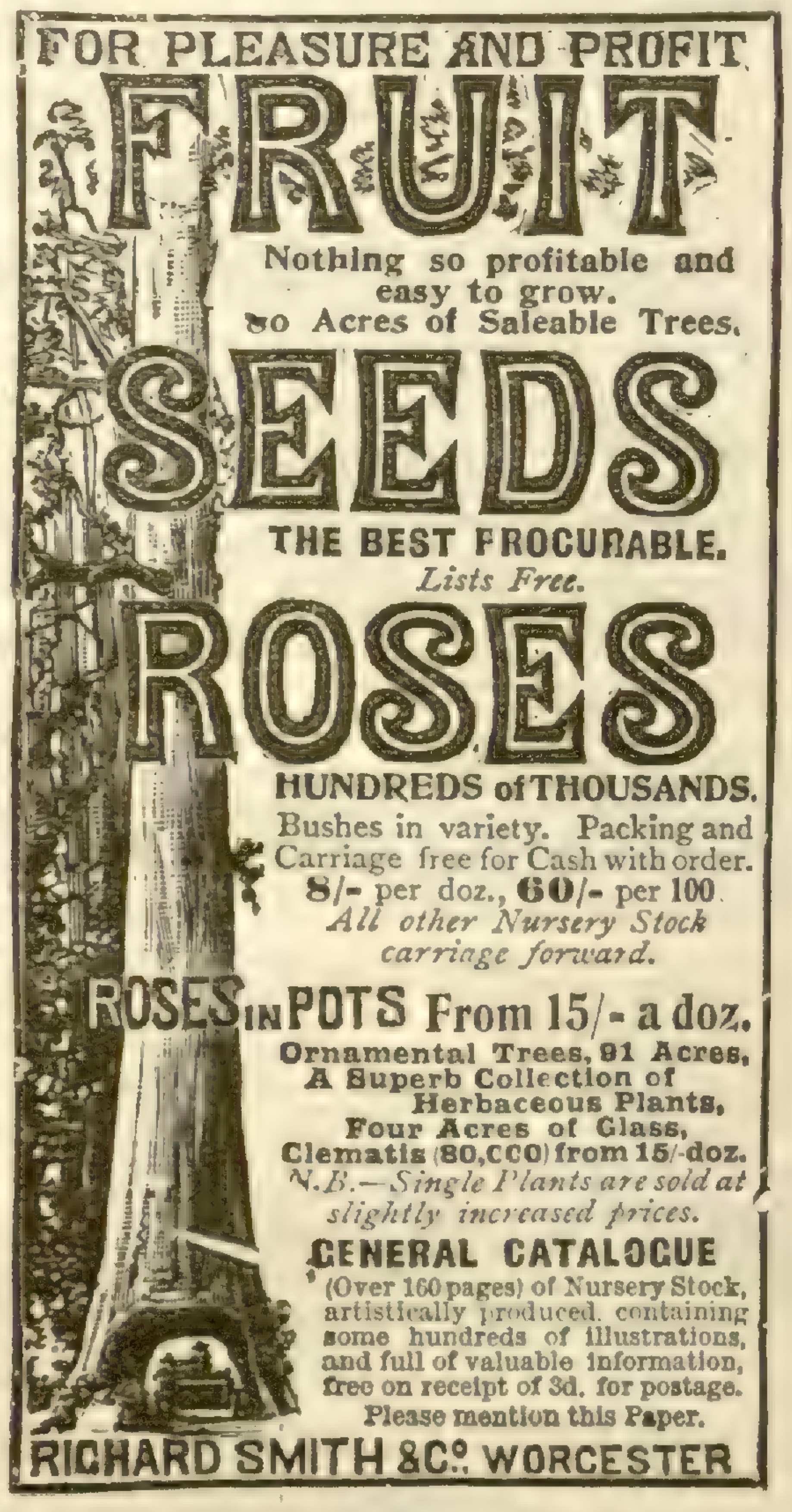

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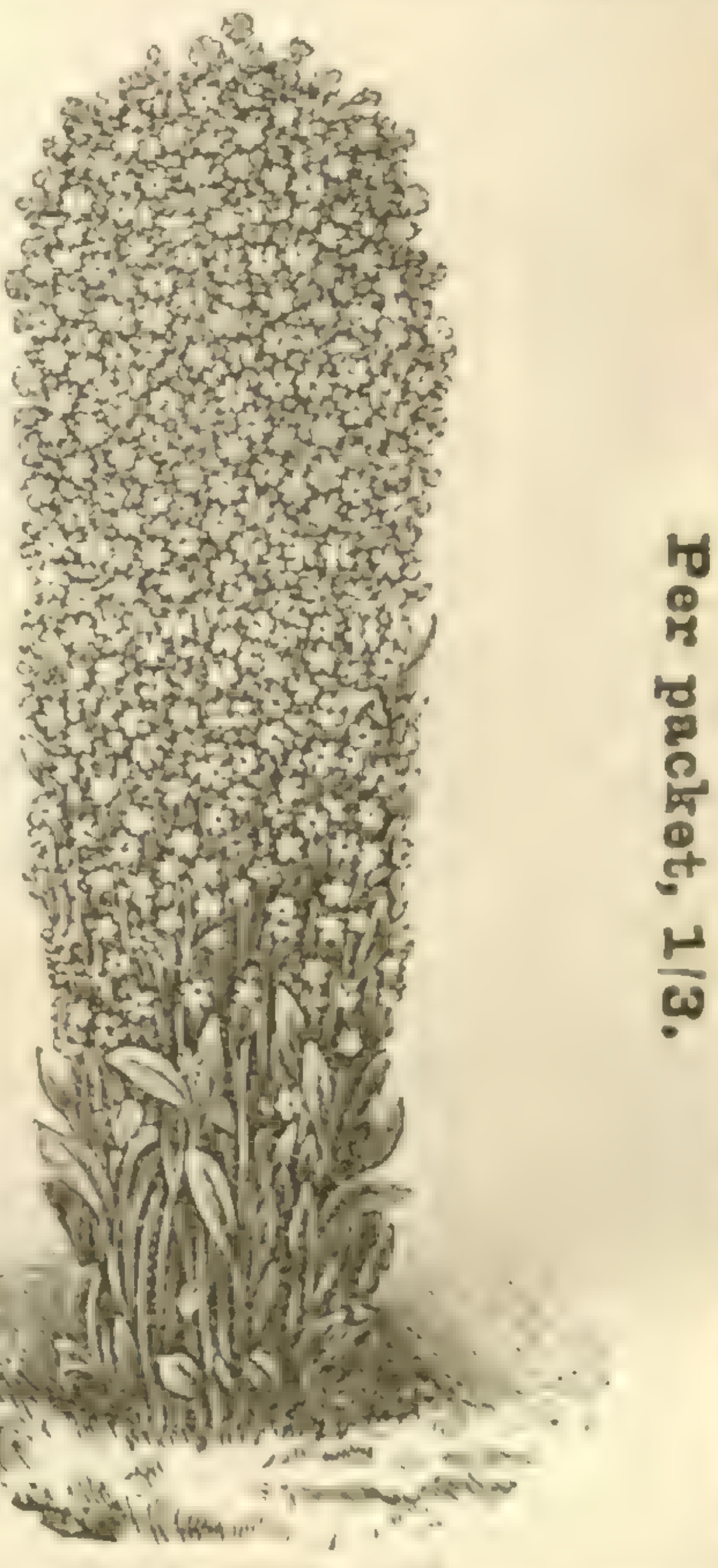

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THE GARDENERS' MAGAZINE.

SATURDAY, DECEMBER 24, 1898.

RUGBY CHRYSANTHEMUM EXHIBITION, WEDNESDAY and THURSDAY, NOVEMBER 15TH and 16TH, 1899.
8, Barby Road. WILLIAM BRYANT, Secretary.

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NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE POSSIBILITIES OF THE SWEET PEA.

THE possibilities of the sweet pea in regard to its productive powers are much greater than are generally supposed. An experiment was made last season by way of arriving at some conclusion as to the number of seeds a few individuals would produce; five seeds of Blanche Burpee produced the astonishing number of two thousand three hundred and fifty-three seeds, and this after a dozen bunches of sprays of bloom had been gathered from the plants. This heavy seed production means bounteous crops of bloom, and an experiment made by putting individual seeds into the ground, a yard apart, resulted in the plants each producing from four hundred to five hundred sprays of blossom. When a raiser has a particularly fine variety, of which he wishes to obtain a quick and large increase, he will place an individual plant where it can branch freely, and then the cultivator sees displayed a capacity for expansion that is positively startling. Anyone interested in this fragrant flower can experiment for himself, and he can scarcely fail to be surprised at the results. The fact is our ordinary methods of sowing our culinary as well as our sweet peas admit of great improvement. The seeds are sown thickly in drills, and the result is often practically starved plants. The force of growth in the individuals is fettered by lack of adequate root room and food; the very nature of the plant craves expansion, but, like a prisoner whose feet are chained to the ground, the area of action is restricted. If anyone desires a further illustration of the possibilities in sweet peas, let him sow five seeds of one variety, in a pot, about the end of February, raise the seedling plants in a cold frame, and keep them dwarf and sturdy, and as they come on place twigs among them to keep them from clinging one to the other, and then plant them out as undivided clumps four feet apart, digging a hole eighteen inches in depth, placing in it a good spadeful of rich manure, putting some good soil over this, and then plant, disturbing the roots as little as possible, in a good open, sunny position. Plants so treated should be in bloom by the middle of June. Last summer we saw some sixty-four plants which had been treated in this way, and at the end of July a small cartload of bloom could have been gathered. Good cultivation is necessary, in so far as it is shown in attention to watering, and preventing any stray shoots from falling aside, and directing their upward growth as much as possible. When these services are rendered, every seed may be calculated upon to produce a plant that will yield, on a rough average, two hundred sprays of blossoms. This is the result, not merely of growing, but of actually cultivating the plants. It is now becoming difficult to make a small selection of sweet peas, so numerous are the varieties, for, in addition to those constantly being raised in our own country, America sends several novelties every season.

TOO MUCH ALIKE CHRYSANTHEMUMS.

THE discussion of the question of too much alike chrysanthemums, which originated shortly after the November exhibition of the National Chrysanthemum Society, continues to drag itself along, and the chief point of interest connected with the discussion is the proof it gives of the possibility of writing and speaking much upon a subject without throwing any light upon it. The question is in reality a very simple one and might be readily understood by anyone conversant with chrysanthemums who is prepared to inform himself of the facts of the case. During the past few years several varieties, chiefly belonging to the incurved section, have been introduced that bear so close a resemblance to the older forms or to each other as to render it difficult to distinguish them at certain stages of development. The similarity of appearance of the blooms of the varieties in question when cut and placed in the exhibition stand gave rise to considerable discussion at many of the shows and not a little vexation. In some cases disqualification followed when two varieties closely resembling each other were included in a stand in which distinct varieties were required, to the annoyance of the exhibitor; and in other cases, where the judges gave the exhibitor the benefit of any doubt they may have had, there was much discussion among the other competitors. In some instances blooms of the same variety were shown under two distinct names, this probably being done through exhibitors attaching more importance to the names on the labels than to their own judgment. With a view to protect as far as possible exhibitors from the risk of disqualification, and to remove a cause of vexatious discussions at exhibitions, the executive of the National Chrysanthemum Society appointed a special committee to deal with the question, and as the result of their labours they, following the lead of the National Rose Society, prepared a list in which certain varieties were bracketed together as being too much alike to be shown in the same stand. This list was adopted, and printed in the society's last annual report, with a stipulation that competitive collections should be shown in accordance therewith. With one exception, and that was a mere inadvertence, the rule was observed by the whole of the exhibitors, with advantage to themselves and the judges. Much has been said and written in reference to whether the list of too much alike varieties was binding upon affiliated societies or not; but there has really been no ground for discussing this point. The rules of the National Chrysanthemum Society prescribe that in classes in which the society's medals are offered by affiliated societies the nomenclature and classification shall be in accordance with the society's catalogue and any subsequent report, but they impose no other restriction. The majority of those who have taken part in this discussion appear to be unacquainted with the rules of the parent society relating to the affiliated bodies, and consequently are unaware of the fact that the annual report, as well as the catalogue, is included in them. It would be an advantage were the list of too much alike varieties to be adopted by the affiliated societies, and we are pleased to learn that at the meeting of the General Committee of the National Chrysanthemum Society held on Monday it was resolved to send a copy to each affiliated society, and invite it to make it compulsory in all classes.

IMPORTS OF FRUITS AND VEGETABLES.

THE returns issued by the Board of Trade for November are on the whole satisfactory, both exports and imports showing moderate increases on the month. With the exception of lemons, the whole of the fruits specified in the returns show substantial increases, as also do the imports of onions and unenumerated vegetables. The imports of apples amounted to 811,788 bushels, of the value of £250,500, against 783,300 bushels, of the value of £232,251, or an increase in quantity of 28,488 bushels, and in value of £17,249. Grapes were received in considerably larger quantities, the total imports being 199,470 bushels, against 122,341 bushels last year, or an increase of 77,129 bushels. The values of the grapes imported were £95,345 and £57,382 respectively, or an increase of £37,963. Nuts show an enormous increase, and a considerable proportion of this is probably due to the increased importation of cobnuts, which are now being largely grown in France, and coming into competition with the produce of the Kentish plantations. The value of the imports of nuts during the month is £157,188, against £89,294 in November, 1897. Pears were imported in larger quantities than in the corresponding month of last year, the quantities being 47,092 bushels and 46,674 bushels respectively, and the values £23,275 and £19,072, the latter indicating a material increase in the price per bushel. The imports of plums in November continue to increase. This year they amounted to 1,194 bushels, of the value of £414; in 1897 to 884 bushels, of the value of £3,500; and in 1896 to 15 bushels, of the value of £30. The imports of unenumerated fruits also continue to increase, and last month they amounted to 108,804 bushels, of the value of £50,107, against 63,670 bushels, of the value of £32,617. Potatos, on the other hand, show a material decrease, for we received 23.323 cwt. only last month, against 145,028 bushels in the corresponding month of last year; the greatest drop in the case of any one country was in the supplies from Germany, these amounting to 19,207 cwt., against 225,898 cwt. last year. The value of last month's supplies was £23,323, against £145,028 in November, 1897; but our bill for the year's imports will be a heavy one, for it already amounts to £1,899,941. Onions were received in larger quantities than in the two preceding years, the total imports having been 665,631 bushels, of the value of £80,608, or an increase in quantity of 180,101 bushels, and in value of £25,997, a fairly good sum to pay for an esculent which can be cultivated without difficulty in the United Kingdom.

The Chrysanthemum.—Reviewing mentally the galaxy of bloom which formed the main attraction to the exhibitions held during the past two months, and recalling the insignificance of the blossom from which that gorgeous array has been slowly developed, we are forced to the conclusion that no parallel exists in any other flower. We may well pride ourselves upon our roses, our dahlias, our begonias, primulas, and other flowers whose original beauties have been enlarged, elaborated, and varied in tint and habit to a truly marvellous extent, but in no one of these has the innate capacity for variation displayed itself to such advantage as in the chrysanthemum, not merely in one or two directions, but practically in all, save, perhaps, in the direction of perfume. An extraordinary feature in this, and a very important one from the selective cultivator's point of view, is that this varietal power is not due, as in many other highly-developed flowers, to hybridisation. There are no combined and maybe antagonistic specific potencies at work in the blood or sap of the plants, the outcome of which are compromises which take the form of new variations either in bud or seed, all the variations originate *per se* in plants of the same species under high culture and keen observation of differences of type or tint. This high culture has also led to a remarkable capacity in the plants of many varieties for concentration of energy in comparatively few buds when the great majority are removed. It is this capacity which gives us the enormous blooms with which we are familiar, and here again we are safe in saying that the chrysanthemum is unique in its power of adaptation to this checking process in one direction and of diverting its energies in another to the greatest advantage of the favoured buds. We may prune our roses and dahlias almost to death on similar lines, but we shall not obtain similar enhancement of size, and at a certain point we are simply the poorer numerically. Then, again, in diversity of form the chrysanthemum is an easy first among the flowers of the world, and, vast as is now the number of distinct types, every season adds some unexpected outbreak in a new direction. One season gives us a bloom bristling with hairy excrescences, in another the pointed petals, after curling and twisting and lengthening in all conceivable styles, break out into tasselled ones, forming a fringe, and this season we have some marvels of slender elongation, such as What Ho! exhibited recently, which, though too eccentric for the connoisseur's taste, displays none the less the versatility of the flower, its long, lax, slender curly petals falling around like a floral cataract. The warmth of coloration, too, is gradually improving, some recent varieties approaching very near the true crimson and scarlet, while the snow whites and the golden yellows have reached the perfection of purity. When, finally, we consider that all this wealth of blossom is in its prime at a period when most flowers are over, and that even when left to themselves the plants are as hardy as grass, and will afford abundance of bright, though smaller, blooms as a counterpoise to even the fogs of November, we may well be thankful to Nature for such a floral gift, and to those who have raised it to its present superexcellence.

The Glastonbury Thorn (*Cratægus oxycantha var. præcox*).—This old and precocious variety is, writes Mr. F. W. Burbidge, now in bloom in the Trinity College Ball Gardens at Dublin. The plant was received direct from Glastonbury Abbey some years ago, and has flowered every year since, but this year it is a month earlier than usual—old Christmas Day, or our twelfth day, being its usual time.

The Late Dr. Allman's Garden.—George F. Wilson, Esq, F.R.S., writes from Heatherbank, Weybridge Heath, as follows with reference to the late Dr. Allman's garden: "A very eminent scientist recently died at Parkstone, near Bournemouth, who had been for some years a devoted and successful gardener, and had a collection of very interesting and rare shrubs which flourished in his mild climate; it was a great pleasure to see him in his garden, and at eighty-six he remembered most of the names without referring to labels. A great traveller and author, also a very successful gardener, who lives close by Ardmore, writes me: 'Dr. Allman's house and garden will soon be for sale, try and get some good gardener to buy it, it is full of rare and fine things.' To any old gardener wishing for a nice house and attractive garden in a mild climate this would give a good chance and to my friend a congenial neighbour."

The Gardening Year Book and Garden Oracle.—The edition of this popular annual for 1899 is now published, and can be obtained of all booksellers and newsagents. This issue has been thoroughly revised, and in great part rewritten, and will fully maintain the high degree of popularity the work has enjoyed during the past forty years.

The Catalogue of the Lindley Library, which has been in preparation for several years past, is now published, and will be heartily welcomed by Fellows of the Royal Horticultural Society and others who are resident within a short distance of the metropolis, and thus able to take advantage of the library. As well known to those familiar with the horticultural events of the past forty years, the International Horticultural Exhibition, held in London in 1866, resulted in a substantial profit. Of the surplus the sum of £1,000 was handed over to the Gardeners' Royal Benevolent Institution, and the remainder was expended in the publication of a full report of the exhibition and congress and the purchase of the library of the late Dr. Lindley. As at that time the Royal Horticultural Society possessed but few books, the Lindley library was handed over by the committee of the exhibition to a body of trustees, for the benefit of the Fellows of the society and other persons. Soon after its foundation a presentation of valuable books was made by Her Majesty the Queen, and additions of books and pictures by donation or purchase have been made annually, so that the publication of a catalogue had become an urgent necessity. We have, therefore, much pleasure in recording the publication of the catalogue, for which the small charge of half-a-crown is made. It will be found of immense value to those using the library, but it falls considerably short of our expectations, for with but few exceptions the whole of the books are entered under the name of the authors only. This we regard as a serious defect, for unless the reader is acquainted with the names of the authors of the works on the subject in which he is interested he will, in using the catalogue, be compelled to wade through the whole of the one hundred and sixty odd pages. The titles of the works should certainly have been given in alphabetical sequence, and it would have been a decided advantage had the books been arranged according to the subjects dealt with. These cross-references would have increased the cost of preparation and printing, and it may be that the funds at the disposal of the trustees prevented their making the catalogue so full and complete as we could have wished to see it.

National Amateur Gardeners' Association.—The annual dinner of this flourishing society was held at the Holborn Restaurant on the 15th, and was generally regarded, and properly so, as one of the most enjoyable social functions of the year. Mr. T. W. Sanders, the president of the association, occupied the chair, and about one hundred and fifty members were present. Both the president and the hon. secretary (Mr. Leonard Brown) were able to give a highly satisfactory account of the work of the association; and Mr. Fife, Mr. Waterer, Mr. Crane, Mr. Gordon, and other speakers bore ample testimony to the work that is being accomplished. The several trophies presented to the successful exhibitors during the year formed a very attractive exhibition of the silversmith's art.

Mr. A. F. Barron has, we regret to learn, found it necessary, in consequence of impaired health, to retire from the position of secretary of the Royal Gardeners' Orphan Fund, which he has held since the foundation of the charity, on the completion of the year's work in February next.

Cut Seed Potatos.—The old-fashioned method of cutting potatos used for planting has given rise to much controversy, and by an important section of cultivators the practice is considered to be both unprofitable and undesirable. The crop is considered not to grow so strongly or to yield so satisfactorily when cut sets have been used as when the potatos have been planted whole, and, further, the plan pursued by many of planting small seconds or inferior tubers in the belief that they are improving on the cutting process and at the same time effecting economy in the use of seed has been proved to be a short-sighted one. It is not suggested that the very best or largest potatos should be selected for seed, but all careful investigations go to prove that it is false economy to rely on improperly developed tubers for the succeeding crop. This truth has received fresh confirmation in the results of experiments conducted last summer at the Cheshire County Council Agricultural and Horticultural School, Holmes Chapel. Cut seed and whole tubers of various sizes were experimented with, and the lessons are clear and unmistakable. Much the best returns were obtained from the whole seed that would not pass through a 2½ in. riddle, the yield in this case being at the rate of 16 tons 14 cwt. per acre saleable potatos, and 19½ cwt. small, compared with 11 tons 8 cwt. saleable and 1 ton 2 cwt. small from seed that would pass through the 2½ in., but not through the 2 in. mesh; and the yields were still less where smaller sets were used, the sets that passed through 1½ in., but were retained in a 1¼ in. riddle, giving only about 8 tons gross, or scarcely half the weight produced by the largest size seed. Potatos cut in the ordinary way gave disappointing returns, but it was found that cut seed is substantially enhanced if the tubers are cut a week or so before they are intended for use and dusted over with slaked lime, as we have frequently advised. The lime causes a crust to form over the wound, and thus prevents the sap from exuding and the set from shrinking.

Seeds and Music.—It is evident the handling of seeds is in no way detrimental to the study of music, for not only is the musical talent shown at the annual festive gatherings of Messrs. Hurst and Son of an exceptionally high order, but a society in association with their seed house has been formed for the promotion and cultivation of musical taste and talent. The society hopes by organising systematic and regular practices to announce occasional musical evenings at a convenient central place, to which all members will be invited. It is also contemplated to offer prizes for vocal and instrumental competitions. We shall hope to see the society doing more than providing musical evenings for its members, as judging from the excellence of the vocal music at the annual dinner on Saturday last, and the splendid performance of the orchestra under the direction of Mr. Edward Sherwood, it should in due course be able to render good service in the cause of the charities associated with gardening.

The Starling a Friend of Gardeners.—Although we fully believe the starling is a friend, and treat the bird as such here, yet, nevertheless, we find the East Anglian starling, writes S. P., likes a little more variety in fruit than his brethren of Wiltshire (see page 780, December 3). In common with the rook he is very fond of cherries, generally taking a few from the tops of high standards or from the tops of trees on walls, especially in early morning. He does not object to a few red currants from a north wall, and in dry seasons, like the past, will pay an occasional visit to the strawberry beds. But, altogether, the starlings do us very little damage, and we cannot regard them in any sense as wholesale depredators in the matter of fruit, but they destroy large numbers of certain insects. Both myself and children were lately interested in watching them after the few stray apples left for them on some trees near our house. We do not molest the birds or their nests, consequently starlings are both tame and numerous here.

Allotments and Small Holdings in Lincolnshire.—There was recently a large gathering of small holders at Spalding Corn Exchange, most of those present being occupiers of small holdings belonging to Lord Carrington, and rented through a syndicate of local gentlemen for the purpose of encouraging the cultivation of small holdings, now very successfully carried on in the Spalding district. Mr. Richard Winfrey, chairman of the syndicate, stated that the movement was started in 1890, and, taking nineteen parishes round

Spalding, there were now some two thousand acres of land devoted to allotments and small holdings. Of this quantity Earl Carrington had provided no less than four hundred acres. The experiment had proved an unqualified success, and he attributed it to the fact that they had found reliable working men who knew their business, who had been put on the land under ordinary conditions and left to work out their own salvation. Earl Carrington was present, and mentioned that when this movement was started in Buckinghamshire there were predictions of failure, but these had been falsified. He did not take any credit to himself for providing the land; the thanks of the community were due to the holders for the way in which they had worked out their own salvation. He believed that if one farm out of ten were devoted to small holdings, so that the people were enabled to live upon the soil, a very serious labour question would be solved—namely, that farmers would not have to complain of the scarcity of strong, willing, able, adult labour in rural districts. Just as they had solved the labourers question, so could the tenant-farmers improve their position by working on co-operative principles. He held (the Minister of Agriculture notwithstanding) that Parliament could do a great deal for the tenant-farmer, and he urged the importance of the recommendations of the Royal Commission on Welsh Land that no tenant-farmer should be disturbed in his holding excepting for non-fulfilment of conditions and non-payment of rent, and also that in any rent dispute between landlord and tenant the matter should be settled by an outside and independent party.

Mr. J. Lazenby, who for the past quarter of a century has occupied the position of secretary to the Ancient Society of York Florists, is, we regret to learn, retiring from the office in consequence of the duties having become so heavy as to unduly tax his time. During the secretaryship of Mr. Lazenby the list of members has shown an enormous increase, and the chrysanthemum show has become one of the leading exhibitions of its class in the United Kingdom, while the four minor shows have acquired considerable importance. The retirement of Mr. Lazenby has created a desire among the members and friends of the society to present him with a testimonial in recognition of the valuable services he has rendered, and steps are being taken to afford an opportunity for the gratification of this desire.

The Power of Nature over the Arts of Man is exemplified in a remarkable degree in the Caroline Islands, especially in connection with the marvellous ruins of Nan-Matal which Mr. F. W. Christian has of late explored. In a most interesting lecture given before the Geographical Society Mr. Christian gave a graphic description of the manner in which the ruins at Nan-Tauach had become overgrown by trees and climbers. Standing, he says, on the south-west angle, where the wall is nearly forty feet in height, one looked down upon a green abyss of nodding woodland, with never a glimpse of the network of canals rippling below. The north-east angle is occupied by an enormous banyan tree, towering full fifty feet above the masonry in which it stands firm rooted, thrusting its bunches of thread-like root-fibre into every crevice. These as they swell exercise a constant and gradually increasing force, wrenching the blocks out of place. When a high wind blows the structure is rocked through and through in every joint and keystone. Sooner or later, if nothing is done to remove the tree, this side of the wall will settle down into ruins. A tangle of weeds, grasses, and creepers thickly carpets the precinct. Beyond the two small cross-walls on the inner side of the great outer wall on the south-west side is a remarkable slab, inclining to a crescent shape, balanced on two solid shafts projecting out of the masonry. This, when tapped, gives a clear, ringing sound, and was probably used for an alarum or for a sort of a bell in sacred ceremonies. Beneath, the terrace fronting the waterway is overgrown by a belt of young cocoa-palms of recent growth. News of the excavations, and of the havoc being made in the jungle in clearing operations, finally reached the ears of King Paul, who at once put a stop to the work. Most unfortunately, his superstitious terrors were confirmed by a very severe epidemic of influenza that broke out in the tribe shortly after their departure, and carried off many of the Metalanim people. Thus the work of exploring this wonderful Micronesian Venice has had to be abandoned for the time being.

Palm Oil, Rubber, and Kola from the Gold Coast.—According to a Colonial Office Report just issued the trade of the Gold Coast Colony has increased during the past year. The imports amounted in value to £784,188, and the exports to £857,793, the largest trade in any year since 1890 except 1895. The imports are mainly cottons, woollens and silks, spirits, hardware, rice, flour, provisions, tobacco, and building materials; and the exports palm oil and kernels, rubber, gold dust, timber, and minor products—such as coffee, cocoa, monkey skins, and kola nuts. Of the imports, over two-thirds are from the United Kingdom, and about the same proportion of the exports is taken by this country. The supply for exports of such staples as palm kernels and palm oil has not been satisfactory, but the export of rubber has largely increased, and last year amounted in value to £419,813, and in quantity to nearly five million pounds weight. The chief fear as regards the rubber industry, which is one of the chief sources of wealth to the colony, is the destruction of the trees by the natives in their improvident efforts to obtain as much sap as quickly as possible, and it may become necessary for the Government to intervene and issue licences in order to save the trees. Unfortunately the rubber districts are those which are most deadly to Europeans, and the cost of carriage on the heads of natives is considerable. Both these circumstances naturally retard the industry.

Influence of Football on the Seed Market.—At first sight it is difficult to conceive that football should have an influence, however remote, upon the seed market, but it is evident there is some connection between the two. In a recent report of the London seed market it is stated that there has been a steady decrease in the sale of canary and other seeds, and this has been traced to the fact that huge numbers of people, especially in the North of England, who used formerly to keep cage birds or devote their leisure to small gardens, now give all their spare time and interest to football.

Mildness of the Weather.—Mr. G. J. Symons, F R.S., states that he has had prepared abstracts of the meteorological observations made here during the forty years 1858-97. From them it appears that the highest minimum (*i.e.*, the warmest night) in December was that between December 27 and 28, 1882, when the temperature did not fall below 52·8 deg. This has been beaten on two nights of the current month, the minimum of the 5th being 52·9 deg., and on the 6th 53·9 deg, or 1·0 deg. above any other December night on record at Camden Town. It has been hotter for a short period in December previously, notably on December 5, 1888, when the maximum reached 58·9 deg., or 1·8 deg. higher than on the 4th in 1898, but for uniformly high temperature he can find no parallel to the night temperatures of the 3rd, 4th, 5th, and 6th inst., which were 51·8, 55·1, 55·0, 50·3 deg. respectively.

Open Spaces and the Diamond Jubilee.—Lord Hobhouse, the chairman of the Queen's Commemoration (Open Spaces) Committee, informs us that during the two years of its existence the committee has accomplished much useful work. The committee was formed by the four London societies which specially promote the extension and improvement of open spaces for the purpose of suggesting to the public that one highly fitting mode of celebrating the sixtieth year of her Majesty's reign would be by dedications of parks and other open spaces to public use. The committee confined itself to presenting the idea, stating reasons in its favour, and tendering offers of practical advice, which the experience of some of the members enabled them to give. "In this sense," continues Lord Hobhouse, "we addressed local authorities throughout the kingdom. The great bulk of our addresses went to authorities with a very small range of power, such as parish councils, and from them comparatively few replies were received. In fact, we did not expect it to be otherwise, owing to the novelty of their existence, and seeing that the want of open spaces is little felt where people are not closely packed. So far as we know, the villages mostly contented themselves with bonfires and suppers, the oldest, simplest, and most universally acceptable form of jubilation, lacking only in permanence, save perhaps for an indigestion here and there. The plan was more suited to larger communities, and, excluding London, there are sixty-nine places known to us in which schemes of the kind suggested by us have been carried into effect, most of them being dedications of some open space as connected with the long reign of Queen Victoria. In London, for obvious reasons which we stated publicly, we took the course of advocating special schemes and appealing for money. Five schemes were placed by us before the London public, of which one has failed, and the other four have taken, or will shortly take, effect, and stand as permanent memorials of the Queen's reign. In addition to these there are also three other schemes of smaller dimensions that have been carried through. We are not pretending that the committee has effected these results by itself; that has been done by the systematic efforts of the open space societies, the public spirit of local authorities, and the open hands of private donors. What we have done is to keep these matters before the public and the authorities, to support them with our machinery and our experience, and to urge the connection of these operations with the great anniversary of 1897. On terminating the existence of the committee, we find that the direct results of our action have been such as to exceed our expectations."

Weed Destruction.—With regard to the destruction of some of the most common weeds, it seems to be more than probable that the time is near at hand when the farmer will be in a position to rid his crops of them without any form of mechanical aid more costly or troublesome to work than a simple spray. The familiar charlock is the weed whose career is threatened by the recent discovery. A Frenchman seems to have been the first to make the discovery that this weed, in its favourite haunts among corn crops, could be destroyed by spraying the field with a solution of sulphate of copper without inflicting any material injury on the cereals. Last spring the suggestion was put to the test in Essex and Northumberland with encouraging results, and we learn that Professor Somerville, of the Durham College of Science, Newcastle-on-Tyne, is planning an extensive and searching system of experimentation for the spring of 1899. The efficiency of the treatment is already established almost beyond doubt, but it will be well to be sure as to the safety of the cereals before its general adoption is advised. No doubt Dr. Somerville's theory that the charlock succumbs because of its rough horizontal leaves retaining the poisonous dressing while the grain plants escape on account of the liquid being unable to settle on their smooth and erect stalks and leaves is the correct explanation of the faculty of discrimination which the results seem to attribute to the dressing. The results of the projected experiments will be waited with widespread interest, for many thousand acres of land are infested with charlock to the great injury of the useful crops. The hoe, however, is the best weed destroyer.

The Value of Leaf-mould as a manure is not so generally recognised as it should be, and, with reference to the matter, a correspondent asks: "Can anyone reasonably wonder at the destruction of trees which goes on in the London parks and elsewhere who notices that the fallen and dead leaves are promptly swept up and carted away or burnt?" and then proceeds to observe: "Thus the natural and necessary nourishment of the soil is deliberately removed; so that the earth becomes almost as barren as the Desert of Sahara." The superintendents of the public parks are not wholly to blame in the matter, for were they to allow the leaves to remain for the purpose of enriching the soil they would come in for much criticism from those who are ignorant of the fertilising properties of decaying leaves.

Messrs. Hurst and Son's Employees were, in accordance with the custom that has obtained of late years, entertained at dinner at the Holborn Restaurant on Saturday evening. Mr. N. N. Sherwood, the head of the firm, presided, and the guests, who included a few of his horticultural friends, numbered about one hundred and fifty. The function was eminently successful in every detail, and was of special interest as showing the good feeling which pervades every branch of this great seed house.

ROSE NOTES.

It would be difficult to imagine a better season for transplanting roses than was enjoyed during November. The plants were nicely ripened, growth in good condition, and free from the coarseness often found when a wet summer and autumn are experienced. Strong and coarsely grown plants are not so well suited for transplanting as those of medium growth and size. A large quantity of wood from the first-named is lost. The roots are correspondingly coarse, and there is little of the fibrous roots so essential to safe moving. Given a well-ripened plant, of medium strength, and with plenty of fibrous roots, early transplanting will secure good results the following summer. Coarse plants, on the other hand, spend the best part of their first season in recovering from severe mutilation of roots and wood.

The dry summer and autumn have made it easy to thoroughly cleanse and work ground intended for roses, and the present excellent condition of the soil, in almost all cases, makes it easy to plant roses firmly without trampling upon wet and cloggy ground. Condition of soil is not sufficiently studied. So long as it is fine overhead, too many are apt to push on with the planting, ignoring the fact that a wet soil never settles so kindly to the roots as when in a medium condition of moisture.

Firm planting also deserves more attention, more especially in the case of standards. Since it has become generally known how much better our dwarf roses thrive when planted deeper than was formerly the practice standards have also been planted more deeply. This is a mistake. The roots of standard brier stocks should not be placed deep enough to sustain the stock against wind and weather. If the collar of the brier is two to three inches below the surface, that is ample. Many a standard rose has proved a failure simply because it was planted too deeply. We plant dwarfs deeper, in order to get some of the rose growth below the surface, and thus induce better suckers and encourage the rose to strike out upon its own roots, and assist those of its foster stock. We cannot plant standards sufficiently deep to have any such effect. Besides, it is unnatural to bury the stems of briers in this way.

As soon as a few fairly sharp frosts arrive the question of protection is sure to come forward. While I not do believe in such close protection as many growers still practise, it is surely folly to leave our more tender varieties to full exposure. It is a good plan to have some material ready to hand, and that can be applied at once should severe weather set in. All dwarfs can be made secure at their base by drawing up the soil to them, even to the depth of nine or twelve inches. Several use litter, straw and bracken among the branches, but unless these are drawn together and the protective material secured we find it missing at the very time when most needed viz., during the prevalence of keen, frost-laden winds. Should the weather turn very mild again, this litter or straw has an injurious coddling effect. Twiggy branches of birch, fir, gorse, &c., will afford all the protection needed. These do not induce so much tender growth, are very easily fixed or removed, and, so long as the sharpest effects of the frost are broken, we need have little fear for the majority of roses, whether teas, hybrid teas, or hybrid perpetuals. Of course, there are a few notoriously tender varieties, and these must have more care and protection. I do not propose to name any of these, because the same variety differs so much in the various localities. Much depends upon the position. If high and dry, roses will often come safely through a trial that proved fatal to others in a low and sheltered spot, but close to a body of fresh water. It is the late spring frosts that are most injurious in the latter case. When ordering roses the purchaser almost invariably asks for strong plants. My choice would be those of medium size and strength, worked low in the case of dwarfs, and well up to the main stem when in standard form. So long as one has the proper or most suited varieties for a given purpose, a plant of medium strength will soon surpass those carrying a lot of wood when first received.

We have had a good number of really useful and distinct new roses during the past three seasons, and a brief note of a few of the best may be some guide to purchasers. I propose to note the twenty-five varieties that have proved the most promising from the introductions of 1896, 1897, and 1898. Antoine Rivoire is the result of crossing Lady Mary Fitzwilliam and Dr. Grill, two of our freest bloomers. The colour is a deep rosy flesh, with a tinge of soft copper. It is a good grower, with blooms of large size, full, and camellia-like in form. In Beauté Lyonnaise we have a grand seedling from Baroness Rothschild, presumably crossed with some tea or noisette, seeing the raisers describe it as a hybrid tea variety. A robust grower, with large and full flowers built up of immense petals; white, slightly tinted with lemon-yellow. Calocarpa is a rugosa of exceptional freedom, both in growth, flower, and berry. At present it is one of the most showy plants in the rose garden, and has immense trusses of deep crimson berries, remaining upon the plant long after the other rugosas are past. The foliage colours well; yellow, orange, purple, bronze, and deep crimson shades all being present. Carmine Pillar ranks among our best singles. It is by far the best carmine pillar rose we have, and exceptionally full of flower early in the summer, the blooms being from three to four inches across. Shoots of from ten to twelve feet long are produced, and almost every eye carries trusses of blossom the following season. Ellen Drew is simply a sport from Duchesse de Morny, but a clear silvery-pink ground colour and delicate peach shadings. Laurence Allen reminds one of Baroness Rothschild in growth and foliage, but the flower is very full, inclined to globular form, extra sweet-scented and lasting, and of a much clearer light pink. It is a grand show and pot rose. Muriel Grahame is a grand light blush sport from Catherine Mermet, and cannot be over-praised. Queen Mab gives us one of the most uniquely coloured of all the garden roses. It is a China, of fairly free growth, very full of blossoms that are rosy apricot shaded orange. Souvenir de Catherine Guillot deserves special mention. It is a free grower, constant bloomer, has deep coppery-bronze foliage, long buds of very deep orange-red colour, tinted with carmine. One of the best decorative roses we have, and very fragrant. Tom Wood is a hybrid perpetual that is both useful in the exhibition box and the garden. A vigorous grower, large and well-formed flower; one of the best to last, and a grand deep cherry red late in the season. The ten named above were introduced in 1896.

The following year we had, as the best of the introductions, Duchesse Marie of Ratibor, a cross between Kaiserin Augusta Victoria and Dr. Grill. As might have been expected, the growth is free and upright, while its free flowering qualities are among the best. The flowers last well when cut, are of good form, size, and substance, and borne very boldly after the manner of Kaiserin A. Victoria. The colour is clear creamy yellow, with a reddish yellow shade in the centre. Emanuel Geibel is presumably a sport from Madame Falcot, and resembles that old favourite, except in being larger and much deeper in colour; the improvement in these respects is most marked, and I am sure this variety will be good enough for the exhibition stand. Frau Geheimrat von Boch is a vigorous and bushy grower, and one which flowers from June until November. The petals are large and wide, buds very long, opening into a full and well-formed flower. In colour it is a clear creamy gold, and often has a distinct shade of carmine on the back of petals. Grande Duchesse Victoria Melita is a cross between Safrano and Caroline Testout. It is somewhat difficult to know how to classify a rose of this pedigree. Here we have a tea and a hybrid tea, crossed with each other, and the raiser calls the seedling a tea. Duchess Marie of Ratibor is also a cross between a tea and a hybrid tea, by the same raiser, and classed as a tea; but another variety, Antoine Rivoire, resulting from crossing these two classes, is placed among the hybrid teas. I mention this as a further proof that our roses are fast becoming so intermingled and crossed that we shall soon have to dispense with classes altogether. Even now we have them running into one another so much that our best authorities disagree as to which class or section many varieties belong. The seedling from Safrano and Caroline Testout is a grand rose and a strong grower. The buds are long, and always open into a large, well-formed flower. Like its parents, it is a very free and continuous bloomer; a creamy-white colour with a distinct shade of light gold in the centre. Merveille des Blanches is a sport from Baroness Rothschild, a pure white, with the exception of a faint tinge of pink when growing in full sunshine. Wasily Chludoff is a good climbing noisette with handsome, bronzy foliage; long, brilliant coppery-red buds, tinted with yellow, and very sweet.

In 1898 we have seven that are well deserving of notice. Beryl is the most highly scented of all teas. This is very free in growth and bloom, the buds long, and a deep golden-yellow shade found in no other rose. It is not very full, but a grand decorative variety. Grand Duc Ernest Ludwig is a cross between Général Jacqueminot and Maréchal Niel. In flower and growth it resembles the last, but has the colour of Maréchal Niel. Killarney is most pleasing in colour and form, flesh white, suffused with pale pink. L'Innocence much resembles Caroline Testout in habit and form, but is a pure white. This is one of the most promising roses we have. Purity fills a want among early-flowering pillar roses, and is a pure white of grand form, but medium in size. One of the earliest and freest bloomers we have, Souvenir de J. B. Guillot, gives another of the peculiarly shaded roses introduced recently. This is free in growth and bloom, and of fair size and substance. The colours vary between nasturtium-red, red shaded with crimson, and bright coppery-red. White Maman Cochet is merely an almost pure white sport from that well-known tea rose, and certain to be most useful. Violoniste Emilie Levegue is a grand grower, with large and well-formed flowers. The colour bright rosy carmine, with an orange centre, buds very long and pointed.

Among seasonable work we must not forget the mulch of well-decayed manure. Thoroughly rotten vegetable matter and manure that have been turned over a time or two makes an excellent mulch, and cannot be applied at a better time than the present, so long as the ground is not too wet to wheel upon. A plank or two will easily remedy this. Mulchings not only protect the base, but the nutrient properties are washed down to the roots steadily during the winter. Upon no account mulch newly-budded dwarf stocks. The rose bud is much safer left exposed. I do not pretend to say why such is the case, but experience has proved that when mulched the rose buds are often killed in large numbers, especially if strong manures are used. Yet we can safely cover the eyes at the base of established and recently moved plants.

A. PIPER

Chrysanthemum Mytchett White.—This is one of the best of the early-flowering varieties that have been introduced to our gardens in recent years, and one that in the near future will probably become very popular for planting out for producing cut bloom and for the embellishment of the garden. For cultivation in pots it is the best of the early flowering chrysanthemums that I have grown for this purpose, the plants being naturally of a dwarf, branching habit, producing good heads of bloom and sufficient foliage in quite small pots. The flowers are pearly-white, with broad and slightly reflexed florets, and, unlike some varieties, these appear to open and retain their purity whether grown under glass or in the open. Owing probably to over-propagation, the plants received last spring had a very weakly appearance; so much was this the case that I at first despaired of seeing them in bloom, but as the season advanced the weakness was overcome, and in the end the fine appearance and usefulness of the plants fully justified the high opinion expressed upon the variety when you gave a full-page illustration of it last year. With strong cuttings, and consequently better plants earlier in the season, it is anticipated that this variety will flower when planted in the open in August, and ultimately take the place of the small-flowered sorts that until now have been used for this purpose. Compared with Madame C. Desgrange, it has the advantage of being much dwarfer and of a more spreading habit of growth, which enables it to be planted in very exposed situations without the trouble of staking to keep the branches erect in boisterous weather.—JAMES DAY, *Galloway House, Garliestown, N.B.*

NEW CHRYSANTHEMUMS.

Yellow Japanese.

IN giving a list of new varieties this season there is such a wealth of material to deal with that it is more than usually difficult to make a limited selection which will not involve a considerable outlay, that is if we are to satisfy our desire to be thoroughly up-to-date. In fact, so many good varieties have emanated from our English raisers that one begins to foresee the time when we shall be able to purchase a packet of home-grown seed—"somebody's gold medal strain"—which will enable us to dispense with named varieties in the same way that we now do in the case of carnations, begonias, and gloxinias. It is more than probable that this is a feature of general cultivation which may take some time yet to realise, but it is possible that we may have good competitions in classes for own raised seedlings early in the next century, and with such displays a new interest will be awakened in the cultivation of chrysanthemums generally.

To deal with the present, however, is our business, rather than to dream of the future, and in looking over the list of notable varieties seen for the first time this season it is gratifying to be able to record a more promising increase in the number of richly coloured flowers. Least conspicuous are the whites, and of the few exhibited possibly none are better than the best already in cultivation, though they may improve on acquaintance and in a more suitable season.

R. Hooper Pearson is the finest yellow variety of the season. Of this Ryecroft seedling I grew two plants, and the habit of growth is all that can be desired; dwarf and sturdy, with stout flower stalks; it may be best compared to Mutual Friend. The flower also resembles this well-known white in general character and petal, but the colour is the most rich and deep golden yellow.

Soleil d'Octobre is very fine, and though its name implies that its season is early excellent blooms have been shown at the November exhibitions; the blooms may be described as resembling Phœbus, but have more substance and a deeper shade of yellow. It will probably prove a favourite amongst northern growers.

Mrs. Brewer is a variety of high quality, having broad petals, loosely incurving; the flower is large and rather early; will do well for October in the south, and should suit Scotch growers for November.

H. Rivers Langton is a lovely pale yellow sport from Mrs. W. H. Lees, and will probably be more admired than its parent; the late crown buds give blooms of a quite distinct shade of colour. This forms another instance of simultaneous "sporting," as in four cases the same sport appeared during the season of 1897.

R. J. Upton will probably prove a fine acquisition; the petals are long and tapering, flat, though occasionally twisted and drooping. The blooms were large and of good character, though grown on late struck plants. Colour rich canary yellow.

Le Grand Dragon is a huge spreading flower, of a brilliant shade of yellow, somewhat flat in build, but distinct and promising.

Mons. Fatzer is another of the large ones, which has not been shown in its best condition; it is a pale yellow, and something of the build of Madame Gustave Henry.

Nina Dabbs, though not a graceful type of flower is a bold and striking bloom when well grown. The petals are very broad and flat, the centre ones erect and forming a large flower of a deep yellow colour. This was well shown by Mr. Vallis at Devizes.

Lord Aldenham is a yellow sport from the well-known Edwin Molyneux; the growth and style of bloom consequently are the same as in that variety. It should become a favourite with exhibitors, and though it has not been submitted to the Floral Committee, I believe it will be distributed this season.

Dakota is one which will prove a fine October variety, and may also be had for the November shows. On early buds it is a fine flower of the best type, the petals drooping and intermingling in a charming manner; later crowns give incurving flowers. It is a good yellow.

Crimson and Red Varieties.

Passing to the deep colours of crimson or red shades, which are so scarce amongst the large flowered types, there are several which may be strongly recommended.

H. J. Jones should please the most fastidious as to colour; it is a seedling of Mr. Seward's, and one of the best crimsons yet raised. The petals are flat and spreading, the whole of the upper surface being presented to view, thus giving a much better effect than those which incurve and hide more or less of their best colour.

Reginald Godfrey was well shown on October 11, and it is a reddish crimson-coloured flower with long petals spreading and drooping, something in the way of John Neville, but strikes one as being more easily grown.

John Pockett is an Australian variety of semi-incurved character; a good number of petals turn back and show the deep crimson colour; the reverse side is a bronzy red, which is more attractive than with most of this type. It is a good grower, about five feet high.

Pride of Stokel, the sport from Pride of Madford, is a welcome addition in colour; unfortunately, like its parent, the majority of the petals incurve, and so hide too much of the beauty of the flower. It is a crimson shade, and well worth growing.

Henry Weeks.—This is a grand flower, comparable to a giant G. C. Schwabe, and probably the finest of the new ones in this tone of colour. It has size and refinement, with a bright reddish crimson shade, which is sure to be appreciated.

Mrs. W. Seward has exceedingly rich colour, and reminds one in its build and style of Chenon de Leche. The florets are broader and of more substance, and form a very neat and attractive flower of large size. The colour is bright rosy cerise, with golden tips to the petals.

Eastman Belle is a purplish crimson sport from President Borel; in other respects has doubtless the characteristics of that variety.

Lord Cromer has everything in colour to recommend it, being of a rich bright crimson. The blooms impressed one as being capable of better development, and if so it will prove a decided acquisition.

White Varieties.

It happens this year that the finest white variety amongst novelties was reserved for the closing meeting of the Floral Committee of the N.C.S., and was shown at the society's show on December 6. It is a cross between Mrs. H. Weeks and Madame Carnot, and will probably prove superior to both these fine varieties. The raiser of so many splendid seedlings, Mr. H. Weeks, of Derby, has added this one to his list of triumphs, for it was unanimously awarded a first-class certificate. It will bear the name of *Madame R. Cadbury*, though it may possibly be reserved for distribution in the spring of 1900. The flower is of the largest size and true Japanese character, partaking of the habit of both its parents in the broad florets, which droop and intermingle in a charming manner. There is something inexpressibly satisfying in the beauty of this flower. The fine substance of the florets and chaste colour will commend it to everyone.

Little Nell is another good white raised by Mr. Weeks, which promises to become a popular exhibition variety. It may be compared to Madame Philip Rivoire in build, but the petals are broader and the bloom larger.

Nellie Pockett is an Australian seedling which has been shown in many places during the past season. The colour is creamy white, the petals narrow and curling at the tips.

Jane Molyneux was shown by Mr. Nat. Molyneux, of Fareham. The blooms were large, with long, drooping florets; creamy white.

Lady E. Clarke is a white sport from the well-known Mrs. C. Harman Payne, and is synonymous with M. Louis Rémy. The parent variety sported in both France and England during the same season, and hence the two names, of which the English should obtain.

Miss M. Leschelles is a very pure white sport from Reine d'Angleterre, and those who grow the last named will probably like the white variety.

Mrs. Ritson is another sport from the beautiful though capricious Viviand Morel. There appears to be no doubt of its being properly fixed, as small blooms grown on bush plants from terminal buds were quite white.

Annie Prevost is a beautiful glistening, pearly white, incurving after the manner of Western King. The dwarf, sturdy habit of the plant will commend it for a variety of purposes.

Rose, Mauve, and Other Varieties.

Passing to others of various shades of colour, there are quite a number of first-class sorts.

Mrs. Barkley is a very fine flower, of splendid form and build. The broad petals are flat, and recurving closely they finish a large solid bloom, which will surely be popular with exhibitors. The colour is bright rosy-purple.

Madeline Davis, though not one of the very largest size, is a refined and pretty flower of best qualities; crisp and fresh in texture, it is a good keeper, and of capital habit in growth. The lower petals are broad and drooping, centre ones spirally twisted, in colour a delicate tint of rose with a suffusion of violet.

Mrs. Coombes is an immense flower, with a mass of narrow, drooping petals, rosy-mauve in colour; one of the giants of the season, and a fine show bloom.

Sir Herbert Kitchener.—This name, so popular just now, is given to one of a charming colour—apricot yellow with a bright flush of bronze pervading the flower. The florets are broad, long, and drooping; a very pretty Japanese.

Emily Towers is a charming type of bloom, the colour bright rosy-pink, with silvery reverse, crisp and solid in build; the petals curl and finish a fine flower.

Miss Lullah Miranda is another from Australia of high promise which should be added to every collection. It bears a first-rate reputation, and from small plants has given flowers that fully support this.

Lady Crawshaw is a large white, tinted pink, with curling and interlacing florets; well worth growing for specimen blooms.

Mr. Hugh Crawford has a lovely bright golden colour, shaded bronze, petals broad and curling; a variety of much promise.

Lord Ludlow, in colour a chamois-yellow, edged and slightly shaded crimson; should prove an acquisition.

Chatsworth is a vigorous grower, and withal a capital show flower. The petals have a pretty curling habit, and are more or less tinted pink.

Edith Dashwood forms a large flower of long, narrow, twisted florets, pale pink in colour, and a very distinct variety.

Mrs. White Popham in some stages resembles Graphic, but as seen at its best is better in character than that variety, pale in colour; a large flower.

Samuel C. Probyn is a very distinct variety, a novel mixture of colours in crimson and yellow. The plant is very robust and dwarf in growth. This is quite out of the common.

General Paquié is rather a thin flower, and was somewhat disappointing. The florets are long, flat, and semi-drooping, of a light chestnut colour.

Lady Phillips.—As shown it was large, the petals broad, and loosely interlaced; deep mauve in colour.

W. Cursham.—A large and distinct incurved Japanese of a buff colour. In build it compares to Madame Rozain.

Mrs. W. Cursham was shown in fine condition, and undoubtedly is one well worth growing. It has a bold bloom, broad intermingling and curling petals; deep pink, shading paler towards the centre.

Trent Park Gardens. W. H. LEES.

Monsieur Ernest Fierens.

Of all the Ghent celebrities well known to English horticulturists there are few whose names are more familiar than that of the genial and courteous Secretary of the Royal Agricultural and Botanical Society of that city. For many years past he has been an active and enthusiastic amateur of gardening, and when, some eight or nine years ago, the secretaryship of that society became vacant Mr. Fierens was elected to fill the place.

How well the selection was justified is best judged by those of our friends and readers who visited the last two Quinquennial Shows, and by those who attended the last Chrysanthemum Show held under the auspices of the Ghent Society, where he staged a magnificent group of flowering chrysanthemum plants in pots, and other very meritorious exhibits; indeed, in regard to the popular autumn flower, Mr. Fierens is not only a grower of importance, but a successful raiser, for having received seed from Japan he succeeded in obtaining some new varieties, of which one called Afsné, a large white Japanese, was figured in the *Revue de l'Horticulture Belge* not long since.

Monsieur Ernest Fierens.

Mr. Fierens, like many other distinguished lovers of horticulture, has no business interests in the subject, for he happens to be a member of the legal profession, and yet finds time to devote a large amount of attention to his secretarial duties, which in the case of a society like the one at Ghent is certainly no sinecure.

His services to horticulture are, however, well known far beyond the narrow confines of King Leopold's busy little kingdom, and fully appreciated, in confirmation of which we may say that we have just learnt with pleasure that the French Government has recently conferred upon him the cross of the Order of the Mérit Agricole, a decoration which was also only a few months ago bestowed upon his eminent colleague, Mr. Pynaert van Geert. When we consider some of the recent appointments—notably those of our friends Mr. Fatzer, a Swiss, and Mr. Herman Payne, an Englishman—we cannot help but feeling that the French Government takes a very broad and generous view in recompensing foreign workers in the various branches of horticultural work.

We therefore offer our heartiest congratulations to Mr. Fierens on the well-earned honorary distinction with which the French Government has recognised his many valuable services.

FRUITS FOR COTTAGERS AND SMALL FARMERS.

I am rather surprised to see that your able and fair-minded correspondent, Mr. Molyneux, describes Sturmer Pippin as "quite third rate." The late Dr. Hogg's opinion ("Fruit Manual") was as follows: "This is one of the most valuable dessert apples of its season; it is of first-rate excellence, and exceedingly desirable, both on account of its delicious flavour and arriving at perfection at a period when the other favourite varieties are past. It is not fit for use till the Ribston Pippin is nearly gone, and continues long after the Nonpareil. The period of its perfection may be fixed from February to June." And this is Mr. Barron's ("British Apples"): "D. Small, flat, green, russet bronzed, firm, sweet, late, first quality; a free cropper." Their opinion coincided with that of the forty experts who were responsible for the first and second editions. I suspect Mr. Molyneux tries it too soon, or gathers it too early. This year it would hardly come away from the tree until the middle of November. But I quite agree with him that Gascoyne's Scarlet is inferior as a dessert apple. It is one of the new sorts placed in the list apparently before it has been fully tried and approved.

An Old Stager.

Mr. A. Dean, in his remarks under this heading, says that "No human being could give a list of the best half dozen apples for every soil, situation, or district in the kingdom." If Mr. Dean will turn to pages 85, 86, and 87 of the Prize Essay of the Fruiterers' Company on Fruit Growing he will find that the attempt has been made, and, at all events, with some success.

F. R. H. S.

Messrs. James Carter and Co.'s Prizes.—During the past year Messrs. James Carter and Co. originated a new system of competition with the produce of their vegetable and flower seeds which has proved eminently successful. They offered to duplicate at one hundred and three horticultural exhibitions in various parts of the country every prize won by their customers in the open classes, and as the result of this offer it has been found that one thousand three hundred and nineteen prizes were awarded to the produce of their seeds.

Leaves From A Rambler's Note-Book

A PEEP AT ALTON TOWERS.

Everybody takes a holiday nowadays, and the problem that is most perplexing is—how to spend it. We live at higher pressure than our forefathers did, and there are but few who treat the time of respite from labour as a period for rest and leisure. On the other hand, the one idea seems to be that of seeing as much as possible or obtaining the maximum amount of pleasure during our weeks of holiday, with the result that we often commence work again as jaded in body as when we left off. It is hardly to be wondered at, considering the baits held out to us to see other lands and other peoples by the aid of railways, steamboats, and personally conducted tours. This is all very well, but unfortunately, in their anxiety to see the beauties of other lands, people are apt to forget that our own island contains scenery equally as beautiful, places quite as interesting, and spots just as romantic as any abroad, and when one who is satisfied to thoroughly "do" his own country before going elsewhere tells of what he has seen within a day or two's journey from his own home his neighbour, just returned from satisfying his aspiration to see the world, is surprised that there are such sights in commonplace England. Gardeners as a rule are not great travellers, nor are they blessed with a superabundance of holidays. Neither do gardeners worry long as to the way in which the days of respite shall be spent. Take one of the fraternity and place him where you will with a full order to go where he likes. If he is true to the craft his first inquiry will be whether there is a garden of any note in the neighbourhood, and his first journey will be to visit it. It was this spirit that led me in the holiday season to visit Alton Towers.

There are certain establishments that are famous for some reason or other, and consequently they become household words among gardeners. Alton Towers, the seat of the Earl of Shrewsbury and Talbot, is one of these, and the one thing that makes it so is the unique beauty of its garden. The place has no ancient history to speak of, as a century ago the present domain was unknown. The garden can boast of no great record in the production of sensational specimens of horticulture; its area of glass, though extensive, is not stupendous, and its facilities for high-class cultivation are hardly equal to many establishments less famous. Its charms and its fame lie in the fact that years ago there was a rough, wild, uncultivated spot that was suitably adapted for the formation of a garden. A nobleman, who was also a genius and a gardener, saw it, and at once brought the force of his superior ability to play upon it; wealth and the art of a born landscape gardener added their share, Nature coupled hers, and the combined forces changed a rough, wild valley into the beautiful garden that has made Alton Towers famous. The first pleasing phase about the place is the total absence of anything that is monotonous and tiring. With a groundwork admirably adapted for the formation of curves, there is hardly a straight line to be seen. It is a notable instance of art improving Nature, and rocks, wood, and water have all been utilised to the best advantage. Situated within easy distance from the Staffordshire potteries, and within touch of the large manufacturing towns of Lancashire, it is no wonder that crowds of people flock to see the charming garden, which is open to the public during the season, and few there are who return in any way disappointed. Alton Towers is not a place requiring a gardener to appreciate it. Anyone can do it who has half an eye for the beauties of Nature.

The Churnett Valley, extending from the moorland town of Leek to the point where the above river empties itself into the Dove, is a charming bit of scenery. The meandering river winds its way down the valley, on either side of which are romantic bits of landscape composed of wooded slopes, bold rocks, ravines breaking away in either direction, stretches of bracken with openings here and there showing views of the country beyond. The railway runs by the course of the river, and, as it has never been considered necessary to run express trains in that part of the world, travellers have ample opportunity of enjoying the surroundings as they proceed. Everyone nowadays likes to go quickly, and in the ordinary course of things the writer is no exception; but then I was holiday making, and one can afford to appreciate a stopping train along the Churnett Valley. It is a mistake for anyone to imagine that they are at the Towers when they alight at Alton Station. Far from it; for there is a genuine Staffordshire hill to climb as soon as you have passed through the doors of the entrance lodge. The most natural inspiration before commencing this operation is to stand and look across the valley, where stands right on the edge of a sheer precipice a fine structure, known as Alton Castle. It occupies the site of the ancient castle, destroyed during the civil wars, which from its position one would think was well-nigh impregnable. However, like many others, it had to go, and a noble building, erected by a former Earl of Shrewsbury, stands in its place. It is built of the hard sandstone for which the neighbourhood is famous, and commands a grand view of the valley below. Alton Towers stands on the crest of the hill opposite, but is hidden from the valley by the wealth of timber that clothes the hillside. But thither we were bound, and with a last look at the valley commenced the climb.

In front of us was a stout lady, who, from the tone of her conversation, apparently came from Lancashire, and with her was a small wiry man, presumably her husband. The latter inquired the nearest way to the Towers, and received the answer, "The step walk is the nearest, but the carriage drive is the easiest." Human to the backbone, he chose the nearest, and lived, I fancy, to repent, for the way is a series of flights of steep steps in close succession, and not exactly the road to be chosen by anyone carrying a superfluous amount of flesh. Whilst we lingered viewing the scenery the two made headway, and by the time we had got up about half the flights of steps we passed the lady in question seated on a large stone mopping her face with her handkerchief and refusing to go another yard. Her husband, some distance ahead, was expostulating with her, and offering some pointed remarks respecting the stupidity of women. The lady, however, held her own, and retaliated by charging him with doing it on purpose. We offered consolation by remarking that it would be easier coming down, but it was only received with a sharp rebuff, and we did what is best to do when family happiness is at stake—left them to settle it. Alton Towers is a name aptly applied, as the visitor finds on reaching the mansion. It is a fine pile, containing different types of architecture, and covering a large area of ground. At one point it resembles a grim Norman stronghold, and at another there is the graceful elegance of a more modern style. Great towers rise at every point, some square and forbidding, others highly decorated and elegant in form. The outline is everywhere broken and undulating; every stone is set in a workmanlike manner; decoration on all sides shows that no expense was spared in erection, and the general attractiveness of the building proves that the architectural skill was of the best. With these remarks, all too brief to do justice, I leave the Towers and pass on to the famous gardens.

The main entrance to the gardens is through large iron gates, over which a bridge conducts a roadway. It was on this bridge we paused—as ninety-nine out of every hundred visitors would naturally do—for before us lay the valley, which, for a happy blending of Nature's beauty and man's genius, has probably no superior. Right in front, under a covered canopy, stands the bust of a man with classic features and a massive brow. Underneath runs the following inscription: "He made the desert smile;" and, simple though the words are, they have a deep meaning. There stands the effigy of a great gardener, and round him is his handiwork. He needs no biography or memoirs to tell of his life work, for it is there all round him. The noble Earl transformed that rude valley into a place of beauty, and it is only in keeping that his monument should stand in the midst of his work. That man must have been happy, possessed as he was with a genius, and also the facilities for bringing his powers into play. His memory will live while the gardens exist. Along one side of the valley are sloping banks, and walks winding in and out among huge clumps of rhododendrons; hemlock spruce, cedars and yews are dotted about, and here and there copper beech and bright-coloured acers form a relief to the surrounding green. Thick timber forms a pleasing background, and nestling, as it were, in a canopy of foliage, stands the Harper's Cottage. This is a thatched structure built in Swiss style, and quite in keeping with the surroundings. Leading to the depths of the valley, a cascade of water dashes from rock to rock through bowers of foliage, forms itself into a pool at the bottom, and then on again to yet another pool from the centre of which rises an elegant iron fountain built in pagoda style. This is fed naturally from a lake above, and throws up a jet of water to a great height. On again goes the stream that overflows from the lower pool till it loses itself in the river away down the valley.

On the other side of the valley there is more of the artificial, and terraces take the place of sloping banks. These rise one above another from the depth of the ravine, and along the edges stand vases furnished with flowers. Occupying a position on an eminence beyond is the Temple, an elegant ornamental structure, having three balconies, from which is obtained a fine view of the gardens and the towers beyond. Alongside the sloping walk leading from the entrance gates is a long flower border running parallel to a handsome scolloped walk which forms the boundary on one side. This part of the garden was gay with dahlias and other flowers. On the long border was a unique pattern of bedding, and the well-kept appearance is evidence that all is in the care of a master hand. Conspicuous from the bridge where we took our stand is a handsome range of conservatories, with dome-shaped roofs and ornamental fronts. From an architect's point of view they are superb, but a gardener would prefer something of a more useful type. It would be difficult to imagine a more pleasing picture than the one I have attempted to portray. Nature provided the groundwork, and the architect and landscape gardener have done the rest. Many styles of gardening are introduced to advantage. Here is a bit of Dutch, there a bit of Italian, and yonder again a handsome piece of skeleton stonework on which stand the figures of the Muses. The work of the sculptor is apparent in the statuary, and water has been largely used in making a general effect. We stood in admiration of the scene before us, lulled by the music of the rippling waters, when the voice of the gate attendant below inquired whether we wished to enter the gardens.

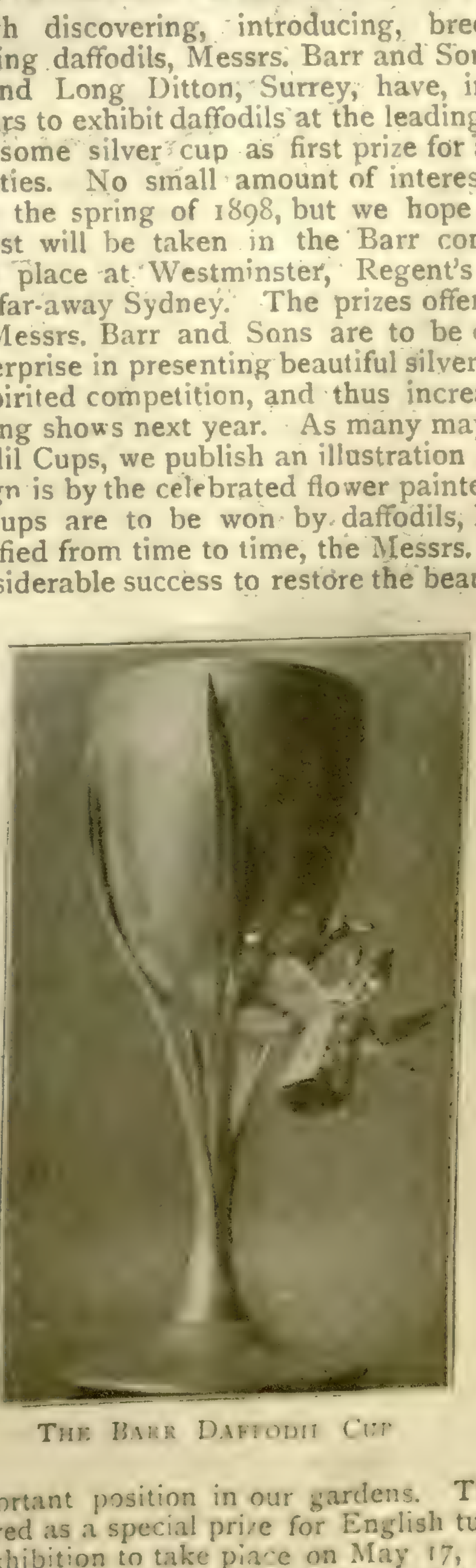
Of course we wished to enter the gardens, and could we see Mr. Gilman, who has sole charge of the domain? "Yes, certainly," was the ready reply, and very soon we were shaking hands with the genial chief. Mr. Gilman has a high reputation as a gardener, and for many years prior to taking charge at Alton he ably managed the gardens at Ingestre Hall, another of the Earl of Shrewsbury's homes. It was there he made his *début* as a grower and exhibitor of fruit and chrysanthemums, and also as the raiser of several fine melons and tomatos. At the death of the late Mr. T. H. Rabone Mr. Gilman was appointed to take charge at Alton Towers, and he has acquitted himself as ably as at Ingestre. He is full of schemes for fresh improvements, and has already done much, by the judicious cutting of over-luxuriant growth, to open out new views and make clear the original outline of the landscape. A walk round with Mr. Gilman proves that his ability is equal to his energy, as under glass or out of doors there are signs of cleanliness and good culture. Alton Towers is not by any means a convenient establishment for a gardener, as the houses are very much scattered. These difficulties, however, are made light of, and everything is managed as they must be in a garden, if matters are to be successful, that is, on a proper system. Mr. Gilman is a modest man, and it was not till after we had admired a superb house of tomatos for some time that he remarked that they were of a variety of his own raising, viz., Royal Chester. The fruits are medium in size, rich in colour, and the plants crop freely. The fruit also is extremely fleshy, and a variety possessing all these attributes is well worthy of a trial. It would be wearisome to the readers of the GARDENERS' MAGAZINE to attempt to drag them from house to house, through kitchen garden, flower garden, and pleasure ground, yet the walk with such an enthusiast as the gardener at Alton Towers was full of interest and incident.

Bedding is a big order in these extensive gardens, as, in addition to catering for the tastes of the Earl and Countess of Shrewsbury, there is a critical public to be considered. Well-known flowers, such as calceolarias, pelargoniums, violas, pentstemons, and so forth, are relied on, and many clumps of cactus dahlias show to great advantage. In the private garden immediately surrounding the mansion, and where the public is not admitted, there is the same good order, and from the terrace wall one obtains a fine view of the surroundings and the picturesque country beyond. Not the least interesting feature of Alton Towers are the miles of woodland walks and drives leading from the homestead. These divert and intersect in a way quite their own, passing along timbered slopes, under overhanging rocks, through shady dells, and leading—well, nobody but a born native of Alton could tell you where. All these highways and byways must be kept clear and in order, and add largely to the labour of the gardener. But miles were traversed in visiting scenes which any gardener would appreciate, and in collecting matter for these scrappy notes. The September day was hot, and though the big-framed gardener strode along apparently tireless other legs began to betray signs of fatigue. We arrived quite unawares by a true Alton walk, twisting and meandering, at a charming ivy-covered cottage with a tasteful garden in front, and having a view that many a millionaire would envy. "Come in and have some lunch" were words that seemed to fall naturally from the lips of our guide, and, as one would naturally and mentally suppose, there would be an introduction to Mrs. G. But, no! let it be told in a whisper—Mr. Gilman is a bachelor; yet one need not be long in his comfortable home before being assured that his personal comforts are safe in the hands of his able housekeeper.

H.

THE BARR DAFFODIL CUP.

NOT satisfied with discovering, introducing, breeding, cultivating, exhibiting, and selling daffodils, Messrs. Barr and Sons, of King Street, Covent Garden, and Long Ditton, Surrey, have, in addition, of late encouraged amateurs to exhibit daffodils at the leading spring exhibitions by offering a handsome silver cup as first prize for a collection of properly named varieties. No small amount of interest attached to this competition during the spring of 1898, but we hope and believe that a much wider interest will be taken in the Barr competitions of 1899, which are to take place at Westminster, Regent's Park, Edinburgh, Birmingham, and far-away Sydney. The prizes offered are well worth the winning, and Messrs. Barr and Sons are to be congratulated upon their taste and enterprise in presenting beautiful silver cups, which cannot fail to excite a spirited competition, and thus increase the extent and interest of the spring shows next year. As many may not have seen one of the Barr Daffodil Cups, we publish an illustration of one, adding that the charming design is by the celebrated flower painter, Mr. H. G. Moon. Not all the five cups are to be won by daffodils, however, for, as our columns have testified from time to time, the Messrs. Barr have laboured long and with considerable success to restore the beautiful English tulips to their former important position in our gardens. Thus we find that one cup will be offered as a special prize for English tulips at the Royal Botanic Society's Exhibition to take place on May 17, 1899, at Regent's Park. The other four competitions will be held, on dates to be presently published, under the auspices of the Royal Horticultural Society, Royal Caledonian Horticultural Society, Midland Daffodil Society, and the New South Wales Horticultural Society. Full particulars of the competition may be obtained upon application to Messrs. Barr and Sons, 12 and 13, King Street, Covent Garden, London.



THE BARR DAFFODIL CUP

CHRYSANTHEMUM GOLDEN SHOWER.

AMONG the many quaint and curious forms of chrysanthemums that have from time to time been exhibited probably no two have been more commented upon, or become known to so large a number of enthusiasts in so short a space of time, as those Mr. Witty, of Nunhead Cemetery, has of late brought into notice. These two varieties, Golden Shower and What Ho ! are wonderfully distinct from anything hitherto grown, although the former is akin to some of the spidery forms, and also appears to be a relative of the pretty decorative variety Alice Carter. What Ho ! reminds one of the Japanese introduction of some years back, and named Spiderkry ; it is both quaint and curious, but its best friend will scarcely allow that it is beautiful. Its florets are comparatively few in number, and form one ring ; each is stout, tubular, and three to five inches in length ; drooping, and with the end coiled up like a watch-spring. The colour is a pale yellowish shade. No doubt anyone who is bold enough to grow this variety and produce a really good specimen would create quite a sensation. At many a country establishment a specimen of What Ho ! would help to entertain and amuse the autumn shooting party, and by force of contrast with the exhibition Japanese and incurved varieties could be used to show the wonderful diversity of form the chrysanthemum is capable of. Not many have had a kindly word for What Ho ! and yet at the annual dinner of the N.C.S. the other night blooms of it were adorning many a manly breast. One authority has called it "a chrysanthemum gone mad," and another characterised it as "a botanical curiosity." Dame Nature surely smiled when she heard these remarks, and thought of the wild chrysanthemums of far Cathay.

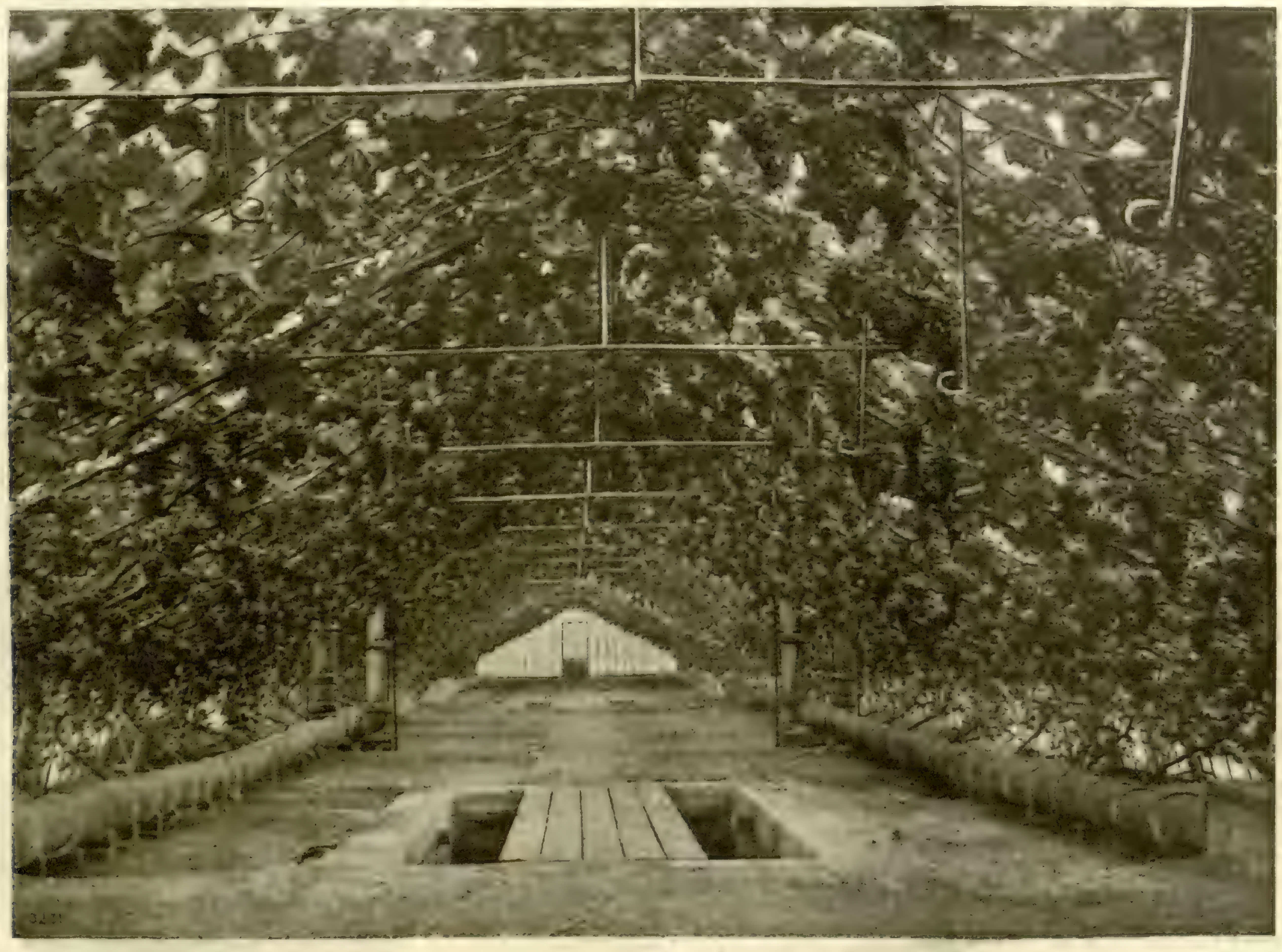
The other of Mr. Witty's novelties, Golden Shower, is figured in the present issue. To the writer's mind it is an extremely beautiful flower, and one well worth cultivating for cutting, provided it is at all free in producing blooms. So far it has not proved a particularly elegant grower, and as a decorative plant the variety has yet to be tested ; but those who saw the numerous blooms that adorned the tables at the Holborn Restaurant on the 30th ult. will readily admit that they were wonderfully decorative, and that there is room for this variety that so quaintly combines in itself the curious and beautiful. The illustration serves to show the form and size of the blooms, and how the long, drooping, thread-like florets have suggested the name of the variety. These florets are rich and deep golden yellow, this colour shading off to bright chestnut and a brilliant shade of crimson-scarlet. "Like spun silk," was the description given this variety by a lady at a recent Drill Hall gathering. Although shown at two meetings of the National Chrysanthemum Society, Golden Shower failed to gain an award from that body ; it gained an award of merit, however, from the Royal Horticultural Society, and this, rather than showing any weakness on the part of the Floral Committee, indicates the broad sympathies of that body, and reminds us that there are other beautiful flowers besides those that pass muster as exhibition varieties.

K. P.

A FRENCH FRUIT-GROWING ESTABLISHMENT.

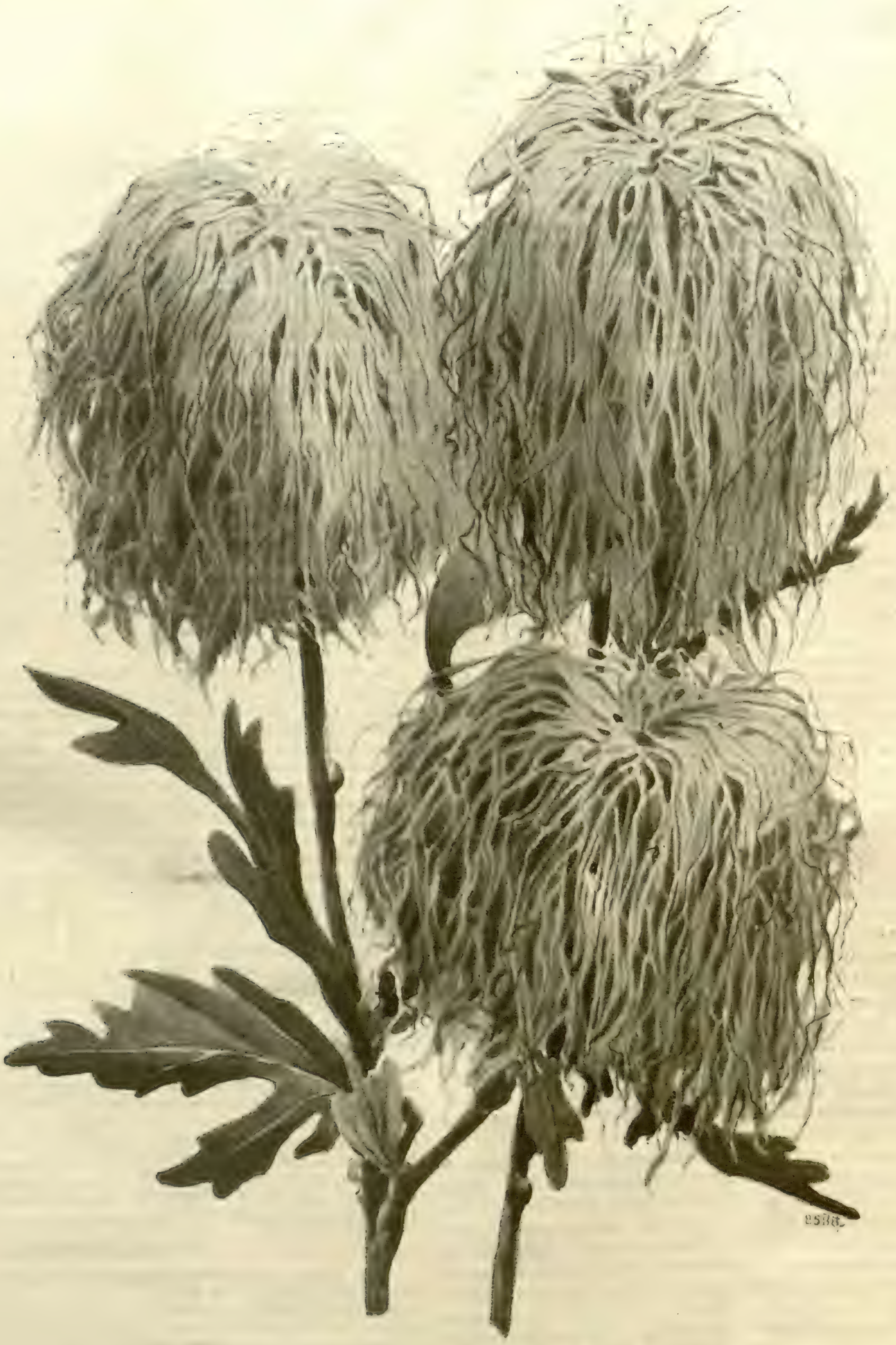
ENGLISH visitors to the exhibition of chrysanthemums held in Paris last month, under the auspices of the National Horticultural Society of France, were so surprised by the magnificent grapes exhibited by M. Fatzer that a few particulars of the establishment at Quessy, which he conducts with so much success, can hardly fail to be of general interest. The French cultivators of fruit who visited the exhibition were not less surprised by the remarkable examples of grape culture presented by M. Fatzer than were our compatriots, for, notwithstanding the success achieved by French cultivators in various directions, such superbly developed clusters of grapes are seldom, if ever, seen at competitive gatherings in France, and consequently the gold medal was awarded by the jury with acclamation.

The Quessy establishment has an area of about sixteen acres, and is chiefly devoted to the production of grapes, peaches, and nectarines for the supply of the principal establishments in Paris, the culture of grapes greatly predominating. The glass structures devoted to the fruits mentioned cover an area of four acres, and are for the most part heated by the old-fashioned flue, the method of heating being of special interest in view of the remarkable results obtained. The vineries are two hundred feet in length, and, with the exception of those from which the earliest crop is obtained, are twenty-four feet wide and ten feet high. The earliest houses are only six feet wide, and are heated by hot water. The illustration of one of the vineries devoted to the Black Hamburgh, from a photograph taken in July last, conveys a good idea of the general character of the houses devoted to the mid-season and late grapes, and also of the great excellence of the crops obtained. A large number of the bunches of the Black Hamburgh weighed from three to four pounds each, whilst none were under one pound, and the heaviest bunch turned the scale at six pounds, the colour and finish being throughout exceptionally good. The structure in question and all the mid-season and late houses are heated by flues constructed with pipes, as so clearly shown in the accompanying illustration, and six fires are provided for each house, and at certain periods of the year one hundred and four fires are going simultaneously. As M. Fatzer pointed out in conducting us through the establishment, the system of heating that obtains is troublesome and expensive, and also attended with some risk. Moreover, it is impossible to regulate the temperature of houses heated by flues with the same degree of nicety as with a properly fitted hot-water apparatus, and it is necessary to keep a sharp look out for accidents, such as the bursting of a pipe. Should this occur, and the sulphurous fumes escape into the house even for a short time, the whole crop may be ruined.



VINERY PLANTED WITH THE BLACK HAMBURGH GRAPE AT QUESSY.

The Black Hamburgh is extensively grown for the early and mid-season supplies, as also are Foster's Seedling and Buckland Sweetwater, all of which are much appreciated in Paris when of the high quality characteristic of the Quessy grapes. Canon Hall Muscat is also grown with much success for cutting in June, the size of bunch and berry and



DECORATIVE CHRYSANTHEMUM GOLDEN - SHOWER.

the colour being remarkable for a crop attaining maturity at so early a period. The varieties grown for sending to Paris during the autumn and winter months are Gros Colmar, Alicante, and Muscat of Alexandria, and of these heavy crops of the highest possible quality are obtained. Finer examples of Gros Colmar than those contributed by M. Fatzer to the Paris Exhibition in November have not been presented to public notice, and the superbly-finished clusters fully justified the interest they created amongst the visitors. Still more remarkable was the crop in the vinery from which the exhibition bunches had been cut. From within a few feet of the base to the top the vines were furnished with bunches of large size and finely coloured. The heaviest bunch weighed six and a-half pounds, whilst the larger proportion ranged from two to four pounds. The weight of bunch this season is hardly equal to that of last year, when the heaviest bunch weighed nine and a-quarter pounds, but for size of berry, colour, and density of bloom this year's crop is decidedly superior. Alicante and Muscat of Alexandria give equally satisfactory results, and we were much impressed by the heavy and finely finished crops of these two popular grapes.

Peaches and nectarines have considerable space devoted to them, and the starting of the several houses is so arranged as to ensure a continuous succession from early in April until about the middle of July. The varieties of these two kinds are such as would be selected by experienced cultivators on this side of the Channel, and include the most recent of the introductions as well as those which have been long in cultivation. Early Rivers nectarine occupies a prominent position and is regarded with much favour by M. Fatzer, who on reading our description of it when first introduced to public notice at once recognised its adaptability for commercial culture, and obtained trees immediately the variety was introduced. It has fully justified the opinion we expressed of its merits, and the trees have consequently been multiplied to meet the demand for large finely-flavoured nectarines early in the season. In addition to the cultivation of the fruits mentioned considerable numbers of chrysanthemums are annually grown for the production of large blooms of high quality. The Parisian florists demand blooms of exhibition quality with long stems, and M. Fatzer very properly provides what is required.

We were not a little interested in the details of management. The establishment, as stated above, has an area of sixteen acres, of which four acres are covered with glass, and yet the staff employed by M. Fatzer consists of eight men only. No regular hours are kept, nor are any additional hands taken on, when there is an exceptional pressure of work, as, for example, during grape thinning. During the busy times everyone does his best, and when the work is not pressing the staff takes things a little easier, and the men evidently like this course of procedure, for they have all been employed in the establishment upwards of ten years. M. Fatzer, who has recently had the distinction of the Order of Mérit Agricole conferred upon him, takes his full share of the work, as evidenced by the fact that with the assistance of one man he gathers and packs all the fruits and flowers grown in the establishment. It may be of interest to add that the water used, and the quantity must be very large, is raised by an aerometer or wind pump from a well to an immense tank on a tower, and from this it flows to the houses, as by this means a considerable saving of labour is effected.

GREVILLEA ROBUSTA.

This elegant greenhouse shrub is well worthy of a place in all collections of plants, in fact should be included in small as well as large collections, for whether used as a table plant, for room decoration, or as a sub-tropical subject for the flower garden it is not surpassed by anything in the same way. I have before me as I pen this note a plant growing in a five-inch pot which has withstood a sojourn of several months in this room, and during that time it has continued to grow and develop several of its finely cut, pleasing green leaves, and has lost none of its freshness. The grevilleas are natives of New Holland, and will thrive luxuriantly in a cool temperature. By sowing a packet of seed annually a good stock of plants in various sizes will be maintained, suitable for the many purposes to which they are so admirably adapted.

As a "dot" plant in the flower garden this grevillea presents a pleasing and striking contrast to the flowering subjects utilised, whilst for intermingling with such plants as cannas, fuchsias, Lobelia cardinalis, and various other popular occupants of our flower garden they are very effective. What can be more beautiful to look upon than a large bed of Crozy's cannas, with the foliage of this graceful plant towering well above them? Such a one has been in these gardens during the past summer the admiration of everyone who has seen it. Old plants that have become somewhat leggy have been utilised for the centre, and the younger and dwarfer plants for the sides. These are lifted in the month of October and potted up for use in the conservatory and for room decoration in the winter months, and I find they are much better suited for corridors and places that are often draughty and injurious to plants than are many other foliage plants. Associated with various berried plants as Solanum capsicastrum, pernettyas in variety, also Euphorbia jacquinæflora, poinsettias, and other winter flowering subjects it is much better adapted than the more tender greenery ofttimes used.

The seeds should be sown in February on a hotbed in light sandy soil, and the seedlings afterwards potted on and grown in a position near the roof glass in a warm house until thoroughly established, when a cool temperature should be accorded them.

Stoneleigh. H. T. Martin.

CHRYSANTHEMUMS IN VASES.

From the remarks on pages 795 and 796 it must not be inferred I had in mind the difficulties judges would find in inspecting chrysanthemum blooms if five were arranged in one vase, but rather that visitors would not be able to "inspect" the blooms unless they were arranged where they could be seen from all sides. No arrangement of five blooms in one vase stood on a side stage can be so effective as a smaller number. If a collective display is the object in view the circumstances are varied, because it is not then a question of individual blooms but of the whole. Where a specified number of blooms is to be staged there should be no opportunity afforded for hiding any defect in any one of them. At the Edinburgh Show there were no less than twenty classes provided for chrysanthemums in vases—three, six, and even twelve blooms in a vase were required—but undoubtedly the finest effect was produced by the classes devoted to so many varieties, three blooms of each. In some few instances six blooms in one vase made such an effective display that little fault could be found, but in these cases where that number of blooms were required such varieties as Charles Davis, Viviand Morel, Duchess of York, President Borel, and Mrs. H. Weeks were specified as in all these a greater depth is obtained in the blooms than in the case of Mutual Friend, Simplicity, and such spreading varieties. I particularly noted the want of effect in six blooms in one vase, any variety. Not only were the blooms sadly crowded, but the inharmonious colour effect was all too apparent, as may be expected when a pure white blossom is so closely associated with a pale yellow. In a class for one vase of twelve blooms the crowding was even more noticeable, although much larger vases were employed.

As our Editor remarks, vases for sprays afford a pleasing contrast. At Edinburgh such a class was one of the most attractive in the whole show. The schedule reads, "three vases decorative chrysanthemums in three varieties, not disbudded, with any foliage." No less than seventeen competed in this class. The premier exhibit well represented the type of chrysanthemum best suited for room or vase decoration in combination with other foliage. The varieties were Source d'Or, Yellow Lacroix, and the bronze and golden yellow sport from La Triomphante; the foliage used was Spiræa aruncus, Eulalia zebrina, and fading asparagus tops. In the class at York alluded to by the Editor "twelve varieties, in sprays, not disbudded, and three sprays of each variety," was the specification. These had to be shown in jasper vases. I saw the competition, and thought how good the effect was, but at the same time thought some of the varieties were rather thin for the best effect, three sprays of some varieties being insufficient to give the desired bold effect. At York prizes are offered for single specimen incurved and Japanese blooms in separate vases, but there, as at Portsmouth, where a similar class used to be provided, the blooms had a poor effect.

At Windsor for years one of the most interesting classes in the whole show has been that for twelve blooms, any section, arranged in a vase or basket. Here other natural foliage is allowed, and this year there were eleven competitors. The quality of the blooms is a point of importance in combination with the effect produced by adding such foliage as purple beech, scarlet oak, ampelopsis, crotons, and palm leaves, fern fronds, &c. Such a class is a means of instructing the public how to employ large exhibition blooms in the decoration of the drawing-room or front hall. A similar class is provided at Ascot. At Liverpool prizes are offered for a basket not exceeding eighteen inches in diameter, suitable for a drawing-room table, filled with chrysanthemums, fern or other foliage. In such a class as this ample scope is provided for the exhibitor to employ large or small-flowered varieties at will. The leading exhibit was an effective one, mainly composed of Mary Anderson, the favourite single-flowered variety. As showing how little societies encourage the staging of chrysanthemums other than in the orthodox fashion on hard green stands in cups and tubes, I find from forty prize lists but sixteen include classes for the artistic display of blooms, and many of these are but for a single vase containing six or even nine blooms.

The Ulster Society offers prizes for thirty-six blooms in twelve varieties, to be shown in glasses. At Cardiff twelve Japanese blooms in four varieties, three blooms in a vase, are asked for. At Bolton no supports are allowed to the blooms staged in vases, and in this case varieties with stout stems must be employed. It is difficult for an ordinary visitor to notice a thin wire, which is invariably employed in arranging the largest blooms in the vases, and personally I see little harm in this addition, provided, of course, its appearance does not lessen the effect or be conspicuous. A few more object lessons like those at the Edinburgh Show will quicken other societies to make a change from the hard and fast lines of most shows held in the United Kingdom.

E. Molyneux.

The Flora of Western Australia.—According to Mr. Spencer Le M. Moore, the desert flora of Western Australia comprises 867 known species, of which 860 are Phanerogams, referable to 319 genera, distributed among 73 natural orders. Of the flora 58 per cent. consist of species ranged under 8 orders, with Compositæ and Leguminosæ heading the list, leaving 42 per cent. to be shared between the remaining 65 orders. Mr. Moore disbelieved the current theory of Scandinavian predominance; and the prevalence in Eastern Australia of forms of Indo-Malayan facies was held to be due, in great measure, not to immigration, but to descent from the primitive Tertiary flora. Moreover, the balance of exchange between Indo-Malaya and Australia, in favour of the former area, was considered as coming under the doctrine of chances, and not as implying any inherent superiority of the one flora over the other. While in Europe the Australian, *i e.*, the xerophilous element was, owing to change in climate, eliminated in favour of the present hygrophilous vegetation, in Eastern Australia the conditions remained as they were in earlier Tertiary times until desiccation set in. Mr. Moore considers that this desiccation dates from an earlier period in Western Australia; and that this, together with the isolation of the western portion of the continent in secondary times by a sea, and later by stretches of desert, explains the floristic difference between Western and Eastern Australia.

A VARIABLE BRITISH FERN.

MR. W. H. PHILLIPS, F.R.H.S., of Holywood, co. Down, contributes to the annual report of the British Pteridological Society a paper on that highly proliferous British fern, Polystichum angulare proliferum.

Polystichum angulare proliferum, observes Mr. Phillips, is the name so long in use for the series of ferns which have been divided into acutilobe, divisilobe, multilobe, and conspicuilobe.

In Moore's "Nature Printed Ferns," printed in 1859, the first discovery is credited to Choules, who is said variously to have found it at Wimbledon, Surrey, or in Devonshire. It was, however, at Kew Gardens, and distributed from there. Mr. Wollaston more recently found his form at Ottery St. Mary, and Mr. Jackson his at Barnstaple. This last is probably the form now called oxyphyllum.

Mr. Newman, in his "History of British Ferns," 1854, page 119, mentions only two varieties of angulare. The first does not bear on my subject, but the second variety, he says, "is still more remarkable." After describing it, he continues: "I believe this plant is very familiar to cultivators. The specimen given to me by Mr. Pamplin was from a plant cultivated by Mr. Choules, formerly gardener to Lady Guildford; it was found in a hedge near Wimbledon, and is preserved in the Royal Botanic Garden at Kew, and I possess a second, from Mr. Wollaston, gathered by himself near Ambleside. My notice of the denser pinnules has induced cultivators to call it 'angustatum.' A third form has been found in Ireland by Mr. Kinahan. In this strange and abnormal form the fronds are of small size, and all the divisions are atrophied or setiform." He then goes on to say, "There is a property possessed by this fern which is common to many exotic species, the production of new plants from bulbils at the axil of the pinnæ or pinnules." This state of the plant was fully described by Mr. Kinahan, under the name viviparum, in a paper read before the Dublin Natural History Society, 1852; but was at that time very familiar to botanists residing near London, and Mr. Wollaston had called my attention to it long previously to the report of Mr. Kinahan's paper. I do not know of the existence of this form; it does not appear in any catalogue. "Hooker's British Ferns," 1861, says "Aspidium angulare was published as a Hungarian plant by Wildenow more than half-a-century ago, and it was not until the appearance of the last volume of the 'English Flora,' in 1828, that it was recognised as a British plant." Hooker's "Species Filicum," 1846, makes no mention of proliferum. "Ferns British and Foreign," by J. Smith, of Kew, 1879, just mentions proliferum.

Mr. P. Neill Fraser, of Edinburgh, in his "List of British Ferns," compiled in 1867, gives the names of eleven varieties, a few only of which seem to be generally known and whose names are found in recent lists—Alchini, angustatum, Crawfordiæ, foliosum Ivery, Footi, Hardringi, Holeanæ, Marshalli, Padleyanum, tenue Clapham, Wollastoni. A. Stansfield and Sons' catalogue 10, 1875, has the form proliferum, and Alchini, Crawfordianum, Footi, Henleyæ, Holeanæ, Lyelli, Wollastoni. Sim, of Footscray, does not seem to have had many, or I should find them in my list of purchases. Backhouse, of York, catalogued in 1885 four varieties, and in 1893 four varieties, all the same—Crawfordiæ, Footi, Henleyæ, Holeanæ. Mr. Druery, in "Choice British Ferns," 1888, page 128, gives a selection of the best forms with descriptions. These are: divisilobes, four; d. cristatum, one; d. plumosum, one; multilobum, one; proliferum, five. F. W. and H. Stansfield's catalogues contain: acutilobum, four in 1885 and 1888; proliferum, nine in 1885 and four in 1888; divisilobum, two in 1885 and twenty-three in 1888. Stansfield's Catalogue, No. 7, contains: acutilobum, nine; proliferum, none; divisilobum, twenty-seven; divisilobum plumosum, six. Birkenhead's: acutilobum, two; divisilobum, eleven; plumosum, one. Lowe's "Nature Printed Ferns," 1874, mentions only about four forms. Lowe's "Handbook," 1891, enumerates: acutilobes, twenty-nine; divisilobes, thirty-one; d. plumosum, nine.

About 1884 the discovery had been made that ferns could be crossed in the prothalloid condition by mixing spores of different varieties and sowing thickly. This gave a great stimulus to the raising of new composite varieties, with the result that the number of varieties recorded in books and catalogues had greatly increased. Mr. Lowe, in his "Fern Growing," 1895, says: "The many and varied ways in which ferns can be raised are of great interest, and should make the subject one of great interest to botanists. The numerous distinct and handsome varieties of the British species have kept up an interest with horticulturists; the advance owing to hybrid varieties has been vastly greater than by wild finds; the former have been rapidly increased, whilst the latter have decreased; the fern explorer who used to be laden with new varieties now returns empty-handed, and it is only whilst we have new fields to explore that we may hope to obtain something new. Many of those who formerly employed their leisure in exploration now find it more profitable to devote their time to the raising of crossed varieties."

Mr. Carbonell raised divisilobum, grandiceps, stipitatum, and other fine forms of divisilobum. In 1885 Mr. Carbonell gave me spores from all his best acutilobes and divisilobes, from which I raised some very good forms.

The finders of acutilobes include Wollaston, Wills, Foot, Phillips, Gray, Rake, Mrs. Hartley, Moly, Elworthy, and Jones; and the raisers are Wollaston, Allchin, Jones, and Lowe.

The finders of divisilobes are Padley, Wills, Moly, Phillips, and Seymour; and the raisers Carbonell, Jones, Ivery, Moly, Pearson, Bagg, Plimsoll, and Stansfield.

The raisers of divisilobum plumosum are Jones, Pearson, and Fox.

The finds of proliferum are: 1852, Wollaston and Elworthy; 1860, Rake; 1861, Holeanum, Crawfordiæ; 1865, Gray; 1866, Padley, Phillips (three in Somerset); 1869, Henley (seven in Devon); 1870, Seymour (one in Hants); 1874, Wills, Moly, Phillips (five in Ireland); 1875, Moly; 1876, Wills, Phillips; 1888, King.

The varieties raised comprise acutilobum cruciatum, a. grandiceps Wollaston, a. Scopæ Lowe, divisilobum cristatum Jones, d. cristatum Ivery, d. deltoideum, d. dumetum Jones, d. dumosum Jones, d. grandiceps Carbonell, d. multifidum Jones, d. polydactylum Jones, divisilobum plumosum densum, d. p. Baldwini, d. p. laxum, d. p. Esplan, d. p. Pearson.

One of the most interesting chapters in fern evolution and crossing is that of the divisilobum plumosum section, by Colonel Jones and Mr. Fox. Mr. Lowe thus describes it in his "Fifty Years of Fern Growing": "Decompositum splendens has great interest attached to it, on account of its anomalous seedlings with much divided superb fronds, for up to the present time there is no knowledge of any of the seedlings bearing any resemblance to its parent. A short history of this fern is desirable on account of some confusion that exists as regards its origin. The honour of discovering this fern has been erroneously stated by Mr. Druery to belong to Colonel Jones. This is an excusable mistake, because two ferns now bearing this name were found. A variety called decompositum was found in Devonshire by Mr. Moule, and a seedling raised from it by Colonel Jones was named decompositum, and the plant is not bulbiferous, nor does it produce varieties like the plumoso-divisilobum. A somewhat similar variety has been found in Ireland by W. H. Phillips. However, the true or original decompositum splendens was found by Mr. James Moly, in Devon, 1875, and received the name from Mr. Wollaston. Colonel Jones gathered spores from this plant in Mr. Moly's garden, and these were sown in 1878 by Mr. E. F. Fox, though the latter was not aware till long afterwards that they were not from Colonel Jones's seedling. The anomalous character of the seedlings raised from these spores was so marked that Mr. Fox was unwilling to credit decompositum splendens with being the parent. Colonel Jones therefore made a special visit to Mr. Moly for additional spores, and was at the same time presented with a division of the plant. In 1892 Mr. Moly's plant produced a bulbil, which he presented to Mr. Lowe, and this accounts for the seedlings of decompositum splendens being more or less bulbiferous. The second sowing of these spores by Mr. Fox confirmed the fact that the former anomalous seedlings owed their parentage to decompositum splendens. Amongst the first seedlings were three, somewhat similar in character, yet distinct from each other. These Colonel Jones named plumoso-divisilobum laxum, p.-d. robustum, and p.-d. densum, all very fine varieties, the last mentioned being the most beautiful, in fact as beautiful as Todea superba. They are all sterile,* and require propagation by bulbils or divisions As regards the propagation by bulbils, plumoso-div. densum has bulbils that produce very different varieties from the parent. Colonel Jones raised two plants from bulbils in 1886 and 1888, gave one to Mr. Lowe and one to Mr. J. L. Baldwin. They were not only distinct from the parent, but quite distinct from each other. One was called imbricatum, and the other Baldwini, and is perhaps the most beautiful British fern yet known. From the second sowing by Mr. Fox there was only one that was very distinct; this is called gracile." I have in cultivation, 1898—acutilobum, 29; divisilobum, 36; d. plumosum, 5.

Polystichum angulare proliferum Wollaston (Woll.), found in 1852, is a true acutilobe, frond elongate, deltoid, tripinnate, in its best character has only two pairs of bulbillæ seated in the axils of the lowest pair of pinnæ, pinnules acute. No British fern exceeds this in beauty, and probably none has figured so prominently in exhibitions; it is not to be wondered at, therefore, that it should have taken more than one person to find it. Mr. Wollaston relates that himself and the late Rev. W. Gardiner, then curate of Ottery St. Mary, during a ramble in that neighbourhood being brought suddenly by a bend in the lane face to face with it were at the same moment (it was then a large plant, and in true character) transfixed with astonishment. Mr. Wollaston was, however, the first to recover his presence of mind, and the plant will ever deservedly bear the name of the first of British fern hunters.

The name "proliferum" was first given to a plant found by S. Choules, one of the Kew gardeners. Mr. Wollaston states that an impression prevailed that at one time it was exotic, probably from its differing so much from other then known British ferns. Dr. Allchin writes that in 1852 this plant was growing in the outdoor fernery at Kew, marked "P. a. dissectum," and afterwards angustatum, and it was from spores of this that he raised the very beautiful proliferous form that bears his name, which was far more so than any that have since been found or raised. Choules's plant being the first to show its character was named by Mr. Moore "proliferum." Subsequently other proliferous forms were found, and named proliferum Wollastoni, Footi, Crawfordiæ, Holeanæ, Henleyi, Moulei, &c. As all these partook more or less of the finely cut character of the original proliferum, and no other proliferous form was then known, it was thought by some that the proliferous character was more or less the habit of that class, and that it was confined to it; subsequent discoveries, however, proved that in neither respect was this the case, the name therefore lost much of its appropriateness. It is true that in a general way the finely cut varieties have a more general tendency than others to be proliferous, but it is now known that this habit is very general among varieties of angulare, and is sometimes seen even in the normal form.

Mr. Padley writes that he has generally found that the ferns having a hard woody rachis are the ones most proliferous, such as acutilobe, multilobe, lineare, &c. Forms of brachiato-cristatum are nearly always proliferous, and in some cases not only near the brachiations. Mr. Wills's pulchermum and some forms of revolvens are proliferous, and a variety of cristatum, found by the late Dr. Moore, in Ireland, has often bulbils extending halfway up the frond. It is also now known that there are varieties which in every important particular are identical in character with the proliferous forms and yet they are not proliferous, or only slightly so. It would seem that the proliferous habit is both too general and too arbitrary in its appearance to entitle it to give a name to any class of varieties. Nor is the name at all descriptive of the very marked character of the class to which these, perhaps the most beautiful of all the forms of angulare, belong. The variation of character among these finely divided varieties is known to be so great that they can no longer be mingled together without considerable confusion of ideas. Mr. Wollaston was the first to meet this difficulty by a sub-division of the class of finely cut varieties into three classes: Multilobum, an excess of decompositum, the whole plant being more or lese tripinnate, but the division of the pinnules or pinnulets more or less abnormally rounded. Acutilobum, tripinnate all the divisions of the fronds acute, anterior and posterior pinnules nearly the same length. Divisilobum, tripinnate, the same as acutilobum, except that the anterior and posterior pinnules are of unequal length, the latter far longer, and the divisions altogether more highly developed. A well-grown plant is sub-quadripinnate, or even quadripinnate.

By the almost unanimous consent of angulare hunters and cultivators Mr. Wollaston's arrangement has been adopted, and the name proliferum is no longer used, except as an adjunct to denote that either such multilobes, acutilobes, &c., have such a habit, or such as have long been called by that name. Thus the original proliferum and Mr. Wollaston's, are proliferous acutilobes; Miss Crawford's, Mrs. Holes', and Mrs. Henley's are proliferous divisilobes.

Mr. Padley, whose experience in this class of varieties was perhaps unrivalled, and who studied the matter with at least as much interest and care as anyone, was in favour of Mr. Wollaston's arrangement, as far as it went, but he still retained the name conspicuilobe as descriptive of the varieties which do not quite come up to multilobes or acutilobes, though evidently partaking of the same "gentle blood." Mr. Padley wrote: "With me there are two principal divisions of the varieties whose pinnules are much divided: the tripinnate or decompositum class; and the acutilobe class (comprehending conspicuilobum, acutilobum, and divisilobum), the main feature in the former being that the pinnules are more frondose, and in the acutilobes more acute and narrow."

Multilobum, or, as he preferred to call it, equilobum, seems to lean to the two divisions—one section to decompositum, the other to acutilobum. My order of the more finely cut varieties is conspicuilobum, multilobum, acutilobum, and divisilobum. Some people have cast doubts on conspicuilobum, but I consider it a distinct variety.

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* Note by Mr. Druery: Spores are occasionally produced, and I have raised several typical plants therefrom.

If to these four classes be added the two classes of decompositum—the ordinary, and the higher or more developed class, called here tripinnatum—it will be found that, with very few exceptions, the whole of the divided or multilobe varieties will drop into their places very naturally. The expression, "gentle blood," has been here used as expressive of that look of quality which seems to distinguish the finely divided forms from all others.

Whoever has once seen a real acutilobe or divisilobe, well grown, half or two-thirds unfolded, with its wealth of feathery foliage spreading from the centre—so finely cut, and yet so evenly crowded together—the dark green of the unfolded part contrasting charmingly with the clear white of the curled-up heads of the fronds that turn gracefully back, crozier-like—with the tips of the pinnæ still folded up, and standing out like rows of little frosted-silver balls along the outer edge of the frond, and the rich, thick fox-coloured scales that cover the stem, running right up the centre of the fronds like a bit of sable fur, and the fine hair-like spines standing up from it everywhere, for the dew to rest on or the sun to shine upon; whoever has once seen this mixture of form, detail and colour can hardly help regarding it ever afterwards as distinct from other polystichums. And it is not cultivation only that does it, for often has the eye of the fortunate angulare hunter been struck by a similar contrast—as, for instance, when Mr. Wollaston came face to face with his acutilobe, or when Mr. Wills, with that magical hooked stick of his, uncovered his Sidbury divisilobe from the common leaves that hid it; there they stood out, distinct among their fellows—just like bits of china among earthenware—clearly enough nature's gentlemen; and we may be sure it takes at least three generations to make them such, for it can hardly be credited that such forms start from the normal type.

My experiences do not tally as a fern hunter exactly with others, for although I have found one good divisilobe and two acutilobes, only one (an acutilobe) was quite characteristic when found; the divisilobe was, when found, a very fine erect plant, lax, and very nicely divided, one of the forms from Castle Coole, setoso gracile, and it was not for a year or so afterwards that it developed fully into a divisilobe. My acutilobe "exile" was taken on account of the anterior basal pinnules diverging from the rachis. I have now two wild finds, bought in the market from hawkers, which at present, the second year, will prove divisilobe and acutilobe.

Who can foretell the future of Polystichum angulare proliferum? This is the most difficult part of my task; but, relying on what has been done in the past, both in angulare and other species, it is very probable that many forms may be crossed with both acutilobes and divisilobes. Some of the crosses may spoil the original characters, and others improve them. About twenty years ago the late Colonel Jones, Mr. Greer Malcolmson, and myself were on an excursion to Tollymore Park, co. Down, situated on the Mourne Mountains. While walking along, the topic of the ferns of the future was started, and in a joking way we each proposed what we then thought the most absurd amalgamations of varieties, this only in the finding of wild forms. But afterwards we found that many of these unattainable forms were produced by crossing. The plumosum form has already been produced in divisilobum, and it may be possible yet to introduce brachiate, revolved, flexuose, variegated, setose, cristate, grandiceps, percristate, and tripinnate forms, and to hybridise with aculeatum. Likewise with acutilobum, the forms cruciatum, grandiceps, polydactylum, multifidum, and cristatum are to be had. We may have the possibilities in the future by crossing with revolvens, flexuosum, variegatum, setosum, brachiatum, gracile, percristatum, tripinnatum, acrocladon, corymbiferum, rotundatum, and with aculeatum. And with divisilobum we already have cristatum, polydactylum, grandiceps, and decorum polydactylum, and these can be crossed to an infinite extent.

IS THE ONION SURFACE-ROOTING?

THE belief that onions are mere surface-rooting plants is due to the old practice of placing manure for them rather near the surface, which, as a consequence, led to the development of roots laterally rather than longitudinally; but anyone who raises onions from seed on soil that has been deeply worked soon finds out on lifting plants that even whilst yet not more than eight to ten inches in height roots have gone down vertically fully ten to twelve inches. The newer culture, as exemplified in deep trenching and deep manuring of soils for the production of giant bulbs from plants raised under glass, and put out in the spring when strong and well-rooted, has revealed the actual habits of onion roots, as these, under this form of growth, have been found to go down fully two feet and even further. Mr. Bowerman, who is one of the leading growers of onions, once told me that for experiment he carefully removed the soil from onion roots and found them perfectly straight that depth in the soil. Were it not for this habit we should never obtain the gigantic bulbs now seen. These are more largely (relatively to the smaller bulbs) composed of water, and they could find their needful abundant supply of moisture only in very deeply prepared soils. It is odd that with so dry a season as the past summer has been we should have recently seen the largest onions ever produced. Had the plants been surface-rooters not all the watering possible in such a season would have created such monsters. They owe their size to warmth on the surface aided by such deep root run, for no doubt the ground on which they grew had been worked and manured to a depth of fully three feet. Of course, a good deal of feeding is given by the aid of liquid manures applied from the surface, but in soil so deeply and thoroughly worked this liquid food sinks deep. Still further, we know that roots do not absorb their supplies of food through root tips, as was formerly believed, but through minute root hairs, which cover the surface of all roots and find food wherever it can be obtained.

But, after all, the main point is the nature of the attractive force exercised by gravitation on the one hand, and almost of intelligence, or something else, not easily explained, on the other, which seems to compel root tips or borers to strike deep wherever practicable. It seems to be a recognised fact that if we place manure, or plant food, within fair reach of them the roots will instinctively find their way to it. If that be so, it is no matter for surprise if onion roots, finding the soil free deep down, and manure lying deep down, go after that manure, and find it; but in doing so they are also in dry weather finding a great essential to life and growth, moisture, which they could not find near the surface unless artificially furnished. After all, such deep culture as is now given to onion production is but the secret of success in all garden culture. Nine-tenths of the plants we grow in gardens, and vegetables especially, will root deep and vertically if the soil will admit of deep penetration. That same attractive force which invariably causes the root of the seedling to strike downwards into the soil, just as light attracts the stem upwards, operates on roots of plants of more advanced age. After all, there is nothing in garden culture so important as deep working of the soil.

A. D.

HORTICULTURAL EDUCATION.

THE question of the education of gardeners is worthy of our best consideration, nay, urgently demands it, as it is an obvious fact that we live in progressive times, and unless we move in accordance with them we shall soon be placed at a great disadvantage. Especially is this education needful to those whose province it is to supply our markets. The tide of imports cannot be stemmed, it increases in volume year by year, with a consequent lowering of prices. If we cannot grow more produce to keep out the foreigner we must endeavour to grow better and more economically. We must learn how to combat our insect foes, to overcome or prevent fungoid diseases, and by a system of judicious manuring bring our crops to the greatest perfection in the least possible time.

Our fathers, mayhap, produced good crops even when they looked upon the soil as an inert mass. Owing to the wonderful discoveries of modern times we are enabled to view things in a very different light, we know that the soil teems with life, bacteria, nitrifying organisms, &c. When we are enabled to follow intelligently the processes of these mysterious agents in the conversion of material into plant foods, which we are only just beginning to understand, surely we may hope for superior results. Or let us take another view of the soil, the theory if you like to so call it, of every particle of soil being enveloped or surrounded by a film of moisture and on the preservation of this film of moisture the welfare of our crops and the fertility of our soil largely depend. How can we preserve this film, or how can we assist these nitrifying organisms, without the light and understanding which is concomitant with the true education which simply means training, the training of the eye to observe and the brain to reason and understand. When we turn to the plants, what a wonderful thing is their life-history, yet we pursue our work amongst them day by day without a thought, mechanically as it were, giving them a certain amount of water and expecting them to do a certain amount of work, without realizing the fact that this work is the most mysterious thing in the whole world. Does not education bring appreciation of these facts? Who needs this education more than gardeners, and who receives less? The principal reason, I believe, is this. Our work is not understood, certainly not appreciated; consequently we rarely receive any encouragement, unless it is under exceptional circumstances. To "the man in the street" we are "only gardeners," akin to the genus "labourer." How few there are like the Right Hon. James Bryce, M.P., who "remembered to have been often struck with the fact that there were four classes of people who followed arts and occupations which required great skill—bankers, engineers, instrument-makers, and gardeners" (*vide* page 756 GARDENERS' MAGAZINE, December 4, 1897). Skill and knowledge (partly synonymous) we certainly do require if we are to do credit to ourselves and give satisfaction to our employers. How is this knowledge to be acquired? Only by a course of systematic study and preparation can we acquire it. Unfortunately we possess no State-aided schools of horticulture, like our continental neighbours (a typical one is illustrated and described in the GARDENERS' MAGAZINE for April 9, 1898); splendid aids these must be. The R.H.S. with its Chiswick gardens is undoubtedly doing good work, but is only within reach of the favoured few. Hopes may be expressed for the horticultural departments of many of the County Councils in the future when fully organised, but for the present we have little to rely upon except our own efforts.

Throughout the length and breadth of the land we have innumerable local horticultural societies; these apparently consider their duties begin and terminate in an annual show. This should not be so; every society worth calling a society should hold meetings where plants could be exhibited, if new, rare, or interesting, and papers read by various members, followed by debates and discussions; how helpful these to the junior members! This method seems to be far more general in the southern counties; with a few noted exceptions, it is practically unknown in the north.

The gardening periodicals, like the GARDENERS' MAGAZINE, hold a foremost place in the work of education or dissemination of useful practical and scientific knowledge; a good text book on structural botany should certainly be studied, followed by one on systematic botany, then one bearing upon the geographical distribution of plants, chemistry, organic or agricultural, should not be omitted, neither should geometry nor geology and the standard works on horticultural subjects. The R.H.S. recommends a special list for use in connection with its examination. Mention of examination brings me to the concluding point. Many young gardeners would like to become candidates for the R.H.S. certificates, but fear to enter the lists, under the belief that the theoretical prevails over the practical. This is a moot point, frequently discussed, but never satisfactorily settled; but, in order to encourage young gardeners, could not the examination be held on the following lines to the satisfaction of both the practical and theoretical sections? A few months ago the English Arboricultural Association held an examination for foresters at the Yorkshire College, Leeds. Dr. Somerville, of the Durham College of Science, formulated a set of questions on forest botany, &c. These papers were worked at the Yorkshire College one day, the candidates assembled in Harewood Woods the following day for practical tests, such as planting, felling, and measuring of fallen timber, &c. The value of this outdoor examination in the actual work was considerably augmented by the fact that the examiners were all practical men, such as land agents and surveyors. The certificates granted to the successful candidates are not too easily obtained, stiff work must be done in each section, but when obtained they carry far greater value on the face of them than those gained merely by a display of theoretical knowledge, and tend to raise the possessors of them in the scale of foresters by proving them to be qualified to hold first-class appointments on important estates. Cannot this system be adopted by the Royal Horticultural Society?

F. DIXON.

BAHAMA DUCKS.

THIS is a very pretty variety of the duck, specimens of which are frequently seen at exhibitions. The following description appeared in the *Bazaar* some years ago: "This variety, termed by naturalists the Bahama Marbled Duck (*Dafila Bahamensis*), is in length about 18½ inches, and 1¾ inches in bill, which is of a lead colour, reddish on the sides. In the young it is of a red-brown, the colour changing as in the Rouen. The tail and back are brown, edged with a light brown. The crown is a sepia-brown; the breast grey, spotted brown; the wing spot or bar is a metallic-violet, with a narrow strip of buff on the front side, and a broad one on the back; the legs are of a dark colour." There is no dissimilarity between the sexes. Latham, an old and great authority, gives the length of the Bahama as 21 inches, and says that the bill is a lead colour, marked on each side and near the base with a triangular spot of orange. The variety is found in Brazil and the Bahamas. It is also known as the Ilathera Duck, as Canard de Bahama, and Le Marec. It perches on trees, and does not migrate north to breed.

E. B.

WORK FOR THE WEEK.

COOL ORCHIDS.

ORCHIDS that flower during the winter months have an exceptional value, even if they are common varieties, as they all serve the same purpose. Where a large quantity of cut flowers is in demand the old but still popular Cypripedium insigne is without doubt one of the best winter-flowering orchids we have, as the handsome blooms when cut remain fresh for a considerable time, and in nearly every garden, where indoor plants are cultivated, this old species will now be found in bloom, it having become such a favourite amongst gardeners, owing to its vigorous constitution and easy culture. The better varieties, which are also in flower, are certainly not so plentiful, such as C. i., Harefield Hall variety, C. i. Upland's variety, C. i. Dorothy, C. i. Sanderianum, &c.; but undoubtedly the most beautiful and distinct of all varieties is C. i. Sanderæ, which is only represented in the choicest collections at present. Then there is C. Spicerianum, another useful species in flower at the present time, and deserving as wide culture as C. insigne; although not such a vigorous grower, the mode of treatment is somewhat similar, and the pretty flowers with their distinctly striped dorsal sepal make a good show. There are a few named varieties in existence, the best of all perhaps being C. S. magnificum, a large and very superior form when obtained true. Other cool growing cypripediums, to flower during the winter months, are C. purpuratum, C. venustum, C. Charlesworthi, and the hybrids C. Arthurianum, C. Leeanum, and C. nitens. Cypripediums delight in abundance of water at the roots, especially during the summer months, but now during the short days of winter only sufficient should be given to keep the compost nicely moist; and when affording it avoid letting the water lodge in the growths as much as possible.

Where Odontoglossum crispum is grown in quantity there are nearly always a few spikes of flowers to brighten up the house during every month of the year, and at this dull season they are exceptionally valuable; the flowers certainly do not expand so well now as they do during the spring and summer months. Many buds are lost if foggy weather sets in. It is, of course, in the neighbourhood of large towns and manufacturing districts that these fogs prove most disastrous, as they are so charged with smoke and various gases. So far we have been very free from fogs this year. Odontoglossum Rossi, which grows in company with the O. crispum, is certainly a very charming little winter-flowering orchid, coming in most useful for buttonholes or any other purpose to which orchid flowers are adapted. These plants are of easy culture, and may be had in flower from the latter end of November until April and May. Other useful winter-flowering orchids are found in Lycaste Skinneri, and its varieties, Maxillaria grandiflora, M. venusta, with sweet-scented flowers, and Sophronitis grandiflora, the brilliant scarlet blossoms of this delightful little species being now open; and, lasting as they do for a month or six weeks in perfection, their value is obvious, and they also impart a very cheerful appearance to the cool house during the wintry days. The plants should be afforded plenty of moisture at the roots until the pseudo-bulbs, from which the flowers are produced, are fully matured. After this there is usually a quiet season for a time, when a much smaller supply of water will suffice, but even then the compost must never be allowed to become absolutely dry. The repotting of these plants may be done immediately after the flowers fade, or when growth commences, using shallow pans, three-parts filled with drainage, and a compost consisting of equal parts fibrous peat and sphagnum moss.—E. SHILL, *New Hall Hey Gardens.*

CONSERVATORY AND GREENHOUSE.

IN writing this calendar we confine ourselves as much as possible to such work requiring attention at the time. We are now, however, at a season when the usual daily operations of the plant grower are often interfered with, extra house and other decorations claiming a fair share of attention. On no account should this lead to neglect in the way of watering plants, ventilating the different houses and pits, and regulating the atmosphere of the houses both day and night. Such details, if not carefully attended to during this busy season, would lead probably to much loss and disappointment in the future. Apart from the use of holly and evergreens by the decorator at Christmas time, there is always an extra run on plants in variety, as well as cut bloom, forethought and judgment often being necessary in getting the supply to meet the demand. With cut bloom alone, it is always best to depute one man to manage this as far as possible, as he will know what reserve cut bloom he has to work upon, and act accordingly; whereas, when several men are set to work to gather the supply, there is often a waste of valuable flowers. With care the same flowers may be used the second or third time, such as when poinsettias are employed for table decorations; they are much too valuable to be cast on one side. We generally have them collected carefully, tied loosely in small bunches, and then insert the stems in a tank of water in a cool house. Here they remain quite fresh, and retain their foliage better and longer than it is possible for them to do if placed in heated reception-rooms, they form a reserve ready for the decorator, and save a waste of material. Valuable plants are also used, and especially tall, graceful palms, to decorate corridors and rooms. Such positions are generally kept heated by artificial means at this season, a most trying condition for the plants to be under for, perhaps, a fortnight. Neither is it always possible to afford sufficient water while they are being used for such purposes. It therefore becomes very necessary to see that each one is thoroughly watered before being taken in; and, moreover, by placing a good pad of wet ground moss over the surface of the ball, it greatly assists to retain moisture in the soil, as well as giving a neat finish. Plants growing in small pots are often used for margins of groups and for filling baskets. These naturally suffer more quickly than much larger ones for the want of moisture. Indeed, not infrequently they have to be turned out of their pots before they can be used in the desired way, especially small ferns and table plants; therefore they should be prepared for the ordeal by careful and copious watering first, and using plenty of wet moss about them afterwards. This saves much labour in attending to them after when placed where water cannot be used freely, and also the anxiety of fearing they may flag or collapse at a time when they should be looking both bright and fresh. Many object to resort to the unnatural method of wiring cut blooms, but there is no gainsaying but what it proves of great assistance to the florist, not only in making up pleasing arrangements, but a greater display can be made with a few blooms so treated, as they can be fixed in the desired position and made the most of, which is not possible when wire is not used about the stems. Of course, we often see the work of wiring cut bloom done very clumsily, which brings it into ridicule, but when neatly performed with deft fingers so that the wires are made to support the stems, without being exposed or thrust roughly through the bloom, its aid is a great gain, both in arrangement and, what is of great importance at mid-winter, a saving of bloom. Nice little green pieces of moss should first be twisted round the stems to save the binding wire bruising them, and not unsightly tufts of cotton wool commonly seen.—RICHARD PARKER, *Goodwood Gardens.*

KITCHEN GARDEN.

AT this time of the year, when weather permits, digging as far as possible should be proceeded with and brought to a close, for it is a mistake to work on land when wet, as this renders it unfit for sowing or planting for a considerable time afterwards. The experienced cultivator will bear this in mind, as he knows full well the evil effects that arise from puddling the ground, as it were. Better by far defer operations than attempt to cultivate land when in an unfit state. The mild weather has enabled work of most kinds to be pushed forward, so that there can be little excuse for having any arrears. We shall soon be receiving seed catalogues, reminding us that the time has come when plans for the coming year must be thought of; and, as it is not well to delay the ordering of seeds until they are required for sowing, it is well during the long winter evenings to look over notes of the last season's crops as a guide for future orders. No two places are alike in respect to the consumption of any particular kind of vegetable; it is, therefore, useless to attempt to advise on this particular point. But, if gardeners have from time to time taken notes of the various kinds of vegetables most in request, they will doubtless be in a better position to make out their seed orders.

Those who have room to grow peas under glass may sow now for gathering towards the end of April. Peas will not stand forcing, neither will they put up with the drying atmosphere of hot-water pipes. Those who have large, airy houses may grow them very successfully with little trouble; failing these, pits are more serviceable than small, ill-ventilated structures. Where there is room it will certainly pay to grow the taller varieties, such as Gradus, Empress of India, Early Morn, Early Giant, and the like; but for small houses or pits the dwarf kinds must be sown. Chelsea Gem, William Hurst, Sutton's Forcing, Carter's Forcing, English Wonder, and such like are all first-class varieties growing about two feet high. The question has often been raised whether it pays to put sticks to such dwarf varieties, and to this I say, without doubt where the most has to be made of a limited space, then staking will certainly pay. I have taken four bushels of pods from one hundred nine-inch pots of Chelsea Gem, which, though not a large-podded variety, fills up well. Carter's Forcing, too, is an enormous cropper, and should not be lost sight of. For those who want larger podded varieties of dwarf habit Daisy, Sutton's Seedling, Perfect Gem, and Dwarf Defiance will suit them. When grown in pots it is far preferable to sow in small ones, and pot on, than to sow at once in nine-inch pots, as space is economised in the first instance. It is a great mistake to sow too thickly, as ten or a dozen plants are ample for one pot; therefore if the seed be good there is no necessity to plant more than that number. When grown in pits eighteen inches ought to be allowed between the rows, and the plants will give by far better results if they do not stand so close together in the rows as some people like to see them.

The days will now soon be lengthening, therefore French beans will grow much faster and set more freely. As a less time will be needed to bring the crops to maturity, calculations must be made accordingly. Those sown now, if a proper heat be maintained, will be ready to gather about the middle or end of March. Seakale will now force more readily, particularly if they have been exposed, as growth will then have been arrested. Batches should be introduced at intervals as required that there may be no blanks in the supply. Chicory will also blanch readily now, and as this is not only a wholesome salad, but also a good vegetable, it should be grown more largely than it usually is. Up to the present time, the weather being so mild, there has been no necessity for protecting any vegetable crops; we may, however, expect a change at any time. This being so, material should be had in readiness in case severe frost should visit us. Lettuce and endive that are still exposed will suffer after such mild weather; therefore where an open shed or pit can be afforded these should be got under cover before the frost takes hold of them. Make small sowings of mustard and cress, and introduce into gentle heat boxes of mint, tarragon, and other herbs required.—H. C. PRINSEP, *Buxted Park Gardens.*

FRUITS UNDER GLASS.

A STEADY but not forcing temperature of about 70 degrees or a little under, without sun heat, and a dry atmosphere, should be preserved in the fruiting pine house. Damping down and syringing between the plants should, if not entirely suspended, be reduced to a minimum, and only done in the mornings of fine days, and this only in houses that are well favoured in the matter of light and position. The bottom heat, too, should be kept steady at about 10 degrees or 15 degrees higher than that recommended for the house itself. An eye should be kept on the stock plants which are expected soon to be showing for fruit, and as soon as signs of this are seen these should be arranged together and plunged in some fresh fermenting material that will keep the roots vigorously active, for once this stage is reached any further attempts to rest the plants will only spoil the embryo fruits by causing them to become stunted and mis-shapen. These plants will require more water than the rest of the stock, as they must never be allowed to become quite dry at the roots during the time fruit is forming. Smaller stock in all stages down to the most recently potted suckers should be kept for the time in as low a temperature as is safe and have very little water, so that growth is almost arrested, for any growth made now will do more harm than good eventually, and it is best to keep the plants almost dormant until the days begin to lengthen.

Where leaves form the fermenting medium for the plunging beds no opportunity of collecting a sufficient stock in suitable (dry) weather should be lost, as they may be heaped up in some convenient place, and will then be impervious to snow or cold rains, which do much to destroy their best properties when allowed to penetrate them while lying in the hollows into which they have been blown or dropped. Orchard house pot trees of various fruits, where still outside to retard, should have the litter with which the pots have been surrounded for some time past removed, and replaced with dry material of the same kind or with dry leaves, to protect the pots from bursting under the influence of severe frosts, and also that they may be readily removed under cover whenever this becomes necessary, whatever the weather may be. Though frosty weather is good for the trees it is not good for their roots, especially when confined to pots and exposed to all fluctuations of temperature. If very early melons are desired it will be necessary now to sow some seeds for the first house, but I never like to depend entirely for this crop on seeds sown before the new year, and make a practice of sowing two or three lots at intervals of a few days, and selecting the best of these for growing on, as the kind of growth made by many seedlings at this period is not of the best except in surroundings of the lightest and most favourable description. Another thing which it may be well to remember is that old seeds, provided that they are not over six years old and have been well preserved, germinate best, and make the most fruitful plants. This is not in keeping with one's experience with other things, but it is an undoubted fact with melons. As fast as room can be found for them more strawberries should be brought under cover, and started slowly, after having had the usual dipping, picking over, and cleansing of the pots, following the routine lines laid down in a former calendar.—J. C. TALLACK, *Livermere Park Gardens.*

EXHIBITIONS AND MEETINGS.

ANCIENT SOCIETY OF YORK FLORISTS.

THE annual dinner of this ancient and flourishing society was held at the White Swan, York, on the 16th inst., when as is customary there was a large muster of members and friends. Alderman McKay, J.P., presided, and was supported by the Lord Mayor of York and the Sheriff of York and other notabilities of the city. After the loyal and some other toasts had been given, and had met with a hearty reception,

The Lord Mayor proposed "The Ancient Society of York Florists," and said that he was always deeply interested in the work it was doing. He occupied the position of vice-president of the Grand Yorkshire Gala Committee, and it was a genuine pleasure to know that the two societies were such unqualified successes in the city. The work which the florists were doing was totally different to that of the Grand Yorkshire Gala, and he maintained that there was ample room in the city for the continuance of that good work, and he was glad to find that the florists were endeavouring to keep themselves abreast of the times. It was a great pleasure to him to know that they had increased their prize list. He was told by their President that during the past year they had given away £200 in prizes. It was most creditable to them that they were in a position to do that beside the other good work they were doing in the city. He was told that their financial position was a fairly strong one. He had been a member of the society for twenty years, and had always taken a great interest in the work of the society for a great number of years. The shows from time to time were also deeply interesting, and it was a great treat to pass through the Guildhall during any of the minor shows. At the recent chrysanthemum show they had one or two new features which he never noticed before, and he would specially notice the exhibition of vegetables. He believed that they were indebted largely for that exhibition to the munificence of their president. Owing to death the society had lost a number of members, and he hoped that if there were any present who were not members they would join at once. It was to the best interest of the city as a whole that the success of the society should continue.

Mr. G. Lamb, treasurer, responded. The society believed that they had been doing good work, and from the kindly way the toast had been received they felt that that work was appreciated. He spoke of the loss of membership by death, but owing to the enrolment of new members the subscriptions amounted to exactly the same amount as the preceding year. The revenue from the chrysanthemum show this year was £5 more than during the record year. They had given during the year £260 in prizes, nearly £70 being for the minor shows, from which they received no revenue, and they had never been better than they had this year.

The Sheriff proposed "The President, the Vice-President, Officers, and Committee of Management," and the President, in response, expressed the great honour he felt it in being elected president in succession to Archbishop Thomson and Sir Joseph Terry, who held the office in succession for forty-six or forty-seven years. It was his intention to endeavour to bring the society up to what should be its proper position—a cordial co-operator with the Grand Yorkshire Gala. He asked them to add the Lord Mayor and Sheriff to the list of vice-presidents. They had, he said, a very hard-working committee, and if it was not for them it would be impossible to continue the work of the society. He spoke in eulogistic terms of the work of Mr. Lazenby, who had been secretary for twenty-five years, but through ill-health he felt compelled to resign that position, though he had no intention of separating himself from the society. If there was one feature of the society more than another worthy of encouragement, it was the minor shows, for it was the lover of flowers pure and simple who could visit them. They might depend upon it that the question of forming classes of instruction in floriculture by the Technical Instruction Committee of the Corporation would not be allowed to sleep, for he believed they would be of great advantage to the young gardeners of the city. He did not see why there should be any rivalry between that society and the Grand Yorkshire Gala but a friendly rivalry, which would ensure a hearty co-operation between them.

Several other toasts followed, including "Kindred Societies" and "Subscribers and Donors of Special Prizes."

NATIONAL DAHLIA SOCIETY.

THE annual meeting took place at the Hotel Windsor on the 13th inst., Mr. T. W. Girdlestone, M.A., the president, in the chair, there being a large attendance of members, including a considerable contingent from the country. The notice convening the meeting having been read and the minutes of the previous annual meeting confirmed, the Secretary (Mr. J. F. Hudson, M.A.) read the report, the substance of which was to the effect that the past season, owing to the prolonged drought, had been unfavourable to many growers, some of whom could not show, while others could exhibit only sparingly. It was also remarkable that the dahlia bloom was prolonged much beyond the usual time; dahlias were in flower up to the middle of November. The show last September did not equal in extent that held in 1897, and, owing to the incidence of the season, it was only natural there should be some falling off; still, the number of entries showed but little diminution. The show and fancy varieties were not up to their usual mark; still, very good blooms for the season were staged. The cactus type, on the other hand, was numerously and very finely exhibited, and new varieties increase with great rapidity. The class for cactus varieties shown on boards brought many entries. It is suggested they be shown in the future with the accompaniment of foliage. Certificates of merit were awarded to new cactus varieties somewhat sparingly, notwithstanding a large number were exhibited. The single dahlias were shown in good character, and appeared to be rising in popular favour. Further provision is necessary for classes illustrating the decorative value of the dahlia. The catalogue of dahlias prepared by the president and other members of the committee has been favourably received, and many non-members have made applications for copies. It is proposed to formulate a scheme for the affiliation of provincial societies. The thanks of the society were given to the donors of special prizes, and testimony was borne to the increasing interest shown in the cultivation of the dahlia.

The financial statement showed an income of £202 2s. 7d., including a balance of £21 1s. 1d. brought over from last year. Subscriptions brought £79 7s. 6d., and donations £20 12s. 6d. The remainder of income was made up of donation from the Crystal Palace advertisements in catalogue and schedule, &c. Prizes were awarded to the amount of £134 11s., and other items brought the expenditure up to the amount stated. On the motion of the Chairman the report and financial statement were adopted for circulation in the usual way.

Mr. T. W. Girdlestone was re-elected president; Messrs. T. W. Sharp, R. M. Hogg, and T. Hobbs, with the previous vice-presidents, were elected; Mr. E. Mawley was re-elected treasurer; Mr. J. T. Hudson, secretary; and Messrs. W. Treseder, Cardiff, and G. Gosney, Southall, were added to the committee.

The list of true cactus dahlias published in the schedule was revised. Several of the older varieties were struck out, and the best novelties of the past season added.

The proceedings closed with a cordial vote of thanks to the chairman, treasurer, and secretary.

THE HORTICULTURAL CLUB.

THE usual monthly dinner and conversazione took place at the rooms of the Club on the 13th inst., and there was a good attendance of members. Mr. Harry J. Veitch (vice-chairman of the club) presided, and there were present the Rev. W. Wilks, Messrs. Martin R. Smith, Ph. Crowley, Selfe Leonard, James H. Veitch, Gosling, Salmond, Geo. Monro, Peter Kay, J. Tillman, Geo. Bunyard, Shoults, Bassett, and the Secretary.

The discussion was on size in flowers, fruits, and vegetables, and was opened by an interesting and amusing paper by the Rev. W. Wilks, who deprecated the vulgar taste for large things in the strongest terms. He alluded to the absurd size to which chrysanthemums are grown, and asked what lady would use them for the purpose of decoration? It was the same with fruits. The huge Gros Colmar in grapes had almost superseded all other kinds in the market. And so in vegetables. Immense onions were grown, from which nearly all true onion flavour had been eliminated, and brussels sprouts like young cabbages had superseded the delicate flavour of those of former days. He hoped that there were signs of returning common sense and clearer perception of beauty, and said that probably the worst offenders were provincial societies, with whom size was everything, and the man who could produce the biggest cucumber, vegetable marrow, or onion generally came off victorious.

Mr. Martin R. Smith said that sometimes the size of Souvenir de Malmaison carnations was adduced as a proof of this vulgarity, but the fact was that this race was entirely distinct from the ordinary type of carnation, of which its foliage was a clear proof; its origin was unknown, but of its distinctness there could be no doubt. Mr. George Bunyard, as a fruit grower, said the same thing held true with regard to fruits. Big gooseberries, whose only recommendation was their size, had in many gardens superseded the fine flavoured sorts, and such fine flavoured varieties as Warrington, Ironmonger, White Champagne, Venus, Cheshire Lass, Yellow Golden Ball, and others had to give way to huge tasteless things. Mr. George Monro stated that probably the British public was responsible for a good deal of this, and while big things sold well he supposed the growers would cater for it. Many other members took part in the discussion, which was of a very interesting character, and a vote of thanks was cordially given to Mr. Wilks for his address.

WOOLTON GARDENERS' SOCIETY.

A MEETING of this society was held on the 15th inst. at the Mechanics' Institute, Mr. W. Tunnington presiding over a good attendance of members. Mr. J. Hathaway, superintendent of the Southport Parks and Gardens, gave an able paper on "Potting and Watering Plants." The various forms of peat, loam, leaf-mould, sand, &c., were described, and the various mixtures that formed suitable composts for the different species of plants. The necessity of clean pots and good drainage were urged as the requirements of importance. In repotting special notice should be taken that the ball of soil in which the plant was growing should at the time of the operation be of a medium state as to moisture, neither dry nor wet. Firm potting was recommended, especially for hard wooded plants, such as Azalea indica, ericas, epacris, &c. Watering was considered a most important function in good cultivation, a detail that could not be taught but learnt by practice. Rain water should be utilised if possible, and of a similar temperature to the surroundings. Care should be taken only to water when the plant requires it, generally when the plant is on the side of dryness, but not when flagging or suffering. A discussion followed, in which several points of interest and usefulness were added by Messrs. R. Todd, T. Carling, J. Wilson, J. Hogan, and the Chairman. A vote of thanks was tendered to Mr. Hathaway for his admirable essay, and to Mr. Tunnington for presiding.

SHIRLEY GARDENERS' ASSOCIATION.

THE monthly meeting of the above society was held at the Parish Room, Shirley, Southampton, on Monday, the 19th inst., Mr. W. F. Rummens, C.C., presiding over a good attendance of the members. The lecture was a continuation from the previous month, the subject being "The Soil," and was given by Mr. E. T. Mellor, B.Sc. London, lecturer in Biology at the Hartley College, Southampton. A brief synopsis of the lecture was as follows: Relation of the soil to plants, chemical changes in the soil, loss and replacement of nutritive substances in the soil. The lecture was most interesting and instructive, being most profusely illustrated with lantern slides and chemical experiments. There was a brief discussion, at the close of which a hearty vote of thanks was accorded to Mr. Mellor for the two instructive lectures he had so kindly given. Messrs. Spooner and Bailey, of Ealing, Southampton, gave the members a cordial invitation to visit their chemical factory, where many interesting processes of producing chemical manures are carried out.

Packing Eggs.—There is evidently room for improvement in packing Irish eggs for the English markets, for Messrs. Lowen and Rolfe, agents for the Manchester and Dublin Steamship Company, have made up their minds that it will not pay them to continue carrying eggs from Dublin to Manchester under present conditions. They say: "We have not come to our conclusions hastily. We have practically the whole of 1898 to work upon, and our experience is that it will be better for us to refuse the traffic and let our competitors take it on whatever terms they like. We have kept a record of the quantity of eggs we have carried and the claims we have paid, and the result is appalling. When we say it will pay us better under present conditions to refuse the traffic we speak as strongly as we can. We are anxious to do all we can to prove to the trade that the breakage and pilferage do not take place whilst in our custody; if they do we are prepared to pay for them. The senders sign owner's risk notes when they hand the eggs to the railway company in Ireland, who carry them to Dublin The railway company will not carry them until they get these notes. In due course the eggs reach Manchester, and, as the last people to handle them, we fall in for all the trouble." Messrs. Lowen and Rolfe recommend that two inspectors should be appointed to examine the eggs at Dublin. This proposal, which would involve an annual expenditure of about £300, has been under the consideration of the Manchester Provision Merchants' Ship Canal committee, but no definite step has as yet been taken. It certainly does seem curious that eggs should be able to reach Manchester from remoter parts like Denmark with only nominal damages, and that the Dublin traffic should result in Messrs. Lowen and Rolfe receiving claims for damage which are in excess of the net freight. It would be interesting to know who is responsible for breakages, and also for the serious handicap to industry which these breakages involve.

NEW BOOKS.

Insects Injurious to Orchard and Bush Fruits. By ELEANOR A. ORMEROD. (Simpkin, Marshall, Hamilton, and Co., Stationers' Hall Court, E C. Price 3s. 6d.)—Another most invaluable work has just issued from the pen of the talented entomologist Miss E. A. Ormerod, and deals with insects injurious to orchard and bush fruits and the best means of prevention and remedy. It consists of 280 pages brimming over with valuable information to the fruit grower, and contains as a frontispiece a photo likeness of the author, with sixty other illustrations. In the preface the author states that she has endeavoured to collect into a convenient form for reference the most important points of information which we possess regarding the life-histories and habits of the insects of which the attacks are commonly injurious to a serious extent to hardy fruit in this country, together with notes of methods of prevention and remedy which have been found serviceable at a paying rate. Some of the attacks mentioned have long been known of, but there are few if any of these of which we have not gained some additional information during the past few years, and of many of the others we have only lately become possessed of the whole life-history; whilst others, again, have lately shown themselves as perfect scourges (in our present large scale of fruit growing) which even within the last four or five years were wholly unknown to us as fruit pests.

Some of the infestations which have been little (or not at all) known of as injurious until the past few years—as, for instance, the attacks of the Flat-celled Shot-borer Beetles in plum wood, those of the "ground beetles" to strawberry fruit, or again of the eelworm, which causes distorted growth of the strawberry plant, have been entered into at considerable length, so as to give as much detail as possible. In addition to the accounts of damage by insect attacks, observations are also given of a few other kinds of infestations, such as injuries by phytoptidæ or gall mites, and nematoid worms; and also, and very especially, the infestation known as rust or red spider, of which more information was much needed where it could be attainable for general reference. The author states that, as far as her experience shows, the protection of our fruit crops from insect ravages is likely to be an increasing difficulty, consequent on the increasing extent of the areas in which one kind of orchard tree or fruit bush is grown year after year, thus giving every opportunity for the established settlement of the insect feeders on that special crop. The handbook is worthy of careful study by every fruit grower, and deserves a place in the library of every horticulturist.

Pansies, Violas, and Violets. By WILLIAM CUTHBERTSON, F.R.H.S. (Macmillan and Co., Limited, London.) Price 1s.—Although a somewhat restricted view is taken in dealing with the violas, Mr. Cuthbertson has been successful in producing a handbook that will be highly appreciated by those who take a special interest in the three classes of flowers which form the title, and should be useful to all who are engaged in flower-garden management. In the admirably written introduction the author gives an historical sketch of the development of the show and fancy pansies, and of the race of violas which now receive so much attention from amateurs, and are so largely employed in the embellishment of the flower garden. As so well known to those who have studied the literature of the pansy, the initial improvement of this flower is chiefly due to Lord Gambier and his gardener, Mr. Thompson, who commenced the work of improvement by selection from the seedlings of the common heartsease, which Lord Gambier had asked him to cultivate, and by intercrossing the wild form with a blue variety obtained from Brown, of Slough, and a dark one from Russia. The full account of this early attempt to improve the pansy, written by Thompson in 1840, is given and is extremely interesting reading. Thompson states that four years after he had begun to raise seedlings he became much interested with the work, and as Lord Gambier was much pleased with the results he persevered. One of the most beautiful of the varieties was Lady Gambier, and Thompson states that although the flowers were in shape "little more symmetrical than a child's windmill," it "won golden opinions from every beholder." In 1862 it was suggested that the show pansy had nearly run its course, and with reference to this the author observes that that writer "did not foresee that the show pansy was to maintain a firm hold on the tastes of British florists for nearly twenty years longer." This fact is satisfactory so far as it goes, but it is not pleasant to think that show pansies with their finely marked flowers have now practically become things of the past. We have no explanation given with regard to their disappearance from gardens, notwithstanding the fact that the point is of some importance. The development of the fancy pansy, and the race of violas, which now obtains so much attention, undoubtedly had something to do with the decline in the popularity of the show pansy, but the chief cause was unquestionably the want of vigour in the plants. The raisers of pansies, as of show pelargoniums, were so intent upon the shape and markings of the flowers as to have lost sight of the fact that finely-formed flowers are of but little value unless the plant has a constitution sufficiently strong to produce them with some degree of freedom. Many of the later varieties of the show pansy had so weakly a constitution that it was a work of extreme difficulty, except in favoured districts, to maintain them in a healthy condition, and in consequence cultivators became tired of the difficulties they had to contend with in their cultivation. These facts cannot be brought too prominently before the raisers of pansies and violas, and we should therefore have been pleased to see some reference to them in the pages of this excellent manual.

The historical sketch of the development of the fancy pansy and the race of violas is in some respects less interesting than is that of the show pansy, but that is in some respect due to their development having been accomplished within a comparatively recent period. If apparently of less interest than is that of the older section, it is not less brightly written, nor is it less useful. Mr. Cuthbertson traces with remarkable clearness the development of these two classes, and accompanying the sketch are admirable illustrations of the several types, and excellent portraits of the raisers who have specially distinguished themselves. Following the historical introduction is a chapter on the botany of the three classes of flowers written by Mr. John Ballantyne, and this should prove extremely useful to the practical cultivator as well as to the botanical student. In other chapters the cultivation of pansies and violas for exhibition, and for flower garden decoration, and of sweet violets for the supply of cut flowers, is fully dealt with, and carefully prepared selections adapted to the several purposes are given. Nor has the literature of the violet in its several forms been overlooked, for as a balance to the immense amount of cultural and historical information contained in the well-filled pages we have a chapter in which the poetry of the violet is discussed with singular ability. A chapter on the several beautiful species of viola known to thrive in British gardens would have added materially to the usefulness of the work, which is so valuable to warrant it having a place in the most select garden library.

Educational Leaflets. Part II. Edited by H. E. DRESSER, F.L.S. (Society for the Protection of Birds, 326, High Holborn.) Price 1s.—This part of the Educational Leaflets, issued by the Society for the Protection of Birds, contains ful particulars of the appearance, food, and general habits of the terns, wagtails chough, jay, flycatchers, nightingales, gulls, leaf-warblers, skylarks, skuas, pipits, grebes, and the common buzzard. Information relating to the protection of these birds is given, and the description of each species is accompanied by a characteristic illustration. In his general remarks on the last-named bird the Rev. H. A. H. Macpherson points out the importance of protecting birds of prey. He writes:—

The protection of the larger birds of prey can rarely be secured, except through the forbearance of those who, as large owners of land, are most keenly interested in preserving game. The sportsman who pays exorbitant rates upon the supposed sporting value of his estate, and who has further to prevent his game from being exterminated by maintaining a costly staff of keepers and watchers, has it greatly in his power to decide whether the buzzard and other rapacious birds should be allowed to increase and multiply upon his estate. If, then, it could be proved that the buzzard habitually destroyed game, reason is that we should throw up the brief which we hold for its defence. But happily the buzzard does not destroy game; on the contrary, all our experience goes to prove the facts laid bare in the stomachs of the buzzards which we have personally dissected (there is all the difference in the world between the mere compiler and the man who writes from a wide knowledge of substantial facts), that the buzzard lives on small but harmful mammals, and on carrion. Of course the buzzard kills rabbits, principally small ones, when it can get them; but this is in its favour. Rabbits do immense harm to sheep pasture, not only because they eat a quantity of grass during the spring months when food is scarce, but also by defiling the pasturage, which sheep refuse to eat in consequence. The short-tailed fieldmouse or vole is most injurious to hill pastures, and would multiply enormously were it not for the exertions of buzzards, kestrels, and owls. The buzzard is a friend to the farmer, and well worth encouraging on that score. But there is yet another reason why the hand of the destroyer should be arrested before he fixes the iron gin to trap the harmless and useful buzzard. Much of our wildest and most beautiful scenery would seem cold and lifeless were it not for the presence of the shy creatures which, driven from more sheltered asylums, seek to continue their race among beetling scaurs and desolate uplands. The buzzard—where does she nestle upon her prettily-blotched eggs? Far away among the shadows of the pathless hills, where the muirfowl crows unheeded, where the red deer hinds file along the mountain side, and the fox creeps through the loose screes, intent upon surprising the blue hare that crouches in the heather in short-lived security. The male buzzard sweeps through the adjacent strath, or challenges his mate to soar aloft in his company, circling round with the least possible expenditure of exertion. When one of a pair is killed, the survivor wails in loneliness among the passes of the hills until time heals its sorrow by providing a new mate. Day after day the freshly-united couple may be seen hunting in company, but they will most likely defer further nesting plans to another spring. If they succeed in escaping the tender attentions of the inveterate egg-collector, you may enjoy the evolutions of the whole family, until the approach of autumn tempts the young birds to wander to fresh districts. But the old birds will remain year after year in their accustomed haunts, nesting in one or other of their ancestral eyries; and at other times coming in to roost just before dusk in their favourite niches among the crags. A wild, free life is that of the buzzard, ever gliding through the air in easy circles, or poised upon the projecting pinnacle of some sea-washed precipice. Why should the charm of its fine presence be withdrawn from the mountain or the lonely island shore, seeing that it is harmless to game, and a friend to the hard-pressed agriculturist? Game preserves have nothing to gain by effecting or permitting its extermination. The world is the poorer for every buzzard that yields up its innocent life in the keeper's trap.

How fully the utility of the buzzard is understood in Germany is evidenced by the title it bears, "Der Mäuse Bussard": *anglice*, the Mouse Bussard.

The Buying and Home Testing of Seeds. By WILLIAM TOOGOOD. (Toogood and Sons, Southampton.)—In an admirably prepared brochure of sixteen pages Mr. Toogood gives much useful information on the purchase and testing of the purity and germinating power of different classes of seeds. Numerous illustrations are given of the apparatus used in the germination of seed, and the results obtained, and these will be found useful in the elucidation of the text.

Cucumber Culture. (G. Tucker, 1, 2, and 3, Salisbury Court, Fleet Street.) Price 2d.—A pamphlet of some thirty pages, in which useful information on the cultivation of cucumbers for market and home use is given.

MARKETS.

Covent Garden.

THERE are abundant supplies of fruits and vegetables. Oranges, grapes, apples, and nuts sell readily, and the potato trade is fairly good, and the cut flower trade brisk.

FRUIT.—English apples, 3s. to 8s. per bushel; Nova Scotian and Canadian, 12s. to 22s. per barrel; Californian, 8s. to 9s. per case; French pears, 3s. to 5s. per case; Californian, 4s. to 7s. per half-case; English grapes, 10d. to 1s. 9d.; Channel Islands, 6d. to 1s. per lb.; Almeria, 10s. to 18s. per barrel; Jaffa oranges, 8s. to 10s. per box; Valencia, 8s. to 16s.; Murcia, 6s. to 6s. 6d. per case; pineapples, 1s. 6d. to 4s. 6d. each; bananas, 4s. to 9s. per bunch; lemons, 8s. to 16s. per case; English tomatos, 6s. per 12 lb.; Bordeaux, 1s. 6d. to 2s. per box.

FLOWERS.—Arums, 9s. to 12s.; carnations, 2s. to 3s.; chrysanthemums, white, 6s. to 9s.; chrysanthemums, yellow, 4s. to 6s.; eucharis, 4s. to 6s.; gardenias, 2s. to 3s.; Lilium Harrisi, 9s. to 12s.; tea roses, 1s. to 2s.; pink roses, 4s. to 6s.; cattleyas, 10s. to 12s.; Odontoglossum crispum, 4s. to 6s.; poinsettias, 12s. to 15s.; and tube-roses, 3d. to 9d. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; chrysanthemums, 6s. to 9s.; marguerites, 6s. to 9s.; pelargoniums (scarlet), 12s. to 15s. per dozen bunches; lily of the valley, 1s. to 2s.; Roman hyacinths, 1s. to 1s. 6d.; azalea indica, white, 1s. to 1s. 3d. per dozen sprays; and bouvardias, 4d. to 6d. per bunch.

VEGETABLES.—English onions, 5s. to 5s. 6d. per cwt.; Valencia, 6s. per case; Dutch, 3s. 3d. to 3s. 9d. per bag; eschallots, 8s. to 10s. per cwt.; cucumbers, 2s. 6d. to 4s. 6d.; endive, 1s. 3d. to 1s. 9d.; lettuce, 9d. to 1s.; cos, 2s. to 2s. 6d. per dozen; cabbages, 3s. 6d. to 6s.; cauliflowers, 6s. to 9s. per tally; celery, 5s. to 12s. per dozen rolls; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; spinach, 2s. to 2s. 6d. per bushel; seakale, 9d. to 1s. per punnet; mushrooms, 5s. to 8s.; garlic, 3s. per 12 lb.

Borough Potato Market.

There is a moderate trade, and a slight rise in the rates for the majority of the varieties. Scottish Abundance, Bruce, and Main Crop, 65s. to 75s.; Beauty of Hebron, Snowdrop, and Up to Date, 70s. to 75s.; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giant, and Imperator, 65s. to 70s.; Blacklands, 60s. per ton; Germans, 2s. 6d. per bag.

MESSRS. JAMES CARTER AND CO. inform us that their establishment will be closed from two o'clock to-day (Saturday) until nine o'clock on Wednesday morning next.

ANSWERS TO CORRESPONDENTS

Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Croton Van Œsterzi.—E. E. P., Tottenham: This isa stove plant, and probably has not been afforded sufficient heat; consequently the leaves are falling. Excessive drought would also bring about a similar result.

Sanitary Pipes for Heating Purposes.—E., Lincoln: The pipes would not do for hot water heating, as they would not be able to resist high pressure. Large pipes may be used for heating if joined as a flue to the furnace. This method is adopted at the Quessy Forceries illustrated in the present issue.

Packing Material.—K.B.: The best material for packing fruits is wood wool made from white wood. It is far superior to cotton wool and much cheaper. You can obtain it from any of the horticultural sundriesmen, and through the majority of the nurserymen who advertise in the pages of the GARDENERS' MAGAZINE.

Brier Seed.—Hip-Berry, Leicester: Gather the hips and place them in a box or large flower pot with dry sand between each layer. They may remain in the sand until March, when the seed should be rubbed out in the sand. Sow the seed thinly in shallow drills about twelve inches apart and keep the intervening spaces free from weeds, and thin the briers where much crowded.

New Chrysanthemum.—A. F., Huddersfield: The sport is very distinct from the parent, and with special culture should produce useful exhibition blooms. The name "Nortonthorpe" is suitable. The best way to test the variety will be to cultivate it for exhibition and send blooms to the N.C.S. and R.H.S. next November.

Backwall of Vinery.—Provided the vines fill up their allotted space you should be satisfied with a crop of grapes and leave the backwall bare. If during full leafage plenty of light reaches the wall, then other vines or tomatos might be planted against it. We expect all correspondents to send name and address with their questions.

Mushrooms and Insects.—Worthing: We find no insects in the small box of soil and embryo mushrooms sent. It is very probable, however, that woodlice and slugs are the offenders, and these must be trapped by means of dry moss, cabbage leaves, hollowed potatos, &c. If you can find the haunts of woodlice boiling water will soon rid you of the pest. A little careful hunting and watching should remove the evil.

Prize Chrysanthemums.—R. Rogers, Stexted Hall: We greatly appreciate your kindness in sending a photograph of the magnificent stand of chrysanthemums for which you were awarded the piece of plate offered by the Mayor of Colchester for the best stand of twelve blooms. The photograph is, however, hardly suitable for reproduction, and would fail to do the blooms justice. We are at all times pleased to receive photographs of objects likely to interest our readers.

Violets Damping.—J. K., Northants: The moist, warm weather of autumn has tended to produce damping of violet foliage wherever the plants have had anything less than exceptional care taken of them. Where the plants have produced large quantities of foliage damping has, in some instances we have noticed, obtained a hold before the grower knew damage was done. Violets in frames need frequent examination and the removal of all decaying foliage and stems, in addition to careful watering and abundance of air on all favourable occasions.

Zonal Pelargoniums in Winter.—F. H.: There is no special race of winter flowering zonal pelargoniums, but the varieties differ somewhat in freedom of flowering during the winter months. One of the chief points is to have young plants nicely established in five or six inch pots at the end of September that have not been exhausted by flowering. Another point of importance is to place them in a medium-sized house where they can have a position near the glass, enjoy uninterrupted light, and have the assistance of a temperature of about 50 degrees. A dry atmosphere and moderate ventilation are also essential to success.

Grapes for Exhibition.—G. F. B., Salop: The suitability of the several varieties for exhibition purposes depends to a material extent upon the season of the year in which you wish to show them. If you have but one division in the house you purpose planting we would suggest that you substitute Alicante for Madresfield Court. It is not so highly flavoured, but it is more easily grown to a high degree of perfection, and is more suitable for associating with Gros Colmar. It should have a place at the cool end of the structure, as it does not require so high a temperature as the other varieties.

Diseased Kales.—W. S.: The disease which has so greatly damaged your crop of kales is known as club root, and is caused by a slime fungus, *Plasmodiophora brassicæ*. You can do nothing to improve the condition of the crop, and we would suggest that it be used as quickly as possible, and the ground receive a dressing of gas lime at the rate of two tons per acre. Spread the lime over the surface and allow it to remain for at least three weeks before digging it in. As the spores retain their vitality in the soil for at least two years, the ground should not be cropped with kales, cabbages, cauliflowers, or broccoli for at least three years. The stumps should be either dug in or burnt on the ground and the ashes dug in, for when they are taken to the rubbish heap they decay and the spores become mixed with the materials forming the heap, and when the latter is wheeled out the ground to which it is applied becomes infected with the fungus.

Gardeners' Royal Benevolent Institution.—G. F. B.: There is no formality with regard to membership of this charity, and if you inform Mr. G. J. Ingram, the secretary, whose address is 175, Victoria Street, S.W., that you desire to become a member he will at once add your name to the list. The annual subscription is one guinea, and it will be advisable to send that sum with your application.

Heavy Soil.—T. G. O.: It may be that much of the difficulty you have experienced in dealing with the heavy soil is due to your having brought the bottom spit to the top in trenching. It is desirable to break clay soils up to as great a depth as possible, but that should be accomplished by the course of procedure technically known as bastard trenching. In breaking up the soil by this method a trench is opened out in the usual way to a depth of twelve inches and the soil is put on one side. The bottom of the trench is then forked over to a depth of eight or ten inches, and the soil is well broken but allowed to remain in the trench. When this has been done the soil from the second trench is turned over into the first trench and the bottom spit broken up by the fork as in the first trench. This process is repeated until the whole of the quarter has been dug over, when the soil removed from the first trench is used for filling the last one, precisely as in the case of ordinary trenching. When, as sometimes happens, heavy soil is trenched over and the subsoil is brought to the surface the difficulty of cultivation is materially increased for several years, as a considerable period elapses before a stubborn clay becomes sufficiently ameliorated by atmospheric influences and good cultivation to admit of its being readily worked, and the roots extending freely through it. Liberal dressings of newly slaked lime will be highly beneficial, and surface soil of vacant quarters should be left in a rough state during the winter. It is also an excellent practice to throw the soil up into ridges for the winter for the purpose of exposing it more fully to the action of frosts.

Names of Plants.—E. E. P., Tottenham: Croton Van Œsterzi.

C. M., Liverpool: 1, a poor form of Cypripedium insigne; 2, Oncidium varicosum Rogersi; 3, O. tigrinum.

M. E.: 1, Dracæna congesta; 2, not recognised; 3, Hoya carnosa; 4, Platyerium alcicorne; 5, an oleander, send a flower.

P. W., Worcester: 1, Eranthemum Andersonianum; 2, Linum trigynum; 3, Euphorbia splendens.

A. L. S., Wellingborough: 1, Sciadopitys verticillata; 2, Osmanthus illicifolius; 3, Jasminum nudiflorum; 4, Swainsonia galegifolia; 5, Erica hyemalis.

B. J. G., Hemel Hempstead: 1, Retinospora plumosa; 2, Hedera dentata; 3, Eurya latifolia variegata.

Names of Fruits.—F. D., Ilfracombe: Wyken Pippin.

M. R., Mitcham: 1, Beurré Bachelier; 2, Maréchal Vaillant; 3, Nouvelle Fulvie; 4, Glou Morceau.

T. R. C., Caterham: 1, Nec Plus Meuris; 2, Fearn's Pippin; 3, King of the Pippins; 4, Blenheim Pippin.

H. H., Birmingham: 1, Jean de Witte; 2, Beurré d'Aremberg; 3, Winter Nelis; 4, not recognised.

THE WEATHER DURING THE WEEK ENDING DECEMBER 17, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	54 6	36 4	48·0	8·89	0·00	0·00
Croydon	55·5	33·6	46·8	8·22	0·07	0·18
Brighton	55·0	36·0	48·1	8·94	0·20	0·51
Bristol	54·0	38·0	47·6	8·67	0·07	0·18
Wolverhampton	55·4	34·2	46·7	8·17	0·00	0·00
Norwich	54·8	34·0	45·8	7·67	0·03	0·08
Nottingham	55·7	32·6	45·6	7·55	0·02	0·05
Liverpool	56·0	41·4	49·4	9·67	0·29	0·74
Huddersfield	54·0	35·2	46·1	7 83	0·21	0·53
Bradford	55·2	34·0	47·0	8·33	0 04	0·10
Hull	56 0	33·0	44·5	6·94	0·06	0 15

The mean reading of the Barometer during the week at Greenwich was 30·12 inches, and that of the Thermometer 48°·0, the latter being 7°·9 above the week's average in the 50 years 1841—90. The direction of the wind was south-westerly, the horizontal movement of the air being 8 per cent. above the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 0·8 hours. No rain was measured during the week.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

THURSDAY, DECEMBER 29.—Azaleas, Rhododendrons, Carnations, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

FRIDAY, DECEMBER 30.—Imported and Established Orchids, Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, DECEMBER 28.—Dwarf Roses, Ornamental Shrubs, &c., Mr. J. C. Stevens, King Street, Covent Garden.

THURSDAY, DECEMBER 29.—Great Sale of Orchids, Mr. J. C. Stevens, King Street, Covent Garden.

FRIDAY, DECEMBER 30.—Palms, The British Horticultural Association, 33A, Ludgate Hill, E.C.

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A GRAND SPECULATION, in these days of financial unrest, is a rare thing for people with spare capital to come across. It is, therefore, refreshing to know that in purchasing a box of Holloway's Pills good value for money can be obtained. They never fail to give instant relief from pain, and no disease can long withstand their purifying influence: A few appropriate doses at the proper period will prevent many a serious illness. Their primary action is upon the blood, stomach, liver, kidneys and bowels. Their secondary action strengthens the nervous centres. No drug can be so harmless yet so antagonistic to disorders caused by brain worry. The most perfect reliance may be placed upon their regulating and renovating virtues.—[ADVT.].

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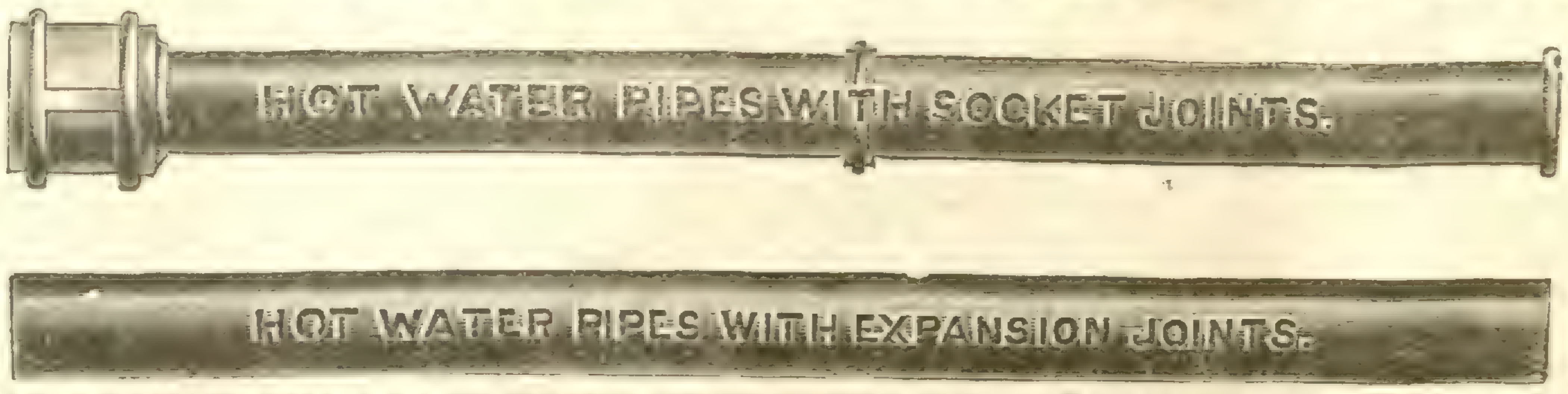
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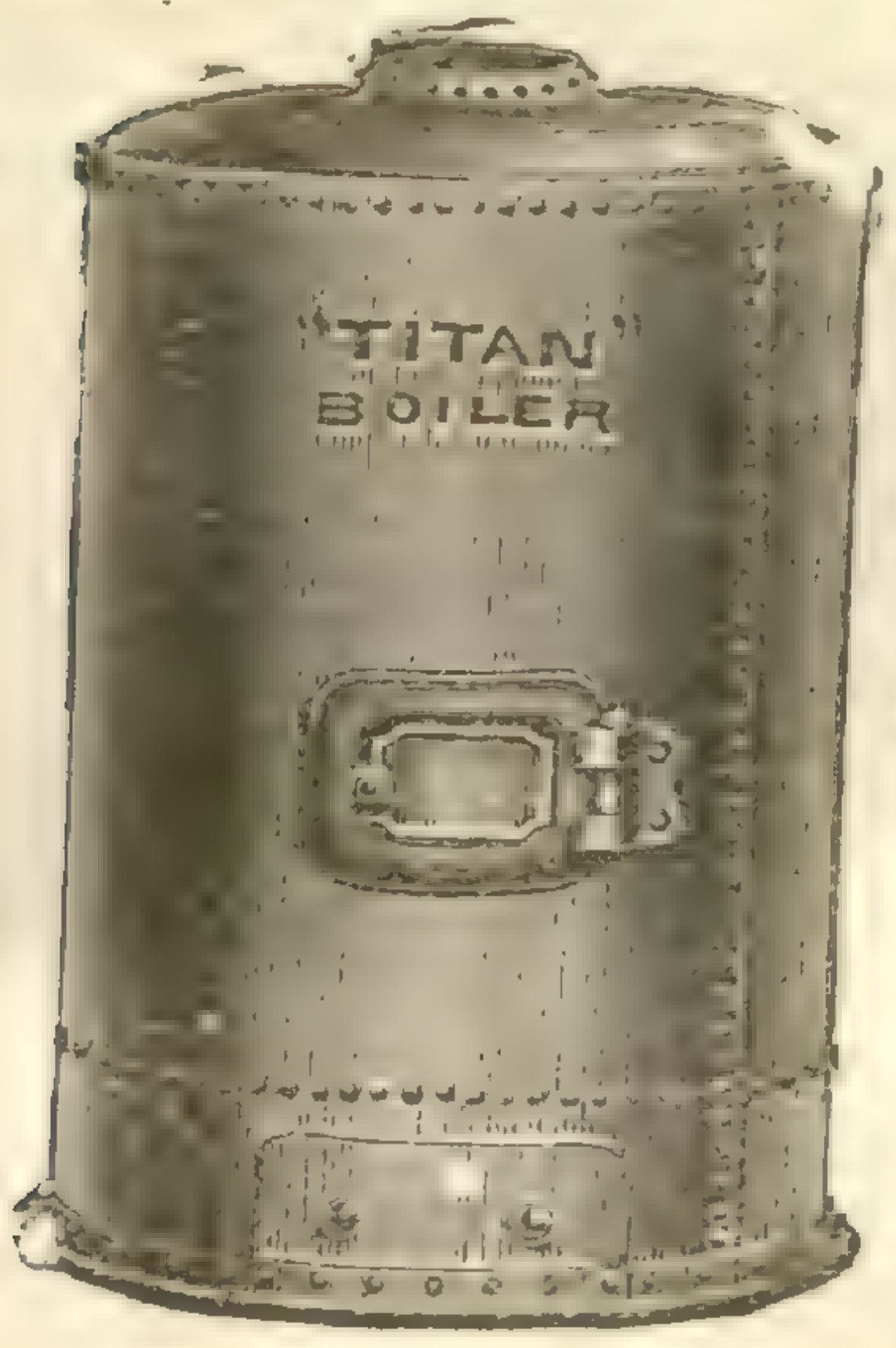

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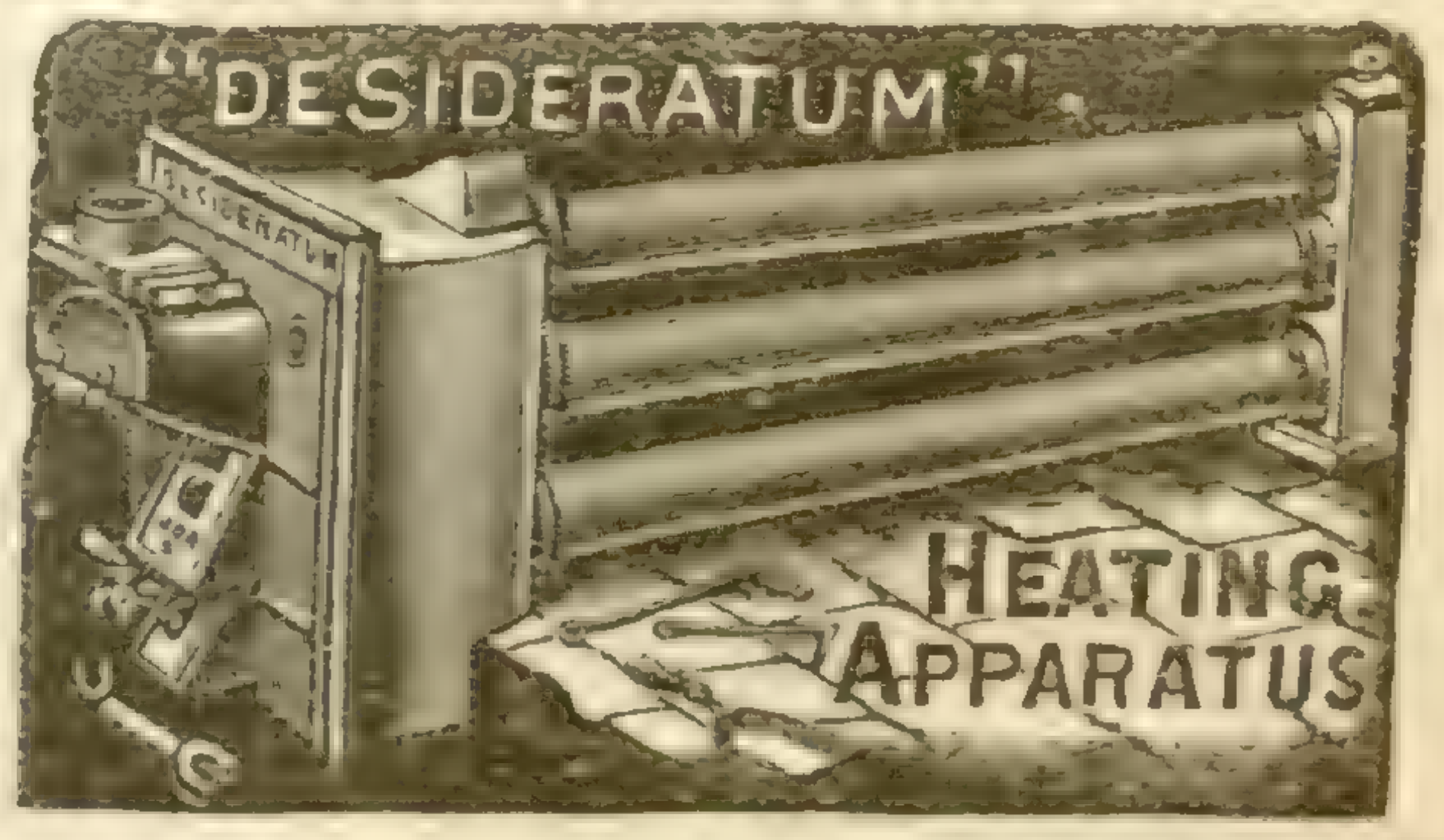

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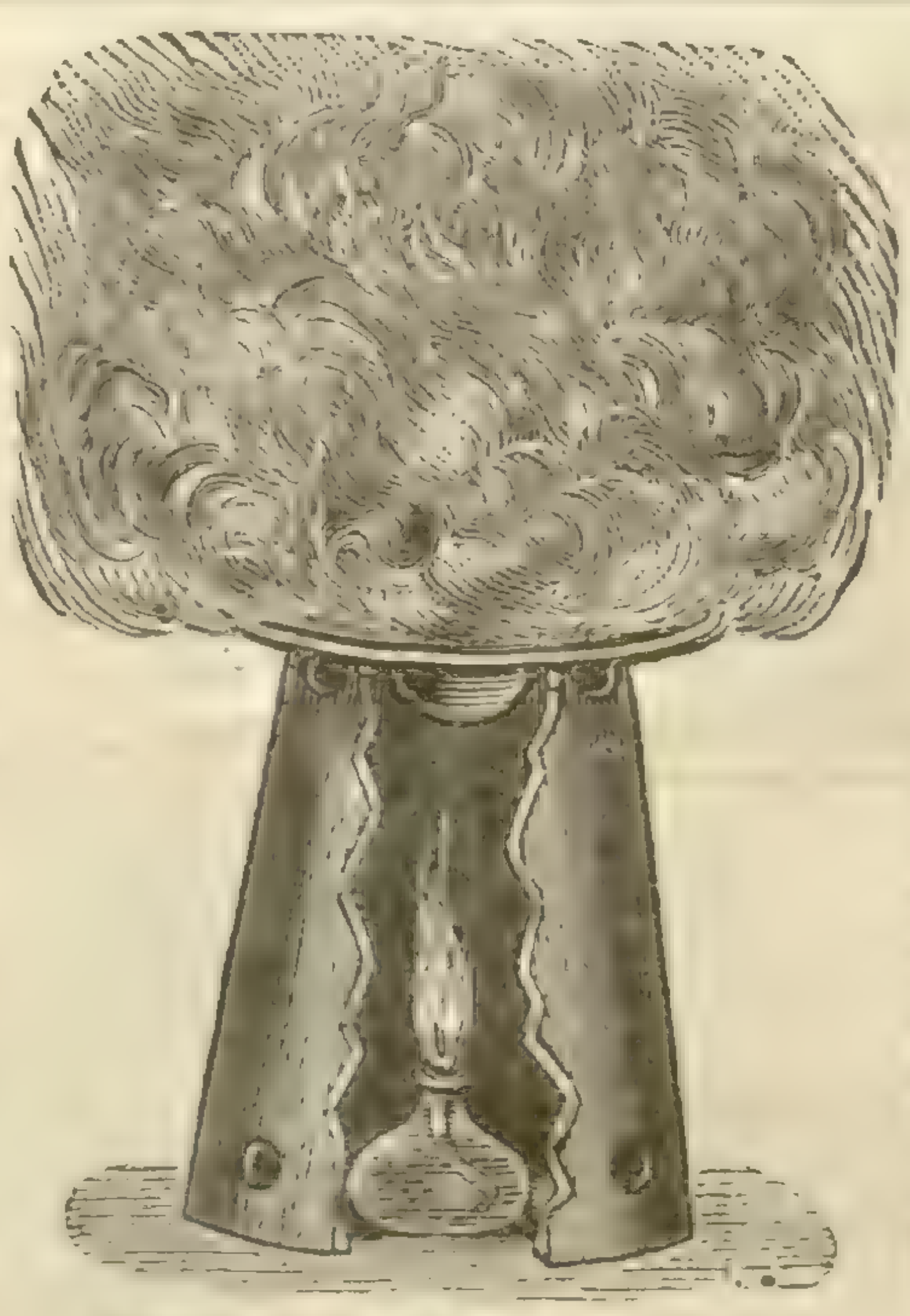

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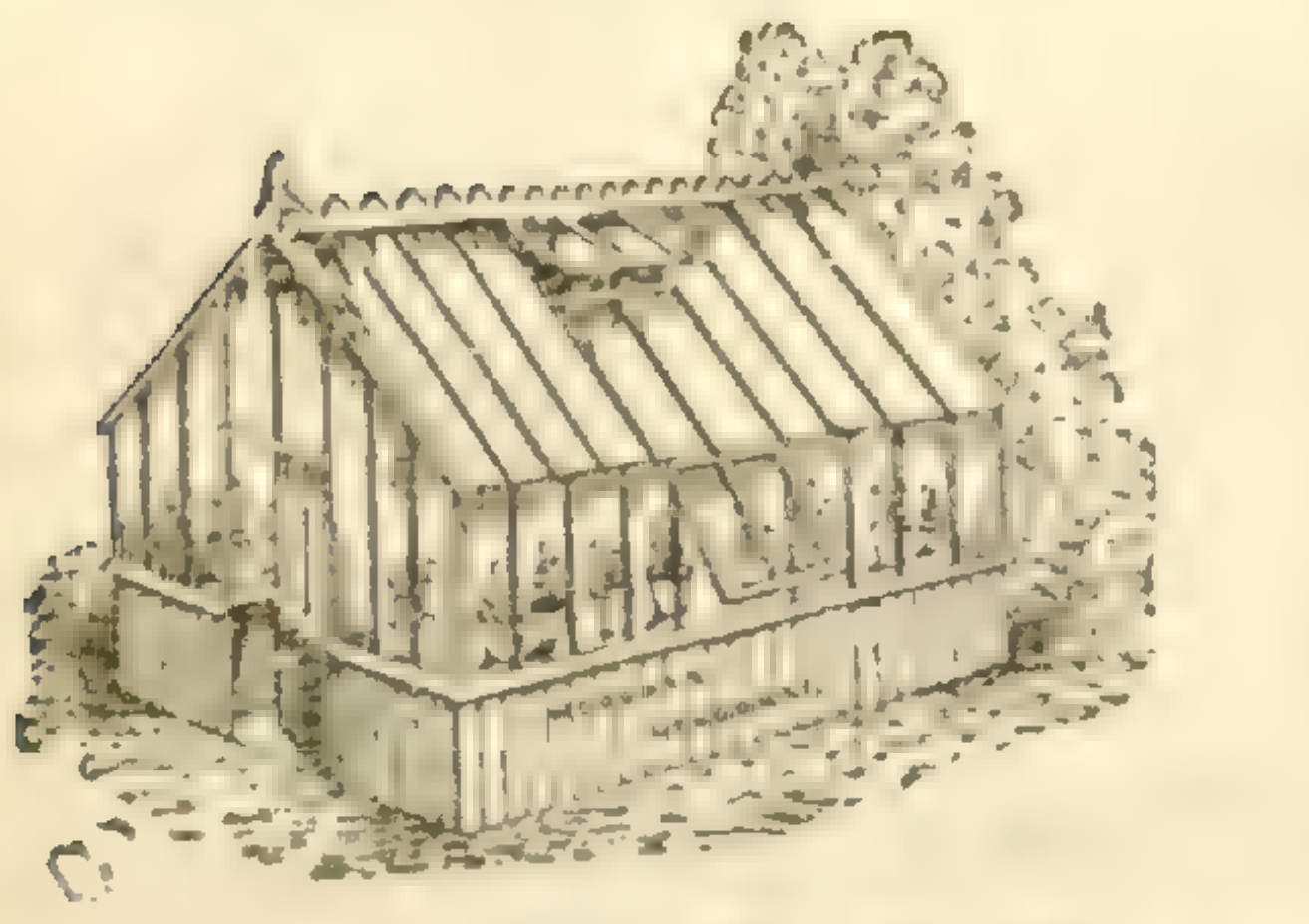

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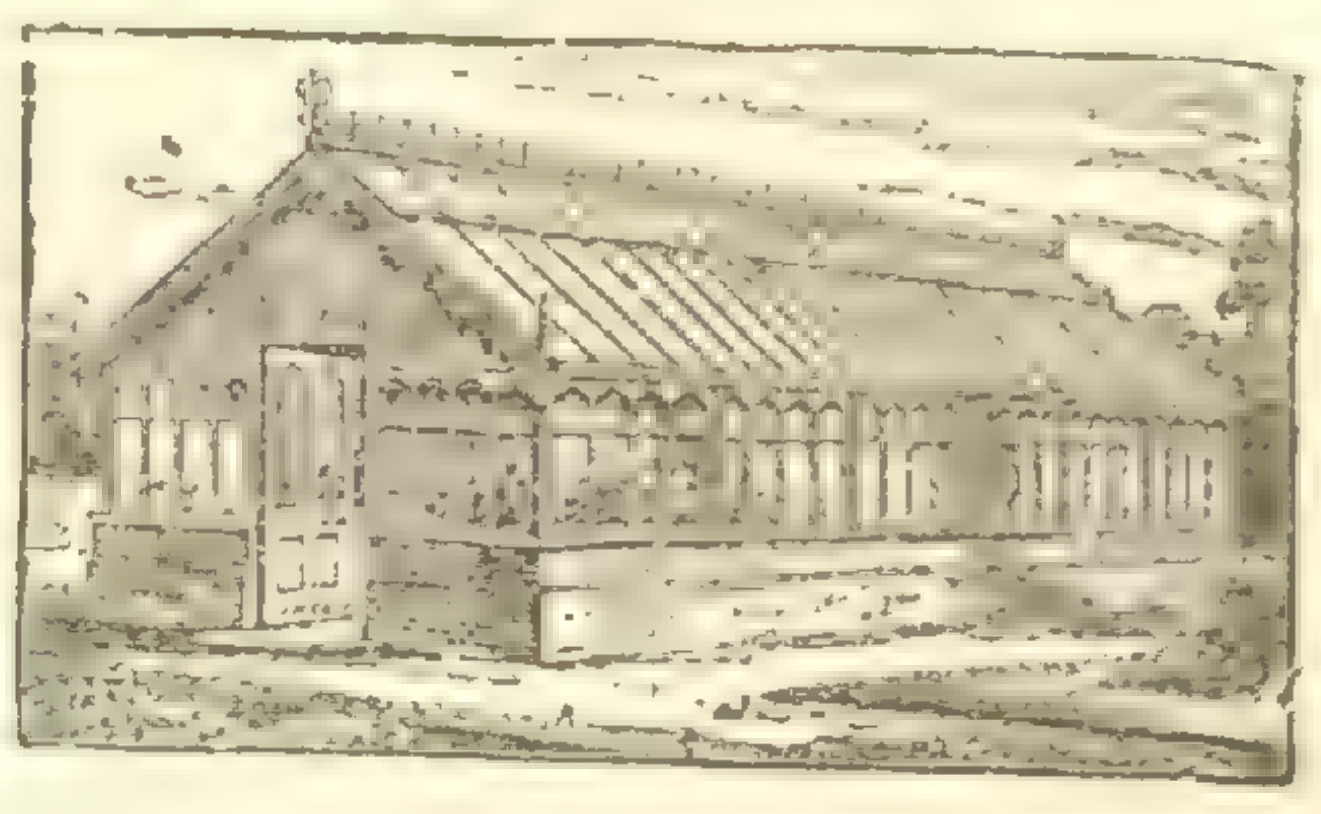

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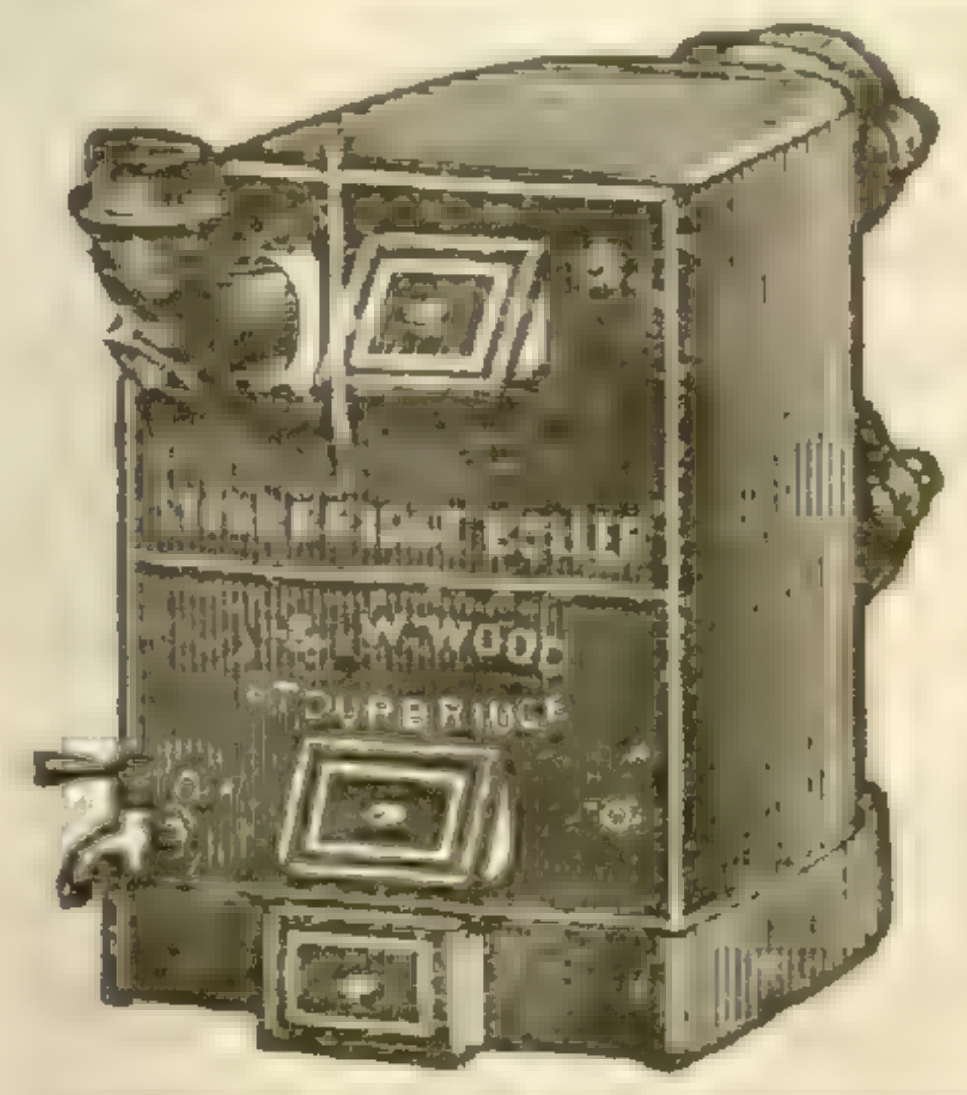

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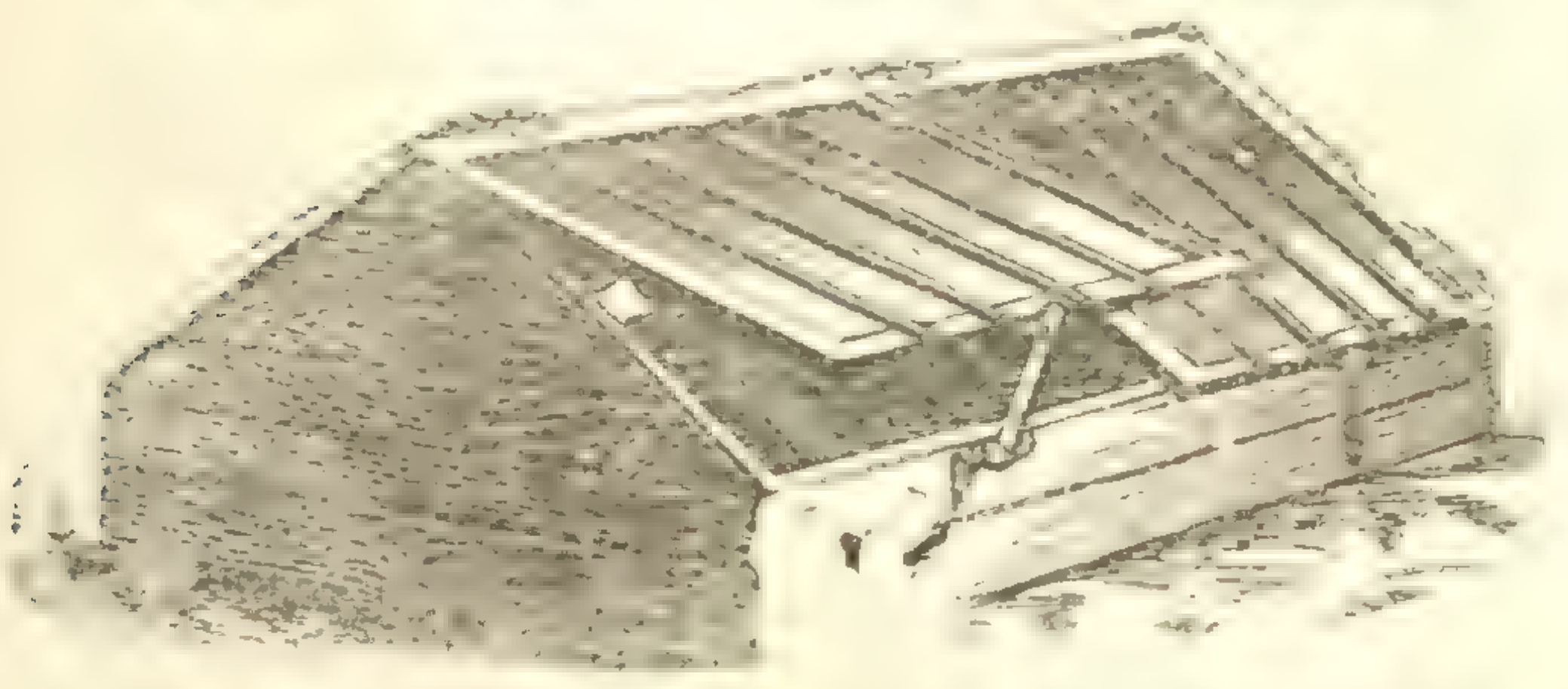

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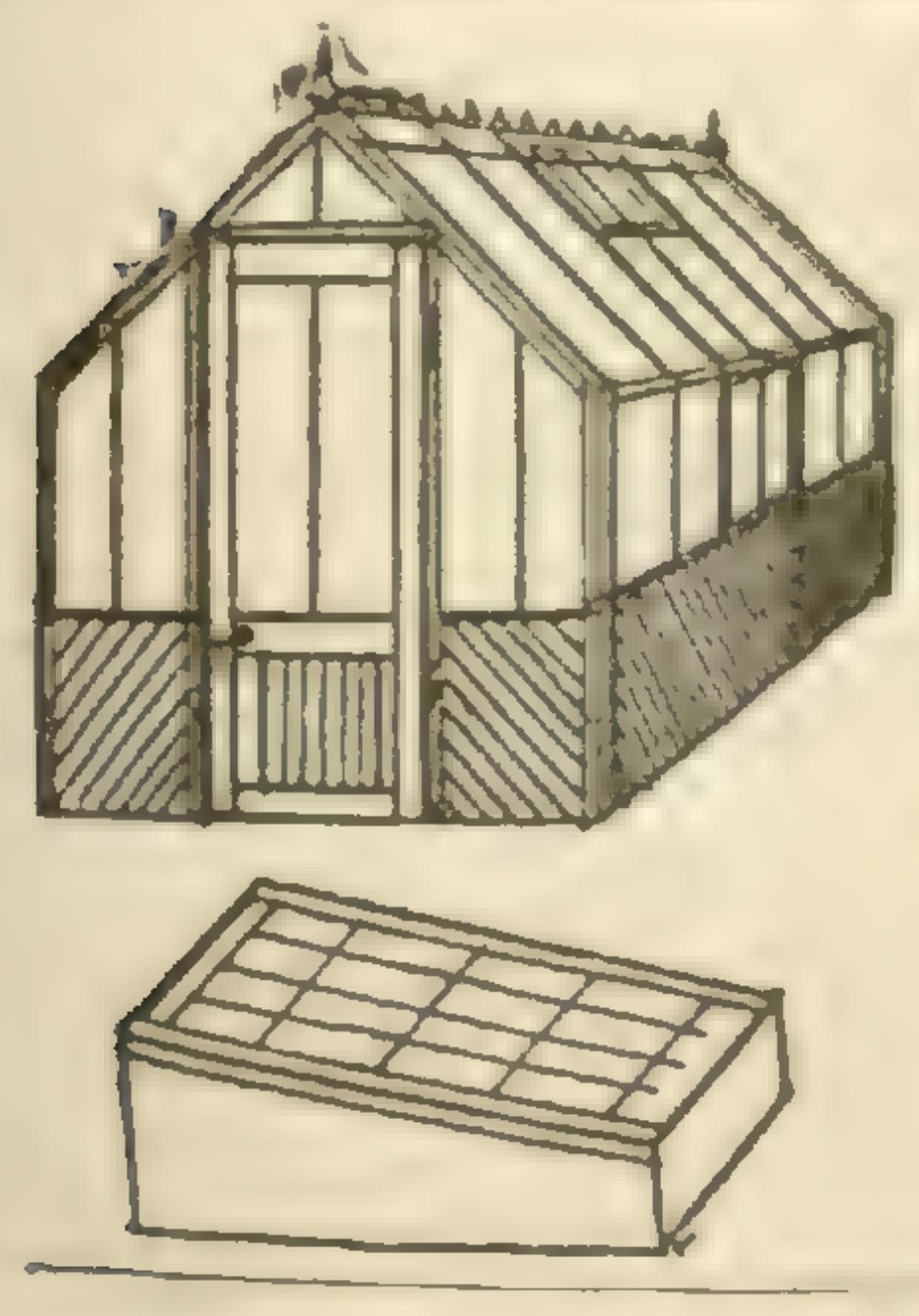

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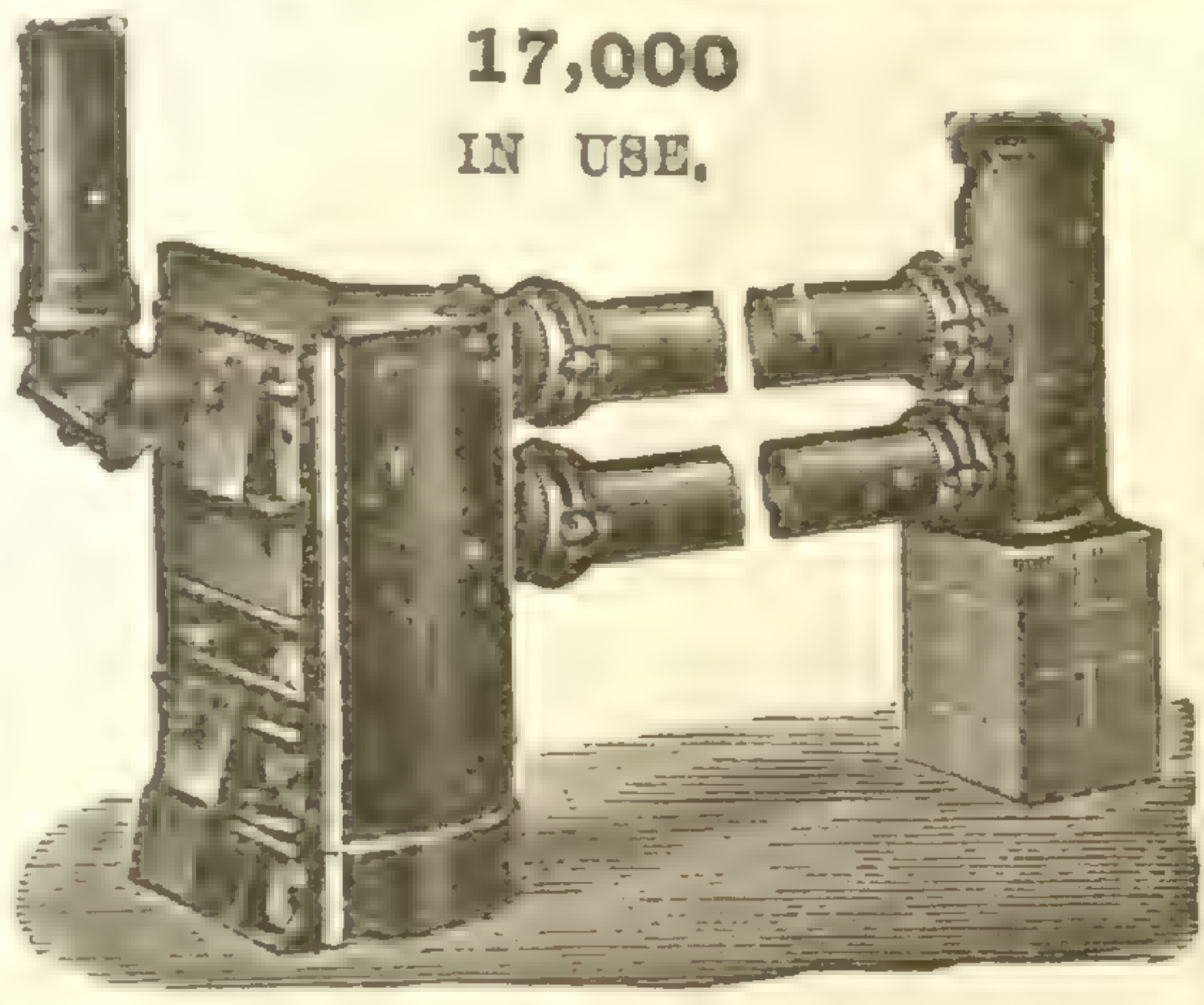

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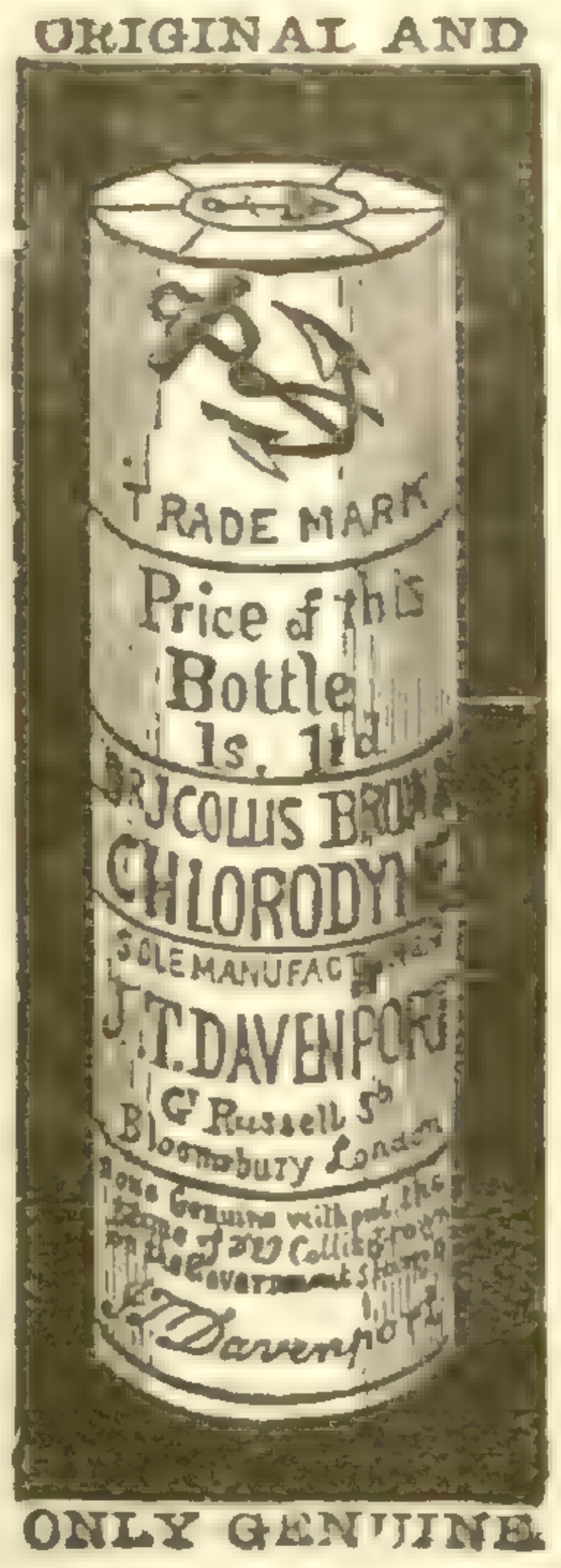

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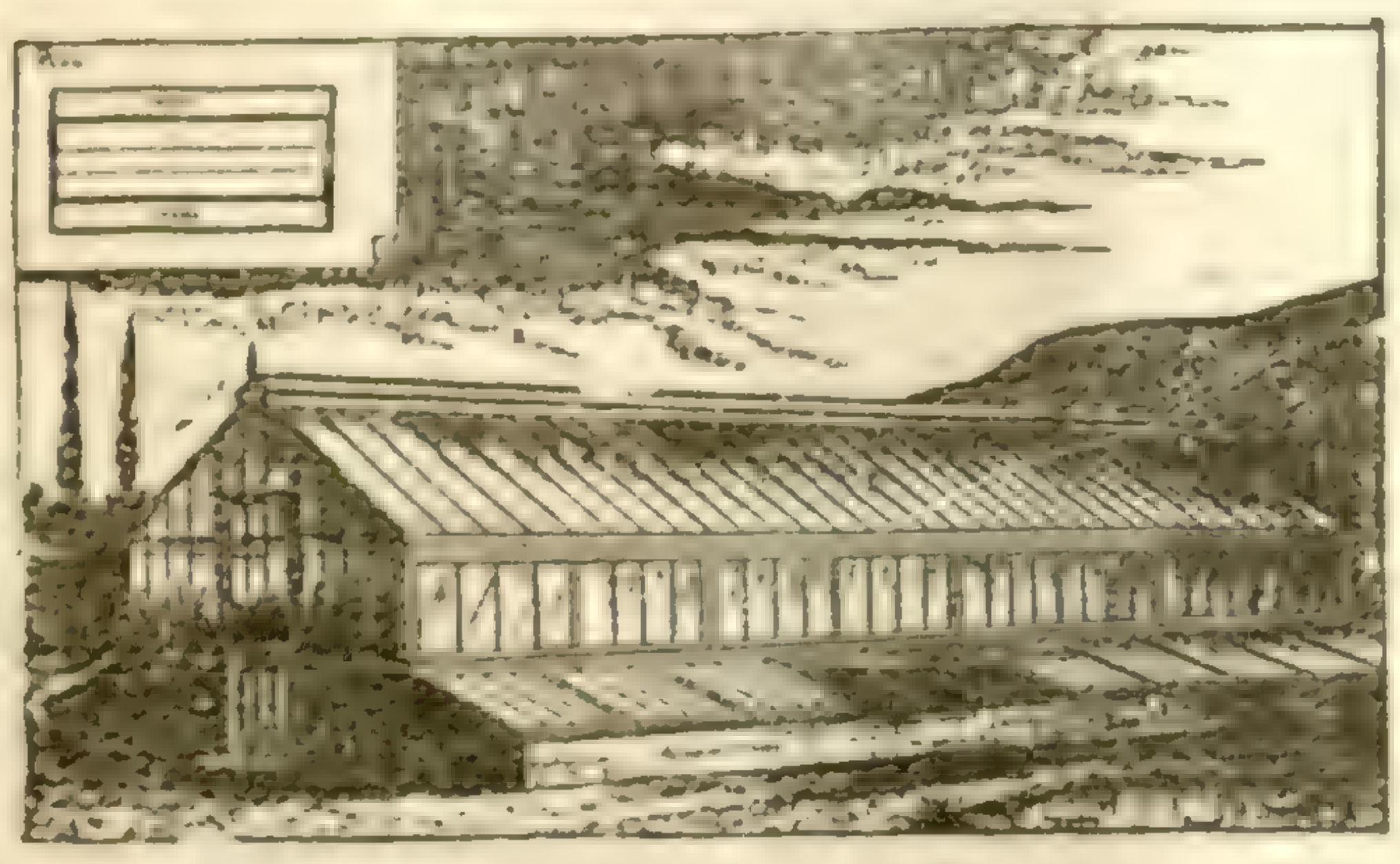

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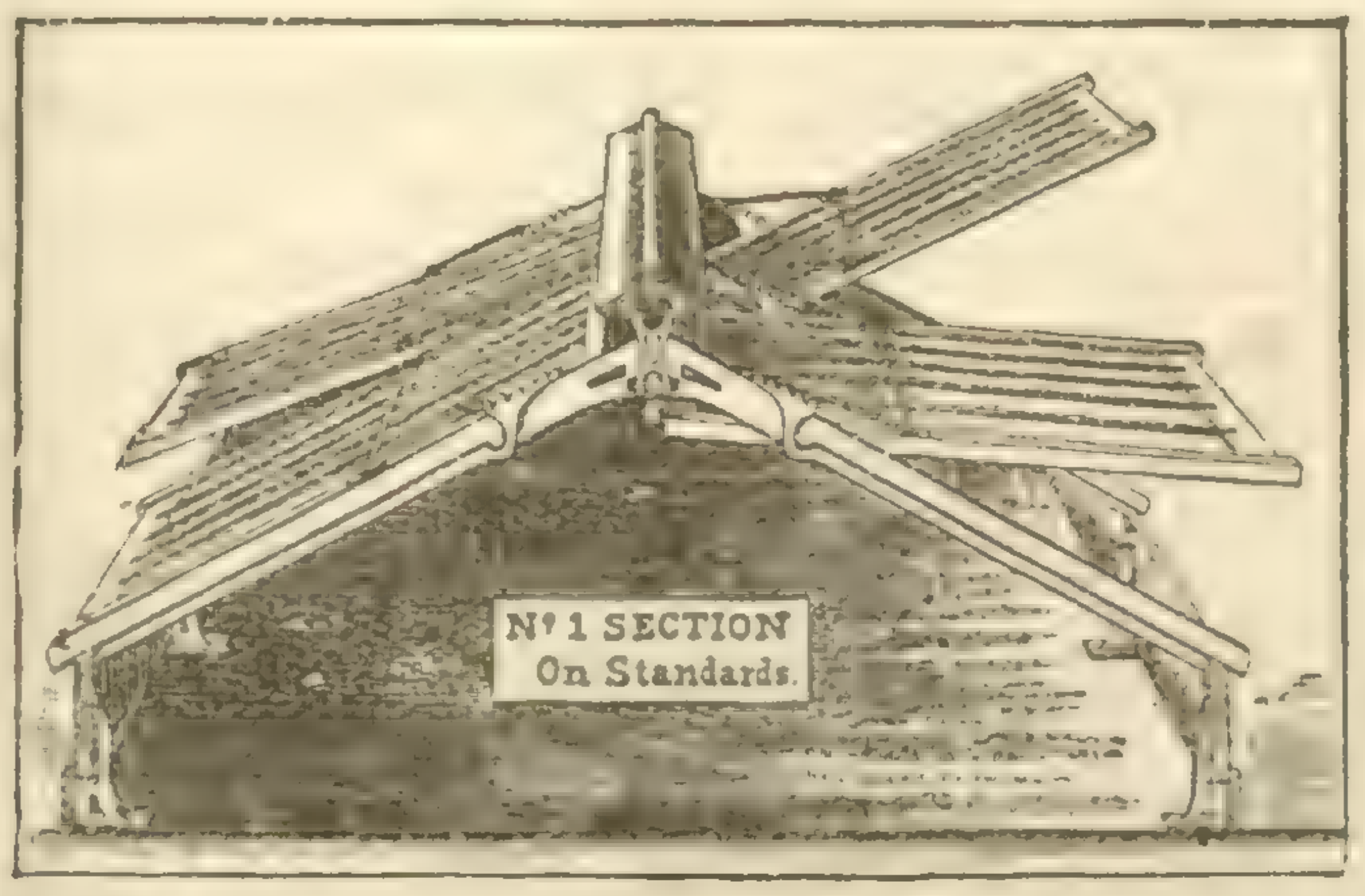

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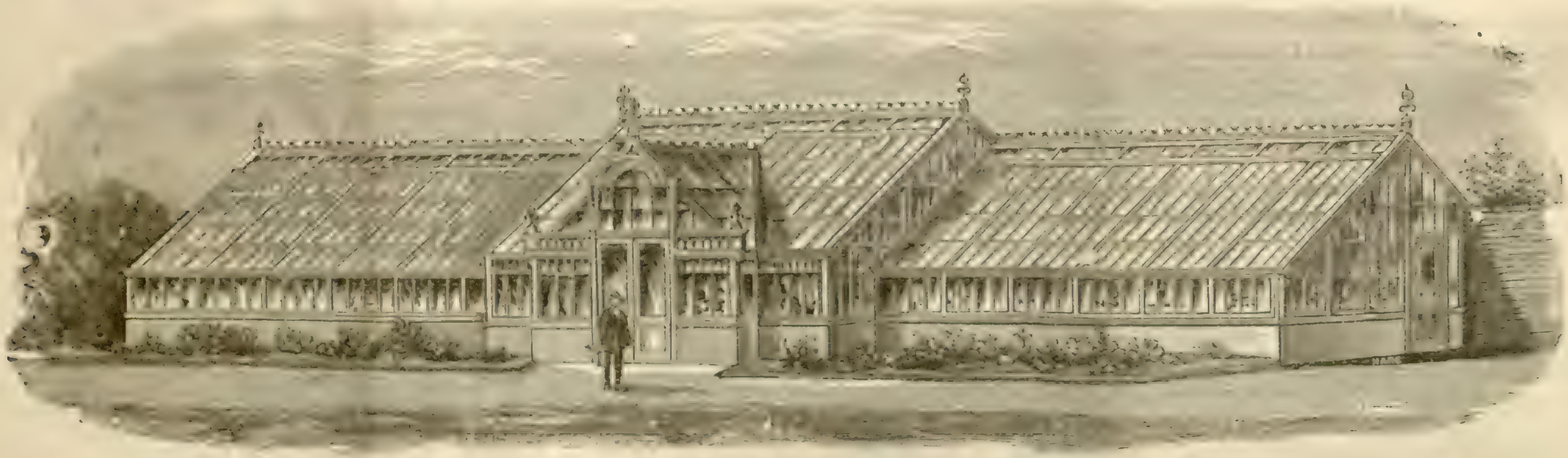

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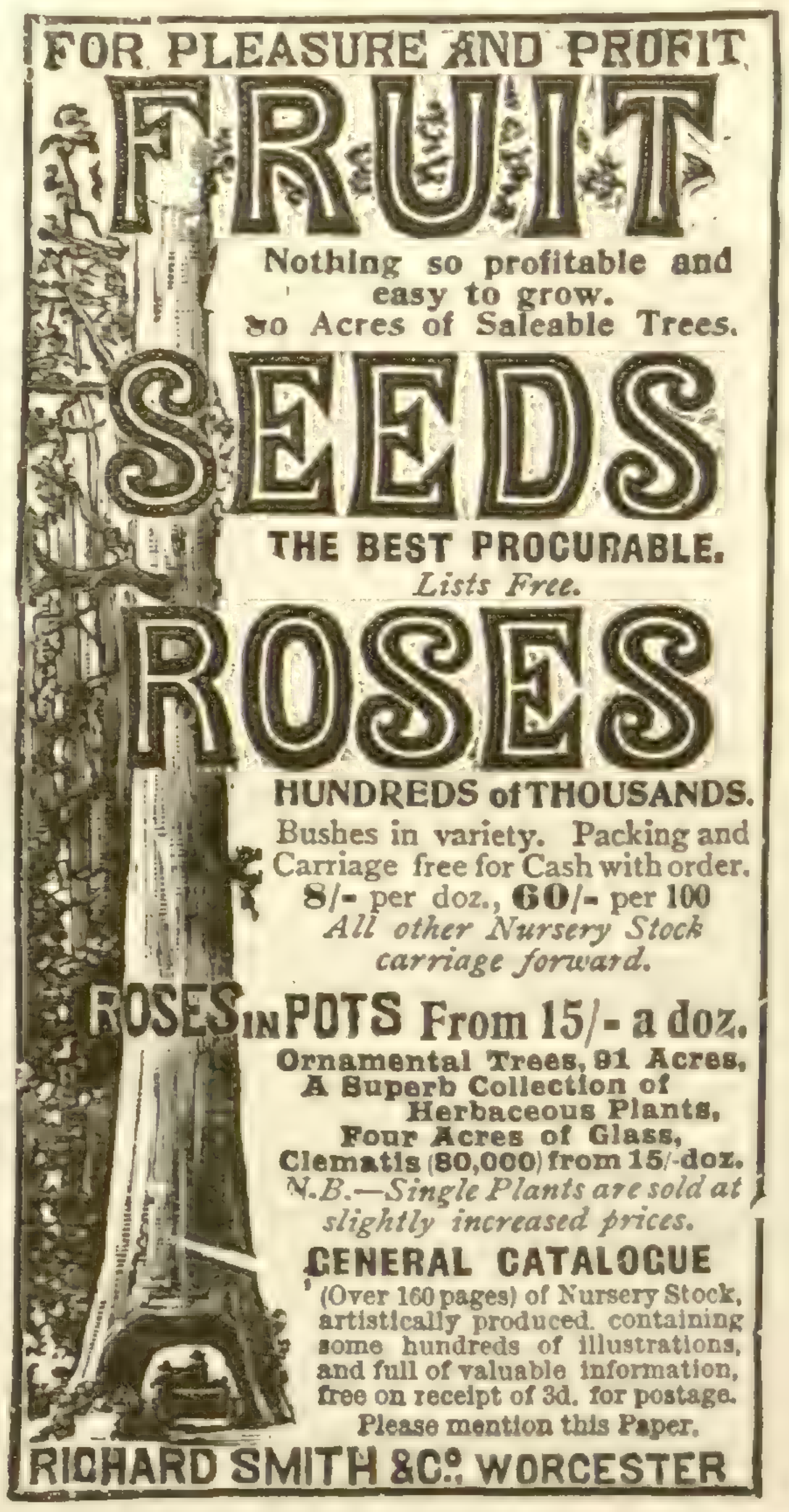

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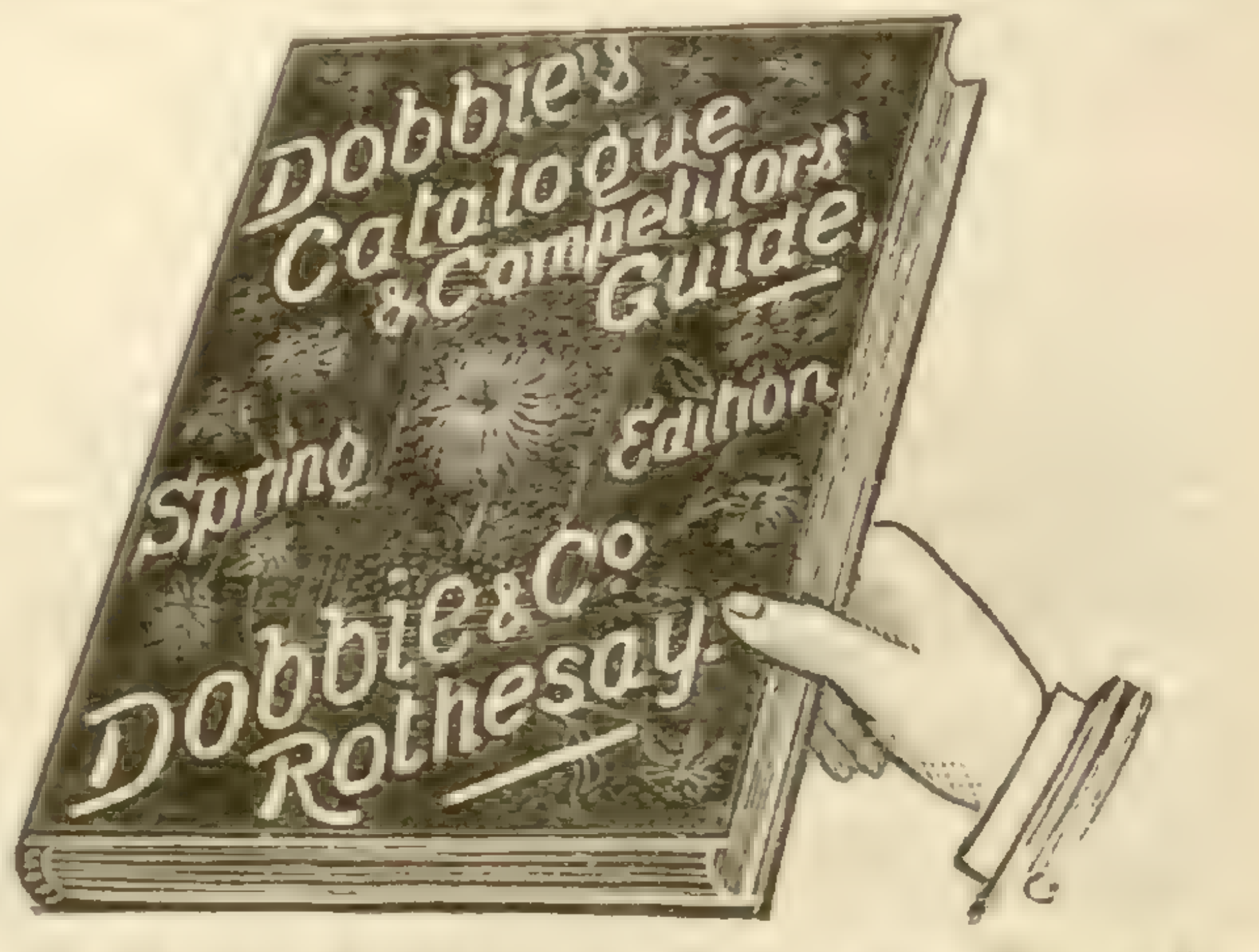

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THE GARDENERS' MAGAZINE.

SATURDAY, DECEMBER 31, 1898.

SEED TESTING.

ROYAL BOTANIC SOCIETY GARDENS, REGENT'S PARK—A Course of TEN LECTURES and DEMONSTRATIONS on SEED TESTING and CONTROL, by Mr. D. Finlayson, F.L.S., will be delivered on MONDAY AFTERNOONS at 3.30 p m, commencing JANUARY 23, 1899. Fee for the Course, 21s. Syllabus can be obtained of the SECRETARY.

HORTICULTURAL CORRESPONDENCE CLASSES.—For PROSPECTUS and LIST of PRIZES apply T. H. SMITH, 18, Somerville Road, Small Heath, Birmingham. First Examination Paper ready November 5. Join early for the whole course.

HORTICULTURAL SHOW ADVERTISEMENTS are inserted in this column at One Shilling per line, the minimum charge being Five Shillings. Advertisement Office, 148 and 149, Aldersgate Street, London, E.C.

NOTICE TO ADVERTISERS.

Owing to continued increase in circulation, the "Gardeners' Magazine" now goes to press on Wednesday. No advertisement can be guaranteed insertion, or altered, unless received before Four p.m. on that day.

NOTES OF THE WEEK.

THE PAST YEAR.

THE year which has now so nearly run its course that it may with propriety be spoken of in the past tense cannot be regarded otherwise than with mixed feelings by those engaged in horticultural pursuits. It has had associated with it many disappointments and not a few difficulties, and, as a counterbalance, it has given the cultivator much that justifies a feeling of satisfaction with the past and a spirit of hopefulness for the future. Chief among the difficulties that have had to be contended with are those due to our fickle climate, which, in its changeful mood, has been less favourably inclined to the practical horticulturist than in some previous years, without the weather being such as to bring about results more or less disastrous. An exceptionally mild winter, remarkable for its small rainfall, was followed by a cold spring, which greatly retarded vegetation of all descriptions, and so materially reduced the crop of the more important hardy fruits as to inflict heavy losses upon the majority of those engaged in the production of market supplies. This was all the more disappointing from the fact that the thorough ripening of the wood and the perfect maturation of the flower buds, as the result of the splendid weather that was experienced in the autumn of 1897, fully justified the expectation of crops considerably above the average. Green crops of the garden varied considerably in different districts according to the amount of rainfall, but throughout May and June the progress made was very slow, and over a wide area they suffered severely from the prolonged drought that commenced about the middle of July. Potatos, happily, although yielding light crops in many districts, have been distinctly more satisfactory than in the previous year, and we are consequently less dependent upon foreign supplies than was the case at the close of 1897. The business aspect of horticulture appears to have been eminently satisfactory, for we have had evidence of much activity in both the nursery and seed trades, and have heard but little grumbling except of the difficulty experienced in commencing in the autumn the execution of orders for trees, shrubs, and plants from the open ground in consequence of the dryness of the soil. Exhibitions of the leading societies have, we are pleased to state, been well maintained, and we have had in the course of the year to record gatherings of exceptional excellence in the Temple Gardens and at the Crystal Palace under the auspices of the Royal Horticultural Society; and at Edinburgh, Shrewsbury, York, and other provincial centres. The special societies associated with floriculture have achieved much success, a fact deserving of special attention, inasmuch as it proves to demonstration an unabated interest in the more important florists' flowers. Very successful also have been the fortnightly meetings of the Royal Horticultural Society, which has had a larger accession of new Fellows than in any year since it left South Kensington. Gardening charities have been liberally supported, but as yet the income of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund is far below the necessities of these two admirable charities; and, anticipating the many disappointments that must follow the elections to be held in January and February next, we express the hope that they will receive still more generous support in the coming year. Of ourselves we shall speak but briefly; we have to acknowledge generous help from a large and increasing band of contributors, and to express our satisfaction with the continuous and rapid increase in the number of our readers. Stimulated by the success that we have achieved during the past year and the knowledge that horticulturists are quick to appreciate enterprise and well-directed efforts on their behalf, we shall enter on the new year with the full assurance of their support in continuing the vigorous policy that has placed the GARDENERS' MAGAZINE in the forefront of horticultural journalism.

THE SPECIAL FLORICULTURAL SOCIETIES.

THE special floricultural societies whose headquarters are in the metropolis appear to be flourishing, judging from the nature of the reports presented at the various annual meetings held during the past week or two. The National Rose and the National Dahlia Societies led the way, and it is satisfactory to know that in each case there is a very substantial augmentation of the balance in hand, while the reports of the committee in either case were highly satisfactory. Both societies afford conclusive evidence that the act of receiving subsidies from a public institution like the Crystal Palace is a commendable policy, and they can be accepted without loss of independence and self-government. The National Rose Society is doing its work in its own way with conspicuous success, and, despite the rivalry of other popular flowers, its admirers can still hold aloft with pride the ardent wish they express in their motto, "Floreat Regina Florum." It is intended during the coming year to revise and issue a new edition of the society's catalogue. The National Dahlia Society have no reason for despondency, for though the subscription list is somewhat limited in extent there is no doubt that the culture of the dahlia as an exhibition flower is steadily on the increase. It was the introduction of the cactus type which imparted vigour to the culture of the dahlia in this country. The National Carnation and Picotee Society shows a remarkable advance during the last few years. It has been singularly fortunate in having a wealthy enthusiast like Mr. Martin R. Smith as its president and leader, and he has spared neither time, means, nor enthusiasm in promoting the success of the society. His achievements as a raiser have revolutionised the carnation. He has multiplied the self and fancy types by producing varieties of the highest quality. No contemporary raiser has touched the high water mark of production as Mr. Smith has, and it is gratifying to know that he has seedling bizarred and flaked carnations and white ground picotees which rival in quality his glorious selfs and fancies. We think not a few of the flowers annually exhibited in competition for the prizes offered are unworthy the awards made, but it must be mentioned it is very difficult to originate new lines upon which to show carnations. As a border flower and for blooming all the year round it has a wide reputation. Mr. Douglas's plea for a more austere recognition of the yellow ground picotee is to be commended. We want to see the properties of the white ground picotees demanded in the case of the yellow ground varieties. It is said some latitude must be allowed the judges, because the really good varieties are few; but we hold there is sufficient material to make a beginning with. Even the National Auricula and Primula Society is on the upward grade, though there are fewer cultivators of the auricula than of the popular rose, carnation, and dahlia. We note with satisfaction that the old type of gold-laced polyanthus is restored to the schedule, as this will probably be the means of keeping in existence a form of polyanthus dear to many old florists, and one extremely difficult to obtain of a high order of merit as seedlings. We can heartily congratulate the special societies on their activity and success in the past year, and desire for them a still larger measure of each in the year just opening before them.

THE SHORTEST DAY.

ONCE again the whirligig of time has brought us in this northern hemisphere past the lowest ebb of the annual tide of sunshine, and once again we are cheered by the reflection that with this turn of the tide every day will be adding a little to the floral activity in which we horticulturists delight, and of which the sunshine is literally the life and soul. Spring, it is true, is yet in the far distance, and in this climate of ours the rigours of winter are usually experienced far more severely in the first months of the year than in the last, for the simple reason that just as the hottest period of the summer succeeds the longest day, owing to the accumulation of the sun heat, so the bleakest time of the year succeeds the shortest day, due to accumulated cold. Nevertheless, despite the hard weather we may reasonably and seasonably anticipate, we hail the passing of the shortest day and longest night with a feeling of gratification that the change has commenced which will inevitably bring in its train first the bright crocus, with its golden chalices; the hepatica, with its azure stars; and then all the bright array of scillas, tulips, and their tribe to follow. It is a curious fact to reflect that coincident with our long nights and brief daylight our Antipodean cousins are in full enjoyment of midsummer and precisely reverse conditions, and that this difference is all due to our globe being spun round on the slant instead of, like a top, in an upright position as regards the sun. Had matters been so arranged when this little world of ours was started every spot on the world's surface would have had precisely twelve hours all the year round between sunrise and sunset, the seasons would have been non-existent, and beyond a doubt the forms of life, especially plant life, would have been very differently modified. The equatorial regions would have been much as they are now, since equal day and night is there established by their central position, but northward and southward an even and general diminution of temperature would have obtained, culminating in presumably Polar ice and snow owing to the obliquity of the sunshine they would get. In our island a perpetual spring would be our lot—an everlasting equinox; but certainly that spring would be devoid of all the charm of rejuvenescence which we now enjoy, and the vegetation, robbed of the hot summer sun on the one hand and unchecked by keen winter frosts on the other, would fit into no types with which we are acquainted, since no such permanently stable conditions exist on our planet to have moulded them. The poet may rave about perpetual spring, just as the gastronomist might dream of a perpetual dinner, but it is the winter fast which creates the necessary appetite, and in our opinion we have much to be thankful for when we consider what an unutterable monotony has been spared to us by that little twist our whirling planet received when launched into space as an independent world.

Manurial Experiments in not a few instances fail to have any practical value in consequence of those engaged in them failing to recognise the importance of conducting them on land that is indifferently stored with plant food. In a report on some experiments carried out during the current year in the use of fertilisers for potatos it is stated that the unmanured or control plots produced crops equal to eleven tons per acre. Land so richly stored with plant food as to be able to produce such large crops as these was of but little value for purposes of experiment, as very heavy dressings of artificial or natural manures would be necessary to produce any appreciable influence upon the yield. It cannot be too distinctly understood that the land should be decidedly poor and uniform in quality throughout for experiments that are to have general application, for, unless this be the case, the results can have but little value, if they are not actually misleading. In the experimental use of manures in the garden for the information of individual cultivators it is not necessary to carry them out on exhausted soil, as all that is necessary is to vary the dressings applied to certain crops, and carefully note the results. These will be useful for the guidance of the cultivator in the garden in which the experiments were made, but of comparatively little use to others. We are in great need of systematic experiments carried out under the direction of a central organisation on the lines suggested by Mr. George Gordon in his lecture before the Royal Horticultural Society in October last.

Then and Now.—It is worthy of note, writes Mr. R. Dean, that the first chrysanthemum show that was held at the Crystal Palace took place in 1858, in the month of November, but the chronicler does not give the date. The late Mr. A. Wortley was first with twenty-four blooms, and it may interest some to have the names: Yellow Formosum, Themis, Leon Leguay, Annie Salter, Formosum, Raymond, Nonpareil, Rosa Mystica, Astrea, Christopher Colomb, Virgil, Pio Nono, Antigone, Dupont de l'Eure, Madame Le Corde, Madame Andre, Pluto, Hermione, Stellaris globosa, Madame Miellez, Madame Nolleville, Aregina, Aimée Ferriere, and Queen of England. Nearly the whole of these names can be found in the centenary edition of the National Chrysanthemum Society's catalogue, 1890, though not a few of them by that time must have gone out of cultivation; but their inclusion at that period bore testimony to the industry of the Catalogue Committee, who did their very best to give a complete list of the named chrysanthemums to that date. Only one, the perennial Queen of England, which was distributed by John Salter just half a century ago, but which is but little seen at the present time, was exhibited in 1858. Arthur Wortley lived to see the splendid development of the incurved and Japanese sections up to the Jubilee celebration of 1896; but it would be an interesting comparison indeed if the varieties he staged in 1858 could have been put side by side with Mr. Lunt's Japanese and Mr. King's incurved blooms at the Exhibition of the N.C.S. at the Aquarium on the 6th inst. The possibilities of development in the incurved section, and especially in the Japanese, appear to be almost illimitable.

The Persimmon, which has of late years received increased attention in the United States and some other parts of the world, is now being imported in considerable quantities into this country, and the rich orange-coloured fruits which are not unlike large oval plums have for some time past formed an interesting feature in the windows of the retail fruit shops. This fruit, which some people highly appreciate, has been improved during the past twenty years. The best supplies just now come to us from Madeira, and they are retailed at about four shillings per dozen. Presently, when the trade has been properly developed and the fruit itself popularised among a wide circle of consumers, enormous quantities will, it is believed by the most sanguine, be sent to the English markets, from California, particularly, where the fruit is grown extensively. The fruit can be picked when just ready to commence colouring, and will travel almost any distance and colour up to perfection in transit. The tree is a native of Japan, and when ripe the fruit has an agreeable sweetness.

Secondary and Tertiary Hybrid Orchids.—Mr. C. C. Hirst states that of the eight hundred distinct crosses recorded some two hundred and seventy are secondary hybrids, *i.e.* hybrids of the second generation, one or both parents being a primary hybrid; while thirty are tertiary hybrids, *i.e.* hybrids of the third generation, one of the parents, at least, being a secondary hybrid. So far no hybrid orchids are recorded to have flowered beyond the third generation, but perhaps it may not be premature to mention that unflowered hybrids of the fourth generation are known to be in existence. Mr. Hirst has in his collection six hybrids of the fourth generation, five years old, all raised from the same capsule, and which contain in their pedigree five distinct species and three distinct hybrids. So that in the near future there will be ample material in this direction at the disposal of the student of heredity; with this distinct advantage, that orchids being individually valuable, their pedigree is carefully and systematically recorded, which unfortunately is more than one can say of the great majority of garden hybrids. A careful examination of secondary hybrids shows them to be very different from primary hybrids in their range of variation. As we have already seen, primary hybrids are comparatively uniform in their characters; so much so that, as a rule, they are quite distinct from their parents. On the other hand, secondary hybrids have a much wider range of variation, often approaching either parent, and sometimes even reverting wholly to one or the other. For instance, to take the simplest form of a secondary hybrid, *i.e.* a hybrid crossed with one of its parent species. We find that the offspring, as a rule, are very variable, a few reverting to the parent species, and a few to the parent hybrid; but the great majority are intermediate forms approaching either parent, the whole forming a series of links between one parent and the other. In short, we find that secondary hybrids have a far wider range of variation than have primary hybrids.

Popular Chrysanthemums.—The *American Gardening*, following the example that was set in these pages many years since, has prepared an audit of the chrysanthemums staged in the first prize collections at fifteen of the principal exhibitions of the United States. One hundred and fifty-five varieties were shown, and those staged five or more times are as follows: Viviand Morel, 26; Mrs. Henry Robinson, 20; Major Bonaffon, 20; Frank Hardy, 19; Golden Wedding, 16; Modesto, 17; Mrs. H. Weeks, 14; Mutual Friend, 10; Minerva, 10; H. L. Sunderbruch, 10; Mrs. G. Peabody, 9; Mrs. Perrin, 8; Miss Georgiana Pitcher, 8; Chas. Davis, 8; Philadelphia, 7; G. W. Childs, 7; Mrs. Jerome Jones, 6; J. Shrimpton, 6; Eugene Dailledouze, 5; Inter-Ocean, 5; Jeannie Falconer, 5; H. W. Rieman, 5; Nyanza, 5; W. H. Chadwick, 5; Autumn Glory, 5; Newitt, 5; Pink Ivory, 5; Eureka, 5; Maud Dean, 5; Silver Cloud, 5.

Popular Plant Names.—In discussing the modern literary misconception of regarding Shakespeare's "long-purples" as the so-called "purple loose-strife," Sir George Birdwood makes, in the *Athenæum*, the following pertinent remarks with reference to the desirability of writers making themselves fully acquainted with the names of the plants they write about, for the purpose of avoiding the pitfalls for the unwary in dealing with the vernacular names of plants either when describing English scenery or elucidating the text of English writers. Shakespeare's "long-purples" are undoubtedly the purple-flowered orchids of our native flora. He writes: "It is very desirable that literary men and women, in dealing with the popular nomenclature of plants, should always consult some recognised authority on the subject. For inspiration and delight in such labour there is, of course, nothing to be compared with the fragrant folios of our great English 'herbalists'—Turner, and Lyte, and Gerarde, and Parkinson. But some training is required to use them aright; and even the experienced will find it safer to be guided in their use by such exhaustive and accurate handbooks as Prior's 'Popular Names of British Plants' and Britten and Holland's 'English Plant Names' (Dialect Society's publications). All the same one likes to work out these puzzles of nomenclature independently, or at least to verify the accepted solutions of them; and for the identification of the folk-names of plants to be found in our poets and other famous writers of the later Stuart, Georgian, and earlier Victorian periods there is no more trustworthy, suggestive, and alluring a help, exactly suited to the conscientious literary annotator, than William Hudson's 'Flora Anglica' (1730—Westmoreland—1793). It was from a copy of this work, presented by Colonel Conway (Horace Walpole's cousin) to Crabbe, that the latter imbibed his salutary and inspiring love of botany."

Royal Gardeners' Orphan Fund.—The proceedings at the December meeting of the Executive Committee of this charity afforded further evidence of the ability of horticultural societies to assist the gardening charities without taxing the individual members. The secretary announced, as usual, the donations received in the course of the preceding month, and these included the following amounts: Altrincham Gardeners' Association, £15 10s., proceeds of concert; Scottish Horticultural Association, £15; Canterbury Hospital and Charities' Fête, £5; Chislehurst Gardeners' Society, £3 14s., the profits of a non-competitive exhibition of chrysanthemums, for which a charge of twopence for admission was made. Mr. H. Herbst also contributed £5, the proceeds of his collecting-box. The nomination forms were passed at this meeting, and we regret to state that there are nineteen candidates for election in February next, as not more than about one-half that number can be placed on the pension list.

The Gale which commenced soon after midnight on Monday and continued throughout the following day did a considerable amount of damage in Great Britain and Ireland and caused considerable loss of life both on land and sea. The rooting up of trees has been general over the greater part of the United Kingdom, and more especially has this been the case in Greenwich Park and at Hatfield House. At Abergavenny a greenhouse was lifted up by the wind and blown into an adjoining window.

Pineapples from London Hothouses!—It is interesting to read, in an American contemporary, at a time when we are regarding the cultivation of the pineapple in Great Britain for commercial purposes as non-existent, that "enormous pineapples from London hothouses were novelties that attracted attention in the fancy trade" of New York. It would be still more interesting to learn the whereabouts of the "London hothouses" in which these "enormous pineapples" were produced, for we should like to see them. The *Times* believes that "it is quite possible that pineapple production will be revived, and in the near future become a very extensive trade in the British Isles. The superior quality, the more delicate appearance, the exquisite fragrance and flavour which distinguish the English from the imported fruit justify this prophecy." The expression of this belief does not, however, help us much in finding the source of the supply of London grown pineapples.

Relative Productiveness of Potatos.—During the past season two series of experiments were conducted by the Agricultural Department of the Nottingham University College on the Althorpe estate, one of these being for the purpose of determining the relative productiveness of varieties. Twenty-one varieties were included in the trial, and of these seven were first or second earlies, and the remainder belonged to the maincrop section. The most productive of the earlies were British Queen with 11 tons 18 cwt. per acre, and Challenge with 10 tons 17 cwt. per acre. The heaviest crops of the maincrop varieties were Lymn Grey, 12 tons 10 cwt.; Imperator, 12 tons 8 cwt.; and Up-to-Date, 12 tons 3 cwt.

Newcastle-on-Tyne Horticultural Society.—Mr. Isaac Brandon Reid, 30, Mosley Street, Newcastle-on-Tyne, has succeeded Mr. J. J. Gillespie, jun., as secretary of this society. Twenty years ago Mr. J. J. Gillespie, sen., was appointed the secretary of this society and continued to occupy that position until 1893, when he retired and had for his successor his nephew, who has recently resigned. During the period here mentioned the society has had two or three exhibitions annually, but in the coming year it will hold a summer show only in July, although it has at the present time a surplus in hand.

Seeds and Seed Testing.—A course of ten lectures and demonstrations on seeds and seed testing will be delivered by Mr. D. Finlayson, in the Royal Botanic Society's Museum, Regent's Park, on Monday afternoons, at half-past three p.m., commencing January 23, 1899. The following is a summary of the syllabus: January 23—Relative value of Samples, considered in relation to colour, size, uniformity, condition, maturity, age, purity of samples, essentials to germination, pedigree influence; adulteration and doctoring of seed. January 30—Effect of age of seed on its rapidity of growth and liability to disease; soil suitable; change of seed, why necessary; quantity of seed per acre. Grass seeds, comprising Meadow Foxtail, Rough Cocksfoot, Tall Fescue; impurities specified and described. February 6—Timothy, Tall Oat Grass, Perennial Rye Grass, Italian Rye Grass, Meadow Fescue; impurities specified and described. February 13—Fiorin, Yellow Oat Grass, Smooth-stalked Meadow Grass, Rough-stalked Meadow Grass, Evergreen Meadow Grass, Flat-stemmed Meadow Grass; impurities specified and described. February 20—Sweet-scented Vernal Grass, Crested Dogstail, Red Fescue, Hard Fescue, Sheep's Fescue; impurities specified and described. February 27—Wheat, Barley, Oats, Rye. March 6—Red Clover, Perennial Red, or Cow-grass, White Clover, Alsike Clover, Trefoil; impurities specified and described. March 13—Lucerne, Sainfoin, Suckling Clover, Crimson Clover. March 20—Special purpose grasses and other plants, namely, Yarrow, Kidney Vetch, Sand Reed Grass, Sea Lyme Grass, Hungarian Forage Grass, Schrader's Brome Grass, Reed-like Canary Grass (*a*) vegetable seeds, (*b*) flower seeds. March 27—The best turf produced by seeding and good management. Composition of good and bad mixtures of seeds for lawns, cricket fields, golf links, temporary and permanent pastures. Preparation of the soil, selection of suitable seeds, sowing the seed, and after management.

The Glastonbury Thorn.—The flowering of the Glastonbury Thorn (*Cratægus oxycantha præcox*) at Christmas is evidently a matter of much interest to a large number of horticulturists, for the note by Mr. F. W. Burbidge in our issue of the 24th inst. on the flowering of the tree in the Trinity College Botanic Garden has brought us numerous inquiries. According to the legend in the far-distant past, Joseph of Arimathea determined on a mission to christianise the Britons. Arviragus, who was then king, was not to be persuaded, but he rather encouraged the mission, and granted a piece of land whereon to build a church. When Joseph reached Weary-all-Hill, by Glastonbury, he thrust his staff into the ground, and this staff, after the habit of holy men's properties in very remote times, displayed remarkable manifestations. It put forth leaves, and the next day was in bloom. Henceforth this tree always bloomed on Christmas Eve, and slips thereof planted in other places invariably bloomed on the same day. No wonder that a pious people, but little troubled with the doubts and difficulties of a scientific age, regarded this tree as a thing very holy, and its blossoms as sovereign specifics for all the ills to which a remarkably troublesome flesh is heir. In the days when Henry VIII. was king the stout merchants of Bristol exported these precious blossoms to all parts of Europe, so great was the fame of their healing virtue. But the career of the tree was practically ended when Henry abolished the monasteries. St. Joseph's tree, the Holy Thorn of Glastonbury, grew up with twin trunks. In the reign of Elizabeth some effervescing Puritan laid the axe in grim earnest at the root of one of them, and a similar fate befel the other one during the wars of the Great Rebellion. Nevertheless a contemporary issue of a London evening paper states that on Christmas Eve in 1753 (new style) a great concourse of people assembled to see it bloom. They were disappointed, which is hardly to be wondered at, in a tree supposed to have been dead for more than 100 years. But behold a marvel! They watched it again on the following January 5th (old Christmas Eve), and then the tree bloomed as usual. Whatever it was that bloomed, the honest country folk were convinced that old Christmas Day was the true one, and the new style anniversary a thing of none effect. Now a slip of this tree had been planted at Quainton, in Buckinghamshire, and on the aforesaid Christmas Eve about 2,000 people assembled, with lanterns and candles, to see the annual miracle; they, too, were disappointed, and decided they would not go to church on the new Christmas Day. There are people who are persuaded that all these stories of the holy thorn are merely superstitions founded on a monkish trick; but a holy thorn is a common object. The solution of the mystery is to be found in the fact that the Eastern form of the hawthorn blooms naturally about Christmas, and should the weather be mild enough the plant asserts its habit and blooms at mid-winter. There is nothing marvellous in a staff formed of a branch of the thorn producing roots and growing into a tree, as many of the trees of the common thorn, of which the Glastonbury thorn is a variety, found in our parks, have been raised in a similar manner.

London Footpaths.—The Commons Preservation Society is doing a service by publishing maps especially devoted to the indication of footpaths in the north of London. The north of London is very badly furnished with open spaces. Of old time it possessed Finchley Heath and other wide stretches of common. But, while the poor sandy soil of the hilltops in the south of the metropolis fortunately offered little temptation in the days when enclosure was advocated for the increase of food, the richer open spaces of the north were rapidly reduced to cultivation. Beyond Hampstead Heath scarcely any open land remains save a few roadside strips and a fragment, at Monken Hadley, of the ancient chase of Enfield, itself apparently a survival of that forest of Middlesex in which the citizens of London enjoyed by charter a right of hunting. Fortunately some compensation is afforded to the landless inhabitants of Middlesex or Herts in the abundance of footpaths. Fields and woods and meadows are constantly disappearing under the advancing wave of London; it is the more important that all reasonable means of enjoying the surrounding country should be placed at the disposal of the millions of the metropolis.

Royal Botanic Society.—The fixtures of this society for 1899 are: Spring show, April 12; floral fête, June 7; and the meetings of Fellows, January 14, 28; February 11, 25; March 11, 25; April 8, 22; May 13, 27; June 10, 24; July 8, 22; anniversary meeting, August 10.

New York Fruit and Vegetable Supplies.—Great Britain is by no means the only country that obtains large supplies of fruits and vegetables from beyond her boundaries, but it is somewhat surprising to learn that the capital of the United States should be dependent upon foreign cultivators for a large proportion of the supplies of the products of the orchard and garden. The *New York Times* states that the city levies tribute upon all lands and exacts commercial contributions from the Occident and the Orient, from the torrid, the temperate, and frigid zones. Every ship that comes from the West Indies or the South just now carries its complement of fruit, and many of the Transatlantic liners bring to us fruits from the Mediterranean or Africa. Even in the matter of potatos the city is dependent at times upon other countries for her supply. It seems like carrying coals to Newcastle to bring potatos to America, but in reality there are half-a-dozen countries which look to New York as one of the chief markets for their potatos. Bermuda sells nearly all of her potato and onion crop in New York, and in winter potatos come freely from England, Scotland, Ireland, Germany, and some of the lesser European countries. The Scotch Magnum Bonum is said to be the best imported potatos, next to the Bermudas, and they have acquired quite a reputation. They all come in sacks, and, as the westward-bound steamers are in need of ballast, potatos are carried at a very small cost. The West Indies are also learning the ways of Bermuda, and shipments of potatos from there are increasing every year. There are a dozen different countries engaged in trying to supply New York with all the onions needed. France, Spain, Bermuda, the West Indies, Great Britain, and all her insular dependenciesf and even far-off Egypt, help to swell the total shipments of onions to New York. Before the Southern market gardeners of the United States get their vegetable products to market Bermuda and the West Indies ship all sorts of garden produce to New York. South America and Africa have more recently joined in this business, and consignments come from these countries every winter. Holland is an extensive shipper of cabbages to America; France sends early cauliflowers, and both France and Italy send celery. France has for many years been engaged in supplying London with many vegetables, but it is only recently that an attempt has been made to find a wider market for them in New York. A consignment early in March of asparagus, artichokes, celery, seakale, mushrooms, and rhubarb was made for the first time two years ago, and now every season the vegetables arrive. They are raised in Southern France, and are shipped in cold storage. As they are very fancy articles, they bring high prices, so that the shippers make good profits out of them. New Yorkers are willing to pay extravagant prices for fancy products out of their season, and it is a knowledge of this fact that induces the French gardeners to make the experiment. England sends choice hothouse grapes during the winter months that sell readily in New York at prices ranging from three to four dollars (one dollar = 4s. 2d.) per pound, wholesale.

Imperial Penny Postage.—On Christmas Day the postage of prepaid letters from this country for the undermentioned British colonies and protectorates was reduced to 1d. per ½ oz., instead of 2½d. as previously: Aden, Ascension, Bahamas, Barbadoes, Bermuda, British Central Africa, British East Africa, British Guiana, British Honduras, Canada, Ceylon, Cyprus, Falkland Islands, Fiji Islands, Gambia, Gibraltar, Gold Coast Colony, Hong Kong, India, Johore, Lagos, Leeward Islands, Malay States, Natal, Newfoundland, Niger Coast Protectorate, Niger Territory, St. Helena, Sarawak, Seychelles, Sierra Leone, Straits Settlements, Tobago, Trinidad, Turks Islands, Uganda, Windward Islands. The postage payable on letters addressed to other British possessions, or to any foreign country, and that payable on postcards, printed papers, samples, &c., for any part of the world remain unchanged.

The Fruit-growing Pastor.—The action of the Rev. C. Douglas Crouch, pastor of the Worthing Tabernacle, in promising to remit £100 of his stipend to his congregation is being much discussed, and is not without interest to horticulturists. Mr. Crouch states that he has conscientious scruples about the receipt of a stipend for his pastorship, but he was not able to give practical expression to his views until he came to reside at Worthing, and engaged in the fruit-growing industry. "Thanks," he observes, "to my work as a horticulturist, I enjoy splendid health. The exercise is good for me, and another advantage of it is that it has given me a practical acquaintance with the ups and downs of life."

SWEET-BRIER FOR THE NEW YEAR.

Not a few would consider it impossible to supply sweet-brier on New Year's Day, but more experienced growers have long discovered the possibilities of horticulture. It is many years ago since the seemingly impossible task came to me. Fortunately, perhaps, I made too light of it. There were plenty of sweet-briers about, and within a month of the date several plants were dug up and plunged at one end of the gardenia house. Here the sweet-briers had a bottom and surface heat of from 70 to 90 degrees; but instead of growing at once, or within a few days or weeks, few of them showed much or any signs of responding to such severe forcing conditions. Indeed, the efforts to force the growing pace some six months out of season were in the main doomed to almost complete failure. A few of the sweet-briers preferred to die rather than grow, while others seemed simply to ignore the forcing conditions, as if waiting quietly for the aid of April showers and the softer and more suasive effects of May dews.

These first attempts, however, proved extremely useful if rather stern and severe teachers of this lesson. Sweet-briers in particular, and the majority of hardy plants in general, resist sudden and severe changes of temperature. Such plants may be led or allured into acceding to almost all demands, but driven or violently forced, into little or nothing. It was worth not a few failures in sweet-brier forcing to have learned this lesson well. I know that strong examples may be quoted to the contrary, as that of not a few successful growers of lily of the valley, who freeze the crowns before placing them in bottom or surface heat of 70 degrees or 90 degrees. Retarded crowns, now rising in fashion and popularity, may be said to have won their popularity on this theory of pitting extremes of temperature against each other. The greater the diversity of temperature the more sudden the start. Well, this may be, in fact, is so, but it would be unwise to trust to any such law to help us in the forcing of sweet-brier, especially if under promise to provide a good vase of fragrant shoots for New Year's Day.

Most of the art of forcing sweet-brier, and, indeed, other hardy shrubs, consists in early and timely preparation. The briers for providing foliage and flowers for Christmas, 1899, and January, 1900, should have been potted up at the end of October or early in November, 1898. Where sweet-briers thrive in the open air it will be found they differ considerably in character and earliness. By selecting those thoroughly matured, and of moderate and generally uniform growth, it will be found much time will be gained later on. As to pots, eight inch, ten inch, and twelve inch are the most suitable and satisfactory, though pretty little plants may be grown in six-inch pots. Sandy loam with a dash of leaf-mould and a little well-rotted cow manure, or, if poor or hungry soil, with a sprinkling of bone meal, form a model compost for forcing sweet-briers. For drainage use an oyster shell over the hole, then add a few smashed bones, and a handful of turfy loam fills a larder with good things that will last for years. Before potting carefully dress or prune off any bruised roots and distribute those left regularly through the soil in potting. The latter should be firm, ramming the soil home round the roots. As soon as completed plunge the pots in a bed of oak or other long-lasting and slow-heating leaves, covering the surfaces with the same some four or six inches deep, thus rendering the roots quite frost-proof. Under a south or west wall is the best place for the briers, and there they should remain till March or April. The plants should then be carefully overlooked and sorted. The worst may be placed by themselves and gently forced for fragrant sprays or even welcome buds of eglantine. All the best plants should, however, be reserved for forcing in the early autumn for leafage and bloom at Christmastide and the New Year.

It is well to place the whole of the sweet-briers under glass, say in March, as it will then be found the roots are considerably in advance of the tops. Often at that early season the pots will be found full of roots, and the brier buds ready to burst into growth. A fernery, peach house, or orchard house at work, or a cool forcing house or pit at 50 to 65 degrees, would be the very place for sweet-briers from March to June. In such positions, with abundance of light, air, water overhead and at their active roots, growths, though rather slow the first year, would be strong, sound, and clean. But, with the exception of the few weakest plants, all this early growth the first year is rather preparatory to early autumnal forcing than forcing itself. None of the growths on the best plants should be used, but the blossom buds should be picked off. On June 1 at latest remove all the sweet-briers into a sheltered place in the open air. Syringe overhead at least twice a day, and keep the leaves clean and free from insects. Early in July place the plants in front of a south wall, plunging the pots full in the sun. Any pruning or removal of shoots that may be needed to preserve the form of the plants or hasten their early maturity should now be given. The less pruning, however, the better. During the ripening and resting periods, from July till the beginning or middle of September, no excess of water or stimulating mulches or manures should be given to the roots, for the more complete the maturity of the wood and buds the easier and more successful the forcing of sweet-briers.

By October 1st the briers for forcing for Christmas and the New Year should be under glass. By attention to the simple details here given much success may be reached the first year. But the older, in reason, the briers grow, the more floriferous, though not always the more foliaceous, they become. There is another strong point in favour of old plants. Habit becomes a sort of second nature, even with such strong conservative instincts, and hence the longer in reason the plants remain in pots the easier and the more surely they may be forced. Cleanliness and caution, careful maturing, top dressing, and mulching will suffice to keep sweet-briers in health for many years. But, as for pruning, the chances are, after the plants are fully established on early forcing lines, the plants will be pruned in excess for the supply of the fragrant branchlets and blossoms for which they are so highly prized. One more wrinkle—plants used to pruning for shoots and flowers in December, January, February, March, and so on, will be far better able to provide crops of similar beauty and fragrance ever afterwards.

Some prefer growing a double or a treble set of plants for forcing, for fear of exhausting their old plants, and readers will agree that the more sweet-briers there are in their gardens, in or out of doors, the better. All this, written of the common pink sweet-brier, with its brilliant scarlet hips and fragrant foliage, is equally applicable to the double scarlet and double white, which have never become common. There is also a superb red sweet-brier, of brilliant scarlet, and one with bright crimson flowers. Janet's Pride is a white brier, richly shaded and tipped with crimson stripes, very attractive, and likely to furnish us with a race of flaked sweet-briers in the near future, perhaps rivalling our flaked carnations or cloves. Lord Penzance's new hybrid sweet-briers will give new interest to this charming class of plants, as it has already brought us new colours with them without robbing us of the brier's fragrance. Several of them promise to be earlier and easier forced into growth and bloom in the winter than the uniquely sweet and beautiful common sweet-brier.

As to the forms of sweet-briers for forcing it is of less moment than may be thought, but where the plants are likely to be wanted in halls, dining or drawing-rooms, staircases, sitting-rooms, conservatories, corridors, &c., the plants may be trained into pyramids, standards, or loose bushes. Small standards in eight-inch pots have a dainty effect. The opposite extreme, where shoots only are wanted, may consist in filling boxes a foot or more deep with young sweet-briers, and forcing them *en masse* year after year for cutting. Some years since a bold spurt was made on the borderland of Covent Garden Market proper to push the sweet-brier in six or eight-inch pots as a window plant in London and its environs. One can but hope that such delightful home industries may be established or extended in all our large towns until every home and garden shall be lightened by the brightness and sweetened by the fragrance of one or many sweet-briers.

D. T. Fish.

THE NAMES OF ROSES.

It was the immortal Shakespeare who said, "A rose by any other name would smell as sweet," while the assertion of the deeply romantic Juliet was true, and illustrated her subject very effectively, there is more in a name, especially a modern one, than her philosophy ever dreamed of. It cannot, for example, be truthfully denied that in many instances our greatest professional singers, such as Patti and Melba, in addition to their gifts, which are unquestionably pre-eminent, owe much to their names. So also, doubtless, do our leading rosarians; but, it may be added, in a much lesser degree. A consummate vocalist may, in a moment of mental depression or physical weakness (or even after eating too hearty a dinner), sing with manifest difficulty of breathing, or on still rarer occasions entirely out of tune; nevertheless she will receive, in virtue of her name, £500 a night. But it is somewhat different with a great rosarian. His achievements are not transitory; like that of the poet, they are steadfast and enduring; they are the result of patient elaboration, they are intended to survive the utmost test of time. They do not always accomplish this; those that continue to exist for fifty years are assuredly the exception and not the rule. Yet the name of a great raiser, apart altogether from the merit of his creations, is even as in the artistic and musical worlds, a mighty charm to soften and subdue. A rose that has been originated (or "obtained," as Mr. D'ombrain would say) by a Guillot, a Verdier, a Paul, or a Dickson, owes much in the initial stages of its popularity to its raiser's name. But this also is certain, that unless it has great merit it will not endure. It is reputation, founded on lofty characteristics, that confers its peculiar glory upon a name. The fame of a rosarian may be, and is undoubtedly in every instance, a great advertisement for his productions; but unless they have original or supremely fascinating attributes their names will soon disappear from the catalogues, and their presence from our collections. This is an age of stern competition, and it is the fittest and strongest and loveliest that survive.

But even, I should imagine, the name of a rose—other qualifications and higher ones being owned by the variety—may have a distinct influence in the direction of popularity. Duke of Edinburgh, Duke of Wellington, Crown Prince, and Prince Arthur are, by reason of their very associations, popular names. So also should be such titles as Her Majesty (though almost any other rose would smell as sweet), Princess of Wales, and Empress Alexandra of Russia. There are abundant Dukes and Duchesses in our catalogues; the one variety among these most likely to survive is Duchess of Bedford. The fine fragrance of Duchess of Albany—a dark La France, of vigorous constitution—should be sufficient to preserve its other merits from oblivion. Papa Gontier should live, notwithstanding its somewhat childish name, which has nevertheless a charming flavour of affectionateness. So also should Susanne Marie Rodocanachi, an invaluable rose for exhibition purposes, by reason of its form and rich, roseate hue. One of the most peculiar of all names discoverable among the hybrid perpetuals is Xavier Olibo, which instinctively suggests to my imagination a half-caste, nurtured in a tropical clime. Not many varieties have classical names Homer and Sappho being notable exceptions; likewise Medea, the fairest of the three. I like such unassuming titles as Margaret Dickson, Jeannie Dickson, and Clara Watson; also that of the beautiful Souvenir de S. A. Prince. Grace Darling suggests heroism; Victor Hugo, poetical and dramatic achievement; Charles Lamb, humour, originality, and amiability; Niphetos, purity, like that of the virginal snow; Reynolds Hole, giftedness and good-nature; Bride and Bridesmaid, the fruition of love; La France, patriotism, poetry, and romance.

David R. Williamson.

A MORNING MIXTURE.

Diluculo surgere saluberrimum est.

THIS is a time of year when a little "looking backward" is indulged in. Not quite so far as the late Mr. Bellamy threw his revolutionary survey in the book under the title quoted, for we gardeners are on the whole rather too much absorbed in the practical questions of the moment to dream advanced social dreams. We pass in placid review the more notable events and controversies of the year. The Victoria Medal of Honour, founded last season, has matured this. Even those who are not recipients will think with pleasure of this event. There may be here and there a disappointed one who is inclined to carp because his personal expectations were not realised, but the great majority realise too clearly how great an honour and dignity have been conferred upon horticulture to do other than rejoice. The inspiration which led to the founding of this medal was a happy one; the choice of persons upon whom to confer it was (if I may be permitted to say it) most admirably made. Doubtless more than one of the sixty would gladly have stood aside in order to allow Sir Trevor Lawrence and the Rev. W. Wilks to come in, but the decision of the Council excluding its own officers was generous and in the best of taste.

The affairs of our leading societies come under consideration at any moment of leisure. The R.H.S. stands first, and it is safe to say that it will continue to do so while its present vigorous policy is pursued. It is in a stronger position now, perhaps, than it has been any time during the past half-century. The move to the Drill Hall, so thoughtlessly, and even rancorously, criticised by considerable numbers of people who are incapable of taking a broad view of any matter, has proved to be thoroughly justified. Of course it is not an ideal place; we all know that, but it is a place the public are quite prepared to go to if they believe there is anything worth seeing. Certain persons still affect to believe that a London centre ought to be given up altogether and Chiswick reverted to. Let us be mild and charitable, and, instead of saying all we could say about these excellent persons, merely remark that they are suffering from shortsightedness. The attack is not quite so severe as it was, their vision is gradually improving, and I am not without hopes that with care and patience we shall bring them round altogether. Let them take the "Magazine mixture" regularly, and things will further improve.

My heart is so full of kindness towards many of the people who still cling fondly to the idea of a great Horticultural Hall—they are in every way so estimable and well-meaning—that I cannot bring myself to pour ridicule upon them as unsparingly as I should if they were merely blatant self-seekers. As, with identity all unsuspected, I wander round the Drill Hall, or through the Crystal Palace, or the Royal Aquarium, or about the other places where gardeners most do congregate, I perceive that the hall still weighs heavily on the minds of many. They speak of it with a tender melancholy, as of a beauteous project which soulless Philistines have crushed, and not with the hopeful anticipation of former years. But the idea is there still. In the minds of these good souls the Horticultural Hall rears itself aloft in a prominent position, somewhere not far from the Thames Embankment. It is a noble and majestic structure. Crowds line the approaches to it, and crowned heads and courtiers throng it. It is a place where summer perpetually reigns—and—and—it pays its own expenses! Mere prose cannot do justice to it. Let me imitate the harmonious Peter, and tell its story in verse—

There is fog along by Blackfriars, fog on Ludgate Hill,
  Thicker still it rolls by Waterloo;
The wheezing City magnate goes home to make his will,
  His clerk locks up and sneezes—at-i-choo!
The Strand is bare and vacant because the road is up—
  Lumbered in the old familiar style;
The passer-by who hurries across the Thames to sup
  Thinks with envy of the mud-banks of the Nile.

Fleet Street is black and grimy, as it always used to be,
  You really couldn't clean it if you tried;
The Temple is not much better, and, 'twixt you and me,
  It's hard to penetrate a lawyer's hide.
Up as far as Holborn, down to Billingsgate,
  Over there beyond the Borough Road,
The streets are like a mud bath, the sky is like a slate,
  The river's of the colour of a toad.

Ugh! You squirm and shiver, dismal citizen,
  All your pride in London's flown away;
Even St. Paul's the mighty, beautified by Wren,
  Swiftly loses all its wonted sway.
In the square where Nelson, towering in the sky,
  Turns his face of stone to Britain's foes,
Smuts and sooty flakings from chimneys downward fly,
  All adding to the burden of your woes.

But there beside the river, vision fair and bright,
  Stands a hall with high and gilded dome,
Odours rare and dainty, through the murky night,
  Flow from London's treasured floral home.
All the choice exotics, all the native flowers,
  Give the tortured eye and brain relief;
Hither hasten gladly, to while the dreary hours,
  Clerk and lawyer, leaving desk and brief.

Shed, O hall of beauty, shed your light afar,
  Guide the weary million's wandering feet;
Exorcise the demons, happiness that mar,
  Or warp the rightful base of reason's seat.
Help the weary toilers in their upward climb,
  Give of joy and sweetness to each soul,
Spread illumination till the hoped-for time
  When each name's inscribed on Flora's roll.

If the Hall of Horticulture is quiet just now the same cannot be said of the National Chrysanthemum Society. Vigorous discussion goes on about it. Week in, week out the debate is continued. This is not by any means so bad a sign as some people think. There are nervous persons in the world who dread dissolution directly controversial matter crops up, yet there are facts in support of the opposite theory, namely, that differences of opinion, freely and openly expressed, are an indication of health and virility. Freedom of inquiry and the thorough thrashing out of any knotty point form the keynote of our parliamentary and legal institutions, which are the admiration of the world. Therefore I for one refuse to believe that the N.C.S. is in danger of collapse because a strong Opposition has arisen in its debating chamber. With wise management and prudent forethought the criticisms which are being hurled at the society must serve to strengthen it. Having very carefully studied the matter at first hand I have come to the conclusion that the Opposition is just strong enough to do good by its policy of criticism, but not strong enough to do the harm which might ensue if the present management were completely overturned.

And what of the National Rose Society? A few years ago there was a little controversy regarding it. Did the criticisms indulged in do harm? Quite the contrary. The measures for rejuvenating it proposed by some active spirits, led by Mr. C. J. Grahame, were not all carried into effect, but several that were sharply debated came to maturity and answered well. I am not at all sure that more good might not be effected by reopening other controversial matters, although the officials who have to bear the sting of attack, may not agree with me. If you criticise a public body, those who belong to it are aroused from their lethargy by the necessity of repelling assault, and become active fighters in its cause, while it and its affairs are advertised to the outer world of non-members. However, I for one am not going to begin this week. Let the old year go out in peace, rather than the officialdom of the N.R.S. in pieces.

In bidding farewell to 1898 we of the older generation do so with a little regret, for we feel that our number of years is all too few. But do not let the young blood think we are played out yet. Not a bit of it. We are full of courage and cheerfulness for the future. Whether our allotted span be short or long, we mean to go ahead as hopefully as of yore. We know that gardening is a noble cause to work in, that it is worthy of all our energy, all our love, all our enthusiasm; and, even if it be not the most lucrative profession on earth, it still remains in our regard one of the greatest and best.

Farewell, farewell, O Ninety-eight,
  Hark! a chime
Reminds me that the hour is late,
  'Tis Ninety-nine!

There, good friends, is our New Year card to you. LUX.

RIPENING OF PEARS.

FAVOURED by good weather during the autumn months, the pear crop in the south-west of Scotland was a very satisfactory one, both for the size and quality of the fruit, and also, I believe, in most places for a fair average crop. In these gardens early varieties, as Beurré Gifford, Jargonelle, Williams' Bon Chrétien, and others, bore a full crop, which, owing to a plentiful rainfall and the bright warm weather at the time of ripening, finished off better than usual. Later sorts were also very good, and, as frost was not in evidence until November was well advanced, these were allowed to hang upon the trees as long as possible, and in consequence the season of some of the better varieties was considerably prolonged. Marie Louise is the most popular pear here, and, as it is more extensively planted than any other, an effort is always made to have some of the fruit ripe as early as possible, and by leaving others on the trees until the leaves fall it may in seasons of plenty be had fit for use for six or eight weeks, during which no other variety is inquired for. This season the last fruits were used early in December, at which time Beurré Diel and Doyenne du Comice, which usually succeeds it in order of ripening, were also past their best. The two last-named varieties can generally be depended upon to keep up the supply until Christmas, and sometimes even later.

To illustrate the irregular manner in which late varieties are ripening, I may state that Easter Beurré is at present date, December 14, being sent to table, and the fruits, both for size and quality, are superior to any that have been ripened here for several years past. This freak of precocious ripening is not due to early gathering of the fruit, as this was not done until November, and afterwards the fruit was kept as cool a possible. Other late sorts, as Winter Nelis, Nouvelle Fulvie, Oliver de Serres, and Ne Plus Meuris, are also showing indications of early maturity, so that the prospect of a plentiful supply of fruit after the new year has commenced is not promising.

Galloway House, Garliestown, N.B. JAMES DAY.

A Good Winter Tomato.—In a low fire-heated pit at Clandon Park I recently saw one of the finest crops of tomatos that have for the time of year come under my notice. I saw the plants on November 22, that terribly stormy day. The entire portion of each plant, about four feet in length, that was trained upwards close under the pit lights, was thickly hung with fruits, ripe and green. These were of nice medium market and table size, rich in colour, perfectly handsome, and quite free from fungus, although growing in a low, close, stuffy pit with hardly any head room, and the crop would doubtless continue to be productive of good ripe fruit up to the end of February. The variety is not properly known, as it originally came as a single plant from a sowing of Ruby, from which it greatly differs, and it enjoys the privilege, strange for a tomato, of having no name. The lower part of the stem had cropped heavily from the beginning of August.—A. D.

CHRYSANTHEMUMS FOR EXHIBITION.

SEASONABLE WORK.

May I, on the threshold of another year, suggest, through these pages, to those who are more or less timidly entering the field of competition to assure themselves at the commencement that success may be attained in one way only, and that by patient, careful, plodding attention to the wants of the plants constantly from the day when the stout, healthy cutting is put in till the full and perfect development of the bloom is accomplished. The certainty that there is no royal road to success in any of our labours is never more true than when applied to the growing of exhibition chrysanthemums, and this fact is encouraging to the grower of limited resources, because he may know that in proportion to the thought and intelligent care which is bestowed on the plants, so great will be the resultant satisfaction in "the time of the chrysanthemum."

From first to last it is the small and apparently trivial details which are the most important, because these are the most likely to be neglected. We are sure to take cuttings, to give water, to repot, and so on, but we must always do this knowing that it is requisite and expedient to the well-being of the plant. No general treatment will answer, such as watering to-day to prevent the plants drying to-morrow, or postponement of the repotting until it suits our convenience; we must ever allow the needs of the plant to dominate, and our own pleasure to submit in full and loyal devotion to the "flower of autumn." It should by no means be imagined that this self-abandonment is without reward till the flowers unfold, for I feel sure that there is to all growers a vast amount of pleasure derived from tending the healthy plants and responsive growth throughout the season, in a measure almost equal to the satisfaction which the blooms themselves give, perhaps more. More, because in the flowering we have the consummation of our hopes achieved, mingled, as doubtless will always be the case, with a few disappointments, and so we commence again, our energy and determination to excel whetted in proportion to our past reverses. This is the spirit that leads us to our ideals sooner or later, and we may be sure that very few attain success who do not well deserve it.

The anxiety to obtain all the advantage of an early start in propagation prompts many people to be busy about their young stock during the first week in December, or even earlier. There is no real advantage in such a very early commencement, however, beyond the securing of whatever good cuttings are then to be had. It is more important to pay attention to the stools as soon as the plants are cut down, and give these as light and airy a place as possible, removing all weak and overcrowding suckers, and thus encouraging, by every means, the sturdy and short-jointed young growths from which the cuttings are to be taken. Having disposed properly of the stocks, the place for the reception and rooting of the cuttings must be made ready. The best position for this work is on the side benches of a light and cool greenhouse, where cases may be improvised, or handlights, or small frames arranged, with a base of fine ashes or similar material, to conserve moisture beneath the cutting pots. The tops of such frames must be covered with sheets of glass, to keep a close atmosphere about the young cuttings, and prevent their flagging. With such convenience and a command of sufficient warmth to keep a temperature of not less than 40 degrees in severe weather, with a rise to 50 degrees when possible, there will be little difficulty in rooting the cuttings.

Commence about the middle of December by taking those first which are naturally late in producing their flower buds, following with mid-season varieties and leaving those which are usually early to bloom until the end of January before the cuttings are severed from the parent stools. In this way we can assist a more uniform development of blooms, and obtain them in best condition at a given time. Though it may be wise to take a really good cutting of any variety of which stock is short, even if it should be rooted later, there are a few sorts, and especially those which are inclined to make buds early in the season, such as Viviand Morel, Charles Davis, and Lady Hanham, which are best propagated during February, because if rooted late the growth is not subjected to the short days, but comes away more clean and rapidly under the increasing sun power of spring months.

The usual practice is to give each cutting a small "thumb" pot, for the reason that when rooted and ready for repotting no appreciable disturbance of the roots is necessary in the operation; but, after all, there is not much to be gained in this, and I am sure that cuttings rooted in shallow pans or boxes, and lifted carefully with their roots intact, succeed quite as well as those rooted singly in small pots. They may also be placed near the edge of three or four-inch pots, but for preference the boxes are most satisfactory; cuttings placed in these at two inches apart lift admirably when rooted, and are ready for three-inch pots. The soil is not an elaborate mixture for propagating purposes, the most essential quality being that it must contain plenty of sharp grit or sand, so that water passes through freely, or there will be some loss through decay at the base of the cutting. Readers will gather that of the several means to the end we cannot say that of those mentioned one is very superior to the other, and circumstances will dictate just the details most suitable to each particular case. The object is to secure stout, healthy cuttings, and treat them so that in a temperature as indicated they form roots freely, and in the space of about a month from the time they are inserted. As cuttings are planted they should be well watered before being placed in their cases, and, generally speaking, will not require further watering until roots are formed. Daily attention will be required to remove any decaying foliage, and, in case aphides should appear, to instantly destroy them; also when moisture condenses heavily on the glass covers this must be removed. Shading may occasionally be needed, but only when the sun is sufficiently bright to cause flagging of the leaves.

Trent Park Gardens. W. H. Lees.

NOTES FROM IRELAND.

With reference to Mr. Molyneux's suggestion of showing chrysanthemums in vases, it may be of interest if I state how these are staged at the show of the Royal Horticultural Society of Ireland, where this departure has been a feature for the past two years. I believe it was Mr. H. Crawford, of Mount Merrion, who offered the first prize in Dublin for chrysanthemums staged in vases, and, unless I am greatly mistaken, the donor on that occasion was the winner. This season Mr. H. J. Jones kindly presented a silver-gilt medal in addition to the first cash prize given by the society. The wording of the schedule for this class is as follows: "Three vases of chrysanthemum blooms, in three varieties, three blooms of each; stems to be not less than twelves inches above the top of the vase. Only chrysanthemum foliage will be allowed. Vases will be provided." The competition in this class was very keen. The vases were arranged on an oblong table, so that judges and visitors could inspect them at their ease on both sides. I quite agree with the writer quoted, that five large blooms in a vase would be too heavy an arrangement, but as arranged in vases of three, as in Dublin, the effect is splendid.

At the recent show of the Royal Dublin Society, held at Ball's Bridge, Dublin, Messrs. Sutton and Sons, of Reading, had an interesting collection of thirty-four varieties of disease-resisting potatos, representing the following varieties introduced by the firm, viz.: Windsor Castle, Reliance, Ideal, Triumph, Satisfaction, Supreme, Flour Ball, Ninetyfold, Invincible, Ringleader, Abundance, and Magnum Bonum. A novel and interesting feature on this stand was the panoramic views of flowers and vegetables, illustrating the results obtained from Messrs. Sutton's seeds, as grown by themselves or their customers.

Messrs. M. Saunders and Sons, Friars' Walk Nurseries, Cork, had a stand of trees, fruit, shrubs, &c., which for excellence of arrangement completely eclipsed their previous laudable effort at the chrysanthemum show; the exhibit consisted of 150 dishes of apples and pears, perfect in size and colour, and comprising the bulk of the varieties best suited to Ireland. Fruit trees were splendidly clean specimens in the pink of health; forest trees, coniferæ, shrubs, and palms completed this uniquely arranged stand.

Messrs. Hogg and Robertson, Mary Street, Dublin, had a stand on somewhat similar lines to that of Messrs. Sutton. This firm's stand was probably the best arrangement of the kind ever set up by an Irish house, so we are evidently "forging ahead." Conspicuous on this stand was the firm's new potato Champion 2nd, in both a raw and cooked state. It is unquestionably a splendid cooker, with a heavy cropping and disease-resisting reputation. Particularly interesting on this stand were the large number of seedling potatos on trial.

Potatos were numerously shown, some hundreds of dishes being staged, and, judging from them, potatos must have been a superb crop throughout Ireland. They comprised all the leading varieties in cultivation. The produce staged in the "Foxford Cottiers' Competition," consisting of farm and garden produce, was highly meritorious, mangolds being the only weak point; potatos, parsnips, and carrots were splendid. There were some sixty entries in this class.

The collections of vegetables were very good, cauliflowers only being weak, while onions were decidedly the strongest point. In these collections some very fine tomatos were also staged. Mr. W. G. Pim, Mountmellick, was the principal prize-winner in this section of the show, closely followed by Mr. J. S. Boyle, Knowhead, Coleraine.

Looking through the houses at Lyons in this county the other day I saw the finest specimen of Daphne rubra that has ever come under my notice; it was planted out at one end of a large house. The plant is five feet high and four feet in diameter, and is in the best of health. A brilliant feature in a large stove was an exceptionally well-flowered batch of Plumbago rosea. One is so accustomed to seeing this so indifferently grown and flowered, that I paused in surprise at this brilliant mass of flower. Centropogon Lucyanus, too, was exceedingly well flowered. A very fine batch of calanthes, also, was noticed, many spikes having upwards of forty flowers on them. Cœlogynes in variety are very promising, also a fine sample of Dendrobium chrysanthum. In a pit I noted the finest batch of cyclamen I have seen for the past four years, the foliage was as luxuriant as vines, and covering a forest of flower buds. They will be somewhat late in flowering, but why Mr. Rigg, the talented gardener, does not get them in flower in November and exhibit them passes my comprehension; he should easily sweep the board. A splendid assortment of Primula sinensis were coming into flower in another house. The relics of the chrysanthemums gave a fair idea of the brilliant show they had produced not long since. I do not remember at any time seeing Ipomæa Horsfalliæ flowering in such profusion as it is at Lyons; Mr. Rigg attributes this to frequent pinching. A special favourite with Mr. Rigg as a table plant is Clerodendron nutans, a plant I was not previously acquainted with, and of which I came away with a very high opinion. Carnations and violets are two striking features in these well-kept gardens. At a more favourable season of the year I hope to give you a detailed description of the grounds, &c., rich in choice shrubs, trees, &c.

The weather here continues very wet and windy, with every prospect of a green Christmas. If this district is any criterion, holly berries will be at a premium for the festive season, as every tree I have seen is completely destitute of berries. In conclusion permit me, Mr. Editor, to congratulate you on your Christmas Number, which, in my humble opinion, has completely eclipsed your former successful efforts in this direction.

Curragh Camp. R. Weller.

VEGETABLES FOR EXHIBITION.

THE TURNIP.

TO produce turnips (*Brassica Rapa*) of the best quality the whole year through taxes the skill of the gardener as much perhaps as any crop cultivated in the kitchen garden, and few vegetables are more in request, especially in large establishments, so that much care and forethought will be found necessary to meet the demand. The turnip is a moisture-loving plant, and during a hot, dry summer, especially through July and August, some trouble will be experienced in producing it fit for table. Almost any kind of land will grow good turnips, but a shallow, sandy soil is about the most unsuitable during the summer months. The very best turnips I have ever been able to produce were grown on a stiff clay in the gardens here, but not without some little trouble in the preparation of the ground. Fortunately we have now a much better selection than our fathers had, especially among the early varieties. Quick growth is at all times most essential, as without it the bulbs will be hard and strong in flavour.

The first sowing should be made under glass the first week in January on a very mild hotbed, which should be composed of leaves, and the heat should be well on the decline; indeed, it should be pretty well exhausted before sowing the seed, as the effect of the glass will be almost sufficient with covering in severe weather to promote a sufficiently free growth. One foot of soil of a light, porous nature should be placed on the leaves, and the seed should be sown in drills nine inches apart, thinning the seedlings to six inches when large enough. Small and frequent sowings should be made in this way rather than large quantities. Air freely on all favourable occasions, syringe, and shut up early in the afternoon, and do not allow the plants to suffer from want of water at the roots. If suitable varieties are cultivated in this way they will be found invaluable for early supplies.

Early in February, or as soon as the weather will permit, the first sowing should be made outside on a south border on well-prepared ground, which should have been trenched during autumn, but not manured. Simply fork over and rake down the ground to a fine tilth, and sow in shallow drills ten inches asunder, thinning out the crop to six inches apart. The ground should be kept constantly stirred with the Dutch hoe during April and May. The seed may be sown on well-prepared ground in any open part of the garden, making the sowings frequent and small in dry weather; the drills should be thoroughly dusted over with soot and wood ashes. The young plants ought not to be allowed to become drawn, but should be subjected to a double thinning, leaving them the first time about as thick again as required till they are well into the rough leaf. Before their final thinning water thoroughly in the evening in hot, dry weather, and in showery weather apply small dressings of artificial manure. The ground can hardly be stirred too often with the Dutch hoe; indeed, every encouragement should be given to promote a quick and healthy growth. In May, June, and July sowings generally give the most trouble, and in very hot, dry seasons it is almost impossible to produce turnips fit to eat unless some extra care and attention be bestowed on them, for in addition to the turnip fly, which is most active and destructive in hot weather, the plants refuse to make a free growth when fully exposed to the sun, so that it is absolutely necessary to select a cool, shady part of the garden for the sowings and to afford temporary shading from the time the seed is sown until the plants are thinned and in the rough leaf. Unless the weather should be dull and showery, shade the seed beds with mats, or any suitable material; after the first three days this should be removed early in the evening, when the beds should receive a good watering, the shading being replaced during the daytime, and this should be repeated each day till after the plants are finally thinned. It will be necessary to keep the crop well supplied with water, which ought always to be given in the evening, and also to dust the plants over every three or four days with soot and wood ashes.

From the 20th of July till the 10th of September the autumn and winter sowings should be made, and it is a good plan to sow every ten days; the weather has such influence on the growth of the turnips that it is not wise to depend on any one sowing. I have known the September sowing prove to be the most useful for winter use, indeed only last winter (1897-98) this was the case, and the roots actually grew the whole winter through, and even when the roots fail to be of any use as such they are valuable for supplying greenstuff during spring. The smaller the roots the less likely are they to be harmed in severe weather. Hoe frequently and apply soot and artificial manure during showery weather, The whole of the turnip crop ought not to be left to the mercy of the weather, or many bulbs will be spoilt in sharp seasons. I advise lifting a good portion of the largest examples in early winter, trimming the leaves off, but not too hard, and leaving on the tap root. These are best stored in clumps in the open, but in no case must they be heaped together in large quantities, or they will heat and spoil. I have found them keep well when placed in layers, alternating with soil or cinder ashes, building the clump up ridge shape, and covering all with a little straw and about three inches of soil. The remaining part of the crop can be protected in ordinary winters by drawing a little of the soil over the roots with the hoe.

The turnip is of considerable importance to exhibitors of vegetables, and at some seasons of the year it is of great service, though, generally speaking, in my opinion, too much value is attached to it, as I consider the time of year and season should be taken into consideration. Of course, I am referring now to turnips shown in collections of vegetables. I know of no vegetable more easily produced during a good spring or autumn, and I consider it unjust to compare turnips with other vegetables that are more difficult to produce. To obtain turnips of the highest degree of excellence requires, like many other things, some extra care and attention, and any and everything that can be done to assist the young plants and induce a free growth should be done. On all kinds of lands I advise drawing the drills about one inch deeper than is necessary for the seed sowing, and into these should be placed some finely-prepared compost, nothing being better for this purpose than the old soil from the potting bench, adding to each barrowload a peck each of soot, lime, and wood ashes, thoroughly mixing them before use. After the seed is sown cover it with similar material. When raking down it is absolutely necessary that the surface should be made as fine as it is possible to make it, first working with a wooden rake, and then finishing with an iron one. Birds are often very troublesome when the seeds begin to germinate, and when once they take to them they generally ruin the whole crop, unless steps are taken to protect them. Garden netting stretched over iron hoops is the neatest and best mode of protection. No time should be lost in thinning out the seedlings. Water freely in dry weather, and dust over once a week with soot and wood ashes, and once a fortnight give a slight dressing with some artificial manure.

Turnips ought never to be very large when exhibited, yet this is frequently the case; medium-sized roots are best, no matter what the variety. The skin should be perfectly clear, the tap root small, and the rind quite tender, so that the thumb-nail may easily penetrate it. Carefulness in preparing and washing them must be observed, as the better the specimens the more easily they are damaged, and then the least scratch will be noticeable a short time after. For washing, a brush should not be used, but soak the turnips in cold water for half an hour, and then remove the dirt carefully with a soft sponge, rinsing the roots well in clean water. All the small rootlets should be carefully trimmed away, but not the tap root. This may either be cut off on the morning of the show, or left on at the pleasure of the exhibitor. Personally I like to see them cut off, unless they are particularly small and clear, when they add somewhat to the appearance of the roots. The bulbs should be wrapped up in white tissue paper (on no account use printed), and packed carefully in wood-wool. Nine or twelve is generally the required number for a dish, and they should be as much alike as possible, and the roots look best when arranged neatly on a dish well garnished with good parsley. They should be kept covered till the last moment.

The varieties I can strongly recommend for frame culture and the earliest sowings outside are both Early Red and White Milan. They are both very quick growing, and of good flavour when used small, and for very early shows are unequalled. For later spring sowings Carter's Jersey Lily is one of the most handsome and best flavoured turnips that I am acquainted with; for exhibition purposes it is simply perfect. Sutton's Snowball is also excellent for all purposes. Veitch's Red Globe is a first-rate summer turnip, and stands better in dry weather than any other I know, though it is not quite so handsome for exhibition as some. For all later sowings I recommend Jersey Lily and Snowball. Chirk Castle, or Black Stone, is a particularly hardy variety, and a small sowing should always be made of it about the middle of August.

Aldenham Park Gardens. EDWIN BECKETT.

THE AMATEUR QUESTION.

"CONFUSION becomes worse confounded" under Mr. Taylor's insistence upon such hard and fast lines. It comes to this, that in his opinion no one is an amateur who does not come under the definition of one as laid down by the National Amateur Gardeners' Association. That appears to me to be an intolerable and most unjust narrowing of the term amateur, because any amateur who raises seedlings, however valuable they may be, is precluded from selling them; if he does so he ceases to be an amateur. As a member of the National Chrysanthemum Society I have been labouring under the impression that the definition of an amateur as set forth in the society's schedule was based upon that of the N.A.G.S., if not identical with it; and that permits amateurs to sell new seedlings and sports. I do not think it would be at all difficult to procure documentary evidence that there are members of the N.A.G.S. who do sell "new seedlings or sports." I should not be in the least surprised to find there are some among the members who sell *sub rosâ*, for human nature, even among amateurs, is by no means perfect; and hard and fast lines in the narrowest sense will operate to raise the old Adam in a man, and lead him to resort to evasions. There are many definitions of an amateur extant, and all more or less differing, and to lay down one that shall commend itself to everyone is a practical impossibility. One of the most sensible and acceptable definitions of an amateur is that to be found in the schedule of prizes of the Torquay District Gardeners' Association. It is as follows:—

Rule XIII. For the purpose of these Exhibitions the word Amateur *excludes* the following:—

(*a*) Nurserymen.
(*b*) Those who grow purposely for sale.
(*c*) Those who professedly offer their garden produce for sale.
(*d*) Those professionally employed by any of the above.

A casual selling of any surplus stock is not to be considered as disqualifying anyone from exhibiting as an Amateur.

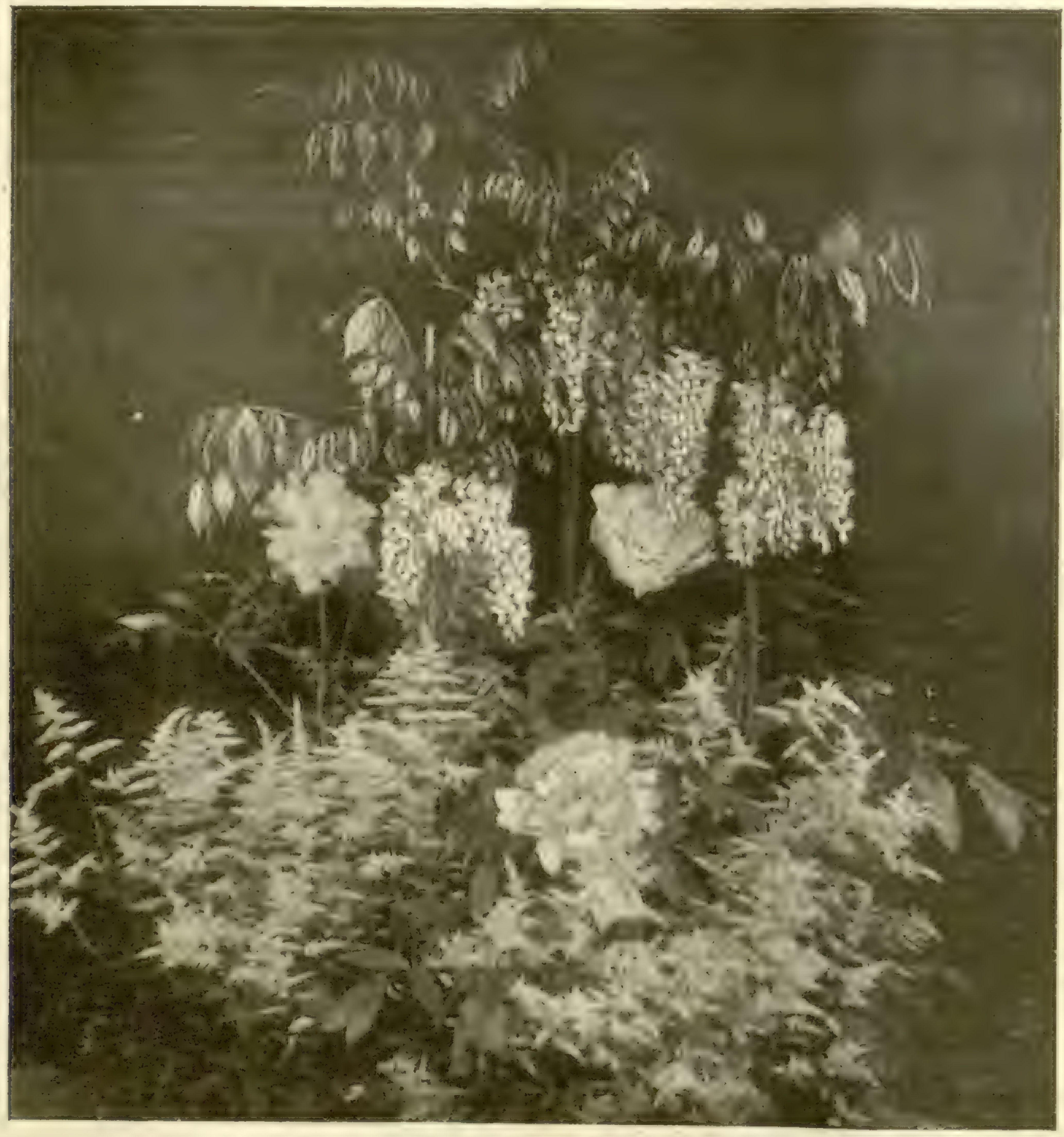
Would anyone be bold enough to assert, because the Duke of Westminster or Mr. Leopold de Rothschild sells off such foals from their brood mares that they know cannot be trained, that therefore they are professional horse dealers? Neither of these, nor the amateur who sells a few surplus plants during a brief period of the year, becomes a trader in the generally accepted sense of the word. A trader is one who makes what he sells the chief or sole means of livelihood. A casual sale is, in the large majority of cases, simply the means by which a person of limited means who loves flowers for their own sakes, and by selling some surplus plants is provided with the means by which he can add expensive novelties to his collection. An act of barter or exchange with a nurseryman is just as much a trading transaction as if actual money changed hands, and it seems to me to be an ignoble evasion of the hard and fast lines Mr. Taylor would impose upon all claiming to be amateurs.

A WESTERNER.

One for his Nob.—Winter Strawberry (to Giant Gooseberry): "I say, old chap, I think I've knocked you out this time." [The gathering of dishes of strawberries is reported from all parts of the country—Daily Paper.]—*Punch*.

STANDARD WISTARIAS.

There is so great a difficulty in varying the effects produced in the conservatory that we have especial pleasure in presenting our readers with the accompanying illustration of a group of flowering plants that came under our notice in Messrs. J. Veitch and Sons' nurseries in May last. All the plants of which the simple arrangement consists are known to the general body of cultivators, for they are none other than Wistaria sinensis, tree pæonies, and Spiræa astilboides. But the Wistaria is, in this country, so seldom grown in standard form for the decoration of the conservatory that as here represented it has the air of novelty. Grown in seven-inch pots with a four feet stem, and freely flowered as in the case of the examples in the group, this elegant Chinese climber produces an effect of surpassing beauty, and at once attracts attention. To produce plants of this description is not a difficult matter, and knowing something of the enterprise of those engaged in commercial horticulture we have no doubt that were there to be a brisk demand for standards for flowering under glass abundant supplies would soon be forthcoming. A strong point in favour of the Wistaria is its flowering so early that it may be had in bloom in May without the assistance of artificial heat, and the aid it is thereby able to render those who have no accommodation for forcing flowering plants. Spiræa astilboides is one of the best of the hardy herbaceous plants with white flowers for decorative purposes during the spring months, but its merits are now so fully recognised that we need not say a word in its favour. The tree pæony, on the other hand, is not taken full advantage of in many gardens for enhancing the attractions of the conservatory during the spring season, and we would suggest that it be more generally employed for that purpose. We have now, as the result of the activity of raisers, so many beautiful varieties in cultivation, that there will be no difficulty in making a suitable selection, and under no conditions do they present a more pleasing appearance than when the flowers are developed under glass. This is a point of some importance, for the swelling buds are so susceptible to injury from spring frosts that in cold districts they frequently fail to bloom satisfactorily.



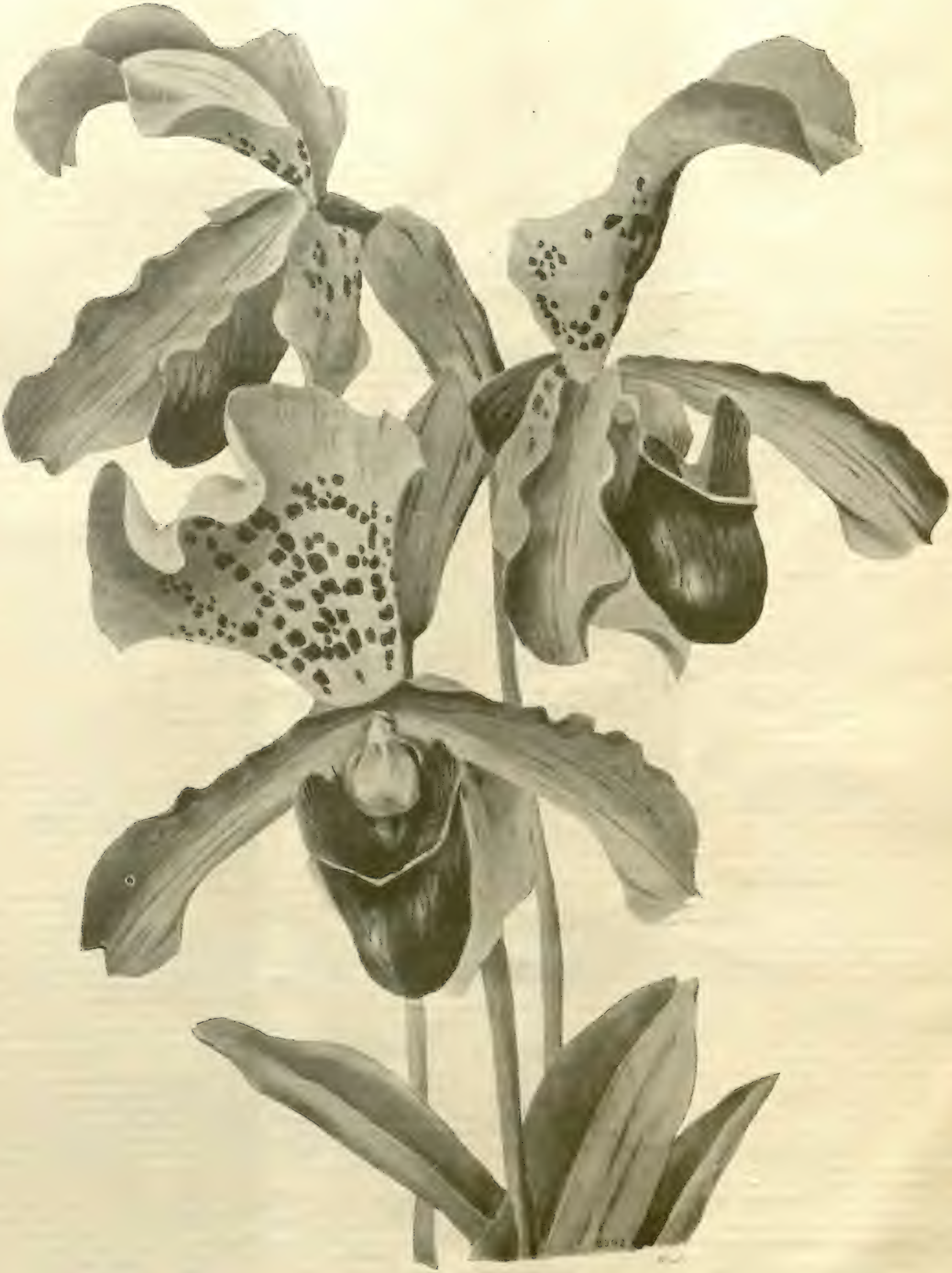
A PRETTY GROUP OF SPRING FLOWERING PLANTS.

Double Primula Marchioness of Exeter.—A few gardeners do this very fine double Chinese primrose well, and when well done it is the finest of all the section, without doubt, as the flowers are, on good plants, produced in great profusion during the winter, as large as those of hardy double primroses, and nearly all are pure white. For gathering singly to wire, and then work into bouquets, wreaths, &c., they are invaluable, and if grown for sale are most profitable. Amongst growers of these doubles I found, on recently walking in at Clandon Park, Guildford, that one of your readers, Mr. Blake, grows them remarkably well. His plants of the "Marchioness" in six-inch pots were very fine, and carrying large blooms profusely. He heaps sand well about the plants in February, just notches the bases of the side growths, soon roots them, and in that way obtains plenty of very robust plants.—A. D.

CYPRIPEDIUM INSIGNE, HAREFIELD HALL VARIETY.

As briefly recorded in our issue of the 17th inst. Mr. E. Ashworth, of Harefield Hall, Wilmslow, exhibited at the meeting of the Royal Horticultural Society held on the 13th inst. a remarkably handsome form of Cypripedium insigne, distinguished by the large size of its flowers, and of this we have now the pleasure of giving a characteristic illustration. As so admirably shown on the opposite page this magnificent variety is one of the largest of the several forms of this lady's slipper that have been introduced to public notice, and the finely flowered specimen submitted by Mr. Ashworth to the Orchid Committee presented a highly attractive appearance, and created much interest amongst the orchidists present. The flowers are borne on stout peduncles well above the foliage, and measure four and three-quarter inches from tip to tip of the petals and four and a half inches from the point of the slipper, or labellum, to the apex of the dorsal sepal. The latter is finely developed, measuring three inches in breadth, and the upper portion is pure white and the basal area is pale yellowish green, over which is strewn a number of large purple spots, a few of which extend upwards into the white apex. The ventral sepal is pale green, with a few purplish spots. The petals are pale green marked with darker green veins, and the labellum is very large, pale green, with dark green veins. The award of a first-class certificate is a sufficient proof that the Harefield Hall variety is regarded by orchidists of the highest eminence as a valuable addition to the long list of cypripediums which are cultivated and appreciated in British collections, and that it is a distinct and beautiful variation from the species, which enjoys a higher degree of popularity at the present time than at any period since its introduction seventy-six years ago, notwithstanding the multiplicity of beautiful lady's slippers now at the command of cultivators.

Bananas.—There can be no question that few fruits have more rapidly advanced in popularity in the British markets than the banana. Many hundreds of thousands of bunches of bananas are now sent to this country annually, and during the Christmas season the supplies were this year exceptionally large. The banana as a retail fruit is almost useless unless it is ripe. Many years ago, before this point received the attention it does now, one or two firms in Covent Garden Market owning underground cellars fitted up with heating apparatus to colour the fruit had the business entirely in their own hands. Then perfectly-coloured bananas made as much as 20s., 30s., and 40s. per bunch, and fortunes were realised. But the enormous supplies sent from the Canaries and Madeira have revolutionised the trade. During the past few days there has been a great scarcity of well-ripened bananas in the fruit shops, and the dealers who have cellars heated for the purpose of ripening the green bunches have crowded the heated chambers to meet the great demand for fruit in an advanced stage of maturity.



CYPRIPEDIUM INSIGNE, HAREFIELD HALL VARIETY.

REPORT ON ONIONS GROWN AT CHISWICK, 1897-98.

SIXTY-NINE stocks of onions were grown for trial in the gardens of the Royal Horticultural Society, and from the results given in the recent issue of the society's journal it appears the ground had been trenched and manured in July, 1897. The seed was sown in drills three feet apart on August 17, 1897. Early in March a row of each stock was transplanted one foot from the original row, and on March 18, 1898, another row was sown (out of the same packet as the autumn sowing), one foot from the transplanted row, so that the three rows of each stock were all one foot apart, viz., one (autumn sown) not transplanted, one (autumn sown) transplanted, and one spring sown. All the stocks germinated well, but the repeated dense fogs of the winter of 1897-98 made sad havoc with some of the varieties, while a few stood with little injury. The trial proved that many of the varieties usually sown in spring are fully as hardy for autumn sowing as the Tripoli type, when sown under exactly similar conditions; and, further, that the onion maggot will attack both autumn and spring sown plants. A few bulbs of each stock were infested by this pest, but an application of one ounce of sulphate of ammonia to each square yard checked the attack. In every case the transplanted autumn-sown bulbs were the largest and most shapely. The abbreviations are: F.C.C. = First Class Certificate; A.M. = Award of Merit.

1. *A* 1 (Sutton).—F.C.C. September 12, 1893. Very large, fine globe shape, skin pale brown. Excellent both from the autumn and spring sowings. Firm and heavy. A fine stock.

2, 3, 4, 5. *Ailsa Craig* (Watkins and Simpson, Hurst, Dobbie, Bowerman).—Very large, deep globe shape, skin dark brown. Firm and heavy. Very good from both autumn and spring sowings.

6. *Alaerton* (Sherman).—Very similar to Nos. 23, 24, 25.

7. *Anglo-Spanish* (Hurst).—Very similar to Nos. 51, 52.

8, 9. *Banbury Cross* (Nutting, Hurst).—A.M. September 6, 1898. Large, flattish globe-shape, skin lemon-brown. Very firm and heavy. Excellent from both autumn and spring sowings. Fine stocks.

10. *Bassano Red Tripoli* (Watkins and Simpson).—Large, flat round, skin pale purple. Many of the bulbs split into two or three. Better for autumn sowing.

11. *Bartella Silver Skin* (Hurst).—Small, flat round, skin silvery white. Of no value for autumn sowing, but very good for pickling when spring sown and not thinned out.

12, 13, 14. *Bedfordshire Champion* (Nutting, Watkins and Simpson, Hurst).—Medium size, globe-shape, skin deep brown. A firm heavy variety, more suited for spring than for autumn sowing.

15, 16. *Blood Red* (Hurst, Toogood).—Large, flat round, skin deep purple; moderately firm. Of not much value owing to the largest bulbs being very concave at the base; the best bulbs were produced from the spring sowing.

17, 18. *Cocoa-nut* (Watkins and Simpson, Hurst).—A.M. October 10, 1893. Large, cocoa-nut shape, skin brown. A remarkably fine heavy variety, equally good from both autumn and spring sowings.

19, 20. *Cranston's Excelsior* (Watkins and Simpson, Hurst).—Very large, deep globe-shape, skin dark brown. Firm, heavy; excellent either for autumn or spring sowing.

21. *Crimson Globe* (Dobbie).—Medium to large, deep globe shape, skin purple. Firm and heavy; the bulbs were much better from the spring-sown seed.

22. *Danvers' Yellow* (Watkins and Simpson).—Medium size, flattish globe, skin bronzy brown. Much better when spring-sown, the autumn-sown plants not standing the winter well.

23, 24, 25. *Eclipse* (Sutton, Dobbie).—Very large, flattish globe, skin pale brown. Firm and heavy; better from the spring sowings; the autumn-sown ones did not stand the winter well.

26. *Forde Defiance* (Crook).—Large, flat, round, skin deep brown. The spring-sown bulbs were the more shapely, many of the autumn-sown being concave at the base.

27. *Forde Long-keeping* (Crook).—An improved form of No. 22.

28, 29. *Giant Lemon Rocca* (J. Veitch, Watkins and Simpson).—Very large, deep globe-shape, skin lemon brown. A firm heavy variety, very good for autumn sowing, but of little value for spring sowing. Fine stock.

30. *Giant Rocca Brown* (Watkins and Simpson).—A darker skinned form of No. 28.

31. *Giant Rocca Tripoli* (J. Veitch).—A slightly inferior form of No. 28.

32, 33. *Giant Zittau* (Watkins and Simpson, Hurst).—F.C.C. 1880. Large, globe-shaped, skin bronzy brown. Firm and heavy; very good for spring sowing, but not so suitable for autumn sowing.

34. *Globe Tripoli* (J. Veitch).—Very large, globe-shaped; skin varying from brown to red. This variety stood the winter badly, and the spring sowing failed.

35. *Golden Ball* (Nutting).—Very similar in all points to Nos. 8 and 9.

36. *Golden Noble* (Dobbie).—Large, globe-shaped; skin brownish yellow. Firm and heavy; better when spring sown; did not stand the winter well.

37. *Golden Queen* (Hurst).—Not a success from either autumn or spring sowing.

38. *Golden Globe* (Hurst).—Large, globe shaped, skin a brownish yellow. Heavy and very firm; better for spring sowing, the autumn-sown not standing the winter well.

39. *Improved White Globe* (Sutton).—A paler and excellent form of No. 38, and like it better when spring-sown.

41. *Italian Tripoli* (J. Veitch).—A M. October 10, 1893. Medium to large, flat, round, skin silvery white. Unable to stand the winter, but excellent for spring sowing. Ripens very early.

42. *Magnum Bonum* (Hurst).—Large, globe shaped; skin a deep bronzy brown. Heavy and very firm; excellent for autumn or spring sowing.

43. *Monarch* (Toogood).—Bulbs large, flat round shape. Heavy and firm. Received too late for sowing in the autumn.

44. *New Golden Globe* (Toogood).—Same as No. 38.

45. *New Globe Winter* (Laxton).—Medium to large, globe shaped, skin deep brown. Heavy and firm; better from spring sowings, the autumn-sown not standing the winter well

46. *Nort Pale Red* (Hurst).—Large, flat, round, skin brownish red. Heavy; better when spring sown, as the bulbs from the autumn-sown seed split up during the summer.

47, 48. *Nuneham Park* (Nutting, Hurst).—A.M. September 6, 1898. Large, flat, round, skin brown. Heavy and firm, but many of the bulbs are slightly concave at the base. Very good for autumn or spring sowing.

49. *Prizewinner* (Palmer).—Very similar to Nos. 51, 52.

50. *Prizetaker* (Green).—A.M. October 10, 1893. Large, deep, globe-shaped, skin pale brown. Heavy and firm. The best bulbs were from spring sowings.

51, 52. *Rousham Park Hero* (Watkins and Simpson, Hurst).—A.M September 6, 1898. Large, globe-shaped, skin pale brown. Heavy and firm. Excellent for spring or autumn sowing. Fine stocks.

53. *Sandy Prize White Spanish* (Laxton).—Medium to large, flat, round, skin deep brown. Heavy and firm. Excellent for spring or autumn sowing.

54, 55. *Selected Red* (Dobbie).—Large, flat, round, skin deep purplish red. Heavy and firm. Equally good for autumn or spring sowing.

56 *Spanish Giant* (Toogood).—Large, deep globe-shape, skin dark brown. Heavy and firm. A very distinct variety with deep pea-green foliage. Ripens late. Seed received too late for autumn sowing.

57. *Southampton Champion* (Toogood).—Very similar to Nos. 61, 62.

58, 59. *The Queen* (J. Veitch, Hurst).—F.C.C. August 11, 1876. Same as No. 11.

60. *The Sutton Globe* (Sutton).—Very large, flattish globe-shape, skin deep brown. Heavy and very firm. Excellent for spring or autumn sowing.

61, 62. *The Wroxton* (Watkins and Simpson, Hurst).—A.M. September 6, 1898. Very large, deep globe shape, skin brown. An exceptionally heavy and firm variety. Excellent for spring or autumn sowing.

63. *The Wildsmith Exhibition* (R. Veitch).—Very similar to Nos. 61, 62.

64, 65. *Trebons* (Nutting, Hurst).—F.C.C. August 11, 1876. Very large, fine deep globe-shape, skin pale brown. An excellent, firm, and heavy variety. First-class for autumn sowing, not so good for spring sowing. Fine stocks.

66. *White Globe* (Hurst).—F.C.C. August 30, 1883. A paler and good form of No. 38.

67. *White Spanish or Port* (Hurst).—An inferior form of Nos. 51, 52.

68. *White Naples Tripoli* (J. Veitch).—Same as No. 41.

69. *Yellow Globe* (Hurst).—Same as No. 38.

COTONEASTERS.

FOR usefulness and effectiveness at all seasons of the year this handsome genus, comprising evergreen and deciduous shrubs, is held in great esteem. The extreme beauty and gracefulness of the best-known species, C. microphylla, was made very apparent to me recently at Guildford, where Mr. Selfe Leonard has planted it among the limestone rocks in his garden. In most instances the plants had formed beautiful hanging specimens, the rich and bright crimson berries presenting a fine contrast to the striking foliage. When seen under such conditions, or as a climber on a wall, this species is exceedingly effective. For the latter purpose it is far superior to the ivy, as its growth is very vigorous, yet neat, and soon it covers a large space. It is also better than ivy, because its shoots and leaves do not injure the wall or plants growing near. Another point in its favour is, that owing to its evergreen character and its berries remaining on the plants for a considerable time, it makes a distinct and very effective display through the dull winter months. When grafted on the common thorn or quince, as a standard, it forms a beautiful and interesting drooping tree for the shrubbery or border. It is of very easy culture, hardy, grows well in any good garden soil, and is not particular in respect to situation. Propagation is effected readily by means of cuttings taken in autumn, by layers made in summer, or by grafting, while it can also be raised from seed sown in spring. C. microphylla is a native of Nepaul, from whence it was introduced to British gardens in 1824.

Another noteworthy species is C. Simonsi (or C. nepalense of some authorities), a native of the Khasia Hills, and introduced from thence in 1868. Although not so useful as a climber as C. microphylla, it is exceedingly effective in the shrubbery border by reason of its upright growth, larger leaves, and bright scarlet berries of great size, abundantly produced, and very attractive. It can only be regarded as evergreen during mild winters or in very sheltered positions. The leaves are generally about an inch in length, orbicular-acuminate in shape, and glabrous on the upper surface. It is very vigorous in growth, and soon attains a large size when planted in good garden soil. Several fine specimens, averaging seven feet in height and several yards through, are very noticeable in Woking just now.

C. thymifolia is an interesting species by reason of its dwarf habit, it scarcely ever exceeding one foot in height. It forms a pretty evergreen shrub, with crowded branches, bearing small pinkish flowers in April, succeeded later by scarlet fruits. For the rockery or front row of the shrubbery it is exceedingly valuable, and is easily grown in ordinary soil. A form of this species, known as C. thymifolia congesta, differs in having white flowers, congested branches of pale green, obovate leaves, and globose scarlet fruits. As seen at Guildford, its growth is almost creeping or resting on the stones, which renders it a fine and useful plant for the rockery. Although not introduced to British gardens until 1868 from the Western Himalayas, it had previously been described by Maund in "The Botanist," published in 1839.

Another useful species which is of recent introduction is the Chinese C. horizontalis. As yet but little known, it is very valuable for its freedom of growth and the striking appearance of its leaves. These are evergreen in character, and spread in almost sail-like fashion. Its flowers, although small, are of a rosy pink shade, while its berries are a brilliant orange-scarlet. For the rockery or border it will be highly esteemed, as it quickly covers a large space, and is very ornamental either in foliage or fruit.

Among the better known species which deserve passing notice, although often seen in our gardens, may be mentioned C. frigida, which grows to a height of from eight to ten feet. This has crimson berries, and is very ornamental. C. buxifolia, from Nepaul, grows from three to four feet high, and has crimson fruits and neat evergreen leaves; it is well worth growing. The British species, C. vulgaris, described by Hooker as being very rare, is very variable; it is deciduous in character, forming a shrub from three to five feet in height. Several of its forms have scarlet or crimson berries, and there is one with black fruits. All are frequently seen under cultivation, and are well worth notice as useful and very ornamental shrubs of easy culture.

Woking. E. SCAPLEHORN.

THE PEAR MIDGE.

THE injury caused by this insect is gradually increasing, and has, according to the Journal of the Board of Agriculture, been very serious this year in various places, reducing the crop of pears, which was already short on account of the unfavourable weather at the time of the "setting" of the fruit. Some pear growers seeing the young pears falling fast in June, when they are about the size of marbles, think that this drop is due to an unhealthy condition of the tree, or to influences of weather, but it is more often due to the insidious and dangerous action of the tiny pear midge, the presence of which is far more common than is usually believed. But this mischievous insect is becoming more generally known, and there have never been so many complaints concerning it in any previous season. In most instances the cause of the disorder was recognised, and remedies and modes of prevention only were asked for. In a few cases, where all the larvæ had left the pears, and there were no indications of insect attack, inquiries were made as to the source of the injury.

An experienced and successful cultivator of pears, whose crops had been regularly destroyed by this midge, wrote that he feared it would be quite impossible to grow pears in his neighbourhood unless some cure were found. He added that his crop of the pear known as Beurré de l'Assomption was only two pears, although there was a splendid "set," and that in the previous year there was no fruit at all on these trees. Another grower said that he had seventy bush pear trees on quince stocks, and had picked off 2,000 infested pears from them; he had standards close by with infested fruit, but he could not hand-pick these. The infested trees were mainly of the sort named Williams' Bon Chrétien.

It would appear that early pears, and those that blossom early, are most liable to this infestation. Williams' Bon Chrétien is notoriously subject to it, and in America, where the pear midge is very prevalent and most destructive, the Bartlett pear (identical with Williams' Bon Chrétien) is chiefly attacked. Beurré de l'Assomption, earlier than Williams' Bon Chrétien, is also frequently seriously affected. Pitmaston Duchess, Marie Louise, Jargonelle, Souvenir du Congrès, all early, and like the Bon Chrétien in many respects, are also especially liable to be infested. Infestation has been noticed on later pears, as Josephine de Malines and Catillac, but in a much less degree than on earlier varieties. Only forty yards distant from the pear orchard last alluded to was another containing sixty trees of Durondeau and sixty of Louise Bonne of Jersey, which were quite free from the attack. Louise Bonne of Jersey, although fairly early, is not quite so early as Williams' Bon Chrétien.

In America the Bartlett and the Lawrence are the varieties most commonly attacked, and it is said that in some districts there has lately been a loss of almost all the Lawrence pears, and a large proportion of the Bartletts, the attacks being so serious and frequent that growers in these localities speak of abandoning pear culture altogether. Professor Riley, writing in 1885, considered that the insect had been imported from Europe, as until it was found in 1880, upon a certain farm near Meriden, in Connecticut, no insect of similar habits was known in the United States.

There is no doubt that it is the same insect as that termed *Cecidomyia nigra* by Meigen. This is affirmed by Schmidberger, who first described the habits of this insect in 1831. He says: "The species of gall-midges found by me in the pears are evidently the *Cecidomyia nigra*, because the description which Meigen gives of the black gall-midge completely agrees with this. I retain Meigen's name, and call it the black gall-midge." Riley, however, suggested that the name of *Diplosis pyrivora* would be more suitable, and this has been adopted by dipterists. It is not known how long it has been at work in this country. It was first mentioned twenty-five years ago, and there is every reason to believe that it had been present here long before this, for its action upon pears, as pointed out above, closely resembles that of weather and other natural causes, and might easily have been mistaken for these, especially as there were then comparatively few trained observers.

Life History.

The fly is nearly one-tenth of an inch long, with an expanse of wings equal to close upon one-fifth of an inch. Its slender body is dark grey, approaching black, in colour; its antennæ, with twenty-six joints in the male, are brown and very long; its legs are also very long, and yellowish brown. The female is slightly longer than the male, having antennæ with fourteen joints, and an exceedingly long ovipositor for the purpose of depositing her eggs in the calyces of the blossoms of the pears. Schmidberger witnessed the process of egg-laying, and describes it as follows: "I found the first gall-midge in the act of laying its eggs in the blossom; this was on April 12. It had fixed itself almost perpendicularly in the middle of a single blossom, and having pierced the petal with its long ovipositor, it laid its eggs on the anther of the still closed blossom. This female was about seven and a-half minutes laying her eggs. When she had flown away, I cut the pierced bud in two, and found the eggs lying in a heap one upon another on the anthers. They were white, longish, pointed on one side, and transparent, and from ten to twelve in number. I afterwards found several midges engaged in laying their eggs as late as April 18, from which day they ceased to appear in the garden. I also saw a midge on the side of the blossom with its ovipositor inserted in it, so that they do not merely pierce the petals, but the calyx also."

The number of eggs, according to Schmidberger, varies from a few to more than twenty. They are hatched in a very short time if the weather is warm. Schmidberger found small larvæ on the fourth day after the deposition of the eggs, which begin to bore into the blossom usually in or near the stem of the calyx. "Before the blossom is expanded they descend to the core, so that they may not be exposed to the sun's rays, which would endanger their existence. They separate at the core, and begin to devour it on all sides. When they have consumed the pulp of the small fruit they have attained their full size, and only await for a favourable opportunity to leave their still secure dwelling." Sometimes they fall from the pears to the ground; sometimes they fall with the infested pears, from which they emerge and bury themselves in the earth to a depth not exceeding one inch. The larva is endowed with powers of jumping like other species of *Diplosis*. It can also crawl well, but it has no legs. It is rather more than a twelfth of an inch long. In colour it is whitish yellow, becoming rather darker as it gets older. It has what is known as the "anchor process" or "breast bone," which serves as an adjunct to the mouth in biting pulp and tissues, "broadly dilated," as remarked by Professor Riley. This is light brown in colour, bifurcate in shape, and is easily seen with an inch lens. It is not known when the pupal state is assumed. It has been ascertained that the larvæ remain for some time in larval condition before commencing their cocoons, and that they remain, according to Riley, in the cocoons for some time before being transformed to pupæ. The pupa is about one-tenth of an inch long, black above and yellowish brown beneath.

Methods of Prevention and Remedies.

It is absolutely certain that the author of this mischief to the pear crop is lying just under the pear trees from June until the end of March, and only about an inch below the surface of the ground. It may therefore be assumed that thoroughly digging the ground beneath the boughs of the pear tree, making allowance for the skipping or jumping habits of the larvæ as they come from the pears, will bury the larvæ so that the flies cannot emerge. This should be done as a means of prevention where possible. It would be necessary to dig the ground with digging "spuds" so as to completely turn it over, and the action of winter rains and frosts would pulverise it and make it compact, and thus prevent the flies getting through the clods. Obviously this could not be done in grass orchards. Dr. J. B. Smith, who has closely investigated this subject, says "ploughing an orchard" (and ploughing is a frequent mode of cultivating orchards in America) "infested by the midge, after the middle of June, or, in fact, at any time during the summer, so as to turn the soil at least four inches, will probably result in burying beyond resurrection a great proportion of the midges." Ploughing is not adopted in England, but many orchards are dug, and in gardens it would be easy to adopt this practice. Dr. Smith, who has made careful experiments in connection with the pear midge, has also found that dressings of kainit immediately under infested trees have been most effectual in killing the larvæ. He recommends that the ground under the trees should be top-dressed with one ton of kainit per acre, and mentions an instance of an orchard thus treated, of which the fruit practically escaped infestation, while in an adjoining orchard not treated he failed to find a single fruit that was not infested with larvæ. This treatment has been successfully adopted by several pear growers. The kainit should be put on between the middle and end of June, before or immediately after rain. It is also suggested that ploughing or digging might advantageously follow towards the end of July or in August. Where pear trees are in grass orchards the grass should be cut very close before the kainit is put on. It is desirable to apply the kainit before the larvæ get into cocoons, as it has much more effect upon them in their naked state. Rain, or the moisture of the atmosphere, causes the kainit to dissolve slowly and the caustic solution thus formed burns the tender bodies of the larvæ that are within its influence.

With respect to actual remedies it must be said that they are few and not satisfactory. Spraying with insecticides is of no avail. Spraying with offensive materials, as paraffin or carbolic acid, might prevent egg laying if done just at the right moment. Dr. Lintner suggests sacrificing the Lawrence pear crop by spraying Lawrence trees with London purple just after the fruit is formed in order to kill midges and starve the larvæ within them. But, unfortunately, other pear trees are liable to infestation, and in England it would be more difficult to select the trees most subject to this attack for this purpose. Picking off and burning infested fruit can be adopted in the case of small bush, espalier, wall trees, and even half-standards; but it could not be done on standards. As a rule, infested pears can be recognised by their malformation, so that it would be easy, after the pickers were instructed, to pick them off and leave the sound pears.

DO CHRYSANTHEMUMS WEAR OUT?

IT would not be to the advancement of chrysanthemum culture to let the opinion pass that, after all, the continuous demand for new varieties may have its origin in a frivolous desire to be in the fashion. The fact of good, new varieties being in the market would not justify cultivators in changing old for new. Practical growers have not usually done so with other popular flowers, unless under pressure of some new and increasing demand, and this would hardly apply in the case of chrysanthemums, for it is not the decorative so much as the large show varieties that are in question. Experience has taught us that to keep anything like an up-to-date exhibition collection we must discard old favourites, and fill their places with new; this is necessary as a set-off against the continuous strain made on the large-flowering varieties, for these giants are more or less freaks brought about by high culture and artificial treatment, and so cannot be expected to reproduce their abnormally gigantic proportions for any great length of time. There are no exemptions from this wearing out amongst the large-bloomed varieties in all the different classes. Of course, the Japanese have their ranks filled up much better than the others, yet even among these (from the exhibitor's point of view) we have no coloured ones to surpass for size of bloom The Sultan, Comtesse de Beauregard, Baron de Prailly, Triomphe de la Rue des Chatalet, Meg Merrilies, Ralph Brocklebank, Carew Underwood, Margaret Marrouch, Boule d'Or, and Madame C. Audiguier of ten years ago.

The incurved varieties were in their hey-day six or eight years ago, but since then we have seen Prince Alfred, Lord Wolseley, M. Bahuant, John Salter, Mrs. R. King, Nil Desperandum, and many others go down. The Queen family that bowled out Jardin des Plants, The Beverleys, Mr. Bunn, Geo. Glenny, Mrs. Dixon, Mr. Gladstone, Mrs. Halliburton, &c., are in their turn giving way. Then in the Japanese anemone class we have had to part with Madame Cabrol, Fabian de Madanarey, Sœur Dorothé Sœull, and many others. Cramming and crowding may hasten decline, and most growers have their plants too crowded in November; yet I believe that even if we gave up rank culture and ceased the introduction of new sorts we should have few very large bloomers in eight or ten years' time. Consequently we must continue to welcome new varieties from every quarter, for there will be no relaxation of the high culture or the production of more vital force than the flower needs.

Nortonthorpe Hall, Huddersfield. A. FINNIE.

Crimson Chrysanthemums.—After seeing the novelties of the past two or three seasons, but particularly those of 1898, I cannot help wondering how many of the present-day cultivators there are who can recall to mind the varieties we used to call crimson nearly twenty years ago. In the incurves there are absolutely nothing worth the name of a crimson. Among reflexed we had King of the Crimsons, the old but very small Julie Lagravère, a little later Cullingfordi, and in the Japanese but a very few that could be considered of that colour; but now how brilliant are some of the crimsons, thanks to the unceasing efforts of the raisers. Mr. W. Seward's name certainly deserves a special mention in connection with this colour, for his acquisitions are beyond question some of the best. The very dazzling crimson H. J. Jones shown at one of the latest meetings of the N.C.S. Floral Committee has outdistanced every other novelty of that shade, which will make it a welcome addition not only on the show-board but also in groups for decoration. Very fine, too, in their various tones of this once much-needed colour are Joseph Chamberlain, Owen's Memorial, Lord Cromer, Royal Standard, Master H. Tucker, all Japanese, and Emile Nonin of the old incurved type. Apart from these there are many others closely bordering on the crimson, but which are properly described as reddish-bronze and warm golden terra-cotta colours, that have been also greatly improved and intensified by the raisers, both at home and abroad, during the past few years.—C. H. P.

WORK FOR THE WEEK.

WARM ORCHIDS.

Flowers of all descriptions will be at the present time very useful in every household, more especially those of orchids; the commonest of them will be highly appreciated, they being preferred to the ordinary garden flowers, and give a sort of aristocratic appearance in vases and other varieties of ornaments used for this purpose at the present period. Orchids of all descriptions are far better (as all experienced growers know) to be in bloom as near their natural time of flowering as possible. It is a well-known fact that thousands of valuable plants have suffered fatally owing to their being overdone by forcing too much, otherwise being retarded at too low a temperature, all through the flowers from them being required at some unnatural time. It would be well at the present time if all growers would make notes of what species and varieties flowered at this season as a guide for another year, independent of much forcing or retarding; it is much better to observe these petty (still important) things among our private collections, in order to gain a fair knowledge of them, which is sure to be useful in years to come. Cattleya Percivaliana, named in honour of Mr. Percival, of Southport, one of our early lovers of orchids and possessing a very large collection, comprising some of the choicest things in their day, will be now contributing to our displays that we have at this time of the year. The white form, which is almost out of existence, would be a great boon, and if it could be found in quantities it would be keenly searched for. Cattleya Trianæ is fast pushing its way through the sheaths; it would be well to place this variety at the warm end of the house, as in this state it requires a shade more heat. Some of the selenipediums and cypripediums are also making a display; these also will require to be kept in a drier state at the roots, in fact the former are far better kept on the dry side at all times, providing a genial temperature is always kept. C. bellatulum must be kept very dry; a good criterion to know when they require water in the winter months is to guard against the foliage going flaggy, only allowing it to get in a certain state. Of course, this depends mostly upon the surrounding conditions as to whether the structures are new or old, and whether lofty or low, and many other simple reasons why they should be carefully watched discreetly; some of the hybrids resulting from bellatulum and niveum are also very critical. Many times a plant may be in the best of condition, and in luxuriant health (as it were), and perhaps in the course of a few weeks, to the horror of the grower, it begins to get a few black spots about the growths, which, if not guarded against in due time, ultimately prove fatal; when this occurs it is well to take a small penknife and cut all the decay thoroughly out, and after doing so rub the wound well over with dry sulphur, and keep the plant thoroughly dry; a good plan is to suspend anything of this kind, and dip the lower portion of the pot or pan until the plant gets something like being in a fair way of health again.—T. Stafford, *Tyntesfield Gardens.*

STOVE PLANTS.

Begonias of the manicata type are now throwing up their flower stems, and should receive stimulants regularly; the best of these are very useful to all who have flowers to supply in quantity during January, February, and March. The individual plants should stand so that they do not touch their neighbours, and when watering be careful not to wet the foliage, else damping of the leaves will occur; on well-grown plants the leaves should quite hide the pot. B. manicata is the first to open its flowers, followed by B. hydrocotylifolia, this again succeeded by B. heracleifolia nigricans, the latter bearing larger individual flowers on its long-stemmed cymes but not produced in such abundance as the two first mentioned. Begonias corallina, President Carnot, Haageana, Knowsleyana, insignis, multiflora, Gloire de Lorraine, and others have been affording flowers in quantity for some weeks, and will continue if given good treatment and a position in a house with a moderately dry atmosphere and a night temperature of 50 degrees to 55 degrees. Where flowers are required in quantity during the winter months goodly numbers of each of the above-mentioned begonias are indispensable.

Other plants in flower in the stove at this season are eucharis, Jasminum Sambac, rondeletia, aphelandra, Thyrsacanthus rutilans, Plumbago rosea, poinsettias, euphorbias, gardenias, and a few others, including late started plants of allamanda; we find the latter very useful thus late in the year for the purpose of associating with gold plate on the dinner table. Some people complain that allamanda flowers do not last when cut, but if besides placing the stem in water a little is poured into the cup it will enhance their keeping properties.

Asclepias curassavica is a useful flowering plant at this season grown in the intermediate house; we find it extremely valuable for buttonhole bouquets, especially for gentlemen. The work in these structures will now be purely routine, such as introducing flowering plants to bring them on in succession, sponging and dipping plants infested with insect pests. A few of the earliest rested tubers of caladiums may now be started, potting the tubers singly into small pots in cocoa-nut fibre and sharp sand, plunging the pots in bottom heat; they will not require much water at the root, but may be syringed overhead two or three times a day. Introduce a few more gloxinias to heat, these will afford flowers useful to send to the family when in London. The flowers of these carry extremely well if carefully packed.

Stems of leafless dracænas should be cut up into lengths of about an inch; split them in half lengthways and insert over the surface of pans containing peat and sand or leaf-soil and sand. If a position cannot be afforded them in the propagating case, place a pane of glass over them, and stand the pans over the evaporating troughs. Be careful they do not become too dry, and on the other hand do not supply them too lavishly with water.

Keep all evergreen stove plants moderately moist, so that they may rest without losing their leaves; if they be kept too dry for a time and then watered regularly it will tend to start them into growth, which is to be avoided so early in the season. A night temperature of 60 degrees to 65 degrees with 5 degrees rise from fire heat will suffice in the stove at this season, the intermediate house may range from 5 degrees to 8 degrees lower. If it has not already been attended to, a quantity of loam, leaf-soil, burnt refuse, and other ingredients used in potting should be placed under cover, so that it may be available when required. During frosty weather, when the surface of the ground is just slightly hardened by frost, is the best time for cutting turf for potting purposes where wireworm is prevalent in the land from which the turf is taken. When bad weather prevails have all empty pots washed, stakes overhauled and placed in sizes, and crocks washed and sorted, so that when the busy season comes round all may be in readiness, and no time lost by having to make preparations that could have been more conveniently done weeks before. —J. Tunnington, *Ripley Castle Gardens, Yorks.*

THE FLOWER GARDEN.

The weather having up to the present remained exceptionally mild bulbous subjects, as narcissus in many varieties and some others, are making unusual progress, several varieties being already well above ground. In anticipation of frost setting in these may advisedly receive some protection, as a slight mulch of cocoa-nut fibre refuse, old mushroom bed manure, or similar light covering. Beds of carnations planted some time since may be treated in the same manner, old mushroom manure being a very good material for using about these plants. As they are liable to be lifted out of the ground or partially so by frost, a little covering of this description will act as a preventive, and at the same time a slight stimulant to the eventual growth of the plants. Clumps of Helleborus niger, now fast opening their blossoms, should also be given some protection. Single clumps may be covered with hand-lights or frames, and lights placed over those where several together on beds are to be covered, affording air or removing the lights when the weather is neither frosty nor wet. If glass is not available any temporary shelter may be improvised, oak branches with the dry leaves still adhering being a good one, and these may remain constantly over them. The season has been most favourable for all planting operations, and very little check has been experienced for this work either from wet or frost up to the present, and at the time of writing the weather is quite favourable for the continuance of planting roses, trees, and shrubs; and where such work is unfinished advantage should be taken of the open weather to make as much progress as possible while it lasts. A mulch of some half-rotten material should be given before the ground becomes frozen.

Cuttings of bedding calceolarias, violas, pentstemons, antirrhinums, and other subjects struck in late autumn in cold frames should have a free circulation of air about them when the weather allows, and all decaying leaves be promptly removed. Owing to the mild weather these plants have made considerable growth, and many of the calceolarias, pentstemons, and antirrhinums already need the leading points pinched out. Should frost set in the sides of the frames must have ashes, bracken, or other material banked up round them, and the lights covered with mats or litter. A somewhat similar treatment is required for violets in frames. Particular care should be given in the ventilation of these, and the lights be kept entirely off or well tilted, excepting in frosty weather. More harm is likely to be the result from undue coddling than if left entirely exposed to all weathers. Both double and single varieties are blooming freely up to the present. Bedding pelargoniums will require little water during the short winter days, especially if wintered in a cool greenhouse. Damp is the worst enemy, and a little heat should be circulated in the hot-water pipes to dry up moisture occasionally in the daytime, admitting plenty of air at the same time. With the lengthening of the days varieties of which the stock is below the required quantity may be placed in a temperature of 55 degrees to 60 degrees for the production of growth for cuttings later on.

Fuchsia cuttings struck in autumn should by this time be well-rooted, and where desired to grow on into strong plants by bedding-time should now be potted off singly into sixty-sized pots, using rather light sandy soil for the purpose. Stand near the glass and keep them growing on in an intermediate or stove temperature.

In anticipation of bad weather soils should be prepared for the propagation and potting of various bedding and other plants, and placed under cover to be in readiness when required for use, and when outside work is impossible all dirty pots should be washed and stored in their various sizes, crocks broken, sifted into different sizes and stored in bins, stakes trimmed and pointed, pegs made for layering, &c. Lawn mowers, if not already stored, should be thoroughly cleansed and put away in a dry place, and any needing repair be sent to the makers now, so as to ensure their being in readiness when required again for use. After cleaning up lawns should be given an occasional rolling while the mild weather continues. —C. Herrin, *Dropmore.*

HARDY FRUITS.

There is no better time than the present to feed fruit trees needing assistance, and in the case of bush or pyramid trees on the paradise stock food is a necessity. Many trees in their earlier stages are ruined by excess of food at a time it is not needed, but if given in the form of surface dressings after they come into bearing it is beneficial. Many trees receive the best of treatment at the commencement, and are afterwards left to themselves. Trees on grass in orchards are often seen starved, and here food may be given in the shape of well-decayed manure, and for other trees, if manures cannot be spared, surface dressings may with advantage be given, and such aids as road cuttings of turf, burnt refuse, wood ashes, and bone meal mixed, will make a good top-dressing for the trees. Prunings and other waste materials if burnt are useful to add to the soil, and I have found this with spent mushroom manure and wood ashes an excellent fertiliser. It may happen liquid manure is running to waste, and this may be given to fruit trees if the soil is given a good surface dressing before applying the liquid, so that the latter reaches the roots. I have touched upon the necessity of manuring the bush and larger trees, but there is equal necessity, if not more so, on behalf of such trees as the gooseberry, currant, and other smaller fruits; the gooseberry repays liberal treatment, and a good mulch of decayed manure is most beneficial. Raspberries may now be trimmed and the shoots tied up, cutting away any weak growth. We summer prune our canes; this leaves little work at this season if the old fruiting canes are cut out when the crop is cleared. I am a strong advocate of mulching these fruits in light soils, as they root near the surface. This should not be overlooked at this season, as I find, if left too late, at times these plants are overlooked. Strawberry plants made this year a late growth, and I notice the quarters are more troubled with weeds than usual. Here the hoe must be used between the rows, but not in a way that the roots are loosened; indeed, in the case of young plants, previous to hoeing, it will be well to make the soil firm by treading round each.

The pruning of orchard standard trees will now need attention, as I find there is no better time than the present. By pruning it must not be understood I mean severe cutting back, as with old trees this is not advisable; much better results will follow thinning out, and it may not be out of place to refer to the waste of time in keeping old, worn out, cankered trees. These do not benefit by pruning, though I have seen severe measures taken to bring such trees into a bearing state. Thinning out and removal of cross branches will be the necessary work with standard trees, and, if possible, avoid cutting away much growth at one time. It is far better to prune annually than leave alone for years and cutting away a great deal of wood at once. The centres of trees should be left open to admit light to the inner wood, but no one need hesitate to cut out poor growth. All kinds of bush apple and pears should be pruned, and in the case of old trees inclined to produce small fruits good results will follow removal of crowded spur-growth, and especially with pears, and by thinning more light will be admitted. Very old spurs that are some distance from the base may be shortened, care being taken to leave a wood bud for a new break and form new fruit buds later. Weak and spray growths should be cut clean away; these are not needed, and to leave eyes or buds will only induce a fresh break of useless wood. Leading shoots of apples or pears may be shortened to within three inches if the trees are full-sized and extension is not needed; but it is well to remember by continual cutting in of shoots, and giving roots free play, there will be little fruit as the trees become older.—G. Wythes, *Syon Gardens.*

COLD STORAGE OF FRUIT.

The Technical Education Committee of the Kent County Council appointed some time since a sub-committee for the consideration of the subject of cold storage as applicable to the preservation of fruit and vegetables, and this sub-committee consisted of Mr. E. Hesketh (chairman), Mr. W. W. Berry, Mr. W. Chambers, Mr. R. Mercer, and Mr. A. T. Waring.

At a recent meeting the committee, in view of the great and growing importance of the question of cold storage, resolved that the valuable interim report of their superintendent of horticulture, Mr. W. P. Wright, upon the experiments conducted by the sub-committee at Messrs. Hall's Engineering Works, Dartford (through the kind interest of Mr. Hesketh), should receive the fullest publicity, and in accordance with such resolution this report has been sent to us for publication, and is given herewith :—

A courteous intimation from Mr. Everard Hesketh, received in July last, that the experiments in the cold storage of fruit, which had been necessarily suspended during last year, had been resumed, was received by me with much interest. Mr. Hesketh's letter was prompted by his kind recollection of the fact that I had derived much pleasure from a chance visit many months previously, and by his correct assumption that any important step bearing on a great industry, with which I was professionally connected, would command my attention. I gladly availed myself of his invitation to pay an early visit to the works, and as my call coincided with an impending meeting of the committee I drew up, at his request, a brief report of what I saw. The immediate result of this was the reception of your instructions to pay weekly visits to the cold chambers with a view to regular reports stage by stage. The duty thus laid upon me I have striven to fulfil carefully and faithfully, paying due regard to the desirability of giving minute attention to detail, and to the imperative necessity of setting down with the utmost accuracy the exact condition of the fruit as I saw it from week to week.

My conception of the first requirement of the task which you entrusted to me was that I must approach it with a mind absolutely free from prejudice either for or against the work in hand, and this seemed to me the more pre-eminent from the magnitude of the issues at stake. As I understand your object in these experiments, it is to ascertain whether any practical means exist for assisting British cultivators to secure a portion, at least, of the millions which we expend on foreign fruit and other soil products. Above everything, therefore, all tests, and all records of such tests, must be governed by one consideration alone—accuracy and truth. Whether, therefore, the facts noted are or are not in consonance with the trend of your endeavours, I have held it my duty to set them down, so that those interested may not on the one hand suffer from the lack of useful information, nor on the other be misled by careless or partial observations.

The Cold Chambers.—These number three. Their base is on the ground level of the buildings, and glazed apertures are provided there for reading the thermometers, which are suspended within, the temperatures being thus recorded without any opening to the outside air. An entry, however, can only be effected by means of trap-doors, kept locked, in the floor of the loft above. Internally the arrangements are simple, but adequate. A series of staging, tier above tier, consisting of wire shelves, supported by a wooden framework, is erected on each side of a central path. The walls, floors, and ceilings are well insulated, and in each chamber, close to the insulated walls, are two brine walls or flat tanks, through which the cold brine is circulated, and by their means the temperature is lowered to any desired degree. There are spaces for the circulation of air at the front and back of the brine walls, and a trough is fixed under each to convey moisture condensing on them to a collecting pan.

The Experiments.—In each chamber the fruit is stored under three different conditions : (1) exposed on the shelves ; (2) enveloped in grease-proof paper ; (3) surrounded or covered by cotton-wool. The last two conditions are supplied with a view to checking the loss of weight from the fruit by evaporation, which it was anticipated would take place. The increased weight of the air of the chambers as it is cooled by contact with the cold brine walls causes a downward current over them, and, of course, a corresponding upward current at other parts of the chambers. There is, therefore, a constant circulation of air maintained. These incessant air currents passing over the surface of the fruit extract moisture from it, and hence the use of the interposing materials to check this.

Strawberries —In dealing with the different fruits experimented with I will first of all take the strawberry. It was nearly at the end of the season of this fruit, namely, on July 23, when my visits began. I could, therefore, only report on fruit placed in previously. The temperature of No. 1 chamber was maintained at 42 degrees, of No. 2 at 36 degrees, and of No. 3 at 30 degrees. I found a very striking difference in the condition of the fruit, all of which had been put in a fortnight before, namely, on July 8. That in No. 1 was mouldy, although the fruit enclosed in paper was hardly so bad as that exposed and that in wool. About the fruit in No. 2 my remarks were : "Exposed fruit a little mouldy, but not so bad as in No. 1 ; wool fruit slightly affected, but very little, flavour good ; paper fruit sound, flavour good." With regard to No. 3, the state of affairs was better. In each experiment the fruit was quite sound and good. It was not frozen, in spite of the temperature of 30 degrees, but a slight toughness of the flesh was observable. The exposed fruit, though sound, was dull and had a glazed appearance. That in paper was good and fresh. Weekly visits were subsequently paid. So far as the highest temperature was concerned the experiment was at an end, as the fruit was spoiled. The intermediate temperature gave little better results, and after the third week of storage I had to report that the greater part of the fruit was decaying. In the 30 degree chamber, however, a very different state of affairs prevailed. At the end of the third week I was able to report : "The exposed fruit in No. 3 is all sound, but dull and flabby-looking, the flesh tough ; the fruit in wool is sound, clear, and fresh, the flavour excellent ; the fruit in paper is sound, but dull, and the flesh rather tough."

The strawberry experiments may be epitomised as follows : (1) The fruit cannot be kept long in a temperature of 36 degrees or upwards ; (2) it can be kept for three weeks at least in a temperature of 30 degrees ; (3) it is necessary to surround the fruit with cotton wool, or, in the case of fruit in sieves, to place a pad of that material over the top. If this precaution is not taken the fruit, though sound, becomes dull and loses the fresh, inviting appearance which is so important when it is offered for sale.

Black Currants.—A series of experiments with these began on August 10, and weekly observations were made. In No. 1 chamber the temperature was 36 degrees, in No. 2 30 degrees, and in No. 3 26 degrees. At the end of ten days the fruit was sound, fresh, clear, and in good market condition. From that time it began to shrivel, there being little to choose between the chambers, or the fruit exposed, in paper and in wool, respectively. Inasmuch as the value of black currants may rise if good fruit can be held over a glut lasting only for a few days, I was disposed to regard this experiment as a qualified success rather than an absolute failure. Nevertheless, the fact that the fruit could not be kept from shrivelling for a fortnight was a disappointment. Subsequently the idea occurred to me to have some of the fruit removed from the store and kept for a few hours in a normal temperature, thus subjecting it to the same conditions as would prevail in the case of fruit *en route* from farm to market. This was done at the end of the third and again at the end of the fourth week. It elicited a curious, interesting, and instructive fact, namely, that the fruit when almost as wrinkled as dried shop currants will plump and freshen to such a degree as to be marketable. This was especially the case with black currants that had been stored in market sieves covered with a wad of cotton wool. After a fortnight's storage the temperature in No. 2 was raised to 32 degrees, and this seemed to give the best results of all.

Red Currants.—The experiments with this fruit were an unqualified success. No. 1 chamber was maintained at 36 degrees. No. 2 was started at 30 degrees, and raised after a fortnight to 32 degrees. No. 3 was started at 26 degrees and raised to 30 degrees. The fruit was stored on August 10, and was examined with great care for six consecutive weeks. To begin with, 26 degrees and even 30 degrees were found to be too cold. With the former the fruit froze and with the latter lost clearness. Excellent results were, however, got in chambers 1 and 2. The fruit remained perfectly sound for six weeks, and when exposed for sixteen hours to a normal temperature maintained its freshness. The fruit surrounded by paper was better than that exposed and also superior to that in wool ; indeed, it was difficult to distinguish it from freshly-gathered fruit. Wool seemed to encourage bleeding, and the ideal conditions seemed to be (1) a temperature of 32 degrees to 36 degrees, (2) a covering of paper to prevent contact with the currents of air constantly flowing.

Cherries.—The temperature of No. 1 chamber was kept at 42 degrees, of No. 2 at 36 degrees, and of No. 3 at 30 degrees for this fruit. It had been in store a fortnight when I began my visits. In No. 1 the exposed fruit was sound but dull ; the fruit in wool was not only sound but quite fresh and clear ; that in paper was somewhat mouldy. The end of the third week found all the fruit decaying and mouldy. A much better condition of affairs existed in the intermediate chamber. At the end of the third week all the fruit was quite sound. A defect of the fruit exposed (and in a lesser degree that in paper) was that it was dull. The fruit covered with wool, however, was not only sound, sweet, and juicy, but fresh and clear. The same condition was observable at the end of the fourth week. After that the fruit began to wrinkle. Almost the same remarks apply to No. 3. At the end of a month the fruit was sound, but flabby and dull exposed and in paper ; covered with wool it was clear and fresh.

Plums.—A series of experiments with the four varieties, Orleans, Greengage, Sultan, and Diamond, began on August 24, and later on Monarch, Victoria, and Coe's Golden Drop were put in store. The first four only are dealt with now. They were placed in temperatures of 36 degrees, 32 degrees, and 30 degrees, respectively. The fruit was removed from the chambers on November 4, and examined on the following morning, after being exposed to the normal temperature for about sixteen hours. The greengages were all perfectly sound and of excellent market appearance, except that the fruits which had been on the upper parts of the heaps were a little wrinkled. So luscious and good did they seem, both internally and externally, that it was a disappointment to find that they tasted distinctly of paint. They had been put in before the smell of paint had passed off. The fact, however, does not destroy the significance of the experiment—namely, the successful keeping of greengages for ten weeks. With respect to Orleans, Diamond, and Sultan, all three were much inferior. None of these can apparently be kept good for ten weeks. If stored just before they are quite soft they will remain in good condition for a month or six weeks. We had them exposed on the shelves, but I think they would have been better covered with a pad of cotton wool, and I am led to this conclusion by having observed that the fruit at the lower part of the heaps, and protected, to a certain extent, from contact with the air by that above, was fresher and fuller than the upper layer. As regards temperatures, the highest was the least suitable. There was little to choose between the others, and 32 degrees may be regarded as about right. A fuller report of the plum experiments will be made.

Tomatos.—After six weeks' storage, the fruit from No. 1 chamber (temperature 36 degrees) proved, on being cut open, to be quite good. The leaf-stalks had, however, decayed, and at the points of their attachment the fruits were externally blackened. This gave a fallacious appearance of decay. The blackening was merely a local, or surface, trouble, not extending to the body of the fruit ; nevertheless, appearances play so important a part in market produce, that it would seem to be advisable for the stalks to be removed when the fruit is stored. The samples, which had been carefully chosen, showed that the fruit which was in the best condition at this examination was that gathered just in advance of softening for dead ripeness, *i.e.*, fruit that had coloured, but was still firm. Further tomato trials are in progress. Fruit in various stages of ripening is under examination in lower temperatures, and particulars will be given in the final report.

An Expert on Cold Storage.—In view of the fact that doubt may be felt as to whether the cold storage of fruit has commercial advantages in this country, it will be well to give the opinion of Mr. W. N. White, a great Covent Garden dealer. He has stated to an interviewer his conviction that, "with proper refrigerating facilities, English fruit might almost drive foreign produce out of the market. Most English fruit enjoys a very short season—from six weeks' to two months' duration. All the fruit becomes ripe about the same time ; the growers throw it on the market ; the buyers become masters of the situation, and if it were not for the jam-makers the stuff could not be sold at all. If there were adequate cold storage, one-third more English fruit could be sold at 25 per cent. more money."

General Remarks.—The following suggest themselves as important points : (1) The fruit must be placed in store in advance of dead ripeness. This is particularly the case with strawberries. Fruits that are fully ripe will keep for some time, but lose surface freshness, becoming seared and unsightly. (2) It is useless to put injured fruit in store. Cherries pecked by birds soon go off and other fruits impaired in any way will not keep. To achieve success the fruit must be sound. (3) The fruit should be covered or surrounded with cotton wool. It was observable that that so treated retained its freshness much longer than that left exposed. (4) The chambers must be kept dry, and close-fitting doors are necessary, otherwise damp and gritty impurities find entrance. We had a little initial trouble with No. 2 on this account, and after it was remedied the fruit kept much better. (5) All decaying or impure matter must be rigidly excluded. The Dartford chambers (which are open to the inspection of anyone interested) are models of cleanliness. Nevertheless, some fruit placed in one before the smell of paint had quite disappeared tasted unpleasant.

Future Experiments.—The work successfully undertaken with early fruits is being continued with later kinds. We have in store some of the popular early market apples, such as Worcesters and Duchess's Favourite, such well-known pears as Williams, Conference, Fertility, Doyenne du Comice, Pitmaston Duchess, and Beurre Hardy ; also grapes, peaches, and tomatos. In the main, attention is being concentrated on early sorts that will not keep under normal conditions, rather than on others which will keep in ordinary fruit rooms. Records of these experiments are being carefully kept, and will be published in due course, together with tables of observations, temperatures, and losses by evaporation, and suggestions for the practical general application of cold storage arising from the Dartford experience.

Contributions of fruit are acknowledged with grateful thanks from Mr. W. Chambers, of Southfleet, and Mr. R. Mercer, of Rodmersham, members of the Kent County Council; from Messrs. Bunyard and Co., the well-known Maidstone pomologists; Messrs. Cheal and Sons, the famous Crawley nurserymen; and Messrs. Rivers and Son, of Sawbridgeworth, who have done so much to improve the varieties of fruit; likewise from Mr. A. J. Thomas, an able and much respected grower in the Sittingbourne district.

In conclusion, I am sincerely glad, Mr. Chairman and gentlemen, to be able to record some noteworthy initial successes. Your efforts to assist British fruit-growers in a new branch of an old industry already have a reward, and on the valuable practical basis now established a really useful store of knowledge may, I believe, be built up.

DISQUALIFICATIONS AT FLOWER SHOWS.

THE frequent recurrence at exhibitions of this unpleasant feature (you have mentioned an apparent bad case at page 692) shows that there is much that is radically wrong in the acts of executives in respect of schedule wording, of exhibitors in mistakes, and in judges in being far too ready to act harshly on misapprehension. The committee appointed by the Royal Horticultural Society some time since to prepare a code of rules for judges' guidance endeavoured, in the large edition issued and now sold out, to deal with this matter. But, whilst their conclusions were that even where trifling errors were committed by an exhibitor who had not the least intention to do wrong the judges must disqualify, there was a saving, though not a very consistent, clause added to the effect that when such disqualified exhibits were meritorious a special prize may be recommended to be awarded to them. A further clause repeated the instruction to the judges to rigidly disqualify. At the meeting of the committee held to prepare a second edition strong opinions were expressed that the regulation referred to was unduly harsh in its operation in many cases, especially where the error in the exhibit likely to produce disqualification was produced by mere inadvertence, failure to read the schedule correctly, accident, or wilful act on the part of some other person. It was also thought that judges, on whose shoulders were placed the entire responsibility of determining disqualification, were placed in a position of undue and even painful responsibility.

The new regulation, as recommended to the Council, now takes the form of providing a court of appeal, but without the intervention of the exhibitor. Whilst the burthen of the act of disqualification still remains with the judges, these persons are advised to require the presence of the secretary or manager of the show, who shall first decide whether the case is one that calls for disqualification. If he determines not so, then the award will be made as if no question had been raised; if he determines the other way, then the disqualification ensues. It is very much a case in which the *bona fides* of the exhibitor have to be considered, as also other matters, and the responsibility of determination one way or another more properly rests with the executive, the actual framers of the schedule, than with the judges, whose duties properly are to decide merits and not technical interpretations. Of course, there are some cases in which the exhibitor has put himself absolutely out of court, but, after all, these are very few relatively, whilst by far the great majority of cases arise from purely technical errors, that it is so obvious are absolutely unintentional, for no exhibitor would be so unwise as to deliberately court disqualification to his own great personal loss and disrepute. Many statements were made to the committee of facts relating to exhibits leading to disqualification quite outside the exhibitor's control, and little suspected, yet for which the unfortunate competitor has been made unjustly to suffer. Flower show justice should invariably be tempered with equity and mercy. A. D.

OBITUARY.

MR. W. G. PRAGNELL, who for upwards of forty years occupied the position of head gardener at Sherborne Castle, died suddenly a short time since in his sixty-first year. Mr. Pragnell, who was well known as a successful cultivator and exhibitor of fruits and vegetables, was highly esteemed by a wide circle of friends.

JOHN TURNER PAYNE, the youngest son of Mr. C. Harman Payne, died, we regret to announce, quite unexpectedly on the 20th inst., after undergoing an operation.

Fruits as Foods.—The Vegetarian Society, headed by no less a distinguished leader than Mr. Arnold F. Hills, has, through the agency of a Christmas issue of its ordinary publication, sought to present object lessons in relation to the diverse diets of fruits and meat. Judging by what has of late been seen on every hand, the effort is an heroic one, for certainly Christmas is the great sacrificial season of flesh, fish, and fowl, and courage is indeed needed on the part of those who at such a time would contend for the fruit as against the flesh. But, if there has been a wonderful flesh array, there has been not a less striking one of fruits and vegetables. If we bring meat and fowl from the uttermost ends of the earth, so we do fruits, and in the variety presented, as well as in tempting form, there is far more than enough to satisfy the most exacting of vegetarian appetites. Certainly Christmas is the high festival of the stomach, and it is in one way or another filled to repletion. Even our vegetarian friends find it hard to be ascetic, when tempted by grapes, pines, oranges, pears, apples, bananas, raisins, and all sorts of dried and candied fruits, as well as vegetables in exceeding abundance. If anyone is disposed to be vegetarian, there is no lack of needful food, no end hardly to the variety. If the butcher and the poulterer seem for the time to be "universal providers" for man's flesh needs, the fruiterer and grocer run them very hard as caterers, and with no little success. Apart from all food contentions, however, there can be no doubt that a vastly increased demand for all sorts of garden products would be greatly to the benefit of horticulture, therefore gardeners can look with sympathy upon vegetarian efforts.—A. D.

THE MESSAGE OF PEACE is always appreciated and respected by all true men, for many of us hope the time is not far distant when it may be universally adopted by all nations. When this comes to pass, happiness and prosperity will be the rule and not the exception. In the meantime, Holloway's Pills and Ointment have largely helped to make foreign nations understand that Englishmen delight in alleviating pain and suffering. These wonderful remedies have been blessed in many lands for the relief they have afforded and the cures effected. They are specially adapted for all complaints affecting the liver, stomach and kidneys, and at this season no family should be without a supply.—[ADVT.]

CHEMICAL MANURES IN VEGETABLE CULTURE.

AT a recent meeting of the Isle of Wight Horticultural Association Mr. F. W. Shrivell, F.L.S., of Tonbridge, gave a lecture on the use of chemical manures in the cultivation of vegetable culture.

Mr. Shrivell, in his opening remarks, stated that they were at Golden Green, testing the economical value of chemical or artificial manures as compared with dung. They wanted to know really if it was possible to grow market produce more cheaply by the aid of small quantities of chemicals and dung than with large quantities of dung alone. The past season, again, had been a terrible one for want of rain, the rainfall having fallen far below that of last year, while the rainfall of last year was far below the usual average. On their dry soil they had consequently found it difficult to raise anything, but nevertheless their crops looked remarkably well, everything appertaining to the cabbage tribe especially. This was their fifth year of experimental work, and with the advance of each year the reports became more interesting. He hoped to show that by the judicious use of chemicals they not only increased their crops, but kept the ground in marvellously good heart; in fact, their ground was producing more this year than it had ever done before, even through the past exceptionally dry summer. Their system had been to add chemicals to the land to as far as possible take the place of dung. The chief value of dung consisted in the potash, phosphoric acid, ammonia, and lime it contained. They were therefore putting these four chemicals into the ground in suitable proportions, and with a judicious use of that mixture they were obtaining marvellous crops, and at a much cheaper rate than could be produced by the aid of dung alone. Mr. Shirvell then proceeded to show by diagrams the progress which had been made on experimental plots during the last four years, and the approximate cost of the fertilisers used. The diagrams included the following:—

A
25 LOADS DUNG
1 cwt. Nitrate of Soda
{6 cwt. Basic Slag, or
{4 cwt. Superphosphate of Lime
Cost £6 10s. per acre.

B
25 LOADS DUNG
2 cwt. Nitrate of Soda
{6 cwt. Basic Slag, or
{4 cwt. Superphosphate of Lime
Cost £7 per acre.

C
CHEMICALS ONLY
4 cwt. Nitrate of Soda
{6 cwt. Basic Slag, or
{4 cwt. Superphosphate of Lime
Cost £3 per acre.

D
25 LOADS DUNG
4 cwt. Nitrate of Soda
{6 cwt. Basic Slag, or
{4 cwt. Superphosphate of Lime
Cost £8 per acre.

E
25 LOADS DUNG
Cost £5 per acre.

F
50 LOADS DUNG
Cost £10 per acre.

Dealing by the aid of his large diagram (in which all the results were calculated upon a per acre basis) with some of the most interesting crops, the lecturer first took

ASPARAGUS (FIRST YEAR'S CUTTING).

	Bundles per acre (50 sticks).	Weight per Bundle.
F Plot	603	17 oz.
E Plot	687	17½ oz.
D Plot (Salt)...	804	21½ oz.
D Plot (Kainit)	1,158	20½ oz.
C Plot (Salt)...	622	17½ oz.
C Plot (Kainit)	806	21 oz.

It would be seen, he said, from the above figures that they had grown an enormous crop by the use of chemicals. Where they reduced their heavy dung from 50 (F) to 25 (E) loads per acre, they grew, singularly enough, a few more bundles, and heavier in weight. But where they added chemicals to the dung the crop and weight were much larger and heavier. Thus it had been proved that by giving a light coating of dung to the beds in the winter, and a moderate dose of chemicals in the summer, they increased their crop to a very marvellous extent, in reality they had nearly doubled it.

SECOND YEAR'S CUTTING.

	Bundles per acre (50 sticks).	Weight per Bundle.
F Plot	1,109	18 oz.
E Plot	1,111	17 oz.
D Plot (Salt)...	1,132	19½ oz.
D Plot (Potash)	1,351	21¼ oz.
C Plot (Salt)...	990	19 oz.
C Plot (Potash)	1,029	21 oz.

In this second year, again, by the substitution of potash for salt, the crop was largely increased. On the sea coast asparagus beds were manured with sea-weed, the idea being that it was the salt which did the good. But these experiments had shown it to be the potash of the weed, and not the salt, which was most beneficial, and the best plan was to leave the salt out entirely, for it did very little good at all.

TRIPOLI ONIONS (two years' average).—F plot, 9 tons; E plot, 7 tons; A plot, 9 tons 7 cwt.; B plot, 9 tons 5 cwt.; D plot, 10 tons 15 cwt. With this crop the heavy dressing of dung produced two tons more than the light dressing, but a light dressing of chemicals, in addition to the light dressing of dung, produced a slightly better crop, while a heavy addition of chemicals raised the crop to 13¾ tons per acre. This year they had a still more enormous crop, as follows: F plot, 12 tons 12½ cwt,; E plot, 14 tons 11½ cwt.; A plot, 15 tons; B plot (potash), 19 tons 1 cwt.; D plot, 17 tons 14¾ cwt.

Those weights were all marketable onions, but the most interesting feature was the proportion of unmarketable onions—those which had gone to seed or were rotten—to each plot. On the F plot there were five tons of unmarketable onions per acre, but on the E plot only 13¾ cwt., and on the B 2 tons 13½ cwt. The inference was that the dung being put in the ground before the seed was sown the onions were brought along too rapidly; whereas the chemicals being put in later had done their work quietly and well, and there were not nearly so many rotten onions. A large number of the bulbs were over one pound in weight, and it should be remembered that they were grown on an open corn field and on a very poor soil.

STRAWBERRIES (three years' average).—F plot, 1 ton 7½ cwt.; E plot, 1 ton 12 cwt.; B plot (no Kainit), 1 ton 19½ cwt.; C plot (no Kainit), 1 ton 3 cwt. Fourth year's crop—F plot, 2 tons 12 cwt.; E plot, 4 tons 4¼ cwt.; B plot, 4 tons 7 cwt.; C plot, 2 tons 9¾ cwt. A comparison of those figures showed a wonderful increase in the fourth year's crop. There was a limit to the manuring of strawberries, and they found the best method was to give the plants a light dressing of dung and chemicals every year. They dug in the dung during the winter, put on the phosophates at the same time, and the nitrate of soda either in February or March. By those methods they also managed to get an earlier crop. In the first six days of picking they gathered 19½ cwt. on the plot heavily dressed with dung; 18¾ cwt. on the lightly dressed plot; but 1 ton 5½ cwt. on the chemical plot. It was an all-important feature, too, that they had been able to put the strawberries on the market earlier than usual. They had also tested their keeping qualities for four years, and found that where the plots were heavily dunged the fruit kept very badly, and was as a rule too soft for marketing purposes. But where they had been manured lightly with dung and chemicals the strawberries were comparatively fresh at the end of three days. There was a great difference in the condition of the strawberries where lightly manured, and they could rely upon being able to send them to market fresh without becoming soft and wet.

BRUSSELS SPROUTS (four years' average).—F plot, 282 sieves; E plot, 257 sieves, D plot, 321 sieves; C plot, 305 sieves; C plot (plus salt), 267 sieves. With such a valuable crop as this, said Mr. Shrivell, it was interesting to show the relative value of the produce and the cost of manuring, which worked out as follows:—

Plot.	Sieves.	Cost of Manure.	Produce at 1s. 6d. per Sieve.
E	257	£5 0 0	£19 5 0
F	282	10 0 0	21 3 0
C	305	3 2 0	22 17 0
C (plus salt) ...	267	2 17 0	20 0 0

Thus there was an actual saving in cost of manure as against heavy dung of over £6 per acre, and an increased yield of sprouts equivalent to over £2 per acre, making a saving of £8 or £9 per acre. In the case of celery and onions they could not do without dung, but it would be seen that in the case of Brussels sprouts they could do without dung. The average he had given was of four particularly dry years, and this year again, though even more dry, the crop looked remarkably well.

CAULIFLOWERS (four years' average).—F plot, 15 tons 2 cwt.; E plot, 12 tons 8 cwt.; D plot, 15 tons 9 cwt.; C plot, 14 tons 8 cwt. This crop, again, furnished a convincing proof of the value of chemicals for all the cabbage tribe, as the chemical plot, which had never had any dung, had produced two tons more cauliflowers than the plot which had had 25 loads of dung per year for five years; while the chemicals only cost £3 per acre per year, and the dung £5. The effect of chemicals on the crop not only increased the yield, but added flavour and gave tenderness, which was a most important thing in such vegetables.

BROCCOLI (three years' average).—Average weight F plot, 2 lb. 3 oz.; E plot, 1 lb. 14 oz.; A plot, 2 lb. 4 oz.; B plot, 2 lb. 8 oz.; D plot, 2 lb. 9 oz.; C plot, 2 lb. 7 oz. Fourth year, 1898: Average weight F plot, 2 lb. 8 oz.; E plot, 2 lb. 4 oz.; A plot, 2 lb. 6 oz.; B plot, 2 lb. 12 oz.; D plot, 3 lb. 6 oz.; C plot, 2 lb. 12 oz. Although during the four years the dung had cost £40 and the chemicals £12, they had grown more produce by the aid of chemicals alone. Some people had an idea that chemicals ran out and impoverished the ground, and that dung simply remained in the soil and kept on adding goodness to it. He thought the illustration which he had just given in reference to broccoli was conclusive that by judicious use of chemicals the ground was really increased in value.

SPRING CABBAGE (three years' average).—F plot, 15¾ tons; E plot, 15¾ tons; B plot, 17½ tons; D plot, 16¾ tons; C plot, 18¾ tons. Fourth year, 1898: F plot, 16 tons 5¼ cwt.; E plot, 13 tons 11¼ cwt.; B plot, 16 tons 14 cwt.; D plot, 19 tons 5¼ cwt.; C plot, 17 tons 6½ cwt. Here, again, was another marvellous result. With chemicals alone they had grown 18¾ tons per acre for the last three years; and in the fourth year the chemical plot had again beaten the heavily-dunged plot.

POTATOS.—To grow potatos there must be some dung in the ground, and in particularly dry years it assisted materially to keep the ground moist. With hardly any rain at all the past season had been a very trying one for potatos, but still, those grown on the experimental plots were very fine and healthy. The following was the average yield during the last four years: Early variety—F plot, 123 sacks; E plot, 106 sacks; B plot, 113 sacks; C plot, 89 sacks. Main crop—F plot, 134 sacks; E plot, 110 sacks; B plot, 127 sacks; C plot, 103 sacks.

AUTUMN CABBAGE (three years' average).—F plot, 26 tons; E plot, 23½ tons; A plot, 29 tons; B plot, 28½ tons; D plot, 29¾ tons; C plot, 27½ tons. The following table furnishes the increase in yield during those three years: Due to 25 loads of dung, F, 2¼ tons; chemicals, A, 5½ tons; chemicals, B, 4¾ tons; chemicals, D, 6¼ tons; chemicals (without dung), C, 4 tons.

SPINACH.—The following figures show that chemicals added to 25 loads of dung per acre would produce a much bigger crop at a very much cheaper cost: F plot, 18 tons; E plot, 16 tons; A plot, 18¾ tons; D plot, 22¾ tons.

CARROTS.—This year the carrot crop had been a failure. Right through the plots the carrots had been eaten up by flea, and after seeding the ground three times they gave it up in disgust. The following was the average crop for the last four years: E plot, 16 tons 17 cwt.; B plot, 18 tons 6 cwt.; C plot, 17 tons 17 cwt.

Concluding his lecture, Mr. Shrivell said that the use of chemicals very materially increased the value of dung, and the proper method of gardening was to throw aside all old-fashioned prejudices, and take up the use of chemicals in addition to dung. They all knew some very fine produce had been grown in the past by the aid of dung alone; but there was no reason why, as time went on, they should not try to grow it as good, and at a much cheaper cost, by the use of chemicals. They must call in science to the aid of practice. The two would go very well together, but one could not do without the other.

Sweet Peas.—Referring to your leader on Sweet Peas and how to obtain extra strong plants and early bloom, I venture to draw attention to the method adopted by Mr. C. J. Salter at Woodhatch, Reigate. He has several long boxes, or troughs, of stout wood some ten inches wide and eight inches deep. These being thoroughly cleansed, then having sufficient drainage, are filled with coarse loam, the turfy pieces coming next to the drainage. The soil is well pressed, then sweet peas are dibbled in thinly all through the middle of the troughs, next watered and stood near the glass in a warm frame. Growth soon follows, then hardening, and the plants are several inches in height, when the boxes may be safely stood outdoors in a warm position and handy for watering. Soon tall stakes are added, and in such limited root room, being, of course, well fed, the growth and flower production is wonderful.—A. D.

MR. JAMES FULTON, for the past two and a-half years head gardener to Sir Charles Barrington, Bart., Glenstal Castle, Murroe, Co. Limerick, has been appointed head gardener to W. S. Gilbert, Esq., Grimes Dyke, Harrow Weald, Middlesex, and enters upon his duties there on January 2.

ANSWERS TO CORRESPONDENTS

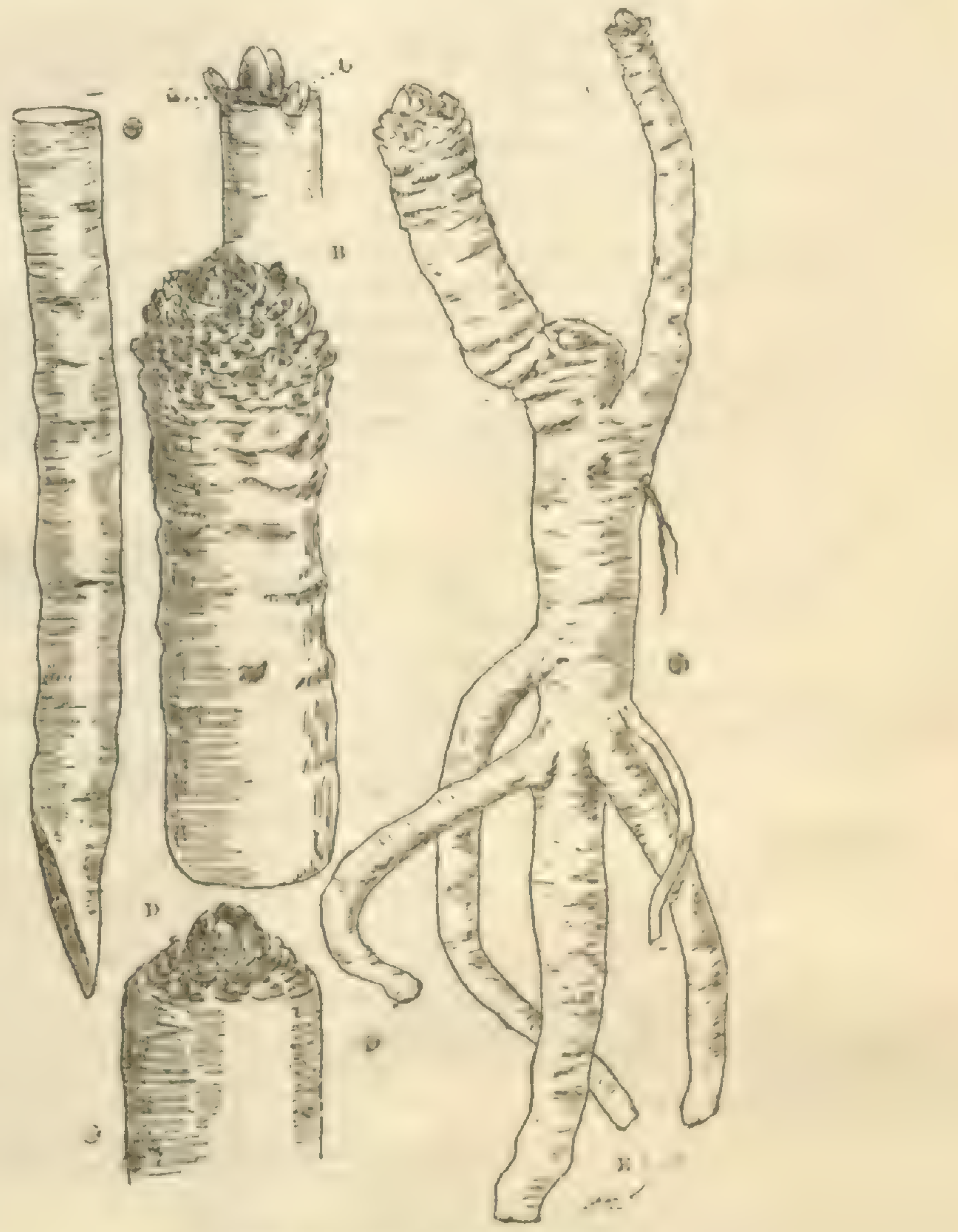
Editorial communications should be addressed to the Editor of the GARDENERS' MAGAZINE, 148 and 149, Aldersgate Street, E.C.

Specimens of plants, flowers, and fruits for naming or opinion should be sent to the Editor of the GARDENERS' MAGAZINE, "Endsleigh," Priory Park, Kew, Surrey, and as early in the week as possible. All parcels must be sufficiently prepaid.

The Editor will be glad to receive photographs of gardens, plants, flowers, trees, fruits, &c., for reproduction in the GARDENERS' MAGAZINE. He will also be greatly obliged by correspondents sending early intimation of interesting local events relating to horticulture. In sending newspapers containing matter to which they wish to draw attention, correspondents are requested to distinctly mark the paragraph.

Secretaries of horticultural societies are invited to send early notification of forthcoming exhibitions and meetings, and are requested to advise us concerning change of dates.

Propagating Seakale.—Novice, Sussex: The propagation of seakale may be so readily effected by means of seed and cuttings that you will have no difficulty in obtaining a large stock of crowns for forcing. If you have no crowns from which to obtain root cuttings it will be necessary for you to purchase small crowns or to raise a stock from seed, which, as you will see on reference to a seed catalogue, is not expensive. An experienced cultivator will, if the soil is naturally deep and rich, be able to produce crowns of a suitable size for forcing from seed sown in the spring previous, but to accomplish high-class culture is essential. He would commence by liberally manuring and deeply digging the soil early in the winter, and have the surface somewhat rough. Towards the end of March he would break down the surface, and shortly afterwards will draw shallow drills eighteen inches apart and distribute the seed thinly along them and cover with soil. The after cultivation consists in using the hoe freely for the purpose of destroying weeds and maintaining the soil in a loose condition, and in giving one or two thorough soakings of water should the weather be exceptionally dry during the summer. As you have had but little experience in the cultivation of this vegetable we would suggest that you do not adopt this express method of culture and instead sow the seed rather thinly on a bed of soil and thin to three or four inches apart where the plants are crowded. By this means you will obtain by the end of the autumn a supply of crowns of a suitable size for planting. Lift these in the autumn, take off the lower portion about six inches from the crown, and from those crowns which have more than bud remove all but the strongest. Tie them up in bundles, and then put them in a trench with the crowns level with the surface, and pack the soil firmly about them. These are to be planted early in March in soil that has been liberally manured, the rows to be eighteen inches apart, and the crowns ten inches from each other in the rows. By the autumn these will have become stout crowns like D, and will be furnished with side roots as in the case of E, which represents an old root that has been allowed to form two crowns. The root should have the lower part taken off as in D, and the thong-like roots be cut into six inch lengths, as represented at A, which should have a sloping cut at the lower end to facilitate planting. B shows the cutting commencing to produce buds, and of these those at the side A A should be rubbed off, leaving the central bud to form a crown, as shown by C. The thong-like or side roots are to be dealt with in precisely the same manner as advised for the seedlings.



PROPAGATING SEAKALE.

Protecting Standard Tea Roses.—Amateur, Beds: Some amount of protection is required by tea roses grown in standard form, and a course of procedure equally remarkable for its simplicity and efficiency is to so fasten a few pieces of bracken about the heads to cover the growths without preventing a free circulation of air about them; sprays of yew spruce may be used in a similar manner.

Starved Fruit Trees.—Young Gardener: It is difficult to say whether the preferable course would in your case be to cut down the trees or make an effort to restore them to a vigorous state of health, as you give us but little information relating to them. In view of the fact that they have been much neglected of late years, we would suggest that you make an effort to restore their vigour. One of the best means of stimulating half-starved apple and pear trees into activity is to give them copious supplies of liquid manure from the stable or farmyard or house sewage during the winter months. Failing a sufficient supply of liquid manure or house sewage, give the soil as far as the branches extend a dressing at once of artificial manure consisting of muriate of potash and bone superphosphate in the proportions of one to two. The mixture should be spread evenly over the surface at the rate of two ounces to the square yard, and lightly forked in. After the trees have commenced to make new growth in spring apply a dressing of nitrate of soda at the rate of half an ounce to the square yard, and if the weather is dry give the trees a watering to dissolve the nitrate and assist in its conversion into a form in which it can be taken up by the roots.

Bouvardias and Carnations.—W. S., Yorkshire: The propagation of tree carnations may be effected in October and November, and from the middle of February until May. The multiplication of the stock of tree carnations is usually effected in the spring months, but side growths taken off carefully in either of the two autumn months mentioned root freely with the assistance of a temperature somewhat above that of the greenhouse, and make fine plants for flowering twelve months later. Some varieties produce side growths less freely than the other, and it is essential that in no case must plants coming into bloom be stripped of their "grass," or indeed have any considerable proportion of the growths removed. You will avoid the difficulties experienced last year in the propagation of bouvardias by first obtaining a crop of young shoots for furnishing cuttings. Towards the end of February select a few plants of each variety, those going out of bloom for preference, and keep them rather dry for two or three weeks to ensure a brief period of rest. Then cut them back moderately, destroy the prunings, and place the plants in a warm corner of the forcing house, increase the supply of water at the roots, and syringe overhead once or twice daily. Under the conditions mentioned they will soon commence to make new growth, and when the young shoots are about two inches in length they may be utilised for propagating purposes.

Names of Plants.—Under this heading we can only undertake to name species and specific varieties of plants, and not florists' flowers. Specimens should be packed in stout boxes with damp moss or leaves as packing material to ensure their reaching us in a fresh state. It is essential that flowers must accompany specimens of flowering plants, that fern fronds be fertile, and that the numbers be legible and firmly attached to the specimens. We cannot promise to name more than six specimens at one time from any one correspondent.

F. W. S.: 1, Campylobotrys Ghiesbreghtianus; 2, Didymocarpus lacunosus; 3, Agalmyla staminea, Toxicophlæa spectabilis; 4, Bertolonia pubescens.

R. M., Devon: 1, Cypripedium Sedeni porphyreum; 2, Cæalgyne cristata, Chatsworth variety; 3, Angræcum eburneum; 4, not a form of Dendrobium nobile as you suggest, but D. Linawianum, which is also known in collections under the name of D. moniliforme, and is well worth growing for its usefulness in contributing to the attractions of the orchid house at mid-winter; 5, Lælia anceps, rather a poor form.

W. W.: 1, Aotus gracillimum; 2, Cleyera japonica variegata; 3, Acanthopanax quinquæfolius variegatus; 4, Sarracenia crispata; 5, Ophiopogon jaburan argentea variegatus.

A. B.: The plant with the green leafage is Daphne indica rubra, and the variegated plant, D. japonica variegata; specimens sent for naming should invariably be distinguished by numbers.

Amateur, Sussex: The trusses of zonal pelargoniums that you have sent have been much damaged in their passage through the post in consequence of their having been packed in a thin cardboard box, and the varieties are past recognition. So many of the varieties of the zonal pelargonium closely resemble each other that we cannot undertake to name them, or indeed other florists' flowers.

O. H., Taunton: 1, a pretty form of Cypripedium Leeanum, but not C. L. giganteum or C. L. magnificum; 2, Oncidium sphacelatum; 3, Calanthe Veitchi.

C. G., Teynham: 1, Dipplopappus chrysophyllus; 2, Olearia Haasti; 3, Phillyrea decora (Phillyrea vilmoriniana of gardens).

Names of Fruits.—We are pleased to assist our readers as far as it is possible to do so in naming fruits, but it is absolutely necessary that they should send us good specimens carefully packed, as it is only when characteristic examples reach us in perfect condition that we are able to determine their names. We are compelled to insist on the observance of this rule, as so many specimens now reach us. We cannot undertake to name more than six varieties at one time; and both apples and pears should be sent when approaching maturity, but before they are fully ripe, that we may have the assistance of their distinctive colours in determining their identity.

C. B., Worksop: 1, Winter Nelis; 2, Glou Morceau; 3, Catillac.

T. T. E., Bromley: 1, Bramley's Seedling; 2, Mère de Ménage; 3, Blenheim Pippin; 4, Court Pendu Plat.

G. S. A., Southgate: 1, King of the Pippins; 2, Egremont Russet; 3, Dumelow's Seedling.

S. R., York: 1, French Crab; 2, Newton Wonder; 3, Northern Greening.

B. B., Sale: 1, Norfolk Beefing; 2, Vicar of Winkfield.

R. N. S., Exeter: 1, Uvedale's St. Germain; 2, Fearn's Pippin; 3, Royal Russet; 4, Easter Beurre; 5, Wyken Pippin; 6, Reinette du Canada.

F. O. A., Wickham: Allen's Everlasting.

T. M., Ripley: 1, Cox's Orange Pippin; 2, Margil; 3, Claygate Pearmain; 4, Golden Nonpareil; 5, Adam's Pearmain.

L. B., Worksop: Court of Wick.

MARKETS.

Covent Garden.

SUPPLIES are light and the demand is very low, as is usually the case immediately after Christmas. There is a fair demand for cut flowers.

FRUIT.—English apples, 3s. to 8s. per bushel; Nova Scotian and Canadian, 12s. to 22s. per barrel; Californian, 8s. to 9s. per case; French pears, 3s. to 5s. per case; Californian, 4s. to 7s. per half-case; English grapes, 10d. to 1s. 9d.; Channel Islands, 6d. to 1s. per lb.; Almeria, 10s. to 18s. per barrel; Jaffa oranges, 8s. to 10s. per box; Valencia, 8s. to 16s.; Murcia, 6s. to 6s. 6d. per case; pineapples, 1s. 6d to 4s. 6d. each; bananas, 4s. to 9s. per bunch; lemons, 8s. to 16s. per case; English tomatos, 6s. per 12 lb.; Bordeaux, 1s. 6d. to 2s. per box.

FLOWERS.—Arums, 8s. to 12s.; carnations, 2s. to 3s.; chrysanthemums, white, 6s. to 9s.; chrysanthemums, yellow, 4s. to 6s.; eucharis, 4s. to 6s.; gardenias, 2s. to 3s.; Lilium Harrisi, 9s. to 12s.; tea roses, 1s. to 2s.; pink roses, 4s. to 6s.; cattleyas, 10s. to 12s.; Odontoglossum crispum, 4s. to 6s.; poinsettias, 12s. to 15s.; and tuberoses, 1s. to 3s. per dozen blooms; Adiantum cuneatum, 4s. to 8s.; white narcissus, 2s. to 4s.; chrysanthemums, 6s. to 9s.; marguerites, 6s. to 9s.; pelargoniums (scarlet), 12s. to 15s. per dozen bunches; lily of the valley, 1s. to 2s.; Roman hyacinths, 1s. to 1s. 6d.; Azalea indica, white, 1s. to 1s. 3d. per dozen sprays; bouvardias, 4d. to 6d. per bunch.

VEGETABLES.—English onions, 5s. to 5s. 6d. per cwt.; Valencia, 6s. per case; Dutch, 3s. 3d. to 3s. 9d. per bag; eschallots, 8s. to 10s. per cwt.; cucumbers, 2s. 6d. to 4s. 6d.; endive, 1s. 3d. to 1s. 9d.; lettuce, 9d. to 1s.; cos, 2s. to 2s. 6d. per dozen; cabbages, 3s. 6d. to 6s.; cauliflowers, 6s. to 9s per tally; celery, 5s. to 12s. per dozen rolls; Brussels sprouts, 2s. 6d. to 3s. per half-sieve; spinach, 2s. to 2s. 6d. per bushel; seakale, 9d. to 1s. per punnet; mushrooms, 5s. to 8s.; garlic, 3s. per 12 lb.; asparagus, 2s. to 3s. per bunch.

Borough Potato Market.

Trade is very quiet, and there is little business doing, even at the following prices:—Dunbar Bruce, 65s to 70s.; red soil, Main Crops, 70s. to 75s.; grey soils, 65s. to 70s.; Abundance and Bruce, 65s. to 70s.; Beauty of Hebron, Snowdrop, and Up to Date, 70s. to 75s.; White Hebron, Early Puritan, Bruce Magnum, Sutton's Early Regent, Reading Giant, and Imperator, 60s. to 65s.; Blacklands, 55s. to 60s per ton; Germans, 2s. 6d. to 2s. 9d. per bag.

THE WEATHER DURING THE WEEK ENDING DECEMBER 24, 1898.

STATIONS.	TEMPERATURE OF THE AIR.				RAINFALL.	
	Highest.	Lowest.	Mean.			
	Fahrenheit.		Fahrenheit.	Centigrade.	In Inches.	In Centimetres.
London	55·2	28·6	40·1	4·50	0·02	0·05
Croydon	55·5	22·5	38·4	3·56	0·00	0·00
Brighton	54·0	33·0	43·2	6·22	0·08	0·20
Bristol	53·1	25·2	40·1	4·50	0·34	0·86
Wolverhampton	55·4	27·9	41·2	5·11	0·23	0·58
Norwich	56·0	27·4	38·9	3·83	0·48	1·22
Nottingham	54·9	29·6	41·0	5·00	0·20	0·51
Liverpool	—	—	—	—	—	—
Huddersfield	50·8	32·0	41·0	5·00	0·04	0·10
Bradford	54·4	32·0	42·6	5·89	0·03	0·08
Hull	55·0	29·0	39·1	3·94	0·15	0·38

The mean reading of the Barometer during the week at Greenwich was 30·18 inches, and that of the Thermometer 40°·1, the latter being 1°·2 above the week's average in the 50 years 1841—90. The direction of the wind was variable, the horizontal movement of the air being 17 per cent. below the week's average in the 16 years 1860—75. The duration of registered bright sunshine in the week was 12·9 hours. The measured rainfall amounted to 0·02 of an inch.

CATALOGUES RECEIVED.

JOHN RUSSELL, RICHMOND NURSERIES, RICHMOND, SURREY.—Trees and Shrubs.
KELWAY AND SON, LANGPORT, SOMERSET.—Gladioli.
WM. PAUL AND SON, WALTHAM CROSS, HERTS.—Roses.
VILMORIN-ANDRIEUX AND CO., QUAI DE LA MEGISSERIE, PARIS.—Seeds.
C. LORENZ, ERFURT, GERMANY.—Seeds
OTTO PUTZ, ERFURT, GERMANY.—Trade Seed List.

ENGAGEMENTS FOR THE ENSUING WEEK.

AUCTIONS.

FRIDAY, JANUARY 6—Dendrobium Wardeanum, Lowii, Oncidium Marshalleanum, Cattleyas, Orchids, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

WEDNESDAY, JANUARY 4.—Japanese Lilies, Tuberoses, &c., Messrs. Protheroe and Morris's Rooms, Cheapside, E.C.

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END OF VOLUME.

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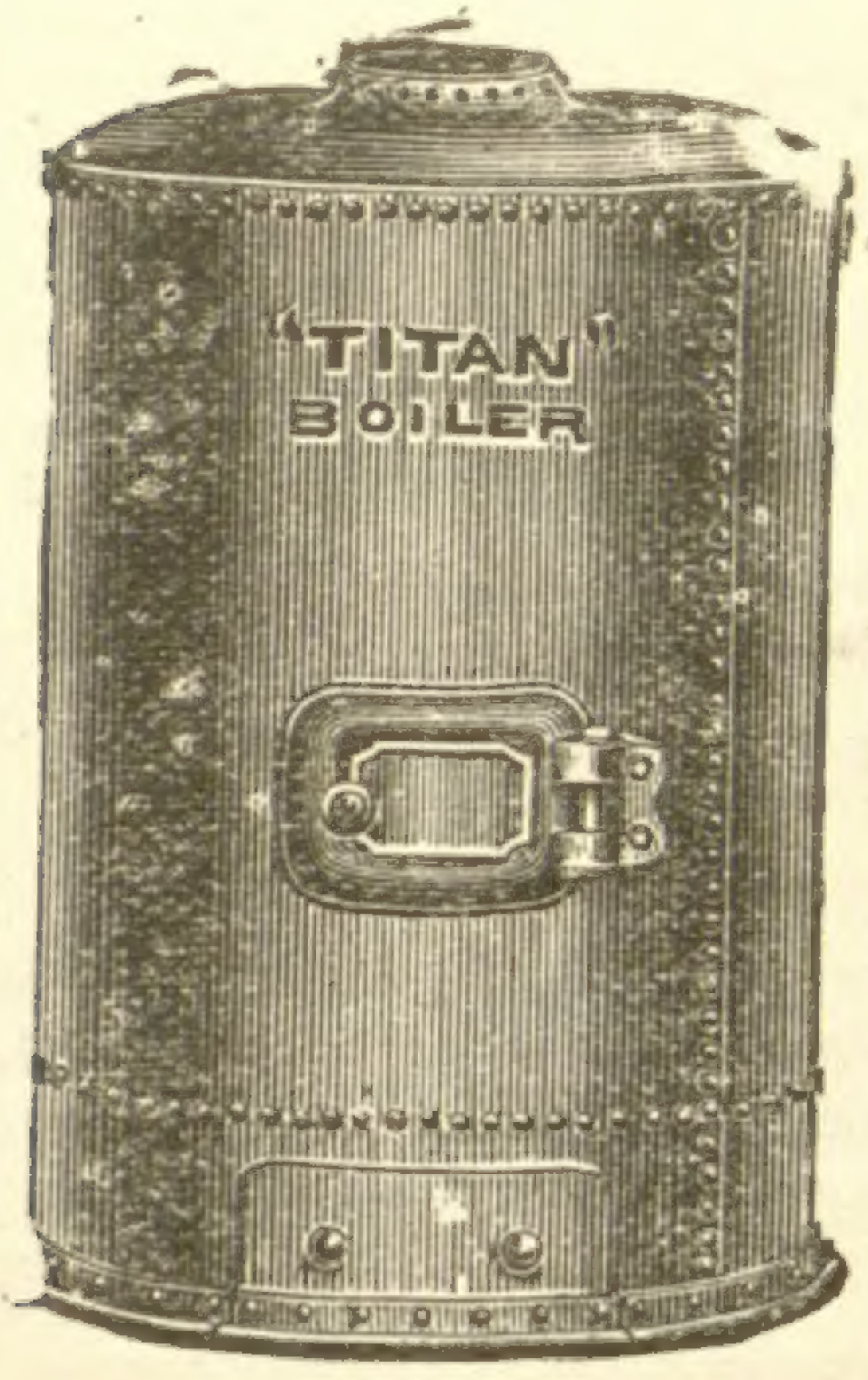

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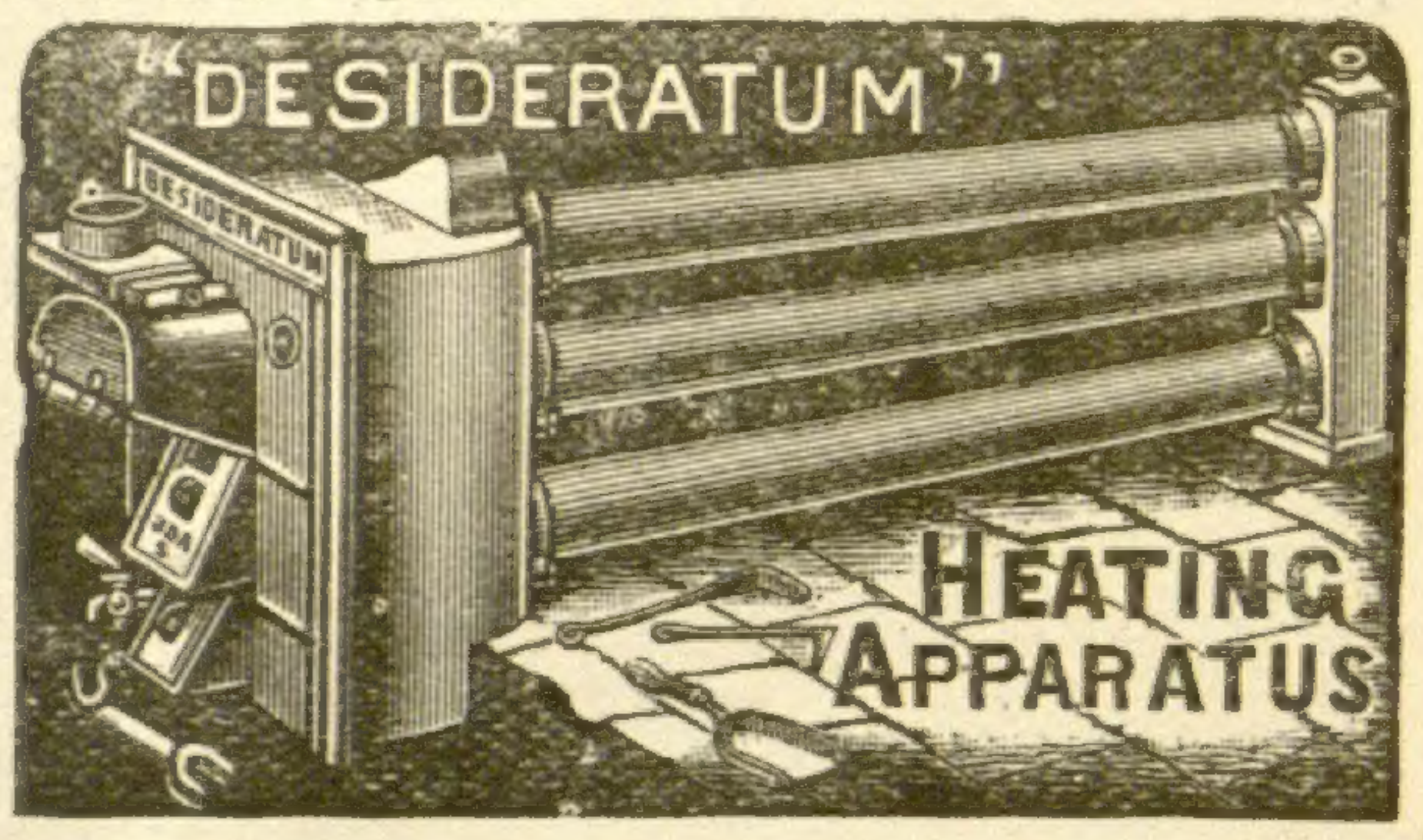

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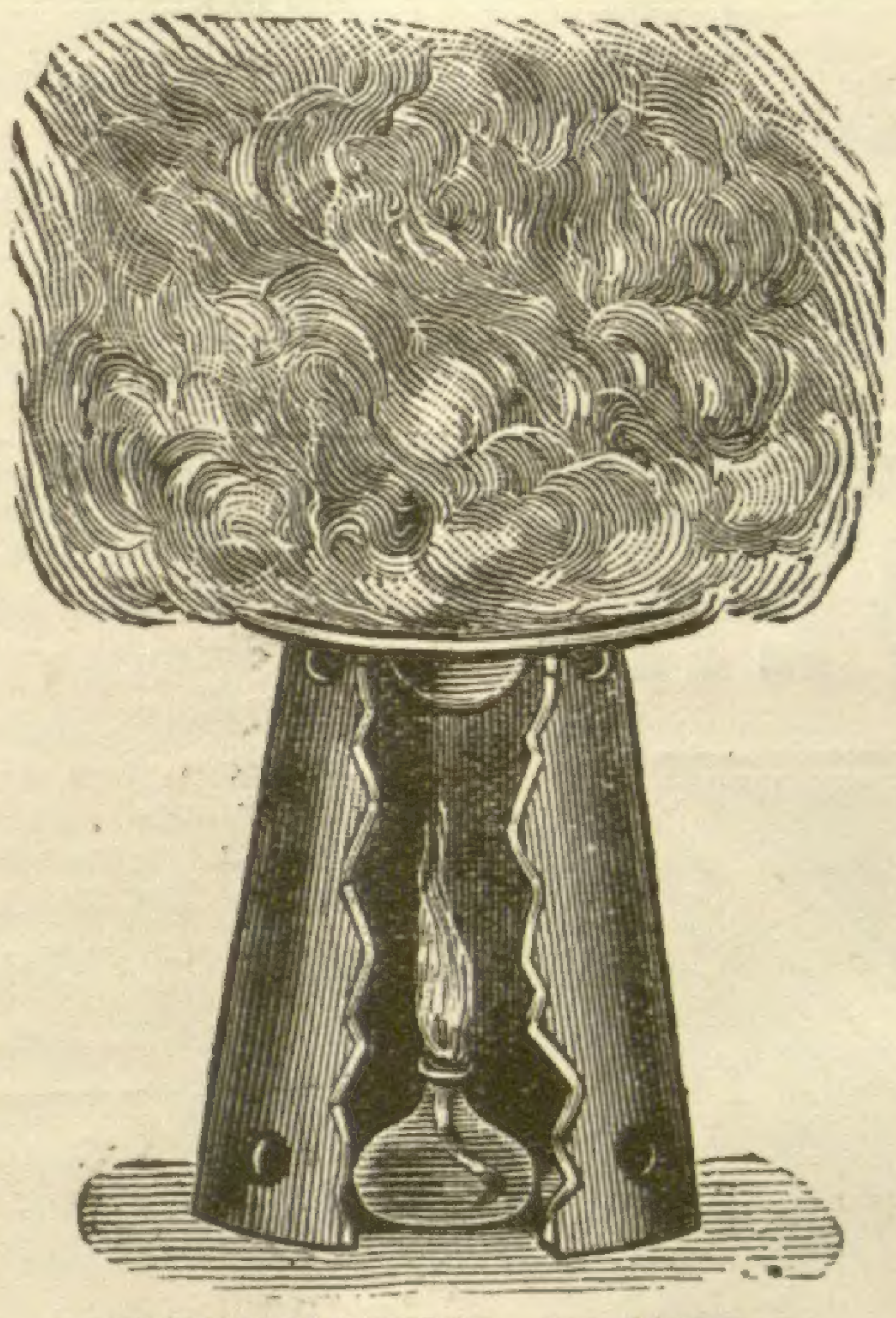

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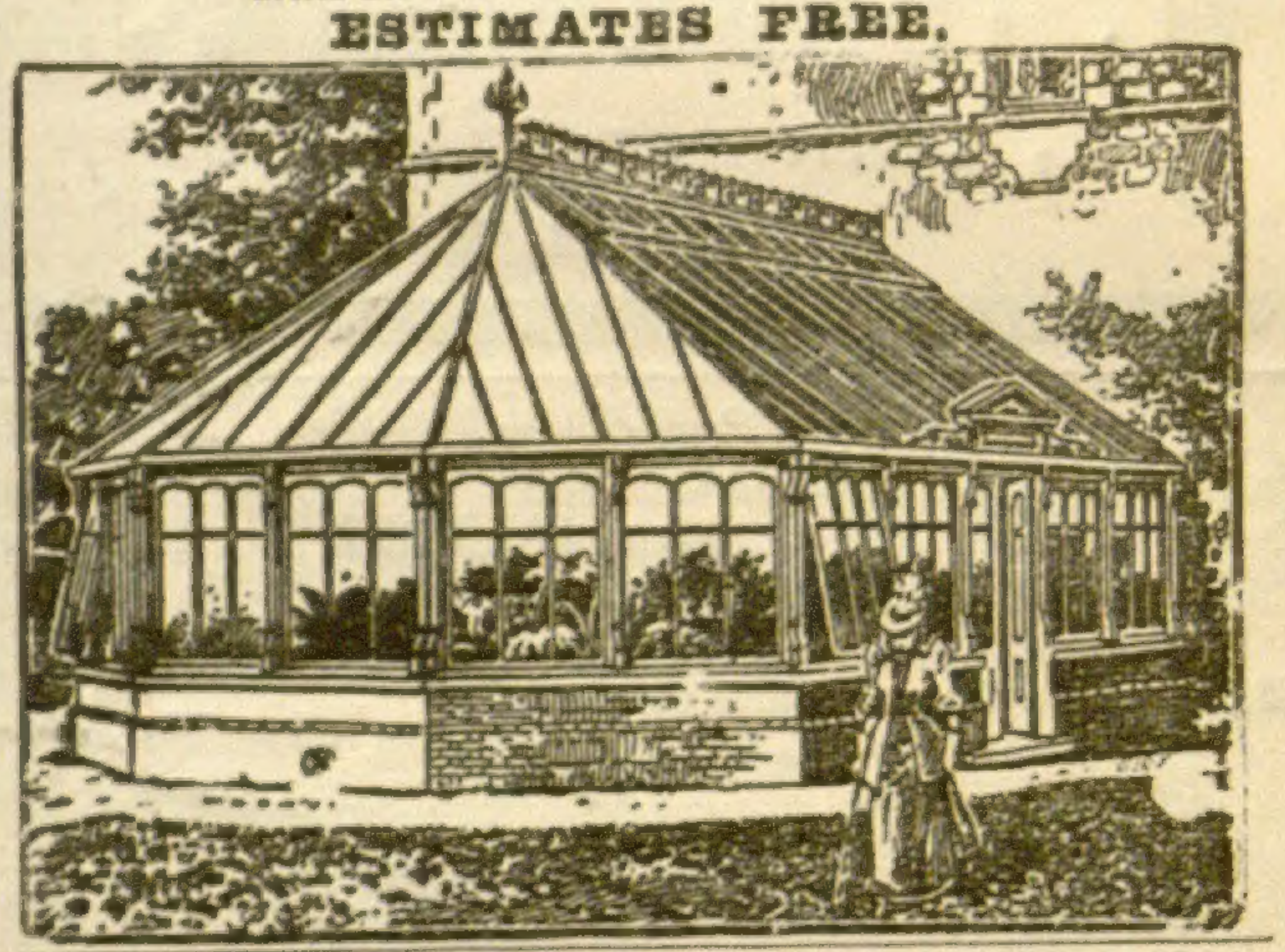

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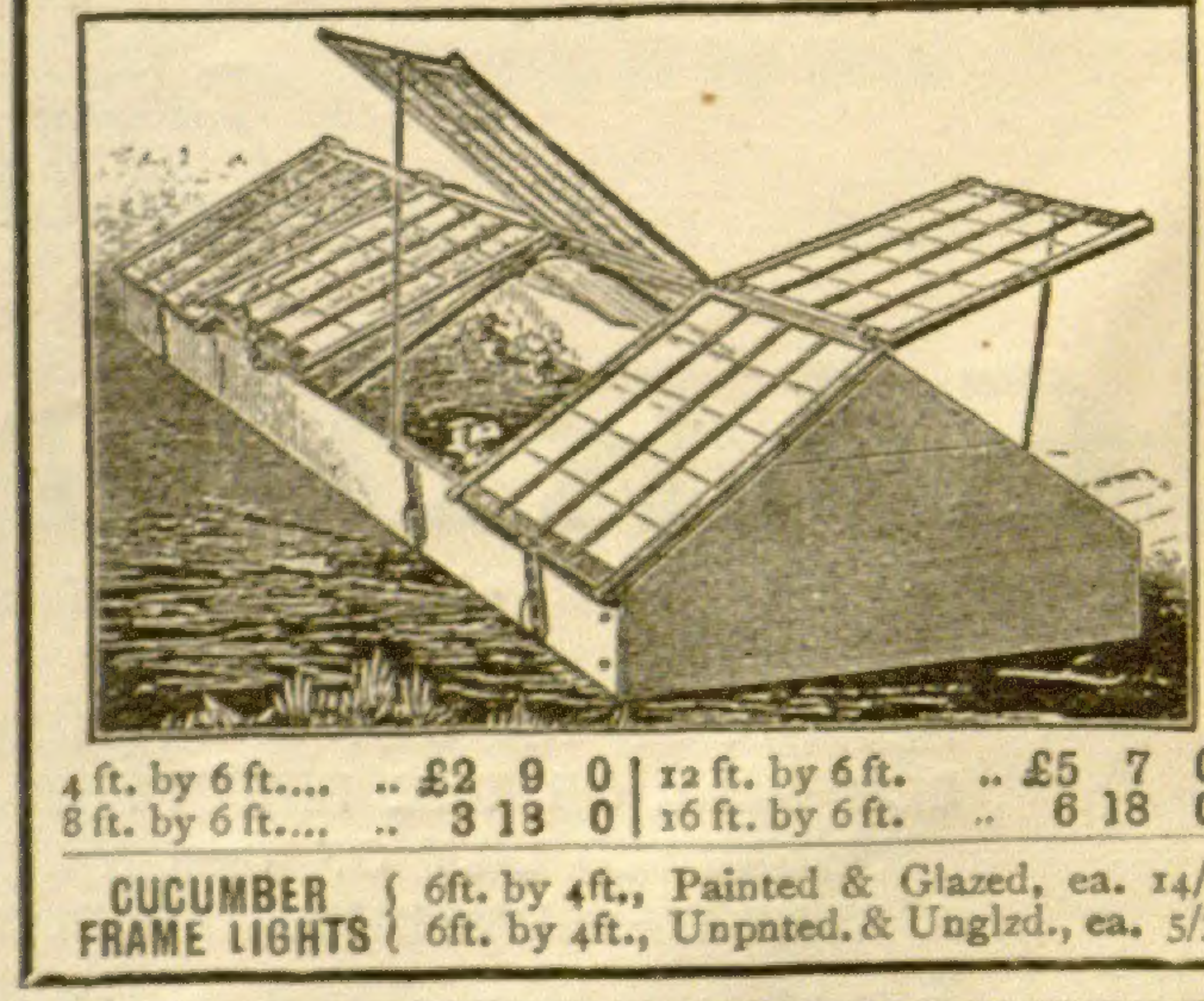

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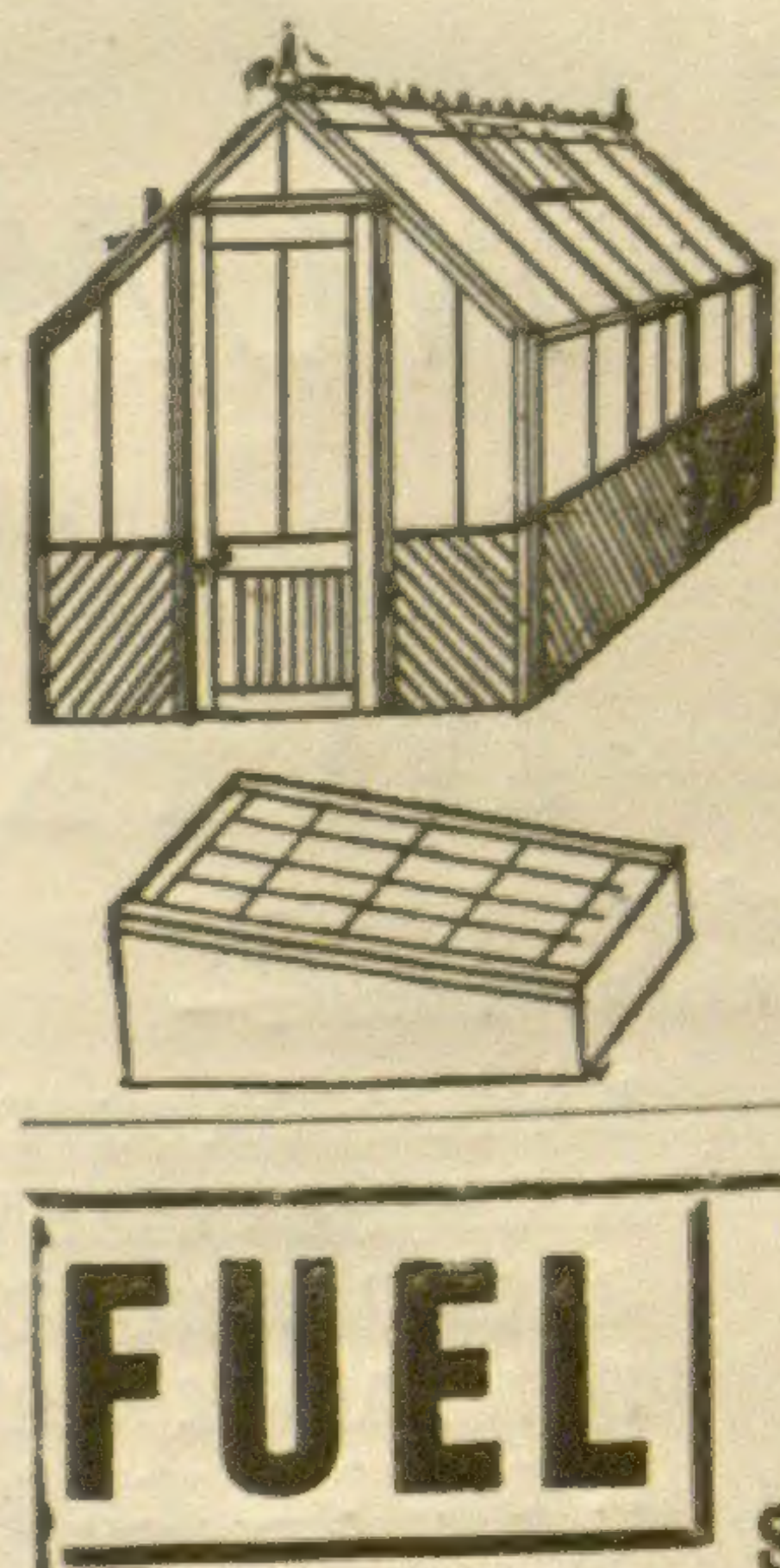

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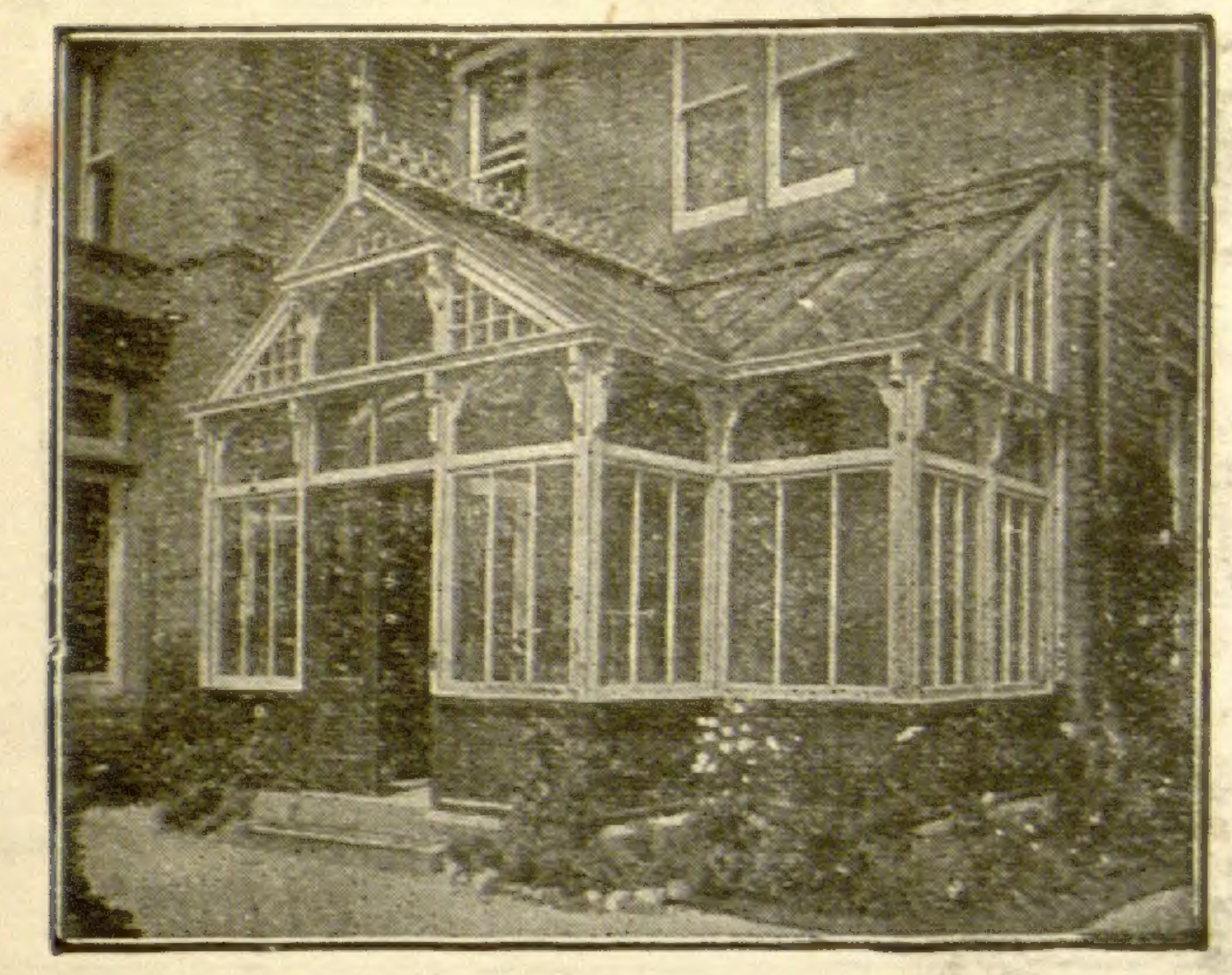

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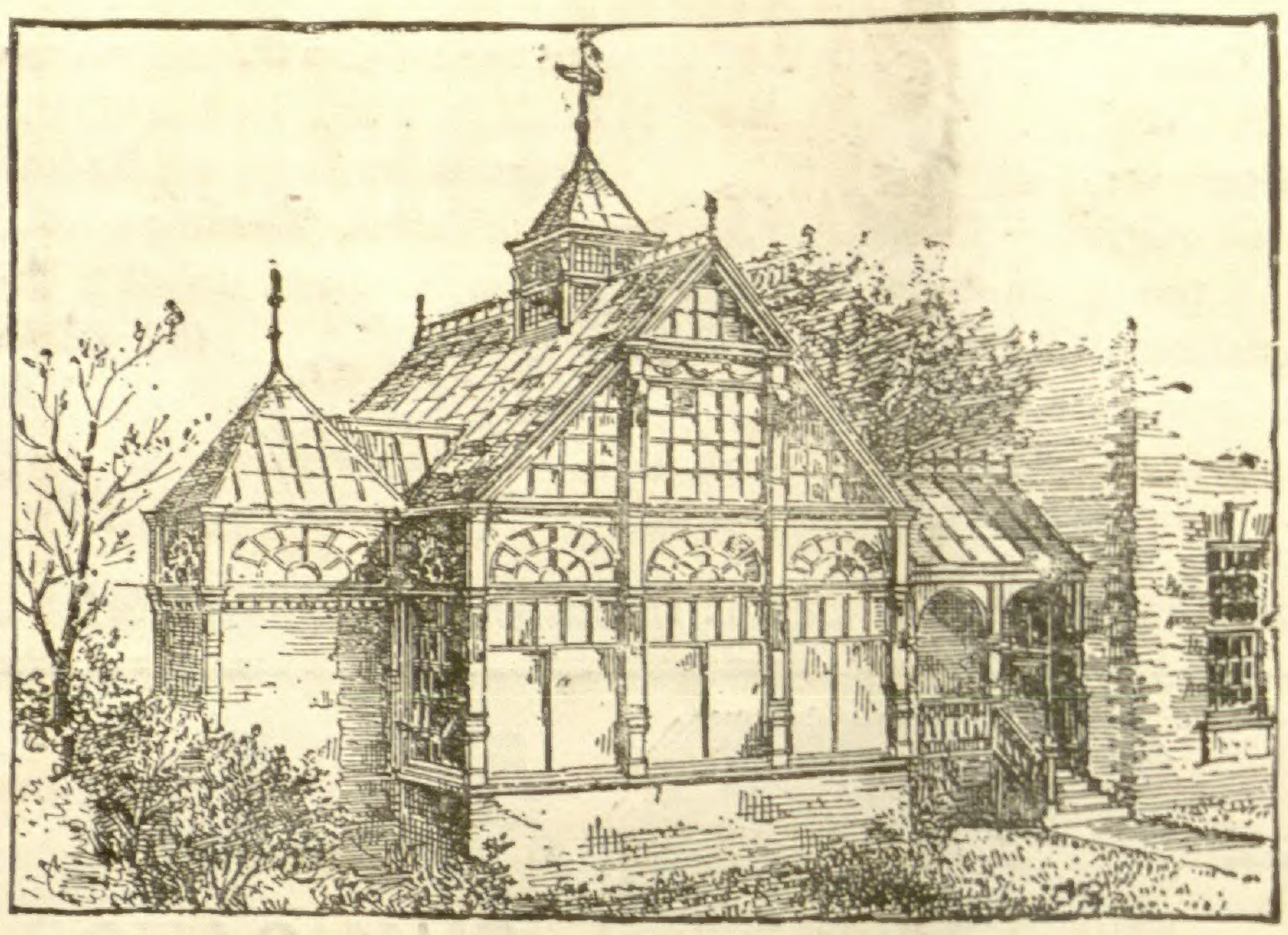

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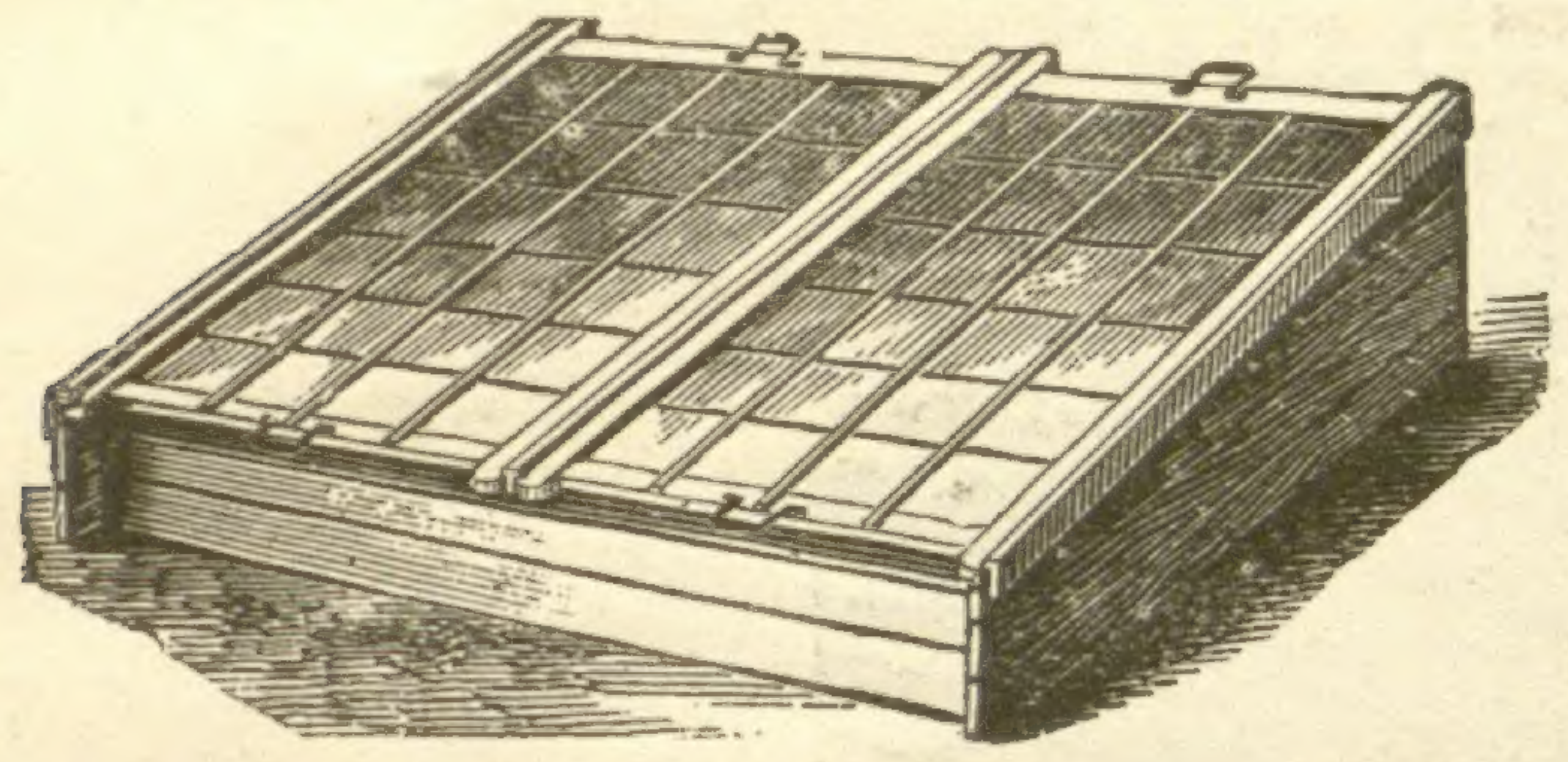

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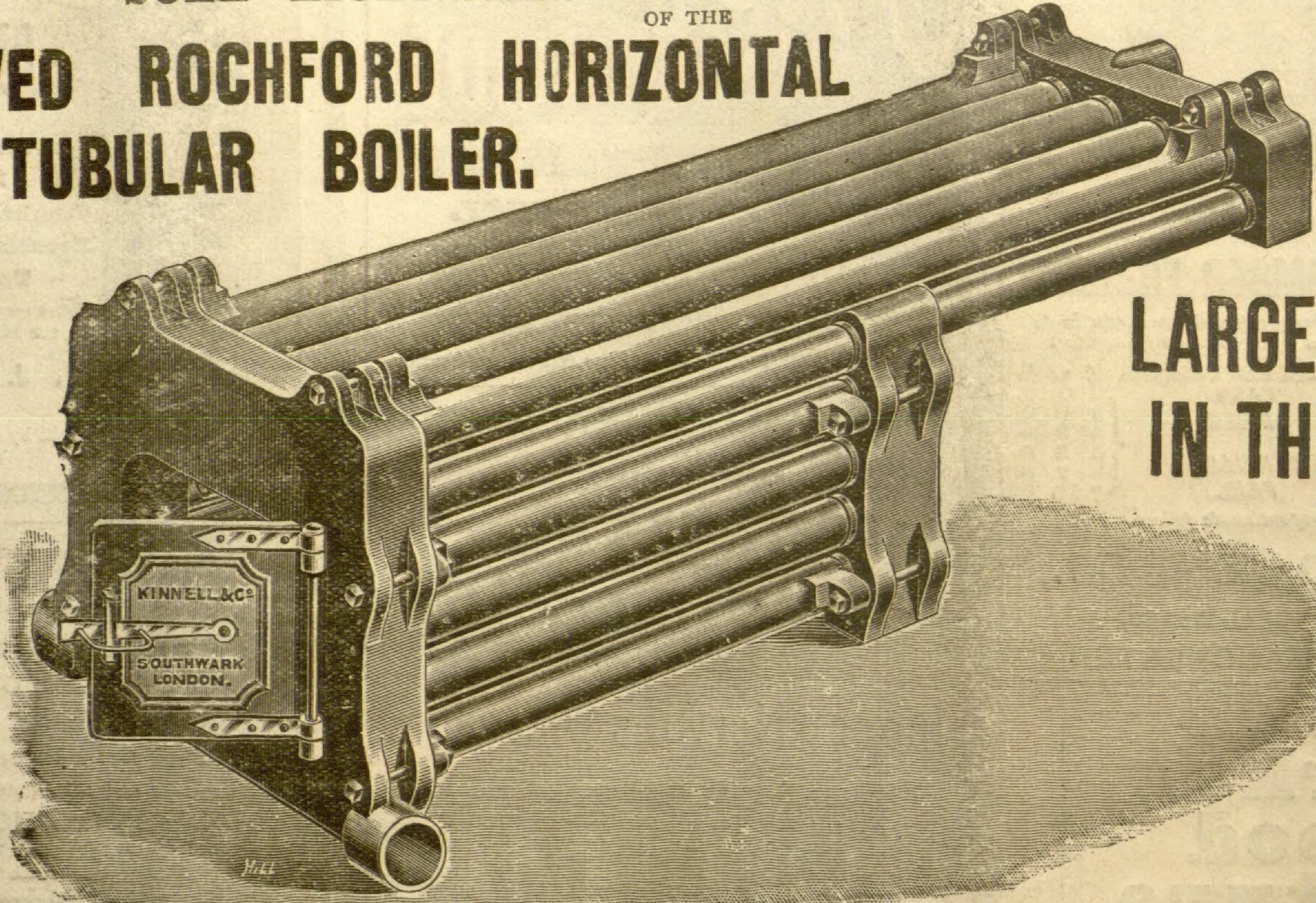

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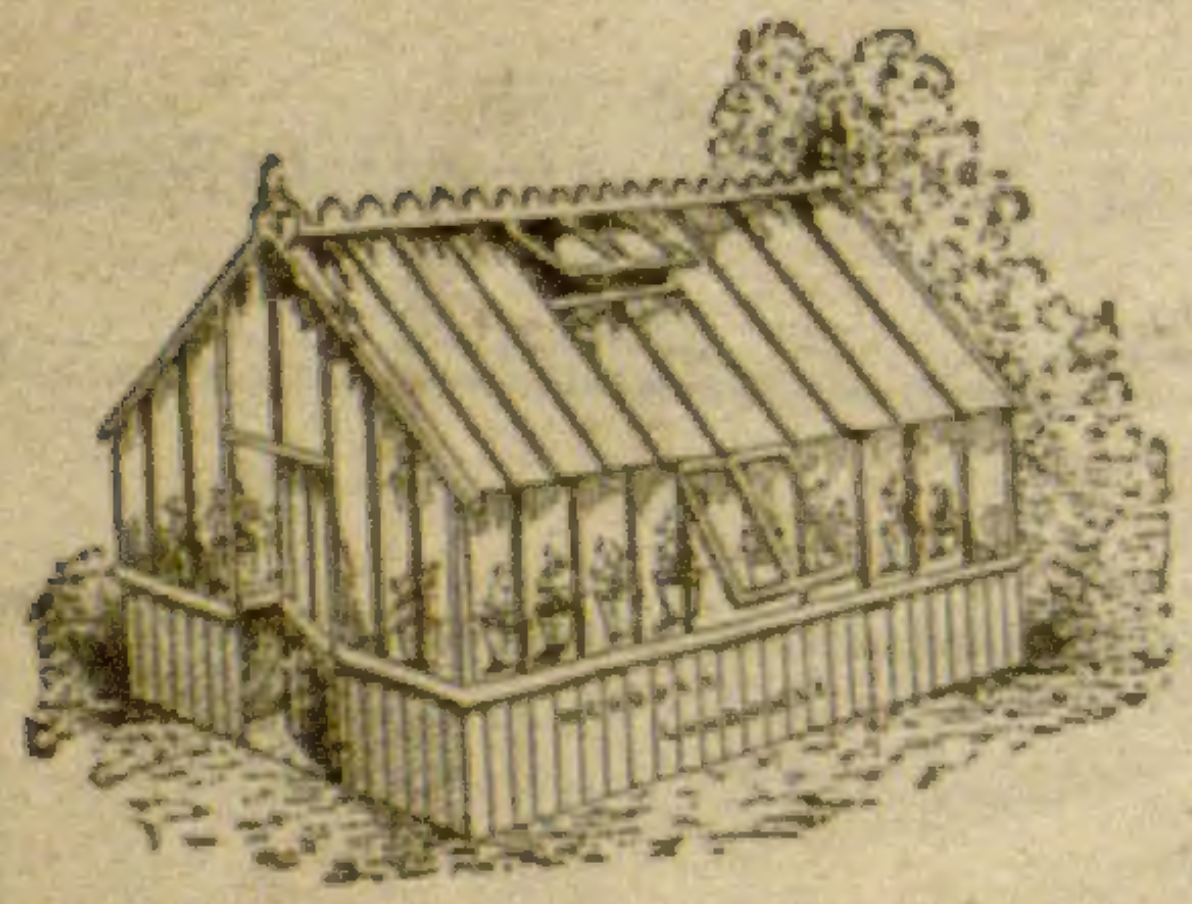

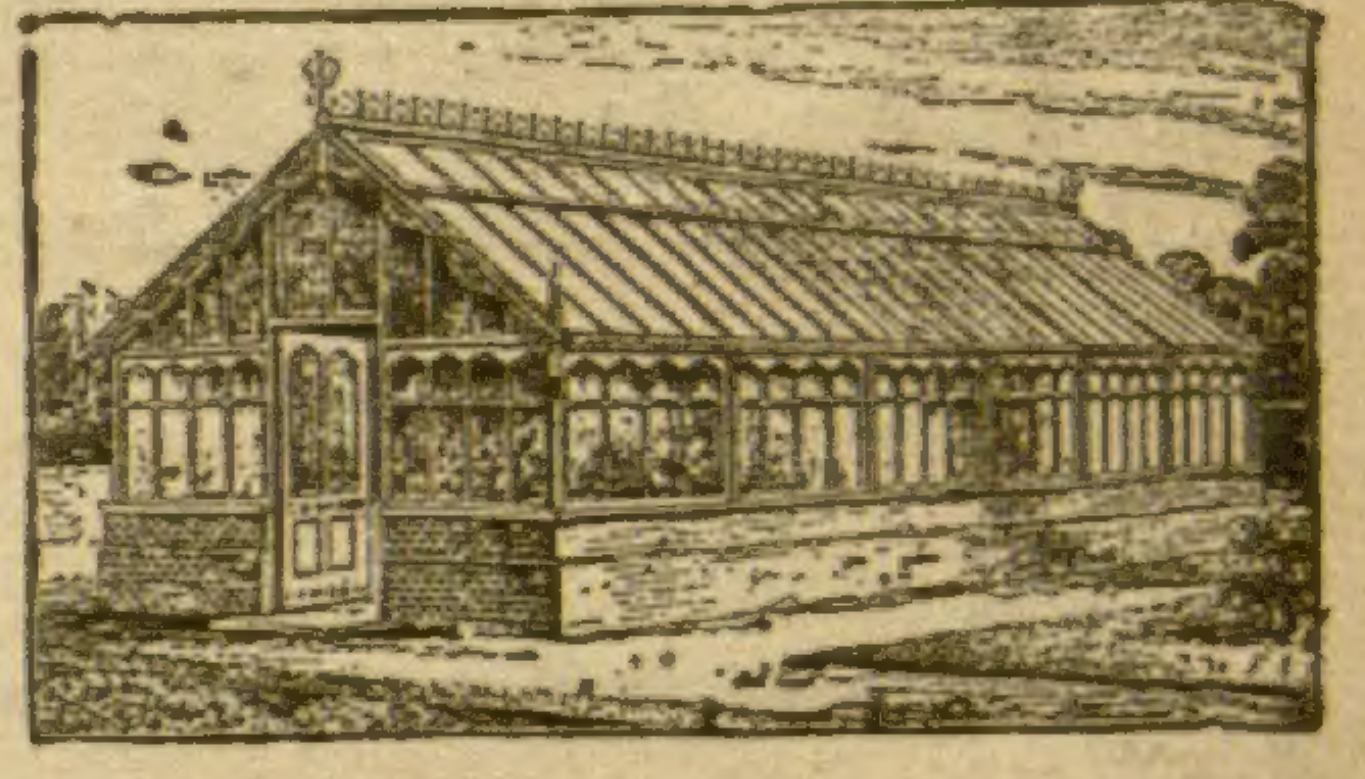

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